

Manual of Uniform Traffic Control Devices

Part 12 Bus, Transit and Truck Lanes

2003 Edition

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**DEPARTMENT OF MAIN ROADS
Queensland**

Manual of Uniform Traffic Control Devices

PART 12 – BUS, TRANSIT AND TRUCK LANES

1 SCOPE

This Part of the Manual specifies the traffic control devices required to designate traffic lanes as bus lanes, transit lanes or truck lanes. It also specifies devices for the control or prohibition of truck or bus traffic where required on roadways.

2 AIM

The aim of this Part of the Manual is to advise road authorities and local government concerning the application of signs and pavement markings to bus, transit and truck lanes.

3 REFERENCED DOCUMENTS

The following documents are referred to in this Part of the Manual.

AS

1743 Road signs-Specifications

AS/NZS

1906 Retroreflective materials and devices for road traffic control purposes

1906.1 Part 1: Retroreflective materials

4 DEFINITIONS

For the purpose of this Part of the Manual the definitions below apply.

4.1 Bus lane

A lane reserved for the use of buses and other vehicles as specified in regulations (e.g. taxis) and bicycles.

4.2 Traffic control device

Any sign, signal, pavement marking or other installation placed or erected under authority of the Transport Operations (Road Use Management) Act, for the purpose of regulating, warning or guiding road users.

4.3 Transit lane

A lane reserved for the use of certain high occupancy and other vehicles as specified in regulations e.g.

- (a) motor vehicles carrying the number of persons (including the driver) indicated on the transit lane sign viz. two or more persons in a 'T2' lane, three or more persons in a 'T3' lane; and
- (b) buses, taxis, motorbikes and bicycles.

4.4 Truck lane

A lane reserved for the use of trucks which exceed 4.5 tonnes gross vehicle mass.

5 SIGNS

5.1 General

Signs used to designate bus, transit and truck lanes are listed in Table 1. For detailed specifications for the manufacture of signs, see AS 1743.

Signs that are intended to convey messages at night shall be either illuminated or reflectorized so that their colours and shapes are displayed by night as by day (see Part 1 of this Manual).

For guidance on the installation and location of signs and selection of sign sizes refer to Part 1 of this Manual.

TABLE 1 SIGNS USED FOR BUS, TRANSIT AND TRUCK LANES

Sign	Sign number	Size, mm
No buses No trucks	R6-10-1 } A R6-10-2 } B C	600 x 600 900 x 900 1200 x 1200
Bus LANE Truck LANE	R7-1-1 } C R7-1-3 } D E	600 x 800 900 x 1200 1200 x 1600
Supplementary plates* AHEAD END	R7-2 } C R7-4 } D E	600 x 200 900 x 300 1200 x 400
LEFT LANE Overhead arrow	R7-3(L) } C R7-5 } D E	600 x 400 900 x 600 1200 x 800
AHEAD arrow	R7-Q01 } C D	600 x 300 900 x 450
TRANSIT LANE, T2 TRANSIT LANE, T3	R7-7-1 } C R7-7-2 } D E	600 x 800 900 x 1200 1200 x 1600
TRANSIT LANE T2, including single time of operation	R7-7-3	1200 x 1400
TRANSIT LANE T2, including dual times of operation	R7-7-4	1200 x 1550
TRANSIT LANE T3, including single time of operation	R7-7-5	1200 x 1400
TRANSIT LANE T3, including dual times of operation	R7-7-6	1200 x 1550
END T2 TRANSIT LANE END T3 TRANSIT LANE	R7-9-1 } C R7-9-2 } D E	600 x 600 900 x 900 1200 x 1200
...t GVM AND OVER**	R7-Q03 } A B C	600 x 400 900 x 500 1200 x 600
Lane designation (overhead)	R7-Q04	1800 x 1500
Times of operation supplementary plates* One period AT ALL TIMES	R9-1-1 } B R9-1-3 } C D	600 x 400 900 x 600 1200 x 800
Two periods	R9-1-2 } B C D	600 x 600 900 x 900 1200 x 1200

* Supplementary plate widths match the width of the parent sign.

** Special supplementary plate R7-Q03 is used only with No trucks sign R6-10-2.

5.2 Signs for bus lanes

Bus LANE (R7-1-1)



R7-1-1

The Bus LANE sign (R7-1-1) shall be used to designate a lane set aside for the use of buses and any other vehicle types permitted by regulations to travel in a bus lane for its entire length (i.e. not just when about to turn at an intersection).

Supplementary plates are specified in Clause 5.6.

5.3 Signs for transit lanes

TRANSIT LANE T2 (R7-7-1)

TRANSIT LANE T3 (R7-7-2)

TRANSIT LANE T2, including single time of operation (R7-7-3)

TRANSIT LANE T3, including single time of operation (R7-7-5)

TRANSIT LANE T2, including dual times of operation (R7-7-4)

TRANSIT LANE T3, including dual times of operation (R7-7-6)

END T2 TRANSIT LANE (R7-9-1)

END T3 TRANSIT LANE (R7-9-2)



R7-7-1



R7-7-2



R7-9-1



R7-9-2

The TRANSIT LANE signs (R7-7-1, R7-7-2) shall be used to designate a lane set aside for the use of certain high occupancy and other vehicles authorized to use that lane (see Clause 4.3).

The END T2 TRANSIT LANE sign (R7-9-1) or END T3 TRANSIT LANE sign (R7-9-2), as appropriate, shall be used to indicate the end of a transit lane.

Supplementary signs for use with signs R7-7-1 and R7-7-2 are specified in Clause 5.6. An information sign may be used to advise or remind drivers of the meaning of T2 and T3, and if used, should be placed in advance of the start of the transit lane but after the AHEAD (R7-2) sign and may be repeated as necessary along the route e.g. after major intersections. Standard signs, designed to conform with those in Road Rules and other alternative signs are shown in Figure 1.

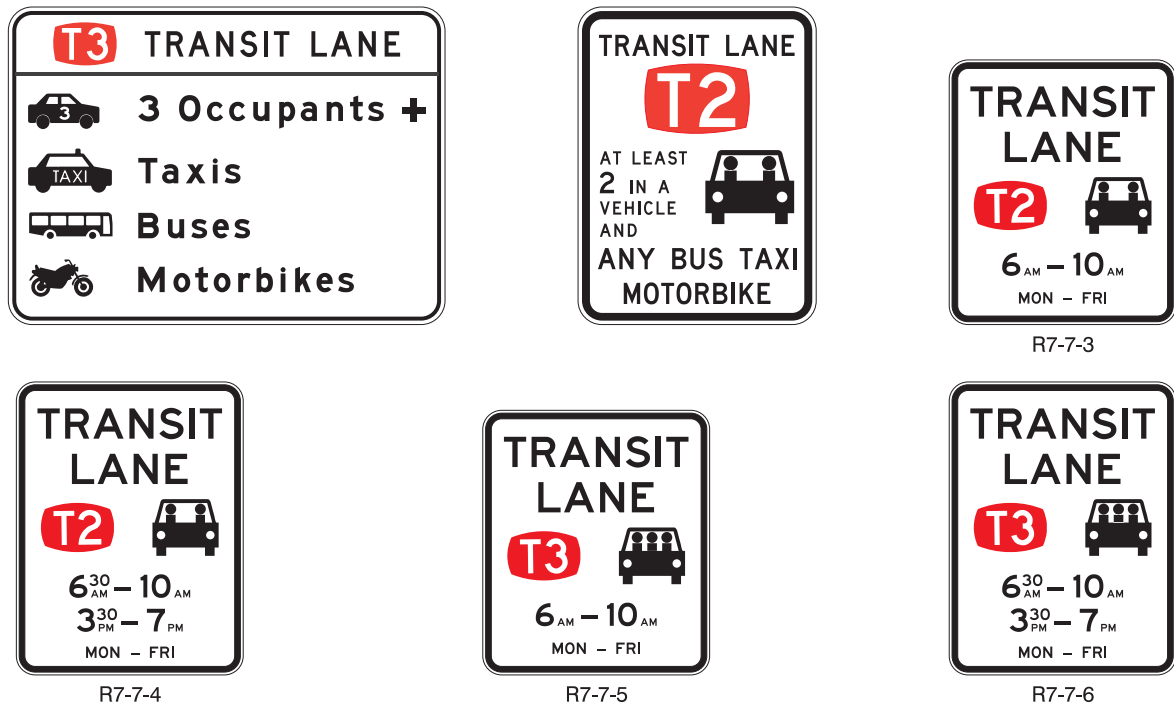


Figure 1 TYPICAL TRANSIT LANE INFORMATION SIGNS

5.4 Truck LANE (R7-1-3)



R7-1-3

This sign shall be used to designate a lane set aside for the use of trucks. Supplementary plates for use with this sign are specified in Clause 5.6.

