Managed Motorways describes a relatively recent innovative approach of using integrated tools and technologies to manage congested urban motorways and freeways in order to bring about a high level of traffic throughput, reduced travel times, improved reliability and increased safety.

These capacity increases can be achieved at relatively low cost compared to adding additional lanes to widen a motorway / freeway and their implementation should be considered whenever a new urban motorway is to be built or upgraded. The technology can also be applied to retrofit an existing motorway. Over recent years there have been a number of Austroads reports relating to managed motorways and freeway traffic flow.

Australia has a world-leading example of a fully managed freeway on the M1 in Melbourne. Several other Australian states are in the process of converting existing motorways to managed motorways or designing new facilities as managed motorways.

ARRB is pleased to offer a two day training workshop covering a comprehensive range of aspects relating to managed motorway systems and management with reference to the latest traffic theory, guidelines and best practice for coordinated ramp metering and other managed motorway traffic management tools. The course content includes a number of updates and improvements since the last workshops in 2011.

Updated for 2013

- Provide the most recent updates in effective managed motorways design and operation
- Incorporate new knowledge from applied research on traffic flow and capacity theory, as well as lessons learned from operational experience in Victoria, Queensland and internationally
- Offer insight on how to get the best out of managed motorways to deliver a safe and efficient freeway network
- Provide technical background required for undertaking managed motorway operational efficiency audits

Workshop purpose

- To familiarise practitioners with current best practice in managing congested urban motorways
- To inform practitioners of the differences between traditional and contemporary traffic flow theory which underpins managed motorway control and operations to optimize throughput and travel time
- To gain an appreciation of the tools that need to work cooperatively together as part of an integrated control system to bring about improved motorway operations that deliver the best performance outcomes for road managers and road users

Additional information

All participants will be provided with a copy of workshop presentations. These will provide a useful ongoing technical resource.

Course materials will make reference to the latest state guidelines and standards.
Course outline:
The workshop will provide a complete overview of the key elements that comprise a managed motorway system including:

- Introduction and overview of managed motorways including traffic management services and devices as well as the context within a managed network system
- Benefits and objectives for managed motorways network performance
- Principles of uninterrupted traffic flow and an introduction to traditional and contemporary traffic flow theories
- Consideration of mainline features affecting traffic flow and causing bottlenecks
- Coordinated Ramp Signals (CRS) benefits and criteria for installation, including an overview of history and operation
- Principles of operation of CRS
- Principles of incident management and Lane Use Management Systems (LUMS) including use for all-lane running and part-time emergency lane running
- Principles of Variable Speed Limit Systems (VSLs)
- Principles of providing Traveller Information Systems (TIS) including travel time and congestion management information
- Overview of other managed freeway devices including those for traffic data collection, CCTV, emergency telephones
- Managed motorways data needs and traffic flow/capacity analyses
- Design of ramp metering installations
- Practical group exercises relating to motorway analysis and design of CRS and other managed motorway tools
- Real time operation of CRS
- Freeway access management and the arterial road interface including management of entry ramp and exit ramp intersections and freeway-to-freeway interchanges

Who should attend

- Traffic engineers and consultants
- Traffic operations officers
- Transport and road network planners
- Project developers
- Road design consultants
- Motorway operations and maintenance contractors
- Managers in road agencies and local government who want an overview of the new generation of motorway traffic control
- Engineers looking to develop specialist skills for career development
- Delivery engineers involved in major urban motorway projects

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 presenters:

**Maurice Burley – Traffic Engineering and Road Safety Consultant**

Maurice is a civil engineer with extensive engineering experience over 40 years in road safety, traffic engineering and project management in Australia as well as overseas. He worked with VicRoads for 34 years in areas of traffic and transport management and other aspects of road management. Since 2004 Maurice has been a freelance consultant in road safety and traffic engineering including providing advice relating to managed motorways in many states of Australia.

From 2007 to 2010 Maurice worked on Melbourne’s Monash–CityLink-West Gate Upgrade (M1) Project which incorporated fully managed freeway systems. During this time he was responsible for developing standards for freeway ramp signals, undertaking traffic flow analysis, ramp metering capacity design, managing design and road safety audits as well as involvement in principles relating to traveller information, incidents and integrating ramp metering with lane use management. He has also had involvement in the development and tuning of coordinated ramp signal (CRS) algorithms. Maurice is a co-author of the VicRoads Managed Freeways: Freeway Ramp Signals Handbook and author of the VicRoads Managed Freeway Handbook for Lane Use Management, Variable Speed Limits and Traveller Information.

**David Nash – Director at Traffinity**

David is a consulting transport engineer specialising in traffic management. He has over 30 years of experience with VicRoads and its predecessors, specialising in traffic engineering, traffic management and road safety.

He was previously the Manager – Road & Traffic Standards in the VicRoads Network & Asset Planning Department and has made a substantial contribution to the development of standards and guidelines for traffic management throughout Australia through his involvement in the Austroads Traffic Management Review Panel and the Australian Standards MS-012 committee. David has a particular interest in communicating effectively with drivers, cyclists and pedestrians through traffic control devices, and the effective operation of traffic control systems on managed motorways.

David lectures at Swinburne University and provides consulting services to road managers across the country and overseas. He is on the Executive Board of the Institute of Transportation Engineers, ANZ Section.

