vicroads

Cycle Notes

No. 17 - October 2005

Terminal Treatments for Off-Road Paths

Welcome to CYCLE NOTES No. 17. The purpose of CYCLE NOTES is to provide information on the design of bicycle facilities for engineers and planners.

CYCLE NOTES should be read in conjunction with:

- AUSTROADS Guide to Traffic Engineering Practice, Part 14 – Bicycles.
- Australian Standard 1742.9, Manual of Uniform Traffic Control Devices, Part 9 Bicycle Facilities.
- VicRoads Traffic Engineering Manual Volumes 1 and 2

Introduction

The purpose of this edition of Cycle Notes is to provide guidance on terminal treatments for off-road, shared user paths.

Purpose of Terminal Treatments

Terminal treatments for off-road, shared user paths are generally provided to:

(a) restrict illegal access by motorists to road reserves and parkland; and/or

(b) advise cyclists that there is a road ahead and slow cyclists down before they cross the road.

However, terminal treatments must be designed and installed is such a way as to ensure that they serve their intended purpose and do not cause an unacceptable hazard to cyclists.

Figure 1 - Terminal treatment that cyclists avoid by cycling to the left

Preventing Unauthorised Access

In some instances, it may be necessary to install terminal treatments to prevent access by unauthorised vehicles into road reserves and parklands.

This is in order to prevent damage to paths, to ensure that paths can only be used by cyclists and pedestrians and to prevent rubbish being dumped illegally.

However, before a terminal treatment is installed there must be clear evidence that such access is occurring and the treatment must be effective at preventing access by these vehicles.

Slowing Cyclists Down

In most instances, it is unnecessary to slow cyclists down before crossing a road. However, it is important that cyclists on off-road paths be provided with sufficient visual and/or physical cues to advise them that they are approaching a road crossing.

One of the five basic requirements for cyclists is that they maintain speed. As such, cyclists will try and keep moving, unless it is necessary for them to stop. Very few cyclists will ever dismount and walk.

For these reasons, most cyclists will not try and negotiate tight corners such as those associated with "chicanes" and similar terminal treatments. Instead, cyclists will simply take an alternative path around the treatment as shown in Figure 1.

Opening Widths for Terminal Treatments

If it is necessary to install a terminal treatment to restrict access by unauthorised vehicles (rather than slow cyclists down) the treatment should have an opening width of no more than 1.6 metres.

If the purpose of a terminal treatment is to provide visual and physical clues to a cyclists and to slow them down before they reach a road, the treatment should have an opening width of no less than 1. 4 metres. Opening widths that are less than 1.4 metres can be overly restrictive and can be a safety hazard for cyclists as shown in Figure 2.

Figure 2 - Terminal treatment with an opening that cyclists find difficult to pass through

As a result, if a terminal treatment is required, it should have an opening of between 1.4 metres and 1.6 metres. On paths that allow horse riders access, the width of the terminal treatment must be wide enough to allow horses to get through.

Preferred Terminal Treatments

If the purpose of the terminal treatment is to restrict access to unauthorised vehicles and/or to slow cyclists down before they reach the road, the preferred terminal treatments are shown in Figure 3 and Figure 4. If there is no need to restrict access to unauthorised vehicles and/or to slow cyclists down before the reach the road, there is no need to provide a terminal treatment at all.

Separate entry and exit terminal treatment

The preferred terminal treatment to restrict access and to slow cyclists down is to separate the entry to the path from the exit as shown in Figure 3.

This type of treatment provides sufficient advice to cyclists that they are approaching a road and does not place an obstacle (such as a bollard) in the path of cyclists.

In order to restrict unauthorised access, it is critical that the fence line continue up to the edge of the path. If access is required for authorised vehicles, removable posts may also be used.