5.5 Intermediate and repeater signs

The appropriate lane designation sign (R7-1-1, R7-1-3, R7-7-1 or R7-7-2) is also used as an intermediate sign and a repeater sign. Intermediate signs are provided after each major intersection and at not more than 1 km intervals. Repeater signs, which may be smaller, may be used along the route at regular intervals. Supplementary plates are also used in conjunction with the intermediate and repeater signs, as appropriate (see Clause 5.6).

5.6 Supplementary plates

AHEAD (R7-2)

LEFT LANE (R7-3(L))

END (R7-4)

Overhead Arrow (R7-5)

AHEAD - arrow (R7-Q01)

Times of Operation (R9-1-1, R9-1-2)

AT ALL TIMES (R9-1-3)

These signs are used as follows:

- (a) AHEAD (R7-2)



R7-2

This supplementary plate may be mounted below the following signs -

- (i) Bus LANE (R7-1-1);
- (ii) TRANSIT LANE T2 (T3) (R7-7-1, R7-7-2);
- (iii) Truck LANE (R7-1-3)

should be located approximately 30-100 m in advance of the beginning of the reserved lane to provide advance warning of the start of the lane. Lane indication plates are not required in this case.

(b) LEFT (RIGHT) LANE (R7-3(L or R))



R7-3(L)

This supplementary plate may be mounted below the following signs -

- (i) Bus LANE (R7-1-1);
- (ii) TRANSIT LANE T2 (T3) (R7-7-1, R7-7-2);
- (iii) Truck LANE (R7-1-3)

when they are mounted beside the lane, to indicate that the sign refers to that lane. The supplementary plates are generally not needed if pavement markings within the lane make it clear which lane the sign refers to.

(c) END (R7-4)



R7-4

This supplementary plate shall be mounted below the following signs -

- (i) Bus LANE (R7-1-1);
- (ii) Truck LANE (R7-1-3)

to indicate the end of the lane.

NOTE: This supplementary plate R7-4 shall not be used with TRANSIT LANE T2 (T3) signs (R7-7-1, R7-7-2) to indicate the end of a transit lane. END T2 (T3) TRANSIT LANE signs shall be used for this purpose (see Clause 5.3).

(d) Overhead arrow (R7-5)

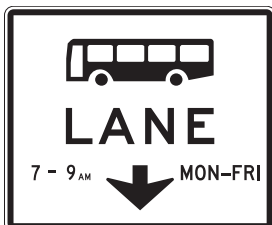


R7-5

This supplementary plate may be mounted below the following signs -

- (i) Bus LANE (R7-1-1);
- (ii) TRANSIT LANE T2 (T3) (R7-7-1, R7-7-2);
- (iii) Truck LANE (R7-1-3)

when they are suspended above the lane. They indicate the lane to which the sign refers.



R7-Q04

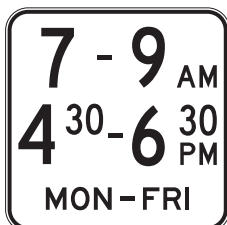
For convenience in mounting, the overhead signs may be designed as a single sign (R7-Q04) which incorporates the information normally provided on supplementary plates. Other formats, shown in Figure 2A(b) and (c), may also be used.

(e) Times of operation (R9-1-1, R9-1-2)



R9-1-1

These supplementary plates shall be mounted below lane designation signs R7-1-1 and R7-1-3 to indicate times of operation of a part-time facility. The lane indication signs LEFT (RIGHT) LANE (R7-3(L or R)) and Overhead Arrow (R7-5), where used, shall be mounted below the Times of Operation plate.



R9-1-2

(f) AT ALL TIMES (R9-1-3)



R9-1-3

This supplementary plate is used under the same conditions as the Times of Operation plates wherever there is a change from part-time to full-time operation of a facility along a route or within an area. It should be used only at or near the point where the change from part-time to full-time operation occurs.

(g) AHEAD-arrow (R7-Q01)



R7-Q01

This supplementary plate may be used to give advance indication of a bus, transit or truck lane. It is mounted below the appropriate lane designation sign and located on a side street approximately 30-100 metres in advance of an intersection with a roadway that includes the bus, transit or truck lane.

5.7 Vehicle prohibition signs

No Buses (R6-10-1)

No Trucks (R6-10-2)



R6-10-1

Vehicle prohibition signs are used where the vehicle indicated by the symbol is prohibited either on the roadway directly beyond the sign, or in a lane beside or over which the sign is placed. If applying to a lane either supplementary plate LEFT (RIGHT) LANE (R7-3 (L or R)) (side mount) or supplementary plate R7-5 (overhead arrow) shall be used with this sign (see Clause 5.6).

Where appropriate, other supplementary plates in Clause 5.6 may also be used with this sign.



R6-10-2

In addition, the special supplementary plate R7-Q03 ...t GVM AND OVER may be erected on the same post as, and immediately below, the No trucks sign (R6-10-2). As this sign restricts the size of a truck which is allowed to proceed beyond that point on the roadway, the minimum weight indicated on the sign shall be 4.5 tonnes.

Vehicle prohibition signs are not used where it is established that damage to a road is likely to occur if used by heavy vehicles. In this case, it is necessary to install a GROSS LOAD LIMIT ...t (R6-4) sign as required in Part 2 of this Manual.



R7-Q03

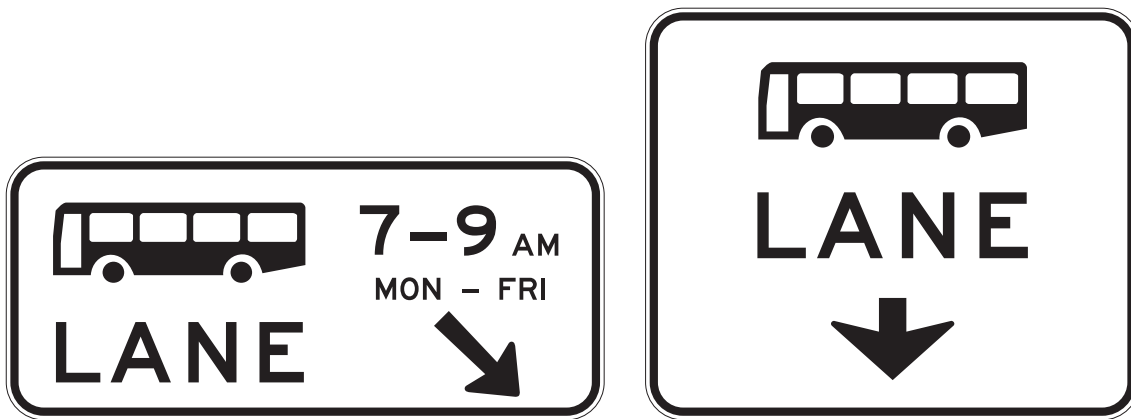
Where it is desired to prohibit heavy vehicles from travelling across a bridge if they exceed the maximum axle group load limits allowable on the bridge, the BRIDGE LOAD LIMIT (PER AXLE GROUP) sign R6-17 shall be used (see Part 2 of this Manual).

5.8 Bus lanes on freeways

Signs indicating bus lanes on freeways shall conform to the following requirements:

- (a) The colour shall be black legend on white background.
- (b) The legend shall comprise the following elements:
 - (i) The bus symbol (see Clause 5.2) and the word LANE.
 - (ii) For part-time bus lanes, the times and days of operation.
 - (iii) The legend END to indicate the end of the lane.
 - (iv) A directional arrow pointing to the lane.

