

# MACQUARIE UNIVERSITY CAMPUS MASTER PLAN 2014

12 JUNE 2014



MACQUARIE  
UNIVERSITY

COX



**MACQUARIE  
UNIVERSITY**

**MACQUARIE UNIVERSITY PROPERTY**

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## VICE CHANCELLOR'S STATEMENT

Macquarie University was founded 50 years ago and in that short time it has made remarkable progress. Teaching and research programs are flourishing across a diverse array of disciplines, and the University has become recognised throughout Australia, the region and the world as a place of scholarly excellence and widening engagement. On the eve of our jubilee year, the University community came together as never before to define a vision for its far horizon future. Throughout 2013, that process, *Our University: A Framing of Futures*, drew together members of the University from all corners as well as our partners and friends beyond. The result was a decision that defined our fundamental purpose: Macquarie is and forever will be a University of service and engagement.

That decision, like a light on the hill, helped illuminate seven areas of strategic priority. The founding fathers of this University provided an unparalleled endowment in setting aside the land that has become our campus – alongside our staff and our students, our land is one of our most valuable assets. Accordingly, one of the seven strategic priorities for Macquarie University going forward is to “develop a vibrant and sustainable campus, clearly at the centre of a rapidly changing neighbourhood in the international, cosmopolitan city of Sydney.”

The Master Plan presented in this document represents the work of many talented individuals. It builds on the original work of Wally Abraham and will guide the evolution, growth and development of the campus for the next several decades. I thank all those involved across the University and the many expert consultants who have guided us.

Those of us privileged to lead the University are merely trustees to ensure that future generations will enjoy this magnificent realm for decades to come. I commend this Master Plan to all those with an interest in preserving this remarkable home for our community.

**S. Bruce Downton MD**  
March 2014

# CONTENTS

## EXECUTIVE SUMMARY

---

### 1. INTRODUCTION 1

---

1.1	Introduction	1
1.1.1	Framework for Review	2
1.2	Purpose of the Campus Master Plan	3
1.3	Site, Location and Connectivity	4
1.3.1	The Site	4
1.3.2	Site Significance	6
1.4	The Planning Legacy	8
1.4.1	The 1964 Campus Plan	8
1.4.2	The 1984 Draft Development Plan	10
1.4.3	The Campus Development Plan 2004	11
1.4.4	The 2009 Concept Plan	11
1.5	Master Plan Development	12
1.5.1	The Charette Process and Key Outcomes	12
1.6	Current Statutory Controls and Approvals Pathways	14
1.6.1	Urban Activation Precinct	14

### 2. OUR UNIVERSITY A FRAMING OF FUTURES 17

---

2.1	Strategic Review	18
2.1	Key Objectives	18

### 3. CAMPUS GROWTH 23

---

3.1	Academic and Organisational Review	24
3.1.1	Creating Communities	25
3.1.2	Creating Precincts	25
3.1.3	Accommodating Research	25
3.1.4	Accommodating Administration	26
3.1.5	Accommodating Learning and Teaching	27
3.2	Student Growth	28
3.2.1	Enrolments	28
3.2.2	Space Requirements	29
3.2.3	Changing Delivery Models	30
3.3	Research Needs	31
3.4	Student Housing	32
3.5	Commercial Development Opportunities and Employment Growth	34
3.5.1	Macquarie Park	34
3.5.2	Commercial Uses	35
3.5.3	Partnerships	35
3.6	Herring Road Urban Activation Precinct	37

### 4. THE MASTER PLAN 39

---

4.1	Vision	40
4.2	Place Character	40
4.3	Principles	41
4.3.1	Environment	42
4.3.2	Place Making	42
4.3.3	Academic and Student Experience	43
4.3.4	Economic Sustainability and Partnering	43
4.4	Master Plan Development	44
4.4.1	Planning Structure	44
4.4.2	Academic and Administrative Structure	46
4.4.3	Economic Sustainability and Partnering	46
4.5	The Plan	48
4.6	Zones	52
4.6.1	Central	52
4.6.2	East	52
4.6.3	South	54
4.6.4	West	54
4.6.5	North	55
4.7	Key University Functions	56
4.7.1	Campus Services and Amenities	56
4.7.2	Night Activity Zone	58
4.7.3	Museum Locations	60
4.8	Access	62
4.8.1	Primary Connectors	62
4.8.2	Disabled Access	62
4.8.3	Public Transport Access	64
4.8.4	Vehicular Access	66
4.8.5	Servicing Strategy	66
4.8.6	Parking Strategy	68
4.8.7	Cycle Strategy	70
4.9	Development Potential	72