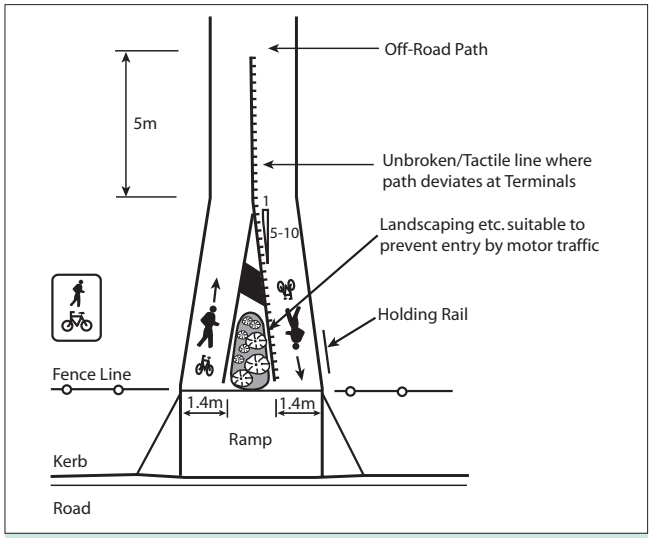


Figure 3 - Separate entry and exit terminal treatment (Figure 6.37 from Austroads Part 14)

Staggered Fencing Treatment

An alternative treatment that could be considered to slow cyclists down is to install two staggered chain mesh fences as shown in Figure 4 or a path deviation as shown in Figure 5.

This type of treatment is particularly suitable for slowing cyclists down as it narrows the path and requires cyclists to slow down to negotiate their way through. The key with this type of treatment is to ensure that there is sufficient distance between the fences so that cyclists are not forced to stop and dismount. It is suggested that a minimum distance of 3.0m be adopted.

Figure 4 - Staggered fencing on Stud Road, Rowville

Figure 5 - Off-set bicycle path on Kelletts Road, Rowville

Bollards and 'U'-Rails

A common method of restricting access to unauthorised vehicles is to install a bollard in the centre of the path. This type of treatment creates an unacceptable risk to cyclists and should only be used when there is no other alternative available.

If bollards are to be used on paths to restrict access, they must be used in conjunction with a feature on the sides of the path to provide an opening of no more than 1.6 metres wide. They should also be conspicuous to cyclists and include linemarking to direct cyclists away from the bollard. These details are shown in Figures 6, 7, 8 and 9.

For paths that are 4.0 metres wide or more, consideration could be given to using a 'U' – Rail and target board as indicated in Figures 7 and 9.

