Extract of Campus Master Plan 2014

Cox Richardson

Attachment A

JBA | 14399

EXTRACT FROM

MACQUARIE UNIVERSITY CAMPUS MASTER PLAN 2014

EXTRACT PROVIDED FOR
HERRING ROAD UAP SUBMISSION

AUGUST 2014

MACQUARIE UNIVERSITY

COX

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IMPORTANT NOTE

This document provides a summary of, and extracts from, the Macquarie University Campus Master Plan only in so far as the Master Plan relates to some of the key considerations raised by the Herring Road Urban Activation Precinct proposed by NSW Planning & Environment.

This Master Plan Extract document is not intended to be a comprehensive summary of the entire Campus Master Plan.

PLANNING OBJECTIVES

The 2014 Master Plan is structured around a robust public domain that builds on the original 1964 plan and helps create a more open culture and integrated campus.

It confirms the framework for the future development of the campus. and reinforces the importance of the public domain while guiding future growth. It aims to:

- build on Macquarie University's sense of history and place
- express the University's identity
- reinforce the sense of arrival, place and public domain
- create flexibility to adapt to new approaches to learning and teaching
- facilitate engagement with industry and business
- identify areas of potential growth across all areas of the campus
- provide a framework which will attract and retain the best students, researchers, staff and commercial partners
- build on the 1964 Master Plan
- enhance the public domain legacy of the original Master Plan
- introduce distinctive new spaces within the campus in anticipation of a growing population with a diverse and complex range of activities
- accommodate new student housing options on campus
- create a framework for optimising commercial value and ongoing economic viability of the campus buildings

It is important to note that this Master Plan is not intended to be proscriptive in any way. Instead, it is intended to provide a general framework to guide and assist the University in its decision making in respect to future development of the campus.

Public Domain

The new public realm will deliver a memorable campus suited to world class learning and research while accommodating the potential for substantial growth in the student population of the University and partnership with industry.

The quality of the public domain and the landscape quality are key elements in the Macquarie University experience. While buildings, uses and floor space on the site are important, the plan is fundamentally structured around the public domain – it is the primary organising element integrating the campus.

The Master Plan recognises the importance of the public domain and is structured around the creation of a robust landscape plan that will provide a strong and consistent framework for future growth of the campus. Where possible, existing trees are to be retained as the nucleus of the new open space network.

The open space network is defined by a series of Primary Spaces such as Wally's Walk, the Central Courtyard and a new University Common, Secondary Spaces and Streets and Links.

Sustainability

Sustainability principles have been an integral consideration for Macquarie University's campus since the University's conception, influencing early ideas of the University's location, character and the balance between natural and built environments.

Operational baselines have been established for preparation of the University's Sustainable Development Strategic Plan in 2014. The plan will be developed via series of workshops throughout 2014 and will include:

- sustainable Building Design Guidelines
- community and end-user engagement strategy
- strategy for an integrated approach to water catchment management, including the incorporation of rainwater harvesting and recycling
- Travel Plan
- sustainable procurement guideline of materials for infrastructure
- innovative programs geared towards achieving the One Planet Eco-footprint goal.

NEW INITIATIVES

Public Domain

- Remove traffic from the campus core
- New pedestrian only landscaped entry from Herring Road framed by low scale buildings
- Convert Macquarie Drive to "Macquarie Walk"
- New "University Common" and "Library Forecourt" in the centre of the campus linked to Central Courtyard
- New pedestrian "Sir Christopher Ondaatje Avenue" from University Creek Park to Mars Creek Lake
- New "Arts Lawn" or West Common
- New "The Grove" or East Common
- New campus pedestrian hubs, places and links
- New Talavera Road Entrance

Existing Places and Legacy

- Ensure buildings address an enhanced Mars Creek Park and University Creek Park
- Enhance Wally's Walk
- Revitalize University Central Courtyard
- Repurpose or adapt appropriate existing buildings
- Close southern end of Research Drive
- Enhance Balaclava Road and Gymnasium Road entrances
- Extend a pedestrianised Gymnasium Road to the Central Courtyard
- Enhance the landscape edges of the campus

External Connectivity

- Create new connections to Macquarie Park and Macquarie Centre
- Engage with a new Macquarie Town Centre on Herring Road
- Locate all bus stops on University Avenue

Activity

- Establish a new Great Hall meeting complex north of Mars Creek
- Establish a night activity zone connecting the library to the station
- Enable student housing in the Academic Core
- Enable additional activity hubs
- Relocate Chancellery to the core of the campus

Sustainability

- Achieve 5 Star Green Star ratings and 4.5 NABERS energy and water ratings for commercial buildings on the campus
- 40% reduction of greenhouse gas emissions intensity per square metre of gross floor area from 2009
- Reduce potable water consumption per EFTP by 40% of 2007 figures in new commercial buildings
- 90% waste diversion from landfill by 2020
- A "One Planet" or better ecological campus footprint by 2030
- Renewal of the "Campus in the Park" concept

Design Excellence

- Articulate a design excellence process
- Academic Structure and Growth
- Cluster common facilities in the core of the campus
- Cluster Arts and Human Sciences to the west of the common core
- Cluster Science, Medicine and Business to the east of the common core
- Permit maximum flexibility for growth and space per student

Partnerships

- Encourage industry partnerships both around and within the Academic Core of the campus
- Provide complete land use flexibility

Residential accommodation

- Encourage student, staff and visitor housing around and within the Academic Core of the campus
- Enable substantial university housing space on campus

Parking

- Move all parking to the perimeter of the campus
- Enable sufficient additional parking for commercial partners

THE MASTER PLAN

The plan acknowledges the existing planning structure and overlays a series of new and complementary ideas about the campus that will facilitate growth and reinforce identity. It introduces a number of faculty focused student commons and strong diagonal links into the heart of the campus while exploring opportunities for minor courtyard spaces to be created within blocks and linked to major grid thoroughfares.

The Master Plan does not seek to replace the approved 2009 Concept Plan, rather, it represents an internal guiding document which will be delivered via the approved Concept Plan.