### 5. PUBLIC DOMAIN 75

---

5.1	Public Domain Framework	76
5.1.1	Campus Landscape Design Philosophy and History	76
5.1.2	Landscape Strategy	77
5.1.3	Campus Edges	78
5.1.4	Edge Markers	80
5.2	Gateways	82
5.2.1	Herring Road Gateway	82
5.2.2	Balaclava Road Gateway	86
5.2.3	Gymnasium Road Gateway	88
5.2.4	Talavera Road Gateway	90
5.3	Primary Spaces	92
5.3.1	Wally's Walk	92
5.3.2	Macquarie Walk	94
5.3.3	Sir Christopher Ondaatje Avenue	98
5.3.4	The Central Courtyard	100
5.3.5	The University Common	102
5.3.6	The Library Forecourt	104
5.3.7	Arts Lawn (West Common)	106
5.3.8	The Grove (East Common)	108
5.3.9	Mars Creek	110
5.3.10	University Creek	112

<b>5.4</b>	<b>Secondary Spaces</b>	<b>114</b>
5.4.1	Mars Creek Plaza	114
5.4.2	Wally's Walk Open Space	116
5.4.3	Macquarie Theatre Courtyard	118
5.4.4	Jim Rose Earth Science Garden	120
5.4.5	Talavera Park	122
5.4.6	Frank Mercer Biological Sciences Garden	124
<b>5.5</b>	<b>Streets and Links</b>	<b>126</b>
5.5.1	University Avenue	126
5.5.2	Research Park Drive	128
5.5.3	Eastern Road	130
5.5.4	Western Road	130
5.5.5	West Precinct Road	132
5.5.6	East-West Pedestrian Connections	134
5.5.7	North-South Pedestrian Connections	136

## **6. BUILT FORM** **139**

---

6.1	Building Life	140
6.2	Development Parcels	142
6.3	Building Heights	144
6.4	Building Definition	146
6.5	Building Addresses	148
6.6	Rail Corridor Impacts	150
6.7	Legacy Buildings	152
6.8	Design Excellence	154

## **7. SUSTAINABILITY** **157**

---

7.1	Legacy	158
7.2	Sustainability Planning Context	159
7.3	Where Are We Now?	160
7.3.1	Eco-footprint: one planet	160
7.3.2	Energy	160
7.3.3	Green house gas (GHG)	160
7.3.4	Materials	160
7.3.4	Water	160
7.3.5	Biodiversity and conservation	160
7.3.6	Research and collaboration	164
7.4	Next Phase	165
7.5	Sustainability Targets	165
7.6	Unique Aspects And Challenges	167
7.6.1	Growing Energy Demands, Utility Costs and Greenhouse Gas Emissions	167
7.6.2	Green Space Planning – renewal of the 'Campus in a Park' Concept	167
7.6.3	Transport and Connectivity	168

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# EXECUTIVE SUMMARY

## BACKGROUND

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Macquarie University was founded in 1964 with a strong educational philosophy and was based on the concept of a university adjoining a technology park, closely following the Stanford University model.

Macquarie University was planned from the outset to reflect a specific academic philosophy of a single degree. The plan by Walter Abraham was based on distinct academic precincts tied together by an academic core comprising the library, student union and administration.

The University's 2013 strategy: Our University – A Framing of Futures seeks to redefine the philosophy and role of the University. It seeks to identify:

- a statement of purpose for Macquarie University – the fundamental reason why the University exists
- a vision – what the University wants to become and milestones by which the University will be measured over the long term
- a statement of values – beliefs and actions needed in order to achieve the vision
- a set of key priorities – a high-level definition of the key focus areas for the next 10 years.

The University's vision statement identifies that Macquarie aspires to be 'known across Australia and beyond as custodians of a remarkable university campus that blends the vibrancy of a cosmopolitan university village with a setting of Australian natural bushland'. Delivering on that aspiration is key to distinguishing the University in an increasingly global higher education market.

## PLANNING PROCESS

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Since the University's inception in 1964, a Master Plan (adapted and developed from time to time) has been in place to guide the growth of the University.

This iteration of the campus Master Plan places a clear emphasis on the quality of public realm and external spaces as the means of generating a memorable campus with a sense of place and identity. It reinforces a hierarchy of spaces and connections to form a clearly defined but flexible framework that will allow the development of buildings and the ambitious expansion of floor area in a coherent way.

A key component in the development of this Master Plan was a Charette held at Macquarie University in May 2013. This workshop drew on global expertise and experience to create a world-leading framework for the future development and growth of the University.

