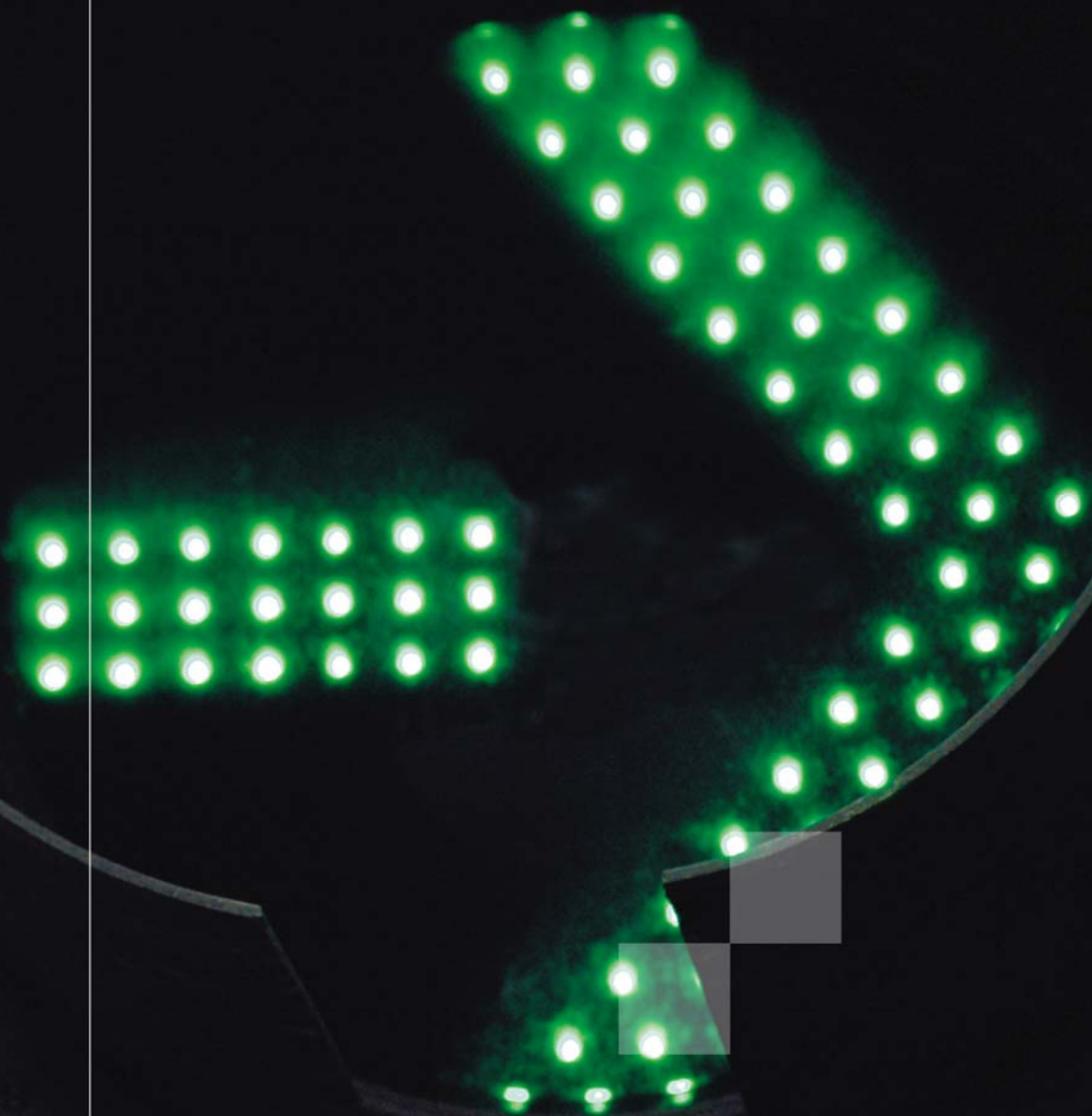




# Traffic signal design

Section 10 - Signs



The traffic signal design guidelines have been developed to assist in designing traffic control signals.

