



Delineation

Section 14 - Maintenance of pavement markings

The delineation guidelines have been developed to assist in designing and maintaining a quality delineation system.

The guidelines are to comprise 19 sections and an appendix. These are initially being released individually and in no specific order. The sections which are to be released are as follows:

Part	Title
Section 1	Introduction
Section 2	Delineation principles
Section 3	Pavement markings
Section 4	Longitudinal markings
Section 5	Enhanced longitudinal markings
Section 6	Transverse markings
Section 7	Transverse markings - Pedestrian facilities
Section 8	Diagonal and chevron markings
Section 9	Messages on pavements
Section 10	Pavement arrows
Section 11	Pavement markings at roundabouts
Section 12	Pavement markings for bicycle facilities
Section 13	Pavement markings for kerbside parking restrictions
Section 14	Maintenance of pavement markings
Section 15	Raised pavement markers
Section 16	Guide posts and delineation of safety barriers
Section 17	Alignment signs and markers
Section 18	Delineation systems
Section 19	Delineation management and audit
Appendix A	Locating and setting out of dividing (barrier) lines

To determine which sections are currently available go to:

www.rta.nsw.gov.au/doingbusinesswithus/downloads/technicalmanuals/delineation_dll.html

The information contained in the various parts is intended to be used as a guide to good practice. Discretion and judgement should be exercised in the light of the many factors that may influence the choice of delineation devices in any situation. The guidelines make reference, where relevant, to current Australian Standards and are intended to supplement and otherwise assist in their interpretation and application.

Delineation

Section 14

MAINTENANCE OF PAVEMENT MARKINGS

Special Note:

As from 17 January 2011, the RTA is adopting the Austroads Guides (Guide to Traffic Management) and Australian Standards (AS 1742, 1743 & 2890) as its primary technical references.

An RTA Supplement has been developed for each Part of the Guide to Traffic Management and relevant Australian Standard. The Supplements document any **mandatory** RTA practice and any complementary guidelines which need to be considered.

The RTA Supplements **must** be referred to prior to using any reference material.

This RTA document is a complementary guideline. Therefore if any conflict arises, the RTA Supplements, the Austroads Guides and the Australian Standards are to prevail.

The RTA Supplements are located on the RTA website at www.rta.nsw.gov.au





Roads and Traffic Authority

www.rta.nsw.gov.au

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For policy and technical enquiries regarding these guidelines please contact:

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To access electronic copies of these and other guidelines go to:

www.rta.nsw.gov.au/doingbusinesswithus/downloads/technicalmanuals/technicalmanuals_dll.html

For the latest amendments (if any) to these guidelines go to:

www.rta.nsw.gov.au/doingbusinesswithus/downloads/technicalmanuals/delineation_dll.html

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14.1 Maintenance methodology

Pavement markings should be maintained or re-marked when their condition and functional performance have fallen below the satisfactory level. In other words, the condition of the pavement markings throughout the network should be assessed and recorded. The maintenance of pavement markings are then carried out based on condition and need.

14.2 Traffic asset inventory management system or database

The inventory of pavement markings throughout the network should be captured, stored and updated in an inventory management system or database. The conditions of pavement markings are rated and recorded in the system during the routine network inspection and/or unplanned inspection. Maintenance works are planned in accordance with the condition ratings of pavement markings. The cost estimates for these works are also prepared. Maintenance works are then prioritised and carried out.

14.3 Condition ratings for pavement markings

Condition ratings for pavement markings and the corresponding general descriptions are listed below:

Condition 1 – New or as new, functional

Condition 2 – Good condition, functional

Condition 3 – Limited life, functional

Condition 4 – Poor condition, limited life, program for maintenance

Condition 5 – Missing or dangerous, not functional, immediate replacement

14.4 Measurement criteria for scoring the condition of pavement markings

Measurement criteria for pavement markings are shown in

Table 14.1.

	Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
Generic Condition Description for Traffic Facilities Assets	New or As New, Functional	Good Condition, Functional	Limited Life, Functional	Poor Condition, Limited Life, Program for Maintenance	Missing or Dangerous, Not Functional, Immediate Replacement
Measurement Criteria for Longitudinal Linemarking	350 to 250/>100 mcd/lux/m2 dry/wet retroreflectivity; 0% to 5% missing or at this reflectivity range over any 300 m section (3 km section for rural areas); 0 m (0 to 50 m for rural areas) missing or at this reflectivity range on Straights; 0 m (0 m for rural areas) missing or at this reflectivity range on Curves; Skid resistance not specified; 0 to 10 m loss of profile line texture depth over >80% section; <6 mm excessive build up of line thickness	250 to 150/>70 mcd/lux/m2 dry/wet retroreflectivity; 5% to 10% missing or at this reflectivity range over any 300 m section (3 km section for rural areas); 0 to 5 m (50 to 100 m for rural areas) missing or at this reflectivity level on Straights; 0 m (0 to 50 m for rural areas) missing or at this reflectivity range on Curves; Skid resistance not specified; 10 to 20 m loss of profile line texture depth over >80% section; <6 mm excessive build up of line thickness	150 to 100/≥ 70 mcd/lux/m2 dry/wet retroreflectivity; 10% to 20% missing or at this reflectivity range over any 300 m section (3 km section for rural areas); 5 to 10 m (100 to 200 m for rural areas) missing or at this reflectivity range on Straights; 0 to 5 m (50 to 100 m for rural areas) missing or at this reflectivity range on Curves; Skid resistance not specified; 20 to 30m loss of profile line texture depth over >80% section; ≤ 6 mm excessive build up of line thickness	<100/<70 mcd/lux/m2 dry/wet retroreflectivity; 20% to 30% missing or at this reflectivity range over any 300 m section (3 km section for rural areas); 10 to 30 m (200 to 400 m for rural areas) missing or at this reflectivity range on Straights; 5 to 10 m (100 to 200 m for rural areas) missing or at this reflectivity range on Curves; Skid resistance not specified; 30 to 50m loss of profile line texture depth over >80% section; >6 mm excessive build up of line thickness	<100/<70 mcd/lux/m2 dry/wet retroreflectivity; 30% to 40% missing or at this reflectivity level over any 300 m section (3 km section for rural areas); 30 to 50 m (400 to 600 m for rural areas) missing or at this reflectivity range on Straights; 10 to 30m (200 to 400 m for rural areas) missing or at this reflectivity range on Curves; Skid resistance not specified; >50m loss of profile line texture depth over >80% section; >6 mm excessive build up of line thickness
Measurement Criteria for Transverse and Other Markings	350 to 250/>100 mcd/lux/m2 dry/wet retroreflectivity; 0 to 10% of line missing or at this reflectivity range; 0 to 5% missing or at this reflectivity range I over any symbol or legend (integrity not compromised); <6 mm excessive build up of line/symbol/legend thickness; Skid resistance not specified	250 to 150/>70 mcd/lux/m2 dry/wet retroreflectivity; 10 to 20% of line missing or at this reflectivity range; 5 to 10% missing or at this reflectivity range over any symbol or legend (integrity not compromised); <6 mm excessive build up of line/symbol/legend thickness; Skid resistance not specified	150 to 100/≥ 70 mcd/lux/m2 dry/wet retroreflectivity; 20 to 30% missing or at this reflectivity range; 10 to 15% missing or at this reflectivity range over any symbol or legend (integrity not compromised); ≤ 6 mm excessive build up of line/symbol/legend thickness; Skid resistance not specified	<100/<70 mcd/lux/m2 dry/wet retroreflectivity; 30 to 50% missing or at this reflectivity range; 15 to 50% missing or at this reflectivity range over any symbol or legend (integrity not compromised); >6 mm excessive build up of line/symbol/legend thickness; Skid resistance not specified	<100/<70 mcd/lux/m2 dry/wet retroreflectivity; 50% missing or at this reflectivity range; >50% missing or at this reflectivity level over any symbol or legend (integrity not compromised); >6 mm excessive build up of line/symbol/legend thickness; Skid resistance not specified

Table 14.1: Measurement criteria for condition rating

I4.5 Intervention level

Pavement markings should be maintained at a satisfactory level. Maintenance involves repainting when the striping loses its contrast, base film, reflectivity and skid resistance. The decision to repaint and scheduling the activity is usually dependent on pavement markings going below the minimum acceptable level or condition. The minimum acceptable level is termed intervention level under the performance based contracts. In the context of above terminology, the intervention level is set at condition 3.

I4.6 Removal of linemarkings

The existing markings that are unwanted or no longer define the safe path of travel or >6 mm in thickness, should be removed.

The following points should be taken into account:

Unwanted markings should be removed and not blacked out. Blacking out is suitable only as temporary measure and as indicated in Specification R145 should be removed within 48 hours of application. Even long life 'black out' material shall wear out to reveal the original markings.

The removal should be carried out in a manner so as to minimise damage to the road surface. Special easily removed paints or tapes shall be used for temporary installations.

Marking with different products on various surfaces may require different removal methods. The following are the methods of removal:

- (i) Heat lance
- (ii) Blasting
- (iii) High pressure water blasting
- (iv) Chemical method
- (v) Grinding
- (vi) Blacking out (temporary measure)

There is no single method of line removal that works equally well on different products and varying road surfaces. Table 14.2 gives the recommended removal method for different markings.

Type of road marking material	Recommended methods
Water-borne paint	ii, iii, iv, v & vi
Thermoplastic	ii, iii, iv, v & vi
Preformed thermoplastic	ii, iii, iv, v & vi
Cold-applied plastic	v & vi
Temporary tape	i & vi
Permanent tape	v & vi
Type of road surface	Recommended methods
Chipseal	ii, iii & vi
Concrete	i, ii, iii, iv, v & vi
Asphaltic concrete	i, ii, iii, v & vi
Pavers	i, ii, iii, iv & vi
Note: Method (vi) – blacking out is not considered as a removal method and should only be used as a temporary measure.	

Table 14.2: Recommended Methods of Line Removal

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For further enquiries

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