Hassell

WATERLOO ROAD MASTER PLAN

014806
Waterloo Road Active Street Master Plan

Prepared for
City of Ryde

WATERLOO ROAD WILL BECOME A CORRIDOR OF TRANSFORMATION, WITH PLACES TO MEET, CONNECT AND ENGAGE.

Contents

Acknowledgment of Country

This project is located on Wallumedegal country. We acknowledge and respect the Wallumedegal people as the original custodians of the land and water upon which we work. We honour their Elders past, present and emerging whose knowledge and wisdom has, and will, ensure the continuation of cultures and traditional practices.

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Document Control

Rev	Date	Approved By	Description
01	12.06.2020	Jason Cuffe	Master Plan Report For Information
02	30.07.2020	Jason Cuffe	Refined Master Plan Report For Review
03	28.08.2020	Jason Cuffe	Refined Master Plan Report (FINAL)

Site photo. Photography by Author

WATERLOO ROAD

This document provides a detailed analysis of the Waterloo Road corridor and establishes a clear master plan framework for the transformation of Waterloo Road from a 'movement corridor' into a 'vibrant street', prioritising active transport as an alternative to private vehicles and alleviating traffic congestion.

Document purpose

This document has been prepared as a strategic master plan to assist the City of Ryde with transforming the Waterloo Road corridor into a vibrant street.

The contents of this report have been prepared by Hassell in consultation with the City of Ryde and their relevant internal and external stakeholders.

The information, diagrams and reference imagery have been developed in response to existing site conditions to assist with the development of a master plan for the Waterloo Road corridor and its adjacent interfaces.

Precinct positioning

Macquarie Park is transforming from a sprawling business park to an emerging CBD (central business district) which provides approximately 58,500 jobs. Jobs in Macquarie Park are expected to grow steadily to 79,000 by 2036. In the meantime, student places are also expected to grow from 32,500 to 55,000 by 2030, making it the third largest concentration of jobs and students in NSW.

Residential development density in Macquarie Park has also increased in recent years as a result of new developments. Macquarie Park is anticipated to mature into a premium location for globally competitive business and a vibrant, accessible CBD that balances work, living, recreation and entertainment.

The City of Ryde's Draft Local Strategic Planning Statement (LSPS) has set out a 'Planning Priority' to create a public domain within Macquarie Park that brings people together. One of the actions set out in the Daft LSPS for achieving the goal is to "prepare a master plan for Waterloo Road that acknowledges its role as the precinct's "main street", creating a series of meeting, resting and active spaces with a pedestrian focus that promotes connectivity.

Project Objectives

The overall project objectives, as described in the City of Ryde project brief, include:

Redefine Waterloo Road's streetscape and enhance the urban amenity to provide a safe, attractive and comfortable walking and cycling experience.

- → Promote active transport (e.g. walking & cycling) to become a safe, convenient and enjoyable alternative to private vehicles for people of all ages
- → Encourage women to participate in active transport
- → Provide opportunities for physical activities, passive recreation and social interaction
- → Create 'places for people' that give right of way to pedestrians and provide equivalent rights to people on bikes and in cars within intersections
- → Enhance the connectivity, permeability and accessibility of the street network
- → Encourage the use of public transport and reduce car dependency (and congestion)
- → Maintain and enhance the existing landscape character and biodiversity of the Waterloo Road corridor
- → Guide transport and infrastructure planning decisions such as the Bus Priority Infrastructure Program (BPIP) by RMS.
- → Inform the Macquarie Park Strategic Investigation.
- → Strengthen the identity and legibility of Macquarie Park as a vibrant and accessible CBD.
- → Identify water sensitive urban design opportunities for optimised environmental outcomes.

LANE COVE NATIONAL PARK

M2

LANE COVE NATIONAL PARK

TALAVERA RD

MACQUARIE CENTRE

HERRING RD

KHARTOUM RD

LANE COVE RD

EDEN PARK DRIVE

WATERLOO ROAD

HALIFAX ST

MACQUARIE UNIVERSITY

HERRING RD

ELOUERA RESERVE

COTTONSWOOD CRESCENT

BYFIELD ST

GIFFNOCK AVE

COOLINGA RD

LANE COVE RD

THOMAS HOLT DRIVE

WICKS RD

LACHLAN AVE

WINDSOR DR

WILGA PARK

PEACH TREE DR

LYONPARK RD

SHRIMPTONS CREEK

EPPING RD

0 50 100 200m

SCOPE

Project site

Waterloo Road is an east-west vehicular dominated corridor within the Macquarie Park Precinct. The road stretches approximately 1.9km from Herring Road in the north to Wicks Road in the South. There are a number of north-south roads that intersect along the corridor including:

- → Cottonwood Crescent
- → Byfield Street
- → Khartoum Road
- → Harvest Street
- → Coolinga Street
- → Lane Cove Road
- → Thomas Holt Drive
- → Eden Park Drive

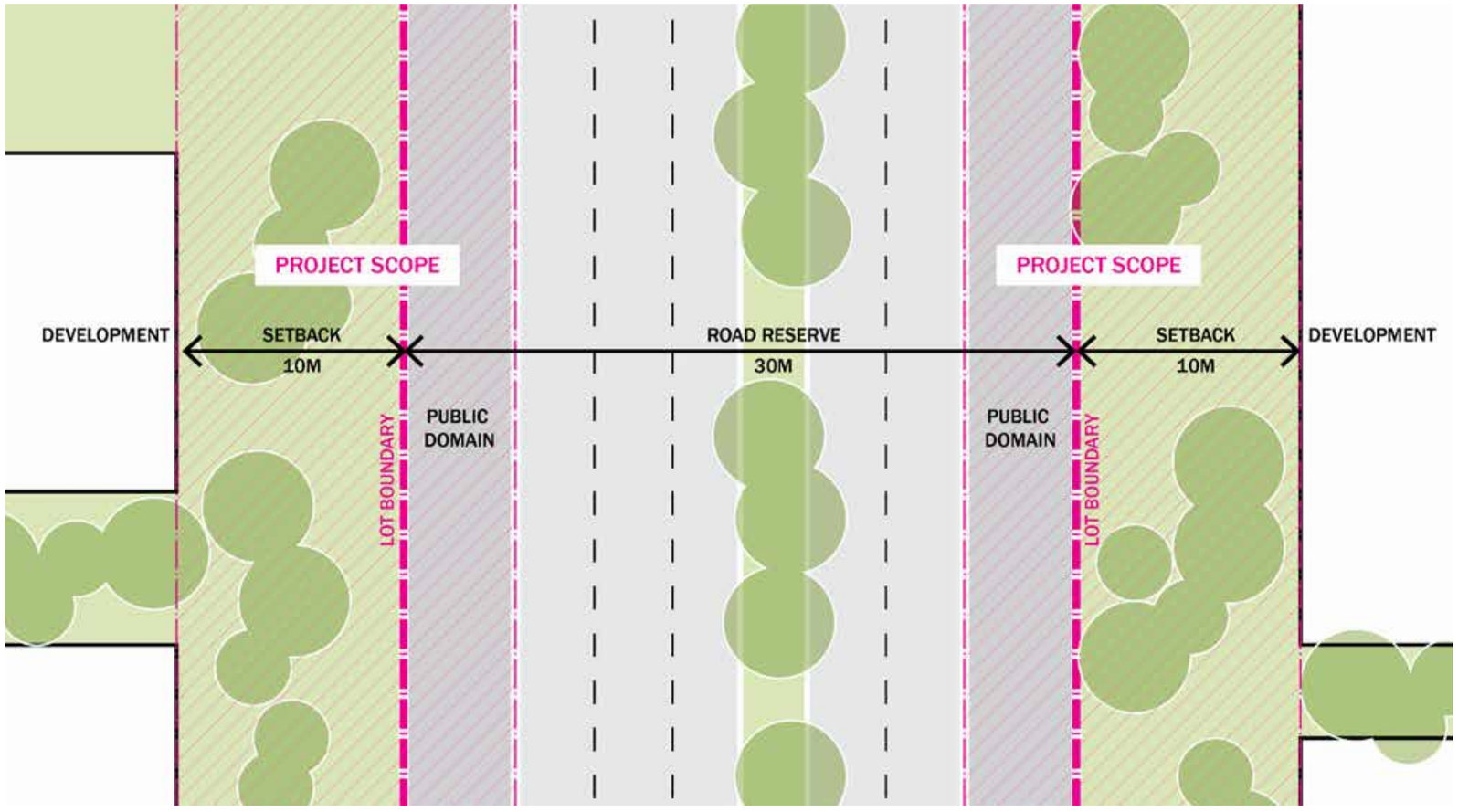
In addition several private roads and driveway entries provide access to developments such as the Macquarie Centre via Waterloo Road.

The study area for this project includes the entire Waterloo Road Corridor with an approximate cross sectional width of 50m, consisting of:

- → The existing road reserve bound by private properties on both sides (approximately 30m wide)
- → 10 metre street setback zone required to be provided by the DCP on both sides of Waterloo Road

As outlined within the brief this study is based on the following assumptions

- → The existing median strip and trees in the median strip will be retained.
- → The current width of the carriageways will remain unchanged, except possibly for intersection locations and new pedestrian crossings.
- → Any new cycle paths are to be provided outside existing carriageways (i.e. in the public domain or street setback zone).
- → Council may consider options for the implementation of the linear park, including planning incentives, purchase or acquisition.
- → Council will continue to implement the 'fine-grained' street network as intended in the DCP and Draft LSPS.
- → The Bus Priority Infrastructure Program (BPIP) Stage 2 by RMS is on hold and is not to impact the final design outcomes of the master plan



VISION

The Waterloo Road Linear Park will transform a car dominated movement corridor into a vibrant street of community , connection and cohesion. It will provide multiple benefits for the local community and elevate the identity of Macquarie Park as an ecologically rich and diverse CBD.

Three clear drivers have been established to guide the development of the Waterloo Road Master Plan. These drivers have been distilled from site analysis and the City of Ryde Draft Strategy for Waterloo Road.

A resilient corridor

- → Leverage the existing landscape character of Macquarie Park to reinforce the identity of Waterloo Road as a connector of green
- → Create a rich network of ecological and hydrological links
- → Re-establish the historic vegetation communities of site

Destinations of activation

- → Create destinations of open space with multiple opportunities for social interaction, play and public amenity
- → Create destinations of varying character, program and intensity Connect open space destinations across Waterloo Road

Legible, permeable and cohesive

- → Create a legible, permeable and cohesive network for pedestrians and cyclists
- → Ensure consistency of paving, planting and urban elements between public domain zones and development sites

STRUCTURE

The spatial arrangement of the Linear Park has been developed based on three key structural elements.

East-west and north-south

- → Create a permeable and connected corridor that prioritises the pedestrian and provides multiple opportunities to move north, south, east and west
- → Divide the 1.9km road corridor into a series of secondary zones that allow for shorter walking distances to key destinations. Secondary zones include
  - – Herring Road to Khartoum Road (600m)
  - – Khartoum Road to Lane Cove Road (700m)
  - – Lane Cove Road to Wicks Road (600m)
- → Improve existing east - west connections through upgrades in paving, crossing typologies and planting
- → Provide new north - south connections aligned to existing and proposed streets to increase permeability across Waterloo Road

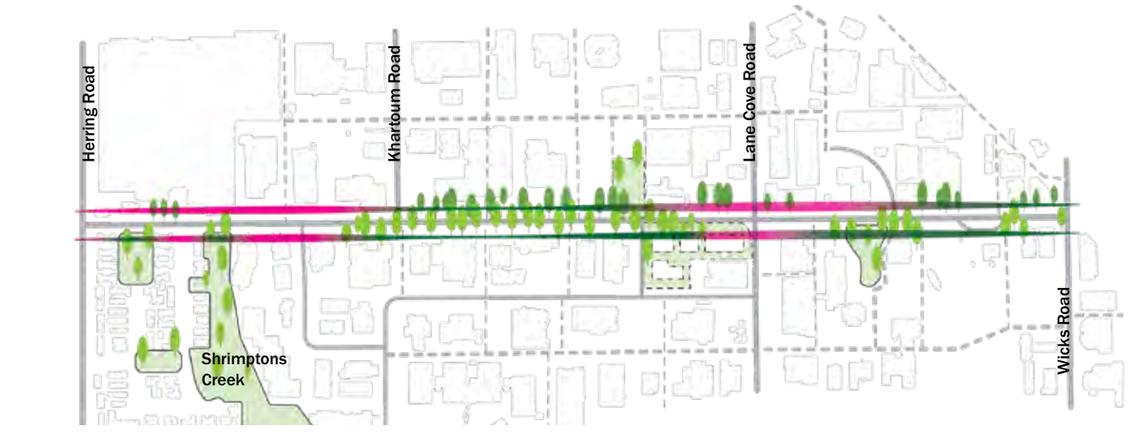
Forest and Urban

- → Create two key landscape characters across the corridor that respond to the surrounding landscape context and unify Waterloo Road
- → Each landscape character to be defined by tree canopy and a diverse understorey planting mix that improve existing and create new east-west ecological links
- → Forest character to be dominated by informal groupings of trees, rich diversity of understorey planting and a meandering footpath zone
- → Urban character to be more formalised with new grids of trees, small plaza's and a variety of levels changes that connect the street to private development areas

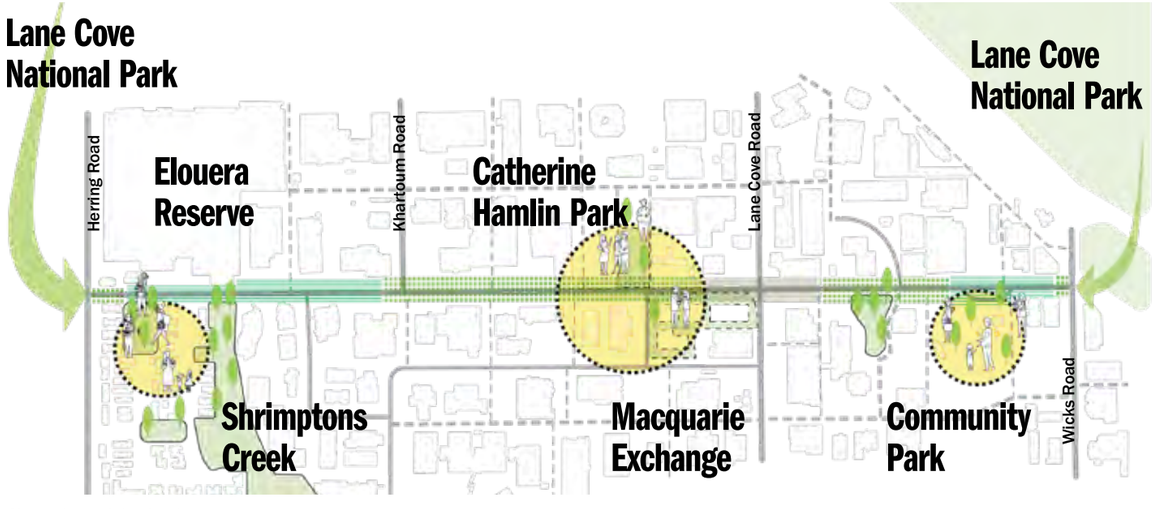
Networks and destinations

- → Concentrate activation and programme at key destinations along the corridor that vary in scale, diversity, programme and character. Destinations include:
  - – Elouera Reserve and Shrimptons Creek (existing)
  - – Catherine Hamlin Park and Macquarie Exchange (approved)
  - – Community Park (proposed)
- → Destinations to provide opportunities to gather, play and discover.
- → Connect each destination through and upgraded network of footpaths, planting and cohesive landscape character zones (forest and urban)
- → Provide a network of smaller dwell spaces in between destinations along footpath zones
- → Create thresholds at the corner of Wicks/ Waterloo Road and Herring/ Waterloo Road through tree planting, signage and interpretation elements that leverage the adjacent asset of Lane Cove National Park

East-west and north-south



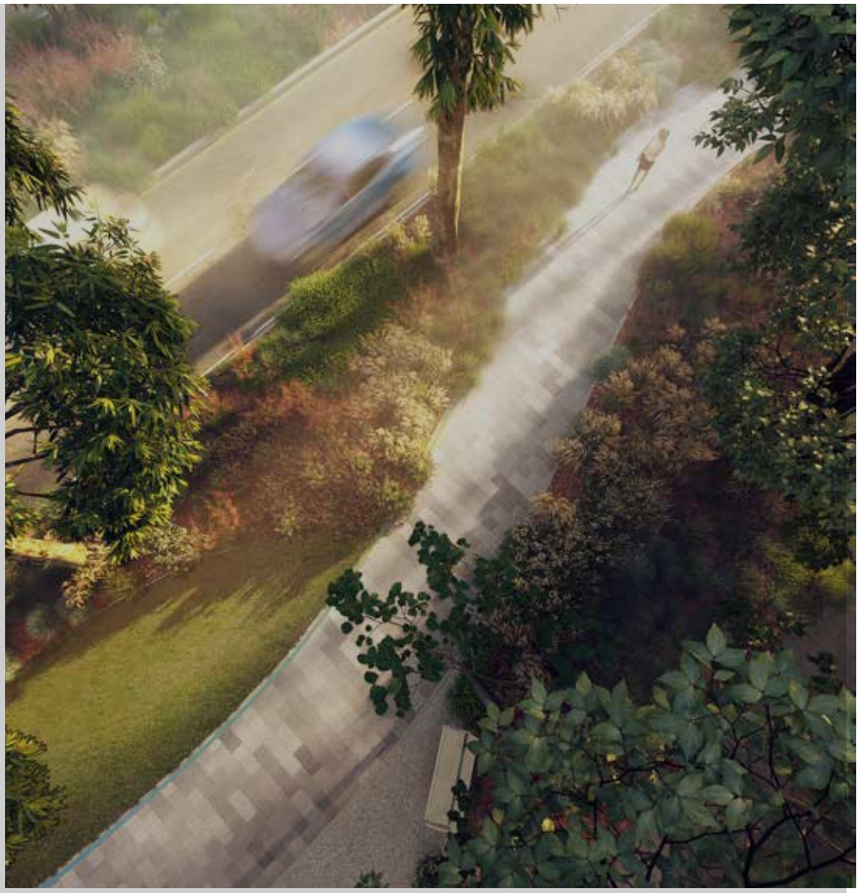
Forest and urban



Networks and destinations

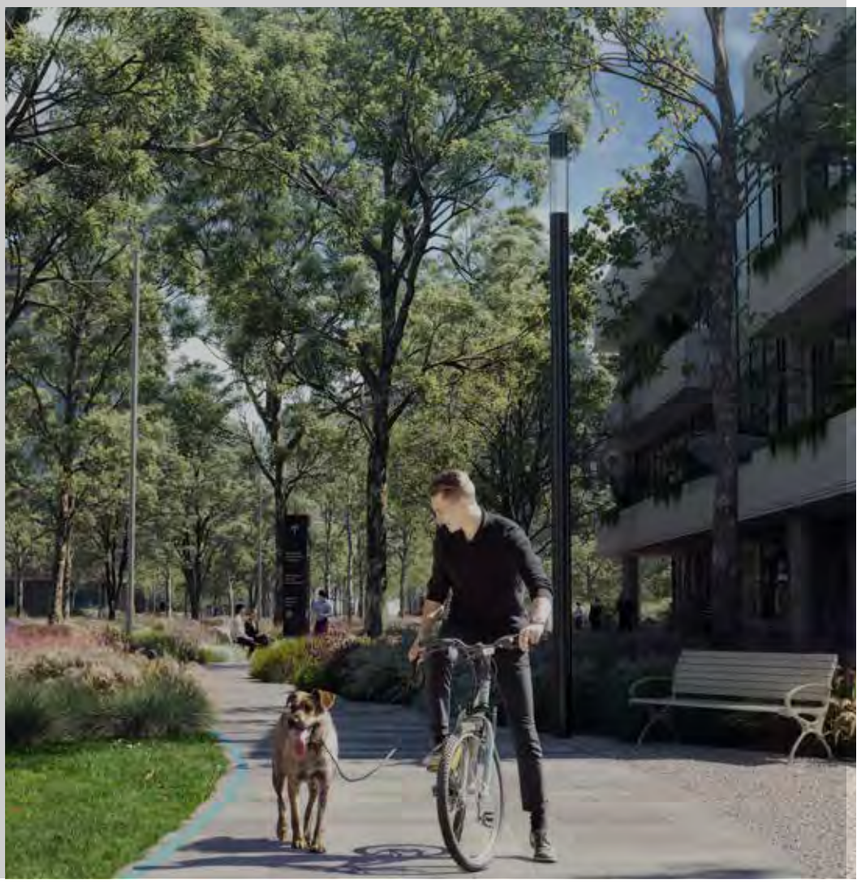
FOREST ZONES

A meandering path network that connect key destinations and dwell spaces along Waterloo Road through an ecologically rich understorey planting and tree canopy. An informal forest character that is inspired by the landscape character of Macquarie Park.



URBAN ZONES

A formalised network of connections that connect key destinations and dwell spaces along Waterloo Road through an ecologically rich understorey planting and tree canopy. A formalised character of trees, plazas and footpaths that respond to the program of adjacent development sites whilst maximising pedestrian permeability.

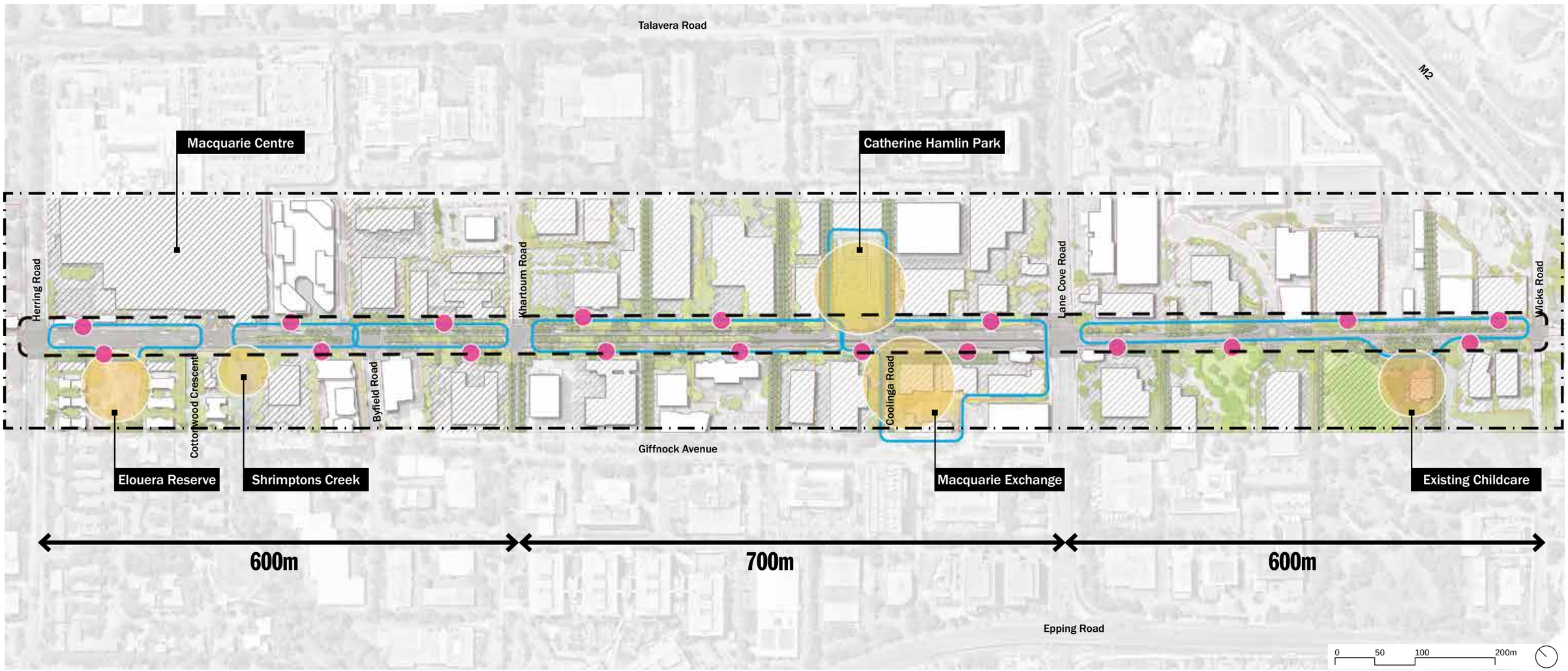


MASTER PLAN

A vibrant street of community, connection and cohesion

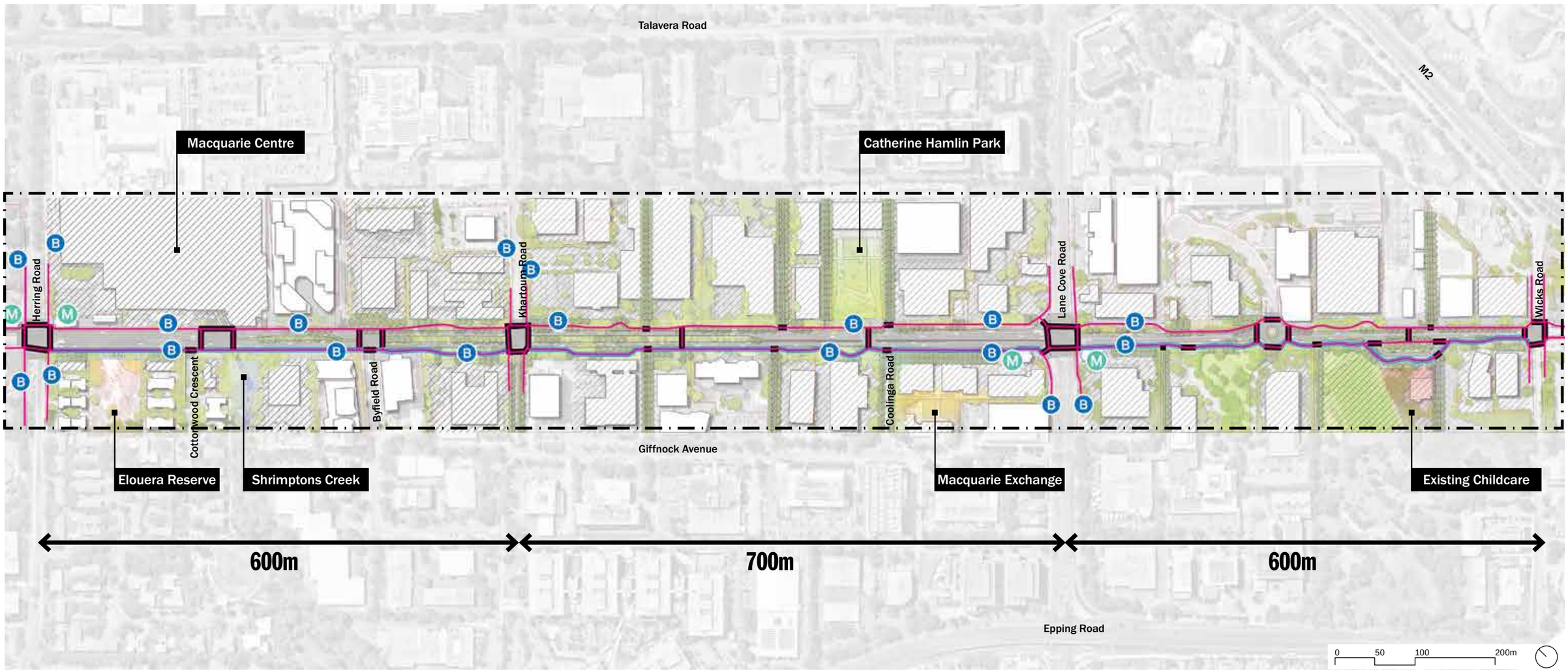
COMMUNITY

A diversity of program and activation that reflect the vibrancy of the Macquarie Park community



CONNECTION

A permeable network of crossings, footpaths and shared paths

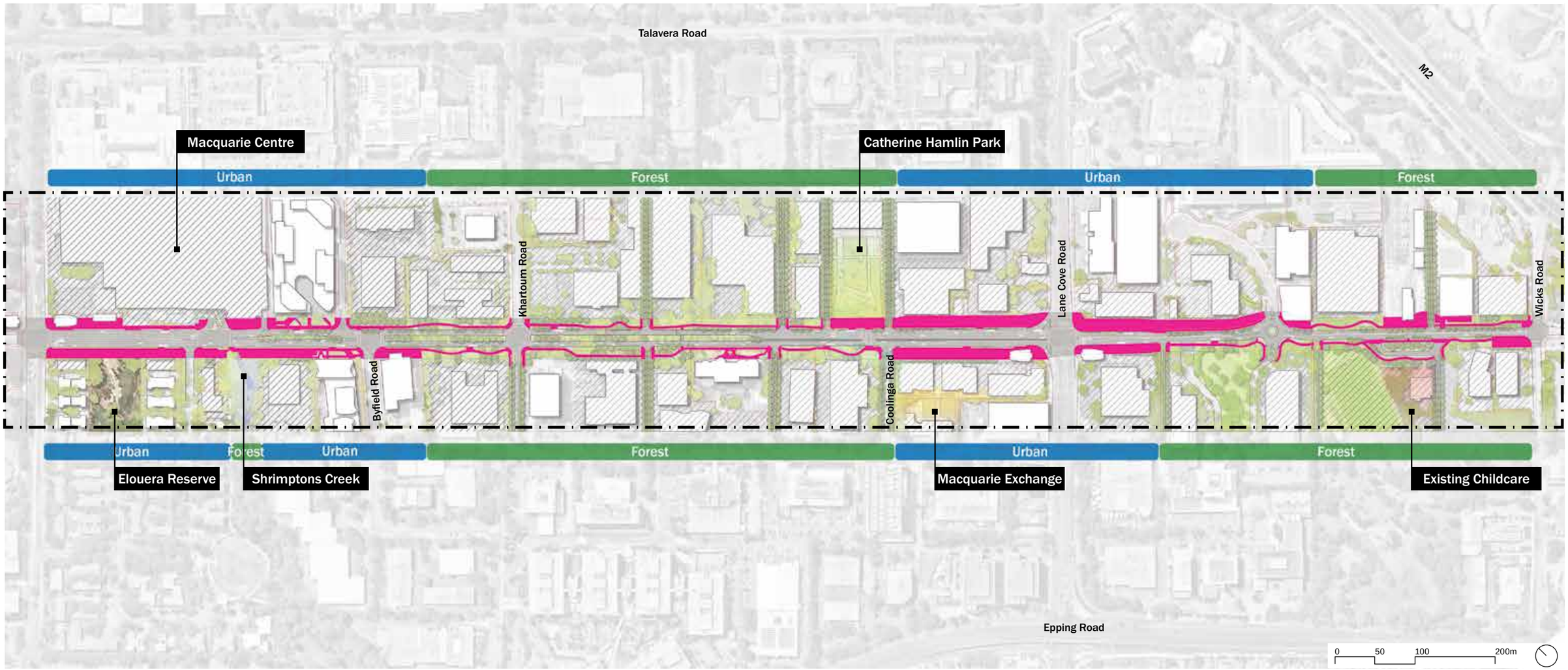


COHESION

A unified and consistent material palette that creates a singular identity for the corridor whilst allowing flexibility in the final arrangement of the public realm within setback zones

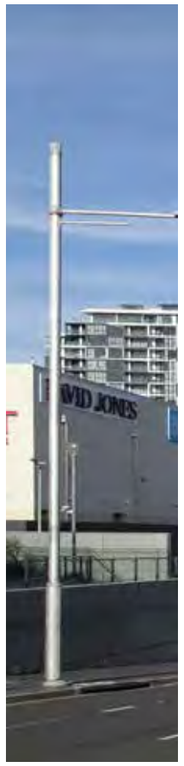
Legend

- Paving zones with seating, lighting, bins, bubblers and bike hoops
- Forest character zone with associated vegetation
- Urban character zone with associated vegetation



MATERIALITY

Image does not represent the actual materiality of the seat



Paving

- 3m wide 600x300x60mm granite paving. Black, flame ex-foliated.
- Integrated shared zone linemarking. Refer to City of Sydney examples

Seating

- Seat: Botton and Gardiner Urban Classic Seat and Single Seat. Cast aluminium, powder coat
- Masonry/ concrete seating wall within lot boundaries. Walls to have integrated power sockets where required.

Lighting

- Street lights: 12m high multifunctional light pole at 40m centres Multipole Series 300
- Pedestrian lights: 6m high Hess Light City Elements 180 range. Powder coat graphite grey
- Bollard lighting is not supported

Bins, bubblers + bike hoops

- Bin: City of Ryde model dual rubbish bins with butt bin. 316 S/S
- Bubbler: Botton and Gardiner Prospect Drinking Fountain with dog bowl. 316 S/S
- Bike Hoop: LEDA BR85F. 304 S/S

Trees (Forest zones)

- Native trees in zones of planting and turf
- Informal arrangement

Trees (Urban zones)

- Native trees in zones of paving
- Flush infill paving tree pits
- Soil zones under paving created through structural soils or engineered systems
- Formalised arrangement

A VIBRANT STREET OF COMMUNITY, CONNECTION AND COHESION

Artist impression, Waterloo Road

BACKGROUND DOCUMENT REVIEW

DOCUMENT REVIEW

Key documents

A series of strategic framework and City of Ryde documents are relevant to the project site and the future transformation of the Waterloo Road Corridor.

The following documents have been reviewed to understand the context of the site and the opportunity for it's future development:

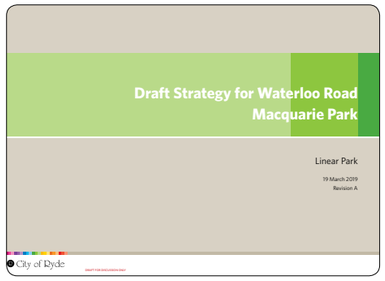
- → Draft Strategy for Waterloo Road Macquarie Park
- → 'Planning Ryde' - a community and stakeholder engagement outcomes report by Elton Consulting
- → Sydney Green Grid Spatial Framework and Project Opportunities
- → Sydney Green Grid - Northern District
- → Macquarie Park Centre Structure Plan
- → Ryde Local Strategic Planning Statement 2020
- → Integrated Open Space Plan 2012
- → City of Ryde Bicycle Strategy 2014
- → Street Tree Master Plan 2013
- → Ryde Local Environmental Plan 2014
- → Ryde Development Control Plan 2014 (Part 4.5 - Macquarie Park Corridor)

The following pages provide a high level summary of the content of each strategy document and how it relates to the Active Streets Master Plan Project.

In particular, the Draft Strategy for Waterloo Road, Macquarie Park and the Green Grid - Northern District have been interrogated further as part of the project background review.

In addition to the review of strategic framework documents and guidelines an in depth review of the current major development applications/ approvals along Waterloo Road has been undertaken. Proposals reviewed include:

- → Catherine Hamlin Park (McGregor Coxall/ City of Ryde)
- → 45-61 Waterloo Road (John Holland Group)
- → 14-16 Cottonwood Crescent (Scott Carver/ Legacy Property)
- → Macquarie Centre Redevelopment Stage 1 (Oculus/ AMP Capital)
- → 36-40 Waterloo Road (Aspect/ Frasers Property Group and Winten Group)
- → Macquarie Park Bus Priority Infrastructure Program (BPIP) Stage 2 (TfNSW)

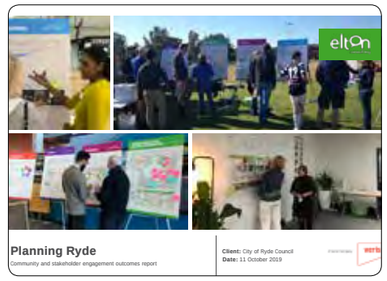


Draft Strategy for Waterloo Road Macquarie Park

An internal strategy document prepared by the City of Ryde to inform the strategic approach to the Waterloo Road Linear Park. The document outlines the overall vision for the project to be:

'The Linear Park will be a publicly accessible open space, which provides passive recreational opportunities and serves as a green spine through the city centre for all members of the public to use and appreciate'

A series of principles, objectives and typical treatment typologies are outlined within the document and will be used as a basis for this study.



'Planning Ryde'

This document provides a summary and analysis of community and stakeholder engagement undertaken by Elton Consulting with the Ryde community. Its focus was to gain feedback on the Draft Ryde Local Strategic Planning Statement. The report includes an overview of the engagement activities delivered and their reach; and a thematic analysis of feedback heard.

The Waterloo Linear Park was reviewed as part of the stakeholder consultation process with participants excited about the proposal. Feedback was focused around inclusions within the linear park including the provision of shade, benches/seating, spaces for yoga/ meditation, BBQ areas and adult play spaces.

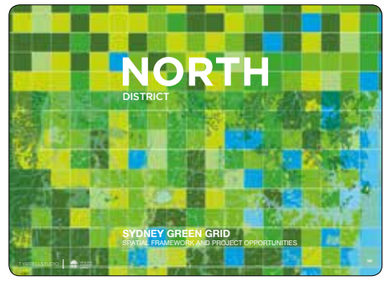
Community spaces, public art, play, areas for exercise and activation were also identified as key elements to further investigated.

Sydney Green Grid Spatial Framework and Project Opportunities

In this report the hydrological, recreational and ecological fragments of the city are mapped and then pulled together into a proposition for a cohesive green infrastructure network for greater Sydney.

This report builds on investigations undertaken by the Office of the Government Architect for the Department of Planning and Environment in the development of District Plans. It interrogates the vision and objectives of the Sydney Green Grid and uses a combination of GIS data mapping and consultation to develop an overview of the green infrastructure needs and character of each district.

Each district is analysed for its spatial qualities, open space, waterways, its context and key natural features. This data informs a series of strategic opportunities for building the Sydney Green Grid within each district.

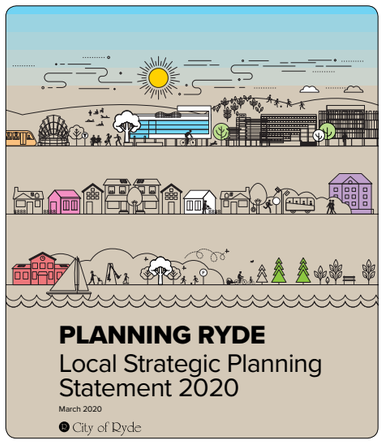


Sydney Green Grid - North

A detailed analysis of the spatial qualities, open space, waterways, context and key feature of the northern district of Sydney. This document identifies Green Grid opportunities in and around the Waterloo Road project site.

The North District has a collection of bushland park reserves, river and creek corridors and natural resources within its catchments that provide significant recreational opportunities across the region. The Lane Cove River, Sydney Harbour and the Hawkesbury Nepean River and their associated creeks and tributaries provide a coherent spatial strategy that defines the North District.

Within this document Waterloo Road has been identified as a Green Link project that is characterised by recreational program.



Ryde Local Strategic Planning Statement

The Local Strategic Planning Statement (LSPS) outlines how Council plans to deliver a high-quality lifestyle and increased opportunities to work, live and play in Ryde. It sets out our 20-year vision, planning priorities and actions.

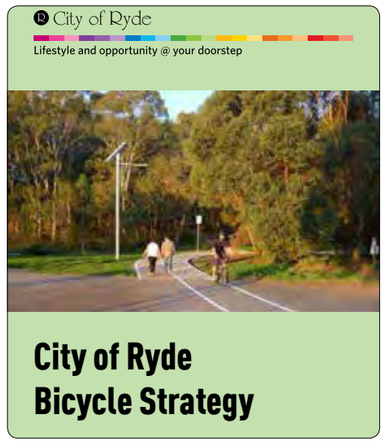
The document has been informed by the Community Strategic Plan, the plan for the City of Ryde and by the people of the City of Ryde.

The LSPS act as an informative document that succinctly outlines the vision for Ryde and gives clarity to the on the LGA's future development and key initiatives such as the Draft Waterloo Road Linear Park Strategy which is appended to the document.

Integrated Open Space Plan

The Integrated Open Space Plan analyses the City of Ryde's existing public open space and makes clear recommendations on how that open space can be conserved, enhanced and extended to meet the community's recreation and leisure needs, both now and into the future. Since the development of the plan in 2012 several of the recommendations have been implemented with several new open space areas along the Waterloo Road corridor currently under r planning approval.

The document provides useful background information about the surrounding open space network and has assisted with determining what program should be included along the Waterloo Road corridor.

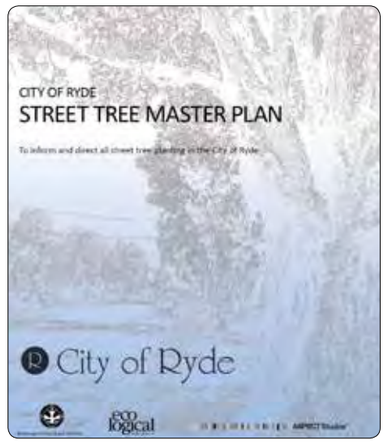


City of Ryde Bicycle Strategy 2014

The Ryde Bicycle Strategy and is a comprehensive plan for improving the environment for people who ride bicycles for transport, health and fitness. This Strategy updates all previous bicycle plans and aims to facilitate increased bicycle use within the City of Ryde over the next 10 years and beyond.

Within the document Waterloo Road is identified as a key area for increased numbers of bicycle parking, specifically around the Macquarie Park and Macquarie University station precincts.

This bicycle strategy has informed the approach to cycleway networks along the Waterloo Road Corridor and how these should be integrated with the Linear Park

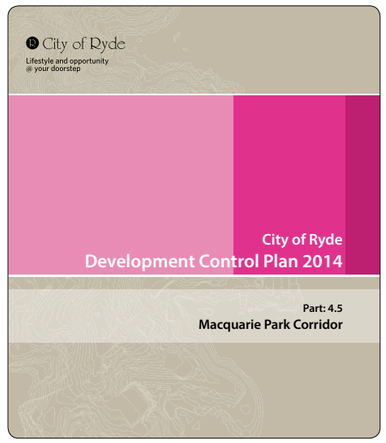


Street Tree Master Plan 2013

This document provides an overarching strategy and master plan for street planting within the Ryde LGA with the target of increasing the extent of Urban Forest.

Urban Forest, as defined within the document, includes the collective of tees within streets, parks, reserves and other public openspace areas, institutional and private land and National Parks. Street trees are identified as contributing to 15% of the total Urban Forest coverage however are considered highly valuable for aesthetic and amenity contributions.

The Street Tree Strategy provides a useful guide that has informed the retention of existing and inclusion of new trees along Waterloo Road corridor.



Ryde Local Environmental Plan and Development Control Plan 2014

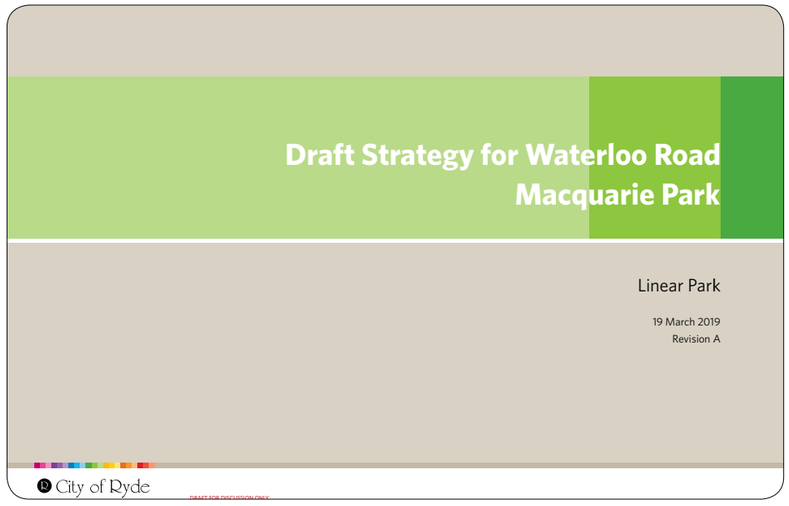
The Development Control Plan (DCP) 2014 provides guidelines, objectives and controls for people who wish to carry out development in the City of Ryde. The Plan provides detailed provisions relating to urban centres, special areas, specific sites, environment, engineering, administration and a variety of development types.

The Ryde Local Environmental Plan (LEP) 2014 provides the necessary framework for how the City of Ryde will advance. It also balances the needs of residents, businesses and investors today with those of future generations.

STRATEGY FOR WATERLOO ROAD

(City of Ryde)

This document provides an overarching vision and principles for the linear park with reference to the future character, materiality and activation of the Waterloo Road corridor. The Council study has formed the basis of this Master Plan.



Vision

The Linear Park will be a publicly accessible open space, which provides passive recreational opportunities and serves as a green spine through the city centre for all members of the public to use and appreciate.

Description

- → Location: within the street setback zone on either side of Waterloo Road
- → Extent:
  - – Eastern end: Macquarie University Station
  - – Western end: intersection of Waterloo Road and Wicks Road
- → Land ownership: privately owned and managed, publicly accessible
- → Sizes:
  - – Total length - approximately 1.9km
  - – A minimum width of 10m, plus existing public domain (approx. 4.5m)

All material sourced from the Draft Strategy for Waterloo Road Macquarie Park, Linear Park Rev A dated 2019 (City of Ryde)

City of Ryde
Lifestyle and opportunity @ your doorstep

Opportunities and Constraints

Likelihood of Redevelopment

- Unlikely to change
  Site recently constructed/under construction
- Some potential to change
  Site with redevelopment potential in the foreseeable future
- Likely to change
  Site already has development interest

Key Development sites

	Address	Development	DA No.	Status
A	109 Waterloo Road	Macquarie Shopping Centre	-	DA approved
B	101-107 Waterloo Road	Prime	LDA2016/567	Under construction
C	82 Waterloo Road	Natura	LDA2016/602	Under Landscape DA
D	80 Waterloo Road	Park One	LDA2016/524	Under Landscape DA
E	85-97 Waterloo Road	Goodman	LDA2017/096	Under DA
F	78 Waterloo Road	Schneider	-	Less than 10 years old
G	66 Waterloo Road	Citrix	-	Less than 10 years old
H	52-58 Waterloo Road	Novartis	-	Less than 10 years old
I	45-61 Waterloo Rd	GPNSW	LDA2017/0390	Under DA
J	6 Eden Park Drive	DuPont		Less than 10 years old
K	9-13 Waterloo Road	New pub	LDA2016/196	Less than 10 year old
L	1-7 Waterloo Road	New serviced apartments	LDA2015/133	DA approved

City of Ryde
Lifestyle and opportunity @ your doorstep

Site Context

Full Circuit:
3.8km Walking - 50-60 minutes
Jogging - 25-30 minutes

Core Circuit:
2km Walking - 25-30 minutes
Jogging - 10-15 minutes

Quick Circuit:
1.2km Walking - 15-20 minutes
Jogging - 5-8 minutes

Signalised crossing point
Connection to adjacent recreational space

Opportunities/Strengths:

- Macquarie Park as an up-and-coming CBD
- Generous tree coverage
- Connectivity to two railway stations
- A continuous shared path available on northern side
- Potential integration with recreational space in Macquarie University and Lachlan's Line

Constraints/Weaknesses:

- Waterloo Road carrying with a high volume of traffic
- Recently developed sites unlikely to change
- Existing mature trees in the setback zone to be retained
- Level changes
- Limited crossing opportunities

Who is it for?

