URBIS

MACARTHUR GARDENS NORTH

URBAN DESIGN AND LANDSCAPE REPORT

PREPARED FOR

LANDCOM

12 DEC 2021

FINAL REPORT

EXECUTIVE SUMMARY

Macarthur Gardens North Precinct is situated to the north of Macarthur Station, the southern gateway to Campbelltown and Metropolitan Sydney.

The Development Application outlines a vision for the site which:

- Celebrates the natural assets of Bow Bowing Creek;
- Promotes active transport to surrounding open spaces and urban areas;
- Creates a vibrant station arrival plaza that is activated with retail;
- Delivers up to 1,250 apartment units with proximity to the train station; and
- Provides a built form that is responsive to its context.

Macarthur Gardens North is envisioned to deliver a well-designed urban place for people to live as a diverse, liveable, vibrant and sustainable new neighbourhood community. It adopts a 'place-based' approach incorporating sustainability principles with high quality public domain and built form outcomes.

A summary of the key outcomes of the proposed scheme are outlined opposite.

ENHANCED BOW BOWING CREEK

The project will significantly enhance the natural amenity of Bow Bowing Creek as it restores the creek and provides 57.0% of the total site area as an open space reserve along the riparian corridor.

INCREASED TREE CANOPY

The revegetation of Bow Bowing Creek and the provision of new public domain and communal open spaces will enable the precinct to increase the tree canopy from the current 26.75% to 53.6%.

IMPROVED PUBLIC DOMAIN

The master plan provides three new active open spaces being the Station Arrival Plaza, the Central Park and the Fitness Park, which enrich both leisure and recreational opportunity across the precinct.

STATION ARRIVAL ACTIVATION

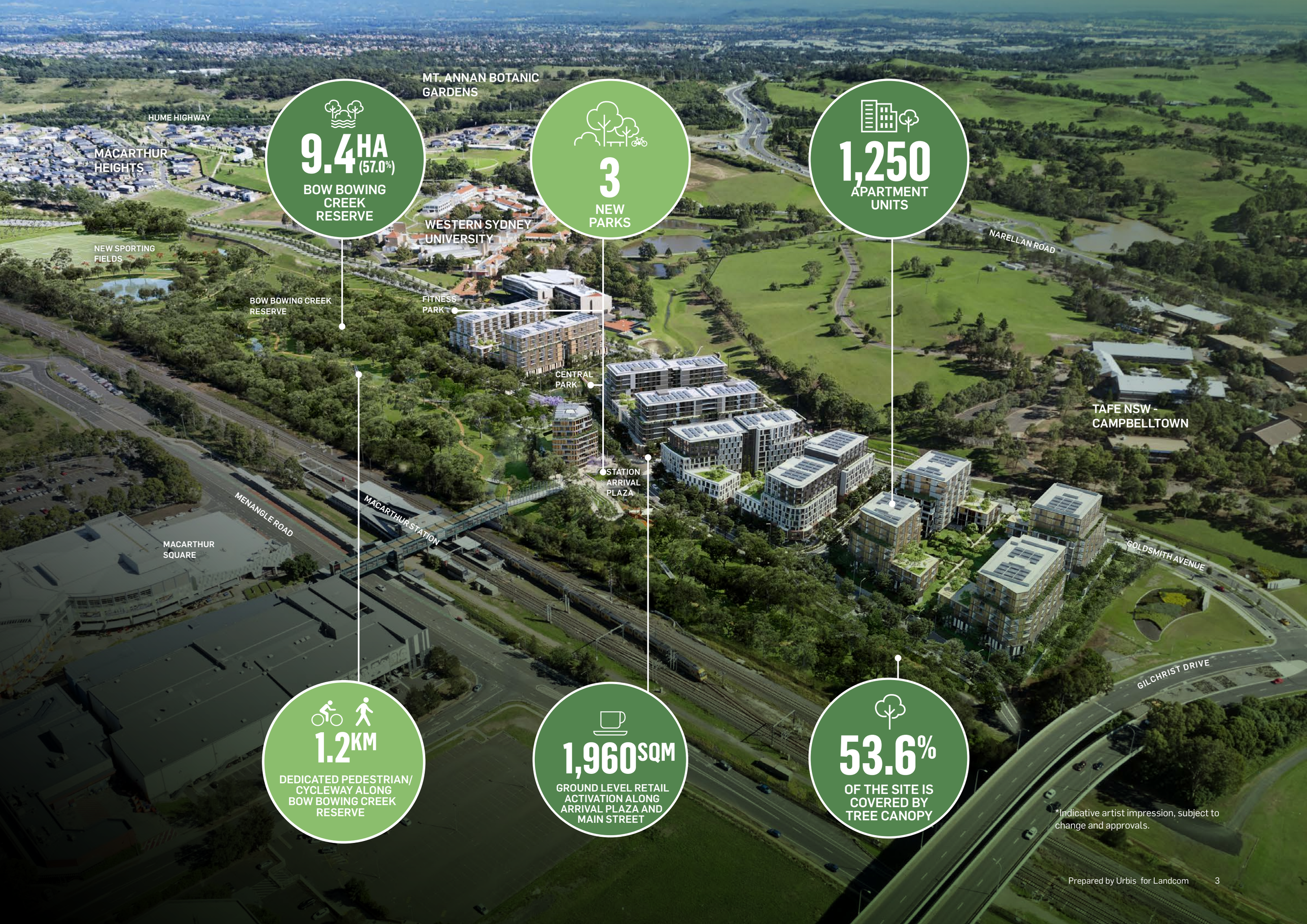
The project will activate the northern side of Macarthur Station by delivering a Station Arrival Plaza, a terraced landscape, a play space and ground floor retail activation.

BETTER CONNECTIVITY

The proposal will provide a safe and improved pedestrian connection to both Western Sydney University and TAFE through activated streets. The project also provides a dedicated pedestrian/ cycleway network along Bow Bowing Creek that connects Macarthur Station with Gilchrist Oval and Mount Annan Botanical Gardens.

MIX OF HOUSING OFFER CLOSE TO THE TRAIN STATION

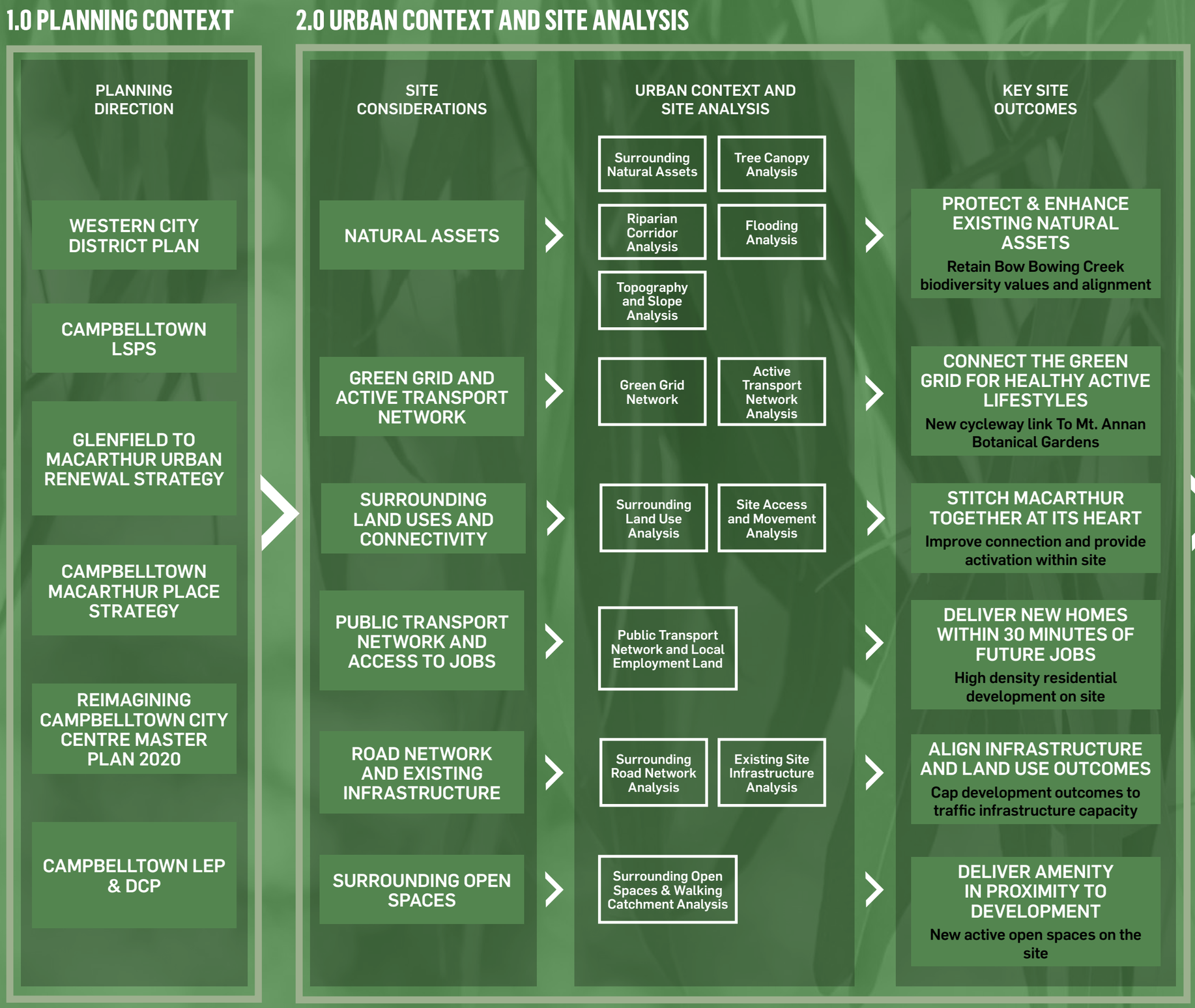
The project is anticipated to deliver up to 1,250 apartments with varied unit types. The development application seeks the approval of a building envelope that can accommodate up to 1,250 apartments.



*Indicative artist impression, subject to change and approvals.

DOCUMENT NAVIGATOR

The opposite diagram provides a summary of the detailed full suite of investigations, guiding principles, master plan and the layered strategies identified for the site.



3.0 GUIDING PRINCIPLES

GUIDING PRINCIPLES

CELEBRATE NATURAL ASSETS
RETAIN BOW BOWING CREEK RIPARIAN CORRIDOR

SEAMLESS CONNECTIONS TO KEY DESTINATIONS
PROMOTE ACTIVE TRANSPORT NETWORK

A NEW COMMUNITY WITH ACCESS TO JOBS
MIX OF HOUSING OFFER CLOSE TO THE TRAIN STATION

CONTEXTUAL BUILT FORM RESPOND
LOGICAL BUILDING ENVELOPES, ORIENTATION AND ARTICULATION

ACTIVATE PLACES FOR PEOPLE
NEW COMMUNITY PARK, ARRIVAL PLAZA AND FITNESS PARK

4.0 VISION

VISION

VISION STATEMENT

THE MASTER PLAN

5.0 LAYERED STRATEGY

LAYERED STRATEGY	DETAILED STRATEGY	
NATURAL SYSTEMS	Bow Bowing Creek Reserve	Riparian Corridor Strategy
	Tree Canopy Strategy	
ACCESS AND MOVEMENTS	Access and Movement Strategy	Indicative Street Sections
	Streetscape Considerations	
LAND USE	Land Use Plan	Area Schedule
BUILT FORM	Overall Built Form Principles	Yield Calculation
	Setback Strategy	Typical Residential Block
LANDSCAPE AND PUBLIC DOMAIN	Station Arrival Plaza	Central Park
	Fitness Park	Communal Open Space
	Landscape Considerations	Indicative Plant List

6.0 ADG & DCP ALIGNMENT

ADG & DCP ALIGNMENT

ADG COMPLIANT TESTING

- Building Separation
- Communal Open Space and Deep Soil Zone Provision
- Solar Access Analysis
- Residential Unit Solar Access Analysis
- Residential Unit Cross Ventilation Analysis

CDCP 2015 ALIGNMENT

- CDCP 2015 Alignment Table

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"We acknowledge the Traditional Owners of the country on which we meet today, the Dharawal people and their unique and spiritual connections to the land, waters and culture. We pay our respects to their Elders past, present and emerging."

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INTRODUCTION

PROJECT BACKGROUND

In 2015 Landcom prepared a concept plan for the Macarthur Gardens North site, which proposed the subdivision of the site into terrace lots and the realignment of Bow Bowing Creek to facilitate a maximised development footprint. Subsequently, Landcom lodged and received a Development Approval consent and a Controlled Activity Approval (CAA) for Macarthur Gardens North for earthworks and the Bow Bowing Creek realignment through the site. This approval allows the removal of most of the Riverflat Eucalyptus and Cumberland Plain Woodlands forest on the site which are identified as Endangered Ecological Communities (EEC).

Since this approval, significant strategic and local planning has been undertaken in Sydney including the development of the Region and District plans for metropolitan Sydney by the Greater Sydney Commission (GSC), the preparation of Local Strategic Planning Statement (LSPS) by local councils and the preparation of Reimagining Campbelltown City Centre Master Plan 2020 (RCCCMP) by Campbelltown City Council.

In parallel to the preparation of the LSPS and RCCCMP in 2019, Campbelltown City Council have amended their Local Environmental Plan (LEP) 2015 which identified high-density/ mixed-use development within the Macarthur Gardens North site through R4-High Density Residential and B4-Mixed Use zones.

In response to the new strategic directions, Landcom have prepared a new concept plan for the site which response to the strategic planning directions outlined in the documents mentioned above. The new concept plan, which is outlined in this document, minimises the realignment of the creek and avoids any clearing of the EEC vegetation. The proposal seeks a mixed-use high-density development that delivers a better outcome for both the community and the environment.

PURPOSE OF THIS REPORT

Urbis has been engaged by Landcom to prepare this Urban Design and Landscape Report (UDLR) to support the Stage 1 Concept Development Application that seeks approval for the subdivision of superlots and building envelopes to deliver up to 1,250 apartments.

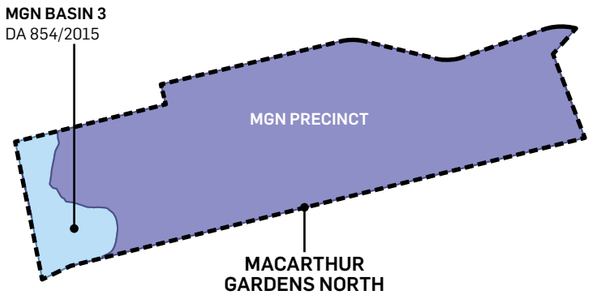
This report outlines the rationale of the proposed master plan considering:

- The existing site conditions;
- The future character of the area;
- The natural features of the site including existing vegetation and the natural alignment of Bow Bowing Creek; and
- Connectivity to local amenities, services and nearby facilities.

Macarthur Gardens North site comprises two separate sub-precincts as illustrated in below diagram and identified as:

- **Macarthur Gardens North Precinct (MGN Precinct):** The subject site for the DA referred to in this report; and
- **Macarthur Gardens North Basin 3 (MGN Basin 3):** Located to the western end.

The MGN Basin 3 is subject to separate Development Applications and not included in this proposal.



SITE LOCATION & CONTEXT

Macarthur Gardens North site is located within the Macarthur Region in South-West Sydney - one of the fastest growing areas in Western Sydney over the next 10 years.

The site is located on the northern side of Macarthur Station in Campbelltown LGA. The station is a major transport interchange being the termination of the Sydney trains T8 Airport and South line and the southern extremity of the electrified Sydney Trains network. It provides interchange with the NSW Trainlink Southern Highlands Line services.

The site is located in an identified heath and education precinct with nearby facilities including:

- Western Sydney University located to the north-west of the site;
- Campbelltown TAFE located to the north-east of the site
- Macarthur Square Regional Shopping Centre on the southern side of the train station;
- Campbelltown Hospital to the south east of the train station;
- Campbelltown CBD located at Campbelltown Station 2km to the north east; and
- Campbelltown Arts Centre located on the southern side of the railway to the east of Narellan Road.

The site is also surrounded by network of open spaces that includes:

- Gilchrist Oval, a sporting fields situated to the east of the site across Gilchrist Avenue.
- Campbelltown Sport and Health Centre of Excellence located to the west of the site; and
- Mount Annan Botanic Gardens approximately 2km to the west on the other side of the Hume Highway.

Vehicle access to the site is via Goldsmith Avenue.

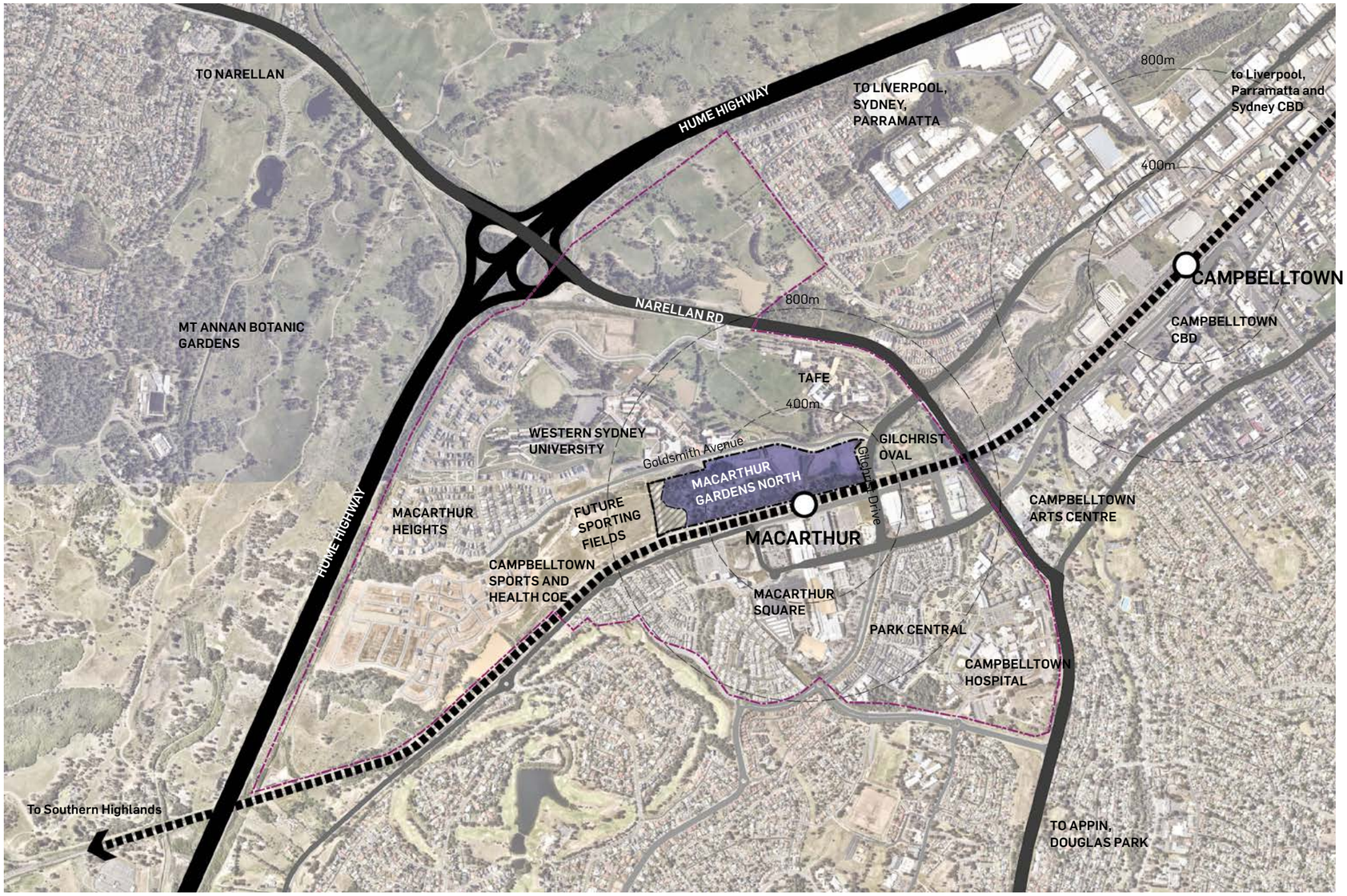


Figure 1 Campbelltown - Macarthur Context

1:20,000 @ A3

0 200 400 600 800 1000

LEGEND

- Macarthur Gardens North
- MGN Precinct
- MGN Basin 3
- Macarthur Precinct
- Motorway
- Arterial Road
- Main Road
- Collector Road
- Local Road
- Railway
- Railway Station
- 400-800m catchment

SITE DESCRIPTION

The Macarthur Gardens North site (Lot 1097 / DP 1182558) bound by Goldsmith Avenue to the North, Gilchrist Drive to the East and the southern railway line to the South with a total area of 18.52ha.

It is comprises two separate sub-precincts identified as:

- **Macarthur Gardens North Precinct (MGN Precinct):** The subject site for the DA referred to in this report; and
- **Macarthur Gardens North Basin 3 (MGN Basin 3,** DA 854/2015**):** Located to the western end and associated with the sporting fields to the west.

Macarthur Gardens North Precinct

The MGN Precinct has a total area of 16.58 hectares. The site is bounded by:

- Goldsmith Avenue to the north;
- The railway line to the south; and
- The future sporting fields and Basin 3 to the west.

The site includes the following features:

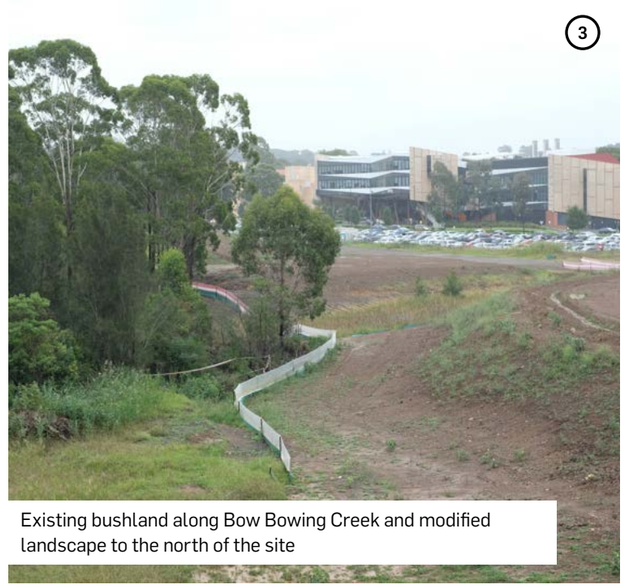
- Bow Bowing Creek which flows from west to east of the site including two tributaries from Western Sydney University to the north and Barber Reserve to the south.
- A pedestrian Connection from Goldsmith Avenue to Macarthur Station concourse and Macarthur Square through a pedestrian bridge.

The following aerial and site photos illustrates the features of the MGN Precinct.

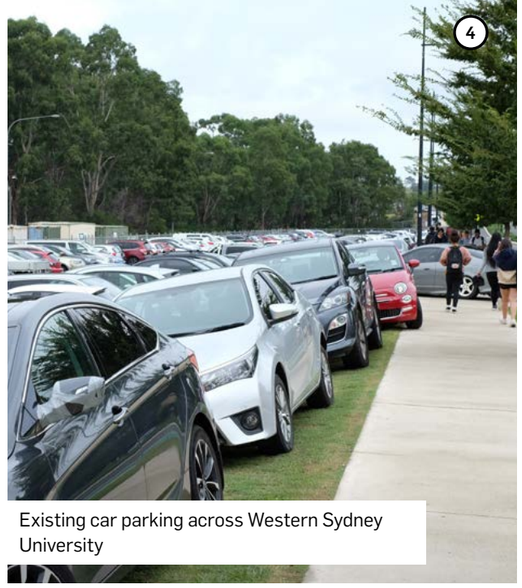
Figure 2 Macarthur Gardens North Site Description

Existing footpath to Macarthur Station and Macarthur Square.

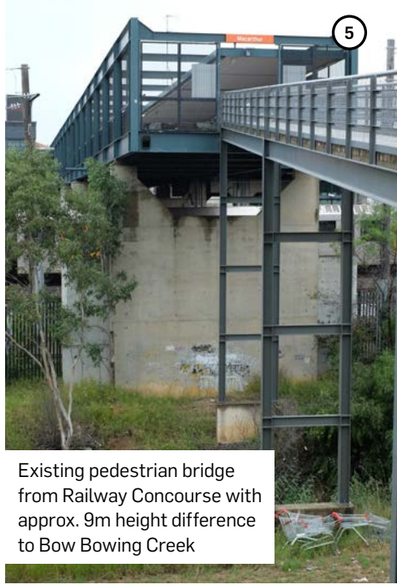
Existing pedestrian bridge and footpath from Macarthur Station to Macarthur Gardens North and Goldsmith Avenue



Existing bushland along Bow Bowing Creek and modified landscape to the north of the site



Existing car parking across Western Sydney University



Existing pedestrian bridge from Railway Concourse with approx. 9m height difference to Bow Bowing Creek

Figure 3 Macarthur Gardens North Aerial View

1.0 PLANNING DIRECTIONS

A significant amount of strategic planning has already been undertaken in relation to the Macarthur locality and the MGN Precinct. The following section summarises the key strategic and local planning directions for the MGN Precinct as outlined in the following documents:

- **Western City District Plan (2018);**
- **Campbelltown Local Strategic Planning Statement (2019);**
- **Glenfield to Macarthur Urban Renewal Strategy - Macarthur Precinct Plan (2015);**
- **Campbelltown Macarthur Place Strategy (2020);**
- **Reimagining Campbelltown City Centre Master Plan (2020);**
- **Campbelltown LEP (2002 and 2015); and**
- **Campbelltown DCP (2015).**

1.1 OVERVIEW

STRATEGIC PLANNING

In 2018, the New South Wales Government set out its strategy to boost growth and liveability through a redesign of Greater Sydney as a 'metropolis of three cities' where *"most residents live within 30 minutes of their jobs, education and health facilities, services and great places"*. This vision seeks to rebalance the economic and social opportunities and deliver a more equitable Greater Sydney. The three cities are:

- The Western Parkland City;
- The Central River City; and
- The Eastern Harbour City.

To deliver this vision, a suite of strategic planning documents have been prepared. In relation to the MGN Precinct these include:

- **Western City District Plan (2018)** - Prepared by the Greater Sydney Commission (GSC) in 2018 it outlines a 20-year plan to manage growth and provides a bridge between regional and local planning.
- **Campbelltown Local Strategic Planning Statement (LSPS 2020)** - prepared by Campbelltown City Council (CCC). It provides context and direction for land use decision making within the Campbelltown Local Government Area (LGA) over the next 20 years. The LSPS responds to region and district planning initiatives and the communities priorities identified through the Community Strategic Plan.
- **Campbelltown Macarthur Place Strategy (2020) -** Prepared by the GSC and developed through the Collaboration Area process, the place strategy brings together local councils, NSW and Australian Government agencies as well as key local institutions and organisations. The Place Strategy identifies impediments and opportunities and sets out a shared 20-year vision and the priorities and actions to guide the delivery of that vision.
- **Reimagining Campbelltown City Centre Master Plan (RCCCMP 2020)** - Prepared by Campbelltown City Council in parallel with the Place Strategy, RCCCMP from Leumeah to Macarthur, is a 20-year master plan and decision-making framework for the city's future growth and prosperity.
- **Glenfield to Macarthur Urban Renewal Strategy** - Prepared in 2015 by the NSW Department of Planning, Industry and Environment (DPIE), the renewal area is identified in the Western City District Plan. Final amendments occurred in 2017 through the Greater Macarthur Growth Area Implementation Plan. Rezoning within this precinct can now occur through planning proposals submitted by landowners to Campbelltown City Council or Council led local environmental plan amendments. Planning proposals need to be consistent with the Greater Macarthur Growth Area Implementation Plan and relevant precinct plan.

Given the alignment of strategic planning across each of these documents, A high level review has been undertaken for each of the documents except RCCCMP for which a detailed review has been completed. This is considered appropriate as RCCCMP is consistent with strategic planning prepared by the GSC whilst providing site specific outcomes.

EXISTING PLANNING CONTROLS (LEP)

In response to the preparation of strategic planning directions, All Councils are required to review and amend their Local Environment Plan (LEP) to ensure consistency with the directions of the Western City District Plan.

In May 2020 CCC exhibited proposed amendments to CLEP 2015. These sought to repeal other LEPs and Interim Development Orders so that only one LEP would apply to Campbelltown LGA. This included resolving 'deferred matters' including the MGN site. These amendments to CLEP 2015 have now been gazetted.

For the MGN Precinct, the existing LEP controls are as follows:

- CLEP 2015
  - R4 High Density Residential zone with a section of B4 Mixed Use Zone perpendicular to the railway station.
  - A maximum Height of Building of 32m (approx. 10 storeys) across the whole site.
  - No FSR and Minimum Lot Size controls identified.

Given the alignment of the CLEP 2015 with strategic planning directions, and the almost 20-year time frame back to the CLEP 2002 controls, it is considered that the outcomes for the site identified within the CLEP 2015 are most relevant to the site.

EXISTING PLANNING GUIDANCE (DCP)

A Site Specific DCP has been prepared to supplement The Campbelltown Development Control Plan (CDCP) 2015 and to ensure that the MGN Master Plan objectives and urban design outcomes are achieved.

1.2 WESTERN CITY DISTRICT PLAN - 2018

The *MGN Precinct* is located within Campbelltown-Macarthur Metropolitan Cluster Centre. Strategic planning directions for the centre include:

- **Campbelltown-Macarthur Metropolitan Cluster Centre:** One of four centres which form *a 'polycentric urban structure for the Western Parkland City'*. Their role is *'to deliver the metropolitan functions of providing concentrations of higher order jobs and a wide range of goods and services within 30 minutes of residents'.*
- **Campbelltown-Macarthur Health and Education Precinct:** *Comprising Campbelltown public and private hospitals, Western Sydney University Campbelltown Campus, and TAFE NSW Western Sydney. It forms part of the collaboration area which also includes Macarthur Square, Campbelltown Mall and surrounding government services. The centre has the potential to grow up to 31,000 jobs (a 52 per cent increase) by 2036.*
- ***North South Rail Link - St Mary's to Macarthur via Badgery's Creek Aerotropolis and Airport.*** *As the spine of the Western Parkland City it will play a vital role in bringing people closer to job opportunities, health, education and leisure activities. New train stations will support development of higher density housing with great transport access, meaning shorter travel times, less reliance on cars and less congestion on roads.*
- ***Greater Macarthur Growth Area:*** *Identified as a current initiative for housing capacity and supply comprising:*
  - *Glenfield to Macarthur Corridor – including Precincts at Macquarie Fields, Ingleburn, Minto, Leumeah, Campbelltown and Macarthur, as well as the:*
  - *Glenfield Planned Precinct*
  - *Menangle Park, Gilead and Appin.*

The key actions for the Campbelltown Macarthur Collaboration Area are identified in Action 44 of which the following are of relevance to the MGN Precinct:

a. encourage new lifestyle and entertainment uses to activate streets and grow the night-time economy
b. improve east-west pedestrian connectivity across the southern rail line
c. improve accessibility to walking, cycling, public transport and car sharing
d. support mixed-use development and surrounding high quality apartment and medium density residential development
e. capitalise on the Western Sydney Airport and Western Sydney City Deal initiatives.

KEY DIRECTIONS FOR MGN PRECINCT

1. As a Metropolitan Cluster Centre key functions include providing concentrations of higher order jobs and a wide range of goods and services within 30 minutes of residents.
2. Significant growth is planned and projected for the Campbelltown Macarthur Collaboration Area including:
   - potential 52% increase in jobs by 2036;
   - significant increase in residential population it supports through the Greater Macarthur Growth Area.
3. This growth will be supported by investment in key transport infrastructure to support higher density development and reduce the reliance of cars.

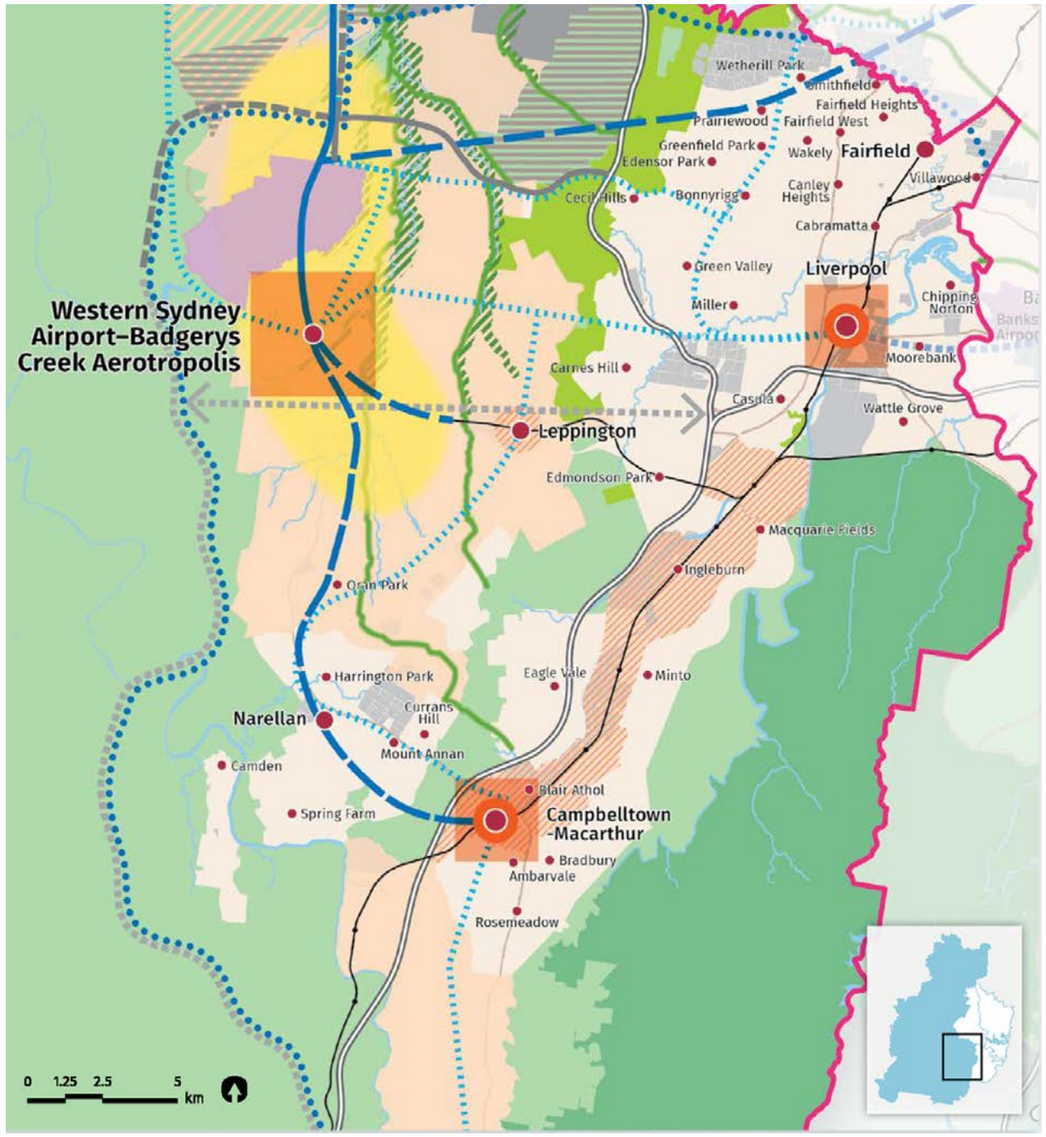


Figure 4 Western City District Plan

1.3 CAMPBELLTOWN LOCAL STRATEGIC PLANNING STATEMENT - 2020

The LSPS adopts four key themes from the Community Strategic Planning Statement which are:

1. A vibrant, liveable city
2. A respected and protected natural environment
3. A thriving, attractive city; and
4. A successful city.

The *MGN Precinct* is located within the Macarthur Centre. Key initiatives identified for Macarthur within the LSPS include:

- 4,650 total homes within the Macarthur Precinct.
- 4,200 estimated jobs within the Macarthur Precinct.
- Bunbury Curran Creek and Bow Bowing Creek are identified as a Minor Green Grid Link - Using the open space corridors along the creeks to provide open space, urban greening, active transport and stormwater treatment along the corridor.

In addition the following LGA wide outcomes are also relevant to the site.

NO	ACTIONS
1.16	Maximise urban shade by protecting existing trees and planting new trees.
1.17	Ensure open space is well connected via pedestrian and cycle links.
1.22	Investigate opportunities to deliver an integrated active transport plan and network (for cyclists and pedestrians) that links important destinations with transport infrastructure between urban development, the open space network and with adjoining areas.
2.15	Ensure that sufficient, quality and accessible open space is provided
2.16	Ensure that quality embellishment for passive and active recreation is provided to new and existing open space to service new residential development and redevelopment of existing urban areas.
5.13	Investigate opportunities to rehabilitate existing waterways within the LGA to maximise the benefits to the community.
5.23	Restore and enhance new habitats for threatened flora and fauna species identified in key catchments and waterways.
6.24	Ensure natural bushland, open spaces and places are accessible, attractive and safe places for users.
6.25	Work towards residents being a maximum of 400 metres from quality open space.
7.11	Identify appropriate building heights through design requirements to ensure that solar access is not restricted in open space areas adjoining multi-storey developments.
7.16	Embed elements of Water Sensitive Urban Design, into new and existing areas, to improve waterway health.

