Bays West
Draft Sustainability Framework

18 March 2021

atelier ten

INTEGRAL GROUP

DRAFT FOR CONSULTATION

Prepared for:

NSW GOVERNMENT Planning, Industry & Environment

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Document Control

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Cover image: Aerial view of Bays West looking East, DPIE

Welcome to Country

The stretch of Country now known as Bays West has been known for millennia as **Gari Gurad/Nura** (Saltwater Country) and **Nattai Gurad/Nura** (Freshwater Country). This Country is celebrated for vast expanses of **garaban** (rock and sandstone) which in some places provides **gibbaragunya** (stone/cave shelters), and in other places creates **yiningmah** (steep cliffs) where ceremony can be performed privately without uninitiated onlookers.

For thousands of generations, local Aboriginal people have lived an abundant and sustainable lifestyle within a complex kinship system of numerous families and clans on this Country including the **D'harawal, Dharug, Eora, Gai-maragal, Gundangara and Guringai peoples**, among others. We pay our respects to their Ancestors and Elders past, present and emerging and acknowledge that through honouring Country, we also honour their timeless connections to Country.

It is also here on this Country that we recognise the changing and evolving nature of Country and the ways in which local communities and ecologies have responded and adapted to these changes throughout time. We acknowledge that Country is a living, breathing entity with an enduring **Duwee** or Spirit and it is this spirit that informs the work we undertake here today, and into the future.

Ngeeyinee bulima nandiritah
(May you always see the beauty of this earth)

Welcome to Country provided by Shannon Foster.

D'harawal Sydney Traditional Owner and Knowledge Keeper.

Within the Bays West Draft Sustainability Framework you will encounter stories of the Bays West location specifically. These are a small selection of the D'harawal stories of this place. They are shared by a contributor to this document, D'harawal Knowledge Keeper Shannon Foster, whose Ancestors kept these knowledges alive, and whose Elders and Knowledge Keepers still celebrate, live by and share them today.

The cultural Intellectual Property (IP) of all Aboriginal peoples, including the cultural IP of these stories, remains with the people they belong to and can never be vested or assigned. In this case the stories belong to the D'harawal people of the Sydney region who know themselves as Iyora here, and these stories may not be duplicated or used without the express permission of Sydney D'harawal Elders or Knowledge Keepers.

The stories shared are just the starting point. There are other stories, and there are many layers of these stories that have not been unpacked in this document. There may also be other Ancestral stories of this location from other local peoples, and hearing them will involve the effort and time to learn in culturally appropriate ways.

Executive Summary

AMBITION FOR ENVIRONMENTAL SUSTAINABILITY

The Case for Sustainability Ambition

The environmental sustainability priorities facing governments and communities globally are brought into focus for urban renewal projects like Bays West.

There is a growing evidence-based consensus on the need to act on the challenges of climate change, biodiversity loss, and the consumption of non-renewable resources. These challenges are urgent and important, and they are increasingly reflected in public policy, investment decision-making and the industry frameworks that govern private sector involvement in the built environment.

A review of global peer precincts, the current policy environment, and industry best practice shows that an ambitious approach to sustainability underpins the development of successful, competitive precincts that seek to attract talent and investment.

The principles of good place-making, Design with Country and the interplay between harbour and foreshore all provide locally specific opportunities to achieve world's best practice urban sustainability outcomes.

This framework provides support for a high level of sustainability ambition at Bays West and identifies opportunities for using sustainability to deliver a better place.

Approach

The approach taken in this framework is to:

1. Identify the scope of environmental sustainability relevant to Bays West;
2. Establish the sustainability ambition for this place;
3. Identify sustainable development opportunities specific to Bays West.

The first part draws upon established sustainability frameworks such as the United Nations Sustainable Development Goals (UN SDGs) and industry frameworks, which define the Sustainability Concepts.

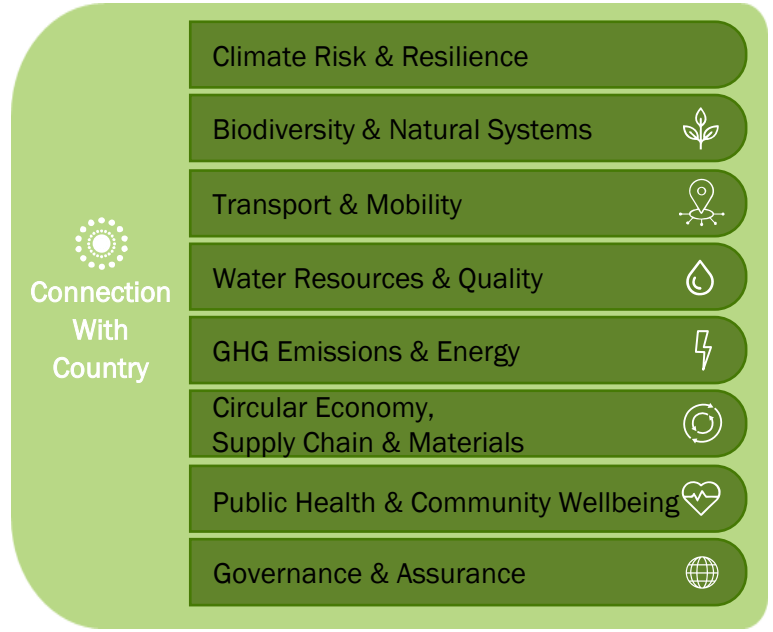
The second provides a comprehensive review of the sustainability ambition of global peer projects; Commonwealth, NSW and LGA policy; and the current and emerging industry frameworks for sustainability. This assessment confirms a preferred outcome of ***"World's Best Practice"***.

The third part identifies a range of sustainability opportunities for consideration in the Draft Place Strategy, the Draft Strategic Place Framework, the Draft Urban Design Framework, and in future strategic plans and frameworks as the precinct moves forward into future planning, procurement, implementation, and operation stages.

Sustainability Concepts

The sustainability concepts are framed by an overarching commitment to Connection with Country – the recognition and responsibility that this place was, is, and will continue to be a place of cultural significance for Aboriginal Peoples.

In support, eight sustainability concepts have been identified that support the goals of the UN SDGs, realise NSW and local policy ambition, and meet industry expectations for urban renewal.



Executive Summary

WORLD'S BEST PRACTICE

OUR AMBITION

Our review of global peer precincts suggests that world leadership in sustainability is a critical attribute for successful urban renewal.

The minimum scope of sustainability concepts that would be competitive with other harbourside urban renewal projects and could represent "World's Best Practice" includes:

- *Connection with Country*
- *Climate Risk & Resilience*
- *Biodiversity and Natural Systems*
- *Transport & Mobility*
- *Water Resources & Quality*
- *GHG Emissions & Energy*
- *Circular Economy, Supply Chain & Materials*
- *Public Healthy & Community Wellbeing*
- *Governance & Assurance*

Targeting ambitious sustainability outcomes across these concepts is supported by both NSW policy and industry frameworks, which sets the context for our sustainability recommendation for the Bays West Draft Place Strategy.

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Executive Summary

INTEGRATING SUSTAINABILITY INTO IMPLEMENTATION

BEYOND NATURE VIA COUNTRY

There are four primary sustainability concepts with a deep connection to Place that should be reflected in the urban design and place strategy:

- Biodiversity & Natural Systems
- Climate Risk & Resilience
- Transport & Mobility
- Water Resources & Quality

Of particular importance to Place is the recognition of a local biodiversity hotspot in the midst of this working harbour. The ***grey nurse shark*** *(Parradowee), the* ***eel*** *(Booambilyee)* and the ***White's seahorse*** *(Raiagon)* are local signature species with totemic significance in Aboriginal culture. Their stories are key to re-imagining Bays West as a place with stronger connections to Country, where the spirit of Country thrives (Refer to Bays West Draft Connecting with Country Framework).

Reinstating functional communities of these animals, and nurturing the marine ecosystems they are integral to, should be emblematic of the ambition for World's Best Practice.

Improving resilience to heat, sea level rise, and increased storm frequency and intensity are imperatives for any forward-looking urban redevelopment, especially one surrounded by the harbour. Restoring streams and other surface water flows, which converge here with the bays, will support the entire estuarial ecosystem and help define the public realm. Creating public infrastructure to support a range of personal mobility modes will encourage active lifestyles and will directly improve resident and visitor health and wellbeing.

1.1: Grey Nurse Shark, CSIRO; Green Moray Eel, Underwater Sydney; White's Seahorse, Underwater Sydney

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Executive Summary

INTEGRATING SUSTAINABILITY INTO IMPLEMENTATION

SUSTAINABILITY PERFORMACE EMBEDDED IN DELIVERY

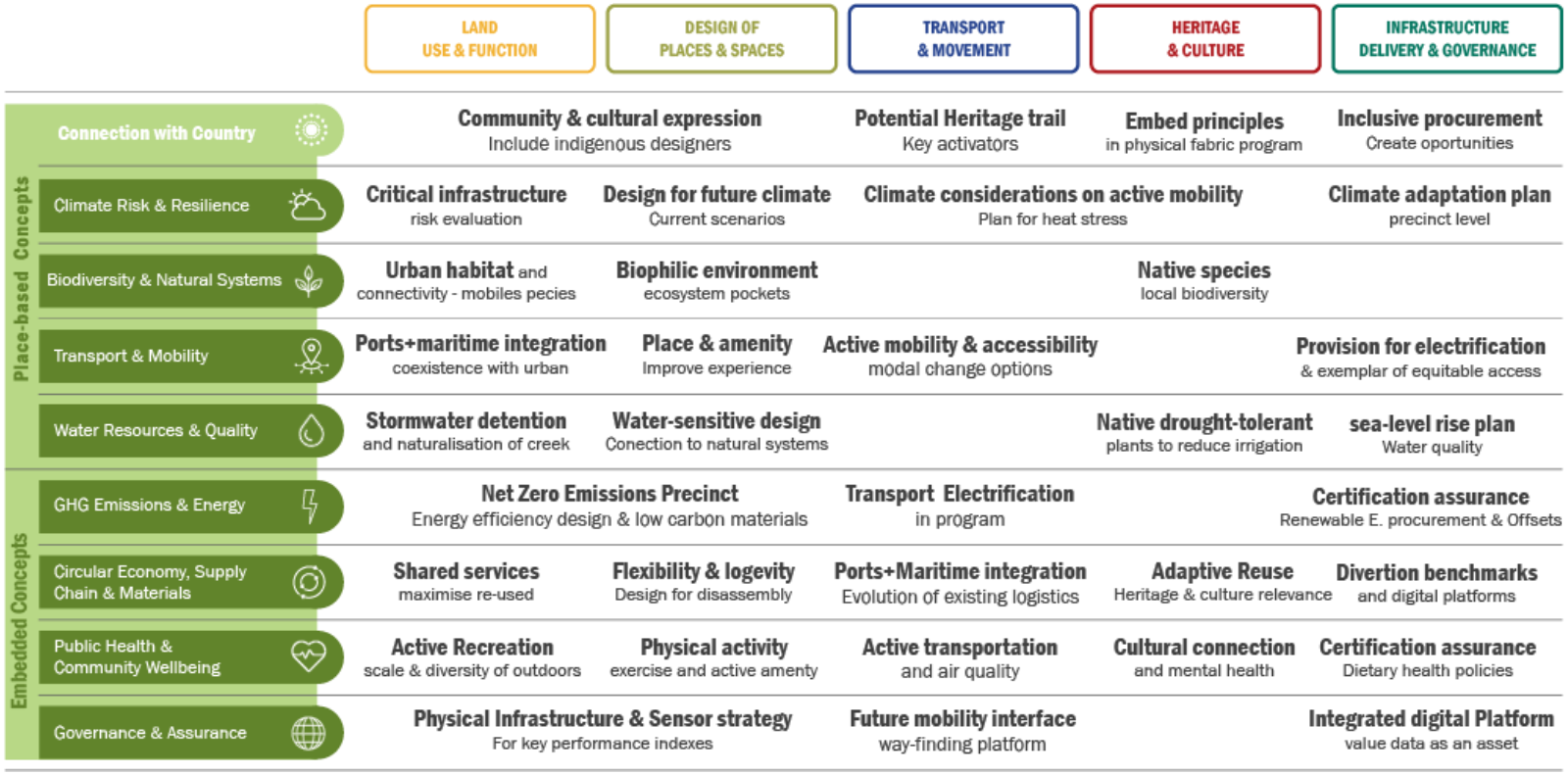
There are several sustainability concepts that will be of material importance to stakeholders and potential investors but are not directly tied to the Place nor will they necessarily shape urban design outcomes.

These concepts align to policy and the Environmental, Social, and Corporate Governance (ESG) frameworks that underpin the industry approach to sustainability:

- Net Zero Emissions
- Circular Economy
- Health and Community Wellbeing
- Governance and Assurance

This framework has mapped all the sustainability concepts to the themes of the Draft Place Strategy, summarised in the adjacent schedule.

The assurance of sustainability performance across all concepts relies on strong governance across all project stages, including ongoing operations. Strong sustainability governance also enables the precinct to respond over time to a changing climate, new place needs, and increasing sustainability expectations of our built environment.



Contents

1.0 Introduction

1.0 Introduction

1.1 Purpose & Background

Purpose

The purpose of this Draft Sustainability Framework is to identify the sustainability ambitions, priorities and opportunities for Bays West, to support the renewal of the precinct.

It will identify the concepts that define environmental sustainability for urban places; addressing climate change, the use of natural resources, support for ecological systems, the health and wellbeing of communities and the infrastructure that supports urban places. This framework will make the case for a high ambition for sustainability and identify the metrics or benchmarks that give effect to that ambition; providing direction for implementation in:

- The experience of Place as it develops over time; and
- To be embedded in the planning, procurement and delivery phases of the precinct development.

Defining Bays West

Bays West comprises the public lands from the Rozelle Railyards to Rozelle Bay, Glebe Island, the White Bay Power Station, White Bay foreshore and Cruise Terminal, and waterways.

The Bays West Draft Place Strategy describes the land use, urban design, placemaking, infrastructure and heritage priorities for delivering a successful urban renewal precinct.

Basis of the strategy

The Draft Place Strategy describes an alignment of **themes** and analysis topics derived from the Draft Strategic Place Framework.

This Draft Sustainability Framework will align the concepts of sustainability with these themes.

The approach to sustainability is also informed by the UN Sustainable Development Goals; notably the ones illustrated in the images below.

Limitations

This analysis is based on a desktop review of similar precincts globally and the current public policy and industry frameworks for sustainability.

Further detailed analysis is required to establish the quantified benchmarks and targets to be embedded within the planning governance for Bays West.

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1.0 Introduction

1.2 Scoping Sustainability

Sustainability at Bays West

An ambitious approach to sustainability is an important principle for a successful, competitive precinct seeking to attract talent and investment.

This strategy draws upon two key sources in support of its proposed level of ambition:

- NSW State Government Policy;
- Global industry frameworks for benchmarking sustainability.

