




**16TH AUSTRALASIAN
TUNNELLING
CONFERENCE 2017**
 30 OCT - 1 NOV 2017
 STAR CITY SYDNEY

HOST

CO-HOSTED BY

SUPPORTED BY


Pre Conference: Sunday 29 October 2017

Start	Finish	
14:30	17:00	Exhibitors Access to ATS2017
16:00	18:00	Early Registration: The Events Foyer, Level 3. The Star
17:00	18:00	Informal Welcome for Exhibitors and our interstate and international attendees, and all early registrants for ATS2017
18:00		Close

Conference Day 1: Monday 30 October 2017

Start	Finish			
8:30	8:40	Welcome: <i>The Hon. Gladys Berejiklian MP, Premier Of New South Wales</i>		
8:40	9:10	Bigger, Better, More – Delivering Transport Tunnels For NSW: <i>Tim Reardon, Secretary, TfNSW</i>		
9:10	9:40	Community engagement: Brightening the light at the end of the tunnel: <i>Angela Fiumara, Exec Director Stakeholder & Community Engagement, Roads & Maritime Services</i>		
9:40	10:10	The Challenges Of Constructing Sydney Metro City & Southwest: <i>Alan Morris, Director, Tunnel & Stations Excavations, Sydney Metro, City & Southwest</i>		
10:10	10:40	Transferable Technologies To Deliver Tunnelling Efficiencies: <i>Chris Dulake, Major Projects Portfolio Director, Mott MacDonald UK</i>		
10:40	11:10	Morning Tea in ATS2017 Exhibition		
		Room 1 Session 1		
		Room 2 Session 1		
		Room 3 Session 1		
Start	Finish	WS1/1: Project Case Studies	WS3/2: Tunnel Rehabilitation	WS3/4: Geotechnical Characterisation 1
11:10	11:30	NorthConnex - A New Perspective For Tunnelling In Sydney: <i>U Hestermann; L-P Calbrix; C Bodner</i>	Design And Construction Of Remedial Works For Rail Tunnels Impacted By November 2016 Kaikoura Earthquake: <i>B News; R Kotze; R Sierraballen; H Walters</i>	Value Of Historical Ground Data For Large Infrastructure Projects: <i>S Thorin; D Och; T Rannard</i>
11:30	11:50	Planning, Design And Construction Of The WestConnex Urban Motorway Scheme – The Largest Road Transportation Tunnelling Project Ever Undertaken In Australia: <i>C C MacDonald</i>	Investigation And Design For Remedial Works For Water Infiltration Into Sydney Rail Tunnel: <i>P Moyes</i>	Development Of Geotechnical Units And Geotechnical Design Parameters For The Melbourne Formation: <i>D Paul; S Barrett; T Jones; A Bennett</i>
11:50	12:10	Auckland's Central Interceptor: Innovations From Planning Through Detailed Design: <i>V Romero; S Grace; N Kay; A Campbell</i>	Nightcap WTP Outlet Tunnel – Rehabilitate or Replace?: <i>D O'Connor; S Macklin</i>	The Hyaloclastite Breccia Of Melbourne – Disaggregation Potential And Implications For TBM Tunnelling: <i>S Macklin; A Schofield; E Yaghoubi</i>
12:10	12:30	Auckland City Rail Link – Tunnelling Challenges: <i>T Ireland; B News; S F Chau; S Hawkins</i>	Rehabilitation Of The Elan Valley Aquaduct: <i>B Henry; R Malam</i>	The Puketoka Formation, Auckland New Zealand. A Review Of Geotechnical Properties And Hazards For Underground Construction: <i>M Boyd; S Macklin</i>
12:30	13:30	Luncheon in ATS2017 Exhibition		



Conference Day 1: Monday 30th October 2017 Continued....