KEY DIRECTIONS FOR MGN PRECINCT

The strategy identifies the opportunities for MGN Precinct to :

4. Maximise residential yields and provide a large proportion of the 4,650 dwellings considering its location close to Macarthur Station;
5. Maximise urban shade through a tree canopy;
6. Provide good pedestrian connections;
7. Provide sufficient, accessible, safe and high quality open spaces;
8. Rehabilitate and restore Bow Bowing Creek;
9. Ensure open new open spaces is not significantly impacted by overshadowing of new development; and
10. Incorporate WSUD to improve water quality to Bow Bowing Creek.

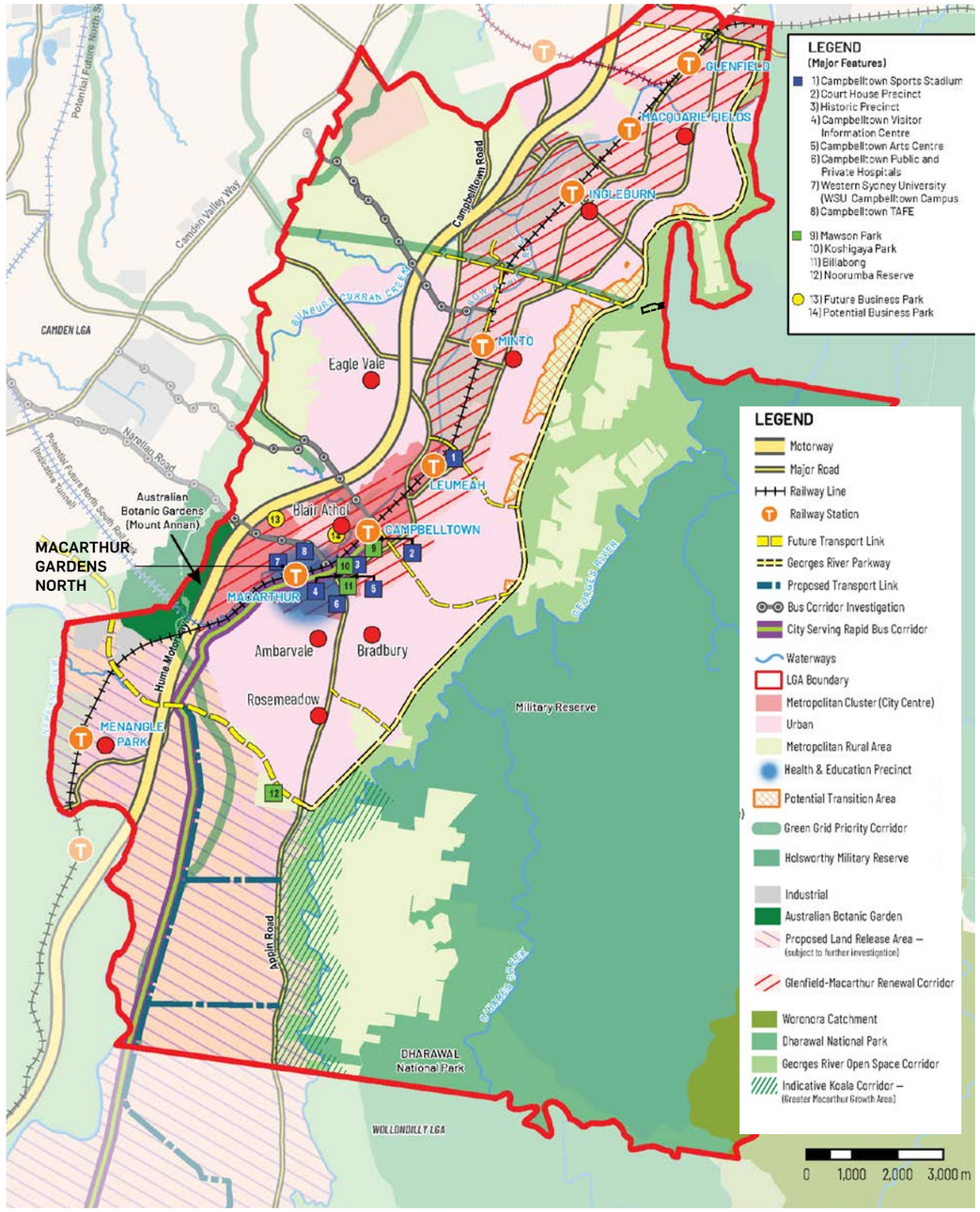


Figure 5 Structure Plan

1.4 GLENFIELD TO MACARTHUR URBAN RENEWAL CORRIDOR STRATEGY

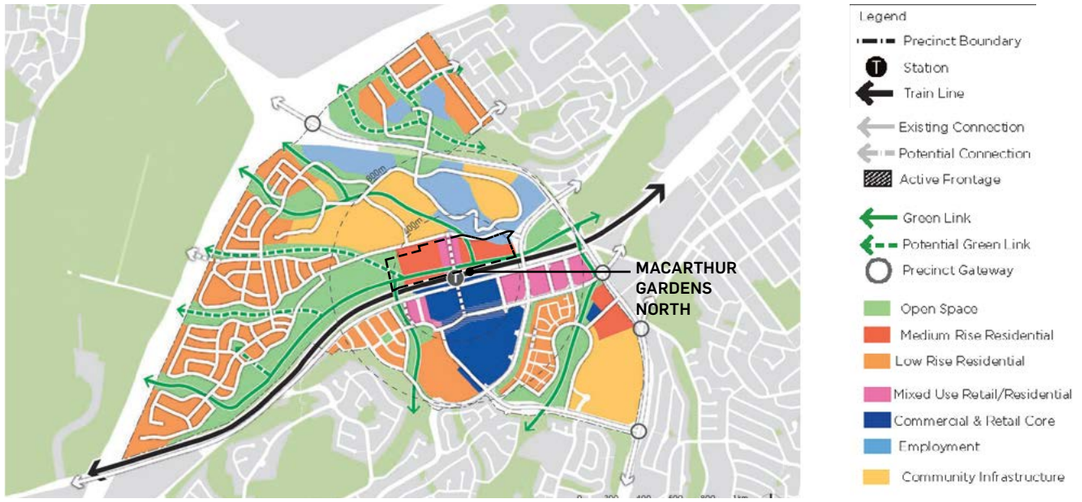


Figure 6 Macarthur Precinct Plan

Vision

"Macarthur will complement Campbelltown as a Regional City Centre, with world class health facilities, integrated educational institutions, more diverse housing, a premier retail precinct and attractive public spaces."

Key initiatives identified for the *MGN Precinct* within the GTMURCS Macarthur Precinct Plan include:

- **Medium Rise Residential:** This area could accommodate apartment housing to deliver a high level of amenity for the existing and future residents. This could comprise 3-6 storey apartment buildings, with potential for communal open spaces and shared facilities. The new dwellings should be carefully designed to integrate with the existing streetscape.
- **Mixed Use Retail & Residential:** This area could accommodate a mix of retail and residential uses that would complement the character of the local area and would be carefully designed to integrate into the surrounding streetscape. Buildings would have ground floor retail that would provide local services for residents and commuters, with apartments ranging from 7+ storeys in height. Detailed planning would be required to identify appropriate height and built form outcomes for development in this area.
- A series of 'green fingers' are proposed on the western side of the precinct to:
  - Provide a number of places for recreation between future development areas
  - Enhance ecological corridors and green links
  - Improve stormwater runoff and flooding impacts through water sensitive urban design measures
  - Improve connections to the surrounding regional open space at Mount Annan Botanic Gardens through new pedestrian paths and cycle links
  - Increase indigenous tree planting.

KEY DIRECTIONS FOR MGN PRECINCT

11. The strategy identifies the MGN Precinct for residential and mixed used development.

12. A future regional cycleway network is identified running through the site parallel to the railway line and alongside the regional open space connection of Bow Bowing Creek.

1.5 CAMPBELLTOWN MACARTHUR PLACE STRATEGY - 2020

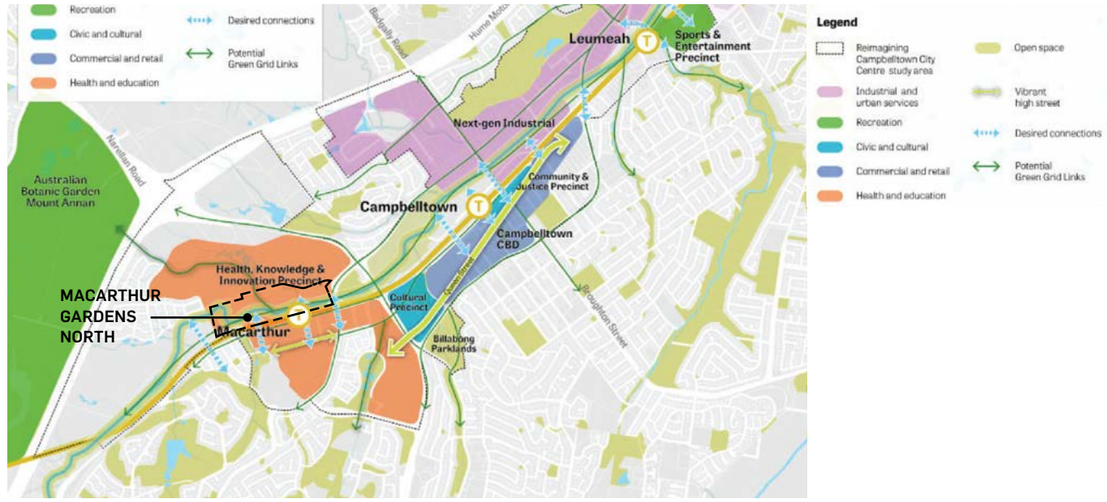


Figure 7 Campbelltown-Macarthur Place Strategy

The Campbelltown Macarthur Place Strategy 2020 (CMPS 2020) four different themes that corresponds with the key pillars identified in RCCCMP, being:

- Connectivity;
- Liveability;
- Productivity;
- Sustainability; and
- Governance

The structure plan identifies Campbelltown Hospital, TAFE, WSU, Macarthur Square and Mt. Annan Botanical Gardens as the key places within Macarthur Precinct.

The key actions relevant to MGN Precinct includes

NO	ACTIONS
1	Develop a Place-Based Integrated Transport Strategy, that applies the Movement and Place Framework in the City Centre
2	Explore opportunities to improve connections across the rail line and major roads
9	Develop a City Centre Healthy Streets Strategy and staged implementation plan
10	Progress urban amenity, public spaces and activation priorities identified in Reimagining Campbelltown
28	Deliver priority Blue-Green Grid connections
30	Develop a priority program to increase the uptake of interventions that reduce urban heat

KEY DIRECTIONS FOR MGN PRECINCT

The strategy identifies the opportunities for MGN Precinct to :

13. Improve connections between key places within Macarthur Precinct; and

14. Deliver Blue-Green Grid connections.

1.6 REIMAGINING CAMPBELLTOWN CITY CENTRE MASTER PLAN 2020

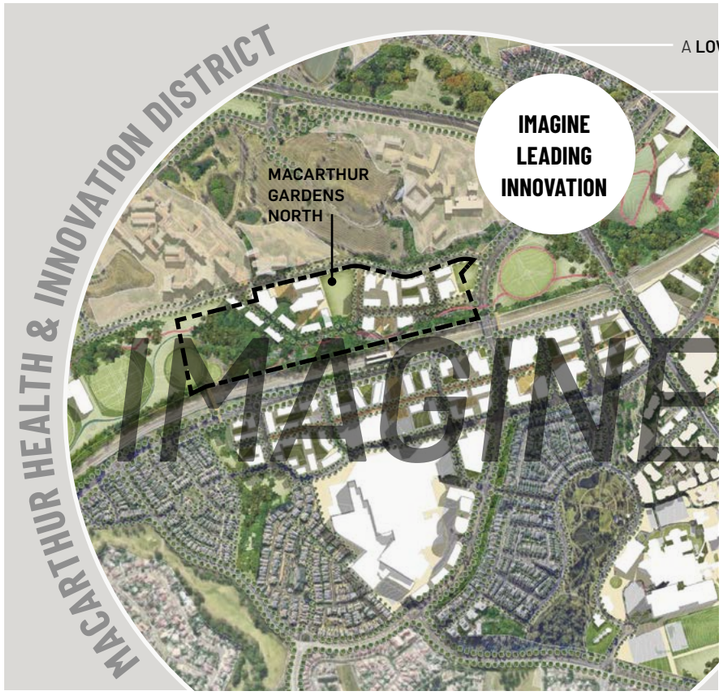


Figure 8 Campbelltown City Centre Master Plan 2020 - Macarthur Precinct

The Reimagining Campbelltown City Centre Master Plan (RCCCMP) was released in April 2020 and provides a place framework to guide the decision-making process of the City Centre's future. It covers the centres of Campbelltown, Macarthur and Leumeah.

The document is prepared by Campbelltown City Council and prepared in parallel with the Campbelltown Macarthur Place Strategy 2020.

The framework reinforces the role of Macarthur as the city's Health, Knowledge and Innovation District. Macarthur is envisioned to be a district that fosters growth and collaboration.

The opposite table identifies the key Growth Pillars, Commitments and Key Outcomes that are relevant to MGN Precinct.

Pillar 2 Connected Places

2.1 Prioritise people within the city centre

Healthy local streets - Deliver high-quality walkable local streets that connect key destinations, easy to navigate, efficient to move through, pleasant and interesting places for walking that are not conflicted by vehicles.

East-west rail connections - Ensure both sides of the railway accessible by pedestrians with a series of cross rail connections located between key attractions and destinations.

2.3 Enhance the connections for the Macarthur community

Connected personal mobility network - Facilitates regional access to the City Centre by bicycle, on foot or other personal mobility options.

2.4 Better connections between the city centre, greater sydney and beyond

Inviting transport gateway- Create transport interchanges that are attractive places, focussed on the people and their experience within and surrounding these hubs.

Pillar 3 Centre of Opportunity

3.2 Intensify land use to promote a more efficient and productive economy that optimises infrastructure investment

Intensive innovative Macarthur - Cross-pollinates business,research and ideas through higher intensity mixed use developments that co-locate health, education, retail, and ancillary residential and minor commercial uses.

A transition from low to medium intensity - The City Centre has an array of medium intensity development in suitable locations incorporating residential, retail, commercial, health, education and industrial uses.

Pillar 4 No Grey to be Seen

4.1 Deliver a highly connected and comprehensive Green Grid which celebrates place

Active and healthy people places for urban liveability - Supports a generous network of parks, open spaces, squares and plazas to support and promote a healthy lifestyle through relaxation and play.

An accessible and connected network of green - Walking and cycling greenways are woven throughout the City Centre providing seamless connections to and between local and regional open spaces and key destinations to support ecological and social connections.

Growing our native urban forest - Key areas of ecological value are protected, rehabilitated and enhanced to support native flora and fauna communities.

Green and blue not grey infrastructure - Embrace every opportunity to transform legacy grey infrastructure into high-performance landscapes which offer hydrological, ecological and recreational benefits to the community.

4.2 Develop a resilient blue grid that restores waterway health, optimises use, reduces infrastructure investment and manages risk

Attractive, healthy and accessible waterways - The Blue Grid is restored and enhanced to a system of more natural waterways which offer multiple benefits including an increase in biodiversity, flood conveyance and water quality treatment.

Bow Bowing - Bow Bowing Creek is the primary blue spine that restores ecological, hydrological and biodiversity health to the waterway whilst managing flooding

4.4 Reduce the urban heat island effect

A city centre that works with water - Natural water features include waterways, wetlands and waterbodies that provide cooling effects as well as a home for wildlife.

Shading and protection - Buildings that are designed to protect us from the extremes of our climate, offering shade and protection

Pillar 5 City and Bush

5.1 Deliver an abundance of multi-use, high-performance open spaces accessible by all

Passive recreation and community life - An abundance of accessible and connected open spaces supporting a range of passive recreational activities.

Active and programmed recreation - Open spaces will vary in size, scale and function to cater for a range of active and programmed recreation uses.

5.2 Enrich the urban experience through a network of varied urban spaces that invite occupancy and activity

Small scale spaces - Provision of small scale spaces that enrich and diversify the city experience.

Great civic spaces - A series of generous, flexible civic plazas and squares where social exchanges take place.

Fine grain connections - A network of safe, legible and interesting pedestrian linkages to create a permeable city centre.

5.3 Create a memorable, legible and green built form which celebrates its 'City Centre In A Valley' setting

A city skyline framed in green - Varied and diverse skyline, with buildings heights contributing to visual interest and overall legibility and embraces their location at the heart of the valley.

Memorable green arrivals - Create a memorable and green arrival journey into our City Centre

A city centre infused in green - A city infused in green whereby the buildings, infrastructure and public spaces embrace green infrastructure to enrich the character, deliver first-class environmental results, and create great places for people to live, work and play.

Place-responsive buildings and spaces to navigate the city centre - Buildings and places within Campbelltown's City Centre respond to place, contributing to city centre legibility and wayfinding.

5.4 Celebrate Campbelltown's Identity as a campus city through built form that embraces local character and place identity

Hillside campus - The hillside campus takes advantage of the city's topographical setting to capture views across the valley and offer visual presence contributing to the city's image.

Pillar 6 The Good Life

6.1 A City You Can Call Home

Density done well - The city centres' urban design seamlessly transitions from high to medium density enabling the dissemination of activity through integrated transport, connected walking and cycling networks and enticing public, communal and private open spaces.

KEY DIRECTIONS FOR MGN PRECINCT

Campbelltown City Centre Master Plan sets out several guiding principles in shaping the three main precincts, including Macarthur. The guiding principles in most relevance to MGN-Apartment Precinct includes:

15. Encourage mixed-use high density residential with new connection across railway;

16. Bow Bowing Creek as the main green/ blue spine that connects key sports and recreation spaces;

17. Reduce the urban heat island effect through tree canopy/ shading provision;

18. Deliver a network of multi use and high performance open spaces and urban places that is accessible by all; and

19. A legible and green built form that celebrates 'City in the Valley' setting.

1.7 CAMPBELLTOWN LEP 2015

The Campbelltown Local Environment Plan (CLEP) 2015 includes the following provisions for the MGN Precinct:

- R4 High Density Residential zone with a section of B4 Mixed Use Zone perpendicular to the railway station.
- A maximum Height of Building of 32m (approx. 9 storeys) across the whole site.
- No FSR and Minimum Lot Size controls applicable to the site.

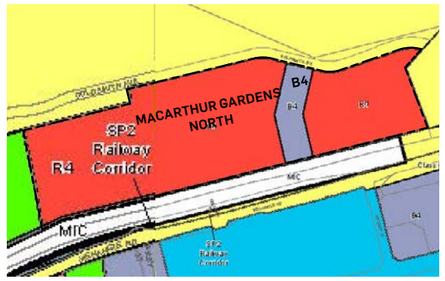


Figure 9 Zoning - Campbelltown LEP 2015

KEY DIRECTIONS FOR MGN PRECINCT

20. The CLEP 2015 zone and height controls are suitable for mixed use and high density residential developments.

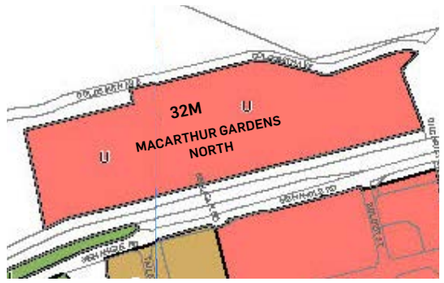


Figure 10 Height of Building - Campbelltown LEP 2015

1.8 CAMPBELLTOWN DCP 2015

The Campbelltown (Sustainable City) DCP 2015 (CDCP 2015) provides general controls for the design of residential and mixed use development at Macarthur Gardens North (Volume 3: Deferred Areas DCP, Chapter 4).

A Site Specific DCP has been prepared to supplement the CDCP 2015 to ensure MGN Precinct objectives and urban design outcomes are achieved.

The following design criteria identified under Campbelltown DCP 2015 have been taken into considerations when developing the building bulk, scale and form for MGN's residential and mixed use development.

DESIGN CRITERIA
4.2.2a Response to Context
4.2.2b High Quality Architectural Outcomes
4.2.2c Building Interface and Cross Ventilation
4.2.8.4a Waste Collection
4.3.1a Site Area Requirement
4.3.1b Block Width Requirement
4.3.2a Building Setback
4.3.3a Dwelling Unit Mix
4.3.3c Dwelling Unit Size
4.3.3f-h Common Lobby, Corridor and Lift Access
4.3.3j Deep Soil Planting
4.3.4h-j Residential Car Parking Rate and Bicycle Storage
4.3.5b Shadow Impact
4.3.5c-d Solar Access
4.3.8d Communal Open Space
4.4.3a Non-residential Car Parking Rate

KEY DIRECTIONS FOR MGN PRECINCT

21. MGN Precinct proposal to prepare a site specific DCP to supplement the Campbelltown DCP 2015

2.0 URBAN CONTEXT & SITE ANALYSIS

The following seven key site considerations have been identified for the site based on the synthesis of the key planning directions from Section 1. For each consideration, analysis of the surrounding urban context and existing site conditions was undertaken to identify key outcomes for the site.

A consolidated site analysis map is undertaken at the end of this section

OVERVIEW

Our urban context and site analysis have been undertaken under seven site considerations being:

- **Natural Assets**
- **Green Grid and Active Transport Network;**
- **Surrounding Land Use and Connectivity**
- **Road Network and Existing Infrastructure**
- **Public Transport Network and Access to Jobs;and**
- **Surrounding Open Spaces.**

For each theme, a detailed series of investigations were undertaken to identify outcomes for the site presented over the following pages.

CONSIDERATION 1

NATURAL ASSETS

A number of existing vegetation communities are identified within Macarthur Precinct including MGN Precinct. They are generally located along the waterway network that links to Mt Annan Botanical Garden to the west that is identified as Cumberland Regional Biodiversity Corridor.

This vegetation is the major contributor to tree canopy cover, which is fundamental in reducing urban heat island effect. Tree cover has become one of the key challenges for Western Sydney region including Campbelltown-Macarthur and its surrounding precincts. DPIE and Campbelltown City Council has set an aspiration target of a minimum 40% tree canopy cover to overcome this challenge.

Bow Bowing Creek is part of regional waterway network that runs from the western side of Glen Alpine to the south to Ingleside to the north. The creeks transverses the southern part of the MGN Precinct. Most of the creek has been channelised with the natural edge condition only situated within MGN Precinct and to the southwest of Campbelltown Station as illustrated opposite.

The following pages identifies the natural assets within MGN Precinct that includes:

- Existing Tree Canopy;
- Ecology;
- Riparian Corridor
- Flooding; and
- Topography and Slope

KEY OUTCOME FOR MGN PRECINCT

MGN Precinct provides an opportunity to :

- Protect and enhance Bow Bowing Creek and its biodiversity values; and
- Contribute tree canopy to achieve a min. 40% cover.

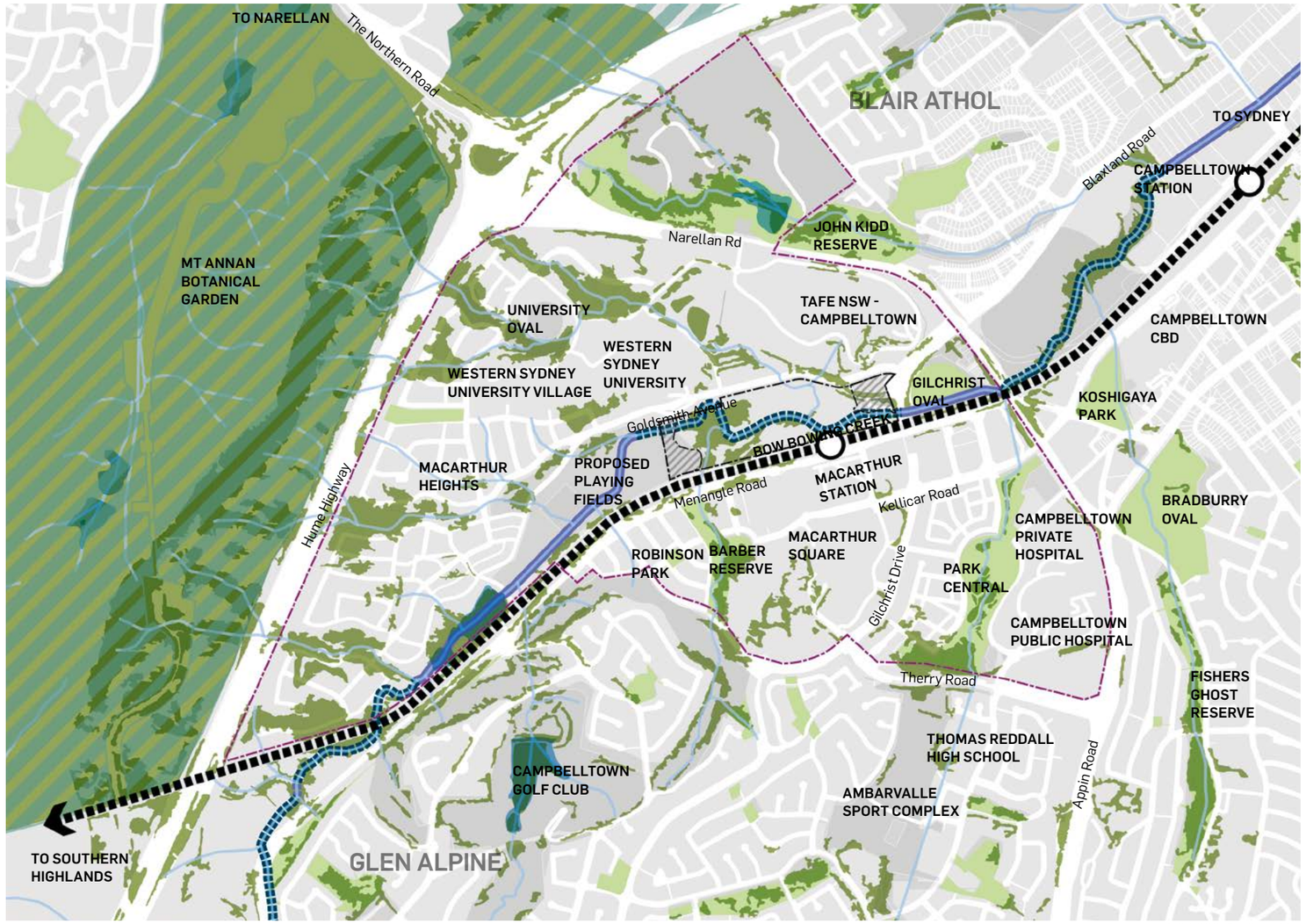


Figure 11 Surrounding Natural Assets

LEGEND

- Macarthur Gardens North
- MGN Basin 3
- Macarthur Precinct
- Bow Bowing Creek - Channelised Edge
- Bow Bowing Creek - Natural Edge
- Creek Lines
- Water Body
- Existing Vegetation Communities
- Existing Open Space - Conservation Land
- Existing Open Space - Local to District Open Space
- Cumberland Regional Biodiversity Corridor
- Railway Corridor

EXISTING TREE CANOPY

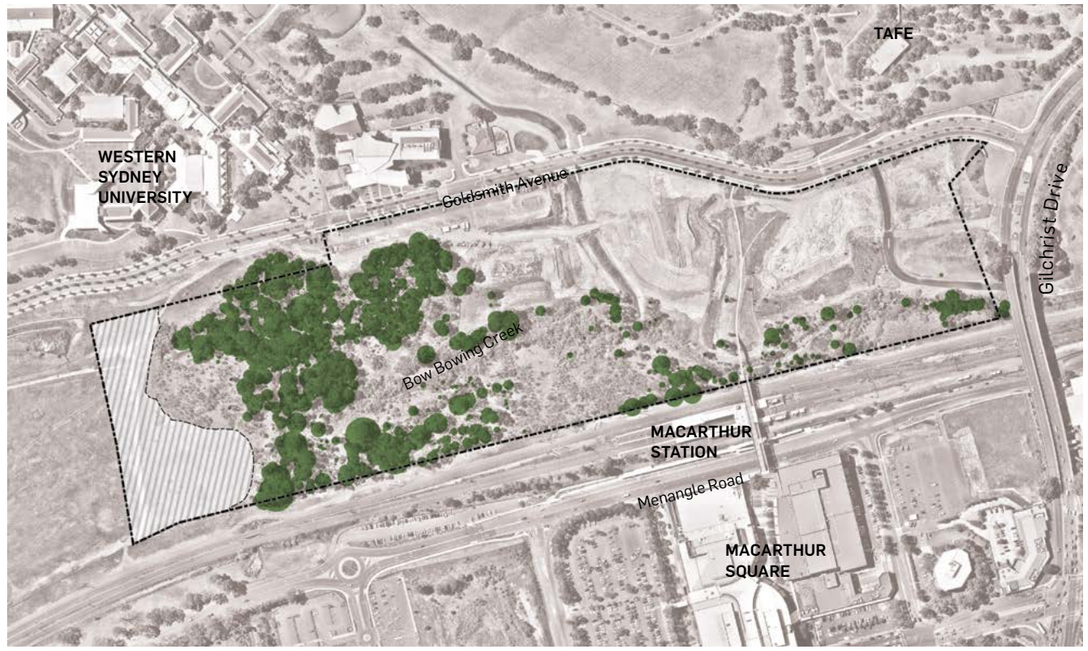


Figure 13 Existing Tree Canopy Cover

The existing tree canopy is mainly situated along Bow Bowing Creek and heavily concentrated to the western section which includes the Cumberland Plains Endangered Ecological Communities (EEC) and Riverflat Eucalyptus bushland. This existing tree canopy covers 3.8 ha/ 20.5% of the total MGN Precinct area of 18.5ha.

LEGEND

- Macarthur Gardens North
- MGN Basin 3
- Existing Tree Canopy

KEY OPPORTUNITIES

- The revegetation of the Bow Bowing Creek will provide the opportunity to increase the tree canopy across the site.

ECOLOGY

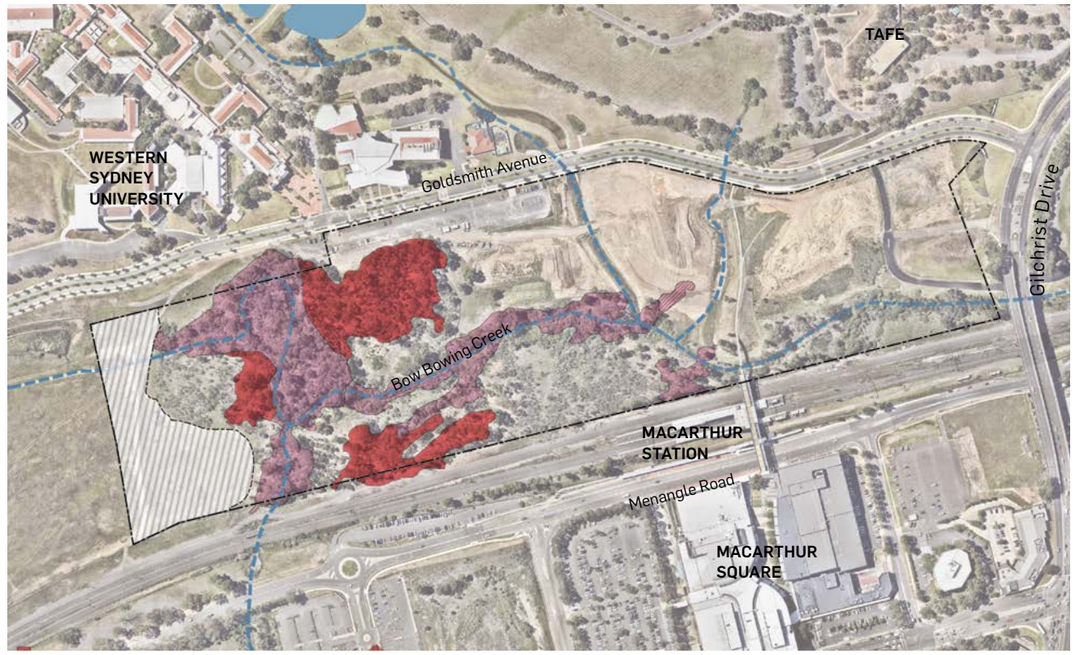


Figure 12 Ecology

Cumberland Plain Woodland and Riverflat Eucalyptus are part of the Endangered Ecological Communities situated to the west side of MGN Precinct and along the west and central section of Bow Bowing Creek.

The land north of Bow Bowing Creek within The MGN Precinct has been cleared by the earthworks as shown on the aerial photograph.

LEGEND

- Macarthur Gardens North
- MGN Basin 3
- Cumberland Plain Woodland (EEC)
- Riverflat Eucalyptus
- Area where no vegetation identified
- Creek

KEY OPPORTUNITIES

- The development should minimise impact on the vegetation along Bow Bowing Creek.

RIPARIAN CORRIDOR

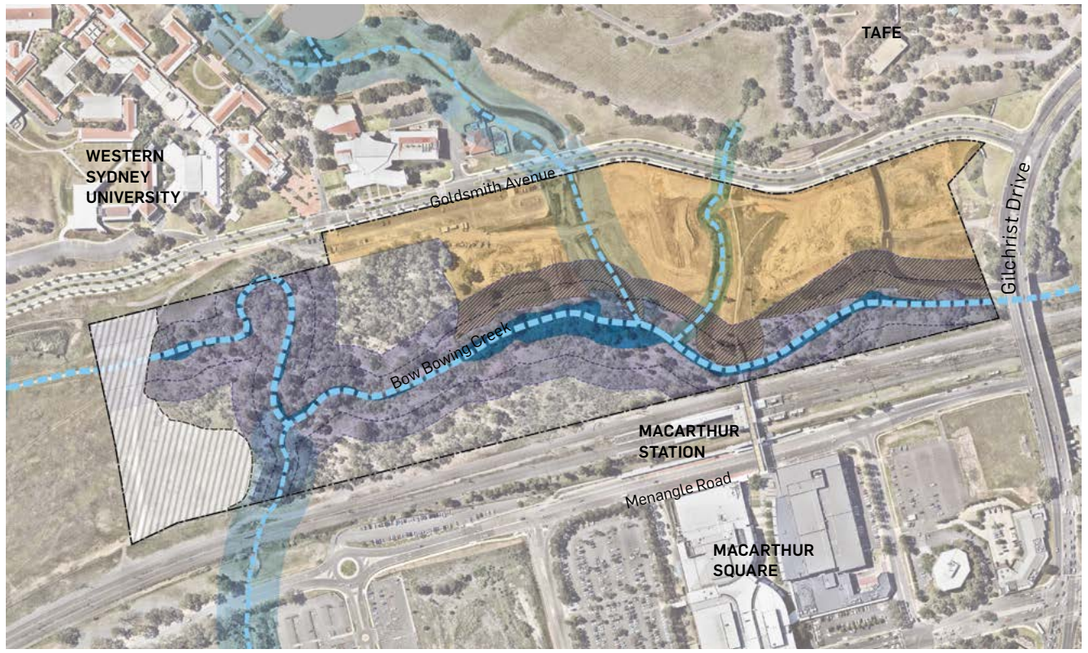


Figure 14 Existing Riparian Corridor

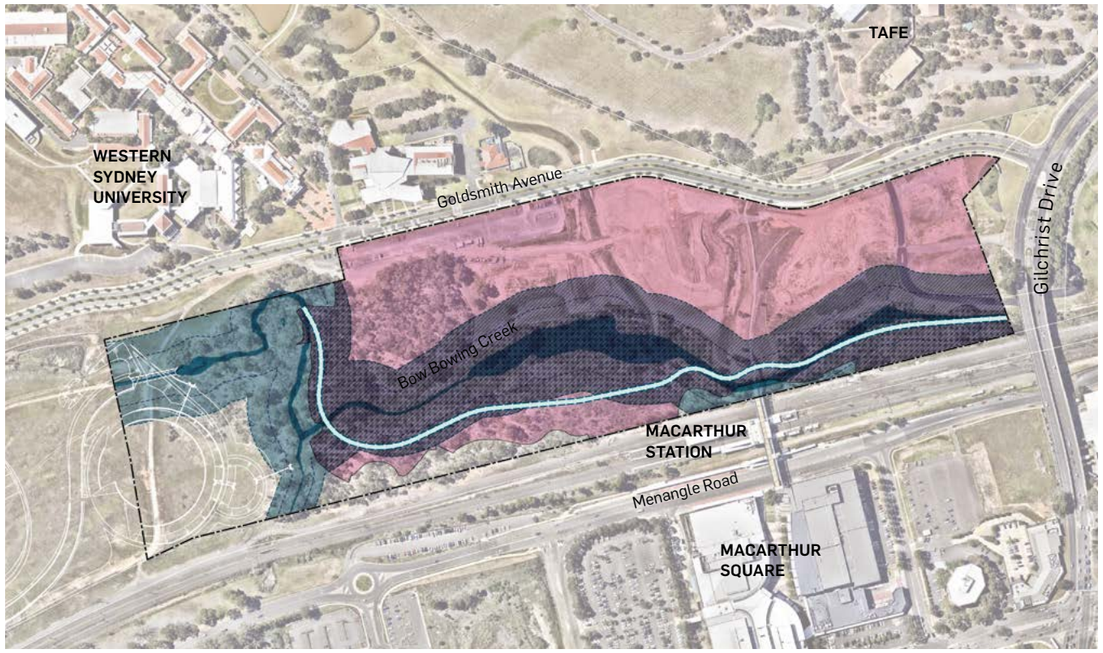


Figure 15 Bow Bowing Creek Riparian Corridor - CAA plan

Bow Bowing Creek is identified as a Creek Class 4 with a 40m Vegetated Riparian Zone (VRZ) measured from the top of the bank on both sides. Two tributaries from the north are categorised as Creek Class 1 and 3 and have been channelised with minimum biodiversity values. One tributary from the south is identified as Creek Class 3 with 30m VRZ.

