

Australian Standard™

Manual of uniform traffic control devices

Part 9: Bicycle facilities

This Australian Standard was prepared by Committee MS/12, Road Signs and Traffic Signals. It was approved on behalf of the Council of Standards Australia on 12 May 2000 and published on 27 November 2000.

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ARRB Transport Research
AUSTROADS
Australasian Railway Association
Australian Automobile Association
Australian Chamber of Commerce and Industry
Commonwealth Department of Transport and Regional Services
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Australian Standard™

Manual of uniform traffic control devices

Part 9: Bicycle facilities

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PREFACE

This Standard was prepared by the Standards Australia Committee MS/12, Road Signs and Traffic Signals to supersede AS 1742.9—1986. It is one in a series of fourteen Standards which together form the *Manual of uniform traffic control devices*. The series comprises the following Standards:

AS

1742	Manual of uniform traffic control devices
1742.1	Part 1: General introduction and index of signs
1742.2	Part 2: Traffic control devices for general use
1742.3	Part 3: Traffic control devices for works on roads
1742.4	Part 4: Speed controls
1742.5	Part 5: Street name and community facility name signs
1742.6	Part 6: Service and tourist signs for motorists
1742.7	Part 7: Railway crossings
1742.8	Part 8: Freeways
1742.9	Part 9: Bicycle facilities (this Standard)
1742.10	Part 10: Pedestrian control and protection
1742.11	Part 11: Parking controls
1742.12	Part 12: Bus, transit, tram and truck lanes
1742.13	Part 13: Local area traffic management
1742.14	Part 14: Traffic signals

This edition of the Standard has been expanded considerably from the 1986 edition. It reflects a community demand for improved bicycle facilities in the intervening years and now covers matters not previously covered as follows:

- (a) A variety of treatments for bicycle lanes on roads including joint-use functions with other vehicle types and full- or part-time operation.
- (b) Treatment of bicycle lanes at signalized and unsignalized intersections.
- (c) A variety of treatments for off-road bicycle paths, both exclusive use and shared with pedestrians.
- (d) Mid-block road crossings of bicycle paths.
- (e) Provisions for bicycles on freeways.

In addition to the above, requirements for navigational aids (direction signs and the like) have now been expressed as a series of design principles rather than prescriptive forms of signposting.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

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STANDARDS AUSTRALIA

Australian Standard

Manual of uniform traffic control devices

Part 9: Bicycle facilities

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the signs, pavement markings and other devices to be applied to bicycle facilities both on the road and on paths separate from the road, either for the exclusive use of bicycles or joint use with other users. The Standard includes recommendations for guide signs and other navigational information for cyclists.

NOTE: This Standard does not include signs indicating parking facilities for bicycles. Reference should be made to AS 2890.3.

1.2 OBJECTIVE

The objective of this Standard is to provide road and local authorities with a uniform set of devices to control and promote the safe use of bicycle facilities on roads and on paths separate from the road.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

1742	Manual of uniform traffic control devices
1742.2	Part 2: Traffic control devices for general use
1742.3	Part 3: Traffic control devices for works on roads
1742.8	Part 8: Freeways
1742.10	Part 10: Pedestrian control and protection
1742.11	Part 11: Parking controls
1743	Road signs—Specifications
1744	Forms of letters and numerals for road signs (known as Standard alphabets for road signs)
2700	Colour Standards for general purposes
2890	Parking facilities
2890.3	Part 3: Bicycle parking facilities

AS/NZS

1906	Retroreflective materials and devices for road traffic control purposes
1906.1	Part 1: Retroreflective materials
HB 69	Guide to traffic engineering practice
HB 69.14	Part 14: Bicycles

1.4 DEFINITIONS

For the purposes of the Standard, the definitions below apply.

1.4.1 Exclusive bicycle lane

A lane on a road set aside for the exclusive use of bicycle traffic either full-time or part-time.

1.4.2 Exclusive bicycle path

A path set aside for the exclusive use of bicycle traffic.

1.4.3 Footpath

A path for use by pedestrians and certain bicycle traffic, the latter subject to traffic regulations.

1.4.4 Joint-use path

A shared path or a separated path.

1.4.5 Path

Any route intended for use by pedestrians or bicycle traffic or both which is not part of a road and which may or may not be adjacent to a road.

1.4.6 Separated path

A path signed for separated use on which bicycles and pedestrians are required to use separate designated areas.

1.4.7 Shared path

A path signed for shared use by pedestrians and all classes of bicycle traffic using a common area.

1.5 SIGNS—GENERAL REQUIREMENTS

Specifications for the manufacture of traffic signs are given in AS 1743.

Requirements for the reflectorization and illumination of signs which are required to be seen at night by either cyclists or motor vehicle drivers, are given at Appendix A.

NOTES:

- 1 Guidance on the installation and location of signs is given at Appendix B.
- 2 Guidance on the selection of sign sizes for various purposes is given at Appendix C.

1.6 COLOUR

Where colours are specified on signs, the colours shall conform to the following:

- (a) Retroreflective materials—in accordance with AS/NZS 1906.1.
- (b) Non-reflective colours—colours shall closely approximate the following colours defined in AS 2700:

Red	—R13 Signal red
Yellow	—Y14 Golden yellow
Brown	—X65 Dark brown
Blue	—B11 Rich blue

SECTION 2 BICYCLE PROVISIONS ON ARTERIAL AND LOCAL ROADS

2.1 GENERAL

This Section deals with provisions for bicycles on arterial and local roads, either adjacent to motor traffic lanes or on lanes shared with motor traffic. Bicycle provisions on paths are dealt with in Section 3. Direction signs and other navigational aids for cyclists are dealt with in Section 5.

The various forms of provision for bicycles on arterial and local roads are categorized as follows:

- (a) *Exclusive bicycle lane (full-time)* (see Clause 2.4.1).
- (b) *Exclusive bicycle lane (part-time)* (see Clause 2.4.2).
- (c) *Bicycle/car parking lanes* (see Clauses 2.4.3).
- (d) *Wide parking lane with bicycle provision* (see Clause 2.4.4(a)).
- (e) *Wide kerbside lane* (see Clause 2.4.4(b)).
- (f) *Sealed shoulder* (see Clause 2.4.4(c)).

NOTE: It is proposed to deal with provisions for bicycle traffic in transit lanes in a future edition of AS 1742.12.

2.2 SIGNS

Signs used to control bicycle usage on roads and to provide relevant warning of hazards are listed in Table 2.1 and are used as follows:

- (a) *No bicycles (R6-10-3)*



R6-10-3

This sign shall be used at the beginning of any road along which the riding of bicycles is to be prohibited by use of a sign. The END supplementary plate (R7-4) (see Clause 3.2(c)) may be added to indicate the point at which the prohibition ends.

The no-bicycles pavement symbol may be used in lieu of this sign (see Clause 2.3(e)).

TABLE 2.1
CONTROL AND WARNING SIGNS FOR BICYCLE
FACILITIES ON ROADS

Sign	Sign Number	Size, mm
No Bicycles	R6-10-3B	600 × 600
	R6-10-3C	750 × 750
Bicycle LANE	R7-1-4B	450 × 600
	R7-1-4C	600 × 800
	R7-1-4D	900 × 1200
AHEAD	R7-2B	450 × 150
	R7-2C	600 × 200
	R7-2D	900 × 300
END	R7-4B	450 × 150
	R7-4C	600 × 200
	R7-4D	900 × 300
Overhead Arrow	R7-5B	450 × 300
	R7-5C	600 × 400
	R7-5D	900 × 600
Times of Operation module	R9-1-1A	450 × 300
	R9-1-1B	600 × 400
	R9-1-1C	900 × 600
	R9-1-2A	450 × 450
	R9-1-2B	600 × 600
	R9-1-2C	900 × 900
BICYCLES EXCEPTED	R9-3A	450 × 300
	R9-3B	600 × 400
	R9-3C	750 × 500
	R9-3D	1500 × 300
Bicycle (symbolic)	W6-7A	600 × 600
	W6-7B	750 × 750
NEXT X km	W8-17-1A	600 × 400
	W8-17-1B	750 × 500
NEXT x m	W8-17-2A	600 × 400
	W8-17-2B	750 × 500
WATCH FOR Bicycles	G9-57A	900 × 800
	G9-57B	1200 × 1067
CYCLISTS DISMOUNT	G9-58A	450 × 450
	G9-58B	600 × 600
ALL Bicycles	G9-60A	450 × 600
	G9-60B	600 × 800

(b) *Bicycle lane (R7-1-4)*

R7-1-4

The Bicycle LANE sign shall be used to designate an exclusive bicycle lane as follows:

- (i) At the beginning of a full-time or part-time exclusive bicycle lane and at additional locations such that the spacing does not exceed 500 m. The Times of Operation supplementary plate shall be added to the sign for part-time operation.
- (ii) In conjunction with the END supplementary plate at the end of a full-time or part-time exclusive bicycle lane.

The Bicycle LANE sign may also be used in advance of the start of a full-time or part-time exclusive bicycle lane, in conjunction with the AHEAD supplementary plate in both cases and the Times of Operation supplementary plate for part-time operation.

(c) *Bicycle lane supplementary plates* Supplementary plates shall be used in conjunction with the Bicycle LANE (R7-1-4) sign as follows:

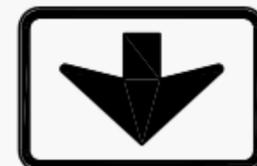
- (i) AHEAD (R7-2) shall be used if advance notice of the start of a bicycle lane is required.
- (ii) END (R7-4) shall be used to indicate the end of a bicycle lane.
- (iii) Overhead Arrow (R7-5) shall be used if needed to indicate which lane is the bicycle lane by placing the sign assembly above the relevant lane.
- (iv) Times of Operation (R9-1-1, R9-1-2) shall be used to indicate the times a part-time exclusive bicycle lane operates.



R7-2



R7-4



R7-5



R9-1-1



R9-1-2

(d) *Bicycles excepted (R9-3)*

R9-3

The BICYCLES EXCEPTED sign shall be used in conjunction with another regulatory sign where the regulatory requirement does not apply to bicycles, e.g. in conjunction with NO ENTRY, No Right (Left) Turn, NO THROUGH ROAD signs. Each potential use of this supplementary plate should be examined to ensure that bicycles will not be exposed to hazard, e.g. from unexpected conflict with motor vehicles.

(e) *Bicycle warning (W6-7)*

W6-7

This sign shall be used to warn motorists of the presence of bicycles on the road where cyclists are likely to come into conflict with motor traffic and are potentially at risk. The supplementary plates in Item (f) may be used with the sign where appropriate.

Where bicycle traffic may come into conflict with motor traffic at isolated locations, the sign specified in Item (g) shall be used in lieu.

(f) *Warning sign supplementary plates* The following supplementary plates may be used with the bicycle warning sign, W6-7:

NEXT x km (W8-17-1)

NEXT x m (W8-17-2)



W8-17-1



W8-17-2

(g) *Watch for bicycles (G9-57)*

G9-57

The WATCH FOR Bicycles sign shall be used at locations where it is necessary to warn motorists that bicycle traffic may come into conflict with motor traffic at a specific point due to a particular road feature or hazard. Such locations include the following:

- (i) At the narrowing of a road or shoulder normally used by significant numbers of cyclists, e.g. at a bridge.
- (ii) At intersection treatments where bicycle traffic may be squeezed for space.
- (iii) Where traffic entering from a side street has to cross a bicycle lane.
- (iv) On the approaches to multi-lane or large single lane roundabouts.
- (v) On left turn slip lanes where left turning traffic is provided with a merge taper or auxiliary lane.

For the cases in Items (iii), (iv) and (v) the sign may be mounted below any appropriate STOP, GIVE WAY or Roundabout Regulatory sign.

(h) *Cyclists dismount (G9-58)*

G9-58

This sign should be used where necessary to remind cyclists that they are required to dismount before crossing a road on a pedestrian crossing, a children's crossing or a marked foot crossing at traffic signals. The sign may also be used to warn cyclists to dismount before reaching a particular place at or beyond which it would be hazardous to continue riding. A second sign indicating the reason for the warning should, where appropriate, be mounted below this sign.

Typical legends include the following:

- (i) GAPS IN BRIDGE DECK
- (ii) BROKEN SURFACE

(i) *All bicycles (G9-60)*

G9-60

This sign should be used at any point where it is required to direct all bicycles onto a particular route or path, e.g. from a bicycle lane onto a path.

2.3 PAVEMENT MARKINGS

The following pavement markings as illustrated in Figure 2.1 shall be used for bicycle lanes on roads:

- (a) *Bicycle lane line* The bicycle lane line shall be placed between the bicycle lane and lanes of moving traffic and where appropriate, a parking lane. It shall be a white unbroken line 100 mm wide.
- (b) *Continuity line* A continuity line comprising a white 100 mm wide broken line with 1 m line segments and 3 m gaps shall replace the bicycle lane line—
 - (i) where motor traffic must enter or cross an exclusive bicycle lane when making a turn at an intersection or major driveway; and
 - (ii) to show the continuity of a bicycle lane where it continues through an unsignalized intersection.
- (c) *Stop line* A white stop line the same width as the stop line provided for other traffic shall be provided in an exclusive bicycle lane at the point where bicycles must stop at traffic signals. The bicycle stop line may be provided up to 2.0 m in advance of the vehicular stop line to give bicycles a small head start at the onset of the green period, provided the line is clear of cross traffic and any marked pedestrian crossing.

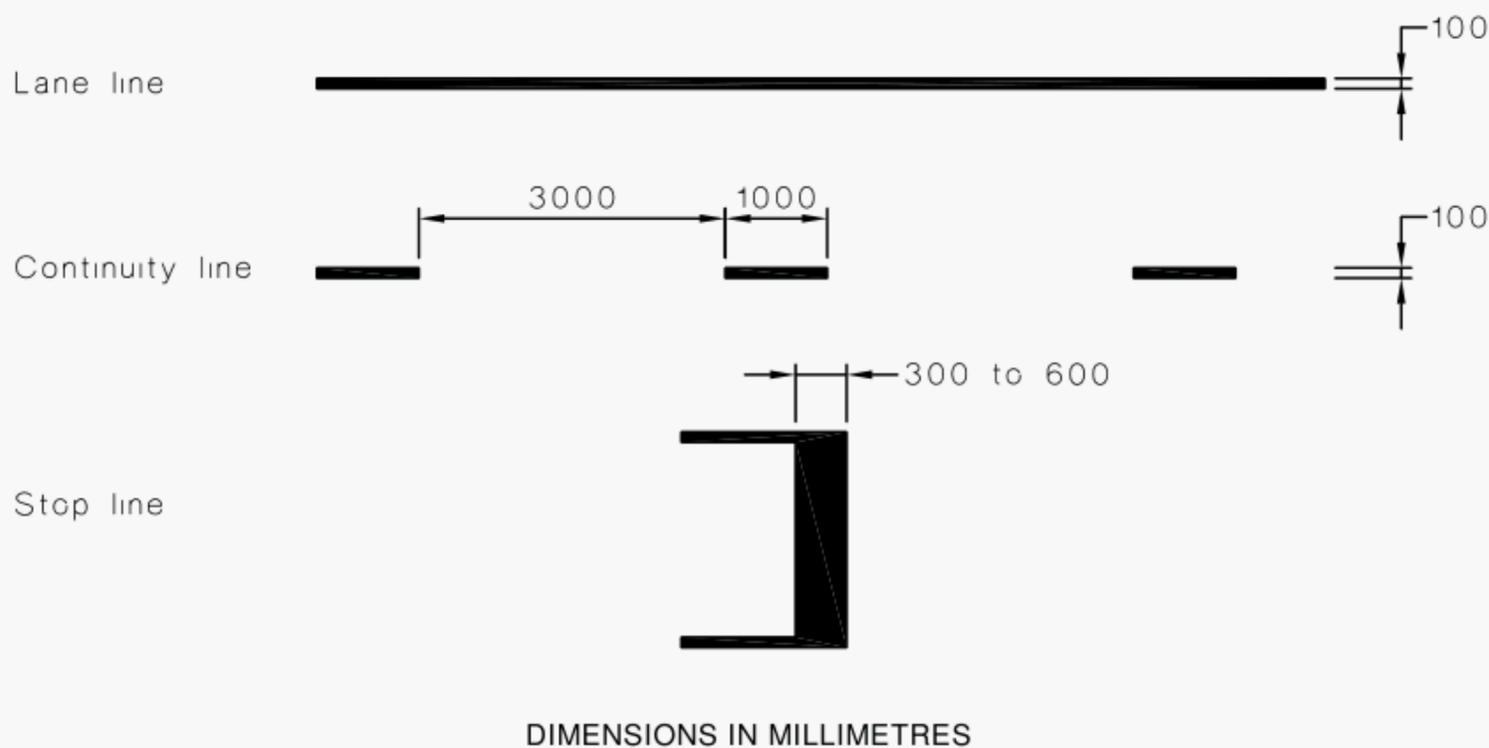


FIGURE 2.1 PAVEMENT LINES USED FOR BICYCLE LANES

- (d) *Bicycle symbol* Where used on roads, the bicycle symbol shall be as illustrated in Figure 2.2. The following requirements and recommendations apply to its use on **full-time** exclusive bicycle lanes:
 - (i) It shall be used at the beginning of the lane and at additional locations along the lane such that the spacing does not exceed 200 m.
 - (ii) It may be placed on the approach and departure sides of intersections. Symbols so placed may be considered as part of the Item (i) requirement.
 - (iii) It may be placed at the end of the lane in conjunction with the word END.

