Manual

Traffic and Road Use Management
Volume 3 – Pavement Line marking and Signs

Part 2: Pavement Marking Usage
Chapter 3: Treatment between intersections

July 2019
Copyright
© The State of Queensland (Department of Transport and Main Roads) 2019.

Licence
This work is licensed by the State of Queensland (Department of Transport and Main Roads) under a Creative Commons Attribution (CC BY) 4.0 International licence.

CC BY licence summary statement
In essence, you are free to copy, communicate and adapt this work, as long as you attribute the work to the State of Queensland (Department of Transport and Main Roads). To view a copy of this licence, visit: https://creativecommons.org/licenses/by/4.0/

Translating and interpreting assistance
The Queensland Government is committed to providing accessible services toQueenslanders from all cultural and linguistic backgrounds. If you have difficulty understanding this publication and need a translator, please call the Translating and Interpreting Service (TIS National) on 13 14 50 and ask them to telephone the Queensland Department of Transport and Main Roads on 13 74 68.

Disclaimer
While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained within. To the best of our knowledge, the content was correct at the time of publishing.

Feedback
Please send your feedback regarding this document to: tmr.techdocs@tmr.qld.gov.au
Contents

3 Treatment between intersections ................................................................................................................. 75
  3.1 Scope ...................................................................................................................................................... 75
  3.2 General treatment of various road types ................................................................................................. 75
    3.2.1 Freeways ........................................................................................................................................ 77
  3.3 No overtaking zones ............................................................................................................................... 78
    3.3.1 General .......................................................................................................................................... 78
    3.3.2 Guidelines ..................................................................................................................................... 78
    3.3.3 Location and setting out .................................................................................................................. 79
    3.3.4 Checking marked barrier lines ....................................................................................................... 82
    3.3.5 Access breaks ............................................................................................................................... 82
  3.4 Traffic islands and medians ...................................................................................................................... 82
    3.4.1 General .......................................................................................................................................... 82
    3.4.2 Painted (flush) islands ................................................................................................................... 82
    3.4.3 Markings ........................................................................................................................................ 83
    3.4.4 Wide centreline treatment ............................................................................................................. 83
    3.4.5 Vehicles crossing painted islands .................................................................................................. 83
    3.4.6 RRPMs .......................................................................................................................................... 83
    3.4.7 Pavement bars ............................................................................................................................. 84
    3.4.8 Width transitions ............................................................................................................................ 84
  3.5 Changes in pavement width ...................................................................................................................... 84
  3.6 Auxiliary lanes ........................................................................................................................................ 91
    3.6.1 General .......................................................................................................................................... 91
    3.6.2 Transition lengths ........................................................................................................................... 94
    3.6.3 Use of barrier lines ........................................................................................................................ 94
  3.7 Special vehicle lanes ................................................................................................................................ 95
    3.7.1 Scope .......................................................................................................................................... 95
    3.7.2 General treatment ........................................................................................................................ 95
    3.7.3 Pavement messages ....................................................................................................................... 96
    3.7.4 Tram lanes and tramways ............................................................................................................. 96
  3.8 Bicycle facilities ....................................................................................................................................... 100
    3.8.1 Pavement symbols ....................................................................................................................... 100
    3.8.2 Longitudinal lines ........................................................................................................................ 100
    3.8.3 Transverse lines at stop and give way signs ............................................................................... 100
    3.8.4 Application ................................................................................................................................... 101
    3.8.5 Bicycle provisions on freeways .................................................................................................... 101
  3.9 Treatment to approaches to obstructions and structures ........................................................................... 109
    3.9.1 Lengths of longitudinal markings ............................................................................................... 109
    3.9.2 Obstructions within the roadway .................................................................................................. 109
    3.9.3 Bridges ......................................................................................................................................... 110
  3.10 Railway crossings ................................................................................................................................... 114
  3.11 Water crossings ...................................................................................................................................... 127
    3.11.1 Scope .......................................................................................................................................... 127
    3.11.2 Stop line ..................................................................................................................................... 128
    3.11.3 Barrier lines .................................................................................................................................. 128
  3.12 Speed control zones ................................................................................................................................ 128
  3.13 Pedestrian crossing facilities .................................................................................................................. 129
    3.13.1 Scope .......................................................................................................................................... 129
    3.13.2 Zebra crossing ............................................................................................................................ 129
    3.13.3 Children’s crossing ....................................................................................................................... 129
    3.13.4 Mid-block signalised crossing ..................................................................................................... 131
3.13.5 Pedestrian refuges ................................................................. 131
3.13.6 Combined pedestrian crossing and children’s crossing ................ 131
3.14 Roadside stopping places ........................................................... 133
3.15 Other markings ............................................................................ 136
  3.15.1 Keep apart chevrons ............................................................... 136
  3.15.2 Threshold treatments ............................................................... 136
3 Treatment between intersections

3.1 Scope

Refer to MUTCD Part 2 Section 4.1.

4.1 Scope

This Section specifies the signs and devices to be used for the control of traffic between intersections and sets out the principles for their installation together with typical applications.

All pavement markings and other pavement based delineation devices referred to in this Section are described in detail in Section 5.

3.2 General treatment of various road types

For more information, refer to MUTCD Part 2 sections 4.2.1 and 4.2.2.

4.2 Pavement markings and delineation

4.2.1 General

Requirements and recommendations for the use of dividing lines, lane lines, edge lines, and guide posts (with delineators) on rural and urban roads, divided and undivided, are given in Clause 4.2.2. Descriptions and uses of the pavement markings and the use of raised pavement markers to augment lines are given in Clauses 5.3 and 5.6.

4.2.2 General treatment

4.2.2.1 Rural road – undivided

a) Sealed pavements less than 5.5 m wide. Guide posts with delineators are normally the only devices used on undivided rural roads with pavements less than 5.5 m wide. Where used, guide posts shall be provided at, or near, the edge of the road formation at a constant distance (generally between 1.2 m and 3.0 m) from the pavement edge. The minimum clearance between opposite guide posts shall be 7.0 m. The longitudinal spacing of guide posts is given in Clause 4.2.4.4.

Dividing lines are not normally used, except that if the sight distance conditions for a no-overtaking zone are met (see Clause 5.3.3) a single continuous dividing line may be used (see Clause 5.3.2.2(c)). Edge lines shall not be used on two-way roadways, except for guidance through width transitions in accordance with Clause 5.3.5(c).

b) Sealed pavements between 5.5 m and 6.8 m wide. Where the pavement is between 5.5 m and 6.8 m wide, guide posts with delineators shall be provided at, or near, the edge of formation and at a constant distance (generally between 1.2 m and 3.0 m) from the pavement edge. The longitudinal spacing of guide posts is given in Clause 4.2.4.4.

A dividing line is used in accordance with the requirements and recommendations of Clause 5.3.2.
Edge lines are not normally used except where one or more of the following conditions apply:

i. alignment is poor

ii. frequent fogs occur

iii. contrast between the pavement and shoulder is insufficient, e.g. sealed shoulders

iv. roadside hazards occur close to the pavement edge, e.g. trees.

Edge lines shall not be used unless:

(A) a dividing line is also marked, and

(B) the lane widths within the edge lines are at least 3.0 m or if there is a high proportion of heavy vehicle traffic, 3.2 m.

Exceptions to the above requirements are at a local pavement narrowing where edge lines may be continued across a narrow bridge (see Clause 4.6.2.1(b) and Figure 4.10) or at a one-lane roadway or bridge on a two-lane road (see Clause 4.6.2.2 and Figures 4.11, 4.12 and 4.13) or through the width transition at the narrowing of a two-lane road as shown in Figure 4.17.

c) **Sealed pavements 6.8 m wide or greater.** Where the pavement is 6.8 m wide or greater, guide posts shall be used on undivided rural roads at, or near, the edge of formation and at a constant distance (generally between 1.2 m and 3.0 m) from the pavement edge. The longitudinal spacing of guide posts is given in Clause 4.2.4.4.

Dividing lines are used in accordance with the requirements and recommendations of Clause 5.3.2. Edge lines are normally required but shall not be used unless a dividing line is also used.

d) **Roads with sealed shoulders.** Edge lines shall be provided at the edge of the running lane.

A different coloured aggregate from that used on the travelled part of the pavement may be used to provide contrast and to discourage driving on the shoulder.

Diagonal markings may be required on the shoulder if frequent use of the shoulder as a running lane creates a problem (see Clause 5.5.1.3).

### 4.2.2.2 Rural roads – divided, including rural expressways

Lane lines (see Clause 5.3.4) and edge lines (see Clause 5.3.5) shall be marked. Postmounted delineation shall be provided in accordance with Clause 4.2.4 and 4.2.5.

### 4.2.2.3 Urban roads – undivided

a) **Two-lane unkerbed roads.** Dividing lines are marked in accordance with Clause 5.3.2. Guide posts and delineators may also be used.

Dividing lines are not normally required on local streets.