Four key areas were identified:

- the need to create an Iconic Entrance and campus identity at Herring Road
- the need to create a distinct Campus Heart with a number of places with different characters and purposes that are activated at different times
- a Public Realm that reflects the campus brand and identity and that connects the different precincts and spaces, maximising pedestrian accessibility and amenity
- the need to create a Sense of Place that meets the growing desire from students and staff to feel a part of something bigger and a sense of belonging to the organisation

## GROWTH

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As part of the Campus Master Plan Review, detailed strategies for each of the University's research, administration and learning and teaching functions have been developed. Five key areas have been assessed:

- Creating Communities
- Creating Precincts
- Accommodating Research
- Accommodating Administration
- Accommodating Learning and Teaching

Student growth and space needs have been identified as the University changes. New teaching and research needs are also addressed.

Student housing trends and targets as well as the potential for commercial uses are identified.

As of February 2014, the NSW Government is in the process of finalising details for the creation of the Herring Road Urban Activation Precinct focused primarily on the area between the Macquarie Centre and the University and includes the University lands south of Culloden Road. It is designed to encourage increased development and economic activity in the area.

The proposed zoning allows more flexibility in the location of non-education facilities on the University campus. Education uses and associated support services are protected.

## THE MASTER PLAN

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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

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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

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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.

# EXECUTIVE SUMMARY





## NEW INITIATIVES

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### 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





# 1

## INTRODUCTION

# 1. INTRODUCTION

## 1.1 INTRODUCTION

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Macquarie University was founded in 1964 with a strong educational philosophy and was based on the concept of a university adjoining a technology park, closely following the Stanford University model.

Macquarie University was planned from the outset to reflect a specific academic philosophy of a single degree. The plan by Walter Abraham was based on distinct academic precincts tied together by an academic core comprising the library, student union and administration.

Updates of the Master Plan in 1983 and 2004 were followed by the development of a Concept Plan in 2009 which formalised, through a statutory approval process, increases in both academic space and student accommodation and opportunities for new commercial development within the campus.

A decade of significant growth followed, with 27,674 enrolled students in 2003 increasing to 37,921 students in 2010. A review of the University's overall direction and priorities was initiated in 2013 by the new Vice Chancellor, Professor S. Bruce Downton MD, acting as a catalyst for reassessment of the Master Plan.

### 1.1.1 Framework for Review

The 2013 University strategy *Our University – A Framing of Futures* seeks to redefine the philosophy and role of the University. It seeks to identify:

- a statement of purpose for Macquarie University – the fundamental reason why the University exists
- a vision – what the University wants to become and milestones by which the University will be measured over the long term
- a statement of values – beliefs and actions needed in order to achieve the vision
- a set of key priorities – a high-level definition of the key focus areas for the next 10 years.

The University intends all of its key actions and decision making to be aligned with the purpose, vision, values and priorities. The University's Council and Executive is responsible for:

- allocation of resources - people and money
- brand redefinition
- development of partnerships
- the campus Master Plan and capital improvements.
- specific initiatives with timelines and commitment of resources to be identified under the Strategic Priorities in the University Long Range Plan.

In the light of this framework for the future, the Master Plan aims to:

- express the University's identity
- reinforce the sense of arrival, place and public domain
- create flexibility to adapt to new academic activities and approaches to learning as these emerge
- facilitate engagement with industry and business and optimise opportunities for commercial development
- create a framework to maximise commercial value and ongoing economic viability of campus buildings
- identify areas of potential growth across all areas of the campus
- provide a framework to attract and retain the best students, researchers, staff and commercial partners
- build on Macquarie University's sense of history and place
- provide a clear structure that appropriately respects and builds on the original 1964 Master Plan and enhance essential elements of the landscape and buildings on the campus
- build on the public domain legacy of the original Master Plan
  - Mars Creek, University Creek, Wally's Walk and the Central Courtyard
- 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

## 1.2 PURPOSE OF THE CAMPUS MASTER PLAN

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This review of the Macquarie University Master Plan has been driven by the 2013 strategy *Our University – A Framing of Futures* and the significant growth on the campus since 2004. Ongoing changes in teaching methodologies, new course opportunities at Macquarie, a desire to increase industry engagement and the potential of commercial opportunities on the campus are also key considerations.

The Master Plan sets out an updated physical framework to accommodate the University's predicted needs, while ensuring flexibility into the future and enhancing the existing qualities of the University's campus.

It acknowledges that change will be continuous and new directions will evolve as the University grows, and identifies a strong but flexible framework for growth. It also identifies a series of initiatives aimed at improving the amenity of the campus, while identifying over time how sites can be developed to their full potential and how future growth can be accommodated.

The document is structured to identify the key elements that underpin the plan and new initiatives.

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.