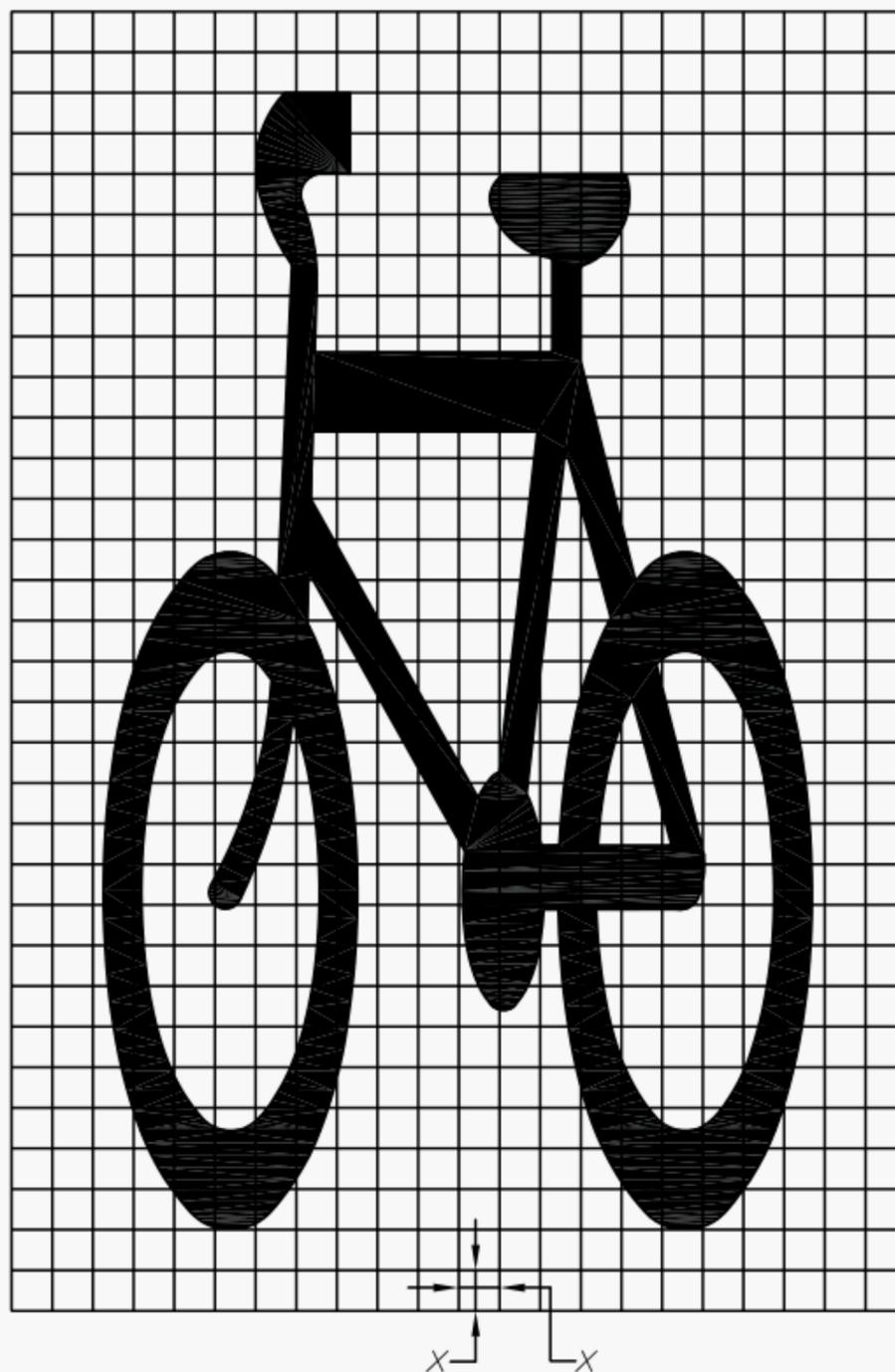
NOTE: Forms of pavement letters and numerals are specified in AS 1742.2.

Symbols may be used on part-time exclusive bicycle lanes but should not be used where they could create confusion at other times. They may also be used on unsigned facilities as recommended in Clause 2.4.4.

Where necessary the symbol size shall be reduced proportionately to fit within the lane.

NOTE: Under the Australian Road Rules 2000 the symbols have no legal significance when used on a roadway.

- (e) *No-bicycles symbol* The symbol illustrated in Figure 2.3 may be used in lieu of the No Bicycles (R6-10-3) sign as indicated in Clause 2.2(a).



$X = 65$ mm for a 1100 x 1800 mm bicycle suitable for roadway lanes

NOTE: A smaller symbol will be required for bicycle paths, see Figure 3.1.

FIGURE 2.2 BICYCLE PAVEMENT SYMBOL FOR ROAD USE

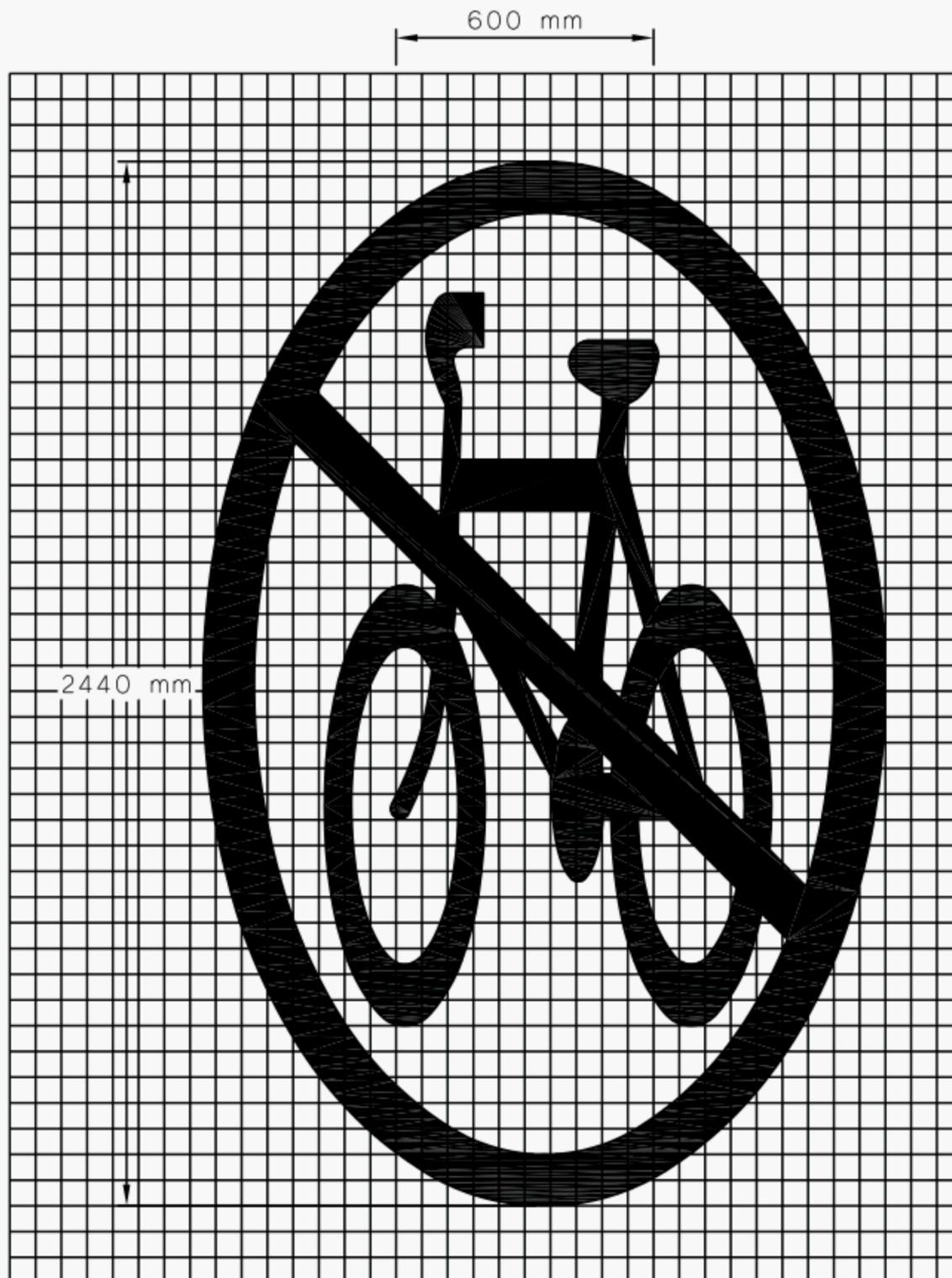


FIGURE 2.3 NO-BICYCLES PAVEMENT SYMBOL FOR ROAD USE

2.4 BICYCLE PROVISIONS MID-BLOCK

2.4.1 Exclusive bicycle lane (full-time)

This is a signed facility comprising a lane within the road, separated from motor traffic by longitudinal linemarking.

Signs and markings required for a full-time exclusive bicycle lane adjacent to a kerb are illustrated in Figure 2.4. The lane shall be separated from adjacent traffic lanes by an unbroken line and shall have both Bicycle LANE (R7-1-4) signs and bicycle pavement symbols located as shown in the Figure, the former being a regulatory requirement to designate the lane. No-stopping signs shall be provided if needed to control parking within the lane.

Traffic regulations provide that a motor vehicle may cross the lane or travel within the lane for up to 50 m in order to access driveways or to turn at an intersection.

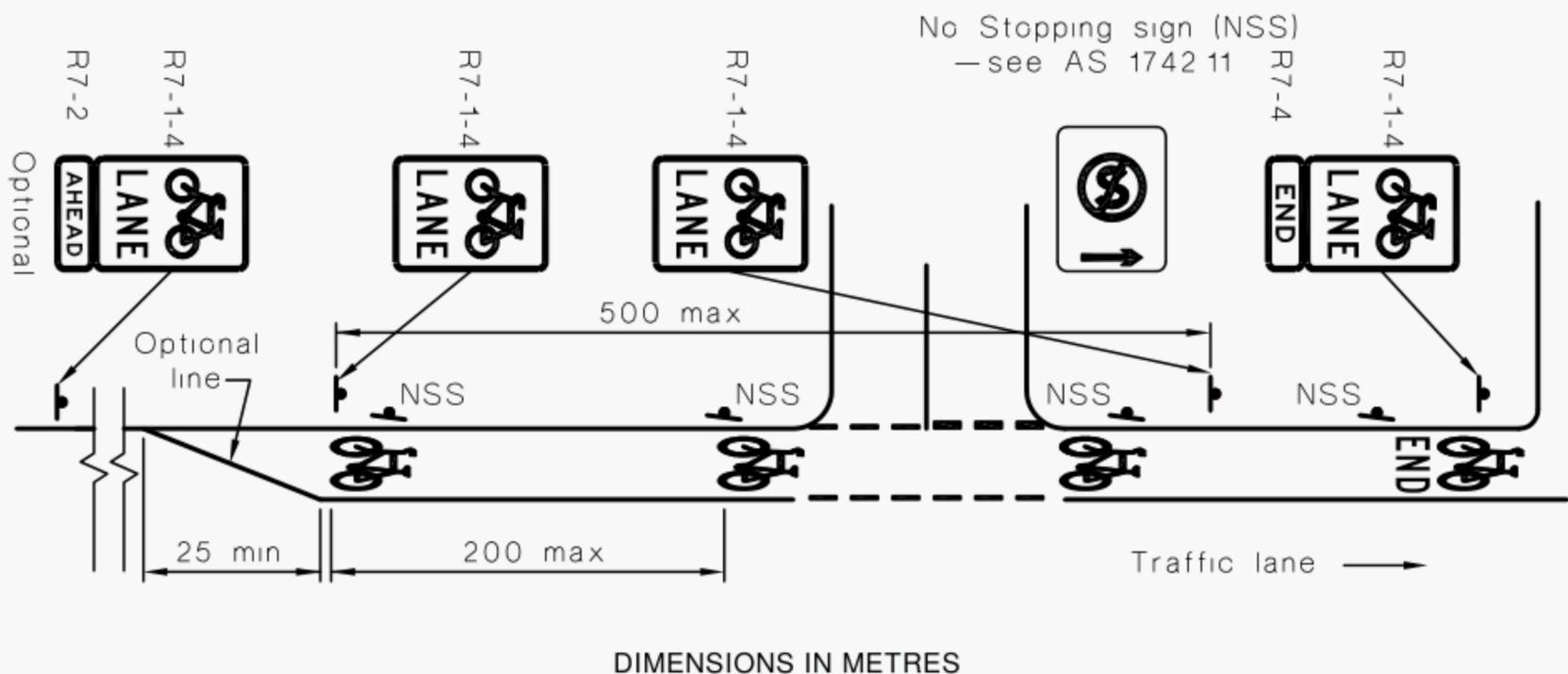


FIGURE 2.4 EXCLUSIVE BICYCLE LANE (FULL-TIME) ADJACENT TO KERB

2.4.2 Exclusive bicycle lane (part-time)

This is a signed facility as in Clause 2.4.1 for the exclusive use of bicycle traffic during certain times of the day only, as indicated on signs.

Signs required for a part-time exclusive bicycle lane shall be as specified for a full-time lane with the addition of Times of Operation modules (R9-1-1, R9-1-2) to the Bicycle LANE (R7-1-4) signs. Parking control signs to prohibit parking during the times of operation of the exclusive bicycle lane, and if necessary, to allow parking at other times, shall also be provided.

Figures 2.5(a) and (b) show the options of either a narrow bicycle lane or a bicycle lane equal in width to the parking lane. If it is desired to mark the parking lane into bays, bay marking shall be limited to corner markings as shown in the Figures.

Bicycle pavement symbols are optional on part-time lanes and should not be used if they could mislead cyclists when the lane is not in operation.

2.4.3 Bicycle/car parking lanes

This is a signed facility with marked lanes within the road. It comprises a parallel or angle parking lane or bay adjacent to the kerb and a separately marked exclusive bicycle lane between it and the traffic lane. A typical arrangement is shown in Figure 2.6. The bicycle lane shall be provided with signs and markings as specified for a full-time bicycle lane (see Clause 2.4.1).

The parking lane may be either a parallel or angle parking lane and bays should be marked in full to deter use of the lane by moving traffic. The use of kerb extensions to shelter a parking lane from through motor or bicycle traffic should also be considered.

This arrangement is not suitable for part-time operation.

2.4.4 Unsigned facilities

The following facilities are not signed as bicycle facilities but may be suitable for use by bicycle traffic. Where bicycle traffic is expected, bicycle pavement symbols may be placed on the lane or shoulder to encourage its use by cyclists and to warn other traffic of the possible presence of bicycles. The facilities are as follows:

- (a) *Wide parking lane with bicycle provision* This is a kerbside lane which is wide enough to allow both kerbside parking and bicycle use. Pavement markings should comprise as a minimum an unbroken line separating the lane from moving motor traffic as illustrated in Figure 2.7. Signs to control parking may be required. The full-outline marking of parking bays should not be applied in this case. If full-outline marking is required, the more formal bicycle car/parking lanes treatment (see Clause 2.4.3) should be considered.
- (b) *Wide kerbside lane* This is a normal traffic lane delineated by a broken lane line only, which is wide enough to be shared by bicycle and motor traffic. Bicycle pavement symbols, if used, should be placed close to the kerb at not more than 200 m longitudinal spacing. Signs may be required to control kerbside parking.
- (c) *Sealed shoulder* A sealed shoulder separated from motor vehicle traffic lanes by an edge line is appropriate for bicycle use where the shoulder is wide enough to accommodate bicycles but bicycle numbers or other traffic conditions do not require it to be signed as a bicycle lane. A sealed shoulder will not normally require signs or markings related to bicycle use, but if some bicycle traffic is expected, the Bicycle warning sign (W6-7) (see Clause 2.2(e)) or bicycle pavement symbols, or both, should be considered. Pavement symbols at up to 1 km spacing will generally be adequate.

2.5 BICYCLE LANE TREATMENTS AT INTERSECTIONS*

2.5.1 General

Special pavement marking provisions for bicycles at intersections are required wherever mid-block exclusive lanes or lanes jointly used with car parking are provided. Intersection provisions may also be considered for bicycle routes where there is no special mid-block provision, however, such pavement marking should be placed so that it guides cyclists through conflict areas such as merge and diverge tapers and is clearly visible to approaching motor traffic.

* For a full account of all factors needed to be considered in the design of intersection treatments for bicycle lanes, refer to HB 69.14.

