TRANSPORT

Sydney Terminal Building Revitalisation Project

Sustainability Strategy

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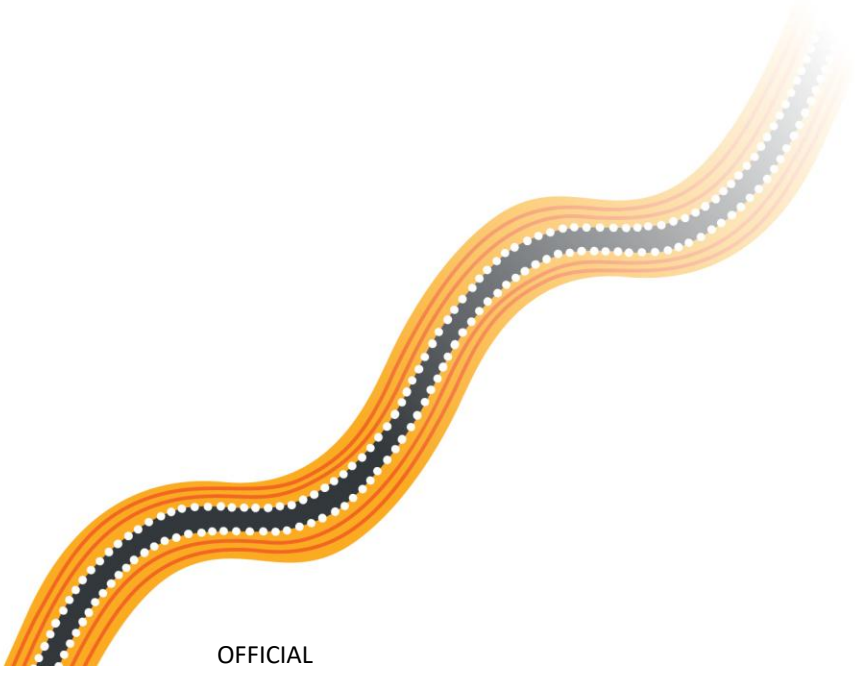
Acknowledgement of Country

Transport for NSW acknowledges the traditional custodians of the land on which we work and live.

We pay our respects to Elders past and present and celebrate the diversity of Aboriginal people and their ongoing cultures and connections to the lands and waters of NSW.

Many of the transport routes we use today – from rail lines, to roads, to water crossings – follow the traditional Songlines, trade routes and ceremonial paths in Country that our nation's First Peoples followed for tens of thousands of years.

Transport for NSW is committed to honouring Aboriginal peoples' cultural and spiritual connections to the land, waters and seas and their rich contribution to society.



Revision status

Status	Description	Date
Draft	Draft Sustainability Strategy	14/08/24
Final	Sustainability Strategy	16/04/25

Contents

1. Introduction

At Transport for NSW (Transport), our sustainability vision is to create a state-wide approach where every journey is people and planet positive. Transport is committed to delivering services, projects, operations and programs in a manner that balances economic, environmental and social issues to ensure a sustainable transport system in NSW.

1.1. Purpose of this document

This Sustainability Strategy ('**This Strategy**') aims to provide a framework for identifying and managing sustainability for the Sydney Terminal Building Revitalisation project (the **STBR project**).

This Strategy acts as a reference document for everyone involved during the lifecycle of the STBR project and:

- identifies key sustainability objectives and strategic initiatives for the STBR project
- aligns with Transport's strategic sustainability drivers
- considers the implications of staged design, delivery, and identify opportunities for a centralised approach and methodology across multiple packages where suitable
- provides a common framework to drive, monitor and report on sustainability performance
- articulates how the STBR project team will deliver on the sustainability objectives and requirements.

The STBR project will be staged and delivered in multiple phases that could be awarded to different contractors in design and construction. A Sustainability Management Plan will be prepared for each phase detailing how sustainability and resilience measures will be achieved. This Strategy provides a point of reference for coordination and standardisation of sustainability and is applicable to the whole STBR project.

2. Background

The STBR project seeks to restore and revitalise the Sydney Terminal Building at Central Station. The STBR project is located on Gadigal Country, part of the Eora Nation.

Central Station is the country's busiest transport interchange and was the first rail terminal to be built in Australia. It is an important piece of transport infrastructure for NSW and a significant international tourist gateway in an area of historical significance.

The STBR project forms part of the Central Precinct Renewal Program (CPRP), a NSW Government plan to restore and revitalise the transport interchange, which is described further below.

2.1. Central Precinct Renewal Program

Central Precinct is Transport for NSW's vision to renew up to 24 hectares of land in and around Sydney's Central Station into an exciting new place for business and the community. The renewal will include enhanced public open spaces, new city connections, housing, jobs, dining and retail whilst celebrating the heritage of this iconic transport interchange.

The Precinct sits at the southern end of Sydney's CBD. Its revitalisation is key to maintaining the City's position locally, nationally, and globally as a destination for business, investment, and talent. It was declared as being of State significance due to its potential to boost investment and deliver new jobs. A two-stage statutory planning framework was established to help develop the Precinct:

- **Stage 1** | The development and adoption of a Strategic Framework in March 2021. This outlined the vision, planning priorities, design principles, and future character of eight proposed sub-precincts, including the Central Station sub-precinct.
- **Stage 2** | The preparation and exhibition of the Central Precinct State Significant Precinct Study (SSP) in August 2022. This *defined* the vision, planning priorities, and development controls for the sub-precincts.

Revitalising the Sydney Terminal Building will be the next step towards Central Precinct becoming a welcoming new day and night destination.