Typical examples of freeway bus lane signs are shown in Figure 2A.



(a) Side-mounted sign - part-time bus lane

(b) Overhead mounted sign - full-time bus lane



(c) Overhead mounted in conjunction with direction signs with arrows - part-time bus lane

Figure 2A TYPICAL SIGNS FOR FREEWAY BUS LANES

5.9 Transit lanes on freeways

Signs indicating transit lanes on freeways include:

- (a) TRANSIT LANE T2 (R7-7-1) or TRANSIT LANE T3 (R7-7-2), as appropriate, along the lane. For part-time transit lanes, the times and days of operation shall be included (see Clause 5.3).

Where overhead mounted signs are used, either in conjunction with freeway direction signs or not associated with direction signs, the transit lane message format should have the following sequence:

- (i) Top line - T2 or T3 lane symbol;
 - (ii) Second/third line - TRANSIT/LANE legend;
 - (iii) Bottom line - downward pointing arrow; and
- as shown below.



Times and days of operation for part-time transit lanes may be included on the signs similar to that shown in Figures 2A(b) and 2A(c) or on overhead sign R7-Q04 in Clause 5.6(d).

- (b) END T2 TRANSIT LANE (R7-9-1) or END T3 TRANSIT LANE (R7-9-2) to indicate the end of the lane (see Clause 5.3).
- (c) TRANSIT LANE information signs (see Clause 5.3).
- (d) Advance signs for:
 - (i) The start of the lane (1 km AHEAD, 500 m AHEAD)



A 2 km AHEAD sign may be used if appropriate.

- (ii) Exit from the transit lane to normal traffic lanes to leave the freeway at the next exit.



- (iii) Entry to and exit from the lane (1 km AHEAD, 500 m AHEAD)



(iv) The end of the lane



(v) An exit bypassed by the transit lane, with motorists advised to use the normal traffic lanes instead.



(e) A 'merge left' sign located at the start of the merging location from the transit lane to the normal traffic lanes to allow a vehicle to leave the freeway at the next exit.



(f) The T2 or T3 LANE ENDS MERGE LEFT (RIGHT) sign is used where the transit lane is not a direct continuation into a free flow general purpose lane, but is dropped. The sign is erected at the start of the taper for the lane drop.



The application of signs and markings on transit lanes on freeways is indicated in Clause 7.2(d).

Detailed consideration should be given to the length and location of weave zones and associated signs on freeway transit lanes to ensure that drivers are able to position their vehicles in the correct lanes to undertake the correct manoeuvres and ensure that delayed decision making is kept to a minimum.

5.10 Freeway signing for separate exclusive busway

Where access is provided from a freeway to an exclusive-use roadway i.e. a busway, direction signs on approach to the freeway exit ramp and any adjacent intersections may incorporate the facility name and/or logo e.g. South East Busway. In this case the relevant signs or panels of signs, although designed and laid out in accordance with GE1 or GE2 and G1 or G2 type signs as described in Part 2 of this Manual, have the service white on blue colour scheme while the balance of the sign has the standard white on green colour scheme (see Figure 2B). Signing along the busway should be consistent with normal signing practice as set down in this Manual.

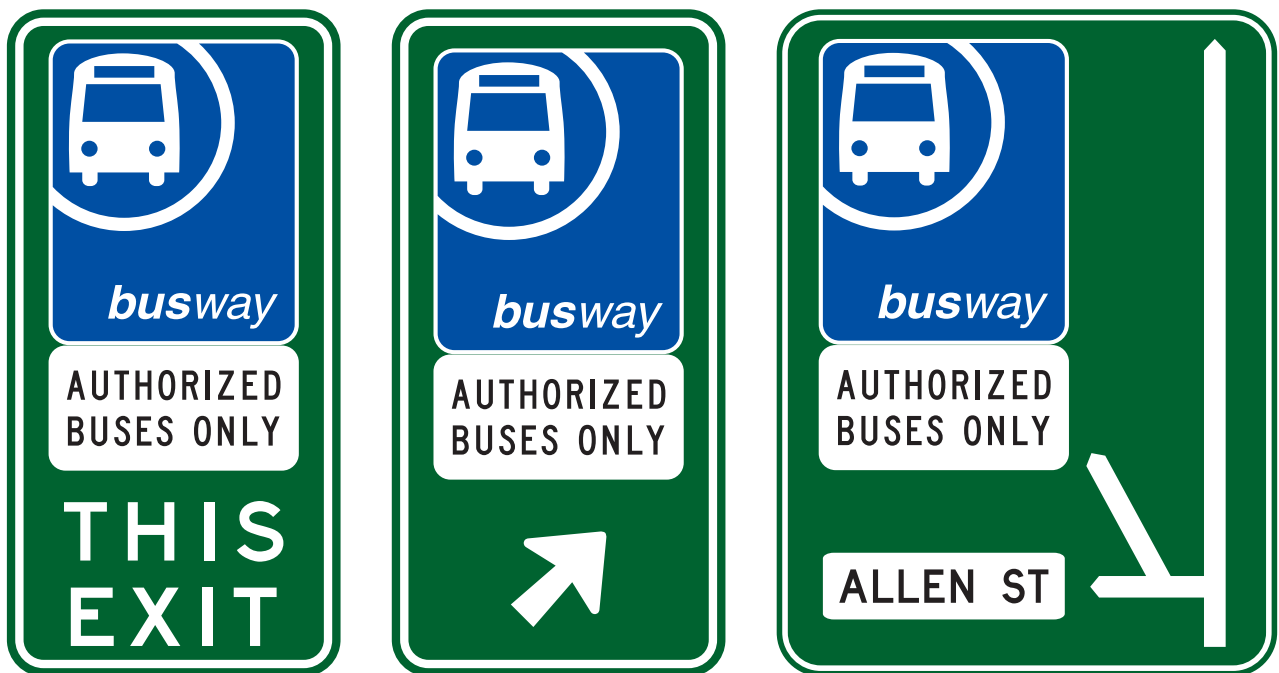


Figure 2B TYPICAL SIGNS TO AN EXCLUSIVE BUSWAY OFF THE FREEWAY

6 PAVEMENT MARKINGS

6.1 Longitudinal markings

Longitudinal markings, whose uses are illustrated in Clause 7, shall be used to delineate lanes as follows:

- (a) *Full-time bus, transit or truck lane* Unbroken white line 100 mm or 150 mm wide.
- (b) *Part-time bus, transit or truck lane* Broken white line 80 mm or 100 mm wide with 3 m line, 9 m gap.
- (c) *White continuity line, 100 mm or preferably 200 mm wide, 1 m line, 3 m gap* Used in conjunction with white lane lines; for the following purposes:
 - (i) Obliquely across the start of a lane or where it restarts after having been stopped at an intersection, to direct other traffic away from the lane.
 - (ii) On the approach to an intersection to indicate where the lane may be entered by otherwise prohibited traffic about to make a turn.
- (d) For application of markings on freeways, refer to Clause 7.2(d). Application of retroreflective raised pavement markers (RRPMs) is in accordance with guidelines set out in Part 2 of this Manual.

6.2 Pavement messages

Relevant word messages shall be marked on the road pavement in **full-time** bus, transit or truck lanes. Markings shall be white and elongated in the direction of traffic movement to improve their legibility.

NOTE: Legibility distance is increased by enlarging the length of characters. The benefit obtainable with increasing elongation diminishes if the distortion ratio exceeds about 10:1.

The relevant messages shall be selected from the following:

BUS LANE and BL

TRUCK LANE

T2 (T3) LANE and T2 or T3

The markings BL, T2 and T3 shall be used as repeater markings only. Where desired, the markings BUS LANE and BL, and T2 or T3 may be enhanced by a coloured rectangular panel. Red shall be the colour used for the panel background. Details of these markings are shown in Figure 3B.