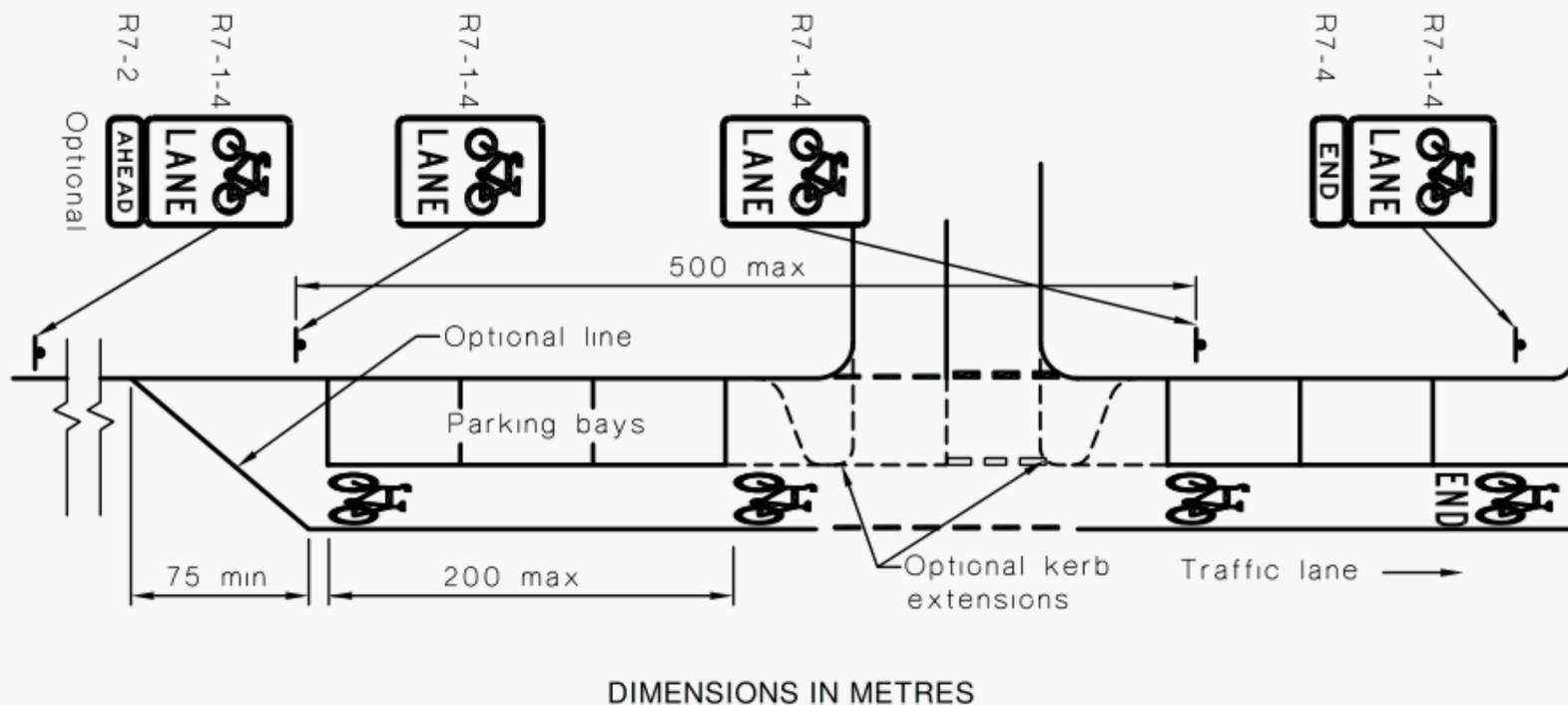
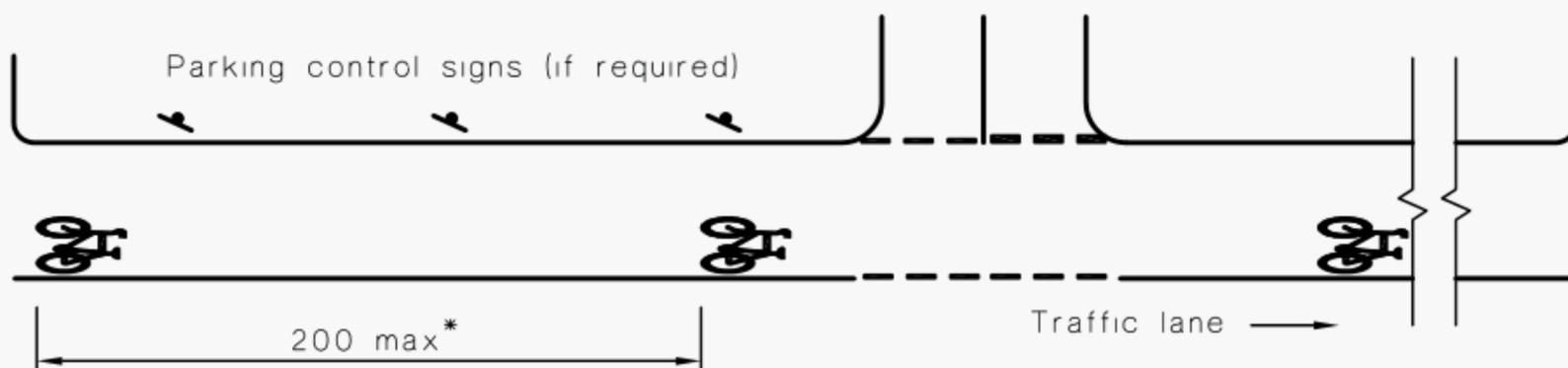


FIGURE 2.6 BICYCLE/CAR PARKING LANE WITH OPTIONAL KERB EXTENSIONS



* Bicycle pavement symbols are optional

FIGURE 2.7 WIDE PARKING LANE WITH BICYCLE PROVISION

In the absence of special pavement markings, provisions for bicycles may include the following:

- (a) Extra widening of kerbside lanes on the intersection approach to accommodate bicycles sharing the lane with left turning or through traffic.
- (b) Offset stop or pedestrian crossing lines at signalized intersections to provide storage for right turning bicycles making a hook turn.

2.5.2 Intersections at minor streets

Typical treatments at intersections between major and minor roads are shown in Figure 2.8. The Figure illustrates recommended provisions either with or without exclusive left turn lanes for motor vehicles. Any narrowing of the bicycle lane necessitated by width limitations, shall not reduce it to less than 1.0 m. A width of at least 1.2 m should be maintained wherever practicable.

2.5.3 Signalized intersections

A desirable treatment on the approach to traffic signals is shown in Figure 2.9(a). It is recommended that stop lines for bicycles be placed 2 m ahead of vehicular stop lines so that motor vehicle drivers, in particular, truck and bus drivers, will be aware of bicycles waiting at the stop line prior to the start of a green period.

2.5.4 Treatments at left turn slip lanes

Typical provision for left turning traffic where there are bicycle lanes approaching the intersection is shown in Figure 2.9(b).

2.5.5 Roundabouts

Bicycle lanes should not be marked in roundabouts. Alternative arrangements such as shared paths or provision of an alternative route may need to be considered.

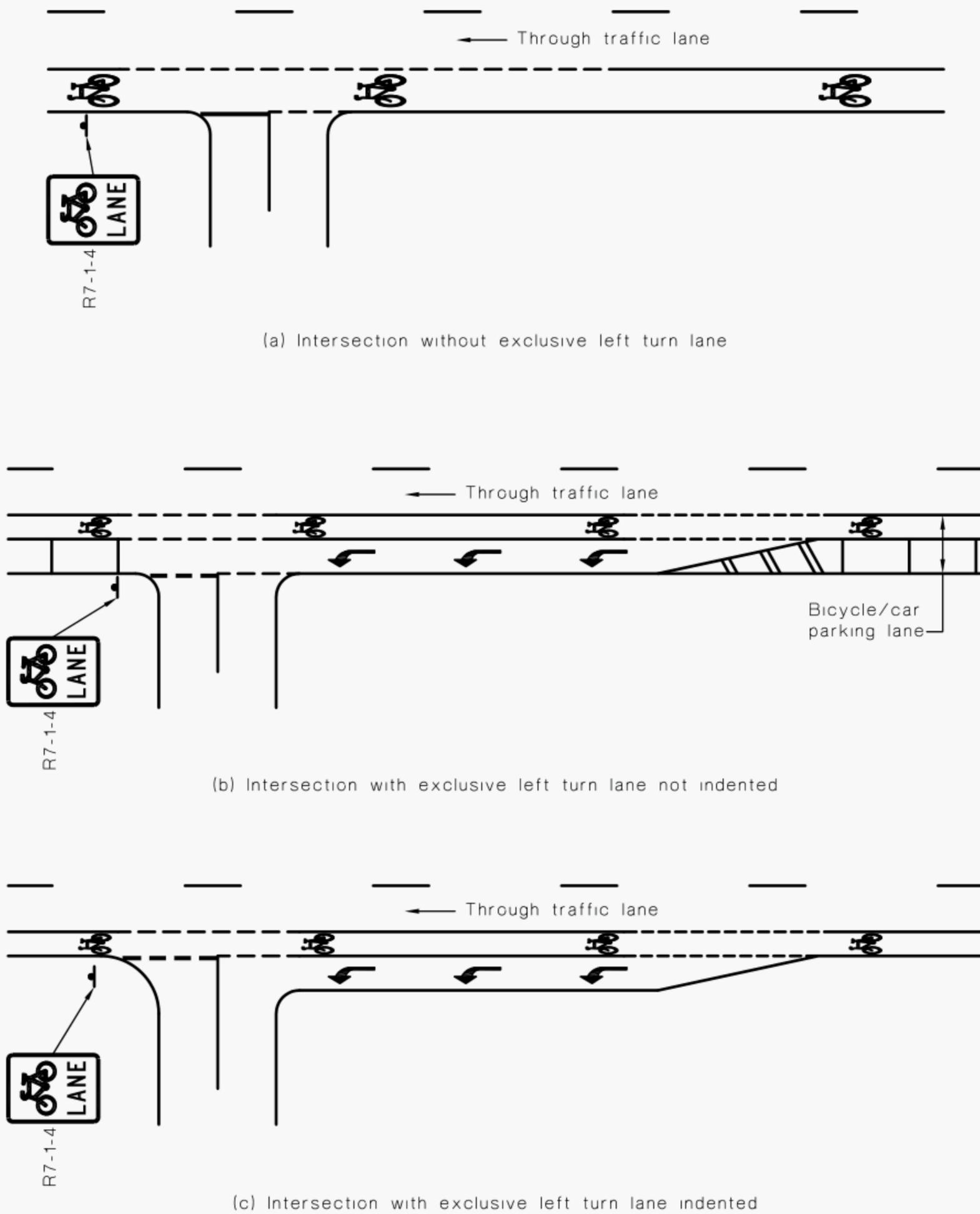
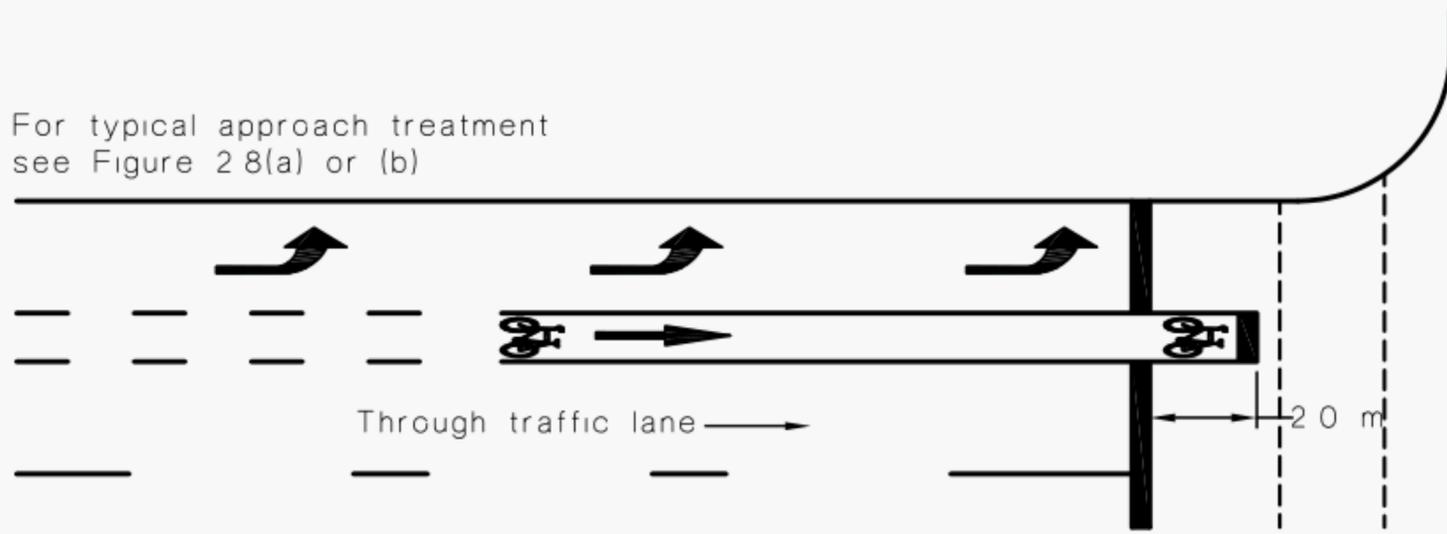
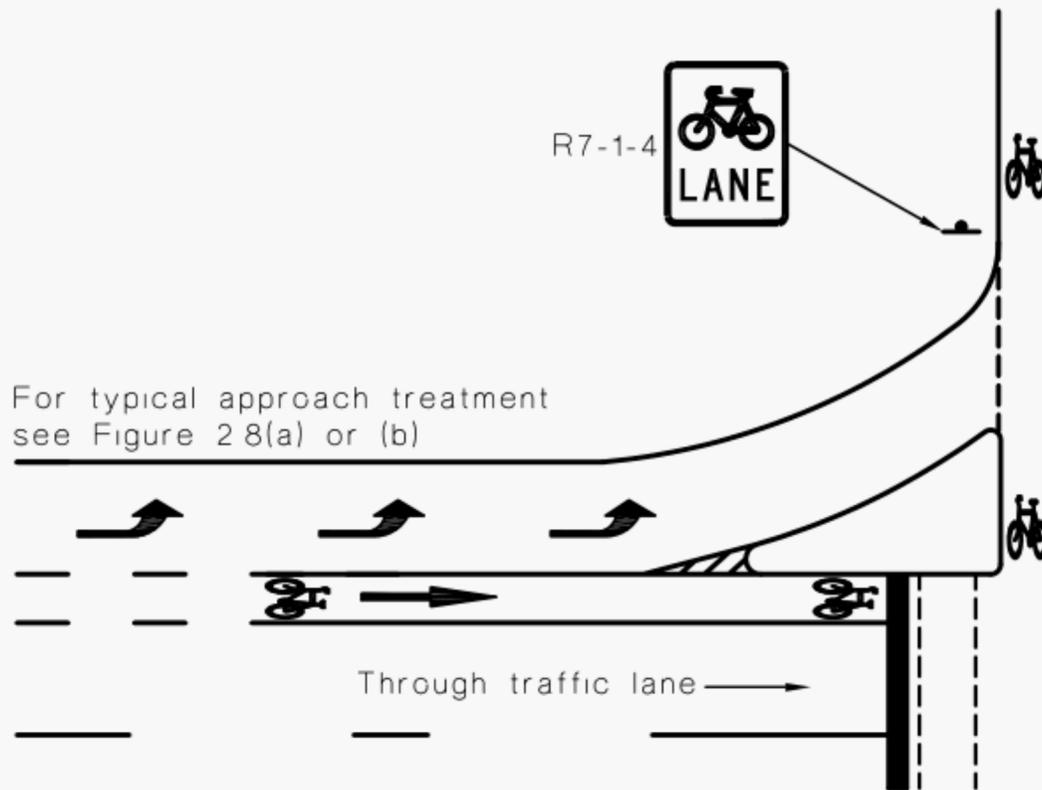


FIGURE 2.8 EXAMPLES OF EXCLUSIVE BICYCLE LANE TREATMENTS AT AN UNSIGNALIZED INTERSECTION



(a) Advanced stop line for bicycles



(b) Treatment at left turn slip lanes

FIGURE 2.9 BICYCLE PROVISIONS ON THE APPROACH TO TRAFFIC SIGNALS

SECTION 3 BICYCLE PATH AND FOOTPATH PROVISIONS

3.1 GENERAL

This Section deals with footpaths and off-road paths which cater for bicycles either exclusively or jointly with pedestrians.

Paths used jointly by pedestrians and bicycles may operate either as—

- (a) footpaths where only certain classes of bicycle traffic may be permitted by law;
- (b) shared paths on which pedestrians and any class of bicycle traffic share the same space and there may be separation of the two directions of travel by a longitudinal line or pavement markings, or both; or
- (c) separated paths on which bicycle traffic is separated from pedestrians by a longitudinal line or raised separator, or by use of contrasting pavement.

3.2 SIGNS

Signs used to control traffic on bicycle paths and footpaths are listed in Table 3.1 and are used as follows.

- (a) *Give way (R1-2)*



R1-2

This sign may need to be used on an exclusive bicycle path or joint-use path on the approach to a road crossing to reinforce the requirement that bicycle traffic must give way to road traffic. A give-way line (see Clause 3.3(f)) may be used in conjunction with this sign. A STOP sign may be needed in extreme circumstances not amenable to other treatments.

A special reduced size sign is specified for path use (see Table 3.1).