Edge lines shall not be marked unless a dividing line is also marked and lane widths in accordance with Clause 4.2.2.1(b)(B) are provided.
b) **Two-lane kerbed roads.** A dividing line is provided on kerbed roads in accordance with the requirements and recommendations of Clause 5.3.2, if the pavement width available for moving traffic is 6.8 m or greater. Dividing lines may be provided on roads of a lesser width where there is a prohibition on parking, or if the parking demand is very low, provided that the pavement width between kerbs is at least 6.8 m.

c) **Multi-lane unkerbed roads.** A dividing line shall be provided in accordance with Clause 5.3.2. Where used, the form of dividing line specified in Clause 5.3.2.3, for multi-lane undivided roads shall be used. Lane lines shall be used on roads which provide for two or more moving lanes of traffic in any one direction at any time of day (see Clause 5.3.4).

d) **Multi-lane kerbed roads.** Lane lines and a dividing line shall be provided in accordance with Item (c). This should include the marking of kerbside lanes as running lanes except where parking is permitted at all times and is frequent during most of the day, in which case the kerbside lane may be separated from the running lanes by an edge line, if necessary for guidance of moving traffic.

### 4.2.2.4 Urban roads – divided and one-way roadways

Lane lines shall be provided in accordance with Clause 4.2.2.3(c) or Clause 4.2.2.3(d) as appropriate.

Edge lines, if provided, shall be placed on both edges of an unkerbed one-way roadway. Edge lines are not required on a kerbed roadway if the kerbs provide adequate edge delineation.

The pavement marking content of MUTCD Part 2 clauses 4.6.2.1 and 4.6.2.2 is contained within Section 3.9 of this guide.

#### 3.2.1 Freeways

Freeways are subject to the application of markings, whether painted or of the raised marker type, which should be designed, placed and maintained to the highest practicable standards.

The longitudinal markings used comprise lane lines, edge lines and continuity lines.

Edge lines on freeways comprise 150 mm continuous lines both on main freeway lanes and on-ramps. They are not normally supplemented with RRPMs, but in locations subject to fog or other adverse visibility conditions, or at points of increased potential hazard, such as approaches to bridges with substandard shoulder width, RRPMs may be provided as follows:

- left side – red only
- right side – yellow.

To delineate the approach to and entrance of an off-ramp, green unidirectional RRPMs are used in association with the edge line.

Continuity lines are used to indicate the edge of the through freeway lanes where it is intended that the line be crossed by traffic entering or leaving the freeway at a ramp, or entering or leaving an auxiliary lane at its start or finish. They should not be augmented with RRPMs.

Details of markings at exits and entries are given in Section 4.2 of this guide (MUTCD Part 2 figures 3.4 and 3.5).
Lane lines are either painted broken or continuous lines augmented with RRPMs.

Continuous lane lines are used typically to separate a ‘trap’ lane from a through or combined lane in advance of an exit. They may also be used as ramp lane lines on two-lane entrance or exit ramps where they meet the main freeway lanes.

**Rural freeways:** Normally broken lane lines are painted, augmented with RRPMs at spacings of 24 metres (in every second gap). This spacing may be reduced to 12 metres (in every gap) in any of the following circumstances:

a) on roads subject to fog or other adverse visibility conditions

b) on lit roads,

c) on curves of 400 metres radius or less.

**Urban freeways:** Normally lane lines are painted, RRPMs should be spaced at 12 metre intervals (in every line gap).

### 3.3 No overtaking zones

#### 3.3.1 General

Refer to MUTCD Part 2 Section 4.2.3.

### 4.2.3 No-overtaking zones – barrier lines

On horizontal and vertical curves on two-way sealed pavements where the overtaking sight distance is substandard, barrier lines shall be marked to create ‘no-overtaking’ zones where required in accordance with Clause 5.3.3.

Barrier lines may also be required on the approaches to certain mid-block features, including medians and other central roadway obstructions, and on undivided approaches to intersections in some circumstances. These situations are covered elsewhere in this manual.

#### 3.3.2 Guidelines

Refer to MUTCD Part 2 Section 5.3.3.2.

### 5.3.3.2 No-overtaking zones

Barrier lines shall be used to create no-overtaking zones in rural areas where there is restricted overtaking sight distance due to horizontal or vertical curves, or both, or where a hazardous condition exists, e.g. at approaches to major intersections or intersections and mid-block central roadway obstructions. Requirements for the provision of no-overtaking zones are as follows:

a) **Roads 5.5 m or more wide.** Vertical and horizontal curves on which the overtaking sight distance falls below that shown in Column 2 of Table 5.1 shall be marked as no-overtaking zones.
b) *Roads less than 5.5 m wide.* Barrier lines may be marked if the conditions above occur, but the sealed roadway should preferably be widened to at least 5.5 m over the section containing the barrier lines.

If it is not practicable to mark the no-overtaking zone at vertical curves, the CREST warning sign (W5-11) (see Clause 4.5.4.1) should be erected.

c) *Two-lane bridges.* Barrier lines shall not normally be marked on two-lane bridges, unless the warrant in Item (a) indicates that a no-overtaking zone is required and the width is 5.5 m or greater between kerbs.

Gaps in double barrier lines in rural areas may be provided for turning traffic where there is adequate sight distance to oncoming traffic as follows:

i) at intersections – min. 1 gap; max. 2 gaps

ii) at private entrances – min. 1 gap

where a gap is the module length.

A single continuous dividing line shall be used instead of a barrier line only in urban areas and where it is necessary to permit crossing of the line by traffic entering or leaving the roadway.

NOTE: General use of single continuous barrier lines to form no-overtaking zones is discouraged on safety grounds as they do not have the impact and better understood meaning of the double barrier line. Furthermore they are not able to indicate places where crossing the line is permitted in one direction of travel but not the other.

### 3.3.3 Location and setting out

Refer to MUTCD Part 2 sections 5.3.3.3 and 5.3.3.4.

#### 5.3.3.3 Location and setting out

The method for locating and setting out barrier lines is shown in Figure 5.2, and the steps to use are as follows (see also Clauses 5.3.3.4 and 5.3.3.5):

a) As the point $A E$ approaches the curve, overtaking sight distance progressively decreases.

b) Where the overtaking sight distance $A E B E$ (Column 2 of Table 5.1) reaches the minimum for the $85^{th}$ percentile speed selected (Column 1 of Table 5.1), a barrier line should commence at $C E$, the barrier line distance (Column 3 of Table 45.1) from $B E$.

c) After further eastward travel from $C E$, the minimum overtaking sight distance is regained at $B W$ and the barrier line is terminated.

#### 5.3.3.4 Modification of barrier line requirements

The application of the method specified in Clause 5.3.3.3 will, in some instances, result in too short a length of barrier line or too short a distance between barrier lines for passing to be accomplished. If this occurs, the barrier line should be either eliminated or lengthened, depending on the circumstances.
Some typical instances and suggested modifications are as follows:

a) Where only a short length of road (see Column 2 of Table 5.2) has substandard overtaking sight distance, barrier lines should not be marked, e.g. within a short sag (floodway, ford) in an otherwise level road.

b) Where a barrier line marked in accordance with Clause 5.3.3.3 is very short, it will not have sufficient visual impact and will not give the impression of continuity. The distance CE BW of Figure 5.2 in some circumstances will be less than the minimum length of barrier line (Column 3 of Table 5.2) and in rare situations CE will occur after BW. In these cases the minimum length of barrier line (Column 3 of Table 5.2) should be marked to terminate at the point BW at which minimum overtaking sight distance (Column 2 of Table 5.1) is regained.

c) Where the distance between the end of one barrier line and the start of the succeeding barrier line restricting overtaking in the same direction is equal to or below the minimum (see Column 4 of Table 5.2), the barrier line should be joined to form one continuous line. For example, this may occur on a short straight between two curves in opposite directions.

**MUTCD Part 2 Figure 5.2 – Method for locating a no overtaking zone on an isolated curve**

Notes

1. For convenience, overtaking sight distance is measured along the centre-line. It is not worth taking account of the slight difference between left-hand and right-hand curves, i.e. for a left-hand curve, the overtaking vehicle is on the outside of the curve and for a right-hand curve, it is on the inside.

2. The marking of vertical curves is similar to that for horizontal curves.
Notes

1. The first chevron alignment marker (CAM) in each direction of travel is located as follows:
   a.  two-way roadway:
      i.  left-hand curve – on prolongation of the dividing line.
      ii. right-hand curve – on prolongation of the left-hand edge line.
   b.  One-way roadway:
      i.  left-hand curve – on prolongation of the right-hand edge line.
      ii. right-hand curve – on prolongation of the left-hand edge line.
   The last marker is placed at the end of the circular curve and intermediate markers equispaced at the spacing, shown in MUTCD Part 2, Table 4.3. A minimum of three markers are displayed to each approach direction. A minimum of two markers are to be visible on each approach to the curve (see MUTCD Part 2, Clause 4.4.7.11).

2. Raised retroreflective pavement markers should be used to supplement the dividing lines on pavement 6.8 m or wider (see MUTCD Part 2, Clause 4.4.7.11).

3. No overtaking zones are marked if necessary (see Clause 5.3.3 in MUTCD Part 2 extracts in sections 2.2.2, 3.3.2, 3.3.3 and 3.3.4 of this guide).

4. Guide posts with delineators, or delineators on guard fence or safety barrier, are provided on both sides of the curve at the spacings given in MUTCD Part 2, clauses 4.2.4.4 and 4.2.5.4.

5. Advance signs may be duplicated on the right-hand side of the road.

6. Edge lines should be provided on pavements 6.8 m or wider (see MUTCD Part 2, Clause 4.4.7.11) and may be supplemented with RRPMs (see Clause 5.6.5.2 in MUTCD Part 2 extract in Section 2.5 of this guide).
3.3.4 Checking marked barrier lines

For more information, refer to MUTCD Part 2 Section 5.3.3.5.

5.3.3.5 Checking marked barrier lines

Barrier lines marked strictly in accordance with Clauses 5.3.3.3 and 5.3.3.4 will occasionally produce no-overtaking zones which err on the safe side and may be too restrictive.