		Room 1 Session 2	Room 2 Session 2	Room 3 Session 2
Start	Finish	WS3/1: Tunnel Design Approaches 1	WS2/2: Design & Construction of Sydney Metro North West	WS6/1: Digital Engineering/Monitoring
13:30	13:50	Bridge Standards - Are They Appropriate For Tunnel Design: <i>D Oliveira; H Asche; R Day</i>	Sydney Metro Northwest - Design & Construction Of The Underground Stations: <i>R Bliuc; M C Kitson; C H Lee; T Miller; B O'Halloran; V McLaughlin</i>	A Novel Geotechnical Monitoring Technology For Underground Tunnels To Assess Ground Support Effectiveness: <i>L R Campbell; A G Cabrejo; B J Chen; P Saunders</i>
13:50	14:10	Geotechnical Validation For Sydney Tunnels: <i>T Nash; B Shen; R Bertuzzi</i>	Sydney Metro Northwest - Design & Construction Of The Service Facility Shafts: <i>E J Nye, C McHugh, T Ockwell, N Tennakoon and M C Kitson</i>	How To Perform Real-Time Monitoring When Your Reference Network Is Moving? - Innovative Solution Applied To Britomart Station On The CRL Project In Auckland: <i>E Audigé; C Fagan; M Beth</i>
14:10	14:30	Alternative Rock Mass Classification For Tunnel Design In Sydney: <i>R Bertuzzi; A De Ambrosio</i>	Sydney Metro Northwest - Design And Construction Of The Norwest And Castle Hill Pedestrian Underpass: <i>S.M. Brinkmann, M.S. Pearson and E.J. Nye</i>	Geotechnical Monitoring And Management Of TBM (EPB) Tunnelling Induced Settlement: The Case Of Waterview Connection Project Tunnel: <i>D Koumoutsakos; S France; S Cartwright</i>
14:30	14:50	Advanced Analysis Of Tunnel Excavation And Support Within The Melbourne Formation: <i>D Sainsbury; A Amon</i>	Primary Support Of The Castle Hill Crossover Cavern: <i>S J Clarke</i>	Drill & Blast Management In The Digital Age: <i>J Barry; S Haslemore</i>
14:50	15:10	WestConnex New M5 - Design Challenges Of The Arncliffe Ventilation Connections: <i>A Lippett; B Sandford; D Rae; T Peglas</i>	Construction Of Sydney Metro Northwest Castle Hill Cross-Over Cavern: <i>J D Rio; T F Yu; A Ivantchev</i>	Infrastructure Protection During Tunnelling: <i>D Mather; A Czegledi</i>
15:10	15:40	Afternoon Tea in ATS2017 Exhibition		
		Room 1 Session 3	Room 2 Session 3	Room 3 Session 3
Start	Finish	WS2/1: Construction Methods: Overseas Project Case Studies TBM	WS3/3: Geotechnical Characterisation 2	WS6/2: Digital Engineering & Delivery
15:40	16:00	SCL 1128 -Hong Kong's First Variable Density Tunnel Boring Machine: <i>D Jacques; H Laverret; N Ballu; J Reilly</i>	Sedimentary Rock Properties: <i>I Gray; X Zhao; B Seeto; L Liu</i>	Implementation of BIM Methodology to Karavanke Tunnel: <i>M Zibert; P Schubert, M Lah; S Saje</i>
16:00	16:20	Challenges in Tunnelling through Varying Rock Conditions in Singapore: <i>M M Sahabdeen; O C Nam</i>	Discrete Fracture Network Modelling of the Parramatta/Wattle Caverns for Tunnel Design: <i>F Weir; J Watton</i>	The Application of BIM and Photogrammetric Methods to the Inspection and Management of the Sydney Harbour Tunnel: <i>D McDonnell; M Devriendt</i>
16:20	16:40	CrossRail C310 Thames Tunnel (London, UK) - Mixshield TBM Tunnelling in Alternating Ground Conditions with Low Overburden: <i>A Raedle</i>	Waterview Connection Tunnels: Engineering Geology Assessment of East Coast Bays Formation from Investigation through to Construction: <i>S Cartwright; D Koumoutsakos; B Hill; C Morrison</i>	Digital Tunnel Data – Delivering Bigger, Better, More... : <i>P. Fogarty; D Brabbins;</i>
16:40	17:00	Difficult Ground Solutions: A Methodology for Enhanced TBM Performance in Challenging Conditions: <i>D Harding</i>	Ground Characterisation Methods For Trialling A Prototype Tunnel Boring Machine In An Underground Mine: <i>M Salcher; F Vieira</i>	
17:00	17:05	Closing Remarks	Closing Remarks	
17:05	19:05	Welcome Reception in ATS2017 Exhibition proudly sponsored by Aurecon		