- (b) *No bicycles (R6-10-3)*



R6-10-3

This sign shall be used wherever the riding of bicycles on a path or elsewhere is to be prohibited by use of a sign. The sign shall be placed at the beginning of the path and repeated at all access points where cyclists might wish to join the path. The END supplementary plate (R7-4) may be needed in conjunction with this sign to indicate the end of the prohibition.

The no-bicycles pavement symbol may be used in lieu of this sign (see Clause 3.3(g)).

- (c) *End supplementary plate (R7-4)*



R7-4

This sign shall be used in conjunction with path designation signs R8-1, R8-2 and R8-3, and the No Bicycles sign (R6-10-3) where necessary to indicate the end of the facility or restriction. If a facility continues on but its designation changes, e.g., from a separated path to a shared path, the END supplementary plate shall not be used but the new path designation sign shall be used instead.

TABLE 3.1
SIGNS TO CONTROL TRAFFIC ON BICYCLE PATHS
AND FOOTPATHS

Sign	Sign Number	Size, mm
GIVE WAY	R1-2 (Special)	375 ht
No Bicycles	R6-10-3A	450 × 450
	R6-10-3B	600 × 600
	R6-10-3C	750 × 750
END	R7-4A	300 × 100
	R7-4B	450 × 150
	R7-4C	600 × 200
	R7-4D	900 × 300
Bicycle Path ONLY	R8-1A	300 × 400
	R8-1B	450 × 600
	R8-1C	600 × 800
Shared Path	R8-2A	300 × 400
	R8-2B	450 × 600
	R8-2C	600 × 800
Separated Path	R8-3A (L or R)	300 × 300
	R8-3B (L or R)	450 × 450
	R8-3C (L or R)	600 × 600
Pedestrians (symbolic)	W6-1A	600 × 600
	W6-1B	750 × 750
Bicycles (symbolic)	W6-7A	600 × 600
	W6-7B	750 × 750
ROAD AHEAD	W6-8A	300 × 300
	W6-8B	450 × 450
Bicycles, Pedestrians (symbolic)	W6-9A	600 × 600
	W6-9B	750 × 750
Crossing Arrows	W8-23A	600 × 200
	W8-23B	750 × 250
ROUGH SURFACE	T3-15	600 × 450

(d) *Bicycle path only (R8-1)*



R8-1

This sign shall be used to designate a path for the exclusive use of bicycles.

(e) *Shared path (R8-2)*



R8-2

This sign shall be used to designate a path as a shared path for use by bicycles and pedestrians.

(f) *Separated path (R8-3)* This sign shall be used to designate a separated path.



R8-3(L)



R8-3(R)

(g) *Pedestrian warning (W6-1), Bicycle warning (W6-7), Bicycle/pedestrian warning (W6-9), Crossing arrows (W8-23)*

The Bicycle and Bicycle/Pedestrian warning sign assemblies shall be used where any path is about to cross a path used by bicycles alone or bicycles and pedestrians, and poor sight distance, high bicycle speeds or other factors necessitate a warning for people about to cross the path. The signs are also appropriate for use where a bicycle path crosses a road.

The Pedestrian warning sign assembly may be required to warn cyclists about to cross a path used only by pedestrians.



W6-1

W8-23



W6-7

W8-23



W6-9

W8-23

(h) *Road ahead (W6-8)*



W6-8

This sign may be used to warn cyclists travelling along an off-road path that the path is about to cross or terminate at a roadway and the existence of the road crossing is not obvious. It shall not be placed in any position where the sign face is visible to motor traffic on a roadway.

- (i) *Rough surface (T3-15)*
(temporary sign)

This sign may be used on any path used by bicycles to warn cyclists of temporary rough surface conditions



T3-15

- (j) *Other warning signs* Other warning signs in the W Series (see AS 1742.2) or T Series (see AS 1742.3) may be used on an off-road path to indicate particular hazards. A special small size 450 × 450 mm for diamond shaped signs in the W Series will normally be appropriate.

3.3 PAVEMENT MARKINGS

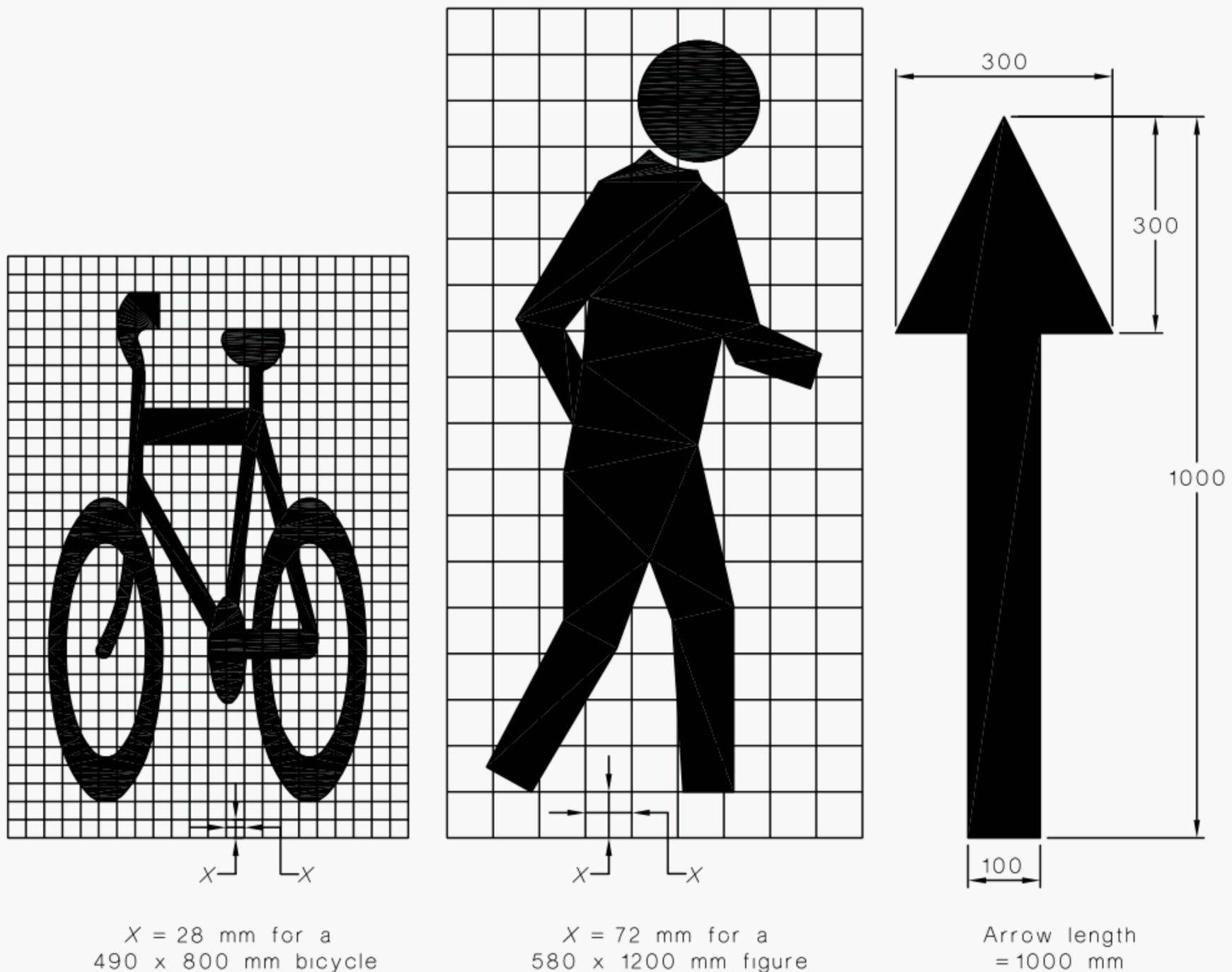
The following requirements and recommendations apply to pavement markings used on paths:

- (a) *Separation lines (directional separation)* Lines used for separating opposing directions of travel on a path shall be as follows:
- (i) A white unbroken line 80 mm wide —
 - (A) on curves where sight distance is poor;
 - (B) in high volume locations or elsewhere where there is potential for conflict; or
 - (C) on the approaches to path/path intersections.
 - (ii) A white broken line 80 mm wide, 1 m line, 3 m to 7 m gap, in all other cases.
- (b) *Separation line (user separation)* The line used for separating pedestrians and bicycles on a separated path shall comprise a white unbroken line at least 80 mm wide.
- (c) *Bicycle and pedestrian pavement symbols* These symbols are shown in Figure 3.1 in a size suitable for off-road paths and footpaths. Pavement symbols shall be used on exclusive bicycle and separated paths. The use of bicycle and pedestrian symbols on shared paths is optional. Where used the symbols or symbol groups should be spaced at not more than 200 m.

NOTE: The Australian Road Rules 2000 require that an exclusive bicycle path and a separated path each be legally designated by means of **either** the relevant signs or the pavement symbols. It is, however, a normative requirement of this Standard that **both** be used.

- (d) *Pavement arrow* This is shown in Figure 3.1 and may be used in conjunction with pavement symbols on busy paths where there is a need to encourage users to keep to the left.
- (e) *Multiple symbol display* Where two or more of the pavement symbols in Items (c) and (d) 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 m between each symbol.

- (f) *Give-way and stop lines* Where a GIVE WAY (R1-2) sign or a STOP (R1-1) sign is placed to face bicycle traffic on a path it may be accompanied by a white transverse line 200 mm wide, comprising—
- (i) a broken line with 200 mm lines, 200 mm gaps at a GIVE WAY sign; or
 - (ii) an unbroken line at a STOP sign.
- (g) *No-bicycle symbol* The symbol illustrated in Figure 3.2 may be used in lieu of the No Bicycles (R6-10-3) sign as indicated in Clause 3.2(b).



NOTE: A larger bicycle will be required for bicycle lanes on roadways, see Figure 2.2.

DIMENSIONS IN MILLIMETRES

FIGURE 3.1 BICYCLE AND PEDESTRIAN PAVEMENT SYMBOLS AND ARROWS FOR PATHS

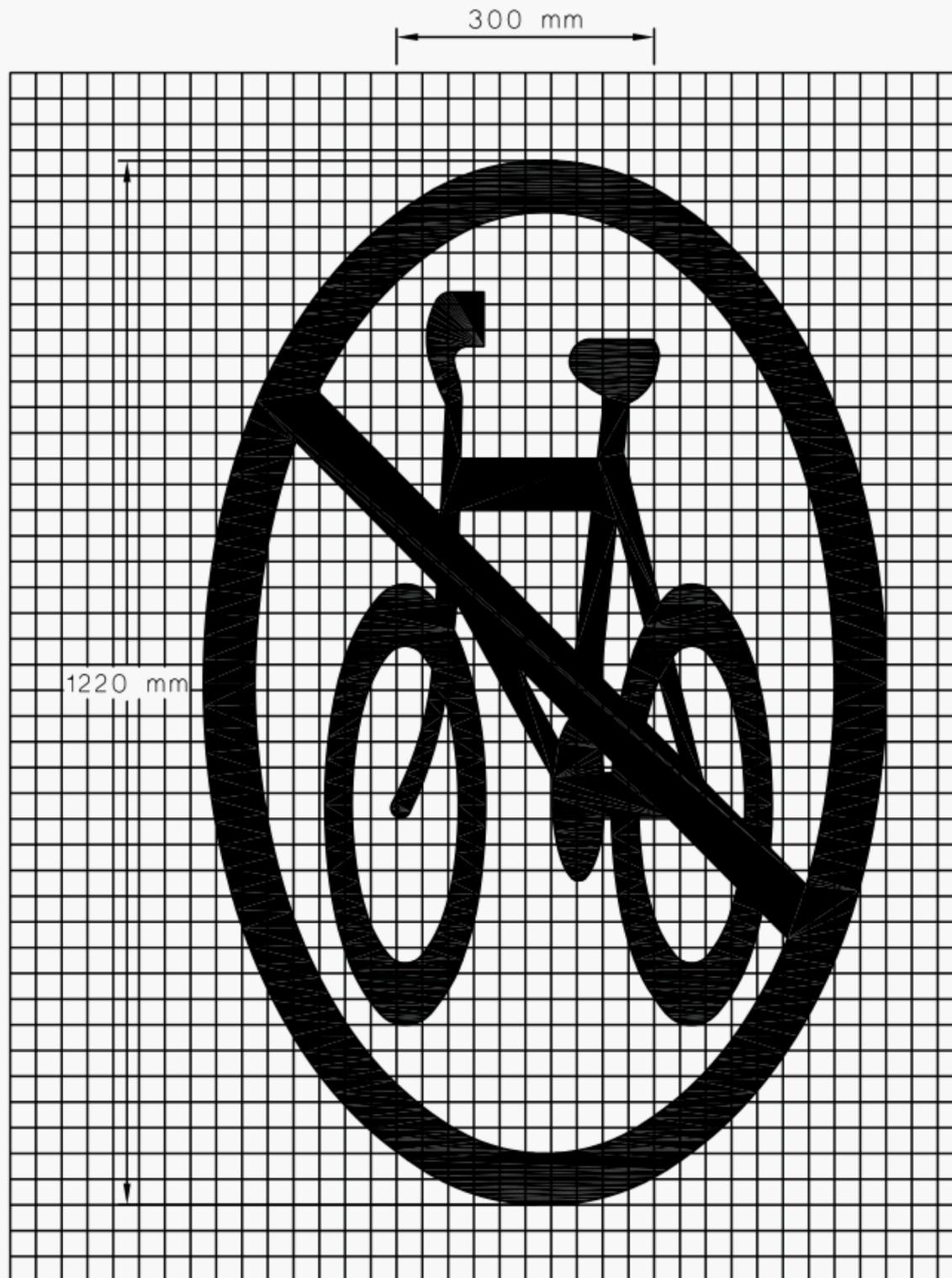


FIGURE 3.2 NO-BICYCLES PAVEMENT SYMBOL FOR PATHS

3.4 FOOTPATHS AND SHARED PATHS

A path other than a separated path (see Clause 3.5), which is to be used jointly by pedestrians and bicycle traffic takes one of the following forms:

- (a) *Footpath* This is a path which both pedestrians and cyclists may use subject to limitations on cyclists which may be imposed by regulation (e.g. its use may be limited to child cyclists). No signs or pavement markings are required to control its use unless in a particular case it is necessary to ban bicycle riding on the footpath, in which case the No Bicycles (R6-10-3) sign or the no-bicycles pavement marking (see Clause 3.3(g)) shall be used.
- (b) *Shared path* This is a path which may be used by pedestrians and all classes of cyclists. Shared Path (R8-2) signs are required to legally designate a path as a shared path and shall be provided as follows:
 - (i) At the beginning of the path.
 - (ii) Immediately after each road crossing.

- (iii) Elsewhere such that the spacing does not exceed 500 m.
- (iv) At the end of the path in conjunction with the END (R7-4) supplementary plate.

Bicycle/pedestrian pavement symbol groups may be placed at spacings of up to 200 m. The directions of travel may be separated by a separation line (see Clause 3.3(a)) or indicated by pavement arrows added to the symbol groups, or both. Typical layouts of shared paths are shown in Figure 3.3.

Warning signs as specified in Clause 3.2(g) may be required where a footpath or a shared path crosses another path. The use of contrasting pavement colour or texture may assist in warning crossing traffic of the presence of the path.

