

PART D
EIS synthesis and conclusion



CHAPTER D3
Sustainability



Narromine to Narrabri
Environmental Impact Statement



The Australian Government is delivering
Inland Rail through the Australian
Rail Track Corporation (ARTC), in
partnership with the private sector.

Contents

D3. SUSTAINABILITY	D3-1	Figures	
D3.1 Approach	D3-1	Figure D3.1	Infrastructure Sustainability rating scheme themes and categories D3-5
D3.1.1 Legislation and policy context to the assessment	D3-1	Figure D3.2	Infrastructure sustainability rating scheme methodology D3-6
D3.1.2 ARTC's approach to sustainability	D3-2		
D3.1.3 Methodology	D3-4		
D3.2 Assessment results	D3-6	Tables	
D3.2.1 Target rating	D3-6	Table D3.1	Inland Rail sustainability framework D3-2
D3.2.2 Sustainability in design	D3-6	Table D3.2	Inland Rail sustainability commitments and the application of these to the proposal D3-2
D3.3 Mitigation and management	D3-6	Table D3.3	Sustainability mitigation measures D3-7
D3.3.1 Approach	D3-6		
D3.3.2 List of mitigation measures	D3-7		

D3. Sustainability

This chapter provides the sustainability assessment of the Narromine to Narrabri project (the proposal). It identifies a target rating for the proposal according to the Infrastructure Sustainability Council of Australia's sustainability rating scheme and considers the application of relevant sustainability principles and guidelines to the proposal.

D3.1 Approach

A summary of the approach to the assessment is provided in this section, including the legislation, guidelines and/or policies driving the approach and the methodology used to undertake the assessment.

D3.1.1 Legislation and policy context to the assessment

Sustainability, or sustainable development, has been defined in different ways depending on the application and context.

The pursuit of sustainable development has gained momentum since the release of *Our Common Future*, commonly referred to as the *Brundtland Report* (World Commission on Environment and Development, 1987). In the Australian context, the definition of sustainable development is based on the Brundtland Report, as well as the *National Strategy for Ecologically Sustainable Development* (Council of Australian Governments, 1992), which defines sustainable development as, '*using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased*'.

In NSW, the concept of sustainable development was introduced into planning and development legislation by the EP&A Act. One of the objectives of the EP&A Act is (section 1.3(b)), '*to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment*'.

For infrastructure projects, 'infrastructure sustainability' is defined by the *Infrastructure Sustainability Technical Manual* (ISCA, 2018b) as, '*infrastructure that is designed, constructed and operated to optimise environmental, social and economic outcomes of the long term*'.

Using a tool such as ISCA's infrastructure sustainability rating tool (the 'IS rating tool'), an assessment of the sustainability performance of a proposed infrastructure asset can be undertaken.

The sustainability assessment for the proposal considered the application of sustainability principles, and the opportunities to achieve sustainability targets and outcomes aligned with best-practice infrastructure projects. The sustainability targets and initiatives outlined have been developed in response to various guidance documents and will be integrated into the detailed design, construction and operation of the proposal. An overview of the approach to the sustainability assessment is provided below, including key relevant guidelines and policies and a summary of the assessment methodology.

Relevant legislation, policies and guidelines

The assessment was undertaken with reference to the following:

- ▶ Relevant legislation, including the *National Greenhouse and Energy Reporting Act 2007* (Cth) and EP&A Act
- ▶ *2030 Agenda for Sustainable Development* (United Nations, 2015)
- ▶ *Sustainable Design Guidelines* (Transport for NSW, 2017)
- ▶ Infrastructure Sustainability rating scheme version 1.2 (ISCA, 2018a) [see section D3.1.3]
- ▶ ARTC's sustainability framework for Inland Rail (see below)
- ▶ *NSW Government Resource Efficiency Policy* (OEH, 2019)
- ▶ *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* (NSW EPA, 2014b).

Secretary's Environmental Assessment Requirements

The SEARs relevant to sustainability, together with a reference to where they are addressed in the EIS, are provided in Appendix A.

