

5TH AUSTRALIAN ROAD ENGINEERING & MAINTENANCE CONFERENCE 2010

www.halledit.com.au/roads10

Tuesday 16 – Wednesday 17, March 2010
The Sebel & Citigate Albert Park Hotel, Melbourne, Victoria



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ABOUT THE CONFERENCE

The Fifth Australian Road Engineering & Maintenance Conference 2010 has been designed to alert local government road engineers, councillors, managers, as well as consultants, contractors & suppliers about the most important new developments & issues in roads & their environs.

This two-day event will bring together councils, state government road managers, & the private sector.

SPEAKING PROGRAM

Sustainable Practices & the Environment will feature strongly on the program. It includes major roads, local roads, traffic areas, residential streets, rural roads, footpaths & road reserves. All speakers are asked to present very practical presentations.

KEY CONFERENCE TOPICS INCLUDE:

- Achieving Sustainability on Road Projects
- Road Delivery Models & Contracts
- Road Maintenance Practices
- Road Maintenance Management
- Service & Utility Reinstatement
- Good Paving & Sealing Practices
- Cracks: Treatment & Prevention

CASE STUDIES are a feature of this conference including Local Government case studies.

WORKSHOPS: A series of Workshops will be conducted parallel to the speaking stream.

EXHIBITION: Update your knowledge at the Conference Road Exhibition.

For more information on the conference including the full speaking program & online registration, please visit www.halledit.com.au/roads10

MORE INFORMATION

For more information on the Conference including: Accommodation; Program updates; Venue; & online Registration, please visit our conference website www.halledit.com.au/roads10 or contact the Conference Convenor. The Conference website will be regularly updated with new information.



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The Conference is being supported by major road bodies in Australia including: • Roads Australia • Roadmarking Industry Association of Australia • Concrete Masonry Association of Australia • AILA Vic Branch • AustStab • AAPA

To register: phone (03) 8534 5000, fax (03) 9530 8911 or online at www.halledit.com.au/roads10

DAY 1: TUESDAY MARCH 16 8.00 REGISTRATION & MORNING COFFEE

DAY 1: Stream 1

8.30 CONFERENCE OPENING

8.40 ROAD MAINTENANCE MANAGEMENT & DELIVERY SESSION

▶ ROAD MAINTENANCE MANAGEMENT IN SOUTH AFRICA - EXPERIENCES FROM PROVINCIAL & LOCAL ROAD AUTHORITIES

- Review of the elements of strategic road maintenance analysis
- Data collection, processing & analysis, selection of strategies
- Preparation of preventive maintenance & rehabilitation plans
- Implementation & feedback
- Benefits & pitfalls of this approach
- Case Studies at provincial level & metropolitan municipality level

Johan Viktor, *Technical Director*, **Ian van Wijk**, *Technical Executive* & **Ileen Wolmarans**, *Associate*, *Aurecon*, **South Africa**

▶ CASE STUDY: AUCKLAND MOTORWAY ALLIANCE – 18 MONTHS ON

- Successes & learnings from this \$40m p/a ten year Alliance to maintain Auckland's Motorways
- Bringing together a team of 150 staff from five companies & maintaining momentum in a maintenance environment
- Moving a traditional maintenance operation to become focused on customer & asset condition outcomes

Tony Fisher, *Alliance Director - Auckland Motorways*, *New Zealand Transport Agency* & **Grant Borrie**, *Chairman of the AMA Leadership Team*, *Executive Manager Business Development*, *Fulton Hogan Ltd.* **New Zealand**

▶ ROAD MAINTENANCE DELIVERY: REWARDS & CHALLENGES OF THE PAST TEN YEARS

- Summary of developments in road maintenance delivery models over the past decade in Australia & New Zealand
- Lessons for their wider application, including their suitability for application in developing & emerging countries
- Traditional delivery mechanisms, large contract based delivery & innovative delivery partnerships

