NSW GOVERNMENT

Transport for NSW

Beaches Link and Gore Hill Freeway Connection

Chapter 25

Sustainability

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25 Sustainability

This chapter describes the overall approach to sustainability through design, construction and operation of the project, and identifies management measures relating to sustainability. A sustainability framework has been prepared for the project (refer to Section 25.2).

The Secretary's environmental assessment requirements as they relate to sustainability, and where in the environmental impact statement these have been addressed, are detailed in Table 25-1.

Avoiding or minimising impacts has been a key consideration throughout the design and development process for the Beaches Link and Gore Hill Freeway Connection project. A conservative approach has generally been used in the assessments, with potential impacts presented before implementation of environmental management measures. The environmental management measures proposed to minimise the potential impacts in relation to sustainability are discussed in Section 25.4.

Table 25-1 Secretary's environmental assessment requirements – sustainability

Secretary's requirement	Where addressed in EIS
Sustainability	
1. The Proponent must assess the sustainability of the project in accordance with the Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability Rating Tool and recommend an appropriate target rating for the project.	The assessment of the sustainability of the project in accordance with the ISCA *Infrastructure Sustainability Rating Tool* is discussed in **Section 25.2**. A Sustainability Management Plan would be developed during further design development. The Sustainability Management Plan would detail measures to meet the sustainability objectives and targets.
2. 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.	Discussion of the sustainability framework and relevant legislation, policies and guidelines is provided in **Table 25-2**. The sustainable use of water and energy resources is discussed in **Chapter 24** (Resource use and waste management).

25.1 Overview

Sustainable development refers to "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987).

The Infrastructure Sustainability Council of Australia provides a definition specific to sustainable infrastructure development, being that which is "designed, constructed and operated to optimise environmental, social and economic outcomes over the long term" (Infrastructure Sustainability Council of Australia, 2016c).

This chapter describes how sustainability principles have been applied to the design, construction and operation of the project including:

- The sustainability framework that has been developed for the project, including the application of the Infrastructure Sustainability Council of Australia's Infrastructure Sustainability rating scheme to the project

- Legislation and policies relevant to the project
- Application of the principles of ecologically sustainable development to the project.

25.2 Beaches Link and Gore Hill Freeway Connection sustainability framework

A sustainability framework has been developed for the project. The sustainability framework has been prepared to ensure that sustainability is embedded in project planning, design, construction and operation. The sustainability framework provides the overarching vision, objectives, targets and implementation approaches for the project.

Figure 25-1 shows the key elements of the sustainability framework. Each element is described in detail in the following sections.

