ARRB is pleased to offer a two-day training workshop on the latest practices in the management of unsealed roads including practical aspects during a site inspection.

The workshop will be a practical ‘hands on’ presentation with group participation, worked examples, and a field inspection of various unsealed roads sites.

Attendance at the popular workshops will be invaluable to learn and share knowledge and experience with other participants.

Key learning outcomes

- Understanding the basics of road engineering and an update on latest developments
- The importance of road design to improve safety and lower maintenance costs
- Drainage requirements and their proper application
- Development of a road safety strategy to improve safety within available resources
- Pavement design and material selection
- Gaining better value from locally available materials often of marginal quality
- Suitable stabilisation techniques for unsealed roads
- Ways to minimise dust emissions
- Road construction practices
- Road maintenance techniques by understanding the causes and cures
- Routine and periodic maintenance operations
- Grader operations and techniques for light, medium and heavy grading
- Maintenance practices of unsealed shoulder on sealed roads
- Environmental considerations to minimise any adverse impacts
- When to seal and unsealed roads taking into account economic considerations
- Maintenance specifications types and selection considerations
- Asset management activities and intervention levels for unsealed roads
- Confirmation of good practices during field site inspections

Course enquiries

For further information about this course, please contact the Events Coordinator on 03 9881 1680, or via email training@arrb.com.au

You can also visit our website www.arrb.com.au/workshops

The presenter’s

**Jon Roberts is a Principal Research Engineer for the Sustainable Infrastructure Management group, ARRB Group**

Jon has been engaged for over 30 years exclusively on road projects, in design, construction, maintenance and management across the industry, in Europe, Australia, Africa and Asia. A particular strength of Jon’s experience is his work on low volume roads, including unsealed earth and gravel roads, in remote areas. Jon is a Chartered Professional Engineer and a Member of the Institution of Civil Engineers (UK

**Riaan Burger is a Principal Engineer: Low Volume Roads for the Sustainable Infrastructure Management group, ARRB Group**

Riaan Burger joined ARRB Group Ltd in 2011, with specific emphasis on Low Volume Roads. He brings with him expert knowledge in pavement asset management and pavement engineering – he holds a master’s degree in both areas of specialisation. Riaan has extensive experience working in southern Africa and Australia and is a Registered Professional Engineer (equivalent to Chartered status).
Unsealed Local Roads

Who should attend?
Anyone involved in the construction and maintenance of unsealed roads, including, but not limited to, the following:

- Local road authority managers, engineers and plant operators
- Road consultants (engineers and supervisors)
- Road contractors (contract managers, road engineers, supervisors and grader operators)
- Vic Roads personnel
- Local council officers, elected councillors and council CEOs
- Forest owners and forestry consultants (operations staff)
- Mining companies (operations staff)
- Quarry owners (operations staff)

Additional information:
To get better value from the workshop, delegates are advised to have access to a copy of the 2009 edition of the Unsealed Roads Manual – Guidelines to Good Practice. If you are unable to bring your own copy of the Manual to the workshop, please indicate that you require a Manual on the registration form (at an additional cost of $275 inclusive of GST).

Guidelines to Good Practice March 2009 (3rd edition)
ARRB Group released in Mar 2009 an updated and expanded edition of the very successful Unsealed Roads Manual, initially issued in 1993. This edition provides the latest research and developments worldwide to address issues identified by practitioners. It also includes the New Zealand Supplement to the 2000 edition of the Manual and the latest requirements and practices to make it an Australasian Manual on unsealed roads.

This updated and expanded edition of the Manual is recommended reading for practitioners in local government, state road authorities and other agencies responsible for the care, maintenance and management of unsealed roads.

The new features of the upgrade include:

- details on the latest research findings, new developments and applications of world best practice

What to bring on the day:
For the field trip component of this course, participants are required to bring:

- High visibility safety vest
- Safety boots
- Hat, sunglasses and sunscreen or wet weather gear (depending on the weather)
- Clipboard
Unsealed Local Roads

- increased content to respond to comments made by delegates attending previous workshops held across Australasia
- equipment developments that provide objective data on unsealed road performance and the better use of often marginal pavement materials
- a new chapter covering ways to improve safety on unsealed roads
- applications for logging and haulage routes
- case studies highlighting how the application of good practice has resulted in significant cost savings or improved operating conditions
- greater emphasis on asset management requirements.