The guidelines are to comprise 16 sections and 5 appendices. 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	Investigation
Section 2	Warrants
Section 3	Design Process
Section 4	Plan Requirements
Section 5	Geometry
Section 6	Pavement Marking
Section 7	Phasing and Signal Group Display Sequence
Section 8	Lanterns
Section 9	Posts
Section 10	Signs
Section 11	Detectors
Section 12	Controller
Section 13	Provision for Future Facilities
Section 14	Signalised Mid-block Marked Footcrossings
Section 15	Special Situations
Section 16	References
Appendix A	Design Plan Checklist
Appendix B	Traffic Signal Symbols
Appendix C	Location and Function of Lanterns
Appendix D	Location and Dimensions of Components
Appendix E	Left Turn on Red

To determine which sections are currently available go to:

[www.rta.nsw.gov.au/doingbusinesswithus/downloads/technicalmanuals/trafficsignaldesign\\_dll.html](http://www.rta.nsw.gov.au/doingbusinesswithus/downloads/technicalmanuals/trafficsignaldesign_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 design of traffic signals at any particular site. The guidelines make reference, where relevant, to current Australian Standards and are intended to supplement and otherwise assist in their interpretation and application.

# Traffic Signal Design

## Section 10

### SIGNS





**Roads and Traffic Authority**

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### Amendment record

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

Version Number	Page	Description	Issued
1.1	10-5	Fig 10.8 amended to reflect new marked foot crossing markings	August 2008
	Various	References to <i>Australian Road Rules</i> replaced by <i>Road Rules 2008</i>	

## 10.1 INTRODUCTION

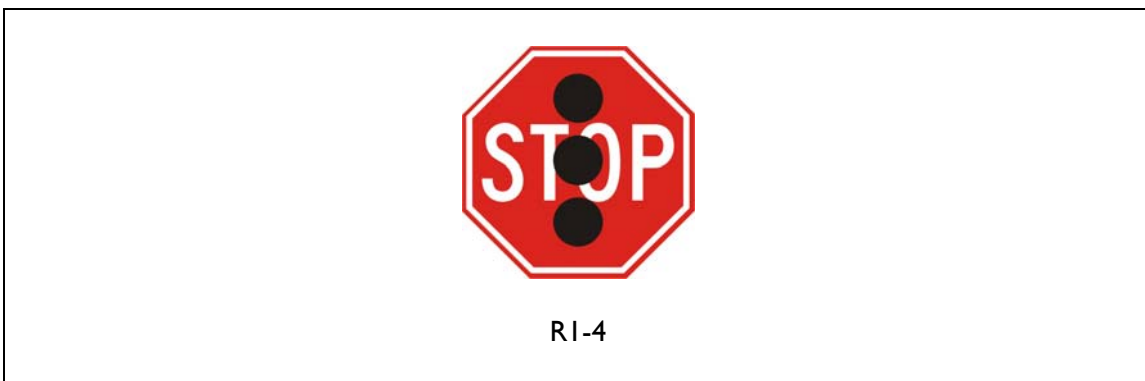
This section contains signposting requirements specific to traffic signal installations. It does not replace any other RTA signposting guideline, but merely supplements it. The information provided here is a guide and should be adapted to local conditions when unusual situations are encountered.

In selecting the appropriate signage consideration should be given to the size of sign (A, B etc), the speed environment and the, possibly, competing background. In some circumstances, when signs are only required at certain times of the day, it may be appropriate to use illuminated signs e.g. a part time No Right Turn.

It is essential to recognise that some regulatory signs are critical to the safe operation of the signal phasing and must match the allowed or disallowed movements, whereas other regulatory signs, whilst still worthwhile, may not necessarily, be reflected in the signal phasing. For example, a “NO RIGHT TURN” sign opposing a right turn phase with overlapping green is critical to the safe operation of the traffic signal phasing. However, a “NO RIGHT TURN” sign provided where the phasing is a through phase only is not critical to the safe operation of the traffic signal phasing.

The most used symbols for signs at traffic signal sites are shown in Appendix B [Traffic Signal Symbols](#), however, there may be more. For further information about other signs and symbols see the RTA’s *CADD Manual*, the RTA document [Regulatory Signs](#) and the RTA [Traffic Signs Register](#).

## 10.2 SPECIAL STOP SIGN



**Figure 10.1 Special STOP sign**

Traffic regulations support the use of special STOP signs (RI-4) at out-of-service traffic signals. These signs require motorists to stop and give way to any conflicting vehicle movements when the signals are blacked out or in flashing yellow mode.