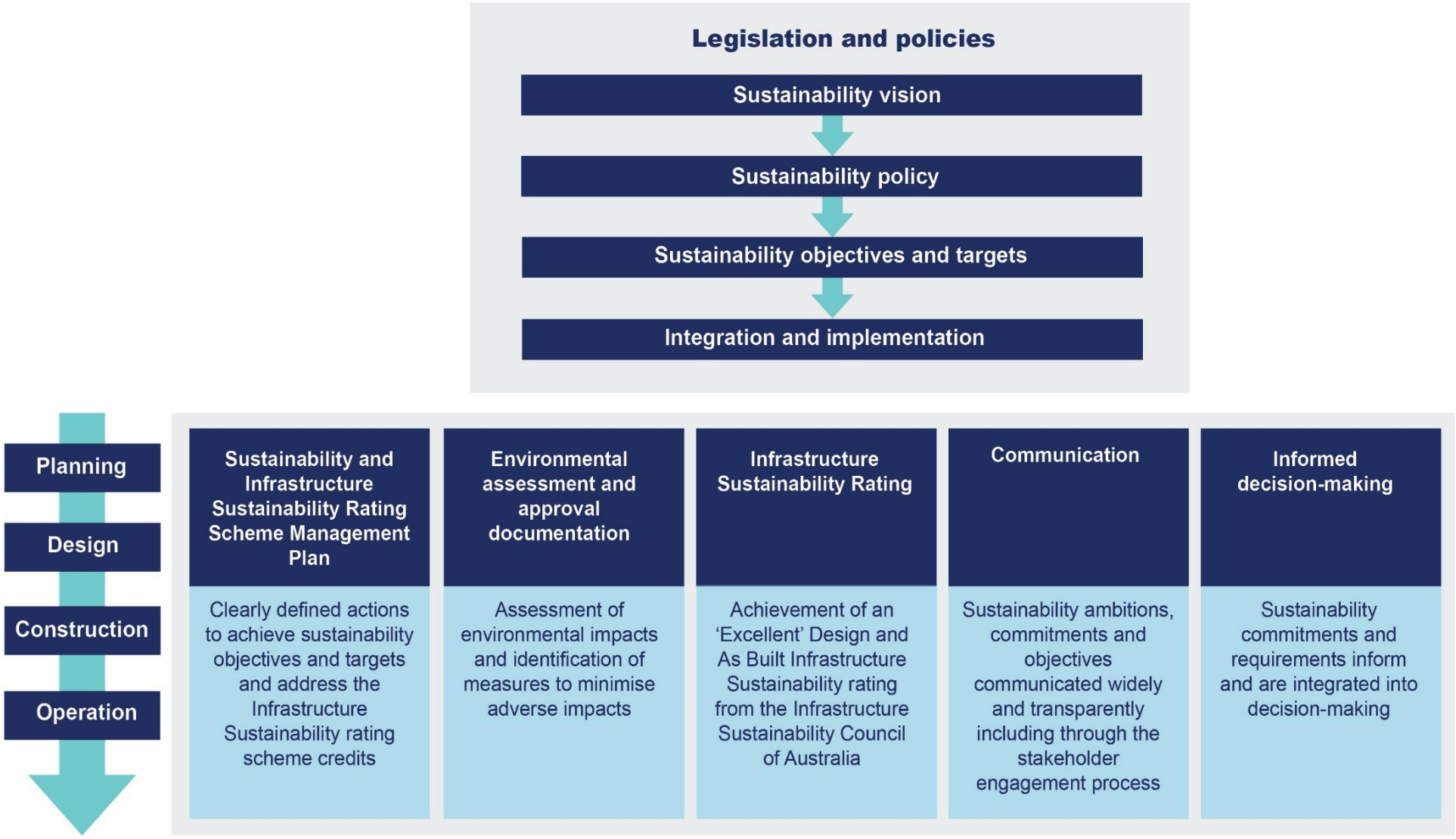

Figure 25-1 Beaches Link and Gore Hill Freeway Connection sustainability framework

25.2.1 Legislative and policy framework

The sustainability framework is underpinned by sustainability principles outlined in applicable legislation, policies and guidelines. The NSW Government, Transport for NSW, and the Infrastructure Sustainability Council of Australia each set sustainability principles, objectives and targets within their respective policies.

Key legislation, policies and guidelines that have directed the consideration and integration of sustainability in the project design and assessment are summarised in Table 25-2. Other relevant legislation, policies and guidelines that include sustainability outcomes relevant to the project are outlined in Table 25-3. Table 25-3 shows the recurring sustainability themes found in these documents and where specific principles, objectives and targets are set.

Table 25-2 Key legislation, policies and guidelines

Legislation, policy or guideline	Overview
Environmental Planning and Assessment Act 1979	The *Environmental Planning and Assessment Act 1979* facilitates ecologically sustainable development in NSW by integrating relevant economic, environmental and social considerations in decision making about environmental planning and assessment. As an object of the Act, ecologically sustainable development must be incorporated in the planning of the project (refer to Section 25.3).
Transport Environment and Sustainability Policy (Transport for NSW, 2020c)	The *Transport Environment and Sustainability Policy* outlines the commitment of Transport for NSW and key transport agencies to deliver transport projects and services in a manner that balances economic, environmental and social issues.
Environmental Sustainability Strategy 2019-23 (Roads and Maritime Services, 2019)	The *Environmental Sustainability Strategy 2019-2023* (Roads and Maritime Services, 2019) aligns with the *Transport Environment and Sustainability Policy* and outlines specific focus areas for integrating sustainability into Transport for NSW road projects and services.
Infrastructure Sustainability Rating Tool version 1.2 (Infrastructure Sustainability Council of Australia, 2016a)	The Secretary's environmental assessment requirements for the project require the assessment of the project in accordance with the *Infrastructure Sustainability Rating Tool* and recommendation of an appropriate target rating. The Infrastructure Sustainability rating scheme was developed by the Infrastructure Sustainability Council of Australia as a comprehensive process for evaluating sustainability across the design, construction and operation of infrastructure.
Sustainable Design Guidelines version 4.0 (Transport for NSW, 2017)	The Transport for NSW *Sustainable Design Guidelines version 4.0* are aimed at embedding sustainability initiatives across seven key themes, into the planning, design, construction, operations and maintenance of infrastructure projects. The Secretary's environmental assessment requirements for the project reference the *Sustainable Design Guidelines version 4.0* as the current guidelines to be considered as part of the preparation of this environmental impact statement.