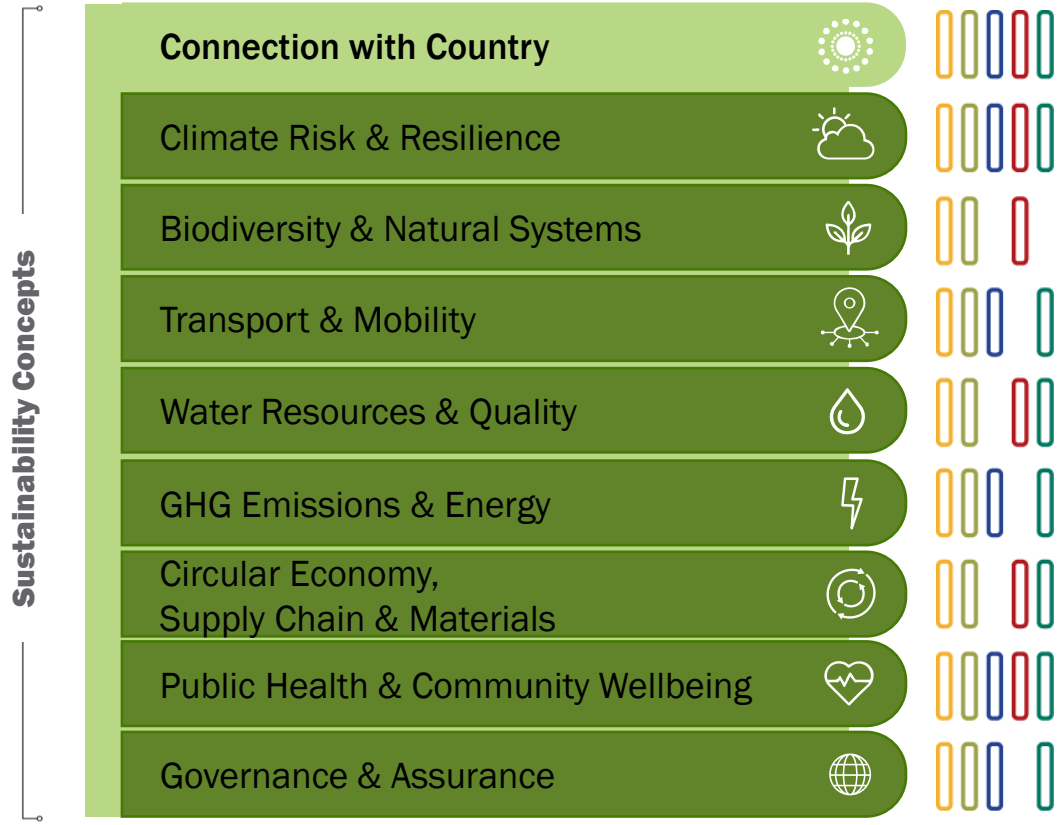
This framework presents a policy review, global case study assessment and industry assessment in support of the targets and ambitions for sustainability.

This sustainability strategy sits alongside an approach to cultural heritage and Connection to Country – the relation to Indigenous culture and knowledge in shaping this place (Refer to Bays West Draft Connecting with Country Framework).

Sustainability Concepts

The scope for this Draft Sustainability Framework is defined by the concepts listed on the right. These align with the Draft Place Strategy themes. Connection with Country is an overarching concept that aligns and overlaps with many of the other sustainability concepts. Detail on each concept is provided in Section 3 and 4 of this report.

This report represents a point in time and will be reviewed as needed as renewal and master planning of Bays West progresses.



Characters on the right represent the alignment with the Place Strategy Themes

1.0 Introduction

1.3 Approach

Level of Ambition

Sustainability is an important consideration in making Bays West a place that attracts global talent and investment and supports its success as a knowledge and innovation hub in Sydney.

For each sustainability concept applicable to Bays West, this framework identifies a *level of ambition* that reflects the current policy ambitions set by government as well as best practice in the property sector.

These ambitions generally align with w*orld's best practice,* which positions Bays West in a competitive manner against the other global renewal precincts.

Objectives

The ambitions within each sustainability concept are further described as a series of specific *objectives* to deliver the ambition. These objectives are mostly tangible. Measurable outcomes that can be clearly tracked through a planning, design, delivery, and operational life cycle of the place can be expanded on as further detail develops.

Opportunities

In considering ways to meet the sustainability objectives, this framework identifies opportunities that may contribute to sustainability performance. Several of these opportunities address multiple concepts or objectives, and these have been discussed in greater detail, considering benefits, risks and implementation.

Approach in the Draft Place Strategy

The sustainability concepts have been assessed on two criteria:

- Place-based concepts that are specific to Bays West and tailored to delivering on place outcomes/ vision.
- Embedded concepts, applied across all urban renewal development precinct. These are aligned to government policy and are based on world's best practice.

Place-based Concepts

Understanding sustainability through place and time will be one of the key considerations to build a real character for Bay west. This is captured by the following items in the strategy:

Connection with Country: The expression of the local Aboriginal culture must be a present element beyond the physical items within the public realm, integrating it at design and development stages, and ensuring participation and representation of First Nations communities.

Climate risk and resilience considerations are key in the relationship with water due to the nature of the site. Plan for expected scenarios of raising sea levels, flooding and urban heat.

Biodiversity & Natural systems restoration will mitigate the impact of new construction and give relevance to green areas with high ecological value such as native gardens. Restorative & preservation elements as the focus.

Transport & Mobility addressing networks for active transportation and key decentralisation of basic services, prioritising walking and cycling and balancing movement and place. Transition to shared services and electrification of vehicles.

Water resources & quality should be a priority to preserve ecosystem's health. Understand water as asset for its relevance in amenity, active recreation and landscape.

Embedded Concepts

Implementing sustainable outcomes through certification and assurance is a fundamental step addressed in the following aspects of the strategy.

Energy & emissions is considered within the ambition of Net Zero Emissions in construction and operation.

The **circular economy** sets the base thinking around the systems within the precinct, considering strategies at all stages of the project and upholding a strong link to the digital concept. Benchmarks for waste generation. Buildings designed for second- and third-life uses

Public health & community wellbeing is embedded in the built environment through the development of healthy buildings and communities in line with current certification schemes. A key consideration is the provision of diverse outdoor/green spaces.

A **Governance & Assurance** strategy that embeds and confirms sustainability outcomes across all project stages, evolves as needs and challenges emerge, and evidences an understanding of **digital governance and data as an asset** that adds value to the Place and supports the achievement and reporting of sustainability outcomes during operation.

2.0 Establish the Ambition

Leading precincts around the world

2.0 Establish the Ambition

2.1 Setting World's Best Practice

Level of Ambition

It is critical to set the level of ambition for Bays West. Here we explore case studies of similar precincts, the existing policy and planning framework, and development environment. This survey draws out persistent trends and establishes the context within which Bays West must be considered.

As the case studies show, precincts in prominent waterfront sites globally have embraced sustainability and are delivering places that perform well beyond code requirements and property industry norms.

As the policy review shows, existing and emerging government policy recognises and endorses ambitious sustainability outcomes that include zero carbon, circular economy, and connections with Country.

And in advance of policy, the property industry in Australia has adopted ambitious sustainability expectations including zero carbon operations (required in the new version of Green Star), built environment resilience, and healthy environments.

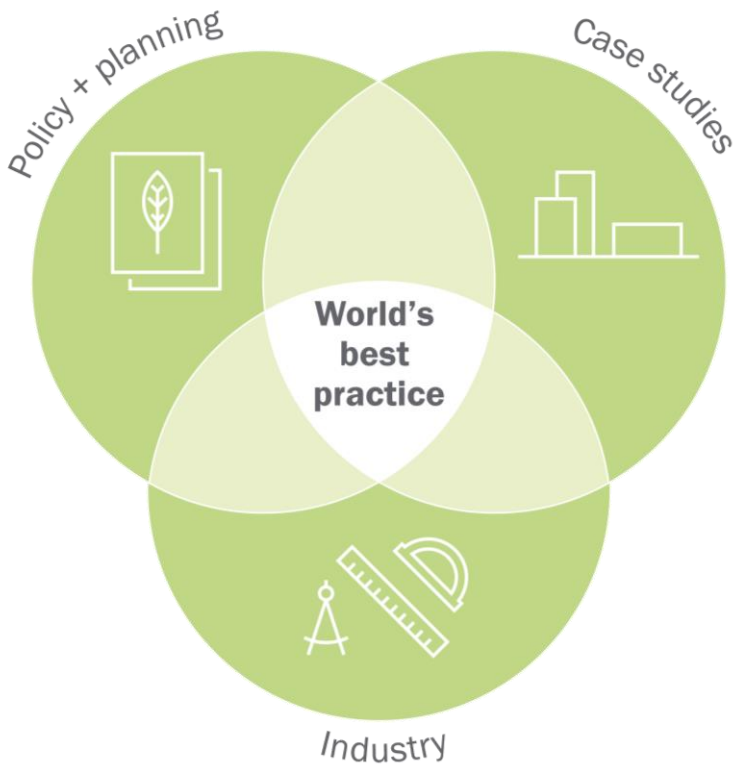
Together, this evidence shows that world's best practice is the expectation for waterfront and major urban precinct regeneration. These outcomes help deliver government sustainability policy and demonstrate that the property industry is capable of and expects to deliver development of this quality.

World's Best Practice

From these context studies, a set of recurring sustainability strategies and commitments emerge. These examples and site conditions identified in the Draft Strategic Place Framework have informed the identification and selection of sustainability concerns and opportunities for Bays West.

The ambition for Bays West identified through worlds best practice is defined by:

- *Connection with Country*
- *Climate Risk & Resilience*
- *Biodiversity and Natural Systems*
- *Transport & Mobility*
- *Water Resources & Quality*
- *GHG Emissions & Energy*
- *Circular Economy, Supply Chain & Materials*
- *Public Healthy & Community Wellbeing*
- *Governance & Assurance*



2.0 Establish the Ambition

2.2 Case Studies

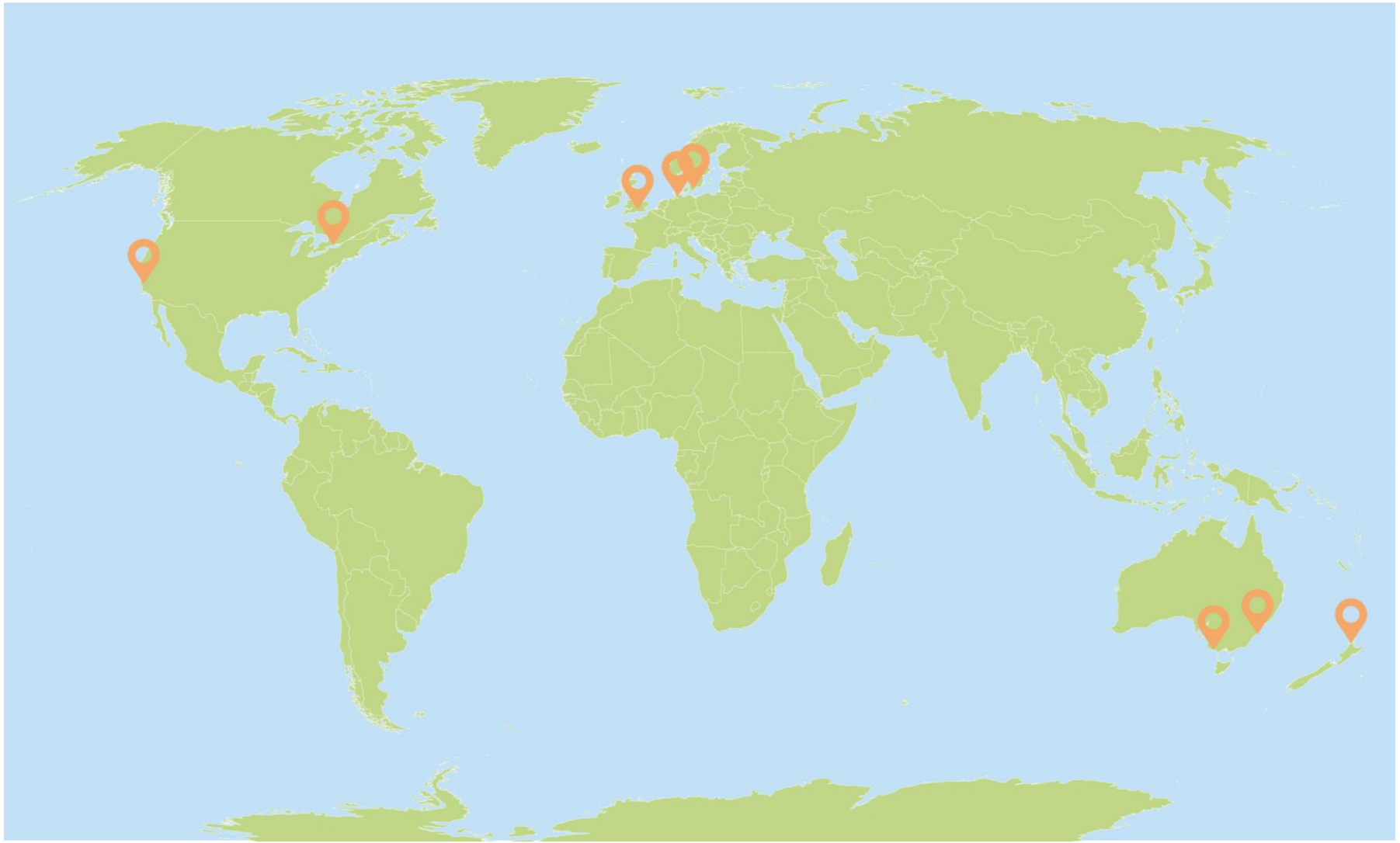
Bays West will be benchmarked against peer development in Sydney, Australia and globally. It will compete with other renewal precincts for talent and investment.

To be successful, this place must address the sustainability challenges facing our cities, communities and institutions in innovative ways, and set an aspiration for world leadership.

This paper presents a series of case studies from relevant precinct projects of comparable scale and ambition.

These case studies include both local and international precincts, with a focus particularly on waterfront projects. They represent both world's best practice and in some cases specifically explore challenges encountered during the design and implementation process.

Where possible examples focus on projects undertaken by Atelier Ten and Integral Group where lessons learned can be drawn from direct experience.



2.0 Making the Case for Ambition

2.2 Case Studies

Summary

The following case studies have been selected as they represent global flagship redevelopments of similarly scaled, mixed-use urban waterfront precincts. Collectively, they demonstrate several defining characteristics with respect to sustainability:

- Defining signature sustainability features
- Meaningful emissions reductions targets
- Beyond code requirements
- Independent sustainability certification
- Financially successful
- Consideration of construction and operational waste
- Biodiversity and habitat creation
- Adaptable to future climate scenarios
- Prioritising pedestrians and active transport
- Risks of over-reliance on specific technologies
- Strong social sustainability ambitions
- Risks from inadequate governance

2.1: Barangaroo South, Infrastructure NSW

Barangaroo, Sydney

- **Climate positive outcomes** established as project ambition and as project delivery requirements
- **Zero** carbon operation achieved through mixed onsite energy reduction measures and substantial offsite carbon offset purchase.
- Barangaroo South has innovative offset mechanism built into lease structure.
- Good **connections to Country** through public art and programming, but not in overall structural planning.
- Waterfront structural pilings provide platform for marine regeneration R&D work.
- Sustainability assured by precinct delivery authority via bespoke tracking system.

2.2: Victoria Harbour, Development Victoria

Victoria Harbour, Melbourne

- **Climate positive outcomes** established as project ambitions but not project delivery requirements
- **Struggle to deliver** on climate positive outcomes resulted from preliminary reliance on specific infrastructural technologies that ultimately could not be delivered, rather than a flexible mix of on-site and off-site (procured) carbon reduction and offset solutions.
- **Sustainability assured by industry standard Green Star system,** including independent verification, with 6-star Communities rating achieved as well as a host of individual building ratings.
- Substantial investment in **active transportation networks** has yielded a "Walker's Paradise" 92% Walk Score, and a "Rider's Paradise" 100% Bike Score.