To check this, the road should be traversed at about the 85th percentile speed when marking is complete. At this speed all barrier lines should appear reasonable and not unduly restrictive. Particular attention should be given to sections of steep or winding alignment where little opportunity remains for overtaking. If the markings are considered too restrictive, the barrier lines should be reviewed as follows:

a) Check that the appropriate 85th percentile approach speed was used at each sight distance restriction. For example, while the 85th percentile approach speed to a section of winding alignment may be 100 km/h, the first curve may so reduce vehicle speeds that the approach speed to subsequent curves may be as low as 40 km/h.

b) See if short gaps can be left in the barrier line to allow cars to overtake slow-moving trucks. These gaps should, desirably, be not less than 100 m long. If necessary, the barrier line distance should be reduced to permit overtaking opportunities at the safest places consistent with shoulder width, roadside obstacles and other potential hazards, as well as sight distance.

3.3.5 Access breaks

Guidelines for the provision of access breaks are contained within the Traffic and Road Use Management (TRUM) manual Volume 1, Part 10, Section 6.3.3-1 Determination of centre line markings adjacent to property access.

3.4 Traffic islands and medians

3.4.1 General

A traffic island is a defined area within a road from which vehicular traffic is intended to be excluded. In the context of the highway between intersections, the term ‘island’ includes medians and separators. A median is a strip of road which separates opposing traffic lanes, while a separator delineates traffic moving in the same direction.

Islands may be designated by several means, including unsealed areas of pavement, painted markings, pavement bars or coloured material on the pavement surface, and raised areas defined by kerbs. Whether or not an island is demarcated with a painted outline, ends of islands exposed to oncoming traffic should be delineated.

3.4.2 Painted (flush) islands

Painted islands should be defined by outlining areas of pavement with lines. The interior may be either sealed with an aggregate of contrasting colour or texture, or consist of diagonal or chevron markings or pavement bars. The outline should normally be supplemented by raised pavement markers, especially where street lighting is substandard or absent (see MUTCD Part 2 figures 5.25 and 5.26 in Section 2.5 of this guide).
Typical uses of painted islands include:

a) islands of substandard size in urban areas
b) channelising islands at rural intersections where operating speeds are high, or road lighting is absent or inadequate
c) narrow medians
d) part-time safety zones
e) narrow lane separators.

Painted islands suffer the disadvantages of being more difficult to see in wet weather, especially at night, and not influencing driver discipline as much as raised islands. Pavement bars represent a compromise between painted lines and fully raised islands (see Section 2.5.1 of this guide).

3.4.3 Markings

Typical applications of markings to delineate islands and for end treatments are shown in MUTCD Part 2 figures 5.22 to 5.26, reproduced at Section 2.5 of this guide. The use of pavement bars is shown in MUTCD Part 2 figures 4.1 to 4.4, reproduced at Section 2.5.5 of this guide. There should be no gap between dividing lines and the end of islands or medians.

3.4.4 Wide centreline treatment

Refer to the department’s Guidelines for Road Design on Brownfield Sites for this treatment.

3.4.5 Vehicles crossing painted islands

Vehicles are not legally prohibited from encroaching on painted islands and medians with a single continuous line along the side or surrounding the island or median to enter or leave the road, or to enter a turning lane that begins immediately after the painted island. Where the encroachment of vehicles is not wanted, two-way (or double) barrier lines along one or more edges of the island or median are required to make that intention clear and regulatory. Furthermore, the continuation of two-way barrier lines along at least one edge of a median painted island, particularly where the gore is long and narrow, may help to allay any confusion between barrier lines and close-to-parallel island outlines.

Where it is necessary for vehicles entering or leaving a single unit residential property access to carry out a turning manoeuvre across the painted markings on the splayed approach to a raised median island, and it is safe to do so (that is, there is sufficient sight distance to approaching traffic for U-turning drivers and adequate space to store a U-turning vehicle clear of through traffic), a gap sufficient for the purpose may be made in the markings. This gap shall be defined with an ‘edge’ line to indicate the limit of the U-turn manoeuvre permitted, and a continuity line along the breaks in the outline markings of the painted island. This arrangement is considered only where no other reasonable alternative access is available and is applied only to single unit residential dwellings (that is, private homes). In all other cases, appropriate provisions for traffic generating developments would be required.

3.4.6 RRPMs

The use of RRPMs with islands is described in Section 2.5 of this guide and depicted in MUTCD Part 2 figures 5.22 to 5.26 reproduced in Section 2.5.
3.4.7 Pavement bars

The use of pavement bars is described in Section 2.5.5 of this guide and depicted in MUTCD Part 2 figures 4.1 to 4.4, reproduced at Section 2.5.5.

Pavement bars shall not be installed on roads less than 6.8 metres wide, nor on substandard curves. The disadvantages of pavement bars are as follows:

a) the control of turning or access movements is not as effective as with raised medians
b) they are easily damaged
c) they tend to collect dirt
d) they may be hazardous to the riders of motorcycles and bicycles, and to pedestrians.

3.4.8 Width transitions

The presence of a median traffic island may necessitate the use of an edge line in accordance with MUTCD Part 2 Section 5.3.5(c).

3.5 Changes in pavement width

Refer to MUTCD Part 2 sections 4.7.2, 4.7.3 and 4.7.4.

| 4.7.1 General |
| Narrowing of pavement width may involve a reduction in width of a roadway, with or without a reduction in the number of lanes, or a transition from a divided to an undivided road, also with or without a reduction in the number of lanes. |

| 4.7.2 General treatments at lane reductions (merges) |
| Where there is to be a reduction in the number of lanes by means of a merge, each merge shall have signs and pavement markings appropriate to either a zip-merge or a lane change manoeuvre. |

  a) Zip-merges*: The layout for a zip-merge is shown in Figure 4.16(a). The absence of any line in the area where the merge takes place invokes the zip-merge rule whereby any vehicle behind another vehicle in an adjacent stream, is required to give way to that vehicle during the merge even though its distance ahead may be less than the length of either vehicle.

  NOTE: * At time of publication of this Part of the Manual this term was synonymous with the term ‘merge’ in the Australian Road Rules.

  The zip-merge treatment shall be used where the 85th percentile speed is 80 km/h or less.

  The zip-merge treatment shall be used on climbing lanes.

  The addition of a continuity line to a zip-merge treatment which changes the merge treatment to a lane change / general case merge shall be limited to situations where drivers may have difficulty anticipating the merge ahead or require the increased direction assistance a continuity line can provide, e.g. because the merge is partially hidden by a crest or around a curve. If a continuity line is provided all signing and line marking must conform with the requirements of a lane change / general case merge.
The signs shown in Figure 4.16(a) shall be used as follows:

i. Short length of added lane, e.g. at a localised flaring:
   - 60 km/h or lower speed zone – signs are not required but if used they shall be as for Item (B).
   - 70 or 80 km/h speed zone – FORM 1(2) LANE(S), G9-15 or G9-16 signs only, shall be placed at the beginning of the taper.

ii. Runout of a long lane:
   - 60 km/h or lower speed zone – FORM 1(2) LANE(S), G9 15 or G9 16 position signs only, shall be placed at the beginning of the taper.
   - 70 or 80 km/h speed zone – position sign as above shall be provided along with advanced signs G9 15 or G9 16, with distance plates 200 m, G9 78, mounted under them.

b) Lane change / general case: The layout of a merge requiring a lane change manoeuvre is shown in Figure 4.16(b). The continuity line in the merge area is legally a lane line and hence, in any move across it, the obligation is on the driver crossing the line to find a safe gap in the adjacent traffic stream.

This arrangement shall be used where the 85th percentile speed is greater than 80 km/h.

This arrangement shall be used on overtaking lanes on two lane rural roads.

c) Lane change / expressway type entry ramp: The layout and signposting at expressway type entry ramps is shown in Figure 3.3.

4.7.3 Narrowing of a roadway

4.7.3.1 Narrowing of two-lane road

Where a reduction in pavement width occurs on a two-lane road, treatment depends on the final pavement width as follows:

a) if less than 5.5 m, the treatment shall be as shown in Figure 4.17(a)

b) if 5.5 m or greater, the treatment shall be as shown in Figure 4.17(b).

4.7.3.2 Transition from four-lane road to two-lane road (both undivided)

Where a four-lane undivided road changes to a two-lane road, the treatment should be as shown in Figure 4.18.

4.7.4 Transition of divided road to undivided road

Where there is considerable change in alignment at the start of the divided road, consideration should be given to the erection of one or more Directional Hazard markers in association with the sign KEEP LEFT (R2-3).
Additional guidelines related to changes in pavement width are provided in MUTCD Part 2 Clause 4.6.2-1 on signage and line marking for narrow bridges.

Table 3.5 – Required lengths for distance A

<table>
<thead>
<tr>
<th>V85 (km/h)</th>
<th>A (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 75</td>
<td>80–120</td>
</tr>
<tr>
<td>75–90</td>
<td>120–180</td>
</tr>
<tr>
<td>&gt; 90</td>
<td>180–250</td>
</tr>
</tbody>
</table>

This table gives the maximum values for the lengths denoted by ‘A’ in MUTCD Part 2 figures 4.17(a) and (b) and figures 4.18 to 4.20.