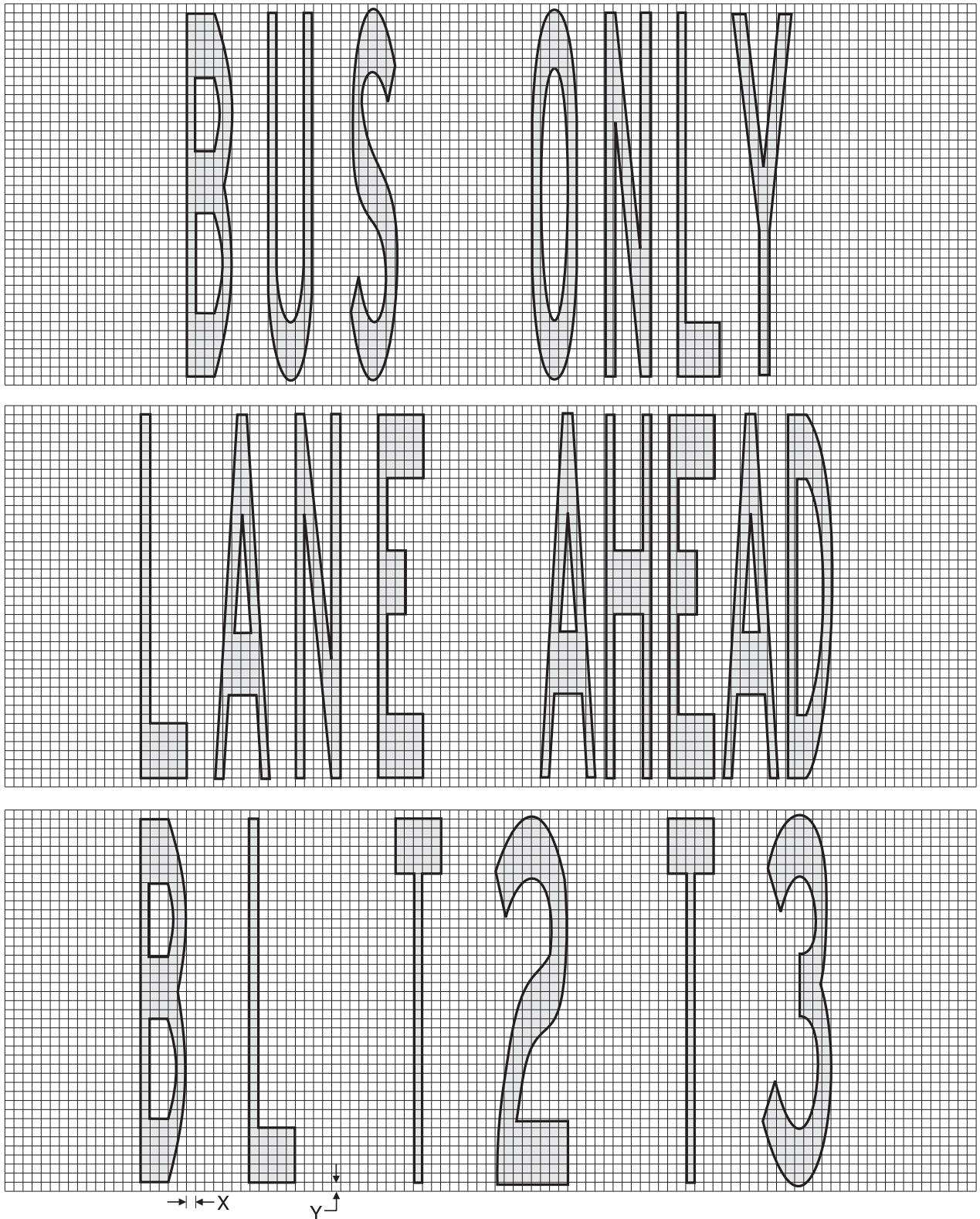
For an advance warning, the word AHEAD should be added at the end of the message.

The length of letters should be not less than 2.5 m in urban areas but on high-speed highways and freeways may need to be at least twice this length. The dimensional proportions of letters should be as shown in Figure 3A.

Where two or more lines of text are required they should be designed as follows:

- (a) On high-speed roads, generally speed zones higher than 80 km/h, a separation of four times the character height should be used, and the message should be arranged to read sequentially, i.e. with the first word nearest to the driver. The method of placing these markings is illustrated in Figure 4B.
- (b) For low-speed, urban situations the separation between lines of text may, if necessary, be from one-half to one times the character height, in which case the message should be arranged to read from top to bottom, i.e. with the first word farthest from the driver. The method of placing these markings on low-speed urban roads is illustrated in Figure 4A.

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.



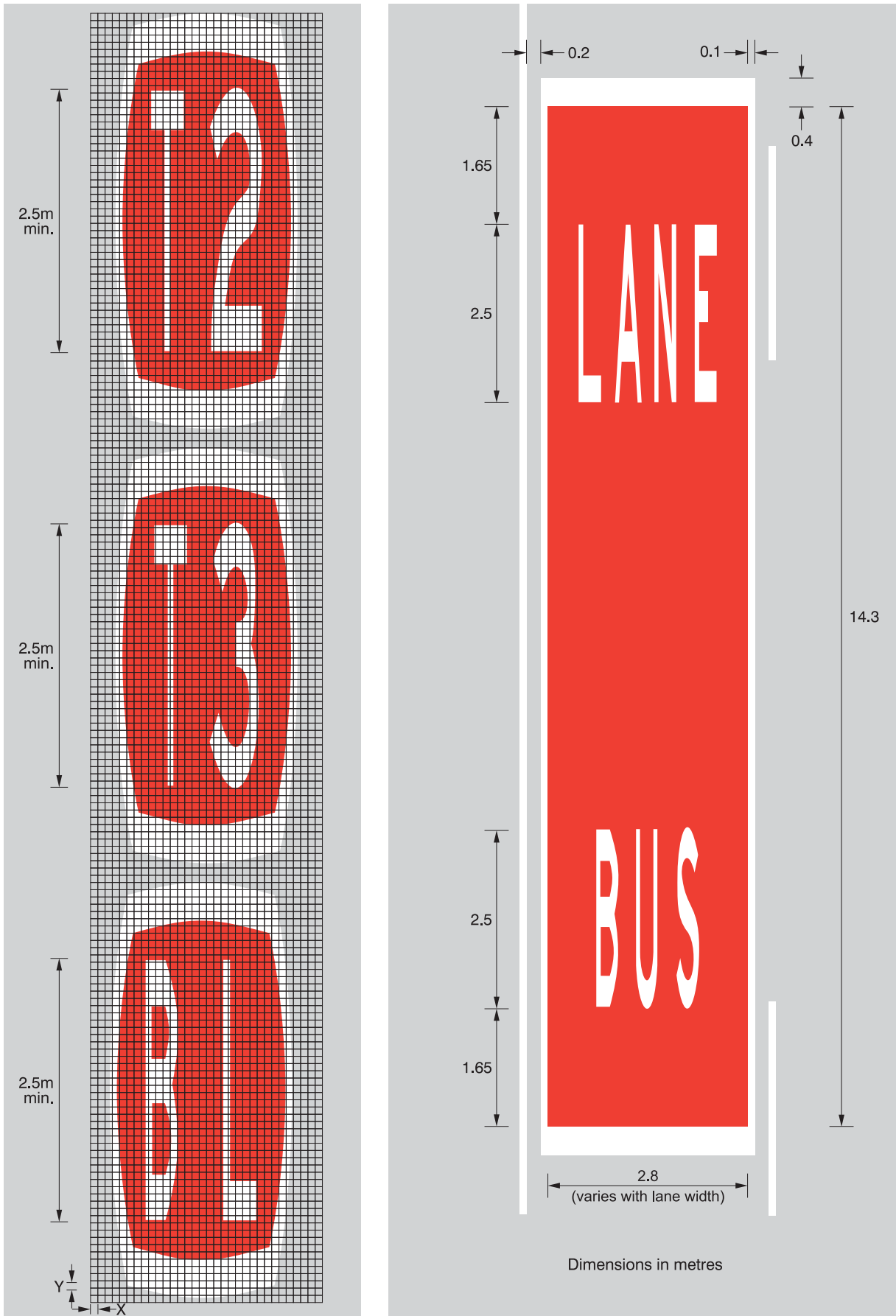
NOTES:

