



A collage of green circular icons on a background of green grass and a globe. The icons include a recycling symbol, a shopping cart with a globe, a factory, a hand holding a key, and a stylized arrow.

Infrastructure  
Sustainability  
Council

IS Impact Notes  
Circular Economy



## Overview

This impact note outlines how infrastructure can set the pathway to enable a circular economy. It describes how the IS Rating Scheme drives the implementation of efficient materials use practices from early decision-making, smart design, and sustainable procurement practices; aligning with multiple UN SDGs, including SDG12 on responsible consumption and production, SDG11 on sustainable cities, SDG7 on affordable and clean energy, SDG13 on climate action, SDG14 on life below water, SDG15 on life on land, and SDG8 on decent work and economic growth.

According to the Ellen MacArthur Foundation, circular economy is a system where materials never become waste and nature is regenerated. In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources.

## What is the issue?

In 2020 the infrastructure sector utilised 52% of the world's materials, and this is expected to increase to 54% by 2060.\*

In a linear economy, most of these products are never used to their full potential, following a one-way trajectory of take-make-waste. In a circular economy, a regenerative system is implemented, where inert materials are kept in circulation through reuse, repair, remanufacture and recycling and when appropriate, any biodegradable materials make their way to the earth to regenerate nature.

In effect, circular economy not only relates to embodied greenhouse gas emissions, waste generation, and pollution. It improves resilience, tackles climate change, builds natural capital, creates jobs and new industries, and enhances the interaction of our population with the natural environment.

\*Global Infrastructure Hub, 2021

# How can you deliver impact?

## Taking positive action

The Infrastructure Sustainability Council recognises the role of infrastructure in the transition to a circular economy. The following actions are identified as key enablers of circular economy:

1. Advocate for circular economy policies and business models within your organisation's strategic decision making.

2. Deepen your knowledge of circular economy principles, opportunities, impact and benefits.

3. Raise awareness with internal and external stakeholders via knowledge sharing and case studies.

4. Develop circular economy metrics against planetary boundaries, and report on these.

5. Set circular economy targets that go beyond waste and emissions management, aiming to enhance the natural and urban environment.

6. Enable collaboration between suppliers and partners to create and maintain platforms that link resource suppliers with secondary materials.

## Driving outcomes with the IS Rating Scheme

### Relevant IS Credits

The IS Rating Scheme supports circular economy activities across the infrastructure lifecycle in multiple ways, ranging from the application of smart design initiatives to the use of recycled materials. For instance, FY2023 IS As Built certified projects' resource outputs (waste) diversion from landfill rate was 96% (approximately 6.5 million tonnes).

The IS Rating Tool credits focused on resource efficiency, sustainable procurement, leadership and management, and innovation provide guidance and indicators that inform and reward progress towards circularity (see table below).

IS Rating Tool – focus area	Relevant IS v2.1 Credits (IS v1.2 listed below)	Key points to consider across the infrastructure lifecycle (Planning, Design & As Built and Operations)
<b>Materials use and resource efficiency</b>	<ul style="list-style-type: none"><li>• <b>Rso-1</b> Resource Strategy Development</li><li>• <b>Rso-4</b> Resource Recovery and Management</li><li>• <b>Rso-5</b> Adaptability and End of Life</li><li>• <b>Rso-6</b> Material Life Cycle Impact Measurement and Management</li><li>• <b>Rso-7</b> Sustainability Labelled Products and Supply Chains</li></ul> <p><b>IS v1.2 credits:</b> Mat-1, Mat-2, Was-1, Was-2, Was-3</p>	<p><b>IS credits reward the following actions:</b></p> <ul style="list-style-type: none"><li>• Development and implementation of a resource efficiency strategy and action plans aligned to circular design outcomes, including:<ul style="list-style-type: none"><li>&gt; Design that optimises overall resource use</li><li>&gt; Minimisation of resource outputs generation</li><li>&gt; Maximisation and beneficial reuse of resource outputs</li><li>&gt; Design and planning for deconstruction, disassembly, and adaptability</li></ul></li><li>• Establishment of performance targets and appropriate management plans that include circular economy outcomes.</li><li>• Alignment to regional or broader resource efficiency programs</li><li>• Proactive engagement with the market, industry and community to identify and realise circular economy opportunities</li><li>• Use of the IS Materials Calculator (or equivalent) for monitoring and modelling of materials lifecycle impacts and demonstrating reductions</li><li>• Use of materials with sustainability labels.</li></ul>