Primary users:

- Workers (at different fitness levels) seeking lunch time/after-hour exercising opportunities
- Local residents, including families, children and elderly
- Commuters
- Students

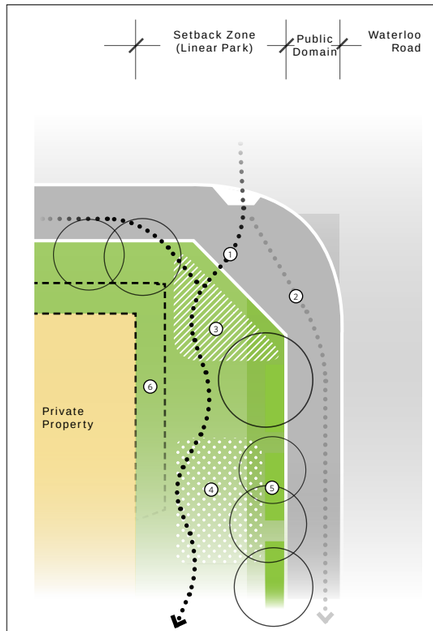
Secondary users:

- Cyclists

Scenario 1 - Arrival Point

Applicable to:

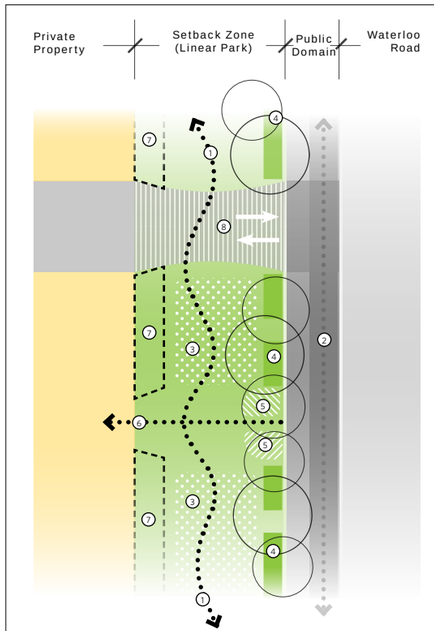
- Corner sites
- Sites that have frontages to a public road and a public open space e.g. Shrimptons Creek



Scenario 2 - Green Corridor

Applicable to:

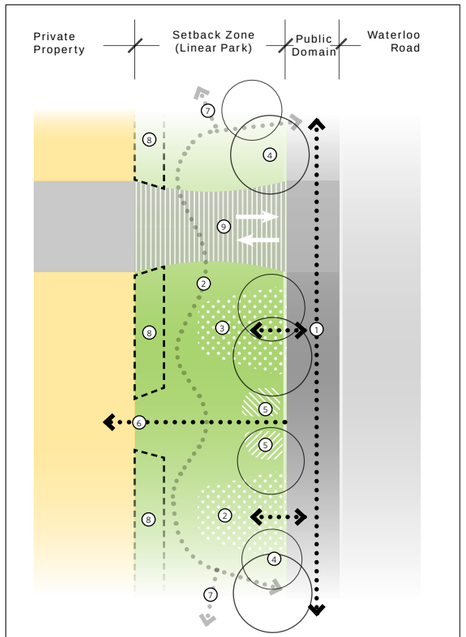
- Major development sites with a significant frontage
- Sites neighbouring properties with a high redevelopment potential or a development proposal



Scenario 3 - Pocket Park

Applicable to:

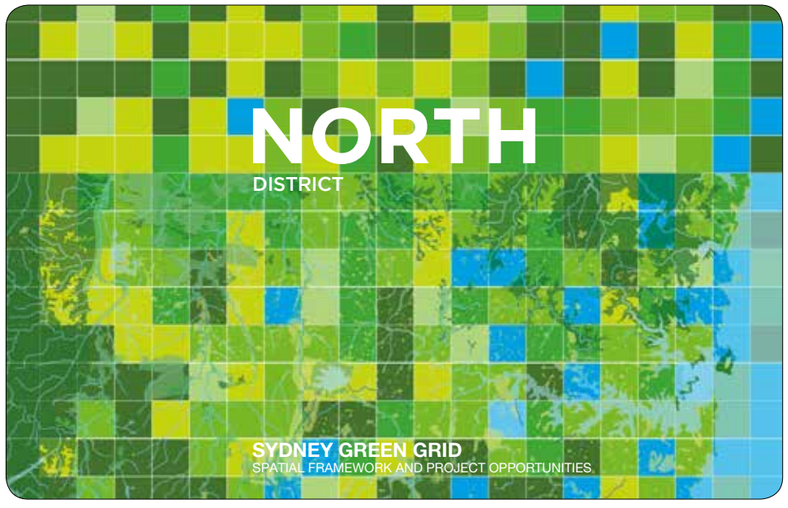
- Sites with a smaller frontage
- Sites neighbouring properties which are unlikely to redevelop in the foreseeable future



SYDNEY GREEN GRID

Northern District (Government Architects and Tyrell Studio)

This document outlines the visionary approach to recreational, hydrological and ecological gird of Sydney. It has been used to inform the approach to Waterloo Road at both a local and regional scale.

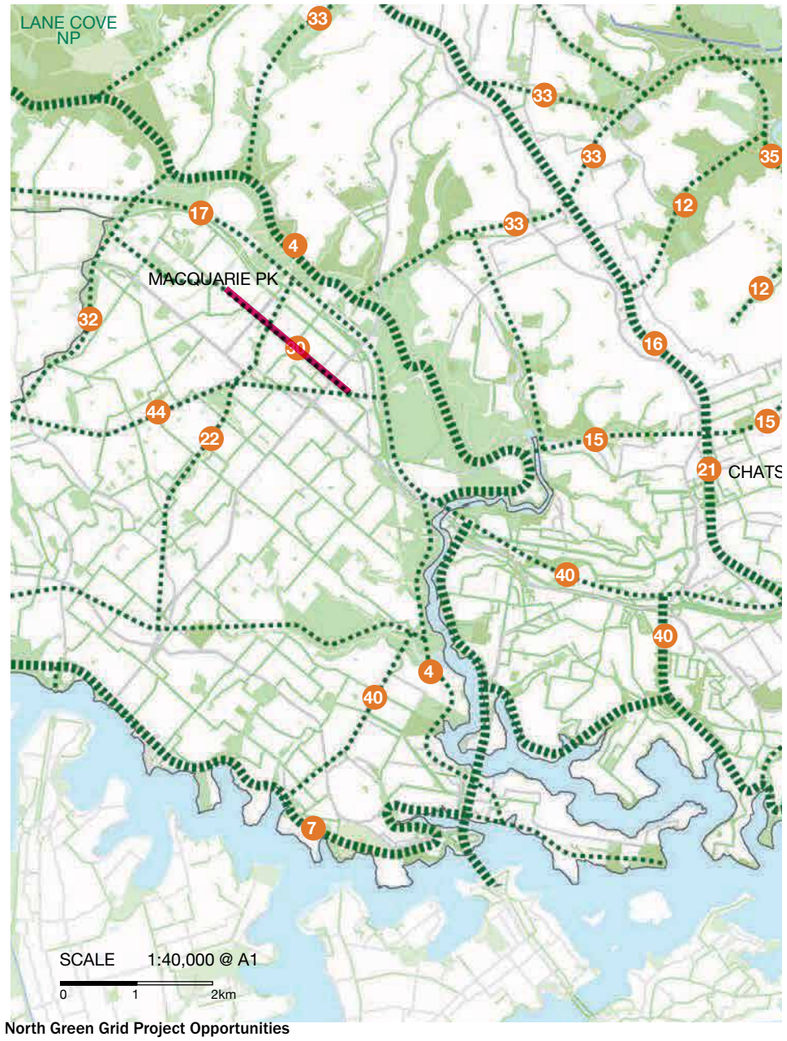


North District project matrix

Waterloo Road has been identified as having a dominant recreational grid layer that supports the concept of the Linear Park and is listed as a priority project within the Green Grid Northern District Plan. It have been assessed to have a count value of 5 as per the assessment criteria outline below:

Project Name	Count Value	Recreational Value	Connectivity Value	Proximity to Development	Open Space Deficiency
30 - Waterloo Road Green Link, Macquarie Park	5	1	2	1	1

All material sourced from the Green Grid - North District (Government Architects with Tyrell Studio)



North Green Grid Project Opportunities

Lane Cove River Precinct

Liveability will be Sydney's competitive advantage in the decades ahead. Integrated with areas of urban development, a high quality well maintained Green Grid will provide new landscapes for Sydney's communities. It will help promote healthy living and community spirit through access to recreation and cultural opportunities whilst also promoting biodiversity. This project will apply the principles developed in the Sydney Green Grid Strategy. These principles include:

The Recreational Grid

Increase access to open space

→ Improve connectivity to key regional destinations, foreshores, beaches and bays and continue to invest in the improvements of major parks and infrastructure
→ Improve public domain and create new open space destinations as a benefit of key development and infrastructure projects
→ Improve access to open space across major roads and infrastructure barriers
→ Create new open space as a part of urban renewal, infill and infrastructure schemes and continue to invest in revitalising existing parks for the benefit of both the District and greater metropolitan Sydney
→ Improve the diversity of recreation opportunities available throughout the Districts, with a particular focus in higher density areas.

Encourage sustainable transport connections and promote active living

→ Promote and improve the pedestrian environment to increase the enjoyment of travelling on foot and by bike
→ Encourage active and healthy living through improvements in the public domain that facilitate exercise and alternative modes of transport such as walking, cycling and jogging
→ Align the open space network with longer term transport plans. Protect priority green corridors and create a network of walking trails, cycle paths and open spaces along the river and creek corridors
→ Enhance connectivity and legibility of recreational trails, particularly in and around high density precincts.

Create a high quality and active public realm

→ Create vibrant, multi-functional and enduring public spaces
→ Provide a variety of dynamic spaces that are pedestrian-friendly, support street life and community activity and are places for social interaction and recreation
→ Integrate key civic spaces or destinations with public transport opportunities and existing development.

The Hydrological Grid

Utilise the network quality of the hydrological system

– The Blue Grid offers an opportunity to use Sydney's water systems as an interconnected network. Connecting public open space and active transport and pathway systems along waterways creates a complex and connected layer of the Green Grid. Making multi-use of land adjacent to waterways for water treatment, protection of ecological communities, open space and recreation.

Increase environmental quality

→ Improve the water and ecological quality of waterways along the entirety of the hydrological system. Approaches including water sensitive urban design (wsud), daylighting of waterways and stormwater reuse will take a soft infrastructural approach and aid in a city wide water quality improvement while also reducing ongoing hard infrastructure requirements.

Reduce infrastructure risk

→ Successful management of water systems are critical to the ongoing function of the city. As a growing city, Sydney needs a resilient waterway network that successfully manages flood risks, reduces peak flows and maximises infrastructural resilience in the face of rapid population growth and environmental change.

Reveal the unique character of Sydney's waterscapes

→ Enhance the particular character of Sydney's waterways to define the landscape character and urban structure of the districts of the city
→ A planning and urban design approach that is responsive to these systems will help to connect people to a sense of place specific to their location in Sydney.

Re-frame waterways as connectors not barriers

→ Waterways have often become edges to development that become barriers between communities. The blue grid offers the opportunity to use waterways as central to defining the urban structure of the city and to become the glue that binds communities together.

The Ecological Grid

Conserve the natural environment

→ Protect and enhance the natural resources and biodiversity of the districts by improving the quality of watercourses, creating green habitat corridors and protecting endangered ecological communities
→ Promote the wealth of social, cultural, recreational and educational opportunities within key natural, cultural and heritage landscapes
→ Improve the ecological value of watercourses especially the heavily engineered concrete lined channels
→ Restore and enhance wetland habitats and increase accessibility to them
→ Promote social, cultural and recreational opportunities at key natural, cultural and heritage landscapes
→ Create green corridors that provide habitat and biodiversity connections along major and minor watercourses

Adapt to climate extremes, improve air quality and increase urban greening

→ Create resilient built environments through co-ordinated planning and design of green cover strategies including street trees, green walls and roofs, canopy trees, cool pavements and water sensitive urban design.
→ Promote green cover as integral to alleviating the effects of urban heat island effect while providing benefits such as improved amenity, comfort, health, reduced stormwater runoff, improved air and water quality and energy and resource efficiency
→ Encourage the use of currently underutilised open space corridors for local community use as community gardens.

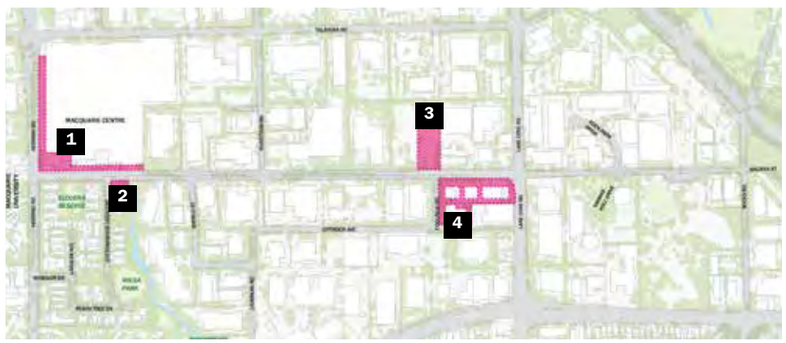
Promote green skills, improve management, maintenance and sustainable greenspace design

→ Continue to invest in local, state and federal programs encouraging participation and skills training in environmental rehabilitation and open space, land management and maintenance
→ Support the development of new and existing programs that enable voluntary community involvement in green initiatives including bush regeneration and community gardens
→ Develop local council policies to encourage local food production as a recreational opportunity for local communities
→ Support the federal governments 'green army programme' to rehabilitate riparian bushland and improve water quality while allowing participants to work towards conservation land management.

CURRENT MAJOR DEVELOPMENT APPLICATIONS/ APPROVALS

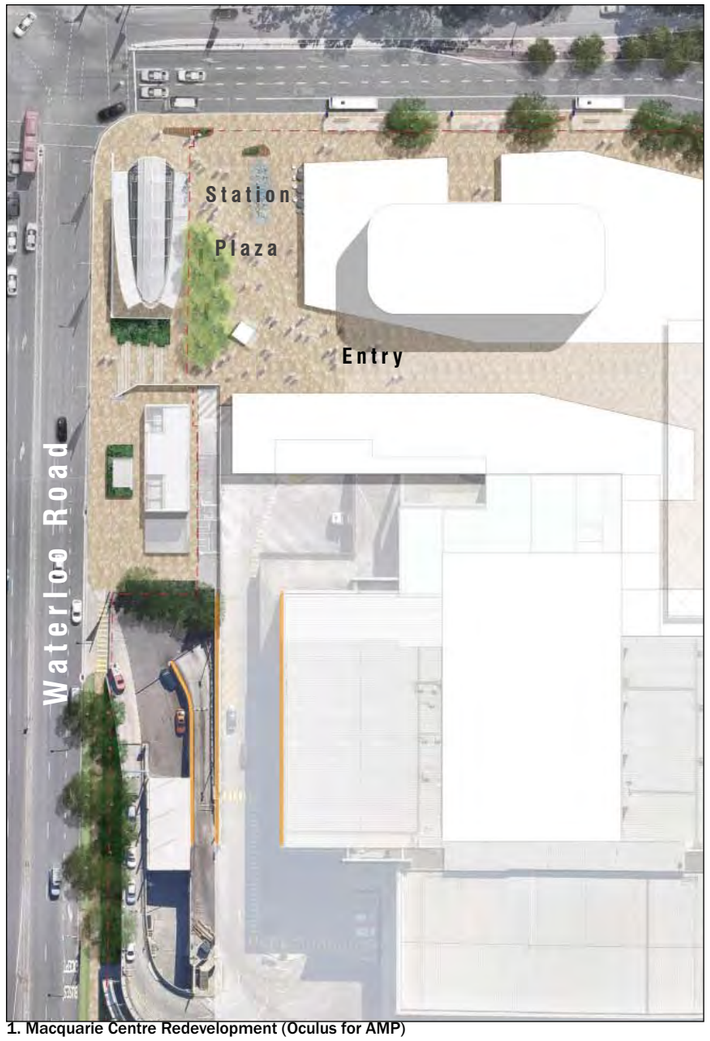
(Various)

Several major developments along Waterloo Road are currently in application and/or approval process. Each of these has significant public realm areas that will be required to seamlessly stitch into the Linear Park Master Plan to ensure cohesion along the corridor. The following pages outline the main public realm elements that will be incorporated into the final outcome for Waterloo Road noting that all designs within lot boundaries have been approached as fixed items and not subject to change as part of this Master Plan.

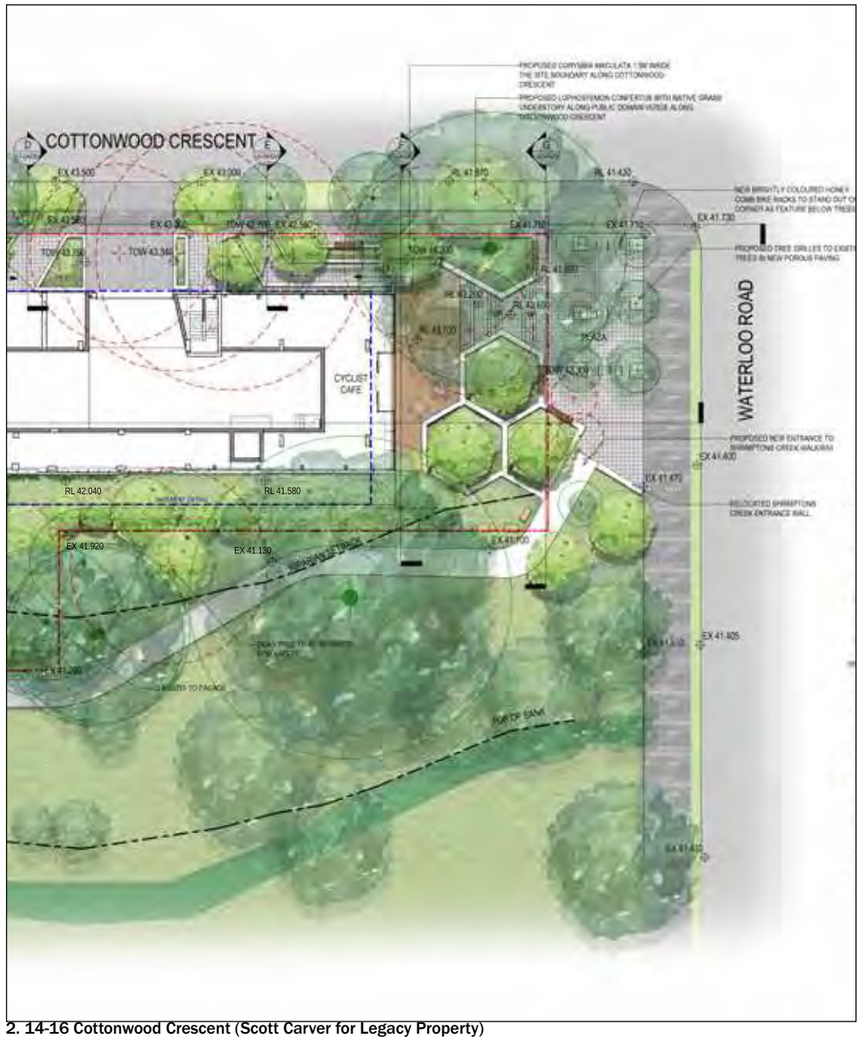


Current public realm improvements

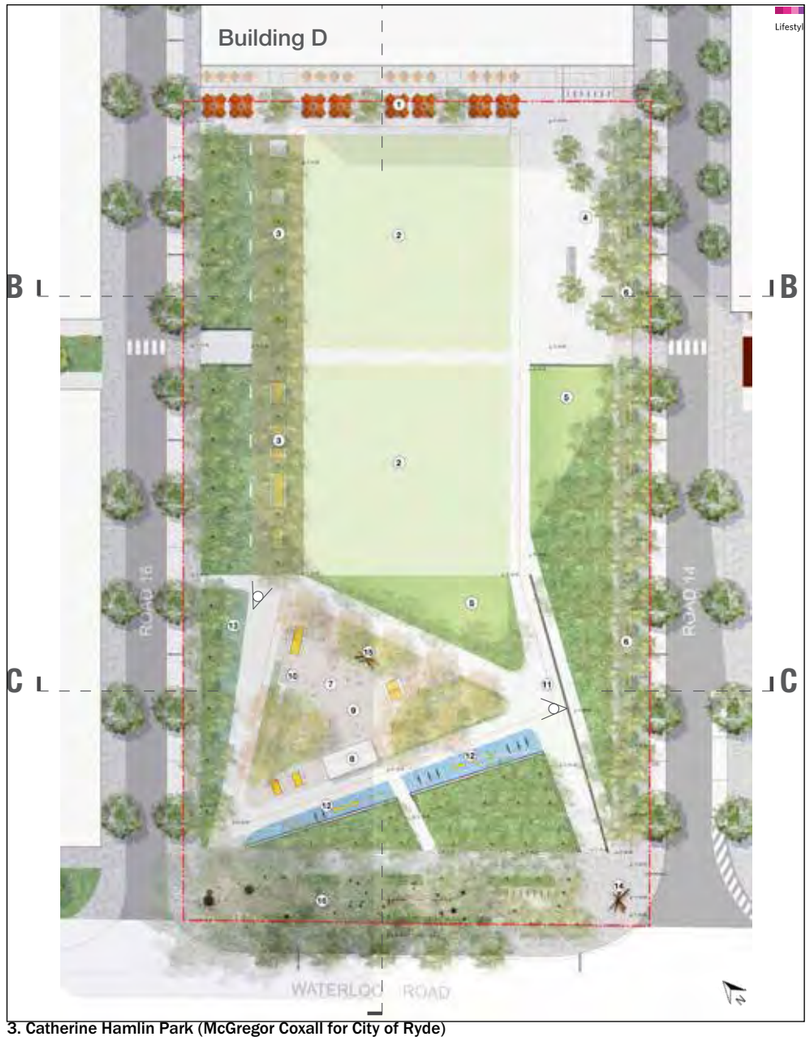
1. Macquarie Centre Redevelopment Stage 1 (Oculus/ AMP Capital)
2. 14-16 Cottonwood Crescent (Scott Carver/ Legacy Property)
3. Catherine Hamlin Park (McGregor Coxall/ City of Ryde)
4. 36-40 Waterloo Road (Aspect/ Frasers Property Group and Winten Group)



1. Macquarie Centre Redevelopment (Oculus for AMP)



2. 14-16 Cottonwood Crescent (Scott Carver for Legacy Property)



3. Catherine Hamlin Park (McGregor Coxall for City of Ryde)

4. Macquarie Exchange (Aspect for Frasers Property Group and Winten Group)

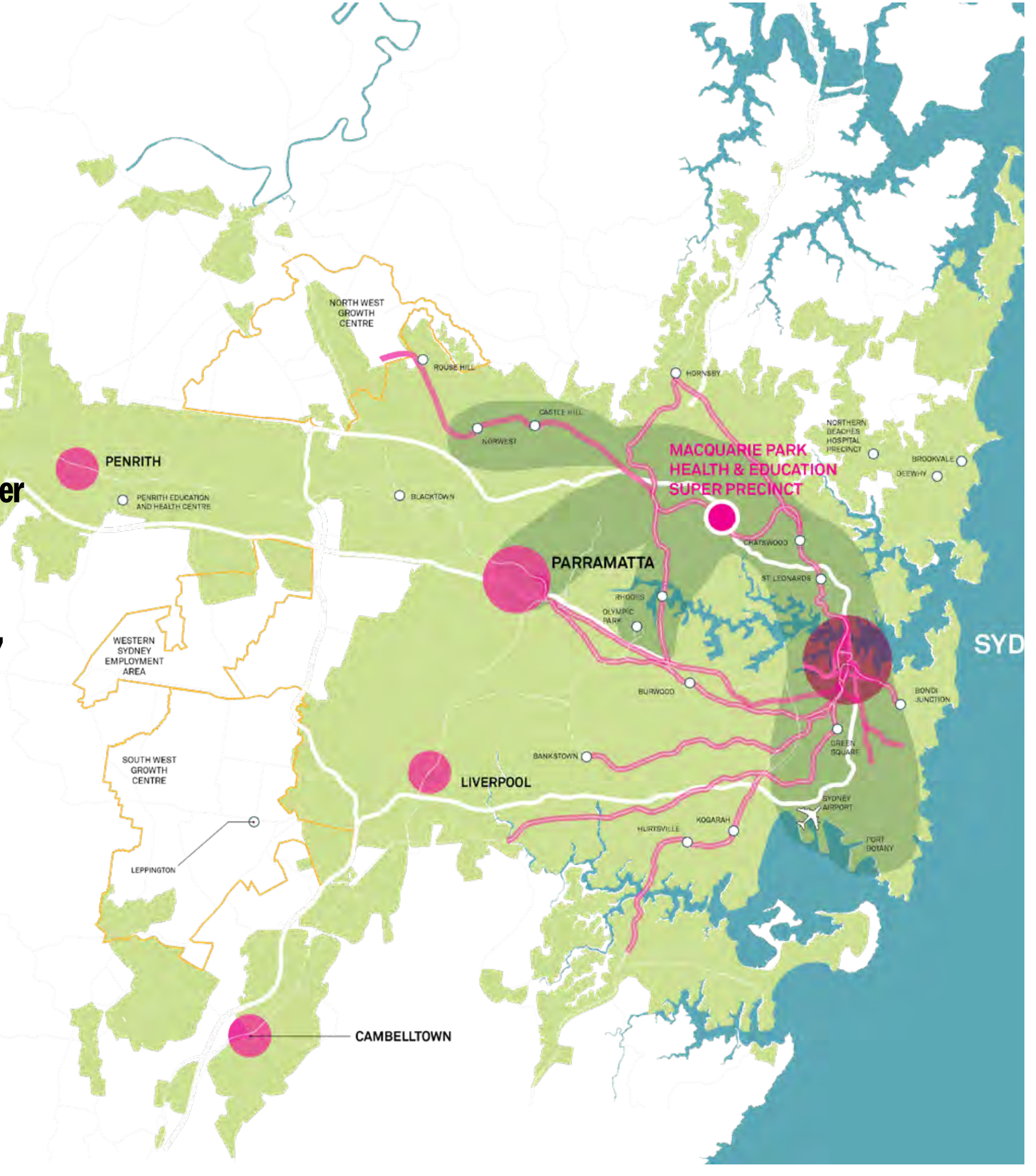
1894 Map of Ryde LGA. Source: Atlas of Sydney

ANALYSIS

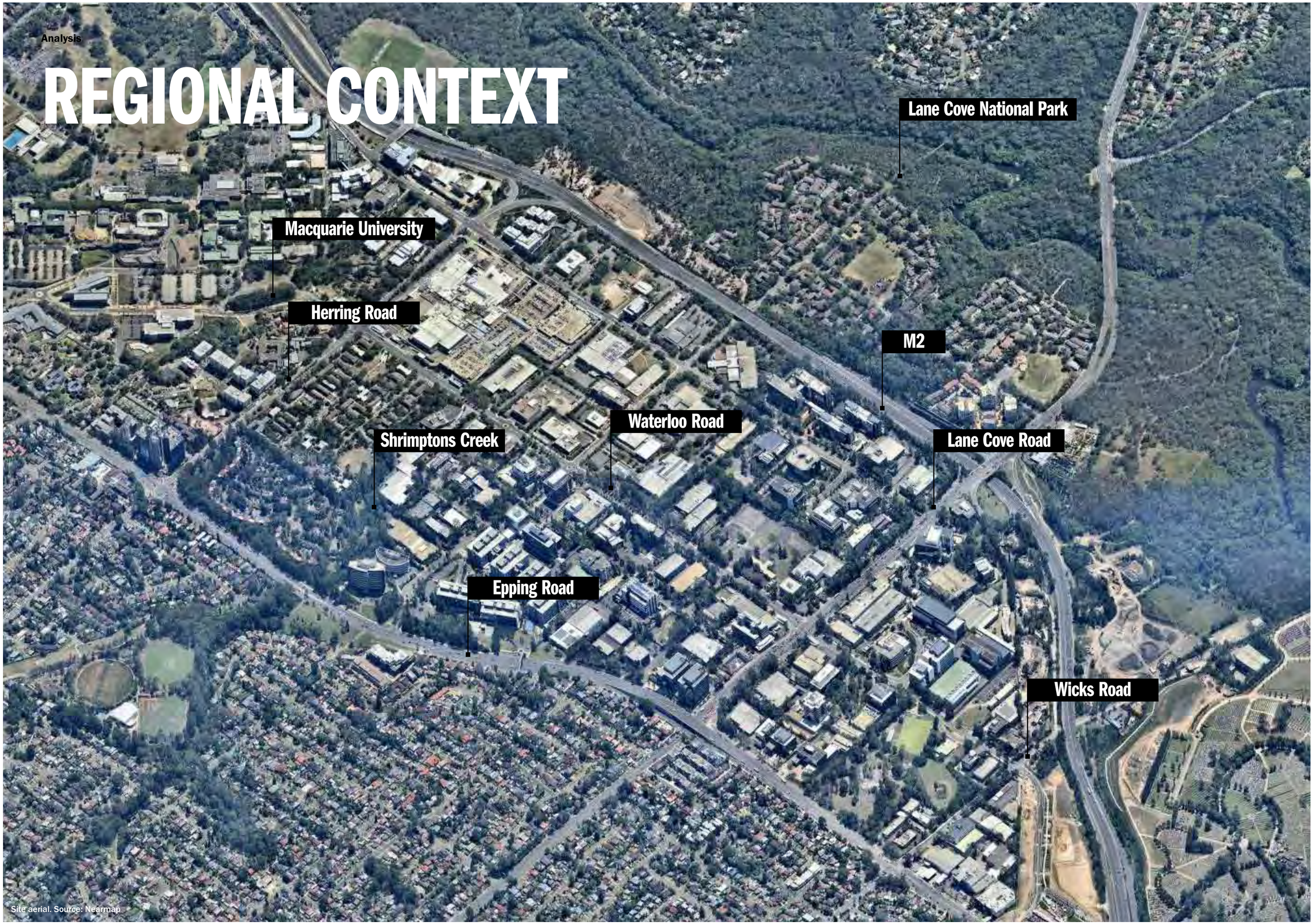
METROPOLITAN CONTEXT

Waterloo Road is located in the suburb of Macquarie Park within the City of Ryde Council in Sydney's north-western suburbs, about 10 kilometres from the Sydney CBD.

Macquarie Park is identified as a Strategic Centre along the Global Economic Corridor under "A Plan for Growing Sydney' and as a Priority Precinct within the Epping and Macquarie Park Urban Renewal Area. It it is an area attracting significant government investment in transport, infrastructure and education facilities.



REGIONAL CONTEXT



Site aerial. Source: Nearmap

A PLACE RICH IN CREEKS AND ECOLOGIES

‘A rich environment of river flats, creeks and mangrove swamps, fishing with pronged spears and handlines, feasting on shellfish, hunting birds and small game, and collecting a variety of edible bushfood plants.’

Source: http://www.ryde.nsw.gov.au/Library/Local-and-Family-History/Historic-Ryde/Aboriginal-History

Wallumedegal

Aboriginal people lived for thousands of years in what we call the City of Ryde. When the first Europeans settled at Sydney Cove in 1788 the traditional owners of this area were the Wallumedegal. That name was told to Captain Arthur Phillip, first governor of the convict colony of New South Wales, by Woollarawarre Bennelong who came from the clan called the Wangal on the south side of the river.

It is likely that the name Wallumedegal or Wallumattagal was derived from wallumai the snapper fish, combined with matta, a word used to describe a place, usually a water place, as with Parramatta and Cabramatta. That would mean they were the snapper clan and the fish was their totem, just as burra (the eel) was the totem of the Burramatta or Boromeda-gal or clan at Parramatta and cobra (the white grub of the shipworm) that of the Cobragal at present Liverpool and Cabramatta.

Wallumedegal territory followed the north bank of the Parramatta River from Turrumburra (Lane Cove River) in the east to Burramatta at the head of the river to the west. The northern boundary would logically be the Lane Cove River and the northern neighbours therefore the Cameragal or spear clan. Further east, opposite the Cameragal, were the Cadigal, a harbour-dwelling clan, which occupied the present Eastern Suburbs and City of Sydney, from Inner South Head to Darling Harbour.

The Wallumedegal survived for generations in a rich environment of river flats, creeks and mangrove swamps, fishing with pronged spears and handlines, feasting on shellfish, hunting birds and small game, and collecting a variety of edible bushfood plants. They spoke the same language as the Port Jackson and coastal clans, from Botany Bay to Broken Bay. The dialect of the sea coast, wrote Marine Captain Watkin Tench, was spoken at Rose Hill (Parramatta). The dialect of the same language west of Parramatta is now called Darug.

The first encounters between the foreigners in boats and the river people in February 1788 were friendly, with laughter and mimicry on both sides. Their lives changed forever the following November when armed marines built an earthwork fort at Parramatta.

Dispossession

This action displaced the family of the Burramattagal elder Maugoran and his wife Gooroobera, who were forced to move down the river to The Flats, near Meadowbank. Then in April 1789 came the smallpox epidemic, which Bennelong said killed half the Indigenous population. Smallpox might account for the fact that no Wallumedegal are identified in history, unless, which is possible, either or both of Maugoran's wives, Gooroobera or Bidgee Bidgee - mother Tadyera who died of dysentery, were Wallumedegalleon (wallumedagaliang), or women belonging to the clan.

This projects presents the opportunity to reveal indigenous histories of site through heritage interpretation, signage at key nodal points and installation of planting that is inspired by the historic ecological communities of Macquarie Park.

A PRECINCT OF TREE LINED RIDGES AND GULLIES

Historically the Waterloo Road corridor has been characterised by a combination of two endangered ecological communities - Shale/Sandstone Transitional Forest and Sydney Turpentine Ironbark Forest. Remnant zones of each communities are present on site with the opportunity for this project to build on the objectives of Councils Biodiversity Plan .

Native Vegetation: protecting and managing Ryde's native vegetation

→ Native vegetation provides habitat for plants and animals and is the cornerstone of biodiversity and ecosystem processes across the City of Ryde.

Urban Waterways: restoring waterways and surrounding environments

→ Ryde's waterways provide a unique environment and support a range of species, as well as serving as the backbone for connectivity across the LGA.

Corridors and Connectivity: linking the landscape

→ Corridors connect larger habitat patches allowing movement of species and/or genetic interchange among native flora and fauna – thereby maintaining biodiversity.

Public Spaces: managing our reserves to promote biodiversity and community interaction

→ Public reserves are a focal point for biodiversity management, places of rest and recreation for Council residents, and support the large areas of vegetation in the LGA.

Urban Habitat: protecting and managing biodiversity in the urban landscape

→ Biodiversity in an urban environment connects people with nature. As city dwellers, Council and its residents have a responsibility for stewardship of biodiversity, its management and protection

Source: City of Ryde Biodiversity Plan 2016

Pre 1788 vegetation communities (adopted from Urban Bushland in the Ryde LGA, 2001)

Sydney Turpentine-Ironbark Forest

Sydney Turpentine-Ironbark Forest historically occured on the deep clay soils of the drier hill sides, plateaux and clay layers in sandstone in Ryde and East Ryde. It was probably the most common native bushland type in Ryde before European settlement. The natural distribution of Sydney Turpentine–Ironbark Forest is limited to the Sydney Region, where it naturally occurred on undulating clay soils overlaying Hawkesbury Sandstone on the Hornsby Plateau and in Sydney's inner-west where rainfall is between 900 and 1,000mm. This landscape type is classified as "Glenoirie soil landscape".

In Sydney Turpentine-ironbark Forest the trees are between 20-30 m tall with an open understorey consisting of flowering shrubs and native grasses. The main canopy trees in this plant community are Turpentine, Angophora, Grey Ironbark, Broadleaved Ironbark, White Stringybark and Red Mahogany with an understorey of wattles, Hop Bush and native grasses and herbs.

Because this land is very fertile, the forests were cut down for timber and farming, and is now developed for housing. Very few remnants of Turpentine-Ironbark Forest remain in the Sydney region and indeed in Australia. The most substantial remnant in Ryde remains in Wallumatta Reserve in East Ryde. It is owned and managed by the National Park and Wildlife Service. Smaller and unfortunately more degraded remnants can be found locally in Stewart Park, Macquarie University and Meadowbanks Park. The only other significant remnant surviving in Australia is the Newington Forest on the Olympic site in Homebush.

Sydney Turpentine-Ironbark Forest is listed as an endangered community under the Threatened Species Conservation Act 1995. An estimated 0.5% remains of the original extent. This means that Sydney Turpentine-Ironbark Forest is likely to become extinct unless the human activities threatening its survival are ceased and remaining remnants are managed sustainably.

Threats are identified as clearing, physical damage from recreational activities, rubbish dumping, mowing and weeds.

Dominant tree species

- → Smooth-barked Apple
- → Grey Ironbark
- → Turpentine

Associated tree species

- → White Mahogany
- → Thin-leaved Stringybark
- → Broad-leaved Ironbark
- → White Stringybark
- → Wollybutt
- → Grey Box
- → Red Mahogany

Source: Urban Bushland in the Ryde LGA, 2001

Shale/Sandstone Transition Forest

Shale/Sandstone Transition Forest is a native plant community, which occurs in the narrow band where the gently undulating Cumberland Plain meets steep slopes of the Sandstone Country. It often occurs in linear shape between Turpentine Ironbark Forest and Sandstone Gully Forest and can be found in stands as narrow as 20 meters in width.

This plant community has evolved in the specific conditions characteristic of the transitional areas between the clay soils derived from Wianamatta Shales and the sandy soils and cliffs of the Hawkesbury Sandstone. Its natural distribution is limited to the margins of the Cumberland Plain in the Sydney Region.

The coming together of two distinct landscape types means that the species associated with each of the adjacent ecosystems intermingle to form an individual distinct unit. Characteristics are high diversity and unusual species composition. The structure of the community is forest or woodland with an understorey of shrubs and native grasses and herbs. Typical trees are Grey Gum, White Stringybark, Red Mahogany, Grey Ironbark, Broad-leaved Ironbark, and Narrow-leaved Ironbark.

Small stands of this naturally rare community remain, of which a small number can be found in the northern area of the Ryde LGA along Epping Road and near Macquarie University.

Shale/Sandstone Transition Forest is listed as an endangered ecological community under the Threatened Species Conservation Act 1995. In view of the small size of existing remnants and the threat of further clearing and other threatening processes, the community is likely to become extinct unless threatening activities cease.

Dominant tree species

- → Blue-leaved Stringybark
- → Narrow-leaved Ironbark
- → Thin-leaved Stringybark
- → Broad-leaved Ironbark
- → White Stringybark
- → Grey Ironbark
- → Grey Gum
- → Red Mahogany
- → Narrow-leaved Stringybark

Associated tree species (strong shale influence)

- → Forest Oak
- → Spotted Gum
- → Scribbly Gum
- → Blackbutt
- → Turpentine

Associated tree species (strong sandstone influence)

- → Narrow-leaved Apple
- → Smooth-barked Apple
- → Yellow Bloodwood
- → Red Bloodwood
- → Blue Mountain Mahogany
- → Stringybark
- → Scribbly Gum
- → Hard-leaved Scribbly Gum
- → Scaly Bark

Source: Urban Bushland in the Ryde LGA, 2001

Sydney Turpentine - Ironbark Forest

Shale/ Sandstone Transitional Forest

Lane Cove National Park from De Burgh Bridge (east of project site)

A PATCHWORK OF FARMS AND ORCHARDS

‘This land was settled by dozens of small farmers and investors and even by the 1950's much of it was still market gardens, orchards and poultry farms’

Source: http://home.dictionaryofsydney.org/city-of-villages-ii/

Settlement

On the 3rd January 1792, the first land in the Ryde area was granted to eight marines, along the northern bank of the river between Sydney and Parramatta. The area was named by Governor Phillip the 'Field of Mars', Mars being the ancient God of war, named to reflect the military association with these new settlers. These grants were followed soon after by grants to ten emancipated convicts in February 1792, the land being further to the east of the marines grants, thus the area was called Eastern Farms or the Eastern Boundary.

By 1803 most of the accessible land had been granted. Settlement was based along the Parramatta River and overlooking ridges. Governor King recognised that most of the smaller settlers had insufficient land for their stock but it was not possible to grant them larger allotments. In 1804 it was decided that a 'traditional English common' - a large area of public land for use by local inhabitants - would be set aside. Six commons were gazetted.

The Field of Mars Common, an area of approximately 5,050 acres located north of the Field of Mars and the Eastern Farms, covered most of the Ryde municipality. The village itself comprised only a modest scattering of houses in a few streets around the church, surrounded by farms, orchards and some large estates. Nevertheless the name was well-established by 12 November 1870 when the Municipal district of Ryde was officially proclaimed.

Source: https://www.ryde.nsw.gov.au/Library/Local-and-Family-History/Historic-Ryde/History-of-Ryde

Villages and Towns

By the late 1800s, villages and town centres began to spring up along main roads and around train stations bringing with them large increases in population. Throughout the 1950s, Ryde continued to grow and urbanise. In 1957, Top Ryde, Australia’s first drive-in shopping mall, opened its doors. Macquarie University was established in 1964, and the post war housing boom was matched by an expansion of Ryde’s industrial and scientific sectors, including the establishment of a number of CSIRO facilities and the Gladesville industrial area. In 1981, Macquarie Shopping Centre was opened and to this day it remains one of the largest shopping centres in New South Wales.

Source: City of Ryde LSPS 2020

City of Ryde

Today, the City of Ryde local government area (LGA) covers an area of approximately 40 square kilometres, including waterways (including Lane Cove and Parramatta Rivers) and parklands. It is located 12 kilometres from the Sydney CBD, and includes 16 suburbs, two major rivers, 200 hectares of natural areas, 207 parks and open spaces, a leading university, two TAFE colleges, and 29 schools with a total of over 58,000 students.

The City of Ryde is currently home to 125,000 residents in over 43,000 households.

Source: City of Ryde LSPS 2020

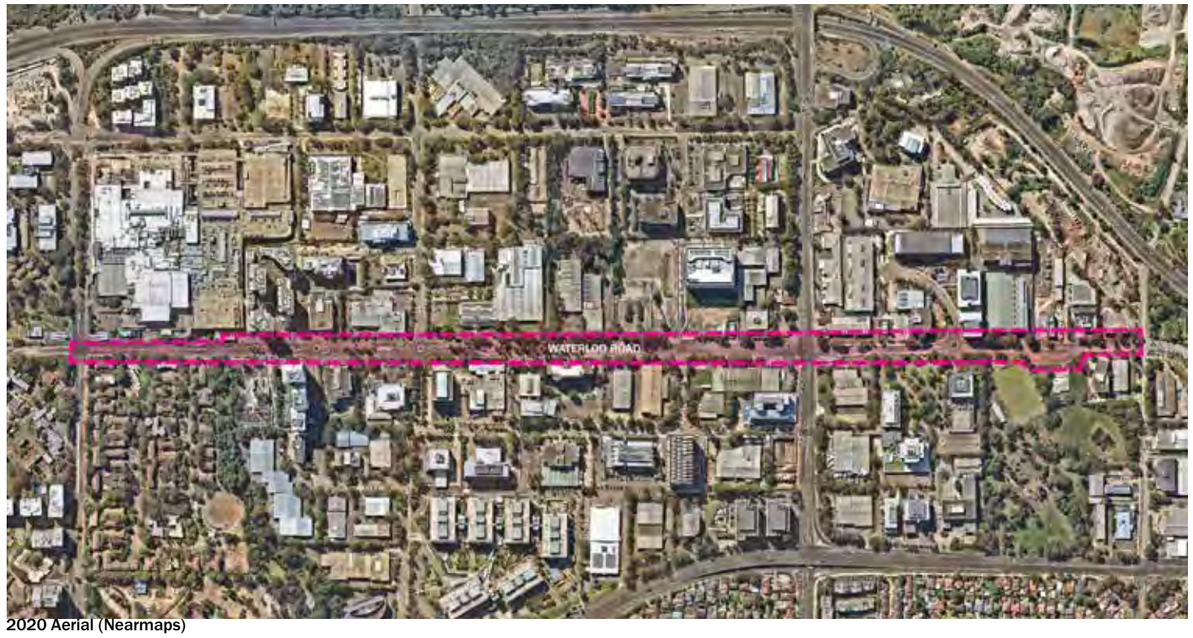
HISTORIC EVOLUTION

A hierarchy of roads and creeks that have dictated the last 120years of development along Waterloo Road

1894 Map

1943 Aerial (Six Maps)

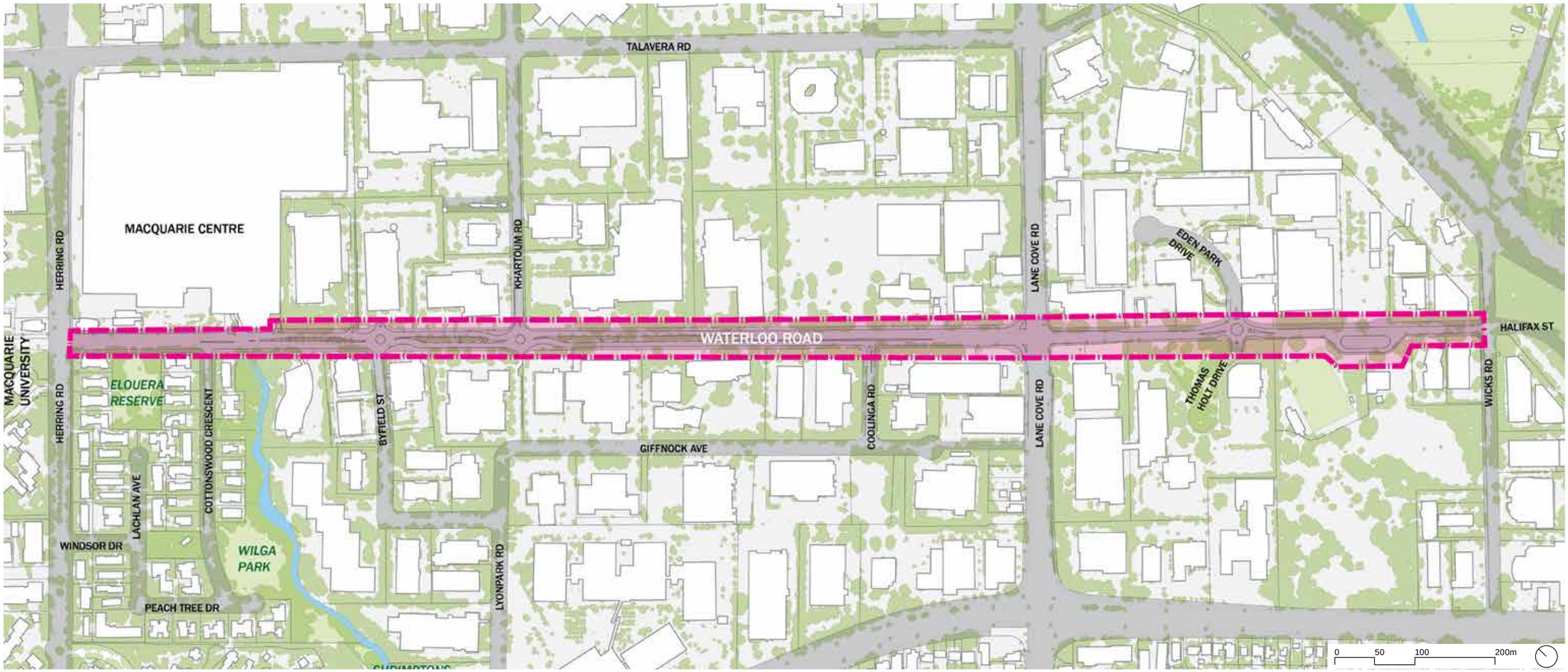
2003 Aerial (Google Earth)



2020 Aerial (Nearmaps)

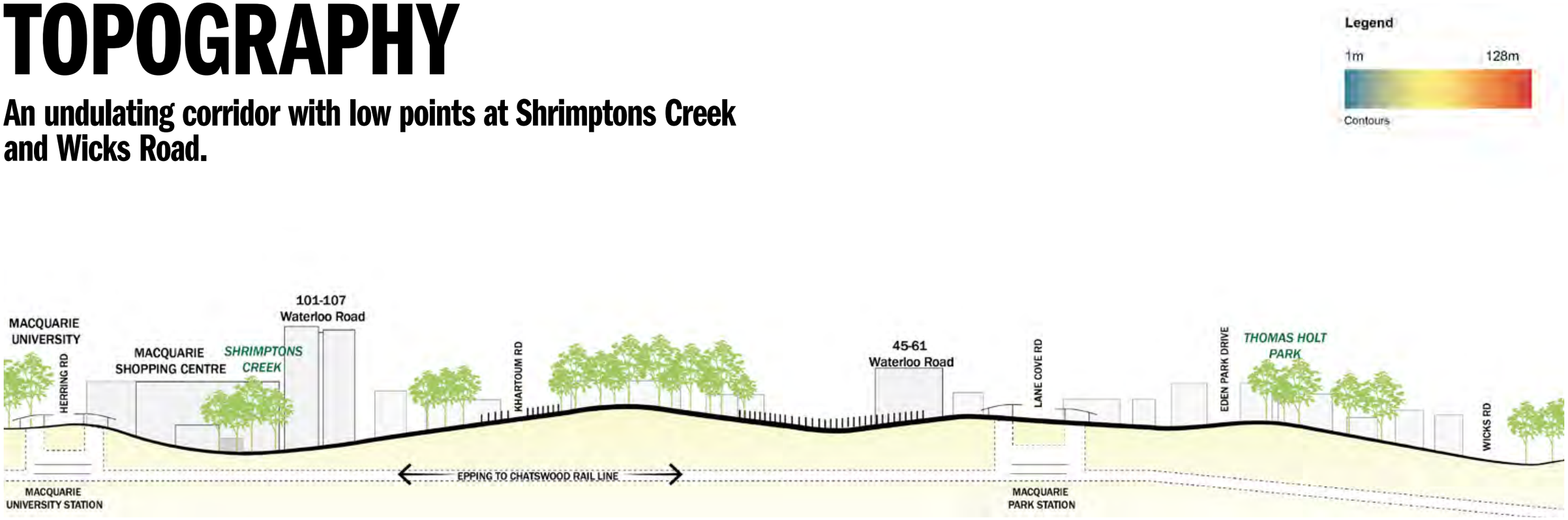
PROJECT BOUNDARY

A 1.9km corridor with opportunity to influence verge treatments and a 10m zone within property boundaries along Waterloo Road.