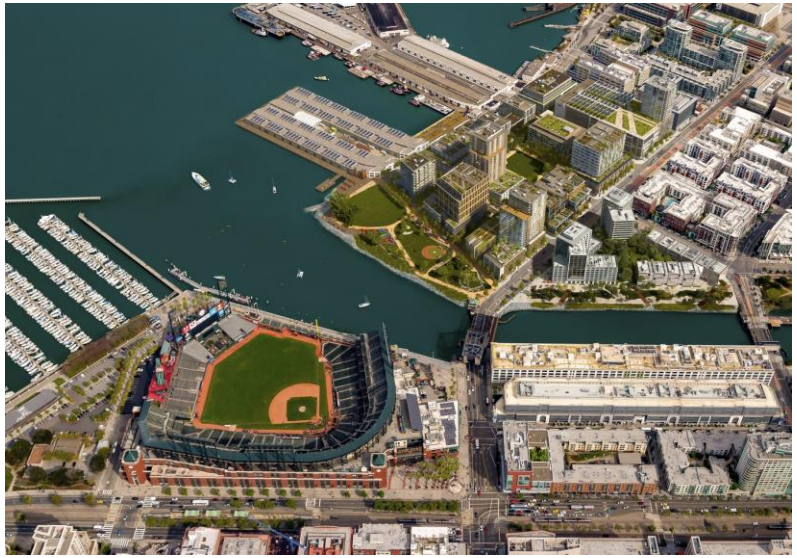
2.0 Making the Case for Ambition

2.2 Case Studies

2.3: Candlestick Point artist rendering, Fivepoint

Candlestick Point, San Francisco

- Restored and regenerated waterfront parklands will **restore and enhance tidal marsh and high beach habitats** for wildlife benefits and overall community ecological resilience, climate adaptation and preparedness in the face of sea-level rise.
- Achieve building **energy efficiency performance target** of 15% below the energy efficiency standards.
- The system design targets "**zero water waste**" and reduces capital cost by 68% compared to the initial stormwater management concept.
- **Waste diversion targets**: 75% Construction & Demolition, 85% of residential, commercial and hotel waste from the landfill (short-term), 100% long-term.



2.4: Mission Rock artist rendering, SF Giants

Mission Rock, San Francisco

- **Strong social sustainability commitment** includes 40% mix of affordable housing and adaptive reuse of heritage maritime infrastructure.
- Precinct **infrastructure strategy delivers a series of resilient design outcomes** including more reliable utility services and standby power
- '**LEED ready**' site that will enable the design proposals to go beyond code compliance and achieve the highest ambitions for integrated sustainable design and low carbon communities.
- **Carbon emissions reductions target of 80% below business as usual,** supported by building energy efficiency requirements
- **45% potable water use reduction** delivered through on-site water recycling plant

2.5: India Basin artist rendering, Build Inc.

India Basin, San Francisco

- Primary place feature is a "Big Green" waterfront parkland that provides **habitat and recreational spaces**, and which adapts to sea level rise.
- The project is targeting a **net zero carbon public realm** achieved by microgrids to manage on-site PV and batteries, eliminating fossil fuel from buildings, and carbon sequestration through the landscape.
- The sustainability vision focuses on **community resilience, greenhouse gas emissions, and water conservation**.
- Social sustainability measures include a **20% mix of affordable housing**.
- A precinct **microgrid supports community resilience**, shifting power from on-site PVs to critical services during emergencies.

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2.0 Making the Case for Ambition

2.2 Case Studies

2.6: East Bank artist rendering, London Legacy Development Corporation

East Bank, London

- Will become home to a cluster of top universities, including LCF's new building, cultural institutions, businesses and spaces for artistic, academic and civic activity for 2022.
- **Upcycled construction materials** such as cable reels into tables, pallets into planters and built a bug hotel and space for bee hives to encourage environmental activity on and around site.
- Social sustainability commitment includes **50% mix of affordable new homes**.
- Strong focus on healthy buildings and energy efficiency - buildings are all **targeting BREEAM** (Building Research Establishment Environmental Assessment Method) **Excellent Rating**.

2.7: Battersea artist rendering, Battersea Power Station

Battersea, London

- Builds on its industrial heritage of **power generation**. Integrates an energy centre that reuses the existing energy infrastructure to supply power for the redevelopment.
- High value to heritage; **restoration** of key architectural features (chimneys, cranes) and digital placemaking though interactive heritage trail.
- Reduction on **transport carbon footprint by 30%** through the transportation of construction waste by river.
- Site-wide sustainable drainage strategy.
- Sustainability assurance provided by industry standard BREEAM system, with individual buildings rated and **BREEAM Communities certification** in process.

2.8: East Bayfront artist rendering, Waterfront Toronto

Waterfront, Toronto

- Toronto's waterfront revitalisation with a strong focus on **green space** and **healthy communities, including living infrastructure of** aquatic, wetland and terrestrial habitats.
- Promotes inclusive neighbourhoods by committing to 20% of all units in the project for **affordable housing**.
- Resilience to extreme climate through a **flood protection** scheme that will reshape the Don River and create more than a dozen hectares of vital **riverine and wetland habitats**.
- Sustainability assurance provided by industry standard LEED system, including Canada's first **LEED Platinum** residential building.
- **Failure to address digital governance** adequately led to withdrawal of major development proponent (Sidewalk Labs)

2.0 Making the Case for Ambition

2.2 Case Studies

2.9: Speicherstadt district HafenCity, City of Hamburg

HafenCity, Hamburg

- Europe's largest inner-city development. Strong focus on **resilient infrastructure** due to high risk of storm surge.
- A rehabilitation of a centrally located former port area where ground surfaces were partially **contaminated**.
- **Coexistence of housing and small-scale port operations** facilitated by a fine-grained mix of uses. Strong focus on active transportation and walkable precinct.
- **Public development company** established to manage development. Strong partnership with community to frame outcomes before commercial delivery disciplines came into play, prevented narrow financial objectives to take precedent.

2.10: Nordhavn artist rendering, By & Havn

Nordhavn, Copenhagen

- **Living lab** for smart energy systems, integrating electricity, heat and transport through partnership between universities, government, private development, and technology companies
- Planned as a **carbon neutral neighbourhood**, is the first **DGNB gold-certified urban district** in Denmark.
- "5-minute city" with **pedestrian- and bike-friendly infrastructure**. Promoting cycle and use of metro over private vehicles. The area will be serviced by an elevated metro track and a bicycle network which together create a green artery. The elevated track functions as a cover for the 'super bike paths', to encourage cyclists to use it during wet season.

211: Wynyard Quarter artist rendering, Greater Auckland

Wynyard Quarter, Auckland

- New Zealand, and notably Auckland, is a global exemplar for urban renewal with mana whenua
- Increase the practice of ***kaitiakitanga (by all)*** and prioritise the visibility of Māori identity and culture
- Create commercial investment, procurement and engagement opportunities for Māori people through public projects.
- Highest **sustainability standards** of any precinct in New Zealand
- Governance: A council organisation Panuku
- Requirement for all homes in the precinct Wynyard of at least 7 Homestar rating and all buildings **minimum Green Star rating.**

2.0 Making the Case for Ambition

2.3 Policy & Planning Review

The ***Bays West Draft Strategic Place Framework*** includes a detailed review of NSW Government strategic policy documents and other context documents of relevance to the Bays West Precinct.

This Policy & Planning review expands on the work in ***Appendix A.1*** of the Draft Strategic Place Framework to explore documents of particular relevance to sustainability in the context of the Bays West Precinct.

Items drawn out in the following pages reference ambitions and aspirations that directly relate to the nature of place at Bays West.

This policy review covers documents from the United Nations, and from Australian Commonwealth, state and local governments and their agencies.

2.0 Making the Case for Ambition

2.3 Policy & Planning Review

Transforming our world: the 2030 Agenda for Sustainable Development **- United Nations**

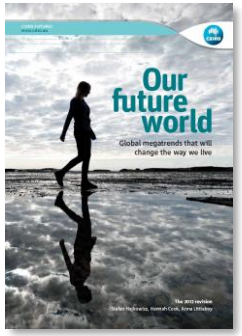
Bays West has the potential to address more than half of the UN Sustainable Development Goals, in particular:

- Goal 3. Good Health and Well-being
- Goal 6. Clean Water and Sanitation
- Goal 7. Affordable and Clean Energy
- Goal 8. Decent Work and Economic Growth
- Goal 9. Industry, Innovation and Infrastructure
- Goal 11. Sustainable Cities and Communities
- Goal 14. Life Below Water

Smart Cities Plan **- Commonwealth of Australia**

Aims related directly to sustainability potential at Bays West:

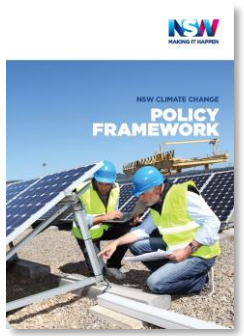
- Improve environmental outcomes, enhancing public spaces, facilities and active transport options, reducing emissions and pollutants, or improving the sustainability performance of buildings and infrastructure
- Integrating environmental criteria into decision making
- Improve air quality in urban areas
- Encourage the use of ratings systems
- Facilitate carbon neutral precincts



Our Future World **- CSIRO**

Significant shifts in environmental, economic and social conditions that will play out over the coming decades and shape the ongoing development of Bays West:

- Increasing domestic water demand.
- Increasing energy demand in Australia.
- Biodiversity decline.
- Habitat fragmentation.
- Extent of climate change impacts.
- Fitness trend.
- Staying active.
- The rising importance of moral and ethical drivers for consumers.



Climate Change Policy Framework **- NSW Government**

Aspirational long-term objectives:

- Achieve net-zero emissions by 2050
- NSW is more resilient to a changing climate

NSW Government Policy Directions:

- Reduce risks and damage to public and private assets in NSW arising from climate change
- Reduce climate change impacts on health and wellbeing
- Manage impacts on natural resources, ecosystems and communities

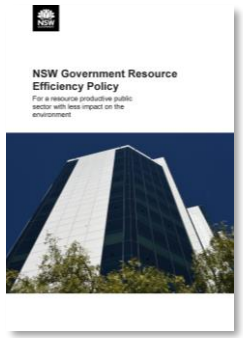
NSW Circular Economy Policy Statement **– NSW Government**

The NSW Government will adopt the following circular economy principles:

- minimise consumption of finite resources.
- design out waste and pollution.
- keep products and materials in use.
- innovate in resource efficiency, give preference to higher order re-use and repair opportunities
- create new circular economy jobs.

2.0 Making the Case for Ambition

2.3 Policy & Planning Review



Government Resource Efficiency Policy **- NSW Government**

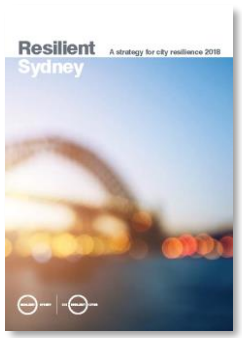
Reduce the NSW Government's operating costs and lead by example in organisations like NSW Ports:

- E2: Minimum NABERS Energy ratings for offices and data centres
- E4: Minimum standards for new buildings and fit-outs
- E5: Whole-of-government solar target
- E7: Purchase 6% GreenPower
- W1: Report on water use
- W2: Minimum water standards for office buildings
- P1: Report on top three waste streams
- A2: Low-VOC materials

Aboriginal Procurement Policy **- NSW Government**

Key objectives of the APP are to:

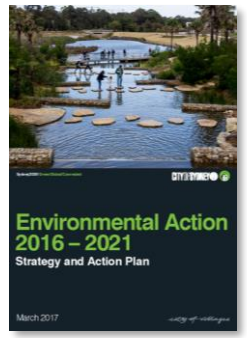
- support employment opportunities for Aboriginal people within Aboriginal owned businesses
- support employment opportunities for Aboriginal people within non-Aboriginal owned businesses
- support sustainable growth of Aboriginal owned businesses by driving demand via government procurement of goods and services.



Resilient Sydney

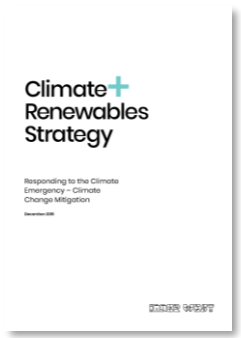
Five directions for resilience in Sydney supported by 35 actions, including:

- Shocks and stresses managed through planning for growth.
- Collaborate for cross-city active transport.
- Cool Suburbs - turn down the heat target 2 degrees Celsius reduction in heat in urban areas
- Develop investment in resilient buildings, assets, precincts and cities
- Enable affordable access to renewable and resilient energy
- Measure metropolitan carbon emissions and report on progress
- Support a more flexible and resilient water cycle
- Reduce reliance on liquid fuel
- Learning from First Nations Elders and community leaders



Environmental Action 2016-2021, Strategy and Action Plan **- City of Sydney**

- Net zero emissions by 2050
- Zero increase in potable water use by 2030
- 50% reduction in the annual solid pollution load discharged to waterways via stormwater by 2030
- 15% reduction in annual nutrient load discharged to waterways via stormwater by 2030
- 70% recycling and recovery of residential waste by end June 2021
- 70% recycling and recovery of C&I waste by end June 2021
- 80% recycling and recovery of C&D waste by end June 2021
- 10% of total trips made in the city are undertaken by bicycle by 2030
- Average total canopy cover increased by 50% by 2030, and 75% by 2050



Climate + Renewables Strategy **- Inner West Council**

Outlines the key areas of focus to mitigate against climate change:

- Key Area 2: Zero carbon buildings and precincts
- Key Area 3: Zero emissions mobility
- Key Area 5: Zero waste and a thriving share economy

2.0 Making the Case for Ambition

2.4 Development Context

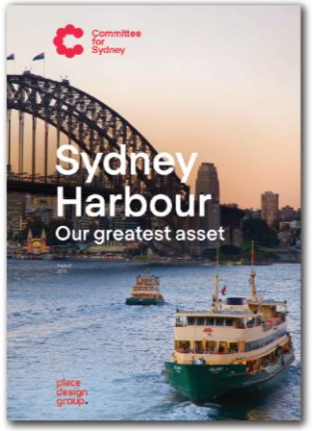
Equally important to policy and planning is the industry context in which the project will be delivered. Beyond statutory requirements the property and real estate industries, along with NGOs have begun to set their own (often more ambitious) objectives for future investment.

Here we explore meta-trends identified by industry groups and recommendations for their members to achieve economically attractive and resilient real estate assets.

Additionally, a valuable sustainability assurance mechanism used by industry are third-party rating tools. Many local and international tools have recently been updated or are currently in the process of doing so. These updates are designed to better incorporate changes in industry preferences, clearer climate goals, and post-COVID responses. These provide insights into future directions over the coming decade.