Table 25-3 Relevant sustainability legislation, policies and guidelines

Sustainability theme	NSW Government legislation, policies and guidelines								Transport for NSW's policies and guidelines						Infrastructure Sustainability Council of Australia
✓ Principle ✓ Objective ✓ Target	*Environmental Planning and Assessment Act 1979*	Future Transport 2056 plan	NSW Sustainable Design Guidelines v4.0	NSW Government Resource Efficiency Policy	NSW Waste avoidance and Resource recovery Strategy	NSW Government Training Management Guidelines	Aboriginal Participation in Consultation Guidelines	Aboriginal Participation in Construction Policy	Transport Social Procurement Policy	Transport Environment and Sustainability Policy	Sydney's Cycling Future, Cycling for everyday transport	Sydney's Walking Future, Connecting people and places	Roads and Maritime Services Sustainability Strategy	Beyond the Pavement	
Management and participation		✓ ✓	✓ ✓						✓	✓ ✓			✓ ✓	✓ ✓	✓ ✓
Energy, carbon and materials	✓ ✓	✓	✓ ✓	✓ ✓					✓	✓ ✓			✓ ✓		✓ ✓
Resources and waste	✓	✓	✓ ✓	✓	✓					✓			✓	✓	✓ ✓
Climate change		✓ ✓	✓ ✓							✓			✓ ✓		✓ ✓
Communities and liveability		✓	✓ ✓ ✓						✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	✓ ✓
Water			✓ ✓	✓						✓ ✓			✓		✓ ✓
Pollution and emissions	✓ ✓	✓	✓ ✓	✓						✓ ✓			✓ ✓ ✓		✓ ✓
Ecology	✓	✓	✓ ✓							✓			✓	✓	✓ ✓
Employment and opportunities						✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓							

25.2.2 Sustainability vision and policy

The sustainability framework establishes the sustainability vision and policy for the project (refer to Figure 25-2). The sustainability vision and policy set the overall direction for implementing sustainability initiatives during the delivery of the project. The vision and policy reflect and align with NSW Government legislation and policies and Transport for NSW's strategic sustainability policy (refer to Section 25.2.1). The policy acknowledges the need to deliver services and infrastructure that benefit the community and minimise negative environmental, social and economic impacts while maximising positive outcomes. The vision and policy may continue to be refined as the project progresses.

Vision

The Beaches Link and Gore Hill Freeway Connection project is committed to improving quality of life for current and future generations by maximising social, economic and environmental value. The project will achieve excellence in sustainability, and embed sustainability thinking across all stages, moving industry forward by setting the bar higher for both the process and delivery of sustainability.

Policy

The Beaches Link and Gore Hill Freeway Connection project is committed to:

- Aligning with the *Transport Environment and Sustainability Policy* (Transport for NSW, 2020)
- Aligning with, supporting and, wherever feasible, exceeding the ambitions of the Environmental Sustainability Strategy 2019-2023 (Roads and Maritime, 2019)
- Optimising sustainability outcomes, transport service quality, and cost effectiveness
- Being environmentally responsible by avoiding pollution, enhancing the natural environment and maintaining or reducing the project ecological footprint
- Using resources (energy, water and materials) efficiently and reducing waste
- Providing a safe and accessible motorway integrated into the urban environment and transport system
- Raising awareness of environmental issues and sharing sustainability knowledge with the community and broader industry
- Creating desirable places, promoting liveability and cultural heritage, and optimising both community and economic benefit

To deliver these commitments, the Beaches Link and Gore Hill Freeway Connection project will:

- Establish robust sustainability objectives and targets
- Ensure balanced consideration of environmental, social and economic costs and benefits during decision making
- Encourage innovation and setting high environmental and sustainability standards
- Establish positive relationships with community and stakeholders to maximise opportunities to add value to local communities
- Develop and maintain an environmental management framework to embed best practice pollution management and sustainable outcomes during construction
- Apply effective assurance processes to monitor performance against the project environment and sustainability objectives and identify appropriate reward or corrective action, as required
- Integrate environment and sustainability-specific processes into the procurement of delivery activities and suppliers
- Hold employees and contractors accountable for proactively meeting their environmental and sustainability responsibilities
- Provide local training, education, apprenticeships and employment opportunities

The project will comply with environmental legislation and regulations, and proactively support initiatives that go beyond compliance requirements. The project will also exhibit leadership in environmental practices and sustainability, supporting innovation, creating beneficial social and environmental impacts, and creating a positive economic legacy.

