Australian Government

BUILDING OUR FUTURE

NSW GOVERNMENT

M1 Pacific Motorway extension to Raymond Terrace

Sustainability Working Paper

Transport for NSW | July 2021

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Executive summary

Background

Transport for New South Wales (Transport) proposes to construct the M1 Pacific Motorway extension to Raymond Terrace (the project). Approval is sought under Part 5, Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Part 9, Division 1 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Performance outcomes

This assessment has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) (SSI 7319) relating to sustainability. In addition, the desired performance outcomes for the project in relation to sustainability as outlined in the SEARs (SSI 7319) are to:

- Reduce the NSW Government's operating costs and ensure the effective and efficient use of resources
- Maximise the conservation of natural resources.

The project has been assessed the SEARs performance outcomes guided by the objectives and requirements of the Environmental Sustainability Strategy 2019-2023 (Roads and Maritime Services, 2019), as this was current at the time of the development of the concept design. Specifically, the project has been assessed against these guidelines including targets and strategies to improve Government efficiency in the use of water, energy and transport.

Overview of sustainability assessment

A review of the project against the sustainability focus area objectives of the Environmental Sustainability Strategy indicates that the project, through the development of environmental management measures identified in this assessment and for the project overall, is aligned with the Strategy's sustainability objectives. The project also has either already satisfied Transport's project relevant compulsory sustainability requirements through the design and Environmental Impact Statement development or are placed to do so through detailed design and construction.

Through alignment with the Environmental Sustainability Strategy and with Transport's Environment and Sustainability Policy, the project is also seeking to promote efficient use of natural resources where feasible and avoid waste spoil on the project in accordance with the desired performance outcomes for the project.

Management measures

Sustainability focus areas are supported by environmental management measures identified across the discipline working papers for the project, in particular those associated with waste, climate change risk and greenhouse gas emissions. In addition to these management measures, specific sustainability measures have been proposed to support the achievement of sustainable outcomes in the project through detailed design and during construction.

Management measures also focus on opportunities to coordinate project efforts toward sustainability during detailed design and construction by incorporating sustainability outcomes across efficient resource use, minimising environmental impacts through design and construction optimisation, sustainable procurement and developing the project to leave a positive legacy for the local community.

Prior to construction, tender documentation would detail the project's sustainability requirements for the contractor, including the development of a sustainability management plan to guide the delivery of sustainability outcomes on the project and identify sustainable procurement requirements.

In delivery, management measures will focus on management of sustainability during construction, including resource efficiency, sustainable procurement, and employment and training. These management measures will require that the contractor monitors and reports on its performance to Transport to ensure that the project's sustainability performance outcomes are achieved.

Conclusion

This document has been developed following the guidance of the Environmental Sustainability Strategy and Transport's Environment and Sustainability Policy throughout design. Through adherence to the sustainability approach outlined in this document, the implementation of a comprehensive sustainability management plan and the application of environmental management measures, the project would satisfy the desired performance outcomes relating to sustainability.

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1. Introduction

1.1 Background

Transport for New South Wales (Transport) proposes to construct the M1 Pacific Motorway extension to Raymond Terrace (the project). Approval is sought under Part 5, Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Part 9, Division 1 of the *Environment Protection and Biodiversity Conservation Act 1999*.

The project would connect the existing M1 Pacific Motorway at Black Hill and the Pacific Highway at Raymond Terrace within the City of Newcastle and Port Stephens Council local government areas. The project would provide regional benefits and substantial productivity benefits on a national scale. The project location is shown in **Figure 1-1** within its regional context.

1.2 Project description

The project would include the following key features:

- A 15 kilometre motorway comprised of a four lane divided road (two lanes in each direction)
- Motorway access from the existing road network via four new interchanges at:
  - Black Hill: connection to the M1 Pacific Motorway
  - Tarro: connection and upgrade (six lanes) to the New England Highway between John Renshaw Drive and the existing Tarro interchange at Anderson Drive
  - Tomago: connection to the Pacific Highway and Old Punt Road
  - Raymond Terrace: connection to the Pacific Highway.
- A 2.6 kilometre viaduct over the Hunter River floodplain including new bridge crossings over the Hunter River, the Main North Rail Line and the New England Highway
- Bridge structures over local waterways at Tarro and Raymond Terrace, and an overpass for Masonite Road in Heatherbrae
- Connections and modifications to the adjoining local road network
- Traffic management facilities and features
- Roadside furniture including safety barriers, signage, fauna fencing and crossings and street lighting
- Adjustment of waterways, including at Purgatory Creek at Tarro and a tributary of Viney Creek
- Environmental management measures including surface water quality control measures
- Adjustment, protection and/or relocation of existing utilities
- Walking and cycling considerations, allowing for existing and proposed cycleway route access
- Permanent and temporary property adjustments and property access refinements
- Construction activities, including establishment and use of temporary ancillary facilities, temporary access tracks, haul roads, batching plants, temporary wharves, soil treatment and environmental controls.

A detailed project description is provided in Chapter 5 of the environmental impact statement (EIS). The locality of the project is shown in **Figure 1-1**, while an overview of the project is shown in **Figure 1-2**.

