



Central Precinct Renewal Program

July 2022

Public Domain Strategy

Transport for NSW



Acknowledgement of Country

We respectfully acknowledge the Traditional Custodians of the Central Precinct, the Gadigal, and recognise the importance of the place to Aboriginal people and their continuing connection to Country and culture. We pay our respect to Elders past, present and emerging.



If you require the services of an interpreter, contact the **Translating and Interpreting Services on 131 450** and ask them to call **Transport for NSW on (02) 9200 0200**. The interpreter will then assist you with translation.

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Together with additional community and stakeholder consultation, these investigations will determine which renewal opportunities are progressed.

Images

The photos used within these document include those showing the existing environment as well as precedent imagery from other local, Australian and international examples. The precedent images are provided to demonstrate how they achieve some of the same outcomes proposed for Central Precinct. They should not be interpreted as a like for like example of what will be seen at Central Precinct.

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Introduction

This chapter strategically positions the renewal opportunity of Central Precinct.

Project introduction

The NSW Government plans to renew the land in and around Central Station known as Central Precinct. Central Precinct will provide an enhanced transport interchange experience, vital space for jobs in innovation and technology, improved connections with surrounding areas, new and improved public spaces and social infrastructure to support the community.

Central Precinct will be a new destination for the local, metropolitan, regional and global community. It will draw on the character and significant heritage within Central Precinct and the surrounding suburbs to foster a unique and vibrant urban place.

Central Station is Australia's largest and busiest transport interchange, situated within approximately 24 hectares of government owned land, bordering Surry Hills, Ultimo, Haymarket, Chinatown, Chippendale, Darling Harbour and two large inner-city parks.

Central Precinct is a large scale urban renewal and city shaping project with the Sydney Terminal Building at its centre. The continuing expansion of Sydney's Central Business District to the south, the area being earmarked as a key part of the Tech Central innovation precinct (formerly referred to as the Sydney Innovation and Technology Precinct / Camperdown-Ultimo Collaboration Area), along with the government's commitment of investment at Central Station, including the recently completed light rail and a new metro rail service, present a unique opportunity for Transport for NSW (TfNSW) to revitalise Central Station and bring forward urban renewal across lands in its control.

Much of the land is currently used for operational purposes but has been identified with the potential for over-rail and at-grade development to create a new piece of Sydney, supporting new public spaces and new industry clusters that will drive jobs and economic growth. Through effective engagement and partnership with industry, community and wider government, Central Precinct can be the heart of southern Central Sydney, a revitalised gateway to the local, metropolitan and global community, and a world-class transport interchange within a vibrant urban environment.



02. Strategic context plan

01. Aerial (source: airview online)



Transport Objectives

Developing a world class multi-modal, transport interchange for local, regional and global travellers

Realising a significantly expanded CBD economy through creating the jobs of the future

Leveraging recent Government spending and existing infrastructure within the precinct in line with global trends

Creating a vibrant place and Planning for Country by incorporating Country-centred planning principles and actions that respect the surrounding diverse communities

Delivering a socially and environmentally sustainable precinct

Revitalising the precinct with new and enhanced public open spaces, providing a sense of place and celebrating the heritage of Sydney's Central Station



Project introduction

The Site

Central Precinct lies at the southern end of Central Sydney, covering a corridor of land running between Goulburn and Cleveland Streets. At the core of Central Precinct lies Central Station and associated rail infrastructure. The station also provides interchange opportunities with light rail, buses, coaches and taxis within and immediately surrounding the precinct.

Major infrastructure is currently under construction at Central Station including Sydney Metro (underground lines and canopy) and the eastern portion of Central Walk, a new paid access concourse, linking Suburban, Metro and Interstate Platforms.

Central Precinct is rich in built heritage including the iconic Sydney Terminal Building as well as other significant heritage items, most of which have been adaptively reused in recent times.

Tech Central

The NSW Government is committed to working with the local community to develop the biggest innovation district of its kind in Australia. Bringing together six neighbourhoods near the Sydney CBD (Haymarket, Ultimo, Surry Hills, Camperdown, Darlington North Eveleigh and South Eveleigh), Tech Central is a thriving innovation ecosystem that includes world-class universities, a world-leading research hospital, 100+ research institutions, investors and a wide range of tech and innovation companies.

The Central Precinct is located within the Haymarket neighbourhood of Tech Central. Planned to become the CBD for Sydney's 21st century, this neighbourhood is already home to The Quantum Terminal (affordable coworking space in the iconic Central Station Sydney Terminal Building) the Scaleup Hub (affordable and flexible workspace for high-growth technology scaleups) and is soon to be the home of Atlassian's headquarters. It is also in close proximity to a number of important education and research institutions.



Total of 24 hectares with approximately 13.6 hectares of potential renewal area.



270,00 transport customers move through Central Station each day. 450,000 daily by 2040.



Within a 20-minute walk of various employment, retail, education, entertainment housing, and recreation opportunities.



Important Indigenous stories and places.



State heritage listed precinct, anchored by the iconic Sydney Terminal Building.



Surrounding by diverse, eclectic neighbourhoods with lots of character



- Legend
- Central Precinct SSP boundary
 - Western Gateway boundary
 - ① Sydney Terminal Building and Grand Concourse
 - ② Intercity and Regional Train Platforms and Tracks
 - ③ Suburban Rail Train Platforms and Tracks
 - ④ Sydney Metro (under construction)
 - ⑤ Location of Central Walk (partially under construction)
 - ⑥ Western Forecourt
 - ⑦ Mortuary Station
 - ⑧ Bradfield Flying Junctions
 - ⑨ Prince Alfred Sidings
 - ⑩ Former Prince Alfred Substation (part of Prince Alfred Sidings)
 - ⑪ Bus layover (Regent Street Sidings)
 - ⑫ Western Gateway
 - ⑬ Former Parcels Post Office
 - ⑭ Former Inward Parcels shed
 - ⑮ Goulburn Street car park

03. Existing site plan

Project background

In July 2019, Central Precinct was declared a nominated State Significant Precinct (SSP) in recognition of its potential to boost investment and deliver jobs for NSW. The SSP nomination commenced a detailed planning investigation to identify the new statutory planning framework and vision for Central Precinct.

The first stage involved the preparation of a draft 'Strategic Vision', which was publicly exhibited from October to November 2019. Following review and consideration of community and stakeholder feedback it was further developed into a 'Strategic Framework.' The 'Strategic Framework' established the vision, planning priorities, design principles, precinct renewal options and desired future sub-precinct character of Central Precinct.

The second stage requires the preparation of the Central SSP study. In November 2020, the Department of Planning and Environment (DPE) issued the Study Requirements for the Central SSP that would facilitate the SSP process. The Study Requirements ensure that appropriate and well-considered design investigation, technical analysis, and community and stakeholder consultation is undertaken to support the precinct rezoning.

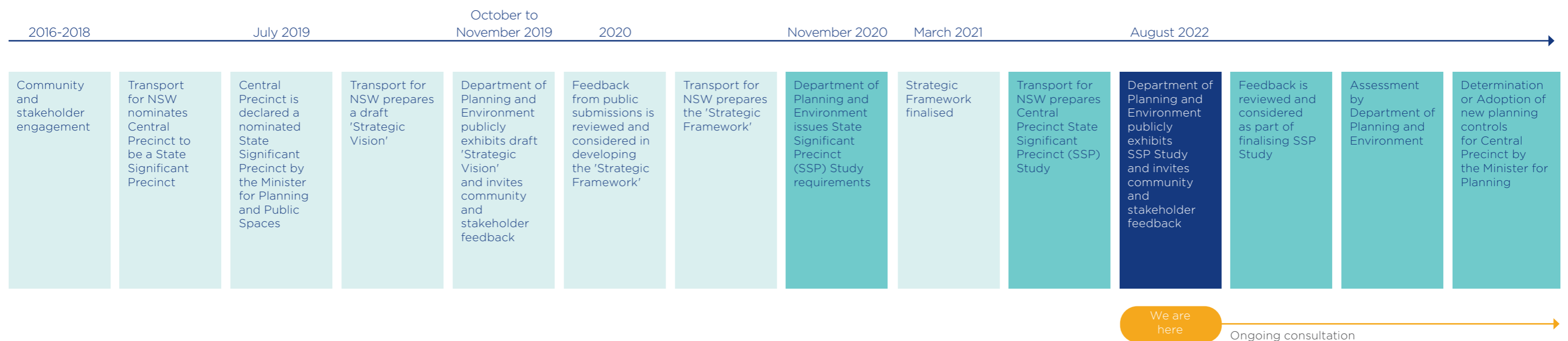
A series of design and technical reports, including the Public Domain Strategy Framework (this report), Place Strategy and Urban Design Framework have been prepared as part of the SSP process and will support the submission of the Central SSP study.

Western Gateway sub-precinct

The aspiration for Central Precinct to be a key part of Tech Central has already attracted significant interest and investment from many high-growth start ups and technology companies, including tech giant, Atlassian. To kick-start the precinct, the Western Gateway sub-precinct on land fronting Lee Street, is the first stage of renewal for Central SSP. The Western Gateway sub-precinct is identified on the map on the previous page.

While the three development sites referred to as Block A, B and C have progressed to varying stages of planning approval in advance of the rest of Central Precinct, ongoing close collaboration with the three proposals through the evolution of the SSP Study have ensured that the sub-precinct remains aligned and integrated with the overall vision for Central Precinct.

Process for creating a new statutory planning framework for Central Precinct



1.3 About the Public Domain Strategy

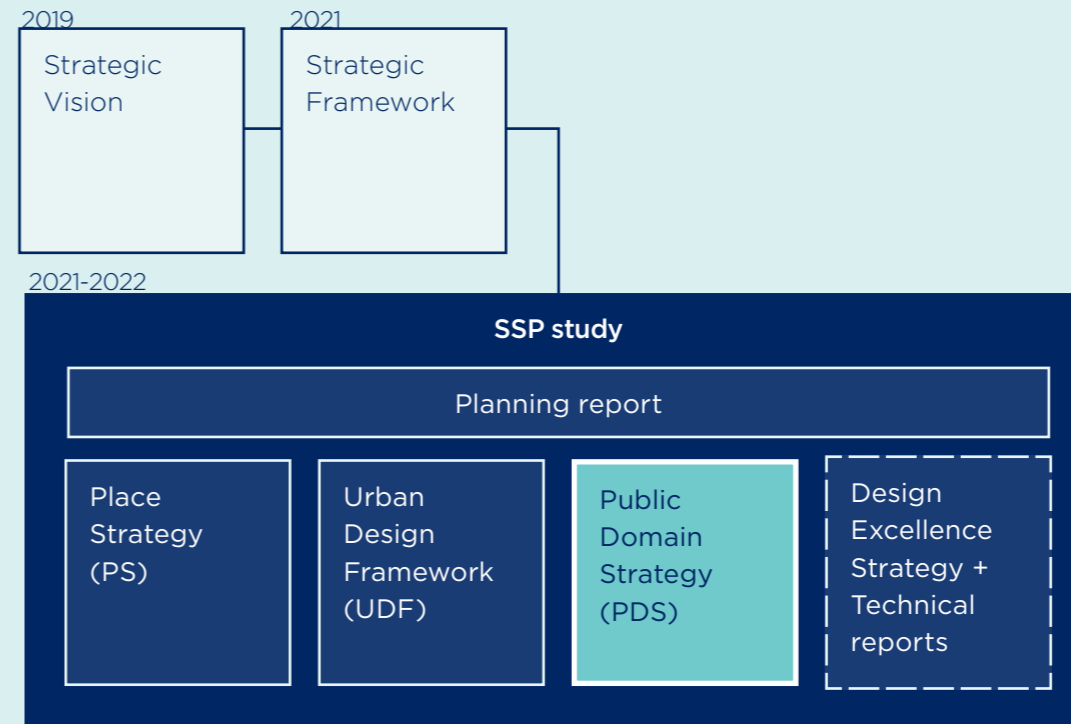
The Public Domain Strategy sets out an ambitious and well-considered public domain plan providing the direction to shape the open space and connections. This will ensure that great transport, economic, social, environmental and place outcomes are achieved through the precinct's ongoing renewal.

The Public Domain Strategy builds on the aspirations and stakeholder feedback received from the Strategic Vision and Strategic Framework, and is the result of an iterative design process undertaken over the past three years by the Design Team in collaboration with Transport for NSW, and in consultation with the State Design Review Panel (SDRP), Department of Planning and Environment (DPE), City of Sydney (CoS), other key government stakeholders, community and technical consultants.

The proposed master plan described within this report is based on a thorough understanding of the strategic drivers of the precinct, the local urban context and character, heritage values, social and environmental matters, and technical constraints, combined with extensive design development testing.

This report satisfies Study Requirement 1.2, outlined under '1. Public Domain, Place and Urban Design' (Central Station SSP Study Requirements, NSW Government), and will support the submission of the SSP Study.

This Public Domain Strategy is to be read in conjunction with the Urban Design Framework and Place Strategy to gain a holistic understanding of the future renewal opportunities at Central Precinct.



Structure of the Public Domain Strategy

The Public Domain Strategy consists of:

- The **Introduction (Part 01)** frames the case for change for renewal at Central Precinct and introduces the precinct vision, key moves and structure plan.
- **Design Principles and Study Requirements (Part 02)** sets out the principles guiding the public domain plan to achieve the vision for the precinct, and how the plan responds to the study requirements.
- The **Public Domain Plan (Part 03)** provides a set of key moves, strategies and concepts that articulates the built form and public domain approach, and provides direction for the renewal of Central Precinct. This includes:
 - Detailed site and context analysis
 - Public Domain plan, including proposed open spaces, public domain connections, outcomes

for amenity, activation and character.

- Connectivity and movement framework
- Activation strategy
- Connecting with Country, public art and heritage interpretation strategies
- Urban forest and greening strategy analysis
- Urban habitat
- Amenity: skyview, solar analysis and wind comfort targets
- Water strategy
- Safety and security
- An outline of **Consultation (Part 04)**
- **Benchmarking (Part 05)** study of relevant international precedents.

1.4 The case for change

Increased transport requirements

Central Precinct has been an important site for transport operations for over 150 years. Today, Central Station is one of Australia's busiest transport interchanges, is an anchor to NSW's rail network, and offers a broad range of transport modes including heavy rail, light rail, bus, coach, future Metro, and point to point vehicle connections.

Over 270,000 transport customers a day currently pass through Central Station. This number is anticipated to grow significantly over the next 20 years, reaching up to 450,000 daily by 2040. Central Station will be renewed to meet this growing demand and provide a world-class interchange that improves the safety, reliability, efficiency and integration with the wider Sydney transport network. This revitalisation will also reinforce the arrival experience and significantly improve the way people move through and interchange between modes.

Major infrastructure investment

The NSW Government is currently delivering major transport enhancements at Central Station. This includes the recent introduction of the CBD and South East Light Rail (CSELR) services, with stops at Rawson Place and Chalmers Street. In addition, in 2024, Sydney Metro City and South West services will commence with a new station beneath existing platforms 12-15. Delivered with this will be Central Walk east, a new east-west concourse linking Metro and rail services together along a single pedestrian spine significantly improving the legibility and address of the station. Also planned is a modernisation of the Intercity and Regional train platforms layout to increase capacity by a factor of four, and allow longer trains to operate at higher speeds (referred to as the 'More Trains More Services' program). These projects provide a further catalyst for the wider renewal of the entire Central Station Precinct.

Strengthening Sydney's global competitiveness

The City of Sydney has a strategic vision for the expansion of the City Centre to the south to enable increased capacity for employment growth at strategic locations. The future renewal of Central Station will be at the heart of this expansion. With up to 24 hectares of land for potential renewal, Central Precinct represents the single largest land holding in the southern CBD and the redevelopment will provide the opportunity for Sydney's economy to grow and advance Sydney's status as a global city.

After undertaking the most comprehensive review of the Sydney CBD's planning controls in 45 years, the City of Sydney adopted the Central Sydney Planning Strategy 2022 (CSPS). This Strategy provides a 20 year growth strategy focused around 10 key moves and a proposed revision to the city's planning controls to enable the city to continue to grow and evolve and deliver on the City of Sydney's 2030 program for a green, global and connected city.

Of particular relevance to Central Precinct is Key Move 4, to "Provide for employment growth in new tower clusters." Four future tower clusters have been identified in the draft Strategy in areas that can deliver income-earning uses in the right locations, have sites greater than 2,000 sqm in size, and are less constrained by sun access planes. Central Station Precinct is one of these four areas that has this identified development capacity.

Supporting technology driven innovation through public and private investment

The NSW Government has committed to making Tech Central, an area made up of six connected neighbourhoods near the Sydney CBD (Haymarket, Ultimo, Surry Hills, Camperdown, Darlington North Eveleigh and South Eveleigh), the biggest innovation district of its kind in Australia. Central Precinct is located within the Haymarket neighbourhood of Tech Central.

The vision is for Tech Central to be a globally competitive innovation and technology district that is home to the jobs of the future from new and emerging industries right up to tech giants, and a district that attracts and retains the best local and international talent.

The district encompasses existing and emerging vibrant creative neighbourhoods and is already home to local unicorns Canva, ROKT and Safety Culture, world-class universities, a world class research hospital, startups, scaleups, 100 + research institutions and CSIRO's Data61.

Central Precinct has the potential to significantly boost the innovation sector and become the next stage of growth of Tech Central. Central Precinct has already attracted significant investment and interest from many high-growth start-ups and technology companies. Tech giant Atlassian is committed to developing the first stage of Central Precinct by building a new home for their global headquarters at the Western Gateway sub-precinct. Planned to be located directly south of Sydney's future third square, the Atlassian headquarters will hold a prominent position within Tech Central and become the first major anchor tenant to the Central precinct.

Expanding role of precinct beyond transport

Expanding beyond its primary transport role, the revitalisation of Central Station Precinct will create a unique destination that connects neighbourhoods, celebrates heritage, expands the city's public domain network, has increased amenity and safety, and provides a vibrant mix of uses that gives people a reason to visit and stay both day and night. Providing exciting new opportunities for retail and cultural activation, the State-heritage listed Sydney Terminal Building will be an iconic destination at the core of southern Central Sydney that trades 7 days a week and contributes to the CBD's vision of a 24 hour economy.

Celebrating its unique eclectic, diverse and socially equitable nature

"[Central Station Precinct] represents the heritage of Australia with some of the older parts of Sydney in and around Surry Hills still being represented through the architecture of the terraces and old industrial buildings. It also represents the immigrant story with Chinatown and the large Chinese, Asian and overseas population in the area and it represents our youth as the area is fairly young and hip, both on the Broadway and Surry Hills side, with Broadway having Uni students while Surry Hills having 20s-30s workers working in creative and emerging industries." (Male resident, Central Precinct Customer Research Report, 2018).

Restitching the precinct into its surrounding neighbourhoods will allow this "melting pot" of cultures, ethnicities, ages, and workers to come together in an inclusive place for everyone - made richer by the social engagement and collaboration between emerging and established tech industries, education and research centres, and the local, regional and global communities.

1.5 Innovation and tech precinct needs

Significant research and investment has been made by the NSW Government to understand and develop guidelines towards shaping the future of Central Sydney to one that embraces the potential of innovation. Central Precinct is planned to be at the heart of this. The precinct has the potential to meet the unique and diverse needs of the new innovation and tech community.

The NSW Government has committed to making Tech Central, an area made up of six connected neighbourhoods near the Sydney CBD (Haymarket, Ultimo, Surry Hills, Camperdown, Darlington North Eveleigh and South Eveleigh). The vision is for the precinct to support the jobs of the future from new and emerging industries right up to tech giants, and a precinct that attracts and retains the best local and international talent.

The NSW Innovation Precinct - Lessons from International Experience published by the NSW Innovation and Productivity Council (2018) provides useful research and principles with which to approach the design and planning for Central Precinct. The following identifies key innovation and tech precinct needs that will contribute to ensuring that Tech Central will thrive.

Market visibility and identity

Tech Central has already attracted significant attention from many high-growth start-ups and technology companies. Tech giant Atlassian is a committed anchor tenant for the precinct, to be built at a highly visible location directly south of Sydney's future third square, along with existing anchors including RPA, UTS and Unniversity of Sydney. The Atlassian headquarters will play an

important role in establishing the identity for Central Precinct, as well as drive leadership and create a strong precedent. The prominent position of the precinct at the heart of southern Central Sydney will contribute to its local and global visibility and ability to attract talent and investment.

Co-location of creative hubs or clusters

Tech Central has the opportunity to build on the existing creative and innovation ecosystem that surrounds the precinct in Ultimo, Surry Hills and Redfern, as well as other collaborators such as adjacent universities and hospitals.

Innovation is driven by collaboration. The potential for agglomeration will allow for business to match skills, work together, share knowledge and resources. Central Precinct can support connections to the broader innovation and tech precinct, but also foster a rich collaborative environment within the precinct itself. The intensity and scale of on-site collaboration can help productivity and market appeal. Spatially this can be expressed through providing spaces for informal, social 'collisions' to more formalised collaborative and meeting places.

Infrastructure, amenity and place

The innovation and technology sector have increasingly moved from isolated parks situated in suburban or out-of-town locations into more accessible, dense and amenity-rich urban environments, that are anchored in unique place-based characteristics.

Central Precinct can capitalise on its highly accessible location, unique heritage character, connectivity to existing and potential new parks and public spaces, integration with other cultural, retail and recreational attractors and existing vibrant urban landscape that it is embedded within. All of these elements have the opportunity to appeal to the future Innovation and Tech workers and broader community.



04.



05.



06.

04. 22@ is a new innovation district in Barcelona that is located in close proximity to the CBD, strategically positions five clusters to foster interaction and collaboration, attracts and aggregates international business as well as creates an appealing and exciting place to live. Barcelona, Spain
 05. The Brooklyn Tech Triangle connecting Dumbo, Downtown Brooklyn and the Navy Yard, is an emerging innovation precinct. The highly accessible location, affordable floorspace, industrial and historical character and opportunity to co-locate with like-minded businesses have contributed to the appeal of the precinct. Artist impression. Brooklyn, New York.
 06. NSW Innovation Precincts - Lessons from International Experience (NSW Innovation and Productivity Council 2018)

Innovation and tech precinct needs

Tech Central Overview

The NSW Government is committed to working with the local community to develop the biggest innovation district of its kind in Australia. Bringing together six neighbourhoods near the Sydney CBD (Haymarket, Ultimo, Surry Hills, Camperdown, Darlington North Eveleigh and South Eveleigh), Tech Central is a thriving innovation ecosystem that includes world-class universities, a world-leading research hospital, 100 + research institutions, investors and a wide range of tech and innovation companies. The vision for Tech Central is for it to be a place where universities, startups, scaleups, high-tech giants and the community collaborate to solve problems, socialise and spark ideas that change our world. It is also for it to be place where centring First Nations voices, low carbon living, green spaces, places for all people and easy transport and digital connections support resilience, amenity, inclusivity, vitality and growth.

Tech Central is an essential component of the Greater Sydney Region Plan's Eastern Harbour City Innovation Corridor. It aims to leverage the existing rich heritage, culture, activity, innovation and technology, education and health institutions within the precinct as well as the excellent transport links provided by the Central and Redfern Station transport interchanges.

The Central Precinct is located within the Haymarket neighbourhood of Tech Central. Planned to become the CBD for Sydney's 21st century, this neighbourhood is already home to The Quantum Terminal (affordable coworking space in the iconic Central Station Sydney Terminal Building) the Scaleup Hub (affordable and flexible workspace for high-growth technology scaleups) and is soon to be the home of Atlassian's headquarters. It is also in close proximity to a number of important education and research institutions.

The planned urban renewal of the Central Precinct has been identified as a key project to achieving the vision for Tech Central.

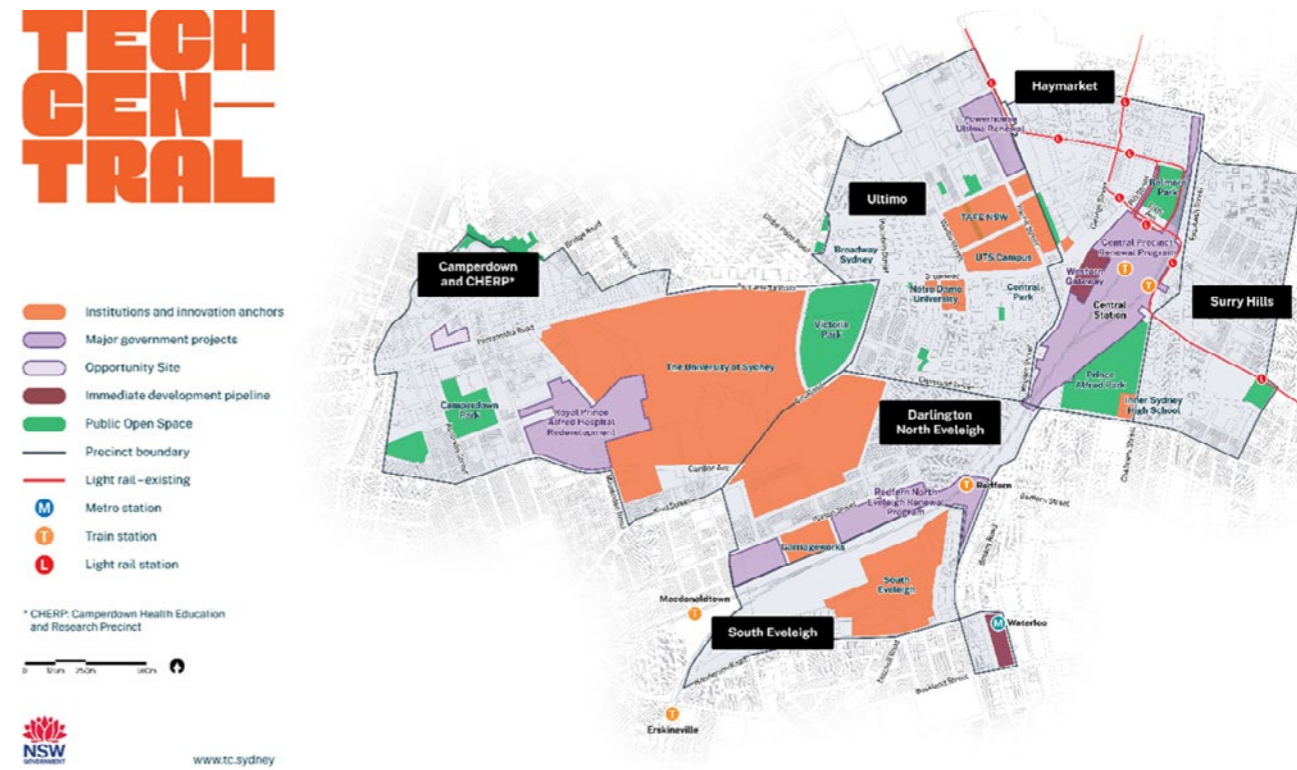
Background and context

In August 2018, the NSW Government established the Sydney Innovation and Technology Precinct Panel (the Panel) comprising representatives from various industry, health, education, government agencies and key community members. In December 2018 'The Sydney Innovation and Technology Precinct Panel Report' was produced, setting out the Panel's recommendations for a pathway to delivering a successful innovation and technology district at Tech Central. In February 2019, the NSW Government adopted the Panel's report and committed to delivering the following:

- 25,000 additional innovation jobs
- 25,000 new STEM and life sciences students
- 200,000 m² for technology companies, and
- 50,000 m² of affordable space for startups and scaleups

In February 2019, the Greater Sydney Commission released a Place Strategy for the area that is now known as Tech Central (Camperdown-Ultimo Collaboration Area Place Strategy, GSC). The Place Strategy, developed collaboratively by a range of stakeholders involved in planning for Tech Central's future, was prepared to inform public and private policy and investment decisions by identifying and recognising the complex, place-specific issues inhibiting growth and change. The strategy identifies shared objectives for the place and sets out priorities and actions to realise the vision for the area under the key themes of Connectivity, Liveability, Productivity, Sustainability and Governance.

Both the Panel Report and Place Strategy recognise the importance of the Central Precinct to Tech Central's future.

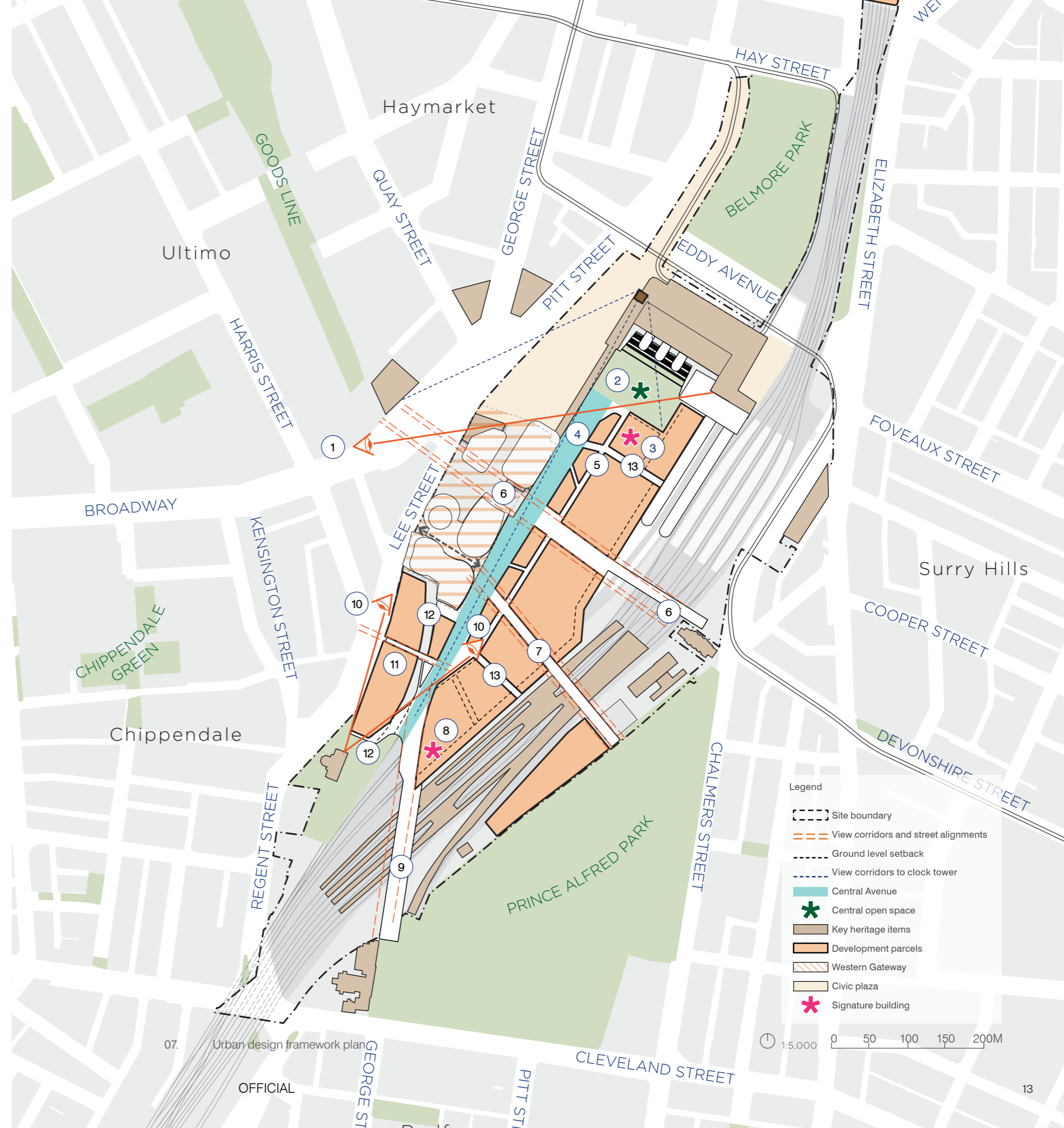


Location plan of Tech Central



Urban design framework

- ① View corridor from Broadway creates a sense of openness and provides adequate separation between new built form and the Sydney Terminal Building/clock tower.
- ② New central open space on the OSD, located in close proximity to the Sydney Terminal building and with direct access to Central Station, Central Walk and Central Square.
- ③ Signature building to mark the northern end of the OSD.
- ④ Central Avenue (main north-south connection) approx 15-24m wide.
- ⑤ North-south laneway (secondary north-south connection), approx 6m wide.
- ⑥ Devonshire Link: 20m corridor at ground level, 30m tower separation. Building separation and bridge location allows for views to the heritage Railway Institute building.
- ⑦ 12m wide Prince Alfred Park bridge link connecting to Lee Street via proposed through-site link through the Dexus Frasers development, and aligned with renewal along Prince Alfred Sidings.
- ⑧ Signature building to mark the southern most end of the OSD.
- ⑨ Bridge connection that aligns with George Street south and provides level connection to Prince Alfred Park.
- ⑩ Regent Street and North-South Lane view corridor, ensuring appropriate views to Mortuary Station.
- ⑪ 6m wide pedestrian link connecting into Regent Street, approx 24m tower separation.
- ⑫ Activation of the Goods Line between Mortuary Station and Lee Street.
- ⑬ Through site links and mid block connections support pedestrian permeability and provide adequate built form separation.



07. Urban design framework plan
OFFICIAL

Legend

- Site boundary
- View corridors and street alignments
- Ground level setback
- View corridors to clock tower
- Central Avenue
- ★ Central open space
- Key heritage items
- Development parcels
- Western Gateway
- Civic plaza
- ★ Signature building

1:5,000 0 50 100 150 200M

1.7 Public Domain Plan

The proposed public domain system provides a high quality network of new and revitalised public open space. Major new north-south and east-west connections will pull the city together around a remade Sydney Terminal Building. The Sydney Terminal Building will be set in an iconic public landscape consisting of major new CBD spaces including Central Square and Central Green.

Public spaces

- 1 Eddy Avenue
- 2 Eddy Avenue Plaza (Upgrade)
- 3 The Grand Concourse (Upgrade)
- 4 Regional Coach Terminal
- 5 Central Square
- 6 Central Green
- 7 Central Avenue
- 8 Devonshire St Bridge and Connection
- 9 Railway Square
- 10 Henry Deane Plaza (Upgrade)
- 11 Eastern Walk
- 12 Laneways
- 13 Prince Alfred Park Bridge
- 14 Southern Plaza
- 15 The Goods Line
- 16 George Street Bridge
- 17 Mortuary Station and Garden
- 18 Ibero-American Plaza (Upgrade)



2

Principles and study requirements

Vision

Central Precinct will be a vibrant and exciting place that unites a world-class transport interchange with innovative and diverse businesses and high-quality public spaces. It will embrace design, sustainability and connectivity, celebrate its unique built form and social and cultural heritage and become a centre for the jobs of the future and economic growth.



Vision

Comprising land in and around Central Station transport interchange, Central Precinct will be a new destination for the local, metropolitan, regional and global community. It will draw on the character and significant heritage within Central Precinct and the surrounding suburbs to foster a unique and vibrant urban place.

Leveraging the convenience of existing and planned transport infrastructure and services, Central Precinct will revitalise southern Central Sydney to create a world class transport destination. It will improve connections to surrounding employment, education, health and cultural institutions, support the Camperdown-Ultimo Collaboration Area, and ensure accessibility for all while embracing future changes in mobility.

The focus will be on people with the enhancement of existing, and the creation of new, public and community spaces which support a diverse range of uses and activities. Central Precinct will also be pedestrian friendly by being walkable, connected and safe.

Central Precinct will foster the jobs of the future and economic growth through a growing well-connected commercial hub for Sydney. It will help support new and emerging industries and provide employment space and to support the establishment of Tech Central. Along with new entertainment, retail and dining, it will be activated day and night, promoting liveability and productivity.

Sustainability will be embedded as whole-of-life initiative through all use and development. Through its resource efficiency and resilience Central Precinct will benefit current and future generations. Underpinning the success of Central Precinct will be its commitment to delivering design excellence through high quality built form and public spaces.

Driven by an acknowledgement of its significant cultural values, Central Precinct will be founded in its identity as the land of the Gadigal people. The Precinct will be embedded in the history of the area from the sand dunes and creek lines of the pre-contact landscape, to the consecration of the Devonshire Street Cemetery and the evolution of Central Station.



Directions

Building on the Planning Priorities established within the Central Precinct Strategic Framework, the Five Key Directions outline the strategic transport, economic, social, environmental and place priorities that will transform Central Precinct.



1 Place & Destination

A vibrant new activated destination at the heart of southern Central Sydney that is loved and treasured locally and globally



Expanding beyond its primary transport role, the revitalisation of Central Precinct will create a unique destination at the heart of southern Central Sydney that celebrates heritage, creates spaces for the community to gather, expands the city's public domain network, has increased amenity and safety, and provides a vibrant mix of uses that gives people a reason to visit and stay both day and night. Central Precinct will be a place to be loved by Sydneysiders as well as be a globally recognised place.

Central Precinct will tie into the surrounding streets and respond to the existing urban character and vibrant neighbourhoods to create an attractive and authentic piece of the city. The creation of sub-precincts (described in this Place Strategy) each with its own desired future character, will ensure that the built form and landscape approach is place-based and context-responsive.

Planning priorities

- Unite the city by reconnecting with the surrounding suburbs
- Shape a great place that is vibrant, diverse, active, inclusive and has a high level of amenity
- Deliver a precinct which responds to its urban context and embeds design excellence
- Improve existing and provide additional connected public space in the precinct with high environmental amenity and comfort
- Protect and celebrate the Precinct's heritage values
- Create a people focussed precinct through prioritising public transport, cycling and walkability
- Facilitate the precinct's focus on transport and economic diversity in tourism and across commercial sectors including office, business and retail.

Directions

2 People & Community

An inclusive and engaging place for all workers, residents, neighbours and visitors



The area where Central Precinct is situated is one of the most well-connected and culturally and socio-economically diverse. Due to the role and location of Central Station, the area supports the local, regional and international community. The renewal of Central Precinct will bring significant change and its impacts will be felt by a diverse and large community, of workers, residents, neighbours and visitors, both existing and new.

Central Precinct will be a welcoming place that meets the needs of a diverse community. It will provide access to a range of employment, learning and living opportunities, foster social connectedness and cultural life, improve health and wellbeing, and make people feel safe, included and well-supported.

Planning priorities

- Design public spaces that promote health, equality and well-being
- Promote social cohesion by providing spaces for gathering, connection, exchange, opportunity and cultural expression
- Honour and celebrate the cultural heritage and identity of the Precinct's past and present Aboriginal community
- Create a safe and intuitive precinct that promotes social access and inclusion for all types of people, regardless of abilities and needs
- Support programs and initiatives that benefit communities and people
- Create a precinct that responds to the current and future needs of transport customers, workers, residents and visitors, including those of the broader local community*

* Note customer profiles and needs can be found in the GfK 2018 customer research

3 Mobility & Access

A high-capacity, world class multi-modal transport interchange that supports local and regional connections bringing people together



The ongoing efficient functioning of Central Station as a high-capacity, multi-modal interchange is integral to Central Precinct, as the number of transport customers is expected to grow from 270,000 to 450,000 daily by 2040.

Central Station is entering its next phase of evolution into a world class transport destination, that combines new transport infrastructure and services, and improved address, access and circulation with the creation of a destination that provides new opportunities for activation and places for people to come together and linger, while celebrating the unique heritage qualities of the Sydney Terminal Building.

An improved public transport experience will be supported by active transport and a pedestrian-friendly environment. It will improve connections to surrounding employment, education, health and cultural attractors, as well as ensuring accessibility* for all and embracing future changes in mobility.

Planning priorities

- Provide a world class, integrated and seamless transport interchange
- Maintain the precinct's role as NSW's main transport interchange
- Improve the transport customer experience, including wayfinding, pedestrian flows and interchange between different transport modes
- Facilitate and enhance connections within and towards key locations in southern Central Sydney
- Deliver a people focussed precinct that is walkable, well connected, safe and puts people first
- Design infrastructure that will adapt to future changes in transport and mobility.

* Note accessibility includes mobility, visual, sensory and intellectual needs and disabilities.

Directions

4 Economy & Innovation

A well-connected, high amenity, character-rich precinct that will attract the jobs and industries of the future essential for delivery of Tech Central



Central Precinct will foster the jobs of the future and economic growth through a new mixed use precinct at the heart of southern Central Sydney, to be known as Tech Central. Central Precinct's highly accessible location and transport connections, proximity to a surrounding network of education, health, technology and creative industries, existing heritage character, vibrant nearby neighbourhoods, diverse range of uses and activities, and access to open space and recreation creates an attractive place that will appeal to the innovation and technology community. The precinct will promote liveability and productivity.

Tech giant Atlassian is the committed anchor tenant for the precinct, located in the Western Gateway sub-precinct and will play an important role in driving leadership, building identity and attracting talent and like-minded business. Additional floorspace will be unlocked over rail and at the precinct edges to provide exciting opportunities for commercial floorspace to support the growth of the innovation and technology ecosystem.

Planning priorities

- Advance Sydney's status as a global city
- Support the creation of jobs and economic growth including new and emerging industries such as innovation and technology and explore the provision of space for cultural and creative uses and start-ups
- Provide an active and diverse commercial hub with a rich network of complementary uses that nurture and support business
- Support both the day and night economies of the precinct through diverse complementary uses, promoting liveability and productivity
- Foster collaboration between major institutions in the precinct including transport, education, health and business
- Create a smart precinct that incorporates digital infrastructure to support research and innovation.

5 Sustainability

A world-leading exemplar of an integrated sustainable and resilient precinct providing far-reaching economic and social benefits



Central Precinct has the potential to implement world-leading sustainability standards and establish new and innovative benchmarks for city-making in Australia and globally. An integrated sustainable and resilient precinct can create positive environmental, economic and social outcomes across the region.

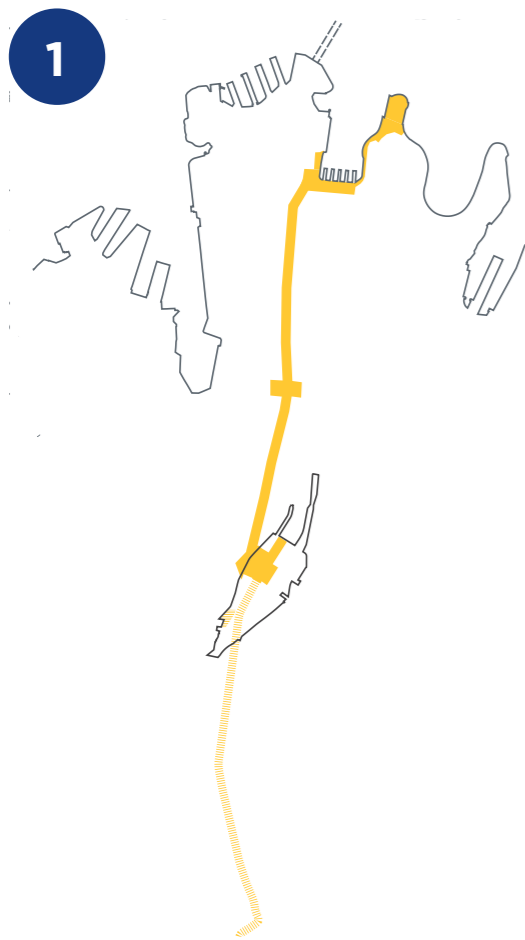
Sustainability will be embedded as whole-of-life approach in all land use and development. Through its resource efficiency and resilience Central Precinct will benefit current and future generations. Underpinning the success of Central Precinct will be its commitment to delivering design excellence through high quality built form and public spaces.

Planning priorities

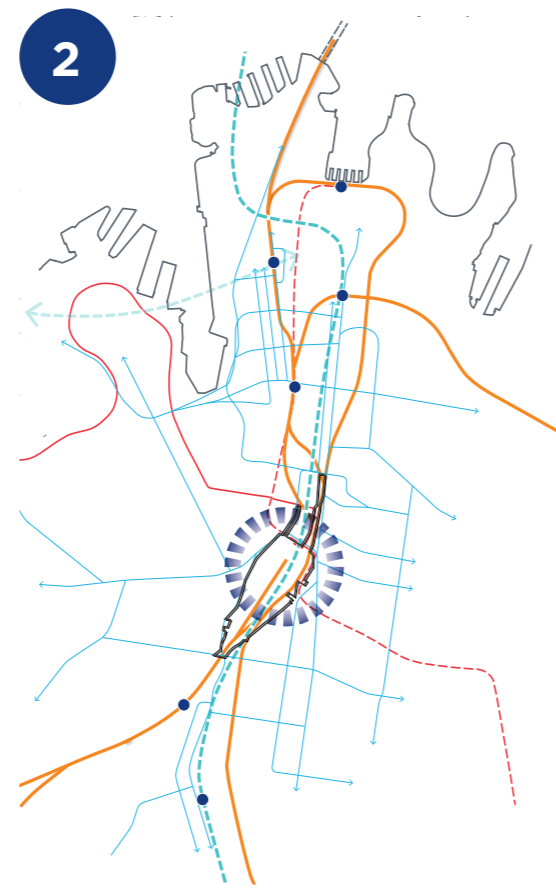
- Take a whole-of-life approach to sustainability through planning, design, construction and ongoing precinct management
- Maximise resource efficiency to contribute to net zero emissions by 2050
- Strengthen the precinct's resilience to urban hazards such as wind, air quality and noise and potential shocks and stresses, including climate change
- Enable positive social and community outcomes through promotion of a healthy community, high levels of amenity and social workforce opportunities
- Enhance biodiversity through the greening of public and private spaces and increasing tree canopy coverage
- Embed sustainable procurement throughout the precinct's development, activities and uses.

Five Big Moves

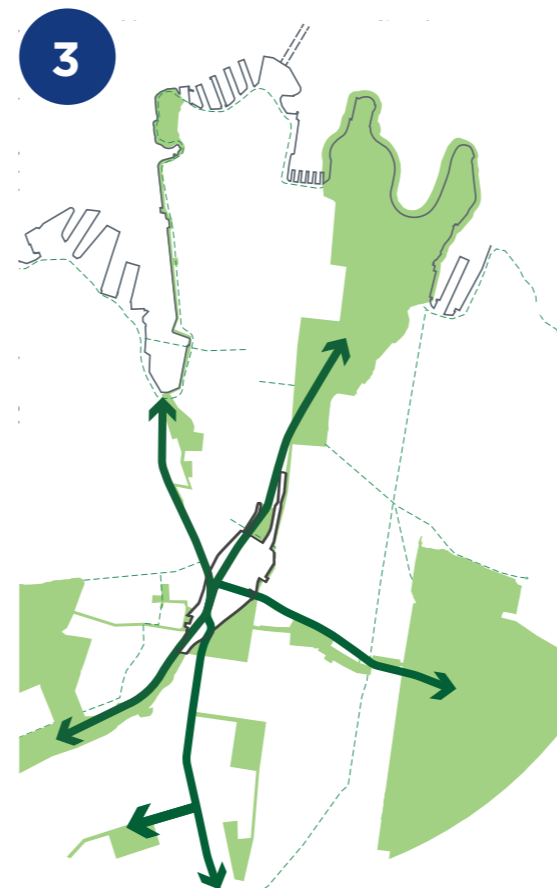
The Five Big Moves are key city-shaping spatial moves that will unlock the potential of Central Precinct and ensure that it responds and connects into the existing fabric of the city.



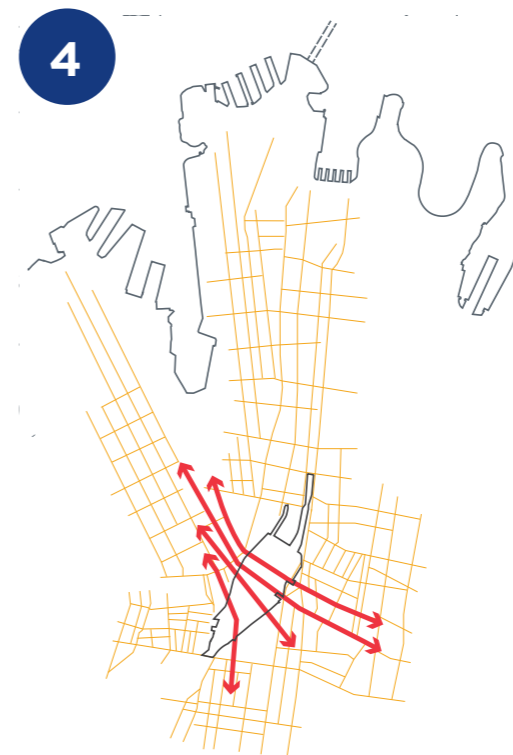
1
Reconnect Redfern to the City and Harbour



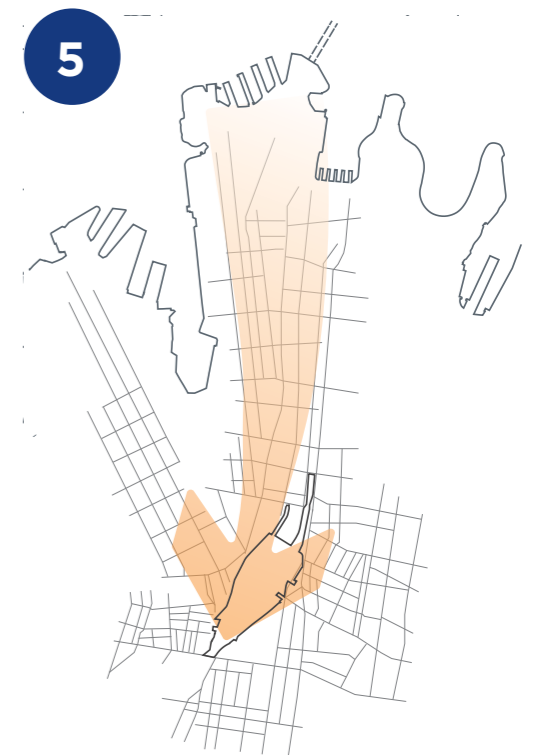
2
Create a civic destination and world class transport interchange that connects people locally, regionally and globally



3
Re-knit and expand the City's green grid



4
Reconnect east-west and stitch into the fabric of the city



5
Unlock new space for the expansion of the CBD

2.3 Design principles

Design principles

Design with Country

- To start with a consideration of Country. Ensure that Aboriginal culture and heritage is embedded in the approach to design and development of the precinct.
- To ensure that the design allows users of the precinct to connect with the **history, stories, people, culture and contemporary meaning of Country**.
- To embed a strong **connection with Country** within the design of core public spaces and places and key pieces of infrastructure such as bridges.
- To create a sense of **welcome to Country**
- To connect to **Sky Country** and cosmology
- To acknowledge and **heal the past**, in particular the history of Platform 1 and the Stolen Generations
- To reconnect **Redfern and the Harbour**
- Connect to country through **sandstone** materiality
- To create cultural **meeting place** for Aboriginal people
- To **replace the landmarks** of Country in a meaningful way
- To **restore the sounds** of Country
- To build upon the legacy of Sydney Trains as an Aboriginal employer

- To **embed living culture and language** including through technology, art and place naming
- Provide community space and facilities for Aboriginal people

Heritage

- To design in response to the heritage of the site. To improve the setting of **iconic heritage** places through design that respects the history and meaning of place.

Public Domain

- To ensure the public domain supports the continued **efficient and safe** operation of Central Station as Sydney's main public transport hub, including the integration of all levels of pedestrian activity below ground, at ground and the new over-station level.
- To ensure the public domain **integrates** with the adjoining fabric of southern Central Sydney and Haymarket, and connects with the nearby communities of Surry Hills, Redfern and Chippendale.
- To create a **vibrant, diverse** public domain that includes movement and dwell spaces in a permeable, comfortable and safe people-oriented network of streets, lanes, through-block links, bridges, parks and plazas.
- To create a public domain that attracts people from across the city because of its **unique** places and strong sense of community.

Movement

- To create a clear **pedestrian oriented north-south spine** as a key spatial organising element that connects with George Street as Central Sydney's main street, creates a new urban walk for Central Sydney and restores the link between Redfern and Sydney Harbour.
- To create a **series of east-west pedestrian links** that integrate with the north-south spine and connect the precinct with Surry Hills, Chippendale and Haymarket.
- To create a **permeable, fine grain** and intimately scaled pedestrian network that promotes walkability and provides choice of movement.

Open Space

- To create a **network of high quality parks and plazas** with high levels of amenity and comfort including sun and daylight access, wind protection, safety and comfort.
- To create **Central Sydney's third square**, integrating and enhancing Railway Square and the Western Forecourt, aligned with the western entry to Central Walk.

Social and Community

- To ensure social and community infrastructure is **embedded within the precinct** to foster a vibrant, inclusive and welcoming sense of place.
- To create spaces that can be shared by many different people to encourage a sense of real **community**.

- Create a safe and intuitive precinct that promotes **social access and inclusion** for all types of people, regardless of abilities and needs.
- Create a precinct that responds to the current and future needs of transport customers, workers, residents and visitors, including those of the broader local community.

Sustainability

- To embed environmental, economic and social sustainability into the fabric of the public domain, displaying best practice initiatives to ensure a **green, biodiverse precinct**.

Innovation and Tech Central

- To create a public domain that **fosters connections**, hybrid work and relaxation spaces with excellent amenity.
- To create a place of **entertainment, delight and joy**.

2.4 SSP study requirements

Study Requirement	Refer to:	Study Requirement	Refer to:
Prepare a Public Domain Strategy that guides future planning and approval processes and seeks to achieve high quality public domain outcomes that;		Includes a benchmarking assessment of the proposed development against international best practice precedent studies for open space design in similar high dwelling density environments. The assessment should also identify the specific initiatives used by case study and identify both the positive and negative effects that occurred during the budget, design and construction stages to ensure that it can be translated to an Australian setting;	Part 5: Benchmarking
Includes a vision statement and a series of goals to achieve the vision;	Part 2	Identifies wind comfort criteria for the entire precinct and all adjacent areas affected by the proposed development;	3.9 Amenity: skyview, solar analysis and wind comfort targets
Includes a separate chapter focusing specifically on public space, specifically what currently exists, what will be upgraded and what new public space will be delivered;	Part 3: Public Domain Plan 3.1 Site and Context Analysis 3.2 Public Domain Plan	Includes a shade study to ensure comfort and usability of public space;	3.9 Amenity: skyview, solar analysis and wind comfort targets
Includes a detailed site and context analysis that identifies strategic context, opportunities and constraints and key issues to be considered.	3.1 Site and Context Analysis	Includes a high-level safety and security strategy that outlines how potential future crime and safety risks in relation to the development will be addressed. Strong emphasis should be placed on developing actions in the strategy that address the most vulnerable people who use Central Station i.e. women and girls, people with disabilities, the homeless, schoolchildren etc., and enabling safe 24/7 use of the precinct. The strategy should have regard to Crime Prevention Through Environmental Design (CPTED) guidelines and integrate closely with other studies;	3.11 Safety and Security
Includes a movement plan setting out the proposed movement corridors and connectivity network throughout the precinct, the types of machinery, employees etc. during a 24-hour period). How squares or plazas could play a role in movement and include emphasis on creating strong pedestrian corridors linking outside areas to Central Station's entrances and exit points;	3.4 Connectivity and Movement Framework	Includes a Heritage Interpretation strategy framework for the precinct identifying key themes, social values, interpretive opportunities, measures and locations. The strategy should include actions to preserve heritage items of value identifies; and	3.6 Connecting with Country, Public Art and Heritage Interpretation Strategies
Includes a landscape master plan for the precinct locating public space (open space, plazas, squares) that have been derived from site analysis, benchmarking assessment and urban design principles. The master plan is to include (but not limited to) public space connections, deep soils zones, urban canopy outcomes and targets, Water Sensitive Urban Design principles;	3.2 Public Domain Plan 3.7 Urban Forest and Greening Strategy 3.10 Water Strategy and Water Sensitive Urban Design	Is derived from cooperative work with the City of Sydney on the development of the future square given affected land is owned by both state and local governments.	Part 4: Consultation Register

3

Public Domain
Plan

3.1

Site and context
analysis

OFFICIAL

3.1 Site and context analysis

Public open space

The Central Precinct suffers from poor quality and fragmented public domain, although it is situated near some of Sydney CBD's most popular public parks.

Central Precinct

Existing public open space within the Central Precinct comprises four small plazas with minimal green cover: Eddy Avenue Plaza, Henry Deane Plaza, Ibero-American Plaza and the Central Station Forecourt (refer to page 20). Central Precinct contains minimal open space yet has potential to contribute and link to Sydney's growing network of parks.

Belmore Park

Belmore Park is a significant Victorian-era park, valued for its mature trees and continuous history as public open space. It has strong diagonal paths linking the CBD and Central Station, yet its connections east and west were severed by the construction of the northern rail line and western armature. The park could be improved by creating more permeable and more welcoming edges including space to dwell. These improvements would integrate the park with the life of the surrounding city.

Prince Alfred Park

Historically a hub of play and recreation for rail workers, this park continues to provide significant recreation opportunity in the inner city including sports courts, an aquatic centre, children's playground, open lawn and fitness stations. The project brings potential to upgrade the rail edge of the park and improve connections from George Street to the Over Station Development (OSD).

Goods Line

The Goods Line is a 20-metre-wide linear park that transformed a 500-metre section of disused rail corridor between Railway Square and Darling Harbour into space for social interaction, play and active transport links. The project provides the opportunity to revitalise the southern section of the Goods Line which is at present not accessible, where it tunnels under George Street and daylights through the precinct near Mortuary Station.

Chippendale Green

This popular green space was designed as part of One Central Park development with sunny lawns, shade trees, seating, public art and water features. Its circulation system connects with streets and laneways in the surrounding neighbourhood.

UTS Alumni Green

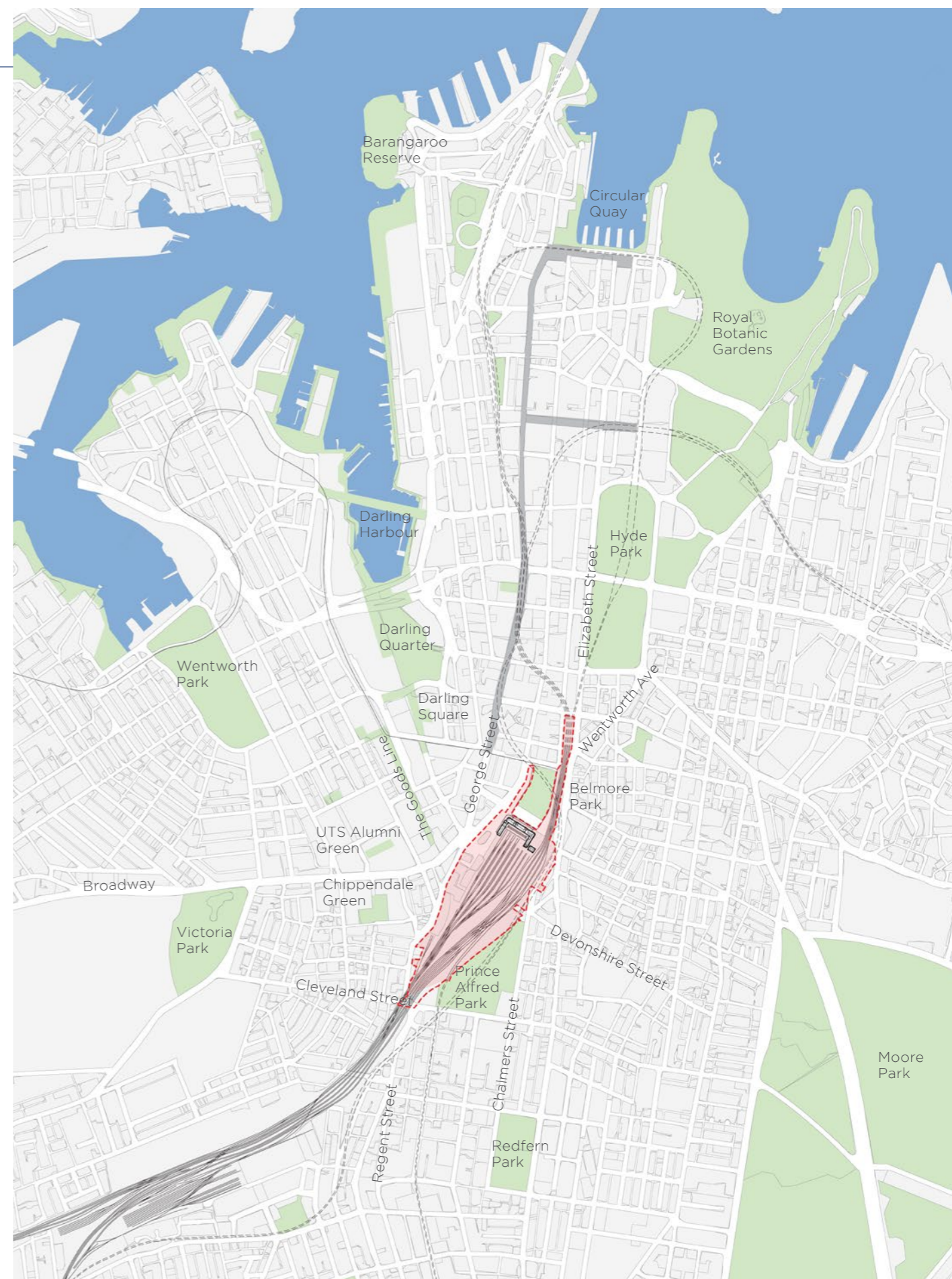
Alumni Green is a central open space of the University of Technology's Sydney campus that include a 1200m² lawn, garden spaces with shaded seating areas and a paved area for gathering and events.

Darling Square and Darling Quarter

Darling Square comprises a raised central lawn surrounded by retail, community and residential uses, shaded seating and links that reconnect Darling Harbour to Central Station, Ultimo and Chinatown.

Darling Quarter contains the largest playground in the Sydney CBD with interactive water play facilities, large spaces for events and new pedestrian connections through the site.

Better connections via the Goods Line and Quay Street will link the Central Precinct to these successful urban renewal sites.



09. Site context plan showing surrounding public open spaces

Site and context analysis

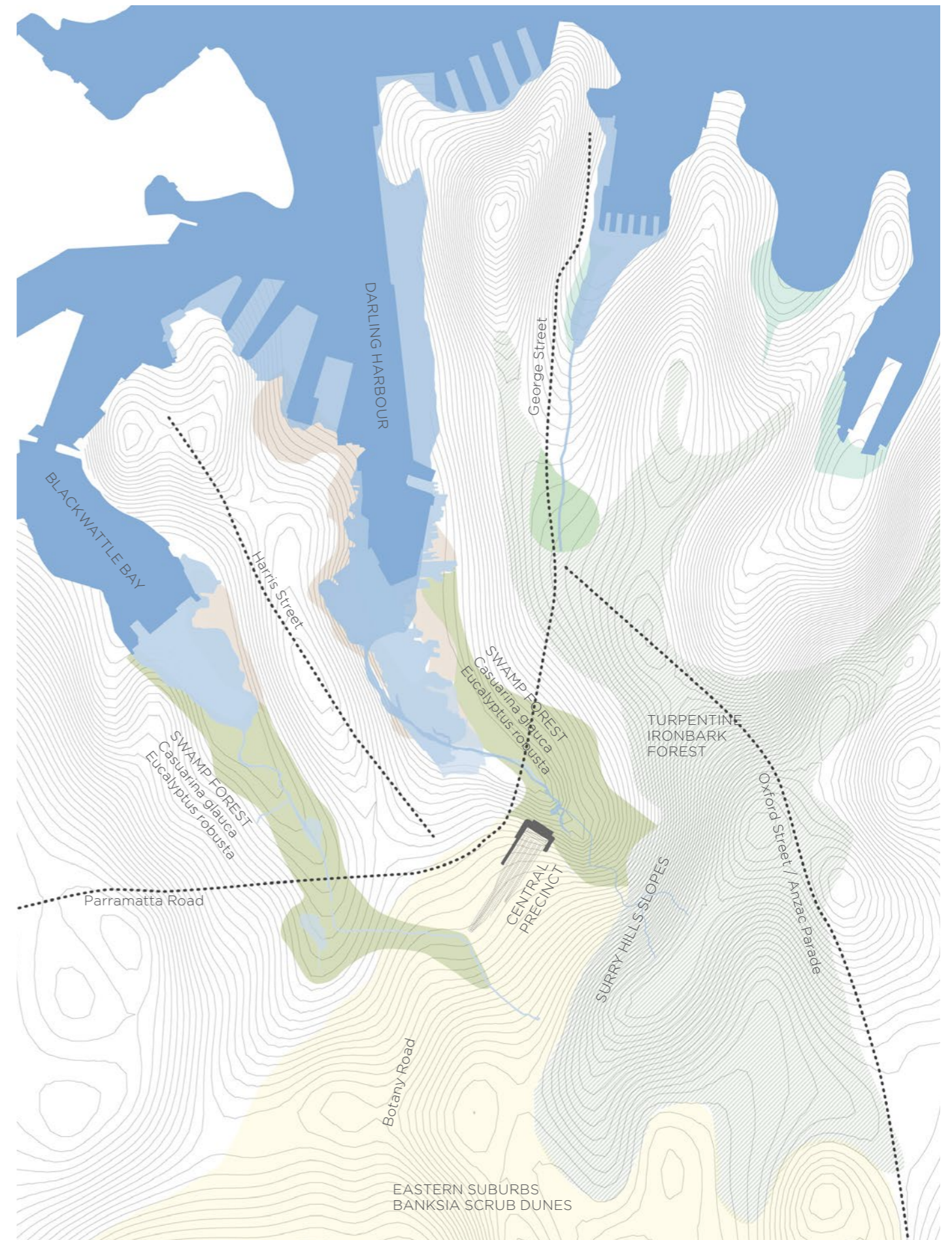
Living Country

A petrified sand dune lies beneath Central Station. A landmark for the Gadigal, the sand dune holds the deep time and memory of Country. Central Precinct is built over a series of ancient dunes, ridges and creeklines that drain to Darling Harbour and Blackwattle Bay.

Although they cannot be remade, some of the landscape character of the past can be visually and experientially brought back to this place to give it layers of meaning beyond the present. The physical healing of Country is key to establishing a connection with Country and a tangible link to place.

Connecting with Country Framework, Balarinji (2021) Country

- The Central Station Precinct which sits at the juncture of Blacktown and Tuggerah soil landscapes consisted of a 'sand dune network, covered in heath, low scrub and freshwater wetlands.'
- The Central area marks a point of convergence of what are known to be Gadigal routes or Muru. These include what is now the railway line between Circular Quay and Parramatta, George Street, Parramatta Road, King St Newtown, Oxford Street and Enmore Road.



11. Map showing the Central Precinct in relation to pre-colonial vegetation communities, topography, waterways and Gadigal routes



10. c1900-1925. Photograph of the sand dune on the site of Central Station with Surry Hills behind. Source: State Library NSW. ON260/399

Site and context analysis

There are major opportunities to improve urban connectivity across the Central Station Precinct.

Key connectivity opportunities:

Reconnect North-South from Redfern to the harbour at Circular Quay

- Connect George St, Redfern through the Central Precinct, and on through the city to the harbour at Circular Quay.

Reconnect neighbourhoods east-west

- Reconnect Devonshire St with Broadway and Railway Square with a new connection open to the sky, reinstating the historic Devonshire St alignment.
- Connect Chippendale with Prince Alfred Park and Surry Hills

Reconnect Central Precinct with the Goods Line and Darling Harbour

- Strengthen the connection between Central Precinct and Darling Harbour through the Goods Line, linking with the redeveloped public domain of the Goods Line to the north of Broadway and interpreting the historic movement of goods between the station and the wharves at Darling Harbour.



12. Plan diagram: Existing Condition Redfern is currently disconnected from the city and harbour by the barrier of the train corridor, which has limited crossing opportunities.

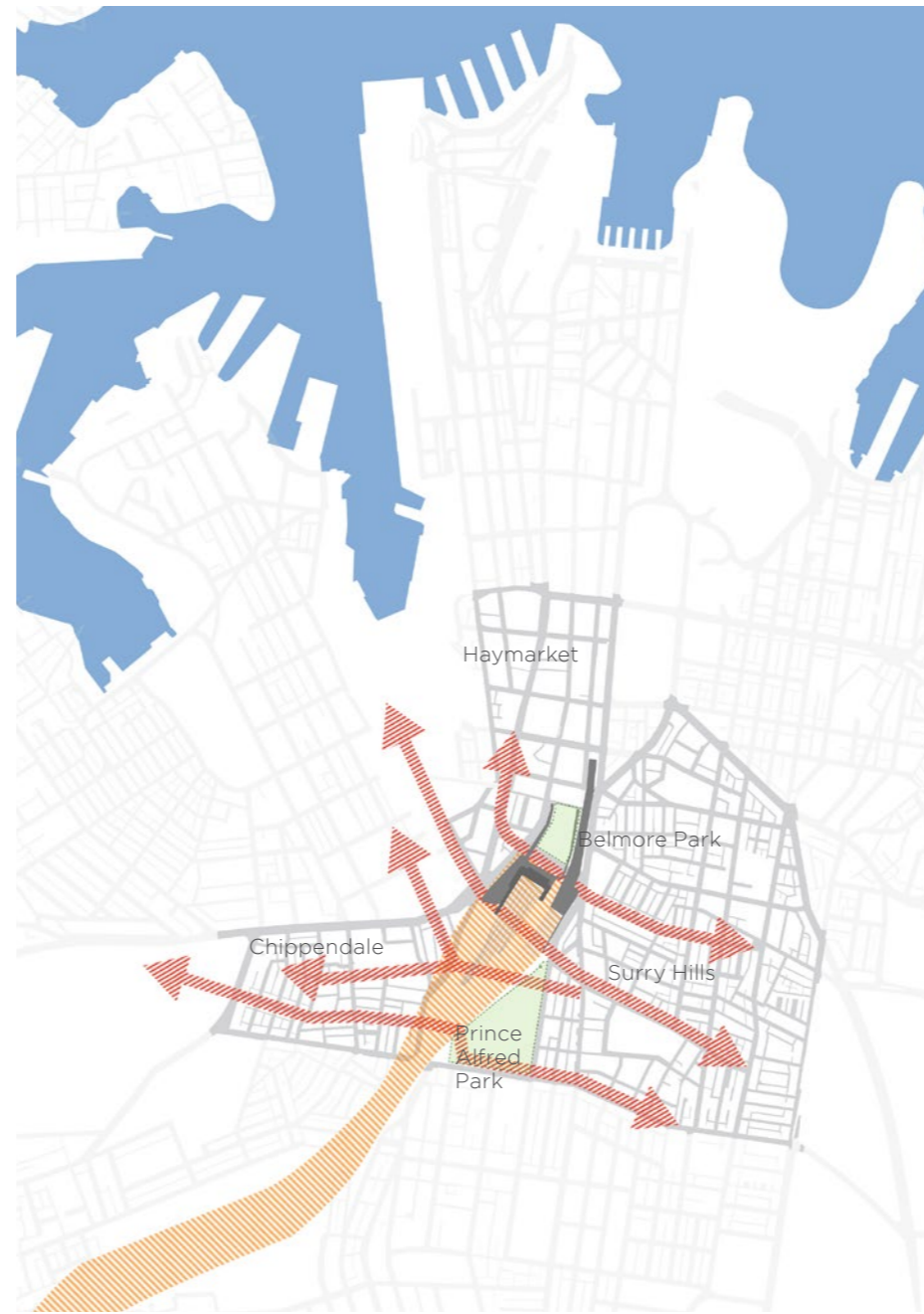


13. Plan diagram: Reconnecting North-South from Redfern to the harbour. The renewal project can connect from George St, Redfern through the Central Precinct, and on through the city to the harbour at Circular Quay.

Site and context analysis



14. Plan diagram: Existing Condition. The rail corridor currently forms a barrier between neighbourhoods to the east and the west.



15. Plan diagram: Reconnecting Neighbourhoods East-West. The renewal project can reconnect Devonshire St with Broadway and Railway Square through a new connection open to the sky. Reinstating the historic Devonshire St alignment, this link also connects Chippendale with Prince Alfred Park and Surry Hills.



16. Plan diagram: Reconnecting Central Precinct with the Goods Line and Darling Harbour. The renewal project can strengthen the connection between Central Precinct and Darling Harbour through the Goods Line, linking to the redeveloped public domain of the Goods Line north of Broadway.

Site and context analysis

Opportunities for existing public spaces

1. Eddy Avenue Plaza

Upgrade to provide improved pedestrian access, activation and wayfinding.

2. Proposed Central Square (Identified in the Draft Central Sydney Planning Strategy as the Third Square)

The proposed Central Walk West entry will become a significant entrance into Central Station from the west, including use as an interchange with buses at Railway Square. To suit this new entry, a new pedestrian plaza has been proposed in the current location of Ambulance Avenue and Railway Colonnade Drive. The City of Sydney has identified this new square at Central Station as one of the three key linked City Squares, along with Town Hall and Circular Quay.

3. Ibero-American Plaza

Upgrade to provide future above-rail Devonshire Bridge connection to OSD and Henry Deane Plaza, and upgrade connection to Southern Concourse below.

4. Henry Deane Plaza

An upgrade of Henry Deane Plaza forms part of the Western Gateway sub-precinct rezoning and is a key western connection.

5. Mortuary Station

Retain the existing garden to Regent Street as part of the heritage setting and provide public access. Extend the existing garden to create a new public space between Mortuary Station and the Goods Line, creating a new public setting for Mortuary Station connected to the journey of the Goods Line.

6. Railway Square (outside study area)

While Railway Square is outside the study area the renewal project provides an opportunity to

continue to work with relevant agencies to improve and upgrade Railway Square.

7. Eddy Avenue (outside study area)

While Eddy Avenue is outside the study area the renewal project provides an opportunity to continue to work with relevant agencies to improve Eddy Avenue for pedestrians.

City of Sydney - Three Squares Concept



17. The George St Concept Design by City of Sydney identifies Central Station and Railway Square as one of three linked City Squares of the Sydney CBD. Image Source: George Street Concept Design, City of Sydney, 2013



18. Existing site plan

Site and context analysis

Proposed station upgrades

The following projects are underway and are independent to the SSP, however are important context for the renewal of Central Precinct.

1. Sydney Metro (currently under construction)

The Sydney Metro project includes the creation of two metro platforms and a new concourse connection between the Metro platforms, the Grand Concourse and Eastern Concourse.

2. Central Walk (Central Walk East currently under construction)

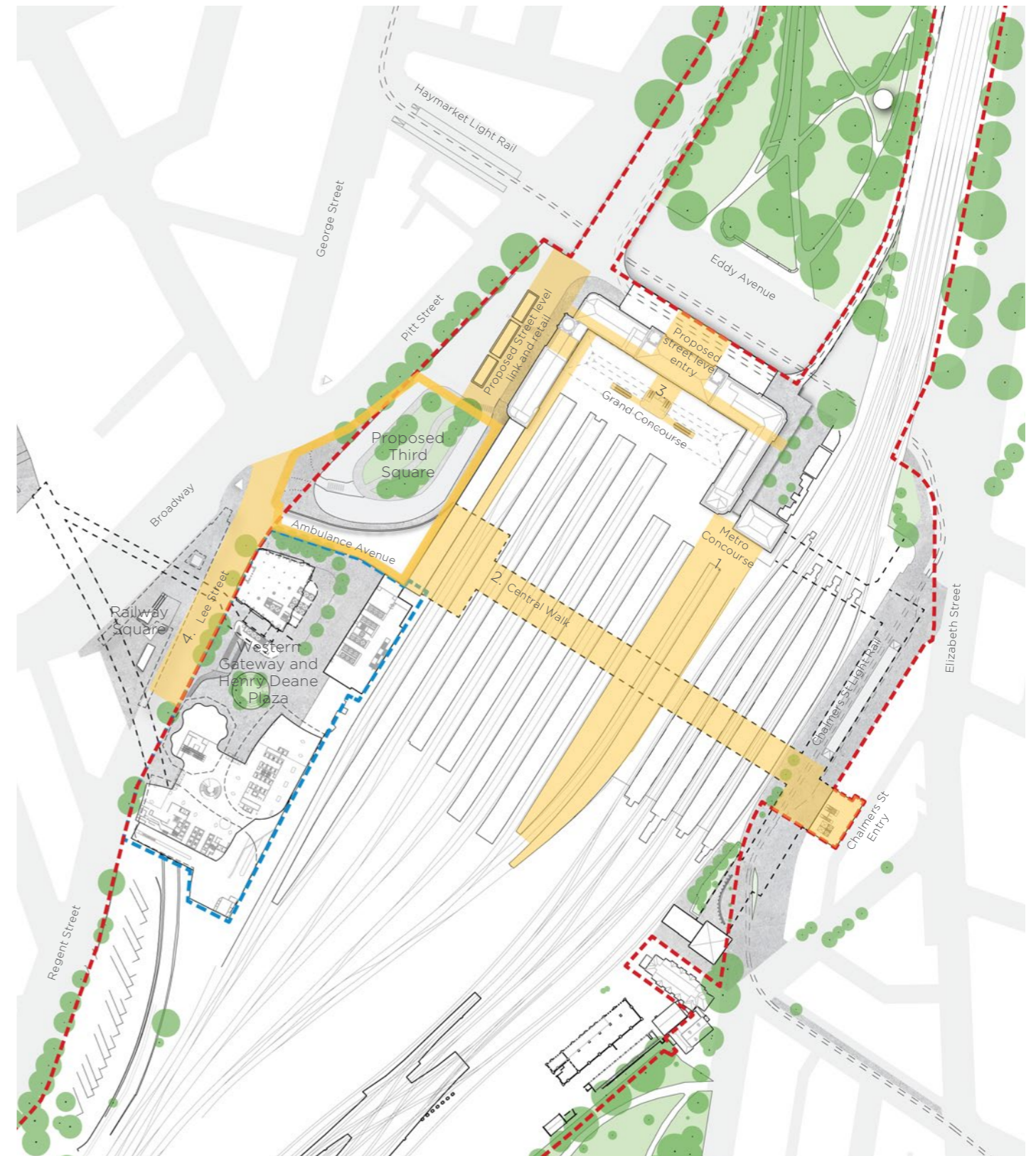
Central Walk will create a new east-west concourse for Central Station, connecting to all suburban, metro, intercity and regional platforms. There will be two new entries; at Chalmers St opposite the Light Rail Station, and Central Walk West, at Ambulance Avenue, connecting with Railway Square.

3. The Sydney Terminal Building and Western Forecourt

A proposed new entry into the centre of the Sydney Terminal Building from Eddy Avenue will connect through the lower level of the Sydney Terminal Building and directly up to the Central Concourse. The upgrade is also considering the expansion of the Grand Concourse through relocating the rail lines south, in order to improve customer experience. The area beneath the Western Forecourt is also proposed to become retail, and create a pedestrian link from Eddy Avenue to Ambulance Avenue. This does not form part of the rezoning proposal, however is a key element of the integrated plan for the Precinct.

4. Partial pedestrianisation of Lee Street

Investigations are ongoing into the potential to pedestrianise part of Lee Street, which would significantly improve the pedestrian environment and connection between Railway Square and the new Central Square. This does not form part of the rezoning proposal.



19. Plan diagram: Proposed Central Station upgrades



Site and context analysis

Pedestrian movement

The surrounding pedestrian network, and location of pedestrian crossings creates a series of key arrival nodes at the Central Precinct. The proposed masterplan responds to this wider network by locating key connection points, including bridges, landscape scale staircases and vertical transport at these nodes, and connecting them through the built form and public domain structure on the OSD.

1. George Street

George St has become Sydney's key pedestrian boulevard, and is an important pedestrian street for pedestrians arriving from the north. The arrival points at the precinct will either be from Rawson Place / Pitt Street if the destination is the Sydney Terminal Building, or at the future Central Square.

2. Quay Street

Quay Street is an important pedestrian connection to Chinatown, Darling Quarter and Darling Harbour. Together with George Street, this creates a vital crossing point at the Broadway / George Street junction.

3. Pitt Street

Pitt St is also an important pedestrian movement street for people arriving from the north, with Railway Colonnade Drive leading directly to the Western Forecourt and Grand Concourse. There is also a major pedestrian connection through Belmore Park to the Eddy Avenue Plaza pedestrian crossing to reach the suburban rail platforms.

4. The Goods Line

The Goods Line is a key pedestrian connection and linear open space which connects to Henry Deane Plaza and Railway Square via the tunnel under Broadway.

5. Broadway

The main connection from the west is along Broadway, which arrives at Railway Square.

6. Key node at Railway Square and Henry Deane Plaza

The above streets all arrive at Central Precinct at Railway Square, creating a significant connectivity node for the Precinct. The location of pedestrian crossings at this major node, and consideration of the partial pedestrianisation of Lee Street will be important and will be investigated in more detail at future stages of the project with relevant agencies.

7. Chippendale & Regent Street

The smaller streets of Chippendale converge at the Regent Street pedestrian crossings at Mortuary Station. This will be another arrival point to the precinct, and is important for local connectivity, and improving the connection between Chippendale and Prince Alfred Park and Surry Hills.

8. Cleveland Street

Cleveland Street is a major road with a poor pedestrian environment, particularly at the Regent Street intersection, leading to fewer pedestrians at this location.

9. George Street, Redfern

Pedestrians arriving from the South, from Redfern would likely arrive along George Street, where a pedestrian crossing over Cleveland Street connects to Prince Alfred Park. This route should form a key pedestrian connection into Central Precinct from the South.

10. Prince Alfred Park

Connecting Central Precinct with Prince Alfred Park is a key opportunity to improve local connectivity, and connectivity with open spaces.

11. Devonshire Street & Chalmers Street

Devonshire Street is a key pedestrian connector into Surry Hills, and the existing station entry and pedestrian crossings at Devonshire St and Chalmers St create a very important node for connectivity into Central Precinct. Currently the Devonshire St tunnel provides an important connection west



Site and context analysis

for pedestrians; the renewal project offers the opportunity to create a new open air connection.

12. Foveaux Street

Foveaux Street is another pedestrian connection into Surry Hills, which arrives at the Central Precinct at the Elizabeth Street entrance.

13. Albion and Reservoir Streets

Albion and Reservoir Streets are more minor pedestrian connections. Due to the location of pedestrian crossings, pedestrians from this direction will cross Elizabeth St, then turn onto Eddy Avenue and arrive at Eddy Avenue Plaza.

14. Elizabeth Street

Elizabeth Street is also used by pedestrians connecting into the CBD to the north. From Elizabeth St, most pedestrians will move through Belmore Park to arrive at Eddy Avenue Plaza.

15. Eddy Avenue

The location of the pedestrian crossing directs pedestrians arriving at Central Precinct from Belmore Park to Eddy Avenue Plaza, rather than the Sydney Terminal Building. While this means upgrading the amenity of Eddy Avenue Plaza will be important for the precinct, there is also the opportunity to improve the pedestrian amenity of Eddy Avenue in the future, in consultation with the relevant agencies.



21. Aerial image of Central Station looking north towards the CBD and Sydney Harbour

Site and context analysis

Streets

The precinct offers a range of street types with varying levels of pedestrian amenity. Streets with high amenity benefit from park edges, mature trees, local connections and visible activity. Streets with physical barriers, no shade, poor visibility and heavy traffic offer pedestrians little protection from the noise, pace and scale of the rail precinct.



22. Key Plan



23. Eddy Avenue

Framed by Belmore Park, the Sydney Terminal Building and two overpasses, **Eddy Avenue** has the proportions of a grand civic boulevard. Currently eight lanes of vehicles, bus bays and light rail, pedestrians crowd along the edges and funnel through tunnels with limited opportunities to cross. The mature Fig trees of Belmore Park and the Sydney Terminal Building colonnade provide street presence and offer pedestrians protection from the elements.



24. Pitt Street

On the eastern side of **Pitt Street** a row of mature Plane trees lines the sandstone wall of the western forecourt. The western side comprises younger street trees with a narrow footpath alongside youth hostels and Christ Church St Lawrence. As Pitt Street nears Railway Square the public domain is exposed to heat, wind and traffic as pedestrians navigate shared driveways and multiple crossings.

Site and context analysis



25. Regent Street
On **Regent Street**, Plane trees and Mortuary Station gardens provide a breath of green, yet pedestrians on the eastern footpath navigate a bus depot, railyards access and petrol station. The western side skirts apartments, terraces and warehouses with links through to Chippendale.



26. Elizabeth Street
Majestic Plane trees and planted garden beds on **Elizabeth Street** follow the sandstone rail abutment and form a green buffer to traffic. The eastern footpath offers rain gardens and active links up into Surry Hills with sections of blank podium walls to the commercial towers.



27. Chalmers Street
Chalmers Street has been transformed by the recent light rail development and will improve further with greater activation and larger tree canopies. The current pedestrian experience offers clear sightlines yet little protection from the elements.



28. Lee Street
The public domain of **Lee Street** benefits from mature Plane trees and bluestone footpaths. Street level activation deteriorates north of Railway Square and Henry Deane Plaza with service access, loading docks and blank walls dominating the pedestrian experience.



29. Cleveland Street
The greatest amenity on **Cleveland Street** is the southern edge of Prince Alfred Park offering shade and city views beneath mature Fig trees. The remainder of the pedestrian experience is exposed and traffic-dominated with narrow footpaths and limited canopy cover.

