Rozelle Interchange

WestConnex

JOHN HOLLAND | CPB CONTRACTORS

Rozelle Interchange

Urban Design and Landscape Plan

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WestConnex Rozelle Interchange
Urban Design and Landscape Plan

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Front cover image: Artist's impression: Rozelle Rail Yards aerial perspective (landscape shown at full maturity and is indicative only). Refer Figure 4-12 for revised layout.

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URBAN DESIGN + LANDSCAPE ARCHITECTURE | ARCHITECTURE | ENGINEERING

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Rozelle Interchange
WestConnex
JOHN HOLLAND
CPB CONTRACTORS

Rozelle Interchange

Urban Design and Landscape Plan

Executive summary

Artist's impression: Aerial View over Iron Cove Link
(Landscape shown at full maturity and is indicative only).

01



The project acknowledges the Traditional Custodians of the land, the Gadigal and Wangal peoples of the Eora nation. We pay our respects to their Elders past, present and emerging.

The area through which the project would traverse has been home to the Gadigal and Wangal peoples for thousands of years, and they maintain an ongoing connection to country.

1 Executive Summary

Rozelle Interchange

The WestConnex Rozelle Interchange and Iron Cove Link will provide a new underground motorway interchange with connections to the New M4, New M5, future Western Harbour Tunnel, ANZAC Bridge and Iron Cove Bridge. The Project will also provide over nine hectares of new public open space and new and improved connectivity for pedestrians and cyclists.

The Rozelle Interchange Project is being designed and constructed by the John Holland CPB Contractors Joint Venture (JHCPB).

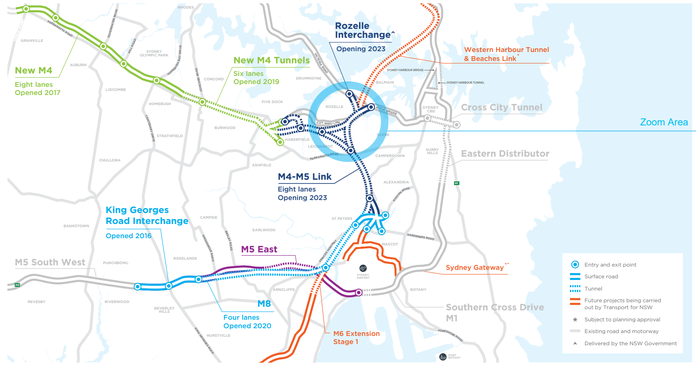


Figure 1-1: WestConnex program of works map

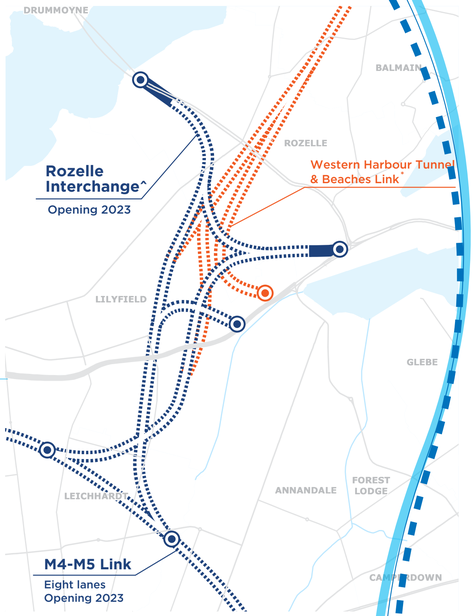


Figure 1-2: The Rozelle Interchange Project

1-4 Introduction and objectives



KEY

1. Rozelle West Motorway Operations Complex
2. Sydney Light Rail Depot
3. Rozelle Ventilation Facility
4. M5 Portals
5. Western Harbour Tunnel Portal
6. Constructed wetland
7. Rail Gardens and Multi-use Courts
8. M4-ANZAC Portals
9. Victoria Road Bridge
10. Victoria Road Shared User Path Bridge
11. Green Link Bridge
12. Brenan Street Shared User Path Bridge
13. Rozelle Bay Shared User Path Bridge
14. Rozelle Bay Light Rail Connection

The Rozelle Interchange Urban Design and Landscape Plan (UDLP)

This Urban Design and Landscape Plan has been prepared by HASSELL, Willow + Studio Colin Polwarth, Studio Chris Fox and WSP Arcadis Joint Venture (WAJ) for JHCPB to satisfy the relevant Minister's Conditions of Approval.

Built on the former rail yards, the Rozelle Rail Yards parklands will return industrial land to the community for public use, creating an enduring legacy for the Project.

Urban design principles implemented at Iron Cove will enhance the Victoria Road corridor and provide a series of small landscaped areas for path users and nearby residences.

Key features

- A new underground interchange at Lilyfield and Rozelle that will connect the M4-M5 Link mainline tunnels with:
  - City West Link
  - Anzac Bridge
  - Iron Cove Link
  - The proposed future Western Harbour Tunnel and Beaches link
- One new Motorway operations complex at Rozelle and one surface fixed facility at Iron Cove. Further details are contained in Section 7
- Two new ventilation facilities at Rozelle and Iron Cove Link
- Modifications and road widening to City West link, Johnston Street and Victoria Road
- Dive structures and tunnel portals at City West Link and Iron Cove Link
- Drainage infrastructure to collect surface and ground water for treatment at dedicated facilities, including a new constructed wetland within the Rozelle Rail Yards
- A vibrant, new public park within the former Rozelle Rail Yards site
- Landscaped verges and large tree planting along the southern side of Victoria Road at the Iron Cove Link
- New and improved pedestrian cyclist infrastructure including two new bridge connections over City West Link

ROZELLE RAIL YARDS PARKLANDS AND SURROUNDS

Built on the former rail yards, the Rozelle Rail Yards parklands are an important open space in an urban setting, The parklands will reconnect local communities and enhance the form, function, character and liveability of Sydney's Inner West.

IRON COVE LINK LANDSCAPE WORKS

Landscape Works will be provided at Iron Cove Link, primarily in the median area behind the tunnel portals, and adjacent to the new shared path located next to the westbound carriageway of Victoria Road.

The landscaped areas within the median have been designed to minimise the impact of the portal and ventilation outlet infrastructure. The landscaped corridor adjacent the new shared path will enhance the Victoria Road corridor and provide a series of small landscaped areas for path users and nearby residences.

Where can I find out more?

- EIS urban design objectives - Section 1.1
- Standards and guidelines - Section 2.4
- Minister's Conditions of Approval - Table 2-1 (Section 2.6)
- Objectives of the UDLP - Section 3

5 Landscape design



As the 'Green Heart' of The Bays Precinct, the landscape design at Rozelle will make a major contribution to public open space in Sydney.

A primary objective of the Urban Design and Landscape Plan is to restore a vibrant and healthy landscape throughout the Rozelle Rail Yards and the surrounding areas.

Four landscape zones have been devised across the parklands to reflect the varied topography that would have once existed on the site.
The zones are:

- Active recreation parkland & shade canopy
- Coastal sandstone forest parklands
- Swamp forest
- Rail gardens and shade canopy

KEY OUTCOMES

- Provide extensive vegetation, creating an 'Urban Forest' that meets the target 25% canopy cover identified in the Urban Tree Canopy Guide
- Create a high-quality parkland environment for pedestrians and cyclists and integrate into adjacent streetscapes and local road upgrades
- Draw upon and reflect the heritage of the former rail yards within the landscape
- Adopt a reductive approach to infrastructure by emphasising the landscape and making all built elements as visually recessive as possible

DESIGN THEMES

- Provide a connection to country
- Make reference to ecological communities and conserve where possible
- Establish an urban tree canopy
- Maximise tree canopy coverage
- Express an interpretation of the 1788 shoreline

Where can I find out more?

- Restoration of local vegetation communities - Section 5.2
- The Project's approach to water sensitive urban design - Section 5.3
- Technical criteria used for landscape restoration - Section 5.4
- Landscape Works program on the Project - Section 5.5

6 Tunnel portals and approaches



The tunnel portals and dive structures for the Project are the entry and exit ramps to the underground interchange at the following locations:

- Iron Cove Link portals
- M4-Anzac portals
- M5 portal
- Western Harbour Tunnel (WHT) portal

There are two distinct types of portal being constructed as part of the Rozelle Interchange:

- City West Link portals - Located at signalised intersections. They form a built edge to the parklands and do not have a declined approach, with entry / exit at surface road level. City West Link portals include M5 and WHT portals.
- Dive portals - The approach lanes to the dive portals slope gradually towards the motorway entry / exit points. Dive portals include the Iron Cove Link and M4- Anzac portals.

KEY OUTCOMES

- Provide tunnel portals that have a refined design that will stand the test of time
- Blend portals and dive structures seamlessly with the surrounding landscape
- Ensure consistent design across all portals and approaches

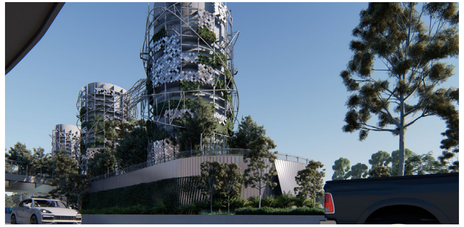
DESIGN THEMES

- To create a welcoming and consistent design across the entire WestConnex Project
- The tunnel portals and approaches will blend seamlessly with their surrounds
- Tunnel portals and approaches will give a safe and obvious transition from the surface into the tunnels

Where can I find out more?

- M5 portal on City West Link - Section 6.2
- Western Harbour Tunnel Portal on City West Link - Section 6.3
- M4-Anzac Portals - Section 6.4
- Iron Cove Link Portal - Section 6.5

7 Tunnel services buildings



The Rozelle Interchange project has designed all above ground structures to be integrated with the existing and constructed landscape setting in which they are located.

The structures have been designed as a series of sculptural elements for the Project that include vertical gardens and metal cladding supported by architecturally designed frames.

The majority of the operational tunnel ventilation facilities will be located underground. The majority of above ground structures include ventilation outlets that have been designed as a series of sculptural elements that include vertical gardens intertwined with metal cladding.

KEY OUTCOMES

- The Rozelle West Motorway Operations Complex is visually recessive as it will be below street level of Lilyfield Road and the parklands
- Landscape Works will provide visual screens for the buildings
- Through innovative design, a majority of the necessary ventilation and operational support facilities will be located underground

DESIGN THEMES

- Reducing the visual impact of the buildings and facilities
- Isolating and condensing the tunnel support buildings where possible to optimise land use and increase parkland space
- Ventilation facilities and landscape works are constructed to complement the adjacent forms of the Western Harbour Tunnel Portals

Where can I find out more?

- Rozelle West Motorway Operations Complex – Section 7.2
- Rozelle Ventilation facility – Section 7.3
- Iron Cove Operational Facilities - Section 7.4

8 Bridges



The Project aims to provide comfortable, safe and enjoyable connectivity for the community. Bridges are a key part of this experience and represent the reconnection of communities that have been physically separated for more than one hundred years.

Visual aesthetics are a significant consideration in bridge design and construction. With this in mind, there are a number of feature bridges that have been included in the Project design.

The feature bridges include:

- Bridge to Brenan Street
- Green Link Bridge
- The New Victoria Road Bridge and the Crescent Overpass (traffic only)

The feature bridges form a complementary suite of structures that will be seen in the context of Anzac Bridge, other City West Link bridges and Inner West Light Rail bridges.

KEY OUTCOMES

- Establishment of off-street pathways between urban areas
- Increased separation of shared user paths and motor vehicles
- Greater accessibility across the parklands

DESIGN THEMES

- Feature bridges designed to complement one another visually and functionally
- Increased connectivity of shared user paths and local destinations

Where can I find out more?

- Bridge to Brenan Street – Section 8.3
- Green Link Bridge – Section 8.5
- The Crescent Overpass (traffic only) – Section 8.6
- Whites Creek Bridge – Section 8.7
- The New Victoria Road Bridge – Section 8.8
- Victoria Road Shared User Path (east) – Section 8.9
- Victoria Road Shared User Path (west) – Section 8.10

9 Retaining walls



Retaining walls form a key part of the Project and can be found at multiple locations. They will be a prominent visual element for both road users, adjacent residential properties, pedestrians and cyclists.

Design aspects of the retaining walls have been considered to complement other elements such as bridges and landscape works.

KEY OUTCOMES

- Deliver retaining structures and architectural finishes of a high quality
- Integrate retaining structures with surrounding landscape works and parklands
- Provide simple wall layouts, without sharp changes of direction or irregular stepping
- Build with consideration of potential vandalism and long-term management and maintenance
- Integrate the design of handrails, balustrades and jointing patterns with the overall design outcomes

DESIGN THEMES

- Retaining walls will be cohesive with other designed aspects of the Project
- While providing structural support, the retaining walls are required to be appropriately sensitive to their locations across the Project

Where can I find out more?

- Proposed finishes - Section 9.2
- Types of retaining walls - Section 9.2 and Section 9.3
- Colours - Section 9.4
- Location of retaining walls - Section 9.5

10 Public realm elements



Most built elements of the Project are publicly accessible. Their materials and finishes have been selected to reflect the cultural and natural history of the local area. These elements include:

- Public domain furniture and path lighting
- Surface finishes such as paths, paving and edging treatments
- Fencing, balustrades and throw screens
- Play and fitness areas

A balanced approach ensures that a diverse range of user groups and ages are able to benefit from the Rozelle Rail Yards parklands. Furthermore, the Project recognises the importance of play in a child's development, and will provide two vibrant play areas:

- Play area 1: infant/toddler play (6 to 24 months)
- Play area 2: nature inspired play (junior play – 2 to 12 years)

KEY OUTCOMES

- Encourage the intended use of amenities of the parklands
- Provide attractive and functional public realm parklands while reducing excessive visual clutter
- Create amenity and leisure functions for visitors to the parklands

DESIGN THEMES

- Built elements will have common architectural and operational traits throughout the Project
- The location of furniture and other elements encourages use and avoids excessive visual clutter

Where can I find out more?

- A list of proposed materials for public domain furniture - Table 10-1 (Section 10.2)
- A list of proposed materials for surface finishes - Table 10-2 (Section 10.3)
- A list of proposed edging materials - Table 10-3 (Section 10.3)
- A list of proposed materials for fencing, balustrades and handrails - Table 10-4 (Section 10.4)
- Play areas - Section 10.5
- Fitness areas - Section 10.6

11 Pedestrian and cycle implementation strategy



The Pedestrian and Cycle Implementation Strategy outlines the existing pedestrian and cycle facilities within the vicinity of the Project, and describes the new connections provided as part of the Project to the existing local and regional networks.

KEY OUTCOMES

- Provide an integrated and collective approach
- Ensure the connection of spaces
- Provide a motorway integrated within its context
- Provide a multidimensional user focus

DESIGN THEMES

As part of the Project's Active Transport Strategy, the existing active transport network in the local area was reviewed. The review suggested links which would improve connectivity for pedestrians and cyclists.

Increased connectivity has been included to enhance amenity for the local community. Pedestrian and cyclist connections (and their lighting) have been designed in accordance with the latest standards and guidelines, and local planning strategies.

Where can I find out more?

- Relevant Conditions of Approval and how they have been addressed - Table 11-1 (Section 11.6)
- Staging of works - Section 11.12

12 Rozelle Rail Yards lighting and wayfinding strategy



The Rozelle Rail Yards will form a large area of open space, which cyclists and pedestrians can utilise.

The UDLP features a lighting and wayfinding strategy that highlights destination zones and organises the links between them. Wayfinding strategies are outlined to organise the links within the parklands and enable safe and efficient passage throughout.

The Rozelle Rail Yards are an important and large open space in an urban setting, The parklands will reconnect local communities and enhance the form, function, character and liveability of Sydney's Inner West.

KEY OUTCOMES

Wayfinding in the parklands will be managed via:

- Lighting (portal façade lighting, pedestrian bridge lighting, constructed wetland lighting, sandstone escarpment lighting, rail lighting, path lighting)
- Identifiable landmarks (e.g. the rail gardens, the constructed wetlands)
- Signage and 'nodes' at path intersections
- Distinct and recognisable, individual design of each 'zone' in the parkland

DESIGN THEMES

Objectives have been developed for the lighting and wayfinding design within the parklands:

- Lighting that supports effective wayfinding
- Functional integrated feature lighting
- Use of landmarks to aid in orientation
- Distinct functions to delineate various zones in the parklands
- Create paths that have a clear hierarchy
- Provide relevant information where it is most necessary

Where can I find out more?

- Primary through-site pedestrian and cycle movements within the parklands - Figure 12-9 (Section 12.3)
- Landmarks to assist with orientation - Figure 12-10 and Figure 12-11 (Section 12.4)
- Signage types and elements - Section 12.7
- Parkland lighting types - Section 12.5

13 Heritage



The Project is working to conserve the heritage of Rozelle and the surrounding suburbs. The UDLP acknowledges and reflects certain aspects of the rich history of the area through thoughtful reuse of heritage items preserved during construction. A number of heritage elements have been selected to feature amongst the permanent final design of the Rozelle Rail Yards parklands.

Additionally, the M4-M5 Link Environmental Impact Statement included an assessment of Aboriginal and non-Aboriginal heritage items, conservation areas and potential heritage items within the Project footprint.

KEY OUTCOMES

- A number of items were salvaged from the Rozelle Rail Yards site
- Opportunities to reuse salvaged items in the permanent design of the parklands will be considered and implemented where possible

DESIGN THEMES

- Opportunities for connection to country were investigated in consultation with the local First Nations community
- Heritage interpretation initiatives will been implemented throughout the parkland

Where can I find out more?

- Existing heritage environment and predicted impacts under the EIS - Section 13.1
- Reuse of heritage items - Section 13.2

14 Lighting



Lighting has been designed to protect amenity for local residents, to provide an environment that is conducive to the safe and comfortable movement of vehicular and pedestrian traffic at night, and to also simultaneously discourage illegal acts.

Care has also been taken to ensure that lighting minimises wasted light and energy, especially upward light that produces sky glow, and to consider the life cycle energy usage of the lighting scheme to limit the associated greenhouse gas emissions.

KEY OUTCOMES

Operational lighting across the Project generally falls into the following categories:

- Street lighting for surface works including roadways
- General external areas lighting for service facilities
- Pedestrian and cyclist paths lighting
- Feature lighting on bridges, tunnel portals and within the Rozelle Rail Yards parkland

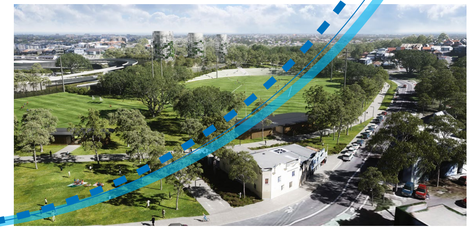
DESIGN THEMES

- Consideration of the surrounding neighbourhood and community
- Ongoing reliability and maintainability of the lighting systems
- Enhancement of visual amenity, and life cycle costs

Where can I find out more?

- Lighting Types - Section 14.2
- Light spill mitigation - Section 14.3
- Feature lighting within the parklands - Section 12

15 Monitoring and maintenance



Landscape installations and other built features of the Project require ongoing maintenance. Weekly, monthly, seasonal and as-required inspections will take place for many aspects of the parklands.

Where can I find out more?

- Monitoring and maintenance procedures for the built elements - Section 15.2
- Summary of landscape maintenance required - Table 15-1 (Section 15)

Feedback on the UDLP



The Urban Design and Landscape Plan has been prepared for the purposes of presentation and public display. The Plan was exhibited for consultation with relevant councils, state government bodies, affected landowners and local businesses.

How was feedback provided?

Feedback was welcomed and reviewed as part of the design process. Feedback received was also provided to the Department of Planning, Industry and Environment as part of the Plan's approval process.

Areas where you will have an opportunity to provide feedback include:

- Landscape design
- Species selection
- Public furniture (e.g. playground equipment and fitness stations)
- Materials and finishes
- Lighting and wayfinding

Where can I find out more?

Scan with your mobile device to be redirected to the UDLP Virtual Information Centre.

Feedback was submitted via the following options:

- The online UDLP Virtual Information Centre at: https://v2.communityanalytics.com.au/tfnsw/wcxrl-udlp/virtual
- By filling out the submissions form online at: https://v2.communityanalytics.com.au/tfnsw/wcxrl-udlp-feedback
- By phoning the Community Team at 1800 660 248 between the hours of 9.00 am and 5.00 pm, Monday to Friday

Should you have any questions or feedback that are outside the scope of this Plan, please contact the Community Team at your earliest convenience.

The UDLP exhibition period went from 10 August 2020 6 September 2020.

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Rozelle Interchange
WestConnex
JOHN HOLLAND | CPB CONTRACTORS

Introduction

02

Artist's impression: Rozelle Rail Yards - view from Victoria Road.
(Landscape shown at full maturity and is indicative only).
Refer Figure 4-12 for revised layout.



Artists impression: Aerial view over Iron Cove
(Landscape shown at full maturity and is indicative only).

2 Introduction

2.1 Purpose of the Urban Design and Landscape Plan

The WestConnex Rozelle Interchange Project is being designed and constructed by the John Holland CPB Contractors Joint Venture (JHCPB).

This Urban Design and Landscape Plan has been prepared by HASSELL, Willow + Studio Colin Polwarth, Studio Chris Fox and WSP Arcadis Joint Venture (WAJ) for JHCPB to satisfy the Ministers Conditions of Approval E133 - E134 (SSI7485).

The plan provides a comprehensive outline of the Urban Design and Landscape strategies for the WestConnex Rozelle Interchange Project. The Plan also demonstrates compliance with the Project Deed scope and requirements within this Deed (also called the Scope of Works and Technical Criteria (SWTC).

M4-M5 Link Environmental Impact Statement and Ministers Conditions of Approval

The M4-M5 Link Environmental Impact Statement (EIS) for the Project was released on 18 August 2017 for public exhibition and comment. In January 2018 a Submissions Report was prepared in response to submissions received during the EIS exhibition period.

The EIS and Submissions Report were considered by the Department of Planning, Infrastructure and Environment (DPIE) and informed the Minister for Planning's assessment of the project's approval.

On 17 April 2018, planning approval for the WestConnex M4-M5 Link project was received from the Minister for Planning.

The WestConnex M4-M5 Link is being delivered in two stages:

- Stage 1, the Mainline Tunnels , which includes the construction and operation of the M4-M5 Link Tunnel between the M4 East at Haberfield and the New M5 at St Peters, and
- Stage 2, the Rozelle Interchange, which will connect the Stage 1 mainline tunnels to the surrounding surface road network and includes the construction and operation of:
  - An interchange at Lilyfield and Rozelle, including a connection to the proposed future Western Harbour Tunnel and Beaches Link project, and
  - A tunnel connection between the Anzac Bridge and Victoria Road, east of Iron Cove Bridge.

This Urban Design and Landscape Plan only applies to Stage 2 of the M4-M5 Link, the Rozelle Interchange Project (the Project). It addresses the Conditions of Approval, including E133 - E134 which are specific to Urban and Landscape Design.

These Conditions of Approval are contained in Section 2.6 of this Plan. Compliance with the Conditions is noted and includes the location in this Plan where each Condition is addressed.

EIS urban design objectives

Objectives used in the urban and landscape design are derived from the M4-M5 Link Environmental Impact Statement (EIS) and the Roads and Maritime Services (Roads and Maritime) urban design guideline Beyond the Pavement and are covered in Section 3 of this Urban Design and Landscape Plan.

The Urban Design Objectives for the Project include the following:

- An integrated and collective approach
- An environmental vision
- Cross scale connections of spaces
- A motorway integrated within its context
- Place sensitive design
- A multidimensional user focus
- Revitalisation, opportunity and economics.

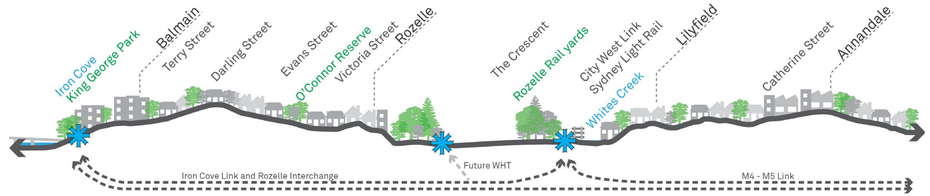


Figure 2-1: Indicative section illustrating the major landscape features along the alignment - not to scale

2.2 Project description

The Project is generally located within the Inner West Council local government areas (LGA) and is located approximately two kilometres west of the Sydney central business district (CBD) and would cross the suburbs of Leichhardt, Lilyfield and Rozelle.

A general description of the project is provided below:

- An underground interchange at Leichhardt and Annandale that would link the mainline tunnels (Stage 1) with the Rozelle interchange and the Iron Cove Link (Stage 2)
- A new interchange at Lilyfield and Rozelle (the Rozelle interchange) that would connect the M4-M5 mainline tunnels with:
  - City West Link
  - Anzac Bridge
  - The Iron Cove Link
  - The proposed future Western Harbour Tunnel and Beaches Link
- Construction of connections to the proposed future Western Harbour Tunnel and Beaches Link project as part of the Rozelle interchange, including:
  - Tunnels that would allow for underground mainline connections between the M4 East and New M5 motorways and the proposed future Western Harbour Tunnel and Beaches Link (via the M4-M5 Link mainline tunnels)
  - A dive structure and tunnel portals within the Rozelle Rail Yards, north of the City West Link / The Crescent intersection
  - Entry and exit ramps that would extend north underground from the tunnel portals in the Rozelle Rail Yards to join the mainline connections to the proposed future Western Harbour Tunnel and Beaches Link
  - A ventilation outlet and ancillary facilities as part of the Rozelle ventilation facility
- Twin tunnels that would connect Victoria Road near the eastern abutment of Iron Cove Bridge and Anzac Bridge (the Iron Cove Link). Underground entry and exit ramps would also provide a tunnel connection between the Iron Cove Link and the New M5 / St Peters interchange (via the M4-M5 Link mainline tunnels)
- The Rozelle surface works, including:
  - Realigning The Crescent at Annandale, including a new bridge over Whites Creek and modifications to the intersection with City West Link
  - A new intersection on City West Link around 300 metres west of the realigned position of The Crescent, which would provide a connection to and from the New M5/St Peters interchange (via the M4-M5 Link mainline tunnels)
  - Widening and improvement works to the channel and bank of Whites Creek between the light rail bridge and Rozelle Bay at Annandale, to manage flooding and drainage for the surface road network
  - Reconstructing the intersection of The Crescent and Victoria Road at Rozelle, including construction of a new bridge at Victoria Road
  - New and upgraded pedestrian and cyclist infrastructure
  - Landscape works, including the provision of new open space within the Rozelle Rail Yards
- The Iron Cove Link surface works, including:
  - Dive structures and tunnel portals between the westbound and eastbound Victoria Road carriageways, to connect Victoria Road east of Iron Cove Bridge with the Iron Cove Link
  - Realignment of the westbound (southern) carriageway of Victoria Road between Springside Street and the eastern abutment of Iron Cove Bridge
  - Modifications to the existing intersections between Victoria Road and Terry, Clubb, Toelle and Callan streets
  - Landscape works and the establishment of pedestrian and cycle infrastructure
- One motorway operations complex at Rozelle, and one surface fixed facility at Iron Cove. The types of facilities that would be contained within the motorway operations complexes would include substations, water treatment plants, ventilation facilities and outlets, offices, on-site storage and parking for employees
- Tunnel ventilation systems, including ventilation supply and exhaust facilities, axial fans, substations, ventilation outlets and ventilation tunnels
- Two new ventilation facilities, including:
  - The Rozelle ventilation facility at Rozelle Rail Yards
  - The Iron Cove Link ventilation facility at Iron Cove, Rozelle
- Drainage infrastructure to collect surface and groundwater for treatment at dedicated facilities. Water treatment would occur at:
  - An operational water treatment facility at the Rozelle West motorway operations complex
  - The constructed wetland within the Rozelle Rail Yards Parklands
- Treated water would flow back to existing watercourses via new, upgraded and existing infrastructure
- Ancillary infrastructure and operational facilities for electronic tolling and traffic control and signage (including electronic signage)
- Emergency access and evacuation facilities, including pedestrian and vehicular cross and long passages and fire and life safety systems
- Utility works, including protection and/or adjustment of existing utilities, removal of redundant utilities and installation of new utilities.

Project works

The main design elements across the Project are listed following:

1 ROZELLE RAIL YARDS PARKLANDS

Built on the former rail yards, the Rozelle Rail Yards Parkland will feature a minimum of 9ha of public open space. The Rozelle Rail Yards Parkland will become an enduring legacy of the Project's commitment to green infrastructure.

2 ROZELLE WEST MOTORWAY OPERATIONS COMPLEX

Located in the western end of the Rozelle Rail Yards, the Rozelle west Motorway Operations Complex (MOC) will be comprised of the majority of the motorway operations facilities for the Rozelle Interchange, including:

- Maintenance and operations facility
- Substation
- Fire water pumps and deluge tanks
- Water treatment plants
- Space-proofing for Western Harbour Tunnel Project's facilities

3 ROZELLE VENTILATION FACILITIES

Location of the ventilation outlet and fresh air supply buildings integrated within the Rozelle Rail Yards Parkland.

4 CITY WEST LINK PORTALS AND PEDESTRIAN BRIDGES

Two cut and cover portals will be constructed along the City West Link with two pedestrian bridges providing much needed north-south pedestrian connectivity to Annandale and the Light Rail.

5 ANZAC BRIDGE PORTALS

Dive portals will be located on the eastern end of the Rozelle Rail Yards Parklands, providing connections to and from Anzac Bridge.

6 IRON COVE LINK PORTALS

Dive portals located in the centre of Victoria Road will allow motorists to enter the motorway and effectively by-pass surface traffic.

7 Iron Cove Link ventilation facilities

A ventilation outlet facility will be constructed near the portals at Iron Cove.

8 TUNNEL INTERIORS

Two new carriageways, extending from the M4-M5 Link, will connect to Victoria Road at Iron Cove, Anzac Bridge and City West Link. (Not subject to this UDLP).



Figure 2-2: Location of main project design elements - not to scale

2.3 Structure of the report

This report describes the urban design response and approach to the Project.

The design drawings visualise the design quality, technical understanding and commitment to delivering the urban design outcomes of the Project.

The suite of visualisations in this document illustrate a number of Project outcomes and distinct settings. These images illustrate the transformations proposed by the Project.

The structure of this document is broadly outlined as follows:



Executive summary

Provides a brief summary of the project including an overview of the overall setting, urban design concept, approach and key urban design underpinnings of the project.



Introduction

This section provides a brief overview of the Project including the over arching urban design vision, guided by a thorough understanding of the Project's strategic context.



Urban design objectives

An understanding of the Project's historical and physical context is provided. This underpins the Project's urban design principles and objectives.



Urban design concept

To fulfil the Project vision, objectives and principles, this section explores key design themes and the development of guiding urban design strategies for the Project.



Landscape design

Building upon the broader urban design objectives, principles and strategies, the Project has developed a landscape concept that responds to site memory and sound ecological principles.



Tunnel portals and approaches

This section provides an overview of the design philosophy and concepts for the tunnel portals at Rozelle Rail Yards and Iron Cove Link.



Tunnel services buildings

This section describes the Project's architectural design approach to operational buildings and facilities at Rozelle and Iron Cove.



Bridges

A number of pedestrian bridges are proposed for the Project and are described in this section.



Retaining walls

Description of retaining wall locations and finishes used throughout the Project as they form a key visual element for road users, adjacent residential properties, pedestrians and cyclists.



Public realm elements

Adopting a Project-wide approach to public realm elements, this section describes the Project's approach to public furniture, materials and finishes.



Pedestrian and cycle implementation strategy

The strategy includes a safety audit of existing and proposed pedestrian and cycling facilities, details of selected routes and connections to existing local and regional routes, infrastructure details (lighting, safety, security), standards compliance, as well as signage and wayfinding measures.



Rozelle Rail Yards lighting and wayfinding strategy (MCoA E134q)

The strategy details the use of effective, safe and innovative lighting and wayfinding throughout the Rozelle Rail Yards land and also explores lighting as a public art opportunity.



Heritage

This section includes information on the location of existing heritage item and the design intent and reuse of heritage items throughout the project.



Lighting

Description of operational lighting throughout the project.



Monitoring and maintenance

Landscape establishment and maintenance requirements for the project, including a summary table of maintenance requirements, is included within this section.

2.4 Standards and guidelines

The development of the Project's urban and landscape design has been an iterative process and has included:

- A thorough review of briefing materials and associated working papers, including the WestConnex Urban Design Framework
- Inspections of the route and its environs
- Numerous design workshops and meetings involving JHCPB's Project design team members
- A review of current Sydney Motorway Corporation (SMC) and Roads and Maritime design standards and industry construction methods

The Project has prepared the urban and landscape design for the Project to achieve the objectives and design principles of:

- Roads and Maritime Beyond the Pavement
- WestConnex Urban Design Framework
- Roads and Maritime Urban Design Guidelines
- M4 East Urban Design and Landscape Plan
- New M5 Urban Design and Landscape Plan
- M4-M5 Link EIS - Chapter 13: Urban design and visual amenity
- M4-M5 Link EIS - Appendix L: Urban design

Beyond the Pavement

In Beyond the Pavement, Roads and Maritime nominates urban design goals and physical design outcomes that are sought on all Roads and Maritime projects. It states that road projects must fit sensitively with the landform and built, natural and community environments; contribute to the accessibility and connectivity of communities and permeability of movement; and contribute to the overall quality of the public domain for the community.

The document lists nine urban design principles that should govern the planning and design of road infrastructure:

- Contributing to urban structure and revitalisation
- Fitting with built fabric
- Connecting modes and communities
- Fitting with the landform
- Responding to natural patterns
- Incorporating heritage and cultural contexts
- Designing roads as an experience in movement
- Creating self-explaining road environments
- Achieving integrated and minimal maintenance design

WestConnex Urban Design Framework

HASSELL was engaged by Roads and Maritime to produce the WestConnex Urban Design Framework, which provides specific urban design direction for the city-shaping project. The framework sets out the overall vision for the Motorway.

'The WestConnex Motorway shall be a sustainable, high quality and transformational project for the people of Sydney and NSW. Exhibiting design excellence as a whole and in all constituent parts, it should be sensitively integrated into the natural and built environment, help build communities and contribute to the future liveability of the city - Australia's 'Global City''.

The project team has applied the WestConnex Urban Design Framework to the urban and landscape design for the Project.

Refer to Section 3 of this report for the project team's urban design objectives.

Roads and Maritime Urban Design Guidelines

The Roads and Maritime Urban Design Guidelines have also been used in the developing urban and landscape design proposals for the Project. These guidelines include:

- Tunnel urban design guideline
- Bridge aesthetics
- Landscape design guideline
- Noise wall design guideline
- Shotcrete design guidelines
- Biodiversity guidelines
- Designing to minimise vandalism
- Water sensitive urban design guideline
- Guideline for Batter Surface Stabilisation







Figure 2-3: RMS Urban Design guidelines

M4 East Urban Design and Landscape Plan

The WestConnex M4 East project was designed and constructed by the CPB Contractors Samsung John Holland (CSJ) Joint Venture.

This Urban Design and Landscape Plan was prepared by HASSELL for CSJ to satisfy the Minister's Condition of Approval. The plan provides a comprehensive outline of the Urban Design and Landscape strategies for the WestConnex M4 East project.

The document will be used to ensure consistency across the WestConnex projects in regards to urban design elements.

New M5 Urban Design and Landscape Plan

The WestConnex New M5 project is being designed and constructed by the CPB Contractors Dragados Samsung (CDS) Joint Venture.

This Urban Design and Landscape Plan was prepared by HASSELL for CDS to satisfy the Minister's Condition of Approval. The plan provides a comprehensive outline of the Urban Design and Landscape strategies for the WestConnex New M5 project.

The document will be used to ensure consistency across the WestConnex projects in regards to urban design elements.

M4-M5 Link EIS: Chapter 13 - Urban design and visual amenity

Chapter 13 of the EIS provides an assessment of the urban design, landscape character and visual amenity for the M4-M5 Link project.

M4-M5 Link EIS: Appendix L - Urban design

This report provides the principles by which the Project would demonstrate design excellence and integrate with surrounding neighbourhoods, particularly at areas of surface intervention. These principles are based on the Roads and Maritime guideline Beyond the Pavement and the WestConnex Urban Design Framework, and include:

- An integrated and collective approach
- An environmental vision
- Cross scale connection of spaces
- A motorway integrated within its context
- Place sensitive design
- A multidimensional user focus
- Revitalisation, opportunity and economics

The document will be used to ensure that the urban design solutions shown in this UDLP are consistent with the EIS.

M4-M5 Link EIS: Appendix O - Landscape Character and Visual Impact Assessment

This report has informed the EIS by addressing the Secretary's Environmental Assessment Requirements (SEARs). The report provides an assessment of the landscape character and visual impacts of the project and considers the potential impacts (adverse and beneficial) that are likely to occur as a result of the project. It also identifies mitigation measures and design recommendations to avoid, minimise or improve potential landscape and visual impacts.

The UDLP has been prepared with consideration of the recommendations made in this document as they relate to the urban design outcomes for the project. This is outlined further in section 2.7.

M4-M5 Link EIS: Appendix N - Active Transport Network

This report provides outlines the investigation of a regional active transport network (ATN) and the role of the M4-M5 Link in this network. The report recommends a number of new strategic links and the delivery mechanisms for them, including identification of the sections that would be delivered by the project.

Active transport is non-motorised forms of transport that include physical activity for example walking or cycling.

In relation to the Rozelle Interchange, this report recommends a number of active transport routes as follows:
A - Rozelle Rail Yards link
B - Johnston Street link
C- Victoria Road - Iron Cove link
D - Whites Creek link
E - Johnstons Creek Valley link

The UDLP has been prepared with consideration of the recommendations made in this document which is outlined further in Section 11 of this UDLP.











Strategic Documents

- Sydney's Cycling Future, December 2013
- Inner Sydney Regional Bicycle Network, April 2010
- Leichhardt Council Bike Plan, October 2015
- City of Sydney Cycle Strategy and Action Plan 2018-2030
- City of Sydney Living Green Network, May 2011
- NSW Bicycle Guidelines, July 2005
- NSW Long Term Transport Master Plan, December 2012
- Transformation Plan, The Bays Precinct Sydney, October 2015
- Parramatta Road Corridor Urban Transformation Strategy, November 2016
- Draft North Annandale Neighbourhood Movement Plan, 2016.
- Better Placed, Government Architect, Government Architect NSW, 2017
- Greener Places, Government Architect NSW, 2017
- Urban Tree Canopy Guide, Government Architect NSW, 2017
- Sydney Green Grid, NSW Department of Planning and Environment, 2017
- The Bays Precinct, Sydney Transformation Plan, 2015

Guideline Documents

- Austroads - Guide to Pavement Technology Part 2: Pavement Structural Design, 2012 (with RMS Supplement Version 2.2, January 2015)
- Austroads - Guide to Pavement Technology Part 5: Pavement Evaluation and Treatment Design
- Austroads - Guide to Road Design - Set (with RMS Supplements)
- RTA Austroads Guide Supplements - Austroads Guide to Road Design Supplements (8 parts)
- Austroads - Cycling Aspects of Austroads Guides (2017)
- Austroads - Guide to Traffic Management
- Roads and Maritime Beyond the Pavement - RMS urban design policy, procedures and design principles, 2020
- Roads and Maritime Pavements Standard Drawings - Typical Pavement Profiles
- Continuous footpath treatments TDT 2013/05
- Pavement Depth for Vehicle & Bicycle Loop Detectors TDT 2012/09
- Pedestrian Refuges TDT 2011/01a
- Use of Ground Mounted Controllers for Pedestrian or Small Traffic Signal Sites TDT 2010/06
- RTA Bicycle Policy (Maintenance Work), RTA TM P99/4
- RTA Bicycle Policy (Grates), RTA TM P00/1
- RTA Biodiversity guidelines, Protecting and managing biodiversity on RTA projects, September 2011
- Roads and Maritime WestConnex Urban Design Framework, 2016
- Roads and Maritime Tunnel urban design guideline, May 2017
- Roads and Maritime Bridge aesthetics, February 2019
- Roads and Maritime Landscape design guideline, December 2018
- Roads and Maritime Noise wall design guideline, March 2016
- Roads and Maritime Shotcrete design guidelines, March 2016
- Roads and Maritime - Water sensitive urban design guideline, May 2017
- Roads and Maritime - Guideline for Batter Surface Stabilisation, April 2015
- Lighting in the vicinity of aerodromes: Advice to lighting designer, CASA, 1999
- Crime Prevention through Environmental Design, NSW Police, April 2001
- Lighting in the Vicinity of Aerodromes: Advice to Lightng Designer (CASA, 1999)
- National Airports Safeguarding Framework Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports

Specifications

- RMS Specification D&C R132 Safety Barrier Systems
- RMS Specification D&C R145 Pavement Marking (Performance-Based)
- RMS Specification D&C R151 Street Lighting
- RMS Specification D&C R173 General Concrete Paving
- RMS Specification D&C B80 Concrete Work for Bridges

Planning Approval Documents

- M4-M5 Link Environmental Impact Statement, August 2017
- M4-M5 Link Submissions and Preferred Infrastructure Report, January 2018
- WestConnex M4-M5 Link - Consolidated Instrument of Approval, November 2020

Relevant Standards

- AS/NZS 1158 Lighting for roads and public spaces - Set
- AS 1428.1 Design for access and mobility - General requirements for access – New building work
- AS 1428.2 Design for access and mobility - Enhanced and additional requirements - Buildings and facilities
- AS 1428.4.1 Design for access and mobility - Means to assist the orientation of people with vision impairment - Tactile ground surface indicators
- AS 1743 Road signs Specifications (with RMS Supplement)
- AS 1657 Fixed platforms, walkways, stairways and ladders – Design, construction and installation
- AS 3845 Road safety barrier systems
- AS 4422:2016. Playground surfacing - Specifications, requirements and test method
- AS 4282:1997 Control of the obtrusive effects of outdoor lighting
- AS 4685 Playground Equipment and Surfacing – Set
- National Construction Code 2019 Volume One - Building Code of Australia - Class 2 to Class 9 Buildings (Includes Amendment 1)
- National Construction Code 2019 Volume Two - Building Code of Australia – Class 1 and Class 10 Buildings

2.5 Strategic context

The Project's process has involved a thorough review of key state-led strategic policy documents prepared by Urban Growth, the Department of Planning & Environment and the Government Architect of NSW including:

- Better Placed
- Green Places
- Urban Tree Canopy
- Sydney Green Grid
- The Bays Precinct, Sydney Transformation Plan

The Urban and Landscape Design for the Project has adopted relevant objectives and principles from these documents seeking to deliver design excellence in all built form and open space elements.

Better Placed, Government Architect, Government Architect NSW, 2017

Better Placed is a policy that seeks to create a clear approach to ensure good design that will deliver the architecture, public spaces and environments people want to inhabit now and for the future.

It will form part of the terms of reference to support the delivery of design excellence processes, including Design Review Panels which are required during the design of the Rozelle Interchange.

The document outlines seven distinct objectives that have been created to define the key considerations in the design of the built environment. These are:

- Better fit
- Better performance
- Better for community
- Better for people
- Better working
- Better value
- Better look and feel

These objectives have formed part of the urban design approach and considerations to the Project.

Greener Places, Government Architect NSW, 2017

Greener Places is a draft Green Infrastructure policy to guide the planning, design and delivery of Green Infrastructure in urban areas.

It defines Green Infrastructure as the network of green spaces, and natural and semi-natural systems that are strategically planned and designed to support a good quality of life in an urban environment.

It outlines the following four key principles of Green Infrastructure:

- Integration
- Connectivity
- Mulitifunctionality
- Participation

Where possible, the project has sought to maximise opportunities for Green Infrastructure. This has been achieved through the implementation of new public open space with networks of swales, water quality treatments, dense tree canopy coverage and green walls on structures.

Urban Tree Canopy Guide, Government Architect NSW, 2017

A renewed focus has been placed on the importance of the urban tree canopy, its capacity to improve urban climate, ecosystem and human health, and enhance well-being for communities.

The Urban Tree Canopy Guide has identified that an overwhelmingly high percentage of Sydney suburbs have less than 10% canopy cover. As a consequence, this document provides objectives, recommendations and targets to preserve and enhance the urban tree canopy.

The target is to achieve 40 per cent urban tree canopy cover across the Greater Sydney Region by 2036. The Project is committed to positively contributing to this vision for a 'greener' Sydney.

Sydney Green Grid, NSW Department of Planning and Environment, 2017

The Sydney Green Grid promotes the creation of a network of high quality open spaces that support recreation, biodiversity and waterway health.

The *Green Grid* establishes the framework that will create a green network that strategically connects district and local centres, public transport hubs and residential areas.

In the vicinity of the Project, the following opportunities were identified:

- (4) Sydney Harbour foreshore and Parramatta River Walk
- (17) White Bay foreshore and open space
- (29) Lilyfield Road active transport corridor
- (33) Sydney Harbour Bays Green Links - Balmain & Rozelle.
- (39) Whites Creek & Whites Creek Lane



Figure 2-4: Department of Planning Guidelines

The Bays Precinct, Sydney Transformation Plan, 2015

The Transformation Plan for the Bays Precinct, Sydney represents a blueprint to transform the Bays Precinct into a bustling hub of enterprise, activity and beautiful spaces. It establishes a high-level spatial planning framework and objectives for immediate, medium-term and long-term use and activity.

The Plan identifies the following eight 'Destinations' as priority precincts, two of which directly interface with the Project:

1. Bays Waterfront Promenade
2. White Bay Power Station
3. Bays Market District
4. Wentworth Park
5. Rozelle Bay and Bays Waterways
6. Rozelle Rail Yards
7. White Bay
8. Glebe Island

The adjacent Figure illustrates the eight destinations
Prior to this project, the Rozelle Rail Yards was intended primarily for affordable house and employment areas.



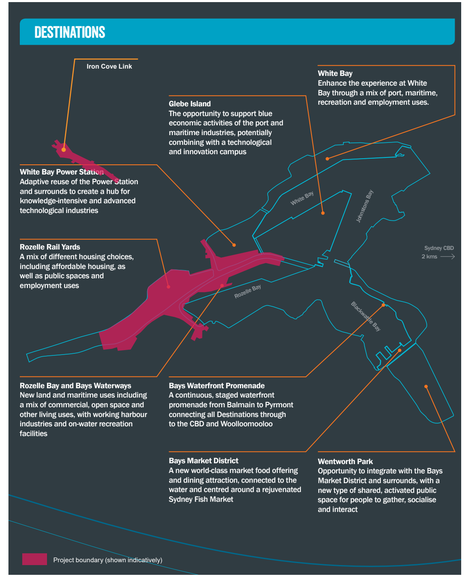


Figure 2-5: The '8 Destinations' of the Bays Precinct Transformation Plan

2.6 Minister for Planning Conditions of Approval

An Environmental Impact Statement (EIS) for the Project was released on 18 August 2017 for public exhibition and comment. In January 2018, a Submissions Report was prepared in response to submissions received during the EIS exhibition period.

The EIS and Submissions Report were considered by the Department of Planning and Environment (DP&E) and informed the Minister for Planning's assessment of the project's approval.

On 17 April 2018, planning approval for the WestConnex M4-M5 Link project was received from the Minister for Planning. The approval was subject to Conditions of Approval, including E133 - E134 which are specific to this Urban Design and Landscape plan.

The Conditions of Approval specific to this plan are listed in Table 2-1 along with a reference to where each condition is addressed within this Plan. Other Conditions of Approval relevant to urban and landscape design are listed in Table 2-2, with a reference to where each condition is referenced within this Plan.

Table 2-1: Minister for Planning Conditions of Approval Specific to this plan

CoA	Condition Requirements	Document Reference	How Addressed
E133	An Urban Design and Landscape Plan(s) (UDLP) must be prepared based on the detailed design, and in accordance with the project objectives, and the commitments made in Chapters 13 and 29 of the EIS and updated in Part E of the SPIR.	Section 2	This plan has been prepared to comply with this condition. Section 2 outlines how the project has been designed in accordance with the objectives and commitments made within the EIS and the Submissions Report.
E134	The Urban Design and Landscape Plan(s) must be prepared by a suitably qualified and experienced person(s) in consultation with the relevant council(s), Infrastructure NSW, the community and affected landowners and businesses. The UDLP(s) must include, but not necessarily be limited to:	Section 2.1, Section 2.8,	This plan has been prepared by HASSELL, Willow + Studio Colin Polwarth, Studio Chris Fox and WSP Arcadis Joint Venture (WAJ). Consultation was completed with relevant Council's, Urban Growth NSW (now TfNSW Greater Sydney Division), the community and affected landowners and businesses as part of the development of this plan. The consultation undertaken is outlined within Section 2.8
	Objectives, Principles and Standards: (a) demonstrated consideration of design objectives, principles and standards including:		The urban design for the project considered the objectives, principles and standards in items (i) – (x) as outlined below.
	(i) local environmental and heritage values	Section 3, Section 13	Non-indigenous and indigenous heritage values were analysed during the development of the project urban design (refer to section 3.1), with the reuse and interpretation of heritage items considered in the design of the Rozelle Rail Yards park (refer to section 13).
	(ii) urban design context	Section 3	An analysis of the Project corridor was undertaken to understand existing conditions with the following natural, built and community contexts examined: land use, local government areas and suburbs, connectivity, open space, geology, hydrology, soil landscapes, vegetation, non-indigenous heritage and indigenous heritage. This analysis is summarised in section 3.1.
	(iii) sustainable design and maintenance	Section 3.7	One of the project's urban design objectives is "Leading edge environmental responsiveness" which is implement through the integration of sustainable principles into the urban design as outlined in section 3.7 of this plan.
	(iv) community safety, amenity and privacy including 'safer by design' principles where relevant	Section 3	Sections 3.8 and 3.9 outline project's approach to consider community safety, amenity and the 'safer by design' principles.
	(v) relevant design standards and guidelines	Section 2	The relevant design standards and guidelines which were considered and complied with during the development of the urban design are outlined in section 2.4.
	(vi) prioritising the visual amenity and values of adjoining receivers over the road user experience	Section 3	The visual amenity of receivers adjoining the project has been prioritised through the implementation of measures outlined in section 3.9

Table 2-1: Minister for Planning Conditions of Approval Specific to this plan

CoA	Condition Requirements	Document Reference	How Addressed
	(vii) minimising the footprint of the project (including operational facilities), and	Section 7	The project has developed a ventilation system which sits predominantly underground, significantly reducing the footprint of operational facilities on the surface and within the Rozelle Rail Yards Park. Further details on operational facilities are included in Section 7 & Section 3.11 outline further ways the footprint has been reduced.
	(viii) the urban design principles outlined in the document referred to in Condition A1, and	Section 3	Sections 3.5 and 3.6 of this plan outline how the project design aligns with the urban design objectives and principles in the EIS and Submissions Report.
	(ix) the urban design principles outlined in Better Placed and Greener Places by the NSW Government Architect; and	Section 2	Section 2.5 of this plan outlines how the project design aligns with the urban design principles outlined in Better Placed and Greener Places.
	(x) DRP review.	Section 2	The urban design for the project has been reviewed by the Design Review Panel established under condition of approval E125. Section 2.9 provides further detail of this review
	Consultation (b) details of where and how recommendations from the Design Review Panel have been incorporated into the plan	UDLP Consultation Report	The UDLP Consultation Report of this plan outlines the recommendations made by the Design Review Panel and how these were considered and incorporated into the urban design.
	(c) evidence of consultation with the relevant council(s), Infrastructure NSW and the community on the proposed urban design and landscape measures, prior to finalisation of the UDLP, and details of how the outcomes of this consultation have informed the development of the UDLP	UDLP Consultation Report	Consultation was completed with relevant Council's, Urban Growth NSW (now TfNSW Greater Sydney Division), the community and affected landowners and businesses as part of the development of this plan. The outcomes of this consultation will be outlined within the UDLP Consultation Report.
	Context and Form (d) an analysis of the built, natural and community context and the urban design objectives, principles and standards for the CSSI	Section 3	An analysis of the Project corridor was undertaken to understand existing conditions with the following natural, built and community contexts examined: land use, local government areas and suburbs, connectivity, open space, geology, hydrology, soil landscapes, vegetation, non-indigenous heritage and indigenous heritage. This analysis is summarised in section 3.1.
	(e) detailed consideration of integration and continuity with urban design and landscape outcomes for the M4 East and New M5 projects taking into account the respective UDLP(s) for each project	Section 2	The JHCPB urban design team includes members who were also part of the urban design teams on the M4 East and New M5 projects. The UDLPs for these projects were reviewed to ensure consistency across the WestConnex projects as outlined in section 2.4.

Table 2-1: Minister for Planning Conditions of Approval Specific to this plan

CoA	Condition Requirements	Document Reference	How Addressed
	(f) landscaping (soft and/or hard) and building and bridge design opportunities to mitigate the visual impacts of road and active transport infrastructure and operational fixed facilities (including ventilation outlets, tunnel portals, Motorway Operations Complexes, noise walls and The Crescent overpass (and related pedestrian and cycling green link, traffic islands and medians)), including: i) building placement, designs and landscaping that are reflective of the local built form ii) a living vertical garden(s) or alternative treatment for ventilation outlets consistent with the requirements of Condition E118 iii) enhancing the amenity and interface between the pedestrian and cycling green link, light rail stop and shared user path ramp, to provide a sense of place;	Section 4, Section 5, Section 6, Section 7	Sections 4, 5, and 6 outline how the visual impact of the project has been mitigated through landscape, building and structural design. Section 7 provides details of the ventilation outlet façade which includes a living green wall and other sculptural elements.
	Access: (g) the Pedestrian and Cycle Implementation Strategy identified in Condition E60	Section 11	A Pedestrian and Cycle Implementation Strategy has been included in section 11 of this plan.
	(h) the following interim park infrastructure must be provided at Rozelle Rail Yards to support passive recreational uses of the land: toilet facilities, seating, bins and bicycle parking	Section 10	Public realm elements will be supplied by the project to support the use of the park and are outlined within section 10 of this plan.
	(i) details of staging to maximise progressive public access and use of the Rozelle Rail Yards site	Section 15	Completion and public access to Rozelle Railyards Parklands is independent of operation of the motorway. Timing is detailed in Section 15.1
	Design (j) the design of the project landform and earthworks	Section 4	The landform for the Rozelle Rail Yards and Iron Cove Link sections of the project is outlined within sections 4 of this plan.
	(k) the design of the CSSI elements including their form, materials and detail (including the City West Link pedestrian and cycling green link identified in Condition E120)	Section 4, 5, 6, 7, 8 and 9	The design of the elements which make up the project are described in sections 4, 5, 6, 7, 8 and 9, with details on the green link bridge included in section 8.
	(l) a description of the CSSI design features, including graphics such as sections, perspective views and sketches of key elements of the CSSI including – (i) visualisations (from a distance and within the intersections) of The Crescent overpass, the pedestrian and cycling green link, shared user path ramp and the at grade pedestrian and cyclist crossing of The Crescent, and; (ii) cross sections showing the full width of The Crescent between Johnston Street and The Crescent/City West Link intersection;	All inclusive	The design of the project has been described in this plan with sections, perspective views and sketches of key elements included in sections 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and 13.
	(m) visual screening requirements	Section 4	Details of screening incorporated into the project at the Rozelle Rail Yards and Iron Cove Link sections of the project are outlined within sections 4 of this plan.
	(n) development and delivery of public art opportunities throughout the Rozelle Rail Yards and where possible within the construction footprint surrounding the intersection of The Crescent and City West Link using local artists;	Section 4	Section 4 outlines the opportunities provided as part of the project, where public art could be displayed.
	(o) demonstrated integration of Crime Prevention Through Environmental Design principles into the detailed design process	Section 3.8, Section 11.3	Crime Prevention Through Environment Design principles have been integrated into the project design as outlined in sections 3.8, 11.3 and 11.9

Table 2-1: Minister for Planning Conditions of Approval Specific to this plan

CoA	Condition Requirements	Document Reference	How Addressed
	Lighting (p) an assessment of the location, design and impacts of operational lighting associated with the CSSI and measures proposed to minimise lighting impacts in accordance with Conditions E122, E123 and E124	Section 14	The operational lighting design of the project was assessed, with mitigation proposed to minimise lighting impacts. Section 14 of this document includes a summary of this assessment and the mitigation proposed.
	(q) development of a Rozelle Rail Yards Lighting and Wayfinding Strategy that provides for effective, safe and innovative lighting and wayfinding throughout the Rozelle Rail Yards land and that also explores lighting as a public art opportunity whilst ensuring adherence to conditions E122, E123 and E124	Section 12	The Rozelle Rail Yards Lighting and Wayfinding Strategy is included in section 12 of this plan.
	Heritage (r) the location of existing heritage items	Section 3, Section 13	Section 13 of this plan outlines the location of existing heritage items within the boundary of the Project.
	(s) information on the reuse of heritage items and items of significance to the urban form and landscape character including identification of opportunities for interpretative and innovative reuse of salvaged items from the Rozelle Rail Yards to ensure the character of the land remains connected to previous and surrounding industrial, transport and maritime land uses	Section 3, Section 13	Non-indigenous and indigenous heritage values were analysed during the development of the project urban design (refer to section 3.1), with the reuse and interpretation of heritage items considered in the design of the Rozelle Rail Yards park (refer to section 13).
	Landscaping (t) a description of disturbed areas (including construction ancillary facilities) and details of the strategies to progressively rehabilitate, regenerate and/or revegetate these areas	Section 4, Section 5	A description of disturbed areas of the project are included in section 4, with the strategy to progressively revegetate the project included in section 5.4. Section 5 provides details of the landscape works design which will be implemented to revegetate these disturbed areas.
	(u) details on the location of existing vegetation and proposed landscaping (including use of endemic and advanced tree stock where appropriate). Details of species to be replanted/revegetated must be provided, including their appropriateness to the areas and habitat for threatened species	Section 5	Section 5 outlines the proposed landscape works for the project, including details of species which will be used and their appropriateness for reuse on the project.
	(v) demonstrated integration of water-sensitive urban design principles into the detailed design process and maximisation of integration of existing and enhanced water features into the open space features of the site including enhancements to Whites Creek and other waterways as well as the constructed wetland	Section 5	Section 5.3 provides a summary of the water sensitive urban design principles which have been integrated into the project's design.
	Implementation and monitoring: (w) Completion and public access to Rozelle Railyards Parklands is independent of operation of the motorway. Timing is detailed in Section 15.1; and	Section 15	Completion and public access to Rozelle Railyards Parklands is independent of operation of the motorway. Timing is detailed in Section 15.1
	(x) monitoring and maintenance procedures for the built elements, rehabilitated vegetation and landscaping (including weed control) including performance indicators, responsibilities, timing and duration and contingencies where rehabilitation of vegetation and landscaping measures fail.	Section 15	Section 15 provides a summary of the monitoring and maintenance procedures which will be implemented on the project. These will be further detailed in Operation Environmental Management Plan which will be completed prior to operation of the project.

Table 2-2: Minister for Planning Conditions of Approval relevant to this plan

CoA	Condition Requirements	Document Reference	How Addressed
E55	The CSSI (including new or modified local roads, parking, pedestrian and cycle infrastructure) must be designed to meet relevant capacity, design, engineering and safety guidelines, including the Austroads Guide to Traffic Management. Note: This includes ensuring sufficient capacity to accommodate pedestrians and cyclists waiting during non-crossing phases at the corner of The Crescent and Johnston Street intersection.	Section 11	The active transport connections for the project were designed in accordance with Roads and Maritime specifications and guidelines, project specific requirements developed by Roads and Maritime, Austroad guidelines and relevant Australian Standards outlined in Section 11.5.
E56	An independent Road Safety Audit(s) is to be undertaken by an appropriately qualified and experienced person during detailed design to assess the safety performance or new or modified local road, parking, pedestrian and cycle infrastructure provided as part of the CSSI (including ancillary facilities) to ensure that they meet the requirements of relevant design, engineering and safety guidelines, including Austroads Guide to Traffic Management. Audit findings and recommendations must be actioned prior to construction of the relevant infrastructure and must be made available to the Secretary on request.	Section 11	Road safety audits have been undertaken for the design of the project by a qualified and experienced person. Details are included in section 11.5.
E58	The Proponent must provide improved connectivity for cyclist and pedestrians between Roberts Street and Springside Street, and incorporate these in the Pedestrian and Cycle Implementation Strategy required by Condition A1.	Section 11	To satisfy condition E58, TfNSW have engaged a specialist consultant to review, develop and provide options for improved connectivity for cyclists and pedestrians between Roberts Street and Springside Street Rozelle, as per the requirements of this condition. TfNSW's specialist is developing a series of options to meet condition E58. To inform the suitability of these options a clear strategy for cycle and pedestrian movements around Victoria Road more broadly is required. Therefore development of the final preferred option to meet condition E58 could not be determined at this stage. TfNSW intend to consult separately on the options developed by TfNSW specialist consultant with targeted consultation with Inner West Council, City of Sydney Council, Bicycle NSW and the local community, and this will be delivered in accordance with the Staging Report at a later stage.
E58A	The Proponent must provide east-west connectivity for cyclists and pedestrians through the Rozelle Rail Yards open space area and north-south connectivity through the Rozelle Rail Yards open space area generally between Gordon Street, Rozelle and The Crescent and incorporate these in the Pedestrian and Cycle Implementation Strategy required by Condition E60.	Section 11	These active transport connections are provided in the design included in Section 11.8 of the UDLP. Connections A3 and E1
E59	Enhanced cycle facilities at Rozelle Bay and Leichhardt North light rail stops must be investigated and implemented if possible in consultation with Transport for NSW and incorporated into the Pedestrian and Cycle Implementation Strategy required by Condition E60.	Section 11	Details of enhanced cycle facilities at the Rozelle Bay light rail stop are included in section 11.8, connection E1.

Table 2-2: Minister for Planning Conditions of Approval relevant to this plan

CoA	Condition Requirements	Document Reference	How Addressed
E60	A detailed Pedestrian and Cycle Implementation Strategy must be included as a component of the Urban Design and Landscape Plan required by Condition E133 and reviewed by the Design Review Panel. The Strategy must be prepared in consultation with relevant council(s) and Bicycle NSW. The Strategy must be consistent with the Active Transport Strategy in Volume 2F, Appendix N of the EIS and must incorporate the requirements of Conditions E58, E58A and E59 and include:	Section 11	This strategy has been developed as a section within the Urban Design and Landscape Plan. Details of consultation are included within section 11.4 of this strategy. Consistency with the EIS, Appendix F, has been demonstrated in section 11.6.
	(a) pedestrian and cycle engineering and safety standards;		a) Relevant pedestrian and cycle engineering and safety standards are outlined within section 11.5 of this strategy.
	(b) a safety audit of existing and proposed pedestrian and cycle facilities to address the above standards;		b) Road safety audits of existing and proposed active transport connections were completed as outlined in section 11.5.
	(c) details of selected routes and connections to existing local and regional routes;		c) Details of proposed pedestrian and cycle connections are outlined in Section 11.8, including details of connections to the existing network.
	(d) timing and staging of all works;		d) The proposed staging of the works is outlined in section 11.12 of this strategy.
	(e) infrastructure details, including lighting, safety, security, and standards compliance;		e) The pedestrian and cycle paths for the Project were design with the safety of pedestrians, cyclists, maintenance personnel and drivers in mind. Details have been provided in section 11.9.
	(f) signage and wayfinding measures; and		f) The Rozelle Rail Yards Lighting and Wayfinding Strategy was developed (refer to Section 12) and outlines measures which will be implemented regarding signage and wayfinding. A summary is included in Section 11.11.
	(g) details of associated landscaping works, including on the southern portion of the pedestrian and cycling green link.		g) Section 5 of the UDLP includes details of the landscape works proposed for the project. A summary of landscape works associated with pedestrian and cyclist connections is provided in section 11.10.
	All identified works arising from this condition are to be implemented prior to the commencement of project operations, except as permitted by this approval.		The proposed staging of the works is outlined in section 11.12 of this strategy
E117	The Proponent must investigate, and implement where reasonable, opportunities to consolidate operational ancillary facilities at the Rozelle Rail Yards to maximise the amount of open space across the site.	Section 4 and Section 7	The Project has developed a ventilation system which sits predominantly underground, significantly reducing the footprint of operational facilities on the surface and within the Rozelle Rail Yards Park Parkland. Further details on operational facilities are included in Section 7.
E117A	The façade of the high voltage switch room facing Victoria Road at Iron Cove must be articulated and landscaped to reduce its visual impact, unless otherwise approved in the UDLP.		Maintenance buildings at Iron Cove have been designed to integrate with the suburban context of the area. The use of the titanium zinc cladding with landscaping and vegetative screening will be sympathetic to the environment and appropriately contextual for the metals seen locally in residential buildings, the Iron Cove Bridge and other project work. Landscaping and fencing in this area maintain a consistent approach to the design intent of integration.

Table 2-2: Minister for Planning Conditions of Approval relevant to this plan

CoA	Condition Requirements	Document Reference	How Addressed
E117B	Façades of operational buildings and walls at Iron Cove that are adjacent to or adjoin residential properties must be designed and have finishes that are sympathetic with the surrounding residential neighbourhood.		Maintenance buildings at Iron Cove have been designed to integrate with the suburban context of the area. The use of the titanium zinc cladding with landscaping and vegetative screening with cables for climbing plants will be sympathetic to the environment and appropriately contextual recessive metals seen locally in residential buildings, the Iron Cove Bridge and other project work. Landscaping and fencing in this area maintain a consistent approach to the design intent of integration. More information can be found in Figure 7-11.
E117C	The stair access to the underground ventilation facility at Iron Cove must be designed and sited to optimise the extent of useable surplus land along Victoria Road.		The stair access has been removed which maximises the green space available.
E118	The ventilation outlets at Rozelle and Iron Cove must incorporate a living vertical garden over their total areas. Notwithstanding, a reduced coverage or an alternative living green design treatment (such as wall climbers or landscape shielding) can be implemented subject to review by the Design Review Panel. The green elements are to be an integrated part of the architectural composition in aesthetic balance with the non-green elements and addressing key view corridors.	Section 7	Section 7 provides details of the ventilation outlet façade which includes a living green wall and other sculptural elements. The façade with a reduced green wall was reviewed by the Design Review Panel on 2 August and 1 November 2019.
E119	The design of the landscape verge associated with the Iron Cove Link (Area 01, figure 5.24 of Appendix L, Volume 2F of the EIS) must maximise planting opportunities.	Section 5	Landscape works on the southern verge of Victoria Road was maximised as shown in Section 5 of this plan.
E120	A pedestrian and cycling green link, as described in Modification 2 Report and amended by Modification 2 Amendment Report, to be provided from the Rozelle Rail Yards to the Rozelle Bay light rail stop, must have adequate soil depth to facilitate planting along the majority of the bridge with a diverse range of vegetation. The bridge must be a minimum width of 15 metres, where the pedestrian and cycling green link spans from Rozelle Rail Yards across the City West Link, unless otherwise agreed by the Secretary.	Section 7	A green link with pedestrian and cycle connectivity has been provided from the Rozelle Rail Yards park to the Rozelle Bay Light Rail Station. Details of this bridge including a cross section of the bridge is included in section 7 of this plan.
E121	The mouth of Whites Creek north east of The Crescent and to the west of the proposed utilities bridge, must not be fully enclosed. Infrastructure over this section of the creek must be limited to the utilities bridge / shared user path, unless otherwise agreed by the Secretary.	Section 5	The mouth of Whites Creek will not be fully enclosed as detailed in Section 8.6 of this plan.
E122	The Proponent must construct and operate the CSSI with the objective of minimising light spillage to residential properties. All lighting associated with the construction and operation of the CSSI must be consistent with the requirements of Australian Standard 4282-1997 Control of the obtrusive effects of outdoor lighting and relevant Australian Standards in the series AS/NZ 1158 – Lighting for Roads and Public Spaces. Notwithstanding, the Proponent must provide mitigation measures to manage any residual night lighting impacts to protect properties adjoining or adjacent to the CSSI, in consultation with affected landowners.	Section 14	Section 14 of this plan outlines the operational lighting design of the project and mitigation proposed to minimise lighting impacts.
E123	The Proponent must construct and operate the CSSI with the objective of avoiding adverse or distracting lighting configuration, spillage or intensity to aircraft operations. All lighting associated with the construction and operation of the CSSI must adhere to the Lighting in the Vicinity of Aerodromes: Advice to Lighting Designer (CASA, 1999) and National Airports Safeguarding Framework Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports (DIRD, 2012). Notwithstanding, the Proponent must provide mitigation measures to manage any residual night lighting impacts to protect aircraft operations, in consultation with CASA and DIRD.	Section 14	Operational lighting for the project has been developed to ensure adherence with the *Lighting in the Vicinity of Aerodromes: Advice to Lighitng Designer (CASA, 199)* and *National Airports Safeguarding Framework Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports.* Further details are provided within Section 14 of this plan.

Table 2-2: Minister for Planning Conditions of Approval relevant to this plan

CoA	Condition Requirements	Document Reference	How Addressed
E124	Notwithstanding **Condition E123**, the Proponent must consult with CASA, DIRD and Sydney Airport Operators prior to the commencement of construction to determine the need and potential positioning of aviation hazard lighting on any equipment or built form component associated with the CSSI where such consultation deems it necessary.	Section 14	The Rozelle Interchange operational facilities fall outside the radius defined in the relevant guidelines to warrant a safety assessment being conducted by CASA.
E125	The Proponent must establish a Design Review Panel during detailed design and prior to construction.	Section 2.9	A Design Review Panel was established during the detailed design phase of the project, prior to the commencement of construction.
E126	During design development of the CSSI, the Design Review Panel must review the design (excluding the tunnels between portals) to assess whether it is consistent with the commitments and outcomes made in the documents listed in Condition A1.	Section 2.9	The Design Review Panel has met on numerous occasions to review the project urban design and its consistency with the outcomes in the EIS and Submissions Report. Details of these meetings are provided in the UDLP Consultation Report.
E127	The Design Review Panel must be given the opportunity to and may review and refine the design objectives for place making, public realm and urban and heritage interpretation applicable to the length of the project and provide advice on the application of the objectives to key design elements in relation to place making, architecture, heritage, urban and landscape design and public art and aesthetic aspects of the CSSI. The Panel must be given the opportunity to also review the Urban Design and Landscape Plan(s) prior to these being submitted to the Secretary. Evidence of this review and the Proponent's consideration of the review is to be provided to the Secretary. Where the Panel has decided to not review a plan, it must provide a written statement to this effect.	Section 2.9	On the 2 August 2019 the Design Review Panel met and reviewed the design objectives for the project. These objectives were confirmed to be appropriate for the project. The UDLP has been reviewed by the DRP and their endorsement provided on 27 November 2020.
E128	The Design Review Panel must be comprised of, a suitably qualified, experienced and independent professional in each of the fields of: (a) architecture; (b) urban design; (c) landscape design; and (d) Aboriginal cultural heritage and non-Aboriginal heritage. The NSW Government Architect (or representative) is to be the Chair of the Panel. The Proponent and its contractor(s) are to be invited onto the Panel as observers only and to provide technical advice. The Proponent is to provide independent secretarial resources to the Panel. The Design Review Panel may seek specialist advice from Infrastructure NSW (when the Panel convenes to discuss matters relating to the Rozelle Rail Yards and its surrounds).	Section 2.9	The Design Review Panel consists of experts from the fields of architecture, urban design, landscape design and heritage. A delegate of the NSW Government Architect chairs the panel Urban Growth NSW (now TfNSW Greater Sydney Division) attended the panel meeting on 29 May 2020 and were invited to the meeting on 26 June 2020.
E129	The Design Review Panel members must be nominated by the Proponent and approved by the Secretary in accordance with the timeframes in Condition E125.	Section 2.9	The Design Review Panel members were approved by DPIE on 17th December 2019

Table 2-2: Minister for Planning Conditions of Approval relevant to this plan

CoA	Condition Requirements	Document Reference	How Addressed
E130	Nomination and appointments of the Design Review Panel must comply with the Public Service Commission's Appointment Standards: Boards and Committees in the NSW Public Sector guideline.	Section 2.9	The appointment of the Design Review Panel was compliant with the Public Service Commission's Appointment Standards: Boards and Committees in the NSW Public Sector guideline, with members of the Panel approved by DPIE on 17th December 2019. These guidelines are also referenced in the Panel's Terms of Referenced.
E131	Once the Design Review Panel is composed, and prior to the detailed design of the CSSI, a Design Review Panel Terms of Reference is to be developed and endorsed by all panel members. The Terms of Reference must be submitted to the Secretary for information and: (a) establish best practice governance and protocols for the operation of the Design Review Panel; (b) include a Code of Conduct; (c) outline the agreed frequency of Design Review Panel meetings, coordinated with Proponent program requirements, to ensure timely advice and design adjustment; and (d) outline secretariat functions and administration including the recording and storing of meeting agendas, minutes and actions. Details on the design and landscaping should be presented to the Design Review Panel by the suitably qualified and experienced urban design and landscape specialists who have been engaged on the CSSI.	Section 2.9	The urban design and landscape specialists engaged by the CSSI have presented the design to the Design Review Panel.
E132	The Design Review Panel is to be operated and managed in accordance with the approved Design Review Panel Terms of Reference and in accordance with the NSW Government Boards and Committees Guidelines (Department of Premier and Cabinet, September 2015).		Terms of Reference for the Design Review Panel were developed and endorsed by all panel members at the first panel meeting on 2 August 2019. They reference the requirements of the NSW Government Boards and Committees Guidelines.
E166	The Proponent must investigate options for utilising salvaged rail related infrastructure from the Rozelle Rail Yards into the landscaping of the Rozelle Rail Yards. How the items are to be used is to be detailed in the Urban Design and Landscape Plan required by Condition E133.	Section 13	The project will investigate opportunities to reuse salvaged heritage items, following the process outlined in the Heritage Management Plan



Artist's impression - Aerial view over City West Link (Landscape shown at full maturity and is indicative only). Refer Figure 4-12 for revised layout.

2.7 Revised Environmental Management Measures

An Environmental Impact Statement (EIS) was prepared in response to the Director Generals Environmental Assessment requirements and was placed on public exhibition on 18 August 2017.

