



2023 IMPACT REPORT



Acknowledgements

Acknowledgement of Country

We acknowledge, respect and honour the Traditional Custodians of the lands on which we carry out our work. We also acknowledge their deep connection to land, water and culture, and pay our respects to their Elders past, present and future.

Respect for Te Ao Māori

We respect the tangata whenua of Aotearoa and are committed to upholding the principles of Te Tiriti o Waitangi and safeguarding te reo and other taonga.

We thank all our partners who have contributed to this report including the Infrastructure Sustainability Council members, suppliers, partners, policy makers, regulators, industry bodies, communities, tangata whenua and the Traditional Custodians of the lands we are privileged to work on.

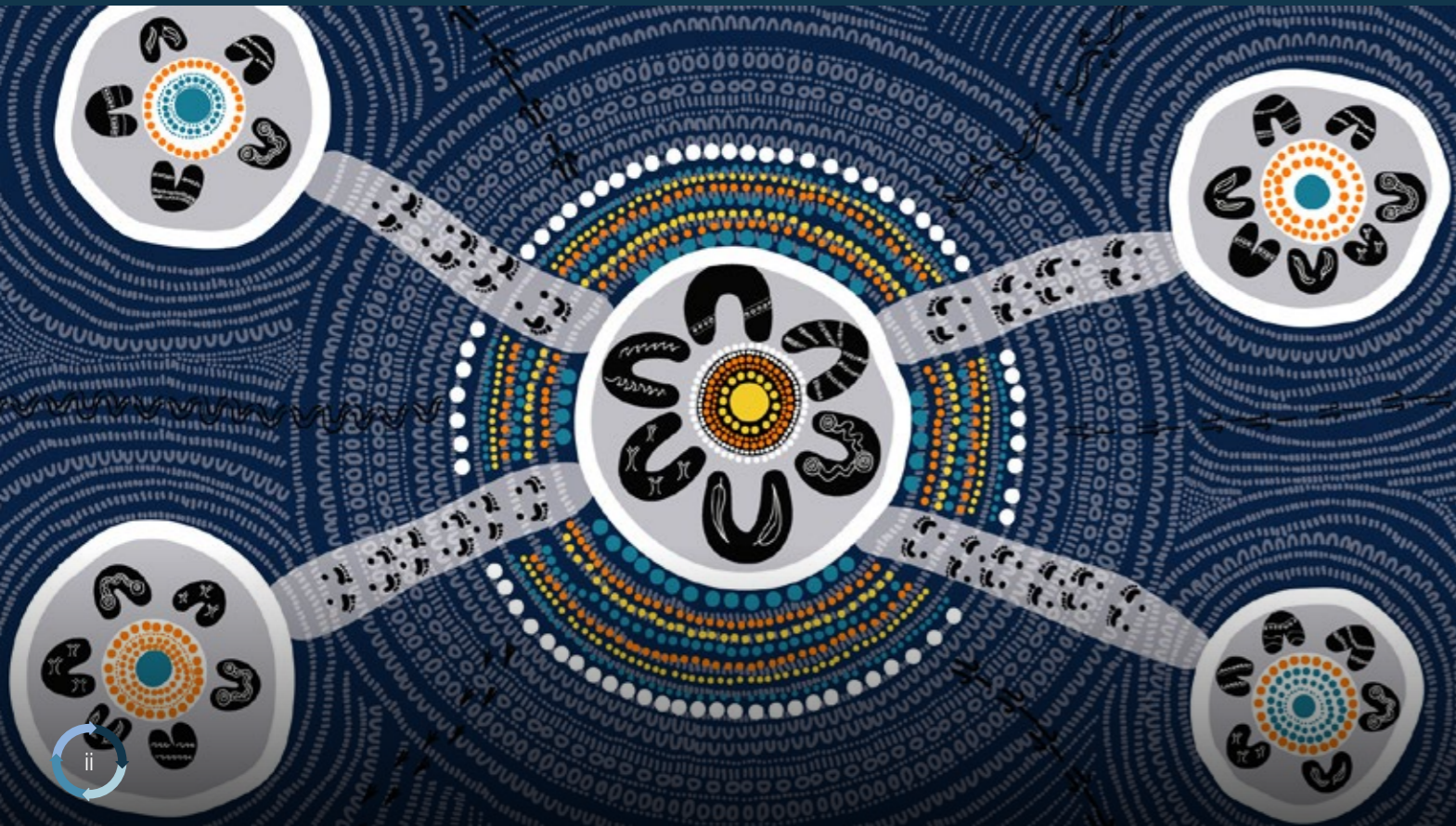


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USEFUL TERMINOLOGY

ISC	Infrastructure Sustainability Council (preparers of this report)
Outcomes	Direct, immediate effects of business practices, measured through environmental, social, economic and governance metrics; also known as the quadruple bottom line
Impacts	Indirect, long lasting slow to emerge effects of business practices, as experienced by recipients, evaluated through assessments and stories about the planet, people, and their prosperity
SDG	Sustainable Development Goal of the United Nations Agenda 2030
GHG	Greenhouse gas

Unless otherwise stated, dollar values (\$) are in Australian currency, and data relates to FY 2023 (1 July 2022 -30 June 2023)

Foreword

The winds of change are blowing, and our sector is raising its sails. Over the past three years, the interconnection and interdependence of our systems, value chains and communities has been bared through cumulative shocks and stressors. The global profile of risk severity over the ten-year horizon, reported by the World Economic Forum, is again spread across environmental and social considerations. As a result, sustainability is becoming a business imperative, with actions, outcomes and impact being operationalised beyond reporting. Purpose is underpinning strategy and policy; and implementation is defined by outcomes and integrity.

Next to pace and scale, the most valued practice is collaboration. It means different things to different people. For the Council and our members, collaboration is characterised by relationships founded on respect, and difference is expected, acknowledged and embraced. Collaboration occurs when many engage to overcome challenges and achieve outcomes that are bigger than those that can be achieved alone. The evidence base for this new order of sustainability leadership is apparent in each chapter of this Impact Report. The assured outcomes that are being credibly and transparently reported and validated are driving global best practice in infrastructure.

The requisites for collaboration are courage and the ability to lead from wherever you are, regardless of rank. Over the past financial year, we have seen a significant rise in the number of executives, senior leadership teams and project directors investing in sustainability and change management skills. More professionals have acquired sustainability as a core competency, and mentoring is on the RISE. Building our collective bench strength with deeper capability, new skills and more defined career paths will support our sector's workforce to act with ambition and purpose. Sharing successes and lessons within and across teams and subsectors, will reduce the learning curve for our Thriving Industry.

The year was defined by continued advocacy for positive change that supports industry to rapidly transition to more inclusive, resilient and low emission infrastructure. In every instance, embedding sustainability early is the most efficient, effective and financially sustainable way to enable enduring impact. Our thought leadership partnerships provided more detailed guidance for achieving social value in the built environment; while Beyond Climate

Positive provides a blueprint for the 2032 Olympic and Paralympic Games to create a sustainable ripple effect; with the Council as the infrastructure assurance partner.

Working alongside key industry partners and government stakeholders, it is remarkable how our sector has mobilised on decarbonisation; and through our tools and the national Infrastructure Net Zero initiative; we are ready to play our part in Market Transformation.

Infrastructure is a system of systems. At the project level, change is increasingly obvious. When shifting beyond the delivery phase through asset management and earlier to strategic and detailed planning, the complexities of elevating impact beyond asset boundaries is going to become an evolving challenge if infrastructure is to fulfil its purpose – enabling people to thrive.

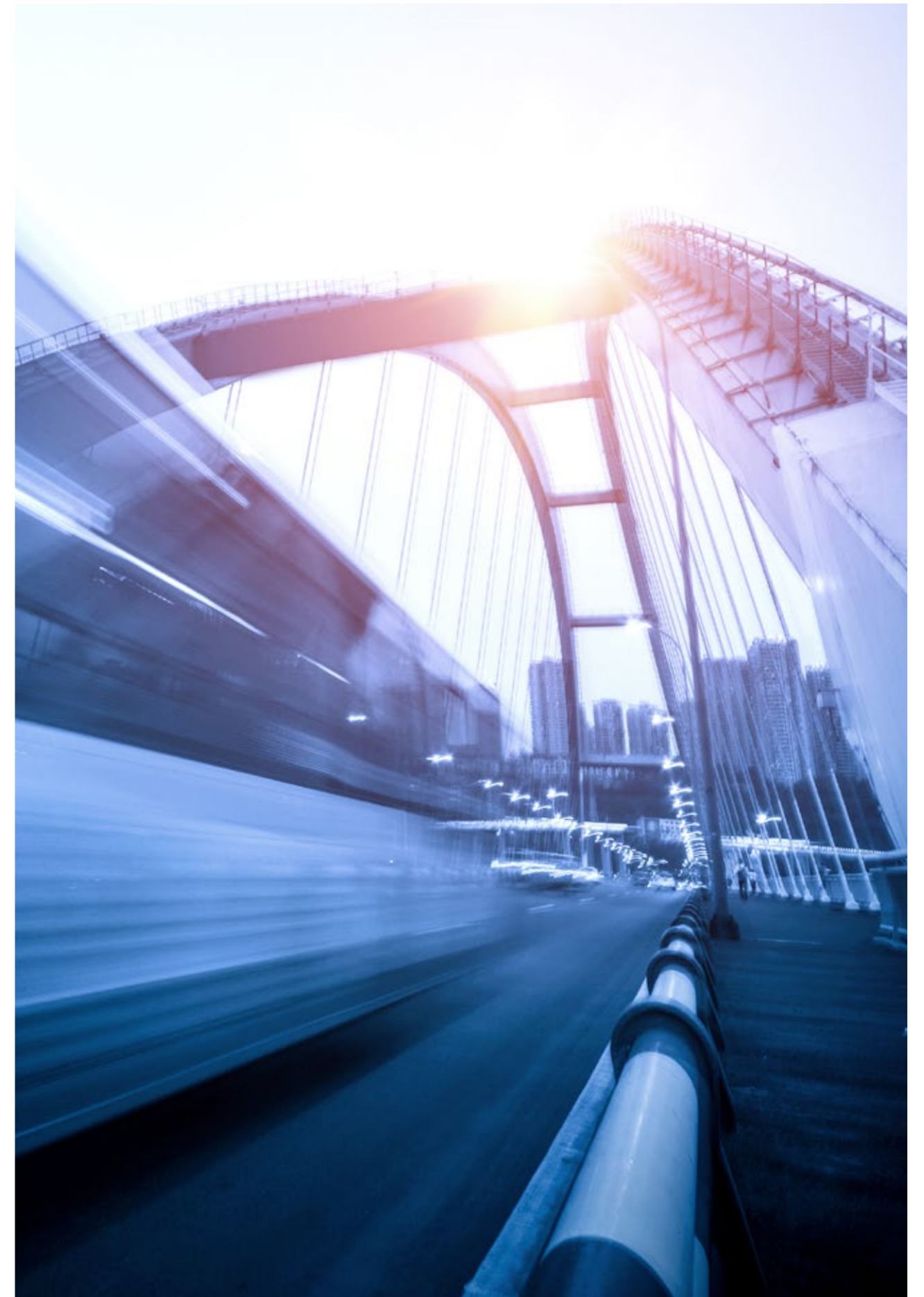
Infrastructure is delivered by people for people. The ISC is powered by purpose-led people that live our values of being collaborative, dynamic and responsible. It has equally been a year of investment for our Organisational Health. This included continued implementation of technology, new product development, optimisation of and improvements to value-creating services and the continuing evolution of the ratings business model.

Purpose is anchored in action. Across our sector there is an acceleration of action that is more integrated and intentional. There is greater focus on valuing those elements of sustainability that matter the most; nature, culture and Country; and human capability and influencing skills. Our action is also more iterative because better never stops. Performance benchmarks are shifting, and we continue to see continuous improvement in sustainability outcomes. Most importantly, we value the sector's commitment to act with integrity; build trust through transparency and measure what matters on purpose and with purpose.



Deborah Spring, Chair
1 July 2022 – 30 June 2023

Ainsley Simpson, CEO
1 July 2022 – 30 June 2023



Impact Sustainability Council Sustainability Model

We make a difference through our focus on:

Our purpose

4 strategic goals

12 strategic objectives

5 member benefits

4 impact themes

17 SDGs



Highlights

Infrastructure Sustainability Council Strategic Highlights FY23

LEADERSHIP

49
new registrations
worth \$58.92 billion

7
IS Essentials Pilot
projects

45
projects certified
worth \$28.2 billion

THRIVING INDUSTRY

2,804
attendees at
FY2023 events

109%
in ISAP training
participants

243
members

MARKET TRANSFORMATION

Steered and
convening
Infrastructure Net
Zero

15
Policy consultations
and submissions

17
Working groups
ISC contribution

ORGANISATIONAL HEALTH

▲ 13%
Growth in
employees

Staff gender
balance:
56% Female
40% Male
4% Undisclosed

17
nationalities

IS Ratings Scheme highlights FY23

30%
lifecycle material
emissions avoided

59%
operating energy
emissions avoided

54%
lifecycle energy
emissions avoided

100%
projects using
materials with
sustainability
credentials

10.7M
tonnes resources
diverted from
landfill

96%
waste diverted
from landfill

11%
reduction in asphalt
from base case

323,449M
tonnes reduction
in concrete from
base case

38%
Operating water
use avoided

Innovation:
2 World Firsts
30 National Firsts
21 Regional Firsts

45 Certifications:
5 Planning
24 Design
14 As-Built
2 Operations

**Social credits for
certified projects:**
95% completed stakeholder
engagement strategies
75% undertook heritage
assessment and
management

2 Impact Notes:
Modern Slavery
Low Embodied Carbon
Materials

88%
increase in
digital reach

17
working groups
ISC contribution



01 Infrastructure Sustainability Council

Executive Summary

Creating pathways for sustainable development and reduced emissions

Structure of this Document

This Impact Report begins by reviewing the Infrastructure Sustainability Council's organisational structure. It reflects on our collective action over the past financial year, working towards our strategic goals. Finally, it showcases sustainability in action with a range of case studies that demonstrate innovation and outcomes in infrastructure.

Driving Change

Our Purpose

In this report, the Infrastructure Sustainability Council outlines our four Strategic Goals: Leadership, Thriving Industry, Market Transformation and Organisational Health. Our goals support the industry in delivering best practices and achieving long-term outcomes that support all beneficiaries. They also uphold the principles of the quadruple bottom line.

Our strategic goals are designed to drive our purpose - to ensure that all infrastructure delivers social, cultural, environmental and economic benefits: Three of our goals shape our work outwardly toward industry, while the fourth, organisational health, addresses the Council's internal behaviour.

- **LEADERSHIP** - drive global best practice through sustainability.
- **THRIVING INDUSTRY** - enable connection, collaboration and ambition.
- **MARKET TRANSFORMATION** - advocate for change that supports rapid transition.
- **HEALTHY ORGANISATION** - ensure that we are purpose-led, inclusive and high-performing.

Our Areas of Influence

Operating across Australia and Aotearoa New Zealand, we are a member-centric, purpose-led peak body. We measure what matters.

Every day we work to shape a positive future across four key dimensions: Planet, People, Prosperity and Industry. These focus areas guide our endeavours as we build on our purpose

Planet – Working to drive climate action, regenerate our ecosystems and transition to a circular economy.

People – Enabling communities to thrive as they go through structural change and transition, ensuring well-being for current and future generations.

Prosperity – Measuring infrastructure's socioeconomic value so that we can better deliver inclusive, resilient, and sustainable livelihoods and economies.

Industry – Collaborating to build a world-class industry with a healthy, inclusive workforce, responsible agile supply chain and sustainable and aligned investment and governance.

How we operate

We strive to fulfil our purpose through our everyday actions. We deliver the Infrastructure Sustainability (IS) Rating Scheme, overseeing, maintaining and developing it in collaboration with our members to ensure it guides continuous improvement.

The Rating Scheme covers all stages of the asset lifecycle, including planning, design, construction and operation. It operates across all asset types and all regions of Australia and Aotearoa New Zealand. Through the IS Rating Scheme, we drive outcomes through procurement value chains, measure impact and assure performance across the quadruple bottom line.

Through industry engagement, recognition of best practice, training and education we build a connected, collaborative and capable sector. We also support industry through the Infrastructure Sustainability Council's ISupply directory, connecting suppliers of sustainable products and services, and through our annual awards.

We collaborate with infrastructure stakeholders throughout Australia and Aotearoa New Zealand, bringing them together to address emerging and ongoing sustainability issues, driving systemic change, mobilising industry leaders to advance policies, standards and specifications, that are delivering a low-carbon, inclusive and more resilient infrastructure industry.

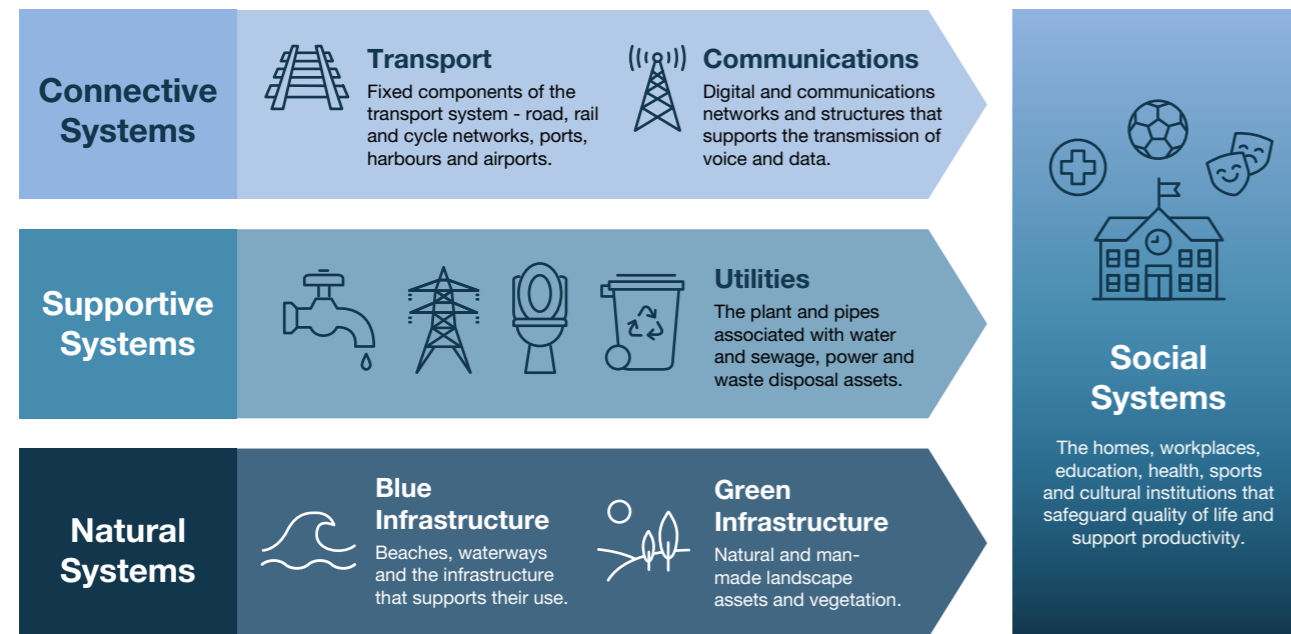
These stakeholders include:

1. Asset owners, delivery agencies and project proponents
2. Policy makers and regulators
3. Contractors
4. Consultants
5. Operators
6. Suppliers
7. Industry bodies, not for profits and academia

Our strategic goals set our course for delivering on our purpose and vision. These goals shape our work and guide our actions.

Our network

Infrastructure is a network of systems which enables people to thrive. This network includes connective, supportive, natural and social systems. Collectively, these systems create a thriving nation by supporting resilience and productivity, and by improving quality of life and liveability.



This network of systems relies on the breadth of knowledge, expertise and experience of stakeholders to continuously embed sustainability in a viable, scalable and synergetic way.

At the heart of this system of systems is the Infrastructure Sustainability Council's ambitious connected membership.

Our Strategic Plan

Our strategy outlines a clear pathway toward achieving our purpose and vision through our four strategic goals. This strategic plan is reviewed annually. This involves evaluating feedback, analysing trends and assessing risks. The board regularly monitors our performance against our Key Performance Indicators.



Our Board

Board members are appointed for a term of 3 years which may be renewed once. There are four independent Directors, six Member Directors and five co-opted Directors. As at 30 June 2023, the gender composition is 50% male and 50% female.



Deborah Spring, Chair
Wurundjeri/Gadigal/Turrbal Country
[LinkedIn](#)



Craig McGrory, Director
Gadigal Country
[LinkedIn](#)



Philip Helberg, Director
Whadjuk Noongar Country
[LinkedIn](#)



Dorte Ekelund, Director (Retired)
Dharawal Country
[LinkedIn](#)



Jeremy Stone, Director
Wurundjeri Country
[LinkedIn](#)



Alison Price, Director (Retired July 2023)
Turrbal/Yuggera Country
[LinkedIn](#)



Amelia Linzey, Director
Tamaki makaura
[LinkedIn](#)



Amanda Yeates, Director (Retired)
Kabi Kabi/Gubbi Gubbi Country
[LinkedIn](#)



Bethia Gibson, Director
Te Whanganui a Tara
[LinkedIn](#)



Leo Coci, Director (Retired)
Whadjuk Noongar Country
[LinkedIn](#)



Julie Morgan, Director
Gadigal Country
[LinkedIn](#)



Glenn Hedges, Director
Turrbal/Yuggera Country
[LinkedIn](#)



Fin Robertson, Director
Wurundjeri Country
[LinkedIn](#)



Jody Williams, Company Secretary
Wurundjeri Country
[LinkedIn](#)

Our Board Committees

Governance & People

Deborah Spring, Chair	Jeremy Stone
Jody Williams	Amelia Linzey
Ainsley Simpson	









Finance, Audit & Risk

Bethia Gibson (Chair)	Craig McGrory
Julie Morgan	Alison Price (Retired)
Brad Sherringham* (co-opted)	Ainsley Simpson

Market Development

Jeremy Stone (Chair)	Fin Robertson
Glenn Hedges	Philip Helberg
Amelia Linzey NZ	Adam Roberts* (co-opted)
Alex Osti* (co-opted)	Anne Hellstedt* (co-opted)
Brett Joyce* (co-opted)	Rehka Kharbanda* (retired)
Ainsley Simpson	

Our Leadership Team

 <p>Ainsley Simpson, Chief Executive Officer Gadigal Country</p>	 <p>Patrick Hastings, Chief Delivery Officer Turrbal Country</p>
 <p>Jane Nicholls, Chief Engagement and Development Officer Gadigal Country</p>	 <p>Liesel Wightwick, Chief People and Performance Officer Gadigal Country (to April 2023)</p>
 <p>Dr Kerry Griffiths, IS Technical Director Te Whanganui a Tara Country</p>	 <p>Owen Buckley, General Manager, Ratings and Delivery, Turrbal Country</p>
 <p>Ainsley Jardine, General Manager, People and Culture Gadigal Country</p>	 <p>Brendan Lucas, Chief Finance Officer (Commenced May 2023)</p>

Ministerial Forewords



Catherine King MP

Commonwealth Minister for Infrastructure, Transport & Regional Development

Infrastructure is one of the truly intergenerational industries. We live our lives surrounded by projects built by generations past. Just the same, the projects we build today will outlive us, shaping the lives of those to come.

There are many ways we measure the impact that infrastructure has on our lives today – commutes shortened, goods delivered, jobs created, apprentices trained, roads built, tracks laid and economic productivity boosted. But considering the impact our investments will have on the lives of those to come is a far more difficult task.

That is what the Infrastructure Sustainability Council is here to do. The Infrastructure Sustainability Rating Scheme considers something fundamental – the impact that projects have on our natural and social environments, to drive us to embed sustainability in our construction practices to ensure they benefit communities at large for generations to come. Rewarding sustainability across the infrastructure asset lifecycle, the Infrastructure Sustainable Council is encouraging us all to use our heads, as well as our hearts, in building intergenerational wellbeing into the built environment of our cities, our regions and our nation.

As our region continues the transition to renewable energy and net-zero economies, this work is more important than ever.

I am proud to say that this is something that our government is taking to heart. We know that while transport and construction are essential industries, they are also heavy emitters. That's why we are bringing a new focus to tackling the roughly 10 per cent of emissions caused by the construction and operation of infrastructure in Australia. In particular, we are working with the states, territories and industry to develop a nationally consistent approach for valuing and measuring embodied carbon and considering policy levers available to reduce emissions.

Over the course of the next year, we will also develop a Transport and Infrastructure Net Zero Roadmap and Action Plan that will cover all areas of this essential sector – and I know that many of the project proponents and contractors highlighted in this report will be ready to work with us as we continue this important work.

Reading these pages, I am encouraged by the ingenuity and initiative on display and I send my congratulations to those recognised for their works. With more projects like these, I know that we will leave a lasting legacy worthy of generations to come.

Eva Lawler MP

Minister for Infrastructure, Planning & Logistics, NT

The infrastructure sector across Australia and New Zealand has worked hard to strive towards our collective goal of a more sustainable future, but there is still plenty more work to be done. The Infrastructure Sustainability Rating Scheme for over a decade now has been at the forefront of that work, highlighting the need for sustainable infrastructure in anticipation of a brighter future.

“As the Northern Territory’s Minister for Infrastructure, Planning & Logistics, I am humbled and honoured to be able to help shape our infrastructure projects alongside an amazing team, with sustainability at the forefront of our minds. We are committed to creating a greener, cleaner future in the Territory for all, whether that be through roads, bridges, buildings or renewable hubs.



James Shaw MP

Minister for Climate Change, New Zealand

Infrastructure assets are extremely long lived. So, this industry is well versed in the myriad challenges presented by the climate crisis, the costs to come, the opportunities, and the savings to be made. Living in a carbon constrained world means we must, now, not only deliver projects on time, and on budget, but also, with radically reduced emissions.

The New Zealand Government’s ambition can be seen in our National Adaptation Plan, published in August 2022. This is our long-term vision to build more resilient homes, infrastructure, and communities, in the right places. Its objectives are to make good decisions across the whole lifecycle, from investment and planning to design and construction, and operation and maintenance.

This Government’s co-funding deal with New Zealand Steel, to produce lower carbon steel, shows how we are working with industry to reach net zero. Once up and running, it will stop about 800 thousand tonnes of pollution from going into the atmosphere, every year. With these kinds of strategic partnerships, we can leverage our strengths.

We all have a role to play. Government can use its buying power and influence to set expectations, find solutions, and scale up. Industry can help identify problems, explore linkages, and test best practice. Congratulations to everyone in the sector who has worked so hard in bringing green infrastructure to life, creating an intergenerational impact for decades to come. I look forward to seeing the more sustainable future created by you all.



The ACT Government is investing for a sustainable future by building efficient and effective transport and supporting knowledge-based economic growth with education infrastructure.

We see this in action through two of our major transformational projects currently underway.

- Our Light Rail Stage 2 project has achieved an Infrastructure Sustainability Council score of 79.4 providing a 'Leading' rating for design work on the Raising London Circuit Project component. We are committed to the reduction of Scope 1 emissions, achieving carbon neutrality for Scope 1 and 2 emissions and achieving an 'as-built' Infrastructure Sustainability rating of 75 points and above. We are also investigating opportunities to minimise impacts to the environment by using low carbon materials.
- In Canberra's south we're delivering a state-of-the-art education precinct via a contemporary, flexible, smart, and sustainable CIT Campus. The project is on track to achieve a six-star environmental rating, with the design encompassing key sustainability initiatives including renewable energy and water reuse systems, as well as incorporating areas of extensive tree canopy and increased permeability in the urban realm. The project is also aiming to divert 90% of construction and demolition waste from landfill.



Chris Steel MP
Minister for Transport and City Services, ACT

I am looking forward to transforming Canberra into a circular city through our recently launched draft Circular Economy Strategy. The strategy identifies the built environment as a key sector to reduce material usage, and I look forward to the implementation of innovative ideas through our infrastructure program.

The ACT is on its way to being a thriving and equitable city that respects the limits of our planet. I thank and congratulate our dedicated workforce and delivery partners for their commitment to helping us achieve our goals and deliver intergenerational change for our city.



Andrew Barr MP
Chief Minister, ACT

Good infrastructure supports a productive economy – but it can do much more than that. Infrastructure that is well planned and thoughtfully delivered can improve people's quality of life, strengthen effective service delivery, support adaptation to a changing climate and break down barriers to social inclusion.

These considerations are front and centre in the ACT Government's approach to planning, designing and delivering new projects in every sector and region across the Territory.

The ACT Government has put climate change mitigation and adaptation at the centre of our planning for Canberra's future infrastructure. This not only extends to the type of projects given priority, but also how these are delivered. As a tangible example, our new light rail network, which is now run entirely from renewable electrical energy, provides a safe and reliable public transport option which decreases Canberra's transport-related emissions, and achieved a Leading rating from the Infrastructure Sustainability Council.

Independent sustainability rating tools, such as the Infrastructure Sustainability Rating Scheme, enhance our ability to deliver sustainable outcomes and continuously challenge us to do more. That is why all new ACT Government capital works, with a budget of more than \$10 million, are required to seek or be consistent with an independent sustainability rating. This commitment has been designed to keep the infrastructure being delivered in Canberra to the standards our community expects and support our net zero emissions ambition.