Conference Day 2: Tuesday 31 October 2017

Start	Finish			
8:30	8:40	Welcome		
8:40	9:10	Development of Resource-Efficient & Advanced Underground Technologies: <i>Professor Robert Galler, Head, Zentrum am Berg; Head, Subsurface Engineering, University of Leoben, Austria</i>		
9:10	9:40	Metro Doha 111 Kilometres of New Metro Tunnel in 26 Months: <i>Dr Karin Baepler, Head, Geotechnics & Traffic Consulting, Herrenknecht AG</i>		
9:40	10:10	Sustainable Urban Planning of Underground Space: International Best Practice: <i>Alexander Gomes, Vice President, International Tunnelling Association</i>		
10:10	10:40	Observational Methods in Tunnelling – Who Owns the Risks? <i>Dr Douglas Maconochie, Technical Director Tunnels, WSP Australia. Winner: 2014 Allen Neyland Award</i>		
10:40	11:10	Morning Tea in ATS2017 Exhibition		
		Room 1 Session 1	Room 2 Session 1	Room 3 Session 1
Start	Finish	WS3/5: Stress Effects on Tunnelling	WS2/3: Construction Methods: Technical Innovation & Research	WS4/1: Improving the Operation of the Tunnel Asset
11:10	11:30	Stress-induced Brittle Failure of the Hawkesbury Sandstone – Case Study from Crack Initiation to Tunnel Support: <i>L McQueen; R Bewick; J Sutton; A Morrow</i>	Construction Access Provisions For Tunnel Excavation In Challenging Ground Conditions, WestConnex M4E Tunnels, Sydney, Australia: <i>J Arifin; G Sanchez; P Campi; W Frelander</i>	Road Tunnel Control Centre Operator Training And Qualifications: <i>B Allen; G McKernan</i>
11:30	11:50	Three Dimensional Analyses To Assess Stresses Around Closely Spaced Tunnels In WestConnex M4 E Tunnels, Sydney, Australia: <i>M Funkhouser; G Sanchez; R G Mikola; Y Sun; S Simmonds</i>	Cutter/Rock Interface Friction - Worth Measuring Accurately? <i>W E Bamford; E Yaghoubi</i>	Incident Detection Systems In Motorway Tunnels: <i>V Shapilsky; A Ang</i>
11:50	12:10	High In-Situ Stress And Its Effects In Tunnel Design: An Update Based On Recent Projects Experience, WestConnex M4 East & New M5 Tunnels, Sydney, Australia: <i>D Tepavac; P Mok; D Oliveira; H Asche; Y Sun; S Simmonds</i>	Anchor Technology And Automated Drilling Rigs For Tunnel Fit-out at Sydney Metro Northwest, Sydney: <i>M D Cunningham; S Strong</i>	Artificial Intelligence - Near Term Opportunities And Distant Possibilities: <i>M Taylor; T Kennedy; M Tissera</i>
12:10	12:30	Failure Mode At Tensile Side Of Failure Curve And Its Impact On Stress Induced Damage Zones Around Underground Excavations: <i>M Zoorabadi; W Gale; M Rajabi; N Aziz; J Nemcik</i>	Abrasiveness Of Soft & Sandy Soils With Realistic Densities And Moisture Contents: <i>W E Bamford; E Yaghoubi</i>	Durability Assurance On Major Rail Infrastructure Projects: <i>W Green; E J Nye; B Eliasson</i>
12:30	13:30	Luncheon in ATS2017 Exhibition		