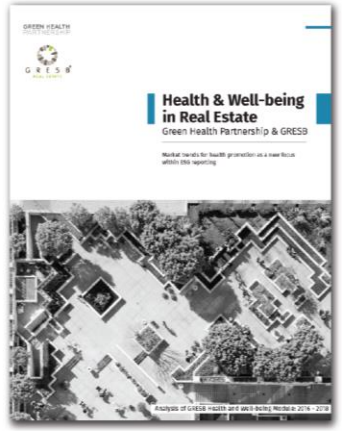
PROPERTY & REAL ESTATE INDUSTRY

Creating Great Australian Cities



Sydney Harbour: Our Greatest Asset

A Common Language for Social Sustainability

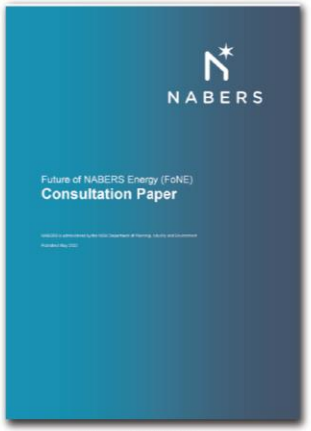


Health & Well-being in Real Estate

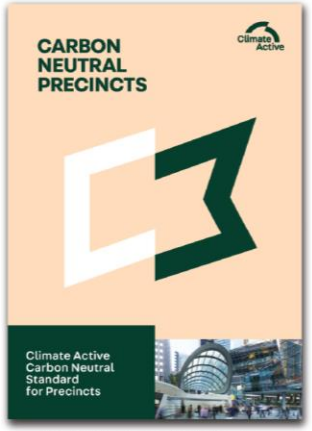
Reshaping Infrastructure for a Net Zero Emissions Future

SUSTAINABILITY RATING TOOLS

Green Star Future Focus



Future of NABERS Energy



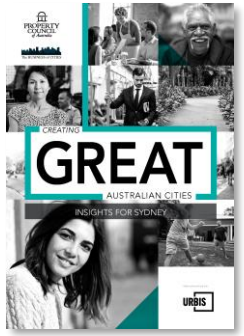
Climate Active Carbon Neutral Precincts

Infrastructure Sustainability Rating Tool

WELL Building & Community Standard

2.0 Making the Case for Ambition

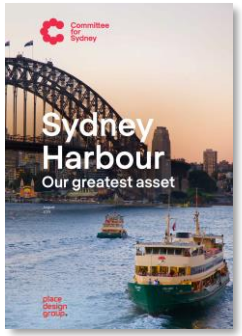
2.4 Development Context



Creating Great Australian Cities: Insights for Sydney **- Property Council of Australia**

This research identified ten megatrends that will shape Australia's cities for decades to come, including:

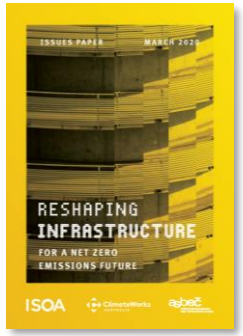
- Urbanisation and metropolitan growth
- Aging population
- Exponential technology change
- Intensifying climate change
- Re-urbanisation of jobs and capital
- Resource scarcity and energy convergence



Sydney Harbour: Our Greatest Asset **- Committee for Sydney**

Explores the current obstacles preventing Sydney Harbour from being the best it can be, including:

- Fragmented inter-tidal public access
- The untapped potential of the Bays Precinct
- Unfinished Cultural Ribbon
- Travelling on the harbour
- Heavy metal and toxic chemical contamination
- Inconsistent water quality, nutrients and turbidity
- Loss of our precious aquatic species
- Fragile natural shorelines and shallows
- Potential shoreline recession and inundation
- The rise of modern pollutants



Reshaping Infrastructure for a Net Zero Emissions Future **- ISCA, ClimateWorks Australia, and ASBEC**

A broader effort to reshape Australia's infrastructure agenda for a net zero emissions future:

- Designing adaptive strategies, where required, to ensure solutions are resilient to future changes
- Drawing on existing standards to guide investment decisions at the portfolio and asset level, such as GRESB's Infrastructure Assessment tool.
- Developing and defining plausible least, middle and greatest risk climate change scenarios.
- Reviewing projects post-completion to evaluate whether a project achieved its emissions performance objectives.

Health & Well-being in Real Estate **– GRESB**

- An explicit focus on health and well-being helps fund managers maximise the potential value of real estate assets and services and mitigate associated risks.
- Top performing companies implement holistic processes that influence asset design, construction and operation to promote health and well-being among employees, tenants and communities.
- The majority of companies have policies in place to promote employee health and well-being and reduce risks to employee health. However, fewer than half of these policies apply to the design and management of the company's own real estate assets, highlighting an opportunity to improve these efforts.

A Common Language for Social Sustainability **– Property Council of Australia**

"The property industry has a central role to play in sustainable development, and in the delivery of social sustainability outcomes – both in communities and along the length of its supply chain."

This document helps companies across the industry to communicate social sustainability activities and impacts with stakeholders, and make meaningful comparisons between initiatives, across five broad themes:

- Culture and community
- Health and wellbeing
- Mobility and access
- Equity and fair trade
- Economic outcomes

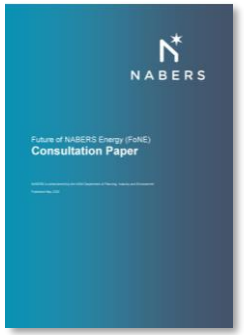
2.0 Making the Case for Ambition

2.4 Development Context

Green Star Future Focus **- Green Building Council of Australia (GBCA)**

Provides a high-level summary of the changes proposed for Green Star, including:

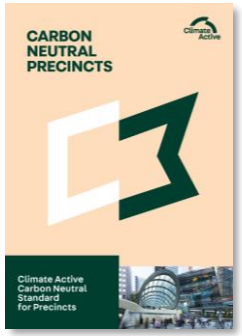
- All Green Star rated assets will be required to meet greenhouse gas emissions targets in line with the 1.5°C trajectory as set out in the Paris Agreement.
- World leading assets awarded a Green Star rating must demonstrate that they have low energy demand.
- Assets will need to use 100% renewable energy and preferably have on-site, or access to precinct scale, solar and energy storage solutions.
- All emissions, including embodied carbon, will need to be reduced and offset.



Future of NABERS Energy (FoNE) **- NSW Department of Planning Industry and Environment (DPIE)**

Proposed updates to the NABERS tool based on *"property and energy market trends towards Power Purchase Agreements (PPA) and net zero emissions targets"*, including:

- Release a NABERS net zero emissions certification.
- Continue to encourage purchases of renewable energy electricity.
- Extend NABERS' offset mechanisms to zero-carbon fuels.
- Investigate other fuel types.
- Accelerate the uptake of renewables in Australia's electricity grid.



Carbon Neutral Buildings & Precincts **- Climate Active**

Provides best-practice guidance on how to measure, reduce, offset, validate and report emissions that occur as a result of the operations of a building.

To achieve and maintain a valid and credible carbon neutral claim, the responsible entity and/or approved certifier must:

- Calculate emissions
- Develop and implement an emissions reduction strategy
- Purchase offsets to compensate for remaining emissions
- Arrange independent validation
- Publish a public statement of the carbon neutral claim

Infrastructure Sustainability **– ISCA**

Comprehensive rating system for evaluating sustainability across the planning, design, construction and operational phases of infrastructure programs, projects, networks and assets.

IS evaluates the sustainability performance of the quadruple bottom line (Governance, Economic, Environmental and Social) of infrastructure development.

WELL Building & Community Standards **– International Well Building Institute**

The WELL Standard is a vehicle for buildings and organisations to deliver more thoughtful and intentional spaces that enhance human health and well-being.

It focuses on ten concepts to support the development of health-focused, integrated and supported communities.

- Air
- Water
- Nourishment
- Light
- Movement
- Thermal Comfort
- Sound
- Materials
- Mind
- Community
- Innovations

2.0 Making the Case for Ambition

2.5 Sustainability Strategies and Commitments

2.12: *Palm* 1999 Bronwyn Oliver, City of Sydney

Connection with Country

- Prioritising visibility of First Nations identity and culture
- Opportunities for public art and programming
- Consulting with relevant local communities
- Development of Reconciliation Action Plans

2.13: India Basin storm surge buffer artist rendering, Build Inc.

Climate Risk & Resilience

- Developments located safely above 100-year sea level rise conditions, including increased overland flooding
- Precincts designed with urban cooling strategies to remain habitable in heat wave conditions
- Investment in highly resilient shared on-site energy and water resources, including generation and storage capabilities
- Community resilience an active consideration in planning of communities
- Canopy coverage and heat island mitigation strategies

2.14: Planted and naturally regenerating Grey Mangroves *Avicennia marina* at Rozelle Bay, City of Sydney

Biodiversity and Natural Systems

- Generous areas of land given over to green space including habitat
- Regenerated waterfront wetlands
- Restored marine and terrestrial ecosystems
- Integrated green and blue infrastructure throughout precincts, including pocket habitat and corridors for urban ecosystems
- Off-site opportunities for biodiversity aligned with negative carbon emissions opportunities

2.0 Making the Case for Ambition

2.5 Sustainability Strategies and Commitments

2.15: Micromobility hub, Swiftmile

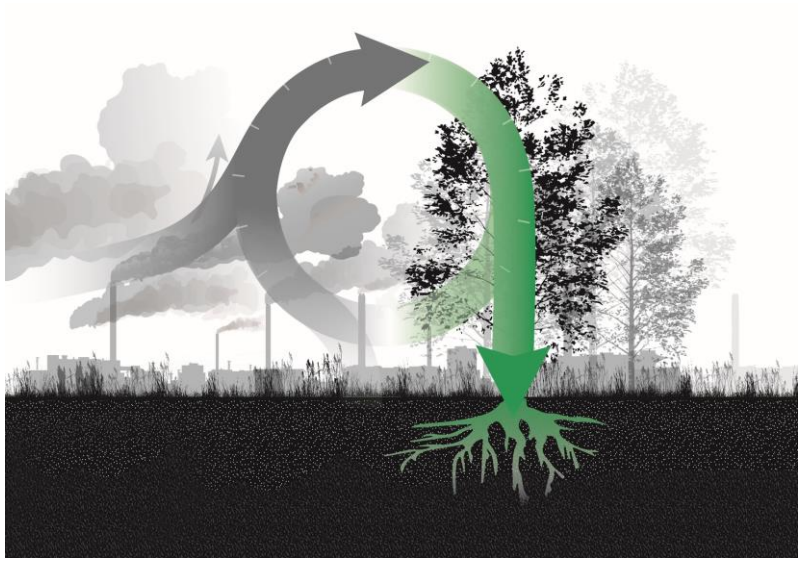
Transport & Mobility

- Enabling personal mobility (walking, cycling, scooting) provided high quality infrastructure and priority routing
- Supporting future mobility and the principles of movement and place
- Connected to new public transport projects
- Promotion of ride and car-share, and consideration of parking limitations to discourage private vehicle use
- Enabling vehicle electrification

2.16: Renaturalised waterway, Sydney Water

Water Resources & Quality

- Water sensitive urban design slowing stormwater, allowing groundwater recharge and treating before discharging to watercourses
- Rainwater capture and reuse on site for non-potable uses and irrigation
- Highly efficient operational water use
- Water central to experience of place and identity of precinct



2.17: Carbon sequestration diagram, Atelier Ten and CMG Landscape Architecture

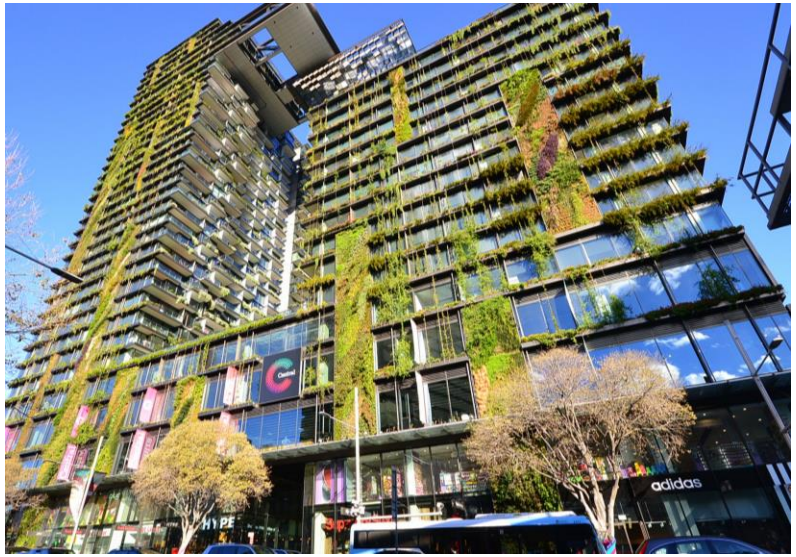
GHG Emissions & Energy

- Prioritising passive design
- Fundamental commitment to carbon neutral built environments
- Mandated high energy efficiency
- Fossil fuel use eliminated
- Powered by renewable energy (on-site and off-site)
- Built with low-carbon materials
- Offset with nature

2.0 Making the Case for Ambition

2.5 Sustainability Strategies and Commitments

2.18: Daramu House artist impression, Barangaroo Delivery Authority



2.19: One Central Park, Central Park Sydney

Circular Economy, Supply Chain & Materials

- High use of naturally renewable material resources
- Waste and pollution designed out
- On-site precinct-scale recycling systems
- Embracing of shared resources over private ownership
- Regenerative view: work in harmony with natural systems to support healthy & liveable places
- Whole of life stewardship of materials

Public Health & Community Wellbeing

- Strong commitments to affordable housing
- Generous public realm, including rich mix of active and passive recreational and cultural spaces
- Civic infrastructure (schools, clinics, community halls) included in development planning and operation
- Biophilic environments include diverse green spaces, extensive tree canopy, and diverse waterfront conditions that include direct engagement with water
- Local high streets regenerated or created to serve communities with full range of services

Governance & Assurance

- Independent, third party certification for the precinct, infrastructure and buildings embedded within project governance using project-relevant, industry standard tools and frameworks
- Minimum level of ambitions established at World's Best Practice
- Diversity of built environments with targets for affordable housing and workplaces
- Project governance allows for ongoing learning, continuous improvement, and adaptation to new challenges and needs

3.0 Place-based sustainability Concepts

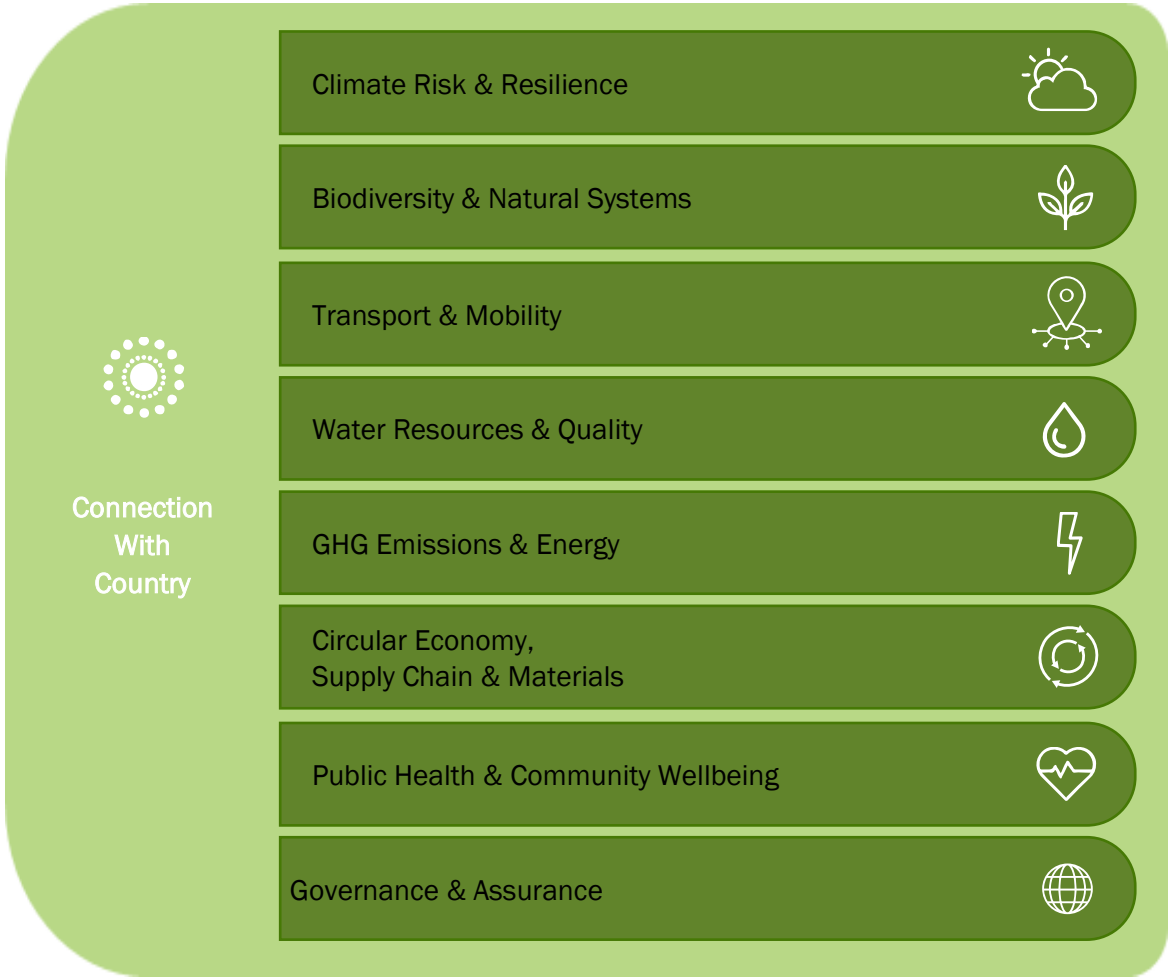
3.0 Place-based Concepts

3.1 Connection with Country

Connection to Country underpins all of the sustainability concepts and ambitions at Bays West. Local ecological and cultural histories presented in the accompanying Draft Connecting with Country Framework inform and shape all aspects of this Draft Sustainability Framework.