ARRB Group supports the Helmets for Kids school program
ARRB is committed to the UN Decade of Action for Road Safety, and as part of our commitment, ARRB will donate $15 from every workshop registration to support the Helmets for Kids school program. For further information on ARRB’s involvement visit: http://www.arrb.com.au/Home/News.aspx?newsID=112
For information about the Global Helmet Vaccine Initiative visit: http://helmetvaccine.org/

Nationally recognized training
ARRB is progressively obtaining formal accreditation for many of its workshops. For further information visit: http://www.arrb.com.au/Information-services/Knowledge-transfer-workshops.aspx

Workshop registration discount for Local Roads information package subscribers
Send four delegates for the price of three, to see if your organization qualifies visit:

This course is endorsed and supported by:

Institution of Engineers, Australia (IEAust):
This course is recognised by ENGINEERS AUSTRALIA for Continuing Professional Development

Institute of Transportation Engineers ANZ Section (ITEANZ)

Australian Local Government Association (ALGA)

Engineers Australia members can choose to record CPD hours for attendance at this event in their personal CPD logs. Members should refer to Engineers Australia’s CPD Policy for details of requirements and conditions.
### Workshop Program (subject to change)

<table>
<thead>
<tr>
<th>Time</th>
<th>Day 1</th>
<th>Time</th>
<th>Day 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.00am</td>
<td>Registration, Tea and coffee Networking opportunity for delegates</td>
<td>8.00am</td>
<td>Tea and coffee (take to table for prompt start)</td>
</tr>
<tr>
<td>8.15am</td>
<td><strong>Introduction</strong></td>
<td>8.00am</td>
<td><strong>Works Delivery</strong></td>
</tr>
<tr>
<td></td>
<td>• Workshop Purpose</td>
<td></td>
<td>• Road Construction : an introduction</td>
</tr>
<tr>
<td></td>
<td>• Housekeeping</td>
<td></td>
<td>• Stabilisation : an introduction</td>
</tr>
<tr>
<td></td>
<td>• Role of ARRB</td>
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<tr>
<td>8.45am</td>
<td><strong>Course overview</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Introductions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.00am</td>
<td><strong>The Life-Cycle of Road Management :</strong></td>
<td>9.00am</td>
<td><strong>Works Delivery</strong></td>
</tr>
<tr>
<td></td>
<td><em>Here’s the network, what do we do next?</em></td>
<td></td>
<td>• Road Maintenance : an introduction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Dust Control : an introduction</td>
</tr>
<tr>
<td>10.00am</td>
<td>Morning tea break</td>
<td>10.00am</td>
<td>Morning tea break</td>
</tr>
<tr>
<td>10.15am</td>
<td><strong>Road Network &amp; Reference Definition</strong></td>
<td>10.15am</td>
<td><strong>Field Trip</strong> : including issues such as :</td>
</tr>
<tr>
<td></td>
<td><em>Which roads, how classified &amp; how referenced?</em></td>
<td></td>
<td>• Briefing for field trip</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Observations of local construction and maintenance practices.</td>
</tr>
<tr>
<td>10.45am</td>
<td><strong>Road Network Inventory: what have I got?</strong></td>
<td></td>
<td>• Geometry, X section, alignment</td>
</tr>
<tr>
<td></td>
<td>• Road Geometry : X-Section &amp; Alignment</td>
<td></td>
<td>• Determination of safe operating speeds by on-site measurements.</td>
</tr>
<tr>
<td>11.15am</td>
<td><strong>Drainage &amp; Water Crossings</strong></td>
<td></td>
<td>• Discussions in field of local issues.</td>
</tr>
<tr>
<td>11.45am</td>
<td><strong>Pavement &amp; Subgrade Type</strong></td>
<td></td>
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</tr>
<tr>
<td>12:15 pm</td>
<td>Lunch break (lunch provided)</td>
<td>12:15 pm</td>
<td>Lunch break (packed lunch provided)</td>
</tr>
<tr>
<td>1.00pm</td>
<td><strong>Road Network Condition: what state is it in?</strong></td>
<td>1.00pm</td>
<td><strong>Field Trip, continued : (return at afternoon tea)</strong></td>
</tr>
<tr>
<td></td>
<td>• Surface Condition / Roughness (IRI)</td>
<td></td>
<td>• Pavement surface drainage issues, erosion, flat spots, potholes.</td>
</tr>
<tr>
<td>1.30pm</td>
<td><strong>Structural Condition / Gravel thickness</strong></td>
<td></td>
<td>• Side drains, culverts, environmental runoff, siltation and erosion.</td>
</tr>
<tr>
<td>2.00pm</td>
<td><strong>Road Network Condition: service delivered?</strong></td>
<td></td>
<td>• Interface with sealed roads, cattlegrids, creek crossings.</td>
</tr>
<tr>
<td>2.30pm</td>
<td><strong>Road Safety Issues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.00pm</td>
<td>Afternoon tea break</td>
<td>3.00pm</td>
<td>Afternoon tea break</td>
</tr>
<tr>
<td>3.15pm</td>
<td><strong>Verification, Select Option :</strong></td>
<td>3.15pm</td>
<td><strong>Summary and Recap of learnings:</strong></td>
</tr>
<tr>
<td></td>
<td><em>When to Seal Gravel : Life-Cycle Cost Analysis</em></td>
<td></td>
<td>• Local issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Discussions</td>
</tr>
<tr>
<td>3.45pm</td>
<td><strong>Project Preparation</strong></td>
<td>3.45pm</td>
<td>• Feedback</td>
</tr>
<tr>
<td></td>
<td>• Road Geometry : an introduction</td>
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<td></td>
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<tr>
<td>4.15pm</td>
<td><strong>Project Preparation</strong></td>
<td></td>
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<tr>
<td></td>
<td>• Materials Testing : an introduction</td>
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<tr>
<td>4.45pm</td>
<td><strong>Open Forum : Discussion of local issues</strong></td>
<td>4.45pm</td>
<td>End of Workshop</td>
</tr>
<tr>
<td></td>
<td>• Pavement Design : an introduction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Enrolment form
Unsealed Local Roads Hobart, 6 - 7 August 2013
Venue TBA