Figure 25-2 Beaches Link and Gore Hill Freeway Connection sustainability vision and policy

25.2.3 Sustainability objectives and targets

To achieve the sustainability vision for the project and to contribute to the desired outcomes of the relevant NSW Government and Transport for NSW policies and guidelines (refer to Section 25.2.1) the project would establish robust sustainability objectives and targets. The process being followed to develop the objectives and targets is shown in Figure 25-3.

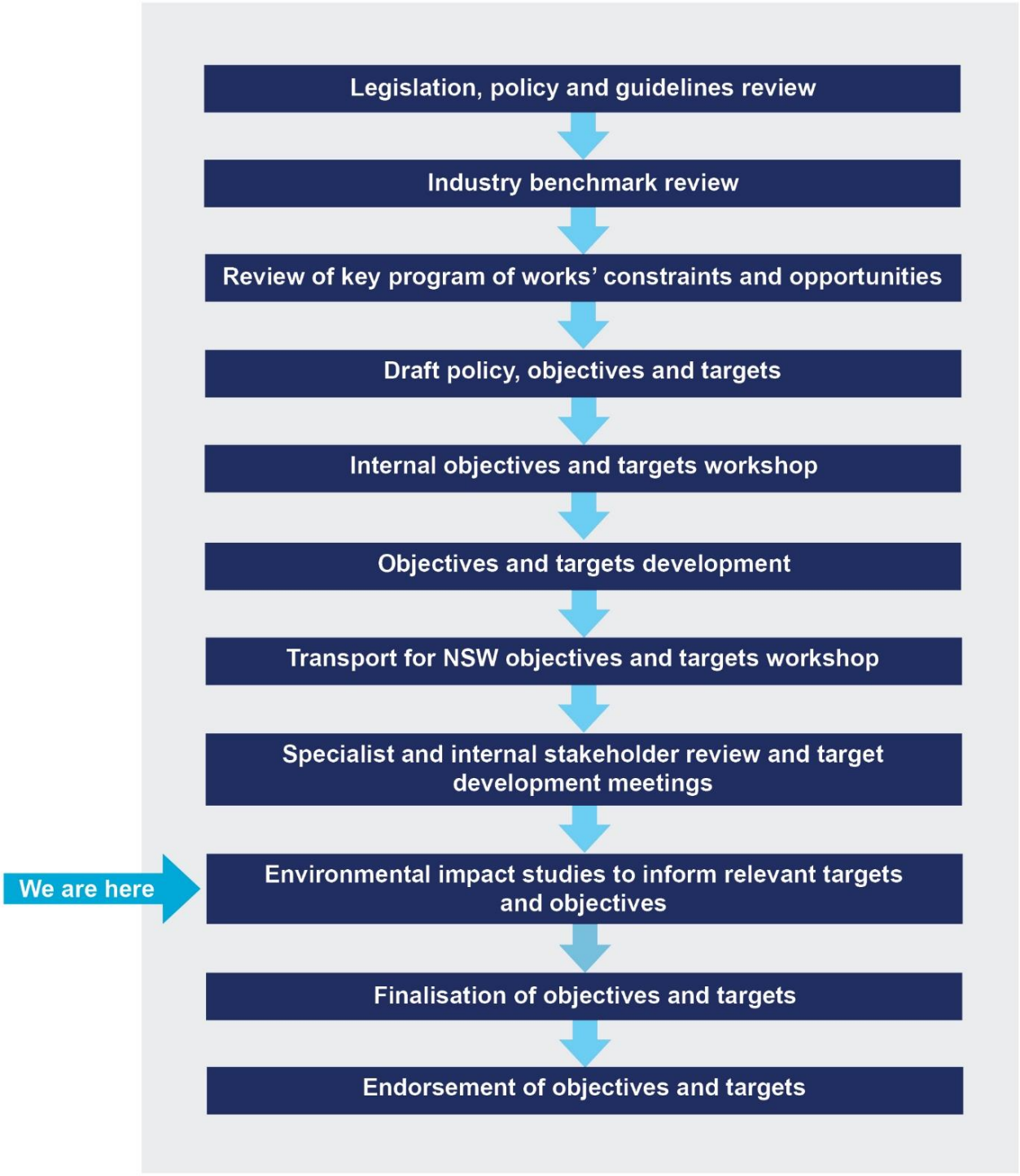

Figure 25-3 Beaches Link and Gore Hill Freeway Connection sustainability objectives and targets development process

The outcomes from this environmental impact statement, including any relevant conditions that may be applied to the project by the Minister for Planning and Public Spaces, would be used to finalise the sustainability objectives and targets for the project. Indicative objectives and targets (subject to later refinement to allow for incorporation of any relevant approval conditions) are outlined in Table 25-4.

