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:

<table>
<thead>
<tr>
<th>Part</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1</td>
<td>Investigation</td>
</tr>
<tr>
<td>Section 2</td>
<td>Warrants</td>
</tr>
<tr>
<td>Section 3</td>
<td>Design Process</td>
</tr>
<tr>
<td>Section 4</td>
<td>Plan Requirements</td>
</tr>
<tr>
<td>Section 5</td>
<td>Geometry</td>
</tr>
<tr>
<td>Section 6</td>
<td>Pavement Marking</td>
</tr>
<tr>
<td>Section 7</td>
<td>Phasing and Signal Group Display Sequence</td>
</tr>
<tr>
<td>Section 8</td>
<td>Lanterns</td>
</tr>
<tr>
<td>Section 9</td>
<td>Posts</td>
</tr>
<tr>
<td>Section 10</td>
<td>Signs</td>
</tr>
<tr>
<td>Section 11</td>
<td>Detectors</td>
</tr>
<tr>
<td>Section 12</td>
<td>Controller</td>
</tr>
<tr>
<td>Section 13</td>
<td>Provision for Future Facilities</td>
</tr>
<tr>
<td>Section 14</td>
<td>Signalised Mid-block Marked Footcrossings</td>
</tr>
<tr>
<td>Section 15</td>
<td>Special Situations</td>
</tr>
<tr>
<td>Section 16</td>
<td>References</td>
</tr>
<tr>
<td>Appendix A</td>
<td>Design Plan Checklist</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Traffic Signal Symbols</td>
</tr>
<tr>
<td>Appendix C</td>
<td>Location and Function of Lanterns</td>
</tr>
<tr>
<td>Appendix D</td>
<td>Location and Dimensions of Components</td>
</tr>
<tr>
<td>Appendix E</td>
<td>Left Turn on Red</td>
</tr>
<tr>
<td>Appendix F</td>
<td>Level Crossing Interface – Concept of Operations</td>
</tr>
<tr>
<td>Appendix G</td>
<td>Level Crossing Interface – Traffic Signal Design Guidance</td>
</tr>
</tbody>
</table>

To determine which sections are currently available go to:  

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

Special Note:

As of 17 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
Contents

10.1 INTRODUCTION ......................................................................................................... 10-1
10.2 SPECIAL STOP SIGN ..................................................................................................... 10-1
10.3 BANNED TURNS ............................................................................................................ 10-2
   10.3.1 Right turn ................................................................................................................. 10-2
   10.3.2 Left turn .................................................................................................................... 10-2
   10.3.3 U-turn ....................................................................................................................... 10-3
   10.3.4 Hook turn .................................................................................................................. 10-3
10.4 ONE-WAY STREETS .................................................................................................... 10-4
10.5 LEFT TURN ON RED .................................................................................................... 10-4
10.6 SCRAMBLE CROSSING ............................................................................................... 10-5
10.7 PEDESTRIAN SIGN ..................................................................................................... 10-6
10.8 STOP HERE ON RED SIGNAL ...................................................................................... 10-6
10.9 TURN LEFT AT ANY TIME WITH CARE .................................................................... 10-7
10.10 BUS ONLY LANE ........................................................................................................ 10-7
10.11 TRANSITWAY ............................................................................................................. 10-8
10.12 ADVANCE WARNING FLASHING LIGHTS ................................................................ 10-8
10.13 SIGNS ON TYPE 6 POST .......................................................................................... 10-9
10.14 SIGNS ON TYPE 9 MAST ARM .................................................................................. 10-9
10.15 SIGNS ON TYPE 10, TYPE 11, AND TYPE 12 MAST ARMS ................................. 10-9
10.16 SIGNS ON TYPE 14 AND TYPE 15 MULTI-FUNCTION POLES ............................. 10-9
10.17 OTHER SIGNS USED AT SIGNALISED INTERSECTIONS ....................................... 10-10
### Amendment record

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

<table>
<thead>
<tr>
<th>Amendment No</th>
<th>Page</th>
<th>Description</th>
<th>Issued</th>
<th>Approved By</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10-5</td>
<td>Various Fig 10.8 amended to reflect new marked foot crossing markings</td>
<td>August 2008</td>
<td>R O’Keefe Mgr Policies &amp; Guidelines</td>
</tr>
<tr>
<td>2</td>
<td>10-3</td>
<td>Various References to <em>Australian Road Rules</em> replaced by <em>Road Rules 2008</em></td>
<td>December 2010</td>
<td>R O’Keefe Mgr Traffic Policies, Guidelines &amp; Legislation</td>
</tr>
</tbody>
</table>
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

Traffic regulations support the use of special STOP signs (R1-4) 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 (R1-4) 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 (R1-4) are to be fixed. For example:

"Special STOP sign (R1-4) is placed on posts 1 and 5."
10.3 BANNED TURNS

10.3.1 Right turn

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

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

When a left 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 left-turn movement is banned from the non-terminating leg of a T-junction or at an intersection, it is recommended two NO LEFT TURN (R2-6(L)) 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 left-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 left 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.
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, e.g. 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

The NSW Road Rules 2008 prohibit uncontrolled 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 uncontrolled 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 during their own phase, 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

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

When a left-turn movement is banned to deny wrong-way entry to a one-way street, locate a LEFT TURN ON RED SIGN (R2-20) on the post carrying the primary signal face.
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](image)

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](image)
10.7 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

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](image)

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](image)

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

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

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 30th 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