



## 15 SUSTAINABILITY ASSESSMENT

### CHAPTER SUMMARY AND CONCLUSIONS:

- The sustainability assessment draws on analysis undertaken throughout the Detailed Business Case (DBC), including but not limited to the economic analysis, environmental assessment and social impact evaluation.
- The sustainability assessment documents sustainability considerations relevant to the Reference Project in order to understand and, where possible, avoid or mitigate immediate and long-term impacts.
- The sustainability assessment demonstrates the Townsville Western Access Rail Corridor (TEARC) Project will contribute to positive economic, environmental and social outcomes.
- All sustainability principles scored a rating of Compliant or higher.
- The strategic context and service need of the project, links to local, regional and state planning outcomes performed most strongly.
- The project is located in a sensitive environment, and the construction and operation of TEARC has the potential to impact these sensitive areas. Further consideration should be given to avoiding impacts and rehabilitating degraded areas.
- Social impacts include direct disturbance to the communities of Cluden and South Townsville as a result of construction and operational activities. Overall, the project is anticipated to contribute to community and economic growth objectives for Townsville and have a positive impact on urban amenity due to improved access to Port via the TEARC alignment.



## 15.1 Introduction

The purpose of this chapter is to identify sustainability considerations relevant to the Townsville Western Access Rail Corridor (TEARC) project to understand and, where possible, avoid or mitigate immediate and long-term impacts and maximise benefits. The sustainability assessment assists with documenting the economic, social and environmental impacts of the project, not just its financial performance.

This assessment draws upon analysis already undertaken in the preceding chapters of the Detailed Business Case (DBC), including the Economic Analysis, Environmental Assessment and the Social Impact Evaluation.

## 15.2 Approach

The development of the sustainability chapter for the DBC involved the following activities:

- review the applicability of Building Queensland standard sustainability principles
- review of stakeholders, their interests, and drivers
- collaboration with environment, social and design team
- refinement and completion of sustainability assessment.

## 15.3 Assessment

The ratings for each criterion are assessed against the Building Queensland criteria presented in Table 15.1.

Table 15.1 Sustainability Assessment Rating

SUSTAINABILITY ASSESSMENT RATING	
LEVEL	CRITERIA
Advanced	<ul style="list-style-type: none"> <li>▪ Generates significant additional value and new opportunities not previously evident, such as changing a liability into an asset</li> <li>▪ ‘Designs out’ the problem up-front rather than relying on managing impacts later</li> <li>▪ Solutions generate flow-on benefits outside the project boundary</li> </ul>
Moderate	<ul style="list-style-type: none"> <li>▪ Solutions to significant issues result in multiple benefits through economic, social and/or environmental outcomes</li> <li>▪ Meets immediate community and user needs and will be resilient and efficient into the future</li> <li>▪ Significant innovation and leading practice incorporated into the project</li> </ul>
Basic	<ul style="list-style-type: none"> <li>▪ Avoids harm and negative effects</li> <li>▪ Solutions create project efficiencies</li> <li>▪ Solutions have an immediate or short-term focus</li> </ul>
Compliant	<ul style="list-style-type: none"> <li>▪ Meets legislative and regulatory requirements</li> </ul>
Poor	<ul style="list-style-type: none"> <li>▪ Fails to meet legislative and regulatory standards</li> <li>▪ Solutions may result in dis-benefits and negative effects</li> </ul>

## 15.4 Project description

TEARC is a proposed new 8.3 km freight rail link, branching off the North Coast Line at Cluden and connecting directly to the Port of Townsville (PoT). The alignment broadly follows the eastern side of



Southern Port Access Road, crossing near the mouth of the Ross River and connecting to the existing inner (Cannington) and outer (Nickel) balloon loops within the Port of Townsville.

The track and supporting infrastructure, which includes roads and bridge structures, will streamline port operations (through reduced shunting, cross-port movements and reorientation of trains for existing handling facilities). It will also improve access and egress.

Additionally, TEARC will provide port access redundancy for rail in the event of infrastructure interruption, enhancing operational flexibility, and reduce the level of interaction between rail and road traffic, thereby improving safety and traffic flows.

TEARC has been designed to facilitate future staged infrastructure upgrades, including the proposed port expansion.