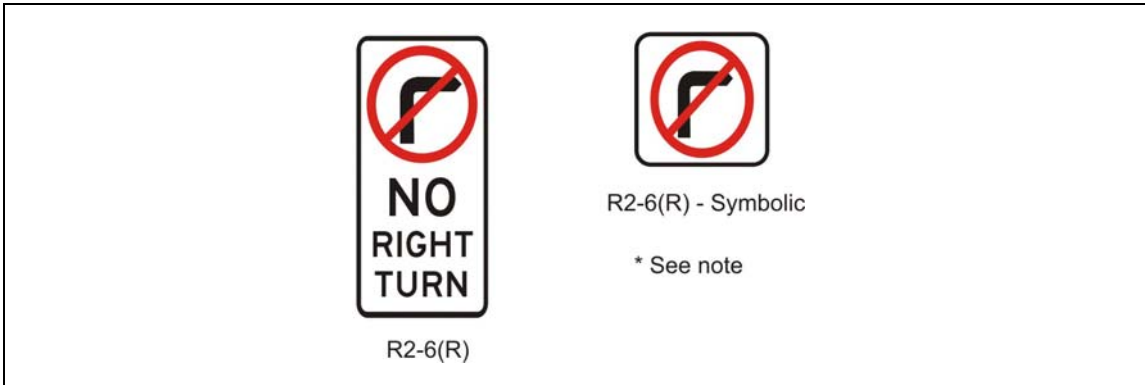
As a general rule, one special STOP sign (RI-4) is required on each of the minor approaches to the intersection. Locate this sign on the post carrying the primary signal faces for that approach in accordance with drawing No.VM202-12. Consideration may be given to locating a second sign to a median dual primary post if one is provided.

All traffic signal designs must include a note to specify on which posts the special STOP signs (RI-4) are to be fixed. For example:

"Special STOP sign (RI-4) is placed on posts 1 and 5."

## 10.3 BANNED TURNS

### 10.3.1 Right turn



**Figure 10.2 NO RIGHT TURN sign**

To ban a right-turn movement to deny wrong-way entry to a one-way street, see Section 10.4.

When a right turn is banned from the stem of a T-junction, the approach lanes should be marked with left-turn pavement arrows UA3(L) and an ALL TRAFFIC LEFT (R2-14(L)) sign located on the secondary post for that approach.

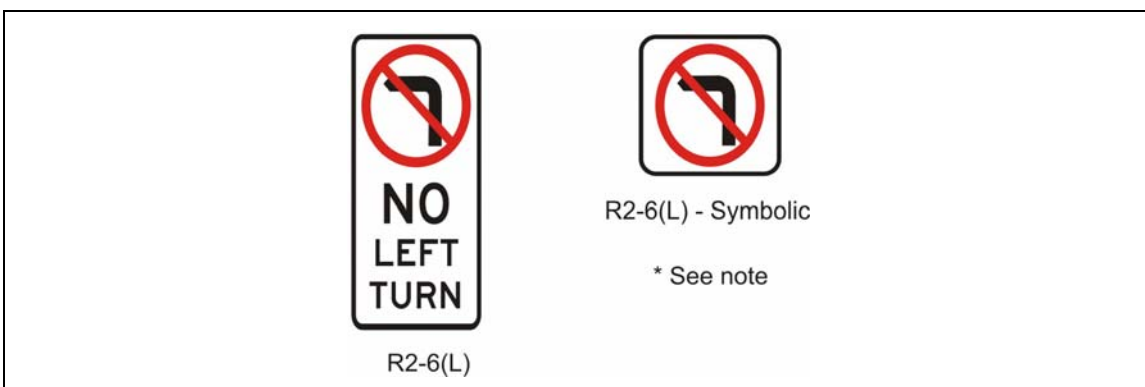
When a right-turn movement is banned from the non-terminating leg of a T-junction or at an intersection, it is recommended two NO RIGHT TURN (R2-6(R)) signs be provided. This ensures that if one sign is damaged or knocked down, a second sign is still visible. Locate the signs on the same posts that would be used if a right-turn signal group was being installed, i.e. the post carrying the dual primary, overhead primary or primary signal faces (in that priority) and the post carrying the secondary or overhead secondary signal faces (in that priority).

Use supplementary plates R9-1-1 (AM or PM) or R9-1-2 (AM and PM) where a right turn is banned during specific times.

Use supplementary plates to exclude specific vehicles from the turn ban, e.g. R9-2 to exclude buses.

\* See note below Section 10.3.2.

### 10.3.2 Left turn



**Figure 10.3 NO LEFT TURN sign**

To ban a left-turn movement to deny wrong-way entry to a one-way street, see Section 10.5.

Left-turn bans are difficult to police in any other circumstances and the use of a NO LEFT TURN (R2-6(L)) sign should be restricted to turns which cannot be made by a design vehicle, eg. a 12.5 m single unit vehicle, 19.0 m prime mover and semi-trailer. Use a supplementary plate stating the maximum length of vehicle that can safely make the turn without crossing the centreline or median of the street being entered.