2.2. Project overview

The STBR project involves transforming the heritage listed Sydney Terminal Building at Central Station into a contemporary multi-use facility with extensive new places and spaces to enjoy, work and connect.

The scope of the STBR project is constrained within the boundary indicated in Figure 1 and includes the following:

- Eddy Avenue Plaza Renewal
- Sydney Terminal Building Transformation including a new lower concourse (Eddy Avenue Level)
- Pitt Street Loading Dock Activation (Stage 1)
- Strengthening Works to Western Forecourt for a future new Coach Terminal (Coach Terminal is not part of this scope, other than future proofing)
- Proposed PV and/or skylights to the Porte Cochere Roof.

The Sydney Terminal Building Revitalisation project will be delivered in stages. Work on Stage One will start mid-2025.

Stage One of the Sydney Terminal Building Revitalisation project will deliver:

1. an upgrade of Eddy Avenue Plaza to improve pedestrian accessibility, connectivity, landscaping, lighting and wayfinding
2. a new retail building and updates to existing retail spaces.

The future stages to revitalise the Sydney Terminal Building will include the remaining scope for the approved project and will be considered as planning progresses.

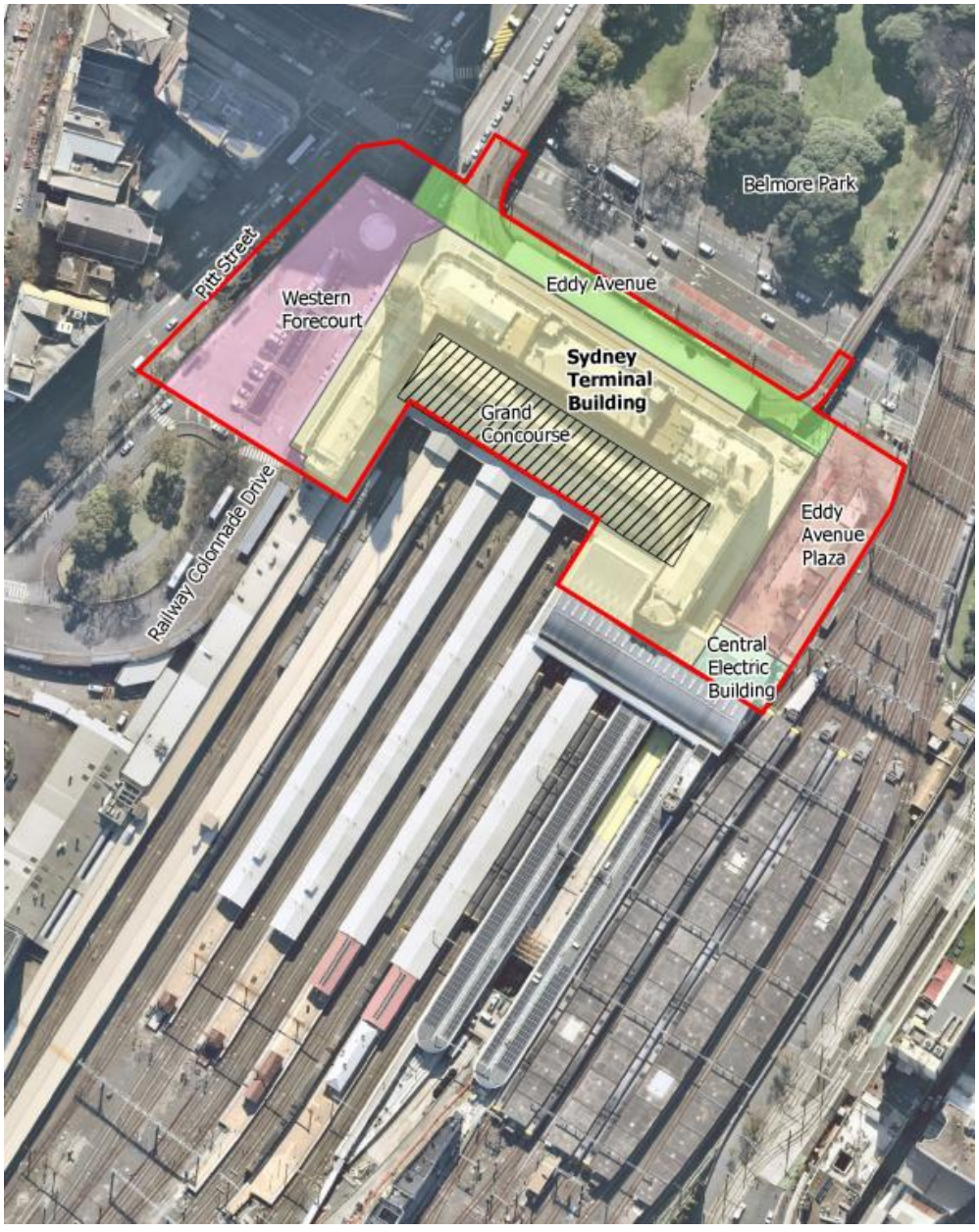


Figure 1 STBR project boundary

2.3. Project objectives

The STBR project objectives are outlined in Figure 2 below.

