Managed Freeways

Melbourne, 3-4 May 2011

In Australia and New Zealand over recent years the term Managed Freeways has emerged describing a new innovative way of using integrated tools and technologies to manage congested urban 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 freeway and their implementation should be considered whenever a new urban freeway is to be built or upgraded. The technology can also be applied as a standalone treatment to retrofit an existing freeway.

Recent Austroads reports relating to managed freeways and freeway traffic flow include:

- Freeway Design Parameters for Fully Managed Operations (NS 1375)
- Best Practice for Variable Speed Limits (NS 1378)
- Freeway Traffic Flow under Congested Conditions: Monash Freeway Study, AP-R334/09
- Tools that Impact Network Performance AP-R312/07
- National Performance Indicators for Network Operations AP-R305/07

Australia already has an excellent world leading example of a fully managed freeway on the M1 in Melbourne, Victoria. Several other Australian states are in the process of converting existing freeways to managed freeways.

ARRB is pleased to offer a two day training workshop covering all aspects of managed freeway systems with reference to the above reports and including best practice for freeway ramp metering.

**Workshop purpose**

- To familiarise practitioners with current best practice in managing congested urban freeways
- To inform practitioners of the differences between traditional traffic flow theory and contemporary traffic flow theory which underpins managed freeway 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 operations
- To learn how to use the current VicRoads, Managed Freeways – Freeway Ramp Signals Handbook, 2010

**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
Managed Freeways

Course outline:
The workshop will provide a complete overview of the key elements that comprise a managed freeway system including:

- Introduction and overview of Managed Freeways including traffic management devices and context within a managed network system
- Principles of uninterrupted traffic flow and an introduction to traditional and contemporary traffic flow theories
- Coordinated Freeway Ramp Signals benefits and criteria for installation including an overview of history and operation overseas and in Australia
- Principles of operation of Coordinated Freeway Ramp Signals (CFRS)
- Principles of Lane Use Management Systems (LUMS) for management of incidents
- Principles of Variable Speed Limit Systems (VSL)
- Principles of providing Traveller Information Systems (TIS) including travel time and congestion management information
- Overview of other managed freeway devices including those for data collection, emergency telephones, CCTV
- Managed freeways data needs and analyses
- Design of ramp metering installations – including group exercise relating to freeway analysis and design
- Real time operation of coordinated freeway ramp signals
- Freeway access management and integration with arterial roads including management of entry ramps, exit ramps and overflow queues on arterial roads

Who should attend:
- Traffic engineers and practitioners
- Traffic operations practitioners
- Transport and road network planners
- Project developers
- Road design consultants
- Senior managers in road management agencies and local government who want an overview of the next generation of freeway traffic control
- Engineers looking to develop specialist skills for career development
- Delivery engineers involved in major urban freeway projects
- Traffic consultants

Additional information:
All participants will be provided with a copy the VicRoads’ Managed Freeways – Freeway Ramp Signals Handbook, 2010 and a copy of workshop and speakers notes.

These documents will be useful ongoing technical resources.
Managed Freeways

The presenters:

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

Maurice is a civil engineer with extensive engineering experience over 39 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 had a consulting business in road safety and traffic engineering.

Over the last 3 years Maurice has worked on Melbourne’s Monash–Citylink-West Gate Upgrade (M1) Project which incorporates 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 freeway ramp signal (CFRS) algorithms. Maurice is a co-author of the VicRoads, Managed Freeways: Freeway Ramp Signals Handbook, 2010 which is based on best practice and experience gained in designing and operating CFRS.

**John Gaffney – Principal Engineer, Transport Operations, ARRB Group**

John Gaffney is a civil engineer and computer programmer. He has over 25 years experience in VicRoads working in various roles including senior management positions in traffic and transport policy, traffic management, project development, project delivery and quality management. His career has included being the Assistant Director of Austroads for four years.

John was instrumental in developing the initial concept and business plan for Melbourne’s Monash–Citylink-West Gate Upgrade (M1) Project which is Australia’s first fully managed freeway system. He has recently been the Delivery Manager, Freeway Ramp Signals for the project where he led the team responsible for the development of the Coordinated Freeway Ramp Signal System, including daily operations and performance measurement as well as the design and delivery of ramp metering on 62 ramps in the field. John is the co-author of the VicRoads, Managed Freeways: Freeway Ramp Signals Handbook, 2010.

John also lectures at both Melbourne and Monash Universities and has been actively involved in leading several national Austroads research projects. In recent years John has spent a considerable time and effort encouraging, developing and mentoring young professional engineers.