3.5 SEPARATED PATHS

A path on which pedestrians and bicycles are to be separated from one another shall be designated by means of Separated Path (R8-3) signs and bicycle and pedestrian pavement symbols. The signs shall be provided as follows:

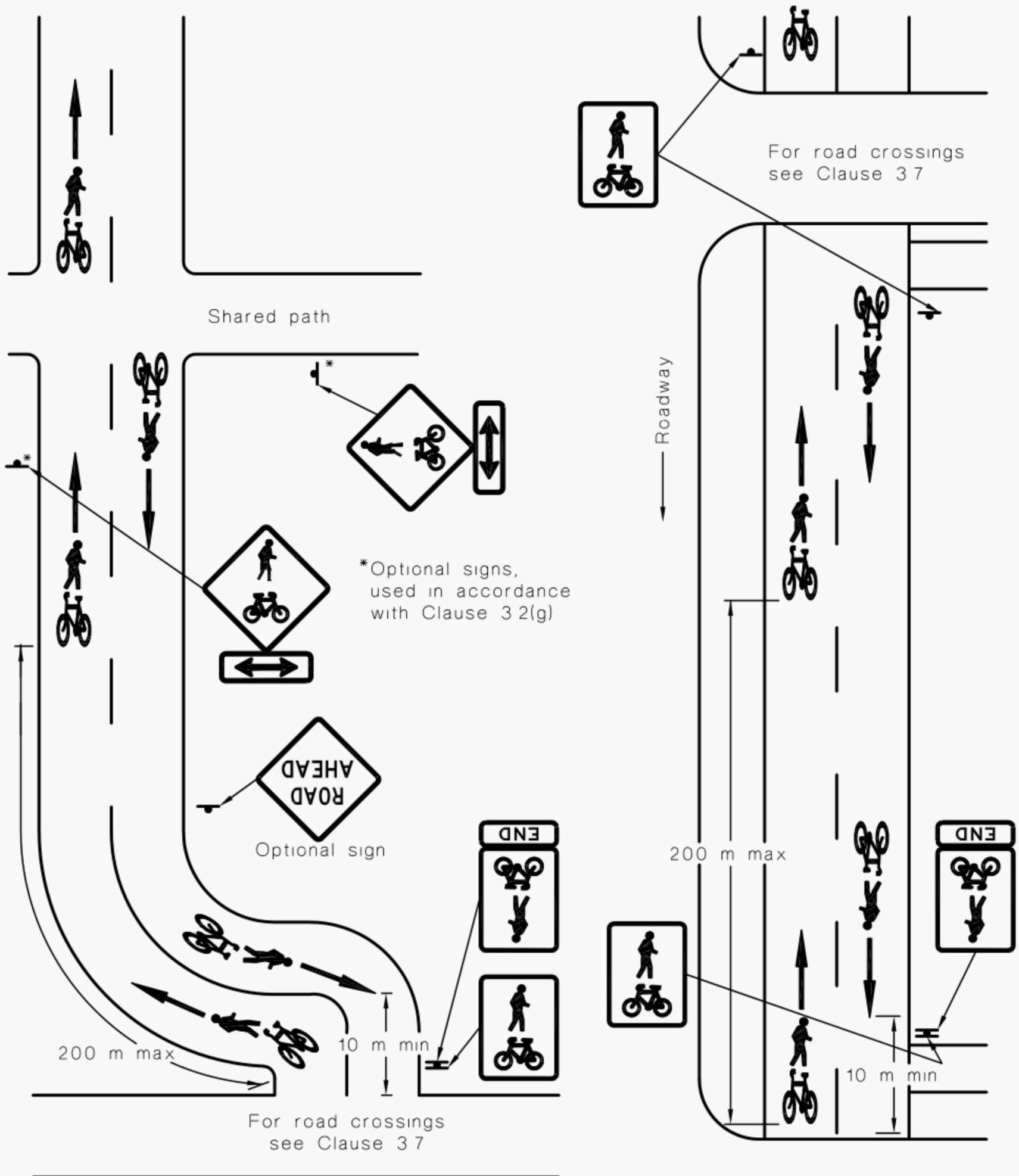
- (a) At the beginning of the path.
- (b) Immediately after each road crossing.
- (c) Elsewhere such that the spacing does not exceed 500 m.
- (d) At the end of the path in conjunction with the END (R7-4) supplementary plate.

The separate lanes shall be delineated by means of a separation line as specified in Clause 3.3(b), a raised separator or contrasting pavement surfacing. Bicycle and pedestrian pavement symbols shall be placed in the relevant lanes at up to 200 m spacing and may be accompanied by pavement arrows on busy paths to encourage users to keep to the left.

Where space is available, consideration should be given to dividing the bicycle lane into separate directions of travel by means of a separation line as specified in Clause 3.3(a).

Typical separated path treatments are illustrated in Figure 3.4.

Warning signs as specified in Clause 3.2(g) may be required where a separated path crosses another path.



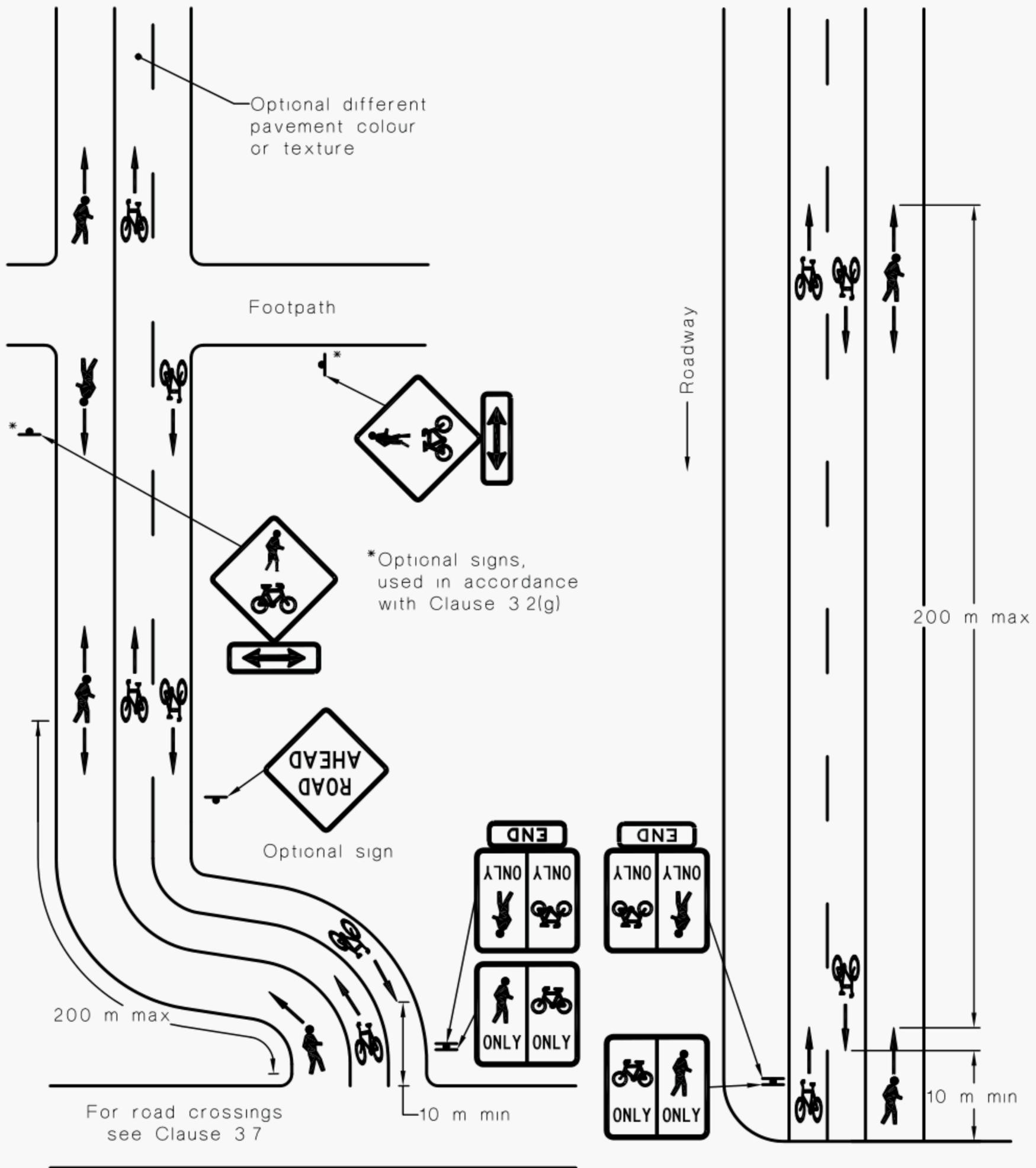
(a) Shared path not adjacent to road

(b) Shared path adjacent to road

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.

FIGURE 3.3 TREATMENT OF SHARED BICYCLE/PEDESTRIAN PATHS — SEPARATION BY DIRECTION OF TRAVEL ONLY



(a) Path not adjacent to road

(b) Path adjacent to road

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.

FIGURE 3.4 TREATMENT OF SEPARATED BICYCLE/PEDESTRIAN PATHS

3.6 EXCLUSIVE BICYCLE PATHS

Exclusive bicycle paths shall be designated by means of the Bicycles ONLY (R8-1) sign which shall be provided as specified for Separated Path signs in Clause 3.5. Bicycle pavement symbols shall be provided at up to 200 m spacing. Either pavement arrows, a separation line as specified in Clause 3.3(a) or both may be used to encourage cyclists to travel on the left side of the path.

Typical exclusive bicycle path treatments are shown in Figure 3.5.

Warning signs as specified in Clause 3.2(g) may be required where a bicycle path crosses another path.

3.7 ROAD CROSSINGS MID-BLOCK

3.7.1 Summary of treatments

Treatments and use limitations on mid-block road crossings of exclusive bicycle or joint-use bicycle/pedestrian paths are summarized in Table 3.2.

NOTE: More detail on the geometric design, together with additional guidance on the use of the treatments, is given in HB 69.14.

TABLE 3.2
BICYCLE AND JOINT-USE PATH TREATMENTS AT MID-BLOCK ROAD CROSSINGS

Case	Treatment (see Note)	Limitations on Use	Reference
(a) Road traffic gives way	(i) A pedestrian (zebra) crossing across the road.	(i) Use only where a warrant for a pedestrian (zebra) crossing is met.	Clause 3.7.2(a)
	(ii) GIVE WAY or STOP signs facing road traffic.	(ii) Intended primarily for an exclusive bicycle path crossing a minor road. Limitations on use need to be strictly observed.	Clause 3.7.2(b)
(b) Path traffic gives way	(i) No control other than road rules requirements.	(i) Unsigned crossing. Suitable only where pedestrians/cyclists can use natural gaps in the road traffic.	Clause 3.7.3(a)
	(ii) At-grade intersection. GIVE WAY or STOP signs facing bicycle traffic.	(ii) GIVE WAY or STOP sign warrants apply.	Clause 3.7.3(b)
(c) Traffic signal control	(i) Pedestrian actuated traffic signals (mid-block). 2-aspect pedestrian signal lanterns.	(i) Signalized crossing warrants apply.	Clause 3.7.4(a)
	(ii) Signalized at-grade intersection. 3-aspect bicycle signal lanterns.	(ii) Exclusive bicycle path only. Intersection signal warrants apply.	Clause 3.7.4(b)

NOTE: The treatments are suitable for all path types covered by this Standard unless shown otherwise in the third column.

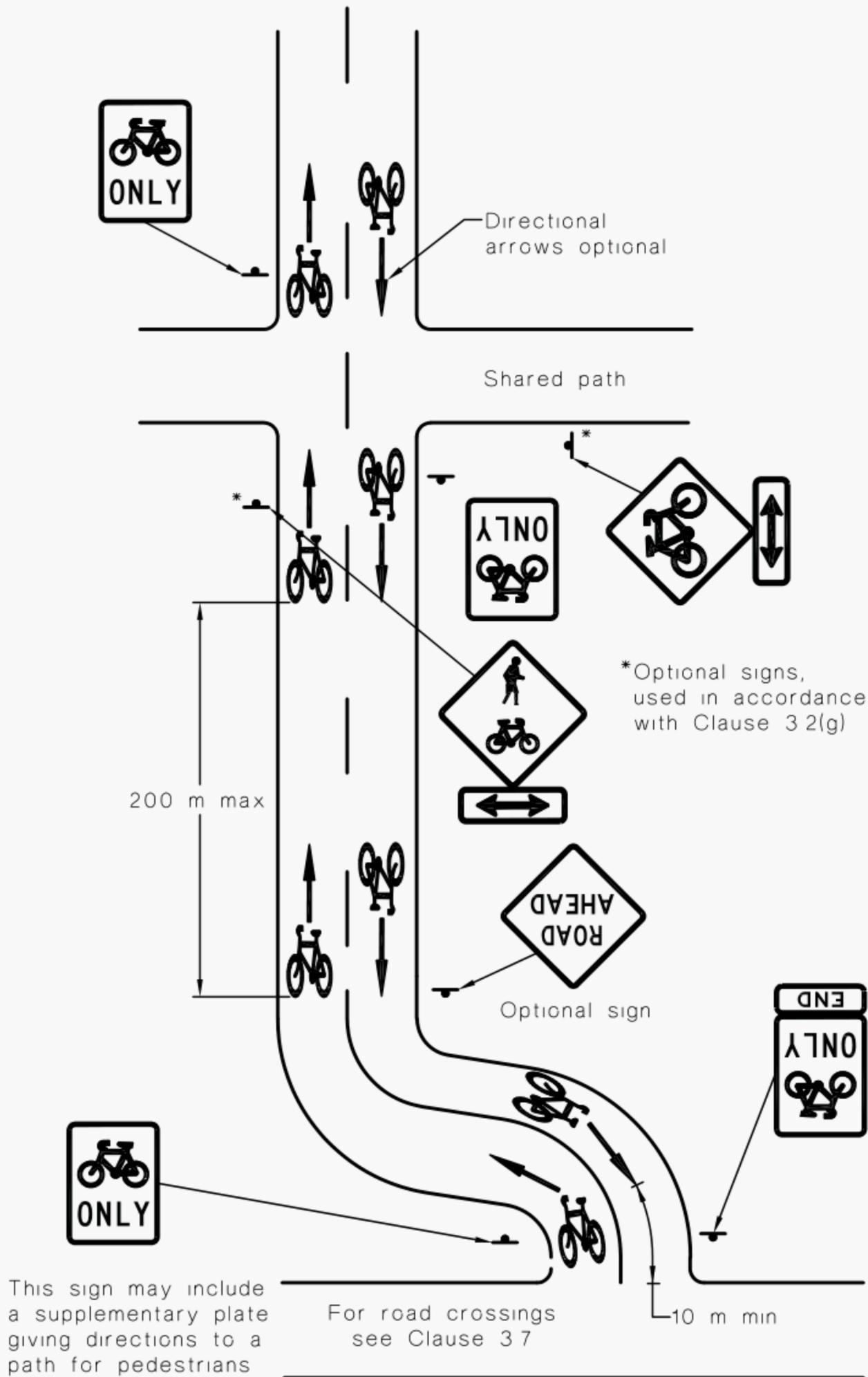


FIGURE 3.5 TREATMENT OF EXCLUSIVE BICYCLE PATHS

3.7.2 Road traffic gives way

When road traffic is to be required to give way to path traffic the following types of crossing, controlled by either a marked pedestrian crossing or regulatory priority control signs as indicated shall be used:

- (a) *Joint-use paths* Road traffic shall be controlled by a pedestrian (zebra) crossing in accordance with AS 1742.10 and subject to State or National warrants or other requirements.

Cyclists shall be warned to dismount before using the crossing. To encourage cyclists to dismount consideration should be given to providing a physical device such as posts or a crib, or in more hazardous situations a deflection fence at the road kerb. Where a deflection fence is used the crossing shall be offset from the path alignment. Physical devices may in themselves cause a hazard to cyclists under certain conditions, e.g. if an unlit path is used at night. An assessment aimed at balancing the conflicting risk situations should be made as part of the consideration. If the crossing is to be used by significant numbers of primary school students a deflection fence at the road kerb shall be provided.

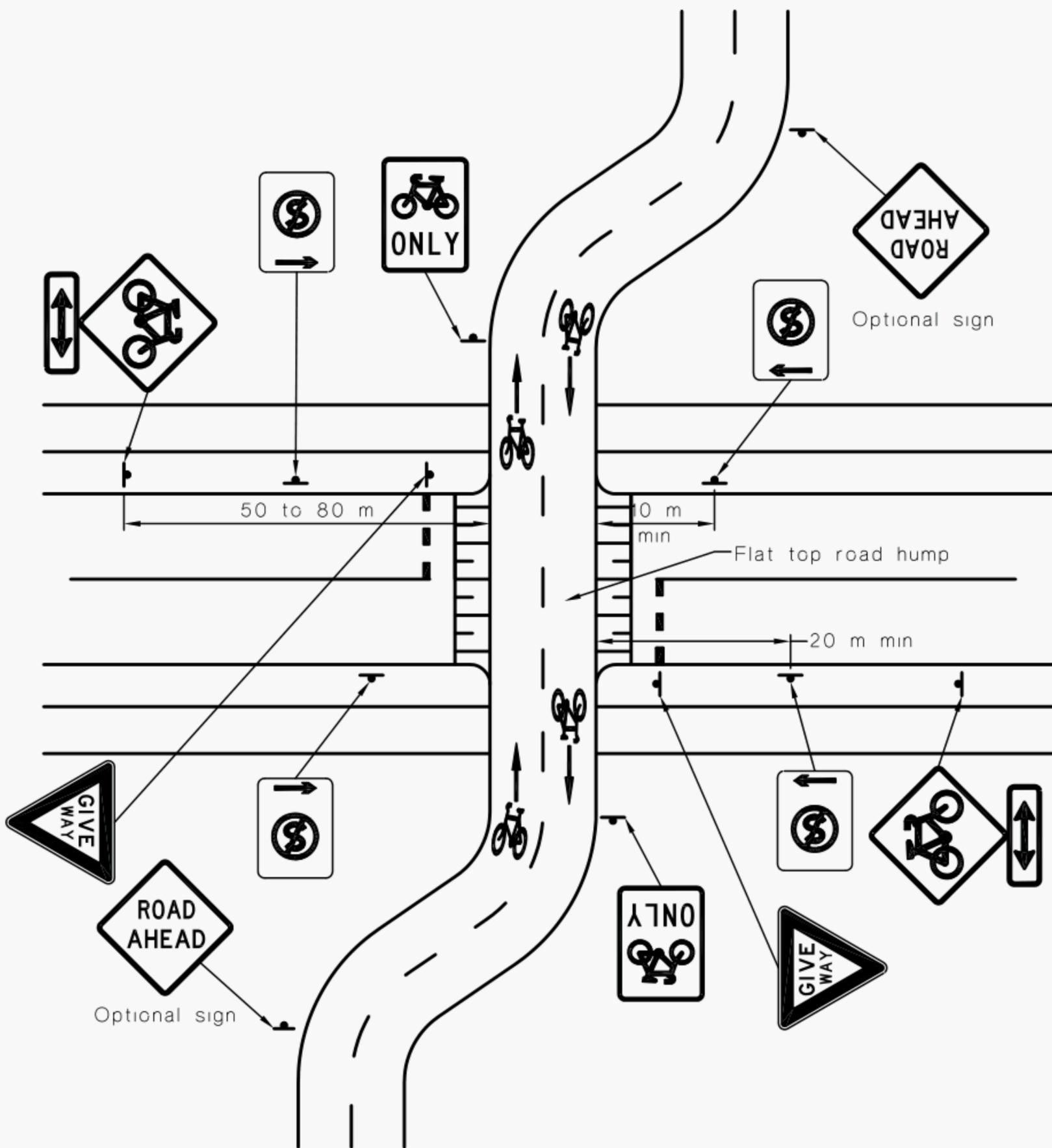
A typical treatment using a pedestrian (zebra) crossing is shown in Figure 3.6.