Table 15.2 Governance assessment

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GOVERNANCE	
<p>1. Context</p> <p>All infrastructure projects sit within a broader context, and should be planned, designed and operated to connect with the wider system (including other infrastructure, economic activity, landscapes, population hubs and movements, flows of resources, materials, goods and people). This could occur at neighbourhood, town, city, region or state scales.</p>	Moderate
<ul style="list-style-type: none"> <li>What is the service need being addressed by this project? Have social, environmental and economic issues been considered?</li> </ul> <p>The existing freight network in Townsville is subject to time delays and capacity constraints. These inefficiencies increase costs for industry and reduce their competitiveness. Network inefficiencies are generated by road-rail interfaces as cargo moves through urban areas (e.g. along the Jetty Branch and along the North Coast line). Delays arising from congestion at level crossings and reduced line speeds cost residents, commercial vehicles and freight operators’ time and money. Lost productivity and delays in freight transport limit Townsville’s appeal to industry.</p> <p>The movement of freight through the city generates safety risks for vehicles and pedestrians and slows the flow of traffic, generating an inefficient road network. The blending of industrial, commercial and residential areas around the rail line has also limited the growth of the CBD, and subjects residents to noise, reduced air quality and low visual amenity. Taken together, these factors reduce the city’s appeal as a place to live and do business.</p> <p>Social, environmental and economic issues associated with the project have been considered during the development of the business case through the conduct of environmental assessment, economic analysis, and during a social impact evaluation workshop.</p>	
<ul style="list-style-type: none"> <li>What are the key elements, interrelationships and interdependencies of the wider system or network for this project that are fundamental to its long-term effectiveness?</li> </ul> <p>TEARC is identified as one of suite of major infrastructure investments which will establish a more attractive environment for investment in the Townsville city, by improving export and freight efficiency, and boosting the capabilities of Townsville’s competitive industries. In this context, TEARC is seen as a catalyst for future economic growth, by helping to attract new industry and link the minerals rich north-west province to global export markets.</p> <p>Key interrelationships of TEARC include:</p> <ul style="list-style-type: none"> <li>The proposed expansion of the PoT, upgrades to the Mount Isa Line and TEARC are all expected to contribute to regional development, not only to supporting the existing resources sector, but also allow the diversification and strengthening of other economies.</li> <li>TEARC is proposed to improve freight efficiency of the PoT and TSDA and act as a catalyst for future economic growth, by helping to attract new industry and connect regional economic opportunities to global markets.</li> </ul>	



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- The PoT services two freight links that are of national strategic importance, the Mount Isa Line and North Coast Line. Constructing TEARC to integrate the supply chain between the Mount Isa and North Coast Lines with the PoT will support increased transport volumes, provide a competitive advantage to Townsville for export trade.
- Future growth of the port is constrained by infrastructure layout inefficiencies and tenure arrangements with single use berths. TEARC its associated rail loop within the port is a critical enabler for the optimal port layout and port expansion project.
- TEARC is anticipated to help activate and encourage new industry to locate to the TSDA by providing a strategic freight link with direct access to the PoT and Mount Isa and North Coast Lines.
- TEARC offers the potential to divert freight rail movements away from the North Coast Line, helping to alleviate pressure on the road network, improve freight efficiency and deliver improvements to urban amenity and safety.

■ How will the project integrate with, or respond to these elements?

TEARC responds to the wider network need for improved efficiency by:

- providing additional rail capacity and ability to accommodate longer trains to support the efficiency of the resources sector
- providing additional access capacity to support new operations within the Port of Townsville, noting that there some latent capacity within the Port of Townsville but not sufficient space for new entrants, which impinges growth and potentially constrains future throughput volumes
- improving freight efficiency and boost capability of the Port of Townsville by removing bottlenecks within the port caused by road and freight movement conflicts through at grade crossings
- supporting the activation of the T SDA by providing a strategic freight link with direct access to the Port of Townsville and Mount Isa and North Coast Lines
- diverting freight rail movements away from the North Coast Line, helping to address road network impacts associated with at-grade crossing and urban amenity impacts from freight rail operations within the urban areas of Townsville.
- TEARC represents an opportunity to act as both a catalyst and enabler for the proposed port expansion, providing the opportunity to address some of the key constraints within the port, and to support future export growth.

<p>2. Strategic Planning</p> <p>Design infrastructure to be the solution to identified problems taking into consideration strategic goals and objectives. Focus on longer-term use and outcomes so that the infrastructure leaves a positive legacy. Consider adaptability to respond to future changes, challenges and trends.</p>	<p>Moderate/Basic</p>
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■ Has a full range of options been considered including non-infrastructure solutions?

