

Keeping Track



PWI NSW Newsletter December 2022

Message from the PWI President



As we move to our Christmas break, I would like to wish everyone a very merry Christmas and hope that 2023 is a great year for you and your families.

With 2022 drawing to a close and reflecting on the previous 12 months, it looks like the ongoing impact of COVID-19 may well be behind us. For your PWI, we have been able to run most of our events and return to our face-to-face events.

During the year we held 6 technical meeting that were well attended as both face-to-face and live-streamed events with a great attendance. Our members and guests also particularly enjoyed the networking that follow the presentations. A big thanks to Prath Nanthakumaran from Transport for NSW who continues to lead and run our technical events.

We also run a number of technical workshops and networking events for electrical disciplines as we encourage people and companies from the Electrical Infrastructure areas of the rail industry to become part of the PWI family. Keith Middleton from the Middleton Group and his subcommittee have a number of events planned for 2023, with the first event at the February Technical meeting.

The PWI Winter Dinner held in June was the first major social event for a lot of us since COVID and again, proves to be a very popular event as it was sold out with over 300 guests. GHD was our sponsor for the event. It was a great night of networking and just enjoying everyone's company.

Our major event for the year was our 48th Annual Convention that was held at the Fullerton Hotel in Sydney with over 250 people attending. The theme was

"Doing Better with Less", reflecting on the unprecedented pipeline of investment into the rail industry and how this is being delivered with a shortage in critical resources. Jim Betts, the Secretary of the Commonwealth Department of Infrastructure, Transport, Regional Development, Communications and the Arts was our keynote speaker and really set the scene as he highlighted that railways are "front and centre" in future transport networks and policy thinking. Steve Naumovski from Arch Artifex continues to lead our convention subcommittee and planning is well under way for the next convention that will be held in Orange next year on 12-13 October 2022.

The subcommittee is also planning for our 50th PWI Anniversary Conference and celebration in 2024. More details will be made available early in the new year.

The PWI Cadet program continues to grow with the second intake planned for January 2023. We ask that our members look at their network of friends and family to encourage students finishing the HSC this year to look at a career in the rail industry and to apply for our Cadet program. We are also working with our Corporate members to take on an active role and become sponsors of this initiative.

Our next big event will be our Annual Awards night to be held on Friday 10 February 2023 in Sydney where we will get the opportunity to recognise the talent and skills of our people. The 2022 Awards will showcase the great work carried out by our members in the rail industry,

Finally, I would like to thank your hard-working committee who volunteer their time and put in a huge effort over the year to provide the many services and events we deliver. At the last AGM we welcomed three new members to the Committee. Neil Hobden from Transport for NSW, Rebecca Want from GHD and Jenny Valentino from one of our new electrical corporate members, New Era. Jenny will take on the responsibility of Marketing and Communications for the PWI.

Mark Harris
PWI President





2023 PWI Rail Events Calendar



JANUARY

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- PWI Annual Convention Regional - Orange
- PWI Committee Meetings
- PWI Country Technical Meeting
- PWI Technical Meetings (31 Aug AGM)
- PWI Track Engineers Conference

- PWI Annual Awards Night
- AusRail PLUS
- Electrical Networking
- Electrical Meetings
- Electrical Site Visits
- Joint IRSE Meeting

- PWI Executive Breakfast
- PWI Winter Dinner
- PWI Golf Day
- NSW School Holidays
- NSW Public Holidays

Cadet Program Update



**Do you know someone who is doing the HSC?
Have you told them about the PWI Cadet Program?**

What does the program offer?

- Contribution of up to \$10,000 pa to cover direct course costs
- Access to PWI Cadet Program Mentors
- Up to 12 weeks of Industry Placement each year.

Share the PWI Cadet Program ad with any Year 12 students you or your network may know!

See the PWI website for application details: <https://www.pwinsw.org.au/cadet-program/>

Permanent Way Institution NSW

Cadet Program



Fast-track your engineering career Become a PWI Cadet!

Contribution of up to \$10,000 pa to cover direct course costs

Work for companies such as CPB Contractors, Laing O'Rourke, John Holland, Coleman Rail, Transport for NSW and other Corporate Members of the PWI during your study breaks

The NSW Permanent Way Institution is offering first year students the opportunity to join an exciting new PWI Cadet Program.