The land-form to the north of Bow Bowing Creek has been heavily modified. It has an Controlled Activity Approval (CAA) for significant modifications to the land-form and creek alignment which impacts 70% of the existing Bow Bowing Creek 40m VRZ as identified in Figure 14.

The above diagrams and opposite table identifies the existing Bow Bowing Creek riparian corridor, CAA scheme and the impact analysis to the riparian zone.

	AREA (SQM)	%
Macarthur Gardens North	**183,161**	**100.00%**
Existing Modified Landscape	72,111	39.37%
CAA Approved Extent Of Work	135,918	74.20%
Total Riparian Zone (Outer 50% VRZ)	**89,350**	**100.00%**
Riparian Corridor Impacted - Existing	**16,760**	**18.76%**
Total Riparian Corridor Impacted - CAA Approved	**63,162**	**70.69%**
CAA Approved Additional Impact To The Existing	46,402	51.93%

LEGEND

- Macarthur Gardens North
- Creek Class 4 (40m Riparian Corridor)
- Creek Class 3 (30m Riparian Corridor)
- Creek Class 1 (10m Riparian Corridor)
- CAA Approved Creek Re-Alignment
- Top of The Bank
- Existing Modified Landscape
- Riparian Corridor Impacted by The Modified Landscape

KEY OPPORTUNITIES

- Leverage the natural asset of the existing vegetation along Bow Bowing Creek riparian corridor as an open space amenity.
- Retain Bow Bowing Creek riparian zone by minimising additional impact to the existing riparian zone and provide areas where there is opportunity to offset the impacted VRZ

FLOODING

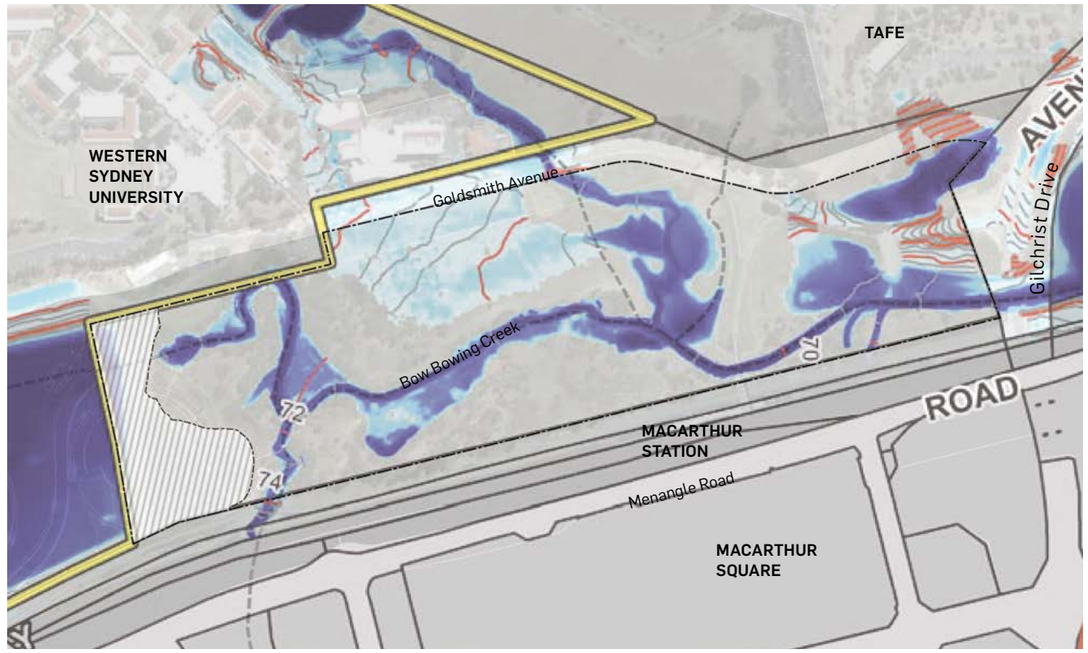


Figure 16 Existing Flooding Analysis - 1% AEP

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0 50 100 150 200 250 300

The flood prone area is generally situated along Bow Bowing Creek and the current Creek Class 3 from Goldsmith Avenue ranging from 1-2m depth as per AEP model above. The area along Goldsmith Avenue has relatively lower flooding extent from 0.0-0.1m depth.

LEGEND

- Macarthur Garden North
- MGN Basin 3
- Indicative Flooding Extent (1% AEP) - 0.0-0.1m depth
- Indicative Flooding Extent (1% AEP) - 2.0+m depth

KEY OPPORTUNITIES

- Identify the appropriate road level and finished floor level to minimise flood impact

TOPOGRAPHY & SLOPE ANALYSIS

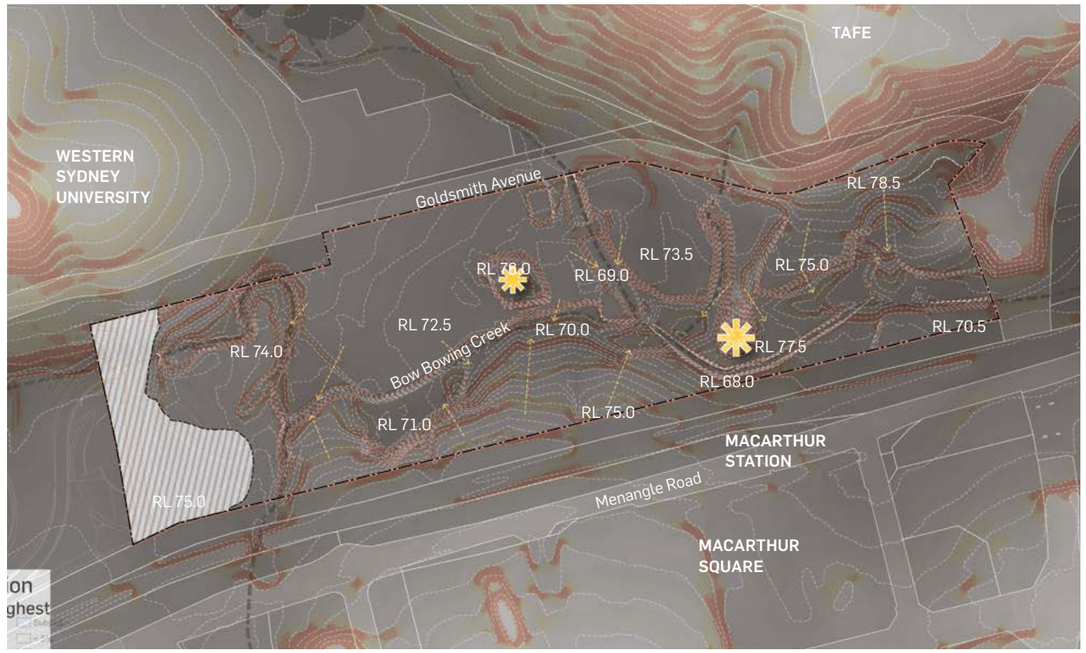

Figure 17 Topography and Slope Analysis

1:6,000 @ A3

0 50 100 150 200 250 300

The MGN Precinct land-form north of Bow Bowing Creek has been heavily modified. It is generally slopes down from RL 79.0 at Goldsmith Avenue to RL68.0 at Bow Bowing Creek river bank. Two high points are identified being:

- RL 77.5 situated to the north of the station serves as a bridge landing point from the station concourse to the site;
- RL 76.00 within the centre of the site.

The current slope from the bridge landing point is considerably steep towards the surrounding landforms to the north.

KEY OPPORTUNITIES

- Modify the grades and levels to deliver a suitable slope that provides accessible connections to the Railway station concourse, Goldsmith Avenue and Bow Bowing Creek.

LEGEND

- Macarthur Gardens North
- MGN Basin 3
- High Elevation
- Low Elevation
- High Points
- Slope Down
- Slope 10%-15%
- Slope 15%-18%
- Slope > 18%

CONSIDERATION 2

GREEN GRID AND ACTIVE TRANSPORT NETWORK

The South West District Green Grid Framework identifies The Upper Canal as one of the priority projects for Sydney Green Grid which runs through Mt. Annan Botanical Gardens.

Macarthur Precinct has a series of open spaces that potentially extend the green grid strategy at a finer grain linking the local communities to the regional open space network. This includes:

- Bow Bowing Creek corridor;
- Macarthur Heights;
- Western Sydney University Oval and open space; and
- Park Central to Ambarvalle Sport Complex.

The Macarthur Precinct Plan identifies a proposed main cycleway network that generally runs east-west along Menangle Road connecting Campbelltown, Macarthur and Blair Athol. A local cycleway and pedestrian network running along Goldsmith Avenue heads towards Macarthur Station across the site. This network links to key destinations such as Macarthur Square and Campbelltown Hospital.

An existing on-street cycleway runs along Goldsmith Avenue and continues to off-street cycleway along Macarthur Heights southern perimeter road that ends at Stage 5 to the southwest. There is a potential to extend this cycleway via the existing railway underpass to connect to Mt. Annan Botanical Gardens.

Campbelltown City Council has proposed an off-road cycleway network from Macarthur Station along Bow Bowing Creek within MGN Precinct, Western Sydney University Village and ultimately to Mt. Annan Botanical Garden via an overpass across the Hume Highway.

This will unlock the active transport network from Macarthur Precinct to the surrounding precincts west of Hume Highway that currently has limited access.

KEY OUTCOME FOR MGN PRECINCT

- The Bow Bowing Creek is a key local green grid backbone linking Campbelltown CBD and Mt Annan Botanical Garden.
- The MGN Precinct will facilitate the connection of Gilchrist Oval with the new sporting fields through a pedestrian and cycle connection along the Bow Bowing Creek Reserve.
- The MGN Precinct could accommodate Council's proposed cycleway network along Bow Bowing Creek that connects to Mt Annan Botanical Gardens and surrounding precincts west of Hume Highway.

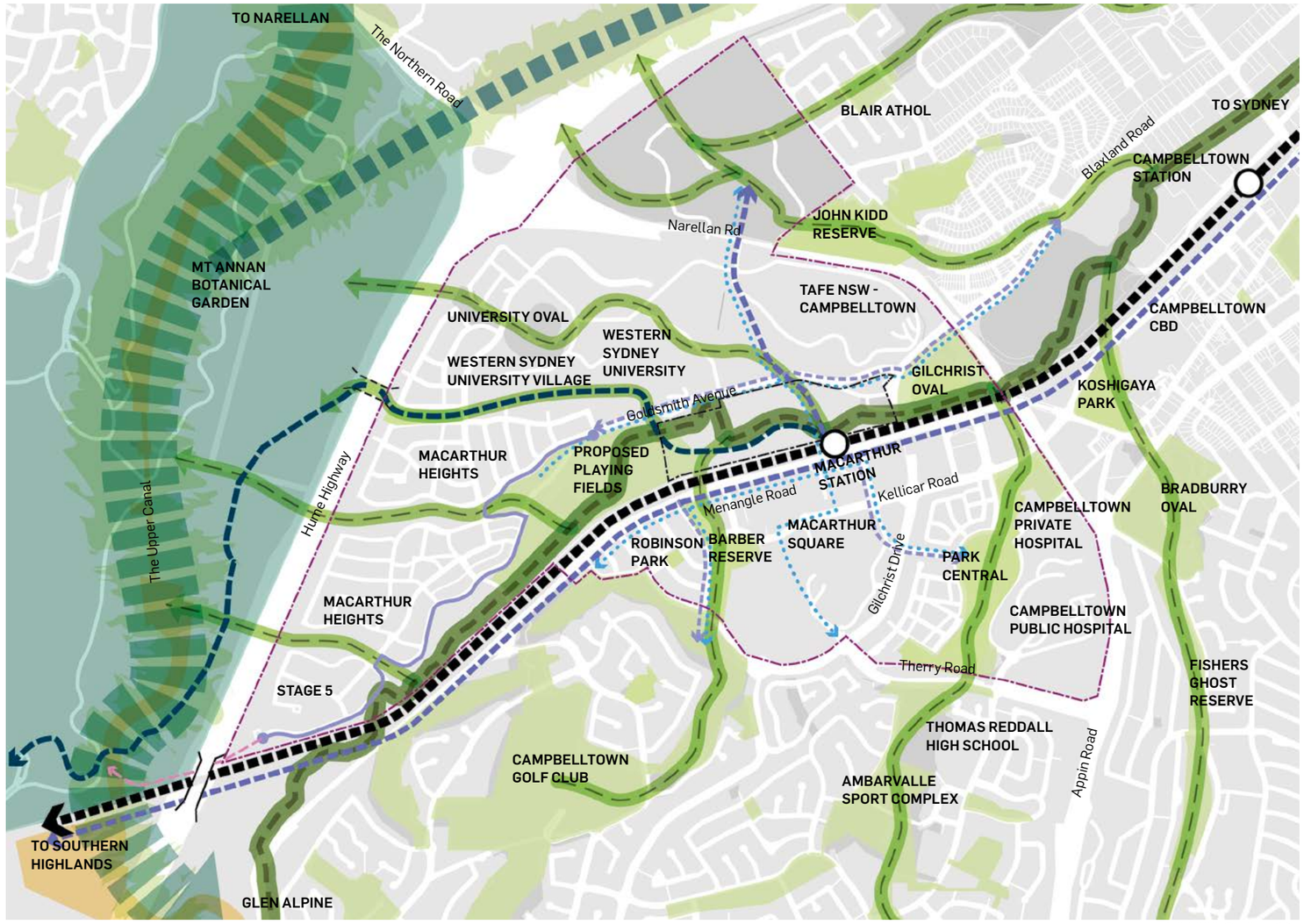

Figure 18 Green Grid and Active Transport Network

LEGEND

- Macarthur Gardens North
- Macarthur Precinct
- The Upper Canal Priority Project - Green Grid
- Transportation Corridor Green Grid
- Bow Bowing Creek Corridor
- Potential local green grid network
- The Upper Canal
- Mt Annan Botanical Garden
- Open Space
- Existing Off-Street Pedestrian/Cycleway
- Proposed Regional Cycleway Network
- Proposed Local Cycleway Network
- Proposed Local Pedestrian Network
- Proposed Connection to Mt. Annan Botanical Garden via Existing Underpass
- Council's Proposed Off-Road Cycleway Network
- Railway Corridor
- Railway Station

CONSIDERATION 3

SURROUNDING LAND USES AND CONNECTIVITY

MGN Precinct is located next to Macarthur Station and surrounded by residential communities, regional retail centre, and significant social and green infrastructure including:

- Macarthur Heights;
- Park Central;
- Western Sydney University;
- TAFE NSW - Campbelltown;
- Macarthur Square;
- Campbelltown Public Hospital;
- Campbelltown Private Hospital;
- Gilchrist Oval;
- University Oval;
- Future Sporting Fields; and
- Mt. Annan Botanical Garden.

The railway corridor runs east to west dissecting the precinct and creating an infrastructure barrier between north and south of the railway.

Being at the heart of the precinct next to the railway station, MGN Precinct, which adjoins the station, provides an opportunity to stitch these communities and facilities into an integrated and well connected precinct as illustrated in the opposite diagram.

The following page provides the access and movement analysis within MGN Precinct.

KEY OUTCOME FOR MGN PRECINCT

- Improve the connections between the northern and southern side of the railway corridor to bring the surrounding communities and facilities together.

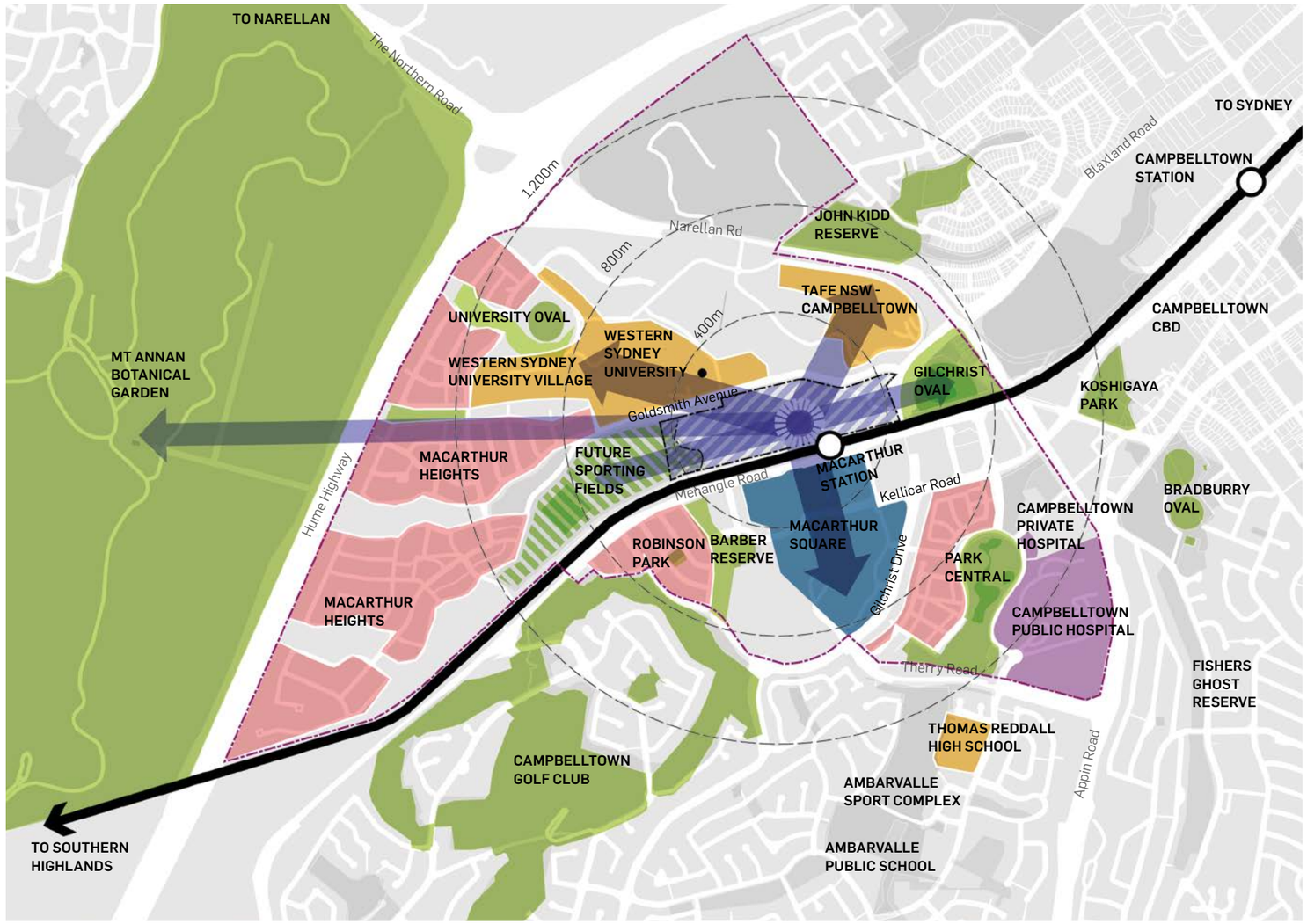

Figure 19 Surrounding Land Uses And Potential Connectivity Improvement

LEGEND

- Macarthur Gardens North
- MGN Basin 3
- Macarthur Precinct
- University/ Education
- Residential Communities
- Retail Centre
- Healthcare
- Recreational Open Space
- Future Sporting Fields
- Railway Corridor
- Potential Connectivity Improvement
- Potential Activation

ACCESS AND MOVEMENT

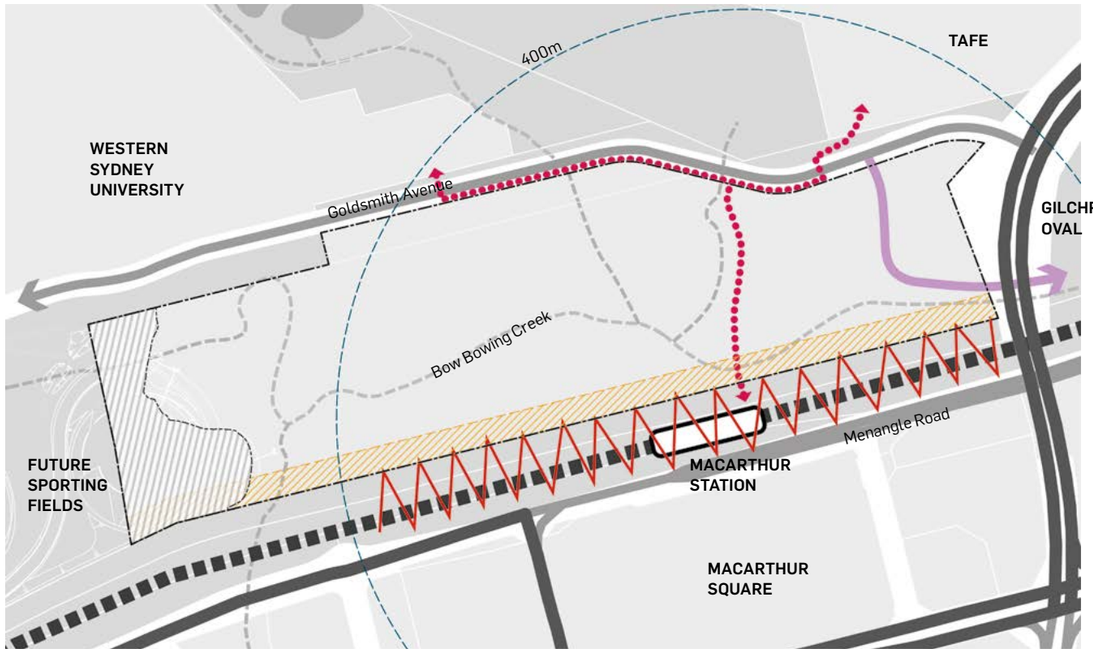

Figure 20 Existing access and movement

The MGN Precinct is accessible from Macarthur Station via an uncovered footpath that crosses through MGN Precinct and along Goldsmith Avenue. This serves as the main pedestrian route to TAFE and WSU.

There is an existing vehicular access from Goldsmith Avenue to Gilchrist Oval through an underpass below Gilchrist Drive.

Sydney Trains has identified a 25m wide corridor along the southern boundary of the site for future transport infrastructure.

KEY OPPORTUNITIES

- Improve pedestrian connection from Macarthur Station to TAFE and WSU
- Maintain road connection to Gilchrist Oval
- The 25m wide infrastructure corridor would not affect any development within the site.

LEGEND

- Macarthur Gardens North
- MGN Basin 3
- Arterial Road
- Main Road
- Collector Road
- Railway
- Railway Station
- Existing access to Gilchrist Oval
- 400m catchment
- 25m width railway corridor - Sydney Train requirements
- Poor connection condition between Macarthur Station to WSU and TAFE
- Infrastructure barrier limiting connections between north and south of the railway.

CONSIDERATION 4

ROAD NETWORK AND EXISTING INFRASTRUCTURE

The Macarthur Precinct north of the railway corridor comprises of the following uses:

- Western Sydney University;
- TAFE Campbelltown;
- Macarthur Heights residential; and
- Macarthur Gardens North.

There are two main access points that connect this part of the precinct to the wider road network being:

- Narellan road intersection - This provides direct connection to Sydney CBD and Southern Highlands via Hume Highway and South West Priority Area including the future Western Sydney Airport via The Northern Road; and
- Gilchrist Drive intersection - This provides connections to Macarthur Square, Campbelltown Hospital and Park Central to the south and Campbelltown CBD to the east via Blaxland Road.

With this limited access points and traffic capacity of these intersections, MGN Precinct needs to respond by aligning the dwelling outcomes to this capacity supported by the traffic study.

The diagram on the opposite page identifies the existing infrastructure within MGN Precinct for consideration in developing the Site.

KEY OUTCOME FOR MGN PRECINCT

- The MGN Precinct needs to align the development outcome to the current infrastructure capacity and constraints.

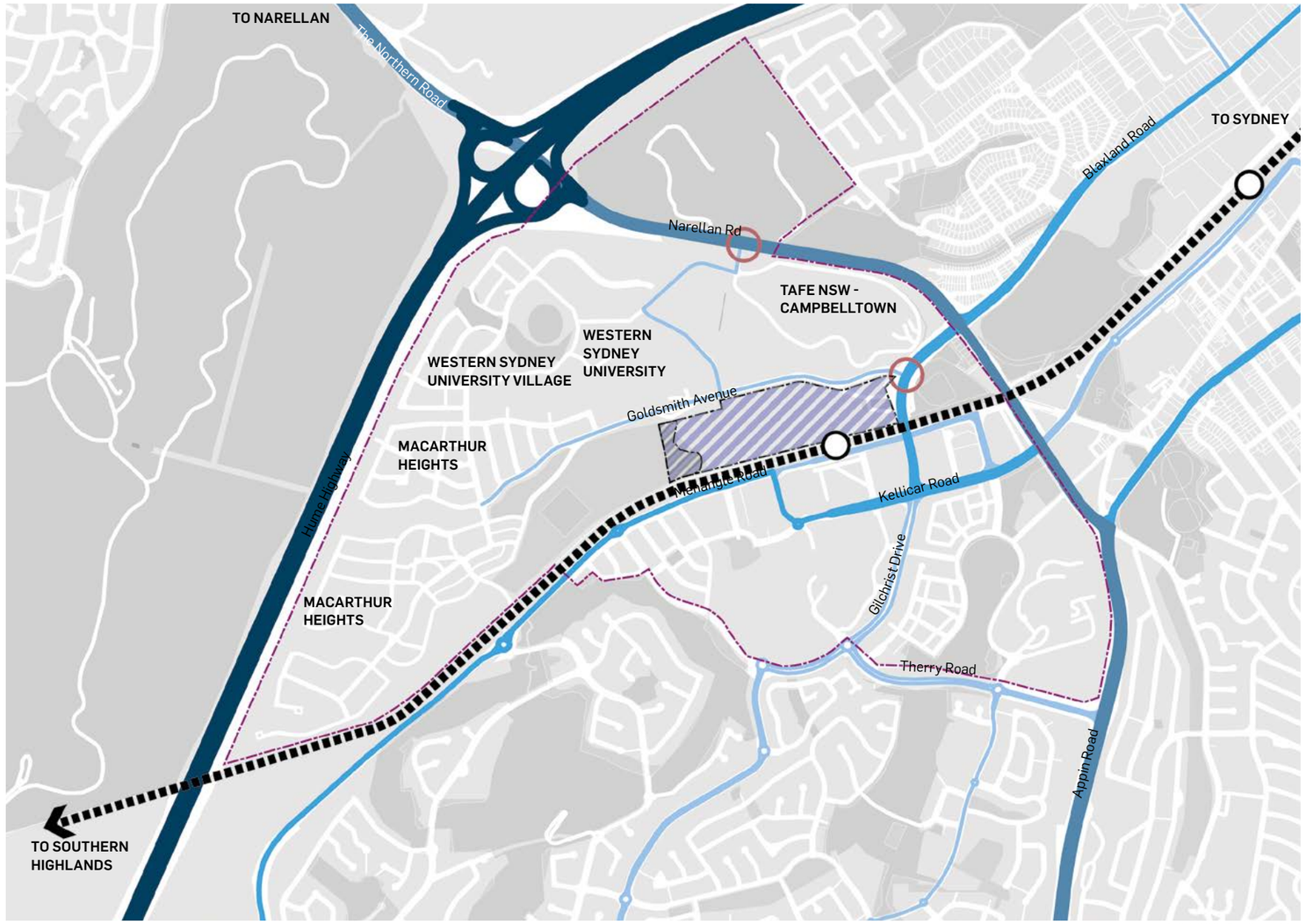

Figure 21 Road Network Analysis

EXISTING INFRASTRUCTURE

Figure 22 Existing Infrastructure

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An existing Sydney Water's major sewer pipe traverses the southern portion of the MGN Precinct.

Any proposed development needs to consider this alignment and provide clearance for maintenance subject to Sydney Water requirement.

There is an existing 11kV transmission line traversing north-south of MGN Precinct. The infrastructure report identifies that this transmission line will be relocated underground to adjust with the proposed master plan.

LEGEND

- Macarthur Gardens North
- MGN Basin 3
- Existing Sydney Water Sewer
- Existing 11kV Transmission Line - To be Relocated Underground

KEY OPPORTUNITIES

- The future development will need to have adequate clearance to the Sydney Water Sewer line.

CONSIDERATION 5

PUBLIC TRANSPORT NETWORK & ACCESS TO JOBS

The local employment lands within Campbelltown- Macarthur Precinct are mainly situated within Campbelltown CBD, WSU, TAFE, Macarthur Square and Campbelltown Public and Private Hospitals. Re-Imagining Campbelltown City Centre 2020 indicates that there is potential for more jobs within this precinct.

MGN Precinct is currently served by railway service that provide connection to regional employment centres being Sydney CBD and Parramatta CBD which require at least 1 hr. travel time by train. This not include transfer time at Glenfield Station for certain train services.

The Western Sydney Airport - Badgery's Creek Aerotropolis is the future regional employment centre situated an approximately 25km north of MGN Precinct.

The planned metro corridor that connects Macarthur to future Western Sydney Airport will improve accessibility from Campbelltown and Macarthur Precinct to future jobs within 30 minutes of travel as illustrated in below inset.

This infrastructure investment coupled with planned future jobs within the precinct.

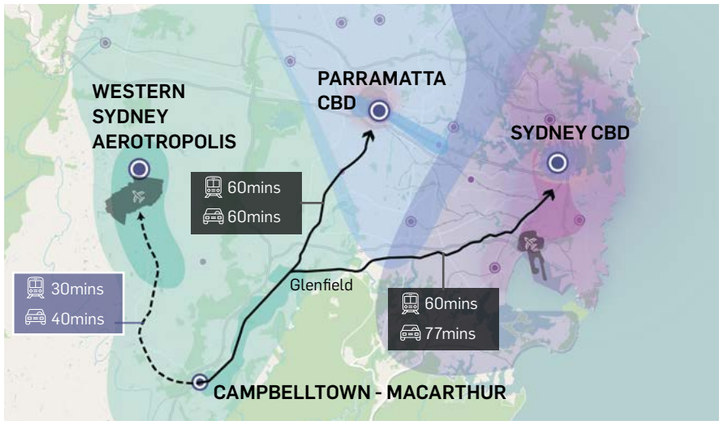

Figure 24 Public Transport Access and Approximate Travel Time from Campbelltown-Macarthur to Major Employment Centres

will support higher density housing developments close to city centres/ transport hub. This is in line with the government vision of a 30 minutes city.

KEY OUTCOME FOR MGN PRECINCT

- The future metro line to Western Sydney Airport and future jobs within Campbelltown City Centres provides opportunity for MGN Precinct to deliver high density residential development with access to future jobs within 30 minutes travel.

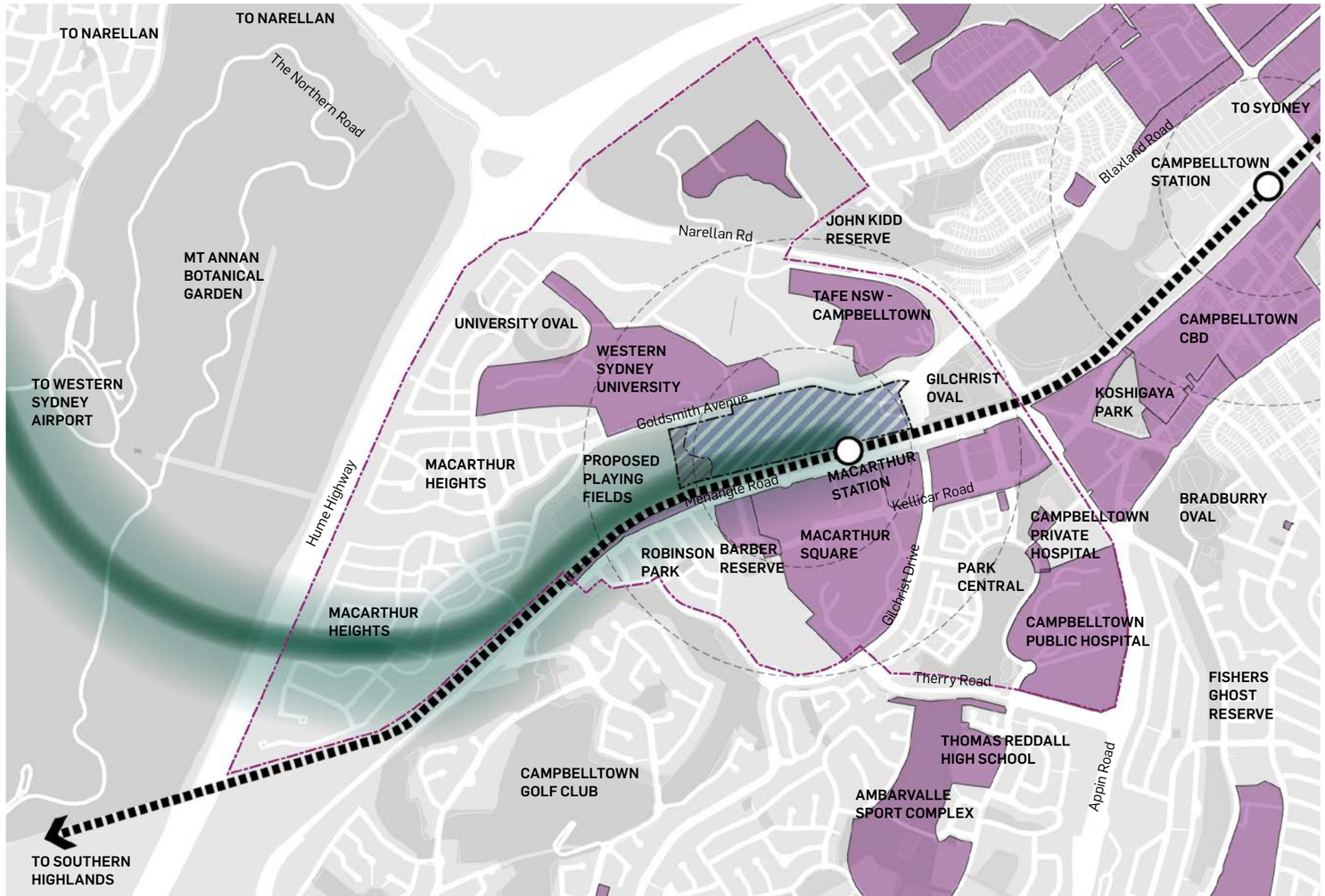

Figure 23 Local Employment Lands and Railway Services

LEGEND

- Macarthur Gardens North
- MGN Basin 3
- Macarthur Precinct
- Employment Lands
- Railway
- Railway Station
- 400-800m catchment
- Indicative Future Metro Connection to Western Sydney Airport

CONSIDERATION 6

SURROUNDING OPEN SPACES

There are number of open spaces situated to the north of railway corridor where MGN Precinct sits. This includes Main Ridge Park, Gilchrist Oval, University Oval, John Kidd Reserve and Harvey Brown Reserve. Gilchrist Oval and John Kidd reserve are the only open space situated within 800m/ 10 mins walking from the Site.

A future sporting fields is under construction to the west of MGN Precinct which will provide more recreational facilities to this part of the precinct.

The major open space and recreational facilities within Macarthur Precinct i.e. Park Central and Ambarvalle Sport Complex are generally located to the southern side of the rail corridor with limited walkability and accessibility from the Site. This is due to infrastructure barrier of the railway corridor.

The opposite diagram and following table summarise the open space analysis within 800m and 2km radius of MGN.

OPEN SPACE	800m radius	2KM radius	Total in Ha
Local	1	0	0.29
Neighbourhood	1	3	12.55
District	1	2	18.13
Regional*	0	1	445.95
Recreational facilities	1	7	-

**445.33ha of district/regional open space is Mount Annan Botanical Gardens which partly falls within a 2km radius.*

Refer to Social Infrastructure and Open Space Report for the open space audit summary.

KEY OUTCOME FOR MGN PRECINCT

- MGN Precinct provides opportunity to deliver open space amenities both active and passive in proximity to the development and railway station.