The sustainability-specific issues presented are inherently linked with the Draft Connecting with Country Strategies proposed. Everything that follows should be read in the context of an overarching influence of Connection to Country.

The Sydney D'harawal stories of the Boomartjil, Parradowee and Booambilyee as well as Raiagon and the Gooraiagon depict the richness of this immediate Country and reiterate its importance to contemporary life.



3.0 Place-based Concepts

3.2 Climate Risk & Resilience

The ambition for resilience at Bays West is to effectively mitigate chronic stresses and insulate against acute climate risks through design.

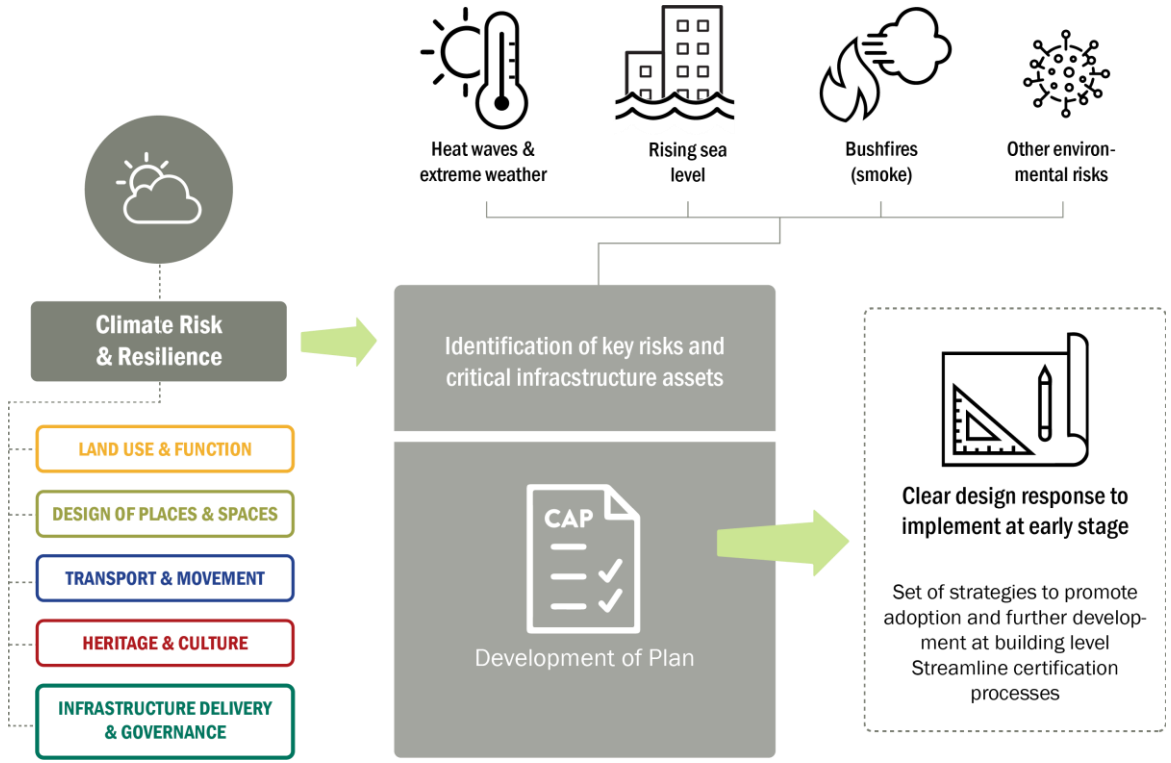
The objectives for resilience at the Bays West are:

- To embed design for a future climate in all design processes using RCP8.5 in 2090 climate scenarios;
- To manage sea level rise and incorporate it productively into a slowly changing landscape;
- To identify mechanisms to manage heat, bushfire (and smoke), flood and storm impacts through extreme events;
- To provide community facilities that support social resilience during major shock events;
- To effectively mitigate climate risk in alignment with the Taskforce for Climate-related Financial Disclosures (TCFD);
- To enable flexible, adaptive and regenerative systems with the capacity to be changed subject to uncertain future pressures.

The detailed exploration of climate scenarios and the development of a comprehensive climate adaptation plan for the precinct are important steps to follow this framework.

Other shocks and stresses that could be considered within the broader precinct are loneliness, pandemic response (especially in the context of COVID-19), cyber-security and anti-terror considerations.

The assurance for our approach to resilience will be through the development of a Climate Adaptation and Resilience Management Plan with ongoing reporting and disclosure.



3.0 Place-based Concepts

3.2 Climate Risk & Resilience

Specific place-based opportunities for resilience are:

- Waterfronts and adjacent landscapes designed for future sea level rise and salt water inundation from storm surge flood events.
- Other visual markers throughout the public domain indicate future sea level heights, rising temperature, biodiversity and habitat loss, and other climate change consequences.
- Parks and community infrastructure foster interaction and stewardship, community identity, sense of connectedness and community resilience capacity.
- Climate Adaptation and Resilience Plans developed at precinct scale and for each property.
- Diversity of program types spread across site (residential, commercial, retail, community and cultural offerings).
- Enhance landscape-based passive cooling with extended wetlands and greater evapo-transpirative planting.
- Maximise hard surface permeability where possible and implement urban streetscapes that locally infiltrate surface water and recharge ground water.
- Microgrids enable on-site power generation resources to be redirected to critical community facilities during emergency events.

3.0 Place-based Concepts

3.3 Biodiversity & Natural Systems

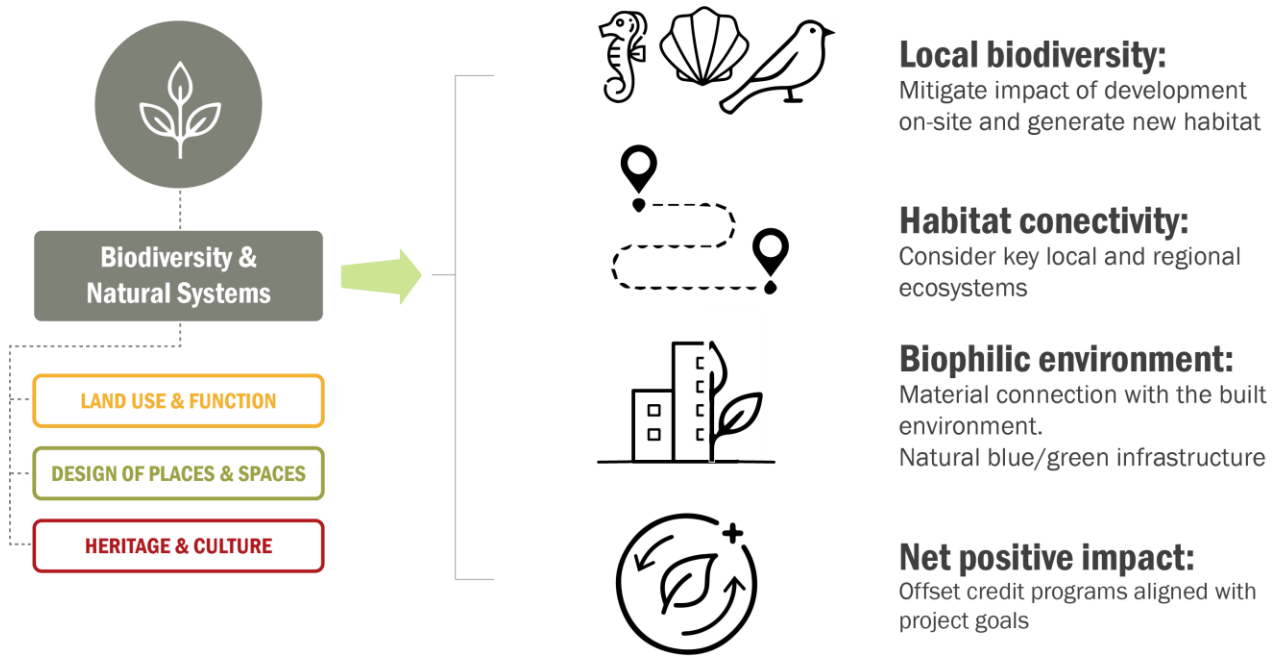
The ambition for supporting biodiversity at Bays West is to have a net positive impact on biodiversity through project activities by 2030.

The objectives in support of increasing biodiversity are:

- To provide local biodiversity initiatives that mitigate the immediate impact of the program on-site and create new urban habitat for the city's ecosystems;
- To provide habitat connectivity for mobile species between key local and regional green and blue spaces;
- To establish a biophilic environment at Bays West that provides a material connection for tenants and visitors to natural systems;
- To achieve a Net Positive Impact on biodiversity through support for off-site land projects that generate biodiversity offset credits aligned with negative emissions instruments (afforestation, reforestation and soil carbon sequestration).

The assurance for biodiversity should be developed in conjunction with the ecological needs assessment and in reference to the City of Sydney Urban Ecology Strategic Action Plan (2017).

The net positive impact on biodiversity can be achieved with consideration to the resource efficiency and circular economy during operational, maintenance and disposal phases.

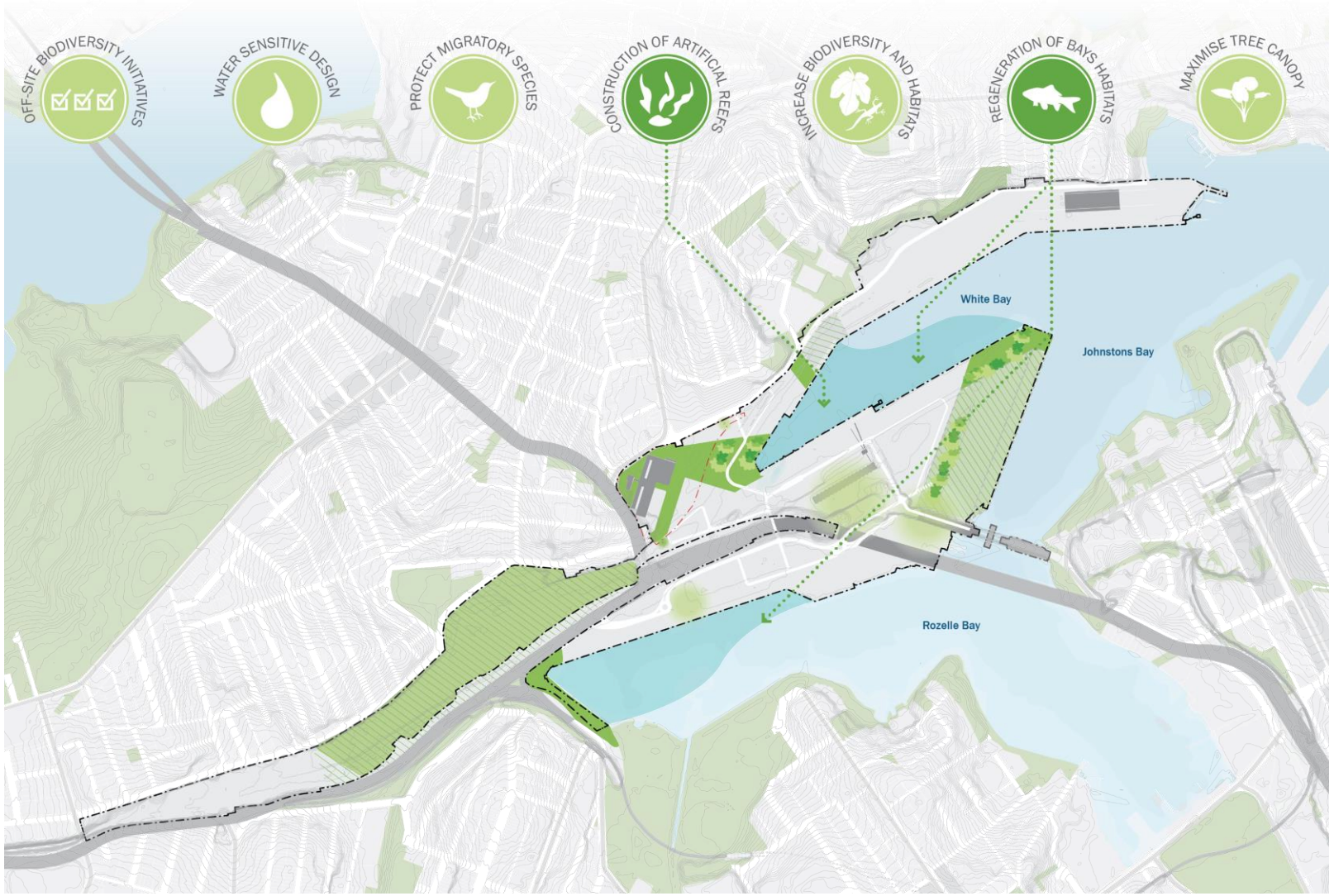


3.0 Place-based Concepts

3.3 Biodiversity & Natural Systems

Specific place-based opportunities for biodiversity are:

- White's seahorse habitat preserved and expanded.
- Construct habitats for locally indigenous fauna species, with particular focus on threatened ones.
- Regeneration of Rozelle Bay mangroves and seagrass habitats.
- Restoration of Johnston's Creek Coastal Saltmarsh threatened ecological community (TEC).
- Construction of artificial reefs under piers and rocky intertidal habitat to increase local marine biodiversity and support native species.
- Extend the Inner West Council's GreenWay environmental and active travel corridor to Rozelle and White Bays.
- Protect priority habitat corridors and refuge areas to protect mobile species, and migratory birds and fish.
- Create a net increase in biodiverse vegetation and useful habitat over existing development.
- Offsite biodiversity initiatives that mitigate the immediate impact of the program on site.
- Coordinate with other relevant authorities to renaturalise White's Creek (currently a concrete-lined open channel).