MUTCD Part 2 Figure 4.16 – Treatments at lane reductions (merges)

Notes:

1. The ‘FORM 2 LANES’ sign applies if this illustration is one side of the divided road.
2. Lane change arrows are always used in Figure (b). They are not used in Figure (a).
**MUTCD Part 2 Figure 4.17 – Narrowing of two-lane road**

Note
Guide posts are at a constant distance from the edge line, minimum 1.2 m, and at 10 m to 15 m longitudinal spacing throughout the transition.
Notes

1. Guide posts at 10 m to 15 m on the lane reduction transition side. Wider spacings may be used on the other side of the transition.

2. The lane reduction is treated either as a zip-merge, in accordance with Clause 4.7.2(a) in Extract 35, Section 3.5 or a lane change in accordance with Clause 4.7.2(b) in the MUTCD Part 2 extract in Section 3.5 of this guide. In the zip-merge case, both the lane change arrows and the continuity line are omitted. In the lane change case, the lane change arrows are used always.

3. ‘M’ and ‘D’ are the merge and diverge distances calculated from traffic speeds and lane widths, in accordance with road design practice.

4. If this is the start of an overtaking lane, see Clause 4.8 in the MUTCD Part 2 extract in Section 3.6 of this guide, the signs and pavement markings shown in MUTCD Part 2 Figure 4.21, reproduced in this guide at Section 3.6.1, will be required.
**MUTCD Part 2 Figure 4.19 – Transition from four-lane divided to four-lane undivided road**

Note:

* For Dimension A, see Table 3.5 in Section 3.5 of this guide.
**MUTCD Part 2 Figure 4.20 – Transition from four-lane divided to two-lane undivided road**

Notes

1. The lane reduction is treated either as a zip-merge, in accordance with Clause 4.7.2(a) in the MUTCD Part 2 extract in Section 3.5 of this guide or a lane change, in accordance with Clause 4.7.2(b) in the MUTCD Part 2 extract in Section 3.5 of this guide. In the zip-merge case, both the lane change arrows and the continuity line are omitted. In the lane change case, the lane change arrows are always used.

2. Additional signs to further remind road users of the change to two-way conditions may be required, see MUTCD Part 2, Clause 4.7.5.4(d).

3. ‘M’ and ‘D’ are the required merge and diverge distances calculated in accordance with road design practice.

4. For Dimension ‘A’, see Table 3.5 at Section 3.5 of this guide.
3.6 Auxiliary lanes

3.6.1 General

Refer to MUTCD Part 2 Section 4.8.1.

### 4.8.1 General

Climbing and overtaking lanes, and turnouts are provided and marked as follows:

- **Overtaking lanes**: These are provided on two-lane, two-way roads at long or steep grades or elsewhere where it is necessary or desirable to provide for traffic to pass slower moving vehicles. Overtaking lanes are designed as shown in Figure 4.21 to encourage all traffic in the first instance to travel in the added left-hand lane, leaving the centre lane for overtaking vehicles only.

- **Climbing lanes**: These are provided on multi-lane roads, i.e. two or more lanes in one direction, at long or steep grades to minimise reductions in capacity due to slow moving vehicles. Climbing lanes shall be marked as shown in Figure 4.22(a) to encourage only the slow-moving vehicles to use the added left-hand lane.

- **Turnouts**: These are provided only on low speed roads, 85th percentile speed 60 km/h or less, where it is desirable to provide for traffic to pass slower moving vehicles, but due to geometric, topographical or other constraints a full length climbing or overtaking lane cannot be provided. They are generally not more than 150 m in length overall including 50 m entry and exit tapers and shall have a layout and pavement markings as shown in Figure 4.22(b).

Other types of auxiliary lane which are not considered in detail in this section include turning lanes, weaving lanes and ramps on freeways, safety ramps and auxiliary lanes at T-intersections.

Climbing lanes are provided at steep grades on roads carrying high traffic volumes with a significant proportion of heavy vehicles. The signs and pavement markings for a typical climbing lane treatment are given in MUTCD Part 2 Figure 4.22, reproduced in this section. Such treatments are appropriate on particularly short, steep grades where provision for overtaking of an occasional slow vehicle is required. This system does, however, in some cases, encourage overtaking in the left lane, discouraging use of the climbing lane by slow vehicles.

As a general rule, all forms of auxiliary lane should be designed as overtaking lanes, as shown in MUTCD Part 2 Figure 4.21, reproduced in this section, to encourage maximum use of the auxiliary lane and allow overtaking even between vehicles travelling at similar speeds. The alternative design for climbing lanes and slow vehicle lanes should only be used to reduce use of the added lane.
Notes

1. A double barrier line is required if the warrants for a no overtaking zone are met in the single-lane direction. It should also be considered if the overtaking lane section is on curved alignment even though overtaking sight distance is available.

2. For erection where left lane is more than 1 km long. This sign is erected 500 m in advance of the G9-73 sign.

3. Merge arrows are optional (see Clause 5.5.2.4 in the MUTCD Part 2 extract in Section 2.4.2 of this guide).

4. 'M' and 'D' are the required merge and diverge distances calculated in accordance with road design practice.

5. For Dimension ‘A’, see Table 3.5 in Section 3.5 of this guide.
**MUTCD Part 2 Figure 4.22 – Typical treatment for climbing lanes and turnouts**

**Notes**

1. For use where the left lane is more than 1 km long.
2. The slow vehicle turnout can be used on any low-speed road, divided or undivided where $V_{85}$ is 60 km/h or less.
3. Use G9-11 where advance information is desirable, i.e. where overtaking opportunities are reduced for some distance in advance of lane (generally 2 km, maximum 5 km).
4. ‘M’ and ‘D’ are the required merge and diverge distances calculated in accordance with road design practice.
5. For Dimension ‘A’, see Table 3.5 in Section 3.5 of this guide.
3.6.2 Transition lengths

The minimum length of edge line ‘A’ leading into the transition are given in Table 3.5 in Section 3.5 of this guide.

3.6.3 Use of barrier lines

For auxiliary lanes constructed as three-lane road sections (see MUTCD Part 2 Figure 4.21 reproduced in Section 3.6.1 of this guide), three particular aspects are of relevance:

a) In the direction of the auxiliary lane (direction 1), it is normal practice to provide a continuous barrier line over the full auxiliary lane length, including tapers, to prohibit any use by direction 1 vehicles of the third or opposing traffic lane. This also serves to define the centreline of the road and indicate that the centre lane is primarily for direction 1 traffic.

b) For direction 2 (opposing traffic), a barrier line is generally provided adjacent to the auxiliary lane diverge and merge tapers.

c) For direction 2 traffic adjacent to an auxiliary lane in direction 1, the direction 2 lane dividing line marking should follow normal practice for two-lane roads. This means that, if sight distance permits, direction 2 vehicles may be permitted to use the centre lane as an opposing traffic lane provided no vehicles are encountered in that lane.

The practice of allowing some use of auxiliary lane sections by opposing traffic has proved successful on many rural roads in Australia, particularly when traffic volumes are low; however, there may be cases where more restrictive line marking is appropriate. These will generally arise when there exists a combination of the following factors:

a) short auxiliary lane length

b) moderate to heavy traffic volumes

c) curved alignment or sight distances only marginally adequate for overtaking

d) perceived operational or safety problems on a given road section.

The use of more restrictive line markings should not be too widespread, however, since the presence of apparently unnecessary barrier lines can lead to driver frustration and a reduced quality of service on a road.
3.7 Special vehicle lanes

3.7.1 Scope

This part of the guide sets out the pavement marking devices used to delineate traffic lanes designated in the *Queensland Road Rules* as:

a) bus lanes, which are reserved for buses and other vehicles licensed to carry passengers for hire or reward, such as taxis, and bicycles

b) transit lanes, which are reserved for vehicles included in a) above, motor vehicles carrying two or more people (T2 lane) or three or more people (T3 lane) including the driver, and motorbikes

c) truck lanes, which are reserved for goods vehicles whose Gross Vehicle Mass (GVM) exceeds 4.5 tonnes

d) tram lanes, which are reserved for trams, tram recovery vehicles, buses, taxis and bicycles, and tramways, which are reserved for trams, tram recovery vehicles and buses only.

The lanes are designated by appropriate signs. Pavement marking devices used for bicycle facilities are treated in Section 3.8 of this guide.

3.7.2 General treatment

The general arrangement of markings for a bus lane is shown in MUTCD Part 12 Figure 5 reproduced in Section 3.7.4 of this guide. Similar treatment is used for transit and truck lanes, but with the appropriate signs and pavement messages. A typical treatment for a part-time transit lane is shown in MUTCD Part 12 Figure 8 reproduced in Section 3.7.4 of this guide.

The line separating the special lane from other lanes is a continuous white lane line, 100 mm or 150 mm wide, for full-time special vehicle lanes, and a broken white lane line, 80 mm or 100 mm wide, for a part-time special vehicle lane (that is, with 3 m line / 9 m gap). On freeways, where a bus or transit lane is not separated from other traffic lanes by a physical barrier, a painted island with chevron markings may be used in lieu. In both cases, the width of the lines delineating the designated lane should be 150 mm. Openings in the painted island allow access to and from the designated lane and are marked with a continuity line.

The beginning of the bus, transit or truck lane, where it restarts after having been stopped at an intersection, or on approach to an intersection where the lane may be entered legally by traffic about to make a turn, is demarcated using a white continuity line.