Paul Robinson, *Principal Engineer*, & **Tyrone Toole**, *Chief Consultant*, *ARRB Group*

▶ THE BENEFITS OF INTEGRATED ROAD MAINTENANCE DATA COLLECTION

- The need for integrated data collection technologies
- A singular view of reality: surface, subsurface and surroundings
- Reducing the pain: the need for high quality automation
- Integrating other data sources
- Achieving easy access to the information

Dr Bryan Reeves, *Chief Technology Officer*, *Radar Portal Systems*

▶ PANEL SESSION & QUESTIONS

10.45 MORNING TEA

11.15 ENVIRONMENTAL CHALLENGES & SUSTAINABLE ROADS SESSION

▶ CASE STUDY: PENINSULA LINK PROJECT ENVIRONMENTAL CHALLENGES

- Review of the environmental approvals required for the Project
- The need for a co-ordinated approach from a number of key government agencies to deliver the specific approval obligations
- Environmental approval process challenges during the bid phase

Jenny Carbery, *Project Manager (South) – Peninsula Link Project*, *Linking Melbourne Authority*

DAY 1: Stream 2

8.40 CONFERENCE OPENING

8.45 ROAD & PAVEMENT DESIGN SESSION

▶ APPLYING CONSTRUCTION KNOWLEDGE TO DESIGN SOLUTIONS

- Defining the application of construction knowledge to design solutions
- Getting it right first time
- Reducing rework & overall costs
- Speed of construction results in less disruption to traffic
- Planning & managing temporary works

Mario Aiezza, *Associate & Business Unit Manager (Victoria)*, *pitt & sherry*

▶ ADVANCES IN SIGNAGE & LINEMARKING TECHNOLOGY

- Overview of recent advancements in signage & pavement marking technology developed
- How they can be applied to improve safe navigation on the road, especially for large vehicles & compromised situations

Andrew King, *Division Manager*, *3M Traffic Safety Systems*

▶ DEVELOPMENT OF DESIGN SOFTWARE FOR PERMEABLE CONCRETE PAVEMENTS

- Development of new design software for Permeable Concrete Segmental Pavements (PCSP)
- Design for: stormwater management, flood control, water quality & harvesting & for a wide range of traffic conditions including: car parks, roads & streets, & industrial pavements carrying heavy off-road vehicles

Professor Brian Shackel, *School of Civil & Environmental Engineering*, *University of NSW* & **David Pezzanti**, *Centre for Water Management & Reuse*, *School of Natural & Built Environments*, *University of SA*

▶ EXPERIENCE IN THE APPLICATION OF PERMEABLE CONCRETE SEGMENTAL PAVING IN AUSTRALIA

- Reviews a range of PCSP that have been in service in Australia for periods of around 10 years
- Critical review of the properties & in-service performance based on insitu measurements, survey, & laboratory test data
- Infiltration rate, structural properties & performance together with lifespan & physical filtration efficiency
- Effects of sediment load & pavement clogging

Professor Brian Shackel, *School of Civil & Environmental Engineering*, *University of NSW*, *Baden Myers*, *Centre for Water Management & Reuse*, *School of Natural & Built Environments*, *University of SA* & **Alan Pearson**, *CMAA*

▶ PANEL SESSION & QUESTIONS

10.45 MORNING TEA

11.15 WORKSHOP: ROAD MAINTENANCE DELIVERY

Building on the paper presented by Tyrone & Paul, This hands on session provides the opportunity for participants to explore their own experiences with Road Maintenance Delivery options with their colleagues in a structured & facilitated session aimed at drawing out & sharing key lessons of most value to all present.

