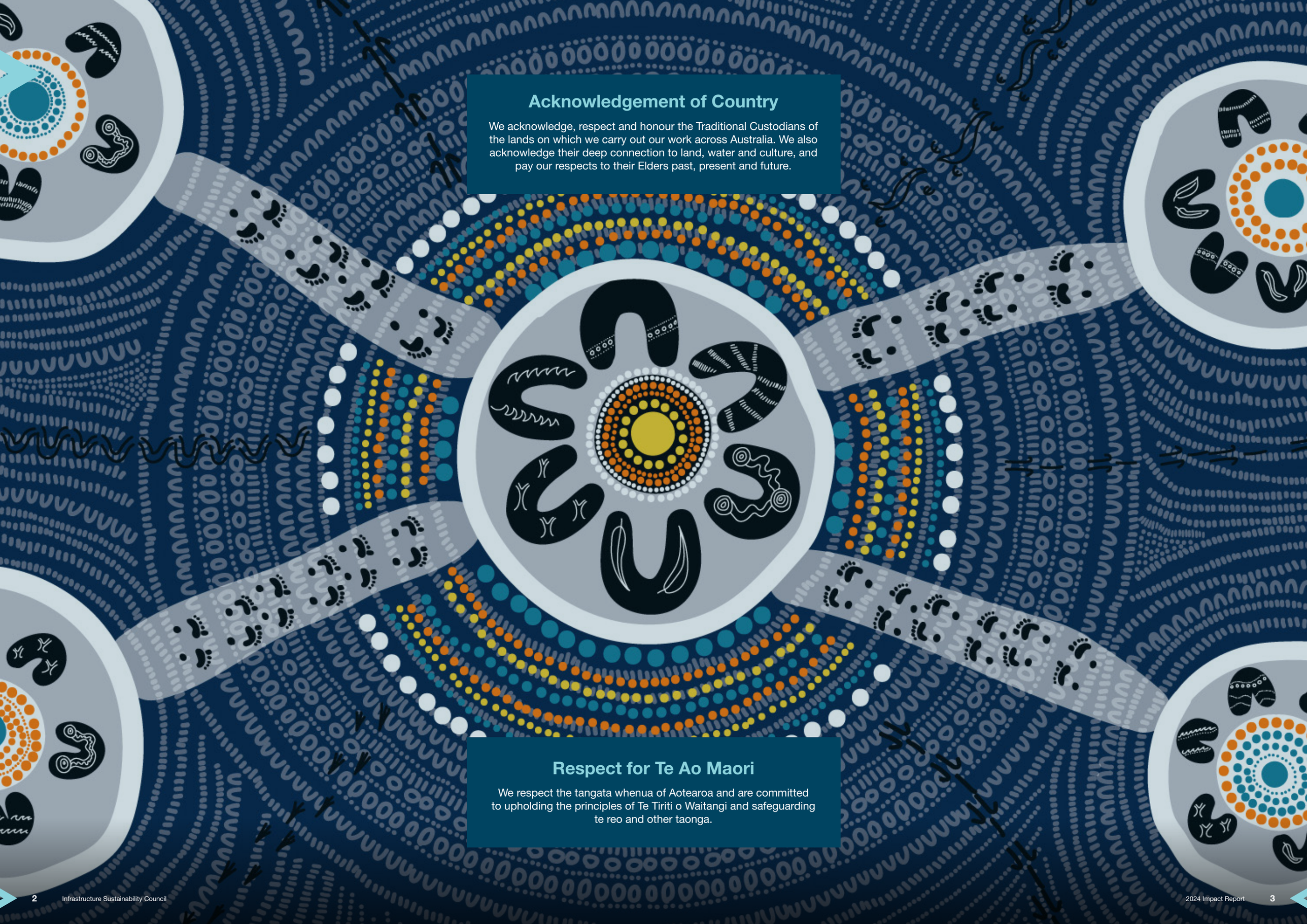
Infrastructure Sustainability Council

Impact Report 2024



Acknowledgement of Country

We acknowledge, respect and honour the Traditional Custodians of the lands on which we carry out our work across Australia. 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 Maori

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.

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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 2024 (1 July 2023 – 30 June 2024)

Image credit: Infrabuild

Chair and CEO's Message

Welcome to the Infrastructure Sustainability Council's FY24 Impact Report. This year's report focuses principally on the impacts that the ISC and its ecosystem of member organisations and stakeholders delivered during the year. It outlines the value created and captured through our efforts to influence policy and regulations that shape our sector, our membership, training and supplier programmes, and the IS Ratings. It also profiles the tremendous expertise, influence and reach of the wider ISC ecosystem – which in the 12 years since our inception has improved sustainability outcomes across 405 registered projects valued at $382 billion across Australia and Aotearoa New Zealand.

These impacts matter! The infrastructure sector consumes, embodies and enables some 70% of Australia's and 50% of Aotearoa New Zealand's carbon emissions. Decarbonisation is just one way that infrastructure affects the sustainability of communities. The IS Ratings scheme provides a world class framework for shaping, reporting, and verifying enhanced sustainability performance across 36 aspects in 16 social, economic, environmental and governance categories that cover 15 of the 17 UN Sustainable Development Goals.

Verified outcomes are critical for companies and governments facing growing pressure to publish honest, transparent information about their sustainability performance. Australia's Infrastructure Policy Statement is clear that publicly funded infrastructure must serve the communities they connect, and to do so sustainably. Aotearoa New Zealand's newly-announced National Infrastructure Agency will apply a fresh focus to the value that infrastructure will deliver in partnership with private investors.

Furthermore, the ISC provides a curated pathway for whole-of-market transformation. We do this first by stimulating and sharing innovations that deliver sustainability outcomes. These innovations are then socialised as "best practice" through the ratings tools, and normalised as "better BAU" when we upgrade the ratings. Finally, some of these become requirements when Government agencies mandate them in formal regulation.

The ISC's ability to convene the sustainable infrastructure community plays a critical role in delivering impact. We continue to see growth in the number, attendance and positive response to the ISConnect conference and other events.

These provide opportunities to share best practice and lessons learned, strengthen relationships across sectoral and jurisdictional boundaries, and build consensus on how to respond to the challenges and opportunities facing the entire value chain.

We are excited by the incorporation of the IS Ratings Scheme into the Environmentally Sustainable Procurement Policy. Australian government construction projects over $7.5m must now report on sustainability outcomes, and the IS Rating tools is an approved reporting pathway. We are proud to have worked with government in developing this policy.

The IS Ratings' requirement for independent third-party verification has helped many asset owners in preparing to address the new challenges around anti-greenwashing legislation and the expectations of the Australian Stock Exchange, Australian Sustainable Finance Institute and Australian Accounting Standards Board for third-party assurance of ESG data under the Australian Sustainability Reporting Standards.

These signs of progress are landing in challenging times. The pipeline for transport infrastructure projects is closing faster than the clean energy project pipeline is opening. The Infrastructure Investment Review, while unquestionably necessary, also reduced the number of projects. Skills and labour shortages, rising material costs and "value engineering" are putting further pressure on projects seeking to secure ratings scores agreed under more favourable market conditions. We are mindful of the challenges this presents for registered projects, and remain committed to working with asset owners, project teams and verifiers to deliver more effectively. We remain equally committed to doing this without compromising on our core purpose of making infrastructure more sustainable.

The better outcomes that certified projects deliver remain at the heart of ISC's contribution. This year, 25 certified As Built projects contributed 144,000 tonnes to the total of 1,353,000 million tonnes of avoided lifecycle materials emissions and 1,447,000 tonnes to the total of 23,546,000 tonnes of lifecycle operating emissions avoided since 2018. In both FY23 and FY24, 100% of ISC certified projects made use of innovative materials; nothing reflects "better BAU" than that!

The Infrastructure sector urgently needs to expand the workforce's capability to meet national net zero targets and deliver real social value. The Sustainability Skills Capability Framework we launched in July 2024 offers employers, recruiters and professionals a clear picture of the essential skills for sustainability practitioners from graduate to senior professional. We will continue to build on this Framework as we expand our training programmes.

This year's report outlines the governance, structure and scope of the IS Ratings Scheme. The launch of IS Planning Version 2.1 and IS Essentials completes the Scheme's coverage of the whole asset life cycle, from strategic planning to operation. IS Essentials provides practical and cost-effective downscaling for projects from as little as $5 million without compromising our "better than BAU" core purpose. The wheels of progressive improvement continue to turn in the Technical Working Groups, fine tuning the verifier's role, and the approval of all certifications by the ISC Executive and Board. This work plays a critical role in ensuring the integrity and ambition of the Ratings' process.

In a similar vein, the launch of Infrastructure Net Zero, and the working groups addressing modern slavery and the water sector provide the thought leadership that lays the foundations for influencing the development of future policy and practice.

In summary, we are proud of the impacts and progress the ISC has delivered in FY24, This is as much for the impacts themselves as for the foundations they lay for delivering even greater impacts as we move forward. Specifically, we are keen to deepen our engagement with the water, energy and financial industries to expand our reach into these sectors.

A final word goes to the ISC team. Their passion, professionalism and expertise make possible every outcome and impact we have achieved. Thank you to all of our readers, members, and stakeholders.

Deb and Toby

Deborah Spring, Chair

Toby Kent, CEO

Highlights

ISC Strategic Highlights

Leadership

243 member organisations co-developing sustainability leadership with ISC	**405** Registered projects with CAPEX of $382bn	**23,546,000** tonnes avoided lifecycle energy emissions

Thriving industry

Record **4,233** attendees at ISC events	**866** registered ISAPs	Launched Sustainability Capability Framework

Market transformation

Launched Infrastructure Net Zero	IS Ratings named as a pathway in Environmentally-Sustainable Procurement Framework	Launch of IS Planning v 2.1 and IS Essentials

Organisational health

46 employees	**50/50** Leadership team gender balance	**All staff gender** balance Female - **26** Male - **17** Undisclosed - **3**

Ratings Scheme Highlights FY24

Projects and innovations

58 certifications **$23.6bn**	**39** registrations **$34.3bn**	**Innovation Firsts:** **1** World **30** National **26** Regional

Reductions from base case

50% Lifecycle energy emissions avoided	**34M** tonnes of waste repurposed	**20%** Lifecycle material emissions avoided
Asphalt: **521,000** tonnes	Concrete: **114,000** tonnes	Steel: **8,400** tonnes

IS Rating Scheme Outcomes by Region FY24

Northern Territory

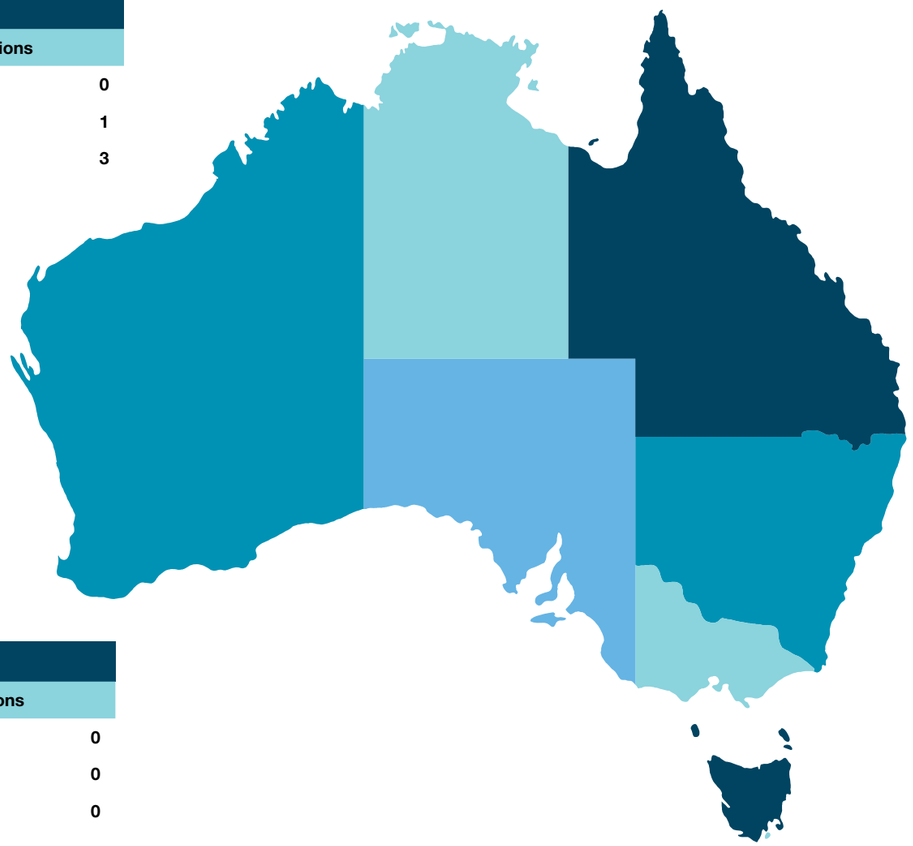
To Date		FY24 Certifications	0	FY24 Innovations	
Total Certifications	0			World First	0
Total Registrations	1			Australia First	0
				Regional First	0

Queensland

To Date		FY24 Certifications	7	FY24 Innovations	
Total Certifications	31	v1.2 Leading Design	1	World First	0
Total Registrations	52	v1.2 Excellent Design	2	Australia First	4
		v1.2 Excellent As Built	2	Regional First	2
		v1.2 Leading As Built	1		
		v2.1 Bronze ISE Pilot As Built	1		

Western Australia

To Date		FY24 Certifications	5	FY24 Innovations	
Total Certifications	23	v2.0 Gold Design	1	World First	0
Total Registrations	40	v2.0 Silver Planning	3	Australia First	1
		v2.1 Bronze Planning	1	Regional First	3



New South Wales

To Date		FY24 Certifications	22	FY24 Innovations	
Total Certifications	70	v1.2 Commended Design	1	World First	1
Total Registrations	92	v1.2 Excellent Design	6	Australia First	6
		v1.2 Leading Design	5	Regional First	2
		v1.2 Commended As Built	1		
		v1.2 Excellent As Built	4		
		v1.2 Leading As Built	4		
		v1.2 Commended Operations	1		

Australian Capital Territory

To Date		FY24 Certifications	1	FY24 Innovations	
Total Certifications	5	v1.2 Leading Design	1	World First	0
Total Registrations	6			Australia First	0
				Regional First	2

South Australia

To Date		FY24 Certifications	0	FY24 Innovations	
Total Certifications	5			World First	0
Total Registrations	4			Australia First	0
				Regional First	0

Victoria

To Date		FY24 Certifications	22	FY24 Innovations	
Total Certifications	77	v1.2 Leading Design	2	World First	0
Total Registrations	68	v1.2 Excellent As Built	7	Australia First	19
		v1.2 Excellent Design	4	Regional First	17
		v1.2 Leading As Built	8		
		v1.2 Commended Design	1		

Tasmania

To Date		FY24 Certifications	0	FY24 Innovations	
Total Certifications	0			World First	0
Total Registrations	3			Australia First	0
				Regional First	0

New Zealand

To Date		FY24 Certifications	1	FY24 Innovations	
Total Certifications	6	v1.2 Commended Design	1	World First	0
Total Registrations	21			New Zealand First	0
				Regional First	0

About the ISC

Our Purpose

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

- **LEADERSHIP** - To drive global best practice in infrastructure.
- **THRIVING INDUSTRY** - To enable the industry to be connected, collaborative and ambitious.
- **MARKET TRANSFORMATION** - To advocate for change that supports the industry to rapidly transition.
- **HEALTHY ORGANISATION** - To be a purpose-led, inclusive and high performing organisation.

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 a just transition, ensuring well-being for current and future generations.

Prosperity – Measuring infrastructures 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. Through industry engagement, recognition of best practice, training and education we are curating 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 Program.