Conference Day 2: Tuesday 31 October 2017 Continued

		Room 1 Session 2	Room 2 Session 2	Room 3 Session 2
Start	Finish	WS3/6: Shotcrete	WS2/4: Construction Methods: Overseas Project Case Studies NATM / IMT	WS4/2: Fire Safety
13:30	13:50	Twenty Years Of FRC Tunnel Final Lining : Lessons Learnt , Design Proposal And New Development: <i>B D Rivaz</i>	Optimisation Potential Regarding Safety, Material & Installation Time For Pipe Umbrella Installation Methods: <i>G M Volkmann; D Glantschnegg</i>	Fire Incident Data For Australasian Road Tunnels: <i>N Casey</i>
13:50	14:10	Durability Of Steel Fibre Reinforced Shotcrete – A Review Of Published Technical Papers, Codes And Standards: <i>P Clark; S Manwarring; M Burke</i>	Design Of Multi-Level Cut & Cover Tunnels In a Complex Interchange – Case Study: <i>M Al-Dawod, A Saad, A Shehada, and S Abdeltawab</i>	Activation And Control Of Deluge Fire Suppression Systems In Road Tunnels – A Case Study: <i>C Hiscock; J Paveley</i>
14:10	14:30	Experimental Study On The Fire Behaviour Of Fibre Reinforced Concrete Mixes: <i>C Maluk; T Clarke; A Ridout</i>	Removal Of TBM Obstruction For Waterview Connection Project, Auckland (NZ): Holistic Risk Management: <i>W Okada; I Simmons; D J Maconochie</i>	Hearing The Message – Emergency Announcements In Tunnel Noise: <i>C Stacey</i>
14:30	14:50	Shotcrete Support Design In Blocky Ground: Revisited: <i>Y Christine; D Oliveira; H Asche</i>	Recent Developments And Risk Management In Immersed Tunnelling Projects: <i>H Sakaeda; O Ozgur</i>	Is Protection Against Concrete Spalling Required In Tunnels With Active Fire Safety Systems? <i>H Lewis; S Grubits</i>
14:50	15:10	Correlations In The Performance Of Fibre Reinforced Concrete Assessed Using Round Panels And The EN14651 Beam Test: <i>E Bernard</i>	Trenchless Construction of Sentosa Gateway Tunnel: <i>T G Ng; Y Indrayogan; S C Teo; H Y Pan</i>	Independent Verification and Certification of Tunnel E&M Services and Systems: <i>R Lau</i>
15:10	15:40	Afternoon Tea in ATS2017 Exhibition		
		Room 1 Session 3	Room 2 Session 3	Room 3 Session 3
Start	Finish	WS3/7: Groundwater Control and Ground Improvement	WS1/2 Project Procurement & Scheduling	WS3/8: Design & Construct Case Studies Hong Kong
15:40	16:00	Effect Of Surface Grouting In Arncliffe Site Of WestConnex Stage 2 Project: <i>P H I Yim; J Casado; H Asche; J Raymer</i>	It's Not Easy Being Green - Superannuation Investment In Greenfield Projects: <i>A Miller</i>	Mechanised Railway Tunnel Excavation and Existing Tunnel Dismantling in the Urban Environment in Hong Kong: <i>S W Lee; C Leung; P Ng; T Barrett; K Lee; A Pickles; T Henderson; S Robin; S Polycarpe</i>
16:00	16:20	Fissure grouting and rock defect characterisation for the Waterview cross passage tunnels: <i>H Maclean; S Cartwright; A Giauque</i>	Tunnel Vision – Optimising Procurement Models to Deliver Successful Tunnelling Projects: <i>D Jardine; M Riley</i>	Operating Pressures For Twin Slurry TBM Drives, SCL 1103, Hong Kong: <i>N Shirlaw; A Saw; F Dudouit; D Salisbury</i>
16:20	16:40	Waterview Connection Tunnels: Assessment, Monitoring & Management Of Groundwater Effects: <i>S France</i>	Linear Planning in Tunnelling Projects: <i>D Crosby; K Bannerman</i>	Design Of Ground Support For The Extension Of MTR's Admiralty Station, Hong Kong: <i>A Varo; N Bedford; M Wiltshire; M Bezzano</i>
16:40	17:00	Permeation Grouting & Safe Excavation In Water-Bearing Sands & Gravels Below Victorian Tunnels In Central London: <i>M Packer; R Newman</i>	A New Standard: Developments Near Rail Tunnels: <i>N Loganathan, S Fernando, R Mahajan, and R Hitch</i>	A Case Study Of Mined Adit Design & Construction In Hong Kong: <i>C Hu; F Desaintpaul; J Rickard; F Dudouit; E Clech</i>
17:00	17:05	Closing Remarks	Closing Remarks	Closing Remarks
17:05	18:05	Networking & Pre Dinner Drinks in ATS2017 Exhibition <i>proudly sponsored by Austunnel</i>		
19:30	22:30	2017 Australasian Tunnelling Society Awards Dinner at Doltone House, Darling Island <i>proudly sponsored by CPB Contractors</i> <i>Featuring Comedian: Lawrence Mooney</i>		