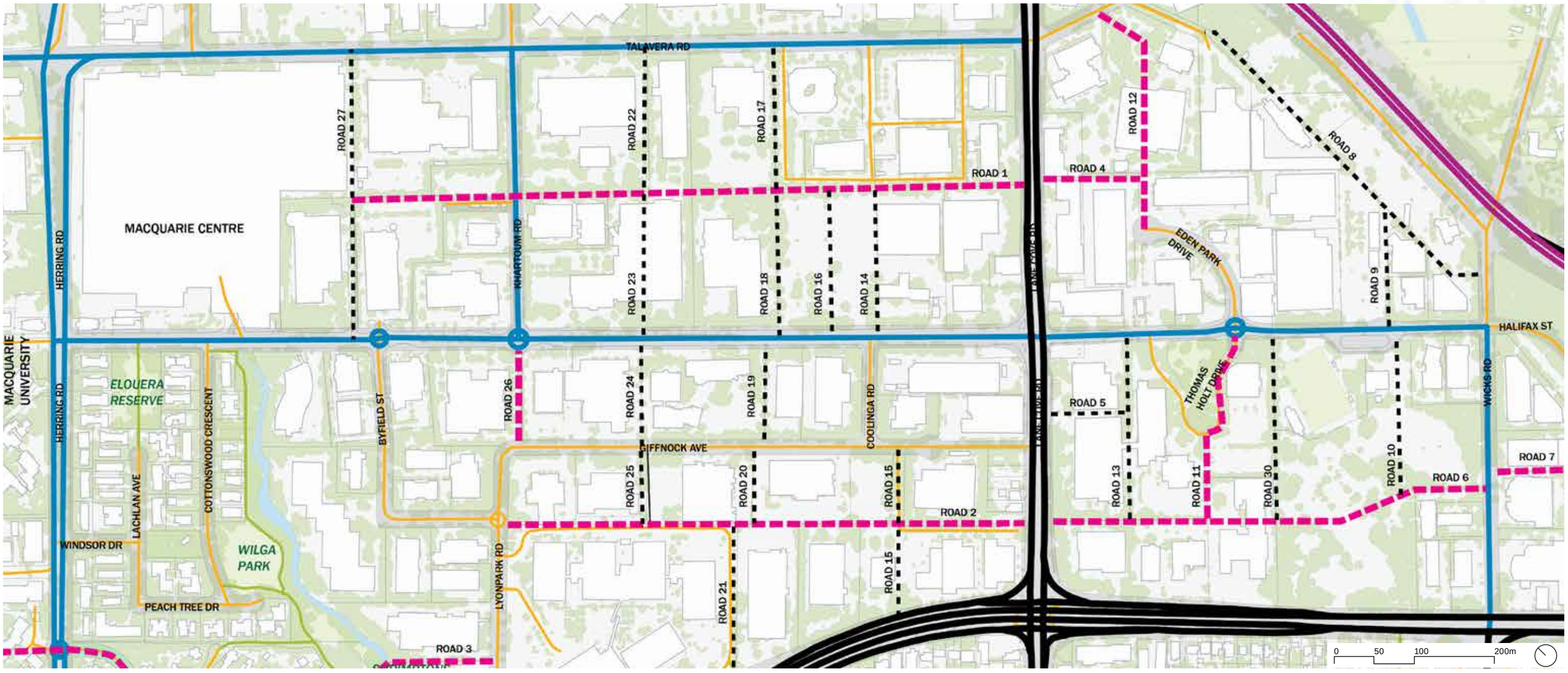
TOPOGRAPHY

An undulating corridor with low points at Shrimptons Creek and Wicks Road.



STREETS

Waterloo Road is a vehicular orientated movement corridor that is hostile and loud. Future north-south streets will create the opportunity for traffic calming and greater permeability, relieving some of the existing traffic congestion along the Waterloo Road corridor.



TRAFFIC FLOWS

AM peak hour.

Legend

- 2,000 - 2,500 vehicles/ hour
- 1,500 - 2,000 vehicles/ hour
- 1,000 - 1,500 vehicles/ hour
- 500 - 1,000 vehicles/ hour

Note: Content adopted from JMT Consulting Transport Study. Refer to Appendix A

CYCLE

Seperated cycle paths that are delineated through line marking and occur intermittently along footpath zones.

Legend

- Adjacent regional (existing or planned) cycle routes
- Existing shared path

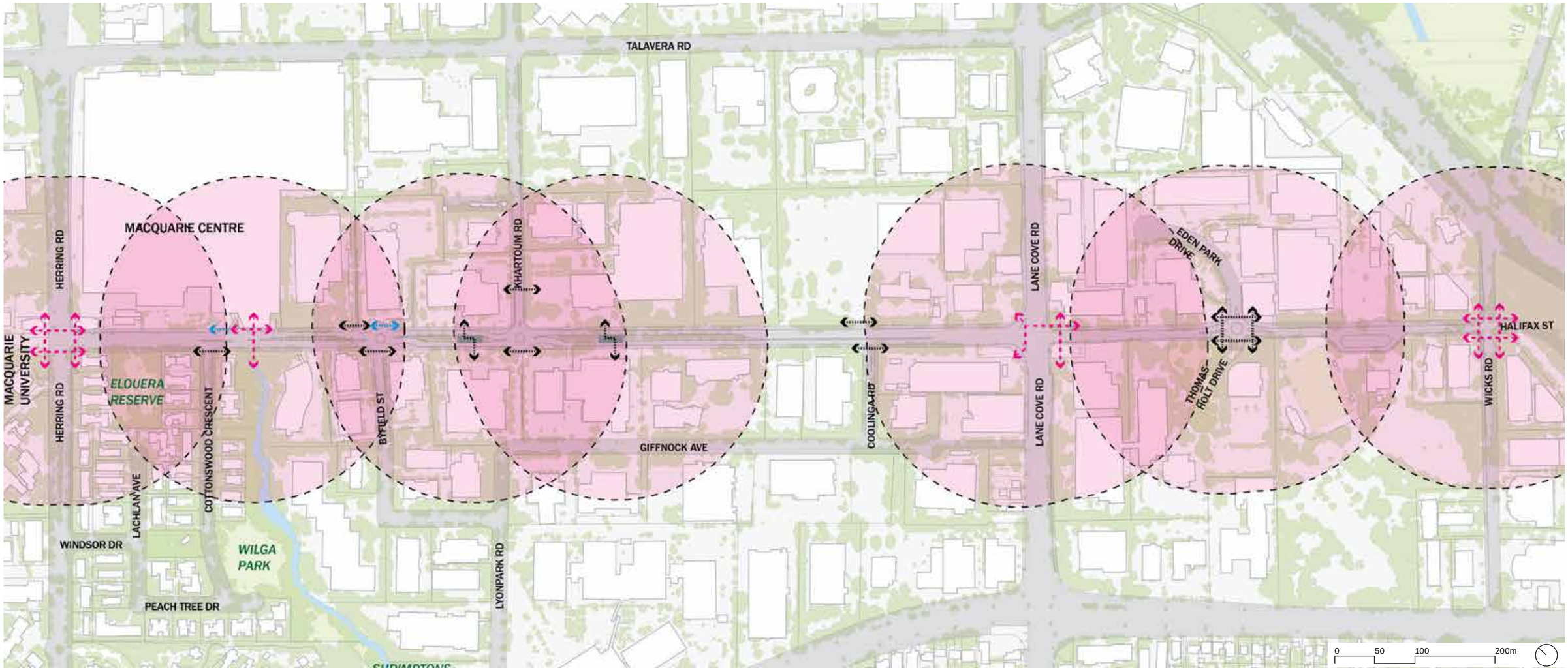
Source: City of Ryde 2014 Bicycle Strategy

PUBLIC TRANSPORT

Highly connected with heavy rail and bus networks.

PEDESTRIAN CROSSINGS

Limited north-south crossing points that are not consistent along the corridor.



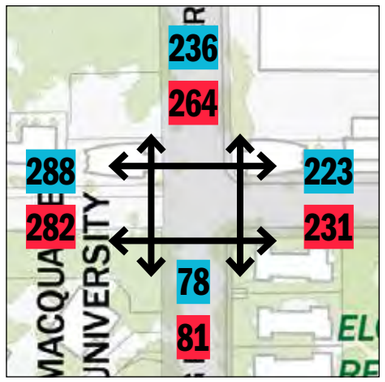
PEDESTRIAN CROSSING COUNTS

Pedestrian movements generally increase along the corridor from Wicks Road towards Herring Road This is reflective of the levels of activity associated with the Macquarie University and the Macquarie Centre. It also indicates a significant east-west pedestrian demand during the lunchtime peak periods, primarily workers in the area walking to/from the Macquarie Centre or the strip of shops along Lane Cove Road. Lunchtime peak hour counts are comparable to am and pm traffic peak hour counts.

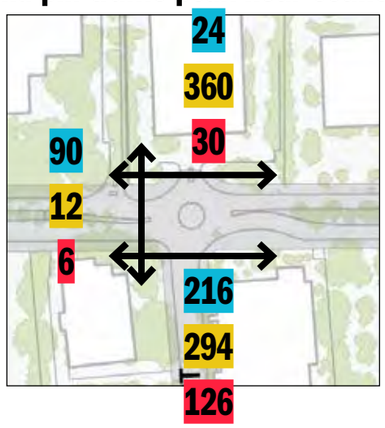
Legend

- XXX AM Peak (8am-9am)
- XXX Lunchtime Peak (12:30pm-1:30pm)
- XXX PM Peak (5pm-6pm)

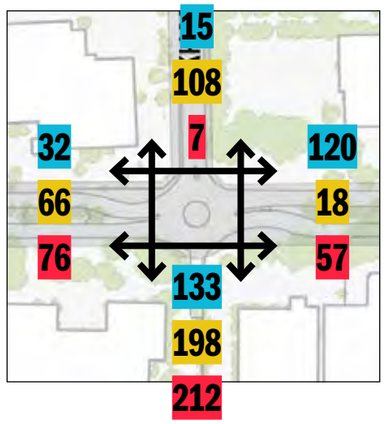
Note: Movements based on data collected at various locations in 2018 and 2019, prior to the reduction in activity in March 2020 as a result of the Covid-19 pandemic. Pedestrian counts at the Khartoum Road intersection were undertaken in 2017, prior to the introduction of the existing pedestrian fencing. Refer to Appendix A



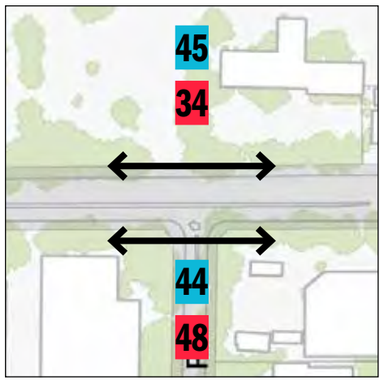
1. Waterloo Road and Herring Road



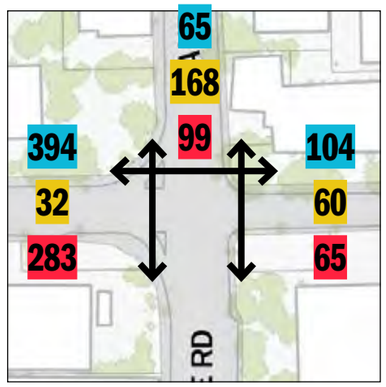
2. Waterloo Road and Macquarie Centre



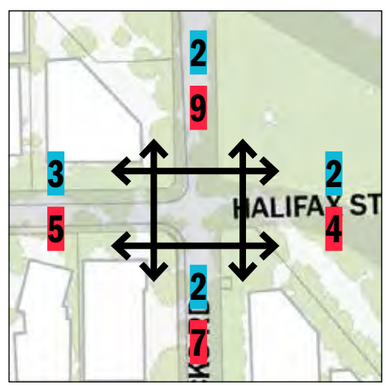
3. Waterloo Road and Khartoum Road



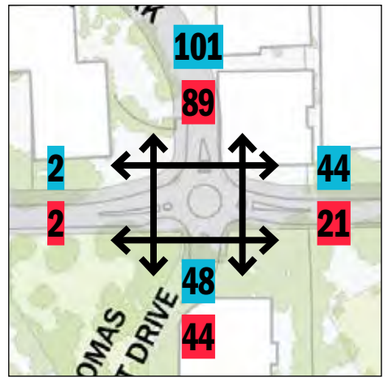
4. Waterloo Road and Coolinga Avenue



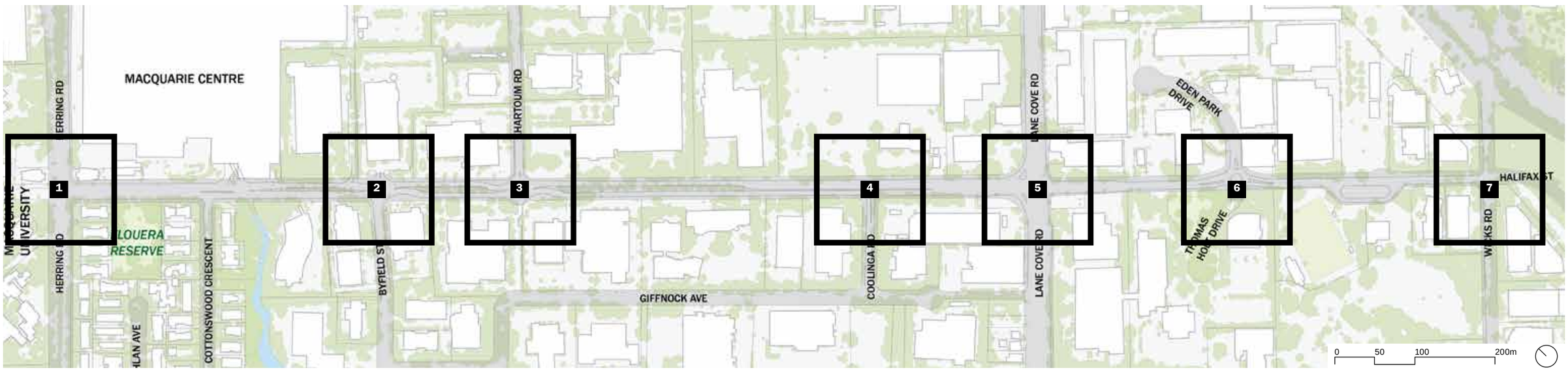
5. Waterloo Road and Eden Park Drive



7. Waterloo Road and Wicks Road

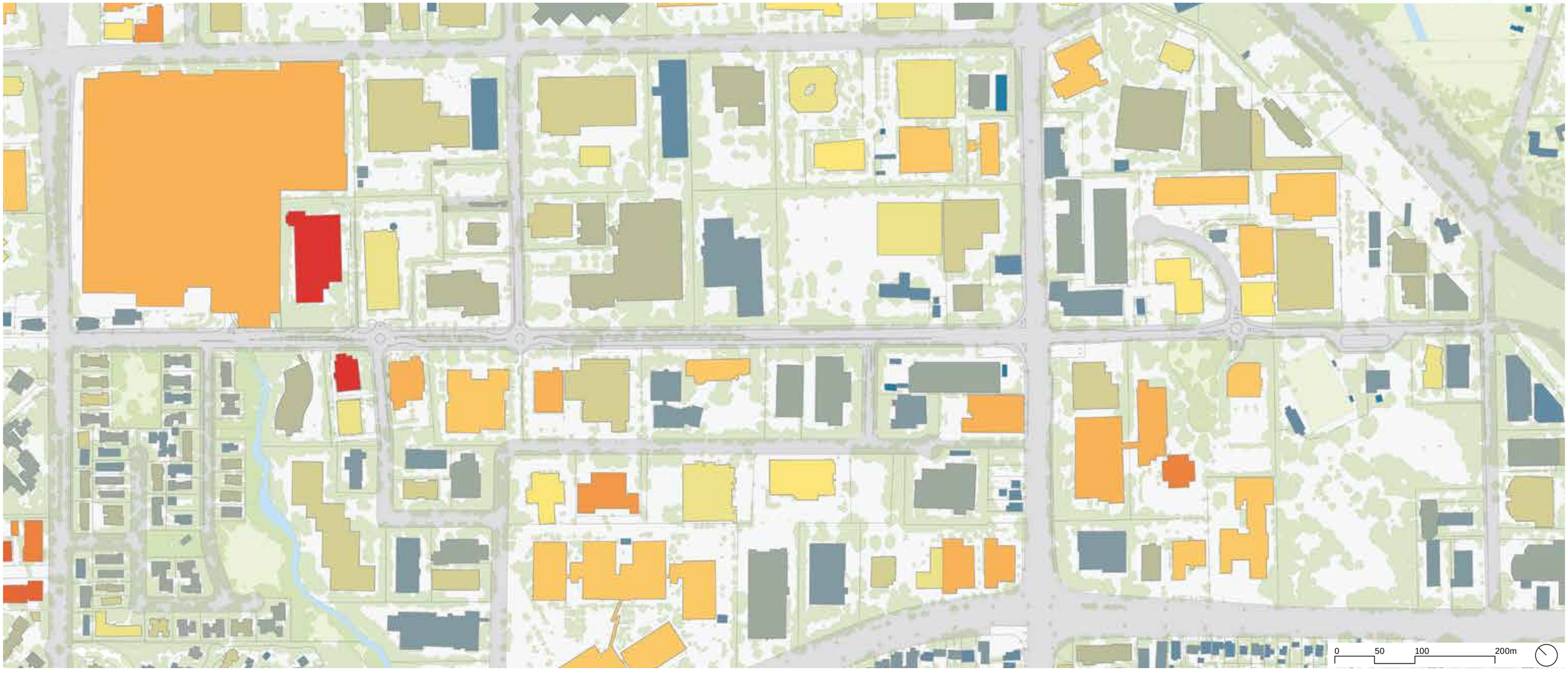


6. Waterloo Road and Herring Road



EXISTING BUILDING HEIGHTS

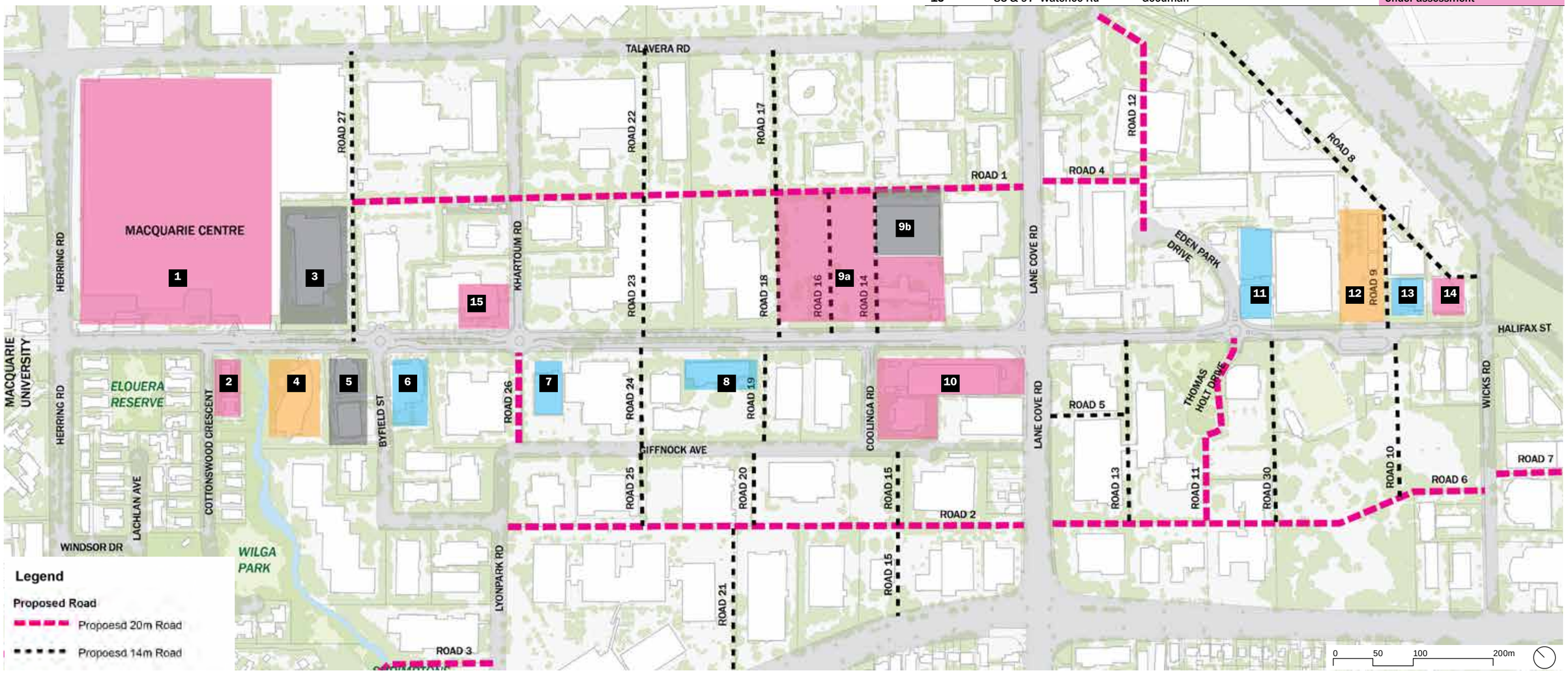
Although existing building heights along Waterloo Road are relatively low, the development of Macquarie Park is expected to generate a significant increase in density in future years. In recent years high rise developments have been concentrated around the Macquarie Centre and Macquarie Station precinct facilitating population and employment growth around this key mixed use zone. Future developments adjacent to the Macquarie Park Station will also see an increase in building height and density.



DEVELOPMENT ON WATERLOO ROAD

The areas along the Waterloo Road corridor are going through substantial changes responding to the changing typology of the surrounding precinct with increased zones of residential, commercial and open space developments.

Reference	Address	Development	DA No.	Status
1	109 Waterloo Road	Macquarie Shopping Centre	LDA2015/655	Concept DA approved
2	14-16 Cottonwood Crescent	Mixed use development	LDA2018/506	Under assessment
3	101-107 Waterloo Road	Prime	LDA2016/567	Completed in 2019
4	82 Waterloo Road	Natura	LDA2016/602	Under construction
5	80 Waterloo Road	Park One	LDA2016/524	Completed in 2019
6	78 Waterloo Road	Schneider	-	Less than 10 years old
7	66 Waterloo Road	Citrix	-	Less than 10 years old
8	52-58 Waterloo Road	Novartis	-	Less than 10 years old
9a	45-61 Waterloo Rd	GPNSW	LDA2018/172	Under assessment
9b	45-61 Waterloo Rd	GPNSW	LDA2018/172	Completed in 2019
10	36-40 Waterloo Rd	MQX	LDA2019/28	Concept DA approved
11	6 Eden Park Drive	DuPont	-	Less than 10 years old
12	19 Waterloo Road	Ausgrid Substation	-	Under construction
13	9-13 Waterloo Road	The Governor Hotel	LDA2016/196	Less than 10 years old
14	1-7 Waterloo Road	New serviced apartments	LDA2015/133	DA approval expiring on 02/09/20
15	85 & 97 Waterloo Rd	Goodman		Under assessment



TREE COVERAGE

The Waterloo Road corridor already has an extensive amount of tree canopy coverage located on both the north and southern verges along with central median zones between the Macquarie Centre and 65 Waterloo Road. To achieve the Green Grid aspiration of 40% canopy coverage a total of 378 new trees are required to be installed along Waterloo Road.

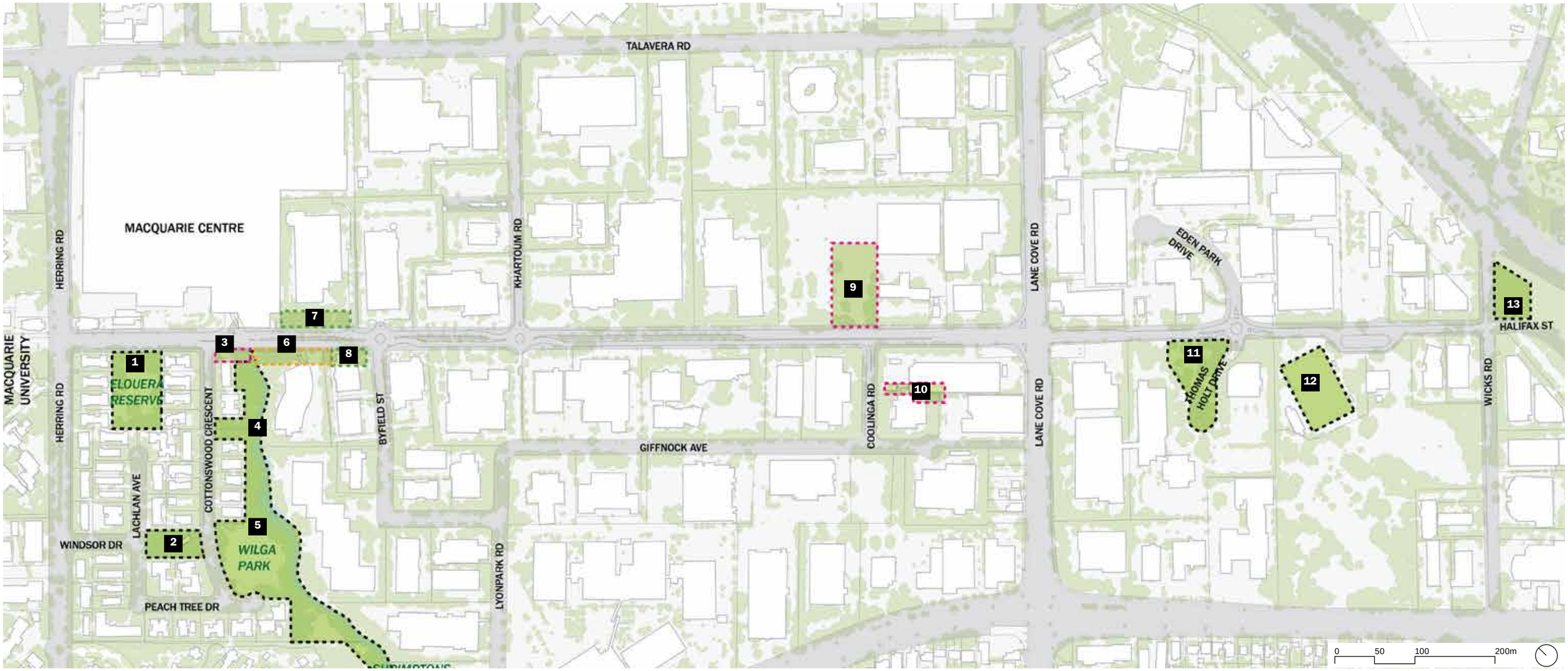
Site: 95,000m2
Road corridor: 38,000m2
Public realm: 57,000m2
Tree Canopy: 19,000m2
Canopy Coverage: 20%

Description	Canopy/ Public Realm	Canopy Area	Trees based on 8m dia Canopy
Existing Canopy Coverage	20%	19,000m2	-
Green Grid Target	40%	38,000m2	-
Gap	20%	19,000m2	378

OPEN SPACE

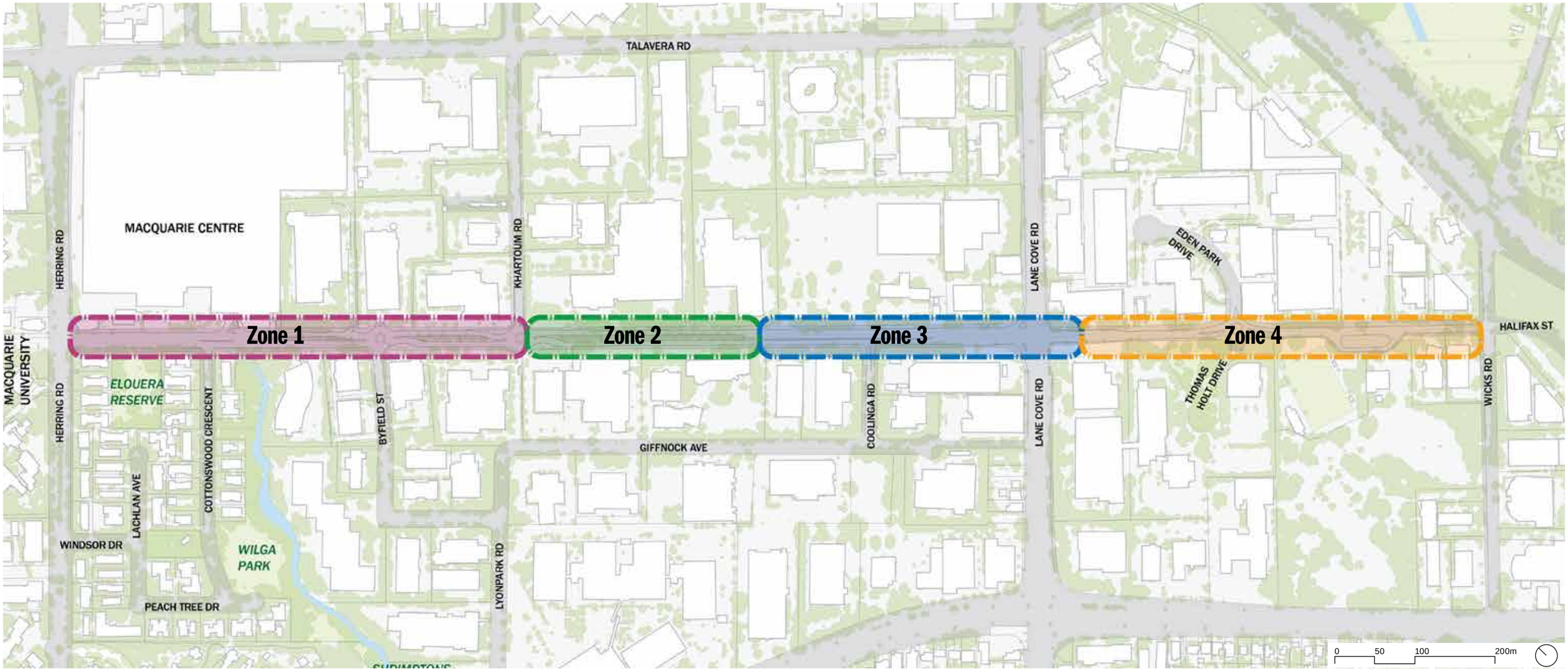
The existing and future open space network along Waterloo Road is somewhat fragmented with concentration of activation creating destinations rather than a linear corridor of continuous program.

Reference	Address	Park Name	Status
1	82-84 Waterloo Road	Elouera Reserve	Existing
2	6 Cottonswood Crescent	Quandong Reserve	Existing
3	14-16 Cottonswood Crescent	Linear Park	Under assessment
4		Shrimptons Creek	Existing
5		Wilga Park	Existing
6	82 Waterloo Road	Linear Park	Under construction
7	101-107 Waterloo Road	Linear Park	Completed in 2019
8	80 Waterloo Road	Linear Park	Completed in 2019
9	45-61 Waterloo Rd	Catherine Hamlin Park	Concept Master Plan under assessment
10	36-40 Waterloo Rd	Commerce Park	Concept DA approved
11	Thomas Holt Drive	Thomas Holt Park	Existing
12	18 Waterloo Road	Ryde Hunters Hill District Hockey Club	Existing (private)
13	Halifax Street	Halifax Street Park	Existing



LANDSCAPE ZONES

The existing corridor has four distinct landscape zones from Herring Road to Wicks Road.



LANDSCAPE ZONES

The existing corridor has four distinct landscape zones from Herring Road to Wicks Road.

Zone 1 - Mixed use and urban

- → Traffic dominated with limited zones of central medians
- → Limited canopy coverage with a reduced number of trees on the northern verge and intermittent zones of central median planting
- → Footpath zones directly behind kerbs
- → High vehicular traffic adjacent to Macquarie Centre and Macquarie University train stop
- → Several new residential developments at 80 and 101-107 Waterloo Road with compartmentalised areas of public realm within the 10m setback zone
- → Steep slopes from Herring Road and Khartoum Road down to Shrimptons Creek

Zone 2 - Green and setback

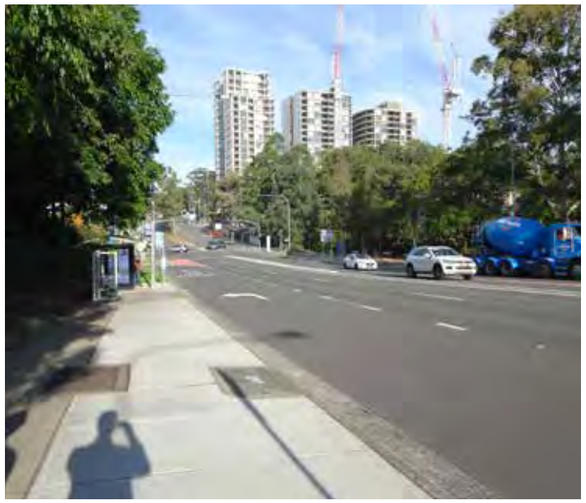
- → Tree lined section with densely planted central medians
- → High canopy coverage with sounds of birds
- → Footpath zones separated from kerb by a zone of turf
- → Lower amount of vehicular traffic when compared to zone 1
- → Large setback areas with increased zones of planting, trees and open space
- → Gradual incline from Khartoum Road to 58 Waterloo Road

Zone 3 - Loud and exposed

- → Intermittent areas of trees to back of kerbs with a barrier fence in a central median
- → Footpath zones separated from kerb by narrow zones of turf
- → Lower amount of vehicular traffic when compared to zone 1 that intensely increases towards Lane Cove Road
- → Hostile, vehicle dominated intersection of Lane Cove Road and Waterloo Road
- → Several new mixed use developments along Waterloo Road with a new central park at 45-61 Waterloo Road
- → Large zones of paving around the key nodal points of Macquarie Park Station (east and west)
- → Gradual incline from 45-61 Waterloo Road up towards zone 2 and Lane Cove Road

Zone 4 - Industrial and disconnected

- → Intermittent areas of trees behind footpath zones
- → Footpath zones directly behind kerbs
- → Lower amount of vehicular traffic when compared to zone 1, 2 and 3 with bus layover to the east of Macquarie Park Station
- → Reduced areas of activation with a combination of large office floor plates and industrial zones
- → Large setbacks of green at 26-32 Waterloo Road and 18 Waterloo Road (Ryde Hunters Hill Hockey Club)
- → Gradual incline from Lane Cove Road down towards Wicks Road





