Darwin Shared Path & Bicycle Lane Technical Notes

3. Connections from Shared Paths to On-Road Facilities

Objective

The objective of the *Darwin Shared Path & Bicycle Lane Technical Notes* is to provide direction and guidance for the planning and delivery of cycling facilities within the City of Darwin area. These technical notes are also intended to provide information for other stakeholders including the NT Government, cycling groups and the community to enable a consistent standard of infrastructure and treatments to be provided across the Metropolitan area.

References

Throughout this document, references have been made to the following technical standards and guidelines:

- Austroads *Guide to Road Design Part 3: Geometric Design* (2016)
- Road and Traffic Authority *NSW Bicycle Guidelines* (2005)
- Department of Transport WA *Shared Path Design – Technical Guidelines* (Draft, 2016)

The technical note should be read in conjunction with these documents.

Introduction

This technical note provides direction and guidance on connections from shared paths to on-road facilities. The information is compiled from multiple sources detailing good design practices and appropriate signage location and installation processes adopted throughout Australia.

Where off-road shared paths or bicycle paths intersect with or transition to on-road bicycle lanes it is usually necessary to provide an engineering treatment to permit a safe and smooth passage for riders. The transitions between off-road and on-road bicycle lane can be one-way path to one-way on road lane transitions and two-way path to one-way on road lane transitions.

On-road one-way lane transition to shared path

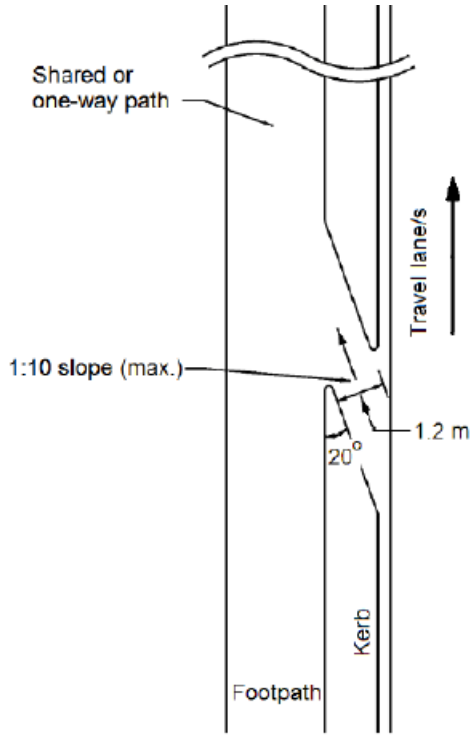
The most common use of this type of transition is on the approach to a large roundabout, allowing on-road cyclists to smoothly exit onto the path network to pass through or bypass the intersection. Similarly, the same type of transition is provided on the departure side of a roundabout to permit cyclists to smoothly return to the shoulder or cycle lane.

The exit ramp from the road should be orientated to enable cyclists to leave the road without having to slow down significantly, until they have exited the road. Requiring cyclists to slow significantly before leaving the carriageway places them at higher risk of rear-end crashes, particularly if the shoulder terminates at the ramp location.

The entry ramp from the path to the road should also be orientated to enable cyclists to smoothly enter the road while accelerating to cruising speed and the travel path of the cyclist shall be wholly contained within the marked shoulder. Consideration should also be given to providing a kerb extension to protect cyclists as they re-enter the road shoulder or bicycle lane.

For both entry and exit ramps, angles of 20 degrees or lower (relative to the road) shall be provided.

The general arrangement for these ramps are shown in the image below, taken from Austroads *Guide to Road Design Part 3*: *Geometric Design*, Figure 4.36.

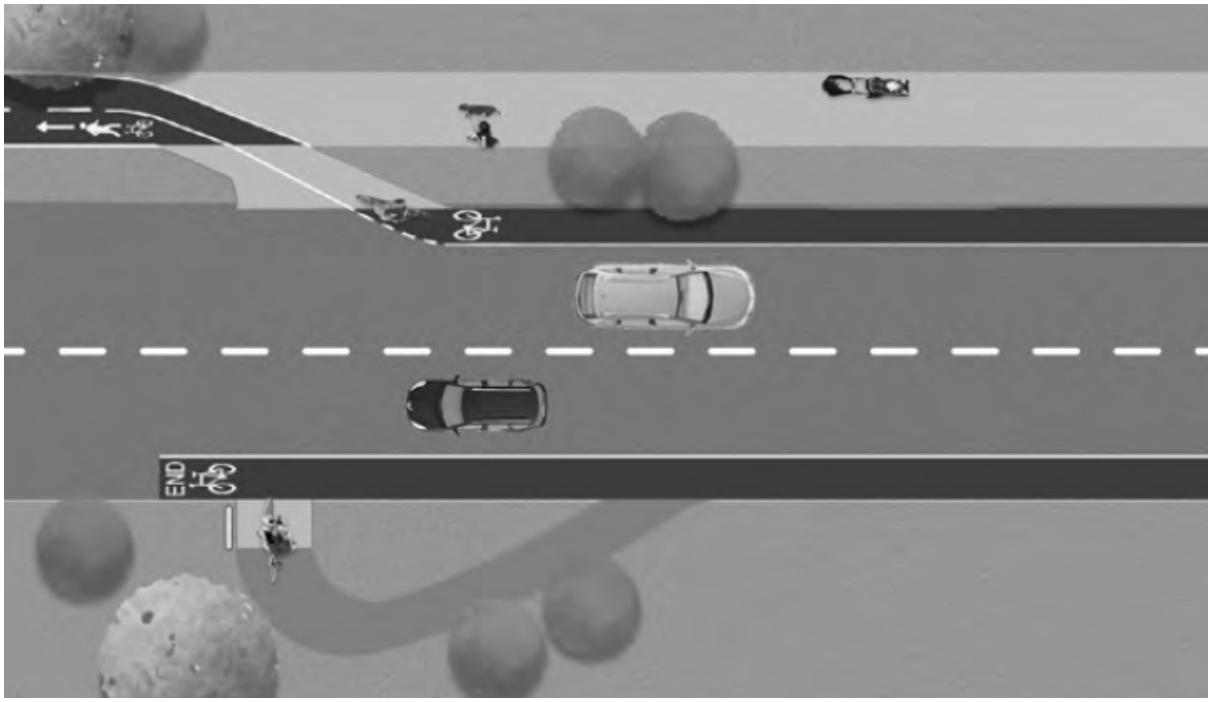


SOURCE: AUSTROADS GUIDE TO ROAD DESIGN PART 3: GEOMETRIC DESIGN (2016), FIGURE 4.36

The position of the transition at each site will require consideration of individual site characteristics, however generally these ramps should be located between 20m and 100m prior to an intersection or other bottleneck. This distance may be extended in some circumstances – e.g. where pre-deflection curves are provided on the approach to a roundabout.

Two-way path to on-road one-way lane transitions

Where a two-way path converts to on-road lanes a crossing will be required in one direction. An indicative layout is shown in the image below, taken from the Department of Transport WA *Shared Path Design – Technical Guidelines*. On busy roads (> 5,000 vehicles per day), a refuge island should be incorporated to allow a two stage crossing.



SOURCE: DEPARTMENT OF TRANSPORT WA SHARED PATH DESIGN – TECHNICAL GUIDELINES (2016 DRAFT)

Ramp Transitions

Transition ramps are required to bring verge level off-road cyclists to road level. A 20 degree approach angle, with a maximum grade of 1 in 10, is recommended for both road-to-path and path-to-road movements, which allows for a gradual grade change and relatively high speed transition for commuter cyclists.