In January 2018, a Submissions Report, which considers submissions to the EIS made during the exhibition period was submitted to the Department of Planning, Infrastructure and Environment (DPIE).

On 17 April 2018, planning approval for the WestConnex Rozelle Interchange project was received from the Minister for Planning. The approval was subject to Conditions of Approval, including clauses E133 - E134 which are specific to Urban and Landscape Design.

The Revised Environmental Management Measures from the Submissions Report, which are specific to urban design, are listed below along with a reference to where each measure is addressed within this Plan.

Table 2-3: Revised Environmental Management Measures

Impact	Ref	Environmental management measure	Comment
Urban design of project infrastructure	**UD1**	Prepare an Urban Design and Landscape Plans Plan (UDLPs) for permanent built works and landscaping in consultation with relevant councils, stakeholders and the community. The construction of permanent built works will not commence until the element is included in a suitably prepared and approved UDLP, unless otherwise agreed to by the Secretary.	This Urban Design and Landscape Plan has been prepared for consultation with relevant councils, stakeholders and the community.
	UD5	Establish an Urban Design Review Panel to provide advice and input into the development of the UDLP and associated sub-plans. Where an UDLP is required to address heritage matters, the panel will include an independent heritage architect.	A Design Review Panel was established during the detailed design phase of the project, prior to the commencement of construction. The Design Review Panel has met on numerous occasions to review the project urban design and its consistency with the outcomes in the EIS and Submissions Report. Details of these meetings are provided in the UDLP Consultation Plan. The panel includes a heritage expert.
	UD3	Specific design measures at surface operational infrastructure to prevent crime, based on principles of CPTED, will be identified and implemented at each facility prior to the commencement of facility operation.	Crime Prevention Through Environment Design principles have been integrated into the project design as outlined in sections 3.8, 11.3 & 11.9.
	UD4	Wayfinding signage for the road infrastructure will be developed to the satisfaction of Roads and Maritime. Consultation will occur with the relevant local council regarding road signs for council roads. Signage for road infrastructure will be installed prior to the commencement of operation.	The Rozelle Rail Yards Lighting and Wayfinding Strategy is included in section 12 of this plan and outlines the wayfinding approach for the project. Consultation of this strategy will be undertaken as part of the consultation for this plan.
Loss of trees	**B6**	As many trees as possible will be retained during construction. In the event that tree removal cannot be avoided, a tree replacement strategy will be prepared. Replacement trees will be included in the relevant UDLP. Opportunities for the provision of replacement trees outside the project boundary will be investigated in consultation with local councils.	As required by Condition of Approval E179 the project will prepare a report which details the type, size, number and location of replacement trees to be provided. This report will be submitted one month prior to operation.
General impacts to landscape and visual amenity	**LV8**	Visible elements of operational facilities will be designed to satisfy functional requirements and adopt the design principles detailed in the M4-M5 Link Urban Design Report. The proposed designs will be documented in the relevant UDLP for the project.	Details for the design of the project's operational facilities are included include Section 7, including the application of the urban design principles in the M4-M5 Link Urban Design Report.
	LV9	The slopes of vegetated batters that form part of the final urban design and landscaping solution will be limited to no more than 1:4 where possible in order to maximise the impact of vegetation on these batters and minimise maintenance.	Cut and fill embankments throughout the project have designed to be no steeper than 4H:1V, except where works tie-in to existing embankments that are steeper than 4H:1V or the designed surface is required to be no steeper than 3H:1V
Impacts to visual amenity at the Rozelle interchange	**LV13**	Integrate the new open space at Rozelle with the Lilyfield Road streetscape through considered street tree planting and associated landscape works in accordance with Austroads guidelines.	The landscape works design for the Rozelle Rail Yards park includes two rows of avenue trees planted along the main footpath, connecting the Lilyfield Road streetscape with the park. This is shown in the landscape drawings in Section 5.
	LV14	Implement urban design and landscape measures that allow permeable views between the City West Link carriageway and the new open space to provide a sense of openness and connection with the open space for motorists and the community.	Permeable views between the City West Link carriageway and the Rozelle Rail Yards park are provided at the western wetlands and eastern extent of the park. This is further discussed in Section 4.

Table 2-3: Revised Environmental Management Measures

Impact	Ref	Environmental management measure	Comment
	LV15	Investigate measures to minimise view impacts of the project to sensitive residential receptors in the vicinity of the Rozelle Rail Yards as described in this assessment and include in the relevant UDLP where reasonable and feasible.	The Rozelle Rail Yards site will be transformed into new public parkland resulting in a new park edge condition along Lilyfield Road. A combination of street trees, parkland trees and screen planting have been adopted to minimise view impacts of nearby residents. Refer to Section 5.
	LV16	Develop a design that aims to incorporate the ventilation outlets at the Rozelle Rail Yards as an integral component of the larger open space composition, with reference and consideration to the Ventilation Facility Design Review (Annexure 2 of Appendix L (Technical working paper: Urban design).	Section 7 provides details of the ventilation outlet façade at Rozelle which includes a living green wall and other sculptural elements, integrating with the Rozelle Rail Yards Park. The façade was reviewed by the Design Review Panel on 2 August and 1 November 2019.
	LV17	Consult with Infrastructure NSW regarding the interface between the project footprint and the White Bay Power Station precinct. Design the interface to optimise compatibility between the two areas from a landscaping, visual, heritage and active transport connectivity perspective.	Representatives from Place NSW attended a briefing with the project on 23 July 2020. Evidence of this briefing is contained in the UDLP Consultation Report.
	LV18	Investigate options to retain the mature trees of high retention value adjacent to the light rail corridor at the corner of The Crescent and City West Link and to provide screen planting alongside the retaining wall edge of the light rail corridor, to minimise landscape and visual impacts. Implement options where feasible and reasonable with consideration of site constraints.	The project investigated option to retain mature trees of high retention value adjacent to the light rail, however due to the footprint of temporary and permanent works no trees could be retained. The project also investigated opportunities to include screen planting along the retaining wall, however due to the close proximity of the land bridge and ramp to this wall adequate space with sunlight is not available.
Impacts to visual amenity at Iron Cove Link	**LV19**	Investigate vegetative and other screening measures along Victoria Road to improve the visual amenity of the streetscape and reduce impacts associated with the ventilation outlet and increased glare from the portals to residential dwellings to the north of Victoria Road. Reasonable and feasible landscaping measures will be included in the relevant UDLP.	Landscape works has been provided within all remaining project land beyond the roads to improve visual amenity along Victoria Road. The Ventilation outlet has been developed to incorporate green wall systems to blend into the surrounding landscape. Glare from road lighting has been minimised by the use of anti-glare shields.
Visual amenity impacts associated with design of ventilation outlets at Rozelle, Iron Cove Link and St Peters	**LV22**	Investigate measures during detailed design to reduce the height, bulk, scale and enhance the landscape setting of the ventilation outlets, subject to achieving desired ventilation outcomes, and in accordance with the design principles detailed in the M4-M5 Link Urban Design Report.	The project has developed a ventilation system which sits predominantly underground, significantly reducing the footprint of operational facilities on the surface and within the Rozelle Rail Yards Park. Further details on operational facilities are included in section 7. Section 7.3 provides details of the ventilation outlet façade which includes a living green wall and other sculptural elements. The façade with a reduced green wall was reviewed by the Design Review

Table 2-3: Revised Environmental Management Measures

Impact	Ref	Environmental management measure	Comment
General heritage impacts	**NAH02**	An Interpretation Strategy will be developed and implemented to identify and interpret the key heritage values and stories of the heritage areas affected by the project and inform the development of the Urban Design and Landscape Plan for the project, in accordance with Interpreting Heritage Places and Items Guideline (NSW Heritage Office 2005). The Interpretation Strategy will: Build on themes, stories and initiatives proposed as part of other stages of WestConnex to ensure a consistent approach to heritage interpretation for the project Include themes and stories including the Rozelle railways historic functions, trains and trams transport, industrialisation and The Rozelle-Darling Harbour Goods Line Identify how the rail related infrastructure salvaged from the Rozelle Rail Yards will be reused.	A heritage interpretation plan will be developed for the project which will identify: → Opportunities to reuse salvaged heritage elements within the urban design Interpretive signage → Interpretive initiatives to be implemented within the Rozelle Rail Yards parklands which do not include reuse of salvaged items.
Potential impact to White Bay Power Station	**NAH11**	The potential for impacts to the railway cutting on the eastern side of Victoria Road, associated with the White Bay Power Station, will be considered during the development of the detailed design for the realigned Victoria Road and associated bridge. The final design will seek to avoid impact to the railway cutting and maintain the visual relationship between the cutting and the White Bay Power Station site. Landscaping sympathetic to the relationship, developed in consultation with a heritage specialist, will be included in the UDLP for the project.	The project's design has been developed to minimise impacts to the railway cutting near Victoria Road. Landscape works have been developed, as outlined in Section 5 in consultation with a heritage specialist.
Loss of trees	**OB9**	"The UDLP will include compensatory planting for trees removed by the project. The plan will include: A tree replacement strategy Species recommendations for the landscape design to consider, including foraging trees for the Grey-headed Flying-fox Relevant project specific rehabilitation and revegetation measures associated with the M4 East and New M5 projects, where there is an overlap in use of project footprint."	A report will be developed by the project in accordance with condition E179 which outlines the replacement trees which will be provided by the project. This report will be submitted to DPIE one month prior to operation. It will include details of the landscaping outlined in Section 5 of this Plan. Species selection includes trees suitable for habitat creation, as outlined in Section 5.
Operational impacts on surface water quality	**OSW15**	The constructed wetland at the Rozelle interchange will be appropriately designed considering Water Sensitive Urban Design Principles to cater for the continuous release of treated groundwater from the water treatment plant and onsite stormwater flows and lined to prevent potential interaction with groundwater.	Section 5 provides a summary of the water sensitive urban design principles which have been integrated into the project's design, including the design of the wetlands which treat groundwater from the tunnel and water treatment plan.
Active Transport Network	**TT20**	An Active Transport Network Implementation Strategy will be prepared for the project. The strategy will be consistent with the Active transport strategy in Appendix N of the EIS. The strategy will be prepared in consultation with relevant councils and Bicycle NSW and implemented prior to the commencement of project operations or as otherwise agreed to by the Secretary of NSW Department of Planning and Environment.	The Pedestrian and Cycle Implementation Strategy outlined in Section 11 fulfils the purpose and requirements of the Active Transport Network Implementation Strategy. It is consistent with the requirements of the Active transport strategy in Appendix N of the EIS, as demonstrated in Table 11-1.

2.8 Stakeholder and community consultation

This Plan, the Urban Design and Landscape Plan (UDLP), and a series of illustrative plan drawings have been prepared for the purposes of presentation and public display.

This Plan was exhibited for consultation with relevant council's, Infrastructure NSW, the community and affected landowners and businesses. Following this consultation period feedback received will be reviewed and included in this plan as required.

The Rozelle Parklands Working Group was established in late-2020 to determine the optimal 'end state' usage of the Rozelle Parklands by ensuring all perspectives were considered across government, local council, community and other relevant groups. It was a collaborative forum for members to share the views of their organisation or group to enable a fair, sustainable, productive and sensitive outcome which meets the diverse needs of the Inner West community.

Submissions made from the UDLP consultation, relevant to the Rozelle Parklands, were referred to and addressed by this Working Group.

Consultation with councils

Councils have been consulted through a series of workshops which have been attended by Council staff, JHCPB design and construction teams as well as RMS representatives. Further discussion and consultation has also occurred at interface meetings with each Council.

At the time the release of the UDLP for public display, the following stakeholder consultation as required by MCoA condition E134 had been undertaken with:

- A meeting on 3 May 2019 with Inner West Council to discuss the overall project design approach
- A meeting on 20 June 2019 with Inner West Council and City of Sydney to discuss their recreational needs
- A meeting on 30 August 2019 with Inner West Council to discuss opportunities for Aboriginal heritage interpretation
- A workshop on 27 September 2019 with Inner West Council and representatives from the local Aboriginal community to discuss the history, stories and background of the Rozelle Interchange project and possible opportunities in collaboration to help shape the Rozelle Interchange Railyards design and to give it a Connection to the Country
- A meeting on 4 October 2019 with Inner West Council to provide a project overview and discuss further topics to collaborate on relating to urban design
- A meeting on 18 October 2019 with Inner West Council to discuss active transport connections, play areas and Aboriginal interpretation
- A meeting on 21 February 2020 with Inner West Council to discuss the park furniture and Aboriginal interpretation opportunities within the Rozelle Rail Yards Parklands, and
- A meeting on 27 March 2020 with Inner West Council to discuss the Rozelle Rail Yards Parklands and interpretation opportunities
- Since the finalisation of the Rozelle Parklands Working Group report, TfNSW has meet regularly with IWC since 2022 to discuss the Parklands delivery including the facilities enhancement Project within the Rozelle Rail Yards, which is to be completed by TfNSW following the opening of the Parkland in January 2024
- Ongoing meetings are scheduled on a regular basis with Inner West Council to discuss the facilities enhancement Project.

Consultation with community

Community consultation on the UDLP occurred in August and September 2020.

To promote the exhibition and to enhance the communities understanding of the UDLP, a comprehensive program of engagement activities was undertaken, which includes:

- UDLP made available on the WestConnex website
- Copies of the UDLP made available at the Rozelle Interchange Community Information Centre (Monday to Friday, 9am to 5pm)
- Copies were provided to the DRP members for review and comment
- Virtual presentations for key stakeholder groups, and
- One-on-one virtual Q&A sessions for the community with subject matter experts
- A meeting was carried out on 11 September 2023 with the various sporting groups within the Inner West Council Precinct to discuss the various elements of the facilities enhancement Project.
- An information session with various sporting groups within the Inner West Council Precinct in December 2023 to display and answer questions regarding the facilities enhancement Project.

Responses to UDLP Consultation

Following consultation, submissions and feedback received were reviewed and included in this plan as required.

2.9 Design Review Panel

A Design Review Panel (DRP) has been established to provide advice and guidance during detailed design and the preparation of the Urban Design and Landscape Plan as required by Planning Approval conditions E125 - E132, respectively.

The Design Review Panel refined the design objectives for place making, public realm and urban and heritage interpretation applicable to the length of the project, and provide advice on the application of the objectives to key design elements in relation to place making, architecture, heritage, urban and landscape design, and public art and aesthetic aspects of the CSSI.

The Design Review Panel is comprised of a suitably qualified, experienced and independent professional in each of the fields of:

- architecture
- urban design
- landscape design
- Aboriginal cultural heritage and non-Aboriginal heritage

The NSW Government Architect's representative is the Chair of the Panel.

The Design Review Panel terms of reference was developed and endorsed by all panel members, and notes the following:

The Panel will provide independent and impartial advice on the quality of the Rozelle Interchange Project urban design to the Chair, whose summary recommendations will be informed by the Panel members' advice. The Chair will be the Government Architect or representatives.

The Panel will evaluate the project against the design objectives, commitments and outcomes within the M4-M5 Link Environmental Impact Statement and M4-M5 Link Submissions and Preferred Infrastructure Report, and abides by the UK's Commission for Architecture and the Built Environment's (CABE) Principles of Good Design Review (Annexure C) as well as the Department of Planning and Environment Code of Conduct (Annexure A).

The Design Review Panel must:

- *Refine the design objectives for place making, public realm and urban and heritage interpretation applicable to the length of the project (refer to Annexure B),*
- *Provide advice on the application of the objectives to key design elements in relation to place making, architecture, heritage and urban and landscape design and public art and aesthetic aspects of the project with reference to the TfNSW 'Beyond the Pavement' Urban Design Policy, and*
- *Review the Urban Design and Landscape Plan (s) and provide consideration prior to being submitted to the Department of Planning and Environment for approval.*

Consultation with the Design Review Panel has been undertaken on the following dates:

- 2 August 2019
- 1 November 2019
- 2 April 2020
- 29 May 2020
- 27 November 2020

Outcomes of consultation

Following consultation submissions and feedback received was reviewed and included in this plan as required.



Artist's impression - The constructed wetlands at Rozelle Rail Yards Parklands (Landscape shown at full maturity and is indicative only).

Rozelle Rail Yards Parkland

Aerial view over Rozelle Rail Yards
(Landscape shown at full maturity and is indicative only).
Refer to Figure 4-12 for revised layout.

Rozelle Interchange
WestConnex

JOHN HOLLAND
CPB CONTRACTORS

Contextual Analysis and Urban Design Objectives

Artists impression: Pedestrian view along Victoria Road
(Landscape shown at full maturity and is indicative only).

03



White Bay Power Station

3 Contextual analysis

3.1 Contextual analysis

WestConnex will extend from the M4 Motorway at Parramatta to Sydney Airport and the M5 Motorway, re-shaping the way people move through Sydney and generating urban renewal opportunities along the way. It will provide the critical link between the M4 and M5, completing Sydney's motorway network.

While the character varies along the route, the WestConnex will be sensitively integrated into the built and natural environments to reconnect and strengthen local communities and enhance the form, function, character and liveability of Sydney.

An analysis of the Project corridor was undertaken to understand existing conditions with the following natural, built and community contexts examined:

- Land use
- Local Government Areas and suburbs
- Connectivity
- Open space
- Geology
- Hydrology
- Soil landscapes
- Vegetation
- Non-indigenous heritage
- Indigenous heritage

Local community context

The Rozelle Interchange will be a predominately underground motorway interchange with entry and exit points that connect to the wider transport network at City West Link, Iron Cove and Anzac Bridge.

Iron Cove and Rozelle Rail Yards sit on and are adjacent to disconnected urban environments. These conditions are the result of the historically typical approach to building large individual road systems which disconnect suburbs and greatly reduce the connectivity and amenity of sustainable modes of transport such as cycling and walking. Rather than adding to the existing disconnection, the Project will provide increased connectivity at these sites.

At Iron Cove, adjacent to the project site, the Rozelle community is currently divided into two distinct neighbourhoods by the heavily trafficked Victoria Road. To the south the adjoining streets are generally quiet and narrow with predominantly small detached houses all within walking distance to the Iron Cove foreshore, King George Park, Callan Park and the retail precinct along Balmain Road and Darling Street. To the north the neighbourhood is much denser and characterised by attached townhouses and apartment development all within walking distance of Iron Cove foreshore and retail precinct of Balmain Road and Darling Street. These community characteristics will be maintained on completion of the project and further improved by enhanced pedestrian and cycling links and landscaping on the southern side of Victoria Road.

At the Rozelle Interchange project site, the existing railyards, City West Link and light rail network currenty acts as a significant barrier between the local communities of Liliyfied, Rozelle and Annandale. These neighbourhoods are generally characterised by quiet, narrow streets with predominantly detached residential dwellings with occasional pockets of attached townhouses. On project completion, over 9ha of new parkland will be developed on the old railyard site with new and enhanced active transport links connecting all of these detached communities and improving opportunities for social interactions and community cohesion.

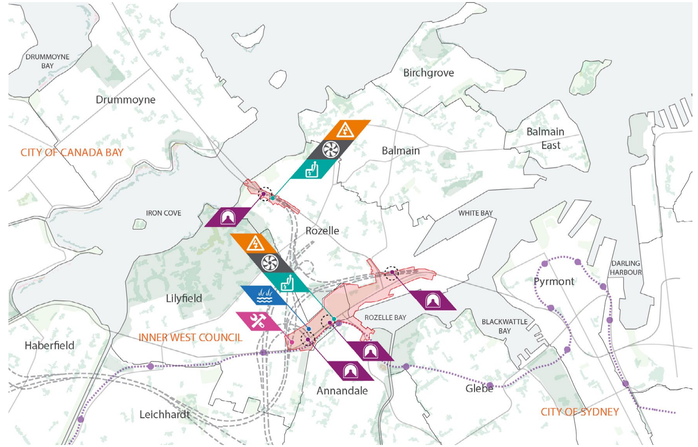


Figure 3-1: Local context & key Project elements

Geology

The Project area is the Sydney Basin, which hosts a thick Permian to Triassic-aged (300 to 200 Ma) sedimentary succession. The Project area lies within the Cumberland Basin, a regional scale secondary basin.

The stratigraphy along the Project includes:

- Recent to Quaternary: Soils comprising residual, alluvium and man-made fills`
- Alluvium associated with current drainage and/ or paleo channels
- Residual soil derived from Ashfield Shale and Hawkesbury Sandstone.
  - Triassic Bedrock:
  - Wianamatta Group (i.e. Ashfield Shale)
  - Mittagong Formation
- Hawkesbury Sandstone

Soil landscapes

The Soil Landscapes of the Sydney 1:100,000 (1989) indicates the Rozelle Interchange works are underlain by the Blacktown (REbt), Birrong (ALbg), Gymea (ERgy), Hawkesbury (COha) and Disturbed terrain (DTxx) profiles.

Portions of the route traverse areas are described as 'disturbed terrain'. In these locations, the soil landscapes are generally sealed by twentieth century fill.

The amount of disturbed terrain within the Rozelle Railyards is a result of land reclamation that occurred during industrialisation of Sydney Harbour.

DESIGN CONSIDERATIONS

An understanding of the geological history and highly modified soil landscape within the Project boundary has influenced the Project design approach to landscape restoration of local vegetation communities and native species selection. New soil profiles will be designed and constructed to meet the needs of landscape works.

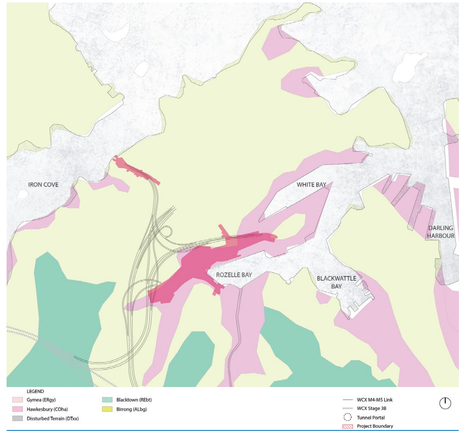


Figure 3-2: Soil landscapes

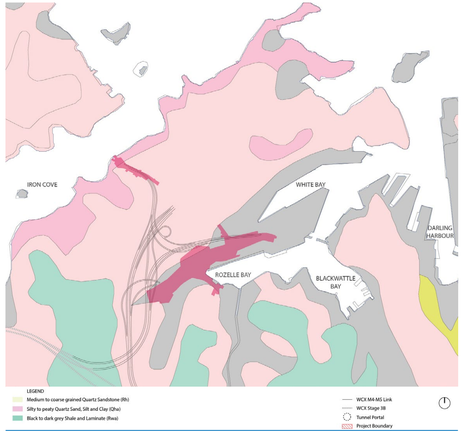


Figure 3-3: Geology

Hydrology

The Rozelle Interchange lies primarily within the Sydney Harbour and Parramatta River catchment. The predominant waterways within the Sydney Harbour and Parramatta River catchment traversed or affected by the corridor include:

- Rozelle Bay
- Whites Creek
- Iron Cove

Overall, the waterways are highly modified and degraded in nature, with many formalised into open concrete channels.

The Rozelle Rail Yards currently provides a major flood path to Rozelle Bay.

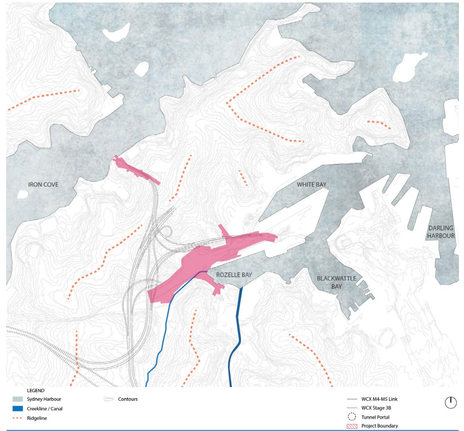


Figure 3-4: Hydrology

DESIGN CONSIDERATIONS

The Project will implement best practice Water Sensitive Urban Design (WSUD) and avoid any increase to flood levels beyond the Project boundary. Storm water, within the Project will captured through a network of swales, water quality basins, pipes and gross pollutant traps to improve the water quality, prior to discharge into Rozelle Bay.

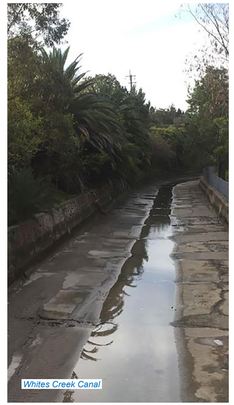
New, major swales and channels will be naturalised (where possible) to maximise filtration and green corridors for habitat creation.


Heritage drain at Rozelle rail yards


Existing sandstone escarpment in rail yards


Existing sandstone outcrops at Jubilee Park


Rozelle Bay


Whites Creek Canal

Local government areas and suburbs

The Rozelle Interchange and Iron Cove Link sites are located within the Inner West Council and City of Sydney Council Local Government areas. The Inner West Council is a recent amalgamation of Leichhardt, Ashfield and Marrickville Councils, providing unified goals, ambitions, procedures and policies which will have been considered.
The tunnel alignment and above ground sites sit within the suburbs of Leichhardt, Annandale, Lilyfield and Rozelle.

DESIGN CONSIDERATIONS

- Influence the location of in-tunnel wayfinding related to above ground locations
- Design for public amenities and open space around specific Inner West Council public realm requirements

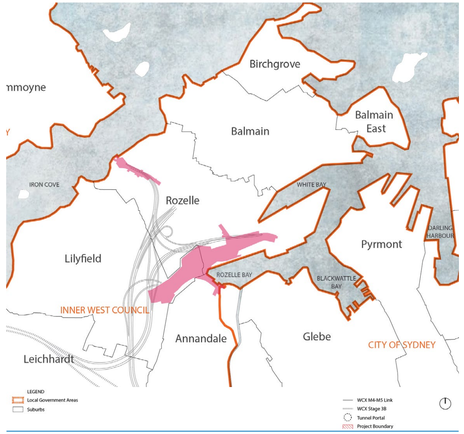


Figure 3-5: Local Government Areas and Suburbs

Land use

Land use within the vicinity of the two Project sites is generally a mix of commercial, industrial and residential.

The Iron Cove site is dominated by parkland and residential land uses, while the Rozelle Rail Yards site is largely concerned with industrial, parkland, residential and transport related land uses.

DESIGN CONSIDERATIONS

- Influence the locations of built form, including tunnel facilities, pedestrian bridges, open spaces and public facilities
- Influence the visual qualities of the urban design and landscape strategies
- Demonstrate the need for, and nature of, lateral connections
- Identify opportunities related to public open spaces such as parks

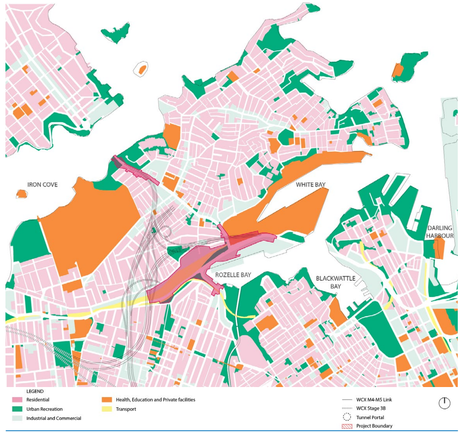


Figure 3-6: Land use

Access and movement

The analysis illustrates the locations of existing adjoining pedestrian networks, cycleways, vehicular and public transport routes.

The route traverses a number of existing regional bicycle, vehicular and public transport networks. The Project ties in with existing and proposed pedestrian and cyclist routes.

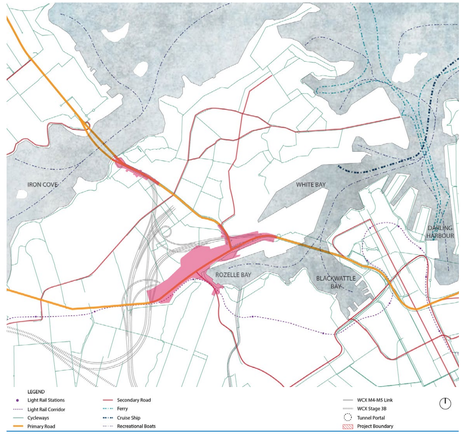


Figure 3-7: Pedestrian, cyclist & public transport network

DESIGN CONSIDERATIONS

- Ensure existing pedestrian, vehicular and public transport networks are maintained, and/or improved (where feasible)
- Opportunities to reconnect separated suburbs across City West Link with new pedestrian connections
- Opportunity to create and safeguard new connections to The Bays Precinct and beyond
- Ensure pedestrian and cyclist routes do not impact on any of the works provided by others, where possible.


City West Link


Victoria Road


Sydney Light Rail Bridge (near Rozelle Bay Light Rail stop)


Beatrice Bush pedestrian bridge over City West Link


City West Link

Open space

The existing green open space is generally located along the shore lines or creek lines throughout the study area.

The open space areas surrounding the Iron Cove Link include Callan Park, King George Park and Bridgewater Park, which are within 500m of the proposed portal location.

Surrounding the Rozelle Rail Yards Parklands, Easton Park is adjacent to the north of the site. Whites Creek, Buruwan Park, Jubilee Park and the Glebe Foreshore parklands are located south of City West Link and are visually and physically disjointed from the Rozelle Rail Yards site due to the existing infrastructure and linkages.

Vegetation

The majority of the Project footprint includes the highly disturbed Rozelle Rail Yards and Iron Cove Link. The Rozelle area has been subject to extensive disturbance from past activities including extensive quarrying of sandstone outcrops, excavation and levelling of soil and the installation of rail and supporting infrastructure. Whilst at Iron Cove the area was disturbed due to residential, commercial & road development.

As a result of this past disturbance, the Rozelle Rail Yards & Iron Cove Link have been denuded of any existing indigenous vegetation.

The few remaining ecological communities are scattered and for the most part follow existing creek lines.

DESIGN CONSIDERATIONS

- Integrate responsively with existing vegetation and soil landscape types
- Provide for planting where appropriate to create a canopied corridor
- Derive appearance and shape from existing native and cultural vegetation forms and associations
- Re-establish natural vegetations patterns and connections within the post industrial landscape response

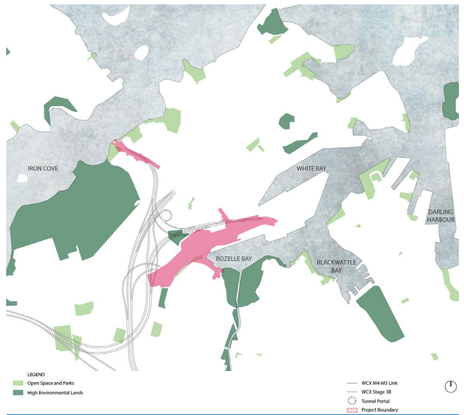


Figure 3-9: Open space

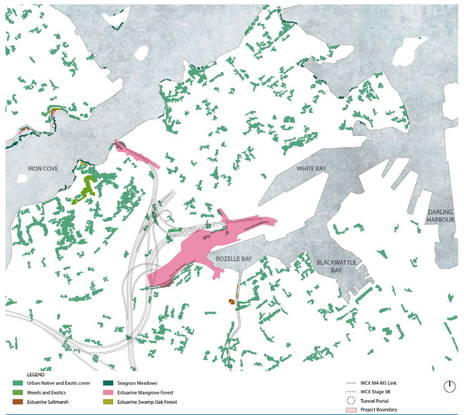


Figure 3-10: Vegetation

Non-indigenous heritage

The Project area consists of a number of non-indigenous heritage items and conservation areas that were identified in the *WestConnex M4-M5 Link EIS Appendix U*, with the focus concentrated around the former industrial and rail yard uses of the site.

The Project has developed themes for heritage interpretive which is subject to further consultation during detailed design to ensure the most appropriate, quality and heritage impact mitigation measures are included within the Project area.

The Project directly affects some listed heritage items including the demolition of a stormwater canal at Rozelle, and partial demolition of other Whites Creek Stormwater Channel No. 95.

Further details on heritage items is provided in Section 13 of the UDLP.

DESIGN CONSIDERATIONS

- The Project will provide a design that considers and responds sensitively to the existing industrial heritage buildings, cuttings and precincts
- With the retention of many items related to the former rail yards infrastructure, there is opportunity to re-use or reinterpret them within the landscape design
- The Project will identify key heritage sites for interpretation and develop an integrated art strategy
- Retention of heritage terraces (78-84 Lilyfield) Road) for potential adaptive re-use (by others)
- Further exploration of key design themes is provided further in this section.

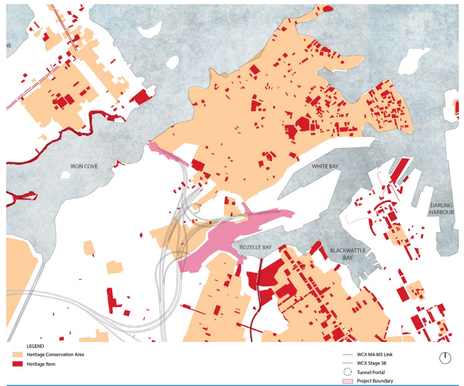


Figure 3-11: Non-indigenous heritage


78 Lilyfield Road - Former hotel


Heritage terraces along Lilyfield Road


White Bay Power Station


84 Lilyfield Road - 'Cadden Le Messurier'


Rail yards and contextual views to Harbour Bridge

Indigenous heritage

The corridor traverses a number of different landscapes, which include sandstone scarps, river flats and estuaries. These provided a variety of environments that were benefited from by the Aboriginal inhabitants of this region for at least the past 9,000 years.

Deposits associated with Aboriginal use within the Project footprint are unlikely to have survived due to historical land use activities such as the reclamation of Rozelle Bay or the urban development for roads and residential areas, which resulted in extensive vegetation clearance, landscape modification, road development and the installation of related infrastructure.

No sites of cultural sensitivity have been identified in the *WestConnex M4-M5 Link EIS Appendix - V - Indigenous heritage*, within the Project area. It is noted that, the Project will not significantly detract from the broader landscape as the impact is confined to the Project sites.

The Aboriginal occupation of the region through traditional landscape management practices, later occupation during the contact period and the contemporary Aboriginal association with the site, form important themes in understanding the evolution of the landscape.

It is understood that the original inhabitants of the Project belonged to the Darug (Dharug, Daruk) language group. Both the Cadigal and Wangal clans are believed to have occupied the area in the vicinity of the Project.

DESIGN CONSIDERATIONS

The Project team has consulted with local Aboriginal communities and Inner West Council, to identify potential design opportunities for interpretation and to develop an integrated art strategy that is reflective of Sydney's Aboriginal heritage and identity. Outcomes of consultation are provided in the UDLP Consultation Report.

The notion of 'Connection to Country' is an important design theme that is explored further throughout the UDLP.

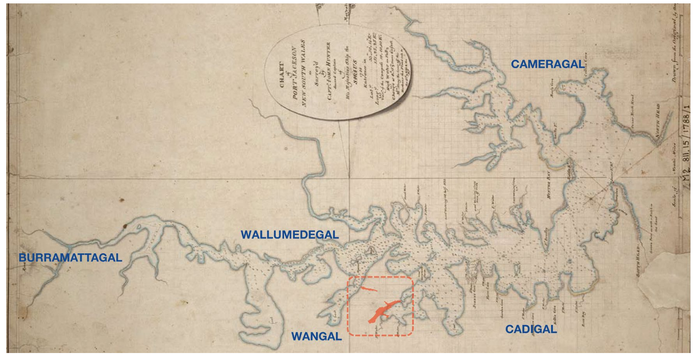


Figure 3-12: 'Eora: Mapping Aboriginal Sydney 1770–1850', State Library of New South Wales, Base image is a Chart of Port Jackson New South Wales Surveyed by Captain John [sic] Hunter Second Captain of His Majesties Ship the Sirius 1788. Drawn from the Original by George Raper Midn:, George Raper. Information on clans included on this map was supplied to Governor Arthur Phillip by Woollarawarre Bennelong.

Precinct character/s

The areas of Rozelle and Iron Cove are an eclectic mix of old and new homes, industry and enterprise. Overall, the precinct is a highly urbanised environment that is strongly defined by its topography comprising broadly of:

- Major roads such as Victoria Road and City West Link as traffic and enterprise corridors
- Residential areas of low to medium density with a predominant fine-grain character of single and two-storey, freestanding cottages. The height and scale of housing is particularly influenced by sandstone outcrops
- Commercial and industrial areas predominantly alongside Victoria Road, Rozelle Rail Yards and the marine and port areas of Rozelle Bay and White Bay
- Open space including King Georges Park and Easton Park in Rozelle and the Whites Creek corridor in Annandale

A selection of images on the adjacent page provide a modest representation of the varying character/s across the Project.

DESIGN CONSIDERATIONS

The Project is inspired by the existing urban grain - a tapestry of post-industrial, working class suburbs that supports vibrant, new-age, inner-city communities.

The Project has drawn upon this elaborate mosaic to inform the approach to materiality, scale and design expression.



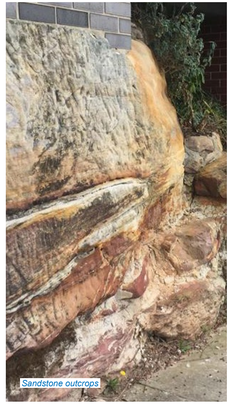
Easton Park


Remnant rail infrastructure


Anzac Bridge


Sydney Foreshore


Terraces houses


Sandstone outcrops



Former timber yards in Rozelle Rail Yards site


The Bay Run


Iron Cove Bridge


Rozelle Bay and surrounds


Mural retaining wall along Johnston Street


Brick arches

3.2 Key design themes

A respectful understanding of the site's natural, Aboriginal and colonial history forms the basis of the design approach and urban design response to the public realm and building design at the Rozelle Interchange.

Connection to Country

Aboriginal communities in the Inner West region are part of a thriving metropolitan area, forming an important part of Sydney's cultural and spiritual mosaic.

It is understood that the original inhabitants of the Project belonged to the Darug (Dharug, Daruk) language group. Both the Cadigal and Wangal clans are believed to have occupied the area in the vicinity of the proposed Project.

Wangal country originally extended from the Inner West suburbs of Balmain and Birchgrove following the southern shoreline of the Parramatta River to the suburbs of Silverwater, Auburn and Parramatta in the west.

It is largely unknown how the Wangal lived around The Bays Precinct, but it is known that the Darug were living in the Sydney area for at least 10,000 years before the first settlement in 1788. These areas would have been rich in plant, bird and animal life with fish and rock oysters available from the area around what is know today as Blackwattle Bay.

INTERPRETIVE THEMES

The Project has consulted with Inner West Council and the local indigenous community to develop opportunities for connection to country. Key themes that have been explored through the design process include:

- The seasonality of the indigenous landscape which generally recognised six seasons throughout the calendar year, triggered by changes in weather, flora and fauna patterns.
- The re-establishment of pre-European landscape communities that would have once existed in the area, including native plant selection and the celebration of native species of indigenous significance.
- The significance of the Rozelle Rail Yards which would have been a highly productive estuary, and as a source of food and ochre
- The working history of the Rozelle Rail Yards and its influence on early employment of indigenous communities that enabled Aboriginal migration back into the city.
- The creation of opportunities to support social engagement, ceremony, ritual and dance through the implementation of community gathering areas such as yarning circles, fire pits and bora rings
- The integration of indigenous public art into the built fabric of the Project,and
- The potential use of indigenous place names for major project elements such as the parklands and pedestrian bridges (subject to further consultation with Inner West Council).



Figure 3-13: 'Distribution of linguistic tribes in the Sydney area in 1788' from 'The Darug and their neighbours: The traditional Aboriginal owners of the Sydney region', by James Kohen (1993)



Figure 3-14: Distribution of named clans in the Sydney region in 1788, adapted from J. Kohen and Darug Tribal Aboriginal Corporation, 2000. From 'Aboriginal Sydney: A guide to important places of the past and the present', Melinda Hinkson, 2001



Figure 3-15: Dharawal six seasons - Adapted from 'D'harawal Calendar'



A Native going to Fish with Torch, 1788-97, Port Jackson Painter, Watling Drawing 43. Source: Natural History Museum.

Industrialisation of the Bays and the urban expansion of Sydney Harbour

In the early nineteenth century the waterfronts around White Bay, Rozelle Bay and Blackwattle Bay housed industries that had been forced to relocate from inner Sydney, including an abattoir set up on Glebe Island in 1860, followed by other noxious industries. By the mid-late 1800s, the shoreline was well developed with a range of industries.

Comparison of the urbanisation from 1788 to present ('A short geological and environmental history of the Sydney estuary, Australia', Rob Birch) shows that by the mid 1800's urbanisation had spread to Iron Cove and most of the Bay heads had been reclaimed with increasing levels of contamination found in Darling Harbour, Blackwattle Bay and Rozelle Bay.

INTERPRETIVE THEMES

This Project presents an opportunity to partially remediate the Rozelle Bay and re-establish naturalised conditions within a parkland setting, drawing upon coastal vegetation communities that would have once existed in the area.

'Yesterday a visit to Rozelle and Blackwattle Bays revealed the fact that, similar to the occurrence of nearly two years ago, at the time of the bubonic plague visitation, large numbers of various descriptions of fish were found to be floating about the bays, while on the northern side there were hundreds lying about the foreshores at low water. Not only have the two bays in question become polluted, but practically the whole of the waters of Johnstone's and White Bays have suffered more or less. At low tide yesterday the waters of these bays were of a dirty brown colour, and gave forth a rather bad odour, especially in White Bay. In Johnstone's Bay the discolouration of the water at low tide reached almost to Darling Island. On the White Bay side, and right up to the new embankment forming part of the new Glebe Island Bridge, rats abound in thousands.'

(Sydney Morning Herald, 4 January 1902, p.13).

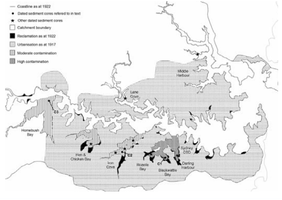
1788 to 1854



1854 to 1889



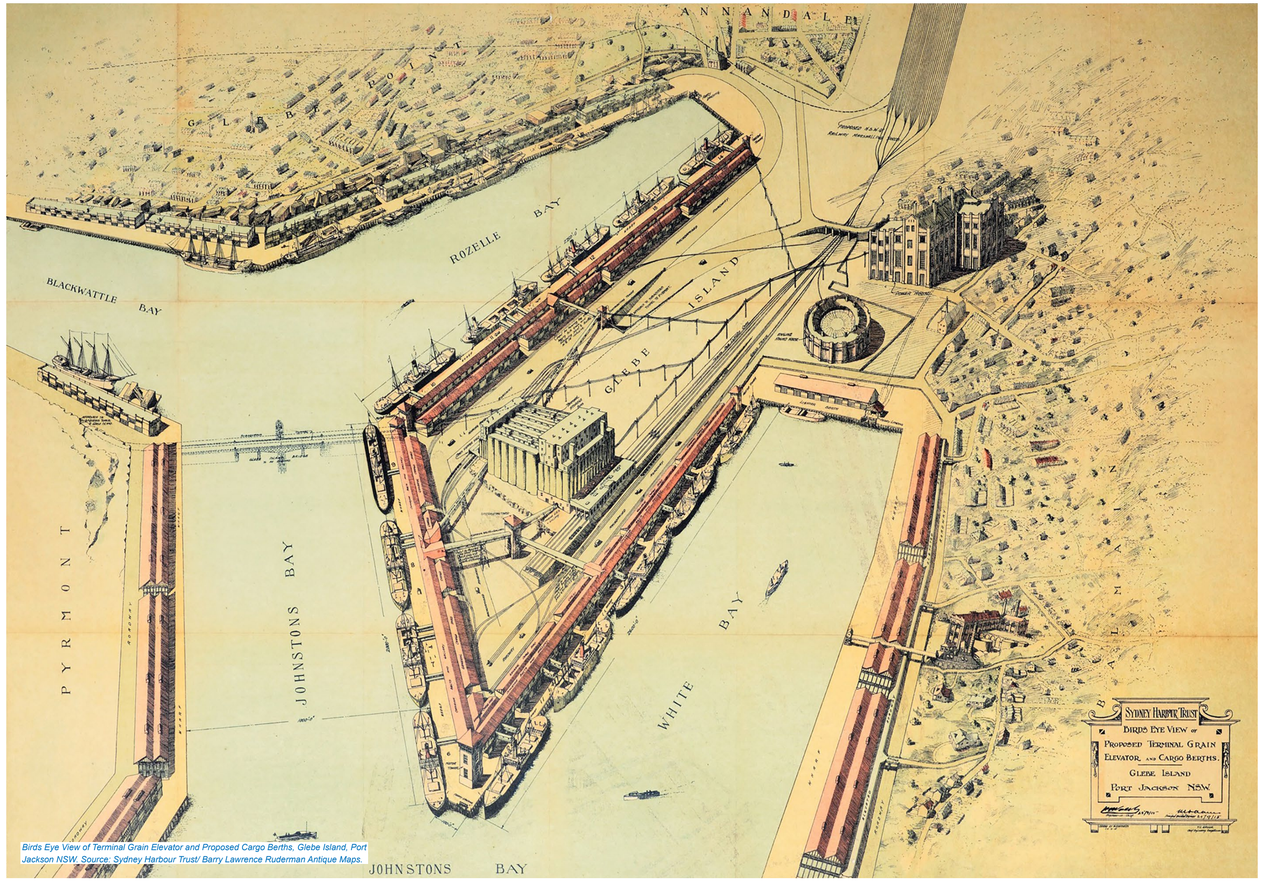
1889 to 1922



1922 to 2002



Figure 3-16: Maps illustrating the industrialisation of Sydney Harbour. Source: 'A short geological and environmental history of the Sydney estuary, Australia', Rob Birch.



Birds Eye View of Terminal Grain Elevator and Proposed Cargo Berths, Glebe Island, Port Jackson NSW. Source: Sydney Harbour Trust/ Barry Lawrence Ruderman Antique Maps.

A changing shoreline

Comparison of the shoreline from 1788 onwards illustrates the high degree of change over time as a result of extensive urbanisation.

Rozelle was originally part of the 550-acre Balmain Estate granted to the colony's principal surgeon William Balmain in 1800 which occupied already reclaimed areas of the Rozelle estuary.

With the spread of industry in the early 1800's, areas of the foreshore were reclaimed to create even working surfaces, provide housing for workers, and manage the disease believed to be caused by the swampy mangroves of the various creek estuaries in this area.

By 1890, the number of industries located within the area included meat preserving works, soap works, glassworks, a saw mill and later, a box making works.

Easton Park was partially reclaimed from 'five acres of low-lying probably flood liable land'. It was resumed for recreation ground in 1889 and proclaimed as Easton Park in 1890. Located close to the foreshore, it was the sole public space for recreation in Rozelle until additional lands were reclaimed.

Plans from the 1890s also show terraces and freestanding houses built along Lilyfield Road (previously known as Storey Street and Abattoir Road). A number of these mid-nineteenth century buildings remain today, including Floods Hotel, located on Gordon Street.

By 1915, residential development increased dramatically with the closure of the abattoir and the building of the White Bay Power Station.

By the mid 1940s, Rozelle was fully developed with the mix of industrial and residential character we see today.

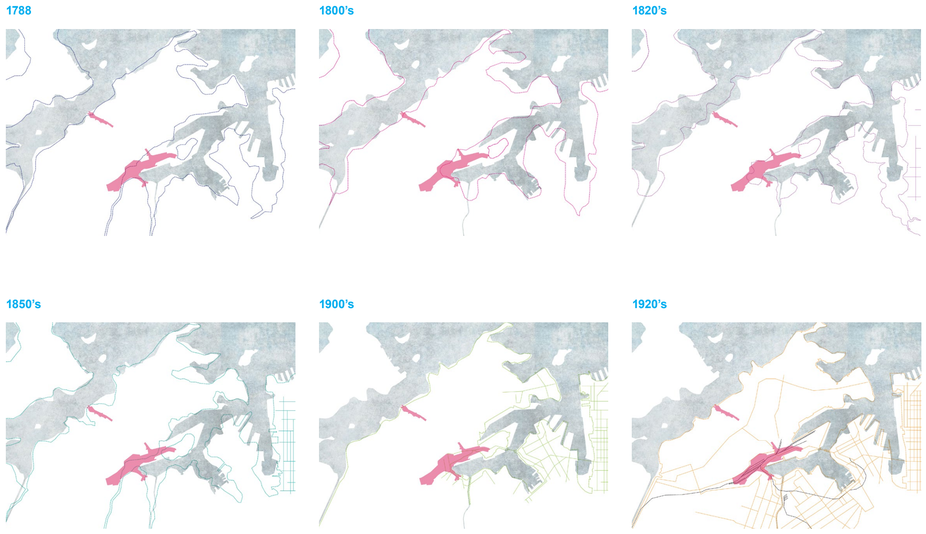


Figure 3-17: Interpretive maps showing the changing shoreline and development over time (Maps are indicative only based off tracing various historical maps)

INTERPRETIVE THEMES

The adjacent diagram interprets the original '1788 shoreline' and the extent of land reclamation around The Bays Precinct.

Prior to the reclamation of land and development of the Rozelle Rail Yards, it is understood that the area largely comprised backwater and tidal flats fed by Whites Creek and several other minor tributaries. Historical documents describe that the area comprised mangroves, swamp and estuarine environments.

Maintaining a connection to the old 'shoreline' has remained a key theme throughout the design process. This has guided the Project's approach to landscape restoration, the location and siting of drainage and water quality treatment ponds, as well as potential interpretive overlays for a Pre-1788 heritage.

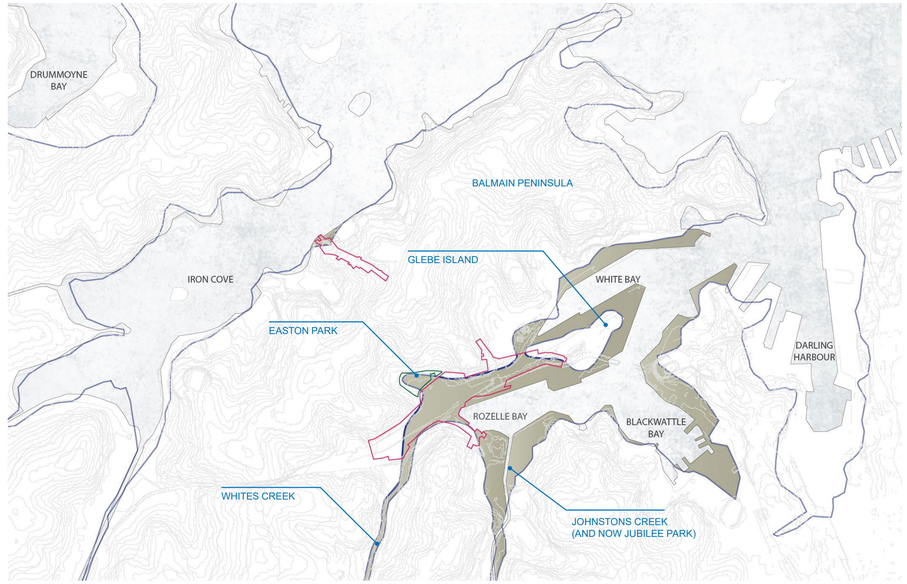


Figure 3-18: Interpretive diagram illustrating extent of land reclamation since 1788

Project Area

Interpretive extent of land reclamation in the vicinity of the Project

Development of the rail yards

In June 1916, the Rozelle Rail Yards was created as part of the Goods Railway Line. It was designed as a holding yard for traffic proceeding to Darling Harbour, which was Sydney's main goods yard at that time.

Following the closure of the Glebe Island abattoir, and grain and coal handling facilities and wharves were developed at White Bay near the yards facility.

The Rozelle Rail Yards were created by filling in much of the White Creek estuary, and through the quarrying of the rugged sandstone outcrops which are shown along the foreshore.

Two large brick overbridges, the Catherine Street overbridge and the Victoria Road overbridge, were constructed in the 1920s as part of a larger rollout of overbridges across the goods rail network. They likely used bricks from the State Brickworks in Homebush.

During World War II, the Rozelle Rail Yards became a storage area for the United States Army. Since World War II, the goods yard has held a variety of freight. Train loads of wheat, barley, and other grains came in from numerous country branch lines and were transferred to silos for storage before being loaded onto the ships.

Coal exports from the 1960s saw many trains loaded with coal move through an unloader and then move along to the departure road once emptied.

In 1996, the goods line from Pyrmont to Rozelle closed, bringing an end to 80 years of use at the yards, for marshalling trains and goods on their way into and out of the city.

In 2000, the light rail to Lilyfield opened using the tracks from the Rozelle Rail Yards near Brennan Road.



Figure 3-19: Pre-site clearing aerial photo. Source: https://maps.six.nsw.gov.au/

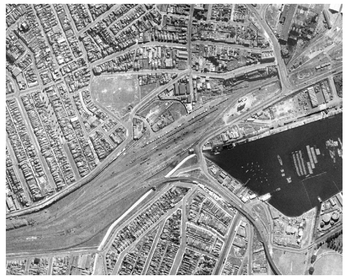


Figure 3-20: 1943 Aerial Photo. Source: https://maps.six.nsw.gov.au/

INTERPRETIVE THEMES

As a former rail yard site, the industrial legacy and memory of the site has featured in the Project's design approach.

Prior to the commencement of the Rozelle Interchange Project site management works were undertaken at the Rozelle Rail Yards site, which included the removal of a lighting tower and rail gantry associated with previous uses of the site.

The Project will consider opportunities to reuse these items salvaged in accordance with the Heritage Management Plan to integrate them within the final urban and landscape design.

Another key consideration for the Project team has been to maintain pedestrian connectivity between the Rozelle Rail Yards and White Bay following the old rail lines and preserving the 'accidental view' from Victoria Road to the Harbour Bridge. This is illustrated by the diagram and images on the following page.



Rail gantries within Rozelle Rail Yards, The Bays Precinct Sydney





White Bay power station c1930, City of Sydney Archives

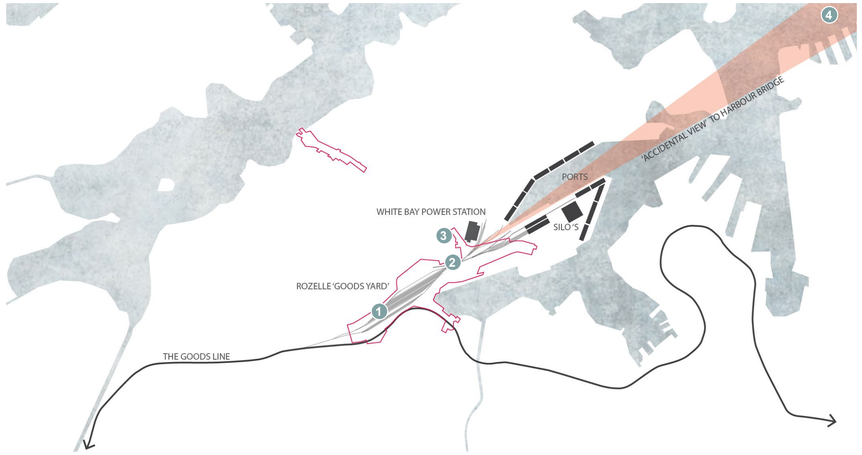
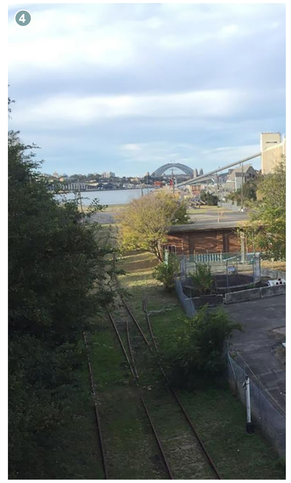


Figure 3-21: Diagram showing extent of rail, port and power industries in the early 1920's



3.3 The legacy of urbanisation

Barriers to access and movement

As a consequence of the precinct's long association with land reclamation and heavy industry (road, rail, maritime, fabrication and power generation), the areas of Rozelle and Iron Cove have become fragmented urban environments where regional, local and neighbourhood traffic are intermingled, creating congestion and an unclear hierarchy of movement.

ROZELLE RAIL YARDS

As described in the EIS Appendix L, the Rozelle Rail Yards and surrounds are dominated by major road connections between Anzac Bridge, City West Link, The Crescent and Victoria Road.

Connectivity between the suburbs of Annandale, Glebe, Rozelle and Lilyfield is governed by the existing road infrastructure which is difficult, in-direct, challenging and generally of low quality. The extended intersection of Lilyfield Road, Victoria Road, City West Link and Anzac Bridge occurs at an elevated level, disconnected from the Rozelle Rail Yards and Rozelle Bay foreshore.

Rozelle Rail Yards, due to its size, function and topography in relation to nearby neighbourhood streets, such as Lilyfield Road, has historically been a key barrier to any additional north to south connectivity between Victoria Road and Catherine Street.

As a result of these natural and constructed barriers, the neighbourhoods of Lilyfield and Rozelle are disconnected from the foreshore pedestrian and cycling routes, such as the Glebe Foreshore Walk, are truncated at the intersection of The Crescent, City West Link and Victoria Road.

There is an over-reliance on public buses as the dominant mode of public transport in the area. Public transport options such as the light rail stops at Lilyfield and Rozelle Bay, are difficult to access for residents north of the rail yards.

The Project has developed urban design strategies to ameliorate some of these barriers by improving existing and/or creating new higher quality connections. Urban design strategies are explained further in this section.



Figure 3-22: Aerial View of Rozelle Bay

IRON COVE LINK

The area around the Iron Cove Link site is dominated by the major arterial corridor of Victoria Road, which connects Iron Cove Bridge to the north-west with City West Link and the Anzac Bridge to the CBD. Victoria Road also carries local and neighbourhood traffic from Darling Street to Iron Cove.

Public buses are the only mode of public transport in the area with bus stops predominantly located along Victoria Road.

Shared footpaths are constricted immediately adjacent to high volumes of traffic on Victoria Road as they connect to public parklands that are linked together by the Bay Run, King Georges Park and Callan Park. The extensive foreshore walk supports a broad range of activities including cycling, dog walking, running events and sight-seeing.
The main pedestrian connection between Blackwattle Bay and Drummoyne is across the Iron Cove Bridge.

Victoria Road, due to its scale and volume of traffic creates a major barrier to cross-street connectivity with a single, signalised crossing located at Terry Street. As such, the neighbourhoods of Balmain and Rozelle are poorly connected.

The Project will improve the existing condition by creating a 'green link' that provides much needed amenity for pedestrians and cyclists travelling along or across Victoria Road. Urban design strategies explain the Project's approach to achieving this.



Figure 3-23: Aerial View of Iron Cove

3.4 A new outlook for a connected Sydney

As a catalyst for urban renewal, the Project will re-connect the suburbs of Rozelle, Lilyfield, Annandale and Balmain.

The design process has been informed by the key strategic documents outlined in Section 2 of this UDLP. Supported by these documents, the Project has incorporated their strategic intent, particularly drawing from the 'Sydney Green Grid' and the 'Urban Tree Canopy Guide' to create meaningful, well-connected public open spaces with an extensive urban tree canopy.

Connecting to the Green Grid

The Sydney Green Grid (GANSW 2017) promotes the creation of a network of high quality open spaces that support recreation, biodiversity and waterway health.

The Green Grid establishes the framework that will create a green network that connects strategic, district and local centres, public transport hubs and residential areas.
It identified the following opportunities in the vicinity of the Project:

- (4) Sydney Harbour foreshore and Parramatta River Walk
- (17) White Bay foreshore and open space
- (29) Lilyfield Road active transport corridor
- (33) Sydney Harbour Bays Green Links - Balmain and Rozelle
- (39) Whites Creek and Whites Creek Lane

REALISING GREEN GRID OPPORTUNITIES

Within the confines of the Project boundary, the Project has supported the Green Grid opportunities by improving connectivity and quality of open space connections by:

- (4) At Iron Cove, pedestrian and cyclist connections will be improved, including the quality of open space
- (17) A shared user path bridge over City West Link will improve connectivity from Rozelle to the foreshore via The Rozelle Bay Light Rail stop and a signalised crossing at the intersection of The Crescent and Johnston Street
- 29) East-west connectivity for pedestrians and cyclists following Lilyfield Road will be improved and accommodate future connections (by others) to priority Projects such as the Greenway and Hawthorne Canal
- (33) The character of Easton Park will extend through to the Rozelle Rail Yards with improved connectivity accommodating future connections from Callan Park to the Rozelle Rail Yards (by others)
- (39) A north-south pedestrian crossing over City West Link will connect Lilyfield Road to Whites Creek and Cohen Park via the Rozelle Rail Yards

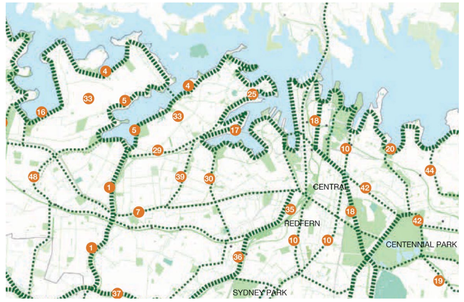


Figure 3-24: Green Grid opportunities; Source: Sydney Green Grid, Government Architect of NSW, 2017



Figure 3-25: Integration with the Sydney Green Grid

Contributing to Sydney's urban forest

A renewed focus by the Government Architect (GANSW) has been placed on the importance of the urban tree canopy, and its capacity to improve urban climate, ecosystem and human health, and enhance wellbeing for our communities.

The *Urban Tree Canopy Guide (GANSW 2018)* has identified that an overwhelmingly high percentage of Sydney suburbs have less than 10% canopy cover.

The document provides objectives, recommendations and targets to preserve and enhance the urban tree canopy.

The target is to achieve 40 per cent urban tree canopy cover across the Greater Sydney Region by 2036 and the Project is committed to positively contributing to this vision for a 'greener' Sydney.

PROJECT TREE CANOPY

With the objectives of the Urban Tree Canopy Guide in mind, the Projects seeks to maximise tree canopy coverage within the Project.

Under the guide, the Project area falls under the classification of an 'inner city' area which assigns a tree canopy target of 25 per cent.

The Project will create a diverse tree canopy that supports the public domain and operational areas of the Project.

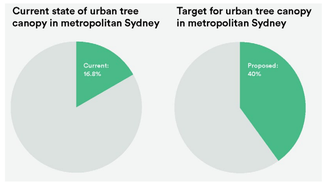


Figure 3-26: Tree canopy targets
Source: The Urban Tree Canopy Guide, Government Architect of NSW, 2018

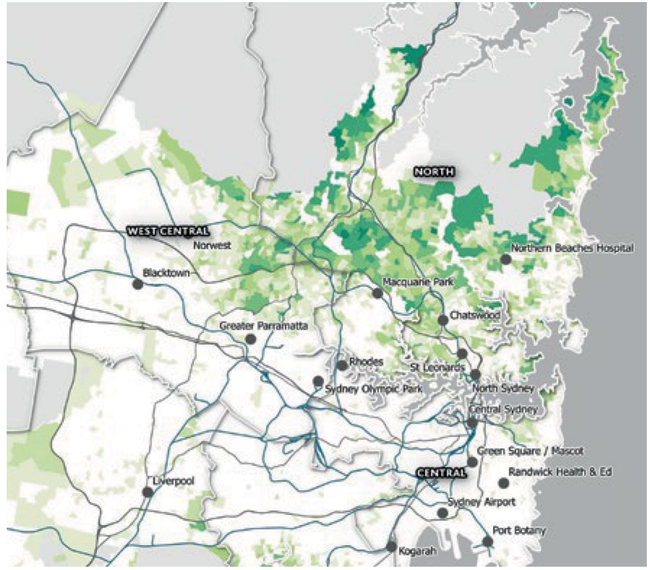


Figure 3-27: Tree canopy cover within Greater Sydney (2011); Source: The Urban Tree Canopy Guide, Government Architect of NSW, 2018

3.5 Urban design objectives

JHCPB's urban and landscape design objectives align to the objectives of the WestConnex Urban Design Framework and EIS objectives to deliver benefits to both road users and the community.

JHCPB is committed to achieving high quality visual outcomes. The Project will integrate high quality architecture with the engineering solution which will sensitively blend with the diverse communities.

Principles used in the urban and landscape design to achieve the objectives are derived from the RMS urban design guidelines Beyond the Pavement and include the following:

Leading edge environmental responsiveness

JHCPB's design prioritises minimising land acquisitions and optimising land use to reconnect communities and maximise opportunities for urban revitalisation along the alignment. The urban and landscape design integrates the following sustainable principles:

- Protect and retain as much existing vegetation as possible to minimise the footprint, maximise vegetated screening and reduce community concerns over loss of green space and green links
- Using only containerised planting stock to facilitate rapid establishment of new landscape installations
- Feature plant species that reinforce local Cumberland Plain indigenous plant communities
- Use appropriate vegetation treatments appropriate to reinforce key landscape patterns and enhance ecological value and connectivity where possible
- Key elements such as retaining walls will have a textured surface with an anti-graffiti paint to discourage vandalism
- Balance the composition of built form and landscape by maximising planting opportunities that visually compete with the scale of the proposed infrastructure elements

Connectivity and legibility

The Project will create a simple, legible and inviting design solution that will build connectivity across the city, within and beyond the boundaries of the Motorway, enhancing journeys for drivers, pedestrian and cyclists alike. The Project will:

- Provide self-explanatory roads and ease of wayfinding through simple and refined treatments of tunnel entry and exits, tunnel portals and facilities to make an enjoyable and legible journey for drivers
- Minimise disruption or changes to shared paths for pedestrians and cyclists around tunnel entry and exit points to maintain connectivity

Place making

The Project will add to local places, streets, structures and landscape, and minimise impacts on the local community through the following design treatments:

- Using high quality and functional materials
- Activating the edges of public spaces through the design and by considering pedestrians and cyclists and adjacent land uses
- Interpret and enhance local heritage where applicable

Urban renewal and liveability

JHCPB has considered an integrated design with the local movement networks, places and land uses to enable opportunities for urban renewal and to create a more attractive place to live, work and socialise.

The design has prioritised minimising land acquisitions and optimising land use – to reconnect communities and maximise opportunities for urban revitalisation along the alignment.

JHCPB's design aims to avoid 'isolated land' and remove through traffic by:

- Consolidating and simplifying structures and alignments to enhance surrounding areas
- Improving access to public and active transport
- Restoring local street, pedestrian and bus connectivity (a regular street edge)
- Removing surface traffic which will achieve long term improvement in air quality and noise on surface roads and streets which support pedestrian activity
- Widening footpaths to improve amenity for pedestrians and cyclists
- Providing extensive tree planting of endemic species to achieve tree canopy cover for shade, shelter and habitat
- Featuring coloured built elements to add interest and identity
- Considering the future land use of existing commercial areas that could potentially be rejuvenated - to be developed during detailed design
- Maintaining vegetated screening by reducing existing vegetation loss and enhancing existing vegetation screening by utilising similar plant species where possible

Memorable identity and a safe, enjoyable experience

JHCPB will provide a memorable identity and provide a high quality user experience for road users and adjacent stakeholders through the following:

- Keeping a simple and consistent language of built elements and components to minimise visual clutter
- Creating distinctive portal access points that reinforce the character of the local area, but also being respectful to each individual setting
- Utilising crime prevention through environmental design (CPTED) principles to provide safer spaces
- Maximising opportunities to provide a well vegetated 'green' corridor, protecting existing vegetation and avoiding small unmaintainable spaces.

A new quality benchmark

JHCPB will deliver a world-class solution for the Project that sets a new benchmark in the travel experience. The design will establish an identity for the existing Motorway and future stages by:

- Integrating the various existing and proposed new built form elements such as the dive structures, portals and retaining walls to reinforce an integrated design solution that enhances visual unity and clarity

These urban design objectives form the basis of design and evaluation at each phase of Project implementation. They will be considered in addition to the economic, safety, engineering and environmental objectives for the Project and contribute to the overall delivery of the works.

3.6 Urban design outcomes

The urban design elements used in this urban and landscape design embody the Project vision and philosophy, objectives and principles in a built outcome.

Outcomes for road architecture

The key design principles to achieve outcomes for road architecture throughout the Project are as follows:

- Considered design and arrangements of all elements as part of a family of elements that relate to each other and the existing road network. This will provide consistency and variety for a memorable, safe and enjoyable experience.
- Simplicity and refinement in the design, form, materials and arrangement of all elements with careful integration to adjoining elements
- Design of all elements must be relevant to the existing local context and road function

Outcomes for ventilation facilities

The key design principles to achieve outcomes for the design of ventilation facilities are as follows:

- Design as an integrated architectural element that is refined and elegant
- Consider the ventilation outlet ground interface and its vertical integration to the adjacent and distant existing built form and landscape
- Explore a unified design expression for ventilation outlets located near tunnel portals
- Form and character of ventilation outlets should respect local character and context
- Utilise robust, high quality and durable materials that are appropriate to context and can deter vandalism

Outcomes for tunnel approaches and portals

The key design principles to achieve outcomes for the design of tunnel approaches and portals throughout the Project are as follows:

- Design portals and approaches as unobtrusive architectural elements that are simple and refined, devoid of clutter and poor finishing
- Ensure precincts are beautiful, high quality, engaging and functional
- Design should attempt to respond to biophysical factors and reflect local context
- Provide attractive welcoming entrances that fit into the local built and natural fabric, and provide a gradation of light on approach
- Design to consider the integration of lighting, signage and art to enhance travel experience
- Use robust durable materials
- Use the portal area to add value to the community through the provision of open space, connectivity and vegetation

Outcomes for Motorway Operations Complexes and tunnel services buildings

The MOCs and associated services buildings form part of the broader family of the essential operational 'road furniture' that will exist along WestConnex, shaping its identity and character.

The key principles to achieve outcomes for the design of these facilities along the Project are to:

- Design facilities with a holistic approach to maintain consistency in quality and expression over the course of construction, and life of the overall Motorway
- Design as integrated architectural elements that are refined and elegant
- Consider the ventilation outlet ground interface and its vertical integration to the adjacent and distant existing built form and landscape
- Explore a unified design expression for ventilation outlets located near tunnel portals

Outcomes for lighting

Throughout the Project, lighting will enliven the travel experience over and above lighting for road safety. The key principles to achieve outcomes for the design of lighting throughout the Project are as follows:

- Dynamic and creative feature lighting should be energy efficient, devoid of light spill and be easy to maintain
- Feature lighting to create an artistic effect, articulate urban forms of walls and bridges, and amplify the night time experience
- Feature lighting to be located in select locations in line with the strategy so as not to dilute the power of each intervention
- Balance feature lighting with the constraints of cost, safety, context and environment

Outcomes for retaining walls

The key principles to achieve outcomes for the design of the retaining walls along the Project are as follows:

- All retaining walls must be designed to be a suite of elements
- Neutral in colour with non-reflective finishes
- Wall tops are to form continuous smooth flowing lines with no irregular stepping. If stepping is unavoidable, then stepping will be in a continuous, rhythmic and smooth overall alignment
- Wall plan layouts are simple, with straight or large radius curved alignments and without sharp changes of direction

3.7 Sustainable design

Consistent with other components of the WestConnex scheme, the Rozelle Interchange Project will achieve the objective to provide leading edge environmental responsiveness through the integration of sustainable principles.

The Infrastructure Sustainability Council of Australia (ISCA) Technical manual and rating tool will be applied on the Project, with the Project seeking an "Excellent" or better rating for both the design and as built stages of the Project. The technical manual notes that good urban design can contribute to:

- "economic and socio-economic performance – encouraging local businesses and entrepreneurship; attracting people to live in an area; providing affordable housing and travel; and providing equitable access to job opportunities, facilities and services
- physical scale, space and ambience - affecting the balance between natural ecosystems and built environments
- social and cultural environments - how people interact with each other, how they move around, and how they use a place.

The main, overarching objective of the urban design ISCA category is to achieve contextually appropriate infrastructure design. This is achieved through a collaborative, interdisciplinary approach that is influenced by the local context and creates infrastructure that fits its setting, whilst preserving and enhancing scenic, aesthetic, cultural, community, and environmental resources and values.

The urban design objectives in Section 3.5 of the UDLP reflect the sustainable design aspects identified above by ISCA:

- Leading edge environmental responsiveness – by retaining as much vegetation as possible, using containerised planting stock and using indigenous plant species the design contributes to achieving a balance between the natural ecosystem and built environment
- Connectivity and legibility – self-explanatory roads and ease of wayfinding make an enjoyable and legible journey for drivers; whilst connectivity is maintained for pedestrians and cyclists in and around the Project
- Place marking – the creation of safe and engaging public spaces attracts people to live in an area, whilst high quality, functional materials and heritage interpretation minimise impacts on the local community
- Urban renewal and liveability – the Project has sought to deliver an integrated design with the local movement networks, places and land uses, providing opportunities for urban renewal. Areas of isolated land have been avoided by consolidating structures, widening footpaths and providing extensive tree planting
- Memorable identity and a safe, enjoyable experience – through the use of simple, consistent built elements and components visual clutter is minimised, contributing to achieving balance between nature and the built environment, opportunities to provide a well vegetated corridor further contribute to this balance
- A new quality benchmark – the integration of existing and new elements reinforces an integrated design solution which contributing to achieving balance between nature and the built environment.

3.8 Community safety and privacy

The Project has implemented a comprehensive Safety in Design process during the design phase to ensure the safety of the community, including motorists, pedestrians, cyclists and park users, and personnel maintaining the operational Project. The following are some examples of measures take to ensure the safety and privacy of the community:

- Inclusion of screens on bridges which overlook residential properties
- Bridges are fitted with throw screens and handrails
- CPTED principles implemented in design of pedestrian and cyclist paths and the Rozelle Rail Yards parkland including the provision of lighting at the Victoria Road pedestrian underpass
- Barriers implemented to physically separate motorists and pedestrians where required by road design speeds
- All pedestrian and cyclists' paths to have a slip-resistant surface and adopt a max change in vertical level of 5mm to comply with AS1428.1
- Trees adjacent to pedestrian and cyclists' paths area selected to enable sight lines for users under the tree canopy or massed planting areas are generally less than 1m in height to maintain sight lines.