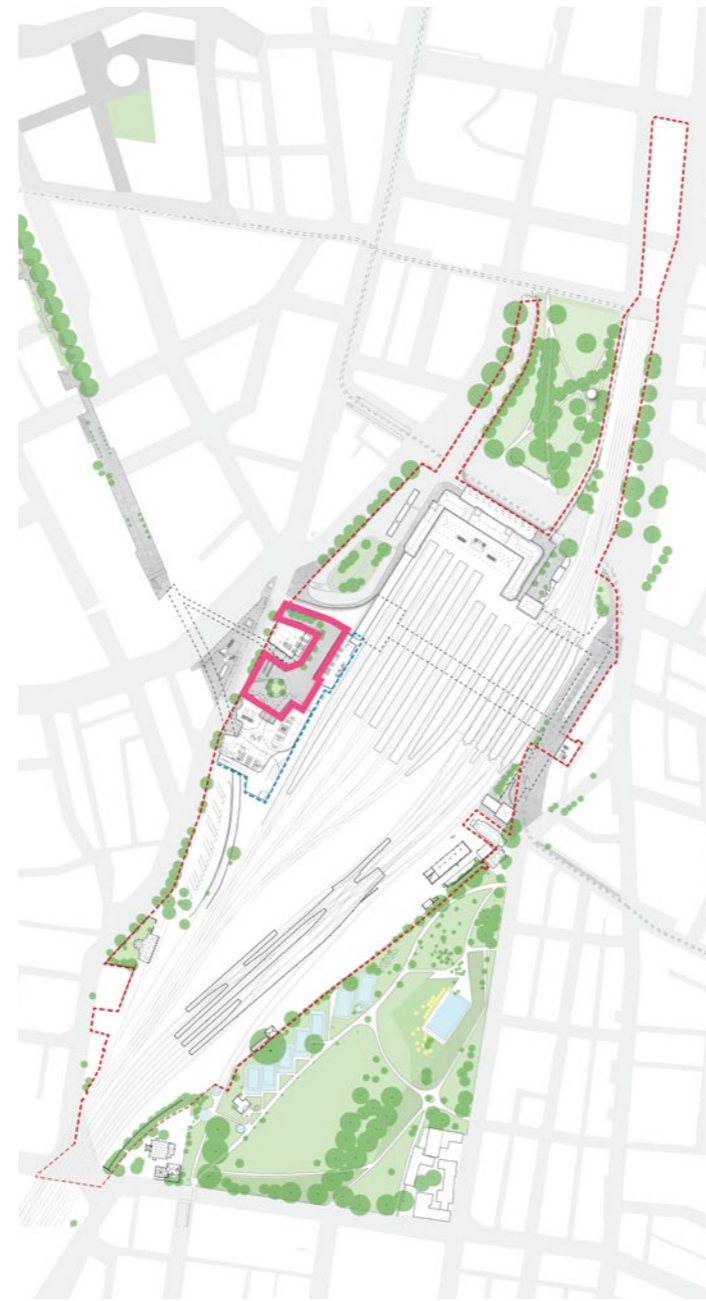


30. George Street
At Railway Square, **George Street** provides wide footpaths with quality stone paving, linking high pedestrian volumes to transport, work and study. The precinct offers the potential to reconnect George Street through to Redfern.

Site and context analysis

Henry Deane Plaza

Henry Deane Plaza will be upgraded as a public plaza at the heart of the Western Gateway. In the future it will connect from Railway Square to the OSD. The Western Gateway sub-precinct is subject to a separate SSP process.



31. Key Plan



32. Indicative view looking north in front of Atlassian. Image source: SHoP BVN



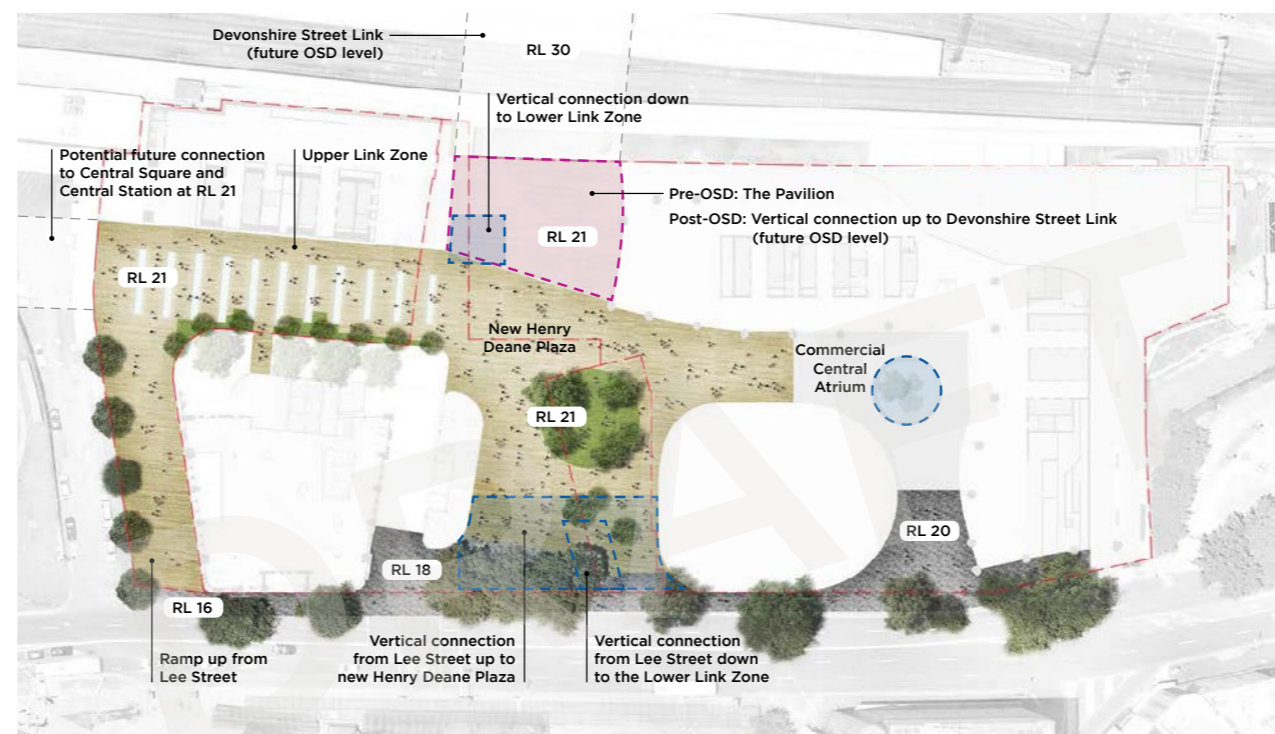
33. Indicative view of Henry Deane Plaza looking south towards Central Place. Image source: SOM and Fender Katsilidis

Site and context analysis

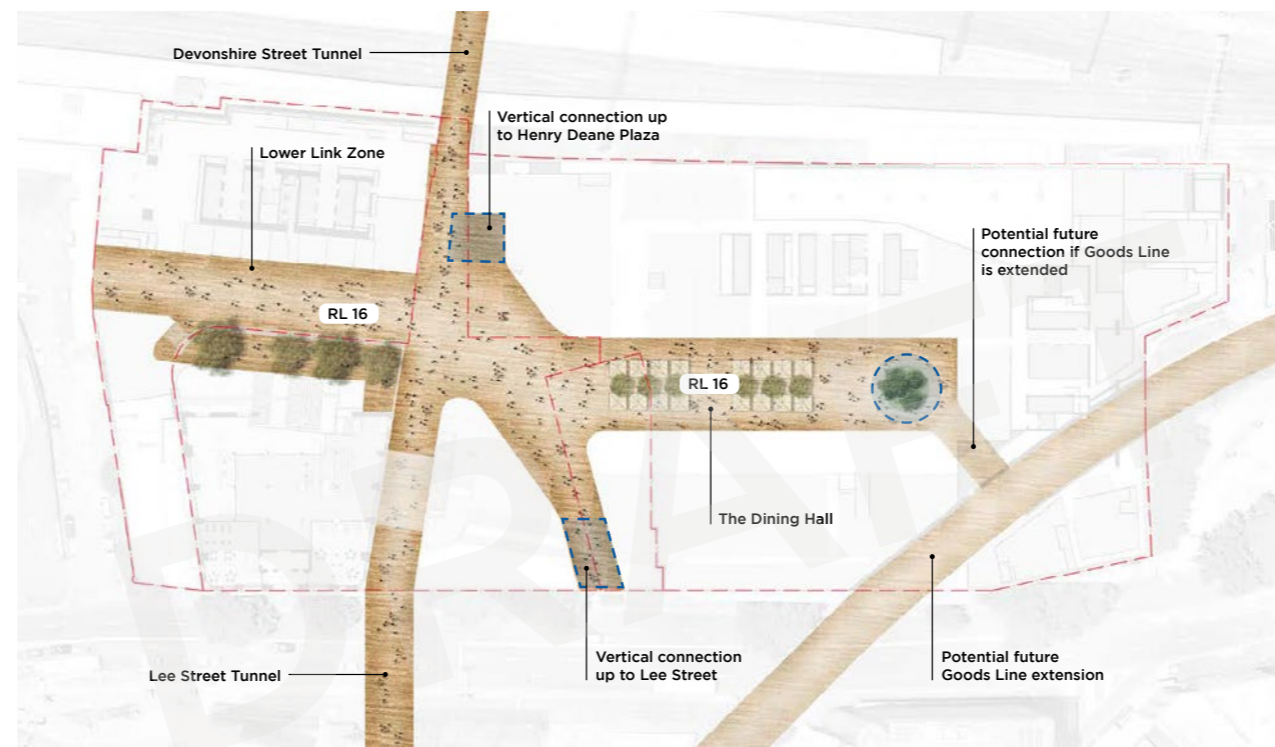
- Henry Deane Plaza forms part of the Western Gateway Sub-Precinct which is subject to a separate SSP process. These plans are subject to change through the planning process.
- The main outdoor plaza is located at RL21, the level of the platforms and Grand Concourse. This plaza will have major foyer entrances and other active frontages including retail. The plaza also includes seating areas, planted areas and trees.
- Henry Deane Plaza will in the future be connected to the OSD by a major civic stairway, and the proposed western RL21 link will directly connect Henry Deane Plaza with the Grand Concourse Entry and Clocktower around Central Square.
- The Lower Link zone will be an internal but publicly accessible lower level which connects with the Central Square to the north and Devonshire St Tunnel at grade and with Lee St (at around RL18.4) via a ramp. This level contains retail, food and beverage.
- The plaza will connect to the existing tunnel and retail under Lee Street and Broadway, which will be retained and refurbished.



34. Henry Deane Plaza currently



35. Indicative upper level publicly accessible space plan.
Image source: Western Gateway sub-precinct Publicly Accessible Space Strategy



36. Indicative lower level publicly accessible space plan.
Image source: Western Gateway sub-precinct Publicly Accessible Space Strategy

Zones for vertical connection
 Pre-OSD: The Pavilion
 Post-OSD: Zone for vertical connection

Note: The illustrative plan above is reflective of the framework and is indicative only. All level changes in the sub-precinct will be universally accessible. Widths of pedestrian circulation paths shown are indicative and will be subject to pedestrian modelling.

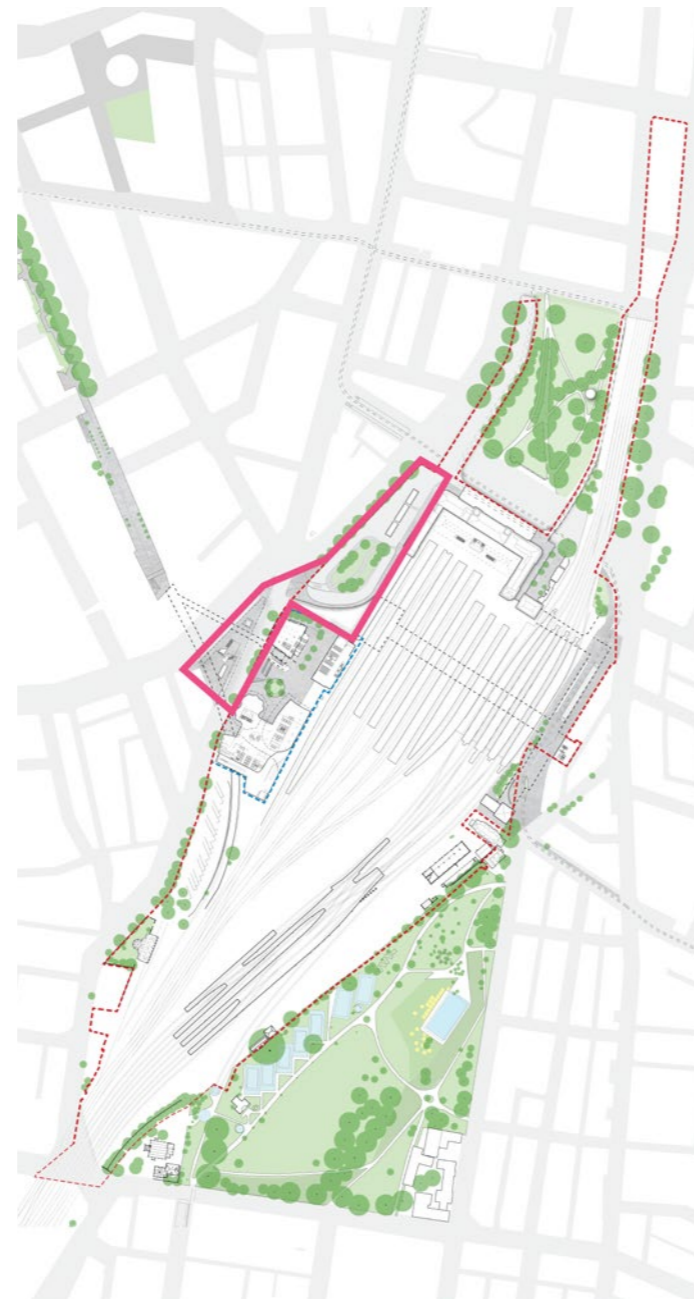
Zones for vertical connection

Note: The illustrative plan above is reflective of the framework and is indicative only. All level changes in the sub-precinct will be universally accessible. Widths of pedestrian circulation paths shown are indicative and will be subject to pedestrian modelling.

Site and context analysis

Railway Square and Railway Colonnade

Railway Square and Railway Colonnade connect the Grand Concourse of the Sydney Terminal Building and the bus interchange. The new Central Walk West station entry will require a re-imagining of this area as a major civic public space.



37. Key Plan



38. Photograph of Railway Colonnade looking towards Railway Square. The approach to Railway Square from the western forecourt is dominated by roadways and exposed to urban heat.



39. Photograph of Broadway looking north towards George Street shows Railway Square dominated by roadways and disconnected from the Central Precinct.

Site and context analysis

Railway Square

The former terminus for Sydney's historic tram system, Railway Square is an above-ground bus interchange at the intersection of George Street, Broadway, Lee Street, Pitt Street and Quay Street. The pedestrian experience is dominated by vehicle traffic and separated from the Central Precinct by Lee Street. The Goods Line tunnel passes beneath the square, connecting the Central Precinct with Ultimo. There are limited connections between Broadway and George St up to the Sydney Terminal Building and Grand Concourse.

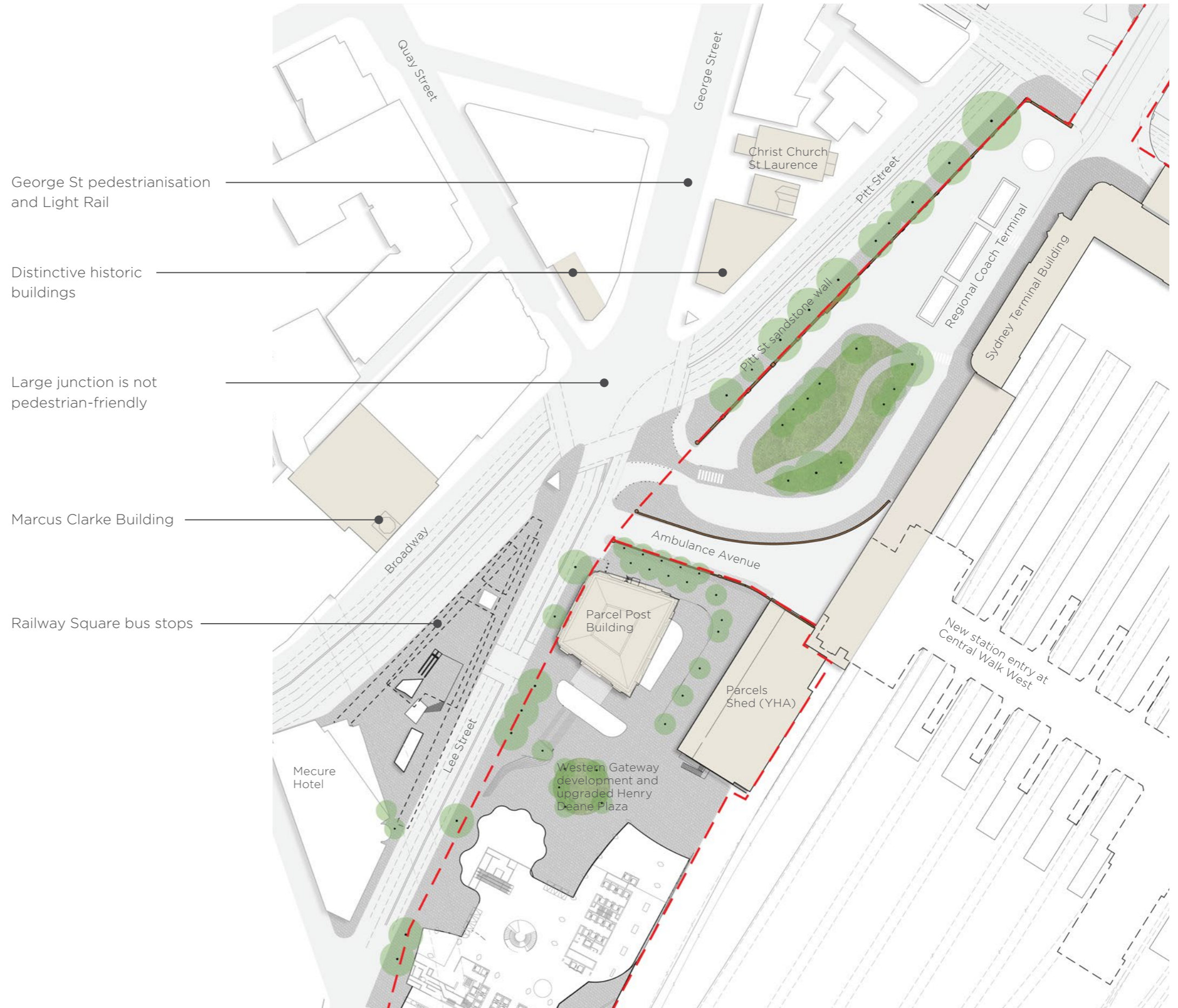
The junction between George St, Broadway, Pitt St, and Quay St creates a recognisable urban space surrounded by distinctive buildings such as Marcus Clarke, Nest and Parcel Post. There are potential view lines along George Street to the clock tower and along Broadway to UTS and One Central Park.

Railway Colonnade Drive and Western Forecourt

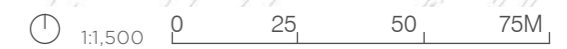
The western forecourt garden contains mature trees and lawn with a central pathway. An avenue of mature Plane trees provide shade and amenity to Pitt Street along the heritage sandstone wall. The large areas of roadway and divisive retaining walls do not signify a major station entry. Apart from waiting zones, these spaces are poorly activated with little amenity or reason to dwell in.

The proposed Central Walk West will create a new major entry to Central Station, requiring a larger plaza space in the current location of Ambulance Avenue and Railway Colonnade Drive.

The proposed Regional Coach Terminal will close Railway Colonnade Drive at the end of the skylights, enabling the creation of a larger public square.



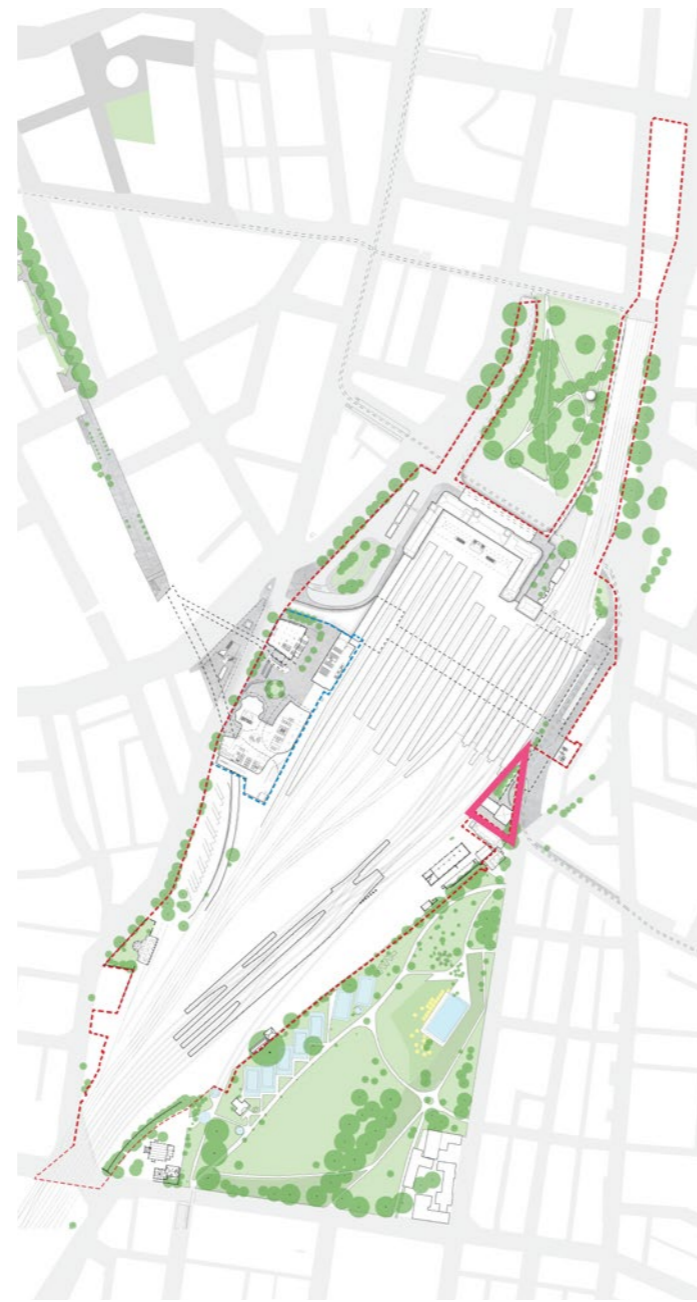
40. Existing plan of Railway Square, Western Forecourt and Railway Colonnade Drive



Site and context analysis

Ibero-American Plaza

Ibero-American Plaza forms the main arrival space to Central Station from the east. It accommodates the Chalmers Street Central light rail station and the interchange between light rail and train services.



41. Key Plan

42. Photograph of the junction of Devonshire Street and Chalmers Street, and entrance to Central Station Southern Concourse and the Devonshire Tunnel
43, 44, 45. Photographs of Ibero-American Plaza, Chalmers St Central light rail stop and entrance to Central Station Southern Concourse and the Devonshire Tunnel



42.



43.



44.



45.

Site and context analysis

The Ibero-American plaza has recently been upgraded with new planting areas, seating and tree planting as part of the construction of the light rail network and station. The space is an important transport interchange, with the light rail station and a major station entry.

The plaza features a bronze statue and eleven busts donated by Spanish-speaking countries. The sandstone plinths frame the corner and a level change of two steps. Cypress trees form a green backdrop along the rail boundary. Mature Plane trees at the base of Devonshire Street should be retained.

The proposed future above-rail Devonshire connection to Henry Deane Plaza and new entries to the Southern Concourse below will require a considered interface with the plaza and its desired future function.

The plaza is framed by the historic railway institute building, although this facade is obscured by the station and Devonshire tunnel entry canopy.

An existing access driveway services part of the rail yards and associated buildings.

A bike route runs across the plaza connecting with Prince Alfred Park and George Street, as well as Belmore Park and Castlereagh Street.

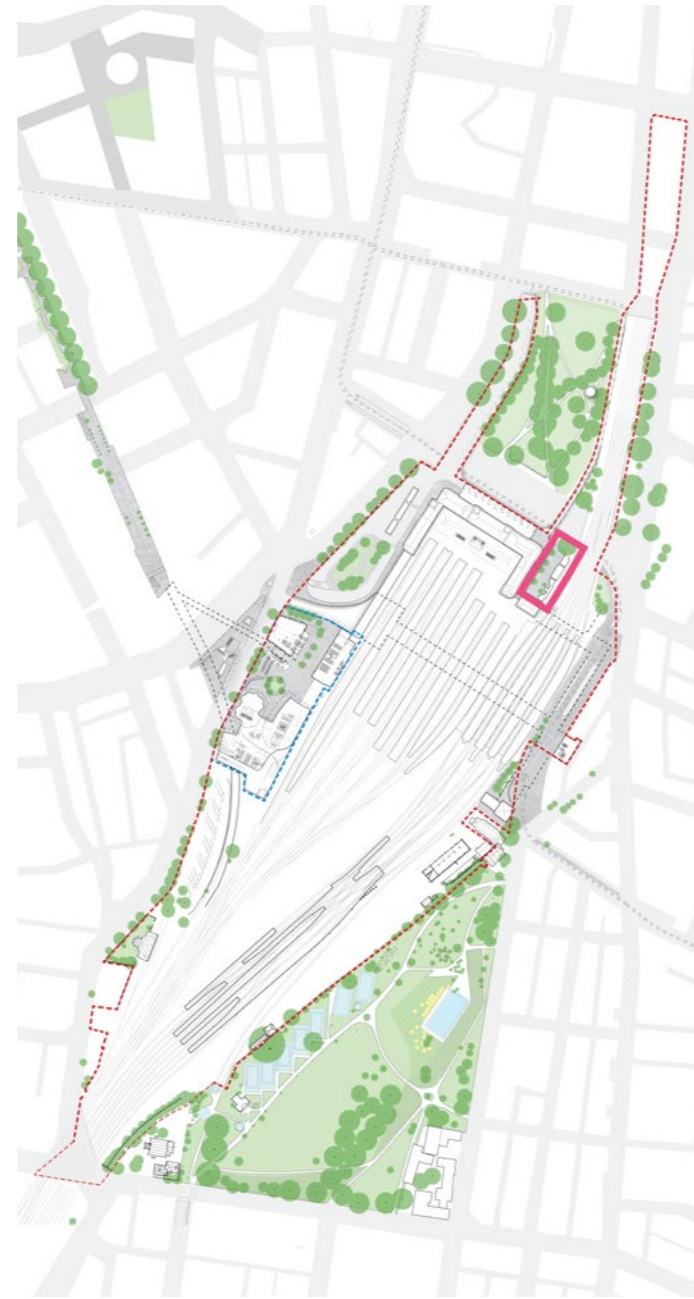


46. Existing plan of Ibero-American Plaza

Site and context analysis

Eddy Avenue Plaza

Eddy Avenue Plaza forms one of the main arrival spaces to Central Station from the north, providing direct access to the City Circle and Suburban platforms.



47. Key Plan



48. Photograph of Eddy Avenue Plaza. Kiosks and level changes clutter the approach and view to the heritage Central Electric Building.



49. Photograph of the central retaining wall dividing the space, forming a barrier to pedestrian movement and retail access.



50. Photograph of the entrance to the Northern Concourse through the arch of the Central Electric Building. Image: MDRX

Site and context analysis

Eddy Avenue Plaza is a congested thoroughfare that funnels pedestrians from Eddy Avenue through the arch of the heritage-listed Central Electric Building into the northern concourse of the station. Adjacent to the plaza on Eddy Avenue is a cycleway and the light rail tracks. A pedestrian crossing leads north over Eddy Avenue towards Belmore Park.

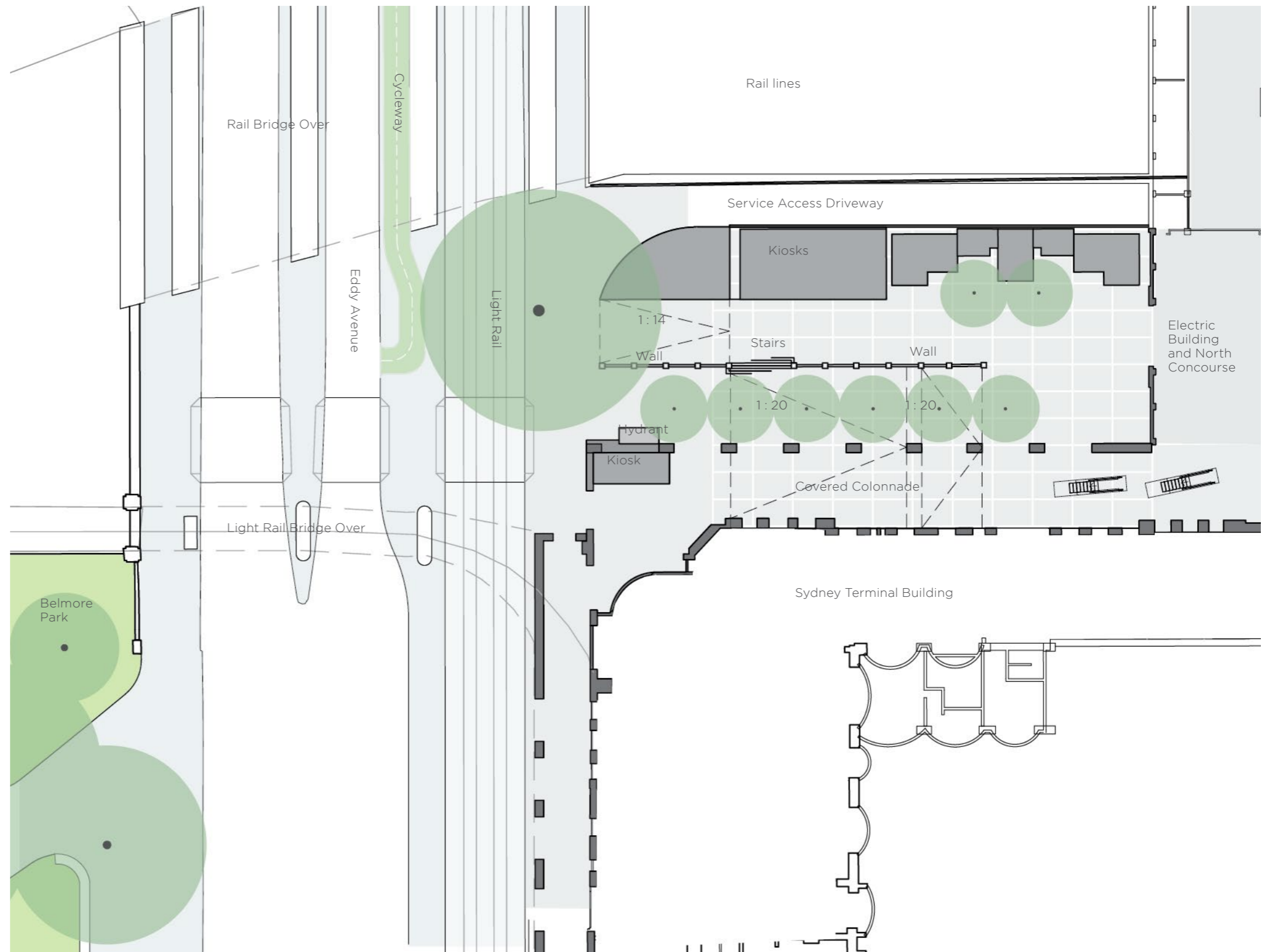
Small retail kiosks line the eastern edge. Their ad-hoc arrangement and informal furniture impede a clear view of the Electric Building.

The brick wall and level change through the centre of the plaza splits it into smaller spaces and creates a barrier to movement. This limits the amount of dwell space in the plaza, forcing pedestrians to move straight through. The barrier also means that customers walking from Eddy Avenue are more likely to bypass the retail.

The western edge is bound by the colonnade of the station, housing escalators to the country platforms, the Grand Concourse and retail.

Revealing the full facade of Central Electric Building has potential to create a civic sense of place and encourage people to dwell in the plaza.

If service vehicles currently using the Rail Access Drive can be accommodated elsewhere, the plaza could be enlarged, providing the ability to site new retail tenancies for activation without blocking views of the Electric Building.

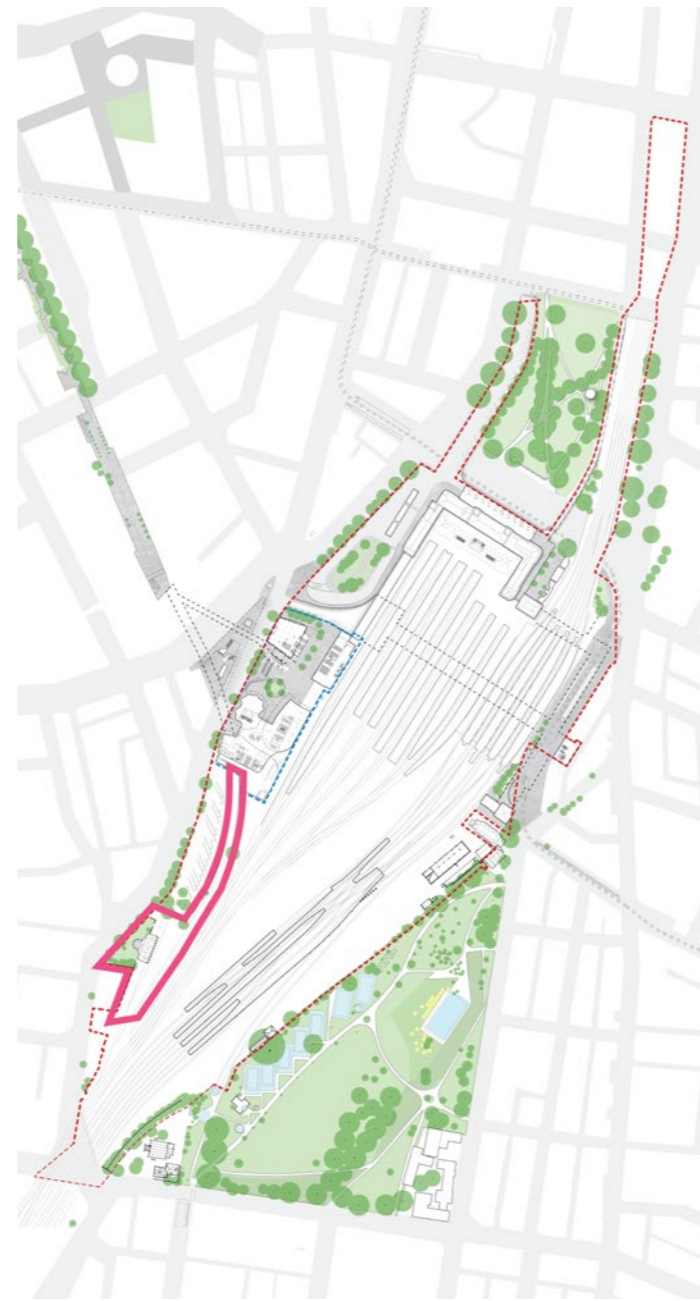


51. Existing plan of Eddy Avenue Plaza

Site and context analysis

Mortuary Station and The Goods Line

The heritage significant Mortuary Station is currently not publicly accessible. The existing garden, station platform and adjacent rail tracks could become a new public space with a new use, enabling greater appreciation for the history of the site.



52. Key Plan



53. Photograph of Mortuary Station platform. Image: TYRELLSTUDIO



54. 1870-1875 Photograph of Mortuary Station. Image: Mitchell Library, State Library of New South Wales

Site and context analysis

The heritage significant Mortuary Station is an enduring symbol of architecture, culture and transport. The site is fenced and set back from Regent Street where pedestrian access is dominated by bus movements and heavy traffic. To the west, the original carriage access road loops through a garden space with mature trees, however the space is not accessible to the public. The eastern side of Mortuary Station comprises storage and service yards along the rail lines of the station.

The proposed development offers potential to protect and strengthen Mortuary Station's rail heritage. Treating the eastern side as a public garden will provide opportunities to dwell and interpret the station's role in Sydney's society. This new public space will create a new southern entry to the Central Precinct, connecting the precinct with Regent St, Cleveland St and Chippendale.

The disused rail tracks of the Goods Line run behind Mortuary Station and the Regent St Sidings, connecting through a historic tunnel to the publicly accessible parts of the Goods Line west of Broadway. There is an opportunity to reconnect Central Precinct to the rest of the Goods Line by opening up this area to public access. The Goods Line and other disused rail tracks can be retained and interpreted as part of the rail setting of Mortuary Station.



55. Existing plan of Mortuary Station

1:750 0 10 20 30 40M

Site and context analysis

Opportunities

- Create new vibrant, diverse, active, inclusive public spaces with a high level of amenity for both the new population of the precinct and existing surrounding communities.
- Embed a strong Connection with Country into the new public domain.
- Create a connected network of public domain to create a safer and more intuitive precinct that promotes access and inclusion of all types of people regardless of abilities and needs.
- Create places for dwelling, gathering, and connection with a high level of comfort.
- Improve perceptions of safety on the precinct by creating welcoming and activated spaces for all users, and considering environmental design principles.
- Improve connectivity across the precinct, including north-south, from Redfern to the Harbour.
- Improve connectivity across the precinct, including east-west, from Chippendale to Prince Alfred Park, and Surry Hills to Railway Square.
- Make the most of the natural topography rising to the east and south of the site to provide bridge connections to the OSD from Prince Alfred Park with a smaller level change than that to the north and west of the OSD.
- Open up the Goods Line tunnel to improve connectivity through the Precinct to Darling Harbour and Darling Square.
- Reconnect the Sydney Terminal Building with the surrounding city streets and the new public realm. The colonnades of the building can become active thresholds with clear and generous entries into the Sydney Terminal Building.
- Create Sydney's 'Third Square', a proposal

identified by the City of Sydney in the George Street Concept Design and the Draft Central Sydney Planning Strategy.

- Increase the amount of green cover and tree canopy cover in the precinct, and locate it to create comfortable environments for people.
- Increase the provision of urban habitat and biodiversity in the precinct.
- Build on the successful and popular recreation offering of Prince Alfred Park, which includes the pool, basketball and tennis courts, fitness and play equipment.
- Celebrate the built heritage and create new settings to increase appreciation for and understanding of heritage buildings and structures, including the Sydney Terminal Building, Mortuary Station, the Bradfield Flyovers, and the Goods Line bridge and cutting.
- Improve and activate the edge of Prince Alfred Park which currently backs onto the rail yard.
- Eddy Avenue has future potential as a transit boulevard with pedestrians as the primary users of the street space.

Constraints and key issues

- There is a lack of connectivity across the Precinct. Devonshire tunnel provides the only east west connection across the rail yards, and is a space with a very low level of amenity.
- There is a very low level of green cover and tree canopy cover on the site.
- Local communities perceive areas of the Central Precinct to be unsafe, particularly at night, in part due to a lack of lighting and passive surveillance. This issue is particularly felt by women.
- The concourse and platform level of the Sydney Terminal Building is disconnected from the level

of Belmore Park, Eddy Avenue, Pitt Street and Railway Square.

- The Sydney Terminal Building is difficult to navigate as a pedestrian. It operates over multiple levels and has become a through space, lacking the sticky destinations where people might meet, gather or choose to spend time. Limited connections to street level contributes to a poor address for an important public building.
- Eddy Avenue is dominated by multiple lanes of traffic, and pedestrian connections to the station lack clarity.
- The existing public domain is poor quality and fragmented. Currently there are only four small public spaces within the site, with limited opportunities to dwell in them.
- The deep colonnades to Pitt Street and Eddy Avenue offer limited activation to the street.
- The Western Forecourt is dominated by roads and doesn't offer any activation or reason to dwell in the space.
- Eddy Avenue Plaza is split by the level change, wall and stairs through the middle of the space, which creates a barrier through the space and limits places to sit and dwell.
- Mortuary Station and the surrounding garden are not publicly accessible, which limits appreciation for and understanding of the heritage building.



OFFICIAL

3.2

Public Domain
Plan

OFFICIAL

3.2 Public Domain Plan

Public Domain

The proposed public domain system provides a high quality network of new and revitalised public open space. Major new north-south and east-west connections will pull the city together around a remade Sydney Terminal Building. The Sydney Terminal Building will be set in an iconic public landscape consisting of major new CBD spaces including Central Square and Central Green.

Public spaces

- 1 Eddy Avenue (Upgrade)
- 2 Eddy Avenue Plaza (Upgrade)
- 3 The Grand Concourse (Upgrade)
- 4 Regional Coach Terminal
- 5 Central Square
- 6 Central Green
- 7 Central Avenue
- 8 Devonshire St Bridge and Connection
- 9 Railway Square (Upgrade)
- 10 Henry Deane Plaza (Part of Western Gateway Sub-precinct, not within this rezoning proposal)
- 11 Eastern Walk
- 12 Laneways
- 13 Prince Alfred Park Bridge
- 14 Southern Plaza
- 15 The Goods Line
- 16 George Street Bridge
- 17 Mortuary Station and Garden
- 18 Ibero-American Plaza (Upgrade)



Public Domain Plan

Accessible public domain areas

The proposed Master Plan significantly increases the amount of public domain. This includes new public spaces on the OSD as well as upgraded spaces. The upgrade and enlargement of Eddy Avenue Plaza will provide the opportunity to dwell, rather than just functioning as a movement zone.

Other types of public domain including the avenue and laneways will create activated civic spaces connected to vibrant ground floor retail, and include planting and seating areas. These links also substantially improve connectivity across the precinct, connecting into the wider urban network.

The public domain master plan includes 16% of the developable area as open spaces (excluding the Western Gateway sub-precinct). The developable area includes the OSD, Regent St Sidings, Mortuary Station, Western Gateway and Sydney Terminal Building, and excludes the suburban rail corridor.

The project will be the catalyst for public domain improvements outside the site including Belmore Park, Eddy Avenue, Lee Street and Railway Square. The public domain strategy identifies a future vision for these spaces that can be investigated with the relevant agencies.

Existing public domain areas



- **Open spaces**
Area: 4,410 m²
- **Other public domain**
Area: 21,362 m
- Total accessible public domain**
Area: 25,772m²

58. Plan of existing public domain areas in Central Precinct

Proposed public domain areas



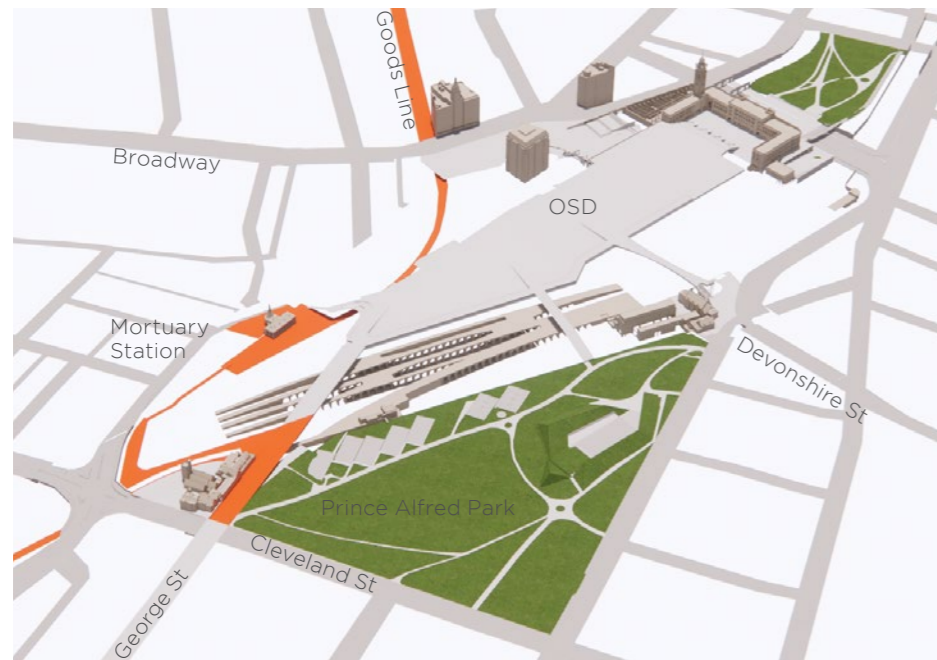
- **Open spaces**
Area: 22,000 m²
- **Other public domain**
Area: 41,773 m²
- Total accessible public domain**
Area: 63,773 m²

59. Plan of proposed public domain areas in Central Precinct

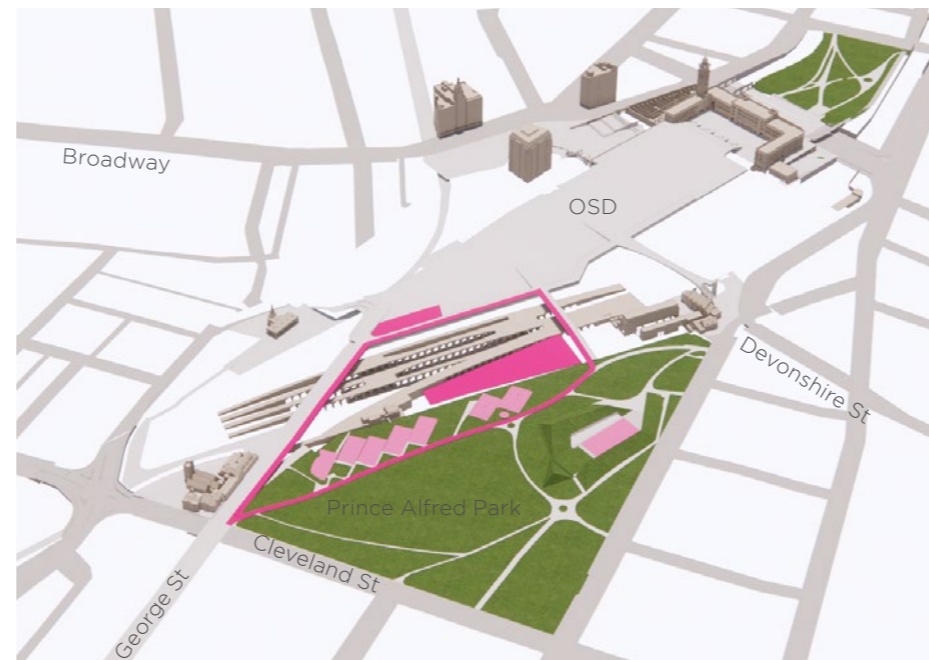
- Legend
- SSP Study area
 - Developable area
 - Open spaces
 - Other public domain

Public Domain Plan

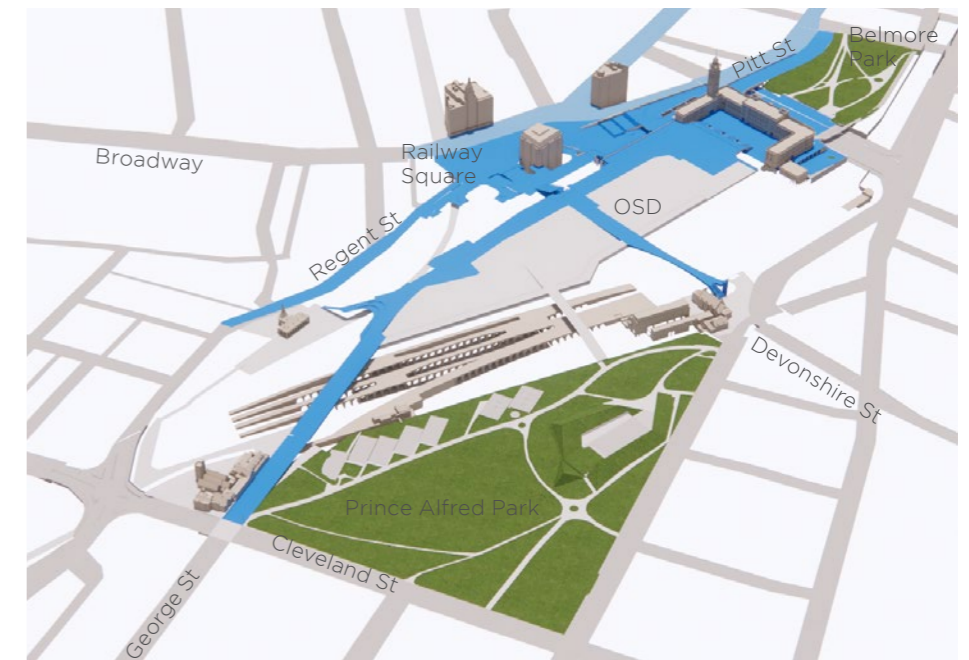
The Public Domain Master Plan integrates the OSD and public spaces with the wider network of the city.



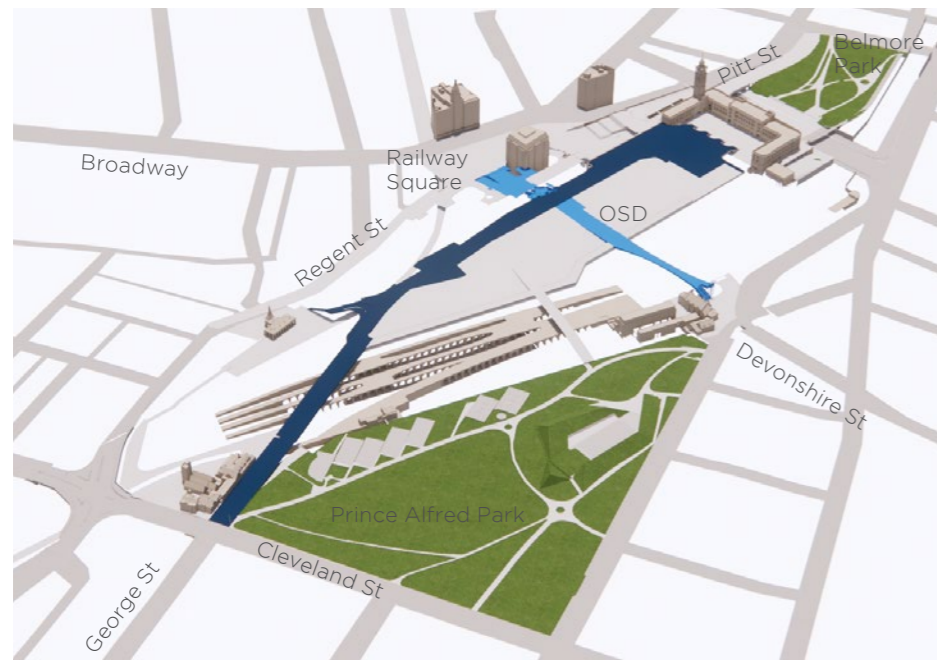
60. **Extending the Goods Line** to connect Central Station Precinct with Darling Harbour and Pyrmont, as well as UTS and the Powerhouse Museum.



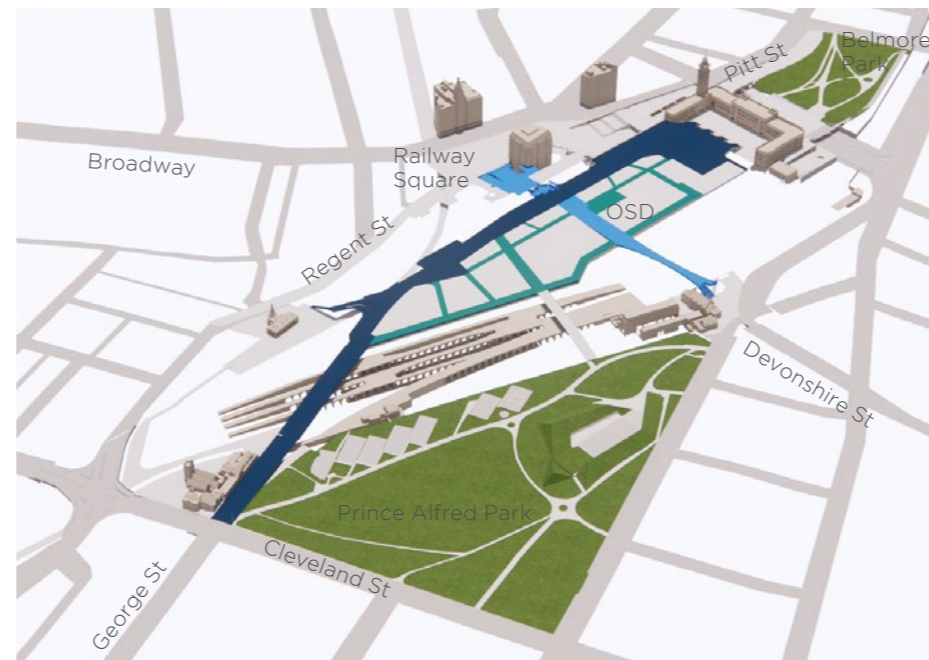
61. The **Active Loop** extends the functions of Prince Alfred Park up and onto the deck. Larger floorplates on this edge of the deck offer indoor recreation opportunities.



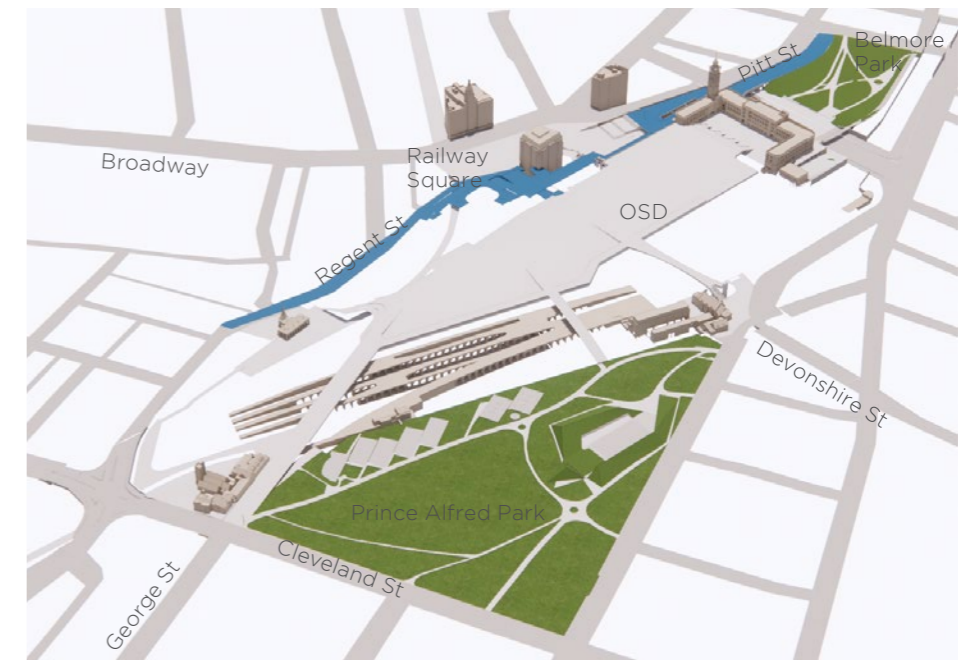
62. The great **civic destination** with the Sydney Terminal Building and Clocktower at its heart, including Central Square, the Grand Concourse, Central Green, Railway Square, Eddy Ave, Belmore Park, George St, Pitt St.



63. The North South Avenue and George St Bridge connects **George St, Redfern through the Central Precinct**, and on through the city to the harbour at Circular Quay. The major civic armature of the OSD, and the main address for new buildings.



64. A bustling system of **laneways**, arcades and courts provide access to larger building lobbies and a fine grain experience connected to Central Avenue.



65. A **link at the level of the platforms and Grand Concourse** (RL21) directly connects the Grand Concourse and Regional Coach Terminal with Henry Deane Plaza and the Western Gateway.

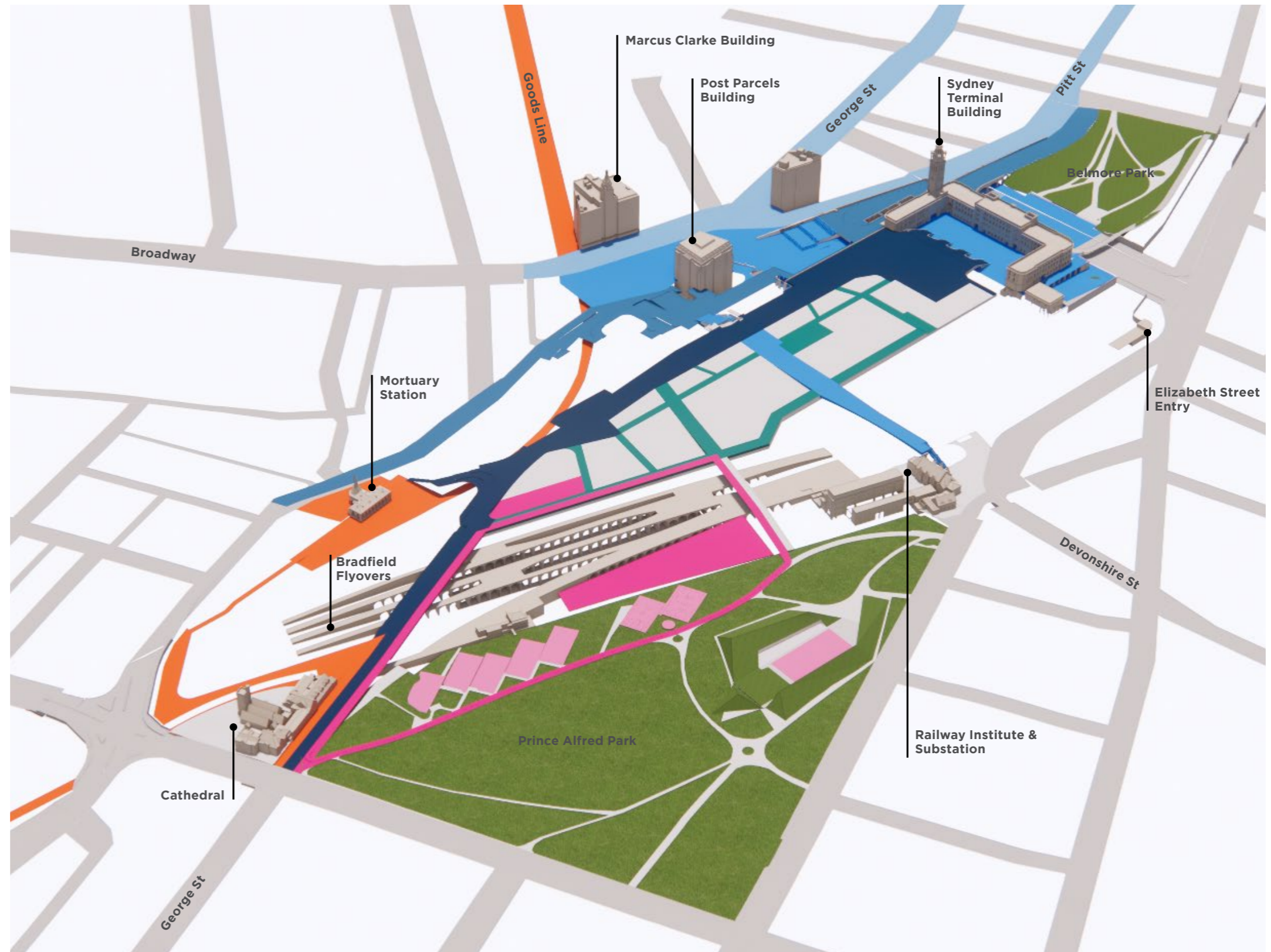
Public Domain Plan

A connected network and enduring public domain for Sydney

The over station development will be connected and integrated with the wider city.

These wider city threads are pulled together as a habitable mesh or terrain and then plugged directly into the Grand Concourse of Sydney Terminal Building ensuring that the Sydney Terminal Building remains the key civic heart of the precinct.

Historic buildings and structures create landmarks at key junctions in the public domain. These structures assist with legibility and wayfinding through their landmark qualities, as well as connecting the experience of the over-station development with the surrounding city and into the setting of the rail context.



66. Diagram of the public domain system with the surrounding historic landmarks of the city.

Public Domain Plan

Topography, levels and vertical transport

There are three primary levels of Public Domain within the Central Station Precinct, relating to the natural topography that rises from Eddy Avenue and Railway Square in the north-west, to Cleveland St and Prince Alfred Park in the south-east.

The first level (RL14-18) includes the streets surrounding the Sydney Terminal Building - Railway Square, Pitt Street, Eddy Avenue and Belmore Park. Central Square and the entry to Central Walk will form part of this level, connecting directly into the city street network and the wider Railway Square.

The key station functions including the Grand Concourse, Platform level, Central Light Rail and the Regional Coach Terminal are all significantly higher than the surrounding street level at RL21. This level is vital, both as part of the station, but also as an intermediate level from street level up to the Over-Station Development at RL30. The upgraded Henry Deane Plaza in the Western Gateway will be at RL21, to negotiate between Railway Square and the OSD. At RL21, the plaza can also connect directly with Lee Street as it rises towards the south and Mortuary Station.

Ibero-American Plaza also sits at approximately RL20, a storey above the Southern Concourse and Central Walk, and ten metres below the Devonshire Bridge.

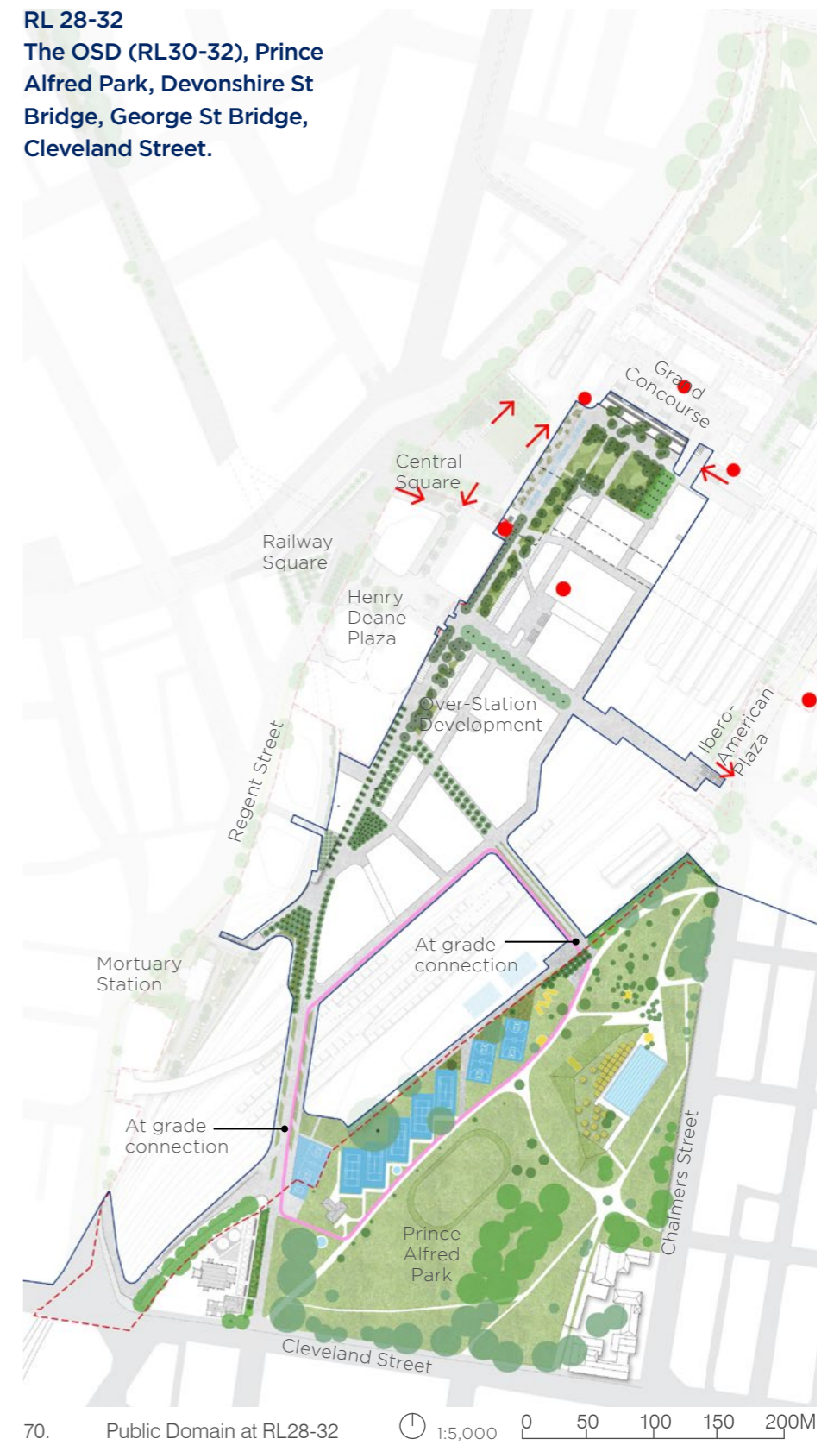
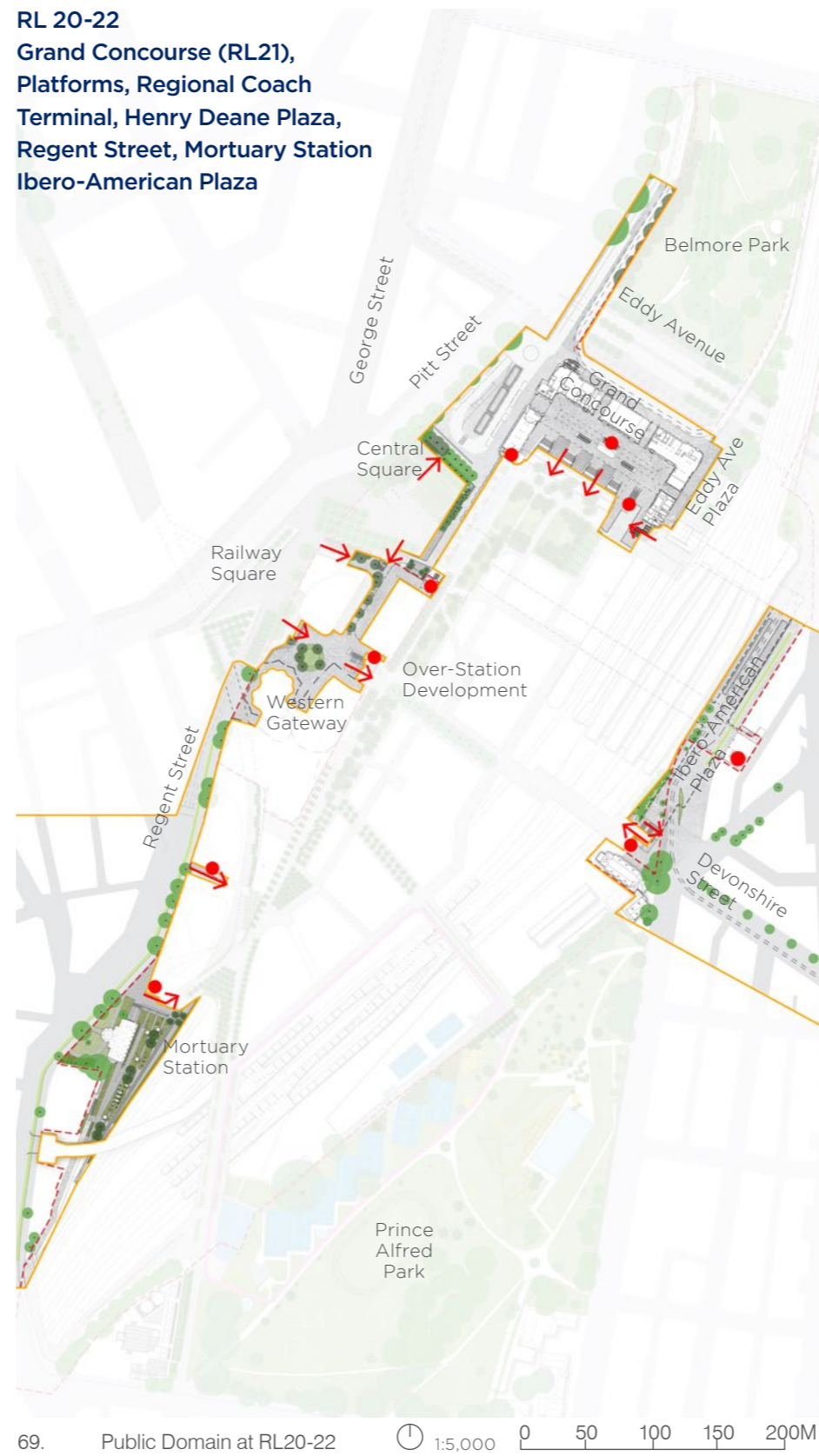
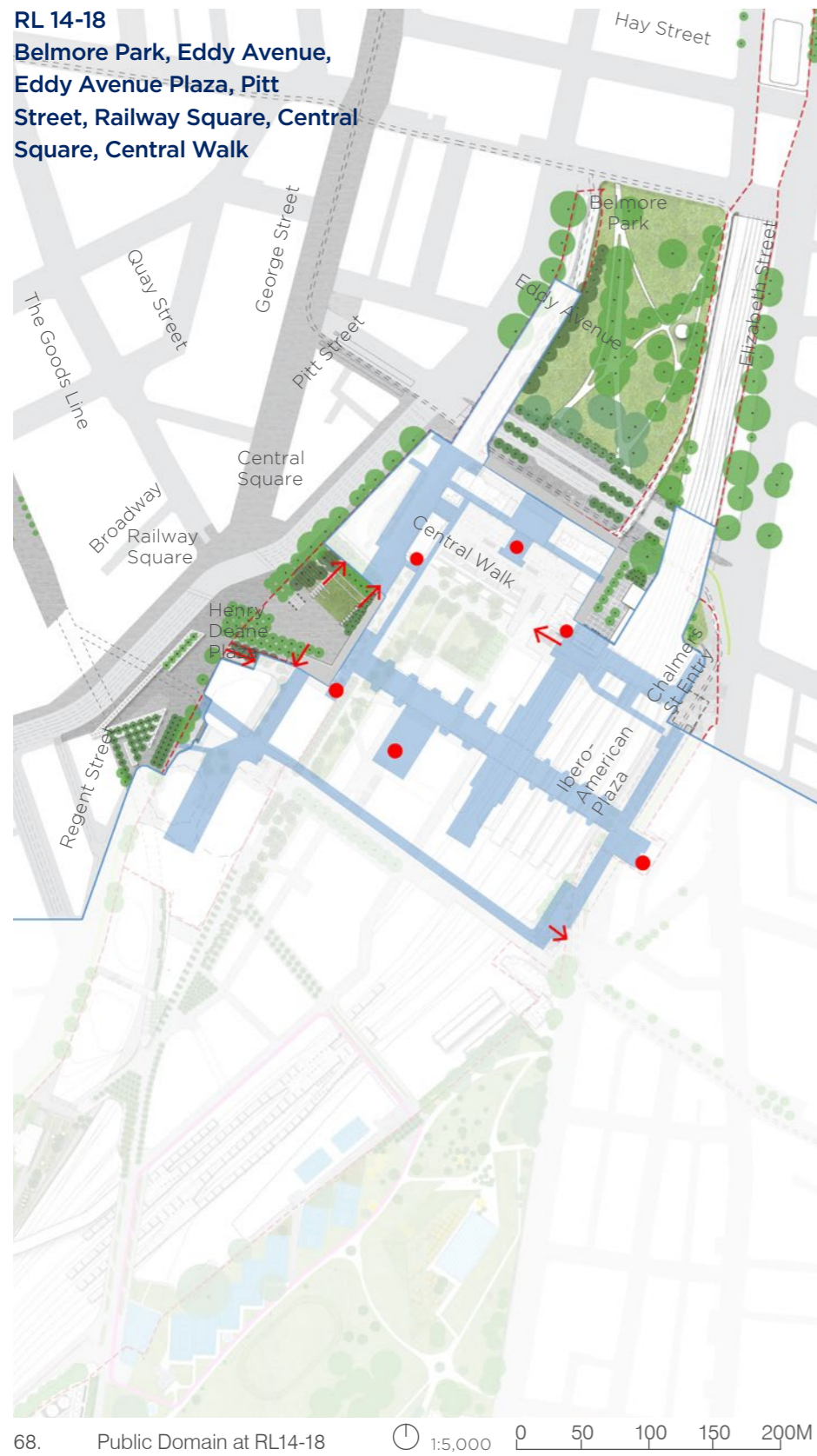
The natural topography means that the height of the Over-Station Development at RL30 is around the same as that of Prince Alfred Park and Cleveland St. This means that the George St Bridge can connect seamlessly to integrate the OSD into the surrounding public domain, allowing the user to easily traverse the space.

- Legend
- SSP Study Area
 - RL 14-18 Public Domain within site
 - RL 14-18 Public Domain outside site
 - RL 20-22 Public Domain within site
 - RL 20-22 Public Domain outside site
 - RL 28-32 Public Domain within site
 - RL 28-32 Public Domain outside site
 - Vertical Transport - Lifts or Escalators
 - ➔ Vertical Transport - Landscape stairs

67. Public Domain Plan showing levels and vertical transport locations



Public Domain Plan



Public Domain Plan

Grand stairs and concourse - a civic scale connection

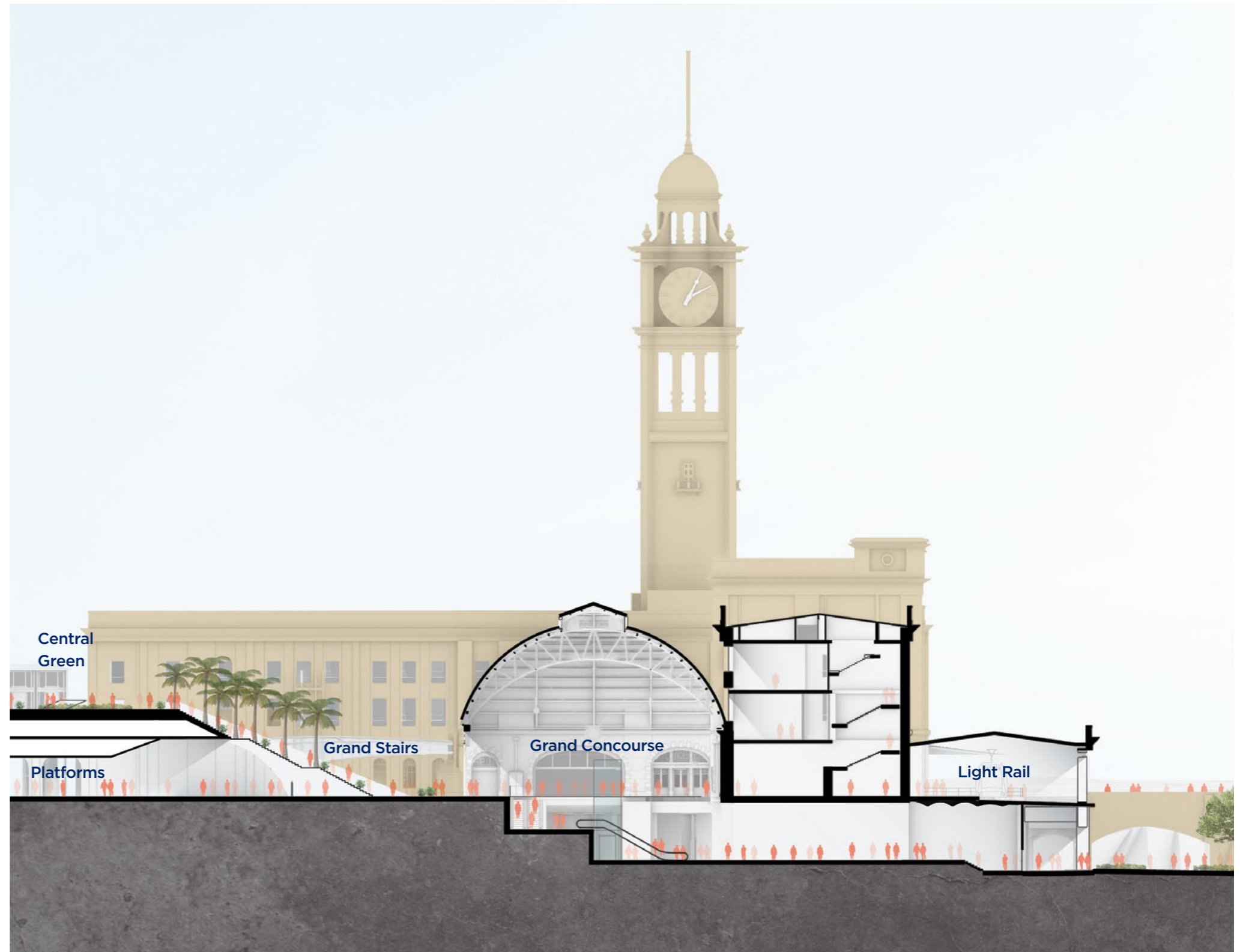
A new northern entry point to Central Station celebrates the grandeur and role of the station within the cityscape, creating a civic scale connection between the street, Grand Concourse, OSD deck and beyond. Key design principles of this concept include:

- Expand the Grand Concourse to the south and reconfigure to interface with new platform layout.
- improve pedestrian circulation and VT including new escalators/stairs/elevators to support direct connection between Eddy Avenue, the Grand Concourse and deck. Improve the architectural experience of entering through the floor and into the main volume.
- Provide seamless integration between internal and external spaces and experiences.
- Opportunity to create new views and appreciation of heritage through addressing the materiality of the Grand Concourse roof, such as applying a semi-translucent/translucent material.



71. Key Plan

72. Illustrative section showing the connection between Eddy Avenue, the Grand Concourse and the deck level.

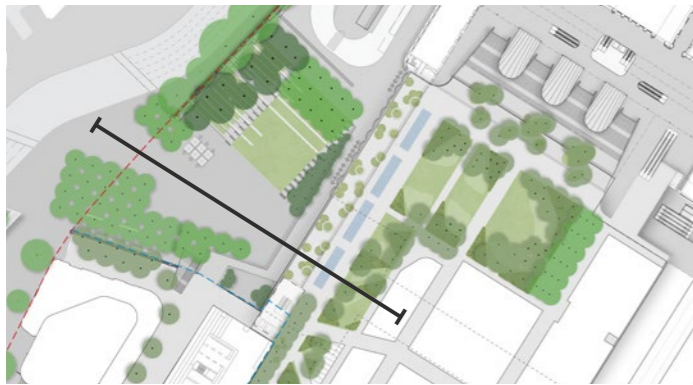


Public Domain Plan

Central Square to Central Green, the new western address of Central Station

A new western address into Central Station and the precinct will reframe the role and significance of the Sydney Terminal Building to southern Central Sydney. Key design principles of this concept include:

- A new station forecourt at the entrance to Central Walk West, repositions and activates the western frontage of the Sydney Terminal building as a clear civic scale address to the station.
- Celebration of the area's unique heritage context; new city-making public space framed by the Sydney Terminal Building and other significant heritage items.
- Provide seamless VT transitions across multiple levels from Central Square/street level to RL21/Grand Concourse level to the deck level.
- Provide high quality connections and public domain at what will become Central Station's busiest entrance.
- Creation of a sequence of programmed public spaces that have their own function and character; spaces for movement versus spaces to dwell. This includes the relationships between Central Square, the belvedere/RL21 bridge link and Central Lawn.



74. Key Plan

75. Illustrative section showing the relationships between Central Square, the Sydney Terminal building and Central Avenue



73.

Public Domain Plan

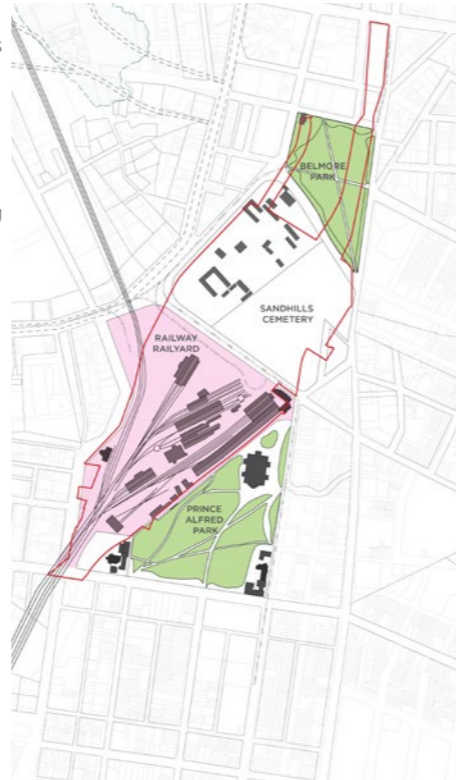
Three distinct characters brought together as a dynamic setting for public life

The historic evolution of the city has provided distinctive characters to the public domain of the precinct. The north end is civic in character and scale whilst the south end has a robust rail heritage and character. Between these polarities of character is the centre of the development site that draws the daily life of the surrounding suburbs plus the character of north and south into the dynamism of the space between. Country lies beneath the concrete and permeates all.

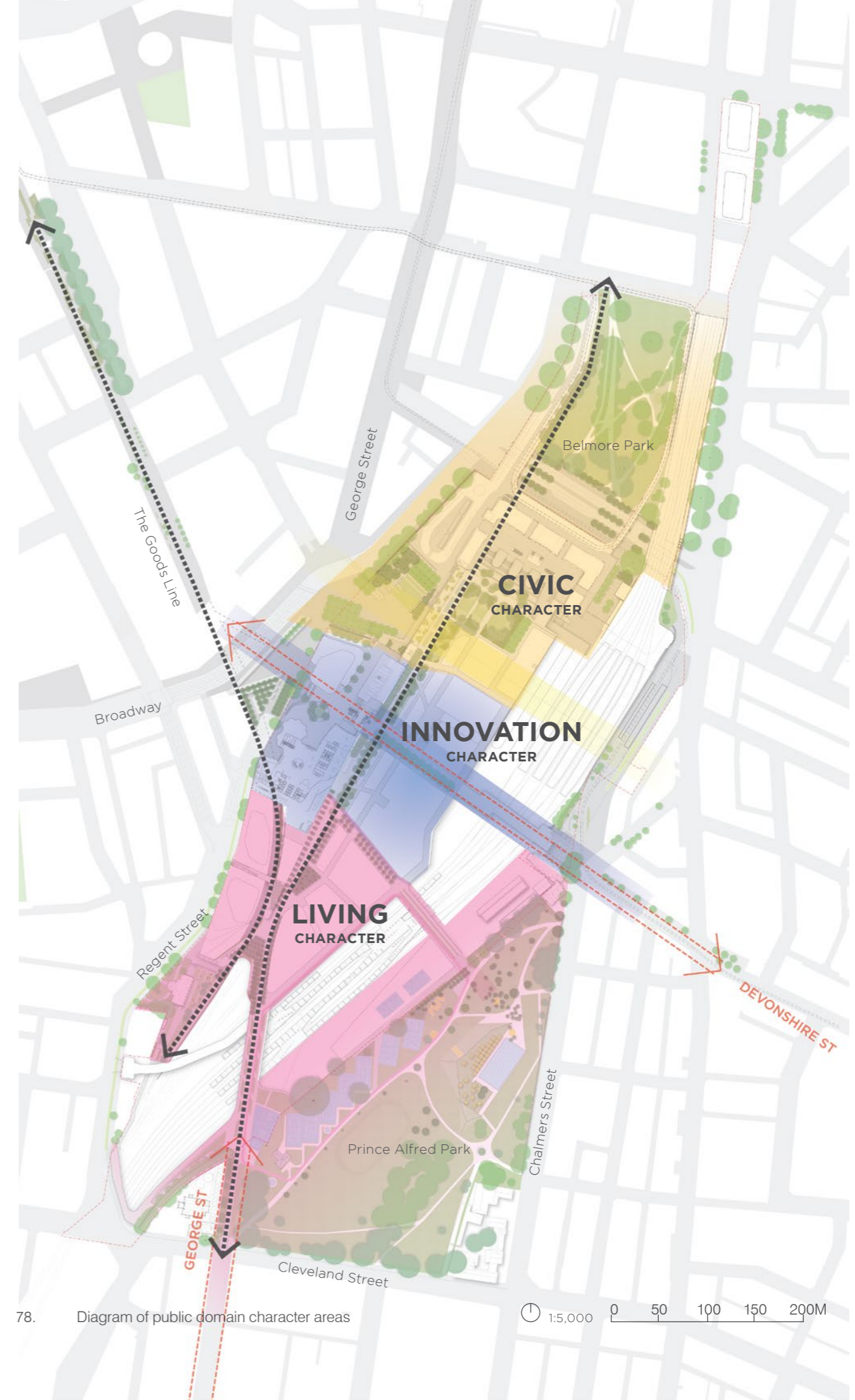
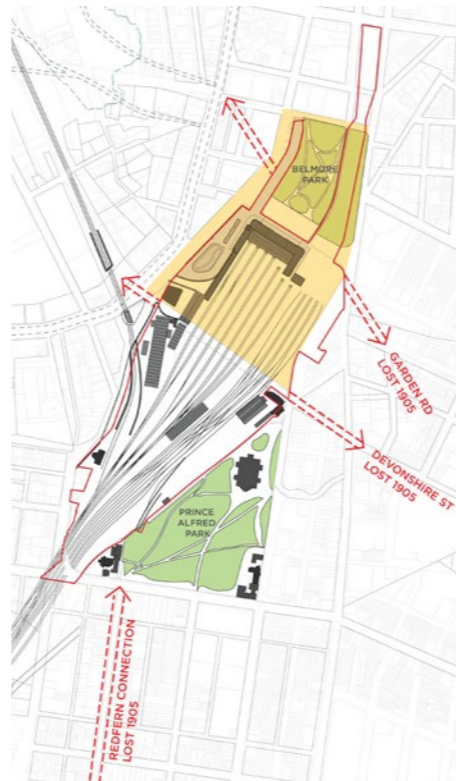
The three dominant characters have directly informed the scale, form and likely program of the built form and public domain in each part of the precinct:

- The north is **civic and cultural**
- The centre is for **innovation and work**
- The south is for **life and health**

76. 1890
The 1890 plan shows the buildings and structures related to the everyday life of the railyards and employees, including Mortuary Station, and a strong connection to the recreation facility of Prince Alfred Park.



77. 1910
The 1910 plan shows how the construction of the Sydney Terminal Building created a civic face for the precinct, focused towards the CBD to the north.



Public Domain Plan



79. View of Central Square, Central Green, Central Station and the Clocktower



80. View of Central Avenue, looking towards the clocktower



81. View of Southern Plaza

North: civic and cultural

The north end is civic in character. New civic public realm is built as an extension and completion of the Sydney Terminal Building as a defined public space. The Grand Concourse becomes the true civic heart of the precinct, surrounded by and connected to iconic public spaces on all sides.

The clock tower is given new prominence in the layout of new public domain to its south and south west. Its landmark status is increased and it becomes a fulcrum which helps to organise the layout of the public spaces surrounding it.

The Central Square becomes a major new civic square for Sydney's CBD, fulfilling the City of Sydney vision for three squares and creating the new major entry to Central Station through Central Walk West.

The Central Green becomes a major new cultural landscape space, designed to provide a meaningful connection with Country and give new meaning to the setting of the sandstone building.