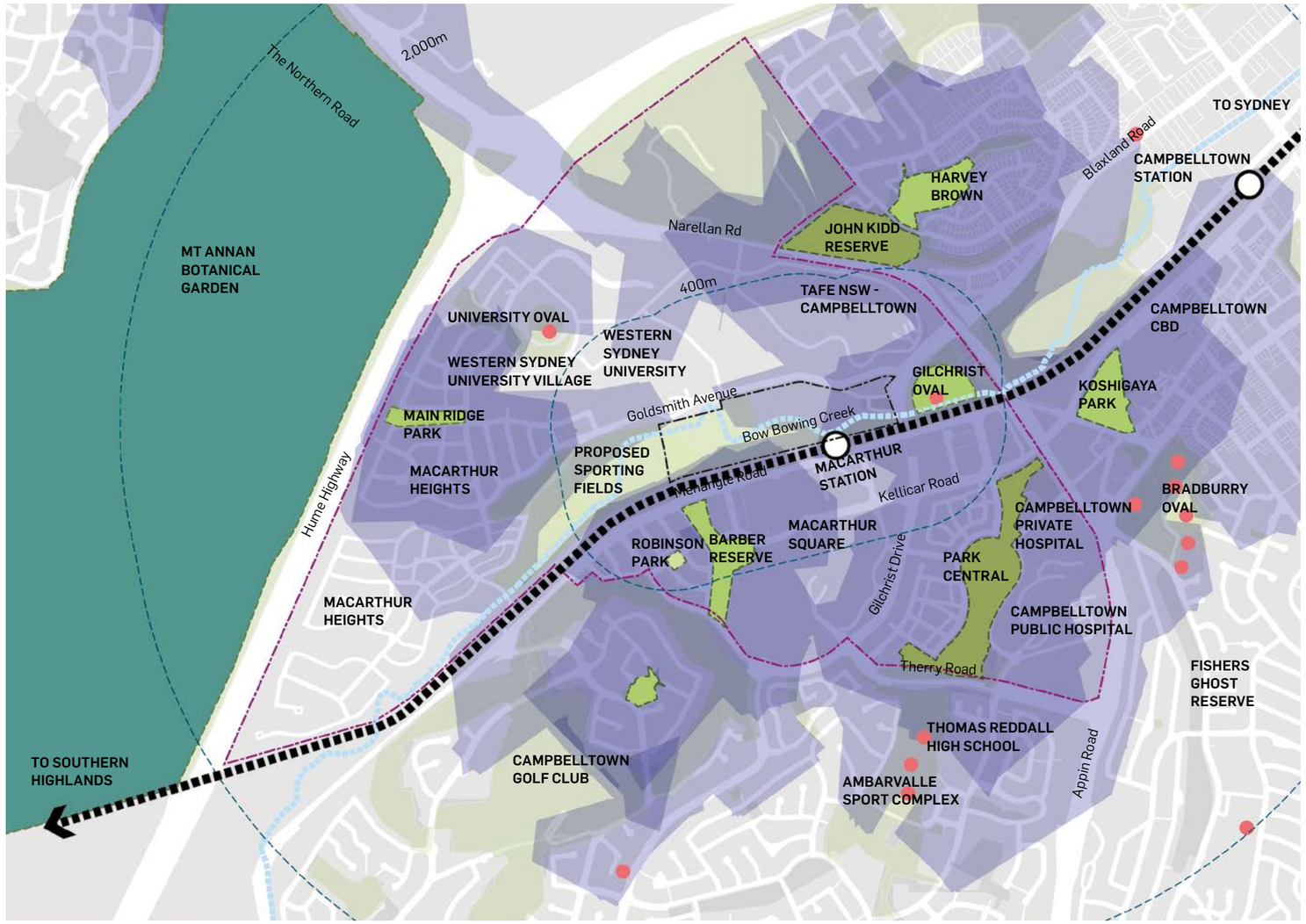

Figure 25 Surrounding Open Space Network Analysis

1:20,000 @ A3

0 200 400 600 800 1,000

LEGEND

- Macarthur Gardens North
- Macarthur Precinct
- Bow Bowing Creek
- Regional Open Space - Mt. Annan Botanical Gardens
- District Open Space
- Neighbourhood Open Space
- Local Open Space
- Other Open Space
- Recreational (Sporting Fields/ Courts)
- 400m Walking Catchment
- 800m Walking Catchment
- 400m & 2km radius

CONSOLIDATED SITE ANALYSIS MAP

The opposite diagram summarise The MGN Precinct site analysis that includes access and movement, infrastructure, riparian corridor and ecology.

The winter solstice sun angle from 9AM to 3PM is taken based on Macarthur Station location that provides reference to built form orientation and solar access to private open space.

KEY OPPORTUNITIES

The area north of Bow Bowing Creek is suitable for development, however the following aspects need to be considered for the master plan.

- Retain existing EEC vegetation communities and tree canopy;
- Protect Bow Bowing Creek Riparian zone;
- Maintain clearance from Sydney Water sewer main;
- Modify level between station concourse and site;
- Improve pedestrian connectivity between Macarthur Station and TAFE and WSU; and
- Optimise solar access to private open space and residential units with an appropriate building orientation.

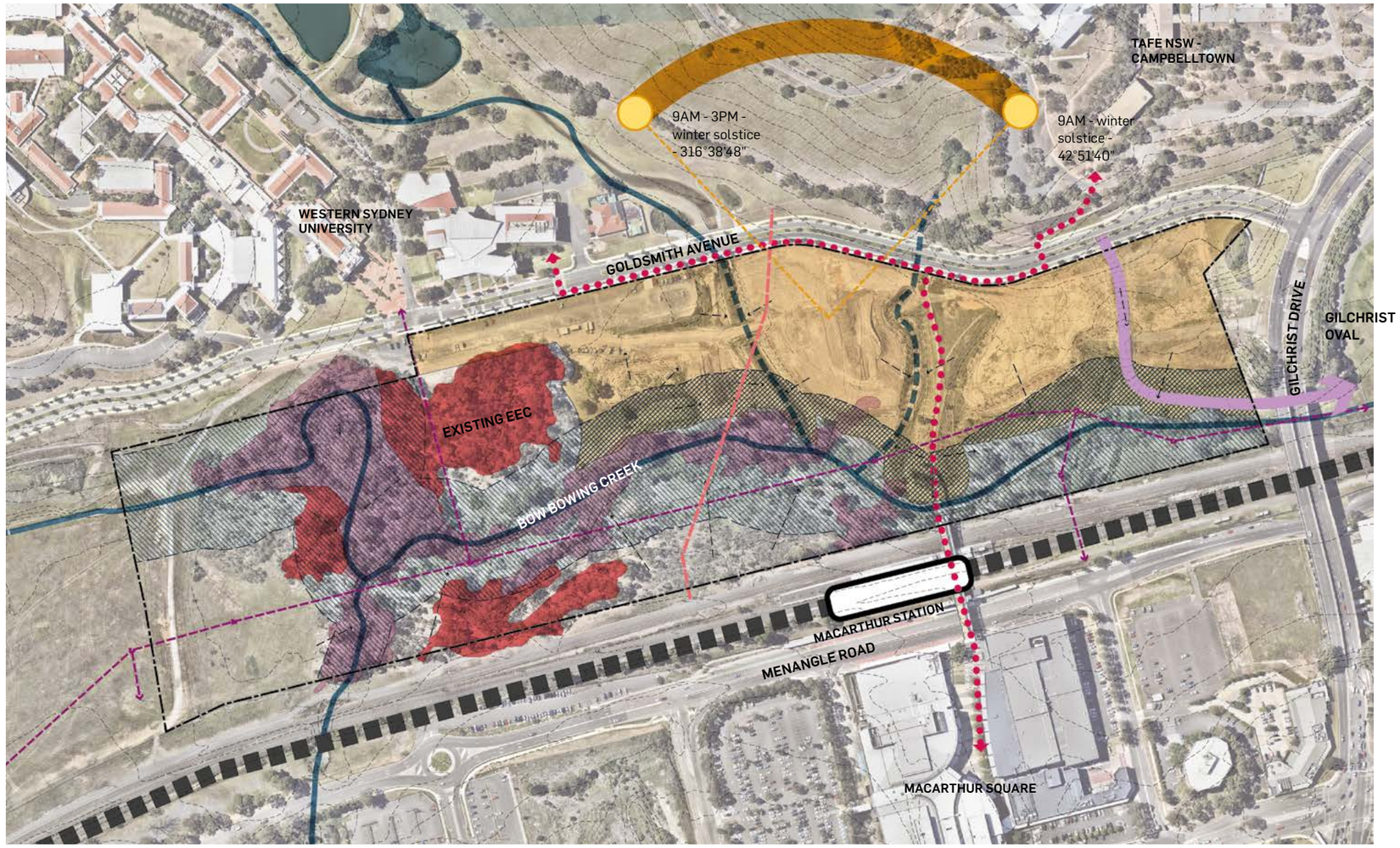

Figure 26 Consolidated Site Analysis Plan

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0 50 100 150 200

LEGEND

- Macarthur Gardens North
- Existing pedestrian connection from Macarthur Station to WSU, TAFE and Macarthur Square
- Existing access to Gilchrist Oval
- Railway
- Railway Station
- Existing Creek - Natural
- Existing Creek - Engineered
- Bow Bowing Creek Riparian Corridor 40m VRZ
- Existing Modified Landscape
- Riparian Corridor Impacted by The Modified Landscape
- Cumberland Plain Woodland (EEC)
- Riverflat Eucalyptus
- Existing Sydney Water Sewer
- Existing 11kV Transmission Line - To be Relocated Underground
- 2m contour
- 0.5m contour
- Slope down
- Winter solstice sun angle 9AM-3PM

CONSOLIDATED OPPORTUNITIES MAP

The following diagram and below strategy summarise The MGN Precinct opportunities that taken into account the key considerations and site analysis identified in the previous sections.

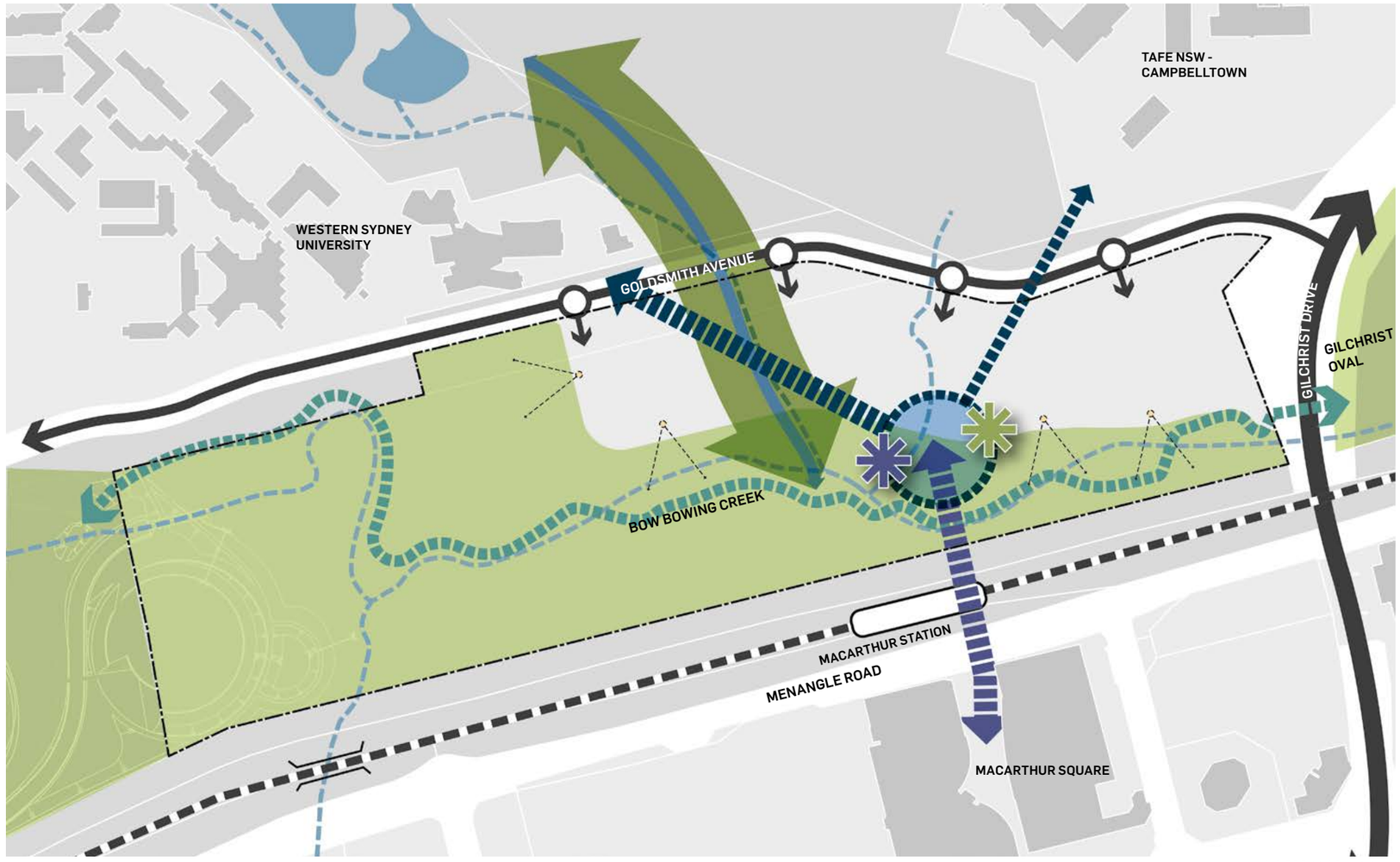


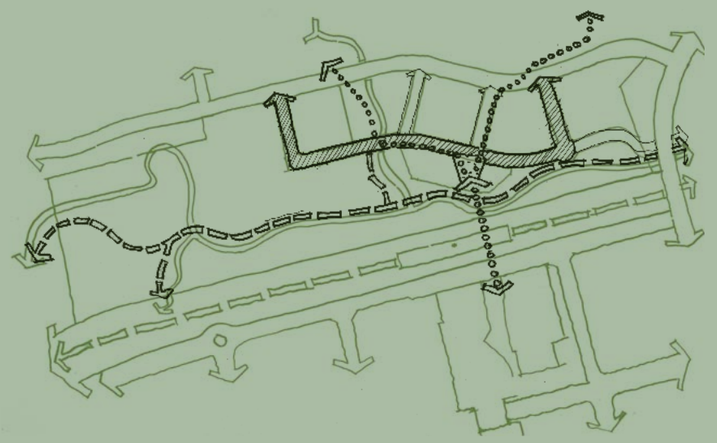
Figure 27 Consolidated Opportunities map

LEGEND

- Macarthur Gardens North
- Open Space
- Potential station arrival precinct - mixed use development close to the railway station with activated ground level and amenities.
- Potential location for landmark building within the station arrival precinct
- Potential station arrival plaza/ park
- Potential shared cycle-pedestrian way along Bow Bowing Creek connecting to greater Green Grid Network
- Improve pedestrian connection between Macarthur Square - Macarthur Station and the subject site
- Improve connection between the station arrival and WSU
- Potential multiple entry points along Goldsmith Avenue for a robust street network
- Potential central open space integrating WSUD with the proposed water channel.
- Potential view to open space

3.0 GUIDING PRINCIPLES

Five key site outcomes were identified for the MGN Precinct which bring together the key planning directions, urban context and site analysis.



CELEBRATE NATURAL ASSETS

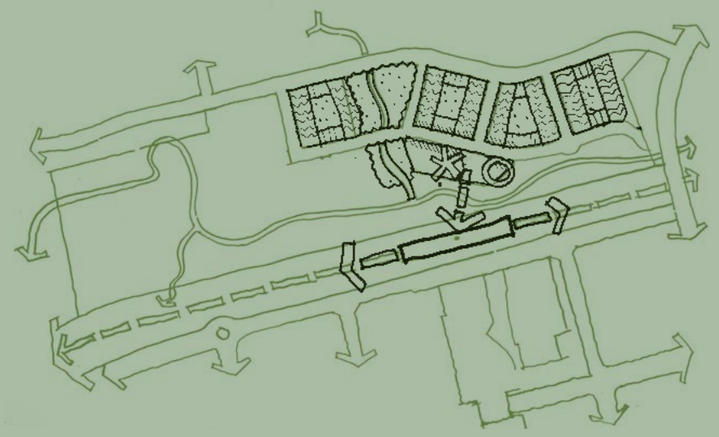
RETAIN BOW BOWING CREEK RIPARIAN CORRIDOR

Embrace the natural asset provided by Bow Bowing Creek Reserve, and extend the landscape feature across the whole precinct. This landscape feature enriches leisure and recreational opportunities at Macarthur Gardens North whilst maintaining the natural frontage along the railway corridor.

SEAMLESS CONNECTIONS TO KEY DESTINATIONS

PROMOTE ACTIVE TRANSPORT NETWORK

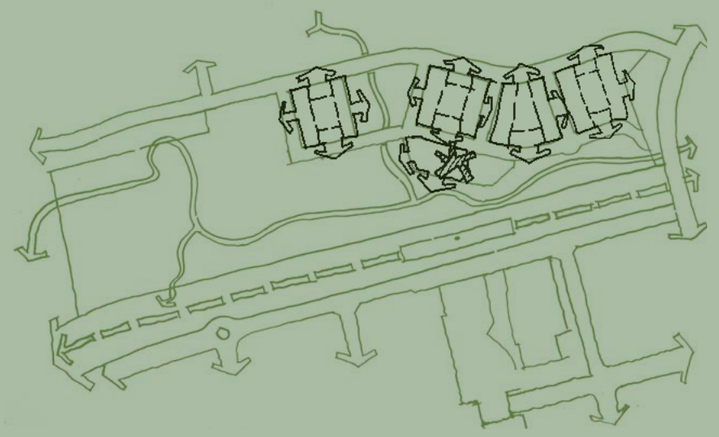
Create an active transport network that is well integrated with both the natural amenity at Bow Bowing Creek Reserve and Macarthur Station. This integration will enhance pedestrian and cyclist experience, provide better connectivity to WSU and TAFE and ultimately, encourage the use of active transport.



A NEW COMMUNITY WITH ACCESS TO JOBS

MIX OF HOUSING OFFER CLOSE TO THE TRAIN STATION

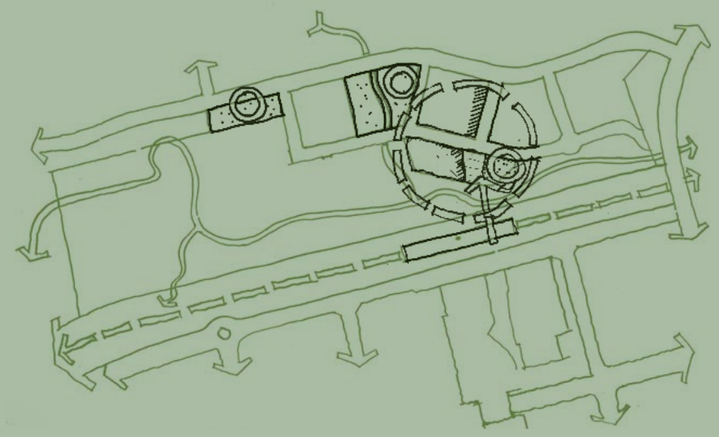
Provide a mix of housing and unit typologies, close to the amenity of Bow Bowing Creek and the convenient access to Macarthur Station, to support a diverse community.



CONTEXTUAL BUILT FORM RESPONSE

LOGICAL BUILDING ENVELOPES, ORIENTATION AND ARTICULATION

Adopt a sensible building envelope that responds to the surrounding context and public domain to optimise visual and solar amenity within the precinct.



ACTIVATE PLACES FOR PEOPLE

NEW COMMUNITY PARK, ARRIVAL PLAZA AND FITNESS PARK

Create a series of activated places that includes a station arrival precinct at the heart of Macarthur Gardens North, a community park that integrates the north south tributary to Bow Bowing Creek and a fitness park close to WSU.

4.0 VISION

This section articulates the vision for the Macarthur Gardens North Master Plan.

This section is organised into the following sections:

- The Vision Statement - articulates the future objectives and outcomes for MGN; and
- The Master Plan is an illustrative representation of the vision.

4.1 VISION STATEMENT

The Macarthur Gardens North Precinct will celebrate the natural assets of Bow Bowing Creek and connect this to the community. It will be an attractive urban place for people to live in - a diverse, healthy, vibrant and sustainable new neighbourhood. Designed with 'place' in mind, the new community is underpinned by sustainability principles and high-quality public domain and built for outcomes.

To enable this vision, the MGN Precinct will deliver:

- A new residential community who will live in high-density apartment buildings;
- Ground floor retail to support the new community and active the public domain;
- An arrival plaza and park on the northern side of Macarthur Station that links to the precinct's key destinations being Western Sydney University, TAFE, MGN and Bow Bowing Creek;
- Active transport via a regional East-West cycle network and walking paths around significant area of open space that retains the existing creek and biodiversity values;
- Safer and more comfortable connections from the site to the station, the University, TAFE, Gilchrist Oval and the new Sporting Field complex through new open spaces such as the Bow Bowing Creek Reserve;
- Attractive and tree covered streets and public places; and
- Retention and enhancement of Bow Bowing Creek, the local blue grid.

*Indicative artist impression, subject to change and approvals.

4.2 THE MASTER PLAN

Macarthur Gardens North

Basin 3

RESIDENTIAL USES

1. High Density Residential with Ground Floor Retail
2. High Density Residential
3. Residential Communal Open Space

OPEN SPACES

4. Station Arrival Precinct - Arrival Plaza, Playground, and Retail Frontage
5. Central Park - Terraced Landscape and Multi-purpose Lawn with BBQ and Community Facilities
6. Fitness Park - Multi Purpose Outdoor Recreational Space
7. Multi-purpose Lawn
8. Bow Bowing Creek Reserve
9. Protected Areas - Eucalyptus Forest and Cumberland Plain Woodland
10. Basin 3 (Subject to separate DA)

ACCESS AND MOVEMENT

11. New Bridge - Station Concourse Extension (scope to be confirmed with TfNSW and subject to separate planning approval)
12. 1:19 Accessible Ramps
13. Shared Cycle and Pedestrian Way Along Bow Bowing Creek
14. Connection to Gilchrist Oval
15. Connection to Future Sporting Fields
16. Pedestrian Priority Crossings

1:1,500 @ A3

0 10 20 30 40 50

Figure 28 Macarthur Gardens North Concept Plan


TAFE NSW -
CAMPBELLTOWN
GOLDSMITH AVENUE
GILCHRIST DRIVE
BOW BOWING CREEK
MACARTHUR STATION
MENANGLE ROAD
MACARTHUR
SQUARE

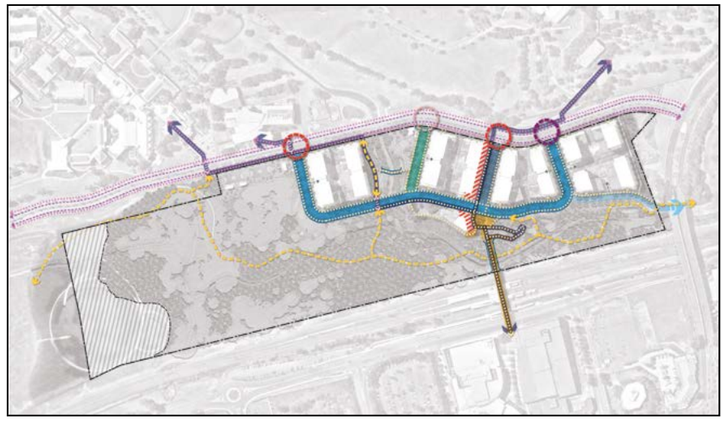
5.0 LAYERED STRATEGIES

This section illustrates the layered strategies that underpin the MGN vision and structure plan. It is the framework that will deliver the redevelopment of the Apartment Precinct with each layer aligning with the outcomes identified in Section "3.0 GUIDING PRINCIPLES" on page 30. It provides a description of how the outcomes are to be achieved within the site.

STRATEGY 1
NATURAL SYSTEMS

Protect and enhance the place's natural assets such as Bow Bowing Creek and its surrounding biodiversity values. Provide new open spaces around this amenity and increase tree canopy cover. Maintain the green edge north of the railway line.

STRATEGY 2
ACCESS AND MOVEMENT

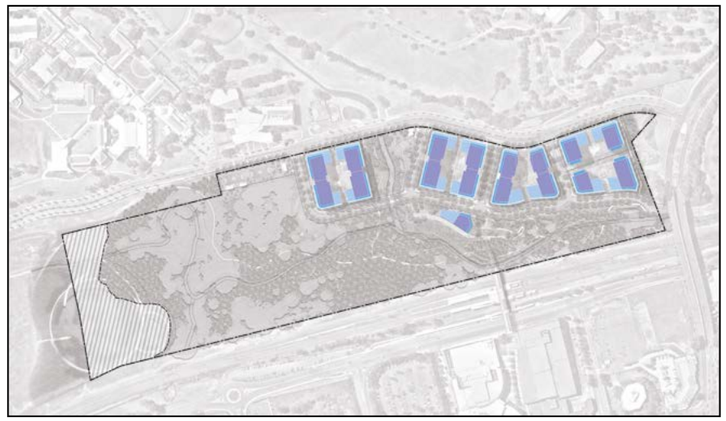


Ensure seamless integration of a variety of transport modes and ensure safety for pedestrians and cyclists.

STRATEGY 3
LAND USE

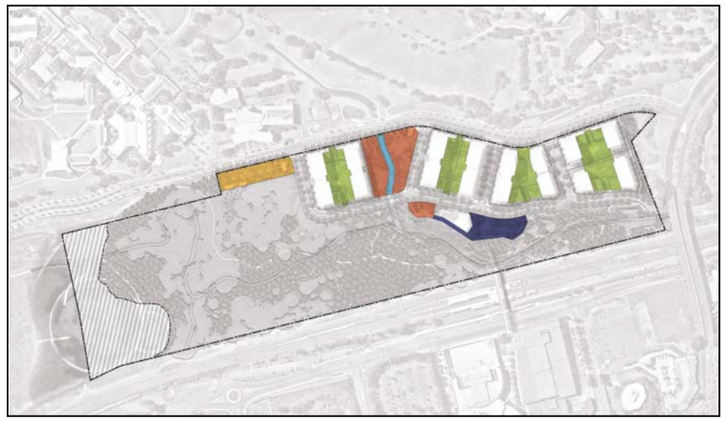
Identify areas to protect and enhance and areas that can be developed to enable the vision.

STRATEGY 4
BUILT FORM



Articulate principles for building setbacks, orientation and separation in accordance with the Apartment Design Guide (ADG). Ensure territorial definition between private and public realm is clear to ensure privacy, passive surveillance and feelings of safety.

STRATEGY 5
LANDSCAPE AND PUBLIC DOMAIN



Define residential communal open spaces from public places and provide activities to enhance recreational amenity and vibrancy.

5.1 STRUCTURE PLAN

The MGN Precinct Structure Plan brings together the layered strategies identifying the key outcomes for the site as follows:

- Retain 87% of the existing Bow Bowing Creek alignment and its biodiversity as an open space asset which is accessible and creates amenity to the future communities;
- Provide a significant amount of open space that retains the existing creek and biodiversity within the MGN Precinct will be provided;
- Add a station arrival plaza and park to Macarthur Station that integrates the Western Sydney University and TAFE through activated streets and open spaces;
- Deliver four high density residential development lots that are located along Goldsmith Avenue and anchored around the station;
- Provide an approx 1.2 km dedicated pedestrian/ cycleway along Bow Bowing Creek Reserve connecting Gilchrist Oval to the new Sporting Field complex and ultimately to Mt Annan Botanical Garden;
- Provide 1,960 sqm of ground level retail / commercial along the station arrival plaza and main street to provide vibrancy and activation;
- Provide three new active open spaces being Station Arrival Plaza, Central Park and Fitness Park; and
- Ensure well-connected and permeable streets.

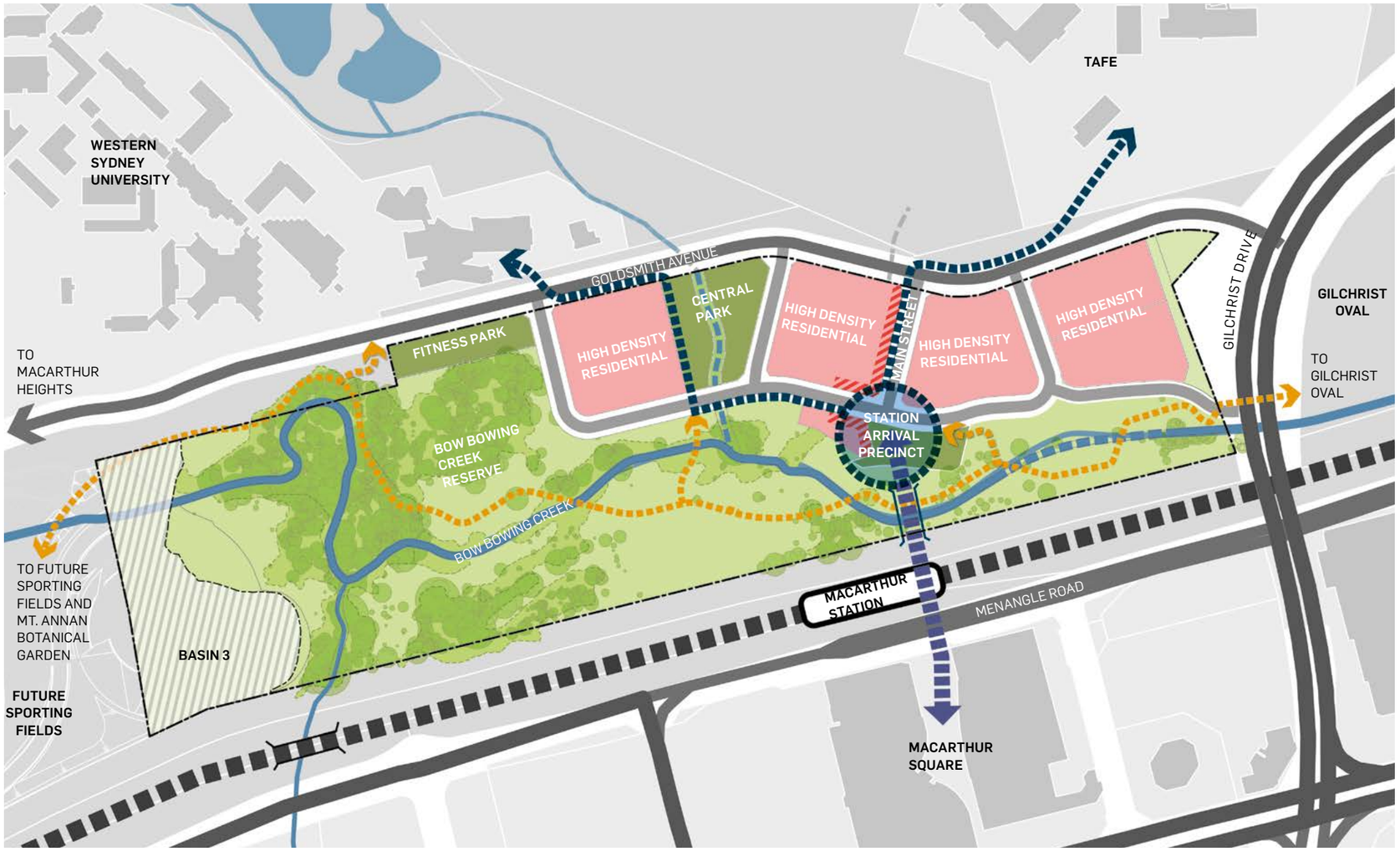


Figure 29 Macarthur Gardens North Overall Structure Plan

STRATEGY 1

NATURAL SYSTEMS

Bow Bowing Creek serves as the primary blue spine to the Campbelltown-Macarthur-Leumeah city centres.

Protecting and enhancing this natural asset and its biodiversity values are fundamental in delivering Campbelltown Council vision for Bow Bowing Creek to restores ecological, hydrological and biodiversity health to the waterway whilst managing flooding as identified in Re imagining Campbelltown City Centres 2020.

The key outcomes in protecting and enhancing this assets within MGN Precinct includes:

Bow Bowing Creek Reserve and Riparian Corridor

- Retain 87% of the existing Bow Bowing Creek alignment.
- Deliver 9.4ha/ 57.0% of total MGN Precinct site area as Bow Bowing Creek Reserve that serves as a passive recreational amenity for the surrounding communities. This includes a 2 meter shared pedestrian/cycleway that runs east to west along the creek and suspended bridges for creek crossings. A series of fitness station have been proposed to provide visitors an active fitness loop.
- Provide a substantial native buffer to the rail corridor improving the visual impact and providing a landscape setting for the development.
- All riparian and revegetation works to be in accordance with the Riparian Assessment, Bushfire Protection Assessment reports prepared by Ecological Australia. The proposed works to Bow Bowing Creek and its surrounds will improve the biodiversity corridor for the native flora and fauna by offsetting and re vegetating any impacted riparian zone.

Vegetation and Tree Canopy Cover

- Retained and enhanced Cumberland Plain Woodland & Riverflat Eucalyptus vegetation communities that classified as EEC within the site in accordance with future Vegetation Management Plan recommendations. Refer to the Ecologist report relating Cumberland Plain Woodland – Shale Hills Woodland palette and Riparian Woodland palette for proposed species and densities for re vegetation works.
- Deliver 53.6% of tree canopy cover within the site. This is achieved by re-vegetation of Bow Bowing Creek riparian corridor with native species and implementing a tree planting strategy within the public and private domains including the streetscape, active park, private open space and communal open space.

Figure 30 illustrates these strategy. The following pages identifies detailed illustration and analysis of the following items:

- Bow Bowing Creek Reserve;
- Bow Bowing Creek Riparian Corridor Strategy; and
- Tree Canopy Strategy.

Figure 30 Natural Systems Strategy

BOW BOWING CREEK RESERVE

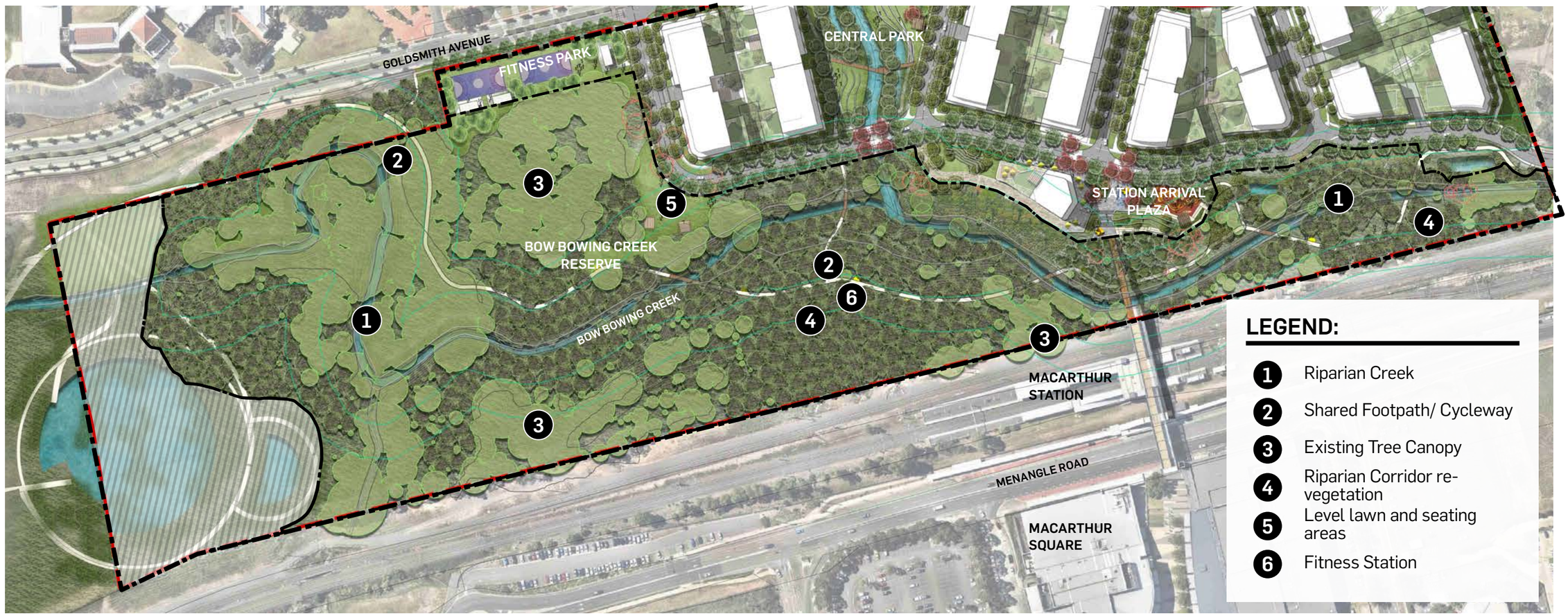
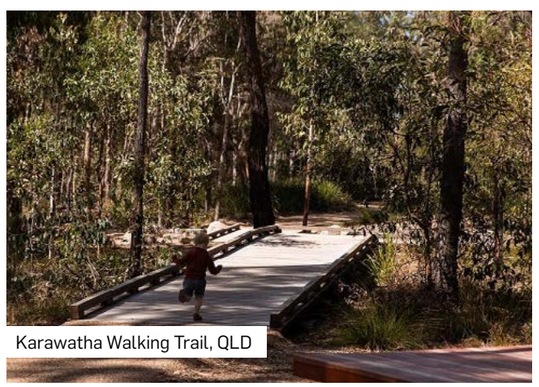


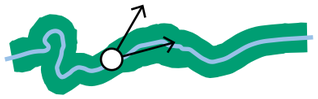
Figure 31 Bow Bowing Creek Reserve


Narrabeen Lagoon Trail, NSW


Robelle Domain, QLD


Karawatha Walking Trail, QLD


Narrabeen Lagoon Trail, NSW



BOW BOWING CREEK

VIEW FROM THE PEDESTRIAN BRIDGE TOWARDS BOW BOWING CREEK

*Indicative artist impression, subject to change and approvals.