D3.1.2 ARTC's approach to sustainability

Sustainability is an important consideration for Inland Rail as a whole, including the proposal. Key considerations include maximising resource efficiency, enhancing local economic activity, and mitigating potential environmental and social impacts.

The opportunities that freight rail provides to reduce the environmental and social impacts associated with promoting economic advancement, by connecting the producers of agricultural and industrial goods to their markets, is at the heart of the Inland Rail program. The policies and strategies that make up the Inland Rail sustainability framework are listed in Table D3.1

TABLE D3.1 INLAND RAIL SUSTAINABILITY FRAMEWORK

Policy/strategy	Purpose
<i>Inland Rail Environment and Sustainability Policy</i> (ARTC, 2018a)	Provides the priorities and direction for implementing sustainability initiatives during the planning, design and operation phases of Inland Rail.
<i>Inland Rail Sustainability Strategy</i> (ARTC, 2019b)	Defines the delivery model and targets for sustainability in the context of Inland Rail. The sustainability commitments embedded into the <i>Inland Rail Environment and Sustainability Policy</i> are supported by identified targets for Inland Rail projects guided by the Sustainability Strategy.
<i>Inland Rail Sustainable Procurement Policy</i> (ARTC, 2020b)	Provides the priorities and direction for sustainable procurement in the context of Inland Rail.

The *Inland Rail Sustainability Strategy* (ARTC, 2019b) and the *Inland Rail Environment and Sustainability Policy* (ARTC, 2018a) outline sustainability objectives, targets and commitments for Inland Rail. These include ARTC's commitment to achieving an 'excellent' rating, in accordance with the Infrastructure Sustainability rating scheme, for the design and construction of the Inland Rail program.

Table D3.2 describes how ARTC's sustainability commitments have been applied to the proposal and demonstrates how these commitments relate to specific credits within the Infrastructure Sustainability rating scheme (described in section D3.1.3).

TABLE D3.2 INLAND RAIL SUSTAINABILITY COMMITMENTS AND THE APPLICATION OF THESE TO THE PROPOSAL

Inland Rail commitments	Application to the proposal	Relationship with infrastructure sustainability credits
Put safety at the heart of everything we do: Our goal is that no-one is harmed at work or on our network.	- Community health and wellbeing—considering the impact that the proposal has on safety of road users, pedestrians and cyclists within the rail network and road crossings, recognising the opportunities to consider safety in design and operation - Crime prevention through environmental design—incorporating measures in the design and construction management that reduce the likelihood of damage and injury to people and property and the impact these have on local communities.	- Community Health and Wellbeing (Hea-1)—considering potential safety impacts; implementing safety in design measures - Crime Prevention through Environmental Design (Hea-2)—incorporating crime prevention measures in the design will reduce potential impacts on local communities.
Engage early and meaningfully with stakeholders, including Indigenous organisations, communities, industry and government: Build effective working relationships and a shared understanding of Inland Rail.	- Stakeholder and community engagement—encouraging, planning, implementing and monitoring stakeholder and community engagement - Heritage—recognising the role that engagement with the Indigenous and non-Indigenous community has in the identification of heritage items and values.	- Stakeholder and community engagement credits (Sta-1 through Sta-4)—encouraging, planning, implementing and monitoring stakeholder and community engagement with Inland Rail - Heritage credits (Her-1 and Her-2)—recognising the role that Indigenous and non-Indigenous communities have in identifying heritage items and values.