3.9 Visual amenity for adjoining receivers

The visual amenity of receivers adjacent to the Project has been considered in the urban and landscape design through the implementation of the following measures:

- The majority of the Project has been located underground, eliminating most amenity impacts for receivers
- The Rozelle Motorway Operations Complex has been located within an existing cutting, reducing impacts on residents opposite the compound on Lilyfield Road
- The Rozelle Rail Yards parkland includes an avenue of trees along the Lilyfield Road, providing screening for residents opposite the parkland
- At Iron Cove the tunnel entry and exit and westbound surface road have been sunken below the adjacent pedestrian and cyclist path, pocket parks and residential receivers minimising the amenity impact on pedestrians, cyclists and residents
- Where space permits, screening vegetation would be planted along the northern boundary of residents at Iron Cove
- Light spill from the sports fields lighting towers for the Rozelle Parklands is mitigated and is consistent with the requirements of Australian Standard 4282-1997 Control of the obtrusive effects of outdoor lighting and relevant Australian Standards in the series AS/NZ 1158 – Lighting for Roads and Public Spaces.

3.10 Local environmental and heritage values

The Rozelle Interchange Project has been designed to minimise impacts upon Aboriginal and non-Aboriginal heritage items and conservation areas within the vicinity of the Project, through the delivery of a predominately underground motorway interchange.

The elements on the Project which area above ground will have a direct impact upon one statutory heritage listed item, through the partial demolition of the Whites Creek Stormwater Channel No. 95, and direct impacts upon nine potential heritage items through partial or full demolition.

In addition to the undergrounding of the majority of the Project, heritage impacts would be further mitigated through:

- Retaining the two heritage listed items, the 'Cadden Le Messurier' (84 Lilyfield Road) and a former hotel at Rozelle (78 Lilyfield Road)
- Realise heritage interpretation opportunities including; interpretive signage and opportunities investigated to reuse salvaged rail related infrastructure within the Rozelle Rail Yards.
- Implementation of Aboriginal heritage interpretation and connection to country which is currently being consulted on with the local Aboriginal community.

3.11 Minimising the footprint of the Project

The Project footprint and surrounding area is largely disturbed and considered to have little ecological value, as identified in the EIS, however the Project has sough to minimise the footprint of the Project and clearing through:

- Designing a decentralised ventilation system, with the majority of the ventilation system located underground. This has maximised the area available for public use within the Rozelle and Iron Cove areas
- Implementation of the Flora and Fauna Management Plan which seeks to minimise the removal of high retention value trees.

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Rozelle Interchange
WestConnex
JOHN HOLLAND | CPB CONTRACTORS

Urban Design Concept

Artist's impression: view along boardwalk over constructed wetlands (Landscape shown at full maturity and is indicative only).

04



The Balmain peninsula and The Bays

4 Urban design concept

4.1 Urban design philosophy

The quality of urban and landscape design is becoming one of the accepted measures of a transport scheme's success in the urban and regional environment. Good design of the public domain is fundamental to quality of life in urban areas. Streets, roads, expressways and motorways constitute a large portion of public spaces and are one of the main ways that people interact with the living environment.

Infrastructure has the opportunity to deliver urban artefacts that define and give meaning to public space, in a way that is evocative, elegant, efficient and a celebration of our technology.

The Project's urban design philosophy is based on delivering high quality integrated design outcomes that display relevance, fit, durability and delight.

The urban design objectives and principles utilised on the adjoining WestConnex projects will also be incorporated to ensure consistency across the M4 East, New M5 and M4-M5 Main Tunnel Works projects in relation to urban design elements.

4.2 Urban design vision

WestConnex is a transformational 'city shaping' project for Sydney and will be delivered to the highest quality and to maximum community benefit.

The urban design vision for the Rozelle Interchange is to deliver infrastructure that is 'public' in nature, with people as the focus, leaving an enduring legacy for Sydney, the people who live in it and for future generations. As 'public' infrastructure, every opportunity will be espoused for the 'public good', providing places for people.

The approach is to develop contextual, refined and elegant design solutions that will benefit both road users and the wider community alike, setting a new benchmark for 'public' infrastructure development in this city.

The urban communities of Rozelle, Lilyfield, Annandale and White Bay will be re-connected by a new network of pedestrian and cycle links with the Rozelle Rail Yards Park at its heart.

The driver experience for the Rozelle Interchange will be centred on the integration of driver behaviour, safety and visual interest to relieve driver anxiety, through safe alignments and in-tunnel wayfinding.



*Figure 4-1: Artist's impression over Rozelle Rail Yards (landscape shown at full maturity and is indicative only). *Refer Figure 4-12 for revised layout.*



Artist's impression: Aerial view over Iron Cove (Landscape shown at full maturity and is indicative only).

4.3 Overview of urban design proposal

The key urban and landscape design features of the project are outlined below with further detail provided in the following pages.

ROZELLE INTERCHANGE:

- City West Link Portals:
  - M5 portal
  - Western Harbour Tunnel portal
- Rozelle West Motorway Operations Complex
- Shared path bridges
  - Rozelle Rail Yards Pedestrian and Cycling Green Link
  - Brenan Street Shared User Path Bridge
  - New Victoria Road Bridge (also a traffic bridge)
  - Whites Creek Bridge
  - Victoria Road Shared User Path Bridge (east)
  - Victoria Road Shared User Path Bridge (west)
- Rozelle ventilation facility
- Rozelle Rail Yards parklands and landscaping
- M4-ANZAC portals

IRON COVE LINK:

- Iron Cove Link portals
- Iron Cove Link facilities
- Iron Cove Link landscaping

TUNNELS:

- Underground network of tunnels (not part of this UDLP)

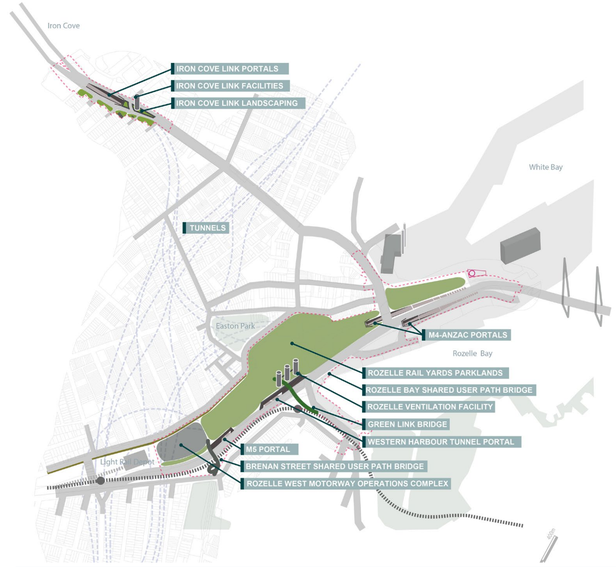


Figure 4-2: Overview of urban design elements

Rozelle Interchange

City West Link portals

Cut and cover portals constructed along the City West Link to cater primarily for traffic coming and going towards the M5 tunnels, and for the proposed future Western Harbour Tunnel.

Details of the City West Link portals are provided in Section 06 of the UDLP.

Rozelle operational facilities

Located in the western end of the Rozelle Rail Yards, the Rozelle West Motorway Operations Complex will comprise the majority of the motorway operations facilities for the Rozelle Interchange, including the following:

- Maintenance and operations facility
- Substation
- Fire water pumps and deluge tanks
- Water treatment plants; and
- Space-proofing for future Western Harbour Tunnel facilities.

Details of the Rozelle West Motorway Operations Complex facilities are provided in Section 7 of the UDLP.

Shared path bridges

A series of three primary north-south shared user path bridges providing the following connections over City West Link:

- Shared user path Bridge over City West Link at M5 portal, connecting Brenan Street and Whites Creek across City West Link to Rozelle Rail Yards and Lilyfield Road, and
- Green link over City West Link, connecting the southern side of The Crescent and Rozelle Bay Light Rail stop across City West Link to Rozelle Rail Yards and Lilyfield Road.

Other shared user path bridges include; the New Victoria Road Bridge (also a traffic bridge), Whites Creek Bridge, Victoria Road Shared User Path Bridge (east) and Victoria Road Shared User Path Bridge (west). Details of the bridges are provided in Section 8 of the UDLP.

Rozelle ventilation facilities

While the Rozelle ventilation facility is the largest above ground structure on the Project, it is partially immersed into the landscape. The trees and other planting in the parkland integrate with the vertical gardens installed on the ventilation outlet structures in an artistic and sculptural manner.

Details of the Rozelle ventilation facilities are provided in Section 7 of the UDLP.

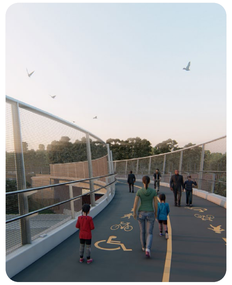
Rozelle Rail Yards parklands and surrounds

Built on the former rail yards, the Rozelle Rail Yards park will feature a minimum of 9ha of public open space. The Rozelle Rail Yards will become an enduring legacy of the Project's commitment to green infrastructure.

Details of the parklands are provided in this section of the UDLP.











Iron Cove Link

M4 - Anzac portals

The M4 dive approaches and portals will be located on the eastern end of the Rozelle Rail Yards, providing connections to and from Anzac Bridge and the new M4 East tunnels.

The portals will be designed as architectural elements that are attractive, welcoming and are consistent with the designed stages of WestConnex M4 East and New M5 projects.

Details of the M4 East portals are provided in Section 6 of the UDLP.

Iron Cove Link portals

Within Iron Cove Link, the tunnel portals have been designed to fit within the existing Victoria Road corridor and present as a new, sleek and refined element within an existing crowded infrastructure environment which is bounded by Iron Cove, and the residential and commercial properties along Victoria Road.

The portals and dive structures are designed to blend with the surrounding topography, and provide a safe and legible transition between the surface, dive structures and the driven tunnel. The portal design will be integrated with the required signage and safety requirements.

Details of the Iron Cove Link portals are provided in Section 6 of the UDLP.

Iron Cove Link facilities

A ventilation facility will be constructed near the portals at Iron Cove Link. The design includes the electrical substation and ventilation facilities being provided underground, which reduces the visible impact of buildings above ground, increases available landscaped areas and minimises impacts on the surrounding community.

The ventilation outlet is the most prominent element of this facility and is located within the median of Victoria Road behind the tunnel portals. There will also be a maintenance building located on the corner of Toelle Street and Victoria Road.

Details of the Iron Cove Link facilities are provided in Section 7 of the UDLP.

Iron Cove Link landscaping

Landscaping will be provided at Iron Cove Link, primarily in the median area behind the tunnel portals, and adjacent the new shared path located next to the westbound carriageway of Victoria Road.

The landscaped areas within the median have been designed to minimise the impact of the portal and ventilation outlet infrastructure, whilst the landscaped corridor adjacent the new shared path will enhance the Victoria Road corridor and provide a series of small landscaped areas for path users and nearby residences.

Details of the landscaped areas at Iron Cove Link are provided in this section of the UDLP.

Tunnels

Mainline Tunnels

The tunnels will include the following elements:

- Short sections providing architectural variation with patterned panel inserts at variable intervals
- Suburb location identifiers with custom image panels at selected locations in each tunnel
- Integrated wayfinding
- Coloured lining panels within breakdown bays
- All safety and emergency exit signage requirements.
- Feature lighting will comprise a series of vertical LED strips mounted between the tunnel lining panels on the opposite side of the tunnel to the spine.

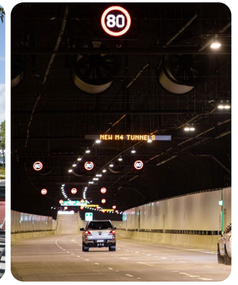
The design of the tunnels is not discussed further within this plan.













*Artist's impression: Rozelle Rail Yards. (Landscape shown at full maturity and is indicative only). *Refer Figure 4-12 for revised layout.*

4.4 Rozelle

Design Intent - 'The Green Heart' of the Bays

As a major contribution to public open space in Sydney, the Project has developed a city-scale vision for the Rozelle Rail Yards, the 'green heart' of The Bays Precinct and an extension of the open space around the harbour. This vision will see this site transformed into a post-industrial landscape that responds to the ever-growing demand for quality open space in a rapidly growing city.

As a guiding principle, the Project has sought to preserve, enhance and activate the parkland as a refuge for people, connecting the various needs of the city with the needs of the community.

To achieve this, The Project has sensitively integrated infrastructure that is required to operate the motorway (including elements of the future Western Harbour Tunnel).

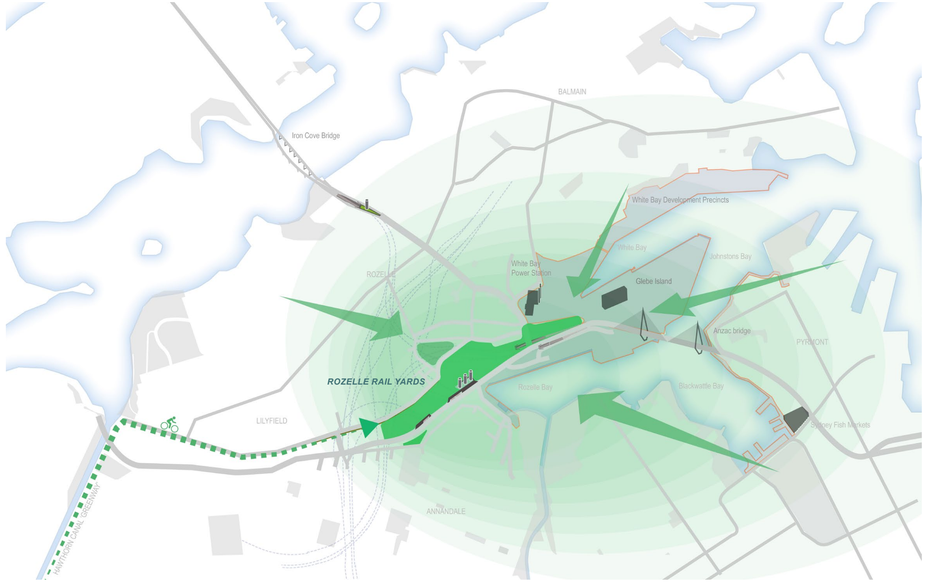


Figure 4-3: Rozelle Rail Yards - The 'Green Heart' of The Bays Precinct

Rozelle urban design strategies

The following urban design strategies demonstrate how the design solution aligns the vision for Rozelle, encompassing the Rozelle Rail Yards. Specific urban design strategies for the parkland at the Rozelle Rail Yards are provided in Section 4.6

Additional strategies relating to the landscape design approach (including water sensitive urban design) are provided in Section 5 of this UDLP.

Reconnect 'The Bays'

Existing infrastructure and development has created a major impediment to pedestrian movement between Glebe and Rozelle.

The Project provides an opportunity to reconnect the precinct and enable future connections to the White Bay area once developed.

The diagram illustrates the proposed pedestrian and cyclist connections which have been developed to comply with the requirements of the Active Transport Network that is described in Section 11 of this UDLP.

The Rozelle Rail Yards Pedestrian and Cycling Green Link will provide the major north-south connection from Easton Park to Jubilee Park via the Rozelle Bay Light Rail stop. A new pedestrian bridge will connect Cohen Park to Lilyfield Road.

The at-grade signalised crossing at the intersection of Victoria Road and City West Link will be retained.

A new off-road commuter path near Lilyfield Road will provide east-west connectivity through the Rozelle Rail Yards and accommodate future links to the Greenway and The Bays Precinct.

Along Lilyfield Road, the entire length of the Rozelle Rail Yards parkland will connect to existing street levels, enabling an accessible and permeable park frontage for the local community.

Maximise public parkland and open space

As an enduring legacy for Sydney, the Project has sought to maximise every opportunity to increase public parkland and open space.

Operational facilities have been consolidated to avoid the fragmentation of opens space, and buildings footprints have been reduced and heights lowered to allow for landscaping above.

As a minimum, 9ha of publicly accessible parkland is anticipated to be available at the Rozelle Rail Yards in or before January 2024.

Where possible, wide landscaped verges have been provided along the local roads, providing opportunities for relief and connection to the foreshore.

The approach to landscape design, tree species and plant selection in these new areas of open space is provided in Section 5 of this UDLP.



*Figure 4-4: Rozelle - Connectivity diagram. *Refer to Figure 4-12 for revised layout.*



*Figure 4-5: Rozelle - Parkland open space diagram. *Refer to Figure 4-12 for revised layout.*



Create a legible path network

A network of paths has been developed to provide the backbone for access and movement around Rozelle and reinforce the broader connectivity strategy.

A legible hierarchy of paths has been developed accompanied by public furniture, to provide variety and interest.

Path widths will be generally designed as follows:

- 5m wide separated pedestrian and cycle paths
- 4m wide shared paths
- 2m footpaths
- Main paths will be lit to the P2 lighting category to ensure safety and legibility at night.
- Paths will be constructed from high quality materials and finishes, drawing upon the character of the former rail yards.



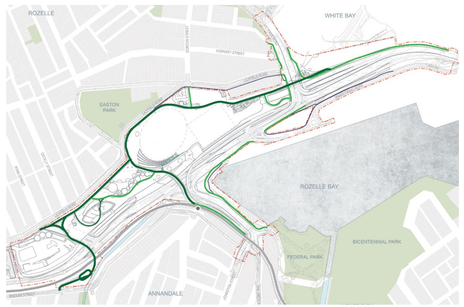


*Figure 4-6: Rozelle - Path hierarchy diagram. *Refer to Figure 4-12 for revised layout.*

Establish a vibrant and diverse parkland

Within Rozelle, the Rozelle Rail Yards will be transformed into a major regional public parkland.

As part of the 'Green Heart' vision for the parklands, a whole-of-park design approach to the Rozelle Rail Yards Park has been adopted to reinforce the identity of a single, continuous parkland supported by the use of consistent detailing, materiality, form and landscaping.

The Rozelle Rail Yards parkland has been arranged into five parkland precincts that responds to the varying site conditions, integrates with its surrounds and establishes the overall vision for the 'Green Heart'. The parkland precincts are described in further detail, later on in this Section.



*Figure 4-7: Rozelle - Rail Yards parkland open space structure. *Refer to Figure 4-12 for revised layout.*



Integrated operational facilities

The Project approach to infrastructure and motorway operational elements has been simple; consolidate or integrate with the purpose of maximising site area used for parkland and open space.

The motorway and tunnel operations facilities are, as far as practicable, located underground to improve the public parkland opportunities above ground. Consolidated operational facilities above ground are discretely located or partially subterranean wherever possible to enhance surface conditions and the parklands for the benefit of the community.

The majority of the above ground buildings have been consolidated within the Rozelle West Motorway Operations Complex. Access to this site has been provided via an existing access to the Sydney Light Rail Depot.

Due to the relative difference in level between Lilyfield Road and the Rozelle Rail Yards, these facilities will sit discretely, nestled between City West Link and the M5 cut and cover structure and screened by vegetation on all sides.

Outside of the Rozelle West Motorway Operations complex, the Project will construct a number of operational buildings that have been seamlessly integrated within the Rozelle Rail Yards parkland as possible by reducing footprints and lowering the building to allow for landscaping above as well as DDA compliant grades. In addition, a minimum 1000mm soil depth will be provided above all structures which is suitable for tree plantings.

Water quality basins will be incorporated into the parklands in the form of constructed wetlands, providing amenity for park users. These are described further in Section 5 of this UDLP.

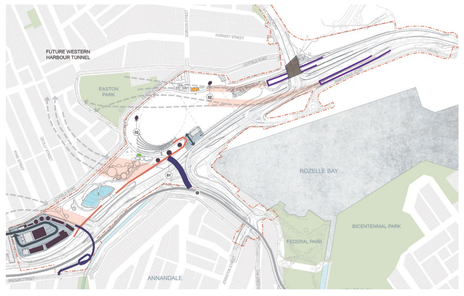


*Figure 4-8: Rozelle - Operational infrastructure project elements. *Refer to Figure 4-12 for revised layout.*

M4 - ANZAC DIVE PORTALS

Portals will be refined, elegantly designed elements that are consistent with M4 East and New M5 projects. Details are provided in Section 6 of this UDLP.

CITY WEST LINK PORTALS

Cut and cover portals constructed along the City West Link to cater primarily for traffic coming and going towards the M5 tunnels, and for the proposed future Western Harbour Tunnel.

Details are provided in Section 6 of this UDLP.





ROZELLE WEST MOTORWAY OPERATIONS COMPLEX

The Rozelle West Motorway Operations Complex (MOC) is co-located in the most westerly portion of the Project site alongside the Sydney Trains Inner West Light Rail facility. The facility is visually recessed below the surrounding street and parkland levels in an existing rail yard cutting, which reduces potential operational impacts on the surrounding neighbourhoods and the parklands. While the MOC contains utilities and related facilities, the structures are recessive as they are recessed in the landscape and have trees and landscape surrounding the facilities. This results in the whole facility being largely visually screened from public spaces.

The MOC is a high security area that includes man-proof fences and gates, illumination, and other security facilities. There is no public access to this area.

Details of the facilities are provided in Section 7 of this UDLP.

ROZELLE VENTILATION OUTLETS

To comply with Minister's Condition of Approval E118, the ventilation facility at Rozelle has been designed as a living, green system, integral to the 'Green Heart' vision of the Rozelle Rail Yards parkland.

Details of the ventilation facilities are provided in Section 8 of this UDLP.

ROZELLE VENTILATION INTAKE FACILITIES

Rozelle Interchange and Western Harbour Tunnel ventilation intake facilities are located in the Rozelle Rail Yards parklands, providing fresh air supply to the tunnel system. The air intake structures are part of the language of parkland landscape and, with vegetated screening, they will form major landscaped elements within the parklands.

PARKLANDS PUBLIC AMENITIES BUILDINGS

The Rozelle Parklands public amenities building is located centrally within the "active recreation" area of the park, on major circulation pathways to improve access to the facility. The amenities building incorporates toilets, hand washing and private space for changing clothes for public use.

An automated accessible public toilet facility has been located adjacent to the children's playground for ease of use and access.

Both buildings have been designed to complement the parkland character and nearby Rozelle Ventilation Intake Facilities.

PARKLANDS SPORTS FACILITY

A sports changing facilities has been located near the public amenities building to cater for needs of organised sports associated with the two fields within the active recreation area. The building incorporates changing rooms and amenities, umpire changins rooms and amenities, kiosk, accessible toilets and cleaning and storage facilitiies.

The building has been designed to complement the parkland character and the public amenities building.













Artist's impression: View from the landscape lookout above the Rozelle Ventilation Facility (Landscape shown at full maturity and is indicative only).

4.5 Rozelle concept plans

To achieve a lasting and cohesive design for Rozelle, an overall concept plan was developed to demonstrate the finished outcome for the Project.

The following concept plans illustrate the integrated urban design, architecture and landscaping approach. The plans highlight the location of main features such as buildings, facilities, paths and parkland elements.

Further detail relating to the parkland design at the Rozelle Rail Yards is provided in Section 4.6.

The concept plans also indicate the areas of the Project that have been designated as residual land which are subject to the Residual Land Management Plan as required under Ministers Condition of Approval E112.



Figure 4-9: Rozelle - Aerial view over City West Link (landscape shown at full maturity and is indicative only). Refer to Figure 4-12 for revised layout.



Figure 4-10: Rozelle - Landscape Concept Masterplan

Changes to Figure 4-11 since revision M include:

→ Inclusion of automated, accessible public toilet building along the main shared user path along Lilyfield Road in close proximity to the children's playground. Refer item no.11.



Note: further detail description for parkland elements in Rozelle Rail Yards parkland is provided in Section 4.6

Figure 4-11: Rozelle - Concept Plan - Drawing 1 of 4



Key Project Elements

1. *Rozelle Ventilation Facility*
2. *Western Harbour Tunnel Portal*
3. *Constructed wetland*
4. *Green Link Bridge*
5. *Residual Land (subject to the Residual Land Management Plan)*
6. *Whites Creek Shared User Path Bridge*
7. *Landscape terraces*
8. *Sydney Trains Switching Station*
9. *Maintenance access and hardstand area*
10. *Rozelle Ventilation Facility - Fresh Air Inlet*
11. *78-84 Lilyfield Road Terraces*
12. *Western drainage channel*
13. *Infants and Nature inspired playground area*
14. *Amenities building*
15. *Rozelle Bay Light Rail Stop*
16. *WHT Fire Egress Stairs Enclosure*
17. *Cricket pitch*
18. *Automated accessible public toilet*
19. *Sports changing facility*
20. *Multi-use courts (including basketball, netball, futsal)*

LEGEND

- *Proposed tree planting*
- *Sand ground cover for play areas*
- *Gravel paths*
- *Publicly accessible turf areas*
- *Landscape revegetation areas*
- *Constructed wetland*
- *Concrete Path*
- *Softfall ground cover areas for fitness and play*
- *Project Boundary*
- *Sports field fence*
- *Locations for sports field lighting*

Note: further detail description for parkland elements in Rozelle Rail Yards parkland is provided in Section 4.6

Figure 4-12: Rozelle - Concept Plan - Drawing 2 of 4



Key Project Elements

1. *M4-Anzac Entry Portal*
2. *M4-Anzac Exit Portal*
3. *Victoria Road Bridge and Pedestrian Underpass (below)*
4. *Victoria Road Shared User Path Bridge - East*
5. *Victoria Road Shared User Path Bridge - West*
6. *Public Access Stair*
7. *Rail Gardens and passive recreation areas*
8. *Ports Authority of NSW land*
9. *Southern Penstock (heritage item)*
10. *Existing Sandstone Rock Face*
11. *Street pocket parks, landscaping and western access stairs*
12. *Multi-use courts (including basketball, netball, futsal)*

LEGEND

- *Proposed tree planting*
- *Sand ground cover for play areas*
- *Gravel paths*
- *Publicly accessible turf areas*
- *Landscape revegetation areas*
- *Constructed wetland*
- *Concrete Path*
- *Softfall ground cover areas for fitness and play*
- *Project Boundary*
- *Sports field fence*
- *Locations for sports field lighting*

Note: further detail description for parkland elements in Rozelle Rail Yards parkland is provided in Section 4.6

Figure 4-13: Rozelle - Concept Plan - Drawing 3 of 4



Key Project Elements

1. *Rozelle Ventilation Facility*
2. *Western Harbour Tunnel Portal*
3. *Green Link Bridge*
4. *Residual Land (subject to the Residual Land Management Plan)*
5. *Whites Creek Shared User Path Bridge*
6. *Landscape terraces*
7. *Sydney Trains Switching Station*
8. *Maintenance access and hardstand area*
9. *Western drainage channel*
10. *Rozelle Bay Light Rail Stop connection*
11. *Street pocket parks and landscaping*

LEGEND

- *Proposed tree planting*
- *Sand ground cover for play areas*
- *Gravel paths*
- *Publicly accessible turf areas*
- *Landscape revegetation areas*
- *Constructed wetland*
- *Concrete Path*
- *Softfall ground cover areas for fitness and play*
- *Project Boundary*
- *Sports field fence*
- *Locations for sports field lighting*

Note: further detail description for parkland elements in Rozelle Rail Yards parkland is provided in Section 4.6

0 20 40 80m

Figure 4-14: Rozelle - Concept Plan - Drawing 4 of 4

Typical cross sections

Typical cross sections through Rozelle are provided within this section. Additional sections through the Rozelle Rail Yards parkland are provided in Section 4.6 of this UDLP.

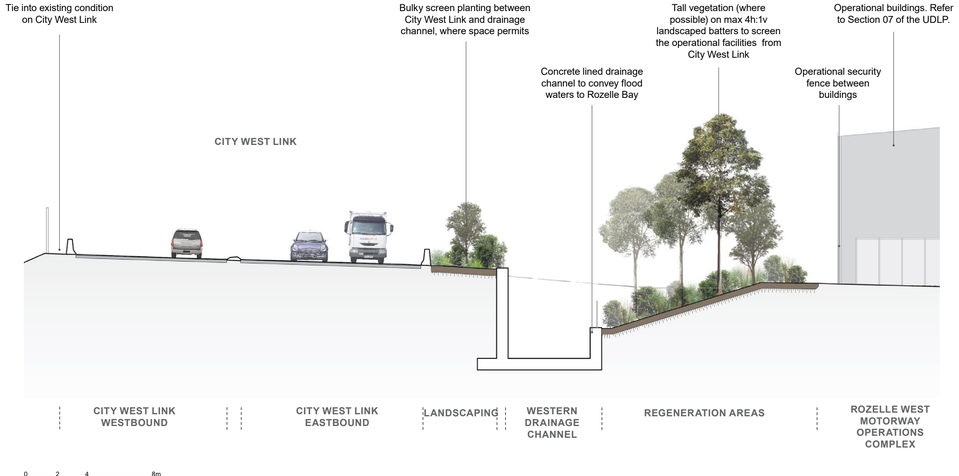


Figure 4-15: Rozelle - Typical section 01

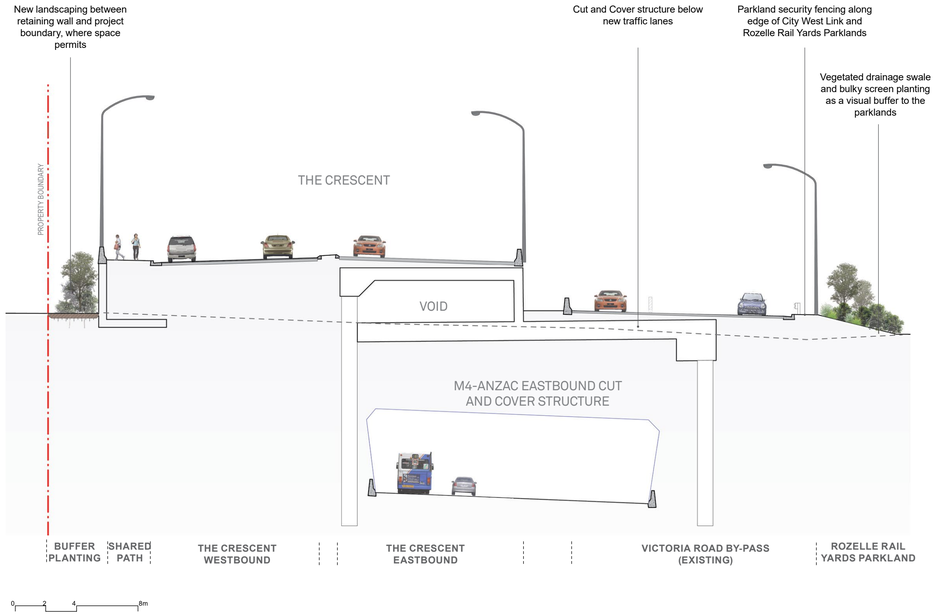


Figure 4-16: Rozelle - Typical section 02

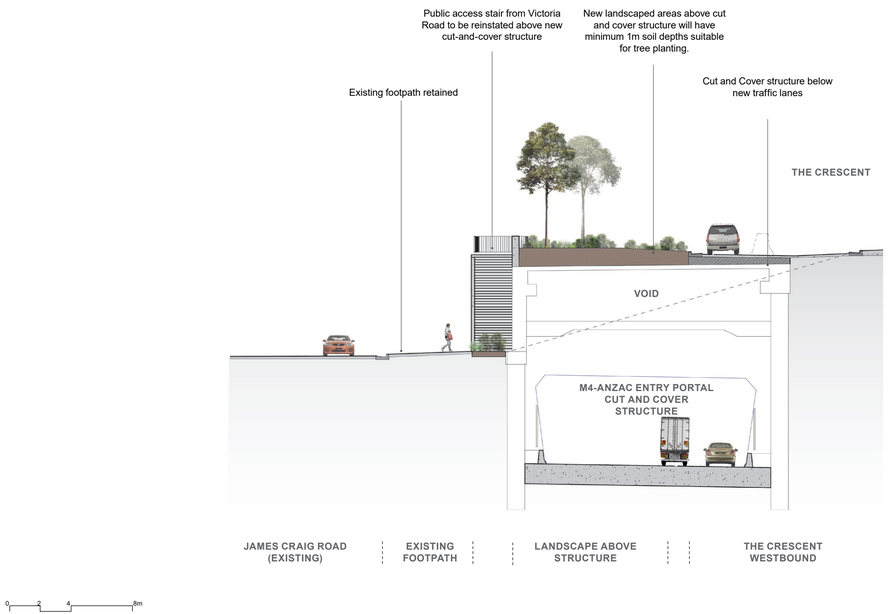


Figure 4-17: Rozelle - Typical section 03

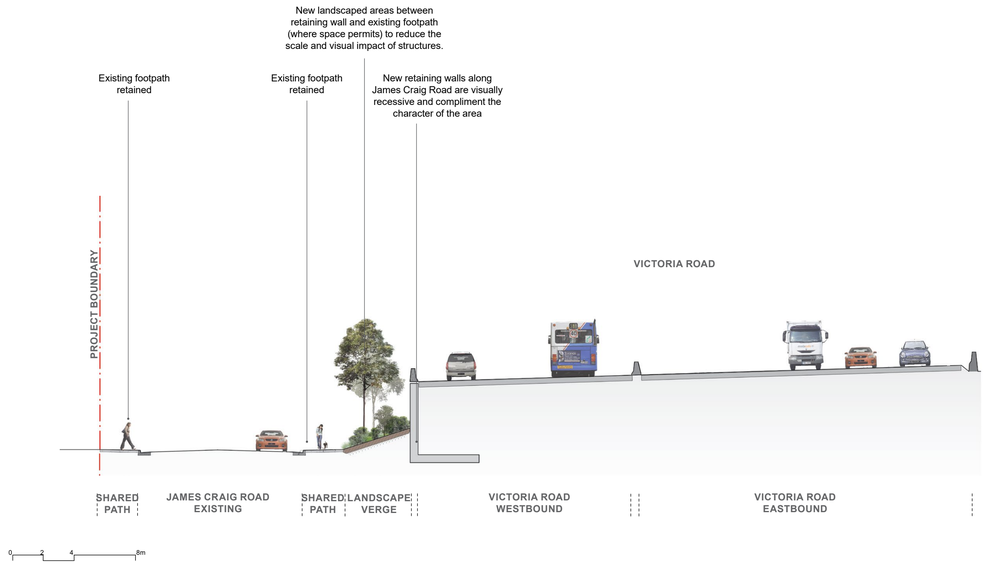


Figure 4-18: Rozelle - Typical section 04

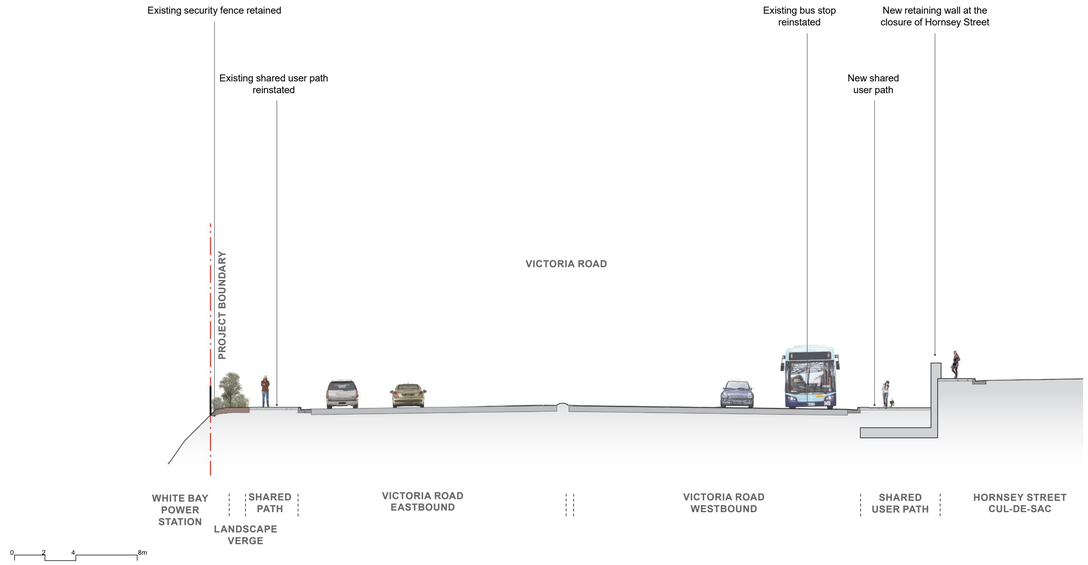


Figure 4-19: Rozelle - Typical section 05

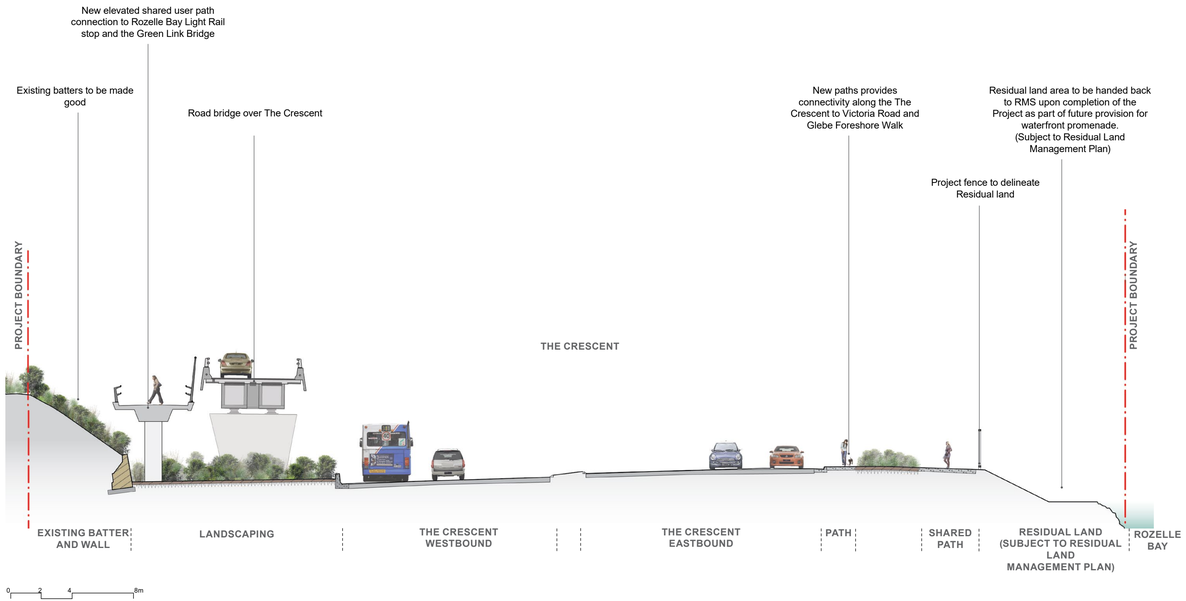


Figure 4-20: Rozelle - Typical section 06

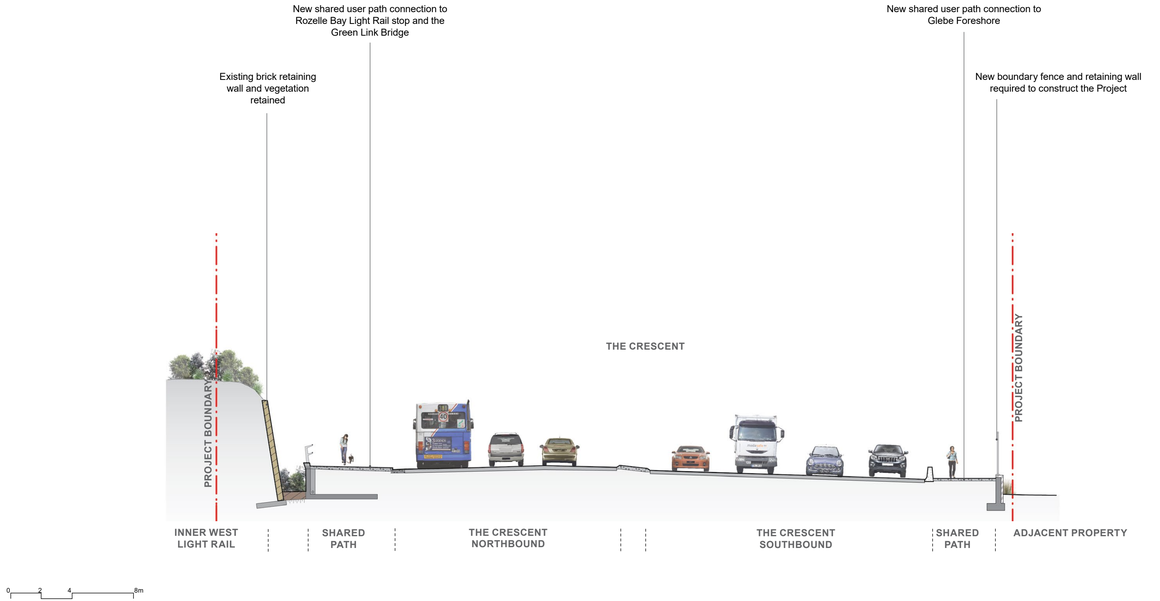


Figure 4-21: Rozelle - Typical section 07

4.6 Rozelle Rail Yards

Within Rozelle, the Rozelle Rail Yards will be transformed into a major regional public parkland.

As part of the 'Green Heart' vision for the parklands, The Project has developed a number of parkland specific urban design strategies, which build upon those outlined in Section 4.4, to ensure that the parkland provides an enduring legacy for Sydney.

The whole-of-park design approach to the Rozelle Rail Yards Park has been adopted to reinforce the identity of a single, continuous parkland supported by the use of consistent detailing, materiality, form and landscaping.

Parkland precincts

An over arching framework was developed for the parkland, as the principal rationale for organising the site and arranging all Project elements to support a diverse parkland program.

A number of zones were considered based on:

- → Compatible, functional requirements such as buildings, structures and drainage
- → Changes in topography, both natural and man-made
- → Compatible, adjacent land uses such as major roads, residential areas and open space.
- → Historical significance, such as the former rail yards and the original shore line
- → Existing natural features, and micro climatic conditions

The Rozelle Rail Yards parkland has been arranged into five parkland precincts that responds to the varying site conditions, integrates with its surrounds and establishes the overall vision for the 'Green Heart'.

The parkland precincts have influenced all aspects of the parkland design including the derived character/s, location of parkland elements, and buildings.

The parkland precincts have also influenced the vegetation typologies including tree canopy and planting selection, that draw upon the vegetation communities that would have existed in the area. Further detail is provided in Section 5 of this UDLP.

A general description of each precinct is provided on the following page.



*Figure 4-22: General open space structure at Rozelle Rail Yards. *Refer to Figure 4-12 for revised layout.*

MOTORWAY OPERATIONAL COMPLEX

This area, referred to the Rozelle West Motorway Operations Complex, comprises all necessary infrastructure required for a functioning motorway system.

The siting of these buildings has been considered in response to adjacent land uses, such as the Sydney Light Rail Depot, so they can be topographically concealed or visually screened from sensitive receivers.

Further details are provided in Section 7.

PARKLAND FOREST

Focused primarily on landscape restoration within a passive parkland setting, this precinct will draw on the character of former vegetation communities to create an urban forest that supports a diverse community program. This includes barbecue areas, picnic areas, playgrounds.

The constructed wetlands will be a focal point in this precinct, located near the 1788 foreshore line.

VILLAGE GREEN

As the heart of the Rozelle Rail Yards Park that hinges off the main north-south connection from Rozelle Bay, this precinct will extend the existing recreation and Village Green character across from Easton Park.

This precinct will combine active recreation in the form of organised sports and play opportunities, also allowing for temporary uses such as community-based events and/ or market gardens.

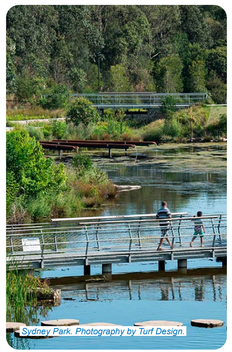
RAIL PARK

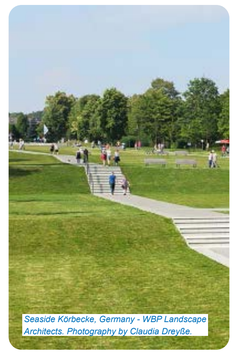
Reflecting on the legacy of former rail yards, this precinct will have a strong post-industrial urban language that will enable a consistent parkland transition into the future White Bay Cultural Precinct.

RIPARIAN CORRIDOR

Primarily catering to the overland flow and drainage requirements across the site, this area will serve as a revegetated riparian corridor and landscape buffer to the parkland from City West Link.


Chalmers Street Substation, Sydney. Source. Transport for NSW.


Sydney Park. Photography by Turf Design.


Seaside Körbecke, Germany - WBP Landscape Architects. Photography by Claudia Dreyße.


Landscape Park Duisburg Nord in Duisburg, Germany - Latz + Partners. Photography by The High Line.

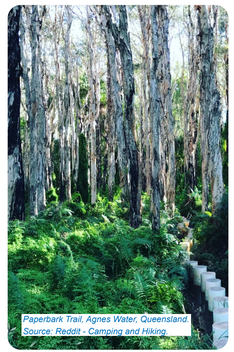

Paperbark Trail, Agnes Water, Queensland. Source: Reddit - Camping and Hiking.

Figure 4-23: Rozelle Rail Yards - Precinct Characters - precedent images only

Parkland activities and elements

Much like all parks of this scale and those along Sydney Harbour, Rozelle Rail Yards park will become a destination for locals and broader Sydney.

Creating a park that people desire to come to for leisure, play and respite requires a diversity of uses and elements that appeal to the local and regional demographics.

The Project team has developed a diverse program for a vibrant, attractive and usable parkland, and is outlined in this section.

Organisation of parkland activities

In conjunction with the parkland precincts described earlier, the Project has organised and grouped the various parkland activities into three general categories, to align complimentary activities and parkland uses to enrich the user experience.

The three activity groups generally relate to the type of recreation and quantum of people generally involved. They are:

- Active - Organised; catering for large groups (greater than 20 people) and potential organised sports, events and intensive uses
- Semi Active - Communal; activities that are less intensive, more communal and/or family oriented in nature and can allow for a varied number of patrons (up to 20 people)
- Passive - Personal; activities that are generally undertaken by individuals and small groups that are passive in nature and also include free space.

The activity groups are a guiding principle for the parkland but are not mutually exclusive. The diagram below illustrates how the activity groups have been broadly applied to the Rozelle Rail Yards parkland.

The spheres demonstrate how the active uses are generally concentrated in the centre of the parkland, and transition to semi-active and passive uses moving outwards to the edge of the parkland.

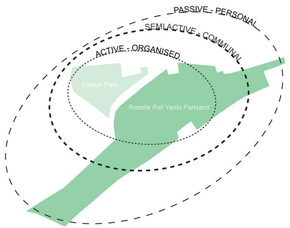


Figure 4-24: Rozelle Rail Yards - spheres of activity

Activities that support Connection to Country

The Project has developed the design of the parklands to incorporate Connection to Country.

Overall, the Connection to Country begins with the 'healing' the landscape through the re-establishment of broad revegetation areas and habitat creation in the parklands derived from the native vegetation communities that once existed in the area.

Within the revegetated parkland forests, bush tracks will link to main pedestrian and cycle paths offering different experiences of the landscape.

Access to the waters edge has been an important part of the design process with the location of the constructed wetlands located on the original shore line. Not far from the constructed wetlands, Yarning circles and the provision for fire pits have been included to enable social cohesion as places for gathering, ritual, ceremony and education.

The parkland will also include opportunities for integrated public art. An indigenous artwork will be provided in the Victoria Road Pedestrian Underpass drawing upon the shared history of the site. Details of the artwork are subject to further consultation with Inner West Council and the local community.

The locations of specific parkland elements are shown on the following page.

Rozelle Rail Yards parkland elements

The adjacent plan outlines the general configuration of all major parkland elements that will be constructed by the Project, and provide a diverse park outcome.

1 THE VILLAGE GREEN, ACTIVE SPORTS AND RECREATION AREAS

At the centre of the park, the open fields provide opportunity for active recreation and facilitate opportunities for large outdoor community events.

2 LANDSCAPE TERRACES

A series of landscape terraces will provide spectating opportunities across the Village Green and seamlessly connect the parkland located above the building structures.

3 FREE, UN-PROGRAMMED SPACE

'Free Space' does not have a specific use other than to provide flexibility and opportunity for a broad range of activities.

4 CONSTRUCTED WETLANDS AND BOARDWALK

The wetlands will be the focal point of the parkland forest, connected by boardwalks and parkland paths.

5 NATURE PLAY & INFANT PLAY AREAS

Two play areas will be constructed by the Project and is described further in Section 10.

6 BARBECUE GROUNDS

Barbecue facilities will be provided in close vicinity to the nature play area.

7 FITNESS STATIONS AND FITNESS TRAIL

A number of fitness stations will be located along a fitness trail to promote active, healthy lifestyles. Further detail in provided in Section 10.

8 YARNING CIRCLE

A yarning circle will be provided in the parkland forest near Lilyfield Road as an opportunity for local community gatherings or outdoor class room.

9 DISCOVERY BUSH TRAIL

Meandering paths through the parkland forest will provide a range of different native landscape experiences.

10 PARKLAND AMENITIES BUILDING

The amenities building has been strategically located to service the entire park, and provide convenience for active recreation and Infants Play.

11 RAIL GARDENS

The rail gardens are located at the same location and level as the former rail yards and will comprise of passive seating and gathering opportunities.

12 VICTORIA ROAD PEDESTRIAN UNDERPASS

A new 15 metre wide pedestrian underpass will enable east-west connectivity to Anzac Bridge and the future White Bay precinct.

13 RETAINED HERITAGE TERRACES ON LILYFIELD ROAD

The two heritage listed terraces (78-84 Lilyfield Road) have been retained by the project. They will be safeguarded for potential future adaptive re-use (by others).

14 THE HEADLAND LOOKOUT

The roof of the Rozelle Ventilation Facility will be an accessible part of the parkland providing a lookout over the park and towards Rozelle Bay.

15 SPORTS CHANGE FACILITY

A new changing facility will provide facilities for organised sports and use of the two playing fields

16 MULTI-USE COURTS

Two multi-use courts will provide community facilities for sports such basketball, netball and futsal.

17 AUTOMATED PUBLIC TOILET FACILITY

A new automated public toilet facility has been located adjacent to Lilyfield Road near the children's playground for ease of access.



*Figure 4-25: Rozelle Rail Yards - parkland elements and activities. *Refer to Figure 4-12 for revised layout.*

Not to scale

INTERPRETIVE ART AND HERITAGE OPPORTUNITIES

Opportunities for art and heritage interpretation elements will be organised and curated by the final operator of the Rozelle Rail Yards parklands.

A strategy for potential public art is provided on the following page.

Public art opportunities

The Rozelle Rail Yards Parklands urban design has been developed to provide opportunities for integrated public art.

This section describes the art strategy that has been prepared for the Project which is set in the context of the Rozelle Rail Yards Parklands 'green heart' and its cultural and environmental framework, and respects the evolution of past social and landscape interventions.

Inherent in this art strategy, is its changeability. Historically, art in parklands provides a legacy of monuments or objects, art of past eras and encrusts a patina across the parkland experience.

This strategy looks beyond and to the changing attitudes of society and the needs of a parkland space and responds accordingly. It promotes the principles of temporary or transient artworks which delight and stimulate, and are then are replaced with the new; it is at its heart evolving and from the earth.

PERMANENT INTEGRATED ART - EMBEDDED PROJECT ELEMENTS

Embedded artworks provided by the Project are created as part of the development of the establishment stages of the project, they are inherent in the set up and operations of the project, and are listed below:

1. **The Rozelle Ventilation Facility;** celebrates the ecological restoration of the project through plant growth and dynamic, fluid architectural expression. The ventilation outlets are the largest visible structures of the project (Refer section 7).
2. **The constructed wetlands feature lighting;** atmospheric 'reed' lighting, artistically illuminating the waters edge at night, taking environmental considerations into account (Refer Section 12).
3. **Victoria Road Pedestrian Underpass Mural Wall**; celebrates Connection to Country and interprets the shared indigenous and industrial past of the site that brought economic support to a range of communities in the working harbour.
4. **Re-use of heritage rail gantries and light tower;** potential adaptive re-use of stockpiled material subject to further validation and assessment. Refer to Section 13.

Embedded artworks are generally kept to a minimum to allow space for the ephemeral works to be developed throughout the remaining spaces, taking into consideration the functionality of the parkland space.

TEMPORARY / TRANSIENT ART OPPORTUNITIES

There are a number of locations which provide opportunities for temporary artworks or installations which would not be provided by the Project.

For the purpose of this strategy, they have generally been located at key entry locations to the park; other inner park locations may be suitable dependent on the works and locations.

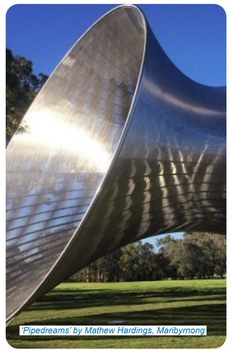
At each location, the artworks form designated points of arrival that traverse the parklands. One of these entry locations includes the Victoria Road underpass, which provides an opportunity to interpret the rail history of the site.

The identified locations could change over time and in response to demands.

All temporary art would be organised and curated by the final operator of the Rozelle Rail Yards parklands.



'The Nest' by David Bell and Gary Tippet, Darebin Parklands.



'Pipedreams' by Mathew Hardings, Maribyrnong

Figure 4-26: Rozelle Rail Yards - Temporary art opportunities - precedent images only

ROZELLE RAIL YARDS PUBLIC ART STRATEGY

The adjacent diagram represents the approach for public art that has been adopted by the Project.

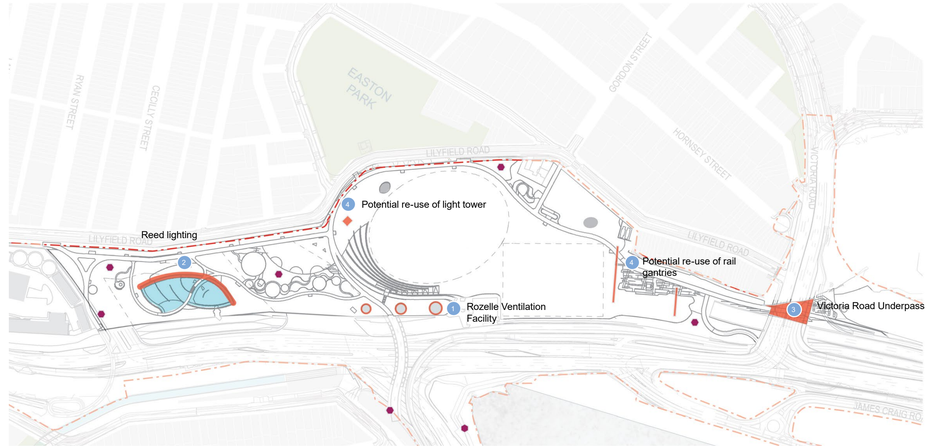


*Figure 4-27: Rozelle Rail Yards - public art opportunities. *Refer to Figure 4-12 for revised layout.*

Parkland precinct characters

The whole-of-park design approach to the new Rozelle Rail Yards Park has been adopted to reinforce the identity of a single, continuous parkland supported by the use of consistent detailing, materiality, form and landscaping.

In support of this, three parkland precinct character areas have been developed for the publicly accessible areas to inform the whole-of-park character. Each of these areas respond to the varying functional, environmental, social, programmatic requirements and former uses across the site.

The adjacent concept plan illustrates the overall structure of the parkland. Details for the urban design intent of each precinct are provided on the following pages.

Parkland character typologies

For each of the parkland precincts, character typologies were developed drawing upon the key design themes outlined in Section 3 of the UDLP.

The themes of the original shore line, industrialisation and land reclamation are recognised in the following three character typologies and have guided the overall arrangement and design of the parkland:

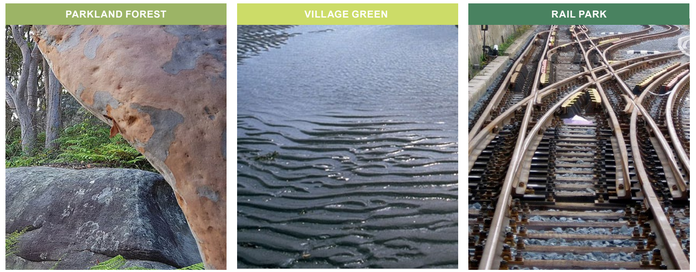
- → Ridge and escarpment
- → Tidal flats
- → Rail and industry

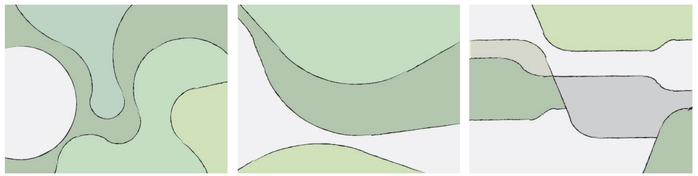
Each character typology will blend and transition across the parkland.



Figure 4-28: Landscape typologies

ROZELLE RAIL YARDS PARKLAND PRECINCTS





RIDGE AND ESCARPMENT

Supporting the naturalisation of the forest parkland precinct, the character will comprise of organic and sinuous forms, free-flowing lines and meandering paths.

TIDAL FLATS

Drawing on the character of the tidal flats that may have been in the Rozelle Rail Yards, the village green will comprise of broad, sweeping arcs and smooth flowing lines, to create a relaxed and open character.

RAIL AND INDUSTRY

Reflecting the utilitarian character and the former industrial uses of the site, this precinct will comprise and linear, industrial character.

Figure 4-29: Rozelle Rail Yards - Parkland character typologies

The adjacent plan and section illustrates how the character zones transition across the Rozelle Rail Yards parkland and respond to the varying natural and engineering features.

A detailed description of each parkland precinct is provided on the following pages.

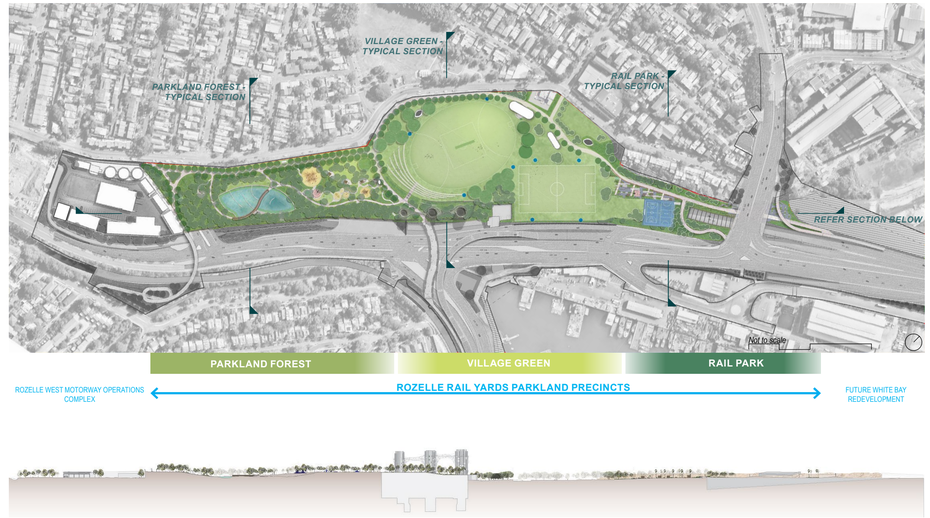


Figure 4-30: Rozelle Rail Yards - Parkland character zones plan and long diagrammatic section

PARKLAND FOREST

Focused primarily on landscape restoration within a passive parkland setting, this precinct will draw on the character of the coastal sandstone forests that would have once been in the area.

In this precinct, the parkland will match existing street levels along Lilyfield Road as it undulates over the M5 and Western Harbour Tunnel (WHT) cut-and-cover structures.

In between the M5 and WHT structures, the constructed wetland will provide a focal point for the parkland connected by a network of timber board walks, meandering paths and seating opportunities.

The constructed wetland will feature a permanent body of water that is maintained by the constant flow of treated tunnel water and stormwater that is pumped from the Water Treatment Plant within the Rozelle West Motorway Operations Complex. (described in Section 7).

Key elements in this zone include:

- Parkland plantings of trees and native understory/s that draw on native vegetation communities (refer to Section 5)
- The constructed wetlands which are required to treat tunnel and stormwater, which is a major component of the Projects water sensitive urban design approach (refer Section 5)
- A timber boardwalk across the constructed wetlands (refer Section 5)
- Feature 'reed' lighting around the perimeter of the wetland, to provide interest and delineate the waters edge at night (refer to Section 12)
- A nature children's inspired playground (refer to Section 10)
- 'Yarning' circle for outdoor education opportunities and local community gatherings
- Active Transport Network pedestrian and cycle connections (refer Section 11). All major paths will be lit (refer Section 14)
- A network of DDA compliant parkland paths allowing for safe, equitable access across the precinct.
- A 'Discovery Trail, comprising a network of informal, meandering paths, providing various landscape experiences.
- Fitness stations (refer Section 10)
- General seating and rest opportunities (refer Section 10).
- A specialist wetland ecologist was engaged to determine the optimal water conditions and plant species selection to minimise the mosquito population in the wetland area, primarily achieved by the use of brackish water in the wetland and enabling the development of an ecosystem that naturally controls insect populations.
- An automated, accessible public toilet within close proximity to the children's playground. Refer Figure 4-12 for revised layout.

The section below illustrates the general topography and arrangement of parkland elements in this precinct, supported by artist's impressions on the following page.

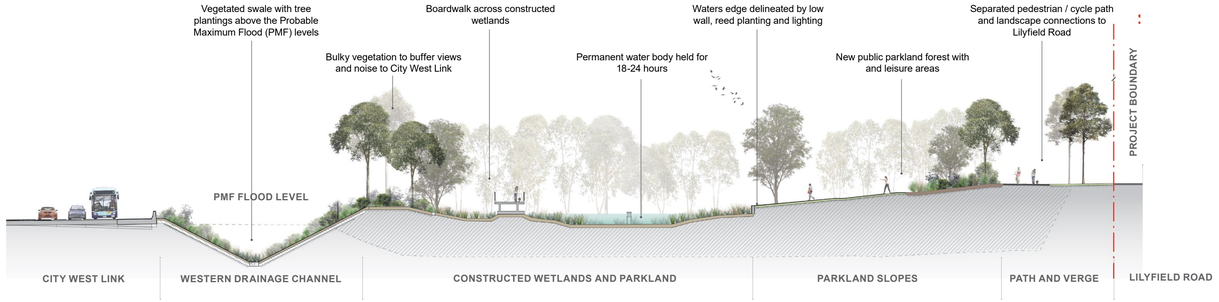


Figure 4-31: Rozelle Rail Yards - Parkland Forest - typical section



Artist's impression: The constructed wetlands in the Parkland Forest precinct of the Rozelle Rail Yards (Landscape shown at full maturity and is indicative only).

THE VILLAGE GREEN

At the junction of east-west and north-south Active Transport Network (ATN) paths, The Village Green will support the ever-growing need for active recreation and community events.

Grand parkland trees will extend from the character of Easton Park 'wrapping around' open fields to provide continuous shade and canopy.

The Rozelle Ventilation Facility has been sensitively integrated within the parkland to mitigate visual impact and will be screened and 'greened' with vegetation. The northern facade has been designed to incorporate a series of flowing, landscape terraces to reduces the visual scale of the building, and provide a variety of seating and spectating opportunities for the parkland users.

A network of soft, shallow, grassed swales will incorporate overland flow paths from Easton Park, to Rozelle Bay.

Key elements in this zone include:

- Active Transport Network pedestrian and cycle connections (refer Section 11). All major paths will be lit (refer Section 14)
- The Rozelle Ventilation Facility, which includes two fresh air supply inlets nestled within the parkland (refer Section 7)
- A parkland amenities building (refer section 7)
- Landscape terraces, which have been designed to face a northerly aspect and cater for a broad range of community activities
- A network of DDA compliant parkland paths allowing for safe, equitable access across the precinct
- Fitness stations (refer Section 10)
- General seating and rest opportunities (refer Section 10)
- Parkland plantings of grand fig trees with a predominantly turf understorey. Native grasses and bulky shrubs have been provided along boundaries only, where vegetation screening is necessary (refer to Section 5).
- A sports changing facility adjacent to the parkland amenities building to cater for organised sports during the use of the playing fields. Refer Figure 4-12 for revised layout.

The section below illustrates the general topography and arrangement of parkland elements in this precinct, supported by artist's impressions on the following page.

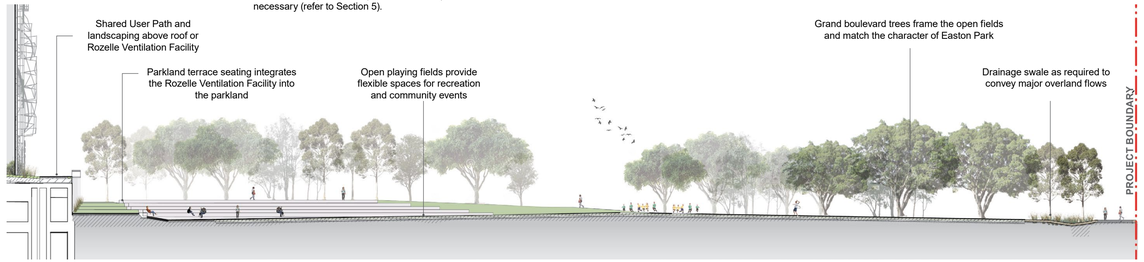


Figure 4-32: Rozelle Rail Yards - Village Green - typical section



Artists impression: Aerial view over the Village Green precinct (Landscape shown at full maturity and is indicative only).
**Refer Figure 4-12 for revised layout.*

RAIL PARK

The Rail Yard precinct is nestled between the existing sandstone cutting (which will be retained), City West Link and the M4 exit portal to Anzac Bridge (refer Section 6).

Reflecting on the legacy of the former rail yards, this precinct will draw on the linearity of the former rail yards and feature reclaimed materials, such rail tracks and gantries, that are embedded within the public domain, resulting in a fine tapestry of interwoven materials, finishes and plantings.

Paved areas have been designed as flexible 'outdoor rooms' that cater for small groups or gatherings and potentially outdoor learning spaces.

A wide, pedestrian underpass will be constructed under Victoria Road to facilitate the Active Transport Network, and enable the rail park character to become a unifying element once the White Bay Precinct is developed in the future (by others).

Changes to Figure 4-33 since revision M include:

→ Inclusion of multi-use courts.

Key elements in this zone include:

→ Active Transport Network pedestrian and cycle connections (refer Section 11). All major paths will be lit (refer Section 14)

→ A network of DDA compliant paths and paved areas allowing for safe, equitable access across the precinct

→ M4-Anzac exit portal and approach (refer Section 6)

→ Existing sandstone cutting which will be lit with feature lighting at night (refer Section 12)

→ Linear, paved areas that a staggered amongst planting areas to create a number of 'outdoor rooms'

→ Rail gardens set within paved areas and reclaimed rail track edges

→ Victoria Road Pedestrian Underpass (refer following pages for further detail)

→ General seating and rest opportunities (refer Section 10)

→ Planting design that responds to the gully-like environment industrial character of the precinct (refer to Section 5).

→ Multi-use courts located adjacent to the rail gardens providing opportunities for community recreation including facilities for basketball, netball and futsal.

The section below illustrates the general topography and arrangement of parkland elements in this precinct, supported by artist's impressions on the following page.

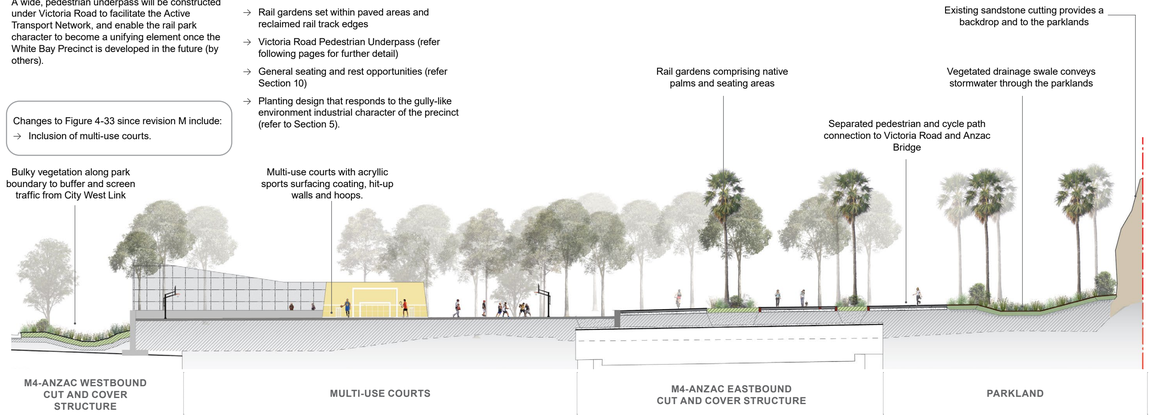


*Figure 4-33: Rozelle Rail Yards - Rail Park - typical section. *Refer Figure 4-12 for revised layout.*



Artist's impression - View along the Major Active Transport Network Park in the Rail Park precinct (Landscape shown at full maturity and is indicative only).
**Refer Figure 4-12 for revised layout.*

Victoria Road Pedestrian Underpass

The Victoria Road Pedestrian Underpass is a signature element within the Rail Park precinct. The purpose of the underpass is to promote the Active Transport Network connectivity for pedestrians and cyclists that is described in Section 11 of this UDLP. Provision for future connectivity to White Bay and Metro-West have also been fundamental considerations during the design process.

At its narrowest, the underpass is 15 metres wide on the western side of Victoria Road and 4.5 metres in height, widening to 28 metres on the eastern end. Further description on the bridge design is provided in Section 8.

The underpass has been designed to be safely lit to a level of P10 in accordance with AS/NZ AS 1158.7.

The design of the underpass has also carefully considered safe sight lines for pedestrian and preserved important contextual views to the harbour.

DESIGN INTENT

To create a safe, attractive and dynamic urban environment, the Project team has developed a contemporary design approach that interprets the former Rail Yards.

The notion of 'convergence' interprets the linearity, and dynamic sense of movement from goods passing under the bridge.

Both sides of the underpass have utilised perforated metal cladding to create a dynamic pedestrian experience.

On the northern abutment, a folded metal facade has been designed to reflect the idea of 'convergence'. The facade has integrated LED strip feature lighting, which converges onto the ground plane and incorporates senses which can detect and change with pedestrian movement.

On the southern wall, a mural wall made of perforated metal cladding has been considered as an opportunity for integrated public art.

INTEGRATED PUBLIC ART OPPORTUNITIES

The Victoria Road Pedestrian Underpass provides an opportunity for integrated public art that draws upon the cultural and industrial heritage of the site.

The mural wall has been developed by the Project to facilitate public art, with perforations in the metal cladding which can be adjusted to convey an image or artwork. The outcome for the perforated mural is subject to further detailed design and consultation.

The Project has considered a potential theme and 'shared histories' for the mural which may reflect on the migration of Aboriginal communities back into the cities as a result of jobs that were only available to them in places such as the Rozelle Rail Yards. Jobs, such as these, became the genesis for Aboriginal communities in Inner Sydney, such as Redfern.

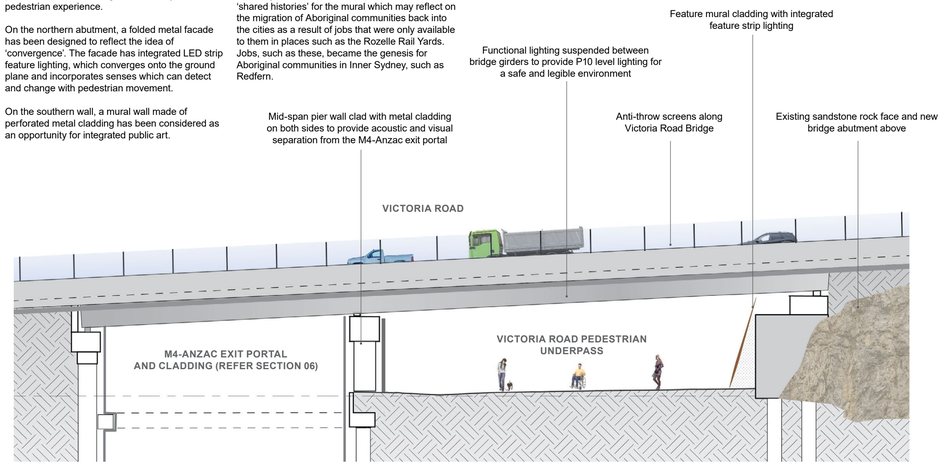


Figure 4-34: Rozelle Rail Yards - Victoria Road Pedestrian Underpass - typical cross section



Artist's impression of the Victoria Road Pedestrian Underpass (mural artwork shown indicatively) (Shown at full maturity and is indicative only).



Artist's impression: Aerial perspective of the Iron Cove Link (Landscape shown at full maturity and is indicative only).

4.7 Iron Cove Link

Design intent - The Iron Cove 'Green' Link

Victoria Road has historically been a vehicle-dominated environment, hostile to pedestrians and cyclists.

As part of the Iron Cove Link, the Project will establish a 'Green Link' along the southern verge that will create an attractive, well-landscaped boulevard that will provide much needed amenity and relief for all users.

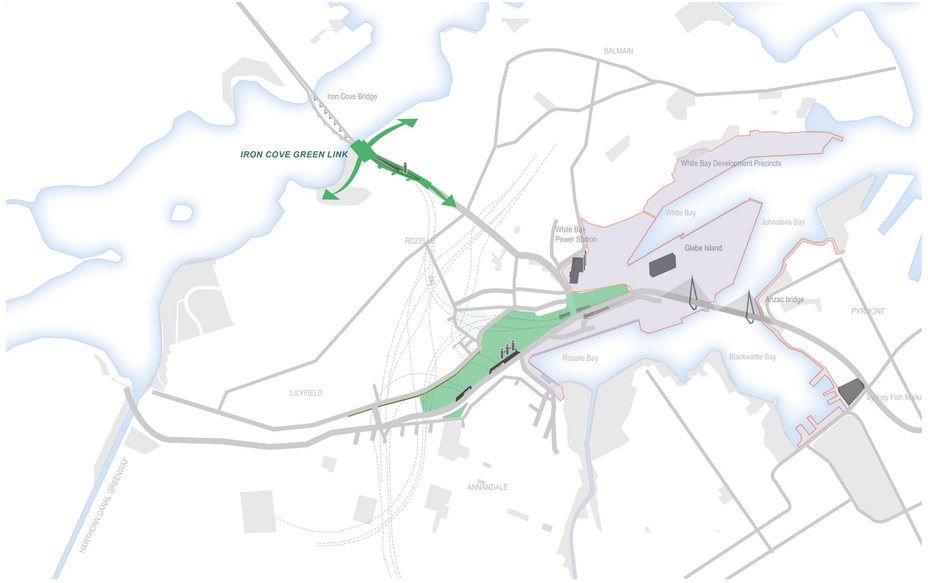


Figure 4-35: Iron Cove - 'The Green Link'

Urban design strategies

The following urban design strategies demonstrate how the design solution aligns the vision for the Iron Cove Link.