We collaborate with infrastructure stakeholders throughout Australia and Aotearoa New Zealand, bringing them together to shape leadership positions in emerging and ongoing sustainability issues. This collaboration drives 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:

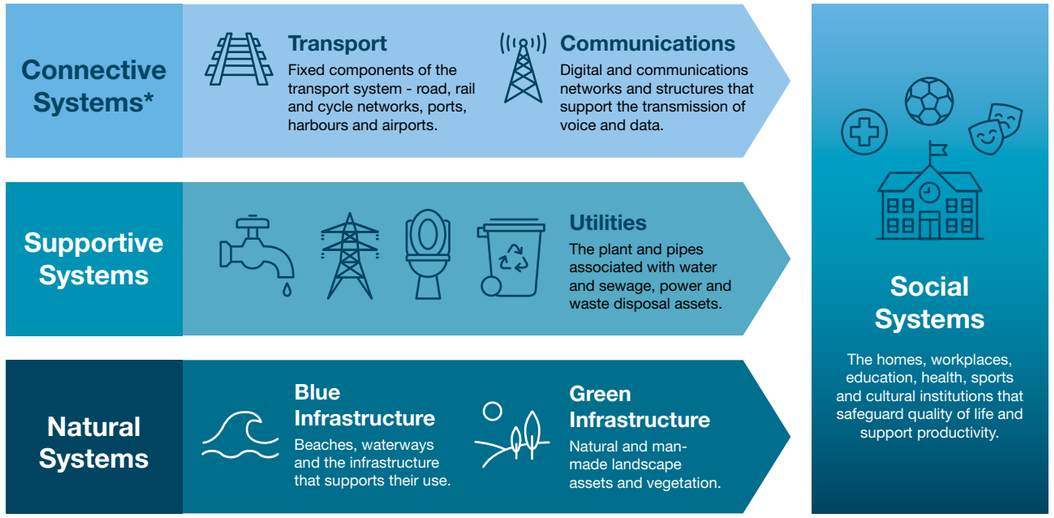
1. Asset owners, delivery agencies and project proponents
2. Policy makers and regulators
3. Contractors
4. Consultants
5. Operators
6. Suppliers
7. Industry bodies, not for profits and academia

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

We also 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 infrastructure 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.

Our Network

Infrastructure is a network of systems which enable 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.



*Advance Our Nations, Fair. World Class Infrastructure for Thriving Nations. 2022 ISC and Urbis

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 and 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 and this involves evaluating feedback, analysing trends and assessing risks. The Board regularly monitors our performance against our Key Performance Indicators. As we move through FY 25, we will be developing and publishing our new five-year strategic plan.

Governance

Organisational Health

The ISC 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.

Directors

Deborah Spring, Chair
Wurundjeri Country
LinkedIn

Jeremy Stone, Director
Wurundjeri Country
LinkedIn

Philip Helberg, Director
Boorloo Country
LinkedIn

Glenn Hedges, Director
Jagera and Turrbal Country
LinkedIn

Fin Robertson, Director
Wurundjeri Country
LinkedIn

Craig McGrory, Director
Gadigal Country
LinkedIn

Amelia Linzey, Director
Tamaki Makaura
LinkedIn

Bethia Gibson, Director
Te Whanganui-a-Tara
LinkedIn

Paul Plowman, Director
Gadigal Country
LinkedIn

Julie Morgan, Director
(Retired November 2023)
Gadigal Country
LinkedIn

Co-opted committee members

Alex Osti, Co-opted committee member
Kaurna Country
LinkedIn

Anne Hellstedt, Co-opted committee member
Wurundjeri Country
LinkedIn

Berenize Peita, Co-opted committee member
Tamaki Makaura
LinkedIn

Brett Joyce, Co-opted committee member
Wurundjeri Country
LinkedIn

Adam Roberts, Co-opted committee member
Gadigal Country
LinkedIn

Brad Sherringham, Co-opted committee member
Gadigal Country
LinkedIn

Douglas Logan, Co-opted committee member
Ngunnawal Country
LinkedIn

Julie Morgan, Co-opted committee member
(Commenced December 2023)
Gadigal Country
LinkedIn

Jody Williams, Company Secretary (Retired February 2024)
Co-opted committee member (Commenced March 2024)
Wurundjeri Country
LinkedIn

Ian Jamieson, Company Secretary
(Commenced April 2024)
Latji Latji Country
LinkedIn

Our Board Committees

Governance & People

- Amelia Linzey (Committee Chair)
- Deborah Spring (Chair of the Board)
- Jeremy Stone (Deputy Chair)
- Jody Williams (co-opted)
- Douglas Logan (co-opted)
- Berenize Peita (co-opted)

Finance, Audit & Risk

- Bethia Gibson (Committee Chair)
- Glenn Hedges
- Craig McGrory
- Brad Sherringham (co-opted)
- Julie Morgan (co-opted)

Market Development

- Philip Helberg (Committee Chair)
- Fin Robertson
- Paul Plowman
- Adam Roberts (co-opted)
- Alex Osti (co-opted)
- Brett Joyce (co-opted)
- Anne Hellstedt (co-opted)

Senior Leadership Team

Toby Kent, CEO
(From August 2024)
Wurundjeri Country

Ainsley Simpson, CEO
(Up to February 2024)
Gadigal Country

Patrick Hastings, Chief Delivery and Capability Officer
Acting CEO
(February 2024 - August 2024)
Turrbal and Jagera Country

Jane Nicholls, Chief Engagement and Development Officer
Nipaluna Country

Dr Kerry Griffiths, IS Technical Director
Te Whanganui a Tara

Owen Buckley, Chief Delivery and Capability Officer
Turrbul and Jagera Country

Ainsley Jardine, General Manager, People and Culture
Gadigal Country

Brendan Lucas, Chief Finance Officer
Gweagal Country

Michel Colen, General Manager Ratings and Delivery
Turrbal and Jagera Country

The ISC Ecosystem

Thriving Industry

Components

The ISC ecosystem is our shorthand for the group of stakeholders that make the greatest contribution to leading the development and operation of sustainable infrastructure.

At an organisational level this includes our member organisations, the asset owners, delivery agencies, projects and assets that conduct a rating and the ISC team. More broadly, it also includes:

- the governments and associated bodies that shape the policy and regulations of our sector,
- the financial community that is playing an increasing role as investors in privately backed infrastructure development, and
- the subject matter experts and non-government influencers that shape thought leadership on issues of material relevance to our sector.

Ultimately, and perhaps most importantly, it includes the communities for whose benefit infrastructure is built and operated.

Beyond this ring lies the potential members, partners, sectors, and geographies that we would like to incorporate into the ISC ecosystem.

At the individual level the Infrastructure Sustainability Accredited Professionals (ISAPs) that sit within project teams, commissioning agencies and consultancies and the verifiers who support the third-party verification process are a distinct stakeholder group. While they are paid by the organisations they belong to they play a critical role in representing and driving the expectations as agents of the IS Ratings process.

Convening and curating the ecosystem

We recognise that the ISC's ability to support the drive towards more sustainable infrastructure is materially increased when we focus the weight of our collective experience, expertise, knowledge and aspirations to better enable the infrastructure sector to make a just transition to a net zero and nature positive future.

The mechanisms we apply to achieve this include the development of thought leadership through our working groups and publication of white papers and convening online and in-person events that provide the opportunity for developing networks and relationships; by sharing insights and celebrating our successes at our annual awards, and through our training and development programs that help to address the demand for new and more capable talent in the infrastructure sector.

Events and awards

During FY24 the ISC organised a record 37 in-person and virtual events that attracted over 5,000 combined registrations. The online events included topic-specific webinars on modern slavery and suppliers, ratings launches and case studies and a regular update. In-person events included the launches of IS Planning version 2.1, certification ceremonies, the launch of Infrastructure Net Zero and the Sustainability Skills Capability Framework. The flagship event and high point of our year is the IS Connect Conference and Awards, which runs over three days and provides the best opportunity of the year for the whole ISC ecosystem to gather.

Infrastructure Sustainability Council Awards 2023

Each year the ISC presents nine awards that celebrate organisations and individuals who have delivered outstanding excellence and impact that drives market transformation. The aim is to recognise outstanding performance, and raise awareness of both the work and those who have performed it. The awards are presented at IS Connect, providing the opportunity for attendees to speak directly to the winners and learn more about how the outcomes were achieved. The list of award winners is also published on the ISC website.

A key theme of this year's awards was the effectiveness of stakeholder collaboration – six out of seven organisational awards went to alliances and joint ventures. ISC-run focus groups held later in the year further confirmed how such partnerships enabled the adoption of more innovative solutions, as well as bringing together sustainability professionals from different organisations with a greater diversity of strengths knowledge and insight.

Excellence in Governance

North Western Program Alliance comprising of John Holland, Kellogg Brown and Root, Metro Trains Melbourne and Level Crossing Removal Project used effective governance mechanisms, such as optioneering, partnerships, continuous improvement and early community engagement.

Excellence in Environmental

HSA Group (John Holland, Seymour Whyte, AECOM) with project proponent Department of Transport and Main Roads for Cairns Southern Access Corridor Stage 3: Edmonton to Gordonvale (E2G) project, included an Australian-first method to reduced raw materials usage and a Queensland-first initiative by implementing six solar hybrid systems.

Excellence in Economic

Southwest Gateway Alliance comprising of Acciona, NRW Contracting, MACA Civil, AECOM and Aurecon in partnership with Main Roads Western Australia, for work on the Bunbury Outer Ring Road project. SWGA's approach centred on procurement and local business engagement and created opportunities for regionwide social and economic improvements. The processes and policies are recognised as a best-practice model.

Excellence in Social

The South West Gateway Alliance comprising of Acciona, NRW Contracting, MACA Civil, AECOM and Aurecon for their Yaka Dandjoo program linked to the Bunbury Outer Ring Road project, which established meaningful career pathways for unemployed and job-transitioning individuals.

Private Sector Industry Impact Award

ACCIONA, for its contributions to Diversity, Equity and Inclusion (DEI). The company's collaborative approach, involving co-creation with people and stakeholders, further bolsters its DEI effort. Judges noted "The mentoring program that works to support young job seekers through the PACE mentoring program for students with a disability who have minimal exposure or experience with the workforce is excellent."

Public Sector Industry Impact Award

The Office of Major Transport Infrastructure Delivery (OMTID) for its Resource Efficiency Action Plan (REAP). Judges noted: "Working collaboratively within a single large organisation is difficult enough—to find a way to make this successful across two large organisations is a major achievement."

Emerging Leader - Individual Contribution to a Sustainable Future

Alyssa Slaney of Laing O'Rourke for her technical prowess and commitment to community engagement and mentorship of the next generation of sustainability professionals in her work for Sydney Metro's Central Station.

Enduring Impact - Individual Contribution to a Sustainable Future

Berenize Peita of Link Alliance. The judges noted her profound efforts in reshaping how future infrastructure projects in New Zealand will unfold: "Ongoing commitment to her work has created a permanent legacy for the tikanga Māori and te reo Māori people involved, and for the way project managers can work with similar groups to achieve these outcomes on other projects and their communities."

Outstanding Achievement – Sustainability Leadership

Paramatta Connect (a CPB Contractors and Downer EDI joint venture) highlighted the possibility for achieving excellent sustainability outcomes across carbon, workforce, social enterprise and Aboriginal business engagement on a single project.

Influencing Policy and Regulation

Market Transformation

This year we were delighted to see the introduction of the Environmentally Sustainable Procurement Policy and Framework. This Framework identifies an IS Rating as one of the pathways for construction projects over AUD$7.5 million. More information about the Policy and Framework can be found on the website of the Department for Climate Change, Energy, the Environment and Water. Its objectives will sound all too familiar to anyone who has been involved in delivering an IS Rating:

"The ESP Policy will reduce the environmental impact of Australian Government procurements.

The government will buy products that:

- *minimise greenhouse gas emissions*
- *are safe for the environment*
- *retain their value for longer.*

By generating demand for these products, we will support Australia's transition to a net zero, circular economy.

Climate, environment and circularity

The ESP Policy applies climate, environment and circularity principles to 4 high-impact procurement categories.

The ESP Policy Reporting Framework will measure environmental outcomes. We will be able to create a baseline of environmentally sustainable procurement. From here, we can set targets and increase ambition over time.

Support for APS entities and suppliers

APS entities and suppliers are required to undertake activities to prove environmental claims and demonstrate compliance with the ESP Policy."

Furthermore, numerous jurisdictions across Australia and Aotearoa New Zealand have established mandates that require infrastructure projects reaching a certain capex threshold to use an IS Rating.

The IS Ratings and ecosystem as an influencer and enabler of compliance

This section outlines a number of pieces of new and emerging sustainability-related policy and regulation which affects the funders, designers, builders, and operators of infrastructure. Rather than trying to discern specific aspects in which the ISC's engagement has directly led to outcomes as clear as those above, we note that policy and especially regulation are generally enacted only when there is a reasonable expectation that the sector it addresses is able to comply. The combination of the proven effectiveness of the IS Rating tools across the large number of IS-certified projects and assets provides a solid foundation for that assumption. Furthermore, the emerging policy and regulation outlined below will all contribute to making the IS ratings tools more effective drivers of sustainable infrastructure.

The development of policy and regulation specific to the transport and infrastructure sector has been driven by the Infrastructure and Transport Ministers Meeting (ITMM) which established the Infrastructure Decarbonisation and Decarbonisation of Transport Working Groups. These groups, which consist of representatives from the Commonwealth and every state and territory, were tasked to progress the decarbonisation of infrastructure and transport respectively. This work is being taken forward through the Infrastructure & Transport Senior Officials Committee (ITSOC). The ISC, along with the Infrastructure Net Zero (InfraNZ) initiative, which it conceived and launched in August 2023, are invited members of this committee. The key developments within FY24 are outlined below.

The Department of Infrastructure & Transport, Regional Development, Communications and the Arts' Infrastructure Policy Statement (November 2023) *"…defines nationally significant transport infrastructure, sets out three strategic themes that will guide investment decisions, and outlines how the Government will put these themes into action to deliver its policy objectives."* One of the three themes is sustainability, but the whole document is framed around sustainability and the need to deliver value to the communities it serves. The Policy Statement was supported by the release in December 2023 of the Shared Principles for National Transport Decarbonisation, Policy on the application of carbon values on transport projects and a Nationally Consistent Value for Carbon in the business case for projects funded by Infrastructure Australia. Infrastructure New South Wales (INSW) was tasked by ITMM with developing a National Measurement Guidance for embodied carbon in infrastructure that was released in June 2024.

At the State level, INSW released an Infrastructure Delivery Policy and Infrastructure Victoria (iVic) also released infrastructure decarbonisation guidance entitled Opportunities to Reduce Greenhouse Gas Emissions of Infrastructure which align closely with Infrastructure Australia's Federal policies. Both of these make reference to the PAS 2080 carbon management standard, around which the energy and resource credits in version 2.1 of the IS Ratings is also built.

This body of Government action is important for four reasons. First, it demonstrates significant progress towards a standard approach to decarbonisation across all jurisdictions.

Second, it provides a market signal that projects which work harder to decarbonise will be assessed more favourably by funders than those which do not.

Third, early consideration of decarbonisation in the decision process – particularly through incorporating carbon in the business case - materially improves the likelihood of identifying big win "do not build" and "retrofit/ repurpose" reduction opportunities, thereby strengthening the value proposition of both IS Planning and IS Essentials to deliver more cost-efficient projects. These early-stage opportunities for decarbonisation are far greater than those in the tender, design, build and operation stages.

Finally, and critically for contractors, the pricing of carbon in the business case enables better risk allocation and cost management by incorporating the costs of decarbonisation in the later stages of the asset life cycle from the start of the tendering process.

