CORE2026
CONFERENCE ON RAILWAY EXCELLENCE
17 - 19 August 2026 | Adelaide, Australia

HOSTED BY RTSA

SUPPORTED BY ENGINEERS AUSTRALIA, engineering new zealand te ao rangahau

Program Outline

MONDAY 17 AUGUST 2026	
0700 – 1230	**Exhibition Build**
0730 – 1700	**Technical Tours** (*limited space available, timings to be advised*) **Port Dock Precinct & National Railway Museum** Step back in time and explore South Australia's rich rail heritage with a visit to the historic Port Dock precinct. Delegates will travel by train to Port Dock to experience the newly developed station precinct and surrounding rail corridor, followed by an exclusive tour of the National Railway Museum, home to one of Australia's most significant collections of railway history and rollingstock. A relaxed opportunity to continue networking may follow at a local venue nearby. **Intercast & Forge – Wingfield** Gain behind-the-scenes insight into railway manufacturing with an exclusive tour of the Intercast & Forge facility in Wingfield. Delegates will experience the production environment responsible for manufacturing Pandrol rail fastening systems, a critical component in rail infrastructure across Australia and internationally. This technical tour provides a unique opportunity to see precision engineering and manufacturing processes firsthand. **Dry Creek Rail Operations Experience – Keolis Adelaide & Operations Control Centre** Gain a unique behind-the-scenes perspective into Adelaide's passenger rail network with an exclusive visit to the Dry Creek rail precinct. Combining the Keolis Adelaide Railcar Maintenance Facility and the Department of Infrastructure and Transport's Operations Control Centre (OCC), this technical tour offers delegates a rare opportunity to explore both the operational and maintenance functions that keep Adelaide's rail services moving. Delegates will gain insight into the maintenance, servicing and operational readiness of Adelaide's passenger rail fleet, while also experiencing the operational heartbeat of the network through the OCC, where real-time monitoring, coordination and management of rail services takes place. Together, these facilities provide a comprehensive overview of the systems, technology and teams responsible for delivering safe, efficient and reliable public transport across Adelaide. **Rail First – Islington** Discover the future of freight rail operations with a tour of Rail First's recently upgraded wagon manufacturing and maintenance facility at Islington. Delegates will gain insight into modern wagon production, refurbishment and maintenance capabilities, while learning about innovations supporting freight rail performance and reliability in Australia.
1230 – 1700	**Exhibitor Move In**
1400 – 1800	**Registration Desk Open**
1730 – 1900	**Welcome Reception**

TUESDAY 18 AUGUST 2026					
0700 - 1800	**Registration Desk Open**				
0700 - 1800	**Exhibition Open**				
0830 – 1000	**Day One Plenary Session**				
0830 - 0900	**Welcome to Country**				
0900 - 0905	**Welcome, Master of Ceremonies**				
0905 - 0915	**RTSA Welcome**				
0915 - 0925	**Official Opening**				
0925 - 1000	**Keynote Address - Michael McQueen**				
1000 – 1030	**Morning Tea** *Served in the exhibition space*				
1030 – 1230	**Concurrent Sessions -** *Concurrent sessions are 20-minute presentations + 5-minute question time*				
	SESSION 1 **LIGHT RAIL AND METRO SYSTEMS**	**SESSION 2** **TRAIN OPERATIONS**	**SESSION 3** **SAFETY & RISK MANAGEMENT**	**SESSION 4** **SIGNALS & COMMUNICATIONS**	**SESSION 5** **TRACK DESIGN & CONSTRUCTION**
1030	**Small Network, Big Change: Adelaide's Tram Grade Separation Project and Innovative Track Solutions** **Jason Williams**, Aurecon & Tram Grade	**AI-Driven Event-Triggered Model Predictive Control for Rail Train Platooning Under External Disturbances** **Yufeng Lin**, Central Queensland	**Rail Surveying Safety Innovations Transforming Shutdown Delivery, Machine Control and Workforce Protection** **Olan Healy,**	**A Practical Playbook for Signalling & Engineering Management for Brownfield ETCS Level 2 Migration** **Subhajit Dey,**	**Evaluating Railway Optioneering: A Gis-Based Analysis Of The Napier-Wairoa Railway (PNGL) Alignment Post-Cyclone Gabrielle** **Gesmar Almeida Junior**,