All pavement markings are white.
3.7.3 Pavement messages

Word messages for use on pavements are:

a) ‘BUS LANE AHEAD’
   ‘BUS LANE’
   ‘BL’ (for repeater markings only)

b) T2 or T3 LANE AHEAD
   T2 or T3 LANE
   ‘T2’ or ‘T3’ (for repeater markings only)

c) ‘TRUCK LANE AHEAD’
   ‘TRUCK LANE’

The messages should be applied in accordance with the guidelines in Section 2.4.2.2.5 and as shown in MUTCD Part 12 Figure 4 reproduced in Section 3.7.4 of this guide. Pavement messages are optional on part-time lanes and should not be used if they could mislead road users when the lane is not in operation.

The ‘BL’ marking, if used, (and ‘BUS LANE’ sign) may be repeated after each side street or at a maximum spacing of 200 metres. The ‘BUS LANE’ marking should be used after each major side street or at about a 1 km maximum spacing, replacing the ‘BL’ marking at these locations.

The ‘BUS LANE’ and ‘BL’ markings should be located centrally in the bus lane when used. ‘BUS LANE AHEAD’ should be located centrally in the kerbside lane.

These guidelines apply equally to transit lanes and (excluding the repeater markings) truck lanes.

3.7.4 Tram lanes and tramways

Tram lanes are marked along the left side of the tracks (when facing the direction of travel of a tram on the tracks) by a continuous yellow line parallel to the tracks, which is marked between a TRAM LANE sign and END TRAM LANE sign.

Tramways are marked along the left side of the tracks (when facing the direction of travel of a tram on the tracks) between a TRAMWAY sign and END TRAMWAY sign by either:

- two continuous yellow lines parallel to the tracks, or
- a structure (such as a dividing strip, pedestrian refuge, traffic island, row of bollards or separation kerb), whether or not the structure is also being used to indicate a safety zone.
Notes

1. ‘35 m is the nominal length for a typical urban environment. Longer distance may be provided if necessary.

2. On high-speed roads (>80 km/h) character lengths should be at least 5 m with spacings between characters four times the letter height and the words arranged to read sequentially, that is, first word nearest approaching driver.
**AS1742.12 Figure 5 – Typical start, end and mid-block treatment for a bus lane**

(a) Full-time bus lane

(b) Part-time bus lane

**Note**

1. ‘BL’ pavement marking, if used, and ‘BUS LANE’ sign may be repeated after each side street or at 200 m spacing maximum. The signs and markings need not be in step with one another.

2. For expressway-type roads, see Clause 7.2 of AS1742.12.
**AS1742.12 Figure 8 – Typical treatment for a part-time transit lane**

Notes

1. ‘T2’ or ‘T3’ pavement marking and ‘TRANSIT LANE’ sign may be repeated after each side street or at 200 m spacing maximum.
2. Treatments at a major side street may be adapted from MUTCD Part 12 Figure 6 reproduced in this section of this guide.
3. For expressway-type roads, see Clause 7.2 of AS1742.12.
3.8 **Bicycle facilities**

3.8.1 **Pavement symbols**

The bicycle symbol shall be used as a pavement marking to supplement or reinforce the signs used to designate full-time bicycle lanes, bicycle paths and the bicycle portion of separated paths (see Section 2.4.2.2 and AS1742.9 Figure 2.2 reproduced at Section 2.4.2.2.3 in this guide). The pedestrian symbol shall be used to designate the pedestrian portion of separated paths.

It may also be used, in conjunction with the pedestrian symbol marking, to supplement or reinforce shared path signs (see Section 2.4.2.2 and AS1742.9 Figure 3.1 reproduced at Section 2.4.2.2.4 in this guide).

Where both pedestrian and bicycle symbols are used on a facility, they should be arranged in a similar manner to that shown on the relevant shared / separated path sign. Successive pairs of symbols should face alternate directions of travel. A pavement arrow may be used on busy paths in conjunction with pavement symbols where there is a need to encourage users to keep to the left. Where two or more pavement symbols are to be displayed as a group, they shall be displayed in the order bicycle-pedestrian-arrow in the direction of travel with a separation of 1.0 to 1.2 metres between each symbol.

The bicycle symbol may be painted on the bicycle portion of shared bicycle / carparking facilities where these two lanes are separated by an edge line. Bicycle pavement symbols may be used on part-time bicycle lanes but should not be used where they could mislead cyclists when the lane is not in operation. This symbol shall not be used to designate shared facilities which are intended for use by moving traffic, such as where parking is restricted during designated hours to provide a clearway.

The bicycle symbol may be placed on unsigned facilities, such as wide parking lanes with bicycle provisions, wide kerbside lanes and sealed shoulders. The bicycle symbol may be yellow in colour for these unsigned facilities. In all other cases, i.e. for signed facilities, it shall be white.

The 'No Bicycles' symbol may be used in lieu of the 'No Bicycles' sign (R6-10-3).

A pavement arrow may be used in conjunction with the bicycle symbol where a bicycle lane has been provided on the approach to traffic signals. The arrow is white in colour.

3.8.2 **Longitudinal lines**

The requirements and recommendations for longitudinal lines are in sections 2.4.2.2.2 and 2.4.2.2.3 in this guide.

A continuity line comprising a white broken line 100 mm or 200 mm wide as specified in Figure 5.1 in MUTCD Part 2, reproduced in Section 2.2.7 of this guide, with one metre line and 3 metre gaps, shows the continuity of a bicycle lane along the major road at major / minor unsignalised intersections and where traffic must enter or cross a bicycle lane at an intersection or major driveway. The 200 mm width is used on high-volume roads, for example, four-lane or six-lane roads, where the effect of a narrower line would be reduced. The 100 mm width may be considered for use in lieu of the 200 mm-wide line, where a road has a restricted environment, such as a two-lane road through strip shopping centres and commercial areas.

3.8.3 **Transverse lines at stop and give way signs**

The requirements and recommendations for lines at stop and give way signs are in Section 2.4.2.2.3 of this guide.
Where traffic on a road must give way to bicycles on a bicycle path crossing, the dimensions of the transverse lines at the ‘Stop’ and ‘Give Way’ signs specified in MUTCD Part 2 Figure 5.1 reproduced at Section 2.2.7 of this guide shall be used.

3.8.4 Application

Typical bicycle lane treatments are shown in AS1742.9 figures 2.4 to 2.9. Arrangements for retrofitting bicycle lanes in left-turn lanes are shown in Traffic Control (TC) Signs TC1769_1 to TC1769_4.

For advanced stop lines for bicycles at signalised intersections, see Section 4.1.8 in this guide.

Typical bicycle path, shared path and separated path treatments are shown in MUTCD Part 9 figures 3.3 to 3.5 reproduced in Section 3.8.5 of this guide. For advice on the application of bicycle lanes at roundabouts, contact the department’s Traffic Engineering Unit.

3.8.5 Bicycle provisions on freeways

Refer to AS1742.9 Section 4.4.

### 4.4 Pavement markings

Where bicycles are permitted to use the left hand sealed shoulder on a rural freeway and appropriate interchange signing is provided for cyclists, bicycle pavement symbols may be considered for use on the freeway shoulder. Bicycle pavement symbols at up to 1 km spacing will generally be adequate. Where provisions are made for cyclists to cross a freeway ramp (see Figure 4.1), a bicycle pavement symbol may be placed on the shoulder in advance of the crossing location. In these situations, the bicycle symbol may be a yellow marking.

**AS1742.9 Figure 2.4 – Bicycle lane (full-time) adjacent to kerb**

![Diagram of bicycle lane (full-time) adjacent to kerb](image)
AS1742.9 Figure 2.7 – Bicycle / car parking lane with optional kerb extensions

AS1742.9 Figure 2.8 – Wide parking lane with bicycle provision

AS1742.9 Figure 2.5 – Part-time bicycle lanes

NOTE: Alternatively, these cases may be signed as clearways.
AS1742.9 Figure 2.9 – Examples of bicycle lane treatments at an unsignalised intersection

Note:
Where traffic is required to enter the bicycle lane to turn left more than 50 m in advance of the intersection, legislation requires that signs permitting drivers to enter the bicycle lane be installed.
**AS1742.9 Figure 2.10 – Bicycle provisions on the approach to traffic signals**

For typical approach treatment see Figure 2.9(b) or (c)

(a) Advanced stop line for bicycles

For typical approach treatment see Figure 2.9(b) or (c)

(b) Treatment at left turn slip lanes
**AS1742.9 Figure 3.3 – Treatment of shared bicycle/pedestrian paths – separation by direction of travel only**

Notes

1. Bicycle and pedestrian pavement symbols are optional.
2. Pavement arrows are only needed on busy paths where it is necessary to encourage users to keep to the left.
3. Where a broken separation line is shown, the separation line may be omitted altogether if there will be an orderly flow of user traffic without it.
Notes

1. These treatments show the bicycle path also with separated directions of travel. This is optional but is to be preferred wherever there is sufficient width.

2. Pavement arrows are only needed on busy paths where it is necessary to encourage users to keep to the left.
AS1742.9 Figure 3.5 – Treatment of bicycle paths

This sign may include a supplementary plate giving directions to a path for pedestrians

For road crossings see Clauses 3.7 and 3.8

Optional signs, used in accordance with Clause 3.2(g).
AS1742.9 Figure 4.1 – Signing for bicycles at freeway interchanges – bicycles permitted to cross ramps
3.9 **Treatment to approaches to obstructions and structures**

3.9.1 **Lengths of longitudinal markings**

The approach to a structure or obstruction within or encroaching on the roadway generally entails a lateral shift in the traffic movement, hence a length of transition. Refer to Section 3.5 in this guide.