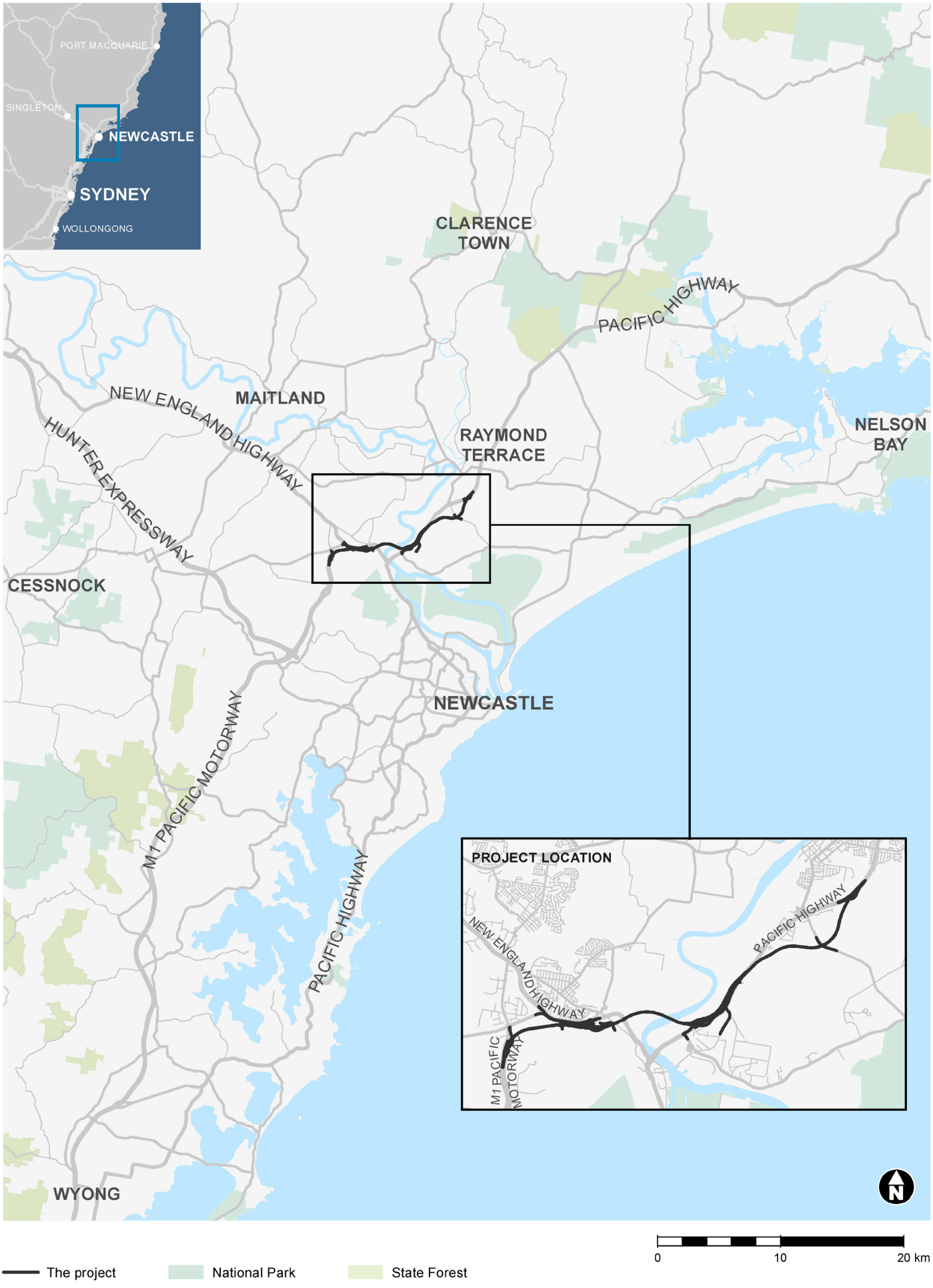

Figure 1-1 Regional context of the project

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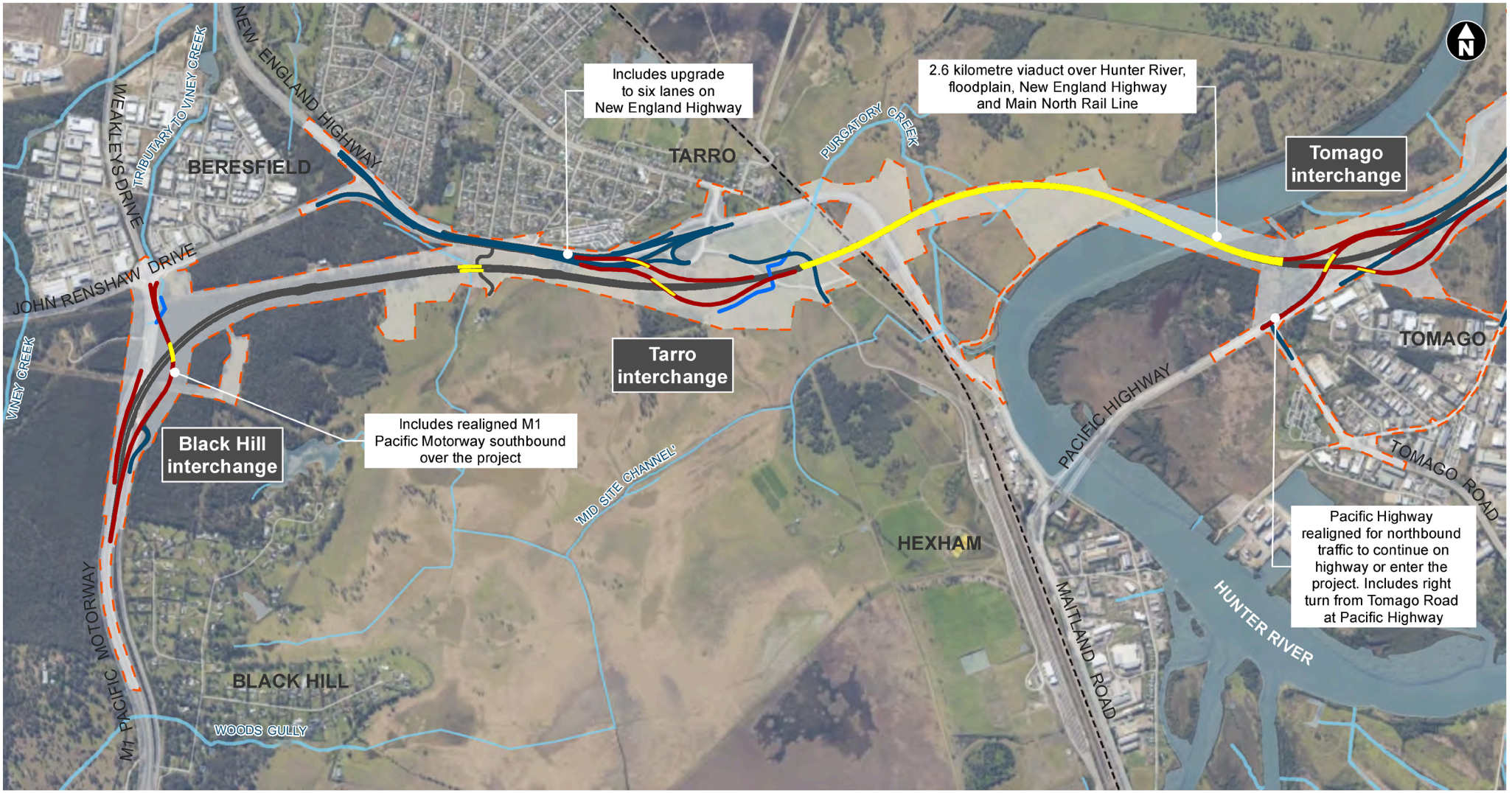

Figure 1-2 Project key features (map 1 of 2)

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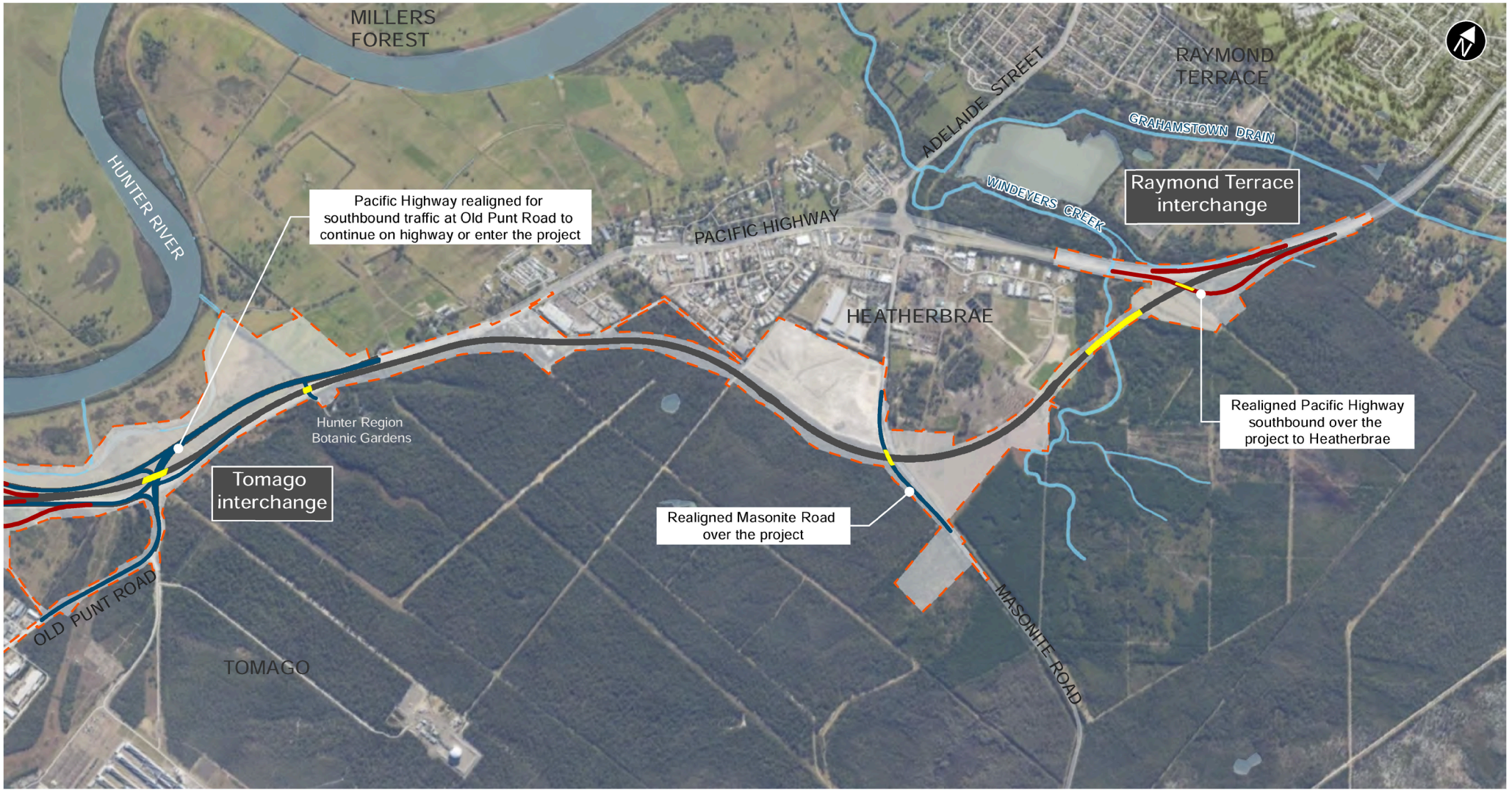