I'd like to thank those planning, designing and delivering the infrastructure required to support our growing city and nation. Modern infrastructure, better connectivity, and revitalised facilities will support community wellbeing, making life easier and more enjoyable for all.



Steven Miles MP

Queensland Deputy Premier

Our golden decade of opportunity is here.

Queensland is on the cusp of a new wave of economic growth, driven by the global shift to cleaner, greener and more sustainable products and services.

The commitment to tackling climate change is accelerating in all sectors of the economy, and decarbonisation will continue shape how Queensland moves forward. My department is a proud member of the Infrastructure Sustainability Council and continues to work collaboratively to future-proof infrastructure for our growing state.

The Queensland Government is supporting the sector's transformation by embedding sustainable infrastructure practices in project planning and delivery. A roadmap is being developed to reduce emissions across our \$89 billion infrastructure pipeline, while the Queensland New Industry Development Strategy is in place to grow industries critical to the shift to a net zero economy.

Our commitment to deliver a climate positive Brisbane 2032 Olympic and Paralympic Games will help accelerate this transition. Measures including primarily using existing or temporary for 84% of the needed Brisbane 2032 Olympic and Paralympic Games venues, targeting 6-Star Green Star Buildings ratings for new venues where relevant, will minimise carbon emissions and leave a legacy of low-impact infrastructure. Importantly, a climate positive Games will show our commitment to a cleaner future in practice and inspire action towards decarbonisation targets.

I look forward to working with ISC, industry and Queenslanders to build this legacy with lasting benefits for our climate and communities.

Victoria is turning waste into endless opportunities for construction materials.

Sustainability in the delivery of transport infrastructure is a key cornerstones of Victoria's Big Build, as we seek to build a better transport future while leaving a lasting legacy for generations of Victorians.

We're committed to growing Victoria's recycling capabilities and creating local markets for recycled content by turning waste into valuable construction materials. A key driver of this change is the Recycled First Policy, which for the first time in Australian history requires contractors building Victorian transport projects to optimise their use of recycled and reused materials.

The Victoria's Big Build ecologiQ program has been established to champion this change, and has already resulted in 2.4 million tonnes of waste products being repurposed to find a new life on our projects instead of ending up in landfill.

On the Mordialloc Freeway we've collaborated with local industry to create noise walls made of 75 per cent recycled plastic. Once they've reached the end of their lifecycle, each panel will be recycled and turned back into new recycled plastic noise wall panels. In Melbourne's west, workers used more than 590,000 plastic bags and toner from 13,000 print cartridges to resurface Duncans Road in Werribee.

Leveraging the Victorian Government's unprecedented \$100 billion investment in transport infrastructure, ecologiQ is seeking to be recognised as the world leader in the sustainable use of recycled and reused materials by 2025.



Hon. Jacinta Allan MP

Premier, Victoria

The Transport for NSW Net Zero and Climate Change Policy details our decarbonisation targets to reach net zero in all NSW transport sector emissions by 2050, and sets out the principals and requirements to support the sector's transition.

The Transport Sustainable Infrastructure Program will connect this vision with practical action on our projects and provides industry with certainty about our priorities.

As the fastest-growing source of emissions in Australia, the transport sector has an important role to play in decarbonisation. Embedding sustainability principles in new transport infrastructure is particularly important given the scale of investment, long asset life and impact transport projects have on communities.

Transport for NSW is focussing on how to plan, procure, design and build transport infrastructure with decarbonisation and circular economy approaches from the outset, while continuing to create a transport network that is resilient, adapted to a changing climate, and continues to meet the needs of our public transport passengers and road users.



Hon. Joanna Haylen, MP

Minister for Transport for New South Wales



Dr Megan Woods MP

Minister for Infrastructure, New Zealand

Today's infrastructure investments lay the foundations for tomorrow. So sustainability and resilience must guide our development activities to ensure future inhabitants of Aotearoa New Zealand can grow, learn and thrive.

Towards this, the government has made commitments to reducing the country's carbon emissions and helping communities adapt to climate change. Our core legislation is the Climate Change Response Act 2020 which, among other things, provides a framework for government to develop National Adaptation Plans and Emissions Reduction Plans – the first of which were released in 2022.

Through these plans, and our Infrastructure Action Plan released earlier this year, and the recently announced National Resilience Plan, we have a focus on improving the resilience of critical infrastructure such as hospitals and transport, water, energy and telecommunications networks to extreme weather events and other threats – which are taking an increasing toll on the lives and livelihoods of New Zealanders.

We're determined to ensure that the transition to a resilient, low emissions economy is fair, equitable and inclusive – and rating schemes such as the ISC's can play a key role in keeping us on track towards these objectives.

Increasingly our largest infrastructure asset owners and operators are considering the contribution they can make to sustainability outcomes through positive environmental, social, cultural and wider economic impacts. This includes incorporating climate change and natural hazard risks into investment, planning, design and operational decisions. And using low-carbon materials and dematerialising designs wherever possible.

Our biggest infrastructure builder, Waka Kotahi (the New Zealand Transport Agency), requires certification under the ISC rating scheme for high value projects. KiwiRail and many local government asset owners are also on board. We can see the value that ISC rating schemes and tools can deliver in projects such as Auckland's City Rail Link project, Te Ahu a Turanga: the Manawatu Tararua Highway, and Te Ara Tupua: a new walking and cycling link between Wellington and Lower Hutt.

The Infrastructure Sustainability Council and IS Rating Scheme are an important part of helping our community of forward-looking infrastructure owners, operators, and deliverers to create a legacy future generations will thank us for.



02 Setting our Ambition

Our Strategic Goals



LEADERSHIP

Drive global best practice in infrastructure

1



THRIVING INDUSTRY

Enable the industry to be connected, collaborative and ambitious

2



MARKET TRANSFORMATION

Advocate for change that supports industry to rapidly transition

3



ORGANISATIONAL HEALTH

Be purpose-led, inclusive and high performing organisation

4

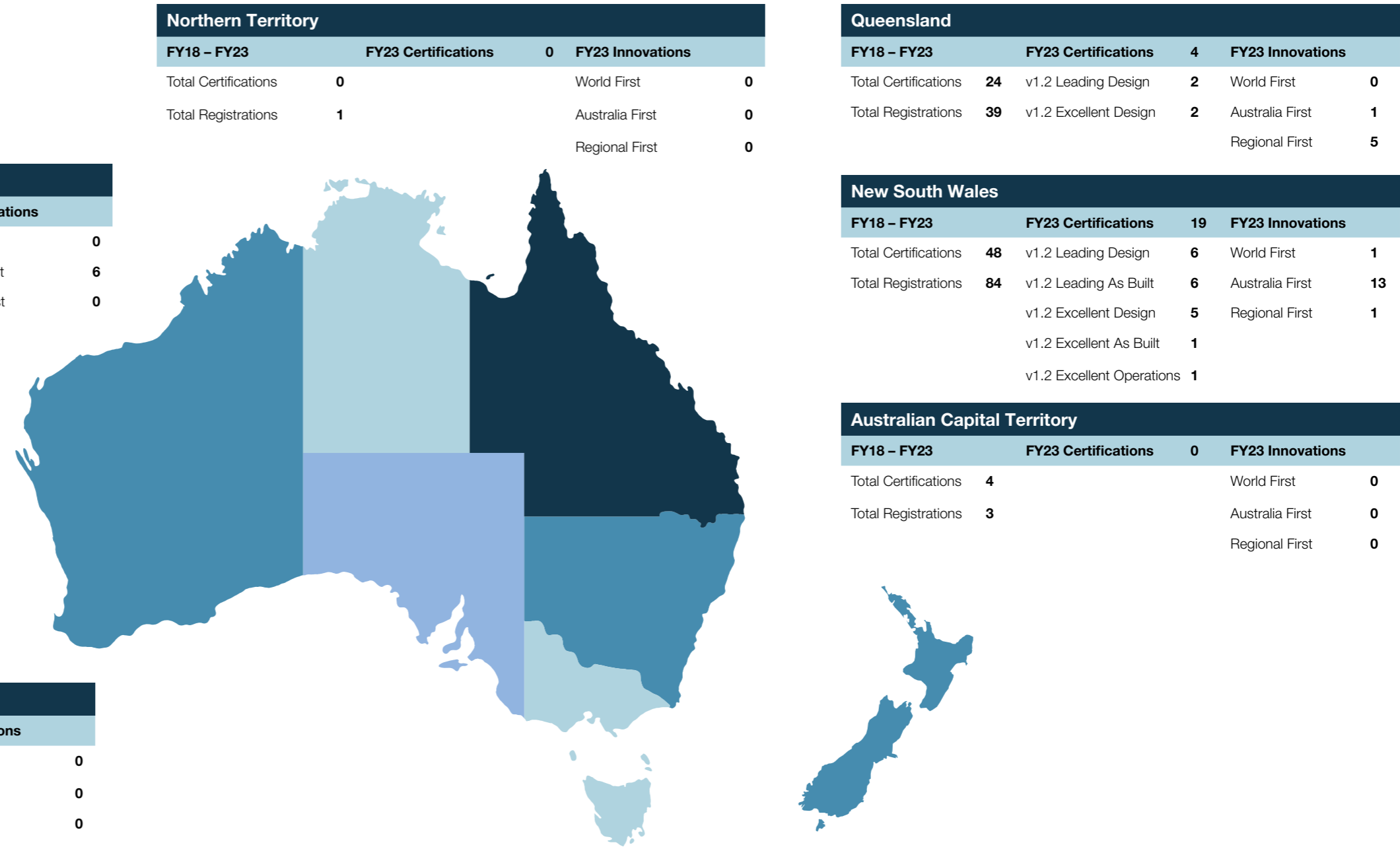




GOAL 1

Leadership | Kaitiakitanga

IS Rating Scheme Outcomes by Region FY23



Western Australia					
FY18 – FY23	FY23 Certifications		7	FY23 Innovations	
Total Certifications	18	v2.0 Gold	1	World First	0
Total Registrations	35	v1.2 Leading As Built	1	Australia First	6
		v2.0 Bronze	3	Regional First	0
		v2.0 Silver	2		

Northern Territory					
FY18 – FY23	FY23 Certifications		0	FY23 Innovations	
Total Certifications	0			World First	0
Total Registrations	1			Australia First	0
				Regional First	0

Queensland					
FY18 – FY23	FY23 Certifications		4	FY23 Innovations	
Total Certifications	24	v1.2 Leading Design	2	World First	0
Total Registrations	39	v1.2 Excellent Design	2	Australia First	1
				Regional First	5

New South Wales					
FY18 – FY23	FY23 Certifications		19	FY23 Innovations	
Total Certifications	48	v1.2 Leading Design	6	World First	1
Total Registrations	84	v1.2 Leading As Built	6	Australia First	13
		v1.2 Excellent Design	5	Regional First	1
		v1.2 Excellent As Built	1		
		v1.2 Excellent Operations	1		

Australian Capital Territory					
FY18 – FY23	FY23 Certifications		0	FY23 Innovations	
Total Certifications	4			World First	0
Total Registrations	3			Australia First	0
				Regional First	0

South Australia					
FY18 – FY23	FY23 Certifications		0	FY23 Innovations	
Total Certifications	5			World First	0
Total Registrations	4			Australia First	0
				Regional First	0

Victoria					
FY18 – FY23	FY23 Certifications		14	FY23 Innovations	
Total Certifications	55	v1.2 Leading Design	3	World First	0
Total Registrations	63	v1.2 Leading As Built	6	Australia First	8
		v1.2 Excellent Design	2	Regional First	15
		v1.2 Excellent Operations	1		
		v1.2 Commended Design	1		
		v2.0 Silver	1		

New Zealand					
FY18 – FY23	FY23 Certifications		1	FY23 Innovations	
Total Certifications	5	v1.2 Leading Design	1	World First	1
Total Registrations	17			New Zealand First	2
				Regional First	0

Tasmania					
FY18 – FY23	FY23 Certifications		0	FY23 Innovations	
Total Certifications	0			World First	0
Total Registrations	2			Australia First	0
				Regional First	0

LEADERSHIP OBJECTIVE 1: RATINGS

Objective	What Success Will Look Like
Provide industry with a valued Rating Scheme that promotes continuous improvement and innovation	<p>People who work in the infrastructure industry in Australia and Aotearoa New Zealand stand proudly behind their position as global leaders in sustainable infrastructure. They understand the importance of continuous improvement and outcompete their own performance in every project and asset they work on or manage.</p> <p>The IS Rating Scheme is the standard widely embraced by all sectors and people working at all levels of the industry. It is an accessible, digital and cost-effective tool that is globally acclaimed. It is widely praised for its genuine approach to intergenerational wellbeing. It fosters partnership and rewards inclusion of Indigenous, mana whenua and First Nations perspectives across the Scheme, enabling broader long-term outcomes.</p>

The IS Ratings Scheme

The Infrastructure Sustainability (IS) Rating Scheme is the industry standard in evaluating the social, environmental, governance and economic performance of infrastructure.

By using the Scheme as a strategic asset in the infrastructure sector, the Infrastructure Sustainability Council fulfills its ambition to provide sustainability leadership.

The scheme has received widespread acceptance due to its many advantages, which include:

- It provides standardised benchmarks across jurisdictions to measure and report on sustainable infrastructure.
- It provides independent third party assured data of infrastructure assets.
- It rewards the sustainability performance of infrastructure assets.
- It measures all aspects of infrastructure – planning, design, procurement, construction, operations and maintenance.
- It supports all stakeholders, including owners, designers, constructors and operators.
- It drives best practice.
- It is open to continuous improvement and additional development, and encourages innovation

IS Planning

To deliver greater impact and to drive superior sustainability outcomes, the ISC acknowledges that there is a need for the consideration of sustainability principles earlier in the life cycle of major infrastructure. Consequently, in September 2023 the ISC released the IS Detailed Planning v2.1 Rating Tool, a global first that focuses on the planning phase of infrastructure development.

The release of the Detailed Planning tool has been the result of several years of collaboration with industry and government. In July 2018 the IS Planning v2.0 tool was released in the beta phase and has attracted 18 projects, predominantly pioneered in Western Australia (WA).

The review of IS Planning commenced in 2021 and included significant stakeholder engagement with focus groups, verifier feedback, technical working groups and specific workshops with projects in beta-testing.

The feedback made clear the need to split the IS Planning rating into two phases; Strategic Planning and Detailed Planning. In September 2023 Detailed Planning was launched and Strategic Planning was released for beta-testing. Embedding sustainability from the outset will be catalytic in driving greater sustainability outcomes into the future.

IS Ratings FY18-FY23 – A snapshot

248 projects were registered between FY18 and FY23:

- 49 new projects registered for a rating in FY23
- An additional 7 projects registered as pilot partners for IS Essentials in FY23
- Total value of assets under rating in FY23 was \$154 billion
- The 47 projects certified in FY22 were more than double the combined totals for FY20 and FY21.
- Continuation of a high level of certifications with 45 in FY23.
- Average performance over time has incrementally improved
- Transport was the most common asset class that utilised the IS Rating Scheme

	FY18	FY19	FY20	FY21	FY22	FY23	TOTAL
Registered projects	25	23	41	49	61	49	248
Certified Projects	9	17	22	19	47	45	159
Capex registered projects (\$M)	16,581	9,060	12,367	20,490	36,688	58,982	154,168
Average capex (\$Bn)	0.66	0.39	0.30	0.42	0.60	1.20	3.58

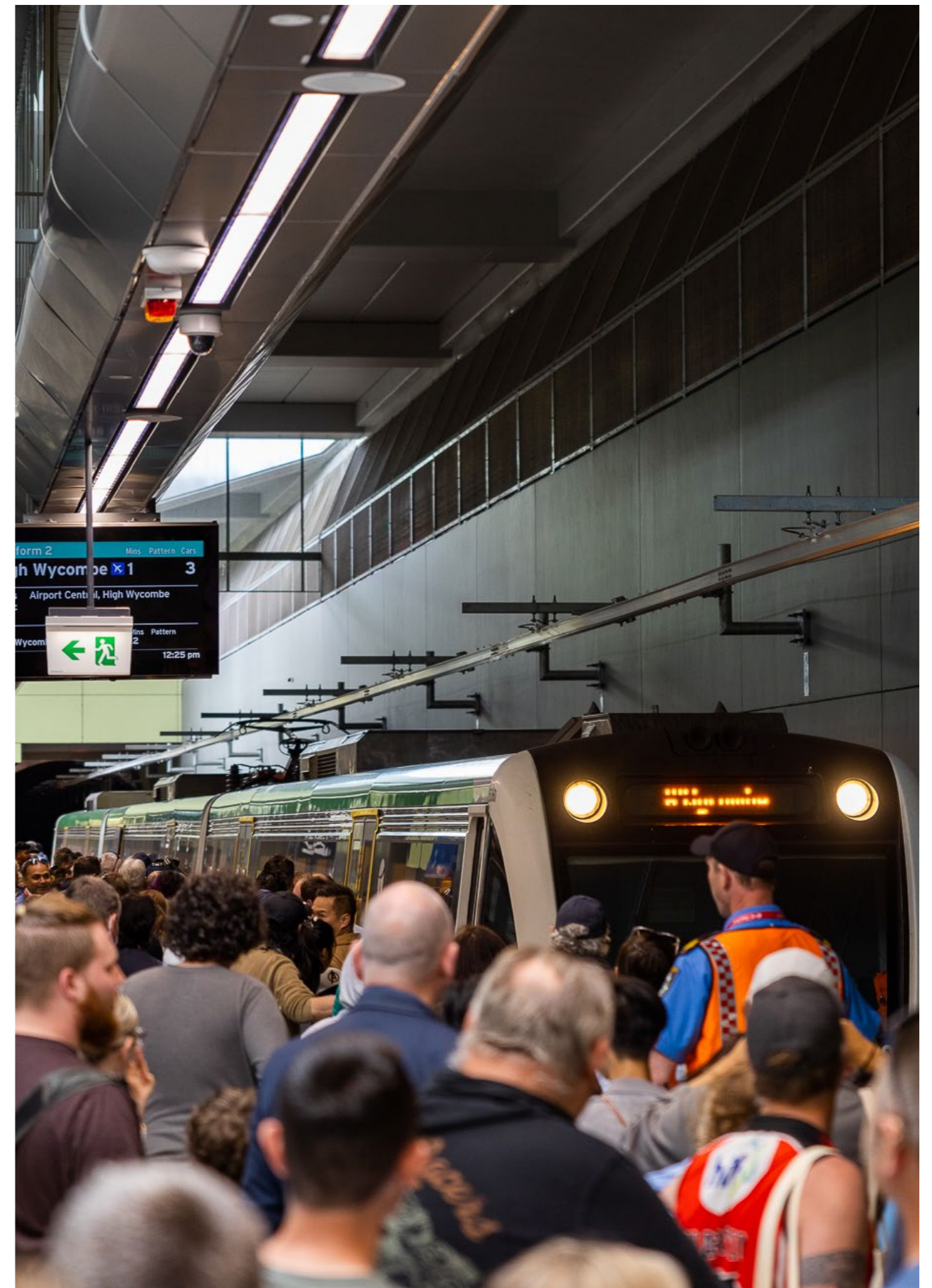
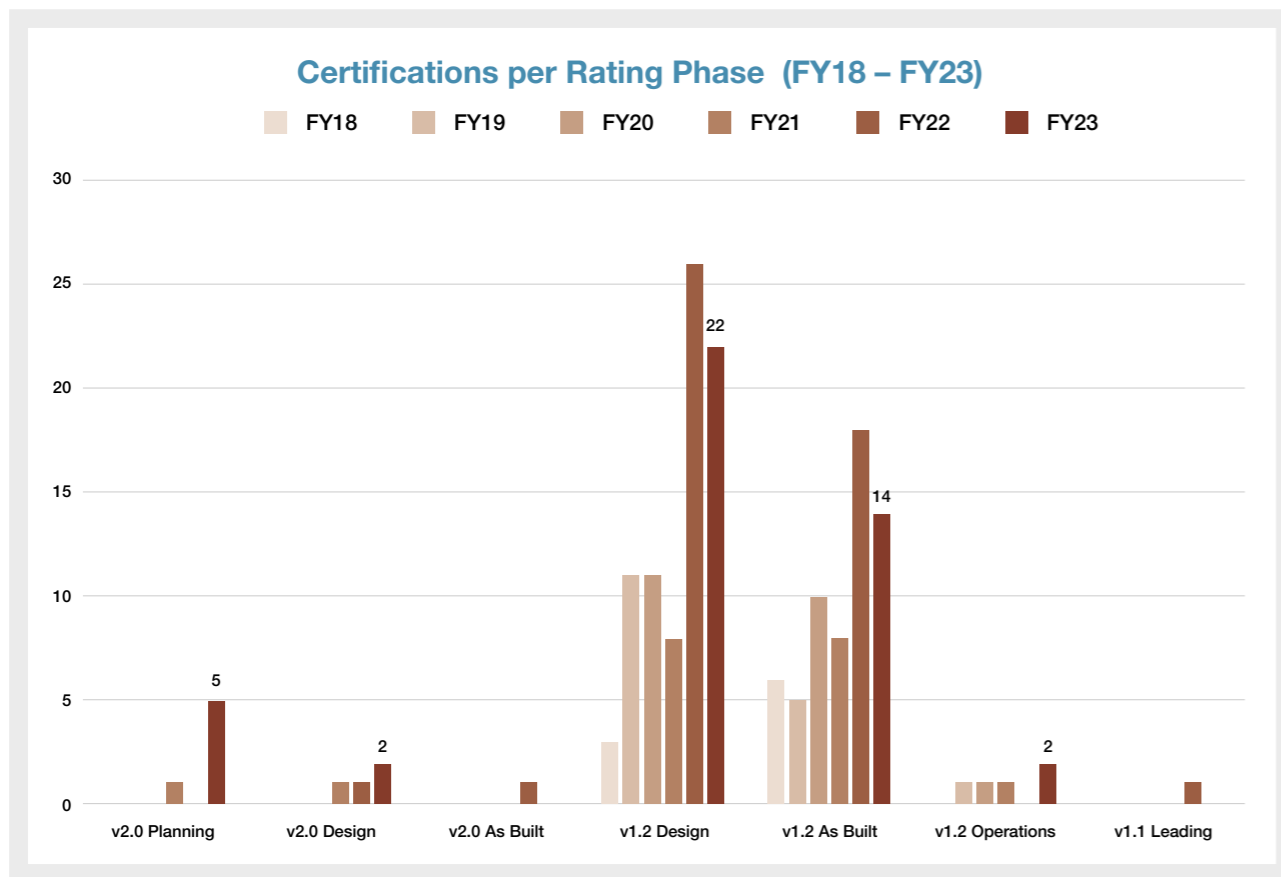
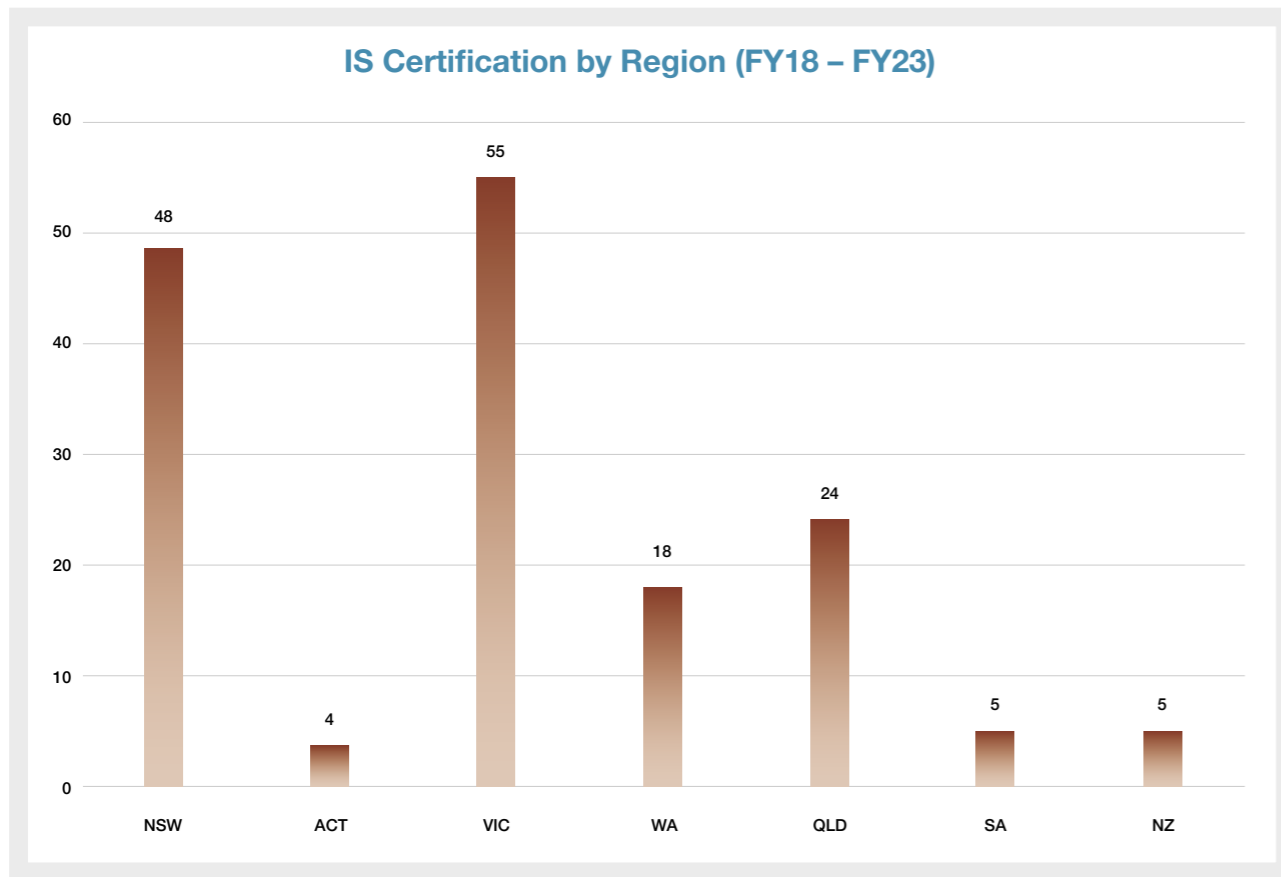
There were 49 registrations in FY23.

- Rail (15) and road (25) continue to be the main users of the IS Rating Scheme, but there has been expansion in other asset classes. Notably there were four registrations for water assets in FY23.
- There was significant growth in the number of registrations in Queensland, with a from six in FY22 to 11 in FY23 - an almost 100% increase.
- Eight additional v2.1 project registrations were accepted in FY23, as we move to drive performance through the updated v2.1 tool.

Certifications

Following the largest year of certification in FY22, another 45 projects were certified in FY23. Significantly, there was an increase in the number of Leading As Built certifications during the period, as projects completed the construction phase of their projects. New South Wales saw an increase of certifications from 16 to 19 in FY23, with WA also increasing the number of certifications.

The seven v2.0 certifications in FY23 represented a significant an increase from two in FY22. Of these there was one Gold v2.0 certification, and three Silver v2.0 certifications. This shows the take up of the v2.0 tool, and its success in driving strong sustainability outcomes.



LEADERSHIP OBJECTIVE 2: DATA-DRIVEN PERFORMANCE

Objective	What Success Will Look Like
Enable the accurate comparison of sustainability performance of infrastructure	The Infrastructure Sustainability Council works closely with industry to create a standardised way to accurately quantify and consistently compare the sustainability performance of infrastructure. Performance data and insights drive better decision-making and drive positive change and healthy competition in the market. The IS Rating Scheme continues to develop in collaboration with local and international peers and has become a cornerstone of the Infrastructure Sustainability Council's ever-increasing global reputation.

Infrastructure projects are driven by data

The Infrastructure Sustainability Council understands that modern infrastructure projects are driven by data. Nearly all aspects of asset design, build and operations are measurable, giving stakeholders insights to make informed decisions. This data allows stakeholders to deal with inefficiencies, manage and improve resource efficiency, realise new material opportunities, and support the quadruple bottom line.

The IS Rating Scheme is designed to recognise and reward the sustainability performance of infrastructure assets across their lifecycle. Data analytics and extensive consultation with our membership base allows the scheme to accurately benchmark industry performance against performance thresholds. Recognising the rapid development of industry performance over recent years the Infrastructure Sustainability Council has created the latest v2.1 Rating Tools: v2.1 Design and As Built and v2.1 Planning (Strategic & Detailed) in response.

To ensure we continue to adapt to industry growth, the Infrastructure Sustainability Council is transitioning to digital platforms, allowing more regular updates of the IS Rating Scheme, tools, and performance thresholds to reflect market changes.

Circular Economy outcomes

Each year, we monitor circular economy and resource use outcomes for IS As Built certified projects. In FY23, there were 14 As Built certified projects (listed in the appendix). Of these, 11 were rail and three were road projects.