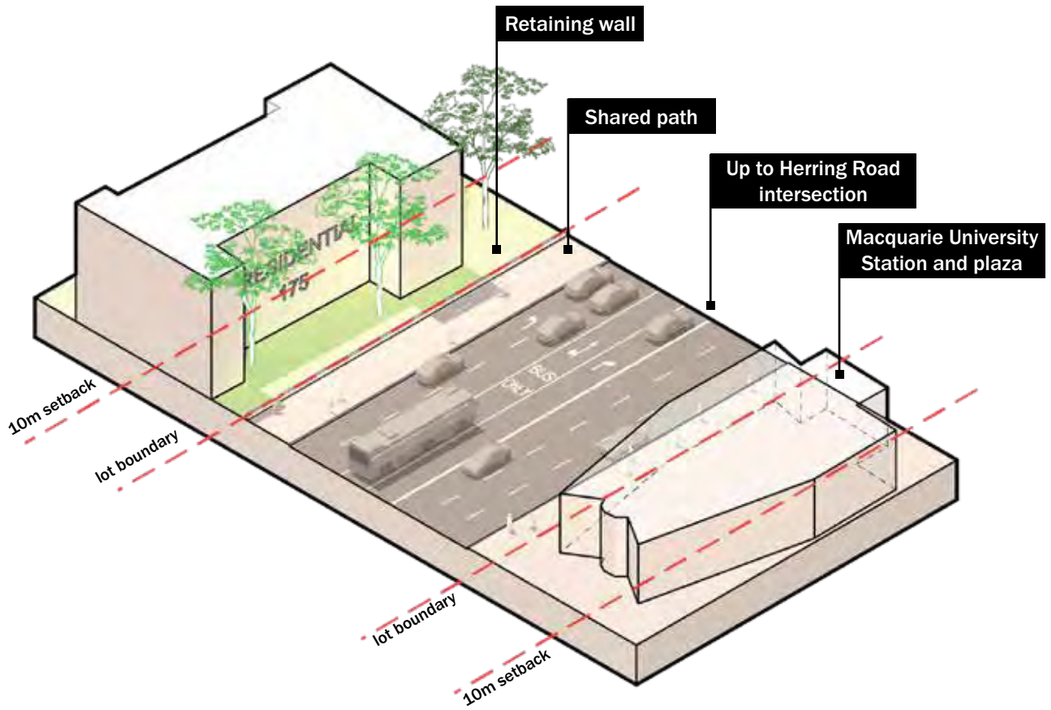




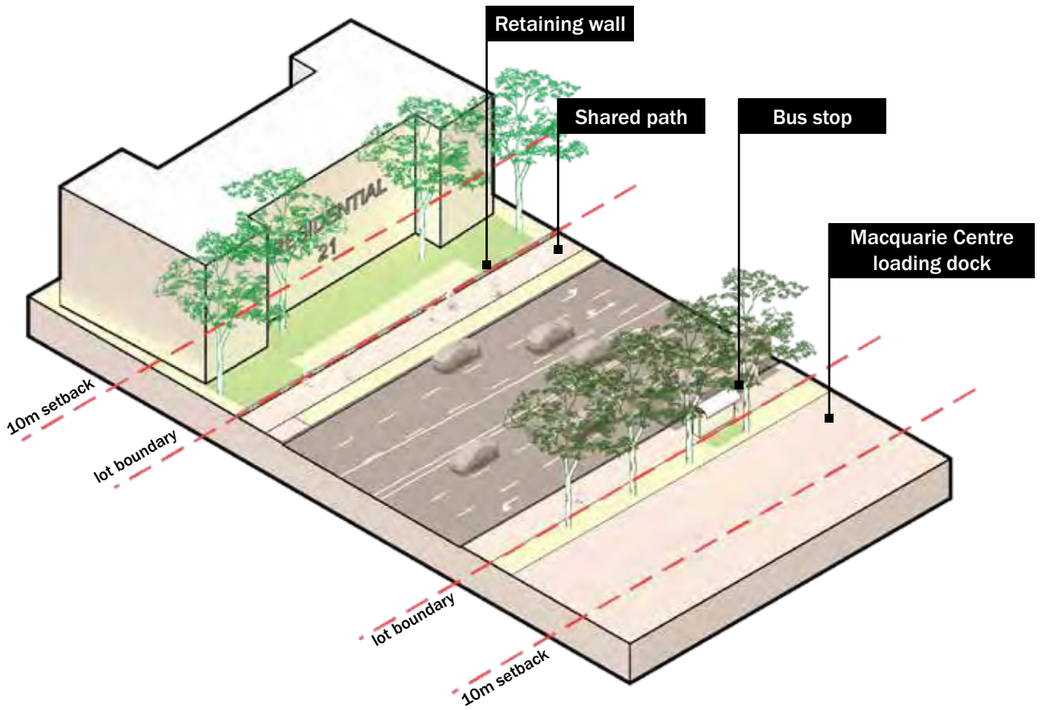
Site photos. Photography by author

ZONE 1 - MIXED USE AND URBAN

Key plan



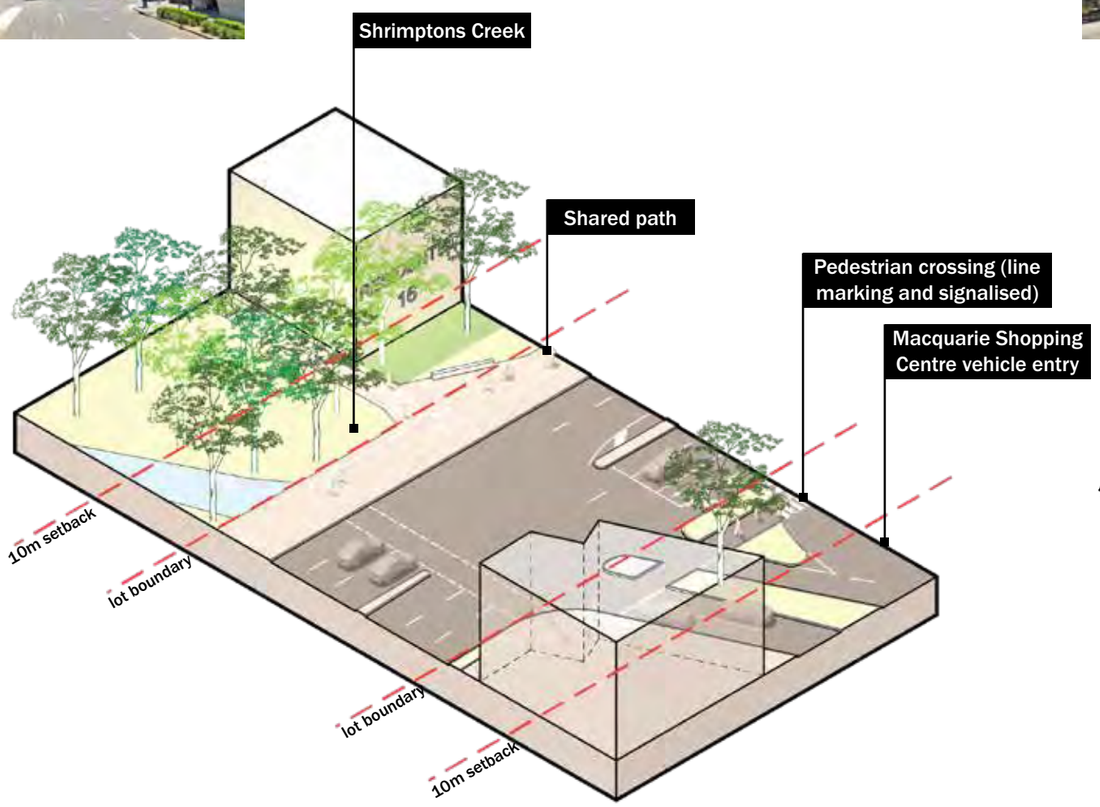
175 Waterloo Road



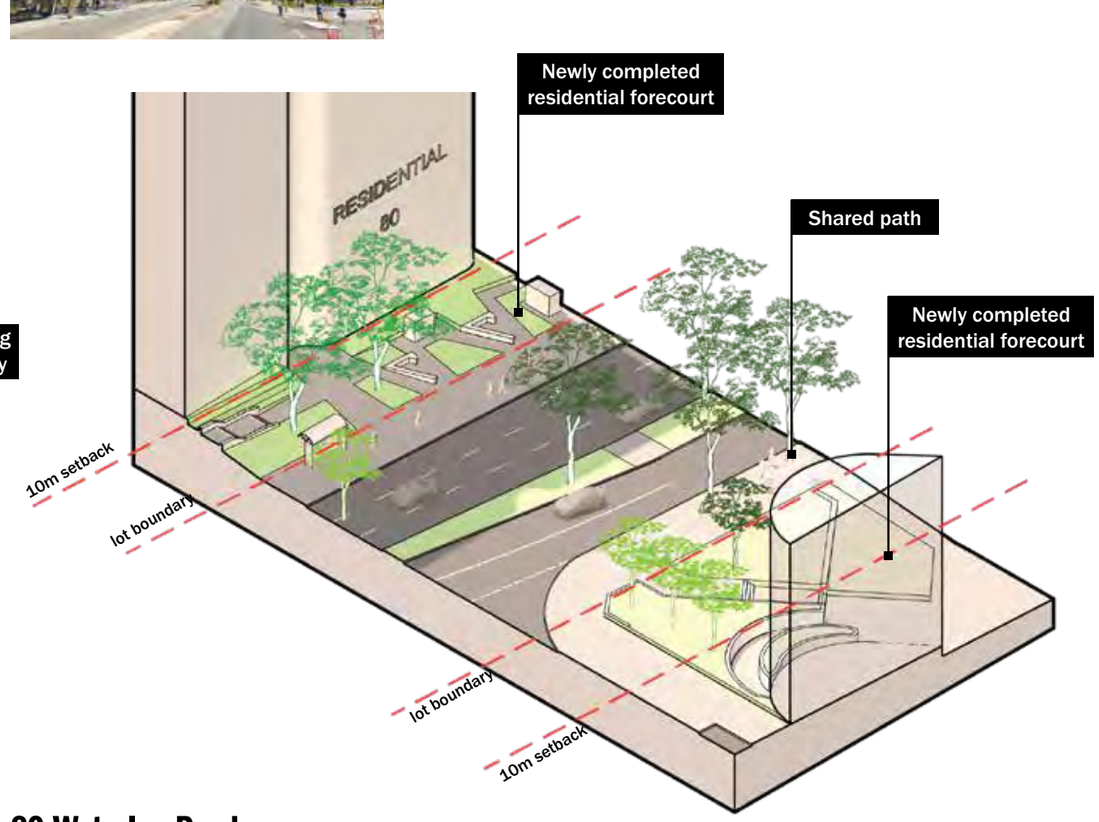
21 Cottonwood Crescent

ZONE 1 - MIXED USE AND URBAN

Key plan



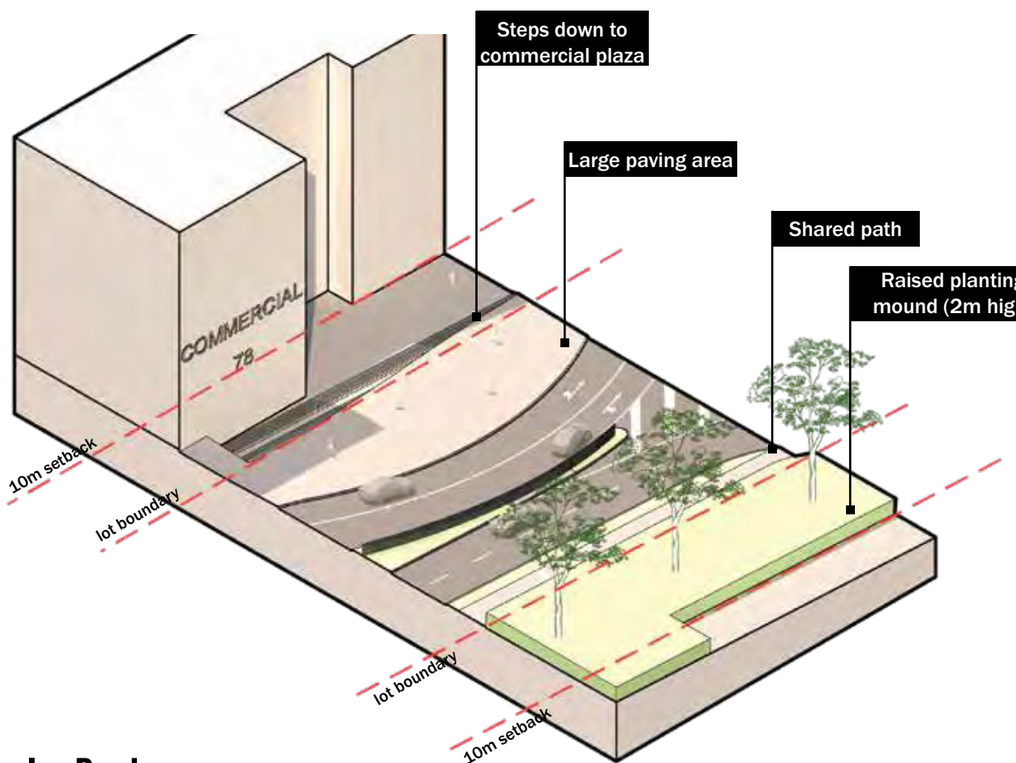
14-16 Cottonwood Crescent



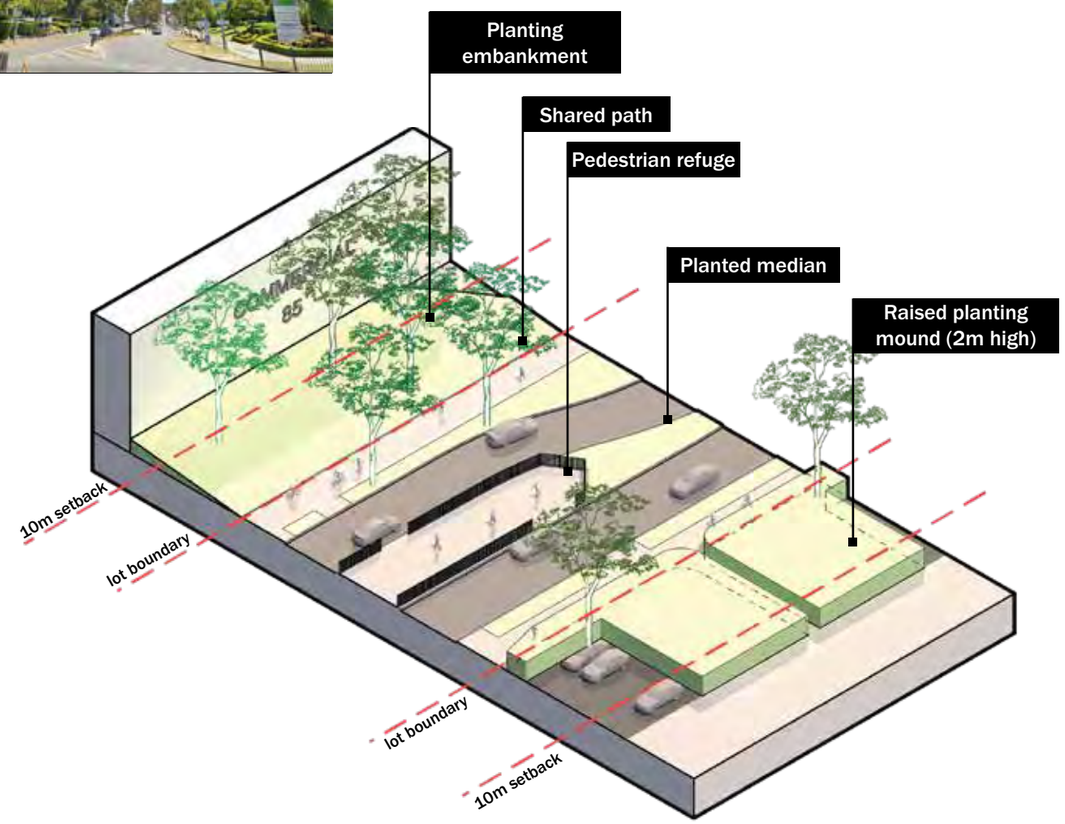
80 Waterloo Road

ZONE 1 - MIXED USE AND URBAN

Key plan



78 Waterloo Road



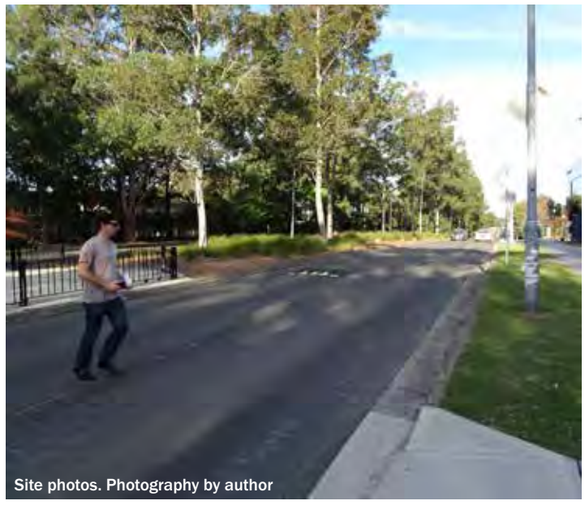
68 Waterloo Road







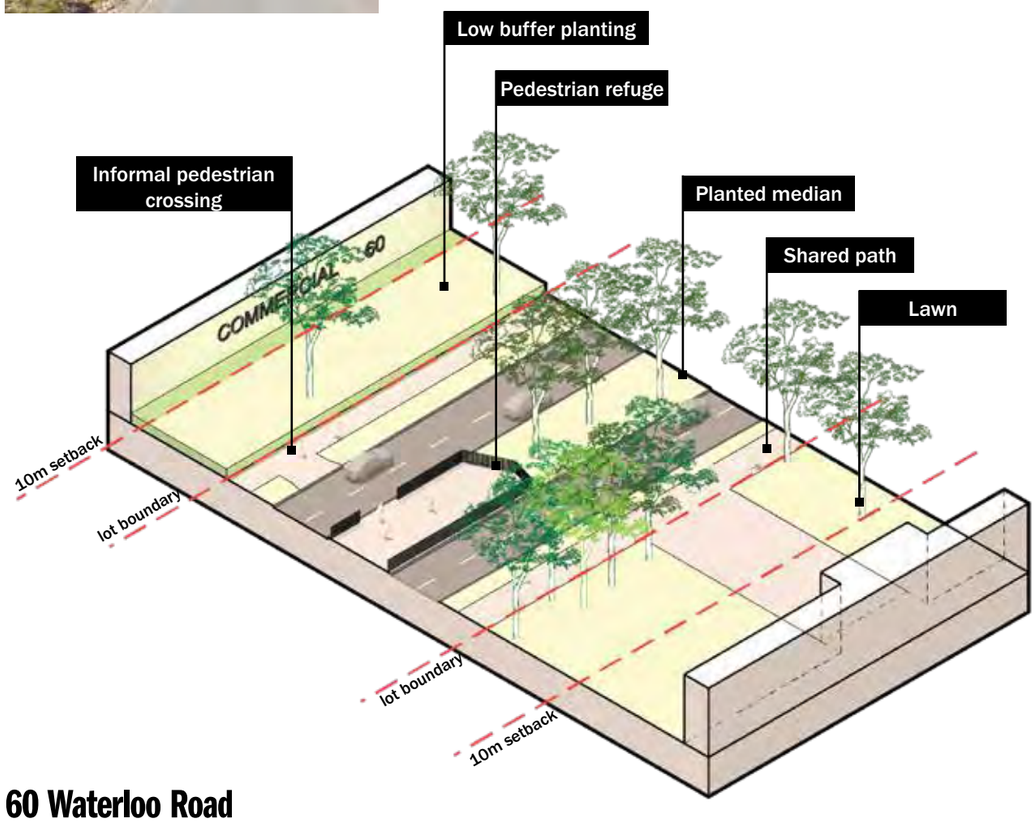




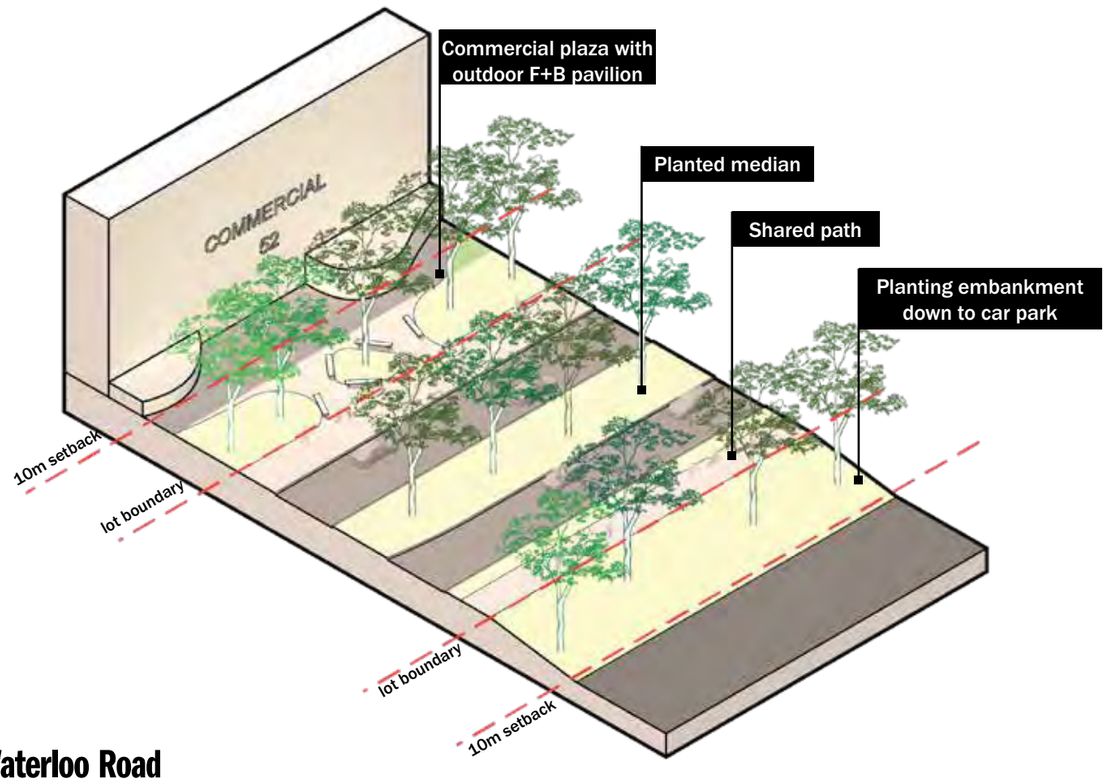

Site photos. Photography by author

ZONE 2 - GREEN AND SETBACK

Key plan



60 Waterloo Road



52 Waterloo Road





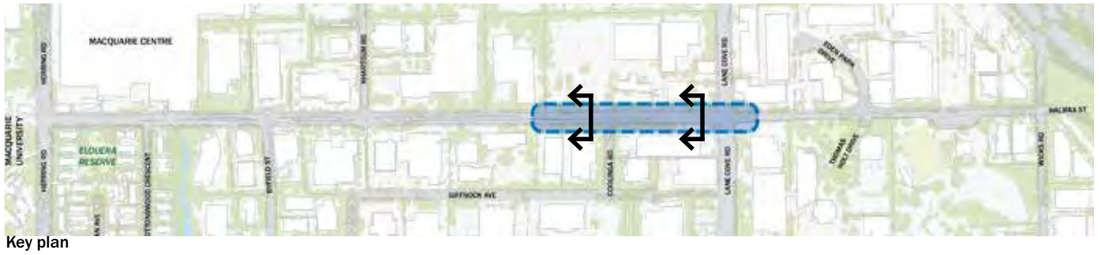




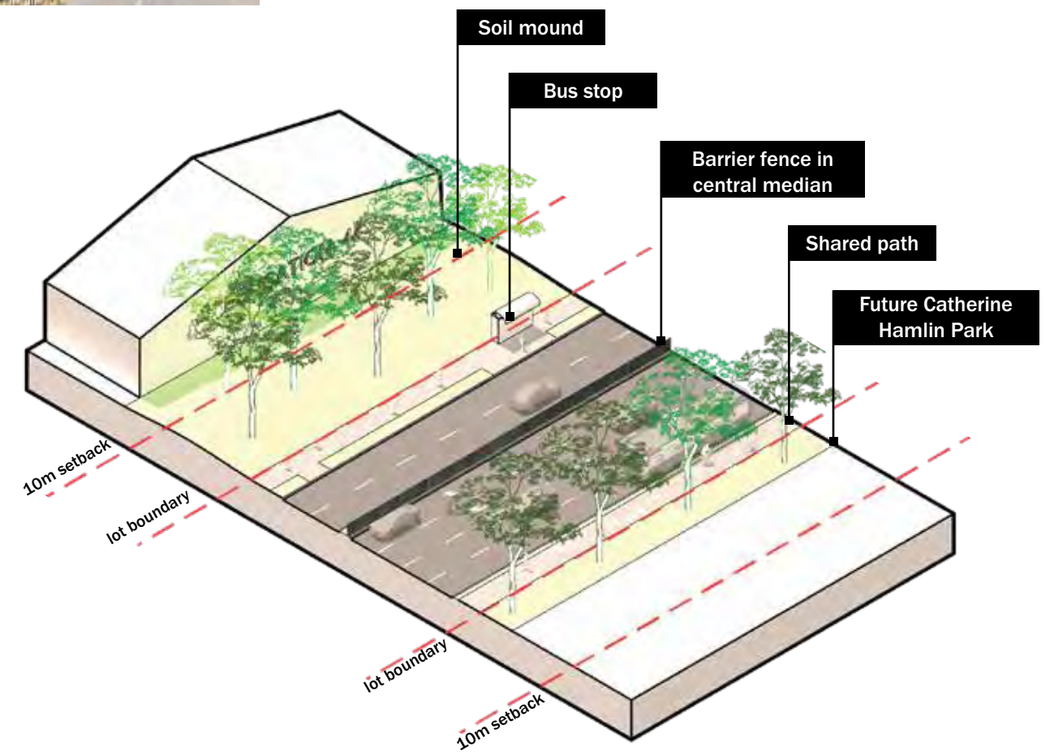


Site photos. Photography by author

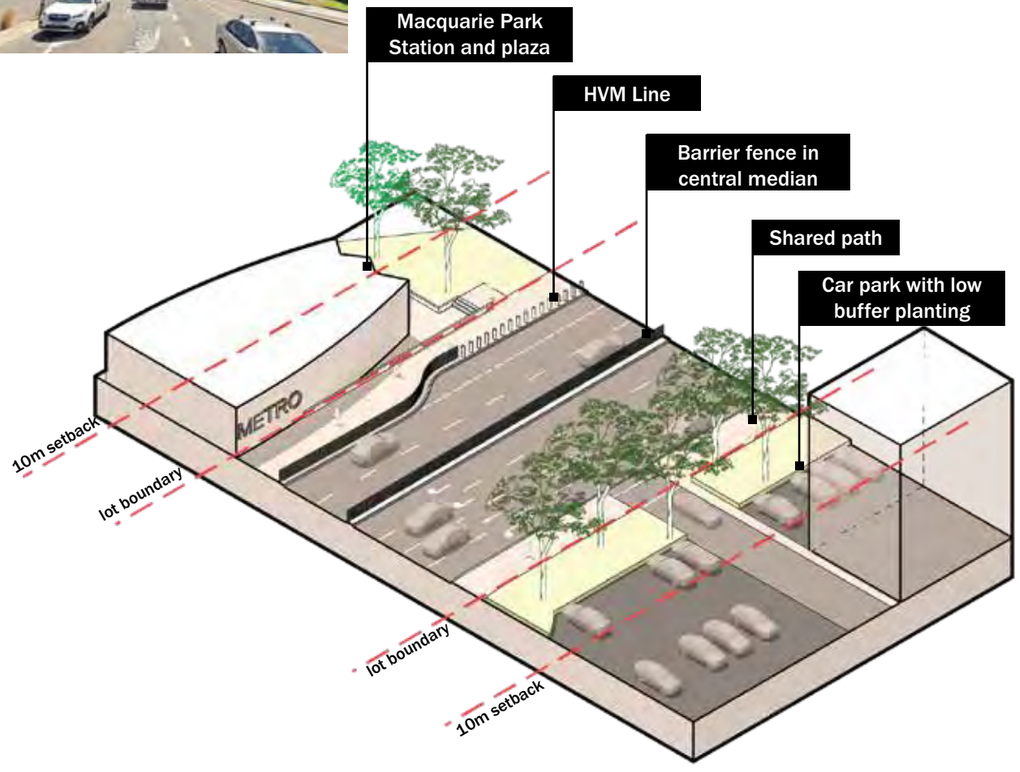
ZONE 3 - LOUD AND EXPOSED



Key plan



44 Waterloo Road



Macquarie Park Station

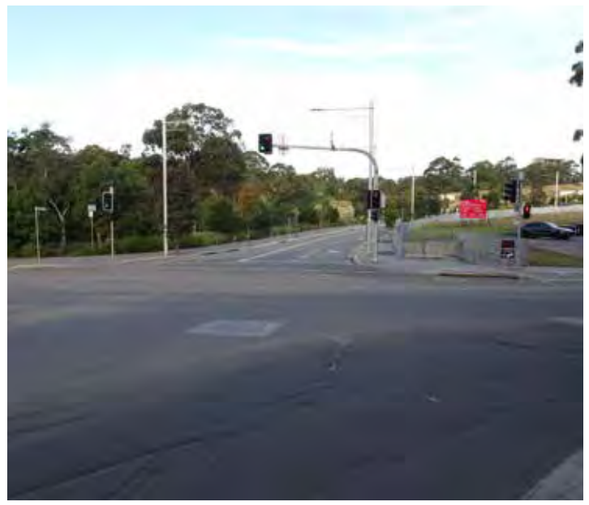








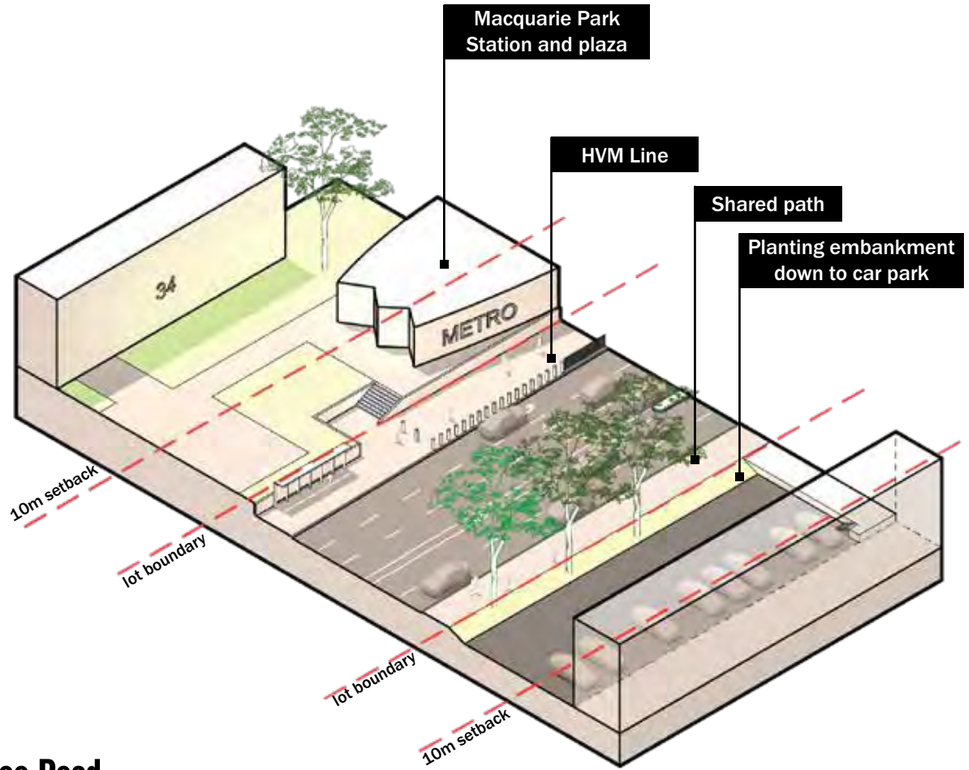


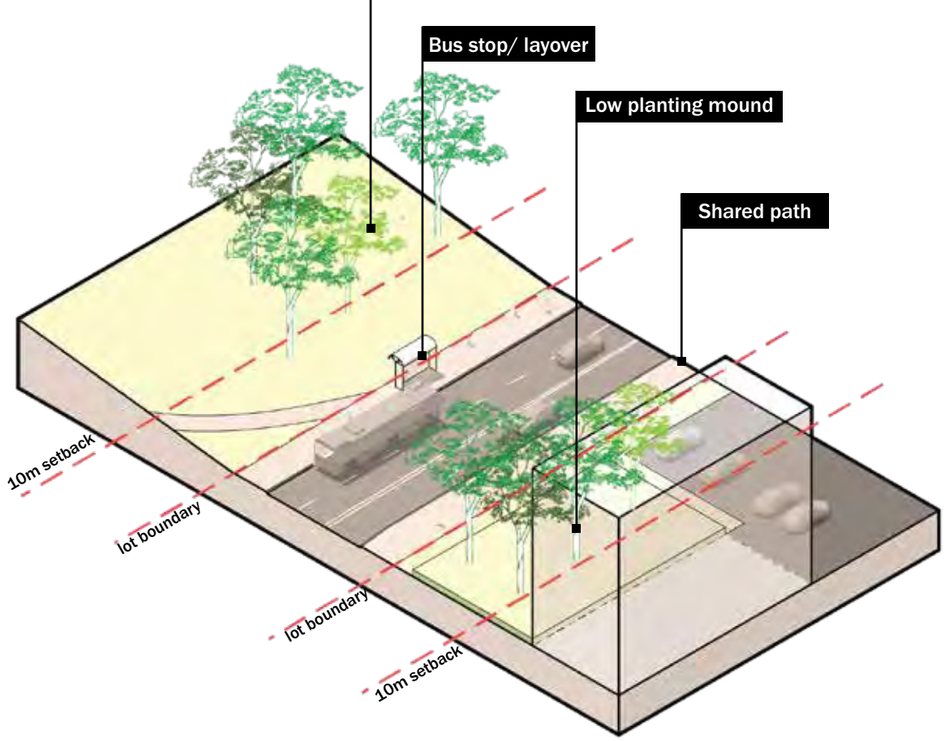
Site photos. Photography by author

ZONE 4 - INDUSTRIAL AND DISCONNECTED

Key plan



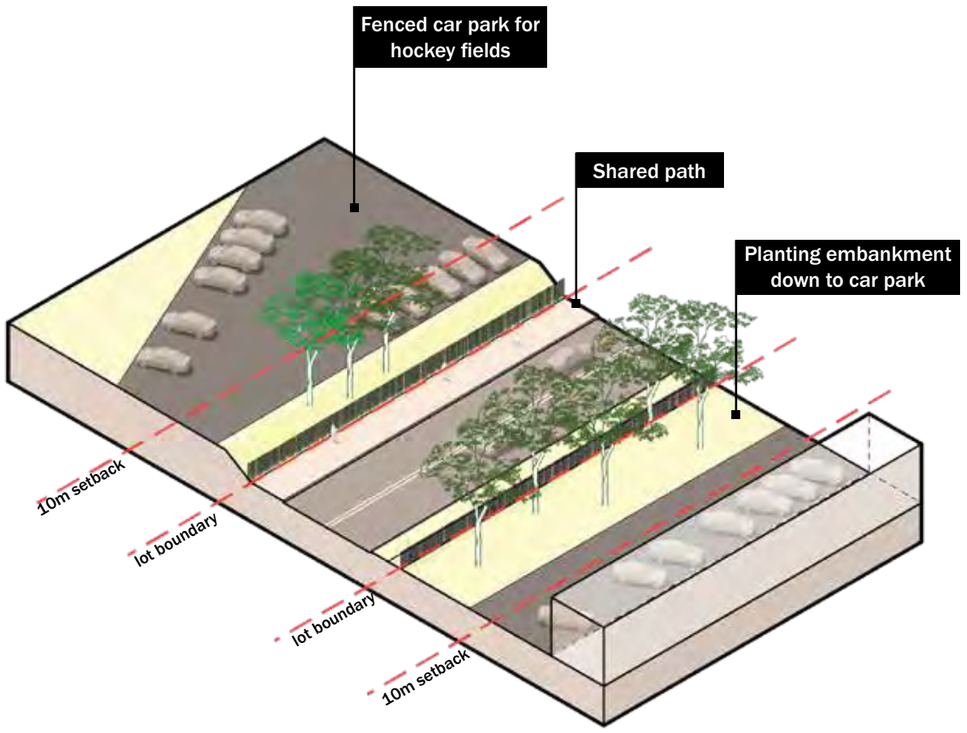
34 Waterloo Road



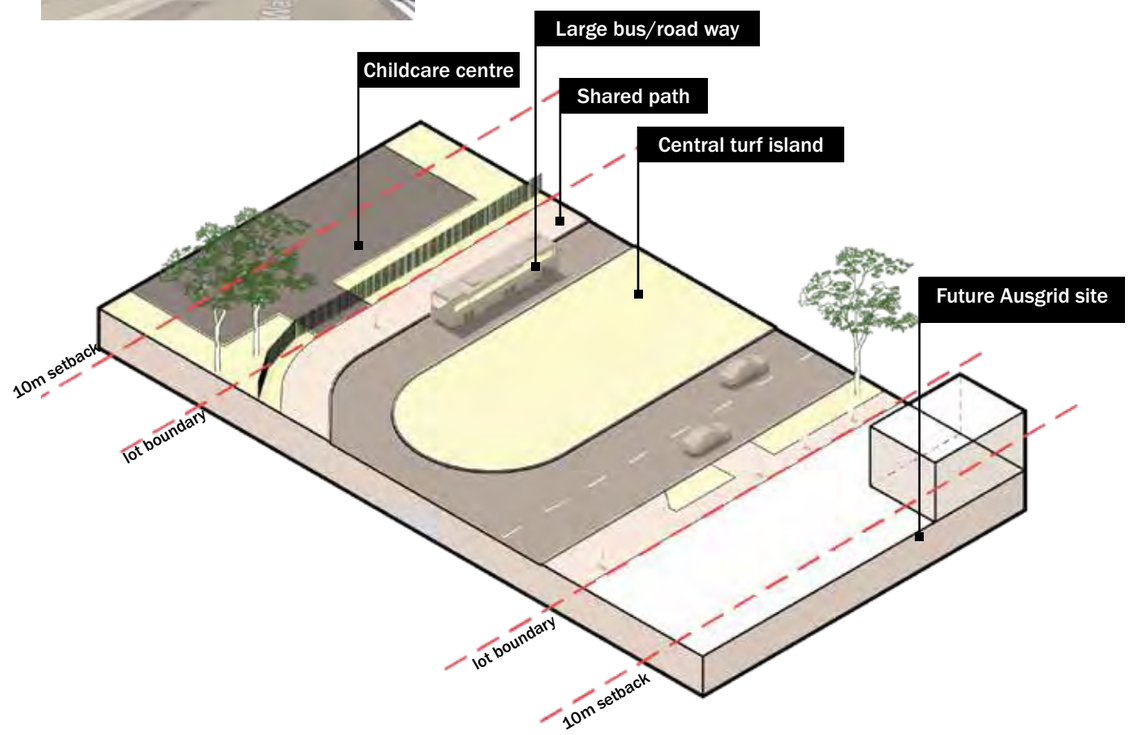
26-32 Waterloo Road

ZONE 4 - INDUSTRIAL AND DISCONNECTED

Key plan



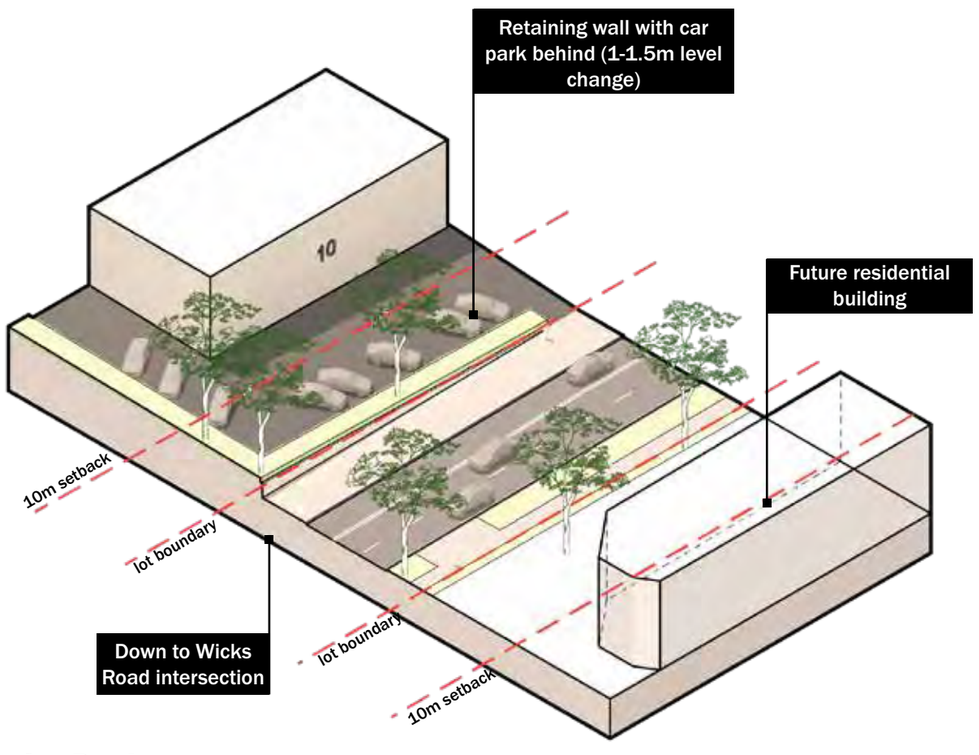
18 Waterloo Road



16 Waterloo Road

ZONE 4 - INDUSTRIAL AND DISCONNECTED

Key plan



10 Waterloo Road

WATERLOO CORRIDOR SUMMARY

A movement corridor dominated by the vehicle all set within a backdrop of the Turpentine-Ironbark and Sandstone/Shale Transitional Forest of Macquarie Park.

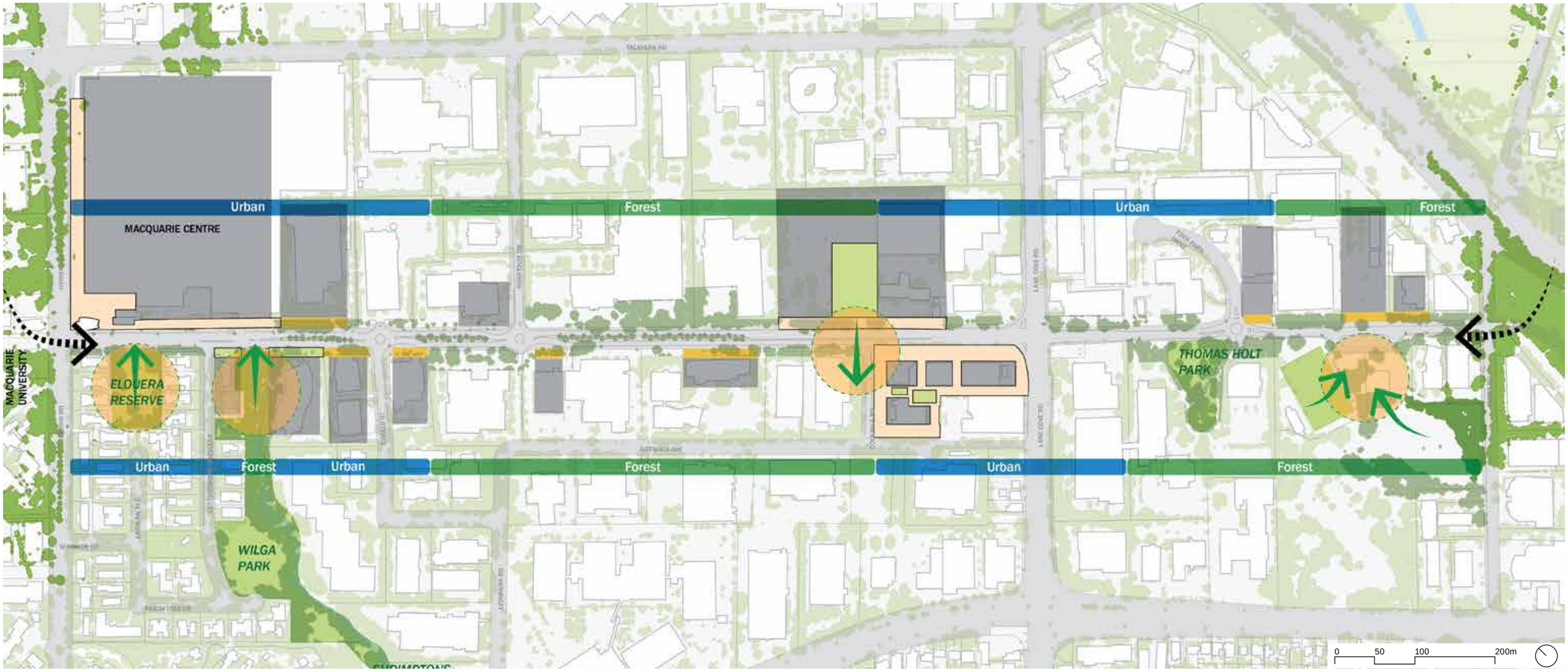
- A corridor of varying landscape character zones that vary relative to adjacent built form street frontage and program, heavy rail stations and vegetation
- Fragmented stands of significant trees that create visual amenity and increase comfortability for pedestrians
- Large area of failed planting, mulch zones and formalised commercial landscape planting that do not contribute to the amenity or ecology of the corridors
- Increased set back zones with recessed entries to buildings reduce the opportunity for public realm activation
- Limited north-south crossing points with an irregular typology of existing crossings. Multiple informal east-west crossings
- Footpaths of varying widths and materiality that are not consistent in location (relative to back of kerbs)
- Shared path widths over scaled with line marking visually dominant and not conducive to pedestrians
- The hierarchy of users is the car, then public transport, then cycle and finally pedestrians

OPPORTUNITIES AND CONSTRAINTS

Landscape Character

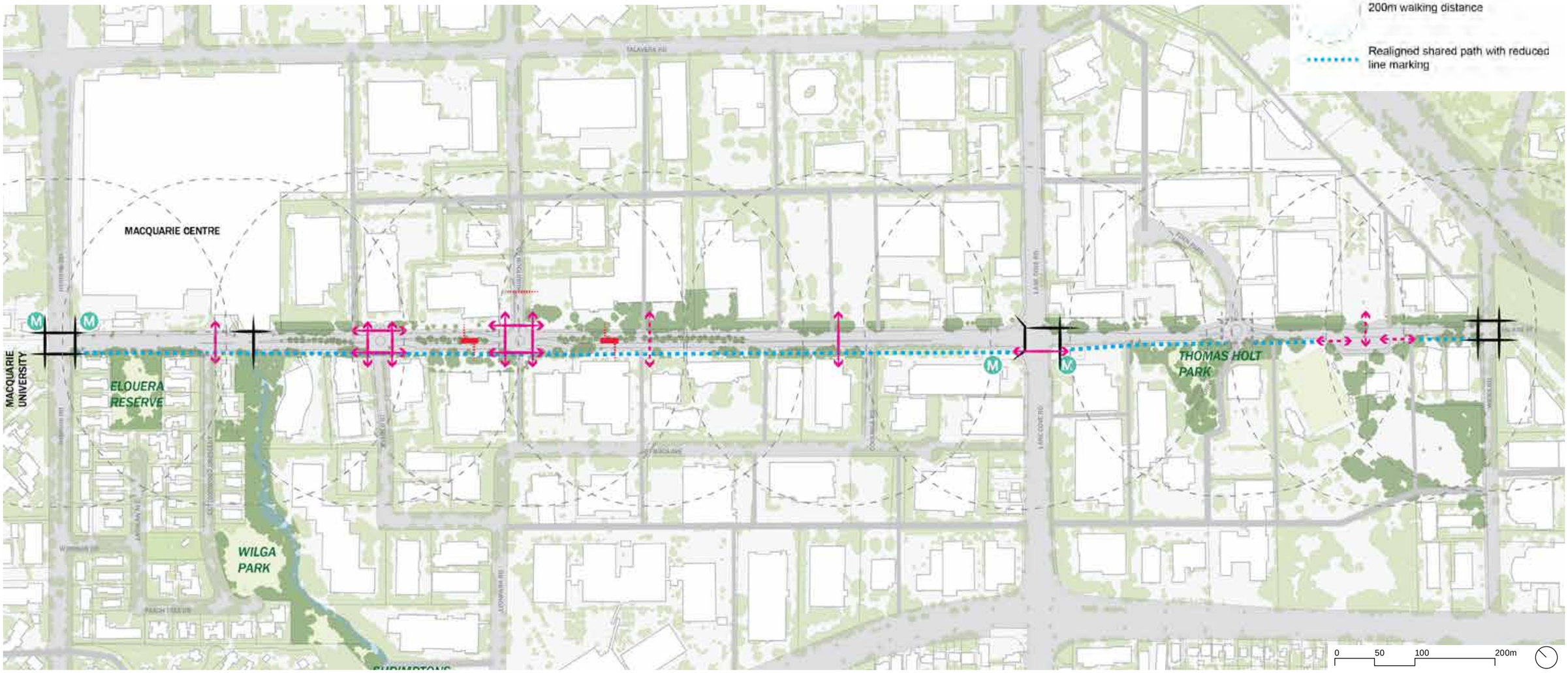
Legend

- Recently constructed (last 10years), under construction and/or planned development sites
- Public realm within lot boundaries under construction and/or planned future development. Unlikely to change
- Public realm within lot boundaries built in the last 10years and unlikely to change
- Potential public place/ focus area with opportunity for increased interface with Waterloo Road
- Bring the forest in to frame each end of Waterloo Road



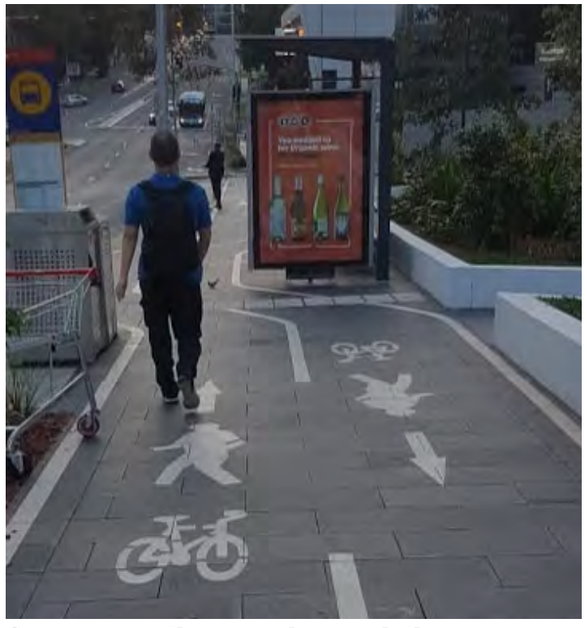
OPPORTUNITIES AND CONSTRAINTS

Connections



OPPORTUNITIES AND CONSTRAINTS

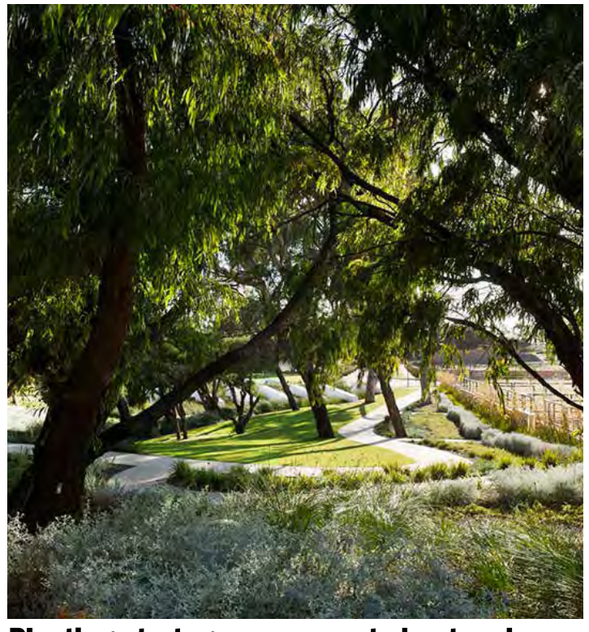
Footpaths and Cycleways



Shared path line marking - existing

Cycle strategy - simple and refined

Planting- existing

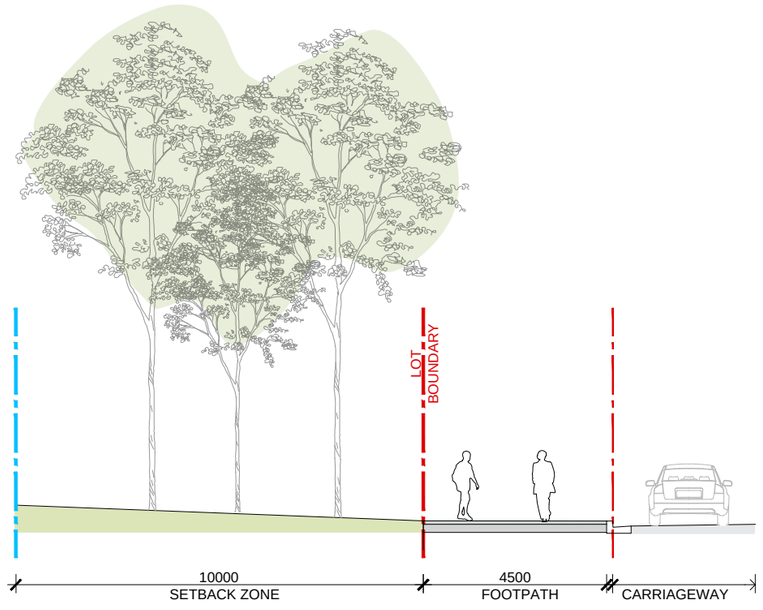


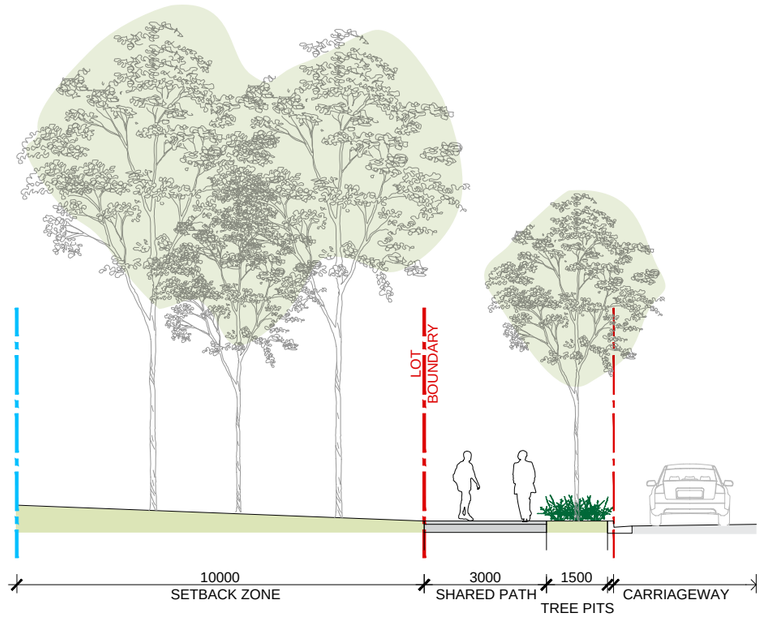
Planting strategy - a connected network of ecology

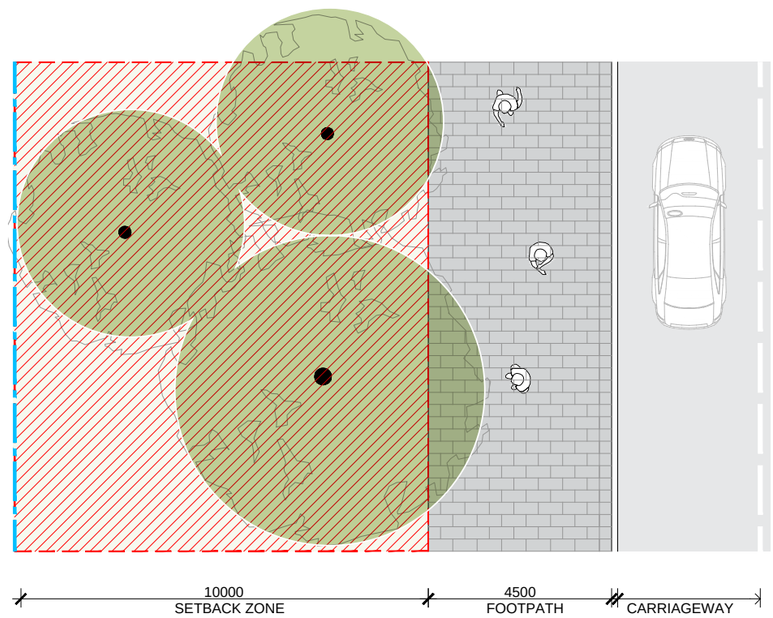
OPPORTUNITIES AND CONSTRAINTS

Footpaths and Cycleways (existing)