Inland Rail commitments	Application to the proposal	Relationship with infrastructure sustainability credits
Promote economic benefits within regional communities: ▶ Create opportunities for development of skilled local and Indigenous workers ▶ Support local and Indigenous businesses to ensure they are prepared for and provided with opportunities to participate ▶ Enable Inland Rail to be a catalyst for complementary private sector investment.	▶ Procurement—encouraging sustainability throughout the value chain for goods and services used to build and operate Inland Rail ▶ Stakeholder and community engagement—encouraging, planning, implementing and monitoring stakeholder and community engagement ▶ Heritage—recognising the role that engagement with the Indigenous and non-Indigenous community has in the identification of heritage items and values ▶ Community health and wellbeing—identification of opportunities to support local economic benefits to local, regional and Indigenous communities ▶ Equity and distribution—identifying and considering regional community impacts and opportunities ▶ Workforce and industry participation—connecting the Indigenous and local engagement and industry participation commitments with measurable approaches.	▶ Procurement credits (Pro-1 and Pro-2) ▶ Stakeholder and community engagement credits (Sta-1 through Sta- 4)—encouraging, planning, implementing and monitoring stakeholder and community engagement with Inland Rail ▶ Heritage credits (Her-1 and in construction Her-2)—recognising the role that Indigenous and non-Indigenous communities have in identifying heritage items and values ▶ Community health and wellbeing (Hea-1)—identifying opportunities to support local communities.
Minimise our environmental footprint: ▶ Apply the principles of avoid, minimise, offset to manage impacts to receiving environments and ecological values ▶ Reduce greenhouse gas emissions and minimise waste ▶ Minimise water use ▶ Obtain and comply with all relevant environmental approvals.	▶ Environment—seeking opportunities to reduce the environmental footprint of the proposal ▶ Waste—seeking opportunities to minimise waste generation and to reuse or recycle materials ▶ Energy and carbon—seeking opportunities to reduce the carbon footprint of the proposal (targeting 20% reduction over baseline performance) through considering construction and operational greenhouse emissions ▶ Water—seeking opportunities to reduce the total amount of water used on the proposal and to identify sources of water that reduce the demand on potable water supplies ▶ Resources and embodied energy—seeking opportunities to reduce the environmental impacts of materials used during construction and operation of the proposal (targeting 15% reduction over baseline performance) through encouraging dematerialisation of the design, selecting materials with lower environmental impact or improving the service life of the materials.	▶ Ecology (Eco-1 and Eco-2); Discharges to Land, Air and Water (Dis- 2, Dis-3 and Dis-4, respectively); and Waste (Was-1 and Was-2)—identifying opportunities to reduce the environmental footprint of the proposal ▶ Energy and Carbon (Ene-1)—identifying opportunities to reduce the carbon footprint of the proposal ▶ Water (Wat-1)—minimising water consumption ▶ Materials (Mat-1)—identifying opportunities to reduce the material impact of the proposal; dematerialisation of the design and improving the service life of selected materials ▶ Land (Lan-2)—identifying opportunities to conserve onsite resources for the proposal.

Inland Rail commitments	Application to the proposal	Relationship with infrastructure sustainability credits
Future-proof Inland Rail so it is efficient and effective in the long term: ▶ Design for climate change resilience ▶ Incorporate the future demand requirements and corridor uses in current design.	▶ Climate change—considering climate change impacts and opportunities to reduce the risks to Inland Rail associated with a future climate ▶ Adaptation—ensuring adaptation measures are consistent with Cli-2 ▶ Future proofing—considering the future demand requirements to reduce the potential for impacts to the natural and social environment associated with future upgrades to meet increased demand for freight rail.	▶ Climate change (Cli-1 and Cli-2)—identifying potential climate change impacts, and implementing adaptation and resilience measures ▶ Adaptability (Was-3)—considering future demand requirements and corridor uses in the current design.
Base decisions on a balanced consideration of technical, economic, environmental and social issues: ▶ Adopt a consistent approach across Inland Rail.	▶ Decision making—consistently considering the environmental, social, local economic and technical impacts during decision making.	▶ Decision making (Man-7)—using a multi-criteria approach when making critical decisions.
Regularly review and audit processes and performance: ▶ Challenge the way we have always done things ▶ Ensure we are doing what we said we would do.	▶ Leadership—demonstrating sustainability leadership across the delivery of the Inland Rail Program and at the proposal levels ▶ Management and governance—recognising the importance of monitoring, and review of progress to identify opportunities for continuous improvement ▶ Benefits identification—considering and identifying early the benefits the proposal will bring, so that the promised benefits can be assessed and reviewed during operation.	▶ Management and governance credits (Man-1, Man-4, Man-5, Man- 6)—recognising the importance of sustainability commitments; regularly reviewing progress against sustainability commitments; encouraging culture of continuous improvement through stakeholder and community engagement ▶ Innovation (Inn-1)—identifying new and improved methods of achieving sustainability commitments.
Drive a culture of continuous improvement: ▶ Seek to improve, collaborate and value-add throughout delivery.	▶ Management and governance—encouraging improvement in the delivery of the proposal and on the promises made to stakeholders and the community ▶ Innovation—reviewing the outcomes from the way things are done to find new and better ways of achieving the desired outcomes.	▶ Management and governance (Man-1, Man-4, Man-5, Man-6)—monitoring and evaluating performance; implementing lessons learned from within and outside the proposal ▶ Innovation (Inn-1)—identifying new and improved methods of achieving sustainability commitments.