WORKSHOP LEADER: Paul Robinson, *Principal Engineer*, *ARRB Group*

DAY 1: Stream 1

- ▶ **CASE STUDY: LESSONS LEARNED IN ACHIEVING SUSTAINABILITY ON SAFELink**
 - Development & implementation of a strategy to engage the team involved in delivering the project, including designing engineers, contractors, procurement & systems/controls
 - Examples of cultural & technical sustainability wins
 - Real life barriers in moving ideas from paper to practice are examined
 - How these barriers were overcome through organisational analysis
 - How barriers continue to limit the scope of sustainability on road projects

Rose Boyd, Senior Sustainability Consultant, Arup Sustainability
- ▶ **SPECIFICATION OF RECYCLED MATERIALS FOR LOCAL GOVERNMENT PROJECTS**
 - History of recycled materials
 - Comparing conventional products to equivalent recycled materials
 - VicRoads Material Specifications
 - Carbon footprint of recycled material & global warming savings
 - Case study on projects in both major & local roads
 - Future of sustainable roads (R&D programmes)

Peter Murphy, Chief Operating Officer, Alex Fraser Group
- ▶ **PANEL SESSION & QUESTIONS**

12.45 LUNCH

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1.45 ROAD DELIVERY: MODELS & CONTRACTS SESSION

- ▶ **PENINSULA LINK PROJECT – AVAILABILITY CONTRACT MODEL DEVELOPMENT OF PERFORMANCE REQUIREMENTS & THE PAYMENT MECHANISM**
 - Investigation & development of the payment mechanism; why an availability model?
 - Development of key performance indicators & road availability requirements for the longer term
 - Integration of technical & commercial requirements to ensure a high level of performance & an economically viable solution

Leanne Seddon, Project Manager (North) – Peninsula Link Project, Linking Melbourne Authority
- ▶ **CASE STUDY: IMPLEMENTING A SMALL “a” ALLIANCE - THOMPSON’S ROAD DUPLICATION PROJECT**
 - Key Steps in Establishing Successful Collaboration on Projects under \$30 million

Jonathan Schauder, The Change Agent Network Pty Ltd; **Ian Ingliss**, Project Manager, South Eastern Projects, VicRoads Major Projects; & **Jeff Gallus**, Operations Manager, BMD Contractors Victoria

DAY 1: Stream 2

12.45 LUNCH

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- ▶ **1.45 BITUMINOUS PAVEMENT CONSTRUCTION CASE STUDY: IS “BITUMEN TREATED BASE” A VIABLE OPTION IN PAVEMENT CONSTRUCTION???**
 - Construction of Bitumen Treated Base material pavements, hot mixed & placed with a traditional paver
 - Trafficable surface for staged construction on road upgrades
 - Trial road pavements have been constructed on major road segments over the last 4 years to provide a bitumen treated base with a traditional Dense Graded Asphaltic Concrete as a wearing course
 - Performance including cost comparisons & pavement management

Bill Moffat, Construction Engineer, Mackay Regional Council, Qld
- ▶ **BLEEDING SEALS: WHY DOES THIS HAPPEN?**
 - Bleeding v flushing
 - Why do sprayed seals bleed
 - New work
 - Reseals
 - Selection of appropriate treatments
 - Seal design procedures
 - Maintenance practices
 - Some remedial treatments

Walter Holtrop, National Surfacing Engineer, AAPA
- ▶ **CASE STUDY: FOAM MIX ASPHALT: PRINCES HIGHWAY GEELONG**
 - Combination of Ex-Situ and In-Situ processing in a single road rehabilitation
 - Designing and creating a Foam Mix Asphalt solution
 - Benefits of a fully flexible pavement design designed from 97% recycled material
 - Mobile cold recycler plant operation
 - Project timeline – 5700 tons recycled and laid over a weekend
 - Environmental Benefits of Foam Mix Asphalt
 - Roadstone Recycling

3.25 AFTERNOON TEA

3.55 BITUMINOUS MATERIALS - ONE

This special session features research presentations from the University of Malaya on Asphalt