When a left-turn movement is banned from the stem of a T-junction, the approach lanes should be marked the right-turn pavement arrows UA3(R) and an ALL TRAFFIC RIGHT (R2-14(R)) sign located on the tertiary post for that approach.

When a left-turn movement is banned from the non-terminating leg of a T-junction or at an intersection, provide two NO LEFT TURN (R2-6(L)) signs. This ensures that if one sign is damaged or knocked down, a second sign is still visible. Locate the signs to the same posts that would be used if a left-turn signal group was being installed, i.e. the post carrying the primary signal face and the post carrying the tertiary signal face.

**\* Note:**

The Australian Road Rules allow the use of the NO RIGHT TURN (R2-6(R)) - symbolic and NO LEFT TURN (R2-6(L)) - symbolic sign. The NSW *Road Rules 2008* do not. Therefore the practice in NSW is to use the worded signs as shown in Figure 10.2 and Figure 10.3. The symbolic only sign is **not** to be used.

### 10.3.3 U-turn



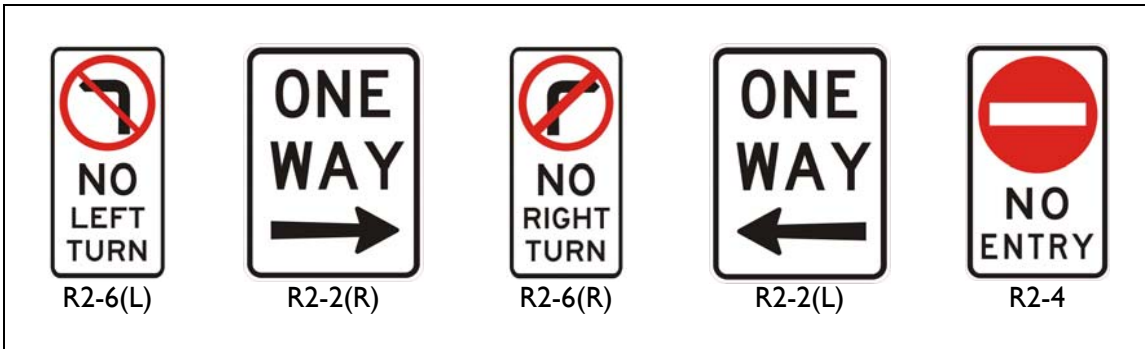
**Figure 10.4 NO U-TURN sign**

The NSW *Road Rules 2008* prohibit U-turns at all intersections controlled by traffic signals, unless there is a *U-Turn permitted sign*. However, the practice in NSW is not to allow U-Turns at traffic signals. Hence, the NO U-TURN sign is unnecessary and should **not** be used. At some intersections Buses may be allowed to do a U-Turn, within the intersection, in which case the NO U-TURN sign with an additional plate “BUSES EXCEPTED”, should be used.

### 10.3.4 Hook turn

The HOOK TURN ONLY sign, shown in the NSW *Road Rules 2008*, is **not** to be used at any signalised intersection (see Section 15.13 in [Special Situations](#)).

## 10.4 ONE-WAY STREETS



**Figure 10.5 Signs for one-way streets**

Signalised intersections of one or more one-way streets need to be signposted to eliminate the possibility of any confusion to motorists so they do not enter a one-way street in the wrong direction.

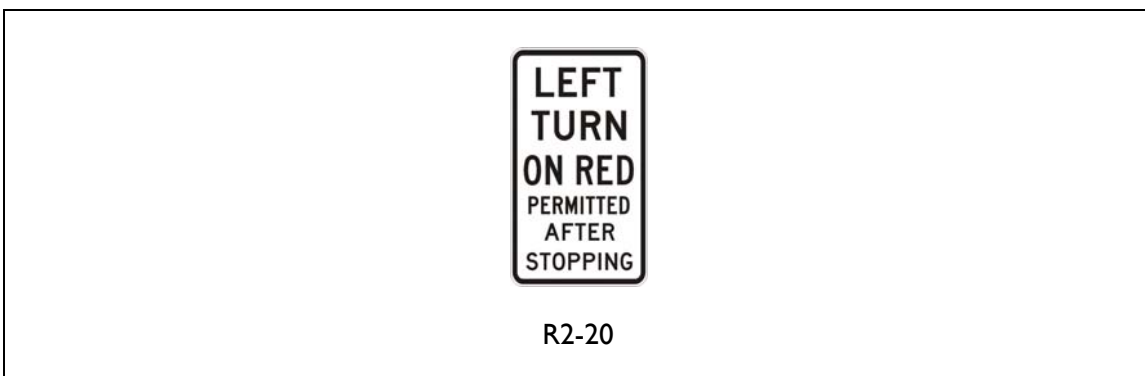
When a left-turn movement is banned to deny wrong-way entry to a one-way street, locate a NO LEFT TURN sign (R2-6(L)) on the post carrying the primary signal face and a ONE WAY sign (R2-2(R)) on the post carrying the tertiary signal face.