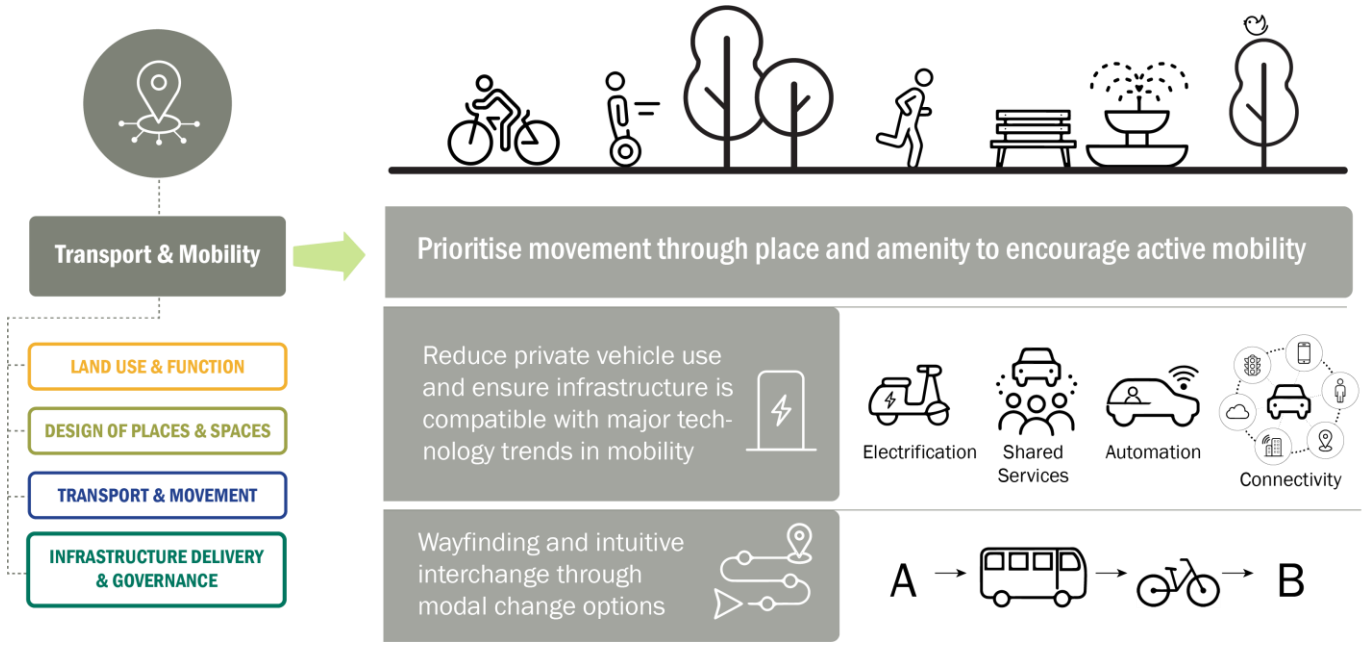
3.0 Place-based Concepts

3.4 Transport & Mobility

The ambition for transport and mobility is for Bays West to be a leader in sustainable transport with wider influence on the greater Sydney network.

The objectives for supporting sustainable transport options at Bays West are:

- Reduce private vehicle use in this car-dominant environment by supporting non-vehicular transport modes;
- Providing an exemplar of movement and place mutually enhancing the quality of the respective experiences;
- Prioritising and enabling active mobility to the site (pedestrian and bicycle) for improved health and wellbeing;
- Provision for the electrification of road mobility options – infrastructure to prepare for a high degree of parking to have charging capability;
- Improving the experience of customer traversing through Bays West; amenity, comfort, ease of movement, modal change options, wayfinding and safety;
- Providing an exemplar of universal, equitable access;
- Supporting future mobility transitions, including vehicles sharing, ride-sharing and connected and autonomous vehicle interfaces;
- Supporting emerging transitions in the freight network, including the electrification of logistics systems.



3.0 Place-based Concepts

3.4 Transport & Mobility

Specific place-based opportunities for transport and mobility are:

- Establish convenient and high amenity active transport links between Bays West and neighbouring high streets and village centres, including Darling Street, Balmain Road, Victoria Road, Johnston Street, Glebe Point Road, and Harris Street.
- Capitalise on the precinct's location at the convergence of multiple existing active transport routes to create the missing through-link to the CBD.
- Fully connected pedestrian and bicycle pathways serve all areas of precinct and surrounding communities.
- Investigate the reinstatement of a crossing from Bays West to Pyrmont.
- Shared micro-mobility stations located regularly throughout public realm.
- Extend the GreenWay active transport corridor to connect with other existing networks.
- Integrate wharfs and infrastructure for ferry services.
- Facilitate multiple points of water access for small-scale local recreational watercraft use.
- Establish a continuous activated pedestrianised foreshore promenade.
- Car-free zones and parking limited to shared stations.
- Safely and coherently integrate freight and service movements between port and arterial roads.

3.0 Place-based Concepts

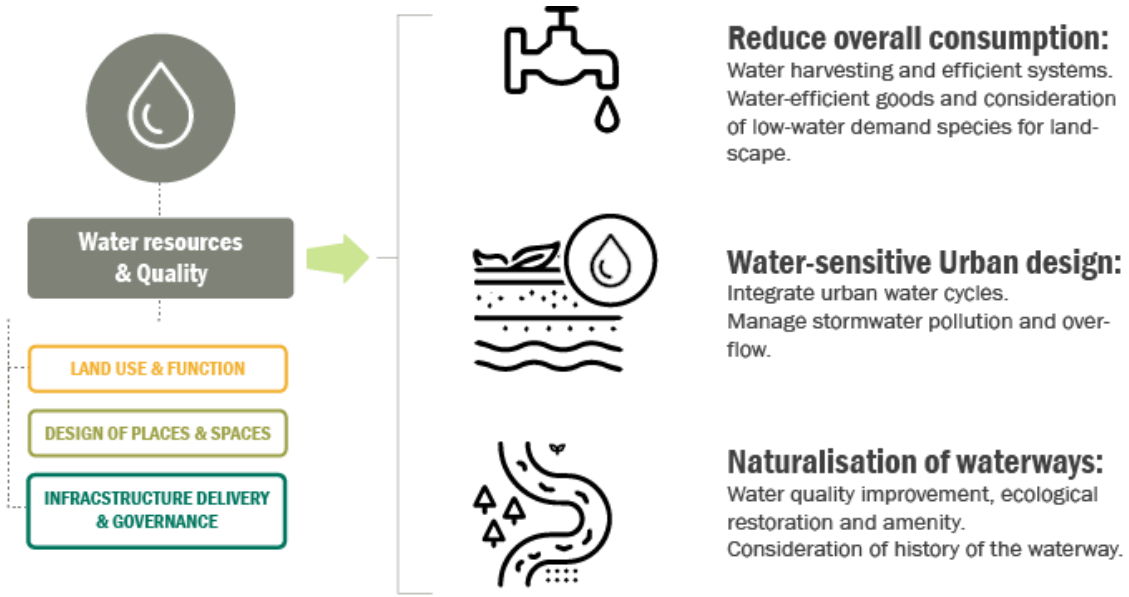
3.5 Water Resources & Quality

The ambition for water resource management at Bays West is to preserve non-renewable water resources and to provide a net improvement to environmental water quality as a result of development.

The objectives for responsible water management at Bays West are:

- To reduce overall consumption of water resources;
- To reduce stormwater pollution flowing to Sydney Harbour significantly beyond best practice guidelines;
- To solve current flooding issues, and reduce flood and inundation risk as a result of intersecting climate change pressures of sea-level rise and increased rainfall;
- The alignment of water quality, supply source, and treatment needs to enable effective water harvesting and re-use;
- To identify mechanisms for waste-water treatment and re-use aligned with best practice utilities and implement solutions that can be sustainably operated over the full life of the precinct.

Managing water quality through green infrastructure and the rehabilitation of marine and inter-tidal ecosystems is a huge opportunity for Bays West, with multiple co-benefits.

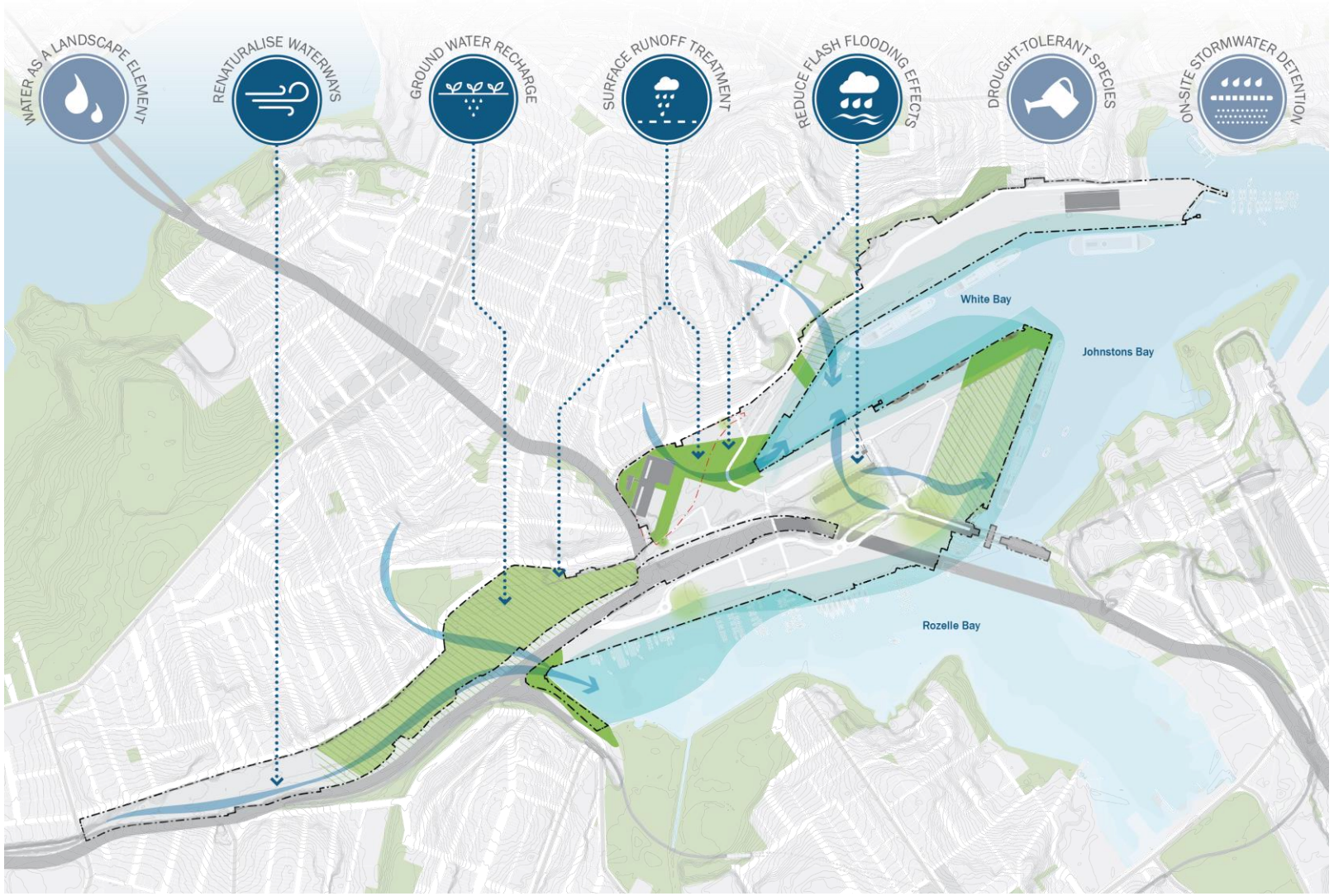


3.0 Place-based Concepts

3.5 Water Resources & Quality

Specific place-based opportunities for water resources and quality are:

- Conscious shaping of water as a dynamic landscape element.
- Overland flows preserved and integrated into design to reduce potential effects of flash flooding.
- Ephemeral and lost watercourses restored.
- Surface runoff from roads, roofs and other hardscapes filtered through landscape treatment before discharging to waterways.
- Encourage ground water recharge through permeable ground cover.
- On-site stormwater detention for heavy rainfall events that delay discharge.
- Prioritise indigenous drought-tolerant plant species which require little to no irrigation.
- Explore opportunities to renaturalise White's Creek (currently a concrete-lined open channel).



4.0 Embedded Concepts

4.0 Embedded Concepts

4.1 GHG Emissions & Energy

The ambition for energy, GHG and other port-related emissions at the Bays West is to be net zero emissions in construction and operation by 2030.

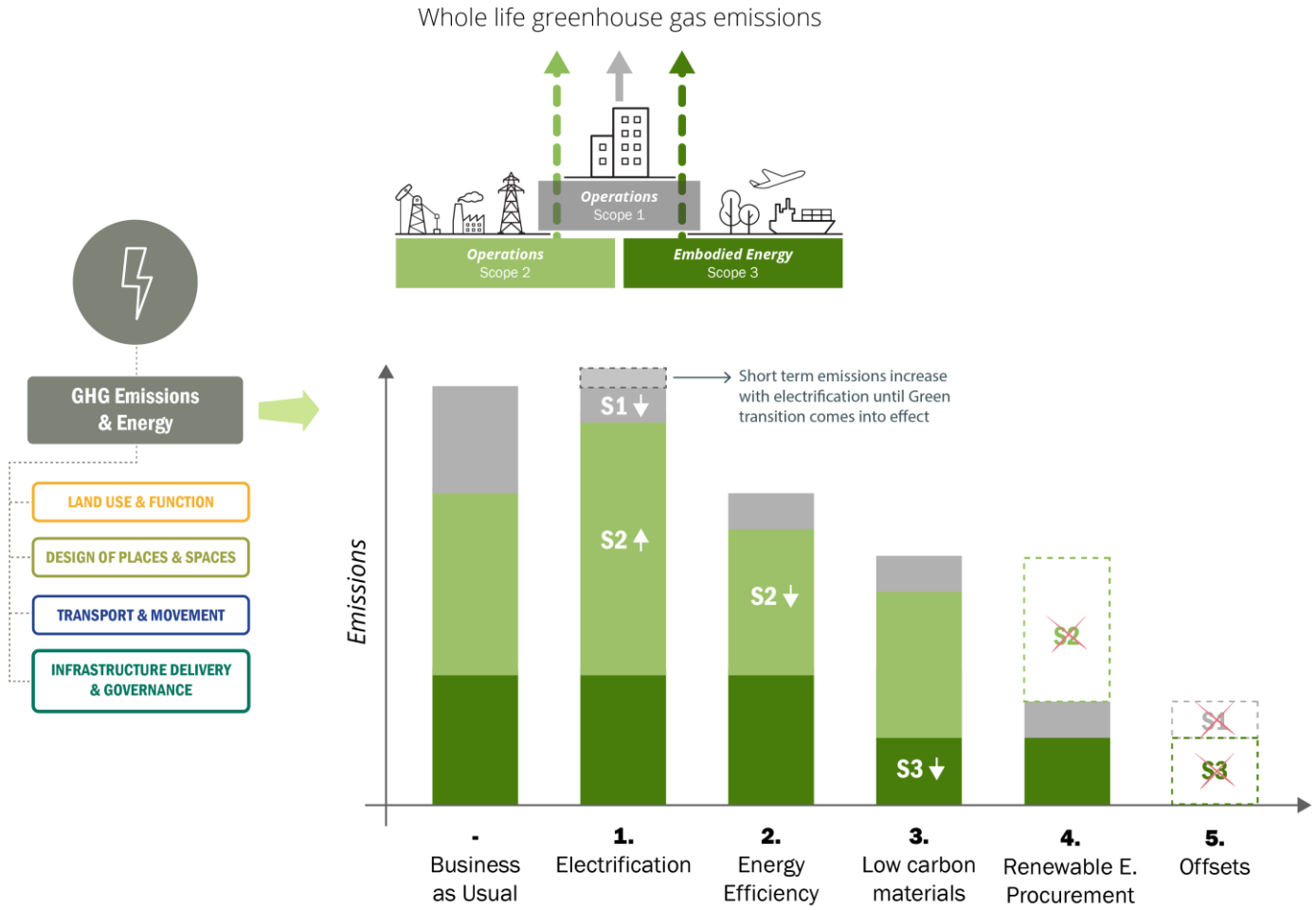
The World Green Building Council's target of net zero emissions and 40% reduction in embodied emissions by 2030 is already being met by Australia's leading property companies, and represents world's best practice for Bays West.