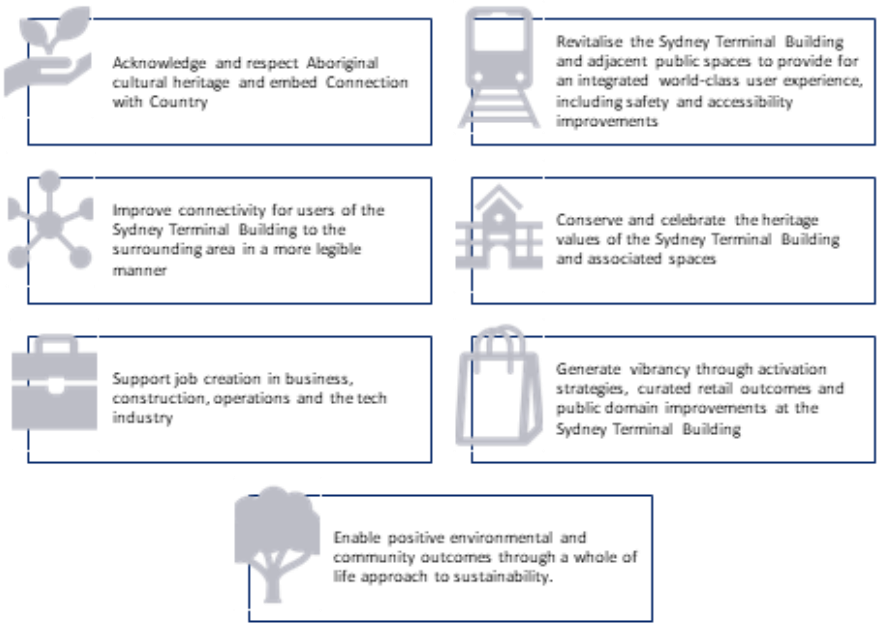


Figure 2 STBR project objectives

3. Sustainability framework

3.1. Sustainability at Transport

Transport defines sustainability as 'enabling, delivering and operating a transport system that meets the needs of the present whilst safeguarding the future, by optimising environmental, social and economic outcomes'.

There are several strategic drivers that have informed the STBR project's sustainability approach. These include Transport's, Future Transport Strategy, Environment and Sustainability and Net Zero and Climate Change Policies, the Transport Sustainability Plan, and the Central Precinct Renewal Program sustainability guidance. Figure 3 outlines the key strategic sustainability drivers for the STBR project. For further detail refer to Appendix A

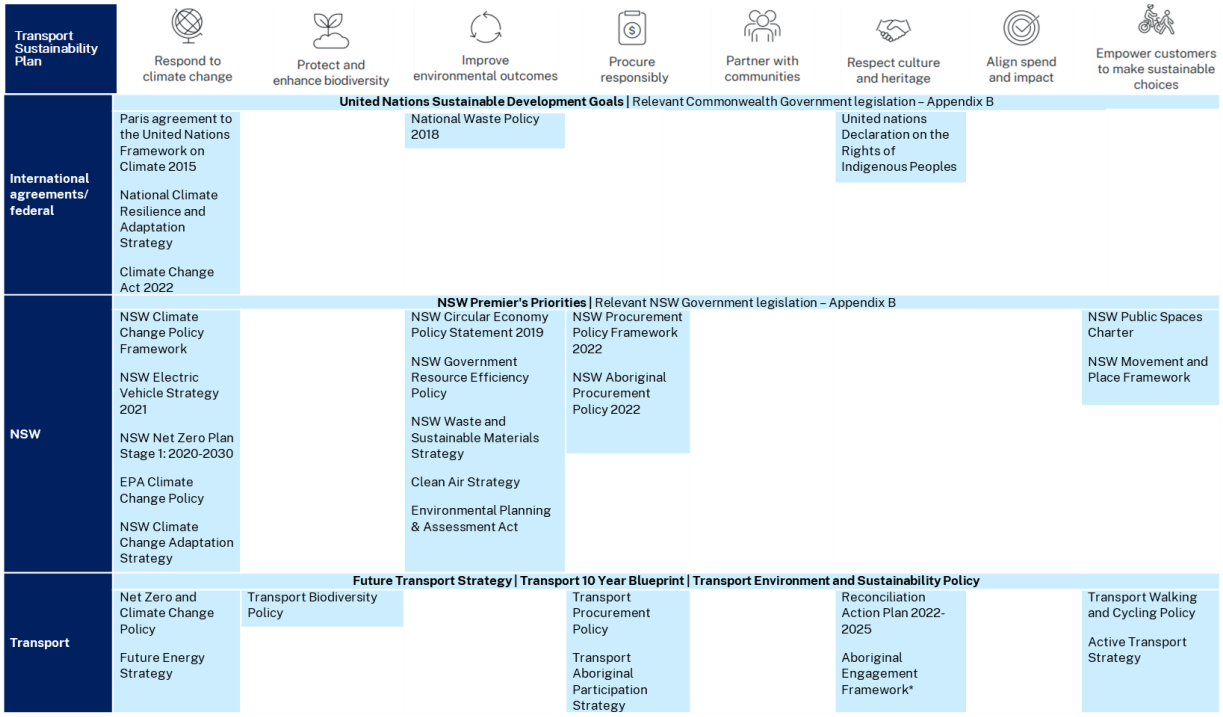


Figure 3 Sustainability policy drivers

3.2. CPRP sustainability guidance

The approach to sustainability for the CPRP is guided by the Transport Environment and Sustainability Policy (2020) and has been described in detail within the State Significant Precinct Environmental Sustainability, Climate Change, and Waste Management technical report.

The CPRP sustainability themes are outlined Figure 4. These themes have been reviewed and refined to create the sustainability principles and objectives for the STBR project (Section 4.1).