Looking beyond carbon, the IS Ratings' requirement that sustainability performance be supported by a third-party verification has helped to prepare asset owners and the wider infrastructure supply chain to address the new challenges around anti-greenwashing legislation, as well as ASX, AFSI and AASB expectations for third party assurance across all aspects of ESG data under the Australian Sustainability Reporting Standards.

Similarly, our Modern Slavery Working Group has extended its working life as the members continue to derive value from meeting and extending their capacity to understand the issue and address the evolving regulatory requirements.

Membership

Thriving Industry

The **ISC membership program** is designed principally to provide the platform for the industry's leaders to work together on the most significant challenges and opportunities for the sector.

Our 243 members include:

- project proponents and policy development agencies - **16%**
- project delivery partners - **54%**
- providers of supply chain solutions - **21%**
- influencers and enablers - **8%**

The IS Council membership community

Membership of the IS Council provides organisations from the private and public sector with opportunities to collaborate, and lead the development of a future state where nature positive and social wellbeing criteria are increasingly critical in ensuring infrastructure development meets the needs of the communities it serves. Recognising the immense opportunity to enact change through infrastructure, IS Council members continue to seek solutions, share knowledge and lead sector-wide transformation by:

- uplifting their teams through mentoring, training and learning resources
- participating in the ISC's member committees, advisory and technical working groups
- contributing expert presentations, venues and resources to regional, national and online events
- shaping the direction of the ISC by voting at the AGM.

The IS Council's engagement program expands and evolves to respond to the diverse needs and interests of members from the transport, energy, water, finance and other markets, and emphasises the importance of leadership, capability and alignment across the ecosystem.

Supporting a sustainable supply chain

The IS Council's supplier members contribute to innovation in circularity, carbon reduction, lifecycle efficiencies and protection of human rights by connecting their products, services and solutions with the IS Ratings ecosystem. Working collaboratively with members, the IS Council released a paper in June 2024 titled ***"Challenges and Opportunities in the Procurement of Sustainable Products and Services in Infrastructure"*** that advocates for stronger ties between procurers and the supply chain.

The ISupply Directory continues to expand with 68 unique businesses now linking their offerings to credits within the IS Ratings Scheme. In January 2024, a new webinar series was launched to profile their impact and innovations.

"Cerclos participated in the inaugural ISC Spotlight on the Supplier webinar in January 2024 and enjoyed a great Q&A session where we fielded questions from infrastructure project teams across Australia and New Zealand. We also exhibited and presented at the Western Australia Connect Conference. This was an excellent opportunity to take a deep dive into the infrastructure sector challenges and opportunities as well as engage key stakeholders in that unique region."

Adam James, Managing Director, Cerclos.

Member action on modern slavery

The IS Council's Modern Slavery Coalition, now in its fifth year of action, brings together members to more deeply embed the whole sector's understanding and capability to address the complexity of this challenging issue. Highlights during FY24 included:

- A webinar for ISC members which featured a presentation from the Office of the NSW Anti-slavery Commissioner about the NSW Government's expectations for suppliers to manage modern slavery risks, as well as information about broader modern slavery developments.
- A session on modern slavery risks in infrastructure at IS Connect in September 2023.
- Exploring opportunities to strengthen members' approaches to supplier due diligence
- Engaging with a global manufacturer and a major food and grocery company to understand developments in different sectors.
- Providing regular updates to members on key global and local developments relating to modern slavery and broader human rights.

Water Sector Advisory Group

In FY24 The Water Advisory Group completed a review of version 2.1 of the IS Design and As-Built Rating tool. The Group identified a number of priority areas, and the ISC has either resolved or continues to work on all of the issues, namely:

- consider a process for portfolio, program, or group-level organisational verification
- communicate how IS ratings bridge the gap between organisational sustainability strategy and individual projects and how data can be used in ESG reporting
- provide ROI analysis and case studies that articulate the value proposition for water sector organisations with mature sustainability frameworks
- consider the group's recommendations for the base case and individual credits.

A new membership model

In the year ahead members can expect to see an evolved membership model that will deliver more tailored benefits with a greater emphasis on value-generation and community building for members, including enhanced training. The model will offer a cascading structure, providing deep support for organisations early in their sustainability journey, and reward ambitious organisations that have already heavily invested in sustainability as a core business strategy.

Member inputs to National Waste Policy Action Plan

In June 2024, the ISC submitted its final report to the of Department of Climate Change, Energy, Environment and Water (DCCEEW) as part of a three-year partnership that focused on the uptake of recycled content in infrastructure. The industry data and insights provided in the report are intended to inform the future direction of the National Waste Policy Action Plan, with significant contributions made by numerous ISC members.

Research conducted by the IS Council on recycled content and circular outcomes revealed a developing trend toward increased use of recycled materials on projects, and more broadly, market transformation and harmonisation driven by progressive state-based policies. The qualitative data also highlighted enduring perceptions of high risk, the demand for performance-based specifications, regulatory challenges and importantly, the benefits of optimising design and exploring circularity at the earliest stages. The move toward national harmonisation via the first National Framework on Circular Economy was welcomed.

Managing our climate impact and embedding circular economy principles across planning, delivery and operations is core to the way Sydney Water delivers services to our customers. Being a member of ISC strengthens our collaboration across the infrastructure industry to solve common sustainability challenges. This includes having our Executive General Manager of Water and Environmental Services, Paul Plowman, on the Board of the IS Council and undertaking the first V2.1 Design & As Built Rating in NSW which will pave the way for others in the water industry. We've also shared sustainability insights at key IS Council events and advisory groups, and welcomed IS Council members to our Purified Recycled Water Discovery Centre.

Gill Fowler, Delivery and Integration Director Major Projects, Infrastructure Delivery, Sydney Water

Training

Thriving Industry

Introduction

Australia and New Zealand's infrastructure industries are at critical junctures, facing pressing needs to expand the workforce amidst a widespread shortage of skilled workers across the sector. We urgently need individuals with diverse and robust sustainability skills to meet national and international net-zero targets and ensure that our infrastructure provides comprehensive cultural, social, economic, and environmental benefits.

Addressing this challenge requires a concerted effort from all industry partners. This year, the ISC delivered and developed six capability-building initiatives in collaboration with more than 15 government and private organisations and education bodies. Through these initiatives, the ISC is enabling a more skilled and diverse sector that is better resourced to tackle sustainability challenges effectively.

Our commitment to enhancing the sector's sustainability capabilities is underpinned by the development of the Infrastructure Sustainability Capability Framework, driven by collaborative research and strategic partnerships.

This year, 1,736 sustainability professionals have received training from the ISC to further develop a professional skillset that will support them in driving outcomes. These included:

- executives shaping a sustainability direction for their organisation,
- practitioners seeking to raise the sustainability benchmarks on the projects they work on, and
- leaders equipping themselves with the skills to drive change.

Infrastructure Sustainability Capability Publications

Sustainability is a relatively new discipline in infrastructure, especially compared to professions such as engineering, procurement and project management. In 2023, the ISC surveyed 316 infrastructure sustainability professionals across Australia and New Zealand to further understand their capabilities, barriers and drivers.

The survey insights, alongside input from the IS Council's Contractor Working Group, informed the development of the Infrastructure Sustainability Capability Framework. The framework is a guidance document designed to support existing and aspiring sustainability professionals in building capability in areas applicable to their role or interest. It outlines 27 areas of practice that are common to infrastructure sustainability professionals working in infrastructure, defining the capability expectations of five levels: Junior/Graduate, Co-ordinator, Advisor, Senior Advisor/Consultant and Manager/Senior Consultant.

Through our research, it became evident that more can be done to raise the profile of sustainability as a career path. The '**Sustainability, a Career in Construction**' report was developed to equip industry professionals with practical strategies and tools, supported by inspiring case studies to attract, retain and develop sustainability skills and promote diversity and inclusion within the infrastructure sector. Both this report and the Infrastructure Sustainability Capability Framework were developed with the support of the New South Wales Government's Women in Construction Industry Innovation Programme.

The report explores questions such as 'can we use sustainability as a strategy to attract more women to construction? What barriers stand in our way? And what levers can we pull to empower more women with sustainability skills to embrace careers in construction?'

To see the report in full, visit our website.

Developing sustainability leaders

The ISC and supporting partners aim to embed sustainability as a core principle in the fabric of corporate decision-making, and enable the retention of legacy knowledge from experienced leaders through knowledge and experience sharing. We also aim to expand the community of talented and established professionals that are ready to lead organisations and teams in delivering better outcomes for people and planet.

Mentoring

In FY24, 230 established and emerging leaders engaged with the ISC in Leadership Mentoring and bespoke leadership workshops, to further develop their sustainability leadership capabilities. The two mentoring programs matched established sustainability professionals with senior leaders in sustainability for nine months. This year, in addition to leaders from across Australia and New Zealand we were excited to welcome senior leaders from Hong Kong and the United Kingdom, providing their mentees with an invaluable international perspective.

Sponsored by Gamuda, RISE Mentoring commenced its third year, currently with 40 participants and 96 alumni. The program was developed in recognition that sustainability professionals hold a long-term eco-centric view of the world which positions them well to lead the sector's transition to a resilient, net zero and nature positive future.

This year we added a Women in Sustainable Leadership mentoring program, funded by the NSW Government's Women in Construction Industry Innovation Program. With women still making up just 12% of the construction workforce, the WiSC program was developed to support the attraction and retention of women in the construction sector by enhancing the visibility of sustainability as a credible career and leadership path.

Sustainability Leadership Workshops

This year the ISC facilitated bespoke infrastructure sustainability leadership workshops that have empowered 150 leaders to deepen their understanding of infrastructure sustainability. These workshops clarified the critical role of leadership in driving sustainable practices and equipped participants to implement actionable strategies within their organisations.

The impact of these workshops extends beyond theoretical knowledge. Leaders are better prepared to champion sustainability initiatives, influence and respond to policy changes, and drive innovative solutions that align with long-term environmental goals. These enhanced skills and insights equip participants to make more informed decisions, fostering a culture of sustainability that resonates throughout their organisations and the wider supply chain.

ISAP Training

511 ISAPs renewed their Infrastructure Sustainability Accredited Professional (ISAP) status, and we welcomed 355 new ISAPs to the community. We closed out FY24 with 866 professionals who are enabling organisations to make data-driven decisions, identify areas for improvement, and demonstrate genuine progress toward sustainability goals through the implementation of the IS Rating scheme.

IS for Professionals

In the practitioner's space the ISC worked with pilot projects and Technical Working Groups to develop and release two additional elements of the IS for Professionals Pathway: IS Planning training and the IS Essentials training toolkit. The 200+ individuals who undertook this training demonstrate the sector's commitment to embedding sustainability early and driving outcomes across all asset types and sizes.

Future of IS Capability Building

The ISC is working to enable a future in which infrastructure sustainability is both an established discipline, and a core component of every role in every organisation. We are building this future through partnerships that unite government, industry, education, and sustainability professionals. Through these partnerships we will work to shape a skills-based industry where every individual is empowered to contribute to a sustainable future.

The IS Rating Scheme

Leadership | **Market Transformation**

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 throughout Australia and Aotearoa New Zealand.

Registrations and Certifications in FY24:

FY24 saw a record 58 new rating certifications awarded under the IS Rating Scheme, bringing the total of IS certifications to 217. The scheme's benchmarks for industry drive performance and deliver verified sustainable outcomes. Each project is rated against the potential 100 points available, with a further 10 points for innovation credits. This year the first two IS Version 2.1 projects were certified, both achieving bronze awards.

	FY18	FY19	FY20	FY21	FY22	FY23	FY24	TOTAL
Registered projects	25	23	41	49	61	49	39	**287**
Certified projects	9	17	22	19	47	45	58	**217**
Capex registered projects ($M)	16,581	9,060	12,367	20,490	36,688	58,982	34,303	**188,471**

Innovations

10 additional points are available in the IS Rating Scheme for innovation. This credit rewards innovation in technologies, processes or methods which deliver significant sustainability benefits, at the regional, national or world level. Incentivising innovation with these credits begins the ISC's market transformation process which is described in more detail on page 30 as well as evidence of market transformation related to sustainability outcomes and defined innovation challenges. The FY24 total of 57 innovations continues the momentum from FY23 in which 53 innovations were certified.

LEVEL OF INNOVATION	Total FY18-24	FY24
World First	10	**1**
National First	136	**30**
Regional First	134	**26**

Project performance data

Circular Economy Outcomes

Each year, we monitor circular economy and resource use outcomes for IS As Built certified projects. In FY24, there were 26 As Built certified projects (listed in the appendix). Of the reported projects, 15 were rail projects, nine road projects, one water project and one airport project.

		Tonnes (FY24)	% (FY24)
Sourcing / Use	Materials with sustainability credentials		96% of projects; range <1% to 73% of material spend)
	Recycled asphalt (RAP) content		14.09%
	SCM content in concrete binder 1		30.32%
	Recycled aggregate content		66.25%
Efficiency	Reduction in asphalt from base case	521,126.97	21.87%
	Reduction in concrete from base case	113,972.20	9.29%
	Reduction in steel from base case	8,441.60	9.66%
Resource Outputs	Resources (waste) diverted from landfill	34,933,520.12	99.92%
	Spoil re-used on or off site	34,609,536.08	99.96%
	Material reused or sent for further treatment	317,427.27	96.03%
	Office waste further processed	6,556.77	88.11%

Resource Efficiencies

Resource efficiency data is tracked on an annual basis and cumulatively. The annual data is based on the sum of the As Built projects certified in that year. The resultant numbers are impacted by several factors including the size and scale of the projects, as larger projects tend to dominate the overall results due to their substantial quantities of energy, water, and materials, and the type of projects, such as rail, road, airport, or water infrastructure, and their locations, whether in different countries, states, or regional versus metro areas. Outliers can skew the results in any given year.

Market awareness and adoption of sustainable products and practices have increased, in large part due to ISC's continuing influence, and this heightened awareness has driven the market to improve Business as Usual (BAU) products and practices. The gap between BAU and actual improvements may narrow until new approaches or innovations emerge.

