

ARTC

INLAND
RAIL
An Australian Government Initiative

Annual Sustainability Report

FY2020-21

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Acknowledgement of Country

Inland Rail acknowledges the Traditional Custodians of the land on which we work, and we pay our respects to Elders past and present.

PROJECTS

- + Yorta Yorta People, Taungurung People, Wurundjeri People (Tottenham to Albury project)
- + Wiradjuri Nation (Albury to Illabo, Illabo to Stockinbingal, Stockinbingal to Parkes, Parkes to Narromine and Narromine to Narrabri projects)
- + Wailwan People, Ngemba People, Ngiyampaa People and Wangaaypuwan People (Narromine to Narrabri project)
- + Gamilaroi, Kamilaroi and Gomeroi Nations (Narromine to Narrabri, Narrabri to North Star, North Star to NSW/Qld Border projects)
- + Bigambul People (Border to Gowrie project)
- + Western Wakka Wakka People (Border to Gowrie and Gowrie to Helidon projects)
- + Yuggera Ugarapul People (Gowrie to Helidon, Helidon to Calvert, Calvert to Kagaru and Kagaru to Acacia Ridge and Bromelton projects)
- + Jagera People (Calvert to Kagaru project)
- + Danggan Balun Five Rivers People (Kagaru to Acacia Ridge and Bromelton project)

ARTC INLAND RAIL OFFICES

- + Yorta Yorta People, Taungurung People, Wurundjeri People (Melbourne)
- + Wiradjuri Nation (Albury)
- + Wiradjuri Nation (Wagga Wagga)
- + Gadigal People of the Eora Nation (Sydney)
- + Wiradjuri Nation (Parkes)
- + Gamilaroi, Kamilaroi and Gomeroi Nations (Moree)
- + Bigambul People (Goondiwindi)
- + Western Wakka Wakka People, Giabal People and Jarowair People (Toowoomba)
- + Yuggera Ugarapul People (Gatton)
- + Jagera People and Turrbal People (Brisbane)

Our commitment

Inland Rail is working collaboratively with Indigenous peoples and businesses throughout the design, construction and operation of our railway.

We welcome and actively encourage the participation of Indigenous peoples as employees, contractors and suppliers to Inland Rail.

ARTC have brought together a passionate committee of representatives across Australia to develop ARTC's first Reconciliation Action Plan.



'Connection to Country', artists Boggabilla Central School and Elenore Binge



'My Country My Totem', Jagera People artist Ngarijan Rosser



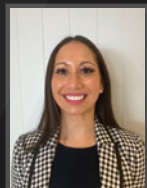
'Continuous Connections', Western Wakka Wakka People artist, Belinda Smith

In the spirit of partnership and community, Inland Rail invites Traditional Custodians to create artworks for display in our offices. Three new original pieces were gratefully received by Inland Rail this financial year.

INDIGENOUS STAFF NETWORK



CHRISTINA YOUNG
Supply Chain Specialist



Meriam-Samsep country

I am a proud Meriam-Samsep woman. Warwei people are Sager people, belonging to the 'mared' division of Sager people. We are connected to Gergerneseur. Beside the Korseimer and Deumer, our clan lubabat include Baizam and Sap.



ASHLEY WILLIAMS
Indigenous Participation Advisor – QLD

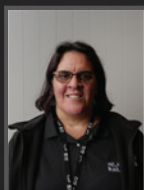


Wakka Wakka and Koa country

I am a proud Wakka Wakka and Koa man. Our Koa People Native Title claim to hand back our land will be determined by the Federal Court in October 2021, I'm excited to see the outcome.



NATALIE MOGG
Indigenous Participation Advisor – NSW



Wangkumarra country

I am descended from the Wangkumarra people and language group, whose lands lie in the Channel Country. This is my Grandfather's country on which I have been lucky enough through his teachings and my father's teachings to learn the stories. On top of that I was extremely honoured to help my father write a book about Country called "Bury Me at Tartulla Hill".



JAE SPANN
Marketing and Events Advisor

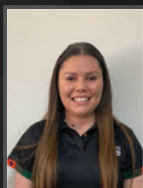


Yuin country

My great-grandmother was part of the stolen generation and we've traced our family back to the Yuin people from the South Coast of New South Wales. Growing up I had no idea I was of Aboriginal decent, it was only when my family started drafting our family tree that we found out.



LATOYA PINNER
Indigenous Participation Advisor – NSW



Gamilaroi country

I am a proud Gamilaroi woman. My grandmother and her sisters forged the way for education for Aboriginal kids on the mission and Aboriginal activism in our community. My grandfather was part of the stolen generation and he eventually moved back to country, where he worked on the railways that are now part of Inland Rail.



EDWARD HARTIGAN
Environmental Advisor



Yuin country

My grandmother was part of the stolen generation and my family has traced our heritage back to the Yuin people from the South Coast of New South Wales, from the Araluen lark. I had always suspected that I had Indigenous heritage due to family yarns.



JESS JACKSON
Stakeholder Engagement Advisor



Gunaikurnai country

I am a proud Gunaikurnai woman. My great-grandmother was part of the stolen generation and we have traced our family back to the Gunaikurnai people from Gippsland. I grew up knowing I was Aboriginal and having strong connections with people from Wiradjuri country where I was born and raised but didn't know about my heritage until we traced our family tree.

Foreword



Rebecca Pickering
Interim Chief Executive
of Inland Rail

Inland Rail is proud to present its third Annual Sustainability Report and share the positive outcomes our nation-building program has generated during the 2020–2021 financial year (FY21).

Our progress speaks to the unwavering commitment of our people and private sector partners to help build a sustainable future for our host communities, as well as freight users and supply chains.

This year saw more than 540 active contracts and \$1.8 billion in committed spend. The Parkes to Narromine section of Inland Rail, involving the upgrade of 98.4 kilometres (km) of existing track and 5.3km of new track, was completed in September 2020, and is now operational. Major construction on the Narrabri to North Star (Phase 1) project, a 171km upgrade, commenced in April 2021.

This year we were very active in procurement, with more than \$8 billion in the market as we prepared to enter the development phase with contractors for our civil works and rail corridor programs, and shortlisting the Public Private Partnership consortia.

These program milestones have been underpinned by innovative and sustainable thinking embedded into our selection criteria for tenders and scope of works for contracts, moving us towards our sustainability targets and goals.

Working collaboratively to amplify our positive impact remains central to our approach and has enabled us to make strong improvements in how we deliver Inland Rail.

Trans4m Rail (a joint venture of John Holland and SEE Civil), our principal contractor for Narrabri to North Star (Phase 1), for example, has worked intensively to improve operations with site offices and the workers' camp supplied with 50% renewable electricity and site caravans retrofitted with solar panels and batteries. They have an ambitious recycling program including 100% re-use of concrete, steel and timber from deconstructed bridges.

On the Parkes to Narromine project, Inland Rail was the first rail infrastructure project in Australia to install certified carbon neutral concrete culverts, reducing carbon emissions by more than 7,250 tonnes; the equivalent of removing about 1,350 vehicles off the road for a year.

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We know sustainability is as much about people as it is the environment and it's why engaging our host communities and supporting their aspirations around job creation, social connection and health and wellbeing remains a key priority.

For us, it starts with listening and responding to feedback provided by community members, making information easy to access and understand, and building authentic relationships through open and transparent communication and consultation.

Beyond creating opportunities through the delivery of our program, we also seek to support broader initiatives that benefit our communities through our sponsorship and donations program.

We continue to engage with Traditional Custodians and Indigenous peoples along our alignment in the spirit of advancing reconciliation, preserving cultural heritage and to identify opportunities where we can work in partnership to support meaningful and long-term opportunities for their communities. Cultural tours conducted this year have again proven to be an invaluable opportunity for Traditional Owners and Elders to share their knowledge and for our team to connect with culture.

Providing employment opportunities and supporting regional economies also remains a core goal across the program. Job creation forms an important part of this story, but we know long-term capability building is equally valuable.

Inland Rail is projected to generate more than 21,500 direct and indirect jobs and as of 30 June 2021, we have supported 2379 regional construction jobs of which 918 are local workers and 242 are local and Indigenous workers. We have invested \$128.1 million (m) in local businesses, \$1.2m in local Indigenous businesses and \$16.2m in Indigenous businesses Australia-wide.

Our Skills Academy supports our job creation strategy by offering programs for residents and businesses to build capabilities aligned to the skills Australia needs to not only support the delivery of Inland Rail but broader construction and infrastructure projects.

This year, more than 100 residents, 40% of whom are Indigenous, participated in construction skills training programs and more than 270 businesses in capability building workshops. Our academy also actively engages schools in future rail and infrastructure career pathways with more than 1,700 students and 120 teachers involved in our STEM programs this year.

Beyond building capability through skills, our Sustainability Procurement Policy also works to strengthen the sustainability capability of our suppliers, by not only promoting these practices, but actively supporting businesses in building them, too. We see this as a powerful way to amplify our impact and collectively improve our commitment to sustainability.

Much has been achieved this year and we're proud of our progress. But there is always more work to do. And while our report provides an opportunity to share our successes, we also acknowledge the complexities and sensitivities that a program of this scale can create for some communities and landholders. Issues made more complex with uncertainties and disruptions created by the global coronavirus pandemic. It's why we remain mindful that sustainability is not only about setting – and achieving – clear targets and goals, but continuing to evolve our practices as a way of strengthening environmental, social and economic outcomes.

Importantly, in committing to sustainability, we commit to working in partnership with our stakeholders and our host communities to deliver long-term value for all. We are excited about the progress we're making to achieve our vision of a world-class, competitive rail network, that attracts more freight onto rail.



Foreword



Sustainability highlights



About Inland Rail



About this report



Leadership and awareness



Governance



Community and economy



Environment and heritage



Resource use



Sustainable procurement



Future operations

FY2021

ANNUAL SUSTAINABILITY HIGHLIGHTS

\$260,171

in community grants
to 79 recipients



2,068

offset credits under
landholder stewardship partnerships



\$128.1m

local and Indigenous
spend to date

918

local and Indigenous
construction jobs to date



70,000

timber sleepers removed and
recycled on Narrabri to North Star
(Phase 1) project



100%

of removed bridge
structures recycled
on Narrabri to North Star
(Phase 1) project

of removed bridge
structures recycled

100+

staff
trained

in Sustainability Foundations



170

staff
trained

in Social License
tools and frameworks



113

businesses
completed

sustainability webinars



IS rating

of 'excellent' verified for design
of Narrabri to North Star
(Phase 1) project



1700+

students participated
in STEM programs



120+

teachers upskilled in delivering
STEM subjects



100+

residents involved in construction
skill programs



270+

businesses participated in Inland Rail
capability development

At 30 June 2021

About Inland Rail

Inland Rail is a 1,700km fast freight backbone from Melbourne to Brisbane that will transform how goods are moved around Australia.