IS Rating Tool – focus area	Relevant IS v2.1 Credits (IS v1.2 listed below)	Key points to consider across the infrastructure lifecycle (Planning, Design & As Built and Operations)
<b>Sustainable procurement</b>	<ul style="list-style-type: none"> <li>• <b>Spr-1</b> Sustainable Procurement Strategy</li> <li>• <b>Spr-2</b> Supplier Assessment and Selection</li> <li>• <b>Spr-3</b> Contract and Supplier Management</li> </ul> <p><b>IS v1.2 credits:</b> Pro-1, Pro-2, Pro-3, Pro-4</p>	<p><b>IS credits reward the following actions:</b></p> <ul style="list-style-type: none"> <li>• The development and implementation of a procurement strategy that drives circular economy outcomes via:           <ul style="list-style-type: none"> <li>&gt; Identification and management of sustainability risks and opportunities across the supply chain</li> <li>&gt; Establishment of supplier KPIs and incentives in contracts</li> </ul> </li> <li>• Development of supplier selection criteria that includes circular economy considerations.</li> </ul>
<b>Leadership and management</b>	<ul style="list-style-type: none"> <li>• <b>Lea-1</b> Integrating Sustainability</li> <li>• <b>Lea-2</b> Risks and Opportunities</li> <li>• <b>Lea-3</b> Knowledge Sharing</li> </ul> <p><b>IS v1.2 credits:</b> Man-1, Man-2, Man-3, Man-4</p>	<p><b>IS credits reward the following actions:</b></p> <ul style="list-style-type: none"> <li>• Identification of Circular Economy as a material issue for the project, on which sustainability objectives and targets can be set.</li> <li>• Identification of risks and opportunities related to Circular Economy, identifying focus areas and actions.</li> <li>• Sharing circular economy knowledge above and beyond the project boundary, contributing to the broader industry, and promoting collaboration.</li> </ul>
<b>Innovation</b>	<ul style="list-style-type: none"> <li>• <b>Inn-1</b> Innovation</li> </ul> <p><b>IS v1.2 credit:</b> Inn-1</p>	<p><b>Through the Innovation Challenge (IC) ‘Contributing to a Circular Economy’, the IS credit rewards:</b></p> <ul style="list-style-type: none"> <li>• Increased use of recycled materials beyond business-as-usual levels, as well as the responsible management of resource outputs.</li> <li>• Use of the Material Circularity Indicators (MCI).</li> </ul>



# Measuring the circularity of products

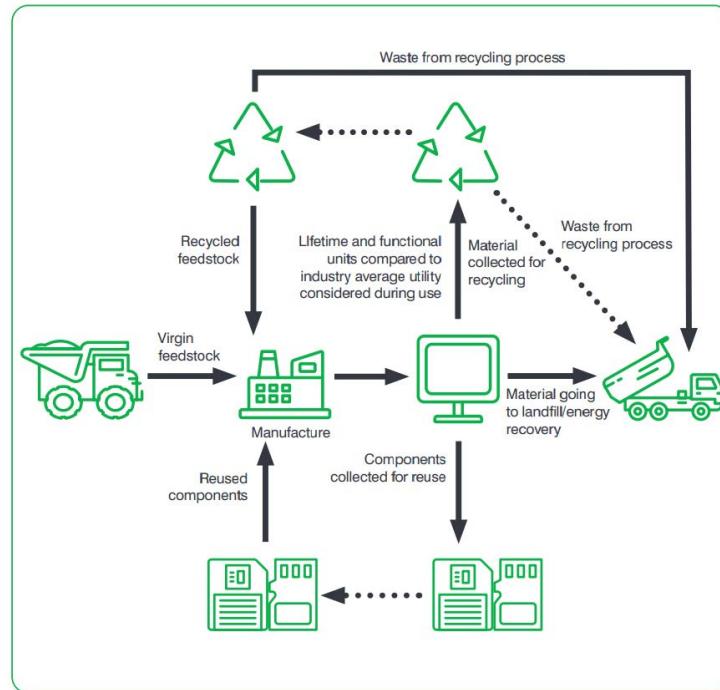
To inform decision-making and track progress on circular economy, metrics are required to provide a robust assessment on the circularity of products and businesses. Initiatives around measuring circularity include the Material Circularity Indicator (MCI), developed by the Ellen MacArthur Foundation and Granta Design as part of their ‘Circular Indicators’ project. It measures how restorative the material flows of a product or company are and includes complementary indicators that allow additional impacts and risks to be taken into account.