Centre: innovation and work

The meeting point of Central Avenue running north-south and Devonshire Street running east-west marks the centre of the tech hub - a vibrant bustling character of daily working life across a network of interconnected lanes and spaces.

Devonshire Street will become an open air connection once again, linking the creative hub of Surry Hills with the academic institution of UTS and the urban life of Chippendale.

This is the ideal place for a fine-grained environment of streets and lanes. Offering active corners, intense laneways, a major eat-and-meet street and opportunities to engage with people, ideas and the spark of innovation.

South: living and health

The south end supports everyday life of the precinct, connecting to communities in the south (Redfern) to the east (Surry Hills) and to the west (Chippendale).

The south has a different mix of land uses including residential buildings, community hubs and sport and recreation offerings.

The public domain responds to the changing context and land use, becoming activated as a series of movement threads that combine the characters of the rail and the park. There is a distinct and visible support system for First Nations cultural practice in this part of the site.

The active recreation system supports health and wellbeing through running and cycling loops, fitness stations, distributed play elements, informal sports provision and additional formal recreation courts.

3.3.1

Public spaces:
north

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3.3.1 Public spaces: north

North: civic and cultural

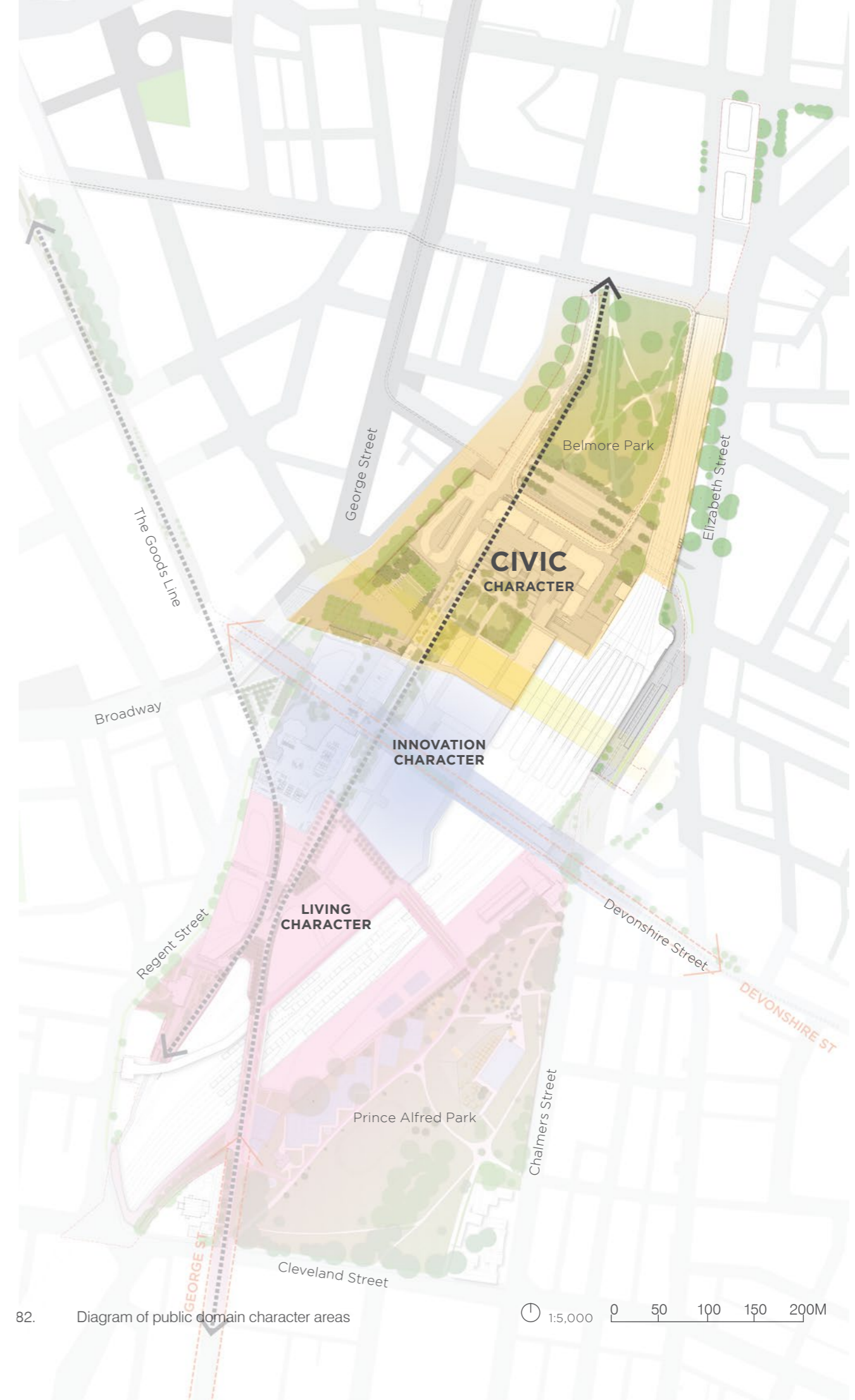
Together, the northern public spaces create a major civic destination - a series of connected urban terraces centred on the Sydney Terminal Building.

The civic public domain of the north is a system of linked spaces, each with different opportunities. The spaces connect to surrounding parks via green links and careful resolution of levels.

The building program framing the civic spaces are cultural, tourism and commuter-focused, supported by retail.

The concept of underlying Country is introduced by interpreting the character of the sand dunes and vegetation communities that once graced the site. A major Aboriginal cultural space is set within the undulating landforms of the Central Green.

The northern public spaces around the Sydney Terminal Building create an opportunity to reconnect the station and Grand Concourse with surrounding streets by improving connectivity across major level changes. The public domain plan organises these different levels through a continuous terrain to improve connectivity and civic address of Central Station.



82. Diagram of public domain character areas

1:5,000 0 50 100 150 200M

Public spaces: north

The evolution of Central Station

Before the current Sydney Terminal Building was constructed, Central Station was located south of Devonshire St, with Devonshire St connecting through to Railway Square. The station was extended north to build the current Sydney Terminal Building, which disconnected the station from the surrounding streets.

- The principal platform level at RL21 was projected north as the station shifted towards Belmore Park. This level became the floor level of the Grand Concourse and in turn, the level of the main station entry.
- The station cut through Devonshire Street (resulting in the current tunnel condition simultaneously disconnecting the level of Belmore Park and the new Eddy Avenue from the platform and concourse level of the station, as well as cutting off the Grand Concourse Entry from the level of Pitt Street.
- Railway Colonnade Drive and the light rail loop extended the impact of this disconnection along the Pitt Street edge of Belmore Park.
- In the 1920s the creation of the city circle lines further fragmented the public domain surrounding Central, with the creation of the viaducts and rail corridor blocking Belmore Park from Elizabeth Street.
- The railway viaducts and colonnaded walls contain small retail tenancies along Pitt St north of Eddy Ave, and Eddy Ave, but no major station spaces, offering only a small amount of activation to the street and minimal connectivity between the street and the concourse.

83. Sydney Terminal Building, showing the disconnection of the Station level with the adjacent streets, 1906, NSW State Archives.



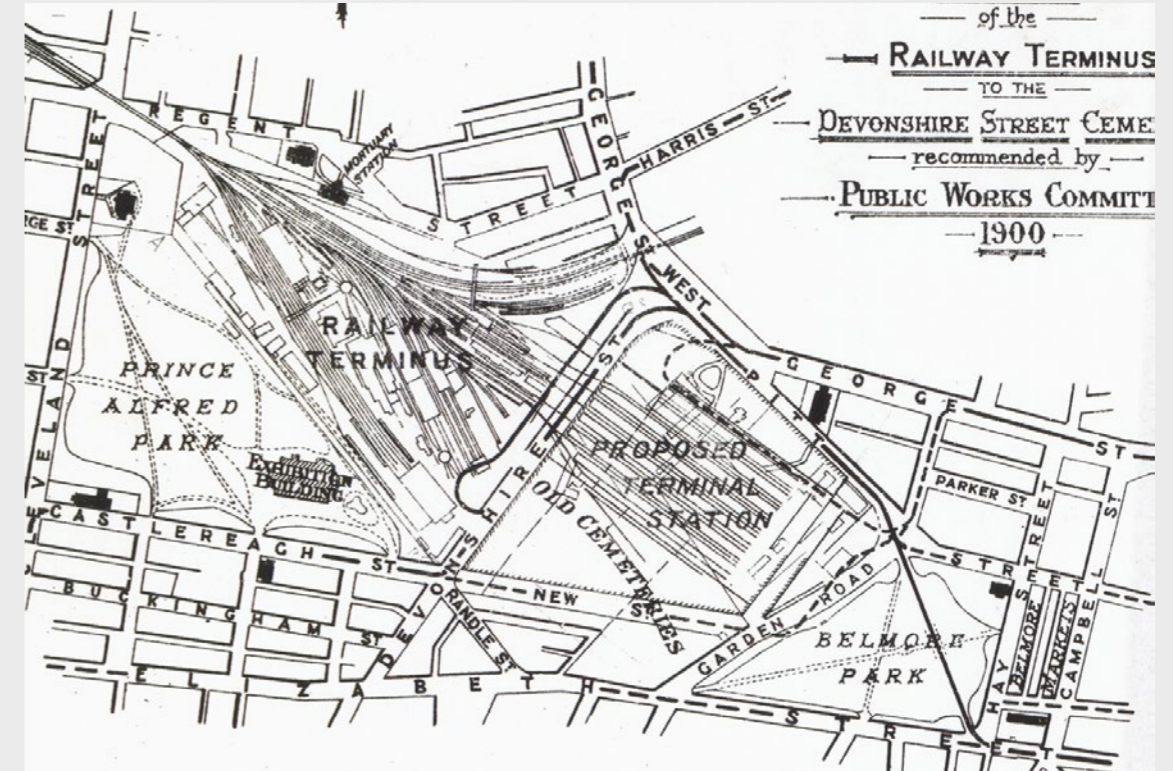
84: View along Pitt St showing the disconnection with Belmore Park and the Station Entry 1910,



85: View from Elizabeth St showing the disconnection with Belmore Park. c1920s



86: Plan of Proposed Extension of the Station, 1900



84.

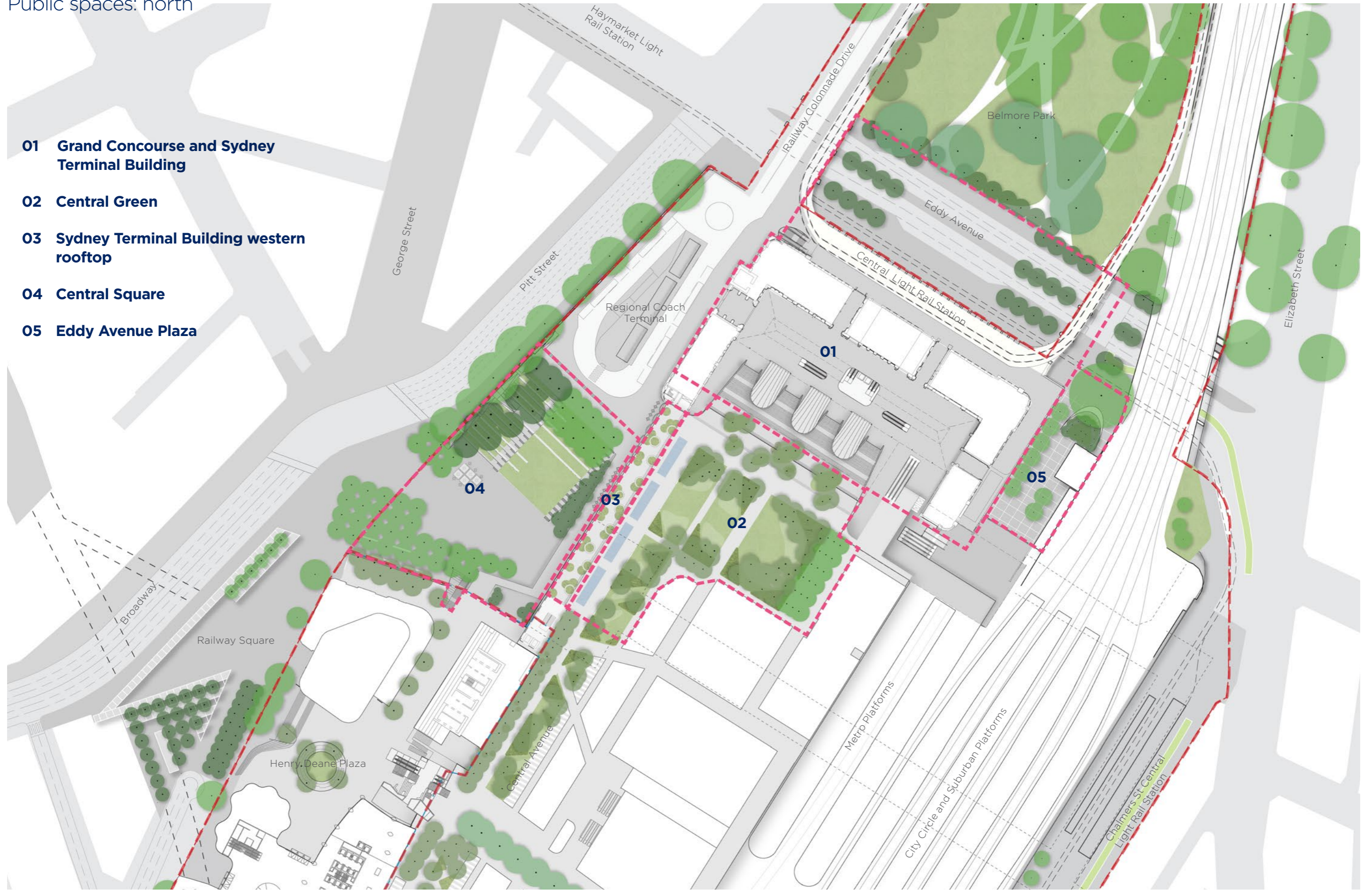
85.

86.



87. View looking east over Central Square towards Central Station Sydney Terminal Building and Central Green

Public spaces: north



- 01 Grand Concourse and Sydney Terminal Building**
- 02 Central Green**
- 03 Sydney Terminal Building western rooftop**
- 04 Central Square**
- 05 Eddy Avenue Plaza**

88. Plan of Sydney Terminal Building, western rooftop, Central Green, Central Square, and Eddy Avenue Plaza

1:1,500 0 25 50 75M

Public spaces: north

Grand Concourse and Sydney Terminal Building

The Grand Concourse of the Sydney Terminal Building is the most recognised public place of Central Station. The public domain proposed in the north of the precinct seeks to stitch the building into a seamless public domain that transforms the cultural heart of the precinct.



89. Key Plan

Reconnecting the Sydney Terminal Building with the city

Despite its landmark clock tower and iconic sandstone facade, the Sydney Terminal Building is difficult to navigate as a pedestrian. It operates over multiple levels including subterranean tunnels and raised decks. Over time, the building has become a through space, lacking the sticky destinations where people might meet, gather or choose to spend time. Limited access from street level contributes to a poor address for an important public building.

The over station development provides the opportunity to reconnect the Sydney Terminal Building with surrounding city streets and the new public realm. The design places the Sydney Terminal Building at the centre of new urban activity, giving the building a new purpose and key role in the precinct's transformation.



90.

Building edges define and activate space

There is an opportunity to utilise the sandstone armatures of Sydney Terminal Building to create a series of landscape terraces. The sandstone frames and colonnades of the building define each terrace and encourage people to dwell around the edges of the public space.

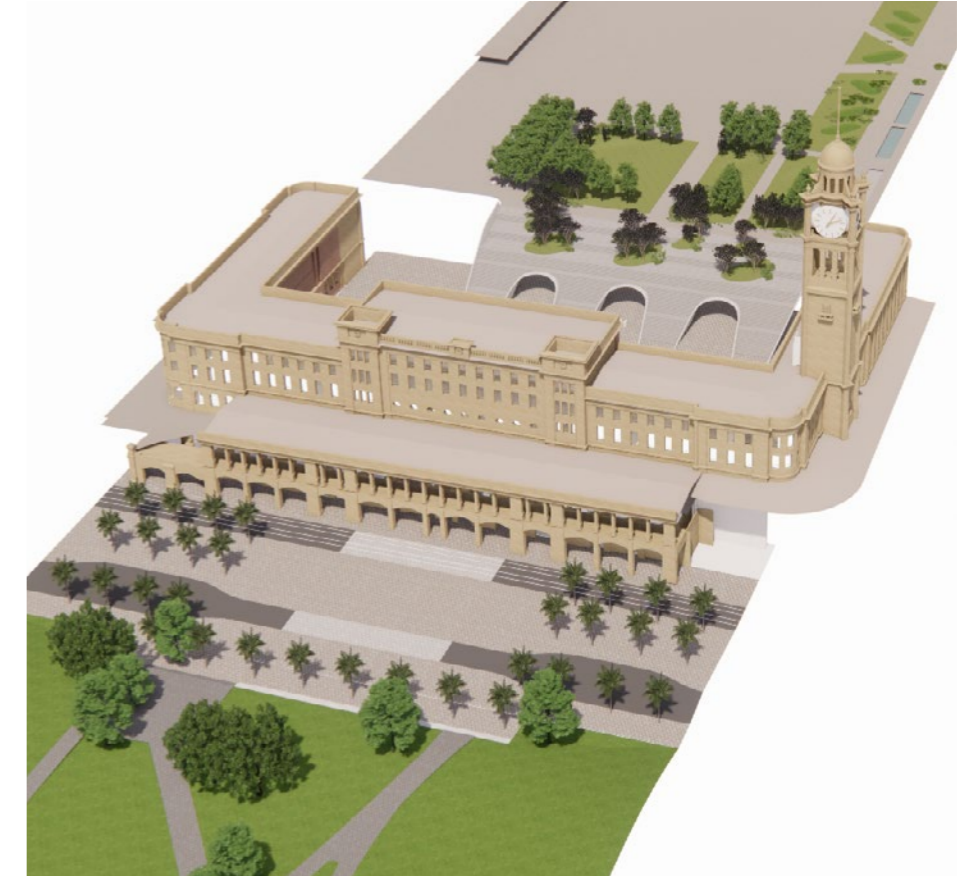
Public spaces: north



91.
Connect through landform
 The development will move the platforms south, enabling the great room of the Grand Concourse to be physically expanded. A new landscape terrace completes the framing of the Concourse space and creates a major gathering point, enabling events and activation associated with the innovation district. The new terrace connects the RL21 terrace and the RL30 terrace of the OSD.



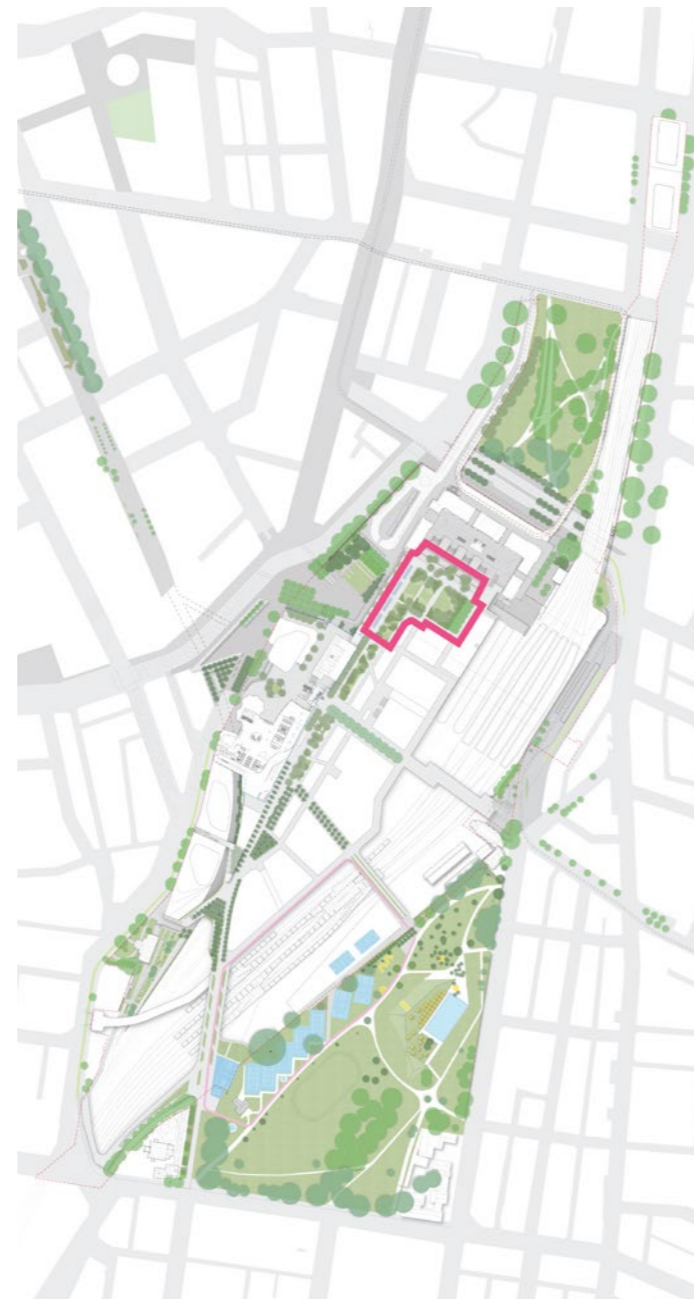
92.
A historic building with a new civic setting
 Eddy Avenue has future potential as a transit boulevard with pedestrians as the primary users of the street space. This will allow the street to become a ceremonial forecourt to the principal facade of the building and connect the building seamlessly to Belmore Park. This was the intention of siting the building on a park edge, but the traffic volumes of Eddy Ave have always cut the building off from its context. The colonnades of the building become active thresholds with clear and generous access.



93.
Clear, connected public domain
 The northern facade of the Sydney Terminal Building becomes a welcoming threshold, linking Belmore Park and Eddy Avenue through to the grand concourse and OSD.
 The building is seamlessly integrated with the new topography of the public domain, offering a terrain of landscape and public terraces both inside and outside the buildings' porous edges.

Central Green

Central Green is the principal public open space of the over station development. Its elevated position provides sweeping views over the city skyline to the west.



94. Key Plan

Areas

- Minimum area: 6,000m²

Character

- The principal open space of the over-station development, and the arrival point to the over-station development from the north, either through the Sydney Terminal Building, or Central Square.
- A strong relationship with the Sydney Terminal Building and the Grand Concourse, providing a new place to wait for a train and a new aspect to starting or finishing train journeys.
- A rolling landform terrain referencing the gentle mounding of a sand dune environment interpreting the character of the dune system that was a landmark of Country in a large-scale and meaningful way.
- Primarily green in character with hard paving surfaces at the minimum required to cater for pedestrian flows.
- A diversity and abundance of locally indigenous flora and fauna species consistent with ecological communities that would have naturally occurred in the area, including Eastern Suburbs Banksia Scrub.
- Layered planting creating diverse understorey, midstorey and canopy levels. Midstorey planting is visually permeable to allow sight lines.
- An expression of subterranean water systems of the place through water storage in the cellular structure of the deck as well as water features.
- Uses the system of evapotranspiration to create cool spaces within planting.
- Gathering spaces including a space for Aboriginal Culture - the Sand Circle, as well as undulating turf mounds to create spaces with excellent prospect and refuge.

Historic Heritage Interpretation (non Aboriginal)

- A space that draws the distinctive heritage

setting (in particular the Sydney Terminal Building and its clocktower) into the experience of the open space.

- A clear visual and physical relationship with the Grand Concourse through the use of stairs and terraced landscape.
- Extend the sandstone materiality of the Sydney Terminal Building into the public domain.

Amenity

- Located to achieve good solar access in order to provide warm, sunny open space. The space exceeds the City of Sydney requirement that 50% of the total area is to receive sunlight for 4 hours from 9am to 3pm on 21 June.
- The park exceeds the City of Sydney requirement that protection from direct sun is to be available on 21 December for a minimum of 20% of the area used for passive recreation, through the provision of tree canopy.
- Opportunities for cool, deep shaded gardens complement the amenity of spaces with excellent solar.
- Ample seating within different microclimatic conditions.
- Different types of comfortable seating including benches with and without armrests, seating edges where people can sit and view the space, and moveable furniture such as deck chairs, bean bags, café tables and chairs.
- Comfortable public places to work on devices such as laptops or tablets with suitable defensible space and out of direct sun.
- Casual seating and gathering spaces created by the mounded terrain offering prospect and refuge.
- Key sight lines are preserved
- CPTED requirements are met by ensuring good lighting for facial recognition and clear and direct

Public spaces: north

lines of sight, as well as ensuring surrounding buildings have active edges on multiple levels.

- Building programs that provide life and activity to edges of the space including nights and weekends, with active and civic uses on ground floor and podiums.

Grand Concourse Stairs

- Major connection between Central Station, (and Quantum Terminal / new tech hub) and OSD.
- Part of re-imagining the Grand Concourse as a civic outdoor room, and connecting the OSD with the street through a series of landscape terraces.
- Opportunity for Sky Country element or artwork over the new stair.
- Dune landforms and planting responding to the history and future of the place.
- New place within the station precinct to wait for trains or meet people - somewhere welcoming, with planting and places to sit.
- Concourse extension to the south made possible through moving rail platforms south.
- Roof renovation with more glass to improve natural light and create a sense of an indoor/outdoor space.



95. Plan of Central Green, Grand Concourse and Concourse Stair, and Sydney Terminal Building

1:750 0 10 20 30 40M

Public spaces: north



96. Central Green Key Plan



97. View of Central Avenue. An opportunity for connecting through a skylight or skylight /water feature to Platform 1. This could be the site for a large scale memorial to the Stolen Generations.

Public spaces: north

Central Green opens out from Central Avenue.



98. View of Central Green, looking towards Central Station clocktower, the Grand Concourse and Sydney Terminal Building.

Public spaces: north



99. Central Green Key Plan

Section: Open turf spaces with landform for prospect and gathering



100. Indicative section of Central Green, showing open turf spaces with landform, and cool shaded planted groves.

Public spaces: north

Central Green looking west towards the Sydney Terminal Building western rooftop and the view of the surrounding city, including the Marcus Clarke Building.



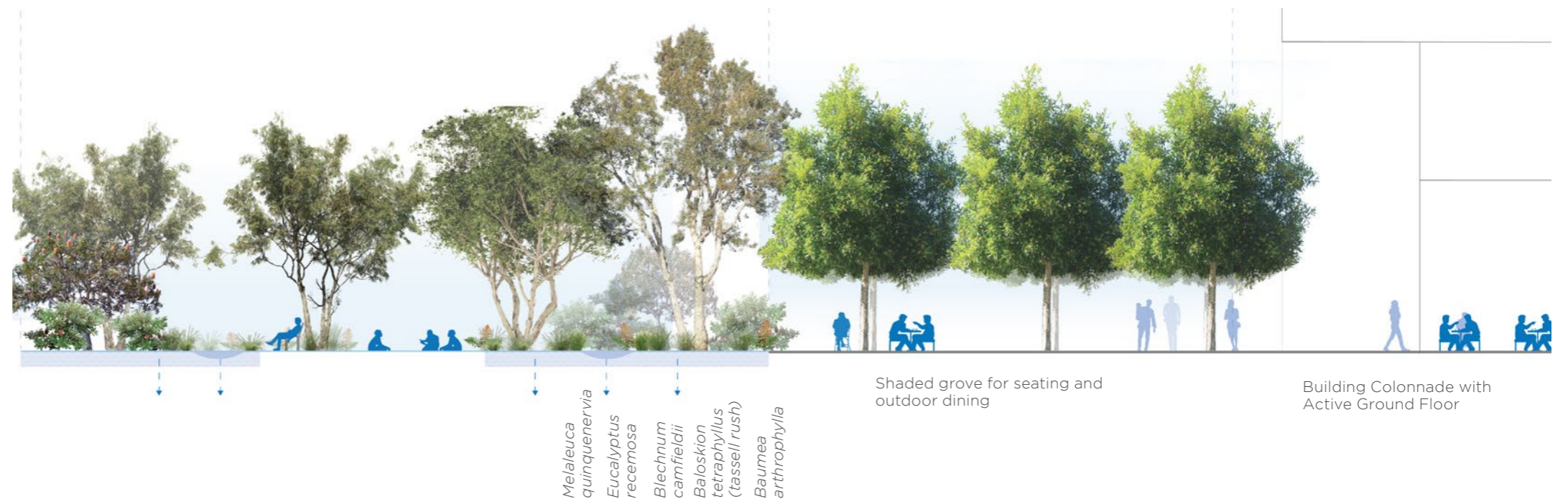
101. View of Central Green, looking towards the Sydney Terminal Building western rooftop and the view over Broadway to the Marcus Clarke building and surrounding city.

Public spaces: north



102. Central Green Key Plan

Section: Cool shady groves with layered planting



103. Indicative section of Central Green, showing cool shaded planted groves, deciduous bosque for seating and outdoor dining and active building edges.

Public spaces: north

Shaded grove for seating and outdoor dining, looking west over the Central Green.



D

104. View of Central Green from the deciduous bosque, looking towards the view over Broadway to the Marcus Clarke building and surrounding city.

Public spaces: north



106. Central Green Key Plan



105. View of the Grand concourse terraces and stairs, which create a public domain extension of the Grand Concourse

Public spaces: north

The Grand Concourse stairs open out onto the Central Green, looking towards Broadway. Key views are maintained and the undulating landforms soften the experience of the terraces.



F

107. View of the Concourse stairs, looking towards the view to the Post Parcels Building, the Marcus Clarke building and surrounding city.

Sydney Terminal Building western rooftop

The existing roof of the brick wing building of the Sydney Terminal Building becomes an exciting viewing ledge looking west over the future Central Square.



108. Key Plan

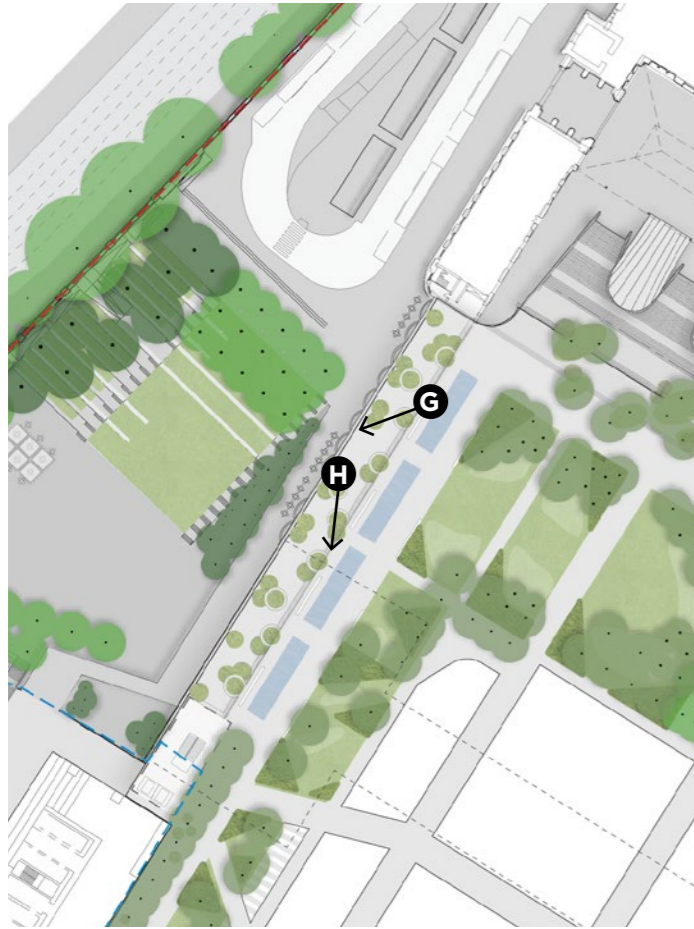
Areas

- Minimum area: 970m²

Character

- Paving level set to retain the existing parapet edge to the roof of the heritage building as the balustrade.
- No trees due to the difficulty of planting on a roof, but also for heritage reasons. Views of the building from Central Square and Railway Square are important. The legibility of the building edge should be maintained as the line of the existing brick parapet wall.
- Offers a strong visual connection between the OSD and the city below. Offers significant urban views of Central and Railway Square, down Broadway to the UTS tower and Central Park, and of the distinctive and heritage buildings, including Parcel Post building and Marcus Clarke building on corner of Pitt St and George St.
- The western view will create a popular sunset viewing ledge in the evening, particularly in the warmer months.
- Planting will consist of low native shrubs and grasses creating semi-defined seating areas in a garden setting.
- Important visual connection to Central Square and connection at RL21 as part of wayfinding and vertical transport between street and OSD.

Public spaces: north



109. Sydney Terminal Building western rooftop key plan



111. View of the Sydney Terminal Building western rooftop looking towards the view to the Post Parcels Building, the Marcus Clarke building and surrounding city.



110. View of the Sydney Terminal Building western rooftop looking towards Central Avenue.

Central Square

The major new address to Central Station via the Central Walk West. A major public open space in Sydney's CBD - one of three key urban squares that define the character of the city.



112. Key Plan

Areas

- Minimum area: 7,000m²

Character

- Primarily hardscape in character to cater for important pedestrian desire lines as well as events.
- A major transport plaza connected to the new station entrance and exit, Central Walk, which will provide access to every platform of Central Station.
- A space that changes with the rhythm of commuter demands. At peak times able to cater for large volume pedestrian flows, particularly along the western walk extending to Pitt Street and also to the south through the Atlassian Link Zone and south west towards Broadway.
- The street tree planting scheme of the city extends into the southern half of this pedestrian path to offer shade, located to maintain key views to the Sydney Terminal Building. Views to the Clocktower are retained and enhanced through strategic framing of the view from Broadway looking north.
- The centre of the space is free of trees to ensure views to the clocktower are maintained.
- A terraced landform follows the original slope and sandstone retaining wall along Pitt Street. This slope should read as a seamless terrain to allow easy pedestrian transition from the square to the Grand Concourse and RL21 level walkway.
- Consider the terrace spaces as a garden. Work with the available fabric and design of the heritage gardens to understand potential for interpretation.
- Consider the original flora of the site including species found on sandstone ridges and in gullies (this arrangement is shown in section).
- Provide spaces for groups of different sizes to

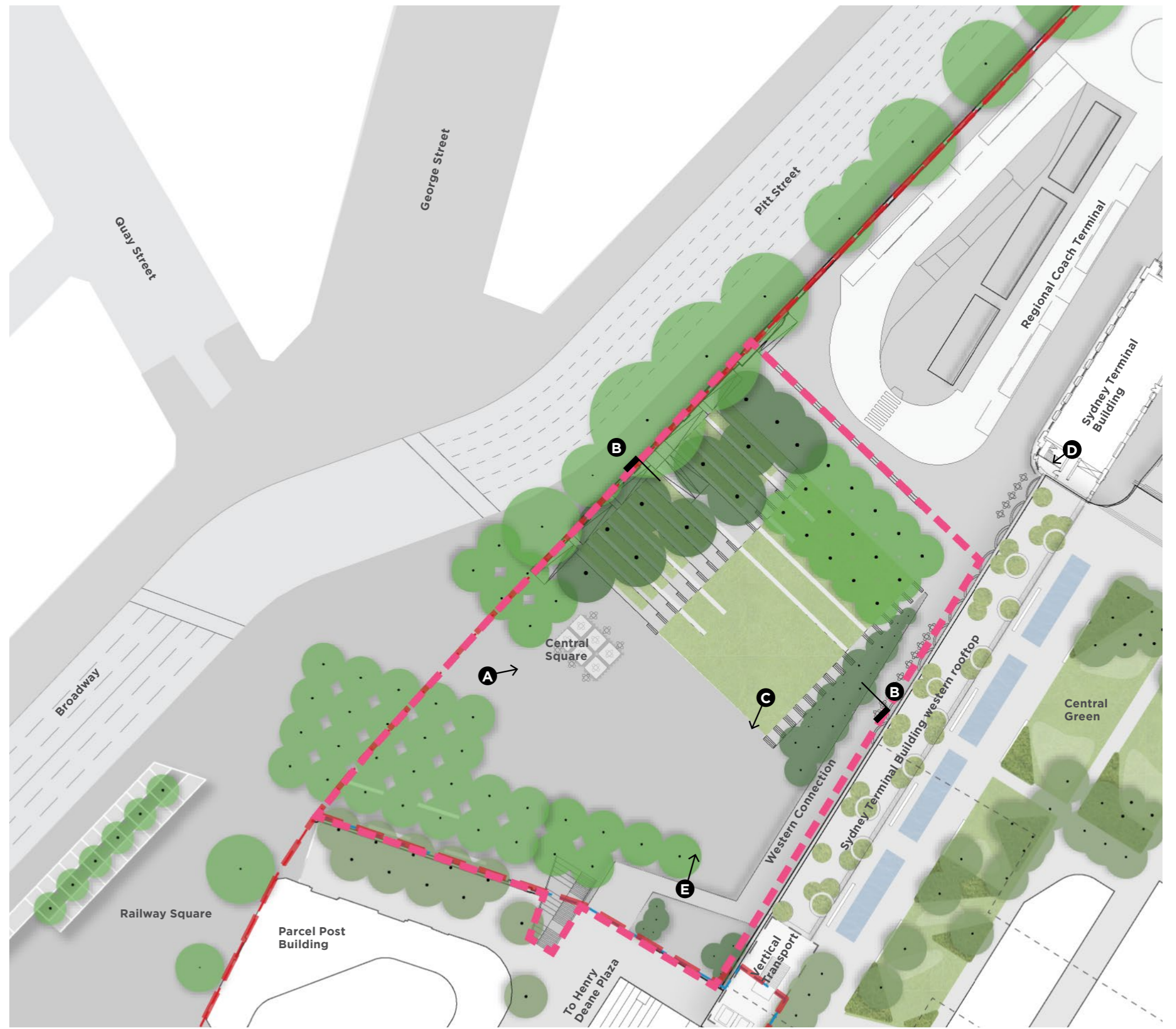
dwelt comfortably.

- Design the spaces at a scale that can be programmed and activated through a diverse range of public uses including events.
- Consider the programming and event usage of the space within a wider connected system of open space including Belmore Park, Railway Square, the Grand Concourse and the Central Green Dune Gardens.
- Provide a meaningful spatial relationship with the heritage setting - explore retention of physical form, visual relationships and interpretation of the history of the place.
- Locate a major artwork embedded in the groundplane to engage the tens of thousands of people who move through the space each day. (Key Move: Connecting with Country, Public Art Strategy and Wayfinding Strategy).

Amenity

- Comfortable place to move through as part of a large crowd with ample space.
- Places to linger in comfort.
- Meeting points.
- Defensible space to sit.
- A suitable level of shade provided through tree canopy.
- Suitable amount of solar provision to satisfy CoS requirements.
- Suitable scale of spaces for event use.

Public spaces: north



113. Plan of Central Square

1:750 0 10 20 30 40M

Public spaces: north



A

114. View of Central Square, looking towards the Sydney Terminal Building and the clocktower.

Public spaces: north

Section B: Terraced seating with sandstone slopes planting and angophora trees, turf lawn, colonnade with rainforest planting.



Public spaces: north



116. View of Central Square, looking south from the turf lawn to the flexible plaza space, the Western Gateway sub-precinct and the Post Parcels Building.

Public spaces: north



D

117. View of Central Avenue, Sydney Terminal Building western rooftop and Central Square, looking towards the Western Gateway sub-precinct, Broadway and the surrounding city.

Public spaces: north



E

118. View of Central Square, looking north towards the turf lawn, seating terraces and sandstone slopes planting, and the Sydney Terminal Building and clocktower.

Western Connection at RL21

The existing roof of the brick wing building of the Sydney Terminal Building becomes an exciting viewing ledge looking west over the future Central Square.



119. Key Plan

Areas

- Minimum width: 5.9m

Character

- Engage with the Sydney Terminal Building, particular the western edge to activate the space at the ground level and at platform level RL21 via walkway.
- RL21 link is connected to the building, retaining the original crescent-shaped lightwells above each window. This could be extended further south than originally existed and also offers weather protected access along the face of the building at ground level. This covered connection links the lower level of the Sydney Terminal Building with Central Square and the Western Gateway.
- RL21 connection is engaged with the available rooms within the brick wing building through the doors that currently exist.
- RL21 connection is engaged with Platform 1 through the original arched door.
- Potential to create an additional doorway in a further arch if required.
- The original structure, rhythm and meaning of the building is retained when opening up the façade for the Central Walk.
- Adequate space is available on the RL21 link for heritage engagement with the building, including the existing light wells and adaptive reuse of accessible rooms where appropriate. Adequate space is also provided beneath the link for both north-south movement, and an under cover area at the entry to Central Walk.

Amenity

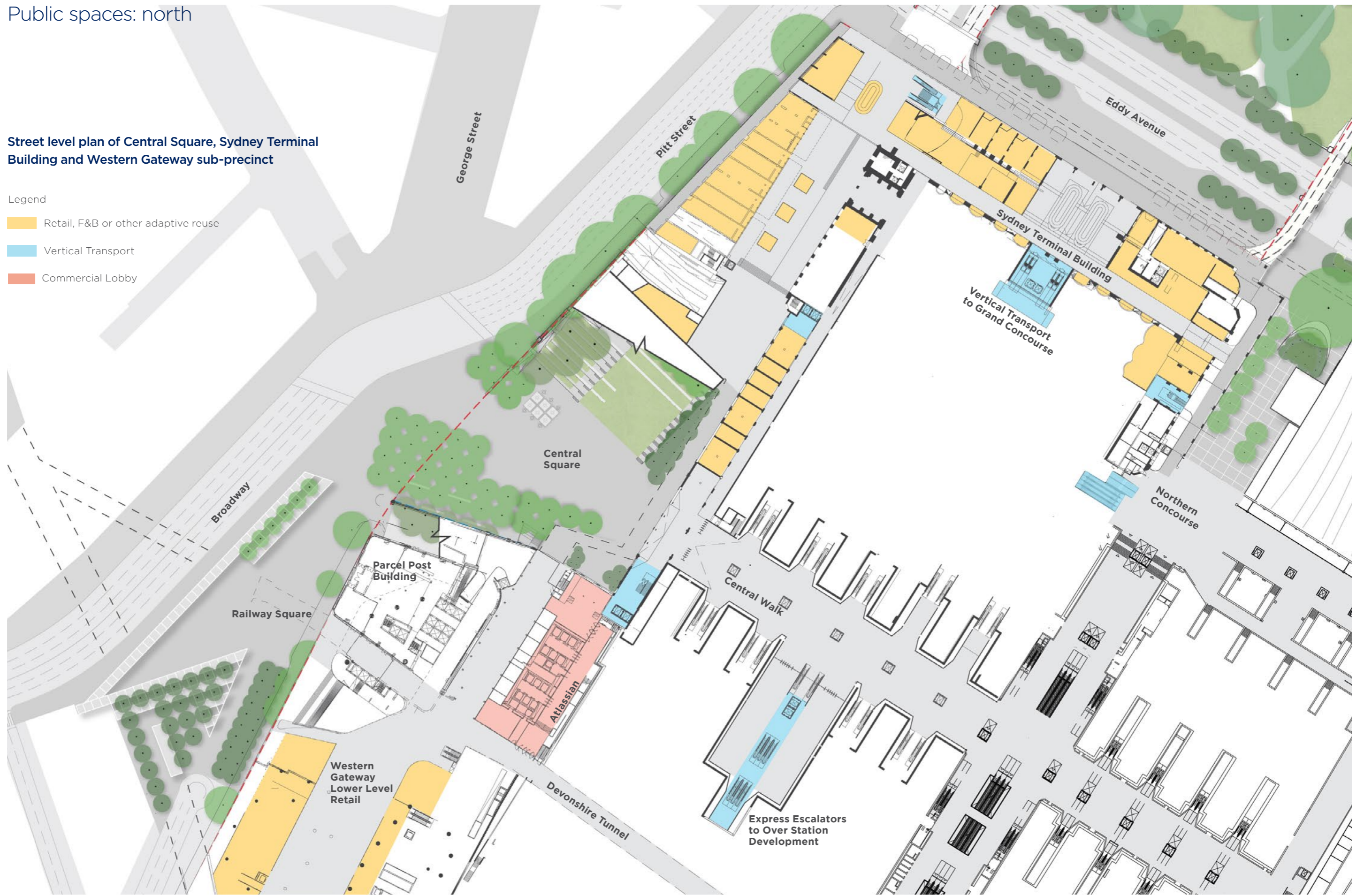
- Places to linger in comfort.
- Meeting points.
- Weather protected (covered) space at entry to Central Walk West and from lower level of Sydney Terminal Building to lower level of Western Gateway.

Public spaces: north

Street level plan of Central Square, Sydney Terminal Building and Western Gateway sub-precinct

Legend

- Retail, F&B or other adaptive reuse
- Vertical Transport
- Commercial Lobby



120. Plan of Central Square, Central Walk, Sydney Terminal Building, and Western Gateway sub-precinct at street level

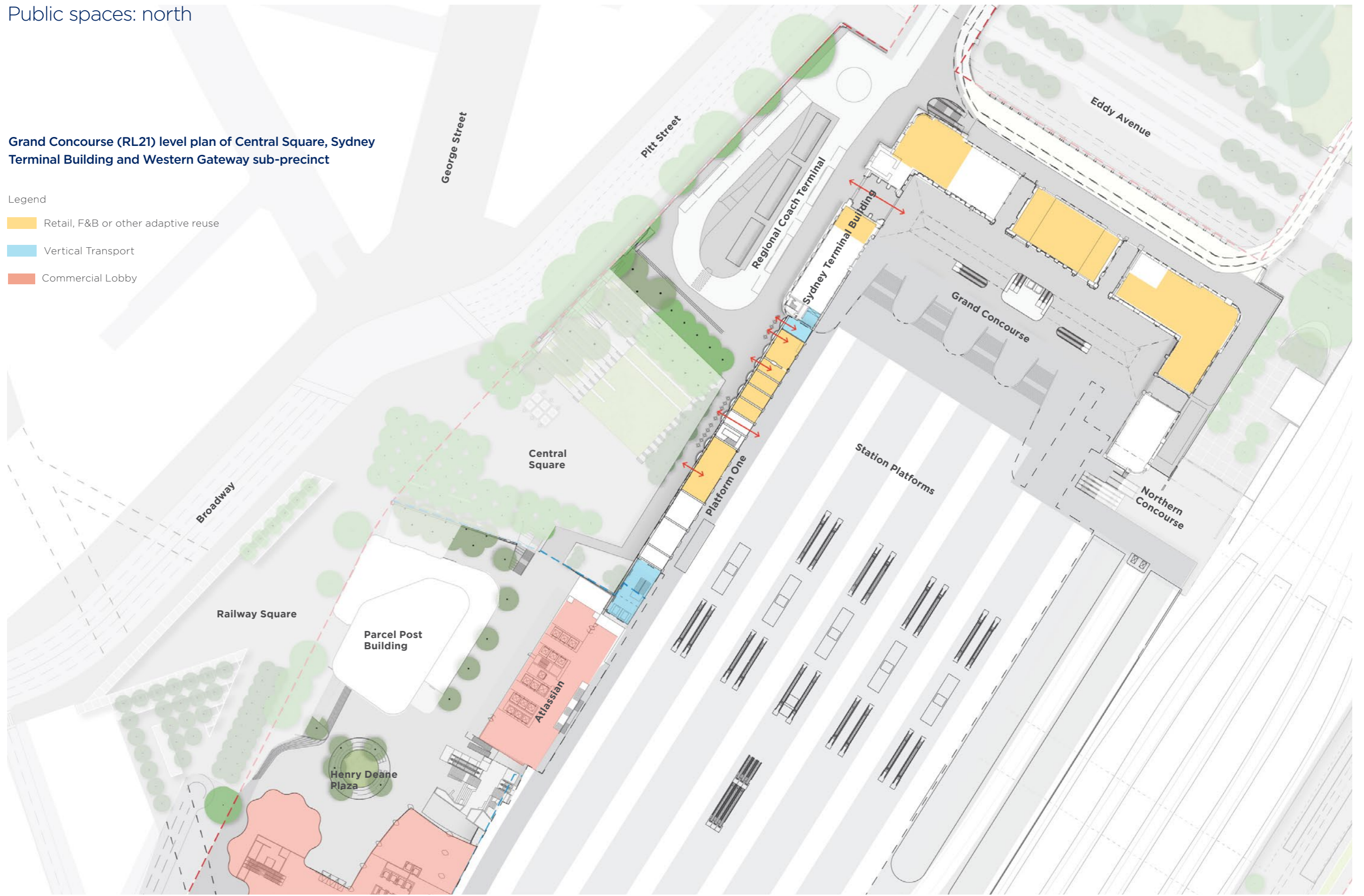


Public spaces: north

Grand Concourse (RL21) level plan of Central Square, Sydney Terminal Building and Western Gateway sub-precinct

Legend

- Retail, F&B or other adaptive reuse
- Vertical Transport
- Commercial Lobby



121. Plan of Central Square, Central Walk, Sydney Terminal Building, and Western Gateway sub-precinct at RL21 (Grand Concourse level)



Public spaces: north



122. Elevation of Sydney Terminal Building Western extension showing existing and proposed openings in the facade

Legend

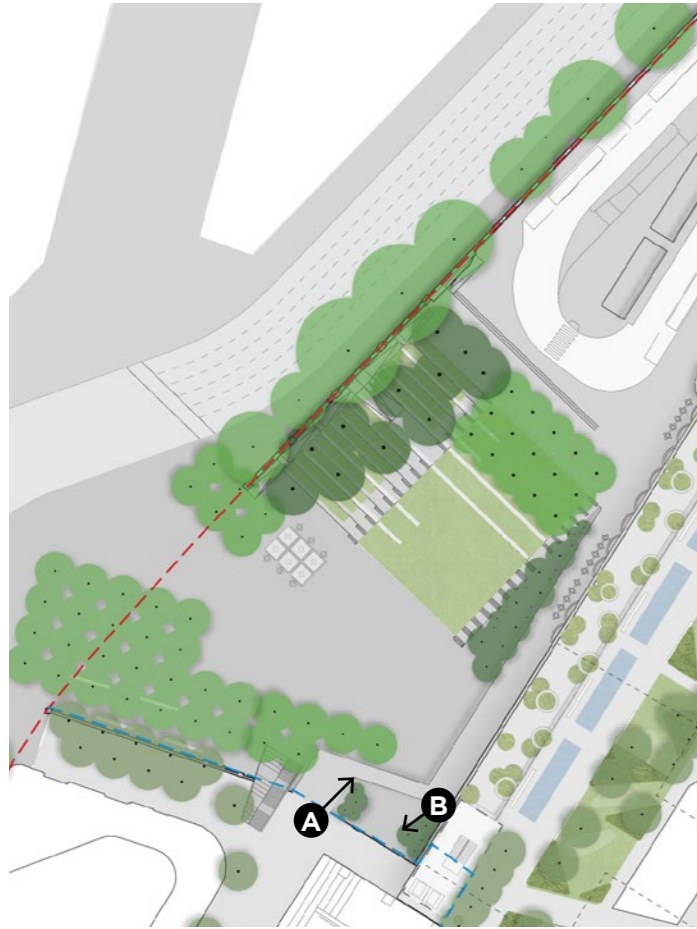
- Existing building entries
- Proposed new building entries

Sydney Terminal Building Western Extension heritage facade - existing and proposed openings

Heritage approach

- Retain the pavement lights at RL21
- Retain the cellular structure of internal rooms, with adaptive reuse for activation where possible
- Consider potential for interpretation of the rooms previous uses as part of adaptive reuse
- Make use of existing openings as much as possible, with minimal new openings to enable adaptive reuse where appropriate
- Reuse of the bricks from the Ambulance Avenue retaining wall

Public spaces: north



123. Central Square Key Plan



124. View of western connection at RL21, looking towards the Sydney Terminal Building and clocktower.

Public spaces: north



125. View of Central Square looking towards the Western Gateway sub-precinct.

Public spaces: north



126. Central Square Key Plan



127. View of Central Square from the colonnade below the western connection at RL21 showing the retained and restored pavement lights above.

Public spaces: north

Eddy Avenue Plaza

Eddy Avenue Plaza will remain a key pedestrian space with increased usage over time due to the new Metro system. It will be remade as an appealing place for people to move through and also to linger.



128. Key Plan



129. View of Eddy Avenue Plaza

Public spaces: north

Area

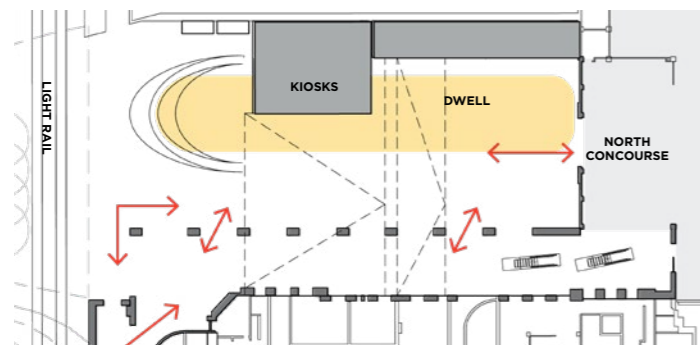
- Minimum area: 1,680m²

Character

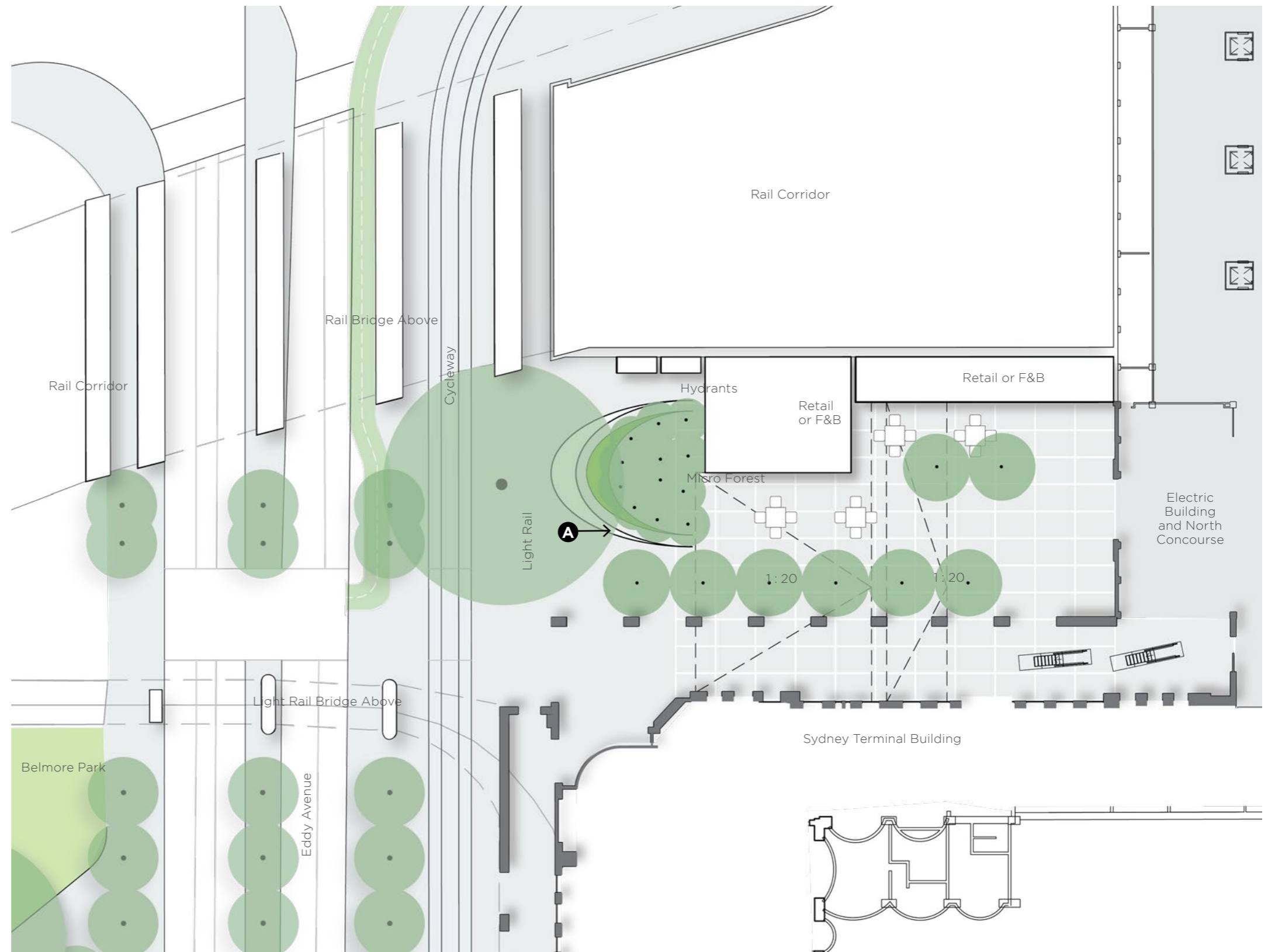
- A key pedestrian connection from Central Station north to the CBD.
- Clear and open path of movement north-south.
- Excellent visual and physical connectivity to the eastern edge of the Sydney Terminal Building.
- A microforest which provides biophilic impact and biodiversity support. The microforest references the former use of the plaza as the station gardens.
- If service vehicles currently using the Rail Access Drive can be accommodated elsewhere, the plaza could be enlarged, providing the ability to site new retail tenancies for activation without blocking views of the Electric Building.

Amenity

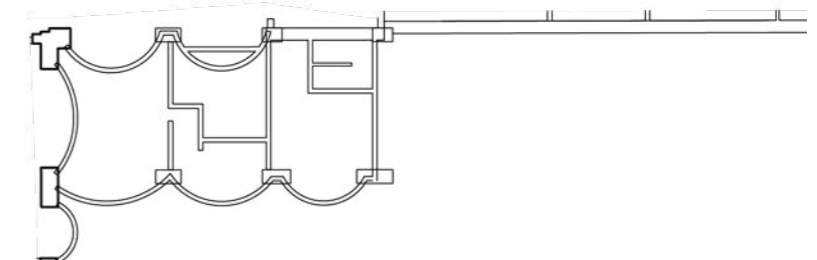
- A microclimate that provides comfortable space to dwell all year round.
- A space well serviced by retail and activated on all sides.



130. Diagram of movement and dwell space



131. Plan of Eddy Avenue Plaza



1:500 0 10 20M

3.3.2

Public spaces:
centre

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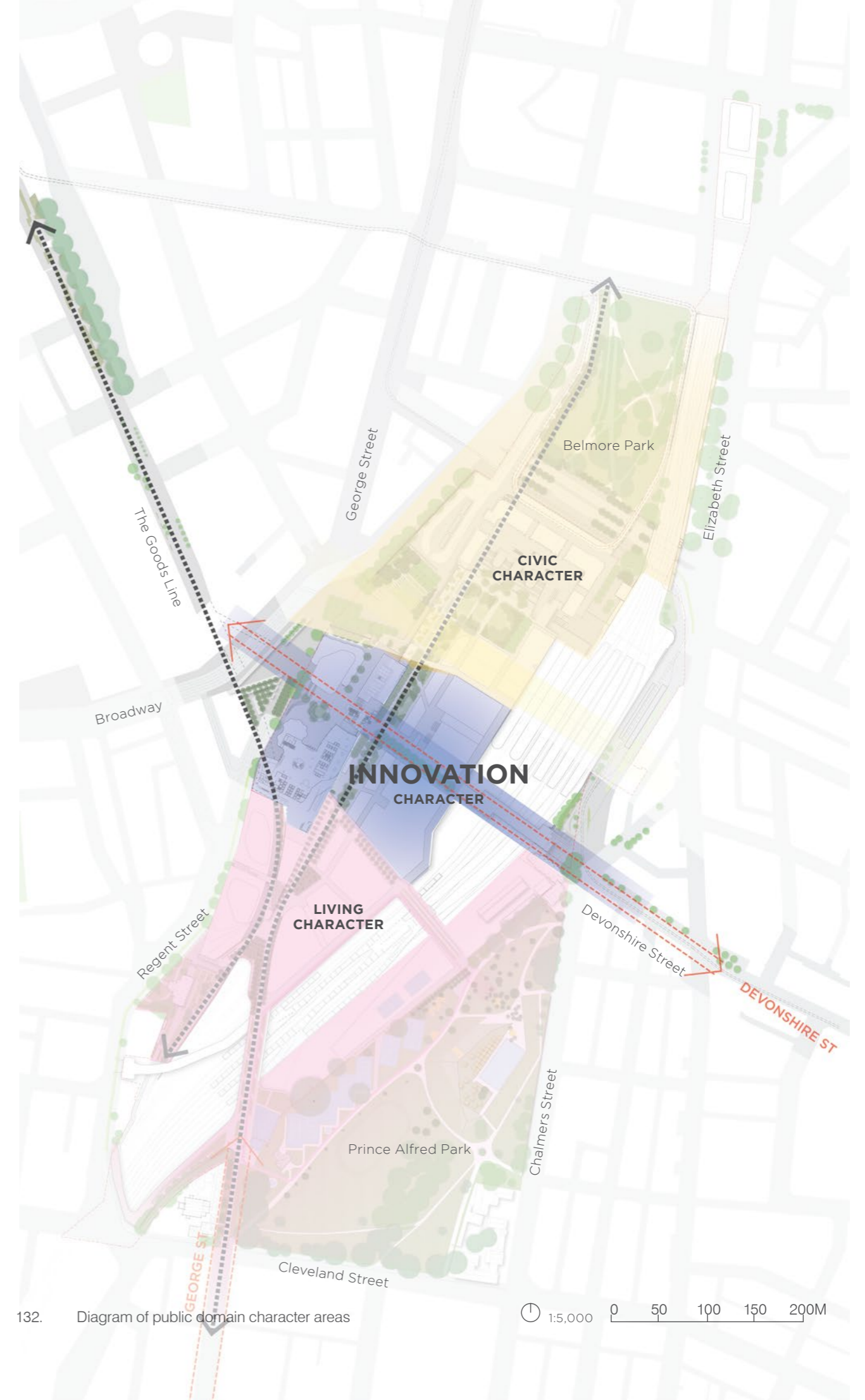
3.3.2 Public spaces: centre

Centre: innovation

The meeting point of Central Avenue running north-south and Devonshire Street running east-west marks the centre of the Tech hub - a vibrant bustling character of daily work life across a network of interconnected lanes and spaces.

Devonshire Street will become an open air street once again, connecting the creative hub of Surry Hills with the academic institution of UTS and the urban life of Chippendale.

This is the ideal place for a fine grained environment of streets and lanes offering active corners, intense laneways, a major eat and meet street and opportunities to engage with people, ideas and the spark of innovation.



132. Diagram of public domain character areas

1:5,000 0 50 100 150 200M

Public spaces: centre

The Tech Hub builds on the history of innovation and technological developments in the Central Precinct:

- The evolution of the railway from a single line between Sydney and Parramatta in 1865, to a transport hub connecting suburban, urban and rural settlements all across NSW.
- The journey from steam to electrification as railway technology improved and innovated.
- The Central Station clock tower has set the standard for railway time in every NSW train station since its construction in March 1921.
- The design of the Central Sydney Terminal Building and the Parcels Post Office included extensive underground tunnels and subways for luggage, mail and other items to be transported beneath Central Station, an innovation in servicing the station.
- The Darling Harbour Cut, Ultimo Railway Overbridge and the Goods Line are the oldest remaining infrastructure of the NSW Railways, dating to the first Sydney Station in the 1850s. The station has been a location for successive developments in railway engineering for over 100 years.
- John Bradfield's innovative Flying Junctions were part of a bold new vision for Sydney's public transport in the 1910s. The flyover tracks connected the Cleveland Street bridge at Redfern to Central Station, allowing trains to safely move up and over other trains and switch lines. At the time, the flying junctions were the largest construction of their type in the world.

Heritage Interpretation Strategy, Artefact 2021



133.



135.



134.

133. 1885 photograph of Second Sydney Station and Devonshire Street. Source: City of Sydney Archives

134. c1920 photograph of steam train at Central Station with the Clocktower behind. Source: National Library of Australia, Source unknown, possibly John Buckland

135. 1884 photograph of second Sydney Railway Station and the Goods line cutting to Darling Harbour. Source: State Records NSW

Public spaces: centre



136. View of Central Avenue, looking towards the clocktower

Public spaces: centre



- 01 Central Avenue**
- 02 Devonshire Bridge and Link**
- 03 Ibero American Plaza**

137. Plan of Central Avenue, Devonshire Bridge, Ibero-American Plaza, Western Gateway sub-precinct and Henry Deane Plaza



Central Avenue

The major civic armature of the OSD, and the primary address for the new precinct, a new city address for new buildings and the Western Gateway.



138. Key Plan

Character

Central Avenue is laid out in the spirit of other Sydney street layouts which responded to the position of the clocktower. It provides new landmark views to the clocktower curated through the careful positioning of trees. This use of the clocktower as a stabilising device helps the new development feel part of the existing city.

Central Avenue is a place for people to dwell rather than move through quickly. It brings the threads of character from the wider city and wraps them together in a string of gardens and unique smaller scaled buildings.

Limited vehicle movement (no private vehicles) is accommodated along the avenue as a shared space.

Amenity

- Where there is better solar access to the north of Central Avenue, there is an extension of the character of the Central Green, with sitting lawns and dwell spaces.
- The southern half of the Central Avenue uses rainforest species to create a lush character in an area with less sunlight. Sky views are more important than canopy here so more slender rainforest species are used to create a densely green character with open sky views.

Connecting with Country Framework, Balarinji (2021)

Design Principle 1.4: The Project Team will acknowledge the importance of Sky Country

- All stakeholders agreed that acknowledging and interpreting Sky Country was essential.
- By acknowledging Sky Country not only would the Precinct be acknowledging a holistic view of Country, but it would be working to replace a lost landmark of the night sky.
- Stars, which are largely lost in the city due to light pollution, are incredibly important to the cultural knowledge of Country and were often reflected in the rock art found along the sandstone cliffs of Gadigal Country

Themes

- Place based Learning
- A Connection to Sky Country and Cosmology
- Replacing Landmarks of Country

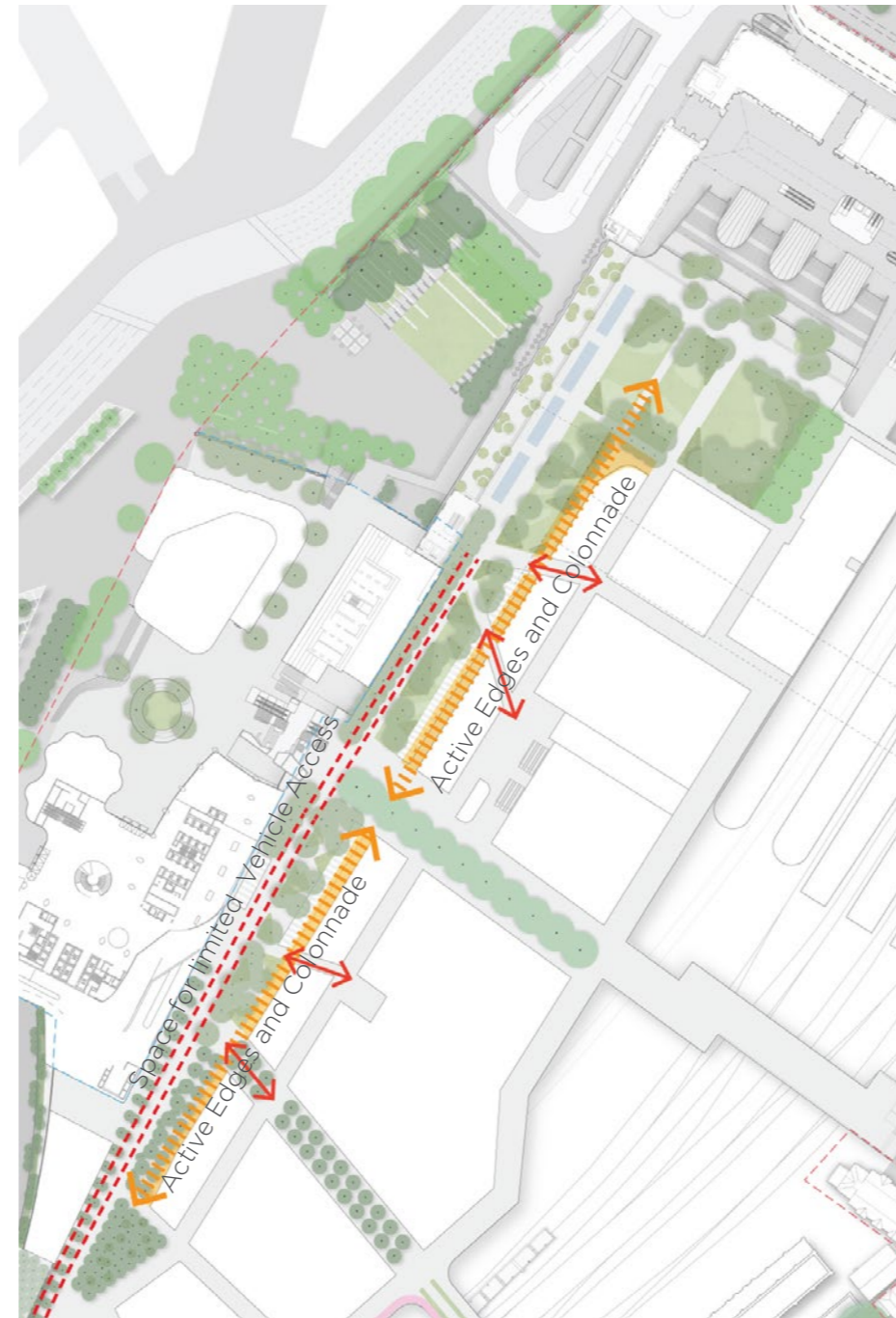
Public spaces: centre

Key Views



140. Diagram of key views towards the clocktower of the Sydney Terminal Building. Trees are laid out between a sequence of views to the clocktower, which open up at key moments in the network.

Limited vehicle access and active edge



139. Diagram of vehicle clearway for emergency and future vehicles. An activated building edge and connections through to the commercial foyers will connect to planted gathering spaces.

Planting Characters



141. Diagram of planting characters. Sunny turf mound gardens to the north of Devonshire Link, opening up to Central Green and the views of the city to the west. Gully and rainforest planting character to the south allowing dense greening in a shadier area.

Devonshire Bridge and Devonshire Link

Devonshire Bridge and Link creates a major east-west connection for the precinct and the wider city network.



142. Key Plan

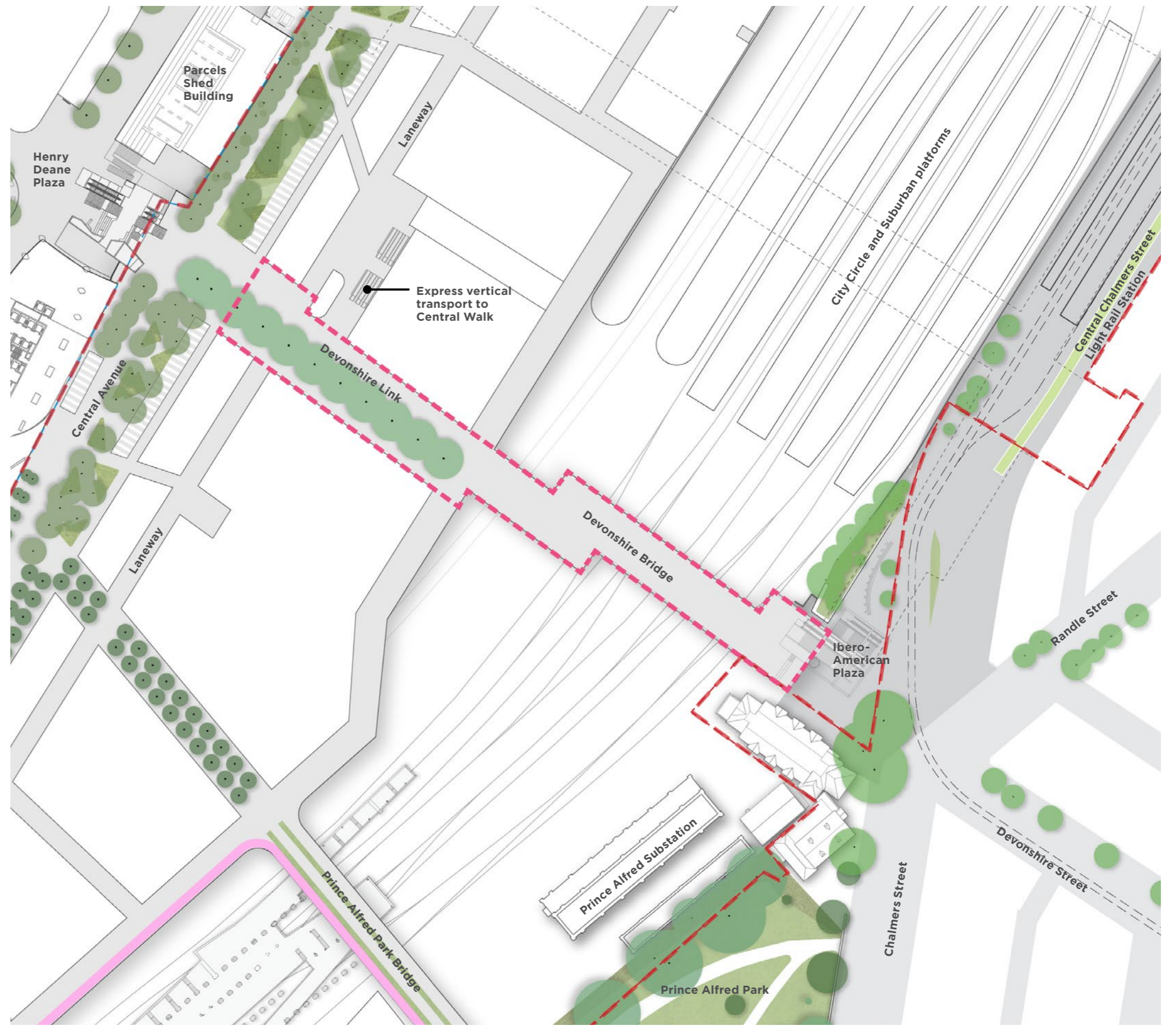
Character

- Devonshire Bridge, a unique civic character; refer to Urban Design Framework for details
- Bridge offers views north towards city skyline and over the electric platforms and the Sydney Terminal Building.
- Devonshire Link - Eat Street, active ground floors, outdoor dining
- Key node is intersection between the Central Avenue and Devonshire Link, and the arrival point of the Express escalators from Central Walk - forms an important arrival point on the OSD.
- Character of tree planting references the street tree planting of Devonshire St, and responds to the solar conditions of an E-W city street.
- Public art location - reference their report.

Amenity

- Devonshire Bridge - seating - take advantage of the views and solar access.
- Devonshire Link - Seating, outdoor dining

Public spaces: centre



143. Plan of Central Avenue, Devonshire Bridge, and Ibero-American Plaza

1:750 0 10 20 30 40M

Ibero-American Plaza

The Ibero American Plaza will be an important node connecting to the Devonshire Street Bridge and also to the station itself. It will provide clear wayfinding and meeting points and good views of the Railway Institute Building.



144. Key Plan

Character

- Arrival plaza to Central Station from the East.
- Important station entry to southern concourse, and Devonshire St tunnel, and also location of Chalmers St Light Rail Station.
- Recently upgraded as part of the Light Rail project, with enlarged pedestrian areas due to closing of Devonshire St and part of Chalmers St, new bike lanes, new planting areas and trees.
- Will be the location of vertical transport to the Devonshire Bridge.
- Adjacent to Railway Institute Building, important heritage item. The northern facade of the building should be as visible as possible from the public space.
- Movement and clear wayfinding is vital between transport modes across this plaza.
- Recent upgrade creates a civic character plaza with large pedestrian areas to suit station movements, with planted areas and new trees.

Amenity

- Although the most important role for the plaza is in creating legible paths of movement and clear entry and exit points, it will also be a popular meeting point. It therefore needs to be designed to have seating areas achieving a comfortable microclimate.

Public spaces: centre



145. Plan of Ibero-American Plaza and Devonshire Bridge

1:450 0 10 20M

3.3.3

Public spaces:
south

OFFICIAL

3.3.3 Public spaces: south

South: daily life and health

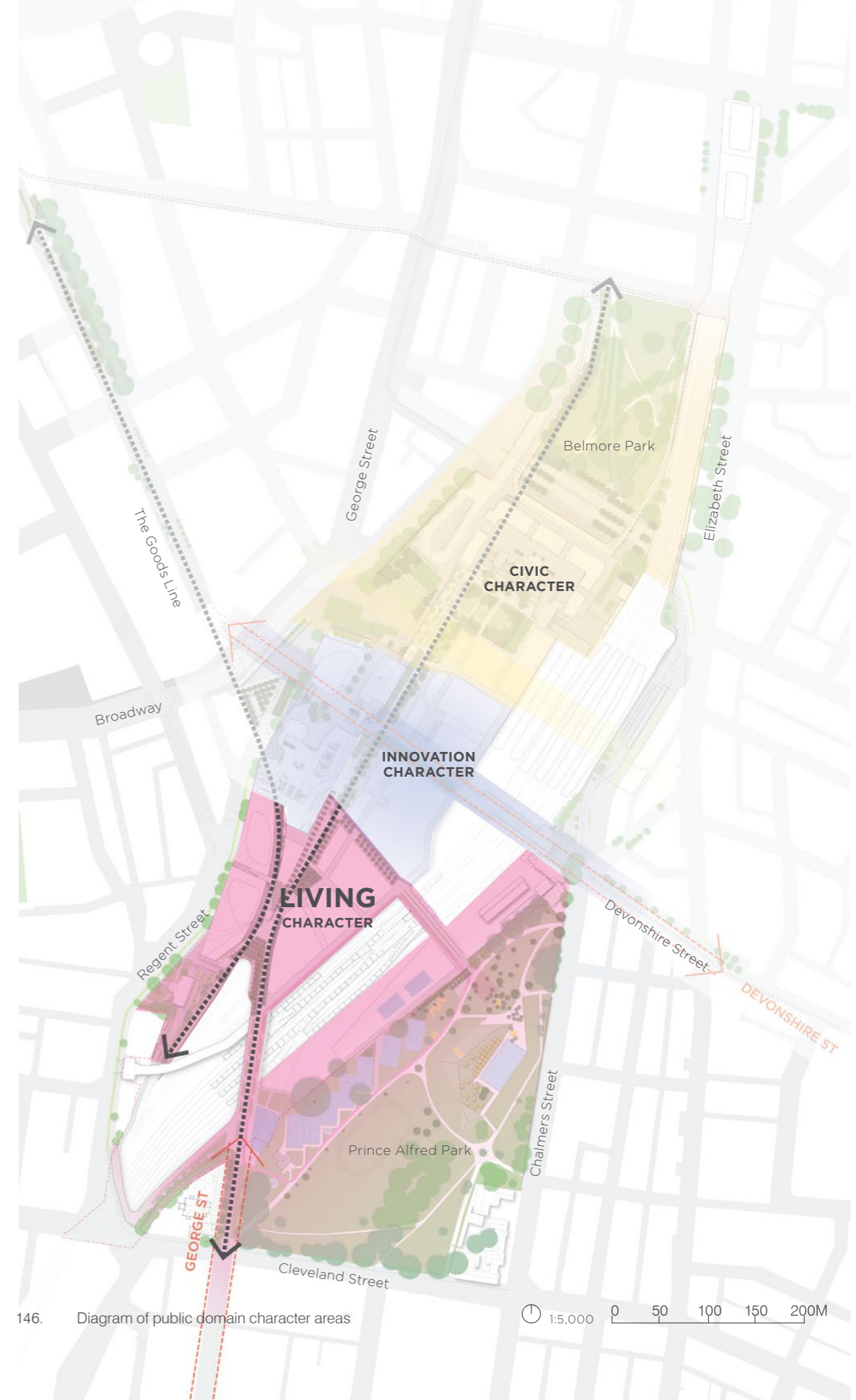
The south end becomes activated as a series of movement threads that entwine with the characters of the rail and the park. There is a distinct and visible support system for Aboriginal cultural practice in this part of the site.

The south end supports everyday life of the precinct, connecting to communities in the south (Redfern) to the east (Surry Hills) and to the west (Chippendale).

The south has a different mix of land uses including residential buildings, community hubs and sport and recreation offerings.

The public domain changes in the south too, relating to context and land use. The south end becomes activated as a series of movement threads that entwine with the characters of the rail and the park. There is a distinct and visible support system for First Nations cultural practice in this part of the site.

The active recreation system supports health and wellbeing through running and cycling loops, fitness stations, distributed play elements, informal sports provision and additional formal recreation courts.



146. Diagram of public domain character areas

1:5,000 0 50 100 150 200M

Public spaces: south

**Social life and recreation in the Central Precinct
Coronation Playground and Family Hub, Prince Alfred Park**

- The Coronation Playground was an innovative social infrastructure providing a public, free, staffed place for families and children living in the nearby high density neighbourhoods. The activities included loose parts play, bikes, balls, games, water play and fire pits.
- The program and facility was pioneered in Sydney in the 1930s and later exported around Australia and the world.

Railway Institute Building:

- The Railway Institute is socially significant for the role it has played in the social life of railway employees, as well as the general public. It was in use for over a century as a social venue for railway workers containing leisure and some sporting facilities, and also provided an important role in their education.
- The building contained a lecture hall and library as it was intended to form an educational institute for railway workers to "improve" through study and attending lectures. The building was designed to emphasise the connection to the railway by focusing the entrance to the rail corridor.
- Although built to educate the railway employees, the building and the Institute were soon recreated into a more relaxed environment for social and recreation activities for the railway workers.

Conservation Management Plan, Artefact 2021



147.



150.

147. 1907 photograph of members of the Railway Institute Gymnasium. Source: Australian National University Archives. <http://hdl.handle.net/1885/196>

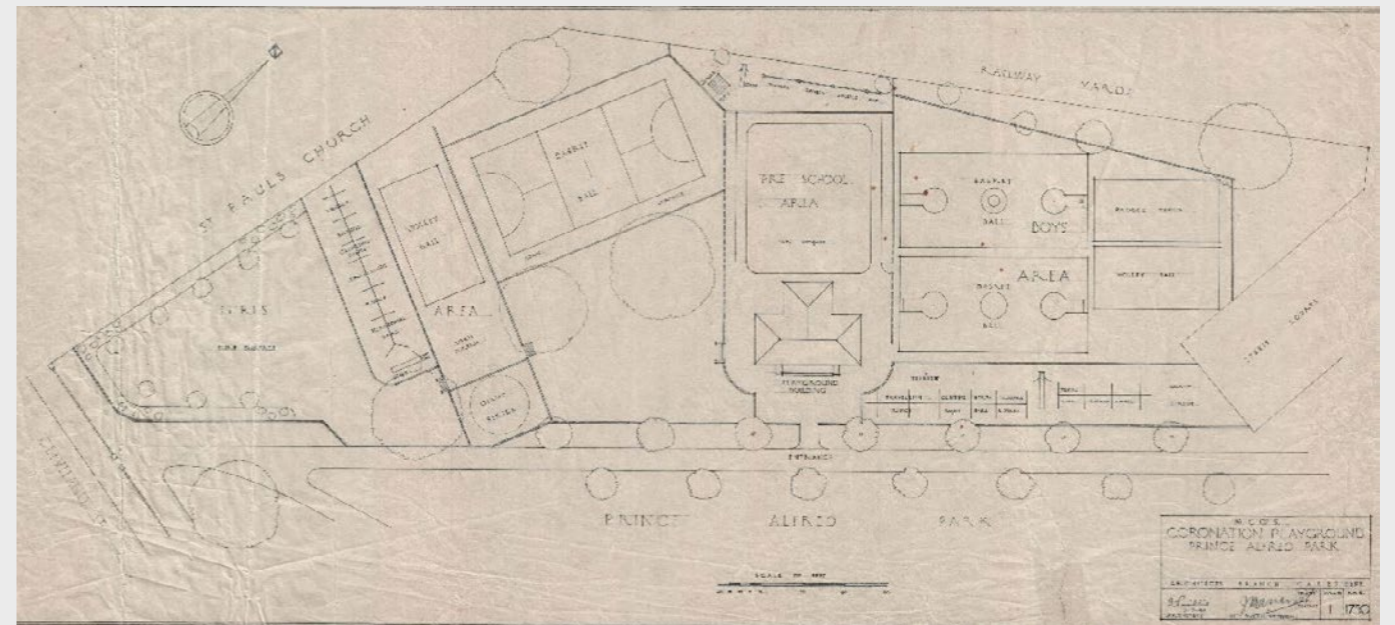
148. 1930s photograph of Coronation Playground, Prince Alfred Park. Source: City of Sydney Archives ID A-00015403.

149. 1941, Council Plan, Coronation Playground, Prince Alfred Park, City of Sydney Archives ID A-00545439.