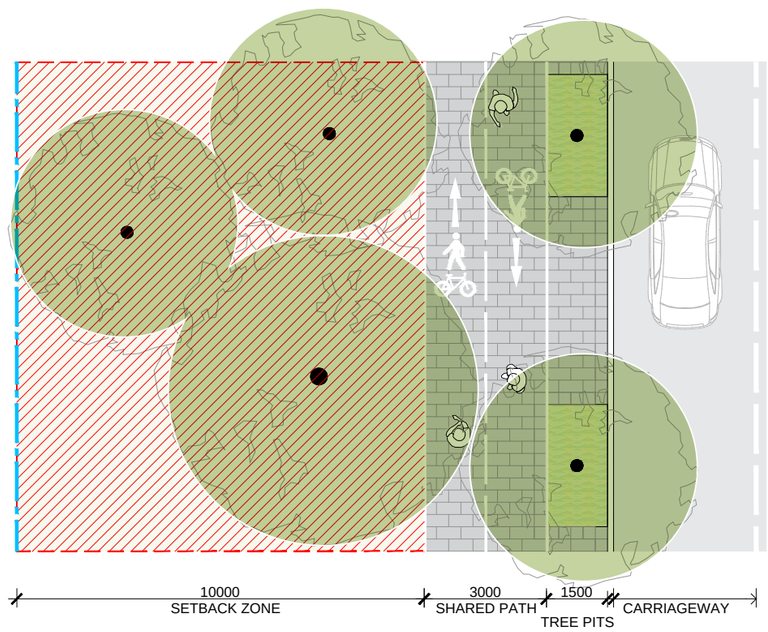
- Limited north-south crossing points with an irregular typology of existing crossings. Multiple informal east-west crossings
- Footpaths of varying widths and materiality that are not consistent in location (relative to back of kerbs)
- Shared path widths over scaled with line marking visually dominant and not conducive to pedestrians







Existing 1 - without trees

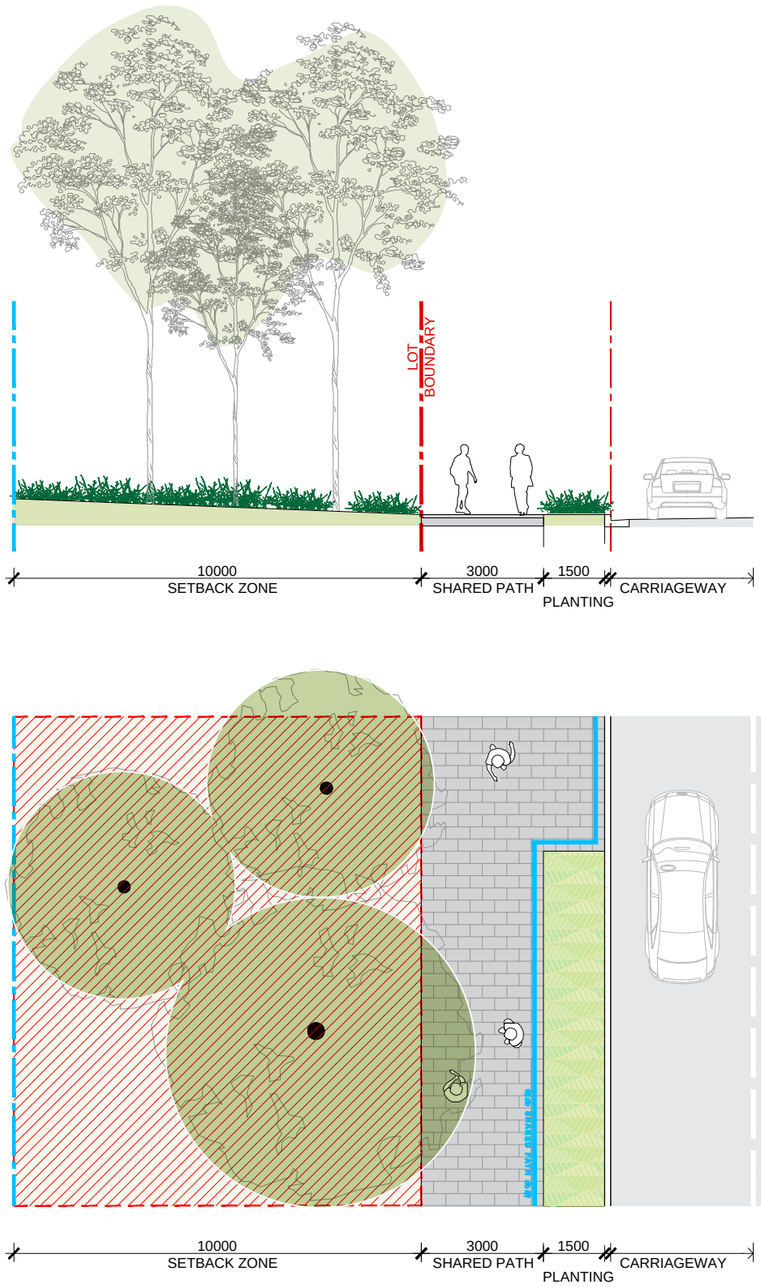


Existing 2 -with trees

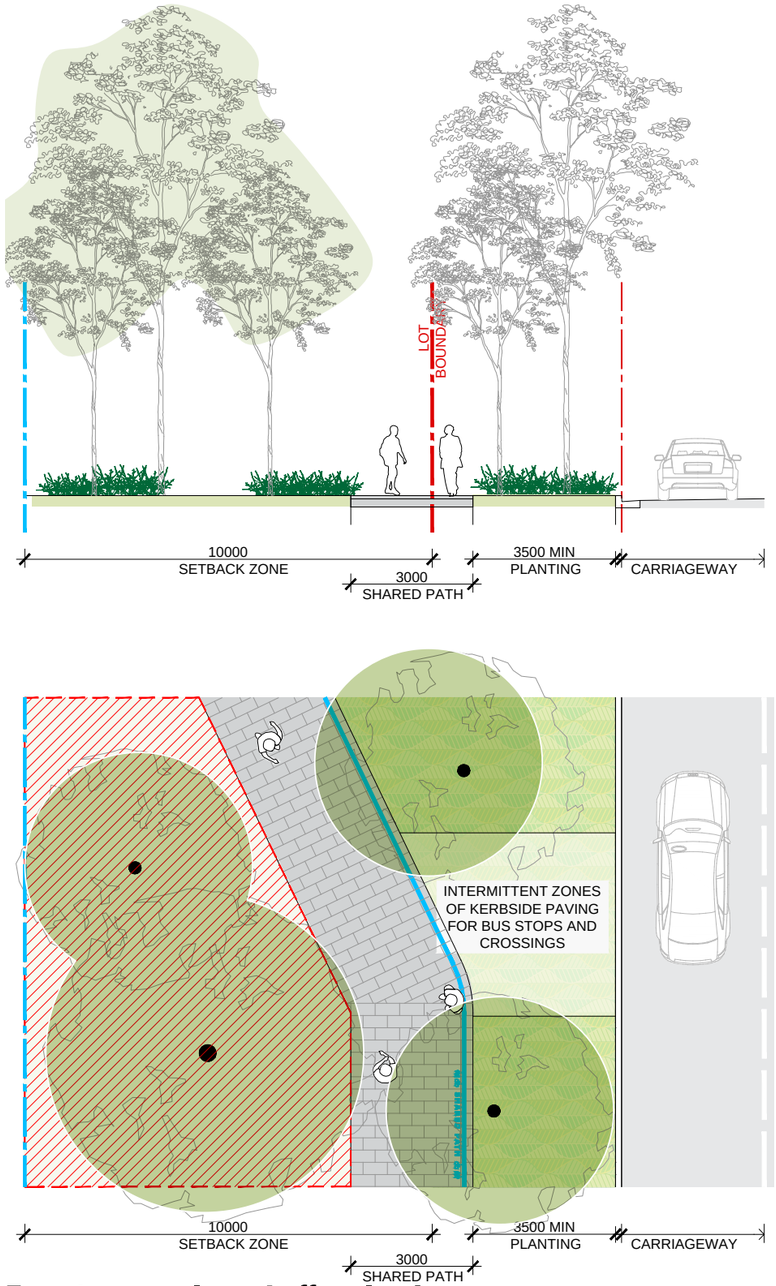
OPPORTUNITIES AND CONSTRAINTS

Footpaths and Cycleways (proposed)

- A simple and refined footpath that prioritises the pedestrian and accommodates the cyclist
- Increased zones of planting to improve ecological value of street and provide amenity for pedestrians, cyclists and drivers
- Shared path delineated through simple line marking and free standing signs
- Shared paths to be seperated from road kerbs to improve pedestrian amenity and increase pedestrian safety
- Location of shared path to be located within lot boundaries within the 'Forest' character zones



Urban zones - small buffer planting zone

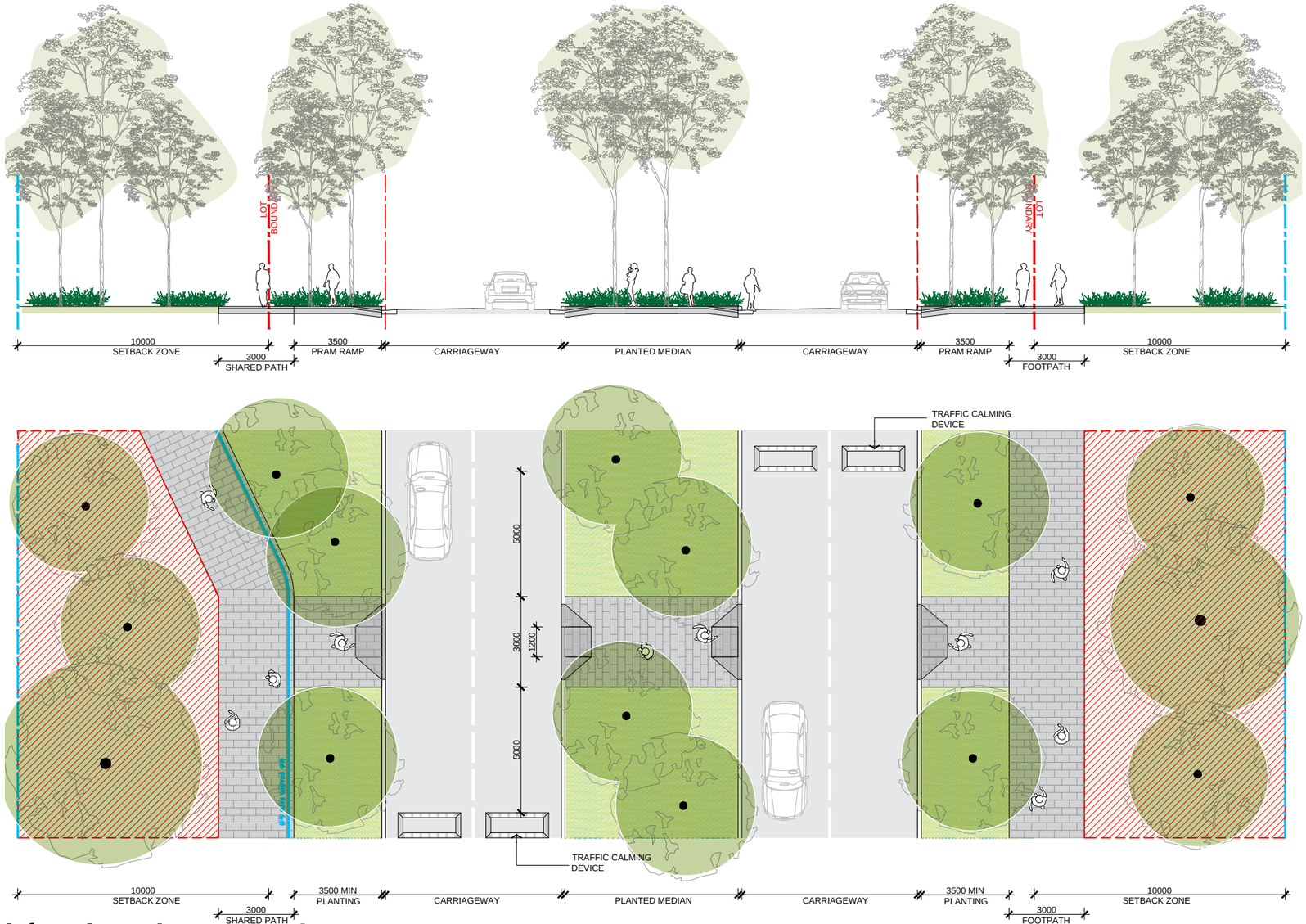


Forest zones - large buffer planting zone

OPPORTUNITIES AND CONSTRAINTS

Pedestrian crossings

- Signalisation of the Khartoum Road intersection and introduction of dedicated pedestrian crossing facilities on all four approaches
- At grade pedestrian crossings that are consistent and at regular intervals along the corridor
- New at grade north-south crossings will actively contribute to activation of the public domain with increased permeability and pedestrian movements between open space destinations
- Improve the consistency and continuity of east-west movements along the Waterloo Road corridor through materiality, spatial arrangement and typology of crossings



Informal crossing - proposed

VISION

A VIBRANT STREET OF COMMUNITY, CONNECTION AND COHESION

Artist impression, Waterloo Road

KEY DRIVERS

Three clear drivers have been established to guide the development of the Waterloo Road Master Plan. These drivers have been distilled from site analysis and the City of Ryde Draft Strategy for Waterloo Road.

1

A resilient corridor

- → Leverage the existing landscape character of Macquarie Park to reinforce the identity of Waterloo Road as a connector of green
- → Create a rich network of ecological and hydrological links
- → Re-establish the historic vegetation communities of site

2

Destinations of activation

- → Create destinations of open space with multiple opportunities for social interaction, play and public amenity
- → Create destinations of varying character, program and intensity
- → Connect open space destinations across Waterloo Road

3

Legible, permeable and cohesive

- → Create a legible, permeable and cohesive network for pedestrians and cyclists
- → Ensure consistency of paving, planting and urban elements between public domain zones and development sites

EAST - WEST

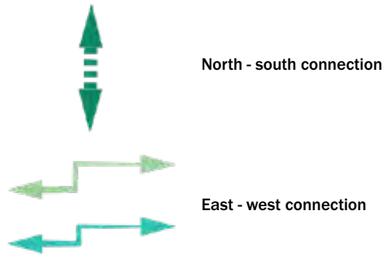
Central Park, Sydney, Australia

NORTH - SOUTH

Hollister Courthouse, California, USA

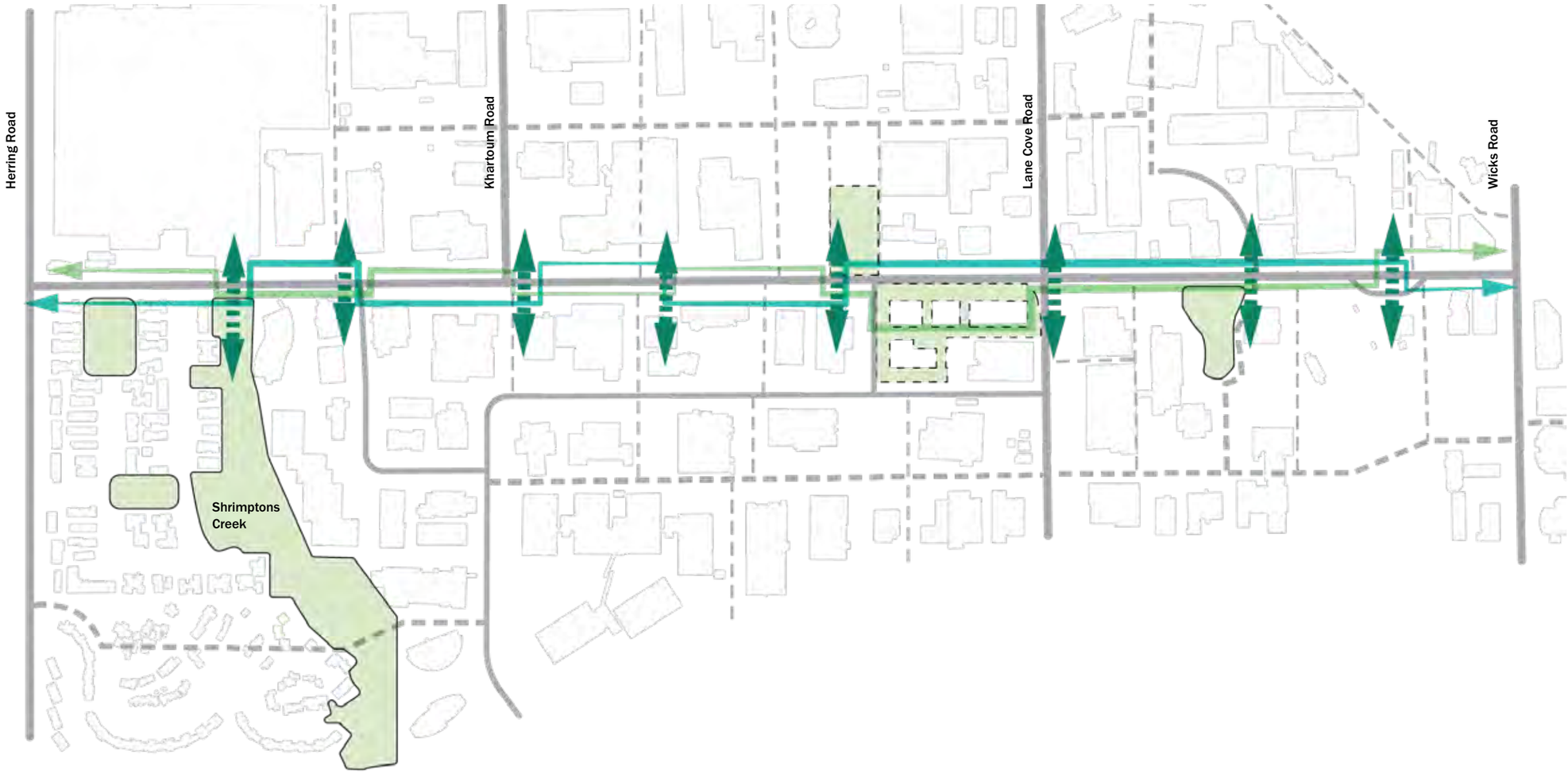
STRUCTURE

East-west and north-south



Key moves

- → Create a permeable and connected corridor that prioritises the pedestrian and provides multiple opportunities to move north, south, east and west
- → Divide the 1.9km road corridor into a series of secondary zones that allow for shorter walking distances to key destinations. Secondary zones include
  - – Herring Road to Khartoum Road (600m)
  - – Khartoum Road to Lane Cove Road (700m)
  - – Lane Cove Road to Wicks Road (600m)
- → Improve existing east - west connections through upgrades in paving, crossing typologies and planting
- → Provide new north - south connections aligned to existing and proposed streets to increase permeability across Waterloo Road



FOREST

Former Renault site - Trapeze Park, Paris, France

URBAN

Television Centre, London, UK

STRUCTURE

Forest and urban

Key moves

- → Create two key landscape characters across the corridor that respond to the surrounding landscape context and unify Waterloo Road
- → Each landscape character to be defined by tree canopy and a diverse understorey planting mix that improve existing and create new east-west ecological links
- → Forest character to be dominated by informal groupings of trees, rich diversity of understorey planting and a meandering footpath zone
- → Urban character to be more formalised with new grids of trees, small plaza's and a variety of levels changes that connect the street to private development areas

Monash University, Melbourne, Australia

Lakeway Redevelopment, Perth, Australia

Monash University, Melbourne, Australia

Museum Peter August Böckstiegel, Germany

STRUCTURE

Networks and destinations

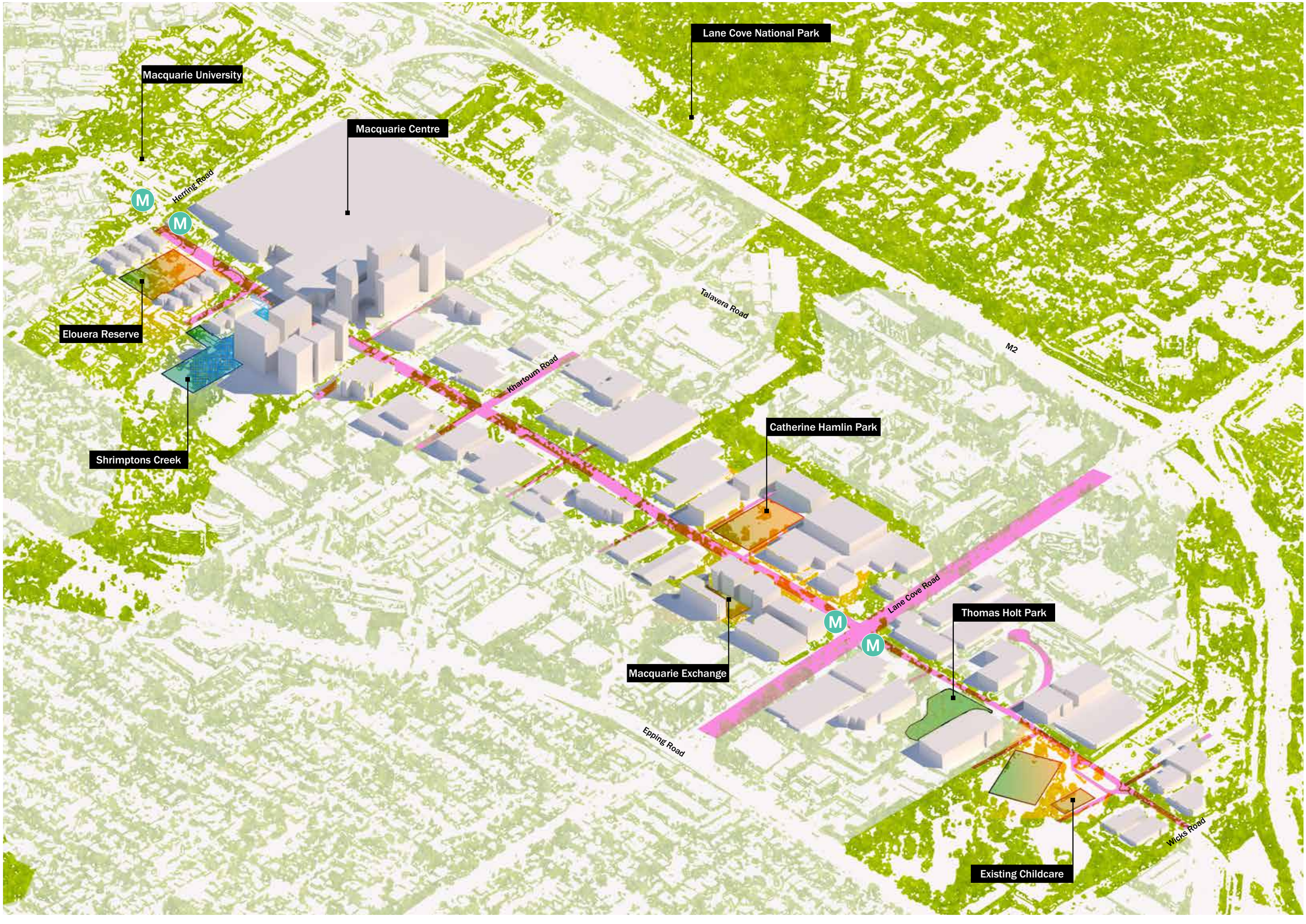
Key moves

- → Concentrate activation and programme at key destinations along the corridor that vary in scale, diversity, programme and character. Destinations include:
  - Elouera Reserve and Shrimptons Creek (existing)
  - Catherine Hamlin Park and Macquarie Exchange (approved)
  - Community Park (proposed)
- → Destinations to provide opportunities to gather, play and discover.
- → Connect each destination through and upgraded network of footpaths, planting and cohesive landscape character zones (forest and urban)
- → Provide a network of smaller dwell spaces in between destinations along footpath zones
- → Create thresholds at the corner of Wicks/ Waterloo Road and Herring/ Waterloo Road through tree planting, signage and interpretation elements that leverage the adjacent asset of Lane Cove National Park

A VIBRANT STREET OF COMMUNITY, CONNECTION AND COHESION

Artist impression, Waterloo Road

MASTER PLAN

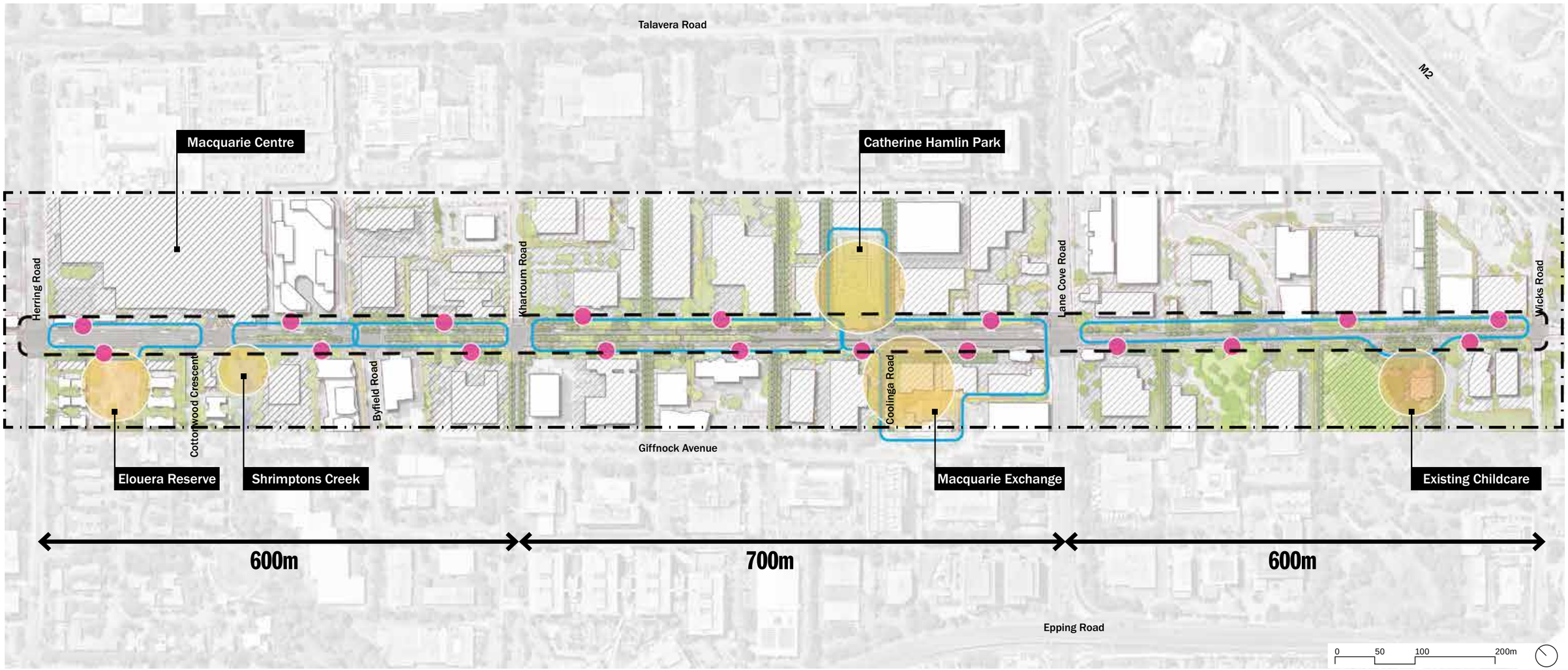

Lane Cove National Park
Macquarie University
Macquarie Centre
Herring Road
Elouera Reserve
Shrimptons Creek
Talavera Road
M2
Khartoum Road
Catherine Hamlin Park
Lane Cove Road
Thomas Holt Park
Macquarie Exchange
Epping Road
Wicks Road
Existing Childcare

WATERLOO ROAD

A vibrant street of community, connection and cohesion

COMMUNITY

A diversity of program and activation that reflect the vibrancy of the Macquarie Park community



COMMUNITY

A diversity of program and activation that reflect the vibrancy of the Macquarie Park community

Destinations

Intense zones of activation and programme that occur at key points along Waterloo Road. Destinations will consist of existing public realm zones associated with Elouera Reserve and Shrimptons Creek and new public realm zones of Catherine Hamlin Park, Macquarie Exchange and the adjacent to the existing childcare. Each destination will have a site specific design with the opportunity for flexibility in program, materiality and planting.

Dwell zones

Small moments to sit, have a drink of water and take a breath within landscape in between destinations. Dwell zones are to be located in between destinations and hang off footpaths an shared paths.

Circuits

A cohesive and connected network of footpaths and shared paths that provide opportunities for a short or long walking, cycling and running circuit. The opportunity for circuits is endless with existing and proposed footpaths and shared paths facilitating connections.

CONNECTION

A permeable network of crossings, footpaths and shared paths

Legend

- Crossings
- Footpaths
- Shared Paths
- Bus Stop
- Metro Station

Talavera Road

M2

Macquarie Centre

Catherine Hamlin Park

Herring Road

Khartoum Road

Lane Cove Road

Wicks Road

Cottonwood Crescent

Byfield Road

Coolinga Road

Giffnock Avenue

Elouera Reserve

Shrimptons Creek

Macquarie Exchange

Existing Childcare

600m

700m

600m

Epping Road

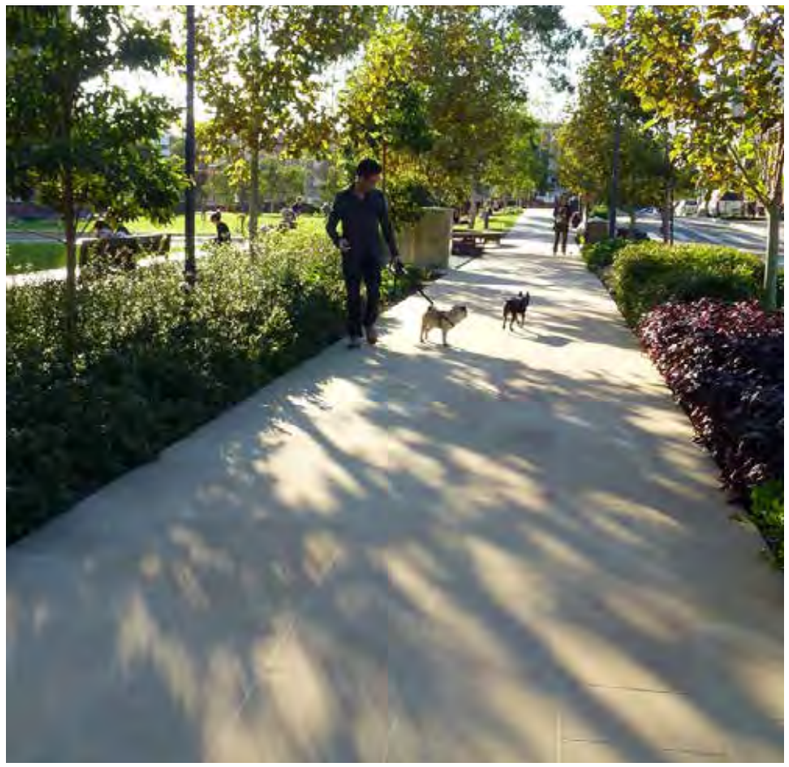
0 50 100 200m

CONNECTION

A permeable network of crossings, footpaths and shared paths

Crossings

A connected, cohesive and integrated network of existing, upgrade and new pedestrian crossings with greater choice to move across Waterloo Road.



Footpaths

High quality footpaths that are detached from kerbs to improve pedestrian amenity, increase ecology and reduce pedestrian and vehicle conflicts.

Shared Paths

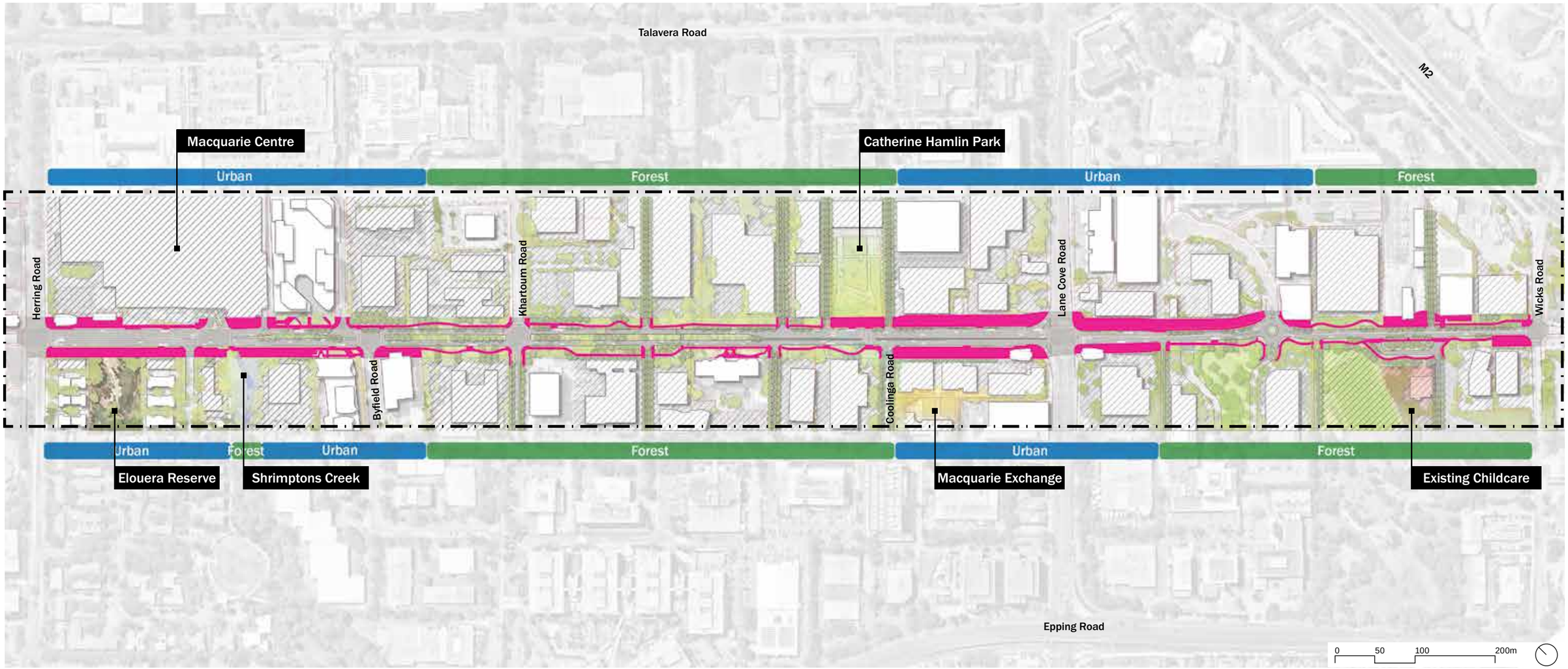
An integrated and continuous shared path that is represented through refined line marking and free standing signage.

COHESION

A unified and consistent material palette that creates a singular identity for the corridor whilst allowing flexibility in the final arrangement of the public realm within setback zones

Legend

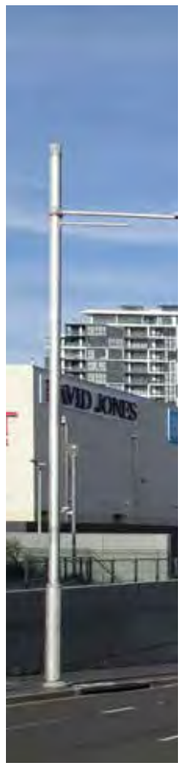
- Paving zones with seating, lighting, bins, bubblers and bike hoops
- Forest character zone with associated vegetation
- Urban character zone with associated vegetation



COHESION

A unified and consistent material palette that creates a singular identity for the corridor whilst allowing flexibility in the final arrangement of the public realm within setback zones

Image does not represent the actual materiality of the seat



Paving

- 3m wide 600x300x60mm granite paving. Black, flame ex-foliated.
- Integrated shared zone linemarking. Refer to City of Sydney examples

Seating

- Seat: Botton and Gardiner Urban Classic Seat and Single Seat. Cast aluminium, powder coat
- Masonry/ concrete seating wall within lot boundaries. Walls to have integrated power sockets where required.

Lighting

- Street lights: 12m high multifunctional light pole at 40m centres Multipole Series 300
- Pedestrian lights: 6m high Hess Light City Elements 180 range. Powder coat graphite grey
- Bollard lighting is not supported

Bins, bubblers + bike hoops

- Bin: City of Ryde model dual rubbish bins with butt bin. 316 S/S
- Bubbler: Botton and Gardiner Prospect Drinking Fountain with dog bowl. 316 S/S
- Bike Hoop: LEDA BR85F. 304 S/S

Trees (Forest zones)

- Native trees in zones of planting and turf
- Informal arrangement

Trees (Urban zones)

- Native trees in zones of paving
- Flush infill paving tree pits
- Soil zones under paving created through structural soils or engineered systems
- Formalised arrangement

COHESION

Forest zones vegetation - a rich diversity of understorey planting that connects flora and fauna east-west, increases the amenity of the public realm and create an informal forest experience


Angophora costata


Corymbia maculata


Eucalyptus tereticornis

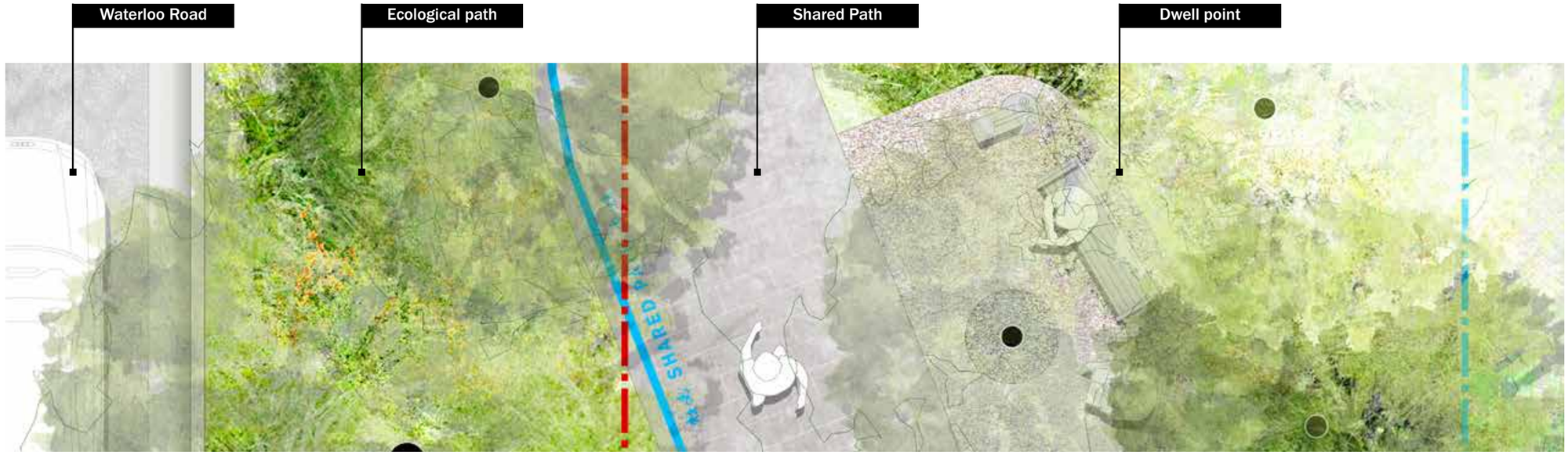

Median planting

Trees

Within public domain
- → Angophora costata (Sydney Red Gum)
- → Corymbia maculata (Spotted Gum)
- → Eucalyptus tereticornis (Forest Red Gum)

Within setback zone
- → Species within public domain as per above
- → Angophora floribunda (Rough-barked Apple)
- → Eucalyptus botryoides (Swamp Mahogany)
- → Eucalyptus acmenoides (White Mahogany)
- → Eucalyptus pilularis (Blackbutt)
- → Eucalyptus piperita (Sydney Peppermint)
- → Eucalyptus saligna (Sydney Blue Gum)
- → Eucalyptus resinifera (Red Mahogany)

(Source: Public Domain Technical Manual City of Ryde - Maquarie Park Corridor)



Public Domain

- → Large planting buffer behind kerb
- → Intermittent zones of trees where there are no conflicts with services
- → Planting to respond to specific site conditions
- → Build on the existing biodiversity of Waterloo Road through the use of native and endemic species where possible
- → Select species that are hardy and require limited irrigation and maintenance
- → Planting areas to connect to natural ground
- → Retain existing trees

Within 10m setback zone

- → Provide a DDA compliant, 3m meandering shared path for pedestrians and cyclists
- → Shared path to connect with paving zones at bus stop and kerbside pickup/ drop off areas
- → Species selection to be from public domain palette
- → Maximise areas of vegetation that promote ecology and create visual interest along street
- → Build on the existing biodiversity of Waterloo Road through the use of native and endemic species where possible
- → Provide areas of turf at dwell points along Waterloo Road
- → Maximise planting under trees
- → Retain existing trees
- → Where trees have to be removed replace with a suitable alternate selected from the approved tree list

COHESION

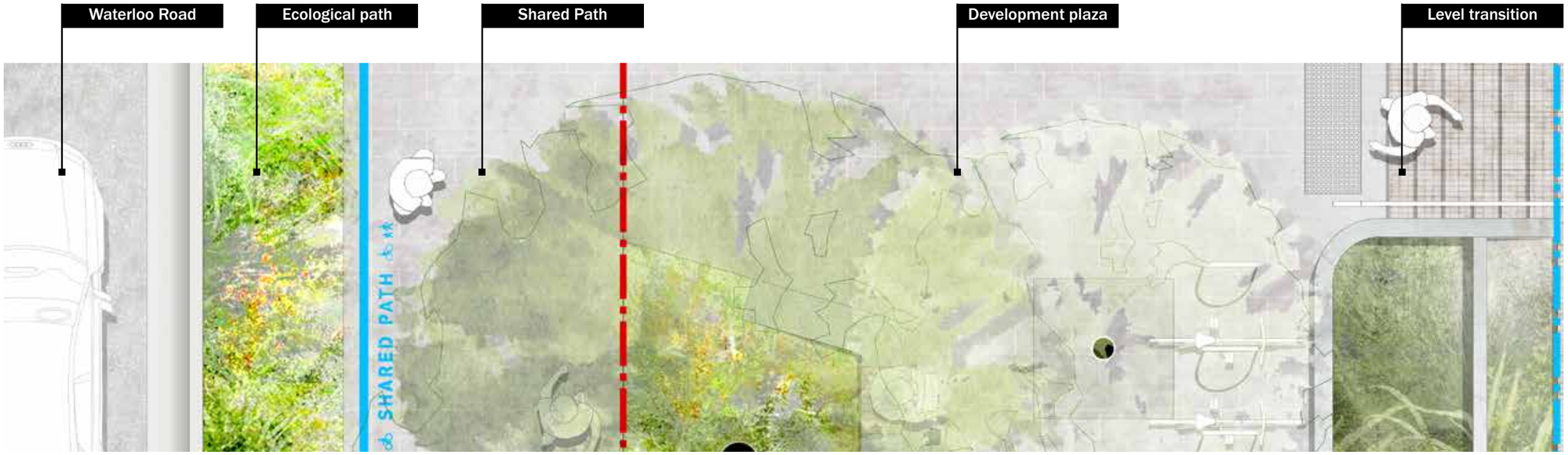
Urban zones vegetation - a rich diversity of understorey planting with formalised zones of trees, plazas and footpaths that respond to the program of adjacent development sites whilst maximising pedestrian permeability


Angophora costata


Corymbia maculata


Eucalyptus tereticornis


Median planting



Trees

Within public domain
- → Angophora costata (Sydney Red Gum)
- → Corymbia maculata (Spotted Gum)
- → Eucalyptus tereticornis (Forest Red Gum)

Within setback zone
- → Species within public domain as per above
- → Angophora floribunda (Rough-barked Apple)
- → Eucalyptus botryoides (Swamp Mahogany)
- → Eucalyptus acmenoides (White Mahogany)
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- → Eucalyptus saligna (Sydney Blue Gum)
- → Eucalyptus resinifera (Red Mahogany)

(Source: Public Domain Technical Manual City of Ryde - Maquarie Park Corridor)

Public Domain

- → Small planting buffer behind kerb
- → Intermittent line of trees where there are no conflicts with services
- → Planting to match Forest Zones
- → Provide a DDA compliant 3m linear shared path for pedestrians and cyclists within public domain zone
- → Shared path to connect with paving zones at bus stop and kerbside pickup/ drop off areas

Within 10m setback zone

- → Species selection specific to each development proposal and subject to council approval
- → Maximise areas of vegetation that promote ecology and create visual interest along street
- → Build on the existing biodiversity of Waterloo Road through the use of native and endemic species where possible
- → Select species that are hardy and require limited irrigation and maintenance
- → Avoid the use of annual species
- → Planting areas to connect to natural ground where possible
- → Retain existing trees
- → Where trees have to be removed replace with a suitable alternate selected from the approved tree list
- → New tree planting to be arranged in a formalised grid with infill tree grates that do not impede pedestrian movements

FOREST ZONES

A meandering path network that connect key destinations and dwell spaces along Waterloo Road through an ecologically rich understorey planting and tree canopy. An informal forest character that is inspired by the landscape character of Macquarie Park.

Artist impression, Waterloo Road

URBAN ZONES

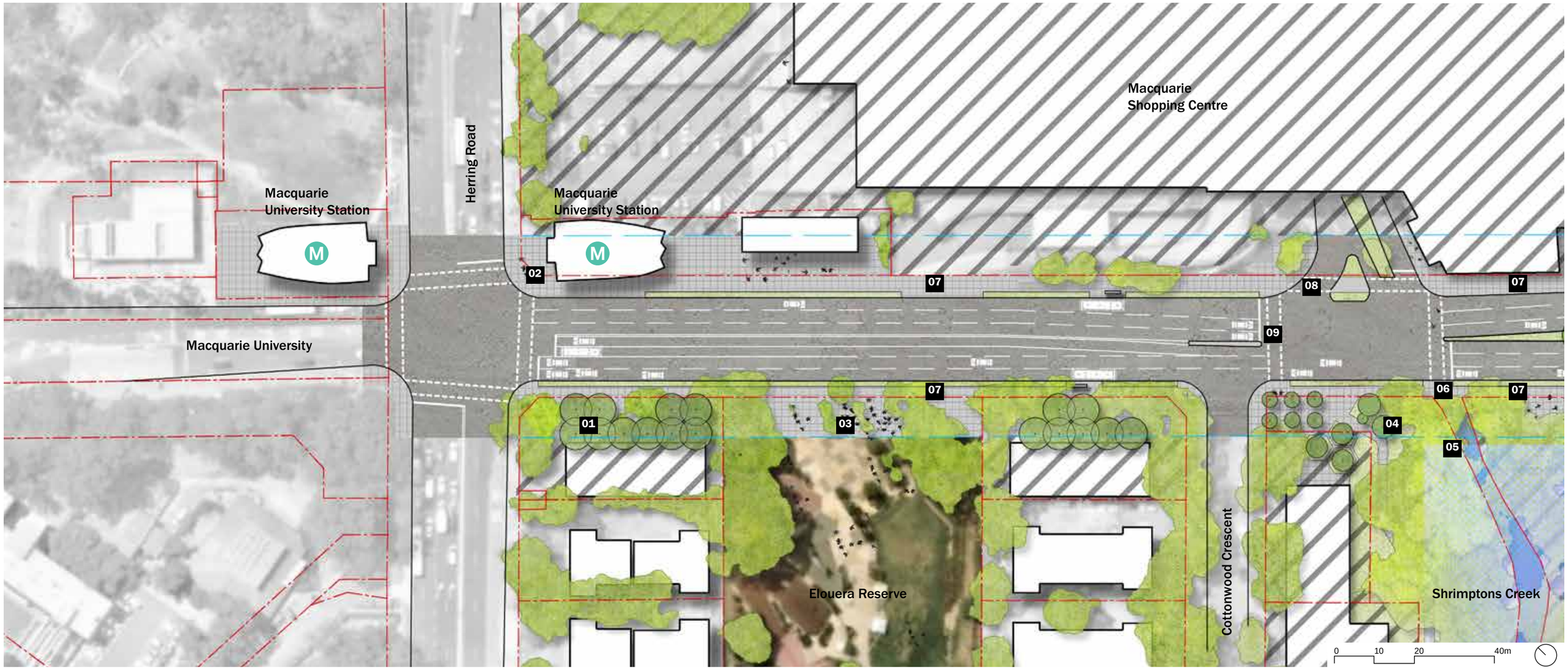
A formalised network of connections that connect key destinations and dwell spaces along Waterloo Road through an ecologically rich understorey planting and tree canopy. A formalised character of trees, plazas and footpaths that respond to the program of adjacent development sites whilst maximising pedestrian permeability.

