

# 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 Parametres 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](mailto:training@arrb.com.au)  
You can also visit our website [www.arrb.com.au/workshops](http://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 (VSLS)
- 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 freeway 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



## Additional information

All participants will be provided with a copy of 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.

## 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

# 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.

## This course is endorsed and supported by:

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



Australian Institute of Traffic Planning and Management Inc (AITPM)



AUSTRALIAN INSTITUTE OF TRAFFIC PLANNING AND MANAGEMENT INCORPORATED

Institute of Transportation Engineers ANZ Section (ITEANZ)



Australian Local Government Association (ALGA)



Austroads



# Managed Freeways

Time	Day 1	Time	Day 2
8.30 am	Tea and coffee Networking opportunity for delegates	8.30 am	Tea and coffee Networking opportunity for delegates
9.00 am	<ul style="list-style-type: none"> <li>Opening and Introductions</li> <li>ARRB and Austroads Briefing</li> <li>Introduction to the Workshop</li> <li>Program on Day 1</li> </ul>	9:00 am	<ul style="list-style-type: none"> <li>Review of Day 1</li> <li>Introduction to Day 2</li> </ul>
9.15 am	<ul style="list-style-type: none"> <li>Introduction and overview of Managed Freeways including traffic management devices and context within a managed network system</li> <li>Video of managed freeway</li> <li>Discussion on known problem in local jurisdiction</li> <li>Discussion on state of play and current practices in jurisdiction</li> </ul>	9.15 am	<ul style="list-style-type: none"> <li>Freeway access management and integration with arterial roads – management of entry ramps, exit ramps and overflow queues on arterial roads</li> </ul>
9.45 am	<ul style="list-style-type: none"> <li>Principles of uninterrupted traffic flow – introduction to traditional and contemporary traffic flow theory</li> <li>Video's of flow breakdown,</li> <li>Martin Treiber Model of flow breakdown</li> </ul>	10.00am	<ul style="list-style-type: none"> <li>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</li> </ul>
10.30am	Morning tea break	10.30 am	Morning tea break
10.50 am	<ul style="list-style-type: none"> <li>Coordinated Freeway Ramp Signals benefits and criteria for installation – incl. overview of history and operation in Australia and overseas</li> <li>Principles of Coordinated Freeway Ramp Signals (CFRS)</li> </ul>	10.50am	<ul style="list-style-type: none"> <li>Managed freeways: Data needs and analyses</li> <li>Performance measurement and reporting</li> </ul>
		11.30am	<ul style="list-style-type: none"> <li>Design of ramp metering installations</li> </ul>
12:30pm	Lunch break (lunch provided)	12:30pm	Lunch break (lunch provided)
1.30 pm	<ul style="list-style-type: none"> <li>Principles of Lane Use Management Systems (LUMS) for management of incidents</li> </ul>	1.30 pm	<ul style="list-style-type: none"> <li>Freeway analysis and Ramp metering design group exercise</li> <li>Integration of freeway ramp signals with other managed freeway traffic controls</li> </ul>
3.00pm	Afternoon tea break	3.00pm	Afternoon tea break
3.30 pm	<ul style="list-style-type: none"> <li>Principles of Variable Speed Limit Systems (VSLS)</li> </ul>	3.30pm	<ul style="list-style-type: none"> <li>Real Time Operation of coordinated freeway ramp signals</li> <li>Discussion on local implementation issues</li> <li>Review of workshop</li> </ul>
4.30 pm	<ul style="list-style-type: none"> <li>Principles of providing Traveller Information Systems (TIS)– including travel time and congestion management</li> <li>Overview of other managed freeway devices – emergency telephones, CCTV,</li> </ul>		
5.00pm	Conclusion of Day 1	4.30pm	Workshop closure

# Registration form

## Managed Freeways Melbourne, 3-4 May 2011

### ARRB Auditorium, 500 Burwood Hwy, Vermont South

#### ARRB Group

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 Vermont South VIC 3133  
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[www.arrb.com.au/workshops](http://www.arrb.com.au/workshops)

#### Secure your place now

Fax registration to  
 03 9886 3076 or email to  
[training@arrb.com.au](mailto:training@arrb.com.au)

#### 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](mailto: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 \$154 (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 conference.**

**No refund is available for cancellations under 10 days.**

#### 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.*

	Price (pp)	GST	Total
Fee per delegate	\$1436.00	\$143.60	\$1579.60
Early Bird Discount (Must register prior to 29 March 2011)	\$1236.00	\$123.60	\$1359.60
			\$

#### 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](mailto: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 \_\_\_\_\_