As a PWI Cadet, you will receive up to \$10,000 per annum to go towards completion of a Certificate II in Rail Infrastructure as well as contributing to your Bachelor of Engineering degree (or equivalent) course costs.



Our PWI Cadet Program Mentors will assist Cadets with securing up to 12 weeks of industry placement each year.

Applications are now sought from Year 12 students who are enrolling in a Bachelor of Engineering degree in 2023. See the PWI website for the application details:

pwinsw.org.au

For more information, please contact:

Stuart Sutherland, PWI Cadet Program Coordinator

cadet@pwinsw.org.au

2022 PWI Annual Convention



The 2022 PWI Annual Convention was held on Friday, 4 November at the Grand Ballroom of The Fullerton Hotel, 1 Martin Place. The theme this year was Doing Better with Less, reflecting the large investment pipeline still to be delivered in the context of greater economic headwinds. This Convention was also the first in-person convention since 2019 with a great turn out of around 250 delegates. There were three sessions with diverse presentations that celebrated innovations in the industry and highlighted areas where we could be doing better.

The Convention kicked off with the President's Address and the Welcome to Country by Uncle Michael West from the Metropolitan Local Aboriginal Land Council. Following this, we had a presentation from the Convention's Keynote Speaker, Jim Betts, the Secretary of the Commonwealth Department of Infrastructure, Transport, Regional Development, Communications, and the Arts. In Jim's address, he highlighted the shift in thinking about the railways as being a system in decline to being front and centre in future transport networks and policy thinking.



Jim's reflections on the role of a National Transport Department that neither carries passengers or goods was particularly insightful. He suggested there was great value in the Commonwealth Government being an informed investor to drive efficiencies and outcomes in the rail industry, facilitating national regulatory reform while ensuring interoperability and streamlines processes, and encouraging long term strategic thinking to develop sustainable cities in the future supported by resilient transport networks. Jim concluded by reiterating the importance of rail in the country's future and the value that partnerships across government can add to delivering outcomes for our communities.



Session 1:

The first session was chaired by Piers Verman from CPB Contractors. Rebecca Want and Rory Waddell from GHD presented the first paper titled, Collaborating with Intent. Rebecca and Rory started by highlighting the importance for collaboration and working as partners in the industry to reduce waste. Some examples included extra processing with more reviewers than designers, and overproducing drawings with many not used or referred to.

2022 PWI Annual Convention

They highlighted opportunities to improve the management of people and resources across the industry by providing an improved understanding of the pipeline of work, having better risk management structures that incentivise innovation, and to leverage the increasing digitisation of the design process and only produce what is required in terms of documentation.



The second paper was by Christina Levinson from Lean Construction Advisory. In her presentation, "What is Lean Construction and Why Should You Care?", Christina uncovered the extremely poor productivity growth in the construction industry over the past two decades. Almost a third of time working on projects is spent on sub-optimal activities, such as waiting for or finding information. Christina discussed value of Lean Construction as process to maximise stakeholder value and minimising waste by emphasising collaboration on teams. This approach leads to projects being completed quicker, safer and at lower costs by investing in planning, optimising workflows, and focusing on people.



To close out the first session, there was the presentation of the prestigious 2022 PWI Young Achiever Award. The winner of the prize receives up to \$10,000 to go towards the cost of attending a relevant international railway conference. This year's winner was Chris Wills, Construction Manager at John Holland Group. Chris presented his submission, Tracking Through a Pandemic, which reflected his experiences in being part of a team that was constantly adapting to change amid the COVID-19 pandemic. The project involved a 180km regional greenfield rail connection from the Gundai-Darri mine to the existing Tom Price

mainline some 1200km north-east of Perth. Chris' submission exported the important of innovative thinking and flexibility in the rail construction industry to respond to challenging situations.



Session 2:

The second session was chaired by Steve Butcher of John Holland Group. The first presentation after morning tea was by Kyle Forlong, Digital Engineering Manager on the topic of, Digital Engineering – Practical Applications for Projects. From an industry perspective the requirements for digital deliverables have matured significantly recently with clients now expecting a higher level of delivery by default. This results in data rich 3D models as the new normal opening avenues for significant advancements and efficiencies for construction. Some applications of digital engineering processes include construction methodology simulation, model coordination and clash detection, signal sighting, support site inductions and project familiarisation and stakeholder engagement. An approach to "build virtually first" provides valuable insights, creates efficiencies, and delivers cost savings to every decision made.