It will better link businesses, farmers and producers to national and global markets and generate new opportunities for industries and regions.

We need Inland Rail to keep pace with the increasing freight demands of our growing population. Shifting more goods onto rail is a smart move for Australia. It means faster, more reliable freight; safer, less congested roads; and fewer emissions.

The Australian Rail Track Corporation (ARTC) is building Inland Rail on behalf of all Australians, with local knowledge and insights from landowners, businesses, communities and Traditional Custodians.

Inland Rail is expected to be operational in 2027 and will:

- + Improve freight linkages
- + Provide greater access to markets
- + Reduce freight costs
- + Support jobs
- + Improve freight reliability
- + Increase freight capacity
- + Improve road safety
- + Improve community amenity
- + Reduce carbon emissions.



[Inland Rail website](#)

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FY2021

CURRENT PROGRAM STATUS



1 KAGARU TO ACACIA RIDGE AND BROMELTON

Comprises 49km of existing track.



2 CALVERT TO KAGARU

Comprises 53km of new dual gauge track in the protected Southern Freight Rail Corridor.



3 HELIDON TO CALVERT

Comprises 47km of new dual gauge track.



4 GOWRIE TO HELIDON

Comprises 28km of new dual gauge track.



5 NSW/QLD BORDER TO GOWRIE

Comprises 138km of new and 69km of existing track.



6 NORTH STAR TO NSW/QLD BORDER

Comprises 39km of new track utilising 27km of existing rail corridor.



7 NARRABRI TO NORTH STAR (PHASE 1)

Comprises 171km of upgraded track.



7 NARRABRI TO NORTH STAR (PHASE 2)

Comprises 11.8km of upgraded track and 1.7km of new track.



8 NARROMINE TO NARRABRI

Comprises 306km of new rail corridor and track.



9 PARKES TO NARROMINE

Comprises 98.4km of existing track and 5.3km of new track.



10 STOCKINBINGAL TO PARKES

Comprises 170.3km of existing track.



11 ILLABO TO STOCKINBINGAL

Comprises 37km of new track.



12 ALBURY (VIC/NSW BORDER) TO ILLABO

Comprises 185km of existing track.



13 TOTTENHAM TO ALBURY (VIC/NSW BORDER)

Comprises 305km of existing track.

Private sector partners

Inland Rail is delivered in partnership with the private sector who are contracted to provide technical advice, project design and construction services, and supply materials. The private sector contributes to Inland Rail’s social, environmental and economic objectives by delivering on contracted requirements, applying global industry experience and identifying value-enhancing opportunities.

Our key partners* during the 2020–2021 financial year were:

A joint venture of





Member of the Surbana Jurong Group

A joint venture of





A joint venture of





IN your region. IN it for you.

A joint venture of




Integrating Community, Environment and Engineering





















*Includes companies engaged by Inland Rail with spend greater than \$5m in the 2020–2021 financial year.

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Safety is our number one priority

At Inland Rail our goal is that no one is harmed at work or on our rail network. Beyond ensuring the safety and wellbeing of our employees, contractors and visitors to our workplaces, our safety focus extends to members of our communities during rail construction and operation.

Our safety team is committed to ensuring each person who contributes to the design, construction and eventual operation of Inland Rail is protected from harm.

We demonstrate care for our people by ensuring:

- + Our value of No Harm is achieved.
- + All required procedures are followed, systems are utilised, training undertaken and engagement and reporting is regularly conducted.
- + We build competency in working safely through the Inland Rail Health and Safety induction training and eLearning course.
- + Best use of innovative technologies, safety practices and protective equipment to minimise health and safety risks.
- + The provision of integrated risk management activities to support informed decision-making.



[Inland Rail website safety page](#)

SAFETY SUMMARY FY2021

| | |
|--|--|
| Inland Rail employee Lost Time Injury Frequency Rate (LTIFR) | Inland Rail employee Medical Treatment Injury Frequency Rate (MTIFR) |
| = 0.76 | = 0.76 |

CORONAVIRUS PANDEMIC RESPONSE

100% worksites and offices implemented COVID safe plans

Inland Rail Business continuity group in effect since February 2020

Our goal:
Everyone goes home in the same manner that they came to work – every day

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A focus on mental health

Mental health is an important focus for Inland Rail, and now even more so due to the continuing global coronavirus pandemic. Inland Rail is committed to supporting the health and well-being of our workforce, construction teams, and the communities in which we operate.

We aim to create an environment that supports wellness in our own offices and partners with key organisations to ensure resources and services are available to our contractor workforce and host communities.

Key initiatives this financial year include:

- + Development of the Inland Rail Wellbeing Strategy, which outlines how we will improve the wellbeing of our workers, their families and rail communities through a robust and appropriately resourced wellbeing program.
- + Building Inland Rail's personal resilience course. Designed to help individuals develop the tools and personal resources needed to maintain good mental health and resilience in their work and personal lives, the program is peer-led and delivered by Inland Rail people for Inland Rail people.
- + Ongoing partnerships with Murrumbidgee, Western NSW and Darling Downs, and West Moreton Primary Health Networks to support mental health services in communities in which we will construct Inland Rail.
- + A fully agile workplace effectively making use of technology including providing all staff with laptops enabling them to work easily and transition to work from home if required.



Held in May, Rail R U OK? Day saw us host a panel session with two colleagues presenting deeply personal stories about their struggles with mental health and how they overcame these challenges with the support of family, friends and allied professionals.

More than 200 staff joined this session and feedback indicated this was one of the most powerful and humbling R U OK? Day events to date.



Inland Rail personal resilience course:

- + 94 people completed to date
- + 10 people trained as facilitators to date.

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Our people

At Inland Rail, we celebrate, support, and thrive on attracting people from all horizons and walks of life for the benefit of our employees, our program, and our community.

As a nation-building project we recognise that shared goals enable everyone involved, be they employees, contractors or private sector partners, to collectively bring our values of No Harm, Future Thinking, Active Engagement and Results to life.

Our direct workforce, of around 440 employees, is based in 10 locations across New South Wales, Victoria and Queensland with the majority of staff in Brisbane. As construction projects commence, Inland Rail project teams will be based part-time or full-time on site.



[Inland Rail website careers page](#)

A nation-building project of this scale requires a diversely skilled workforce who can work collaboratively and responsively to meet the changing needs of the program. To support our workforce in transitioning to new project phases, particularly as focus shifts from planning and establishment to delivery, this financial year we commenced an internal change initiative, Project Evolution.

Led by our Head of Human Resources, the initiative provides a framework to focus and empower integrated teams to achieve delivery objectives through shared goals, performance measures and defined accountabilities and responsibilities.

Key focus areas include:

- + Governance and role clarity
- + Business process and systems
- + Ways of working
- + Organisational design and capability.



2021 Inland Rail Employee Engagement Survey highlights:

- + 85% of employees feel their work is aligned to the goals of the program
- + 88% are engaged within their teams
- + 80% feel trusted to do their job effectively.

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About this report

Our third Annual Sustainability Report sees one project operational, one project in construction and 11 others in varying stages of reference design, approvals and procurement.

Our report outlines the positive social, environmental and economic outcomes generated by Inland Rail and its project delivery partners during the 2020–2021 financial year (FY21), and importantly, shares our sustainability priorities, achievements and how we seek to create value beyond regulatory requirements.

The Inland Rail Sustainability Strategy objectives and targets provide the framework for reporting on annual progress. The strategy was endorsed by our Leadership Team in April 2019 and is reviewed annually in response to considerations such as evolving community expectations and the setting of new benchmarks like the release of Infrastructure Australia's Sustainability Principles in April 2021.

Our strategy includes seven objectives and associated targets, reflecting our holistic approach to sustainability which are outlined on the following page.



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INLAND RAIL

SUSTAINABILITY OBJECTIVES



Creating a program delivery culture that has the knowledge, skills and resources to maximise sustainability outcomes



Integrating sustainability into core business systems and processes encouraging innovation



Mitigating social impacts, responding to community concerns and supporting community aspirations



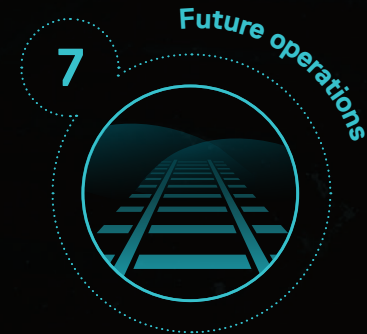
Extending beyond impact minimisation to creating new opportunities for habitat restoration and heritage interpretation



Reducing water, energy and materials and generating economic value from waste



Encouraging our supply chain to contribute to our sustainability priorities



Design and construct for long-term outcomes such as climate resilience and community legacy



Creating a program delivery culture that has the knowledge, skills and resources to maximise sustainability outcomes

Key focus areas for this objective:

- + Assessing project performance using the Infrastructure Sustainability rating scheme.
- + Training and engaging employees and project teams in applied sustainability.
- + Reporting on progress and responding to risks and opportunities.

First sustainability rating

Inland Rail is committed to achieving a program-wide 'excellent' Infrastructure Sustainability (IS) rating. The IS rating scheme is administered by the Infrastructure Sustainability Council (IS Council), a member-based industry association with the purpose of enabling sustainability outcomes in infrastructure.

The rating scheme provides a comprehensive system for evaluating sustainability across design, construction and operation phases and helps create a common language around sustainability as well as a formal framework for its application.



The Narrabri to North Star project (Phase 1) has been verified for an 'excellent' design rating.

The Narrabri to North Star (Phase 1) project achieved an 'excellent' design rating in November 2020. The Inland Rail Design Joint Venture (WSP and Mott MacDonald) were engaged to deliver the reference and detailed design for the project.

Key achievements verified by the IS Council include:

- + Profiling rail during manufacturing instead of on-site during construction resulted in reduced costs, improved safety and track performance.
- + ARTC earthworks technical standards now enable reintegration of 95% of existing track formation material and earthworks spoil into the new formation, resulting in reduced cost, material transport and waste generation.



[Inland Rail website
Narrabri to North Star
project page](#)



Status of the program-wide IS rating for FY21:

- + Narrabri to North Star (Phase 1) achieves 'excellent' design rating.
- + Parkes to Narromine submits final Round 2 evidence for 'as built' rating.
- + Forbes to Parkes section of the Stockinbingal to Parkes project registers for a design rating and prepares Round 1 evidence.