		Tonnes	%
Sourcing / Use	Materials with sustainability credentials		100% of projects; range <1% to 58% of material spend
	Recycled asphalt (RAP) content		25%
	SCM content in concrete binder ¹		33%
	Recycled aggregate content		34%
Efficiency	Reduction in asphalt from base case	57,691	11%
	Reduction in concrete from base case	323,449	16%
	Reduction in steel from base case	21,481	19%
Resource Outputs	Resources (waste) diverted from landfill	10,714,349	99%
	Spoil re-used on or off site	10,192,064	99%
	Material (inert & non-hazardous) reused or sent for further treatment	520,366	93%
	Office waste further processed	1,920	45%

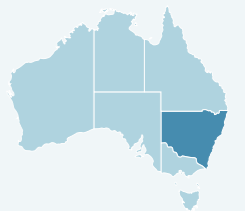
¹ Changes in terminology and calculation methodology from last year's report

CIRCULAR ECONOMY OUTCOMES

Materials can include aluminium, asphalt, bitumen, concrete, crushed rock, sand, wood products, glass, steel, timber and metals. 70% of the FY22 As Built certified projects used materials with a sustainability credential - ranging from <1% to 42% of overall materials cost. The average materials expenditure on credentialed products was 17.3%.

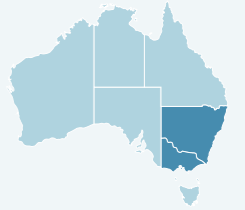
PROJECTS OF NOTE

Sydney Metro City and Southwest Tunnel and Station Excavation (Rail, NSW): 42% of their materials expenditure on products or materials with sustainability credentials. This included 89,559m³ of Holcim Virodec's ready-mix concrete and all reinforced steel used on the project.



Recycled asphalt product (RAP) is old asphalt crushed to aggregate sizes and reintroduced to hot mix asphalt. RAP was used on ten of the FY23 As Built certified projects, at rates of 6 - 30%, resulting in a 25% usage rate across all projects.

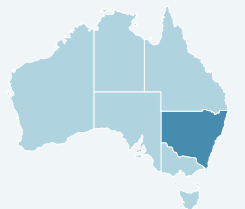
Parramatta Light Rail Stage 1 – Infrastructure Works (Rail, NSW): 30% RAP (48,626 tonnes) was used on their project.



Major Road Projects Victoria – Mordialloc Bypass (Road, VIC): This project used 51,468 tonnes of RAP (30% RAP).

Supplementary cementitious materials (SCMs) include fly ash, slag cement and silica fume, which can be substituted for Portland cement. Across eleven As Built certified projects, the range of SCM content in concrete binder material ranged from 10% to 51%, with an average of 33%.

WestConnex Stage 3A (Road, NSW): 32% SCM content in 123,109 tonnes of concrete binder.



Parramatta Light Rail Stage 1 – Infrastructure Works (Rail, NSW): 40% SCM content in 75,669 tonnes of concrete binder.

Recycled aggregate includes crushed blast furnace slag, crushed concrete and masonry, crushed glass, recycled asphalt used as fill and general fill or spoil. Content varied from 1% to 100% across nine of the As Built certified projects, resulting in an average of 34%.

Level Crossing Removal Project – Evans Rd and Cardinia Rd (LXRP, VIC): 46% use of recycled aggregate (200,399 tonnes).



Level Crossing Removal Project – South Gippsland Highway, Dandenong South (LXRP, VIC): 89% use of recycled aggregate (189,733 tonnes).

Major Road Projects Victoria – Mordialloc Bypass (Road, VIC): 2,710,742 tonnes of recycled aggregate, corresponding to 32% recycled aggregate overall.

CIRCULAR ECONOMY OUTCOMES

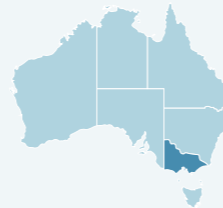
Reduction in asphalt from the base case was 11% overall. One project reduced asphalt by 55%; two projects used between 30% and 48% less asphalt.

PROJECTS OF NOTE

Level Crossing Removal Project – Southern Program Alliance – Additional Works Package 1 (LXRP, VIC): 55% (8,228 tonnes) reduction in asphalt requirements.

Level Crossing Removal Project – South Gippsland Highway, Dandenong South (LXRP, VIC): 19,776 tonnes of asphalt used, corresponding to a 48% reduction against the projected base case.

RATING / STATE



Reduction in steel from the base case was 19% across all projects, with the top performers achieving a 76% and 74% % reduction.

Level Crossing Removal Project – Southern Program Alliance – Additional Works Package 2 (LXRP, VIC): 24% reduction in steel (7,566 tonnes).

Level Crossing Removal Project – Evans Rd and Cardinia Rd (LXRP, VIC): 76% reduction in steel (3,990 tonnes).



Spoil re-use rates were very high, ranging from **98%** to **100%** across the projects, for an average of **99%**, relating to over 10 million tonnes of spoil.

Eight projects certified in FY23 achieved 100% spoil reuse.

Sydney Metro City & Southwest Sydney Station and Junction Works (SSJ)

Major Road Projects Victoria - Mordialloc Bypass

Level Crossing Removal Project Southern Program Alliance - Additional Works Package 1

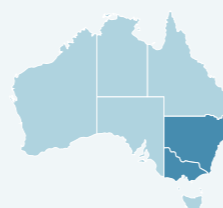
Level Crossing Removal Project Southern Program Alliance - Additional Works Package 2

Parramatta Light Rail Stage 1 - Infrastructure Works

Faulconbridge & Lapstone Station

WestConnex Stage 3A - M4-M5 Link

Level Crossing Removal Project - Metropolitan Roads Program Alliance - Evans Rd and Cardinia Rd



CIRCULAR ECONOMY OUTCOMES

Resource outputs (waste) diverted from landfill was extremely high, at 99% of total waste, amounting to 10,714,349 tonnes across twelve projects (waste diversion data was not verified on two projects). Eight projects diverted virtually all resource outputs.

PROJECTS OF NOTE

Five projects each diverted over 200,000 tonnes of resource outputs from landfill:

WestConnex Stage 3A (Road, NSW) diverted 8,763,055 tonnes,

Forrestfield Airport Link (Rail, WA) diverted 597,846 tonnes,

Level Crossing Removal Project – Southern Program Alliance – Additional Works Package 2 (LXRP, VIC) diverted 432,011 tonnes,

Level Crossing Removal Project – Southern Program Alliance – Additional Works Package 1 (LXRP, VIC) diverted 276,519 tonnes, and

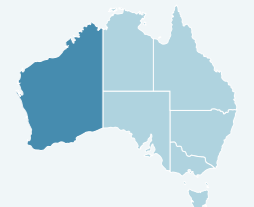
Parramatta Light Rail Stage 1 – Infrastructure Works (Rail, NSW) diverted 218,753 tonnes.

RATING / STATE



Office waste, such as paper and cardboard, was reprocessed at between 35% and 80% of total office waste, for an average of **45%**.

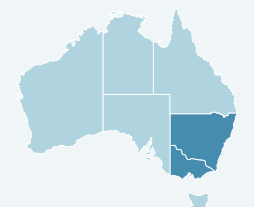
Forrestfield Airport Link (Rail, WA): Over 1,055 tonnes of office waste were diverted for reprocessing.



Reduction in concrete from the base case was 16% overall, with the top performer achieving 77% reduction and the next two at 53% and 43% respectively.

Sydney Metro City and Southwest – Sydney Station and Junction Works (Rail, NSW): 40% (29,429 tonnes) reduction in concrete compared to the base case.

Level Crossing Removal Project – Clyde Road, Berwick (LXRP, VIC): 53% (21,658 tonnes) reduction in concrete use.



Resource Efficiencies

Resource Efficiencies across IS Certified As Built projects FY18-FY23 (74 projects)

	FY18	FY19	FY20	FY21	FY22	FY23	ALL	ALL
Lifecycle materials emissions avoided (tCO2e)	29%	7%	5%	10%	16%	30%	14%	1,209,214
Construction energy emissions avoided (tCO2e) ¹	-3%	-1%	-46%	24%	8%	31%	-0.28%	-9,002
Operating energy emissions avoided (tCO2e)	23%	9%	89%	5%	37%	44%	59%	22,107,606
Lifecycle energy emissions avoided (tCO2e)	22%	7%	85%	6%	27%	41%	54%	22,098,604
Construction energy use avoided (MJ)	6%	-7%	37%	40%	16%	16%	26%	4,381,767,066
Operating energy use avoided (MJ)	79%	8%	23%	4%	29%	37%	28%	74,519,235,739
Lifecycle energy use avoided (MJ)	74%	3%	23%	12%	28%	32%	28%	78,901,002,804
Construction water use avoided (ML)	0%	10%	47%	55%	18%	25%	35%	7,047
Operating water use avoided (ML)	47%	73%	49%	41%	25%	42%	38%	15,165
Lifecycle water use avoided (ML)	36%	52%	49%	49%	24%	36%	37%	22,212

¹ Includes additional sources such as land use change and fugitive emissions

RESOURCE USE OUTCOMES

Lifecycle Materials Emissions (tCO2e)

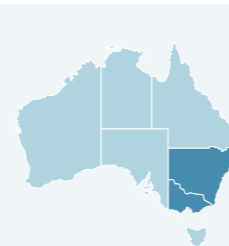
Materials for infrastructure projects are used for construction and maintenance of the asset for their entire service life. Most materials-related GHG emissions occur through use of aggregates, concrete, asphalt and steel and the transportation of materials. Opportunities for materials emissions reductions are found through the initial choice of infrastructure type to address the identified social need, the design solution selected, innovations in construction processes and materials manufacturing processes, and use of recycled materials.

PROJECTS OF NOTE

Parramatta Light Rail Stage 1 – Infrastructure Works (Rail, NSW): 29% reduction in lifecycle material emissions equating to 46,730 tCO2e.

Level Crossing Removal Project – Southern Program Alliance – Additional Works Package 1 (LXRP, VIC): 40% reduction in lifecycle material emissions corresponding to 18,225 tCO2e.

RATING / STATE



Lifecycle Energy Use (MJ)

While on average most energy use occurs during infrastructure asset operations and use, for some projects the opportunity to reduce construction related energy can still be significant. Operating emissions and energy use profiles diverge with the electrification of transport, as GHG emissions will substantially reduce through use of electric vehicles.

Level Crossing Removal Project – Evans Rd and Cardinia Rd (Mixed, VIC): 1,297,390,263 MJ lifecycle energy use avoided against the base case.

Level Crossing Removal Project – Clyde Road, Berwick (LXRP, VIC): 40,362,580 MJ construction energy reduction compared to the base case.



RESOURCE USE OUTCOMES

Lifecycle Energy Emissions (tCO2e)

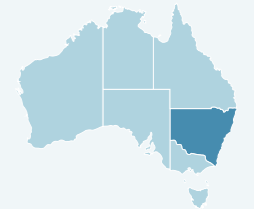
While lifecycle materials GHG emissions are incurred mostly during construction, the opposite is true for energy GHG emissions, with typically just a small percentage incurred during construction and the majority incurred during asset operation. In the case of roads, by vehicles and operating systems, such as ventilation and lighting, and in the case of rail, by trains, rail and station supporting systems, during the service life of the asset, which may be 50 years or more. Our data show that construction energy choices, while important, have less effect on lifecycle energy GHG emissions compared with the choice of asset and the design of the solution.

PROJECTS OF NOTE

New Intercity Fleet (Rail, NSW): 33% reduction in lifecycle energy emissions compared to the base case, corresponding to a total of 130,278 tCO2e avoided. This \$270 million project was awarded a Leading IS v1.2 rating with a score of 83.

WestConnex Stage 3A (Road, NSW): 61% reduction in lifecycle energy emissions (mainly operational energy) against the base case equating to 300,233 tCO2e.

Sydney Metro City and Southwest – Sydenham Station and Junction Works (Rail, NSW): 32% reduction in operational energy emissions (59,984 tCO2e)

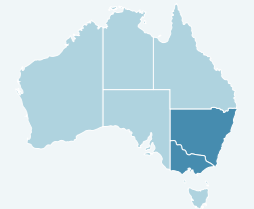


Lifecycle water use (ML)

Water use on As Built projects demonstrates an approximately 40:60 ratio between construction and operational phases. Water is used by contractors to compact road layers, for dust suppression, to washdown plant and equipment, for landscape watering and for site amenities. Operational water use includes landscape watering, HVAC and deluge systems and bathroom facilities. Additional water footprint aspects e.g., in materials and energy production, are not yet measured in the IS Rating credits.

Level Crossing Removal Project – Southern Program Alliance – Additional Works Package 2 (LXRP, VIC): achieved 95% lifecycle water use avoided (632 ML).

New Intercity Fleet (Rail, NSW): achieved 38% lifecycle water use avoided (557 ML).



LEADERSHIP OBJECTIVE 3: GLOBAL REACH

Objective	What Success Will Look Like
Develop enduring relationships with global governments, investor and private sector partners	The Infrastructure Sustainability Council focused its activity locally by anchoring the IS Rating Scheme and more comprehensively comparing sustainability performance in Australia and Aotearoa New Zealand, for all assets. The Infrastructure Sustainability Council has been able to expand its view to connect more with its global peers and deliver sustainability outcomes through international partnerships. All infrastructure - urban and regional, large and small, new and aging - is delivering more for communities.

ISC continues to support the global development of sustainable infrastructure through its ongoing membership of the World Sustainable Infrastructure Forum and Ainsley Simpson's membership of theGRESB Infrastructure Standards Committee.

ISC Annual Awards

During our Annual Gala Awards held in October 2022 on the Sunshine Coast, we were delighted to celebrate and acknowledge the recipients of our Industry Impact, Sustainability Leadership and Outstanding Achievement categories. Our 2022 Award winners were:

Industry Impact Awards:

Industry Impact – Private Sector, Large Recipient: Acciona

As a sustainable solutions business, Acciona recognises that the impact of climate change is endangering every facet of the natural and physical world. Acciona asserts that changing course in order to realise a sustainable, liveable future for all requires an immediate, ambitious and concerted effort, and Acciona's Sustainability Master Plan (SMP) 2025 is its contribution to that effort.

Sustainability Master Plan 2025 Objectives

- To accelerate the response to the climate change emergency.
- To provide a roadmap to moving beyond a sustainably responsible and resilient business to a business which embraces and promotes our Regenerative Vision and transition towards a decarbonised economy.
- To pursue 100% renewable electricity on new tenders from July 2022.
- To continue to be carbon neutral (Acciona is the only construction company in the sector to be carbon neutral, and has been globally since 2016).

Sustainability Master Plan 2025 Outcomes

- Recognised as a sustainability leader by the world's top sustainability indexes and rating schemes.
- An active and engaged employee base, with sustainability advocates now embedded across multiple reporting roles within the business.
- Secured €3.3 billion in sustainable financing, driving business and project sustainability performance.
- Acciona's dedicated Decarbonisation Fund supports and fosters innovation, leading to low-carbon solutions.

Acciona is contributing positively to the climate emergency and a sustainable future for all through its approach to decarbonisation. Its approach, driven by the SMP2025, is inspiring other companies to follow its lead.

Industry Impact – Private Sector, Small Recipient: Earth Friendly Concrete Pty Ltd – Wagners

Through its ultra-low carbon technology, Wagners has developed and branded Earth Friendly Concrete® (EFC). This enables concrete producers to eliminate cement from concrete, thereby reducing the carbon footprint in the built environment.

Earth Friendly Concrete Objectives

- To align with United Nations Sustainability Goals (currently 9 in total).
- To support the circular economy.
- To disrupt current old-world standards and specifications.
- To encourage cement producers to combine Wagners proprietary EFC Activator Solution and admixtures with materials from their existing suppliers of aggregates and SCMs.

Earth Friendly Concrete Outcomes

- Through a range of strategies, Wagners has reduced the embodied carbon of Earth Friendly Concrete from an average 120kg of CO₂/m³ to an average 90kg of CO₂/m³, without the need for any offsets.
- During the last 18 months, Wagners eliminated 1,481.6t of CO₂ and 2,043.6t of virgin raw materials from innovative infrastructure projects.

EFC is the lowest embodied carbon concrete available on the market, and is now being used on a range of infrastructure projects. When used at scale, it makes a significant dent in man-made carbon emissions.

Industry Impact – Public Sector Recipient: Main Roads Western Australia

Main Roads Western Australia has made a strong contribution to circular economy industry impact by delivering infrastructure projects that promote social and organisational change at a strategic level.

Circular Economy Objectives

- To facilitate systemic change through policies and standards.
- To increase Aboriginal engagement and participation by awarding \$700 million worth of contracts and 3.5 million work hours to Aboriginal businesses and people over the next five years.

Circular Economy Outcomes

- Over the past 12 months, Main Roads Western Australia spent \$97.9million on Aboriginal businesses, equating to 586,700 work hours; and
- The use of crushed recycled concrete was increased to over 117,000 tonnes.

Main Roads Western Australia is committed to contributing to the circular economy in WA, including doubling the broader ongoing use of Roads to Reuse Crushed Recycled Concrete to beyond 200,000 tonnes, and continuing to drive the use of locally produced crumb rubber

Excellence in Governance Recipient: John Holland & Laing O'Rourke Joint Venture Project: Sydenham Metro Upgrade

Right from the initial planning stages of the Sydenham (Melbourne) Metro Upgrade, the project was underpinned by a comprehensive and robust Sustainability Strategy. This was a deliberate and carefully considered part of John Holland and Laing O'Rourke's joint venture master plan to mitigate risk and provide a full-bodied governance structure that was present and pragmatic at all levels of the project.

Sustainability Strategy Objectives:

- To identify governing objectives and targets.
- To integrate these objectives and targets into the project's deed, policies, management plans, sub plans and all subsequent processes, procedures, templates and trackers.
- To overcome issues caused by interfacing between multiple participants (stakeholders such as Sydney Water, Sydney Trains, ARTC, Sydney Metro, Transport for NSW, Inner West Council; multidisciplinary design and site teams; and suppliers and contractors) with different priorities.
- To create a working environment where the strategy objectives flowed throughout all the teams involved, so that all individuals and stakeholders were empowered to find ways to work better.

Sustainability Strategy Outcomes:

- The saving of over 15,420 tonnes of aggregates, over 1140 tonnes of asphalt, over 4,480m³ of poured concrete and over 784 tonnes of steel reinforcement.
- A massive reduction in waste, compared to past projects.
- More than a 3,460-tonne reduction in carbon emissions.

The project's legacy is not just about environmental sustainability. It's also about the influence of a governance structure that doesn't just give permission to question the status quo, but actively encourages that questioning.

Excellence in Economic

Recipient: Acciona Samsung Bouygues Joint Venture
Project: M4-M5 Link Tunnels

After extensive research and development with the supply chain that took more than a year, the Acciona Samsung Bouygues Joint Venture developed a world first shotcrete application process for the lining of the M4-M5 Link Tunnels in Sydney. This process included creating an innovative shotcrete design mix as well as improving techniques to apply shotcrete to the tunnel walls in order to reduce rebounding.

Tunnel Lining Objectives

- To develop a new offering for this and future projects that use shotcrete for tunnel lining. Future tunnel projects will be able to capitalise on the sustainability benefits of a proven high-performance shotcrete and incorporate it into their own tunnel design.
- To provide pathways for future collaboration with stakeholders (supply chain, designers, construction team and independent certifiers) to conduct research and development, to show proof of concepts, and to address engineering challenges with substantial sustainability benefits on upcoming infrastructure projects.

Tunnel Lining Outcomes

- A reduction of more than 33,000 (t CO₂-e) of embodied carbon. This in turn has reduced the amount of shotcrete used on the project by 27,000m³ (15%) and reinforced steel fibres by 830 tonnes (10%).
- The removal of 9,000 heavy vehicle movements off Sydney local and main roads.
- Demonstrated cost savings of \$11,000,000 to the project by minimising materials through the application of innovative high-performance shotcrete.
- A permanent shift in the supply chain for how future tunnel projects will be designed and constructed.

The legacy of the high-performance shotcrete used for the lining of the M4-M5 Link Tunnels is a design mix that has allowed the M4-M5 Link Tunnels project to reduce the thickness of the lining of the tunnels by 15%. It is expected that this design mix will be business as usual for future road tunnel projects that require shotcrete for tunnel linings.

Excellence in Social

Recipient: McConnell Dowell
Project: The Echuca-Moama Bridge Project Stage 3

During Stage 3 of the \$323.7m Echuca-Moama Bridge Project, Major Road Projects Victoria and its construction partner, McConnell Dowell, teamed up with local disability support service provider Vivid. This partnership gave 23 young adults, living with disability, an opportunity to be part of a dynamic and inclusive workplace. They were tasked with cleaning and maintenance roles at the project site offices in both Victoria and New South Wales.

Disability Employee Objectives

- To provide young local people with paid and meaningful employment in a supported environment.
- To generate significant Aboriginal employment outcomes and exceed the Aboriginal employment target.
- To support Aboriginal owned businesses by spending a significant percentage of the total contract value with those businesses.

Disability Employee Outcomes

- By the Project's completion in early 2022, the Vivid supported employees had collectively contributed around 20,000 work hours to the Project, an experience that has substantially improved their access to a myriad of work tasks and boosted their levels of self-confidence and interpersonal skills.
- Nine of the supported employees seized the opportunity offered by the Project to further expand their skills by undertaking and completing a Certificate II in Cleaning Operations at Bendigo TAFE's Echuca campus.
- Of the nine Vivid graduates, four are now in mainstream permanent part-time employment, and one has applied for open employment through a traineeship.

Due to the increased income generated by the Project's procurement contract to fill cleaning and maintenance roles, Vivid has been able to upgrade areas of its business that do not attract direct funding. This has improved its ability to support the employment pathways of local people living with a disability.

Excellence in Environmental

Recipient: John Holland & Laing O'Rourke Joint Venture
Project: Sydenham Metro Upgrade

During the Sydenham Metro Upgrade, the joint venture team of John Holland and Laing O'Rourke closely collaborated with stakeholders on a sustainability-centred design approach. The value of this approach was demonstrated when design adjustments were made that led to excellent environmental, societal and economic outcomes.

Sustainability-centred Design Objectives

- To conduct analyses of drainage models and patterns in order to discover how the model might be effectively revised.
- To downsize parts of the infrastructure and reduce material usage by changing the original design of the aqueduct from four cells wide to three cells wide.
- To preserve and upgrade, rather than replace, a Heritage listed pumphouse.

Sustainability-centred Design Outcomes

- The reduction in width of the aqueduct led not only to significant reductions in materials for the aqueduct, but also for the access ramps, culverts, transition chambers and substructures.
- The transitions from the culvert to the aqueduct were reduced in size from 18 metres in width to 13.2 metres.
- The transitions chamber was originally one large structure, but was optimised to become two smaller structures that attached to each culvert.
- Instead of having three larger-diameter pipes, the opportunity was identified to instead utilise four smaller diameter pipes in the middle section of the aqueduct and three smaller diameter pipes at either end.
- There was a total saving of 7,500 TCO₂e and a total material lifecycle reduction of 40%. There were considerable savings in construction costs and demolition waste and energy reductions, due to less materials and equipment required for construction.

The most powerful legacy of the project was the recognition of the necessity and value of thought leadership from those within the construction and engineering space. Designing with sustainability as the core focus empowers experienced minds in the industry to challenge the status quo.

Without input from the project team, and without the vital analyses of flow rates, ground conditions, and drainage models, the original design would have been accepted and all opportunity for economic, material, societal and environmental savings would have been lost.

Outstanding Achievement Awards

The Infrastructure Sustainability Council's IS Rating Scheme (IS) is Australia and New Zealand's only comprehensive rating system for evaluating economic, social and environmental performance of infrastructure across the planning, design, construction and operational phases of infrastructure assets.

IS Planning, Design and As Built:

Outstanding Achievement – IS As Built (v1.2)

Project: LXP NWPA – Bell to Moreland
Recipient: Level Crossing Removal Project, North Western Program Alliance (Level Crossing Removal Project, John Holland, KBR & Metro Trains Melbourne)

Outstanding Achievement – IS As Built (v2.0 & 2.1)

Project: North-South Corridor – Regency Road to Pym St v2.0
Recipient: South Australia Department of Planning, Transport, and Infrastructure, Mott MacDonald, McConnell Dowell

Outstanding Achievement – IS Design (v1.2)

Project: LXP SPA – Additional Works Package 2 (AWP2)
Recipient: Level Crossing Removal Project, Southern Program Alliance (Acciona, Coleman Rail, Level Crossing Removal Project & Metro Trains Melbourne)

Outstanding Achievement – IS Design (v2.0 and 2.1)

Project: Armadale Road to North Lake Road Bridge Project
Recipient: Main Roads Western Australia, Laing O'Rourke, BG&E

Outstanding Achievement – IS Planning

Project: Bunbury Outer Ring Road
Recipient: Main Roads Western Australia



GOAL 2

Thriving Industry | Kotahitanga

Thriving Industry 1: COLLABORATION

Objective	What Success Will Look Like
Encourage industry to collaborate and act by showcasing leadership, sharing knowledge and building relationships	<p>As a result of the Infrastructure Sustainability Council's membership program, members connect and collaborate by sharing deeply valuable, granular knowledge about how they have delivered better outcomes.</p> <p>The Infrastructure Sustainability Council's ISupply database is a well-utilised online directory that accelerates mutually beneficial supplier relationships.</p> <p>The Infrastructure Sustainability Council provides a range of flexible training offerings to its members that deliver the desired learning outcomes for its multi-disciplinary audience.</p>

Engagement rather than Events

Throughout the year, the Council membership program has focused on deep engagement and productive relationships with its member organisations. Through regular check-ins, knowledge sharing and ample opportunities to connect and collaborate - with fellow member organisations and with the Council itself - the Council has enabled and supported the infrastructure sector to be bold and ambitious.

Connection is the precursor to collaboration, just as collaboration is the precursor to innovation. Connecting our members through member advisory groups, technical working groups, advocacy coalitions, focus groups and roundtables continues to inspire and motivate positive change for our projects, the people, planet and economy.

This year the council organized 33 events, of which 21 were in-person and 12 online. We expanded our reach this year by adding regional networking events in the ACT, NT, TAS and Wellington (NZ).

Our annual conference held on the Sunshine Coast from 10 – 12 October 2022, was our key event, with record attendance across the three days of 334 attendees and 141 virtual attendees. 127 joined the ISAP Day, 206 the Certification Dinner, 145 the Executive Luncheon, and 348 the Gala Dinner & Awards evening.

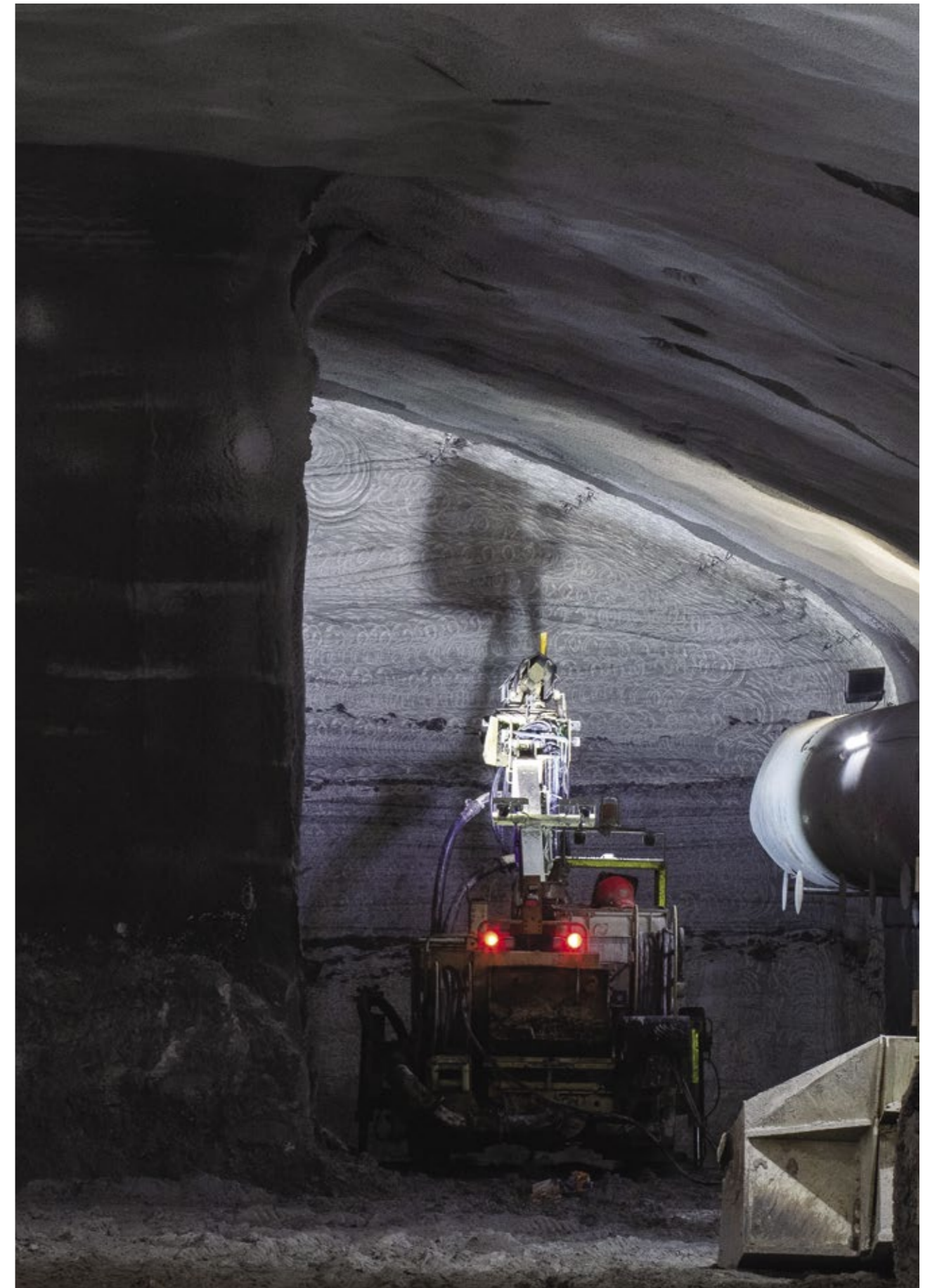
“Great event (always). Loved that you set the tone for an open and engaging 2 days”

ISC Connect NZ Attendee

ISupply Directory

By clearly articulating the sustainability outcomes that can be supported by many of the IS Council's supplier members, the ISupply Directory continues to serve as a valuable resource for projects teams undertaking IS Ratings, and for procurers more broadly.