When a right-turn movement is banned to deny wrong-way entry to a one-way street, locate a NO RIGHT TURN sign (R2-6(R)) on the post carrying the dual primary, overhead primary or primary signal face (in that priority), and locate a ONE WAY sign (R2-2(L)) to the post carrying the secondary signal face.

When a through movement is banned to deny wrong-way entry to a one-way street at an intersection, locate a NO ENTRY sign (R2-4) to the posts carrying the secondary and tertiary signal face.

When a through movement is banned in the non-terminating leg of a T-junction to deny wrong-way entry to a one-way street in the other non-terminating leg, all traffic is forced to turn either left or right depending on which leg is the one-way street. When traffic is forced to turn left, locate a NO ENTRY sign R2-4 to the post carrying the secondary signal face and locate an all traffic left sign (R2-14(L)) to the post carrying the tertiary signal face. When traffic is forced to turn right, locate a NO ENTRY sign (R2-4) on the post carrying the tertiary signal face and locate an all traffic right sign (R2-14(R)) to the post carrying the secondary signal face.

## 10.5 LEFT TURN ON RED



**Figure 10.6 LEFT TURN ON RED PERMITTED AFTER STOPPING sign**

**Do not** use LEFT TURN ON RED PERMITTED AFTER STOPPING (LTOR) (R2-20) signs in conjunction with **left-turn red arrows**. See Appendix E [Left Turn on Red](#) for installation criteria.

Provide a presence-timed call on the detectors in the lanes subject to the LTOR rule on approaches to which the controller will not automatically revert.

Locate the LTOR sign to the posts carrying the primary and tertiary signal faces.

## 10.6 SCRAMBLE CROSSING

Pedestrian may cross diagonally (R3-5) signs must be used as shown in Figure 10.7.

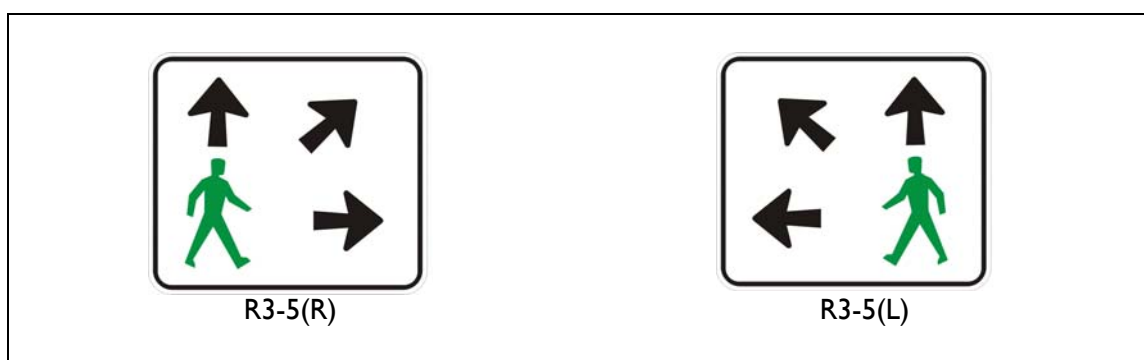


Figure 10.7 Pedestrian may cross diagonally (R3-5) signs

Mount signs on the same traffic signal posts as the pedestrian signal faces. Signs are to be viewed from the opposite kerb (not diagonally), as shown in Figure 10.8. Select and show the signs on the design plan so the sign face is orientated to the opposite kerb for the parallel pedestrian movement, see Figure 10.8.