- ▶ **UTILIZATION OF WASTE PLASTIC IN STONE MASTIC ASPHALT**
Esmail Ahmadinia, *Postgraduate Student, Department Of Civil Engineering, University of Malaya*
- ▶ **INVESTIGATION OF PALM OIL FIBER IN MECHANICAL PROPERTIES OF STOME MASTIC ASPHALT**
Majid Zargar, *Postgraduate Student , Civil Engineering Department, University Malaya*
- ▶ **COMPARATIVE ANALYSIS OF PERFORMANCE TEST VARIATION BETWEEN SMA CORE SPECIMENS COMPACTED, USING A NEW ROTARY COMPACTOR AND TYPICAL MARSHALL SPECIMENS**
Mohammad Pourtahmasb, *Postgraduate Civil Engineering Department, University of Malaya*
- ▶ **IMPROVING OF ASPHALT PAVEMENT PROPERTIES WITH CRUMB RUBBER MODIFIER**
Nuha S Mashaan, *Postgraduate Student ,Department Of Civil Engineering, University of Malaya*
- ▶ **SOME RHEOLOGICAL PROPERTIES OF POLYETHYLENE MODIFIED DENSE BITUMINOUS MIX**
Zahra (Niloofar) Kalantar, *Postgraduate Civil Engineering Department, University of Malaya*

3.00 REGISTRATION OPENS FOR ROAD & LANDSCAPE SESSION

3.45 ROAD & LANDSCAPE SESSION

SESSION CHAIR: Scott Graham GHD, *President, AILA Vic Branch*

This session will showcase a number of projects, topics & speakers from a Landscape Architectural perspective that relate to the provision of road infrastructure including abutting public space. The session is relevant across professions including engineers, landscape architects, urban planners & outdoor staff. The Session will include a discussion panel & a number of speakers including:

- ▶ **AILA AWARDS Highlights**
Scott Graham, *GHD, President, AILA Vic Branch*
 - ▶ **SHARED PATHWAYS HAVING FUN WITH SPACE**
Kirsten Baeur, *Studio Director, Aspect*
 - ▶ **PEDESTRIAN BRIDGES: AN INTERNATIONAL PERSPECTIVE**
 - Exemplar projects presented at the International Pedestrian Bridge Conference in Portugal July 2008.
 - History & Context of pedestrian bridges in Europe
 - Bridge projects & associated urban design benefits.
 - Materials, technology & design parameters
 - Integration of pedestrian bridges with urban design.
 - ▶ **Damian Collopy**, *Senior Landscape Architect, Landscape & Urban Design, VicRoads Technical Consulting*
 - ▶ **PANEL SESSION & QUESTIONS**
- 6.00 SESSION CLOSE**

DAY 1: Stream 3

3.55 WORKSHOP SESSION: SMALL "α" ALLIANCING – ESTABLISHING OPTIMAL COLLABORATION IN ROAD PROJECT DELIVERY FOR PROJECTS UNDER \$30 MILLION

Using Alliance based and Harvard University theories, this session aims to be a practical consideration of how to create and maintain collaborative leadership structures and decision making on infrastructure projects.

Delegates will consider:

- How do you get collaborative after a competitive tender process?
- What is culture and how do you build it?
- What does the leadership need to do to build collaboration from the top down?
- The role of leadership and decision making processes in project collaboration

Delegates will explore:

- How their current project leadership processes work
- The optimality of their current strategic planning meetings between client and contractor
- How decision get made on the project, and how problems get solved
- What trust and integrity really mean!

WORKSHOP LEADER: Jonathan Schauder, *The Change Agent Network Pty Ltd*

DAY 1: Stream 4

OR

The following two workshop & demonstrations will each be repeated in a 45 minute cycle allowing delegates to attend both.

- 4.00-4.45 – Demonstration 1 & 2
- 4.45-5.30 – Demonstration 1 & 2

▶ **WORKSHOP & DEMONSTRATION ONE: CRACKSEALING**

This session will discuss the role of crack sealing within an effective asset management strategy. Discussing the different types of crack sealing materials & application methods, this session will also look at test results from international studies. There will also be question & discussion time & a fully equipped state-of-the-art crack sealing unit delivering a practical demonstration.