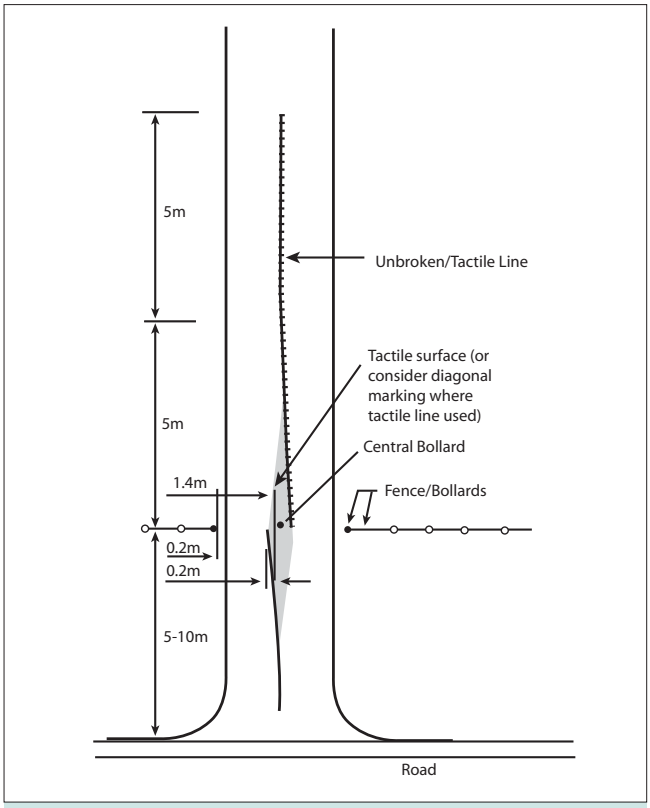
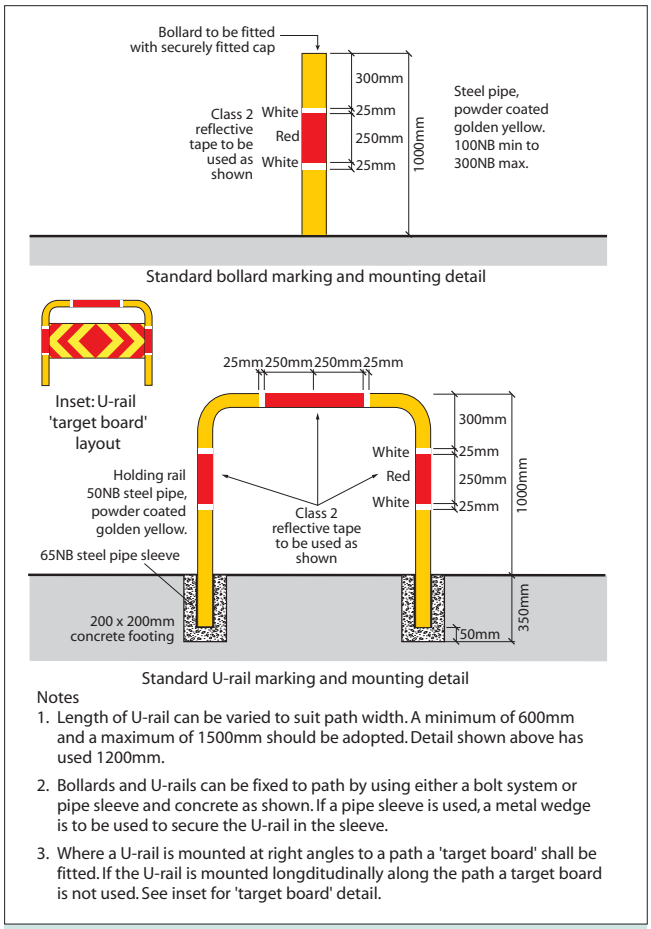


Figure 6 - Preferred layout for the use of central bollard (Figure 6.39 from Austroads Part 14)



Notes

1. Length of U-rail can be varied to suit path width. A minimum of 600mm and a maximum of 1500mm should be adopted. Detail shown above has used 1200mm.
2. Bollards and U-rails can be fixed to path by using either a bolt system or pipe sleeve and concrete as shown. If a pipe sleeve is used, a metal wedge is to be used to secure the U-rail in the sleeve.
3. Where a U-rail is mounted at right angles to a path a 'target board' shall be fitted. If the U-rail is mounted longditudinally along the path a target board is not used. See inset for 'target board' detail.

Figure 7 - Preferred bollard and 'U'-Rail details (courtesy RTA, NSW)

Figure 8 - Example of preferred bollard treatment to prevent motor vehicle access (courtesy RTA, NSW)

Holding Rails

Holding rails can be included in path terminal treatments to allow cyclists to stop without putting their feet on the ground.

Holding rails also alert cyclists to the fact that they are approaching a road and gives them something to hold onto while they are waiting for a gap in the traffic.

If holding rails are to be provided as part of a terminal treatment, they should be located on the left hand side of the path and be within easy reach of cyclists. Holding rails that are located within the centre of the path can present a safety hazard to cyclists.

Figure 9 - Example of preferred 'U'-rail and target board to prevent motor vehicle access (courtesy RTA, NSW)

End of Path Ramps and Lighting

The design of all end of path ramps should be in accordance with Australian Standard AS1428 – 'Design for Access and Mobility" and comply with the requirements of the Disability Discrimination Act.

This is to ensure that all paths can be accessed by all people, especially those with disabilities.

As a general principal, end of path ramps should have a gentle gradient and a smooth invert to ensure safety and comfort by all path users, including cyclists.