150. 1919 photograph of the Railway Institute Building. Source: State Library of NSW

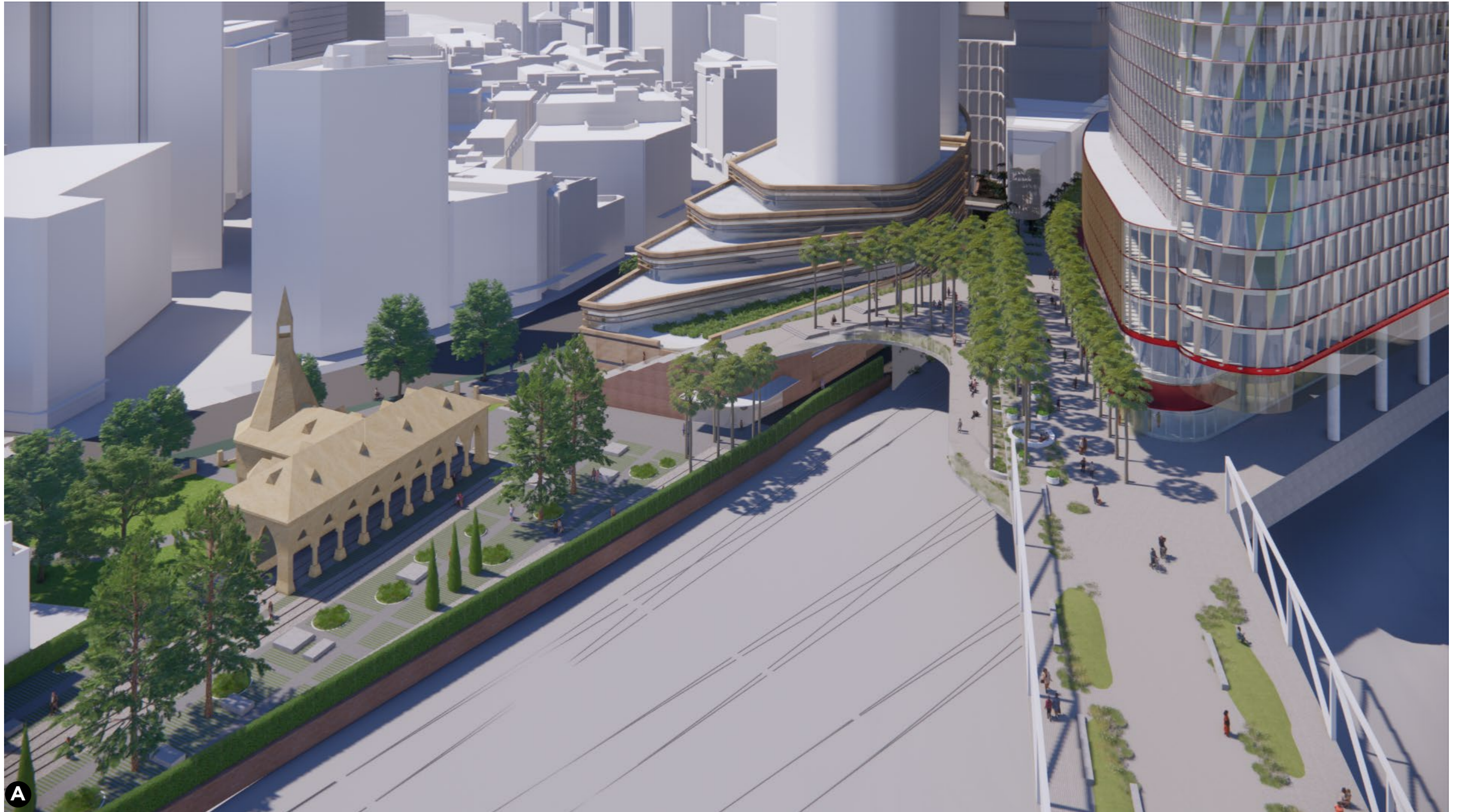


148.



149.

Public spaces: south



151. View of George Street Bridge, Southern Plaza, Mortuary Station and Mortuary Station Gardens

Public spaces: south



- 01 Goods Line**
- 02 Mortuary Station Garden**
- 03 George St Bridge**
- 04 Southern Plaza**
- 05 The Active Loop**

152. Plan of Southern Plaza, The Goods Line, Mortuary Station Garden, George Street Bridge and Prince Alfred Park

1:2,000 0 10 20 50 100M

The Goods Line

The Goods Line provides an opportunity to create a pedestrian linear park from Central Precinct to Darling Quarter, connecting with UTS and the Powerhouse Museum.



153. Key Plan

Historically, the Goods Line moved goods between the railway and the wharves at Darling Harbour, with goods platforms and warehouses located between Mortuary Station and the Parcel Post building. The Central Station precinct was much more connected with Darling Harbour and Pyrmont by rail.



154.



155.

154: 1943 aerial photograph shows the opening into the Goods Line in Railway Square. (Source: Sixmaps)
 155: 1874 drawing shows the rail line extending to wharves at Pyrmont. Samuel Calvert, Illustrated Sydney News. Source: National Library of Australia Bib ID 2713228.

Conservation Management Plan, Artefact (2021) 5.2.3 Darling Harbour Goods Line/ Railway Square underbridge

- The Railway Square underbridge forms part of the original 1855 Central Station development as a component of the direct goods line from the Sydney Yard to Darling Harbour.
- The structure was originally designed as a sandstone arched overbridge by engineer William Randle. Although modified and extended over time, the original sections, located in the middle of the overbridge, are the oldest remaining pieces of railway infrastructure along the NSW rail system.
- The bridge was extended to the east and west with sandstone walls and a brick vaulted ceiling in the 1880s. Steel bracing system was constructed in 2005 to support the original stone section.

Public spaces: south

Parts of the Goods Line have been redeveloped as public open space. There is an opportunity to extent and reconnect the Central Precinct with Darling Harbour, and to strengthen the connection with UTS and the Powerhouse Museum by opening the existing Goods Line tunnel to public access.

North of Ultimo Road, the character of the Goods Line is an elevated walkway surrounded by planting and overhanging fig trees creating a linear park. This contrasts with the more civic plaza character between buildings south of Ultimo Road. The character within the Precinct would change again to be more a subterranean experience of tunnel and cutting.



156.



157.



158.

156, 157: Photographs of The Goods Line between Ultimo Road and Hay Street, with areas of planting, turf lawns and fig trees. Images: Florian Groehn
158: Photograph of The Goods Line south of Ultimo Road, with trees and seating in a paved civic plaza. Image: DarlingHarbour



159. Plan of Central Precinct and the Goods Line

1:7,500

Public spaces: south

The Goods Line

There are several key opportunities to access and activate the southern extension of the Goods Line. Improved access and activation are critical due to the subterranean nature of the line divorced from the activity of the street.

Character

- The Goods Line south has a unique character of robust, large scale rail infrastructure. It includes interesting heritage fabric and opportunities for interpretive lighting.
- Views from the OSD level down to the Goods Line and legible connections will assist access.

Amenity

- The Goods Line will be primarily a movement space and also a popular and interesting environment connected to the publicly accessible Mortuary Station gardens and north to the existing section of the Goods line and the Powerhouse museum.
- Possible activation and connections to the lower retail level of the Western Gateway, and to a food and beverage tenancy in the lower level of Regent Street Sidings.

Other

- There may be opportunities to engage the cultural destination of the Powerhouse with the linear park of the Goods Line. This could include curated displays or a museum walk. There would be particularly dramatic opportunities within the tunnelled parts of the Goods Line for large scale display of rail-oriented collections.



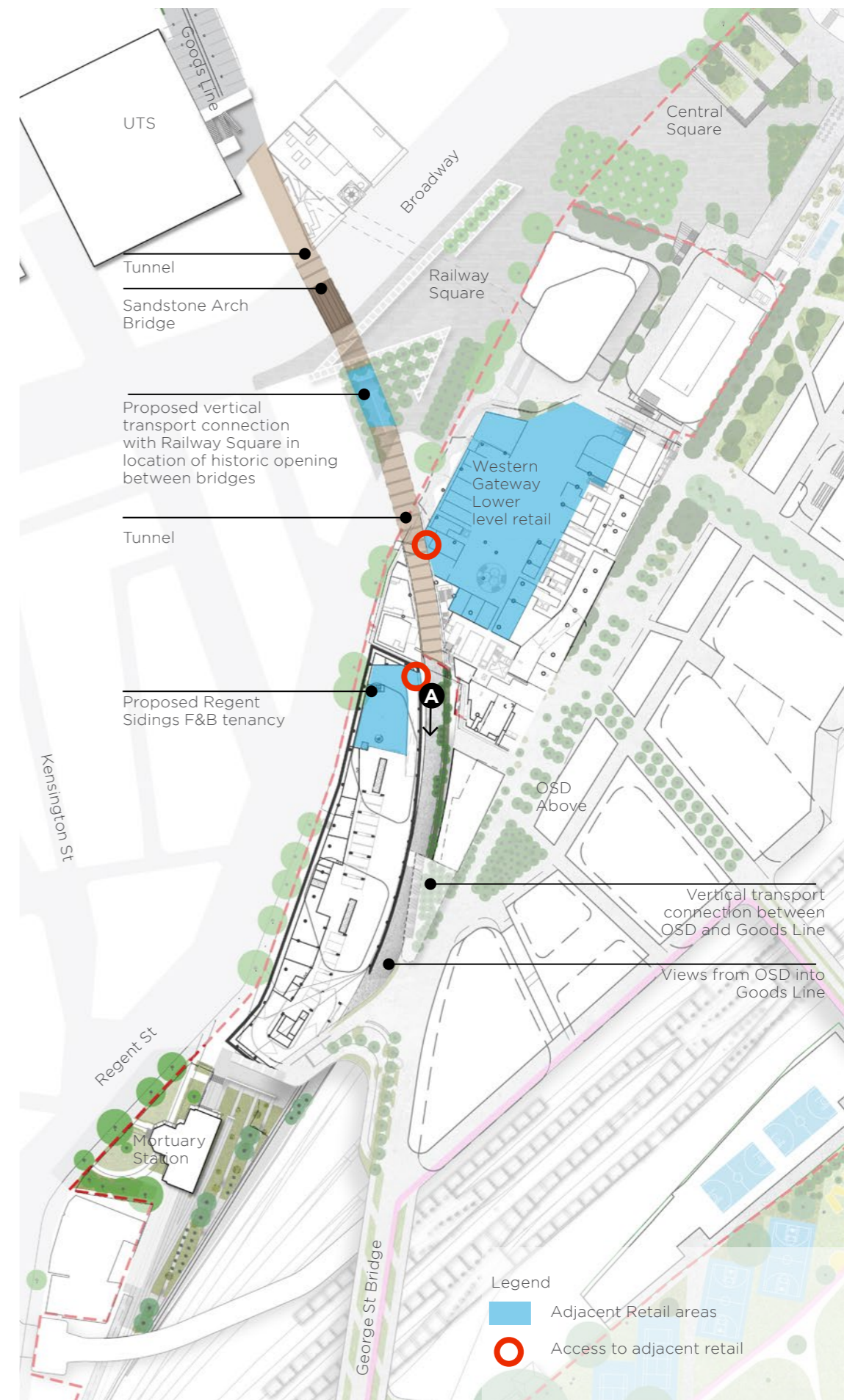
160. Photograph of art installation within the Goods Line tunnel 2017 (Image: Alex Davies)



161. Photograph of lighting installation at the Connaught Tunnel, UK. Image: Crossrail



163. Photograph of lighting installation the Argyle Cut, Sydney. Image: Robert Montgomery



162. Plan of The Goods Line

Public spaces: south



164. View of the Goods Line, with rainforest gully planting, existing brick retaining walls of the cutting, and vertical transport connection to the Southern Plaza.

Mortuary Station

Mortuary Station and gardens will be open to the public for the first time, offering a unique and beautiful walled garden that brings history to life.



165. Key Plan

Mortuary Station Garden

A State-significant historic rail site with:

- Minimum area including station: 4,470m².

Character

- The fabric of Mortuary Station including the building, platform, street garden and fence, railyard and goods line alignment, tracks and walls will inform the future use, adaptation and approach to the site.
- Maintain sufficient space to allow the buildings, elements and rail use to be understood and seen without the pressure of development encroaching on the setting.
- Explore opportunities to view the complex from Regent Street and the new deck.
- Interpretation should highlight Mortuary Station's principal use as part of the early Redfern Station development: that is it is an historic rail site first and foremost.
- Overlays of other interpretive themes may include the physical connection to the Rookwood Cemetery landscape.
- Explore connectivity via the goods line as another link between Redfern and Sydney Harbour.
- Potential for activation and public use, through links and a direct interface between the public and rail history.
- Explore opportunities for the adaptive re-use of the station building.
- Significant views and vistas in many directions will inform design approaches.
- Any use, apart from general public access will need to work with the extant fabric.

Amenity

- A space that creates a cool, green setting including the introduction of canopy trees on the rail side of the building.
- Good sight lines and pedestrian safety.

Other

- Small scale cafe pavilion may be appropriate to assist with activation.

Public spaces: south



Central Precinct Heritage Framework, TZG, 2018

- The two railway tracks (the most westerly tracks in the Sydney Yard) that run into the building on its eastern side are of exceptional significance in that they evidence the historical processes that were undertaken at Mortuary Station, i.e., the rail transportation of funeral parties to Rookwood Cemetery
- These tracks may be used for the purposes of displaying locomotives or carriages in the future and form a key aspect of any interpretive plan for Mortuary Station.
- Existing railway tracks (2) that run into Mortuary Station from Sydney yard to be maintained and interpreted as part of a landscape design.
- The open structure of the pavilion section and porte-cochere of Mortuary Station are essential components of the building's design and construction. Do not interfere or obstruct the arched openings.

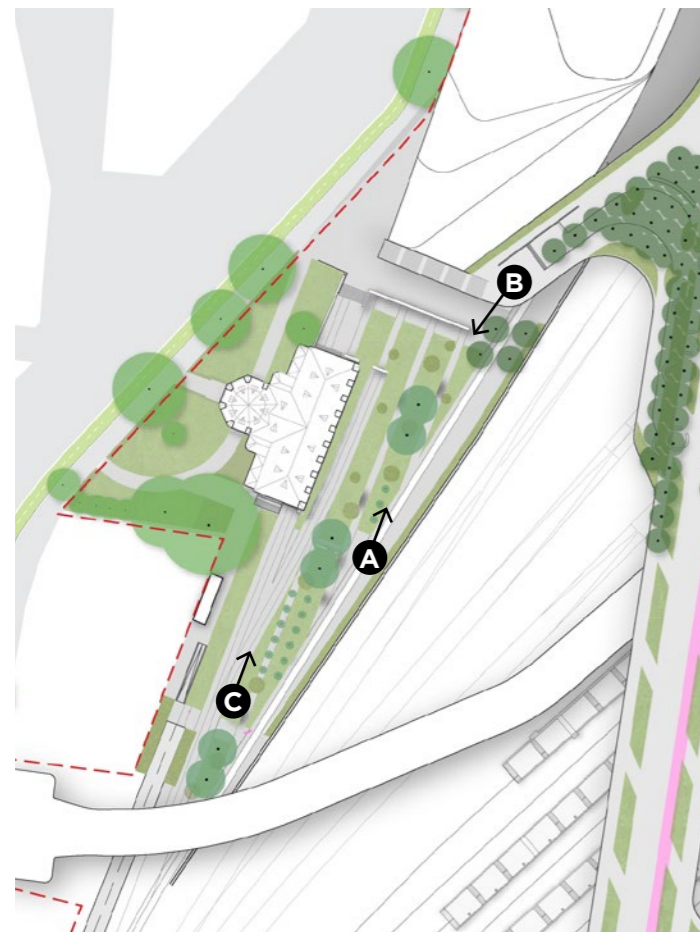
Key Considerations - Mortuary Station [for public domain]

- Remove intrusive elements that detract from the significance of heritage fabric and key views such as paving to the platform extensions and the Sydney Yards Access Bridge.
- An appropriate use should be found to enable the building to be used, cared for and appreciated.
- Ensure visual relationship between Mortuary Station and the rail yards in maintained.
- Retain existing views to and from Mortuary Station.

166. Plan of Mortuary Station and Mortuary Station Garden

1:750 0 10 20 30 40M

Public spaces: south



167. Mortuary Station Key Plan

Heritage

- Rookwood Cemetery landscape character
- historic planting of Canary Island Date Palm, Hoop Pine, Pencil Pines, and their arrangement to create axial views, focal points and green rooms.

**Conservation Management Plan, Artefact (2021)
5.2.2 Mortuary Station**

- The closure of the Devonshire Street Cemetery in January of 1867 required effective transportation of the deceased to the new cemetery site.
- The dual mortuary stations at Rookwood and Central created a rail link between the city and the cemetery, allowing mourners to accompany their loved ones to their final resting place at the necropolis.
- Matching, highly decorative Gothic railway stations were constructed between 1868 and 1869; one in the necropolis and one along Regent Street just south of the first Sydney station. Designed by Colonial Architect James Barnet, the ornate buildings were built by construction firm Stoddart and Medways who emphasised the ornamental design of the stations by utilising both white and biscuit-brown Pyrmont sandstone, richly carved by local stonemasons Thomas Duckett and Henry Apperly.
- The deliberately Gothic design and landscape provided a tasteful and respectful setting for a family to gather before the final train ride.
- Trains would travel between Central and Rookwood daily, picking up mourners and coffins at various intervening stations.



168.



169.



170.



171.



172.



173.



174.

168: 1870-1875 Photograph of Mortuary Station. Image: Mitchell Library, State Library of New South Wales

169: 1865 photograph of railway station at Rookwood Cemetery. Source: NSW State Archives.

170, 171: Photographs of characteristic historic planting at Rookwood Cemetery.

172: Canary Island Date Palm
Phoenix canariensis
173: Hoop Pine
Araucaria cunninghamii
174: Italian Pencil Pine
Cupressus sempervirens

Public spaces: south



175. View of Mortuary Station and Mortuary Station Garden

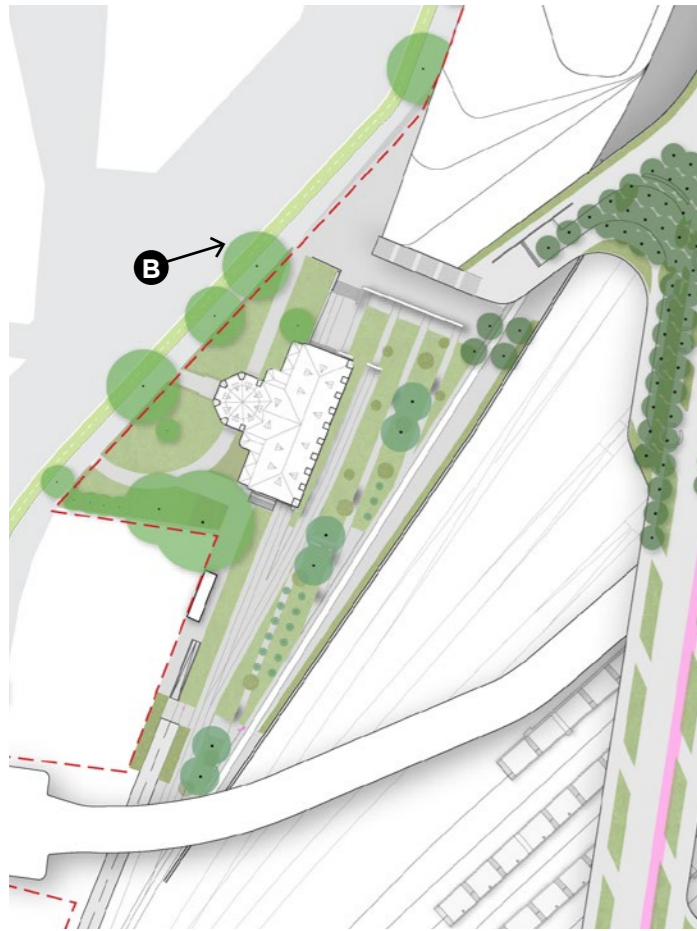
Public spaces: south

Mortuary Station is given new prominence and public relevance by being connected to the over station development.



176. View of Mortuary Station Garden from the Southern Plaza

Public spaces: south



177. Mortuary Station Key Plan

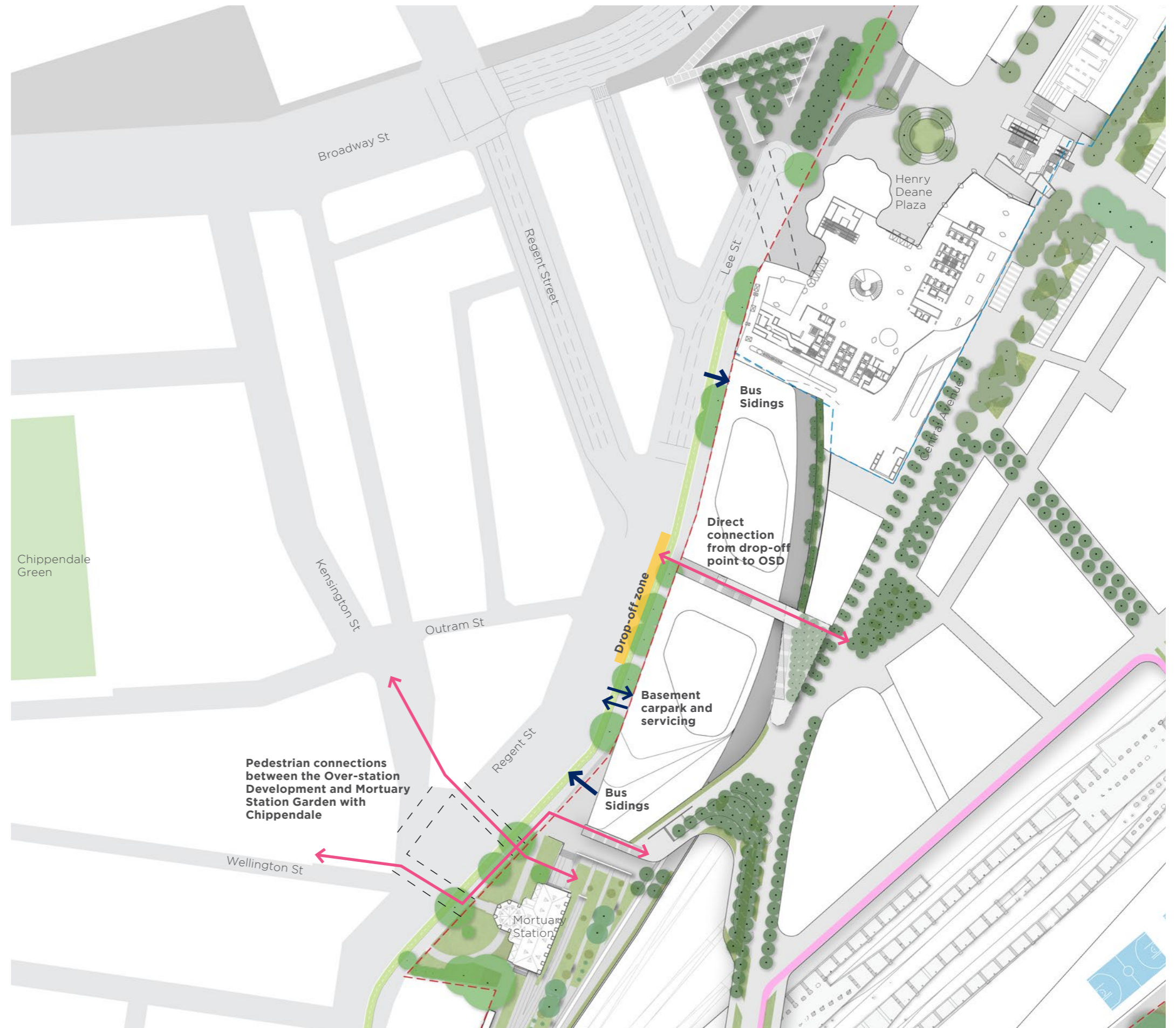


178. View from Regent Street looking towards Mortuary Station Garden, Regent Street Sidings and the Over-Station Development

Public spaces: south

Access and Connections:

- The stairs at the south of Regent St sidings provide a connection between the OSD and Mortuary Station Garden, and a pedestrian connection with Chippendale via the crossing over Regent St at the Kensington St junction.
- The stairs through Block D provide a direct connection between the drop off zone and the south of the OSD.
- These links minimise the conflict with the bus sidings and pedestrian movements.



179. Plan showing access and connections between Regent Street, Chippendale, Central Precinct and Mortuary Station Garden

1:1,500 0 25 50 75M

George Street Bridge, Prince Alfred Sidings and Active Loop

Two bridges connect the over station development to Prince Alfred Park and sidings. The George Street bridge provides essential at-grade access to the over station development from the south. The bridges and eastern walk provide an opportunity to bring the character and functionality of Prince Alfred Park across to the precinct.



182. Key Plan

Active Loop Character

- The Prince Alfred Park Loop is an opportunity to bring the character and recreational use of the park up to the over station development.
- This loop has the potential to extend the experience of the park and provide more recreation space.
- The bringing together of the park and the OSD in this way draws together a more cohesive appreciation of the heritage items surrounding the precinct, including the Bradfield Flyovers.
- Both active and passive characteristics of the park can be extended across the rail lines.
- The edge of Prince Alfred Park should be considered as an opportunity to create an additional playground space. This may extend into incidental distributed network of play opportunities across the OSD. The City of Sydney have defined in their needs study that there is also a need for further formal sports courts as well as new less formal opportunities such as skate parks, climbing walls, parkour gyms and hybrid/half court facilities in this part of the city.



180. Plan diagram showing heritage and historic buildings and structures



181. Plan diagram showing existing park character areas

Public spaces: south



184. Plan diagram showing the active character and meadow planting character of the park extending across the bridge.



183. Plan diagram showing the bringing together of the park and the OSD in this way drawing together a more cohesive appreciation of the surrounding heritage items.



185. Plan showing Prince Alfred Park, George Street Bridge, Prince Alfred Park Bridge, Prince Alfred Sidings, Southern Plaza, and Mortuary Station

1:2,000 0 10 20 50 100M

Public spaces: south

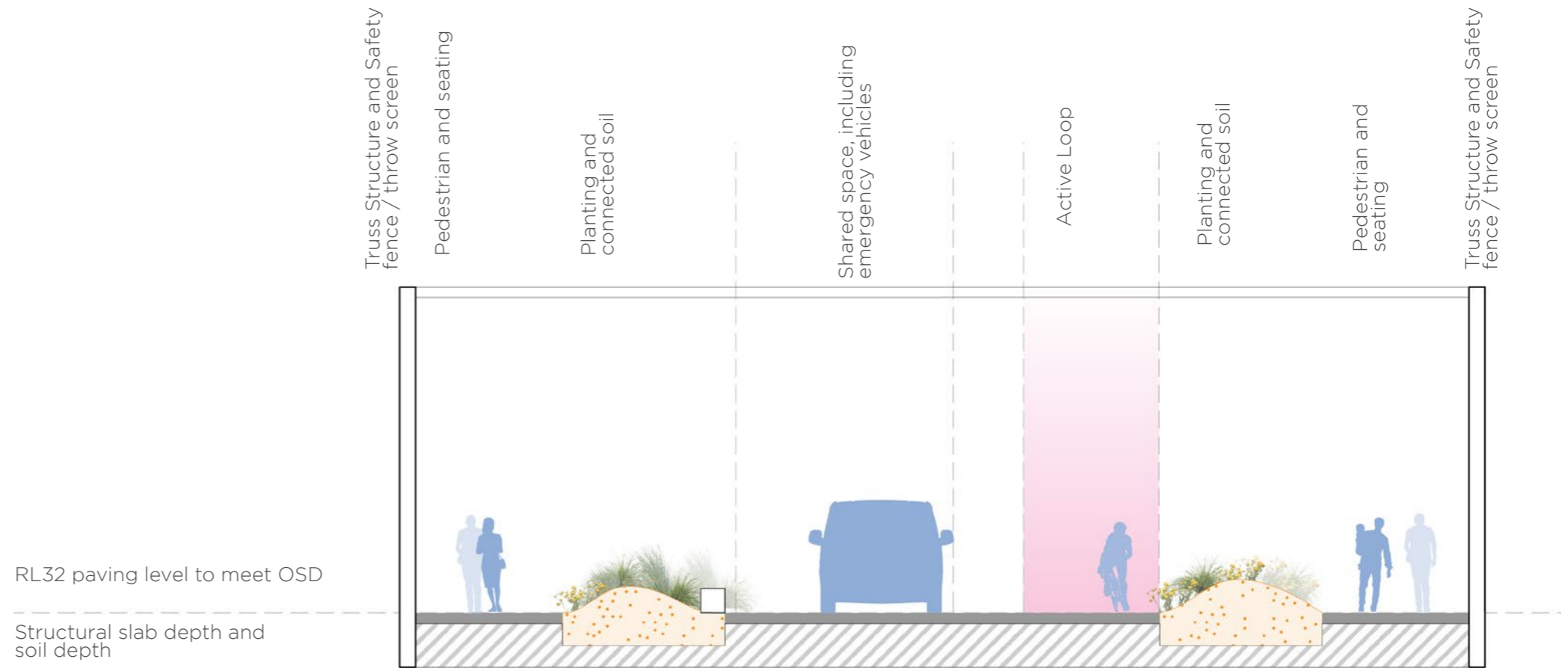
George St Bridge

Character

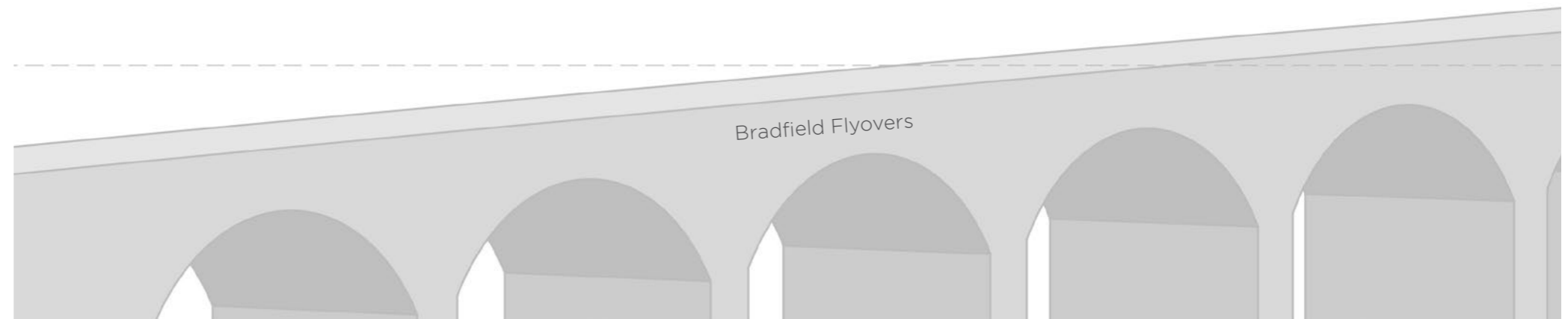
- Connects George St, Redfern directly to the Central Precinct.
- Connects at the same natural grade of the park and is therefore experienced as an extension of the park.
- Truss structure suits engineering requirements with limited possible locations for columns in the rail corridor and limited depth for structure below the paving level due to required rail wire clearances. Truss structure also fits with the rail bridge character when viewed from outside the bridge.
- Build on character of Prince Alfred Park, including the meadow planting and ability to connect soil zones across to the OSD.
- Shared space with capacity for emergency vehicles and cyclists.
- Offers unique views of the rail corridor and surrounding rail heritage including Mortuary Station and the Bradfield Flyovers.

Amenity

- Around the world, urban walking has become a top choice for exercise.
- There are many examples of elevated walkways and city loops that support this activity while providing new and interesting views of the city.
- These will be more than bridges, offering places to sit and view the surrounding rail environment in comfort.



Clearance for trains and overhead wires



186. Illustrative section showing George Street Bridge and the Bradfield Flyovers

Public spaces: south

George St Bridge with a strong connection to the surrounding rail heritage, including Mortuary Station



A

187. View of the George Street Bridge looking towards Mortuary Station

Public spaces: south

George St Access at Cleveland St

- Connects George St, Redfern directly to the Central Precinct.
- The accessway will usually only be for pedestrians and cyclists moving from Cleveland St to the bridge.
- Accessway will align to the George St cycleway crossing providing seamless cycle connection from Redfern to the OSD.
- Accessway will provide access for emergency vehicles to George St Bridge and OSD
- The accessway will have bollards or other solution to prevent unauthorised access, and the necessary waiting area required.
- May provide access for service or maintenance vehicles, only overnight / out of hours, in the same way as Pitt St Mall. All regular deliveries and servicing of the buildings will be through the basement.



188. Plan showing proposed accessway from Cleveland Street to George St Bridge

Southern Plaza

The Southern Plaza is created at the junction of the Goods Line, Central Avenue, Mortuary Station and the North South Lane. These threads are pulled together in a meaningful way to create a clear node and a community-focused public place with open views to Redfern.



189. Key Plan

Character

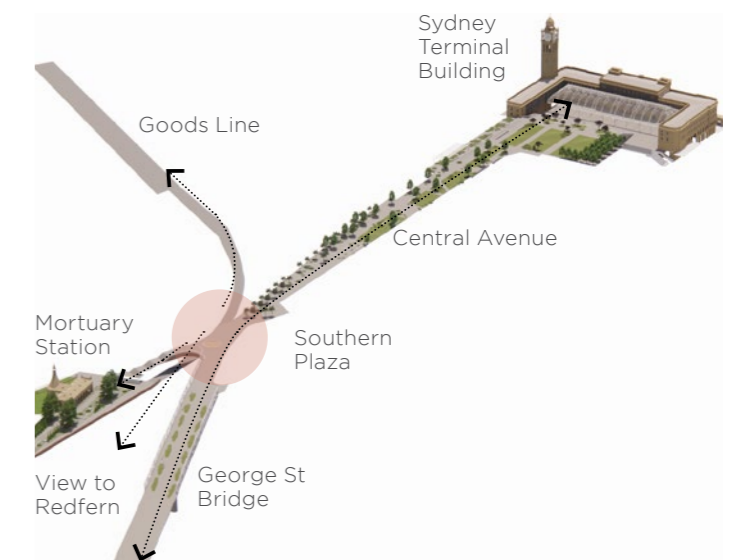
- A key node in many journeys to and through the site.
- A key arrival point when coming from Redfern, and a key transition to Redfern when coming from the city.
- An open view to Redfern.
- An amphitheatre-like space to sit and watch the trains.
- A space with a beautiful grove of Cabbage Tree Palms creating an iconic plaza.
- A dwell space situated alongside the community and education buildings.

Amenity

- Many built-in seating options.
- Great views to the south.
- A hub of many journeys ensuring best possible activation and passive surveillance.

Connecting with Country

- The Southern Plaza is an important site in the Connecting with Country strategy as it is sited to establish an ideal place for a Welcome to Country, both to Redfern and to Central. This may include artwork and space to practice culture.
- The train tracks have often been viewed as something that divides Country and people.
- The bridge has been carefully aligned so that it provides a direct visual extension of George Street Redfern.
- The two dominant threads of the Goods Line with its connection to Darling Harbour and the George Street - Central Avenue with its connection to Sydney Harbour and Redfern are brought close together to create a dynamic node.
- The place has the clarity of drawing together different paths to create a true meeting place.
- Open visual access to Redfern is established through this arrangement at the southern end of the Avenue.



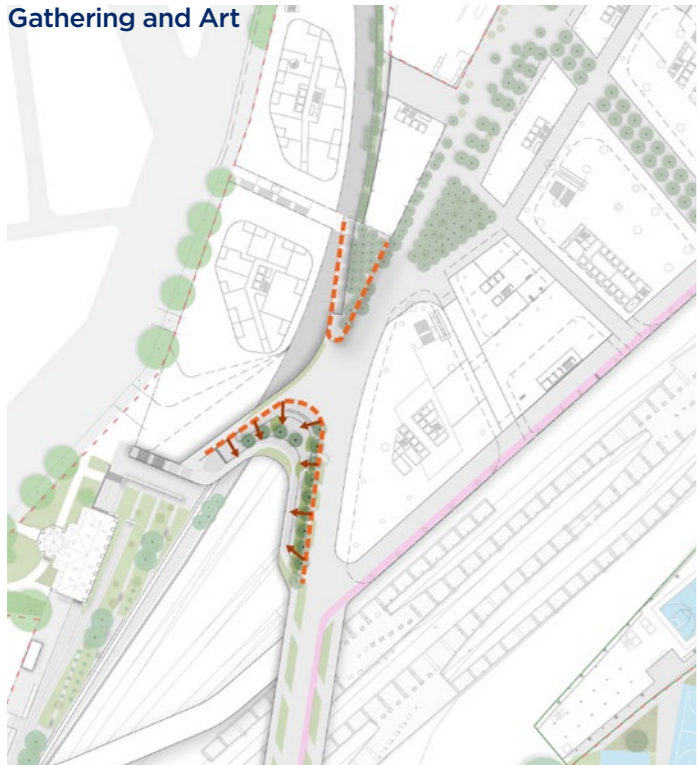
190. Diagram showing the location of the Southern Plaza sitting at the intersection of the Goods Line and Central Avenue - George St Bridge

Public spaces: south

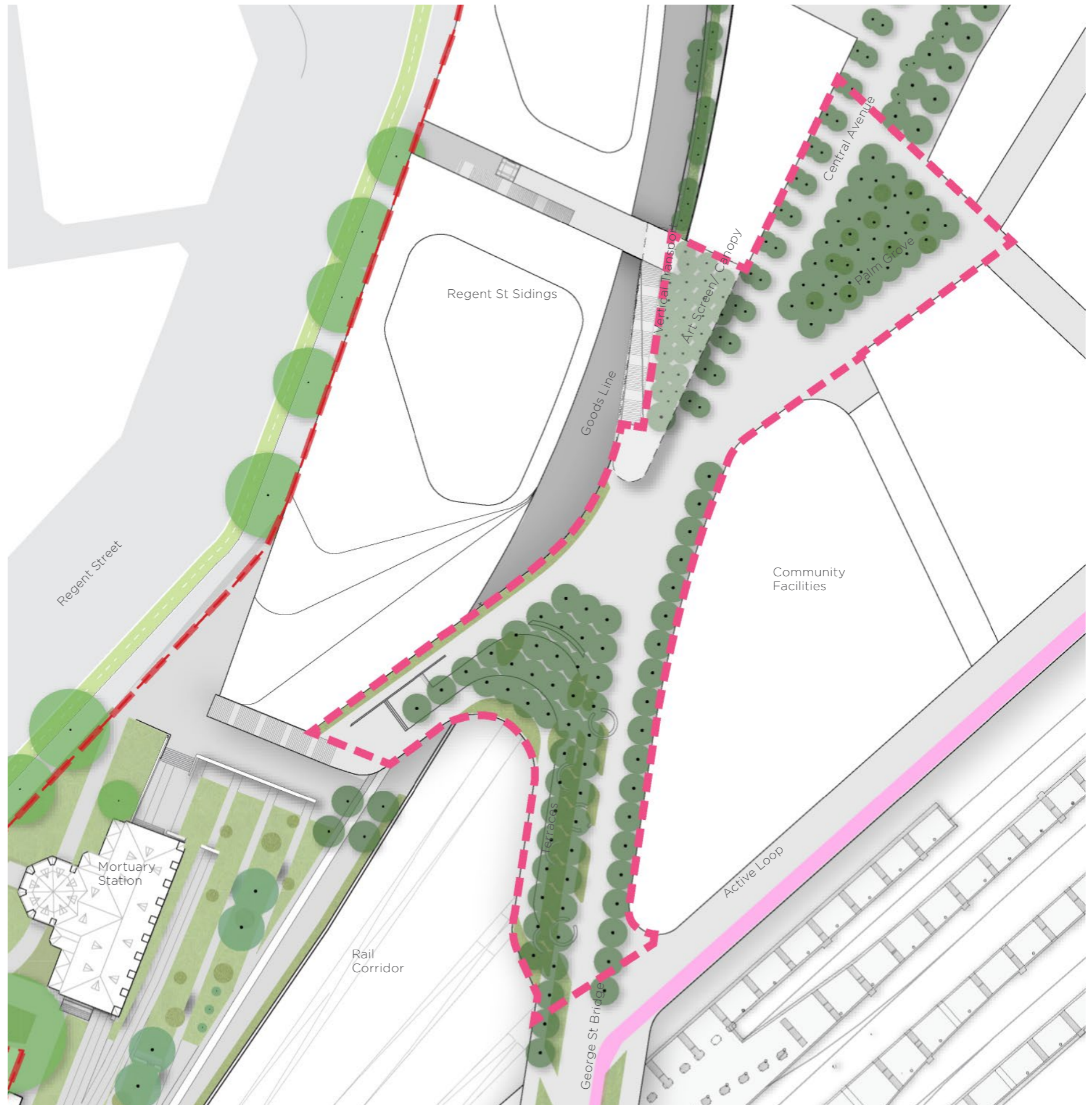


191. Diagram showing view lines from the laneway to Mortuary Station and from George Street Bridge to the Goods Line.

Gathering and Art



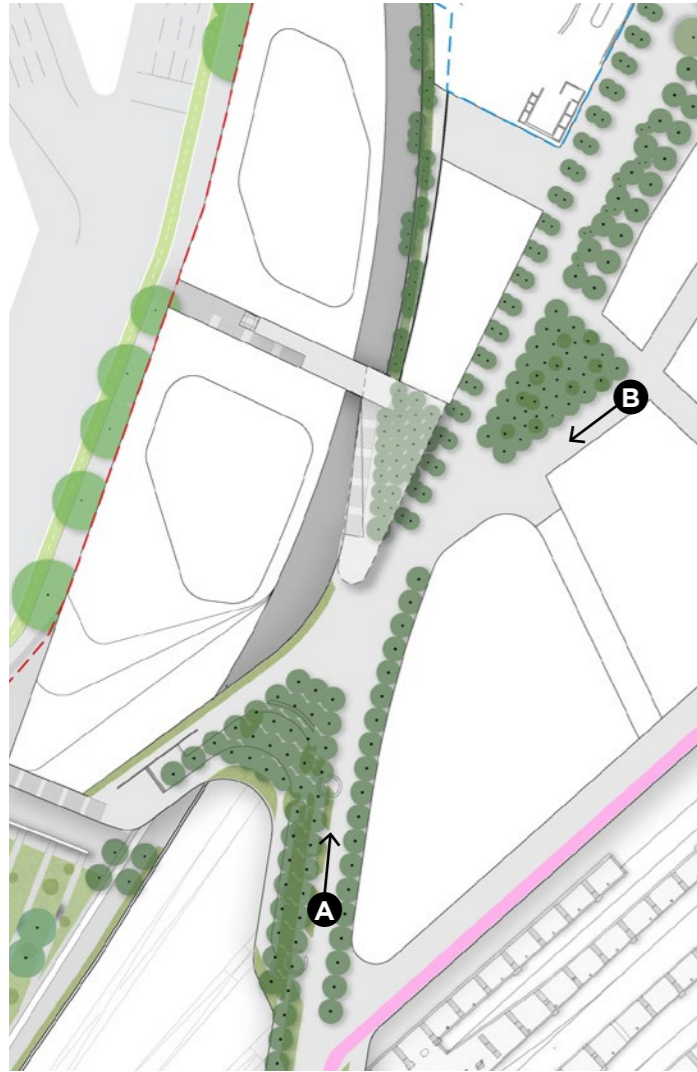
192. Diagram showing the gathering space of the southern plaza and potential art screen above the stair connection to the Goods Line.



193. Plan of the Southern Plaza



Public spaces: south



194. Southern Plaza Key Plan



195. View of Southern Plaza

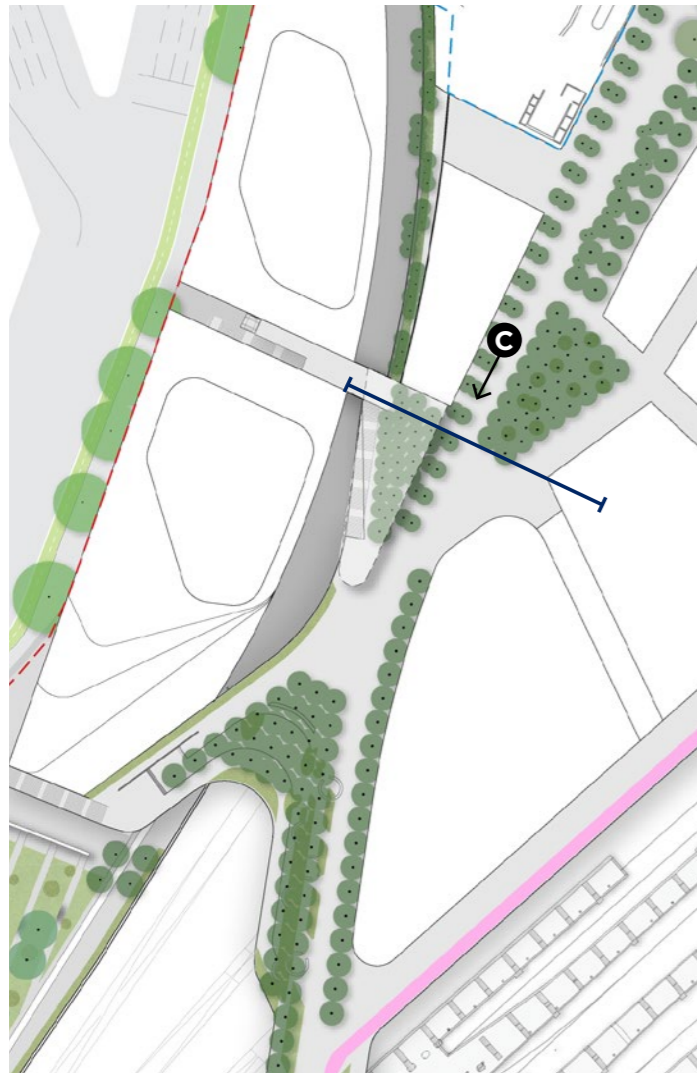
Public spaces: south



B

196. View of Southern Plaza looking south towards Redfern

Public spaces: south



197. Southern Plaza Key Plan



198. Illustrative section through Southern Plaza and the Goods Line

Public spaces: south



199. View of Southern Plaza looking south

3.4

Transport and
mobility

OFFICIAL

Transport and mobility strategy

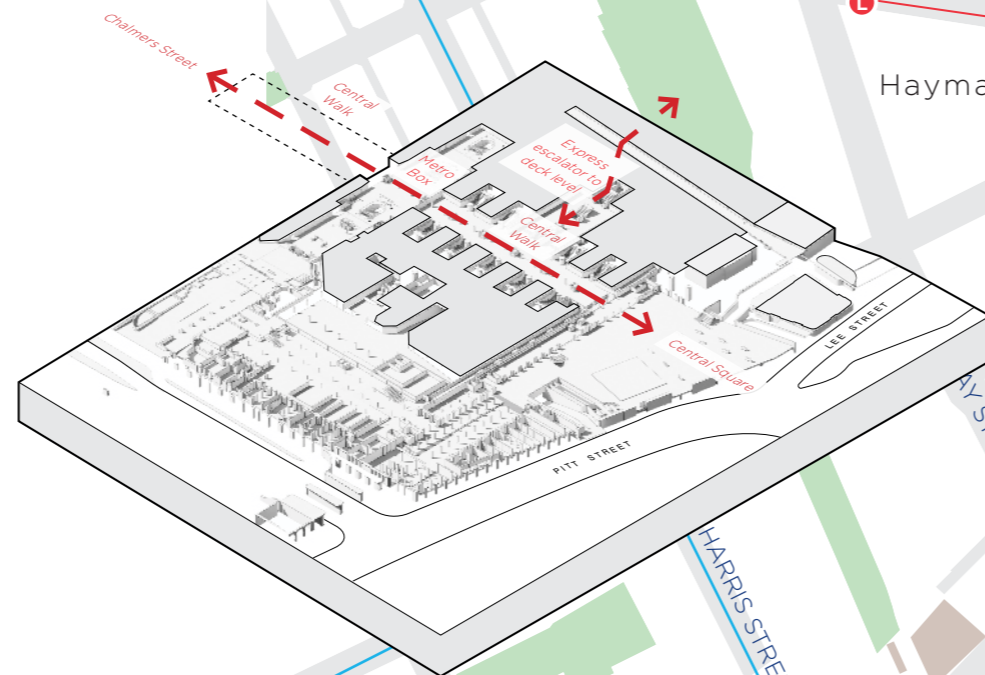
Public transport

Central Station is recognised as Sydney's principal transport interchange, connecting customers between intercity, regional and suburban services, light rail and bus services. A key focus is to improve and revitalise Central Station through renewal, whilst ensuring that the public transport network continues to function effectively. The revitalisation of Central Station aims to:

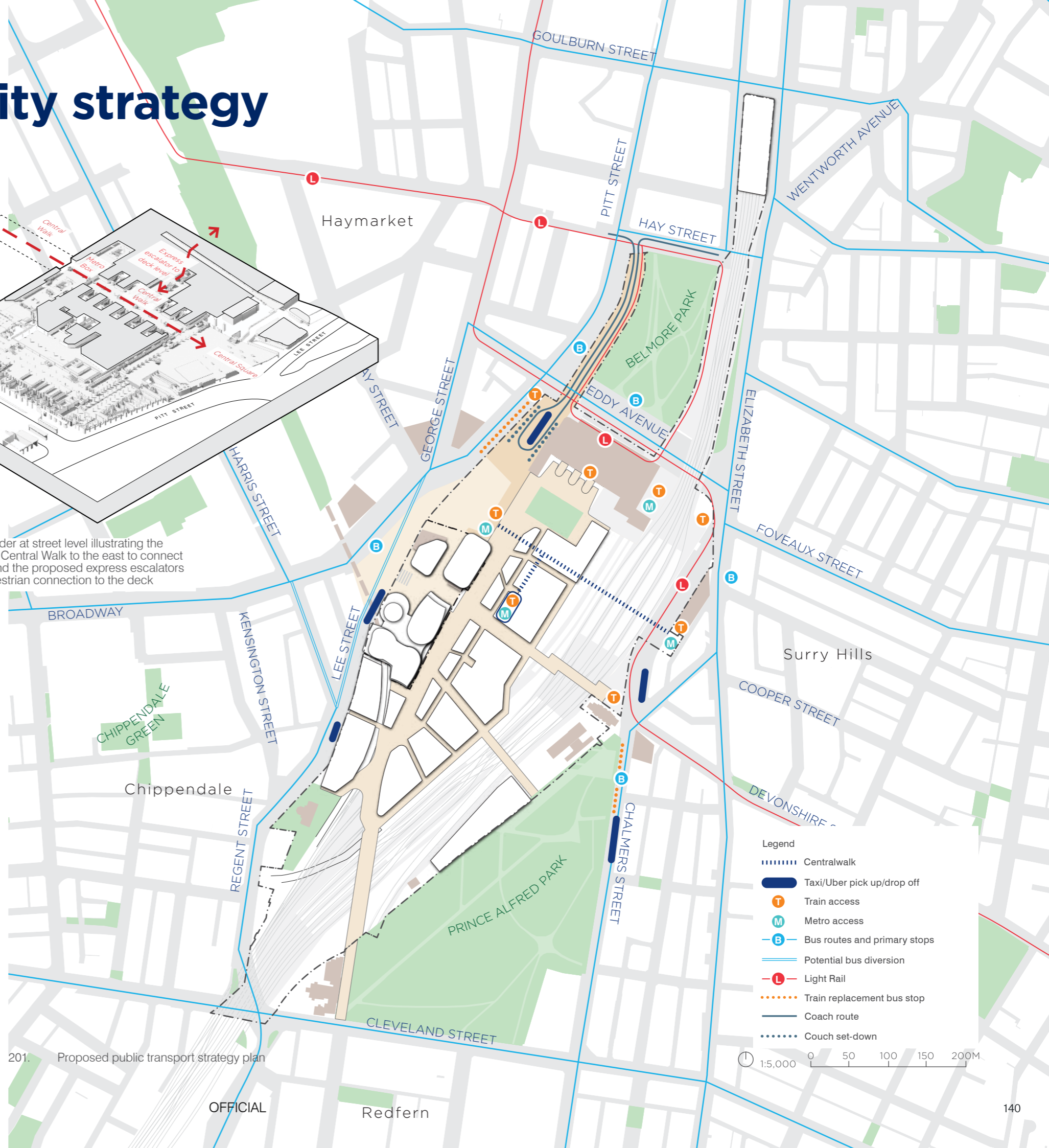
- Create a precinct that is people-focused, walkable, well-connected and safe; and
- Support the increase in resident/worker population of the future OSD, and accommodate an increase in public transport patronage and transfers between train, light rail, metro and bus services in and around Central Station.

The below strategies address these aims:

- Central Station/Sydney Terminal Building reinforced as a transport/civic icon in the cityscape;
- High quality public domain (within precinct and interfacing with surrounding context) that supports efficient and seamless commuter movement and interchange;
- Vertical transportation points, station entrances, and internal circulation reconfigured to improve legibility and facilitate efficient interchange between transport modes;
- Completion of Central Walk West (eastern portion currently under construction) as the main east-west connection;
- Revitalisation of public realm at Railway Square and Eddy Avenue to facilitate bus and light rail interchange; and
- Support services (special event buses, coach, rail-replacement buses) located to allow for effective interchange and minimise conflict with other transport modes. The existing bus layover is to be integrated into new development.



200. Indicative render at street level illustrating the proposed extension of Central Walk to the east to connect with Central Square, and the proposed express escalators providing a direct pedestrian connection to the deck



201. Proposed public transport strategy plan

Legend

- Centralwalk
- Taxi/Uber pick up/drop off
- Train access
- Metro access
- Bus routes and primary stops
- Potential bus diversion
- Light Rail
- Train replacement bus stop
- Coach route
- Couch set-down



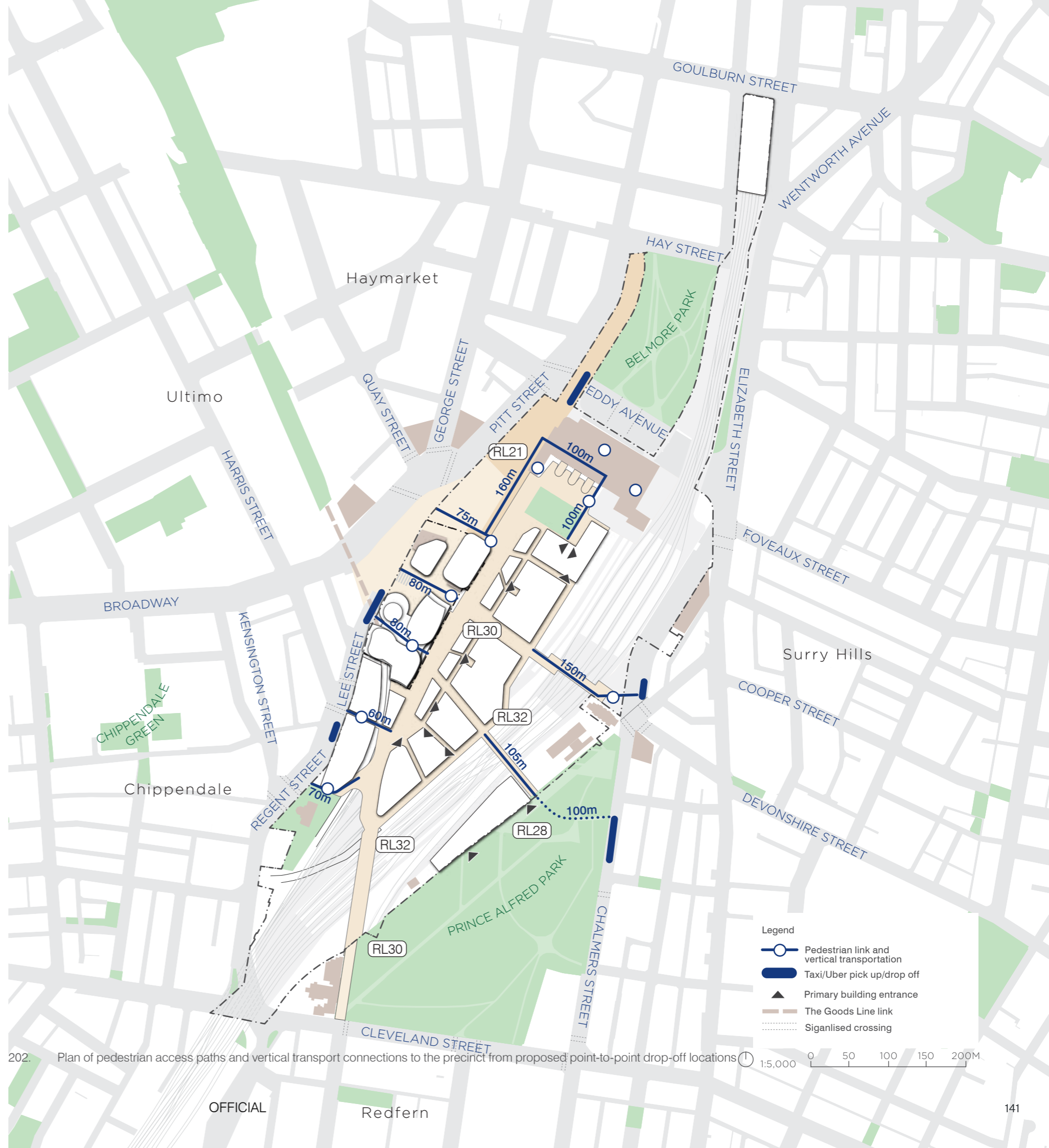
Transport and mobility strategy

Pedestrian links from key drop-off points

Creating a world class transport interchange that connects people locally, regionally and globally involves consideration for a high quality pedestrian/commuter experience and seamless connection between drop-off and pick-up points, vertical transportation and journeys onto the deck.

This will be achieved by:

- "Street Address" for Taxi users and kerbside kiss-and-ride will be provided at the major entry gateways to the precinct:
 - Railway Colonnade Drive at the approach to the 'Belvedere' (upper Central Square)
 - The redeveloped Henry Deane Plaza, within the Western Gateway redevelopments
 - Regent Street Sidings
 - Devonshire Walk via the Eastern Gateway Plaza;
- Ensuring legibility of and direct access to vertical transportation onto OSD;
- Distances from point-to-point drop off and pick up range from 60m-150m; and
- Drop-off/pick-up point at the Belvedere off Central Square is primarily intended for Sydney Terminal Building. Key vertical transportation points to the OSD and to Eddy Avenue are located within the Grand Concourse.



202. Plan of pedestrian access paths and vertical transport connections to the precinct from proposed point-to-point drop-off locations 1:5,000

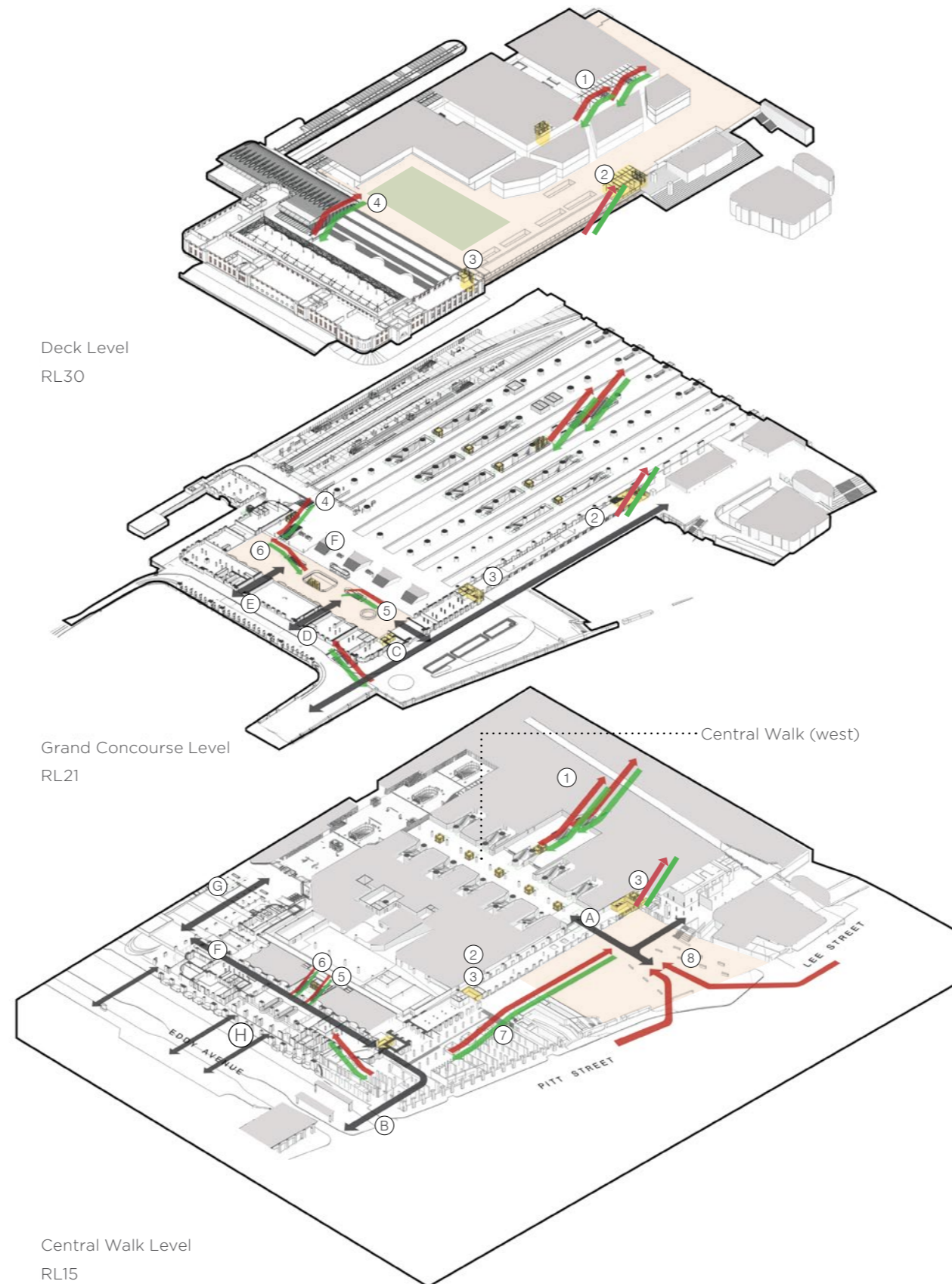
Transport and mobility strategy

Primary pedestrian movement patterns in and around the station environment

Pedestrian movements in most cases are expected to be connected with two activities:

- Public transport to "Off-site" destinations - customers visiting the southern CBD, or making interchange connections with other modes of travel e.g. from Train to Bus, Metro to Train and so on. These substantial populations are expected to move efficiently from the transport terminal to their next destinations either by using the new Central Walk, or via the Grand Concourse and onwards to the outside. This movement is projected to occur primarily at these two floor levels, with direct movement to the outside in most cases.
- Public Transport to "On-site" Destinations - visitors to the destinations created through renewal over rail or at the precinct edges. The major population numbers in this category will be going to the workplaces in the Western Gateway developments, and in the Over Rail Development, having arrived largely by Public Transport in the immediate precinct. Train will be the dominant mode for Public Transport (approx 60%). This movement is projected to occur from Central Walk or the Grand Concourse to the deck, and to a lesser degree from other access points to the deck.
- Projections indicate that other movement pathways, while important, have comparatively minor demand levels.

The anticipated flow paths and volumes for the larger pedestrian movements associated with the deck and the Sydney Terminal Building are illustrated in the adjacent exploded axonometric diagram.



Crowd Flow Calculations (indicative only)

To/ From OSD Deck	Total Access Movements
① Access - 16,600 Egress - 7,900	Ⓐ 30,950
② Access - 700 Egress - 900	Ⓑ 6,900
③ Access - 700 Egress - 900	Ⓒ 1,600
④ Access - 2,700 Egress - 1,300	Ⓓ 950
⑤ Access - 1,940 Egress - 1,524	Ⓔ 850
⑥ Access - 1,940 Egress - 1,524	Ⓕ 5,000
⑦ Access - 3,900 Egress - 1,900	Ⓖ 11,500
⑧ Access - 700	Ⓗ 11,500

Legend

- █ Access to Deck
- █ Egress from Deck
- █ Total Access Movements
- █ Vertical transportation
- █ Key Public Domain Areas

203. Exploded axonometric diagram illustrating key vertical connections within the Central north precinct

Transport and mobility strategy

Central Walk express escalators at Devonshire Link

The express vertical transportation, in the form of escalators/elevators, is a key access point connecting between the OSD (RL 30-32) and Central Walk, a paid concourse (RL 14.2) connecting the intercity and suburban rail, and metro platforms. Key features include:

- Located centrally on the OSD, at the intersection of Devonshire Link and the north-south laneway;
- A legible point of access, and stitched into the wider street network at the deck level; and
- Integrated with new development while being publicly accessible at all hours.



204.



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Accessible access from Grand Concourse to the deck

The grand stair from the Grand Concourse to the OSD deck will be supported by escalators and elevators to ensure equal access. Key features include:

- Potential location at the eastern end of the Grand Concourse adjacent to the Sydney Metro canopy - location to be tested further; and
- Legibility from Grand Concourse to facilitate interchange from light rail and movement sequence from Eddy Avenue.



206.



207.

204: Access to the express escalator from the north-south lane (looking south)

205: Express escalator arrival (looking south)

206: View of potential location for VT from Grand Concourse to OSD

207: View of potential location for VT to OSD from Northern Concourse

Transport and mobility strategy

Cycle and personal mobility

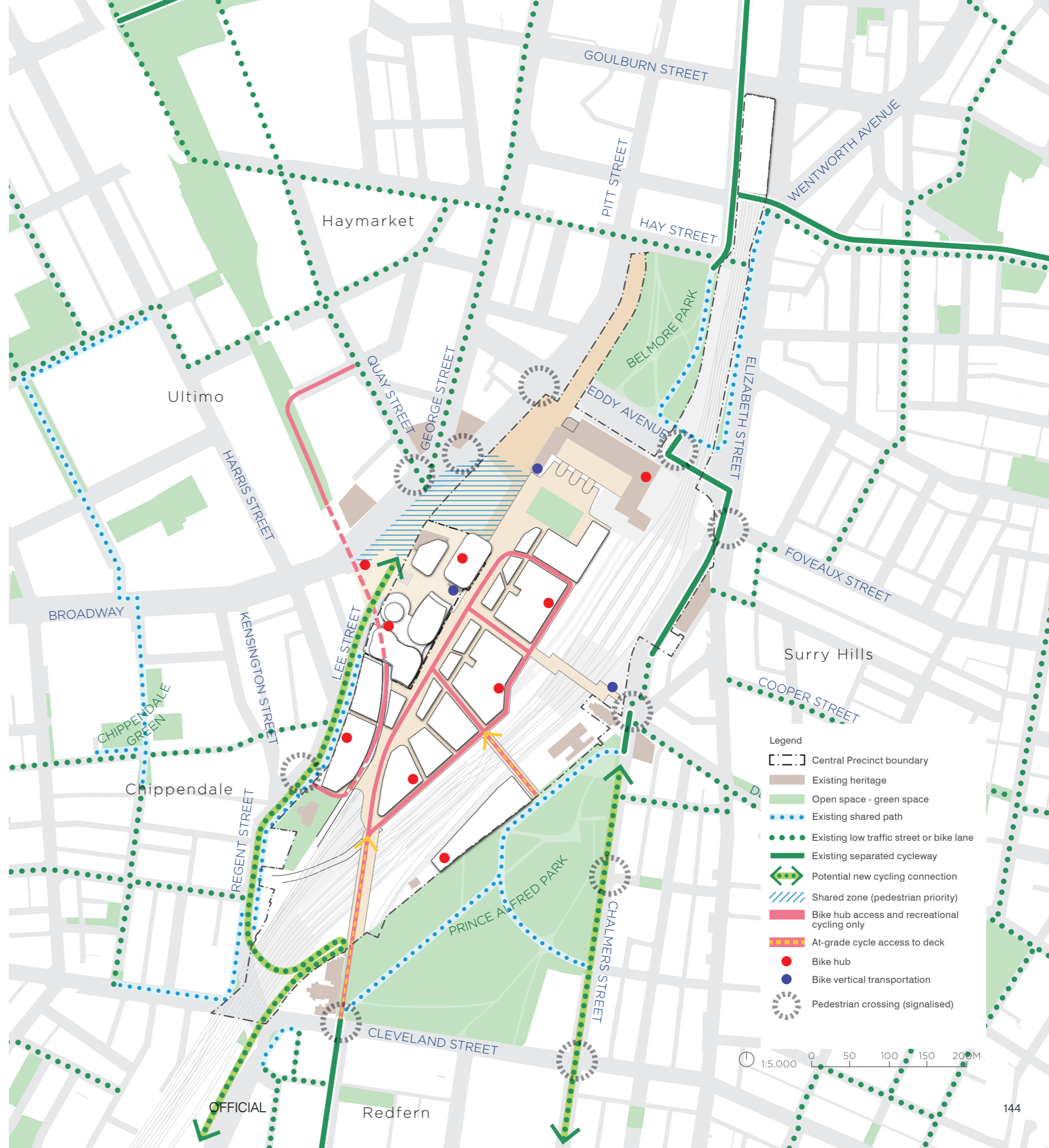
Active transport is essential towards creating a holistic movement network. The precinct has the potential to deliver new cycle infrastructure and links within the precinct, as well as connect into the surrounding cycle network. There are two key cycle route types, including:

1. Around precinct which includes through-cycling traffic as part of commuter cycle network or used as routes from which to entry/exit OSD.
 - Proposed separated cycleway along Regent Street via the Southern Active Loop
 - Existing shared path through Prince Alfred Park and Chalmers Street, Belmore Park and George St
 - Existing cycle lanes/low-traffic streets on Devonshire Street, Meagher Street, Myrtle Street, and Quay Street
 - The key on grade cycle entry/exit points to the OSD are at the George St and Prince Alfred Park Bridges. The end of trip/bike hub facilities are located along the Eastern Colonnade.
2. Within precinct, intended for recreational use or cyclists accessing end of trip facilities to and from their destination at the OSD.
 - Southern Gateway, Prince Alfred Park bridge.
 - Loop and east-west links on OSD
 - Extension of Goods Line connection.

Key considerations for the above include:

- Modal hierarchy: enabling separation of bikes and pedestrians near station entrances and OSD public domain. Refer to the Design Guidelines and Street Typologies.
- Interchange: Improve the ability for bicycle riders to interchange between transport modes.
- EOT facilities: located near the OSD precinct entry/exit points to limit commuter cycling on the deck.

208. Proposed cycle and personal mobility plan



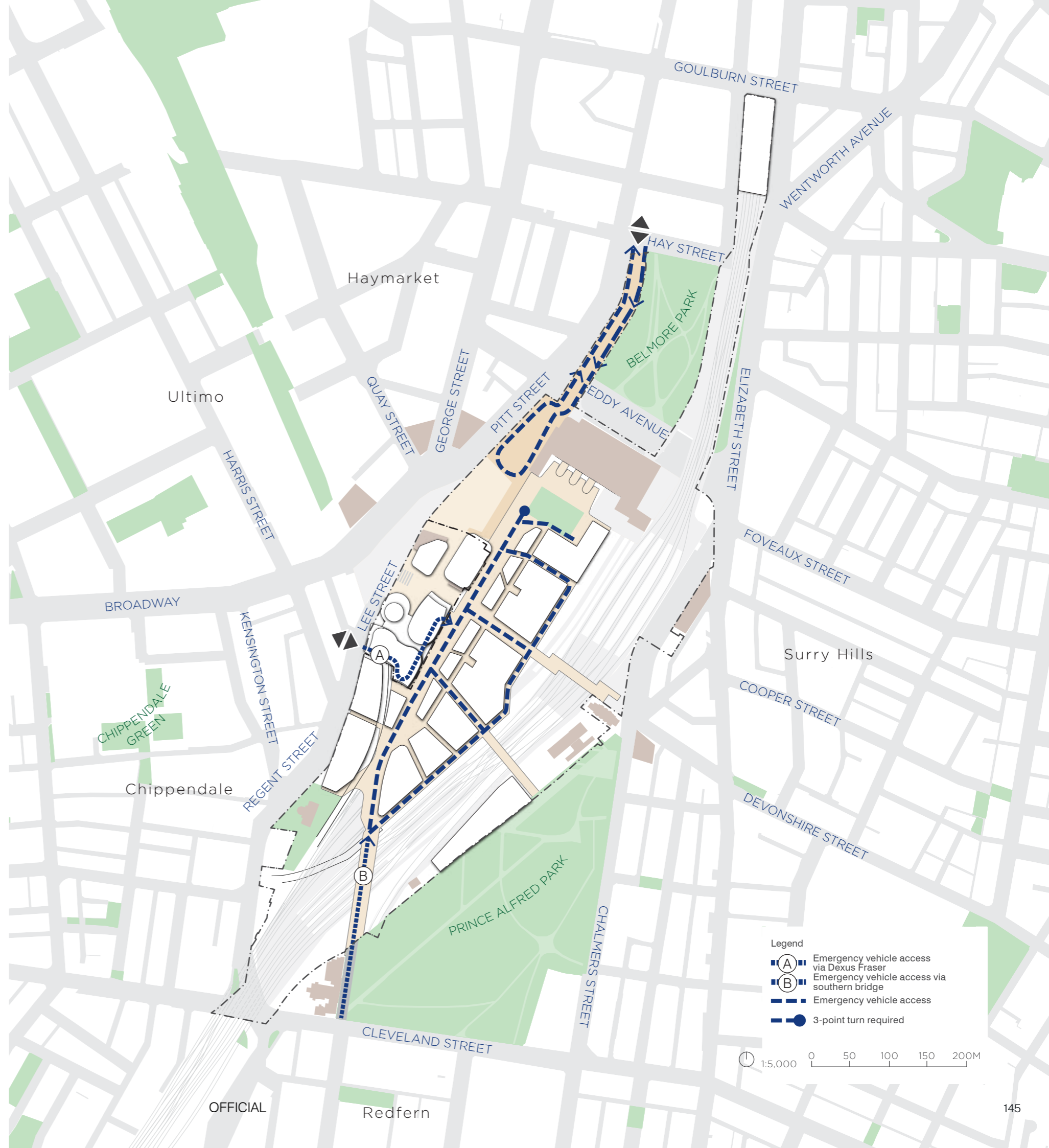
Transport and mobility strategy

Emergency vehicles

The OSD deck will primarily be a pedestrian-only environment, however will allow access for restricted vehicles during exceptional circumstances.

Controlled access to the deck with scheduled timing and security screening will allow restricted vehicles for emergencies, essential maintenance services, and special events. The framework plan has allowed for:

- Access provided in two locations:
 - Ramp access provided as part of the Dexus Fraser development.
 - Bridge access from Cleveland Street.
- Adequate widths for large vehicles, including along the George Street extension bridge and Central Avenue. Access from Cleveland Street provided via a shared pedestrian and cycle connection; and
- Emergency access to the deck will be allowed for fire crews (personnel only) to be taken to building lobbies. Booster valves and hardstand for pump trucks will be located at street level, with a precinct-wide reticulation system to serve all areas.



209. Proposed emergency vehicle access plan

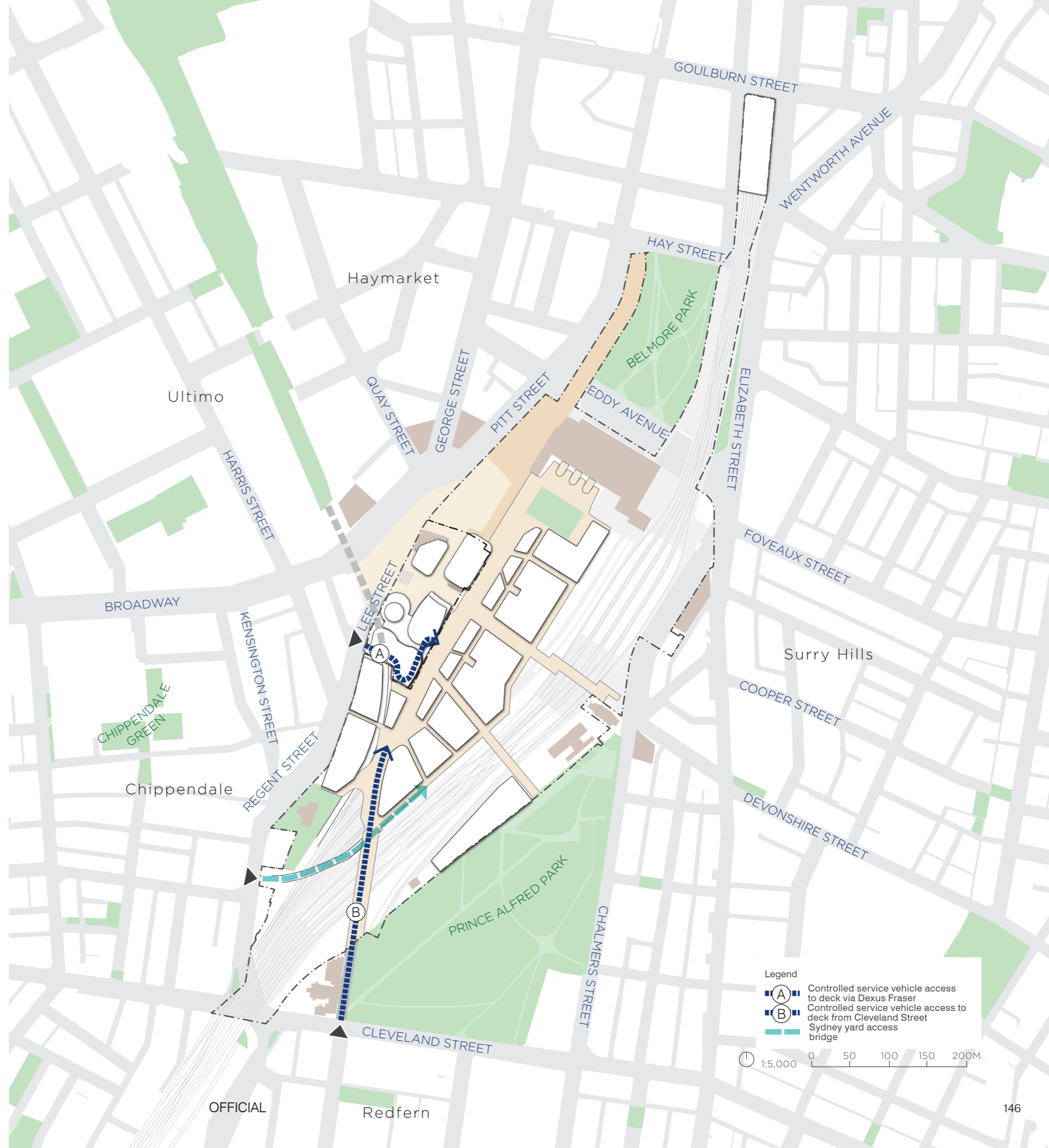
Transport and mobility strategy

Maintenance

There are two key access points for servicing and maintenance requirements on the deck. Access is restricted to particular times to avoid conflict with pedestrians, cyclists and other users.

- A - Ramp up to deck from Regent Street through the Dexu Fraser development in the Western Gateway Precinct.
- B - Access from the south from Cleveland Street across the pedestrian bridge to the OSD.

Service and maintenance access to the rail yard and tracks is via the retained Sydney Yard Access Bridge.



210. Proposed maintenance vehicle access plan

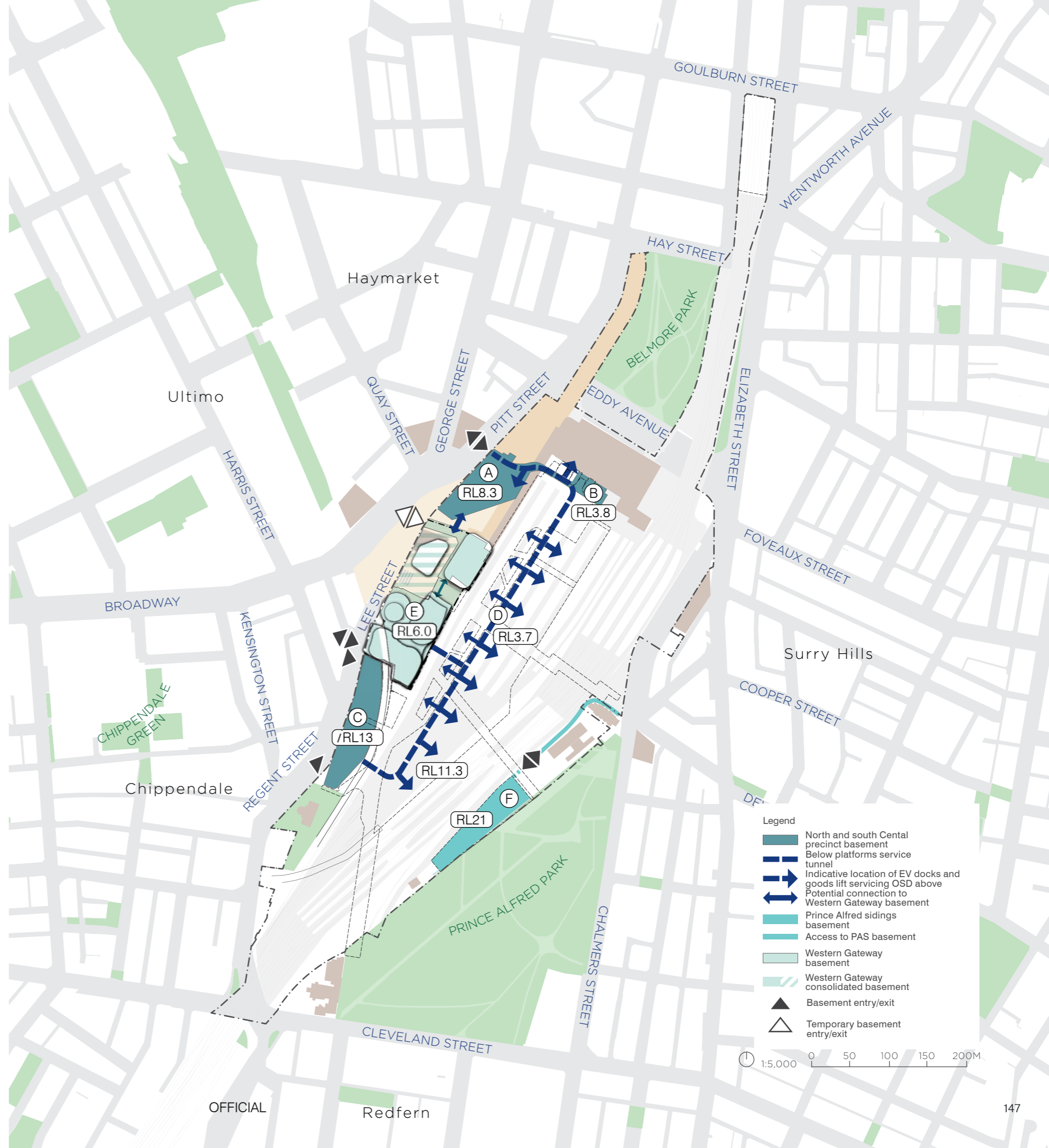
Transport and mobility strategy

Freight access to basement and goods lifts

Vehicle and logistics movements are considered on a "Whole of Precinct" basis that integrates and co-ordinates all requirements to effectively service the precinct in an efficient and sustainable way. Key elements of the strategy include:

- Loading docks will be located outside the footprint of the rail corridor, with the transfer of goods to on-site electric vehicles that will move through a secure service tunnel network to a number of basement "EV docks" for delivery to individual over station buildings;
- The service tunnel also provides the main reticulation spine for building services to the OSD (i.e. pipes and wires) with precinct-wide services infrastructure located in the main loading dock basements; and
- Four main basement loading docks will be provided in an interconnected network:
 - A - North Dock - under the New Central Square, accessed from Pitt Street.
 - B - Station Dock - under the expanded Grand Concourse, accessed from Pitt Street;
 - C - South dock - under the redeveloped Regent Street Sidings site, accessed from Regent Street.
 - D - Service Tunnel - a secure service tunnel connecting the three basements together and connecting with all EV docks.
 - E - Western Gateway dock - combined basement under the Western Gateway development with access from Lee Street. There is potential to link into this wider servicing network.
 - F - Prince Alfred Sidings dock - single level basement at lower ground level, accessed off Devonshire Street.

211. Proposed servicing and freight access basement plan

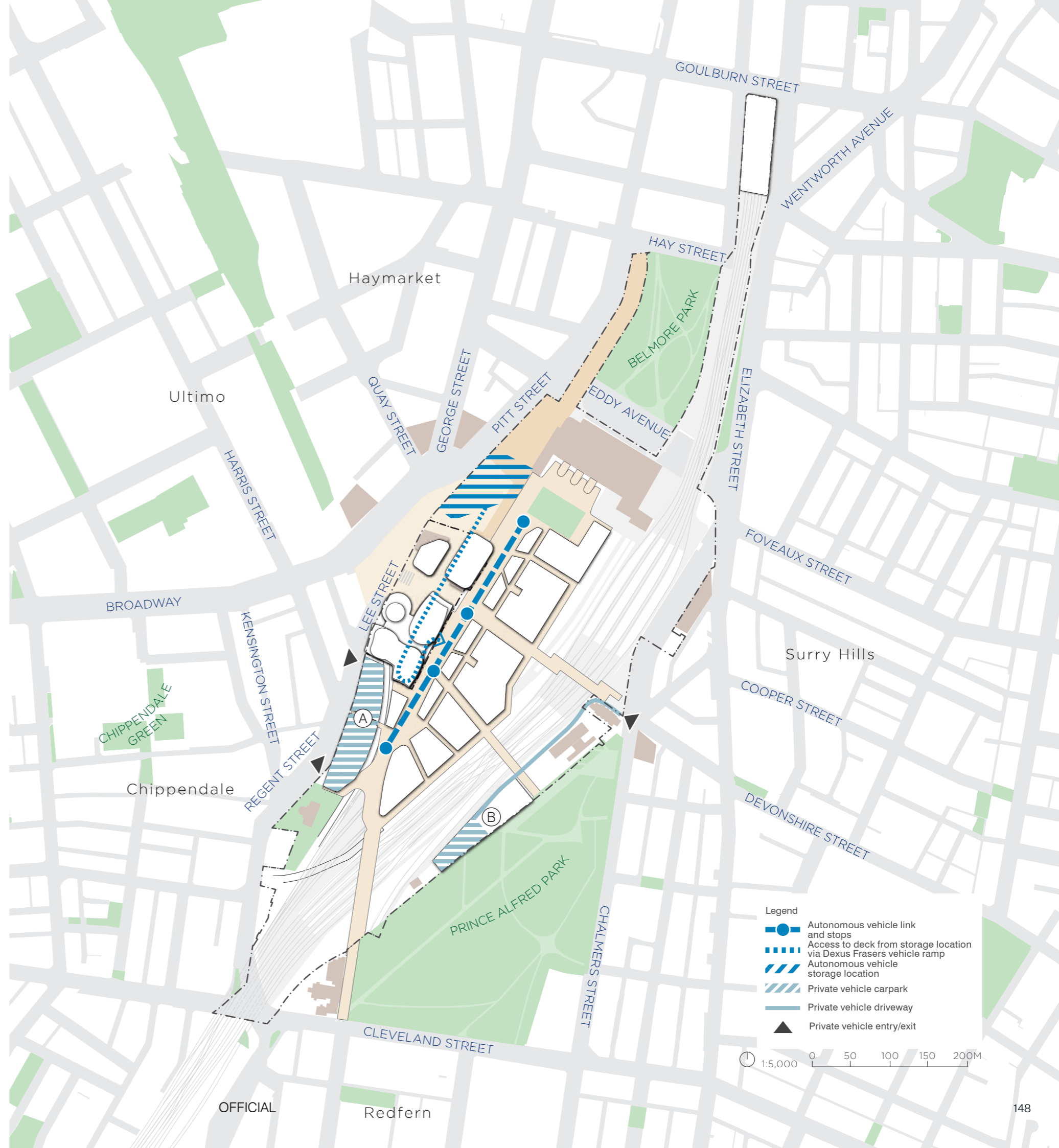


Transport and mobility strategy

Private / autonomous vehicles

The OSD deck is to be a predominantly “Vehicle Free” space for pedestrians, to support walkability and pedestrian life.

