

Operational Instruction

9.3

Distinctive Coloured Pavement – Bicycle Lanes

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TRAFFIC MANAGEMENT

Operational Instructions

Distinctive Coloured Pavement – Bicycle Lanes 9.3

AMENDMENT RECORD

<i>Version</i>	<i>Date</i>	<i>Section/Figure/Table</i>	<i>Amendment Description</i>
2	Mar 2009	All	Approved document
3	June 2011		Updated potential conflict
4	Jan 2016	Section 5	Updated installation criteria
5	June 2022	All	Format update, corrected links, additional dot point in Section 5 to match PMM

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1 June 2022

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1. Scope

This operational instruction provides advice regarding the application and installation of distinctive coloured pavement for all existing and new on-road bicycle lanes.

2. Purpose

To provide guidance to traffic engineering practitioners for consistency in the placement of distinctive coloured pavement in bicycle lanes.

3. Background

The use of distinctive coloured pavements in bicycle lanes is recognised in Austroads, *Guide to Traffic Management, Part 10: Traffic Control and Communication Devices*, Section 6.6 – Use of Coloured Pavements.

There is good evidence internationally that the application of distinctive coloured pavements in bicycle lanes can reduce the chance of conflict between motor vehicles and bicycles. A 1997 Danish study found that the use of colour on bicycle lanes at intersections was associated with a 38% decrease in bicycle crashes, and a 71% decrease in serious injuries and fatalities involving cyclists.

A study of distinctive coloured pavement in bicycle lanes was conducted in Melbourne, during 2001, with a red-ochre colour. The study found a generally high level of acceptance by both motorists and cyclists, with the coloured treatments:

- Increasing driver awareness of cyclists; and
- Adding to cyclists' perception of safety.

Both motorists and cyclists supported the further use of distinctive coloured pavements, particularly at busy or complex locations.

4. National Standard Colour

Agreement has been reached between State Road Authorities and the Australian Bicycle Council that green be adopted for on-road bicycle lane use for situations of potential conflict between bicycles and motor vehicles or for new and innovative initiatives such as head start facilities at signalised intersections.

Emerald Green G13 and Homebush Green G27, (refer AS 2700 – 2011) or slight variations of these **have** been endorsed by Austroads as the national standard colour for on-road bicycle lanes. Approximate colour match is determined in accordance with Australian Standard AS 1580.601.1.

5. Installation Criteria

The purpose of green coloured pavements for on-road bicycle lanes is to enhance the visibility and recognition of bicycle lanes to reduce the chance of conflict between bicycles and other road user groups including motor vehicles and pedestrians.

Austroads advises some road authorities choose to provide distinctive green coloured pavement surfacing along the entire length of bicycle lanes to provide enhanced recognition by motorists and to improve compliance. However, to ensure the use of green coloured pavement is effective in highlighting those areas most critical to cyclist safety and efficiency indiscriminate use of green coloured pavement should be avoided. Only highlighting those areas of the bicycle lane network where there is 'potential risk' of motor vehicle and pedestrian conflict with cyclists will ensure the effectiveness use of green coloured pavement surfacing.

Distinctive green coloured pavement in bicycle lanes can therefore be considered in areas of 'potential conflict' between cyclists' and other road users. Areas of 'potential conflict' between motor vehicle and bicycle traffic include those segments of on-road bicycle lane where motor vehicle traffic is legally permitted to cross double continuity lines. Areas of conflict between cyclists and pedestrians may include areas where parallel parking exists with high parking turn-over.

Distinctive coloured pavements may also be applied to:

- bicycle storage areas at signalised intersections
- contra-flow bicycle lanes
- contra-flow bicycle storage areas
- separated bicycle lanes
- bicycle lanes located next to or between motor vehicle lanes where desirable minimum motor vehicle and bicycle lane width requirements are not achieved
- bicycle lanes on a left-hand curve where vehicles routinely cut into the bicycle lane
- bicycle lane located adjacent on-street parallel parking where the likelihood of car 'dooring' may occur, or
- where a bicycle path crosses a slip lane (between the crosswalk lines)

6. Examples for Distinctive Coloured Pavement Treatment for On-road Bicycle Lanes

Examples and details of distinctive coloured pavement treatment application are shown in the DIT's ~ Pavement Marking Manual – see <https://dit.sa.gov.au/?a=40257>.

7. Materials

A distinctive coloured pavement treatment needs to do more than just provide a colour contrast. It must be designed to function like any other road surfacing, providing a sound, durable surface layer, which maintains the required texture and skid resistance for its design life.

The design and specification of a distinctive coloured pavement surface treatment for bicycle lanes should:

- Ensure the suitability of the existing surface to support and bond with the colour treatment;
- Provide a surface treatment and skid resistance suitable for bicycle use in all road weather conditions; and
- Limit differential skid resistance between the bicycle lane and adjacent traffic lanes.

Specialist line marking companies offer surface treatments, which may include cold or hot coloured thermosetting, thermoplastic or epoxy binders, with natural or synthetic coloured aggregates.

A coloured bituminous seal or asphalt layer, or coloured concrete, may also have application in some circumstances.

The coloured binder, and any coloured surface coating on the aggregate, will wear and expose more of the base aggregate colour over time. Use of a product incorporating a clear synthetic aggregate with coloured surfaces can enhance colour retention.

For advice on pavement marking products approved for use on DIT roads see:

https://www.dit.sa.gov.au/contractor_documents/masterspecifications

8. Associated Standards

This Operational Instruction should be read in conjunction with:

- Austroads *Cycling Aspects of Austroads Guides*, Section 9.4 Pavement Surface Colour.
- Australian Standard AS 1742.9, *Manual of Uniform Traffic Control Devices, Part 9 – Bicycle Facilities*.
- Australian Standard AS 1742.2, *Manual of Uniform Traffic Control Devices, Part 2 – Traffic Control Devices for General Use*.
- Department for Infrastructure and Transport's *Pavement Marking Manual*.

9. References

1. David L. Harkey and J. Richard Stewart (1996), "*Evaluation of Shared-Use Facilities for Bicycle and Motor Vehicles in Florida*," ProBike ProWalk 96 Resource Book, p103.
2. Federal Highway Administration (1991), "*Safety Effectiveness of Highway Design Features*", Volume VI, Pedestrians and Bicyclists, FW-RD-91-049.
3. Soren Underlien Jensen, Karina Vestergaard Andersen and Erling Dan Nielsen (1997), "*Junctions and cyclists*" paper presented at Velo-City Conference.
4. Jon F Forni, Thorburn Colquhoun and David Hasen (1997), "*The Use of Coloured Surfacing in Road Layout*", Traffic Management and Road Safety, European Transport Forum Annual Meeting, 1-5 September. Results tabled at Australian Bicycle Council Meeting (2002) 10, 15 March 2002, Agenda Item 6g.