Over the past year the ISC welcomed six new ISuppliers, bringing the total to 65 members listing products and services on the online platform by the end of June 2023. A dedicated ISupplier focus group held in April 2023 and recent member survey results revealed that ISuppliers greatly valued the opportunities enabled by the ISupply Directory and were keen to collaborate to increase the visibility of the suppliers' contributions to project outcomes.



Thriving industry 2: CAPABILITY

Objective	What Success Will Look Like
Build a stronger infrastructure workforce by developing skills and capabilities, and providing tools and resources	<p>Our industry is more skilled, capable and empowered to serve the current and future societal needs of infrastructure.</p> <p>Building a stronger infrastructure workforce through deep technical capability and cross-discipline competencies which establish sustainability as a career with guided and supported professional development.</p>

Introduction

In the current year, the ISC has made significant strides in advancing sustainability within industries by fostering a thriving community of Infrastructure Sustainability Professionals (ISAPs) and promoting sustainable leadership practices. This progress has been achieved through a range of initiatives including webinars, mentoring programs, and customised workshops.

Notably, there has been 120% year-on-year growth in training participation across both free and paid offerings, with registrations more than doubling from FY22. Of these registrations, 77% were for offerings that support the implementation of the IS Rating Scheme, while the remaining 23% have focused on leadership development for sustainability professionals across various levels.

Testimonials

“This training [Leading Culture Change] has given me a better understanding as to how people react to change, the barriers and how to be successful as an agent of change”

Leading Culture Change Participant from **Road Projects Victoria**

“Very engaging course [IS v2.1 D&AB], with engaging materials and presentation style. Great group activities too.”

IS v2.1 D&AB Participant from **Hawkins N**

IS for Professionals and the ISAP community

A significant impact has been observed in the area of implementing the IS Rating Scheme, indicating the industry’s growing commitment to sustainability. 450 new ISAPs were trained in key IS versions (v1.2 D&AB, v2.1 D&AB, and IS Operations), and an additional 270 ISAPs engaged in professional development webinars covering pertinent topics. Notably, 23% of registrations were from new ISAPs, amounting to 343 newly accredited professionals, bolstering the ISAP community to more than 1000 members.

Testimonials

“I previously held ISAP but let it lapse. This was excellent as a reset, refresher, and to enable me to progress to ISAP accreditation again. The balance and pace of the workshops was great, and the facilitator was excellent.”

IS Rating Skills Participant from **Jacobs**

“I feel I learned more practical skills in this course than when I completed the v1.2 course in 2019. With this course the focus was on the IS processes and systems for managing delivery of a project rating and pointers on how to set yourself up to perform well.”

IS Rating Skills Participant from **Pitt & Sherry**

The ISC has also retained existing ISAPs, with 32% of IS Rating Scheme registrations stemming from returning professionals seeking ongoing development. 44% of IS Rating Scheme registrations have come from ISAP renewals, showcasing high retention rates and a commitment to continuous learning.

These achievements translate into a more robust and well-prepared workforce of Infrastructure Sustainability Professionals. With a growing community of trained individuals, both new and returning, the industry is better equipped to implement sustainability in infrastructure and lead sustainability initiatives effectively. This not only elevates sustainability within the industry but also demonstrates a dedication to sustainable leadership and responsible management throughout the value chain.

We look forward to continuing to work with our member base to further support the ISAP community through professional development webinars and training in new products such as IS Planning and IS Essentials training in FY24.

Leadership & Culture

FY23 has seen an increase in uptake of Leadership and Culture offerings from public courses for sustainability champions to sustainability leadership mentoring and workshops, but particularly in co-curated Executive & Manager workshops. Organisations like Main Roads WA have empowered their managers and sustainability champions through highly bespoke IS for Managers workshops:

“It gave me a better understanding of the whole process. At the same time I understood the importance of my role with the whole IS rating.”

IS for Managers Participant, **Jorge Acevedo, Main Roads WA**

“I learnt a lot about how I can be involved to assist in delivering outcomes”

IS for Managers Participant, **Adam Magno, Main Roads WA**

For other organisations this has been through building awareness of sustainability principles and an understanding of IS Rating Scheme foundations:

“Great opportunity to understand the system and process without being an IS Professional.”

IS for Foundations Participant, **Robert Mikhail, Perth Airport**

“I had a good idea what this was about, and it explained itself thoroughly. I now feel confident I understand the ideology behind it along with the key processes and framework in which it lives.”

IS for Foundations Participant, **James Manning, McConnell Dowell**

Noting the increasing interest in sustainability leadership and cross-discipline capability the ISC will continue to extend its library of content and work with our members to create bespoke learning offerings and embed sustainability into organisations across all levels.

RISE MENTORING | Leading sustainably, today and tomorrow.

Sustainability professionals are tomorrow’s executives. The future requires leaders that have an inherent culture of courage. These professionals understand the importance of initiative and agility and appreciate why ESG matters and how to deliver social, cultural, environmental and economic benefits. Sustainability practitioners not only have technical depth, but they are also proficient influencers. They deliver outcomes, often with stakeholders that are not fully in step with the importance of positive intergenerational impact.

Elevating emerging talent and strengthening a more inclusive workforce

RISE Mentoring is the Infrastructure Sustainability Councils evidence-based program supported by expert consultants and world-class resources. Launched in March 2022, the inaugural program was over-subscribed, with organisations looking to build their bench strength today and for tomorrow. RISE enables connection with genuine openness and mutually beneficial matching of senior leaders and sustainability professionals.

In March 2023, Gamuda Australia became the three-year patron partner of the RISE program for enduring impact.

We especially welcome this collaboration as ISC and Gamuda share a common passion to develop a thriving industry where sustainability is a core capability. We are delighted to be building a legacy of intergenerational knowledge-sharing for the benefit of our industry, our communities, and the planet.

24 pairs were formed throughout Australia and New Zealand.

After 1 month of the program RISE participants were asked to share their thoughts so far:

“I’m very pleased with my mentor and the way we are working together. We’ve had several meetings so far and are actively working on smart goal setting. I’m learning in every session and am inspired by his advice.”

“All the support has been great :)”

“The program is looking really good to me.”

“I have connected with [my mentor] at the perfect point in my career. It has been wonderful to connect with [my mentor] and I hope we can remain connected even after this program.”

The success of RISE has been built on determination and partnership. We especially welcome this collaboration as ISC and Gamuda share a common passion to develop a thriving industry where sustainability is a core capability. We are delighted to be building a legacy of intergenerational knowledge-sharing for the benefit of our industry, our communities, and the planet.

Going forward, we remain focused on working with Gamuda to establish a credible development pathway for the future leaders in our sector.



Thriving industry 3: MEMBERSHIP

Objective	What Success Will Look Like
Evolve the membership model to amplify value for all	The Infrastructure Sustainability Council has a tiered membership model in place that provides different members with benefits, tools, knowledge and opportunities that are tailored to their needs. As a result, the membership is strong, valued and representative of the entire infrastructure value chain.

Membership

The Infrastructure Sustainability Council membership represents a diverse community of practice that considers connection and collaboration to be critical success factors towards a thriving industry.

Encompassing procurers, deliverers, suppliers and enablers, over the past year the Council has continued to cultivate enduring relationships across its membership, as demonstrated by exceptionally high engagement with our industry-leading tools, resources, events and professional development programs.

As the Council's engagement program grows and evolves to respond to the diverse needs and interests of members, evaluation activities have shown that

attendance and participant satisfaction levels are also increasing. This positive trend reflects the deep commitment by members, to both the role of the Council, as well as improved sustainability performance for the projects and communities they serve.

Continual improvement informed by deep listening

Through the year, two focus groups occurred to facilitate deep listening with distinct segments of the membership community. The insights garnered from these robust discussions, coupled with the annual member survey data, will inform the continual improvement of the membership model and value proposition in the year ahead.





GOAL 3

Market Transformation | Hurihanga

MARKET TRANSFORMATION OBJECTIVE 1: ORGANISATIONAL CHANGE

Objective	What Success Will Look Like
Support members to integrate change through organisational strategy and operating procedures	The Infrastructure Sustainability Council members have become highly successful change agents. They have improved performance by integrating sustainability throughout their organisations by using the tools and resources developed by, and with, the Infrastructure Sustainability Council into the processes and systems used.

FY23 saw 45 new rating certifications awarded under the IS Rating Scheme. The scheme’s benchmarks for industry drive performance and deliver sustainable outcomes. Each project is rated against the potential 100 points available, with a further 10 points for the innovation credit.

In FY23, 67 percent of the IS v1.2 projects certified achieved the top Leading rating, showing another annual increase. Five IS v2.0 projects were certified with one Gold, three Silver and one Bronze awarded.

Certifications by award level	FY18	FY19	FY20	FY21	FY22	FY23	TOTAL
Gold IS v2.0	0	0	0	1	1	1	3
Silver IS v2.0	0	0	0	1	0	3	4
Bronze IS v2.0	0	0	0	0	1	3	4
Leading IS v1.2	4	3	9	8	26	25	75
Excellent IS v1.2	5	13	12	9	16	12	67
Commended IS v1.2	0	1	1	0	2	1	5
Leading IS v1.1	0	0	0	0	1	0	1
Total	9	17	22	19	47	45	159

Innovations

10 additional points are available in the IS Rating Scheme for innovation. This credit rewards innovation in technologies, processes or methods, as well as evidence of market transformation related to sustainability outcomes and defined innovation challenges. The Infrastructure Sustainability Council rewards first innovations in technologies, processes or methods, which deliver significant sustainability benefits, at the regional, national or world level.

FY23 Snapshot

- 21 Regional Firsts.
- 30 National Firsts.
- 2 World Firsts.

This demonstrates sustained continued growth in the number of innovations achieved across Australia and New Zealand.

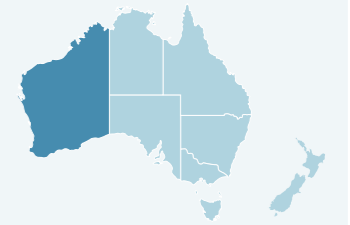
Level of Innovations	Number FY23	Total FY18-23	% Growth on FY22
Regional First	21	108	242%
National First	30	106	88%
World First	2	9	29%

Innovation Examples

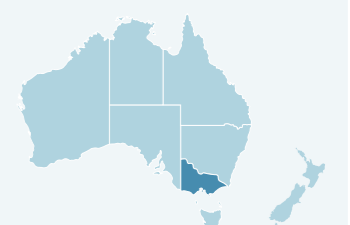
The Auckland City Rail Link, Contract 3: Stations and Tunnels Project (NZ) achieved a World First for implementing the Māori cultural values embedded in the CRL IS Technical Manual ‘Mahi Rauora Aratohu’. The Link Alliance were the first to use this tool, working closely with Mana Whenua to agree how it should be implemented. Key examples of its implementation include: identifying cultural risks and opportunities and including them in the Project’s risk and opportunity management system & incorporating Mana Whenua input into decision-making on significant decisions.



The Tonkin Gap and Associated Works Project (WA) achieved an Australian First for undertaking a trial using incinerator bottom ash aggregate (IBAA) in retaining wall blocks, replacing standard limestone blocks. The IBAA is also supplemented by recycled construction and demolition waste. IBAA comes from waste-to-energy plants and presents a significant market opportunity for WA with the Kwinana facility opening shortly. The blocks each contain the incinerated by-product, eliminating tons of CO2 emissions and use of virgin limestone product.



Level Crossing Removal Project SPA Additional Works Package 1 (VIC) achieved a State First for using a unique methodology for Palm Tree Translocation using Air bags. Palm trees were identified as an important part of the landscape across the Frankston railway line and surrounding suburbs. As a result, the palm trees that were already established in the works area were required to be transplanted and returned to site on completion of the works to bring value back to the community and preserves its identity. The use of air bags to cut the roots of the palm tree is an alternative to the traditional method of excavating around the roots. Advantageously, this alternative method can be used in areas where space is limited and has the added benefit of reducing the impact to the roots of the plant.



MARKET TRANSFORMATION 2 : SYSTEMIC CHANGE

Objective	What Success Will Look Like
Mobilise industry leaders to advance policy, standards and specifications for low carbon, resilient, inclusive infrastructure	The Infrastructure Sustainability Council has effectively partnered with others to advance policy, standards and specifications. This promotes and advances planning, procurement and practices that enable low carbon, resilient and inclusive infrastructure. It has successfully established a sound delivery model that has enabled this important work.

Advocacy deliverables

The advocacy function of the organisation focuses strongly on market transformation, helping to support the industry as market trends change and develop over time. There are four key focus areas that the IS Council addresses:

Planet – Working to drive climate action, regenerate our ecosystem and transition to a circular economy

People – Enabling communities to thrive as they go through structural change and transition, ensuring wellbeing for current and future generations

Prosperity – Measuring infrastructure’s socioeconomic value so that we can better deliver inclusive, resilient, and sustainable livelihoods and economies.

Industry – collaborating to build a world-class industry with healthy, responsible agile supply chain, and sustainable and aligned investment and governance.

The Council does this through a number of activities. These include:

- thought-leadership partnerships which dive deep into a specific topic to research global best practices, and develop recommendations for industry implementation.
- Member coalitions, which bring together industry leaders from across the supply chain to tackle issues facing the sector.
- Impact Notes, which explore how the IS Rating Scheme can be utilised to support acceleration in topic areas.

As well as delivering these activities internally the Council sits on a number of external working groups. These working group drive action against the issues at an industry wide or region wide scale, often

bringing together various sectors and industries. Our participation provides insights and learnings on how others are addressing the issue. The groups include Climate Ready Initiative, Australian Circular Economy (ACE) Hub, and the NSW Circularity Working Group.

Partnership

This year the IS Council continued our partnership with Department of Climate Change, Energy, The Environment, and Water (DCCEEW). This 3-year partnership explores how the infrastructure sector contributes to waste and landfill in Australia, and how assets can be incentives to deliver circular economy initiatives through the increased use of recycled content. The mechanism through which the partnership is driving change is a bespoke innovation challenge that rewards projects for recycled content use beyond business-as-usual levels.

The Council partnered with WSP to deliver a thought-leadership piece on social values – *Social values in Infrastructure in the Australian Context*. Compiled following a number of community consultations, global research and interviews, the report showcases Australian organisations’ current perceptions on social values, and identifies the business case to drive action within the built environment.

Partnering with AECOM, the Council produced a thought-leadership report sharing how the infrastructure industry can utilise the 2032 Olympic and Paralympic Games as a catalyst for market transformation. *Beyond Climate Positive* explores three main topics: climate positive, resilience and nature-based solutions and provides recommendation for the industry to deliver a lasting sustainable legacy through Brisbane 2032.

Coalitions

In FY23 the IS Council launched three new coalitions. These coalitions were a response to industry to address key issues facing the sector. They provide an opportunity to bring together leaders from across

the whole value-chain to create realistic, practical workplans. The next phase of the coalition journey will be to trial actions to address these issues.

The three coalitions launched in FY2023 were:

Resilience – designed to accelerate systemic resilience across the infrastructure sector, It looks both at how we can build more resilient infrastructure, and how infrastructure builds more resilient communities. Helping to support the shocks and stresses of current times (not just climate change, but pandemics, technology etc), the coalition is exploring what data is available and what is needed to better understand resilient infrastructure, the costs and benefits to designing and constructing resilient infrastructure to support data-driven decision making, how to increase capability by understanding the impacts and outcomes, and how materials play their part in resilient infrastructure.

Climate Action – takes a place-based approach to climate action through infrastructure. It focuses on understanding the current barriers and opportunities within projects to drive wider emission solutions, the role that planning and early decision making has on climate change and net-zero, and how to build capability in the overall sector to reduce carbon emissions.

Circular Economy – looks to accelerate the transition to a circular business model and economies. This group is focused on how the circular economy and net-zero agendas can align to ensure the circular economy is more than a waste solution. The group is also considering how they can support the development of frameworks and policies to increase circular economy models, drive more understanding on the outcomes, impact and benefits of circular economy, and how the Australian supply chain plays its part in driving circular outcomes.

Modern slavery coalition

The ISC Modern Slavery member coalition continues to drive change across the industry to help eradicate modern slavery. The coalition, now in its fourth year, has progressed to a proactive maturity level where it is focused on delivering outcomes that drive awareness of modern slavery as well as supporting the industry to better support victims and survivors.

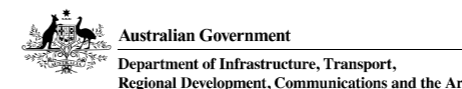
Through the past 12 months the coalition has facilitated workshops to increase understanding with suppliers, developed a submission for the modern slavery act review, heard from expert presenters, published an Impact Note outlining how modern slavery actions align with the IS Rating Scheme, and published a supplier risk assessment.

Infrastructure Net Zero

Infrastructure Net Zero is an alliance of three federal agencies and seven private sector peak bodies whose primary objective is to decarbonize Australia’s infrastructure. Collectively, this alliance is taking action to meet or exceed the national targets of 43% emissions cut by 2030 and net zero by 2050. The initiative brings together the infrastructure sector’s convenors, leaders and key stakeholders to:

- align on the pathways to achievement
- agree on common goals and targets
- coordinate and collaborate on action
- monitor and report on progress.

The alliance is underpinned by strong governance principles, with Nicole Lockwood serving as the independent Chair. Work is overseen by a Steering Committee that includes representatives of the founding stakeholders.



The Initiative focuses on four work streams that address priority issues in infrastructure:

- **Defining net zero for infrastructure** – outlining the guiding principles for decarbonising the sector
- **Public/private sector alignment** – cross-sectoral engagement for practical policy and regulation
- **Uplifting capability in the supply chain** – upskilling the private sector to continuously improve and innovate
- **Procurement for net zero** – aligning procurement processes to effectively cascade across the supply chain

Impact Notes

In FY23 the IS Council published two Impact Notes that demonstrate how the IS Rating Scheme can align with organisational and project activities that address key issues facing the industry.

The notes explore issues and their relevance to the industry. They align these issues with IS Rating Scheme credits, procurement actions, best practice recommendations and case studies.

The first Impact Note focused on low embodied carbon materials. ISC also collaborated with the Modern Slavery Coalition to develop an Impact Note addressing modern slavery, which focused on preventive actions and how modern practices correlate with the Rating Scheme, drawing from a case study from Ventia.

ISC also collaborated with the Modern Slavery Coalition to develop an Impact Note focused on preventative actions against modern slavery. It also examined how management practices correlate with the Rating Scheme, drawing from a case study from Ventia.

The next Impact Note in development focuses on circular economy and will be completed early in FY24.



MARKET TRANSFORMATION 3: SOCIETAL AWARENESS

Objective	What Success Will Look Like
Showcase the social benefits of rated infrastructure to create greater public awareness and support	Across the infrastructure industry, the Infrastructure Sustainability Council communicates effectively through a clear plan and focused use of all its communication channels. The Infrastructure Sustainability Council consistently produces credible, understandable and engaging stories about successful sustainable infrastructure projects that are shared widely by those who campaign to raise broader societal awareness.

In FY23, the ISC delivered a range of campaigns, which included supporting ten international days of observance such as World Bicycle Day, International Day of the World’s Indigenous Peoples, NAIDOC Week, Reconciliation Day, International World Day for Safety and Health at Work and Matariki.

To enhance awareness the ISC also published Impact Notes, NELP Factsheets, engagement campaigns around our Water Advisory & Technical Working Group members, and the regular publication of a newsletter on LinkedIn and the website. Additionally, we continued our major campaign profiling mentors and mentees to promote our RISE program.

We recognise the significance of membership and ratings content in raising awareness for the Scheme and as an industry association. In FY23, we shared 16 posts across our channel on ratings, profiled 38 new members and featured 11 content pieces from our members.

We remain committed to building our online presence, primarily through our engagement on LinkedIn. During FY23, our online audience increased by 26% and our active marketing database expanded by 43%

Awards

At our Annual Gala Awards, held in October 2022 on the Sunshine Coast, we were delighted to celebrate and acknowledge the recipients of our Individual Contribution to a Sustainable Future categories. In addition to the award winners below, the judges recognize the following “highly commended” sustainability professionals: Emerging leader: Deborah Romero and Emily Gentilini, and Sustainability Champion: Fiona Bowie. The award winners were:

Emerging Leader Recipient: Sam Donaldson

Sam Donaldson has been motivated to make sustainability in construction a reality throughout his entire career. An important milestone for Sam was his appointment to his current position as Hub Sustainability Leader at Laing O’Rourke. He had a vital role in the development of their Global Sustainability Strategy, ensuring that unique factors associated with operating in Australia were considered and prioritised. This strategy created a cultural shift within the organisation as well as the construction sector more broadly.

Sam has achieved some of the highest IS ratings results for complex major infrastructure projects and has received multiple IS awards for delivering positive organisational change and exemplary outcomes. He has also put a decision-making framework in place to ensure consistency and ethics across the organisation, including the rejection of projects considered unacceptable in terms of future emissions, such as thermal coal projects.

As an ambassador to the organisation’s STEM+ program, he helped design and deliver a sustainability module. He created a dedicated rotation of young professionals into sustainability roles from the Laing O’Rourke Graduate Development Program, and worked with Cambridge University to design a strategic leadership program focused on innovation and value creation through sustainable solutions.

On a personal note, Sam’s hometown of Ocean Shores on the NSW North Coast was significantly impacted by the 2021 floods. Houses and infrastructure were damaged. Families and friends were displaced. These events strengthened Sam’s commitment to effect change.

‘It made me realise that time is not on our side. We are seeing a different world in recent times. It’s only going to get worse unless we all pick up the pace and inspire more of our people, and more of our industry, towards sustainability in construction.’

Sustainability Champion

Recipient: Georgia Gosse

Georgia Gosse is currently the Infrastructure Advisory Principal and Queensland Regional Service Group Leader with Aurecon. Before joining Aurecon in 2022, Georgia served as the sustainability manager for Australia's national freight network, Inland Rail, for four years.

During her tenure at Inland Rail, Georgia established a strong sustainability culture by implementing environmental and sustainability policies, strategies, systems and processes, as well as running events. One of her most notable contributions was the installation of carbon-neutral precast culverts for Inland Rail which delivered a reduction of 7,250 tonnes of carbon in the project. This is equivalent to removing 350 cars from the road for a year.

Georgia drives positive change in the infrastructure industry by sharing her knowledge and inspiring more women to pursue careers in the industry. She is a sought-after speaker at industry conferences and events, where she advocates for sustainability within the infrastructure industry.

Georgia is an integral member of the Australasian Railway Association's (ARA) Sustainability Committee and was closely involved in the development of the ARA's sustainability strategy and the launch of its first sustainability conference. She mentors emerging and aspiring sustainability leaders through her involvement in the ARA's Women in Rail Mentoring Program, which aims to help women working in rail develop their leadership capabilities. Georgia is also a mentor in the Grandshake Program, which aims to help high school students explore and understand different career opportunities.

'The younger generation tells me they want to do work with a purpose and to feel like they are contributing to the greater good. The infrastructure industry needs more passionate people who are driven to contribute to the fabric of our society. There is an obvious alignment and the promotion and increased visibility of sustainability in infrastructure projects will help attract the future generation to the infrastructure industry.'

Enduring Impact

Recipient: Andrew Ackerman

Andrew Ackerman, the Alliance General Manager of the South Eastern Program Alliance (SEPA), has long been a sustainability champion in the construction industry.

Sustainability has been at the forefront of his work for over two decades. But for change to occur, Andrew recognises that people need to feel safe to make suggestions and experiment with change. Andrew has gone beyond creating an environment where teams feel safe to discuss sustainability innovations to instead insist on these discussions.

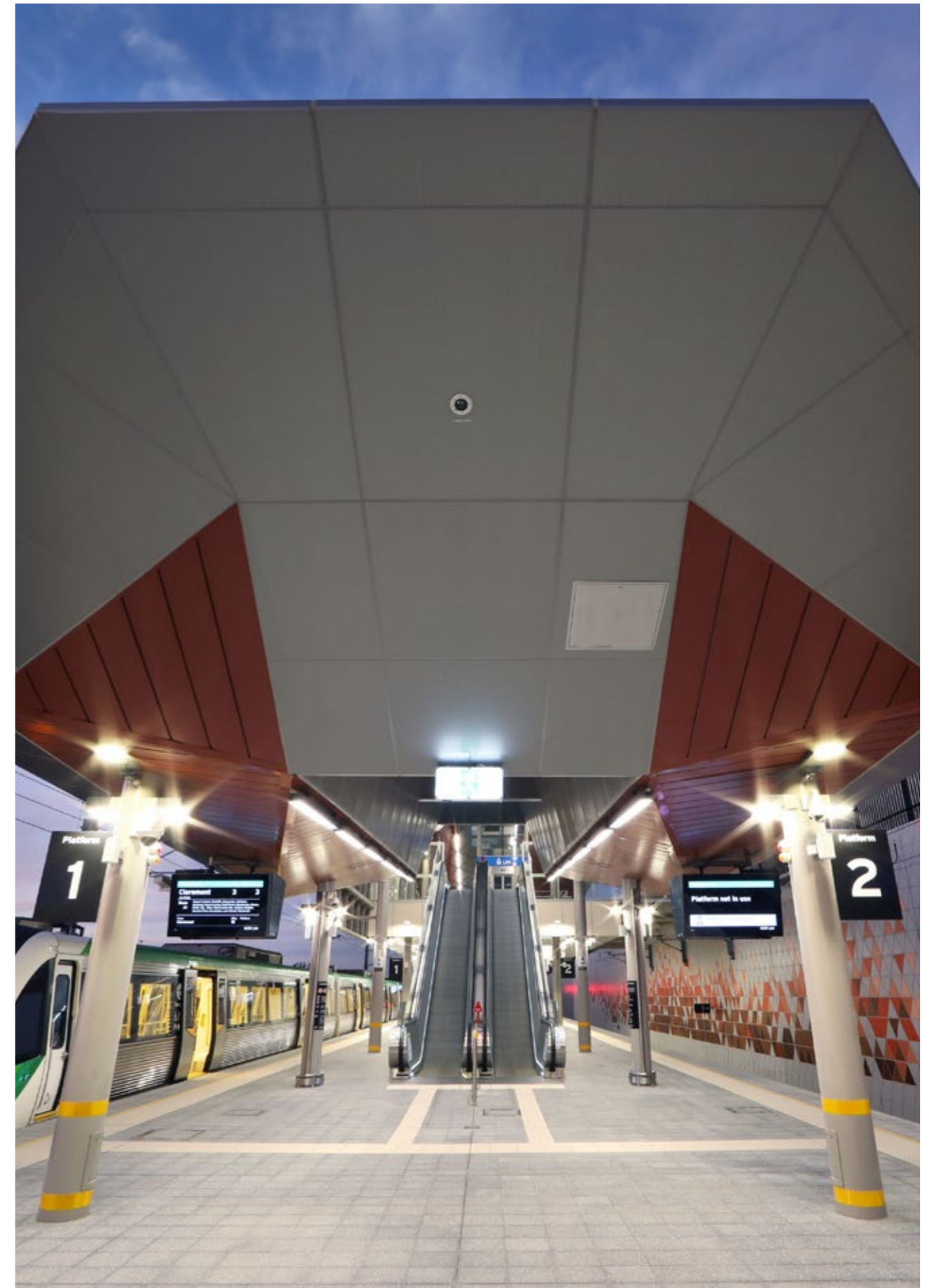
Andrew's work and influence have contributed to many improvements in construction, design, team culture and performance. He has also increased the use of sustainable materials, construction practices and solutions. His impact can be seen in small details and through to major, industry-wide shifts.

In addition to leading the way in making construction and engineering more sustainable from an emissions standpoint, Andrew is also a passionate believer in advancing the full spectrum of sustainability, promoting diversity, inclusion, safety and wellbeing.

He has recently focused on ensuring construction project staff have a five-day working week for better site safety and balance between work and life. This approach also has a positive impact on mental health and talent attraction. Andrew hopes his legacy is ensuring we future-proof our business and our industry.