Additional strategies relating to the landscape design approach are provided in Section 5 of this UDLP.

Connect to the Bay Run

The approach to connectivity has sought to adopt the requirements of the Active Transport Network as described in Appendix N of the EIS.

The existing shared path will be upgraded and reconnected to the existing foreshore parklands including the Bay Run.

The existing signalised crossing will be reinstated at Toelle and Terry Streets maintaining the key north-south connection between the communities of Rozelle and Balmain. Pedestrians and cyclists will be able to cross within a wide, landscape median situated above the cut and cover structure.

As part of the Project, Clubb Street will no longer allow for vehicular access onto Victoria Road; Byrnes Street will continue to be a cul-de-sac.

To reinforce the urban design outcomes for the Green Link, the Project will utilise the new cul-de-sac's as shared pedestrian and vehicular zones, enabling safe and effective pedestrian and cyclist connections.

A continuous green link

The quality of available open space allows for the connection of passive green spaces and canopy as a linear parkland along Victoria Road and the remaining land with King George Park and Callan Park.

The primary objective of these spaces is to provide 'green relief' and offset the scale of the infrastructure as part of a pedestrian-friendly environment.

The design approach to tree canopy, species and plant selection is described in Section 5 of the UDLP.



Figure 4-36: Iron Cove Link - pedestrian and cyclist connectivity



Figure 4-37: Iron Cove Link - Green Link open space connections

Integrated operational facilities

The general approach to buildings in this area is to seamlessly integrate them into the urban context of Rozelle and Victoria Road.

The motorway and tunnel operations facilities are, as far as practicable, located underground to improve the public parkland opportunities above ground. Consolidated operational facilities above ground are discretely located or partially subterranean wherever possible to enhance surface conditions of the Green Link for the benefit of the community.

A combination of trees, and low and bulky massed planting areas will be utilised to soften their appearance behind 'filtered' views.

IRON COVE LINK PORTALS

Portals will be refined, elegantly designed elements that are consistent with M4 East and M5 New projects. Details are provided in Section 6 of this UDLP.

IRON COVE SURFACE FIXED FACILITY

The majority of the ventilation and operational facilities are located underground while the major above ground structures include the Iron Cove ventilation outlets and an operational electrical and control room located on the western side of Victoria Road, between Toelle and Callan Streets.

The buildings have been designed as discrete elements that will be fenced off and surrounded by landscaping.

Details of the operational buildings are provided in Section 7 of this UDLP.

IRON COVE LINK VENTILATION FACILITIES

To comply with Minister's Condition of Approval E118, the ventilation facility at Iron Cove Link has been designed as a living, green system.

The Iron Cove ventilation outlet emerges from Victoria Road as a dynamic sculptural form, integrating with the Green Link.

Details of the ventilation facilities are provided in Section 7 of this UDLP.



Figure 4-38: Iron Cove Link - Operational infrastructure elements









Artist's impression: View along shared user path and pocket parks along Victoria Road (Landscape shown at full maturity and is indicative only).

4.8 Iron Cove Link concept plans

To achieve an integrated and cohesive design for Iron Cove, an overall concept plan was developed to demonstrate the finished outcome for the Green Link.

A series of concept plans have been provided in this section to illustrate the integrated urban design, architecture and landscape approach. The plans highlight the location of main features such as buildings, facilities, paths and parkland elements. Typical cross sections are also provided within this section.



Figure 4-39: Iron Cove Link - Artist's impression - view from wide landscaped median crossing (Landscape shown at full maturity and is indicative only).



Figure 4-40: Iron Cove Link - Landscape Concept Masterplan



Figure 4-41A: Iron Cove Link - Landscape Concept Plan - Drawing 1 of 2



Key Project Elements

1. *Iron Cove Link Portals*
2. *Iron Cove Link Ventilation Facility*
3. *Iron Cove Link surface fixed facility*
4. *Green Link pocket parks and landscaping*
5. *Landscaped median crossing behind portal*

Residual land subject to the Residual Land Management Plan

LEGEND

- *Proposed tree planting*
- *Road*
- *Publicly accessible turf areas*
- *Landscape revegetation areas*
- *Concrete paths*
- *Project Boundary*

0 10 20 40m

Figure 4-41B: Iron Cove Link - Landscape Concept Plan - Drawing 2 of 2

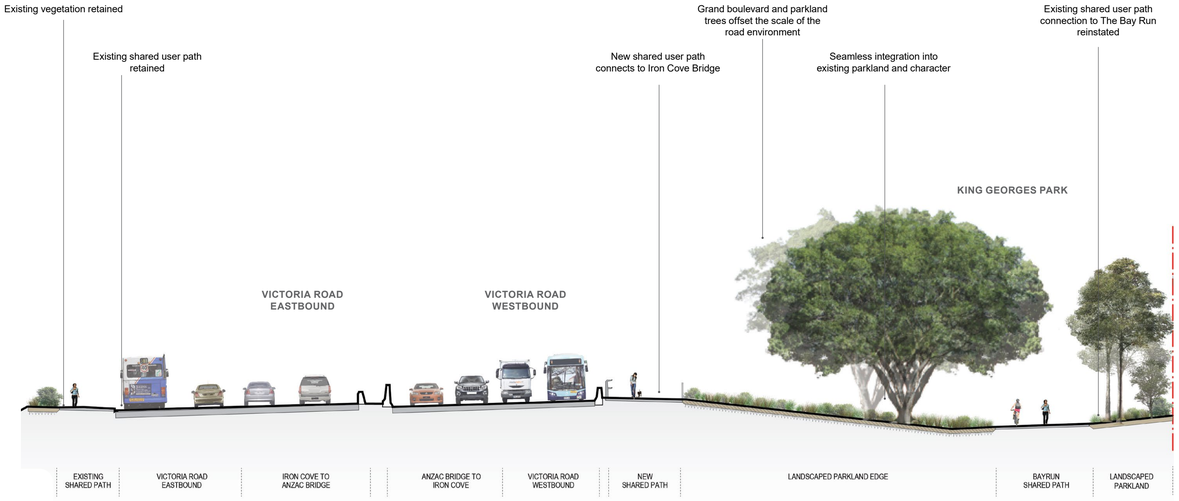


Figure 4-42: Iron Cove Link - Typical section 01

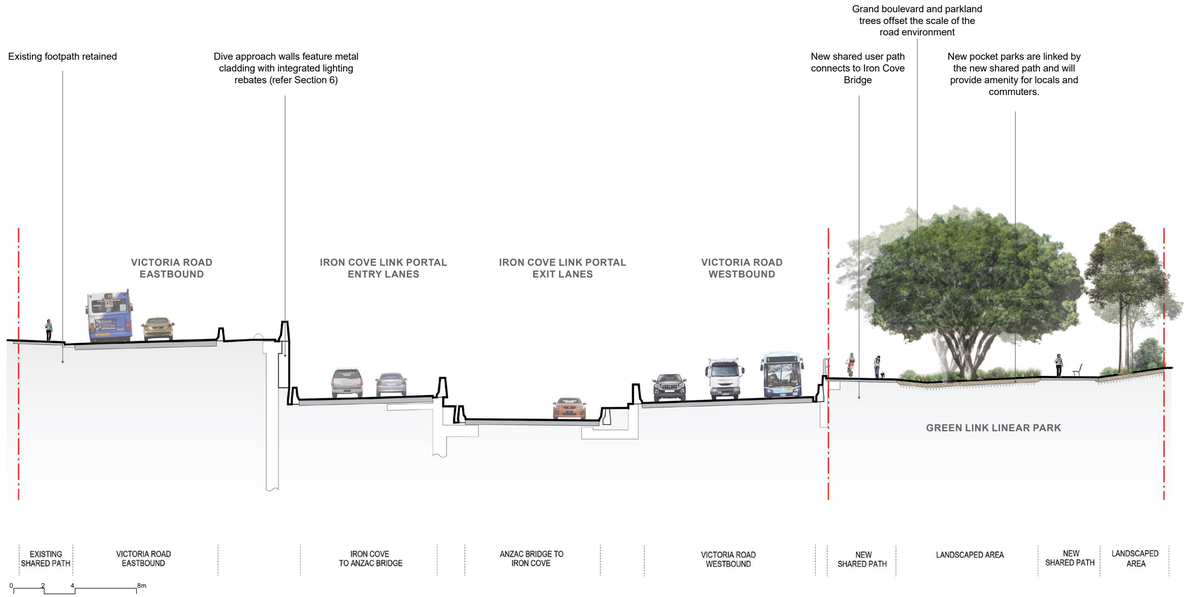


Figure 4-43: Iron Cove Link - Typical section 02



Figure 4-44: Iron Cove Link - Typical section 03

Typical cross sections

Typical cross sections through Iron Cove Link are provided within this section.

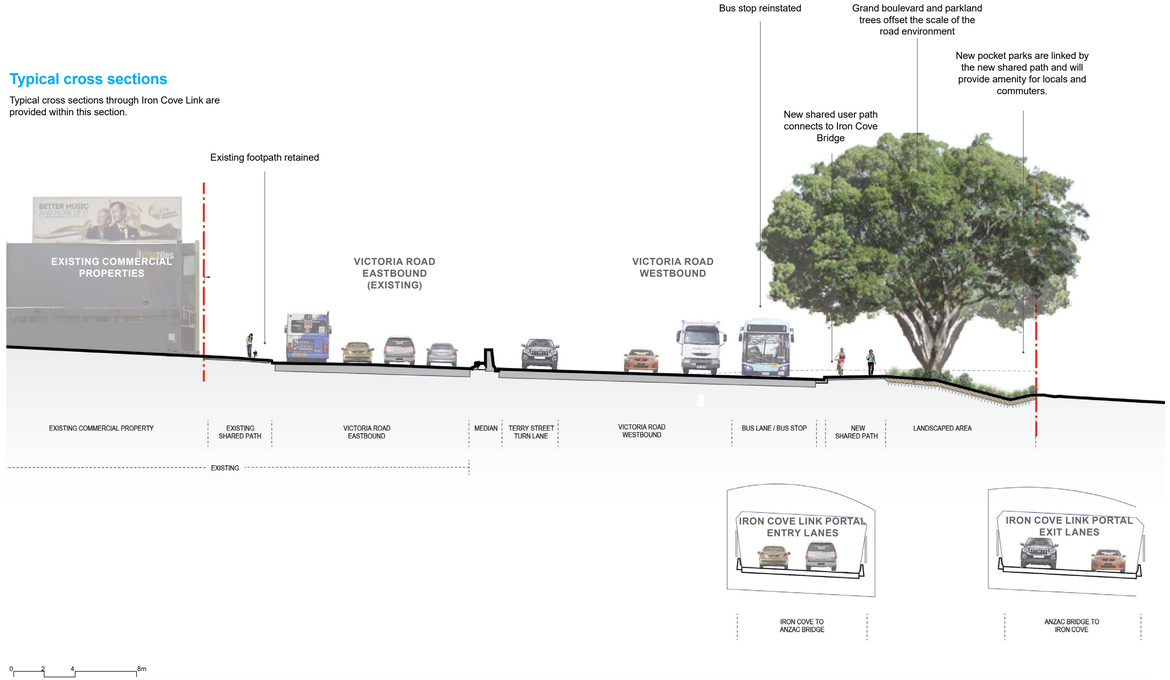


Figure 4-45: Iron Cove Link - Typical section 04



Artists impression: Aerial view over Victoria Road (Landscape shown at full maturity and is indicative only).

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Rozelle Interchange

WestConnex

JOHN HOLLAND

CPB CONTRACTORS

Rozelle Interchange

Urban Design and Landscape Plan

Landscape Design

05

Artist's impression: Pocket Parks at Iron Cove Link.
(Landscape shown at full maturity and is indicative only).

5 Landscape Design

5.1 Overview

The Rozelle Interchange Project is a rare opportunity to provide a landscaped parkland that is integrated with both the natural landscape systems and the inherent cultural and historical values of a connection to country and the wider city itself.

As the 'Green Heart' of The Bays Precinct, the landscape design at Rozelle will make a major contribution to public open space in Sydney, with a vision that will see the site transformed into a post-industrial landscape that responds to the ever-growing demand for quality open space in our rapidly growing city.

A new 'Green Link' will be provided at Iron Cove Link, which will maximise planting opportunities along the southern side of Victoria Road. Provision of new, large specimen trees will offset the scale of the infrastructure being constructed.

Landscape design principles

The design of landscape finishes responds to and enhances the adjacent landscape, and the existing built and existing roadside environment.
The design incorporates the fundamental objectives of landscape planting design in urban and road environments including:

SAFETY

All required clear zone and safe sight distance setbacks to avoid the creation of hidden public spaces, while maximising passive surveillance opportunities in accordance with Crime Prevention Through Environment Design (CPTED) principles.

INTEGRATION WITH LOCAL SETTING

The design maintains and enhances existing landscape character and vegetation patterns.

ECOLOGICALLY SOUND

The design uses local species from existing and adjoining plant communities and assists in protecting and recovering local biodiversity. Vegetation was selected suitable for the threatened species identified in Appendix S of the EIS. Species selection for the parkland includes trees suitable for grey-headed flying fox foraging. These include banksias, eucalypts and paperbark trees.

ADD CHARACTER AND VALUE

The design responds to and draws upon the existing and former landscape patterns of the area.

LOW MAINTENANCE AND COST EFFECTIVE

The design utilises existing site soils and local robust and durable plant species in a bold and simple way without unnecessary fussiness.

Revegetation across the Project will be achieved through direct planting of containerised plant stock into prepared planting areas. This will facilitate rapid establishment of new landscape installations.

Key landscape design themes

The landscape design will assist in delivering some of the interpretive concept themes developed for the Rozelle Interchange Project as described in Section 3 of the UDLP. These are also described in further detail within this section of the report.

CONNECTION TO COUNTRY

Planting will be designed to enhance the 'Connection to Country' and recognise the pre-1788 vegetation of the area. Bush trails and gardens have been included to provide an intimate experience with the native landscape.

REFERENCE ECOLOGICAL COMMUNITIES

The Project will remediate the site and re-establish naturalised conditions, drawing upon vegetation communities that would have once existed in the area which has dramatically changed through land reclamation, industrialisation and infrastructure.

ESTABLISH AN URBAN TREE CANOPY

In conjunction with vegetation typologies, a diverse and layered tree canopy will support the ecological approach across the Project.

TREE CANOPY STRUCTURE

With the objectives of the Urban Tree Canopy Guide in mind, the landscape design seeks to maximise tree canopy coverage with a diverse tree canopy that supports the landscape typologies and intended uses across the site.

1788 SHORELINE

The planting design has been developed with an understanding of the original '1788 shoreline' and the extent of land reclamation within Rozelle Bay through planting schemes and original vegetation communities



Figure 5-1: Children playing in old fig tree.
Source: Greener Places - Urban Tree Canopy Guide - 2018, NSW Government Architect.

5.2 Design approach to the restoration of local vegetation communities

Sydney has a temperate climate characterised by warm summers and cool to mild winters, with rainfall patterns generally highest closest to the coast. In the Rozelle area, the mean annual rainfall is approximately 1100-1200mm per year.

The vegetation map of Sydney provided in the adjacent figure, illustrates that little to no remnant vegetation communities exist in or near the Project, which is a result of urbanisation and the long history of industrialisation of Sydney Harbour.

The landscape design will reference the vegetation communities that would have likely occupied the area and conserve where possible, drawing on information from historical documents which provide insight into Sydney's natural history:

"On the more rugged Hawkesbury Sandstone landforms -the harbourside suburbs of Glebe and Balmain -would have been typical Sydney sandstone open-forest, with trees of smooth-barked Angophora costata and Sydney Peppermint, Eucalyptus piperita. The species present would have been similar to bushland found today on the nearby northern side of the harbour, such as at Balls Head and Berry Island. A few tough plants of Lomandra longifolia still persist on rock outcrops at Callan Park. Blackwattle Bay appears to take its name from the small tree Callicoma serratifolia that probably occurred along creek lines entering the bays."
(Source: Taken for granted: The Bushland of Sydney and its Suburbs', Benson & Howell)

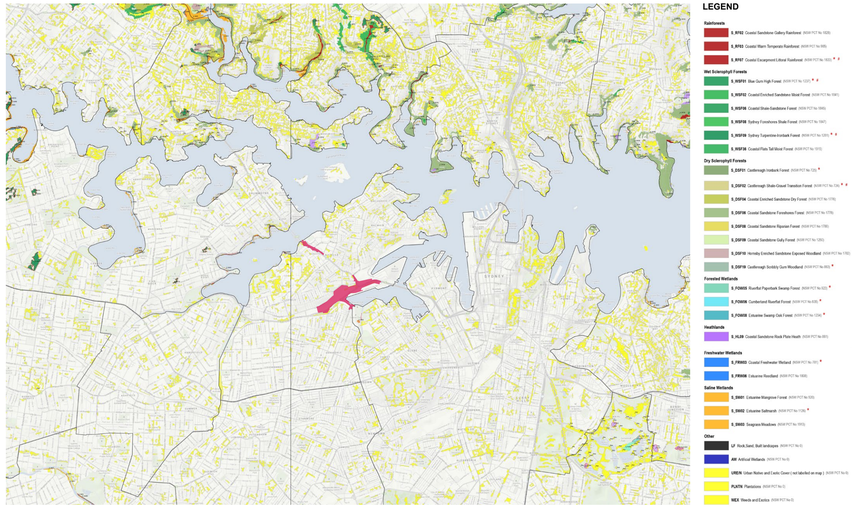


Figure 5-2: Map showing remnant vegetation communities in Sydney. Source: 'The Native Vegetation of the Sydney Metropolitan Area', NSW Office of Environment & Heritage November, 2016

Project boundary (shown indicatively)

Vegetation communities

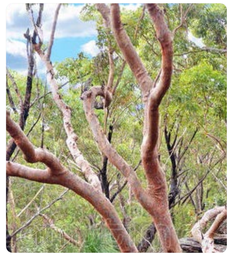
To understand what vegetation communities once existed in the area, the design team has applied understanding of nearby remnant vegetation communities combined with the previously described analysis of geology, soils, hydrology and the original 1788 foreshore line, that is outlined in Section 3 of this UDLP.

Based on this understanding, the design acknowledges that the original vegetation would most likely have comprised coastal woodlands and forests typically found on Sydney Hawkesbury sandstone, and estuarine swamps on the low-lying tidal flats that were once present in 'The Bays' precinct.

As part of the design process, the characteristics and species profiles of the following planting communities have been drawn from:

- → Coastal Sandstone Forest
- → Coastal Sandstone Foreshore Forest
- → Swamp Oak Forest

It is not the intention of the planting design to take a purist approach to ecology and landscape restoration. However, the design draws upon the characteristics and species profiles to be applied at the modified sites of Rozelle and Iron Cove and implemented through site specific landscape typologies.



COASTAL SANDSTONE FOREST

Commonly encountered on the upper slopes and dry gullies in Sydney areas. This community comprises of a tall eucalypt forest with understorey of sclerophyll shrubs with ferns and forbs amongst the ground cover. Dominant canopy trees typically include *Angophora costata* (Smooth-barked Apple), *Corymbia gummifera* (Red Bloodwood) and *Eucalyptus piperita* (Sydney Peppermint).



COASTAL SANDSTONE FORESHORE FOREST

A tall eucalypt forest with a distinctive mid-storey typically situated in sandstone gullies and sheltered slopes. Dominated by various combinations of eucalyptus and tall small trees suited to rainforest environments such as *Ceratopetalum apetalum* (Scented Satinwood), *Elaeocarpus reticulatus* (Blueberry Ash) and occasionally *Livistona australis* (Cabbage Tree Palm). The forest floor is covered by a sparse and dense cover of ferns and twiners.



SWAMP OAK FOREST

Widespread along the coast of the Sydney Basin, this community is rarely found more than two metres above sea level and is a community of relatively low species diversity.

Connection to Country

The derived vegetation communities include many culturally significant native plant species as a means for food production, hunting and gathering and ceremonial purposes. A non-exhaustive list of key plant species have been identified for use where feasible within the Project:

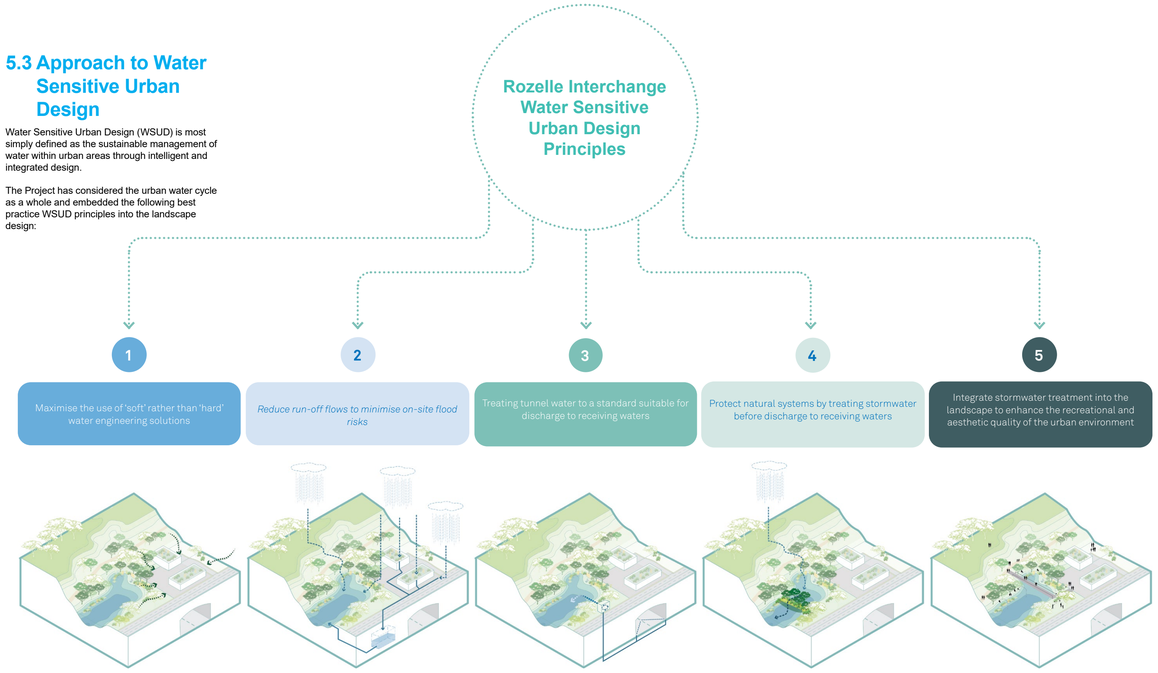
- *Acacia spp* (Wattles)
- *Allocasuarina littoralis* (Black She Oak)
- *Banksia spp* (Banksias)
- *Billardiera scandens* (Apple Berry)
- *Carpobrotus glaucescens* (Pig Face)
- *Callicoma serratifolia* (Black Wattle)
- *Casuarina glauca* (Swamp Oak)
- *Correa reflexa* (Native Fuchsia)
- *Cissus antarctica* (Kangaroo Vine)
- *Cyathea australis* (Rough Tree-Fern)
- *Dianella caerulea* (Blue Flax Lily)
- *Dianella revoluta* (Blueberry Lily)
- *Dodonaea triquetra* (Large-leaf Hop Bush)
- *Doryanthes excelsa* (Gymea Lily)
- *Indigofera australis* (Austral Indigo)
- *Lomandra longifolia* (Spiny-head Mat-rush)
- *Macrozamia communis* (Burrawang)
- *Microceris lanceolata* (Yam Daisy)
- *Microlaena stipoides* (Weeping Grass)
- *Myoporum parvifolium* (Boobialla)
- *Persoonia linearis* (Geebung)
- *Phragmites australis* (Common Reed)
- *Syzygium luehmannii* (Rib berry)
- *Themeda triandra* (Kangaroo Grass)
- *Xanthorrhoea spp* (Grass Trees)
- *Melaleuca spp* (Paperbarks)

Overall planting palettes are described in Section 5.6 and 5.7 of the UDLP

5.3 Approach to Water Sensitive Urban Design

Water Sensitive Urban Design (WSUD) is most simply defined as the sustainable management of water within urban areas through intelligent and integrated design.

The Project has considered the urban water cycle as a whole and embedded the following best practice WSUD principles into the landscape design:



5.4 Technical criteria for landscape restoration

Soil preparation

Due to the varying conditions throughout the Project, a variety of soil preparation treatments have been developed to support the landscape design. The following section describes the project wide soil preparation treatments which will be commonly used across the Project as well as any site specific requirements related to cut and cover structures.

Specifications for all soil mixes have been developed by a specialist soil scientist to suit the various site conditions across the Project. All sub-grades will be tested for suitability to support plant growth and ameliorated in accordance with test results prior to installing topsoils.

Organic wood chip mulch will be applied to all planting areas to a depth of 75mm. The wood chip mulch will be derived, where possible, from trees and shrubs removed through clearing works on site. Any shortfall will be made up with imported wood chip mulch.

SOIL PREPARATION TYPES

In determining soil preparation treatments for constructed landscapes, the starting consideration understands site and sub-grade conditions. There are three basic conditions that occur consistently across the project:

- Over existing site soils
- Over formed embankments as part of the roadwork's earthworks formation
- 'On structure' conditions where landscape will be installed over cut and cover structures at the tunnel portals.

For the first two conditions, organic soil mixes are placed to a depth of 150mm for turf areas and 300mm for massed planting areas. The majority of planting will be native grasses and shrubs in 150 - 200mm deep containers planted directly into the prepared soil bed. Where larger trees are installed, they will vary container sizes ranging from 25 litres or 200 litres. These will be installed in over-excavated holes typically three times the diameter of the root ball and 100mm deeper, in accordance with Roads and Maritime specifications.

For 'On-structure' landscapes, deeper soil profiles will be provided up to 1m deep. These types of landscapes can be considered to be similar to the growing conditions of the Sydney sandstone landscapes, but with a deeper soil profile. These are located at each of the tunnel portals.

Finishes for slope stabilisation

All soft landscape areas across the Project (excluding residual land) will be stabilised by containerised massed planting, in prepared planting areas or turfing over a prepared turf underlay.

At the Iron Cove Link where typical road infrastructure related surface works occur, new earthworks will be integrated with existing cut and fill embankment formations in order to minimise existing vegetation loss and merge with existing landform profiles.

At Rozelle Rail Yards, the majority of landforms will be newly created. They will be designed to achieve the best parkland and open space outcome within the confines of the proposed tunnel infrastructure requirements of the Project.

Typically, embankment slopes will be no steeper than 4H:1V, where space permits. All tops and toes of embankments will be rounded and feathered to blend into adjoining landforms.

All cut and fill embankments will be revegetated using containerised plant stock in prepared planting areas. The majority of new planting will comprise frangible native grass and shrub species and grasses, supplemented with select tree species beyond clear zone safety setbacks.

In some areas, landscape treatments will occur atop cut and cover slab sections, which will include 1000mm min vegetation layer comprising drainage cell layers, geotextile drainage fabric, coarse washed river sand, 80:20 sand/soil mix and a final layer of organic weed-free soil pre-blended with fertilisers and proprietary soil additives.

Specifications and pot sizing

Revegetation across the Project (excluding residual land) will be entirely through direct planting of containerised plant stock into prepared planting areas. All work will generally be undertaken in accordance with RMS standard specifications, including:

- D&C R178 Vegetation
- D&C R179 Landscape planting.

The majority of planting will be:

- 50mm 'Tube' containers (50mm x 50mm x 125mm deep)
- 75mm 'Tube' containers (75mm x 75mm x 125mm deep)
- 150mm containers - 'semi advanced' (150mm x 150mm x 150mm deep)
- 200mm containers - 'advanced' (200mm x 200mm x 200mm deep)
- 25 litre container - 'super advanced' (300mm x 300 x 300mm deep)
- 75 litre container - 'semi-mature' (470mm x 440mm x 400mm deep)
- 200 litre container - 'semi-mature' (700mm x 550mm x 600mm deep)
- 400 litre container - 'mature tree' (820mm x 600mm x 600mm deep)
- 1000 litre container - 'feature tree' (1500mm x 600mm x 600mm).

All revegetation areas will be planted in dense arrangements with densities varying between four to eight plants per square metre depending on the location and application.

5.5 Strategy to progressively revegetate and provide access to the project

Landscape installation works will occur progressively throughout the Project as areas and work sites become available. The timing for implementation of access and open space initiatives is subsequent to the landscaping of areas show in Table 5-1.

A construction program has been provided below which outlines how the project would progressively revegetate areas, prior to public handover. This program is indicative only and demonstrates the principles which will be adopted by the project to progressively landscape areas.

Following handover of the Rozelle Rail Yards, TfNSW will be completing further enhancement of the facilities within the parklands. The construction program below has been provided to highlight the areas that will be progressively revegetated following the enhancement of the facilities within Rozelle Rail Yards.

Table 5-1: Timeline of project works

Area	2020				2021				2022				2023				2024 (Rozelle Facilities Enhancement)			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Rozelle Rail Yards																				
Rozelle west Motorway Operations Complex																				
Parkland Forest, including the constructed wetlands																				
Village Green area and landscape terraces																				
Eastern Rail Park																				
Riparian corridor along the western drainage channel																				
Victoria Road shoulder areas																				
Iron Cove Link																				
King George Park Shared User Path																				
South of Victoria Road																				
Median area of Victoria Road (incl. cut and cover roof)																				



Artist's impression: Aerial view over Iron Cove Link (Landscape shown at full maturity and is indicative only).

5.6 Rozelle

The primary objective for the Project is to restore a vibrant and healthy landscape throughout the Rozelle Rail Yards and the surrounding areas, that creates a destination city park and enhances the Victoria Road corridor at Iron Cove, which will make a significant contribution to the liveability and greening of this part of The Bays Precinct.

The Rozelle Rail Yards and surrounding areas would most likely have previously supported coastal sandstone foreshore forest up on upper slopes, coastal sandstone moist forest in gullies and sheltered slopes and swamp oak forest above the tidal influence along the foreshores.

The landscape today in this area has been completely modified. While the design does not intend to take a 'purist' approach to landscape restoration, the new landscape development will draw from the characteristics and species profile of the plant communities that once occupied the site. This will be woven into a site interpretation strategy that responds to and tells the story of the site's former uses and natural history.

A critical focus for implementing landscape works is developing soil profiles that can provide optimum growing conditions for the new landscapes that will be established.

A range of landscape character types have been developed, ranging from recreational areas within the active core, a riparian corridor alongside City West Link, the parkland forest that incorporate water quality ponds and rail gardens that celebrate the site's former industrial history.

The general approach to landscape design at Rozelle builds upon the urban design concept developed in Section 4 for of the UDLP.

To support the primary objective, key landscape design outcomes are to:

- Provide an extensive 'green volume' of vegetation, creating an 'Urban Forest' that meets the target 25% canopy cover identified in the *Urban Tree Canopy Guide*.
- Promote the use of tall, established tree canopy cover to provide a counterpoint and extension of the green open space network from the Glebe Foreshore and Easton Park.
- Create a high-quality parkland environment for pedestrians and cyclists and integrate into adjacent streetscapes and local road upgrades
- Create a memorable approach / exit experience to / from the tunnel portals that is integrated within the landscape of the former rail yards
- Draw upon and reflect the heritage of the former rail yards within the landscape
- Adopt a reductive approach to infrastructure by emphasising the landscape and making all built elements as visually recessive as possible

Rozelle Landscape Strategies

The following landscape strategies have been developed for landscape design at Rozelle.

Landscape typologies

Due to the scale of the precinct and landscape works involved, the site has been divided into separate zones which reflect the varied site topography, environments and proposed landscape typologies to be constructed as a result of the Project works.

The following four landscape typologies across the Rozelle area will guide the approach to planting design, character and materiality, generating a uniquely environmentally responsive public realm:

- Active recreation parkland and shade canopy
- Coastal sandstone forest parklands
- Swamp oak forest, and
- Rail gardens and shade canopy.

A species list for Rozelle is provided further on in this section.



*Figure 5-3: Rozelle - Vegetation character typologies.*Refer to Figure 4-12 for revised layout.*

COASTAL SANDSTONE FOREST PARKLANDS

A naturalised parkland, providing a variety of passive recreation opportunities and centred on the constructed wetlands; a natural meeting place for the community.

A variety of informally arranged tree species, thickets and pockets of open turf areas will create a relaxed environment.



ACTIVE RECREATION PARKLAND AND SHADE CANOPY

Supporting an active program, trees will be grand, providing shade and amenity around bands of turf areas and low-massed planting.



RAIL GARDENS AND SHADE CANOPY

Inspired by the rail yards, the approach is to create an urban character with ordered trees and accent planting that follow the linearity of the rail yards - born out of the requirements for efficiency of movement.



SWAMP OAK FOREST

Generally, in non-accessible areas groves of dense swamp-oaks will follow the network of drainage swales along adjacent to City West Link providing a green backdrop for parkland users.



Establish an urban tree canopy

A diverse and layered tree canopy has been developed to support the ecological approach to the site.

The following figure illustrates the strategy of creating a connected tree canopy across Rozelle, linking key open spaces and creating a new urban forest.

The arrangement of the tree canopy has informed the character and structure of vegetation and open space that surrounds it.

The areas of accessible open space, comprise of street trees, mixed informal groupings of tall, native and exotic trees suitable for a parkland and public open spaces.

A list of tree species is provided further on in this section.



Figure 5-4: Rozelle - Tree canopy structure
**Refer to Figure 4-12 for revised layout.*

Opportunities for habitat creation

The project has sought to promote opportunities for habitat creation at Rozelle while balancing the needs for public open space and parklands.

New, broad revegetation areas have been developed to provide complete vegetation structure/s where feasible, comprising native canopy, shrub and ground layers, to promote ecological restoration and habitat creation. Plant species are derived from local vegetation communities outlined in Section 5.2.

These areas are generally located along City West Link in deep buffer vegetation zones where public access is limited or non-accessible.

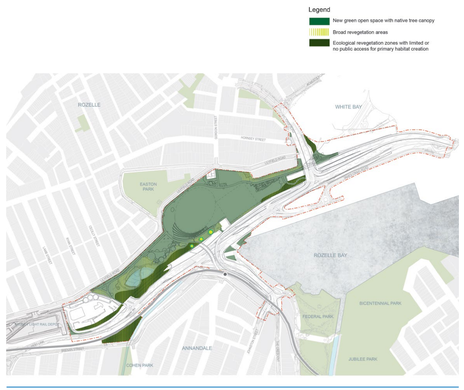


*Figure 5-5: Rozelle - Habitat creation opportunities. *Refer to Figure 4-12 for revised layout.*

Integrate Water Sensitive Urban Design (WSUD)

At Rozelle, overland flow and stormwater predominantly travels through the Rozelle Rail Yards as it heads to Rozelle Bay.

Regional stormwater will be directed through the site via a network of vegetated swales, drains and pipes which have been designed to cater for a 1:100 year flood event. The majority of the regional stormwater is conveyed along the southern edge of the Rozelle Rail Yards site in a wide channel referred to as the eastern drainage channel.

Stormwater that is collected within the Rozelle Rail Yards will be treated through a network of vegetated bioswales, bioretention basins and a constructed wetland, before being released into receiving waters at Rozelle Bay.

Stormwater will also be captured and stored in underground tanks for parkland irrigation purposes.

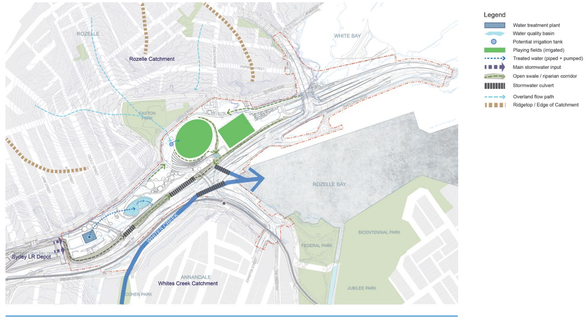


*Figure 5-6: Rozelle - Water sensitive urban design. *Refer to Figure 4-12 for revised layout.*

THE CONSTRUCTED WETLANDS IN THE ROZELLE RAIL YARDS PARKLANDS

The Project will construct a permanent wetland within the Rozelle Rail Yards Parklands, with the primary purpose of treating tunnel water, prior to being released into the receiving waters of Rozelle Bay.

The treatment of tunnel water will begin at the water treatment plant which will be constructed in the Rozelle West Motorway Operations Complex (described in Section 7 of this UDLP).

From there, the water will be piped to the wetlands as the final stage of treatment, and held for a minimum of 18 hours of cleansing, before being released into the eastern drainage channel.

The constructed wetlands will be sensitively integrated into the parkland, providing amenity and delight with paths, seating and boardwalks. The wetland will comprise a combination of shallow marsh and clear water areas to improve the cleansing performance, reduce evaporation loss, discourage inappropriate access and increase habitat value.

The adjacent figure illustrates the general arrangement of the constructed wetland in the parkland setting.

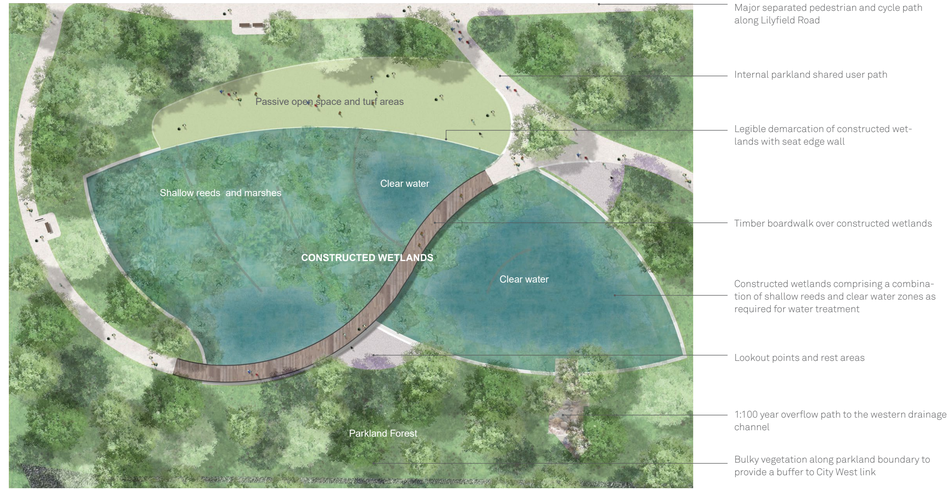


Figure 5-7: Rozelle Rail Yards - Constructed Wetlands

Rozelle - planting palette

Landscape planting has been devised to respond to the site and will be influenced by the following criteria:

- Proposed vegetation typologies relating to the pre-European vegetation communities
- Local character species successfully planted in adjacent sites
- Proven performance for manufactured site topography, microclimate and soil makeup
- Suitability within public parklands, street side verges and managed motorway environments, and
- Compatibility with Water Sensitive Urban Design systems

The following typical planting typologies will be utilised on the Project:

- Turf areas
- Water quality / bioretention areas
- Ground Layer Massed Planting and Low Shrubs
- Bulky Shrubs and Small Trees, and
- Tree planting

An outline of the main plant species proposed for Rozelle inclusive of the Rozelle Rail Yards Parklands are provided in the following tables.



Artist's impression: Boardwalk over the constructed wetlands (Landscape shown at full maturity and is indicative only)

Table 5-2: Rozelle - Turf areas (Typical Species)

Botanical name	Common name
Sir Walter Buffalo DNA Certified	Sir Walter
'TifTuf' Bermuda	Couch Grass

Table 5-3: Rozelle - Water quality / bioretention and wetlands - Sedge and Reed Planting (Typical Species)

Botanical name	Common name
* *Baumea juncea*	Bare Twig Rush
* *Baumea articulata*	Jointed Twig Rush
* *Carex appressa*	Tall Sedge
* *Carex fascicularis*	Tassel Sedge
* *Ficinia nodosa*	Knobby Club Rush
* *Gahnia sieberiana*	Red-fruit Saw Sedge
* *Imperata cylindrica*	Cogon Grass
* *Juncus continuus*	Sand Rush
* *Juncus kraussii*	Sea Rush
* *Juncus usitatus*	Common Rush
* *Lepironia articulata*	Grey Sedge
* *Lepidosperma laterale*	Variable Sword-sedge
* *Lomandra longifolia*	Spiny-head Mat-rush
* *Phragmites australis*	Common Reed
* *Schoenus brevifolius*	Zig-zag Bog Rush

** Denotes endemic species*



Carex appressa



Carex fascicularis



Ficinia nodosa



Juncus continuus



Juncus kraussii



Juncus usitatus



Lepironia articulata



Lepidosperma laterale



Lomandra longifolia

Table 5-4: Rozelle - Ground Layer Massed Planting and Low Shrubs (Typical Species)

Botanical name	Common name
* *Actinotus helianthi*	Flannel Flower
Aspidistra elatior	Cast Iron Plant
* *Asplenium australisicum*	Birds Nest Fern
* *Austromyrtus tenuifolia*	Narrow Leafed Myrtle
Banksia ericifolia 'Dwarf'	Dwarf Banksia
* *Banksia spinulosa*	Hairpin Banksia
* *Billardiera scandens*	Apple Berry
* *Blechnum cartilagineum*	Gristle Fern
Callistemon 'Better John'	Bottle Brush
* *Carpobrotus glaucescens*	Pigface
* *Cissus hypoglauca*	Water Vine
* *Crinum pedunculatum*	Swamp Lily
Correa alba 'Coastal Pink'	Coastal Pink
* *Correa reflexa*	Native Fuchsia
* *Dianella caerulea*	Blue Flax Lily
* *Dianella revoluta*	Blueberry Lily
* *Doryanthes excelsa*	Gymea Lily
Ficus pumila minima	Creeping Fig
* *Grevillea buxifolia*	Grey Spider Flower
* *Grevillea juniperina*	Juniper leaf Grevillea
* *Grevillea linearifolia*	White Spider Flower
* *Grevillea sericea*	Silky Grevillea
* *Hardenbergia violacea*	Native sarsaparilla
* *Hibbertia scandens*	Golden Guinea Vine
* *Lambertia formosa*	Mountain Devil
Leptospermum flavescens 'Cardwell'	Tea Tree
Liriope muscari 'Evergreen Giant'	Evergreen Giant
Liriope muscari 'Just Right'	'Just Right' Liriope
* *Lomandra filiformis*	Wattle Mat Rush
Lomandra longifolia 'Verday'	Verday
* *Melaleuca hypericifolia*	Hillock bush
* *Melaleuca thymifolia*	Thyme leaved Honey Myrtle
Pennisetum alopecuroides	Swamp Foxtail
Philodendron 'Xanadu'	Xanadu
* *Poa labillardierei*	Common Tussock-grass
Rhagodia spinescens	Spiny Saltbush
Rhaphiolepis 'Snow Maiden'	Snow Maiden
* *Telopea speciosissima*	Waratah
Trachelospermum 'Flat Mat'	Flat Mat
Trachelospermum jasminoides	Star Jasmine
* *Westringia fruticosa*	Coastal Rosemary

** Denotes endemic species*


Actinotus helianthi


Aspidistra elatior


Asplenium australisicum


Austromyrtus tenuifolia


Banksia ericifolia 'Dwarf'


Banksia spinulosa


Billardiera scandens


Blechnum cartilagineum


Callistemon 'Better John'


Carpobrotus glaucescens


Cissus hypoglauca


Crinum pedunculatum


Correa alba 'Coastal Pink'


Correa reflexa


Dianella caerulea


Dianella revoluta


Doryanthes excelsa


Ficus pumila minima


Grevillea buxifolia


Grevillea juniperina


Grevillea linearifolia


Grevillea sericea


Hardenbergia violacea


Hibbertia scandens


Lambertia formosa


Leptospermum flavescens 'Cardwell'


Liriope muscari 'Just Right'


Liriope muscari 'Evergreen Giant'


Lomandra filiformis


Lomandra longifolia 'Verday'


Melaleuca hypericifolia


Melaleuca thymifolia


Pennisetum alopecuroides


Philodendron 'Xanadu'


Poa labillardierei


Rhagodia spinescens


Rhaphiolepis 'Snow Maiden'


Telopea speciosissima


Trachelospermum jasminoides


Doryanthes excelsa

Table 5-5: Rozelle - Bulky Shrubs and Small Trees (Typical Species)

Botanical name	Common name
* *Acacia longifolia*	Sydney Golden Wattle
* *Acacia suaveolens*	Sweet Wattle
* *Acacia terminalis*	Sunshine Wattle
* *Acmena smithii*	Lilly Pilly
* *Allocasuarina littoralis*	Black She Oak
* *Backhousia myrtifolia*	Grey Myrtle
* *Banksia ericifolia*	Heath-leaved Banksia
* *Banksia integrifolia*	Coast Banksia
* *Banksia serrata*	Old man Banksia
* *Callicoma serratifolia*	Black Wattle
* *Ceratopetalum gummiferum*	Christmas Bush
* *Cyathea australis*	Rough Tree Fern
* *Cyathea cooperi*	Lacy Tree Fern
* *Dodonaea triquetra*	Large-leaf Hop Bush
* *Elaeocarpus reticulatus*	Blueberry Ash
* *Glochidion ferdinandi*	Cheese Tree
* *Leptospermum laevigatum*	Coastal Tea Tree
* *Leptospermum polygalifolium*	Yellow Tea Tree
* *Melaleuca decora*	White Feather Honey Myrtle
* *Notelaea longifolia*	Large Mock Olive
* *Pittosporum revolutum*	Wild Yellow Jasmine
* *Pittosporum undulatum*	Sweet Pittosporum
Tristaniopsis laurina 'Luscious'	Kanooka Gum
* *Syzygium australe*	Scrub Cherry

** Denotes endemic species*


Acacia longifolia


Acacia suaveolens


Acmena smithii


Backhousia myrtifolia


Banksia ericifolia


Banksia integrifolia


Banksia serrata


Callicoma serratifolia


Cyathea australis


Cyathea cooperi


Dodonaea triquetra


Elaeocarpus reticulatus


Glochidion ferdinandi


Leptospermum laevigatum


Leptospermum polygalifolium


Melaleuca decora


Pittosporum revolutum


Pittosporum undulatum


Syzygium australe


Tristaniopsis laurina 'Luscious'


Artist's impression: Nature playground in the Rozelle Rail Yards parklands (Landscape shown at full maturity and is indicative only).

Table 5-6: Rozelle - Canopy Tree planting (Typical Species)

Botanical name	Common name
* *Angophora costata*	Smooth-barked Apple
* *Archontophoenix cunninghamiana*	Bangalow Palm
* *Casuarina glauca*	Swamp Oak
* *Ceratopetalum apetalum*	Scented Satinwood
* *Corymbia maculata*	*Spotted Gum*
* *Cupaniopsis anacardioides*	Tuckeroo
* *Eucalyptus microcorys*	Tallowwood
* *Eucalyptus pilularis*	Blackbutt
* *Eucalyptus piperita*	Sydney Peppermint
* *Ficus hillii*	Weeping Fig
* *Ficus rubiginosa*	Rusty Fig
* *Livistona australis*	Cabbage Tree Palm
* *Melaleuca linariifolia*	Flax-leaved Paperbark
* *Melaleuca quinquenervia*	Broad-leaved Paperbark
* *Melia azedarach*	White Cedar
* *Syncarpia glomulifera*	Turpentine
* *Synoum glandulosum*	Scentless Rosewood

** Denotes endemic species*

** Denotes endemic species*


Angophora costata


Archontophoenix cunninghamiana


Casuarina glauca


Ceratopetalum apetalum


Corymbia maculata


Cupaniopsis anacardioides


Eucalyptus microcorys


Eucalyptus pilularis


Angophora costata *Livistona australis* *Melaleuca quinquenervia* *Eucalyptus pilularis*


Eucalyptus piperita


Ficus hillii


Ficus rubiginosa


Livistona australis


Melaleuca linariifolia


Melaleuca quinquenervia


Melia azedarach


Syncarpia glomulifera


Synoum glandulosum


Ficus hillii *Corymbia maculata* *Ficus rubiginosa*

Rozelle Rail Yards Parkland - Landscape typologies and parkland precinct characters

The landscape typologies and planting palettes described earlier have influenced the overall character/s of the Rozelle Rail Yards Parkland.

The character of each parkland precinct is supported by the vegetation to create a distinct series of parkland spaces that support the various uses across the site.

The adjacent figures illustrate the general approach to vegetation within each of the parkland precincts based on the landscape typologies.

PARKLAND FOREST
// COASTAL SANDSTONE FOREST

Tall, open mixed eucalypt canopy

Low native grasses and shrubs



Tall, open mixed eucalypt canopy

VILLAGE GREEN
// ACTIVE RECREATION PARKLAND AND SHADE CANOPY

Rozelle Ventilation Facility with green wall cladding system and bird nesting opportunities

Publicly accessible landscape works and lookout above ventilation building with headland character



Landscape terraces reduce the scale of buildings and provide spectating opportunities to active recreational areas

RAIL PARK
// RAIL GARDENS AND SHADE CANOPY

'Outdoor rooms', gathering spaces and paving patternation drawing on the character of the former railyards

Tall mixed canopy including native eucalypts, palms and amenity trees spaced in linear arrangements along the former rail lines.



RIPARIAN CORRIDOR AND FORESHORE
// SWAMP OAK FOREST

Riparian corridors provide a visual buffer to the Rozelle Rail Yards parkland along with opportunities for habitat creation.

Tall canopies of swamp oak / Paperbark trees where space permits above Probable Maximum Flood (PMF) Levels



Vegetated drainage swales treat and slow down the flow of water to Rozelle Bay



Artist's impression: View over Rozelle Rail Yards parkland
(Landscape shown at full maturity and is indicative only).
**Refer to Figure 4-12 for revised layout.*

Rozelle landscape strategy plans

The following landscape strategy plans have been prepared to highlight the key landscape design approach that has been incorporated into the design.

The plans illustrate the composition of landscape design elements which typically include:

- Publicly accessible turf areas
- Landscape revegetation areas
- Proposed tree planting locations
- Buffer / screen planting areas
- Riparian corridor / vegetated swale planting
- Constructed wetland shallow reed planting areas, and
- Prominent contextual and filtered landscape views.

For descriptions of project elements, refer to concept plans in Section 04 of this UDLP.

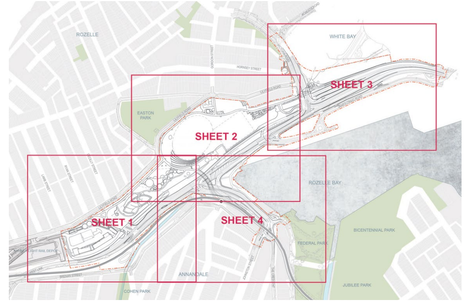


Figure 5-8: Rozelle - Landscape Strategy Key Plan
**Refer to Figure 4-12 for revised layout.*



LEGEND

- *Project Boundary*
- *Proposed tree planting/s*
- *Publicly accessible turf areas*
- *Landscape revegetation areas*
- *Constructed wetland*
- *Riparian corridor / vegetated swale planting*
- *Buffer / screen planting areas*
- *Prominent contextual and filtered landscape vistas incorporated into the landscape design*

Sensory gardens and small turf areas integrated with nature playground

New boulevard street trees and parkland connections along Lilyfield Road

Constructed wetland set within an urban forest parkland character

Vegetated swales and bulky screen vegetation along City West Link

Community 'Yarning Circle' developed in consultation with Inner West Council

Continuity of parkland forest continues over cut and cover structures below

Seamless connection from the pedestrian bridge into the parklands

Screening of Rozelle West Operations Complex from City West Link and Lilyfield Road.

New shared user path connection to Brenan Street through revegetated (non-accessible) landscape areas

Street tree planting and turf areas adjacent to existing channel to tie in with existing street character and conditions

0 20 40 80m

*Figure 5-9: Rozelle - Landscape Strategy Plans - Drawing 1 of 4. *Refer to Figure 4-12 for revised layout.*



LEGEND

- *Project Boundary*
- *Proposed tree planting locations*
- *Publicly accessible turf areas*
- *Landscape revegetation areas*
- *Constructed wetland shallow reed planting areas*
- *Riparian corridor / vegetated swale planting*
- *Buffer / screen planting areas*
- *Prominent contextual and filtered landscape views*

Bulky screen vegetation along residential boundaries to minimise visual impacts

Open playing fields surround by grand parkland trees

New boulevard street trees and parkland connections along Lilyfield Road

Landscape lookout above Rozelle Ventilation Building

Rozelle Ventilation Buildings form a backdrop to the Rozelle Rail Yards Parklands

Wide, landscape verges and feature tree planting between The Crescent and Rozelle Bay

Green Link Bridge continues the parkland to the Rozelle Bay Light Rail Stop

Naturalised batter slopes to drainage channel

Reinstated path connections to Railway Parade

0 20 40 80m

*Figure 5-10: Rozelle - Landscape Strategy Plans - Drawing 2 of 4. *Refer to Figure 4-12 for revised layout.*

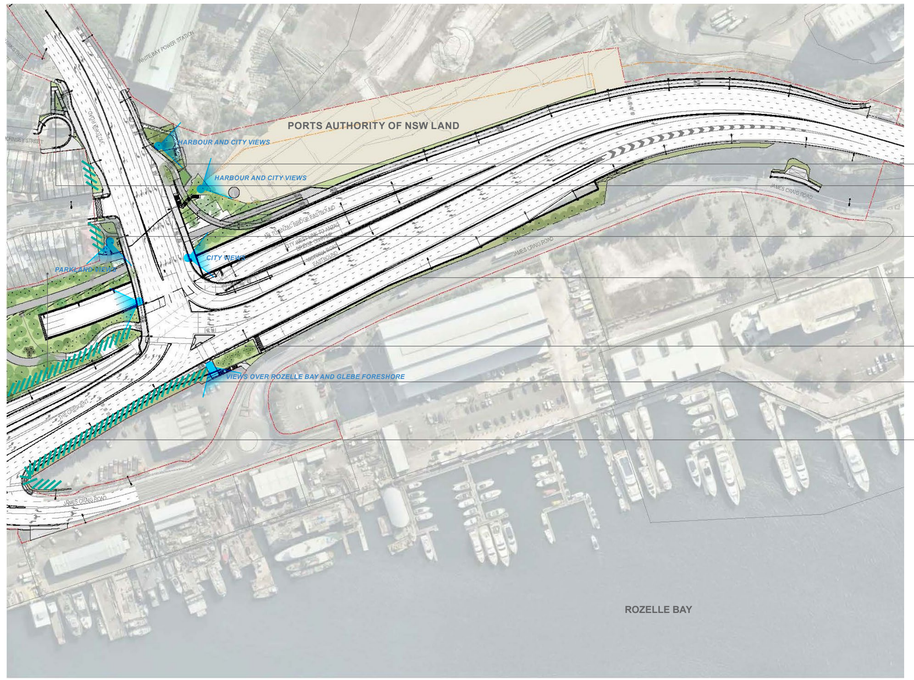


Figure 5-11: Rozelle - Landscape Strategy Plans - Drawing 3 of 4



Figure 5-12: Rozelle - Landscape Strategy Plans - Drawing 4 of 4

5.7 Iron Cove Link

The primary design objective for the landscape design at the Iron Cove Link is to maximise the available green open space as part the 'Green Link' described in Section 4 of this UDLP.

The Green Link has been developed to provide a series of usable, wide and attractive landscaped spaces that connect to the foreshore. The key landscape outcomes for the landscape design at Iron Cove Link are to:

- Provide an extensive 'green volume' of vegetation to compete with the scale of infrastructure to be implemented at the site
- Promote the use of tall, established tree canopy cover to provide a counterpoint and extension of the green open space network from the Glebe Foreshore
- Seamlessly connect into the Bay Run and King George Park
- Create a high quality parkland environment for pedestrians and cyclists and integrate into adjacent streetscapes and Victoria Road upgrade, and
- Create a memorable approach / exit experience to / from the tunnel portals that is integrated with the adjacent streetscapes.



Artist's impression: Aerial view along Victoria Road
(Landscape shown at full maturity and is indicative only)

Iron Cove Link Landscape Strategies

The following landscape strategies have been developed for landscape design at Iron Cove Link.

Prioritise grand street trees

To reinforce the Green Link, a consistent line of grand street trees will be provided along the southern side of Victoria Road. They will support a broad tree canopy and offset the scale of the road environment.

Within the pockets of accessible open space, tall, native trees will be planted to provided opportunities for rest and respite.

A list of tree species is provided further on in this section.

Water Sensitive Urban Design (WSUD)

At Iron Cove, a network of swales have been implemented along the Green Link to capture stormwater run-off and maximise infiltration into the ground.

Due to spatial constraints, a gross pollutant trap will be installed to meet water quality requirements.



Figure 5-13: Iron Cove Link - Tree canopy structure



Figure 5-14: Iron Cove Link - Water Sensitive Urban Design Strategy

Iron Cove Link - Planting palette

Species selection for the landscape design at Iron Cove Link has been developed to respond to the site and will be influenced by the following criteria:

- Proposed vegetation typologies relating to the pre-European vegetation communities.
- Local character species successfully planted in adjacent sites
- Proven performance for manufactures site topography, microclimate and soil makeup, and
- Suitability within public parklands and managed motorway environments

The following typical planting typologies will be utilised on the Project:

- Turf areas
- Ground Layer Massed Planting and Low Shrubs
- Bulky Shrubs and Small Trees, and
- Tree planting.

An outline of the main plant species proposed for the Iron Cove Link are provided in the following tables.



Artist's impression: View along shared user path on Victoria Road, at the intersection of Callan Street (Landscape shown at full maturity and is indicative only)

Table 5-7: Iron Cove Link - Turf areas (Typical Species)

Botanical name	Common name
Sir Walter Buffalo DNA Certified	Sir Walter

Table 5-8: Iron Cove Link - Ground Layer Massed Planting and Low Shrubs (Typical Species)

Botanical name	Common name
Banksia integrifolia 'Dwarf'	Dwarf Banksia
* *Banksia spinulosa*	Hairpin Banksia
* *Billardiera scandens*	Apple Berry
* *Callistemon* 'White Anzac'	White Anzac
Callistemon 'Green John'	Green John
* *Crinum pedunculatum*	Swamp Lily
* *Dianella caerulea*	Blue Flax Lily
* *Dianella revoluta*	Blueberry Lily
* *Doryanthes excelsa*	Gymea Lily
Ficinia nodosa	Knobby Club Rush
Gazania hybrid	Gazania 'Double Gold'
* *Grevillea buxifolia*	Grey Spider Flower
* *Grevillea sericea*	Silky Grevillea
* *Hardenbergia violacea*	Native sarsaparilla
* *Hibbertia scandens*	Golden Guinea Vine
Liriope muscari 'Evergreen Giant'	Evergreen Giant
Lomandra longifolia 'Verday'	Verday
* *Lomandra longifolia*	Spiny-head Mat-rush
* *Melaleuca hypericifolia*	Hillock bush
Philodendron 'Xanadu'	Xanadu
Rhaphiolepis indica	Indian Hawthorn
Trachelospermum asiaticum	Asiatic Jasmine
Trachelospermum jasminoides	Star Jasmine
* *Westringia fruticosa*	Coastal Rosemary

** Denotes endemic species*



Banksia integrifolia 'Dwarf'



Banksia spinulosa



Billardiera scandens



Callistemon 'White Anzac'



Callistemon 'Green John'



Dianella caerulea



Dianella revoluta



Doryanthes excelsa



Ficinia nodosa



Gazania hybrid



Grevillea buxifolia



Grevillea sericea



Hardenbergia violacea



Hibbertia scandens



Liriope muscari 'Evergreen Giant'



Lomandra longifolia 'Verday'



Melaleuca hypericifolia



Philodendron 'Xanadu'



Rhaphiolepis 'Snow Maiden'



Westringia fruticosa

Table 5-9: Iron Cove Link - Bulky Shrubs and Small Trees (Typical Species)

Botanical name	Common name
* *Acacia longifolia*	Sydney Golden Wattle
* *Acmena smithii*	Lilly Pilly
* *Backhousia myrtifolia*	Grey Myrtle
* *Banksia ericifolia*	Heath-leaved Banksia
* *Banksia integrifolia*	Coast Banksia
* *Banksia serrata*	Old man Banksia
Buckinghamia celsissima	Ivory Curl Tree
* *Callicoma serratifolia*	Black Wattle
Callistemon 'Endeavour'	Endeavour
* *Dodonaea triquetra*	Large-leaf Hop Bush
* *Elaeocarpus reticulatus*	Blueberry Ash
Leptospermum flavescens 'Cardwell'	Tea Tree
* *Leptospermum laevigatum*	Coastal Tea Tree
* *Melaleuca decora*	White Feather Honey Myrtle

** Denotes endemic species*


Acacia longifolia


Acmena smithii


Backhousia myrtifolia


Banksia ericifolia


Banksia integrifolia


Banksia serrata


Buckinghamia celsissima


Callicoma serratifolia


Callistemon 'Endeavour'


Dodonaea triquetra


Elaeocarpus reticulatus


Leptospermum flavescens 'Cardwell'


Leptospermum laevigatum


Melaleuca decora

Table 5-10: Iron Cove Link - Canopy Tree planting (Typical Species)

Botanical name	Common name
* *Cupaniopsis anacardioides*	Tuckeroo
* *Tristaniopsis laurina 'Luscious'*	Kanooka Gum
* *Ficus rubiginosa*	Rusty Fig

** Denotes endemic species*

BOULEVARD TREES


Ficus rubiginosa

PARKLAND / VERGE AND MEDIAN TREES


Cupaniopsis anacardioides


Tristaniopsis laurina 'Luscious'


Ficus rubiginosa *Cupaniopsis anacardioides* *Tristaniopsis laurina* 'Luscious'



Artist's impression: Landscaped median crossing behind Iron Cove Link Portals (Landscape shown at full maturity and is indicative only).

Iron Cove Link landscape strategy plans

The following landscape strategy plans have been prepared to highlight the key landscape design approach that has been incorporated into the design.

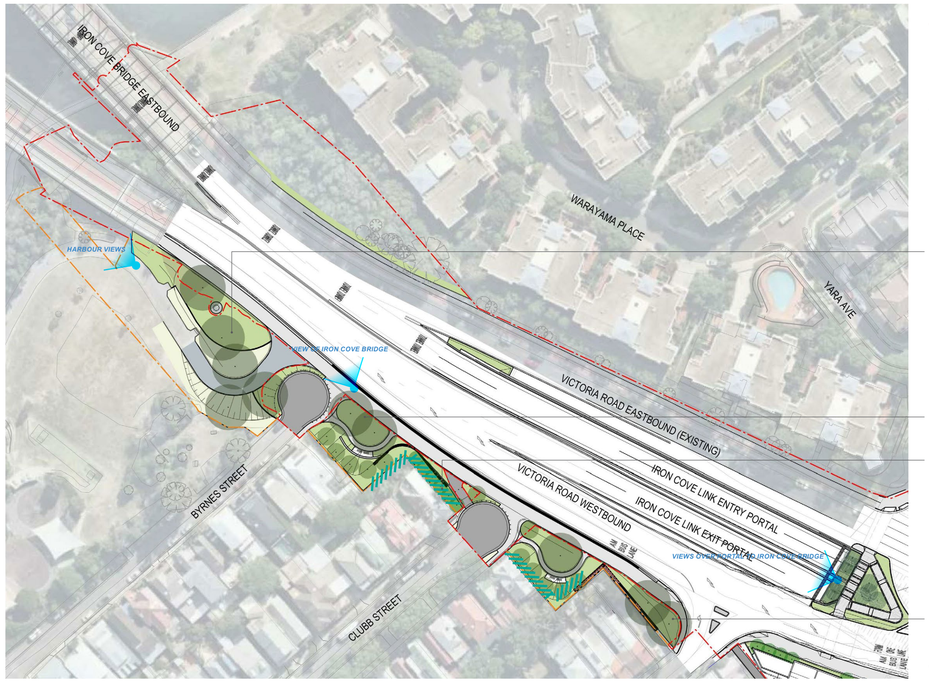
The plans illustrate the composition of landscape design elements which typically include:

- Publicly accessible turf areas
- Landscape revegetation areas
- Proposed tree planting locations
- Buffer / screen planting areas, and
- Prominent contextual and filtered landscape views.

For descriptions of project elements, refer to concept plans in Section 04 of this UDLP.



Figure 5-15: Iron Cove - Landscape Strategy Key Plan



LEGEND

- *Project Boundary*
- *Proposed tree planting location*
- *Publicly accessible turf areas*
- *Landscape revegetation areas*
- *Buffer / screen planting areas*
- *Prominent contextual and filtered landscape views*

Figure 5-16: Iron Cove Link - Landscape Strategy Plan - Drawing 1 of 2



LEGEND

- *Project Boundary*
- *Proposed tree planting location*
- *Publicly accessible turf areas*
- *Landscape revegetation areas*
- *Buffer / screen planting areas*
- *Prominent contextual and filtered landscape views*
- *Residual land subject to the Residual Land Management Plan*

Figure 5-17: Iron Cove Link - Landscape Strategy Plan - Drawing 2 of 2

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Rozelle Interchange
WestConnex
JOHN HOLLAND | CPB CONTRACTORS

Rozelle Interchange

Urban Design and Landscape Plan

Tunnel Portals and Approaches

06

Artist's impression: Iron Cove Link Portals



Artist's impression: Aerial view over City West Link (Landscape shown at full maturity and is indicative only).
**Refer Figure 4-12 for revised layout.*

6 Tunnel Portals and Approaches

6.1 Overview

The portals and dive structures for the Project are located at the entry and exit ramps to the tunnels at the following locations:

- Iron Cove Link portals
- M4-Anzac portals
- M5 portal
- Western Harbour Tunnel (WHT) portal

Design intent

The Project's overall design intent for tunnel portals is to create a refined design aesthetic that avoids clutter and poor finishing. Portals have been designed as architectural elements that are attractive, welcoming and are consistent with the designed stages of WestConnex M4 East, New M5 and M4-M5 Link Mainline Tunnels projects.

There has been a considered attempt to avoid unnecessary embellishment in the design of tunnel portals that may date with age. The design team has focused on designing the elements to fit within their context, emphasising the simple, uncomplicated and consistent detailing within all portal materials and finishes.

The portals and dive structures blend seamlessly with the surrounding topography, and provide a safe and legible transition between the surface, dive structures and the driven tunnel. The design of the portal facades is integrated with other elements to provide a consistent design aesthetic that can address different geometric conditions. Feature lighting is one of the major components and is provided and integrated into the design.

The Project has categorised the portals into two main types:

- City West Link portals - which are located at signalised intersections. They form a built edge to the parklands and do not have a declined approach, with entry / exit at surface road level. City West Link portals include M5 and WHT portals
- Dive portals - which are located within roadside environments along continuous, free flowing traffic corridors. Typically, the approach lanes to dive portals decline on approach to the portal, with entry / exit below surface road level. Dive portals include the Iron Cove Link and M4-Anzac portals.

The Project has adopted a design aesthetic for the City West Link portals and Dive portals that is complimentary, and responds to the varying conditions and constraints of each portal.

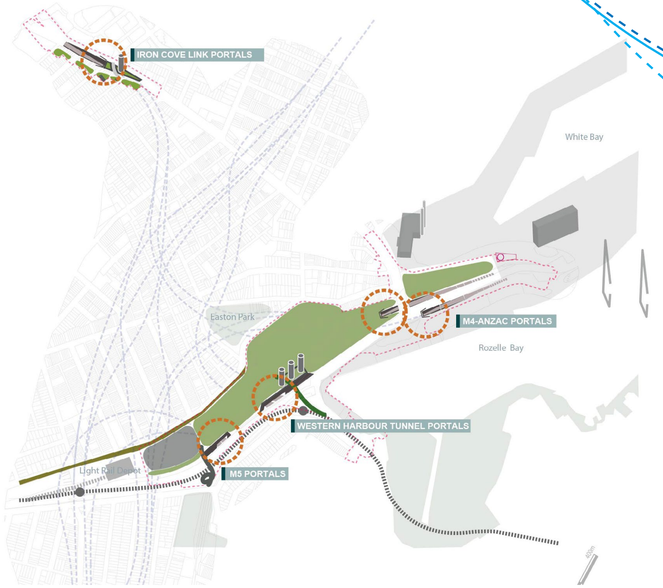

Figure 6-1: Rozelle Interchange portal locations



Artist's impression - M5 Portal looking north west (Landscape shown at full maturity and is indicative only).

6.2 M5 Portal on City West Link

The M5 portal structure will be experienced by road users on the City West Link and will feature a consistent metal clad facade which continues across to the Western Harbour Tunnel portal and the Rozelle ventilation facility.

The Bridge to Brenan Street, the Rozelle West motorway operations complex (MOC) buildings and the M5 portal / ramps form a suite of integrated built form and landscape elements that include the drainage channel along the edge of City West Link.

The Bridge to Brenan Street joins onto the façade of the portal connecting the Rozelle Rail Yards parkland above.

The visibility of the drainage channel and the buildings will be mitigated with landscape screen planting. The grey, metal cladding with vegetation in the foreground, provides a calming, distinctly Sydney landscaped experience in this busy corridor.

The M5 portal structure will be recessive; as a design gesture this is an appropriate response to the Rozelle Rail Yards Parklands. The facade above the entrance portal includes a Variable Message Sign (VMS) and gantry structure which features articulated metal cladding to emphasise the entrance. The portal design integrates with throw screens, gantries and electronic information systems.



Figure 6-2: M5 Portal - location plan - not to scale

M5 structure and Rozelle Rail Yards Parklands

The M5 structure is covered with minimum of a one metre deep soil layer and forms an elevated landscaped area of the Rozelle Rail Yards parkland experience. This will contribute to people using the pathways, landscape, and seating in the parklands being unaware of the traffic in the tunnels below. This is a significant feature of the Project, and a desirable response to the open space needs of the communities in the surrounding urban areas.

Connection to the Bridge to Brenan Street

The Bridge to Brenan Street is part of the composition of the M5 portal structure. The bridge sweeps into the parklands and includes visual screening to the MOC facility below.

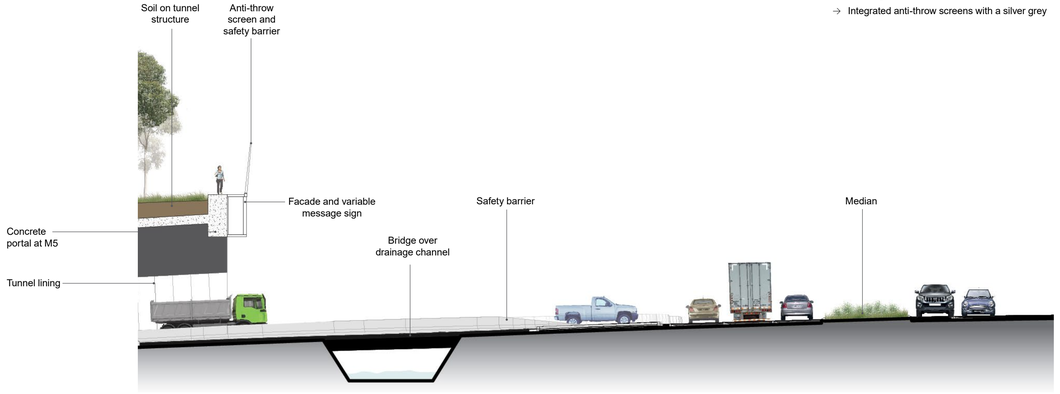

Figure 6-3: M5 Portal - typical cross section

Key design elements

The key design elements of the M5 portal comprise:

- Integrated facade treatment of the M5 portal with other portals and major built structures along City West Link, including the drainage channel, Rozelle ventilation facility and Green Link Bridge
- The M5 cut and cover structure is covered by landscape planting on a soil layer with a depth of at least one metre, forming part of the parklands
- Elegant grey metal cladding to form a recessive built edge
- Integrated anti-throw screens with a silver grey

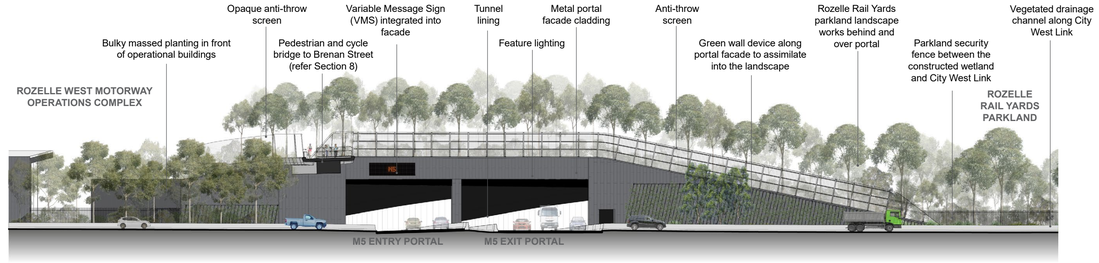

Figure 6-4: M5 Portal General Arrangement Plan

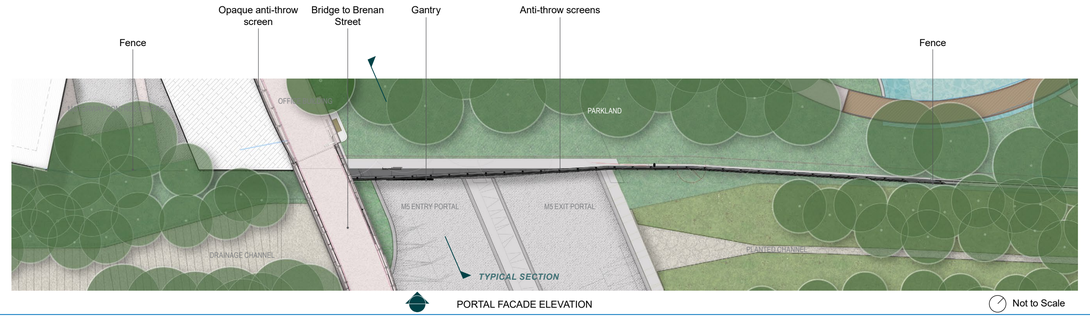

Figure 6-5: M5 Portal General Arrangement Plan



Artist's impression - Western Harbour Tunnel Portal looking north west (Landscape shown at full maturity and is indicative only).