In December 2012, key government agencies and stakeholders, including Queensland Rail, Port of Townsville Limited, the Department of Transport and Main Roads and Townsville City Council undertook a joint review of possible alignment options for a proposed future rail link to the port. The study included a high-level assessment of potential opportunities and conflicts for each of the alignments together with preliminary cost estimates.

The preliminary assessment initially considered four strategic alignment options, which were narrowed to three alignments after the first workshop. These three alignment options were then canvassed with a range of external stakeholders. A further round of assessments then narrowed the focus down to two strategic alignments, with five detailed sub-alignment options. These were then assessed to identify a preferred alignment option (the Reference Project).

As part of the DBC, the alignment options identified in the preliminary assessment have been examined in greater detail and further refined the options. The DBC involved a MCA options assessment was undertaken over several stages, with key stakeholders engaged throughout the process to help inform the progression through to a preferred option. The MCA developed key criteria and sub-criteria, covering economic, social, environment and



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engineering considerations. Generally, the key criteria capture triple bottom line needs as well as engineering and sustainability concerns. The sub-criteria adopted generally matched the discipline areas in the business case brief.

- How will the project solve the identified service need? How does it align with departmental and/or state goals and objectives?

As previously discussed, TEARC is designed to address three core problems. The preferred option is expected to play a role in addressing some, but not all, of the aforementioned problems. Should the project proceed, Townsville will gain a more competitive position as an industry and export hub. Several urban amenity and safety issues would also be mitigated or removed. The problems and benefits are outlined in the table below.

Existing problems	Expected benefits from TEARC
Problem 1 – Existing freight rail configuration does not enable future expanded port operations	<ul style="list-style-type: none"> <li>Port can meet expected growth in container shipments.</li> <li>Increased trade volumes can be serviced through the port.</li> <li>Export-led growth in Townsville.</li> </ul>
Problem 2 – Competitiveness of industry is constrained by inefficiencies in the freight network	<ul style="list-style-type: none"> <li>TSDA activation through improved road and rail connections to port.</li> <li>Growth in new industry investments.</li> <li>Reducing freight costs.</li> <li>Unlocking growth potential of the Northwest Mineral Province.</li> </ul>
Problem 3 – Freight rail movements through residential areas are impacting urban amenity and safety	<ul style="list-style-type: none"> <li>Opportunities for urban renewal</li> <li>Reduced noise and vibration impacts on urban neighbourhoods</li> <li>Reduced road network delays</li> <li>Reduced risk of safety incidents at open level crossings</li> </ul>

- Does the project respond to the most significant drivers of change over the next two decades (i.e. those with greatest impact and most probable) including technological, demographic, political, environmental, and economic trends?

The Australian Government, Queensland Government, and Townsville City Council signed Australia's first City Deal for Townsville on 9 December 2016. The *Townsville City Deal (2016)* will focus on improving the lives of Townsville residents through job creation, economic growth, investment in local infrastructure, a revitalised urban centre, and a more vibrant and liveable city. The City Deal is a 15-year commitment between the three levels of government to work together to deliver transformative outcomes for Townsville and its residents.

TEARC is anticipated to enhance regional development and economic growth through industrial investment attraction, allow for the development of additional jobs growth and skills, support trade and investment through the Port of Townsville and broaden industry development through enhanced supply chain opportunities.

3. Leadership, knowledge sharing and innovation The leadership team are responsible for implementing, measuring and reporting on the sustainability performance as well as the creation of a culture of innovation and knowledge sharing.	Basic
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- How will this project engage a committed leadership team to embed sustainability into the planning, design, building and operation of this infrastructure project?

The Department of Transport and Main Roads (TMR) will be the project owner if TEARC is approved to proceed. TMR in conjunction with the major stakeholders of Queensland Rail and the Port of Townsville will utilise TMR's project delivery leadership and procedures to ensure the concept design from the DBC continues to deliver on the



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long-term environmental, social and economic benefits of the project. This approach will be outlined in the implementation plan.

- How will a culture of innovation be created across the project life cycle and include both proponent and contractor?

TMR as project owner will be setting project Key Performance Indicators (KPIs) for the delivery of the project that will include sustainability and innovation. These KPIs will be included in the design and construction contracts to ensure there is alignment of goals from the project through the design and construction activities. The nature of TEARC as an earthworks project does limit the amount of innovation that may be applied.

- How will knowledge and lessons be shared with the project team, other projects and the supply chain? How will lessons learnt from previous projects be incorporated?