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**This course is endorsed and supported by:**

- Institution of Engineers, Australia (IEAust)
- Australian Institute of Traffic Planning and Management Inc (AITPM)
- Institute of Transportation Engineers ANZ Section (ITEANZ)
- Australian Local Government Association (ALGA)
- Austroads

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www.arrb.com.au
## Managed Freeways

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<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>Tea and coffee Networking opportunity for delegates</td>
<td>8.30 am</td>
<td>Tea and coffee Networking opportunity for delegates</td>
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<tr>
<td>9.00 am</td>
<td>• Opening and Introductions</td>
<td>9.00 am</td>
<td>• Review of Day 1</td>
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<td></td>
<td>• ARRB and Austroads Briefing</td>
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<td>• Introduction to Day 2</td>
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<td>• Introduction to the Workshop</td>
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<td>• Program on Day 1</td>
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<td>• Freeway access management and integration with arterial roads – management of entry ramps, exit ramps and overflow queues on arterial roads</td>
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<tr>
<td>9.15 am</td>
<td>• Introduction and overview of Managed Freeways including traffic management devices and context within a managed network system</td>
<td>9.15 am</td>
<td>• Introduction to various ramp metering algorithms and state of the art principles, including an overview of the HERO Coordinated Freeway Ramp Signals System used on Melbourne’s M1 project</td>
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<td>• Video of managed freeway</td>
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<td>• Discussion on known problem in local jurisdiction</td>
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<td>• Discussion on state of play and current practices in jurisdiction</td>
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<tr>
<td>9.45 am</td>
<td>• Principles of uninterrupted traffic flow – introduction to traditional and contemporary traffic flow theory</td>
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<td>• Video’s of flow breakdown</td>
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<td>• Managed freeways: Data needs and analyses</td>
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<td>• Martin Treiber Model of flow breakdown</td>
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<td>• Performance measurement and reporting</td>
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<td>10.30am</td>
<td>Morning tea break</td>
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<tr>
<td>10.50am</td>
<td>• Coordinated Freeway Ramp Signals benefits and criteria for installation – incl. overview of history and operation in Australia and overseas</td>
<td>10.50am</td>
<td>• Design of ramp metering installations</td>
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<td>• Principles of Coordinated Freeway Ramp Signals (CFRS)</td>
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<td>1.30 pm</td>
<td>• Principles of Lane Use Management Systems (LUMS) for management of incidents</td>
<td>1.30 pm</td>
<td>• Freeway analysis and Ramp metering design group exercise</td>
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<td>• Integration of freeway ramp signals with other managed freeway traffic controls</td>
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<td>3.00pm</td>
<td>Afternoon tea break</td>
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<td>3.30 pm</td>
<td>• Principles of Variable Speed Limit Systems (VSLs)</td>
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<td>• Real Time Operation of coordinated freeway ramp signals</td>
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<td>4.30 pm</td>
<td>• Principles of providing Traveller Information Systems (TIS) – including travel time and congestion management</td>
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<td>• Discussion on local implementation issues</td>
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<td>• Overview of other managed freeway devices – emergency telephones, CCTV,</td>
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<td>• Review of workshop</td>
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<td>5.00pm</td>
<td>Conclusion of Day 1</td>
<td>4.30pm</td>
<td>Workshop closure</td>
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Registration form
Managed Freeways Melbourne, 3-4 May 2011
ARRB Auditorium, 500 Burwood Hwy, Vermont South

Participant details
Title ___________________ Surname ___________________
First name ___________________ Preferred name ___________________
Organisation ________________________________________________
Position ___________________________________________________
Mailing address _______________________________________________________________________________________
_____________________________________________________________________________________________________________________________________________________
Suburb ___________________ Postcode ______________ State ________
Business telephone ___________________ Business fax_________________
Email _______________________________________________________

Special diet requirements (please tick)
○ Vegetarian ○ Vegan ○ Gluten free ○ Other (please specify) ___________________
○ I would like to be kept informed of future ARRB courses and conferences
○ 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. Fee also includes a copy of the VicRoads ‘Managed Freeways – Freeway Ramp Signals’ handbook, 2010 edition. Please note that the handbooks will be distributed on the morning of the workshop.

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<tr>
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<th>Price (pp)</th>
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<tr>
<td>Fee per delegate</td>
<td>$1436.00</td>
<td>$143.60</td>
<td>$1579.60</td>
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<tr>
<td>Early Bird Discount (Must register prior to 29 March 2011)</td>
<td>$1236.00</td>
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Method of payment (please tick)
○ Charge my credit card (We accept Visa and MasterCard only)
Cardholder’s name ________________________________________________
Card number _____________________________________________________
Expiry date (mm/yy) ___________________ Please specify card ○ MasterCard ○ Visa
Cardholder’s signature ___________________________________________ Date ___________________

○ 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 002942 with the cheque

○ EFT payment (BSB 083 266 Acc No. 647968813 Bank: NAB Glen Waverley)
Please quote job ref number 002942, your organisation, name of participant(s) and forward remittance advice with registration form

○ Please invoice my organisation Please quote purchase order no. if applicable ___________________