Figure 1-2 Project key features (map 2 of 2)

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1.3 Performance outcomes

The desired performance outcomes for the project relating to sustainability are to:

- Reduce the NSW Government's operating costs and ensure the effective and efficient use of resources
- Maximise the conservation of natural resources.

The Environmental Sustainability Strategy 2019-2023 (Roads and Maritime Services, 2019) has been used as the guiding framework to undertake the assessment as this was current at the time of the development of the concept design. Specifically, the project has been assessed against the these guidelines including targets and strategies to improve Government efficiency in use of water, energy and transport.

1.4 Secretary's Environmental Assessment Requirements

This assessment forms part of the EIS for the project. The EIS has been prepared under Division 5.2 of the EP&A Act. This assessment has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) (SSI 7319) relating to sustainability and will assist the Minister for Planning and Public Spaces to make a determination on whether or not to approve the project. It provides an assessment of potential impacts of the project on sustainability and outlines proposed management measures.

In 2019, revised SEARs were issued for the project, which included sustainability as a key issue. **Table 1-1** outlines the SEARs relevant to this assessment, along with references to where these are addressed.

Table 1-1 SEARs relevant to sustainability

Secretary's requirement	Where addressed in this report
16. Sustainability	
1. The Proponent must assess the project against the current guidelines including targets and strategies to improve Government efficiency in use of water, energy and transport.	**Section 2.1** and **Section 2.2** outline the relevant state legislation, policies, strategies and guidelines relevant to sustainability. **Section 4.2** documents the assessment of the project against relevant guidance relating to the effective and efficient use of resources, and conservation of natural resources. **Chapter 5** describes management measures relevant to sustainability on the project.

1.5 Report structure

The report is structured as follows:

- Chapter 1 – Introduces the project with a summary of the project background, project description, performance outcomes and SEARs
- Chapter 2 – Details the legislation, policies and guidelines applicable to sustainability on the project
- Chapter 3 – Describes the methodology undertaken for this working paper
- Chapter 4 – Assesses the project against the objectives of the Environmental Sustainability Strategy
- Chapter 5 – Recommends management measures to address sustainability on the project
- Chapter 6 – Concludes the report, summarising the results of the report, recommended management measures and how the SEARs are addressed
- References
- Terms and acronyms.

2. Policy and planning setting

2.1 State legislation

2.1.1 Environmental Planning and Assessment Act 1979

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

The Act encourages ecological sustainable development and the effective integration of economic and environmental considerations into decision-making processes. There are four main principles supporting the achievement of ecological sustainable development:

- Precautionary principle
- Intergenerational equity
- Conservation of biological diversity and ecological integrity
- Improved valuation and pricing of environmental resources.

Through the development of environmental management measures in this and the associated project working papers (refer to **Chapter 5**), this assessment has outlined how the project would facilitate the ecologically sustainable development objectives of the NSW government by bringing in economic, environmental and social considerations in the detailed design and construction of the project.

2.1.2 Transport Administration Act 1988

The *Transport Administration Act 1988* provides a common objective and service delivery priority for transport agencies to promote delivery of transport services in an environmentally sustainable in manner. Part 3, Division 1, Section 20A – Objectives of STA (State Transit Authority) requires compliance with the principles of ecologically sustainable development as set out in the *Protection of the Environment Administration Act* (see below).

2.1.3 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* is a key piece of environment protection legislation administered by the New South Wales Environment Protection Authority and applies to roads and maritime activities and projects. This references the definition of Ecologically Sustainable Development in the *Protection of the Environment Administration Act 1991* which the project must adhere to including:

a) The precautionary principle – namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
b) Inter-generational equity – namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations
c) Conservation of biological diversity and ecological integrity – namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration
d) Improved valuation, pricing and incentive mechanisms – namely, that environmental factors should be included in the valuation of assets and service.

2.1.4 Waste Avoidance and Resource Recovery Act 2001

The *Waste Avoidance and Resource Recovery Act 2001* advocates for waste to be handled according to the waste hierarchy:

- **Avoid** and reduce waste in the first instance
- **Recover** resources by reusing, recycling and recovering energy from waste
- Treat and **dispose** of waste as a last resort.

The above waste hierarchy would be applied to the project, with avoidance prioritised over recovery and disposal.

The NSW Waste Avoidance and Resource Recovery Strategy sits under the Act and seeks "to enable all of the NSW community to improve environment and community well-being by reducing the environmental impact of waste and using resources more efficiently." The strategy establishes six key result areas: avoid and reduce waste generation; increase recycling; divert more waste from landfill; manage problem wastes better; reduce litter; and reduce illegal dumping.

2.1.5 Modern Slavery Act 2018

The *Modern Slavery Act 2018* was passed by NSW Parliament in June 2018. The Act recognises that modern slavery is prevalent around the world and in NSW and sets out steps to ensure NSW does not contribute to these crimes.

The Act has not commenced and so its directions are not in force. However, the project would seek to align with the objectives of the legislation. The sustainable procurement plan to be developed for the project prior to construction would include information about actions taken to address risks of modern slavery in the project's supply chains, and the provision of relevant reporting.

2.2 Relevant policies, guidelines and strategies

The following policies, guidelines and strategies are relevant to the project in particular: the Environmental Sustainability Strategy 2019 -2023 (2019). The relevance of these to the project are described in the sections that follow.

2.2.1 Environmental Sustainability Strategy 2019-23

The Environmental Sustainability Strategy 2019-2023 (Roads and Maritime Services, 2019) (the Strategy) has been developed in the context of NSW legislation and policies/guidelines. **Figure 2-1** demonstrates the relationship between the Environmental Sustainability Strategy and the NSW policy and planning setting (refer to **Section 2.1**).