Participant details (* fields are mandatory)
*Title______________________  *Surname____________________________________________
*First name ____________________  Preferred name __________________________
*Organisation________________________  Position ________________________________
*Mailing address ____________________________________________________________
__________________________________________________________________________
*Suburb _________________________________ *Postcode _____________ State ____________
*Business telephone ___________________________ Business fax ____________________
*Email _______________________________________________________________________

Special diet requirements (please tick)
₀ Vegetarian ₀ Vegan ₀ Gluten free ₀ Other (please specify) _______________________
₀ I would like to be kept informed of future ARRB courses and conferences
₀ I do not want my contact details included on the course ‘participant list used for networking purposes?

Registration fee (Australian dollars)
*Registration fee includes morning and afternoon refreshments and lunch*

<table>
<thead>
<tr>
<th>Fee per delegate</th>
<th>GST</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1540.00</td>
<td>$154.00</td>
<td>$1694.00</td>
</tr>
<tr>
<td>Early Bird Discount (Must register prior to 2 July 2013)</td>
<td>$1360.00</td>
<td>$136.00</td>
</tr>
<tr>
<td>Unsealed Roads Manual (2009 edition)</td>
<td>$250.00</td>
<td>$25.00</td>
</tr>
</tbody>
</table>

Method of payment (please tick)
₀ Charge my credit card *(We accept Visa and MasterCard only)*
Cardholder’s name ___________________________________________________________
Card number _______________________________________________________________
Expiry date (mm/yy)________________________ Please specify card ₀ MasterCard ₀ Visa
Cardholder’s signature ___________________________________ Date ___________________

₀ Cheque *(payable to ARRB Group)*
Please fax (03 9886 3076) or email (training@arrb.com.au) registration form first, and then mail cheque to Lorraine Ray, 500 Burwood Hwy, Vermont South Vic 3133. Please include the participant’s name(s), name of your organisation, title of the workshop and job ref number 006958 with the cheque

₀ EFT payment *(BSB 083 266  Acc No. 647968813  Bank:  NAB Glen Waverley)*
Please quote job ref number 006958, your organisation, name of participant(s) and forward remittance advice with registration form

₀ Please invoice my organisation  Please quote purchase order no. if applicable __________________