BOW BOWING CREEK RIPARIAN CORRIDOR STRATEGY

A primary goal of the MGN Precinct master plan is to minimise the development impact to the Bow Bowing Creek Vegetated Riparian Zone (VRZ) with a total additional impact of 6.5% to the existing condition. This is far less amount compared to the Controlled Activity Approval (CAA) scheme of an additional 52% impacted VRZ.

This proposal incorporates the existing woodlands outside of the VRZ to offset the impacted VRZ. This results a 100% restored Bow Bowing Creek riparian corridor.

The following table and diagram summarises this strategy.

Table 1 Riparian Corridor Analysis

		AREA (SQM)	%
	Total Macarthur Gardens North Area	**183,161**	**100.00%**
	Proposed Extent Of Work	76,075	41.53%
	Total Riparian Zone (Outer 50% VRZ)	**89,350**	**100.00%**
	Additional Impact To The Existing	5,813	6.51%
	Total Riparian Corridor Impacted - Proposed Scheme	20,703	23.17%
	Proposed Riparian Corridor Offset	20,860	23.35%

KEY OUTCOMES

- Delivers a better outcome for Bow Bowing Creek riparian corridor than CAA scheme.

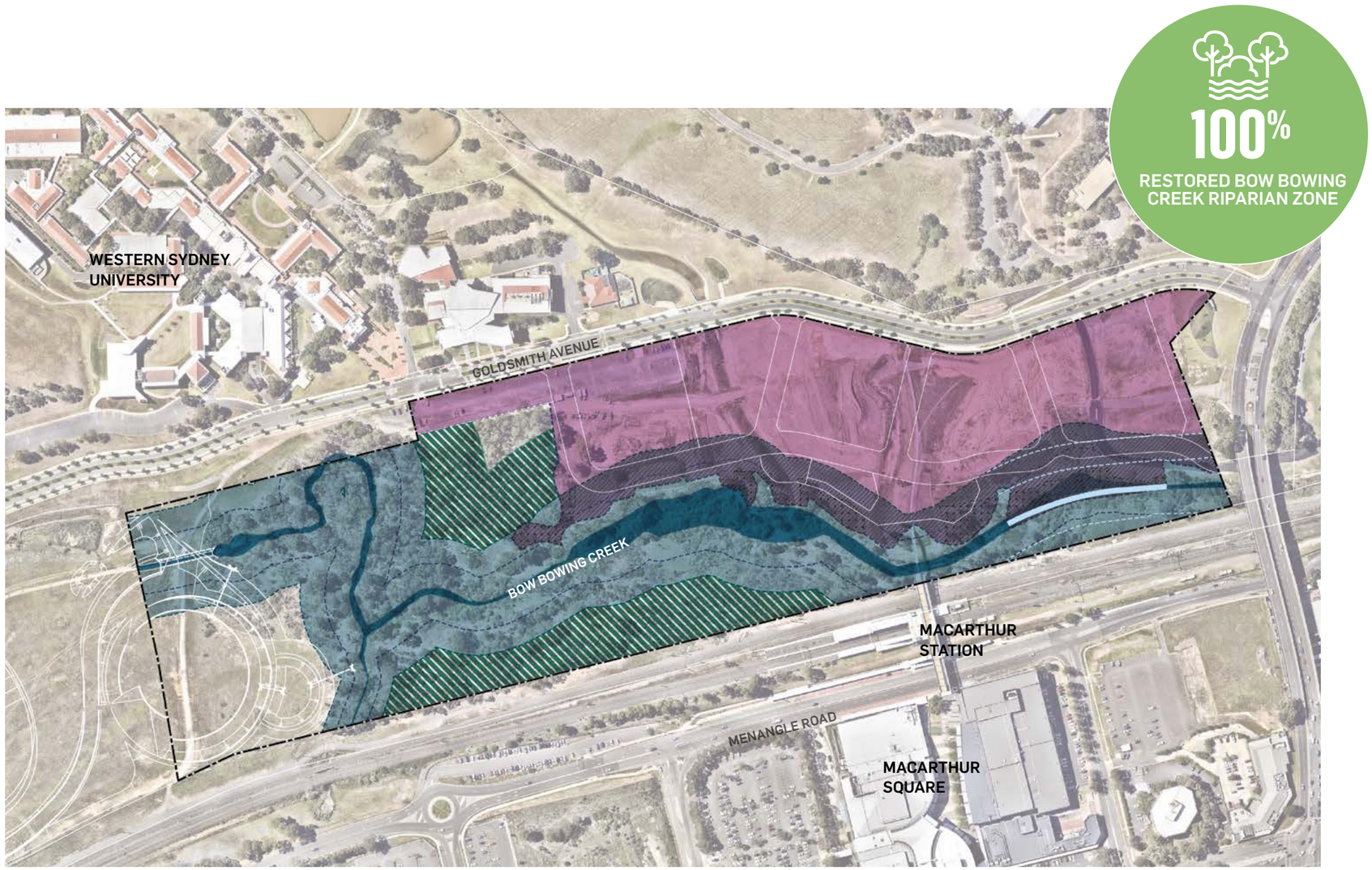


Figure 32 Proposed Tree Canopy Cover

URBAN TREE CANOPY COVER STRATEGY

The proposal will increase the tree canopy cover to achieve a minimum 40% canopy cover target. Removal of some existing trees will be necessary to ensure other objectives of the master plan are delivered. These are located along the perimeter of the development footprint/ civil work extent.

The strategy to achieve this canopy cover target includes:

- Revegetation of Bow Bowing Creek Reserve;
- New tree planting on the public domain including streets, the arrival plaza and new open spaces; and
- Softscaping including tree planting to private open space on ground level and communal areas with deep soil zones.

This outcome provides an additional 5.2ha/ 31.8% tree canopy resulting 53.6% total canopy cover to MGN Precinct that well exceeds the minimum 40% canopy cover target.

The following diagram and table illustrate the existing urban tree canopy cover and the additional tree canopy provision.

Table 2 Tree Canopy Cover Analysis

	AREA (SQM)	%
TOTAL MGN PRECINCT AREA	165,782	100%
Existing Tree Canopy Cover	38,276	23.09%
Existing Tree Canopy Cover to be Removed	2,095	1.26%
Proposed Additional Tree Canopy	52,666	31.77%
TOTAL TREE CANOPY COVER	**88,847**	**53.59%**

KEY OUTCOMES

- The proposal exceeds the minimum 40% tree canopy cover target.

Figure 33 Proposed Tree Canopy Cover

GUIDING PRINCIPLE 2

SEAMLESS CONNECTIONS TO KEY DESTINATIONS

PROMOTE ACTIVE TRANSPORT NETWORK

STRATEGY 2

ACCESS AND MOVEMENT

The MGN Precinct leverages on its location being adjacent to Macarthur Station and Bow Bowing Creek Reserve. The access and movement strategy aims to promote a safe, accessible and integrated active transport network around the precinct.

The key outcomes of this strategy includes:

Active Transport Network

- Provide 1.2km shared pedestrian/ cycleway along Bow Bowing Creek connecting Macarthur Station to future sporting fields and Mt. Annan Botanical Gardens to the west and Gilchrist Oval a to the east. This is also linking back to the main street network within Site and existing cycleway along Goldsmith Avenue.
- Permeable pedestrian network along the streetscape and public open spaces that promotes safe pedestrian environment with three main pedestrian priority crossings along Goldsmith Avenue.
- Identifies main pedestrian routes from Macarthur Station to WSU and TAFE via station arrival plaza, Main street, Central Park and Goldsmith Avenue.
- Provide an accessible pedestrian access from Macarthur Station to Station Arrival Plaza via 1:20 bridge and 1:19 ramps in response to the level changes between these places. Refer to "STATION ARRIVAL PLAZA" on page 62 for the detailed illustration of this outcome.
- Provide pedestrian access to lift lobbies within the northern and southern part of the residential blocks.

Street Network

- Interconnected street network that promotes safe pedestrian environment with varied typology based on the lot frontage and streetscape treatment.
- Vehicular access to residential lots are provided off secondary streets with raised threshold when crossed with footpath along the streetscape.
- All street sections provides a min. 6.0 carriageway.

The following diagram illustrates the proposed street hierarchy and active transport network within MGN Precinct followed by an example image and guidance in promoting a safe street environment for pedestrian and cyclists.

The related street sections are located in the following two pages. It illustrates each of the different street types, its particular streetscape elements such as widths, pathways and street planting.

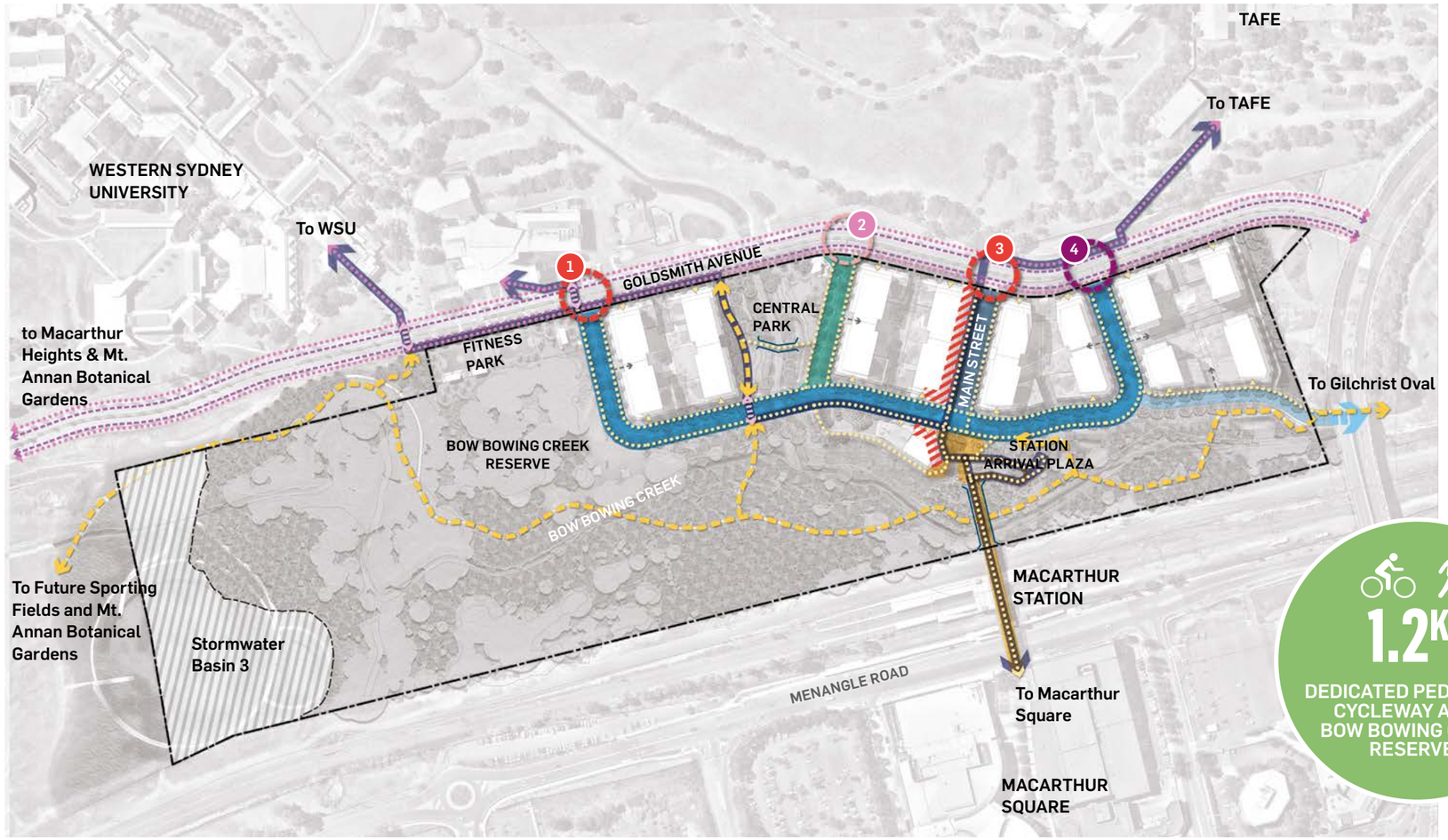
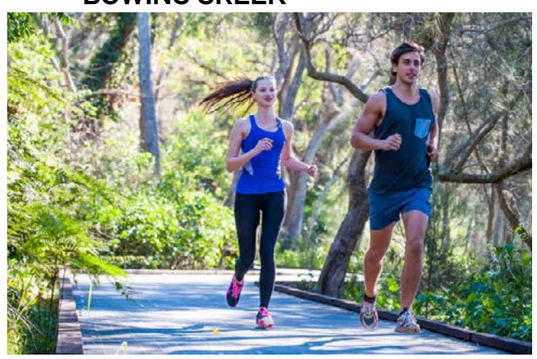


Figure 34 Access and Movement Strategy

SHARED PATH ALONG BOW-BOWING CREEK



The pedestrian and cycle shared-way is designed in response to the landscape setting of Bow Bowing Creek. It will be robust and will accommodate for the growth in active transport usage. A shared-way connects Macarthur Gardens North to Gilchrist Oval to the east and the future sporting fields and Mt. Annan Botanical Garden to the west.

PEDESTRIAN LINK

Pedestrian networks will be well-integrated, safe and comfortable, located along new streets and open spaces. The pedestrian network will connect Goldsmith Avenue to the north, Gilchrist Oval to the east, key destination in the precinct and Macarthur Station to the south.

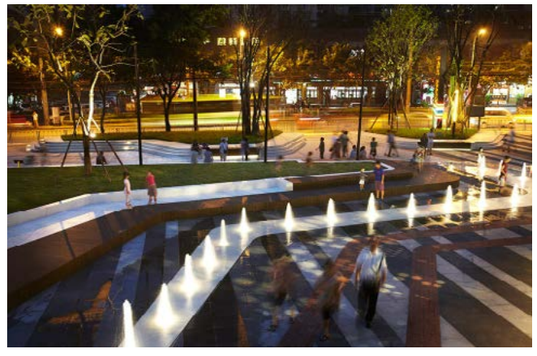
PEDESTRIAN PRIORITY CROSSING

Pedestrian movement from Macarthur Gardens North to Western Sydney University and TAFE are key movement corridors, where safe pedestrian access across Goldsmith Avenue are provided. Two existing zebra crossings are proposed to be relocated closer to Intersection 1 and 3, in order to align with pedestrian desire lines and enhance visual connection.

PEDESTRIAN BRIDGE

A 1:20 pedestrian bridge ramp is proposed to connect the Macarthur Station Concourse and the Station Arrival Plaza. The proposed ramp complies with Disability Standards for Accessible Public Transport (DSAPT) 2002.

STATION ARRIVAL PLAZA



Station Plaza marks the arrival of pedestrians from Macarthur Station and creating a pleasant pedestrian experience for the precinct. It incoporates pedestrian pathways, raised lawn, water play element and ground level retail / commercial activation that define the public realm.

PRIORITY INTERSECTION

Intersection 1 and 3 are designed as priority intersections. This is to manage vehicular traffic and provide safe crossing point across Goldsmith Avenue for pedestrian and cyclist.

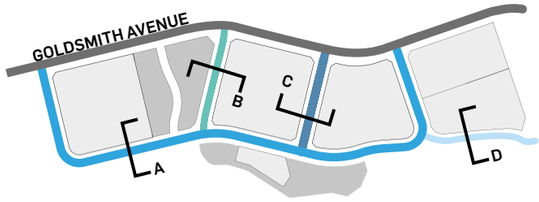
LEFT IN - LEFT OUT INTERSECTION

Intersection 2 will become a left-in left-out only noting the angled geometry of Goldsmith Avenue at this location.

SIGNALISED INTERSECTION

The eastern intersection (intersection 4) will be moved 50m west of the existing road as a signalised intersection. It also maintained the access to Gilchrist Oval via Secondary Street and Perimeter Local Street.

TYPICAL STREET SECTIONS



A. SECONDARY STREET - 18M WIDTH

The secondary street circulates off Goldsmith Avenue at both eastern and western ends of the development. It provides the east-west links across the MGN Precinct and interfaces with the arrival plaza and Bow Bowing Creek Reserve.

The secondary street is designed to provide safe pedestrian connection on both sides of the road reserve with verges and on street parking as the buffer between the carriageway and the footpath.

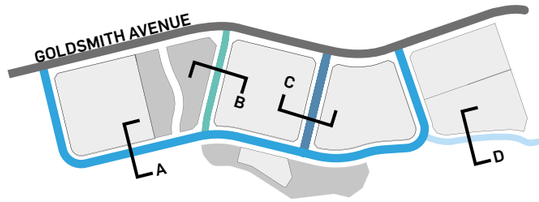
B. SECONDARY GREEN STREET - 16M WIDTH

The secondary green street provides a north-south links from Goldsmith Avenue along the east side of Central Park.

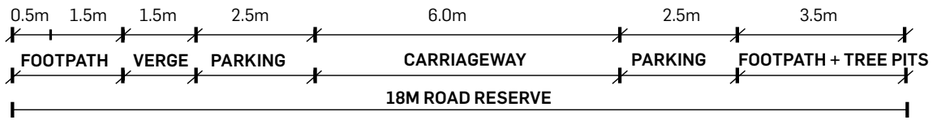
Similar to the secondary street, this street type is designed to provide safe pedestrian connection on both sides of the road reserve by adopting 1.5m verges. The on-street parking acts as a buffer to moving cars with footpaths on both sides.

1:125@ A3

TYPICAL STREET SECTIONS



C. MAIN STREET - 18M ROAD RESERVE

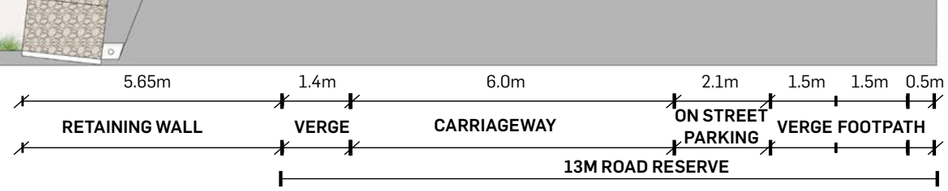


The main street is a north-south linkage from Goldsmith Avenue to the Station Arrival Plaza.

It acts as a high street within Macarthur Gardens North, providing ground level activation along the western edge where it links to the Station Plaza to the south

The street is designed to provide safe pedestrian connection on both sides of the road reserve with on-street car parking as a buffer between pedestrian and cars.

D. LOCAL STREET PERIMETER - 13M ROAD RESERVE



The local street perimeter provides connection from the secondary road to Goldsmith Avenue to the east.

Noting the level difference between the street and the existing Bow Bowing Creek Reserve level, retaining wall with vegetation is proposed along the southern side of the street.

Footpath and on street parking are provided to one side only fronting the residential lot.

STRATEGY 3
LAND USE

The MGN Precinct concentrates its development footprint to the north of Bow Bowing Creek and along Goldsmith Avenue to:

- Maximise proximity to the station;
- Optimise its existing modified landform;
- Protect the Bow Bowing Creek natural assets; and
- Maintain a natural green edge on the northern side of the railway corridor.

High density residential and open space are two main land uses at MGN Precinct. The key outcomes includes:

High Density Residential

- Only 3.4ha/ 20.7% of total site area dedicated for high density residential development. These development lots are distributed along Goldsmith Avenue with one lot next to Station Arrival Plaza that forms the Station Arrival Precinct.
- This high density residential offers two variation being:
  - Residential Apartment at lot R1, R2, R3 and R4; and
  - Residential Apartment with ground floor retail / commercial at lot M1 and M2

Open Space

- Deliver 9.7ha/ 58.4% of total site area as passive open space comprises of:
  - Bow Bowing Creek Reserve;
  - Eastern Buffer.
- Provide three new active open spaces with a total area of 1.2ha/ 5.9% of total site area being:
  - Station Arrival Plaza
  - Central Park Main and South; and
  - Fitness Park.

Infrastructure

- 1.58ha/ 9.5% of total site area is dedicated for road reserve and stormwater basins.

The following diagram illustrates the distribution of land uses between residential and open spaces. The area schedule summary and a collection of precedent image has been presented overleaf to illustrate the design intent for each land uses.

KEY OUTCOMES

- A substantial portion of land within the precinct is protected and maintained as an amenity and natural asset for the community.
- Development is suitably located close to the train station, provides address to Goldsmith Avenue and interfaces with Western Sydney University and TAFE.

Figure 35 Land Use Strategy

HIGH DENSITY RESI WITH GF RETAIL / COMMERCIAL

HIGH DENSITY RESIDENTIAL

ACTIVE OPEN SPACE

BOW BOWING CREEK RESERVE

EASTERN BUFFER

UTILITY - STORMWATER BASINS & RAIN GARDENS

AREA SCHEDULE

The following table summarises the area schedule of the development within MGN Precinct.

Table 3 MGN Precinct - Land Use Area Breakdown

LOT	LAND USE	LAND AREA (SQM)	LAND AREA (%)
Total Residential Areas		**34,380**	**20.7%**
M1	High Density Residential with GF Retail / Commercial	8,101	4.9%
M2	High Density Residential with GF Retail / Commercial	1,208	0.7%
R1	High Density Residential	7,885	4.8%
R2	High Density Residential	7,336	4.4%
R3	High Density Residential	4,895	3.0%
R4	High Density Residential	4,955	3.0%
SUB-TOTAL DEVELOPABLE AREA		**34,380**	**20.7%**
Active Open Space		**11,981**	**7.2%**
a1	Station Arrival Plaza	2,946	
a2-1	Central Park Main	5,210	
a2-2	Central Park South	796	
a3	Fitness Park	3,029	
Passive Open Space		**96,766**	**58.4%**
p1	Bow Bowing Creek Reserve	94,446	57.0%
p2	Eastern Buffer	2,320	1.4%
Creek		**6,854**	**4.1%**
Utility		602	0.4%
Road		**15,191**	**9.2%**
SUB-TOTAL NON DEVELOPABLE AREA		**131,395**	**79.3%**
TOTAL MGN PRECINCT DA AREA		**165,782**	**100.0%**
WESTERN STORMWATER BASIN 3		**17,379**	
TOTAL MACARTHUR GARDENS NORTH AREA		**183,161**	

16.58HA
TOTAL DA SITE AREA

3.4HA (20.7%)
TOTAL DEVELOPABLE AREA

3
NEW PARKS

9.6HA (58.4%)
BOW BOWING CREEK RESERVE & EASTERN BUFFER

CONTEXTUAL BUILT FORM RESPONSE

LOGICAL BUILDING ENVELOPES, ORIENTATION AND ARTICULATION

STRATEGY 4
BUILT FORM

The MGN Precinct aims to deliver best-practice residential development in accordance with the Apartment Design Guide (ADG).

As an overview, the proposed built form provides the following key outcomes and illustrated in the opposite diagram and 3D axonometric.

Transitional Podium Height

- 1.5m deep articulation zone on the first 2 storeys to delineate the terrace typology and frontage across the whole precinct.
- Additional 2.5m setback above the 6th storey to define the streetwall and provide transition to the tower element.

North-South Orientated Residential Blocks and Sensible Height

- Orientation all residential blocks north-south length-ways to ensure residential units achieve internal amenity.
- Maximum height to 9 storeys across the precinct to comply with maximum HOB of 32m.
- Limit of up to 4 storeys to the east-west longitudinal podium levels to maximise solar access to communal open space.

Landmark Building

- A maximum 9-storey landmark residential building next to station arrival plaza to define a bold arrival into Macarthur Gardens North and provide a visual marker within the urban fabric.

Building Envelope Dimension and Separation

- Provide building separation in accordance with the ADG Design Criteria.
- Provide a residential block envelope of generally 24m x 40.5m dimension to allow for flexibility to the design of the internal layouts.
- 18.5m building depth for east-west longitude podium envelopes to allow for single loaded typology and enable corner apartments.

Yield Summary

- The residential unit layout testing indicates the proposed building envelopes are able to deliver 1,250 residential apartment units and 1,960 sqm ground floor retail / commercial. Refer to Appendix section for the indicative layout plan testing for each lot.

The following pages identify the yield calculation for each lot and further illustrate the detailed built form strategy. This includes:

- Yield Calculation including Development Assumptions;
- Typical Residential Block; and
- Setback Strategy that includes illustration of varied public domain interfaces.

Figure 36 Built Form Strategy

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0 20 40 60 80 100

LEGEND

- Macarthur Gardens North
- 1.5m - 3m Articulation Zone (2 storeys)
- Lower Podium (3-4 storeys)
- Upper Podium/ Streetwall (6 storeys)
- Tower (up to 9 storeys)
- Landmark Tower (9 storeys)

OVERALL BUILT FORM STRATEGY

BUILDING DIMENSION
- 24m envelope depth for north-south tower envelope.
- 18.5m envelope depth for east-west podium envelope.

BUILDING ORIENTATION
- North - south tower orientation with 3-4 st east west built form to maximise solar access to the communal open space.

LANDMARK BUILDING
- 9 storey residential tower with ground level activation fronting station arrival plaza.

BUILDING HEIGHT
- 9 storeys apartment towers fronting both Bow Bowing Creek and Goldsmith Avenue.
- up to 4 storeys lower podium height.

SETBACK AND STREETWALL
- 4.5m ground level setback
- 2 storeys of 1.5m depth articulation zone
- 6 st. streetwall
- An additional 2.5m tower setback above streetwall

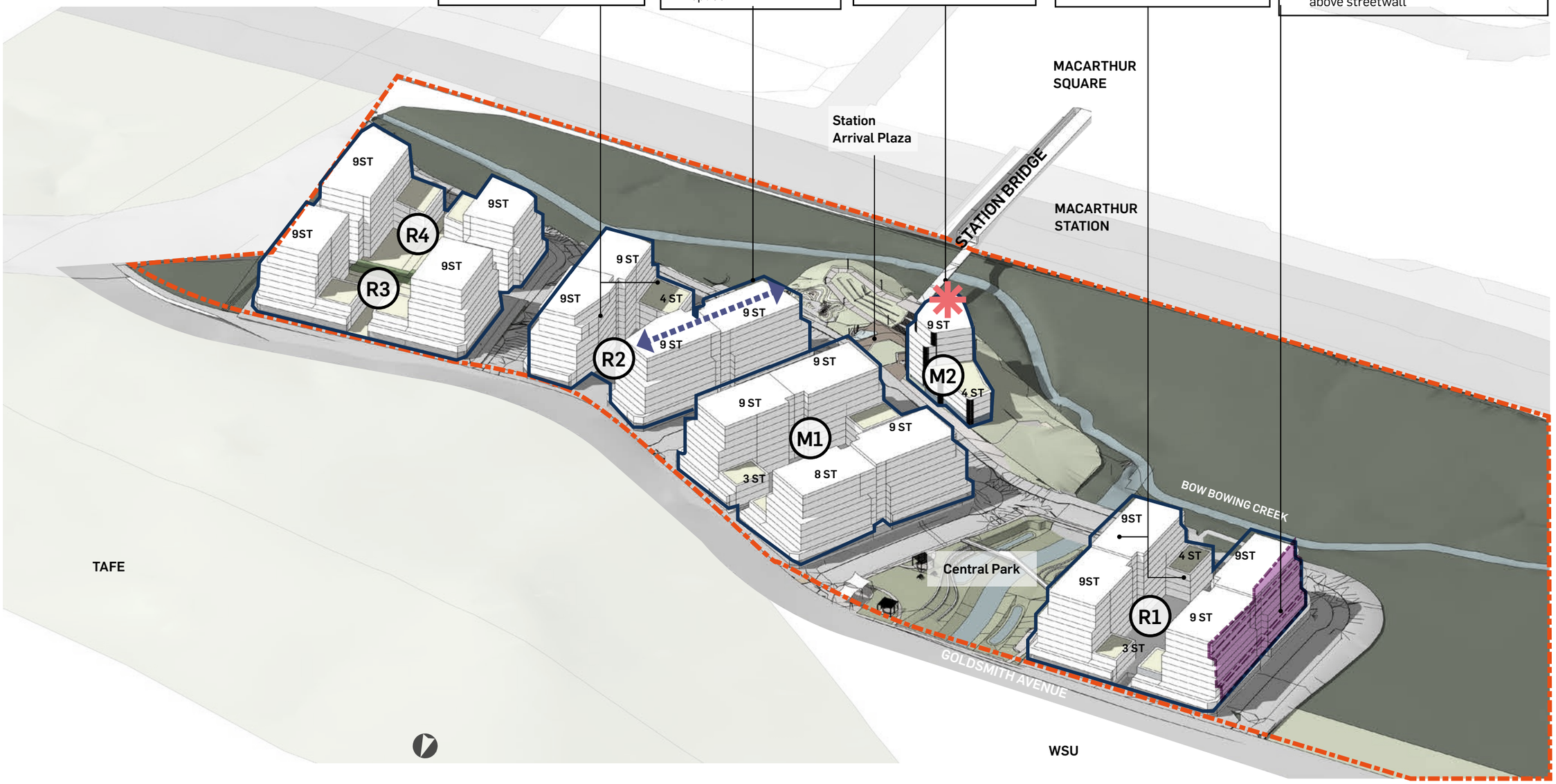


Figure 37 Overall Built Form Strategy

YIELD CALCULATION

Testing of indicative floor plans has been undertaken to all residential lots to demonstrate that the internal layout fits the proposed envelope with a total 1,250 apartment units. Refer to Appendix section - Indicative Floor Plan Layout Testing for the indicative floor plan layout detail.

The following table summarises the yield calculation of each of residential lots of MGN Precinct based on the indicative floor plans and following assumptions.

DEVELOPMENT ASSUMPTIONS

BUILDING HEIGHT

3.75m	Ground level commercial floor to floor height
3.60m	Ground level residential level floor to floor height
3.10m	Upper level residential level floor to floor height

BUILDING EFFICIENCY

85%	Commercial GBA to GFA
70%	Residential Apartment GBA to GFA

RESIDENTIAL UNIT

47	Average Studio GFA/ unit (sqm)
67	Average 1BR GFA/ unit (sqm)
87	Average 2BR GFA/ unit (sqm)
107	Average 3BR GFA/ unit (sqm)

PARKING REQUIREMENTS

0.6	Car Parking Space/ Studio Unit
0.6	Car Parking Space/ 1BR Unit
0.9	Car Parking Space/ 2BR Unit
1.4	Car Parking Space/ 3BR Unit
0.1	Car Visitor Parking Space/ Dwelling
0.0067	Car Sharing Rate/ dwelling
42	Gross parking space area (sqm)
95	sqm GFA retail / commercial Car Parking space
0.33	residents bicycle park/ dwelling
0.0833	visitor bicycle parking/ dwelling
2	basement floors per residential lot
2	sqm/ bike parking space

Table 4 MGN Precinct Yield Calculation

LOT	LAND USE	LAND AREA (SQM)	LAND AREA (%)	MAX STOREYS	TOTAL HEIGHT (M)	RESIDENTIAL GFA (SQM)	COMMERCIAL GFA (SQM)	TOTAL GFA	FSR	UNIT MIX					CAR PARKS REQUIRED - RESIDENTIAL	CAR PARKS REQUIRED - RETAIL	BICYCLE PARKING PROVIDED	CAR SHARING PROVISION (ON STREET)
										10%	39%	40%	12%					
										STUDIO	1BR	2 BR	3 BR	TOTAL UNITS				
M1	High Density Residential with GF Retail / Commercial	8,101	4.9%	9	32.0	23,884	1,608	**25,492**	3.1	32	122	118	28	**300**	268	17	124	
M2	High Density Residential with GF Retail / Commercial	1,208	0.7%	9	32.0	3,871	352	**4,223**	5.0	1	10	25	12	**48**	51	4	20	
R1	High Density Residential	7,885	4.8%	9	32.0	25,191	-	**25,191**	3.2	33	119	133	27	**312**	280	-	129	
R2	High Density Residential	7,336	4.4%	9	32.0	22,762	-	**22,762**	3.1	24	124	110	27	**285**	254	-	118	
R3	High Density Residential	4,895	3.0%	9	32.0	12,383	-	**12,383**	2.5	6	64	54	20	**144**	133	-	60	
R4	High Density Residential	4,955	3.0%	9	32.0	12,436	-	**12,436**	2.5	23	46	56	36	**161**	157	-	67	
SUB-TOTAL DEVELOPABLE AREA		**34,380**	**20.7%**	**9**	**32.0**	**100,527**	**1,960**	**102,487**	**3.0**	119	485	496	150	**1,250**	**1,143**	**21**	**517**	**8**
TOTAL MGN Precinct DA AREA		**165,782**	**100.0%**	**9**	**32.0**		**1,960**							**1,250**				
WESTERN STORMWATER BASIN 3		**17,379**																
TOTAL MACARTHUR GARDENS NORTH AREA		**183,161**												**1,250**				

*Indicative artist impression, subject to change and approvals.

Prepared by Urb[illegible] for Landc[illegible]

TYPICAL RESIDENTIAL BLOCK

Further to the overall built form strategy identified in the previous section, the implementation of these principles are illustrated in the following axonometric diagram of typical residential block. This includes:

- Residential Block Dimension
- Building Separation
- Building Setbacks
- Building Envelope Dimension;
- Building Orientation and Streetwall Strategy.

Further assessment of the ADG Design Criteria identified in chapter "6.0 ADG and DCP COMPLIANCE" on page 76.

Residential Block Dimension

The typical residential blocks adopts a 90mx90m block to optimise building envelope dimension whilst provides adequate separation and amenities. This includes communal open spaces and solar access.

Building Separation

Provide minimum building separation in accordance with the ADG i.e. 18m for 5-8 storeys and 24m for 9 storeys above between habitable rooms ensuring privacy is achieved.

Streetwall Strategy

- 1.5m depth articulation for the first two storeys with 6 storeys streetwall.
- Further setback of 2.5m applied to the podium element (6th - 9th storey) to provide a smooth transition towards the tower element.

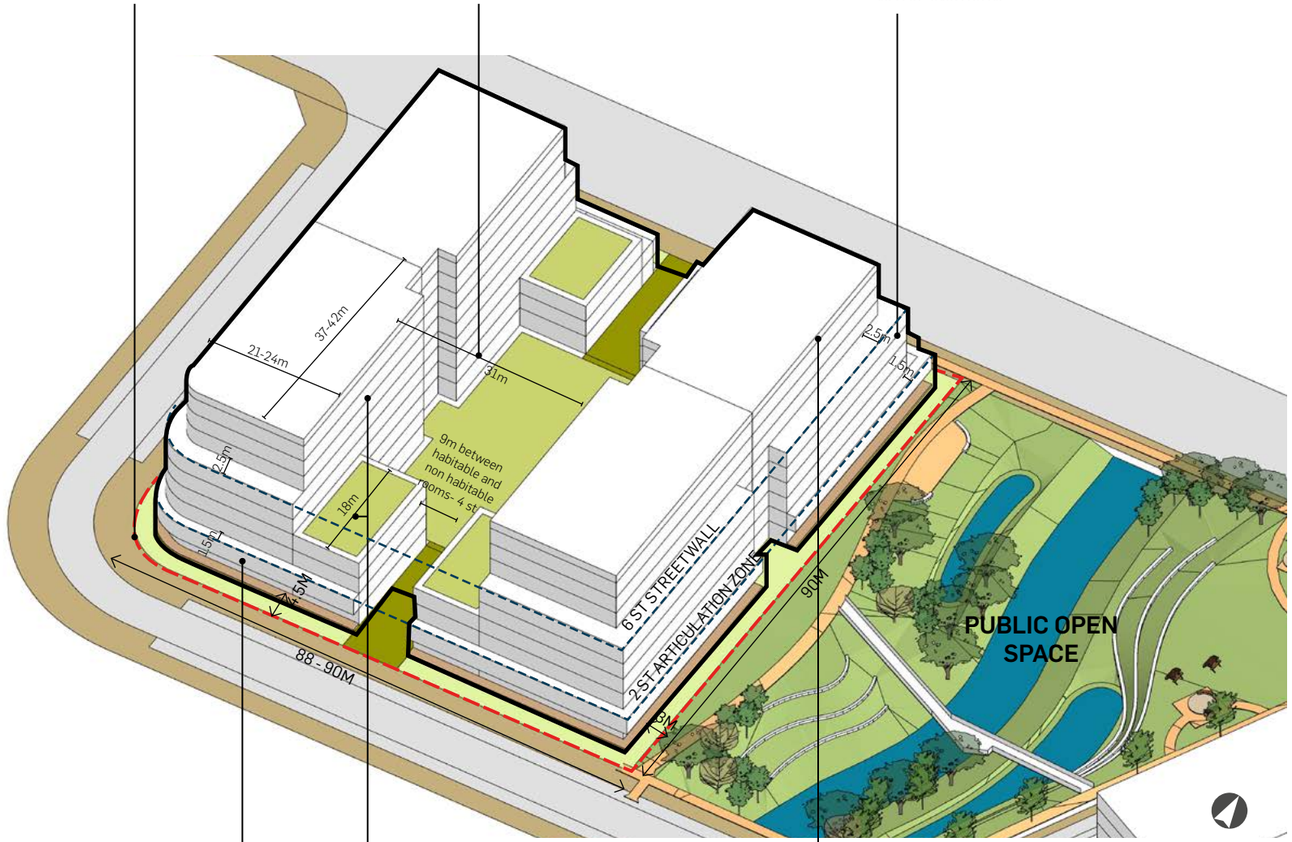


Figure 38 Typical Residential Block

Building setbacks

- 4.5m ground floor setback and 3m level 1 front setback are applied along the block to provide sufficient space between the public and private interface.
- 4.5m setback has been applied for upper podium levels to provide articulation.
- An additional 2.5m upper setback from the street for the tower elements to avoid building bulk to overpower street experience.