People in construction often ask Andrew where they should start when it comes to sustainability.

'You start with the things you can do differently right now. The starting point for us in our SEPA sustainability strategy was thinking about the things that we could influence from day one. That was very much about our site establishment and making a commitment to net zero site emissions for all our new sites across SEPA.'





GOAL 4

Organisational Health | Manaakitanga

ORGANISATIONAL HEALTH OBJECTIVE 1: OPERATIONS

Objective	What Success Will Look Like
Enhance operational efficiency, practice good governance and make sound financial decisions	The Infrastructure Sustainability Council's operations are sound and sophisticated as they are built upon robust and straightforward technology solutions. Everyone is committed to professional learning and personal growth, which matches their aspirations and supports the organisation's ongoing success

At our 2022 AGM, three new Directors joined the Board; those on the Board at 30 June 2023 include Craig McGrory Chief Transformation Officer, ACCIONA and Alison Price, Managing Director SoilCyclers. To deepen the skills base and focus on strategic areas of growth, Alex Osti, Digital Development Manager, Mott MacDonald joined the Board Market Development Committee as a co-opted member. Progressing our contemporary governance, the Directors developed a new Board Charter.

The organisation realigned functionally in readiness for our future business model; supporting even greater connection across our business and a sustained focus on strategic priorities to better deliver on our purpose for members, and the beneficiaries of infrastructure, communities, the environment, the workforce and our economy.

Our digital transition continued with two system integrations to optimise member engagement and operational workflows. We also welcomed in-house legal counsel, Catherine Wallace.



ORGANISATIONAL HEALTH OBJECTIVE 2: PEOPLE AND CULTURE

Objective	What Success Will Look Like
Celebrate diversity, value well-being and together create change towards the United Nations Sustainable Development Goals	The Infrastructure Sustainability Council continues to be deeply and proudly driven by its purpose. It has an inclusive, high-performing team that thrives in an ever-changing environment by collaborating and supporting each other to perform at their best. The Infrastructure Sustainability Council team enjoys the challenge of their work. The team is highly selective in choosing priorities, accountable and supports one another. There is a culture of listening to diverse viewpoints and encouraging robust open discussions. There is a genuine appreciation and respect for the organisation's decision-making processes and outcomes. Infrastructure Sustainability Council sets the standard for industry with a healthy and happy team, as measured by a dedicated key performance indicator

The CEO Values Awards acknowledge the importance of culture and the exemplary impact our people have on the Council and the sector. This initiative recognizes the exemplary efforts of our people to demonstrate our values of Responsible, Dynamic, Collaborative in all interactions on a day-to-day basis.



Collaborative
Loren Blundell
Head of Marketing & Events



Dynamic
Monique Isenheim
Head of Market Development



Responsible
Declan Collins
Regional Lead - WA, NT and SA



ORGANISATIONAL HEALTH OBJECTIVE 3: OUR IMPACT

Objective	What Success Will Look Like
<p>Plan, implement and measure our impact and well-being as an organisation</p>	<p>The Infrastructure Sustainability Council tracks its impact towards the United Nations Sustainable Development Goals that its members have identified as critical to success. It has aligned its work output to these goals significantly, which increases its ability to deliver on these goals and to lead by example</p>

We prioritised aligning ISC’s work output to the United Nations Sustainable Development Goals (SDGs). With our work aligned with 15 of the 17 SDG’s we make contributions to charitable organisations to ensure we also address SDG1 and 2. In choosing speakers and panellists at our events, we couple diversity and inclusivity, maintaining an equitable influence ratio of 55:45 female to male speakers in our male-dominated industry.

We recognise and respect all First Peoples and their deep connection to land, water and culture. We have continued our reconciliation journey, scoping skills and capacity for reconciliation and implementing initiatives through our engaged and enthusiastic Reconciliation Action Plan Working Group, with participants drawn from across all business units.



Old computers find new homes

Repurposing ISC aging technology assets to create a second life

The Infrastructure Sustainability Council’s commitment to a positive future for people, the planet, the economy and industry extends beyond the delivery of infrastructure projects through the IS Rating scheme. Our values underpin daily business operations and the ISC consistently seeks new ways to increase benefit to our community.

Digital Product Manager Rob de Carvalho recently identified an opportunity to extend the benefit of four laptops no longer in use by ISC staff members. Typically, old workplace computers often end up in landfill, contributing to the growing environmental issue of landfill accumulation across the country.

Instead, Rob reached out to a local not-for-profit Asylum Seekers Centre to give these laptops a second life. Asylum seekers often face significant barriers to accessing information, education and services. The laptop program helps to overcome these barriers, allowing asylum seekers to access legal and

social services, navigate complex immigration processes and stay in touch with their family and friends.

“As I was helping a young man with a printing problem, I asked him why he needed the printing. He said there’d been a massacre in his village back home—the second in less than a year. He needed to provide evidence of why it was not safe to return. He mentioned he didn’t have a computer, so I arranged for him to get a donated laptop.” Asylum Seekers Centre Head of IT, Patrick Lesslie

The centre also uses second-hand computers to support services such as the health clinic, with the computers running specialist health applications. The ISC donated four laptops to the Asylum Seekers Centre in February 2023 and intends to continue donating laptops and devices that are no longer in use.

The Asylum Seekers Centre and other not-for-profits rely on the generosity of others to be able to deliver their services. Supporting these causes not only aligns with ISC’s values but allows us to advance two SDGs that are not addressed through general operations.





03 Impact in Action

Industry and Impact

The challenges facing our industry are not going to be solved alone. We must work together to overcome the barriers and explore the lessons learned from others to drive capability and capacity in the industry. Knowledge sharing allows us the opportunity to empower others – reducing the learning curve and directing us all towards common goals. This Impact Report shares a number of outcomes and innovations delivered over the past 12 months.

The following section is inspired by the achievement of our members over the past year. We have collated a selection of case-studies showing innovation, outcomes and success across the industry. These stories share just a small snapshot of the work being undertaken by the infrastructure industry in Australia and New Zealand.

We introduce these stories under four impact themes – Planet, People, Prosperity and Industry – examining how business outcomes could effectively contribute to the UN SDGs.

These stories are collated from IS Rated assets, ISuppliers, ISC Members and our stakeholders in the industry. They represent a snapshot of activity and outcomes being delivered in the industry. Designed to inspire and motivate readers on their sustainability journey.













While we have organised the case stories around these four impact themes, each story shares multiple outcomes and covers all areas. Similar to how the infrastructure industry operates across all areas each and every day.

Impact Themes	Impact Pathways
PLANET <i>Taking climate action and protecting and regenerating our natural environment</i>	Low Carbon, Low Energy
	Economy Conserved
	Ecosystems
	Regenerated Landscape
	Circular Economy
PEOPLE <i>Contributing to liveable communities with culture at their heart</i>	Liveable Communities
	Culture and Sense of Place
	Engaged People and Communities
PROSPERITY <i>Creating inclusive, thriving communities and resilient economies</i>	Adaptive Capacity
	Measures of Socioeconomic Value
INDUSTRY <i>Shaping a world-class industry and capable workforce aligned to sustainability</i>	Sustainability-aligned Governance
	Innovation and Knowledge Sharing
	Healthy, Inclusive Workforce
	Responsible, Agile Supply Chain

Case Study Impact Pathways

PLANET	Laing O'Rourke: Morley-Ellenbrook Line – Floating dam cover and off-grid construction site	#Low carbon, low energy use future #Innovation and knowledge sharing
	Laing O'Rourke: Sustainable fleet and off-grid construction site	#Low carbon, low energy use future #Innovation and knowledge sharing
	Sunwater, GHD, McCosker Contracting and Acciona: Rookwood Weir Fish lock and Turtle Passage	#Biodiversity conservation #Innovation and knowledge sharing
PEOPLE	Laing O'Rourke: Gender equality policy	#Workforce capability and inclusivity
	GHD: Embedding sustainability skills within project teams	#Workforce capability and inclusivity
	RNA: Artworks celebrating First Nations culture	#Protecting heritage or way of life
	Novo Rail Alliance: Redfern Station – relocation of Heritage building & Canopy launch over tracks	#Protecting heritage or way of life, #Liveable communities #Innovation and knowledge sharing
	Arenco: East Hills and Yagoona Station Upgrades – artwork for community engagement and reducing emissions through early engagement	#Protecting heritage or way of life #Creating a relevant sense of place #Low carbon low energy use future
	SPA: Mentone and Cheltenham LXP: Protecting Heritage Sites	#Protecting heritage or way of life
PROSPERITY	Waka Kotahi: Sustainable resource use	#Transformational structures and processes #Shift to circular economy
	AECOM: Climate-positive infrastructure report	#Sustainability-aligned governance #Transformational structures and processes
	Georgiou Group: Townsville Ring Road Stage 5 - Cost-efficient sediment recovery and re-use	#Transformational structures and processes
INDUSTRY	CIMIC Group: Driving digital connectivity	#Sustainability-aligned governance #Innovation and knowledge sharing
	ARUP: Outcome-led Design Tool maps project objectives with IS ratings and SDGs	#Transformational structures and processes #Innovation and knowledge sharing #Sustainability-aligned governance #Systemic change in industry sustainability
	MRPA: Alliance-wide governance framework for sustainability targets	#Sustainability-aligned governance, #Innovation and knowledge sharing, #liveable communities
	Main Roads WA: Using Planning rating to influence long term project outcomes through early-stage decision-making	#Innovation and knowledge sharing

PATHWAYS TO POSITIVE IMPACTS ON THE PLANET

Pathways to Impact	Example Outcomes	SDG Targets	
Low carbon, low energy use economy	<ul style="list-style-type: none"> Use or generate renewable energy Minimise use of energy Reduce emissions to the full extent possible across the asset lifecycle Offset un-abatable emissions in ways that bundle positive climate, nature and social impacts Set and achieve science-based climate targets 	<p>7.1 Ensure universal access to affordable, reliable and modern energy services</p> <p>7.2 Increase substantially the share of renewable energy in the global energy mix</p> <p>7.3 Double the global rate of improvement in energy efficiency</p> <p>12.c Rationalize inefficient fossil fuel subsidies that encourage wasteful consumption by removing market distortions</p> <p>13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p>	  
Conserved ecosystems	<ul style="list-style-type: none"> Reduce water use to the full extent possible across the asset lifecycle Improve downstream water bodies Protect and enhance ecosystems Avoid disturbing acid sulfate soils Set and achieve nature positive targets 	<p>6.3 Improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals</p> <p>6.6 Protect and restore water-related ecosystems</p> <p>8.4 Improve global resource efficiency and endeavour to decouple economic growth from environmental degradation</p> <p>14.1 Prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities</p> <p>14.3 Minimize and address the impacts of ocean acidification</p> <p>15.4 Ensure conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development</p> <p>15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and protect and prevent extinction of threatened species</p>	   
Regenerated landscapes	<ul style="list-style-type: none"> Reuse previously developed land Remediate contaminated land and manage contaminated material to eliminate risks to people Undertake ecological restoration projects that significantly improve ecological values 	<p>3.9 Substantially reduce deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>12.4 Achieve the environmentally sound management of chemicals and all wastes throughout their life cycle</p> <p>15.3 Combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods</p>	  
Circular economy	<ul style="list-style-type: none"> Create a resource strategy that targets zero waste and commits to sustainably certified products and supply chains Use products with strong materiality credentials Design-in adaptability and end-of-life disassembly Reduce lifecycle environmental and social impacts 	<p>9.4 Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes</p> <p>12.2 Achieve sustainable management and efficient use of natural resources</p> <p>12.5 Substantially reduce waste generation through prevention, reduction, recycling and reuse</p>	 

ISSUES

Catalysed by climate change, the rate and scale of biodiversity decline and nature loss continues to accelerate rapidly as the consequence of agriculture, industry and human expansion. Tipping points beyond which system changes will be irreversible loom as distinct likelihoods for coming generations. The UN estimates a US\$4.1 trillion financing gap to meet targets on climate change, nature loss and land degradation. The finance sector must work to shift trillions towards ventures that are aligned to these goals, while key sectors, including infrastructure, must devise portfolios, programs and projects to address human needs in ways that reverse negative climate, biodiversity and land use impacts. The circular economy is a key transition pathway and Net Zero is a key threshold.

Natural disasters of increasing ferocity and regularity, triggered by changes in temperature and precipitation, along with sea-level rises will become the dominant cause of contracting biodiversity, mass mortality events and the irrevocable extinction of plant and animal species. Arctic sea-ice, warm-water coral reefs and terrestrial ecosystems are at the frontline of risk, followed by forest, kelp and seagrass ecosystems.

The increased severity and frequency of extreme weather events has already begun to counter-act nature-based resilience against climate change. In the past year, few nations were spared the devastation of unprecedented, catastrophic flooding events. Record- and heart-breaking wildfire seasons tore through both hemispheres, and neither ancient wood nor fledgling forests planted for carbon offsetting, were immune to the destruction.

If deforestation continues to degrade and destroy the Earth's carbon sinks, and the natural capacity of our soils and oceans to store carbon continues to decline, entire ecosystems could, in time, themselves transform into sources of carbon and methane emissions.

The UN Environment Program's 2022 "State of Finance for Nature" estimates that between now and 2050, investment in the vicinity of US\$11 trillion in nature-based solutions is needed to limit climate change to below 1.5° in line with the Paris agreement – a call for global financial markets to shift investment structures to align with these goals, whilst the infrastructure and commercial sectors move to devise portfolios, programs and projects to address human needs in ways that reverse intensifying climate, biodiversity and land-use impacts.

CLIMATE CHANGE

COP27 saw richer nations acknowledge the need for financially compensating for the loss and damage suffered by developing countries from climate change impacts like sea-level rise and ecosystem collapse. Although the crucial matters of who pays and who receives will continue to be debated, the talks achieved agreement on the establishment of a multilateral fund to benefit poorer nations suffering at the hands of climate-related catastrophes: €340m in new pledges for loss and damage were made.

Despite the fossil fuel lobby refusing to go down without a fight, progress has been made on including the agriculture sector into high level climate forums, with global food chains contributing around a third of greenhouse gas emissions. It remains the case that we must urgently address emissions in high-emitting sectors such as infrastructure to accelerate de-carbonisation across the board. The IPCC's sixth climate assessment report released in February 2022 underlines this urgency.

Construction, operations and activities enabled by transport, energy, water, waste and communications infrastructures have significant impacts. Indeed infrastructure contributes or enables some 70% of Australia's total emissions.

While the sector is responding in a variety of ways – smart design, net zero targets, carbon budgets, low carbon materials, renewable energy, alternative fuels, resource efficiency, alternative urban forms, green pricing and funding, carbon capture and storage, and nature-based solutions – more ambitious and more co-ordinated action is needed.

We must reduce our negative impacts and become climate neutral and nature positive.

NATURE LOSS

When ecosystems diminish, the effects are local and systemic. Australia has the world's highest rate of mammalian extinction, with more than 1,700 species known to be threatened or at risk. In Aotearoa New Zealand, wetlands have declined at least 90% since people arrived and more than one-fifth of terrestrial, freshwater and marine species are at risk.

More than half of global GDP is nature-dependent, relying on ecosystem services, such as pollination, water purification and carbon sequestration. Science-based business targets that account for natural environment tolerances are increasingly important.

In December 2022 the COP15 Summit held in Montreal, Canada, adopted a landmark biodiversity agreement, the “Kunming-Montreal Global Biodiversity Framework” (GBF) comprising four overarching goals with 23 specific targets to be reached by 2030. The overarching objective is: “by 2030: protect 30% of Earth’s lands, oceans, coastal areas, inland waters; reduce by \$500 billion annual harmful government subsidies; Cut food waste in half”.

It is not enough to simply reduce impacts. Ecological restoration is crucial – and is already being pioneered by the sector’s leaders – as we drive forward towards a nature positive future.

LAND USE CHANGE

By 2050, 68% of the world’s population will live in urban areas; in both Australia & New Zealand, more than 86% of the population already does. Around 59% of Australia’s landmass is used for agriculture, but this is slowly declining as climate change contracts the productive capacity of marginal food producing areas.



Around 50% of the total land area in Aotearoa New Zealand is used for agriculture, forestry and housing. While urban land covers just 1%, urban expansion is seeping outwards onto productive land. Areas of highly productive farmland swallowed by development have increased 54% since 2002. Supporting ecosystems services, quality of life and productivity to ensure ‘good growth’ is an imperative that requires a collective and planned approach.

RESOURCE EXTRACTION AND WASTE

Global materials systems are 90% linear, leading to continued extraction, mounting waste and land use change. The infrastructure sector must become more circular. The current approaches include life cycle analysis; efficient inventory management; lean construction; preventative maintenance; better sorting of waste streams; 3D printing; demolition and salvage strategies; and investment in new waste recycling facilities. We must move urgently to next-generation circular design and waste elimination strategies.

Laing O’Rourke: Morley-Ellenbrook Line – Floating dam cover and off-grid construction site

#Low carbon, low energy use future #Innovation and knowledge sharing

The MELconnx Alliance, comprised of Laing O’Rourke and the Public Transport Authority of WA, is pioneering sustainable solutions on the METRONET Morley-Ellenbrook Line Project in Western Australia.

The team surpassed sustainability targets for energy and carbon reduction and obtained third-party certifications that provide environmental and social value for their client, the Public Transport Authority. The Ellenbrook and Malaga stations received 5-star Green certifications, becoming the first certified Green Star stations in Western Australia.

To meet contractual targets for water use reduction during construction, the MELconnx team implemented an innovative solution to reduce water loss through evaporation from construction dams. Working with a local supplier, the team manufactured a modular floating dam cover with a weighted skirt, made with 30% recycled content. The solution, which was implemented across four of the project’s construction dams, is expected to save 6 million litres of water during construction. It minimises algae build-up that can damage water pumps and cause maintenance issues. A modular design allows for easy and cost-effective replacement when damaged. The cover can be easily transferred to other projects as warranties last over 10 years.

The water-saving solution received endorsement from the Australian Rail Association (ARA), noting it as an ‘Australian first’ innovation.

To reduce energy use during construction, the project team implemented a solution at the Whiteman Park Station site office. The office now houses Western Australia’s first solar farm used in construction, powering an off-grid construction site. In partnership with a local supplier, the MELconnx team installed a 45kW solar farm and battery, eliminating the need to use a standard diesel generator. The solar farm has exceeded its original expectation of saving approximately 45,000 litres of diesel, equivalent to 128 tonnes Co2e. This solution, along with an extensive reduction of tree clearing, the use of lower-carbon concrete, and many other construction optimisation initiatives, has achieved a 26% total CO2e reduction from ‘business as usual’.

MELconnx construction lead Jason Curtis said, “Choosing the sustainable solution is no longer just a choice, it’s an imperative. There are so many options available in the market.”

“A hybrid power system is just one great example of how carbon emissions can be reduced when connection to grid electricity is not possible. Not only is this solution better for the environment, the health of our workforce and the community, but we also found that it is a better financial solution too.”

These initiatives are helping Laing O’Rourke shape the future of construction. By reducing diesel use and associated particulate matter and carbon emissions, initiatives like the Whiteman Park solar farm hybrid generator solution will help the company achieve its net-zero targets.



Laing O'Rourke: Sustainable fleet and off-grid construction site

#Low carbon, low energy use future #Innovation and knowledge sharing

Laing O'Rourke's plant hire business Select has built a reputation as a sustainability leader in the Australian plant hire and rental industry. A wholly owned subsidiary of Laing O'Rourke, Select owns and operates a modern, innovative and environmentally sustainable fleet that is supported by specialist teams dedicated to fulfilling the environmental ambitions of Laing O'Rourke and its customers.

Alongside Select, Laing O'Rourke has invested in electric construction equipment by launching Australia's first zero-emissions fleet. This included 250 tonne electric crawler cranes and 2.5 tonne electric telehandlers. This investment is the first of its kind in the Australian construction sector and is part of Laing O'Rourke's efforts to reduce scope 1 and 2 carbon emissions and achieve operational net zero by 2030.

The establishment of off-grid construction site compounds powered by renewable energy is another industry first from the company. Through innovative design, a renewable energy system was designed to power the Laing O'Rourke site compound at the Princes Highway East Kilmany project. With the support of the client, Major Road Projects Victoria, this system reduced diesel fuel consumption for the generation of site compound power by 90%.

To date, the project has avoided emitting 77,630kg of CO2 with solar panels serving as the primary energy supply during the day and batteries utilised at

night. An off-grid site compound in Western Australia experienced a similar reduction of CO2 emissions after a renewable-energy solution was implemented in September 2022.

To monitor energy use, Select installed digital energy monitoring systems across all Laing O'Rourke site compounds. The data collected is used to improve the site and foster behavioural changes to further reduce CO2 emissions.

Prior to the installation of the renewable energy systems, Laing O'Rourke and Select utilised hybrid generators on projects across New South Wales and Victoria. This improved the fuel efficiency of diesel power generation on off-grid site compounds. The combination of a diesel generator and battery energy storage systems resulted in a 40% reduction in diesel fuel consumption for the generation of site compound power.

An 8.5 tonne electric flatbed truck was introduced at the Union and Mont Albert project (UMA) by South Eastern Program Alliance (SEPA) and has achieved 35% operational cost savings since October 2022. An additional four electric trucks, solar-powered lighting, electric Teletruks and hybrid power systems were also purchased to align with Select's net-zero targets.

"We are continuing to invest in building a modern, innovative and environmentally sustainable fleet. Each new piece of equipment we bring on board is expected to contribute to achieving our net zero targets. We are proud to have delivered many Australian firsts for construction and we will continue to deliver exceptional safety standards, enhance value to the industry and improve sustainability outcomes for our customers while driving program efficiency."

Select Business Unit Leader Nathan Mitschuinig



Sunwater, GHD, McCosker Contracting and Acciona: Rookwood Weir Fish lock and Turtle Passage

#Biodiversity conservation

The Rookwood Weir Project has been awarded an Excellent IS v1.2 Design Rating by the Infrastructure Sustainability Council, setting a new standard for best practice sustainability outcomes for major water infrastructure projects. The weir is the first in Australia and New Zealand to be awarded an IS v1.2 Design Rating. It has gained recognition for its 'Australian-first' turtle passage and innovative fish lock designs, which will improve aquatic species movement and help maintain the river's ecological values.

Funded by the Queensland and Australian governments, Rookwood Weir is a 16.2m high and 350m long mass concrete weir, located on the Fitzroy River in Central Queensland. The weir increases water security to meet the urban, agricultural and industrial needs of the Lower Fitzroy and Gladstone regions, benefiting more than 350,000 people.

Sunwater, GHD, McCosker Contracting and Acciona worked in an alliance to design and construct Rookwood Weir.

The project's sustainability outcomes are linked to its significant reduction in concrete consumption, with up to 53% cement replacement used in the structural concrete mixes. Value engineering also optimised the spillway length and left abutment width, saving 300,000m³ of extraction volume, resulting in an estimated fuel saving of 1,128,000 L, a financial saving of \$1,410,000, and emissions saving of 3,251 tCO₂-e. Material savings included 6,734 m³ of concrete and 27.72 t of steel. Combined, these reductions led to substantial energy savings through reduced construction effort.



The challenge

Movement is an important part of the life cycle for aquatic species and critical to ecosystem protection. The Fitzroy River supports 37 species of fish and six species of turtle, including the critically endangered White-throated Snapping Turtle (*Eiseya albagula*) and vulnerable Fitzroy River Turtle (*Rheodytes leukops*). Restricting the movement of fish and turtles can lead to disruption in dispersal, foraging and breeding migrations. This results in the isolation of populations, a reduction in species abundance and diversity, and a decline in population health and productivity. Wider impacts can include degradation of the aquatic environment, reduction of waterway health, reduction in recreational and commercial fishing, and changes in cultural practices.

Dams and weirs impede the movement of aquatic fauna. While fishway and turtle passage design solutions have been used in the past, they have generally performed poorly. With narrow operating ranges, they haven't met the target species' need for movement and can cause high rates of injury and mortality.

The solution

Rookwood Weir's design included an innovative two-lock fish chamber with a castellated crest block and a 172m long turtle passage, which contributed to the project's IS Design Rating.

The fish lock includes two chambers, five attraction slots and four exit channels. This increases the operating range and provision of fish passage



to over double that of a typical single chamber fish lock design. Castellated crest blocks on the spillway introduce a novel approach to controlling spillway flows suitable for fish attraction. This improves effectiveness without the need for large supplementary water releases. These design features provide sustainable and ecological benefits to the fish community through the maintenance of fish migration and connectivity of populations and habitat.

Believed to be a world first, the turtle passage design supports safe upstream and downstream turtle movement at the Rookwood Weir. The turtle passage consists of 172m of specially designed ramps with resting pools every 15m, wrapping around the right abutment and fish lock.

The design was informed by the largest freshwater turtle acoustic telemetry project in the world. The project tracked the movement behaviour of more than 130 turtles within 30km of the Fitzroy River across a five-year period, with tracking still ongoing.

The design basis and success criteria for the turtle ramp were developed from improved knowledge of turtle home range size, movement behaviour and seasonal variation. All aspects of Rookwood Weir,


such as the spillway, stilling basin, outlet works, intake screen, fishway and turtle ramp have been designed for turtle protection. Consequently, for the first time in Australia, a water infrastructure project will enable the safe upstream and downstream movement of turtles. This protects the movement and breeding behaviour of two threatened and culturally significant turtle species.

The outcomes

Rookwood Weir's fishway and turtle passage sets the benchmark for ecologically-sustainable design and construction of water infrastructure in Australia. The fish lock is effective across a large range of flow conditions and the scientifically-designed turtle passage provides for safe movement of turtles past the weir. This decreases risk of injury and mortality compared to previous historical designs.

The project achieves ecological sustainability through scientific monitoring-led design which protects aquatic ecosystem values for the benefit of generations to come. Following the completion of construction, long-term monitoring of the fishway and turtle passage will be undertaken during operations, to assess compliance with performance criteria.

PATHWAYS TO POSITIVE IMPACTS ON PEOPLE

Pathways to Impact	Example Outcomes	SDG Targets	
Liveable communities	<ul style="list-style-type: none"> ✓ Manage impacts, such as air quality, light pollution, noise and vibration, and improve amenity ✓ Use water sources of suitable quality for the project's water end uses, ea o tizi demand on potable water supply, protecting the environment and supporting the use of alternative water sources ✓ Provide safe, affordable, accessible and sustainable transport systems ✓ Provide universal access to safe, inclusive and accessible, green and public spaces 	<p>12.7 Halve the number of global deaths and injuries from road traffic accidents</p> <p>12.7 Substantially reduce deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>6.1 Achieve universal and equitable access to safe and affordable drinking water for all</p> <p>6.4 Substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity</p> <p>6.5 Implement integrated water resources management at all levels, including through transboundary cooperation</p> <p>11.1 Ensure access for all to adequate, safe and affordable housing and basic services</p> <p>11.2 Provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons</p> <p>11.6 Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management</p> <p>11.7 Provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities</p>	  
Engaged people and communities	<ul style="list-style-type: none"> ✓ Design and implement a stakeholder engagement strategy that ea o tizi key stakeholder and community values, interests and concerns, and promotes inclusive, participatory approaches ✓ Create infrastructure that has been influenced by the local context, fits its setting, and meets the needs of the people who will use it, while preserving and enhancing scenic, aesthetic, cultural, community and environmental resources and values ✓ Deliver initiatives that contribute pronounced and long-lasting societal and environmental outcomes 	<p>12.7 Enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management</p> <p>12.8 Ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature</p>	 
Culture and sense of place	<ul style="list-style-type: none"> ✓ Maintain or enhance local heritage values across all infrastructure phases and raise awareness of these values with project stakeholders and the community ✓ Partner with Traditional Owners and mana whenua to identify opportunities for relationship building, co-design and ea o tizing sustainable outcomes 	<p>12.7 Strengthen efforts to protect and safeguard the world's cultural and natural heritage</p> <p>17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships</p>	 

ISSUES

We want to enable wellbeing for current and future generations and ensure that cultural values and the richness of worldviews are placed and maintained at the heart of decision making.

POPULATION GROWTH

Australia could grow from nearly 25 million today to between 37 million and 49 million by 2066¹⁴, while Aotearoa New Zealand's population could reach 6 million by 2050. Some regions and urban centres will expand, while other, mostly rural regions, may diminish¹⁵. The fastest growing age group in Australia and Aotearoa New Zealand is the 85-plus, potentially changing demand for travel-related, health and community-based infrastructure³³.

INDIGENOUS WORLDVIEWS

Indigenous cultures and worldviews can provide unique insights to societal and environmental context and outcomes. Yet these worldviews are often poorly understood and undervalued. Threats to culture, ways of life and sense of place can lead to anxiety and opposition to infrastructure projects.

Aboriginal and Torres Strait Islander people continue to face challenges to their identity as Indigenous Australians, despite a connection to the land that stretches back at least 65,000 years. Places of meaning and significance to Indigenous Australian people include places associated with Dreaming stories, places associated with their spirituality, places where other cultures came into contact with Indigenous Australian people and other places with contemporary significance.