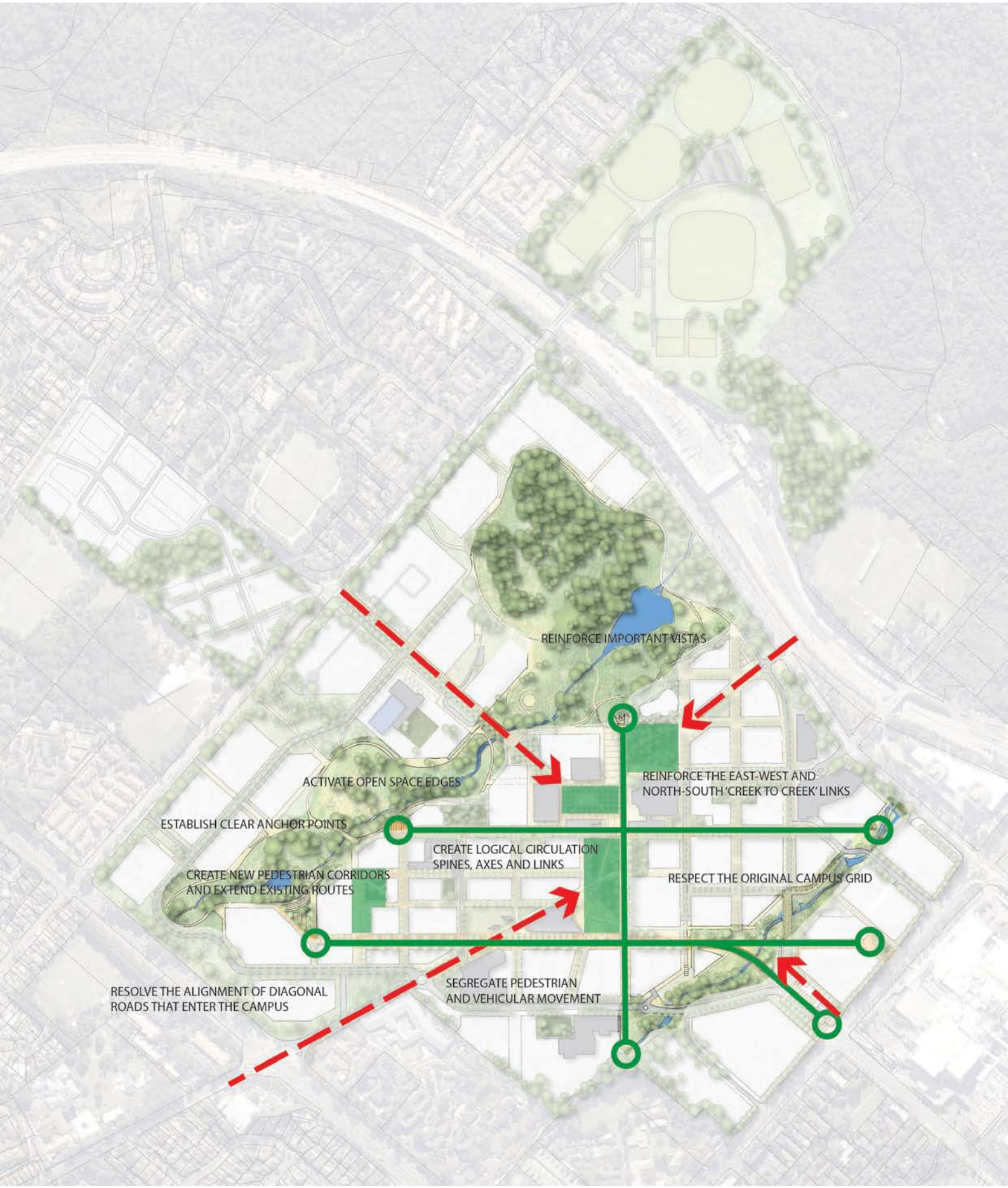
The Master Plan:

- anticipates the organisation of the campus into faculty-based precincts
- creates well scaled new major open spaces with good solar access as faculty 'hubs' in the east and west of the Academic Core
- upgrades the Herring Road frontage as the main point of entry to the campus
- creates new arrival experiences at other major entries:
  - Talavera Road into the campus core
  - Gymnasium Road
  - Balaclava Road
- creates a new University Common and a new North-South Walk that links Mars Creek to University Creek
- creates a new east-west pedestrian zone along the Macquarie Drive corridor (Macquarie Walk)
- creates a new diagonal entry from Talavera Road into the campus core that complements the western diagonal into the campus Core and better integrates the new north-east precinct
- retains and enhances the extended north-south and east-west vistas to open space of the previous options
- reinforces the connections to both Mars Creek and University Creek
- addresses and activates the Mars Creek and University Creek open space corridors
- encourages walking and cycling by creating extended pedestrian zones without the interruption of car parks and major traffic junctions.
- facilitates easy entry and exit to and from the commercial and academic precincts through the construction of new car parks that are relocated to the perimeter of the site
- restricts buses to University Avenue only
- envisages the creation of a new cultural building or other iconic feature as an 'arrival point' for the main entry via the Herring Road Gateway

Planning Structure

The original east-west grid plan of the campus delivers a high quality environment through good access to sunlight, a high quality landscape and well scaled places and connections. Both Mars and University Creeks play an important role in the University's landscape quality and amenity.

The Master Plan recognises these strengths and reinforces these elements.


REINFORCE IMPORTANT VISTAS
ACTIVATE OPEN SPACE EDGES
REINFORCE THE EAST-WEST AND
NORTH-SOUTH 'CREEK TO CREEK' LINKS
ESTABLISH CLEAR ANCHOR POINTS
CREATE LOGICAL CIRCULATION
SPINES, AXES AND LINKS
CREATE NEW PEDESTRIAN CORRIDORS
AND EXTEND EXISTING ROUTES
RESPECT THE ORIGINAL CAMPUS GRID
RESOLVE THE ALIGNMENT OF DIAGONAL
ROADS THAT ENTER THE CAMPUS
SEGREGATE PEDESTRIAN
AND VEHICULAR MOVEMENT

AERIAL VIEW FROM WEST


Legend
Legacy Buildings
Lots
Open Space
Primary Green Space
Primary Circulation
Secondary Circulation
Pathways

Night Activity Zone

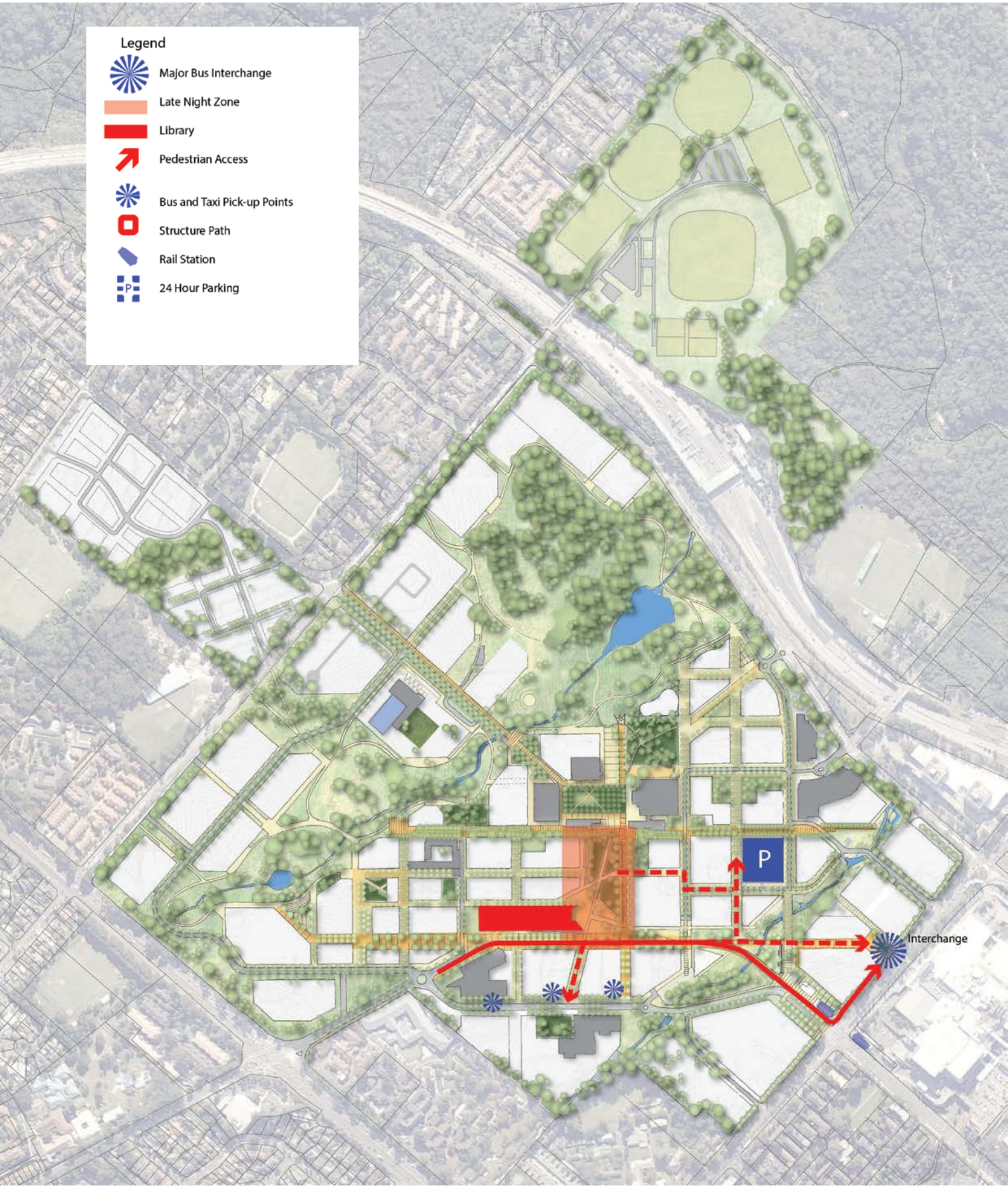
With the opening of the Library and Learning Centre, operating after hours, the potential exists for other student services to extend longer into the evening hours. Safe access to buses, taxis and trains must be possible at all times.