1. The grid width (X) is constant at 100 mm but grid height Y may vary as follows:

$$\text{The grid height } Y = \frac{\text{Height of letter required (mm)}}{40}$$

2. The word AHEAD may need to be made narrower (e.g. grid width reduced to 75 mm) to fit into a lane.

Figure 3A PAVEMENT LETTERS FOR LANE MESSAGES



NOTES:

1. The grid width (X) is constant at 100 mm but grid height Y may vary as follows:
2. The grid height Y = $\frac{\text{Height of letter required (mm)}}{40}$

40

Figure 3B PAVEMENT MARKING SYMBOLS FOR LANE MESSAGES

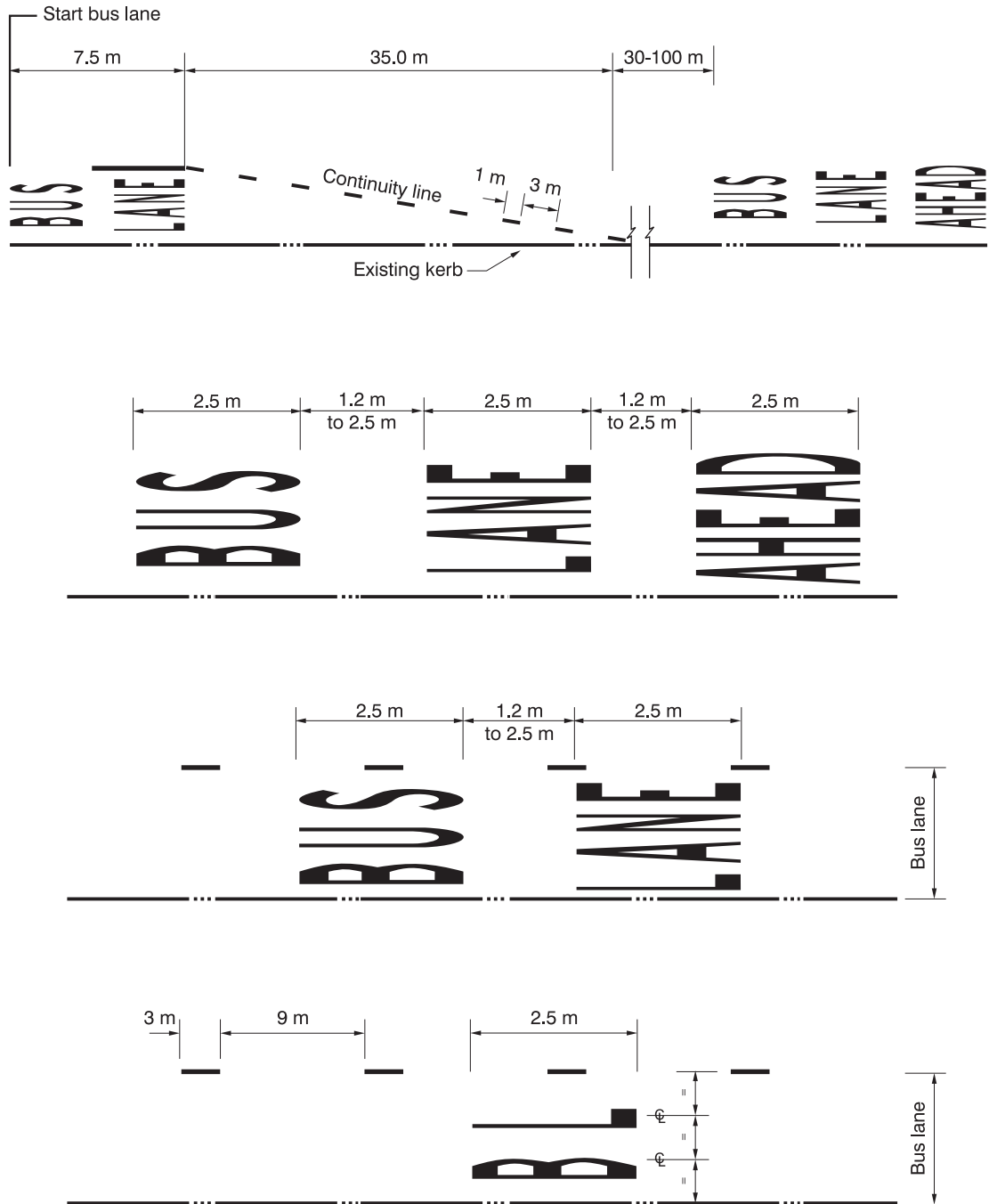
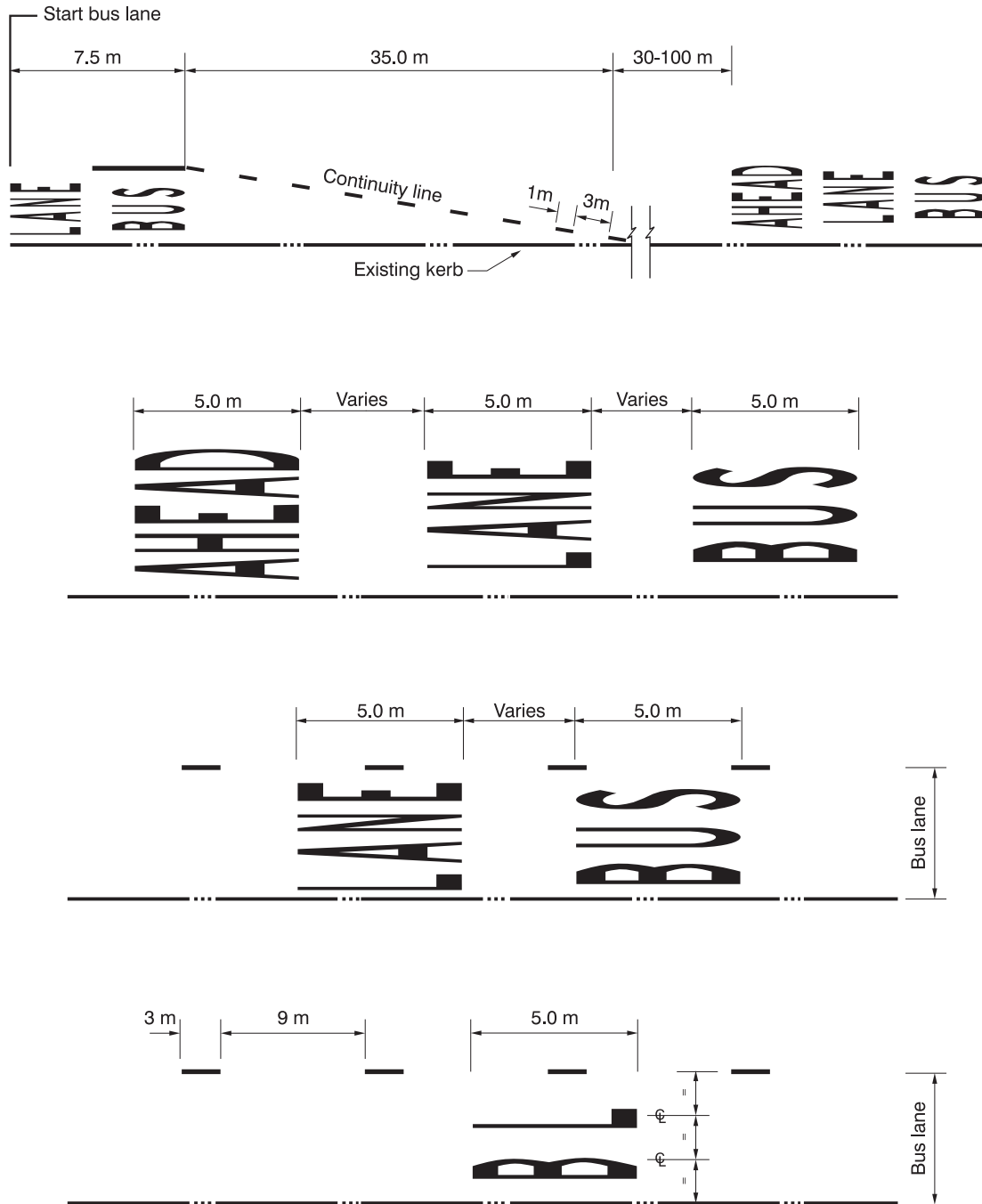


Figure 4A BUS-LANES - PAVEMENT MARKINGS ON LOW-SPEED ROADS



NOTES:

1. 'BUS LANE' and 'BL' to be located centrally in Bus Lane when used. 'BUS LANE AHEAD' to be located centrally in kerbside lane.
2. Character lengths should be at least 5.0 m with spacings between words four times the letter height.