**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)

Austroads
# Managed Motorways

<table>
<thead>
<tr>
<th>Time</th>
<th>Day 1</th>
<th>Time</th>
<th>Day 2</th>
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<tbody>
<tr>
<td>8.30 am</td>
<td><strong>Tea and coffee</strong>&lt;br&gt;Networking opportunity for delegates</td>
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<tr>
<td>9.00 am</td>
<td>• Opening and Introductions&lt;br&gt;• ARRB and Austroads Briefing&lt;br&gt;• Day 1 Program</td>
<td>9:00 am</td>
<td>• Review of Day 1&lt;br&gt;• Introduction to Day 2</td>
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<tr>
<td>9.15 am</td>
<td>• Introduction to managed motorways&lt;br&gt;• Video of unmanaged motorway&lt;br&gt;• Overview of current policies and practices in jurisdiction</td>
<td>9.15 am</td>
<td>• Principles of providing Traveller Information Systems (TIS)– including travel time and congestion management&lt;br&gt;• Motorway access management at the arterial road interface – management of entry ramp and exit ramp intersections</td>
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<tr>
<td>10.30 am</td>
<td><strong>Morning tea break</strong></td>
<td>10.30 am</td>
<td><strong>Morning tea break</strong></td>
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<tr>
<td>10.50 am</td>
<td>• Principles of uninterrupted traffic flow – introduction to traditional and contemporary traffic flow theory&lt;br&gt;• Video of flow breakdown&lt;br&gt;• Martin Treiber Model of flow breakdown&lt;br&gt;• Mainline features affecting capacity and operation</td>
<td>10.50 am</td>
<td>• Design of ramp metering installations&lt;br&gt;• Group exercise: Mainline analysis and ramp metering design&lt;br&gt;• Overview of other managed motorway devices – vehicle detectors, CCTV, emergency telephones</td>
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<td>12:30 pm</td>
<td><strong>Lunch break (lunch provided)</strong></td>
<td>12:30 pm</td>
<td><strong>Lunch break (lunch provided)</strong></td>
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<td>1.30 pm</td>
<td>• Coordinated Ramp Signals (CRS) – history, benefits and criteria for installation&lt;br&gt;• Principles of CRS&lt;br&gt;• Management of freeway-to-freeway interchanges</td>
<td>1.30 pm</td>
<td>• Group exercise: Vehicle detector locations&lt;br&gt;• Introduction to ramp metering algorithms and state of the art principles&lt;br&gt;• Integration of CRS with other managed motorway traffic controls</td>
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<tr>
<td>3.00 pm</td>
<td><strong>Afternoon tea break</strong></td>
<td>3.00 pm</td>
<td><strong>Afternoon tea break</strong></td>
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<td>3.30 pm</td>
<td>• Incident management including video following a motorway incident&lt;br&gt;• Principles of Lane Use Management Systems (LUMS) for management of incidents, all-lane running and part-time emergency lane running&lt;br&gt;• Principles of Variable Speed Limit Systems (VSLS)</td>
<td>3.30 pm</td>
<td>• Managed motorways data needs and analyses&lt;br&gt;• Performance measurement and reporting&lt;br&gt;• Real-time operation of CRS&lt;br&gt;• Review of workshop</td>
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<tr>
<td>5.00 pm</td>
<td><strong>Conclusion of Day 1</strong></td>
<td>4.30 pm</td>
<td><strong>Workshop closure</strong></td>
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www.arrb.com.au
Enrolment form
Managed Motorways – 3rd- 4th June 2014
Hotel Urban Brisbane, 345 Wickham Terrace, Spring Hill

<table>
<thead>
<tr>
<th>REGISTRATION FEES – PLEASE CIRCLE THOSE WHICH APPLY</th>
<th>Price (pp)</th>
<th>GST</th>
<th>Total</th>
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<td>Student Fee</td>
<td>$1220.00</td>
<td>$122.00</td>
<td>$1342.00</td>
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<td>Full fee registration</td>
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<td>$154</td>
<td>$1694</td>
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<td>Early bird registration (Must register prior to C.O.B. 5 May 2014)</td>
<td>$1360</td>
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<td>$1496</td>
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Where Do I Register and Make Payments?
To register for this workshop and make payments please go to the following link:
http://wired.ivvy.com/event/CG97MB/

ARRB’s Privacy Statement
Personal information provided by you may be held on a database and may be shared with others both nationally and internationally. Sometimes your details may be obtained from, or made available to external companies for marketing purposes. If you do not wish us to hold your details, please write to Privacy Officer, ARRB Group, 500 Burwood Highway, Vermont South, Vic 3133 or email on privacy@arrb.com.au If you choose to ask us not to hold your details, we may not be able to provide you with the services you require. A copy of ARRB’s Privacy Policy is available upon request.

Cancellations
If you are no longer able to attend this event a substitute attendee may take your place. However, if you wish to cancel your registration a full refund, minus a $220 (incl GST) service fee, will be given provided you have notified us in writing, by email, letter or fax, at least 10 business days before the start of the workshop. No refund is available for cancellations under 10 days.

Please note
On receipt of this registration, an email will be sent to you confirming this. If you do not receive confirmation, your registration may not have been received

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 recognised 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

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