The minimum length of edge line 'A' leading into the transition, and the required length of barrier lines 'C' on the approach, are given in Table 3.5 in Section 3.5 of this guide and the relevant figures.

3.9.2 **Obstructions within the roadway**

The pavement markings on the approach to an obstruction within the roadway are similar to those used on the approach to a median island (see figures 5.22 to 5.26 in Section 2.5 of this guide). The treatment is shown in MUTCD Part 2 Figure 4.15 reproduced in this guide. It is recommended that the barrier line be extended along the left edge of the median nose. The barrier line may also be augmented with RRPMs as shown.

**MUTCD Part 2 Figure 4.15 – Obstruction within the roadway**

![Diagram of pavement markings for an obstruction within the roadway](image)

*Note:*

* For Dimension A, see Table 3.5 in Section 3.5 of this guide.
3.9.3 Bridges

Pavement marking treatments at the approaches to bridges depend on whether the bridge has more than one lane, its width and whether the approach is signalised.

If the bridge structure is close to the edge of the running lane, it may be advisable to provide an edge line, which may also be augmented with RRPMs in accordance with Section 2.5 of this guide.

**Bridges with two or more lanes:** Where full formation width is provided on a bridge, pavement markings and delineation on the approach are simply continued across the bridge.

If the bridge is less than formation width or the width between kerbs is less than 8.6 metres, treatment is as depicted in MUTCD Part 2 Figure 4.10 reproduced in this section of this guide. Edge lines and dividing lines should be provided. If the bridge is a two-way bridge less than 5.5 metres between kerbs, the dividing lines should be discontinued 30 metres before the bridge abutment or structure.

**One-lane bridges on two-way roadways:** One-lane bridges have a width between kerbs of less than either 5.0 metres, or 5.5 metres if the proportion of heavy vehicles is greater than one-third of the traffic or the approach alignment is poor. The treatment is shown in MUTCD Part 2 Figure 4.11 reproduced in this section of this guide. Edge lines and barrier lines should be provided (see above). The maximum width between edge lines shall be 4 metres.

If the bridge is more than 60 metres long, or traffic volume is high, or both points of entry to the bridge are not visible from either approach, it is advisable to indicate which direction of traffic is to give way, using the ‘GIVE WAY’ sign and a give way line (see MUTCD Part 2 Figure 4.12 in this section of this guide).

If the sight line between drivers approaching opposite ends of the bridge is poor or vehicle speeds are high, traffic signals with stop lines may be used. The layout for this is shown in MUTCD Part 2 Figure 4.13 reproduced in this section of this guide.
**MUTCD Part 2 Figures 4.10 and 4.11 – Narrow bridge and one-lane bridge**

(a) Narrow bridge

(b) One-lane bridge

**Notes**

1. Width markers (D4-3) are required in accordance with Clause 4.6.7.2(c) of MUTCD Part 2.
2. The use of the R6-2 and W4-1 signs is given in Clauses 4.6.6.1(c) and 4.6.6.3(a) of MUTCD Part 2 respectively.
3. The arrangement for one-lane bridges (MUTCD Part 2 Figure 4.11 or 4.12) is required where the width conditions given in this Section 3.9.3 of this guide apply.
4. A one-lane bridge is one that meets the width limitations, specified in MUTCD Part 2 Clause 4.6.2.2. The maximum width between edge lines is 4.0 m.
5. For Dimension ‘A’, see Table 3.5 in Section 3.5 of this guide.
**MUTCD Part 2 Figure 4.12 – One-lane bridge with give way sign**

Notes

1. The approach on which this treatment is used should be selected in accordance with the priorities recommended in Clause 4.6.2.2(a)(iii) of MUTCD Part 2. The other approach is treated as shown in MUTCD Part 2 Figure 4.11 reproduced in this section of this guide.

2. Used only if sight distance to R1-2 is less than the lower limit given for Dimension 'A'.

3. A one-lane bridge is one that meets the width limitations specified in this Section 3.9.3 of this guide. The maximum width between edge lines is 4.0 m.

4. For Dimension 'A', see Table 3.5 in Section 3.5 of this guide.
Notes

1. The ‘STOP HERE ON SIGNAL’ (R6-6) sign is required if the position at which the vehicle must stop is not readily apparent (see MUTCD Part 2 Clause 4.10.6.7).

2. A one-lane bridge is one that meets the width limitations specified in this Section 3.9.3 of this guide. The maximum width between edge lines is 4.0 m.

3. For Dimension ‘A’, see Table 3.5 in Section 3.5 of this guide.
3.10 **Railway crossings**

For more information, refer to 1742.7 Section 3.

### Section 3. Pavement Markings

#### 3.1 General

A summary of requirements for pavement markings on sealed approaches to crossings is as follows:

a) RAIL X marking (see Clause 3.2) shall be used on all high-speed approaches of adequate seal width except at crossings on side roads where the distance to the crossing is less than specified in Clause 3.2.

b) Stop or give-way line (see Clauses 3.3 and 3.4) shall be used on all approaches in all cases.

c) No-overtaking lines (see Clause 3.5) comprising either single barrier line, double one-way and double two-way barrier lines shall be used on all undivided road approaches where the sealed width is 5.5 m or greater.

#### 3.2 Railway crossing pavement marking (Rail X)

The pavement marking RAIL X shall be as shown in Figure 3.1. Except for crossings on side roads (see below), the marking shall be provided on all roads where the seal width is 3.0 m or greater and the speed limit is greater than 80 km/h. The marking is to read sequentially. On multi-lane roads a separate marking shall be placed in each approach lane.

It should also be considered for low-speed situations i.e. speed limit 80 km/h or less, where additional advance warning is considered desirable. In such cases, it may be reduced in letter height to that shown in Figure 3.1 and read ‘down’, i.e. the X preceding the RAIL.

On through road approaches to a crossing the marking shall generally be placed 15 to 20 m beyond the first advance sign, but positioned if necessary to provide adequate visual impact giving at least 50 m clear viewing distance to the near edge of the marking.

On approaches to crossings on side roads where the distance from the edge of the through traffic lane to the stop or give-way line is 60 m or more and the conditions above are met, the marking shall be placed 15 to 20 m beyond the edge of the through traffic lane. The marking may not be required where the side road distance as specified above is less than 60 m.

#### 3.3 Stop line

A stop line is an unbroken line marked across traffic lanes. It shall be a minimum of 300 mm wide and 600 mm minimum where the speed limit is greater than 80 km/h. At all railway crossings on sealed roads controlled by RX-2, RX-5 and RX-6 (STOP sign, flashing signals and gate control) assemblies, a stop line shall be provided on each approach to indicate the location at which vehicles must stop as and when required by law.
It shall be placed at right angles to the road centre-line as follows:

a) *At STOP signs* – 3.5 m minimum back from the nearest rail at its closest point.

b) *At flashing signal control* – 3 m minimum back from the signal pedestal or boom barrier in its lowered position.

c) *At gates* – 3 m minimum back from the gates when closed to road traffic.

In the absence of a dividing line or median, the stop line shall extend only to the centre of the seal.

### 3.4 Give-way line

A give-way line is a broken line consisting of line segments 600 mm long separated by 600 mm gaps. It shall be a minimum of 300 mm wide or 600 mm minimum where the speed limit is greater than 80 km/h. At all railway crossings on sealed roads controlled by RX-1 (GIVE WAY sign control) assemblies, a give way line shall be placed on each approach to indicate the safe position for vehicles to stop, if necessary, to avoid conflict with a train. It shall be placed at right angles to the road centre-line 3.5 m back from the nearest rail at its closest point.

In the absence of a dividing line, or median, the give-way line shall extend only to the centre of the seal.

### 3.5 No-overtaking lines

On undivided sealed two-way roads where the sealed width is 5.5 m or greater, no-overtaking lines shall be provided on the approaches to and, where necessary, across railway crossings in accordance with Clause 3.1. The no-overtaking line on each approach should extend from the crossing to the initial warning sign or to the through road where the crossing is on a side road and requires treatment in accordance with Clause 2.2.5, 2.3.5 or 2.3.6. The no-overtaking line shall comprise one of the following:

a) *Double one-way*. A one-way barrier line consists of an unbroken line used in combination with a broken line. Crossing and overtaking movements across the lines are permitted from the broken line side but not from the unbroken line side. This line should be used if it is desired to permit overtaking across the separation line on the departure side of the crossing.

b) *Double two-way*. A two-way barrier line consists of two unbroken lines. Movements across the lines, or to the right of the lines, for the purpose of crossing or overtaking in either direction are prohibited.

c) *Single barrier line*. A single continuous line should be used only where it is desired to permit traffic to cross the line to enter or leave the road.

### 3.6 Yellow box markings

Yellow box markings shall only be used to discourage traffic queuing on a crossing where the conditions described in Clause 5.3 apply. Where used they shall comprise a yellow diamond hatch marking as set out in Figure 3.2. The lines forming the diamond pattern shall be 150 mm wide.

Where queuing is a problem in one direction only, the box marking shall be placed on that side of the pavement only as shown in Figure 3.2. If queuing is a problem in both directions of travel the marking shall be placed on both sides.
For more information, refer to MUTCD Part 7 Clause 7.2.4.

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

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.

This section describes the pavement markings used in conjunction with other devices to control and warn traffic at and in advance of railway and cane railway crossings.

The various configurations are shown in AS1742.7 figures 4.2 to 4.12 reproduced in this section of this guide.