	Separation Projects Alliance, VIC, Australia	University, Centre for Railway Engineering QLD, Australia	McDonald Surveys, WA, Australia	UGL Limited, NSW, Australia	Black Creek Global Consulting, Canterbury, New Zealand
1100	**Energy-Centric Design & Maintenance Framework (ECDMF) for GoA4 Depots** **Vinod Kumar & Roy Unny** Mott Macdonald Australia, VIC, Australia	**Interoperability in Rail Systems - Economic Drivers, International Lessons, and Implications for Australia** **Brychan Morris**, Network Rail Consulting, QLD, Australia	**Integrated Dynamic Track Quality Assessment for Australian Rail Networks Using TGI, Vehicle Dynamics, And Standards** **Yan Sun,** CQUniversity, QLD, Australia	**When Legacy Systems Fail Catastrophically: Lessons from the RFS 520 Midlunga Incident** **Matt Cole,** Keolis Australia & New Zealand, SA, Australia	**Buffer Stop Design for Varying Requirements for Bellevue Depot** **Surendra Bisht,** Aurecon, WA, Australia
1130	**Keeping Adelaide Trams Running Through Grade Separations: Temporary Stabling and Network Isolation on Glenelg Line** **Tom Kerr & Mohit Sareen,** McConnell Dowell, SA, Australia	**What Is Capacity? A Review of Measurements and Applications in Literature and Industry** **David Bannister**, Minerva Transport Planning Company, VIC, Australia	**Effective Bowtie Diagram Development – Supporting Safety and Risk Management** **Steven Gibson,** ESR Consulting, WA, Australia	**Cyber Security in an Etcs, Eulynx and Frmcs Brownfield Environment** **Andrew Mac & Maarten Burghout**, Quantum Rail, VIC, Australia	**Flood Reslience of Inland Rail** **Ali Ayub & Hartley Bulcock,** Inland Rail, QLD, Australia
1200	**Digital Twin Modelling of Complex Light Rail Intersections** **Robert Lambert,** Monash IRT, VIC, Australia	**Application of Interval Control and Train Traffic Safety Systems on Sections with Complex Track Profiles** **Ilya Shalimov,** St. Petersburg State Transport University, Russian Federation	**Talk Isn't Cheap: Examining The Effectiveness of Risk Triggered Commentary in Rail Driving** **Anjum Naweed,** CQUniversity Adelaide, SA, Australia	**Transition From RRI to CBI** **Zhe Xu**, Siemens Mobility, NSW, Australia	**Boef-Rail: Deterministic Software for Railway Track Analysis** **Mahan Yoldashkhan**, MTM, VIC, Australia
1230 - 1330	**Lunch** *Served in the Exhibition Hall*				
1330 – 1530	**Concurrent Sessions -** *Concurrent sessions are 20-minute presentations + 5-minute question time*				
	SESSION 6 **ENERGY, ENVIRONMENT & SUSTAINABILITY**	**SESSION 7** **INSPECTION & CONDITION MONITORING**	**SESSION 8** **SYSTEMS ENGINEERING**	**SESSION 9** **TRACTION SYSTEMS**	**SESSION 10** **TRACK DESIGN & CONSTRUCTION**
Room					
1330	**A Multi-Objective Corridor Resilience Assessment Framework For Battery Electric Trains** **Sakura Mukhopadhyay**, Arcadis, NSW, Australia	**From Inspection to Intervention: Using Eddy Current Data and to Produce Focused, Optimized Rail Repair Plans** **Ben Muscat**, Goldschmidt, NSW, Australia	**Integration: When Simplicity is the Key to Managing Project Complexity** **Nicolas Teulier**, Acmena, NSW, Australia	**Challenging the EN 50122-1 OCLZ for Catenary snd Contact Systems** **David Stuart-Smith**, Arup, NSW, Australia	**Topographical Vertical Alignment Design Using a Rolling Stock Derived Method** **Joel Walsh**, Inland Rail, Qld, Australia
1400	**Net Zero Rail For South Australia** **Jorge Martin Gistau**, Ricardo, NSW, Australia	**From Symptoms To Solutions: A Prescriptive Approach to Rail Risk** **Nithurshan Nadarajah**, Monash Institute of Railway Technology, VIC, Australia	**Data-Driven Decision Systems in Rail** **Abdurrahman Beg**, Monash Institute of Railway Technology, VIC, Australia	**What's the Big Inrush? Modelling Traction Power Transformer Energisation: Case Studies and Procedures** **Reece McIntosh**, Incite Energy, QLD, Australia	**Managing Track Stiffness Variations In Brownfield Railway Projects** **Sebastian Ocampo & Maneesh Gupta**, AECOM Australia
1430	**Numerical Assessments of Energy Saving From Improved Rolling Stock Designs** **Qing Wu**, CQ University, QLD, Australia	**Integrating Rams Engineering for Successful Project Delivery In Railway Systems** **Harry Li**, Monash Institute of Railway Technology, VIC, Australia	**Maintenance Change Evaluation Using Reverse MRA and RCM Logic** **Michael Siminski**, Downer, NSW, Australia	**High-Voltage Risk: Critical Controls for Safer, Smarter Railways** **Joe Percy**, WSP, QLD, Australia	**A Simple Conceptual Model to Predict Lateral Ballast Resistance due to Rail Compression Buckling** **Shah Neyamat Ullah**, Central Queensland University Centre for Railway Engineering QLD, Australia
1500	**Qubo-Qaoa-Based Battery Configuration Selection for Heavy-Haul Battery Electric Locomotives** **Daniel Roi Agustin**, Central Queensland University Centre for Railway Engineering, QLD, Australia	**Battery Electrification of the Flash-Butt Rail Welding Process** **Shane Mayhill,** Holland, L.P., IL, USA	**Applying Principles of Space Mission Analysis to Australian High Speed Rail** **David Venn-Brown**, MTR Australia, NSW, Australia & **Pankaj Johri**, Alstom Group	**Developing the OLE Sectioning Arrangement for Auckland's Waitematā (Britomart) Station and Tunnel** **Ralph Moulang**, Aurecon, VIC, Australia	**Numerical Modelling of Ballasted Railway Track Stability Enhanced by Lateral Supports Using FEM-DEM Approach** **Milad Alizadeh Galdiani**, Central Queensland University Centre for Railway Engineering QLD, Australia
1530 – 1600	**Afternoon Tea** *served in Exhibition Hall*				
1600 – 1730	**Concurrent Sessions -** *Concurrent sessions are 20-minute presentations + 5-minute question time*				
	SESSION 11 **TRACK MAINTENANCE**	**SESSION 12**	**SESSION 13**	**SESSION 14**	**SESSION 15** **RAILWAY ECONOMICS**

