

Bicycle Warning Signs

W6-7 & W8-17





TRAFFIC MANAGEMENT Operational Instructions

Bicycle Warning Signs W6-7 & W8-17 - 9.1

AMENDMENT RECORD

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Manager, Traffic Services
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For information regarding the interpretation of this document please contact:
Traffic Operations Section
Email: dpti.tassadmins@sa.gov.au

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1. Scope

This operational instruction provides advice regarding the placement of bicycle warning signs on 'rural type' arterial roads and specifically deals with the use of W6-7 & W8-17(1&2) series warning signs.

2. Purpose

Provide guidance to traffic management practitioners to enable the selection and placement of bicycle warning signs to raise motorists' awareness of the possible presence of cyclists where particular road environments exist.

9.1

3. Background

Cyclists accessing hilly rural road environments are sometimes not expected or seen by faster approaching vehicular traffic due to tight horizontal and vertical road alignments with reduced sight distance. These road environments can present cyclists as 'hidden hazards' to other road user groups. This is particularly the case for up-hill left hand bends where cyclists are hidden from view from approaching motor vehicle traffic by steep embankments and or roadside vegetation. This safety issue is further exacerbated by the existence of narrow single vehicle traffic lanes.

Fast moving vehicular traffic encountering slower moving cyclists are often forced to take unexpected evasive action by either braking suddenly or crossing separation lines to avoid a collision. The presence of on-coming vehicles in this instance significantly increases the likelihood of crash.

The installation of traffic control devices such as bicycle warning signs can significantly increase a motorist's awareness of the possible presence of cyclists at particular locations. This can result in motorists reducing vehicle speeds before observing cyclists so that an informed decision to either safety tail or overtake a cyclist can be made.

4. Bicycle Warning Sign and Supplementary Distance Plates

Bicycle warning sign W6-7, used in conjunction with supplementary distance plate W8-17-1 (NEXT...km) and W-17-2 (NEXT...m) may be used to highlight long sections of road and site specific locations where installation criteria in this operational instruction are met.

9.1



W6-7



W8-17-1



W8-17-2

5. Installation Criteria

The combined use of bicycle warning signs W6-7 and W8-17-1&2 may be placed on sections of road where:

- cyclists may be present, and
- motor vehicle sight distance is significantly limited due to horizontal and/or vertical geometry, and
- single traffic lanes are less than 5.0 m wide in each direction measured from separation line to edge of seal including sealed shoulder.

6. Sign Selection

6.1 W6-7 Series

The appropriate size of the W6-7 warning sign shall be determined by the speed zone of the road that the hazardous section is located. Refer *DPTI Operational Instruction 2.38 – Size of Standard Signs*. In most instances throughout the South Mount Lofty Rangers speed zones are 80 km/h or above which warrant 'C' size signs at 900 x 900 mm. However, given the majority of the relevant hazardous sections of road in these regions have 25 - 60 km/h advisory speed restrictions placed upon them, 'B' sized signs at 750 x 750 mm may be appropriate.

6.2 W8-17-1 Series

Supplementary distance plate W8-17-1 shall be used in combination with W6-7 signs where the above installation criteria is met and continuous hazardous sections of road extend over 1 km in length.

Distances shown on the W8-17-1 sign shall be shown in whole kms.

6.3 W8-17-2 Series

The supplementary distance plate W8-17-2 shall be used in combination with W6-7 sign where isolated sections of hazardous section of road exist less than 1 km in length

Where two or more sites are closely located within 1 km of each other one warning sign may be used to identify both locations.

Distances shown on the W8-17-2 series of signs shall be:

- Up to 500 m – to the nearest 100 m.
- Between 500 m and 1 km – to the nearest half a km.

7. Site Investigation

7.1 Site Investigation Precaution

Due to the constrained road environments where bicycle warning signs might be applicable site investigations may themselves be potentially hazardous. As such the use of traffic control devices as specified in DPTI's *SA Standards for Workzone Traffic Management* are recommended.

7.2 Site Investigation

Once the need for bicycle warning signs has been established along a section of road, site investigations may take place to determine where the signs may be installed.

The most critical element that affects the ability for a motorist to view a cyclist on a road in hilly terrain is the available horizontal and vertical sight distance. Some measure of these sight distances should take place however the ability to conduct detailed investigations may be difficult given the highly constrained road environments that exist where these sight distances may be of concern.

Austrroads *Guide to Road Design Part 3 – Geometric Design* (2016) provides advice to practitioners to determine appropriate sight distances in relation to horizontal and vertical road alignments. Wherever possible detailed site investigations should be carried out with reference to this guide.

As a general rule the determination of safe stopping sight distance in relation to available horizontal and vertical sight distances should be calculated. Where an advisory speed sign is not provided appropriate safe operational speed can be determined by driving a vehicle around a curve fitted with a ball bank indicator. Refer Australian Standard *AS 1742.2 MUTCD: Part 2: Traffic Control Devices for General Use* (2009) Appendices F and G – Determination of advisory speeds on horizontal / vertical curves.

Where safe stopping sight distance is not available and traffic lane widths are less than 5.0 m (including any sealed shoulder area) bicycle warning signs may be considered for installation.

Although the warrant to determine the installation of bicycle warning signs can be calculated, judgement and discretion should also contribute to the decision making process.

8. Installation of Signs

Tight horizontal curves in rural road alignments often have existing warning signs including 'Advisory Speed' and 'Curve' signs placed in advance of the curve advising the alignment type and advisory speed of the section of road ahead. The location of these signs on the approach to the hazardous section of road should have priority over any bicycle warning signs and should therefore remain in advance of new bicycle warning signs.

Bicycle warning signs should not be placed closer than 0.6 times the advisory speed of approaching vehicles from any existing advisory speed signs and be located in advance of the tight curve section of road.

Should the hazardous section of road have no advisory speed warning signs on its approach, then bicycle warning signs shall be placed at a distance 0.6 times the respective speed zone for that section of road from the hazardous curve tangent point.