Conference Day 3: Wednesday 1 November 2017

Start	Finish			
8:30	8:40	Welcome		
8:40	9:10	Tunnelling into Technology: a Vision for the Future: <i>Lisa Tobin, Group General Manager Technology, Transurban</i>		
9:10	9:40	Current Strategies for Financing, Procuring and Specifying the Expansion and Maintenance of the US Interstate Road Network: <i>Thomas D Everett, Associate Administrator, Office of Infrastructure, US Department of Transport</i>		
9:40	10:10	Melbourne Metro Rail – Approvals & Construction: <i>Linda Cantan, Director Tunnel & Stations PPP, Melbourne Metro Rail Authority</i>		
10:10	10:40	Safety In Design - What Does It Mean For Tunnels Under Construction?: <i>Christian Bodner & Mark Sheffield, Technical Directors, Aurecon</i>		
10:40	11:10	Morning Tea in ATS2017 Exhibition		
		Room 1 Session 1	Room 2 Session 1	Room 3 Session 1
Start	Finish	WS1/3: Project Planning & Development	WS1/4: Project Case Studies 2	WS4/4: Ventilation of Rail Tunnels
11:10	11:30	Planning For Melbourne's Metro Tunnel: <i>A L Bennett</i>	Cross River Rail 2017, Changes From CRR 2011: <i>J Donohue, A J de Aboitiz, O Francis and D Ilic</i>	A Preliminary Study On The Thermal Properties Of The Ground Under Sydney Harbour And The Sensitivity Of Tunnel Air Temperatures: <i>D Saunbury; D. Fernandes; D Och</i>
11:30	11:50	NorthConnex And Hornsby Quarry Spoil Management Case Study: <i>R Butler; G Bradford</i>	Large Diameter Microtunnel From Wetland To The Sea: <i>E Ayre; D Londer</i>	Rail Tunnel Ventilation Design - Time For A Disruption? <i>P Sabapathy; A Paradiso; C Biotto; E Bennett</i>
11:50	12:10	Crossrail And Riyadh Metro - Managing Scale, What Has Been Learned? <i>W R Jobling; H J Morrison</i>	Azerbaijan Capital Baku Metro Development - Mega Metro Network Expansion Desire: <i>T Parak; P Makasek; P Havlan</i>	Tunnel Ventilation Options For Heavy Haul Freight Rail: <i>R Fernando; C Biotto; D Edwards; S Htay;</i>
12:10	12:30	Waterview Connection Tunnels - Post Construction Review: <i>S F Chau; T Ireland; S Eratne</i>	Toowoomba Second Range Crossing - Where Did The Tunnel Go? <i>A J de Aboitiz; S Fraser; T Nyiregyhazi; W Mak</i>	Tunnel Ventilation Requirements For Underground Rail Cross-Overs: <i>S O'Gorman;</i>
12:30	13:30	Luncheon in ATS2017 Exhibition		



Conference Day 3: Wednesday 1 November 2017 Continued...