A night activity zone will be centred on the new University Common where the area and key links to transport and parking will be complemented by improved lighting, CCTV surveillance and visual links.

As the new major entry pathways are envisaged for in this zone, a new Campus Reception may be located close to Macquarie University station.

Other potential locations for the campus reception are:

- along Macquarie Walk near the University Common and Learning Centre
- along the north-east spine from the Talavera Road entry toward the Central Courtyard
- adjacent the Central Courtyard
- adjacent the University Common



NIGHT ACTIVITY ZONE

ACCESS

Primary Connectors

Successful campuses are pedestrian-focused, with walking distances carefully managed. The existing pedestrian networks on the campus however, are discontinuous, often conflicting with vehicle access and have variable grade.

The Master Plan maintains the flexibility of the existing grid and extends it further across the site. The introduction of new diagonal elements seeks to optimise walking distances across the campus and better connect the campus.

The majority of the extended Academic Core remains within 400 metres walk of the major arrival points to campus – the bus stops (relocated to University Avenue) and the railway station.

The Master Plan seeks to:

- create clear lines of circulation through the Academic Core
- end pedestrian corridors on open spaces or major buildings
- ensure that the spaces are well scaled and easily traversed
- extend the University's high quality landscape through the network
- develop a new east-west pedestrian link along the Macquarie Drive axis (Macquarie Walk)
- develop a new north-south pedestrian link adjacent to a new University Common (Sir Christopher Ondaatje Avenue)
- extend Wally's Walk to University Creek
- achieve separation from vehicular service routes and loading areas
- provide direct links to car parks, public transport and building entries
- achieve gradients of less than 1:20 on the majority of pathways. Where gradients are steeper or stairs are required, alternative pathways or lift access is to be considered

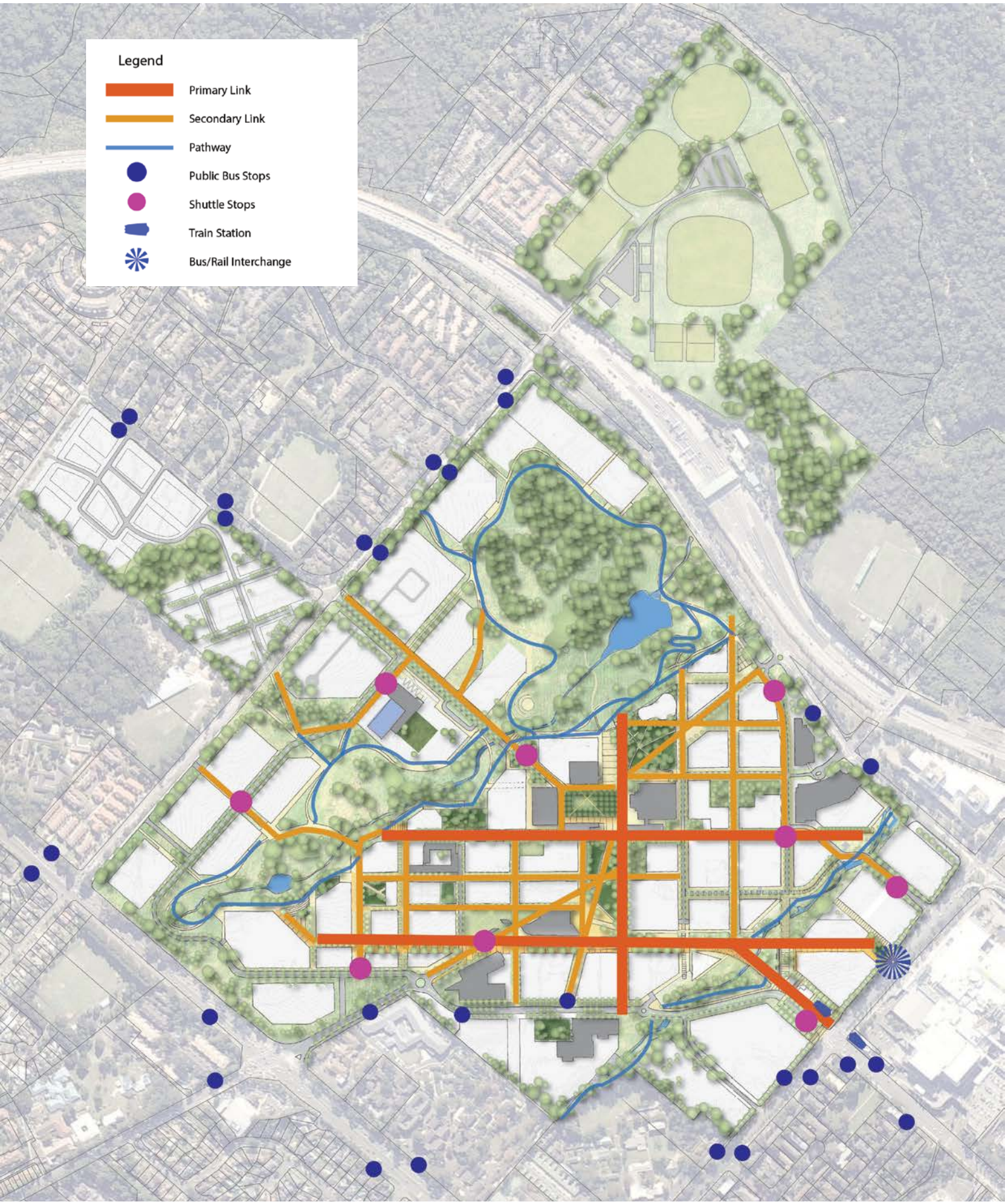
WALLY'S WALK

Disabled Access

Macquarie University aims at achieving fully compliant disabled access across most of the campus. This includes accessibility from transport nodes to all buildings, accessibility within buildings and accessibility across the public domain.

The Master Plan facilitates access through the extended grid. In areas of steep topography initiatives are to be introduced to mitigate impediments with alternate routes to all destinations:

- new buildings should achieve level access at major entries
- accessible gradients should be achieved wherever possible throughout the public domain
- major level changes on significant public paths should be negotiated by lifts or ramps in the same course of travel
- a campus-wide access policy (closely related to the public domain detailing and the way-finding strategy should be developed and implemented to best current practice


Legend
Primary Link
Secondary Link
Pathway
Public Bus Stops
Shuttle Stops
Train Station
Bus/Rail Interchange