- Private car parking will not generally be provided. An exception to this is that private parking will be provided for:
 - A - Regent Street Sidings sub-precinct residential development
 - B - Prince Alfred Sidings
- The precinct should plan for changing mobility requirements and advancements. Provision for future autonomous vehicles to be investigated further to provide increased accessibility across the precinct. It is proposed that an autonomous vehicle shuttle could exist along the length of the avenue with four key stops. Storage could be provided within the northern dock with access to the deck via the Dexus Frasers proposed vehicle ramp.



212. Proposed autonomous vehicle access and private vehicle carparking plan

Legend

- Autonomous vehicle link and stops
- Access to deck from storage location via Dexus Frasers vehicle ramp
- Autonomous vehicle storage location
- Private vehicle carpark
- Private vehicle driveway
- Private vehicle entry/exit

Scale: 1:5,000
0 50 100 150 200M

3.5

Activation

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3.5 Activation

Built form illustrative ground plane and land uses for community and social infrastructure.

The ground floor tenancies of the Over Station Development are programmed to create maximum activation of the public domain. These will evolve as the precinct planning continues.



213. Plan of illustrative ground plane and land uses

Activation

Social Sustainability Study Draft by Ethos Urban (June 2021)

Community Needs for traditional social infrastructure types

The following social infrastructure priorities are recommended for consideration through the precinct planning process:

- Integrated multi-purpose facility of 4,000sqm+, including a library as an anchor, indoor recreation / courts, quiet spaces, community co-working spaces, community lounge areas, cultural and creative spaces (including maker spaces) and an Aboriginal cultural centre or community space.
- Open space: 15% of developable site area, with a single significant open space of more than 3,000sqm, centrally located in the precinct.
- Indoor recreation facility: across the catchment there will be significant demand for indoor and outdoor courts and sports facilities. To support worker and resident needs, delivery of a recreation facility with at least two indoor courts and other sports facilities should be considered.
- Play Space: The residential community on and around the site is likely to generate demand for at least one accessible play space. This facility may also be used by visitors moving through the site, and there is potential to deliver a larger 'destination playground to meet this demand.
- Child care
- Social/ health services hub
- Local community facility (tech lounge / community lounge).
- New facilities are well-located to promote public visibility, activation and active public

transport use.

Benefits of third places within high density environments

- High density environments are evidenced to contribute to loneliness and social isolation. Research suggests that high-density developments often lack suitable spaces for socialisation - as events and gatherings are not scheduled between neighbours, and developments are not designed to enable 'affordance for lingering.' This means that social interactions in high density environments are often no more than incidental, suggesting that they require more spaces for social connection in order to facilitate a cohesive community. Open space is of critical importance to the health and well-being of high density communities, as it functions as a "backyard" for residents living in apartments and workers in high density buildings.
- A total of 88% of the households in the PSA live in apartments. The population density of the area has been projected to increase as the area continues to develop, which will drive demand for open space and social spaces outside the home for gathering, as many residents have limited access to sufficient private space to facilitate such gatherings.
- Australian Housing and Urban Research Institutes (AHURI) research into apartment residents and neighbourhoods in Sydney and Melbourne highlights the central importance of public infrastructure for lower-income residents - especially open space, libraries and community centres.
- A focus on providing access to free or low-cost services and facilities - both in buildings and in the neighbourhood - is

essential to support lower-income residents.

Connecting with Country Framework, Balarinji (2021)

The Project Team will create capacity for community and cultural places in the design of the Central Precinct.

- There is a genuine lack of affordable community space in the inner Sydney area.
- The stakeholders overwhelmingly were looking for an unprogrammed, affordable community space. Space that could be used for a variety of activities across a variety of age groups.

Themes

- Acknowledging and Healing
- Community Space and Facilities

The Project Team will engage with the local Aboriginal community to set broad and effective collaborations to create physical and interpretive space for culture and practices in relation to Country

- The stakeholders provided a range of responses to what physical and interpretive spaces could be included in the Central Precinct to enable culture and practices relating to Country.
- Stakeholders suggested restoring or referencing landmarks of Country in the Precinct design and creating spaces for education, traditional and contemporary arts, ceremony and other community practices. As Darren Hammond stated, caring for Country goes beyond native planting, "the educational spaces for cultural customs to be communicated down will help in the bigger piece of caring for Country. Because the protocols around caring for Country comes from storytelling

and education and passing down of those stories." Similarly, Alannah Davison stressed the importance of education and suggested that the inclusion of spaces and Language throughout the Precinct would be one way to encourage this.

Themes

- Welcome to Country
- Replacing Landmarks of Country
- Biodiversity and Restoring the Sounds of Country
- Six Seasons Planting
- Acknowledging and Healing
- Place based Learning
- Community Space and Facilities

Event mode overlays

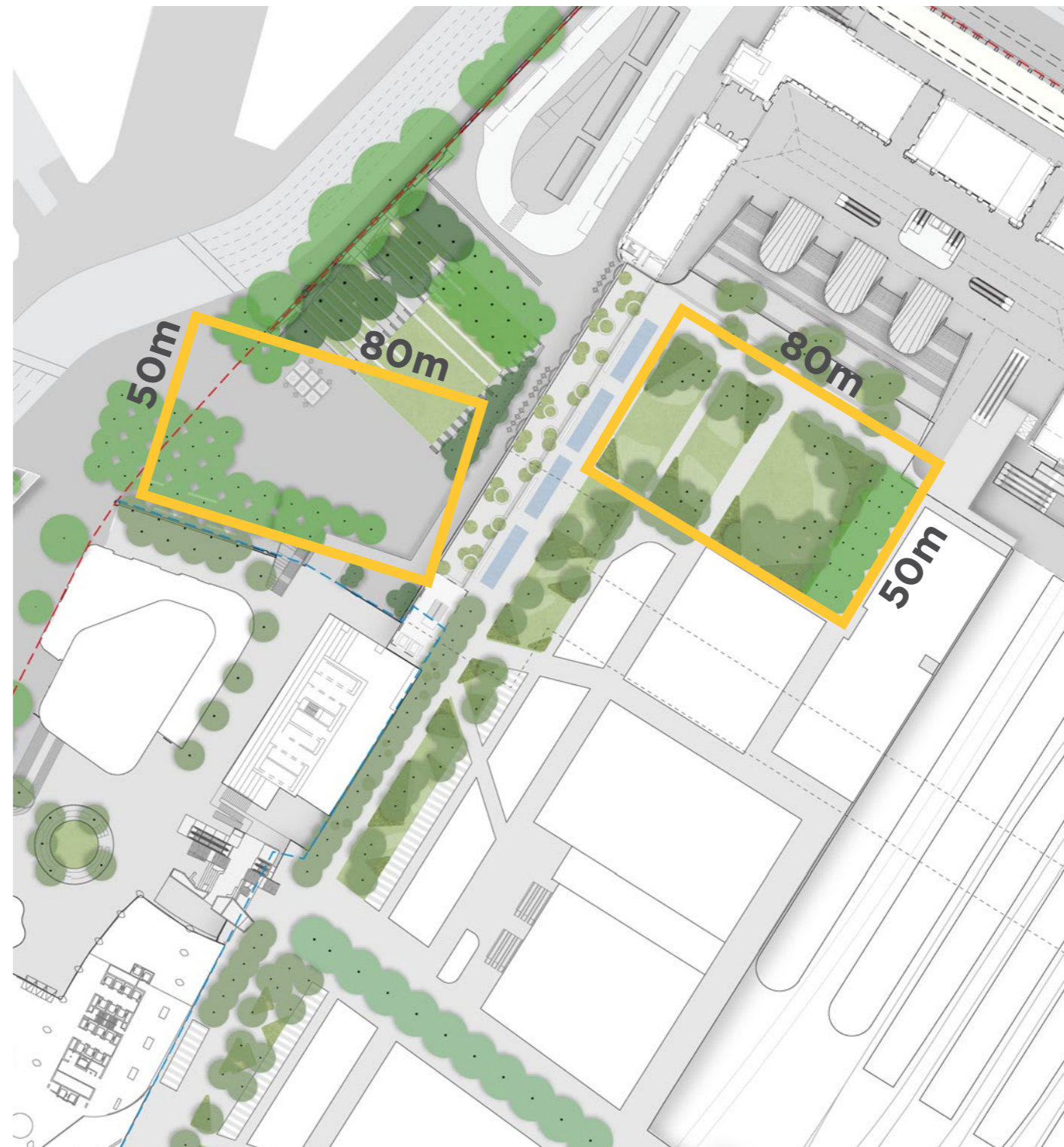
Event mode overlays and scale comparisons

Central Square and Central Green are the two major public spaces that are designed to allow for organised events.

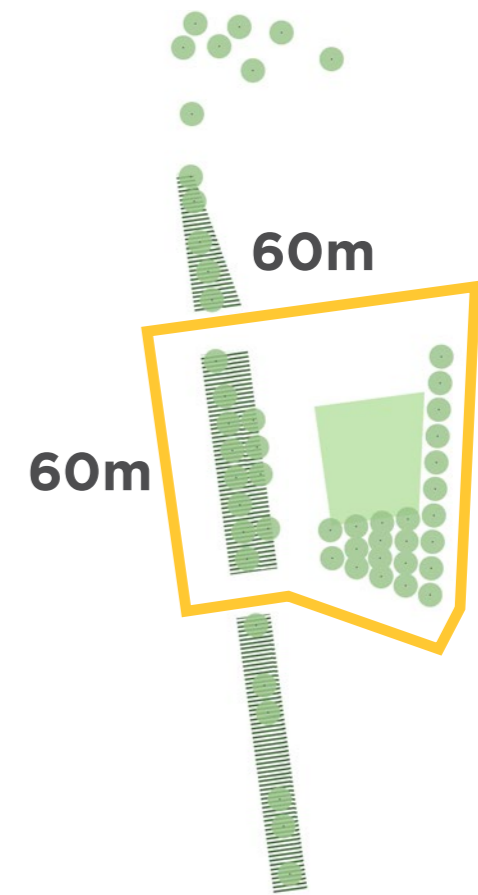
Both are approximately 80m x 50m, which is in scale with a number of Sydney public spaces that host a variety of event modes.

The Central Square is a large paved square that allows for event modes including markets or art installations as well as more informal community generated events.

The Central Green is predominantly a lawn space that has capacity to host a variety of event types similar to the examples on the following spread.



214. Plan: The Central Square and Central Green are of a scale equivalent to other public spaces in Sydney used for various event modes. The scale of these public spaces are compared here.

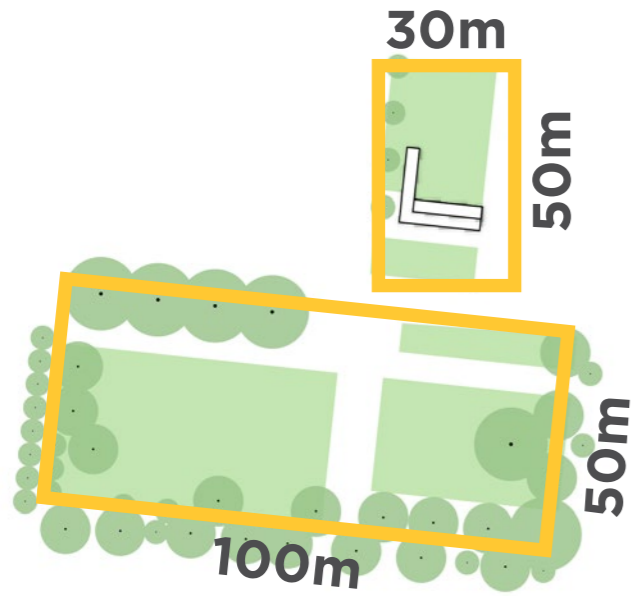


215. Plan of Darling Square



216. Photograph of Darling Square with an event. The small lawn and square is used for small open events, or as a small section of a larger event within Darling Quarter. Image: LendLease

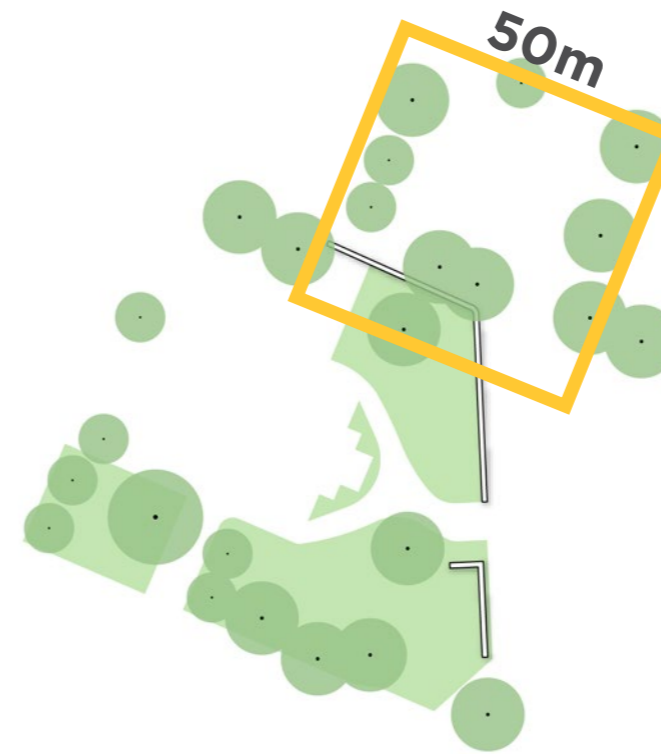
Event mode overlays



217. Plan of Chippendale Green



218. Photograph of markets at Chippendale Green



220. Plan of Centenary Square, Parramatta



222. Photograph of market stalls in Centenary Square



219. Photograph of Chippendale Green. Two of the lawn terraces are used for large events and markets of 60+ stalls. Image: Turf Design Studio



221. Photograph of Centenary Square. The paved square is used for markets and events with big screens. Image: Brett Boardman

3.6

Connecting with
Country, public
art and heritage
interpretation
strategies

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3.6 Connecting with Country, heritage interpretation and public art strategies

Interpretation

- Interpretation communicates what is important about the place and contributes to recognising and retaining the cultural significance of that place through building understanding, awareness and engagement.
- Interpretation is an important key to reveal and help retain the significance, (natural, cultural or both) of the place through public awareness, understanding and lived experience.

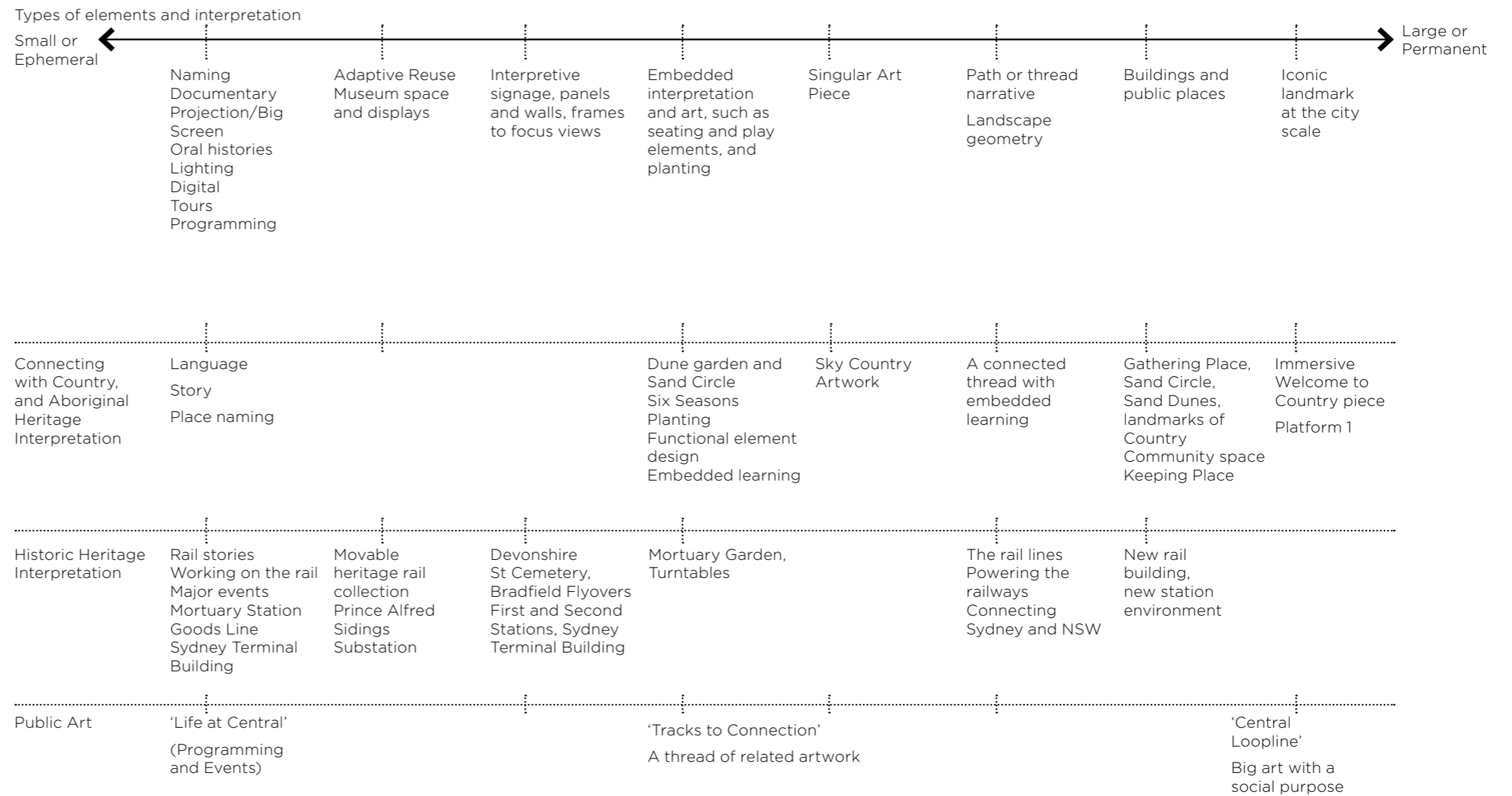
Intangible Heritage

- Ensure that new works understand, respect and safeguard the place's intangible heritage - the cultural practices at a place that relate to the significance of the place.
- The conservation and maintenance of cultural practices may be integral to retaining the cultural significance of a place.

A Context Responsive Cultural Framework

The Cultural Framework for the Central Precinct has been developed as a direct response to site. This includes an approach to Country, to non Aboriginal heritage interpretation, to art and creative programming. These strategies are arranged across the site such that they do not conflict. In several areas there are opportunities to bring multiple approaches together in one area. The diagram illustrates the overall coverage of the three strategies illustrating a rich and interwoven cultural framework for the entire precinct.

Synthesising Connecting with Country, Heritage Interpretation and Public Art Strategies



Connecting with Country, heritage interpretation and public art strategies

Connecting With Country Framework

The Connecting with Country Framework, identifies the following themes for design integration. The Public Domain plan has been developed to integrate these themes into the design, with discussion provided in Part 03.3.



Reconnection Redfern & The Harbour

- Consider historical connections between Redfern and the Harbour
- Acknowledge the movement of the Aboriginal community from the Harbour to Redfern and the impacts this has had



Replacing Landmarks of Country

- Consider how the traditional landmarks of Country have been obscured by the City, however Country and many of its landmarks are still under the concrete
- Acknowledge and interpret the landmarks of Country, such as Sandhills, in the new masterplan



A Connection to Sky Country and Cosmology

- Reconnect vertical sightlines
- Acknowledge and celebrate local Sky Country knowledge and stories
- Including Sky Country in exploration of Connecting with Country



The Legacy of Sydney Trains

- Acknowledge that the railways were one of the first employers of Aboriginal people in Sydney. Community moved into Sydney from regional areas for employment opportunities
- Acknowledge that Sydney Trains is still one of the largest government employers of the Aboriginal community today



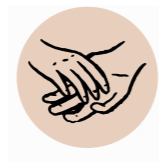
A Meeting Place

- Acknowledge Central as a traditional and contemporary meeting place
- Recognise Central as a place where the Aboriginal community gather before travelling back out to Country by train



Connecting to Country Through Layers of Sandstone

- Acknowledge Sydney as Sandstone Country
- Understand Sandstone as a function of Country and a resource that has been formed on Country and of Country over thousands of years
- Explore how Country can be represented when it moves from being under to above ground and the enduring nature of Country



Acknowledging and Healing

- Acknowledge the history of Platform 1 and its role as a processing station for the Stolen Generations
- Contribute to reconciliation and healing through acknowledging the history of the site and the Country below



Biodiversity & Restoring the Sounds of Country

- Consider Country through all five senses
- Increase the biodiversity of the site to support the regeneration of Country, for example, biodiversity increases birdsong (the sound of Country)



Place Based Learning

- Celebrate the Aboriginal storytelling protocol of Place-Based Learning. Knowledge is gained only through participation. You have to walk Country to know place. This is living knowledge and learning
- Encourage Precinct visitors to engage in Aboriginal culture and learn about Aboriginal history and approach to Country
- Encourage visitors to follow knowledge pathways across the Precinct.



Six Seasons Planting

- Acknowledge that Sydney has six seasons according to Country
- Integrate Indigenous knowledge systems around seasonality and indicator species
- Regenerate Country by planting in accordance with the six seasons



Community Space and Facilities

- Acknowledge that community need culturally safe spaces to gather within the Sydney CBD
- Provide space for culture to be practiced and shared within the Central Precinct



Living Technology

- Acknowledge that Aboriginal culture is a living culture with ever evolving technology
- Use technology to enhance and protect Aboriginal cultural knowledge and Indigenous knowledge systems
- Use technology to bring Aboriginal culture into the Precinct through language installations, interactive story telling etc.



Welcome to Country

- Recognise that the Welcome to Country that a majority of Australians experience is not generally connected to the ancient protocol
- Understand that when Aboriginal people traditionally travelled across Country, they waited at the border of their Country and gained permission to travel into the Country of others. This would typically happen by setting fires to create smoke signals (Visual) and through song and dance (auditory and movement) and gift or trade exchange. They would wait for someone to come to meet them and grant them permission to continue on their travels
- Acknowledge that part of being welcomed on to Country is accepting a responsibility to care for Country and treat it with the respect that it deserves

Connecting with Country, heritage interpretation and public art strategies

Heritage Interpretation

The following identifies opportunities for Heritage interpretation throughout the public domain, and should be read in conjunction with the Heritage Interpretation Strategy (Artefact, 2022). Key points from the report in relation to the public domain are outlined opposite.

Some of the specific considerations for heritage items in the public domain masterplan include;

- retain Mortuary Station, the garden frontage to Pitt Street and disused tracks to the east, and increase appreciation through the creation of a new public space. Refer to 03.3.3 Public Spaces south: Mortuary Station Garden.
- retain the facade of the western extension of the Sydney Terminal Building, entrances and windows, the pavement lights and the cellular structure of rooms, which provide opportunities for adaptive re-use. Refer to 03.3.1 Public Spaces north: Western Connection at RL21.
- retain the Pitt Street sandstone wall. Refer to 03.3.1 Public Spaces north: Central Square.
- retain the Goods Line cutting, brick retaining walls, sandstone and brick arches and disused tracks. Refer to 03.3.3 Public Spaces south: The Goods Line.
- For more detail about the Sydney Terminal Building, Grand Concourse, Platforms, and Railway Institute Building refer to the Urban Design Framework.

For specific actions to preserve heritage items refer to the Conservation Management Plan. More detailed actions will be developed during future stages of the project.

Heritage Interpretation Strategy, Artefact (2021)

13.1 Cross Precinct Opportunities; On-site: The Public Domain

The public domain spaces of the Central SSP site incorporate the key themes of 'Journeys' and 'Gatherings' in their geometry, design and connections, further providing an interpretive overlay for the Precinct as a whole. This approach includes:

Journeys:

- Reconnecting George Street south to George Street in the city through the Central SSP, via north/south connection
- Recreating the Devonshire Street connection and bridging the gap between east and west that the railway has created
- Connecting the Goods Line and Mortuary Station area, creating a southern loop
- Creating a pathway between the station area and Prince Alfred Park
- Creating an interconnected suite of open space and public domain areas leading to a central gathering space south of the Sydney Terminal Building.

Gatherings:

- Reconnecting the Sydney Terminal Building to Belmore Park
- Creating a new central gathering space south of the Sydney Terminal Building
- Creating new connections to the spaces in the future Over Station Developments to the south
- Creating spaces around Mortuary Station for pause and reflection.

It is envisioned that a large proportion of the precinct's heritage interpretation elements will be integrated within the public domain.

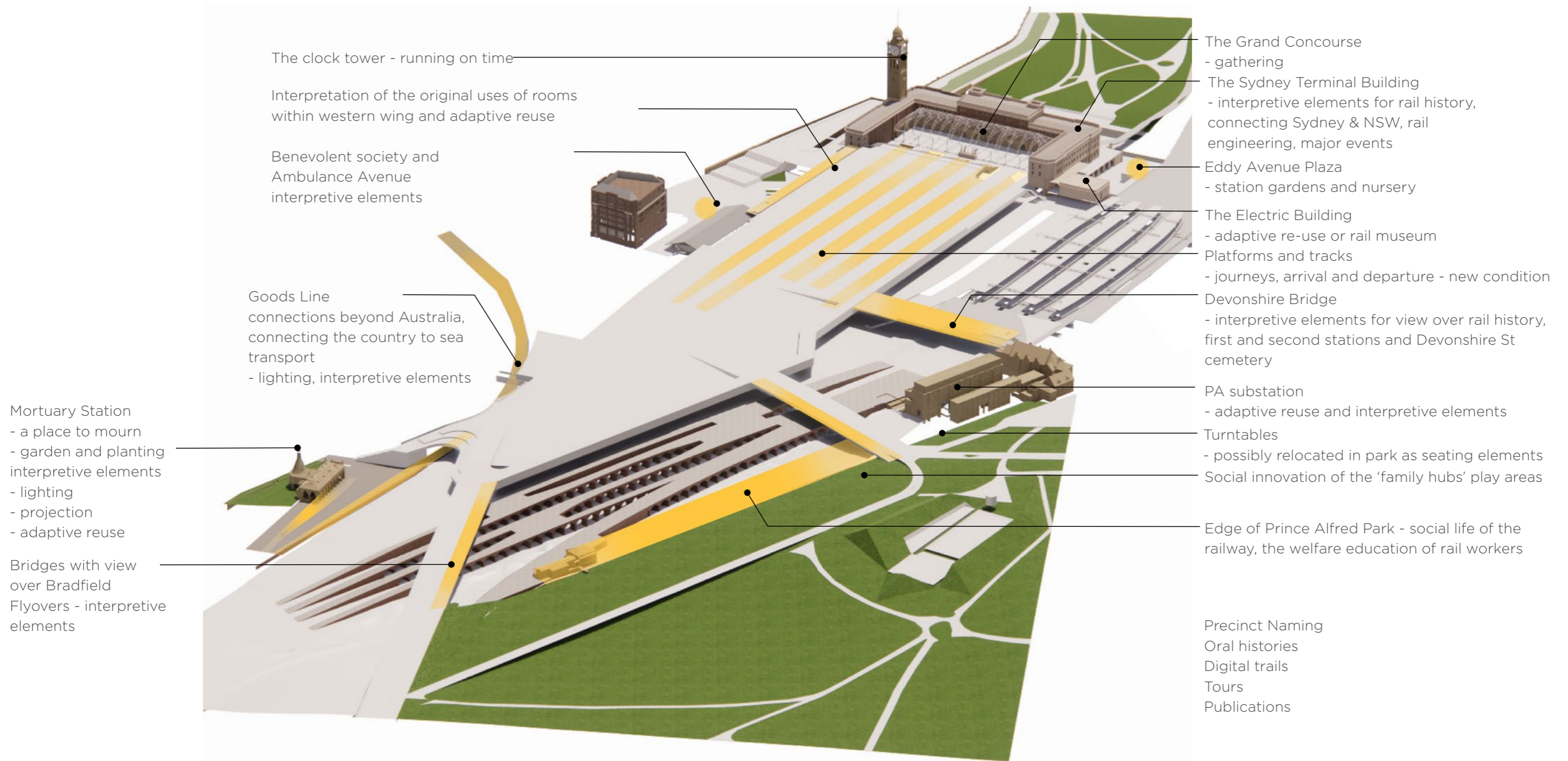
This may include:

- Landscaping geometry evoking past landscapes such as waterways crossing the site, evoking past uses such as the formal arrangements of cemetery gardens around Mortuary Station, and designing programming spaces formed by the space geometry
- Ground plane elements creating narrative paths using designs, dates, quotes - this concept could incorporate Aboriginal design elements within key pathways extending into the Redfern area creating a ground plane connection between the two linked areas
- Large scale wall features showcasing site specific heritage images or heritage focused 2D artworks
- Overhead features portraying star journeys related to Aboriginal astronomy on canopies, roofs, shade structures
- Public art elements, particularly celebrating Aboriginal heritage and Connection to Country
- Design features, such as the use of railway motifs relevant to the site as repeated, small interventions
- Gatherings spaces and seating, with inserts in seating holding bites of information, patterning on structures, spaces designed for programming use
- Plantings of species native to the area
- Interpretive panels providing focused contextual information within a cohesive

design to create pause points within the public domain

- Embedded artefact displays from archaeological or salvage works
- Movable heritage objects incorporated into landscaping, such as large scale elements such as wagon turntables, cemetery gates, burial vaults
- Naming of spaces and places/use of language.
- In particular, the public domain spaces within the Central SSP site should be locations for interpretive elements and public art that celebrate Aboriginal culture as a vibrant, resilient culture with a deep time connection to Country.

Connecting with Country, heritage interpretation and public art strategies



223. Diagram of heritage interpretation opportunities in the public domain

Connecting with Country, heritage interpretation and public art strategies

Public Art Strategy, Cultural Capital (January 2022)

The Public Art Strategy outlines the opportunities for public art within the Central Precinct and establishes a preliminary curatorial approach to guide the integration of outstanding public art into the precinct.

- The curatorial vision positions creativity and culture at the heart of the precinct's new era of investment and technology and draws from its location at the current intersection of transport, art, design, fashion and communications and education.
- Art and creative expression at Central will connect people, place and culture through time.

Creative Objectives

- Reveal lost landmarks
Celebrate Aboriginal culture and wisdom as foundational to this site, to the city of Sydney and to Australia. Promote key roles, custodianship and projects for Aboriginal Artists.
- Deliver Placemaking Value
Enrich the experience of place with art and provide more reasons to dwell, developing Central's identity as well as the social and economic value within the precinct.
- Aid Navigation
Art will help make the new landscape of Central legible, providing landmarks, denoting gateways, enhancing view lines, aiding intuitive navigation and improving safety.
- Make a new creative destination for Sydney
A collection of integrated permanent works,

landmarks and experiences set within a layered landscape, supported by place activation programs to establish a new destination in the heart of the city.

- Engage Communities
Reflect the rich stories and cultures that existing in the surrounding suburbs, engaging communities in the cultural life of the city. Help communicate Central's future and enable participation.
- Support Innovative Collaborations
Commissioned artists will be encouraged to collaborate with other creative disciplines and emerging technologies to bring new studies, techniques and perspectives to life.

Curatorial Principles

- Deep Time
Re-awaken Indigenous Landscapes
Lay the foundation of the public realm by fostering collaboration between Aboriginal knowledge holders, artists and designers to create a cultural landscape of integrated works. Focus on remaking landmarks and a reawakening of stories lost through changes in the landscape.
- Industrial Past
Celebrate Journeys and Gatherings
Central has always been a place of journeys and gatherings. Many people have travelled here to build a livelihood, some only pass through, some bore witness to incredible events. Celebrate the many hands that made this place, the toil and struggle, the milestone moments of an industrious past.
- Contemporary Life
Express the many sides to Central
The Central Precinct is bounded by some of Australia's oldest suburbs filled with rich

stories and a melting pot of cultures present through time. Work with the surrounding community to commission works and activations that amplify the characters and history of Sydney's City of Villages.

- Future Thinking
Build creative capacity with an innovation engine
A new era has begun at Central. An innovation engine and a new creative capital. Commission contemporary collaborative works by practitioners using new and emerging technology working with new tenants and developers moving into the precinct, exploring innovative use of lighting, graphics, animation, connectivity and data.



224.

Five Curatorial Frameworks 01 Tracks to Connection

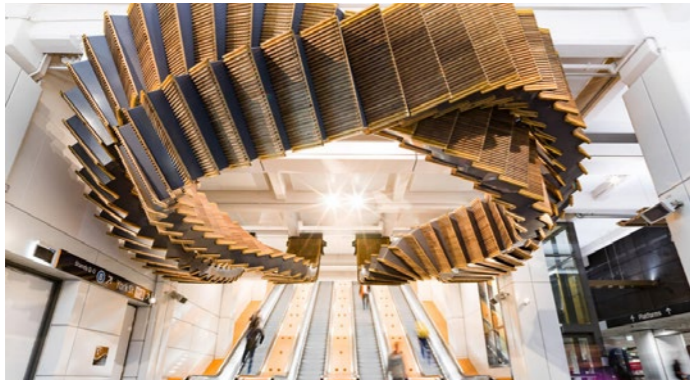
Creating Sydney's most extensive expression of public art; made up of many individual artworks connected within a unifying curatorial vision.



225. Plan showing Tracks to Connection potential locations

- 224: Unexpected Hill, Royal Academy of Arts
- 226: Chris Fox, Interloop, Wynyard Station.
- 227: teamLab, Universe of water particles on a rock where people gather, 2018, interactive digital installation.
- 228: Yuri Suzuki, Sonic Playground
- 229: Olafur Eliasson, Your Uncertain Shadow (colour) 2010

Connecting with Country, heritage interpretation and public art strategies



226. **02 Landmark Works**

Signifying the precinct as Sydney's new creative capital and denoting its key gateways and nodal points with major stand-alone artworks.



227. **03 Transformation**

Transforming the built environment with contemporary digital, lighting, projection and animation technologies that extend the concept of innovation into artistic expression throughout the precinct.



228. **04 Active Art**

Blending sensory experience with physical activity by integrating art with sporting and leisure infrastructure.



229. **04 Live Works**

Activating the precinct with a seasonal cultural program commencing with pre-construction engagement.



230. Plan showing Landmark works potential locations



231. Plan showing Transformation potential locations



232. Plan showing Active art potential locations



233. Plan showing Live works potential locations

3.7

Urban forest and
greening strategy

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3.7 Urban forest and greening strategy

Botanical timeline of Central Precinct

This timeline tracks the historic influences on planting in the precinct, from pre-colonial sand dunes to cultural plantings and present-day urban cultivars. Indigenous plant communities have been largely removed. The act of reintroducing some locally-native species would be significant for cultural and environmental reasons.

PRE-COLONIAL (1788)

The area would have been typified by Turpentine-ironbark Forest on shale slopes with Eastern Suburbs Banksia Scrub on sandy areas and sedgeland in poorly drained depressions. Original stands of vegetation are likely to have been cleared by 1840.



Angophora costata

THE VICTORIAN ERA (1837-1901)

The last native remaining Eucalypts were removed from the Domain in 1879. In Belmore Park there was a European rose garden, with Mexican Fan Palms (*Washingtonia robusta*) planted late in the Victorian era. Prince Alfred Park was dominated by Stone Pines, Norfolk Island Pines and Fig trees.



235. 1879 photograph of construction in Belmore Park. Source: NSW State Archives

PLANTING OF BELMORE PARK (1905-1910)

From 1900 to 1906 Belmore Park was bare earth with a few trees. The three Moreton Bay Figs on the Eddy Avenue frontage are survivors of the original park. Additional plantings include Figs, Plane trees, Brush Box and Mexican Fan Palms that remain today.



236. 1906 photograph of Belmore Park and Sydney Terminal Building. Source: NSW State Archives



Casuarina glauca

Rose bush

London Plane

(*Platanus x acerifolia*)

Hackberry

(*Celtis occidentalis*)

234. Timeline of planting characters in the Central Precinct and Belmore Park

Urban forest and greening strategy

'CITY BEAUTIFYING SCHEME' (1910-1925)

Avenues of shade trees were planted along the main access ways in Prince Alfred Park including Brush Box, Plane Trees and Oaks. Colourful flowerbeds and miniature gardens were laid out. An additional avenue of Golden Poplars was planted.

INTRODUCTION OF EXOTICS AND INDOOR TROPICALS (1970s)

An introduction of exotic species such as the Senegal Date Palm (*Phoenix reclinata*) and Umbrella Tree (*Schefflera* sp) can be seen inside the Sydney Terminal Building. Meanwhile, this period also saw a resurgence of native species in street trees.



237. 1926 Photograph of Belmore Park and Sydney Terminal Building. Source: City of Sydney Archives



238. 1981 photograph of the Grand Concourse. Source: Sydney Living Museums



239. 2012 photograph of Belmore Park and Sydney Terminal Building

CONTEMPORARY

Today, the City's 29,500 street trees include more than 230 different species. The dominant street tree population (the Myrtaceae family) comprise 40% of trees in the LGA. Plane trees alone make up 11% of the population and Fig trees represent 6%.

FUTURE

More planting of locally native species could increase diversity, support key fauna species and provide a sense of place, alongside a mix of native and exotic species that can withstand tough urban conditions.



Moreton Bay Fig
(*Ficus macrophylla*)

American Cotton Palm
Washingtonia filifera

Brush Box
(*Lophostemon confertus*)

Senegal Date Palm
(*Phoenix reclinata*)

Umbrella Tree
(*Schefflera* sp.)

Old Man Banksia
(*Banksia serrata*)

Willum Banksia
(*Banksia aemula*)

Pink Wax Flower
(*Eriostemon australasicus*)

Urban forest and greening strategy

The landscape setting of Central station is critical to the success of the precinct. The opportunity to be close to nature in Sydney's largest rail interchange will bring social, economic and environmental benefits. Moving beyond targets, the urban forest and greening strategy requires commitment through planning, design, implementation and maintenance.

A series of distinctive public spaces provide generous planted areas for cool green cover and increased biodiversity through the precinct.

Urban Forest

A canopy strategy that showcases healthy mature trees bringing value to a highly constrained urban environment.

Microclimate design

A focus on planting arrangements that promote comfortable microclimates through shade and evapotranspiration.

Diversity

A broad range of species and plant types that enhance biodiversity and connect the precinct to Country by referencing pre-colonial plant communities.

Place

An approach to planting design that is not seen elsewhere, giving the precinct a recognisable identity and character.



240. View of Central Green, looking towards Central Station clocktower, the Grand Concourse and Sydney Terminal Building.

Connecting with Country Framework, Balarinji (2021)

The Project Team will integrate native flora and fauna into the Central Precinct. The project team will interpret traditional land management practices.

- The stakeholders viewed the integration of native flora and fauna into the Central Precinct as a priority to help restore Country.
- Gadigal horticulturalist Adam Byrne discussed how areas such as the Eastern Suburbs and Manly support Eastern Suburbs Banksia Scrub, and that this type of scrub would have traditionally grown throughout the Central Precinct area.
- Suggested species to include were Banksia, Waratah, Sydney Wattle, Angophora,

Eucalypt, Ironbark, Flannel flower, Coastal Tea Tree and Dog Rose, as well as other wetland species and weaving grasses.

- Shirley Lomas mentioned seasonal planting as a traditional land management practice that could easily be incorporated into the Central Precinct through landscaping and green spaces.

Themes

- Biodiversity and Restoring the Sounds of Country
- Six Seasons Planting
- Replacing Landmarks of Country

Urban forest and greening strategy

A range of green infrastructure initiatives are embedded into the fabric of the public domain to ensure a green, biodiverse precinct.

Public domain: environmental conditions and proposed planting characters:

- 1. Central Green**
Primary public open space on structure, with good solar access and a fairly exposed aspect. The proposed planting palette of sand dune planting and native groves uses species from the Eastern Suburbs Banksia Scrub which will suit this location.
- 2. Central Square**
Major civic plaza with significant canopy, green cover and good solar access. The proposed planting palette includes deciduous civic trees which relate the open space to surrounding streets, and planting that reflects the character of the Hawkesbury Sandstone Slopes.
- 3. Eddy Avenue Plaza (Upgrade)**
Pedestrian plaza on ground with existing tree canopy and proposed microforest.
- 4. Central Avenue**
The major pedestrian street on structure. The northern part has good solar access and the proposed planting character responds to this, creating a transition between the dune planting and the rainforest character of the shadier southern part of the avenue where planting responds to the shaded location with rainforest and gully species.

- 5. Devonshire St Connection**
Pedestrian connection with an 'Eat Street' character. Tree selection will need to consider the shading impacts of the development.
- 6. Southern Plaza**
Public plaza on structure. The proposed planting character of rainforest gully trees responds to the shaded location at the southern end of the over station development.
- 7. George Street Bridge**
Pedestrian and cyclist bridge with grassy native meadow plant species, building on the meadow habitat in Prince Alfred Park.
- 8. Mortuary Station and Garden**
New public open space around the heritage Mortuary Station building. The proposed planting retains the existing trees and garden to the Regent St frontage. The proposed planting palette to the east of the building draws on the cultural history of Mortuary Station.
- 9. The Goods Line**
This section of the Goods Line is a disused railway track in a heritage cutting, adjoining the tunnel beneath Railway Square and Broadway. The proposed planting palette of rainforest gully species responds to the shaded location of the cutting.



Urban forest and greening strategy

Planting strategy

The Central Precinct planting strategy supports diverse planting characters, each drawing from cultural and environmental narratives of the site. A study of the Indigenous plant communities within the precinct has influenced the species composition of each character, further interpreted to suit the environmental conditions and public domain experience of each precinct, such as solar access. The planting strategy also draws on the cultural character of each precinct in terms of historical and social significance.

The nature of how plants adapt and respond to water influences their placement within the constructed landscape. Dune landscape communities are elevated in well-drained, exposed positions while swamp and gully communities present an opportunity to engage with water. These gardens will capture stormwater and provide passive cooling through evapotranspiration.

Private open space, for example roof gardens, should follow the City of Sydney Landscape Code. Proposed planting design and species should be appropriate for the environmental conditions.

Legend

- Dune planting with evapotranspiration groves
- Rainforest and Gully
- Sandstone slopes
- North Avenue
- South-Avenue
- Meadow
- Civic trees (including deciduous)
- Mortuary Station Cultural Planting
- Eddy Avenue and Railway Square planting



242. Public domain planting characters plan

1:5,000 0 50 100 150 200M

Urban forest and greening strategy

Indicative planting palettes

Dune Planting with Evapotranspiration Groves

Responds to the native communities of the Eastern Suburbs Banksia Scrub in elevated positions and Swamp Woodland or Swamp Forest in sunken areas.

The evapotranspiration groves have an open to dense canopy surrounding clearings, focusing on careful arrangement of trees and low groundcovers to retain visibility through the midstorey to ensure safe viewlines.

Location: Central Green and Sydney Terminal Building western rooftop.

Key species include: **Dunes;** *Banksia aemula*, *Banksia ericifolia*, *Eriostemon australasius*, *Leptospermum laevigatum*. **Groves;** *Melaleuca quinquenervia*, *Eucalyptus racemosa*, *Blechnum camfieldii*, *Ficinia nodosa*, *Juncus usitatus*.



243. View of Central Green

Sandstone slopes

Draws on the Hawkesbury Sandstone Slopes community, which supports a range of vegetation types such as open woodland on ridges and pockets of tall open forest. Grass trees have been included to create an iconic entrance leading to the grand concourse. Red Angophora trunks complement the heritage brick of the Sydney Terminal Building facade.

Location: Central Square terraces

Key species include: *Angophora costata*, *Xanthorrhoea resinifera*, *Doryanthes excelsa*.



244. View of Central Square

Meadow

Drawing from the meadow planting character of Prince Alfred Park, this character is threaded into the precinct along the South Bridge, where abundant sunlight encourages native grasses and flowering groundcovers.

Location: George Street Bridge and Prince Alfred Park Bridge.

Key species include: *Scaevola aemula*, *Brachyscome multifida*, *Themeda australis*, *Rhodanthe anthemoides*, *Chrysocephalum apiculatum*, *Bulbine bulbosa*, *Thysanotus tuberosus*.



246. View of George St Bridge

Rainforest and Gully

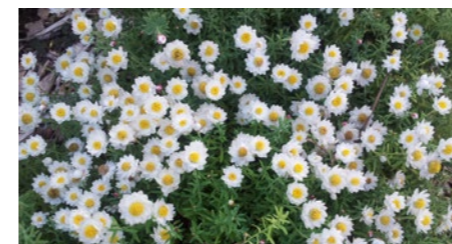
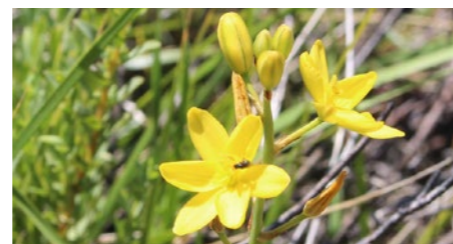
The species composition of this character includes plants found in closed rainforests in the gullies of the Hawkesbury Sandstone Slopes community, as well as native fern species that can be layered to promote cool microclimates through shade and evapotranspiration.

Location: Central Square colonnade, south Central Avenue, Southern Plaza, the Goods Line.

Key species include: *Livistona australis*, *Cyathea cooperi*, *Cyathea cunninghamii*, *Dicksonia antarctica*, *Asplenium australasicum*.



245. View of Southern Plaza



Planting Palette: Meadow; *Themeda australis*, *Wahlenbergia stricta*, *Bulbine bulbosa*, *Rhodanthe anthemoides*, *Thysanotus tuberosus*, *Microleana stipoides*.

Urban forest and greening strategy

North Avenue

North Central Avenue demonstrates an intimate garden character, utilising solar access to support small-flowering native shrubs and groundcovers that form a woody meadow and provide a transition from the Deck Open Space to Central Avenue. Appropriate deciduous trees may be used in this part of the avenue to allow sun in winter.

Location: north Central Avenue

Key species include: *Tristaniopsis laurina*, *Zelkova serrata*, *Liriodendron tulipifera*, *Westringia fruticosa*, *Stylidium graminifolium*, *Dianella longifolia*, *Viminaria juncea*, *Violacea hederacea* syn. *V. banksii*, *Scaevola aemula*, *Hardenbergia violacea*, *Rhagodia spinescens*.



247. View of Central Avenue

Civic character

This character takes precedent from the streets surrounding the precinct to bring the city character into the site and knit the site into its context. Appropriate deciduous trees are proposed to suit the specific urban conditions.

Location: Central Square Plaza, Devonshire Link, Eddy Avenue Plaza, bosque in Central Green.

Key species include: *Zelkova serrata*, *Liriodendron tulipifera*.



250. View of Central Square

Mid-Avenue

The mid-avenue incorporates a canopy of native trees and garden beds that have Aboriginal significance or uses, including reference to six seasons planting. Canopy trees include rainforest understorey species that tolerate low light.

Location: Mid Central Avenue

Key species include: *Acacia melanoxylon*, *Backhousia citriodora*, *Acacia binervia*, *Dianella longifolia*, *Bauera rubioides*, *Lomandra* sp.



248. View of Central Avenue

Mortuary Station

A garden setting of flowering shrubs that complements the heritage of Mortuary Station and brings the landscape character of Rookwood Cemetery into the precinct which is linked by the historic train line, including the use of Canary Island Date Palm, Hoop Pine and Pencil Pine to reference the iconic plantings of Rookwood Cemetery.

Location: Mortuary Station

Key species include: *Phoenix canariensis*, *Araucaria cunninghamii*, *Cupressus sempervirens*.



249. View of Mortuary Station Garden

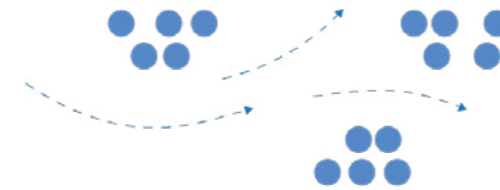
Microclimate design

Evapotranspiration in green infrastructure has the ability to contribute largely to urban cooling, and presents an opportunity for the strategic design of the Central Station Precinct to incorporate green cooling as a central design principle in the selection and placement of plant and tree species. Whilst all trees transpire, some do more than others. This is due to a range of both physiological and environmental factors that must be considered to understand average evapotranspiration rates.

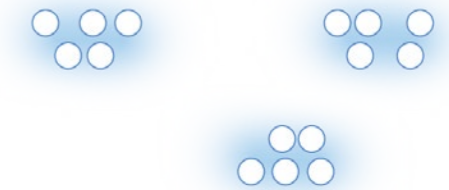
Summary:

Differences in transpiration between species can be due to species-specific differences including; water-use strategies, optimal depth to groundwater, responses to stress, cumulative sapwood area density and leaf area index (LAI)

Design Opportunities:



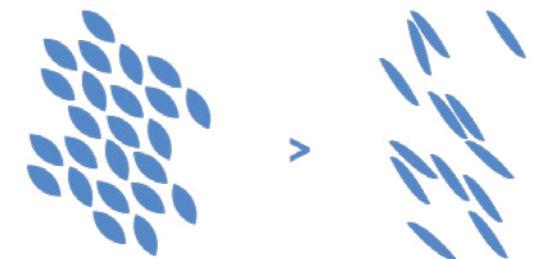
Cluster planting allows breezes and diffused wind to pass through, further enhancing evaporative cooling



Canopy trees occur in groups to retain ambient humidity



Minimum 40% canopy cover is required for adequate cooling



Trees with a high leaf area index (LAI) provide both high quality shade and higher rates of transpiration

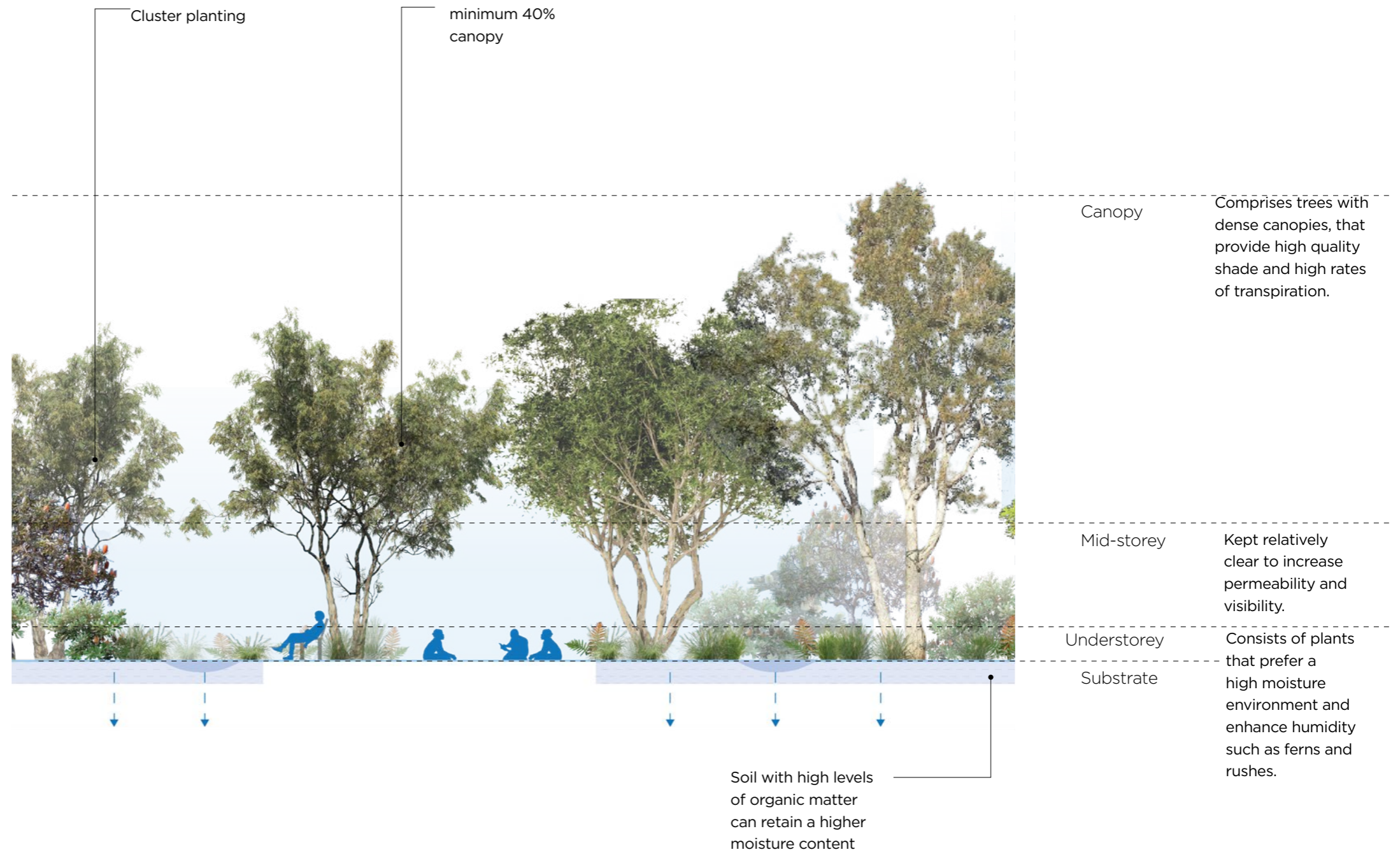
Urban forest and greening strategy

Evapotranspiration groves

The aeolian sand dunes that once occurred on the site featured gentle slopes with local ponds and marshes. This naturally occurring landform has been interpreted to inform habitable groves that are designed for cooling and to provide respite from the surrounding urban setting.

The Central Green will include a range of seating types from in situ benches with and without arm rests, to work benches with charge points, through to movable tables and chairs and movable deck chairs. This will allow all people to be accommodated in comfort and give choice throughout the year.

In this typical section, Banksias provides a sheltered evapotranspiration grove

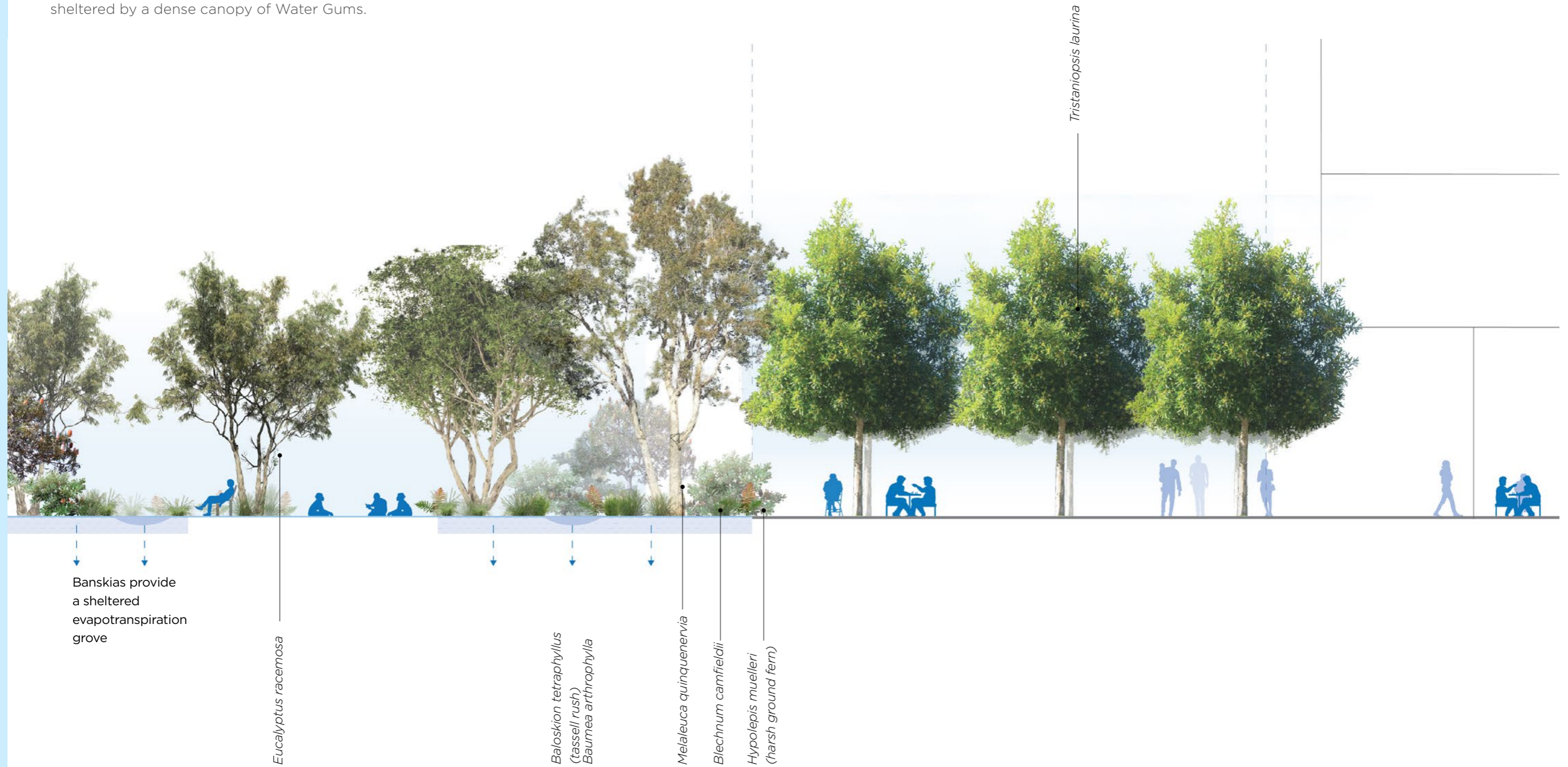


251. Illustrative section through a cool evapotranspiration grove of plating

Urban forest and greening strategy

Groves of green cooling and native trees

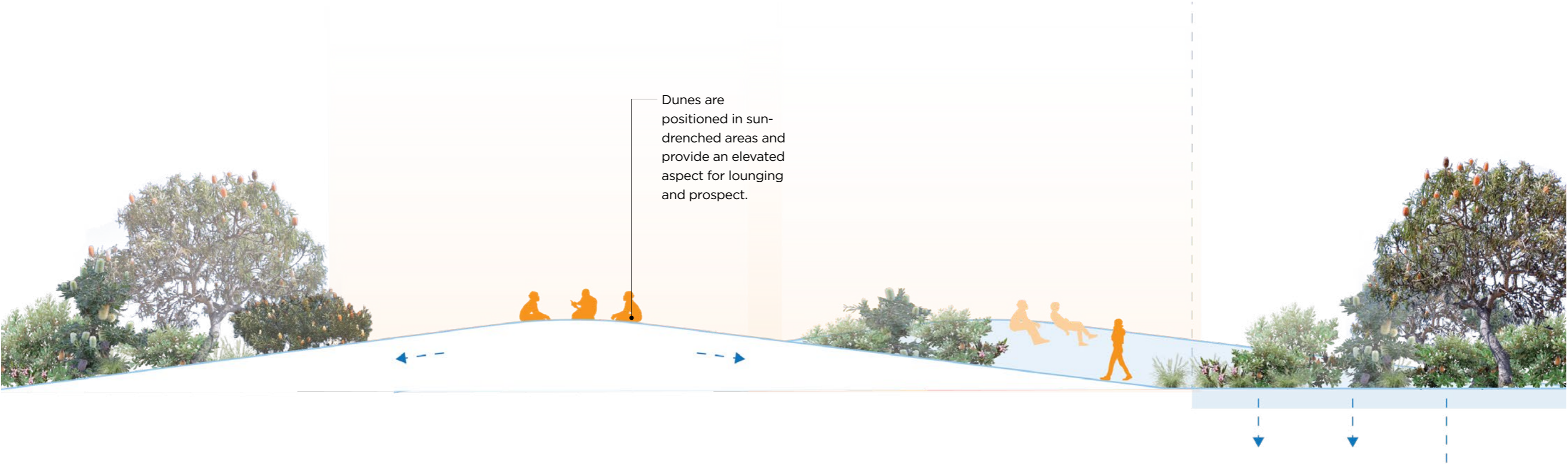
In this typical section, Banskia scrub provides a shelter on one side while the opposite edge is sheltered by a dense canopy of Water Gums.



Urban forest and greening strategy

Sun-drenched turf dunes

As green cooling becomes increasingly essential in our warming urban environment, solar access remains equally important, especially in colder winter months. Here, turf dunes create a relaxed setting for basking and lounging.



253. Indicative section of Central Green, showing open turf spaces with landform, and cool shaded planted groves.

Urban forest and greening strategy

City of Sydney Canopy and Greening Targets

The City of Sydney identifies tree canopy and green cover targets for individual land use types. These include specific targets for property and various classifications of open space and streets. The public domain areas of the structure plan fall within the Civic and Iconic Parks categories with associated targets shown below.

The built form areas of the structure plan fall within the Property classification and will target rooftop green cover.

Canopy Cover

50%

for Iconic Parks

50%

for Civic Open Space

20%

for Property

Green Cover

85%

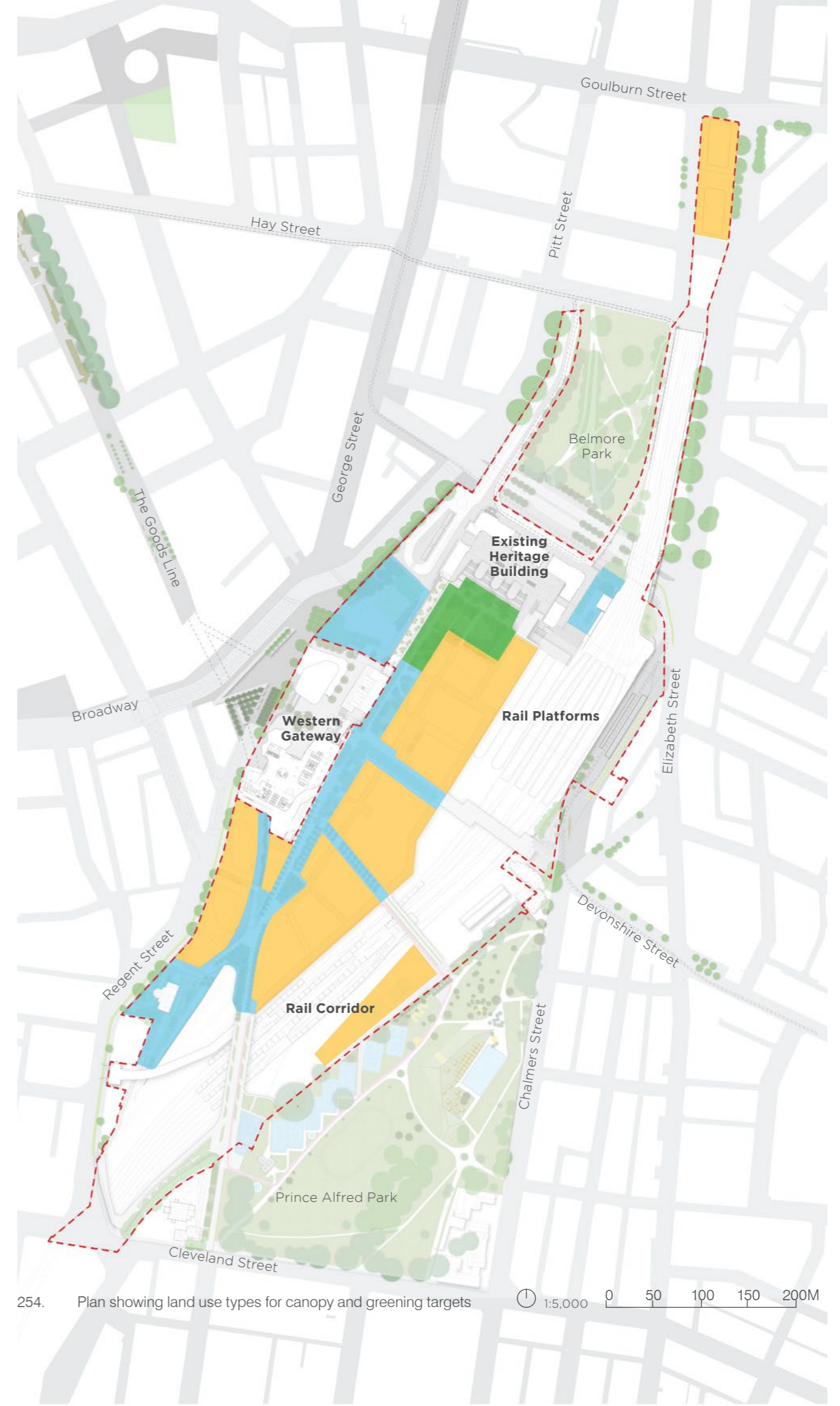
for Iconic Parks

55%

for Civic Open Space

28%

for Property



254. Plan showing land use types for canopy and greening targets 1:5,000 0 50 100 150 200M

Urban forest and greening strategy

Locating tree canopy in response to site factors

The public domain plan considers a range of factors when locating trees. Tree layout is arranged to:

- allow free movement for projected volumes of pedestrians and service access,
- meet solar access requirements to public space,
- preserve key views for wayfinding and heritage significance, such as to and from the clock tower, and;
- consider heritage sensitivity of the clock tower, Mortuary Station and the Goods Line wall.

These considerations informed the preparation of the Public Domain plan as well as the canopy and greening targets for specific areas of the public domain.



257. Diagram of solar access and gathering spaces



258. Diagram of key views



255. Diagram of Heritage sensitivity



256. Diagram of key movement paths



259. Diagram of combined site factors informing location of tree canopy

Urban forest and greening strategy

Public Domain plan tree canopy and green cover

50%
Canopy Cover
of Eddy Ave. Plaza

45%
Canopy Cover
of Central Square

50%
Canopy Cover
of Central Avenue

12%
Canopy Cover
of the Goodline

20%
Canopy Cover
of Mortuary Station Garden

40%
Canopy Cover
of Central Green

50%
Canopy Cover
of Devonshire Link

50%
Canopy Cover
of Link between Blocks
B and C

50%
Canopy Cover
of Southern Plaza

Legend
Tree Canopy

260. Plan showing tree canopy cover of the public domain plan 1:5,000 0 50 100 150 200M

50%
Green Cover
of Eddy Ave. Plaza

56%
Green Cover
of Central Square

55%
Green Cover
of Central Avenue

15%
Green Cover
of the Goodline

55%
Green Cover
of Mortuary Station Garden

65%
Green Cover
of Central Green

50%
Green Cover
of Devonshire Link

50%
Canopy Cover
of Link between Blocks
B and C

55%
Green Cover
of Southern Plaza

Legend
Tree Canopy
Turf and Shrubs
Property rooftop
planting

261. Plan showing green cover of the public domain plan 1:5,000 0 50 100 150 200M

Urban forest and greening strategy

Table: Canopy and greening cover targets

Location	Land use type	City of Sydney canopy cover target	Reference scheme canopy cover	Recommended canopy cover for planning controls	City of Sydney greening cover target	Reference scheme greening cover	Recommended green cover for planning controls	Comments
Central Green	Iconic Park	50%	40%	40%	85%	65%	65%	The proposed canopy and greening targets allow for the particular requirements of this space, which requires a key pedestrian connection - Central Avenue to the Sydney Terminal Building.
Central Square	Civic Open Space	50%	45%	45%	55%	56%	55%	The proposed canopy and greening targets allow for the particular requirements of this public space with a major station entry. The reduced canopy cover target allows space for the required covered station entries, movement space for high volumes of commuter movements, and space for events.
Eddy Avenue Plaza	Civic Open Space	50%	50%	50%	55%	50%	50%	The proposed canopy and greening targets allow for the movement space required at a major station entry.
Central Avenue	Civic Open Space	50%	50%	50%	55%	55%	55%	
Devonshire Link	Civic Open Space	50%	50%	50%	55%	50%	50%	
Southern Plaza	Civic Open Space	50%	50%	50%	55%	55%	55%	
Mortuary Station Garden	Civic Open Space	50%	20%	20%	55%	55%	55%	Mortuary Station Garden cannot support the 50% canopy target without compromising heritage values, including the views from Regent St to the facade, and the proposal to preserve the existing disused rail tracks.
Link between Block B and C	Civic Open Space	50%	50%	50%	55%	50%	50%	
Western Edge, including Western Extension Building Rooftop and adjacent Central Avenue	Civic Open Space	50%	0%	0%	55%	12%	10%	Trees would not be appropriate in this area, in order to maintain views towards the Sydney Terminal Building. A low greening target is set to allow for planting on the Western edge, but maintain key movement routes.

Urban forest and greening strategy

Location	Land use type	City of Sydney canopy cover target	Reference scheme canopy cover	Recommended canopy cover for planning controls	City of Sydney greening cover target	Reference scheme greening cover	Recommended green cover for planning controls	Comments
Ibero American Plaza and Chalmers St light rail station	Civic Open Space	50%	10%	10%	55%	16%	16%	The targets maintain the existing level of canopy and greening cover, which takes into account the infrastructural constraints of the light rail station and maintain the key movement spaces and clear viewlines required at a key transport interchange.
Devonshire Bridge	Targets are not set for bridges in the Greening Strategy	N/A	0%	0%	N/A	0%	0%	Due to key views and the civic nature of this bridge, trees and greening are not considered appropriate for the character of the Devonshire Bridge.
Prince Alfred Park Bridge	Targets are not set for bridges in the Greening Strategy	N/A	0%	0%	N/A	20%	15%	Canopy trees cannot be supported due to limited soil depth for required train clearances, however a greening target is provided.
George St Bridge	Targets are not set for bridges in the Greening Strategy	N/A	0%	0%	N/A	18%	15%	Canopy trees cannot be supported due to limited soil depth for required train clearances, however a greening target is provided.
The Goodslie	Adaptive reuse of a rail cutting, not a typical land use type	N/A	12%	10%	N/A	15%	15%	These targets enable the retention of the existing disused rail tracks in the Goodslie cutting and the heritage retaining walls.
Block A, Block B and Block C, Block D, Block E and Block F	Property	20%	0%	0%	28%	20%	20%	Tree canopy provision is maximised in the public domain areas. The buildings will be required to provide at least 20% green cover as rooftop planting.

Urban forest and greening strategy

Soil profiles

Areas of deep soil

Deep Soil is defined as free draining, contiguous, deep soil with a minimum dimension of 3m, and cannot be located above an impermeable surface. (ADG 2015). While a significant proportion of the proposed planting and new public spaces will be located above structures, there are a few areas of the site with access to deep soil for planting. These are:

- Eddy Avenue Plaza
- Mortuary Station
- Central Square, south of the BOOS (Bondi Ocean Outfall Sewer)

Planting above structures

Much of the proposed planting and new public spaces will be on a structure, as part of the development above the rail lines. Proposed areas of planting above structures includes:

- Planting on the OSD; Central Green, Central Avenue, Southern Plaza, Devonshire Link
- Planting on George St Bridge and Prince Alfred Park Bridge

The following minimum soil depths for planting on structure is outlined in the ADG. Depths have been calculated assuming fortnightly irrigation. Any sub-surface drainage requirements are in addition to the soil depths listed.

Mature Size	Height	Canopy Width	Soil Volume (per tree)	Soil Area on Structure	Minimum Depth
Small Trees	6-8m	4m	9m ³	3.5m x 3.5m	800mm
Medium Trees	8-12m	8m	35m ³	6m x 6m	1000mm
Large Trees	12-18m	16m	150m ³	10m x 10m	1200mm

All volumes are subject to review against current industry best practice standards. An arborist or soil scientist can provide specific advice about the volume of soil that planting requires in your development.

262. Table from City of Sydney Landscape Code Vol. 2 showing minimum soil depths for planting on structures.

- Central Square, where a basement is located beneath the plaza, north of the BOOS (Bondi Ocean Outfall Sewer).

Soil provision on structures to provide for long term tree health

Although the success of healthy tree plantings is often attributed to the access to deep soil zones, this is not because tree root systems require large soil depths. Under appropriate conditions, trees can happily reach maturity in constructed environments by encouraging roots to grow laterally, improving tree anchorage where planting above a structure limits the available soil depth.

The deck platform must be designed to support optimal tree health to maturity. It will function as an engineered planting system based on principles of soil science, plant physiology and ecology. The proposed structural design of the OSD deck allows for a 1m minimum depth for soil for tree planting, with larger depths possible in some locations. Both soil volumes, and soil connectivity are also important to enable trees to grow successfully on structures, and recommendations for planning provisions are provided to ensure this is delivered.



263. Diagram of connected soil volume

Urban forest and greening strategy

Soil volumes

The overall soil volume, including the width is as important as depth for tree growth and stability. The City of Sydney Landscape Code Vol. 2 notes “most trees have a root plate rather than a root ball. This means that they prefer to spread their roots across a broad shallow area of soil rather than growing in a narrow deep area of soil. The relationship between the width of the root plate and the diameter of the tree trunk needs to be balanced to give the tree stability. The volume of soil required for a tree differs depending on the type of tree, the type of soil and the amount of water (rainfall or irrigation) that the tree receives”. The recommendations for minimum volume and depth requirements when planting above structures from the City of Sydney Landscape Code Vol. 2 are shown in Fig.262. The soil depth recommended for turf is 200mm and for shrubs is 500-600mm.

Other studies, such as ‘Planting and establishment of trees on difficult sites’ by Judy Fakes (see appendix), have suggested that soil depths between 500 and 900mm are optimum. The report also states that “the area of soil exposed to the surface for gaseous exchange is also an important consideration”.¹ Areas of turf and planting around trees, or permeable paving, will allow for gaseous exchange between the soil volumes and the air.

Connected soil

The CPRP presents an opportunity to establish a continuous soil volume in the OSD, spanning from the Central Green to the south deck, as well as connecting this to the existing soil volume of Prince Alfred Park via the South Bridge. In the Central Square, the soil volume above the basement should be connected with the deep soil area to the south of the BOOS. These connections will allow for the exchange of microbiota, as well as the development

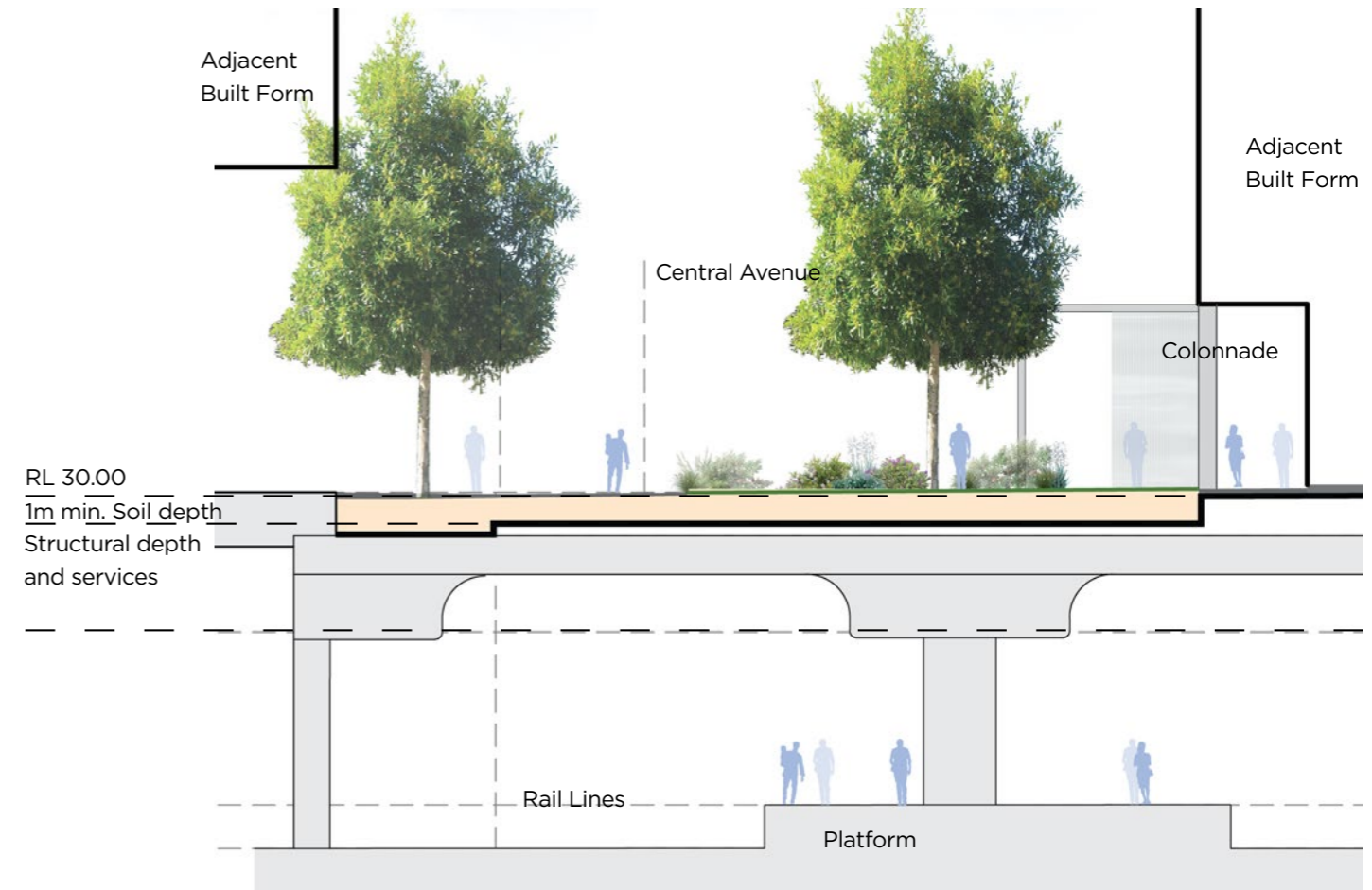
of mycorrhizal fungi networks for the exchange of plant nutrients and boosting the overall health of planted communities.

Typical section

Fig.264 shows a typical section through the Central Avenue, demonstrating how sufficient soil volumes and connectivity can be achieved on the OSD;

- A minimum allowance of 1m soil depth for tree planting soil volumes in the structural design of the deck
- The width of the soil volume is maximised across Central Avenue, including underneath the paved areas. This provides soil volumes for tree planting in line with the recommended volumes.
- The planted and turf areas allow for a large surface area of gaseous exchange with the soil.
- The soil volume connects all the trees and planting on the Central Avenue, rather than isolating trees in individual tree pits, allowing the development of fungi networks, and movement of microbiota.
- These principles also apply to other areas of the OSD including the Southern Plaza, Devonshire Link, and the bridges, and have informed the recommended planning controls / design guideline provisions.

It is also recommended that in detailed design stages the advice of soil scientists, arborists or urban forestry professionals is sought to provide more specific advice.



264. Typical Section through Central Avenue showing deck structure and soil depth available

¹ Fakes, J., 2001, Planting and Establishment of Trees on Difficult Sites, National Street Tree Symposium, Treenet Inc.

3.8

Urban habitat

OFFICIAL

3.8 Urban habitat

The Central Station Precinct has low existing biodiversity value, however it presents an opportunity to increase biodiversity through additional planting, particularly of native and endemic species, and the creation of habitat for more native fauna species.

Habitat linkages and biodiversity corridors

Improving the site ecology of the Central Precinct can help improve biodiversity and habitat linkages through the city.

Figure 265 shows the priority habitats, supporting habitats and supporting areas identified in the Connected Corridors for Biodiversity strategy by the Southern Sydney Regional Organisation of Councils (SSROC).

The Connected Corridors strategy states: 'Habitat connectivity is essential for the long-term conservation of a diverse range of species and ecological communities', by providing 'stepping stones' for fauna species to move between different areas to feed and reproduce. Isolated habitats over time will lead to 'dwindling population sizes, reduced genetic diversity, and adverse impacts on ecosystem function and health, with consequent increases in the susceptibility of populations to threats such as disease, competition, predation, and weed invasion - as well as to climate change, which is likely to exacerbate these other threats'. Providing more stepping stones of habitat could help fauna like small native birds re-establish in parts of the city they are not found in presently, as they can only move short distances between habitat areas.

East-west connection

Along with Prince Alfred Park, the precinct can contribute to a habitat linkage between Victoria Park and the University of Sydney campus to the west, and Moore Park and Centennial Park to the east.



265. Supporting habitats and supporting areas from the Connected Corridors for Biodiversity, Southern Sydney Regional Organisation of Councils (SSROC).

Urban habitat

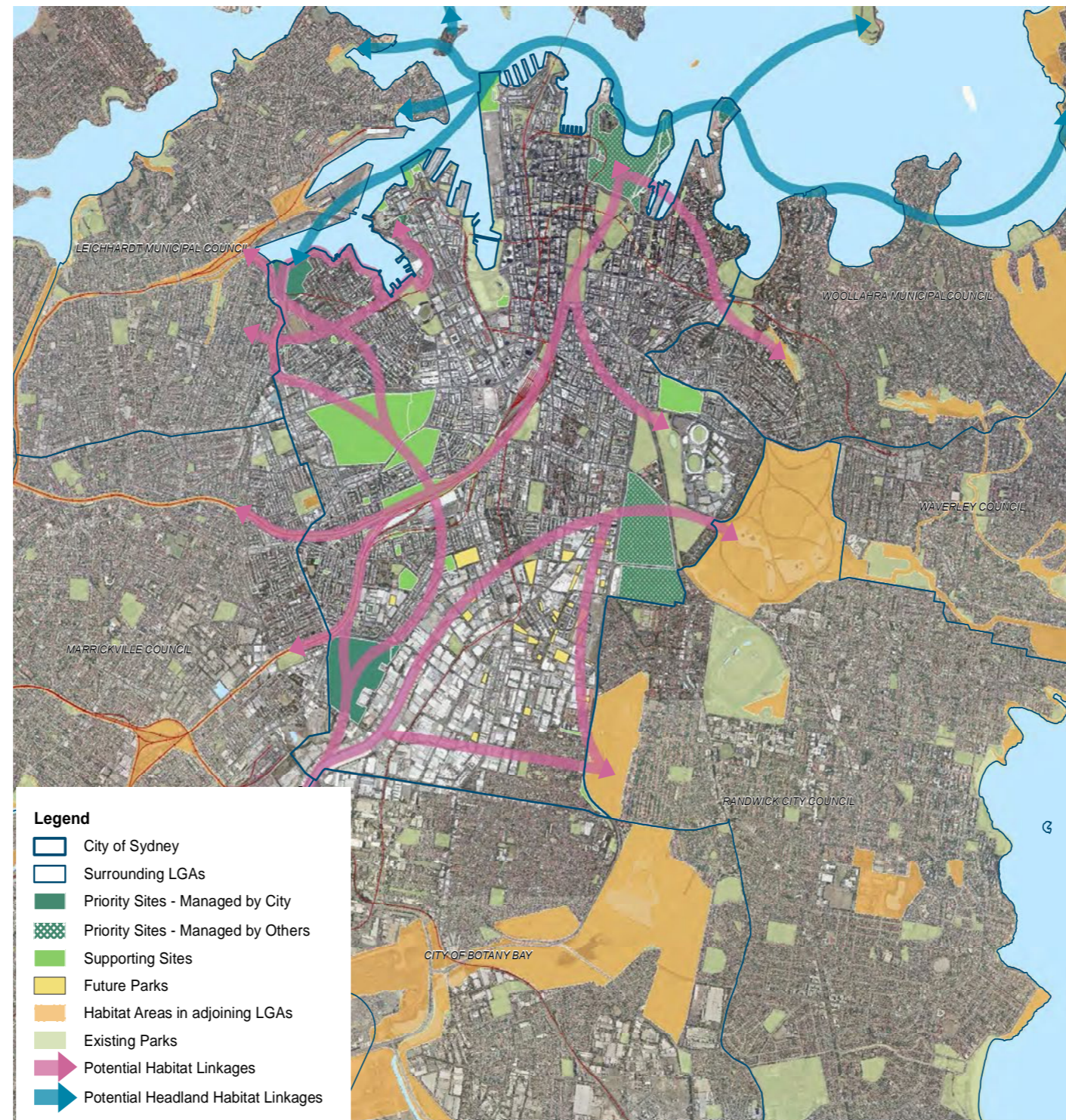
North-south connection

The precinct can also contribute to creating a linkage between this east-west connection and the harbour, through the significant open space corridor of Hyde Park, The Domain and the Royal Botanic Gardens.

The connection from Hyde Park to the harbour is likely to be used as a flyway by microbats, and there is potential to extend this connection through Belmore Park to the Central Station Precinct.

Figure 266 shows the Priority Sites, supporting sites and potential habitat linkages identified in the City of Sydney urban Ecology Strategic Action Plan. The linkages are proposed to connect the priority and supporting sites, noting; "While it is unlikely that continuous habitat 'corridors' can be created along their full length, there is considerable potential to at least create 'stepping stones' of habitat along or in the vicinity of these potential habitat linkages to facilitate the movement of more mobile species across the landscape."

The Central Precinct can contribute habitat to the linkage identified along the rail corridor, running from the Eveleigh-Redfern rail corridor, identified as a Supporting Site, through Prince Alfred Park, the Central Precinct and Hyde Park towards the harbour.



266. Potential Habitat Linkages from the City of Sydney Urban Ecology Strategic Action Plan

Design Opportunities from the City of Sydney Urban Ecology Strategic Action Plan

Design ecological communities to support existing remnant communities including; Sydney Turpentine Ironbark Forest, Coastal Swamp/Alluvial Forest and Coastal Sandstone Outcrop Complex.