6.3 Western Harbour Tunnel Portal on City West Link

The Western Harbour Tunnel portal is a major element in the roadscape of City West Link. Metal cladding will be screened with plantings wherever possible. The landscaped Green Link Bridge and the landscaped Rozelle ventilation facility are dominant elements in the Rozelle Rail Yards Parklands and form a suite of integrated landscape and built-elements forming the edge of City West Link.

The façade has been screened with vegetation, wherever possible, to visually integrate with the Rozelle Rail Yards Parklands. The general design approach is consistent for the M5 portals to create a unified aesthetic along City West Link.

When the landscape planting is fully established, the portals, ventilation facility, landscaped bridge, and landscaped Western Harbour Tunnel portal will form an elegant and recessive structure unifying the Rozelle Rail Yards Parklands and its context as the major surface entry location to the Western Harbour Tunnel.

Information technology system (ITS) traffic management will be integrated within the portal of the Western Harbour Tunnel. Carefully coordinated with the articulated metal cladding and throw screens, the portals form a simple, strong, elegant statement of design integration. The articulated metal panels above the portal provide identification for the entrance, while screening the gantry and electronic information systems such as the VMS.

The Western Harbour Tunnel cut and cover structure is covered with one metre of soil to support planting that will provide an elevated parkland experience. This will contribute to users of the parkland space being unaware of the traffic in the tunnels below. The landscaped cover to the Western Harbour Tunnel structure is a major feature for this road project and is similar in concept to the land bridge over the Eastern Distributor at the NSW Art Gallery.

FUTURE PORTAL OPENING

The Western Harbour Tunnel portal will be highly visible to motorists on City West Link and will from a key component of the local context.

The portal will not be operational upon completion of this Project.



Figure 6-6: Western Harbour Tunnel Portals - location plan - not to scale

Key design elements

The key design elements of the Western Harbour Tunnel Portal comprise:

- Silver metal facade with undulating forms, consistent with the project design language
- Anti-throw screens that follow the facade, and
- Integrated landscape screening for the facade and trees and plants over the structure

The following plan, section and elevation illustrate the design for Western Harbour Tunnel portal, which is set along the edge of the Rozelle Rail Yards parkland.

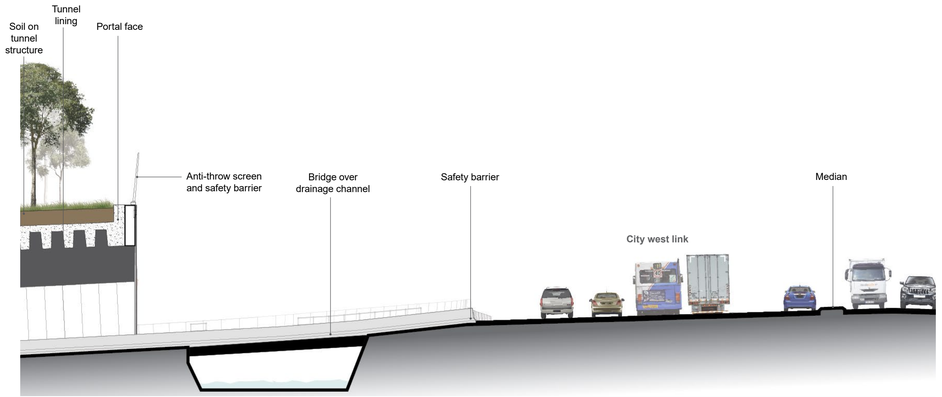

Figure 6-7: WHT Portal - Typical section



Figure 6-8: WHT General Arrangement Elevation

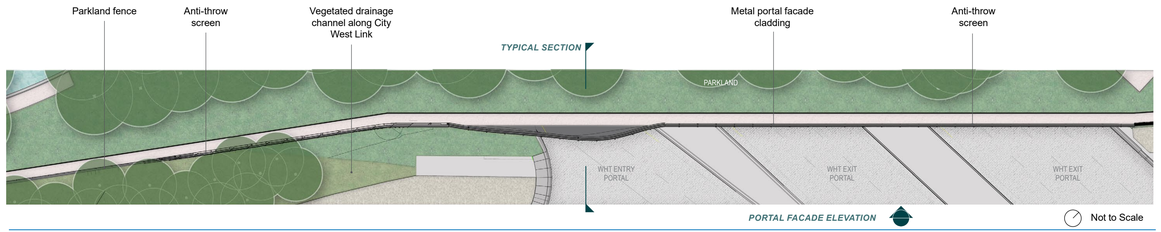

Figure 6-9: WHT General Arrangement Plan



Artist's impression: Anzac Bridge Exit Portal - view from Victoria Road (Landscape shown at full maturity and is indicative only).
**Refer Figure 4-12 for revised layout.*

6.4 M4-ANZAC Portals

Within the area between Anzac Bridge and Rozelle Rail Yards parklands, these portals have also been designed to fit within the existing infrastructure corridor and present as a new, sleek and refined element within a crowded infrastructure environment. Entry and exit portals have been designed to present a memorable approach and exit to the tunnel with carefully designed wall and portal treatments that respond to the functional requirements of the Motorway and contribute to the motoring experience.

There has been an emphasis on minimising the visual impact of the portals by blending the extent of cut and cover areas into the surrounding landscape or public realm areas, and creating as much 'green canopy' adjacent the portals and approaches to help blend the proposed infrastructure elements within the surrounding fabric.

The M4-Anzac entry and exit portals are in separate locations on either side of Victoria Road as follows:

- The M4-Anzac entry portal is located adjacent to James Craig Road, along the southern side of Victoria Road
- The M4-Anzac exit portal is located on the northern side of Victoria Road and is set within the Rozelle Rail Yards parkland.

The adjacent key plan illustrates the M4-Anzac entry and exit portal locations.

Key design elements

The portal openings, retaining walls, lighting, safety barriers leading to the portals and all other elements have been designed as a simple, robust and integrated series of elements. Tunnel portals feature the following:

- Portal walls will have a select paint finish with anti graffiti coating
- Portal façades will be a combination of black, dark grey, grey and silver metal cladding on a structural steel frame
- The tunnel entry portal will feature black VMS above the entry ramp, blending seamlessly with the black metal cladding on the portal facade
- To decrease the overall mass of the portal facade and offer views of the native vegetation planted between the portal and ventilation building behind, a large '*Letterbox*' viewing slot has been opened up in the structure in line with the VMS
- The tunnel dive approaches will feature metal wall cladding coloured 'silver grey' with feature LED strip lighting rebates at staggered intervals

FEATURE LIGHTING

The primary design objective is to provide lighting features to break up the monotony of the dive and create a unique and memorable experience. The lighting aims to provide a subtle quality that will be noticed by the driver without becoming a source of distraction. Part of the architectural design of the dive approaches is the inclusion of vertical rebates at approximately 3m to 5m intervals.

The rebates will feature the following:

- Linear continuous LED strip light that will illuminate the back of the rebate. The lighting will have the ability to change in colour and pattern, so that it varies from day to day and creates visual interest for regular travellers
- The LED strip light will be a metal extrusion with a clear cover



Figure 6-10: M4-Anzac Portals - Location Plan - not to scale



Artist's impression: Anzac Bridge Entry Portal - Motorist's perspective. (Landscape shown at full maturity and is indicative only).

M4-ANZAC Entry Portal
The following plans, elevations and sections illustrate the design for M4-Anzac Entry Portal.

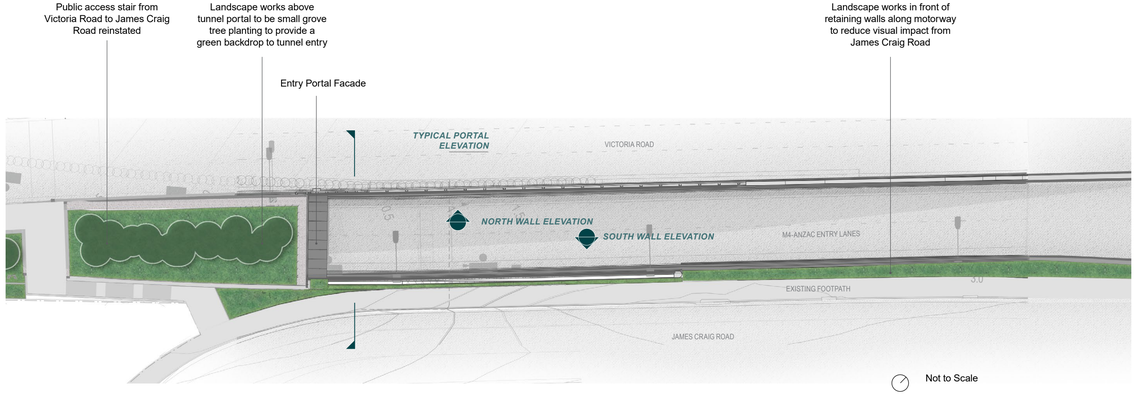

Figure 6-11: M4-Anzac Entry portal - plan

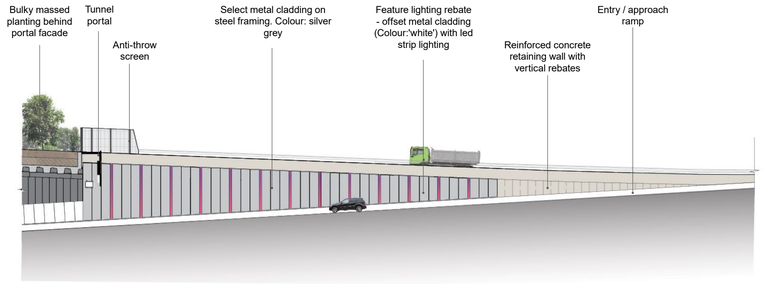

Figure 6-12: M4-Anzac Entry Portal - dive wall elevation - motorists side

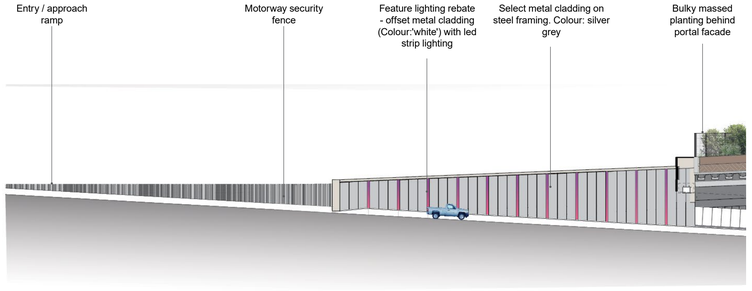

Figure 6-13: M4-Anzac Exit Portal - View from James Craig Drive

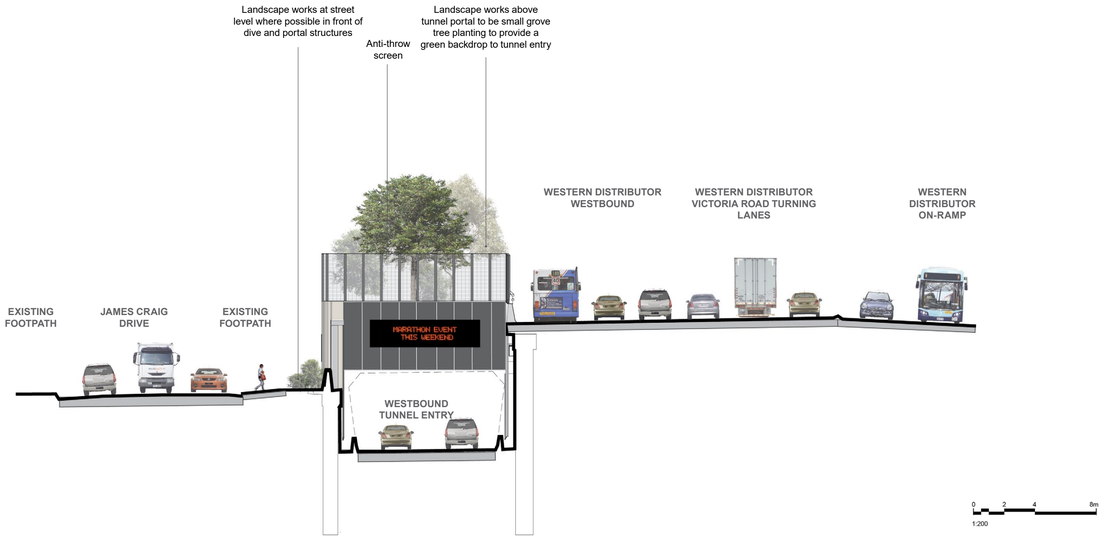

Figure 6-14: M4-Anzac Entry Portal - Tunnel portal elevation



Artist's impression: M4-Anzac Exit portal - View from Victoria Road Bridge (Landscape shown at full maturity and is indicative only).
**Refer Figure 4-12 for revised layout.*

M4-ANZAC Exit Portal

The following plans, elevations and sections illustrate the design for M4-Anzac Entry Portal, which is set within the Rozelle Rail Yards parkland.

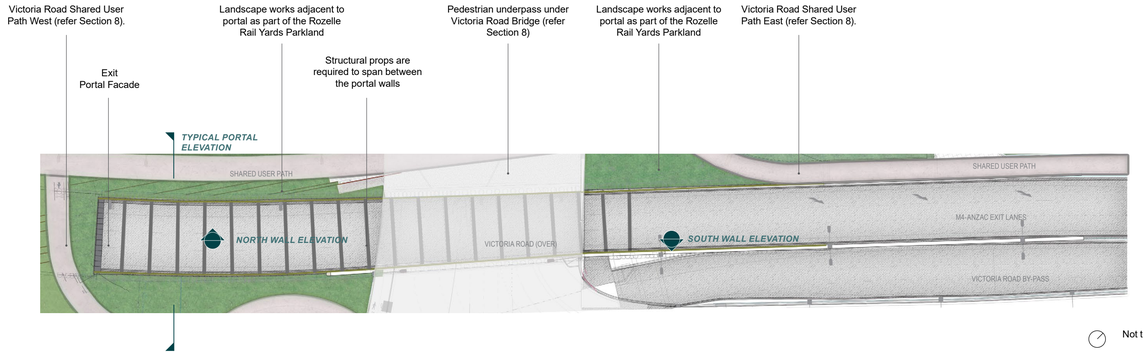

Figure 6-15: M4-Anzac Exit portal - plan

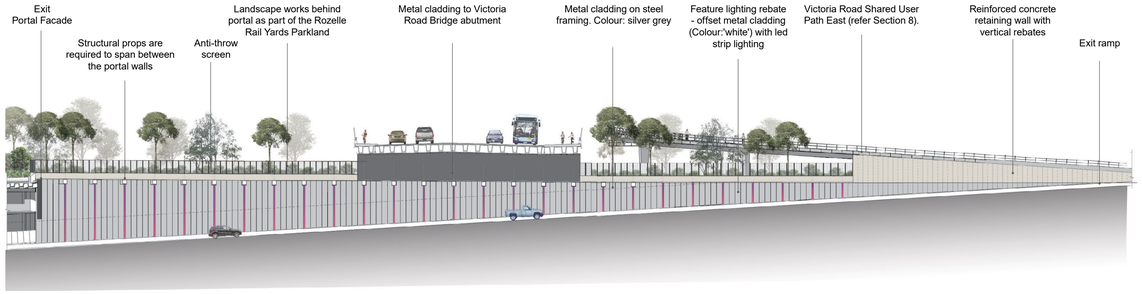

Figure 6-16: M4-Anzac Exit Portal - North dive wall elevation

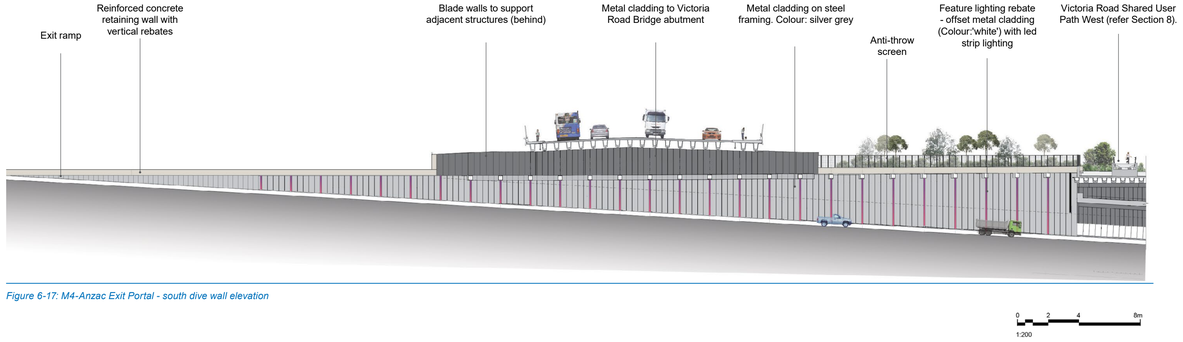

Figure 6-17: M4-Anzac Exit Portal - south dive wall elevation

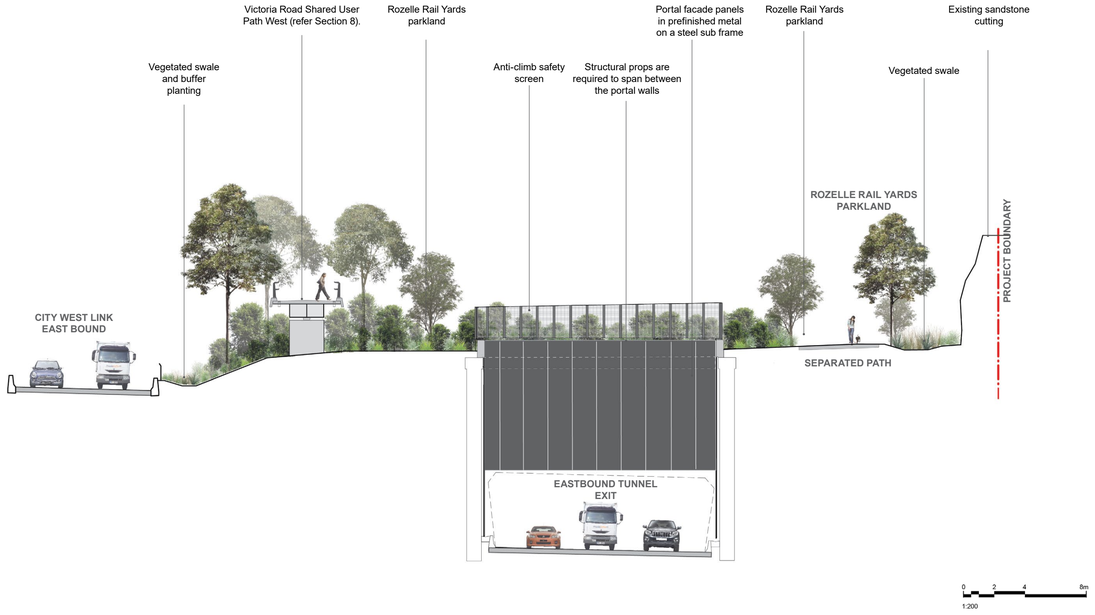

Figure 6-18: M4- Anzac Exit Portal - Portal elevation



Artist's impression: Iron Cove Link Portals - Aerial perspective. (Landscape shown at full maturity and is indicative only).

6.5 Iron Cove Link portal

Within the Iron Cove Link area, the portal has been designed to fit within the existing Victoria Road corridor and present as a new, sleek and refined element within an existing crowded infrastructure environment which is bounded by Iron Cove, and the residential and commercial properties along Victoria Road.

As the portal is located within a wide, road corridor spanning numerous lanes of traffic and adjacent tunnel facilities, there has been an emphasis on providing as much 'green canopy' as possible that will help blend the proposed infrastructure elements within the local built and natural fabric.

Portal and dive approaches details

The portal openings, retaining walls, lighting, safety barriers leading to the portals and all other elements have been designed as a simple, robust and integrated series of elements that are consistent with approach described for the M4-Anzac Portals.

Feature lighting

The approach to integrated feature lighting rebates is consistent with that adopted at the M4-Anzac Portals.



Figure 6-19: Iron Cove Link Portals - Location Plan - not to scale

IRON COVE LINK DETAILS

The following plans, elevations and sections illustrate the design for Iron Cove Link Portals.



Figure 6-20: Iron Cove Link portals - key plan

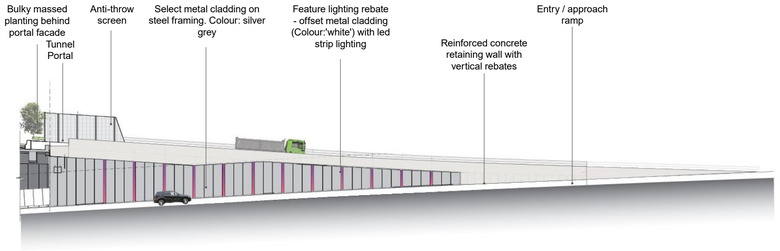

Figure 6-21: Iron Cove Link - Tunnel portal dive wall - south elevation

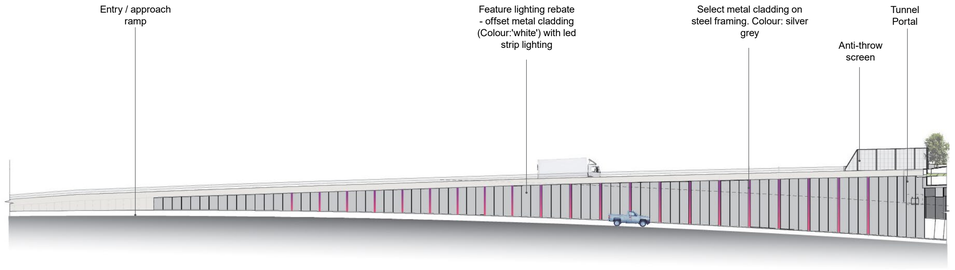

Figure 6-22: Iron Cove Link - Tunnel portal dive wall - north elevation

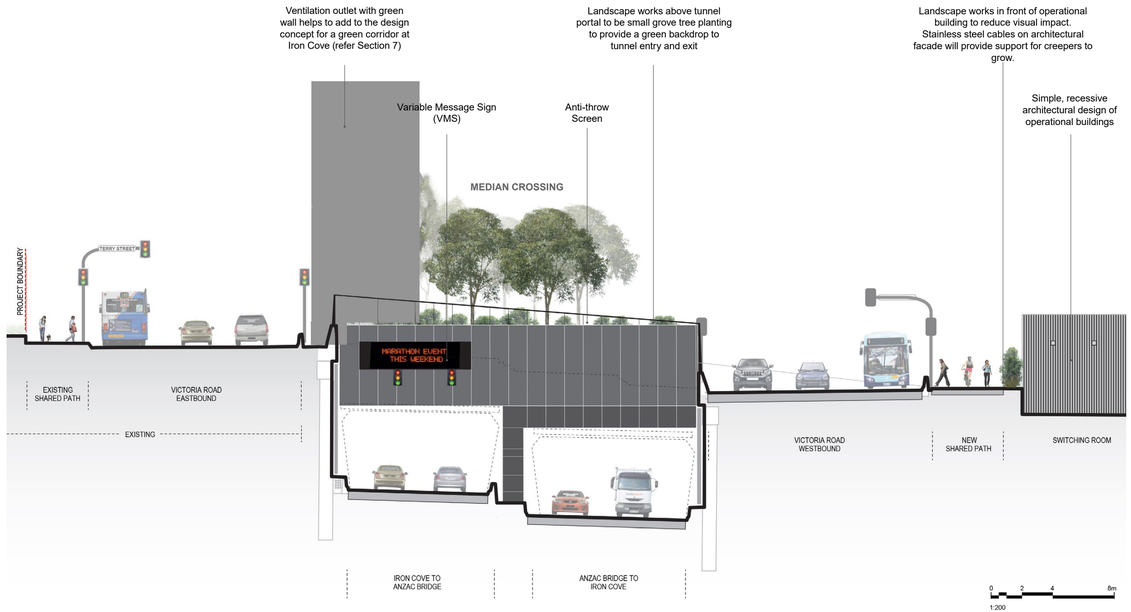

Figure 6-23: Iron Cove Link - Tunnel portal elevation



Artist's impression: Iron Cove Link Portals - Driver perspective. (Landscape shown at full maturity and is indicative only).

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Urban Design and Landscape Plan

Tunnel Services Buildings

07

Artist's impression: Rozelle Ventilation Facility - view from project boundary on Lilyfield Road (Landscape shown at full maturity and is indicative only).



Artist's impression - Rozelle West Motorway Operations Complex Architecture (landscape shown at full maturity and is indicative only).

7 Tunnel services buildings

7.1 Overview

The Rozelle Interchange has designed all buildings to be integrated with and to complement the landscape setting in which they are located.

The majority of the tunnel ventilation operational facilities are located underground. The major above ground structures include ventilation outlets that have been partially lowered below ground to reduce visual impacts.

The above ground structures and buildings have been designed as a series of sculptural elements for the Project that include vertical gardens, metal cladding supported by sculpturally designed frames.

The Project has consolidated all operational buildings into the following areas:

- Rozelle West Motorway Operations Complex
- Rozelle Ventilation Facility
- Iron Cove Surface Fixed Facility
- Iron Cove Link Ventilation Facility.

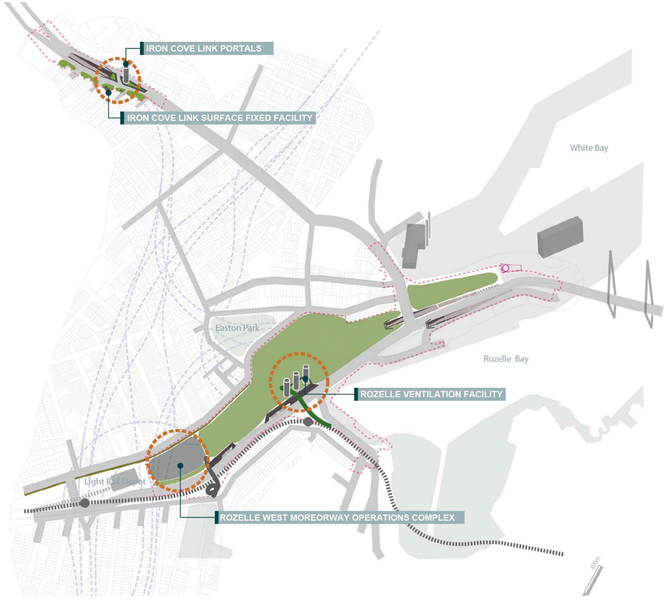

Figure 7-1: Location of operational buildings



Artist's impression - Rozelle West Motorway Operations Complex from Lilyfield Road (landscape shown at full maturity and is indicative only).

7.2 Rozelle West Motorway Operations Complex

The Rozelle West Motorway Operations Complex (MOC) (also known as MOC2 in the EIS) is the major operational facility for the Project and occupies approximately 1.5 hectares. The facility is located in the most westerly portion of the Rozelle Rail Yards site adjacent to the Sydney Trains Inner West Light Rail facility, to optimise land use and increase parkland space.

The facility is situated below street level of Lilyfield Road and Rozelle Rail Yards Parkland, which reduces potential operational impacts on the surrounding neighbourhoods and the parklands.

While the MOC contains utilities and related facilities, the buildings are recessive in design and colour and located behind new landscaping that will partially screen the facilities. This results in the whole facility being largely visually screened from public spaces.

The buildings located within the Rozelle West Motorway Operations Complex are shown on the plan on the following page.

Urban design features of the facility include:

- A visually discrete facility; the MOC facility is depressed into the existing cutting area of the former rail yards and will be co-located with the Sydney Trains Inner West Light Rail facility at Lilyfield
- The compound level will be below the M5 portal / ramp structure, below parkland level and generally below Lilyfield Road levels
- Existing trees along Lilyfield Road are retained, where possible, to screen the compound from view by motorists and pedestrians
- Landscape screening along the City West Link facade, as a vandal resistance strategy to integrate the landscape with the facility
- The facility operations buildings are located on the property boundary to maximise space in the compound. The buildings facades form a built edge to City West Link and the parklands
- The facility contains the Motorway Operations Control facilities (including substations), water treatment plant, pump rooms, water tanks and a shaft to the tunnels. The area is space proofed for future facilities should they be required for the future proposed Western Harbour Tunnel project.
- Vehicles will access the MOC compound from Lilyfield Road via the existing entrance to the Sydney Trains Inner West Light Rail facility, with an internal ring road designed to accommodate the variety of vehicle types that will access the facility
- The Bridge to Brenan Street is above the compound in the south east corner of the site. Landscape screening will limit views that users of the bridge have over the MOC compound
- The forms, materials, and arrangement of elements unify the MOC urban design. The materials are durable and high quality such as metal cladding, glass, concrete and metal louvres
- Landscape screened man-proof fences and building facades secure the MOC
- Landscaping and water sensitive urban design facilities are provided for the benefit of the personnel working in the operations facilities.

A UNIFYING AESTHETIC

The primary architectural forms of the MOC buildings, together with a consistent application of materials and finishes, will unify the architecture. The rectangular layout of the circuit road is a dominant organising form for circulation and building layout. The landscape will soften and unify the compound to produce a high-quality working environment.

MATERIALS AND FINISHES

The materials and finishes in the MOC respond to the durability requirements of the infrastructure. Materials such as precast concrete, fibre cement cladding, painted steel cladding materials and asphalt form the major materials within the compound. Materials facing onto City West Link include metal and painted steel. The compound will be landscaped.

SECURITY

The MOC is a high security area that includes man-proof fences and gates, illumination, and other security facilities. There is no public access to this area.



Figure 7-2: Plan: Long elevation of City West Link Portals and Rozelle Ventilation Facility



LEGEND

- (A) Western Harbour Tunnel (WHT) Fire Pump Room
- (B) Shaft F (below)
- (C) Fire Water Tank
- (D) Rozelle Interchange (RIC)- Fire Pump Room
- (E) Substation
- (F) Communications Building
- (G) RIC Office / Workshop / Garage
- (H) WHT Office / Store
- (I) WHT Bulk Supply Substation
- (J) Provision for Future Water Treatment Plant (WHT)
- (K) RIC Water Treatment Plant
- (L) Bulk Store
- (M) Parking
- (N) Drainage channel
- (O) Sydney Trains Inner West Light Rail facility
- (P) Existing Sydney Light Rail
- (Q) M5 Portal
- (R) Parklands

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Figure 7-3: Plan: Rozelle West Motorway Operations Centre

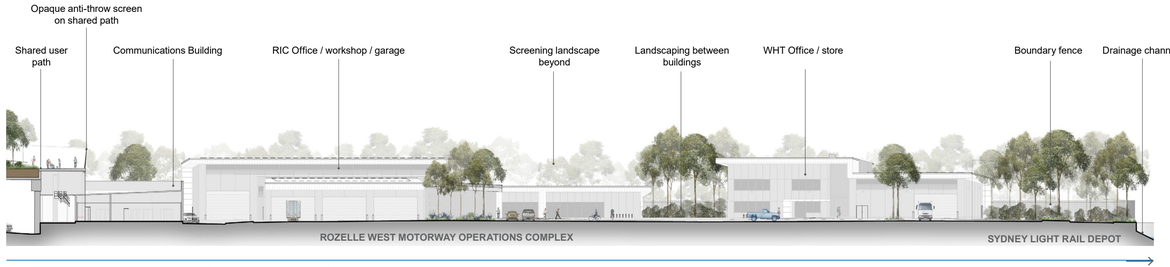

Figure 7-4: Longitudinal section 1 through Lilyfield Motorway Operations Complex

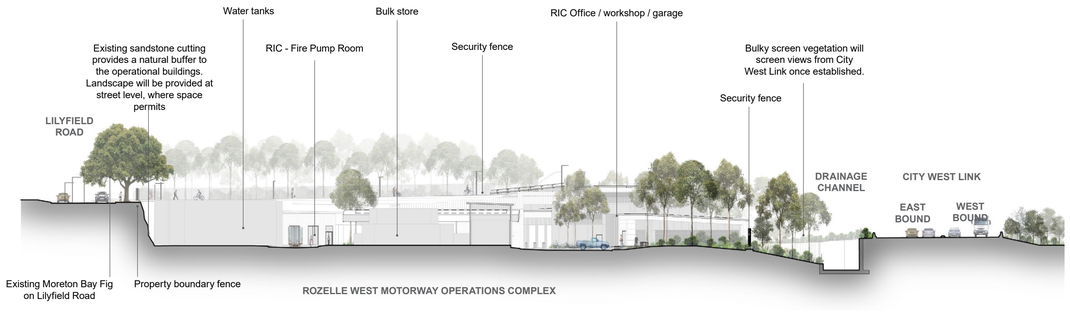

Figure 7-5: Longitudinal section 2 through Lilyfield Motorway Operations Complex



Artist's impression - Rozelle ventilation facility from City West Link (Landscape shown at full maturity and is indicative only).

7.3 Rozelle Ventilation Facility and outlets

While the Rozelle ventilation facility is the largest above ground structure on the Project, it is suppressed into the landscape.

It comprises of two elements – the partially below ground ventilation facility which houses part of the ventilation system and the three above ground ventilation outlets.

The trees and other planting in the parkland integrate with the vertical gardens installed on the ventilation outlet structures in an artistic and sculptural manner.

Urban design features of the ventilation facility include:

- Landscape screening along the fence / drainage line adjoining the City West Link facade, as a vandal resistance strategy and to integrate the facility with the landscape
- The base of the ventilation station building is clad in silver grey metallic cladding which provides a recessive, minimalist elegance
- In selected areas the vertical cladding includes a gentle sculptural wave, such as at the east end of the building, under the Green Link Bridge and at portals. The wave adds interest to the overall composition and screen functional ventilation facilities.
- Access from City West Link is secured and screened with landscape in a fenced compound area with no public access
- The forms, materials, and arrangement of elements unify the ventilation facility with the Western Harbour Tunnel portals alongside

FORM OF BUILDINGS, RELATIONSHIP AND SCALE

The heights and locations of the three ventilation outlets comply with the planning approval requirements. They are located on the partially underground ventilation facility.

The ventilation station roof is landscaped and incorporates a shared user paths through the parklands connecting to the Green Link Bridge and the Rozelle Bay light rail station platform.

The Rozelle ventilation facility includes:

- Three sculptured Rozelle ventilation outlet structures partly covered with areas of vertical garden
- A partially suppressed ventilation facility with landscaped roof and screen planting, this includes a path to a public viewing area and lookout over Rozelle Bay
- The connection to Rozelle Bay Station and Johnston Street via the Green Link Bridge.
- Drainage facilities are integrated into the design
- Sydney Trains facility and maintenance compound, designed to recede into the park landscape
- Landscape terraces to the parklands with shared user paths through the parklands.
- An access stair enclosure for entry and exit to the below ground portion of the WHT substation. The capsule shaped profile and facade are sympathetic with other built components of the park, blending in with the surrounding landscape.

FUNCTIONAL ATTRIBUTES OF THE ROZELLE VENTILATION FACILITY

The functional aspects of the facility comprise:

- A high-quality fence / balustrade to surround the maintenance area and / or building edge
- Compound access with turning facilities for vehicles off City West Link
- Set-backs for the drainage channel along the northern edge of City West Link
- Landscape screen planting of the structures to integrate them into the parklands.

MATERIALS AND FINISHES

The materials facing onto City West Link are:

- Vertical metal cladding panels and roof for the operations facility
- Steel cables for creepers
- Stainless steel and painted steel baluster
- Stainless steel handrails on stairs and additional bicycle handrails on ramps
- Boundary fencing.



Figure 7-6: Artist's Statement and inspiration.
Source: Thomas Cole. The Course of Empire: Desolation, 1836.

LANDSCAPE DESIGN

The roof of the ventilation facility will be a publicly accessible landscape lookout that is integrated with the Rozelle Rail Yards Parklands via the main separated cycle path connection from the Green Link Bridge.

As a prominent built element, likened to that of a coastal sandstone headland, the landscape character of the lookout will feature informal groves of Coastal Banksia (B. integrifolia) and gravel areas nestled with seating opportunities. The landscape character of the lookout will continue across the Green Link Bridge (described in Section 8) towards the Rozelle Bay light rail platform.

The landscape works will also support creepers and climbers on the green wall facade.

ARTIST'S STATEMENT

Artist Chris Fox was inspired by the archetypal images of ancient ruins, overrun by nature with vines and trees in his design of the ventilation facility. He believes the predominant element within this substantial intervention should be the green habitat of the parklands.

This artwork by Studio Chris Fox was developed as a living system for the city. The three Rozelle ventilation outlets emerge from the parklands as a series of dynamic sculptural forms where landscape elements utilise the towers for its own gains. The parklands and the ventilation facility are an active and complex system involving the interplay of pedestrian, vehicular, green infrastructure and natural landscape elements. This integrated urban and landscape artwork with its complex forms references the many vehicular, pedestrian and other movement pathways of the site.

Sculptural geometries incorporate path-lines and functional requirements for maintenance of the facility, including the vertical gardens and air quality monitoring. The plant species selected and the planting pattern, green-wall module positions, titanium zinc panelisation and structural framework, are combined as a parametric system. The modulating tower surface evokes a series of landscaped monoliths, inscribed with the etchings of an intelligent and integrated ecosystem and ultimately overrun.

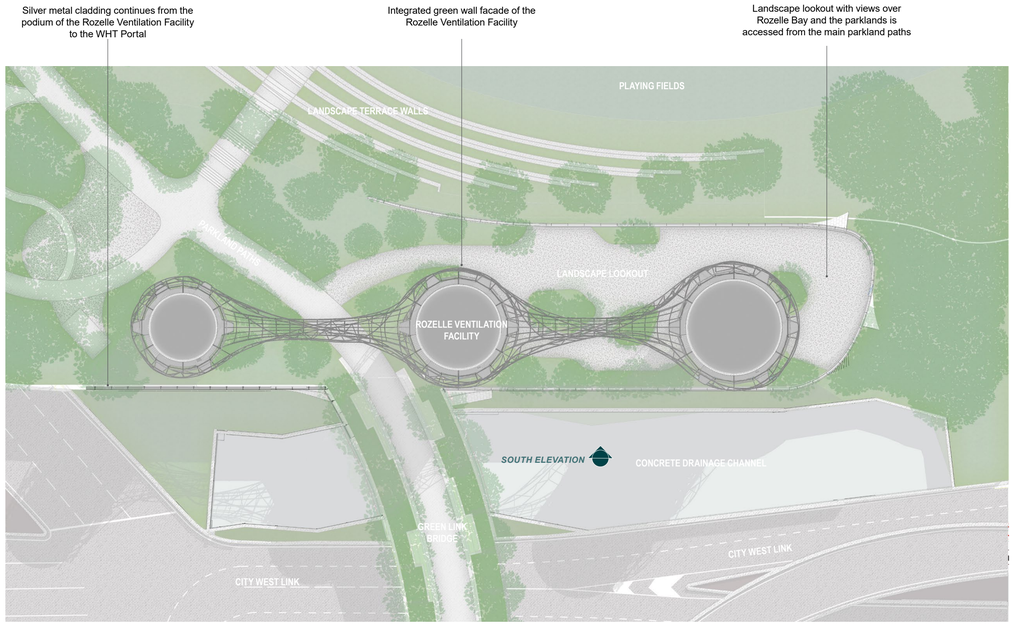

Figure 7-7: Plan: Rozelle ventilation facility

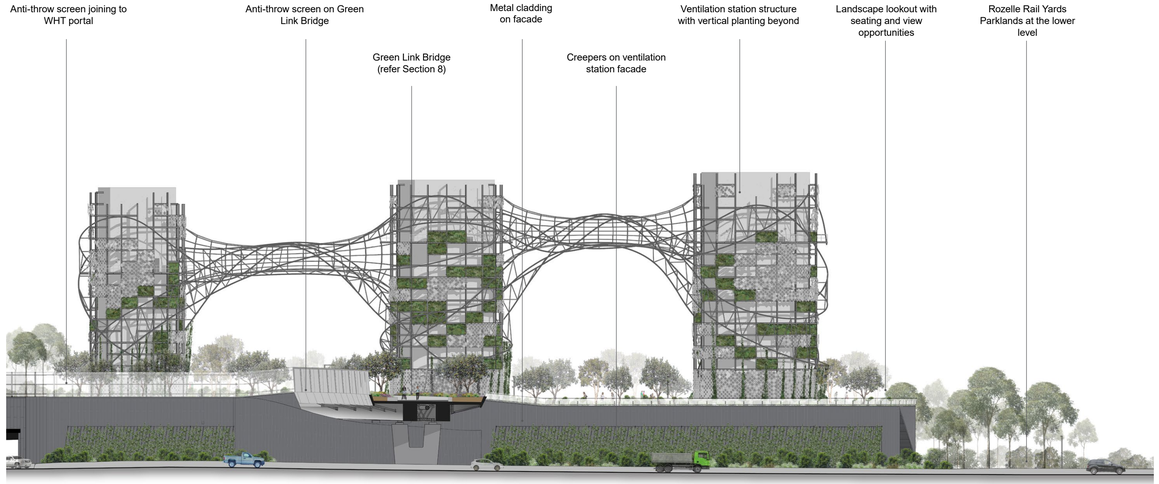

Figure 7-8: M5-WHT LONG SECTION



Artist's impression: View of Iron Cove operational facilities from landscape median (Landscape shown at full maturity and is indicative only).

7.4 Iron Cove Link Operational Facilities

The Iron Cove Link (ICL) Operational Facilities consist of the ventilation facility and the surface fixed facility. The Iron Cove Link ventilation facility is located in the median of Victoria Road at the southern area of Iron Cove Bridge and has been designed to integrate with the suburban context. The Iron Cove Link surface fixed facility is located to the south of the realigned Victoria Road, to the east of Toelle Street.

The majority of the ventilation and operational facilities are located underground while the major above ground structures include the Iron Cove ventilation outlets and the surface fixed facility located on the western side of Victoria Road, between Toelle and Callan Streets. This arrangement of the surface fixed facility, and the underground impacts, differ from those assessed in the EIS, therefore the project has sought to modify the Planning Approval to include these changes. The design presented in this section has been developed from the concept within the modification.

The buildings located within the Iron Cove Link surface fixed facility are shown on the plan on the following page.

Urban design features of the operational facilities include:

- Discrete ICL ventilation facility access, fenced, secured and screened with landscape treatment
- The forms, materials, and arrangement of elements unify the electrical and control room urban design form with the Ventilation outlet and the portals
- Maintenance buildings at Iron Cove have been designed to integrate with the suburban context of the area. The use of the titanium zinc cladding with landscaping and vegetative screening will be sympathetic to the environment and appropriately contextual for the metals seen locally in residential buildings, the Iron Cove Bridge and other project work. Landscaping and fencing in this area maintains a consistent approach to the design and intent of integration.
- The electrical and control room contains operations facilities that include a small partially suppressed underground electrical switch room, hardware for the operations management and control system, and two high voltage regulators.

FORM OF BUILDINGS, RELATIONSHIP AND SCALE

The Iron Cove ventilation outlet location and height comply with the Planning Approval requirements. It is located on top of a partially suppressed underground ventilation facility. The above ground facilities at Iron Cove are approximately 175m^2 comprising:

- One rectangular ventilation outlet with vertical gardens and silver grey cladding, approximately, as shown in the artists impressions and drawings in this section of the report.
- Operational electrical and control room, that is partially suppressed underground and screened with landscape treatment where space permits
- Landscape screened and fenced facilities, security fences are shown on the drawings
- Landscaped pocket parks with shared user paths form the western edge of the road.

MATERIALS AND FINISHES

The materials included in the operational facilities at Iron Cove are:

- Vertical metal cladding panels and roof for the operational electrical and control room
- Boundary fencing
- Ventilation outlet with vertical gardens and metal cladding
- Landscaped pocket parks.



LEGEND

- A Switch Room
- B High Voltage Regulators
- C Alternative Operational Motorway Control System (OMCS)
- D Concrete Road / Service Area

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Figure 7-9: Iron Cove Link - Operational Facilities plan

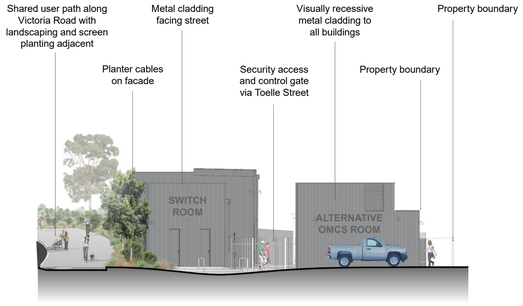

Figure 7-10: ICL Surface Fixed Facility - Elevation 1

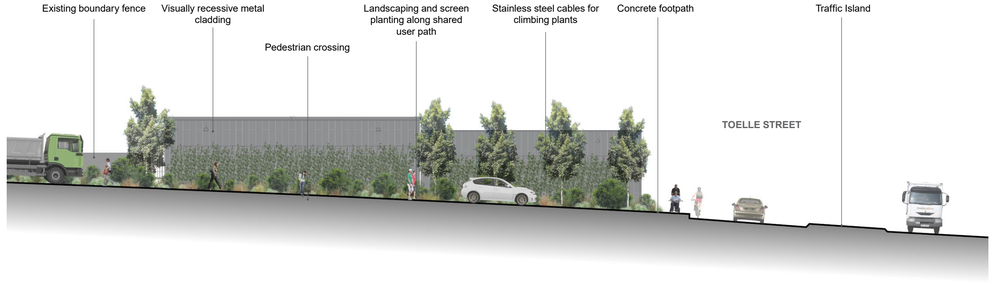

Figure 7-11: ICL Surface Fixed Facility - Elevation 2



Artist's impression: Aerial view over Iron Cove Link with operation facilities behind portal (Landscape shown at full maturity and is indicative only).

7.5 Iron Cove Link Ventilation Facility

ARTISTS STATEMENT

In continuity with the Rozelle interchange site, artist Chris Fox, envisioned the Iron Cove outlet surface as a living ecosystem and was inspired by the idea of the ruin, overrun by vines and greenery. The artistic approach to the surface of the stack integrates into the green corridor developed at Iron Cove.

Sculptural geometries are generated from path-lines and velocity fields developed as part of computational fluid dynamics testing: modelling the turbulent air flow around and through the facility and referencing the movement of people in the vast subterranean road network below. The plant species pattern, green-wall module positions, zinc panelisation and structural framework, combine as a parametric system growing from the ground and twisting up and around the vertical form of the tower.

External structural engineering requirements such as air quality monitoring and vertical garden access is developed in a collaborative process of engineering, urban design and artistic design development. The modulating tower surface by Studio Chris Fox evokes a landscaped monolith, along with the repetitive truss framework of the historic Iron Cove Bridge.



Figure 7-12: Artist's impression: Aerial view of the Iron Cove Link Ventilation Facility (landscape shown at full maturity and is indicative only).

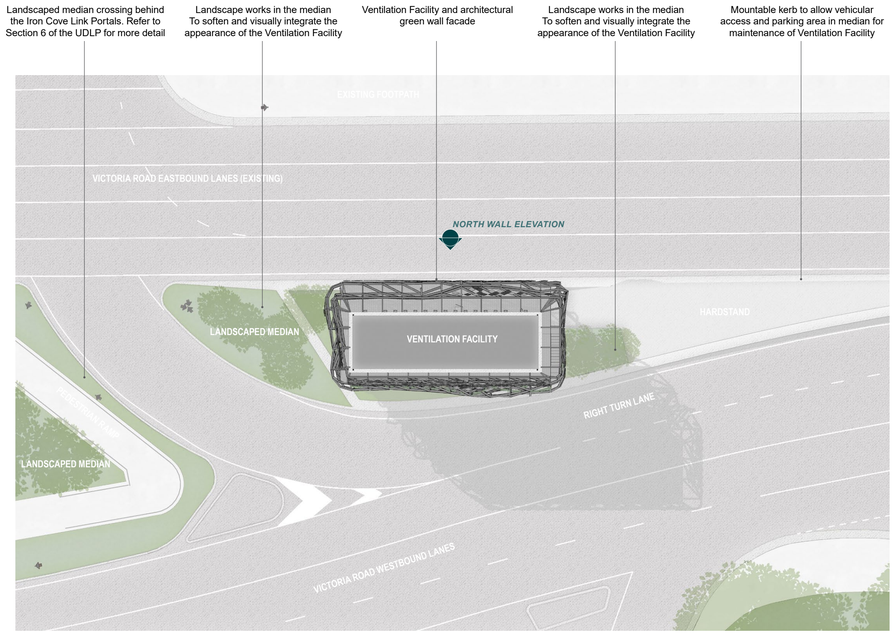

Figure 7-13: Plan: Iron Cove Ventilation facility indicative footprint

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Bridges

Artist's impression: Green Link Bridge connection to the light rail platform. (Landscape shown at full maturity and is indicative only).

08



Artist's impression: Aerial view over the Crescent (Landscape shown at full maturity and is indicative only).

8 Bridges

8.1 Design philosophy

The design of the bridges on the project aims to serve the community at the highest level by providing comfortable, safe and enjoyable connectivity. Experientially the bridges are located and designed to enhance views, create high legibility and to respond to desire lines. The bridges represent the reconnection of communities that have been physically severed for more than a hundred years by railway yards and road infrastructure.

The bridges have a unifying and minimalist aesthetic. The clean design lines are complemented with sculptural features to create a highly experiential and materially integrated aesthetic. The major structural elements, which include abutments, balusters, fences, throw screens and road furniture, form an integrated suite of urban design elements that will remain timeless, contemporary and visually appealing in the landscape.

A hierarchy of bridges

A hierarchy of bridges assists with legibility based on the visibility of the structures. The most visually dominant structures, those most visible by users have the highest level of hierarchy; this approach assists in developing legibility, safety, functional and experiential design. The hierarchy also assists with understanding function, location in context and desire lines. The most visible bridges are those located on City West Link.

The feature bridges include:

1. Bridge to Brenan Street
2. Green Link Bridge
3. The New Victoria Road Bridge complex
4. The Crescent Overpass (traffic only).

The feature bridges form a complementary suite of structures that will be seen in the context of Anzac Bridge, other City West Link bridges and Inner West Light Rail bridges.

All the bridges are designed to be consistent with RMS Bridge Aesthetic Guidelines 2012.

The alignment of the Green Link Bridge and The Crescent Overpass differs from that assessed in the EIS, therefore the project has sought to modify the Planning Approval to include these changes.. The design presented in this section has been developed from the concept within the modification. The project acknowledges that this design is subject to approval.

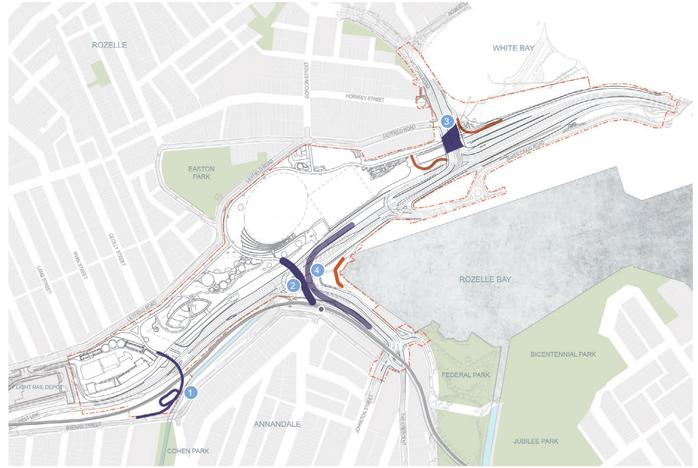


*Figure 8-1: Rozelle Interchange - bridge locations. *Refer to Figure 4-12 for revised layout.*

Legend
- Primary / Feature Pedestrian and Cycle Bridges
- Primary / Feature Road Bridge (traffic only)
- Secondary shared user path bridges

8.2 Design strategies for the bridges

A structural 'family' with an architectural language

The feature bridges are designed as a family of bridging structures with a consistent architectural language that incorporates:

- → Curved structures in the landscape that have sinuous, organic forms
- → Consistently shaped piers that respond to the functional attributes of the superstructure
- → Inclined, tapered and shaped throw screens, with the incline helping to make the on-bridge experience for users open and welcoming
- → The throw screens unify the overall appearance and accentuate transparency
- → Feature lighting which will form a unifying night time appearance.

Bridges connecting and serving communities

The feature bridges, including the Green Link Bridge respond to desire lines identified in the M4-M5 Link Environmental Impact Statement (EIS), which included an Active Transport Strategy for the area (refer to Figure 8-3), and the M4-M5 Link Modification: The Crescent overpass and active transport links.

The design has improved on the connections shown in the EIS by providing simplified connections for people in neighbourhood areas into and through the parklands (refer to the Pedestrian and Cycle Implementation Strategy, section 11).

Pathway connections in Rozelle Rail Yards Parklands are designed to respond to anticipated future development in White Bay precinct. The connections are designed to link existing communities through new elements (stairs, ramps, paths) proposed under this Project and to respond to future development.

The New Victoria Road Bridge and the shared user path bridges connecting to this bridge will be primarily experienced from Rozelle Rail Yards Parklands. The active transport corridor to Anzac Bridge will be reconstructed.

Parkland visitors will delight in the axial views of Sydney Harbour Bridge through the New Victoria Road Bridge. All the new connections to Victoria Road, including bus stop connections and the active transport corridor, will increase connectivity and convenience for the benefit of the community.

For further details on the Active Transport Network, refer to the pedestrian and cycle strategy described in Section 11 of this UDLP.



Figure 8-2: Bridge to Brenan Street



Figure 8-3: Green Link Bridge and Bridge to Rozelle Bay

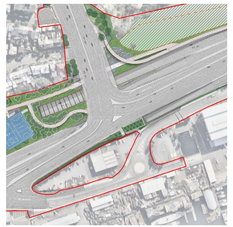


Figure 8-4: New Victoria Road Bridge

Bridges connecting the site and cycle movements

The most prominent urban design feature of the Rozelle Rail Yards parklands that influence connectivity of the site in the broader context are:

1. The Green Link Bridge over City West Link to improve connectivity form Rozelle to the foreshore with a provision for connections to the promenade. This links to the Rozelle Bay Light Rail station.
2. East west connectivity for cyclists through the parklands connecting to Anzac Bridge, Victoria Road and future priority projects
3. The Bridge to Brenan Street which links to the western route and the Greenway along Hawthorn Canal
4. Access to Victoria Road with connections to the Anzac Bridge link.

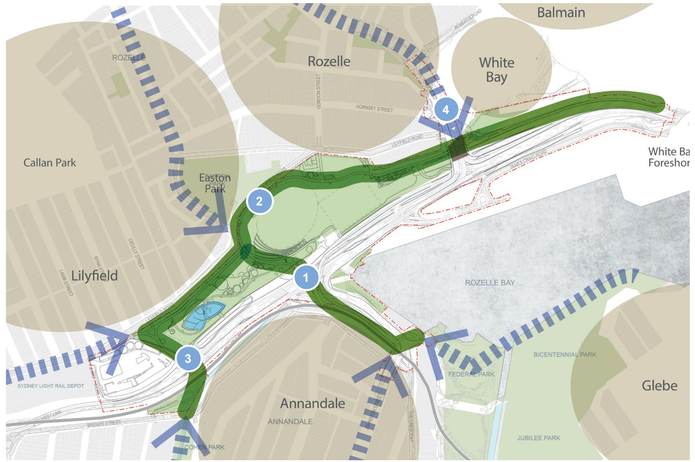


*Figure 8-5: Plan - Active transport connections with connecting bridges. *Refer to Figure 4-12 for revised layout.*



Artist's impression - Bridge to Brenan Street from Railway Parade (landscape shown at full maturity and indicative only).

8.3 Bridge to Brenan Street

The Bridge to Brenan Street incorporates a shared user path. It is a major connector for the active transport route for northern connections across City West Link and to the Whites Creek active transport path system. The Bridge to Brenan Street connects:

- Brenan Street / Railway Parade and the active transport path along Whites Creek in Annandale
- A path through the Rozelle Rail Yards Parklands to Lilyfield (Rozelle)
- The Cecily Street active transport network in Lilyfield
- Local street footpaths.

Future proofing for active transport connections

The design anticipates that in the future a dedicated cycle path along the north side of Brenan Street will be provided, connecting Catherine Street to Glebe Foreshore Parkland. The current design anticipates a future dedicated cycle path that is beyond the project boundary.



Key plan

**Refer to Figure 4-12 for revised layout.*

Bridge features

The bridge will have a sweeping, curved, lightweight, elevated appearance in the landscape and includes the following features:

- A sinuous elegant form, as an organic landscape element in the parklands
- The bridge has clean lines, refined and elegant proportions, minimal tapered piers to maximise usability, permeability and visual transparency beneath
- The superstructure is painted with the colours reflecting the cladding on the buildings and portals which form the edge of City West Link
- The bridge and ramp structures including the vertical and horizontal alignments will enliven the journey and provide enhanced pedestrian connections between surrounding streets, foreshore and other public spaces
- The tapered piers of the bridge in the road space form a family of structures with other feature bridges. Refer to Figure 8-6 and 8-7
- The throw screens will create an elegant form when viewed from City West Link; the screens are limited to areas that require them
- The throw screen design will result in the bridge having an open welcoming appearance for on bridge users incorporating safety lighting as a feature. Refer to Figure 8-6

User facilities

The Bridge to Brenan Street is designed for universal access which includes pedestrians, cyclists and people with disabilities (DDA compliance):

- The cycle way will be separated from the pedestrian path by line marking, symbols and wayfinding elements
- The shared path bridge is designed and signposted for 15 kilometres per hour cyclist speeds
- The bridge is five metres wide between handrails with setbacks for pedals and an edge hob.
-

Bridge details

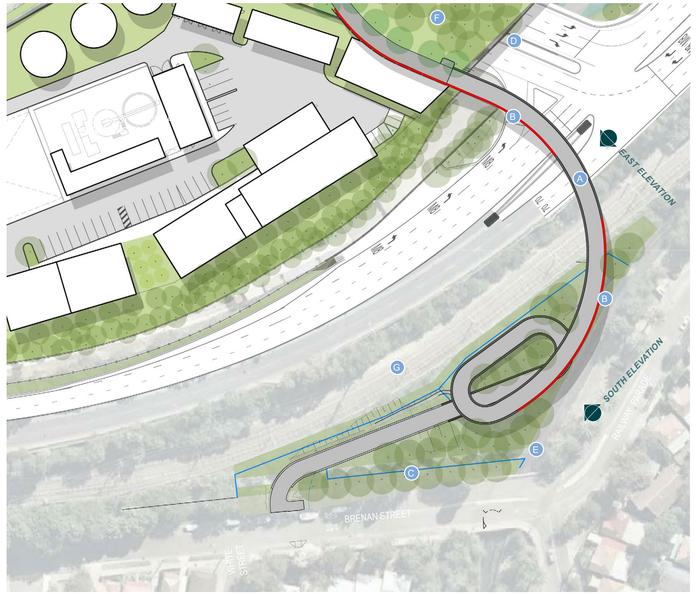
The Bridge to Brenan Street has a constant curve, a major feature which leads to a high-quality design outcome. It is set back from Whites Creek to avoid the existing concrete drainage structure and mature palm trees on the northern side of the creek, where possible. The palm trees will assist in reducing the visual impact of the bridge.

The northern abutment of the bridge is located between the New M5 portal and the Rozelle West MOC. It joins into the Rozelle Rail Yards Parkland along the path network. The southern landing of the bridge has been located on Brenan Street to provide connection to Whites Creek at a safe location. The landing area at Brenan Street will be landscaped and maintained but is not a publicly accessible space due to the rail, road, drainage and safety requirements of the precinct.

The bridge spans over the City West Link and the Inner West Light Rail, with clearances provided for existing road and rail infrastructure which results in a dominant vertical alignment in the neighbourhood context.

Lighting

The bridge safety lighting is a feature of the bridge being elegantly and subtly designed to consider the neighbourhood surrounding by focussing the light on the bridge. Lighting levels on the bridge allow for facial recognition (P1 category).



LEGEND

- A Bridge to Brenan Street
- B Opaque Anti-throw Screen
- C New Fence
- D M5 Portal
- E Whites Creek Canal
- F Parklands
- G Existing Sydney Light Rail

Figure 8-6: Bridge to Brenan Street - General arrangement plan

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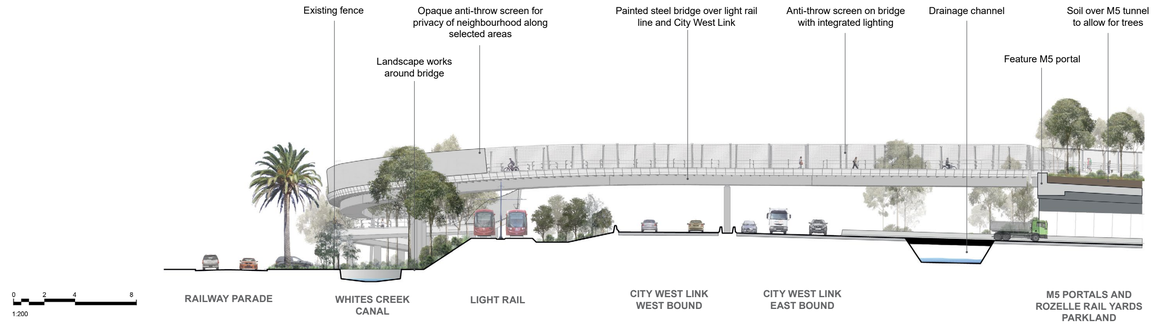


Figure 8-8: Bridge to Brenan Street - East elevation

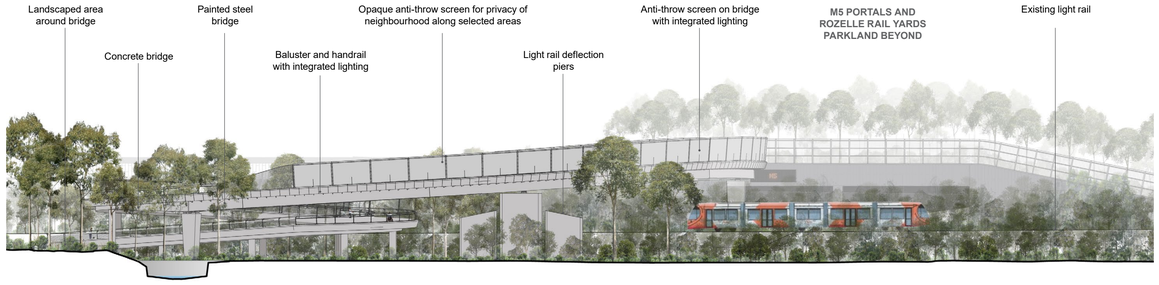


Figure 8-7: Section through Bridge to Brenan Street



Artist's impression: On the Bridge to Brenan Street looking north towards Rozelle Rail Yards Parklands (Landscape shown at full maturity and is indicative only).



Artist's impression - Green Link Bridge looking east (Landscape shown at full maturity and is indicative only).

8.4 Green Link Bridge

The Green Link Bridge is a vegetated land bridge and is the major connector joining the suburban areas of Rozelle / Lilyfield, Annandale and the Rozelle Rail Yards Parklands. It is a major active transport connector across City West Link that joins directly with the Rozelle Bay Station on the Inner West Light Rail.

The Green Link Bridge provides connections to:

- Dennison Street in Rozelle to Rozelle Bay Station on Railway Parade
- A ramp connection from Rozelle Bay Station to The Crescent southern footpath
- An at-grade crossing at the City West Link and The Crescent across Johnson Street to Glebe Foreshore park and Chapman Street
- All local street footpaths.

These connections are in accordance with the M4-M5 Link Modification: The Crescent overpass and active transport links and have been modified to suit The Crescent Overpass (traffic only).



Key plan

**Refer to Figure 4-12 for revised layout.*

Bridge features

Consistent with all the bridges on the Project, the Green Link Bridge will have a sweeping, curvilinear, elevated appearance. The bridge is designed to accommodate small trees and a variety of other plants.

The Green Link Bridge comprises:

- A significant landmark structure as an integrated landscape design element with a strong landscaped public realm quality
- Clean lines, refined and elegant form with minimal piers and abutments to maximise usability, permeability and visual transparency beneath
- A horizontal and vertical alignment designed to assist with appropriate sightlines and legibility as part of the CPTED process
- A gentle ramping transition from the Rozelle Ventilation Facility to the Rozelle Bay Light Rail Station platform
- The landscape extends across the bridge with a variety of landscape elements that include seats and planter areas, small trees, ground covers and grasses
- A varying width path from 6m to 7m wide between the landscape zones on the side of the bridge that is a shared use area for all active transport users
- A 5.5m clearance below the bridge for vehicle traffic
- Superstructure comprising silver painted, twin, steel box-girders with steel outreach arms and a concrete deck to support the landscape
- Tapering 'v-shaped piers' in the median, proportioned to be consistent with other piers on bridges
- The soil depth supports small tree and plant growth with internal irrigation and drainage
- Vertical and horizontal curved alignments to enliven the journey and provide enhanced pedestrian connections between surrounding streets and other public spaces
- Drainage system for the bridge that includes water sensitive urban design, the water is treated before being returned to the natural drainage systems
- A feature sculptural titanium zinc façade will screen the bridge maintenance gantry under the northern end of the bridge
- The throw screens along both sides of the bridge will create an elegant sweeping form when viewed from the road. The throw screen design will result in the bridge having an open welcoming appearance
- The bridge includes lighting to P1 level for facial recognition.
- The bridge connects to the Rozelle Bay Station to the light rail, the design incorporates wayfinding, car reader, bike rack and seating amenities.

The cross section of the bridge is consistent with the MCoA cross section provided at Figure 5.8 of Appendix L, Volume 2F of the EIS. The bridge spans from Rozelle Rail Yards Parklands across City West Link including the slip lane onto The Crescent as required by the EIS.

Bridge details

The Green Link Bridge will achieve universal access for all uses including pedestrians, cyclists and people with disabilities (DDA compliance). The Green Link Bridge is a shared user facility, with its width allowing for all users to freely access the path as a shared space. The bridge is designed for 15kph cyclist speeds.

The bridge will incorporate wayfinding elements and signage to assist orientation of users. Small trees, grasses and ground cover planting on the bridge will provide shade and a sense of separation from traffic.

The horizontal alignment forms an s-shaped curve for the principle spans across City West Link forming a major feature of the bridge that will lead to a high-quality design outcome. The s-shape was determined by the pier and spanning configuration of the road lanes below. The alignment is carefully designed to optimise the location of the piers to reduce the number of spans.

The bridge forms a vegetated connection between the Rozelle ventilation facility, the western and middle Rozelle ventilation outlets, and the Rozelle Bay Station on the Inner West Light Rail line. A connection to the rail crossing area provides a direct ramped link to the western footpath of The Crescent near Johnson Street. The ramp connects to local footpaths links.

The northern abutment of the bridge is located on the Rozelle ventilation facility where the Green Link Bridge connects to the major pathway system in the Rozelle Rail Yards Parklands.

The path system connects to the viewing area on top of the ventilation station affording views over Rozelle Bay to the city. The roof of the Rozelle ventilation facility will be landscaped with a soil layer at least one metre deep and will join to the pathway through the Rozelle Rail Yards Parklands to Lilyfield Road.

A feature titanium-zinc screen, which forms part of the Rozelle ventilation outlet structure, is located under the bridge and screens access for the bridge bearing maintenance platform and an access door to the facility.

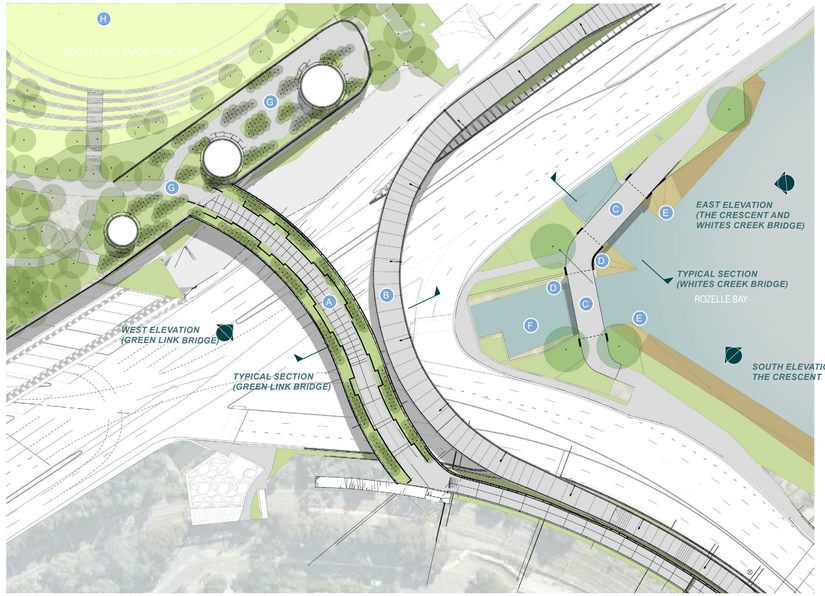
The bridge will span City West Link and the northbound turn lanes of The Crescent. Clearances are designed to ensure the safety of road users. Tapered feature pier are located at the drainage channel on the north side of City West Link and in the traffic island south side of City West Link.

The southern landing of the bridge has been located to join into Rozelle Bay Light Rail Station platform. The Green Link Bridge ramps down to the platform level ramps and landings. The public realm includes a safe crossing point for active transport users with good sightlines that are open to the light rail facilities for enhanced passive surveillance.

The 4.5m wide bridge ramp to the southern footpath of The Crescent extends along the eastern edge of The Crescent footpath, avoiding construction works directly impacting the existing brick community art wall. This connection extends to include a bus stop on The Crescent and a at-grade crossing at Johnston Street, which connects to the Glebe Foreshore Parkland pathway system.



Artist's impression: City West Link view looking east of the Green Link Bridge (Landscape shown at full maturity and indicative only).



LEGEND

- A Green Link Bridge
- B The Crescent Overpass (traffic only) bridge
- C Whites Creek Bridge
- D Maintenance Walkway
- E Existing Rock Revetment
- F Whites Creek Canal
- G Rozelle Ventilation Facility
- H Playing Fields

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Figure 8-9: Plan showing Green Link Bridge, The Crescent Overpass and the Whites Creek Bridge

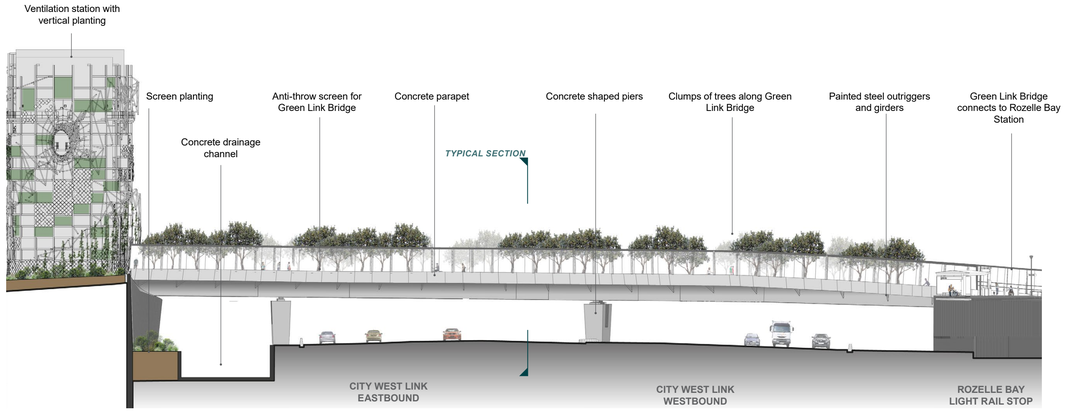


Figure 8-10: Green Link Bridge. Elevation

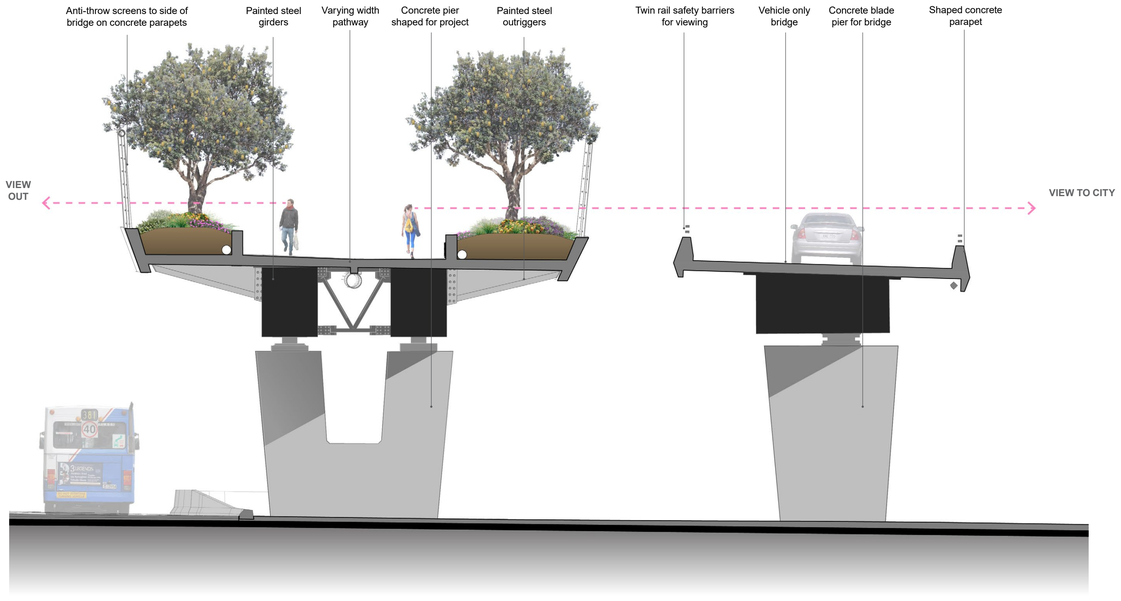


Figure 8-11: Cross section through Green Link Bridge and The Crescent Overpass (traffic only bridge)



Artist's impression - Green Link Bridge connection to the Rozelle Bay Light Rail platform (Landscape shown at full maturity and is indicative only).