D3.1.3 Methodology

The proposal has assessed the consideration and implementation of sustainability using the framework that underpins the Infrastructure Sustainability rating scheme (described below). The scheme, which considers whole-of-life impacts and benefits, has historically been used for the assessment of sustainability performance throughout design and construction of the asset.

The assessment broadly involved:

- ▶ Defining the sustainability context for the proposal, within the broader context of Inland Rail and relevant policies and guidelines (see section D3.1.1)
- ▶ Undertaking a preliminary performance assessment (including a weightings assessment) of the sustainability performance of the proposal, based on the current concept design, using the Infrastructure Sustainability rating scheme (described below)
- ▶ Recommending a target rating for the proposal in accordance with the Infrastructure Sustainability rating scheme
- ▶ Identifying requirements for managing sustainability during detailed design, construction and operation.

The preliminary performance assessment used version 1.2 of the Infrastructure Sustainability rating scheme to assess the anticipated sustainability performance of the proposal. The aim of the assessment was to:

- ▶ Document evidence to show how sustainability initiatives have been embedded into the reference design phase of the proposal, ensuring that initiatives to be carried forward to the detailed design, construction and/or operation phases are also captured
- ▶ Document opportunities to minimise energy, water and material consumptions and reduce greenhouse gas emissions during construction and operation of the proposal
- ▶ Identify cost-effective opportunities for innovation and leading practice during the construction and operation phases
- ▶ Document how the design of the proposal has changed to mitigate potential environmental, social and economic impacts, and to improve future resilience
- ▶ Inform the Infrastructure Sustainability rating verification process.

The weightings assessment was undertaken at a sustainability workshop held in October 2018. It included determining the level the proposal was going to target for each sustainability credit.

Infrastructure Sustainability rating scheme

The Infrastructure Sustainability rating scheme was established by ISCA in 2012. It provides a clear framework for embedding sustainability into the planning, design, construction and operation phases of infrastructure projects.

ISCA released a new version of the rating scheme (version 2.0) in July 2018. The proposal has been assessed using version 1.2, in accordance with guidance provided by ISCA. Opportunities for the proposal to pilot some of the new credits associated with version 2.0 of the scheme were also identified.

Using the rating scheme, credit points are allocated for providing verified evidence of sustainability actions across different performance categories which are then totalled to achieve an overall project score. The 'Design' and 'As Built' ratings would be applied to the proposal. The 'Design' rating is an interim verification step. This interim rating is later replaced with the 'As Built' rating, which covers both the design and construction stages. The themes and associated performance categories are shown in Figure D3.1.