Artist impression, Waterloo Road

HERRING ROAD

Item	Description
	Lot boundary
	10m offset line
	BPIP land acquisition extent
	Existing trees
	New trees
	New paving
	New understorey planting
	Existing bus stop with paving and shelter improvements
	Future development subject to approvals or under development under construction

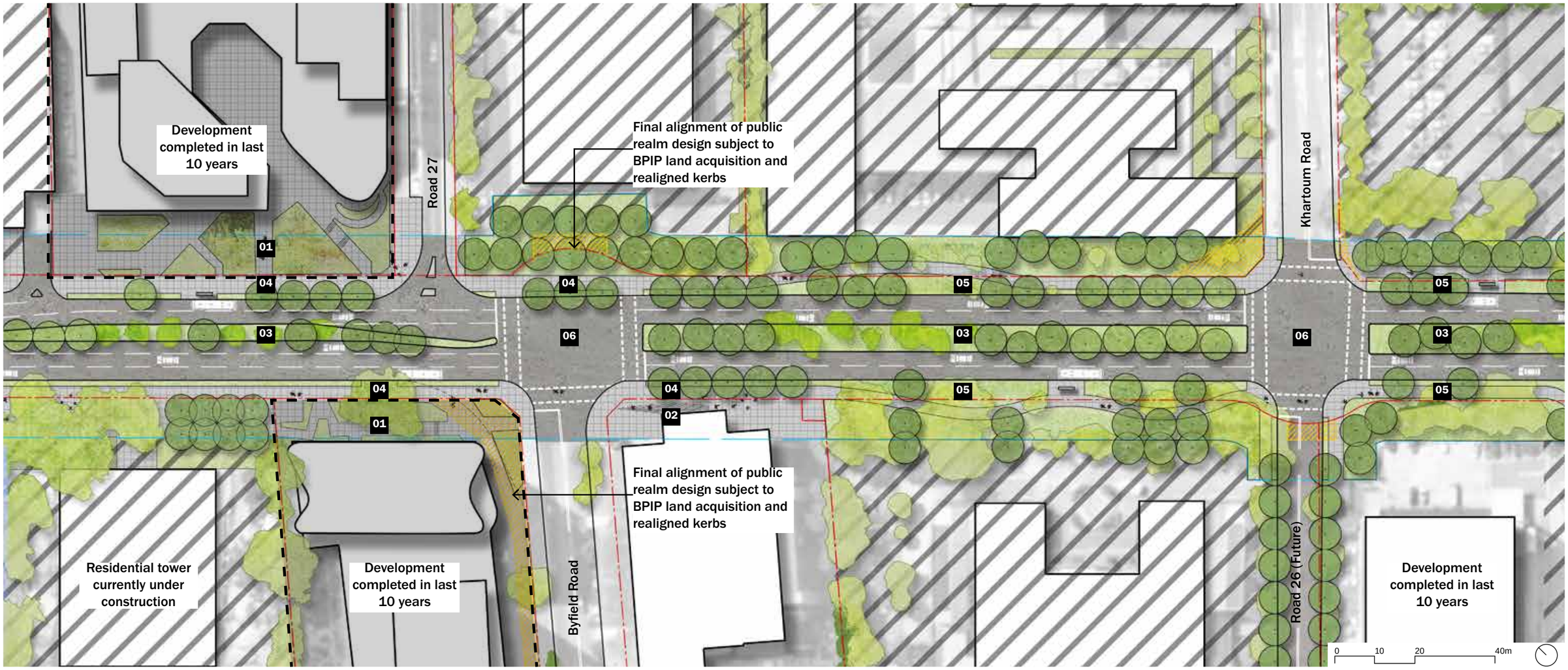
Item	Description
01	Entry plaza with grid of trees, seating, interpretation signage and way finding connecting Waterloo Road back to Lane Cove National Park
02	Entry plaza associated with Macquarie University Station
03	Public realm destination - entry plaza to Elouera Reserve with fixed play elements, seating, interpretation signage and way finding
04	Public realm destination - entry plaza to Shrimptons Creek with grid of trees, seating, interpretation signage and way finding.
05	New viewing deck over Shrimptons Creek
06	Potential creek line interpretation in paving
07	Urban upgrade with 1.5m wide planting buffer and 3m wide footpath
08	New signalised crossing to replace existing zebra crossing Realignment of kerbs, median and carriageway to suit new traffic arrangement
09	New signalised crossing. Realignment of kerbs, median and carriageway to suit new traffic arrangement



KHARTOUM ROAD (WEST)

Item	Description
	Lot boundary
	10m offset line
	BPIP land acquisition extent
	Existing trees
	New trees
	New paving
	New understorey planting
	Existing bus stop with paving and shelter improvements
	Future development subject to approvals or under development under construction

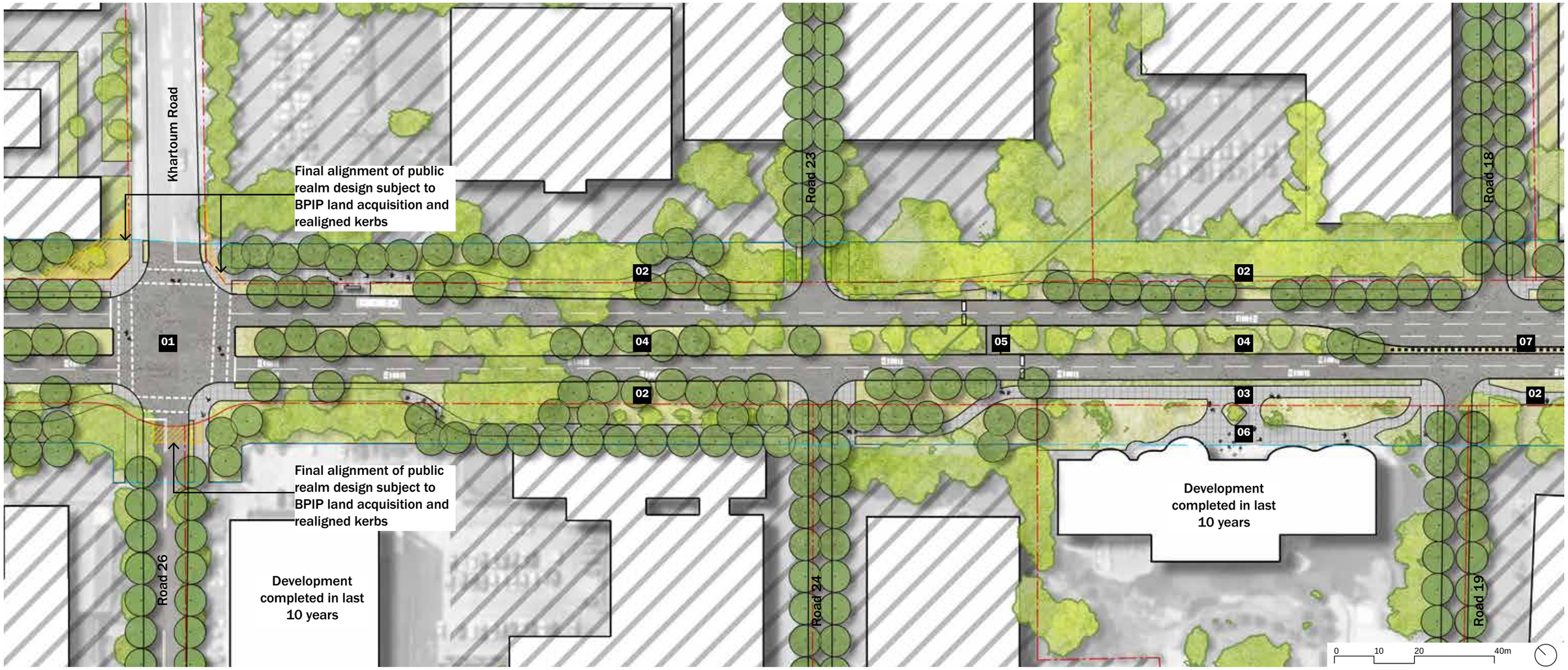
Item	Description
01	Recently completed public realm within lot boundary
02	Existing stairs at 78 Waterloo Road retained
03	Upgraded median with new understorey and tree planting. All north south crossings and central islands removed
04	Urban upgrade with 1.5m wide planting buffer and 3m wide footpath
05	Forest upgrade with 3.5m wide planting buffer and 3m wide meandering footpath
06	New signalised intersection with pedestrian crossings. Realignment of kerbs, median and carriageway to suit new traffic arrangement



KHARTOUM ROAD (EAST)

Item	Description
	Lot boundary
	10m offset line
	BPIP land acquisition extent
	Existing trees
	New trees
	New paving
	New understorey planting
	Existing bus stop with paving and shelter improvements
	Future development subject to approvals or under development under construction

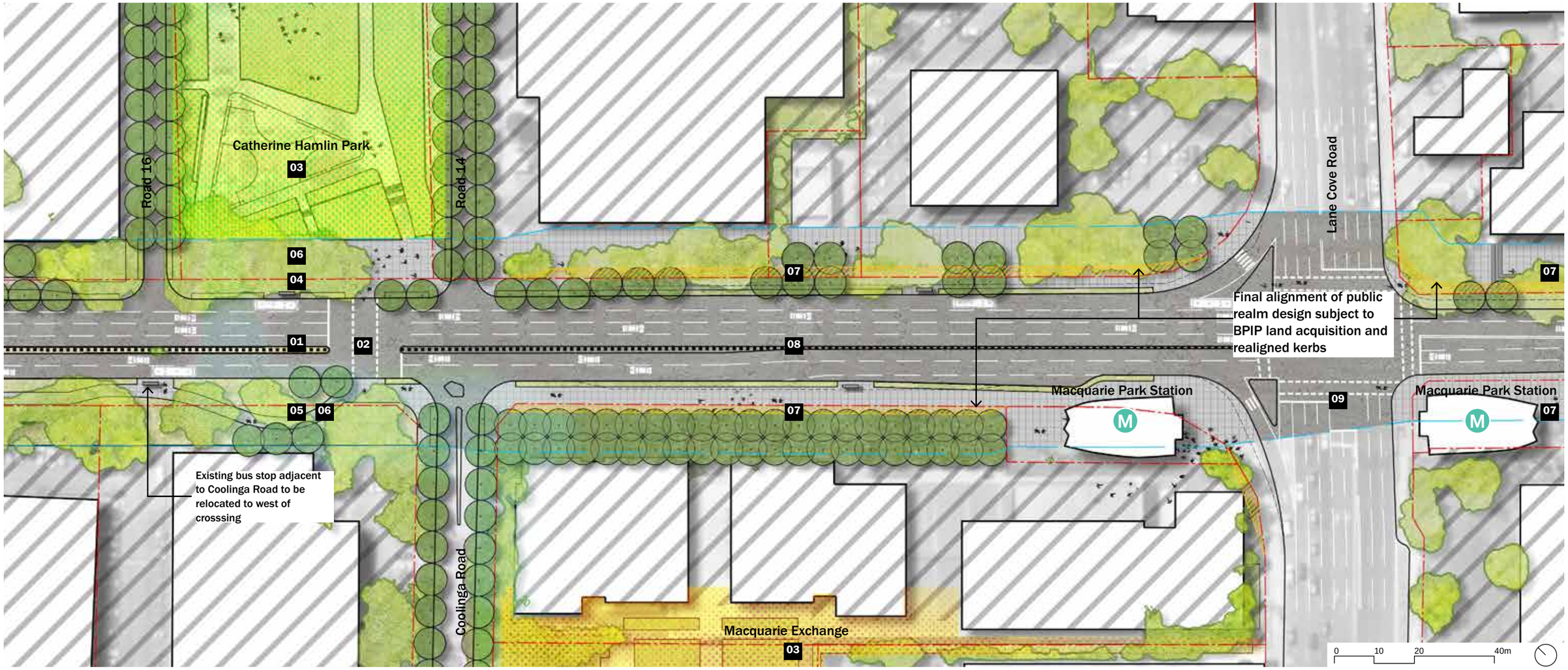
Item	Description
01	New signalised intersection with pedestrian crossings. Realignment of kerbs, median and carriageway to suit new traffic arrangement
02	Forest upgrade with 3.5m wide planting buffer and 3m wide meandering footpath
03	Forest upgrade with 1.5m wide planting buffer and 3m wide footpath within public domain
04	Upgraded median with new understorey and tree planting. All north south crossings and central islands removed
05	New informal pedestrian crossing
06	Recently completed public realm within lot boundary
07	New ground cover planting around existing median fence



LANE COVE ROAD (WEST)

Item	Description
	Lot boundary
	10m offset line
	BPIP land acquisition extent
	Existing trees
	New trees
	New paving
	New understorey planting
	Existing bus stop with paving and shelter improvements
	Future development subject to approvals or under development under construction

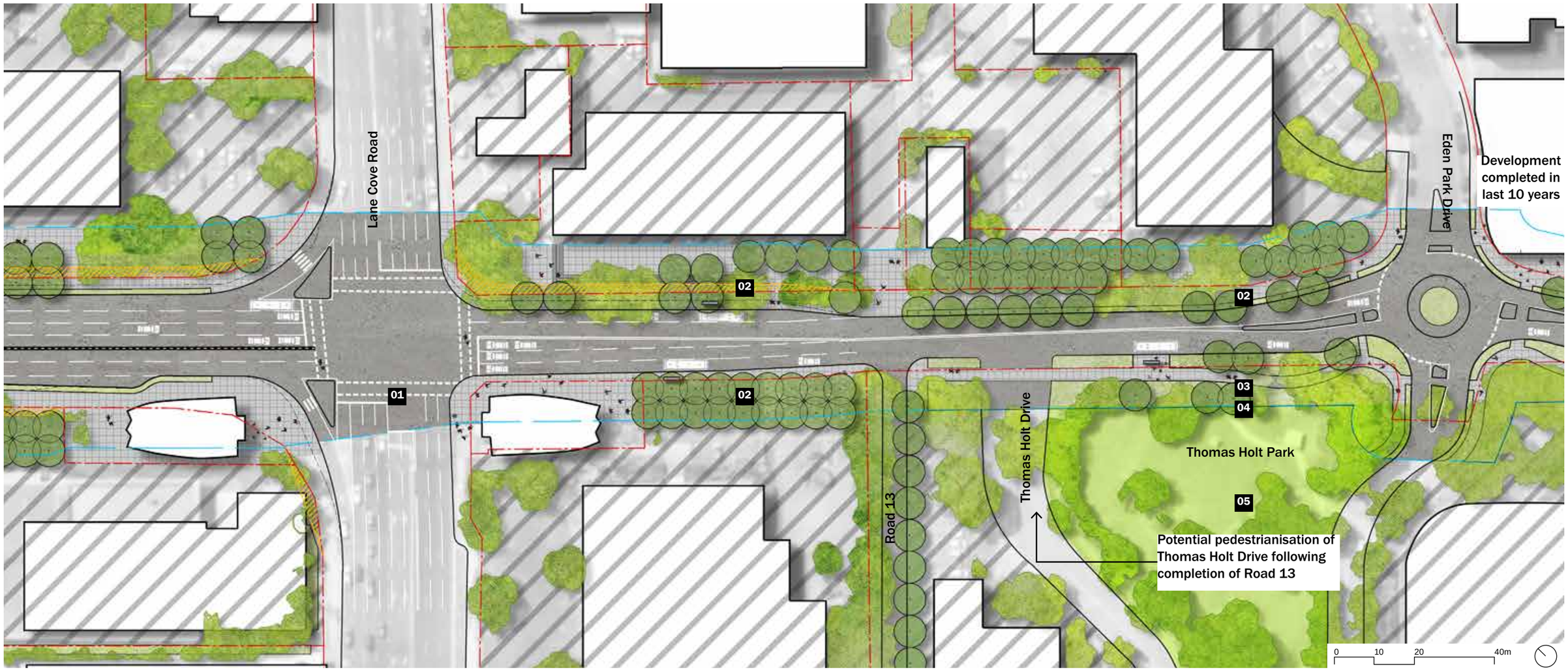
Item	Description
01	New ground cover planting around existing median fence
02	New signalised intersection with pedestrian crossings. Realignment of kerbs, median and carriageway to suit new traffic arrangement
03	New public realm destination
04	Forest upgrade with 1.5m wide planting buffer and 3m wide footpath within public domain
05	Forest upgrade with 3.5m wide planting buffer and 3m wide meandering footpath
06	Potential creek line interpretation in paving
07	Urban upgrade with 1.5m wide planting buffer and 3m wide footpath
08	Existing concrete median with fence
09	New signalised crossing. Realignment of kerbs, median and carriageway to suit new traffic arrangement



LANE COVE ROAD (EAST)

Item	Description
	Lot boundary
	10m offset line
	BPIP land acquisition extent
	Existing trees
	New trees
	New paving
	New understorey planting
	Existing bus stop with paving and shelter improvements
	Future development subject to approvals or under development under construction

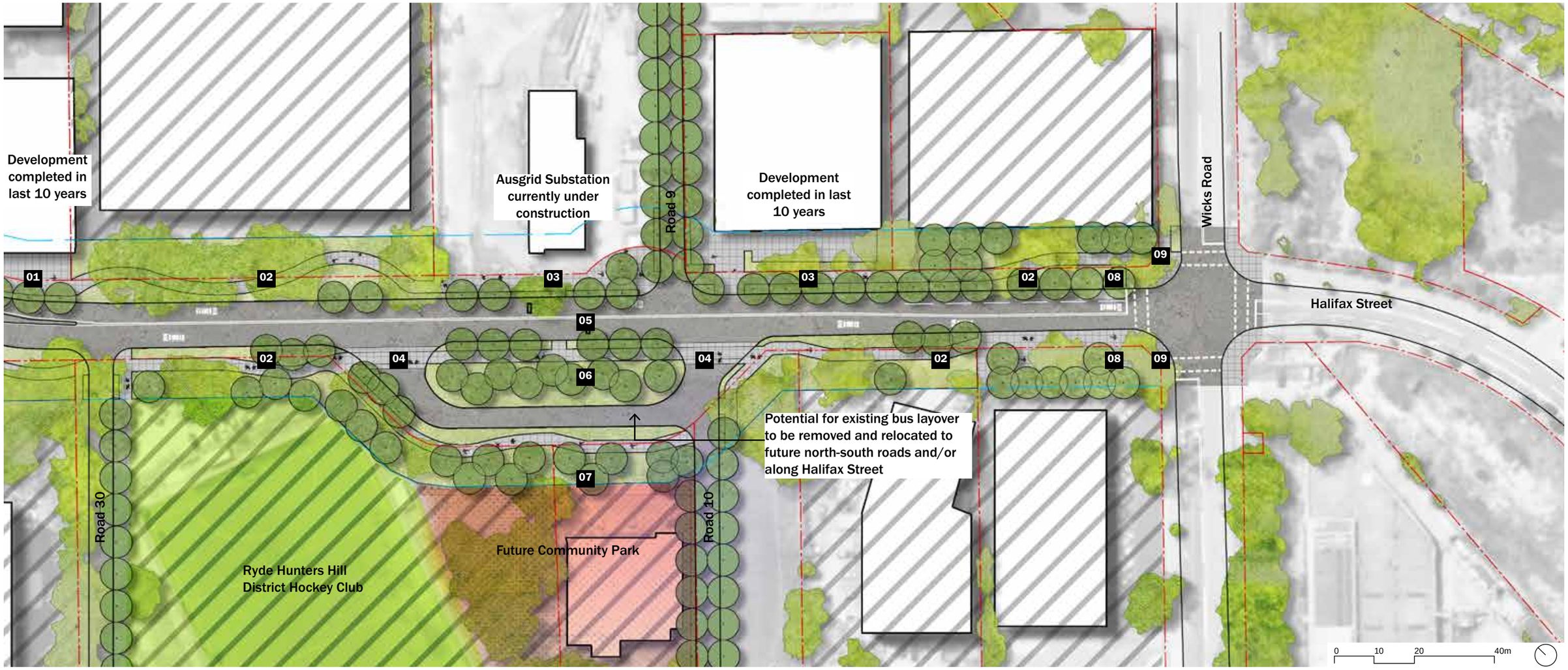
Item	Description
01	New signalised crossing. Realignment of kerbs, median and carriageway to suit new traffic arrangement
02	Urban upgrade with 1.5m wide planting buffer and 3m wide footpath
03	Forest upgrade with 4.5m wide planting buffer and 3m wide meandering footpath
04	Landscape terraces and stairs at Thomas Holt Park
06	Landscape upgrades at Thomas Holt Park



WICKS ROAD

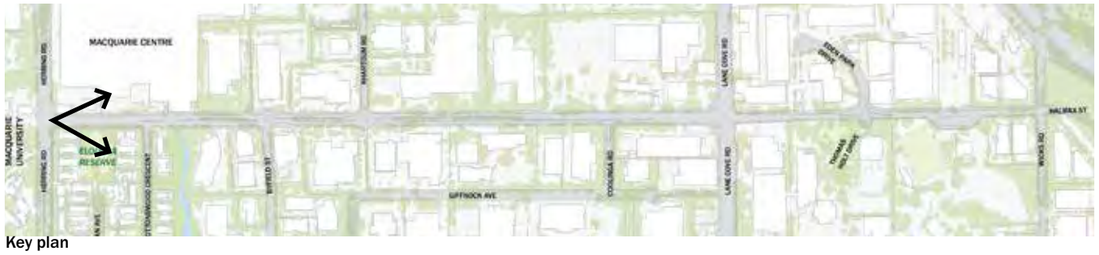
Item	Description
	Lot boundary
	10m offset line
	BPIP land acquisition extent
	Existing trees
	New trees
	New paving
	New understorey planting
	Existing bus stop with paving and shelter improvements
	Future development subject to approvals or under development under construction

Item	Description
01	Urban upgrade with 1.5m wide planting buffer and 3m wide footpath
02	Forest upgrade with 3.5m wide planting buffer and 3m wide meandering footpath
03	Forest upgrade with 1.5m wide planting buffer and 3m wide footpath within public domain
04	New raised pedestrian crossing
05	New informal pedestrian crossing
06	Upgraded island with new understorey and tree planting
07	New public realm destination - fixed play elements, seating, interpretation signage and way finding
08	Entry plaza with grid of trees, seating, interpretation signage and way finding connecting Waterloo Road back to Lane Cove National Park
09	Potential creek line interpretation in paving



HERRING ROAD

Montage - looking south - east



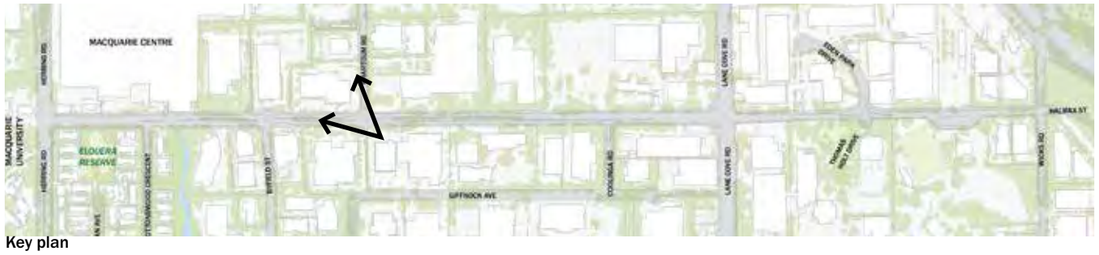
Key plan


Existing


Proposed

KHARTOUM ROAD

Montage - looking north - east



Key plan


Existing


Proposed

CATHERINE HAMLIN PARK

Montage - looking north-west

Key plan


Existing


Proposed

LANE COVE ROAD

Montage - looking north - west

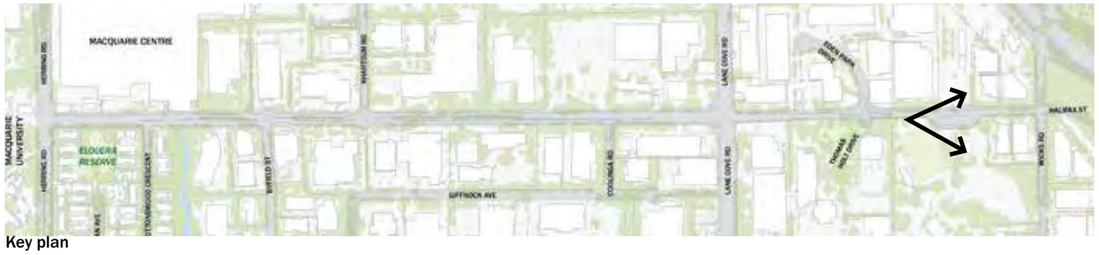
Key plan


Existing


Proposed

THOMAS HOLT DRIVE

Montage - looking south-east



Key plan


Existing


Proposed

REFINED DESIGN

PLANTING PALETTE

Waterloo Road will be an ecological connector with planting that is visually cohesive and inspired by the ecological history of site. Species mixes will be grass based with moments of colour during spring months.

The Waterloo Road planting palette is inspired by the historic ecologies of the Sydney Turpentine-Ironbark Forest and Shale/ Sandstone Transition Forest to create an ecological corridor of resilience and visual delight.

A rich and diverse palette

The planting palette will be a key feature of the Waterloo Road corridor and be a defining element of it's landscape identity. As such, the planting must be rich and diverse, accommodating a number of climatic conditions from full sun, part sun, part shade to full shade. The species list has been selected based on the historic ecologies of site along with the inclusion of enhanced specimens that provide further diversity and create visual interest.

At a finer grain each climatic defined list of species has been developed into several combinations of mixes that ensure diversity along the corridor. This finer grain approach allows flexibility in planting design that can be refined subject to the adjacent developments within each lot and immediate context.

Healthy, resilient and safe

The selected planting species vary in form, texture, colour and habit and will act as an opportunity for an ecological path to be created between Wicks Road and Herring Road. This ecological path will provide habitat for insects and pollinators increasing the resilience of Waterloo Road. Large zones of planting will also provide opportunities for increased ground water peculation and recharge with decreased zones of concrete resulting in reduced heat island effects, reduced run off and reduced ground compaction. All planting will be low growing (max 1m high) to maximise sight lines and to minimise CPTED issues.

Sitting above the planting the existing network of tree canopy will be enhanced through the select installation of tree species based on the City of Ryde Street Tree Master Plan. This will create a continuous tree canopy along Waterloo Road that will improve public domain amenity, reduce urban heat island effects and act as an ecological connector at tree top level.

Commercially viable

Waterloo Road presents the opportunity to create a landscape that is inspired by the original site ecology of the Sydney Turpentine- Ironbark Forest and Shale/ Sandstone Transitional Forest. Whilst a large majority of these species are commercially viable and easily sourced several are considered too bespoke. As such additional species that are commercially available have been included within the proposed palette. These species have been selected based on their form, texture, colour and habit closely matching the look and feel of the original site ecologies.

By no means is the intent to recreate these ecologies, rather provide a new and enhanced landscape character that builds on the surrounding landscape context, is visually attractive, is ecologically enhancing and is commercially available.

Easily maintainable

All planting zones along Waterloo Road must be designed to be easily maintainable for Council and individual developers. Key elements that must be developed for planting designs along Waterloo Road include:

- → Ameliorate and reuse site soils where appropriate
- → Provide a suitable sub surface drainage to all planting beds
- → Provide irrigation to all planting zones. Post establishment period irrigation should be programmed for extreme weather conditions only with the expectations that planting will be self sufficient
- → Develop maintenance strategies that are undertaken on a regular cycle and align with the needs of specific of each species. One example of this is yearly slashing of Lomandra 'Tanika'

Waterloo Road species mix

Species proposed along the Waterloo Road corridor include but are not limited to:

Key	Botanical name	Common name	Full sun	Part shade/sun	Full shade
01	*Adiantum aethiopicum*	Maidenhair fern			■
02	*Asplenium australasicum*	Birds Nest Fern			■
03	*Austrodanthonia caespitosa*	Wallaby Grass	■	■	
04	*Blechnum cartilaginuem*	Soft Water Fern			■
05	*Blechnum nudum*	Fishbone Fern			■
06	*Billardiera scandens*	Dumplings, Apple Berry	■	■	■
07	*Carex appressa*	Tall sedge	■	■	
08	*Carex inversa*	Carex	■		
09	*Centella asiatica*	Swamp Pennywort		■	■
10	*Dianella caerulea*	Blue Flax Lily	■	■	
11	*Dichondra repens*	Kidney Weed		■	
12	*Goodenia hederacea*	Violet-leaved Goodenia		■	
13	*Hardenbergia violacea*	False Sarsparilla	■	■	
14	*Helmholtzia glaberrima*	Stream Lily		■	■
15	*Hibertia scandens*	Guinea flower	■		
16	*Libertia paniculata*	Branching Flag Grass	■		
17	*Liriope muscari*	Lily Turf	■	■	
18	*Lomandra filiformis*	Wattle Mat-rush	■	■	
19	*Lomandra longifolia 'Tanika'*	Spiny-headed Mat-rush	■	■	
20	*Microlaena stipoides*	Meadow Rice Grass	■	■	
21	*Ozothamnus diosmifolius*	Ball Everlasting	■		
22	*Pennisetum 'Nafray'*	Foxtail Grass	■		
23	*Pratia pedunculata*	Pratia		■	■
24	*Themeda australis*	Kangaroo Grass	■	■	
25	*Viola hederacea*	Native violet		■	■
26	*Wahlenbergia gracilis*	Australian Bluebell	■	■	

Note: Final species selection subject to Council review and approval

PLANTING PALETTE


01


02


03


04


05


06


07


08


09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23


24


25


26

PLANTING PALETTE

Full sun

Key	Botanical name	Common name
03	*Austrodanthonia caespitosa*	Wallaby Grass
06	*Billardiera scandens*	Dumplings, Apple Berry
07	*Carex appressa*	Tall sedge
08	*Carex inversa*	Carex
10	*Dianella caerulea*	Blue Flax Lily
13	*Hardenbergia violacea*	False Sarsparilla
15	*Hibertia scandens*	Guinea flower
16	*Libertia paniculata*	Branching Flag Grass
17	*Liriope muscari*	Lily Turf
18	*Lomandra filiformis*	Wattle Mat-rush
19	*Lomandra longifolia 'Tanika'*	Spiny-headed Mat-rush
20	*Microlaena stipoides*	Meadow Rice Grass
21	*Ozothamnus diosmifolius*	Ball Everlasting
22	*Pennisetum 'Nafray'*	Foxtail Grass
24	*Themeda australis*	Kangaroo Grass
26	*Wahlenbergia gracilis*	Australian Bluebell

PLANTING PALETTE

Note: Species to be arranged in small random groups of 3 and 5 within each mix

Mix 1

Key	Botanical name	Spacing (#/m2)	% of mix
03	*Austrodanthonia caespitosa*	6	15%
07	*Carex appressa*	6	10%
08	*Carex inversa*	6	10%
18	*Lomandra filiformis*	6	10%
19	*Lomandra longifolia 'Tanika'*	6	10%
20	*Microlaena stipoides*	6	15%
22	*Pennisetum 'Nafray'*	6	15%
24	*Themeda australis*	6	15%

Mix 2

Key	Botanical name	Spacing (#/m2)	% of mix
16	*Libertia paniculata*	6	20%
19	*Lomandra longifolia 'Tanika'*	6	10%
20	*Microlaena stipoides*	6	10%
21	*Ozothamnus diosmifolius*	6	30%
22	*Pennisetum 'Nafray'*	6	10%
26	*Wahlenbergia gracilis*	9	20%

Mix 3

Key	Botanical name	Spacing (#/m2)	% of mix
06	*Billardiera scandens*	4	10%
10	*Dianella caerulea*	6	10%
13	*Hardenbergia violacea*	6	10%
15	*Hibertia scandens*	6	10%
16	*Libertia paniculata*	6	10%
17	*Liriope muscari*	6	15%
19	*Lomandra longifolia 'Tanika'*	6	5%
21	*Ozothamnus diosmifolius*	6	15%
26	*Wahlenbergia gracilis*	9	15%

PLANTING PALETTE

Part shade/ sun

Key	Botanical name	Common name
03	*Austrodanthonia caespitosa*	Wallaby Grass
06	*Billardiera scandens*	Dumplings, Apple Berry
07	*Carex appressa*	Tall sedge
09	*Centella asiatica*	Swamp Pennywort
10	*Dianella caerulea*	Blue Flax Lily
11	*Dichondra repens*	Kidney Weed
12	*Goodenia hederacea*	Violet-leaved Goodenia
13	*Hardenbergia violacea*	False Sarsparilla
14	*Helmholtzia glaberrima*	Stream Lily
17	*Liriope muscari*	Lily Turf
18	*Lomandra filiformis*	Wattle Mat-rush
19	*Lomandra longifolia 'Tanika'*	Spiny-headed Mat-rush
20	*Microlaena stipoides*	Meadow Rice Grass
23	*Pratia pedunculata*	Pratia
24	*Themeda australis*	Kangaroo Grass
25	*Viola hederacea*	Native violet
26	*Wahlenbergia gracilis*	Australian Bluebell

PLANTING PALETTE

Note: Species to be arranged in small random groups of 3 and 5 within each mix

Mix 1

Key	Botanical name	Spacing (#/m2)	% of mix
03	*Austrodanthonia caespitosa*	6	10%
07	*Carex appressa*	6	10%
10	*Dianella caerulea*	6	10%
14	*Helmholtzia glaberrima*	4	10%
17	*Liriope muscari*	6	10%
18	*Lomandra filiformis*	6	10%
19	*Lomandra longifolia 'Tanika'*	6	20%
20	*Microlaena stipoides*	6	10%
24	*Themeda australis*	6	10%

Mix 2

Key	Botanical name	Spacing (#/m2)	% of mix
09	*Centella asiatica*	9	10%
10	*Dianella caerulea*	6	5%
11	*Dichondra repens*	9	10%
17	*Liriope muscari*	6	10%
19	*Lomandra longifolia 'Tanika'*	6	5%
20	*Microlaena stipoides*	6	5%
23	*Pratia pedunculata*	9	20%
25	*Viola hederacea*	9	15%
26	*Wahlenbergia gracilis*	9	20%

Mix 3

Key	Botanical name	Spacing (#/m2)	% of mix
06	*Billardiera scandens*	4	10%
12	*Goodenia hederacea*	6	5%
13	*Hardenbergia violacea*	4	10%
14	*Helmholtzia glaberrima*	4	10%
17	*Liriope muscari*	6	5%
19	*Lomandra longifolia 'Tanika'*	6	5%
23	*Pratia pedunculata*	9	20%
25	*Viola hederacea*	9	15%
26	*Wahlenbergia gracilis*	9	20%

PLANTING PALETTE

Full shade

Key	Botanical name	Common name
01	*Adiantum aethiopicum*	Maidenhair fern
02	*Asplenium australasicum*	Birds Nest Fern
04	*Blechnum cartilaginuem*	Soft Water Fern
05	*Blechnum nudum*	Fishbone Fern
06	*Billardiera scandens*	Dumplings, Apple Berry
09	*Centella asiatica*	Swamp Pennywort
14	*Helmholtzia glaberrima*	Stream Lily
23	*Pratia pedunculata*	Pratia
25	*Viola hederacea*	Native violet


01


02


04


05


06


09


14


23


25

PLANTING PALETTE

Note: Species to be arranged in small random groups of 3 and 5 within each mix

Mix 1

Key	Botanical name	Spacing (#/m2)	% of mix
01	*Adiantum aethiopicum*	9	10%
02	*Asplenium australasicum*	4	15%
04	*Blechnum cartilaginuem*	9	10%
05	*Blechnum nudum*	9	10%
09	*Centella asiatica*	9	10%
14	*Helmholtzia glaberrima*	4	20%
23	*Pratia pedunculata*	9	15%
25	*Viola hederacea*	9	10%

Mix 2

Key	Botanical name	Spacing (#/m2)	% of mix
01	*Adiantum aethiopicum*	9	10%
04	*Blechnum cartilaginuem*	9	10%
05	*Blechnum nudum*	9	10%
06	*Billardiera scandens*	4	20%
09	*Centella asiatica*	9	10%
23	*Pratia pedunculata*	9	30%
25	*Viola hederacea*	9	10%

TREE SPECIES


01


02


03


04

Within public domain

Key	Botanical name	Common name
01	Angophora costata	Sydney Red Gum
02	Corymbia maculata	Spotted Gum
03	Eucalyptus tereticornis	Forest Red Gum

Within setback zone

Key	Botanical name	Common name
04	Angophora floribunda	Rough-barked Apple
05	Eucalyptus botryoides	Swamp Mahogany
06	Eucalyptus acmenoides	White Mahogany
07	Eucalyptus pilularis	Blackbutt
08	Eucalyptus piperita	Sydney Peppermint
09	Eucalyptus saligna	Sydney Blue Gum
10	Eucalyptus resinifera	Red Mahogany

Feature trees

(Private property entry thresholds where appropriate)

Key	Botanical name	Common name
11	Ficus rubiginosa	Port Jackson Fig
12	Ulmus parvifolia	Chinese Elm

(Source: Public Domain Technical Manual City of Ryde - Maquarie Park Corridor)


05


06


07


08


09


10


11


12

TREE COVERAGE

Through careful implementation the Waterloo Road corridor has the potential opportunity to achieve a 60% canopy coverage through with the planting of 380 new trees. This would achieve the Green Grid aspiration of 40% reducing heat island effects, promoting ecological connections and reinforcing the Sydney Turpentine-Ironbark identity of Macquarie Park.

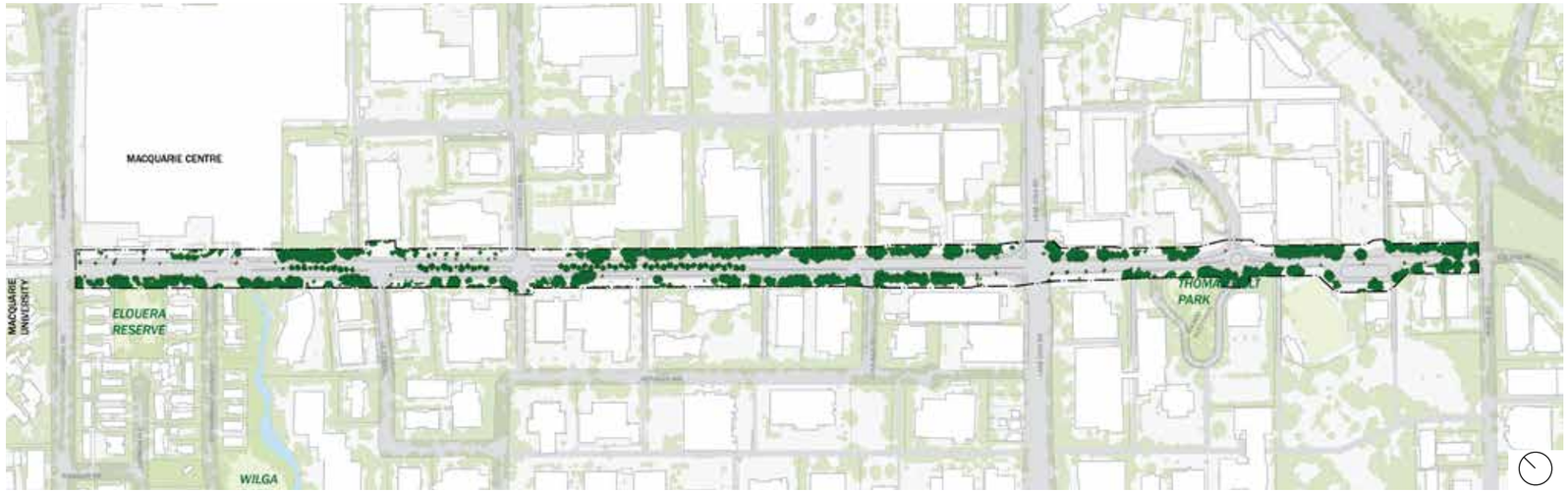
Item	Description
	Existing trees
	New trees within public domain
	New trees within setback zone

Site: 95,000m2
Road corridor: 38,000m2
Public realm: 57,000m2
Tree Canopy: 19,000m2
Canopy Coverage: 20%

Description	Canopy/ Public Realm	Canopy Area	Trees based on 8m dia Canopy
Existing Canopy Coverage	20%	19,000m2	-
Green Grid Target	40%	38,000m2	-
Gap	20%	19,000m2	378

New Canopy: 19,100m2
Resultant canopy: 38,100m2
Resultant canopy coverage: 40.1%

Description	Quantity	Canopy Area based on 8m dia canopies (50.27m2)/ tree
New trees in public domain	183	9,200m2
New trees in setback zone	197	9,900m2
Total new trees	380	19,100m2



IMPLEMENTATION STRATEGY

The following pages provide a series of Typical plans and sections that are to be used to inform the future design and implementation of the linear park along Waterloo Road. In all instances designs along the corridor are to be developed based on this material with final propositions requiring review and approval by City of Ryde Council.

Item	Description
	Lot boundary
	10m setback line
01	25m-50m lot frontage subject to forest path
02	50m-250m lot frontage subject to forest path
	Lot subject to urban path
	BPIP land acquisition zones
	Lots that have been developed in the last 10 years, are a future development subject to approvals or are currently under development/ construction.

Item	Description
	Existing dwell zone
	New forest dwell zone
	New urban dwell zone

Forest vs Urban paths

The implementation of paths requires careful consideration of the intermittent development pattern along Waterloo Road. This irregular pattern of development creates challenges of maintaining circulation along footpaths and shared paths in the interim state when not all blocks have been developed. The proposal for forest zones to move the footpath/ shared path within the lot boundary presents the need for specific approaches to each lot to ensure connectivity back to existing footpath networks is maintained.

These approaches have been defined by the extent of lot frontage as follows:

→ 25m-50m lot frontage
→ 50m-250m lot frontage

As identified in the diagram on the right there are a total of 6 x 25-50m frontages and 10 x 50m-250m frontages.

Footpaths/ shared paths within urban zones are all within the public domain and do not face the same implementation issue. For lots within forest zones that have been developed in the last 10 years, are a future development subject to approvals or are under currently development/ construction the forest path may be unachievable. In this instance upgrades for these lots will be aligned with the urban footpath approach within the public domain.

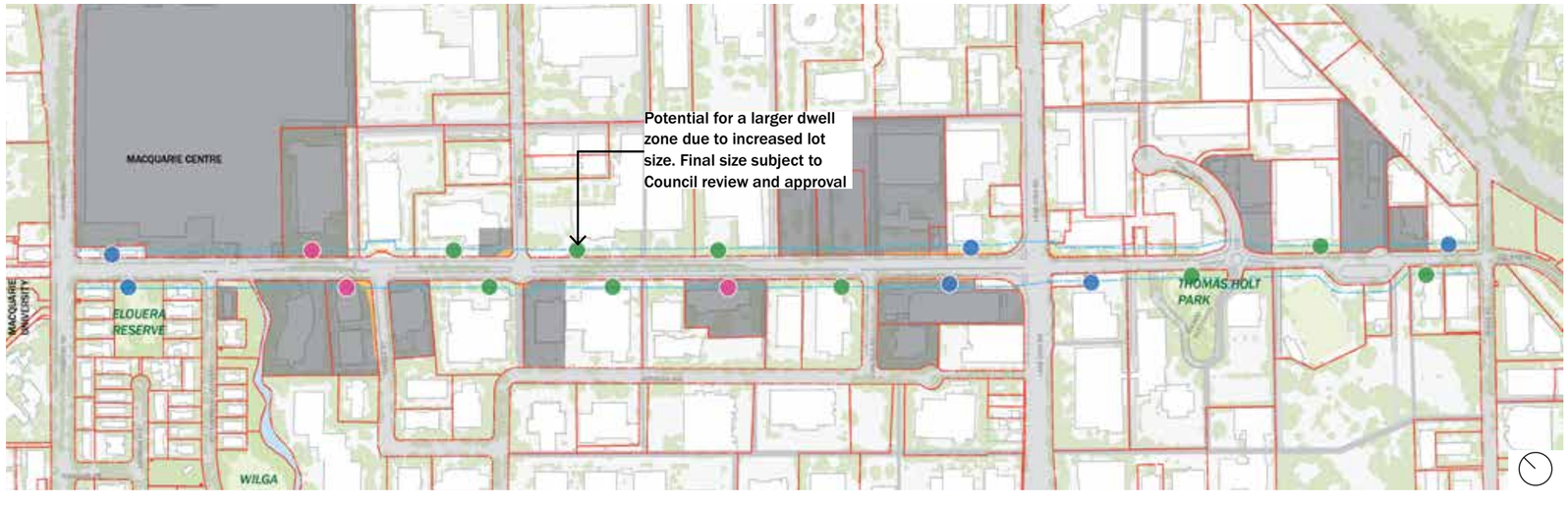
Forest vs Urban Dwell Zones

A variety of dwell zones will be located along the forest and urban paths. Each dwell zone will be located within the 10m setback zone and be required to integrate with the future development of the associated lot. Forest dwell zones will take the form of one of three potential arrangements:

→ Arrangement 1: Seating zone with decomposed granite, seating, bins, bicycle hoop and bubbler
→ Arrangement 2: Turf zone
→ Arrangement 3: Play zone with ping pong table, decomposed granite, bicycle hoop, seating and bubbler

Urban dwell zones will be within setback zones and subject to site specific design proposals by developers and/or council.

In addition to the forest and urban dwell zones there are several existing dwell zones that have already been delivered along the Waterloo Road corridor.