Natalie Galea, Senior Research Fellow from the University of Melbourne then presented on the thought-provoking and conversation-inducing topic of Project 5: A Weekend for Every Worker. Natalie highlighted that working over the weekend is entrenched into the construction industry, and work practices in the sector was contributing to women leaving the sector and wellbeing impacts on the workers' next of kin. The research examined the potential impacts and benefits to workers at the \$341 million Concord Hospital Redevelopment, which trialled a Monday-Friday work

2022 PWI Annual Convention



week and opened to patients on time and on budget. It showed that adopting a 5-day work week led to a decrease in injuries and an improvement in mental health. The sites were also better disciplined, more productive and organised, and overall, friendlier places. In contrast, the cost of overtime was found to not be worth the extra time, especially given the impact to the wellbeing of workers.



Mike Hickey, Director at Rail Planning Services, was the third speaker of the session. He presented on the topic of Doing Better with Less: Embedded in the Rail DNA. Mike discussed the history of the railways in NSW and how the funding arrangements have traditionally required the railways to stretch its resources maintain a safe network. Mike also provided some humorous examples of how signalling engineers performed recycling and asset management across the network with their limited budgets. His presentation was a reminder of lessons learned from previous rail disasters and incidents, and that in a fiscally constrained environment, funding decisions should ultimately be made by those responsible for the assets to ensure the safety of the system and the customers.

The final presentation of the second session was by Craig Smith, Director of Engineering at Sydney Metro who covered the topic, Sydney Metro – Innovations in Traction Power. Craig's presentation revealed that future Sydney Metro projects were switching from the use of 1500V DC traction power to 25kV AC systems. For the equivalent power delivered, 25kV AC systems deliver a saving in the amount of cabling and volume of copper required. Using 25kV AC traction systems also requires fewer traction substations along the alignment than 1500V DC systems, reducing the construction and land acquisition load.



Session 3:

The third session was held after lunch and chaired by John Armstrong, Managing Director of Arch Artifex. Stephen Fleck from John Holland Group facilitated a panel discussion with representatives from various parts of the rail industry. Panellists included:

- Joeley Pettit – Director Corporate Affairs, Australasian Railway Association
- Ainsley Simpson – Chief Executive Officer, Infrastructure Sustainability Council

2022 PWI Annual Convention

- Mark Tait – Group Executive, Investa
- Michael McLellan – Managing Director, Knorr-Bremse
- Sean Bonham – Executive General Manager, Coleman Rail
- Rebecca Want – Market Leader Transport, GHD

Some of the key threads of discussion that arose included how we can incorporate sustainability in our tenders even if not specified in the contract, the importance of collaboration and lessons learned across the industry as a problem shared is a problem halved, and the need for the rail industry to evolve and innovate or our top talent will go elsewhere. We were challenged to choose progress over perfection and to become a more kind and inclusive industry to attract talent from other specialities.

The final paper of the convention was by Emily Williams and Steve Voss on Developing Industry Capability – Chullora Electrical Learning Centre. Emily and Steve shared that the purpose of the Centre was for people to learn critical skills for years to come. Previously, training was limited in when it could be provided and would often be at odd hours or rescheduled to allow for more urgent works on the railway. Now, the same activities can be performed in a controlled environment without network restrictions, so staff can practice as much as



they need to do in a safe environment before they are in the pressure of a live environment.

Prior to closing the Convention, the PWI President, Mark Harris awarded the President's Award to Mike Hickey and the Life Membership to Peter Boonstra in recognition of their ongoing support of the PWI and their enduring contribution to the rail industry.

The 2023 PWI Annual Convention will be held in Orange on Friday, 13 October. We look forward to seeing you there. In the meantime, if you missed any part of the Convention, you can still watch the recording on the [PWI NSW YouTube Channel](#).

Jonathan Chan / Deputy Editor



2022 PWI Young Achiever Award Winner

W is proudly supported by its
ed corporate members



Congratulations to **Chris Wells** from **John Holland Group** for winning the 2022 PWI Young Achievers Award for his entry on delivering the 180km regional greenfield rail project from Gudai-Darris mine to the existing Tom Price main line approximately 1200km north-west of Perth during the COVID-19 pandemic.