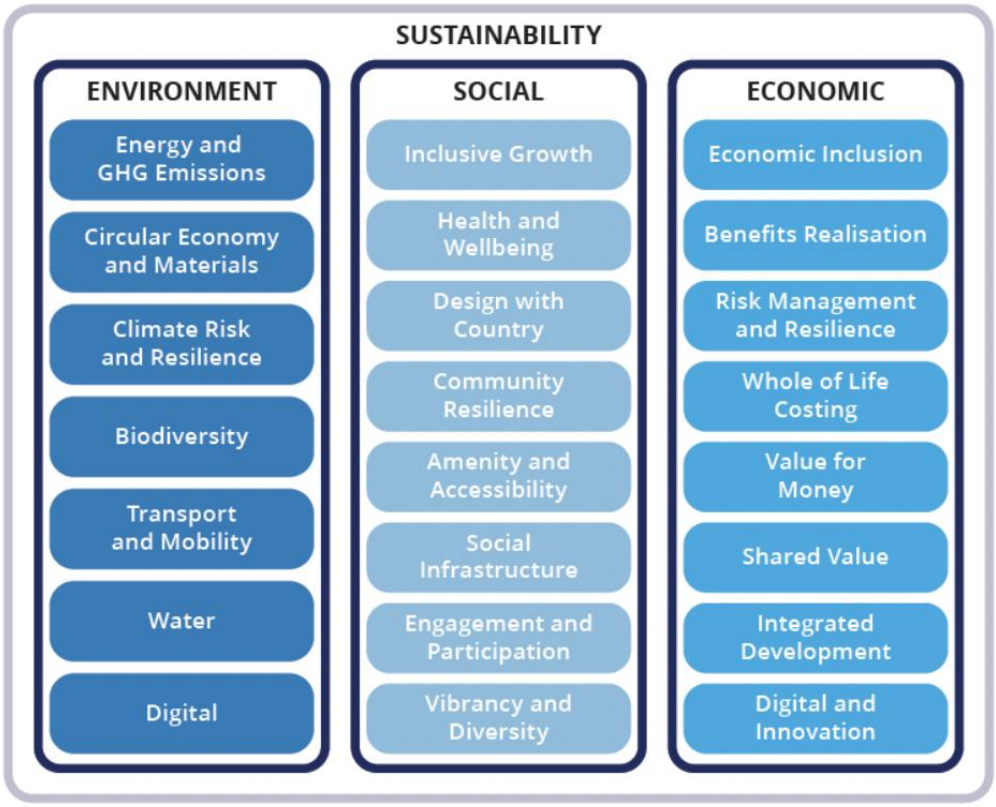


Figure 4 Sustainability themes for CPRP

4. STBR project sustainability approach

The STBR project is committed to delivering sustainability outcomes across all stages of the project's lifecycle.

Figure 5 outlines the overall approach to embedding sustainability for the STBR project and section 4.1 outlines the sustainability principles and objectives.

Figure 5 STBR project approach to embedding sustainability.

4.1. Sustainability principles and objectives

Sustainability principles and objectives will guide the development of the STBR project. These are presented in Table 1 below and will be addressed and built on throughout the design and delivery of the STBR project.

Table 1 STBR project sustainability principles and objectives.

Principle	Objective
Net Zero emissions in construction and operation	Minimise carbon emissions and contribute to the NSW Government Goal of net zero by 2050.
Drive resource efficiency and circular economy outcomes	Design and construction practices to encourage reuse of materials on site and prioritise the use of recycled materials where possible.
Demonstrate leadership	Follow exceptional environmental standards, mitigate environmental impacts, promote energy and water efficiency and ensure no net loss in biodiversity.
Design and build resilient infrastructure	Build infrastructure that is resilient and adaptive to natural hazards, climate change, and broader shocks and stresses.

Respect Heritage and Culture	Partner with local stakeholders and Aboriginal communities to understand, protect and celebrate local heritage values and culture.
Social Sustainability	Appropriately manage sustainability in the supply chain, including social procurement and promoting workforce diversity and inclusion. Foster community health and wellbeing outcomes.

4.2. Sustainability opportunities & initiatives

A range of opportunities and initiatives have been identified for the STBR project in line with the sustainability principles and objectives, and the eight Transport sustainability focus areas. These have been informed by the relevant technical studies as part of the STBR project's Environmental Impact Statement (EIS) (Section 4.3), the strategic design process and key sustainability workshops. Appendix C outlines these sustainability opportunities and initiatives and will be translated into a live Sustainability Initiatives register to enable opportunities to be tracked through identification, consideration and implementation within the design and delivery of all stages of the STBR project.

4.3. Previous sustainability assessments

STBR project is State Significant Infrastructure and as such, as part of the planning phase, an Environmental Impact Statement (EIS) was prepared. The EIS included an assessment of resource efficiency and climate change, and the relevant opportunities identified in these studies are detailed below.

4.3.1. Climate resilience

A climate change risk assessment was carried out in accordance with AS 5334:2013 and the Transport Climate Risk Assessment Guidelines v4.0. As per Chapter 20 (Climate Change) of the EIS, a total of 18 climate risks were identified for the STBR project. These included:

- 3 low risks
- 10 medium risks
- 5 high risks
- 0 extreme risks

The high risks identified for the STBR project were in the following climate risk areas:

- Bushfire
- Increase in average temperature
- Dry periods and regional drought
- Higher frequency of extreme heat

The specific design responses to the five 'high' risks are detailed in Appendix B as per Appendix Q (Climate Change Adaptation Plan) of the EIS. These are to be considered across the staging of the STBR project and are to be implemented where feasible.