The treatment in Item (b) may also be applied to joint-use paths. However before doing so, it should be established whether the greater protection afforded pedestrians by the above treatment is required in each particular case.

- (b) *Exclusive bicycle paths* Road traffic shall be controlled by GIVE WAY signs as shown in Figure 3.7 or STOP signs if warranted*. This treatment may be appropriate for commuter or recreational type use but shall not be used where significant numbers of primary school children use the path. Where used the following general requirements and limitations shall be observed:

- (i) The road shall be a minor residential type street less than 8 m wide at the crossing point.
- (ii) Traffic speeds on the minor road shall be either consistently below the general urban speed limit or controlled in the vicinity of the crossing by local area traffic management measures.
- (iii) The path crossing shall be located on a flat-top road hump.
- (iv) Adequate sight distance shall be provided for approaching traffic on all crossing approaches.
- (v) The crossing shall be remote from any intersection, curve, or other roadway feature likely to be a distraction.
- (vi) The treatment shall not be used if a State or National warrant is met for any higher form of control at the crossing or where policy or safety requirements preclude its use.

* Warrants for STOP signs in AS 1742.2 may be used for this purpose.



NOTES:

- 1 This treatment may also be applied to a joint-use path, see Clause 3.7.2(a).
- 2 STOP signs and stop lines may need to be substituted for GIVE WAY signs and holding lines if sight distance to approaching cyclists is poor.

FIGURE 3.7 EXCLUSIVE BICYCLE PATH CROSSING A ROAD WITH ROAD TRAFFIC CONTROLLED BY STOP OR GIVE WAY SIGNS

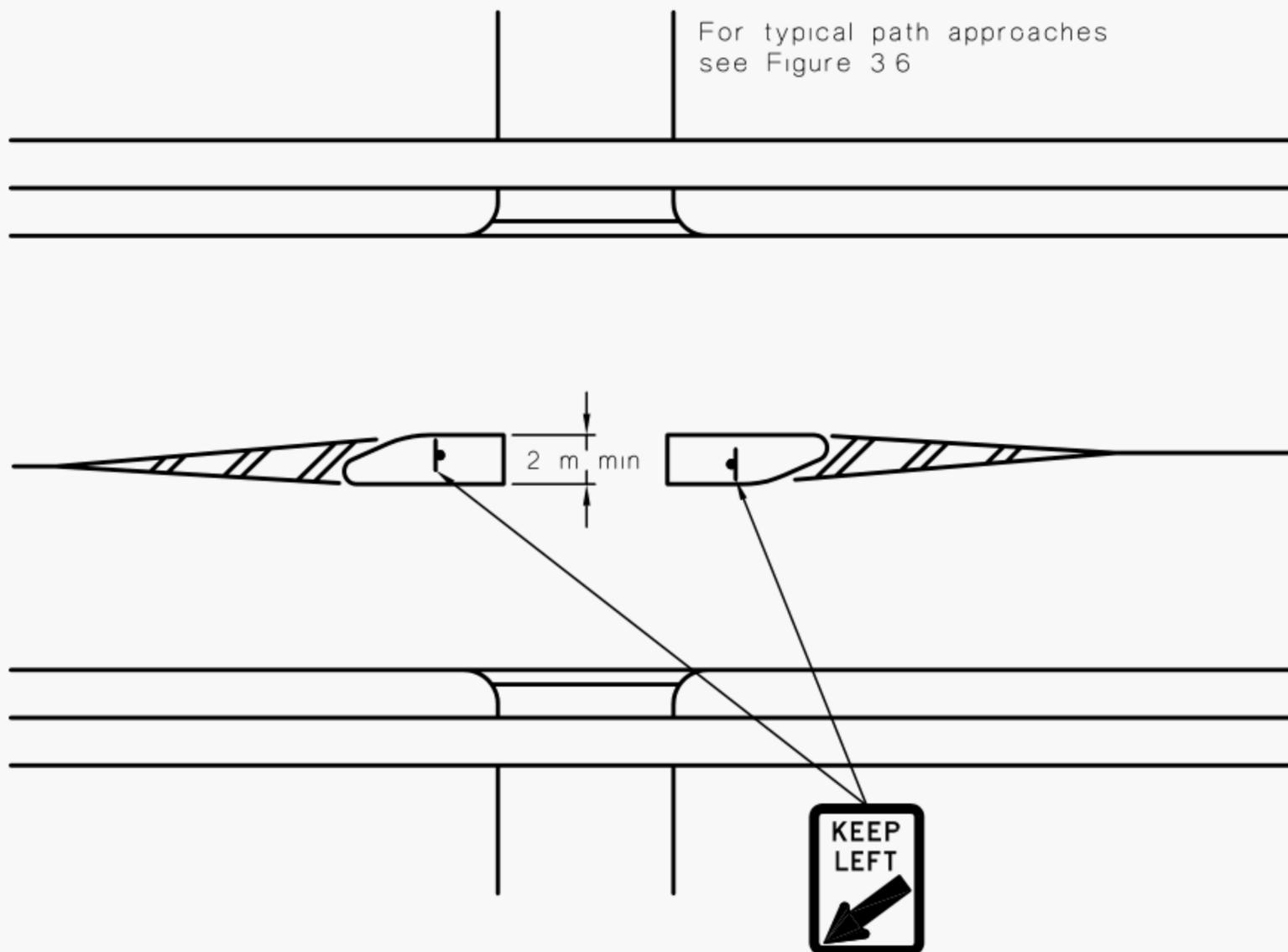
3.7.3 Path traffic gives way

When path traffic is required to give way to road traffic, one of the following treatments, as appropriate, should be used:

- (a) *No regulatory control* Where road traffic volumes are low enough to allow safe gaps for crossing traffic, either exclusive bicycle path crossings or joint-use path crossings may be provided without any regulatory controls (i.e. signs, signals or pavement markings).

If needed to enhance the safety of crossing traffic, the following additional measures should be considered:

- (i) Where road width, approach geometry and sight distance permit, a refuge island may be installed to stage path traffic across the road as shown in the example in Figure 3.8*.
- (ii) The crossing distance may be reduced by providing kerb extensions on one or both sides of the crossing.
- (iii) Direct access to the crossing may be eliminated by means of a reverse curved approach similar to that shown in Figure 3.7 or a physical device as described in Clause 3.7.2(a), or both.
- (iv) Where sight distance to the crossing for cyclists is deficient, steps may need to be taken to warn them of the approach to the road by means of warning signs, e.g. ROAD AHEAD (W6-8) or a reverse curved approach.



NOTE: Parking restrictions may be required on the approaches to the crossing.

FIGURE 3.8 USE OF A REFUGE ISLAND TO STAGE PATH TRAFFIC ACROSS A HIGH VOLUME ROAD

* Recommendations for the design and provision of refuge islands can be found in HB 69.14.

- (b) *At-grade intersection* As an alternative to Item (a) above, a bicycle path crossing may be treated as an at-grade intersection. If it is to be treated this way the intersection shall be set up such that the road kerb line returns into the bicycle path to at least the road boundary and pedestrians using the road footpath cross the bicycle path in the same manner they would cross an intersecting road.

STOP* or GIVE WAY signs and associated markings shall be used to control the bicycle path approaches. NO TURNS (R2-7) signs with BICYCLES EXCEPTED supplementary plates may be needed to face both directions of road traffic.

The intersection layout displaying the GIVE WAY sign example at an exclusive bicycle path is shown in Figure 3.9.

If the path is a joint-use path, STOP and GIVE WAY signs and associated markings are only relevant for bicycle traffic.

3.7.4 Traffic signal control

Traffic signals may be used to control exclusive bicycle or joint-use path crossings, or at-grade exclusive bicycle path intersections with a road. When traffic signals are used the following requirements and recommendations apply:

- (a) *Road crossings* The treatment shown in Figure 3.10 is suitable for both exclusive bicycle and joint-use path crossings. Where the treatment is intended to be used only by cyclists, two- or three-aspect bicycle signals shall be provided. In all cases where pedestrians are likely to use the crossing, two-aspect pedestrian lanterns shall be used, and pedestrian walk and clearance times shall be provided.

Cyclists are required by law to dismount before using a joint-use path crossing. To ensure cyclists dismount, consideration should be given to providing a physical device as recommended in Clause 3.7.2(a) or a CYCLISTS DISMOUNT (G9-58) sign, or both.

- (b) *At-grade intersections* The treatment shown in Figure 3.9 for exclusive bicycle path crossings may be adapted to traffic signal control. Three-aspect bicycle signal lanterns shall be used to control bicycle path approaches. Circle aspects shall control the road approaches. NO TURNS (R2-7) signs with BICYCLES EXCEPTED supplementary plates may be needed to face both directions of road traffic.

Traffic signal layouts should be designed in accordance with State or National guidelines.

3.8 ROAD CROSSINGS AT INTERSECTIONS

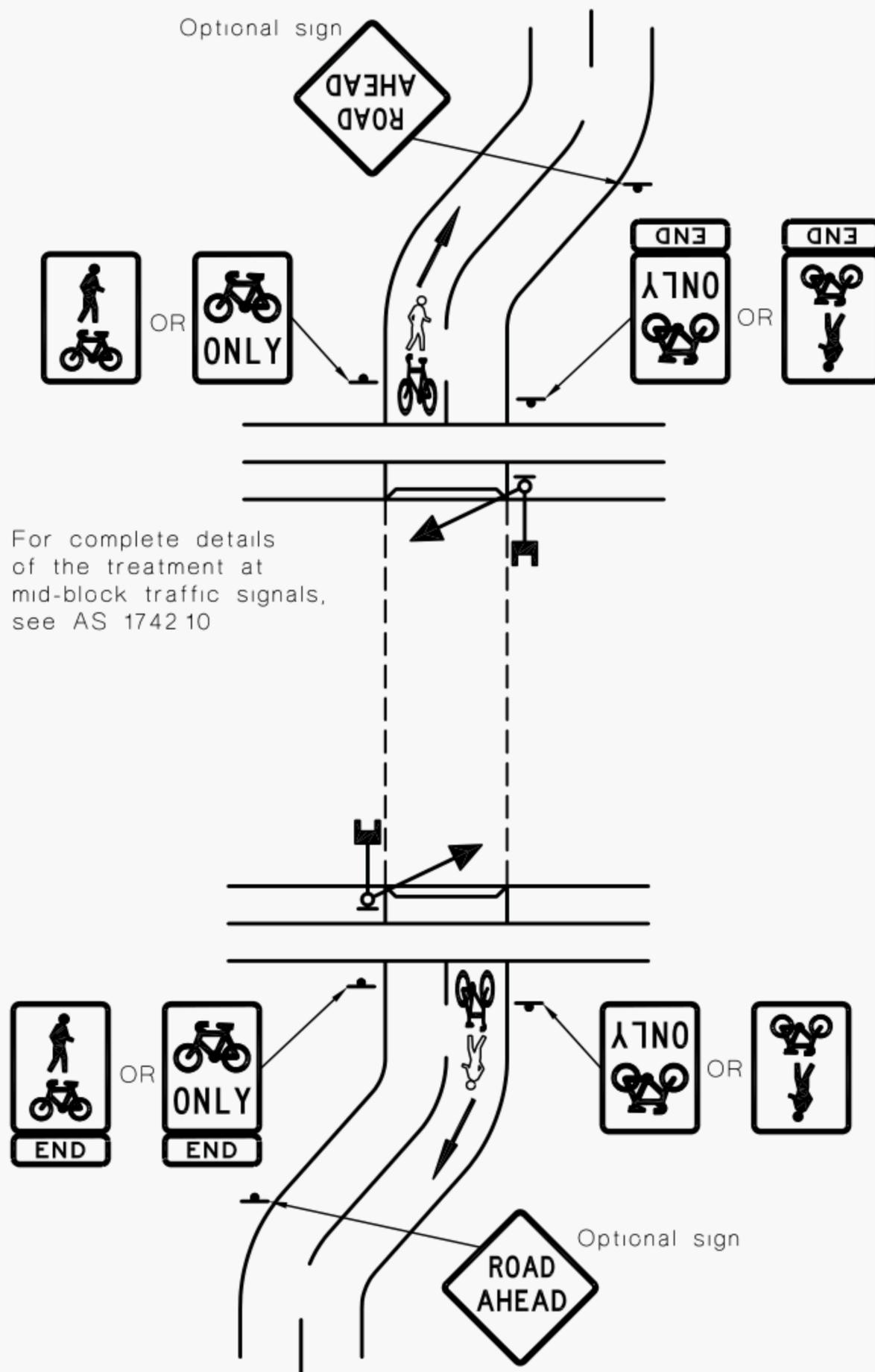
3.8.1 Unsignalized intersections

No special provision is required for footpaths where they cross unsignalized side streets at intersections. An exclusive bicycle path or joint-use path may require an appropriate treatment of a type specified in Clause 3.7.3(a). If an exclusive bicycle path has been diverted at the intersection to cross the side street some distance from the intersection, treatments specified in Clauses 3.7.2 or 3.7.3(b) may be required.

3.8.2 Signalized intersections

For exclusive bicycle and joint-use path crossings at signalized intersections, the requirements and recommendations in Clause 3.7.4 apply. If a crossing is intended to be used exclusively by bicycle traffic, adequate provision shall be made elsewhere for any pedestrians in the vicinity who wish to cross.

* Warrants for STOP signs in AS 1742.2 may be used for this purpose.



NOTE: CYCLISTS DISMOUNT signs (G9-58, see Clause 2.2(h)) may be required in conjunction with the END path signs if needed to remind cyclists that they are not permitted to ride across the crossing.

FIGURE 3.10 USE OF MID-BLOCK PEDESTRIAN/CYCLIST OPERATED TRAFFIC SIGNALS AT AN EXCLUSIVE BICYCLE OR JOINT-USE CROSSING

SECTION 4 BICYCLE PROVISIONS ON FREEWAYS

4.1 GENERAL

This Section deals with provisions for bicycles on freeways* and assumes that all bicycle movement along the freeway is by means of the left hand sealed shoulder. Any signs regulating the use of the shoulder by traffic generally shall be modified as necessary to ensure that use by bicycles is permitted. Provisions at interchanges for bicycles are in three basic categories as follows:

- (a) Bicycles permitted to proceed beyond the interchange but must travel via the exit ramp and return via a subsequent entrance ramp.
- (b) Bicycles permitted to proceed through the interchange via the left hand freeway shoulder using designated ramp crossings.
- (c) Bicycles not permitted beyond the interchange and must leave the freeway via the ramp.

Use of the devices and treatments specified in this Section is applicable only to freeways deemed suitable for use by cyclists by virtue of appropriate geometric design features and other relevant provisions, more advice on which can be found in HB 69.14.

Provisions for bicycles at facilities other than freeways where there are entry and exit ramps similar to those provided on freeways, shall be adapted from those given in this Section.

4.2 SIGNS

Signs used to control bicycle traffic on freeways are listed in Table 4.1. These signs are used as follows:

- (a) *No bicycles (R6-10-3) On freeway (R9-5)*



R6-10-3

R9-5

The No Bicycles sign shall be used to prohibit bicycles from using a freeway or parts of a freeway from which they are to be excluded.

The No Bicycles sign alone, shall be placed on the freeway just beyond the exit ramp nose where either—

- (i) bicycles are prohibited on the freeway, through and beyond the interchange; or
- (ii) bicycles are not prohibited beyond the interchange, but are required to negotiate the interchange via the exit and entrance ramps.

- (b) *Bicycles excepted (R9-3D)*



R9-3D

This supplementary plate shall be used in conjunction with signs controlling the use of the left shoulder on the freeway by other traffic, to confirm that cyclists are permitted to use the shoulder. It is typically used with the sign EMERGENCY STOPPING LANE ONLY (R5-58) (see AS 1742.8).

* These provisions also apply to facilities designated as MOTORWAYS or TOLLWAYS. Legends on signs may be adjusted accordingly, as necessary.

Where the No Bicycles sign is used at the start of an entrance ramp to prohibit movement of bicycles onto the freeway, the supplementary plate, ON FREEWAY shall be placed below it. This sign assembly may not be needed in this position if a sign of the type NO PEDESTRIAN, BICYCLES . . . , BEYOND THIS POINT (R6-3) (see AS 1742.8) is placed at the start of the entrance ramp.