Chris led a team who was constantly adapting to change, including regular border closures. As an East Coast-based resource, Chris worked through personal challenges from these closures and worked closed with the project team to develop solutions for others who were impacted. Although the project was impacted by the pandemic, the team demonstrated technical excellence and achieved a positive outcome for both the Client and the Contractor. As part of his prize, Chris will receive up to \$10,000 to attend an international rail conference.

Congratulations also to our other applicants for their outstanding submissions:

- Melissa Bong – WSP
- Sam Oostendorp – WSP
- Farhan Rahman – KPMG

Applications for the 2023 PWI Young Achiever Award will open alongside the other Australasian Rail Industry Awards, so make sure to keep a look out for more details.



PWI Awards Night

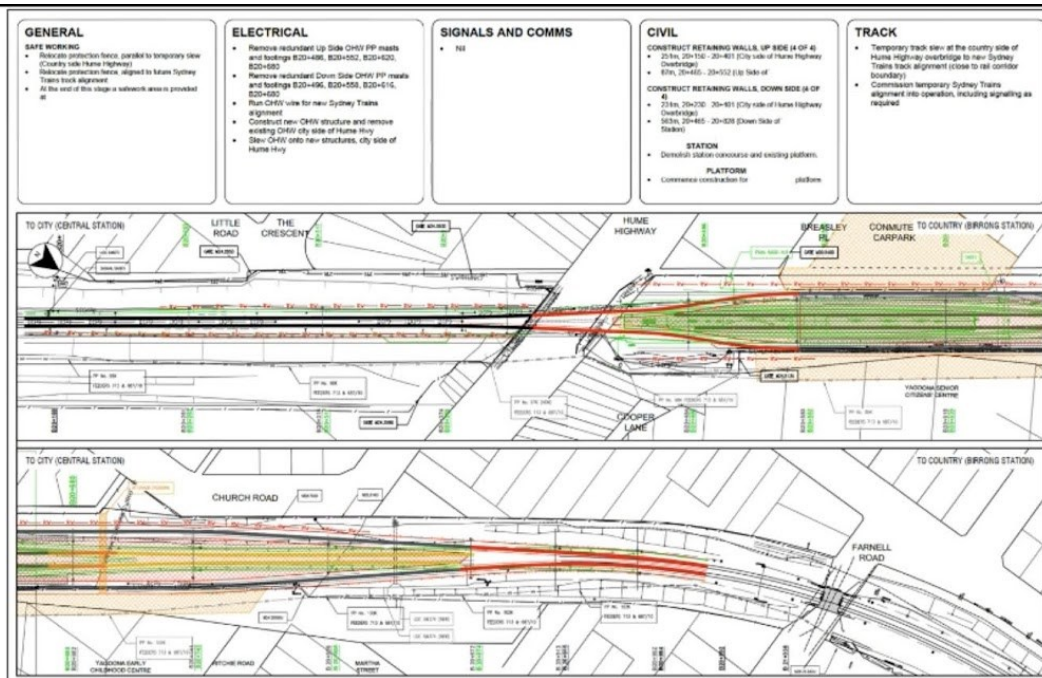
Friday, 10 February 2023

You are invited to the 2023 PWI Awards!

- 2022 Ken Erickson Innovation Award
- 2022 Welders Award
- 2022 Alan Barham Maintenance Award
- 2022 Steve Maxwell Platelaying Award
(Major, Minor and Platelaying categories)
- 2022 Design Award
(Category 1 and 2)
- 2022 Electrical Safety and Quality Award
- 2022 Young Achiever Award

November Technical Meeting Wrap Up

/ Constructability: Planning Works in a Live Rail Corridor



Our November Technical Meeting was sponsored by Rail Planning Services and held on Thursday 24 September. Daniel Armstrong, Gus Sullivan and Chris Whetters presented on how to build confidence in brownfield rail projects through well planned delivery. Good planning starts from the concept phase and supports funding estimates, ensures project stakeholders are suitably informed, reduces customer impacts and increases confidence in the ability to meet critical project milestones.

Gus started by highlighting the importance of planning, good communication and collaboration across all stakeholders. Over ten years ago, this started with the using line diagrams and schematic drawings to share the information as clients started asking for tenderers to demonstrate their proposed methodology to complete the works and to make the most of the possession windows.