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Sustainability training for all

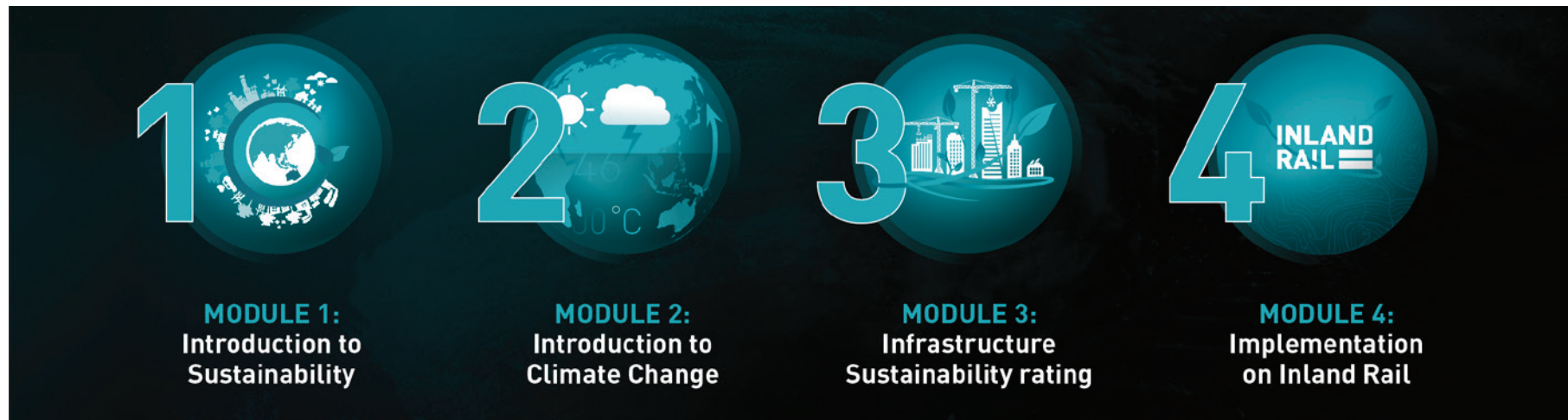
We know that achieving sustainability goals is about building awareness and getting everyone involved. What we've found, however, is that while project teams often deliver sustainability outcomes as part of their everyday business – be it resource efficiencies, social and environmental benefits, or a focus on future proofing – they don't always realise they're contributing to the Inland Rail Sustainability Strategy.

With this in mind, in May 2021 the Leadership Team introduced Sustainability Foundations training for all employees and internal contractors.

Four modules provide foundational sustainability knowledge, relevant to the delivery of the Inland Rail program including:

- + Introduction to sustainability
- + Introduction to climate change
- + Infrastructure Sustainability rating
- + Implementation on Inland Rail.

The course was developed in-house and is creative, fun and informative and takes about an hour to complete. Since expanding program participation, more than 100 people have completed the course this financial year.



Inland Rail Sustainability Foundations eLearning course.

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Engaging the workforce

As a complement to sustainability training, workforce engagement initiatives saw staff engage with fun and creative activities related to key sustainability themes. During National Recycling Week in November 2020, Inland Rail hosted a number of activities related to waste and recycling.

These included reinforcing messaging around the correct use of recycling streams in the office, the sharing of facts and figures highlighting our achievements to date, and a recycled art competition where staff and their children were challenged to turn household recycling and waste items into works of art.



A few of the winning entries in the recycled art competition.

During National Recycling Week in November 2020, Inland Rail hosted a number of activities related to waste and recycling.

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Trans4m Rail sets up for success

Trans4m Rail is the principal contractor for the Narrabri to North Star (Phase 1) project. With early construction works commencing in December 2020 and major construction works underway in April 2021, the team were quick off the mark to implement sustainability improvements in their site operations. Innovative thinking coupled with a commitment to implementing lessons learnt from previous construction projects enabled the team to achieve a number of quick wins while demonstrating that bigger, more impactful, sustainability actions are also possible.

During early construction Trans4m Rail implemented site operations improvements such as:

- + Connected site offices (those connected to the electricity grid) and camp to a supply of 50% renewable electricity.
- + Retrofitted site caravans with solar panels, batteries and sensors to reduce diesel use and maintenance costs.
- + Conducted workshops to identify opportunities to minimise the construction footprint and reduce vegetation clearing resulting in a significant reduction in the area used and number of laydowns.
- + Developed and implemented an improved design for site laydown facilities to reduce earthworks, fuel use, greenhouse gas emissions, water use and provide overland water flow protection all while saving on construction costs.
- + Provided staff with calico bags and construction teams with re-usable food containers to reduce packaging waste and management costs.



Trans4m Rail upgraded the standard available site caravan design to reduce fuel costs and minimise generator use while keeping the fridge running! By installing solar panels, batteries, timers and manual/auto switches they will achieve a 50 percent reduction in diesel, 50 percent reduction in operational greenhouse gas emissions and 50 percent reduction in generator maintenance costs. The payback period on these upgrades is less than a year! Trans4m Rail now have six sustainable caravans across the project.



Trans4m Rail
website

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Jody Finsen, Senior Sustainability Advisor Inland Rail presenting at the event.



NSW Government website
LEBM page

Engaging government executives

Inland Rail is a participant in the New South Wales (NSW) Government Low Emissions Building Material (LEBM) initiative that partners with industry to encourage the voluntary use of low emission building materials. The NSW Government recognises that to reach its plan of net zero emissions by 2050 it will need to address the manufacture of steel, concrete and aluminium, which produce high levels of carbon dioxide.

Our sustainability team was invited to present at the government only – *Net Zero Construction Materials: A Briefing for Government Executives and Leaders* on 27 May 2021. More than 100 registrants from across 45 NSW government agencies joined the event online and in person. Sharing a case study on earthworks re-use and carbon neutral concrete culverts on the Parkes to Narromine project, the presentation was well received with many questions and great interest shown by participants.

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Integrating sustainability into core business systems and processes and encouraging innovation

Key focus areas for this objective:

- + New ways of working that enable collaboration, integration and communication.
- + Procurement and contractual requirements that support our sustainability priorities.
- + Raising industry benchmarks through innovation.

Value engineering focuses on more than cost

Innovation and Value Management (IVM) activities traditionally focus on capital cost reduction and while this has generated significant non-cost benefits through recycling of site materials and reducing structural requirements, sustainability outcomes to date have not been formalised or quantified as part of this decision-making process.

In May 2021 Inland Rail approved six key focus areas to guide IVM:

- + Safety of workers and the public
- + Capital cost reduction of major components
- + Asset and operations improvements in lifecycle cost reductions
- + Sustainability outcomes that meet or exceed improvements strategy targets such as in energy
- + Community impact and legacy such as in cultural heritage or landscape design
- + Environmental impact and improvements such as in ecological connectivity.

These focus areas will be communicated to project teams and contracted industry partners to allow the identification, assessment, and adoption of IVM initiatives.

Benefits of this approach include, clarity of desired outcomes, efficiency in decision making, reducing wasted effort through a fail early approach and improved transparency and integration of outcomes.

IVM initiatives will now be channeled through approval gates with a clear path to the program executive committee for high value and high impact initiatives.



Key value engineering activities to date:

- | | |
|---------------------------|-------------------------------------|
| + Improved formation | + Grade change alignments |
| + Alternate bridge design | + Culvert and drainage assessments. |

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Contractor sustainability forum launched

The first Inland Rail Sustainability Contractor Workshop was held on 10 June 2021 and was attended by Inland Rail; INlink, who've completed construction of the Parkes to Narromine project; Trans4m, who are constructing the Narrabri to North Star (Phase 1) project; and McConnell Dowell appointed as Early Contractor Involvement (ECI) for the Tottenham to Albury project.

Designed to support the sharing of information and learnings among our contractors and to enable consistent sustainability outcomes for Inland Rail, the forum will be held quarterly and seeks to:

- + Promote collaboration between projects/programs to strengthen outcomes.
- + Share lessons learnt in a collaborative manner to support continuous improvement.
- + Support leading contractors to set high standards that can be followed by others.
- + Provide Inland Rail/ARTC with a forum for collaborative and consistent communication.
- + Encourage 'best for program' discussions.



Gurley Creek bridge on the Narrabri to North Star (Phase 1) project.

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First for Induction Welding in Australia



Inland Rail will be able to utilise induction welding once testing is completed and proven to be compliant with ARTC standards.

ARTC is at the forefront of an industry changing innovation in welding, having engaged Mirage Rail in the United Kingdom (UK) to develop and prepare an induction head and shears to weld ARTC AS60kg rail.

Sustainability benefits of induction welding are the low risk of fires, reduced energy consumption from the technology, and extending the life of rail leading to fewer re-railing activities.

Traditionally, rail joining methods involved physically joining rail lengths together with steel plates and bolts. Most rail is joined as continuously welded rail using thermite welding techniques but predominantly flashbutt welding where possible as it produces a superior result. This involves forcing the two ends of the rail together whilst applying a high voltage, high current electrical connection across the rail ends, consuming rail as it is welded together.

In induction welding, an innovation developed in the UK, the weld cycle is achieved by replacing an electrical connection with an application of heat generated through an induction process.

The benefits include:

- + Creating a better weld grain structure
- + Less operator errors
- + Higher process reliability to deliver a superior weld output
- + Reduced cycle time
- + Ability to 'weld out' some in-rail flaws.

ARTC has sent 12 metre rail lengths to Mirage Rail in the UK for testing, which will be returned as test segments. The welded rail will then be destructively tested at the Monash Rail Institute and dynamically tested at an ARTC track location in South Australia.