Other approaches to measuring circularity include the Circular Transition Indicators (CTI), and the ISO 59020 standard. The CTI, a framework developed by the World Business Council for Sustainable Development, assesses material flows against business performance, provides overall resource optimisation insights and highlights how circular economy contributes to sustainability goals. The ISO 59020 framework provides guidance on how to measure circularity performance using circularity indicators and complementary methods such as life cycle assessment.

InfraBuild, in collaboration with Thinkstep-anz, incorporated MCI metrics into steel products covered by InfraBuild’s EPDs. The MCI assessment approach considers all materials (including virgin, reused and recycled content) and energy used to develop the final product. Accounting for the material’s production processes, utility, recyclability efficiency and end-of-life characteristics, the MCI provides an outcome between 0 and 1, with 1 being highly circular.

The benefits identified by InfraBuild on measuring the circularity of products include:

- Benchmark and understand the circularity of a product and improve that circularity over time.
- Identify key drivers, impacts and opportunities that influence the MCI result.
- Improve resource efficiency across the lifecycle of a project.
- Increase collaboration and industry transparency by providing MCI results through EPDs.



Source: InfraBuild 2023

# Sustainable procurement actions for impact

Procurement plays a key role for enabling a circular economy. The actions outlined below align to the Sustainable Procurement and Leadership categories of the IS Rating tool, enabling projects to embed circular economy considerations in their decision-making processes and strategy:

## Action 1: Establish sustainable procurement targets and KPIs on circular economy.

Targets and key performance indicators (KPIs) provide a straightforward approach to drive desirable outcomes on circular economy. By integrating circular metrics into the decision-making process of procurement, the likelihood of purchasing circular economy materials and services is enhanced. This can be achieved through targets such as selecting suppliers who demonstrate a commitment to circular practices and innovation; specifying quantities of recycled material; or selecting materials produced in a supply chain that has significant economic, environmental, and social co-benefits.

Developing a supplier selection framework is crucial for effectively evaluating different suppliers. By establishing a measurable and repeatable methodology, procurement efficiencies can be gained, leading to improved outcomes. To fully integrate circularity, incorporate circular economy principles in the consideration of the materials and products, supply chain operations, and end-of-life solutions.

## Action 2: Support suppliers with circular economy practices

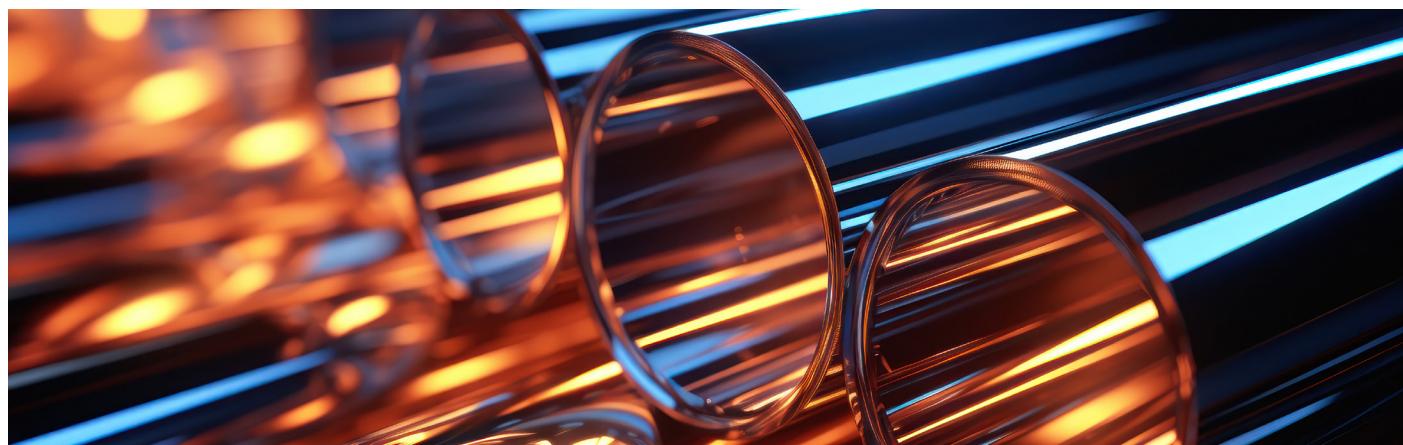
The supply chain in Australia and New Zealand is experiencing growth in materials and services that adhere to circular economy practices. Giving priority to suppliers who demonstrate circular economy practices plays a crucial role in garnering support.