4.3.2. Resource Efficiency

A preliminary waste, resource and greenhouse gas emissions impact assessment was undertaken as part of the EIS. The impacts from this will be addressed in the form of management measures. As per Chapter 19 (Resource Efficiency) of the EIS, key measures include:

- Prepare a Waste and resources Environmental Management Plan prior to construction
- Consider circular economy principles and identify opportunities to design out waste and pollution and to keep products and materials in use
    - Prioritise the salvage and reuse or removal and storage of distinctive fabric elements where possible, consistent with the requirements of the Heritage Construction Environmental Management Plan and sub plans – Salvage and Reuse of Distinctive Elements Plan, and Removal and Storage Methodology.
- Investigate waste hierarchy principles and circular economy opportunities during construction and operation, including opportunities for reuse of waste streams such as metals, sand, soil, concrete and fittings where possible
- Prepare an Operational Environmental Management Plan prior to operations commencing.

5. Monitoring and reporting

The STBR project will contribute towards the CPRP ambition of embedding world's best practice resource efficiency, ecological stewardship, adaptability, accessibility, and enabling infrastructure. This Strategy and the accompanying Sustainability Initiatives Register will track sustainability outcomes as key initiatives are implemented into the design and delivery of all stages of the STBR project. This Strategy forms a collation of the sustainability objectives and opportunities for implementation throughout the development and delivery of the STBR project that will contribute to achieving sustainability outcomes.

This Strategy will be used to guide the STBR project through detailed design, construction, and operation. This Strategy will be reviewed and updated at the commencement of each phase of the project as design, environmental and sustainability and construction partners are engaged, bringing new and innovative ideas to improve the project sustainability outcomes.

Reporting will be required through the procurement documents and delivery partners will be required to report on sustainability outcomes. This sustainability reporting will include the following components:

- **Identification:** Determine sustainability issues and opportunities relevant to the project stage
- **Measurement:** Develop and implement data management systems to capture and measure sustainability performance (including but not limited to measuring greenhouse gas emissions, water and energy consumption and waste diverted from landfill).
- **Review:** Assess data, systems, processes and controls to ensure information reported is accurate, valid and complete
- **Reporting:** Report internally or externally through sustainability reports and track progress through the sustainability initiatives register
- **Feedback:** Assess stakeholders' feedback to identify opportunities for improvement
- **Improvement:** Integrate learnings in sustainability strategy and measurement processes to improve sustainability performance and reporting.

Appendix A

Related references and documents

Reference	Summary and document link
United Nations Sustainable Development Goals	The United Nations Sustainable Development Goals (UN SDGs) are the blueprint to achieve a better and more sustainable future for all. There are 17 Goals to address global challenges, including poverty, inequality, climate change, environmental degradation, peace and justice.
Paris Agreement to the United Nations Framework on Climate 2015	The *Paris Agreement* is a legally binding international treaty on climate change that was adopted at the UN Climate Change Conference (COP21) in 2015. Its overarching goal is to hold "the increase in global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels." In recent years, world leaders have stressed the need to limit global warming to 1.5 °C by the end of this century.
United Nations Declaration on the Rights of Indigenous People	The United Nations Declaration on the Rights of Indigenous People is the most comprehensive international instrument on the rights of Indigenous peoples. It establishes a universal framework of minimum standards for the survival, dignity and well-being of the Indigenous peoples of the world and it elaborates on existing human rights standards and fundamental freedoms as they apply to Indigenous peoples.
National Waste Policy (2018)	The 2018 National Waste Policy provides a framework for collective action by businesses, governments, communities and individuals until 2030 to avoid waste, increase resource recovery, and increase the use of recycled materials and aiding the development of markets for them.
National Climate Resilience and Adaptation Strategy 2021-2025 (2021)	The National Climate Resilience and Adaptation Strategy 2021-2025, aims to position Australia to better anticipate, manage and adapt to our changing climate. The Strategy sets out what the Australian Government will do to support efforts across all levels of government, businesses, and the community, to better anticipate, manage and adapt to the impacts of climate change. The Strategy details three objectives to enable more effective adaptation across Australia: • Objective 1 - Drive investment and action through collaboration

	• Objective 2 - Improve climate information and services • Objective 3 - Assess progress and improve over time.
Climate Change Act 2022	The *Climate Change Act 2022* sets out Australia's greenhouse gas emissions reduction targets which contribute to the global goals of the Paris Agreement. These targets are: • 43% reduction from 2005 levels by 2030 • Net zero by 2050
NSW Climate Change Policy Framework (2022)	The aim of the NSW Climate Change Policy framework is to maximise the economic, social, and environmental wellbeing of NSW in the context of a changing climate, current and emerging international and national policy settings, and actions to address climate change. It has the aspirational long-term objectives of: • Achieving net zero emissions by 2050 • NSW is resilient to a changing climate
NSW Electric Vehicle Strategy 2021	The NSW Electric Vehicle Strategy is the NSW Government's plan to accelerate the State's vehicle fleet of the future. It outlines the government's commitments to increasing the uptake of electric vehicles (EVs) to ensure New South Wales shares in the benefits.
NSW Net Zero Plan Stage 1: 2020-2030	The NSW Net Zero Plan (Stage 1: 2020-2030) outlines actions for NSW to reach net zero emission by 2050. The priorities are: • Drive uptake of emissions reduction technologies • Empower consumers and businesses to make sustainable choices • Invest in emissions reduction innovation • Ensure the government leads by example
Environmental Protection Authority (EPA) Climate Change Policy (2023)	The EPA Climate Change Policy describes the causes and consequences of climate change in NSW and outlines commitments to deliver on statutory objectives and duty to address climate change. As the primary environmental regulator for NSW, this policy includes strategic commitments which set expectations for industry.
NSW Climate Change Adaptation Strategy	The NSW Climate Change Adaptation Strategy sets out an ambitious approach to climate change adaptation. The strategy provides a framework that will strengthen and expand action to adapt to climate change now and over the long term. It builds on the comprehensive suite of climate change policies already in place, such as the Net Zero Plan Stage 1: 2020-2030.