Te Tiriti o Waitangi, the Treaty of Waitangi, is a founding document in Aotearoa New Zealand, written in two languages, with much potential for misunderstanding. The Waitangi Tribunal was founded in 1976 as a permanent commission of inquiry to make recommendations on Māori claims relating to Crown actions that breach Te Tiriti.

Forced neglect of Māori culture for several decades has led to intergenerational cultural dispossession. Today's generations – old and young – are leading Māori communities and individuals in reclaiming and recovering suppressed knowledge and understanding of te ao Māori (the Māori world view), mātauranga Māori (the body of ancestral knowledge of the living environment) and te reo Māori (the Māori language).

Te ao Māori is gaining importance in governmental and business activities, including infrastructure development, where meaningful engagement and tangible outcomes – cultural, environmental, social and economic – are emerging.

Incorporating Indigenous leadership and cultural history into infrastructure planning acknowledges the deep knowledge and understanding that Aboriginal, Torres Strait Islander and Māori people have with the land, and create an environment where all species thrive together.

JUST AND INCLUSIVE TRANSITION

Taking action on climate change is essential and will create many new job opportunities, but we need to acknowledge that there will be an impact on jobs associated with high emitting industries. These jobs are often centred in regional areas and create regional economic activity. To combat inequity, we must commit to a just and inclusive transition in which there is investment in training and economic diversification to secure jobs with a sustainable future.

Lower income communities may be less able to afford the economic, lifestyle and technological changes needed to reduce carbon emissions. We must ensure that our decarbonisation efforts are equitable and contribute to the wellbeing of all communities.

LIVEABLE CITIES

Cities are places where people live, work and play. We advocate for cities to be designed with people in mind, and the spaces to be beautiful, safe, vibrant, with considered designs to promote the health of and access for all those who live there. Well designed, people-friendly places can promote active lifestyles by encouraging walking, cycling and public transport use, with the potential to improve human health and lower transport-based emissions.

Cities must no longer be passive, unnatural areas. A strong connection to nature can increase happiness, cognitive function, productivity and focus. The connection can also reduce the heat island effect, improve air quality, lower energy use in buildings and improve the resilience of infrastructure³⁵.

City-level action can and must play a crucial role in the quest for net zero. It can also create a much more beautiful and liveable space that improves the lives and health of all the city's inhabitants.

Laing O'Rourke: Gender equality policy

#workforce capability and inclusivity

Laing O'Rourke recognises that diversity plays a vital role in fostering innovation and productivity. There is power in diversity of thought, particularly when it is accompanied by inclusion and a sense of belonging. With a strong commitment to diversity, Laing O'Rourke is positioned to attract and retain talent in the workforce.

"Setting an ambitious target for gender balance is a significant step in the process to deliver overdue change in a sector that continues to lack diversity, but implementing targets and policies today, does not equal change tomorrow, it takes time," Director of People at Laing O'Rourke, Helen Fraser said.

"Over the past 10 years, Laing O'Rourke has unapologetically focused on diversity and inclusion. This sustained commitment has fundamentally changed our culture and the way we talk about gender, about families, and about careers."

The company has set its gender balance targets to achieve 50/50 representation by 2023. It has also implemented an industry-leading equal parenting policy. Additionally, its STEM+ schools program specifically targets students before they make decisions about their future career path.

This approach earned Laing O'Rourke the Workplace Gender Equality Agency Employer of Choice for Gender Equality in 2020 and 2022. In Australia, the company has increased overall female participation over the past four years from 26% to 35% and increased the Australian Executive Committee female composition to 45%.

Laing O'Rourke has prioritised the appointment of women into vital, valued and well-remunerated senior roles. This has resulted in an increased number of women taking on operational roles that help ensure the safe delivery of construction projects. A balanced gender representation at senior levels works to shift company culture and reduce the gender pay gap.

Laing O'Rourke goes beyond recruitment in meeting its targets. The company's Gender Diversity Action Plan focuses on retention and promotion, which requires shifts in leadership and culture. The plan includes setting ambitious targets, sponsoring emerging female leaders and instilling a culture of flexibility on project sites.

"We know that workplaces where women thrive are workplaces where everyone can thrive, and we have proven a link between investing in workplaces where

women thrive and business performance. The secret to our success is not so secret—a sustained commitment to changing the culture of construction," Fraser said.

The ability of Laing O'Rourke's leadership team to examine the uncomfortable truth in situations, rather than avoiding it, has helped foster successful outcomes. The team recognised the challenges faced and took the time to understand issues, facts and data to find meaningful solutions.

In late 2022 Laing O'Rourke was presented with the [National Association of Women in Construction's \(NAWIC\) top honour](#), the Lendlease Crystal Vision Award for Advancing the Interests of Women in the Construction Industry, for its industry-leading approach to gender diversity and cultural change. In 2011 the company led the Australian industry in launching its parenthood policy, providing employees with 18 weeks of full-paid leave and eight weeks half pay. In 2022 it raised the bar by introducing 26 weeks of paid leave for parents.

The policy outlines that any employee regardless of gender, who assumes the primary carer role for their babies, has access to six months of full paid parental leave. This leave extends to parents who adopt or welcome a baby through surrogacy, with leave commencing within 15 months of the child's date of birth.

In Australia, there has been a 50% increase in men taking primary carer leave in the past 12 months. This indicates that the policy is making a difference and that enabling parents to take paid parental leave creates cultural change within an organisation.

The company has also introduced a new pregnancy loss policy providing paid leave for any employee who has suffered, or whose partner or surrogate has suffered a loss of pregnancy. This policy demonstrates the businesses commitment to caring for people through significant life events.

The parental leave policy sets a new benchmark for construction companies around Australia. But this is just one outcome of a ten-year journey of change.

"We know that diversity is a complex issue. We can't just pull one lever or expect one change to make that difference. A complex web of change is required. While we know there is still a long way to go, we are confident we are taking the necessary steps to drive long overdue change in our industry," Fraser said.

[CLICK TO WATCH VIDEO](#)

GHD: Embedding sustainability skills within project teams

#Workforce capability and inclusivity

The awareness and importance placed on infrastructure sustainability has never been stronger than it is today, with passionate advocates from a wide variety of backgrounds visible at every stage of the project lifecycle. And more than ever, sustainability practitioners have earned broad respect as industry leaders and innovators.

However, we at GHD are seeing a rapid increase in the number of infrastructure projects demanding such focus and attention, how can this be achieved with the limited number of experienced sustainability practitioners available in the industry?

In short, industry needs to pivot, otherwise our sustainability progress will only be as fast as we can train and retain sustainability practitioners. At GHD, we see the key is for much stronger embedding of sustainability within projects, with the fundamentals systemised and made as scalable as possible so they can be practiced and easily repeated by others within project teams.

In general, the fundamentals of sustainability in infrastructure frameworks - including the IS Rating Scheme, include the following:

- Identification of the highest priority sustainability aspects
- Integrated decision making – connecting and aligning the triple bottom line and 'whole-of-life' with other technical and financial considerations
- Sustainability opportunities – identify, assess and implement those that will have the highest sustainability returns
- Measure, record, and continually improve

Importantly, we see this is not about reducing or even eliminating the role of the sustainability professional; the reality is quite the opposite, as their role needs to evolve into one that provides leadership and technical input that compliments each project. They should continue to sit in leadership positions on State significant and complex projects but may just provide ad-hoc advice for small and straightforward projects. The role of our project and design leaders also needs to evolve, upskilling them so the sustainability fundamentals are part of their toolkit and empowering their team to embed sustainable outcomes.

As a final point, one crucial aspect missing from the list of sustainability fundamentals above is empathy and collaboration, which is something that is challenging to fit neatly into a process. This is more of a mindset, in that everyone in every phase has the responsibility to implement the fundamentals and set up the next phase for success, rather than skip over any task or risk deemed unpalatable to current decision makers.

After all, if we're serious about giving ourselves the best chance of creating a sustainable future, we need everyone to collaborate to embed sustainability within their projects every day, and throughout every phase of every project.

Rail Network Alliance: Artworks celebrating First Nations culture

#Protecting heritage or way of life

On behalf of Rail Projects Victoria (RPV), Rail Network Alliance (RNA) is delivering integral works on Melbourne's rail network that will support the operations of the Metro Tunnel Project (MTP).

These works are being carried out in partnership with John Holland, CPB Contractors, AECOM, Alstom and Metro Trains Melbourne. As part of these works, RNA has commissioned two First Nations artworks at the project's Eastern Portal tunnel entrance in South Yarra. This artwork is part of the Metro Tunnel's Creative Strategy and aims to craft an identity that communicates the cultural character of the precinct. The artworks, featuring Aboriginal sculptural elements, are a creative response to the culturally significant site located on Wurundjeri Woi Wurrung Country, providing a distinctive urban marker for the local area.

Impacts

To emphasise the importance of integrating art into the landscape and architecture design of the public spaces near the Eastern Portal tunnel entrance, MTP sought expressions of interest from Victorian First Nations artists to enhance South Yarra's urban precinct. An arts advisory panel including representatives from Creative Victoria, the City of Stonnington and Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation, selected two First Nations artists. The artists, Barkindji man Kent Morris and Wurundjeri Elder Aunty Kim Wandin, worked in

collaboration with artist Christine Joy. Together, the artists produced a series of Aboriginal sculptural elements for the South Yarra Siding Reserve and the new Arthur Street pocket park (adjacent to the Eastern Portal tunnel entrance) that explore concepts of 'moving on Country'.

Opportunities

Aunty Kim Wandin's sculptural work 'Murrup Biik', meaning 'Spirit Country' in Woi Wurrung language, honours the location as a significant Indigenous cultural site. The sculptures draw inspiration from Bilangs - meaning string bag in Woi Wurrung language. The Bilangs acknowledge the traditional journey of Wurundjeri Woi Wurrung women across Country, collecting food to provide for families. The artworks encourage people to recognise Aboriginal artefacts as living, breathing, life-giving forces with spirit and knowledge.

The cultural significance of the land adjacent to the MTP Eastern Portal became more apparent following the discovery of First Nations artefacts during a complex cultural heritage assessment. The discovery of stone knapping and flaked stone artefacts in the South Yarra Siding Reserve provided an opportunity for meaningful engagement with Traditional Custodians of the land.

Kent Morris's sculpture 'Where We Walk' incorporates these discovered artefacts through the representation of a stone knapping tool. This acknowledges the long occupation and daily activities of Wurundjeri people from time immemorial to the present day. By combining the form and sharp edges reminiscent of stone tools and the contemporary built environment, the artwork symbolises the site's multiple uses over time. Travel, cultural activity and social engagements are represented.

Challenges

A key challenge involved recognising how the displacement of First Nations' people impacts maintenance and understanding of culturally-significant land in highly urbanised settings. It was crucial that appropriate engagement took place with First Nations groups through planning, detailed complex assessments and meaningful collaboration. This provided the opportunity to preserve and share stories. The result was the creation of artworks that increased First Peoples cultural representation in South Yarra. Providing a dedicated and considered public space for the exchange of stories, histories, images and insights. The artworks also give visual representation to that which is often unseen.

Lessons learned

In collaboration with RPV, RNA engaged with registered Aboriginal parties during the artwork commissioning process to successfully commission the First Nations artworks. The team overseeing the Metro Tunnel Legacy Artwork Program worked closely with Wurundjeri Elders and representatives. This included the Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation, ensuring the artwork was respectful of cultural values. Early engagement has been identified as a high priority for the delivery of successful outcomes.

Conclusion

Serving as a cultural marker of respect, connection and knowledge, the artworks aim to engage and inspire the community on their daily travels. The public is encouraged to embrace the knowledge embedded in Country as they pass through the site. The commissioning of permanent First Nations artworks within MTP demonstrates how public infrastructure can be enriched by sharing cultural knowledge, inspiring the public through creativity while celebrating connections to Country.

"Murrup Biik aims to create a sense of spiritual intrigue and transformative healing for passers-by and those standing fully in the sculpture's presence."

Aunty Kim Wandin, Artist

"RNA is excited to commission two First Nations artworks in the South Yarra precinct to celebrate connections to Country with high quality public art for the community. The artworks speak to the long connection of First Nations people over many generations and to the important stories and insights embedded in Country."

Joseph Aygur, Rail Network Alliance General Manager.

Novo Rail Alliance: Redfern Station – relocation of Heritage building & Canopy launch over tracks

#Protecting heritage or way of life

Upgrades to Redfern Station have been delivered by the Novo Rail Alliance as part of the Transport Access Program (TAP). The alliance is a partnership between Transport for NSW, Aurecon, Laing O’Rourke and John Holland Group. The upgrade included a new pedestrian concourse connection across the railway corridor between Little Eveleigh Street (LES) and Marian Street. Stairway and lift access was provided for all surface platforms along with associated interchange upgrades. Significant sustainability innovations and outcomes were delivered in three components of the project which were as follows:

- Relocation of Platform 1 Heritage building
- Canopy launch over live tracks and,

Impacts

Relocation of Platform 1 Heritage building

The Platform 1 Works Manager’s office was relocated 60m from its original location to allow room for new stairs and lift shafts on Platform 1. Options to move the building and avoid demolition included using a crane to lift the building and float it into place, or dismantling the building brick-by-brick and rebuilding it in the new location. Crane access was not possible due to space constraints, while dismantling the building would have impacted the integrity of the heritage fabric and affected the construction programme.

A hydraulic jack system was used to evenly lift the building and carefully slide it along a lubricated track system to the new location on top of the footings. The path of the relocation included a lateral section and a rotation of 3 degrees, avoiding the risk of clashing with retaining walls and services. Movement was executed in a slow and controlled manner, allowing for frequent visual checking for snag points. Deflection was monitored using a computerised monitoring system.

The relocation was completed in two days with minimal damage to the building fabric, maintaining the heritage integrity and safety of the workers involved. This reduced the construction timeframe and avoided the use of heavy construction plant. The relocated building opens up opportunities for future

use and heritage interpretation, promoting heritage values and continuing the legacy of the site.

“Heritage building relocation celebrates our past while embracing the future, safeguarding architectural treasures for generations to come. It is through the delicate art of moving history that we preserve our cultural legacy, breathing new life into these majestic structures. With each carefully orchestrated relocation, we honour the craftsmanship of the past while paving a path for progress, forging a harmonious union between tradition and modernity,” said Jerome Cargnino, Project Manager, Novo Rail Alliance.

Canopy launch over live tracks

The bridge canopy was constructed in segments and then launched progressively over ten mid-week night shifts, while the rail remained live using carrier frames to carry ten different-sized segments launched from Marian Street onto temporary sliding tracks. Instead of a 450T crane, the segments were moved using a winch powered by a biodiesel generator, saving approximately 17 tCO₂-e of greenhouse gas emissions. A condensed rubber wheel on timber track was used instead of steel, to address the safety issues of operating close to live cables. Hoarding was constructed for the full length of the bridge with a small section cut into the sides. This allowed the canopy section to relate to the column base while maintaining a safe work area for the workers. These changes meant that the launch method also significantly reduced noise impacts. The Novo Rail Alliance engaged Freyssinet Australia to deliver this innovative canopy launch solution. Sustainability benefits included:

- reduced impacts on neighbouring property and rail customers by using less intensive plant and reducing the construction program by three possession weekends.
- reduced fuel use, as four 450t cranes no longer needed to be mobilised, the number of deliveries were reduced by 30%, and there was reduced use of EWP, truck, scissor lift and other plant.
- reduced construction material waste by using prefabricated structure steel canopy sections.

Challenges/opportunities

Relocation of Platform 1 Heritage building

The building’s listing on the NSW State Heritage Register restricted activity within the existing structure. It was not possible to drill, fix, use temporary bracing or a jacking system within the building. A temporary work structure was needed to support, brace, lift and move the building without touching and damaging any brick. The project also involved the relocation of the listed Elston’s Siding. Heritage consultants were engaged from the early design phase to support methodology development, heritage approval and relocation works.

The building contained lead-based paint, making it a challenge to install temporary bracing and supports inside the building. To address health risks, the paint was stripped prior to carrying out the propping and support works.

Canopy launch over live tracks

Several constraints were identified for canopy construction and launch during the design phase. Platforms 4,5,6 and 7 were difficult to access, limiting crane setup opportunities and lifting works.

The project faced time pressures after a period of restricted rail possessions, with the canopy launch being critical to the construction schedule. Novo Rail Alliance proposed installation of the structural steel canopy using a carrier frame system and consulted with the local community to implement a duration reduction which was well-received.

Approvals were required from TfNSW and Sydney Trains to execute the launch over live tracks during mid-week non-possession shifts. Early and regular consultation and collaboration on methodology development and time reductions eased the approval process.

Canopy segments weighing between 4 and 7 tonnes posed a safety challenge as they were located close to live wires and the tracks. To address this, the segments from the temporary hoarding barrier were connected and dragged onto the bridge using a track system. This allowed the project to be delivered in a safe manner.

Lessons learned

- Planning is critical to project success, as last-minute changes can be costly, and approvals can proceed efficiently if planned ahead.
- It is crucial to understand the project constraints and explore potential opportunities early on and be innovative.

“Bridges embody the spirit of engineering innovation, bridging the gap between imagination and reality. These remarkable structures not only connect physical distances but also unite the brilliance of human ingenuity with the demands of modern infrastructure. Our Bridge canopy launch innovation begins with a bold vision, fuelled by a passion to push the boundaries of what is possible. In the realm of construction, innovation paves the way for transformative change, revolutionizing how we build and shape the world around us,” noted Mr Cargnino.

Conclusion

By engaging with industry experts and being open to developing and incorporating innovative solutions, Novo Rail successfully delivered the heritage relocation and the canopy launch. The success of these processes opens opportunities for future projects to safely move of heritage buildings as well as for future rail projects to work above live tracks and construct full bridges outside of possession periods using this launching system.

Arengo: East Hills and Yagoona Station Upgrades – artwork for community engagement and reducing emissions through early engagement

#protecting heritage or way of life #creating a relevant sense of place #low carbon low energy use future

Arengo in partnership with Transport for NSW has taken a holistic approach to sustainability in infrastructure by achieving a reduction in embodied emissions whilst also creating a positive lasting legacy for the community.

The East Hills and Yagoona station upgrades have been delivered by Arengo as part Transport for NSW (TfNSW) Transport Access Program (TAP). The aim of TAP is to provide accessible, modern, secure and integrated transport infrastructure to the community, ensuring equitable transport for a growing population. Arengo in conjunction with the project design partners, GHD and DesignInc, took a holistic approach to achieving sustainability goals by achieving a meaningful reduction in embodied emissions along with ensuring positive community and social outcomes.

Impact delivered

Arengo recognised the opportunity for the stories of the local community to form part of the ongoing legacy of East Hills Station. A lift shaft wall was utilised as a canvas for a mosaic artwork which sought to

tie in the station's proximity to the Georges River and the communities connection with this river. Those memories, provided by the local community, were then engraved onto the tiles of the mosaic forming a lasting legacy and cementing the sense of ownership of the asset with the local community. The dedicated community engagement teams at Arengo and TfNSW were able to ensure that the memories came from a wide variety of community members and received an overwhelming number of responses which made the impact of the artwork that much more meaningful.

Arengo recognised that the greatest opportunities for positive impact often come at the earliest phase of the project lifecycle. During the value engineering process, it was found that by changing methodology from piles to rock anchors would result in a reduction of 8.5tCO₂e as well as improvements in constructability. This example illustrates the importance of quantifying embodied emissions during the design process in order to capture potential opportunities or risks.

Other changes to standard construction methodologies resulted in efficiencies in both project delivery and sustainability outcomes. Instead of constructing the station building in-situ the project team prefabricated the structure in the adjacent carpark and lifted it directly into position. By doing this they were able to minimise the disruption to the local community, streamline work practices and optimise material use resulting in lower waste generation.

“Arengo has been proud to partner with Transport for NSW to deliver two TAP station upgrades at East Hills and Yagoona under the Infrastructure Sustainability Council (ISC) framework. We have found the key to building a smarter, more efficient and sensitive asset is by prioritising early engagement with our designers, supply chain, key stakeholders and the local community. Delivery under the ISC framework encourages the project, at all levels, to take a holistic approach to sustainability in construction and ensure that it forms a key part of the decision-making process from design concept through to commissioning. We have indeed arrived at a time where sustainable thinking is no longer an abstract concept but an ineradicable part of the design and construction process, and encouragingly, of the general activities of life.”

Steven Williams, Arengo Construction Manager



Challenges/opportunities

The project team identified early on that there was a significant opportunity to reduce embodied emissions through material selection, with concrete being a significant contributor to the overall footprint. Boral was selected as the concrete supplier for the project and was able to deliver a range of structural and non-structural products with a high level of supplementary cementitious material (SCM) resulting in an average SCM content of 53% across the project, translating to a reduction in emissions of 82tCO₂e. Early conversations between the project and product suppliers are essential to communicate the sustainability objectives of the project in order for the supplier to best address and even exceed these objectives.

Lessons learned

The key to sustainable outcomes in construction is early engagement across all project disciplines. By embedding and communicating sustainability targets at the start of the procurement, planning, design and engagement processes it ensures all team members consider this early in the decision-making process, maximising opportunities for implementation.

Conclusions

The team at Arengo recognise that achieving sustainable outcomes in construction is not the result of one single decision or action, but rather it is something which is integrated into the overall decision making process throughout the project lifecycle. By considering sustainability holistically and as one of the key criteria in decision analysis only then can a successful outcome be achieved.

SPA: Mentone and Cheltenham LXRP: Protecting Heritage Sites

#protecting heritage or way of life

PEOPLE



New Mentone Station

Protecting Heritage Sites

The Southern Program Alliance (SPA) comprised of Acciona, WSP, Metro Trains Melbourne (MTM) and the Level Crossing Removal Project (LXRP) is one of five alliances delivering level crossing removal programs across Melbourne. The Mentone and Cheltenham Level Crossing Removal Package was awarded to SPA in early 2019 and was valued at \$536 million. Located on the Frankston line in Melbourne's southeast, its scope was to remove three level crossings using a rail under solution, build two new modern stations at Mentone and Cheltenham and upgrading the surrounding station precincts, including a Mentone Station Heritage Deck and Gardens; multilevel carpark in Cheltenham; and a 3.5km shared-use path between Cheltenham and Mentone.

The Mentone Station and gardens are listed on the Victorian Heritage Register which obligated SPA to protect the heritage-listed station buildings and five heritage listed trees in the gardens. The importance of protecting these heritage-listed assets was also driven by community engagement, especially with the Friends of Mentone Station and Gardens group. The

project worked with Friends of Mentone Station and Gardens group throughout the project to deliver a great outcome for the station and gardens.

The Mentone larger up-track building was able to remain protected in place during the works, while the smaller down track building was transported off site in March 2020. This allowed for the piling and rail trench works to take place. Rather than dismantling the building by removing individual timber weatherboards, the engineering and construction teams constructed a steel beam frame around the foundations. The station building was then lifted by a heavy-duty crane using the steel frame as the lifting point. The station building was then returned to its original position in July 2020 following the major occupation. The canopies of both buildings were removed and stored off-site during major construction. SPA refurbished the old station buildings as part of the construction of the new heritage deck over the rail line at Mentone. The new heritage deck over the rail trench, which has the former timber station buildings as a key feature and incorporates design elements preserving Mentone's rail history and creating new community open space.



Relocating Mentone Heritage Station



Refurbished heritage-listed Mentone Station

In the gardens, SPA successfully transplanted numerous species of plants including birds of paradise and silver waves succulents to a nursery on the Mornington Peninsula. Members of the SPA environment team conducted welfare checks at the nursery to ensure the plants remained healthy and viable for replanting in the new gardens. The five heritage-listed trees – two Norfolk Island pines and three Canary Island date palms – were protected by temporary fencing during works. This allowed for clear delineation and protection from construction activities in the gardens, successfully preventing any damage to the trees. The Garryowen horse trough, a key feature of the gardens, was carefully removed prior to construction and returned intact to the new gardens. The horse trough commemorates

the equestrian history of the area and the 1934 tragedy when local equestrienne Violet Murrell and her husband Bill lost their lives rescuing their beloved horses from a stable fire.


The new Mentone Station heritage deck and gardens opened in May 2021. The successful implementation of the new gardens and praise from the community demonstrates that there is community value in incorporating rail history including station buildings into new station designs and rail infrastructure projects. Rather than demolishing old station buildings and eradicating rail history, SPA has demonstrated it can sustainably build new rail infrastructure while also acknowledging and celebrating historically important rail assets.



Mentone Heritage Deck

PEOPLE

PATHWAYS TO POSITIVE IMPACTS ON PROSPERITY

Pathways to Impact	Example Outcomes	SDG Targets	
Adaptive capacity	<ul style="list-style-type: none"> Develop resilient infrastructure that contributes to broader community resilience and responds to potential shocks and chronic stresses Identify, assess and treat direct and indirect risks to assets from climate change and natural hazards; in particular, those assets associated with vulnerable communities Identify, assess and treat risks to assets associated with nature loss and nature change, in terms of ecosystem stocks and flows 	<p>1.5 Build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters</p> <p>11.5 Significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global GDP caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p>11.b Substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement holistic disaster risk management at all levels</p> <p>13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>13.2 Integrate climate change measures into national policies, strategies and planning</p> <p>13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p>	  
	Measures of socioeconomic value	<ul style="list-style-type: none"> Map project benefits to identified socioeconomic needs Partner with the community to implement initiatives that contribute positively to pronounced and long-lasting societal outcomes Set targets for the inclusion of disadvantaged groups in recruitment, training and retention and development programs Incorporate social outcome requirements in sustainable procurement policies and practices 	<p>1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and achieve substantial coverage of the poor and the vulnerable</p> <p>8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors</p> <p>17.19 Build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product</p>

ISSUES

Infrastructure is a key enabler of access to social and economic opportunity. We want an impact of our work to be national (and transnational) economies that are inclusive and resilient, so that people's livelihoods and quality of life are sustained.

INCOME AND WEALTH INEQUALITY

In Australia and Aotearoa New Zealand, income inequality is around the OECD average. The highest 20% income group has more than twice the average disposable income of the middle 20% income group and six times as much as the lowest 20% income group. In both nations, however, the wealth gap is of greater and growing concern. In Australia, the richest 20% own assets 90 times greater than the poorest 20%, while the poorest 5% of Australians are in debt²¹. In Aotearoa New Zealand, the richest 10% own 59% of assets and the poorest 50% of people own 2% of assets. Rising housing prices have widened the gap between owners and renters, and older households are accumulating wealth through property and savings²².

CULTURAL POVERTY AND HEALTH DISPARITY

Indigenous Australians are disproportionately represented below the poverty line; a trend exacerbated for those living in very remote areas.^{23,24} Indigenous Australians carry a burden of disease 2.3 times that of other Australians and life expectancies are at least one decade shorter. They are deemed to be at high risk of violation of their human rights and are among the most incarcerated people in the world²⁵.

In Aotearoa New Zealand, 13% of children live in a household that is experiencing material hardship, which means missing out on fresh fruit and vegetables, putting off visiting the doctor, and being unable to pay utility bills on time. Child poverty combines with inadequate basic healthcare and unhealthy housing

to exacerbate negative health outcomes, and it also affects cognitive and social-behavioural outcomes. Regular school attendance is 65% for all New Zealand students, but is lower for Māori and Pacific children at 48% and 51% respectively²⁷.

WIDENING OPPORTUNITY GAP

Large and growing inequality leads to gaps in access to opportunity and poor development outcomes, entrenching disadvantage. Inequality is linked to obesity, violence, mental illness and suicide.

Around 20% of Aboriginal communities live in overcrowded homes, which leads to a faster spread of illness. They frequently experience water scarcity and are more likely to endure poor housing solutions that are not resilient to a changing climate. The Indigenous youth suicide rate is four times that of other Australian youth²⁹.

Economic activity is concentrated in cities, creating a widening gap between regional and city experiences and outcomes. People living outside State capital cities are more likely to be in the lowest income quartile. Rural Australians face barriers such as unemployment, underemployment and youth unemployment, poor access to healthcare, and inadequate access to the Internet

VULNERABILITY TO CHANGE

The people most vulnerable to climate change are those who are most exposed to change, most sensitive to its effects or have reduced capacity to adapt. The result is that they are more likely to be left behind and more severely impacted by change. Measures towards improving adaptive capacity must prioritise vulnerable groups, including the very young and the elderly; those who work in primary industries; those exposed to extreme weather events, such as riverine floods, tidal surges and bushfires; and the poorest, who lack access to insurance.

“The Queensland Government through its Business Case Development Framework seeks to integrate sustainability and resilience considerations from the outset in new infrastructure proposals. With a focus on ensuring the enduring value of our investments, we ask our infrastructure delivery agencies, and sustainability practitioners, to ensure sustainability is a proactive front-of-mind activity throughout the proposal development. Viewing each investment from a whole-of-life and whole-of-system perspective early in the proposal development can best support long-term sustainability outcomes.”