TMR is the project owner and delivered the Southern Port Road (SPR) in 2012. TEARC mostly follows the same corridor as Southern Port Road (SPR), including the Ross River bridge. Lessons learnt and geotechnical information from SPR was utilised in the concept design for TEARC. Although TEARC is generally a rail project there are major road grade separations which TMR has local experience.

TMR will also utilise the rail experience of Queensland Rail to provide lessons learnt from a rail perspective. This approach will be incorporated into the implementation plan.

- How will the supply chain be prepared for the sustainability and innovation requirements of this project?

The project KPIs will cascade through the contractors and suppliers to ensure alignment with sustainability and innovation and with the Queensland Government Procurement Policy to any procurement activities.

- How will you consider and respond to local Indigenous and other cultural elements in the design, delivery and operation of this project?

The area has undergone high levels of modification in the past as a result of clearing for previous land uses, construction of SPR and development of other infrastructure. The TEARC corridor has most likely already been cleared of all intact cultural heritage and may only have fragments remaining.

Notwithstanding, there are a number of sites within the project area that are of cultural significance to the local groups most notably the sand dunes on the east and south coast bank of the Ross River and the Ross River crossing.

Potential direct impact on sites of cultural heritage by the Project will generally be because of clearing of vegetation, surface and sub-surface excavation, ground preparation and other associated activities related with rail, associated roads and Ross River bridge embankments and piles.

To mitigate impacts on potential Aboriginal cultural heritage, liaison with the Bindal people #2 and Gurambilbarra Wulgurukaba will be undertaken and a ground survey is required to determine the requirements in meeting the Duty of Care guidelines under the Aboriginal Cultural Heritage Act 2003. Outcomes from the site survey and engagement with parties will inform the detailed design process where necessary. In addition, a Cultural Heritage Management Plan (CHMP) with both parties may be required to detail the agreed monitoring activities during the works, identify any high-risk locations, or access requirements and outline workforce cultural heritage awareness training required prior to and during construction.

<p>4. Procurement and supply chain Procurement activities are responsible and consider human rights, society and environment.</p>	<p>Not applicable at this project stage – Basic if implemented</p>
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- How will sustainable procurement including human rights, society and the environment be incorporated into the project's procurement activities?

The TEARC Project will apply principles contained in Queensland Government Procurement Policy to any procurement activities. The Queensland Government Procurement Policy is founded on six principles. These



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principles include consideration of, value for money, integrity, and accountability, and advancement of the government’s economic, social and environmental objectives. Further to the Queensland Government Procurement Policy, a TEARC specific procurement policy should be developed at a later project stage that meets the detailed requirements of the Infrastructure Sustainability Council of Australia (ISCA) Rating Tool.

**Table 15.3 Environmental assessment**

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<p>5. Material use</p> <p>Materials used on the project have a low life cycle impact and have low toxicity.</p>	<p>Not applicable at this project stage – Basic if implemented</p>
<ul style="list-style-type: none"> <li>How will this project assess materials used in terms of their environmental life cycle impact and toxicity?</li> </ul> <p>During later design phases the Project should utilise the IS Rating Tool/or similar to assess lifecycle impact of materials. The IS Rating Tool Materials Calculator evaluates environmental impacts in relation to use of materials on infrastructure projects and assets. This assessment will consider the environmental impacts of products over their entire life, taking into account: raw materials, manufacturing, transport and distribution, construction processes, and maintenance and replacement.</p>	
<p>6. Climate change mitigation</p> <p>The project will mitigate climate change through identifying an infrastructure solution to reduce global carbon emissions</p>	<p>Basic</p>
<ul style="list-style-type: none"> <li>How will this project mitigate climate change?</li> </ul> <p>Greenhouse gas emissions from transport come primarily from fossil fuels combusted in vehicles (Climate Change Authority, Opportunities to reduce light vehicle emissions in Australia, 2012). The Project will provide opportunities for modal shift from road to rail and/or for preventing modal shift away from rail, which may result in a reduction of emissions from road vehicles. Rail freight is up to 23 times more energy efficient compared to the road freight transport sector (Australasian Rail Association, 2017).</p> <p>The primary sources of energy use during construction will be electricity for ancillary activities such as lighting, workplace cooling and heating and general power requirements, and non-renewable fossil fuels for operating vehicles, plant and equipment. This is both a cost to the project and a source of greenhouse gas emissions to the atmosphere. Consideration should be given to the reduction of energy use wherever possible.</p> <p>Opportunities to minimise construction and operational emissions may include balancing cut and fill mass, locally sourcing materials reducing haulage distances, and selecting materials with lower embodied energy. These opportunities should be explored in future design stages.</p> <p>There may be some opportunities to source some preloading material (dredge spoil) from the Port.</p>	
<p>7. Water management</p> <p>Managing water consumption and discharge according to local conditions now and in the future.</p>	<p>Basic</p>
<ul style="list-style-type: none"> <li>Will this project use large amounts of water in construction and operation?</li> </ul> <p>It is not anticipated that significant water volumes will be required for the construction, nor operation. Specific quantities and water sources have not been identified during the DBC.</p> <p>During later design stages a construction water supply strategy should be developed to quantify volumes and identify sources of water for construction activities. During detailed design, consideration should be given to</p>	