	The strategy sets out key decision-making principles and objectives for adaptation, key priorities, and a suite of actions, these include: • Develop robust and trusted metrics and information on climate change risk • Complete climate change risk and opportunity assessments • Develop and deliver adaptation actions plans • Embed climate change adaptation in NSW Government decision-making. The strategy commits to release the first state-wide climate change risk and opportunity assessment and adaptation action plan in 2023. Implementation of this strategy will align with the State Resilience Strategy under development.
NSW Circular Economy Policy Statement (2019)	The NSW Government has developed a Circular Economy Policy Statement to deliver positive economic, social, and environmental outcomes. This Policy Statement will help guide NSW Government decision making as we transition to a circular economy. It sets the ambition and approach for a circular in NSW and provides principles to guide resource use and management.
NSW Government Resource Efficiency Policy	The NSW Government Resource Efficiency Policy aims to drive resource efficiency with a focus on energy, water and waste, and reducing harmful air emissions. The policy aims to ensure NSW Government agencies: • meet the challenge of rising costs for energy, water, clean air and waste management • use purchasing power to drive down the cost of resource-efficient technologies and services • show leadership by incorporating resource efficiency in decision-making. The policy includes measures, targets and minimum standards to drive resource efficiency.
NSW Waste and Sustainable Materials Strategy	The NSW Waste and Sustainable Materials Strategy outlines the actions NSW Government will take over the next six years, the first phase of the strategy, to deliver on long-term objectives. This strategy focuses on the environmental benefits and economic opportunities in how to manage waste and commits to adopting the following targets from NSW: • reduce total waste generated by 10% per person by 2030. • have an 80% average recovery rate from all waste streams by 2030. • significantly increase the use of recycled content by governments and industry • phase out problematic and unnecessary plastics by 2025 • halve the amount of organic waste sent to landfill by 2030

NSW Clean Air Strategy	The NSW Clean Air Strategy presents the whole of NSW Government approach to improving air quality and protecting communities. It outlines actions and integration with other major government initiatives to deliver on key objectives. The strategy sets out 5 priority action areas to mitigate community exposure to poor air quality, these include: • better preparedness for pollution events • cleaner industry • cleaner transport, engines and fuels • healthier households better places
Environmental Planning & Assessment Act 1979	The *Environmental Planning and Assessment Act 1979* (EP&A Act) represents the principal legislation regulating land use in NSW. The NSW Department of Planning and Environment (DPE) administer the Act. The Minister responsible for the Act is the NSW Minister for Planning. The EP&A Act allows plans to be made to guide the process of development and to regulate competing land uses.
NSW Procurement Policy Framework (2022)	The NSW Procurement Policy Framework sets out the policy and operating framework for the NSW public sector procurement system and provides a single source of guidance on the rules for procurement. The fundamental objective of the Framework is to ensure that government procurement activities achieve best value for money in supporting the delivery of government services.
NSW Aboriginal Procurement Policy (2021)	The Aboriginal Procurement Policy (APP) will contribute to the NSW Government's strategic economic policy of Growing NSW's First Economy. Government procurement provides a significant opportunity to increase skills and economic participation within the State's Aboriginal and Torres Strait Islander communities. The APP supports the NSW Government Plan for Aboriginal Affairs, OCHRE and is a key deliverable under the Aboriginal Economic Development framework. Agencies must include minimum requirements for 1.5 % Aboriginal participation in all contracts valued at $7.5 million or above by requiring one or a combination of the following: • At least 1.5 percent of the contract value to be subcontracted to Aboriginal businesses.

	• At least 1.5 percent of the contracts Australian based workforce (FTE) that directly contribute to the contract to be Aboriginal or Torres Strait Islander peoples, • At least 1.5 percent of the contract value to be applied to the cost of education, training or capability building for Aboriginal staff or businesses directly contributing to the contract (Aboriginal Procurement Policy | buy.nsw)
NSW Public Spaces Charter	The NSW Public Spaces Charter identifies 10 principles for quality public space, to support all those who advocate on behalf of, provide advice on, make decisions about, or plan, design, manage and activate public spaces in NSW. The principles relate to sustainability outcomes.
NSW Movement and Place Framework	The Movement and Place Framework established a standard set of built environment indicators (BEIs), most of which can improve sustainability outcomes. The indicators were developed based on a series of public and government datasets that could assist planners, designers in baselining qualities of places in order to focus efforts for improvement and, ultimately, measure success in terms of positive change in various domains as a result of the project, and no negative change in any other domain.
Future Transport Strategy: Our vision for transport in NSW (2022)	The Future Transport Strategy provides an update to the Future Transport Strategy 2056 (2017). It provides visions, goals, and targets for connecting our customers whole lives, successful places for communities, and enabling economic activity. Key call outs include, sustainable and ethical procurement, prioritising public transport and active transport, wider economic benefits, resilience, net-zero and environmental sustainability.
Transport Environment and Sustainability Policy 2020	The Transport Environment and Sustainability Policy outlines our commitment 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. It includes nine principles: • Leadership • Environmental Protection • Energy and carbon • Resilience • Sustainable Procurement