AS1742.7 Figure 3.1 – ‘RAIL X’ pavement marking

Notes

1. The grid width is 100 mm minimum.
2. The grid height ‘X’ = Height of letter or symbol required (mm) / 40
3. Minimum dimensions for the length and spacing of the markings are:
   - Standard case: ‘X’ – 6.0 m
   - RAIL – 5.0 m
   - Spacing – 7.5 m
   - Message to read sequentially
   - Low speed case: ‘X’ – 3.0 m
   - RAIL – 2.5 m
   - Spacing – 2.5 m
   - Message to read down
4. Marking to commence with base of the first letter or word located 15 to 20 m beyond the first advance sign, e.g., W7-4 or W7-7.
AS1742.7 Figure 3.2 – Box marking

Note

1. The ‘KEEP TRACKS CLEAR’ sign is to be located so that it does not obscure the crossing signals or associated signs. A mounting height of less than 1 m may be required.

Dimensions in millimetres.
AS1742.7 Figure 4.3 – Railway crossing with straight approach controlled by give way signs (passive control)

Notes

1. If more than one track, the ‘TRACKS’ sign W7-2-2, is added to the assembly.
2. A give-way line shall be provided in accordance with Clause 3.4 to indicate the safe position for vehicles to stop, if necessary, to avoid conflict with a train.
3. The barrier line (see Clause 3.5) should extend at least to the advance sign, W7-7.
4. The various alternatives and uses for crossing diagrammatic signs are described in Clause 2.2.4.
5. The right-hand side sign, W7-7(L), is for optional use on busy roads (see Clause 2.2.3).
6. RX-9 assembly may be required (see Clause 2.4.2).
7. For railway crossing pavement marking (RAIL X), see Clause 3.2.
**AS1742.7 Figure 4.4 – Railway crossing with straight approach controlled by stop signs (passive control)**

**Notes**

1. If more than one track, the TRACKS sign, W7-2-2, is added to the assembly.
2. Stop lines (see Clause 3.3) are required on sealed roads at crossings controlled by STOP signs.
3. The barrier line (see Clause 3.5) should extend at least to the advance sign, W7-7.
4. The right-hand side sign, W7-7(L), is for optional use on busy roads (see Clause 2.2.3).
5. For railway crossing pavement marking (RAIL X), see Clause 3.2.
**AS1742.7 Figure 4.5 – Railway crossing controlled by stop signs preceded by a curve (passive control)**

**Notes**

1. If more than one track, the TRACKS sign, W7-2-2, is added to the assembly.
2. Stop lines (see Clause 3.3) are required on sealed roads.
3. The barrier line (see Clause 3.5) should extend at least to the advance sign, W7-7.
4. The right-hand side sign, W7-7(L), is for optional use on busy roads (see Clause 2.2.3).
5. Chevron alignment markers, D4-6, are used where required to reinforce the delineation of a sharp curve (see Clause 2.4.3).
6. For railway crossing pavement marking (RAIL X), see Clause 3.2.
AS1742.7 Figure 4.6 – Railway crossing with straight approach controlled by flashing lights (active control)

Notes

1. If more than one track, the TRACKS sign, W7-2-2, is added to the assembly.
2. Stop lines (see Clause 3.3) are required on sealed roads at crossings controlled by flashing lights.
3. The barrier line (see Clause 3.5) should extend at least to the W7-4 sign.
4. The W7-4 sign may need to be repeated on the right-hand side of the carriageway (see Clause 2.3.3).
5. For railway crossing pavement marking (RAIL X), see Clause 3.2.
Notes

1. If more than one track, the TRACKS sign, W7-2-2, is added to the assembly.
2. Stop lines (see Clause 3.3) are required on sealed roads at crossings controlled by flashing lights.
3. A boom barrier may be provided (see Clause 2.3.8).
4. The W7-4 sign may need to be repeated on the right-hand side of the carriageway (see Clause 2.3.3).
5. An overhead flashing signal assembly (Clause 2.3.1) may be needed where there are more than two traffic lanes on the approach.
6. For railway crossing pavement marking (RAIL X), see Clause 3.2.
AS1742.7 Figure 4.8 – Railway crossing with straight approach controlled by gates (active control)

Notes

1. If more than one track, the TRACKS sign, W7-2-2, is added to the assembly.
2. Stop lines (see Clause 3.3) are required on sealed roads at crossings controlled by gates.
3. The barrier line (see Clause 3.5) should extend at least to the W7-15 sign.
4. The W7-15 sign may need to be repeated on the right-hand side of the carriageway (see Clause 2.3.4).
5. For railway crossing pavement marking (RAIL X), see Clause 3.2.
AS1742.7 Figure 4.9 – Railway crossing on a side road controlled by give way signs (passive control)

Notes

1. If more than one track, the TRACKS sign, W7-2-2, is added to the assembly.
2. A give-way line shall be provided in accordance with Clause 3.4 to indicate the safe position for vehicles to stop, if necessary, to avoid conflict with a train.
3. The barrier line (see Clause 3.5) extends from the crossing to the through road.
4. If the intersection itself requires an intersection warning sign in accordance with AS1742.2, it will be placed at this position. The crossing on side road diagrammatic sign is required only if the intersection itself requires an intersection warning sign in accordance with AS1742.2. The various alternatives and uses for these signs are described in Clause 2.2.6.
5. If this distance is less than 50 m, the advance signs are placed as shown. If the distance is greater than 50 m but less than (50 + A) m, assembly RX-3-1, 2 or 3 is placed in the side road 50 m from the crossing, with assembly RX-4 only on the through road. If the distance is greater than (50 + A) m, all signs are placed in the side road in accordance with Figure 4.3.
6. If this distance is 25 m or less, an additional assembly RX-1 may be required (see Clause 4.4.1).
7. This dimension is measured from the point at which turns into the side road are completed. A single continuous line over this length may be substituted for the two-way barrier line.
AS1742.7 Figure 4.10 – Railway crossing on a side road controlled by stop signs (passive control)

Notes
1. If more than one track, the TRACKS sign, W7-2-2, is added to the assembly.
2. Stop lines (see Clause 3.3) are required on sealed roads at crossings controlled by STOP signs.
3. The barrier line (see Clause 3.5) extends from the crossing to the through road.
4. If the intersection itself requires an intersection warning sign in accordance with AS1742.2, it will be placed at this position. The crossing on side road diagrammatic sign is required only if the intersection itself requires an intersection warning sign in accordance with AS1742.2. The various alternatives and uses for these signs are described in Clause 2.2.6.
5. If this distance is less than 50 m, the advance signs are placed as shown. If the distance is greater than 50 m, but less than (50 + A) m, sign W3-1 is placed in the side road 50 m from the crossing, with assembly RX-4 only on the through road. If the distance is greater than (50 + A) m, all signs are placed in the side road in accordance with Figure 4.4.
6. If this distance is 25 m or less, an additional assembly RX-2 may be required (see Clause 4.4.1).
7. This dimension is measured from the point at which turns into the side road are completed. A single continuous line over this length may be substituted for the two-way barrier line.
8. Advance warning of the railway crossing is not required on this approach.
AS1742.7 Figure 4.11 – Railway crossing on a side road controlled by flashing lights (active control)

Notes

1. If more than one track, the TRACKS sign, W7-2-2, is added to the assembly.
2. Stop lines (see Clause 3.3) are required on sealed roads at crossings controlled by flashing lights.
3. The barrier line (see Clause 3.5) extends from the crossing to the through road.
4. This distance is less than that required to allow satisfactory display of the W7-4 sign on the side road in accordance with Figure 4.6. Where the crossing is very close to the main road, a second position assembly may be required (see Clause 4.4.1).
5. This dimension is measured from the point at which turns into the side road are completed. A single continuous line over this length may be substituted for the two-way barrier line.
AS1742.7 Figure 4.12 – Railway crossing on a side road controlled by gates (active control)

Notes
1. If more than one track, the TRACKS sign, W7-2-2, is added to the assembly.
2. Stop lines (see Clause 3.3) are required on sealed roads at crossings controlled by gates.
3. The barrier line (see Clause 3.5) extends from the crossing to the through road.
4. This distance is less than that required to allow satisfactory display of the W7-15 sign on the side road in accordance with Figure 4.8. Where the crossing is very close to the main road, a second position assembly may be required (see Clause 4.4.1).
5. This dimension is measured from the point at which turns into the side road are completed. A single continuous line over this length may be substituted for the two-way barrier line.

3.11 Water crossings

3.11.1 Scope

This section describes the pavement markings used in conjunction with other devices on the approaches to water crossings, such as ferries and opening bridges, which may entail stopping traffic before a boom gate or similar device. A typical layout, in this case a ferry approach, is shown in Figure 3.11.3 in this section of this guide.
3.11.2 Stop line

A stop line is required on each approach to indicate where vehicles are to stop if necessary. The distance from the stop line to the boom gate is generally five to 10 metres.

3.11.3 Barrier lines

Barrier lines should be provided on each approach and, where appropriate, across a bridge. The barrier lines should extend a distance of at least 60 metres from the boom gate and preferably to the warning sign.

*Figure 3.11.3 – Ferry approach*

3.12 Speed control zones

At changes in zoned speed, on roads where the surface is suitable, elongated numerals may be painted on the road surface in each lane adjacent to the sign.

Such markings are not used alone and shall only be used to supplement speed restriction signs. Their use is generally restricted to locations where the provision of signs alone is not adequate, such as where the effect of the sign is reduced by the nature of the roadside environment, and it is considered that the sign needs to be augmented to increase driver perception.