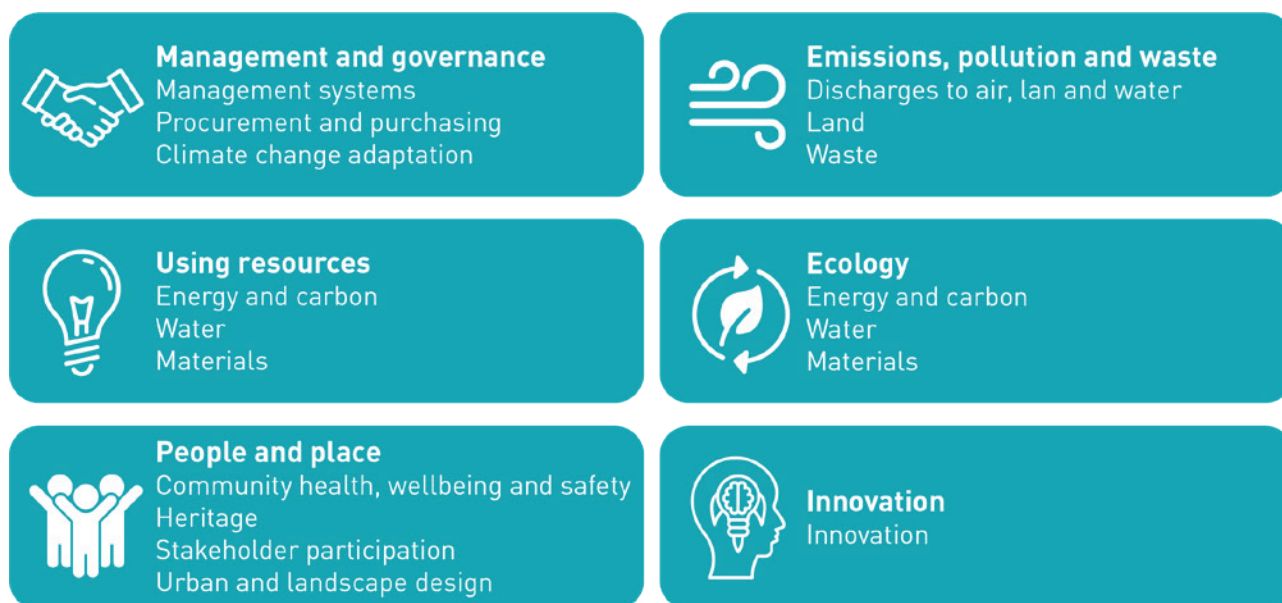


FIGURE D3.1 INFRASTRUCTURE SUSTAINABILITY RATING SCHEME THEMES AND CATEGORIES

Key steps in the assessment process are set out in Figure D3.2.

The first step in the assessment process involves an initial assessment of category weightings, followed by analysis of credit requirements. This provides a project-specific context for identifying a target rating level that the project should seek to achieve.

Information relevant to each category of sustainability initiatives is reviewed in conjunction with relevant subject matter experts to provide an evidence base for determining the potential performance of a project.

Proposal information was analysed using the IS rating tool to determine the potential score against each sustainability credit. A total potential score was calculated and the target rating level for the proposal confirmed.

Under the rating scheme, each project is allocated a calculated rating based on a score out of 100, with an additional 10 points available for innovation.



FIGURE D3.2 INFRASTRUCTURE SUSTAINABILITY RATING SCHEME METHODOLOGY

The proposal's rating depends on how well it performs against defined benchmarks set for each credit. The proposal is pursuing a rating of 'excellent'. An excellent rating indicates that the proposal is achieving Australian best practice in terms of sustainability.

The proposal is currently in the planning phase [i.e. EIS and reference design phase] as defined by ISCA. An Infrastructure Sustainability rating cannot be formally verified during the planning phase; formal verification against version 1.2 of the ISCA rating scheme is expected to occur towards the end of the detailed design phase.

D3.2 Assessment results

D3.2.1 Target rating

Based on the results of the assessment, the Infrastructure Sustainability rating scheme target rating of 'excellent' was identified as appropriate for the proposal. A broad range of sustainability initiatives were identified, and relevant initiatives have been incorporated into the reference design. The identified sustainability initiatives and opportunities would contribute towards achieving the targeted 'excellent' rating for the proposal and the Inland Rail program as a whole.

D3.2.2 Sustainability in design

The sustainability objectives and supporting potential initiatives identified for the proposal are detailed in Appendix G according to the relevant Infrastructure Sustainability rating tool category. Each category has been assessed against the proposal to determine its applicability and value to the proposal. The themes and objectives are consistent with those required to achieve the 'excellent' rating. The initiatives have been mapped to specific Infrastructure Sustainability credits. This will support formal verification against version 1.2 of the ISCA rating scheme, which is expected to occur towards the end of the detailed design phase.