		Room 1 Session 2	Room 2 Session 2	Room 3 Session 2
Start	Finish	WS4/3: Ventilation & Air Quality of Road Tunnels	WS3/9: Design & Construction of Wynyard Walk	WS3/11: Tunnel Design Approaches 2
13:30	13:50	Ventilation Of E4 Stockholm Bypass: <i>R Brandt</i>	Design And Construction Of The Wynyard Walk Pedestrian Tunnel: <i>S J Clarke; A de Ambrosis; P Anthony</i>	Use of the Convergence Confinement Method (CCM) in Hawkesbury Sandstone: <i>L Paramaguru; D Oliveria</i>
13:50	14:10	Developing An In-Tunnel Nitrogen Dioxide Criterion For New South Wales: <i>A Mattes; P Boulter; D Roddis</i>	Primary As Permanent Tunnel Support System: <i>S Clarke; A de Ambrosis; R R Tan</i>	Pillar Support Design For The Lutwyche Caverns: <i>H Lager; A Purwodihardjo; S Barrett; P Booth; N McKenzie; Ed Taylor</i>
14:10	14:30	Continuous Feedback Control Of Airspeed In A Short Bi-Directional Road Tunnel: <i>P Ridley; T McGavin; N Agnew</i>	Primary Support Design Of 'The Kink' Intersection Of The Wynyard Walk Pedestrian Tunnel: <i>R R Tan; A L de Ambrosis; S J Clarke</i>	Numerical Study Of Rock Pillars For Large Spans In Hawkesbury Sandstone: <i>S Thirukumaran; D Oliveira; H Asche</i>
14:30	14:50	Tunnel Infrastructure Project - Managing Risks To Air Quality: <i>J Conway; M Tulau; J Shepherd</i>	Tunnelling Directly Below A 21 Storey Building, Wynyard Walk Project, Sydney CBD: <i>J C W Toh; G Fowlie</i>	Analysis Of Canopy Tubes Supported By Shotcrete Liners: <i>P McCormack; S Clarke</i>
14:50	15:10	Not So 'Critical Velocity': <i>N Agnew</i>	Interpretation Of Settlement Monitoring Of The Wynyard Walk Tunnel: <i>M Pournaghiazar; A de Ambrosis; R Bertuzzi</i>	Combination of Undrained and Drained analysis to Design the Temporary Supports of a Large Diameter Tunnel: <i>R Mahinroosta; D Salehi</i>
15:10	15:40	Afternoon Tea in ATS2017 Exhibition		
		Room 1 Session 3	Room 2 Session 3	Day 3 Room 3 Session 3
Start	Finish	WS2/5: Construction Methods: Risk Management	WS3/10: Hydrogeology & Seismology	WS5/1: Urban Design & Customer Experience
15:40	16:00	Cross Passage Construction Fatality Risks Versus Cross Passage Spacing Fatality Risks During Operation - ONSR Wins?: <i>A Dix</i>	Designing Tunnels in Sydney for Earthquakes: <i>B Estrada; A De Ambrosis; R Bertuzzi</i>	Tunnel Urban Design Guideline: Design Guideline To Improve The Customer And Community Experience Of Road Tunnels: <i>M Sheridan; G Collins</i>
16:00	16:20	International Best Practice In The Prevention Of Illness And Disease In Tunnel Construction Workers: <i>K Cole</i>	Site Conceptualisation And Numerical Model Calibration To A Long Term Pumping Test Within A Fractured Rock Aquifer: <i>I Krusic-Hrustanpasic; J Randell; R Evans; B Barnett</i>	Wynyard Walk Station Upgrade - Customer Experience And Wayfinding Strategies: <i>S Mand; A Medhurst; H Mand</i>
16:20	16:40	Offsetting The Risks In Underground Construction: The BZeroTondo Tunnel Support System: <i>R Perlo; G K Pini; C L Zenti</i>	The Hydrogeology Of The Central Highlands In Sri Lanka And Its Effect On Tunnel Construction: <i>D Lees; J Gunatilake</i>	Reflections On Matter & Memory And Their Relevance For Design Of Underground Spaces: <i>H Mand; S Mand</i>
16:40	17:00	Risks In Assessing And Managing Spoil Generated From Tunnel Infrastructure Projects: <i>A Kalitsis; S Ambridge</i>	Managed Pressure Drilling and its Application to Cross Passage Tunnel Construction: <i>I Gray; B Neels</i>	Preparing A Tunnelling Professional For The Future: <i>J Muir; D Mather</i>
17:00	17:10	ATS2017 Closing Plenary, Room 1		