Resource Efficiencies across IS Certified As Built projects FY18-FY24 (99 Projects)

	FY18	FY19	FY20	FY21	FY22	FY23	FY24	ALL (%)	ALL
Lifecycle materials emissions avoided (tCO2e)	29%	7%	5%	10%	16%	30%	20%	**14%**	**1,352,812**
Construction energy emissions avoided (tCO2e)[1]	-3%	-1%	-46%	24%	8%	31%	18%	**3%**	**124,903**
Operating energy emissions avoided (tCO2e)	23%	9%	89%	5%	37%	44%	62%	**59%**	**23,421,072**
Lifecycle energy emissions avoided (tCO2e)	22%	7%	85%	6%	27%	41%	50%	**54%**	**23,545,975**
Construction water use avoided (ML)	0%	10%	47%	55%	18%	25%	20%	**33%**	**7,553**
Operating water use avoided (ML)	47%	73%	49%	41%	25%	42%	12%	**37%**	**15,446**
Lifecycle water use avoided (ML)	36%	52%	49%	49%	24%	36%	16%	**35%**	**23,000**

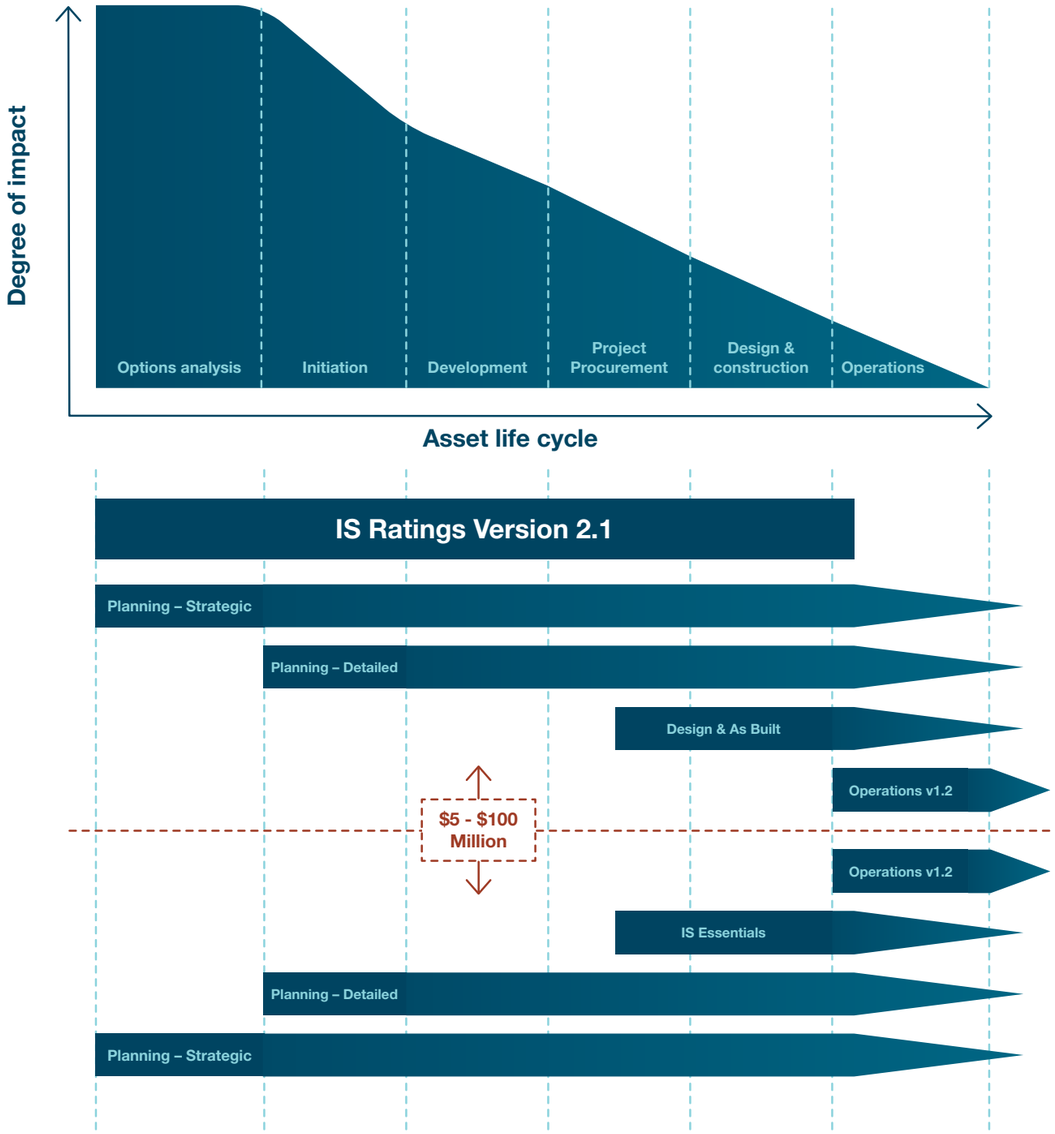
[1] Includes additional sources such as land use change and fugitive emissions

The IS Rating Scheme

The Infrastructure Sustainability (IS) Rating Scheme has been designed to help infrastructure deliver the best possible environmental, social, and economic outcomes. By the end of FY24 some 405 projects with $382 billion of assets had either registered for or completed an IS Rating.

All IS Rating tools are created and run by the ISC with direct member involvement at every stage of development and review. IS Rating tools are used to independently assess and reward beyond compliance sustainability at each stage of the asset lifecycle, from early strategic planning through to design and construction and into the operational phase.

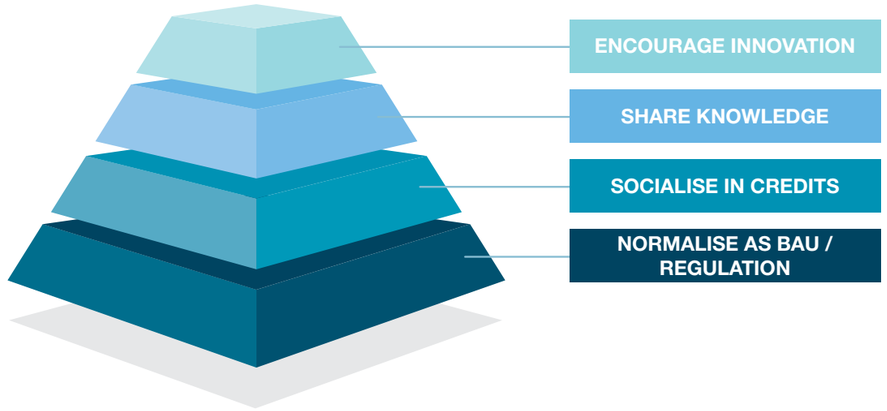
IS Ratings and the sustainability opportunity curve



Scheme intent

The Scheme aims to advance infrastructure sustainability by providing a framework for planners, designers, builders, owners, operators and investors, to enable decisions that optimise the governance, environmental, social and economic outcomes of infrastructure projects. These have typically been larger projects with a capex of more than AUD$100 million. The scheme is designed to deliver more sustainable infrastructure outcomes through an evidence-based assessment and independent, third-party verification process.

The scheme also plays a key role in the ISC's actively-managed pathway for whole-of-market transformation. The credits around innovation are designed to encourage the development of new approaches and materials. The ISC celebrates and raises awareness of these innovations with its membership and the wider ecosystem through an awards programme, case studies, training, events and webinars. They are then socialised as "best practice" through the rating tools, and normalised as "better BAU" when the ratings are upgraded – as has occurred this year with the closure of IS Design & As Built Version 1.2 and the launch of the strategic component of IS Planning Version 2.1. Finally, what began as innovation on a single project becomes standard BAU, which is eventually codified as mandatory when Government agencies enshrine them in formal regulation.



Scope of the Rating Tools

Every stage of the infrastructure asset lifecycle - from strategic planning and early business case development to design, construction and operations - is covered by an IS Rating tool. First launched in 2012, Ratings are being delivered in every jurisdiction across Australia and New Zealand and all major linear infrastructure asset classes. Projects are assessed on evidence supplied under 16 categories that cover 15 of the 17 UN Sustainability Development Goals (SDGs). As each SDG is supported by a number of sub -goals, so the IS Ratings categories are broken down into 36 credits, which require project teams to attain a prescribed level of "beyond compliance" attainment on a specific aspect relating to that category.

Governance	Environment	Social	Economic
Place	Energy & Carbon	Stakeholder Engagement	Options Assessment & Business Case
Leadership & Management	Environmental Impacts	Legacy	Benefits Realisation
Sustainable Procurement	Resource Efficiency	Heritage	
Resilience	Water	Workforce Sustainability	
Innovation	Ecology		

Developing and Managing the Ratings Tools

The IS Ratings tools are developed by the ISC in close collaboration with its members across all stages of the value chain and the asset life cycle. The intention is to ensure that the process and attainment levels of the Ratings tools achieve the fine balance between recognising the practical realities of the market and a worthwhile degree of "beyond compliance" ambition. The ISC manages this process through its Technical Working Groups, in which members and ISC work collectively to draft and review changes. These reviews address both specific credits as well as entire tools. All major decisions are referred to the ISC Board and its committees, many of whom are Executive-level representatives of the ISC member organisations. More details on the Technical Governance Framework can be found on the ISC website.

The Rating Process

Each project team conducts a materiality assessment to determine the credits that are most relevant to the particular circumstances. Every rating, regardless of which phase it addresses, assesses the sustainability performance of the project against its individual "business as usual" baseline. This baselining and the breadth of measurement points across the governance, social, economic and environmental dimensions differentiate IS Ratings from other infrastructure assessment tools.

The IS Ratings program is supported by a cohort of Infrastructure Sustainability Accredited Professionals (ISAPs) that are trained and accredited by the ISC but work for the delivery agencies, contractors and consultancies that deliver the projects. Their role is to manage the process of developing the BAU baseline, conduct the materiality assessment to select the appropriate credits and work with the project teams to deliver the desired level of attainment. The ISAP then provides the necessary evidence of attainment to an independent third-party verifier (who must also be an ISAP) to secure a Certified IS Rating.

Each project is overseen by an ISC Project Manager, who assists with interpretation of the tools and credits and they in turn are supported by a Technical Review Panel that can make case-by-case determinations (rulings) that may subsequently be extended as general rulings to provide clarity for other projects tackling the same/similar issues.

Key Benefits and Value Proposition

Organisations in many sectors, including infrastructure, are facing increasing pressure to improve data relevance, precision and reliability. These pressures have intensified as recent Australian Securities and Investments Commission and Australian Prudential Regulation Authority rulings around sustainability claims and disclosure requirements have been further elevated by the requirements of the Australian Sustainability Reporting Standards that took effect from 1 January 2025.

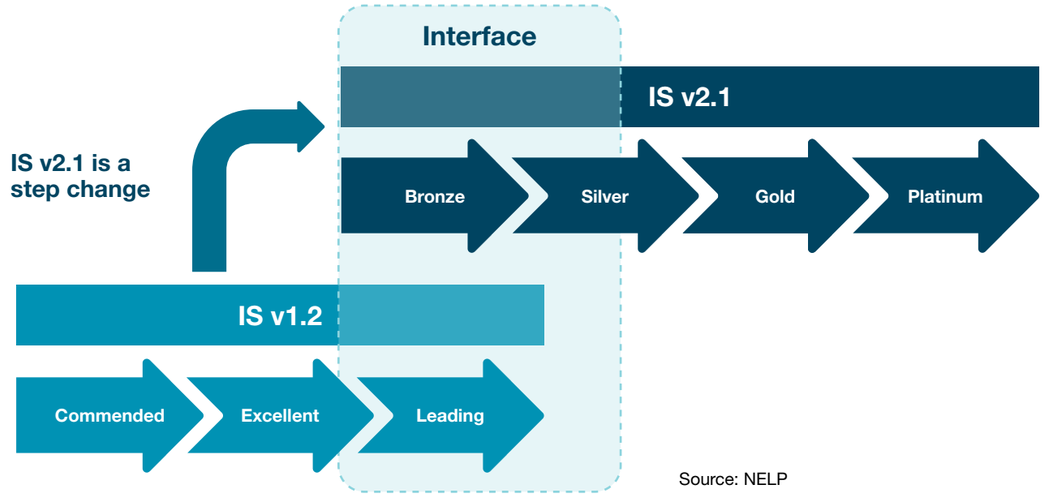
The IS Rating tool and verification process provides direct accountability and highly trusted third-party endorsement. The increased focus on internal governance procedures in IS v2.1 supports and encourages the normalisation of internal cultures that help companies address the risks and opportunities around newly regulated ESG disclosures, greenwashing, investor expectations and director's fiduciary responsibilities.

The Transition from Version 1.2 to Version 2.1

The benefit of the IS governance commitment to continuous improvement lies in the continual re-assessment of benchmarks and industry best standards, using project data and industry/member engagement to justify a ratcheting up of performance.

The transition from Version 1.2 to Version 2.1 across the rating tools (Planning, Design & As Built + Essentials) has been the most comprehensive overhaul of the IS Ratings since inception. The developments were made to tackle the most pressing issues of this decade – climate change, biodiversity and social challenges – aspects which the Infrastructure Investment Policy clearly identifies as its priorities of sustainability. Such a step change, and incorporation of all lifecycle stages, has required a recalibration of credit criteria, credit benchmarks and a necessary change in approach to the rating process, and expectations of the number of attainable credits of the rating from all participants – how this affects a rating can be seen in the image below from the NELP project team.

Reframing expectations around rating scores



Source: NELP

Recognising that some 80% of the infrastructure pipeline comprises projects under $100m in capex, the ISC formally launched a new tool, IS Essentials, for such projects, which offers project teams the opportunity to select fewer and the most directly material. This approach promotes flexibility and working at project-appropriate scales, while retaining the rigour for which ISC's ratings tools are known.

Case Studies

The case studies included below are intended to provide deeper insight into some of the key issues for the industry that were raised earlier in the report.

Policy & Regulation

The two case studies in this section focus on key areas of policy. The first - Mott Macdonald's introduction to the PAS2080 global carbon management specification, is already integrated into IS Planning, IS Design & As Built and IS Essentials (Version 2.1). PAS2080 is now required by Infrastructure New South Wales and Infrastructure Victoria as key components of their decarbonisation policies.

The second – which outlines how ecologiQ's work in implementing the Victorian Government's much admired Recycled First Policy, is an important precedent for other jurisdictions facing the challenge of turning policy into practice which in turn drives sustainable outcomes for infrastructure.

Innovative Materials

According to the CEFC/ ISC/ GBCA Report: *Australian Building and Infrastructure: Opportunities for cutting embodied carbon* steel, concrete and asphalt collectively comprise between 84 and 96% of the embodied emissions of major infrastructure projects. These case studies provided by Infrabuild, Holcim, and Downer respectively showcase some of the newest and most sustainable materials upon which the great majority of infrastructure projects now depend.

Material Reuse

Noting the policy focus on embodied carbon, recycled materials and circularity in DCCEEW and DITRDCA, the three case studies from OMTID, as a delivery agency, and the contractor alliances responsible for Melbourne's M80 Ring Road and the Tonkin Gap Freeway, provide deep dive information on how new policies, methods and materials are enabling increased usage of recycled content and consequently achieving embodied carbon reductions.

Optimising project delivery

The final case study from CPB Contractors highlights how comprehensively contractors and delivery agencies with substantial ambition, expertise and engagement skills have addressed the full gamut of sustainability issues to deliver industry-leading performance against Version 1.2 of the IS Ratings. Without explicitly saying so, it also highlights the importance of the new IS Ratings tools, which offer a step change in the level of ambition to appraise, plan and deliver infrastructure that delivers even greater value to the communities we serve.

Image credit: Infrabuild

Policy and Regulation

PAS2080: Laying the foundation for whole of life carbon management

Mott McDonald

On 22nd August 2024, the Australian Senate passed a bill introducing mandatory climate reporting for large and medium-sized companies beginning in 2025. This requires companies to disclose their total greenhouse gas (GHG) emissions for the first time. Introducing mandatory reporting is part of the Australian Government's Sustainable Finance Roadmap to support the mobilisation of private investment to finance the transition to a net zero economy. This is to support Australia achieve its commitments in the Climate Change Act 2022 to reduce GHG emissions by 43% below 2005 levels by 2030, and net zero by 2050. For many companies, mandatory emissions reporting will mean they must begin measuring their total GHG emissions. Now that companies will have visibility of their emissions footprints, they will have a better opportunity to manage and reduce them.

In addition, in August, Infrastructure Australia released its Embodied Carbon Report which, based on information in its National Infrastructure Project Database, provides a view of Australia's GHG emissions. Based on 2023 data, the report highlights that infrastructure and buildings emissions account for 57% of Australia's national emissions, with embodied carbon from building activity contributing 10% of the total national carbon emission. This is a sobering picture and highlights the need for projects in the built environment to reduce their GHG emissions. But how do they do this?

The PAS (Publicly Available Specification) 2080:2023 global carbon management specification, along with its guidance document, provides step-by-step guidance on how to reduce GHG emissions on projects and programs of work in the built environment. It does this by considering and managing whole life carbon as 'the sum of GHG emissions and removals from all work stages of a project and/or program of works within the specified boundaries'. This simplifies the spectrum of GHGs into a single unit of measure (carbon dioxide equivalent (CO_2e)). It also promotes whole asset life considerations when reducing infrastructure emissions. PAS 2080 explains how to integrate carbon into decision-making and procurement from project inception to end of life, enabling the decarbonisation of assets, networks and systems. The step-by-step guidance in PAS 2080 is tailored to sector leaders (asset owners/managers) and practitioner-level individuals in value chain organisations responsible for delivering infrastructure. The behaviours and good practice principles it endorses are intended to complement existing standards and guidance.