Artist's impression: The Crescent Overpass Bridge looking north from The Crescent (PAC2) (Landscape shown at full maturity and indicative only).

8.5 The Crescent Overpass (traffic only)

The Crescent Overpass is a right-hand turn vehicle only bridge on the north bound lanes of The Crescent. It extends from Johnston Street over the west bound lanes on City West Link to the east bound lanes to Anzac Bridge.

This vehicle only bridge assists with traffic flow associated with the Project. The bridge is located east of the Green Link Bridge on the western side of The Crescent.

This bridge spans over the Whites Creek drainage channels as well as west bound traffic on City West Link, resulting a long ramp length.

Connections

The Crescent Overpass:

- Connects the north bound traffic on The Crescent to a right-hand turn onto the Western Distributor
- The bridge is required for traffic flow east bound to Sydney CBD.

Appearance

The Crescent Overpass will appear as a significant silver painted steel structure in the roadscape. The bridge will have precast concrete facia panels, tapered blade walls, with the superstructure being a curved steel box girder. The overall form and design resolution resonates with the other bridges and major infrastructure nearby utilising clean lines and a minimalist approach.



Key plan

**Refer to Figure 4-12 for revised layout.*

Construction

The construction of this bridge is a major innovation for the project. The bridge will be constructed in approximately 12-15 stages due to the complex traffic management and sequencing while other drainage bridges are constructed in the area. The construction methodology will include an incrementally launched steel girder and concrete deck system to improve safety during construction. The design of the bridge girders and aesthetic has developed through the Safety in Design process.

Bridge details

The bridge is located and traverses the intersection of The Crescent and City West Link. Pedestrian and cyclist access is not permitted and will be signposted.

The northern abutment of the bridge is located east bound on City West Link. These east bound ramps of the bridge are located under the Bridge to Rozelle Bay. The bridge is required to span the westbound lanes of City West Link. Clearances for this existing infrastructure road and rail are designed to ensure the bridge sits comfortably in the urban context.

The southern abutment of the bridge is located on The Crescent in Annandale, commencing near Johnston Street extending in a northerly direction.

The abutment walls of the bridge will have creepers on them to soften the appearance of the structure in the roadscape.

Lighting

Lighting for the bridge is standard street lighting seen throughout The Crescent and City West Link, the light poles will be located on the parapet of the bridge. The lamps are LED white light.

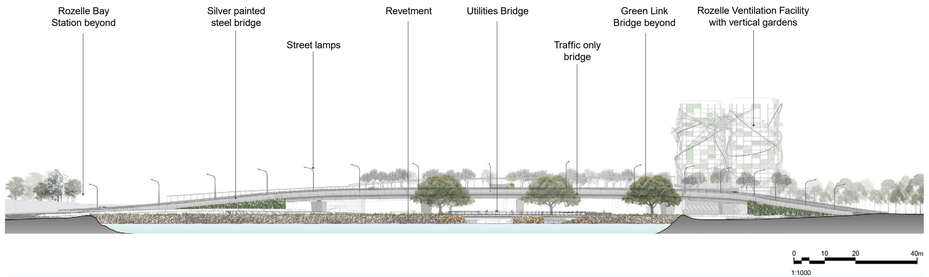


Figure 8-12: The Crescent Overpass: East sectional elevation



Artist's impression: The Crescent Overpass Bridge looking west (Landscape shown at full maturity and indicative only).



Artist's impression: Whites Creek Bridge (landscape shown at full maturity and indicative only).

8.6 Whites Creek Bridge

These are two low-lying connector shared user path bridges over Whites Creek and a new drainage channel, which are sited in the new parkland space of Rozelle Bay. These bridges are the connectors for the eastern side of The Crescent joining footpaths along The Crescent and the Glebe Foreshore path / footpath system. The bridges, which incorporate provisions for utilities, create the following connections:

- Rozelle to Glebe Foreshore Parkland / Chapman Street along The Crescent (eastern side); this joins onto James Craig Road
- The Crescent eastern footpath connections (north-south and east-west) at the intersection with City West Link
- Crossings over Whites Creek and parkland drainage channels as they enter Rozelle Bay
- An at-grade crossing from The Crescent to Railway Parade, Annandale

Feature and safety lighting

Lighting levels on the bridge allow for facial recognition (P1 category). The lighting provided utilises street lighting at the intersection and includes additional lighting to provide even lighting levels along the bridges and path.

Bridge details

The bridges comprise two low-profile structures integrated into the landscape with clean lines, simple, refined and elegant with no piers and abutments under the bridge.

The horizontal and vertical alignment are adjusted to increase sight lines and legibility. The bridges are DDA compliant. They are located over White Creek channel with water below. The tidal changes in the channels will be visible from the bridges.

The superstructures of the bridges will be concrete Super-T girders. The bridges horizontal alignment will ensure a continuous journey and provide enhanced pedestrian connectivity between surrounding footpath, bridge and other public spaces.

The landscape and hard surface public realm treatments are carefully designed to integrate the bridges design. The bridges have mesh balusters and polished stainless steel handrails.



Key plan

**Refer to Figure 4-12 for revised layout.*

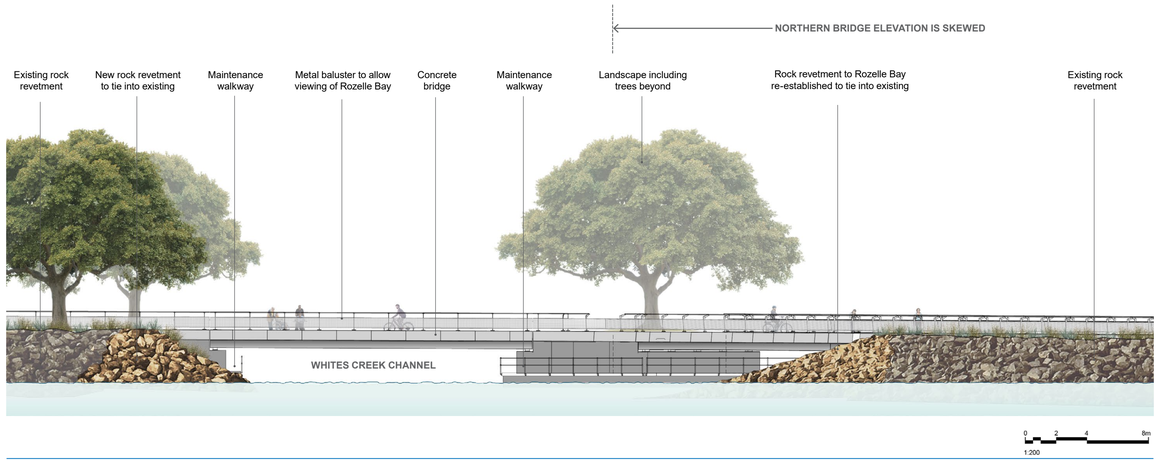


Figure 8-13: Whites Creek Bridge - East elevation



Artist's impression: Aerial view over the Crescent (Landscape shown at full maturity and is indicative only).
**Refer to Figure 4-12 for revised layout.*



Artist's impression - Victoria Road and the pedestrian underpass (Landscape shown at full maturity and is indicative only).

8.7 The new Victoria Road Bridge

The New Victoria Road Bridge is located north of the intersection of City West Link and on Victoria Road and replaces the existing Victoria Road Bridge.

The New Victoria Road Bridge spans over the active transport network in Rozelle Rail Yards Parklands and the east bound traffic from the M4 tunnel connection to Anzac Bridge. The bridge accommodates vehicle traffic, cyclists and pedestrians. All ramp connections are required to be DDA compliant for disability access. The bridge parapets have medium performance barriers with twin rails for improved viewing form the road. Throw screens are provided in required locations.

Connections

The New Victoria Road Bridge connects:

- North bound traffic from The Crescent to Victoria Road
- South bound traffic on Victoria Road to the CBD
- Footpath connections on the eastern and western edges of Victoria Road
- Shared path users to the parklands from the eastern footpath, this connection also includes a shared path connection to Anzac Bridge
- Access stairs on the western side of the Victoria Road bridge into the Rozelle Rail Yards parklands below.
- Active transport connections from the road level to Rozelle Rail Yards Parklands below
- The Active Transport Corridor under Victoria Road Bridge that is 15m wide at its narrowest and widens to approximately twenty-eight meters, making this a generous underpass space (refer to section 4 for underpass details)
- A stair access from the eastern footpath to the Rozelle Rail Yards Parklands is provided to the footpath on the east bound lane of Victoria Road, near the bus stop
- Connections to bus stops on both sides of Victoria Road
- Crossing locations with traffic lights for users across City West Link to James Craig Road
- The bridge also spans the new M4 Portal for east bound traffic from the tunnel.

Appearance

The New Victoria Road Bridge will appear as a low-lying integrated mass concrete structure in the Rozelle Rail Yards Parkland space forming the intersection of Victoria Road and City West Link.

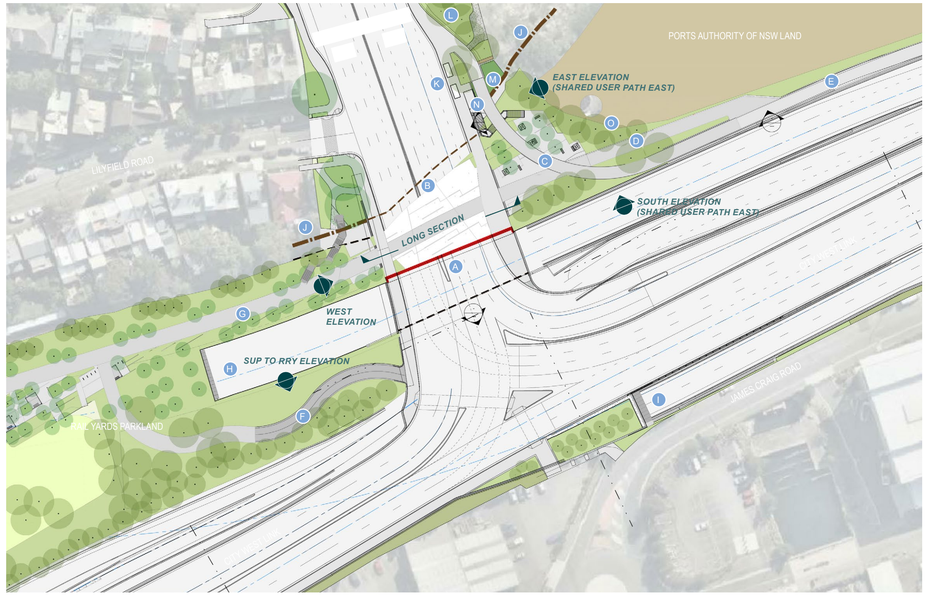
The bridge will have precast concrete fascia panels, with the superstructure comprising Super-T precast girders on concrete abutment walls. The bridge safety barriers are medium performance with twin rails for improved views of adjoining areas for motorists. The bridge will also have throw screens over the M4 dive structures.

The bridge is located over the Rozelle Rail Yards Parklands, providing a wide, pedestrian underpass connection. To create a safe, attractive and dynamic urban environment, the Project team has developed a contemporary design approach that interprets the shared history of the former Rail Yards. Description of the underpass design is provided in Section 4.



Key plan

**Refer to Figure 4-12 for revised layout.*



LEGEND

- A Central Wall
- B Extent of Underpass - Victoria Road Bridge
- C Victoria Road Shared User Path Bridge (east)
- D Ramp to Shared Path
- E Shared User Path to Anzac Bridge
- F Victoria Road Shared User Path Bridge (west)
- G Active Transport Path
- H M4 Dive Structure - East Bound
- I M4 Dive Structure - West Bound
- J Western access stairs
- K Bus Stops
- L Landscaped Area
- M Landscaped Terrace
- N Stairs
- O Extent of Works

0 10 20 40m
1:1000

*Figure 8-14: Victoria Road Bridge Complex - Plan. *Refer Figure 4-12 for revised layout.*

Bridge details

The bridge accommodates vehicle traffic, cyclists and pedestrians and all connections are required to be DDA compliant for disability access.

The new bridge is wider than the existing bridge and will therefore require a cast in-situ infill at the bridge abutment edges. The bridge span is required to allow for clearances for the active transport corridor and the M4 tunnel dive structure. The southern abutment of the bridge is located on The Crescent south of the M4 portal and connects to the western ramp to the Rozelle Rail Yards Parklands and to the at-grade crossing to James Craig Road.

Lighting

The lighting design is a feature of the bridge underpass that will be elegant, well illuminated and designed to consider the safety and comfort of parkland users. Lighting levels in the underpass area is designed for facial recognition (P10 category).

Feature lighting will also be integrated into the walls and pavement design reminiscent of the rail tracks that previously ran through the area.

Underpass design

Both sides of the underpass have utilised perforated metal cladding to create a dynamic pedestrian experience.

On the northern abutment, a folded metal facade has been designed to reflect the idea of 'convergence'. The facade has integrated LED strip feature lighting, which converges onto the ground plane and incorporates senses which can detect and change with pedestrian movement.

On the southern wall, a mural wall made of perforated metal cladding has been considered as an opportunity for integrated public art, the approach to which is outlined in Section 4.

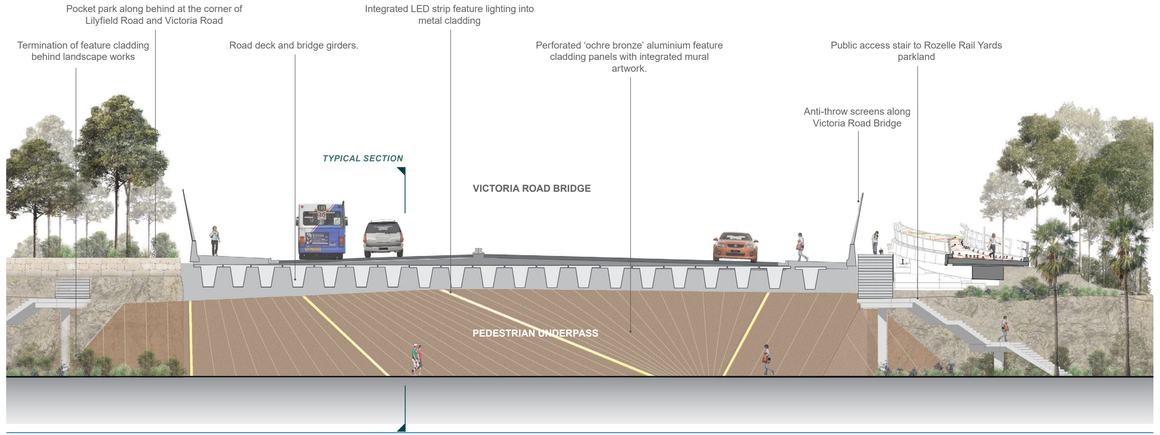


Figure 8-15: Section 3 - Bridge over Rozelle Rail Yards. Section

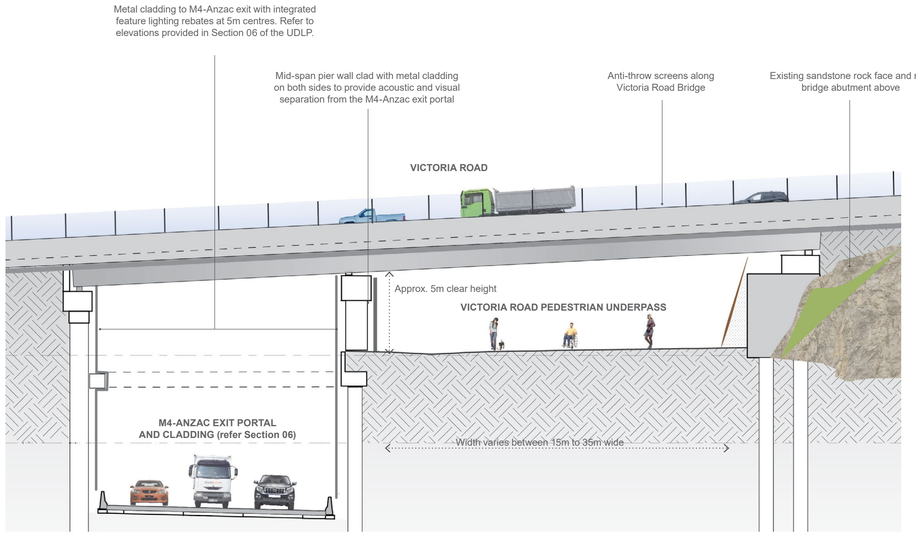


Figure 8-16: Section 3 - Bridge over Rozelle Rail Yards. Section



Artist's impression - View from Rozelle Rail Yards Parklands towards Victoria Road Bridge and pedestrian underpass (Landscape shown at full maturity and is indicative only).
**Refer Figure 4-12 for revised layout.*



Artist's impression: Victoria Road shared user path (bridge), with stairs to Victoria Road - looking east from Rozelle Rail Yards parkland (Landscape shown at full maturity and indicative only).

8.8 Victoria Road Shared User Path Bridge (east)

This curved bridge is located on the east side of Victoria Road for active transport users connecting to the Anzac Bridge shared path.

The bridge is an important east-west grade separated connector from Victoria Road footpath to Anzac Bridge. Active transport users in Rozelle Rail Yards Parklands will have DDA compliant ramp access to Anzac Bridge from an associated ramp connection. The ramp will be illuminated.

Connections

Victoria Road Shared User Path Bridge (east) has the following connections:

- Access from under Victoria Road
- East and west connections between Rozelle Rail Yards Parklands and the future White Bay connection
- Eastern footpath connections from the New Victoria Road Bridge to Anzac Bridge active transport path
- Victoria Road western footpath connections from under the New Victoria Road Bridge to Anzac Bridge shared path
- The bridge is augmented with a stair access from the eastern footpath to the Rozelle Parklands.



Key plan

**Refer to Figure 4-12 for revised layout.*

Appearance

Victoria Road Shared User Path Bridge (east) to Anzac Bridge will appear as a painted steel curved bridge ramp structure in the Rozelle Rail Yards Parklands space.

Bridge details

This is a shared user pathway for pedestrians, cyclists and mobility impaired. The ramp and bridge will be DDA compliant.

Lighting

The lighting design eliminates the needs for pole lighting, reduces light spillage and is at a maintainable height. The lighting design is elegant and subtly designed to consider the neighbourhood surrounding by focussing the light on the bridge. Lighting levels on the bridge allow for facial recognition (P1 category).

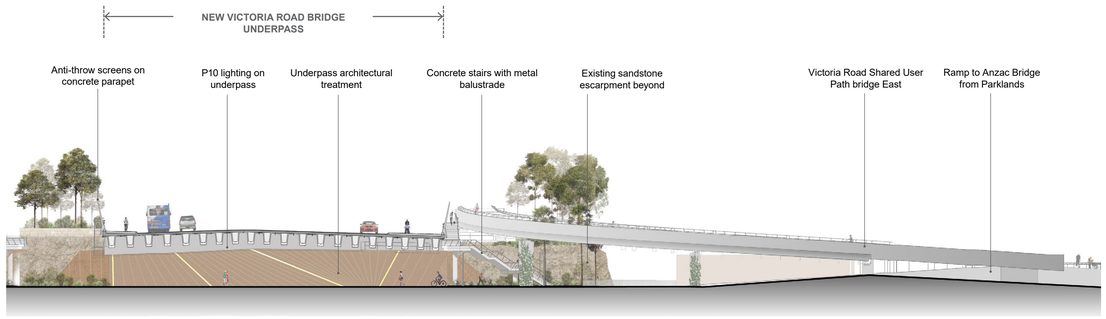


Figure 8-17: New Victoria Road Bridge, stairs to Victoria Road and Victoria Road Shared User Path Bridge (east) - Elevation

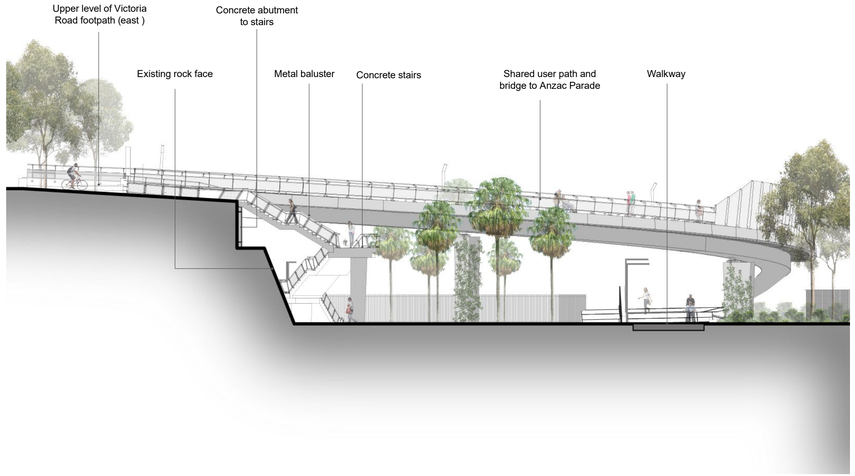


Figure 8-18: Sectional Elevation - Shared User Path to Anzac Bridge



Artist's impression: Victoria Road shared user path to Rozelle Rail Yards - looking west (landscape shown at full maturity and indicative only).

8.9 Victoria Road Shared User Path Bridge (west)

Victoria Road Shared User Path Bridge (west) is located on the western side of Victoria Road and provides a direct connection between Victoria Road western footpath and the Active Transport corridor in the Rozelle Rail Yards Parklands.

Connections

The bridge connections include:

- Access to Rozelle Rail Yards Parklands on the western side of Victoria Road
- East west connections under Victoria Road between Rozelle Rail Yards Parklands and White Bay that lead to the Anzac Bridge shared path
- Footpath connections to western footpath along Victoria Road.

Appearance

The Victoria Road Shared User Path Bridge (west) will appear as a path in the RRY Parklands space. Some limited sections of the bridge will have throw screens. The ramp is located in the parkland partially on fill and partially on a bridging structure. The ramp will appear as part of the parkland landscape. The bridge undercroft area is not publicly accessible.

Bridge details

This is a shared user pathway for pedestrians, cyclists and people with disabilities and will be DDA compliant.

Lighting

Lighting on the shared user path is P1 level for facial recognition.



Key plan

**Refer to Figure 4-12 for revised layout.*



Figure 8-19: SUP to RRY (Western bridge / ramp to Parklands). Sectional Elevation

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Rozelle Interchange
WestConnex

JOHN HOLLAND
CPB CONTRACTORS

Rozelle Interchange

Urban Design and Landscape Plan

Retaining Walls

Artist's impression - Rozelle Rail Yards Terrace Seat Walls
(Landscape shown at full maturity and is indicative only).

09



*Artist's impression - Aerial view of Rozelle Rail Yards (Landscape shown at full maturity and is indicative only). *Refer Figure 4-12 for revised layout.*

9 Retaining Walls

9.1 Overview

Throughout the Project, retaining walls will be a key visual element for both road users, adjacent residential properties, pedestrians and cyclists. The design of retaining structures has been undertaken in consideration of all other elements such as bridges and landscape works and provide a cohesive and unified design outcome.

Key outcomes for retaining walls

The key design principles and design intents for the design of the retaining walls have been developed in accordance with Project requirements and are as follows:

- All walls must be high quality, robust walls of architectural merit, and appropriate architectural finishes that fit sensitively into the places where they are located
- Integrate walls with landscape plantings to mitigate the visual impacts associated with large extents of visible walls
- Where walls are located in a visually prominent location within the public parklands or have the opportunity for public interaction, the walls have a textured pattern finish to add depth and provide a light and shadow aesthetic to the surface
- All walls must be architecturally designed as an integral part of the interchange and parkland, and within the parkland and landscape areas must reinforce the parkland character and identity
- Where walls are located away from the public and not in an easily visible location or accessible, these walls are to provide a simple design aesthetic and will be coloured in a recessive neutral colour
- Wall tops are to form continuous smooth flowing lines with no irregular stepping. If stepping is unavoidable, then stepping will be in a continuous, rhythmic and smooth overall alignment
- Wall plan layouts are simple, with straight or large radius curved alignments, without sharp changes of direction
- Minimise extents and locations of retaining walls by using vegetated batters where applicable. Maximum slope to the behind, in front of or between retaining walls to be 1(v):3(h)
- Wall designs must consider potential vandalism and long-term management and maintenance
- Integrate the design of handrails, balustrades and jointing patterns with the design of walls.

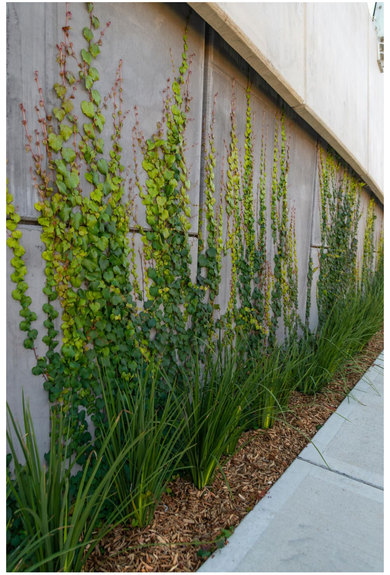

Figure 9-1: Retaining walls constructed on M4 East Project

9.2 Major retaining wall types

A range of major structural retaining wall types are required to construct the Project. The main wall construction types are listed below:

IN-SITU OFF-FORM REINFORCED CONCRETE RETAINING WALL

Reinforced in-situ concrete retaining wall on shallow spread footing foundations. A variety of wall finishes have been utilised to reinforce local character and identity.

PRECAST CONCRETE PANEL RETAINING WALLS

Typically used as a cladding system in front of cut and cover structures, buildings or piled retaining walls. A variety of wall finishes have been utilised to reinforce local character and identity.

REINFORCED SOIL WALLS

Reinforced Soil Walls (RSW) will incorporate 2m x 2m wall cladding panels in front a retained earth soil mass. A variety of wall finishes have been utilised to reinforce local character and identity.

MASONRY CLAD RETAINING WALLS

Typically used as a cladding system in front of major retaining walls to respond to local character and identity. Generally comprises sandstone or brick clad retaining walls.

Retaining wall finishes

In consideration of the wall construction type, location and adjacent land uses, the following high quality finish treatments have been developed to provide a unified aesthetic for the project for each retaining wall finish:

- → Plain off-form concrete
- → Vertical rebates
- → Varied width rebate pattern
- → Sandstone cladding
- → Brick cladding

Plain finish

Generally applies to concrete retaining walls that are small and / or not highly visible to the public. These walls will have a class 2 finish and be visually recessive.

Vertical rebates

For retaining walls that are viewed predominantly by road users, a simple vertical banding pattern will be incorporated. The rebate will generally be 50mm wide x 20mm deep and spaced at nominal 1000mm centres (unless otherwise specified).

Varied width pattern

Retaining walls that relate to adjacent streetscape or pedestrian environments will have varied width vertical rebate pattern finish applied to add a higher level of quality to the wall finish.

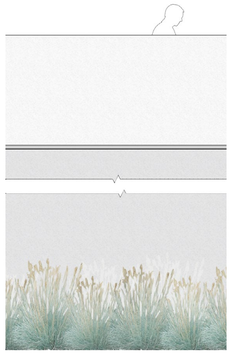

Figure 9-2: Retaining wall finish - Plain finish

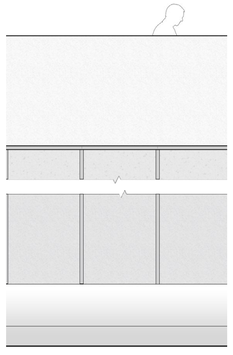

Figure 9-3: Retaining wall finish - Vertical rebates

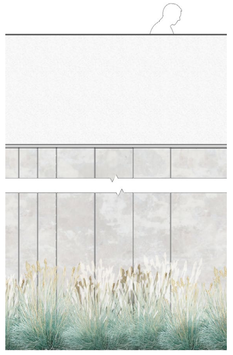

Figure 9-4: Retaining wall finish - Textured pattern

Sandstone cladding

In-situ concrete walls will be finished with select, coarse, sandstone cladding where relevant to blend into the existing context.

Brick cladding

In some locations, small landscape retaining walls will be clad with the following select brick laid in a stack bond format to respond to the built vernacular of the existing terraces houses in the area:
- Bowral 'Brahman Granite'



Figure 9-5: Retaining wall finish - Sandstone cladding

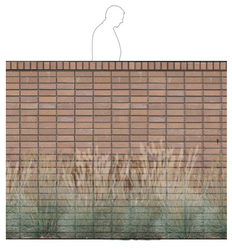

Figure 9-6: Retaining wall finish - Brick cladding











9.3 Landscape retaining walls

Landscape retaining walls generally relate to minor wall elements that are non-critical infrastructure and are less than one metre in height.

Landscape walls have been designed and selected in compliment to the major retaining walls described earlier. A range of landscape retaining wall types have been adopted across the Project to suit the urban design outcomes. The main wall construction types are listed below:

PRECAST CONCRETE TERRACE WALLS

Spectator seating set within the landscape topography of the Rozelle Rail Yards comprising of precast seat walls that are 450mm in height and separated by wide landscaped verges.

INSITU CONCRETE RAISED PLANTER WALLS & DWARF WALLS

Reinforced in-situ concrete planter and dwarf walls to provide soil depths for planting above structures with integrated seating opportunities.

SANDSTONE WALL

Typically used on top of existing sandstone rock faces to build up soil levels for new landscape areas. Walls comprise raw and split, coarse sandstone block laid informally to suit the varied sandstone topography.

SANDSTONE BLOCK WALL

Stacked natural sandstone logs laid in neat courses to support landscape restoration.

BRICK CLAD BLOCK WORK WALL

Typically used as a cladding system in front of reinforced concrete block retaining walls. Cladding will have the same visual appearance as described in the previous section.

GABION WALL

Wire mesh baskets of varying dimensions with recycled sandstone infill to support landscape restoration.


Brick cladding - stack bond


Raised planter walls


Gabion walls


Precast terrace seat walls


Sandstone walls


Sandstone block

9.4 Retaining wall colours

Colour selection has been considered for in-situ and precast concrete walls, so that walls remain visually recessive, blending into the adjoining landscape and remain consistent across the Project.

Retaining walls across the Project will typically be post-painted, integrally coloured or kept in a natural finish. All walls will have anti-graffiti coatings post-applied to reduce the risk and impacts of vandalism.

Where space and landscaping permits, creepers and climbers will be planted at the base of some walls to soften their appearance and visually integrate with the landscape.

Mineral silicate painted walls

Select walls will be post-painted in a water repellent, low pigmentation, mineral silicate colour system or similar as follows:

- → Keim '9008' - Charcoal - Keim Concretal-Lasur
- → Keim '9582' - Mid-Grey - Keim Concretal-Lasur
- → Keim '9595' - Light Grey - Keim Concretal-Lasur

The majority of the surfaces will be spray painted via a specialist contractor. Where painting may be close to residential properties, paint will be applied by a roller. Work method statements will be provided to ensure the project achieves the desired finish.

Integrally coloured oxide walls

Select walls will be coloured with a full depth (integrally coloured) oxide pigment system or similar which works as follows:

- → CCS 'Snow White' in off white cement
- → CCS 'Stallion' 6%

The oxide system offers a permanent, UV stable method for colouring of precast concrete panels. The powdered pigments are added directly during the mixing process where the oxide is dispersed deep into the concrete.

Keim Concretal Lasur '9585'

Keim Concretal Lasur '9582'

CCS 'Snow White'

Natural grey

Keim Concretal Lasur '9008'

CCS 'Stallion' 6%

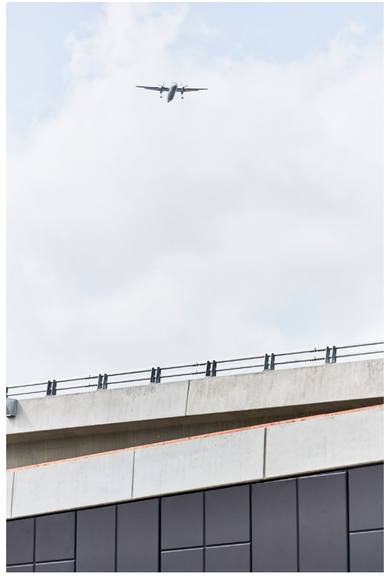

Figure 9-7: Example of painted retaining wall finish

9.5 Rozelle wall locations

Rozelle and the Rozelle Rail Yards is unique in terms of its heritage, its parkland design and location, including the varying conditions related to civil works (both below and above ground), as well as the suite of bridges and tunnel portals at varying heights. With this in mind, a range of retaining wall types will be constructed to suit each location and its function, whether it is related to the parkland or infrastructure.

The design identified numerous locations where retaining walls are required to complete the Project. The adjacent figure and table below provide a description and location of retaining wall types and finishes in the Rozelle Rail Yards and surrounds.

Table 9-1: Rozelle Rail Yards - Major Retaining walls

No.	Wall Type	Finish	Colour
RW01	Reinforced Soil Wall	Vertical Rebates	Natural Grey
RW02	Reinforced Soil Wall	Vertical Rebates	Keim '9582'
RW03	Reinforced Soil Wall	Vertical Rebates	Natural Grey
RW04	Not used	-	-
RW05	In-situ reinforced concrete wall	Vertical Rebates	Natural Grey
RW06	In-situ reinforced concrete wall	Varied width pattern	Keim '9585'
RW07	In-situ reinforced concrete wall	Varied width pattern	Keim '9585'
RW08	Masonry clad retaining wall	Sandstone cladding	-
RW09	In-situ reinforced concrete wall	Varied width pattern	Keim '9585'
RW10	In-situ reinforced concrete wall	Vertical Rebates	Natural Grey
RW11	In-situ reinforced concrete wall	Plain Finish	Keim '9582'

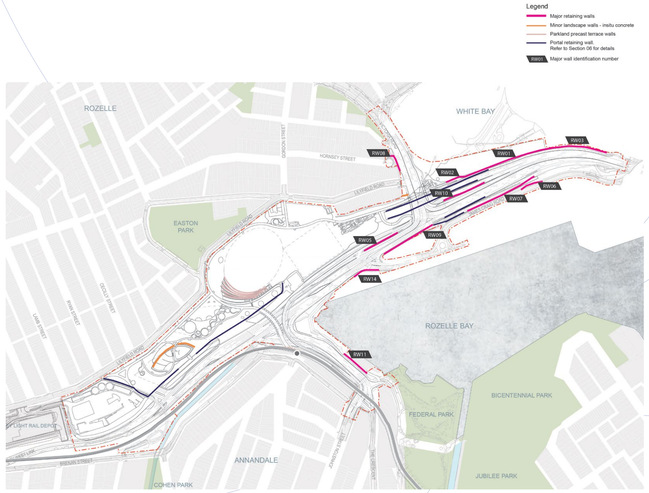

*Figure 9-8: Rozelle - Retaining wall locations. *Refer to Figure 4-12 for revised layout.*

9.6 Iron Cove Link wall locations

At Iron Cove Link, a number of retaining walls are required to construct the Project. Consideration has been given to their size, location and finish to compliment the local vernacular of the area.

Retaining wall reference number, location and description of each wall are summarised below, with an overall diagram highlighting locations.

Table 9-2: Iron Cove Link - Retaining walls

No.	Wall Type	Finish	Colour
RW01	Not used	-	-
RW02	In-situ reinforced concrete wall	Plain finish	Natural Grey
RW03	Not used	-	-
RW04	In-situ reinforced concrete wall	Vertical Rebates	Keim '9582'
RW05	Masonry clad retaining wall	Brick clad	-
RW07	Masonry clad retaining wall	Brick clad	-



Figure 9-9: Iron Cove Link - Retaining wall locations

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Public Realm Elements

Artist's impression: pedestrian view along ATN cycle path through the interpretive parklands.
(Landscape shown at full maturity and is indicative only).
**Refer Figure 4-12 for revised layout.*

10



Artist's impression: Aerial view over Rozelle Rail Yards Parkland (Landscape shown at full maturity and is indicative only).
**Refer Figure 4-12 for revised layout.*

10 Public Realm Elements

10.1 Overview

The majority of built elements (excluding the Motorway Operation Complex and operational facilities) within the Project are publicly accessible. This section describes the design intent in all the elements within the Public Realm, including materials and finishes. Across the Project, this includes:

- Public domain furniture elements including path lighting
- Surfaces finishes such as paths, paving and edging treatments
- Fencing, balustrades and throw screens
- Play and fitness areas

Design intent

The Rozelle Interchange Project will provide a significant contribution to Sydney's public open space. The Project has the opportunity to re-interpret a site steeped in history, and unique in character and location.

Given the scale of the Project, and in context of the future development of the Rozelle and White Bay precincts, it is important to ensure a clearly defined vision within the public realm, appropriately reflecting the characteristics and historical richness of the site.

Within public realm projects, one of the fundamental requirements to ensuring the vision is delivered successfully, is the appropriate use of materials and furniture elements throughout. These heavily define the sense of place, and the Project has created a cohesive public realm that 'defines the sense of place' for Rozelle Rail Yards.

Through the use of high quality, robust and durable materials, a consistent palette of objects and finishes across the Project will deliver the vision for a piece of world-class public realm and infrastructure, on a historical site in the heart of Sydney.

A suite of urban elements

In order to deliver a considered Project that clearly addresses the overarching vision for the Rozelle Interchange, the Project has defined all elements within the public realm as a combined suite of urban elements.

The elements within the suite will share material, and architectural and operational traits. The suite will consist of simple, elegant and refined objects, including:

- Seating
- Bollards
- Bicycle racks
- Drinking fountain
- Rubbish bins
- Barbecue amenities and shelters,
- Pedestrian lighting (refer to Section 14)
- Signage and wayfinding (refer to Section 12)

The location of furniture and other elements have been designed in a manner that encourages the intended uses throughout the public realm and avoids excessive visual clutter.

All elements within the suite will help to define the historical interpretation and place making characteristics of the Project.



Figure 10-1: All Project furniture elements form a suite of urban elements

10.2 Public domain furniture

The Project recognises the importance of having high quality robust furniture. Furniture elements provide amenity, respite and leisure functions for users of the park and local streets. They will serve a multitude of user groups, and cater for a variety of experiences.

An adequate level of furniture has been evenly distributed across the public realm, with a concentration at key locations including:

- Park entry and exit points
- Communal gathering areas
- Rest points and lookouts
- Path intersection nodes/clusters

The suite of public domain furniture has been selected to be DDA compliant with adequate circulation and offsets provided from cycle paths to meet Austroad Guidelines.

PUBLIC DOMAIN FURNITURE PALETTE

The adjacent tables sets out the range of elements that make up the public realm furniture palette. Path lighting has been included as part of the suite of public domain furniture and is described further in Section 14.

Where applicable, proposed elements will tie into the adjacent streetscapes and Inner West Council guidelines.

Table 10-1: Public domain furniture

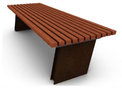
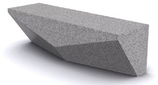
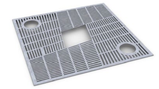
Element	Material	Images
Traffic Bollard	Mild Steel (powdercoated) / Black colour,	
Seat Type 1 - Seat	Mild Steel (powdercoated) / Black colour,hardwood timber slats	
Seat Type 2 - Bench Seat	Mild Steel (powdercoated) / Black colour,hardwood timber slats	
Seat Type 3 - Platform Seat	Mild Steel (powdercoated) / Black colour,hardwood timber slats	
Seat Type 4 - Plaza Seat	Precast Concrete - Class 1	

Table 10-1: Public domain furniture

Element	Material	Images
Picnic Table	Mild Steel (powdercoated) / Black colour,hardwood timber slats	
Rubbish Bins - Type 1 (Collection)	Anodised aluminium	
Rubbish Bins - Type 2 (Park)	Mild Steel (powdercoated) / Black colour,	
Drinking Fountain	Mild Steel (powdercoated) / Black colour,	
Barbecue	Mild Steel (powdercoated) / Black, colour,stainless steel bench top	

Table 10-1: Public domain furniture

Element	Material	Images
Barbecue Shelter	Mild Steel (powdercoated) / Black colour, with timber hardwood slats.	
Tree Grille (for trees in hard areas)	Mild steel powder coated frame / Corten Steel	
Bicycle racks	Powdercoated (black)	
Pedestrian Path Lighting	Pedestrian Path Light 6m high LED path light for landscape lighting applications Sub-surface fixed	
Pedestrian Bollard Lighting	LED Landscape Bollard 0.8m high High-quality LED bollard fixture for landscape lighting applications Sub-surface fixed	

10.3 Surface finishes

Building upon the regional access and circulation strategy described in Section 4 of the UDLP, a hierarchy of path treatments and surface finishes have been developed to enable a legible path network across the Project.

With considerations of the historical context and heritage importance of the Rozelle Rail Yards, the design contains certain elements that reflect or express the significance of the site.

Footpaths and shared paths within Rozelle Rail Yards will include rail edging to paths and shared paths to incorporate elements to respect and celebrate the history of the site.

PATH AND PAVING PALETTE

The proposed surfaces will tie into the adjacent streetscapes where applicable, and Inner West Council guidelines.

Table 10-2: Path and paving

Element	Width	Material	Finish	Images
Standard Footpath, Shared User Path, Separated Pedestrian & Cycle Path	2m 4m 5m	→ Pedestrian In situ Concrete Paving with integral pigmentation (Vehicle Rated to shared path)	Grey - Equivalent to Concrete Colour Systems ' Onyx': → Non-slip sponge finish with tooled margins → Shared paths to include painting and line marking to comply with Austroads guidelines	
Boardwalk over wetlands	4m	→ Timber boardwalk	Class 1 species hardwood timber boardwalk: → Steel balustrades and timber handrails.	
Public Stairs (Rozelle Interchange)	3m	→ Galvanised steel frame with stainless steel treads, galvanised balustrade and stainless steel handrails	Rhino grating T5 steel stairs or acceptable equivalent: → Non-slip, heel proof grating → Anti vertigo grate	
Heritage precinct paving	N/A	→ Select patterned and coloured concrete paving → Natural stone banding and inlays of salvaged rail track	Huron Bluestone or acceptable equivalent (600x200x60mm)	
Gravel	N/A	→ Decomposed granite	Decomposed granite: → 100mm thick stabilised and compacted layer on compacted subgrade	

EDGINGS PALETTE

A combination of different edging types will be used to differentiate landscape works, soft paving areas and paths.

Table 10-3: Edgings

Element	Size	Material	Finish	Images
Concrete edge	200 x 100mm	→ Concrete	→ Concrete edging 15mpa → Sponge finish → Tooled margins	
Steel edge	100 x 100mm	→ Galvanised / corten steel edging	→ Steel edge to planting areas by Straightcurve or acceptable equivalent → Fixed to in-situ concrete strip footing	
Heritage rail edge / paving inlay	12m lengths	→ 12m long reclaimed rail beams used a paving edge or inlay	→ Reclaimed rail beams from site → Fixed to in-situ concrete strip footing	
Railway sleepers	Varies	→ Reclaimed hardwood rail sleepers used as paving or edge inlay	→ Natural	

10.4 Fencing, balustrades and throw screens

Fencing, throw screens, balustrades and handrails will perform a number of functions across the Project.

They will provide security for infrastructure elements, help keep users safe, assist guidance of users through the park and can provide partial visual or noise screening.

These elements have been considered carefully in regard to their height and visual character, along with climbing potential and long term maintenance requirements.

Fencing is an integral part of road safety as it defines the road corridor and prevents access to unsafe spaces. The primary objective for fencing is to minimise the visual impact of the fences on the surrounding environment. Planting, where possible, is provided and fencing is set back from boundaries.

Key design considerations include the following:

- Integrated with the building architecture, where possible
- Designed to be recessive in the environment and reduce their visual impact
- Designed not to obstruct major views, other than infrastructure or road elements
- Designed to prevent access to tunnel services building sites
- Designed to suit their surrounding context
- Designed to provide privacy screening in selected locations
- Building edges are utilised to provide security minimise the need for continuous perimeter fencing

Table 10-4: Fencing, balustrades & handrails

Element	Description	Images
Operational Security Fencing	→ Tubular steel palisade security fence	
Pedestrian Balustrade	→ At locations where fall height is greater than one metre → Steel flat bar balustrade → Min 1100mm high → 40x5mm galv steel. Powdercoated finish	
Handrails	→ To all public access stairs and ramps in compliance with AS 1428.1 → Stainless Steel → Nom 900-1000mm high → Fixed to Stainless Steel	
Throw screens	→ Located along pedestrian bridges and portals → Anti climb fence	

10.5 Play

The Project team recognises the importance of play within the public realm as a means of improving the communities' health, well being and social cohesion.

The Project will deliver vibrant, new play areas in the Rozelle Rail Yards Parklands, which will provide a significant contribution to the surrounding existing and future communities' green space infrastructure.

The Project team has consulted with Inner West Council and reviewed the *Recreation Needs Study - A Healthier Inner West* to determine the appropriate applications of play in context of the broader LGA requirements.

A balanced approach has been taken to ensure that a diverse range of user groups and ages are able to benefit from play.

As described in Section 4 of the UDLP, two primary play areas will be provided in the Rozelle Rail Yards parkland:

1. Play Area 1 - Infant / Toddler Play
2. Play Area 2 - Nature Inspired Play

The adjacent diagram highlights locations for play integration into the design at Rozelle Rail Yards. Some elements will be proprietary items, while others will be naturalistic and formed from landscape elements.

No play amenities will be provided by the Project at Iron Cove Link given the proximity of existing play areas in King George Park.



*Figure 10-2: Location of play areas in the Rozelle Rail Yards parkland. *Refer to Figure 4-12 for revised layout.*

Play Area 1 - Infant / Toddler Play (6-24 months)

Infancy is a key part of childhood development as infants are actively exploring and going through intensive cognitive and language development. During this stage, infants are also creating close relationships with their parents and those around them.

The Project will provide an infant and toddler play area that caters for caregivers and children from 6 to 24 months. The playground has been designed within a landscape setting and to appeal to smaller infants who are crawling as well as older children who may be taking their first steps.

A combination of proprietary play equipment and age appropriate landscape features and design elements have been incorporated to assist with children's early development.

The location of Play Area 1 has been carefully considered to ensure children are in a safe, secure environment with natural surveillance and adjacent to amenity facilities.

The adjacent diagram and figures sets out the general layout and character of Play Area 1 that will be provided within the Rozelle Rail Yards parkland.





Figure 10-3: Precedent images



Artist's impression: Aerial view from Lilyfield Road
(Landscape shown at full maturity and is indicative only)
**Refer to Figure 4-12 for revised layout*

Play Area 2 - Nature inspired play (Junior Play - 2 to 12 years)

Junior play requires a different approach to infant play and has been designed to allow for greater social interaction and sense of ownership.

Preschool aged children between the age of 2 and 5 are actively exploring the world around them, but have not quite developed the strength and motor skills of older children.

School aged children have more advanced play needs where the playground has been designed to allow autonomy, to entertain, challenge, burn calories, boost brain power and build relationships.

The Project will construct a nature inspired playground in this area that caters for children between 2 to 12 years old.

The key intent is to develop their social, emotional, cognitive, creative and gross motor skills, and encourage both co-located and cooperative play. This will included a number of proprietary, as well as informal elements.

As a nature inspired playground, Play Area 2 has been located in the area of the Rozelle Rail Yards that will feature the landscape character of the Coastal Sandstone Forest, as described in Section 5 of this UDLP. The location of Play Area 2 has also been influenced by the symbiotic relationship of adjacent communal barbecue and picnic areas.

The adjacent diagram and figures sets out the general layout and character of Play Area 2 that will be provided within the Rozelle Rail Yards parkland.



*Figure 10-4: Sketch plan of Play Area 2 layout. *Refer to Figure 4-12 for revised layout.*



Figure 10-5: Precedent Images



Artist's impression: Play Area 2
(Landscape shown at full maturity and is indicative only).

10.6 Fitness

To compliment the approach to play described in Section 10.5, the Project has provide integrated fitness opportunities within the Rozelle Rail Yards Parkland to promote community wellness, active lifestyles and health.

A number of fitness stations will be constructed throughout the parklands catering for adults and teenagers. The fitness stations have been linked together via the parkland path network to form a fitness circuit which will be supported by wayfinding devices (described in Section 12).

Each station comprises of stand alone proprietary equipment combined landscape elements to create a range of exercises.

The adjacent figures show the location and design intent of the fitness stations within the Rozelle Rail Yards.



*Figure 10-6: Location of fitness stations within Rozelle Rail Yards parkland. *Refer to Figure 4-12 for revised layout.*



Artist's impression: Aerial view of Rozelle Rail Yards Parkland
(Landscape shown at full maturity and is indicative only)
**Refer Figure 4-12 for revised layout.*

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Pedestrian and cycle implementation strategy

11

Artist's impression: Shared user path bridge over City West Link



Artist's impression: Enhanced pedestrian and cyclist crossing at the intersection of The Crescent and Johnston Street

11 Pedestrian and Cycle Implementation strategy

11.1 Overview

The Pedestrian and Cycle Implementation Strategy (hereafter referred to as the Strategy) has been prepared to comply with the NSW Minister for Planning's Condition of Approval (CoA), specifically CoA E60. It outlines the existing pedestrian and cycle facilities within the vicinity of the project, and describes the new connections provided as part of the project to the existing local and regional networks.

This Strategy is consistent with the Active Transport Network in Volume 2F, Appendix N of the M4-M5 Link Environmental Impact Statement (EIS) (AECOM 2017), with further details of this consistency outlined within Section 11.2.

11.2 Relevant requirements

This Strategy has been prepared in accordance with the requirements of the M4-M5 Link Conditions of Approval, and the commitments made in the EIS and the M5-M5 Link Submissions and Preferred Infrastructure Report (SPIR).

Conditions of Approval

The CoA relevant to this Strategy are listed Section 2 of this UDLP. A cross reference is also included to indicate where the condition is addressed in this Strategy.

Revised Environmental Management Measures

The Revised Environmental Management Measures relevant to this Strategy are listed in Section 2 of this UDLP. A cross reference is also included to indicate where the condition is addressed in this Strategy.



Figure 11-1: Front cover page of the Active Transport Network (M4-M5 Link EIS - Volume 2F - Appendix N)

11.3 Objectives

The UDLP has been developed in accordance with the urban design principles in Appendix L, section 3.2 of the EIS, with the following principles of particular relevance to this Pedestrian and Cycle Implementation Strategy:

- An integrated and collective approach,
- Cross scale connection of spaces,
- A motorway integrated within its context, and
- A multidimensional user focus.

The key objective of the Pedestrian and Cycle Implementation Strategy is to provide connectivity between existing and proposed routes for local communities. It provides detail of the pedestrian and cyclist routes which will be provided as part of the Rozelle Interchange Project.

Community Safety / CPTED

The Project has implemented a comprehensive Safety in Design process during the design phase to ensure the safety of the community, including motorists, pedestrians and cyclists and implement the CPTED principles. The following are some examples of measures taken to ensure the safety of the community and implement the CPTED principles:

- Paths are designed with lighting which complies with Australian Standards and RMS guidelines
- Paths and road infrastructures are designed to provide passive surveillance where possible
- Paths, road infrastructures and landscape works is designed to provide compliant sight lines for pedestrians, cyclists and motorists
- Paths are design with no 90 degree bends
- The alignment and arrangement of footpaths have been designed with legibility for users
- The underpass under Victoria Road exceeds the minimum widths required in this area, and
- The provision of lighting at the Victoria Road pedestrian underpass.

11.4 Consultation

Design Review Panel

This Pedestrian and Cycle Implementation Strategy was provided to the Design Review Panel for review as part of the Urban Design and Landscape Plan.

Other consultation

This Pedestrian and Cycle Implementation Strategy was provided to Inner West Council, City of Sydney Council and Bicycle NSW for consultation as part of the Urban Design and Landscape Plan.

Outcomes of consultation

Feedback received from Inner West Council, City of Sydney Council and Bicycle NSW through the consultation process has been considered and responded to as part of the finalisation of this Strategy and prior to submission to the Department of Planning and Environment.

11.5 Pedestrian and cycle requirements

Standards and guidelines

Pedestrian and cyclist connections were design in accordance with the following standards and guidelines:

- Project specific specification developed by Roads and Maritime (also called the Scope of Works and Technical Criteria)
- Austroads - Guide to Pavement Technology Part 2: Pavement Structural Design, 2012 (with RMS Supplement Version 2.2, January 2015)
- Austroads - Guide to Pavement Technology Part 5: Pavement Evaluation and Treatment Design
- Austroads - Guide to Road Design - Set (with RMS Supplements)
- RTA Austroads Guide Supplements - Austroads Guide to Road Design Supplements (8 parts)
- Austroads - Cycling Aspects of Austroads Guides (2017)
- Austroads - Guide to Traffic Management
- RMS Specification D&C R132 Safety Barrier Systems
- RMS Specification D&C R145 Pavement Marking (Performance-Based)
- RMS Specification D&C R151 Street Lighting
- RMS Specification D&C R173 General Concrete Paving
- RMS Specification D&C B80 Concrete Work for Bridges
- AS/NZS 1158 Lighting for roads and public spaces - Set
- AS 1743 Road signs Specifications (with RMS Supplement)
- AS 1657 Fixed platforms, walkways, stairways and ladders – Design, construction and installation
- AS 1428.1 Design for access and mobility - General requirements for access – New building work
- AS 1428.2 Design for access and mobility - Enhanced and additional requirements - Buildings and facilities
- AS 1428.4.1 Design for access and mobility - Means to assist the orientation of people with vision impairment - Tactile ground surface indicators
- AS 3845 Road safety barrier systems
- RMS - Beyond the Pavement - RMS urban design policy, procedures and design principles, January 2014
- RMS Pavements Standard Drawings - Typical Pavement Profiles
- Continuous footpath treatments TDT 2013/05
- Pavement Depth for Vehicle & Bicycle Loop Detectors TDT 2012/09
- Pedestrian Refuges TDT 2011/01a
- Use of Ground Mounted Controllers for Pedestrian or Small Traffic Signal Sites TDT 2010/06
- Bicycle Policy (Maintenance Work), RTA TM P99/4
- Bicycle Policy (Grates), RTA TM P00/1

Strategies and documents

The following documents were used to inform and develop pedestrian and cyclist connections to be delivered as part of the Rozelle Interchange Project:

- Sydney's Cycling Future, December 2013
- Inner Sydney Regional Bicycle Network, April 2010
- Leichhardt Council Bike Plan, October 2015
- City of Sydney Cycle Strategy and Action Plan 2018-2030
- City of Sydney Living Green Network, May 2011
- NSW Bicycle Guidelines, July 2005
- NSW Long Term Transport Master Plan, December 2012
- Transformation Plan, The Bays Precinct Sydney, October 2015
- Parramatta Road Corridor Urban Transformation Strategy, November 2016
- Draft North Annandale Neighbourhood Movement Plan, 2016.

Road Safety Audits

Road safety audits have been undertaken during the detailed design of the project by an independent auditor. As part of the audit the design was reviewed to identify hazardous features relating to the project which may lead to future incidents. Following the audit appropriate remedial actions were identified by the design team for acceptance by Roads and Maritime. The following are some of the risks and mitigation measures identified as part of the audit:

- The pedestrian arrangement at Victoria Road may lead to pedestrians using a median to illegally cross an intersection where no pedestrian crossing facilities exist. To mitigate this pedestrian fencing will be provided to guide pedestrian movement to the crossing locations and discourage pedestrian access to other areas of the median,
- The size of a pedestrian island at The Crescent and Victoria Road intersection may not be able to accommodate likely demands, causing overflow onto the road way. The shared use pedestrian island has been designed to accommodate increased capacity with respect to the current design standards. A provision also exist to utilise countdown pedestrian timers which inherently provide improved guidance for users,
- Pedestrians boarding and exiting busses on Victoria Road may collide with path users. To manage this signage will be installed to inform path users of the upcoming bus stops, and
- A signalized pedestrian crossing over the cut and cover tunnel at Victoria Road has potential for pedestrians to throw materials over the portal onto the roadway below. To mitigate this safety screens will be installed.



Aerial view over Rozelle showing the existing circulation and connectivity

11.6 Consistency with the EIS

The Active Transport Strategy within Appendix N of the EIS included a review of the existing active transport network within the vicinity of the Rozelle Interchange Project, and outlined initiatives and future links which would improve connectivity within and around the Rozelle Interchange and Iron Cove Link. The Strategy also noted if these initiatives would be provided as part of the Project or by other stakeholders. A summary of these initiatives is outlined below in Table 11-1 and Figure 11-2.

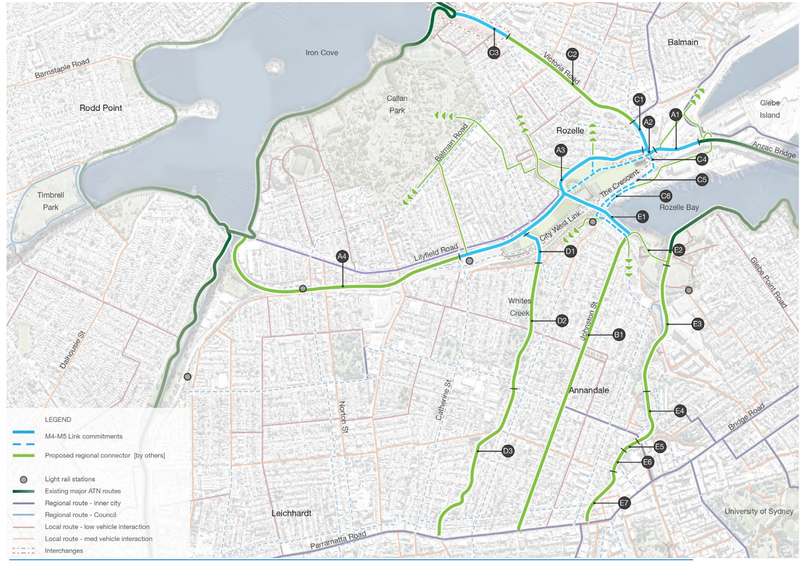

Figure 11-2: Active transport connections within the vicinity of the project (Figure 7.1 from Appendix N of the EIS).
Table 11-1 notes those connections which will be delivered by the project or other stakeholders

Table 11-1: Consistency with the EIS

NO.	ROUTE	RATIONALE	Concept within Appendix N of the EIS			Detailed design developed by the Project			Consistency with EIS
			TYPE	APPROX. LENGTH	DELIVERY	TYPE	APPROX. LENGTH	DELIVERY	
A	Rozelle Rail Yards link *Links the Bay Run, The Bays Precinct and the GreenWay in the west to Anzac Bridge and the CBD in the east*	1. Links Anzac Bridge through The Bays Precinct to Lilyfield Road at the western end of the Rozelle Rail Yards	Separated cycle path	250m	M4-M5 Link and Infrastructure NSW	Shared pedestrian and cycle path	450m	M4-M5 Link and Infrastructure NSW	Yes. The path has been extended to the extent of the project works, to connect with the existing active transport networks. It will provide for both pedestrians and cyclists, being generally 0.5 - 1m wider than the current shared path in this location. A separated path which is compliant with RMS requirements cannot be provided without extending beyond the permanent works boundary of the project.
		2. Provides the junction connecting Rozelle Rail Yards and Victoria Road to The Bays Precinct	Underpass	150m	M4-M5 Link	Underpass	150m	M4-M5 Link	Yes – no change from the EIS
		3. Provides the link between Victoria Road and the CSELR Rozelle Maintenance Depot	Separated cycle path	1000m	M4-M5 Link	Separated cycle path	860m by JHCPB	M4-M5 Link	Yes – no change from the EIS
		4. Connecting the CSELR Rozelle Maintenance Depot to Charles Street and Canal Road linking onto the Bay Run	Separated cycle path	1800m	Inner West Council / Roads and Maritime / Transport for NSW	n/a	n/a	n/a	n/a
B	Johnston Street Link *Links the inner western suburbs to the Glebe Foreshores and the Rozelle Rail Yards*	1. Connecting Parramatta Road to The Crescent	Separated Cycle Way	1800m	Inner West Council and Roads and Maritime	n/a	n/a	n/a	n/a

Note: This proposed connectivity is also summarised in Chapter 13 of the EIS, Tables 13-10 and Table 13-15.

Table 11-1: Consistency with the EIS

NO.	ROUTE	RATIONALE	Concept within Appendix N of the EIS			Detailed design developed by the Project			Consistency with EIS
			TYPE	APPROX. LENGTH	DELIVERY	TYPE	APPROX. LENGTH	DELIVERY	
C	Victoria Road *Links the northern suburbs of Drummoyne and Russell Lea and Chiswick to The Bays Precinct and the CBD*	1. Connecting the eastern side of the Rozelle Rail Yards along Victoria Road to the intersection of Robert Street	Separated Cycle Way	250m	M4-M5 Link	Shared pedestrian and cycle path	120m by JHCPB	M4-M5 Link	Yes. The path has been extended to the extent of the project works, to connect with the existing active transport networks. It will provide for both pedestrians and cyclists, being generally 1 – 2 m wider than the current shared path in this location. A separated path which is compliant with RMS requirements cannot be provided without extending beyond the project boundary into the curtilage of the heritage listed White Bay power station.
		2. Connecting the intersection of Robert Street up and over Victoria Road to the intersection of Springside Street	Separated Cycle Way	900m	Inner West Council	*n/a*	*n/a*	*n/a*	TfNSW intend to consult separately on the options developed by TfNSW specialist consultant with targeted consultation with Inner West Council, City of Sydney Council, Bicycle NSW and the local community. This will be delivered in accordance with the Staging Report at a later stage.
		3. Linking the intersection of Springside Street to the Iron Cove Bridge and the Bay Run	Separated Cycle Way	450m	M4-M5 Link	Shared pedestrian and cycle path	380m	M4-M5 Link	Yes. The path has been extended to the extent of the project works, to connect with the existing active transport networks. It will provide for both pedestrians and cyclists, being generally 0.5 m wider than the current shared path in this location. A separated path which is compliant with RMS requirements cannot be provided without extending beyond the project boundary.
		4. Connecting Victoria Road to The Crescent over the Rozelle Rail Yards	Bridge	200m	M4-M5 Link	Bridge	330m	M4-M5 Link	Yes. The path has been extended to the extent of the project works, to connect with the existing active transport networks. It will provide for both pedestrians and cyclists.
		5. Connecting Victoria Road to The Crescent	Shared Path	400m	M4-M5 Link	Shared Path	460m	M4-M5 Link	Yes - no change from the EIS
		6. Connecting The Crescent to James Craig Road existing ATN	Shared Path	500m	M4-M5 Link	Shared Path	500m	M4-M5 Link	Yes - no change from the EIS

Note: This proposed connectivity is also summarised in Chapter 13 of the EIS, Tables 13-10 and Table 13-15.

Table 11-1: Consistency with the EIS

NO.	ROUTE	RATIONALE	Concept within Appendix N of the EIS			Detailed design developed by the Project			Consistency with EIS
			TYPE	APPROX. LENGTH	DELIVERY	TYPE	APPROX. LENGTH	DELIVERY	
D	Whites Creek link *Links Parramatta Road to the Rozelle Rail Yards and onto Callan Park*	1. Linking the intersection of Brenan Street and Railway Parade over or under City West Link connecting to the Rozelle Rail Yards link	Bridge	200m	M4-M5 Link	Bridge	280m	M4-M5 Link	The length of the bridge has increased slightly to provide the required clearance over the light rail corridor. This greater height resulted in a slightly longer ramp down to Brenan Street.
		2. Links Railway Parade through Cohen Park, Whites Creek Valley Park and connects onto Whites Creek Lane	Shared path	750m	Inner West Council	n/a	n/a	n/a	n/a
		3. Following Whites Creek Lane, connecting Whites Creek Valley Park to Macquarie Street and further onto Parramatta Road	Laneway	1000m	Inner West Council	n/a	n/a	n/a	n/a
E	Johnston Creek Valley link *Extends the existing Johnston Creek pathway to connect Glebe Foreshore to Parramatta Road*	1. Connecting Easton Park to The Crescent through the Rozelle Rail Yards	Bridge/Shared path	300m	M4-M5 Link	Bridge/Shared path	300m	M4-M5 Link	The re-location of the bridge connection was approved through modification SSI-7485-Mod-2
		2. Providing a suitable cycling space for the connection along The Crescent, into Jubilee Park and linking to the existing Glebe Foreshore	Shared path	500m	M4-M5 Link	Shared path	50m by JHCPB	M4-M5 Link	Yes - no change from the EIS
		3. Providing a suitable cycling space for the connection along The Crescent, into Jubilee Park and linking to the existing Glebe Foreshore	Existing Shared path	500m	Inner West Council	n/a	n/a	n/a	n/a
		4. Providing a suitable cycling space for the connection along The Crescent, into Jubilee Park and linking to the existing Glebe Foreshore	Bridge over canal	500m	Sydney Water and Inner West Council	n/a	n/a	n/a	n/a
		5. Providing a suitable cycling space for the connection along The Crescent, into Jubilee Park and linking to the existing Glebe Foreshore	Existing Shared path	100m	Sydney Water and Inner West Council	n/a	n/a	n/a	n/a
		6. Providing a suitable cycling space for the connection along The Crescent, into Jubilee Park and linking to the existing Glebe Foreshore	Bridge over canal	50-100m	Sydney Water and Inner West Council	n/a	n/a	n/a	n/a
		7. Providing a suitable cycling space for the connection along The Crescent, into Jubilee Park and linking to the existing Glebe Foreshore	Shared path	200m	Inner West Council	n/a	n/a	n/a	n/a

Note: This proposed connectivity is also summarised in Chapter 13 of the EIS, Tables 13-10 and Table 13-15.

11.7 Existing Active Transport Network

The existing activity transport network within the project corridor has undergone significant upgrades in the past 10 – 15 years (EIS, App N). Throughout the Project area and surrounding areas the existing pedestrian and cyclist connectivity opportunities are diverse and range from separated and shared paths for the Iron Cove Bay Run and Blackwattle Bay Run to shared and pedestrian paths for residential connections in Annandale and Rozelle. The active transport network is fragmented due to the lack of permeability of City West Link and Victoria Road. Currently, the function of City West Link and Victoria Road generally favours the high volume of though traffic movements, which consequently impacts the accessibility and travel time for pedestrians crossing the road corridor.

The Rozelle section of the project, near City West Link, The Crescent and Victoria Road near ANZAC bridge, is surrounded by predominantly residential land uses, including large areas of single dwellings and small scale multi-residential buildings. The area includes significant active transport links including the Glebe Foreshores, Anzac Bridge cycleway and the northern part of the GreenWay [the active transport connection between Cooks River and Iron Cove], however there is poor connectivity between these regional links (EIS, Appendix N). In particular, City West Link and the Rozelle Rail Yards act as a significant barrier between the communities of Annandale, Rozelle and Lilyfield.

The Iron Cove section of the project, on Victoria Road near the Iron Cove Bridge, is surrounded by predominantly residential land uses, with commercial and industrial properties lining Victoria Road. The western extent of the Iron Cove area provides direct access to the Iron Cove Bay Run, a predominantly separated pedestrian and cycle path and is used by both pedestrians and cyclists for recreation and commuting. The existing shared path on Victoria Road does not adequately serve the needs of pedestrians and cyclists, suffering from inadequate width, uneven surface and a lack of amenity due to its proximity to traffic on Victoria Road (EIS, Appendix N).

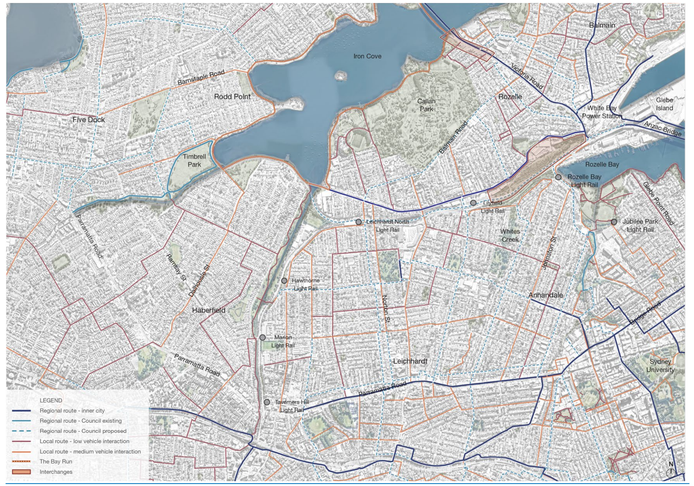

Figure 11-3: Existing active transport connections within Rozelle and Iron Cove areas (EIS, Appendix N, Figure 3.4).

11.8 Project design

This section of the strategy details the active transport connections which will be provided by the Rozelle Interchange Project, including details of the routes. This section has been divided into the areas and routes outlined in Table 11-1 and Figure 11-4.

The detail in this section includes an indicative width for paths. Whilst every effort has been made to maintain this width there are localised sections of narrowing due to the location of road furniture including light poles, signs & barriers.

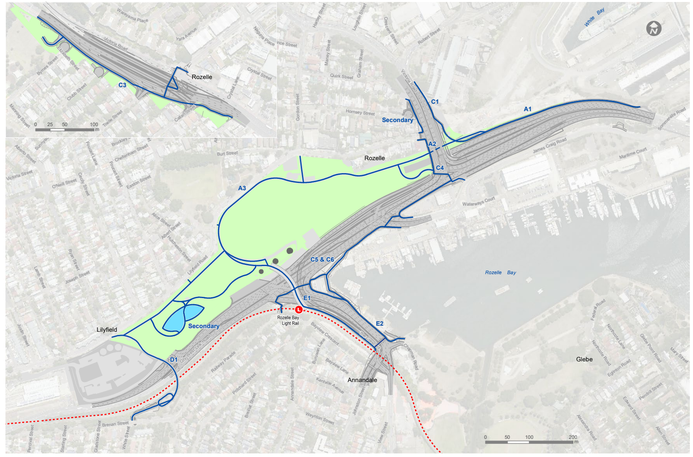

*Figure 11-4: ATN Connections Combined - Rozelle Railyards and Iron Cove Link. *Refer Figure 4-12 for revised layout.*

Proposed Connections - Rozelle Rail Yards link

A1 LINKS ANZAC BRIDGE THROUGH THE BAYS PRECINCT TO LILYFIELD ROAD AT THE WESTERN END OF THE ROZELLE RAIL YARDS

A shared user path will be provided which connects the Rozelle Rail Yards park and Victoria Road (city bound) to the ANZAC bridge shared user path. This path will use a bridge and ramp to connect the lower level park with the upper levels of Victoria Road and the ANZAC bridge shared user path. The grade of the path will enable universal access for all users, including pedestrians, cyclists and the disabled, and will be 4m wide, with setbacks for pedals and an edge hob.

A2 PROVIDES THE JUNCTION CONNECTING ROZELLE RAIL YARDS AND VICTORIA ROAD TO THE BAYS PRECINCT

A separated path for pedestrians and cyclists will be provided between the Rozelle Rail Yards park, Victoria Road and The Bay Precinct (future development), via an underpass below Victoria Road. The 5m wide separated path will form a continuous connection to the separated path which runs east-west through the park (refer to connection A3), and future connections to the Bays Precinct. Connections to Victoria Road from the path will be provided via a staircase for pedestrians, or a ramp (refer to connection A1) which enables universal access for all users, including pedestrians, cyclists and the disabled to Victoria Road and the ANZAC Bridge share user path.

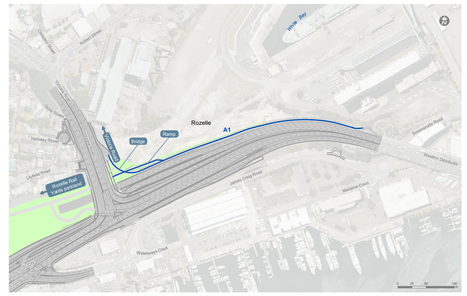

Figure 11-5: ATN Connections - A1 - Rozelle Rail Yards Link

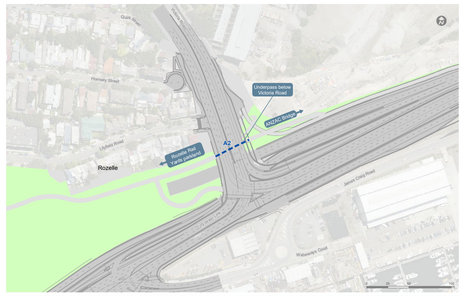

Figure 11-6: ATN Connections - A2 - Rozelle Rail Yards Link

A3 PROVIDES THE LINK BETWEEN VICTORIA ROAD AND THE CSELR ROZELLE MAINTENANCE DEPOT

This separated path forms the main east-west connection through the Rozelle Rail Yards park, connecting Lilyfield Road at Ryan Street to Victoria Road (both the city bound and outbound). The 5m wide separated path will continuously connect with connection A2, which runs under the Victoria Road underpass and connects with Victoria Road city bound via a staircase for pedestrians or a ramp (refer to connection A1) which enables universal access for all users, including pedestrians, cyclists and the disabled to Victoria Road and the ANZAC Bridge share user path.

It also connects with Victoria Road outbound via a universal access bridge which takes users from the lower level park to the higher levels of Victoria Road. The path has three connections to the shared user path bridges which cross City West Link (refer to connection D1 and E1) and secondary paths within the park which meander through the wetland and passive recreational area. It also has four connections to Lilyfield Road at Ryan Street, Foucart Street, Easton Park and Gordon Street.

Proposed Connections - Victoria Road - Iron Cove Link

C1 CONNECTING THE EASTERN SIDE OF THE ROZELLE RAIL YARDS ALONG VICTORIA ROAD TO THE INTERSECTION OF ROBERT STREET

This 4m wide shared path, will connect the existing Victoria Road path near Robert Street to the Rozelle Rail Yards park paths via a staircase (for pedestrians) and ramp which enables universal access for all users, including pedestrians, cyclists and the disabled. This ramp also provides a connection the ANZAC Bridge share user path.



*Figure 11-7: ATN Connections - A3 - Rozelle Rail Yards Link. *Refer Figure 4-12 for revised layout.*

Figure 11-8: ATN Connections - C1 - Victoria Road - Iron Cove Link

C3 LINKING THE INTERSECTION OF SPRINGSIDE STREET TO THE IRON COVE BRIDGE AND THE BAY RUN

A 4m wide shared path will be provided for the extent of the works at Iron Cove, providing a connection parallel to Victoria Road from Springside Street to the Iron Cove Bridge and Iron Cove Bay Run. This path will provide connections to the local pedestrian path network at Byrnes Street, Clubb Street, Toelle Street, Callan Street and Springside Street, with a signalised pedestrian cross of Victoria Road providing connection to Terry Street on the northern side of Victoria Road.