		ROLLING STOCK DESIGN, CONSTRUCTION & MAINTENANCE	TRAIN-TRACK & WHEEL-RAIL INTERACTION	TUNNELS, BRIDGES & STRUCTURES	
1600	**High Speed Monitoring to Detect Process Instabilities in Rail Flash Butt Welding** **Fangzhou Zhang**, Monash University, VIC, Australia	**Before Things go off the Rails: Shedding Light on Dynamic Vehicle Simulation With Vampire Pro** **Andre Volpato,** Rail Confidence, NSW, Australia	**Prediction of Track Geometry Degradation Using Iterative Multibody Dynamics Simulation With Monte Carlo Fleet Variability** **Esteban Bernal**, Central Queensland University Centre for Railway Engineering QLD, Australia	**Design Renewals of Corrugated Steel Culverts** **Mostafa Emara**, Metro Trains Melbourne, VIC, Australia	**Designing Through Competing Priorities: Optimising Yard Layout at Mount Maunganui** **Ryan Spooner**, Arup, Aukland, New Zealand & **Andrew Smetherham**, Arup, NSW, Australia
1630	**Sensitivity Analysis of Endpost Material on Insulating Rail Joints** **Nirmal Mandal**, Central Queensland University, Centre for Railway Engineering, QLD, Australia	**Asset Management Planning in Decarbonisation of Heavy Haul Rail Rolling Stock** **Adriane Ho,** Aurecon, WA, Australia	**Rail Roughness Evolution During Commissioning: From Post-Grinding Acceptance to Acoustic Compliance** **Ash Athukoralalage**, Speno Rail Matenance Australia, NSW, Australia	**Designing Elevated Side Walkways for Real-World Tunnel Variability** **Opinderjit Samra**, Arup, NSW, Australia **Mary Hadjiangeli,** SMEC, NSW, Australia	**Rail Projects That Have Gone Well** **Philip Laird**, University of Wollongong, NSW, Australia
1700	**Increase in Rail Stress Over Mud Spots** **Franco Fanucci**, Loram Maintenance of Way, MI, United States	**A Risk-Based Signalling Compatibility Assessment Framework for Rail Infrastructure Maintenance Vehicles** **Chinmay Sankhe,** Rail Confidence, NSW, Australia	**Optimizing Heavy-Haul Track Design through Under Sleeper Pads (USPs)** **Hayagreev Raman,** Getzner, VIC, Australia	**Platform Screen Door Façade Glazing – Benefits and Considerations** **Steven Wong**, Metro Trains Melbourne, VIC, Australia	**Major Passenger Rail Projects – Failing the Social And Economic Tests, Again and Again** **Simon Lane**, Rail Advisory Services, WA, Australia
1830 – 2230	**Gala Dinner**				