The Strategy identifies 10 focus areas to embed sustainability into the delivery of infrastructure and services. It defines objectives and targets for sustainability in the context of Transport projects. **Section 4.2** discusses the objectives of the Strategy and how the project responds to those objectives.

The Strategy also defines the sustainability delivery model and targets in the context of Transport projects. It also establishes focus areas, targets and initiatives for Transport (formerly Roads and Maritime Services) projects and operation activities.

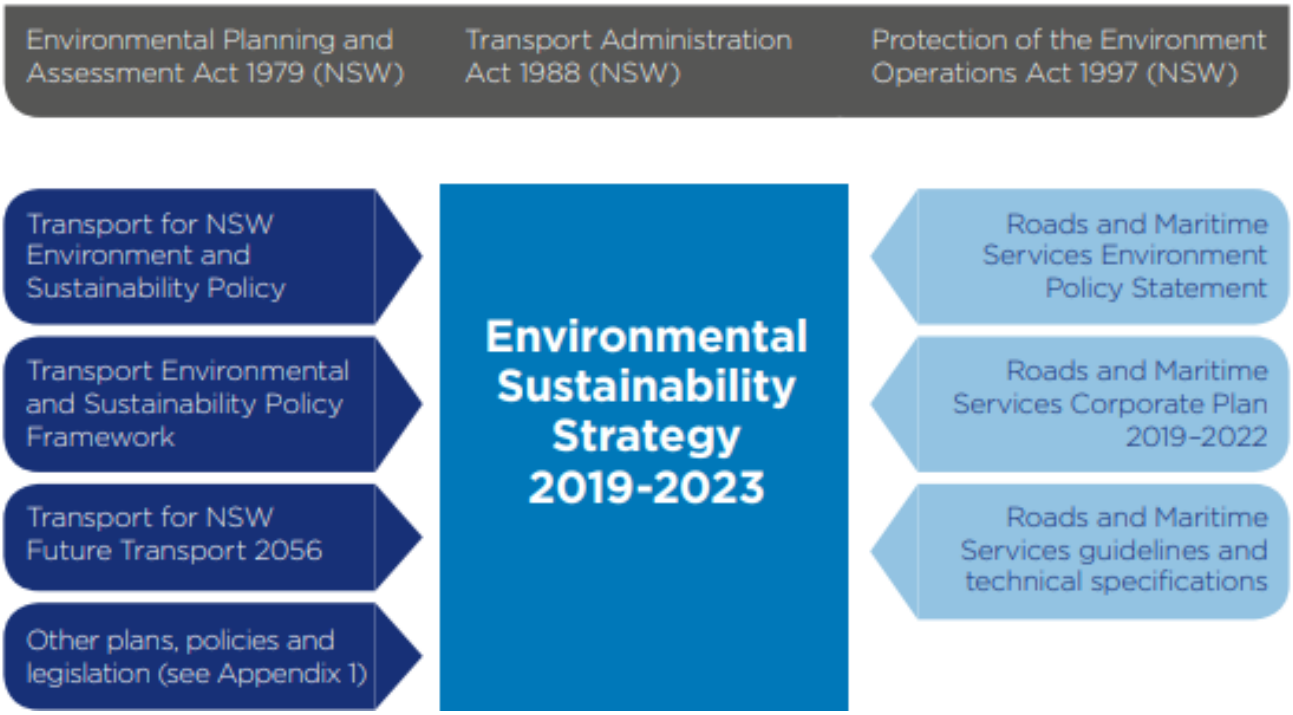

Figure 2-1 Environmental Sustainability Strategy 2019-2023

Source: Environmental Sustainability Strategy (Roads and Maritime, 2019)

2.2.2 Transport Environment and Sustainability Policy Framework and Statement

The Transport Environment and Sustainability Policy (Transport for NSW, 2020a) provides the priorities and direction for implementing sustainability initiatives during the planning, design and operation phases of all Transport projects. Through the policy, Transport is "*committed to delivering transport which contributes to economic prosperity and social inclusion in an environmentally responsible and sustainable manner, consistent with the Future Transport Strategy 2056*."

Transport will work towards achieving this for NSW by:

- Leadership – contributing to and influencing the strategic environment and sustainability agenda of the NSW Government
- Environmental protection – being accountable for addressing and minimising the environmental impacts of our activities to satisfy the expectations and legislative requirements of the NSW Government and community (refer to Chapter 4, Chapter 24 and Chapter 25 of the EIS)
- Energy and carbon – improving energy efficiency and working towards net zero carbon emissions (refer to the Climate Change Risk Working Paper (Appendix U of the EIS))
- Resilience – embedding climate risk and resilience considerations in our activities
- Sustainable procurement – procuring and delivering sustainable, efficient and cost-effective transport options, including responsible supply chains
- Whole of life – considering whole of life benefits and impacts from our activities across all life cycle stages - demand/need, plan, acquire, operate/maintain and disposal (refer to the Waste Working Paper (Appendix S of the EIS) and the Climate Change Risk Working Paper (Appendix U of the EIS))
- Social – recognising the social impacts and benefits of our activities, and working for healthy liveable communities (refer to the Socio-economic Working Paper (Appendix M of the EIS) and the Urban Design, Landscape Character and Visual Amenity Working Paper (Appendix O of the EIS))

- Awareness – raising the awareness and capacity of our workforce to be accountable for implementing the Policy through their activities to achieve enhanced environmental outcomes and a culture of environmental responsibility
- Communication – communicating openly, responsively and empathetically with our customers, partners and stakeholders on environmental matters and report on our performance.

2.2.3 NSW Government Resource Efficiency Policy

The aim of the NSW Government Resource Efficiency Policy (GREP) (OEH, 2019) is to reduce the NSW Government's operating costs and lead by example in increasing the efficiency of its resource use.

Resource use efficiency is a key sustainability objective for the project across materials, energy and water. The project would align with and satisfy the GREP targets that are relevant for the project. Reporting is a key component of the GREP, and the project would support Transport through reporting on energy, water and waste in accordance with the GREP requirements.

Refer to the Waste Working Paper (Appendix S of the EIS), Surface Water and Groundwater Quality Working Paper (Appendix K of the EIS) and Climate Change Risk Working Paper (Appendix U of the EIS) for environmental management measures seeking to improve project resource use efficiency, and the Air Quality Working Paper (Appendix R of the EIS) for management measures on air quality.

2.2.4 NSW Future Transport Strategy 2056

The NSW Transport Future Strategy 2056 (Transport, 2018) is an update to the previous NSW Long Term Transport Master Plan. It underpins and supports the State Infrastructure Strategy and sets the 40 year vision, strategic directions and outcomes for mobility in NSW. The Strategy incorporates supporting plans including the Regional NSW Services and Infrastructure Plan, to provide a 40 year vision, direction and outcomes for transport and traffic in NSW.

The strategy's vision is built on six outcomes, including the following three that are relevant to sustainability on this project:

- Successful Places, by encouraging active travel (walking and cycling) (refer to the Traffic and Transport Working Paper (Appendix G of the EIS))
- A Strong Economy, by connecting people to jobs, goods and services in our cities and regions (refer to the Socio-economic Working Paper (Appendix M of the EIS))
- Sustainability, by making the best use of available resources and assets (refer to the Waste Working Paper (Appendix S of the EIS), Climate Change Risk Working Paper (Appendix U of the EIS) and Surface Water and Groundwater Quality Working Paper (Appendix K of the EIS).

2.2.5 Beyond the Pavement

Beyond the Pavement (Roads and Maritime, 2020) seeks to integrate urban design into the planning, development, delivery and management of Transport assets. It establishes procedures and urban design management principles.