Create structurally complex and diverse understorey habitat that connect potential habitat linkages. These communities support small native birds and encourage foraging and habitat.

Plant diverse tree species including Eucalyptus, Corymbia and Angophora species together with the understorey planting.

Design elements to consider habitat opportunities for Priority Fauna Species.

Improve habitat for microbats. Consider the 17 known species of microbat in Sydney, including the Gould's Wattled Bat, the Eastern Freetail Bat, and Little Forest Bat and the Eastern Bent-Wing Bat.

Urban habitat

Ecological assessment

An ecological assessment conducted by EcoLogical Australia provides an overall snapshot of ecological values and potential for enhancement. For the full report refer to the Green Infrastructure Strategy.

Method

The study area was investigated for threatened species, key habitat features and existing vegetation. The study comprised a desktop review and rapid field survey during daylight hours. It identified biodiversity objectives and outlined statutory requirements for detailed ecological assessment.

Findings

The study area has low existing biodiversity value, although some areas provide habitat for threatened species. Specific findings include:

- Very limited habitat for native species other than highly mobile birds and bats.
- Vegetation type is classified as urban/exotic comprising mown grass, weeds and mixed plantings.
- Grey Headed Flying Fox (listed as vulnerable under the BC Act and EPBC Act) has previously been recorded near the study area.
- No threatened flora or fauna were recorded on site.
- The proposal has potential to impact five vulnerable bat species that may use Central Station and surrounds for habitat or foraging, particularly the Large Bent-winged Bat.
- Further investigation will be required, particularly into bats and microbats. This may include nocturnal surveys. This assessment would form part of a BDAR, and would be completed for a State Significant Development Application.

- The low biodiversity value of the site means that even minor changes such as weed removal and increasing the quantity of native plants will be an improvement.

Biodiversity objectives

Enhancing biodiversity in highly urbanised environments is a challenge but can transform the liveability of an area when it is implemented effectively. The study area currently has low biodiversity so has potential for significant improvement. Enhancing biodiversity will result in environmental and social benefits, such as air temperature regulation, carbon sequestration, reduction of pests and weeds, and improved amenity and wellbeing.

The following are recommended biodiversity objectives and performance criteria for the precinct that could be incorporated in planning controls;

- Landscaping to feature native plants that are characteristic of communities that would have been in this area.
- Plantings should achieve structural integrity where possible (canopy, mid storey, groundcover).
- Management and maintenance plan to consider ongoing weed removal.
- Protect important threatened species habitat during redevelopment, where possible.
- Install additional microbat habitat. Roosting habitat could be provided along the edge or underneath the deck structure. Future ecological assessments should be completed to determine the most appropriate habitat type.
- At future stages of the design process, detailed targeted microbat surveys to be undertaken in

accordance with Threatened Species Survey Guidelines for areas proposed to be affected; assessment to be included in BDAR/s and including specific management and mitigation measures.

- incorporate hollows / boxes for birds, roost platforms for birds of prey, and planting that supports invertebrates.
- Incorporate water sensitive urban design features to provide water in the landscape for fauna.
- Provide vegetation and habitat (not just canopy trees) throughout the public domain, including parks, avenues, and rooftops, to create habitat connections with surrounding areas.
- Consider local and regional flyways in landscape, building and infrastructure design. Avoid building typologies that could harm flying fauna, such as highly reflective glass building facades.

Urban habitat

Fauna species

The precinct can support a number of target fauna species by providing additional habitat and foraging opportunities. Microbats are an important focus for the CPRP. Facilitating their habitat and food source is a top priority.

Improved vegetation integrity and abundance

The precinct can offer an increase in canopy and green cover with a greater proportion of native species. Plantings are to have good structural integrity with consideration of groundcover, some mid-storey and canopy layers. Refer to the Urban Forest and Greening chapter for details.

Providing a range of flowering plants and native bee hives will create habitat and food sources for native bees and butterflies.

Small-flowered plants, dense shrubs and plants with spiky leaves or stems can provide habitat and food sources for small birds, as well as protection from larger, more aggressive birds.

The Central Precinct can create places for large birds of prey to build nests, including the Peregrine Falcon and White-bellied Sea Eagle known to be in the area.

Providing dense grasses and understorey plants can create habitat for many small reptiles such as skink species.

Water in the landscape

Water sensitive urban design features can be considered in the public domain as resources for birds, reptiles and invertebrates to hydrate and cool off. Refer to the Water chapter for details.



278. Microbat



273. Redbrowed Finch



267. Eastern Bluetongue Lizard



268. Blue Banded Bee



277. Microbats



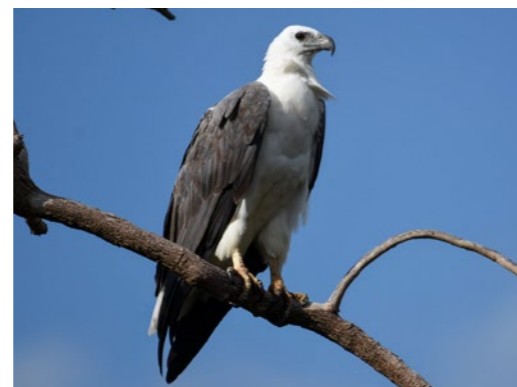
274. Spotted Pardalote



269. Dark-flecked Garden Skink



270. Striped Marsh Frog



276. White-bellied Sea Eagle



275. Superb Fairy-Wren



271. Wall Skink



272. Pearl White Butterfly

Urban habitat

Improving biodiversity and creating urban habitat will connect the precinct to the wider ecological network of the city, such as the likely microbat flyway through Hyde Park to the Harbour.



279. Diagram of surrounding ecological areas and flyways

1:20,000 0 200 400 400M

Urban habitat

Biodiversity web

By developing a strong ecological web of both habitat and food, the site will be able to support microbats, birds of prey, frogs, lizards, native bees, butterflies and other insects. Although there are currently few small birds in the vicinity of the site, the biodiversity strategy proposes creating habitat and food sources to support small birds in the future, as other ecological connections and corridors enable them to re-establish in the area.



280. Diagram of potential habitat and supporting infrastructure provision and target fauna species

1:20,000 0 200 400 400M

3.9

Amenity: skyview,
solar analysis
and wind comfort
targets

Skyview analysis

Building separation and views to sky

The spaces between buildings are extremely important in creating places that are high in amenity. In a dense environment adequate building separation, open spaces and views to sky are essential to allowing cities to “breathe” with good levels of daylight. Central Precinct is set to deliver a highly urban environment consisting of a new cluster of towers, and will need to consider a balance of built form and space.

The amount of daylight and views to sky is a significant amenity consideration that contributes to the experience of the pedestrian at ground level. It contributes to creating a sense of openness and space between buildings, provides light and visibility, adds to safety and security and contributes to the perception of the attractiveness of a space.

Key building separation considerations for Central Precinct include:

- Minimum 30m building separation between towers along primary links, and 12-20m building separation between towers along secondary links.
- Even greater building separation between towers along Central Avenue (approximately 45m - varies).
- Minimum 12m building separation at ‘ground level’ for pedestrian links.
- Minimum 6m for laneways and through site links within a building.
- Compliance with Apartment Design Guide (ADG) building separation.
- Open spaces on the deck level to enable greater separation between buildings.

Sky view factor

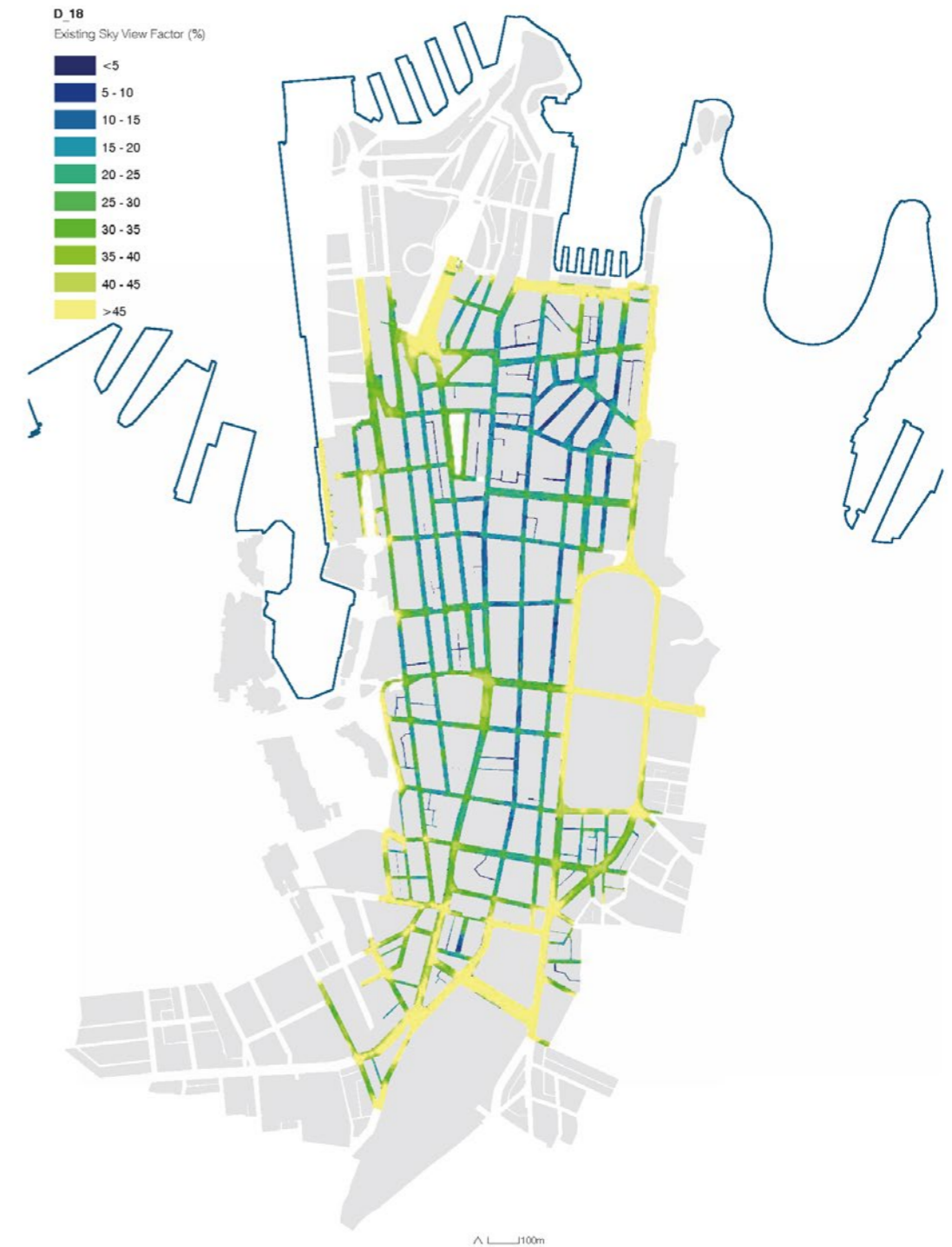
City of Sydney Council’s Central Sydney Planning Strategy (Appendix D) identifies the ‘Sky View Factor’ (SVF) as a measure of the proportion of sky visible from any point from the ground. This tool is valuable in understanding the daylight conditions in the street or open space. As noted within the CSPA, SVF is a reasonable indicator of daylight levels and as such, SVF has been used as a measure to analyse the approximation of daylight levels within the proposed renewal of Central Precinct.

City of Sydney Council has divided SVF into the following categories based on the Central Sydney condition:

- Streets and spaces with low SVF - less than 15%. Within Central Sydney this often applies to small streets or laneways.
- Streets and spaces with a typical SVF - 15% to 25%. Within Central Sydney this often applies to long and straight streets.
- Streets and spaces with a higher SVF - 25% to 35%. Within Central Sydney this often applies to short, wide streets or at an intersection or open space.
- Streets and spaces with the highest SVF - more than 35%. Within Central Sydney this often applies to edges of the city or areas where development is not as dense or tall.

A sky view factor analysis of Central Precinct resulted in the following outcomes:

- The majority of the proposed streets, links and open spaces at the OSD deck level achieves more than 25% SVF, which is consistent with what is considered a high SVF in Central Sydney.
- Key open spaces at the OSD deck level achieves approximately 35% to over 50% SVF, which is a high result within the context of Central Sydney.
- The proposed Central Square achieves about 50% SVF.



281. Central Sydney existing skyview factor, Attachment B15 Draft Central Sydney Planning Strategy Appendix D Street Frontage Height and Setbacks, p23.

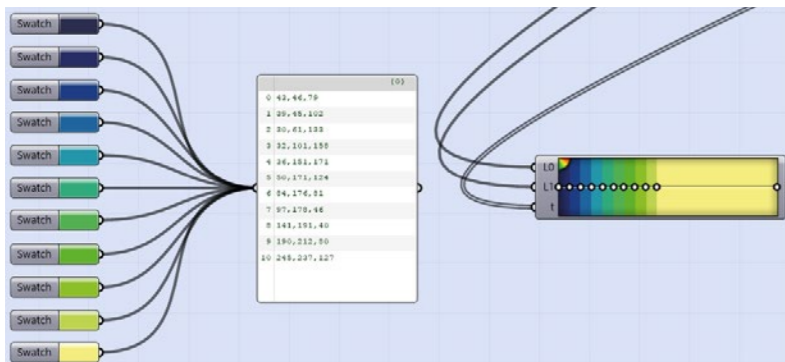
Skyview analysis

Skyview factor methodology

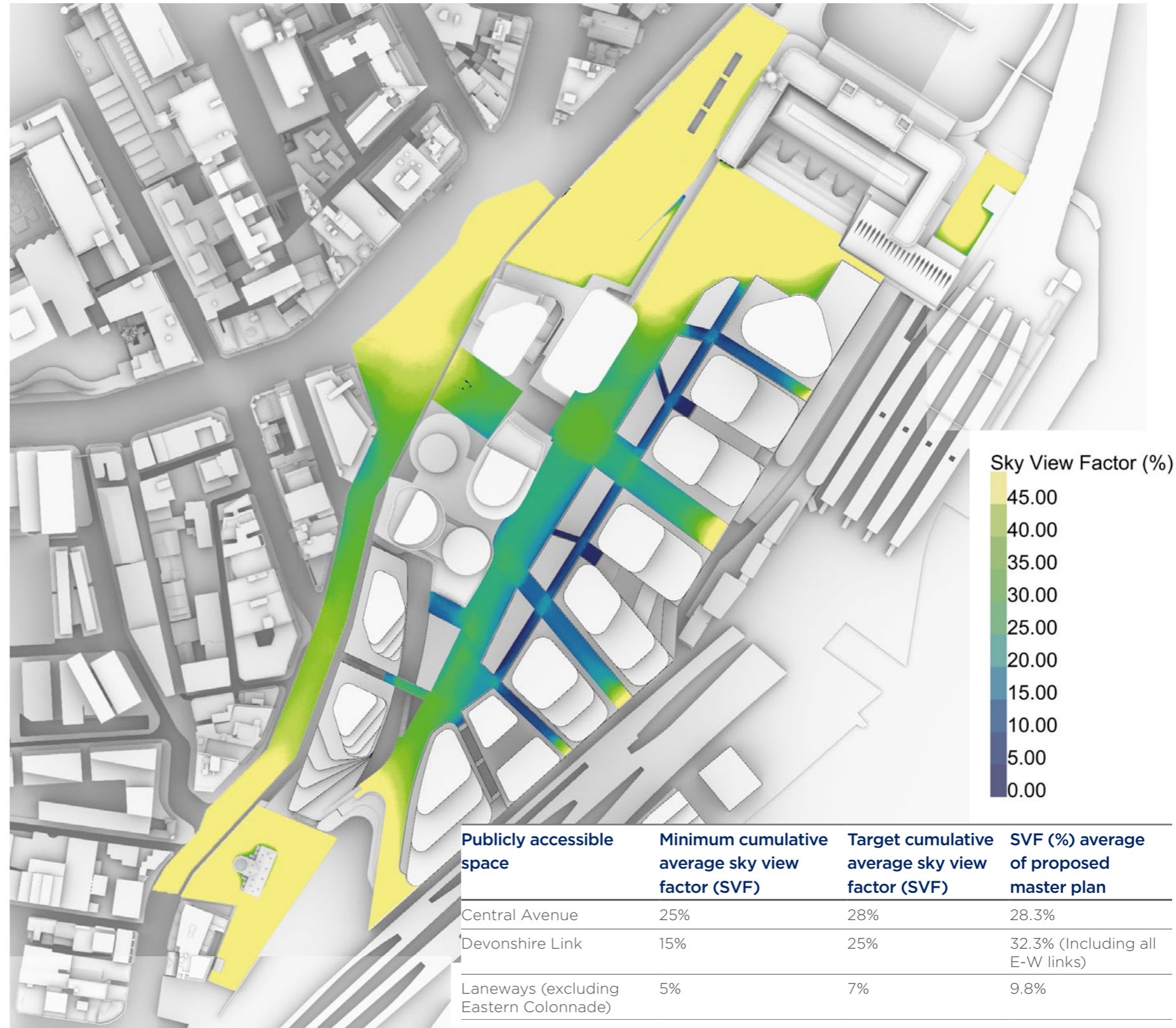
Using Rhino, Grasshopper and Ladybug, the script for calculating skyview factor for Central Precinct computes the following:

1. 3d model of the proposal is the input geometry
2. Plane projected 1.5m above ground level then divided into a 1m x 1m grid. This plane is projected from RL30 for the OSD / deck, street / topography level elsewhere.
3. The four corner points of each 1m x 1m grid at 1.5m above ground have over 9,000 vectors projected to the sky hemisphere. A percentage of those that reach the sky hemisphere are calculated. For example, if 900 vectors of the 9,000 reach the hemisphere then the point has 10% skyview factor. Those vectors that do not reach the sky hemisphere have terminated at built form, and therefore are not calculated as part of the sky view.
4. The average of the 4 points of each 1m x 1m grid is then calculated as a % of vectors that reach the sky hemisphere. For each grid, the % is colour coded, matching CoS colour scale.

Image below: Architectus colour scale legend - matches CoS legend - eg. Dark blue is 0-5%, Middle blue is 5-10%, Light Blue is 10-15%, etc - up to light green 40-45% then >45% yellow).



282. Architectus colour scale legend for skyview factor analysis



283. Skyview factor analysis of proposed massing

284. Table: Central Precinct minimum and target cumulative average sky view factor for publicly accessible spaces as proposed within the Central Precinct Design Guide

Skyview analysis

Sky view factor comparative analysis

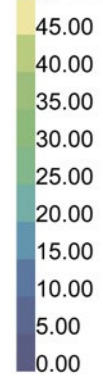
The following three pages provide a comparison between the proposed areas of public open space, streets and lanes at Central with high performing, similar scaled spaces that currently exist within Sydney. Typical sections are also provided to illustrate the access to sky at key locations within the proposed precinct.

As demonstrated by the adjacent studies, the proposed squares and parks proposed at Central Precinct achieve a higher SVF than similar scaled public open spaces within Sydney. Equally, the streets and links proposed at Central also achieve a higher result compared to key streets in the city.

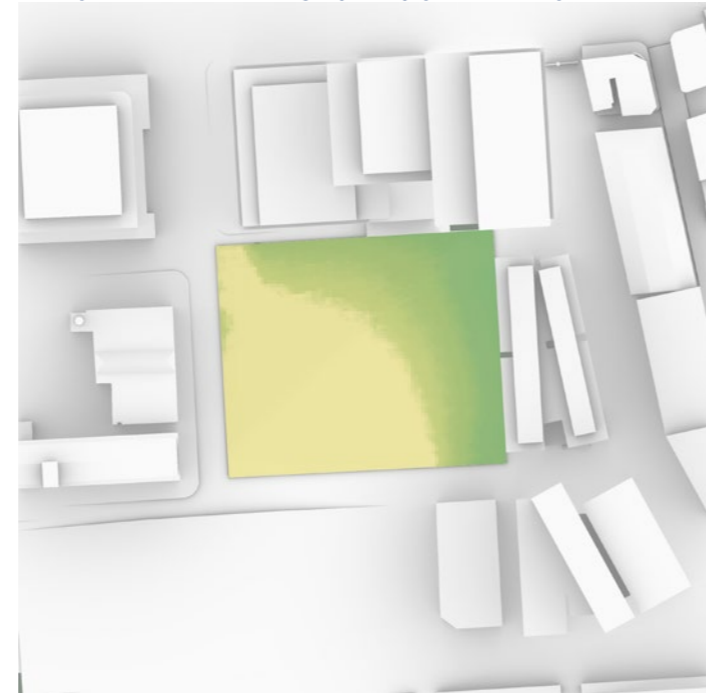
The results for laneways vary more due to the width of the laneways and density surrounding. When compared with Ash Street, a highly popular and successful laneway in the city that is surrounded on both sides by tall buildings, the proposed north-south lane at Central Precinct achieves a similar SVF (with slightly higher results at junctions with east-west connections).

As demonstrated by the results, all proposed spaces meet the minimum proposed SVF targets for this precinct as set out in the Central Precinct Design Guide.

Sky View Factor (%)

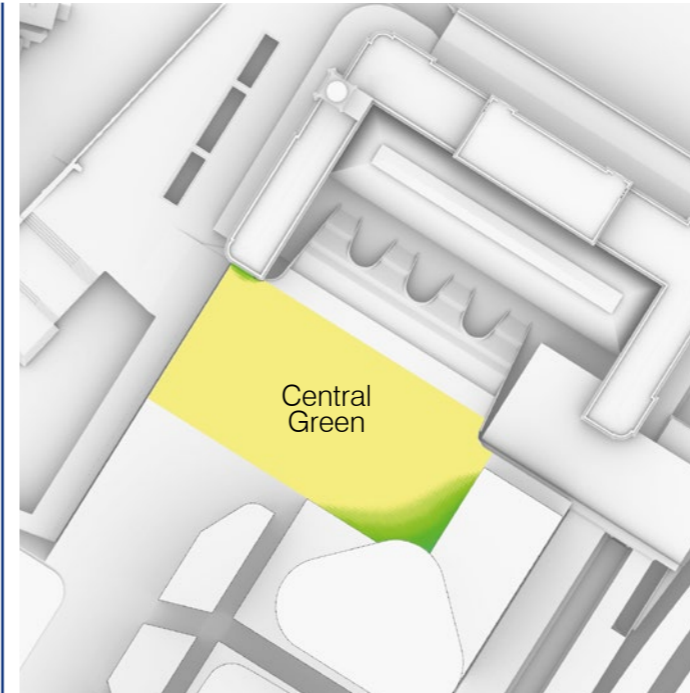


Comparison to existing Sydney parks and plazas

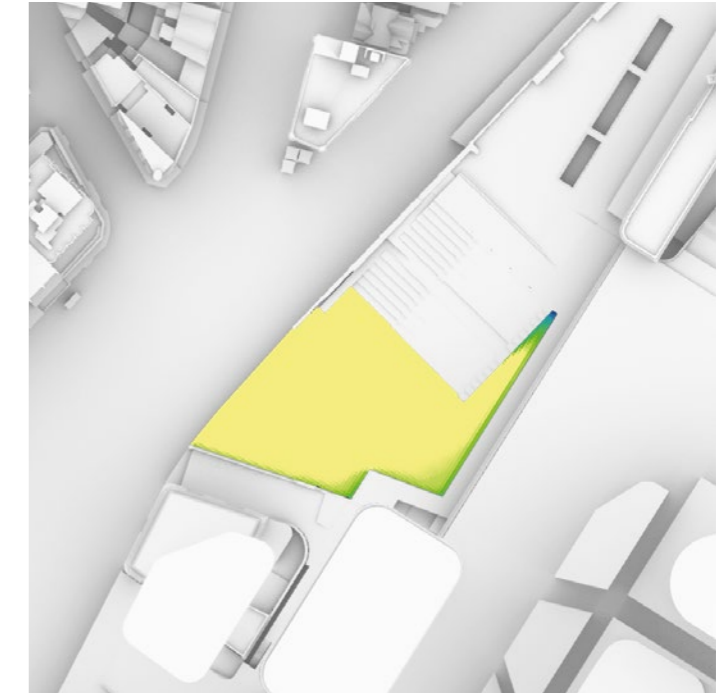


289. Central Park, Chippendale, 42.7% SVF average

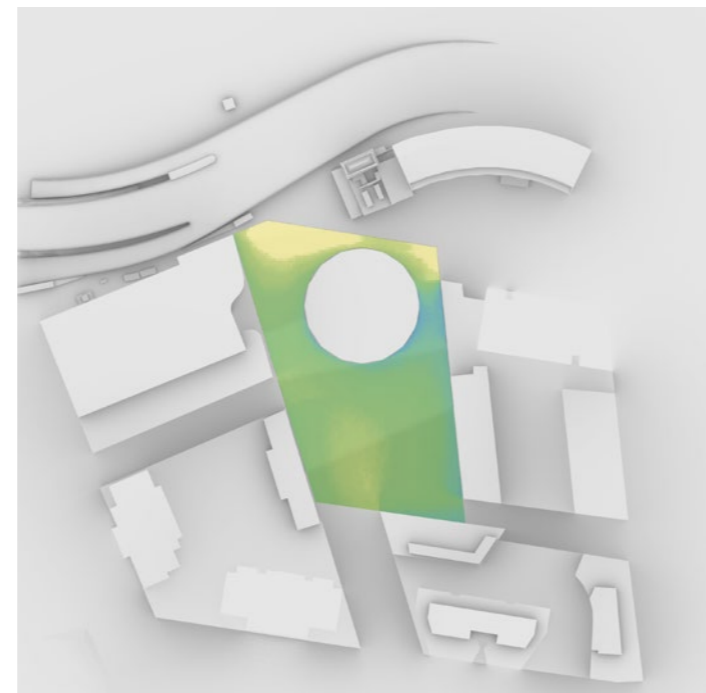
Central Precinct Master Plan



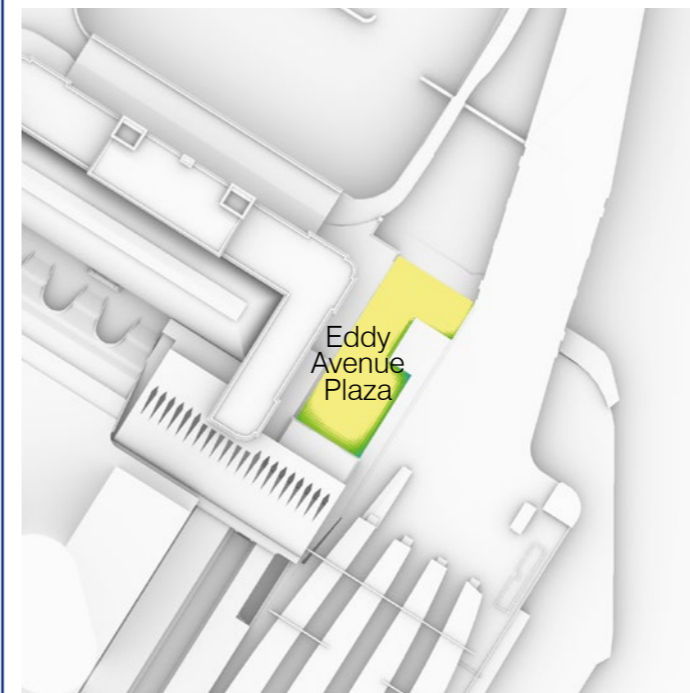
285. Central Green, 56.2% SVF average



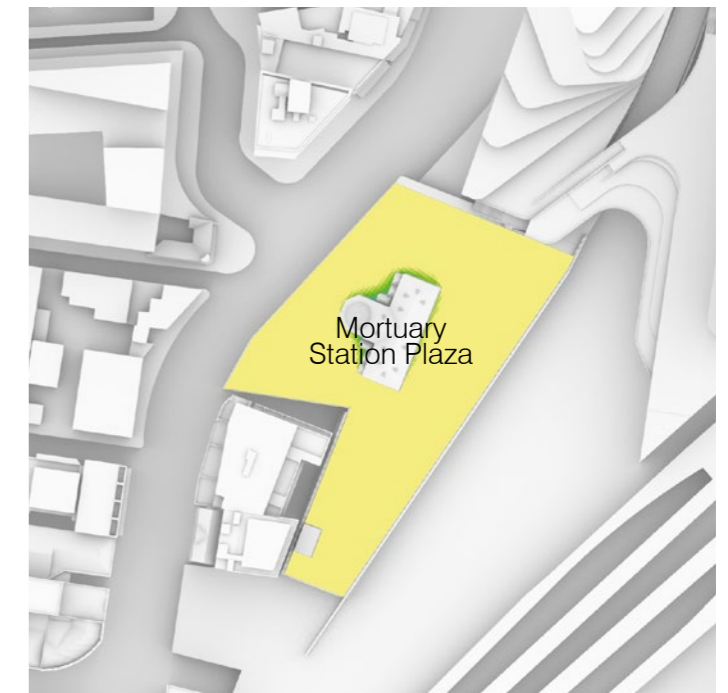
287. Central Square, 49.8% SVF average



290. Darling Square, Haymarket, 31.3% SVF average



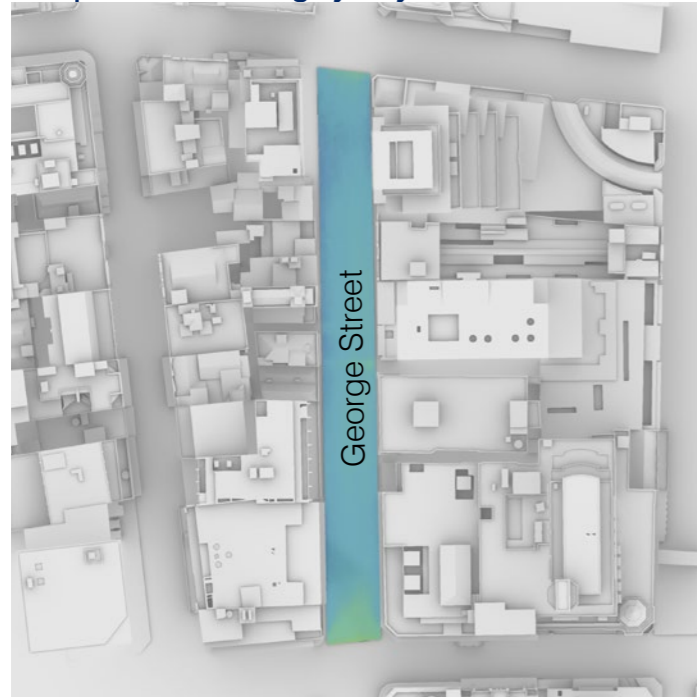
286. Eddy Avenue Plaza, 52.6% SVF average



288. Mortuary Station Plaza, 63.3% SVF average

Skyview analysis

Comparison to existing Sydney streets



291. George Street (between Market and King Streets), Sydney CBD, 17.6% SVF average

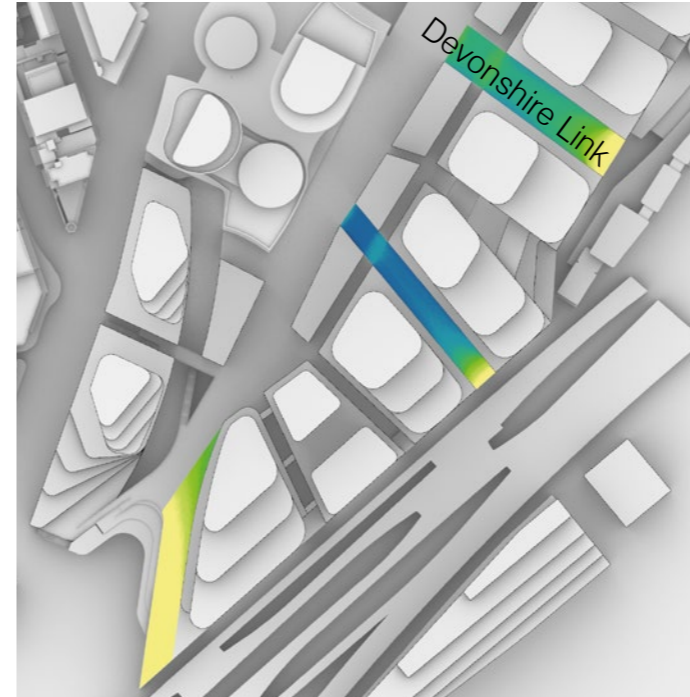


292. Pitt Street (between Market and King Streets), Sydney CBD, 14.8% SVF average

Central Precinct Master Plan



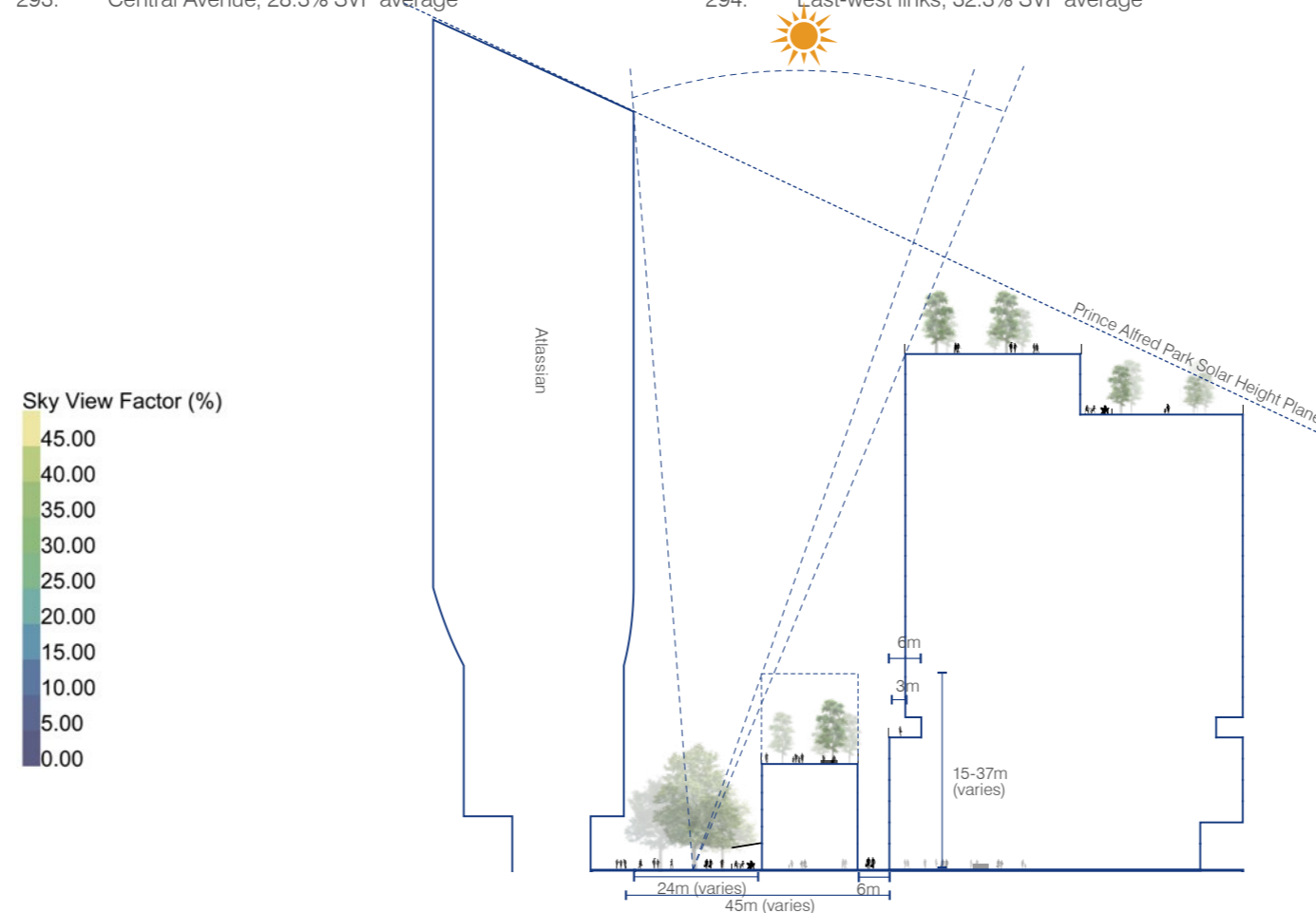
293. Central Avenue, 28.3% SVF average



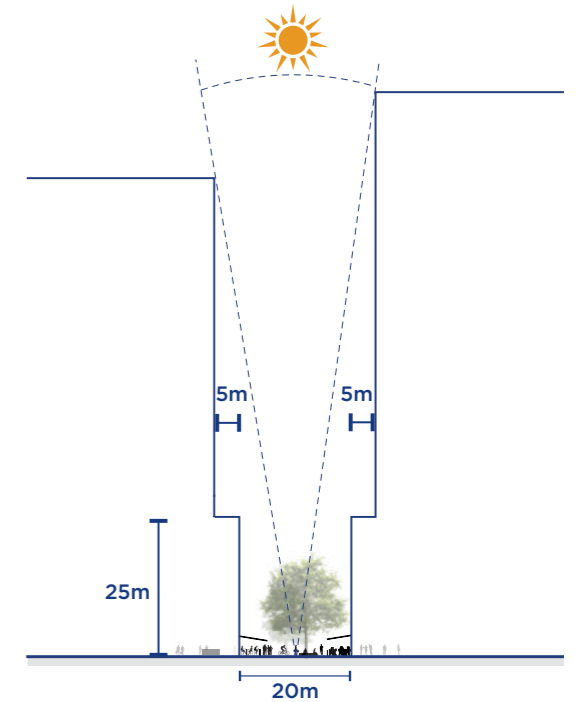
294. East-west links, 32.3% SVF average



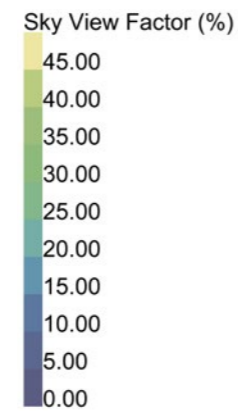
295. Regent Street/Lee Street and Railway Square, 42.3% SVF average



296. Central Avenue section (at Atlassian)

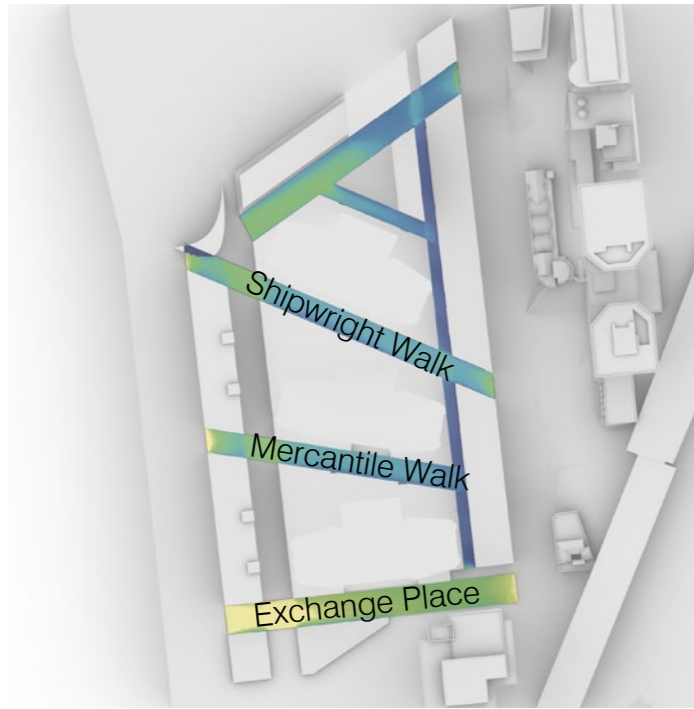


297. Devonshire Link section



Skyview analysis

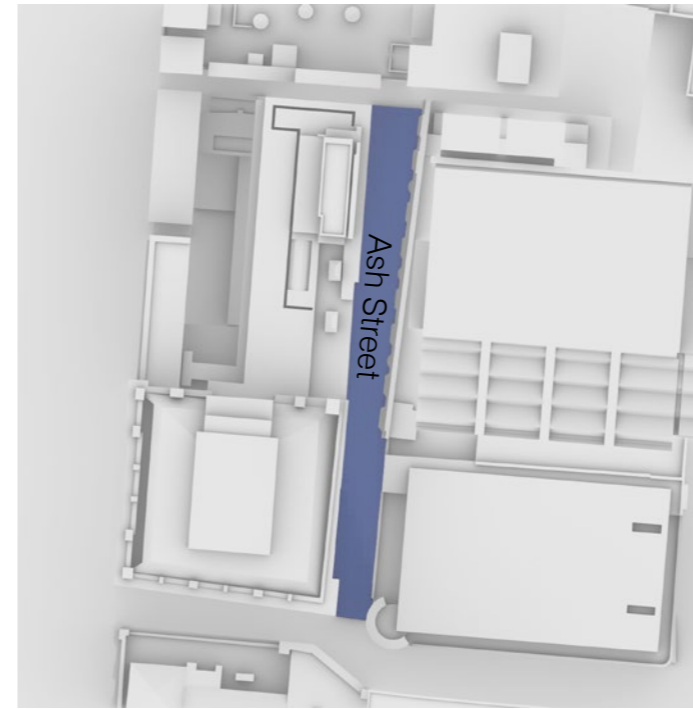
Comparison to Sydney laneways



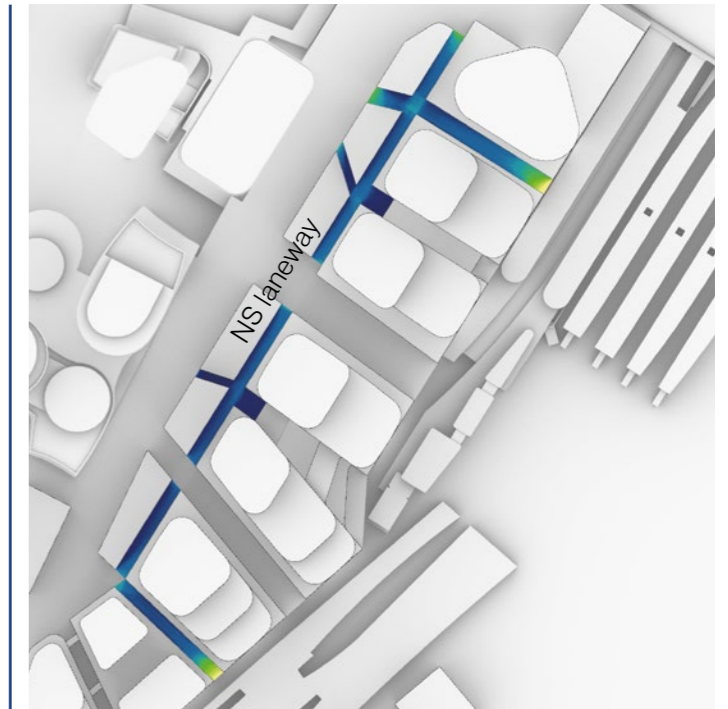
299. Barangaroo laneways, 24.2% SVF average



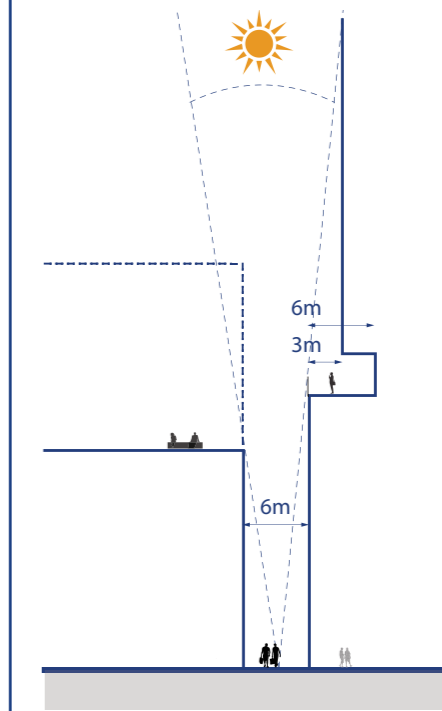
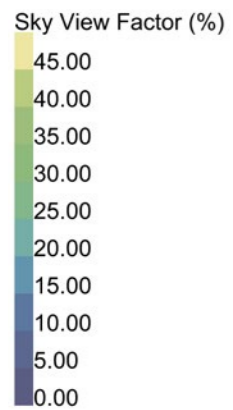
300. Kensington Street, Chippendale, 18.3% SVF average



301. Ash Street, Sydney CBD, 3.9% SVF average



302. Proposed north-south laneway, 9.8% SVF average



298. NS Laneway section

Overshadowing analysis

Methodology

The overshadowing studies contained within this report illustrates the overshadowing impact of the proposed massing at Central Precinct. They have been produced by Architectus using Rhino and have been based on the following base information:

- City model supplied by the City of Sydney including city buildings and topography
- Proposed massing of Central Precinct prepared by Architectus
- Massing models of the approved Western Gateway sites provided by the respective proponents
- Indicative approved envelope of 187 Thomas Street, Haymarket, modelled by Architectus using information contained within planning documents found at: <https://www.cityofsydney.nsw.gov.au/policy-planning-changes/proposed-changes-to-planning-controls-for-187-thomas-street-haymarket>

The development of the preferred massing at Central Precinct has considered the following:

1. Overshadowing impacts to existing areas of open space, including Prince Alfred Park, Railway Square, and Belmore Park.
2. Maximising solar access to proposed new and upgraded areas of open space to be rezoned RE1 Public Recreation, including Central Green, Eddy Avenue Plaza and Mortuary Station Plaza.

1. Overshadowing impacts to existing and planned areas of open space

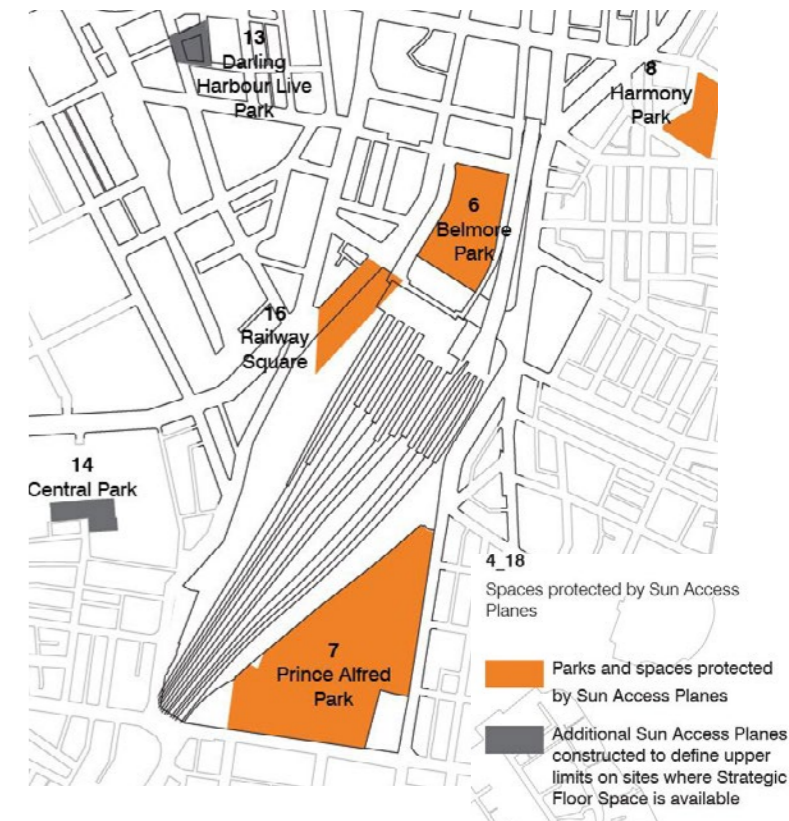
The Central Sydney Planning Strategy identifies Sun Access Plane (SAP) controls to limit buildings heights to protect solar access to key open spaces during important periods throughout the year. The SAP controls relevant to Central Precinct includes:

- Prince Alfred Park: 10am-2pm, all year
- Railway Square (which protects the Western

Forecourt and a portion of Pitt Street):
9am-2pm in mid summer and 11am-12pm in mid winter

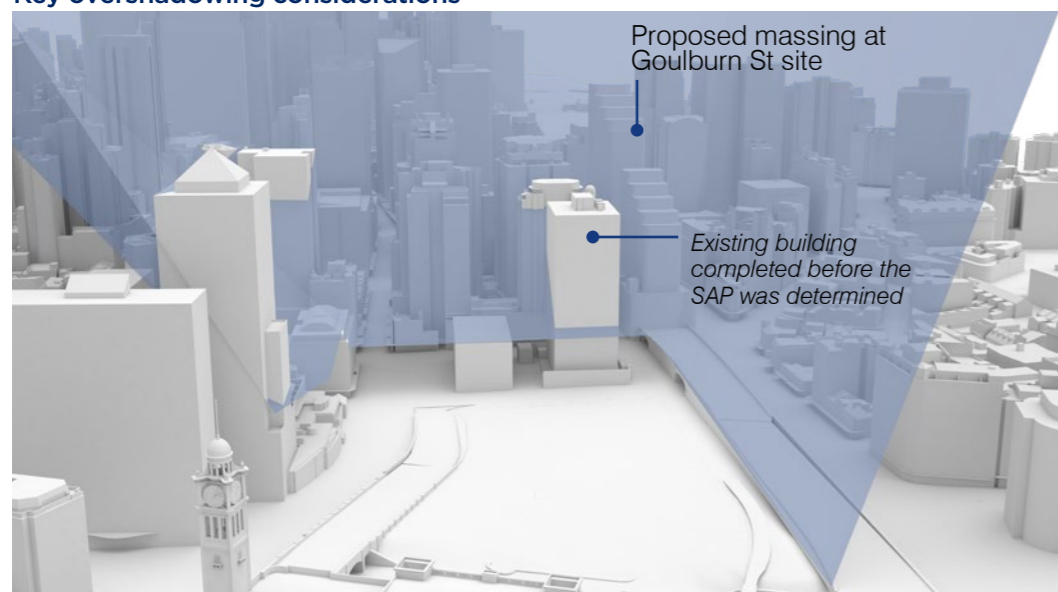
- Belmore Park: 10am-2pm, all year

The proposed massing sits within all Sun Access Planes defined by the Central Sydney Planning Strategy and as demonstrated within the following overshadowing studies, protects solar access to these surrounding areas of open space at the above specified control times.

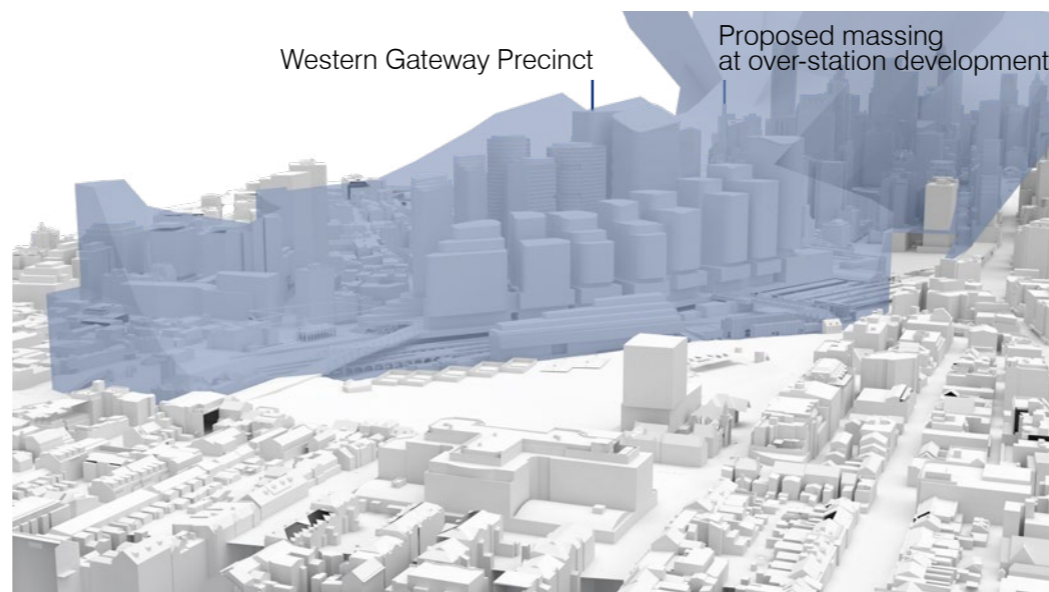


306. Extract from CSPS, figure 4.18 'Spaces protected by Sun Access Planes'

Key overshadowing considerations



304. Solar access plane defined in CSPS to protect solar access to Belmore Park. The proposed massing at the Goulburn Street site sits within this solar height plane.



305. Solar access plane defined in CSPS to protect solar access to Prince Alfred Park. The proposed massing and planned WGP sits within this solar height plane.

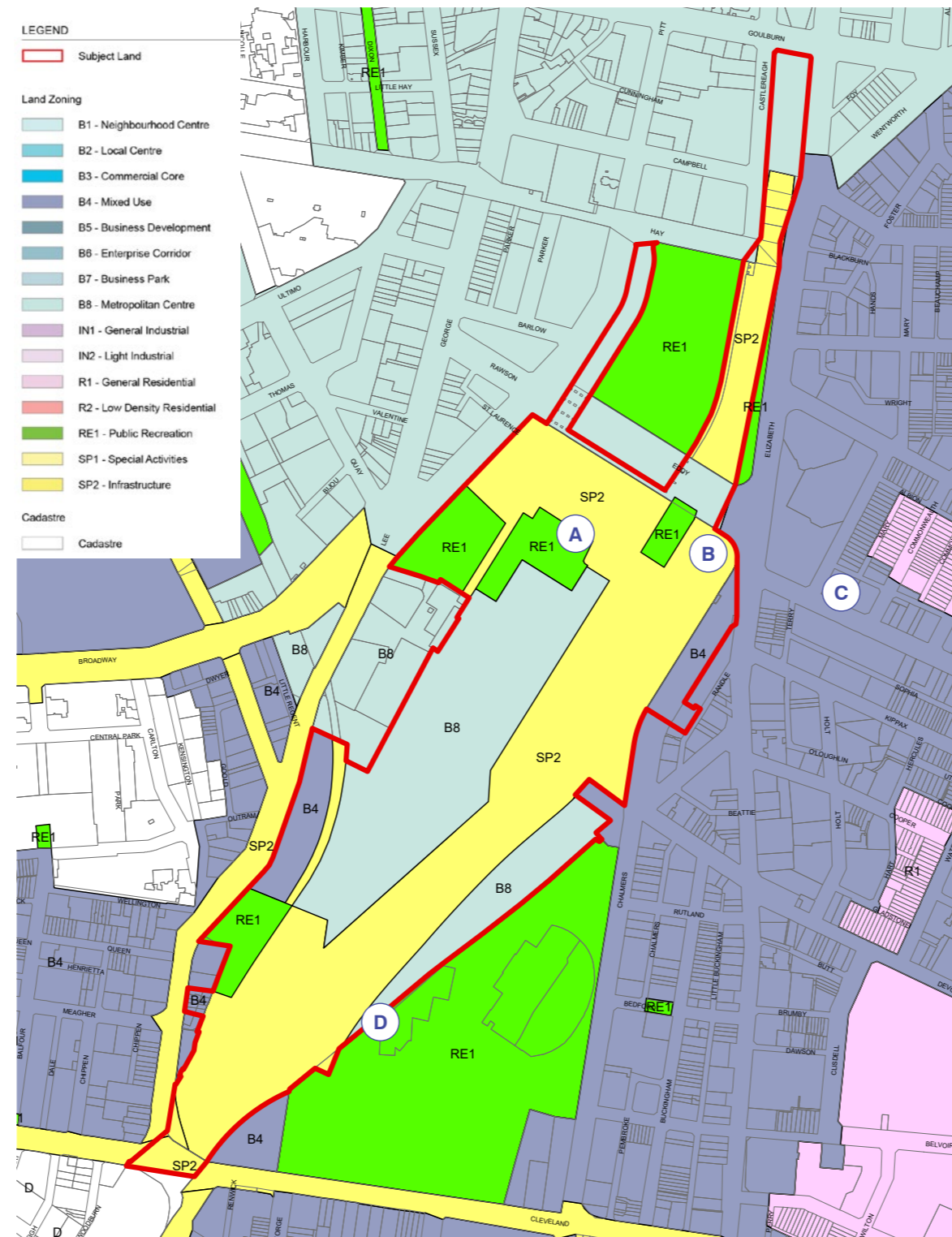


303. Extract from CSPS, figure 4.23 'Sun Protection Controls Heights Map - including Airport PANS OPS heights (RLs AHD)'

Overshadowing analysis

2. Maximising solar access to proposed new and upgraded areas of open space to be rezoned RE1 Public Recreation

The proposed Central Precinct Design Guidelines outlines a number of targets to ensure the proposed key areas of new open space achieve appropriate amenity standards, particularly in regards to ensuring good solar access during midwinter.



307. Proposed land use zoning illustrating proposed RE1 zones



A Central Square

Central Square will be a major public open space for the City as one of three urban squares along the George Street spine and will perform the following key roles:

- Central's primary transport plaza, providing access to Central Station via Central Walk and accommodating large volumes of pedestrian flows at peak time.
- A place to meet and dwell, providing areas for groups of different sizes to linger.
- A flexible space of suitable scale for event use.

Proposed sunlight protection to be as per the Railway Square sun access planes as identified in the Central Sydney Planning Strategy. Intended times of protection include:

1. Solar access to the square is protected between 9am-2pm in mid summer and 11am-12pm in mid winter.

Note: the control in the CSPS refers to this space as 'Railway Square' rather than 'Central Square' and it also includes part of Pitt Street and the coach pick-up zone. This SSP specifically assesses the boundary of Central Square as defined in the image above (proposed to be rezoned RE1). Nevertheless, as demonstrated in the following solar studies, the proposed massing does not overshadow the full 'Railway Square' area specified in the CSPS.

Overshadowing analysis



Central Green

Central Green will be the principal open space of the over rail renewal and a key arrival point to new development from the north. It is located to achieve good solar access to the north and considers opportunities for cool, deep shaded gardens.

This principal area of open space will provide a comfortable central place to gather, a place to directly engage with the activity of the Sydney Terminal Building, provide relaxed areas to work, and be a place for commuters to wait for a train in close proximity to the station. Active ground floor frontages are provided by surrounding buildings at the southern and eastern edges of the space, providing opportunities for outdoor dining with good solar access.

Proposed sunlight protection (CP Design Guidelines):

- Attain direct sunlight to 50% of the area for a minimum of 4 hours from 9am to 3pm on 21 June.

The above proposed control is consistent with the current City of Sydney DCP 2012 controls for new parks, Section 3.1.4 Public Open Space.



Eddy Avenue Plaza

The existing role of Eddy Avenue Plaza as a key pedestrian connection from Central Station north to the CBD will be retained. It is also proposed to rejuvenate the plaza and expand its role from a place of movement, to a place that also provides a comfortable space for people to dwell through new tree planting, upgraded retail and food and beverage activation. While no longer just a place of transit, ensuring adequate amenity to the plaza is critical to its success as a place to dwell.

Proposed sunlight protection (CP Design Guidelines):

- Attain direct sunlight to 50% of the area for a minimum of 2 hours from 9am to 3pm on 21 June. (Existing development including the Sydney Terminal Building and existing buildings along Pitt Street currently overshadow the plaza in the afternoon).



Mortuary Station Plaza

Mortuary Station Plaza will transform a space that is currently not publicly accessible into a revitalised plaza with new gardens that celebrates state-significant heritage and connection to the rail heritage of the site. It will have direct connections to Ultimo and UTS via the rejuvenation of the Goods Line. Opportunities exist within the space for small scale activation, including an adaptive re-use of Mortuary Station, pop-up cultural activities and events and small cafe uses. As a place to dwell and accommodate cultural events, adequate amenity within the plaza, particularly at lunchtime hours is to be maintained.

Proposed sunlight protection (CP Design Guidelines):

- Attain direct sunlight each hour between 11am and 1pm for at least 50% of the plaza on 21 June. (Existing development of Chippendale and the planned Western Gateway development currently create some overshadowing to the plaza with the greatest impact at 10am and from 2pm on 21 June).

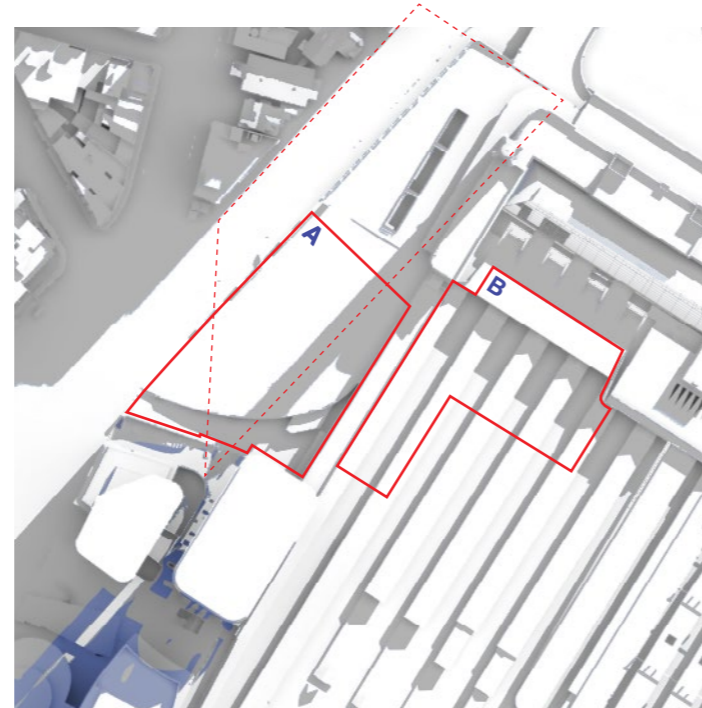
Overshadowing analysis

Central Square and Central Green EXISTING OVERSHADOWING 21 June - winter solstice

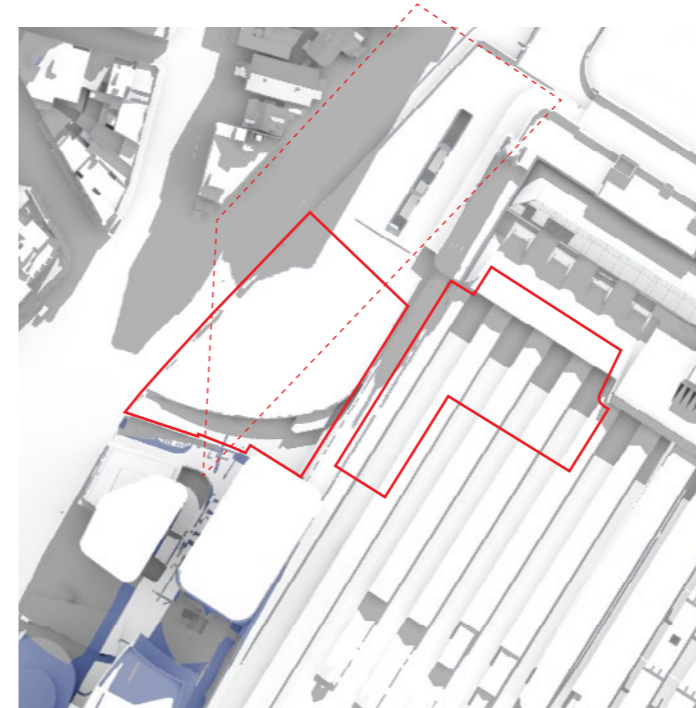
The approved envelope for 187 Thomas Street, Haymarket, creates additional overshadowing to the future Central Square between 1pm and 3pm in midwinter, (but avoids the control time of 11am-12pm). 187 Thomas Street also impacts on the solar access to the proposed future Central Green from 2pm in midwinter.

Additional overshadowing created by planned Western Gateway development and approved envelope for 187 Thomas Street, Haymarket, illustrated in blue

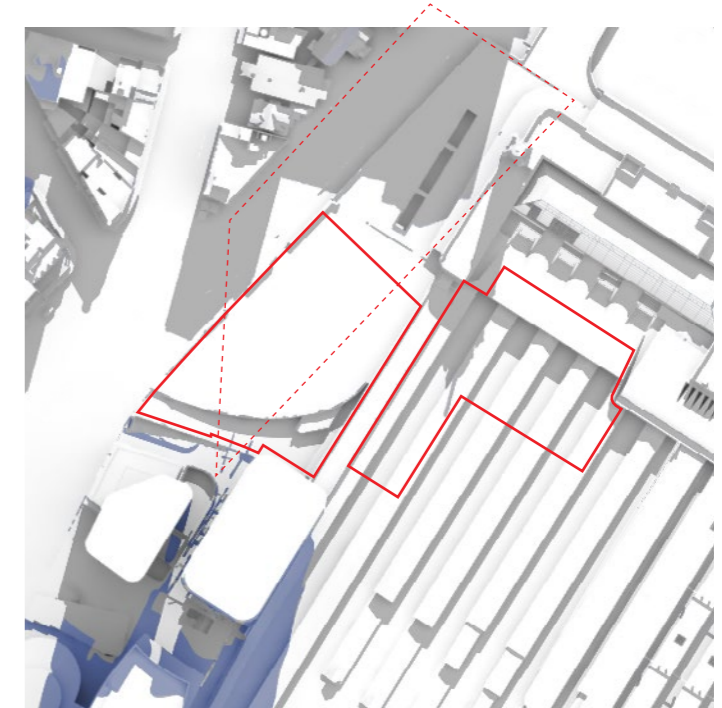
CSPS control	As per Railway Square sun access plane - protect solar access between 11am-12pm in mid winter
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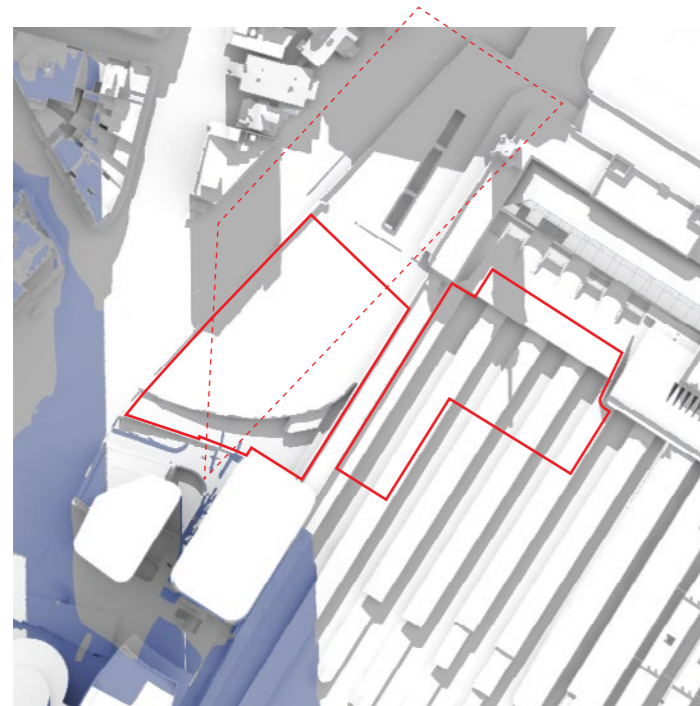
9.00am



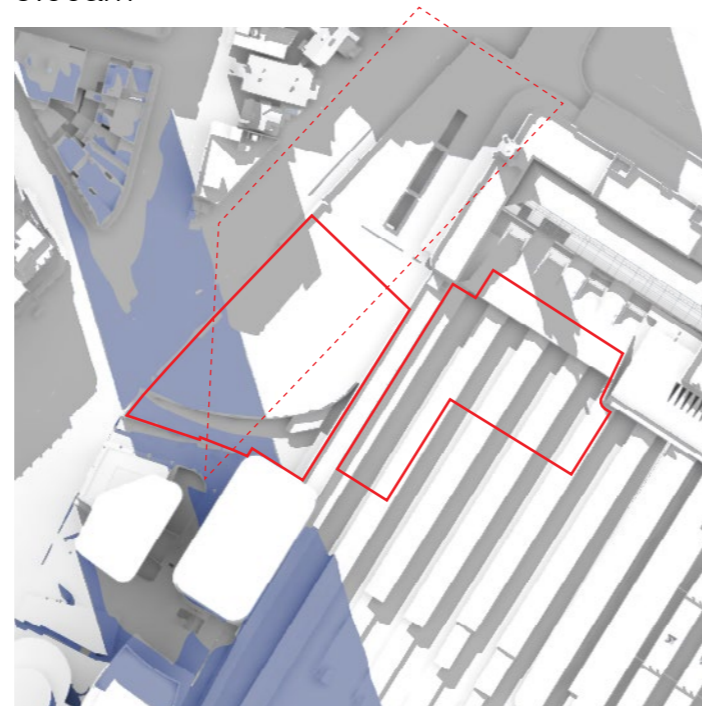
10.00am



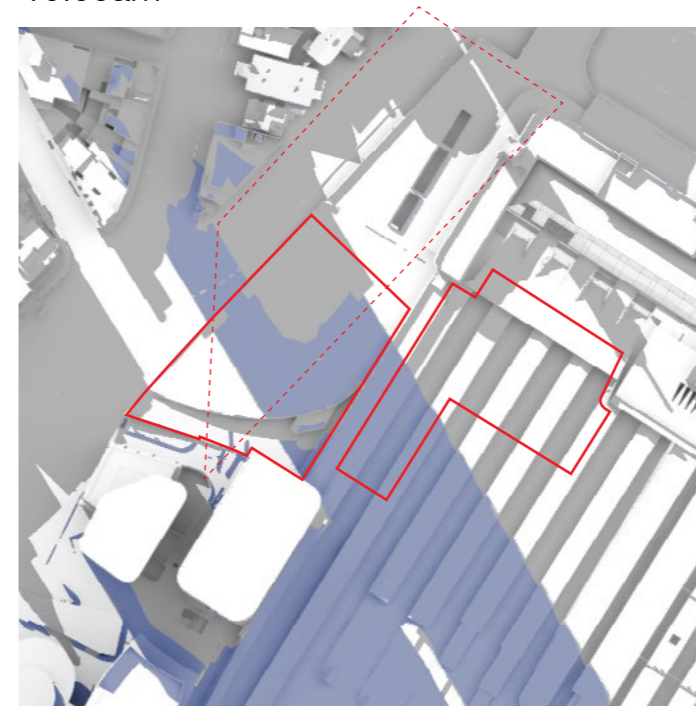
11.00am



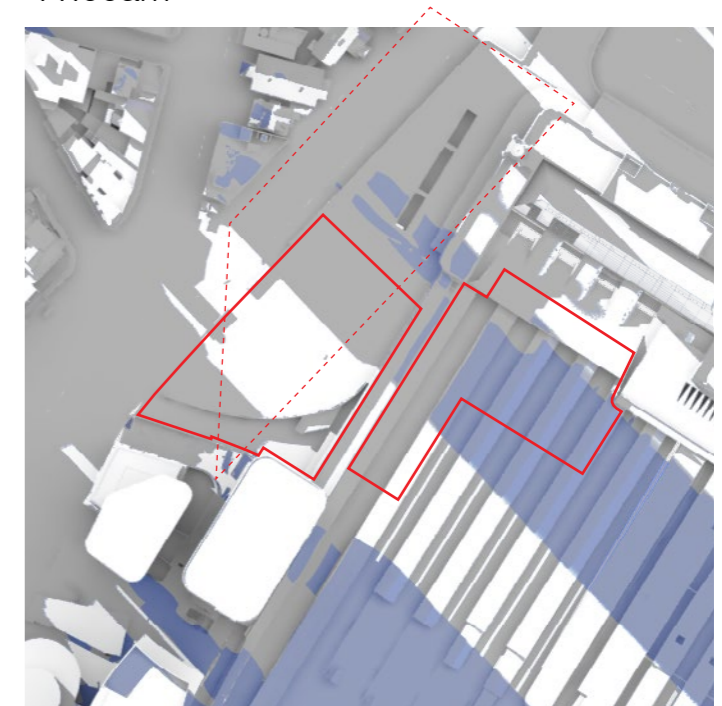
12.00pm



1.00pm



2.00pm



3.00pm

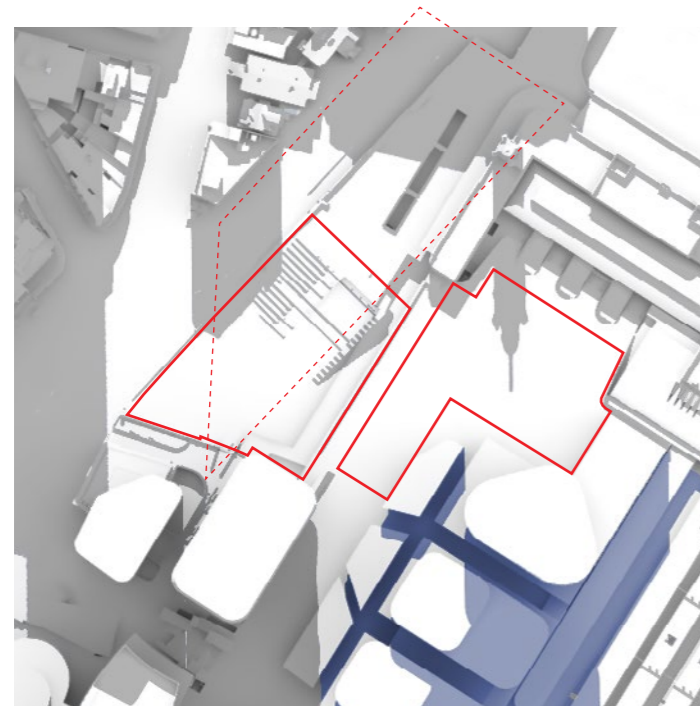
- Additional overshadowing by planned approved developments - WGP and 187 Thomas St, Haymarket
- Existing overshadowing (excluding planned developments)
- Proposed RE1 Public Recreation boundary (A) Central Square; (B) Central Green
- Railway Square (as defined by CSPS)

Overshadowing analysis

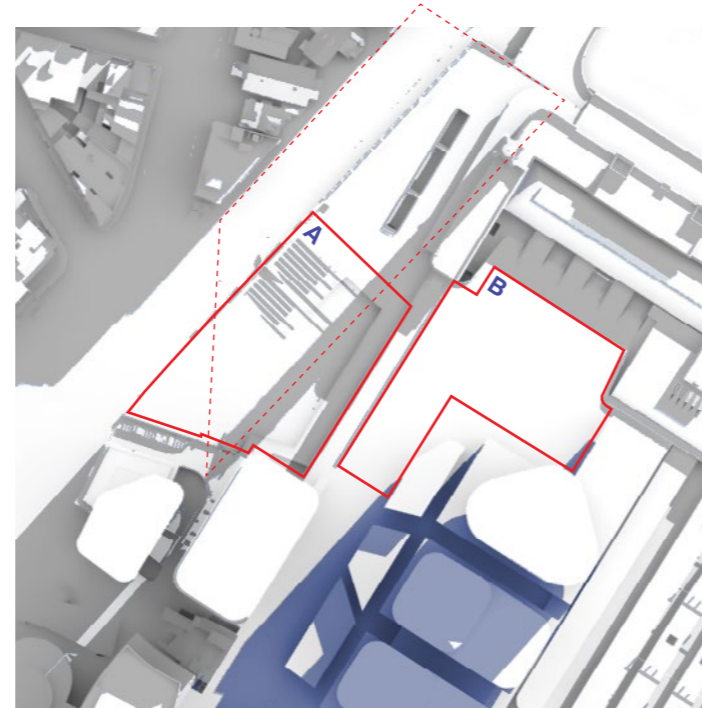
Central Square and Central Green PROPOSED OVERSHADOWING 21 June - winter solstice

The proposed Central Precinct massing creates no additional overshadowing to Central Green or Central Square in midwinter.

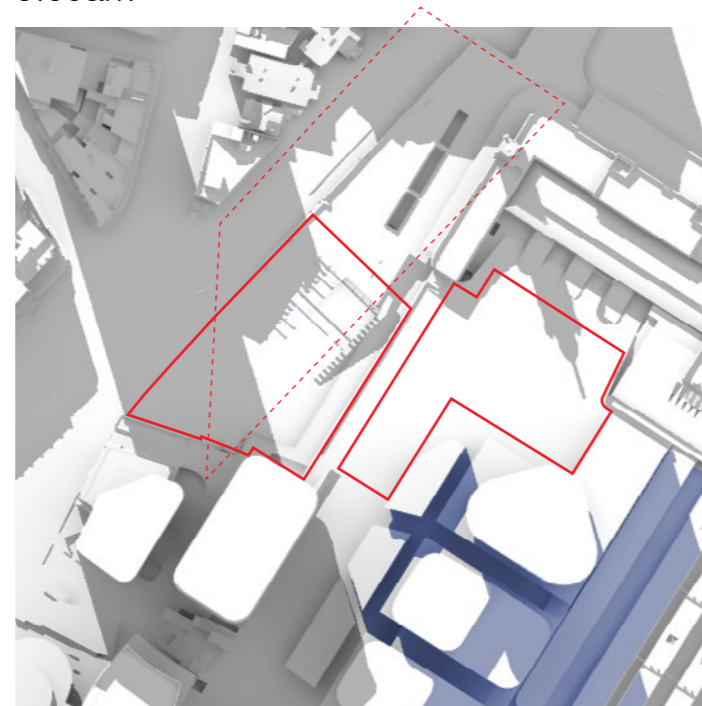
Additional overshadowing created by Central Precinct proposed massing illustrated in blue. (Overshadowing from Western Gateway approved development and approved envelope for 187 Thomas Street, Haymarket shown as grey as part of the existing context).



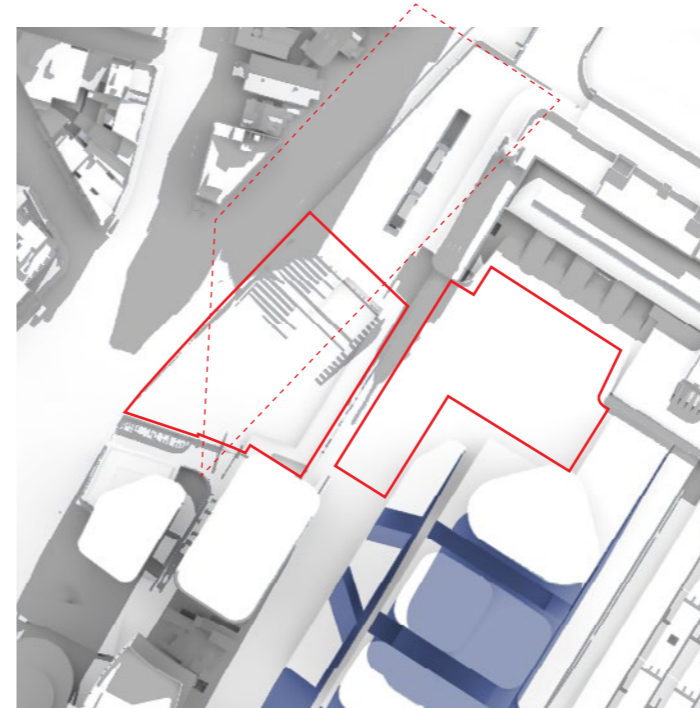
12.00pm



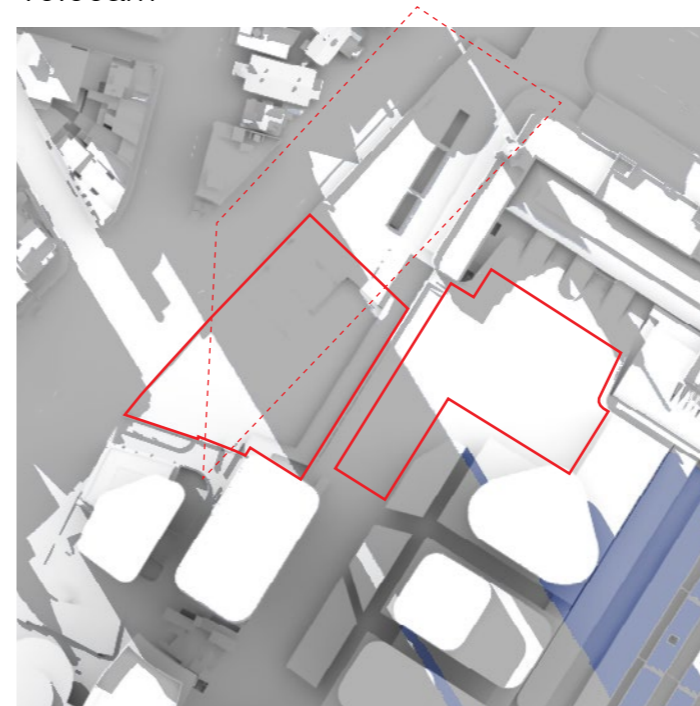
9.00am



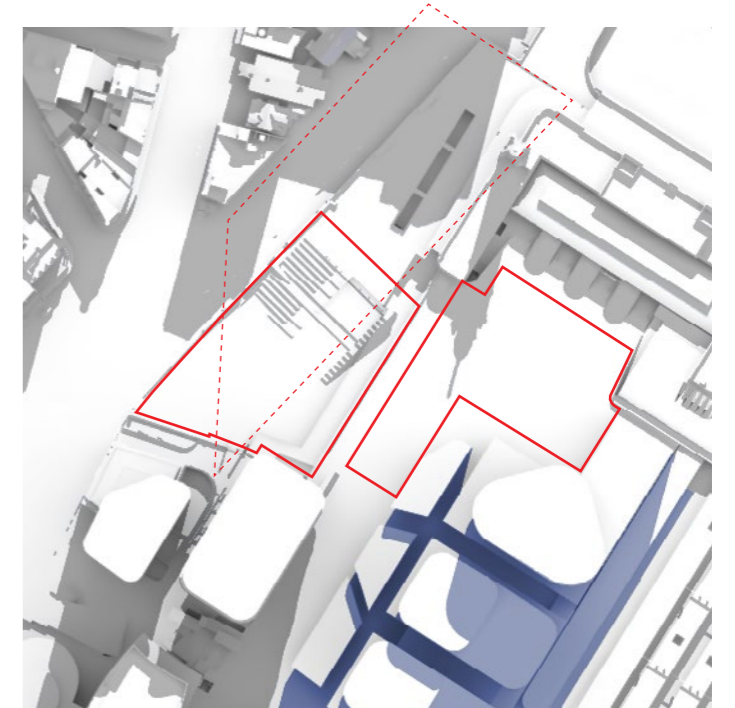
1.00pm



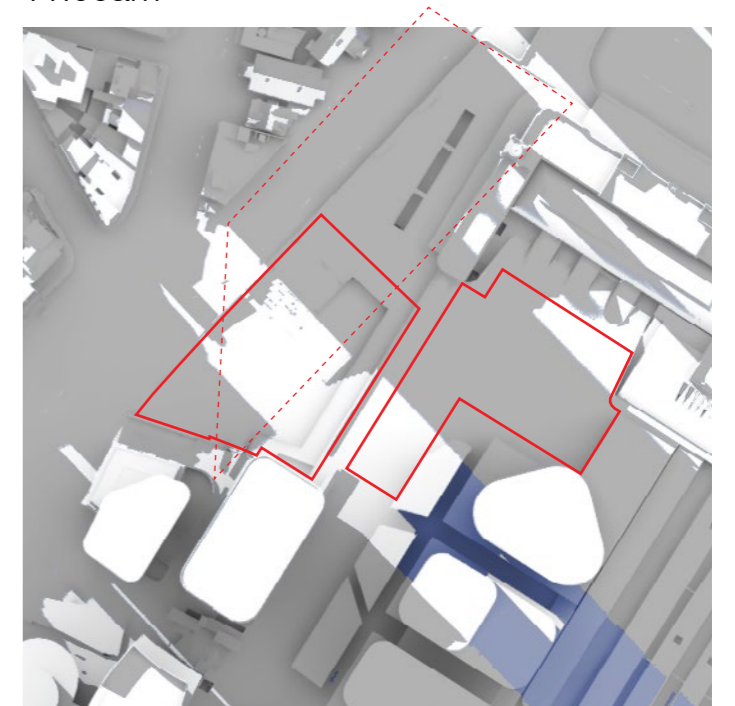
10.00am



2.00pm



11.00am



3.00pm

CSPS control	As per Railway Square sun access plane - protect solar access between 11am-12pm in mid winter
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Proposed control	Attain direct sunlight to 50% of the area for a minimum of 4 hours from 9am to 3pm on 21 June.
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- Additional overshadowing by planned approved developments - WGP and 187 Thomas St, Haymarket
- Existing overshadowing (excluding planned developments)
- Proposed RE1 Public Recreation boundary (a) Central Square; (b) Central Green
- Railway Square (as defined by CSPS)

Overshadowing analysis

Central Square and Central Green EXISTING OVERSHADOWING 22 December - summer solstice

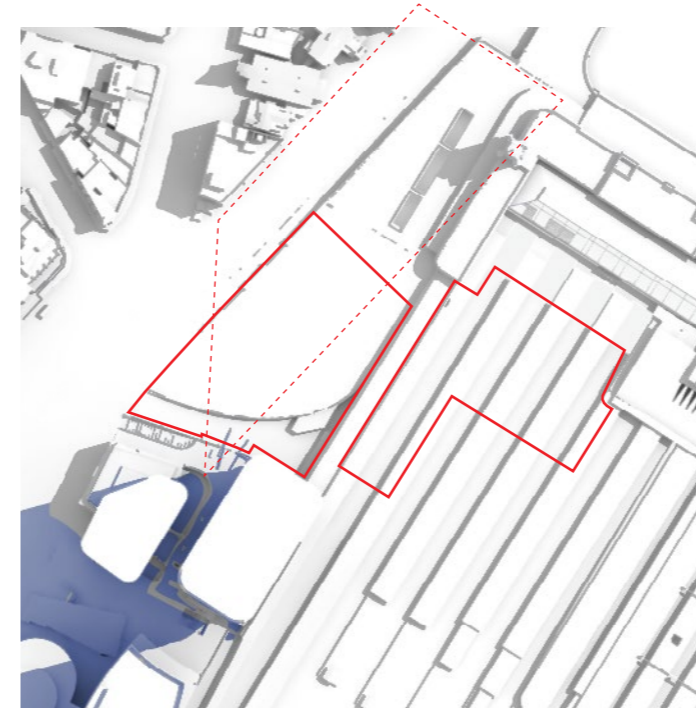
Solar access is maintained to Central Square between the hours of 9am to 2pm in mid summer as per the CSPS control. Currently no existing development overshadows the square in mid summer.