Graeme Garrett, Executive Director, Infrastructure Planning and Advisory, Department of State Development, Infrastructure, Local Government and Planning, Queensland Government

Waka Kotahi: Sustainable resource use

#Transformational structures and processes



The Infrastructure and Sustainability Council (ISC) is helping drive sustainable outcomes at Waka Kotahi. Positive outcomes have been shown in the early stages of several ISC projects, including the Papakura to Drury project. This \$655 million State Highway 1 (SH1) upgrade, in South Auckland, is targeting an excellent ISC award level. Results are being achieved across a range of outcome areas such as resource efficiency and waste management.

Part of the \$6.8 billion New Zealand Upgrade Programme, the Papakura to Drury upgrade plays a role in improving city mobility, safety and productivity. The project improves access and provides more transport options with a new shared walking and cycling path. This supports community connectivity, growth and resilience.

Sustainable resource use was a target area identified by the project team through the ISC programme.

“Protecting and enhancing the local environment is a prime consideration in our project planning, and a significant part of that is managing our waste sustainably,” says Waka Kotahi project director, Chris Smith.

Leading the Industry in Resource Efficiency

A combination of innovative methodologies and design considerations have led to exceptional resource efficiency results. The Papakura to Drury project managed to exceed its initial waste diversion

target of 25%, diverting around 70% of all project waste from landfill for repurposing. This target is an industry leading level of material landfill diversion in New Zealand. The project’s success has been attributed to strong sustainability leadership, an experienced sustainability team and dedicated contractors supporting the ISC rating.

This collective effort was demonstrated during the demolition of the old Park Estate Road bridge. The bridge needed to be replaced as the supporting structure was not wide enough to accommodate additional motorway lanes underneath. The demolition occurred over a planned 14-hour full motorway closure, bringing down 400m³ of material.

Through careful planning and innovative techniques, the project team was able to recycle 100% of the waste from the demolition. Approximately 30 tonnes of reinforcing steel were separated and sent to scrap dealers to be recycled. Nearly 400 tonnes of concrete were crushed on site, creating GAP65 (a heavy-fill aggregate) for reuse in other projects.

This process saved time and money, highlighting the potential for sustainability initiatives to create cost efficiencies and improve environmental outcomes. The Park Estate Road bridge demolition exceeded all requirements and expectations set out in the ISC rating scheme.

This is just one example of the positive outcomes emerging on ISC projects at Waka Kotahi. It demonstrates the value of ISC’s structured framework in driving tangible results.

AECOM: Climate-positive infrastructure report

#sustainability-aligned governance

The Brisbane 2032 Olympic and Paralympic Games provide an opportunity to revolutionise the built environment and establish a new sustainability standard for the infrastructure sector across the ANZ region.

In collaboration with the Infrastructure Sustainability (IS) Council, AECOM recently published recommendations to guide the industry in preparing for and delivering the Brisbane 2032 Olympic and Paralympic Games. The recommendations adopt a comprehensive approach to surpass climate positive commitments proposed by the Queensland Government.

The report: Beyond Climate Positive explores the potential of Brisbane 2032 to create a lasting legacy by fundamentally reshaping the way communities and infrastructure are designed, operated and maintained.

Recommendations by AECOM and the IS Council were informed by a literature review of international best practice and feedback from the broader IS member community. These recommendations include:

- exploring and promoting community-centred decision-making to support efforts to deliver a meaningful and lasting legacy
- defining resilience early and establish its scope, while considering shocks and stresses beyond those associated with climate change and extreme weather events
- collaborating across local, state, and federal governments to develop an integrated approach to climate modelling, measuring resilience and understanding risk
- considering opportunities to position nature and the natural environment in a way that celebrates Australia’s natural heritage prominently within the Games infrastructure, precincts, and beyond
- exploring innovative renewable energy solutions, such as onsite renewable generation, alternative fuel sources, power purchase agreements, and offset purchases
- creating a standardised framework to measure carbon emissions, not just based on cost, but also efficiency, whole-of-life outcomes, and effectiveness of solutions.

These recommendations are not exclusive to Brisbane 2032 and can be applied to other major infrastructure projects. This includes sporting events that are likely to shape and influence both infrastructure and communities.

With delivery authorities and event organisers committing to action on climate change, now is the perfect time to review and apply the recommendations. This will support the legacy that infrastructure and events will deliver across communities and environments. This approach will continue to be a focal point for climate change ambition and establish a template for all major projects across Australia and New Zealand moving forward.

“Brisbane 2032’s publicly stated commitment to deliver a climate positive Games will require a significant shift in how the industry approaches infrastructure development, embracing sustainable practices and innovative technologies to reduce carbon emissions, mitigate climate risks and create a lasting legacy.” Richard Barrett, AECOM CEO.

Georgiou Group: Townsville Ring Road Stage 5 – Cost-efficient sediment recovery and re-use

#Transformational structures and processes

The Townsville Ring Road (Stage 5) (TRR5) project faced challenging weather conditions during the North Queensland wet seasons. To address stormwater management during construction, region-specific erosion and sediment control plans were developed that focused on the use of High Efficiency Sediment (HES) Basins, due to their ability to efficiently manage sediment in areas with limited space and capacity to effectively treat large volumes of stormwater runoff.

As per industry best practice, HES Basins require maintenance once their sediment storage capacity is reached. In the case of TRR5, approximately 4719m³ of deposited sediment across eight basins needed to be treated and removed. To achieve cost-effective and efficient removal of the wet slurry material, the TRR5 team explored new methods for converting deposited material into a form suitable for transportation and reuse using Vital Chemical Slurry Thick.

Impacts

The project team conducted an assessment that considered economic, environmental, social, and governance considerations to determine the most viable method to remove deposited sediment and facilitate beneficial reuse. The traditional approach

of importing dry material at 1:1 or 2:1 ratios from the project site or quarry was found to generate huge quantities of material that would increase greenhouse-gas emissions and costs during transportation and disposal at landfill.

The team instead proposed the use of Vital Slurry Thick, a plant-derived product that offered a more environmentally-sustainable solution. In accordance with the waste hierarchy, diversion from landfill and material reuse project objectives this option was deemed to be the most favourable in terms of social, environmental, and economic benefits. The project benefited from directly using this material on site therefore reducing the requirement for importing additional fill material. The project was also able to build relationships with local residential developers, who were able to use this by-product from TRR5 to reduce their quarry material consumption.

This initiative limited the requirement for material procurement from quarries, transportation of additional material and end-of-life disposal at a landfill facility. From a governance perspective, the use of Vital Slurry Thick enabled efficient servicing of High Efficiency Sediment basins and demonstrated a viable alternative to traditional practices whilst supporting collaborative relationships within industry.



Beck Drive Interchange HES Basin February 2022 – Image Courtesy Georgiou Group

Challenges/Opportunities

Traditional methods, such as importing dry material at a 1:1 or 2:1 ratio, presented challenges related to cost, excessive material consumption, unnecessary waste disposal, and increased transport movements. In contrast, minimal quantities of Vital Slurry Thick effectively dried out the sediment, offering a cost-effective and environmentally considerate alternative when employed at the scale required for the project.

Bench testing of the HES Basin deposited material provided representative cost estimations that would be used to model the quantities needed onsite. The utilisation of Vital Slurry Thick at a dosage rate of 1kg/m³ demonstrated cost savings of approximately 62% compared to a traditional treatment methodology involving 2:1 dry to wet site won material. When evaluated against the parameters set forth by the ISC accreditation (V2.1), the use of Vital Slurry Thick showcased demonstrable benefits across various environmental, social, and governance outcomes.

Lessons Learned

Lessons highlighted by the project team included recognising that the current technical specifications for fill materials in earthworks can hinder beneficial re-use opportunities. Undertaking case studies like this provides the opportunity for industry to present

evidence-based driving factors to improve and expand upon existing technical specifications.

This case study did not explore alternative soil thickening products available in the market. To further evaluate the methodology's effectiveness, a large-scale investigation with different soil types and different products is suggested. Conducting a comprehensive assessment across various soil types will provide valuable insights into decision-making in future projects, particularly pertaining to the management of material previously considered unsuitable such as deposited sediment.



Conclusion

The Vital Slurry Thick initiative addresses an industry-wide inefficiency and provides a demonstrably effective alternative to existing treatment methods. The TRR5 project successfully collaborated with industry and client throughout the development of this method, providing knowledge sharing opportunities and legacy benefits through the data generated. The methodology outlined in this case study is considered by the peak body for Erosion and Sediment Control in Australasia (International Erosion Control Association) to be an "Australian First" and critical path for the reuse and management of deposited sediment from HES basins.



Application of Slurry Thick with Excavator July 2022 – Image Courtesy of Georgiou Group

PATHWAYS TO POSITIVE IMPACTS ON THE INDUSTRY

Pathways to Impact	Example Outcomes	SDG Targets	
Sustainability-aligned governance	<ul style="list-style-type: none"> Embed project's sustainability commitment, objectives and targets into governance and continuous improvement processes and to publicly commit to and report on progress Identify, assess and manage key sustainability risks and opportunities relevant to the project context and meaningful to affected stakeholders and project partners Report publicly on sustainability performance. 	12.6 Encourage companies to adopt sustainable practices and integrate sustainability information into their reporting 16.5 Substantially reduce corruption and bribery 16.6 Develop effective, accountable and transparent institutions at all levels 16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels 17.11 Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports 17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships	  
Healthy, inclusive workforce	<ul style="list-style-type: none"> Increase industry capacity and capability through identifying skill needs and gaps, leveraging employment opportunities, and improving outcomes for people (eg IS training) Support a positive workplace culture and employee health and well-being Support a diverse and inclusive working environment and monitor and publicly report on diversity metrics for identified groups e.g. pay-gap data, turnover rates Implement sustainable site accommodation facilities that reduce environmental impacts and support site worker wellbeing with a focus on internal environment quality, energy use, water use and resource efficiency 	3.5 Strengthen prevention and treatment of substance abuse 3.6 Halve the number of global deaths and injuries from road traffic accidents 4.4 Substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship 4.6 Ensure all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy 5.1 End all forms of discrimination against all women and girls everywhere 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making 8.5 Achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value 8.6 Substantially reduce the proportion of youth not in employment, education or training 9.2 Promote inclusive and sustainable industrialization and significantly raise industry's share of employment and GDP 10.2 Empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	     
Innovation & knowledge sharing	<ul style="list-style-type: none"> Reward innovative initiatives and outcomes in delivering sustainable infrastructure Share new or updated knowledge on issues and outcomes important to infrastructure sustainability (eg the Infrastructure Sustainability Council conferences and webinars) between projects and more widely within industry 	9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, encouraging innovation and substantially increasing the number of research and development workers	
Responsible, agile supply chain	<ul style="list-style-type: none"> Select suppliers, goods or services that contribute to achieving the project's sustainability objectives and engage with the market to drive innovation Manage and reward supply chain performance against the project's sustainability objectives and targets Establish a procurement framework that enables achievement of the project's sustainability objectives through managing the material supply chain sustainability risks and opportunities Use sustainability certified products and supply chains to address supply chain risks and opportunities 	8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and end child labour in all its forms 8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment 10.1 Progressively achieve and sustain income growth of the bottom 40% of the population at a rate higher than the national average 10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard 12.7 Promote public procurement practices that are sustainable	  

AN ACCELERATED ENERGY TRANSITION... TOGETHER

Despite a spate of recent initiatives to drive Australia's clean energy transition, including the Rewiring the Nation Plan, the National Energy Transformation Partnership, and the National Energy Performance Strategy, a whole of government and unified industry approach is required to ultimately end this nation's high dependence on fossil fuels.

Following the COVID pandemic's disruption of global supply chains leading to shortages in both products and materials, Russia's war on Ukraine threw the European energy industry into disarray creating volatility and security concerns in global energy markets and further impacting rises in inflation. The infrastructure sector, burdened by increased fuel/transport and construction costs, has felt these impacts particularly hard. The opportunity here, is to accelerate the renewable energy transition, now.

In the Market Capacity Report released in 2022, Infrastructure Australia called for pipeline management; improved up-front engineering and design to avoid waste; increased collaboration for capacity building; and embedding of digital practices and increased public sector capacity to act as a model client as key pathways for improvement and reform.

BCG's Energy Transition blueprint explores how companies can ramp up the pace of change and suggests the transition to Net Zero needs to happen much faster than previous transitions, with collective action being essential to addressing the estimated \$18 trillion funding gap between planned investments and what is realistically required to reach Net Zero.

BETTER BUSINESS CASE

To reduce the infrastructure deficit, planners need to present a compelling business case that finds funding. In a volatile, uncertain, complex and ambiguous (VUCA) context, however, asset owners must continuously re-plan and re-forecast, and only projects aligned to long term objectives or with inherent flexibility (such as modularity) can be signalled as 'no regret'.

The industry must move from binary, go/no go, cost-benefit analysis models, towards adaptive solutions and "real options" assessments. Large scale social impact through coordinated transport, water, energy and communications networks, is what will really count in this sector.

In Australia, the Infrastructure Australia Framework (2021) has signalled a fresh approach to business case development and assessment and signalled greater inclusion of social and environmental resilience and economic criteria in the assessment of major business cases. In 2023 Aotearoa New Zealand updated its Strategic Planning Act (SPA), providing a legislative framework for mandatory regional spatial planning, whilst in a world-first, also in 2023, the ISC launched its Planning Rating (v2.1), providing a detailed framework to support and assure broader sustainability outcomes from the earliest stages of the development process.

PARALLEL PUBLIC AND PRIVATE INVESTMENT IMPETUS

Through competition for assets and shifting investor motivations, commercial sector investment criteria are increasingly aligned with public sector initiatives to better integrate social outcomes, such as the Living Standards Framework in New Zealand and the announced Australian Federal Government approach to the budget framework. Post COVID-19, investors are likely to be more diligent around risk assessment, contingency planning, insurance, and contractor liquidity. Integrating sustainability outcomes and impacts into design, delivery and operation of assets is paramount to lowering the industry's risk profile. Potentially material ESG risks increasingly being considered by investors include climate change, nature loss, land use change, modern slavery and human rights abuses in the supply chain, worker health, safety and mental wellbeing, and damage to cultural property and taonga (treasures).

ASSET RESILIENCE TO CLIMATE AND NATURE CHANGE

The financial markets are shifting out of climate-risked assets towards those aligned with a low carbon, climate resilient future. Aotearoa New Zealand has introduced legislation to mandate climate-related financial risk reporting from FY23, aligned with the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD). The Australian prudential regulator has also issued TCFD-aligned guidance. A new Taskforce on Nature-related Financial Disclosures (TNFD) is currently building on the work of the TCFD to deliver a framework for organisations to report and act on evolving nature-related risks, to support a shift in global financial flows towards nature-positive outcomes. Over time, the TCFD and TNFD frameworks will become complementary.

CIMIC Group: Driving digital connectivity

#Innovation and knowledge sharing #Sustainability-aligned governance

Taming the terabytes

Across the construction industry, vast terabytes and petabytes of data are currently collected in largely disconnected systems and formats. The industry's challenge is to harness integrated digital solutions to embed efficient accurate reporting, and surface insights from smart analytics to plan, build and operate better.

To meet the challenge, asset owners, developers, contractors, and operators are turning to software developed by industry for industry. The increasing take-up of proven software is signaling the organic emergence of future industry standard solutions, which will support further advances in industry digitalisation and sustainability.

This case study provides an overview of the building blocks CIMIC Group put in place to drive digital connectivity, innovation and in-house software development. Also profiled is a selection of proven and integrated solutions for tracking and driving operational and ESG performance, which CIMIC's software development company, IDD Tech, is sharing with industry.



M80 Upgrade (Sydney Road to Edgars Road), Victoria, CPB Contractors - awarded the 2023 Australian Construction Achievement Award (ACAA).

Building digital connectivity

CIMIC Group's advanced Integrated Digital Delivery strategy connects the company's capabilities, systems, and intelligent data assets and drives innovation.

Foundations underpinning the strategy's effectiveness – which are relevant for broader industry application – include establishing:

- One IT – **a unified Information & Communications Technology (ICT) function**, consolidating multiple Operating Company ICT teams, provides the necessary reach to connect the Group's ICT systems, technologies, and processes and embed digital solutions at scale.
- ISO 27001 accreditation – **a secure digital work environment** that meets the international standard for Information Security Management, provides the advanced information management, cyber security, and data protection needed to develop and connect digital solutions and support interoperability across secure interfaces.
- Project Data Structure (PDS) – **a common data structure** provides a consistent approach to coding and mapping data which directs data inputs into carefully associated groups and categories, enabling systems, applications, devices, and workflows to link and communicate. More technically, the PDS opens the opportunity to leverage powerful technology concepts like BIM, 4D and 5D, and efficiently connect to reporting tools like Power BI and Trello using common software platforms, such as those from Autodesk, Trimble and Bentley.
- Governance – **a governance framework** supports close collaboration between CIMIC's IT function, its Project Controls, Audit and Transformation function, and Operating Companies. This ensures the business invests in the right systems and innovations to support projects, and continually build its ability to interrogate data, analyse trends, and take effective action.

Software for industry by industry

In 2021, CIMIC launched its software development company, IDD Tech, opening opportunities for diverse industry participants to access proven solutions and fast-track digitalisation benefits.

IDD Tech provides Integrated Digital Delivery software solutions to CIMIC Group and its own clients, including public and private asset owners, large contractors and small to medium sized enterprises, across the construction, resources, and services sectors.

Networking proven solutions

IDD Tech solutions work independently or in a connected digital ecosystem.

- **Cats™** – is a digital estimating solution with flexible functionality that supports all asset lifecycle phases from tendering to facilities management. One of its features helps teams to measure embodied carbon of materials, plant and labour over the life of the project.
- **Siterover™** – meets mobility and near-real time reporting needs and captures on-site data such as plant and labour hours, subcontractor dockets and daily diaries.
- **Sensgrid™** – is a data acquisition and intelligent reporting solution with automated data retention, processing, sharing, visualization and customisable reporting

functionality. Sensgrid's first vertical, **Geosens™** measures and monitors construction impacts on the ground and adjacent structures and provides comprehensive alarm notification and reporting. With a focus on ESG reporting, Sensgrid's second vertical, currently being released, measures environmental management and emissions related data including fuel, carbon content, energy, water, waste and travel; and social related data including safety, and participation of indigenous people, women and local communities.

- Visualisation tools **ToBe Builder™** and **ToBe Maps™** enable teams to plan optimal solutions before commencing work on site. Both provide opportunities to assess and optimise safety, environmental considerations, reduce waste and rework and improve carbon footprint outcomes.

Takeout

Seamlessly accessing consistent and single source information, about safety, cost, productivity, resources, quality, environmental management, commissioning, emissions, operations and many other KPIs is a powerful advantage in delivering complex major projects and operating sustainably. Sharing integrated digital solutions will build a better industry and future.

Arup: Outcome-led Design Tool maps project objectives with IS ratings and SDGs

Transformational structures and processes #Innovation and knowledge sharing
#Sustainability-aligned governance #Systemic change in industry sustainability

Arup partnered with Main Roads to deliver planning ratings for two projects within the Tonkin Highway Extension - Tonkin Highway Extension (Thomas Road to Southwestern Highway) & Tonkin Highway Grade Separation (Hale Road to Kelvin Road). The collaboration was a unique opportunity identified by Arup that aims to achieve a shared vision for sustainability between Arup, Main Roads and key stakeholders. Arup's Outcome Led Design Tool was used to illustrate the relationship between project objectives and the UN SDGs. The tool allowed a deeper understanding of sustainable opportunities, enabling early integration of sustainability principles in the development process. The collaboration saw the project teams forming strong relationships with the ISC to determine governance, economic, environmental and social opportunities, and risk and treatment options.

Main Roads' project directors, project managers, discipline leads and key sustainability personnel played an integral role in liaising with Arup to ensure efficiency throughout the collaboration. Due to the close geographical proximity of the projects, there were similarities in information inputs and outputs. Coordination between the two projects resulted in the alignment of sustainability management plans, risk and opportunity registers, resilience, climate and natural hazards plans, resource efficiency strategies and urban landscapes and design frameworks. This alignment between the projects meant that reports for both could be delivered under the same structure.

Arup recognised the need for Main Roads to gain a better understanding of the complex interconnection between their guiding principles, the UN SDGs and IS credit requirements. The guiding principles considered customers, movement, safety and sustainability.

To create a shared vision for sustainability, Arup developed the Outcome Led Design Tool which maps the connections between an organisation's guiding principles, IS credit requirements and the UN SDGs. It focuses on human-centred, context-sensitive design principles and ensures that projects can be tailored to various contexts.

Impacts

1. Knowledge sharing

Main Roads and Arup recognised an opportunity to deliver the projects in parallel as two separate Bronze Planning Ratings. This resulted in greater efficiencies and sustainability outcomes. Arup's unique position facilitated a leading partnership with Main Roads that enabled the identification and sharing of risks and opportunities directly between projects.

Through coordinated efforts the project teams produced key deliverables in tandem, generating two separate project reports under the same structure. This efficiency saved the client over 20% in costs, allowing Arup to receive one set of feedback and data from Main Roads and the IS Council. Actions were able to be implemented across both projects.

Resource coordination between the projects led to the achievement of IS Bronze Planning ratings under version 2.0. Increased environmental, governance, economic and social awareness throughout the project highlighted sustainability opportunities, benefiting Main Roads, the sustainability industry and wider community.

2: Outcome-led design tool

Arup has taken a new approach to integrate the UN SDGs into both Tonkin Highway projects. Through the implementation of the Outcome Led Design Tool, Arup enabled internal and external stakeholders to map the UN SDGs to IS credit requirements and Main Roads' guiding principles.

The tool allowed stakeholders to visualise their sustainability goals with direct links to the UN SDGs. It enabled engagement with a live representation of sustainability opportunities, risks and targets during the planning phase.

The reports generated by the tool increased stakeholder engagement and facilitated knowledge sharing of sustainability outcomes. Collaborative efforts encouraged responsible action and increased awareness of governance, economic, environmental and social aspects.

Carbon reduction strategies identified by Main Roads and Arup project teams, using the Outcome Led Design Tool include:

- reduction of the area of vegetation to be cleared within the project boundary (draft target 5%)
- replacement of traditional fuel in construction site vehicles with a b20 biofuel blend
- use of LED luminaires as a substitute for traditional metal halide globes for all lighting fixtures
- use of alternative pavements (warm mix asphalt 10% RAP for some sections of pavement in the Tonkin Highway Grade Separation project)
- use of recycled aggregate in place of quarried aggregate as an alternative pavement in some sections of both Tonkin Highway Grade Separation and Extension projects.

Lessons learned & conclusion

Main Roads partnered with Arup to address the sustainability challenges reflected in the complexity of the UN SDGs. The collaboration brought benefits to project governance, while Arup's appointment to deliver the Tonkin Highway projects simultaneously further enhanced sustainability implementation. Main Roads identified efficiencies and improved sustainability outcomes through this partnership.

The Tonkin Highway projects serve as a demonstration of how Arup effectively uses the Outcome Led Design Tool. As a result of its effectiveness, the tool has been integrated to complement all ISC-rated planning projects, including Main Roads' Swan River Crossings project.

"The IS Strategic Mapping Tool was excellent in providing a visual relationship cue to the diverse stakeholder group (from various professions) who were adapting to the ISC process. It successfully bridged the gap between strategic concepts and tangible opportunities, whilst confirming relationships through the various UN SDGs and the associated proportionate weighting."

**Robert Evans, Project Manager of Tonkin Highway Grade Separation
Main Roads Western Australia**

MRPA: Alliance-wide governance framework for sustainability targets

#Sustainability-aligned governance #Innovation and knowledge sharing #liveable communities

The Metropolitan Roads Program Alliance (MRPA) is a partnership between Fulton Hogan, Level Crossing Removal Program (LXRP) and Metro Trains Melbourne (MTM) designed to deliver a range of level crossing removal packages across Melbourne. This is part of the Victorian Government's commitment to removing 110 dangerous level crossings by 2030 as part of Victoria's Big Build. The LXRP has reduced congestion, improved safety for commuters and pedestrians, improved community amenity and created thousands of jobs during construction.

MRPA achieved a leading As Built rating on the South Gippsland Highway Level Crossing Removal Project, setting the precedent for an Alliance-wide governance framework for sustainability targets on all future projects. Implementing this framework has resulted in the Alliance achieving additional leading ratings on other projects including Evans, Cardinia and Clyde Road Level Crossing Removal Projects – with Clyde Road achieving the highest score within the Alliance to date.

Challenges/Opportunities:

The South Gippsland Highway LXRP team delivered a range of sustainable innovations and outcomes that continue to be rolled out throughout new projects and have since been adopted by other alliances. The Alliance was newly formed in 2019 and construction on the South Gippsland Highway Project began shortly after in 2020. As a newly formed alliance, the project team had to navigate the challenge of creating a governance strategy from scratch whilst establishing new processes and protocols. In the

early days of developing the governance framework, data collection presented as a major challenge as there were no standard practices in place.

Through collaboration, the project team developed a digital platform that was designed to collect and monitor data in real time. This has been improved over time and is still used on projects today. While the initial teething stages presented various challenges like building relationships with subcontractors and stakeholders and building the initial framework in a short time span, it also allowed the flexibility to cultivate a positive team culture, which led to further educating the team on sustainability and creating an environment open for knowledge sharing. The development of the governance framework has also afforded many positive opportunities by providing the Alliance with the space to grow when forming new protocols and templates which now complete the MRPA Sustainability Governance Framework.

As the Alliance was navigating its adolescent stage, another challenge was the time required to build relationships with suppliers, subcontractors and stakeholders. The project team meticulously planned ahead and mapped out steps to develop new initiatives and in a short amount of time were able to foster and build new relationships with subcontractors, suppliers and stakeholders which led to further collaboration on other projects. In addition to these challenges, the project team and Alliance faced many time constraints. Throughout the short project lifespan of 18 months, many sustainable initiatives were implemented that could be achieved in a short period of time. The Alliance was limited to trialling initiatives that could successfully be measured and achieved before the delivery of the project.



Lessons learned

The collaboration of the project team was a major driver in successfully developing the governance framework that has now been implemented across the Alliance. By dividing and conquering, the team simultaneously cultivated a positive culture through the introduction of people initiatives which not only provided education around sustainability but also created a comfortable environment to further collaborate and deliver tangible results. Fostering a safe and open environment to collaborate has motivated the Alliance to further expand on the governance framework and improve with each project. As each project is delivered, a new business-as-usual standard for construction is reached, raising the bar for the next project.

Conclusion

As a relatively new alliance at the time of construction of the South Gippsland Highway LXRP, the project team were able to continuously improve and build upon sustainable initiatives to strive for better outcomes through collaboration and constant knowledge sharing sessions. With the MRPA values in mind and a can-do attitude the South Gippsland Highway project team created a legacy that continues to evolve.

"It's great to see that the Alliance has achieved a 'Leading' IS Rating for the South Gippsland Highway LXRP. This result is a testament to the excellent work undertaken by the team and demonstrates the commitment of the Alliance in the area of sustainability."

Andrew Peplinkhouse, LXRP Program Director – MRPA

Main Roads WA: Using Planning rating to influence long term project outcomes through early-stage decision making

#Innovation and knowledge sharing

SUMMARY

EastLink WA is a culmination of more than 40 years of road planning activities to provide a safer, more efficient route between Perth and Northam. The project encompasses over 80km of road infrastructure and is notably the first project in Australia to adopt a Program rating approach for the ISC v2.0 Planning rating. The project demonstrates a holistic sustainability vision that extends beyond technical road planning, recognising the importance of integrating sustainability considerations early on, and the potential to influence long term project outcomes through early-stage decisions.

For the Planning and Development phase Main Roads formed the EastLink WA Integrated Project Team (IPT) - a collaboration between Main Roads and consultant JV of GHD and BG&E, including support from Aurecon, Urbsol, Landscape Planners, IPS Management Consulting and Karrda.

IMPACTS

EastLink WA is the first project to undertake a Program rating under the IS v2.0 Planning scheme. The IPT needed a process that enabled development of sustainability initiatives that could be handed over to delivery contractors for funded sections, while also setting up a framework for sustainability outcomes in the packages without funding. The project was divided into three packages, each covering a different geographic area. Materiality assessments highlighted the priorities for each package and guided local opportunities. The Program rating enabled the IPT to develop strategies for resource efficiency, sustainable procurement and stakeholder engagement which provided a consistent approach across the whole alignment.

This approach also applied to governance processes. The IPT developed a decision-making framework to support development of options based on robust understanding of their environmental and social context. The intent was to not just develop a shortlist of options, but a shortlist of good options. The framework is based on a six-step process which incorporates

stakeholder input and consideration of the uncertainties present during the early stages of a project.

The strategic approach was also used to develop an Aboriginal Engagement Framework that applies across the whole project lifecycle and the whole alignment that connects Wadjuk, Ballardong and Yued country within the Noongar nation. The Framework outlines Main Roads' commitment to the Aboriginal community to engage in an authentic and meaningful way. It provides a roadmap for timely and meaningful engagement so Main Roads and the Aboriginal community can collaboratively achieve positive outcomes over the lifecycle of the project. The framework addresses five pillars: Noongar heritage, Connecting with culture, Cultural recognition, Employment and Business participation. It sets out principles and actions to be undertaken during each project phase to maximise opportunities. The framework is built around genuine partnerships with Aboriginal people, strong accountability, and a desire to leave a legacy of Aboriginal empowerment long after the EastLink WA project is completed.