▶ **DEMONSTRATION TWO: ASSET DATA COLLECTION TECHNIQUES & TECHNOLOGY**

This session will provide an overview of local government & national pavement & road related asset data collection techniques & technology used by ARRB. An overview will be given & then some of the latest technologies will be demonstrated.

5.30 CLOSE

5.30-7.00 HAPPY HOUR & PRE-DINNER DRINKS

7.00 CONFERENCE DINNER

DAY 2: Stream 1

8.30 STABILISED PAVEMENT MATERIALS SESSION

▶ INSITU STABILISATION USING FOAMED BITUMEN IN LOCAL GOVERNMENT APPLICATIONS

- A linkage of research & 10 years local government experience
- Design method & construction processes & examples of local government use from Canning & Gosnells Council in WA

Colin Leek, *Project Engineer, City of Canning*

▶ CASE STUDY: GRIFFITH NSW - EFFICIENT ROAD STABILISATION MADE EASY

- Innovative approach to road stabilisation: flexible & competitive
- Technical feedback on productivity, compaction levels, moisture content & particle size
- Suitability for various materials including stone contaminated soils & recycling of existing materials

Paul Josling, *Engineering Director, Complete Civil Solutions*

▶ BEST VALUE MANAGEMENT OF UNSEALED ROADS: AN EVALUATION OF INSITU STABILISATION

- Evaluation of insitu stabilisation of unsealed roads in remote Australian locations
- Material availability & deficiency, construction logistics, binder selection, pavement performance & economic evaluation
- A rational approach to the evaluation of material selection, processing & improvement

Bob Andrews, *Principal Engineer & Kieran Sharp, ARRB Group*

▶ PANEL SESSION & QUESTIONS

10.00 MORNING TEA

10.30 CRACKING OF PAVEMENTS SESSION

▶ FINITE ELEMENT ANALYSIS OF FLEXIBLE PAVEMENTS EXHIBITING REFLECTIVE CRACKING

- Deferring Reflection Cracks in Asphalt Layers
- Austroads' asphalt overlay design procedure is critiqued
- A finite element model of a cracked deep strength pavement is described
- Outputs from the model are presented and inexorable conclusions drawn

Greg Wright, *Principal Pavements Engineer, Parsons Brinkerhoff*

▶ DEVELOPMENT OF A NEW SPRAYED SEAL BINDER FOR THE ALLEVIATION OF REFLECTION CRACKS IN SPRAYED SEALS

- Review of the current Austroads bituminous binder specifications
- Why is there a need to develop a new binder?
- Measurement of resistance to crack reflection & binder adhesion
- Properties of the new sprayed seal binder

Stuart Dack, *Marketing & Product Development Manager, BP Bitumen*

▶ CRACK SEALING – A WASTE OF TIME OR PAVEMENT MAINTENANCE SAVIOUR

- Review of today's technology, sealing material & methods for sealing cracks/joints
- Pavement preservation by early intervention with best practice crack sealing

Murray Yardley, *Managing Director, Sealants & Pavement Adhesives Pty Ltd*

▶ PANEL SESSION & QUESTIONS

12.00 LUNCH PROUDLY
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DAY 2: Stream 2

8.30 PAVEMENT REPAIR, SERVICE & UTILITY REINSTATEMENT SESSION

▶ CASE STUDY: USE OF REINFORCING FIBRES IN CONCRETE SLABS FOR HIGHWAY PAVEMENT AT HEXHAM, NEWCASTLE

- Information on site, traffic, constraints, & opportunities
- Results of pavement testing & condition assessment
- Analysis on the expected pavement life
- Adopted pavement repair strategy
- Review of performance of replaced slabs
- Pros & cons of adopted pavement repair strategy