Additional overshadowing created by planned Western Gateway development and approved envelope for 187 Thomas Street, Haymarket, illustrated in blue

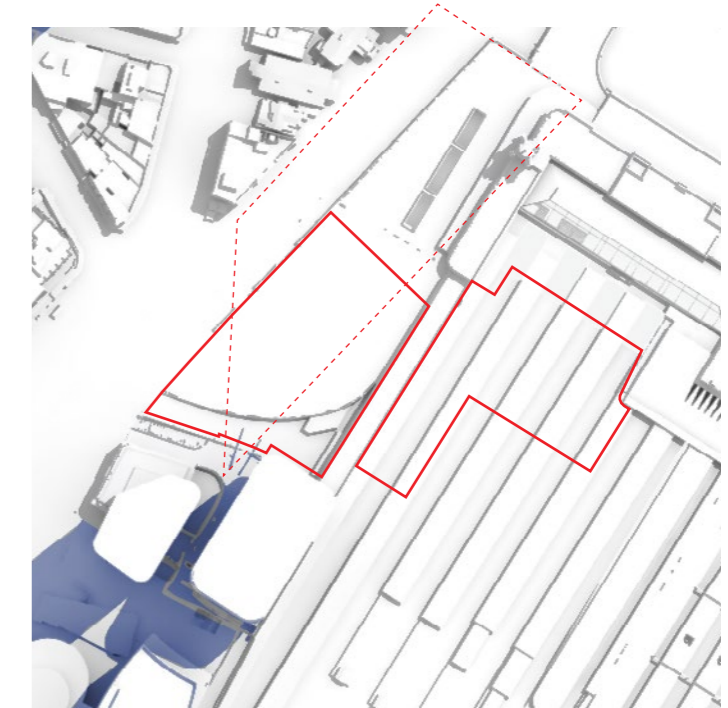
CSPS control	As per Railway Square sun access plane - protect solar access between 9am-2pm in mid summer
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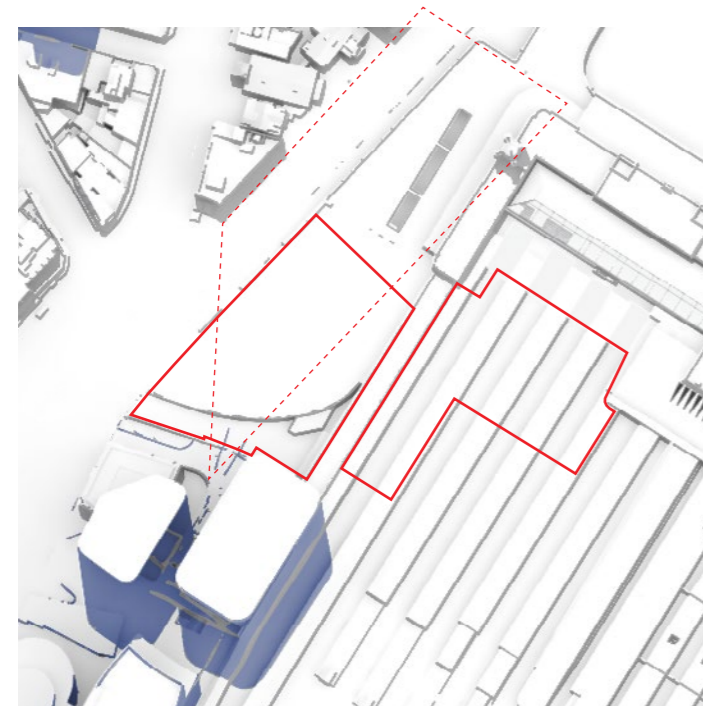
9.00am



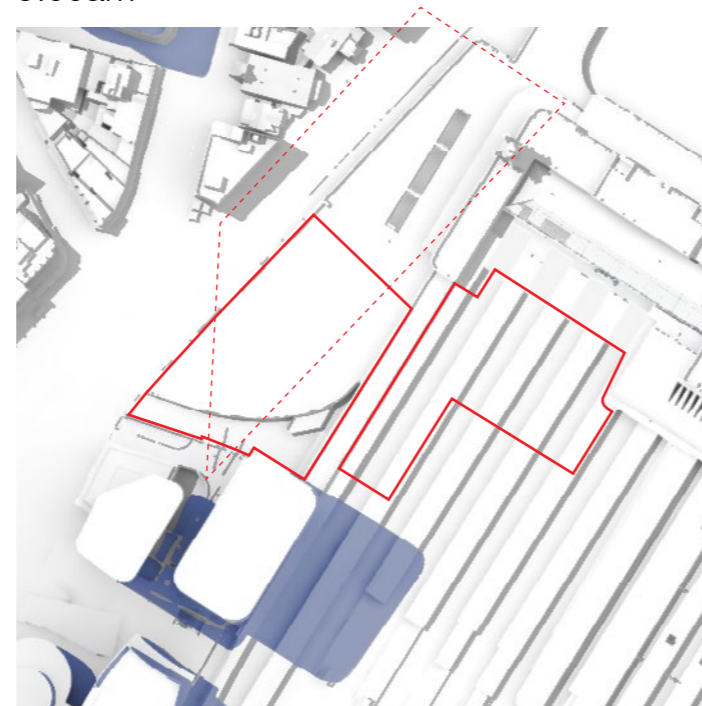
10.00am



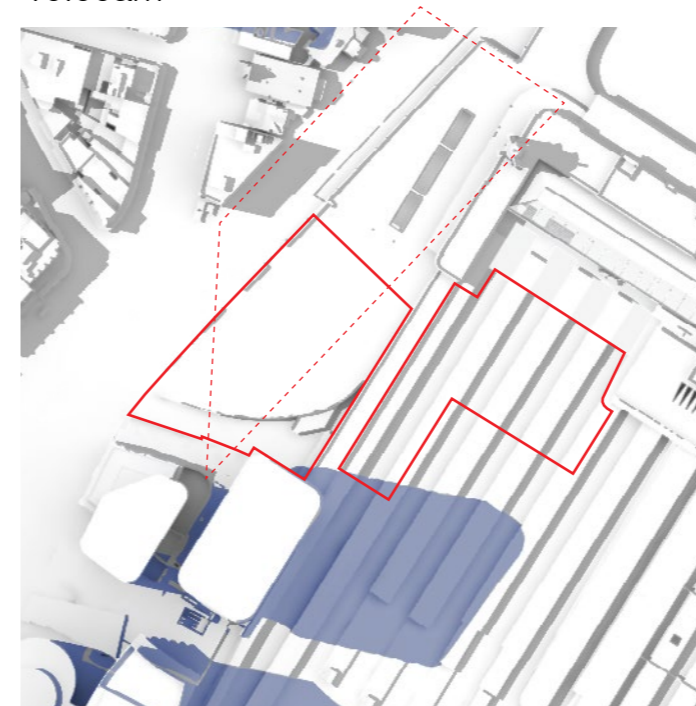
11.00am



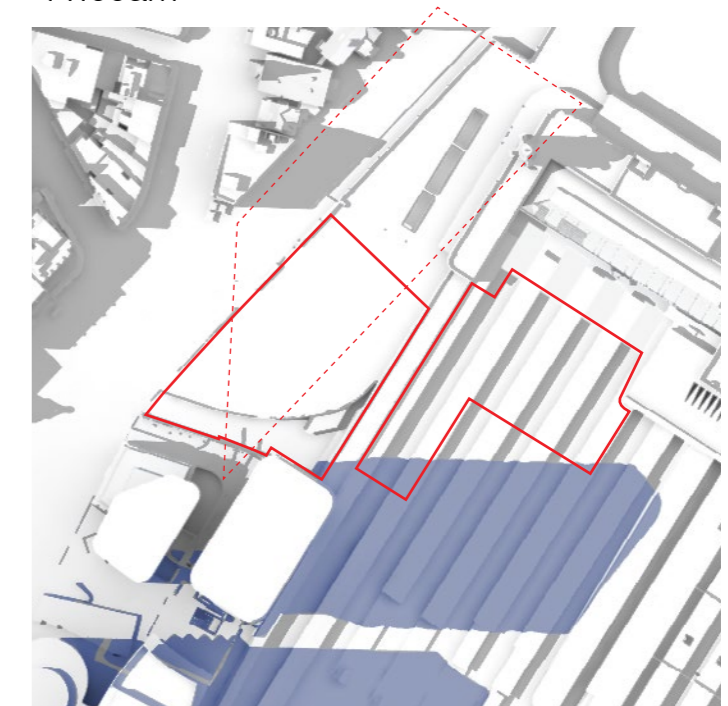
12.00pm



1.00pm



2.00pm



3.00pm

- Additional overshadowing by planned approved developments - WGP and 187 Thomas St, Haymarket
- Existing overshadowing (excluding planned developments)
- Proposed RE1 Public Recreation boundary (a) Central Square; (b) Central Green
- Railway Square (as defined by CSPS)

Overshadowing analysis

Central Square and Central Green PROPOSED OVERSHADOWING 22 December - summer solstice

The proposed massing sits within the solar height plane defined by the City of Sydney. Solar access is maintained to Central Square between the hours of 9am to 2pm in mid summer as per the CSPS control. Generous canopy coverage is proposed to provide adequate shade and cooling in midsummer to both primary areas of open space.

Additional overshadowing created by Central Precinct proposed massing illustrated in blue. (Overshadowing from Western Gateway approved development and approved envelope for 187 Thomas Street Haymarket shown as grey as part of the existing context).

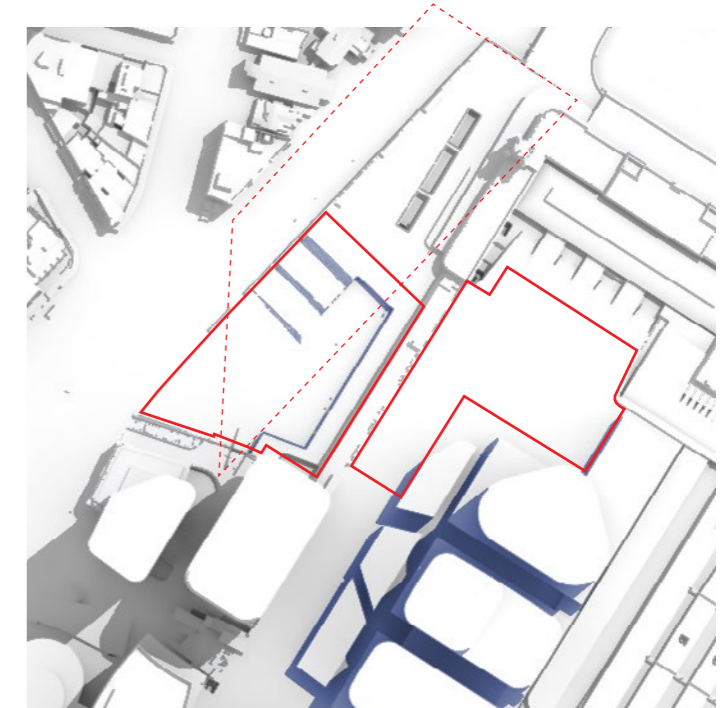
CSPS control	As per Railway Square sun access plane - protect solar access between 9am-2pm in mid summer
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9.00am



10.00am



11.00am



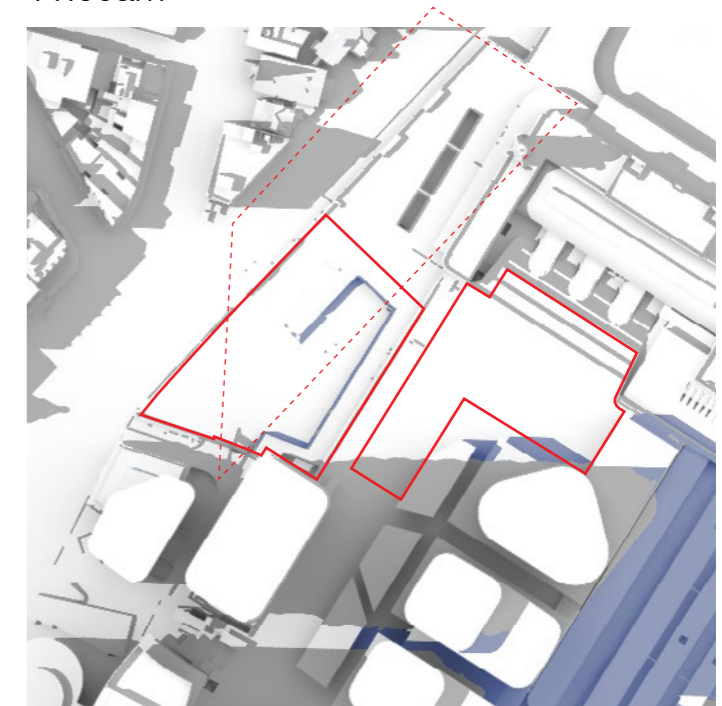
12.00pm



1.00pm



2.00pm



3.00pm

- Additional overshadowing by planned approved developments - WGP and 187 Thomas St, Haymarket
- Existing overshadowing (excluding planned developments)
- Proposed RE1 Public Recreation boundary (a) Central Square; (b) Central Green
- Railway Square (as defined by CSPS)

Overshadowing analysis

Future Mortuary Station Plaza EXISTING OVERSHADOWING 21 June - winter solstice

The approved Western Gateway development will create some additional overshadowing to Mortuary Station Plaza in the morning from 9am to 11am, while in the afternoon the park is overshadowed by the existing development from the west. It is important to retain some solar access to the park at lunchtime for workers and visitors.

Additional overshadowing created by planned Western Gateway development and approved envelope for 187 Thomas Street, Haymarket, illustrated in blue.

No existing solar controls currently apply to this area



9.00am



10.00am



11.00am (66% solar access*)



12.00pm (71% solar access*)



1.00pm (65% solar access*)



2.00pm



3.00pm

- Additional overshadowing by planned approved developments - WGP and 187 Thomas St, Haymarket
- Existing overshadowing (excluding planned developments)
- Proposed RE1 Public Recreation boundary

*Note: Percentage of space receiving solar access at specified time (area of open space excludes Mortuary Station building)

Overshadowing analysis

Mortuary Station Plaza PROPOSED OVERSHADOWING 21 June - winter solstice

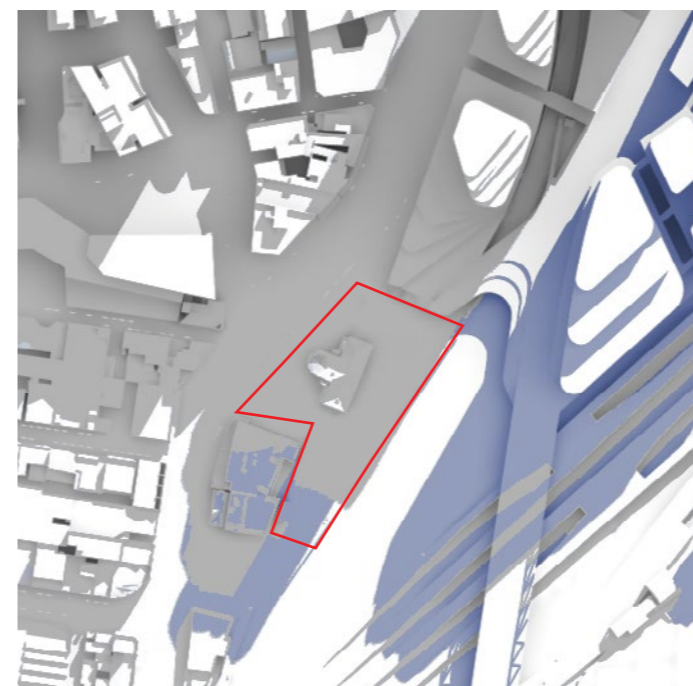
The proposed massing will create some additional overshadowing in the morning between 9am and 10am, with small amounts of overshadowing between 11am and 2pm. Despite the surrounding development, Mortuary Station Plaza retains solar access to at least 50% of its area between the proposed control times of 11am and 1pm.

■ Additional overshadowing created by Central Precinct proposed massing illustrated in blue. (Overshadowing from Western Gateway approved development shown as grey as part of the existing context).

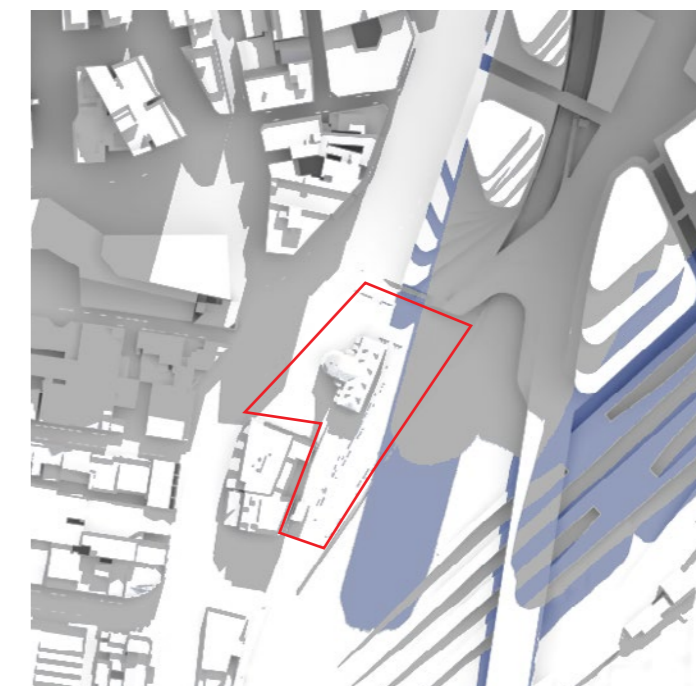
Proposed control	Attain direct sunlight each hour between 11am and 1pm for at least 50% of the plaza on 21 June.
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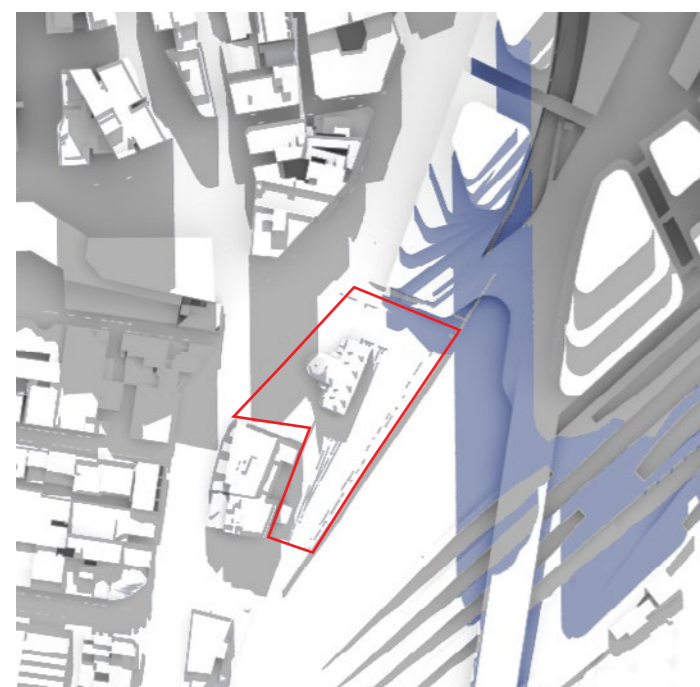
9.00am



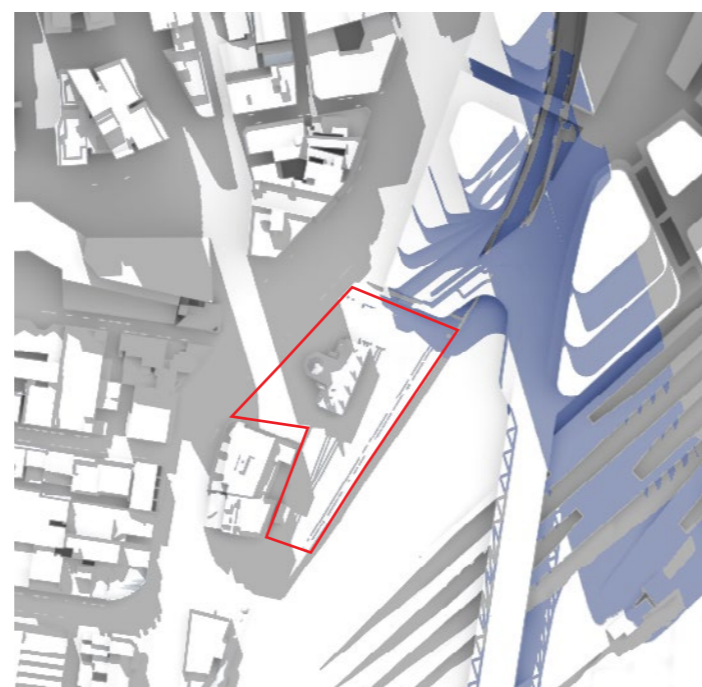
10.00am



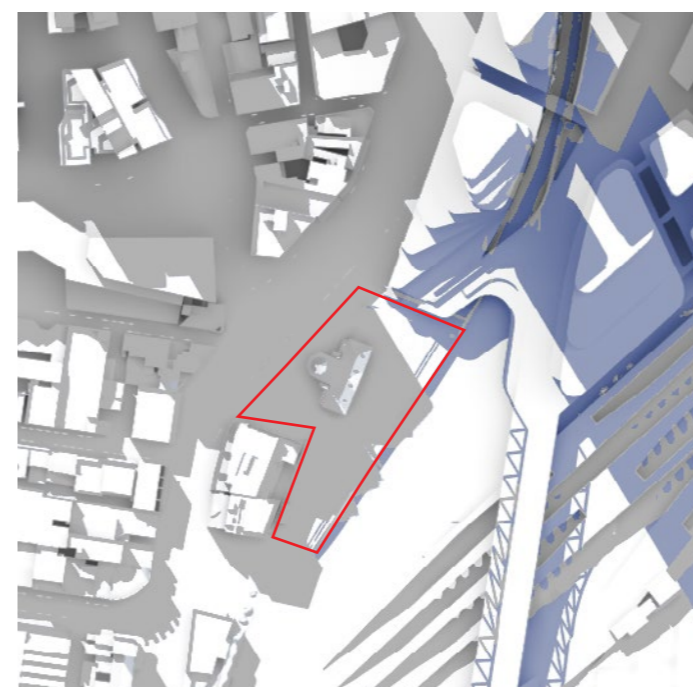
11.00am (60% solar access*)



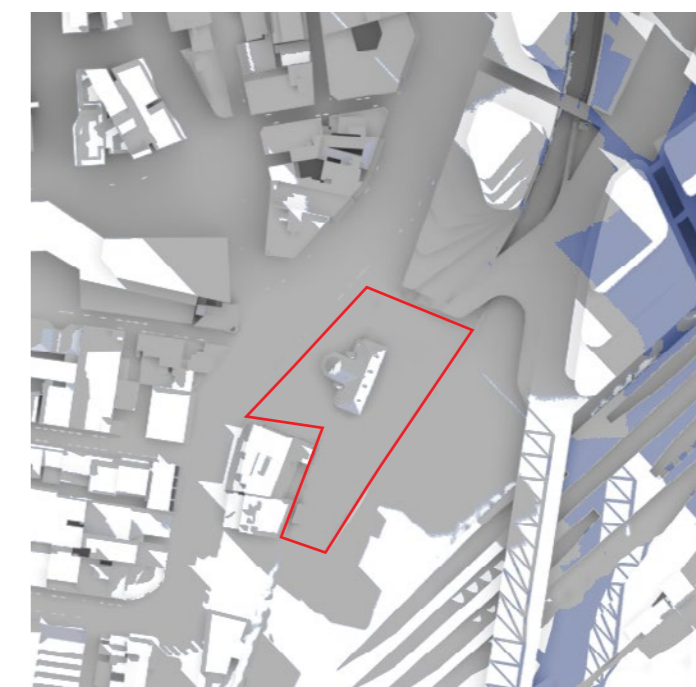
12.00pm (66% solar access*)



1.00pm (59% solar access*)



2.00pm



3.00pm

- Additional overshadowing by proposed massing
- Existing overshadowing (including approved developments - WGP and 187 Thomas St, Haymarket)
- Proposed RE1 Public Recreation boundary

*Note: Percentage of space receiving solar access at specified time (area of open space excludes Mortuary Station building)

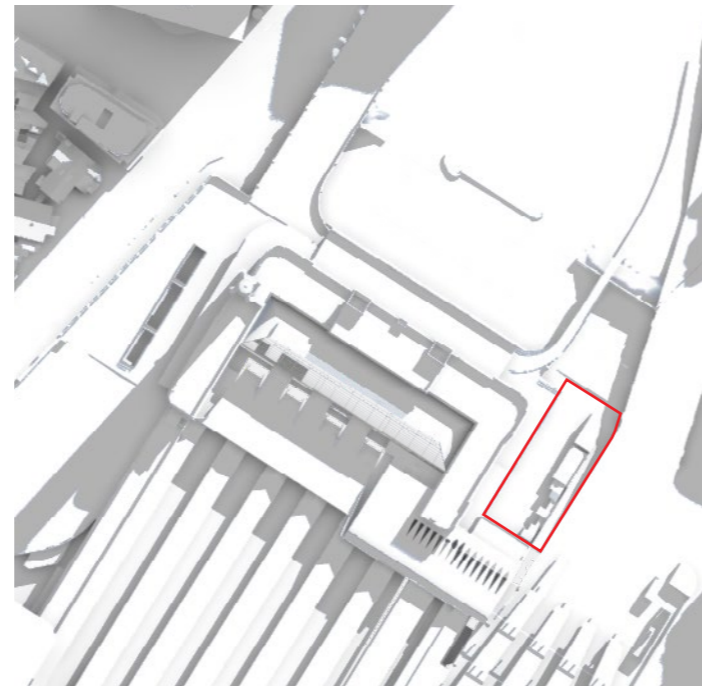
Overshadowing analysis

Eddy Avenue Plaza EXISTING OVERSHADOWING 21 June - winter solstice

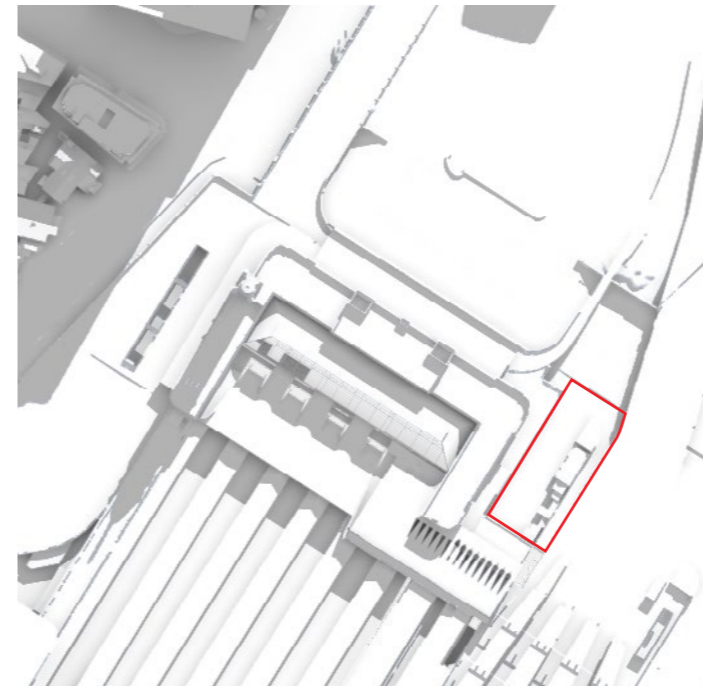
Eddy Avenue Plaza currently gets good solar in the morning between 9am and 11am in midwinter. By 12pm, it begins to be partially overshadowed by the Sydney Terminal Building and by 2pm it is overshadowed by existing development along Pitt Street.

Additional overshadowing created by planned Western Gateway development and approved envelope for 187 Thomas Street, Haymarket, illustrated in blue.

No existing solar controls currently apply to this area.



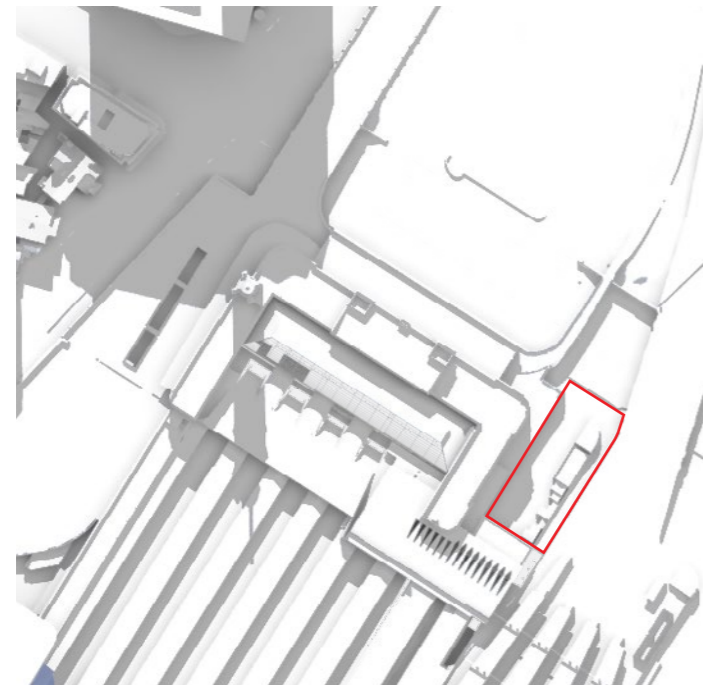
9.00am



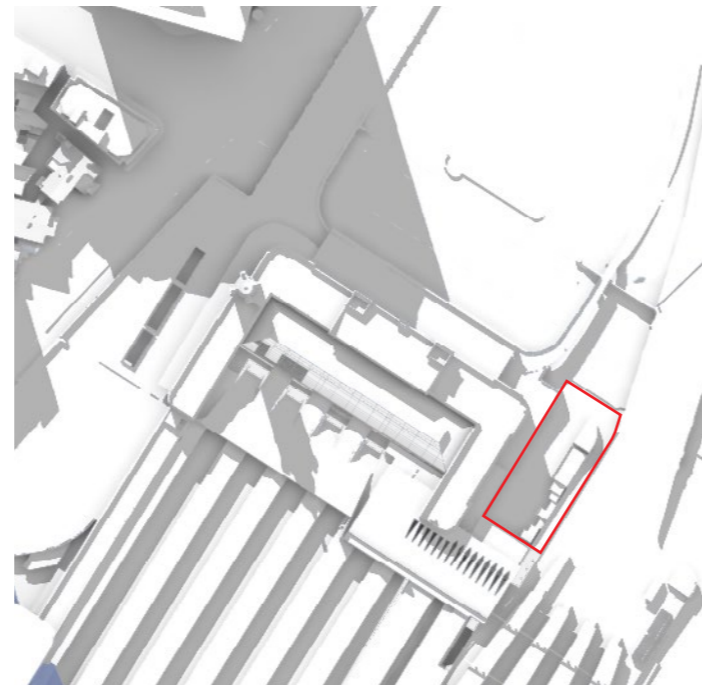
10.00am



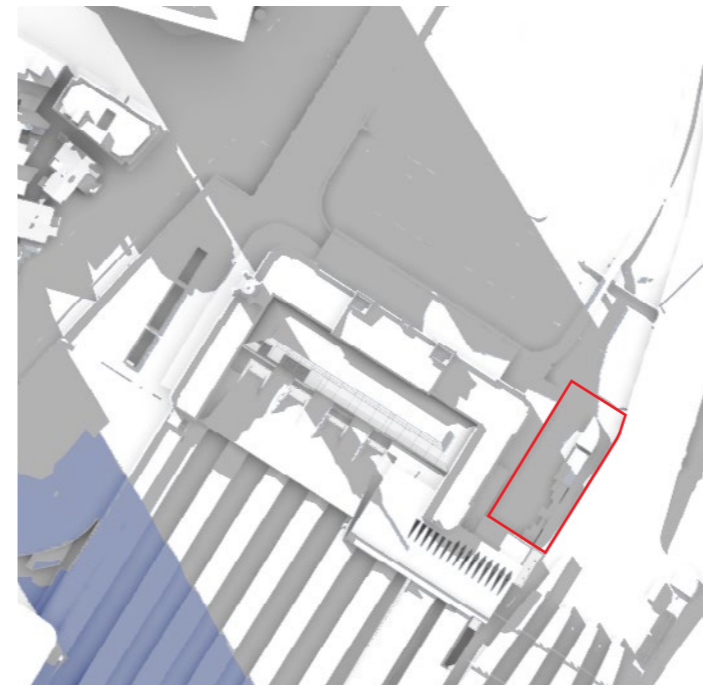
11.00am



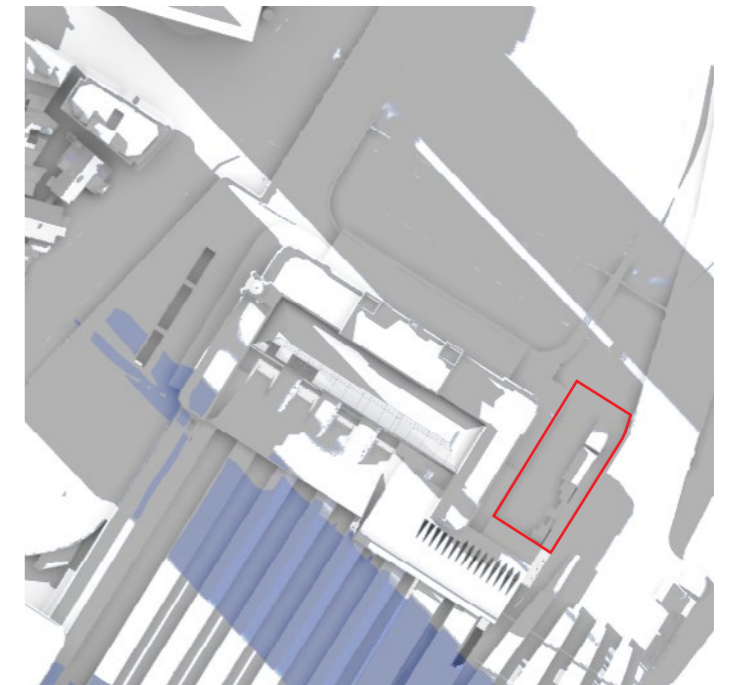
12.00pm



1.00pm



2.00pm



3.00pm

- Additional overshadowing by planned approved developments - WGP and 187 Thomas St, Haymarket
- Existing overshadowing (excluding planned developments)
- Proposed RE1 Public Recreation boundary

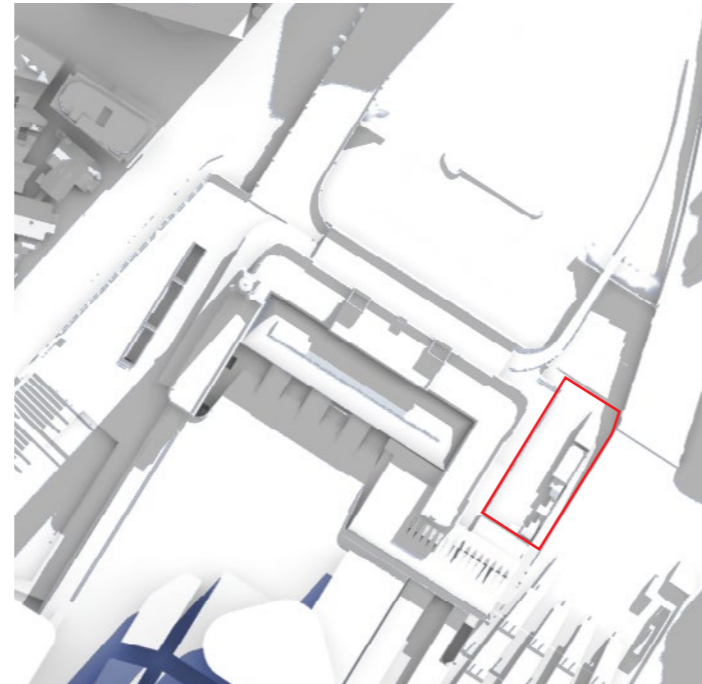
Overshadowing analysis

Eddy Ave Plaza PROPOSED OVERSHADOWING 21 June - winter solstice

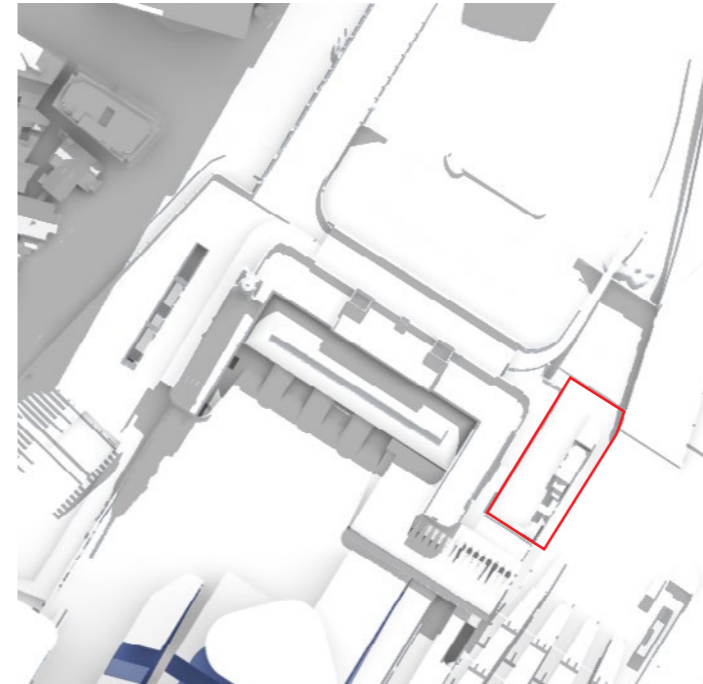
There is no additional overshadowing from the proposed massing to Eddy Avenue Plaza. It is important to protect the amenity of this space into the future (particularly in the morning hours when the plaza receives good solar access and will be a popular place for dwelling).

Additional overshadowing created by Central Precinct proposed massing illustrated in blue. (Overshadowing from Western Gateway approved development shown as grey as part of the existing context).

Proposed control	Attain direct sunlight to 50% of the area for a minimum of 2 hours from 9am to 3pm on 21 June.
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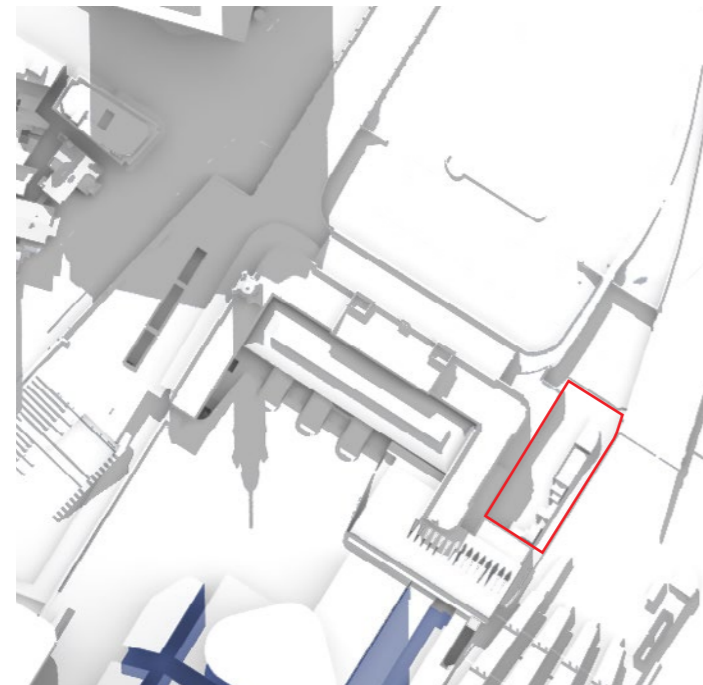
9.00am



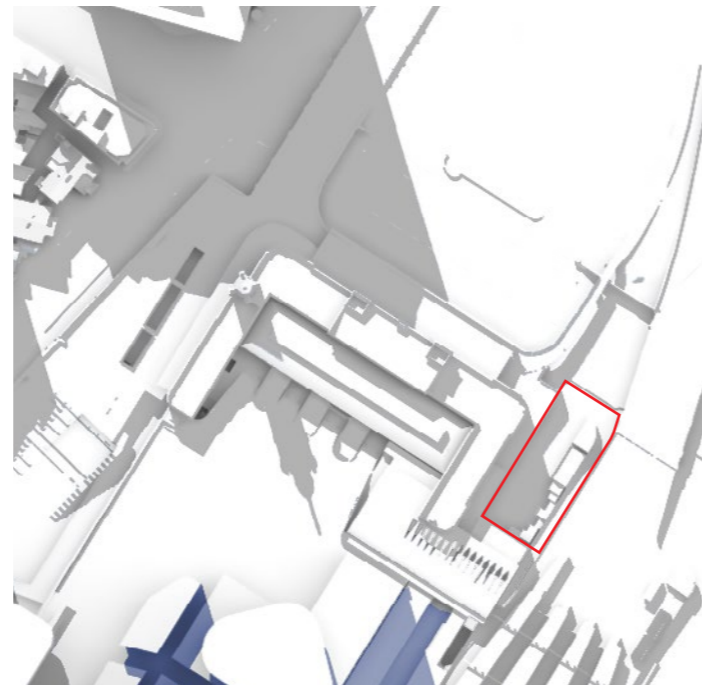
10.00am



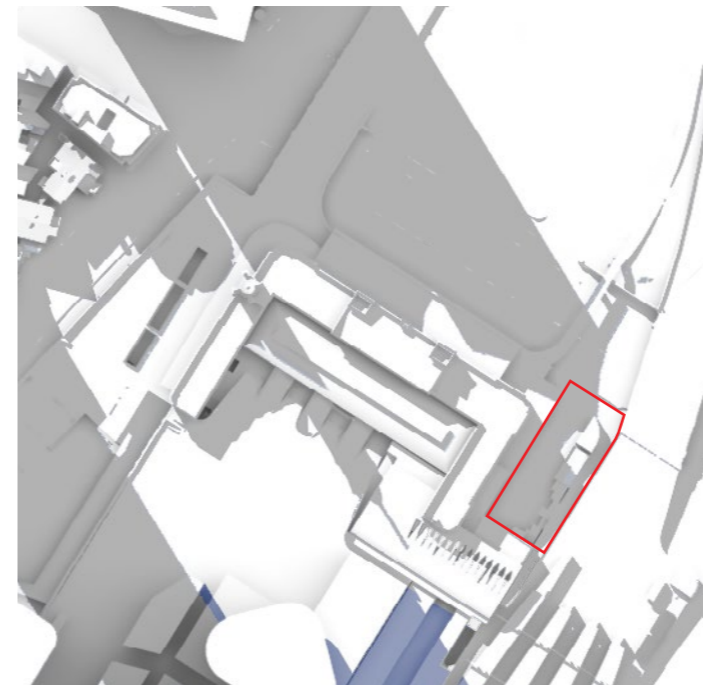
11.00am



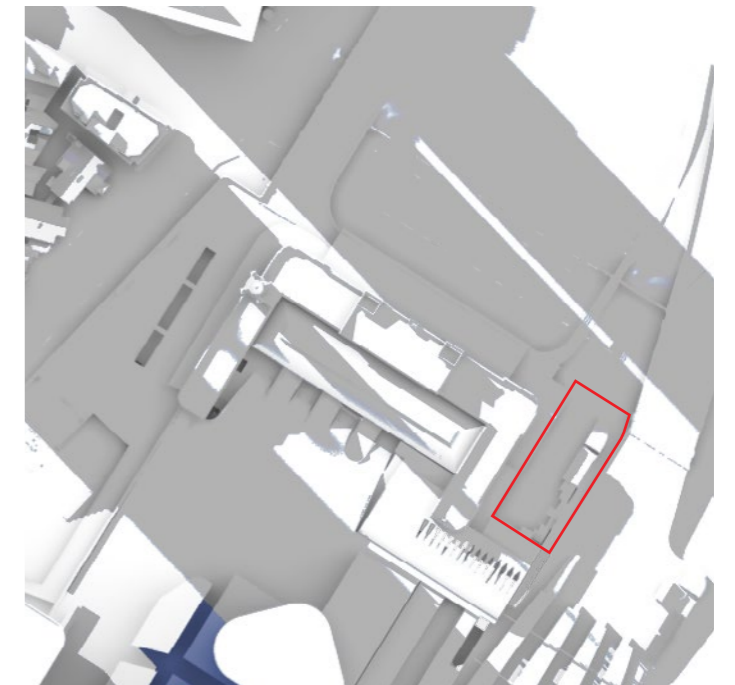
12.00pm



1.00pm



2.00pm



3.00pm

- Additional overshadowing by proposed massing
- Existing overshadowing (including approved developments - WGP and 187 Thomas St, Haymarket)
- Proposed RE1 Public Recreation boundary

Wind comfort targets

Wind comfort targets

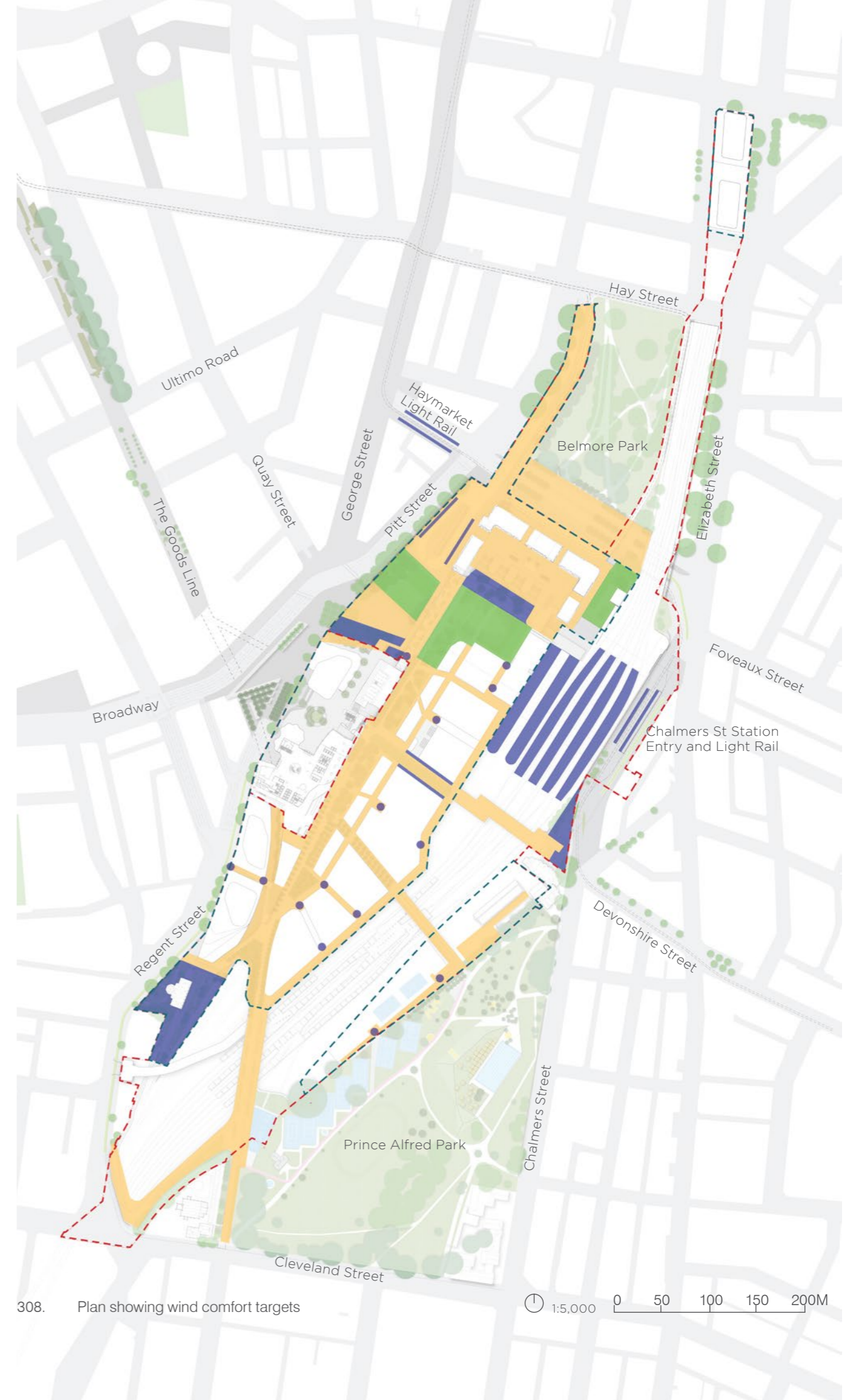
The wind criteria targets plan on the following page illustrates the minimum comfort criteria to be targeted in regards to environmental wind performance.

Wind comfort targets are summarised in the following table:

Location	Target	Justification
Central Lawn and Central Square dwell areas within primary areas of open space proposed within the precinct	Sitting	Highest level of wind comfort in open space dwell areas
Central Lawn and Central Square circulation areas	Walking	Major circulation areas to have walking criteria minimum target – for example circulation to Central Walk West, and the North-South Spine through Central Green.
Central Square adjacent Western Gateway	Standing	Standing criteria at entrance to Atlassian lobby from Central Square. Standing criteria at southern edge of square (this area is proposed to be meeting space alongside the primary circulation route to Central Walk).
Central Avenue	Walking, Sitting criteria for 50% of the eastern frontage	Primary circulation route through the precinct. Minimum 50% of the eastern frontage of Central Avenue to target sitting criteria in those areas proposed for outdoor dining.
North-South Lane	Walking, Sitting criteria for 50% of its length	Minimum 50% of the length of the north-south lane is to target sitting criteria in those areas proposed for outdoor dining.
Central Lawn steps to the Terminal Building	Standing	Exposed to the NE and NW wind directions.
West Wing rooftop	Walking	Exposed to the NW wind direction. Potential to target sitting criteria in particular areas but is subject to more detailed wind investigations and localised wind mitigation strategies.
Mortuary Station Park	Standing	Due to the existing conditions, and the heritage requirement to maintain an open view between the rail and Mortuary Station, standing is the minimum target criteria proposed for Mortuary Station Plaza. Vegetation and other small localised wind mitigation strategies can be implemented to improve conditions to sitting in specific locations (subject to future design development).
Henry Dean Plaza	Walking (as per WGP Design Guidelines, July 2021)	Primary circulation route through the precinct
Devonshire Link	Walking, Standing along building edges	Exposed to the NW wind direction. Primary circulation route through the precinct.
Primary building entrances	Standing	Standing criteria at primary building entrances
Railway Square	Walking, plus a minimum of 200sqm of contiguous space that is open to the sky within the defined Railway Square area is to meet sitting criteria (as per WGP Design Guidelines, July 2021)	Primary circulation route through the precinct Waiting area for buses etc to be sitting criteria – location to be confirmed in detail design phases
Belmore and Prince Alfred Park	No substantial change to existing wind conditions	When considering the balance of wind performance results, wind conditions in adjacent open space dwell areas outside of the precinct are to be generally, (using the all wind directions average), the same or better except for localised areas and/or certain wind directions close to proposed buildings. A slight decrease in the performance of some areas of the surrounding public domain are offset by the improvement to other areas of the public domain.
Other public domain areas / surrounding streets outside the precinct	No substantial change to existing wind conditions	As above

Wind comfort targets

- Legend
- Sitting criteria
 - Standing criteria
 - Walking criteria



308. Plan showing wind comfort targets

1:5,000 0 50 100 150 200M

Localised wind mitigation strategies

Improving wind comfort targets

Generally wind conditions for the proposal's public domain and existing surrounds are equal to, or better than existing wind conditions. For the whole precinct, four (4) areas may require localised wind mitigation to address two (2) localised issues as outlined below. In both cases, there is no built form massing option of the SSP massing proposal that would address these localised issues as the issues are located at the edges of the precincts where there is no shielding from the surrounding context.

The first potential issue relates to the westerly and north-westerly wind coming from across Railway Square and Central Square and up through Henry Deane Plaza and downdraft associated with the planned Western Gateway Precinct. This can be mitigated with the following measures: (1) along the eastern edge of Central Avenue, permeable canopy structures may be required; (2) near to the top of the stairs at the western end of Devonshire Link a porous, vertical screen (or similar such as public art) may be required; and (3) downdraft from the Atlassian planned development can be addressed with a small pavilion at the southern end of Sydney Terminal Building west-wing that in any case is required to provide shelter to the vertical transport connection to Central Square below.

The second potential issue relates to the south-westerly and north-easterly wind exposed pedestrian bridge connections over the railway which can be addressed with safety screens that would be required for the bridges in any case.

More detail of the potential mitigation measures are as follows:

- 1 Canopy structures along western facade of fine-grain buildings providing outdoor dining areas

- Small canopy structures measuring approximately 5 metres high x 5 metres wide with some porous vertical screening provide weather protection for outdoor dining areas along the western edge of the fine-grain buildings. These are limited to the areas opposite the Western Gateway development where the avenue is at its widest.

- 2 Feature artwork at top of Henry Deane Plaza stairs

- This location at the intersection of the north-south and east-west links has been identified in the Public Art Strategy for a signature piece of artwork. This artwork could be designed in a way to also improve wind comfort levels at this location. A glass balustrade with 30-50% open area of artwork above would be effective at improving wind conditions in this location.

- 3 Pavilion at southern end of Sydney Terminal Building West Wing

- Pavilion provides weather protection to proposed vertical transportation connecting Central Square to deck level, and includes opportunity for small cafe use providing activation at this western edge of the avenue.
- Height of pavilion to extend to underside of Atlassian tower overhang
- The proposed location of this pavilion does not impact on important views established between Central Green and Broadway

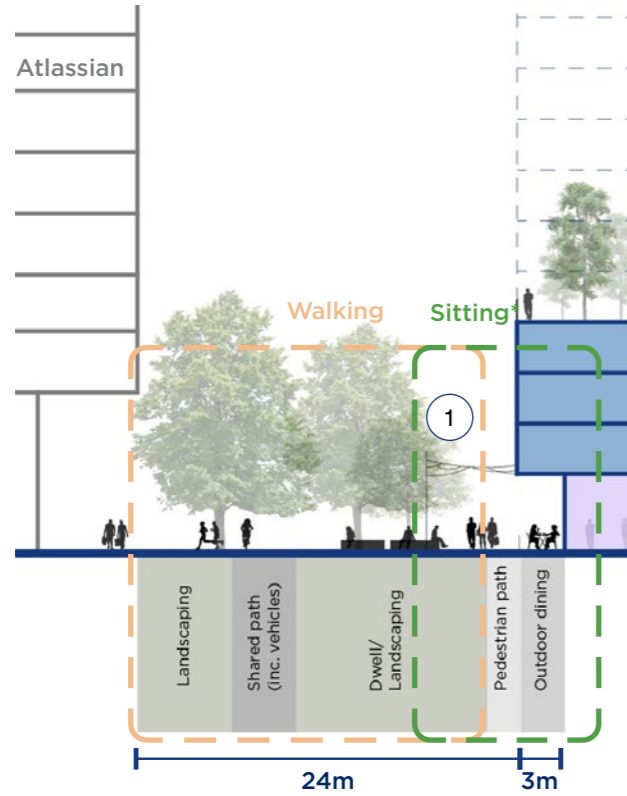
- 4 Safety screens along pedestrian bridges

- Safety screens are required along the edge of the deck and bridges to protect the rail below. Opportunity for these to incorporate porous screens to improve wind performance at these pedestrian bridge crossings.

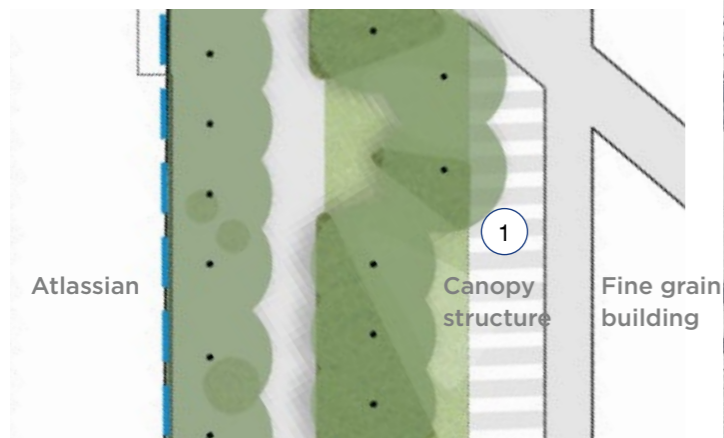


Localised wind mitigation locations

Localised wind mitigation strategies



Typical street section - Central Avenue



Key plan - Central Avenue



309.

Precedents

The above precedents provide examples of how the potential localised wind mitigations strategies may be realised through an integrated and meaningful public domain outcome.



310.



311.



312.



313.

- 309. Active dining along waterfront at Barangaroo South, image source: Aspect Studios
- 310. Odeonsplatz Munich
- 311. Release in Howick, South Africa
- 312. Connecting culture and Country through public art integrated with safety screen along Cleveland Street Bridge, image source: Balarinji
- 313. Connecting culture and Country through public art integrated with safety screen along Cleveland Street Bridge, image source: Balarinji

3.10

Water strategy

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3.10 Water strategy

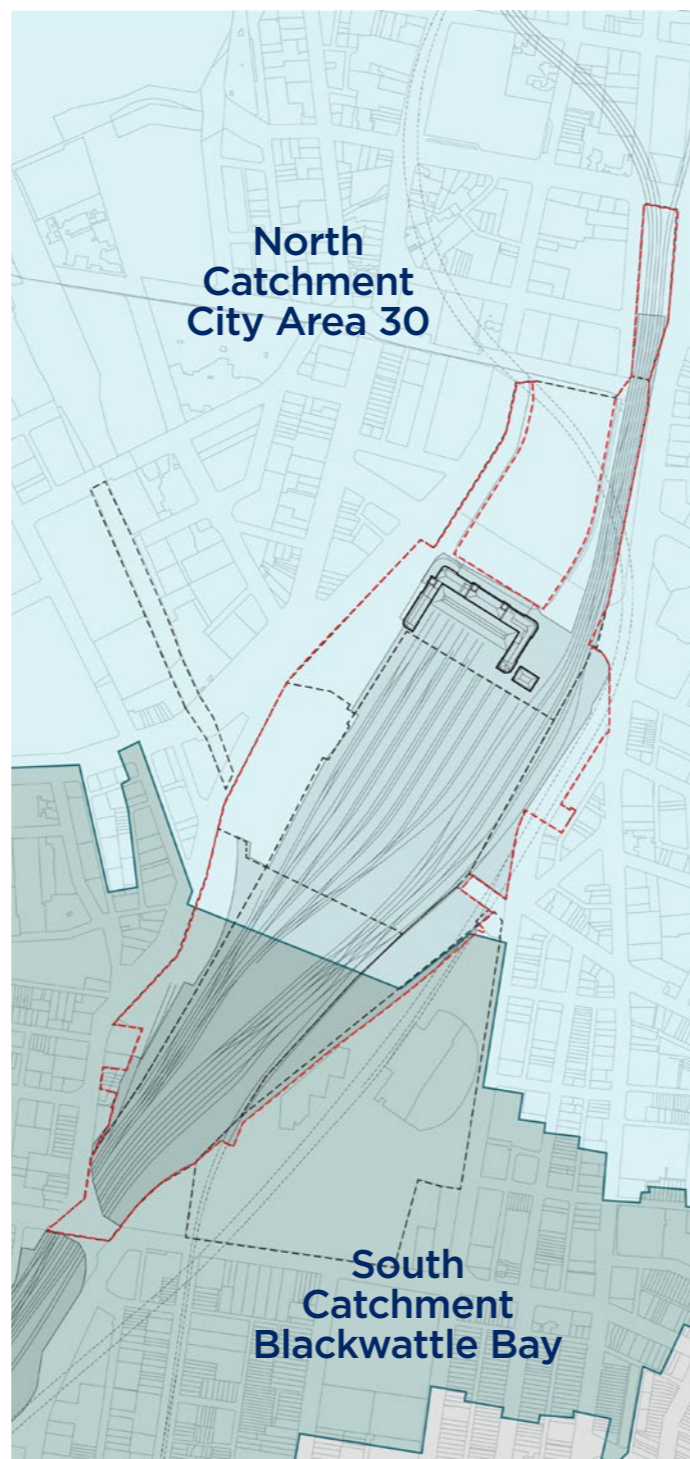
Water supply and irrigation strategy

The CPRP provides the opportunity for a consolidated recycled water supply, as detailed in the Environmental Sustainability, Climate Change and Waste Management Report, Chapter 9, which notes that the provision of a reliable recycled water supply should be a priority for Central Precinct to mitigate water resource constraints.

A reliable and low-impact water supply is vital to support the irrigation requirements of creating biophilic, highly planted public spaces. The planting strategy also targets species with high evapo-transpiration rates for some areas to enhance the cooling effect of planted areas, which increases the amount of water needed. This is proposed on the basis that a recycled water supply is available to provide reliable supply that does not deplete potable water resources.

Rainwater collected from buildings could be used for both re-use in building, and for irrigation, and there is capacity to store rainwater for re-use in the proposed deck structure.

Water re-use and potable water demand reduction targets for buildings are detailed in the Environmental Sustainability, Climate Change and Waste Management Report, Chapter 9.



314. Plan showing the existing north and south sub-catchment areas across the site.

Stormwater: existing situation

The study area spans two sub-catchments, both of which flow to Sydney Harbour:

- Catchment 01 - City Area 30 includes: Central Station, Western Gateway, Eastern Gateway, Goulburn Car Park, Regent Street Sidings, Prince Alfred Sidings and Northern OSD sub-precincts. This catchment drains to Darling Harbour.
- Catchment 02 - Blackwattle Bay includes: Regent Street Sidings, Prince Alfred Sidings and Southern OST sub-precincts. This catchment drains to Blackwattle Bay.

The majority of the site is currently a relatively flat ballasted rail corridor. Given the compacted nature of the ground surface the infiltration rate may be low, causing most rainfall to flow into the drainage network. The quality of stormwater runoff from these areas is expected to be poor.¹ There is the potential for a range of pollutants to enter the stormwater system from these areas with nutrients likely to be draining from railway ballast and other contaminants (from such sources as diesel residue and brake dust) arising from train activity.

The Central Precinct Renewal is an opportunity to improve stormwater outcomes for the site.

Stormwater and water sensitive urban design

The proposed stormwater system should maintain the existing sub-catchment areas, by draining the northern areas of the site to the northern catchment and southern areas to the south. A concept Stormwater Management Plan has been prepared, refer to the Water Quality, Flooding and Stormwater Report (Arcadis, 2022).

¹ Central Precinct Renewal - Water Quality, Flooding and Stormwater Report, Arcadis, 2022

The Central Precinct Renewal is an opportunity to improve the quality of stormwater runoff from the site. Employing water sensitive urban design principles will help to support the sustainability ambition to “To reduce stormwater pollution flowing to Sydney Harbour significantly beyond best practice guidelines.”²

Water sensitive urban design principles to be employed include;

- Grading paved areas to drain run off towards planted areas to provide passive irrigation, slow run off and help improve water quality.
- grading paving to direct water run-off to areas of permeable paving beneath trees, to provide passive irrigation, slow water run-off and help improve water quality
- Consider whether strategies like wicking beds or water storages under planted areas would be appropriate in the deck structure.

These strategies will provide passive irrigation to the planted areas, and slow run off and improve water quality by filtering water through soil volumes and allowing plants to take up water.

The overall grading concept for the deck structure is shown in Fig.293. Generally, the deck is graded to fall towards Central Avenue, where water can passively irrigate trees and other planting, as well as being collected for detention in the deck structure if appropriate. As shown in the stormwater concept plan,³ the northern portion of the deck will drain to

² Central Precinct Renewal - Environmental Sustainability, Climate Change and Waste Management Report, Chapter 9 (Atelier Ten & Integral, 2022)

³ Central Precinct Renewal - Water Quality, Flooding and Stormwater Report, Arcadis, 2022

Water strategy

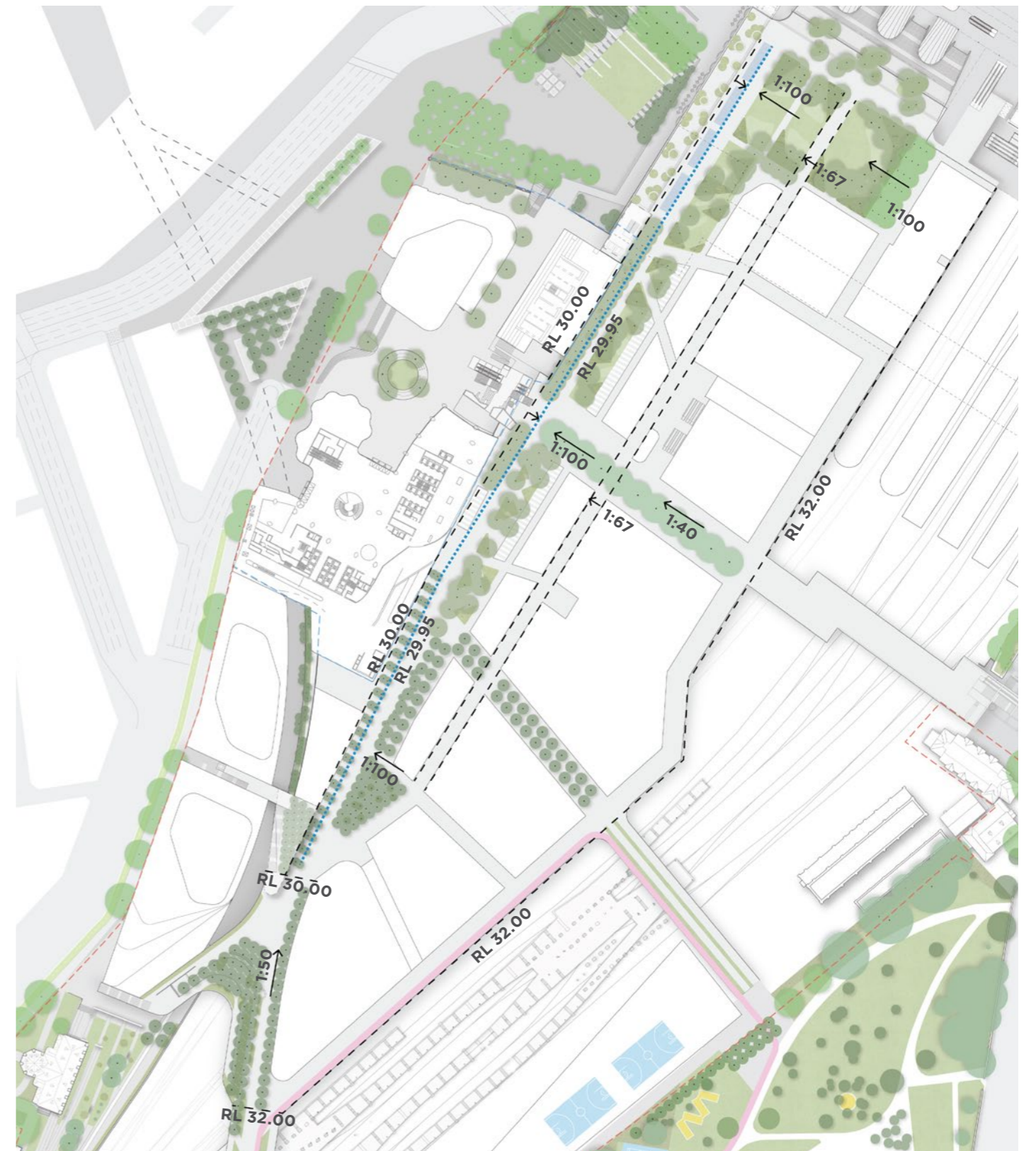
the northern catchment, while the southern part of the deck will drain to the southern catchment.

Water quality

City of Sydney policy targets for pollutants in water are detailed in the Pollution Assessment (Arcadis, 2022). To support the sustainability ambition to reduce stormwater pollution flowing to Sydney Harbour significantly beyond best practice guidelines, it is recommended that a detailed integrated water cycle management plan is developed as the design is progressed. This should quantify water quality treatment targets for specific parts of the site, based on their unique opportunities and constraints, and should identify how water sensitive urban design principles can be optimised across the development area.

Flood modelling

A flood model has been created for the Central Precinct Renewal, which will be developed as planning and detailed design progresses to ensure any potential flood impacts are mitigated sufficiently. At this high level of planning it is too early to assess how much stormwater detention might be required, or might be beneficial for the downstream catchments. However, it is recommended that provision for stormwater storage is provided in the deck structure, potentially along the eastern edge. This will allow stormwater detention to be provided as detailed design and flood modelling progresses.



315. Concept grading plan of over-station development structure

1:2,250 0 25 50 100M

3.11

Safety and
security

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3.11 Safety and security

The Central Precinct must become a safe and intuitive precinct that promotes social access and inclusion for all types of people, regardless of abilities and needs. The Safety and Security Strategy and Social Sustainability Study both highlight existing safety and security issues related to Central Precinct, particularly by women and other vulnerable groups. The proposed development has the potential to address some existing problems in the precinct with new uses, participants and activities, as well as improvements to environmental factors, such as lighting, poor infrastructure, and lack amenity.

Creating high amenity, activated public domain that is well connected and welcoming to all users will help to change perceptions of safety at the Central Precinct. CPTED principles such as lighting and line of sight are important to the environmental design, and work together with other measures such as staffing, and wider social initiatives.

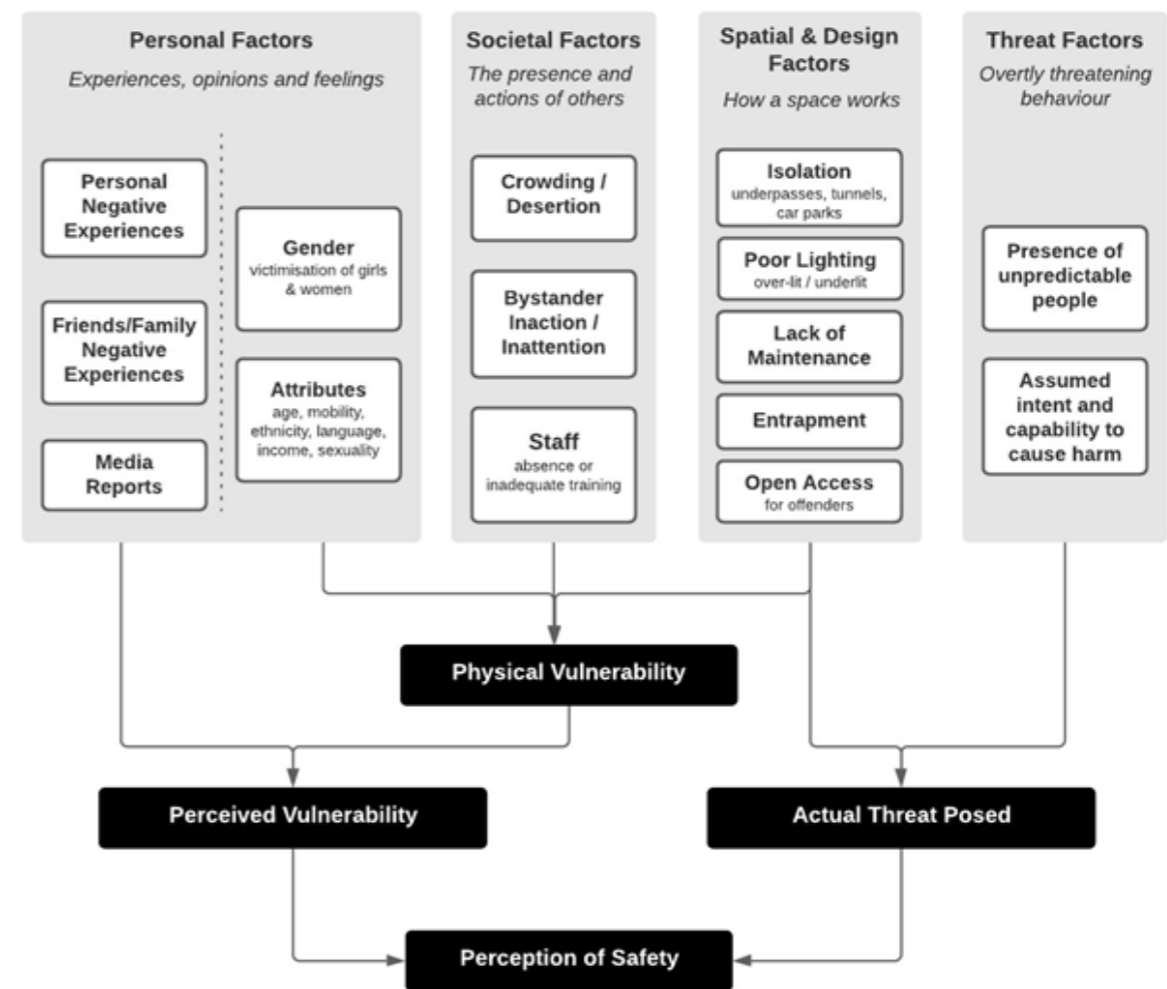
In addition to workshops during the development of the Public Domain Strategy, a review was completed to ensure that the public domain strategy is in alignment with CPTED principles. The Safety and Security Strategy also provides recommendations for future design and planning stages of the work, and further reviews will be required as the design progresses. The recommendations relevant to environmental design are detailed on the following pages, however other measures such as staffing, events and wider public safety initiatives and social programmes contribute to a holistic approach to safety and security. These can be particularly important for vulnerable groups.

Key points from the Safety and Security strategy, including factors relevant to vulnerable groups, the CPTED review of the Public Domain Plan and recommendations for future stages are detailed on the following pages.

Social Sustainability Study Draft by Ethos Urban (June 2020)

Safety perceptions in the central Precinct locality

- Local communities perceive areas of the Central Precinct to be unsafe, particularly at night, in part due to a lack of lighting and passive surveillance. This issue is particularly felt by women.
- The Committee for Sydney and Plan International’s Safety after Dark study (2019) revealed that women identified Central Station, Belmore Park and the surrounding areas as among the most unsafe areas in Sydney.
- The study identified environmental factors such as poor lighting, poor infrastructure (e.g. design which inhibits line of sight) and lack of security as exacerbating feelings of being unsafe among women in Sydney.
- Several parts of the Central Precinct feature poor lighting, high traffic noise, and volumes along adjacent roads leading to a pedestrian averse environment, as well as dated structures and urban design features that do not meet contemporary principles for crime prevention through environmental design (CPTED).
- Due to this lack of amenity and perceived safety, the Central Precinct is typically seen as a transit route rather than a place to stop or socialise; it also likely discourages people or businesses to investing the area.



316. Factors contributing to perceptions of safety, based on qualitative experiences of vulnerable people. Source: Central Precinct Renewal Program Safety and Security Strategy

Safety and Security Strategy by Intelligent Risks (February 2022)

The Safety and Security Strategy by Intelligent Risks details a strategy to address the diverse factors influencing the current Central Precinct and assess CPRP’s ability to become an inclusive and safe environment. The Strategy includes consideration to analysing how the design can alleviate safety concerns for vulnerable people, identified as women and girls, people with disabilities, the homeless, and

schoolchildren.

Central Precinct is located in a generally high crime area, which is partially due to the large number of workers and non-resident visitors of the area. Qualitative reporting identifies Central Precinct as one of the most unsafe locations in Sydney for vulnerable people, especially young women, with high rates of disorderly conduct, intimidation, harassment, stalking, drug and alcohol abuse.

Safety and security

The Safety and Security Strategy includes a design assessment of the proposed public domain plan to determine the broad adherence to CPTED principles, and assess the ability to practically implement CPTED measures during the subsequent progression of the design. The strategy includes high-level recommendations for implementation and will inform detailed safety and security planning for subsequent design and operational stages of CPRP development. It is recommended that further more detailed CPTED reviews are undertaken as the design develops.

Perceptions of Safety

The CPRP Safety & Security Strategy needs to accommodate the perceptions of users and go beyond the quantitative, risk-based application of physical security controls. This will enable efforts to directly target those perceptions of safety and security at the CPRP, particularly those held by high-risk groups (e.g. women and girls, LGBTIQ+, mobility-impaired) and people from various ethnic, linguistic and identity backgrounds

Mitigating risk-based security concerns as well as the subjective perception of safety at CPRP require a holistic approach which adequately addresses complex underlying physical, operational, societal and personal elements.

Safety and security design for Central Precinct public domain needs to support development of welcoming and activated spaces for all users and generate positive perceptions of safety and security. The design shall provide a strong baseline to address risks, issues and concerns of users, such that operational measures and initiatives can be effectively and efficiently overlaid to further enhance safety and security.

Key points pertinent to the safety and security of vulnerable groups, include;

- Sydney is one of the world’s safest cities and is generally perceived as safe. However Central Precinct, in particular Central Station and Belmore Park remain hotspots for some crime types and are currently perceived as some of the most unsafe locations in Sydney.
- Perceptions of safety can be influenced by environmental and design factors (poor lighting, lack of clear sight lines, graffiti, damaged property, rubbish, and lack of seating, recreational spaces or people) and social factors (lack of employment, education and health services, or behaviour of other people e.g. drug consumption).
- Factors influencing the occurrence of harassment in Sydney include:
 - The presence of unpredictable people such as groups of men, individuals affected by drugs or alcohol, the homeless or a combination of these. Homeless persons are presumed to be risky due to harassment for money or due to mental instability.
 - An absence of people in the area or a lack of intervention from bystanders. Busy or buzzy areas were often cited as safe by women out at night for recreation.
 - Environmental or physical factors including poor lighting, poor infrastructure, lack of security, and presence of rubbish. Low levels of lighting constitute the most prevalent physical contributor to feeling unsafe, especially for women commuting for work at night. Additionally, a lack of escape routes and stretches of no activity/unoccupied buildings (dead frontage) are specifically highlighted as problems.
 - The presence of security, police or other staff is important for a safe environment

for women at night. This is especially applicable to public transport, where modes of transport that minimise waiting times and have visible staff are associated with being safer.

- Factors contributing to good experiences include busy areas, the community environment/interventions, adequate lighting, infrastructure, presence of security/police, public transport, and daytime.
- There is a general reluctance for women and girls to report bad incidents to authorities, predominantly due to the repetitive nature of harassment experienced and the fear of escalation due to police involvement. Only 9% of bad experience pins on mapping tools were reported to police.
- Many forms of harassment are not illegal, are difficult to report or document when they do not meet criminal thresholds of behaviour.
- Women and girls significantly change their behaviour in a perceived or actual unsafe environment, ranging from internalisation of bad experiences to complete avoidance of the area.
- The impacts of harassment go beyond the fear of a violent attack and limiting movement in the city. It also encompasses increased self-objectification, increased depression and anxiety, lower self-esteem and confidence, and emotional impacts such as feeling anger, shock, and a sense of violation often for prolonged periods of time.
- Experiences shared by women suggest that places that are deemed safe during the day may become off-limits when darkness falls and differing strategies and responses may be required for improving safety after dark.
- The NSW Government protocol for homeless people in public places aims

to help ensure that homeless people are treated respectfully and not discriminated against on the basis of their situation. The protocol states that homeless persons should not be approached outside of exceptional circumstances such as requiring assistance or exhibiting threatening behaviour.

- An inquiry into the NSW Government homeless protocol put forward several recommendations, including:
 - The need to clarify whether the use of design elements to dissuade usage by homeless people (e.g. placement of arm rests in the middle of double seats, or having sloping benches to prevent people from sleeping on them) are acceptable.
 - Implementation of ‘Report a Rough Sleeper’ tool to log and identify homeless people.
 - Publicly communicated examples of appropriate responses for members of the public wishing to help and advocates for adequate funding of SHS, who are best placed to assist.
- The design of CPRP and its surrounding area, in particular a lack of lighting, are widely cited as contributing to a perceived lack of safety in the area. This makes CPTED considerations essential for the CPRP.

Safety and security

Safety and Security Strategy by Intelligent Risks (February 2022)

Precinct Assessment and CPTED Recommendations

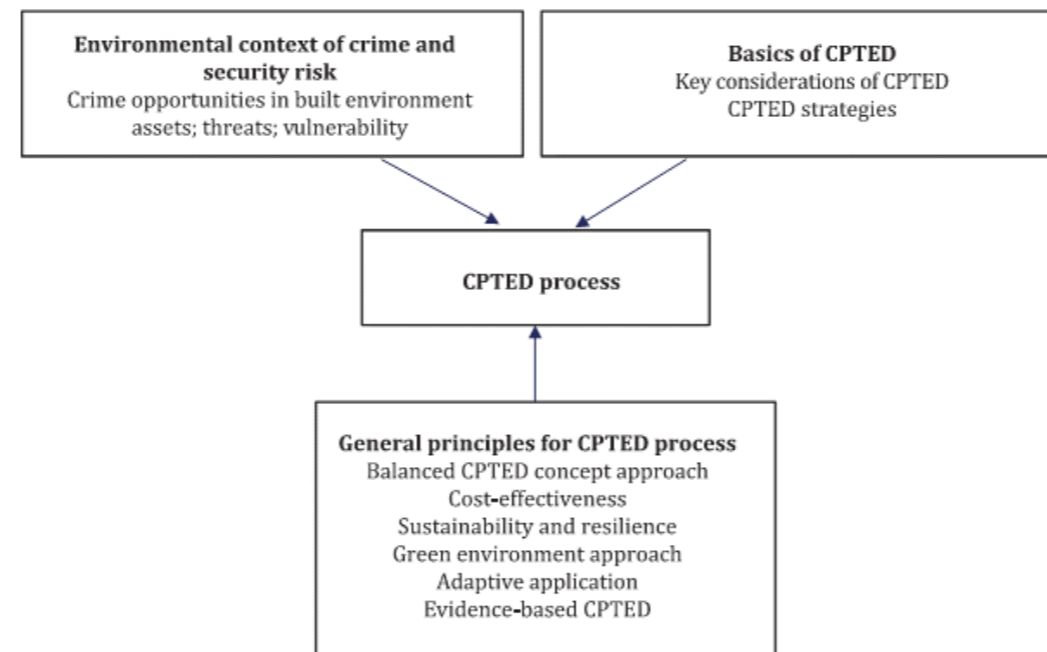
Crime Prevention Through Environmental Design

Peoples' behaviour, particularly in terms of the possibility of offending, as well as an individual's perception about their safety, can be influenced by the design of that environment. Good design of places, spaces and buildings can reduce opportunities for offending and improve feelings of safety.

The International Crime Prevention Through Environmental Design (CPTED) Association defines CPTED as:

"A multi-disciplinary approach to deterring criminal behaviour through environmental design. CPTED strategies rely upon the ability to influence offender decisions that precede criminal acts by affecting the built, social and administrative environment."

Contemporary theories of CPTED, classified as second generation, recognise the need to include social concepts as part of the crime prevention effort. The physical CPTED concepts primarily assessed in this study from a safety and security perspective are supported by and often promote and facilitate social CPTED concepts. The four key principles of social CPTED are Social Cohesion, Community connectivity, Community Culture and Threshold capacity.



317. CPTED framework (Source: ISO 22341:2021)



318. CPTED principles Source: Central Precinct Renewal Program Safety and Security Strategy

Design Assessment

The current design plans for the Precinct as a whole support CPTED principles, as well as design best-practices with gender-sensitivity in mind. The measures noted to be incorporated into the design include:

- Providing multi-use spaces including green spaces, wide multi-modal movement axes, active retail and hospitality frontages, and access points to public transport facilities
- Attracting different user groups (e.g. workers, residents, commuters, shoppers, recreational users etc.) that make it difficult for one user type to monopolise or dominate the public domain
- A clear Precinct perimeter supporting access control and delineations between public and private spaces within the site for

operational management while maintaining an open nature of the Precinct with seamless transitions between zones

- Encouragement of commercial use with ground-level cafes, retail, bars, sporting amenities, shops and office buildings which foster activation, potentially later into the night than currently occurs
- Interspersing of the public domain throughout the Precinct, thereby distributing activation zones across the site and minimising isolation or 'dead' zones
- Variety of entertainment and recreational activities which encourage usage of the Precinct at daytime and night.

A detailed physical CPTED assessment of the CPRP design and public domain typologies is included in The Safety and Security Strategy

Appendix D - CPTED design assessment

CPTED Recommendations

The CPRP design plan is at an early stage and is already demonstrating positive incorporation of CPTED guidelines. As the design continues to develop, and further detail is incorporated, the following recommendations will embed deeper in the CPRP State Significant Precinct (SSP) design.

Natural Surveillance:

- The landscaping of streets and open spaces should enable natural surveillance and clear lines of sight by minimising obstructive plantings between circa 0.6 metres above ground level to 2.4 metres
- The soft landscaping should use low-density

Safety and security

plants or planting at spacing to ensure that as landscaping matures it does not give rise to concealment opportunities and does not restrict sightlines. Specified landscape maintenance procedures should be established

- Pedestrian entrances and exits to Central Station and buildings should be placed in locations where they are clearly visible from landscaped areas where possible and opportunities for lingering should be incorporated into landscaping to promote surveillance
- Pedestrian routes and the landscape should be lit after dark (to comply with Australian Standard AS/NZS 1158 for pedestrian areas). The use of adequate lighting will reduce the incidence of night-time loitering and the opportunity for concealment of offenders
- Seating should be in highly visible and well-lit areas. Lighting should enable surveillance both of and from these seating areas. However, as previously stated, lighting these areas well should not inadvertently create glare or contrast issues in neighbouring areas
- CCTV and lighting plans for the public domain shall be coordinated to ensure they are mutually supportive. These plans shall also be incorporated into the overall landscape plan
- Barriers around the upper levels of publicly accessible and semi-publicly accessible spaced should be visually permeable. This will create clear sight lines from and to the public domain or lower levels within buildings
- Consider the use and placement of concierges, building supervisors and other

staff to increase offender risk and crime effort within the building footprint and around entrances.