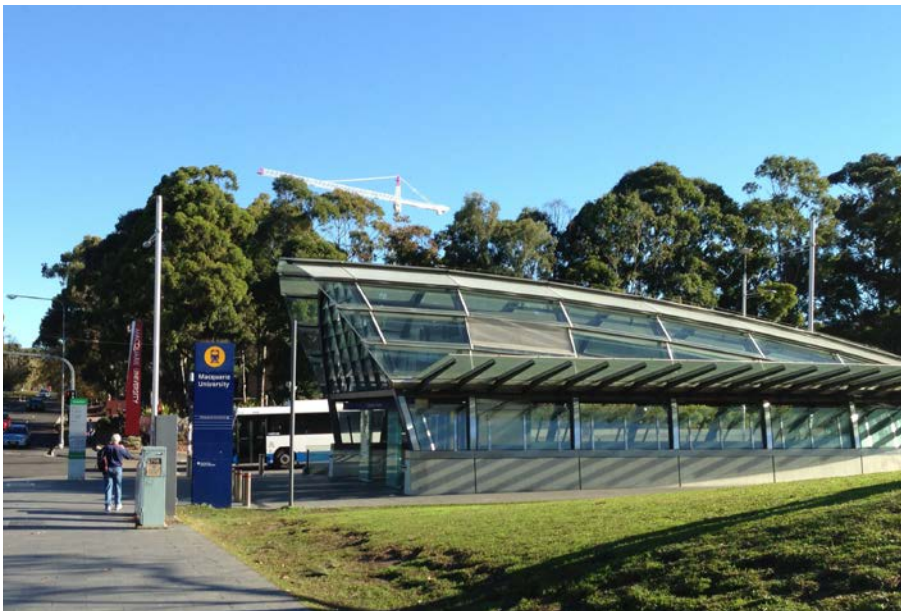
Public Transport Access

Macquarie University is well served by public transport. As students University staff and staff of businesses located on campus will increasingly arrive by public transport, the Master Plan seeks to maximise access and appropriate entry points to the site.

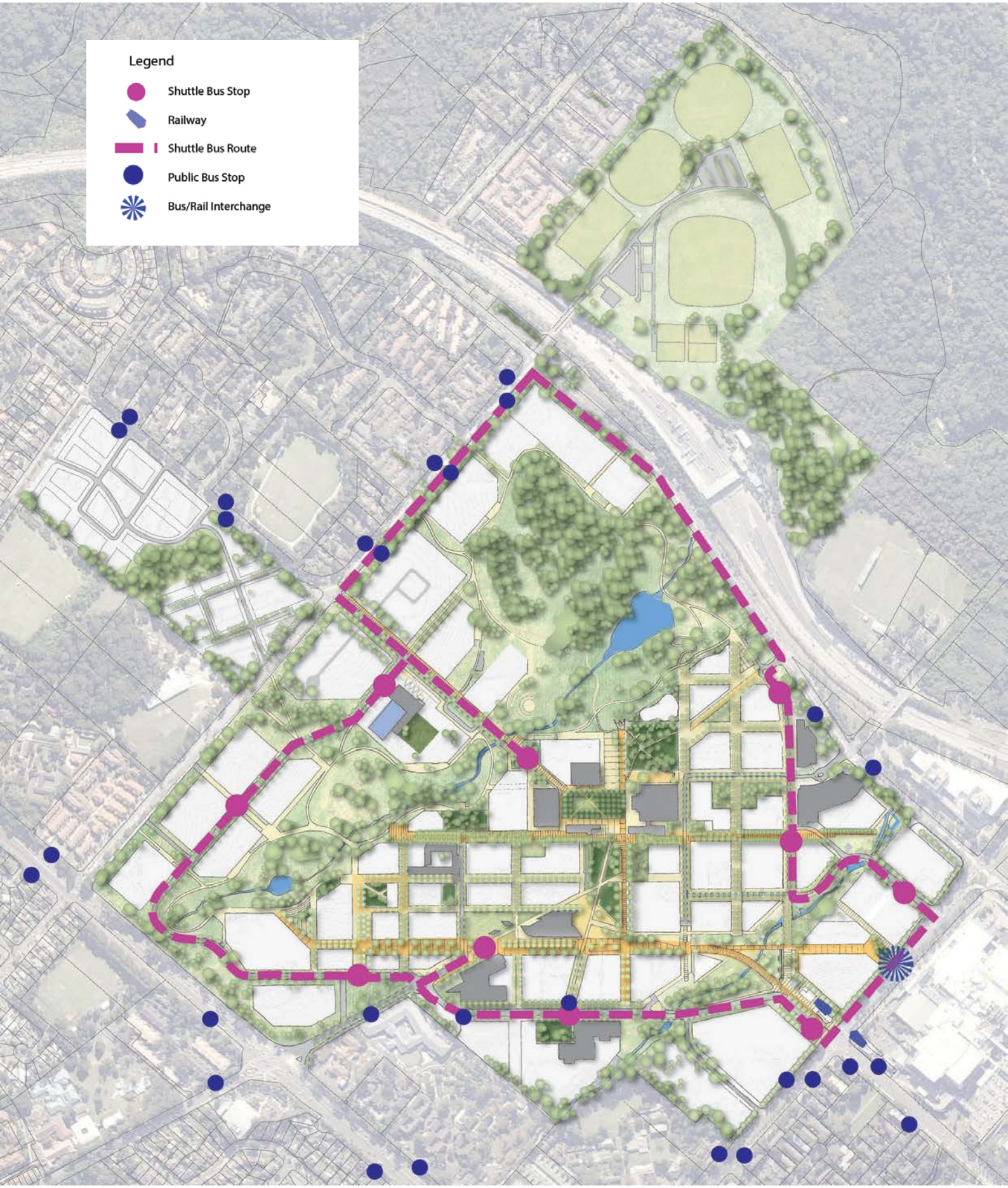
The presence of a rail station on campus facilitates high-volume public traffic to the Waterloo Road campus entry.

The Master Plan seeks to:

- allow the routing of regional bus services through the campus along an upgraded University Avenue
- connect new shuttle bus stops to the heart of the campus, the Common and the Learning Centre by new pedestrian links
- reinforce ease of movement from bus and rail stops with the Academic Core remaining mostly within 5 minutes' walk of each faculty
- facilitate pedestrian connections to the Macquarie Town Centre bus interchange
- extend the existing shuttle bus service to effectively facilitate movement of pedestrians between public transport nodes, car parks and key areas of the campus



MACQUARIE UNIVERSITY STATION


Legend
Shuttle Bus Stop
Railway
Shuttle Bus Route
Public Bus Stop
Bus/Rail Interchange

Vehicular Access

As the campus grows, so too does the need to manage traffic both through and within the campus. The increase in student numbers through the Academic Core and the re-planning of the peripheral zones has seen a number of initiatives identified in the Master Plan. These include:

