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14 Operation, maintenance and remediation

14.1 Introduction

Section 5.0 of the Austroads *Guide to Road Design* – Part 5 is accepted for this section subject to the following amendments. Consideration should also be given to Section 5.1 of the Austroads *Guide to Road Design* – Part 5, Maintenance Access and Location.

Addition(s)

1. Reference should also be made to the Road Maintenance Performance Contracts Manual, Volumes 1 to 3 and Part 8 of the *Asset Maintenance Guidelines* (DMR 2002a).

2. The philosophy of this chapter is to use the maintenance process for identifying failures in the drainage system and to assist learning from these failures to prevent future failures.

14.2 Legal aspects

Applicable requirements of key legislation, such as the *Workplace Health and Safety Act 2011*, *Environmental Protection Act 1994* and *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth Act), apply to the department’s operation and maintenance activities with respect to road drainage (refer Section 1.4 in Chapter 1). Furthermore, the department has a legal responsibility/duty of care to ensure that the road under its jurisdiction is maintained to provide an acceptable level of safety to the public, road users and to protect the environment from harm. It is important that supervisory staff overseeing these activities understand the applicable requirements of the legislation to ensure compliance.

To ensure appropriate and timely maintenance, it is important that regular inspections, followed by appropriate remediation works (where required), be conducted. With respect to road drainage, it is recommended that inspection of this infrastructure should be conducted shortly after significant rainfall/flood events when failures are more likely to occur. Any remediation work would depend on the severity of any damage/failure identified.

Furthermore, the department must also ensure prompt response to emergency situations (such as water over the road or subsidence of the roadway occurs) where rapid remediation works are required.

In both situations presented above, failure to act appropriately exposes the department, and its officers, to increased risk of investigation and/or legal action.

14.3 Operation

Section 5.2 of the Austroads *Guide to Road Design* – Part 5 is accepted for this section.

14.3.1 Period of inspection

Section 5.2.1 of the Austroads *Guide to Road Design* – Part 5 is accepted for this section.

14.3.2 Performance

Section 5.2.2 of the Austroads *Guide to Road Design* – Part 5 is accepted for this section.

14.3.3 Reporting of deficiencies

It is important that deficiencies in the drainage system (when compared to design intent) be identified, investigated and corrected. In particular, remedial works should be considered for sites where recurring issues are identified.
14.4 Maintenance

14.4.1 The maintenance process

Section 5.3.1 of the Austroads Guide to Road Design – Part 5 is accepted for this section subject to the following amendments.

Addition(s)

1. The Department of Transport and Main Roads is the steward of the state-controlled road network. Part of this role is to maintain the road network to a standard which ensures the safety and efficiency of the travelling public and protection of the environment.

14.4.2 Types of maintenance

With respect to drainage, the RMPC covers predominantly two maintenance types. The first, and most dominate type, is routine maintenance.

Routine maintenance work includes those activities that keep the road corridor in good order, such as the cleaning and repair of drainage systems (refer RMPC Vol. 3 (DMR 2004)).

Emergency maintenance work relates primarily to work performed immediately following an emergency (e.g. vehicle accident, natural event) to ensure the safety of motorists and/or pedestrians using the corridor. Other routine maintenance work may be necessary after making the situation safe.

14.4.3 Metal culverts

The maintenance of metal culverts can be difficult and specialised, therefore maintenance engineers are referred to the latest version of the department’s manual, Design Criteria for Rehabilitation of Circular Corrugated Metal Culverts, for further guidance.

14.5 Drainage failures

14.5.1 Introduction

Section 5.4 of the Austroads Guide to Road Design – Part 5 is accepted for this section.

14.5.2 Causes of failure

Section 5.4.1 of the Austroads Guide to Road Design – Part 5 is accepted for this section.

14.5.3 Types of failure

Section 5.4.2 of the Austroads Guide to Road Design – Part 5 is accepted for this section.

14.5.4 Environmental impacts of failures

Section 5.4.3 of the Austroads Guide to Road Design – Part 5 is accepted for this section.

14.5.5 Identifying failures

Section 5.4.4 of the Austroads Guide to Road Design – Part 5 is accepted for this section.

14.5.6 Reporting of failures

Section 5.4.5 of the Austroads Guide to Road Design – Part 5 is accepted for this section.

14.6 Remediation

14.6.1 Introduction

Section 5.5.1 of the Austroads Guide to Road Design – Part 5 is accepted for this section.
14.6.2 Remediation options

Section 5.5.2 of the Austroads Guide to Road Design – Part 5 is accepted for this section.

14.6.3 Evaluation

Section 5.5.3 of the Austroads Guide to Road Design – Part 5 is accepted for this section.

14.6.4 Metal culverts

The remediation/rehabilitation of metal culverts can be difficult and specialised, therefore maintenance engineers are referred to the latest version of the department’s manual, Design Criteria for Rehabilitation of Circular Corrugated Metal Culverts, for further guidance.