Table 25-4 Indicative sustainability objectives and target themes

Objective	Target themes
Maximise sustainability knowledge and awareness	• Sustainability commitments (including procurement commitments) • Sharing of sustainability outcomes with the community/stakeholders and industry • Sustainability awareness training.
Minimise energy use and greenhouse gas emissions	• Embodied energy within construction materials • Construction greenhouse gas emissions • Operational greenhouse gas emissions • Energy efficient lighting.
Optimise resource efficiency and waste management	• Resource recovery of virgin excavated natural material • Reuse of topsoil • Diversion of office waste from landfill • Resource recovery of concrete and reclaimed asphalt • Encapsulation of contaminated material on site where appropriate • Cementitious substitution materials • Recycled content in road base • Recycling of other waste and wastewater • Recycled paper use • Avoidance of single use kitchen items.
Maximise resilience to climate change impacts	• Climate change risk mitigation and/or adaptation measures.
Enhance liveability of local communities	• Heritage values • Community benefit initiatives • Public open space • Urban design.
Maximise employment and training opportunities for young people, Aboriginal and Torres Strait Islanders, disadvantaged groups, long term unemployed and people who live along the project's alignment	• Apprenticeships • Training and development • Workforce participation.

Objective	Target themes
Efficiently manage water	• Water use during construction • Water use during operation • Use of non-potable water.
Minimise pollution generated by the project	• Air quality • Noise and vibration • Water quality • Reporting and tracking of environmental incidents.
Minimise impacts on biodiversity	• Ecological value and biodiversity.
Maximise sustainable procurement	• Sustainability and social aspects selection criteria • Labour practices • Procurement of sustainable timber.

25.2.4 Integration and implementation of sustainability framework

The sustainability framework would continue to be developed and refined in future phases of the project's delivery. The key implementation tools and processes that have been, and would continue to be, applied to the delivery of the sustainability framework are shown in Figure 25-1.

Activities to implement the sustainability framework, including requirements from the Infrastructure Sustainability rating scheme, would be implemented through a Sustainability Management Plan. The management plan would detail measures to meet the sustainability objectives and targets and Infrastructure Sustainability rating scheme credit requirements (refer to Section 25.4).

The project would seek to achieve an 'Excellent' 'Design' and 'As Built' Infrastructure Sustainability rating under version 1.2 of the Infrastructure Sustainability Council of Australia rating scheme.

25.3 Ecologically sustainable development

Facilitating ecologically sustainable development is adopted as an object of the *Environmental Planning and Assessment Act 1979*. This object requires the integration of "relevant economic, environmental and social considerations in decision making about environmental planning and assessment".

Ecologically sustainable development is defined under the *Protection of the Environment Administration Act 1991* (NSW) and includes four principles:

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

The principles of ecologically sustainable development have been an integral part of the design and assessment of the project. This has included the integration of relevant economic, environmental and social considerations in project design and assessment decisions, as summarised in Table 25-5.

The environmental impact statement has been prepared with regard to the key issues associated with the project and the integration of biophysical, economic and social considerations, including the principles of ecologically sustainable development and cumulative impacts (refer to Chapter 28 (Synthesis of the environmental impact statement) for additional information).

Table 25-5 Application of the principles of ecologically sustainable development to the project