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designing water management structures to capture sufficient water for use onsite and access to these areas so the water can be collected and used. Subject to environmental approvals.

At this stage of Project development, quantities of construction water are not known.

- Is this project located in an area of water scarcity? If not, how will water scarcity in the future affect its construction and operation?

The project is not located in an area of water scarcity. Operational water requirements are limited and any reduction in water availability in the future is unlikely to impact the project.

- Will this project discharge water to sensitive environments during construction and/or operation?

The project site is located on a floodplain and is subject to flooding during king/storm tides events. There are also expansive tidal wetlands that occur within the project area. The project site is located within proximity to a number of sensitive and protected areas which include:

- the Burdekin – Townsville Coastal Aggregation nationally important wetland, listed on the Directory of Important Wetlands in Australia
- the mouth of the Ross River and coastal waters of Cleveland Bay, including lower reaches of Gordon Creek, Stuart Creek, Sandfly Creek and the unnamed tributary, the Great Barrier Reef World Heritage Area
- a high ecological significance (HES) wetland, mapped as a matter of state environmental significance approximately 250 m northeast of the project area. Other HES wetland protection areas mapped by EHP more than 2 km east of the project area and a HEV wetland (under the EPP (Water) approximately 2.7 km east of the project area
- the Great Barrier Reef Marine Park is approximately 2.3 km east of the project area
- Bowling Green Bay, which is a Ramsar wetland of international significance, located approximately 9 km west of the project site.

The establishment of works areas and general earthworks during construction will result in an increased risk of soil erosion. The mobilisation of soils across the site has the potential to cause temporary impacts to local water quality. Extraction of water from local waterways for construction purposes has the potential to cause temporary impacts to aquatic habitats. To minimise impacts from construction activities the following mitigation measures should be considered:

- Programming of the majority of bulk earthworks to occur during the drier months.
- Completion of construction works in and near waterways, particularly near Stuart and Gordon Creek, between May and October.
- Stabilisation of exposed batters should be reviewed prior to wetter months to determine if additional protection is required.

The implementation plan will include an Environmental Management Plan for the construction phase.

The rail embankment has the potential to affect hydrological flows and flood inundation by creating a barrier to the movement of water across the floodplain. The design will need to achieve minimal change to patterns of freshwater flow and tidal inundation using culverts and bridges (i.e. timing, depth, period of inundation), to minimise the impacts on upstream or downstream areas and on ecosystems across the coastal floodplain. The operation of the project is likely to have negligible impact to local receiving environments.

8. Resource recovery Reducing waste generated and increasing reuse in construction and operation.	Compliant
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- How will this project manage waste and resource recovery?

The project will be required to import significant volumes of fill material for the construction of the rail embankment. The most considerable resource use associated with the Project is anticipated to be the materials required for the bridge structures and culverts over Ross River and the smaller creeks. Both will require the importation of material to achieve the required alignment. To minimise raw material inputs the design should consider the use of recycled materials, including recycled water, and optimising the earthwork cut and fill balance,





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which is subject to acid soil considerations. Materials brought to site should be sourced locally to minimise transportation impacts.

Other resources likely to be available which could be considered for recovery during construction activities include:

- Mature vegetation including large timbers that could be recovered for use in fauna furniture and/or mulched for use in landscaping and revegetation.
- Topsoil that could be reused in landscaping and revegetation.
- Earthwork spoil that could be used as fill in locations along the corridor where excess is required.
- Ballast rock whereby the larger rock is cleaned and reused, and smaller rock is crushed and recycled as road base or fill material.

9. Land selection	Basic
The project is located on previously disturbed land and limits impacts to local habitat.	

- Will this project be located on previously disturbed land?