For details of numeral dimensions, see Section 2.4.2.2.2 in this guide.

Threshold treatments can also be used to inform road users that they are entering a speed control zone, such as a school zone or LATM area. Guidelines for threshold treatments at school zones are provided in TRUM Manual Volume 2 Part 3 Clause 3.2-1.
3.13 Pedestrian crossing facilities

3.13.1 Scope

This section deals with the facilities designed to help pedestrians cross roads at grade. These facilities include:

a) zebra crossings
b) children’s crossings
c) mid-block signalised crossings
d) pedestrian refuges.

3.13.2 Zebra crossing

The pedestrian (zebra) crossing comprises the markings specified in Section 2.4.2.4 of this guide and AS1742.10 Figure 1 reproduced in that section of this guide. They extend across the full width of the roadway. They are accompanied by the pedestrian crossing sign (R3-1). The advance warning sign (W6-2) is erected in advance of the crossing and may be supplemented by one of the pavement messages:

- ‘PED X’
- ‘SCHOOL X’
- ‘SCHOOL’

in accordance with Section 2.4.2.2 and MUTCD Part 2 Figure 5.7 reproduced in that section of this guide and Figure 2.4.2.2.5 in Section 2.4.2.2.5 of this guide.

Stop lines are not used.

3.13.3 Children’s crossing

Children’s crossings are defined as an area of road at a place with stop lines marked on the road, and children crossing flags, and indicated by two red and white posts erected on each side of the road and extending across the road between the posts. This type of crossing is the primary means of assisting children to cross the roadway at schools and is shown in AS1742.10 Figure 3 reproduced in this section of this guide. The advance warning signs may be supplemented with pavement messages as described in the preceding Section 3.13.2 of this guide.

For warrants regarding the installation of pedestrian crossings, refer to Section 3.4-1 of TRUM Volume 1 Part 6.
MUTCD Part 10 Figure 7.2(a) – Children’s Crossing

Notes

1. Variations to no-stopping distances may be required, see MUTCD Part 10 Clause 6.2.
2. A line (approximately 100 mm wide) may be painted on the footpath – 0.5 m behind the face of the kerb – to indicate the position where pedestrians should wait until directed to cross the roadway. Where used, this line extends the width of the sealed apron connecting the footpath and kerb or a distance of 3 to 6 metres, that is, between the crossing posts (without flags).
3. The W6-3 / W8-22 assembly is required if the sight distance to the crossing is substandard.
4. Pram / bicycle ramps should be installed.

Dimensions in metres

A line (approximately 100 mm wide) may be painted on the footpath – 0.5 metres behind the face of the kerb – to indicate the position where pedestrians should wait until directed to cross the roadway.
3.13.4 Mid-block signalised crossing

The crossing is delineated by parallel crosswalk lines, which are defined in MUTCD Part 2 Figure 5.1 in Section 2.2.7 and described in Section 2.3.2. The crosswalk lines are normally 3.5 m apart. If only small numbers of pedestrians will use the crossing, this distance may be reduced to a minimum of two metres if necessitated by other site considerations. If large numbers of pedestrians will use the crossing, the distance between the crosswalk lines may be increased as required to accommodate the pedestrians. A stop line should be located between three and six metres back from the crossing on each approach. The layout is shown in AS1742.10 Figure 5 reproduced in Section 2.3.3 of this guide).

3.13.5 Pedestrian refuges

Pedestrian refuges are raised islands with kerbing, which may have walk-through sections at pavement level. Channelising islands and medians may be designed to act as refuges.

Approach line marking, in accordance with Section 2.4.1 and MUTCD Part 2 figures 5.4, 5.5 and 5.6 reproduced in that section of this guide, is needed to ensure that vehicles are safely guided past the island. Refuges should not unexpectedly constrict the road width. The number of traffic lanes should be maintained past the island by modifying line marking. Also, parking controls must be introduced to provide a clear area for pedestrians to cross the road and adequate visibility of the crossing area (see AS1742.10 Figure 7 reproduced in this section of this guide). Bus stops and loading zones need to be located carefully to ensure safe traffic operations in the vicinity of the refuge.

Island kerbs may be painted white – in any case, the noses of the island should be painted.

The length of the painted splay should be increased, or other delineation devices considered if visibility to the island is restricted. RRPMs should be provided at five-metre intervals, in accordance with Section 2.5 and MUTCD Part 2 figures 5.22 to 5.26 reproduced at that section of this guide.

A double barrier line, augmented with RRPMs, should form the outline on the approach sides of the painted splays. A barrier line should also precede each splay for the distance ‘C’ (shown in Figure B3.3) as given in Table 3.13.5.

<table>
<thead>
<tr>
<th>$V_{85}$ (km/h)</th>
<th>A (m)</th>
<th>C (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;75</td>
<td>80–120</td>
<td>30</td>
</tr>
<tr>
<td>75–90</td>
<td>120–180</td>
<td>60</td>
</tr>
<tr>
<td>&gt;90</td>
<td>180–250</td>
<td>100</td>
</tr>
</tbody>
</table>

3.13.6 Combined pedestrian crossing and children’s crossing

A pedestrian crossing may be installed within a school zone for use by pedestrians outside of school zone times. This facility is normally installed if there is substantial pedestrian use outside school zone times and is shown in MUTCD Part 10 Figure 7.2(b) and reproduced in Section 3.15.2 of this guide.
Notes

1. Island kerbs may be painted white.
2. If a refuge is used in conjunction with a marked-crossing, the spacing between the islands shall be increased accordingly.
3. Length of splayed approach marking should be increased, or other delineation devices considered if visibility to the island is reduced by vertical or horizontal alignment. Unidirectional yellow raised retroreflective pavement markers shall be provided at 6.0 m spacings.
4. Painted median is preceded by a single barrier line extending for 30 m minimum.
5. Where refuges are used on arterial or high-speed roads, pedestrians or children warning signs W6-1 or W6-3 (minimum size B) as appropriate, shall be erected together with supplementary plate REFUGE ISLAND (W8-25) in advance of the refuge.
6. KEEP LEFT signs may be omitted if delineation of the island under all conditions is adequate.
7. When used near intersections, the length of the island nearest to the intersection may be reduced to accommodate turning traffic. A suggested minimum length is 1.25 m.
8. Road lighting in accordance with AS/NZS 1158.4 should be provided.
9. Frangible pedestrian assist handrails may be provided on the island at the pedestrian crossing point provided the island is at least 2 m wide.
10. Variations to the no stopping distance may be required, see Clause 6.2. The no stopping zone on the departure side may need to be extended if needed to a point where the roadway is wide enough for parking and passing traffic.
11. Width W to be desirably 3 m minimum if there are high pedestrian volumes or significant numbers of cyclists or people with disabilities or 2 m minimum in other cases.

Dimensions in metres
3.14 **Roadside stopping places**

A roadside stopping place is an area where vehicles may safely stop clear of the travelled way. These include service centres, rest areas and other areas such as lay-bys, breakdown bays, bus bays and telephone bays.

Pavement markings at these stopping places are provided consistent with the type of access, for example, exit and entry ramps, intersections and so on, and as generally indicated in this guide. This pavement marking supplements appropriate signing to the facility. Layout, pavement markings and signs for emergency stopping bays and phones are provided in Traffic Control (TC) Signs TC1340_1 and TC1340_2 in this section of this guide.

Where a roadside stopping place is a short informal sealed or paved area clear of the through pavement, without any associated signing, an edge line should be marked along the edge of the continuation of the through pavement. Where associated signing is provided at such a facility, a continuity line may be marked in lieu of an edge line where this would not conflict with any other nearby markings.
Traffic Control Sign – Emergency stopping bay and phone (TC1340_1)
Traffic Control Sign – Emergency stopping bay and phone for motorways (TC1340_2)
3.15 Other markings

3.15.1 Keep apart chevrons

These chevron markings consist of a series of white arrow heads painted on the road surface, which are spaced at one-second intervals. The chevrons are accompanied by roadside signs advising drivers to 'Keep at least two chevrons apart'. The primary objective of the markings is to both inform drivers of the safe following distance and to encourage them to choose a safer following distance.

The markings can be applied in free-flowing environments exceeding 90 km/h where tailgating is known to be a problem and/or there is a history of rear-end-type crashes. Other factors that affect the performance and suitability of the chevrons include site geometry, traffic volume and the resurfacing program.

The layout, spacing and dimensions of the markings are shown in Traffic Control (TC) Sign TC1723_3 in Section 3.15.2 of this guide. For further advice on the suitability of proposed treatment sites, contact Traffic Engineering Unit.

3.15.2 Threshold treatments

Guidelines for threshold treatments at school zones are provided in TRUM manual Volume 2 Part 3 Clause 3.2-1.
MUTCD Part 10 – Combined children’s crossing and pedestrian crossing at school

Notes

1. Times of operation may be specified by use of R5-36-1 sign.
2. Where stationary vehicles near a crossing seriously limit visibility between drivers and pedestrians, an increase in these distances may be required.
3. Warning signs may be supplemented with advance pavement messages (see Section 6 of MUTCD Part 4).
4. A yellow line (approximately 100 mm wide) may be painted on the footpath – 0.5 m behind the face of the kerb – to indicate the position where pedestrians should wait until directed to cross the roadway. Where used, this line extends the width of the sealed apron connecting the footpath and kerb or a distance of three to six metres, that is, between the crossing posts (without flags).
5. Pram / bicycle ramps should be installed.