Sharing knowledge about the outcomes achieved by suppliers not only promotes their products and services but also highlights the positive impact they have made. Increased awareness and positive recognition of circular economy suppliers are instrumental in driving their success. One valuable resource for identifying sustainable suppliers is the ISC ISupply Directory. The ISupply Directory includes many suppliers with products or services incorporating circular economy principles.

## Action 3: Choose materials and products with a certified Circularity Indicator or Label

Certifications provide third-party standardised assurance of sustainability claims for materials.

The procurement of materials and products that utilise circularity indicators or frameworks, or that have third-party certifications on circular performance, enables the implementation of sustainable procurement practices focused on circular economy, and assessing complementary risk indicators related to the circularity of the material such as: price variation, scarcity, supply chain risks, toxicity, and energy consumption.



# Case studies

## Case study 1: Boral - Exploring and implementing circular economy solutions

Boral is Australia's largest vertically-integrated construction materials company and has expanded its services into Circular Materials Solutions to promote a circular economy in the construction industry. By leveraging its Recycling business, through its 14 recycling sites across Australia, Boral aims to change the industry's mindset and encourage developers and builders to view construction and demolition materials as valuable resources rather than waste.

The focus on expanding Boral's Recycling business has been driven by customer demand and societal expectations, and is supported by a conducive regulatory environment.

Boral successfully implemented its Circular Materials solution on various major projects in Sydney, with achievements such as:

- Recycling over 900 tonnes of concrete waste, leading to a recycling rate of over 98%.
- Generating environmental benefits while also reducing costs for customers, by mitigating the traditional waste management expenses.
- Managing excavation sand and sandstone, preserving valuable resources by reprocessing materials for inclusion in its concrete mixes.

Boral continues to push for maximum recycled content in its product range as well as for investment in its recycling business nationwide, aiming to establish circular practices as the new norm in the industry.

For more information, please refer to the ISC 2022 Impact Report.

## Case study 2: Ventia – Contributing to a Circular Economy through Recycled Content Trials

Ventia's Parkland region Roads Asset Performance Contract is a model of sustainable road maintenance through innovation.

Ventia's use of Huesker's Ha-Telit geogrid, a product that reduces tensile stress applied to asphalt layers, led to a reduction in consumption of about 1,400 tonnes of asphalt; Ventia intends to use the Ha-Telit C Eco line - an equally high-performing product line made entirely of recycled materials in future applications.

With 1.5Km of the East-bound side of the Great Western Highway in Greater Sydney, Ventia also implemented the largest trial in Australia of a road preservative treatment called Rhinophalt®, which extends the life of the road surface while reducing whole of life costs. Some trial benefits include:

- An expected reduction of 1,500 tonnes of asphalt, while achieving a 90% reduction in operational emissions over a 10-year period.
- Completely removes the use of noisy roadwork plant and equipment; and
- Exposure of road workers to live traffic conditions reduced by a third.

The implementation of these initiatives demonstrates the effectiveness of the application of circular economy principles to road maintenance, leading to reductions in cost and environmental impact, while delivering improved safety outcomes.

For more information, please refer/contact Donny Yap – [Donny.Yap@ventia.com](mailto:Donny.Yap@ventia.com), General Manager, Sustainability and Innovation at the Ventia Transport Sector.





# Infrastructure Sustainability Council



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