The project is predominantly located within the TSDA east of the City of Townsville and south of the PoT. The project corridor crosses the mouth of the Ross River and tributaries of Gordon Creek and Stuart Creek, extending through coastal saltmarsh flood plain areas containing least concern remnant vegetation. Extensive areas of the project site are impacted by clearing, fire and weed infestation from past or current adjoining land uses.

The proposed alignment runs parallel to the SPR that has disturbed some areas of the project site. The project site is designated for the purposes of materials transportation/services corridor precinct within the TSDA.

10. Ecology	Basic
The local and regional habitat and ecology will be enhanced.	

- How will this project improve ecology within the local region?

The site is characterised by low-lying coastal habitats including mangroves, saltpan, coastal woodland and wetlands. Most the project site is mapped as remnant vegetation (least concern), however, is severely impacted by weeds, primarily Chinee Apple (*Ziziphus mauritiana*), lantana (*Lantana camara*) and extensive areas of guinea grass (*Megathyrsus maximus*) dominating the understorey. The project site provides habitat for conservation significant flora and fauna, and migratory species.

The project will require the clearing or disturbance of habitat for protected species and remnant vegetation. Where possible laydown areas for construction will be established in previously cleared areas adjacent to the alignment. Despite the need for clearing of vegetation and loss of some habitat, it is anticipated there is potential to improve the quality of the remaining areas through rehabilitation, specifically weed control.

Other opportunities to enhance the existing environment, including providing habitat restoration for impacted habitats, should be considered as the design progresses.

- Will this project impact critical natural capital (irreplaceable natural features, species, habitats etc.)?

Impacts to any sensitive areas are predicted to be mostly temporary and the resulting residual risk is low to medium. As previously discussed, impacts are likely to be as a result of construction works, specifically generation of noise and vibration, and mobilisation of soils through earthworks, and clearing of habitat.

The operation of the project is likely to have negligible impact to local receiving environments.

11. Green Infrastructure	Compliant
Traditional infrastructure is replaced with natural processes to do the same job.	



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The term ‘green infrastructure’ refers to an interconnected network of landscape assets that is intertwined with engineered (grey) infrastructure and buildings (all the natural, semi-natural and artificial networks of multifunctional ecological systems within, around, and between urban areas, at all spatial scales).

- Describe the opportunities to replace traditional infrastructure (grey) with green infrastructure.
 

No opportunities to replace grey infrastructure with green infrastructure have been identified during the design development for the DBC. Some of the following initiatives should be explored during future design stages:

  - Natural ventilation of structures
  - Wetlands for stormwater treatment
  - Permeable and porous surfaces
  - Provide vegetation to reduce heat islanding and increase visual attraction.

Table 15.4 Social assessment

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12. Social procurement Creating positive social outcomes through using procurement spend and processes.	Basic
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- How will this project use procurement spend to create socially and environmentally beneficial outcomes (e.g. the procurement of environmentally friendly products and services)?
 

The project will be procured in accordance with Queensland Government Procurement policies. There is an opportunity to include tender evaluation criteria that scores the use of locally sourced materials/labour and socially aware purchasing practices. It is expected that the procurement of the Smithfield Transport Corridor Upgrade Project will be subject to competitive tender practices and application.

13. Employees Supporting and improving the lives of all employees including sub-contractors of the infrastructure project	Compliant
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- How will this project support and improve employee outcomes especially marginalised and disadvantaged groups?
 

Through procurement processes, all contractors and subcontractors for Project will comply with the national and state laws for equal employment opportunity and anti-discrimination within the workplace.

14. Social Return The project will have a positive social return on investment meaning for every dollar spent, there will be over one-dollar worth of social outcomes.	Moderate
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- What will be the social return of this project? Describe how this project will benefit society e.g. reduced travel times, increased well-being, improved air quality, increased social cohesion.
 

The benefits to the community include:

  - Contribution to the community and economic growth objectives for Townsville.
  - Improved urban amenity along Abbott Street corridor due to re-direction of freight rail traffic along the TEARC alignment to access the Port of Townsville.
  - Less interaction of freight trains with the North Coast Line along the Abbott Street corridor will reduce the length of time that Open Level Crossings (OLC) are closed, resulting in improved road safety and access



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- Increased employment opportunities will be generated from construction, project management and operations for the TEARC Project.

## 15. Community and stakeholders

Basic

Understanding and incorporating community and stakeholder views including marginalised and affected groups, to increase the social licence to operate.

- How will community and stakeholder views be considered and incorporated into the decision-making processes throughout the project?