Figure 4B BUS-LANES - PAVEMENT MARKINGS ON HIGH-SPEED ROADS (> 80 km/h)

7 APPLICATION OF SIGNS AND MARKINGS

7.1 General principles

The primary means of designating a bus, transit or truck lane shall be by installation of the following:

- (a) A sign of the type R7-1-1, R7-7-1, R7-7-2 or R7-1-3 (see Clause 5) placed beside or over the lane at its start, or where it restarts having been discontinued at an intersection or other feature. The supplementary plates LEFT LANE (R7-3(L)) or Overhead Arrow (R7-5) may be added to the sign if necessary to make it clear which lane the sign refers to. Times of operation plates shall be added to lane designation signs R7-1-1, R7-1-3 for a part-time facility.
- (b) An END sign comprising a bus or truck lane sign with the supplementary plate END (R7-4) to indicate the end of a bus or truck lane. For transit lanes, the end of the lane shall be indicated by an END T2 (T3) TRANSIT LANE sign (R7-9-1 or R7-9-2).
- (c) On a full-time lane, both the appropriate lane designation sign and the corresponding pavement markings specified in Clause 6.2 shall be provided, the former being a regulatory requirement to designate the lane.
- (d) A white lane line of the appropriate pattern as specified in Clause 6.1(a) to (d) wherever it is necessary to separate the lane from other lanes on the same roadway by pavement marking only (i.e. other than by raised separators).

Advance signs, repeater signs, continuity lines, the AT ALL TIMES (R9-1-3) supplementary plate at full-time facilities and a transit lane information sign (see Figure 1) should also be used as necessary to ensure that drivers are given as much guidance as they need for proper observance of the lane restrictions. Signs should be erected far enough past intersections to allow a vehicle turning into the road to observe the signs.

Traffic regulations provide that a motor vehicle may cross the bus, transit or truck lane or travel within the lane for up to 100 m in order to access driveways or turn at an intersection.

7.2 Typical treatments

Typical treatments for the signing and marking of bus and transit lanes are illustrated in Figures 5, 6 and 7. These illustrations are for typical urban low speed cases where the lane is on the left side of the roadway and side streets occur along the route at relatively close spacing.

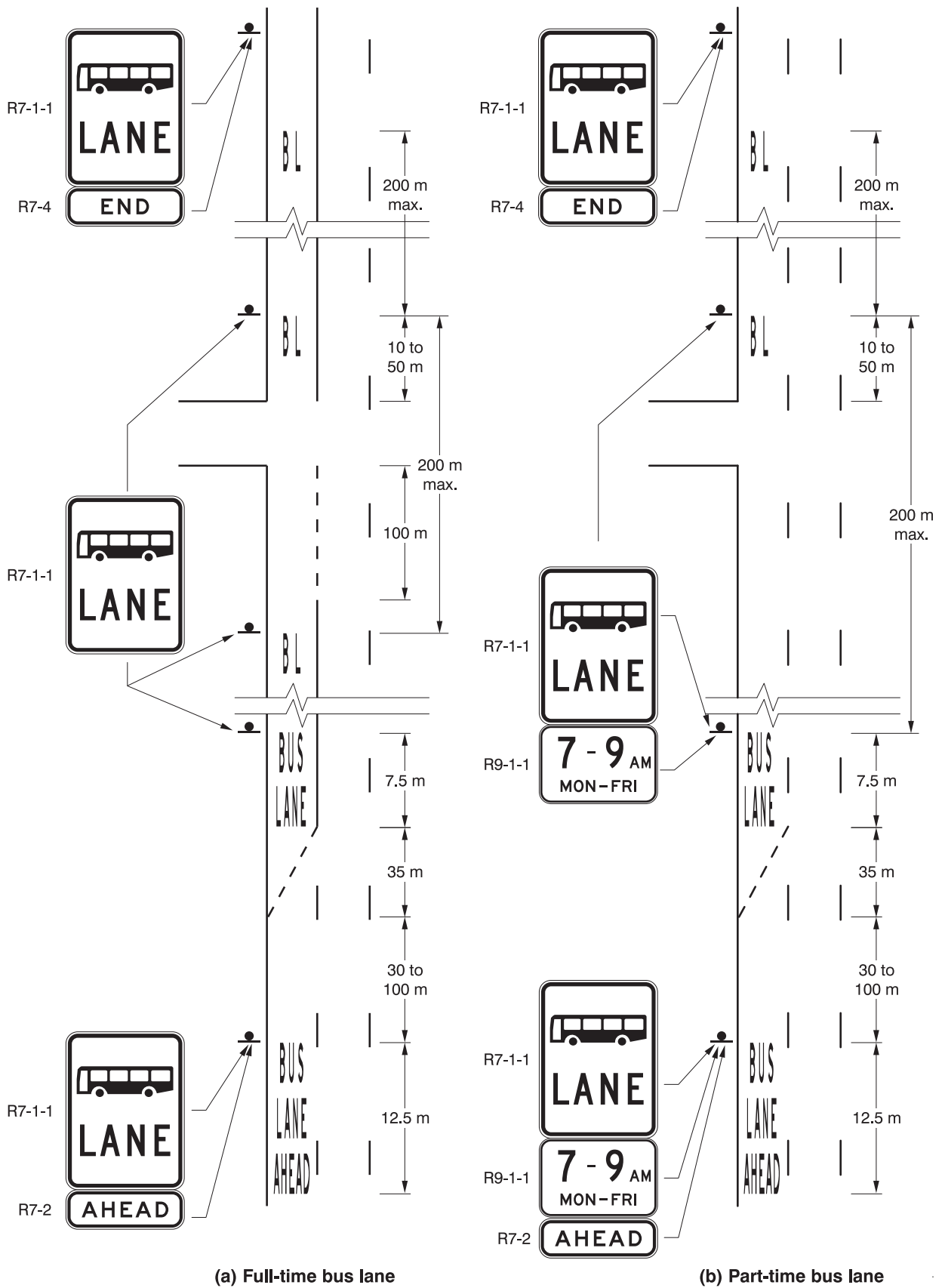
Modifications to these treatments are as follows:

- (a) *Overhead signs* Lane designation signs, including where necessary, advance and END signs shall be mounted above the lane where it is impracticable to mount the signs beside the lane.
The Overhead Arrow supplementary plate (R7-5) may be used with overhead lane designation signs for bus, transit and truck lanes. Alternatively, sign R7-Q04 may be used in lieu (see Clause 5.6(d)).
- (b) *Absence of side streets* In situations where side streets are either non-existent or a long distance apart, signs and pavement messages which are normally placed after each side street should be repeated so that they occur at not more than the following spacings:
 - (i) Lane designation signs - 200 m
 - (ii) BL, T2 or T3 pavement marking where used - 200 m
 - (iii) BUS LANE or T2(T3) LANE pavement marking replacing a BL, T2 or T3 marking - 1 km
- (c) *High speed roads* Where traffic speeds are generally in excess of 80 km/h, pavement messages should be placed on high speed roads as recommended in Clause 6.2 and illustrated in Figure 8.
- (d) *Lanes on freeways* Bus or transit lanes on freeways perform the same function as on other roads. However, due to the high operating speeds and width of the main freeway lanes, it is essential that drivers be given adequate advance information to ensure that they may enter and leave the lane in safety. The design and application of bus or transit lane signs on freeways therefore needs careful consideration. Special diagrammatic signs are provided to give advance information relating to the start of the lane, locations of entry to and exit from the lane and the end of the lane as indicated in Clause 5.9.

The spacing between lane designation signs (and associated pavement markings) may be increased to 400 m. Depending upon the total length of the lane, this may be further increased to about 1 km. The largest available sizes for lane designation signs should be used.