FOREST PATH

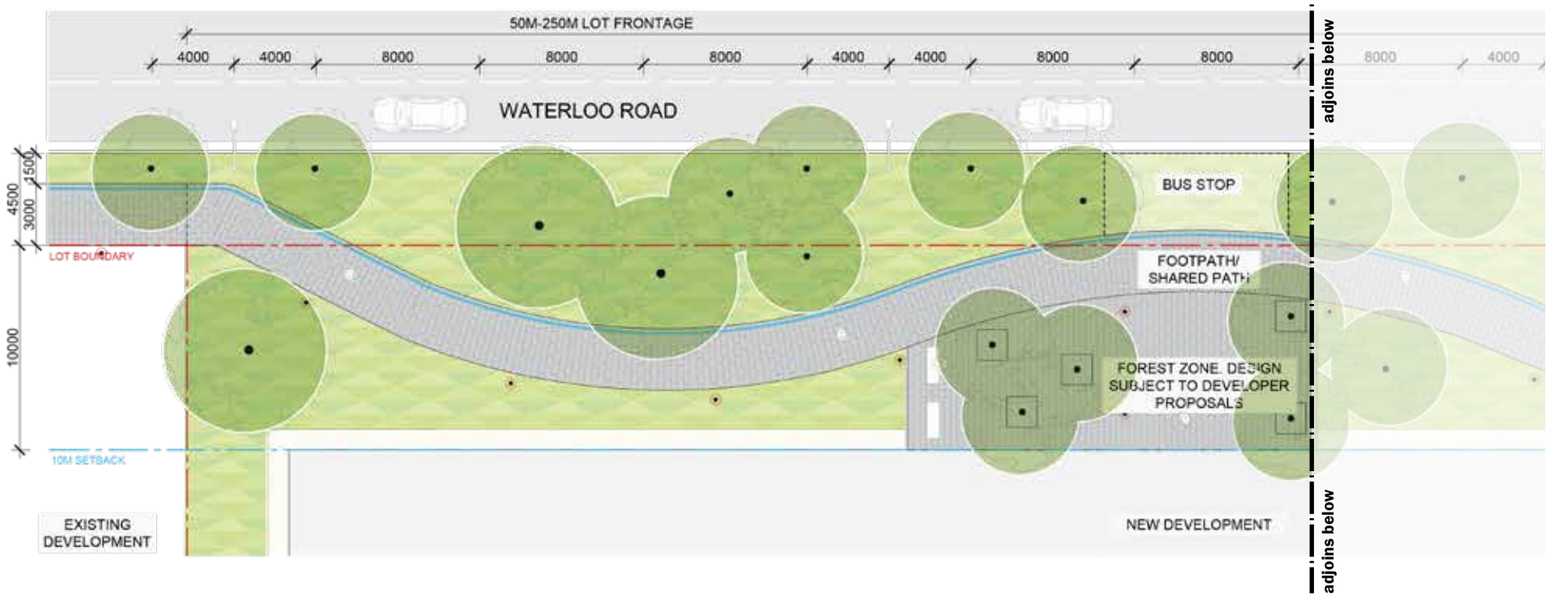
Typical (50-250m lot frontage)

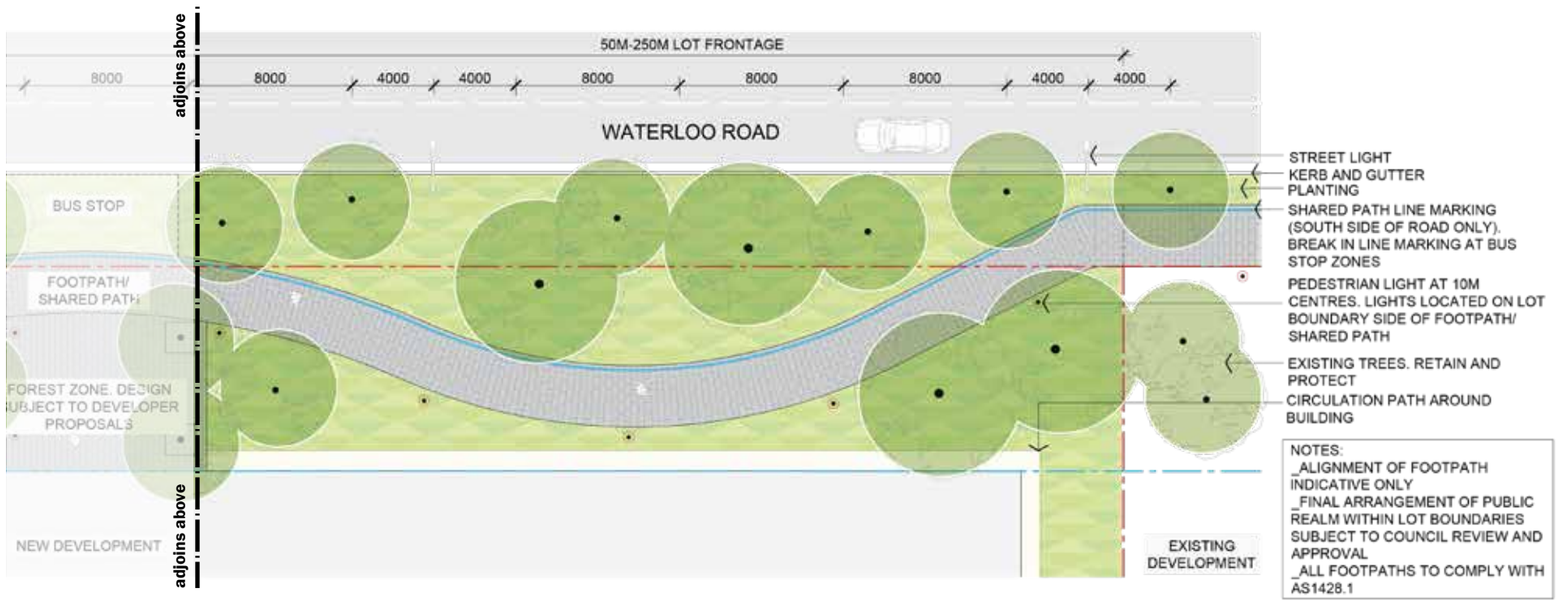
Key elements (50m-250m lot frontage)

- → Meandering 3m wide footpath on northern side of Waterloo Road, meandering shared path on southern side of Waterloo Road
- → Path located within setback zone
- → Path to integrate with existing footpaths at lot boundaries as per 25-50m typical plan
- → Path to meander around existing trees
- → Street lights located within planting to back of kerb zones
- → Pedestrian light poles at 10m centres located on development side of footpath
- → Formalised plaza in front of new building entry subject to developer proposals. Plaza to include bicycle racks, seating edges/ walls, trees and pedestrian light poles. All elements to align with Waterloo Road Master Plan materials palette
- → All new trees to be arranged in clusters and approximately 8m centres along back of kerb
- → Trees and planting to be as per Waterloo Road Master Plan palette
- → Retain existing trees where possible
- → Final path alignment subject to Council review and approval
- → All paths to meet relevant Australian Standards and City of Ryde guidelines

Key elements 25m-50m (lot frontage)

- → Meandering 3m wide footpath on northern side of Waterloo Road, meandering shared path on southern side of Waterloo Road
- → Path located 1m within public domain and 2m within setback zone
- → Path to integrate with existing footpaths at lot boundaries as per 25-50m typical plan
- → Path to meander around existing trees
- → Street lights located within planting to back of kerb zones
- → Pedestrian light poles at 10m centres located on development side of footpath
- → Small formalised plaza in front of new building entries subject to developer proposals. Plaza to include bicycle racks, seating edges/ walls, trees and pedestrian light poles. All elements to align with Waterloo Road Master Plan materials palette
- → All new trees to be arranged in clusters and approximately 8m centres along back of kerb
- → Trees and planting to be as per Waterloo Road Master Plan palette
- → Retain existing trees where possible
- → Final path alignment subject to Council review and approval
- → All paths to meet relevant Australian Standards and City of Ryde guidelines

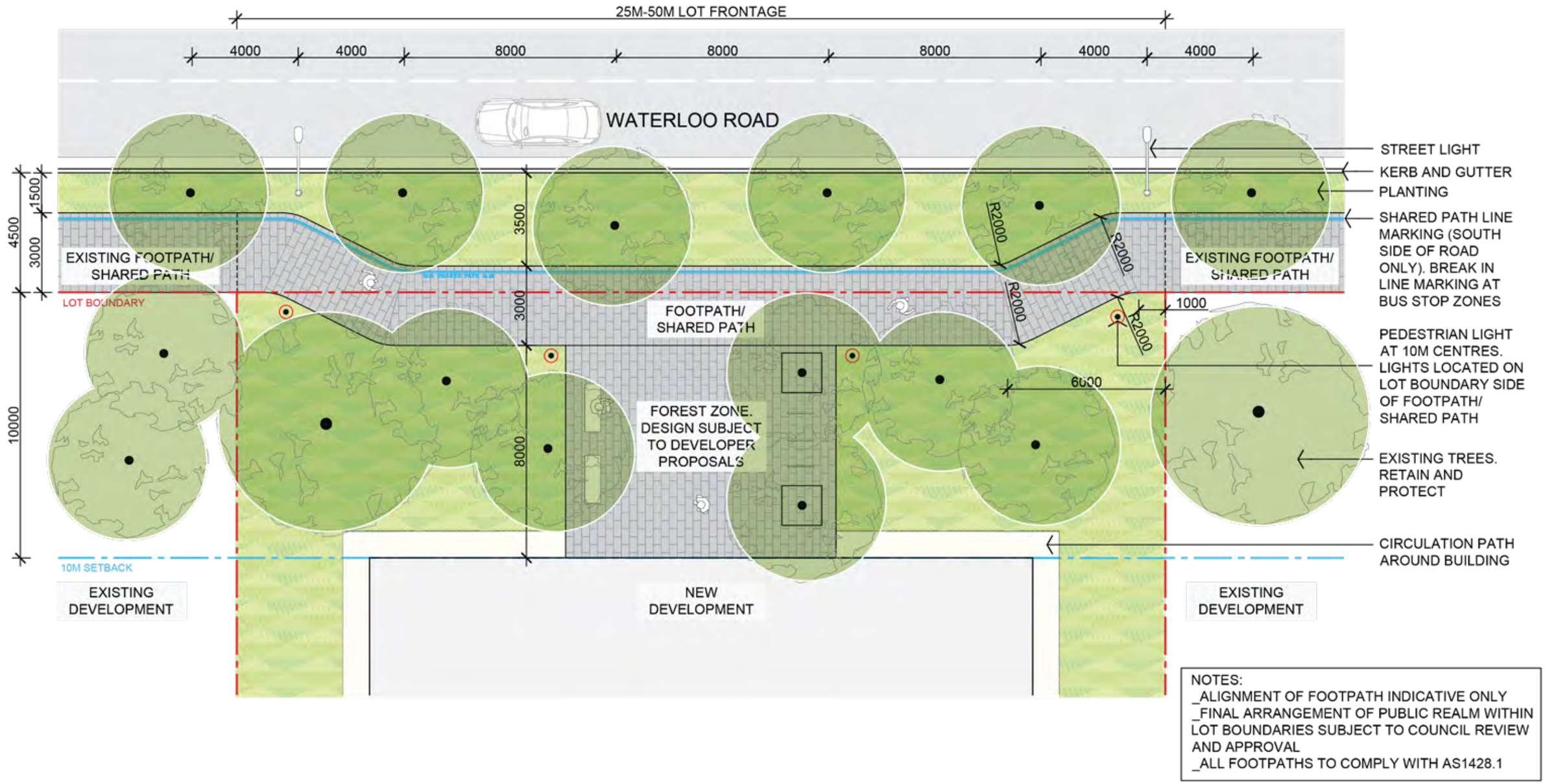




Typical plan 1:150

FOREST PATH

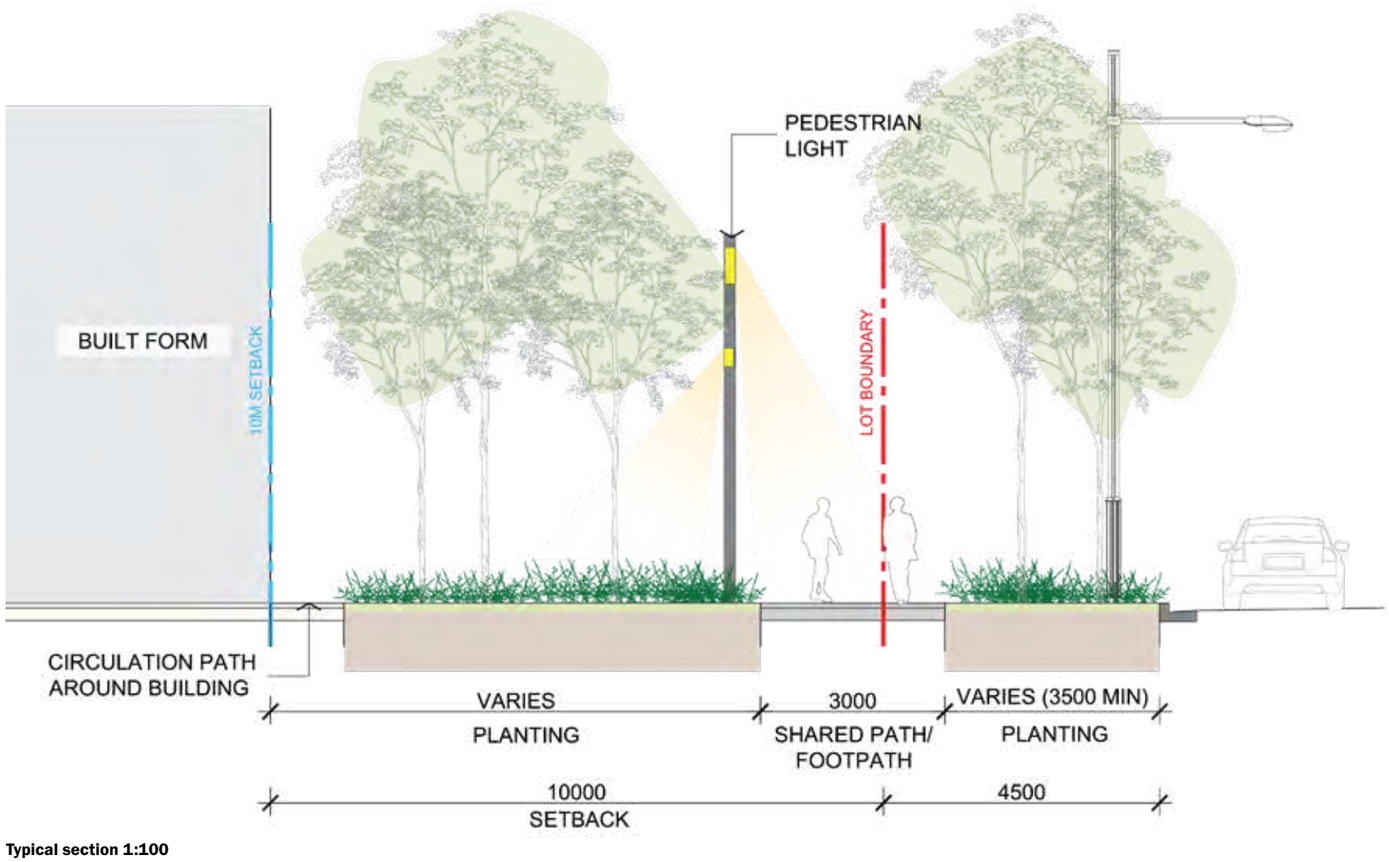
Typical (25-50m lot frontage)



Typical plan 1:150

FOREST PATH

Typical section



Typical section 1:100

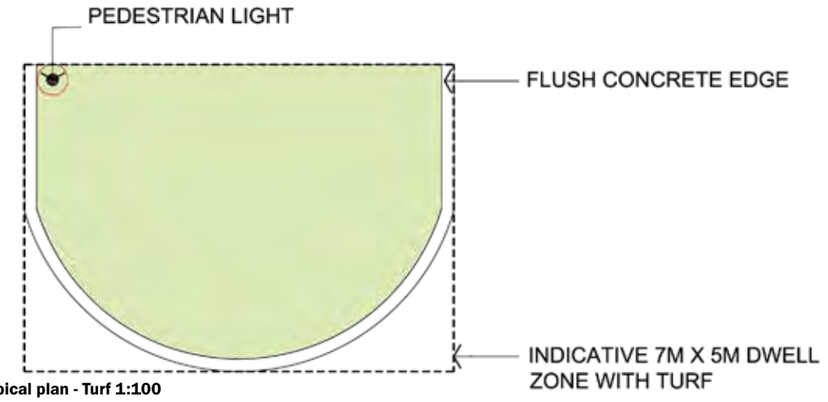
Artist impression, Forest path

FOREST DWELL ZONE

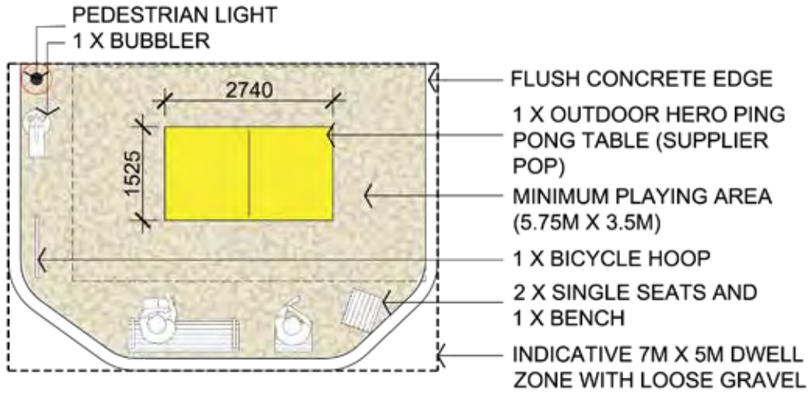
Typical

Key elements

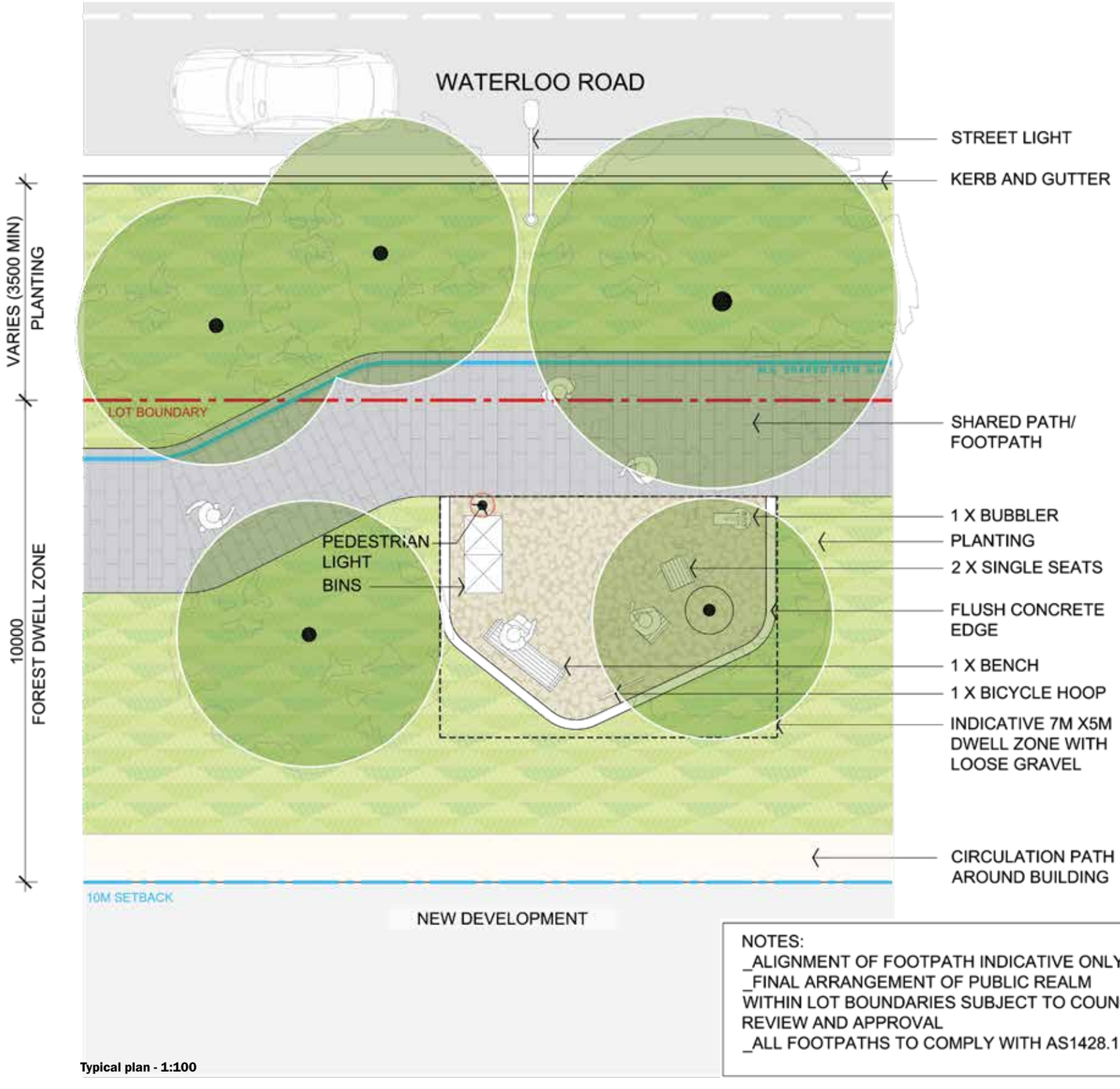
- → 7m x 5m dwell zone connected to meandering forest footpath/ shared path at key locations along Waterloo Road (refer to implementation strategy diagram on previous pages)
- → Dwell zone located within setback zone
- → Three (3) options of dwell zone including typical (loose gravel), turf or play (loose gravel). Selection of option relative to lot development and subject to coordination with Council
- → Dwell zone to not conflict with existing trees
- → Trees and planting to be as per Waterloo Road Master Plan palette
- → Retain existing trees where possible
- → Final dwell zone arrangement subject to Council review and approval
- → All dwell zones to meet relevant Australian Standards and City of Ryde guidelines



Typical plan - Turf 1:100



Typical plan - Play 1:100



Typical plan - 1:100

Artist impression, Forest dwell zone

URBAN PATH/ DWELL ZONE

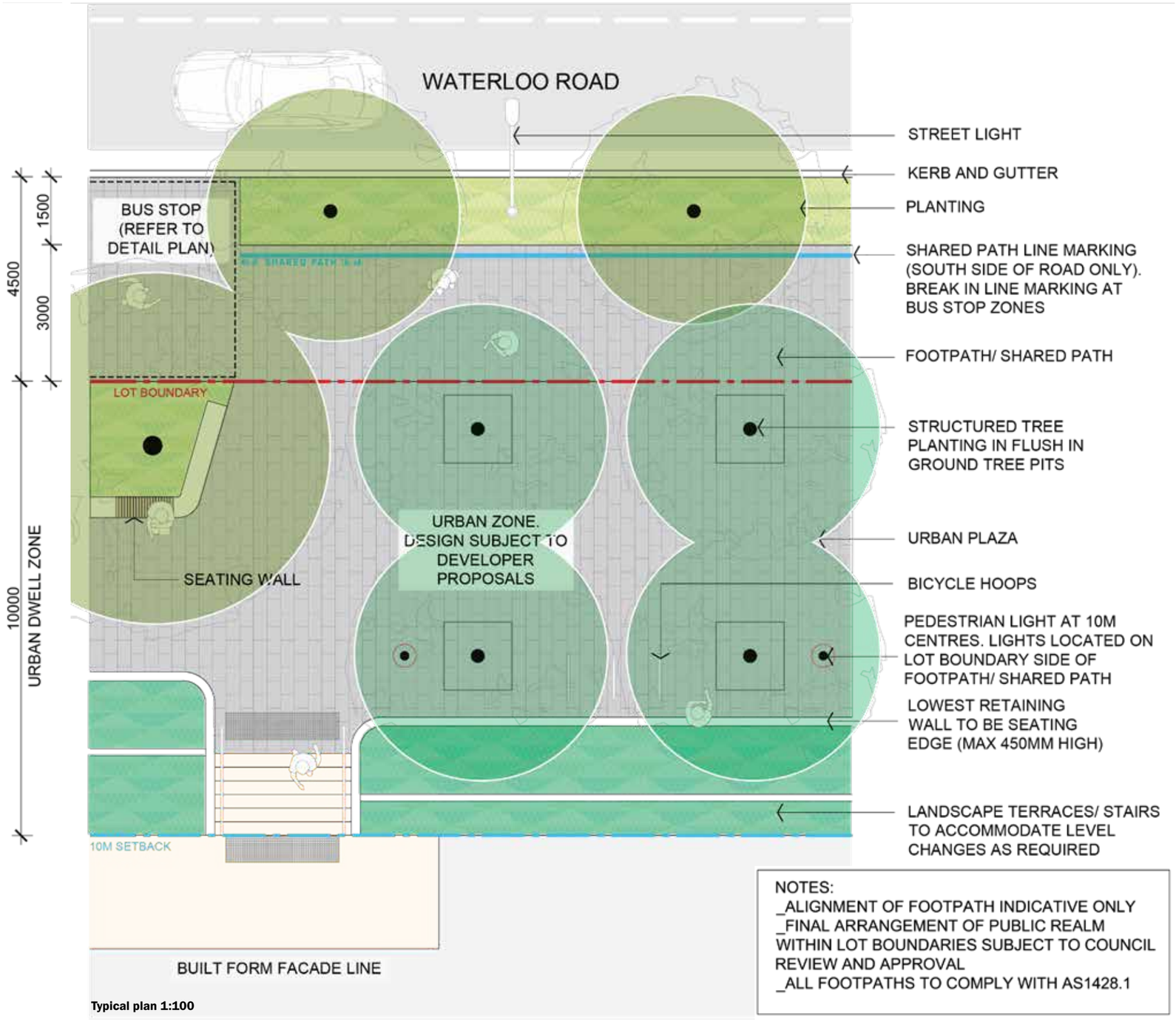
Typical

Key elements (Urban path)

- → 3m wide footpath on northern side of Waterloo Road, shared path on southern side of Waterloo Road with 1.5m zone of planting to back of kerbs
- → Path located entirely within public domain
- → Street lights located within planting to back of kerb zones
- → All new trees to be arranged at 8m centres along back of kerb
- → Trees and planting to be as per Waterloo Road Master Plan palette
- → Retain existing trees where possible
- → All paths to meet relevant Australian Standards and City of Ryde guidelines

Key elements (Urban dwell zone)

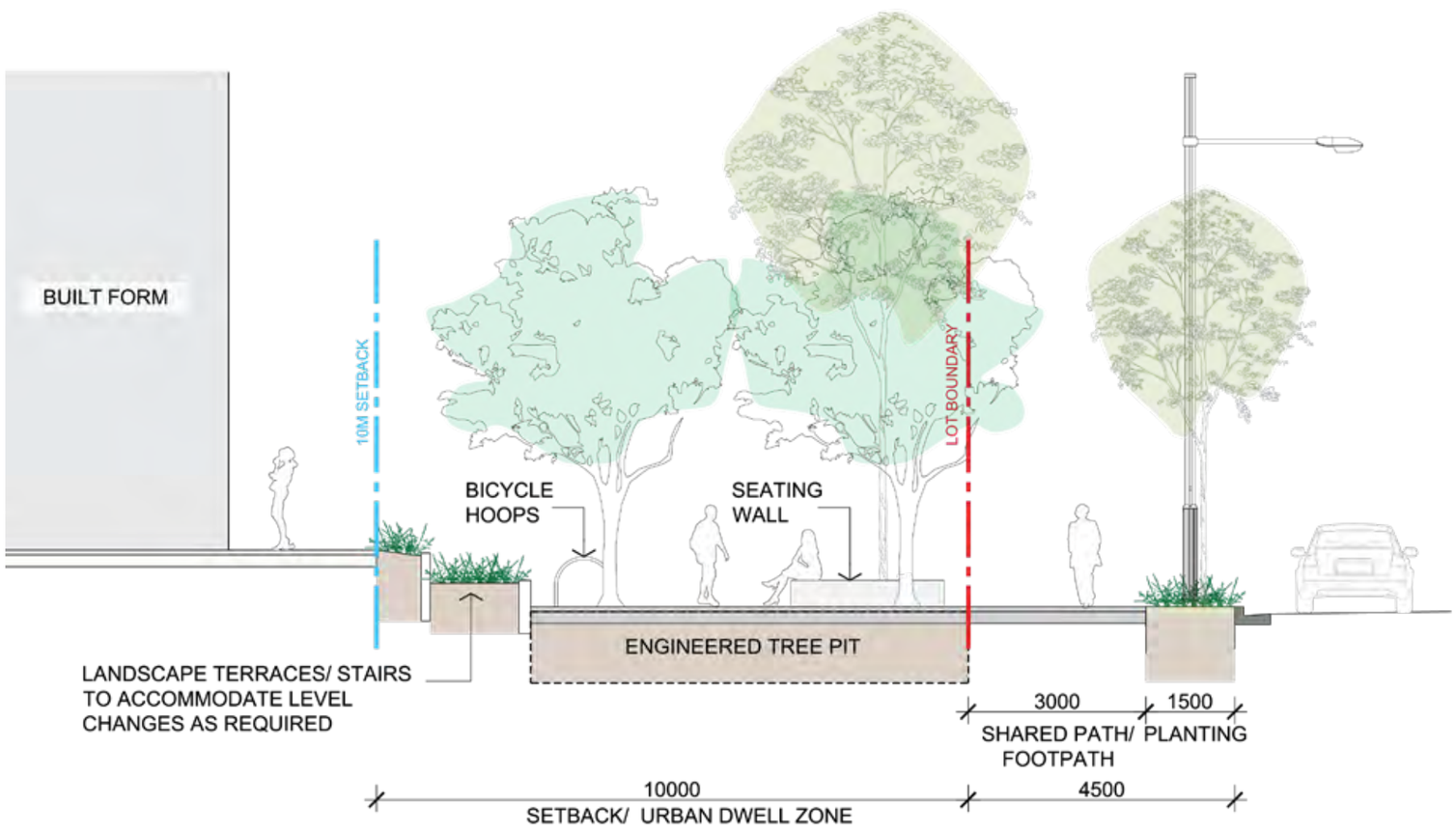
- → Urban dwell zone adjacent to new developments with small formalised plazas in front of new building entries subject to developer proposals. Plaza to include bicycle racks, seating edges/ walls, trees and pedestrian light poles. All elements to align with Waterloo Road Master Plan materials palette
- → Dwell zones to include opportunities to sit, gather and/or transition into building entries
- → Dwell zone located within setback zone
- → Dwell zone to not conflict with existing trees
- → Trees and planting to be as per Waterloo Road Master Plan palette
- → Retain existing trees where possible
- → Final dwell zone arrangement subject to Council review and approval
- → All dwell zones to meet relevant Australian Standards and City of Ryde guidelines



Typical plan 1:100

URBAN PATH/ DWELL ZONE

Typical section



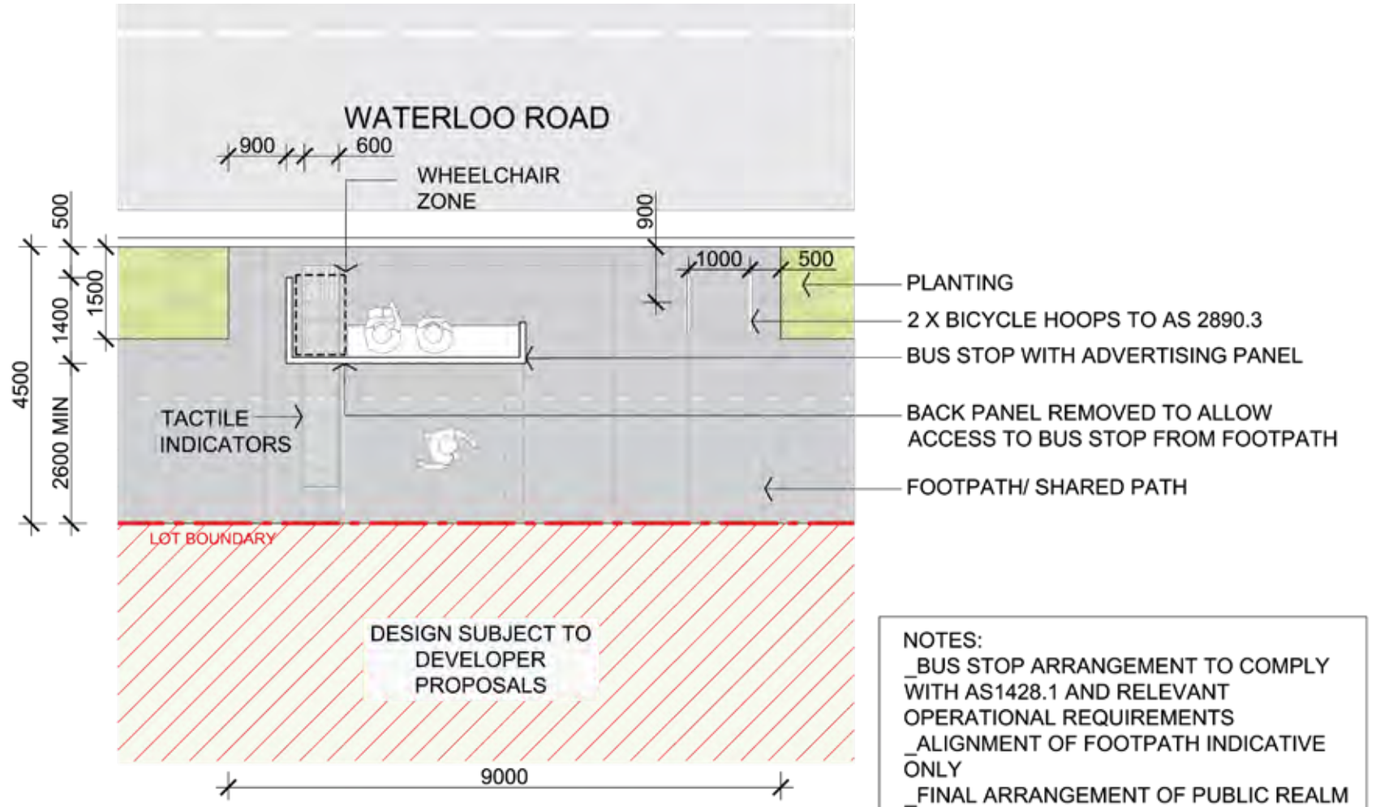
Typical section 1:100

Artist impression, Urban dwell zone

Artist impression, Urban footpath

BUS STOP

Typical - Urban Zone

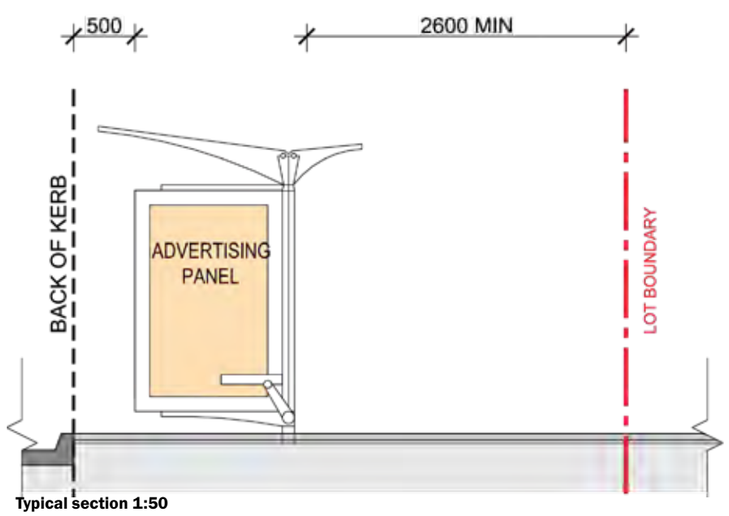


Typical plan 1:100

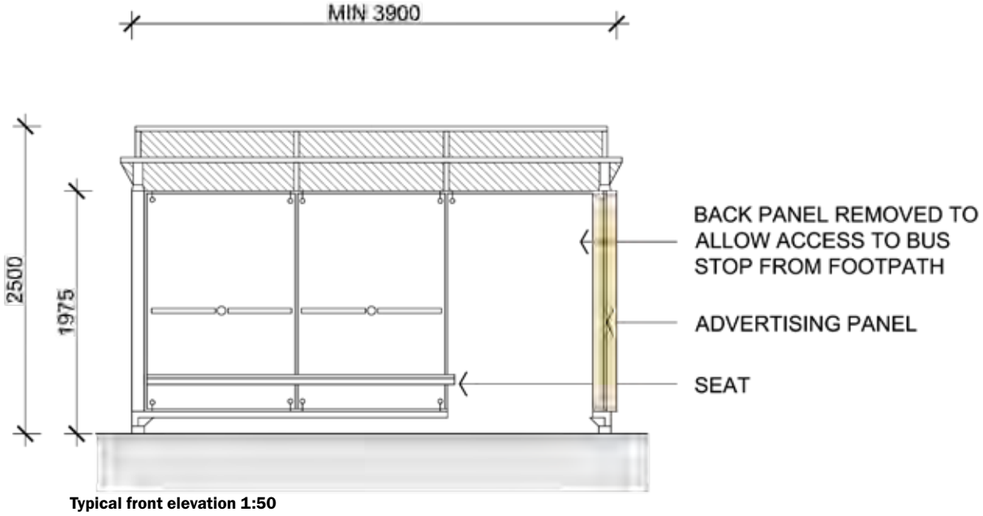
NOTES:
_BUS STOP ARRANGEMENT TO COMPLY WITH AS1428.1 AND RELEVANT OPERATIONAL REQUIREMENTS
_ALIGNMENT OF FOOTPATH INDICATIVE ONLY
_FINAL ARRANGEMENT OF PUBLIC REALM WITHIN LOT BOUNDARIES SUBJECT TO COUNCIL REVIEW AND APPROVAL

Key elements

- → City of Ryde approved bus stop shelter located in paving zone adjacent to kerb with footpath/ shared path behind
- → Isolated reduced width (2.6m) of footpath/ shared path behind bus shelter
- → Bus shelter to have back glass panel removed to allow equal access from footpath/ shared path
- → Two (2) bicycle hoops located at bus stops
- → Incorporate all bus stop signage into bus shelter with no free standing signage
- → Provide tactile indicators as per AS1428.1 and relevant STA Buses operational requirements
- → Final bus stop arrangement subject to Council review and approval
- → All bus stops to meet relevant Australian Standards and City of Ryde guidelines



Typical section 1:50



Typical front elevation 1:50

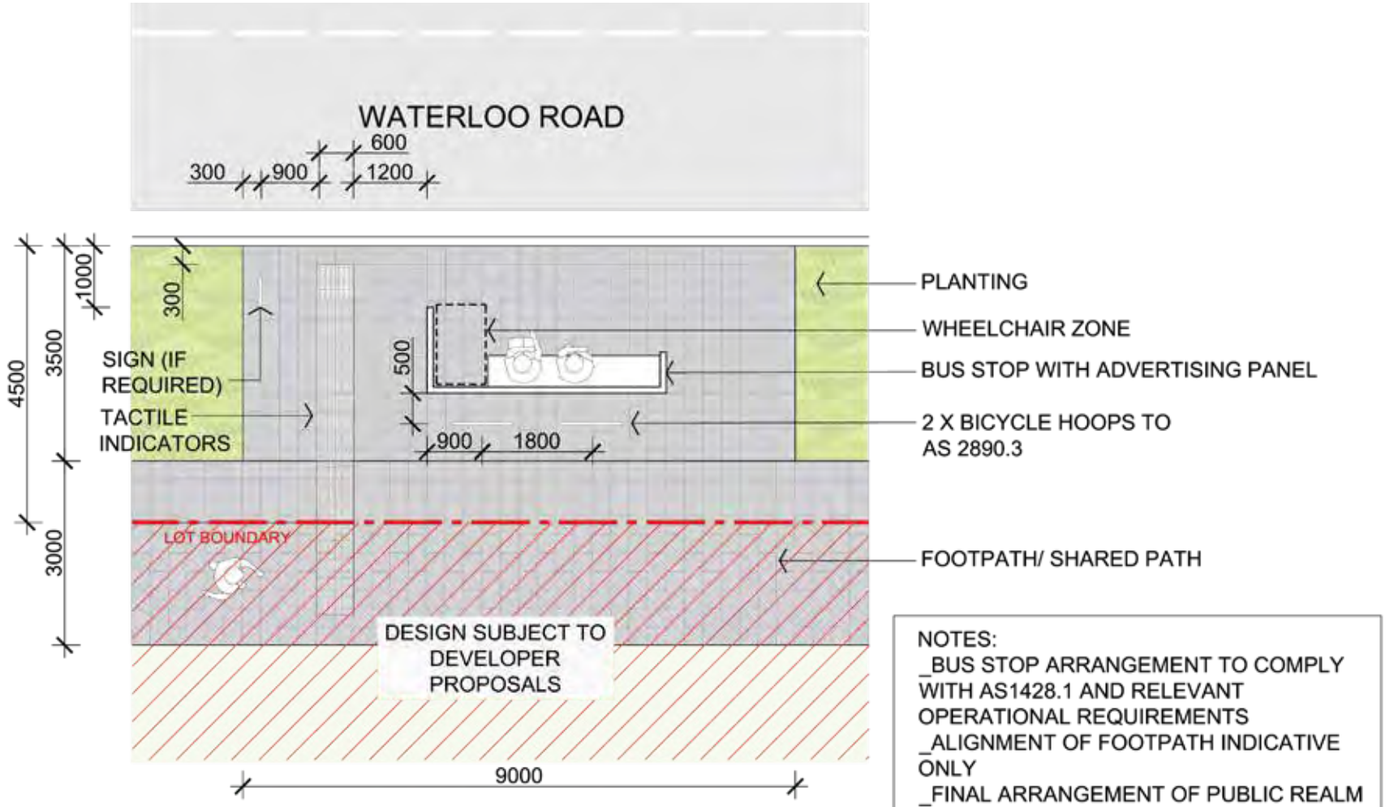
Precedent imagery

BUS STOP

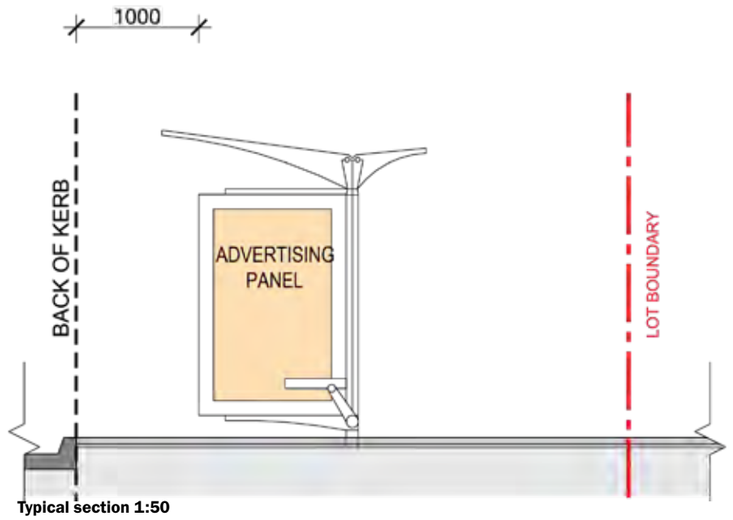
Typical - Forest Zone

Key elements

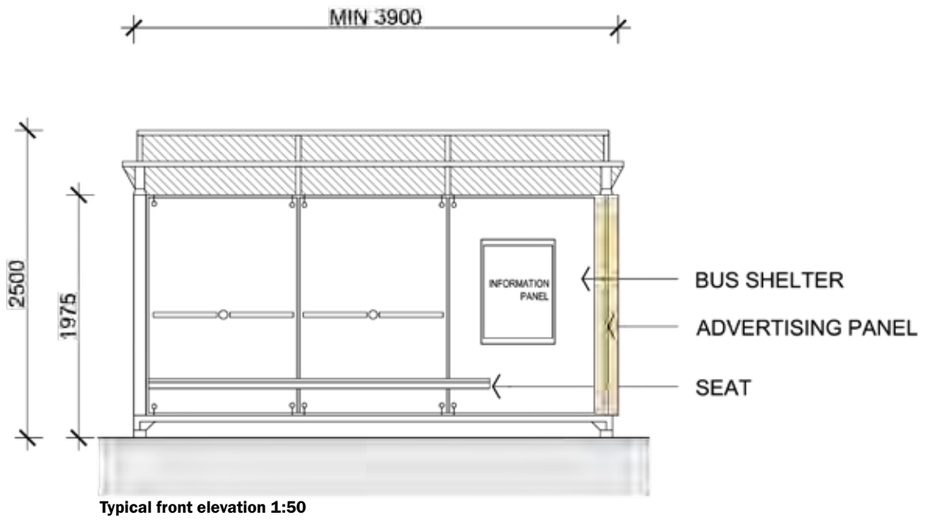
- → City of Ryde approved bus stop shelter located in paving zone adjacent to kerb with meandering footpath/shared path behind
- → Incorporate all bus stop signage into bus shelter with no free standing signage
- → Two (2) bicycle hoops located at bus stops
- → Provide tactile indicators as per AS1428.1 and relevant STA Buses operational requirements
- → Final bus stop arrangement subject to Council review and approval
- → All bus stops to meet relevant Australian Standards and City of Ryde guidelines



Typical plan 1:100



Typical section 1:50



Typical front elevation 1:50

INFORMAL CROSSINGS (E-W)

Typical - Urban Zone

Key elements

- → 3m wide footpaths and shared paths that transition to at grade pedestrian crossings at east-west roads via paved pram ramps
- → Central median with U rail barrier located in carriageway to provide a safety refuge point for pedestrians
- → Materiality as per Waterloo Road Master Plan palette
- → Final arrangement subject to Council review and approval
- → All pedestrian crossings to meet relevant Australian Standards, Austroads Guidelines and City of Ryde guidelines

NOTES:
_ALIGNMENT OF FOOTPATH INDICATIVE ONLY
_FINAL ARRANGEMENT OF PUBLIC REALM WITHIN LOT BOUNDARIES SUBJECT TO COUNCIL REVIEW AND APPROVAL

Typical plan 1:100

INFORMAL CROSSINGS (E-W)

Typical - Forest Zone

Key elements

- 3m wide footpaths and shared paths that transition to at grade pedestrian crossings at east-west roads via paved pram ramps
- Central median with U rail barrier located in carriageway to provide a safety refuge point for pedestrians
- Footpaths to transition into meandering forest path. Refer to Forest Path 25m-50m and 50m-250m typical details
- Materiality as per Waterloo Road Master Plan palette
- Final arrangement subject to Council review and approval
- All pedestrian crossings to meet relevant Australian Standards, Austroads Guidelines and City of Ryde guidelines

NOTES:
_ALIGNMENT OF FOOTPATH INDICATIVE ONLY
_FINAL ARRANGEMENT OF PUBLIC REALM WITHIN LOT BOUNDARIES SUBJECT TO COUNCIL REVIEW AND APPROVAL

Typical plan 1:100

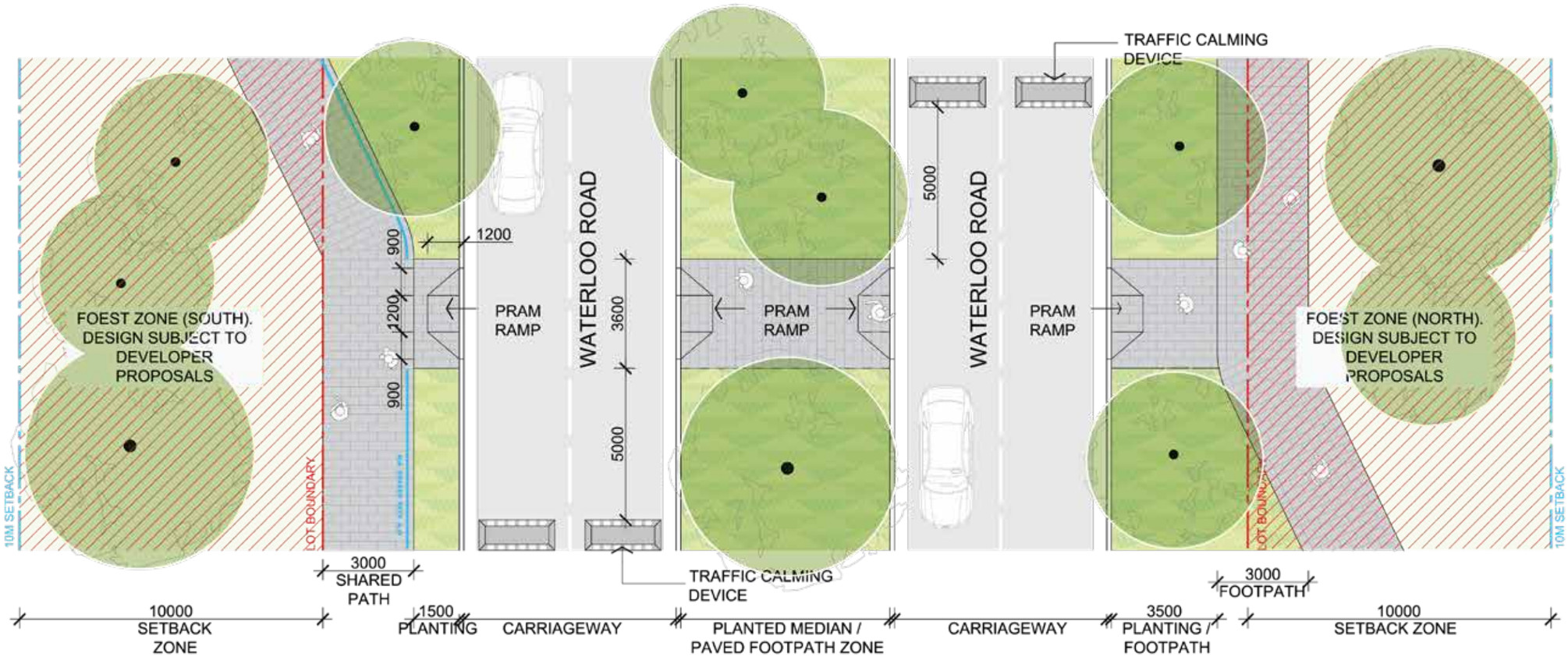
INFORMAL CROSSINGS (N-S)