Principle	Application to the project
Precautionary principle 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.	Applied during the design and development of the project: • Potential environmental impacts associated with the project considered in the alternatives and options analysis • Opportunities identified to avoid and minimise surface disturbance • Sustainability workshops and meetings held during design development with planning and design teams to develop draft sustainability targets and objectives for the project. Applied during the preparation of this environmental impact statement: • Prepared with a conservative approach, including assessment of worst case impacts and scenarios • Carried out using the best available technical information and has adopted best practice environmental standards, goals and measures • Potential environmental risks associated with the project identified and considered, with safeguards and management measures developed to manage and reduce identified risks • Sustainability workshops and meetings held during the development of the environmental impact statement with planning and design teams to inform relevant sustainability targets and objectives for the project.
Intergenerational equity The present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.	• Project designed to meet with needs of both current and future generations with a design life of 100 years • Support for Sydney's long term economic growth through improved motorway access and connections across Sydney's Global Economic Corridor, particularly the strategic centres of Sydney CBD and North Sydney and the Northern Beaches, with improved connection to Macquarie Park and north-west Sydney • Contribution to improving the capacity, functionality and safety of the road network servicing the Northern Beaches for motorists, buses and freight • Contribution to the increased resilience of the road network servicing the Northern Beaches through the provision of an additional crossing of Middle Harbour • Reduction of operational greenhouse gas emissions on Sydney's road network when compared to the project not being built • The project's resilience to future climate change is considered in Chapter 26 (Climate change and greenhouse gas), which identifies potential climate change risks to the project, and adaptation measures incorporated into the design or options for further consideration during further design development

Principle	Application to the project
	• Management measures for potential environmental impacts have been provided throughout this environmental impact statement to protect the future health, diversity and productivity of the environment • During construction and operation of the project, opportunities would be taken to reduce material use and maximise the use of materials with low embodied environmental impact, where feasible • The mainline tunnel ventilation system has been designed for coordinated operation with the adjacent and connecting Western Harbour Tunnel and Warringah Freeway Upgrade project. The tunnel ventilation would meet the in-tunnel air quality criteria and would be operated in accordance with licensing requirements.
Conservation of biological diversity and ecological integrity Conservation of biological diversity and ecological integrity should be a fundamental consideration of the project.	• As outlined in Chapter 4 (Project development and alternatives), five different alignment alternatives were considered as part of the project development process to avoid and minimise potential impacts • Through this process, consideration was given to avoiding and minimising biodiversity impacts by way of locating project elements away from areas of biodiversity value as far as practicable. Where this was not possible, project elements were situated in areas with lower biodiversity values • The design of the project within the preferred corridor was then refined and assessed with the aim of further identifying, avoiding, minimising and mitigating impacts. The construction methodology has also been developed to avoid and minimise adverse impacts on biodiversity • The project would require the removal of native vegetation and potential fauna habitat. Detailed terrestrial and marine biodiversity assessments were carried out for the project to identify potential impacts on biodiversity and to provide a range of mitigation measures to further avoid and minimise potential impacts • A Biodiversity development assessment report (BDAR) was prepared in accordance with the Biodiversity Assessment Method (BAM) to establish how biodiversity impacts could be avoided and minimised and to identify the biodiversity credits that would need to be offset to achieve no net loss of biodiversity • Residual biodiversity impacts would be offset in accordance with the requirements of the *Biodiversity Conservation Act 2016* and relevant guidelines. The offsets required for the project were calculated using the BAM Calculator. A total of 391 ecosystem credits and 1099 species credits are required to offset the direct impacts of the project. An additional 50 ecosystem credits may be required to offset indirect impacts; these would be in addition to BAM credit obligations and are at the discretion of the Minister for Planning and Public Spaces.

Principle	Application to the project
Improved valuation and pricing of environmental resources Environmental factors should be included in the valuation of assets and services.	Value placed on avoiding and minimising environmental impacts demonstrated by: • The opportunities identified in the design development to improve local amenity, improve public transport access and active transport connections, and create new open space and recreation facilities • The opportunities identified to avoid and minimise environmental impacts in the project development and alternatives analysis • The extent of environmental investigations carried out to inform this environmental impact statement • The measures developed to further avoid and minimise potential impacts of the project detailed in this environmental impact statement • The inclusion of costs associated with planning, design and implementation of avoidance and mitigation measures in the overall project costs.

25.4 Environmental management measures

Environmental management measures relating to sustainability are outlined in Table 25-6.

Table 25-6 Environmental management measures – sustainability

Ref	Phase	Impact	Environmental management measure	Location
SU1	Design	Project sustainability outcomes	Project sustainability objectives and targets will be finalised during further design development, informed by the requirements of the project planning approval.	BL/GHF
SU2	Construction	Project sustainability outcomes	Activities to implement the sustainability framework, including requirements from the Infrastructure Sustainability rating scheme, will be implemented through a Sustainability Management Plan. The management plan will detail measures to meet the sustainability objectives and targets as well as achieving 'Design' and 'As Built' ratings of Excellent under the Infrastructure Sustainability Council of Australia (ISCA) rating scheme.	BL/GHF

Note: BL = Beaches Link, Gore Hill Freeway Connection = GHF