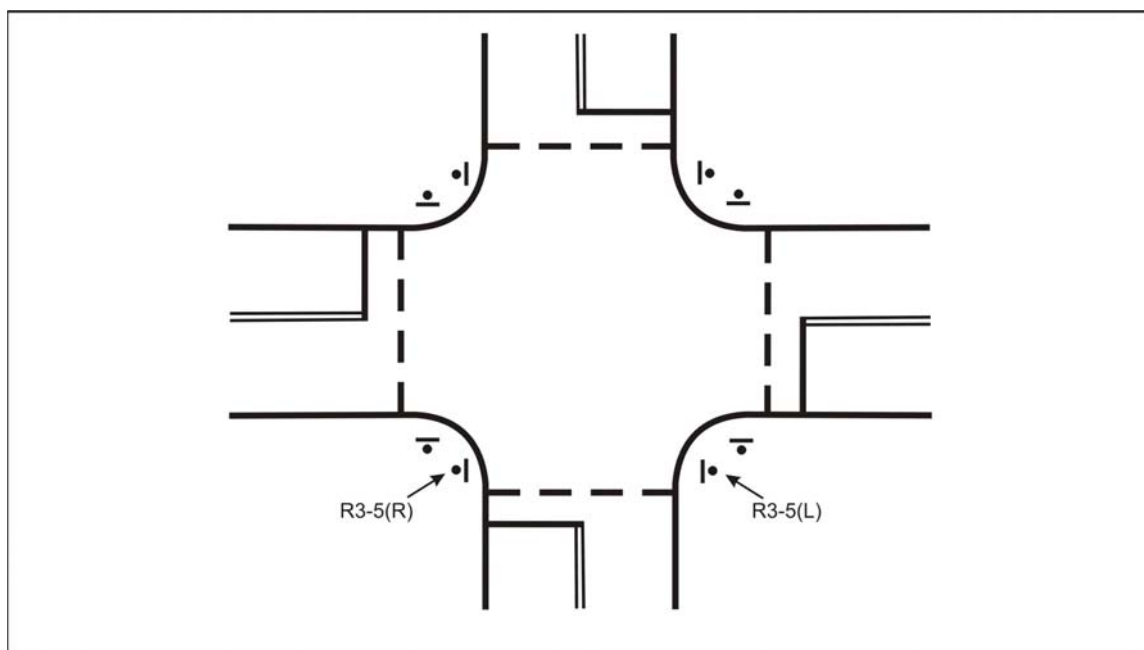


Figure 10.8 Position and Orientation of Scramble Crossing Sign

## 10.7 PEDESTRIAN SIGN



**Figure 10.9 Pedestrian sign**

This sign is **not** a regulatory sign even though it has a regulatory sign number. This means this sign cannot be legally enforced and is advisory only. The use of this sign should be limited to situations where motorists may be unaware of the presence of pedestrians crossing their path in the same signal phase.

## 10.8 STOP HERE ON RED SIGNAL



**Figure 10.10 STOP HERE ON RED SIGNAL sign**

Use this sign where the stop line is in advance of the primary post, eg. at work sites, or where traffic stopping beyond the stop is likely to be in a collision situation. The latter situation can occur with arrow controlled right turn movements that aren't permitted to filter. ie. a fully controlled right turn.

The "STOP HERE ON RED SIGNAL SIGN" should also be used in ramp metering situations (see Section 15.14 in [Special Situations](#)).

## 10.9 TURN LEFT AT ANY TIME WITH CARE



Figure 10.11 TURN LEFT AT ANY TIME WITH CARE sign

Use only for un-signalised left turn slip lanes. Locate this sign to the right of the slip lane on the raised traffic island so it clearly applies to the slip lane only.

## 10.10 BUS ONLY LANE



Figure 10.12 BUSES ONLY LANE sign

This sign is placed alongside lanes designated as Bus Only lanes (see Section 6.9 in [Pavement Marking](#) and Section 8.12 in [Lanterns](#)).