Dr Riaz Ul-Islam, *Senior Asset Management Engineer, Opus International Consultants & Keerthi Seneviratne, Road Maintenance Planner, Asset Management, Hunter Region, Roads & Traffic Authority, NSW*

▶ UTILITY LOCATION & MAPPING: HOW IT CAN BENEFIT YOUR PROJECT

- What is Subsurface Utility Engineering?
- The benefits of survey & mapping of existing subsurface utilities.
- Case Study: Utility location & VicRoads Improvement Projects

Matt Keppich, *General Manager, Australian Underground Services*

▶ WHAT ROAD ENGINEERS SHOULD KNOW ABOUT TRENCHLESS TECHNOLOGY

- Specialised techniques & equipment to rehabilitate underground conduits without the need for excavation to achieve less traffic disruption &/or project cost
- Road serviceability & maintenance is often affected by deteriorated, or faulty, drains & culverts laid underneath the road
Options available to Road Engineers for rectifying problems in new or old pipeline assets without the need for excavation
- Case Studies of pipeline repairs for RTA NSW & VicRoads

Alan Sutton, *Engineering Manager, Kembla Watertech Pty Ltd*

▶ PANEL SESSION & QUESTIONS

10.00 MORNING TEA

10.30 ROAD PAVEMENT ASSET MANAGEMENT SESSION

▶ APPLICATION OF SYSTEM DYNAMICS TO UNSEALED PAVEMENT MAINTENANCE GRAVEL ROAD MAINTENANCE SIMULATOR

- A system dynamics based pavement management simulator developed from the recent ARRB research across Victoria into pavement deterioration
- The model analyses pavement deterioration over time of 530 individual segments of unsealed rural road in Moorabool Shire
- Prioritises rehabilitation treatments based on user preferences & budget constraints & identifies the consequences of different budgetary approaches
- Feedback to the decision makers includes the number of households served by very rough roads, the deterioration of specific roads over time, the projected number of user complaints, roughness related accident costs & vehicle operating costs

Keith T Linard, *Manager Assets, Moorabool Shire Council*

▶ A NEW ERA IN ROAD MANAGEMENT FOR WA LOCAL GOVERNMENT

- The Western Australian Local Government Association (WALGA) on behalf on WA Local Government requested of the market options for a suitable & sustainable replacement for the current road asset

DAY 2: Stream 1

1.00 BITUMINOUS PAVEMENT MATERIALS SESSION - TWO

▶ NOVEL CLASS OF SBS POLYMERS FOR ENHANCED EFFECTIVENESS IN BITUMEN MODIFICATION

- A method has been developed to prove grafting reactions to take place between bitumen & SBS molecules
- SBS structural changes achieve more pronounced grafting, eases compatibilisation & improves polymer stability
- Modifying hard base bitumens with high polymer loadings to obtain full compatibility & retain workability

Mr. Erik Jan Scholten, *Bitumen Modification & Applications Research Scientist, Kraton Polymers, The Netherlands*

▶ BRISBANE CITY COUNCIL - ROAD SURFACING TRIALS

- Investigation of new & innovative road maintenance solutions to economically maintain a network of 5560 kilometers of sealed roads
- The role of an Asphalt Innovations Committee in planning & implementing research & development
- Collaboration & stakeholder engagement
- Trials of sustainable products: Ex-situ Foamed Bitumen Recycled Pavement & Warm Mix Asphalt
- Development of 7mm SMA mix for residential streets

Greg Stephenson, *Senior Engineer Road Network Infrastructure*; **Chris Lange**, *Asphalt Operations Manager*; & **Russell Bennie**, *Laboratory Manager, Asphalt Operations Group, Brisbane City Council*

▶ POLYMER MODIFIED BITUMENS & THEIR APPLICATION IN PAVEMENTS

Mr. Felipe Sanchez, *Global Technical Leader for Paving, Dupont, Mexico*

▶ THE ROLE OF ASPHALT REJUVENATORS IN PAVEMENT PRESERVATION

- The technical components of an asphalt rejuvenator & how they differentiate from generic asphalt emulsions
- How they work, where they work, what the appearance is
- Review of field test results – early 1980s to present
- Skid resistance