TABLE 4.1
SIGNS FOR CONTROL OF BICYCLES ON FREEWAYS*

Sign	Sign Number	Size, mm
No Bicycles	R6-10-3C	750 × 750
	R6-10-3D	900 × 900
BICYCLES EXCEPTED	R9-3D	1500 × 300
ON FREEWAY	R9-5C	750 × 375
	R9-5D	900 × 450
Bicycles (symbolic)	W6-7B	750 × 750
	W6-7C	900 × 900
CROSSING RAMP	W8-28B	750 × 500
	W8-28C	900 × 600
Bicycles USE RAMP	G9-62	600 × 1200
Bicycles CROSS HERE WITH CARE	G9-63 (L or R)	900 × 900
Bicycles USE LEFT SHOULDER	G9-64	750 × 600
Bicycles MUST EXIT	G9-65	600 × 1200

*The legend FREEWAY, where it occurs on any of the above signs may be replaced with MOTORWAY or TOLLWAY, if appropriate.

- (c) *Bicycles (symbolic) (W6-7), Crossing ramp (W8-28)*

This sign shall be used in advance of a designated bicycle ramp crossing to warn drivers of motor vehicles that bicycles may be crossing ramp.



W6-7

W8-28

- (d)
- Bicycles use ramp (G9-62)*



G9-62

This sign shall be used on the freeway in advance of the start of an exit ramp where all bicycles must negotiate the interchange by leaving the freeway via the exit ramp and returning via the entrance ramp.

- (e)
- Cross here with care (G9-63)*



G9-63

This sign shall be used at designated ramp crossing points where bicycles are permitted to use the freeway through an interchange and must cross both the exit ramp and the entrance ramp at those crossing points in order to do so.

- (f)
- Bicycles use left shoulder (G9-64)*



G9-64

This sign shall be used to remind cyclists that whilst on the freeway and ramps they must use the left shoulder.

- (g)
- Bicycles must exit (G9-65)*



G9-65

This sign shall be used to direct bicycles off the freeway when they are not permitted to travel any further along the freeway. The No Bicycles, ON FREEWAY (R6-10-3, R9-5) assembly should be placed adjacent to the main carriageway of the freeway just beyond the start of the exit ramp in this case.

4.3 APPLICATION OF SIGNS TO FREEWAY INTERCHANGES

Provisions for bicycles at freeway interchanges are illustrated in Figures 4.1, 4.2 and 4.3.

NOTE: Figures 4.1, 4.2 and 4.3 have been adapted from HB 69.14. Further details on geometric layouts for bicycle ramp crossings required in the case illustrated in Figure 4.1 are given in that publication.

Any exclusive bicycle paths provided for the negotiation of an interchange shall be treated in accordance with Clause 3.6.

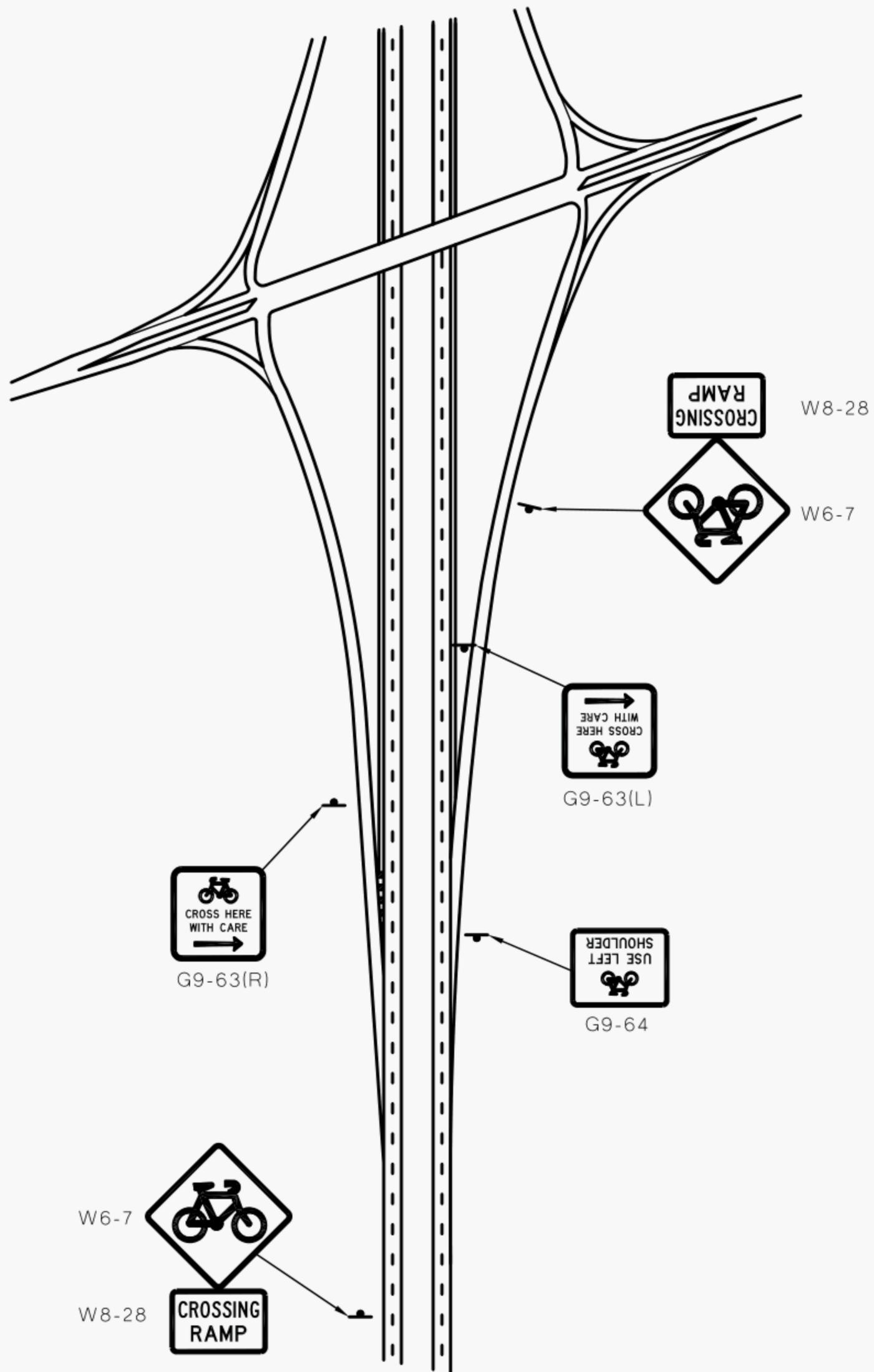


FIGURE 4.1 SIGNING FOR BICYCLES AT FREEWAY INTERCHANGES—
BICYCLES PERMITTED TO CROSS RAMPS

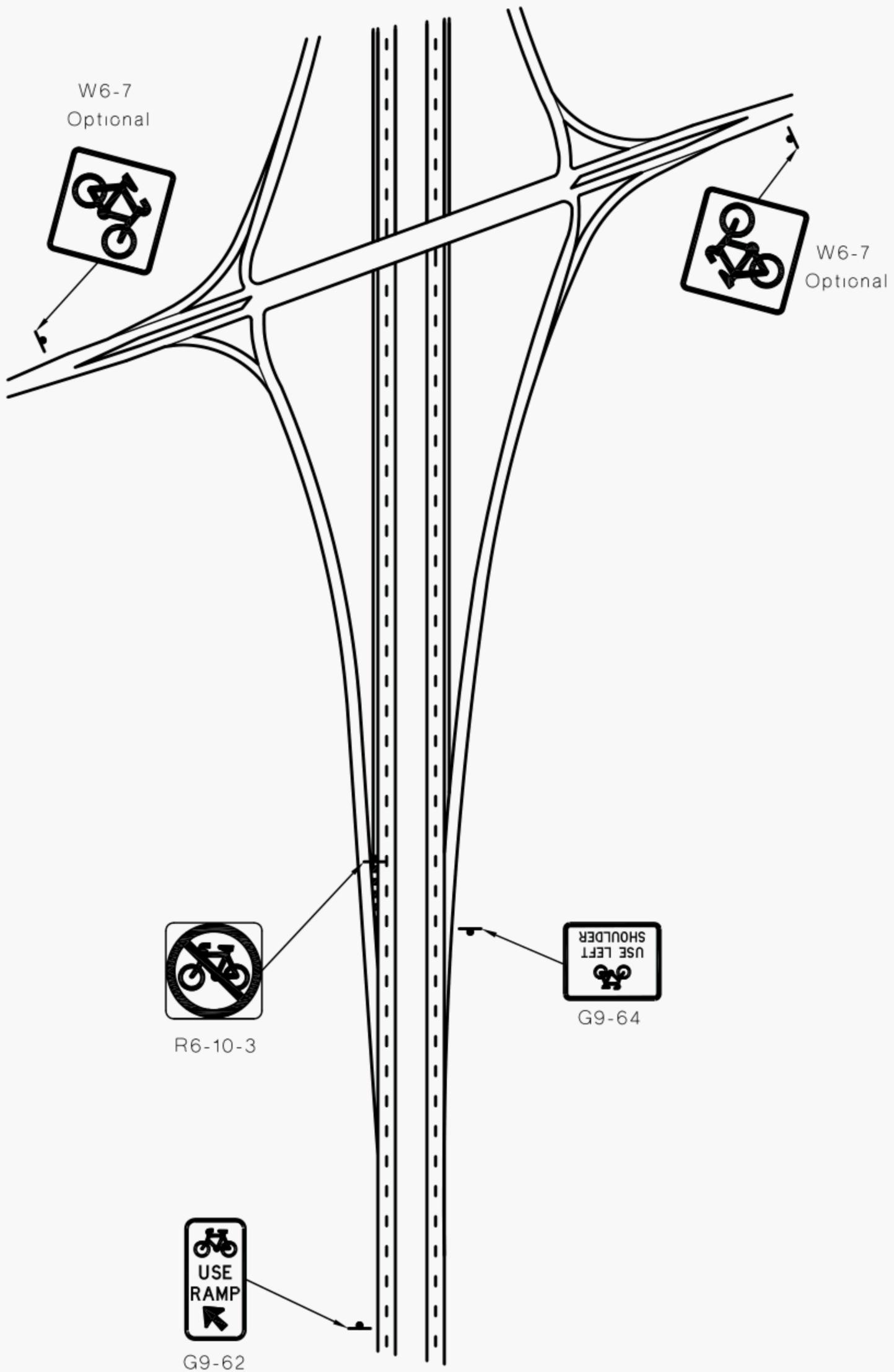
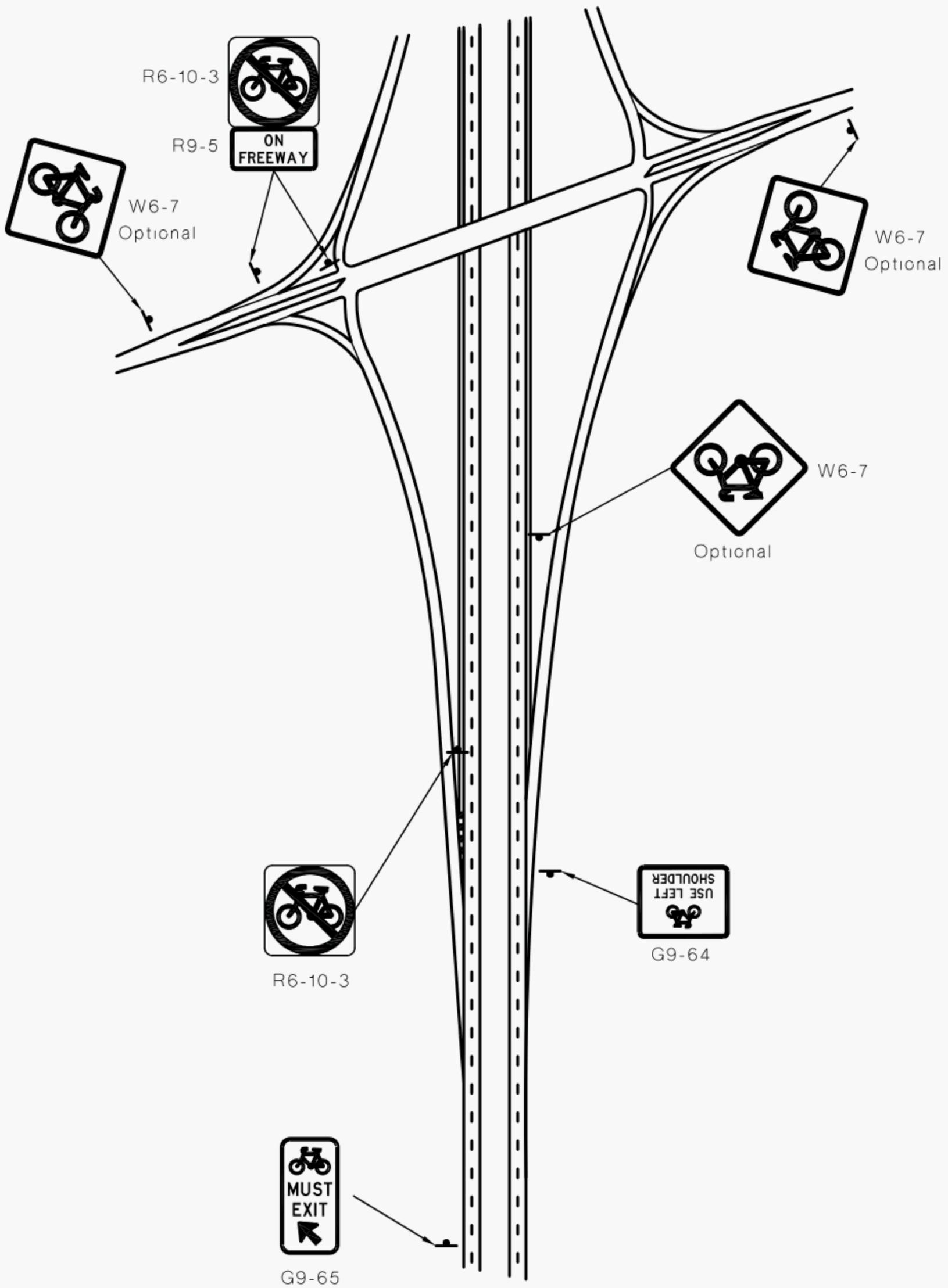


FIGURE 4.2 SIGNING FOR BICYCLES AT FREEWAY INTERCHANGES—
BICYCLES NOT PERMITTED TO CROSS RAMPS



NOTE: Direction signs to enable bicycle traffic forced off the freeway to continue their journey, should be considered.

FIGURE 4.3 SIGNING FOR BICYCLES AT FREEWAY INTERCHANGES—
BICYCLES NOT PERMITTED ON FREEWAY BEYOND INTERCHANGE

SECTION 5 NAVIGATIONAL AIDS FOR CYCLISTS

5.1 GENERAL

The purpose of this Section is to specify a series of principles on which the design and provision of navigational aids such as direction signs, route markers and route schematic signs are to be based. It is intended that subject to adherence to these principles, flexibility in the design and presentation of navigational information will be permitted. The objectives of these principles are as follows:

- (a) To maintain a degree of standardization which will allow a cyclist encountering signs for the first time to immediately recognize them as navigational aids aimed specifically at cyclists.
- (b) To ensure that bicycle navigational information cannot be misread by motor vehicle drivers in situations where this could create a hazard.
- (c) To ensure that safety principles in the use of colour and sign reflectorization are observed.

5.2 BICYCLE SYMBOL

Every direction sign, single assembly of direction signs, free standing bicycle route marker or other navigational aid shall include at least one bicycle symbol as shown in Figure 5.1. The overall height of the symbol shall be not less than the height of the principal legend on the sign.