CHALLENGES AND OPPORTUNITIES

Spanning over 80km between Perth and Northam, the transport corridor traverses complex terrain and interacts with unique communities in the Perth Hills and Wheatbelt. With various levels of funding availability for different sections coupled with complex road design, the project presented challenges and opportunities in determining the most impactful sustainability strategies for integration during the planning phase.

The project area presented an opportunity to supplement landscape-wide environmental investigations with extensive community engagement. Utilising digital tools for field studies and community feedback, coupled with in-person meetings, the IPT gathered valuable insights into crucial environmental and social factors from stakeholders and the community along the alignment. This informed key design decisions, enabling impacts to be avoided near waterways such as Susannah Brook, and near the Bakers Hill townsite; and enabled enhanced outcomes to be achieved for the Kep Track heritage trail that is impacted by the project.



LESSONS LEARNED

Throughout the project, the team embraced opportunities to reflect on lessons learned and the approach taken to integrate sustainability into all aspects of planning and design to achieve a program rating. Over time, collaboration skills strengthened, and integrating social and environmental considerations into early design became more familiar to the planning team. As experience grew, collaboration became second nature, and the process became seamless. This translated into each team member being accountable for delivering positive sustainable outcomes in their respective fields of work.

CONCLUSION

Main Roads recognises the benefits of establishing a program approach for a planning project of this nature. It provides a more efficient pathway establishing sustainability on a major planning project and has helped Main Roads to achieve a 'Silver' rating for the funded Reid Highway grade separations section of the project, highlighting the enhanced social, environmental and economic benefits achieved through the project's approach to planning & development.

"This achievement represents the first ever project to undertake a Program rating under the IS v2.0 Planning scheme. We hope the outcomes provide a template for future projects to use, and to realise benefits like those we have seen on our project."

Max Bouga, Main Roads Project Director



04 Appendices

IS Rating FY23

RATING TOOL	AWARD	PHASE	ASSET	REGION	PROJECT	SIGNIFICANT INNOVATIONS			
v2.0	Bronze	Planning	Road	WA	Tonkin Grade Separated Interchanges - Roe Highway to Kelvin Road				
				WA	Tonkin Highway Extension - Thomas Rd to South Western Hwy				
				WA	Mandurah Estuary Bridge Duplication				
	Silver			WA	Reid Highway Grade Separations - Altone Road, Drumpellier Drive/Daviot Road, West Swan Road				
	Gold	Design	Road and Rail Enabling Works	WA	Tonkin Gap Project and Associated Works	4 Australia First			
V1.2	Leading	As Built	Rail	NSW	Sydney Metro City & Southwest Sydneyham Station and Junction Works (SSJ)				
				NSW	New Intercity Fleet Maintenance Facility	2 Australia First			
				WA	Forrestfield Airport Link	1 Australia First			
				VIC	Level Crossing Removal Project SPA Additional Works Package 1 (AWP1)	1 Regional First			
				NSW	Parramatta Light Rail Stage 1 - Infrastructure Works				
				NSW	Faulconbridge & Lapstone Station				
				VIC	LXRP MRPA - Clyde Road, Berwick				
				VIC	LXRP SPA - Additional Works Package 2 (AWP2)				
				VIC	LXRP MRPA - South Gippsland Hwy, Dandenong	1 Regional First			
				NSW	TAP3 Bexley North and Petersham				
					Road	VIC	Mordialloc Freeway	2 Australia First & 1 Regional First	
						NSW	Westconnex Stage 3A - M4-M5 Link	1 World First	
						VIC	MRPA Evans Cardinia	1 Regional First	
					Design	Rail	NSW	Sydney Metro City and Southwest - Central Stations Mainworks	1 Australia First
							NSW	Regional Rail Fleet Project - Dubbo Maintenance Facility	2 Australia First
							QLD	Cross River Rail - Tunnels & Stations	4 Regional First
							NZ	Auckland City Rail Link, Contract 3: Stations and Tunnels	1 World First & 2 New Zealand First
							NSW	TAP 3.3 - Birrong Sta, Wollstonecraft Sta, Roseville Sta, Banksia Sta and Canley Vale Sta	
							NSW	More Trains More SerVICes Stage 2 - North Package	1 Australia First
							VIC	Fitzgerald Road and Robinsons Road Level Crossing Removal Projects	1 Australia First
							NSW	Towradgi Station Upgrade	1 Australia First
							VIC	Union Rd & Mont Albert Rd - Level Crossing Removal Project	3 Regional First

RATING TOOL	AWARD	PHASE	ASSET	REGION	PROJECT	SIGNIFICANT INNOVATIONS				
V1.2	Leading	Design	Road	VIC	West Gate Tunnel Project (WGTP)	4 Australia First				
				NSW	M12 Motorway - West	2 Australia First				
				QLD	Rochedale Station and Park n Ride					
	Excellent	As Built	Rail	NSW	Transport Access Program 3 - Mittagong and Fairy Meadow Stations					
					Redfern Station Upgrade - Stage 1 Works Project					
					Como Station Upgrade		1 Regional First			
					LXRP - SPA - Additional Works Package 3 (AWP3)		1 Australia First & 1 Regional First			
					Stockinbingal to Parkes - Daroobalgie and Wyndham Avenue Sites		2 Australia First			
					TAP3 - Train Station asset upgrade at East Hills & Yagoona					
					Road	VIC	M80 Sydney Road to Edgars Road	6 Regional First		
					Walkerston Bypass Project					
					M12 Central		2 Australia First			
					Water	QLD	Rookwood Weir	1 Australia First & 1 Regional First		
					Commended	Design	Road	VIC	Lathams Road Upgrade Project	
					Excellent	Ops 1 year	Road	NSW	Transurban Hills M2 Motorway Operations	
Excellent	Ops 3 years	Road	VIC	Western Roads Upgrade Ops		1 Regional First				

Infrastructure Sustainability Council Members

361 Degrees Strategic Engagement and Communications	BESIX Watpac	Partnership	Energetics Pty Ltd	Harrison Grierson	McConnell Dowell Constructors (Aust) Pty Ltd
A W Edwards	BG&E Pty	Degnan	Energy Estate	Hatch Pty Ltd	Metro Net
Acciona Geotech Group Services	Bielby Holdings	Dempsey Wood Civil	Enveng Group	HEB Construction	Metro Trains Melbourne (MTM)
ACT Government	Bingo Industries	Department of Climate Change, Energy, the Environment and Water	EnviroCast Pty Ltd	Hiway Stabilizers Australia Pty Ltd	MinterEllison
Advisory System for Process Innovation and Resource Exchange (ASPIRE)	Bioneering Australia	Department of Defence	Enviropacific	HL Landscapes	MinterEllisonRuddWatts
AECOM ANZ	Black Stump Technologies	Department of Energy, Environment and Climate Action (Victoria)	EPD Australasia Limited	Holcim Australia Pty Ltd	MolinoCahill Lawyers Pty Ltd
Alstom Transport Australia	BlueScope Steel	Department of Infrastructure and Transport - South Australia	FCC Construction	Holmes GP ANZ Limited	Mott MacDonald Australia Pty Ltd
Arcadis Australia	BMD Constructions & Urban	Department of Infrastructure, Planning and Logistics Northern Territory Government	Fencepac Barriers Pty Ltd	Huesker Australia Pty Ltd	Mott MacDonald New Zealand Limited
Arenco	Boral Construction	Department of Infrastructure, Transport, Regional Development, Communications and the Arts	Ferrovia Australia	HW Ebsworth	Nation Partners
Arup	Broad Construction	Department of Planning and Environment (NSW)	Ferrycarrig Construction	Hydrock	NDEVR Environmental
ASI Solutions	Bureau van Dijk Electronic Publishing (Moody's)	Department of Transport & Main Roads QLD	Fletcher Building Limited	Hynds Limited	North East Link Project (NELP)
Auckland Council	Cairns Regional Council	Diona	Frontier Economics	Infrabuild	Ash Development Association of Australia
Aurecon Group	Canberra Metro Operations	Diversity Works	FSC Group	Infrastructure New Zealand	One Click LCA Oy
Australasian (Iron and Steel) Slag Association	CDI Lawyers	DLPA Pty Ltd	Galvanizers Association of Australia	inti APAC Pty Ltd	Outlook (Vic) Inc
Australasian Certification Authority for Reinforcing and Structural Steels	CE Construction Solutions	Dormway Pty Ltd	Gamuda	Inxure Consulting	Pacific Partnerships
Australasian Railways Association	Cement Concrete & Aggregates Australia	Downer EDI Limited	GartnerRose Pty Ltd	Jacobs Group (Australia) Pty Ltd	Parke Shire Council NSW
Australia and New Zealand Banking Group Limited (ANZ)	Cerclos	Dump It Bins Pty Ltd	Geofabrics	JobsBank Limited	Patriot Environmental Management
Australian Antarctic Division (Department of Climate Change, Energy, the Environment and Water)	Christchurch City Council	Echo Barrier Australia	Georgiou Group Pty Ltd	John Holland Group Pty Ltd	Perspektiv
Australian Flexible Pavement Association (AfPA)	CIMIC	EcoCrews	GG Enviro	JWA Oilfield Supplies	Pillar Two
Australian Rail Track Corporation	Circulr	Economic Development Queensland (EDQ)	GHD Pty Ltd	K&L Gates	Plastics Industry Pipe Association
Australian Spatial Analytics	Cirtex Industries Ltd	ECORR	Ghella Pty Ltd (Australia)	Kellogg Brown & Root Pty Ltd (KBR)	Pleiades Australia Pty Ltd
Autodesk	City of Canterbury Bankstown	Edge Impact	Ghella NZ	KiwiRail	Polyrok Pty Ltd
Barchip Australia Pty	City Rail Link Ltd	EIC Activities Pty Ltd	Gladstone Area Water Board	KPMG	Public Works Advisory
Beca	Civil Contractors New Zealand	eMesh by Enviromesh	Global GreenTag International Pty Ltd	Laing O'Rourke	Queanbeyan-Palerang Regional Council
Bentley Systems International Limited	Clayton Utz	Endeavour Energy	Global Synthetics	Lendlease Building Pty Ltd	Radeous IT Services Pty Ltd
	CmdrKat Consulting PTY LTD		GM Road & Civil Group	Level Crossing Removal Project (LXRP)	Rail Projects Victoria (RPV)
	Colas Group Australia		Good Environmental Choice Australia (GECA)	Losee Consulting Pty Ltd	Rare Environmental
	Copperleaf Technologies		Grasshopper Environmental Pty Ltd	Lumus Limited	Red Sand Ecology
	Covalent Lithium		Great Barrier Reef Marine Park Authority	Main Roads Western Australia	Regional Growth NSW Development Corporation
	CPB Contractors Pty Ltd		Green Business HQ	Major Roads Projects Authority Victoria	Reinforced Concrete Pipes Australia (Holdings) Pty Ltd
	Datagrid New Zealand Limited		Green Power Solutions Pty Ltd	Major Transport Infrastructure Authority (MTIA)	Reo Block
			H2E Sustainability	Makao Group Pty Ltd	Repurpose It
			Hanson Australia Pty Ltd	Makinex Renewables Pty Ltd	
				Malo Sustainability Consulting	

ResourceCo Material Solutions Pty Ltd
 Reynard Wood
 RMIT University
 RPS Group
 Sacyr Water Pty Ltd
 SCAADA Sustainability Pty Ltd
 Seed Engineering
 Seymour Whyte Constructions
 Shine On
 Sitehive
 SMEC
 Social Traders
 Soilcyclers Pty Ltd
 Solpod Pty Ltd
 South Australian Water Corporation
 Stabilised Pavements of Australia
 Stantec
 Start2See
 State Asphalts NSW
 Stratagility Pty Ltd
 Suburban Rail Loop Authority
 Sunshine Coast Council
 Sunwater
 Supply Chain Sustainability School Limited
 Sustainable Asset Strategies
 Sustainable Built Environment National Research Centre (SBEnc)
 Sydney Metro
 Sydney Water
 Synchrony Projects
 Syrinx Environmental Pty Ltd
 Tasmanian Networks Pty Ltd
 Tasmanian Water and Sewerage Corporation Pty Ltd

The Australian Pavement Recycling and Stabilisation Association (AustStab)
 The Environmental Factor
 The Sustainable Engineering Society
 Tonkin & Taylor
 Transdev Australasia Pty Ltd
 Transgrid
 Transport Asset Holding Entity (TAHE)
 Transport for NSW (TfNSW)
 Transurban Group
 TSA Management
 Tyre Stewardship Australia
 UGL Limited
 UPT Pty Ltd
 Urbis
 Ventia Australia Pty Ltd
 Victory Flag Services
 Virid IFC
 Vital Industries
 W3Plus Consulting
 Wagners EFC Pty Ltd
 Waka Kotahi, New Zealand Transport Agency
 Webuild S.p.A.
 West Gate Tunnel Project
 Western Environmental Pty Ltd
 Department of Transport - Westport
 Woden Contractors Pty Ltd
 Wolf Peak Pty Ltd
 Wrixon Consulting Pty Ltd
 WSP Australia
 Xypex Australia
 Ziger Energy Pty Ltd

Coalition Members

Modern Slavery

Acciona
 Downer
 John Holland
 McConnell Dowell
 Ventia
 Fulton Hogan
 Transurban
 Pillar Two

Climate Action

Acciona
 WSP
 Mott McDonald
 Beyond Net Zero

Circular Economy

Acciona
 Fletcher Building Group
 Ecologiq
 Deloitte
 Boral

Resilience

Acciona
 Ventia
 WSP
 Fletcher Building Group

Water Advisory Group

Mott MacDonald
 SA Water
 GHD
 Sydney Water
 DEECA
 Water Corporation
 Coliban Water
 ISC
 Sunwater
 Parkes Shire Council
 Wellington Water
 Aecom
 Aurecon
 KPMG
 Lumus



The Infrastructure Sustainability Council Technical Working Groups

TECHNICAL WORKING GROUP	MEMBER NAME	ORGANISATION
PROPONENT	Jo Haggerty (CHAIR)	Sydney Metro
	Michelle Quinn	Transport for NSW
	Andrew Aitken	Australian Rail Track Corporation (ARTC) Inland Rail
	Rob Harper	North East Link Program (NELP)
	Rebekah Pokura-Ward	"Waka Kotahi New Zealand Transport Authority"
	Michelle Deely	KiwiRail Holdings Limited
	Louis Bettini	Main Roads Western Australia
	Rhys Owen-Roberts	Major Road Projects Victoria (MRPV)
	Louis Bettini	Main Roads Western Australia
PLANNING	Sophie Wallis (CHAIR)	BG&E
	Susie Page	"Government of Western Australia Department of Transport (DoT) "
	Lloyd Eley-Smith	Department of Planning and Environment
	Hayley Young	Gamuda Berhad
	Coralie Williams	Infrastructure Australia
	Greg Munford	New Zealand Superannuation Fund
	Gillian Crowcroft	Harrison Grierson Consultants
	Ben Mason	Frontier Economics
	Sandra Valeri	Mott MacDonald
Gary Manning	Main Roads Western Australia	
ESSENTIALS	Andrew Aitken (CHAIR)	Australian Rail Track Corporation (ARTC) Inland Rail
	Claire Thorstensen	Department of Transport and Main Roads (TMR)
	Daniel Cahill	BMD Group
	Kate Chivers	HEB Construction
	Sam Turner	BECA
	Simone Unanue Dias	Arup
	Michelle Quinn	Transport for NSW
	Fatima Hammad	WSP
	Lisa Ly	Losee Consulting
Ann Azzopardi	WolfPeak	

TECHNICAL WORKING GROUP	MEMBER NAME	ORGANISATION
DESIGN AND AS BUILT	Ken Lundy (CHAIR)	Arcadis
	Collen McDonald	Main Roads Western Australia
	Natalie Rowe	"Waka Kotahi New Zealand Transport Authority"
	Rebecca Hendy	McConnell Dowell
	Lindsey Spiller	Laing O'Rourke
	Dallas Frazier	Fulton Hogan
	Emily Low	Mott MacDonald
	Amy Elkington	GHD
	Dana Jump	Norman Disney and Young (NDY)
	Ellie Callard	BECA
	Sonia Dong	AECOM Australia
	Scott Losee	Losee Consulting Private Limited
Charlotte Wang	North East Link Program (NELP)	
OPERATIONS	Dale Thomas (CHAIR)	Downer Group
	Alireza Mokhtar	KiwiRail Holdings Limited
	Alexandra Monson	Ventia Private Limited
	Adrien Bouzonville	Auckland Council
	Rob Turk	Nation Partners
	Jon Panic	Malo Sustainability Consulting
	Louis Bettini	Main Roads Western Australia
	Felice Wong	Metro Trains Sydney

SUSTAINABLE MATERIALS	Thirukumaran Jallendran (CHAIR)	Perspektiv Australia	Infrastructure Sustainability Accredited Professionals (ISAP)' Representative
	Emily Townsend	Thinkstep-anz	'Circular Economy' Representative
	Philippa Stone	BlueScope Steel	Environmental Product Declaration (EPD)' Australasia Representative
	Rob Rouwette	Start2See	Australia Life Cycle Assessment Society (ALCAS)' Representative
	Veena Sahajwalla	University of New South Wales, Sydney (UNSW)	Waste (circularity)' Representative
	Lauren Howe	Arup	Materials & Embodied Carbon Leaders' Alliance (MECLA)' Representative
	Charlotte Wang	North East Link Program (NELP)	Proponent' Representative
	Cindy Bray	Plastics Industry Pipe Association	Plastic Pipes Industry' Representative
	Rob Campbell	Cerclos	Life Cycle Analysis (LCA) provider/ consultant' Representative
	'CONCRETE' INDUSTRY SUBGROUP		
	Jason Nairn	Cement Concrete and Aggregates Association Australia (CCAA)	Subgroup Representative
	Evan Smith	Holcim Australia	Members
	Rob James	Xypex Australia	
	Brendan Liveris	Hanson Australia	
	David Hocking	Boral Australia	
	'PAVEMENTS' INDUSTRY SUBGROUP		
	Norbert Michel	Australian Flexible Pavement Association (AfPA)	Subgroup Representative
	Ryan Jansz	Boral Australia	Members
	Davina Smith	Stabilised Pavements of Australia	
	Stuart Dack	Auststab, the Australian Pavement Recycling and Stabilisation Association	
	Nathan Russell	Fulton Hogan	
	'STEEL' INDUSTRY SUBGROUP		
	David Bell	InfraBuild Construction Solutions	Subgroup Representative
Laura Guccione	BlueScope Steel	Member	
'MATERIAL/ PRODUCT CERTIFIER' INDUSTRY SUBGROUP			
Andrew Wheeler	Australasian Certification Authority for Reinforcing and Structural Steels Ltd	Subgroup Representative	

Contractor Working Group

Thanks to specialist support from our contractor members for their ongoing support.

Chair

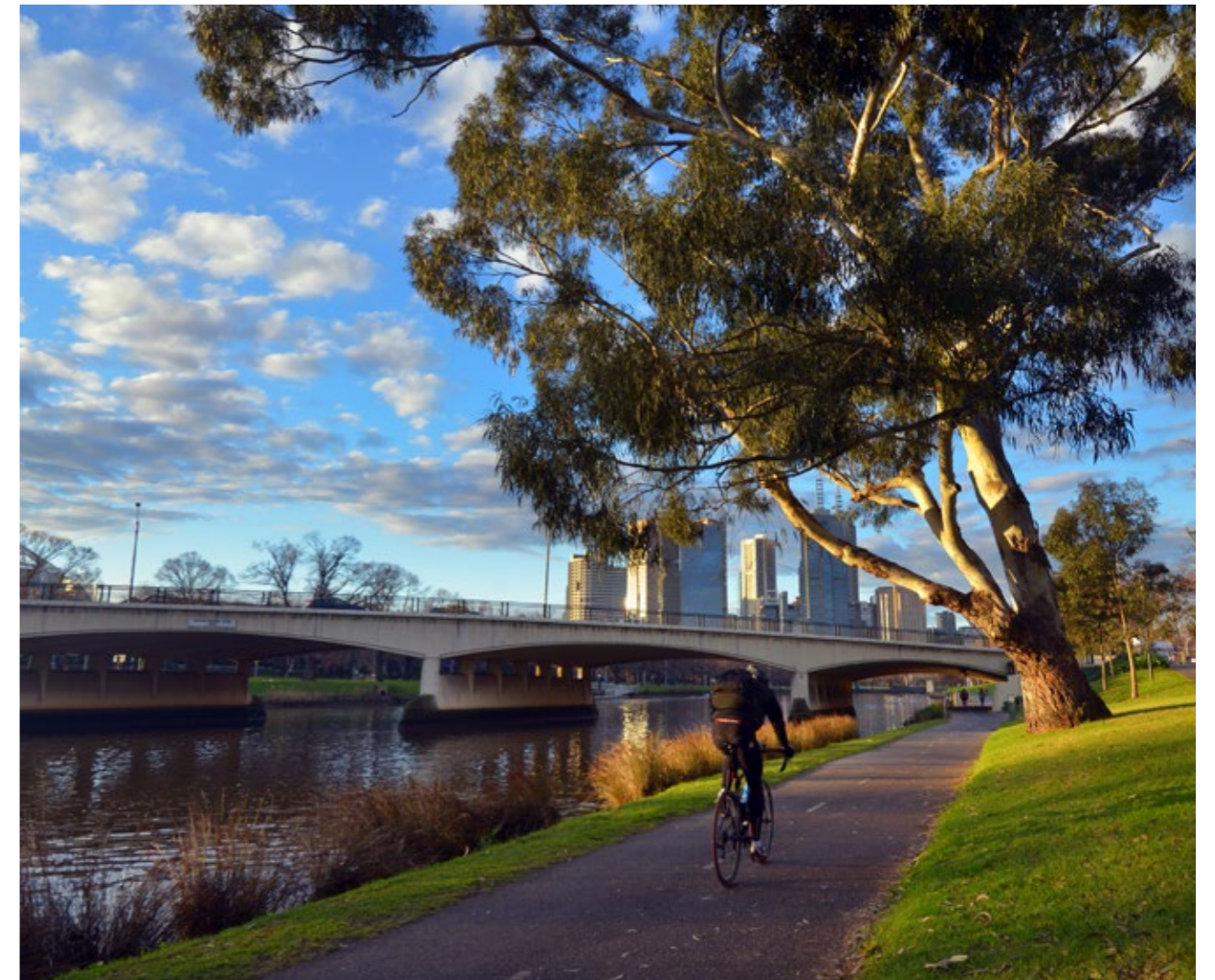
Melissa Davis – John Holland Group

Deputy Chair

Simon Hooper - Perspektiv

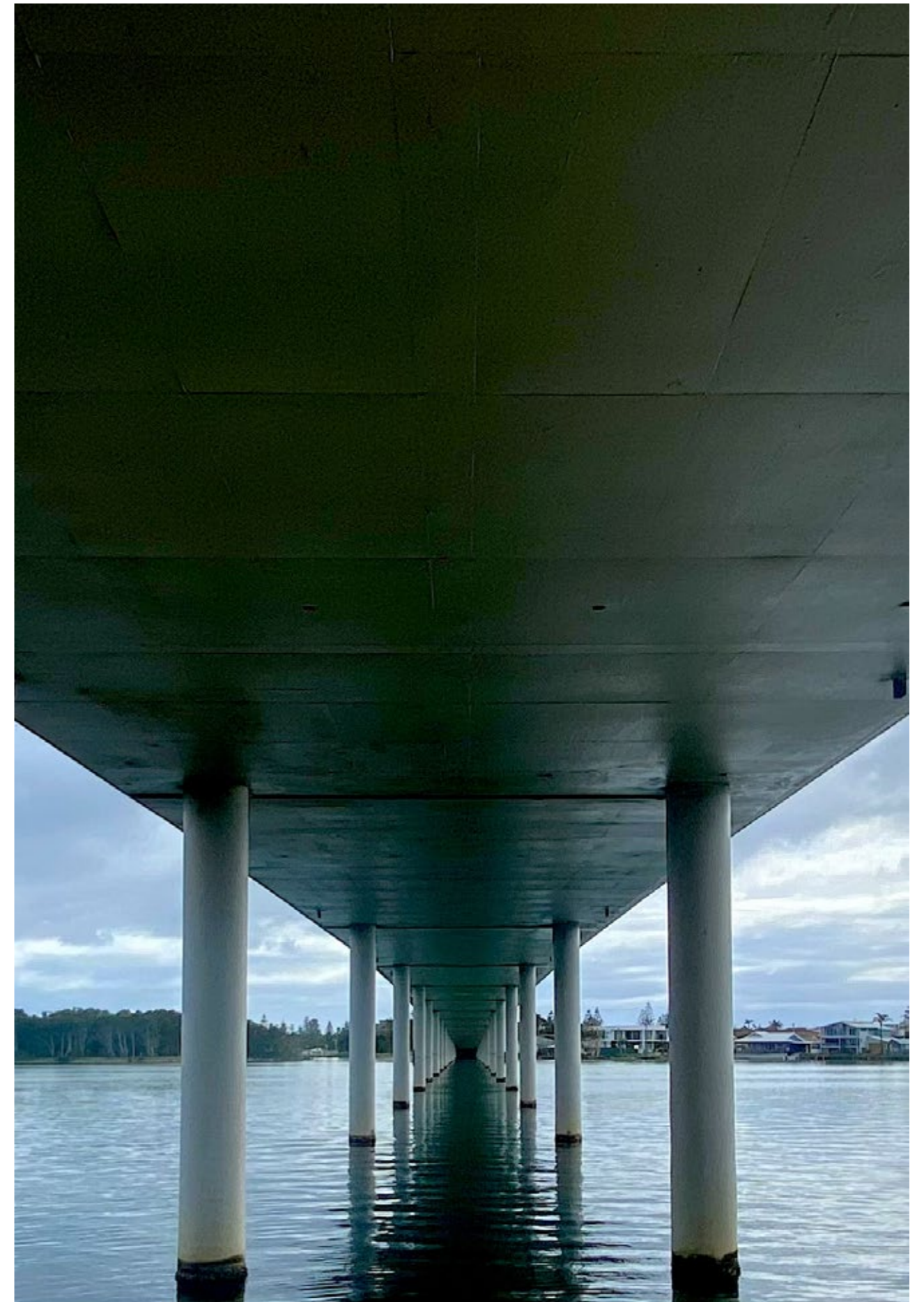
Members

Tim Clarke - Tim Clarke Consulting
 Tim Walker - MDC Group
 Glenn Hedges - CBGUJV
 Kieren Heikkinen – Downer Group
 Sean Helbig – UGL Limited
 Christopher Bourne – Acciona
 David Fox – CBP
 Sam Donaldson – Laing O'Rourke
 Karin Wallin – Laing O'Rourke
 Hayley Young – Gamuda
 Sam Leigh – Fulton Hogan
 Cameron Ginn - Fulton Hogan
 Chris Arrington – Calibre Group
 Dan Cahill – BMD
 Byron Davy – NEL Southern Alliance



Summary of Awards

AWARD	AWARDEE
Excellence in Economic Outcomes	M4-M5 Link Tunnels
Excellence in Governance Outcomes	Sydenham Metro Upgrade
Excellence in Environmental Outcomes	Sydenham Metro Upgrade
Excellence in Social Outcomes	The Echuca Moama Bridge Project Stage 3
Outstanding Achievement - IS Design v1.2	LXRP SPA - Additional Works Package 2 (AWP2)
Outstanding Achievement - IS Design v2.0 or 2.1	Armadale Road to North Lake Road Bridge Project
Outstanding Achievement - IS As-Built v1.2	LXRP NWPA - Bell to Moreland
Outstanding Achievement - IS As-Built v2.0 or 2.1	North-South Corridor - Regency Road to Pym St v2.0
Outstanding Achievement - IS Planning Tool	Bunbury Outer Ring Road
Individual contribution to a sustainable future: Emerging Leader	Sam Donaldson
Individual contribution to a sustainable future: Sustainability Champion	Georgia Gosse
Outstanding Individual contribution to the sector	Andrew Ackerman
Industry Impact - Private Sector, Large	ACCIONA
Industry Impact - Private Sector, Small	Earth Friendly Concrete Pty Ltd - Wagners
Industry Impact - Public Sector	Main Roads Western Australia





Disclaimer

The information in this report covers the activities and performance of the Infrastructure Sustainability Council for the period July 2022 to June 2023. The Infrastructure Sustainability Council has compiled the information in this report from a number of sources. The Infrastructure Sustainability Council has not verified that such information is correct, accurate or complete. Whilst every care has been taken in the preparation of this document, the Infrastructure Sustainability Council makes no representation or warranty as to the accuracy, adequacy or completeness of any statement in it including, without limitation, any forecasts or forward-looking statements. Historical trends are not necessarily a reliable indicator for actual or future performance. The Infrastructure Sustainability Council undertakes no duty, nor accepts any liability or responsibility to any party who relies on or uses this document. This document has been prepared for the purpose of providing general information only, without taking account of any particular person's objectives, situation or needs. You should seek professional advice, having regard to your own objectives, situation and needs, before taking any action. Any person that relies on or uses this document does so entirely at their own risk.