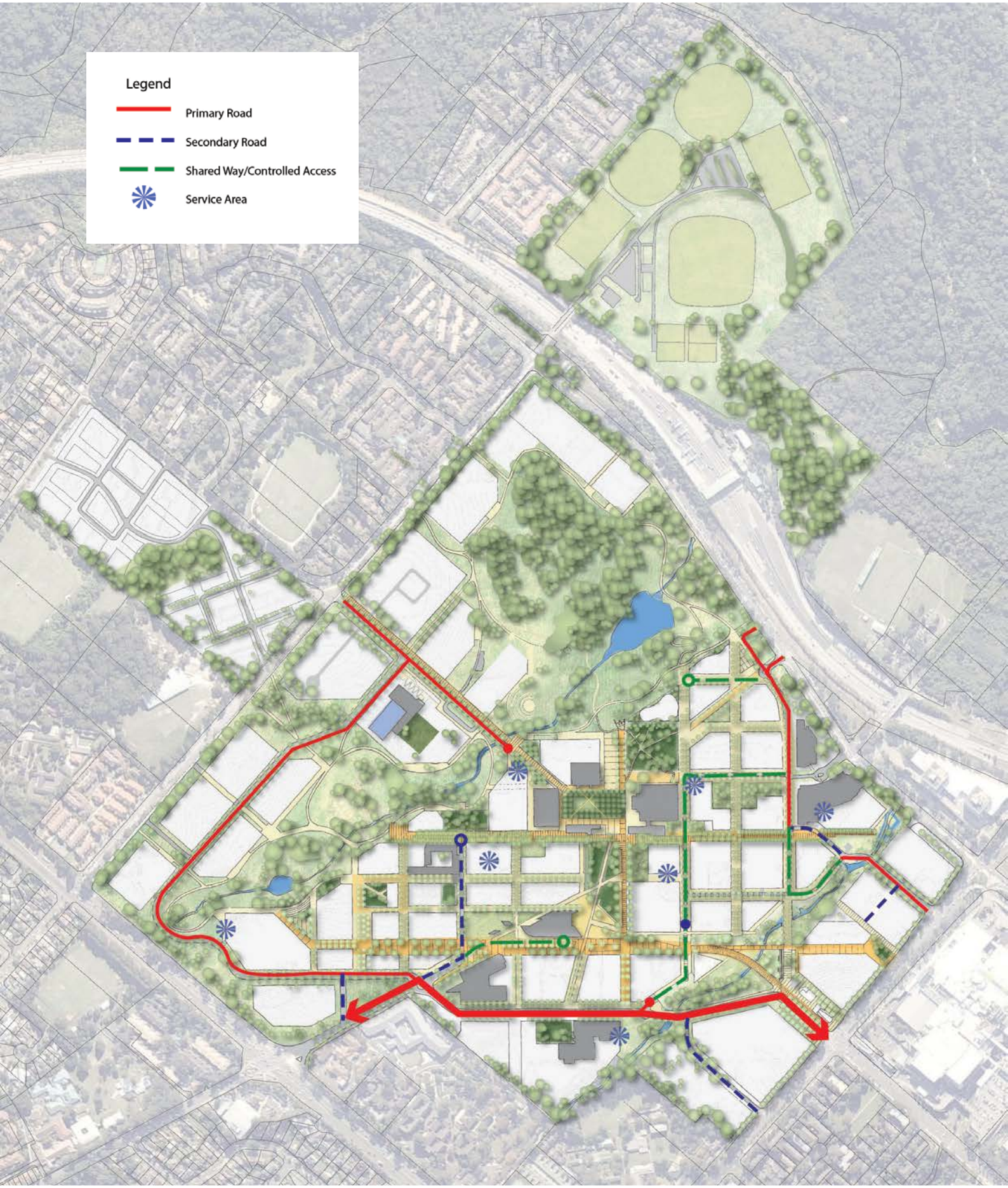
- the pedestrianisation of Macquarie Drive
- realignment and redesign of University Avenue as the major road through the University
- upgrade of the Herring Road approach
- upgrade of the Balaclava Road approach
- redesign of roads through the Western Zone of the campus to facilitate new parking structures and future commercial and research buildings
- realignment of Gymnasium Road to better interface with Culloden Road and the Central Courtyard
- upgrade the Talavera Road approach

Servicing Strategy

The existing 'alternating grid' principle for service access should be maintained and reinforced. This allows a minimum of vehicular intrusion into the campus core.

Time-restricted service access could also be explored in the future to reduce service vehicle movements during peak periods..

SHARED ACCESS


Legend
Primary Road
Secondary Road
Shared Way/Controlled Access
Service Area

Cycle Strategy

Significant growth in cycle usage on campus is anticipated in the future. The University's cycle strategy suggests that some 2,000 bicycle spaces will be needed.

Several initiatives are included in the plan:

- locate bike parking in suitable areas across the campus
- provide a number of fully equipped bike hubs with secured, covered bicycle storage at each precinct within the site, distributed near major teaching areas
- provide additional related amenities such as change rooms, toilet facilities and retail opportunities near each hub
- locate cycle hubs at the perimeter for the Academic Core so that all buildings can be reached within a short walk of the nearest hub

No dedicated cycle lanes will be provided on campus.

CYCLE NETWORK

BUILT FORM AND PUBLIC DOMAIN

Campus Edges

The University has just over 3km of public frontage to Epping, Herring Talavera and Culloden Roads. These edges have an important role in defining the character and public face of the University.

The strong landscape quality is one of the key images of the campus. The edge treatments should help reinforce that character. There are however a number of different conditions around the site:

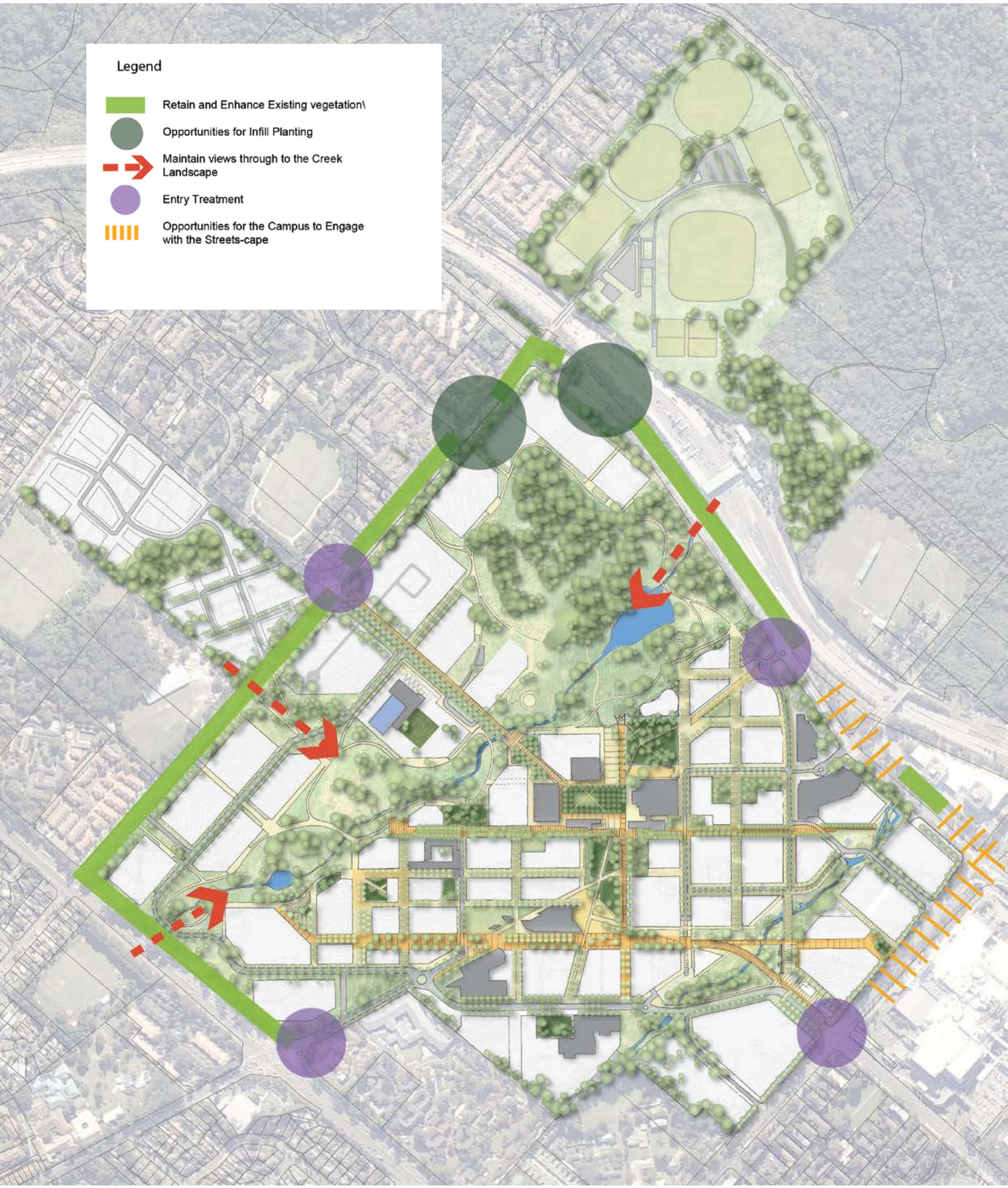
- Culloden Road – Native ridge planting with views down into the campus from a number of points
- Talavera Road – Strongly influenced by the rolling topography. Falls away to the Mars Creek valley where there is denser planting. There is a level change up to the lake level
- Epping Road – The frontage between Balaclava and Culloden Roads has largely eucalypt planting as it falls the Mars Creek valley
- Herring Road – Soon to be the focus for a new urban precinct, Herring Road will have a mix of formal street planting with pockets of native forest in the south-east corner of the campus

Planting strategies that reinforce these different conditions will be balanced by intensification of uses and activity along these edges. Buildings should create address points and identity along these edges.