Natural Access Control

- Pedestrian zones in areas close to vehicle movement should be clearly defined to increase the sense of pedestrian safety
- Changes in surface finishes can be utilised to define changes in land use or changes in ownership, or to denote changes between pedestrian zones and shared use zones.

Territorial reinforcement

- By clearly defining spaces within different parts of the development, clear expected behaviours can be set for visitors and staff, which works to encourage compliance.
- Wayfinding and signage should clearly indicate pedestrian routes and destinations and remain current with the development of CPRP. This instils confidence in legitimate users and deters loitering
- Users must be able to understand which routes they use and be able to quickly orient themselves with locate amenities. Good signage and wayfinding strategies reduce vulnerabilities by assisting people to use the safest routes and reduce ambiguity around legitimate access and use
- Activate spaces that surround Central Precinct and link the development to adjacent land uses. People are attracted to vibrant public areas. This will enhance the perception of territorial reinforcement and space management
- The incorporation of public artwork into the public domain (or public access areas) can support a sense of community ownership

and policing of the built environment and deter offenders

- Horizontal flat surfaces should be avoided to the extent possible in publicly accessible areas to reduce opportunities to leave items including rubbish, bags or malicious devices. Sloping surfaces visible to users, including on vending machines and bollards are preferred.

Target Hardening

- Lighting, Closed-Circuit Television (CCTV) and other urban design elements should use vandal-resistant materials and hardware and enable ease of maintenance and repair to maintain quality and appearance
- Video surveillance for building exteriors can be strategically placed to remove blind spots or enhance surveillance in less activated areas or at access points to buildings or within pedestrian laneways
- Landscape design of buildings need to consider if hostile vehicle mitigation is required to protect pedestrian activity in open spaces. Wherever possible, landscaping elements are preferred as they have the ability to contribute to the design aesthetic while also performing a safety and security function
- CPTED measures for the public domain should be supported by effective electronic access control, intruder detection and other physical security measures of interfacing buildings. Relevant controls are outlined in the following Section 6.2.

Space management

- Maintenance of areas within CPRP gives off the perception that a space is respected

and preserved with attention paid to it and encouraging users to do the same. Degradation of a site or buildings within it displays an apparent tolerance and lack of accountability or disorderly behaviour, thereby increasing the attractiveness for further incidents and degradation. The failure to confront offenders or reinforce the rule of law encourages crime and violence.

- The planning of maintenance procedures and guidelines for CPRP spaces will occur in operational planning phase
- The holistic safety and security strategy also includes protective security controls, and community and societal safety initiatives.

Lighting

- Poor illumination has been cited in the Free to Be: Sydney project as being a major factor in making Central Precinct an unsafe environment. With reference to Monash University's Lighting Cities project, the mere maximisation of illumination does not directly correlate to increased feelings of safety for women and girls. It is preferable that a minimum lux level is used to provide a baseline that can be exceeded in support of the needs (not limited to safety and security) of an area.
- Lighting should be designed to provide a spread of light, clear colour rendition, avoid deep shadows and minimise light pollution. A layered approach using various light sources is often used to provide a welcoming environment.

4

Consultation

4.1 Consultation register

Consultation

A program of consultation has been undertaken for the Public Domain Strategy, as well as an SDRP process. The following table (Table 4.1) outlines the major consultation sessions held. Written comments and feedback from consultation with the City of Sydney, along with responses are provided in Table 4.2 and 4.3.

For a register of the State Design Review Panel feedback and responses refer to the Urban Design Framework Appendix.

Date	Organisation	Topics
08.09.2021	Heritage Council	Heritage
13.10.2021	City of Sydney	Prince Alfred Park Accessway
8.11.2021	City of Sydney	Central Square
23.11.2021	Heritage Council	Heritage
06.12.2021	Stakeholder Workshop	Public Domain
07.12.2021	City of Sydney	Public Domain
25.01.2021	Greater Cities Commission	Public Domain
10.02.2021	Department of Planning and Environment	Public Domain
07.04.2022	PWG Group	Public Domain Strategy Report
	For further consultation undertaken, including with vulnerable groups, refer to the Safety and Security Strategy (Intelligent Risks, 2022)	Public Domain

Consultation register

Table 4.2: City of Sydney Comments 23.12.2021			
Category	Issue	Design team response - how issue has been addressed	Reference / further information
Central Square: Structure	<p>A significant public place at Central has been on the City’s agenda since Gehl’s work in 2007. Gehl identified an opportunity to create and connect significant city spaces at Circular Quay, Town Hall and Central Station along the George Street spine. The proposed square at Central would serve existing and future residents, workers and visitors to the area. The intent was for a city square at grade connecting with surrounding streets.</p> <p>The City understands that there is a need for open space to support the uses proposed on the OSD and also broader community recreation needs. The Greater Cities Commission has specifically identified the need for outdoor social/collaboration spaces to support the tech and innovation talent the precinct is aiming to attract. The identified open space on the OSD deck appears to satisfy this criterion.</p> <p>The main square, at grade with Pitt Street, will serve a different function, connected seamlessly into the network of city streets and neighbourhoods. The Council endorsed a series of structuring principles in September 2020 which specifically identified the need to maximise the square adjacent to Pitt Street and Broadway to enable a flexible space suitable for activity 24 hours per day while, supporting the City’s environmental objectives of being cool and green, and creating high-amenity spaces. The City has identified the demand for this activity, given Hyde Park and Martin Place are already at capacity, and Belmore Park and Prince Alfred Park are also already heavily used.</p>	<p>The Public Domain Strategy responds to this vision; the proposed Central Square connects to the surrounding streets at grade, and creates a flexible space suitable for activity 24 hours per day. Canopy and greening targets support the environmental objective of being cool and green, and creating high-amenity spaces.</p>	<p>Public Domain Plan - Central Square, Urban forest and greening.</p>

Consultation register

Table 4.2: City of Sydney Comments 23.12.2021			
Category	Issue	Design team response - how issue has been addressed	Reference / further information
Central Square: General design considerations	The City does not support the provision of a terrace connection, linking the main concourse at RL21 to Atlassian. This would detrimentally impact on the view of the heritage station building, encroach into the usable space of the square and result in unacceptably deep colonnades. The City recommends bringing people to city streets and spaces at grade as a priority and minimise the need to provide grade separation.	<p>Various options for the RL21 connection, including no connection have been considered. The RL21 connection has been included for a number of reasons;</p> <ul style="list-style-type: none"> • to provide connectivity between the Grand Concourse, the Regional Coach Terminal, Platform 1 and Henry Deane Plaza. • the existing ground level along the western Extension of the Sydney Terminal Building is at around RL21 for a significant portion of the facade, and historically the building has been viewed in this way. • to maintain the existing entry to Platform 1 • to enable the original pavement lights to be retained and reinterpreted • to support connectivity with, and activation of, the OSD level at RL30 by providing a well connected public domain system at the intermediate level of RL21, which is also a significant level for station functions and connectivity • to enable adaptive reuse of the rooms in the Sydney Terminal Building at RL21, to help activate the area and support appreciation for the heritage building. • the connection has been reduced in width so that the colonnades are not unacceptably deep • the entry/exit to Central Walk West will require a covered transition to the square, as it will be a major station entry. The connection provides this covered transition. • the connection has been supported in other consultation, including by the SDRP. 	Public Domain Plan - Central Square,

Consultation register

Table 4.2: City of Sydney Comments 23.12.2021			
Category	Issue	Design team response - how issue has been addressed	Reference / further information
	<p>The TfNSW proposed scheme breaks the square into multiple parts with a lack of hierarchy between the spaces:</p> <ul style="list-style-type: none"> – The lower square is lacking definition, and its primary function appears to be as circulation space, with some residual space left over from excessive space allocated to movement. – The allocation of space for the active movement of people could be consolidated. – There is too much space allocated to the entrance to the northern arcades. This is a minor pedestrian connection. If left as is, that space will read as a forecourt to the arcade. People won't know how to use the space at the threshold between it and the main square. Programming an 'L' shaped square or square with a dogleg will be difficult. A legible edge to the north would provide better definition to the square and improve how the public reads what is flexible and usable civic/ public space. – Preserving the area under the inclined section for future activation to the square is recommended instead of a water retention/reuse location. – The ramp from the lower square to the future upper square appears too steep, and does not appear to consider universal access requirements. Accessibility must be addressed in the resolution of the levels between upper and lower squares. It is noted that the two City schemes address accessibility whilst retaining the principle of maximising the area of the lower square. 	<ul style="list-style-type: none"> • Layout of the square has been reviewed and updated to address all of these concerns. The 'L' shape has been removed to clarify hierarchy and better define the lower square, and movement paths simplified. • Universal access is provided through a ramp to AS standards. 	Public Domain Plan - Central Square
Central Square: General design considerations	<p>The City supports the provision of trees in the square, given the significant existing deep soil south of the Bondi Sewer. Tree alignment should be revisited to better frame and organise open space sequencing. For example, tree planting could extend east to the entrance of Central Walk West (CWW).</p> <p>The shape and pattern of trees should frame and organise open space sequences and be informed by likely pedestrian movements. It is noted that the City's design illustrated in Sustainable Sydney 2030-2050 enables the double programming of circulation and activity space, and enables a path of movement either through the trees or through the open space adjacent.</p>	Tree alignment reviewed and updated to better frame and organise the open space, and has been extended east towards Central Walk West. The layout of trees in the reference design seek to frame and define space, whilst also opening up to the dynamic public domain of the future Railway Square and Lee Street.	Public Domain Plan - Central Square
Central Square: General design	It is unclear what the intention is for retention of the significant heritage stone wall adjacent to Pitt Street.	The intention is for the heritage stone wall to be retained in full, subject to detailed pedestrian modelling and final position of pedestrian crossing.	Public Domain Plan - Central Square
Central Square: General design	Further detail is required on the planting strategy for the deck area in terms of how significant trees, planting and biodiversity aims are achievable and practical given the parameters of the OSD deck such as noise constraints (frogs), 1m maximum deep soil, and solar access and wind environment to support tree growth.	Soil and water strategies are provided to consider how the deck structure can be engineered to support planting and significant trees. Planting strategy responds to the solar and wind environments.	Soil strategy, Water strategy, Urban forest and greening, Green Infrastructure report.
Central Square: General design	Further investigation is required on the integration of The Goods Line into Railway Square, potentially open to the sky.	Integrating the Goods Line with Railway Square is included in the public domain plan, including opening it to the sky. Further investigation would be completed at future stages of the planning process, in conjunction with relevant agencies.	Public Domain Plan - The Goods Line
Public Domain	Clarification is required regarding the management of open spaces noting the square at street level will serve a different function to the open space on the OSD deck.	The open spaces will be managed by TfNSW as public open space	

Consultation register

Table 4.2: City of Sydney Comments 23.12.2021			
Category	Issue	Design team response - how issue has been addressed	Reference / further information
Public Domain	Clarification is required of the space around Mortuary station, is it private space and who will manage it?	The open space around Mortuary Station will be public open space (zoned RE1), managed by TfNSW	Public Domain Plan - Mortuary Station
Public Domain	It is unclear whether all the laneways (north south and east west) are open to the sky and truly public space. Also, what is the difference between through-site links and lanes? All streets and laneways should be open to the sky.	The laneway is open to the sky. All proposed public domain is open to the sky	Urban Design Framework
Public Domain	A plan is required to clarify what space is: <ul style="list-style-type: none"> - public domain - publicly accessible space - open space - private space 	Provided in the Urban Design Framework, and proposed Planning controls via the Public Domain Overlay plans.	Urban Design Framework
Public Domain	Further detail is required on the proposed measurable objectives for amenity, minimum sizes, minimum dimensions etc. in open spaces and public domain within and affected by the development.	objectives for amenity, minimum sizes etc. provided for public domain spaces.	Public Domain Plan
Public Domain	The Goods Line should be included in the SSP studies given it is partly within the SSP boundary. The precinct planning would benefit from it being included and it should be implemented as part of the development.	The Goods Line has been included in the SSP studies, for implementation as part of the development.	Public Domain Plan - The Goods Line
Urban Design	Building setbacks above street wall height must be determined by the appropriate amenity conditions in the adjacent public space, i.e. the wind comfort criteria, daylight and solar access benchmarks. Note: In the City, the development builds up from the edges and it was determined by wind consultants that 6-8m setback above street wall height would be the minimum starting point.	Building set back considerations and wind modelling is addressed in the Urban Design Framework	Urban Design Framework
Urban Design	Minimum natural light requirement is needed for the platforms.	Refer to the Urban Design Framework	Urban Design Framework
Sustainability	There should be a precinct-wide sustainability plan	The Environmental Sustainability, Climate Change and Waste Management Report provides a precinct wide sustainability strategy. The Green Infrastructure strategy provides further detail on the provision of green infrastructure objectives.	Environmental Sustainability, Climate Change and Waste Management Report and Green Infrastructure strategy
Public Domain	The potential closure of Lee Street should be included in the SSP studies and should be implemented as part of the development.	Potential closure of Lee Street is included in the master plan as an intent of the development.	
Public Domain	The City supports the inclusion of activity in the Central Green space on OSD deck to attract wider community users.	Central Green supports activation as a destination to attract the wider community	Public Domain Plan - Central Green

Consultation register

Table 4.2: City of Sydney Comments 23.12.2021			
Category	Issue	Design team response - how issue has been addressed	Reference / further information
Public Domain	Further detail is required around the vehicular entrance off Cleveland Street through Prince Alfred Park noting that this is CoS managed land and roads impact on significant trees. It is also above the rail tunnel and structural loadings will be sensitive.	The vehicular entrance has been revised to an accessway which would only be used by emergency vehicles, or authorised service vehicles during limited hours. The accessway would generally function as a space for pedestrians and cyclists. Further detail has been provided. The proposed accessway is outside the canopy of the significant trees and would not require the alteration of existing ground levels in the vicinity of the fig trees. An arborist report would be completed at the development application stage.	Public Domain Plan - George St bridge.
Prince Alfred Sidings	The City supports the re working of the Prince Alfred Sidings building to ensure retention of significant trees in Prince Alfred Park and achieving improved setbacks.	Noted	Urban Design Framework
Design Excellence	A competitive design process should be undertaken for the public domain on the OSD as a separate process to the competitions run for the building blocks. This should result in a detailed public domain guideline, with technical detail to the level of the City's public domain codes for streets and open spaces. This guideline will form part of the brief for the individual building competitions. Consideration should be given to including: <ul style="list-style-type: none"> - closure Lee Street - Usage of and opening up of The Goods Line (TGL) - Ensuring the character of the future Central Square extends across Broadway - Pedestrian crossings, kerbs and bus stops 	Refer to the Design Excellence strategy	Design Excellence Strategy
Design Excellence	The Third Square (now referred to as Central Square) includes the forecourt to the Station (TAHE land) and Railway Square (CoS land). Given the dual occupancy, TfNSW should consider this as a separate design excellence process, run jointly by TfNSW and the CoS. Central Square will be truly public space, accessible 24hrs and allowing peaceful gatherings etc. It could be managed by the CoS or jointly managed with TAHE. This compares to the publicly accessible space on the OSD, owned and managed by TAHE, a state-owned corporation.	Refer to the Design Excellence strategy	Design Excellence Strategy

Consultation register

Table 4.3: City of Sydney 24.03.2021- Amended and added comments			
Category	Issue	Design team response - how issue has been addressed	Reference / further information
Central Square	The City does not support the provision of a terrace connection, linking the main concourse at RL21 to Atlassian. This would detrimentally impact on the view of the heritage station building, encroach into the usable space of the square and result in unacceptably deep colonnades. The City's recommendation remains that leading people to city streets and spaces at grade is the priority, minimising the need for grade separation. The dog-leg at the southern end of the RL 21 link, where it interfaces with Atlassian, only exacerbates the detrimental impact.	<p>Various options for the RL21 connection, including removing this connection have been considered. The RL21 connection has been included for a number of reasons;</p> <ul style="list-style-type: none"> to provide connectivity between the Grand Concourse, the Regional Coach Terminal, Platform 1 and Henry Deane Plaza. the existing ground level along the western extension of the Sydney Terminal Building is at around RL21 for a significant portion of the facade, and historically the building has been viewed in this way. to maintain the existing entry to Platform 1 to enable the existing pavement lights to be retained and reinterpreted to support connectivity with, and activation of, the OSD level at RL30 by providing a well connected public domain system at the intermediate level of RL21, which is also a significant level for station functions and connectivity to enable adaptive reuse of the rooms in the Sydney Terminal Building at RL21, to help activate the area and support appreciation for the heritage building. the connection has been reduced in width so that the colonnades are not unacceptably deep the entry/exit to Central Walk West will require a covered transition to the square, as it will be a major station entry. The connection provides this transition. the connection has been supported in other consultation, including by the SDRP. 	Public Domain Plan - Central Square
Central Square	The primary function of the lower square appears to be as circulation space. The allocation of space for the active movement of people could be consolidated.	The lower square (Central Square) provides a flexible space for circulation, gathering, temporary events, seating and dwelling, there is extensive lawn space with excellent solar, many seating opportunities including terraces within shaded landscape, seating walls on the perimeter of spaces as well as extensive movable chairs, tables and deckchairs to ensure the Central Square provides comfortable choices for dwelling throughout the year. The Central Square is also designed to accommodate large events outside of peak transport times.	Public Domain Plan - Central Square, Event mode overlays
Central Square	Preserving the area under the inclined section for future activation to the square is recommended instead of a water retention/reuse location.	Where height is sufficient, area has been allocated for future activation. Water storage is indicated in the basement beneath the square.	Public Domain Plan - Central Square
Central Square	The design solution for accessible travel from the lower square to upper square is a positive improvement from the last iteration, with only single change in direction.	noted	Public Domain Plan - Central Square

Consultation register

Table 4.3: City of Sydney 24.03.2021- Amended and added comments			
Category	Issue	Design team response - how issue has been addressed	Reference / further information
Central Square	The shape and pattern of trees should frame and organise open space sequences and be informed by likely pedestrian movements. It is noted that the City's design illustrated in Sustainable Sydney 2030-2050 enables the double programming of circulation and activity space and enables a path of movement either through the trees or through the open space adjacent.	The proposed layout of trees frames the open spaces sequences and responds to likely pedestrian movements. The design enables a path of movement either through the trees or open space adjacent.	Public Domain Plan - Central Square
Central Square	The location of the pedestrian crossing at the intersection of Broadway, George, Pitt and Quay Streets requires input from a transport planner and should inform the layout of the trees.	The design of the pedestrian crossing will be investigated in further detail at future stages of the project.	Public Domain Plan - Central Square
Central Square	There is an opportunity for public art in Central Square to act not only as an urban marker, but also to reflect the spirit of the space and its broader context (Railway Square, and the intersection of Broadway, George, Lee, Pitt, and Quay streets) as nexus and urban crossroads at the southern end of the city centre and at the centre of the Tech Central initiative.	Opportunity for public art in Central Square is identified in the Public Art Strategy and Connecting with Country Report.	Connecting with Country, Public Art and Heritage Interpretation Strategies
Public Domain	It is understood that the alignment of Central green is determined by a sight line between the fPPb and the eastern wing of the station, clarification is required as to any other determinants.	The alignment of Central Green responds to the sight line, as well as ensuring the space is of an appropriate scale for the primary open space on the deck, a space which can be activated, and support gatherings and events.	Public Domain Plan - Central Green

5

Benchmarking

5.1 International precedents built over transport infrastructure

Millenium Park, Chicago, U.S.

Millenium Park Foundation, City of Chicago

Scale: 10 ha

Client: City of Chicago

Year: 1997-2004

Relevance to Central Precinct

- The park is built above rail infrastructure, bus interchanges and multi-level parking on a roof structure, supporting planting and mature trees.
- The park creates a significant open space in a city centre, and creates significantly improved connections across the site.
- The creation of the park was associated with a significant upgrade to transport infrastructure, including railway stations, bus stops and parking.

Summary

Located in the heart of downtown Chicago, Millennium Park is a large public space, renowned as one of the world's largest green roofs, built directly above rail land below. Millennium Park has provided a large, free, public cultural space, it showcases large public art exhibitions and major large permanent public art works. It has transformed a large underutilised area of the city into a vibrant and busy public place, transforming the economic potential of the surrounding areas.

Specific Initiatives in design, budget, or construction

- The project increased green space on the site by 62%, and planted 550 trees, an increase of 400%. More than 60% of the 240 varieties of perennials and 14 varieties of woody plants in the Lurie Garden are native to Illinois and/or the Midwestern U.S.. The garden attracts more than 27 species of birds as well as butterflies and bees.
- The Lurie garden's use of native and adaptive plants saves water usage, as well as money in

annual irrigation costs.

- It is estimated that the 550 trees remove 426.9 lbs of air pollutants each year.
- The 'Great Lawn' was designed as a high performance reinforced natural turf field to maintain turf quality even with over 5,000 visitors for outdoor performances.
- The park showed significantly lower average temperatures after its green roof was installed in 2004.¹
- The park is accessible by various modes of public transport.
- The park is fully accessible and improves pedestrian connectivity within the city, by removing a barrier between downtown Chicago, sections of Grant Park and the waterfront.
- The site required remediation works with the bottom floor of the parking garage becoming the cap for contaminated soil. Additional measures were taken to reduce the impact of trains traveling under the new park.
- Construction of the park over the rail lines took place at night when trains weren't running, which significantly impacted the budget.
- The park was originally planned as a landscaped green roof atop a parking garage, and would have cost \$150 million. As a larger vision was developed, the park ultimately cost \$475 million, with \$173.5 million coming from the private sector.
- A fundraising strategy sought large donations from private donors, but then allowed the donors to have input into the design and enabled additional cultural elements to be added to the project, including the performance space and artworks. However there has been criticism of the power that was given to these private donors to choose artists and architects. These additional elements also led to construction delays and

¹ Kathryn McConnell, Christian V. Braneon, Equisha Glenn, Natasha Stampler, Evan Mallen, Daniel P. Johnson, Raaghav Pandya, Jacob Abramowitz, Gabriel Fernandez, Cynthia Rosenzweig. A quasi-experimental approach for evaluating the heat mitigation effects of green roofs in Chicago, Illinois. *Sustainable Cities and Society*, 2022; 76: 103376

increased costs as they were not included in the original scheme. Some of the fundraising created a maintenance endowment for the park.

- In an effort to open the park in the year 2000, construction began before the final plans were complete. This resulted in significant structural work for the underground parking facility needing to be redone, and in one year's time over 1000 design revisions were issued by the City after construction was underway. This caused increased costs and construction delays.
- The parking garage below Millenium Park developed surface cracking in the columns. The garage was repaired, with repairs based on a recalculation of loads, taking into consideration the weights of trees 100 years in the future.
- The site retains an estimated 70% of all water accumulated on site, and the remaining 30% is cleaned through a filtration system and diverted into the Chicago River.
- The design created an underlying structure of grand wide walkways and allees of trees to create multiple spaces or "rooms" within which unique art and performance spaces can occur. These became the sites for private donor funded elements.
- The park attracts significant numbers of visitors and tourists, and changed public perception of this locality of the city. There was an increased demand for commercial and residential space in an underutilized area of the city nearby and this led to an increased population in the locality, attracted by the park and cultural events.

Key Transferrable Principles

- Transforming underutilised areas into new public open space has the potential to transform the activity within surrounding neighbourhoods.
- It is possible to create a large open space with a grand lawn, and significant numbers of large trees above underutilised rail lands.
- The public open space effectively conceals three public transit modes which have been designed to be an efficient, multi-modal transport hub. Making the most of the air space above the transport system.
- It is essential to establish a park strategy that allows for a diversity of cultural experiences. A complex overlay of public art, and community programs help to create a highly active open space at all times of day.
- A large program of free events for locals, ensures a free, public, and equitably representative space.
- The creation of green space where there had been rail yards reduced local average temperatures.
- The use of local and adaptive plant species reduced irrigation requirements, and created significant habitat for birds and insects.
- The creation of the green roof and planted areas above transport infrastructure significantly reduced run off from the site.
- The structure incorporates a filtration system for any water run-off from the site.

International precedents built over transport infrastructure



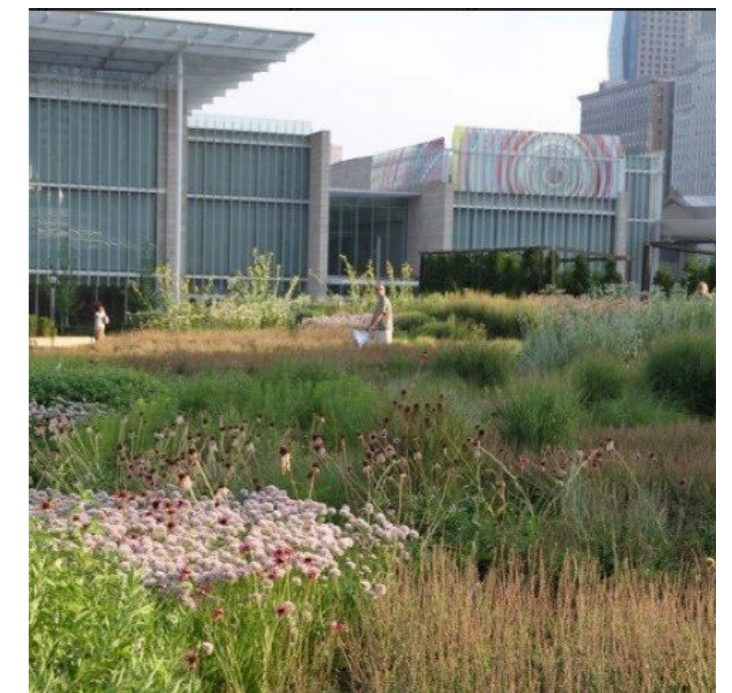
Aerial photograph of Millennium Park. Image: Ryan Mikulenko



Millennium Park Site Plan. Source: Landscape Performance Series



Photograph of Millennium Park, Crown Fountain artwork by Jaume Plensa. Image: Ryan Mikulenko



Photograph of Millennium Park, Lurie Garden. Image: Ryan Mikulenko

International precedents built over transport infrastructure

Canary Wharf Station and Jubilee Park, London London, United Kingdom

Designers:
Canary Wharf Station: Foster + Partners
Jubilee Park: Wirtz International N.V. Landscape
Architects and Barry Chinn Associates

Scale: Park size: 10,000 sqm

Client: City of London

Year: Canary Wharf Station 1991-1999
Jubilee Park 2000-2002

Relevance to Central Precinct

- The park is built above rail infrastructure on a roof structure, supporting significant planting and mature trees
- The park forms a key open space in a high density commercial area of a Central Business District.
- Integration of open space and transport functions including station entries, and commuter pedestrian movements.

Summary

The 300-metre-long station is built within the hollow of the former West India Dock using cut-and-cover construction techniques.

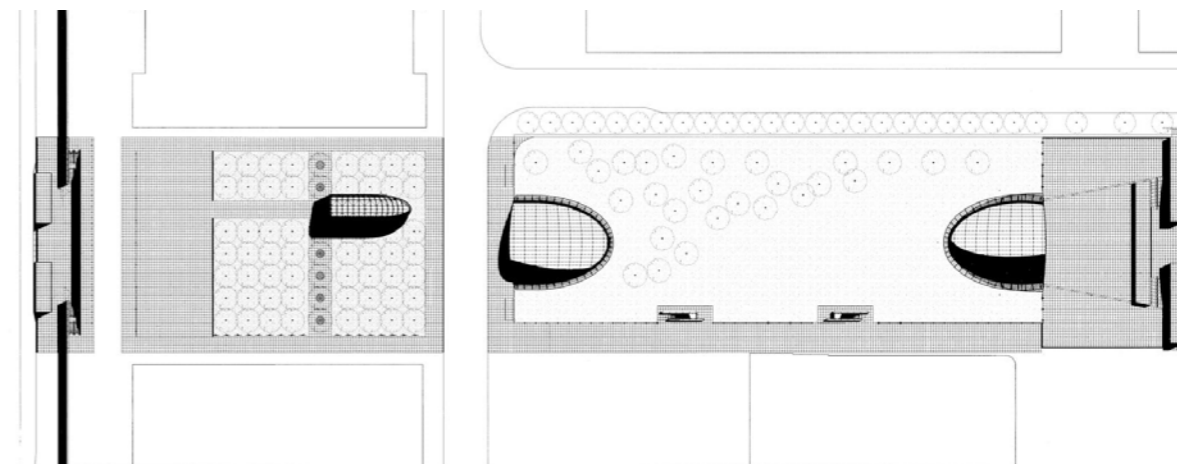
At ground level, the station roof is a large public park, that is Canary Wharf's major public recreation space. The park is surrounded by large towers, largely comprised of commercial space, which were part of the Canary Wharf redevelopment of the former West India Docks. It is now part of London's Central Business District and a key financial centre.

The main station was built first, completed in 1999. At opening the park above was an area of open turf. The current design of the park was built later in 2001-2002 above both the existing station and a

new adjacent underground retail area.

Specific Initiatives in design, budget, or construction

- The large glazed entrance canopies bring light down into the station below and create intuitive wayfinding.
- The design intent for the park was to create a 'haven of peace and lushness' in the dense urban area where workers could escape in a garden space of human scale, despite the backdrop of dominant buildings.
- Mounding landforms of turf, large trees, planting, and water features used to create smaller spaces shielded from the dominance of surrounding buildings.
- Advance procurement of over 250 semi mature trees secured the numbers and sizes of trees specified for the project and ensured they would create a buffer and enclosure to the park soon after construction.
- The trees were held off site for a year in containers to promote root development and enable formative pruning in a controlled environment.
- Establishing construction and procurement strategies for the challenging site was key in meeting a tight construction program and realising aspirations to open the park within a year, even while construction of adjacent built form continued around it.
- These strategies included off-site fabrication of some elements, off-site storage of soil material, and advance procurement procedures were also implemented for soil materials, stone supply, trees and shrubs to reduce the risk of delays during construction.
- Construction challenges including those of building on a roof structure, such as the need to achieve topsoil depth to support semi-mature tree planting, address variable loading



Plan of Canary Wharf Station, ground level. Source Foster + Partners

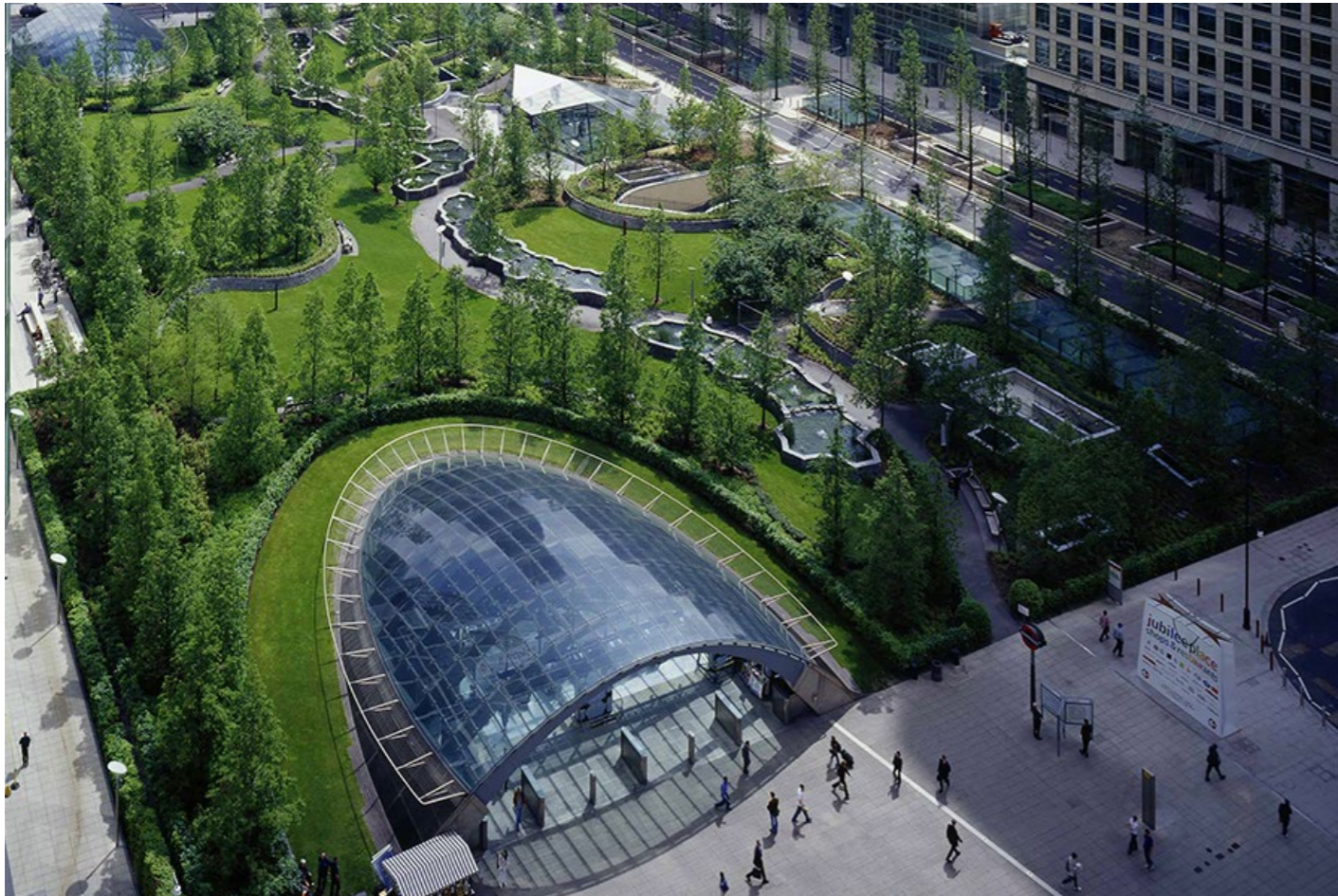
- constraints, incorporate lightweight materials, and achieve free draining ground conditions over structure.
- The surrounding construction and station access requirements meant that the construction programme accommodated vehicular and pedestrian through routes, requiring staging of construction areas.
- The use of lightweight materials such as a lightweight clay drainage layer above traditional drainage mats enabled the formation of the landform mounds and extensive tree planting, with a build up of subsoil and topsoil.
- Topsoil and subsoil were both subject to stringent specification parameters design to assist plant establishment, ensure drainage and reduce risk of compaction. The materials were manufactured off site and stockpiled to ensure it was available as construction progressed.
- More recently there have been efforts to increase the diversity of land uses at the Canary Wharf development, including residential and a larger range of commercial uses. The public domain in the development has been criticised for heavy security, extensive use of CCTV, and feeling exclusionary to neighbouring communities. The

homogeneity of the surrounding commercial uses meant a low amount of activation in the public domain as office workers moved through only at specific times of the day.

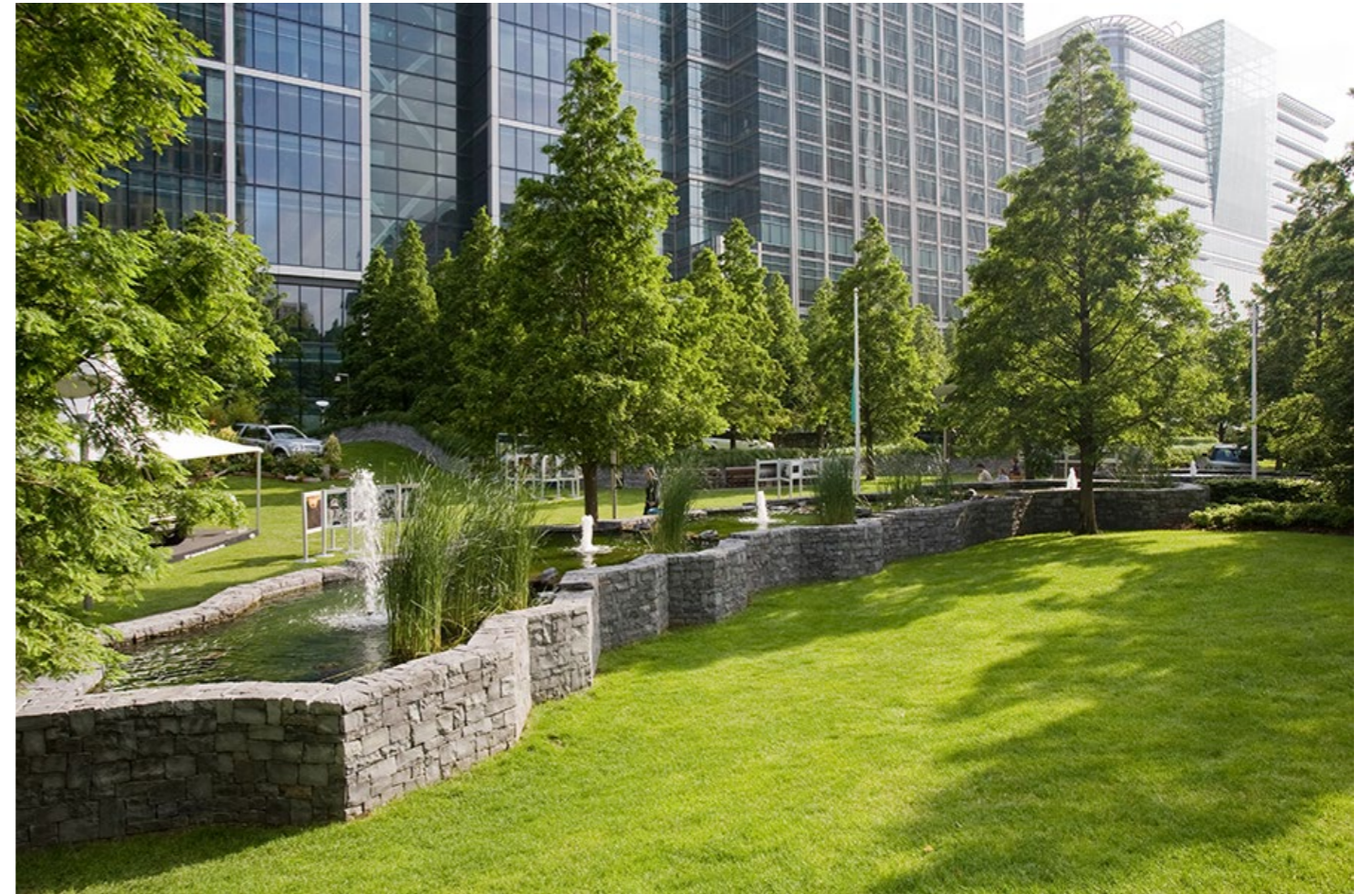
Key Transferrable Principles

- Use public open space as a key connecting device through the new development precinct.
- Create a visual connection between the station platforms and open space using large openings that provide colour and light to the platforms.
- Planting and mounding landform can create smaller more human scaled spaces to offer workers a respite from the dominance of surrounding buildings
- Consider advance procurement and on-growing off site to secure advanced trees for planting to provide a high impact and high level of amenity soon after construction.
- Detailed specification of lightweight drainage layers, sub soil and topsoil profiles to assist successful plant establishment.
- Ensure a range of uses in the built form to activate the public domain, including community uses for residents of the adjacent neighbourhoods.

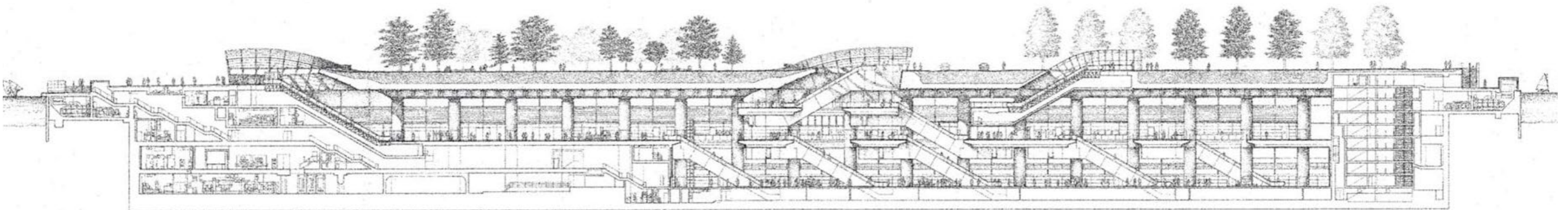
International precedents built over transport infrastructure



Aerial photograph of Jubilee Park and Canary Wharf station entrance. Source: Wirtz International



Photograph of Jubilee Park. Source: Wirtz International



Section through Canary Wharf Station and Jubilee Park. Source Foster + Partners

International precedents built over transport infrastructure

Hudson Yards, New York

Designer:

Kohn Pedersen Fox

Thomas Heatherwick

Nelson Byrd Woltz Landscape Architects

Scale: 11ha

Client: Private Development by
Related Companies
with Oxford Properties

Year: 2012-2024

Relevance to Central Precinct

- Construction of a mixed use development and public domain above active rail lines.
- Creation of a new 'ground' level which is elevated above adjacent streets on some sides of the development.
- The construction of an engineered platform to support public domain, planting trees, soil and water management.

Summary

Hudson Rail Yards is the most expensive private real-estate development in US history. The 11ha precinct sits above 30 active Long Island Rail tracks, other rail passageways and the Gateway Tunnel motorway. The precinct connects to one end of the New York High Line, looking over the Hudson River and many of the piers that have been redeveloped in recent years.

A major challenge of the precinct's public domain is how to connect the new elevated 'ground level' to the street level which is often much lower than the precincts open space. Developing a public domain network that links seamlessly to the existing street network as well as major new public open spaces were critical to the success of the precinct. The project has had mixed success in creating a precinct that feels connected to the surrounding city.

Specific initiatives in design, budget or construction

- To construct the precinct, a massive platform was developed that includes ventilation, cooling, stormwater retention and "smart soil" to allow mature planting to grow on the constructed platform.
- Rainwater is collected in a 272kl tank and used for irrigating plants and trees.
- To keep the deck cool enough for plant roots, a ventilation system of 15 large fans and a cooled slab in the substructure helps remove heat generated by the railyards below.
- As soil depth is limited to 450mm for planting beds and 1200mm for trees, soil beds have been designed to provide room for mostly horizontal root growth. Provision is also made for aeration, irrigation, drainage and ongoing nutrient control.
- Despite making efforts to connect with varying street levels, the precinct largely turns its back on its city context, presenting loading docks, lift lobbies and blank walls to street interfaces.
- There is critique that the public domain is overtly retail-focused and privatised space, dominated by a four storey shopping centre, luxury apartments and offices. Materials and finishes have been described as cheap, bland and commercial.
- The one truly public element of Hudson Rail Yards is an arts venue 'The Shed' by Diller Scofidio Renfro. It was originally intended to extend into the centre of the public domain, however the developer was concerned it would block views to retail, so the scheme was relocated and reduced, along with its public benefit. In its place was introduced the Heatherwick Vessel sculpture, intended as an Instagrammable destination for visitors, however it is widely critiqued as a commercial venture only with primarily private benefit policed by security guards who discourage lingering.

Key Transferrable Principles

- Connect open spaces into the existing public domain network of surrounding neighbourhoods. Consider the ground level interface of buildings, openings, through links and views. Locate service access and loading docks to avoid impacting the public domain with blank facades.
- Connect the public open space network to the existing street network, connecting destinations to and through the site.
- Where level differences between street and public domain exist, easy and legible access between levels is vital to the success of the precinct.
- Design the deck structure to support the landscape above. Plan space within the structure for water storage and treatment, connected soil trenches for mature planting and biodiversity benefits.
- New commercial and residential developments should address the public domain as the new 'ground level'. This will allow the public domain to be activated through constant use by residents and workers.
- Ensure the public domain is inclusive, accessible and welcoming to the public. People should be able to dwell without surveillance by security guards or the pressure to purchase something. Ensure community facilities are visible in the public domain.
- Be mindful of the character created by commercial lobbies, luxury shops, hotels and apartments - retain the character of the railyards and inner city context.
- Quality of design, detailing, materials and maintenance translates into the quality of public space.
- Planting has a significant impact on the identity and comfort of high density urban developments, however its supporting infrastructure must be costed and designed into the deck structure.

- Solar access and wind protection are important for the comfort of spaces within tall building clusters. The environmental conditions must be able to support the healthy growth of tree canopy to maturity.
- The latest and greatest architecture or public sculpture will not be enough to create a compelling public destination if the public domain quality or amenity is compromised or privatised.

International precedents built over transport infrastructure



Photograph of public domain at Hudson Yards. Image: Barrett Doherty



Photograph of public domain at Hudson Yards. Image: Barrett Doherty



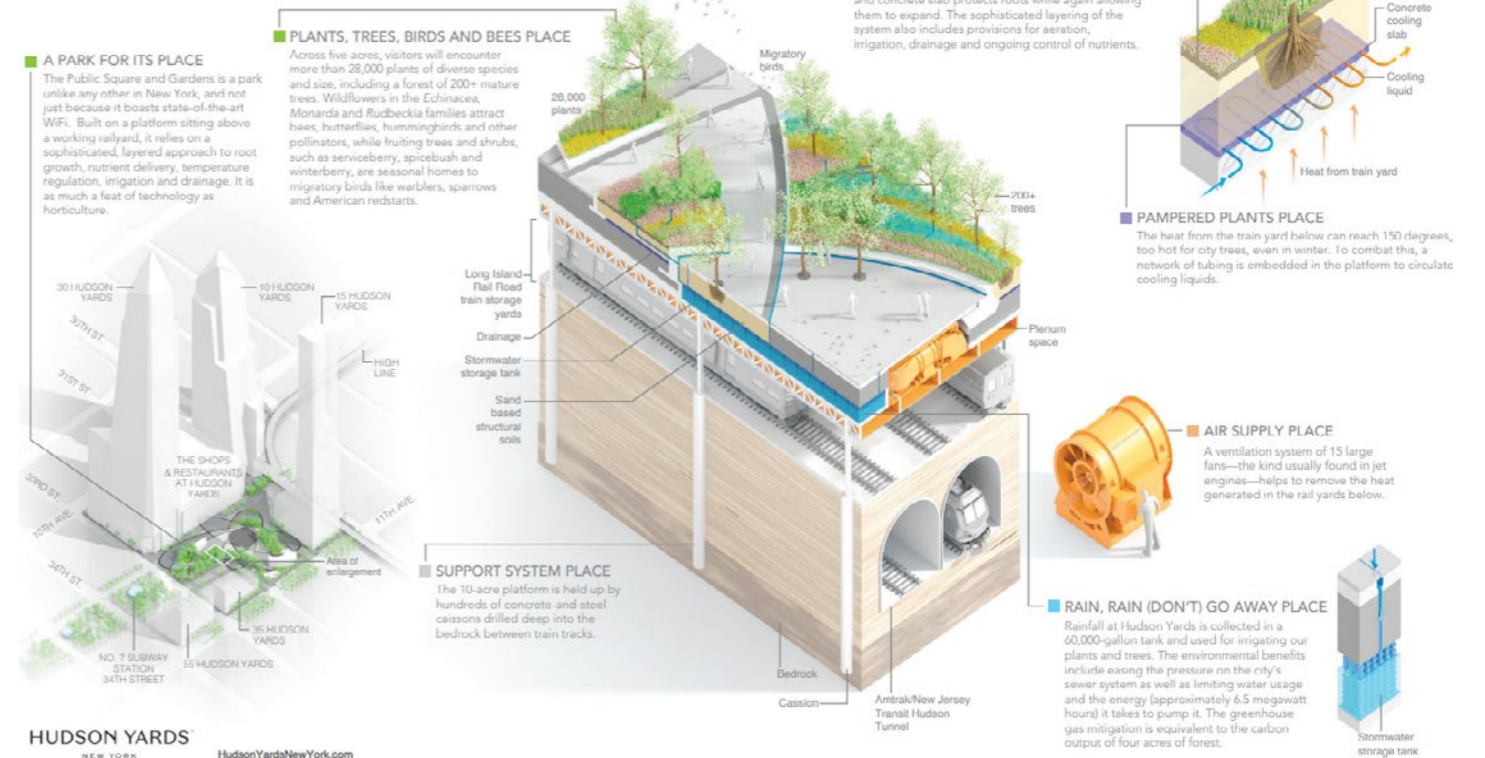
Photograph of public domain at Hudson Yards. Image: Barrett Doherty



Hudson Yards plan. Eastern Yard (opened 2019) and Western Yard (to be completed 2025).. Image: Related / Oxford

BUILDING HUDSON YARDS THE PUBLIC SQUARE AND GARDENS: THE SMARTEST PARK IN TOWN

New York's newest elevated park grows over a different set of tracks.



HUDSON YARDS NEW YORK HudsonYardsNewYork.com

Diagram of Hudson Yards deck structure over rail lines to support planting and water management in the public domain. Image NBW

5.2 Elevated walkways

SEOULLO Skygarden, Seoul

Pedestrian walkway 983m long which connects users from a major station in Seoul to commercial and residential areas, over an 8 lane highway and trainlines. Width 10.3m; Max height 17m.



Photograph of Seoulo Skygraden above a highway and rail corridor. Image: Ossip van Duivenbode



Photograph of Seoulo Skygraden. Image: Ossip van Duivenbode



Photograph of Seoulo Skygraden above a highway below. Image: Ossip van Duivenbode



Photograph of Seoulo Skygraden. Image: Ossip van Duivenbode

Specific Initiatives in the Seoulo Skygarden:

- SEOULLO Skygarden was constructed on the structure of a former elevated highway, and therefore had no depth for soil to support planting.
- The project aimed to bring a large diversity of flora into a very urban condition, by creating 'tree pots' raised planting beds which hold growing media above the level of the existing

structure.

- Multiple lifts, stairs, connections into surrounding buildings and long ramps provide multiple access points to the walkway.

Specific Initiatives in the High Line:

- 500 species of plants, about 50% of which are North American chosen for hardiness, adaptability, and diversity, and to suit the limited

The High Line, New York

Width 10-15m, height above street 5-10m



Photograph of The High Line. Image: Iwan Baan



Photograph of The High Line. Image: Dansnyuyen

soil depth (typically 0.45-0.6m), and increased wind conditions. The strategy used a highly engineered soil to both reduce weight on the structure and hold water.

- Run off is directed through open jointed hardscape and paving to planting beds, enhancing the retention of stormwater and reducing the impact on irrigation needs and city sewers.

Promenade Plantée / Coulée Verte, Paris

Width 5-10m, height above street 10m



Photograph of the Promenade Plantée. Image: Guilhem Vellut



Photograph of the pedestrian bridge on the Coulée Verte. Image: Guilhem Vellut

- Raised planting areas are used in places to provide deeper soil areas for specific types of planting.

Elevated walkways

Access points and distances

The High Line is 1.45 miles long with 11 entrances, 5 elevators and 1 at grade access point. To facilitate access, entry points are adjacent to public transport stops every 2-3 blocks. The High Line design defined a series of types of access points:

- Special locations: 'Slow stairs' and elevator. Elevators are brightly coloured and highly visible; 'Slow stairs prolong the experience of transitioning from the frenetic pace of the city street to the slower pace of the park above.'
- Primary: Stairs and elevator
- Secondary: Stair only

Key Transferrable Principles from these Examples

- Activation of public domain above street level is possible, even without constant retail or event program.
- Regular connections back to true ground is important, and can be made through lifts and stairs rather than ramps.
- Where possible, connecting the High Line to public buildings gives greater connection to the city fabric. The Sydney Terminal Building is well placed as a major connector between the levels of the street, RL21 and the Over Station Development(OSD) level.
- Seoulo uses long transitional ramps to ensure a more seamless connectivity to ground. At Central, the at grade connection to Prince Alfred Park in the south is critical to ensure the OSD feels like an extension of the city.
- New views across the city below are a key feature attracting people up onto the High Line. The views from the north western edge of the OSD will be a major attractor so providing easy access, a pleasant environment and seating will be important.
- Beautiful planting is critical to the success of all examples. Ensuring ample soil depth, irrigation and maintenance will be key to providing the amenity required.

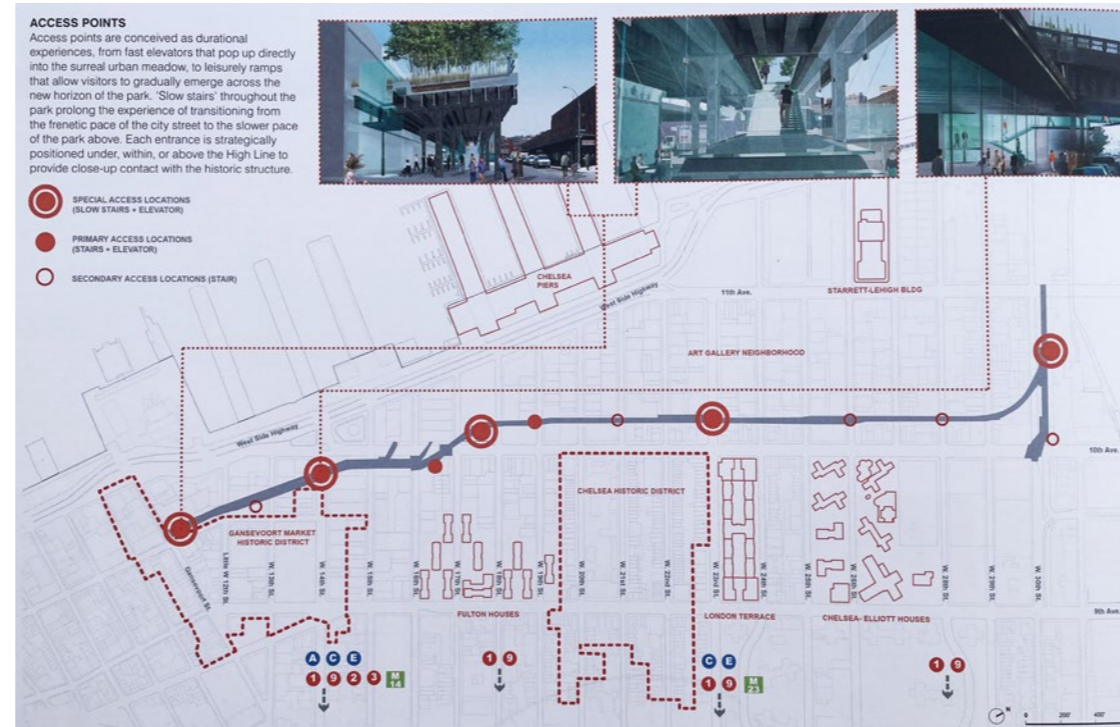


Diagram of The High Line access points. Source: The High Line; Foreseen. Unforeseen, James Corner Field Operations, Diller Scofidio + Renfro, Phaidon,

- The High Line and the promenade Plantee in particular provide extensive seating, allowing people places to dwell in comfort. A broad range of comfortable seating opportunities will be essential at Central.
- Where balustrades and fences are required including throw screens and wind screens, it will be important to design them to retain clear views through to the rail environment and city streets below.
- Seoulo illustrates the potential of a pedestrian bridge to feel like an activated sequence of smaller spaces. It avoids the monotony of long, straight bridge paths through simple and playful cylindrical seats, planters and ponds. Creating bridge conditions that feel more like a sequence of small spaces will be an important component of reducing the perceived length of the bridge crossings at Central.



Diagram of The High Line. Source: Friends of The High Line

5.3 Public space precedent studies

Introduction

The following precedent studies have been prepared as public space comparisons for the Central Square and Central Green.

The three spaces studied are:

Place de la Republique, Paris

Times Square, New York

Bryant Park, New York



Image: Clement Guillaume

Place de la Republique, Paris

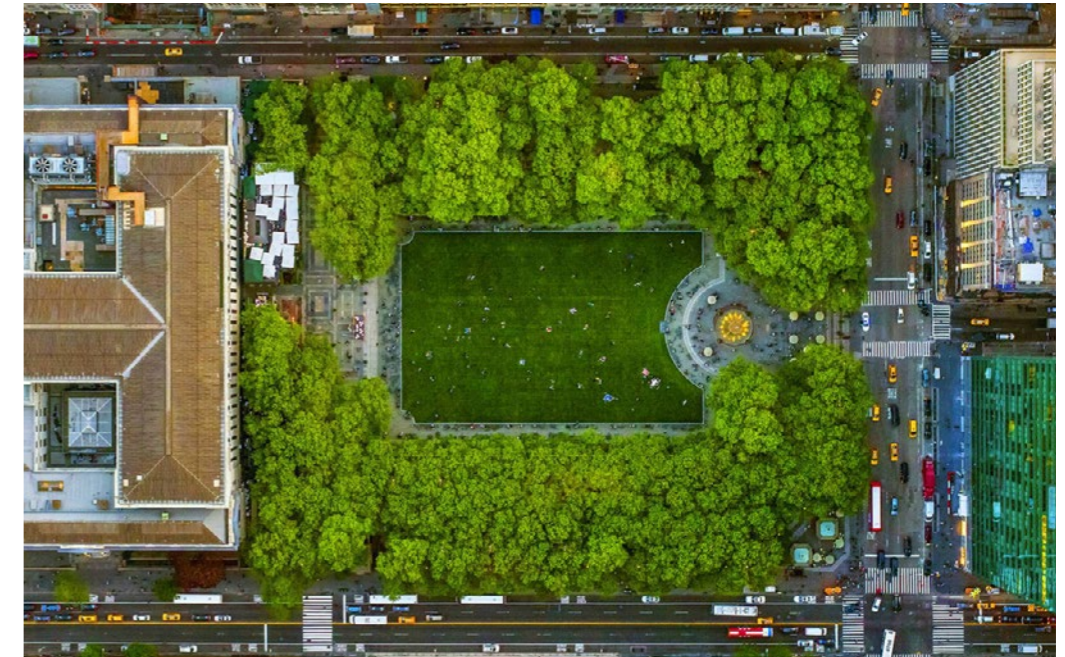


Image: Jeffrey Milstein

Bryant Park, New York



Image: Micheal Grimm

Times Square, New York

Public space precedent studies

Bryant Park, New York

Key Features

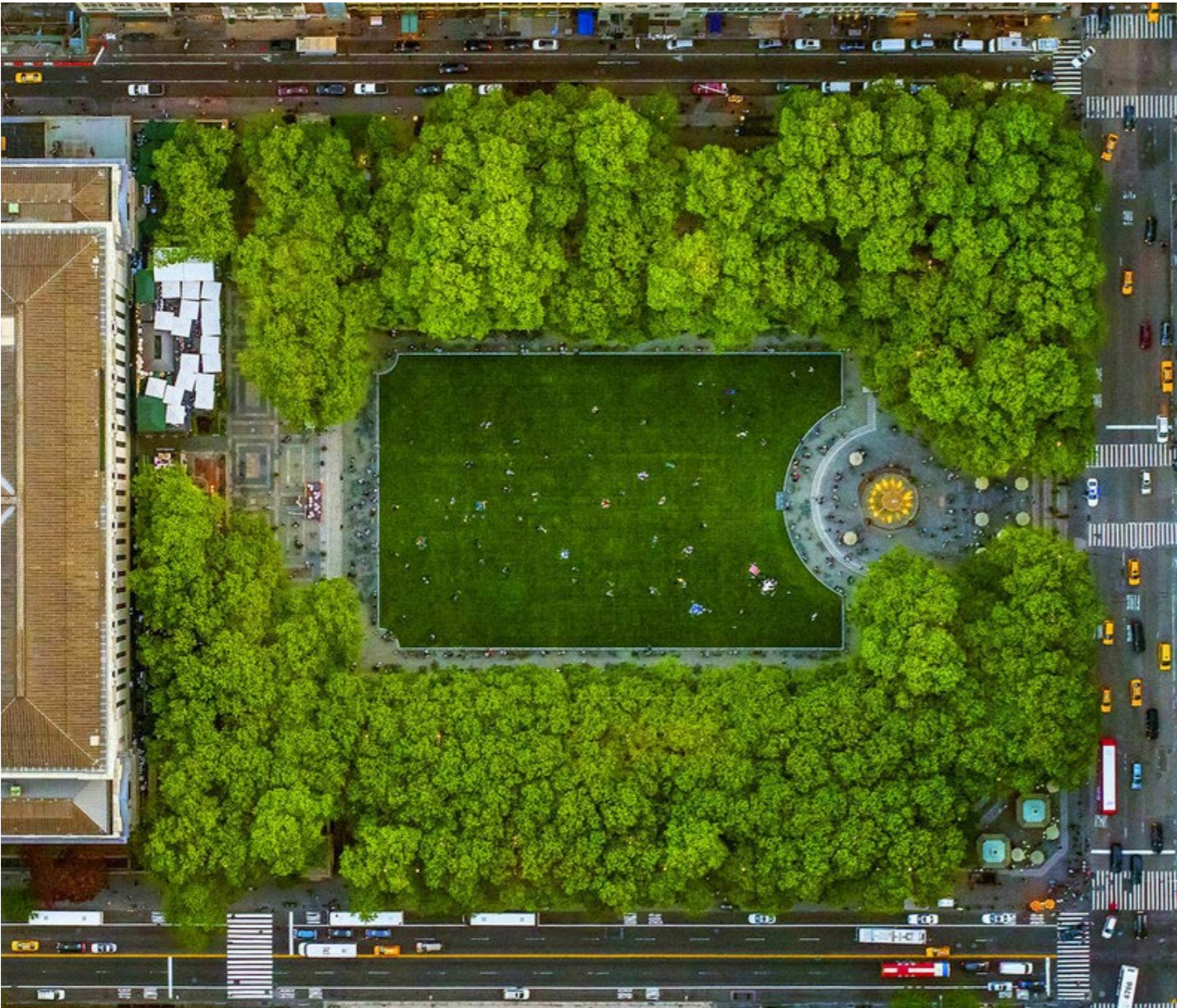


Image: Jeffrey Milstein

OLIN redesigned historic Bryant Park in the early 1980's using research on human behaviour by William H. Whyte. Key design moves ensured clear sightlines and human-scale spaces that allow city workers access to sunlight, fresh air and greenery. After the restoration, building leases and land values adjacent to the park increased dramatically. The major public space of the OSD has been designed as a significant green space rather than another hardscape plaza. This offers essential relief from the surrounding hardscape character.



Image: Bryant Park Cooperation

With 12 million visitors annually, the park is one of New York's most popular destinations. It is operated and maintained by a not-for-profit private organisation. The park is adjacent to the New York City Library, housing the Milstein Stacks book storage facility beneath the lawn. Movable furniture allows people to select where they would like to dwell. This allows people to select their own microclimate depending on time of year and personal requirements.

Public space precedent studies

Bryant Park, New York

Key Transferrable Principles from these Examples



Image: OLIN

Botanical Mass

Nearly 200 mature Plane trees frame the park edges. Extensive tree planting softens and de-scales the surrounding high rise towers. Trees are used in a similar way at Central Green.



Image: Colin Miller

A Green Magnet

The sunny, well-maintained lawn is a magnet for city workers. Central Green is placed to the far northern end of the OSD to ensure the lawn gets sufficient year round solar access.



Tied into the City

Clear connections to surrounding streets are framed by trees and park structures. The park ties into its context, making access clear and easy. Central Green has clear paved desire lines connecting to key streets and lanes. Its western edge in particular is defined by the edge of Central Avenue, ensuring activation through connectivity.



Image: Bryant Park Cooperation

Memorable Planting

The Plane trees were deliberately planted close together to create a bosque or grove of thin trunks reaching towards the light. The tree species is carefully considered to create memorable spaces in sun and shade. The dune gardens of the Central Green will use distinct landform and planting to create an iconic space with a clear local character.



Image: Jane Kratochvil

Viewed From Above

The park is a highly visible space from above. This image shows a heart mown into the lawn indicating the city's solidarity during the Covid crisis. Central Green will be highly visible from above and there is potential for the iconic and ceremonial sand circle cultural space to be a visible icon from above.



Image: Colin Miller

Seasonal Programming

The park is programmed for ice skating in winter and outdoor movies in summer. Programming of events is an important component of the activation of modern public parks and plazas. There is huge potential for the connected system of public domain at the north of the OSD to be programmed together for significant year round events. The Central Green, Central Concourse, Central Square and Railway Square would create a dynamic terraced landscape of activation.



Image: Angelito Jusay

Public space precedent studies

Place de la Republique, Paris

Key Transferrable Principles from these Examples



Images: Clement Guillaume

Place de la Republique in Paris is an urban plaza designed to accommodate pedestrian traffic from nearby transport nodes, cater to events, protests and the full spectrum of city life. The clear arrangement of elements and spaces helps pedestrians identify their destination, offering a variety of spaces to sit and gather as well as for large numbers of people to move through unimpeded. Central Square will need to have a number of these qualities.



Clear definition of movement corridors allows the space to flow freely, even when crowded.



The considered, regular spacing of over 150 trees creates a framework for furniture and lighting.



An ephemeral water feature in warmer months adds play and movement next to the pavilion.



Events are accommodated within the structured framework of trees.

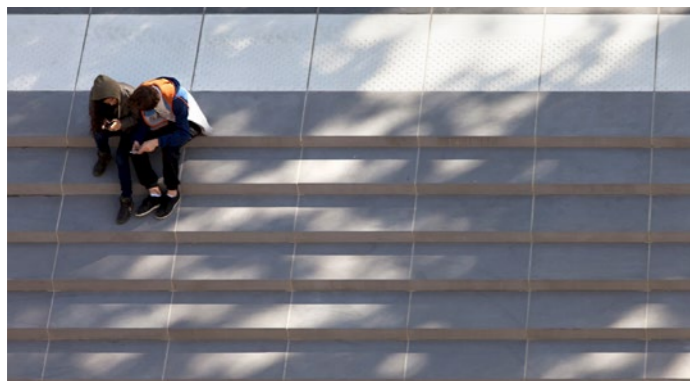
Public space precedent studies

Place de la Republique, Paris

Key Transferrable Principles from these Examples

Informal seating steps

Terraced seating steps manage level changes, give prospect over the surroundings, and provide large edges for informal seating in groups or individual. Mostly used as waiting spaces for short time periods.



Images: TVK Architectes Urbanistes, Clement Guillaume

Raised timber platform

Large platforms are used as waiting and meeting points near the entrances to the Metro, with flexible use sitting on top or edges, informal play. They allow people to sit in proximity to others and "people watch" while facing outwards into the public space.



Images: TVK Architectes Urbanistes, Clement Guillaume

Moveable furniture

Uses: Can be associated with cafes, kiosks or pavilions or run by Council, supports group and individual use, choice of sun or shade.



Image: Clement Guillaume, Martha Schwartz Partners

Custom benches with back and arms

Uses: higher comfort for longer stays, generous, fixed, offers prospect, inclusive use.



Images: Pierre Yves Brunaud, Clement Guillaume

Public space precedent studies

Times Square, New York

Key Features

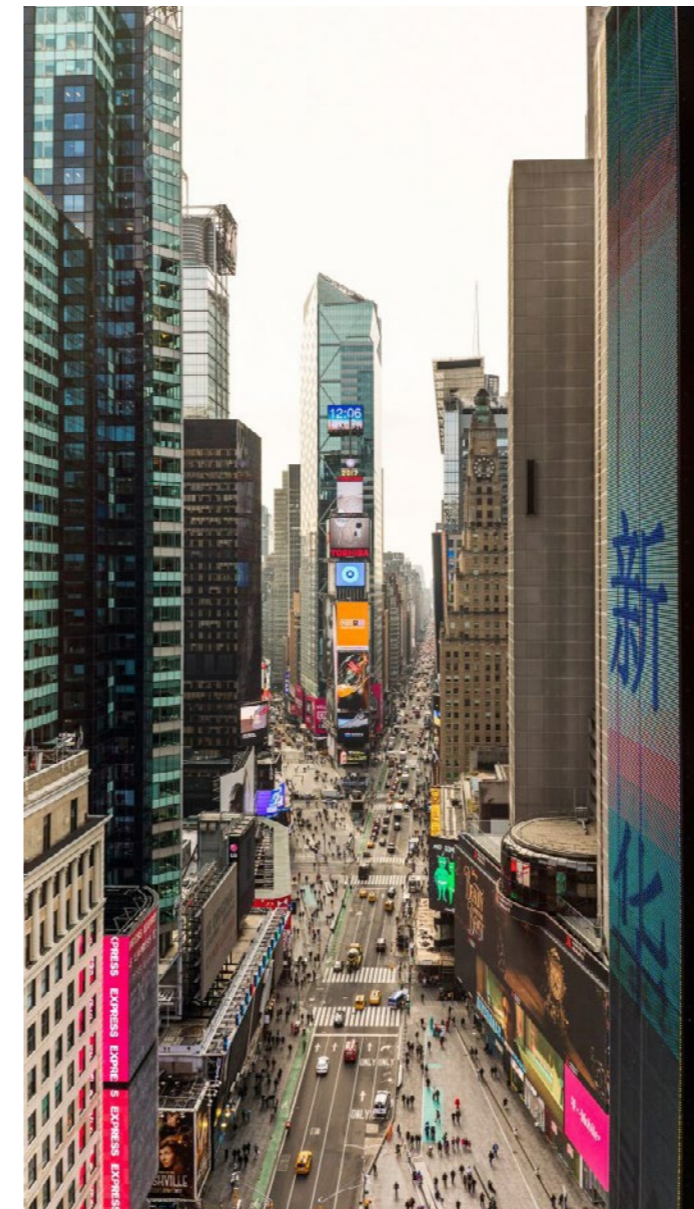
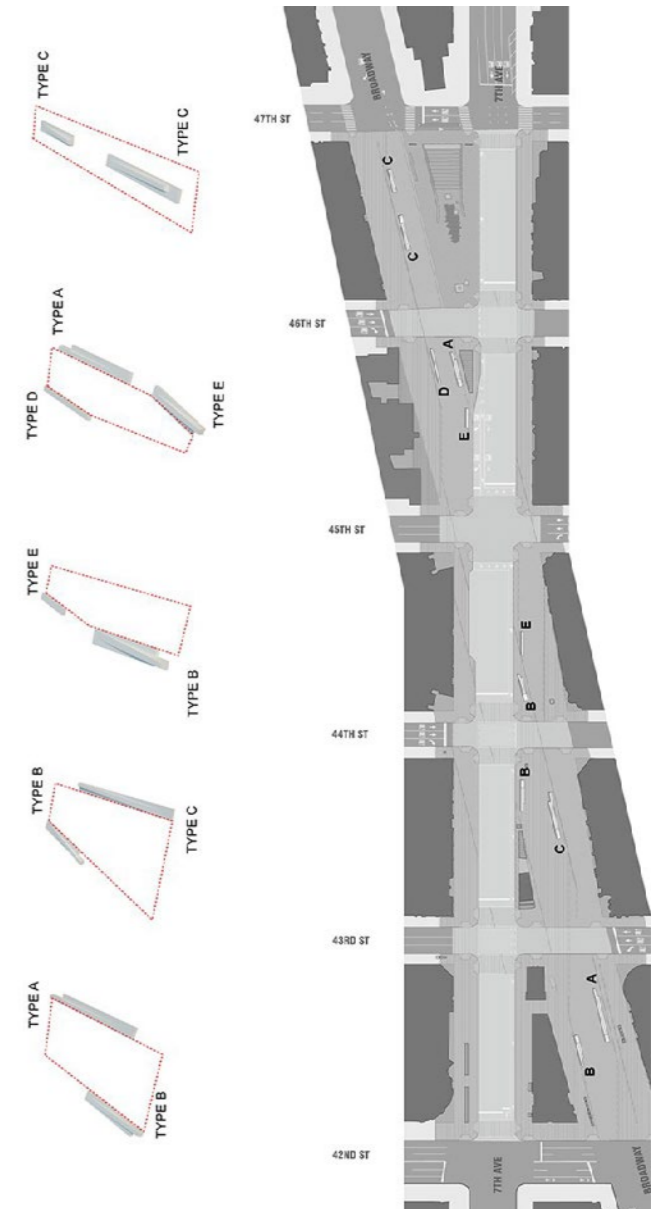


Image: Micheal Grimm

The scheme formalised the pedestrianised section of Broadway between 42nd and 47th Avenue with high quality stone paving and seating. Similar pedestrian of streets such as George and Lee Street would significantly increase the potential of Central Square to engage with the street environment and Railway Square in a meaningful way.



Plan: Snohetta

Snohetta placed monolithic stone benches running north-south to guide crowds through Times Square and act as sculptural landmarks. Each grouping of benches supports different functions.

Times Square redesign by Snohetta in 2017 transforms a formerly congested intersection into a dynamic, pedestrian-friendly space. The TKTs booth by CHROFI in 1999 was the catalyst to view Times Square as an urban room from which to view the surrounding theatre of the city. One of the major opportunities for Central Square is to design it with a seamless engagement with the dynamic qualities and geometries of Railway Square and the intersection beyond, which could have some of the character of Times Square.

Public space precedent studies

Times Square, New York

Design Elements and Arrangements

Bold, multifunctional built elements

Bench seats are landmarks, meeting places and orientation devices. The benches house power outlets for buskers and large scale outdoor concerts.



Image: Micheal Grimm



Image: Micheal Grimm

Seamless surfaces

All ground levels allow seamless transitions and smooth access between elements. This sophisticated resolution ensures the square feels unified and connected to surrounding buildings.



Image: Snøhetta



Image: Micheal Grimm

High-quality details

Square uses robust, high quality materials and finishes. Polished granite surface reflects the city lights and paving including linear stainless steel discs.



Image: Micheal Grimm



Image: Snøhetta

Pedestrian priority

Snøhetta's diagram showing pedestrian movement and gathering. The design of the square prioritises the ease of movement for pedestrians, and simplifies the vehicular movements to make crossing roads simpler.

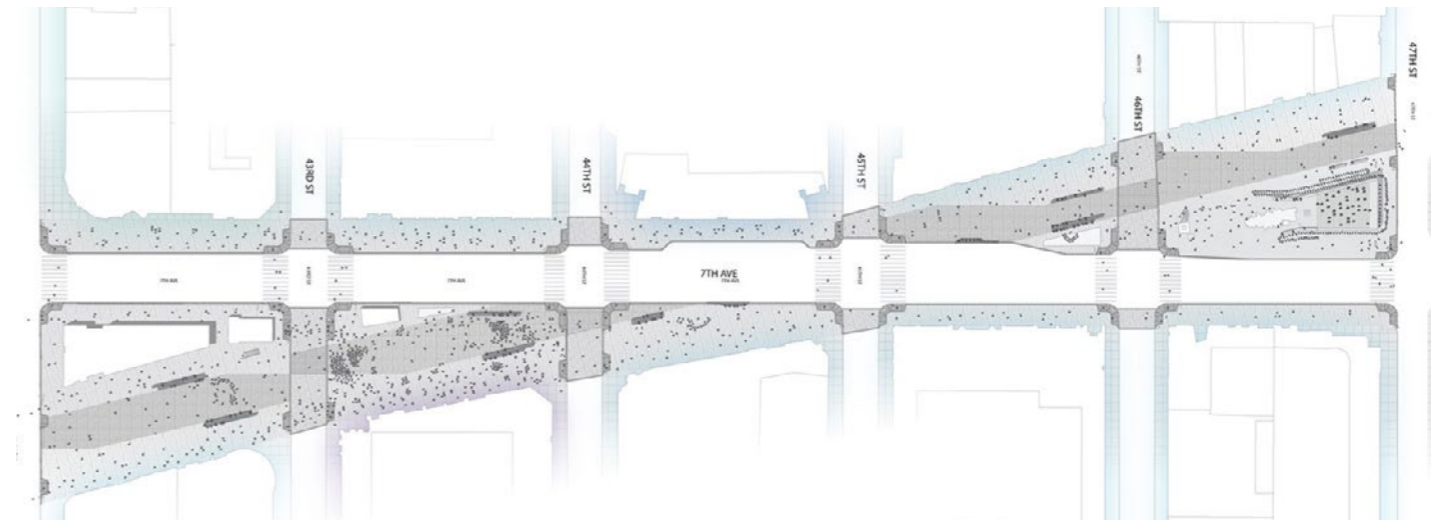
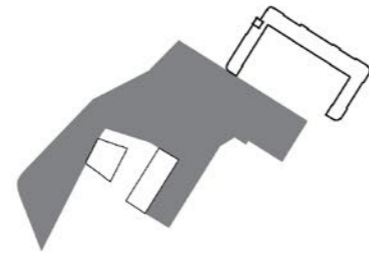


Image: Snøhetta

5.4 Scale Comparisons with Sydney's civic spaces

Scale Comparison of Sydney's civic public spaces

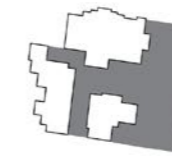
The scale of the connected public spaces at Cent Station compared to other well known public spaces in Sydney.



RAILWAY SQUARE, CENTRAL GREEN.



WYNYARD PARK 7,000 sqm



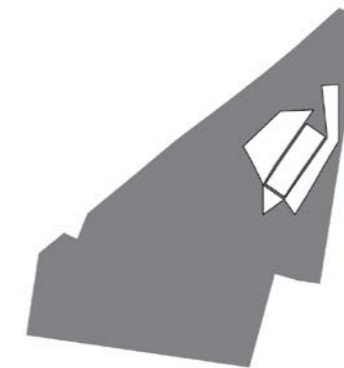
TOWN HALL SQUARE + GEORGE ST 8,000 sqm



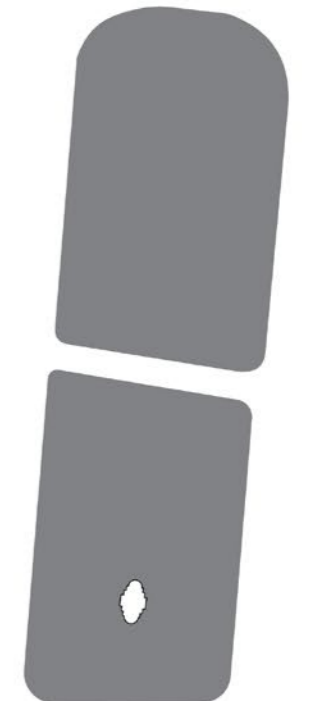
CUSTOMS HOUSE SQUARE + ALFRED ST 11,000 sqm



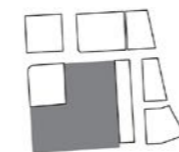
BELMORE PARK 21,000 sqm



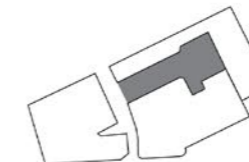
PRINCE ALFRED PARK 73,000 sqm



HYDE PARK 160,000 sqm



CENTRAL PARK, SYD 8,970 sqm



UTS ALUMNI GREEN 5,420 sqm

Diagram showing the scale of Central Green, Central Square and Railway Square with other public spaces in Sydney

5.5 Public Space Quantum Comparison

Comparisons of Public Space Provision in Sydney's major urban renewal precincts

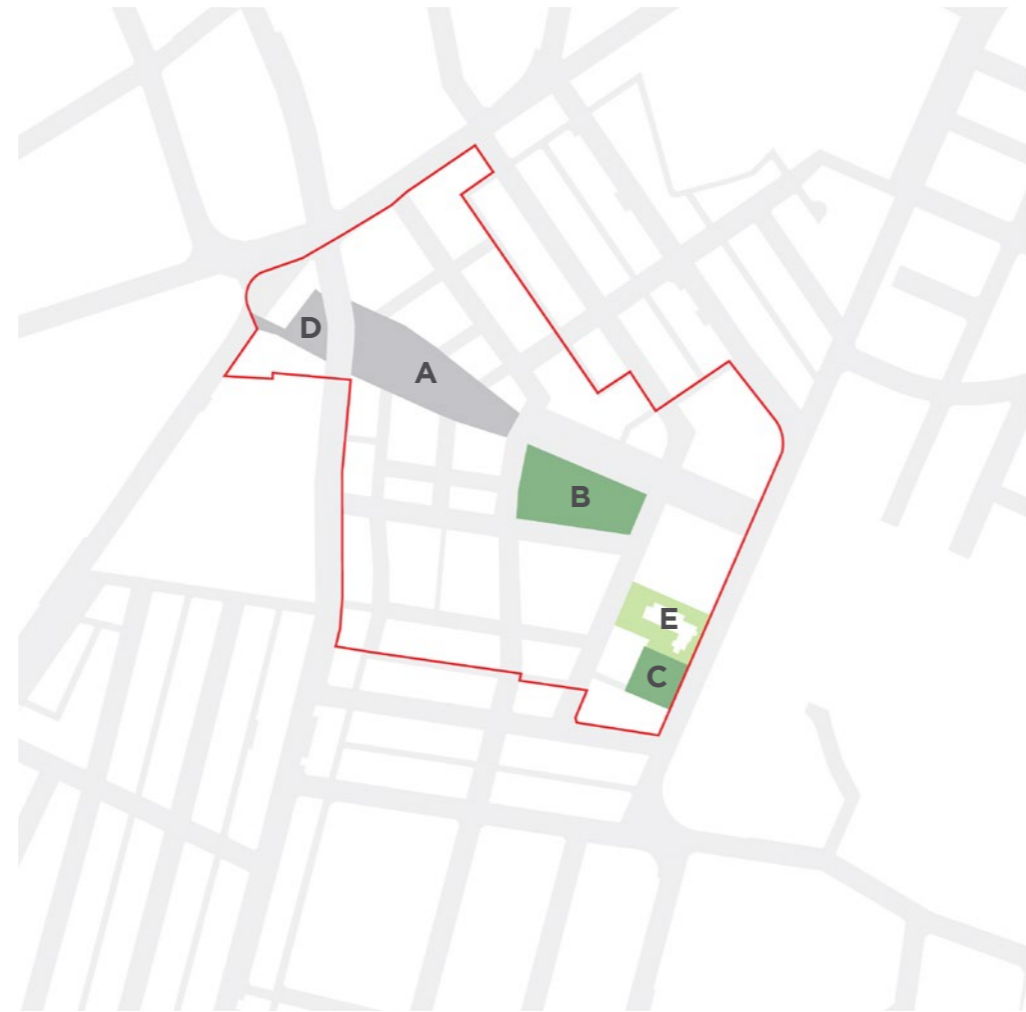
The amount of public open space required for the Central precinct has been compared to the following recent high density urban renewal precincts.

The examples shown here have been used as a guide to compare the total square metres of open space as a percentage of the total development precinct. These examples differ in residential and commercial use balances, and have been used in combination with other metrics and guidelines to identify an appropriate open space provision for the Central precinct.

Green Square

Public Space Provision: **20,770 sqm**
 % of Total Site Area: **14%**
 Total Site Area: 147,750

Name	Area (sqm)
A Green Square Plaza	8,685
B Drying Green	6,430
C Matron Ruby Grant Park	1,825
D Transport Plaza	1,000
E Heritage Bldg Forecourt	2,830
Total	20,770 (14%)

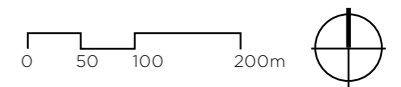


Site plan showing open spaces in Green Square

- GREEN OPEN SPACES
- SECONDARY OPEN SPACES
- PLAZA OPEN SPACES
- SITE BOUNDARY



Aerial photograph of Green Square



Public Space Quantum Comparison

Victoria Park, Zetland

Public Space Provision: **28,770 sqm**

% of Total Site Area: **14.6%**

Total Site Area: 195,970

Park Name	Area (sqm)
A Tote Park	3,110
B Joynton Park	12,960
C Nuffield Park	5,150
D Woolwash Park	4,360
E Gadigal Ave Green	940
F Biyanbing Park	2,250
Total	28,770 (14.6%)
+ WSUD and Planted Links	34,070 (17%)

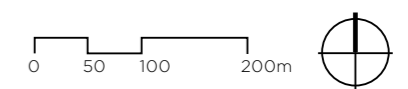


Site plan showing open spaces in Victoria Park, Zetland

- GREEN OPEN SPACES
- SECONDARY OPEN SPACES
- SITE BOUNDARY



Aerial photograph of Victoria Park, Zetland



Public Space Quantum Comparison

Central Park

Public Space Provision: **8,800 sqm**

% of Total Site Area: **15%**

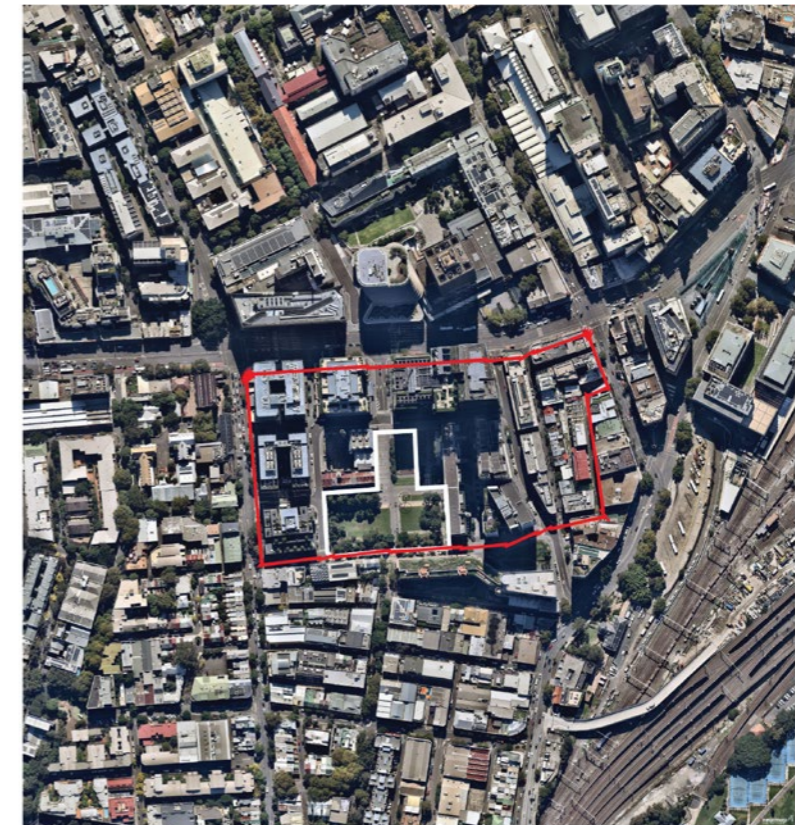
Total Site Area: 58,000

Name	Area (sqm)
A Chippendale Green	8,800
Total	8,800 (15%)



Site plan showing open spaces at Central Park

■ GREEN OPEN SPACES
□ SITE BOUNDARY



Aerial photograph of Central Park

0 50 100 200m