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Mitigating social impacts, responding to community concerns and supporting community aspirations

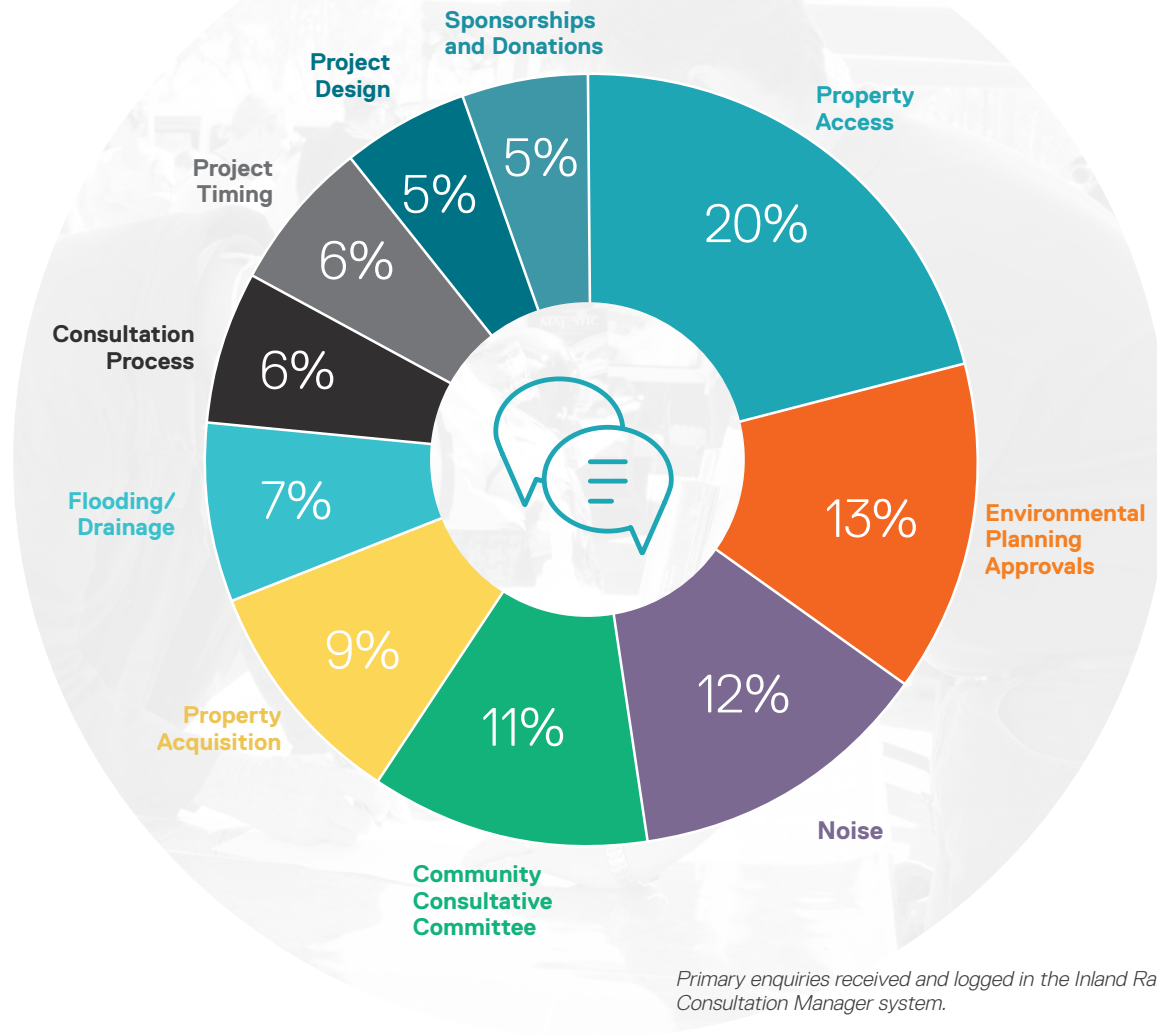
Key focus areas for this objective:

- + Community consultation and engagement.
- + Industry and workforce participation for local and Indigenous residents and businesses.
- + Developing job ready skills of the current and future workforce.
- + Investing in the community.

Areas of community interest

Inland Rail is committed to listening and responding to feedback provided by communities in our alignment. To ensure we can effectively monitor and respond to enquiries or concerns, our stakeholder engagement team records any feedback in our Consultation Manager system. This includes comments provided in person, online, by email, post or phone.

The most frequent incoming community concerns and issues received and logged relate to noise, property access and property acquisition. Feedback enables us to strengthen our understanding around matters of importance to our communities and helps us ensure stakeholders remain informed as we work to address community concerns and issues.



[Inland Rail website community page](#)

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Training in building community trust

As part of Inland Rail's commitment to building community trust through open and transparent communication, this year we introduced an online training course, Social License and Risk Communication, for all employees and contractors. While designed specifically to support front facing teams – from project delivery to stakeholder engagement to communications – the course can be completed by anyone involved in Inland Rail.

The development of this initiative reflects our understanding of stakeholder expectations. We recognise the need to respect and respond to community concerns or sensitives through clear communication that moves beyond simply presenting project benefits and technical information, and seeks to address more complex 'grey areas' where there may be perceived or actual trade-offs and impacts.

The course, consisting of two modules, ensures our employees and contractors are equipped with the insights and tools needed to facilitate these conversations and support meaningful and effective engagement with our communities.



+ 170 staff completed training this financial year.

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Digital engagement

Inland Rail works with a range of digital tools and platforms to ensure information is widely accessible and stakeholders can engage with the program at a time convenient to them. Our platforms not only help build awareness, understanding and support for Inland Rail, they also provide an opportunity for us to actively listen to and engage our stakeholders.

Social media

Commencing in February 2019, Inland Rail's social media audience has grown significantly, attracting more than 1 million engagements across Facebook, Instagram, LinkedIn, Twitter and YouTube. Along with organic content, social media advertising ensures information about community consultation opportunities, events and project news reaches the relevant audiences.

In FY21, Inland Rail's social media engagement grew by 54 percent to 17,957 people across Brisbane, Melbourne, Sydney, Toowoomba and Parkes. We received over 10,000 messages – indicating a high volume of interest from a wide audience.

Website

Inland Rail's new website was launched in October 2020 featuring entirely new content, structure and designs. We are committed to providing a website that is easily accessible to the widest possible audience, regardless of ability or technology, and aims to meet national web accessibility requirements and the World Wide Web Consortium's Web Content Accessibility Guidelines version 2.1 at level A and AA.

Visualisations

Digital fly-throughs have proven to be an effective way to help residents visualise the Inland Rail track, bridges, crossings and wider landscape once constructed. More than 20 project visualisations have been created and shared to date, attracting 56,000 views.

Interactive mapping

Inland Rail interactive mapping allows community members to use a simple drag and drop interface to provide feedback in real time. This helps increase the quality of our data and better understand the exact location to which feedback applies. These interactive maps have proven to be a useful engagement platform during reference design for all projects and since launching in September 2018 we've seen nearly 100,000 interactions.



Inland Rail website



Example of an Inland Rail LinkedIn post.

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Creating construction jobs and business opportunities

Inland Rail partners with local and regional communities along the project corridor to support meaningful economic development and employment opportunities. We're committed to maximising opportunities for local and Indigenous individuals and businesses to participate in Inland Rail. We plan and deliver these outcomes through our Social Performance program, Inland Rail Skills Academy and Australian Industry Participation commitments.

TOTAL WORKFORCE AND INDUSTRY PARTICIPATION FY21

- + Parkes to Narromine December 2018 – September 2020
- + Narrabri to North Star (SP1) September 2020 – June 2021

Workforce and industry participation outcomes generated on Inland Rail since construction commenced in December 2018 – covers Parkes to Narromine project and the first nine months of Narrabri to North Star (Phase 1) project.



[Inland Rail website suppliers page](#)



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Industry capability building workshops

We know that engaging local and Indigenous businesses, where possible, and strengthening the capability of the local supply chain to participate in Inland Rail benefits everyone. We work with government and industry stakeholders to offer business development, mentoring and other support programs. Our procurement processes and information platforms are also specifically designed to ensure businesses can easily source details about supply opportunities and register their interest to get involved.

The business capability development program is one initiative that demonstrates how we aim to proactively build capability in locations along the alignment. Presented in a workshop format, the sessions share insights with participants to help them better understand supply chain opportunities and the tender process. Participants can also access ongoing one-on-one mentoring sessions with our expert facilitator.



Participants of a business capability building workshop in Queensland.



INDUSTRY CAPABILITY BUILDING WORKSHOPS THIS FY21



+ 118 businesses participated (in person)
(19 Indigenous)



+ 58 businesses participated (online) (18 Indigenous)



+ 95 attendees participated (online).

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Developing construction ready skills

The construction of Inland Rail offers residents along the alignment the opportunity to gain work locally during its construction. The Inland Rail Skills Academy has partnered with local councils, local Aboriginal land councils, training providers, employment service agencies and Training Services NSW to deliver civil competencies to interested locals.

From plant machinery operations including rollers, excavators, skid steers and front-end loaders, to mandatory rail safety competencies, undertaking training in these areas has led to employment outcomes with local employers, as well as direct employment with Trans4m Rail who are responsible for delivering the Narrabri to North Star project.

On the North Star to NSW/QLD Border project, Inland Rail partnered with Toomelah and Boggabilla communities to deliver a six-week fencing course for nine participants. Training was delivered in partnership with Boggabilla TAFE NSW, Toomelah Local Aboriginal Land Council and Drillchan – an Indigenous fencing business.



+ In FY21 more than 100 residents (40 percent of whom are local Indigenous) have successfully completed competencies in plant machinery operations and mandatory rail competencies.



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Trans4m Rail Trainee Program



+ Seven Trans4m Rail trainees have participated in this program to date.



Trans4m Rail's trainee program is the first of its kind to be delivered on an Inland Rail project. The program connects young locals with industry professionals to be mentored and gain on-the-job experience while working towards obtaining a Certificate IV in Project Management.

Currently, seven locals have been recruited to assist onsite engineers with project administration and management duties while completing a Certificate IV in Project Management.

The program is being delivered in partnership with Apprentice Support Australia and TAFE Digital, enabling the trainees to gain practical on-the-ground experience by working full-time from the Trans4m Rail Moree project office.

The program is helping us to deliver a legacy that will last long after the track has been constructed, ensuring the participants have the skills and qualifications to continue working in the industry or further their tertiary education.



[Trans4m Rail website](#)

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Project cultural immersion tours

Inland Rail project cultural tours provide the team with an invaluable opportunity to connect with culture, build relationships and to further discuss how Inland Rail can work in partnership with Indigenous people to create pathways that support meaningful and long-term opportunities for their communities. Cultural immersion tours held this financial year:

- + The Western Wakka Wakka People hosted Queensland Inland Rail project teams at Gumingurru, a 6,000-year-old Indigenous ceremonial site in Toowoomba in September 2020. Gumingurru is one of a series of ceremonial places where young Aboriginal men were initiated into manhood but is now used for learning about Aboriginal culture and heritage.
- + The Jagera People hosted Queensland Inland Rail project teams at Nudgee waterhole in October 2020. Cultural activities include a Welcome to Country, smoking ceremony, tasting of seasonal bush foods, ochre marking initiations and bull-roarer at the sacred Bora Ring.
- + The Moree Local Aboriginal Lands Council hosted the Inland Rail Narrabri to North Star project teams and Trans4m Rail in November and December 2020 at the Terry Hie Hie reserve, a culturally significant site for the proud Gamilaroi, Kamilaroi and Gomeroi Nations.
- + The Mununjali People hosted the Kagaru to Acacia Ridge and Bromelton project team near Beaudesert in December 2020. Inland Rail project teams participated in activities such as a permission ceremony, ochre paint up, viewing ancient artefacts and listening to stories of the mountains at the yarning circle.