Typical

NOTES:
_ALIGNMENT OF FOOTPATH INDICATIVE ONLY
_FINAL ARRANGEMENT OF PUBLIC REALM WITHIN LOT BOUNDARIES SUBJECT TO COUNCIL REVIEW AND APPROVAL

Key elements

- At grade north-south pedestrian crossings at select points along Waterloo Road
- Crossings to be paved with pram ramps off footpaths and shared paths
- Central pedestrian refuge when north-south crossing located adjacent to central medians
- Traffic slowing devices such as speed humps installed in carriageways
- Materiality as per Waterloo Road Master Plan palette
- Final arrangement subject to Council review and approval
- All pedestrian crossings to meet relevant Australian Standards, Austroads Guidelines and City of Ryde guidelines



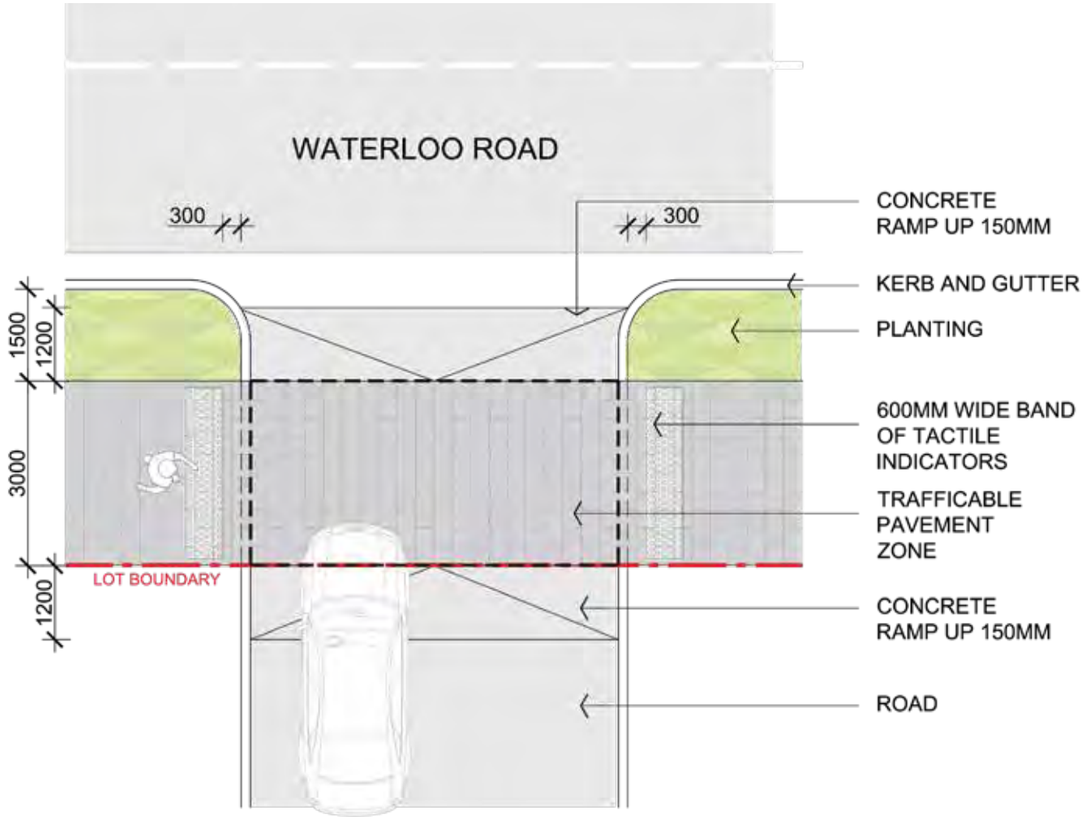
Typical plan 1:100

RAISED CROSSING

Typical

Key elements

- → 3m wide footpaths and shared paths that transition to raised, flush pedestrian crossings at east-west roads
- → Materiality as per Waterloo Road Master Plan palette
- → If paving failure is of concern trafficable pavement zone to be substituted for insitu concrete
- → Provide tactile indicators as per AS1428.1
- → Final arrangement subject to Council review and approval
- → All pedestrian crossings to meet relevant Australian Standards, Austroads Guidelines and City of Ryde guidelines



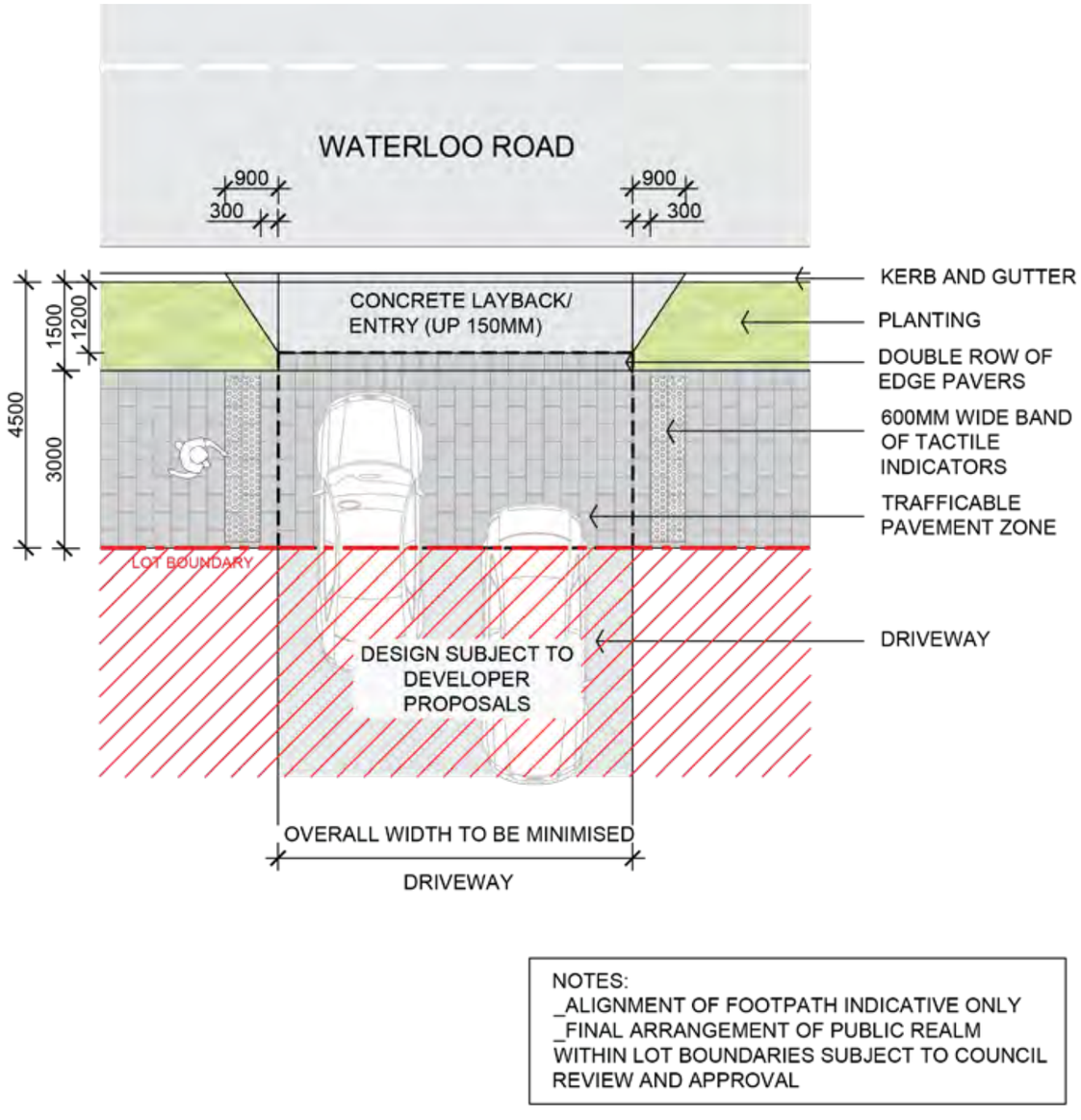
Typical plan 1:100

DRIVEWAY CROSSINGS

Typical

Key elements

- 3m wide paved footpaths and shared paths that continue across driveway entries/ exits along Waterloo Road
- Materiality as per Waterloo Road Master Plan palette
- If paving failure is of concern trafficable pavement zone to be substituted for insitu concrete
- Provide tactile indicators as per AS1428.1
- Final arrangement subject to Council review and approval
- All pedestrian crossings to meet relevant Australian Standards and City of Ryde guidelines



Typical plan 1:100

SIGNALISED INTERSECTION

Macquarie Centre

Key elements (Macquarie Centre)

- → New north-south signalised crossing on the western leg of the existing crossing
- → Existing east-west zebra crossing in front of Macquarie Centre car park entry replaced with signalised crossing
- → Additional crossing to reduce vehicle conflicts with pedestrians due to traffic movements into the Macquarie Centre car park
- → Works to include reconfiguration of existing bus lanes, linemarking and central median. New traffic signals and linemarking required
- → Final crossing location and arrangement subject to Council review and approval
- → All crossings to meet relevant Australian Standards, Austroads guidelines and City of Ryde guidelines

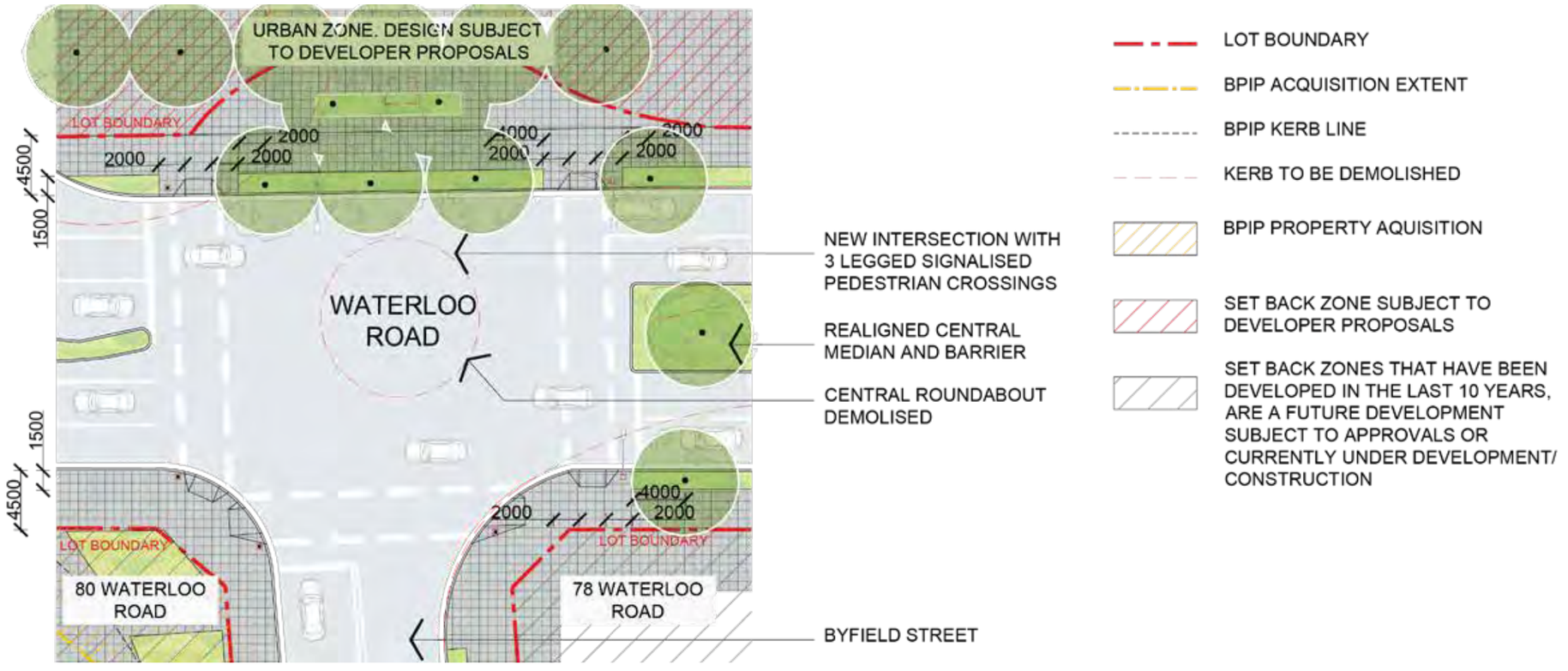
Plan 1:400

SIGNALISED INTERSECTION

Byfield Road

Key elements (Byfield Road)

- → Conversion of an existing round about into a new three (3) legged signalised intersection at Byfield Road
- → Works to include demolition of roundabout, reconfiguration of adjacent kerb lines and central median. New traffic signals and linemarking required
- → Final crossing location and arrangement subject to Council review and approval
- → All crossings to meet relevant Australian Standards, Austroads guidelines and City of Ryde guidelines



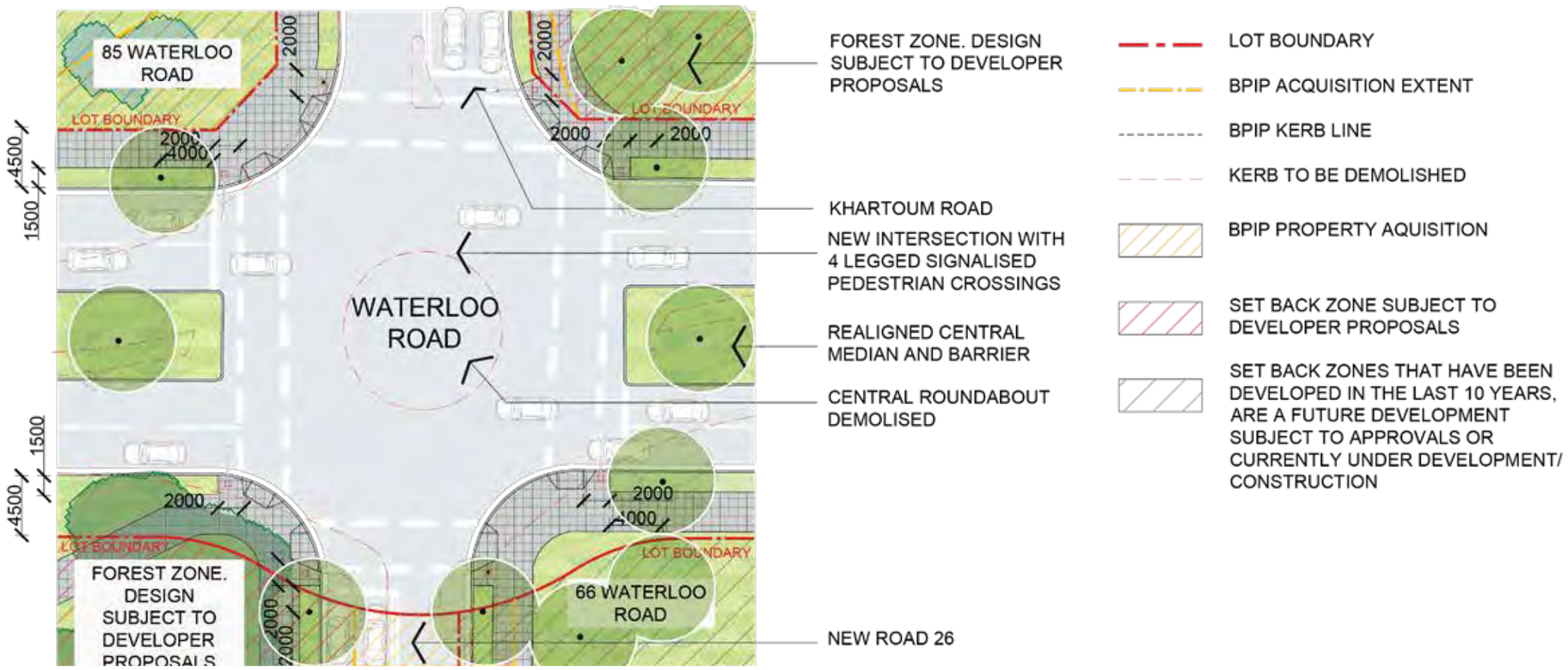
Plan 1:400

SIGNALISED INTERSECTION

Khartoum Road

Key elements (Khartoum Road)

- → Conversion of an existing round about into a new four (4) legged signalised intersection at Khartoum Road
- → Works to include demolition of roundabout, reconfiguration of adjacent kerb lines and central median. New traffic signals and linemarking required
- → Crossing configuration to account for future installation of Road 26
- → Final crossing location and arrangement subject to Council review and approval
- → All crossings to meet relevant Australian Standards, Austroads guidelines and City of Ryde guidelines



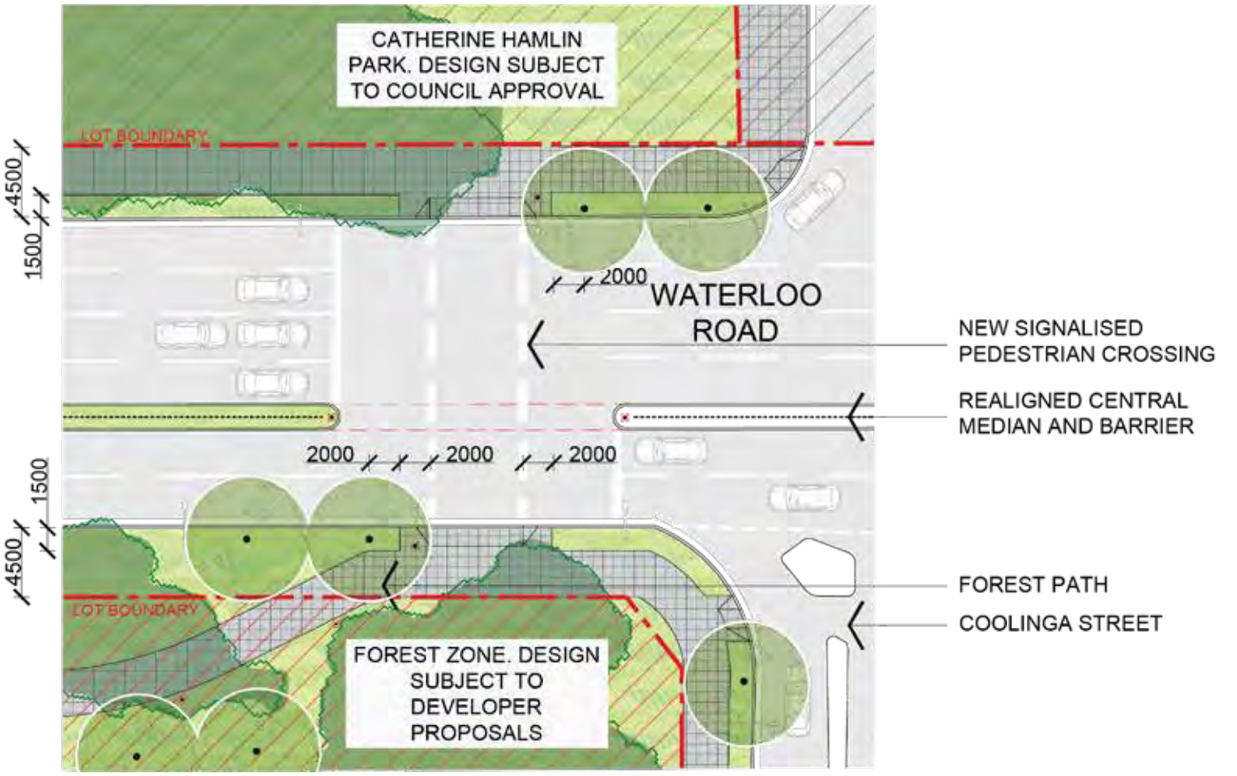
Plan 1:400

SIGNALISED INTERSECTION

Catherine Hamlin Park

Key elements (Catherine Hamlin Park)

- New north-south signalised crossing at Catherine Hamlin Park, west of Coolinga Road
- Works to include reconfiguration of adjacent kerb lines and central median. New traffic signals and linemarking required
- Existing bus stop adjacent to Coolinga Road to be relocated west of pedestrian crossing
- Final crossing location and arrangement subject to Council review and approval
- All crossings to meet relevant Australian Standards, Austroads guidelines and City of Ryde guidelines



Plan 1:400

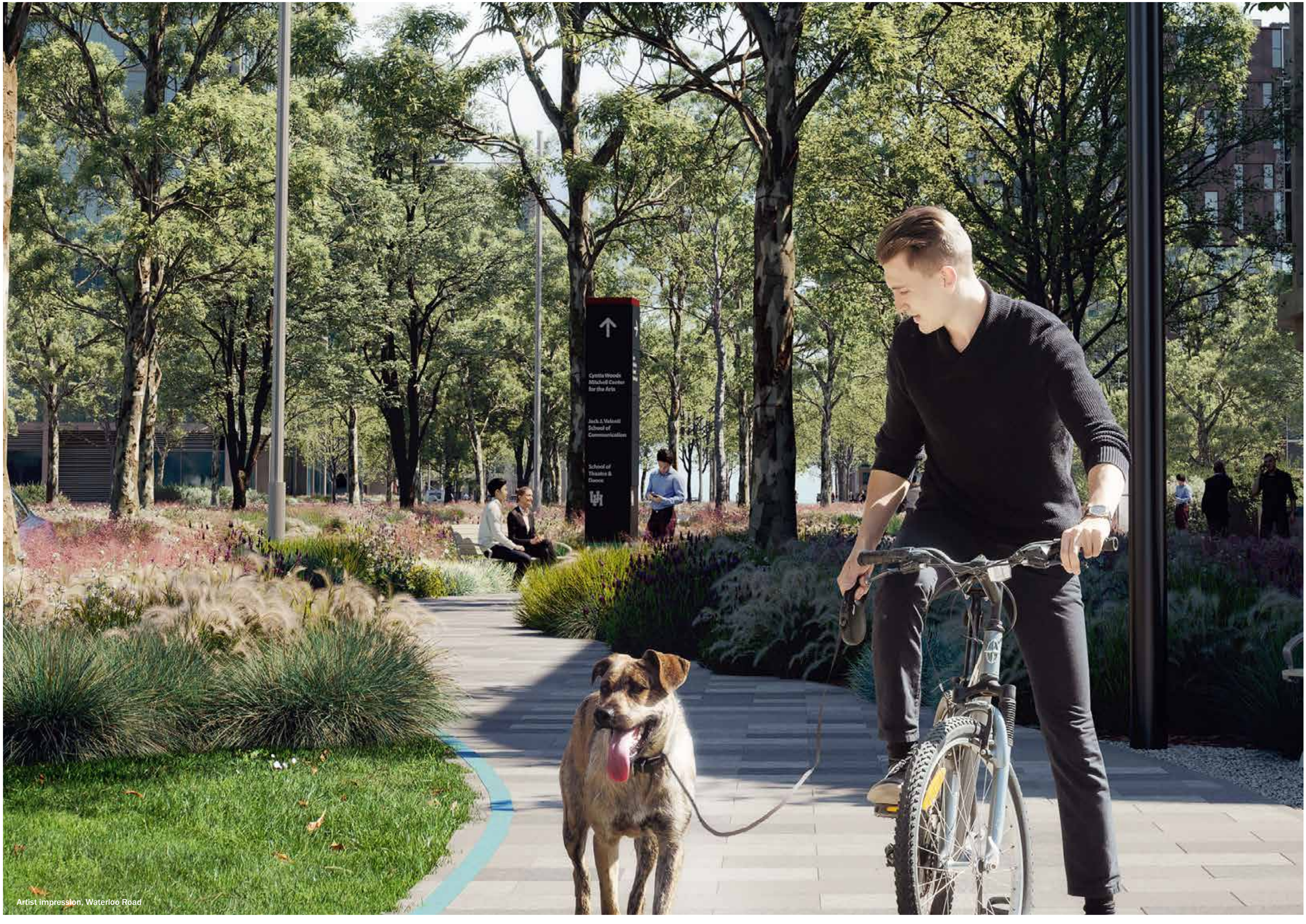
SIGNALISED INTERSECTION

Lane Cove Road

Key elements (Lane Cove Road)

- → New east-west signalised crossing on the southern leg of the existing crossing
- → Additional crossing to reduce vehicle conflicts with pedestrians due to traffic movements and enable at grade pedestrian and cyclist pedestrians connections between Macquarie Park Station east and west.
- → Works to include reconfiguration of existing bus lanes, linemarking and pedestrian islands. New traffic signals and linemarking required
- → Final crossing location and arrangement subject to Council review and approval
- → All crossings to meet relevant Australian Standards, Austroads guidelines and City of Ryde guidelines

Plan 1:400



Artist impression, Waterloo Road

COMMUNITY BENEFITS, IMPLEMENTATION AND COSTS

COMMUNITY BENEFITS

The Waterloo Road Linear Park will transform a car dominated movement corridor into a vibrant street of community, connection and cohesion. It will provide multiple benefits for the local community and elevate the identity of Macquarie Park as an ecologically rich and diverse CBD.

Community

The Linear Park will prioritise the pedestrian and cyclist creating endless opportunity for community activation and engagement. Key benefits include:

- → The creation of destinations that allow for community gatherings and events
- → Increased opportunities for lunchtime program with multiple dwell spaces in between destinations
- → High quality public realm with public spaces and path networks that encourage the community to sit, walk and move outdoors
- → Enhanced identity for Macquarie Park with Waterloo Road becoming enhance tree lined corridor that is an ecological connector
- → Encouraging the development of an ecological community for birds, bugs and bees within new planting zones
- → Establishing Waterloo Road as an exemplar corridor of resilience that the Macquarie Park community is proud of

Connection

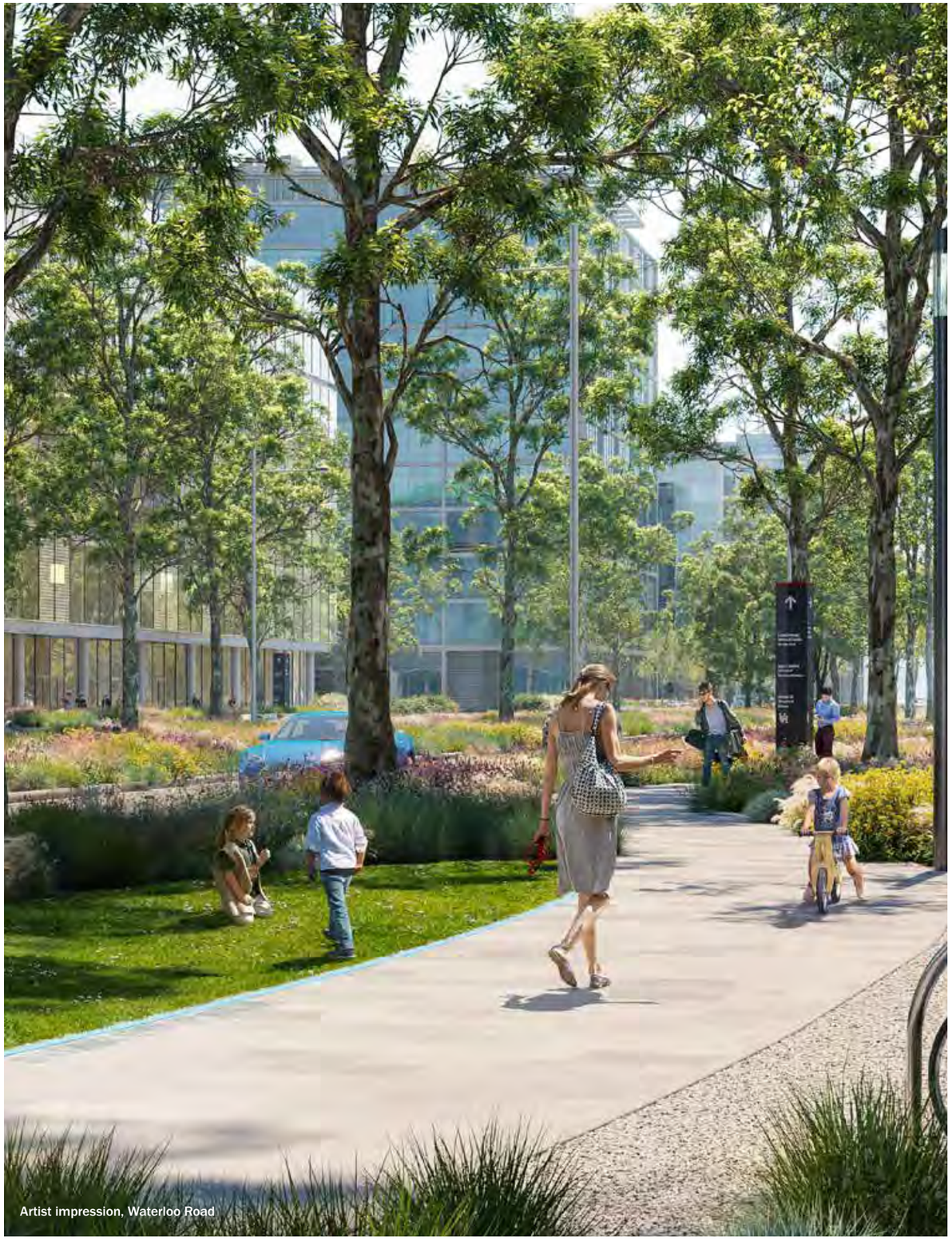
The linear park will provide new and improved connections both along and across Waterloo Road. Key benefits include:

- → A continuous, integrated and refined shared path along the southern verge of Waterloo Road that is not dominated by line marking
- → Increased north-south connections across Waterloo Road with average distances between crossing points 400m.
- → A series of new and improved intersections and signalised crossing points at
  - The Macquarie Centre
  - Byfield Road
  - Khartoum Road
  - Catherine Hamlin Park
  - Lane Cove Road
- → New north-south informal crossings east of Khartoum Road and east of Thomas Holt Drive
- → A more legible and permeable network of footpaths and shared paths that build on the urban and forest landscape character of the corridor
- → Upgraded and improved east-west road crossing points at Cottonwood Crescent, Coolinga Street, Thomas Holt Drive and Eden Park Drive
- → Provision for east-west crossing points at future road locations
- → Increased canopy connections through new tree planting
- → Creation of a continuous east-west ecological path that provides ecological habitat, improves groundwater recharge and acts as an ecological connector between Wicks Road and Herring Road

Cohesion

Waterloo Road will be a cohesive and legible corridor that is integrated with adjacent developments. Key benefits include:

- → A cohesive palette of paving, urban elements and planting that unite Waterloo Road and integrate the public domain with development setback zones
- → A framework approach that allows flexibility for the Linear Park to be delivered in stages that align with Council and Developers time lines
- → A cohesive planting palette that is inspired by the historic ecologies of site and redefines the approach to streetscape design



Artist impression, Waterloo Road

IMPLEMENTATION

Priority projects

The implementation of project elements outlined within the Master Plan have been developed with respect to overall cost, time and complexity of anticipated approval and consultation processes. Each have been ranked in priority relative to overall community benefit and criticality to achieving the project vision of transforming Waterloo Road into a vibrant street of community, connection and cohesion.

Artist impression, Waterloo Road

Item	Summary of works	Priority
Paths, dwell zones and entry plazas		
Forest path	→ Paving, lighting and planting in Public Domain and Setback Zone (14.5m)	High
Forest path	→ Paving and planting in Public Domain (4.5m)	High
Urban Path	→ Paving and planting in Public Domain (4.5m)	High
Shared Path	→ Shared path line marking on footpath zones and free standing signs	High
Forest dwell zone	→ Decomposed granite/ turf and concrete edge, planting, lighting and urban elements	High
Urban dwell zone	→ Paving, planting, lighting, urban elements and interface with new buildings	Medium
Herring Road entry plaza	→ Entry plaza with grid of trees, seating, interpretation signage and way finding	Medium
Wicks Road entry plaza	→ Entry plaza with grid of trees, seating, interpretation signage and way finding connecting	Low
Trees in Public Domain	→ 750L tree supply, soil, irrigation, tree grates and tree pit design	High
Trees in Setback Zone	→ 750L tree supply, soil, irrigation, tree grates and tree pit design	Medium
Destinations		
Elouera Reserve	→ Entry plaza to Elouera Reserve with fixed play elements, seating, interpretation signage and way finding	Low
Shrimptons Creek	→ Entry plaza to Shrimptons Creek with grid of trees, seating, interpretation signage, way finding and viewing deck over creek corridor	High
Catherine Hamlin Park	→ Design as Council approved design	High
Macquarie Exchange	→ Design as Council approved design	High
Thomas Holt Park	→ Landscape terraces and stairs along footpath interface. Upgrades to seating, signage, planting and way finding	Low
Community Park	→ Fixed play elements, seating, interpretation signage and way finding	Medium
Connections		
Bus stop upgrade	→ Bus shelter, paving, signage, tactiles, lighting and urban elements	Medium
Informal E-W crossing	→ Paving, kerbs, pram ramps	High
Informal N-S crossing	→ Paving, kerbs, pram ramps	Medium
Raised crossing	→ Trafficable paving, kerbs, ramps, signage and tactiles	Low
Driveway crossing	→ Trafficable paving, kerbs, ramps, signage and tactiles	Low
Intersections		
Macquarie Centre intersection	→ Works to existing central median and new pram ramps → Relocation of existing traffic light pole to align with new crossing location → Additional line marking works across Waterloo Road → Conversion of existing zebra crossing to signalised crossing	Low
Byfield Road intersection	→ Works to existing central median and barrier → Removal of existing roundabout → Installation of traffic lights on three intersection approaches → Removal / reconfiguration of existing kerbline including new pram ramps → New pedestrian path / pavement on the northern leg of the intersection → New line-marking to reflect traffic light control	High but not considered essential
Khartoum Road intersection	→ Works to existing central median and barrier → Removal of existing roundabout, existing central median island on northern leg of intersection and removal of pedestrian fencing on northern leg of intersection → Installation of traffic lights on four intersection approaches → Removal / reconfiguration of existing kerbline including new pram ramps → New line-marking to reflect traffic light control	High
Catherine Hamlin Park	→ Works to existing central median and barrier, including partial removal of existing fencing → Installation of traffic lights (two new traffic poles), new pram ramps and new line-marking to reflect traffic light control	High
Lane Cove Road	→ New line-marking to reflect pedestrian crossing on southern leg of intersection → Reconfiguration of existing bus lane line-marking → Removal of pedestrian fencing on southern leg of intersection → Installation of pedestrian lanterns / push buttons on southern leg of intersection → New pram ramps on southern leg of intersection	Low

OPINION OF PROBABLE COSTS

Assumptions

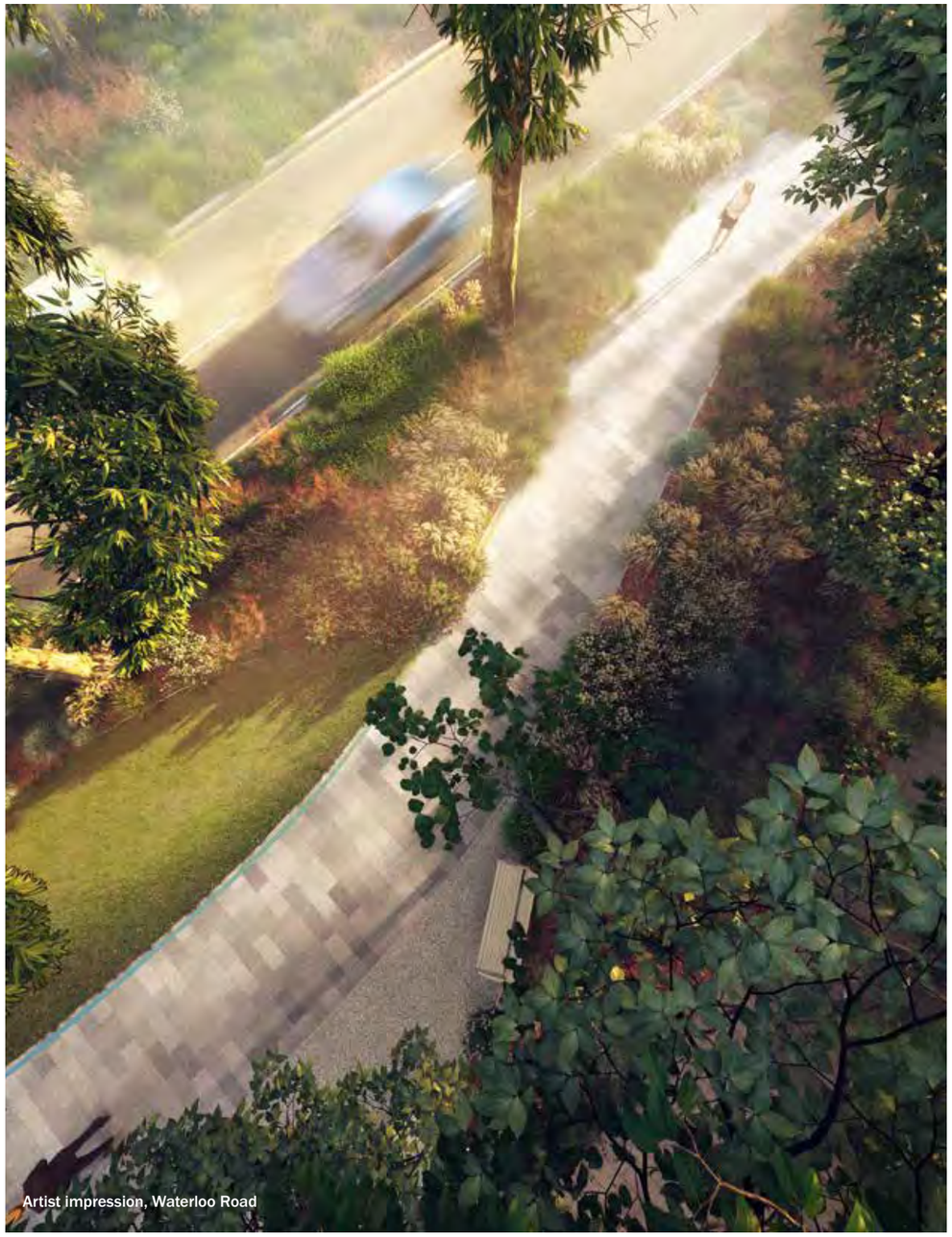
The Opinion of Probable Costs (OPC) has been undertaken by Hassell based on proposals outlined within the Active Streets Master Plan, Waterloo Road Report. The following assumptions have been made when preparing the OPC

- → All figures are indicative only and subject to future design stages
- → All figures have been prepared to assist Council with initial budgets and are not to be relied upon. All figures are to be reviewed and confirmed by a suitably qualified quantity surveyor
- → No costs allowance has been made for works associated with 'Urban Character' areas within setback zones
- → Costs associated with new services and relocation of existing services not allowed for
- → Early works and site preparation not allowed for
- → Preliminaries and builders margins not allowed for
- → Design contingency, contract contingency and cost escalation allowance not allowed for

Item	Summary of works	Unit	Quantity	Cost/ Unit (ex GST)	Totals (ex GST)
Paths, dwell zones and entry plazas					
Forest path	→ Paving, lighting and planting in Public Domain and Setback Zone (14.5m)	m2	20,286	$600	$12,171,300
Forest path	→ Paving and planting in Public Domain (4.5m)	m2	1,787	$600	$1,071,900
Urban Path	→ Paving and planting in Public Domain (4.5m)	m2	7,056	$600	$4,233,600
Shared Path	→ Shared path line marking on footpath zones and free standing signs	lineal metres	1,900	$100	$190,000
Forest dwell zone	→ Decomposed granite/ turf and concrete edge, planting, lighting and urban elements	No.	9	$40,000	$360,000
Urban dwell zone	→ Paving, planting, lighting, urban elements and interface with new buildings	No.	6	excl.	excl.
Herring Road entry plaza	→ Entry plaza with grid of trees, seating, interpretation signage and way finding	PC	1	$100,000	$100,000
Wicks Road entry plaza	→ Entry plaza with grid of trees, seating, interpretation signage and way finding connecting	PC	1	$100,000	$100,000
Trees in Public Domain	→ 750L tree supply, soil, irrigation, tree grates and tree pit design	No.	183	$7,500	$1,372,500
Trees in Setback Zone	→ 750L tree supply, soil, irrigation, tree grates and tree pit design	No.	187	$7,500	$1,402,500
				Sub Total	$21,001,800
Destinations					
Elouera Reserve	→ Entry plaza to Elouera Reserve with fixed play elements, seating, interpretation signage and way finding	PC	1	$100,000	$100,000
Shrimptons Creek	→ Entry plaza to Shrimptons Creek with grid of trees, seating, interpretation signage, way finding and viewing deck over creek corridor	PC	1	$100,000	$100,000
Catherine Hamlin Park	→ Design as Council approved design	PC	1	excl.	excl.
Macquarie Exchange	→ Design as Council approved design	PC	1	excl.	excl.
Thomas Holt Park	→ Landscape terraces and stairs along footpath interface. Upgrades to seating, signage, planting and way finding	PC	1	$200,000	$200,000
Community Park	→ Fixed play elements, seating, interpretation signage and way finding	PC	1	$200,000	$200,000
Sub Total				Sub Total	$600,000
Connections					
Bus stop upgrade	→ Bus shelter, paving, signage, tactiles, lighting and urban elements	No.	12	$60,000	$720,000
Informal E-W crossing	→ Paving, kerbs, pram ramps	No.	12	$100,000	$1,200,000
Informal N-S crossing	→ Paving, kerbs, pram ramps	No.	2	$100,000	$200,000
Raised crossing	→ Trafficable paving, kerbs, ramps, signage and tactiles	No.	2	$150,000	$300,000
Driveway crossing	→ Trafficable paving, kerbs, ramps, signage and tactiles	No.	10	$50,000	$500,000
				Sub Total	$2,920,000
Intersections					
Macquarie Centre intersection	→ Works to existing central median and new pram ramps → Relocation of existing traffic light pole to align with new crossing location → Additional line marking works across Waterloo Road → Conversion of existing zebra crossing to signalised crossing	PC	1	$1,000,000 - $2,000,000	$1,500,000
Byfield Road intersection	→ Works to existing central median and barrier → Removal of existing roundabout → Installation of traffic lights on three intersection approaches → Removal / reconfiguration of existing kerbline including new pram ramps → New pedestrian path / pavement on the northern leg of the intersection → New line-marking to reflect traffic light control	PC	1	$5,000,000 - $10,0000	$7,500,000
Khartoum Road intersection	→ Works to existing central median and barrier → Removal of existing roundabout, existing central median island on northern leg of intersection and removal of pedestrian fencing on northern leg of intersection → Installation of traffic lights on four intersection approaches → Removal / reconfiguration of existing kerbline including new pram ramps → New line-marking to reflect traffic light control	PC	1	$5,000,000 - $10,0000	$7,500,000
Catherine Hamlin Park	→ Works to existing central median and barrier, including partial removal of existing fencing → Installation of traffic lights (two new traffic poles), new pram ramps and new line-marking to reflect traffic light control	PC	1	$1,000,000 - $2,000,000	$1,500,000
Lane Cove Road	→ New line-marking to reflect pedestrian crossing on southern leg of intersection → Reconfiguration of existing bus lane line-marking → Removal of pedestrian fencing on southern leg of intersection → Installation of pedestrian lanterns / push buttons on southern leg of intersection → New pram ramps on southern leg of intersection	PC	1	$300,000 - $500,000	$400,000
				Sub Total	$18,400,000
				Total	**$42,921,800**

APPENDIX A
VISUALS

FOREST PATH

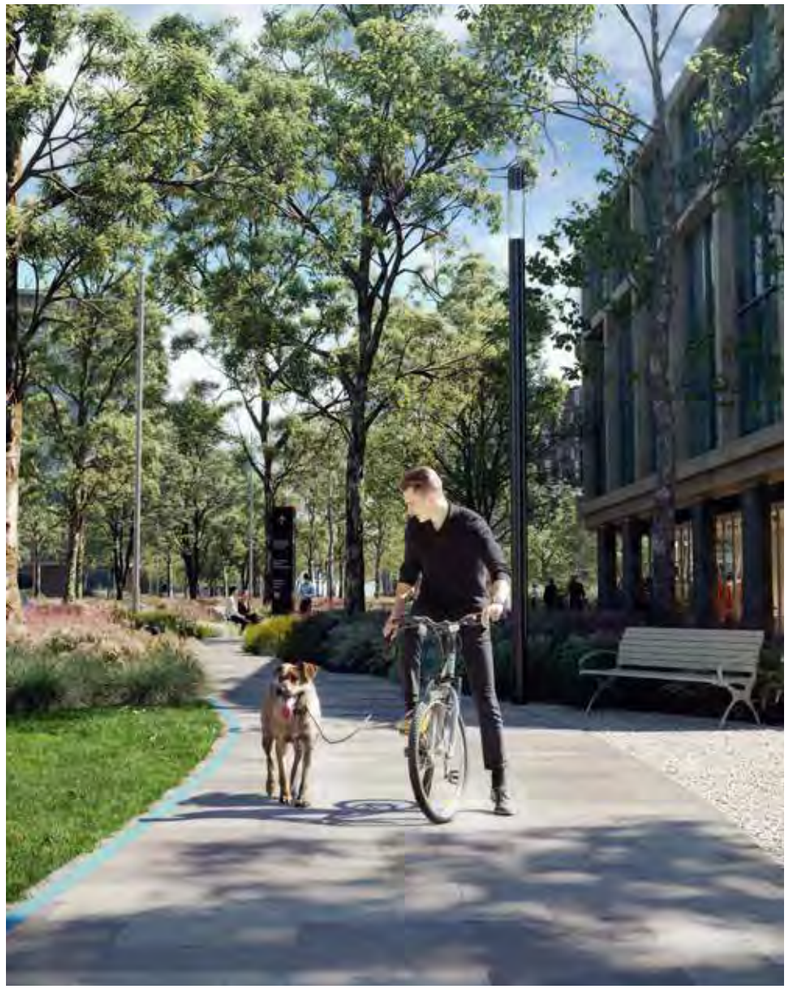


Artist impression, Waterloo Road

Artist impression, Waterloo Road

FOREST PATH

Before



After

Note: before locations are indicative only and not true to visual

FOREST DWELL ZONE

Artist impression, Waterloo Road

FOREST DWELL ZONE

Before

After

Note: before locations are indicative only and not true to visual

FOREST DWELL ZONE

(Alternate option)

Artist impression, Waterloo Road

FOREST DWELL ZONE

(Alternate option)

Before

After

Note: before locations are indicative only and not true to visual

URBAN PATH/ DWELL ZONE

Artist impression, Waterloo Road

URBAN PATH/ DWELL ZONE

Before

After

Note: before locations are indicative only and not true to visual

Site photo. Photography by Author

APPENDIX B

TRANSPORT STUDY

014806
Waterloo Road Active Street Master Plan

Prepared for
City of Ryde