## 10.11 TRANSITWAY

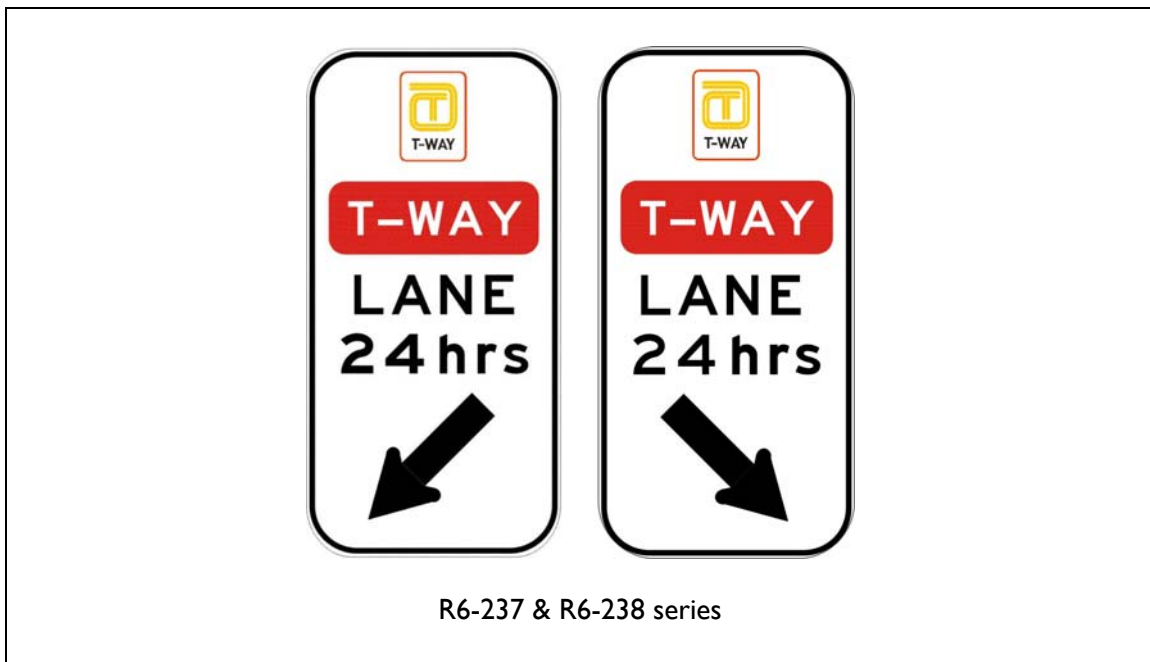


Figure 10.13 TRANSITWAY sign

This sign is placed alongside lanes designated as Transitways (see Section 6.10 in [Pavement Marking](#) and Section 8.12 in [Lanterns](#)).

## 10.12 ADVANCE WARNING FLASHING LIGHTS

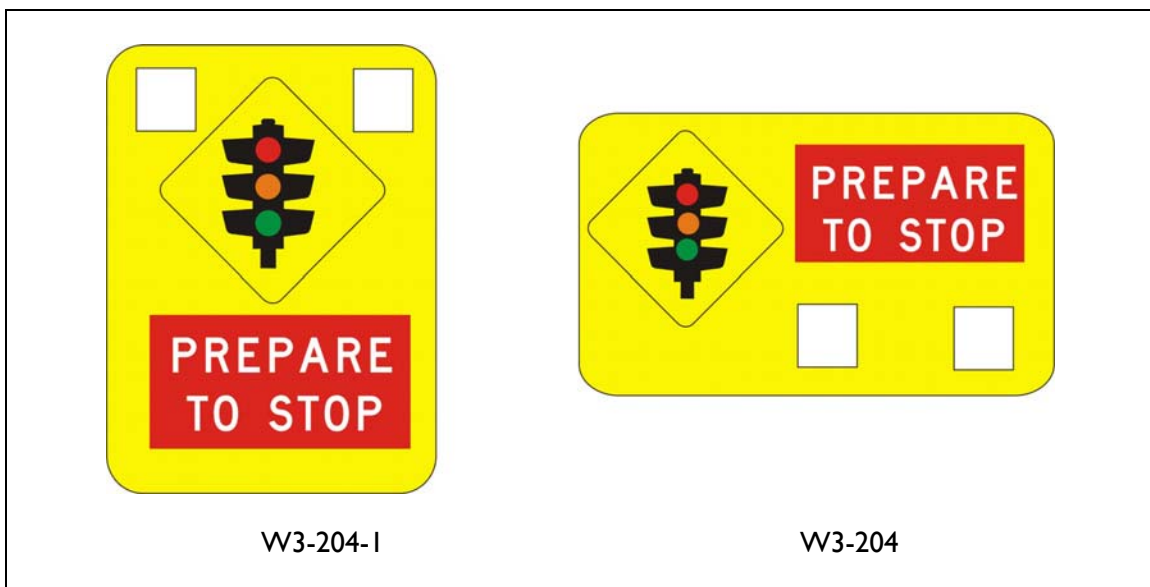


Figure 10.14 Advance warning flashing lights sign

This sign may be used where traffic signals are obscured by road geometry, such as poor horizontal or vertical alignment. It is a warning sign with interactive flashing lights (see Section 15.9 in [Special Situations](#)).