Views into the site are possible at a number of points and should be reinforced by the planting strategy.

Landscape Principles

- retain existing boundary planting and enhance by planting in any gaps
- new plating to be informal groupings of native species that complement the existing species
- retain any significant views through to the campus core
- recommended species include Angophora costata (smooth bark apple), Eucalyptus punctata (grey gum), Corymbia citriodora (lemon scented gum), Syncarpia glomulifera (turpentine)



CAMPUS EDGES

Herring Road Gateway

As the primary point of entry to the campus, the Herring Road Gateway has assumed an increased importance since the construction of the Macquarie University railway station and is now the 'front door' to the University. The pedestrian environment remains challenging with high volumes of pedestrian flows and traffic converging around this intersection.

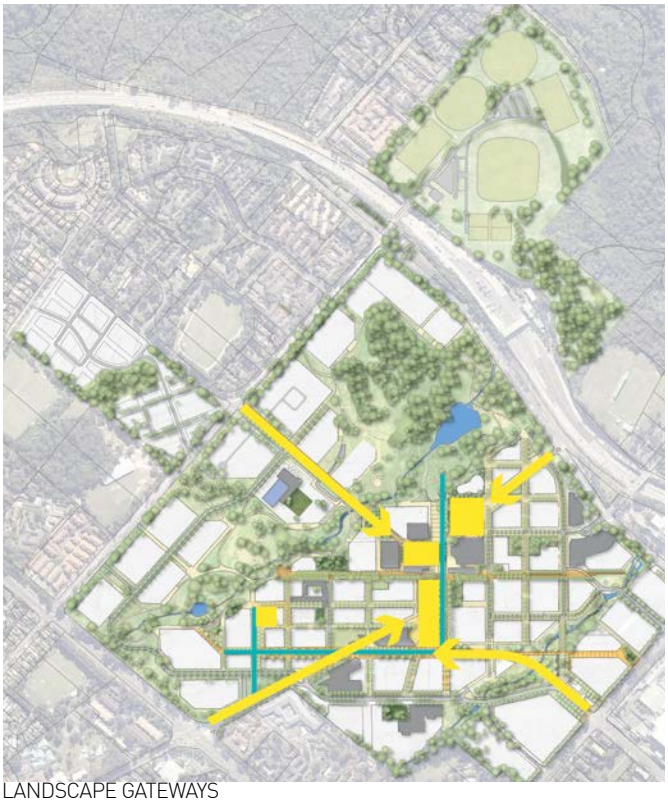
Responding to the potential of future growth in the Macquarie Park corridor, the Master Plan seeks to reinforce the entry and the quality of the arrival experience and accommodate increased flows of students from the station and bus interchange on Herring Road.

Principles

- create a dramatic and iconic landscape entry to Macquarie University
- improve the pedestrian experience and flows into the campus
- maintain a clear vista into the campus from viewpoints along Waterloo Road to the south-east
- direct pedestrian flows into the new University Common
- manage student traffic across Herring Road to Macquarie Centre
- improve the awareness and relationship to University Creek
- develop the built form to reinforce the pedestrian entry experience

Landscape

- entry to have a sense of arrival created by strong avenue planting of deciduous feature trees.
- formality and structure of the streetscape planting to contrast with the informality and deep green foliage of the vegetation around the water courses
- avenue planting to recognize and enhance the view corridor through to the campus heart
- the landscape setting is to be activated by the use of raised planting beds with informal and formal seating nodes.
- recommended species include Koelreuteria paniculata (Golden Rain Tree), Sapium sebiferum (Chinese Tallow), Gleditsia tricanthanos 'Sunburst' (Golden Honey Locust)



LANDSCAPE GATEWAYS

HERRING ROAD GATEWAY

HERRING ROAD GATEWAY


MACQUARIE UNIVERSITY

Macquarie Walk

The pedestrianisation of Macquarie Drive and its extension to the west will form the basis of a new high quality space linking the east and western ends of the Academic Core. It will become important as an address for new campus buildings that are to form part of the Arts and Human Sciences faculties

Like Wally's Walk, it will be a connector between open spaces at Mars Creek and University Creek.

Principles

- develop a distinctive indigenous and deciduous tree planting along the Walk
- enhance creek connections at each end
- locate accessible entries and building address points along the Walk
- locate discrete servicing points only on side corridors
- reinforce active uses at ground level - lobbies, cafes and meeting places
- ensure high visibility into each building from the Walk
- develop shelter elements along the Walk or at adjoining buildings

Place Making

Function

- pedestrian boulevard, public focussed

Character

- green, energetic, impressive, open (predominantly Indigenous landscape)

Description

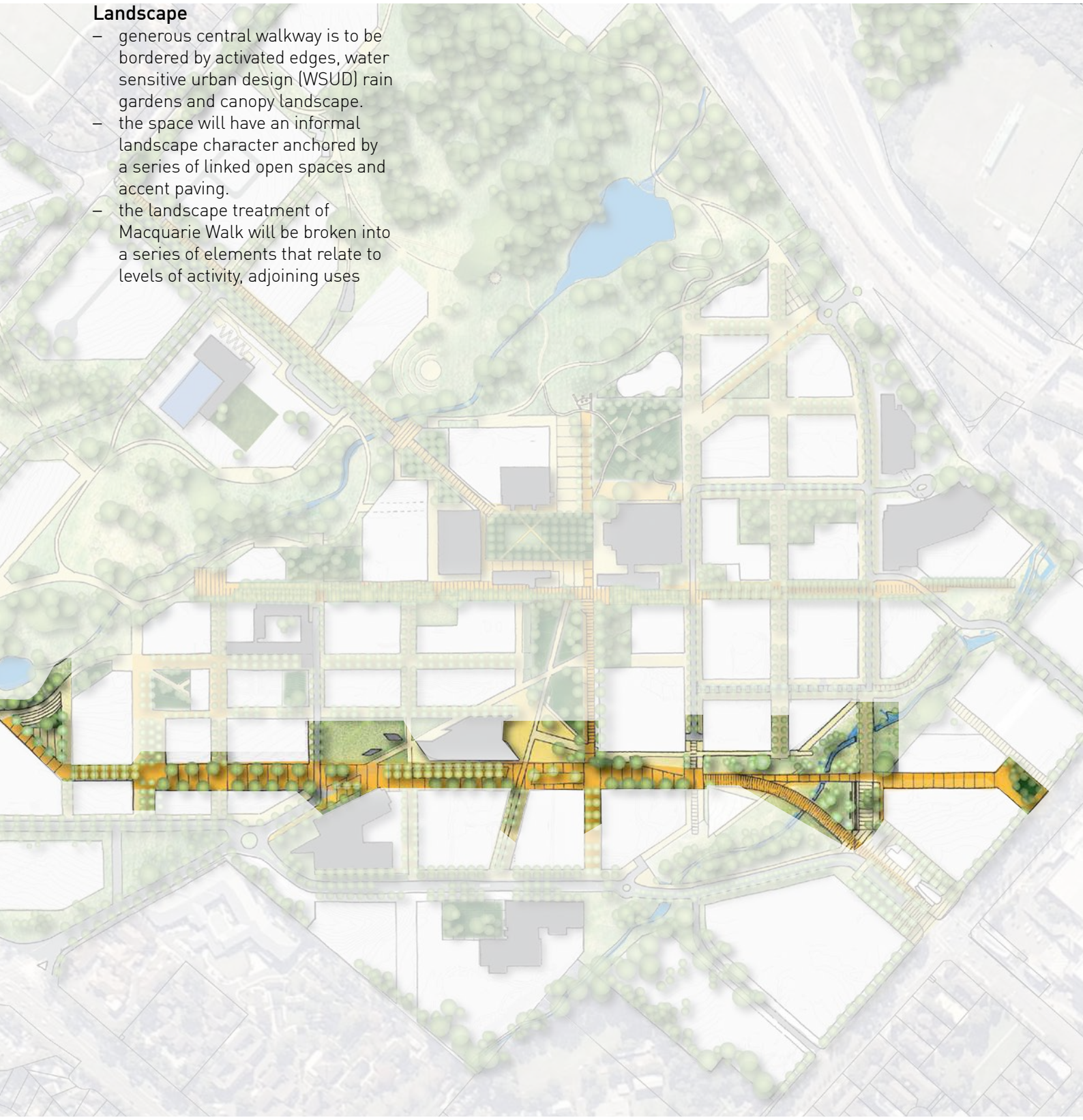
- Macquarie Walk is one of two major east-west links through the university and for many, the main entry path into the central core. It defines the arrival experience and first impressions of thousands of people each day, and as such should strongly communicate the campus identity, atmosphere and values