Compared to road works, Gus stated that late finishing is not an option for the railways as impacts to the Monday morning peak bring significant reputational damage. Therefore, meeting project timeframes are critical. In recent years, there has been a shift to using more digital platforms to support the planning effort, but of greater importance is the logic behind the digital models as they are just a pretty picture otherwise. These models allow for the proposed approaches to be tested and

pushed to the limit, so any issues can be identified and resolved prior to delivery.

Gus noted that building up confidence in the planning phases is critical for ensuring the delivery of the proposed works. There is usually a staged implementation strategy for design to keep operators and maintainers informed and onboard, during the delivery phase, especially since they will need to operate and maintain the existing assets during the proposed works.

Without appropriate planning, Gus said that teams would just end up working on top of each other. To ensure efficient delivery of the projects, it is important to know that the critical resources are available and when the critical activities will occur. In the initial planning phase, staging diagrams are useful for making sure all disciplines are considered and to demonstrate that the project can be delivered. Workshops provide opportunities to write down their ideas on potential approaches to deliver the works with reference to possession diagrams and have been a critical part of projects that Rail Planning Services have delivered.

Gus then talked about the Concept Design phase where various alternatives are tested to find the best option which helps to support the decision-making process. By identifying whether additional possessions or type

November Technical Meeting Wrap Up

/ Constructability: Planning Works in a Live Rail Corridor

Planning Confidence Sliding Scale

80% Confidence

- Commissioning strategies developed to allow both forward planning logic and backwards testing regimes, staged drivers diagrams align to infrastructure delivery on key commissioning stages (Signalling changes clearly articulated)
- Signalling functional specs, track insulation plans and operational layouts identified for network program coordination
- Electrical operating diagram advice requirements identified (12 weeks notice etc.)
- Permanent and Temporary works design fully articulated with associated lead time milestones
- Individual work group areas identified including shared access provisions
- Multidisciplinary review – plan forward and test backwards through the program



approvals are required early on, there is greater confidence on the project timeframes and the activities that need to take place to ensure delivery. Gus highlighted the importance of the monthly construction staging workshops are critical for ensuring a logical and coordinated approach to delivering the works.

As the design progresses and more information becomes available, appropriate levels of planning can build confidence in the delivery of the complex brownfield works. Gus highlighted some key shifts in the delivery program, including the contractor taking over ownership of what has been proposed at the 60% confidence level as the designers work hard to develop the designs, and the operator and maintaining getting involved at the 70% confidence level.

Gus discussed the criticality of hour-by-hour possession programs that make interdisciplinary interfaces visible, which provides clearer picture of where crews are working across the site and potential opportunities to share equipment. He concluded by suggesting that an 80% confidence level is the most appropriate benchmark for successful planning given inherent uncertainties in the delivery of works,

flexibility in daily rail operations and ongoing requirements for integrating project changes.

The construction staging meetings continue to be important at this confidence level to clarify the configuration change at each stage to work successfully to ensure that trains can run again. With proper sequencing, work crews can appropriately sequence their works and even shift changes can be streamlined to limit delays.

The presenters left us with some key points for planning of brownfield rail works, including ensuring collaboration to coordinate works, performing proper planning and proper planning for pragmatic performance amid uncertainties in construction, and making sure that the various disciplines are considered and heard to ensure best-for-project outcomes.



Regional Site Visit to Muswellbrook Bridge



The regional site visit to Muswellbrook Bridge has been postponed to 29th March 2023.

Further details will be provided on the PWI website and social media pages closer to the date.

Thank you to our sponsors for this event.



Save the date for the 2023 PWI Annual Convention!



**The 49th PWI Annual Convention will be in Orange!
12-13 October 2023**



PWI GOLF DAY

3 March 2023

Bankstown Golf Club

Sponsor or play at the
PWI NSW
Annual Golf Day



Start preparing your teams and be ready to tee-off!

Winter Dinner

Friday 16 June 2023

*Join your colleagues and friends for fine food, drinks,
networking and entertainment at the
PWI NSW Winter Dinner*

**JOHN
HOLLAND**



PWI Corporate Members

The PWI NSW would like to thank its Enhanced Corporate Members for their continued support which allows us to run great value technical and social events for our members.

Platinum Members



PWI Corporate Members

Gold Members



Jacobs



middleton
Group



Progress Rail
A Caterpillar Company

PWI Corporate Members

Silver Members

