

**Unsealed Roads Manual – Guidelines to good practice**  
**3rd edition, March 2009** ISBN 1 876592 56 7

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## Manual Contents

The eleven chapters cover the main topics associated with unsealed roads ranging from primary rural roads to logging routes and dirt tracks.

**Chapter 1 Unsealed road networks** - provides an overview of the type and extent of unsealed roads in Australia and New Zealand and the scope and purpose of the Manual.

**Chapter 2 Road maintenance** - provides information on the influences that cause a road to deteriorate and covers a range of maintenance practices.

**Chapter 3 Pavement design and materials** - covers pavement design and selection of materials.

**Chapter 4 Geometric design** - is a guide to the geometric aspects of road design.

**Chapter 5 Road construction** - provides good practice procedures for construction of new roads, reconstruction of damaged roads, and road improvements.

**Chapter 6 Asset management** - provides information about asset management and collecting road condition data in order to manage and maintain the road network in a cost-effective way.

**Chapter 7 Economic evaluation of road improvements** - looks at the economics of unsealed roads and provides assistance in decisions about cost-effective improvements to an unsealed road network and when to seal a road.

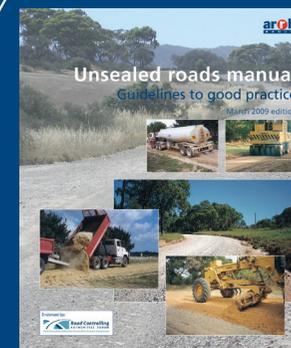
**Chapter 8 Unsealed shoulders** - provides construction and maintenance information about unsealed shoulders on sealed roads.

**Chapter 9 Maintenance specifications** - provides generic specifications to assist in the preparation of either prescriptive or performance based contracts for road maintenance.

**Chapter 10 Environmental considerations** - considers the impact of unsealed roads on the environment and proposes ways to minimise these effects.

**Chapter 11 Managing road safety** - considers the nature and causes of crashes on unsealed roads in Australia and New Zealand, typical safety hazards encountered and practical low-cost measures that can be applied to assist a motorist to drive to conditions.

A CD version of the Manual included with PDF files that are searchable. The Maintenance specifications are included as a MS Word doc that users can adapt to their own requirements.



# Unsealed Roads Manual Guidelines to good practice

3rd edition, March 2009

- Incorporation of New Zealand road practices
- Additional chapter on road safety
- Further case studies
- Latest research findings
- Logging and haulage route applications
- More information on asset management



# UNSEALED ROADS MANUAL

Guidelines to good practice

3rd edition, March 2009



## Purpose of the Manual

The purpose of the Manual is to provide local government, national and state road authorities and other agencies responsible for the management of unsealed roads with guidelines on ways to better manage these roads, and to achieve cost-effective outcomes.

The intended reader will generally be a junior engineer or works supervisor who is responsible for the design, construction and maintenance of unsealed roads. Because of the comprehensive nature of the Manual and various options it offers, it is also intended to benefit experienced practitioners who can select the most appropriate practice for a given local condition.



## Scope of the Manual

The Manual has been prepared using the accumulated knowledge and practical experience of many agencies in Australia, New Zealand and overseas. It includes valuable contributions from many municipal councils, national and state road authorities, forestry organisations, the Department of Defence and consultants.

A comprehensive literature search on unsealed roads has also contributed to the content of the Manual. A list of useful websites relating to various aspects dealing with low volume roads has been included. Chapters have been authored or recently revised by subject specialists. The Manual has been reviewed by a number of practitioners across Australasia responsible for the management of unsealed roads.

The Manual is primarily about the management of formed and gravelled roads, but the principles and techniques included can also be applied to formed and unpaved roads to improve their performance.

While the basic principles outlined in the Manual apply to all unsealed roads, best practice will be dependent upon local materials, climate, equipment and costs. As a result, there can be significant regional differences in practice. It is left to the practitioner, considering the various principles and approaches outlined in the Manual, to select the best practice for local conditions.

## Training programs

An important part of the knowledge transfer from researcher to practitioner is the conduct of workshops and other training activities for those involved in the management of unsealed roads. While the Manual provides a comprehensive coverage of road practices, ARRB workshops are an effective means of disseminating information to practitioners.

Experience has shown that the most effective way to change practitioners' behaviour is through training programs that are aimed at engineers, works supervisors or plant operators. Best results are achieved when the 'works team' made up of the council staff, consultants and/or contractors are all present so that the same

message is heard, various practices are discussed and a common approach is adopted.

ARRB plans to continue conducting workshops across Australia and New Zealand to make practitioners better aware of the latest practices relating to unsealed roads.

The presenter of the workshops will be George Giummarra, Principal Consulting Engineer, who has prepared the updated and expanded edition of the Manual, and conducted many similar workshops across Australia and New Zealand during the last 15 years.

Also available on request are individual training programs aimed at a specific council or road agency to deal with its particular needs and issues.

For further information on training programs contact: [training@arrb.com.au](mailto:training@arrb.com.au).



***Avoid traditional ways and adopt a more scientific approach to the management of unsealed roads***