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 increased to 150 mm. Openings in the painted island allow access to and from the designated lane and are marked with a continuity line.

A typical arrangement for signing and marking of a transit lane on a freeway is shown in Figure 9.



NOTE: '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.

Figure 5 TYPICAL START, END AND MID-BLOCK TREATMENT FOR A BUS LANE

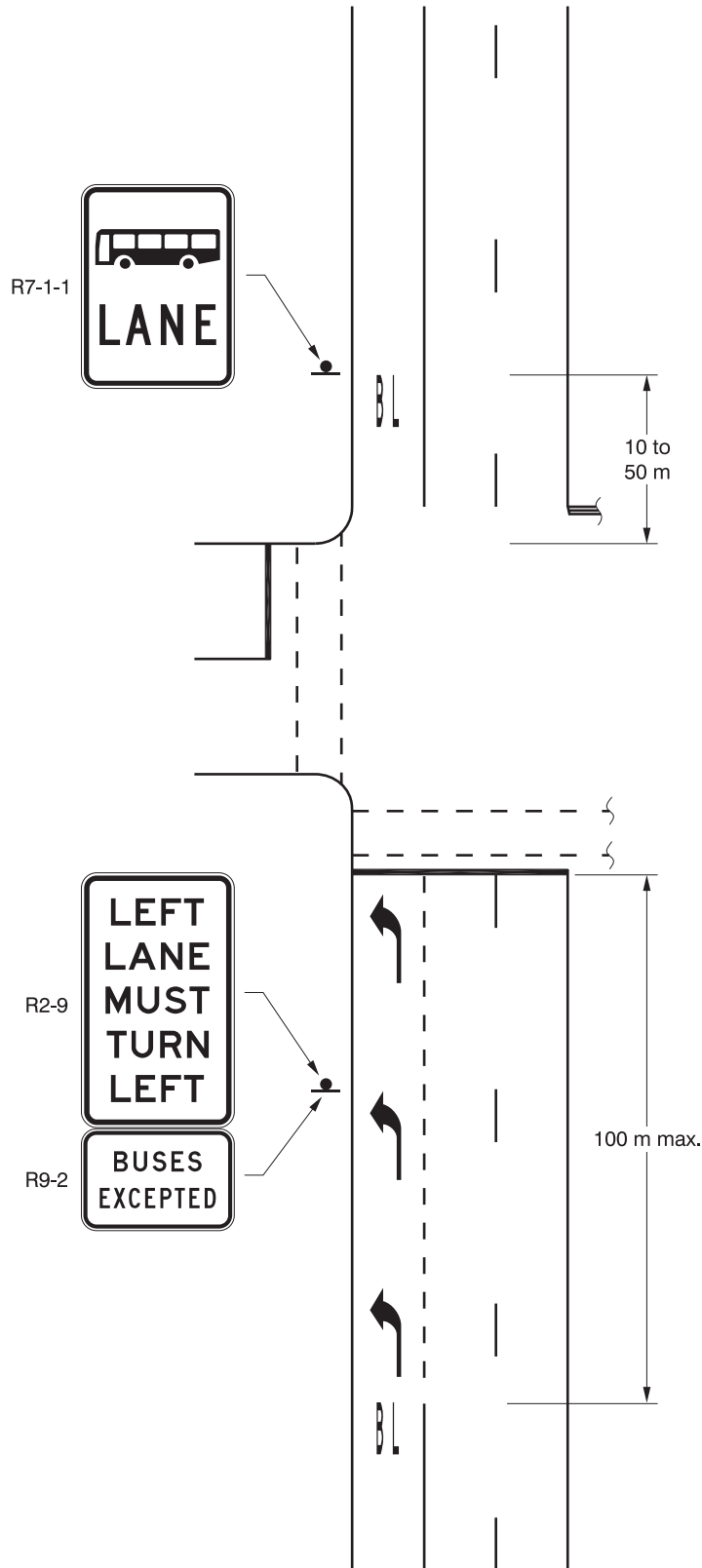
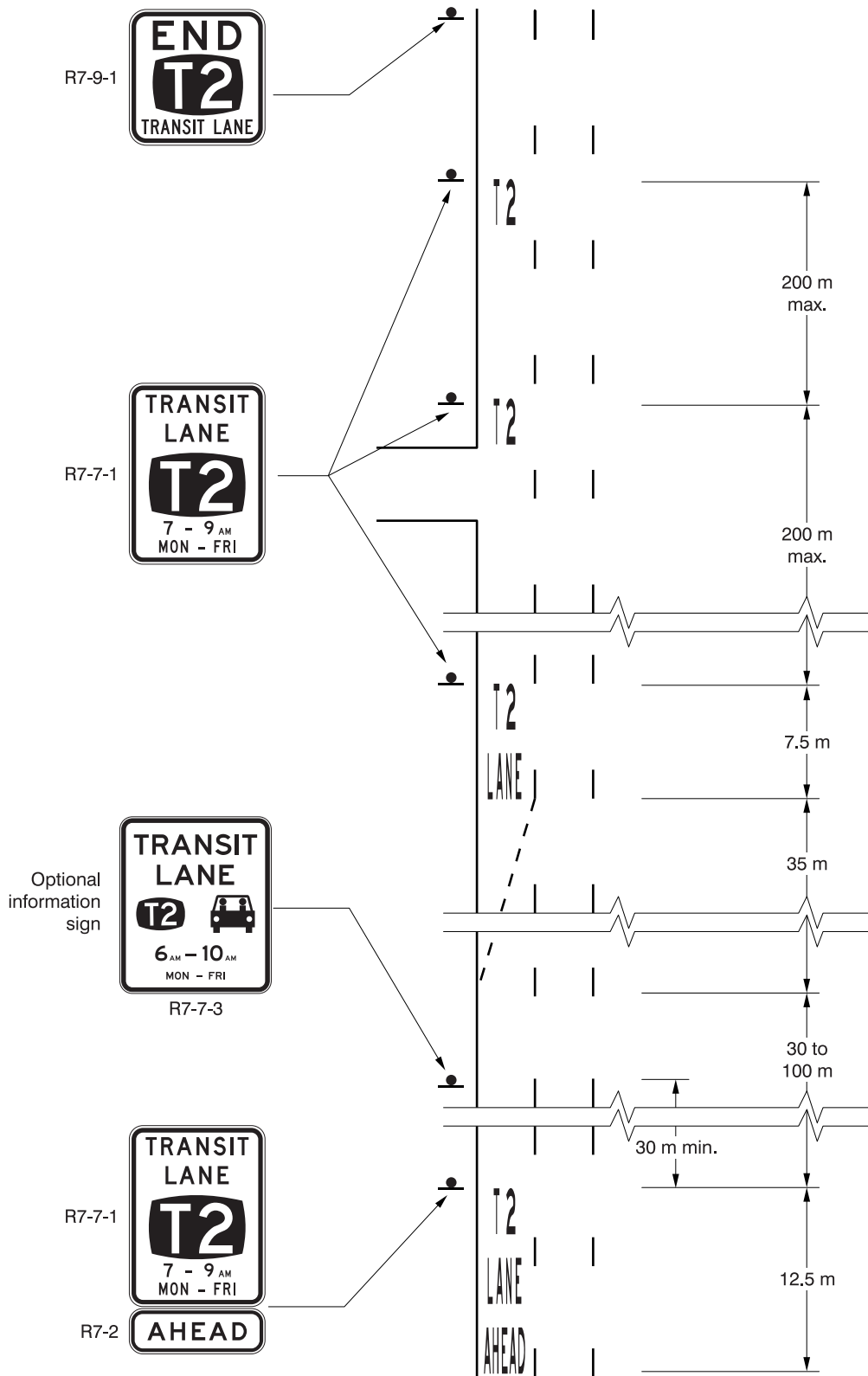