C4 CONNECTING VICTORIA ROAD TO THE CRESCENT OVER THE ROZELLE RAIL YARDS

A 4m wide shared path will connect Victoria Road (outbound) to The Crescent and City West Link via a bridge (also for traffic) and two signalised crossings at the intersection of Victoria Road and The Crescent. It will connect into the existing footpath of Victoria Road and The Crescent and the new active transport network within the Rozelle Rail Yards park via the A3 connection and a bridge which provides universal access.

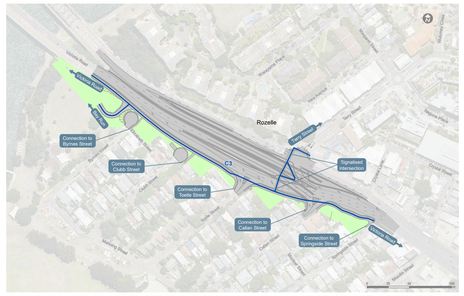

Figure 11-9: ATN Connections - C3 - Victoria Road - Iron Cove Link

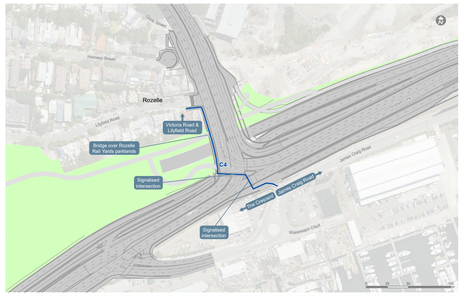

Figure 11-10: ATN Connections - C4 - Victoria Road - Iron Cove Link

C5 CONNECTING VICTORIA ROAD TO THE CRESCENT AND C6 CONNECTING THE CRESCENT TO JAMES CRAIG ROAD EXISTING ATN

A 3m wide shared path will connect the intersections of Victoria Road and The Crescent, and The Crescent and City West Link via an at-grade path and a signalised crossing of James Craig Drive. It will connect into the existing footpaths on James Craig Drive and new connections provided by the project to Victoria Road (refer to connection C4) and The Crescent (refer to connection E1).

Proposed Connections - Whites Creek Link

D1 LINKING THE INTERSECTION OF BRENAN STREET AND RAILWAY PARADE OVER OR UNDER CITY WEST LINK CONNECTING TO THE ROZELLE RAIL YARDS LINK

The existing pedestrian and cyclist network at Brenan Street will be connected the Rozelle Rail Yards park and Lilyfield Road via a separated user path and bridge. The bridge over City West Link and the path will be 5m wide and have grades that provide universal access for pedestrians, cyclists and disabled persons. Setbacks will be provided on the bridge for pedals and an edge hob.

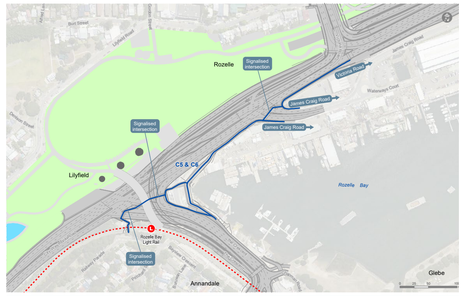

*Figure 11-11: ATN Connections - C5 - Victoria Road - Iron Cove Link. *Refer Figure 4-12 for revised layout.*



Figure 11-12: ATN Connections - D1 - Whites Creek Link

Proposed Connections - Johnstons Creek Valley Link

E1 CONNECTING EASTON PARK TO THE CRESCENT THROUGH THE ROZELLE RAIL YARDS

A separated user path will be provided to connect Lilyfield Road and Easton Park to The Crescent and the Rozelle Bay light rail station via a bridge over City West Link. This path will be a 7m wide path on the land bridge which is lined with trees and provides universal access for pedestrians, cyclists and disabled persons.

The northern end of the path connects to the east-west separated path in the Rozelle Rail Yards park (refer to connection A3). Whilst at the southern end of the path the land bridge ends at the elevated light rail station, with users then able to reach lower paths of The Crescent via a ramp with universal access.

At the bottom of the ramp users are able to connect with the existing footpath on Johnston Street, or use a signalised intersection to reach the Glebe Foreshore (refer to connection E2). To encourage active transport to the Rozelle Bay light rail stop cycle facilities including bike racks have been provided at the plaza which connects the land bridge to the light rail stop and underneath the Rozelle Bay Light Rail Bridge. These facilities were developed through consultation with Transport for NSW.

E2 PROVIDING A SUITABLE CYCLING SPACE FOR THE CONNECTION ALONG THE CRESCENT, INTO JUBILEE PARK AND LINKING TO THE EXISTING GLEBE FORESHORE

This separated user path connects the intersection of The Crescent and City West Link with the existing active transport network on Chapman Road and the Glebe Foreshore. The 5m wide path runs parallel to The Crescent (eastbound) and does not require the use of any signalised intersections.

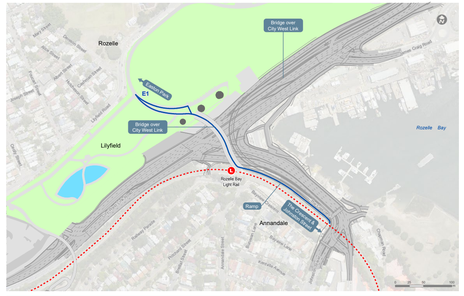

*Figure 11-13: ATN Connections - E1 - Johnstons Creek Valley Link. *Refer Figure 4-12 for revised layout.*

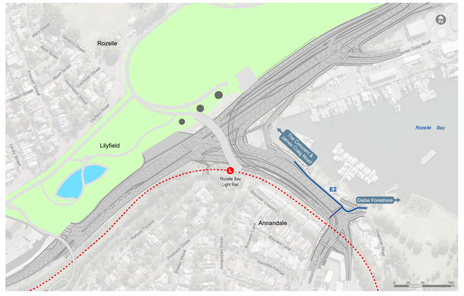

*Figure 11-14: ATN Connections - E2 - Johnstons Creek Valley Link. *Refer Figure 4-12 for revised layout.*

11.9 Lighting and Safety

The pedestrian and cycle paths for the Project were design with the safety of pedestrians, cyclists, maintenance personnel and drivers in mind. The design was developed in accordance with Roads and Maritime Services specifications and guidelines, project specific requirements developed by Roads and Maritime Services, Austroad guidelines and relevant Australian Standards (refer to section 11.5). During the design process reviews were also completed as part Safety in Design Reviews, road safety audits (refer to section 11.5) and internal and external reviews by project experts. The project also integrated Crime Prevention Through Environmental Design principles into the process including through:

- Shared user path bridges were designed to provide maximum opportunity for passive surveillance from the Rozelle Rail Yards park, the Rozelle Bay light rail station, major roads and the foreshore
- The pedestrian and cyclist paths, including the shared user path bridges, were designed with legibility for the user in mid, with a concept that allows people to easily to know where they are and how to get to where they are going. This is further outlined in the Rozelle Rail Yards Lighting and Wayfinding Strategy (refer to section 12)
- Areas with no passive surveillance were designed out of the project, or additional security measures were provided, e.g. additional lighting and closed-circuit television cameras were provided for the shared user path which passes under the Victoria Road bridge, and
- A feeling of ownership for the Project is encouraged through delivering a design which is timeless, contemporary and visually appealing in the landscape. This has been further promoted through the consultation process for this Strategy.

The lighting of pedestrian and cyclist paths has been designed in accordance with Australian Standard AS/NZS 1158 Lighting for Roads and Public Spaces, with:

- Pole lighting and innovative lighting within the throw screen top rail provided on bridges to achieve P1 functional lighting levels specified in AS/NZS1158
- Pole lighting along primary pedestrian and cyclist paths to achieve P2 functional lighting levels specified in AS/NZS1158, and
- The use of street lighting on pedestrian footpaths to achieve P1 functional lighting levels specified in AS/NZS1158.

11.10 Landscape works

The primary design objectives for the project are to transform the Rozelle Rail Yards park into the 'Green Heart' of a revitalised White Bays Precinct and an extension of the open space around Sydney Harbour. Outside of the park area the project has sought to maximise opportunities for landscape areas next to the road works to accommodate areas for large scale tree planting opportunities that can offset the scale of the new infrastructure being constructed. Details of the landscape works for the project are provided in Section 5 of this UDLP, however in summary:

- Connection A1 does not have associated landscape works as it utilises a concrete and steel bridge and ramp which do not provide opportunities for vegetation growth
- Connection A2 does not have associated landscape works as it is via an underpass below Victoria Road. Low levels of natural light in this are do not provide opportunities for vegetation growth
- Connection A3 is a tree lined separated pedestrian and cycle path, with a row of trees on either side of the path providing shade, screening from Lilyfield Road and a green connection to the park to the south
- Connection C1 runs adjacent to Victoria Road, with no space in this area for roadside landscape works. The White Bay power station adjacent to the path has lush vegetation which softens the eastern edge
- Connection C3 along the southern side of Victoria Road is lined by a well-landscaped boulevard of trees and lower vegetation that will provide amenity and relief for users of the path
- Connection C4 does not have associated landscape works as it utilises a concrete and steel bridge and signalised intersections which do not provide opportunities for vegetation growth
- Connections C5 and C6 on the south eastern side of the Crescent are lined on the by street trees and planted verges where space permits
- Connection D1 does not have associated landscape works as it utilises a concrete and steel bride which do not provide opportunities for vegetation growth. As this connection enters the Rozelle Rail Yards park the path passes through areas of 'wild' parkland
- Connection E1 is a tree lined shared user path in the Rozelle Rail Yards, before passing over the land bridge which is also tree lined, with lower vegetation at the base of the trees, and
- Connection E2 is adjacent to The Crescent and land which is subject to the project Residual Land Management Plan. This plan will provide further details of landscape works associated with this area.

11.11 Signage and wayfinding

Signage for the pedestrian and cycle paths for the Project was developed in accordance with Roads and Maritime Services specifications and guidelines, project specific requirements developed by Roads and Maritime Services, Austroad guidelines and relevant Australian Standards (refer to section 11.5). During the design process reviews were also completed as part Safety in Design Reviews, road safety audits (refer to section 11.5) and internal and external reviews by project experts.

The signage and wayfinding strategies and principles for the project are outlined in the Rozelle Rail Yards Lighting and Wayfinding Strategy (refer to Section 12), however in summary:

- On separated user paths, cyclists and pedestrians will be separated by linemarking and symbols on the path.

11.12 Staging of Works

The active transport connections described in section 11.8 will be delivered by JHCPB as part of the Rozelle Interchange project and will be progressively opened to the public as they are completed. All connections will be completed before operation of the project commences.

Following handover of the Rozelle Rail Yards, TfNSW will be completing further enhancement of the facilities within the parklands. These works will not be changing the connections outlined in 11.8. However, they may be temporarily impacted during construction works.

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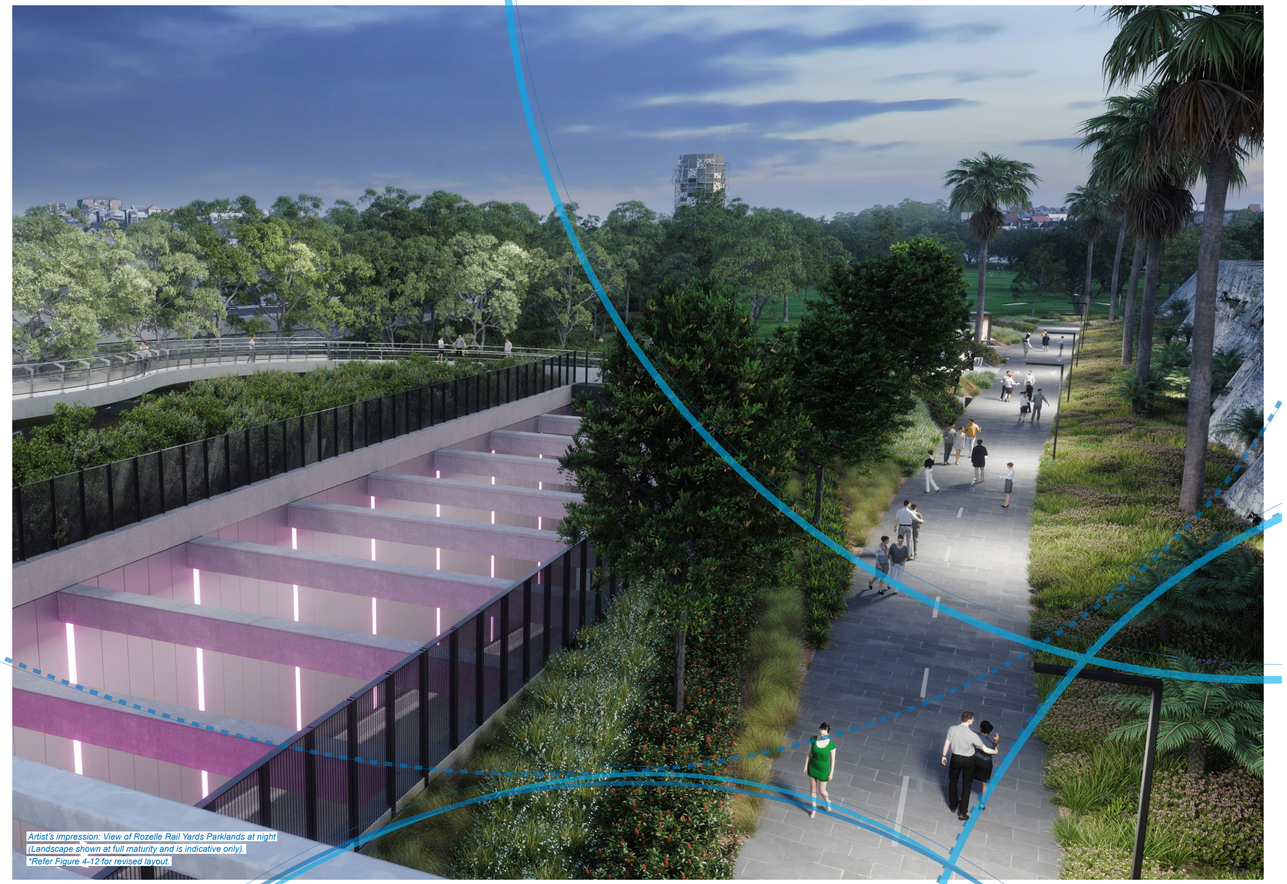
Rozelle Interchange
WestConnex

JOHN HOLLAND
CPB CONTRACTORS

Rozelle Rail Yards Lighting and Wayfinding Strategy

Artist's impression: Victoria Road Pedestrian Underpass with integrated feature lighting.
(Landscape shown at full maturity and is indicative only).



Artist's impression: View of Rozelle Rail Yards Parklands at night (Landscape shown at full maturity and is indicative only).
**Refer Figure 4-12 for revised layout.*

12 Rozelle Rail Yards lighting and wayfinding strategy

12.1 Overview

In accordance with Minister's Condition of Approval E134(q), this section describes the proposed lighting and wayfinding strategy for the Rozelle Rail Yards site. It forms part of the urban design strategy for a new regional and locally integrated interchange for cyclists, pedestrians and vehicles.

The wayfinding strategy has considered the outcome of the M4-M5 EIS: Appendix N - Active Transport Network, including existing and proposed active transport network routes, pedestrian pathways, Green Grid connections and public transport routes. The Project ties in with existing and proposed pedestrian and cyclist routes.

The demand for good information design in the public realm has had a positive effect on the awareness for effective and logical wayfinding methods and strategies.

The Rozelle Rail Yards is an important and large open space in an urban setting, that will reconnect and strengthen local communities and enhance the form, function, character and livability of Sydney. It will bring together people who are there to enjoy themselves and attract transient visitors who are passing through on bike, potentially travelling to the CBD for work or linking in for recreational cycle trips.

Visitors rely on the information that is provided to them on their journeys in conjunction with online and internet sources, however there is also the need for the immediate wayfinding answer, where the information is provided just at the right time at just the right place and can be read by the visitor, for example a cyclist travelling at 30km per hour.

In general terms, wayfinding is the ability to: know where you are, where you are headed, and how best to get there; recognise when you have reached your destination; and find your way out - all accomplished in a safe and independent manner.

In order for this to happen, the Project has developed a lighting and wayfinding strategy that recognises the spatial units of the environment, group these into destination zones and organises the links between them.



Figure 12-1: Wayfinding signage precedent images

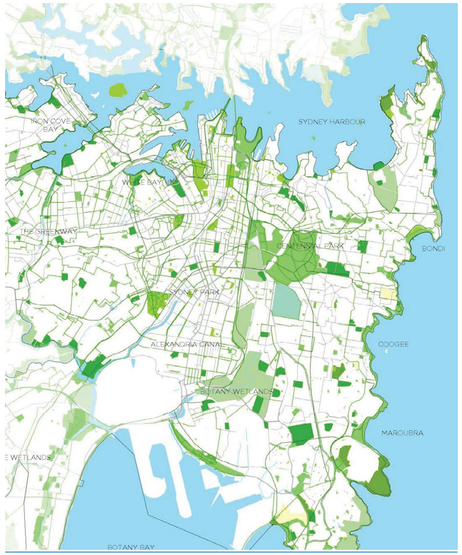


Figure 12-2: Central District Recreational Grid Plan - Sydney Green Grid 2017

12.2 Principles and objectives for lighting and wayfinding design

Any visual wayfinding system is more than just signs - it encompasses architecture, landscape architecture, lighting, and landmarks and orientation points. Therefore, the design of spaces in a setting should assist users with spatial problem-solving by providing consistent clues.

The Project has developed a series of principles and objectives to guide the lighting and wayfinding strategy.

Lighting design principles

The Project recognises the importance of quality public realm lighting in ensuring a safe and pleasant experience for users. Lighting design principles and objectives have been developed for the Project to assist with defining night-time environments and experiences that are:

- Consistent, safe and legible
- Reinforce day-time landmark and destinations
- Avoid visual clutter and maximise integration with adjacent structures
- Civic in nature

Lighting design objectives

Three objectives have been developed for approach to lighting design within the Rozelle Railyards parklands.

LIGHTING THAT SUPPORTS EFFECTIVE WAYFINDING

Studies have shown that people, when given the choice, will choose the lit path. Lighting is a fundamental aspect of day-to-day lives that encourage people to make certain decisions about how they navigate at night.

Paths that are continuously lit provide clear line of sight and maintain safe and legible movement for people.

Functional lighting will be provided to ensure a safe experience for all users, with lighting confined to primary paths and key areas of hardstand, lighting these to safe and accepted levels.

Lighting fixtures and fittings have been selected on the basis of their simplicity and visually recessive elements that conform to the post-industrial aesthetic of the parklands, while providing adequate levels of performance.

ESTABLISH NIGHT-TIME LANDMARKS

Creating an appealing park at night builds civic pride and identity. Night-time landmarks will serve as markers that recognise a destination within the parkland.

Detecting a landmark, as with any other object, entails it to be visible, that is, to have some sort of contrast with its background. The use of feature lighting will accentuate architectural and public realm features as night-time landmark.

Day and night-time perception of landmarks do not necessarily coincide, as certain elements can be landmarks at night-time only, while others, which are conspicuous during the day, are not regarded as such at night.

UTILISE INTEGRATED FEATURE LIGHTING

Integrated feature lighting serves the dual purpose of providing functional and safely lit spaces that enhances the aesthetic appearance of structures, and encourages social interaction.

The introduction of feature lighting can transform spaces that are normally perceived as unsafe or undesirable, into a sensory delight.

By avoiding the need for conventional path lights, visual clutter of the urban environment is reduced.

Feature lighting evokes the senses by providing:

- Variability in colour and intensity
- Dynamic contrast of light patterns and textures
- Engaging and artistic interpretation of urban elements and site history
- Seamless integration with built elements.

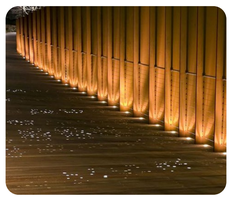




Figure 12-3: Lighting design objectives - precedent images.

Wayfinding design principles

Wayfinding principles and objectives have been developed for the Project to assist with defining and recognising:

- Regional connections outside the Rozelle Rail Yards that intersect with and join to the site
- Clear site arrival and defined entry points
- Clear choice of route upon arrival
- Ease of movement within the site
- The destinations within the site
- Identification of routes that re-connect with regional and local destinations when passing through and leaving the site.

Wayfinding design objectives

Four objectives provide an over-arching solution of navigation for the entire site and connections to the approaches:

USE LANDMARKS TO PROVIDE ORIENTATION CUES AND MEMORABLE LOCATIONS.

Landmarks are important because they serve as markers that let one know where one is in an environment. They tend to be the places that people need to go, either to enter the site or leave the site or recognise a destination during the approach from a distance.

A shared vocabulary of landmarks provides the basis for verbal or written descriptions of locations or routes. Landmarks serve two useful purposes:

- As an **orientation cue.** If the navigator knows where a landmark is in relation to their present position, they can say something about where they are, and which way they are facing, in the space they share with the landmark. A desirable property of a landmark for orientation is visibility - the ability to be seen from a large surrounding area. Such **global landmarks** can help the navigator judge their orientation within a wide area, as opposed to **local landmarks**, which are seen usually within the immediate vicinity.
- A landmark is an especially memorable location. Memorable places can provide instant recognition of one's position.

FORM AND RECOGNISE AN INDIVIDUAL IDENTITY FOR EACH OF THE MAJOR LOCATIONS (ZONES)

Regions (zones) assist wayfinding by providing a set of cues for determining a location. They associate a set of defining features with an area in space, and give ways of identifying a place as being part of or included in a region. When the navigator moves from one zone to another, the shift in the character of the space also informs them of their location along the boundary of the two regions.

Zones may not have sharply defined boundaries, or their extent may be in some part subjective, but there is a clear functionality difference between each zone, and a surrounding area said to be outside it.

The navigator can associate each location and immediate surroundings as a special place within a larger-scale space.

CREATE WELL-STRUCTURED PATHS THAT HAVE A CLEAR HIERARCHY.

Paths should possess a set of characteristics to be 'well-structured' and express hierarchy.

Well-structured paths are continuous and have a clear beginning, middle, and end when viewed in each direction. They should confirm progress and distance to their destination along their length. And a navigator should easily infer which direction they are moving along the path by its directionality or 'sidedness'.

HIGHLIGHT THE NODES WHERE PATHS INTERSECT AND PROVIDE THE MOST IMPORTANT AND RELEVANT INFORMATION.

Wayfinding in a hierarchical network relies on the nodes of the system. A person moves from node to node in respecting the given hierarchical order. At each node, the wayfinding person makes sure that the correct branch is taken to reach a lower or higher-order node.

Points where pathways meet are often referred to as nodes. These are important points for people to orientate themselves and decide which way to go. They provide opportunities for the environment to help people remember their way back.

The node may incorporate information signage, other memorable features or art that makes it easy to describe for those giving directions.

The visible edges such as trees and low walls, seating and lighting can guide or identify the nodes by making them more memorable.

Nodes therefore, correspond to the decision points.

They mark where wayfinding decisions are made. The information available at the nodes helps the navigator 'remember' their way around.






Figure 12-4: Wayfinding objectives - precedent images

12.3 Key wayfinding design considerations

Local Context

The Rozelle Rail Yards parklands and the surrounding area incorporates the suburbs of Lilyfield, Rozelle, Glebe, Forest Lodge, Annandale, and Balmain. These areas contain predominantly residential land uses, including large areas of single dwellings and small scale multi-residential buildings. The areas of public open space include Callan Park, the
Bay Run, Bicentennial Park, Easton Park and the Glebe Foreshores and Whites Creek Valley parklands.

The Rozelle Rail Yards area is dominated by the large intersection of major roads at the eastern edge of the site. Victoria Road, Anzac Bridge, City West Link and The Crescent dominate the area and the evolution of connectivity around the site has been hindered by the Rozelle Rail Yards inaccessibility for many years.

The neighbourhoods of Lilyfield and Rozelle are disconnected from cycling and pedestrian routes, such as Glebe Foreshores and Jubilee Park, and Lilyfield Road has been the only route between Catherine Street and Victoria Road.

With the future Bay Precinct ahead, urban planning and proposed connections are vital to ensure the site is completely accessible from all directions and that the current physical infrastructure and vehicular barriers are seamlessly reduced.

There are extensive pedestrian foreshore walks at the Iron Cove site, connecting parks that are linked together by the Bay Run, King Georges Park and Callan Park. Victoria Road currently disrupts ease of connectivity. Disruption or changes to shared paths for pedestrians and cyclists around Iron Cove tunnel entry and exit points will be minimised to maintain connectivity.

Active Transport Network (ATN)

The M4-M5 Link EIS: Appendix N - Active Transport Network, provides a framework for existing and future pedestrian and cyclists connectivity. It focuses on providing active transport links to the CBD, primarily as a means of providing access to places of work, to Universities, train and light rail stations, major open spaces and other major green park and leisure areas, and major ATN links - the Bay Run, Glebe Foreshores, Anzac Bridge cycleway and the northern part of the GreenWay, and the active transport connection between Cooks River and Iron Cove.

EXISTING MAJOR ATN ROUTES

The existing ATN is comprised of regional and local routes. The majority of regional routes are segregated pedestrian and cycle paths, with local routes primarily being either shared paths or pedestrian paths supported by on-road cycle paths. Successful active transport connections provide clear separation between each of vehicle, cycle and pedestrian movements.

The Rozelle Interchange Project will deliver significant improved connectivity to the existing Active Transport Corridor and between existing major ATN routes.

Existing ATN routes have been identified as:

- Anzac Bridge to the CBD, Pyrmont, Darling Harbour
- Glebe Foreshore, incorporating Jubilee Park through to Blackwattle Bay and the CBD
- Iron Cove Bay Run, and its connections to Hawthorne Canal / Green Way and the Balmain Peninsula
- Hawthorne Canal, which links to the GreenWay



Figure 12-5: Regional Active Transport Links

FUTURE REGIONAL ATN ROUTES

There are further opportunities to provide regional connections and support future development.

Proposed ATN routes include:

- 1. Johnston Street Link
- Links Inner West suburbs to the Glebe Foreshores and Rozelle Rail Yards
- 2. Victoria Road / Iron Cove link
- Links the northern suburbs of Drummoyne, Russell Lea and Chiswick to the Bays Precinct and the CBD
- 3. Whites Creek Link
- Parramatta Road to the Rozelle Rail Yards, and onto Callan Park via Easton Park
- 4. Johnstons Creek Valley Link
- This is an existing regional route along Glebe Foreshore, and Jubilee Park connecting to the Johnstons Creek pathway which feeds to Parramatta Road
- 5. The Bays Precinct which will have eight 'destination' precincts.



Figure 12-6: Future Active Transport connections

EXISTING LOCAL CYCLE ROUTES

The Rozelle Interchange and Iron Cove Link sites are located within the Inner West Council area.

There is a widespread selection of existing local bicycle, vehicular and public transport networks that currently run around the site perimeter.

The diagram below demonstrates how neighbourhoods of Lilyfield and Rozelle are disconnected from cycling and pedestrian routes, such as Glebe Foreshores and Jubilee Park.



*Figure 12-7: Local cycle routes and Light Rail stop - RMS 2019. *Refer to Figure 4-12 for revised layout.*

The Sydney Green Grid

The Sydney Green Grid establishes the strategic framework that will create a green network that strategically connects strategic, district and local centres, public transport hubs and residential areas.

The Sydney Green Grid promotes the creation of a network of high quality open spaces that support recreation, biodiversity and waterway health.

The following opportunities are identified within the project:

- Sydney Harbour Foreshore and Parramatta River Walk
- White Bay foreshore and open space
- Lilyfield Road active transport corridor
- Sydney Harbour Bays Green Links - Balmain and Rozelle
- Whites Creek and Whites Creek Lane
- Consideration of future plans for urban expansion as part of the Sydney Transformation Plan 2015 - The Bays Precinct.

Within the confines of the Project boundary, the project is committed to supporting the Green Grid opportunities by improving connectivity and the quality of open space connections.

The Rozelle Rail Yards parklands will become the primary conduit for the ATN project corridor. When completed it will become the primary Active Transport Corridor for the Inner West, connecting:

- Anzac Bridge through the Bays Precinct to Lilyfield Road at the western end of the Rozelle Rail Yards parklands
- The Rozelle Rail Yards parklands and Victoria Road to the Bays Precinct
- Victoria Road and the CSELR Rozelle Maintenance Depot
- The eastern side of the Rozelle Rail Yards along Victoria Road up to the intersection of Robert Street
- Easton Park to Jubilee Park via the Rozelle Bay Light Rail stop and Green Link Bridge over the City West Link
- A new pedestrian bridge will connect Cohen Park to Lilyfield Road
- At Iron Cove, pedestrian and cyclist connections with some at-grade crossings at the intersection of Victoria Road and City West Link being retained.



Figure 12-8: Green Grid connection opportunities

Primary through-site pedestrian and cycle movements in the Rozelle Rail Yards

The most prominent urban and landscape design features of the Rozelle Rail Yards parklands that influence and enhance connectivity of the site in the broader context are:

1. The Green Link Bridge over City West Link to improve connectivity from Rozelle to the foreshore with provision for a future waterfront promenade
2. East-west connectivity for pedestrians and cyclists following Lilyfield Road is improved and will accommodate future connections (by others) to priority projects such as the GreenWay and Hawthorne Canal
3. Bridge to Brenan Street for links to southern local regions and to join with the link to the western route to GreenWay, and connect Lilyfield Road to Whites Creek and Cohen Park via the Rozelle Rail Yards
4. Access to Victoria Road and a major intersection with the Anzac Bridge link.

It is these adjoining links that will become an influential part of a wayfinding strategy.

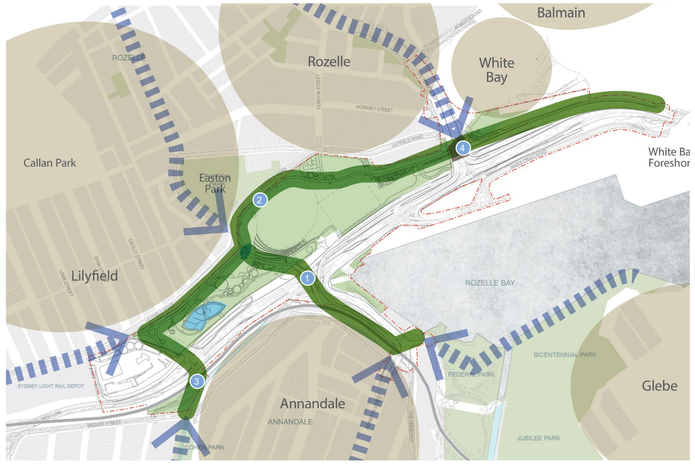


*Figure 12-9: Primary through-site linkages. *Refer to Figure 4-12 for revised layout.*

12.4 Lighting and wayfinding strategies

The Project has developed a number of design strategies for the Rozelle Rail Yards lighting and wayfinding strategy.

Identifiable landmarks

The wayfinding within the Rozelle Rail Yards organises the spaces in terms of landmarks that make up the site.

The **local landmarks** are:

- The Rozelle Ventilation Facility
- The Green Link Bridge over City West Link
- The constructed wetlands boardwalk
- Victoria Road underpass
- The Bridge to Brenan Street.

These landmarks will be recognised despite changes in viewing orientation, distance or lighting. They are each unique and therefore not confused with other elements of the environment. If compared to surrounding objects, they have different or unique features, and so can be easily remembered and described.

These local landmarks are used sparingly - to avoid belying their usefulness as memorable and unique locations.

The landmarks in the distance, such as the Anzac Bridge and the City views assist with wayfinding but also to serve the space's larger purpose. Since a landmark defines a surrounding region to which it is adjacent, they stand as representative for the region's content.

Feature lighting to establish night time landmarks

In conjunction with the local landmarks, feature lighting will be used to accentuate architectural and public realm features such as furniture, building/ infrastructure facades, key trees, or spaces.

The night-time landmarks are:

- Bridges over City West Link
- The constructed wetlands
- Victoria Road underpass
- The Rail Park precinct
- Sandstone cutting



*Figure 12-10: Landmarks are memorable locations that help to orient the navigator. *Refer to Figure 4-12 for revised layout.*

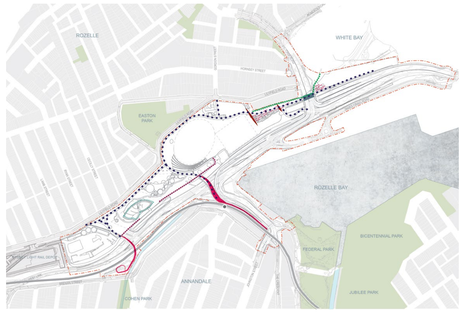


*Figure 12-11: Rozelle Rail Yards feature lighting locations. *Refer to Figure 4-12 for revised layout.*

Respond to local character

The design of spaces should assist users with spatial problem-solving by providing consistent clues.

For example, the 'Parkland Forest' holds distinct clues:

- Water, sounds of water movement
- Timber boardwalk pathway
- Proximity to nature and special planting
- Natural materials
- Water birds
- Distant views

It speaks most directly to the first criterion for navigability, the ability to recover position and orientation. This objective indicates that every place should function, to some extent, as a local landmark - a recognisable point of reference in the larger space.

Path ways have a hierarchy

Pathways form routes and a route can consist of going from one landmark to another or path intersection to another until the goal is reached.

A legible hierarchy of paths will be implemented with widths in variation to the function of each.

- 5m wide separated pedestrian and cycle paths
- 4m wide shared paths
- 2m footpaths.

This system of paths will provide the backbone for access and movement around the Rozelle Rail Yards parkland and reinforce the broader connectivity strategy.

Functional path lighting to reinforce primary movements

The Project recognises the importance of quality public realm lighting in ensuring a safe and pleasant experience for users.

Functional lighting will be provided to ensure a safe experience for all users, with lighting confined to paths and key areas of hardstand to safe and accepted levels.

Lighting fixtures and fittings have been selected on the basis of their simplicity and visually recessive elements that conform to the post-industrial aesthetic of the parklands, while providing adequate levels of performance.

Establish nodes at path intersections

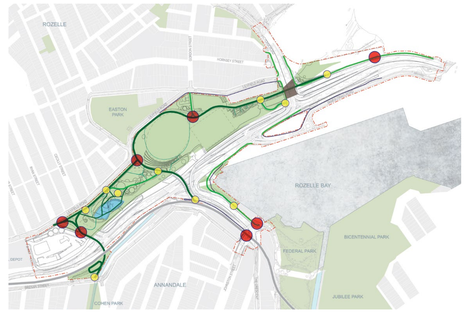
In support of the path hierarchy, points where paths intersect have been categorised as major and minor nodes to mark where points of decision are required.

Major nodes relate to key points of entry and exit to the Rozelle Rail Yards, including cues to connect broader connections and places.

Minor, or secondary nodes relate to navigation within the Rozelle Rail Yards itself, providing cues to destinations through the parklands.



*Figure 12-12: Zones are distinct areas that place visitors in one unique part of the environment. *Refer to Figure 4-12 for revised layout.*



5m wide separated pedestrian and cycle paths
4m wide shared paths
2m footpaths.
Major node
Minor node

*Figure 12-13: Pathways express a hierarchy for both functionality, Nodes mark points where decision making is required. *Refer to Figure 4-12 for revised layout.*

Creating effective wayfinding system

Wayfinding systems are measured by how users experience an environment and how the communicative elements facilitate them getting from point A to point B.

Wayfinding systems should reassure users, create a welcoming and enjoyable environment and, ideally, provide answers to potential queries before users have to ask for assistance.

These wayfinding elements and the graphic elements of a hierarchical wayfinding system, together with the design criteria and organisation of landscape, are largely responsible for a highly legible and comprehensible urban environment.

Throughout the journey a person will encounter different sign types. From a signage perspective, circulation relies on providing orientation and direction (e.g. 'You are here' maps and directional signs) and identification signage is used to distinguish a location from all other locations (e.g. Name sign or place identity).

A successful wayfinding system should provide information for users to:

- Know where they are, in a unique place
- Know their destination,
- Follow the best route to their destination,
- Recognise their destination upon arrival
- Find their way back out.

LANDMARKS

Landmarks will be combined with other memorable elements or graphic features to formulate wayfinding clues that are unique and exciting.

Feature lighting will give landmarks additional functionality for night wayfinding and enhance the artistic individuality.

ZONE IDENTITY

Place names will be given within each area. Colour or symbols will be used with text for identification signage to assist non-english speaking visitors.

PATH HIERARCHY AND DECISION MAKING

A hierarchy of sign information aligns with path function and type. Sight lines and visual clues are made clear to highlight what is ahead and enhance connectivity.

Feature lighting is used to accentuate the lead up to a decision point.

NODE LOCATIONS

Wayfinding information will be provided at nodes where paths intersect and decision points are established. A family of signs will correspond with node importance and elements such as paving textures and graphics, colour and changes to path materials can accentuate the nodes.



Figure 12-14: Precedent images of effective wayfinding examples

A suite of signage elements

Wayfinding signage forms part of the broader suite of urban furniture elements described in Section 10. All signage elements will compliment the parkland character and have been designed as a suite of elegant, refined objects.

A list of the various signage types and elements is provided in Section 12.5 of this UDLP.

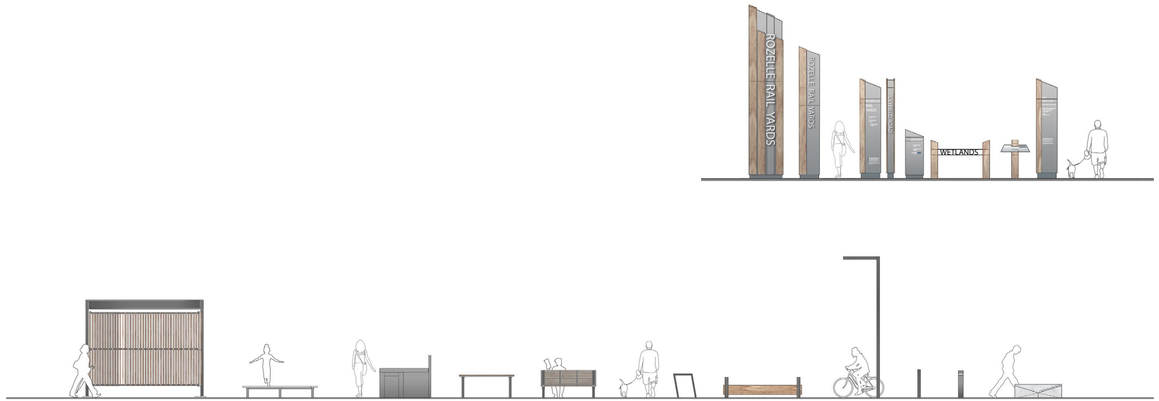


Figure 12-15: A suite of wayfinding urban elements



*Artists impression: Rozelle Rail Yards parklands (Landscape shown at full maturity and is indicative only). *Refer Figure 4-12 for revised layout.*

12.5 Rozelle Rail Yards Parklands wayfinding concept

The Rozelle Rail Yards lighting and wayfinding strategy seeks to reinforce the vision for the parklands described in Section 4 of this UDLP.

As the 'green heart' of The Bays Precinct, the Project has defined the wayfinding experience/s through the parklands as an extension of the existing and future open space around the harbour.

To facilitate this, a number of lighting and wayfinding signage types have been developed and implemented on a series of concept plans.

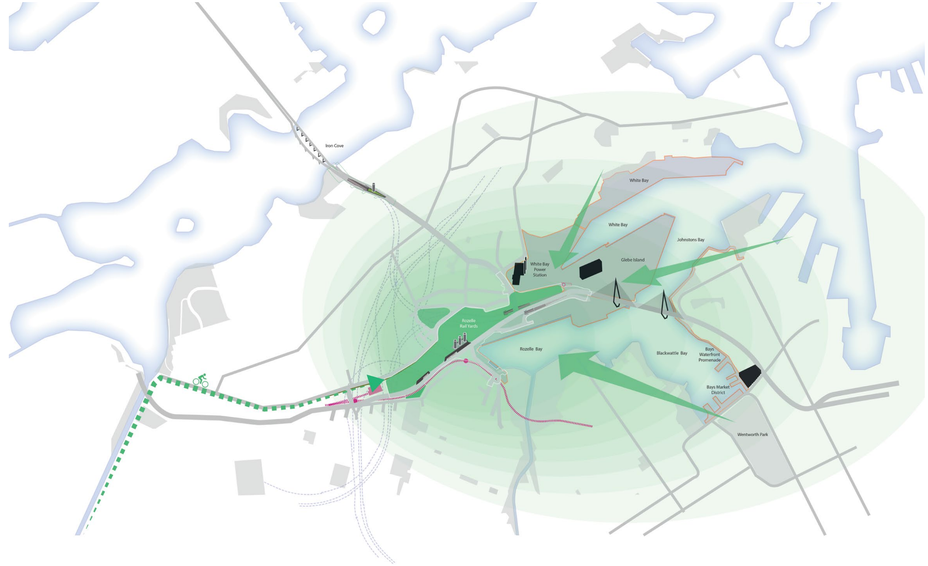


Figure 12-16: Rozelle Rail Yards - Vision - The 'Green Heart' of The Bays Precinct - as described in Section 4 of the UDLP.

Defining the wayfinding experience through the Rozelle Rail Yards

As people move through the Rozelle Rail Yards parklands either crossing through it or staying to enjoy the parklands and amenities, they undergo a number of smaller journeys made up of two important processes: Circulation and Identification. That is, a person identifies their destination then they move (or circulate) towards it.

The four main categories of graphic and physical elements that form the wayfinding hierarchy are for:

- → Orientation
- → Direction
- → Reinforcement / reassurance, and
- → Identification / destination.

Orientation - Site Arrival

Arrows reinforce the identified regional connections of arrival that align with planned and existing cycle paths and pedestrian pathways around the perimeter of the site, feeding from the surrounding local areas, ATN routes, GreenLink routes and suburban catchments.

Arriving to the site entry points will be clearly defined and highly visible to:

- Announce arrival at a unique destination
- Introduce the path hierarchy, and
- Reinforce Identification signage and graphics.

Primary Nodes - major decision points

Having established entry into the site, the flow of users into and through the site will depend on the path hierarchy and the mode of travel.

The paths that intersect or begin at arrival nodes will provide opportunity for the primary decision points.

The information provided at a primary decision point will potentially be:

- → Directions to local regional destinations
- → Symbols to describe those destinations
- → Arrows and distances to the local regions, and
- → Site map that will be oriented to suit the direction the user is facing.



*Figure 12-17: Site arrival locations. *Refer to Figure 4-12 for revised layout.*

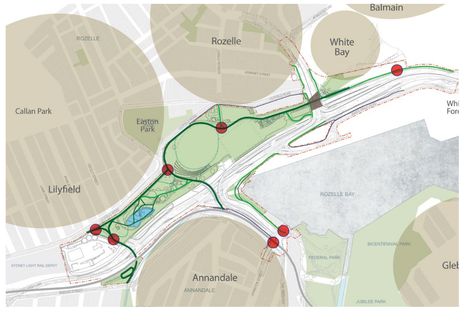


*Figure 12-18: Primary nodes - the major decision points. *Refer to Figure 4-12 for revised layout.*

Reassurance - Secondary Decision points

At some point, paths will begin to intersect or commence at reassurance points or Secondary Nodes.

Signs placed at these locations are for simpler decision making requirements and therefore require less detailed information.

The user will be well into their journey and will have already chosen the correct path in order to orient themselves towards their destination. The secondary nodes reassure the user they are on the correct path and are nearing their location or amenity.

The information provided will potentially be:

- Directions to local regional destinations
- Symbols to describe those destinations
- Arrows and distances
- Amenities (e.g. toilets, fresh water), and
- Arrows to assist with finding a route out.

Destination Identification

Further and final identification will inform the user when they have arrived at the desired location.

The recognition of the destination depends on either prior knowledge of what the destination looks like, recognising a symbol similarity or upon finding a specific identifying sign.

- Zone name sign or place marker.
- Potentially interpretive information.
- Symbols to identify amenities if required, toilets and BBQ's, and
- Reinforce sense of individuality.

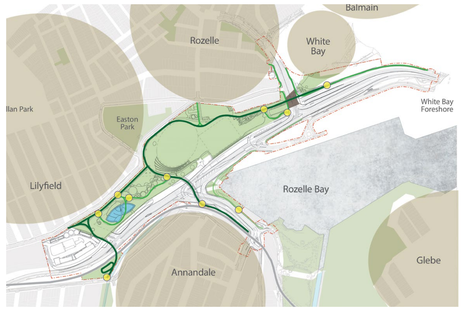


*Figure 12-19: Secondary nodes - minor decision points or reassurance nodes. *Refer to Figure 4-12 for revised layout.*

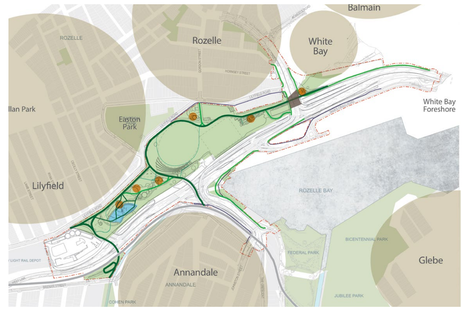


*Figure 12-20: Destination locations. *Refer to Figure 4-12 for revised layout.*

Parkland lighting types

The Project has adopted an integrated approach to lighting in the Rozelle Rail Yards and associated bridges and buildings.

The following list and adjacent description represents the main types of lighting that will be implemented:

- Landmark portal facade and pedestrian bridge lighting
- Constructed wetland and parkland feature lighting
- Sandstone escarpment lighting
- Interpretive rail lighting, and
- Path lighting, which is described in Section 14 of the UDLP.

LANDMARK PORTAL FACADE AND PEDESTRIAN BRIDGE LIGHTING

Portal Facade - Inground LED (RGBW) Up lighting of portal facades from City West Link will be used highlight the architecture.

Pedestrian Bridges - Post top lights will be integrated into the bridge detailing.

Bridge Underpass - Draped LED (RBGW) ceiling and/or wall lighting to create a visual night time effect under Victoria Road Bridge.

CONSTRUCTED WETLAND AND PARKLAND FEATURE LIGHTING

'Reed Lighting - LED (RGBW) Light dots mounted on flexible rods interspersed with the sedge planting around the wetlands will be used to create a fire-fly effect.

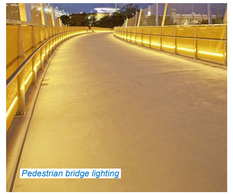
Boardwalk Lighting - LED (RGBW) lighting under boardwalks will reflect water surface and create a 'water glow' effect.

Feature Tree Uplighting - LED uplighting will be used for specific feature trees throughout the parklands

TEXTURAL SANDSTONE ESCARPMENT FEATURE LIGHTING

Inground LED (RGBW) uplighting will be used to reveal natural sandstone 'texture' of the existing escarpment in the Rozelle Rail Yards.

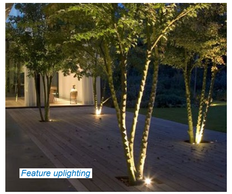

Facade lighting


Pedestrian bridge lighting


Pedestrian underpass lighting


Reed lighting


Boardwalk lighting


Feature uplighting


Sandstone uplighting

INTERPRETIVE 'RAIL' LIGHTING

Rail embedded inground. LED (RGBW) interactive strip lighting will reinforce the former rail yard character. Lighting will be finished flush with ground levels to achieve a seamless and integrated appearance.

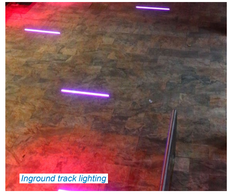

Inground track lighting

Figure 12-21: Parkland lighting types - precedent images only

Wayfinding signage types

A suite of wayfinding signage types have been developed for the Rozelle Rail Yards parkland that respond to the character of the former rail yards. They include:

- Site Arrival
- Decision Point
- Directional Sign
- Node Intersection, and
- Interpretive Signage

The following section provides a functional representation and description of each sign type The final design of each sign is subject to further detailed design and development.



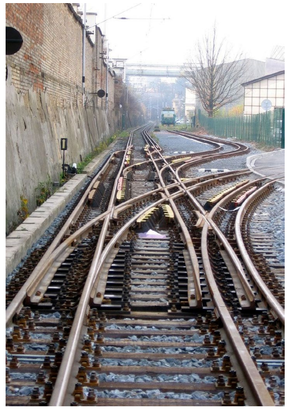




Figure 12-22: Precedent images for wayfinding signage types

SITE ARRIVAL SIGNS

Site Arrival signs are large, easily recognised signs for long distance visibility by pedestrians and cyclists at the major site entry points along the major Active Transport Network routes. The sign family and site brand is firmly introduced into these important structures, giving them a sense of purpose and introduction to visitors of the look and feel of the information elements they will experience once within the site.

Site Arrival signs will display the name of the park and can be appropriately illuminated.

The use of the park name 'Rozelle Rail Yards' is indicative only and subject to change, pending final naming of the park.

DECISION POINTS

Primary directional signs, are the first piece of directional information received by the visitor. This sign establishes directions and distances to major destinations both within and outside the site, with maps to enhance the directional information and show site wide and precinct detail overviews and information symbols.

The primary focus of primary directional signs is to direct visitors to major destinations within the zones. Clutter should be avoided by listing only relevant minor destinations, such as public amenities. The signs are located in close proximity to the entry zones or at the intersections of major pedestrian paths, which require the visitor to make a decision.

Secondary directional signs are located at decision points within a precinct or zone, with the zone name reinforced on the sign, and can be located at pathway junctions entering the zone and where smaller pathways intersect.

Having established the major destinations as the first piece of directional information on primary signs and maps, visitors are more easily able to find their destination at these smaller decision points.



SITE ARRIVAL (MAJOR) SITE ARRIVAL (MINOR) DECISION POINT (PRIMARY) DECISION POINT (SECONDARY)

Figure 12-23: Wayfinding sign types
Note: The use of the park name 'Rozelle Rail Yards' is indicative only and subject to change

DIRECTIONAL SIGNS

Directional signs serve to reinforce directional information between decision points and are most effectively located where there are long distances between other signage.

The signs will display limited information to allow for ease of navigation to key destinations and nearby decision points.

NODE INTERSECTION SIGNS

Node intersection signs identify the turn-off point for individual minor destinations within the zone or precinct.

They are located at path junctions where the visitor would otherwise continue straight ahead and are typically double sided to identify the turn-off in both directions of travel.

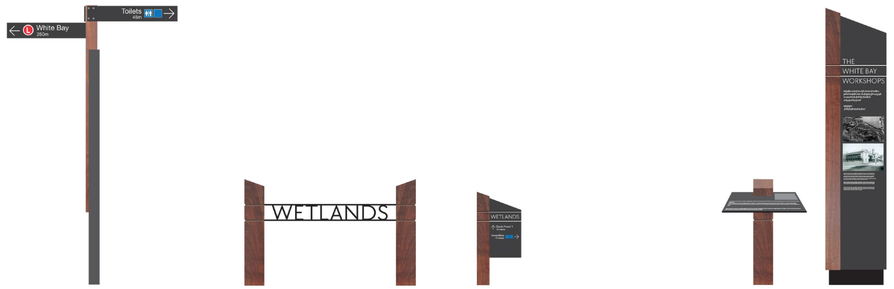
INTERPRETIVE SIGNAGE

Interpretive signage helps people interpret the meaning of an environment, or places within it, by providing information on its history, geography, inhabitants, artefacts, and more.

Sensitive positioning of these signs is important to ensure the relationship of the concept or theme of the place is successfully relayed via the message and images on the sign.

Interpretive signage can vary in size to suit the quantity of information required to display. Two sizes (small and large) are indicated below to demonstrate how they relate to all other signage.

The approach to heritage signage and content is subject to the Heritage Interpretation Plan which does not form part of this UDLP.



DIRECTIONAL SIGNS NODE INTERSECTION INTERPRETIVE SIGNS (SMALL AND LARGE)

Figure 12-24: Wayfinding sign types continued



*Artists impression: Aerial view of Rozelle Rail Yards Parklands from Lilyfield Road. (Landscape shown at full maturity and is indicative only). *Refer Figure 4-12 for revised layout.*

The wayfinding concept plan

The Project has developed the following concept plans, implementing the wayfinding strategies and signage types described earlier in this section.

Signage locations are approximate and subject to further design development.

- Site Arrival (SA)
- Decision Point (DP)
- Node identification (NID)
- Directional Sign - Pole Blade (PB)



*Figure 12-25: Rozelle Rail Yards - Wayfinding concept plan *Refer to Figure 4-12 for revised layout.*

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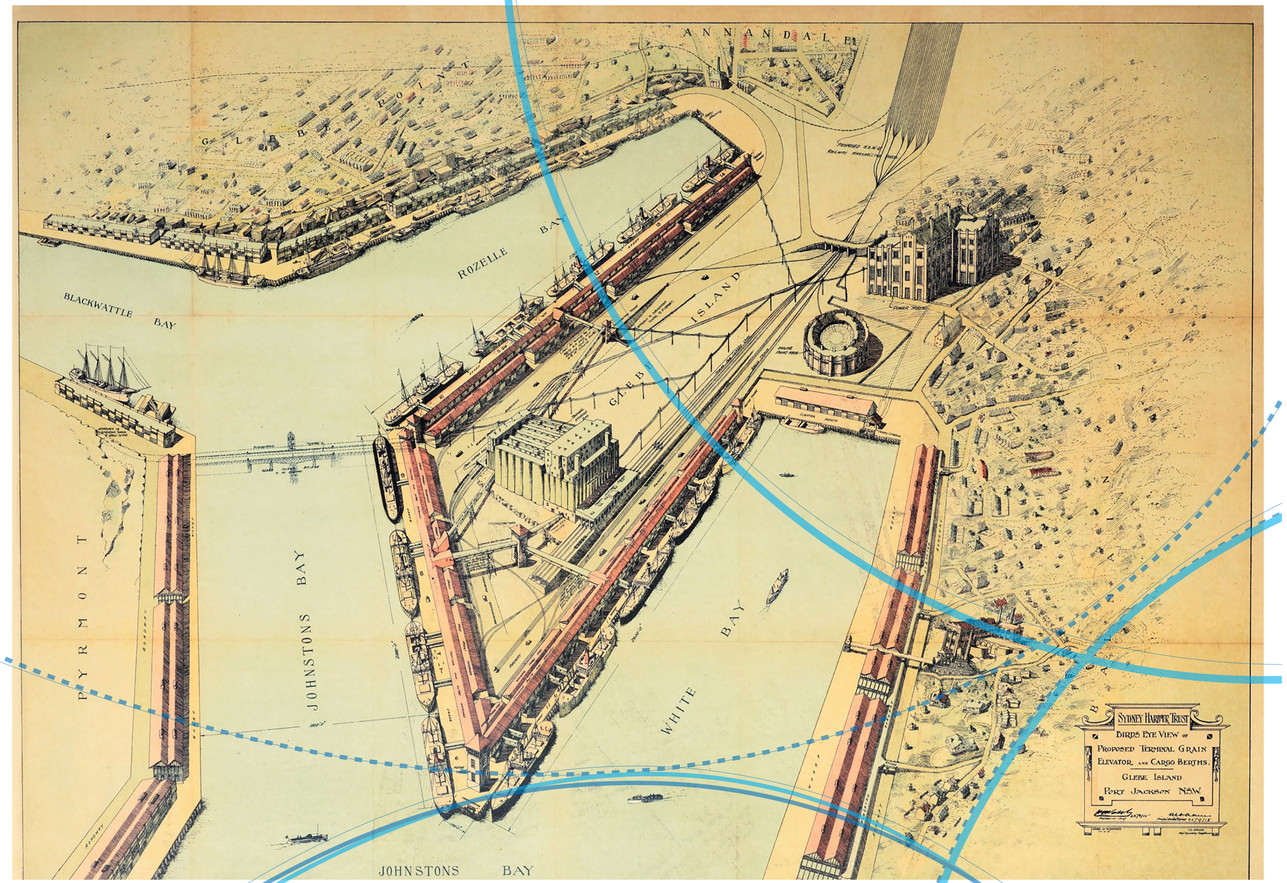
Urban Design and Landscape Plan

Non-Aboriginal Heritage

White Bay Power Station.

13



13 Heritage

13.1 Existing heritage environment

The M4-M5 Link Environmental Impact Statement included an assessment of Aboriginal and non-Aboriginal heritage items, conservation areas and potential heritage items within the project footprint. These items which are affected by are shown in Figures 13-1, 13-2 and 13-3 and are summarised in the adjacent Table 13-1, with the predicted impact.

Table 13-1: Existing heritage items

Name	Location	Registered Listing	Significance	EIS predicted Impacts
White Bay Power Station	Victoria Road and Robert Street, Rozelle (refer to Figure 13-3).	State Heritage Register (SHR) (Item No.01015) SREP 26 (Schedule 4, Part 3, Item No.11) Ausgrid S170 Register (Item No. 74)	**State**	**Minor adverse - Minor encroachment on curtilage and setting**
White Bay Power Station Southern penstock	Rozelle - Located outside the White Bay Power Station heritage curtilage, and identified as being of high significance as an element of the cooling system for the White Bay (refer to Figure 13-3).	Identified as 'potential heritage item' in EIS	State	Minor adverse - Minor encroachment on curtilage, vibration and setting
Hornsey Street Heritage Conservation Area	Rozelle (refer to Figure 13-3).	Leichhardt LEP 2013 (Item no. C19)	Local	Minor adverse - Demolition of a non-contributory building, minor encroachment on curtilage, setting, vibration and settlement
Whites Creek Stormwater Channel No 95	Railway Parade to Parramatta Road, Annandale (refer to Figure 13-2).	Sydney Water S170 (Item No. 457034 3)	Local	Potential moderate adverse - Partial demolition resulting from 'naturalisation' and reshaping of the channel. Setting, vibration
Stormwater Canal	Lilyfield Road, Rozelle (refer to Figure 13-2).	SREP 26 (Schedule 4, Part 3, Item No.6)	Local	Major adverse – full demolition of a section of the channel
'Cadden Le Messurier'	84 Lilyfield Road, Rozelle (refer to Figure 13-2).	SREP 26 (Schedule 4, Part 3, Item No. 3)	Local	Minor adverse - Minor encroachment on curtilage and setting
Former Hotel	78 Lilyfield Road, Rozelle (refer to Figure 13-2).	SREP 26 (Schedule 4, Part 3, Item No.2)	Local	Minor adverse - Minor encroachment on curtilage and setting
Victoria Road bridge	Victoria Road, Rozelle (refer to Figure 13-3)	Identified as 'potential heritage item' in EIS	Local	Major adverse – full demolition
Sandstone cutting within Rozelle Railyards	Near Lilyfield Road, Lilyfield and Rozelle (refer to Figure 13-2 and Figure 13-3)	Identified as 'potential heritage item' in EIS	Local	Moderate adverse – partial demolition
Former White Bay Hotel site foundations (plinth and archaeology	Rozelle (refer to Figure 13-3)	Identified as 'potential heritage item' in EIS	Local	Potential major adverse – full demolition

Table 13-1: Existing heritage items

Name	Location	Registered Listing	Significance	Impacts
Property 260 Victoria Road	260 Victoria Road (refer to Figure 13-1)	Identified as 'potential heritage item' in EIS	Local	Major adverse – full demolition
Property 262 Victoria Road	262 Victoria Road (refer to Figure 13-1)	Identified as 'potential heritage item' in EIS	Local	Major adverse – full demolition
Property 264 Victoria Road	264 Victoria Road (refer to Figure 13-1)	Identified as 'potential heritage item' in EIS	Local	Major adverse – full demolition
Property 266 Victoria Road	266 Victoria Road (refer to Figure 13-1)	Identified as 'potential heritage item' in EIS	Local	Major adverse – full demolition
Property 248 Victoria Road	248 Victoria Road (refer to Figure 13-1)	Identified as 'potential heritage item' in EIS	Local	Major adverse – full demolition
Terraces 250 Victoria Road	250 Victoria Road (refer to Figure 13-1)	Identified as 'potential heritage item' in EIS	Local	Major adverse – full demolition

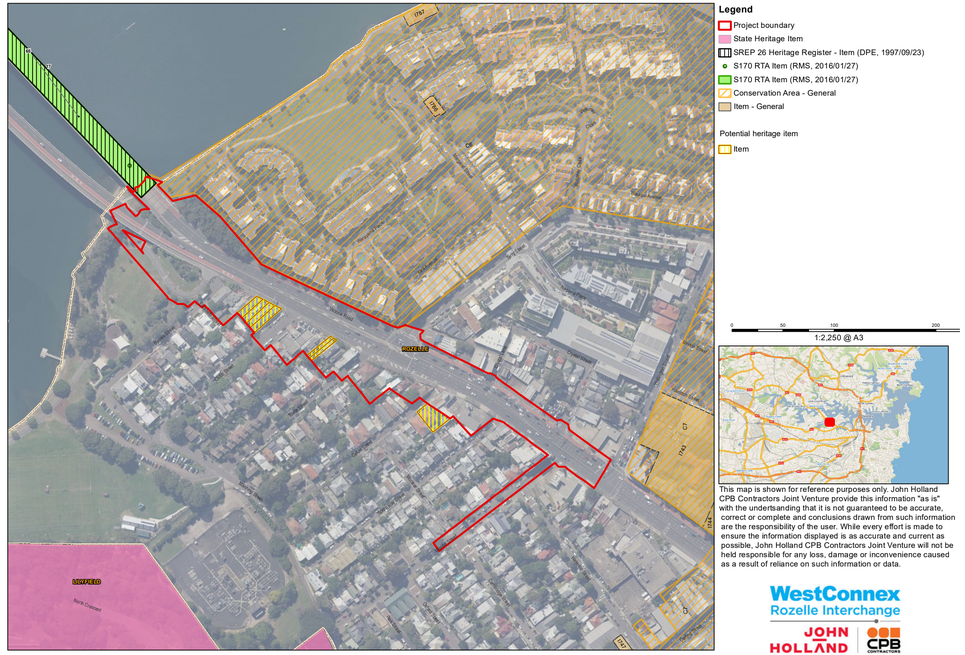
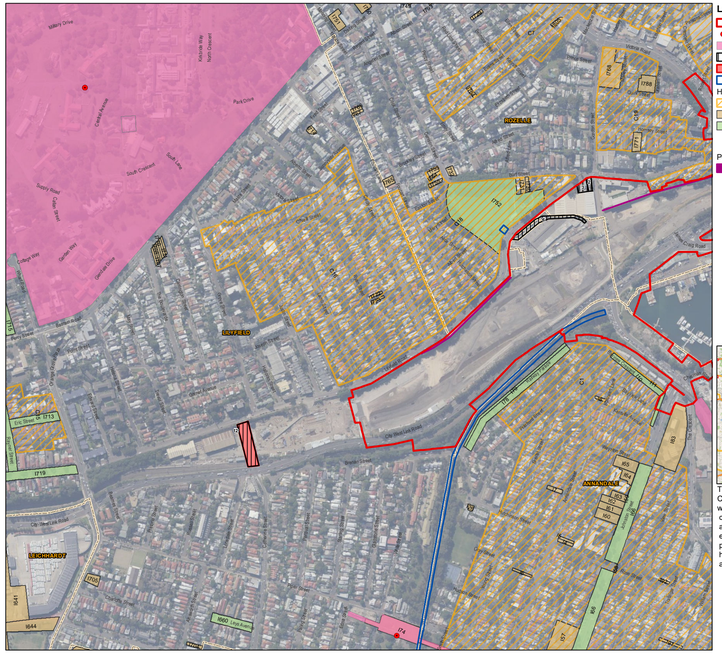


Figure 13-1: Heritage items - Iron Cove



Legend

- Project boundary
- State Heritage Item - centroid
- State Heritage Item
- SREP 26 Heritage Register - Item (DPE, 1997/09/23)
- S170 RailCorp Item (TfNSW, 2016/04/07)
- S170 Sydney Water (SW, 2016/06/30)

Heritage (LEP)

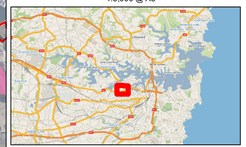
- Conservation Area - General
- Item - General
- Item - Landscape

Potential heritage item

- Sandstone cutting

0 55 110 220 330 440 Metres

1:5,000 @ A3



This map is shown for reference purposes only. John Holland CPB Contractors Joint Venture provide this information "as is" with the understanding that it is not guaranteed to be accurate, correct or complete and conclusions drawn from such information are the responsibility of the user. While every effort is made to ensure the information displayed is as accurate and current as possible, John Holland CPB Contractors Joint Venture will not be held responsible for any loss, damage or inconvenience caused as a result of reliance on such information or data.

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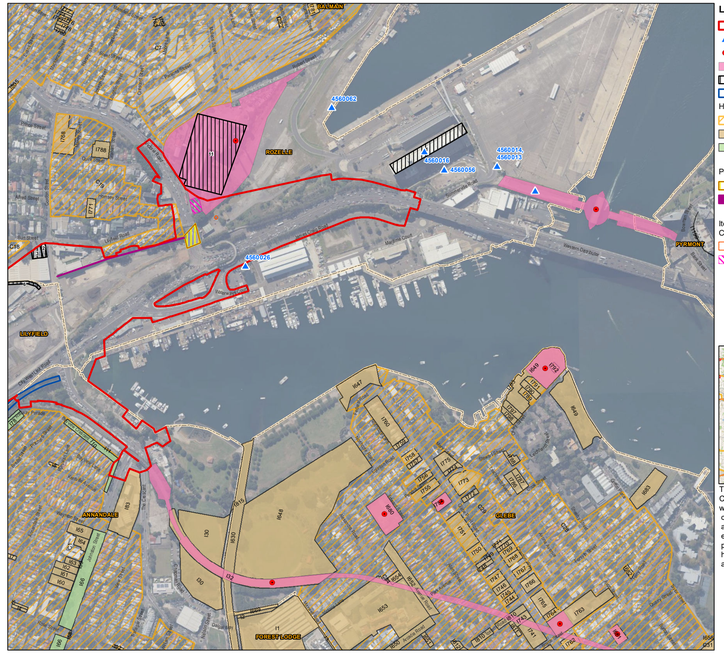
Figure 13-2: Heritage items - Rozelle Rail Yards East



Legend

- Project boundary
- S170 Port Authority Item
- State Heritage Item - centroid
- State Heritage Item
- SREP 26 Heritage Register - Item (DPE, 1997/09/23)
- S170 Sydney Water (SW, 2016/06/30)

Heritage (LEP)

- Conservation Area - General
- Item - General
- Item - Landscape

Potential heritage item

- Item
- Sandstone cutting

Item listed under the White Bay Power Station Conservation Management Plan (CMP)

- Southern Penstock
- Former White Bay Hotel

0 55 110 220 330 440 Metres

1:5,000 @ A3

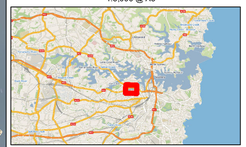


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Figure 13-3: Heritage items - Rozelle Rail Yards West

13.2 Reuse of heritage items

Prior to the commencement of the Rozelle Interchange project site management works were undertaken at the Rozelle Rail Yards site, which included the removal of a lighting tower and rail gantry associated with previous uses of the site. During the demolition of potential heritage buildings for the project a heritage consultant identified salvageable elements and materials which support good conservation outcomes.

The project will consider opportunities to reuse these items salvaged, with the following process undertaken as outlined in the Heritage Management Plan:

- The project team will identify potential feasible options for the sympathetic reuse of salvaged items within permanent works
- Salvaged elements identified by the urban design and landscape architects to be capable and appropriate for reuse would be reused within permanent works (e.g. sandstone blocks and bricks), and

The project is currently exploring options that include but are not limited to:

- Re-use of salvaged heritage items: this could include utilising railway tracks as a wayfinding technique by installing sections flush with footpaths throughout the parklands
- Interpretive signs: these could take a number of forms, ranging from small scale identification plaques through to large scale information boards. These signs would include themes and stories including the Rozelle railways historic functions, trains and trams, transport, industrialisation and The Rozelle-Darling Harbour Goods Line
- Plaques: these could include the re-use of the Beatrice Bush plaque in an appropriate location within the parklands in consultation with the local community.


78 Lilyfield Road - Former hotel


Heritage terraces along Lilyfield Road


White Bay Power Station


Rail yards and contextual views to Harbour Bridge


84 Lilyfield Road - 'Cadden Le Messurier'



Historical image of Rozelle Rail Yards.

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Urban Design and Landscape Plan

Lighting

Artist's impression: Iron Cove Link Portals at night



M4 East Portals constructed on a previous stage of WestConnex

14 Lighting

14.1 Overview

The performance criteria for the road and public space lighting schemes aims to facilitate safe movement, discourage of illegal acts and contributes to the amenity of an area through increased aesthetic appeal.

The objective of the road lighting design is to provide a lighted environment that is conducive to the safe and comfortable movement of vehicular and pedestrian traffic at night and discourages of illegal acts, while protecting the integrity of the night time environment through control of light spill and glare.

The lighting design seeks to reveal necessary visual information to accomplish these performance criteria and objectives, together with the road users including pedestrians, cyclists and vehicles, their movements, and other animate or inanimate obstacles.

Operational lighting has been designed in a way that minimises wasted light and energy, especially upward light that produces sky glow, and considers the life cycle energy usage of the lighting scheme to limit the associated greenhouse gas emissions.

Operational lighting across the project generally falls into six lighting types:

- Street lighting for surface works including roadways
- General external areas lighting for service facilities
- Pedestrian and cyclist paths lighting
- Tunnel lighting (not included within this report)
- Feature lighting on bridges, tunnel portals and within the Rozelle Rail Yards parkland and
- Sports field lighting at Rozelle Rail Yards parkland which has been designed in accordance with AS/NZS 2560.2.1 for a semi-professional level competition.



Figure 14-1: Road Lighting - M4 East Project

14.2 Lighting types

Street Lighting

Street lighting across the project has been designed in accordance with AS/NZS 1158 Series Lighting for Roads and Public Spaces which requires a Category V3 lighting system for all main roads street lighting. Category V3 lighting is acknowledged to be an effective accident counter-measure. It has been demonstrated that Category V 3 lighting can provide significant community benefits.

Poles and luminaires are required to be in accordance with RMS or Ausgrid standard specifications and generally consistent with the existing street lighting in the area. Poles are of the galvanised steel or timber type with heights and outreach arms to RMS or Ausgrid specifications. Poles and outreach arms have been selected to achieve a typical luminaire mounting height of 12m. Outreach arm lengths are limited to a maximum length of 6m in order to maintain the required overhang for the various locations.

Where possible poles have been positioned outside of the clear zone. In some circumstances poles may be mounted on or behind retaining walls and barriers. On bridges, poles will be aligned behind the bridge rail. Roadway luminaires are to RMS or Ausgrid specifications, incorporating long life and high efficient LED luminaires with lens based optics and flat glass visor to provide high quality installation with reduced glare and reduce spill light onto properties abutting roads.

Street light locations are shown in the adjacent figures.



Figure 14-2: Rozelle street lighting locations and lighting assessment

Pedestrian and Pedal Cyclists Paths

Pedestrian pathways are provided with lighting that meets Austroads Guide to Road Design, RMS supplements, and AS/NZS 1158.3.1 - Lighting for roads and public spaces. Where pathways are located directly adjacent to lit Category V3 roadways no additional lighting has been provided for the pathway as it is deemed not required.

Cyclists' paths have been designed with lighting to provide 24 hours a day safety to the performance requirements of Table 4.5 in Austroads Guide to Road Design Part 6B: Roadside Environment.



Figure 14-3: Iron Cove street lighting locations and lighting assessment

General extent area lighting for all service facilities

General external area lighting will be provided where necessary for safety and security at the various motorway service facilities including:

- Rozelle Ventilation Building
- City West Link Incident Response Unit
- Rozelle Rail Yards parkland and amenity building
- Iron Cove Link Ventilation facility
- Rozelle West Motorway operations complex.

Feature lighting

Feature lighting has been included on bridges, tunnel portals and within the Rozelle Rail Yards parkland and contributes to the amenity of these elements through increased aesthetic appeal.

Where possible, the project has sought to make bridge safety lighting a feature which is elegantly and subtly design to consider the neighbourhood surrounding by focussing the lighting of the bridge. Further detail of this lighting is provided within section 8.

Each tunnel portal will include subtle feature lighting on each entry and exit. This provides night time interest and present a memorable experience that will brand the WestConnex motorway within the wider Sydney road network. The lighting consists of LED strip lights that are concealed in a shallow rebate within the tunnel dive approach walls. Further detail of this lighting is provided in Section 6.

Feature lighting has been included within the Rozelle Rail Yards parkland to contribute to Wayfinding within the parkland. This lighting seeks to establish landmarks at night, reinforce primary pedestrian and cyclist paths and accentuate the lead-up to decision points. Further detail of this lighting is provided in Section 12.



Figure 14-4: Artists impression: M4-Anzac Entry Portal

14.3 Operational lighting impacts

The operational lighting design for the Rozelle Interchange project was assessed to determine impacts of lighting on residents in the vicinity of the project.

The MCoA E122 requires the Project be designed with the objective of minimising light spillage to residential properties. All lighting associated with the construction and operation of the CSSI must be consistent with the requirements of Australian Standard 4282-1997 Control of the obtrusive effects of outdoor lighting and relevant Australian Standards in the series AS/NZ 1158 – Lighting for Roads and Public Spaces.

Section 1.4.10 of AS4282:1997 defines public lighting as including lighting provided for the purposes of all-night safety and security on public roads. Public lighting has been excluded from the light spill requirements of AS4282 as such lighting is provided to facilitate all-night safety and security for the public at large.

Based on this the project lighting is deemed consistent with the requirements of Australian Standard 4282-1997 Control of the obtrusive effects of outdoor lighting. Notwithstanding this, the lighting design for the Rozelle Interchange project has been reviewed against the location of potentially affected residential properties. Further assessment was completed for the Iron Cove and Rozelle zones and is outlined below.