Gumingurru cultural immersion tour.


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Virtual work experience program for regional students

In February 2021 Inland Rail launched a partnership between the Inland Rail Skills Academy and Grandshake with staff and students from Flagstone State Community College and surrounding schools. The program gives high school students the chance to explore different career opportunities by engaging directly with industry professionals – all from the comfort of their own home!

This financial year the following courses were made available:

- + Communication and Sustainability Cadet
- + Systems and Signals Operator
- + Junior Environmental Planner
- + Electrical Technician
- + Civil Construction Cadet
- + Junior Digital Engineer.



Launch of the virtual work experience program at Flagstone, Queensland.

Students from right across the alignment will work their way through virtual workshops, giving them an inside glimpse into Inland Rail, the rail industry more broadly and high-demand Science, Technology, Engineering and Mathematics (STEM) careers.



- + The partnership was launched in February 2021 with 14 schools signing an MOU with Grandshake and 120 students participating in FY21



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STEM on Track

More than 7,500 high school students in regional areas will benefit from a unique STEM partnership announced on 26 November 2020 between the Inland Rail Skills Academy and the University of Newcastle. Inland Rail’s STEM on Track initiative will support the University of Newcastle to deliver 35 Science and Engineering Challenge events and four 10-day Science, Mathematics and Real Technology (SMART) tours in regional communities between Brisbane and Albury.

The partnership also enables the University of Newcastle’s Science and Engineering Challenge to reach more schools so more students in regional communities can participate. From designing an earthquake-proof tower to building a hovercraft, the Challenge helps students to extend their learning outside the classroom and unearth career possibilities in STEM.

STEM on Track delivered the following programs this financial year:

- + Brisbane South Discovery Day (primary), Challenge Day (high school) and teacher professional development
- + Wagga Wagga launch of STEM on Track, Discovery Day, Challenge Day and teacher professional development
- + Western Plains (Dubbo) Discovery Day, Challenge Day and teacher professional development
- + Narrabri Discovery Day, Challenge Day and teacher professional development.



+ 1,597 students and 120 teachers participated in STEM on Track in FY21



SCIENCE



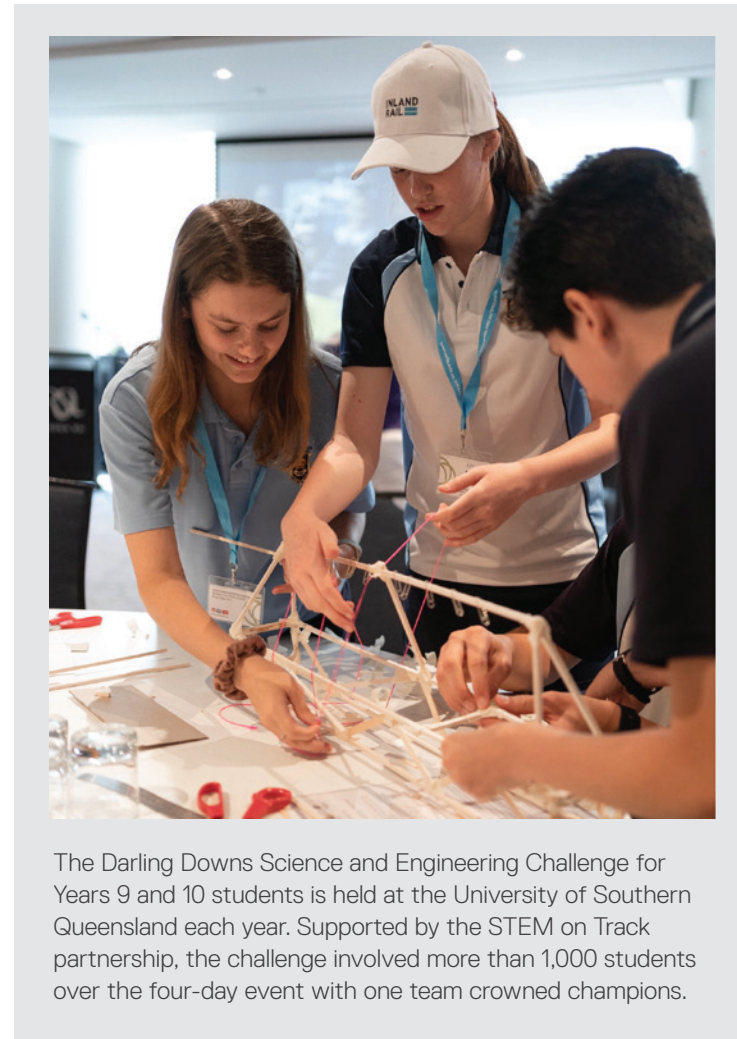
TECHNOLOGY



ENGINEERING



MATHEMATICS



The Darling Downs Science and Engineering Challenge for Years 9 and 10 students is held at the University of Southern Queensland each year. Supported by the STEM on Track partnership, the challenge involved more than 1,000 students over the four-day event with one team crowned champions.



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Community grants in the spotlight!

Inland Rail is proud to give back to our communities. Since 2019, our Sponsorships and Donations Program has benefitted more than 180 community groups in New South Wales, Queensland and Victoria. In the FY21 \$260,171 funding was allocated to 79 recipients.

Inland Rail offers funding between \$1000–\$4000 for individuals and organisations in regional areas along the Inland Rail route that contribute to local and regional prosperity, well-being and sustainability.

In the spotlight are some of the community groups that benefitted from the program this financial year.



Kurrajong is a disability service provider that aims to create open, accessible and inclusive communities for all people in the Riverina Murray region. Hildasid Farm in Wagga Wagga – an inclusive community space set on 282 picturesque acres received funding towards the construction of an outdoor shelter for their community garden.



Forbes group Can Assist provides financial assistance to people living with or undergoing treatment for cancer. A grant from Inland Rail enabled Can Assist to purchase a portable gazebo and banner to assist them with fundraising.



Inland Rail website Sponsorships and Donations page

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Wangaratta's North East Windsport Club can now welcome members with a disability thanks to a change room facilities upgrade funded through the Inland Rail grant program. The Club offers both Blokarting (sailing on land) and sailing.



The Panja (Brigalow) Gambuwal Aboriginal Corporation supports Aboriginal and Torres Strait Islander people living in poverty, ill-health or distress as well as facilitating education, training and employment opportunities. The organisation received an Inland Rail grant contribution towards setting up an office with equipment to ensure these valuable services can be delivered to communities.

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Extending beyond impact minimisation to creating new opportunities for habitat restoration and heritage interpretation

Key focus areas for this objective:

- + Avoiding harm to heritage and environment through design, construction and operation.
- + Opportunities to enhance environmental and heritage outcomes for the community.

Sensitive design solutions

Avoiding harm by moving construction away from sensitive flora and fauna habitats and heritage areas or redesigning where construction can occur is a key element of sustainability. As projects move through the environmental and planning process and into detailed design and construction, we continue to assess and take action to avoid harm.

We recognise that route selection is one of the most challenging aspects of infrastructure delivery as we seek to balance our objective of providing the fastest, most efficient, freight route from Brisbane to Melbourne while avoiding impact on the community, environment and heritage.

Reducing the construction impact zone

The North Star to NSW/QLD Border project was able to reduce the area of vegetation requiring clearing as well as determine that habitat for the critically endangered butterfly, the Pale Imperial Hairstreak *Jalmenus eubulus*, was not present.

This involved a three-week long survey of the zone where construction activity is undertaken – referred to as the Construction Impact Zone (CIZ) – during a small seasonal window when adult Hairstreak fly.

To minimise environmental disturbance the project also overlaid the proposed CIZ over high value ecosystems in the alignment and developed a strategy to best manage construction in a way that limited disturbance. This resulted in shifting plans for borrow pits, site offices and work lanes to a more suitable location.

The team were also able to further reduce the amount of brigalow vegetation, an endangered ecological community, in the CIZ.

Re-aligning to avoid cultural and historic heritage

Cultural heritage investigations undertaken for the Narromine to Narrabri project found that the Pilliga State Forest, through which the route passes, contains significant cultural heritage. The Cumbil Forest Creek location contains a 0.5 hectare grinding groove site that is highly significant to the Gomerioi People as a place where Aboriginal men once worked to create both ceremonial and utilitarian implements.

Given the extensive historical land clearing that has occurred in this area, the grinding grooves represent a key remaining visible aspect of past Aboriginal life-ways and important evidence for the Aboriginal occupation of the broader region. Importantly, this site provides an associative link to other sites such as basalt stone quarries, where the raw material sources for edge-ground axe blanks may be procured.

The project team realigned the route to avoid the site based on the recommendations of Aboriginal community members and archaeological experts that the site is preserved in-situ, given its removal would diminish its cultural value.



Ecological systems on the North Star to NSW/QLD Border project.



The site consists of 16 grinding grooves, of lengths varying from 13 cm to 45 cm, located on a 10 m x 5 m sandstone platform exposed within the main channel of Cumbil Forest Creek.

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Land stewardship partnerships benefit farmers

Inland Rail has secured 2,068 biodiversity credits created on a property near Moree, Northwest NSW. The 169-hectare offset package will provide greater protection for koala habitat and endangered ecological communities. These offset credits will go towards fulfilling the offset liability for vegetation communities cleared for construction on the completed Parkes to Narromine project.

To establish new Biodiversity Stewardship Sites, Inland Rail works with landholders, service providers and the relevant agencies to deliver an offsets package in accordance with good practice and regulated requirements. Inland Rail hopes to bring new landowners into the scheme to secure more biodiversity offset credits and positive outcomes for rural communities.



Interview with Roger FitzGerald. Inland Rail's first stewardship partnership!

As well as an additional business enterprise on the land looking after the biodiversity sites, it means we can enjoy keeping some of the native vegetation, birds and other fauna on the place. Keeping this and other bush is crucial since much of our surrounding farming country is pretty well stripped bare for crops over the last 60 years.

What has the Inland Rail offsets program delivered for you?

North Prairie is our family-owned, dryland grain farm north of Moree. Under the Inland Rail arrangements for biodiversity stewardship there, we have a good deal of work in front of us to bring some 400 acres of high-value remnant natural bush to the condition in which it was handed on by earlier generations.