WEDNESDAY 19 AUGUST 2026					
0700 - 1800	**Registration Desk Open**				
0700 - 1800	**Exhibition Open**				
0830 – 1030	**Day Two Plenary Session**				
	Sponsor Address				
	Keynote Address: David C Clark, Senior Vice President – AREMA & Director Construction Engineering - CSX Transportation				
	Keynote Speaker: Ed Groulton				
	Panel Discussion - High Speed Rail				
	RTSA University Challenge				
1000 – 1030	**Morning Tea** *Served in the exhibition space*				
1030 – 1230	**Concurrent Sessions -** *Concurrent sessions are 20-minute presentations + 5-minute question time*				
	SESSION 16 **RAILWAY ENGINEERING MANAGEMENT**	**SESSION 17** **RAILWAY RESEARCH AND MATERIALS**	**SESSION 18** **SAFETY & RISK MANAGEMENT**	**SESSION 19** **SIGNALS & COMMUNICATIONS**	**SESSION 20** **SYSTEMS ENGINEERING**
Room					
1030	**Managing Technical Debt in Legay Tram Fleet: Systems Engineering Perspective on Safety Critical Uplift Programs** **Ali Tamaddon**, Yarra Trams, VIC, Australia	**Development of Next Generation Recycled Plastic Composite Sleepers for Mainline Railway Application** **Le Quan Ngoc Tran**, Institute of Railway Technology, Monash University, VIC, Australia	**What is a Safety Integrity Level (SIL) Useful for? And How Do They Work?** **Andrew Gabler**, Acmena Group, QLD, Australia	**Optimising Level Crossing Audible Warning Systems in Urban Settings** **Graeme Miles**, Metro Trains Melbourne, VIC, Australia	**Reliability Growth Demonstration as a Decision Tool for Operational Readiness of Complex Rail Projects: Lessons from Melbourne's Metro Tunnel** **Adam Versteege**, Vida Metro, VIC, Australia
1100	**Recent Developments in Undergraduate Education in Rail Engineering** **Graham Holden**, Edith Cowan University, WA, Australia	**Evaluation of Aged Proper Synthetic Sleepers Follow-Up Survey for Major Applications and Predictable Life Span** **Naoto Kotani**, Sekisui Chemical Co Tokyo, Japan	**Assessing the Future Role of Railways Safe Workers** **Kevin Anderson**, Kevin J Anderson & Associates, VIC, Australia	**Intelligent Self-Learning Optimization Algorithm Enhanced Accurate Stopping** **Yaju Wang**, Traffic Control Technology, Beijing, China	**A Systematic Approach to Standards for Railway Modernisation** **Michael Paul**, Network Rail Consulting, VIC, Australia
1130	**Discipline Based Engineering Assurance for Railway Civil Structures – a Metronet Practitioner Case Study** **Faranak Fahimi Hanzaee**, Public Transport Authority, WA, Australia	**Evaluation of Methods to Extend IRJ Asset Life Through Optimisation of Track Structure Support** **Daniel Cumming & An Tang**, Worley Consulting, WA, Australia	**Integrating Safety and Security in Risk Assessments** **Keerthy Mysore**, Shakti Corp, NSW, Australia	**Signalling Axle Counter & Supervised Section** **Sivachidambaram Thangavelu**, Public Transport Authority, WA, Australia	**Fail-Safe or Fail-Secure? Security Gaps in Rail** **Soroush Tazerji,** Sener, VIC, Australia
1200	**Insurance Pays for Damage. Assurance Prevents It. Engineering Confidence in a Fragmented Rail Environment** **Stephen Muscat**, Rail Confidence, NSW, Australia		**Is Risk Managed Equally? Exploring Inconsistencies in Rail Risk Matrices Across Australia** **Pravin Hiremath,** Acmena Group, VIC, Australia	**Planning for Complexity in Signalling Project Delivery** **Raj Menon**, Network Rail Consulting, NSW, Australia	
1230 - 1330	**Lunch** *Served in the Exhibition Hall*				
1330 – 1530	**Concurrent Sessions -** *Concurrent sessions are 20-minute presentations + 5-minute question time*				
	SESSION 21 **INSPECTION & CONDITION MONITORING**	**SESSION 22** **ROLLING STOCK DESIGN, CONSTRUCTION & MAINTENANCE**	**SESSION 23** **TUNNELS, BRIDGES & STRUCTURES**	**SESSION 24** **ADVANCING THE FUTURE OF RAIL THROUGH ENGINEERING, SAFETY, AND SUSTAINABILITY**	**SESSION 25** **TRACK DESIGN & CONSTRUCTION**
Room					
1330	**Augmenting Track Inspection With AI to Enhance Track Asset Management Strategy** **Darren Tan**, Monash Institute of Railway Technology, VIC, Australia	**Reducing Emissions Through Repurposing Ageing Rolling Stock** **Josh Steed & Jia Chua**, Metro Trains Melbourne, VIC, Australia	**From Point Clouds To Prediction - The Emerging Role of AI in Transit Space Assurance** **Shaina Minchin**, Aecom, WA, Australia	**An Efficient Wear Simulation Method for Railway Wheel Life Prediction** **Philipe Pacheco**, IF Sudeste MG, Minas Gerais, Brazil **Guilherme Santos,** Federal University of Espirito Santo, Brazil	**New Approach to Estimate Bearing Capacity of Rail Track Structures on Geogrid-Stabilised Granular Layer Over Clay** **Boon Chua**, KBR Australia, SA, Australia