PAS 2080:2023 now incorporates seven years' of practice since it was first published and covers the whole built environment (infrastructure and buildings). Importantly, it now considers whole life carbon management within the context of the broader sustainability agenda and therefore recognises the need to manage other demands alongside carbon. This is reflected in the 5 decarbonisation principles that will drive effective and sustainable carbon management outcomes as shown in Figure 1.

Figure 1 The five decarbonisation principles endorsed in PAS 2080:2023 that will underpin effective and sustainable carbon management.

It makes it clear, through the carbon reduction hierarchy (Figure 2), that the greatest opportunity for reducing carbon is in the earliest stages of the project lifecycle when questions can be asked about what to build, how to build and, indeed, whether to build at all. These questions are easily explored when an estimate of the whole of life carbon emissions for the project or program of work is available.

Additionally, PAS 2080:2023 encourages the identification of co-benefits whilst exploring opportunities to reduce emissions. This can be achieved through prioritising nature, such as improving biodiversity net gain which can provide the added benefit of carbon reduction. Improved resilience to climate change is another co-benefit that can be delivered. With a whole of life view, owners should be looking to invest in low carbon yet resilient infrastructure.

Importantly, collaboration within an organisation and across its value chain is key to driving infrastructure carbon emissions down. This is because asset owners cannot achieve the ambitious GHG reductions our society needs on their own. It is a collective challenge that requires a shared commitment to vision, innovation and effective levels of transparency. All parties in the value chain must strive for market conditions that incentivise innovation and help optimise risk allocation so the shared ambition of decarbonising the delivery of buildings and infrastructure has the best chance of being realised. Finally, systems thinking is central to achieving decarbonisation. This is because the built environment is interconnected and composed of a 'system-of-systems', hence the importance of considering a systems-thinking approach in the context of carbon management and reduction.

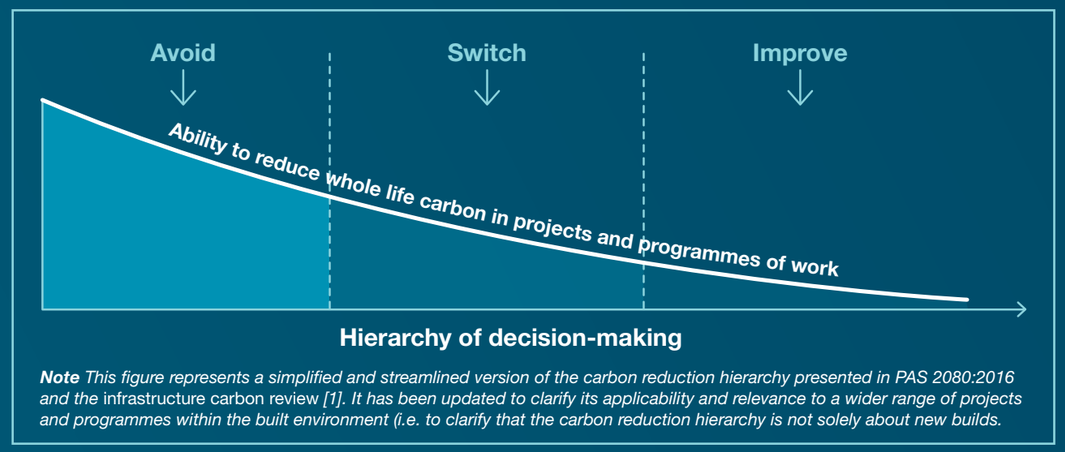


Figure 2 The carbon reduction hierarchy from PAS 2080:2023.

Infrastructure owners and managers across the globe are using the guidance in PAS 2080 to mature their carbon management and work towards a net zero economy, and we are now starting to see carbon management efforts in Australia align more closely with PAS 2080:2023. At the strategic level, the NSW Government has aligned its Decarbonising Infrastructure Delivery Policy with the ambition of PAS 2080:2023 to embed good practice carbon management practices upfront for NSW Government Agencies. This exemplar Policy and the supporting Technical Guidance are helping drive a national transition towards consistent carbon measurement and management in infrastructure planning and delivery. Additionally, across sectors we are seeing organisations getting familiar with considering whole of life carbon and exploring how they can incorporate carbon considerations into the project lifecycle decision-making.

Policy and Regulation

ecologiQ optimising the use of recycled and reused materials as Victoria transitions to a circular economy

Introduction

The Victorian Government's ecologiQ program was launched to respond to Victoria's waste crisis and to leverage the opportunities created by an unprecedented investment in transport infrastructure.

ecologiQ's first task was to lead the development and implementation of the Victorian Recycled First Policy, which was released in March 2020. This Australian-first policy requires all tenderers on Victoria's major transport infrastructure projects to demonstrate within their bid how they will optimise the use of recycled and reused materials at the levels allowed under current standards and specifications.

Tenderers can also identify opportunities to trial new innovative products or opportunities to boost recycled and reused material quantities within existing standards and specifications.

Successful tenderers must report against their Recycled First commitments during delivery. This ensures recycled and reused materials are considered over virgin materials and will divert valuable materials from landfill.

The objectives of ecologiQ are to:

1. Contribute to a Victorian circular economy by increasing the use of Victorian reused and recycled materials, and reducing waste in transport infrastructure construction.
2. Encourage innovation in transport infrastructure construction to improve quality and accelerate the implementation of new Victorian recycled products.
3. Support a vibrant and sustainable Victorian market for reused and recycled materials in transport infrastructure construction.
4. Reduce, re-use and recycle materials without compromising the delivery of safe, high-quality and sustainable infrastructure.

ecologiQ supports delivery and reporting, connects suppliers with project teams and educates stakeholders on the use of recycled materials and the large range of implementation opportunities.

This has included two very successful national conferences in both 2022 and 2023, where suppliers of recycled and reused materials were able to connect with project teams and showcase the latest and greatest innovations.

> *"ecologiQ has overseen the delivery of nearly two MCGs-worth of recycled materials across our projects, as well as cutting-edge sustainability innovations such as the competition implemented by Project Beacon."*
>
> **Alexis Davison,** Executive Program Director, Major Road Projects Victoria

Background

Since 2020, ecologiQ has facilitated the delivery of over 4.5 million tonnes of recycled materials across the Victorian Big Build Projects, from metropolitan road upgrades in Melbourne's South East to regional rail line upgrades across the State.

ecologiQ has supported a range of initiatives aimed at driving uptake of recycled materials across the construction sector, such as 'Project Beacon.' Project Beacon is a partnership between ecologiQ, the Level Crossing Removal Project's (LXRP) Urban Design Advisory Panel (UDAP), the local council, and the North Western Program Alliance (NWPA) which comprises of LXRP, Metro Trains Melbourne (MTM), John Holland Group (JHG) and Kellog Brown and Root (KBR).

Impact Delivered

Project Beacon resulted in a 'Recycled First Competition' that challenged suppliers of emerging recycled materials to pitch their solutions for use in the urban realm at Keon Parade. The aim was to increase the pace of materials adoption, optimise the use of recycled materials and solve the key challenges of using recycled products on infrastructure projects.

Between 2021-2024, five strategic partnerships between NWPA and key suppliers were established, and successfully demonstrated that their products could achieve technical, safety, social, environmental and economic outcomes that would contribute to Keon Parade becoming LXRP's first 'Recycled First Precinct'.

Using the Recycled First policy as a lever, Project Beacon supported investment in the recycled economy, and removed barriers of bringing recycled products to market across LXRP and Victoria Infrastructure Delivery Authority (VIDA) projects.

Outcomes and Opportunities

The benefits of taking a holistic approach with Project Beacon can't be overstated. Key outcomes of the initiative included:

- Approval of five new recycled products for ongoing use across the entire MTM network
- Utilising Robovoid, a recycled plastic void filler used for the first time on a bike parking concrete slab. This led to a 38% reduction in concrete volume where the product was applied. 1200 recycled plastic void cones were used, diverting over 7kg of recycled plastic/m2.
- Working with Curvecrete to create geopolymer concrete bench seats, reducing carbon emissions by 90% compared to normal LXRP seats
- >5000m^2 of recycled plastic aggregate (Resin8 and Future Aggregates) used in the precinct concrete paving

Project Beacon has provided a roadmap for other projects and industries to engage with suppliers and develop their own process to enable the procurement and application of recycled products and materials.

With major transport infrastructure projects such as the North East Link Project and Suburban Rail Loop East ramping up and coming online, this provides a crucial example of what can be adopted moving forward.

Challenges / Lessons Learned

ecologiQ has pioneered the way that recycled and reused materials are viewed and used by project teams and contractors delivering some of Victoria's largest transport infrastructure projects.

The importance of ongoing education has emerged as one of the key learnings from implementing the Recycled First policy. ecologiQ dedicate significant time to educating contractors, government bodies, the supply chain and project teams on the latest innovations in the recycled material landscape through case studies, lunch and learns, conferences and other events.

Project Beacon demonstrated that challenges can be overcome through effective supplier engagement, confirmed investment and a strategic pathway to market. Infrastructure projects are able to find amazing ways to integrate recycled products into a project, change perceptions of utilising alternative materials and incorporate these products at a much wider scale.

Innovative Materials
Infrabuild – Steel

Image credit: Infrabuild

InfraBuild's SENSE 600®: Shifting the dial on Decarbonised Reinforcing Steel.

In the landscape of increasingly sustainable infrastructure assets, InfraBuild's new SENSE Solutions® product range is redefining innovation and environmental responsibility for reinforcing steels. Leading with SENSE 600®, InfraBuild's new reinforcing steel not only provides the opportunity to reduce the mass and embodied carbon of reinforcing steel used in Australian infrastructure projects, but it also meets a number of key sustainability certifications in the ISv2.1 ratings tool. For sustainability professionals, asset owners, designers and contractors, SENSE 600® offers a compelling case for integrating innovative steel solutions into their infrastructure projects.

A lower embodied carbon construction solution, SENSE 600®

SENSE 600® optimises high-strength steel with an innovative bar design, to deliver significant sustainability benefits over our existing 500N grade reinforcing steels. One key benefit is the use of up to 16.7% less raw material while still providing the same load capacity versus InfraBuild's standard 500N reinforcing steel, making it easy for the construction industry to specify and use.

Made from 100% scrap steel, SENSE 600® can also deliver a reduction in embodied carbon (GWP) of up to 39% compared to InfraBuild's 500N reinforcing steel.

Making change without changing how you do things

InfraBuild has ensured that SENSE 600® meets the requirements of AS 5100.5 (bridge code), AS 3600 (concrete code) and AS 2159 (piling / foundations code), which are all critical for design and construction of infrastructure projects. SENSE 600®'s demonstrated compliance ensures that it can be confidently used in these critical infrastructure projects, providing engineers and contractors with the assurance that they are using a product that meets the relevant Australian Standards.

Environmental Product Declaration (EPD) and Reduced GWP

InfraBuild has released updated Environmental Product Declarations (EPDs) for both its 500N and SENSE 600® reinforcing bar products, showcasing the reduced GWP of both products. The SENSE 600® EPD demonstrates how it delivers up to a 39% reduction in embodied carbon compared to our 500N reinforcing steel when the full 16.7% mass reduction of SENSE 600® is achieved. This significant reduction in GWP makes SENSE 600® an innovative option for projects aiming to minimise their environmental footprint.

Further delivering to the sustainability focus of the brand, the EPD also showcases the product's high degree of material circularity. As SENSE 600® is only made at InfraBuild's Electric Arc Furnace (EAF) based mills in Australia from 100% scrap steel, SENSE 600® has a high Material Circularity Indicator (MCI) metric of 0.898, or up to 0.915 when the full 16.7% mass reduction of SENSE 600® is achieved.

The high recycled content and high material circularity of SENSE 600® is a key component of sustainable construction practices, ensuring that materials can be reused and repurposed, thereby reducing waste and conserving natural resources.

Sustainability Certification and the ISv2.1 Ratings Tool Credits

InfraBuild has looked to ensure that the SENSE Solutions® range not only provides the opportunity to reduce the mass and embodied carbon of the reinforcing steel that goes into your projects, but also that it can support an ISv2.1 rating, in several ways.

SENSE 600® has a **Good Environmental Choice Australia (GECA) certification**. This certification ensures that SENSE 600® meets rigorous environmental and social criteria, providing assurance to sustainability professionals that they are choosing a product that aligns with best practice in sustainable construction. GECA is a recognised Type I Ecolabel in the ISv2.1 ratings tool and can contribute to a project's IS rating through Rso-7 (Sustainability Labelled Products and Supply Chains).

In addition to GECA certification, SENSE 600® also supports Rso-6 (Material Life Cycle Impact Measurement and Management) with its reduced GWP as reported in the SENSE 600® EPD.

InfraBuild's inclusion in the **ISupply products directory** means that using SENSE 600® can contribute to the Responsible Products credits, supporting the achievement of up to 0.75 IS points.

ISv2.1 also provides projects the opportunity to gain IS Credits from the use of products with a Material Circularity Indicator (MCI), such as SENSE 600®.

Conclusion

InfraBuild's SENSE 600® raises the bar with innovation in the realm of easy-to-use sustainable construction materials. Its innovative design, compliance with Australian Standards, and significant sustainability benefits make it an ideal choice for IS rated projects.

With its reduced GWP, high recycled content and MCI metrics, and certifications recognised by the ISv2.1 ratings tool, SENSE 600® supports the needs of modern sustainable infrastructure projects. As the industry continues to evolve to match new demands, designs and criteria, products like SENSE 600® will play a crucial role in building a more sustainable future.

Image credit: Infrabuild

Innovative Materials

Holcim: Introducing Low carbon GGBFS Solutions to the New Zealand Construction Market.

> *"Holcim is determined to play its part in accelerating low-carbon and circular construction to enable New Zealand to meet its emissions budgets through its global cement, alternative aggregates, and ready-mix concrete innovation, global purchasing power, and low-carbon building solutions."*
>
> **Michael Miller,** Executive General Manager

New Zealand's built environment contributes 20% of emissions [NZGBC] through both embodied emissions in construction materials and building, combined with operational emissions. In response, New Zealand's concrete industry has set a pathway to 44% less embodied carbon from concrete by 2030 (Concrete NZ Roadmap to 2050) and is primarily dependent on the adoption of supplementary cementitious materials (SCMs) to achieve this. Significant investment in New Zealand was required to allow a reliable supply of SCMs and ability to supply General Blended cement solutions.

Holcim launched a new multi-million dollar, low-carbon cement replacement facility at the Ports of Auckland in April 2023. This facility produces Ground Granulated Blast Furnace Slag (GGBFS), to create Holcim ENVIROCore 100, which can be used to replace up to 75% of General-Purpose Cement in concrete while achieving similar or improved concrete performance. GGBFS is a by-product from the manufacture of steel and helps decarbonise concrete whilst also improving its durability.

By supplying ENVIROCore 100 to the market, Holcim is helping decarbonise the New Zealand construction industry's ability to achieve low-carbon outcomes.

Holcim's introduction of ENVIROCore 100 has allowed its own ready-mix concrete business to launch ECOPact; the world's broadest range of low-carbon concrete. While combining the very best qualities of conventional concrete, ECOPact offers from 30-70% lower carbon emissions compared to the Australian National Life Cycle Inventory Database (AusLCI) value for ordinary Portland concrete. It is available in a variety of strength classes and is compliant with industry standards. It can be handled, pumped, and finished just like conventional concrete.