Inland Rail's part is essential in facilitating the arrangements and in their providing for funding to look after vegetation on the designated sites. The biodiversity stewardship includes control of invasive woody weeds in remnant alluvial grasslands and tending to various woodlands of Myall, Brigalow, Coolabah, Poplar Box and Belah.

The biodiversity sites are alongside our grain-growing cultivations and also beside or connecting to other set-aside and protected areas on Prairie and nearby, with some dedicated wildlife corridors to help this.

Having some stewardship in with the commercial dryland cropping operations can work well in terms of farm diversification – smoothing workload peaks, assisting business turnover and also resilience in dry times. This helps make up for some edge effects from having the bush right alongside the crops.



Spot control of invasive woody weeds, *Mimosa*, at North Prairie.

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What benefits do you see for other landowners that may be interested in establishing a stewardship site?

I'd say helping keep the district's natural bushland setting is appreciated by the land-owning and broader community. Caring for the country shows respect to the feelings of our First Nations people. Also, ongoing stewardship work on the selected areas benefits the local economy.

For families, entering into a stewardship agreement can help farm business succession. I say this as sale of the biodiversity credit upfront (to meet developer offset obligations) can help family member exit strategies, while also retaining the land with a new enterprise for remaining members.

From an industry viewpoint I'd also encourage corporate agribusiness to consider biodiversity stewardship. As well as the financial returns, it's a means for satisfying increasing shareholder, institutional and consumer demand for responsible citizenship and use of common natural resources. It helps ensure their 'license to operate' in the district.



Weeping Myall in flower in grassland and open woodlands, North Prairie.



Hanging on in the 2019 drought – koala in Poplar Box and Coolabah woodlands, North Prairie.

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New detailed design guidance

Inland Rail has developed environmental guidelines to support improved fauna design and landscape outcomes for the program as part of detailed design development. These guidelines are bespoke to Inland Rail and were developed to address a gap in existing industry guidelines.

Program fauna design guidelines

The Fauna Design Guidelines have been developed to guide detailed design options to maintain fauna connectivity on the Inland Rail project. The guidelines aim to provide an evidence-based approach to achieving best-practice in the avoidance, minimisation and mitigation of the ecological impacts on wildlife across all sections of the project.

They provide an introduction to fauna-sensitive railway design and a summary of the international peer-reviewed literature on the impact of railways and trains on wildlife. Various considerations required during the planning of ecological interventions including selecting the appropriate mitigation option and determining the number and placement of mitigation measures are covered by the guidelines.

Wildlife mitigation measures are also provided, along with example technical drawings of more common measures including glider poles, canopy rope bridges, dedicated fauna culverts and koala fencing.

Program landscape specifications

Specifications guide and direct the landscape design associated with Inland Rail and build upon the Landscape and Rehabilitation Strategy and Framework. They apply to the development of the landscape and environmental design response included within the detailed design packages across all delivery models: greenfield (new rail corridor and track), brownfield (upgrade of existing track) and enhancement (modifications to achieve horizontal and vertical clearances).

The Landscape and Rehabilitation Strategy and the Landscape and Rehabilitation Framework references four typical landscape scenarios:

- + Rural landscapes
- + Ecologically sensitive areas
- + Townships (including urban)
- + Temporary works.



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Protecting heritage through urban design

Urban design brings a strategic approach to how towns and cities are planned and developed. Within the Tottenham to Albury project, urban design seeks to balance the functional rail requirements of the project with facilitating outcomes that are consistent with town and precinct design planning aspirations.

The project will modify parts of the rail corridor in townships such as Wandong, Broadford, Euroa, Benalla, Glenrowan and Wangaratta and replace existing bridges with new structures while continuing to provide local access for communities and accommodating double stacked freight trains.

The Urban Design Framework (UDF) brings together the range of influences and technical areas the project must deal with such as engineering, heritage, ecology and safety into a single place that sets out an integrated design vision for future development.

Inland Rail is committed to ensuring that any changes made to the urban landscape of these towns is positive, respectful of their existing heritage, and aims to create a corridor of towns that take pride in the physical legacy created by Inland Rail. Consultation for the UDF commenced in October 2020 to create a shared vision to inform the project's detailed design.



The Glenrowan Urban Design objectives listed in the UDF ensure cultural values associated with the Ned Kelly siege are incorporated in the design. The proposed bridge design considers the following elements:

- + What an open-span bridge may look like within the town.
- + How impacts to heritage listed features can be avoided.
- + Creating visual connectivity through the heritage precinct.
- + Maintaining access for pedestrians, cyclists, drivers, and other users of the new bridge.
- + Facilitating views of the heritage precinct.
- + Creating connectivity between the replica Station and the Station Master's House archaeological site.



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[Tottenham to Albury project page](#)

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Significance of site surveys

Inland Rail will be built and operated on the traditional lands of many communities and offers a unique opportunity to survey and explore areas previously untouched by cultural heritage investigation.

Potential discoveries will add to the wider community's knowledge of and respect for Aboriginal people's use of the land and Australia's shared cultural heritage. Aboriginal cultural heritage is protected under Commonwealth and state legislation, providing a framework for the preservation and protection of cultural heritage objects, sites and places.



Interview with Tracy McLeod, proud Western Wakka Wakka woman



Trust has been a hallmark of our work on the Inland Rail project. We have worked alongside people who we know genuinely respect our culture. And it has been a real pleasure to share our knowledge with people. Our hope is one day that our culture, which is special to us, will be the history of all Australians regardless of their origins.

Can you tell us about your people, culture and country?

We are the Western Wakka Wakka people of the Darling Downs. Our people have lived in the area for many thousands of years. Working on Inland Rail, investigating some of the cultural sites that we found, has shown this to be true. We have dated some sites that show a continuous occupation of our country since people first came to this land. While we think this scientific proof is important, for us our connection to our history is more closely tied to the Dreaming. This is a time when all things were created. It doesn't really have depth like ordinary time. Instead things in the Dreamtime all exist together, like in a painting without perspective.

This means that for us the past is always part of the present and our ancestors are always with us. They are part of how the country was made, and they are still an intimate part of our cultural sites, regardless of how old these sites are in linear time. I hope this explanation helps people understand our close connection to Country and cultural sites. For us they are living things, not relics.



Cultural heritage survey of alignment.

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What cultural artefacts were found during the site walkovers?

It's always surprising how much cultural material we find when doing a walkover. It makes me realise how our people lived and used so much of the country. Unfortunately, it's a kind of hidden history in some ways, because you need special skills to recognise a lot of the artefacts. That's why we are always keen to share our knowledge. When we share it, we are also sharing an understanding about the deep history of Australia. We might have a special connection to that history, but everyone no matter where they come from also shares in our past. It makes us all uniquely Australian.

The kinds of things we find on our walk throughs range from single stone artefacts that might have dropped as people passed through an area, to dense scatters of millions of artefacts in areas where people lived for thousands of generations. There are also trees where bark was removed for shields, canoes or shelters. We also find remains of past spiritual life including ochre paint and places where ceremonies were performed. There are also places where there might only be Dreaming stories that have been passed down to us. Such places might not have physical remains like stone artefacts, but they are still important places. For us this is a living landscape with each site forming a pattern of occupation that reflects a complex culture.



Artefact scatter that has been salvaged.



Ground edged stone axe.



Showing a scarred tree.

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Reducing water, energy and materials and generating economic value from waste

Key focus areas for this objective:

- + Reducing energy, water and material use.
- + Selecting materials that have a lower environmental footprint.
- + Diverting waste from landfill through re-use and recycling.

Deconstructing and re-using materials

The Narrabri to North Star (Phase 1) project team will remove more than 70,000 timber sleepers from the track. Some in good condition will be offered for collection by the local community with the remainder sold commercially. Those in poorer condition will either be mulched and spread across the construction zone to encourage revegetation or disposed of at a licenced landfill due to contamination.

Roughly 230,000 steel and 750 concrete sleepers will be reused by ARTC throughout their wider freight network along with all sleeper 'jewellery', anchors and plates.



[Inland Rail website
Narrabri to North Star
project page](#)



Trans4m Rail engaged Ironbark Demolition to deconstruct all existing bridges and re-use and re-purpose the various bridge components. None of the material will end up in landfill with 100 percent of bridge structures to be reclaimed. Ironbark remove bridge elements section by section, recover steel reinforcing, crush concrete on-site and recover timber and steel components.

Re-use will include:

- + Concrete piers crushed and re-used on-site under apron slabs on the underside of blinding/geomembrane. Steel reinforcing is recovered for recycling.
- + Concrete slab from Croppa Creek bridge provided to the local community for mounting stationary engines for display.
- + Some timber sleepers and transoms are sent to a contractor who shaves the exterior and cuts the sleepers for use as floor boards.
- + Rail 'jewellery' and 'aged' materials such as timbers will be diverted to pubs, cafes and homes.
- + Five spans of the Croppa Creek tributary bridge were transported to ARTC in Newcastle for re-use on other projects.
- + Steel re-purposed for use as an access platform for a bridge construction project on the Nerang River, Gold Coast, as well as projects in Murarrie and Brisbane City such as Queens Wharf.

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Managing GHG emissions

The new Inland Rail greenhouse gas (GHG) calculation tool provides a consistent methodology for assessing construction and operational GHG emissions and energy production and consumption.

The tool enables each Inland Rail project to be consistent in terms of calculating the construction and operational emissions and energy associated with the whole program and comparing it against the same baseline.

Inland Rail is required to quantify GHG emissions as part of achieving the energy and carbon credits of the Infrastructure Sustainability (IS) rating. This tool will also enable Inland Rail to track performance against the program sustainability target of reducing program construction and operational GHG emissions by 15 percent.

The tool was developed in collaboration with Nation Partners.

The GHG calculation tool

The GHG calculation tool enables Inland Rail and our contracted delivery partners to assess emissions from project construction activities. The tool provides an accurate assessment of emissions generated from activities such as land clearing and electricity, plant and equipment use.