The objectives to achieve net zero emissions are aligned with industry best practice:

1. Electrification of all normally-operating systems -electrification is a necessary step for considering net zero emissions certification by most frameworks that may apply;
2. Energy efficiency and demand control –the building design ambitions for energy efficiency should include passive design, efficient systems and demand control strategies;
3. Use of low-carbon materials and construction processes (provisional target of 40% below BAU) –opportunities for reducing embodied emissions should be explored for the major structural and components and construction operations;
4. Procurement of 100% renewable energy (on-site and off-site);
5. Offset all residual emissions (scope 1, 2 and nominated scope 3) from construction and operation with nature-based solutions.

The assurance for net zero emissions will be provided by appropriate ratings and certification standards at design, construction and operational stages.

The development of a precinct life-cycle analysis model is one of the important future considerations for managing material impacts over the life of the precinct.



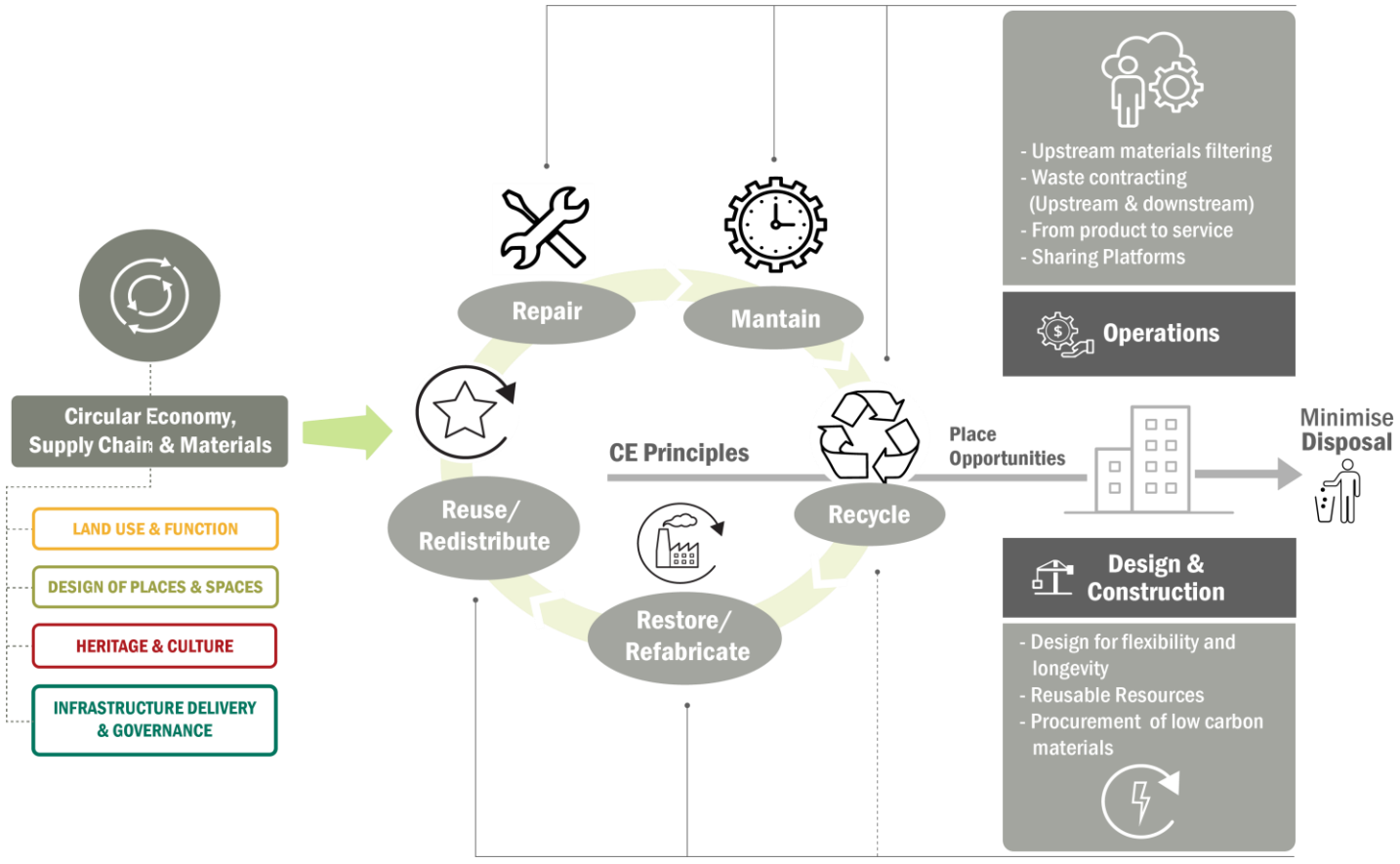
4.0 Embedded Concepts

4.2 Circular Economy, Supply Chain & Materials

The ambition for the Circular Economy is to achieve circularity in the operational and construction stages of the project by 2030.

The objectives to achieve circularity are aligned with industry whole of life resource use best and emerging practices:

1. Building forms promote longevity by allowing easy adaptive reuse to accommodate alternative occupancies.
2. Embedding end of life considerations for building disassembly or long-term re-use;
3. Maximise re-used, recycled, or renewably sourced materials in construction;
4. Provide spaces that facilitate sharing economy programs like GoGet cars, bicycle share services, and community tool libraries.
5. Divert the majority of construction waste from landfill to beneficial re-use (provisionally 95%, in line with Green Star benchmarks);
6. To eliminate single use plastics from the upstream supply chain by 2025 in line with the National Waste Policy Action Plan;
7. Divert operational waste from landfill;
8. To establish high levels of recyclability in the upstream supply chain;
9. To separate and recycle recoverable waste by types;
10. Supporting stewardship in procurement; procuring services rather than products;



Adapted from MacArthur Foundation

4.0 Embedded Concepts

4.3 Public Health & Community Wellbeing

The ambition for public health and community wellbeing is to improve public health outcomes through urban renewal and improve wellbeing for precinct users, visitors and the wider community.

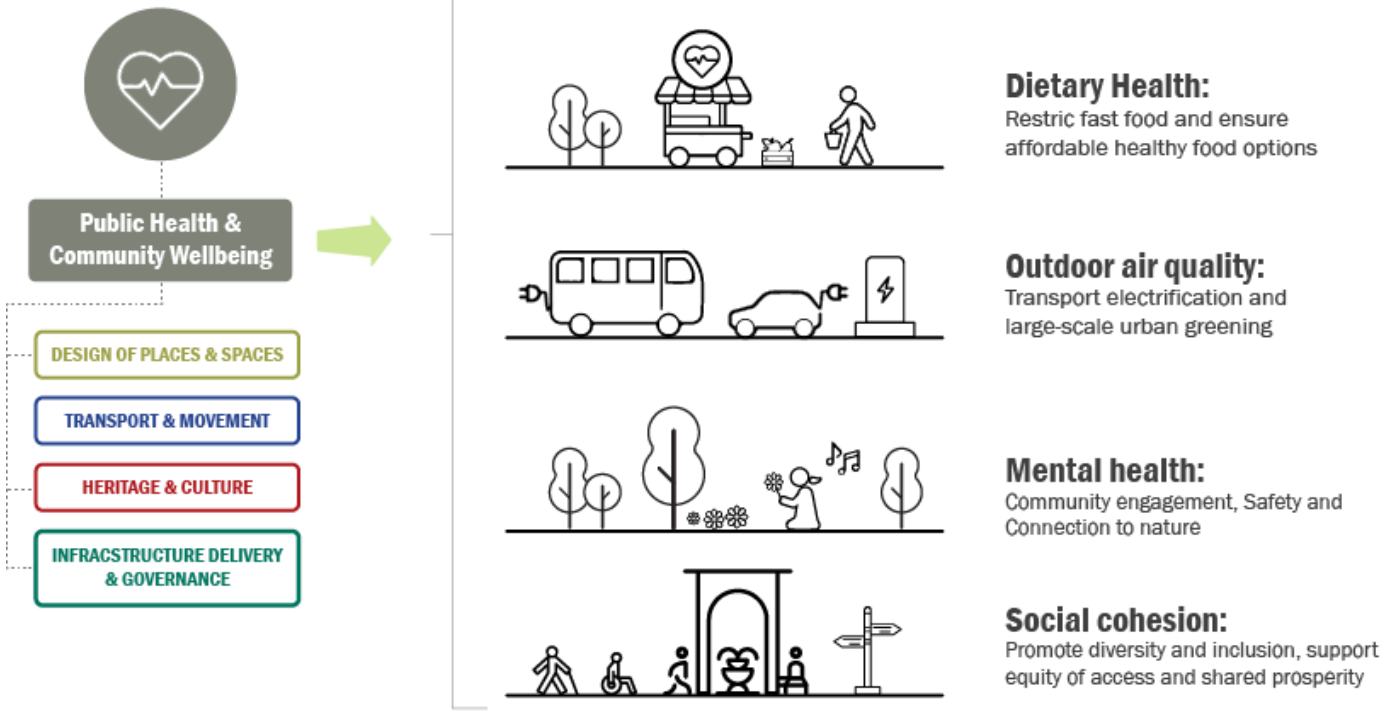
The health and wellbeing objective for Bays West is to deliver a place that addresses national health priorities through design and place-making, and improve social cohesion, social connection and strengthen the social fabric.

The design objectives in support of health and wellbeing priorities are

- Supporting diversity and inclusion by ensuring a variety of program types spread across site (residential (incl. social and affordable), commercial, retail, community and cultural offerings);
- Supporting community infrastructure for improved equitable access to services;
- Improving physical activity by encouraging active mobility and recreational exercise through the provision of diverse and high-amenity public outdoor green spaces;
- Improving dietary health by eliminating fast food or junk food from public F&B tenancies and providing healthy and affordable food options;
- Improving local air quality by transport electrification, large-scale urban greening and eliminating on-site combustion with particular focus on arterial road interfaces;
- Improving mental health through connection to sky, water and green, biophilia, safety, sense of belonging;
- Enhancing social engagement through the provision of restorative public gathering spaces.

Other health and wellbeing considerations to be addressed by individual buildings include water quality, indoor environment quality (light, acoustics and thermal comfort), and other wellness topics that improve workplace productivity and contribute to precinct property competitiveness with global peers.

The implementation of health and wellbeing should be included in all the major workflows –planning, design, construction and operation. Assurance for achieving healthy built environment can be provided through certification of buildings and the broader precinct using the WELL Community and Building rating tools.



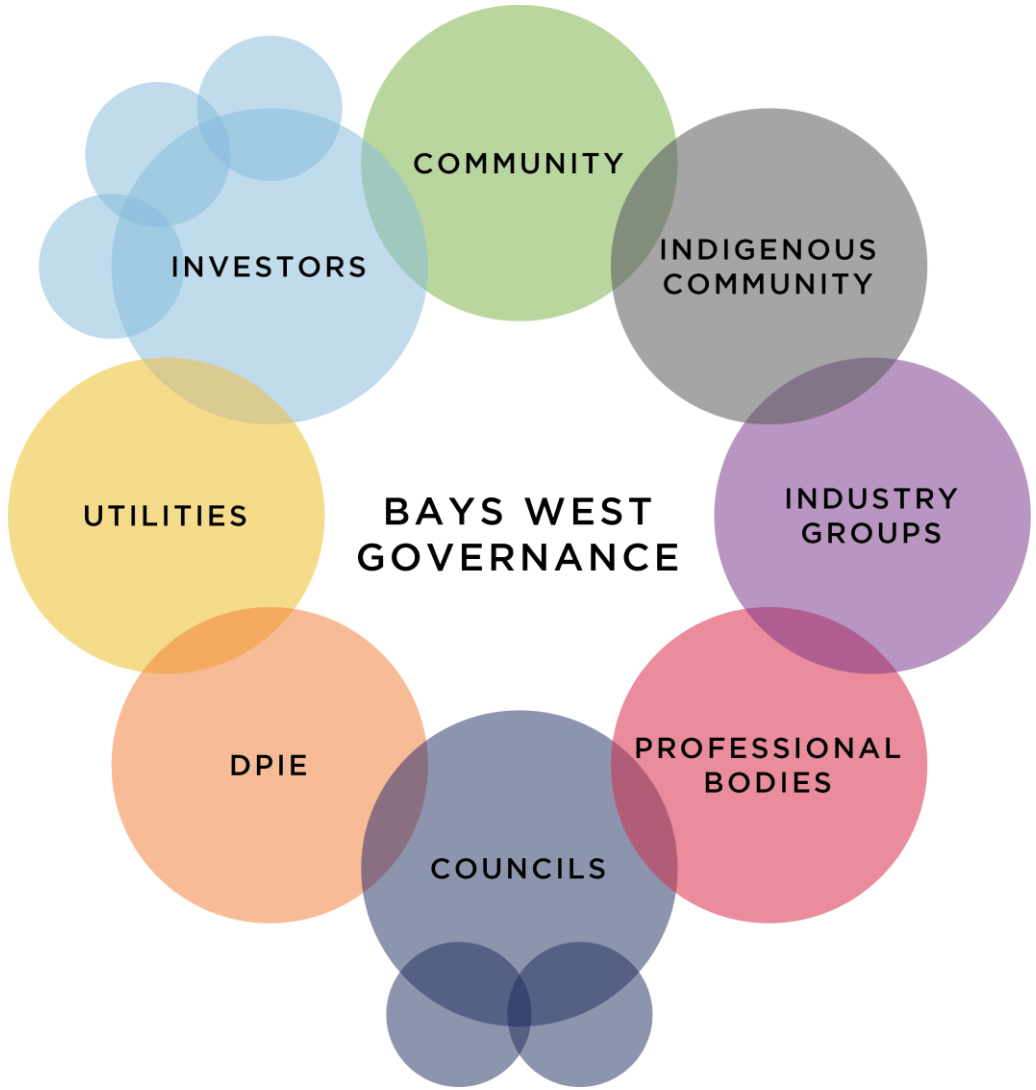
4.0 Embedded Concepts

4.4 Governance & Assurance

Governance and assurance at Bays West incorporates multiple strands, including development and operational governance, digital strategy, and built environment certification. The ambition for governance is an approach that provides stakeholders unambiguous clarity of authority across all stages of the project life cycle and into the future.

The objectives for delivering clarity, stability and confidence for stakeholders are:

- Clear appointment of responsibilities at each stage of the development and operations life cycle
- Legible and transparent hierarchy of development decision processes
- Consistent staging and development program including roll out of all critical infrastructure assets
- Consider a precinct delivery authority which includes a diversity of public, private and community members (see case studies for Barangaroo, Hafen City, and Wynyard Quarter)
- Explore Living Lab opportunities in the precinct construction and operations
- Prioritise data governance, including collection, storage, security and use. This aspect of governance as a value proposition in other precincts has been a flashpoint (see case study for Toronto Waterfront) and is the least understood and most rapidly evolving aspect of a successful Place.