Murray Yardley, *Managing Director, Sealants & Pavement Adhesives Pty Ltd*

▶ PANEL SESSION & QUESTIONS

3.00 AFTERNOON TEA PROUDLY
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3.30 WORKSHOP SESSION: LATEST TECHNOLOGY & DEVELOPMENTS IN SBS POLYMERS FOR BITUMEN MODIFICATION

- Basic understanding of how SBS works
- Do's & don'ts when using SBS
- Concept of modification of base course layer to reduce pavement thickness
- Concept of highly modified thinner wearing courses
- Compatibility with various bitumens
- Performance comparison with crumbed rubber

WORKSHOP LEADER: Mr. Erik Jan Scholten, *Bitumen Modification & Applications Research Scientist, Kraton Polymers, The Netherlands*

5.00 CONFERENCE CLOSE

DAY 2: Stream 2

management tool (ROMAN)

- The paper presents a case study of the selection & specification process including: Response to Tender, Selecting a preferred proponent & process of due diligence undertaken jointly by WALGA & ARRB inclusive of product assessment vs. proof on concept & defining detailed user requirements & system specification

Graham Lantzke, *Western Australian Local Government Association* & **Norbert Michel**, *ARRB Group*

▶ SPEND MORE, PAY LESS. THE ART OF INTELLIGENT INTERVENTION

- Prudent financial management is critical when managing a roading network
- This paper looks to define what Intelligent Intervention means. This shifts the emphasis from 'unit rates' to the 'cost of repairing the defect'
- The logic is then compared to existing intervention strategies & improvements to Cash, Safety & the Environment are valued

Michael Chadderton, *Australasian Manager, A J Broom Road Products NZ Ltd, New Zealand*

▶ PANEL SESSION & QUESTIONS

12.00 LUNCH PROUDLY
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1.00 SURFACINGS OVER GRANULAR PAVEMENTS SESSION

▶ BEST PRACTICE FOR THE PREPARATION OF NEW GRANULAR PAVEMENTS FOR THIN BITUMINOUS SURFACINGS

- Preparation of a granular pavement prior to the application of a sprayed bituminous or thin asphalt surfacing is a critical ingredient in achieving its expected service
- Achieving pavement dry back an essential ingredient in the preparation phase,
- Other construction aspects such as texture, homogeneity of material, free of ravelling & laminations & a surface which is hard, dense & tight are also essential ingredients
- Discusses the content of Section 310 – Preparation of Granular Pavements for Bituminous Surfacing
- Technical basis for the requirements in the revised specification

Lance Midgely, *Regional Director – Western, VicRoads*

▶ WORKSHOP – ENHANCED CONSTRUCTABILITY OF UNBOUND GRANULAR PAVEMENTS

This important Workshop will examine current practices & outcomes in this area & develop improvement initiatives

This workshop will be led by:

- **Lance Midgely**, *Regional Director – Western, VicRoads*
- **John Esnouf**, *Principal Engineer, Spray Seal Technology, VicRoads*
- **Peter Armstrong**, *National Technical Manager, Fulton Hogan*
- **Walter Holtrop**, *National Surfacing Engineer, AAPA*

3.00 AFTERNOON TEA PROUDLY
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ATTENDEES *(speaking sessions or workshops)*

Delegate 1: Name

Full conference Day 1 Day 2 Roads & Landscape only Dinner

Position

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Delegate 2: Name

Full conference Day 1 Day 2 Roads & Landscape only Dinner

Position

Email

Delegate 3: Name

Full conference Day 1 Day 2 Roads & Landscape only Dinner

Position

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Full conference Day 1 Day 2 Roads & Landscape only Dinner

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Please indicate number of attendees for each of the below:

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(if not attending Full or Day Conference)

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