Appendix G also provides a list of future sustainability opportunities. These were identified during the concept design phase, and will require further investigation during the detailed design, construction and/or operation phases.

D3.3 Mitigation and management

D3.3.1 Approach

Approach to sustainability management

A sustainability management plan would be developed to guide how the proposal would meet the target sustainability rating and how the identified proposal-specific sustainability initiatives would be implemented. The plan would establish governance structures, processes and systems to ensure that sustainability objectives and commitments continue to be implemented during detailed design, construction and operation.

The plan would:

- ▶ Demonstrate leadership and commitments to sustainability
- ▶ Set targets for safety, local employment, materials, waste, procurement, ecological connectivity, greenhouse gas emissions and climate resilience in accordance with the sustainability policies and strategies for Inland Rail [see Table D3.1]

- ▶ Establish the roles, responsibilities and resourcing requirements for the embedding of sustainability throughout the design, procurement and construction of the proposal
- ▶ Document the process for the identification, assessment and implementation of sustainability initiatives and opportunities, particularly those associated with the efficient use of energy, water and transport
- ▶ Document the process to be used to manage the assessment, monitoring and review of sustainability against achieving the requirements of an 'excellent' level of performance, as measured against the requirements of version 1.2 of the Infrastructure Sustainability rating scheme
- ▶ Consider the future safety in design opportunities outlined in Appendix G
- ▶ Outline the documentation and reporting requirements necessary to demonstrate how sustainability has been incorporated into the proposal during design, construction and operation.

Prior to the commencement of operations, the plan will be reviewed and updated to focus on operation and maintenance aspects.

Expected effectiveness

The proposed management measures provided in section D3.3.2 have been developed to provide a pathway to achieving the target sustainability rating. These are consistent with those implemented on similar infrastructure projects and are expected to be effective.

Interaction between measures

The sustainability management plan would be considered during development of the proposal's CEMP and operational environmental management plan (described in chapter D5) to ensure consistency with regards to sustainability.

Climate change risk adaptation measures described in chapter D4 would be incorporated into the sustainability management plan.

D3.3.2 List of mitigation measures

Measures that will be implemented to integrate sustainability considerations with the proposal and achieve the target rating are provided in Table D3.3.

TABLE D3.3 SUSTAINABILITY MITIGATION MEASURES

Stage	Ref	Impact/issue	Mitigation measures
Detailed design/ pre-construction	SU1	<i>Achieving the target sustainability rating</i>	A sustainability management plan would be developed to guide the proposal to achieve an 'excellent' design rating, according to ISCA's Infrastructure Sustainability rating scheme v1.2. The sustainability management plan would incorporate sustainability objectives and targets consistent with Inland Rail program sustainability objectives and targets, roles and responsibilities, strategies for achieving the 'excellent' design rating, and review and reporting requirements.
	SU2	<i>Procurement</i>	Procurement would be undertaken in accordance with the <i>Inland Rail Sustainable Procurement Policy</i> (ARTC, 2020b).
	SU3	<i>Reporting</i>	Monthly sustainability reporting (and corrective action where required) would be undertaken during detailed design in accordance with the sustainability management plan.
Construction	SU4	<i>Achieving the target sustainability rating</i>	A sustainability management plan would be developed to define the measures required to be implemented to achieve an 'excellent' as built rating according to ISCA's Infrastructure Sustainability rating scheme v1.2. The sustainability management plan would incorporate Inland Rail program-aligned sustainability objectives and targets, roles and responsibilities, strategies for achieving the 'excellent' as built rating, and review and reporting requirements.

Stage	Ref	Impact/issue	Mitigation measures
Construction [continued]	SU5	<i>Reporting</i>	Monthly sustainability reporting (and corrective action where required) would be undertaken during construction in accordance with the sustainability management plan.
Operation	SU6	<i>Sustainability</i>	Prior to operation commencing, a sustainability handover plan would be prepared, and relevant initiatives would be maintained and implemented through operational management and maintenance procedures.