	• Whole of Life • Social • Awareness • Communication
Transport Net Zero and Climate Change Policy (2023)	Transport is committed to contributing to the economic, social and environmental wellbeing of NSW in the context of a changing climate and current and emerging international and national policy settings and actions to address climate change. The Transport Net Zero and Climate Change Policy prescribes the principles and requirements to: 1. achieve Transport's Net Zero emissions and climate change targets 2. support the transport sector's transition to Net Zero continue creating a transport network that is resilient, responsive and optimally adapted to a changing climate
Future Energy Strategy (2021)	The Future Energy Strategy outlines Transport's commitment to securing our transport energy needs from sustainable sources and supports the transport sector's transition to net zero emissions by 2050.
Transport Sustainability Plan 2021	Transport Sustainability Plan (nsw.gov.au) was developed to integrate and mainstream sustainability into the Transport approach whilst responding to a range of legislative requirements and regulatory drivers. The Plan identifies eight focus areas for Transport: • Respond to climate change • Protect and enhance biodiversity • Improve environmental outcomes • Procure responsibly • Partner with communities • Respect culture and heritage • Align spend and impact • Empower customers to make sustainable choices
Transport Biodiversity Policy (2022)	The Transport Biodiversity Policy sets out our approach to achieving no net loss biodiversity. It outlines the avoid, minimise, mitigate, and offset hierarchy applied to all Transport infrastructure biodiversity impacts and includes our commitment to replace native and amenity trees unavoidably lost through development.

Transport Procurement Policy 2024	The Transport Procurement Policy sets out Transport's commitments to building a diverse supply base to support businesses of all types, which includes small and medium sized businesses, Aboriginal-owned businesses, regional businesses and disability enterprises. This Policy prescribes the principles and requirements to give effect to that commitment. The procurement practices of Transport agencies are underpinned by the NSW Government procurement policy framework, relevant regulatory and legislative requirements, and Transport policies relating to conduct, ethics, sustainability, safety and risk.
Transport Aboriginal Participation Strategy 2023-2025	**The Transport Aboriginal Participation Strategy outlines Transport's approach to meeting the NSW Aboriginal Procurement Policy and sets further goals and targets as an organisation.**
Transport Reconciliation Action Plan (RAP) 2022-2025	The Transport Reconciliation Action Plan is our roadmap to making a genuine and sustainable contribution to reconciliation. Every Aboriginal-focused initiative, project and activity at Transport – both internal and external – is connected to the delivery of this plan. Our RAP is framed around three key themes: • building and strengthening relationships with Aboriginal people • respecting and celebrating Aboriginal culture **creating opportunities for employment and career development for Aboriginal people**
Aboriginal Engagement Framework - Ngiyani Winangaybuwan Bunmay	Where land transport construction projects receive Australian Government funding exceeding $7.5 million, Transport will also implement the requirements of the Australian Government's Indigenous Employment and supplier-use Infrastructure Framework. The Principles and Framework for Aboriginal engagement has been developed to assist Transport staff to facilitate appropriate Aboriginal engagement that informs the continuous improvement of our policies, projects and programs.

Transport Providing for Walking and Cycling in Transport Projects Policy	Walking and cycling are the most sustainable and environment friendly mode of transport. The NSW Government is committed to encouraging people to walk or cycle as part of their everyday travel. Walking and cycling for commuting and short trips relieve pressure on our roads and public transport networks and are part of a healthy lifestyle for our communities. Providing for Walking and Cycling in Transport Projects Policy (nsw.gov.au)
Transport Active Transport Strategy	The Active Transport Strategy draws on the Future Transport Strategy and its vision for walking, bike riding and personal mobility. The Strategy provides a plan to guide planning, investment, and priority actions for active transport across NSW.
Modern Slavery Act 2018	The Commonwealth *Modern Day Slavery Act 2018* came into force 1 January 2019 and established a national Modern Slavery Reporting Requirement. The Commonwealth Act sets the requirement to identify risks and maintain responsible and transparent supply chains as well as prepare annual Modern Slavery Statements for businesses with a turnover of over $100m.

Acronyms and definitions

Acronym / Term	Definition
CPRP	Central Precinct Renewal Program
Circular economy	A circular economy values finite resources by eliminating waste and keeping products and materials in continual use and reuse for as long as possible. Maximising the use and value of resources brings major economic, social, and environmental benefits. It contributes to innovation, growth, and job creation, while reducing our impact on the environment
Climate change	A change in the state of the climate that can be identified (e.g., by statistical tests) by changes in the mean and/or variability or its properties and that persists for an extended period, typically decades or longer.
CCRA	Climate Change Risk Assessment Guidelines
Net zero	Achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere, within a specified boundary (e.g., net-zero emission in Transport's operations).
Sustainability	Enabling, delivering, and operating a transport system that meets the needs of the present whilst safeguarding the future by optimising environmental, social, and economic outcomes.
STBR project	Sydney Terminal Building Revitalisation project
Transport	Transport for NSW

Appendix B: Climate risk design responses

Risk Number	Climate risk identified	Explanation	Design responses to be investigated during detailed design
2	Bushfire	Distant bushfire smoke blows into the station and causes poor air quality, poor visibility, dust/particulate matter, flying ash and debris - leading to poor health outcomes for staff and travellers.	○ Increased Heating, Ventilation and Air Conditioning (HVAC) monitoring schedule to ensure filters are replaced frequently to maintain fresh airflow in conditioned areas. ○ Proper management plans and public help points to be set in place for people requiring medical assistance. ○ Smoke sensors in the intake to shut down mechanical systems when smoke is sensed to prevent smoke entering conditioned areas or overheating the system
8	Increase in average temperature	increased reliance on air conditioning due to higher average temperatures resulting in higher energy consumption and increased maintenance requirements	○ Investigate optimal passive design (window selection, shading strategy etc) to promote passive cooling of the building and reduce reliance on HVAC. ○ Implement a night purge (releasing heat from the building to cool the internal temperature). ○ Size the HVAC equipment based on appropriate design temperature (in-line with increased temperatures incurred by climate change) so that systems operate efficiently in future higher temperatures.
10	Dry periods and regional drought	Drought causing decrease in water supply/imposition of water restrictions causing the rainwater tanks to be emptied. Increasing dependence on Sydney Water supply.	○ Implement water sensitive urban design ○ Future proofing for shared recycled water systems. ○ Implement appropriate metering, monitoring, and response. ○ Engage a recycled water purchase agreement. ○ Add information signage to encourage water saving practices. ○ Water efficiency measures to be implemented that is, Minimum Water Efficiency Labelling and Standards (WELS) ratings for taps, toilets, showers, and appliances. ○ The site currently has rainwater tanks allowing rainwater storage. ○ Low water use species selected for landscaping. ○ Smart dripline irrigation system will be installed which will consist of Automatic Smart Controller with Rain Sensor and irrigation soil moisture sensor to sure water is used efficiently.