Leveraging off its global knowledge in delivering real emissions reductions through proven, innovative, and emerging technologies, Holcim has increased its industry supply of ENVIROCore 100 and other SCMs from 2.5% to 9% within the first half of 2024 for its cementitious supply, which in turn is helping in lowering the NZ built environment emissions through genuine decarbonisation.

Holcim's launch of ECOPact in New Zealand, follows the success of ECOPact in Australia in 2021, which was the first ready-mix concrete product to provide a minimum level of embodied carbon reduction and an embodied carbon number backed by a 3rd party verified Environmental Product Declaration. The introduction of ECOPact into New Zealand aligns with Holcim's commitment to sustainability and its goal of leading the industry's transition towards a more environmentally responsible future. By drawing upon the lessons learned in Australia, Holcim is able to confidently offer ECOPact to a broader New Zealand customer base, empowering them to make more sustainable choices in their construction projects.

Both ECOPact and ENVIROCOre are supported by the rigorous third-party verification process for their Environmental Product Declarations (EPDs), publicly published with EPD Australasia, which gives customers transparent and reliable data, allowing customers to evaluate the environmental impact of their projects accurately. Environmental Product Declarations (EPDs) have become the global standard for disclosing environmental performance and play a pivotal role in advancing the decarbonisation of the built environment by providing transparent and credible information about the environmental impact of construction materials and products. These declarations offer comprehensive data on factors such as carbon emissions, energy consumption, resource depletion, and waste generation associated with the entire lifecycle of a product – from raw material extraction through production, use, and disposal.

Knowledge and education are key to decarbonising the construction sector. Holcim has been working extensively in this area through engagement and training sessions with architects, engineers, and construction professionals through the use of case studies and empirical data to demonstrate practical examples of environmental benefits. Holcim has been helping transfer knowledge and best practices gleaned from both global and local experiences to the New Zealand construction industry at all levels (from government, local government, industry bodies, architects, engineers, and local ready-mix and precast industries). These targeted training sessions and masterclasses ensure clarity in implementing low-carbon products and maximise their impact on the industry's carbon footprint.

Holcim has had a long-term commitment to sustainability. Since 2018, Holcim has maintained a key presence at ISC Connect, both as a conference sponsor as well as industry leader in driving sustainable construction. Holcim is the first concrete company in Australia to develop an Environmental Product Declaration (EPDs) for its product range and has continued the journey, with commitments to advancing sustainability across our operations. In alignment with international climate goals, Holcim was the first in its sector to set ambitious science-based emissions reduction targets for 2030 and 2050, validated by the Science Based Targets initiative (SBTi). These targets are a crucial part of our strategy to ensure that our operations contribute meaningfully to global efforts to mitigate climate change, underscoring our dedication to a more sustainable future.

Holcim is committed to help their customers reduce the footprint of their buildings and infrastructure to build better, and more, with less. So, together we can build progress for people and the planet.

NZGBC, A Zero Carbon Road Map for Aotearoa's Buildings, dated September 2019.
https://cdn.ymaws.com/concretenz.org.nz/resource/resmgr/docs/cnz/c_roadmap_concrete.pdf

Innovative Materials
Rosehill (HRT) Asphalt plant

Overview

Downer's Sustainable Road Resource Centre in Rosehill NSW is a state of the art asphalt facility with planning approval for a co-located bitumen production facility, with resource recovery operations that produce asphalt raw material inputs from road waste (reclaimed asphalt pavement and road sweepings/ non-destructive diggings).

Downer is pioneering efforts to apply innovative technology to produce high performance road pavement materials that incorporate a substantial component of repurposed material and has several Australian firsts to its name. The new Ammann RAH100 High Recycled Technology (HRT) asphalt plant at Rosehill, is capable of producing asphalt comprised of up to 100% recycled asphalt pavement. The asphalt plant is energy efficient, has stringent and effective emission controls that exceed the highest European standards, is completely automated to ensure a high quality of product, and can use significantly less raw materials in the production process.

Plant Benefits

Because the largest constituents of asphalt are aggregates and bitumen it makes sense to use recovered aggregates where possible and blend other repurposed materials into the bitumen binder. Co-location of these resource recovery facilities with asphalt production on a single site maximises the re-use of various waste types, not only allowing assisting construction projects to meet decarbonisation targets and goals, but also avoiding large quantities of materials ending up in landfills. Additional unique benefits to the road industry supply chain also include:

- Reducing the amount of virgin resources that need to be extracted (270,000 tpa of raw material recovered from road waste)
- Reducing the amount of landfill space required to permanently dispose of waste (290,000 tpa of waste material diverted from landfill)
- Reducing the amount of heavy vehicle traffic and associated emissions on the already congested Sydney roads
- Reducing the cost of asphalt and the associated road programs on which it is used

More Sustainable Asphalt

The use of recycled materials in asphalt has allowed Downer to develop it's Reconophalt Range of asphalt. Reconophalt is the naming convention given to Downer's asphalt product range which incorporates repurposed post-consumer products, and can contain different percentages of the following recycled products:

- Recycled Asphalt Pavement (RAP)
- Crushed glass
- Soft Plastics
- Toner from used printer cartridges.
- Detritus Aggregates & Sand
- Recycled Oil

In addition to Downers Reconophalt Range of Asphalt, the plant can also produce a range of High-RAP Asphalt mixes, which maximise the benefits of the Plant.

A recent Environmental Product Declaration (EPD) covering Downers Reconophalt and High-RAP Asphalt produced from the Rosehill Plant has shown that there can be over 50% reduction in embodied carbon emissions when compared to standard asphalt mixtures.

Not only is the resulting product produced significantly lower in embodied carbon, but it also has superior fatigue and rut resistant properties as demonstrated in test results from the first Reconophalt trial conducted in in Sydney on the Old Princes Highway, Engadine.

Since the commencement of operations at the site in 2022, Downer has successfully supplied high recycled content asphalt to more than 15 local council areas, as well as various state road projects, and Downer continue to look to meet the demands of today and tomorrow in and around Sydney.

Robust Environmental Management Practices

Despite partly being a recycling facility, under NSW legislation the site is required to manage the movement of materials in a similar manner to landfills. Given this, the site has robust entry and exit requirements which minimise the risk of unwanted or unapproved materials from entering site. In addition, it allows the site to have an accurate understanding of the amount of material onsite at any one time.

In addition to material management controls, the site has also been developed with environmental control measures in place including, but not limited to:

- A site wide dust suppression system to minimise dust generation onsite.
- Enclosed plant and materials, limiting noise and odour impacts to offsite receivers.
- Multiple water catchment and treatment devices operating at all times, allowing any discharge from site to be captured, treated and re-used if necessary.
- Emission capture technology, which removes pollutants from the asphalt plant stack prior to release.

In summary, Downer's Sustainable Road Resource Centre at Rosehill applies innovative technology to produce high specification asphalt with lower embodied carbon and can incorporate a substantial component of recycled/recovered materials. As the largest constituents of asphalt are aggregates, sand and bitumen, it is more sustainable, and economical to use recovered aggregates and sand where possible and to co-locate these resource recovery and production facilities.

The capabilities of this facility are high, and Downer continue to innovate and improve the site to maximise benefits.

Material Re-use
OMTID

Introduction

The Office of Major Transport Infrastructure Delivery (OMTID) delivers complex transport infrastructure projects in Western Australia, such as METRONET rail projects on behalf of the Public Transport Authority (PTA) and major road projects on behalf of Main Roads Western Australia (Main Roads).

OMTID aims to promote waste recovery, utilising resource outputs for their highest value while minimising environmental impacts. In addition to project targets, OMTID has further optimised the reuse of materials through exchanging excess materials between projects, host agencies, and external parties.

To maximise the reuse of excess materials, there are multiple technical, commercial, and logistical challenges to overcome. Through extensive collaboration, OMTID has spearheaded the reuse of more than 1,000,000 tonnes of spoil, 52,600 metres of rail, 18,800 concrete sleepers and 65,000 tonnes of rail ballast.

Impact Delivered

OMTID constructs new rail corridors and road networks, as well as replacing existing rail and road infrastructure. Projects always seek to reuse materials onsite; however, some projects have surplus material at completion.

Early engagement in planning allowed project teams to be informed on material efficiency objectives. This proactive approach enabled OMTID to anticipate and address technical challenges to the reuse of rail materials. As a result, OMTID developed bespoke documents, including the Ballast Reuse Procedure - a standardised approach to ballast assessment to address potential contamination risk.

Strong messaging from OMTID's Executive Team, emphasising the importance of maximising material reuse, combined with the early engagement with project teams, is driving significant cultural change within the organisation. This cultural change, supported by the early technical work, positioned OMTID for success when addressing commercial and logistical aspects later in project delivery.

An example of the application of material reuse was for the METRONET Thornlie-Cockburn Link (TCL) project. It required the removal of over 62,000t of existing ballast. As the ballast rocks were smaller than modern specification required, they could not be reused as ballast. The TCL project team screened and crushed a portion of ballast and reused it as drainage rock. A separate OMTID project, the METRONET Victoria Park-Canning Level Crossing Removal[1], used 6,000t for geotechnical ground improvement works.

It was determined that the future Main Roads Tonkin Highway Extension project could use the remaining 56,000t ballast for road construction. The reuse of this material was included as a requirement within the procurement documents. This not only assures that the material will be used to its highest value, but also sends a signal to the market that material reuse is non-negotiable, driving cultural change in Western Australia.

[1] Delivered by the Armadale Line Upgrade Alliance consisting of ACCIONA Construction, BMD Constructions, WSP, and AECOM.

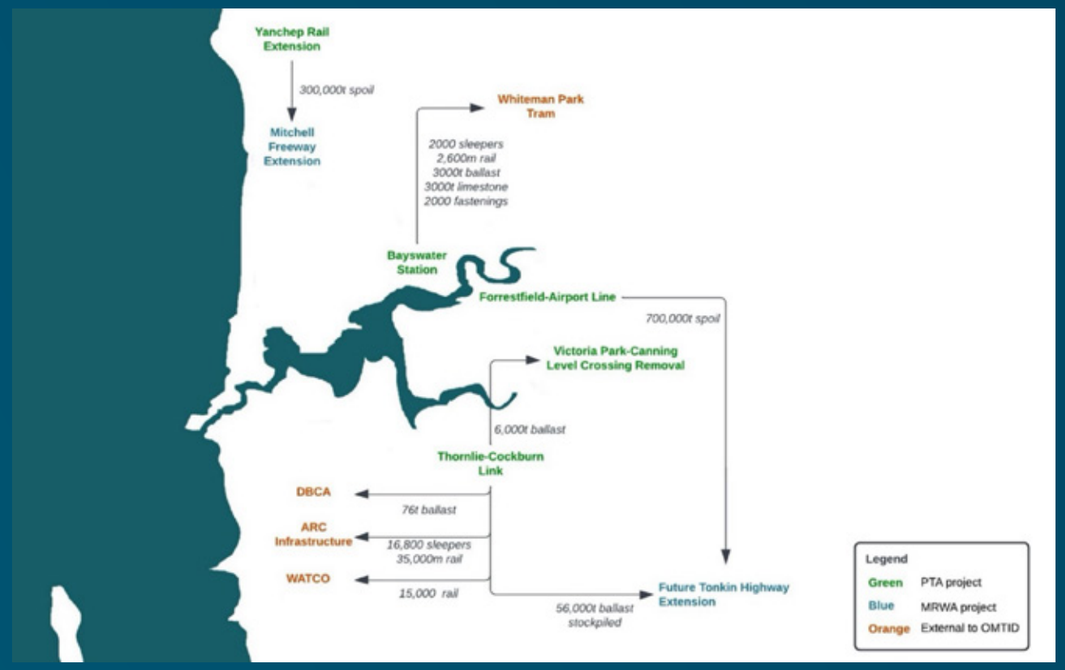


Figure 1 OMTID Material Reuse Project Locations and Material Reuse Quantities

Challenges/Opportunities

Collaborating on material reuse opportunities across projects with tight delivery timeframes was a key challenge. To allow collaborative reuse to occur, OMTID project teams worked with project delivery agents from TCL and the future Tonkin Highway Extension project to ensure they could utilise the material within their respective project timeframes.

There is an opportunity to create a clear process to facilitate sharing of materials between future projects. Given each project has unique requirements, varied material specifications, geographical locations and schedules, any standard methodology for sharing materials still requires flexibility to be customised for implementation.

OMTID has put measures in place to monitor the performance of the Tonkin Highway Extension project to determine how effective contractual mechanisms are in driving circular economy outcomes. Based on these results, OMTID will refine the approach to material reuse and improve processes to facilitate cross-agency collaboration.

Lessons Learned

- **Engage in early planning and enabling works to optimise material reuse.** Identify opportunities early, undertake technical investigations, and start commercial negotiations. Infrastructure project delivery faces significant time and cost pressures, and doing up-front work will ensure materials are reused to their maximum value.
- **Stakeholder engagement is key.** Build quality, collaborative relationships to ensure that challenges can be overcome together. This ensures communications aren't siloed at a project level and that tasks are shared and visible across the directorate.
- **Communicate success to drive cultural change.** Communicate lessons learned and successes internally and externally to maximises their influence and impact.

Together, the two agencies at OMTID have demonstrated that a collaborative approach is key to drive the circular economy across our projects and the industry. OMTID is uniquely positioned to be a leader in this space and will continue to drive best practice changes in industry.

> *"At OMTID we understand that we must not only be involved but lead the process to facilitate resource efficiency outcomes. Leveraging reuse opportunities allows us to capitalise on our scope of influence and leave a lasting legacy for our network users."*
>
> **Belinda Stopic,** Acting Executive Director Infrastructure Delivery

Material Re-use

Tonkin Gap Alliance: Future Proofing for the Circular Economy

Introduction

The path to sustainable development supporting electrification and reduced waste to landfill is paved with its own resource output challenges. Future waste streams from the processing of lithium and waste-to-energy have significant potential to be adopted widely into the infrastructure industry in Western Australia, supporting circular economy aspirations and providing local economic benefit.

The Tonkin Gap Alliance (TGA) has championed resource efficiency and innovation as part of delivering the Tonkin Gap Project and Associated Works, which reached practical completion in early 2024. Adopting a collaborative approach with industry and Main Roads Western Australia as the asset owner, TGA trialled two types of retaining wall blocks containing construction and demolition waste, with incinerator bottom ash aggregate (IBAA) from waste-to-energy, and delithiated beta spodumene (DBS) from lithium processing. Through leveraging existing relationships between local supplier WA Limestone, and both Covalent Lithium and Avertas Energy, TGA demonstrated continuous improvement in identifying and pursuing sustainable outcomes through the construction phase.

With waste-to-energy and lithium processing facilities newly, or soon to be, operational in Western Australia, the considerations of creating new markets for the subsequent resource outputs and garnering support within Main Roads for wider adoption in its assets was a priority for TGA. The Covalent Lithium refinery is expected to produce over 380,000 tonnes of DBS, while Avertas' two waste-to-energy plants will produce approximately 160,000 tonnes of IBAA.

Impact delivered

These initiatives delivered the following improved outcomes for the Project and, more broadly, to industry:

- **Trial with 36 IBAA blocks replacing virgin limestone:** Each IBAA block contains the equivalent of 105 standard 240L kerbside bins of residual incinerator ash. The 36 blocks trialled avoided **724.8 tCO_2-e** of landfill emissions. While it is difficult to quantify the direct IBAA to landfill emissions, the recovery of this material diverts at least a portion of the total material and associated emissions from landfill, and converts it to a valuable resource.
- **Reduction in the use of virgin limestone material for standard retaining wall blocks:** In this small trial, this equated to a **17t** reduction, which is easily scalable on major projects with substantial retaining and noise walls utilising limestone blocks.
- The trial is the first step to establishing symbiotic value-added pathways for lithium refining co-product outputs with neighbouring industries including product manufacture for infrastructure construction.
- The Project was awarded "Australia First" innovations credits under V2.0 of the ISC's Design and As-Built rating scheme.