Place principles

- draw on the character of the creek landscape with predominantly indigenous planting and trees, as well as colour and movement
- the primary activity is pedestrian movement to connect to major destinations along the Walk, this is less a staying place than a place to move through
- the Walk should offer easy and clear connections with all key nodes offering university wide directional signage including campus maps and general information
- Macquarie Walk, particularly between the Library and the Station should be well lit and monitored for safe movement between destinations

Landscape

- generous central walkway is to be bordered by activated edges, water sensitive urban design (WSUD) rain gardens and canopy landscape.
- the space will have an informal landscape character anchored by a series of linked open spaces and accent paving.
- the landscape treatment of Macquarie Walk will be broken into a series of elements that relate to levels of activity, adjoining uses



University Creek

University Creek is to be improved under existing plans to mitigate flood risk, ensure conservation and enhancement of the habitat in the creek corridor and contribute as an important element of the principal entry into the University. The creek landscape is seen as a defining edge of the Academic Core and as a landscape frame for the campus.

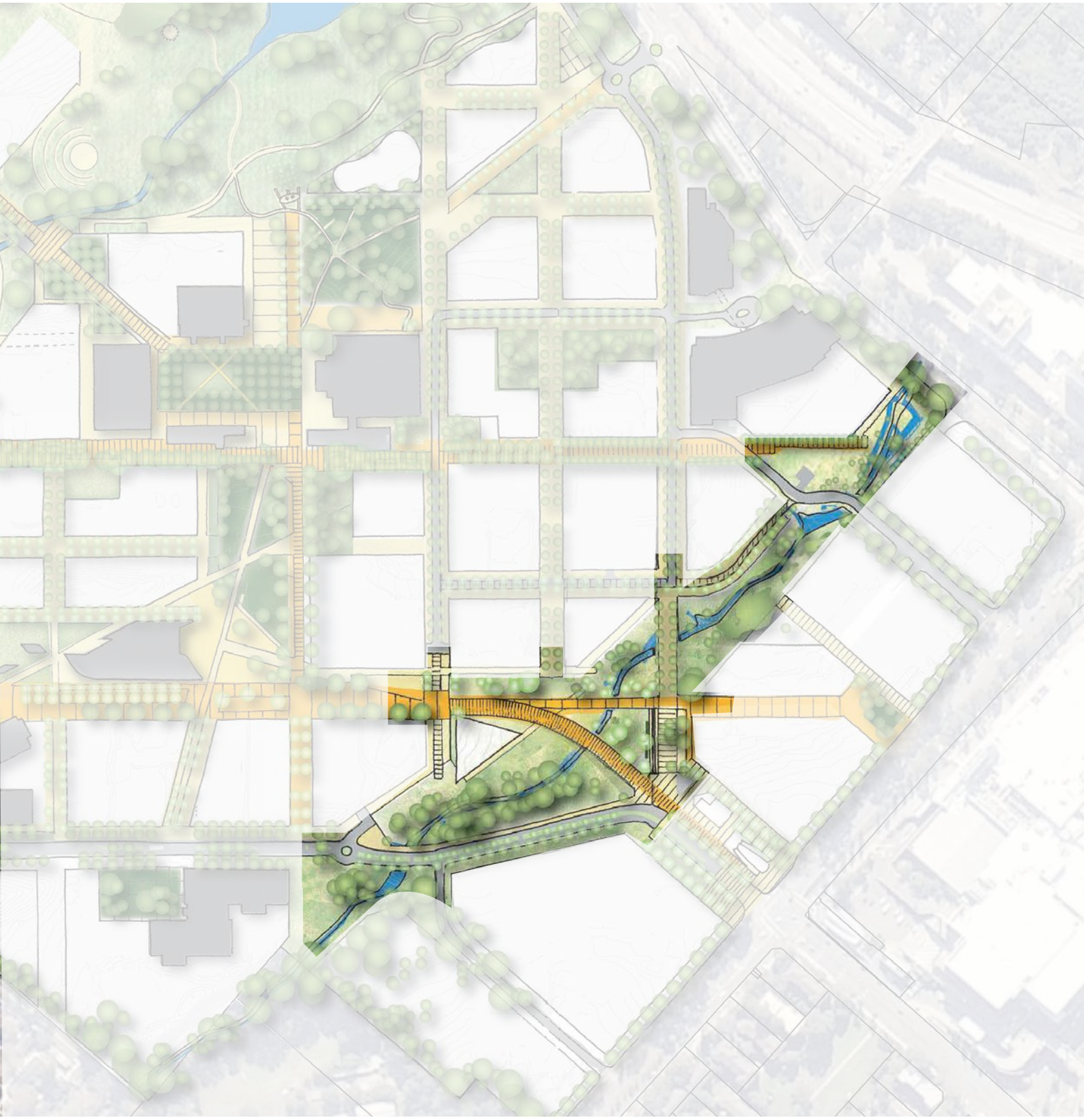
The redesigned University Avenue entry will improve gradients and ease of movement from the rail station to the campus heart. The arrival walk along an elevated pathway through the creek habitat, within shade of its tall tree canopy, will be a unique and memorable experience in a major university campus.

Principles

- implement the landscape rehabilitation plan for University Creek
- adopt the full riparian zone, with wider setbacks to buildings, throughout the creek corridor
- extend the Sir Christopher Ondaatje Walk axis south from Macquarie Walk to engage the creek zone
- take advantage of progressive phases of the Master Plan to remove buildings such as car park F3A from the creek zone
- provide continuous accessible pedestrian paths along the edges of the creek zone
- review the 200ARI flood risk to existing buildings in the Research Park and plan for long- term improvements
- redesign storm water catchment and outflows to minimise catchment run-off from the developed campus core areas

Landscape

- rehabilitate and naturalise creek line in accordance with the NSW Office of Water requirements
- provide interesting areas of open space for passive recreation and campus events
- create a terraced urban plaza that integrates the creek landscape with the University Avenue campus gateway
- provide a walking track that relates to the creek, plazas and pedestrian nodes
- provide opportunities for and encourage art installations in and around the creek landscape
- provide interesting and sensitive creek crossings and elevated walkways
- consider the opportunity to create a water feature to enhance the campus entry experience



UNIVERSITY CREEK

Development Parcels

The Master Plan identifies new parcels, based on the original grid through the centre of the campus although less rigidly adhering to the grid, to better relate to external and internal conditions.