Key urban design principles identified in the Beyond the Pavement, that relate to sustainability are:

- Contributing to urban structure, urban quality and the economy
- Connecting modes and communities and promoting active transport
- Contributing to green infrastructure and responding to natural systems
- Connecting to Country and Incorporating heritage and cultural contexts
- Achieving integrated and minimal maintenance design.

The Urban Design, Landscape Character and Visual Amenity Working Paper (Appendix O of the EIS) for the project has been developed based on the principles outlined in the Beyond the Pavement plan.

2.2.6 NSW Government Procurement Policy Framework

The NSW Procurement Policy Framework provides a consolidated view of government procurement objectives and the Procurement Board's requirements as they apply to each step of the procurement process. It contains five objectives including 'Objective 5 – Sustainable Procurement'. Sustainable procurement focuses on spending public money efficiently, economically and ethically to deliver value for money on a whole of life basis. Sustainable procurement extends the assessment of value for money beyond the sourcing process, considering benefits and risks to the organisation, the community, the economy and impacts on the environment.

Sustainable procurement should:

- Consider how procurement impacts society, the economy and the environment
- Provide all suppliers with full and fair opportunities to compete
- Respect stakeholders' interests, the rule of law and human rights
- Seek innovative solutions to address sustainability throughout the supply chain
- Buy only what is needed or seek sustainable alternatives
- Analyse all procurement costs, including benefits for society, environment and the economy
- Integrate sustainability into procurement practices.

The NSW procurement framework would provide specific requirements and guidance for the project to utilise procurement to facilitate sustainable outcomes around reducing NSW Government's operating costs and ensures the effective and efficient use of resources and maximise the conservation of natural resources. It also provides project procurement with requirements and guidance to minimise risks in the supply chain and provide economic benefit to the community through employment and business engagement.

2.2.7 Transport's Social Procurement Workforce Development Resource Guide

The Social Procurement and Workforce Development Guide (Transport, 2020b) has been developed to guide contractors on how to create and complete the required plans to meet Transport's social procurement and workforce development objectives. Through implementation of effective social procurement plans, Transport is seeking to maximise the economic, social and environmental benefits of these considerable investments.

The project would use the guide to satisfy these minimum benchmarks through the development and implementation of a sustainable procurement plan.

2.2.8 NSW Procurement Aboriginal Participation in Construction (APIC) Policy, July 2020

The Aboriginal Participation in Construction Policy (NSW Procurement 2018) aims to create opportunities for Aboriginal-owned businesses and encourage employment and training through the supply chain of NSW Government contracts. The policy requires that a minimum of 1.5 per cent of project spend must be dedicated to Aboriginal participation. This includes:

- Aboriginal employment

- Engagement of Aboriginal owned businesses to provide goods and services to a project
- Education and training
- Engagement and consultation with Aboriginal organisations or businesses.

The project would satisfy these minimum benchmarks through the development and implementation of an Aboriginal Participation Plan which sets minimum targets for Aboriginal participation at or above 1.5 per cent of project spend.

2.2.9 United Nations Sustainable Development Goals (United Nations, 2015)

The Sustainable Development Goals (SDGs) were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. Of the 17 SDGs, the following six are relevant to the project:

- Goal 8: Decent Work and Economic Growth
- Goal 9: Industry, Innovation and Infrastructure
- Goal 11: Sustainable Cities and Communities
- Goal 12: Responsible Consumption and Production
- Goal 13: Climate Action
- Goal 15: Life on Land.

The project would align with these goals through management measures designed to improve the economic, social and environmental outcomes of the project.

3. Methodology

This assessment has sought to identify the impacts and management measures specific to the effective and efficient use of resources and the conservation of natural resources guided by the Environmental Sustainability Strategy.

The sustainability assessment for the project has considered the application of sustainability principles, and the opportunities to satisfy the objective of Section 1.3(b) of the EP&A Act, specifically the key issue for sustainability identified in the SEARs (SSI 7319) relating to the effective and efficient use of resources and the conservation of natural resources.

The assessment broadly involved:

- Defining the sustainability context for the project within the broader context of NSW's objective of improving transport efficiency, and the relevant Transport policies and guidelines (refer to **Chapter 2**)
- Reviewing the sustainability focus areas, associated objectives from the Environmental Sustainability Strategy and responding to how these focus areas apply to the project (refer to **Section 4.2**)
- Identifying requirements for managing sustainability during detailed design, construction and operation (refer to **Chapter 5**).

The assessment considered whole of life mitigation in response to the focus areas and objectives Sustainability is a very broad topic, and specific disciplines have assessed their impacts in separate working papers (refer to **Table 3-1**). The assessment is discussed further in **Section 4.2**.

Table 3-1 Sustainability focus areas, objectives and relevant working papers

Sustainability focus area	Objective	Relevant working paper
Energy and carbon management	Minimise energy use and reduce carbon emissions without compromising the delivery of services to our customers.	• Climate Change Risk Working Paper (Appendix U of the EIS)
Climate change resilience	Design and construct transport infrastructure to be resilient or adaptable to climate change impacts.	• Climate Change Risk Working Paper (Appendix U of the EIS)
Air quality	Minimise the air quality impacts of road projects and support initiatives that aim to reduce transport-related air emissions.	• Air Quality Working Paper (Appendix R of the EIS)
Resource use and waste management	Minimise the use of non-renewable resources and minimise the quantity of waste disposed to landfill.	• This assessment • Climate Change Risk Working Paper (Appendix U of the EIS) • Waste Working Paper (Appendix S of the EIS)
Pollution control	Minimise noise, water and land pollution from road and maritime construction, operation and maintenance activities.	• Noise and Vibration Working Paper (Appendix H of the EIS) • Surface Water and Groundwater Quality Working Paper (Appendix K of the EIS) • Soils and Contamination Working Paper (Appendix P of the EIS)
Biodiversity	Improve outcomes for biodiversity by avoiding, mitigating or offsetting the potential impacts of road and maritime projects on plants, animals and their environments.	• Biodiversity Assessment Report (Appendix I of the EIS)

Sustainability focus area	Objective	Relevant working paper
Heritage – Aboriginal and non-Aboriginal	Manage and conserve cultural heritage according to its heritage significance and contribute to the awareness of the past.	• Non-Aboriginal Heritage Working Paper (Appendix Q of the EIS) • Aboriginal Cultural Heritage Assessment Report (Appendix L of the EIS)
Liveable communities	Provide high quality urban design outcomes that contribute to the sustainability and liveability of communities in NSW.	• Urban Design, Landscape Character and Visual Amenity Working Paper (Appendix O of the EIS)
Sustainable procurement	Procure goods, services, materials and works for infrastructure development and maintenance projects that over their lifecycle deliver value for money and contribute to the environmental, social and economic wellbeing of the community.	• This assessment • Energy and embodied energy (materials) procurement - Climate Change Risk Working Paper (Appendix U of the EIS).
Corporate sustainability	Communicate Roads and Maritime's sustainability objectives to employees, contractors and other key stakeholders, and foster a culture which encourages innovative thinking to address sustainability challenges.	This assessment

4. Assessment of the project

4.1 Overview

Sustainability, or sustainable development, can be defined in different ways depending on the application and context in which it is being applied.

The term ‘sustainable development’ has gained widespread acknowledgement and use since the release of Our Common Future, commonly referred to as the Brundtland Report (World Commission on Environment and Development, 1987). The Brundtland Report’s definition of sustainable development is commonly adopted in Australia, and a similar interpretation is adopted in the National Strategy for Ecologically Sustainable Development (Council of Australian Governments, 1992). It 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'.