Challenges/lessons learned

To implement both trials, three key issues needed investigation:

1. deviation from specification,
2. understanding any risk to the environment, and
3. visual appearance.

WA Limestone undertook quality and environmental testing to demonstrate that the performance of the trial blocks equalled traditional limestone blocks, and longer-term monitoring and testing has been undertaken by the source suppliers, Avertas and Covalent. The testing of these products in a bound, rather than unbound (e.g. fill) application has demonstrated negligible leaching of contaminants from the quantities used in the blocks.

Upon review, the Materials Engineering Branch at Main Roads approved the deviation from Specification 905 for a trial on the project, with the condition of painting the blocks to mimic the colour of the traditional blocks should they be visible to the public. Given this was a small trial, it is anticipated that future applications would require similar approvals.

TGA identified a location along the principal shared path for these blocks to be installed as part of a retaining wall. During installation, feedback from construction revealed no differences in workability compared to regular limestone blocks.

In the absence of a regulatory framework WA Limestone are continuing to work with partners to develop fit-for-purpose specifications and product certification.

The Tonkin Gap Alliance consisted of Georgiou, BMD, WA Limestone, GHD, BG&E, Public Transport Authority and Main Roads WA.

> *"The Alliance has demonstrated a commitment to integrating sustainability practices through our design and construction, which has contributed to innovative and industry leading outcomes. This trial showcases the potential in opting for non-traditional materials and highlights the importance of industry partnerships to drive positive change."*
>
> **Peter Hopfmueller,** Alliance Director

Material Re-use

M80 Ring Road Completion: A new approach to project circularity

M80 Ring Road Alliance (M80RR Alliance), a partnership between ACCIONA, MACA Civil and AECOM Australia, aims to create a fundamental shift in the way infrastructure projects are delivered, towards regenerative infrastructure for the community. Material circularity is a key thought-provoking strategy for the M80RR Alliance project to significantly reduce the carbon impact, increase local innovation and job opportunities.

To measure, communicate and compare the success of progress, M80RR Alliance developed a simple and low administrative methodology to calculate a whole of project Material Circularity Indicator (MCI).

Based on current calculations, the M80RR Alliance anticipates to deliver the project with a Material Circularity Score of 68% by identifying material flows and implementing best use opportunities for outputs. The process is captured in a detailed Resource Efficiency Action Plan (REAP), providing an engaging and structured approach to assess expected material stream inputs, estimated waste outputs, and linking the two.

Context

Project Overview

The M80 Ring Road Completion is a road infrastructure project designed to connect the M80 highway to the 'North East Link' tunnel project, effectively completing Melbourne's Ring Road. The new infrastructure will divert through-traffic under a new Grimshaw Street interchange and will create two landscaped bridges which will make it easier for locals to get to the Watsonia station, shops, and community spaces.

M80RR Alliance project at the time of writing is progressing towards detailed design phase, estimated for completion by 2027/28 and is targeting an ISC Design phase accreditation of 60 points or higher using ISC technical manual v2.1.

Drivers

The M80RR Alliance aims to progress towards more regenerative infrastructure for the community and environment, a key corporate objects of ACCIONA, one of the Alliance partners.

Decision-making for output best uses on the project has been enabled using an MCI. The MCI supports distilling complex material flows into a single number to represent success. This method to quantify material circularity uses objective data to highlight new opportunities and accountability for resource usage and wastage.

The M80RR Alliance has the following project targets to achieve in the delivery of the project:

- 95% by volume of inert and non-hazardous waste is diverted from landfill.
- 100% reuse of uncontaminated spoil, measured by volume.
- 31% use of Recycled Asphalt Pavement across all pavement types.
- 35% recycled content (excluding RAP)

Initiatives / Innovations

Establishment of Baseline Information

To conceptualise project material flows, resources required for project delivery are termed as 'inputs' while resource flows traditionally construed as waste, are termed as 'outputs'. Material circularity in this sense would essentially resemble a balancing of input and output.

The modelled inputs and associated outputs resulting from project delivery activities was then aggregated by material type (see Figure 1).

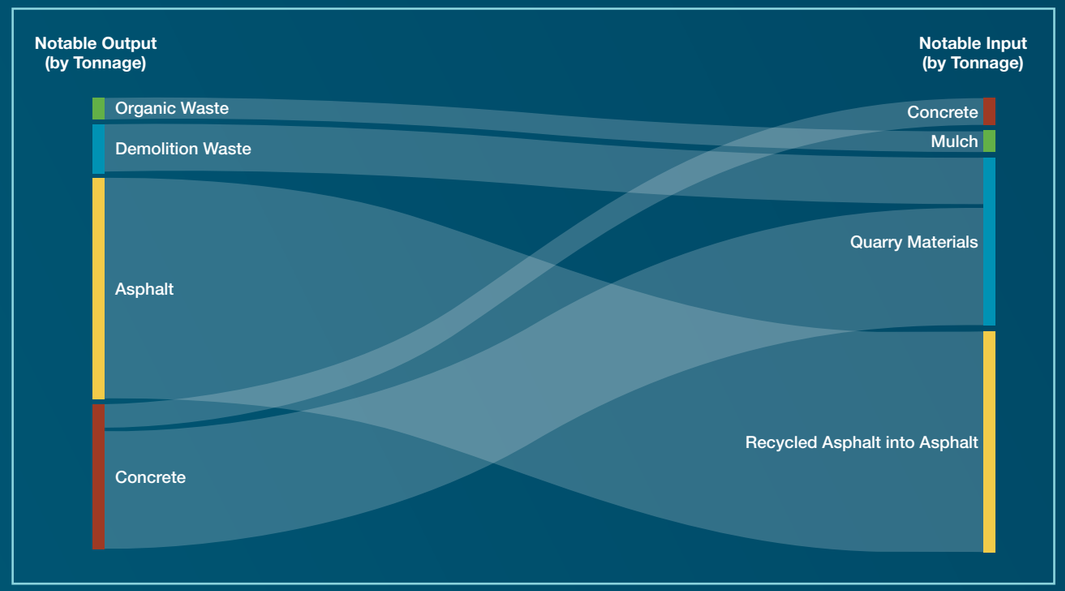


Figure 1. Notable Output and Input Sankey Gr

Application of REAP Methodology – Spoil

For specific material types, being able to track output and input allows us to identify opportunities for best use. In the case of spoil output, following extensive investigation, M80RR Alliance are currently reusing and recycling 100% material into initiatives such as bricks, calcine clay and pavement construction.

Implementing a Material Circularity Indicator

The M80RR Alliance sought to adapt a 'Material Circularity Indicator' (MCI) for the total project to measure, communicate and compare the success of progress.

The first methodology investigated was the world leading Ellen Macarthur Foundation MCI, which utilises product-level material circularity metrics to quantify MCI on a per product basis. The method applies this MCI to a larger system by calculating the average of individual product MCIs for each material or product stream, and then averaging out the resultant MCIs.

The constraint in applying this methodology to the M80RR Project, was the lack of products across the material categories used that have a clearly defined MCI, and the ultimate cost and administration to obtain this measure, therefore the Ellen Macarthur Foundation was deemed unsuitable.

The M80RR Approach

M80RR Alliance sought to create a simplified method of calculating material stream circularity utilising expressions of input and output, output management method (re-use, recycling, or disposal), and recycled content.

The main calculation used for total circularity is:

$$\frac{\{\text{Recycled Content} + \text{On site Reuse} + (\text{Off site Output Management} \times \text{IS Waste Score})\}}{\text{Input}}$$

Utilising this 'M80RR Approach' enables a simple and clear understanding of a resource stream's input and output, recycled content, and landfill diversion. Concrete for example, while entirely diverted from landfill, is currently only estimated to be comprised of 15% recycled content by tonnage, and as a result, its circularity equates to 21% (see Figure 2).

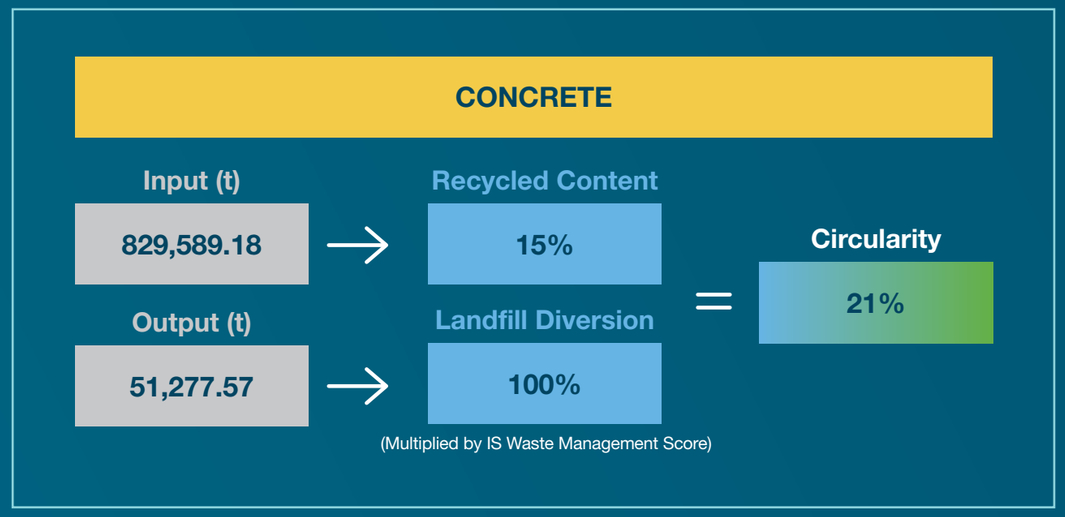


Figure 2. Concrete Material Stream Circularity

ISC Method, Output Solution Weighting

The Infrastructure Sustainability Council (ISC) 'responsible resource output management' methodology for the Innovation Challenge was incorporated into the M80RR approach to differentiate between the waste management methods. The ISC method seeks to value output management through assigning values to waste hierarchies and rating it against output quantities (see Figures 3 & 4).

Management option	Weighting
Prevent/Reuse	**1.0**
Recycle	**0.9**
Compost/anaerobic digestion	**0.7**
Waste to energy (combustion)	**0.2**
Disposal/incineration	**0.0**

Figure 3. ISC innovation Challenge Output Stream Weightings

Stream	Output	Prevent / Re-Use %	Recycle %	Disposal %	Score
Topsoil	196933.19	100.00%	0.00%	0.00%	1
Quarry Materials	17096.42	80.00%	20.00%	0.00%	0.98
Concrete	51277.57	0.00%	99.20%	0.8%	0.89
Steel	455.37	0.05%	99.15%	0.8%	0.89
Asphalt	91115.88	0.00%	100%	0.00%	0.90
Timber	7023.37	0.00%	85.00%	15.00%	0.77

Figure 4. Example of project quantities applied to IS waste management scoring.

Resource Efficiency Action Plan

The unique methodology, baseline models and decision-making outcomes are captured in a 'Resource Efficiency Action Plan' (REAP). This plan outlines the initial resource efficiency data and conveys expected quantities of resources used for the project. The REAP provides valuable insights into the project's resource efficiency, waste management strategies, and opportunities for best use to achieve material circularity. Additionally, it will be used as a performance tracking tool for the key project requirements.

Optimising Project Delivery

Record ISC Rating for CPB Contractors' Parramatta Light Rail Stage 1

CPB Contractors has been awarded the maximum rating level and the highest score to date for any major infrastructure project under the Infrastructure Sustainability Council (ISC) rating scheme.

The project, Parramatta Light Rail Stage 1, scored 104.35 points out of a possible 110 points, achieving a 'Leading' As Built rating for its positive economic, social, and environmental outcomes and which was delivered in joint venture with Downer for the NSW Government.

The award follows the public launch of CPB Contractors' Sustainability strategy, which aligns with parent company CIMIC Group's ESG framework and outlines the contractors' commitment to build a sustainable future and reach net-zero.

Managing Director Jason Spears said that the 'Leading' As Built rating for Parramatta Light Rail Stage 1 highlights the contractor's expertise in innovative sustainable delivery.

"Innovation is a core principle for CPB Contractors, and our people are encouraged to look for new, better solutions and construction methods, especially when a more sustainable outcome can be achieved for clients and local communities.

"Our sustainability strategy formalises our approach, and this award is a great reminder that we are successfully delivering on our commitments", explained Jason.

Spotlight on CPB Contractors' leading sustainable delivery

A handful of the stand-out environmental sustainability initiatives adopted by the project are outlined below:

- Delivery of Australia's longest green track and the first constructed in New South Wales
- First light rail track in the state to be constructed using macro synthetic fibres instead of steel reinforcing
- 1000+ tonnes of recycled glass replaced the use of virgin sand in permanent asphalt
- More than 25,000m2 of existing asphalt was reused by the project through the adoption of sustainable construction methods
- 99% of construction and demolition waste was recycled, diverting more than 145,900 tonnes of landfill waste
- Re-using more than 11,000 metres of AS60 rails, 12,000 sleepers and 8,000 cubic metres of ballast recovered from the original single-track T6 Carlingford Line

Additionally, the project championed CPB Contractors' commitment to delivering positive social and economic benefits with outstanding employment, training and supplier opportunities, including:

- More than 50% of the workforce in apprentice or learning worker roles
- 2.6% of the workforce are women in non-traditional roles
- Exceeded Indigenous procurement target by more than $6 million

Australia's Longest Green Track

In contrast to a typical concrete track form, the Parramatta Light Rail Stage 1 project delivered a more sustainable alternative 'green track' solution.

New to the state and the longest in Australia, the project introduced a 'green track' which features grass and vegetation between and along 930m of the rail tracks, reducing concrete by 81% compared to a standard concrete embedded track form.

Compared to a concrete-embedded track form, the green track absorbs heat reducing the air temperature in the area, minimises noise and glare, filters stormwater, reduces flooding and encourages biodiversity.

The grass species chosen for planting in the green track was selected through a 12-month study and trials that compared grasses to the rate of growth, climate suitability, growth height and species' lifespan, amongst other characteristics.

Following the study, 'Nara' Zoysia, a native species to Australia, was selected due to its hardy, drought-tolerant features and slow growth rate, making it easier to maintain and ideal for the Parramatta area.

A drip irrigation sprinkler system using recycled water with soil moisture sensors will ensure the grass and groundcover along the track is kept hydrated.

CPB Contractors Group Manager Sustainability, David Fox said, "This initiative demonstrates how a collaborative approach and commitment to sustainable delivery between contractors and clients can achieve positive legacies for the community and environment that extend many years beyond project completion".