Building Envelope Dimension

- Apartment tower has general dimension of 37 - 42m length with 24m depth to allow for internal amenity and flexibility in architectural expression.
- Podium apartment has 18.5m building depth assuming these are single loaded.

Building Orientation

North-south building lengths ensures faster moving shadows and maximises solar access to the residential units and communal open space.

SETBACK STRATEGY

The setback strategy for MGN aims to enhance the interface between the public and private realm, whilst supporting ground-floor activation.

MGN Precinct master plan has six frontage typologies with following setback strategies illustrated in the opposite diagram:

Street Frontage along Goldsmith Avenue
- 4.5m for Ground Level
- 3.0m for L1 podium
- 4.5m for L2 - L5 upper level podium
- Additional 2.5m for podium up to 4 storeys
- Additional 6m for 5th storey and above

Street Frontage along Main Street
- 3.0m for Ground Level & L1 podium
- 4.5m for L2 - L5 upper level podium
- Additional 2.5m for 6th storey and above

Street Frontage along Station Arrival Main Street
- 5.0m for Ground Level
- 3m for L1 - L5 upper level podium
- Additional 2.5m for 6th storey and above

Street Frontage along Secondary Street and Central Park
- 4.5m for Ground Level podium
- 3.0m for L1 podium
- 4.5m for L2 - L5 upper level podium
- Additional 2.5m for 6th storey and above

Station Arrival Plaza Frontage
- 2.0m for Ground Level
- 0m for L1 - L5 upper level podium
- Additional 2.5m for 6th storey and above

The above strategy will enable passive surveillance throughout the precinct. This is realised by orientating the dwelling frontage i.e. balconies and windows towards the public realm and activates the ground floor through retail / commercial frontage and ground level apartment with direct access to streets and parks.

The proposal adopts a reduced setback from a min. 5.5m front setback identified in Campbelltown DCP 2015 to a min. 4.5m street setback for ground level residential and min. 3.0m street setback for ground level retail / commercial. This strategy establishes good street character and street address whilst maintaining the objectives of the DCP control by providing adequate space for tree planting at ground level.

The following pages illustrates the built form frontage typologies followed by a set of development examples that adopt similar front setback strategy that delivers a good outcome.

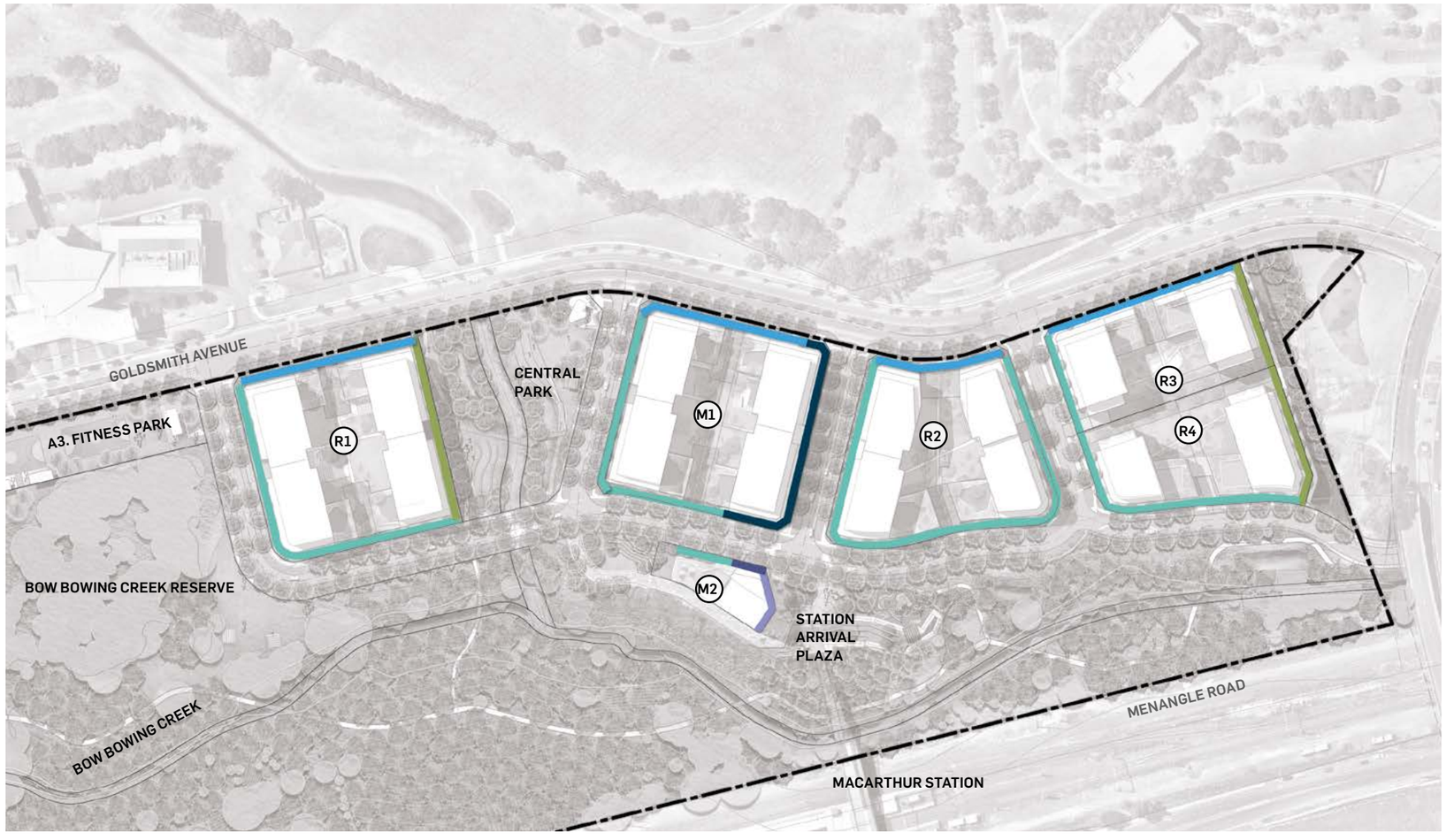
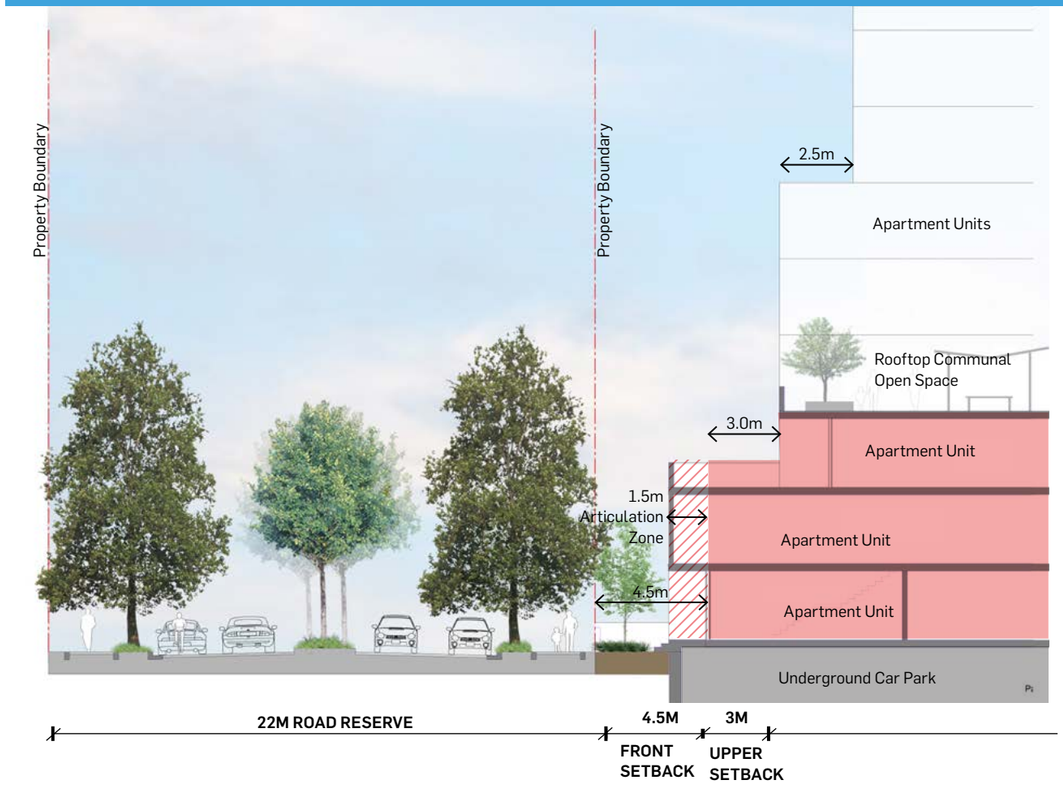


Figure 39 Setback Strategy

SETBACK STRATEGY (CONT'D)

STREET FRONTAGE ALONG GOLDSMITH AVENUE



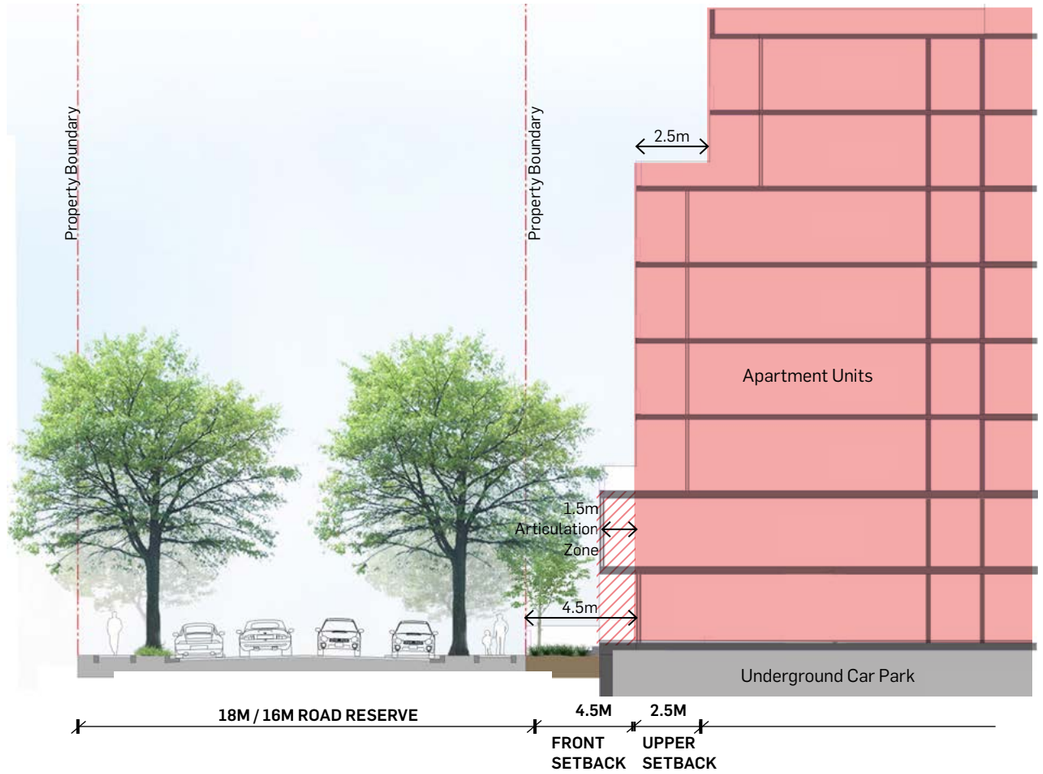

Harold Park, Forest Lodge, NSW

Setbacks from Goldsmith Avenue include:

- 4.5m residential setbacks along Goldsmith Avenue at ground level;
- 1.5m articulation zone within the front setback for ground level and level 1;
- 3.0m upper level setback to delineate the 2 storeys terrace typology within the apartment blocks as a continuation of the two storey terrace street character along Goldsmith Avenue; and
- 2.5m setback above the six-storey streetwall up to maximum height of 9 storeys.

Habitable uses and rooftop communal spaces overlook Goldsmith Avenue and secondary streets to ensure passive surveillance along street interfaces.

STREET FRONTAGE ALONG SECONDARY STREET / SECONDARY STREET GREEN



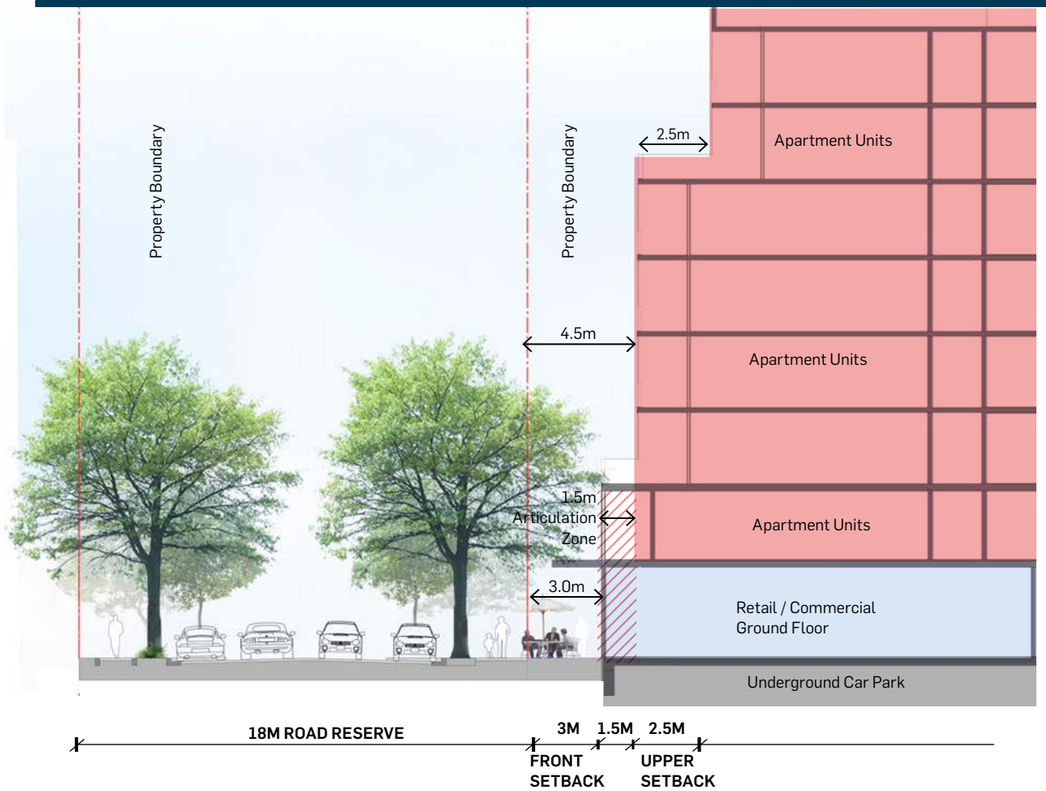

Harold Park, Forest Lodge, NSW

Setbacks from the Secondary Street include:

- 4.5m setback up to streetwall height of six storeys with 1.5m articulation zone within the front setback for ground level and level 1; and
- 2.5m setback above the six-storey streetwall up to maximum height of 9 storeys.

Provide direct access from the street for all ground floor apartments. Lobby entrances are to be clearly articulated and accessible from street level.

STREET FRONTAGE ALONG MAIN STREET



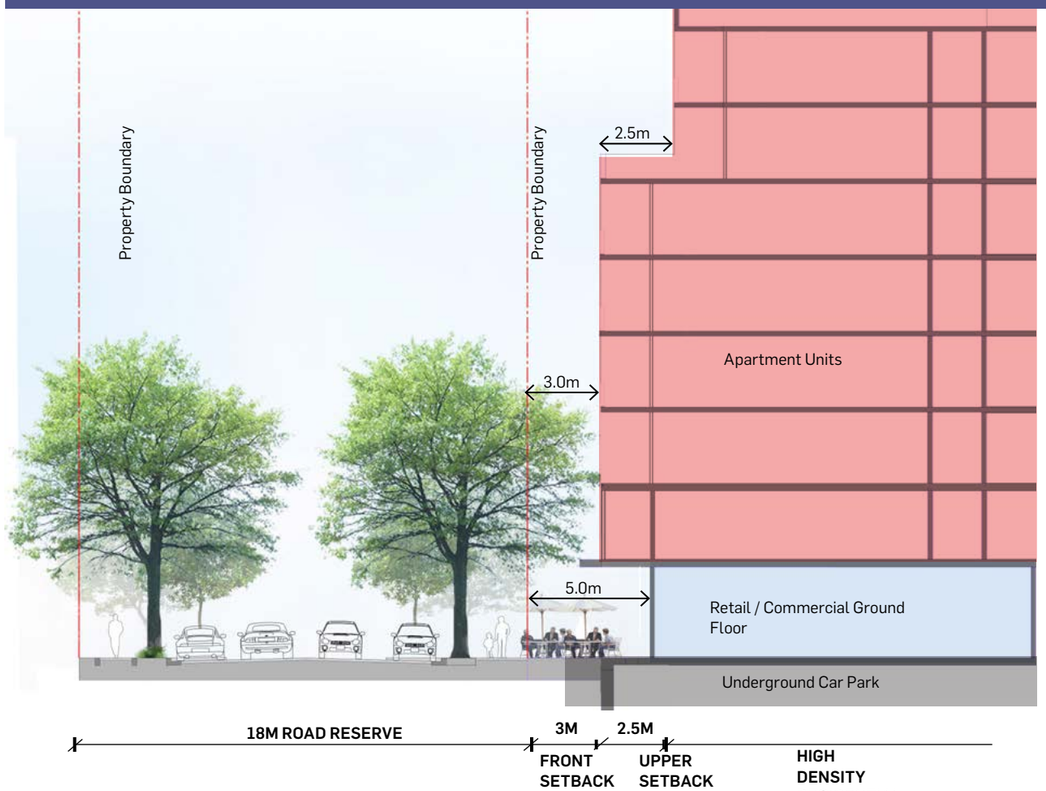

Rider Boulevard, Rhodes, NSW

Setbacks from the Main Street include:

- 3m setback on the ground and first floor level;
- 4.5m setback above level one up to six storeys with1.5m articulation zone within the front setback for ground level and level 1; and
- 2.5m additional setback on upper levels up to 9 storeys.

Habitable uses are to front the Main Street to ensure passive surveillance and activation.

STREET FRONTAGE ALONG STATION ARRIVAL MAIN STREET



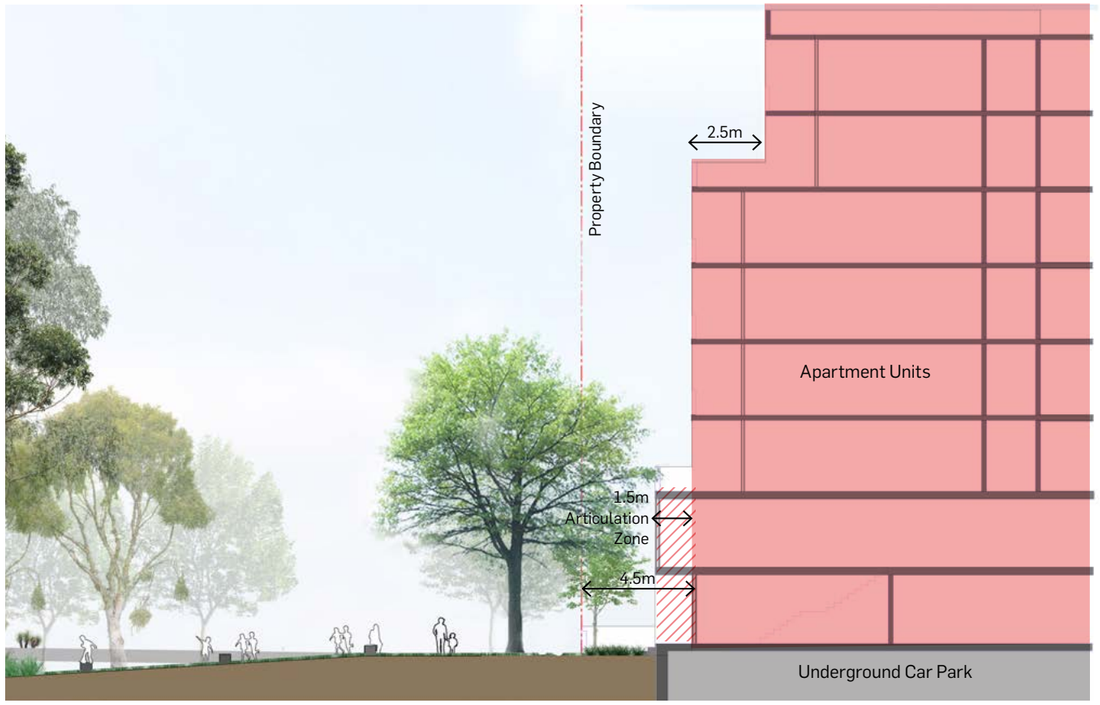
East Village, Zetland

Setbacks along the Station Arrival include:

- 5m setback on ground level;
- 3m setback from level one up to six storeys; and
- 2.5m additional setback on upper levels up to 9 storeys.

SETBACK STRATEGY (CONT'D)

CENTRAL PARK FRONTAGE



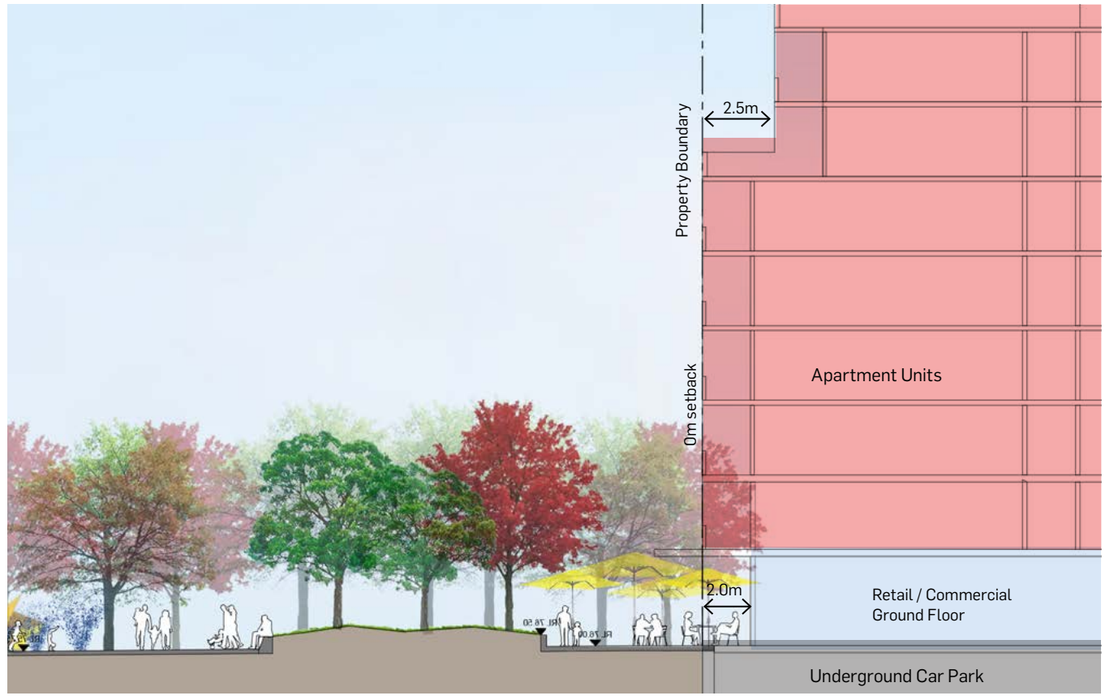

Harold Park, Forest Lodge, NSW

Similar to setbacks from Secondary Street, the Central Park setback include:

- 4.5m setback up to streetwall height of six storeys.
- 1.5m articulation zone within the front setback for ground level and level 1;
- 2.5m setback above the six-storey streetwall up to maximum height of 9 storeys.

Provide direct access from the street for all ground floor apartments. Lobby entrances are to be clearly articulated and accessible from the footpath along the park.

STATION ARRIVAL PLAZA FRONTAGE




Darling Square, NSW

Setbacks along the Station Arrival Plaza include:

- 2m setback on ground level;
- 0m setback up to six storeys; and
- 2.5m setback above six storeys up to 9 storeys.

CASE STUDIES OF SIMILAR SETBACK STRATEGY

Three similar precedents illustrate a similar setback strategy that has been adopted by the MGN Precinct which all deliver positive outcomes. These are:

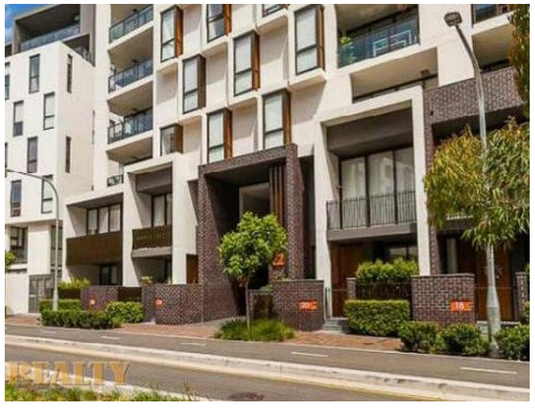
- Harold Park, Forest Lodge NSW;
- Morris Grove, Zetland NSW; and
- Cliff Road, Epping NSW

All of these developments generally adopt a 2.5m upper level setback and a 4.5m setback on ground floor. The ground level setback is in accordance with the ADG and provides an adequate territorial definition between the private and public domain. It additionally ensures private open space on ground level is achieved and that tree planting can happen contributing to the tree canopy cover. Habitable uses will front the street to ensure passive surveillance.

In addition, the 4.5m ground level setback provides adequate space to deliver tree plantings that contributes to tree canopy cover along the street.

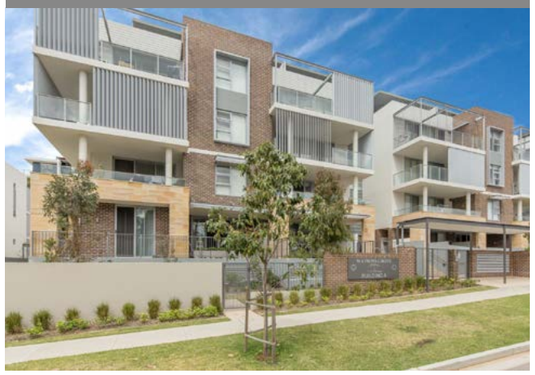
Harold Park provides a 'terrace frontage' through built form articulation to the first two levels. This contributes to a human scale street character and softens the six storeys streetwall. This is adopted in the MGN Precinct master plan to ensure a human scale outcome.

HAROLD PARK, FOREST LODGE, NSW



LEYLAND GROVE, ZETLAND, NSW

CLIFF ST, EPPING, NSW



GUIDING PRINCIPLE 5

ACTIVATE PLACES FOR PEOPLE

NEW COMMUNITY PARK, ARRIVAL PLAZA AND FITNESS PARK

STRATEGY 5

LANDSCAPE AND PUBLIC DOMAIN

The MGN Precinct landscape design will create a natural environment for residents and visitors to relax and unwind.

It is a 'people centred' design and aims at creating a green sanctuary for human interaction. It will act as a catalyst project and benchmark for proposed residential developments in the changing urban landscape of Macarthur and beyond.

The aim for the ground-floor landscape is to create spaces for people to connect to the wider precinct. Varying scales of form, function and planting offer a variety of outdoor experiences for the residents.

In addition to the Bow Bowing Creek Reserve previously identified, the proposal identifies four key landscape places within MGN Precinct as illustrated in the opposite diagram. This includes:

Public Domain

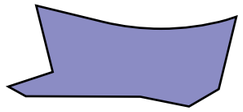
- Station Arrival Park;
- Central Park; and
- Fitness Park.

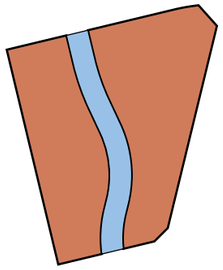
Private Domain

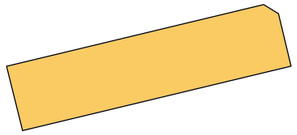
- Communal Open Space (Ground level and podium rooftop)

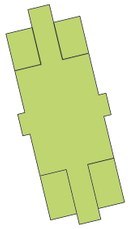
The following page summarises these four landscape places and key features followed by detail illustration to each of these places including landscape compliance and indicative planting list.

Figure 40 Landscape and Public Domain Strategy

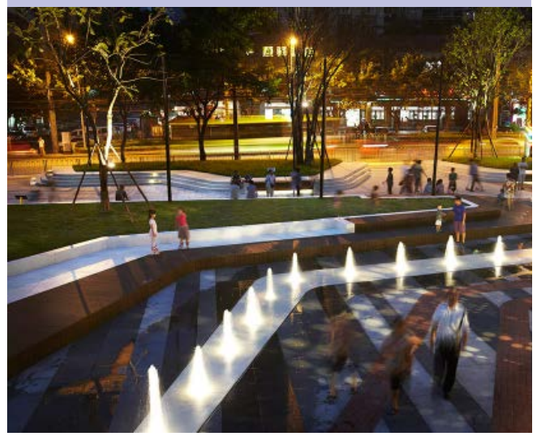








STATION ARRIVAL PLAZA



Station Arrival Precinct serves as the primary civic place and the front door of MGN Precinct from Macarthur station.

The entry space offers residents and visitors a vibrant public spaces with associated retail / commercial and F&B break out spaces - the spaces have been designed to offer flexibility and activation.

The key features of this space include:

- Ground floor Activation through retail / commercial frontages and F&B offer;
- Flexible plaza space allowing for Marketing and gatherings;
- Adventure playground for informal and programmed play with a signature play tower;
- Terraced amphitheatre to alleviate level changes and provide passive surveillance to adjacent plaza and play area;
- Water Play mitigating both urban heat island effects and providing additional play opportunity and public art;
- Accessible bridge and ramp from station concourse to the arrival plaza with integrated edges and transition spaces for seating; and
- Central raised lawn with incidental seating opportunities and feature shade trees.

CENTRAL PARK

The Central Park is the main green active open space situated next to Goldsmith Avenue. It provides visitors with informal open space , vegetated retreat spaces and a connection with nature.

The Park is connected through a secondary creek that runs north to south connecting back to Bow Bowing Creek. The design integrates water sensitive urban design principles for stormwater management whilst providing an attractive place to the residents and visitors.

The key features of this space include:

- Terraced amphitheatre walls to connect & improve the connection to the creek;
- An open lawn for informal play and recreation;
- BBQ area and amenity block with handstand corner to Goldsmith Ave;
- Wetland detention basins incorporating WSUD principles; and
- Suspended board walk with viewing platforms Improving North South access between lots and providing a lookout opportunity to the creek.

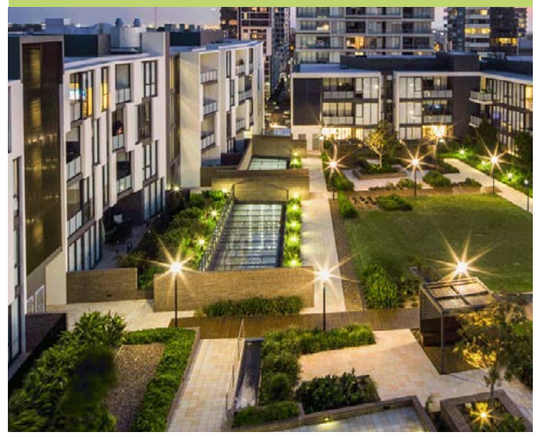
FITNESS PARK

The Fitness Park - Multi Purpose Outdoor Recreational Space, will be provided adjacent to Goldsmith Ave and WSU and will offer fitness and active recreational facilities for all ages.

Key features include:

- Key location adjacent to Goldsmith Ave and WSU to maximise exposure and usage;
- Two basketball courts, both full courts and half courts;
- Terraced seating edges and breakout recreational spaces;
- Multi purpose outdoor space - table tennis and fitness equipment; and
- Three amenity buildings being public toilet and changing rooms.

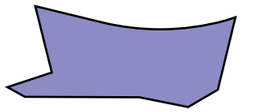
COMMUNAL OPEN SPACE - COURTYARDS & ROOFTOP GARDENS



Communal open spaces within residential lots will be located centrally on ground level and at rooftops to provide shared amenity for residents. These communal spaces are designed in accordance with the ADG.

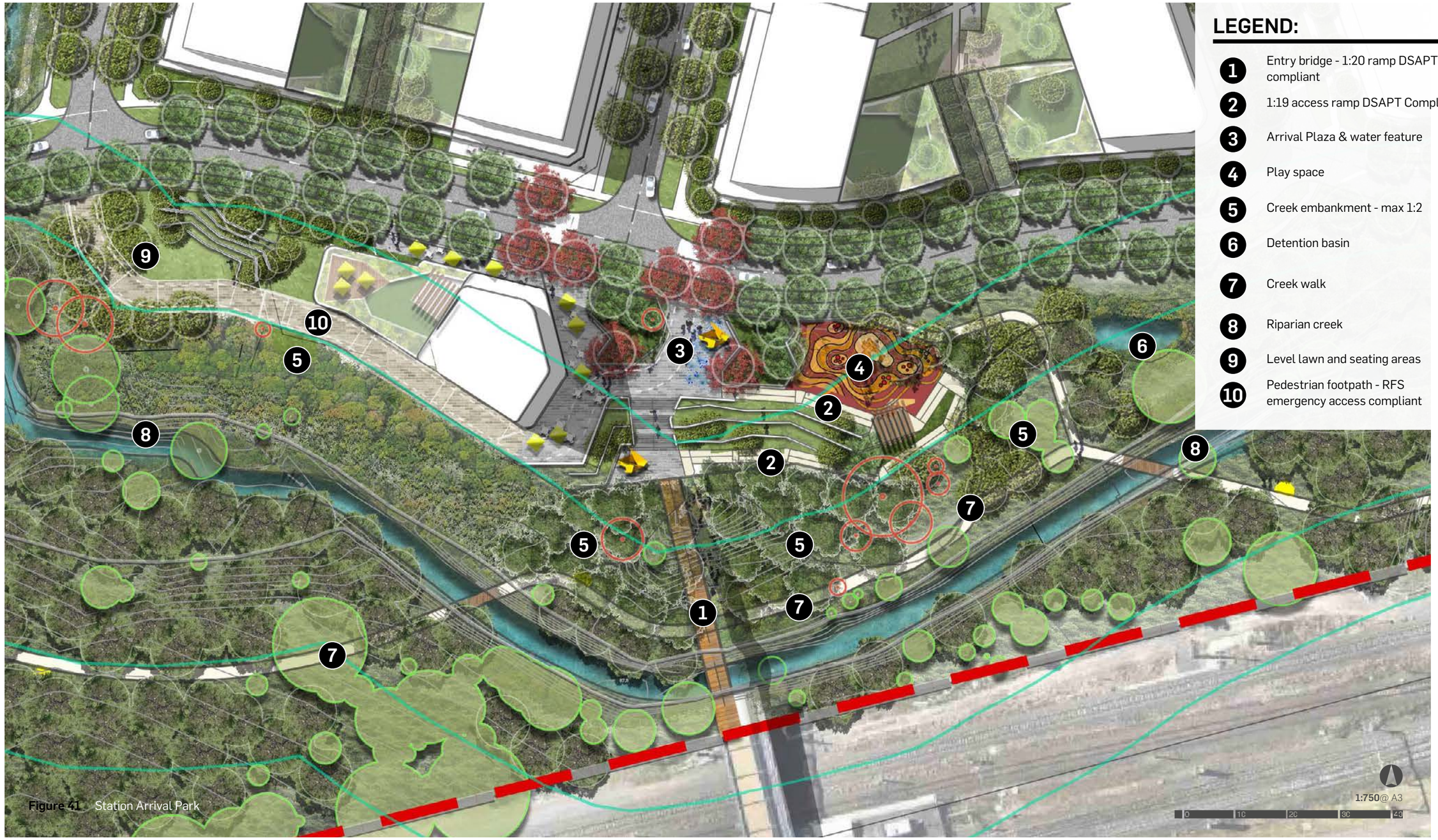
Future key features include:

- Seating areas;
- Shade areas;
- BBQ/picnic areas;
- Play areas;
- Primary tree canopy within deep soil zone ;
- Secondary tree canopy within ground level and podium rooftop;
- Balance of private and open spaces;
- Rooftop design to maximise elevated views; and
- Community gardens.