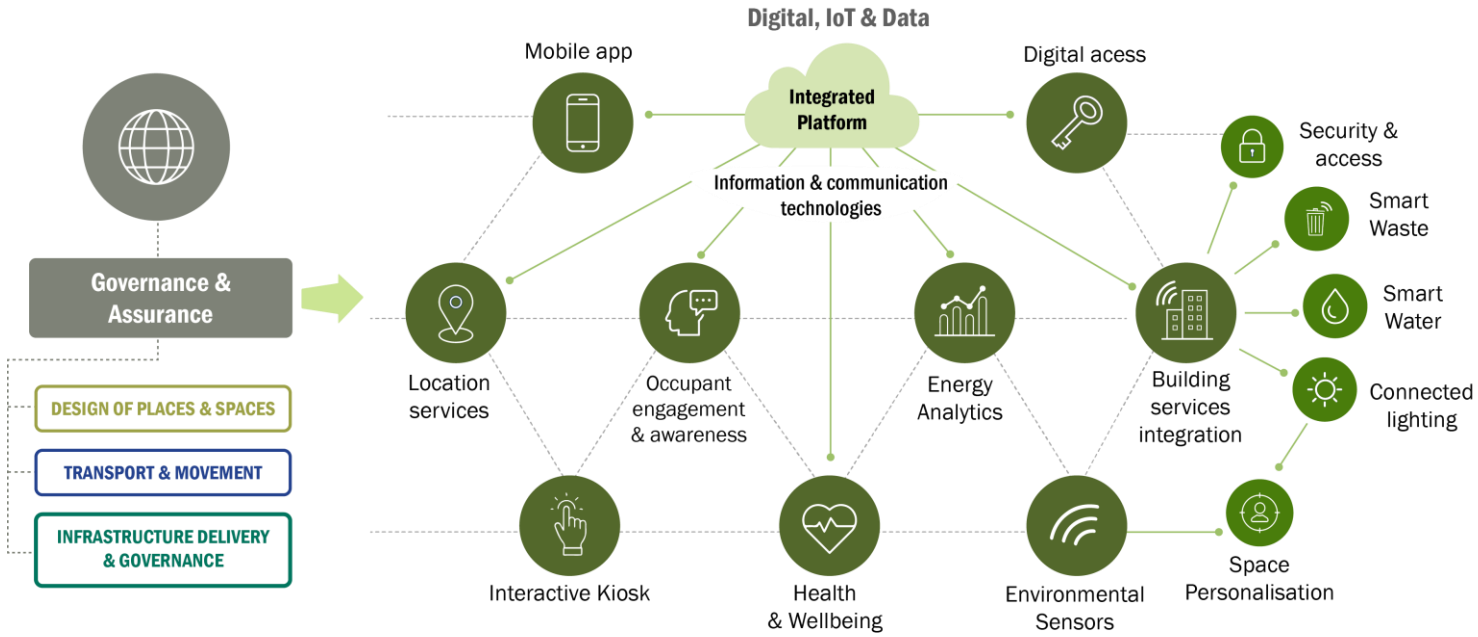
4.0 Embedded Concepts

4.4 Governance & Assurance

The ambition for a sustainable digital precinct at Bays West is to enhance social and environmental performance and disclosure through emerging digital technology and the internet of things.

The objectives for delivering sustainability outcomes through the internet of things are:

- Identify mandatory disclosure of ongoing performance and assurance of key sustainability objectives with a public interest (GHG emissions, waste-to-landfill and operational water consumption at a minimum);
- Identify key performance data for commercial benefit or operational improvement (not for public disclosure)
- Develop a single digital platform for data management, monitoring and disclosure of environmental performance;
- Develop physical infrastructure (fibre, Wi-Fi and narrowband) and IOT sensor strategy for mandatory disclosure and for commercially beneficial data;
- Provide a way-finding platform and hub for future mobility interface;
- Enable an eco-system of application development;
- Develop protocols for privacy, access, data security, educational benefit and civic engagement;
- Support the effective implementation of the circular economy.
- Build a digital engineering framework for consideration of sustainability improvements over design and tracking of operational data.



4.0 Embedded Concepts

4.4 Governance & Assurance

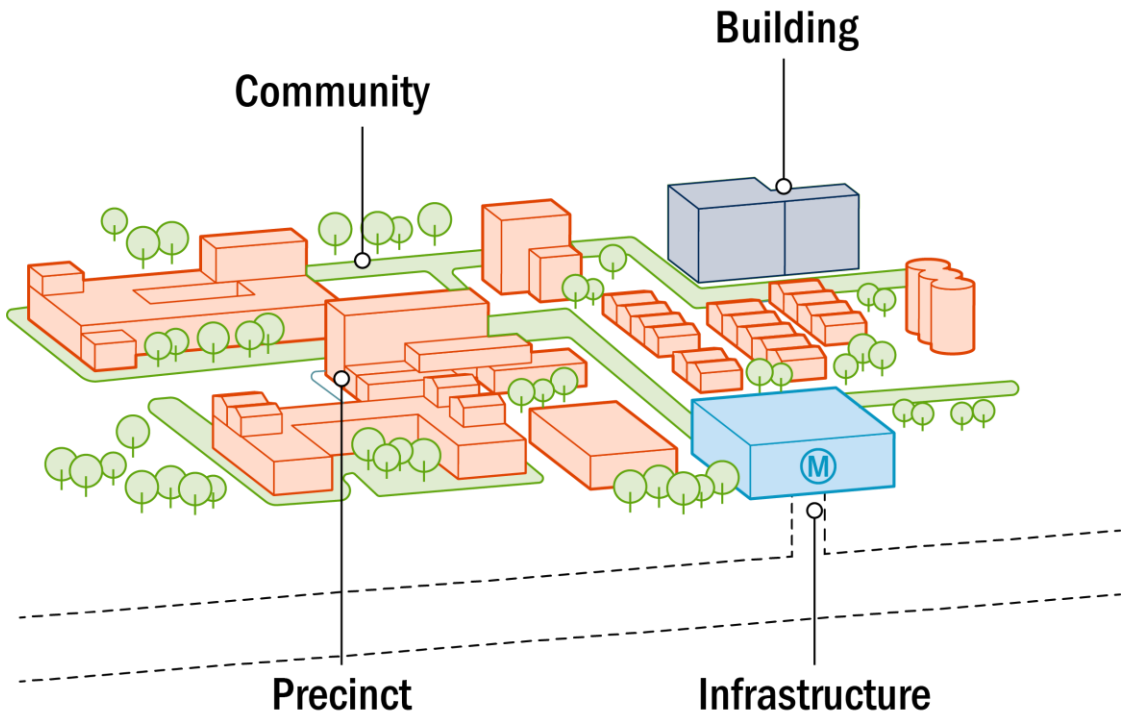
The ambition for assurance of sustainability outcomes at Bays West is a system that considers and verifies sustainability outcomes across all project stages and at all development scales.

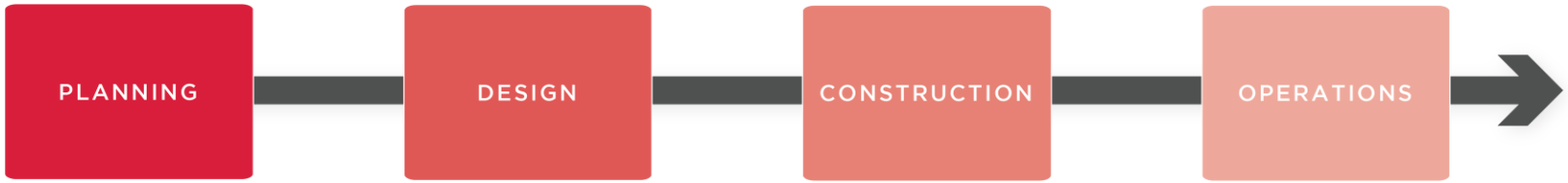
The success of Bays West depends on significant investment from a collection of public and private stakeholders. These partners will be attracted by the precinct's sustainability ambitions and the long-term benefits these bring.

It is imperative that sustainability objectives are backed up by an approach to assurance that gives absolute confidence that the claimed outcomes will be achieved. This requires a framework for assurance that covers the sustainability objectives and provides:

- independent review
- transparency of methodology
- accountability at each phase of the lifecycle

The approach to assurance must also consider the various scales at which the precinct will be developed, and the stakeholders will be operating at. Ensuring sustainability is achieved holistically across the entire precinct is critical.





4.0 Embedded Concepts

4.4 Governance & Assurance

Independent certification of sustainability outcomes, using internationally recognised tools and frameworks, will be critical to the successful recognition of the project by the business and investment communities.

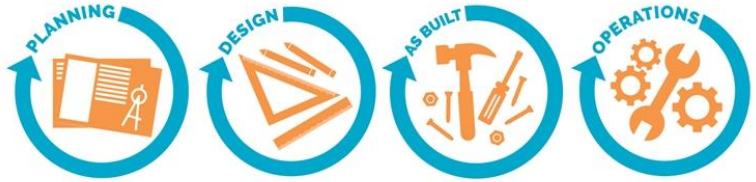
In the property sector, industry standard, independent sustainability rating tools have become the primary sustainability assurance mechanism.

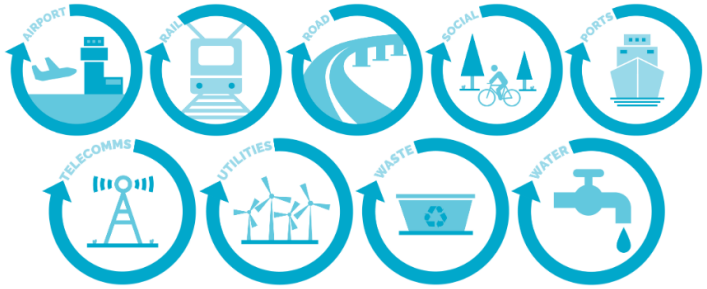
The benefits of using existing tools are the capacity to benchmark the project against national and global peers, and also provide certainty for industry participants through the planning, procurement and delivery processes.

This paper suggests detailed exploration of an assurance framework using the Green Star suite of tools (including Climate Active certification) and consideration of opportunities to influence the industry through the Future Focus program for Communities.

Consideration should be given to include performance requirements for NABERS to align to NSW planning requirements and to the cost/benefit of the WELL rating for inclusion as a requirement or to identify it as a desirable ambition in the procurement framework.

The Infrastructure Sustainability (IS) rating tools from the Infrastructure Sustainability Council of Australia (ISCA) should also be incorporated for transport, utility, and other infrastructure systems throughout the precinct.





5.0 Conclusion

A Precinct Changing Over Time

Leadership in a Time of Transition

It is the nature of urban renewal that projects are delivered over extended periods, often decades. Over these same decades, sustainability expectations will continue to evolve rapidly, especially for urban projects.

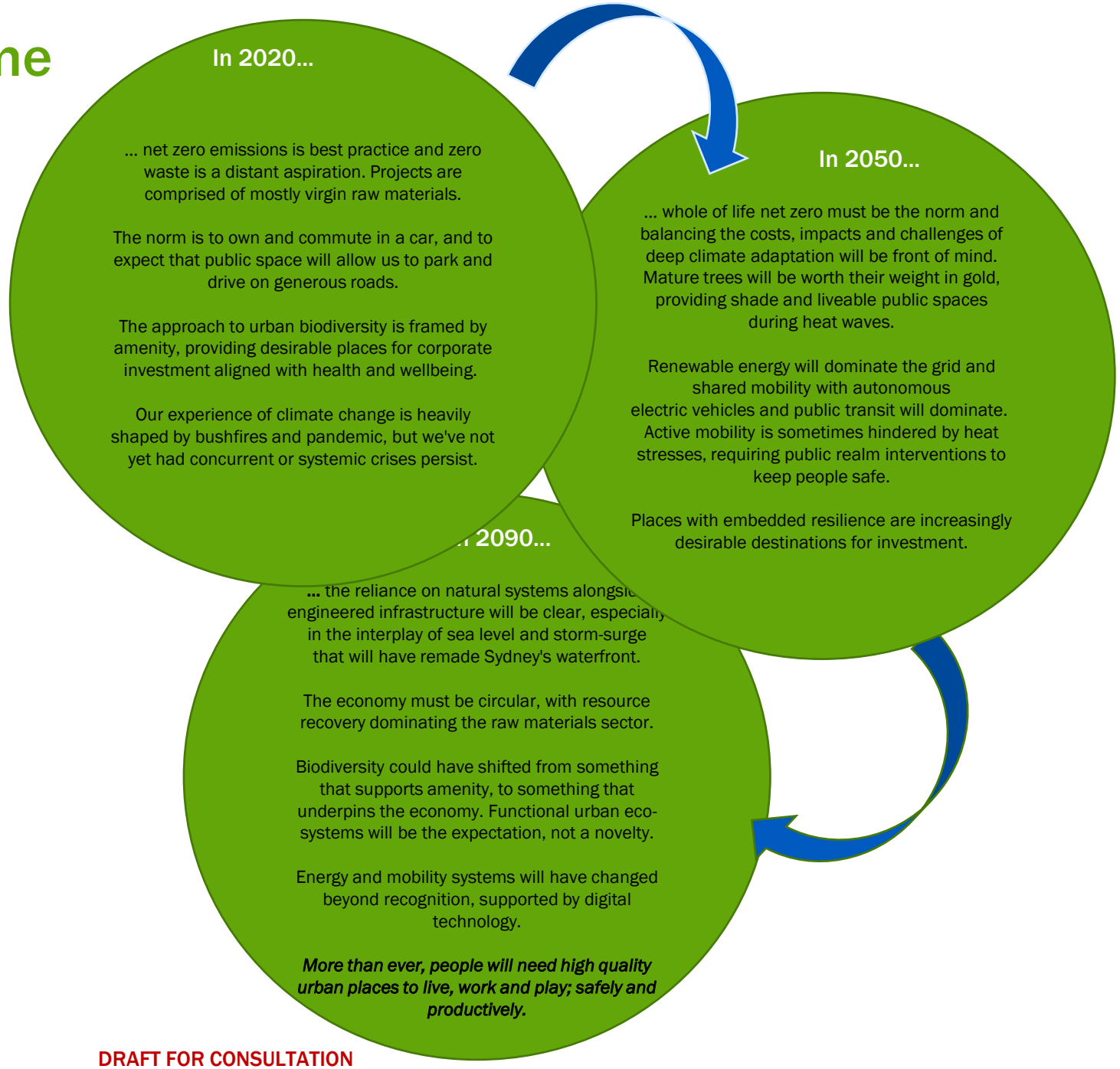
The interplay of long development timeframes and a rapidly changing development context suggest that both high ambition and adaptability are critical to a successful sustainability strategy for the regeneration of urban places in the 2020s.

The key trends which will shape Bays West over time include:

- **The changing climate:** Sydney is expected to be 1-1.8°C hotter in 2030, and up to 3.7°C hotter in 2100; Sea-level is expected to be 500-1000mm higher; summer rainfall up to 10% higher with more overland flood events;
- The growing **expectations for substantive climate action**, with Environmental, Social, and Corporate Governance (ESG) and Task Force on Climate-Related Financial Disclosures (TCFD) driving investment decision-making to an ever-greater degree;
- Currently **cutting-edge technologies in energy, mobility and the internet of things will be commonplace**, and new horizonal technology will be imminent.

There will also be a changing social context in Sydney as the impacts of key trends play out. Population growth, demography, and place competitiveness and attractiveness will all shape the capacity for Sydney to remain a regional hub of investment and innovation – Australia's global city.

The confluence of these trends demand a look into how a successful precinct may evolve over time.



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A Precinct Changing Over Time

Leadership in a Time of Transition

The evolution of the environmental, technological and investment context for Bays West make an ambitious sustainability agenda an important priority for the Draft Place Strategy and subsequent planning processes across the sub-precincts.

This framework identifies:

- Why Sustainability should be a priority;
- The scope and coverage of a Sustainability Strategy for Bays West;
- Sustainability Concepts embedded in Place;
- Sustainability Concepts embedded in Procurement;
- Mechanisms to assure sustainability performance through the project life.

In addition, this Framework makes the case that due to the rapidly changing context and long life of the precinct, the ambition for Sustainability is likely to increase substantially over time.

For some systems that takes decades to mature, such as tree canopy green infrastructure or the creation of urban habitat, this demands a great deal of foresight for the project delivery. For other faster-moving systems – the digital environment or the evolution of transport technology – it demands that we stay flexible and maintain the possibility for the inclusion of much better systems than are available today.

In all cases, the evidence suggests that an ambitious sustainability agenda is of critical importance to a successful precinct.

This report represents a point in time and will be reviewed as needed as renewal and master planning of Bays West progresses.

6.1: White Bay Power Station, Sydney Harbour Foreshore Authority
Back cover image: Jewel Changi Airport, Atelier Ten

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