The assessment shows the worst case scenario and doesn't take in account the shielding that will be provided by existing and proposed vegetation, buildings and building facades, fences, noise walls and other obstructions.

Assessment of light spill

The project assessed light spill at representative locations within the Iron Cove and Rozelle zones; an assessment was not completed if there were no residential receivers adjacent to and in the vicinity of the project.

Light poles on Project roads have been positioned to ensure the lighting system is compliant with Category V3, in accordance with AS/NZS 1158. As a result of these changes some residents will experience greater illuminance and some less illuminance, therefore changes in illuminance have been averaged within sections of project roads.

The assessment calculations are for direct illuminance from the lights and does not consider existing obstacles and shielding elements such as awnings, trees, fences, etc. within residential properties, therefore the assessment is considered to be conservative and worst case.

Where the existing luminaire model and lamp data cannot be obtained from visual inspection, the supply authority GIS data has been consulted for lamp data and a luminaire of the same type has been used in the assessment.

The sports field lighting design has been assessed against the requirements of AS/NZS 4282:2019 for Class R3 - Residences.

Light spill mitigation

AS/NZS 1158 Series - Lighting for Public Roads and Spaces defines the general objective of Category V 3 lighting system as making possible the safe and comfortable movement of vehicle and pedestrian traffic and the discouragement of illegal acts. This is achieved by the lighting system revealing visual information such as the road itself, the road ahead, kerbs, footpaths, property lines, road furniture and surface imperfections, together with road users including pedestrians, cyclists, vehicles and their respective movements.

The Category V 3 lighting system used on the project will protect the integrity of the night environment through the control of upward wasted light. The visual requirements of motorists will predominate in a Category V 3 lighting system.

The principal design objectives of a Category V lighting system are defined in AS1158.1.1:2005 as follows:

- Luminance and luminance uniformity of carriageways to specific levels
- Glare control to specific levels
- Illuminance at intersections, verges and other locations
- Limitation of upward light from luminaires to a specific level
- A maintenance regime whereby the lighting performance complies at all times during the maintenance cycle and
- Minimising energy consumption.

Other factors also considered during the development of the operational lighting design included:

- Reliability and maintainability
- Enhancement of the visual amenity of the traffic route by aesthetics of the installation, including the use of white light
- Life cycle costs and
- Limitation of obtrusive light onto abutting properties.

Considering the results of the assessment completed, and the design objectives within AS1158.1.1:2005, the project has identified and implemented the following mitigation measures to reduce excessive spill light:

- Light poles selected are typically 12m in height to maximise the allowable space between luminaires and minimise light spill impacts, whilst still complying with AS/NZS 1158, public lighting specifications and RMS specified lighting categories
- The project has selected a luminaire with a flat horizontal LED housing to direct the light in the downward direction. Of the LED luminaires which are mandated by RMS and Ausgrid the option selected is the least obtrusive and therefore will minimise light spill impacts on receivers
- Sports field lighting has been designed to include both a timer and manual switch to control operation of the lights.

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Rozelle Interchange

Urban Design and Landscape Plan

Monitoring and maintenance

15



Artist's impression: Aerial view over Rozelle Rail Yards Parklands (landscape shown at full maturity and is indicative only).
**Refer to Figure 4-12 for revised layout.*

15 Implementation and monitoring

15.1 Timing of access, landscape and open space initiatives

Access to open space will be provided following completion of all landscaping works It is anticipated the Rozelle parklands landscaping will be complete in January 2024.

Following handover of the Rozelle Rail Yards, TfNSW will be completing further enhancement of the facilities within the parklands. It is anticipated that the works will be complete by January 2025.

15.2 Monitoring and maintenance procedures for the built elements

Prior to the commencement of operation of the Project an Operations and Maintenance Manual will be developed which provides details procedures for the monitoring and maintenance of built elements throughout the Project. Monitoring and maintenance requirements have been summarized in Table 15-1 and will be included in detail in the Manual.

Table 15-1: Rozelle Interchange - Summary table of landscape and built element maintenance required

MAINTENANCE ACTIONS	TASKS	TIME FRAMES / FREQUENCY							
		Weekly	Monthly	Seasonal				As required	As specified below
				Sum	Aut	Win	Spr		
CIVIL STRUCTURES INCLUDING BRIDGES, RETAINING WALLS, PRECAST PANELS AND FIXINGS ALL AREAS									
1. Detailed inspections	Cursory inspection involving visual inspection, photographic documentation and reporting on the condition of major elements, e.g. girders, headstocks, abutments, linings, sour protection, embankment								Every two years
	Detailed inspection involving visual inspection, photographic documentation and reporting on the condition of major elements including measurements of defects, e.g. cracks, settlement								Every two years
	Evidence based inspections and testing which may include testing of materials, surveys and measurements.								Where evidence of deterioration or an anomaly is present.
2. Graffiti	Inspect walls for graffiti and remove as soon as possible.		■						
FACILITY BUILDINGS									
1. Inspections	Visual inspection for signs of damage including cracking, discolouration, settlement, stability, leakage, rust, defects, and termites),		■						
2. Cleaning	Cleaning of the building and fittings, including toilets, hand dryers, surfaces, air conditioning								Various
3. Inspect, clean and repair	Inspect, clean and if needed repair damage to external stone paving and flooring and interlock blocks		■						
	Inspect clean and if needed repair damage to sand trap louvers		■						
	Clean, inspect and if needed repair damage to external metal panels, canopy panels, joints and supports		■						
	Sweep roof gutters for dust, sand and debris; check for damage, corrosion, and signs of leakage; clean gutters, downpipes, drains, outlet points and manholes								3 monthly
4. Pest and vermin control	A pest and vermin control program will be developed and implemented with advice from a Pest Control Contractor								As Required
FENCES									
1. Inspections	Inspect all posts, fence panels and fixings for signs of damage, discolouration, tension, rust; if damage is identified, maintain and/or replace to ensure the motorway facilities and the City West Link corridor is not accessible.								3 monthly
2. Maintenance	Lightly oil gate mechanisms and wipe out extra oil								3 monthly

Table 15-1: Rozelle Interchange - Summary table of landscape and built element maintenance required

MAINTENANCE ACTIONS	TASKS	TIME FRAMES / FREQUENCY							
		Weekly	Monthly	Seasonal				As required	As specified below
				Sum	Aut	Win	Spr		
ALL AREAS									
1. Pruning of vegetation for safety	Maintaining driver sightlines		■						
	Pruning trees over carriageways, roads, paths and cycleways.							■	
2. Management of non-frangible vegetation	Remove woody “non-frangible” vegetation in setbacks								Once a year
3. Noxious weed control	Treat noxious weeds according to control category		■						
4. Rubbish removal	Remove all roadside litter and debris.	■							And prior to mowing
5. Mowing verge areas (applies to turf species only)	Maintain a 2m wide mown strip to the edge of all road surfaces								When growth exceeds 100mm high
	Mow grass to a maximum height of 50mm								
6. Auditing and reporting	Audit and report on maintenance and additional works								Monthly
MULCHED MASSED PLANTING AREAS									
1. Watering	Water hydromulched areas as required to germinate seed and maintain healthy growth. Ensure that a distinct level of moisture in the soil is maintained at all times and that plants do not dry out during this period. The frequency of watering may be varied during periods of adequate rainfall.								
	First 8 weeks after planting - 20 litres per plant	■							
	Thereafter to 26 weeks after planting – 10 litres per plant At 14 day intervals								At 14 day intervals
2. Weeding	Weed planting areas (manual or herbicide) before weed seed set.		■						
	Replace landscape planting damaged or killed by herbicide							■	
3. Mulching	Reapply mulch to maintain to a depth of 10cm							■	
4. Removal of dead / dying plant material	Remove dead or dying planting material and replace.							■	
5. Replacement plantings	Replace failed plantings with specified species and densities.							■	
	Water replacement plantings as listed in item 1								As listed in item 1
6. Tree guards and stakes	Replace damaged tree guards and stakes during establishment							■	
	Remove tree guards and stakes.								12 months after planting is established as required to maintain healthy condition

Table 15-1: Rozelle Interchange - Summary table of landscape and built element maintenance required

MAINTENANCE ACTIONS	TASKS	TIME FRAMES / FREQUENCY							
		Weekly	Monthly	Seasonal				As required	As specified below
				Sum	Aut	Win	Spr		
7. Horticultural maintenance	Fertilise all plantings at specified rates.						■		
	Prune all plantings in specified manner:								
	Canopy trees							■	
	Sub-canopy trees / large shrubs							■	
	Low shrubs								Annually after flowering
	Climbers						■		Annually After flowering
	Grasses and ground covers				■				Every 4 years
TREE PLANTINGS									
1. Watering	Water plants to maintain adequate soil moisture availability during establishment and to prevent plants from drying out:								
	first 8 weeks after planting - 20 litres per plant	■							
	thereafter to 26 weeks after planting – 10 litres per plant At 14 day intervals								At 14 day intervals
2. Weeding	Weed mulch pads to spot plantings (manual or herbicide) before weed seed set.								
	Replace landscape plants damaged or killed by herbicide.							■	
3. Mulching	Reapply mulch to maintain to a depth of 10cm to an area 1.0m in diameter around each plant								Every 2 years
4. Removal of dead / dying plant material	Remove dead or dying planting material and replace.							■	
5. Replacement plantings	Replace failed plantings with specified species and densities.							■	
	Water replacement plantings as listed in item 1								As listed in item 1
6. Tree guards and stakes	Replace damaged tree guards and stakes during establishment.							■	
	Remove tree guards and stakes.								12 months after planting
7. Horticultural maintenance	All tree management assessment and reporting activities to be undertaken by Level 5 Arborist or Arboriculturalist. Fertilise all plantings at specified rates.						■		As required to maintain healthy condition
	Prune all plantings in specified manner:								
	Canopy trees							■	
	Sub-canopy trees / large shrubs							■	

Table 15-1: Rozelle Interchange - Summary table of landscape and built element maintenance required

MAINTENANCE ACTIONS	TASKS	TIME FRAMES / FREQUENCY							
		Weekly	Monthly	Seasonal				As required	As specified below
				Sum	Aut	Win	Spr		
TURFED AREAS									
1. Watering	Water turf to maintain adequate soil moisture availability during establishment and to prevent turf from drying out								
	Water the turf immediately after laying until the underlay is moistened to its full depth. Continue watering every second day for the first fourteen (14) days, then at regular intervals until the turf is established.								Daily
	Thereafter								As required until turf has taken root and is making healthy growth When growth exceeds 75mm
2. Mowing	Mow grass to a maximum height of 50mm When growth								
3. Replace damaged turf	Remove damaged areas of turf and replace with new turf							■	
4. Weed control	Control weeds in turf areas using selective herbicide		■						
PLAY AREAS AND EQUIPMENT									
1. Inspections and reporting	Visual inspections to identify developing issues for safety of play equipment including wear and tear of structures, moving parts, ropes cables etc. To be undertaken in accordance with play equipment supplier general maintenance instruction.	■							
	Visual inspection and maintenance log		■						
	Annual comprehensive inspection and reporting								Annually and/or in accordance with supplier general maintenance instruction.
2. Cleaning	Remove soil, leaves and debris on or around equipment	■							
3. Inspect, clean and repair	Inspect, clean and if needed repair damage to playground equipment							■	
	Check for broken, loose or missing parts and repair necessary in accordance with manufacturers recommendations							■	

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Transport for NSW

MCGREGOR COXALL



PEDESTRIAN & CYCLE IMPLEMENTATION STRATEGY ROBERT STREET TO SPRINGSIDE STREET

Ministers' Condition of Approval E58, SSI-7485

Prepared for Transport for NSW by McGregor Coxall

Project No: 0832SYD **Report Contact:** Logan Pennington

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1.0 INTRODUCTION

1.1 BACKGROUND

As stated in the Westconnex M4-M5 Link Environmental Impact Statement (EIS) Vol 2F, Appendices L-N, NSW Roads and Maritime Services [RMS] have the approval to construct and operate the Westconnex M4-M5, which would comprise a new multi-lane road link between the M4 East Motorway at Haberfield and the New M5 Motorway at St Peters. RMS have gained approval to also include an interchange at Lilyfield and Rozelle [the Rozelle interchange] and a tunnel connection between Anzac Bridge and Victoria Road, east of Iron Cove Bridge [Iron Cove Link]. In addition, construction of tunnels, ramps and associated infrastructure to provide connections to the proposed future Western Harbour Tunnel and Beaches Link project would be carried out at the Rozelle interchange.

Together with the other components of the Westconnex program of works and the proposed future Sydney Gateway, the project would facilitate improved connections between western Sydney, Sydney Airport and Port Botany and south and south-western Sydney, as well as better connectivity between the important economic centres along Sydney's Global Economic Corridor and local communities.

What is Active Transport?

Active transport is non-motorised forms of transport which include physical activity, for example walking or cycling. An Active Transport Network [ATN] provides infrastructure to enable convenient, pleasant and safe walking and cycling trips.

Westconnex and Active Transport

Inner Sydney and inner western Sydney has had significant increase in active transport and there has been significant growth over the last 10 years in trips undertaken by active transport. This growth has occurred due to a combination of the provision of infrastructure, changing inner Sydney demographics, and in-fill development in the region. A significant barrier to increased active transport is the lack of adequate infrastructure.

Cycle and pedestrian paths form part of the Westconnex project to improve connectivity and safety and contribute to the wider ATN.

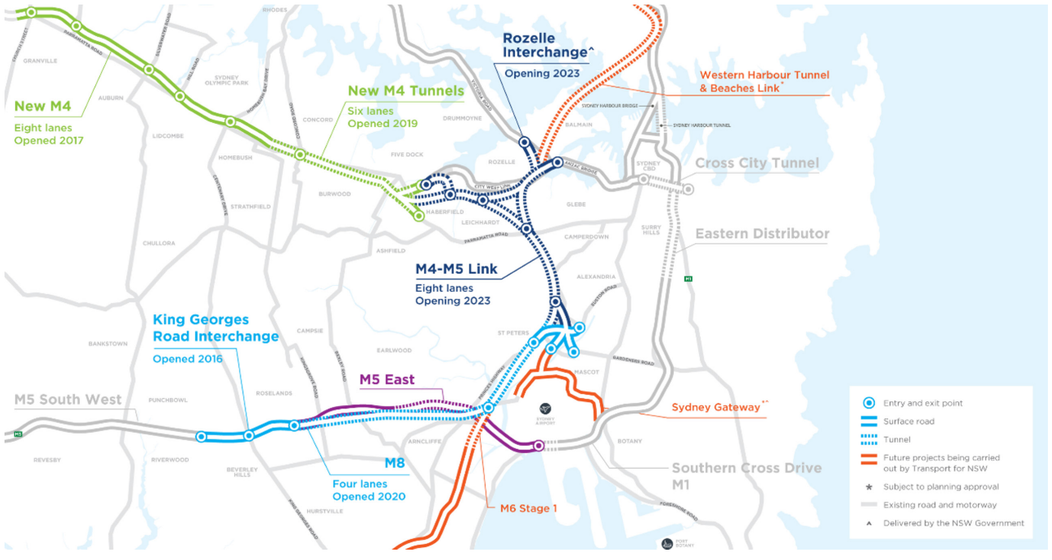

Figure 1.1 - Westconnex projects

1.2 PURPOSE OF REPORT

The purpose of this Pedestrian and Cycle Implementation Strategy is to improve the connectivity between Roberts Street and Springside Street as required under Condition E58.

This Pedestrian and Cycle Implementation Strategy seeks to gain approval for Planning Condition E58 which forms a part of the 'Pedestrian and Cyclist Access Requirements of the Westconnex M4-M5 Link Instrument of Approval.'

This 'Pedestrian and Cycle Implementation Strategy – Robert Street and Springside Street' forms a part of the Pedestrian and Cycle Implementation under Condition E60 and incorporated under the Urban Design and Landscape Plan.

Planning Condition E58

The following outlines Planning Condition E58:

The proponent must provide improved connectivity for cyclist and pedestrians between Robert Street and Springside Street, and incorporate these in the Pedestrian and Cycle Implementation Strategy required by Condition E60. Note, this condition does not specifically require work to be undertaken in the Victoria Road reservation, but could include works on the parallel local road network.

Figure 1.2 illustrates the connection as specified by the Planning Condition E58.

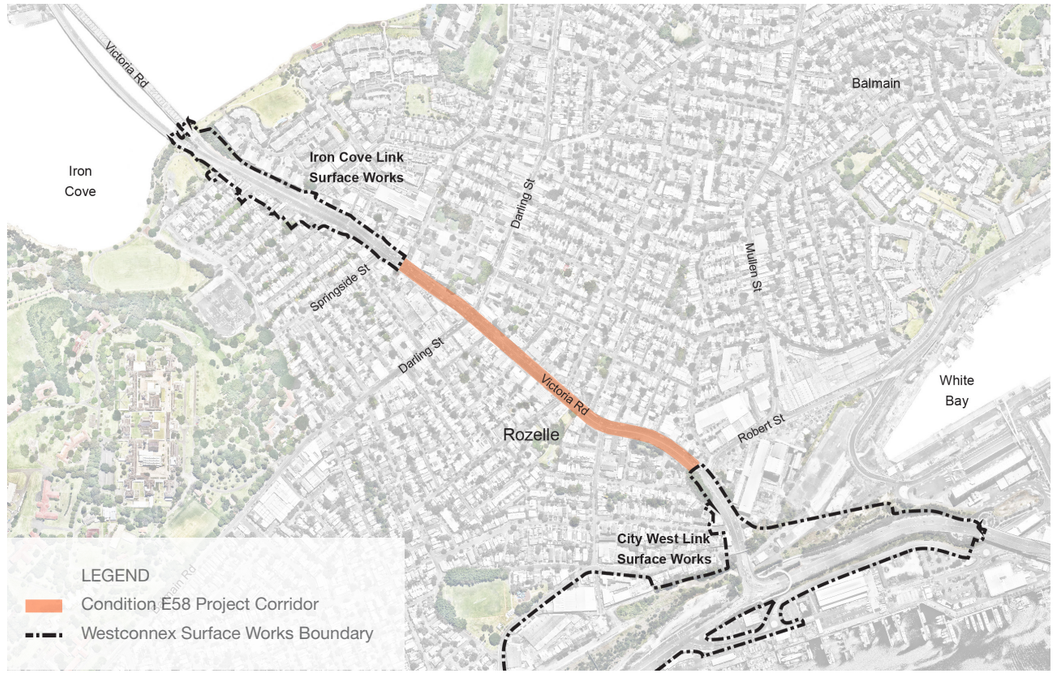

Figure 1.2 - Condition E58 project corridor

1.3 IRON COVE LINK

The new Iron Cove Link works will improve the local pedestrian and cycle network which includes the following:

- Shared pedestrian and cycle path along the western side of Victoria Road between the Iron Cove Bridge (west-bound) and Springside Street
- New pedestrian and cycle crossing Victoria Road.



Figure 1.3 - Iron Cove Link key plan [extract from Rozelle Interchange package: 30_36 - ICL - Urban Design]

1.4 ROZELLE PARKLANDS

The new Rozelle Parklands will improve the local pedestrian and cycle network for local communities as well as neighbouring communities. The upgrades include the following:

- Improved connections for pedestrians and cyclists to the Anzac Bridge from Balmain, Rozelle, Lilyfield Glebe, Pyrmont and the CBD
- New pedestrian and cycle links into the Rozelle Parklands
- Improved road crossings for pedestrians and cyclists at The Crescent and The City West Link.

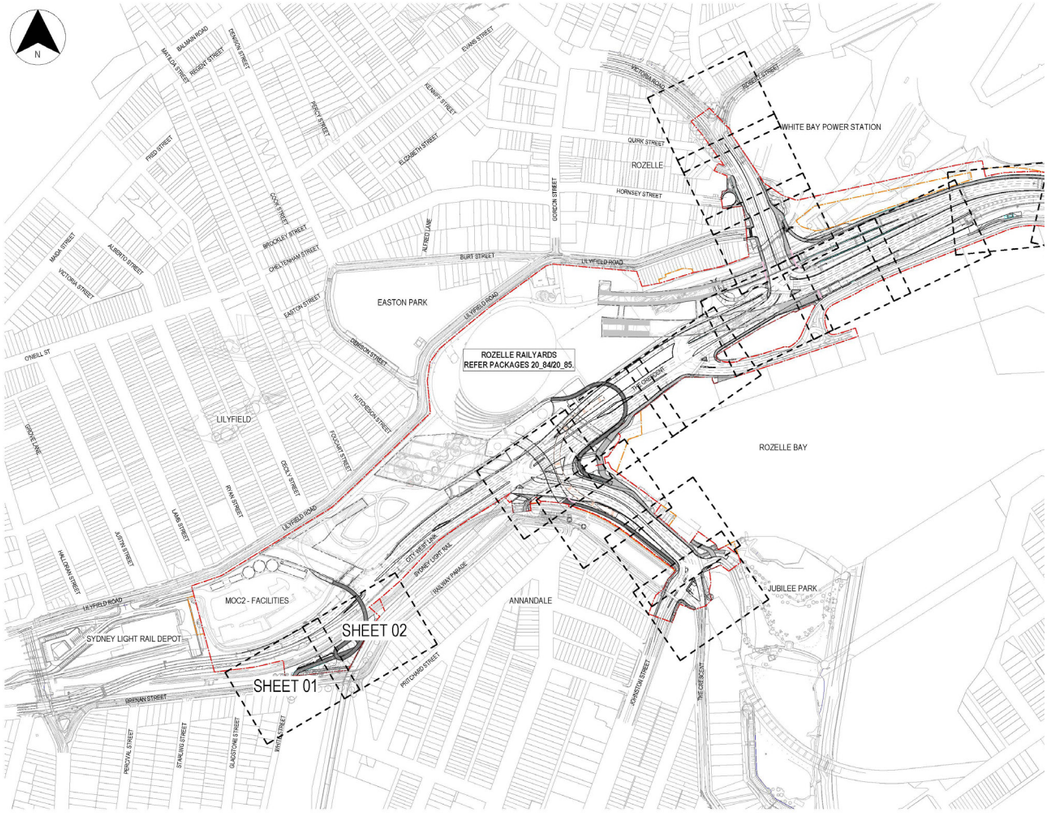

Figure 1.4 - Rozelle Interchange key plan [extract from Rozelle Interchange package: 20_83 Rozelle Local Roads - Urban Design]

2.0

STAKEHOLDER ENGAGEMENT

2.1 STAKEHOLDER CONSULTATION MEETING

A stakeholder consultation meeting was held on the 21st of May, 2021 with representatives from Inner West Council, Bicycle NSW, TfNSW and McGregor Coxall. The list of attendees are shown in table 2.1.

The meeting was undertaken to present an analysis of the existing ATN, discuss route explorations and highlight proposed pedestrian and cycle infrastructure upgrades throughout the project study area.

Infrastructure upgrades were proposed at 5 key locations. The feedback on these proposed upgrades are as follows:

Moodie Street

- Inner West Council are currently reviewing a separate proposal to close the left turn off Moodie Street to Victoria Road. Further discussion on this required and to be consolidated during design stage

Belmore / Waterloo Streets

- Bicycle NSW concerned that without physically separated cycleway for the contraflow, cars may swerve into cyclists travelling into the opposite direction
- Suggestion that an "Orca" product is implemented. Similar product is provided on High Street
- There is a general need for signage and education to change drivers expectation on the street.

Belmore / Evans Streets

- A raised threshold across the entire intersection was preferred by Inner West Council
- Noted that there is a loss of 4 parking spots, however safety improvements at the intersection for cyclists and pedestrians is the priority. Adjacent properties have their respective off-street parking spots
- Suggestion that a crash map is provided to show that the upgrade is not just for cyclists, but also car safety.

Quirk / Gordon Streets

- Inner West Council and Bike NSW supportive of minor upgrades to enhance cycle safety.

Quirk Street at Victoria Road

- Discussion led to further detail required regarding the left turn into Quirk Street and its potential removal to become a left out on to Victoria Road only.

Victoria Road Route

- TfNSW identified the potential to provide a raised threshold across Springside Street at Victoria Road
- Bicycle NSW noted that non-signalised intersection on Victoria Road and would like a formal 'give way to pedestrians and cyclists' to be implemented
- Bicycle NSW and Inner West Council identified that the footpath surface on Victoria Road is currently inadequate. TfNSW to review and propose re-paving of footpath surface
- A key point that the proposed 'side streets' are a longer route for cyclists. Therefore consideration will be needed to persuade cyclists to use the this route by creating less conflicts, no dismounting and safer route.

Additional discussions included the following:

- Bicycle NSW and Inner West Council attendees had no objection and are supportive of the proposed strategy noting that further design is needed.

In summary, officers of Inner West Council and Bicycle NSW are in support of the proposed route, noting that there are a couple of intersections / design to be further developed. Additionally, TfNSW are considering improving active transport on the Victoria Road corridor itself through the Victoria Road Strategic Business Case.

For further information (see Document No. 1 for meeting minutes and Document No. 2 for presentation).

Company	Attendees
Inner West Council	– Ken Walsh – Manod Wickramasinghe – Brigid Kelly
Bicycle NSW	– Bastien Wallace
TfNSW	– Elisha Pearce – James Naylor – Justin Lo – Leon Paap
McGregor Coxall	– Matt Ritson – Logan Pennington

Table 2.1 - Stakeholder workshop attendees

2.2 STAKEHOLDER CONSULTATION DURING DETAILED DESIGN

During 2023 TfNSW consulted Bicycle NSW and IWC on the outcomes of detailed design. This has included some changes due to safety is design risk assessments, constructability issues and road safety audit.

For the local roads running parallel to Victoria Road, this includes:

1. Separation of bicycle lanes onto either side of Moodie Street.
2. A change from bidirectional cyclist traffic on Belmore Street to one directional cyclist path in line with the one way traffic on Belmore Street and Red Lion Street.
3. Redesign to avoid permanent removal of 2 car spaces.
4. Cycleway traffic from Quirk Street to Victoria Road re-routed to Quirk Street to Gordon Street which connects into shared pedestrian/cyclist paths within Rozelle Parklands.

For Victoria Road East, this includes:

5. Removal of pram ramp widening at the Wellington Street crossing;
6. Removal of additional signalised crossing button at the holding location for cyclists; and
7. Removal of phased signalised intersection to give cyclist priority.

Council and Community

Key feedback from IWC was a request for traffic calming measures and community consultation for the Pedestrian and Cyclist Improvement Strategy works in the local roads.

TfNSW conducted a 'Have Your Say' survey (May- July 2023) to gauge community views about pedestrian and cycleway improvements on local streets including the need for additional speed calming measures. For further information see *'Have Your Say' community survey. https://yoursay.transport.nsw.gov.au/rozelle-interchange.*

The survey (and map detailing the design) were promoted via community notifications delivered via a letterbox drop (1200 households on affected streets) targeted emails (distributed to 4,000 households) street meetings (three) and social media.

In addition to local residents, survey respondents included were bike riders from Ashfield, Wollongong, Russell Lea, Drummoyne, Concord, Petersham, Forest Lodge, Haberfield, Summer Hill, Dulwich Hill, Wareemba, and Epping.

The Community largely supported the improvements with 70% supporting the addition of traffic calming measures. TfNSW received community and Council support for the planned improvements and was able to retain the Evans Street car space following community feedback concerning road safety and parking issues associated with deliveries and visitors to the Three Weeds Hotel.

Bicycle NSW

Bicycle NSW (CEO Peter McClean, Head of Advocacy Mr Francis O'Neill, and active transport planner Sarah Bickford) expressed that a dedicated cycleway on Victoria Road was a higher priority than cycleway improvements on local streets. For further information refer to *Presentation to Bicycle NSW on Community engagement.*

Council and Bicycle NSW

The proposed final design was supported by Inner West Council following a formal presentation outlining the technical merits of the design and community sentiment to the Local Traffic Committee (LTC) on 17 July 2023. This meeting was also attended by Bicycle NSW representatives. For further information see *IWC LTC Meeting Minutes 17 July 2023 and TfNSW Response to LTC Recommendations*.

3.0

SAFETY & ENGINEERING STANDARDS

3.1 SAFETY AND SECURITY

As noted in the NSW Bicycle Guidelines (RTA, 2005), safety is a key design principle for the bicycle network transport system. When designing the landscape for off road paths, public safety issues should always be considered. To create an open, easily supervised environment that discourages anti-social behaviour, planting should be carefully placed so as not to constrain or hide the path from public view. Landscape that opens up the path to views of the surrounding locality and creates good sight lines for riders and walkers is more likely to diminish community concerns that the path may be unsafe or may harbour unsafe behaviour.

CPTED

Crime Prevention Through Environmental Design (CPTED) is a way in which criminal behaviour is deterred through environmental design. CPTED strategies depend on the ability to influence the offender decisions to carry out criminal acts resulting in a safer and more enjoyable experience for the user. Natural surveillance is one of the key strategies for the built environment which involves strategic placement of physical features that maximise visibility and sight lines of a space that ultimately reduce the users exposure to criminal acts.

3.2 BICYCLE GUIDELINES

All proposed facilities are required to comply with the current versions of the following guidelines:

- AS1742.9 Australian Standard – Manual of Uniform Traffic Control Devices – Part 9: Bicycle Facilities.
- AS1742.10 Australian Standard – Manual of Uniform Traffic Control Devices – Part 10: Pedestrian Control & Protection.
- Austroads – Guide to Road Design - Part 6A: Pedestrian & Cyclist Paths
- Austroads – Guide to Road Design - Part 4: Intersections & Crossings
- Austroads – Cycling Aspects of Austroads Guides.

3.3 LIGHTING

Austroads Guide to Road Design Part 6A [Paths for Walking and Cycling]

The Austroads Lighting Guidelines [2021] from section 5.11 of the Guide to Road Design Part 6A are referenced in the following and will be included in all pedestrian and cycle upgrades for this project.

The objectives of providing lighting of paths are to:

- *enable cyclists and pedestrians to perceive hazards such as unusual or uneven surfaces or obstacles such as steps or street furniture, and to enable them to orientate themselves and find their way about*
- *enhance personal security by enabling potential threats from other people to be recognised in time to take appropriate action.*

These objectives are particularly important for elderly people and people with impaired vision who may be more vulnerable to trip hazards or feel insecure or uncomfortable in poorly lit environments.

Where a path is located adjacent to a carriageway, the road lighting should also cater for the path (Austroads 2015b, AS/NZS 1158.1.1:2005, AS/NZS 1158.1.2:2010). Designers should consider all aspects of the design that may influence the effectiveness of the lighting, such as the presence of overhanging trees and low-profile hedges that may create significant shadowing which, when combined with adjacent headlights (from the roadway), could make the silhouettes of path users extremely difficult to see.

Areas associated with pedestrian paths that may require a relatively high level of lighting are at-grade road crossings, because of the potential for conflict with motor vehicles and pedestrian underpasses that are often perceived to be unsafe in terms of personal security.

3.4 BICYCLE SIGNAGE

Austroads Guide to Road Design Part 6A [Paths for Walking and Cycling]

The Austroads Lighting Guidelines [2021] from section 6.3.2 of the Guide to Road Design Part 6A are referenced in the following and will be included in all pedestrian and cycle upgrades for this project.

Wayfinding signs should be provided at path intersections. Guidance on bicycle wayfinding signs can be found in:

- *Bicycle Wayfinding (Austroads 2015c)*
- *Guide to Traffic Management Part 10: Traffic Control and Communication Devices (Austroads 2016d).*

A further source for information on methods of providing wayfinding information can be found in the Pavement Marking Manual (Department of Planning, Transport and Infrastructure 2015).

Information relating to standard elements of signs can be found in:

- *Manual of Traffic Signs and Markings (MOTSAM) Part 1: Traffic Signs (NZ Transport Agency 2010a) and Part 2: Markings (NZ Transport Agency 2010b)*
- *AS 1742.9:2000, Manual of Uniform Traffic Control Devices Part 9: Bicycle Facilities*
- *AS 1743:2001, Road Signs: Specifications.*

4.0 EXISTING ATN

4.1 EXISTING PEDESTRIAN & CYCLE FACILITIES

The existing ATN is made up of a range of shared paths and on road cycle routes that provide connections for cyclists to the surrounding local cycle networks and wider regional network. The Victoria Road corridor presents itself as the main connecting route between the Iron Cove Bridge and the Anzac Bridge, while the on-road routes support local connections through the back streets of Rozelle and Balmain. Pedestrian facilities are provided through sealed footpaths to each side of the street in most instances. The quality of footpath pavement varies.

The Victoria Road corridor is a high use corridor with a large amount of vehicle traffic through out the day specifically during peak morning and evening times which creates pressures for pedestrians, cyclists, and vehicle users. These pressures include the following:

- Pinch points behind bus stops
- Pinch points between road signage posts and walls
- Long wait times at road crossings for vehicle traffic

The on-road routes found throughout the local street network provide connections to the Victoria Road corridor as well as neighbouring suburbs. These routes consist of frequent cycle symbol markers on the road surface to indicate that a cyclist is on an on-road route, directional signage is not so frequent. The street type in which these routes exist range from busy 4 lane roads [Darling Street], narrow one lane streets [Belmore Street], through restricted vehicle access zones [Elizabeth Street].

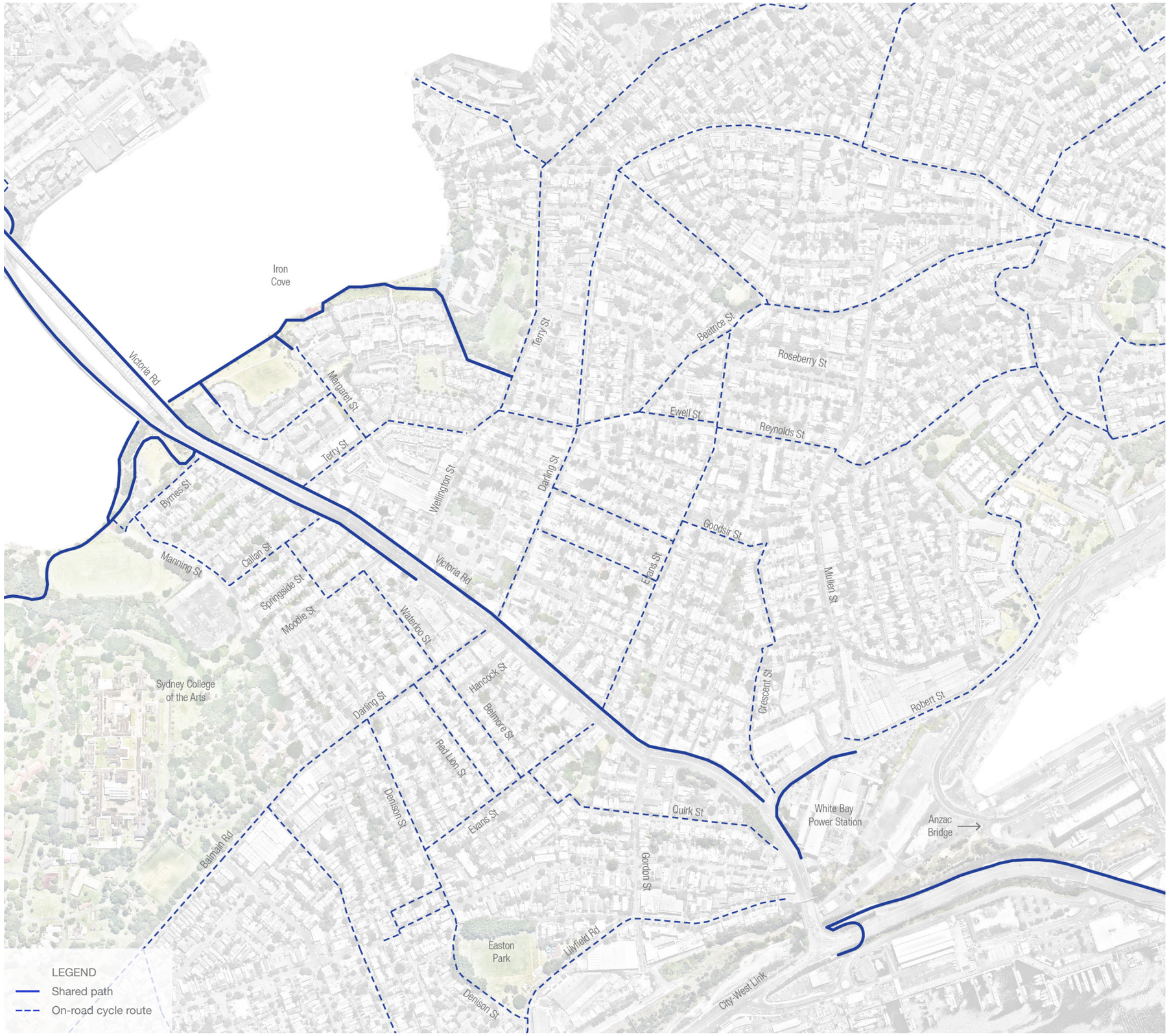

Figure 4.1 - Existing local cycle routes

4.2 SAFETY AUDIT

A high level safety audit of the existing pedestrian and cycle conditions along Victoria Road and select neighbouring streets was undertaken by GTA Traffic Consultants. The aim of this assessment was to identify existing safety concerns for roads users, particularly cyclists.

The assessment was based on the requirements within the *RMS Guidelines for Road Safety Audit Practices 2011* and the *Austroads Guide to Road Safety Part 6: Road Safety Audit (2009)*. Key elements examined included:

- Path grades
- Path width and quality
- Kerb ramps and transitions
- Raised thresholds
- Pedestrian crossings
- Pedestrian facilities and protection
- Roadside hazards
- Adjacent land use access points
- Sight distance and visibility
- Readability of alignment and intersections
- Intersection layout and geometry
- Signage and line marking
- Pavement condition, including presence of loose material
- Landscaping considerations.

The safety audit was prepared on the 16th of April 2021 and can be found in Document No. 3.

A Road Safety Audit was undertaken during detailed design as documented in Report No. 8. *Road Safety Audit_West of Victoria Rd (Jan 2023*) and Report No. 9 Road Safety Audit_East of Victoria Rd (Sept 2023).

The Road Safety Audit was conducted in accordance with relevant Austroads Guides to Road Safety, inclusive but not limited to *Austroads Guide to Road Safety Part 6: Road Safety Audits 2022* including the application and consideration of Safe System principles.

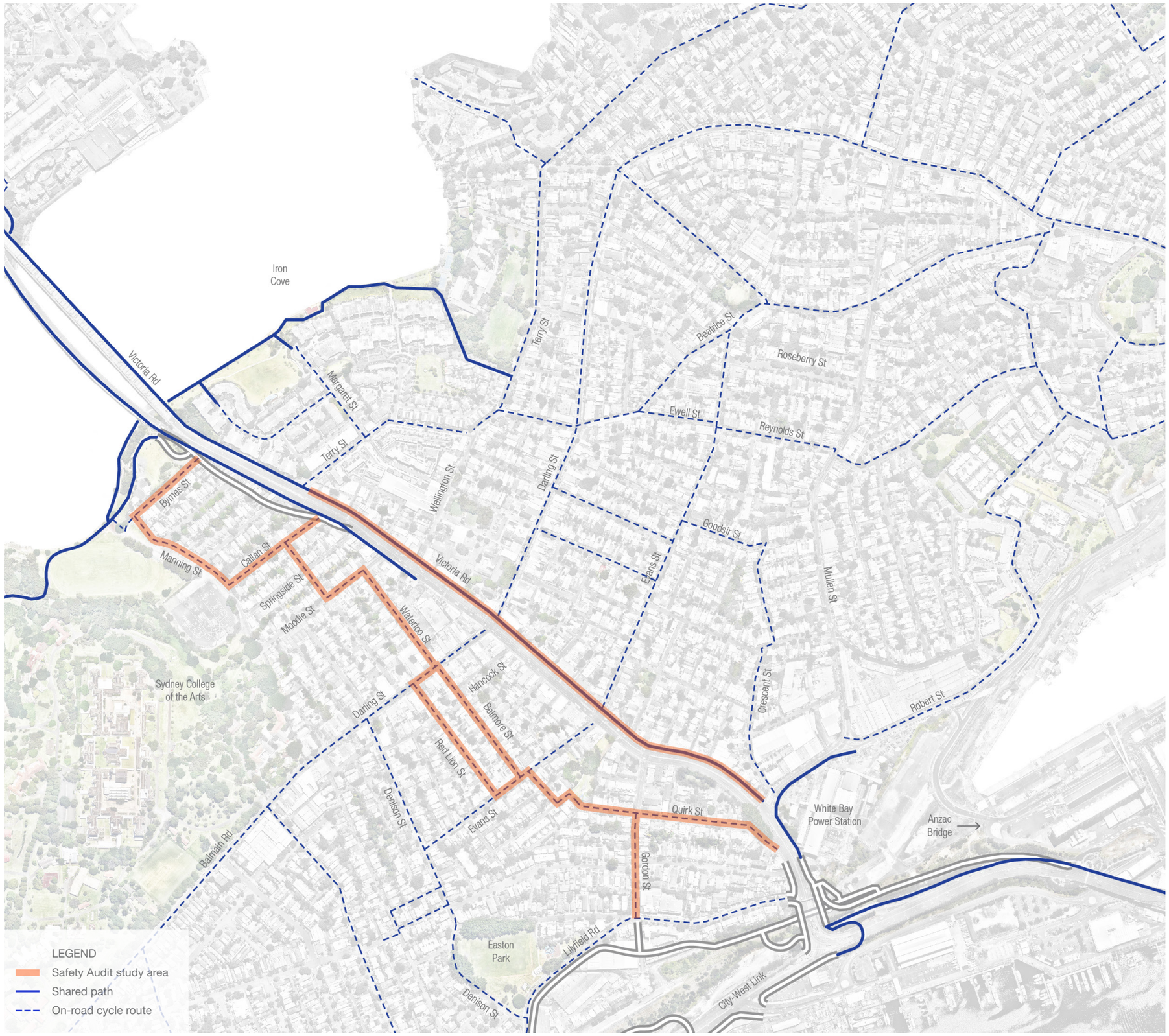

Figure 4.2 - Safety audit study area



5.0 ROUTE EXPLORATIONS

5.1 ROUTE OPTION: VICTORIA ROAD WEST

This route explores the connection between Springside Street and Robert Street with a dedicated cycleway on the western side of the Victoria Road corridor. This option would will require taking out a lane on Victoria Road to accommodate the dedicated cycleway and would involve significant upgrades at a number of intersections. Within the scope of the Rozelle Interchange Project, this route is not viable in the timeframe allowed and with consideration to the subsequent planned construction projects including Western Harbour Tunnel and Sydney Metro West. Notwithstanding, Transport for NSW are considering improving active transport on the Victoria Road corridor through the Victoria Road Strategic Business Case.

The Victoria Road Strategic Business Case is committed to developing a place based, integrated transport vision for Victoria Road, including a strategic business case. The provision of more efficient public and active transport along the Victoria Road corridor will be key to this strategy. Transport will consider separated on-road bike paths as well as other ways to improve active transport along the corridor.

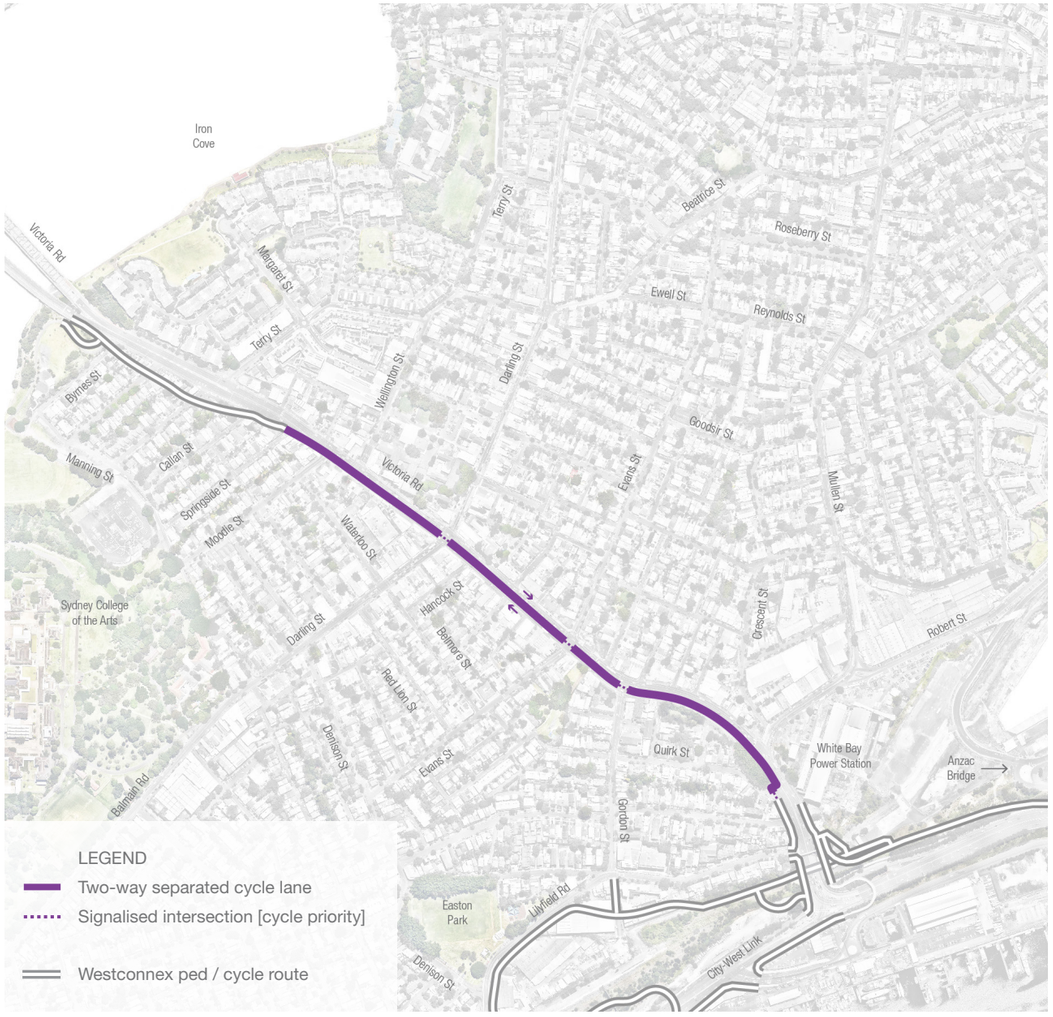

Figure 5.1 - Route exploration [Victoria Road west]

5.2 ROUTE OPTION: LOCAL STREETS

This option explores the connection between Springside Street to the City West Link shared path at Victoria Road on the western side of the Victoria Road corridor. The route follows an existing on-road route and seeks to improve the pedestrian and cycle route with upgrades at a number of intersections. The upgrades consist of raised thresholds, improved signage and road marking throughout.



Figure 5.2 - Route exploration [local streets]

Code	Description	Rationale
1	Re-surface shared path + raised threshold across Springside Street	Provides a safe and direct connection to the Westconnex shared path
2	2 way separated cycle lane	Provides a safe and direct connection to the shared path along Victoria Road
3	Phase signals to give priority to cyclists	Provides a safe crossing experience for cyclists
4	Raised threshold connecting Belmore Street to Kenniff Street	Traffic calming to improve safety and visibility for pedestrians, cyclists and vehicles
N/A	Directional signage tailored to cyclists [multiple locations]	Provides direction to cyclists through local streets

Table 5.2 - Route exploration itemised breakdown

5.3 ROUTE OPTION: VICTORIA ROAD WEST + LOCAL STREETS

This option explores the connection between Springside Street and the Gordon Street / Lilyfield Road intersection which is planned to become a main entrance into the future Rozelle Parklands. The route explores using Hancock Street as a contraflow lane which links cyclists to the western side of Victoria Road before entering Gordon Street and following through to the Rozelle Parklands. Gordon Street is not currently nominated as an on-road route in Council Bike Plans, however it is currently road marked as an on-road route. It is heavily used by cyclists as it provides a direct link to Lilyfield Road.

The possible Gordon Street to Lilyfield Road cycle route works are being investigated as part of a separate project.

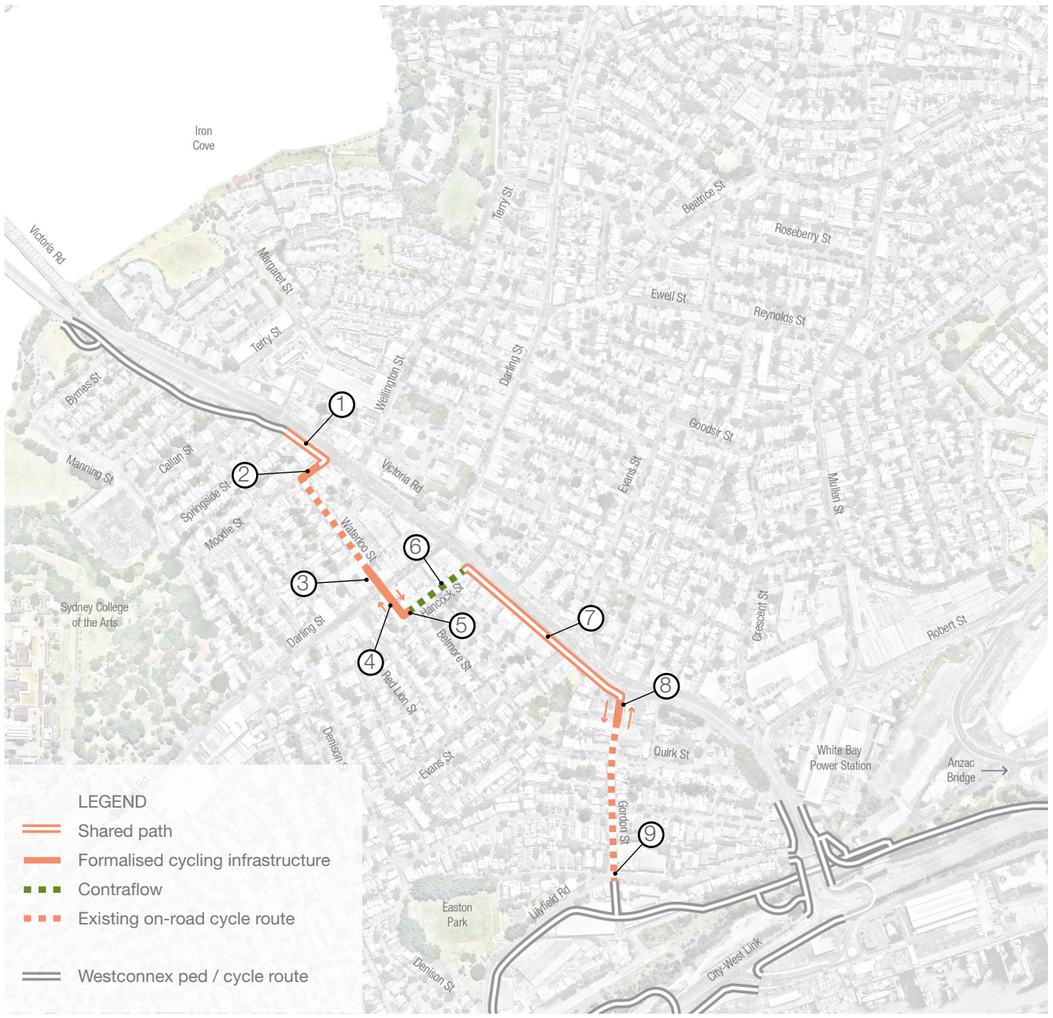

Figure 5.3 - Route exploration [Victoria Road west + local streets]

Code	Description	Rationale
1	Re-surface shared path + raised threshold across Springside Street	Provides a safe and direct connection to the Westconnex shared path
2	2 way separated cycle lane	Provides a safe and direct connection to the shared path along Victoria Road
3	Phase signals to give priority to cyclists	Provides a safe crossing experience for cyclists
4a	Realign kerb at end at Belmore Street / Darling Street intersection to allow for a separated contraflow lane	Provides a more direct route and removes conflicts on Darling Street for cyclists accessing the existing southbound on road cycle route on Red Lion Street.
4b	Raised crossing threshold at Belmore Street	Provides a safe and visible crossing point for pedestrians
5	Raised crossing threshold connecting Belmore Street to Hancock Street	Provides a safe and visible shared crossing for pedestrians, cyclists and vehicles
6	Contraflow lane	Eliminates the need to use Darling Street to access Victoria Road and reduces conflict with shop frontages
7	New shared path	Provides a safe and visible link to the Hancock Street link
8	Realign kerb at northern end of Gordon Street to allow for a separated contraflow entry lane along eastern side of street	Provides a safe and visible entry point for cyclists entering Gordon Street from Victoria Road
9	Pedestrian and cycle entry to Rozelle Parklands	Investigations underway as part of separate project
N/A	Directional signage tailored to cyclists [multiple locations]	Provides direction to cyclists through local streets

Table 5.3 - Route exploration itemised breakdown

5.4 ROUTE OPTION: VICTORIA ROAD EAST

This route option explores the existing shared path between Terry Street and Robert Street on the eastern side of the Victoria Road corridor. This route is frequently used by cyclists connecting from Iron Cove Bridge to the Anzac Bridge. This is currently a problematic route as there are many dangerous pinch points along the length of the shared path.

As part of this option, road sign posts will be strategically relocated, consolidated or removed to eliminate dangerous pinch points for pedestrians and cyclists. Existing signalised crossing points will prioritise phasing for pedestrians / cyclists and upgrades to the crossing points at Wellington St and Robert Street will create a safer experience.



Figure 5.4 - Route exploration [Victoria Road east]

Code	Description	Rationale
1a	Pedestrian and cycle pram ramp improvement	Provides safe and visible crossing for pedestrians and cyclists
1b	Additional pedestrian and cycle crossing button	Provides a safe and convenient location for a cyclist to wait and cross the road
N/A	Remove / relocate sign post [x11]	De-clutters shared path and reduces number of pinch points and chance of collision between users
N/A	Directional signage tailored to cyclists [multiple locations]	Provides direction to cyclists

Table 5.4 - Route exploration itemised breakdown

5.5 PROPOSED IMPROVED CONNECTIVITY

The preferred option combines the Victoria Road East (option 5.4) and local Streets route (option 5.2 explorations. This option was selected because of the ability to maximise pedestrian and cycle infrastructure upgrades inside the project study area. This option will improve two existing cycle routes within the Rozelle ATN and provide for safer, more direct and attractive routes linking the Iron Cove Bridge to the Anzac Bridge on either side of the Victoria Road corridor.

The provision of two improved routes will provide choice for commuter and recreational cyclists to select their preferred route dependent on a range of factors including level of experience, time of day, etc.

By providing a safer, more direct and attractive route throughout the local streets, the existing pedestrian and cycle pressures on the existing shared path along the eastern side of Victoria Road are reduced.

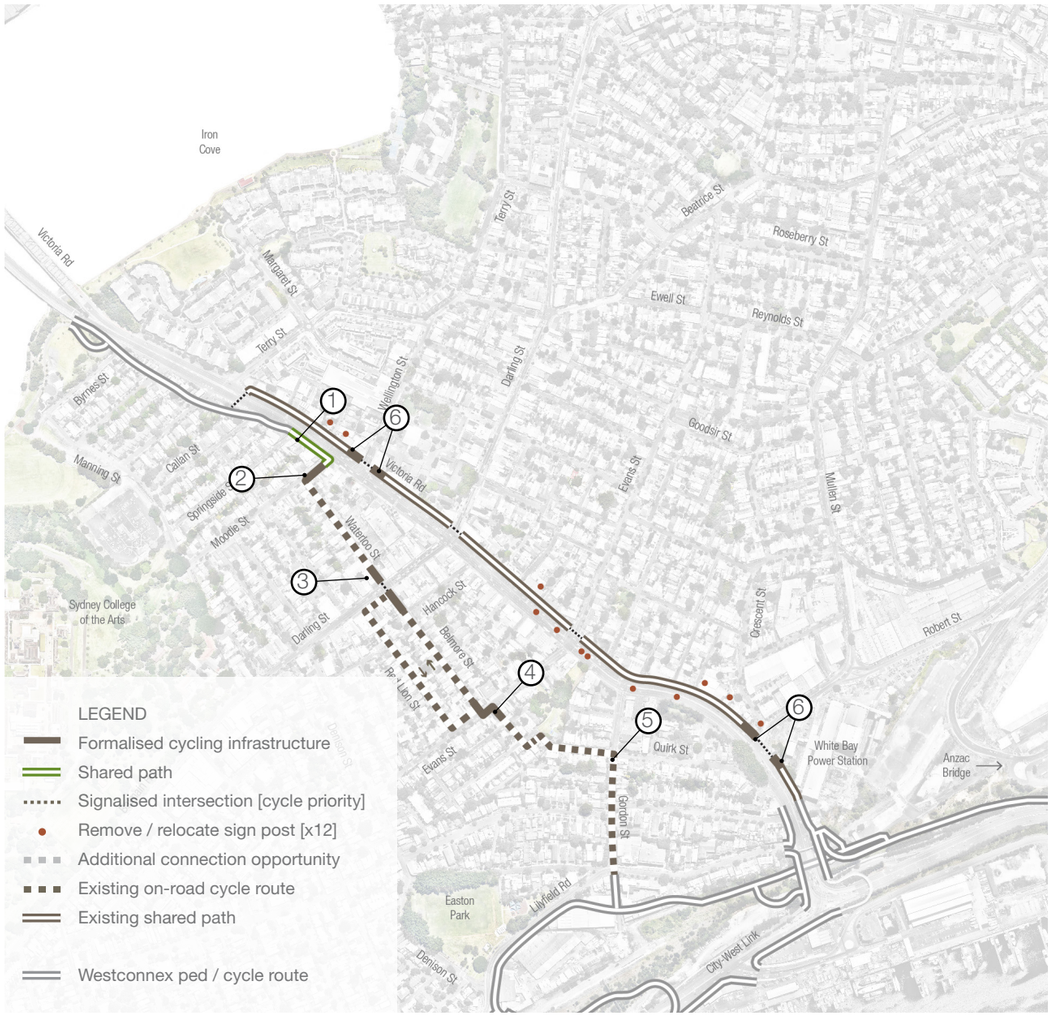

Figure 5.5 - Proposed improved connectivity

Upgrades to the eastern side of Victoria Road will focus on enhancing the crossing points of Wellington Street and Robert Street for pedestrians and cyclists as well as reducing street clutter created by signposts.

The local streets route will retain the existing on-road route throughout the entirety of the option and focus on providing pedestrian and cycle safety and navigation improvements at a range of key locations.

Details of improvements at these key locations are highlighted in the following section of this report and can be found in appendix document 4.

Code	Description	Rationale
1	Re-surface shared path + raised threshold across Springside Street	Provides a safe and direct connection to the Westconnex shared path
2	2 way separated cycle lane	Provides a safe and direct connection to the shared path along Victoria Road
3	Phase signals to give priority to cyclists	Provides a safe crossing experience for cyclists
4	Raised threshold connecting Belmore Street to Kenniff Street	Traffic calming to improve safety and visibility for pedestrians, cyclists and vehicles
5	Paint intersection - 'KEEP CLEAR'	Provides a safe and visible crossing point for cyclists crossing Gordon Street
6	Pedestrian and cycle crossing improvement	Provides safe and visible crossing for pedestrians and cyclists
N/A	Remove / relocate sign post [x11]	De-clutters shared path and reduces number of pinch points and chance of collision between users
N/A	Directional signage tailored to cyclists [multiple locations]	Provides direction to cyclists through local streets

Table 5.5 - Route exploration itemised breakdown

6.0

PROPOSED IMPROVED CONNECTIVITY

6.1 LOCAL STREETS ROUTE: SPRINGSIDE STREET / VICTORIA ROAD WEST

The proposed connectivity improvements at Springside Street will provide a safe and direct connection linking the Westconnex shared path to the existing shared path on the western side of Victoria Road.

The improvements include the following:

1. Raised threshold crossing point that ties the Victoria Road shared path into the Westconnex proposed shared path
2. Re-surface the existing Victoria Road shared path between Springside Street and Moodie Street.

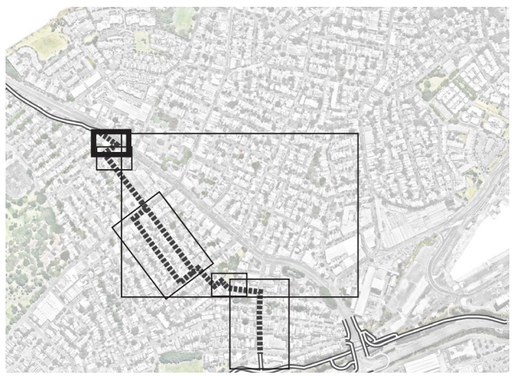

Figure 6.1.1 - Key plan

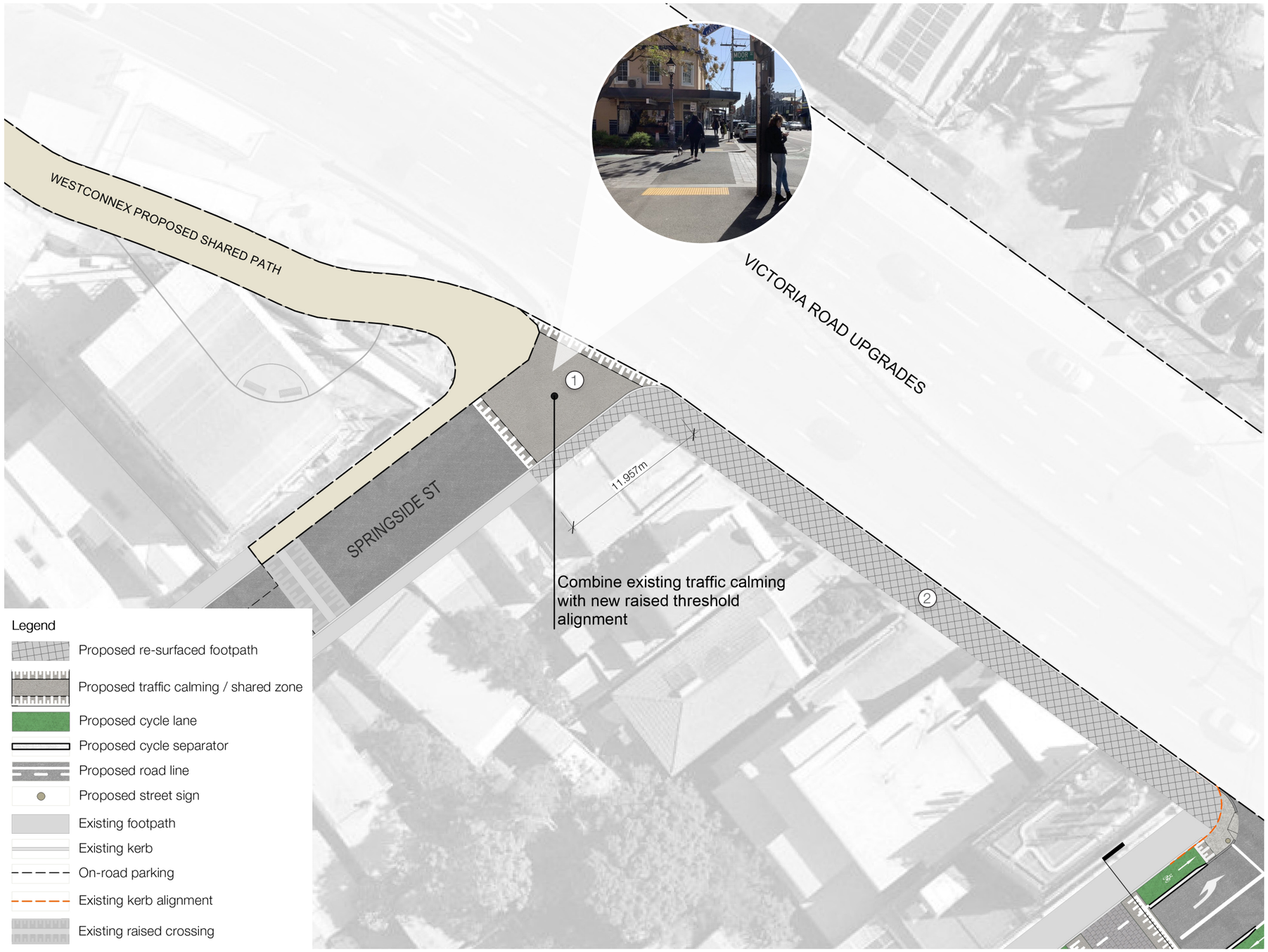

Figure 6.1.2 - Improved connectivity option 1

6.2 LOCAL STREETS ROUTE: MOODIE STREET

The proposed connectivity improvements at Moodie Street include a new 2 way separated cycle lane that links the existing on-road cycle route at Moodie Street, to the Existing Victoria Road shared path. Other improvements also include the resurfacing of the existing shared path that links Moodie Street to Springside Street.

The proposal includes the following:

1. Vehicles give way to cyclists at the intersection of Moodie Street and Waterloo Street
2. Cycle lane separator features a break to retain access to existing off-street parking
3. Reinstate cycle line marking and install new raised threshold at Moodie Street and single direction cycle lane on each side of the road
4. Additional G2-204-I signs installed on Moodie Street at the intersection of Victoria Road to improve wayfinding.

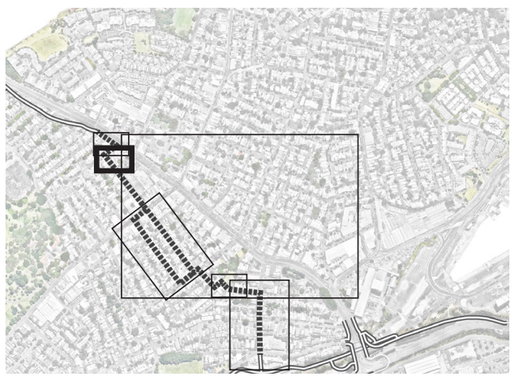

Figure 6.2.1 - Key plan



Figure 6.2.2 - Improved connectivity option 2

6.3 LOCAL STREETS ROUTE: BELMORE STREET AT DARLING STREET

The proposed connectivity upgrades include the reinstatement of traffic calming measures along Belmore Street and Red Lion Street. Both of these streets will provide on-road cycle routes one way, following the flow of vehicle traffic. Additional traffic calming measures will be introduced along Evans Street and Kenniff Street to improve safety for pedestrians and cyclists.

The proposal includes the following:

1. On-road cycle lane [one way north-east bound]
2. On-road cycle lane [one way south-east bound]
3. Additional G2-204-I signs installed at the intersection of Belmore Street and Darling Street to improve wayfinding.

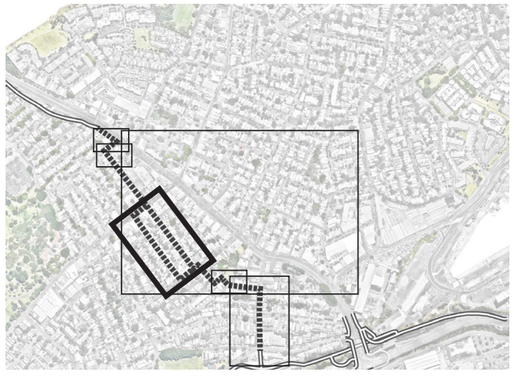

Figure 6.3.1 - Key plan



Figure 6.3.2 - Improved connectivity option 3

6.4 LOCAL STREETS ROUTE: ELIZABETH STREET / QUIRK STREET

The proposed connectivity upgrades at Elizabeth Street retains the no vehicle access and will remain as an on-road cycle link that connects Kenniff Street to Quirk Street. The level changes between the playground and the cycle link will also be retained as this provides a passive barrier between park users and cyclists.

The proposal includes the following:

1. New landscaped area adjacent O'Connor Reserve with tree planting to provide additional shade and amenity. Retain existing kerb and gutter.
2. Remove existing bollards and install new bollards to stop vehicle access.
3. Retain existing planting and rock walls to the existing O'Connor Reserve

Full works to Quirk Street to be completed following the decommissioning of the Air Quality Monitoring Station (AQMS).

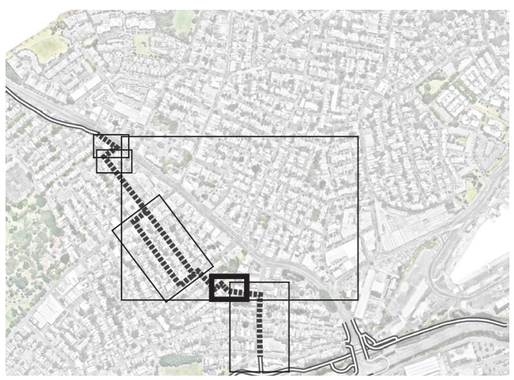

Figure 6.5.1 - Key plan



Figure 6.5.2 - Improved connectivity option 4

6.5 LOCAL STREETS ROUTE: QUIRK STREET / GORDON STREET

The proposed connectivity upgrades at Quirk Street / Gordon Street intersection include the following:

1. New tree pit will be installed
2. Traffic calming
3. Proposed ‘Stop’ line marking
4. Reinstate existing cycle lane marking
5. Additional G2-204-I signs were installed on Gordon Street at the intersection of Quirk Street, Alfred Street and Hornsey Street to improve wayfinding.

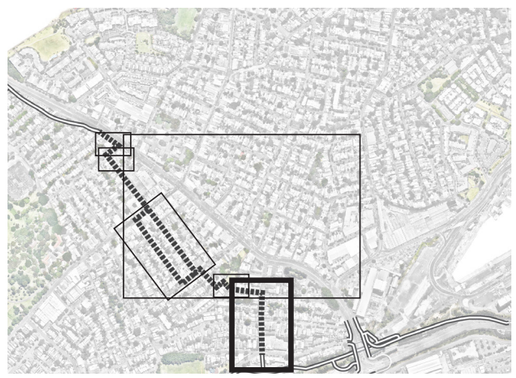

Figure 6.6.1 - Key plan



Figure 6.6.2 - Improved connectivity option 5

6.6 VICTORIA ROAD EAST

The proposed connectivity improvements along the eastern side of Victoria Road will aim to declutter the existing shared path by strategically relocating, consolidating or removing signposts to eliminate dangerous pinch points for pedestrians and cyclists.

The improvements also include the following:

1. Re-surfacing the existing footpath between Wellington Street and Crystal Street to enhance the safety for pedestrians / cyclists in proximity to the petrol station

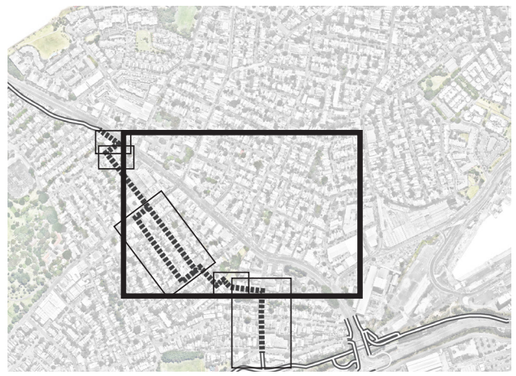

Figure 6.8.1 - Key plan



Figure 6.8.2 - Victoria Road East connection improvements

7.0 SUMMARY & CONCLUSIONS

7.1 TIMING AND STAGING

Project milestones have been outlined in the timeline below

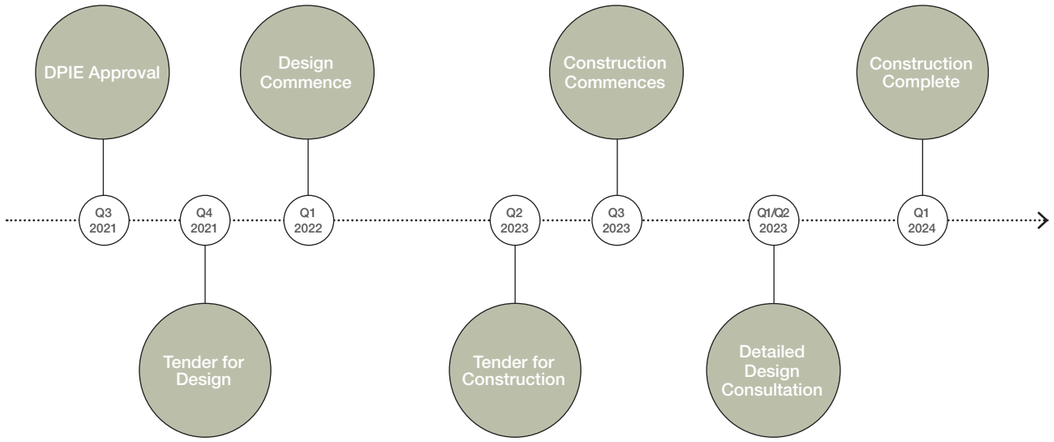

Table 7.1 - Project timeline

7.2 SUMMARY

The proposed improved connectivity options seek to maximise the ability to upgrade the pedestrian and cycle infrastructure inside the project study area. The upgrades improve two existing cycle routes within the Rozelle ATN and provide for safer, more direct and attractive routes linking the Iron Cove Bridge to the Anzac Bridge.

Upgrades throughout the local streets directly tie into the Westconnex shared paths at Springside Street and the intersection of Quirk Street / Lilyfield Road and include the following:

- Separated cycle lanes
- Raised thresholds
- Improved navigational signage
- Additional planting of trees and grasses
- Reduction of speed limits on local roads [further development required from Inner West Council]

Upgrades to the existing shared path along the eastern side of Victoria Road include:

- The strategical relocation, consolidation or removal of 12 signposts to reduce pinch points and street side clutter

This report, and the supporting documents submitted to DPE forms the implementation strategy that will improve the connectivity for pedestrians and cyclists in accordance with Planning Condition E58.

7.3 SUPPORTING DOCUMENTS

1. Stakeholder Engagement Meeting Minutes
2. Stakeholder Engagement Presentation
3. High Level Safety Assessment
4. Proposed Improved Connectivity - Local Streets Route [plans & sections]
5. Presentation to Bicycle NSW on Community Engagement
6. IWC LTC Meeting Minutes 17 July 2023
7. TfNSW Response to LTC Recommendations
8. Road Safety Audit_West of Victoria Rd (Jan 2023)
9. Road Safety Audit_Vic Rd East (Sept 2023)


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