Calculations from the tool on the right compare the estimated emissions from a concrete truck using three types of fuels:



Diesel concrete truck

Fuel burn rate: 250.6

Emissions factor: 2.7tCO₂/kL



Biodiesel concrete truck

Fuel burn rate: 250.6

Emissions factor: 0.09tCO₂/kL



Ethanol concrete truck

Fuel burn rate: 250.6

Emissions factor: 0.06 tCO₂/kL

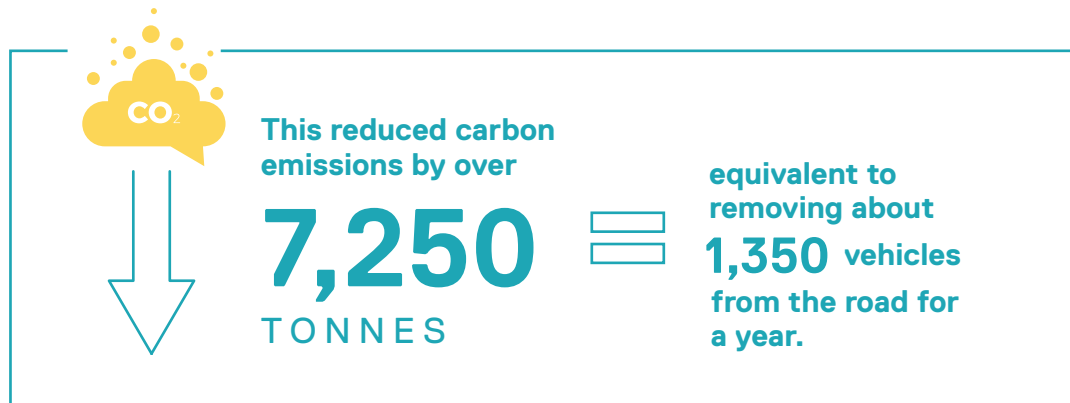
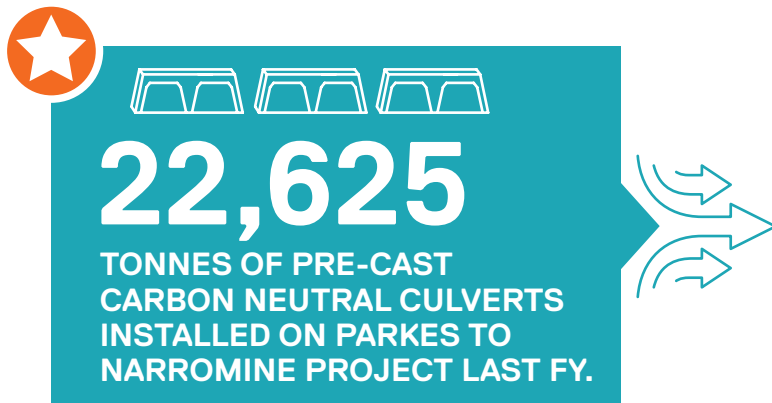
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Embodied carbon in concrete

Inland Rail is the first rail infrastructure project in Australia to install certified carbon neutral concrete culverts on the Parkes to Narromine project.

Concrete is typically a major contributor to embodied greenhouse gas emissions referring to the energy used to extract, manufacture and transport materials.

The culverts which are manufactured by Humes, a division of concrete materials supplier Holcim Australia, reduce carbon emissions using supplementary cementitious material with remaining emissions neutralised via certified carbon offsets.



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Interview with Ryan Roberts, R&D and Product Innovation Manager, Humes Concrete Products



Ryan Roberts

R&D and Product Innovation Manager,
Humes Concrete Products

“

Is there a cost difference between carbon neutral culverts and typical culverts?

Yes, there is a price difference of approximately 2 percent – 5 percent between the standard product and the carbon neutral products. This is driven by the cost of carbon offsets, certification, and administration of the innovation.

What was the SCM (Supplementary Cementitious Materials) replacement rate for the culverts?

The SCM portion for the project was approximately 25 percent, which is influenced heavily by geographical and supply issues for appropriate materials. This metric is monitored and driven heavily within Humes, and other factories that are supplying separate sections of the Inland Rail project use approximately 35 percent SCM mixes.

The embodied carbon emission of precast can be influenced by a number of factors such as the emission of the cementitious materials, steel, steam, site and transport impacts. It is important to compare the final function unit of product (e.g. meters of culvert) and not the emission per weight of the product (e.g. kg CO₂e per tonne) to account for design efficiencies (e.g. slimmer design and optimisation of steel).

The embodied carbon emission for Humes Precast and Prestressed Concrete and Humes Pipe products can be found in our Environment Product Declaration.

Reducing operational emissions often mean reduced operational costs. Apart from reducing emissions are there any cost drivers for championing embodied carbon?

One of the key strategies for reducing embodied carbon is through efficient design, and reduced mass through innovative structural design and materials can reduce costs. The current reality, however, is those reductions are often offset by the costs of specialist staff, consultants and systems, and the research and cost of material testing. The core driver for reducing embodied carbon across Humes products is the desire to positively contribute to the Australian community through a sustainable built environment.



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6 Sustainable procurement

A circular icon with a dotted border. Inside the circle, there are three stylized human figures in orange, with a green leaf above them. The number '6' is in a small circle to the left of the main circle. The text 'Sustainable procurement' is written in a curved path around the right side of the circle.

Encouraging our supply chain to contribute to our sustainability priorities

Key focus areas for this objective:

- + Communicating our commitments through our Sustainable Procurement Policy.
- + Providing sustainability capability building to small-medium businesses in our alignment.
- + Celebrating suppliers who provide broader social and environmental benefits.

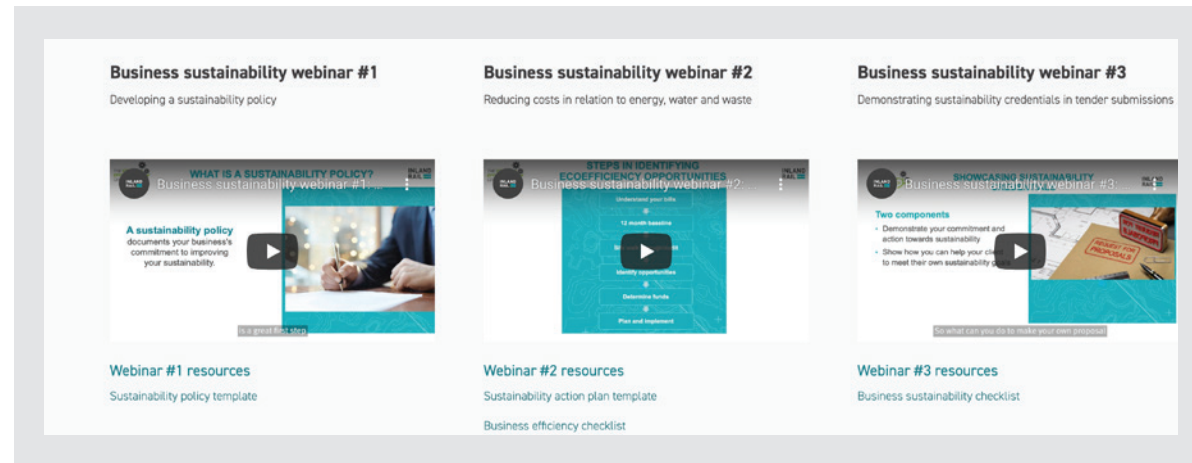
Helping suppliers build sustainability capacity

Promoting and supporting strong sustainability practices across our supply chain is important to Inland Rail. However, we recognise it's not always easy for businesses to know where to start when it comes to developing sustainable operations and services.

To assist, Inland Rail has developed a three-part webinar series in partnership with sustainability specialists, The Ecoefficiency Group. Each webinar provides tips on how to improve and promote business sustainability efforts to staff and clients.

The webinars are approximately 12 minutes long and provide a step-by-step guide to optimising sustainable business credentials and are available from the Inland Rail website. They also include downloadable toolkits to help get businesses started.

The capability building initiative is delivered through the Inland Rail Skills Academy and aligns with our commitment to raise sustainability awareness within our supply chain as part of our Sustainable Procurement Policy.



Webinars were launched in May 2021. This financial year:

- + 596 clicks to the webinar page
- + 113 businesses viewed the webinars.



[Inland Rail website sustainability webinars page](#)

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Results of supplier sustainability survey

Earlier this year, suppliers were invited to complete our sustainability survey to help us gain insight into the sustainability practices of our supply chain. Responses were intended to inform implementation of the Inland Rail Sustainable Procurement Policy and associated initiatives.

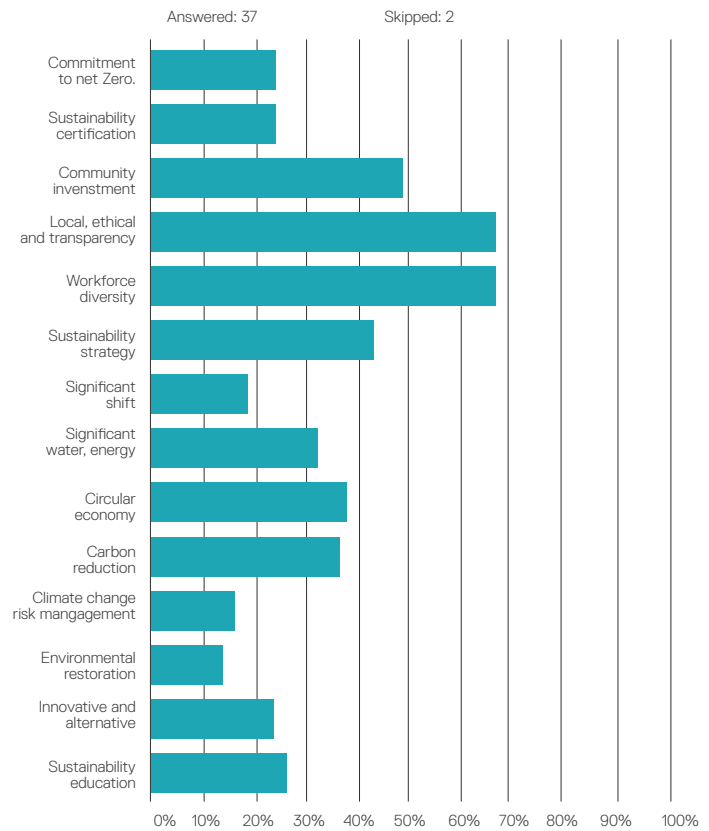
The survey was open to suppliers actively engaged on Inland Rail during the last financial year. Just under 40 suppliers responded primarily from professional advisory services and technical and design firms.

Key findings include:

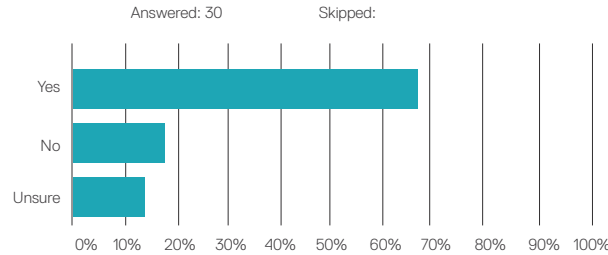
- + 86 percent of suppliers surveyed were Australian owned businesses.
- + 66 percent of suppliers surveyed are motivated to act on sustainability if it results in client promotion of their achievements.
- + The most common sustainability initiatives implemented were local and ethical supply chains, workforce diversity and community investment.
- + The least common sustainability initiatives implemented were environmental restoration and climate change adaptation.