### **10.13 SIGNS ON TYPE 6 POST**

The details of the signs being mounted on a Type 6 post should be shown on the traffic signal design plan to avoid retrofit situations. Ensure that a Type 6 post is appropriate and that it can accommodate the proposed signs. The dimensional limitations, sign loading and mounting details are shown on drawing No. VM212-2. Clearances from overhead power lines are shown on drawing No. VM211-20.

The signs should be oriented at an angle of 5 degrees from the normal to the axis of the headlight beams of approaching vehicles (i.e. the direction of traffic, not the direction of the kerb). Type 6 posts are square and the signs are usually installed parallel to one of the faces of the post, therefore, the post itself must be oriented at the same angle. It is essential that the symbol for the post is oriented correctly on the design layout so that it reflects its actual orientation on site. If the orientation is not obvious from the plan, it must be shown by providing a dimension such as an angle from the kerb.

In a situation where a sign has to be installed at an angle, rather than parallel to one of the faces of the post, an adjustable flange adaptor will need to be called for via a note on the design plan and the sign orientation, in relation to the post, shown accordingly.

The signs on a Type 6 post should not overhang the carriageway unless a minimum clearance of 5.3 m above the road surface can be provided.

### **10.14 SIGNS ON TYPE 9 MAST ARM**

Regulatory signs can be fixed to Type 9 mast arms throughout NSW, however, guide signs cannot be fixed to Type 9 mast arms in Region B. (Region B is the recognised wind area in the 100 km wide northern coastal belt from the 30<sup>th</sup> latitude north of Coffs Harbour, which can experience the tail end of cyclones).

### **10.15 SIGNS ON TYPE 10, TYPE 11, AND TYPE 12 MAST ARMS**

All sign types can be located on these mast arms throughout NSW.

### **10.16 SIGNS ON TYPE 14 AND TYPE 15 MULTI-FUNCTION POLES**

Combinations of signs can be used on Type 14 and Type 15 multi-function poles, including traffic signs, street signs and variable message signs. They are used in agreement with Council.

## 10.17 OTHER SIGNS USED AT SIGNALISED INTERSECTIONS

The signs shown in Section 10 and in Appendix B [Traffic Signal Symbols](#), comprise the most frequently used signs at signalised intersections, however, there will often be cases where other signs will be required. The following list shows some of the other signs\* that may be considered. This list is not intended to be totally comprehensive and, in some situations, signs not listed here will need to be used, or new signs will need to be developed.

In the case of developing new signs the Manager Policies and Guidelines, Traffic Management Branch, should be consulted for design and approval to the new sign.

\* For other signs see the RTA's [Traffic Signs Register](#).

### Illuminated Signs

KEEP RIGHT  
KEEP LEFT  
NO RIGHT TURN  
NO LEFT TURN

### Signs

KEEP LEFT	R2-3(L)
KEEP RIGHT	R2-3(R)
LEFT LANE MUST TURN LEFT	R2-9(L)
RIGHT LANE MUST TURN RIGHT	R2-9(R)
U TURN PERMITTED	R2-15 *
NO HOOK TURN BY BICYCLES	R2-22 *
BUS LANE	R6-235 series
RIGHT LANE STOP HERE ON RED SIGNAL	R6-253
BICYCLE LANE	R7-1-4
TRANSIT LANE	R7-7-3, 4, 5 & 6
	R7-223 & 233
TRANSIT LANE END	R7-9-1 & 2
TRANSIT LANE AHEAD	R7-220 & 230
T-WAY LANE END (Large)	R6-237-3
T-WAY LANE END (Small)	R6-238-3
ONE VEHICLE ONLY ON GREEN SIGNAL	G9-333
ONE VEHICLE ONLY PER LANE ON GREEN SIGNAL	G9-333-1
MOTORWAY ENTRY RESTRICTED	G9-335
MOTORWAY ENTRY RESTRICTED WHEN FLASHING	G9-335-1



## Supplementary Plates

END	R7-4
TIMES OF OPERATION	R9-1-1 & 2
BUSES EXCEPTED	R9-2
BICYCLES EXCEPTED	R9-3
ONTO RED T-WAY (Small)	R9-206-1
ONTO RED T-WAY (Large)	R9-206-2
AUTHORISED T-WAY VEHICLES EXCEPTED (Small)	R9-207-1
AUTHORISED T-WAY VEHICLES EXCEPTED (Large)	R9-207-2
FROM RED T-WAY	R9-219
VEHICLES OVER ... t GVM	R9-221
VEHICLES OVER 12.5m	R9-223
EACH LANE	G9 334

\* Use requires the approval of the General Manager, Traffic Management

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**13 22 13**

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Roads and Traffic Authority

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