STATION ARRIVAL PLAZA

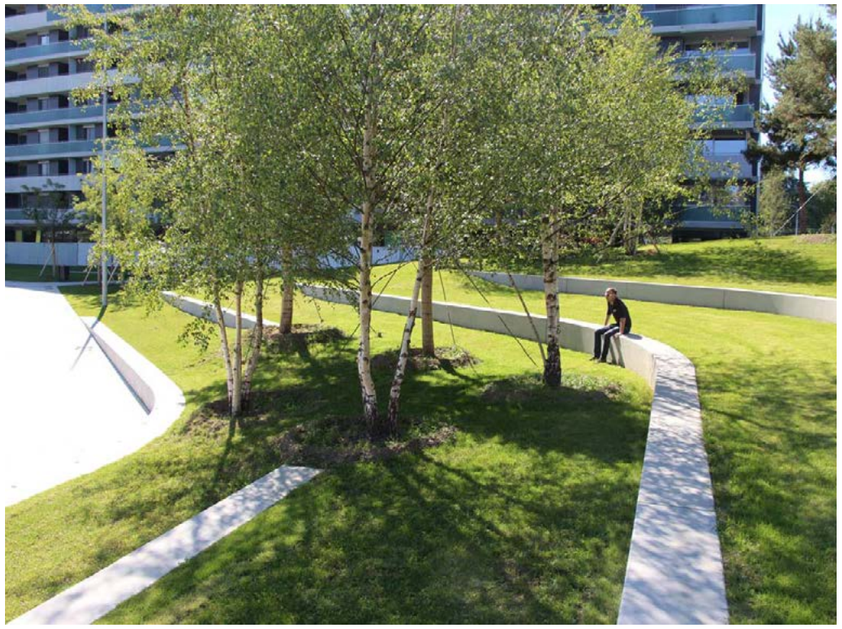
INDICATIVE CONCEPT PLAN

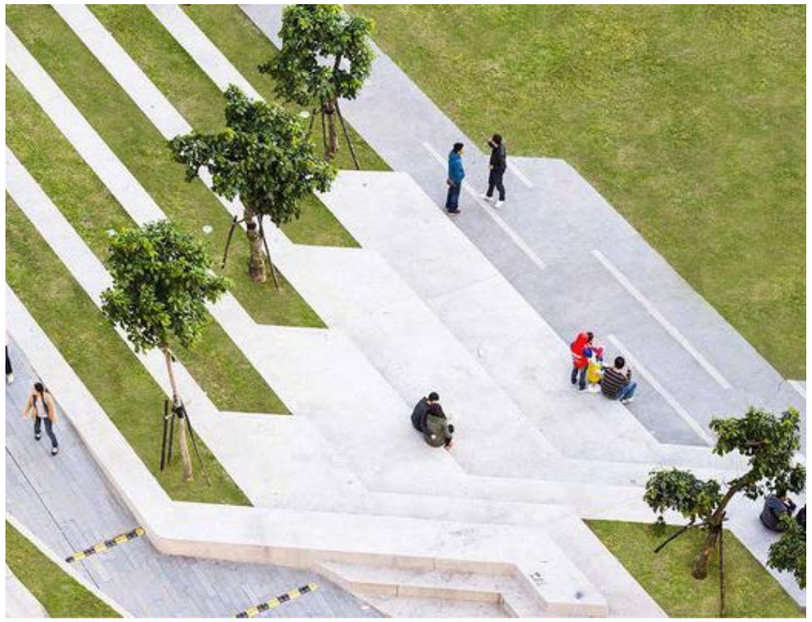


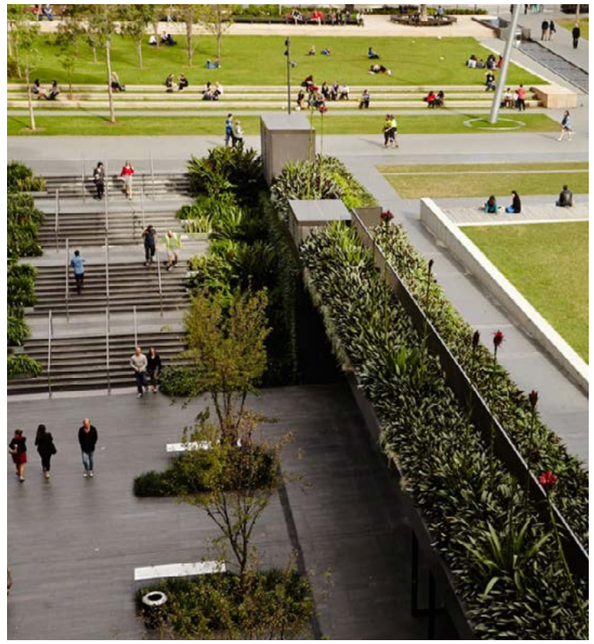
LEGEND:

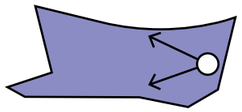
1. Entry bridge - 1:20 ramp DSAPT compliant
2. 1:19 access ramp DSAPT Compliant
3. Arrival Plaza & water feature
4. Play space
5. Creek embankment - max 1:2
6. Detention basin
7. Creek walk
8. Riparian creek
9. Level lawn and seating areas
10. Pedestrian footpath - RFS emergency access compliant

Figure 41 Station Arrival Park





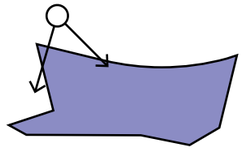




STATION ARRIVAL PLAZA

VIEW FROM ACCESSIBLE RAMPS TOWARDS THE MAIN ARRIVAL PLAZA

*Indicative artist impression, subject to change and approvals.



STATION ARRIVAL PLAZA

VIEW TOWARDS THE MAIN ARRIVAL PLAZA WITH GROUND FLOOR RETAIL ACTIVATION

*Indicative artist impression, subject to change and approvals.

STATION ARRIVAL PLAZA

NORTH-SOUTH CROSS SECTION

5M	18M	15M	51M	
PUBLIC DOMAIN/ STREETSCAPE	ARRIVAL PLAZA / WATER PLAY	LAWN TERRACES	BOW BOWING CREEK SHARED PATH	BOW BOWING CREEK

1:250@ A3

0 2.5 5 7.5 10 12.5

STATION ARRIVAL PLAZA

EAST-WEST CROSS SECTION

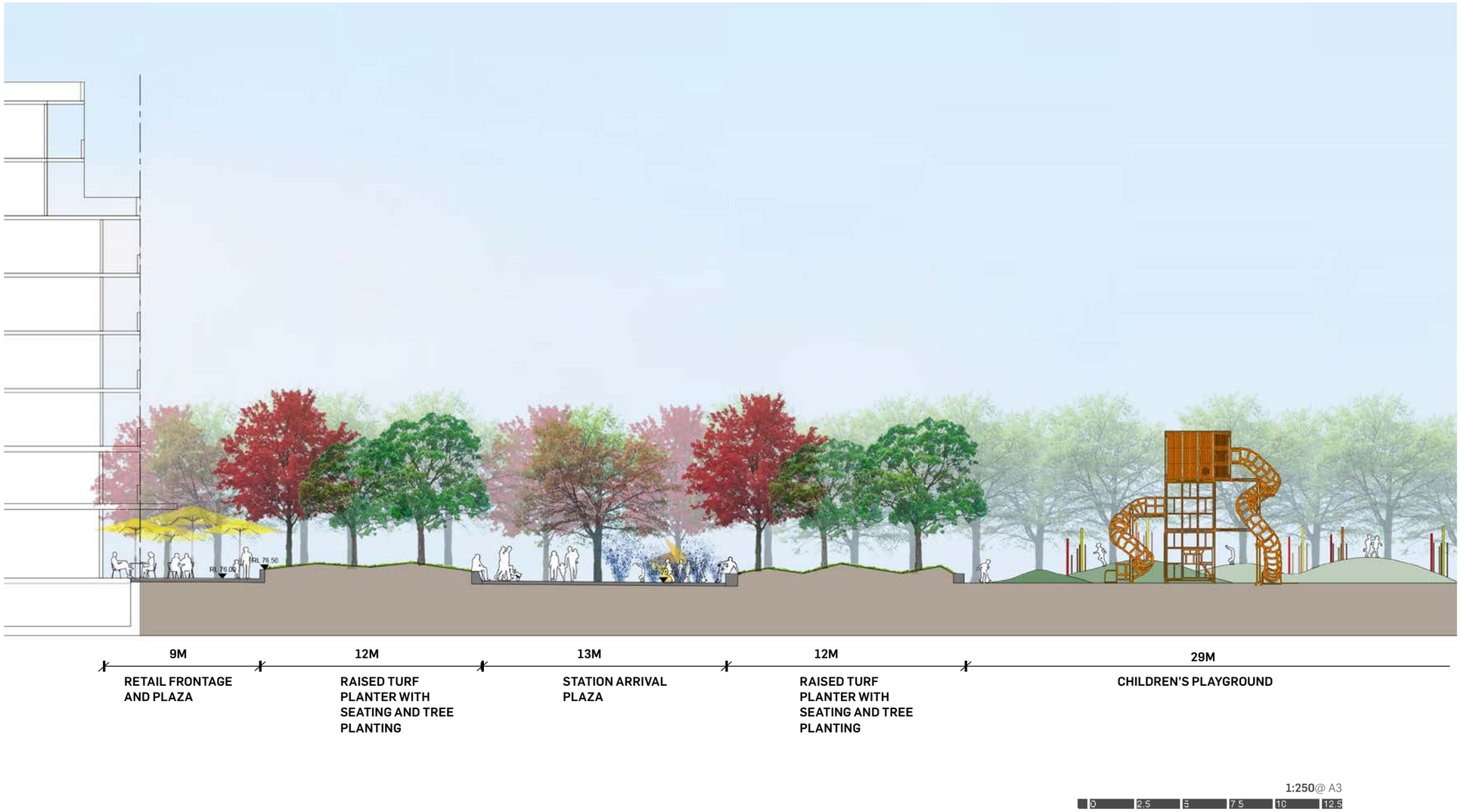
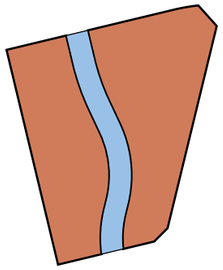
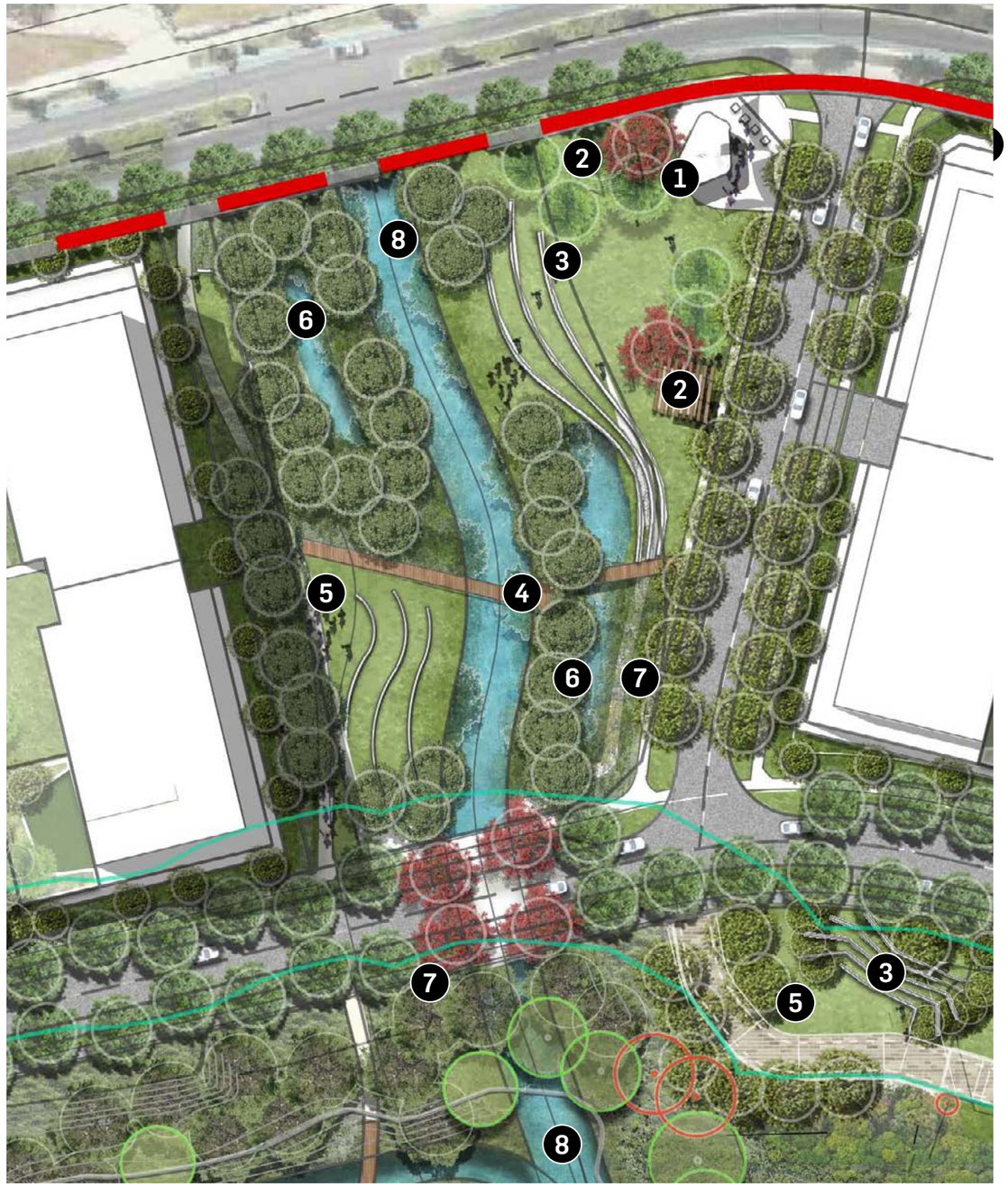


Figure 42 Station Arrival Plaza and Playground Section



CENTRAL PARK

CONCEPT PLAN

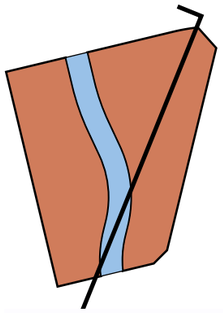


LEGEND:

1. Amenities Block
2. BBQ shelter
3. Amphitheatre
4. Elevated board walk & Viewing Platform
5. Level lawn and seating areas
6. Detention basin
7. Retaining walls
8. Riparian creek

Figure 43 Central Park

1:400@ A3



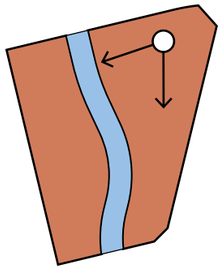
CENTRAL PARK

NORTHEAST-SOUTHWEST CROSS SECTION

7M	47M	15M	22M	43M
STREET AND PUBLIC DOMAIN	CENTRAL PARKLANDS WITH BOARDWALK, PATHWAY AND AMPHITHEATRE	DETENTION BASIN AND PLANTING	AMPHITHEATRE SEATING	OPEN PARK AREA AND AMENITIES BLOCK

1:250@ A3

0 2.5 5 7.5 10 12.5



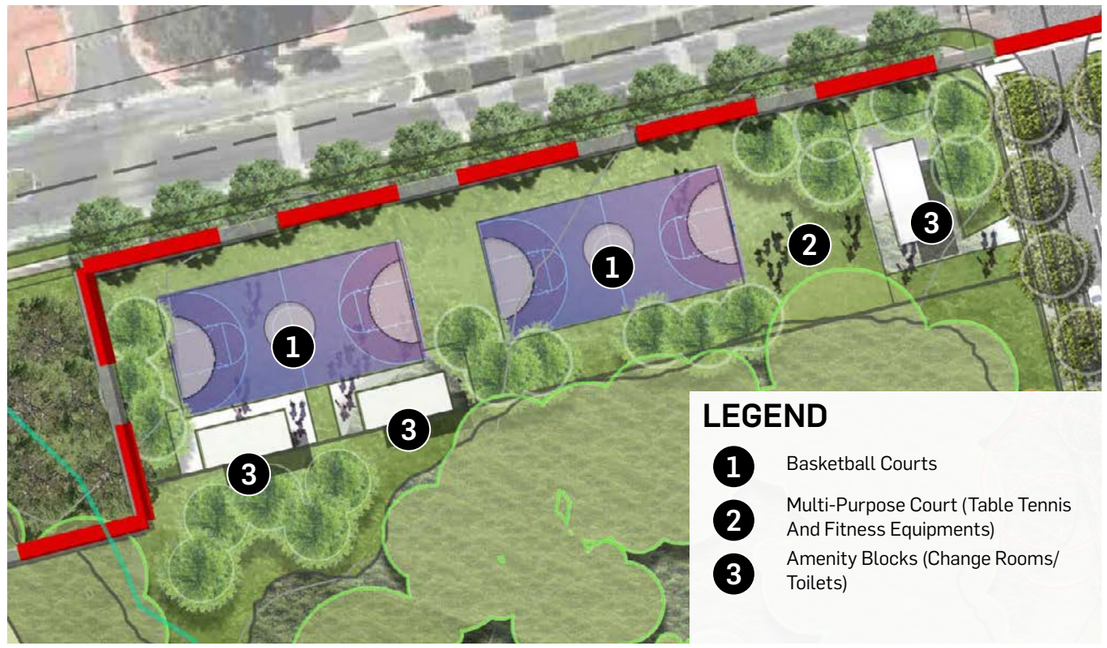
CENTRAL PARK

VIEW TOWARDS THE MULTI-PURPOSE LAWN WITH BBQ FACILITY

*Indicative artist impression, subject to change and approvals.

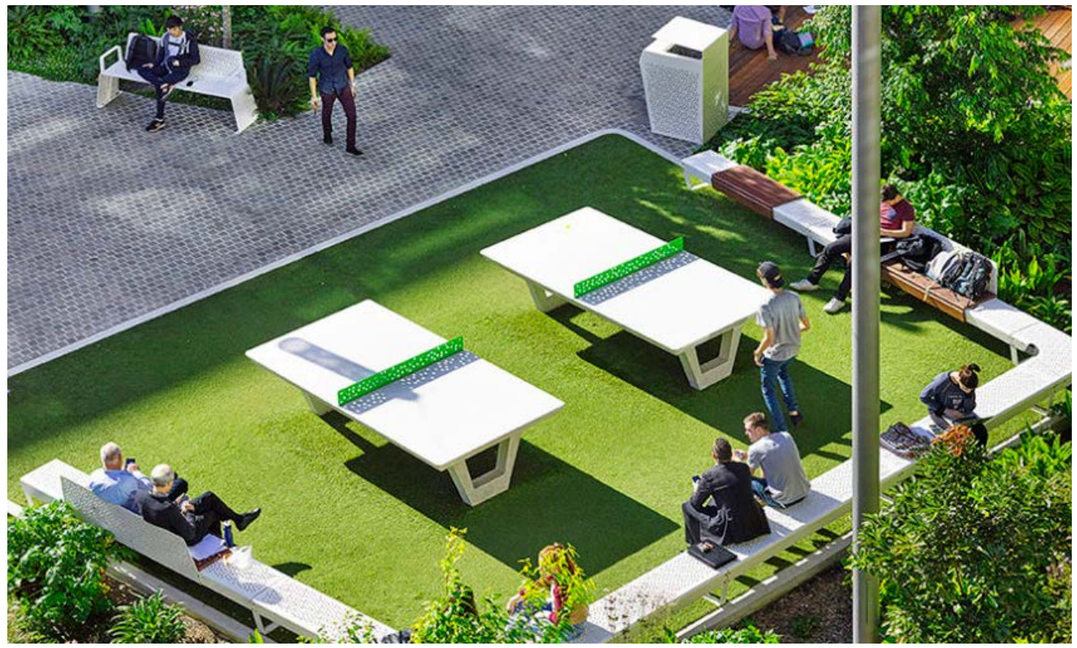
FITNESS PARK

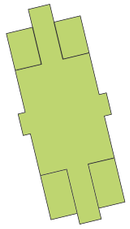
INDICATIVE CONCEPT PLAN



LEGEND

1. Basketball Courts
2. Multi-Purpose Court (Table Tennis And Fitness Equipments)
3. Amenity Blocks (Change Rooms/ Toilets)





COMMUNAL OPEN SPACE - INDICATIVE ILLUSTRATION

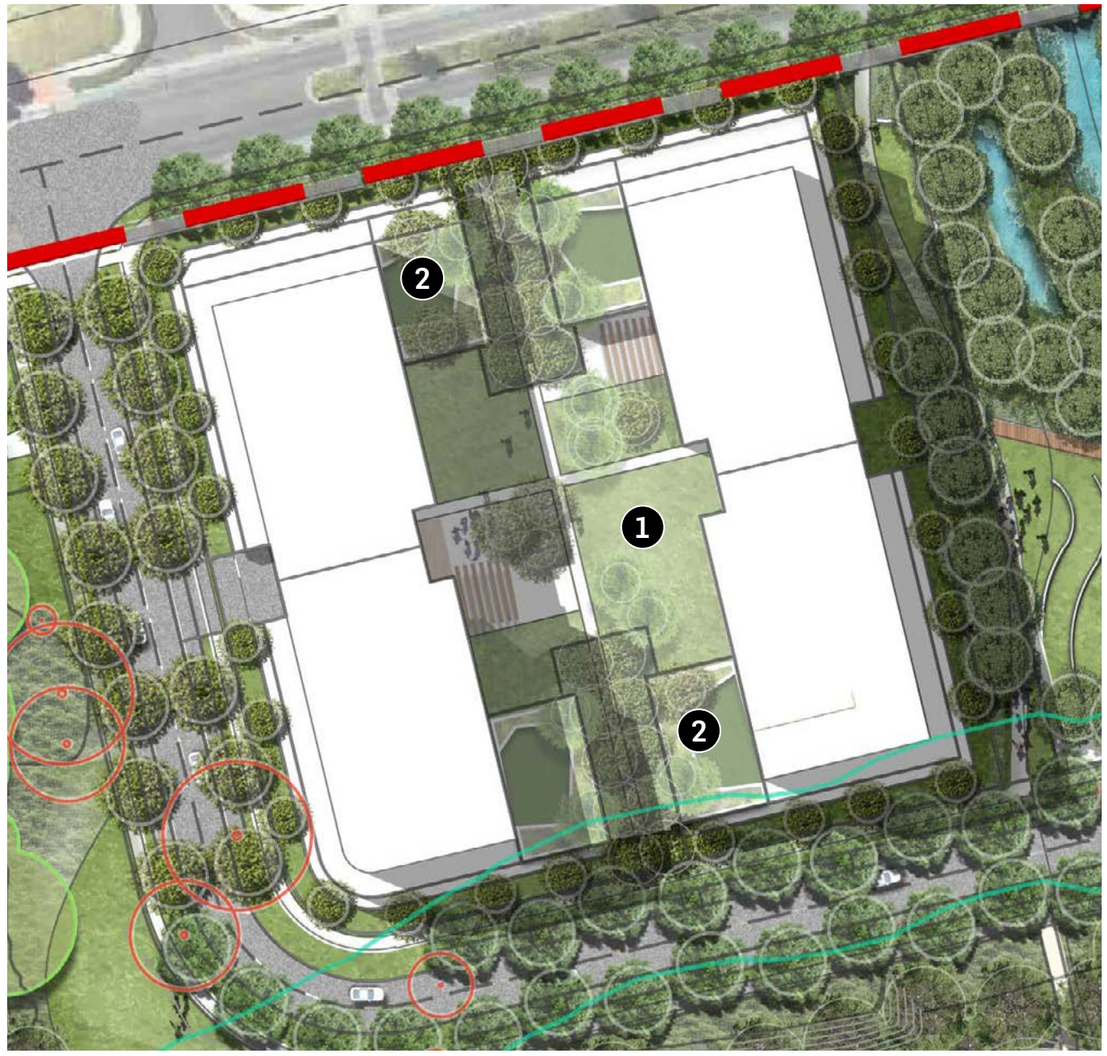
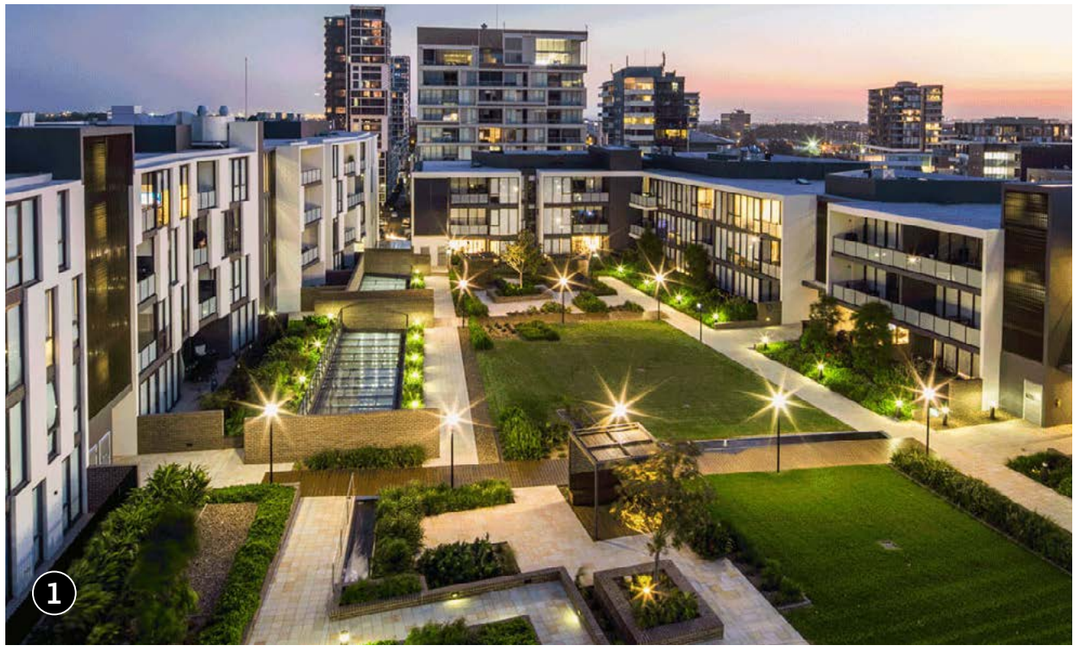


Figure 44 Typical Communal Open Space



LEGEND:

1. Ground Level Communal Open Space
2. Podium Rooftop Communal Open Space

LANDSCAPE OBJECTIVES / PRINCIPLES

The landscape master plan will address the following design objectives:

- Enhance the appearance and amenity of the proposed residential development by sensitively integrating architecture and landscape through effective site planning and landscape design;
- Create an identifiable residential development and public domain with range of inviting safe and accessible open spaces and linkages
- Adopt the landscape principles and urban design principles established by the Campbelltown Council DCP;
- Establish a visually and environmentally sensitive landscape, complimentary to the architectural vision and greater urban setting, while providing high quality private spaces for residents and visitors;
- Assimilate the development into the surrounding urban context through the development of an integrated and permeable landscape and open space environment;
- Incorporate water sensitive urban design principles and environmentally sensitive design to create a low maintenance, environmentally sensitive landscape that has a distinctive tree canopy with diverse low shrub groundcover and expanses of lawn;
- Create a large variety of high quality public open spaces which can accommodate a range of active and passive recreational and social activities; and
- Ensure accessibility for all within a safe and secure urban domain whilst accommodating a range of passive recreational and social activities within the public domain.

LANDSCAPE CONSIDERATIONS

MATERIALS & QUALITY

The design strategy is to provide a durable and high quality landscaped building setting with a consistency of quality and treatments across the site selected to compliment the character of the architecture. Consideration has been given to durability and practicality for ongoing maintenance.

Feature granite paving is provided throughout. Paving in the public domain will be in accordance Council's standards for public domain works. Material, finishes, furniture and fixtures will be selected with consideration to whole of life costs, detailed and installed to minimize ongoing maintenance needs.

Furniture proposed will be durable, easily cleaned and include anti-graffiti coatings where necessary to reduce vandalism. Tactiles and other pedestrian safety devices will be installed as required by the relevant standards. Bike racks are provided on Entry thresholds- to facilitate to Bike parking provisions.

ACCESSIBILITY

Paving materials, inclusion of tactiles and other relevant measures will be implemented as part of the landscape works for compliance with the relevant standards.

SAFETY AND SECURITY

The landscape design considers the principles of Crime Prevention Through Environmental Design (CPTED) and provide an integrated approach to improve actual and perceived personal security in pedestrian public domain areas. This include:

- All paths are overlooked from adjoining buildings and adjacent streets which will provide a high level of passive surveillance;
- All external spaces to minimise places of concealment, have multiple clear sight lines without obstacles, and maintain clear trunked trees and shrub planting to low level to prevent places to hide;
- Main street and secondary streets to have direct access through the site and maintain clear visual link to the wider context.
- All paths will be well lit at night time and designed to meet relevant Australian Lighting Standards; and
- Signage will be provided across the precinct to assist with wayfinding and navigation through the site.

LIGHTING

All external areas will be designed to meet relevant Australian Lighting Standards. Integrated landscape lighting is proposed to all the landscape elements.

DRAINAGE & WATER MANAGEMENT

Water sensitive urban design (WSUD) principals to be integrated into the landscape design in a way that celebrates a sustainable water cycle.

- All irrigation systems will comprise of subsurface drip systems and automatic timers with rainwater / soil moisture sensor controls;
- Where possible storm water runoff will be directed to the lawn and garden beds;
- Irrigation to be provided to all soft landscape areas and will be specified within the tender package;
- Low water demand shrub planting is proposed.

STREETSCAPE CONSIDERATIONS

Street trees are an important element in the appearance of streets and the public interface. Street trees significantly contribute to the amenity, identity and a sense of place. Trees provide a consistency of urban character and promote feelings of wellness and liveability. Trees are fundamentally important to the social, environmental and economic well-being of the Macarthur Gardens community. Refer to "4.2 THE MASTER PLAN" on page 34 for the indicative street tree locations. The key considerations in implementing the street trees includes:

Street Tree Selection and Spacing

- Right tree for the right street;
- Acceptable leaf and fruit fall characteristics;
- Not prone to major limb drop;
- Low risk of becoming an environmental weed
- Narrow footpath and verges;
- Value of street tree diversity; and
- Low maintenance.

Street Tree Design And Placement

The quality of street tree design and implementation is critical in the successful growth of a tree.

Locating Street Trees

There are many limitations to the positioning of street trees within the verge. Distances from infrastructure elements such as intersections, light and electricity poles, stormwater inlets, underground service pits and bus stops, are important in determining final planting locations. Typically this requires individual site assessment and will be determined on a case-by-case basis. As a guide, recommended distances from infrastructure elements are:

- Bus Stop – 5 metres from determined bus stop;
- Driveway – 2 metres from driveways;
- Pedestrian Crossing – 5 metres from pedestrian crossings;
- Storm water inlet/outlet – 2 metres from storm water inlet/outlet pits;
- Street intersection – 10 metres from intersection kerb line;
- Street light pole – 3 metres from centre of light pole; and
- Underground service pit - 2 metres from edge of pit.

INDICATIVE PLANT LIST

LANDSCAPE SPECIFICS

The plant palette used for the site should reinforce all the themes as previously discussed. The environmental theme requires that the planting palette draw from the existing local vegetation communities.

In general;

- Street trees should respond to the street hierarchy and Council's street tree list; and
- The following list outlines the signature planting for the site and has been established with reference to Campbelltown (Sustainable City) Development Control Plan 2015 (CDCP 2015)

OBJECTIVES:

- To increase the number of indigenous species planted in the Campbelltown-Macarthur region;
- To eliminate the use of noxious weeds of potentially invasive species in developments;
- To use plants in such a way to foster energy efficient development that relies on passive energy principles for heating and cooling;
- To reduce maintenance and water consumption through appropriate species selection;
- To create buffer zones and add to existing areas of remnant vegetation with locally indigenous species including supplementary River-Flat Eucalyptus Forest on Cumberland Plain Woodland planting;
- The Landscape planting for the site will have a minimum of 75% of indigenous / water sensitive planting species;
- The landscape design for The MGN Precinct incorporates water sensitive design principles and environmentally sensitive design such as a WSUD swale and Riparian zones to create a low maintenance, environmentally sensitive landscape that has a distinctive tree canopy with diverse low shrub groundcover; and
- The Landscape planting for The MGN Precinct will have an extensive native canopy and compliment the existing CDCP 2015 planting list.

Refer to the following report prepared by EcoLogical Australia for future Vegetation Management Plan recommendations notes and details relating to Creek planting.

- Macarthur Gardens North: Riparian Assessment;
- Bushfire Protection Assessment: Proposed Subdivision; and
- Macarthur Gardens North-Master Plan.

Refer to Cumberland Plain Woodland – Shale Hills Woodland palette and Riparian Woodland palette for proposed species and densities for revegetation works.


Cupaniopsis anacardioides

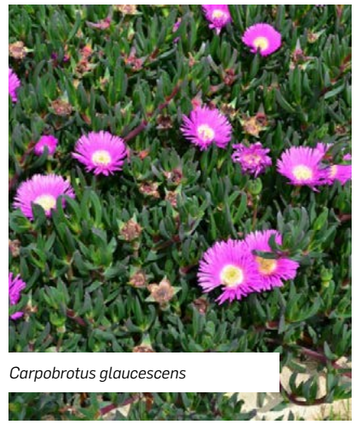

Flindersia australis


Tristaniopsis laurina


Dianella caerulea


Pennisetum alopecuroides


Grevillea linearifolia


Carpobrotus glaucescens


Westringia fruiticosa


Lomandra longifolia 'Tanika'


Liriope muscari


Poa labillardierei


Trachelospermum jasminoides

Figure 45 Indicative Plant List

STREETSCAPE AND PUBLIC RESERVES

BOTANIC NAME	COMMON NAME	NATIVE/ EXOTIC	SIZE	SPACING
TREES				
Angophora costata	Sydney Red Gum	Native	200L	As shown
Angophora floribunda	Rough Barked Apple	Native	200L	As shown
Callitris endlicheri	Black Cypress Pine	Exotic	200L	As shown
Flindersia australis	Crow's Ash	Exotic	200L	As shown
Fraxinus raywoodii	Claret Ash	Exotic	200L	As shown
Banksia integrifolia	Coastal Banksia	Native	200L	As shown
Corymbia maculata	Spotted Gum	Native	200L	As shown
Elaeocarpus reticulatus	Blue Berry Ash	Native	100L	As shown
Eucalyptus crebra	Narrow Leaved Iron Bark	Native	200L	As shown
Eucalyptus haemastoma	Scribbly Gum	Native	200L	As shown
Eucalyptus punctata	Grey Gum	Native	200L	As shown
Eucalyptus tereticornis	Forest Red Gum	Native	200L	As shown
Pyrus calleryana 'Bradford'	Pyrus Bradford	Exotic	200L	As shown
Waterhousia floribunda	Weeping Lilli Pilli	Native	200L	As shown
Tristaniopsis laurina	Water Gum	Native	200L	As shown
SHRUBS, AND GROUND COVERS				
Acacia Implexa	Hickory	Native	150mm	1/m²
Asplenium australasicum	Birds Nest Fern	Native	150mm	1/m²
Dodonea viscosa	Hop Bush	Native	150mm	1/m²
Banksia spinulosa	Hair Pin Banksia	Native	200mm	0.5/m²
Correa alba	White Correa	Native	150mm	0.5/m²
Dianella caerulea var caerulea	Blue flax lily	Native	150mm	3/m²
Dodonaea viscosa	Hop Bush	Native	150mm	0.5/m²
Grevillea linearifolia	White spider flower	Native	150mm	0.5/m²
Grevillea 'Poorinda Royal Mantle'	Prostrate Grevillea	Native	150mm	0.5/m²
Hakea sericea	Bushy Needlebush	Native	150mm	0.5/m²
Hardenbergia violacea	False sarsaparilla	Native	200mm	0.5/m²
Hibertia scandens	Golden Guinea flower	Native	150mm	0.5/m²
Indigofera australis	Indigofera	Native	150mm	1/m²
Lomandra Longifolia	Mat Rush	Native	200mm	4/m²
Pennisetum alopecuroides 'PA300'	Pennisetum Nafray	Native	150mm	3/m²
Pittosporum revolutum	Sweet pittosporum	Native	200mm	0.5/m²
Poa labillardierei	Tussock grass	Native	150mm	3/m²
Pandorea pandorana	Wonga wonga vine	Native	150mm	2/m²
Themeda australis	Kangaroo Grass	Native	150mm	3/m²
Viola hederacea	Native Violet	Native	150mm	4/m²
Westringia fruiticosa	Coastal Rosemary	Native	200mm	0.5m/m²





RAIN GARDEN PLANTING AND CREEK EDGES

BOTANIC NAME	COMMON NAME	NATIVE/ EXOTIC	SIZE	SPACING
TREES				
Corymbia maculata	Spotted Gum	Native	200L	As shown
Elaeocarpus reticulatus	Blue Berry Ash	Native	100L	As shown
Eucalyptus crebra	Narrow Leaved Iron Bark	Native	200L	As shown
Eucalyptus haemastoma	Scribbly Gum	Native	200L	As shown
Eucalyptus punctata	Grey Gum	Native	200L	As shown
Eucalyptus moluccana	Grey Box	Native	200L	As shown
SHRUBS, AND GROUND COVERS				
Carex appressa Tussock Sedge HIKO 6	Tussock Sedge	Native	HIKO 6	6/m²
Ficinia nodosa	Knobby Club Rush	Native	HIKO 6	6/m²
Jun usi Juncus usitatus	Common Rush	Native	HIKO 6	6/m²
Lomandra longifolia 'Hystrix'	Lomandra Hystrix	Native	HIKO 6	6/m²
Lomandra longifolia 'Katrinus'	Lomandra Katrinus	Native	HIKO 6	6/m²
Hakea sericea	Bushy Needlebush	Native	150mm	0.5/m²
Hardenbergia violacea	False sarsaparilla	Native	200mm	0.5/m²
Hibertia scandens	Golden Guinea flower	Native	150mm	0.5/m²
Indigofera australis	Indigofera	Native	150mm	1/m²
Lomandra Longifolia	Mat Rush	Native	200mm	4/m²
Pennisetum alopecuroides 'PA300'	Pennisetum Nafray	Native	150mm	3/m²
Pittosporum revolutum	Sweet pittosporum	Native	200mm	0.5/m²
Poa	Tussock grass	Native	150mm	3/m²
Pandorea pandorana	Wonga wonga vine	Native	150mm	2/m²
Themeda australis	Kangaroo Grass	Native	150mm	3/m²
Viola hederacea	Native Violet	Native	150mm	4/m²
Westringia fruiticosa	Coastal Rosemary	Native	200mm	0.5m/m²

Indicative quantities subject to design development





6.0 ADG AND DCP COMPLIANCE

The proposed building envelope aims to be consistent with the design criteria identified in the Apartment Design Guide (ADG) and Campbelltown DCP 2015.