Future surveys will include sub-contractors to Inland Rail projects.

Q5. Is your organisation achieving or formally working towards any of the following sustainability initiatives?



Q8. Does client promotion of supplier sustainability achievements motivate your organisation to act on sustainability?



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Suppliers in the spotlight

Wherever possible, we aim to use local content and maximise the spread of local economic benefit and this sees us engage contractors – large and small – who, in turn, use other local suppliers and businesses to complete the supply chain for Inland Rail delivery.

Businesses featured here provide additional social and environmental value to Inland Rail through sustainability initiatives or business operations, for example, reducing environmental footprints, engaging social enterprises, or providing sustainable certified products or services.

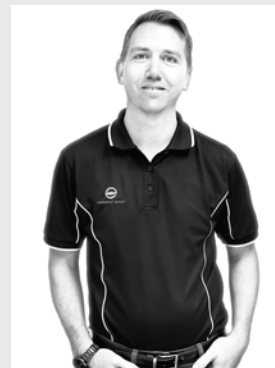


[Inland Rail website supplier page](#)



Local Goondiwindi surveying business SMK QLD and Gundy Men's Shed

Goondiwindi survey business, SMK QLD, used stakes and pegs made by their local Men's Shed for the Narrabri to North Star project. SMK QLD undertook four weeks of preservation of survey infrastructure work from North Star to Camurra and needed 200 stakes. They saw the wood workmanship from Goondiwindi Men's Shed on Facebook and reached out to see if the group could help. The Men's Shed were able to assist and sourced the timber from nearby Yelarbon.



Chris Smith,
National Sales Manager



Securgrid EPD

Global Synthetics, an Australian owned business supplied 'Securgrid' geofabric for silt fencing and slope stabilisation for the Narrabri to North Star project. This product is manufactured by Naue in Germany and has an Environmental Product Declaration (EPD), meaning the environmental impacts of the product have been assessed for each stage of its lifecycle. Stated benefits of the product include ease of installation, reduced need for aggregate, and longer design life.



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Lack Group is a 100% Australian family owned and privately-operated Indigenous business. They have supplied traffic management services for the Narrabri to North Star project creating new employment opportunities for local communities, Indigenous employment and skills development in the north-western region of NSW.

The business is registered with Supply Nation and as a proud Indigenous business is committed to improving employment opportunities for Aboriginal and Torres Strait Islander people through a strategy focused on Partnerships | Community Participation | Capacity Building | Sustainability.



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Design and construct for long term outcomes such as climate resilience and community legacy

Key focus areas for this objective:

- + Handover and legacy of projects as they complete construction.
- + Information sharing and engagement between Inland Rail and wider ARTC.
- + Climate resilient infrastructure outcomes.

Handover of Parkes to Narromine to Operations



The Parkes to Narromine section of Inland Rail was commissioned in late September 2020 and is now operational. Sustainability outcomes achieved by the project were presented in our 2019–2020 Annual Sustainability Report.

The project commenced construction in December 2018 and involved the upgrade of 98.4km of existing rail track, including a full rebuild of the rail tracks, rail formation and supporting structures along the rail corridor.

The 5.3km stretch of new rail track near Parkes, known as the North-West Connection now has trains using this section as part of the Sydney to Albury and Narromine (SNA) line. Handover to ARTC Operations involved significant effort including meeting regularly with all relevant teams well ahead of the commission date to ensure all activities were completed on time and systems such as the Network Control Centre updated to incorporate the change.

Following completion of Inland Rail in 2027, the Parkes to Narromine section will provide a direct rail link between south-east Queensland, Adelaide and Perth via the Parkes north-west connection. This connection will deliver immediate benefits with the east–west transcontinental line to Perth.

Parkes to Narromine was delivered in partnership with our Principal Contractor INLink a joint venture of Fulton Hogan and BMD Construction.



[Inland Rail website](#)
[Parkes to Narromine project page](#)

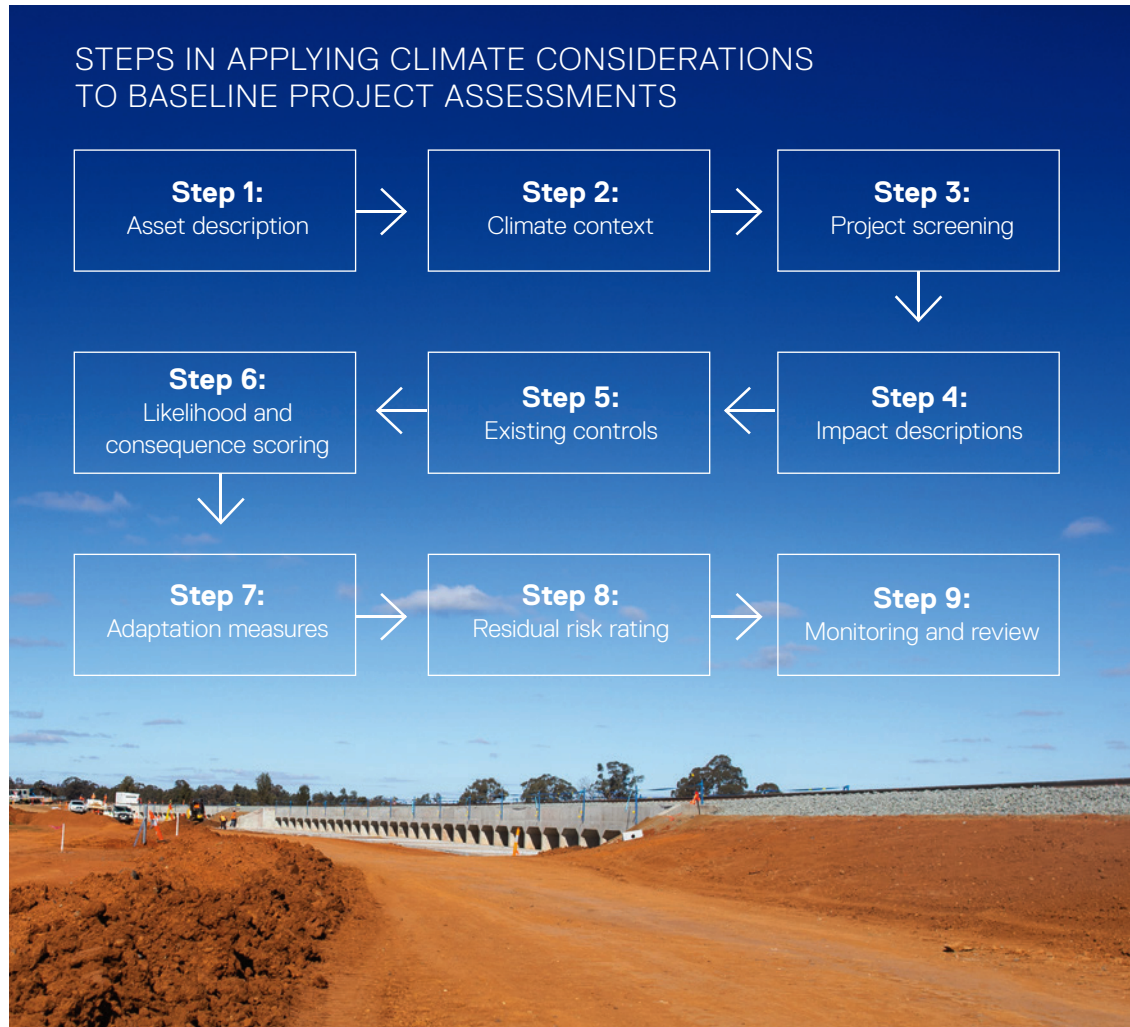
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Climate resilient infrastructure

Inland Rail is being designed, constructed and operated in a landscape subject to extreme weather conditions. In FY20 the region was impacted by the most devastating bushfires in recent history and long, ongoing drought.

There has been the challenge of extensive rain events and flooding as well as environmental challenges such as the mouse plague. These events highlight the importance of asset and network resilience through each phase of program delivery.

With this in mind, the Inland Rail Climate Change Adaptation and Risk Framework underwent a significant review process this financial year to ensure it reflects the best available science, builds on lessons learnt in terms of early applications, and is ready for the detailed design and development phase.



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Leaving a positive legacy in Peak Hill

Inland Rail Legacy Projects often involve partnering with local governments to deliver designated community projects. As part of the Parkes to Narromine project, Inland Rail funded Parkes Shire Council to deliver three community projects in Peak Hill. These include:

- + Design and construction of a 70m children's bike path at Linder Oval in Peak Hill to provide recreational opportunities for local children and a place where they can learn about rail safety.
- + Upgrade to a BMX track in Linder Park to provide a safe space for older children to ride and complement the Peak Hill skatepark located nearby.
- + Replacing aged picnic tables and benches along the walking track in the nature reserve in Peak Hill including wayfinding signage and a small information panel about the view of Harvey's Ranges.

The works were completed by Parkes Shire Council in November 2020 and to add further value to the Linder Park works Council planted 19 advanced trees and installed associated irrigation.



Completed children's bike path in Linder Oval.



Inland Rail Legacy Projects this financial year:

- + \$135,000 to Parkes Shire Council.

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CORS installed at Cecil Plains in support of the Inland Rail program.



Upgrading Australia's positioning infrastructure capability

Infrastructure projects that support the delivery of Inland Rail and regional economic development outcomes can be considered legacy projects.

Inland Rail has facilitated the installation of five Continuously Operating Reference Stations (CORS). These form part of the work Positioning Australia is undertaking in upgrading Australia's ground network through the National Positioning Infrastructure Capability. This was a collaboration between Inland Rail, Geoscience Australia, Queensland Transport and Main Roads, Goondiwindi Regional Council and Toowoomba Regional Council.


The project has filled a large blackspot that existed in the network between North Star and Gowrie with the five new stations located at Yelarbon, Inglewood, Bringalily, Pittsworth and Cecil Plains.


This new infrastructure will enable Inland Rail to capture efficient, consistent and accurate data during the detailed design phase. It will benefit the constructor through the accurate implementation of automated machine guidance systems and the use of accurate GPS surveying equipment.


Following handover this infrastructure will support the implementation of Advanced Train Management Systems (ATMS) on the ARTC network and will be a legacy project for the community supporting industries such as agriculture, construction, resources, road, rail and consumers.

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For more information

 1800 732 761

 inlandrailenquiries@artc.com.au

 ARTC Inland Rail, GPO Box 2462, Brisbane Qld 4000



inlandrail.com.au