Appendices

IS Ratings FY24

RATING TOOL	AWARD	PHASE	ASSET	REGION	PROJECT	SIGNIFICANT INNOVATIONS
v2.1	Bronze	Planning	Road	WA	Mandurah Estuary Bridge Duplication	
		IS Essentials Pilot As Built	Port/ Harbour	QLD	Far North Queensland Beacon Replacement Program	1 State First
v2.0	Silver	Planning	Road	WA	Manuwarra Red Dog Highway	1 State First
		Planning		WA	Eastlink WA, Roe highway to Clackline (Package 2)	
		Planning		WA	EastLink WA Package 3	
	Gold	Design	Road	WA	Morley-Ellenbrook Line	2 State First & 1 Australia First
V1.2	Leading	As Built	Rail	NSW	Como Station Upgrade	
				Vic	LXRP SEPA Cranbourne Line Upgrade and Duplication Package B	2 State First & 1 Australia First
				Vic	LXRP SEPA Additional Works Package (AWP) Manchester and Maroondah Level Crossing Removal Project	2 State First & 1 Australia First
				Vic	Hurstbridge Line Duplication Project – LXRP SPA AWP3	2 State First & 1 Australia First
				Vic	Fitzgerald Road and Robinsons Road Level Crossing Removal Projects	1 Australia First
				Vic	Preston Level Crossing Removal Project	2 Australia First & 1 State First
				Vic	Glenroy Level Crossing Removals Project	2 Australia First
				NSW	TAP3 - Train Station asset upgrade at East Hills & Yagoona	
				Vic	Hallam Road Level Crossing Removal Project	2 State First
				Vic	South Eastern Program Alliance - Union & Mont Albert Level Crossing Removal Project	2 Australia First
			Road	NSW	WestConnex Stage 3A - M4-M5 Link	
				QLD	Bruce Highway Upgrade Project – Caboolture to Steve Irwin Way	2 Australia First
			Airport	NSW	Western Sydney Airport Bulk Earthworks	
		Design	Rail	VIC	RPV - MTP - Rail Infrastructure Alliance	3 Australia First & 1 State First
				NSW	Sydney Metro City & SW - Line-wide Works	2 Australia First & 1 State First
				NSW	TAP3 - Unanderra Station Upgrade	
				NSW	Sydney Metro West - Central Tunnel Package	1 World First
			Road	Vic	NELP - Early Works	1 Australia First
				QLD	Townsville Ring Road Stage 5	2 Australia First
				NSW	Sydney Gateway Stages 1 & 3	1 Australia First
				ACT	Raising London Circuit	2 State First
			Energy	NSW	EnergyConnect	1 State First

RATING TOOL	AWARD	PHASE	ASSET	REGION	PROJECT	SIGNIFICANT INNOVATIONS
V1.2	Excellent	As Built	Rail	NSW	TfNSW Hawkesbury River and Warrawee Station Access Upgrades (TAP3)	
				NSW	Leppington & Edmondson Park South Commuter Car Parks	
				NSW	TfNSW Wahroonga, Narara and Lisarow Station Access Upgrades (TAP3)	
				Vic	Cranbourne Line Upgrade (Package A)	5 State First & 1 Australia First
				NSW	Point Clare Station	
			Road	Vic	MRPV - Echuca Moama Bridge Project	
				Vic	MRPV - Monash Freeway Upgrade Stage 2	
				Vic	MRPV - M80 Sydney Road to Edgars Road	
				QLD	M1 Pacific Motorway Upgrade Varsity Lakes to Burleigh	1 State First
				Vic	Lathams Road Upgrade Project	2 Australia First
				Vic	Pound Road West and Frankston Dandenong Bridge Upgrade Project	1 Australia First & 1 State First
				Vic	Sunbury Road Upgrade Project	
			Water	QLD	Rookwood Weir Alliance	
		Design	Rail	NSW	More Trains More Services 2- South Works Package	2 Australia First
				NSW	Niagara Park, Ourimbah, Beecroft TAP3 Projects	
				NSW	TAP 3- Erskineville, St Peters, Normanhurst, Thornleigh, Pymble, Doonside Stations Upgrade	
				Vic	LXRP - SPA – Additional Works Package 4 (AWP4)	1 Australia First
				NSW	TAP3 Killara Station and Turrella Station	1 Australia First
				NSW	TAP3 Waitara Station	
				NSW	Transport Access Program Denistone and Stanmore Station Upgrades	
			Road	QLD	Centenary Bridge Upgrade	
				QLD	Bruce Highway - Cairns Southern Access Corridor - Stage 3: Edmonton to Gordonvale	
				Vic	Craigieburn Road Upgrade Project	
				Vic	Princes Highway East Duplication - Kilmany Section	
				Vic	Sunbury Road Upgrade Project	1 State First
	Commended	Design	Road	Vic	MRPV Barwon Heads Road Upgrade	
				NZ	Tauriko West Network - Enabling Works	
			Rail	NSW	TfNSW Wahroonga, Narara and Lisarow Station Access Upgrades (TAP3)	
		As Built	Road	NSW	The Northern Road Upgrade Stage 4	
		Ops 3 years	Rail	NSW	Reliance Rail	

ISC Members FY24

A W Edwards Pty Limited
Acciona
ACT Government
Adbri Limited
Advisory System for Process Innovation and Resource Exchange Pty Ltd
AECOM ANZ
Aggreko
Alstom Transport Australia Pty Ltd
Ampd Energy
Arcadis Australia Pacific
Arch Artifex
Arenco (NSW) Pty Limited
Arup Australia Services Pty Ltd
Ash Development Association of Australia
Auckland Council
Aurecon Group
Australasian (Iron and Steel) Slag Association
Australasian Certification Authority for Reinforcing and Structural Steels Ltd
Australasian Railways Association
Australia and New Zealand Banking Group Limited (ANZ)
Australian Flexible Pavement Association (AfPA)
Australian Rail Track Corporation Ltd
Australian Spatial Analytics
Australian Urban Research Infrastructure Network
B&K Revegetation and Landscaping
Barchip Australia Pty Ltd
Beca Ltd
BESIX Watpac
BG&E Pty Ltd
Bielby Holdings Pty Ltd
Bingo Industries
Bioneering Australia
Black Stump Technologies
BlueScope Steel Limited
BMD Constructions & Urban
Boral Construction
Broad Construction Pty Ltd
Cacti Conserve
Capral Aluminium
CDI Lawyers
CE Construction Solutions
Cement Concrete & Aggregates Australia
Cerclos
CIMIC
City of Sydney
City Rail Link Ltd
Civil Contractors New Zealand
Civil Structures Studio Pty Ltd
Clayton Utz
CMC Pty Ltd
CmdrKat Consulting PTY LTD
Concrete Pipe Association of Australasia
CPB Contractors Pty Ltd
DARTMOUTH CONSULTING PTY LTD
Decarbonology
Degnan
Dempsey Wood Civil
Department of Energy, Environment and Climate Action (Victoria)
Department of Infrastructure, Planning and Logistics Northern Territory Government
Department of Infrastructure, Transport, Regional Development, Communications and the Arts
Department of Planning, Housing and Infrastructure (NSW)
Department of Transport - Westport
Department of Transport & Main Roads QLD
Diversity Works
DLPA Pty Ltd
Dormway Pty Ltd
Downer EDI Limited
DT Infrastructure
Echo Barrier Australia
EcoCrews
Economic Development Queensland (EDQ)
ECORR
Edge Impact
EIC Activities Pty Ltd
eMesh by Enviromesh
Endeavour Energy
Energetics Pty Ltd
Energy Estate
Enveng Group
EPD Australasia Limited
FCC Construction
Fencepac Barriers Pty Ltd
Ferrovial Australia
Fletcher Building Limited
Frontier Economics
FSC Group
Fulton Hogan Australia
G.P.P.Recycling
Galvanizers Association of Australia
Gamuda
GartnerRose Pty Ltd
Gascoyne Gateway Limited
Geofabrics
Georgiou Group Pty Ltd
GHD Pty Ltd
Ghella NZ
Ghella Pty Ltd (Australia)
Gladstone Area Water Board
Global GreenTag International Pty Ltd
Global Synthetics
GM Road & Civil Group
Good Environmental Choice Australia (GECA)
Green Business HQ
Green Power Solutions Pty Ltd
Harrison Grierson
HEB Construction
Hiway Stabilizers Australia Pty Ltd
HL Landscapes
Holcim Australia Pty Ltd
Holmes NZ LP
Hoseright Pty Ltd
Huesker Australia Pty Ltd
Hunter Environmental Consulting
HW Ebsworth
Hynds Limited
InEight
Infrabuild
Infrastructure New Zealand
Infravisory Pty Ltd
inti APAC Pty Ltd
Investor Group on Climate Change (IGCC)
Inxure Consulting
Jacobs Group (Australia) Pty Ltd
John Holland Group Pty Ltd
JWA Oilfield Supplies
K&L Gates
Keolis Downer
KiwiRail
KPMG
Laing O'Rourke
Level Crossing Removal Project (LXRP)
Losee Consulting Pty Ltd
Lumus Limited
Main Roads Western Australia
Major Roads Projects Authority Victoria
Major Transport Infrastructure Authority (MTIA)
Makao Group Pty Ltd
Makinex Renewables Pty Ltd
Malo Sustainability Consulting
Mansfield Advisory Pty Ltd
Marinus Link Pty Ltd
matX - Goods and Materials Exchange
McConnell Dowell Constructors (Aust) Pty Ltd
Metro Net
Metro Trains Melbourne (MTM)
MinterEllison
MinterEllisonRuddWatts
MolinoCahill Lawyers Pty Ltd
Mott MacDonald Australia Pty Ltd
Mott MacDonald New Zealand Limited
Nation Partners
Niche Environment and Heritage
North East Link Project (NELP)
NSW Public Works
Oliver Wyman
One Click LCA Oy
Outer Space AU Pty Ltd
Pacific Partnerships
Parkes Shire Council NSW
Perspektiv
Pillar Two
Pitt & Sherry (Operations) Pty Ltd
Plastics Industry Pipe Association
Pleiades Australia Pty Ltd
Plenary Group
Polyrok Pty Ltd
Powerhouse Wind
Quadrant Rail Consulting Pty Ltd
Queanbeyan-Palerang Regional Council
Rail Projects Victoria (RPV)
Rare Environmental
RE3
Red Sand Ecology
Regional Growth NSW Development Corporation
Reinforced Concrete Pipes Australia (Holdings) Pty Ltd
Reo Block
ResourceCo Material Solutions Pty Ltd
Reynard Wood
Riffle Advisory
RMIT University
Sacyr Water Pty Ltd
Samsung C&T Corporation
SCAADA Sustainability Pty Ltd
Seed Engineering
Setu Projects
Seymour Whyte Constructions
Shamrock Civil Engineering
Sitehive
SMEC
Social Traders
Soil Recycling Co
Solpod Pty Ltd
South Australian Water Corporation
Start2See
State Asphalts NSW
Stratagility Pty Ltd
Stratex
Suburban Rail Loop Authority
Sunshine Coast Council
Sunwater
Supply Chain Sustainability School Limited
Sustainable Asset Strategies
Sustainable Built Environment National Research Centre (SBEnrc)
Sydney Civil Pty Ltd
Sydney Metro
Sydney Water
Synchrony Projects
Synergic Advisory
Syrinx Environmental Pty Ltd
Tasmanian Networks Pty Ltd
Tasmanian Water and Sewerage Corporation Pty Ltd
The Australian Pavement Recycling and Stabilisation Association (AustStab)
Tonkin & Taylor
Transdev Australasia Pty Ltd
Transgrid
Transmutation Pty Ltd
Transport Asset Holding Entity (TAHE)
Transport for NSW (TfNSW)
Transurban Group
Tyre Stewardship Australia
UGL Limited
UPT Pty Ltd
Ventia Australia Pty Ltd
Veolia Water Australia Pty Ltd
Vital Industries
W3Plus Consulting
WA Recycling Pty Ltd
Waka Kotahi, New Zealand Transport Agency
Ward Civil and Environmental Engineering
Water Corporation
Webuild S.p.A.
West Gate Tunnel Project
Western Environmental Pty Ltd
Winslow Group
Woden Contractors Pty Ltd
Wolf Peak Pty Ltd
Wrixon Consulting Pty Ltd
WSP Australia
Xypex Australia
Ziger Energy Pty Ltd
Zinfra Pty Ltd
Zuno Carbon

Modern Slavery Coalition Members

ACCIONA
Downer Group
Fulton Hogan
John Holland Group
Pillar Two
Transurban
Ventia

Working Groups FY24

TECHNICAL WORKING GROUP	MEMBER NAME	ORGANISATION
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	Michelle Quinn	**Transport for NSW**
	Andrew Aitken	**Australian Rail Track Corporation Inland Rail**
	Rob Harper	**North East Link Program (NELP)**
	Rebekah Pokura-Ward	**Waka Kotahi New Zealand Transport Authority**
	Louis Bettini	**Main Roads Western Australia**
	Sophie Gaballa	**Suburban Rail Loop Authority (SRLA)**
PLANNING	**Sophie Wallis (CHAIR)**	**BG&E**
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	Lloyd Eley-Smith	**Department of Planning and Environment**
	Hayley Young	**Gamuda Berhad**
	Coralie Williams	**Infrastructure Australia**
	Greg Munford	**New Zealand Superannnuation Fund**
	Gillian Crowcroft	**Harrison Grierson Consultants**
	Ben Mason	**Frontier Economics**
	Sandra Valeri	**Mott MacDonald**
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	Sam Turner	**BECA**
	Simone Unanue Dias	**Arup**
	Michelle Quinn	**Transport for NSW**
	Fatima Hammad	**WSP**
	Ann Azzopardi	**WolfPeak**

TECHNICAL WORKING GROUP	MEMBER NAME	ORGANISATION
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	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)**
	Sonia Dong	**AECOM Australia**
	Scott Losee	**Losee Consulting Private Limited**
	Rob Harper	**North East Link Program (NELP)**
OPERATIONS	**Dale Thomas (CHAIR)**	**Downer Group**
	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)	Pure Environment	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
	Rob Harper	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	Boral Australia	Subgroup Representative
	Evan Smith	Holcim Australia	Member
	Rob James	Xypex Australia	Member
	'PAVEMENTS' INDUSTRY SUBGROUP		
	Norbert Michel	Australian Flexible Pavement Association (AfPA)	Subgroup Representative
	Ryan Jansz	Boral Australia	Member
	Davina Smith	Stabilised Pavements of Australia	
	Stuart Dack	Auststab, the Australian Pavement Recycling and Stabilisation Association	
	Nathan Russell	Fulton Hogan	Member
	'STEEL' INDUSTRY SUBGROUP		
	David Bell	InfraBuild Construction Solutions	Subgroup Representative
	Laura Guccione	BlueScope Steel	Member
	'MATERIAL/ PRODUCT CERTIFIER' INDUSTRY SUBGROUP		
	Andrew Wheeler	Australasian Cerification Authority for Reinforcing and Structural Steels Ltd	Subgroup Representative
	Ina Peukes	GECA	Member

TECHNICAL WORKING GROUP	MEMBER NAME	ORGANISATION
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	Simon Hooper (DEPUTY CHAIR)	Perspektiv
	Christopher Bourne	Acciona
	Dan Cahill	BMD
	Chris Arrington	Calibre Group
	David Fox	CPB
	Glenn Hedges	CPB
	Ricky Bridge	Downer Group
	Cameron Ginn	Fulton Hogan
	Sam Leigh	Fulton Hogan
	Hayley Young	Gamuda
	Inji Salih	John Holland Group
	Karin Wallin	Laing O'Rourke
	Bryon Davy	NELP Southern Alliance
	Tim Walker	McConnell Dowell
	Sean Helbig	UGL Limited
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	Sebastian Conley (CO-CHAIR)	Transurban
	Christopher Bourne	Acciona
	Elena Ji	Acciona
	Sara Lindqvist	Downer Group
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	Sam Leigh	Fulton Hogan
	Jim Green	John Holland Group
	Bianca Bremer	John Holland Group
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	Lisa Currie	Aurecon
	Megan Kreutzer	Coliban Water (VIC)
	Michael O'Neill	DELWP
	Ilze Gotelli	KPMG (NZ)
	Herman Potgieter	Lumus (NZ)
	Charmaine Noack	Mott MacDonald
	Andrew Francis	Parkes Shire Council (NSW)
	Tara Hage	SA Water
	Paul Lutz	Sunwater (QLD)
	Gill Fowler	Sydney Water (NSW)
	Georgina Hurst	Water Corporation (WA)
	Fraser Clark	Wellington Water, also Water NZ

Infrastructure Sustainability Council

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