Prior to the commencement of the DBC the consultation program was directed towards government departments and officials. There was no direct consultation with the communities potentially impacted by the project.

The communications and stakeholder management strategy for the DBC was designed to:

- provide a coordinated stakeholder management and communication program
- inform stakeholders about the TEARC project and alignment
- manage and mitigate issues during the DBC phase of the Project
- gain understanding and acceptance across key stakeholders and the community for the outcomes of the project.

The DBC stakeholder engagement included the following three phases:

1. Educate and consult stakeholders on options and identify key communication risks, including use of a Stakeholder Advisory Group to discuss options and insights into the MCA.
2. Engage the community, address issues and manage expectations including providing information to the broader community.
3. Report on findings, close the loop, develop forward strategy including reporting, providing feedback to project team and stakeholders.

The following key recommendations are made for future project stages:

- Keep impacted residents and property owners updated on progress and meet landholders face to face.
- Reinforce benefits by ensuring all community-facing materials include key messages about positive community outcomes.
- Doorknock residents who live near the proposed alignment including Cluden and the most impacted parts of South Townsville.
- Keep the broader community engaged by regularly updating the project page and undertaking letterbox drops to ensure they are aware of the progress and construction timeframes
- Continue to use a targeted approach to ensure communication is relevant and appropriate for each group.



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- How will marginalised and affected groups be included in the engagement?

The groups most likely to be marginalised or affected by the project are the communities of Cluden and South Townsville (particularly those living close to the Port). The proposed alignment passes closest to pockets of these two communities, and residents will likely experience increased public and property disruption (e.g. noise, dust, traffic congestion).

The Communications and Stakeholder Management Strategy recommends these communities received a high level of direct and focused engagement. During the DBC the potentially impacted residents and landholders were directly contacted via door knocks and letters before any consultation news was publicly released. The purpose of this direct engagement was to engender a feeling of acknowledgment by the Project Team, and to reduce the likelihood of misinformation spreading because of a lack of information.

In future project stages, the Project Team should undertake further consultation and investigation in relation to noise, dust and traffic congestion. This work should include relevant technical aspects of the project and their likely impacts on residents. The Project Team will continue to use a targeted approach to ensure communication is relevant and appropriate for each group. They will directly consult with impacted groups to keep them updated on project progress.

- What is the legacy left behind beyond the legacy of the project itself (e.g. a bike path to connect two existing bike paths, enhanced community space, restoration of a heritage area etc.)?

There is an opportunity to facilitate safe public access to the shores of the Ross River or improve amenities at the dog beach.

16. Heritage	Basic
Protecting indigenous and non-indigenous heritage and sites highly valued by the community.	

- Will this project affect heritage or areas highly valued by the community? Are there any opportunities to enhance heritage?

– Indigenous heritage

There are two native title claims over the project area. The Bindal Native Title Claim encompasses the project area on the southern side of Ross River, whilst the Gurambilbarra Wulgurukaba Native Title Claim encompasses the project area on the northern side of Ross River.

Searches of State and Federal cultural heritage databases were undertaken, no significant indigenous cultural heritage sites or places located within the specific project corridor were identified. DATSIP searches indicated a diversity of significant Aboriginal cultural sites, places and values in the wider area outside of the project footprint (on the surrounding coastal plains, within specific landforms such as sand dunes and beach ridges and along the channel of Ross River).

Construction of a new rail bridge across the Ross River is likely to be of concern to the indigenous parties and this will require careful cultural heritage management in this High Risk location. As noted, the Ross River retains a high level of Aboriginal cultural significance, as part of the creation story associated with Gabul, the carpet snake. As the major watercourse on the Townsville coastal plain, the Ross River has immeasurable cultural significance to the Traditional Owners as a prominent and important feature of their homelands.

It is recommended culturally appropriate consultation occur with the Bindal Native Title Applicants and the Gurambilbarra Wulgurukaba Native Title Applicants for their respective areas of interest in the final preferred TEARC project corridor (as delineated by the Native Title Claim boundaries along the centre line of the Ross River).

It is recommended that the future field assessments in conjunction with the indigenous parties specifically target those areas and landforms assessed in this desktop study as Medium to High Risk areas (namely, the coastal floodplains, saltpan, mudflats, sand dunes, beach ridges and the banks and surrounds of Ross River).

– Non-indigenous heritage

TEARC passes through areas of post-contact habitation, including the:



**SOCIAL**

- former Townsville City Council sewerage treatment works (abandoned)
- former heavy anti-aircraft gun station installation and camp sites
- Ross River tidal flats where Japanese bombs impacted during WW2.