This working paper assesses the project against the key sustainability guidance document for the project, the Environmental Sustainability Strategy (refer to **Section 4.2**), which strives to achieve project sustainability outcomes in line with the desired performance outcomes outlined in **Section 1.3**.

Specific disciplines have addressed the focus areas and objectives in working papers separate to this document. **Table 3-1** provides the references to where the impacts and mitigations for the focus areas have been specifically addressed.

4.2 Environmental Sustainability Strategy

The project was developed under the Environmental Sustainability Strategy 2019-2023 (Roads and Maritime Services, 2019) prior to the merger with Transport in late 2019. **Table 4-1** details the project response to the objectives of the focus areas and objectives that relate to the project and the SEARs performance outcome for sustainability.

Table 4-1 Response to sustainability focus areas that relate to SEARs requirements for the project

Sustainability focus area	Objective	Relevant Key Initiatives in Strategy	Project response
Energy and carbon management	Minimise energy use and reduce carbon emissions without compromising the delivery of services to our customers.	• Ensuring the road network effectively integrates with rail, air and maritime transport networks to efficiently move freight and increase access for B-Double and B-Triple trucks on the road network where there is a positive impact on fuel consumption.	The provision of a motorway standard road that alleviates congestion and allows for free-flowing traffic conditions is in line with Transport's objective to minimise energy use and reduce carbon emissions without compromising services for road users. The project would result in improvements to network-wide speeds, travel times and intersection level of service and provide a lower gradient and comparatively high-speed route for through traffic. The operation of the project would result in fewer emissions produced per kilometre travelled when compared with the existing road network in the same year.
		• Setting project specific energy efficiency and carbon emission improvement targets for State significant infrastructure projects covering both direct and indirect emission sources • Developing a strategy by 2020 to transition all Roads and Maritime street lights and road signs to LED light sources • Using solar panels to power roadside signage, alert and messaging systems when cost effective and fit for purpose • Promoting the use of innovation and technology to investigate and manage road network impacts such as hazardous road conditions, severe weather impacts, bushfires, travel incidents and congestion.	Initiatives in regard to energy efficiency and sourcing of low carbon materials for construction will be identified by construction contractors and will form part of the evaluation process by Transport in selection of the preferred contractor. The operation of the project would result in fewer emissions produced per kilometre travelled when compared with the existing road network in the same year. In operation the estimated annual CO2e emission contribution is 23 kt. The assessment in the Climate Change Risk Working Paper (Appendix U of the EIS) has estimated that construction of the project would generate 243 kt of carbon dioxide equivalent (CO2e). Consideration would be given throughout the detailed design, construction and operation of the project include project-specific targets for greenhouse gases, exploration of low-carbon energy sources and energy efficient technology.
Climate change resilience	Design and construct transport infrastructure to be resilient or adaptable to climate change impacts.	• Reviewing climate change impacts and risks during the planning phase of potentially affected projects with a level of detail commensurate to the size of the project and the potential risk • Designing infrastructure for the predicted future climate or designing for cost-effective adaptation in the future	The key climate change resilience targets in the strategy relate to assessing climate change risks for projects and addressing any risks identified as high or above during project planning. A climate change risk assessment was undertaken for the project (refer to Climate Change Risk Working Paper (Appendix U of the EIS)). When considering the residual risk post adoption of management measures, some risks were identified are high. These risks related to increased extent and depth of flooding of the project and inadequate drainage as a result of an increase in the frequency and intensity of severe

Sustainability focus area	Objective	Relevant Key Initiatives in Strategy	Project response
		• Minimising the carbon impacts associated with vegetation clearance by reducing project footprints where possible.	rainfall events coupled with sea level rise. In line with the strategy, these risks are addressed below. Broadly, the project achieves a minimum design standard flood immunity parameter of 5% AEP events. Furthermore, the vast majority of the project achieves flood immunity up to the 1% AEP event with only a few short sections not meeting this immunity. Adjusting the design to accommodate flooding as a result of potential climate change is not considered desirable as raising the road level would exacerbate the assessed flooding impacts from the project. Raising the proposed road levels would also result in an increased project footprint, increased resources required for construction and operation, and increased property and environmental impacts. Additionally, the existing road network connecting to the project generally has a lower flood immunity. In a climate change flood scenario, the vast majority of the existing road network would be flooded and inaccessible in the construction footprint.
		• Ensuring our specifications for delivery, maintenance and operation of infrastructure consider suitable climate and weather-related constraints which include current best practice climate change predictions.	Initiatives in regard to resilient materials for construction will be identified by construction contractors and form part of the evaluation process by Transport in selection of the preferred contractor.
		• Maintaining our capacity to respond to significant events on our roads or waterways through emergency management plans to ensure our agency responds appropriately when required.	Transport has and will continue to liaise with key emergency management stakeholders to ensure features are included in the project design to enable continued management during significant events.

Sustainability focus area	Objective	Relevant Key Initiatives in Strategy	Project response
Air quality	Minimise the air quality impacts of road projects and support initiatives that aim to reduce transport related air emissions.	• Monitoring air emissions across our projects and operations • Actively monitoring and minimising non-road diesel emissions from our activities. • To optimise the design and management of the road network to smooth traffic flows and manage congestion with the aim of reducing travel times for vehicles using the network. • Implementing Transport for NSW's NSW Freight and Ports Strategy Plan 2018-2023 to improve freight movement productivity and reduce truck travel times.	The air quality targets in the strategy relate to identifying and applying best practice air quality controls and initiatives during construction and operation of projects. The specific initiatives that are relevant to the project that will help achieve these targets are discussed below. Energy efficient work practices and other measures to minimise non-road related diesel use for plant and equipment during construction would be specified by potential construction contractors during the tendering phase. Transport will consider these measures in evaluating and appointing a preferred contractor. Additionally, air quality management measures will apply to the construction phase (see the Air Quality Working Paper (Appendix R of the EIS)). In operation the project contributes to achieving Transport's identified initiatives by providing for more reliable traffic flows and reduced congestion and travel times for vehicles including freight movements. This network efficiency results in reduced vehicle emissions per vehicle kilometre travelled.
Resource use and waste management	Minimise the use of non-renewable resources and minimise the quantity of waste disposed to landfill.	• Monitoring and reporting on significant waste streams • Ensuring that infrastructure design and construction planning considers how to minimise the generation of excess spoil • Identifying where there is potential to recover and reuse materials on site • Substituting non-renewable materials with recycled or reused materials where they are fit for purpose, cost effective and affordable • Managing waste to minimise transport related risks and impacts by using local disposal facilities where feasible and appropriate • Working with our supply chain to assess the feasibility of reusing key wastes, such as glass, in road construction to reduce our consumption of virgin materials.	The strategy recognises a key way to achieve the resource use and waste management objective is through the implementation of the waste management hierarchy. The waste management hierarchy will apply to the project in both the construction and operational phases. The strategy incorporates targets for 100% beneficial reuse of VENM, clean concrete and clean recycled asphalt. As the project has a large deficit of material all available reuse options will be implemented during construction. A Waste Management Plan incorporating many of the strategy's key initiatives in relation to resource use and waste management will be implemented during construction (see the Waste Working Paper (Appendix S of the EIS)).