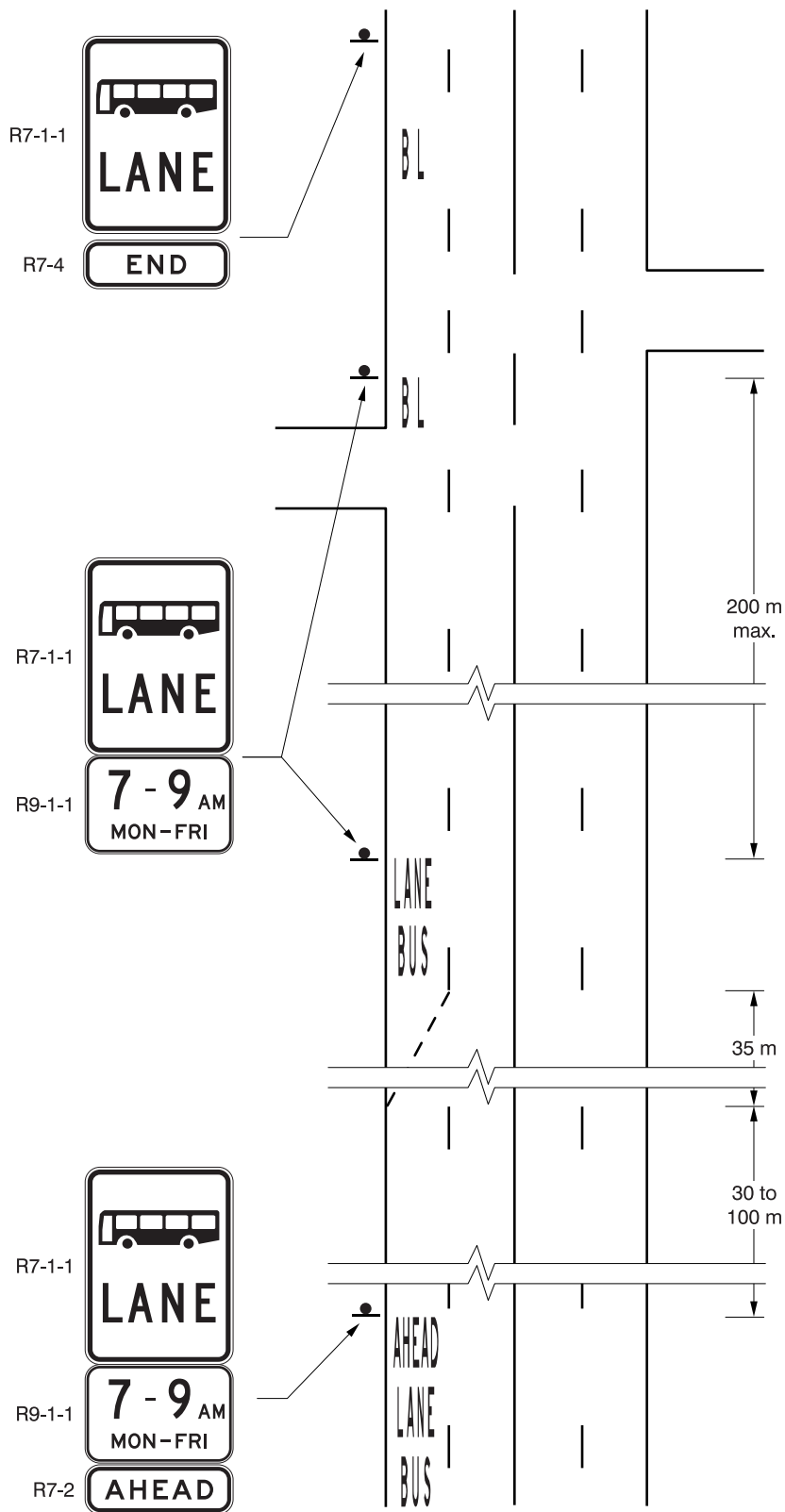
Figure 6 TYPICAL TREATMENT OF A FULL-TIME BUS LANE ON APPROACH TO SIGNALIZED INTERSECTION - NO SEPARATE BUS SIGNALS



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 Figure 6.

Figure 7 TYPICAL TREATMENT FOR A PART-TIME TRANSIT LANE



NOTE: Use BUS LANE pavement marking after major side street or at about 1 km spacing maximum in lieu of "BL" marking. For design of pavement markings, see Clause 6.2 and Figure 4B.

Figure 8 TYPICAL TREATMENT OF BUS LANES ON HIGH SPEED ROADS (> 80 km/h)

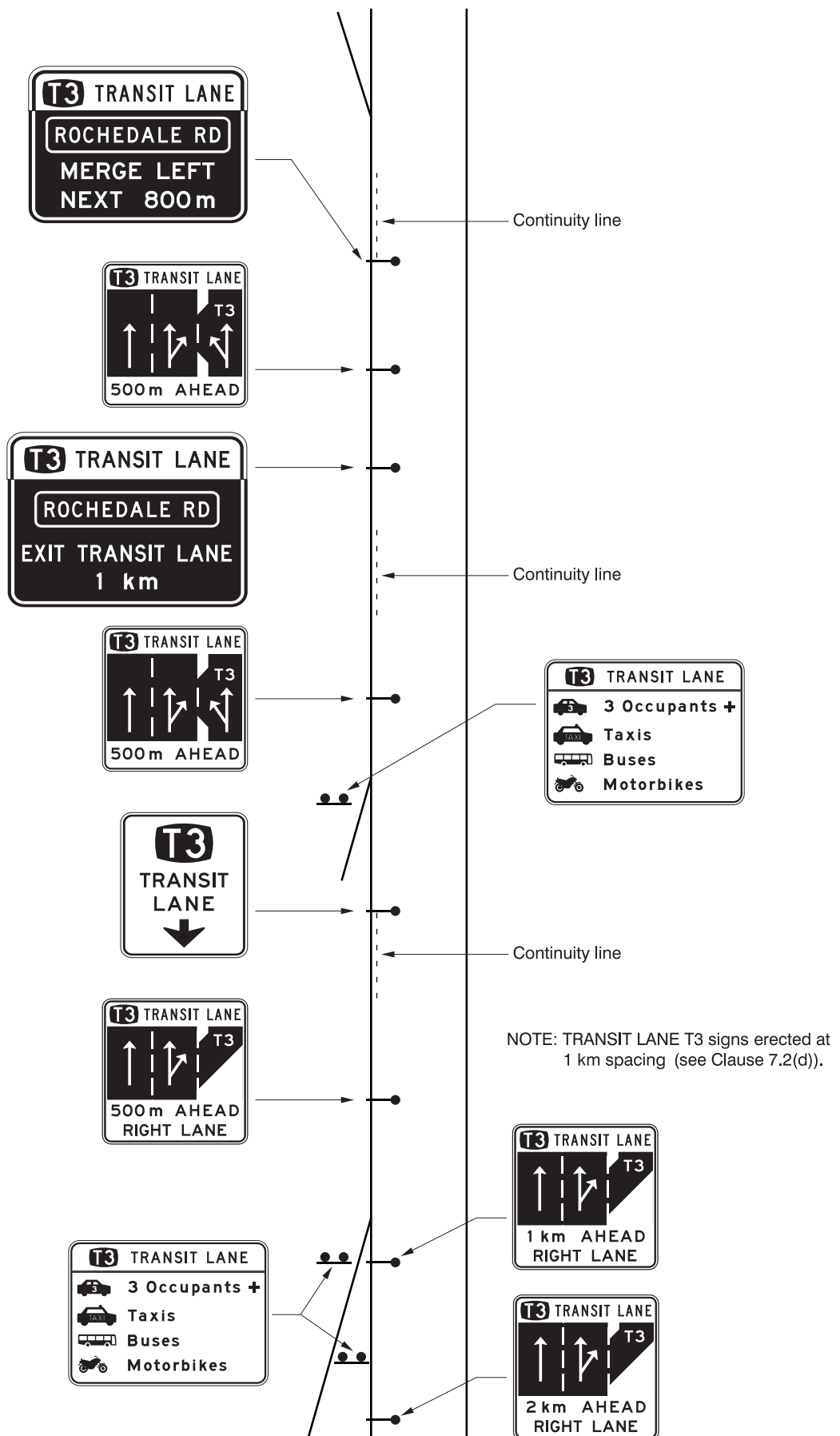


Figure 9 TYPICAL ARRANGEMENT FOR FREEWAY TRANSIT LANE

(Blank)