The above mentioned sites are not listed in the Queensland Heritage Register (QHR). The heavy anti-aircraft gun station was nominated in 2006 as a heritage place but not was not entered.

Whilst the potential for unearthing material of potential State significance in the project area is unknown, there exists high potential for unearthing material that will have significance to the local community and will contribute to a greater understanding of Townsville’s history during the period c1870-1945.

Historical monitoring in areas of archaeological and artefact potential is recommended during initial ground disturbance to ensure any archaeological artefacts of local or state significance may be retrieved and their locations adequately recorded.

Table 15.5 Economic assessment

**ECONOMIC**

17. Equity	Basic
Share the benefits and costs of infrastructure development in a fair and equitable way	

- Who are disadvantaged or made vulnerable through this project? How is this being addressed?  
 As previously discussed, the communities of Cluden and South Townsville, and some other landholders near the Project are likely to experience direct impacts associated with construction activities and operation of the rail line. These impacts include increased rail traffic in areas not previously impacted by rail operations (Cluden and South Townsville). These properties are previously affected by port activities (South Townsville) and light industrial uses (Cluden and South Townsville). Impacts to local urban amenity from noise, dust and vibration. There is uncertainty about need for partial and full property resumptions.
- How are the benefits shared equitably?  
 The project will result in improved urban amenity along the Abbott Street corridor due to re-direction of freight rail traffic along the TEARC alignment to access the PoT. There will be less interaction of freight trains with the North Coast Line along the Abbott Street corridor that will reduce the length of time that OLCs are closed, resulting in improved road safety and access. This will provide benefit for the most impacted communities as well as the wider community.  
 It is also likely to result in increased employment opportunities generated from construction, project management and operations.  
 Overall, the project is anticipated to contribute to community and economic growth objectives for Townsville and have a positive impact on urban amenity due to improved access to the Port via TEARC alignment.

18. Whole-of-life impacts	Moderate
Making decisions based on the whole-of-life impacts and benefits of a project.	

- How will the whole-of-life impacts and benefits be incorporated into the project’s decision-making processes?  
 The project decision-making process relies on the use of detailed economic cost-benefit analysis modelling. This involves consideration of the whole of life costs (e.g. the upfront costs to the transport agency to construct the project and the costs required to sustain the project) and the whole of life quantifiable benefits (e.g. the benefits are assessed over a 30-year period). The consideration of the whole of life impacts produces a benefit-cost ratio (BCR) for use in the decision-making process. The BCR for the project is 0.16 (using a 7% discount rate) which denotes that the project is not economically viable.



## ECONOMIC

There are many strategic and community benefits TEARC will enable as explained in Chapter 3 that were unable to be quantified for the BCR. TEARC will in the long-term allow the eventual removal of the Jetty Branch and all trains would use TEARC. This would improve urban amenity along Abbott St and Perkins St and the nearby Townsville Waterfront PDA.

### 19. Valuing externalities

Basic

Putting a value on material externalities and incorporating them into the decision-making process

- What are the material externalities of this project? How will they be valued (monetised and non-monetised values) in the decision-making process?

The project will reduce negative externalities associated with freight trains travelling through the city of Townsville such as noise and air pollution. The project will also change road user behaviour (e.g. currently road users travelling around level crossings which creates addition air pollution etc.). The reduction in negative externalities associated with freight trains was valued at \$113,413 over a 30-year appraisal period using a 7% discount rate, the project will also reduce road user externalities which were valued at \$1.3 million.

The consideration of safety and environmental parameters in economic assessment is considered to be standard practice.

## 15.5 Summary

The sustainability assessment demonstrates the TEARC Project will contribute to positive economic, environmental and social outcomes. All sustainability principles scored a rating of Basic or Higher.

Sustainability principles that scored a Moderate rating, or higher include:

- Governance
- Strategic planning
- Social return
- Whole of life (process).

This assessment has identified several issues and opportunities that need to be considered as the design is further developed. Of significance are issues and opportunities for maximising the sustainability of the TEARC project in relation to whole of life costs, material use, resource recovery, green infrastructure, climate change mitigation and adaptation, environmental impact and benefit.

It is recommended the TEARC develop and implement a sustainability framework to guide more sustainable decision making in future project phases. This may take the form of an Infrastructure Sustainability Council of Australia (ISCA) Rating or development of a bespoke governance and assessment framework.