Sustainability focus area	Objective	Relevant Key Initiatives in Strategy	Project response
		• Monitoring and reporting on potable and non-potable water use in areas where water scarcity occurs • Maximising the use of non-potable water in preference to potable water where feasible.	A water reuse strategy for both construction and operational phases of the project would be prepared to reduce reliance on potable water. This strategy would outline alternative water supply options to potable water, with the aim of reusing water collected on-site in temporary construction sediment basins where feasible.
Pollution control	Minimise noise, water and land pollution from road and maritime construction, operation and maintenance activities.	• Implementing land and contamination management practices on Roads and Maritime landholdings that avoid creating or exacerbating long term legacy issues • Managing pre-existing contamination to mitigate land and water pollution and to meet legal requirements.	Based on the desktop assessment and site inspections, five high risk areas of contamination and six medium risk areas are located within the construction footprint. A number of low risk areas were also identified outside of the construction footprint. The project would implement management measures to mitigate potential impacts of the project on land and soil contamination, including the implementation of a Contaminated Land Management Plan and the development of a Remediation Action Plan for contamination identified at the former mineral sands processing facility (see the Soils and Contamination Working Paper (Appendix P of the EIS)). During operation, the main risk from the operational use of the motorway is from large scale chemical or hydrocarbons spills from freight transport. These would be minimised through good design and subsequently managed by a combination of authorities (Transport, Police and other emergency services) as individual scenarios require.
		• Actively playing a role in reducing the potential impact of pollution caused by users of the road network and waterways through: – Monitoring pollution from vehicles that use roads and from vessels using waterways – Managing impacts from accidents – Managing spills into our waterways.	The project design includes construction and operational water quality strategies to manage water quality impacts from the project, including the use of construction temporary sediment basins and permanent operational water quality basins, other physical controls and the implementation of management measures during construction and operation. Basins and grassed swales in the Tomago Sandbeds Catchment Area will be lined to avoid impact to the underlying groundwater resources. Spill containment is built into basins throughout the project to minimise the impact of accidental spills on receiving waterways.

Sustainability focus area	Objective	Relevant Key Initiatives in Strategy	Project response
		• Using the Roads and Maritime Noise Criteria Guideline across our activities • Managing our noise impacts, where practical and reasonable, using the following prioritised approach: – Eliminating noise sources – Using materials, construction methods and equipment specifications that reduce noise generation – Using engineering noise control methods such as enclosures, acoustic sheds and noise walls to reduce construction and operational noise at or close to the source – Implementing noise management measures where impacts are above our guideline levels.	The project design and noise assessment has considered the requirements of the Noise Criteria Guideline (Roads and Maritime 2015). The inclusion of potential noise management measures in the project design, such as quieter pavements, noise barriers and/or at-property noise mitigation treatment, aid in reducing noise levels at affected receivers during operation of the project. The project would seek to mitigate and manage noise pollution impacts during construction through the preparation and adherence to a Construction Noise and Vibration Management Plan (see the Noise and Vibration Working Paper (Appendix H of the EIS). The management plan would include consideration of different plant and equipment, scheduling of noise intensive equipment during less sensitive periods (i.e. standard hours), noise and vibration monitoring and building surveys.
		• Sharing learnings from significant environmental incidents within Roads and Maritime and with relevant contractors and industry partners.	Learnings from projects previously undertaken by Transport help inform tender documentation and project specifications that will be relevant to this project.
Biodiversity	Improve outcomes for biodiversity by avoiding, mitigating or offsetting the potential impacts of road and maritime projects on plants, animals and their environments.	• Avoiding impacts on biodiversity through route selection, planning and design processes • Minimising impacts by applying best practice approaches to unavoidable habitat loss (e.g. following pre-clearing processes, establishing exclusion zones and careful management of weeds and pathogens) • Mitigating impacts on biodiversity by providing fauna connectivity where appropriate, and supplementing habitat where needed (e.g. targeting vegetation rehabilitation, installing nest boxes and reusing woody debris and bush rocks)	The project has sought to achieve the objective through consideration of biodiversity values during the extensive options development and project design stages, as follows: • Consolidating the project with other development corridors to reduce the area of vegetation disturbance and fragmentation • Aligning the construction footprint between the Black Hill and Tarro interchange to align with the Hunter Water Corporation trunk main and the New England Highway to avoid many direct impacts to Hexham Swamp • Design of a viaduct crossing of the Hunter River and adjacent floodplain, in contrast to a built formation option, to avoid a lengthy direct impact to floodplain wetlands and associated biodiversity • Moving the proposed viaduct (B05) crossing the Hunter River further upstream of the existing Hexham Bridge to reduce impacts to coastal wetlands and threatened ecological communities

Sustainability focus area	Objective	Relevant Key Initiatives in Strategy	Project response
		• All projects identified as State significant infrastructure or requiring a review of environmental factors must review the need for biodiversity offsets in accordance with Roads and Maritime Biodiversity Offset Policy • Avoiding the spread of weeds, pests and diseases outside of our sites through appropriate management of mulch and vegetation wastes generated, reused or removed from our sites.	• Moving the main alignment north between Black Hill and the Hunter River – to be closer to the New England Highway • Challenging the scope and functionality of project elements to avoid impacts on remnant vegetation, threatened species and fauna connectivity • Positioning ancillary sites, where possible, within previously cleared and disturbed land • Offsetting unavoidable impacts in accordance with NSW Biodiversity Offset Policy for Major Projects. Biodiversity management measures have been developed and proposed for the project which together work to achieve the biodiversity objectives. Refer to the Biodiversity Assessment Report (Appendix I of the EIS) for details on the project's impacts to biodiversity within the construction footprint and the management measures proposed.
Heritage – Aboriginal and non-Aboriginal	Manage and conserve cultural heritage according to its heritage significance and contribute to the awareness of the past.	• Avoiding or minimising impacts on heritage assets where feasible through route selection or by innovative designs • Preserving and developing our heritage knowledge and sharing this knowledge with the community and interested stakeholders.	The project has achieved the key heritage target in the strategy by identifying and assessing heritage assets early in the project planning stage to allow appropriate consideration of potential impacts and solutions. **Non-Aboriginal heritage** The non-Aboriginal heritage assessment identified a major impact to the Glenrowan Homestead and a minor impact to the Hexham Shipbuilding Yards. Management measures, including barrier fencing, archival recording, dilapidation surveys and vibration monitoring, have been proposed for the project to avoid, minimise to the greatest extent possible and manage the impacts to non-Aboriginal heritage items. Further information is provided in the Non-Aboriginal Heritage Working Paper (Appendix Q of the EIS). **Aboriginal heritage** Consultation with Aboriginal stakeholders has been carried out throughout the project development in accordance with Transport requirements and has involved meetings with affected Aboriginal stakeholder groups and site surveys and test excavations attended by registered aboriginal parties. The Aboriginal cultural heritage assessment identified impacts to a number of Aboriginal cultural heritage items (see the Aboriginal Cultural Heritage Assessment Report (Appendix L of the EIS)). Where complete avoidance of archaeological sites was not possible, management measures for impacted areas have been developed.