Design Criteria that has been considered includes:

- Minimum building separation;
- Communal open space provision;
- Deep soil zone provision;
- Solar access for communal open space;
- Solar access to residential units; and
- Cross ventilation to residential units.

The opposite table provides a high-level compliance summary of the proposed scheme with the ADG and DCP.

Each design criteria assessment are outlined in the following pages.

Refer to the end of this section for Campbelltown DCP compliance checklist and Appendix section for a detailed ADG compliance checklist.

6.1 HIGH LEVEL ADG & DCP COMPLIANCE OVERVIEW

Table 6 High Level Apartment Design Guide and Campbelltown DCP Compliance Check List

	DESIGN CRITERIA/ OBJECTIVES	APARTMENT DESIGN GUIDE	CAMPBELLTOWN DCP 2015	PROPOSED OUTCOME
✓	**BUILDING SEPARATION**	**UP TO 4 STOREYS: 12M MIN.** **5 TO 8 STOREYS: 18M MIN.** **OVER 9 STOREYS: 24M MIN.**	N/A	• A minimum separation of 18m is maintained between buildings with a height five to eight storeys. Wider separation of a minimum 24m is applied to the ninth storey.
✓	**COMMUNAL OPEN SPACE**	**MIN. 25% OF SITE AREA**	N/A	• Each residential lots provides area for communal open space between 32%-42% of lot area that well exceeds the minimum 25% requirement.
✓	**DEEP SOIL ZONE**	**MIN. 7% OF SITE AREA (WITHIN COMMUNAL OPEN SPACE)**	**MIN. 25% OF REQUIRED OPEN SPACE OR 15% OF TOTAL SITE AREA** ** Whichever is higher*	• Each of residential lots provides a min. 7% deep soil zone within the communal open space. • When combined with the private open spaces, the proposal delivers a total of 18.5% deep soil zone throughout the residential lots.
✓	**SOLAR ACCESS TO COMMUNAL OPEN SPACE**	**MIN. 50% WITH DIRECT SUNLIGHT TO THE PRINCIPAL USABLE SPACE**		• The location and orientation of building envelopes minimise overshadowing impact on communal open space and public open spaces. This results 60% of total communal open space receives a min. 2 hr. sunlight in mid winter, exceeding the minimum 50% minimum area.
✓	**SOLAR ACCESS TO RESIDENTIAL UNITS**	**MIN. 70% OF RESIDENTIAL UNITS RECEIVE A MINIMUM OF 2 HOURS DIRECT SUNLIGHT BETWEEN 9AM TO 3PM** ** A maximum of 15% residential units receive no direct sunlight*	**MIN. 70% OF RESIDENTIAL UNITS RECEIVE A MINIMUM OF 2 HOURS DIRECT SUNLIGHT BETWEEN 9AM TO 3PM** ** A maximum of 15% residential units receive no direct sunlight*	• The indicative internal layout testing of residential buildings envelopes are designed to maximise apartment units with western and northern aspect. 70.0% of total units receives a min. 2 hours sunlight in mid winter. • 5.0% of the total residential units have no direct sunlight, which is less than 15% maximum requirement.
✓	**CROSS VENTILATION**	**MIN. OF 60% APARTMENTS ARE NATURALLY CROSS VENTILATED IN THE FIRST NINE STOREYS**		• The indicative internal layout testing of residential buildings envelopes demonstrates that at least 73.5% of total residential units achieves natural cross ventilation.

KEY SUMMARY

- The MGN Precinct building envelope is ADG compliant

6.2 BUILDING SEPARATION

ADG MINIMUM REQUIREMENT

The Apartment Design Guide (ADG) identifies the following minimum building separation for residential apartment development:

Up to Four Storeys (approximately 12m):
- 12m between habitable rooms/balconies
- 9m between habitable and non-habitable rooms
- 6m between non-habitable rooms

Five to Eight Storeys (approximately 25m):
- 18m between habitable rooms/balconies
- 12m between habitable and non-habitable rooms
- 9m between non-habitable rooms

Nine Storeys and above (over 25m):
- 24m between habitable rooms/balconies
- 18m between habitable and non-habitable rooms
- 12m between non-habitable rooms

BUILDING SEPARATION SUMMARY

MGN Precinct envelopes adopt the following building separation:

- A min. 18m building separation between habitable rooms to the first 8 storeys of lot R2 and 24m for the ninth storey.
- A min. 24m building separation between habitable rooms to envelope up to 9 storeys
- A min. 9m separation between habitable and non-habitable rooms to the northern and southern podium of lot M1, R1, R2, R3 and R4R2 up to four storeys.

Refer to the Appendix section for built form cross sections for each residential lot.

KEY SUMMARY

- The proposal comply with the minimum building separation identified in the ADG

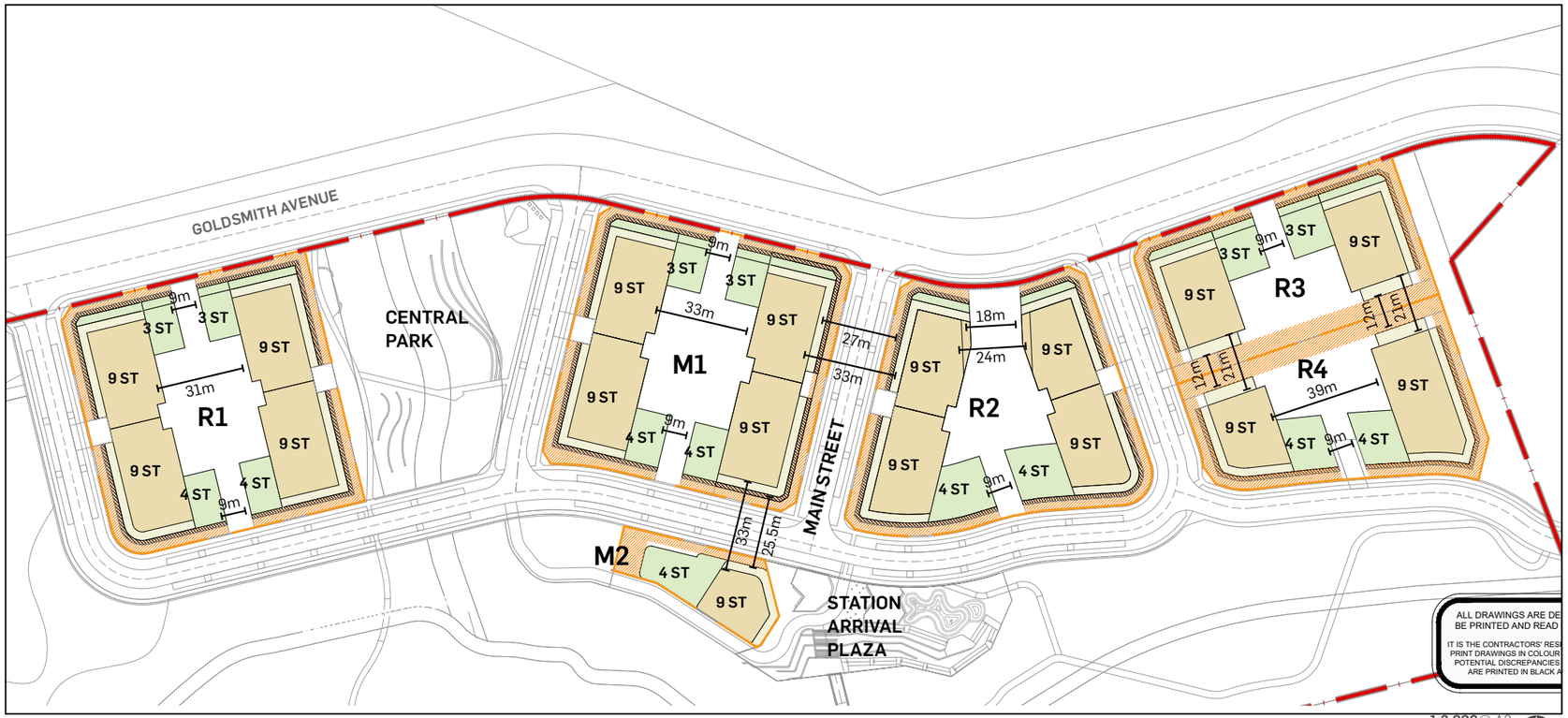


Figure 46 Building Separation Assessment

LEGEND

- Macarthur Gardens North
- Residential Lot Boundary
- Setback Zone
- 1.5m Articulation Zone (2 storeys)
- Lower Podium (Up to 4 storeys)
- Upper Podium/ Streetwall (6 storeys)
- Tower (up to 9 storeys)

6.3 COMMUNAL OPEN SPACE AND DEEP SOIL ZONE PROVISION

ADG & CDCP 2015 DESIGN CRITERIA

The ADG identifies the following minimum requirements for residential apartment development:

- Communal Open Space: min. 25% of development site area; and
- Deep soil zone: min. 7% - with min. dimension of 6m.

The CDCP 2015 identifies the following minimum requirements for residential apartment development:

- A minimum of 25% of the required open space area, or 15% of the total site area, whichever is greater, shall be available for deep soil planting.

KEY SUMMARY

- The proposal exceeds the minimum communal open space and deep soil zone requirement identified in ADG and CDPC 2015

MASTER PLAN PROVISION

The following table and opposite diagram identifies MGN communal open space and deep soil zone provision to each of development lots:

Table 7 MGN Communal Open Space Provision

LOT NO	LOT AREA (SQM)	COMMUNAL OPEN SPACE			
		Communal Open Space - Ground Level	Communal Open Space - Podium Rooftop	Total Communal Open Space (sqm)	Total Communal - ADG Compliance (%)
M1	8,100	1,920	816	**2,736**	**33.8%**
M2	1,210	145	370	**515**	**42.6%**
R1	7,884	1,832	748	**2,580**	**32.7%**
R2	7,340	1,725	696	**2,421**	**33.0%**
R3	4,897	1,368	468	**1,836**	**37.5%**
R4	4,957	1,237	576	**1,814**	**36.6%**
	34,388			**11,902**	**34.6%**

Table 8 MGN Deep Soil Zone Provision

LOT NO	LOT AREA (SQM)	DEEP SOIL ZONE				
		Deep Soil Zone - ADG Compliance (sqm)	Deep Soil Zone - ADG Compliance (%)	Deep Soil Zone - Private Open Space (sqm)	Total Deep Soil Zone (sqm)	Deep Soil Zone - CDCP 2015 Compliance (%)
M1	8,100	**570**	**7.0%**	561	**1,131**	**14.0%**
M2	1,210	**145**	**12.0%**	0	**145**	**12.0%**
R1	7,884	**558**	**7.1%**	973	**1,531**	**19.4%**
R2	7,340	**527**	**7.2%**	929	**1,456**	**19.8%**
R3	4,897	**360**	**7.4%**	552	**912**	**18.6%**
R4	4,957	**577**	**11.6%**	598	**1,176**	**23.7%**
	34,388	**2,737**	**8.0%**	**3,613**	**6,351**	**18.5%**

36.1%

TOTAL COMMUNAL OPEN SPACE PROVISION

8.0%

TOTAL DEEP SOIL ZONE PROVISION WITHIN COMMUNAL OPEN SPACE

18.5%

TOTAL DEEP SOIL ZONE PROVISION INCLUDING PRIVATE OPEN SPACE

Figure 47 Communal Open Space and Deep Soil Zone Provision

1:2,000@ A3

0 20 40 60 80 100

LEGEND

- Macarthur Gardens North
- Residential Lot Boundary
- Communal Open Space - Rooftop
- Communal Open Space - Podium
- Deep Soil Zone
- Deep Soil Zone - within Private Open Space

6.4 SOLAR ACCESS ANALYSIS

ADG DESIGN CRITERIA

The ADG identifies the following minimum requirements for solar access to communal open space:

- A min. 50% of principal communal open space receives a min. 2 hrs. sunlight in mid winter between 9AM to 3PM.

The following study analyse the solar access to the active open space and communal open space taken between 9AM - 3PM in mid winter.

9AM

10AM

11AM

12PM

1PM

2PM

3PM

Figure 48 Shadow Analysis

1:6,000@ A3

0 25 50 75 100 125 150

SOLAR ACCESS ANALYSIS SUMMARY

The following diagram and below table summarise the solar access analysis to the active open spaces and communal open spaces to each residential lots.

Table 9 MGN Communal Open Space Solar Access Analysis

LOT NO	LOT AREA (SQM)	COMMUNAL OPEN SPACE		
		Total COS (sqm)	Area >2hr solar access	Area receiving >2hr solar access (%)
M1	8,100	2,736	1,884	**68.9%**
M2	1,210	515	515	**100.0%**
R1	7,884	2,580	1,566	**60.7%**
R2	7,340	2,421	889	**36.7%**
R3	4,897	1,836	1,071	**58.3%**
R4	4,957	1,814	1,212	**66.8%**
	34,388	**11,902**	**7,137**	**60.0%**

Table 10 MGN Active Open Space Solar Access Analysis

	LOT AREA (SQM)	ACTIVE OPEN SPACE	
		Area >2hr solar access	Area receiving >2hr solar access (%)
Station Arrival Plaza	2,946	2,186	**74.2%**
Central Park Main	5,210	5,210	**100.0%**
Central Park South	796	749	**94.1%**
Fitness Park	3,029	3,029	**100%**
	11,981	**11,174.1**	**93.3%**

KEY SUMMARY

- 60% of the total communal open spaces receive a min. 2hrs sunlight in mid winter between 9AM-3PM.
- 93.3% of all active open spaces that includes Station Arrival Plaza, Central Park and Fitness Park receives a min. 2 hrs. sunlight in mid winter between 9AM-3PM.

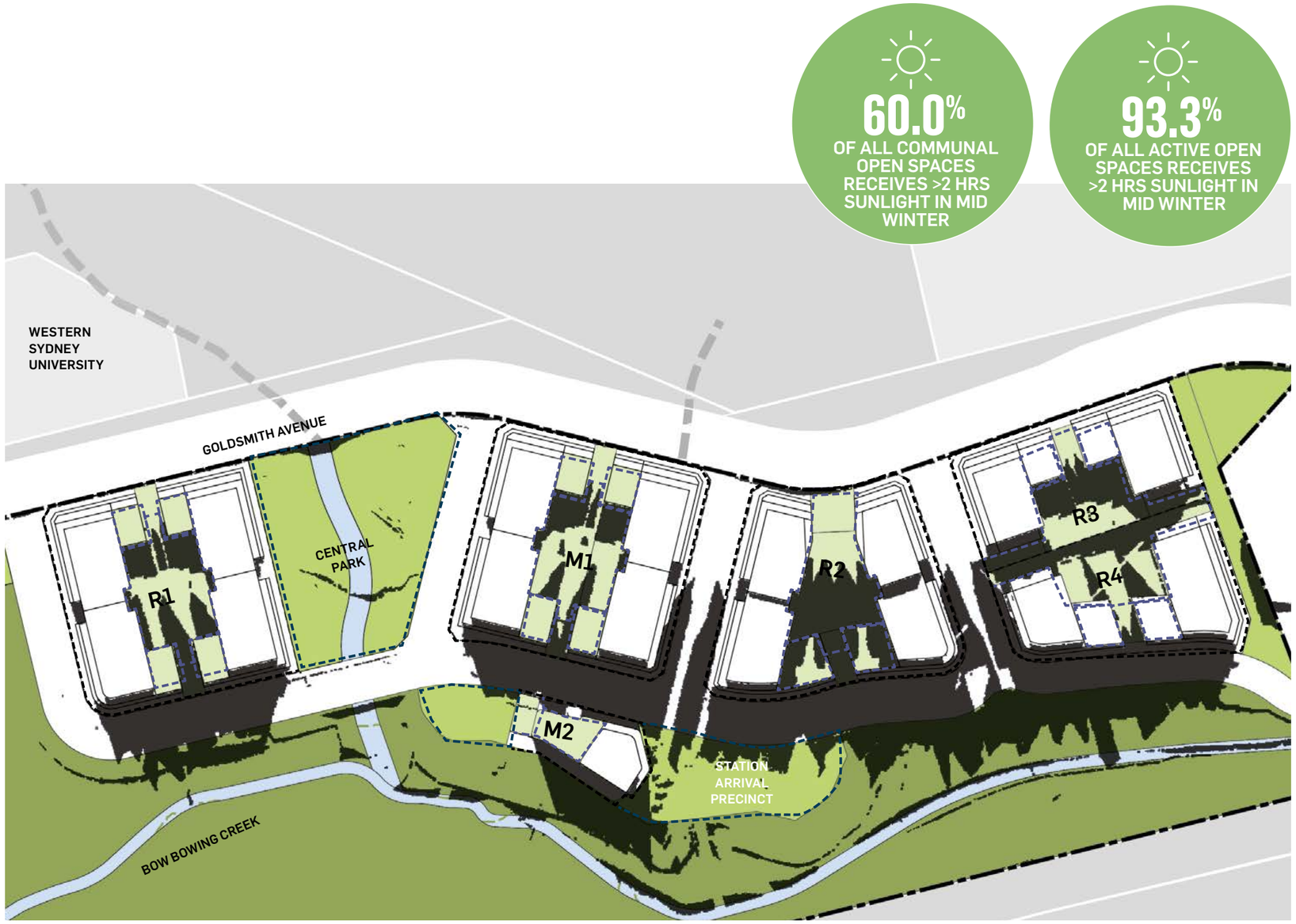


Figure 49 Shadow Analysis Summary

6.5 INDICATIVE RESIDENTIAL UNIT SOLAR ACCESS ANALYSIS

ADG & CDCP 2015 DESIGN CRITERIA

Both ADG and CDCP 2015 identifies the following requirements for solar access to habitable rooms/ private open space:

- A min. 70% of private open space/ habitable rooms receives a min. 2 hrs. sunlight in mid winter between 9AM to 3PM.

ANALYSIS SUMMARY

The following diagram analyses the indicative solar access study to the private open space/ balconies/ living room based on the indicative floor plans testing to demonstrate the ADG compliance.

Refer to the Appendix section for a detailed unit solar access analysis per floor.

Table 11 Lot R1 Units Solar Access Summary

	M1	M2	R1	R2	R3	R4	TOTAL
TOTAL UNITS	**300**	**48**	**312**	**285**	**144**	**161**	**1250**
Total Units with no sunlight (dw.)	8	4	8	22	9	12	**63**
Total Units with no sunlight (%)	2.7%	8.3%	2.6%	7.7%	6.3%	7.5%	**5.0%**
Total Units receives min. 2hr sunlight. (dw.)	243	40	207	185	104	96	**875**
Total Units receives min. 2hr sunlight. (%)	81.0%	83.3%	66.3%	64.9%	72.2%	59.6%	**70.0%**

70.0%
OF TOTAL RESIDENTIAL UNITS RECEIVES A MINIMUM 2 HRS SUNLIGHT IN MID WINTER

5.0%
OF TOTAL RESIDENTIAL UNITS RECEIVES NO SUNLIGHT IN MID WINTER

Figure 50 Level 2 - Indicative Floor Plan (Typical)

LEGEND

- Lot Boundary
- Units receive min. 2hr sunlight
- Units receive no sunlight

KEY SUMMARY

- 70.0 % of all residential units receives a minimum 2 hours sunlight in mid winter, complies with the 70% minimum requirement.
- 5.0% of all residential units with no solar access, far below max. 15% requirement.

6.6 INDICATIVE RESIDENTIAL UNIT CROSS VENTILATION ANALYSIS

ADG DESIGN CRITERIA

The ADG identifies the following requirements for residential unit cross ventilation:

- A min. 60% of residential units are cross ventilated.

ANALYSIS SUMMARY

The following diagram analyse the indicative cross ventilation study to residential units based on the indicative floor plans testing of lot R1 to demonstrate the ADG compliance.

Refer to the Appendix section for a detailed unit cross ventilation analysis per floor.

Table 12 Lot R1 Units Cross Ventilation Summary

	M1	M2	R1	R2	R3	R4	TOTAL
Total Units	**300**	**48**	**312**	**285**	**144**	**161**	**1250**
Total Units with cross ventilation (dw.)	223	42	220	207	118	109	**919**
Total Units with cross ventilation (%)	74.3%	87.5%	70.5%	72.6%	81.9%	67.7%	**73.5%**

KEY SUMMARY

- At least 73.5% of the total residential units are cross ventilated, exceeding 60% minimum requirement

73.5%
OF TOTAL RESIDENTIAL UNITS ARE CROSS VENTILATED

Figure 51 Level 2 - Indicative Floor Plan (Typical)

LEGEND

- Lot Boundary
- Units with cross ventilation

6.7 SITE SPECIFIC DCP

A Site Specific DCP has been prepared to supplement the CDCP 2015 to ensure MGN Precinct objectives and urban design outcomes are achieved.

The following design criteria identified under Campbelltown DCP 2015 have been taken into considerations when developing the building bulk, scale and form for MGN's residential and mixed use development.

DESIGN CRITERIA
4.2.2a Response to Context
4.2.2b High Quality Architectural Outcomes
4.2.2c Building Interface and Cross Ventilation
4.2.8.4a Waste Collection
4.3.1a Site Area Requirement
4.3.1b Block Width Requirement
4.3.2a Building Setback
4.3.3a Dwelling Unit Mix
4.3.3c Dwelling Unit Size
4.3.3f-h Common Lobby, Corridor and Lift Access
4.3.3j Deep Soil Planting
4.3.4h-j Residential Car Parking Rate and Bicycle Storage
4.3.5b Shadow Impact
4.3.5c-d Solar Access
4.3.8d Communal Open Space
4.4.3a Non-residential Car Parking Rate

Whilst the DCP provides general control for the design of residential development and mixed use development at Macarthur Gardens North, the proposal seeks to achieve desirable design outcome in accordance with both the Apartment Design Guide (ADG)

The following table identifies the proposed outcome in alignment with the Design Criteria outlined above.

KEY SUMMARY

The proposed Site Specific DCP is generally consistent with CDCP 2015 with the exception to four design criteria, being:

- Reduced building setbacks;
- Inclusion of accessible podium rooftop communal open space as part of communal open space provision;
- Reduced car parking ratio/ unit; and
- Reduced car parking ratio/ commercial GFA.

Table 13 Campbelltown (Sustainable City) DCP 2015, Volume 3 Deferred Areas DCP's Design Criteria for Residential Flat Buildings and Mixed Use Development

OBJECTIVES		DESIGN CRITERIA	ALIGN-MENT	PROPOSED OUTCOME
4.2.2 BUILDING FORM AND CHARACTER				
Response to Context	a	Building design shall consider foremost the qualities (both natural and built) and the desired future character of the areas including the significance of any heritage item on the land.	●	The Master Plan creates a place that responds to its proximity to Macarthur Station and the natural assets of Bow Bowing Creek.
High Quality Architectural Outcomes	b	Building design shall incorporate the following features to assist in the achievement of high quality architectural outcomes: • incorporation of appropriate facade treatments that help the development properly address the respective street frontages, key vistas and to add visual interest to the skyline; • incorporation of articulation in walls, roof lines, variety of roof pitch, individualised architectural features (balconies, columns, porches, colours, materials etc) into the facade of the building; • variation in the vertical planes of exterior walls in depth and/or direction; • variation in the vertical and horizontal planes of the building so that the building appears to be divided into distinct base, middle and top massing elements; • articulation of building facade (including rear and side elevations visible from a public place) by appropriate use of colour, arrangement of facade elements, and variation in the types of materials used; • utilisation of landscaping and interesting architectural detailing at the ground level; and • avoidance of blank walls at ground and lower levels	●	Detail design outcomes will be addressed at future DA stages.
Building Interface and Cross Ventilation	c	Building design shall demonstrate to Council's satisfaction that the development will: • facilitate casual surveillance and active interaction with the street; • be sufficiently setback from the property boundary to enable the planting of vegetation to soften the visual impact of the building at street level; and • maximise cross flow ventilation, therefore minimising the need for air conditioning.	●	■ The built form ensure passive surveillance by fronting the balconies and windows towards public domain including streets. This also supported by ground level activation through retail / commercial frontage and ground level apartments. ■ a min. 4.5m setback at ground level apartment with 3m wide deep soil private open space available for tree planting. ■ A min. 60% of all residential units are cross ventilated as required by the ADG.

OBJECTIVES		DESIGN CRITERIA	ALIGN-MENT	PROPOSED OUTCOME
4.2.8 WASTE MANAGEMENT				
Designated waste collection	4a	The designated area must meet the following requirement: • there shall be a minimum height clearance of 5.2m • there shall be a provision for a waste collection vehicle to empty bins on the vehicle's left side, allowing for a width of 3.8m from the right side of the vehicle to the collection point. • the minimum path width for a collection vehicle shall be 3.6m wide	🟢	Detail design outcomes will be addressed at future DA stages.
4.3.1 SITE REQUIREMENT				
Site Area	a	Residential flat buildings shall not be erected on land having an area less than 1,200 sqm.	🟢	The minimum lot size for high density residential lot is 1,210 sqm.
Block Width	b	Residential flat buildings shall only be permitted on an allotment having a minimum width of 30m measured at the front property boundary.	🟢	The minimum lot width fronting the street is 50m.
4.3.2 BUILDING SETBACK				
Setback	a	5.5 m from any street boundary, and 6m from any other boundary.	🔴	The proposal adopt a reduced ground floor street setback to 4.5m to front door for residential and 3.0m for ground floor retail / commercial. A min. 3m setback is applied for level 1. Refer to"CASE STUDIES OF SIMILAR SETBACK STRATEGY" on page 59 for reference of similar developments.
4.3.3 GENERAL REQUIREMENT				
Unit Mix	a	Minimum 5% of the total number of dwellings within a residential flat building shall be one (1) bedroom flat(s) or a studio(s).	🟢	An approx. 48% of all residential units are 1 bedroom & Studio.
	b	Minimum 10% of the total number of dwellings within a residential flat building shall be adaptable dwelling(s).	N/A	Detail design outcomes will be addressed at future DA stages.
Unit Size	c	The floorspace occupied by each dwelling within a residential flat building shall not be less than: • 35 sqm in the case of a studio flat; • 50 sqm in the case of a 1 bedroom flat; • 70 sqm in the case of a 2 bedroom flat; • 90 sqm in the case of a 3 bedroom flat or more.	🟢	The proposed dwelling sizes exceeds the ADG minimum requirement. Refer to "YIELD CALCULATION" on page 52 for average size/ units assumptions.
Common Lobby, Corridor and Lift Access	f	A maximum of 8 dwellings shall be accessible from a common lobby area or corridor on each level of a residential flat building.	N/A	Detail design outcomes will be addressed at future DA stages.
	g	All residential flat buildings shall contain at least one (1) lift for access from the basement to the upper most storey that provide access to a dwelling space. Further, the lift(s) shall extend to provide access to the roof space if the roof is intended for use by occupants of the building as a roof terrace	🟢	All lifts from basements are accessible to the upper floor dwellings.
	h	A maximum of fifty (50) dwellings shall be accessible from a single common lift.	🟢	The reference design indicates two lifts per circulation core.

OBJECTIVES		DESIGN CRITERIA	ALIGN-MENT	PROPOSED OUTCOME
Deep Soil Planting	j	A minimum of 25% of the required open space area, or 15% of the total site area, whichever is greater, shall be available for deep soil planting.	🟢	18.5% of total combined residential lots area is available for deep soil planting. This includes area within communal and private open spaces. Refer to "6.3 COMMUNAL OPEN SPACE and Deep Soil Zone PROVISION" on page 78 for the detail assessment.
4.3.4 CAR PARKING AND ACCESS				
Residential Car Parking Rate	h	Each dwelling shall be provided with a minimum of one car parking space, and: • an additional car parking space for every 4 dwellings; and • an additional visitor car parking for every 10 dwellings.	🔴	The master plan adopts lower parking space ratio/ unit based upon transport study and its proximity to the train station. Refer to "YIELD CALCULATION" on page 52 for parking ratio/ unit type assumptions.
Bicycle Storage	j	Each development shall make provision for bicycle storage at a rate of 1 space per 5 dwellings within common property.	🟢	The reference design indicates areas for bicycle storage which will deliver more than the requirements in the DCP.
4.3.5 SOLAR ACCESS				
Shadow Impact	b	A minimum 20sqm area of the required private open space on adjoining land, (having a minimum width of 3 metres), shall receive three (3) hours of continuous direct solar access on 21 June, between 9.00am and 3.00pm, measured at ground level.	🟢	A minimum of 20 sqm ground floor private open space receives a three hours of continuous direct slar access in mid winter.
Solar Access	c	Living rooms and private open spaces of at least 70% of dwellings within a residential flat building shall receive a minimum of 2 hours direct sunlight between 9am and 3pm at mid winter.	🟢	70.0 % of all residential units receives a minimum 2 hours sunlight in mid winter, complies with the minimum 70% requirement.
	d	Council may allow a design solution that result in up to 15% of the dwelling receiving no direct sunlight between 9am and 3pm at mid-winter.	🟢	Only 5.0% of all residential units with no solar access, far below max. 15% requirement.
4.3.8 COMMUNAL RECREATION FACILITIES				
Communal Open Space	d	Communal open space provided on the roof of a building shall not be included as part of the required communal open space.	🔴	An extensive communal open space has been provided at ground level totalling 24% of communal open space provision . The podium rooftop open spaces at level 2 and 3 are supplementary noting that access from the lift lobby is provided and apartment units fronting this open space. This result in a total 34.6% communal open space provision.
4.4.3 CAR PARKING AND ACCESS FOR MIXED-USE DEVELOPMENT				
Non-Residential Car Parking Rate	a	The development shall provide ▪ one(1) car parking space per 25m^2 of leaseable floor space at ground level and ▪ one (1) car parking space per 35m^2 of floor space at upper levels for all commercial/ retail parts of the building.	🔴	The master plan adopts lower parking space ratio of 95sqm retail / commercial GFA/ parking space based upon transport study and its proximity to the train station. Refer to Development Assumptions for retail / commercial parking ratio.

7.0 KEY OUTCOMES SUMMARY

The following section summarises the key design outcomes of MGN Precinct Master Plan and the alignment with relevant growth pillars, commitments and key outcomes identified in Re-Imagining Campbelltown City Centre Master Plan 2020 document on the opposite page.

ENHANCED BOW BOWING CREEK

The project will significantly enhance the natural amenity of Bow Bowing Creek as it restores the creek and provides 57.0% of the total site area as an open space reserve along the riparian corridor.

INCREASED TREE CANOPY

The revegetation of Bow Bowing Creek and the provision of new public domain and communal open spaces will enable the precinct to increase the tree canopy from the current 26.75% to 53.6%.

IMPROVED PUBLIC DOMAIN

The master plan provides three new active open spaces being the Station Arrival Plaza, the Central Park and the Fitness Park, which enrich both leisure and recreational opportunity across the precinct.

STATION ARRIVAL ACTIVATION

The project will activate the northern side of Macarthur Station by delivering a Station Arrival Plaza, a terraced landscape, a play space and ground floor retail activation.

BETTER CONNECTIVITY

The proposal will provide a safe and improved pedestrian connection to both Western Sydney University and TAFE through activated streets. The project also provides a dedicated pedestrian/ cycleway network along Bow Bowing Creek that connects Macarthur Station with Gilchrist Oval and Mount Annan Botanical Gardens.

MIX OF HOUSING OFFER CLOSE TO THE TRAIN STATION

The project is anticipated to deliver up to 1,250 apartments with varied unit types. The development application seeks the approval of a building envelope that can accommodate up to 1,250 apartments.

RE-IMAGINING CAMPBELLTOWN CITY CENTRE MASTER PLAN 2020 ALIGNMENT

GROWTH PILLARS, COMMITMENTS AND KEY OUTCOMES	MGN PRECINCT PROPOSED OUTCOME
PILLAR 2 CONNECTED PLACES	
2.1 Prioritise people within the city centre ▪ Healthy local streets; and ▪ East-west rail connections.	▪ Provide a street network that connects to key destinations including Gilchrist Oval, Bow Bowing Creek, TAFE, WSU and future sporting fields. ▪ Improves pedestrian connectivity between Macarthur Station, TAFE and WSU through accessible ramps from the Station Concourse.
2.3 Enhance the connections for the Macarthur community ▪ Connected personal mobility network.	▪ Provides cycleway network along Bow Bowing Creek that connects Macarthur Station to Mt Annan Botanical Garden and Gilchrist Oval.
2.4 Better connections between the city centre, Greater Sydney and beyond ▪ Inviting transport gateways.	▪ Creates an enticing station arrival plaza to the north of Macarthur Station with ground floor retail activation, open space amenities and play equipment for children.
PILLAR 3 CENTRE OF OPPORTUNITY	
3.2 Intensify land use to promote a more efficient and productive economy that optimises infrastructure investment ▪ Intensive innovative Macarthur; and ▪ A transition from low to medium intensity.	▪ Transition high density residential apartments around the station to medium density residential being terrace homes towards the east.
PILLAR 4 NO GREY TO BE SEEN	
4.1 Deliver a highly connected and comprehensive green grid which celebrates place ▪ Active and healthy people places for urban liveability; ▪ An accessible and connected network of green; ▪ Growing our native urban forest; and ▪ Green and blue not grey infrastructure.	▪ Deliver three new active open spaces that promotes healthy lifestyle being the Station Arrival Park, the Central Park and the Fitness Park. These open spaces are accessible and connected by a pedestrian and cycleway network. ▪ Protect Cumberland Plain and Riverflat Eucalyptus forest within Bow Bowing Creek Reserve. ▪ Provide 57.0% of the total site area as Bow Bowing Creek Reserve along the creek and its riparian zone.
4.2 Develop a resilient blue grid that restores waterway health, optimises use, reduces infrastructure investment and manages risk ▪ Attractive, healthy and accessible waterway; ▪ Bow Bowing; and ▪ Resilient water management.	▪ Restored 100% Bow Bowing Creek riparian zone through a revegetation strategy that enhances its biodiversity values. ▪ Maintain 87% existing Bow Bowing Creek alignment ▪ Provide a 1.2km shared pedestrian/ cycleway along Bow Bowing Creek Reserve.
4.4 Reduce the urban heat island effect ▪ A city centre that works with water; and ▪ Shading and protection.	▪ Integrates a water sensitive urban design basin with the landscape. ▪ Increases tree canopy to a total of 53.6% across the Site.

GROWTH PILLARS, COMMITMENTS AND KEY OUTCOMES	MGN PRECINCT PROPOSED OUTCOME
PILLAR 5 CITY AND BUSH	
5.1 Deliver an abundance of multi-use, high-performance open spaces accessible by all ▪ Passive recreation and community life; and ▪ Active and programmed recreation.	▪ Delivers Bow Bowing Creek Reserve as a passive recreational open space that will service the surrounding communities. ▪ Provides a variety of open spaces incorporating health, fitness, play, discovery and gathering programs.
5.2 Enrich the urban experience through a network of varied urban spaces that invite occupancy and activity ▪ Small scale spaces; ▪ Great civic spaces; and ▪ Fine grain connections.	▪ Provides a series of activated urban spaces from Macarthur Station to station arrival plaza and the main street towards Goldsmith Avenue.
5.3 Create a memorable, legible and green built form which celebrates its 'city centre in a valley' setting ▪ A city skyline framed in green; ▪ Memorable green arrivals; ▪ A city centre infused in green; and ▪ Place-responsive buildings and spaces to navigate the city centre.	▪ Concentrates the development along Goldsmith Avenue with significant open space setback from the railway corridor to maintain the green arrival experience to Macarthur Station; ▪ Provides a landmark building next to station arrival plaza as a marker to the precinct; and ▪ Provides a legible and inter-connected pedestrian and street network.
5.4 Celebrate Campbelltown's identity as a campus city through built form that embraces local character and place identity ▪ Hillside campus	▪ North-south tower orientation to optimise solar access and reinforce street views towards Bow Bowing Creek.
PILLAR 6 THE GOOD LIFE	
6.1 A city you can call home ▪ Density done well	▪ Intensifies the residential density around the station with ground floor retail activating the station arrival plaza and the main street.