Sites have been identified based on a series of principles:

- respond to the new axis framework
- reinforce the original Walter Abraham planning structure
- maintain legacy buildings
- develop standard widths for links based on pedestrian needs and opportunities for ancillary landscape and buffer zones

CAMPUS AERIAL


B01 43435 m²
B02 34598 m²
B03 16207 m²
B04 15660 m²
B05 7052 m²
B06 9427 m²
B07 18078 m²
B08 6400 m²
H01 20484 m²
F01 6679 m²
F02 5574 m²
F03 6030 m²
F04 15824 m²
G01 10772 m²
G02 4994 m²
G03 2028 m²
G04 8369 m²
G05 1570 m²
G06 1630 m²
A10 2263 m²
A09 2365 m²
A04 3409 m²
A14 1907 m²
A17 5213 m²
A16 2363 m²
A08 3639 m²
A03 4270 m²
D07 5890 m²
D06 8368 m²
D04 3266 m²
A24 5640 m²
A21 3539 m²
A18 1112 m²
A13 7020 m²
A07 3626 m²
A02 3431 m²
A28 1809 m²
A31 3149 m²
A27 4571 m²
A23 3938 m²
A20 4088 m²
A12 2477 m²
A06 5313 m²
A01 5920 m²
D05 3551 m²
D03 8377 m²
A30 740 m²
A26 1948 m²
A22 2802 m²
A19 3353 m²
A11 7014 m²
A05 3430 m²
E12 1858 m²
D02 3247 m²
D01 3234 m²
A29 2085 m²
A25 3739 m²
A18 9049 m²
E01 6984 m²
E02 6263 m²
E03 4993 m²
E04 5193 m²
E05 1694 m²
E11 15193 m²
E08 5184 m²
E06 11482 m²
E07 8487 m²
E10 18871 m²
E09 7585 m²

Building Heights

Under the new Urban Activation Precinct and previous planning controls there are no height limits on any site other than those along Herring Road.

The Master Plan maintains this approach and responds to new height limits at Herring Road while freeing up the rest of the campus to respond to height opportunities. Most importantly however, the final scale of buildings within the heart of the campus will be controlled to optimise solar access in the new and existing common spaces as development sees the replacement or refurbishment of existing stock as appropriate.

Height through the Academic Core is to ensure that appropriate building heights frame and define major spaces while permitting access to sunlight. Heights are increased in areas that do not impact major open spaces to accommodate increased density for future uses.

The Master Plan seeks to:

- establish a compatible transition in heights based on new building approvals along Herring Road
- limit heights at the University Avenue by setting taller buildings back from the entry to create an appropriate scale for the University's main entry
- adjust height controls at Culloden and Epping Roads to reflect the new planning structure and the extension of the Academic Core

BUILDING E7A

MACQUARIE UNIVERSITY HOSPITAL

INDICATIVE HEIGHT TARGETS. SUBJECT TO REVIEW AND DETAILED ANALYSIS

PROPOSED BUILDING HEIGHTS


MACQUARIE
UNIVERSITY
COX

Review of Transport Strategy

Arup

Attachment B

JBA | 14399

Your ref
Our ref
File ref

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7 August 2014

Dear Oliver

Herring Road Urban Activation Precinct - Review of Transport Strategy

Arup, on behalf of Macquarie University, has undertaken a review of the transport strategy (prepared by AECOM) supporting the Herring Road Urban Activation Precinct (UAP) Planning Report. Key findings of this review are outlined in the table below.

Issue	AECOM report reference	Arup Commentary
Bus movements	Section 4.4, page 36	The AECOM report has noted that a comprehensive upgrade of the Herring Road bus interchange may be required to accommodate future public transport growth in Macquarie Park. This infrastructure measure is supported to promote public transport usage and reduce car dependency, and is viewed as a critical piece of infrastructure that will be key for the success of the Herring Road precinct. It should be noted that a new bus interchange would provide the opportunity for the re-routing of buses in the Macquarie Park area. This may include the removal of bus layovers and a refinement of the through bus movements within the Macquarie University campus. Prior to the introduction of the enhanced bus interchange, it is recommended Transport for NSW consult with Macquarie University to work towards a solution for accommodating bus movements in the Herring Road precinct.
	Figure 4.2, page 37	Macquarie Drive is indicated to form part of the bus network serving the Herring Road precinct. The Macquarie University Master Plan has proposed that all bus movements in the campus (in the short term) will be via University Avenue, with Macquarie Drive to be a pedestrian only route.
Traffic modelling	Section 5.0, page 44	The upgrade of the Macquarie Centre bus interchange will likely require bus priority measures (jump starts) to be provided at the Herring Road / Waterloo Road and Herring Road / Talavera Road intersections. These bus priority measures have not been included in the traffic modelling undertaken by AECOM.

Issue	AECOM report reference	Arup Commentary
Mode share	Table 2.7, page 11	Table 2.7 of the AECOM report summarises the journey to work mode share for residents of the Herring Road precinct. It should be noted that Macquarie University (through the Concept Plan) has developed a target of 40% non-car mode share for the academic and commercial uses. In recent years, following the introduction of the Chatswood to Epping rail line and other travel demand initiatives implemented by Macquarie University, this mode share target has been reached and exceeded.
Proposed street network	Section 4.5.2, page 39	The new road connection from Herring Road into University Avenue (at Dunmore College) will provide a more permeable road and pedestrian network for the Herring Road precinct. It is recommended controlled pedestrian crossing legs be provided on all approaches of the intersection to support improved accessibility for pedestrians across Herring Road.
Transport infrastructure	Section 2.4.3, page 8	The Macquarie University TMAP identified a series of transport infrastructure works to support the future growth of Macquarie Park area. These works were the result of the combined growth of Macquarie University and other land uses within Macquarie Park. The funding of these works is to be provided by a number of land owners which will contribute to increased traffic movements at key locations. The cost of the works are to be shared between a number of developments contributing to traffic growth in the precinct. Macquarie University have agreed in-principle to a cash contribution towards works at the following intersections: - Epping Road / Herring Road; and - Epping Road / Balaclava Road It should be noted that Table 2.5 of the AECOM report, read in isolation, implies Macquarie University is the sole authority responsible for these works, which is not the case. The table is derived from the Preferred Project Report which accompanied the Concept Plan prior to its approval. Conditions of approval have subsequently superseded the TMAP recommendations and set the appropriate terms of Macquarie University contributions at that time via an agreement with the RMS. The agreement with the RMS for the two remaining intersections is still to be formalised and should be considered in any new UAP-wide arrangement for securing works or funding for intersection upgrades. It may be timely to revisit this proposed agreement to ensure nexus and apportionment principles are employed effectively. Section 5.3.3 of the AECOM report supports this strategy by acknowledging that a "*whole of network management approach*" is required to support the growth in traffic volumes in the Herring Road precinct. Upgrade works have recently been completed at the Herring Road / Waterloo Road intersection in conjunction with the Cochlear development. The M2 upgrade works included upgrades to a number of intersections on Talavera Road. There has been recent in-principle agreement between Macquarie University, RMS and City of Ryde regarding upgrades to the cycle network serving the Herring Road precinct.

Issue	AECOM report reference	Arup Commentary
Pedestrian movements	Section 4.3, page 34	The AECOM report has recommended that pedestrian connections be strengthened between Herring Road and Macquarie University, through: - Enhancing University Avenue as a key pedestrian link; and - Upgrading the Macquarie University to Macquarie Centre link The Macquarie University Master Plan supports this be seeking to enhance the pedestrian connectivity into the campus through the reconfiguration of University Avenue to accommodate a widened footpath and new pedestrian bridge over Kikkiya Creek. This new connection is provided on the northern side of University Avenue and should be indicated in Figure 4.1 of the AECOM report. The Master Plan also proposes a number of new pedestrian links within the campus to support connectivity to the Macquarie Centre. The proposed upgrade of the Herring Road bus interchange includes provisions which will enhance pedestrian connectivity across Herring Road.

Yours sincerely

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