



Cycle Notes

No. 9 April 2001

Creating On-Road Space for Cyclists

Welcome to CYCLE NOTES No. 9. 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, and
- Australian Standard 1742.9, Manual of Uniform Traffic Control Devices, Part 9 Bicycle Facilities.

Introduction

The purpose of this edition of *Cycle Notes* is to provide guidance on the selection and use of methods that create space for cyclists on existing roads.

This edition of *Cycle Notes* should be read in conjunction with *Cycle Notes No 7 – On-Road Arterial Bicycle Routes*.

Why Create Space for Cyclists?

Cyclists need a clearly defined and dedicated space that separates them from adjacent motor vehicles. This separation increases cyclists' safety, improves traffic flow and can improve the performance of the road.



*Providing space for cyclists on
Kilby Road, Kew*

Types of Bicycle Facilities

Given the choice, most cyclists prefer to use roads that have either an exclusive bicycle lane or a shared parking and bicycle lane.

These facilities provide cyclists with the higher degree of separation and, therefore, a higher level of service.

However, wide kerbside lanes provide a very low degree of separation. Wide kerbside lanes should only be used in situations where it is impractical to provide an exclusive bicycle lane or a shared parking and bicycle lane.

The following table provides a description of each of the various types of bicycle facilities that are used and the degree of separation that each provides:

Type of Facility	Description	Degree of Separation
Exclusive Bicycle Lane	A separate lane that can only be used by bicycles	High
Shared Parking and Bicycle Lane	A separate bicycle lane in which motor vehicles can also park	Medium to High
Wide Kerbside Lane	A wide left lane that is shared by bicycles and motor vehicles	Low
Off-road path	A path located adjacent to a carriageway	High

Nine Ways to Create Space for Cyclists on Existing Roads

Providing an exclusive bicycle lane or a shared bicycle and parking lane requires the road's existing cross section and functionality to be reviewed.

The purpose of this review is to identify the trade offs that might be required to provide the necessary space for bicycles.

The following nine methods of creating space for cyclists have been used in a variety of situations to retrospectively fit bicycle lanes to existing roads.

The most appropriate method for a given situation will depend upon a number of factors that include the cost of the treatment and the trade offs that might be required.



Eastern Beach, Geelong

1

Reduce Width of Traffic and/or Parking Lanes

In certain circumstances, traffic and parking lanes are wider than they need to be and can be reduced to provide an exclusive bicycle lane or shared bicycle parking lane.

Reducing the width of traffic and/or parking lanes involves altering lane lines only. It is a low cost treatment, especially if a road has been resheeted, and causes minimum disruption to other users.



Nepean Highway, Dromana

2

Seal Shoulders

Many roads in outer suburban and regional areas have long lengths of continuous gravel shoulders that could be sealed to provide bicycle lanes for cyclists.

Sealed shoulders are often a benefit to motorists as well and can improve road safety.

When sealing shoulders it is important that they are constructed so that they do not break up and become unusable for cyclists. It is also important to ensure that the seal uses a stone size of 10 mm or less.



Welsford Street, Shepparton

3

Indent Car Parking

Indenting parking removes parked cars from through lanes and frees up space that can be used for an exclusive bicycle lane.

Car parking can be indented on both sides of the road or on one side only. As it involves localised reduction of the width of the nature strip, it may require the relocation or removal of trees, stormwater drains and/or services.



Fussell Street, Ballarat

4

Prohibiting Car Parking

On many roads, parallel parking is permitted on both sides of the road even when there is a considerable amount off-street parking available.

In these situations, it may be possible to prohibit parking on one side of the road or perhaps on both sides to create sufficient space to provide an exclusive bicycle lane on each side of the road.

5

Use Existing Service Roads

Many arterial roads have long lengths of wide service roads that run parallel to the main carriageway. These service roads provide an ideal opportunity for the provision of an exclusive bicycle lane or a shared parking and bicycle lane.

Route continuity and cyclist priority through intersections are important factors to consider when providing bicycle facilities on service roads. For this reason, detailed design of intersections is required to ensure that an acceptable level of service is achieved for cyclists.