11	Higher frequency of extreme heat	Higher frequency of extreme heat causes decreased thermal comfort indoors.	○ Passive design principles to be incorporated into the design. ○ Investigate tempered ventilation solutions ○ Providing amenities (drinking fountains, increased retail, food, and beverage locations). ○ Designing in more spaces for rest. ○ Increased planting and shading areas to reduce Urban Heat Island (UHI) effect.
12	Higher frequency of extreme heat	Degradation of vegetation and biodiversity due to higher frequency of extreme heat.	○ Landscaping design to implement shading strategies to reduce vegetation over-exposure to sunlight ○ Balance vegetation species with both high and low transpiration to help control the cooling effect while also having some drought-resistance ○ Refer to the recommendations set by the City of Sydney Urban Forest Strategy for maintaining the existing species diversity which in return is more resilient to climate change in general thus, lowering the impact from extreme heat ○ Low water use species selected for landscaping ○ Smart dripline irrigation system will be installed which will consist of Automatic Smart Controller with Rain Sensor and irrigation soil moisture sensor for water usage efficiency

Appendix C: Initiatives for consideration

The information below outlines how sustainability is being considered across the STBR project lifecycle and provides opportunities for sustainability across all phases.

Sustainability Principle	Potential initiatives
Net zero emissions in construction and operations	Develop energy efficiency initiatives to ensure construction and operational energy requirements are minimised.
	Appropriately measure and account for carbon emissions and apply the carbon management hierarchy (avoid, minimise, mitigate, offset).
	Transition to an all-electric building (i.e., all energy consuming features to be electrical).
	Source renewable energy for operation.
	Consider onsite renewable energy generation for operations where feasible, such as photovoltaics on canopies or buildings.
	Investigate and implement opportunities to use renewable energy during the construction phase (e.g., small scale photovoltaics).
	Integrate early consideration of the use of sustainable materials in construction to minimise embodied emissions.
	Incorporate energy efficient construction equipment, methods, and practices.
	Consider offsetting all or a portion of construction emissions associated with consumption of electricity.
	Maximise passive design features including daylight, natural ventilation, and passive cooling.
Drive resource efficiency and circular economy outcomes	Consider circular economy principles early in design, including the use of sustainable materials.
	Investigate opportunities to avoid or minimise waste and use of virgin materials.
	Prioritise the salvage and reuse or removal and storage of distinctive fabric elements where possible, consistent with the requirements of the Heritage Construction Environmental Management Plan and sub plans – Salvage and Reuse of Distinctive Elements Plan, and Removal and Storage Methodology
	Encourage best practice waste management through designing for the collection of separate waste and resource streams and providing dedicated and adequately sized waste and resource storage area.
	Divert office waste from landfill and partner with community initiatives such as “Mates on the Move”.
	Enable recycling of waste materials from office facilities and customers.

	Maximise recycling of construction and demolition waste by adopting waste recycling targets
	Maximise reuse of existing materials, buildings, facades, and structures.
	Minimise the embodied impacts of materials, including high impact materials such as steel and concrete
Demonstrate leadership	Integrate sustainability objectives into decision making and actions.
	Incorporate sustainability throughout the project lifecycle from early strategic planning to delivery.
	Implement best practice metering, monitoring and responses for energy and water usage.
	Incorporate sustainability criteria into project contracts and tender evaluation criteria.
	Influence contractors, subcontractors and materials suppliers to adopt sustainability objectives in their works and procurement.
	Develop performance targets across all sustainability principles and objectives.
Design and build resilient infrastructure	Undertake climate change risk assessment early and incorporate appropriate responses into the design.
	Mitigate the impacts of urban heat through canopy cover and appropriate materials selection
	Design for forecast climatic conditions including potential, extreme weather events and increases in annual average temperatures.
	Identify opportunities to contribute to wider climate resilience through the project.
Respect Heritage and Culture	Acknowledge, respect, and celebrate Aboriginal and non-Aboriginal heritage and culture.
	Integrate Designing with Country principles into the planning and design process.
	Positively reflect the cultural identity of the Country of the local Aboriginal peoples.
	Investigate opportunities to protect and enhance items of heritage significance as part of the project legacy.
	Investigate opportunities for reuse and repair of heritage fabric within the SSI precinct or elsewhere.
Social sustainability	Influence diversity and inclusion within the workforce and supply chain through collaborative partnerships, initiatives and programs.
	Ensure the project has positive impact on the community and local businesses during construction and operation.
	Design for healthy indoor spaces for people by implementing best practice approaches to acoustic comfort, clean air, light quality, and pollutant control.
	Integrate inclusivity into the design development to ensure the project legacy includes provision of inclusive spaces.