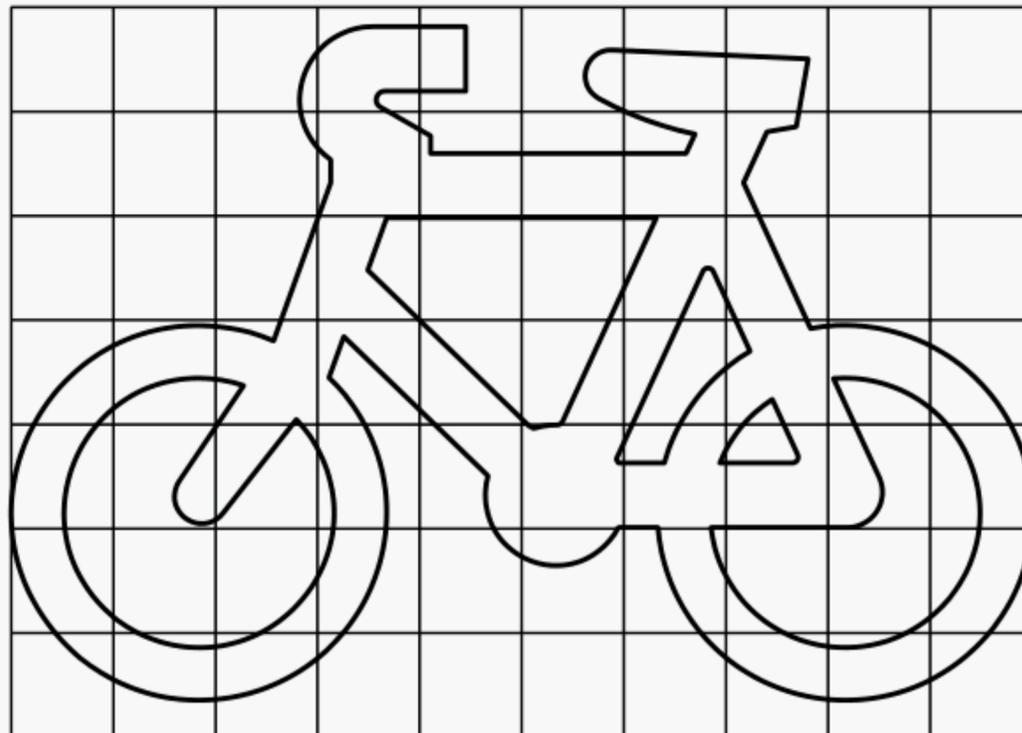


FIGURE 5.1 BICYCLE SYMBOL FOR USE ON SIGNS

5.3 COLOUR AND REFLECTORIZATION

5.3.1 Colour

The following colour schemes are preferred for bicycle direction signs and route markers:

- (a) White legend on blue background for both on- and off-road bicycle route markers.
- (b) Blue legend on white background with bicycle symbol in reverse colours for both on- and off-road direction signs.
- (c) White legend on brown background for directions to tourist facilities or points of tourist interest.

The colours yellow (background only) and red (legend or background) are reserved for safety signs and shall not be used on any navigational aids.

5.3.2 ReflectORIZATION

Many cyclists, particularly those commuting to and from work, travel during dusk and dawn. Signs along commuter routes should therefore have retroreflective sign face sheeting material.

Whilst some bicycle headlamps may not be powerful, others are bright enough to illuminate well located retroreflective signs. Also, there may be a substantial volume of motor traffic adjacent to or crossing bicycle commuter routes and the car headlights will often illuminate the signs provided for cyclists.

ReflectORIZATION of bicycle signs shall be carried out in accordance with Appendix A.

5.4 DIRECTION SIGNS

The following are requirements and recommendations for the design of direction signs:

- (a) *Legend size* Destination names, route names and other directional information intended to be read by a cyclist while riding, should have a legend height of not less than 80 mm for capitals nor 60 mm for the 'x' height of lower case letters. Legend meeting the requirements of AS 1744, Series C, D, E or lower case, shall be used.
- (b) *Directional indication* Directional indication shall be by means of either chevrons, signs with pointed ends, or fully formed arrows.

Where arrows are used they shall be similar in proportion to sign arrows specified in AS 1743 with the overall width of the barb not less than the height of the principal legend on the sign.

Where chevrons are used they shall be applied in a manner similar to that specified for intersection direction signs in AS 1743. The height of the chevron shall be not less than 1.5 times the height of the principal legend on the sign. Signs using chevrons shall have pointed ends.

The use of pointed ends without other directional indication shall be restricted to signs with a light coloured background. The point angle shall be between 70 and 90 degrees.

- (c) *Layout design* The design of direction signs shall follow the principles set out for the design of general purpose direction signs in AS 1742.2. Typical examples of direction signs for cyclists are shown in Figure 5.2.

5.5 ROUTE MARKERS

A bicycle route marker shall comprise at least a bicycle symbol and arrow. It may also include a number or letter to distinguish it from other routes in the area or the name of the route, or both.

If the route number is incorporated into a direction sign, it shall have a border the same shape as the marker when used as a free standing sign.

5.6 LOCATION OF SIGNS

Care is needed that direction signs for cyclists are not read by motor vehicle drivers as applying to them, especially where following the cycling direction would be inappropriate or lead to an unsafe condition for motor vehicles. This can be avoided by one or a combination of the following:

- (a) Placing signs where they either cannot be seen by motor vehicle drivers or are too remote from their line of sight to have any significance.
- (b) Ensuring that all bicycle signs prominently display the bicycle symbol.

The possibility of cyclists being misled by signs for motor traffic may also need to be considered.

NOTE: Navigation aids for cyclists should generally be located and mounted in accordance with Appendix B.

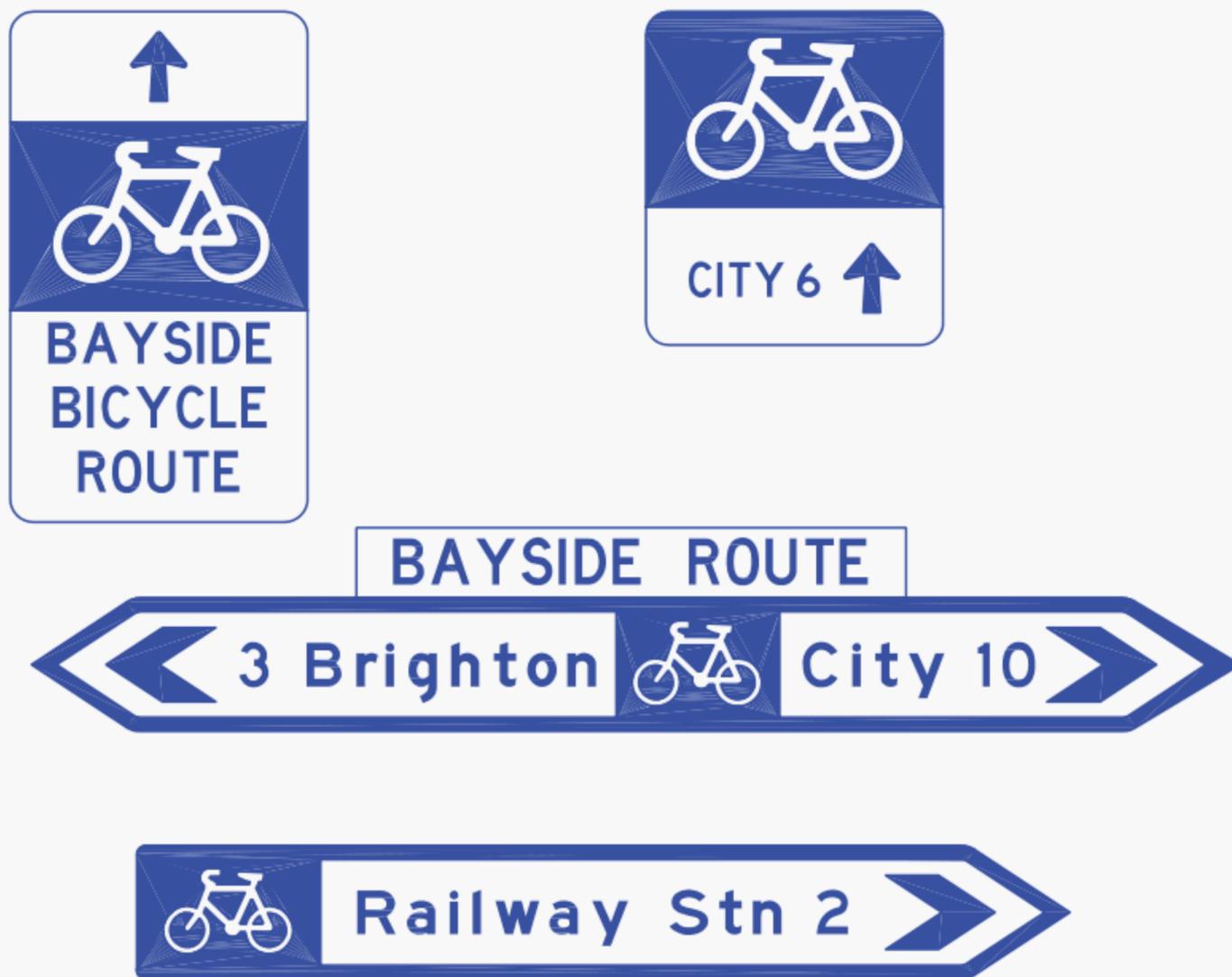


FIGURE 5.2 EXAMPLES OF DIRECTION SIGNS FOR CYCLISTS

APPENDIX A
ILLUMINATION AND REFLECTORIZATION OF SIGNS
(Normative)

A1 SCOPE

This Appendix sets out the general principles which apply to illuminating or reflectorizing signs for night time use. (See also Clause 5.3.2.)

A2 GENERAL

Signs that are intended to convey messages during the hours of darkness shall be either illuminated or reflectorized to display colours and shape by both night and day. Illumination may be required where reflectorization is judged to be ineffective, for example on overhead signs. Reflectorization may also be ineffective in some areas with high intensity street lighting.

A3 MEANS OF ILLUMINATION

Illumination may be by means of—

- (a) a light within or behind the sign face, illuminating the main message or symbol, or the sign background or both, through a translucent material; or
- (b) an attached or independently mounted light source designed to direct adequate illumination over the entire face of the sign.

A4 MEANS OF REFLECTORIZATION

Reflectorization is usually achieved by means of retroreflective materials complying with AS/NZS 1906.1, used in the following ways:

- (a) By reflectorizing the background only on signs with a darker legend and border on a white or yellow coloured background.
- (b) By reflectorizing the legend and border only on signs with a white or yellow legend and border on a darker coloured background.
- (c) By reflectorizing legend, border and background on signs with a white or yellow legend and border on a darker coloured background.

APPENDIX B
INSTALLATION AND LOCATION OF SIGNS
(Informative)

B1 SCOPE

This Appendix sets out general principles for the uniform installation and location of signs. It also provides guidance on the mounting angles required to ensure maximum effectiveness of signs.

B2 UNIFORMITY OF LOCATION

B2.1 General

Signs are normally erected on the left side of the bicycle facility. They may need to be placed on the right side or duplicated on the right side, or mounted over the facility.

Care is needed in locating signs to ensure that they do not obscure one another or otherwise generally obscure visibility, particularly at intersections.

If the sign is located in an exposed position, consideration may need to be given to the use of a frangible or break-away type of construction, or other means of safety protection for the road user at the sign supports.

B2.2 Longitudinal placement

The longitudinal placement of signs legally designating bicycle facilities or signs prohibiting bicycles is fixed by the nature of their message. Special care is required in the siting of such signs to ensure that they are prominently displayed to approaching drivers, cyclists or pedestrians. Signs which give advance warning of a bicycle lane on a roadway should be located sufficiently in advance to enable drivers to react appropriately.

B2.3 Lateral placement and height of signs on or adjacent to roadways

B2.3.1 General

The following are general rules for lateral location and mounting height of bicycle facility signs. Lateral placement is measured from the edge of the sign nearest the road or bicycle facility, and the height to the underside of the sign or the lowest sign in an assembly of signs.

There may, however, be exceptions where conditions do not permit these rules to be applied. In these cases placement or height is adjusted to meet the special conditions, e.g. height of a sign may be increased or decreased to avoid obstructing sight distance at an intersection.

B2.3.2 Lateral placement—rural roads

On unkerbed roads in rural areas the sign should be at least 600 mm clear of the outer edge of road shoulder, the line of guide posts or the face of guard rail. Clearance should not be less than 2 m nor more than 5 m from the edge of the travelled way.

B2.3.3 Lateral placement—urban roads

On kerbed roads in urban areas signs should be located back from the face of the kerb not less than 300 mm. Where mountable or semi-mountable kerbs are used, e.g. on traffic islands, minimum clearance should be 500 mm. On urban roads which are unkerbed, or on certain arterial roads designed for express traffic movement, the distances given in Paragraph B2.3.2 may be more appropriate.

B2.3.4 *Height—rural roads*

In rural areas roadside signs should be mounted clear of roadside vegetation and should be clearly visible under headlight illumination by night. The height of the sign should normally be not less than 1.5 m above the nearest edge of travelled way. For fingerboards and intersection direction signs the height should be increased up to a maximum of 2.2 m.

B2.3.5 *Height—urban roads*

In urban areas on kerbed roads the sign should be mounted between 2 m and 2.2 m above the top of the kerb to prevent obstruction to occasional pedestrians, or to reduce interference from parked vehicles. Where neither pedestrians nor parked vehicles have to be considered, e.g. on a traffic island or median, the height given in Paragraph B2.3.4 may be more appropriate. In some cases signs on medians and traffic islands may need to be mounted lower than 1.5 m. The possible need for increased maintenance cleaning, together with possible sight distance obstruction to pedestrians or oncoming traffic should be considered. Signs which overhang a footway should have a height of 2.5 m min. above the level of the footway.

B2.3.6 *Overhead mounting*

Overhead signs should be mounted a minimum of 5.3 m above the highest level of the carriageway; this is particularly important if there is no alternative route for occasional high loads. Height may be reduced to 4.6 m if the sign projects over a shoulder or lane which is used only for parking or emergency stopping. The greater height is preferred, where possible.

B2.4 **Placement of signs on bicycle paths**

Signs which are mounted adjacent to bicycle paths or footpaths separate from vehicular roadways should be located as follows:

- (a) *Lateral placement* Signs should be at least 600 mm clear of the outer edge of the facility.
- (b) *Mounting height* Signs should be mounted a minimum of 2 m above the ground surface.
- (c) *Overhead signs* Signs may be placed above bicycle paths, provided the minimum vertical clearance is 2.5 m and the supporting structure conforms with Item (a).

B3 **SIGN ORIENTATION**

Signs on roads should be oriented at approximately right angles to, and facing, the traffic they are intended to serve. At curved alignments, angle of placement should be determined by the course of approaching traffic rather than by the road edge at the point where the sign is located.

To eliminate possible and undesirable specular reflection from the surface of the sign, it should be turned about 5 degrees away from the normal to the headlight beam (see Figure B1). After signs are installed it is good practice to test them by trial approach runs by motor vehicle, bicycle, or on foot as appropriate both by day and by night.

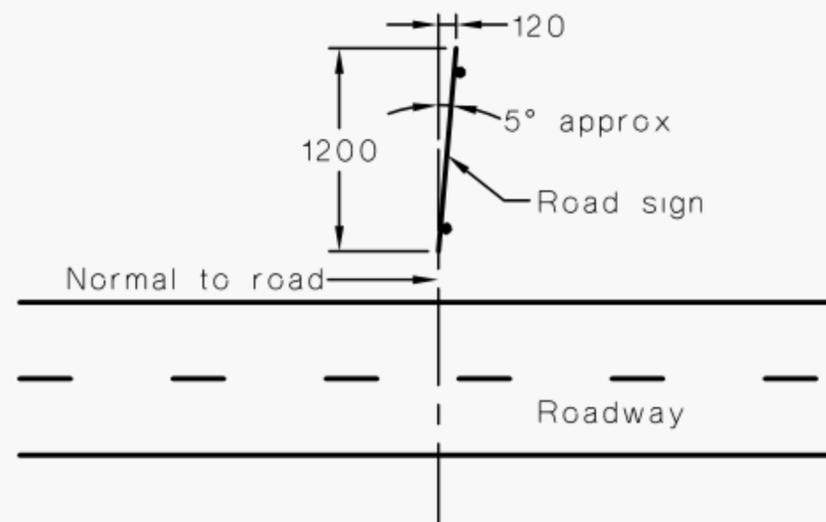


FIGURE B1 METHOD OF AVOIDING SPECULAR REFLECTION ON A ROAD SIGN

APPENDIX C
SELECTION OF APPROPRIATE SIGN SIZE
(Informative)

C1 SCOPE

This Appendix provides guidance for the selection of the appropriate size of sign for use at a particular situation.

C2 SIZE OF SIGNS

For most of the signs in this standard a range of sizes designated A (smallest) up to B, C or D is provided.

C3 GENERAL PRINCIPLES FOR SIZE SELECTION

Unless special uses for some or all of the various sizes are specified in the text accompanying a particular sign, the following general principles should be observed in sign size selection:

- (a) An A size is not provided for bicycle lane regulatory signs erected on roads. The B size should normally be used—
 - (i) only where the 85th percentile** approach speed is less than 70 km/h;
 - (ii) where prominence or conspicuity of the sign is not affected by competing visual stimuli; and
 - (iii) where lateral displacement of the sign from the drivers' path is not excessive.For Bicycles (W6 Series) warning signs erected on roads, the A size is normally used under the above conditions.
- (b) Progressively larger signs in the above categories should be used—
 - (i) as approach speeds become higher;
 - (ii) where a greater need exists for sign prominence due either to competing visual stimuli or the need to emphasize the message; or
 - (iii) where there is excessive lateral displacement of the sign.
- (c) For signs erected on bicycle paths, footpaths, and joint-use paths, Size A signs are normally used. Progressively larger signs should be used—
 - (i) where a greater need exists for sign prominence due either to competing visual stimuli or the need to emphasize the message; or
 - (ii) where there is excessive lateral displacement of the sign.
- (d) Where one sign supplements another the two signs should be the same width. With the exception of the Time of Operation Module (R9-1), this means that the same size designation i.e. A, B, C etc., should be used for both signs. When the Time of Operation Module (R9-1) is used with Bicycle Lane Sign (R7-1-4), the former should be one size designation smaller than the Bicycle Lane Sign so that the widths are equal.

* The speed at or below which 85% of vehicles are observed to travel under free flowing conditions past a nominated point and other conditions as defined in AS 1742.2.

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