Sustainability focus area	Objective	Relevant Key Initiatives in Strategy	Project response
Liveable communities	Provide high quality urban design outcomes that contribute to the sustainability and liveability of communities in NSW.	Applying the Beyond the Pavement policy to all Roads and Maritime infrastructure projects that have an appreciable impact on the built and natural environment and achieve the following outcomes: • Road and Maritime transport infrastructure fits sensitively with the built, natural, community and cultural environments in which it is situated in both urban and rural locations • infrastructure planning and design contributes to the accessibility and connectivity of communities and a general permeability of movement through areas by all modes of movement, including walking and cycling and public transport.	The four identified objectives of Transport's Beyond the Pavement policy are discussed below. **Projects should fit sensitively into the built, natural, and cultural environment in both urban and rural locations** Throughout the project development process there has been extensive consideration of how the project is integrated into the landscape and communities through which it passes. The project has been aligned with existing roads and infrastructure as far as possible to fit within the built environment and minimise impacts to the natural environment. A key outcome of the route selection process was an alignment that minimises impacts on the natural environment including wetland communities on the floodplain and habitat for koalas. The potential for impacts on cultural heritage has been considered through extensive consultation and collaboration with local Aboriginal groups throughout the route alignment and environmental assessment process. **Projects should contribute to the accessibility and connectivity of communities and a general permeability of movement through areas by all modes of movement** The project provides for improved accessibility and connectivity within its regional setting. The four interchanges provide access for the local community to the motorway which provides for improved travel times and conditions when moving between local areas and connecting to the wider road network for regional and interstate travel. With regard to provision for all modes of movement, the project incorporates wide shoulders which provides for cyclist use. While there is generally no pedestrian specific features on the main motorway alignment, the project does incorporate some design features to accommodate pedestrian movements at certain locations. The bridge at Masonite Road and associated alignment changes incorporates a pedestrian pathway and the signalised access to the Hunter Region Botanic Gardens allows for improved pedestrian safety at this location. **The design and management of projects should contribute to the overall design quality of the public domain for the community, including transport users** The project has sought to deliver high quality urban design outcomes and has been developed in recognition of the existing natural, built and

Sustainability focus area	Objective	Relevant Key Initiatives in Strategy	Project response
			community values. The urban design for the project has been developed based on the urban design principles identified in Beyond the Pavement. **Projects should help revitalise areas and contribute to the local and broader economy** A key project objective is to improve road network efficiency for freight and commuters on the National Land Transport Network (NLTN) at the key strategic junction of the M1 Pacific Motorway, the New England Highway and Pacific Highway. The existing NLTN linking the M1 Pacific Motorway at Black Hill with the Pacific Highway at Raymond Terrace is in one of the most highly trafficked areas of the road network in the region and is more heavily congested than adjacent high standard sections of the M1 Pacific Motorway and Pacific Highway corridor. The project would provide for a free flowing dual carriageway route along this section of the NLTN providing benefits for the local, regional and national economy. The project would also provide for future demand generated from substantial local land releases at Black Hill, Tomago and Heatherbrae.
Sustainable Procurement	Procure goods, services, materials and works for infrastructure development and maintenance projects that over their lifecycle deliver value for money and contribute to the environmental, social and economic wellbeing of the community.	• Ensure assessment criteria, and associated weightings, for tenders include relevant environmental and social responsibility outcomes • Including sustainability performance criteria in our contracts to increase awareness in our supply chain • Implementing the Aboriginal Participation in Construction Policy • Where possible, procuring from small and medium-sized enterprises Aboriginal businesses and Australian disability enterprises by including such requirements in procurement strategies and policies.	The sustainable procurement objective would be achieved for the project through inclusion of non-price selection criteria in the construction tender process to embed environmentally and socially responsible outcomes. The project would also procure locally produced goods and services where feasible and cost effective. Transport is preparing an Aboriginal Participation Strategy for the construction phase of the project.

Sustainability focus area	Objective	Relevant Key Initiatives in Strategy	Project response
Corporate Sustainability	Communicate Roads and Maritime's sustainability objectives to employees, contractors and other key stakeholders, and foster a culture which encourages innovative thinking to address sustainability challenges.	• Ensuring offices purchased or leased are rated against the NABERS system prior to tenure and meet the NSW Government Resource Efficiency Policy requirements. • Publishing exclusively electronic media versions of external and internal publications rather than printed copies where possible.	Sustainability has been considered at all stages of the project to date and will continue to be considered and assessed throughout the detailed design, construction and operation phases. Transport's sustainability objectives and requirements will form part of the tender documentation for the construction phase of the project and form part of the selection criteria in the evaluation of a preferred contractor.

5. Environmental management measures

The key objective for the project is to improve government efficiency in use of water, energy and transport associated with the construction and operation of the project.

The environmental management measures that will be implemented for sustainability, along with the responsibility and timing for those measures, are presented in **Table 5-1**.

Table 5-1 Environmental management measures

Impact	Reference	Management measure	Responsibility	Timing
Project sustainability outcomes	SU1	A Sustainability Management Plan (or similar framework) for the project will be developed and implemented during detailed design and construction, detailing measures to meet the project's sustainability objectives and targets. The Sustainability Management Plan will: • Demonstrate leadership and commitments to sustainability • Adopt relevant sustainability performance targets in accordance with the Transport Sustainability Strategy. • Identify sustainable procurement requirements • Document the process for the identification, assessment and implementation of sustainability initiatives and opportunities • Document the process to be used to monitor and review of sustainability performance against achieving the project's sustainability targets • Outline the documentation and reporting requirements for sustainability on the project.	Transport / Contractor	Prior to construction/ construction

6. Conclusion

This sustainability assessment has sought to satisfy the sustainability SEAR for the project to "*assess the project against the current guidelines including targets and strategies to improve Government efficiency in use of water, energy and transport*." It has done so by adopting the current NSW best practice guidance on sustainability in transport infrastructure projects. For the project, the most appropriate guidance was identified as the Environmental Sustainability Strategy 2019-2023 (Roads and Maritime Services, 2019).

Sustainability focus areas identified in the Environmental Sustainability Strategy are supported through project design and environmental management measures identified across the discipline working papers for the project, in particular those associated with waste, climate change risk and greenhouse gas emissions. In addition to these management measures, specific sustainability measures have been proposed to support the achievement of sustainable outcomes in the project through detailed design and during construction. As such, the project overall is aligned with the Strategy's sustainability objectives and has either already satisfied Transport's project relevant compulsory sustainability requirements through the design and EIS development or are placed to do so through detailed design and construction.

Further, management measures also focus on opportunities to coordinate project efforts toward sustainability during detailed design and construction by incorporating sustainability outcomes across efficient resource use, minimising environmental impacts through design and construction optimisation, sustainable procurement and developing the project to leave a positive legacy for the local community.

7. References

Infrastructure Sustainability Council of Australia (2016) Infrastructure Sustainability rating tool Version 1.2

NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21

NSW Government (2017) NSW Infrastructure Skills Legacy Program

NSW Government, (2018) Regional NSW Services and Infrastructure Plan

NSW Government, (2020) Training Management Guidelines

NSW Office of Environment and Heritage (OEH) (2016) NSW Climate Change Policy Framework

NSW Office of Environment and Heritage (OEH) (2019) NSW Government Resource Efficiency Policy

NSW Procurement (2018), Aboriginal Participation in Construction (APIC) Policy, June 2018. Department of Finance, Services and Innovation.

Roads and Maritime (2016) Technical Guide: Management of Road Construction and Maintenance Wastes

Roads and Maritime (2020) Beyond the Pavement

Transport for NSW (2018) NSW Future Transport Strategy 2056

Transport for NSW (2020a) Transport Environment and Sustainability Policy Framework and Statement

Transport for NSW (2020b) Social Procurement Workforce Development Resource Guide

United Nations (2015) United Nations Sustainable Development Goals

Terms and acronyms

Term / Acronym	Description
CO_2e	Carbon Dioxide equivalent
EIS	Environmental Impact Statement
GREP	NSW Government Resource Efficiency Policy
ISLP	Infrastructure Skills Legacy Program
ISCA	Infrastructure Sustainability Council of Australia
SEARs	Secretary's Environmental Assessment Requirements
Sustainability	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
Transport	Transport for New South Wales