Westall Road, Springvale

6

Widen Road into the Median

In situations where it may not be possible to reduce the width of traffic and/or parking lanes, it may be possible to widen the road by reducing the width of the median strip.

Median strips offer a cost effective space for widening a road as they often contain minimal amounts of stormwater drainage and services. Of course, it is important to ensure that medians are wide enough to accommodate turning lanes, as required.



St Kilda Road, St Kilda

7

Widen Road into the Nature Strip

On roads that do not have a median strip, or that have a median strip that cannot be reduced further, it may be possible to widen the road by reducing the width of the nature strip.

Unfortunately, it is common for stormwater drains, services and trees to be located in nature strips and widening the road in this way can be expensive if these items need to be removed or relocated.



Swan Street, Melbourne

8

Remove Traffic Lane

There are some roads that are either too wide and/or contain too many traffic lanes for the volume of traffic that they carry.

Depending on the circumstances and the nature of the traffic that uses the road, the removal of just one lane of traffic would provide sufficient space for a bicycle lane or a shared parking and bicycle lane. It could improve the amenity of an area. The extra space that is available could also be used to provide pedestrian refuge areas and/or right turn lanes.



Beach Road, Beaumaris

9

High Standard Off-Road Path

On roads which already have minimum lane, median and nature strip widths, that already prohibit parking, that do not have service roads and that carry high volumes of traffic, it is very difficult to provide for cyclists.

In these situations, consideration should be given to providing a high standard off-road path or an alternative route that provides an equivalent level of connectivity, continuity and service.



Footscray Road, West Melbourne

The Practical Application of the Nine Methods

The first step in selecting the most appropriate technique for providing space for cyclists in a given situation is to identify all those techniques that are *physically* possible.

At this stage, it is important not to rule out a technique on the basis of its perceived level of acceptability to the community or its likely cost. For example, removing a traffic lane and/or banning parking are legitimate techniques for providing space for cyclists.

While it may be difficult to apply these techniques to a given situation, they should not be ruled at this early stage of identifying what is physically possible.

Once all the techniques that are physically possible have been identified, designers are then in a position to consider their likely costs and effect on the community.

This information can be used to rank each technique and then select the most appropriate technique for a given situation.

Case Study - Midland Highway, Ballarat

This section of the Midland Highway provides arterial access between a large residential area in southern Ballarat and the Ballarat CBD.

As indicated in the following photographs, the road is a four lane divided highway with a wide median and nature strip. It has right turning lanes within the median and on-street parallel parking.

The road is an arterial route for cyclists and has been nominated as a Priority Bicycle Route. Bicycle lanes have been provided on an adjoining section of this road further to the south, and should also be provided along this section of road.



Nature strip and parallel parking



Median strip and right turn lane

The following table provides an indication of each of the nine techniques' applicability to providing space for cyclists on this section of road.

	Technique	Possible?	Comment
①	Reduce width of traffic lanes	✗	Reducing the width of the traffic lanes will not provide sufficient space for a bicycle lane.
②	Seal Shoulders	✗	Not applicable. Gravel shoulders are not provided on this section of road.
③	Indent Car Parking	✓	Physically possible.
④	Prohibit Car Parking	✓	Physically possible.
⑤	Use Existing Service Roads	✗	Not applicable. Service roads are not provided on this section of road.
⑥	Widen Road at Median	✓	Physically possible.
⑦	Widen Road at Nature Strip	✓	Physically possible.
⑧	Remove Traffic Lane	✓	Physically possible.
⑨	High Standard Off-Road Path	✗	Not applicable.

Of the nine techniques for providing for cyclists, five are physically possible. Two of these would affect parking (3) and (4), two would require costly road widening (6) and (7), and one would reduce the capacity of the road (8).

As this is a highway, removing a traffic lane and reducing the road to one lane in each direction, is not favoured. Road widening at the kerb or at the median is likely to be costly. Prohibiting car parking would be opposed by residents.

The most acceptable option is likely to be indenting car parking. Residents would maintain on street parking and costs would be kept to a minimum. It may also be possible to reduce costs by partially indenting the car parking, with the remaining space being provided by narrowing the traffic lanes.