1400	**A Dynamic Laser-Based System for Track Geometry And Rail Wear Monitoring** **Armin Ehrampoosh**, Monash University Institute of Railway Technology, VIC, Australia	**Mitigating Vibration-Induced Failures in Locomotive OPG Brackets Through Vibration Analysis, FEA Correlation and Field Validation** **Ramsha Asif**, Siemens Mobility, VIC, Australia	**Managing Subsurface Erosion and Drainage-Induced Instability in Operational Rail Corridors: Lessons From Keswick** **Systems** **Loc Ha** Keolis, SA, Australia	**E-Mobility Devices on Rail: An International Review of Risks, Controls and Emerging Practice** **Lauren Fraser**, GHD, ACT, Australia	**Increase Track Stability by Innovative Fastening Systems** **Jefferson Fern**, VFS Australia, Vossloh, QLD, Australia
1430	**Speaker to be announced**	**Variation of Residual Stresses in Railway Wheels Leading to Hot Spots** **Lily Tran** Monash University Institute of Railway Technology, VIC, Australia	**Speaker to be announced**	**Rethinking Rail Network Planning: Incorporating the Strategic Integrated Method in New Zealand** **Michael van Drogenbroek**, Heriot-Edievale Ltd, VIC, Australia	**Bottom-Up Slab Track as a Driver Of Tunnel Fitout Sequencing and Programme Optimisation** **Gian Luca Vicchi**, VIXRAIL Solutions, WA, Australia
1530 – 1600	**Afternoon Tea** *served in Exhibition Hall*				
1600 – 1730	**Closing Session**				
	Panel Discussion: High Speed Rail				

The Organising Committee reserves the right to alter the program as circumstances dictate.