Flatter ramp gradients of 1 in 15 should be used to transition from on-road bicycle lanes to off-road paths to cater for higher travel speeds. For more details on these types of treatments, refer to Section 4.5.3 of Austroads' Guide to Traffic Engineering Practice, Part 14 – Bicycles.

Figure 10 outlines some of the basic design characteristics that should be considered when designing end of path ramps.

It is also important to consider the installation of appropriate lighting at all end of path treatments.

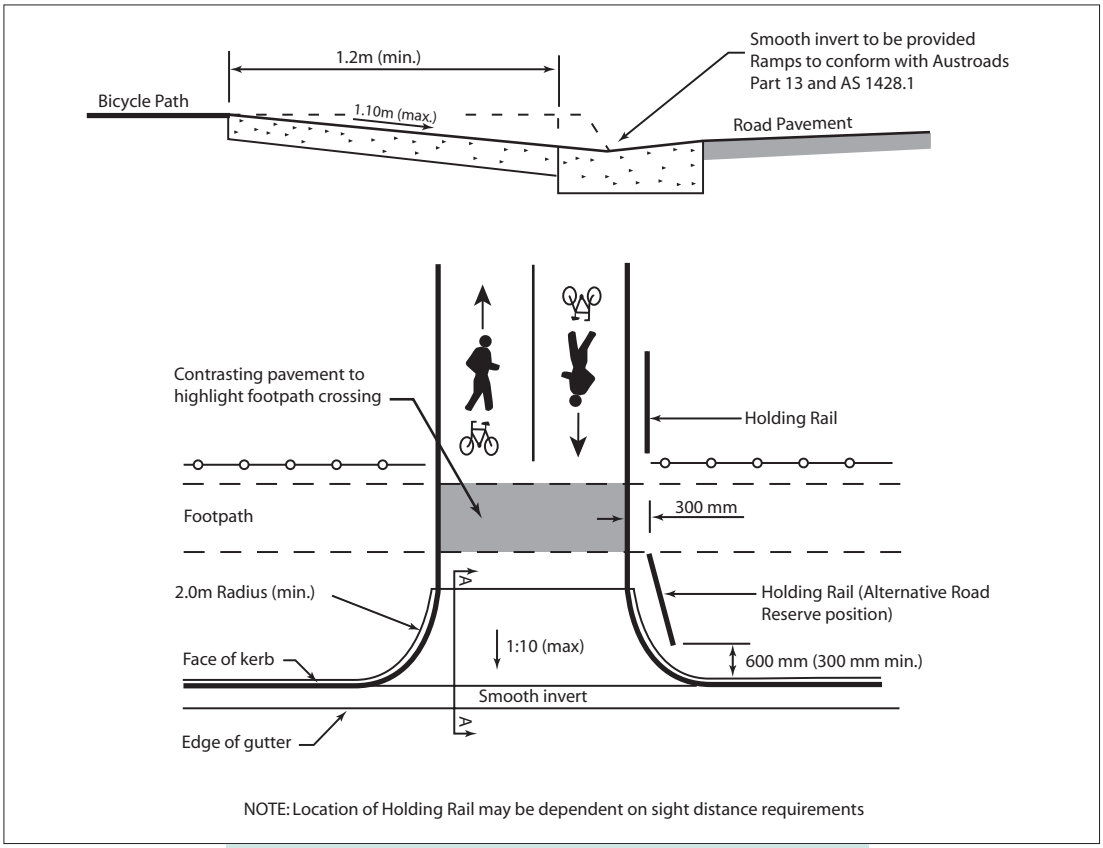


Figure 10 - Design requirements for shared user path ramps
(Figure 6.44 from Austroads Part 14)

For further information on Terminal Treatments for off-road shared user paths, please refer to:

Section 6.7.3 of Austroads' Guide to Engineering Practice — Bicycles, Part 14.

The Road and Traffic Authority of New South Wales publication "NSW Bicycle Guidelines, November 2003.

Previous editions of Cycle Notes can be downloaded from the VicRoads web site at: www.vicroads.vic.gov.au

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