# 1. INTRODUCTION

## 1.3 SITE, LOCATION AND CONNECTIVITY

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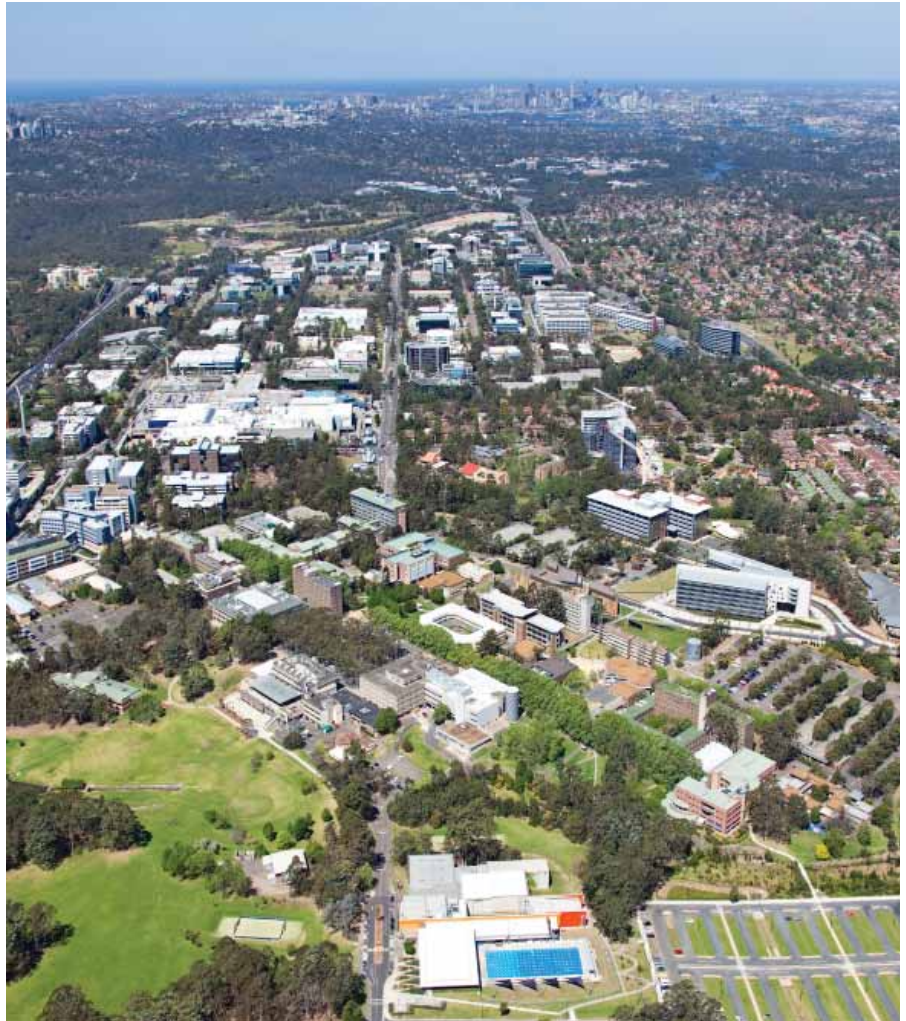
### 1.3.1 The Site

Macquarie University occupies 126 hectares of land in the north east of the Sydney metropolitan area, wholly owned by the University.

The site is made up of a number of land titles and comprises an Academic Core, research facilities, commercial developments, a rail station and ancillary uses. Student accommodation is located to the north of Culloden Road and sports fields are to the north of the M2 Motorway.

The University owns a number of other properties outside the main campus but these are not included in this Campus Master Plan.

Macquarie University, through the Macquarie Graduate School of Management and the Business and Economics Faculty, also provides some courses in a Sydney CBD campus which are not considered in this Campus Master Plan.



CAMPUS FROM THE WEST



CAMPUS AERIAL VIEW 2013

# 1. INTRODUCTION

## 1.3.2 Site Significance

Macquarie University lies in the band of medium-high value housing, and technology and financial jobs known as Sydney's Global Arc that stretches from Sydney Airport to Parramatta. This arc contains seven university campuses, as well as much of Sydney's technology and research enterprise. It is seen as a key generator of high value, knowledge-based income and a major economic generator for NSW and Australia.

In the last 50 years, Macquarie Park has grown to be a nationally significant research and business precinct, specialising in the high-value communications, medical research, pharmaceutical and IT&T sectors. In 2013, there was over 800,000m<sup>2</sup> of commercial floor space in Macquarie Park with the potential to reach over 2,000,000m<sup>2</sup>, making it the second largest employment centre in NSW after the Sydney CBD.

The Macquarie Shopping Centre on Herring Road is currently being extended. When completed in October 2014, it will be the largest retail centre in Sydney.

The University's location at the western end of this employment corridor reinforces the significant opportunity and strategic importance of Macquarie University.

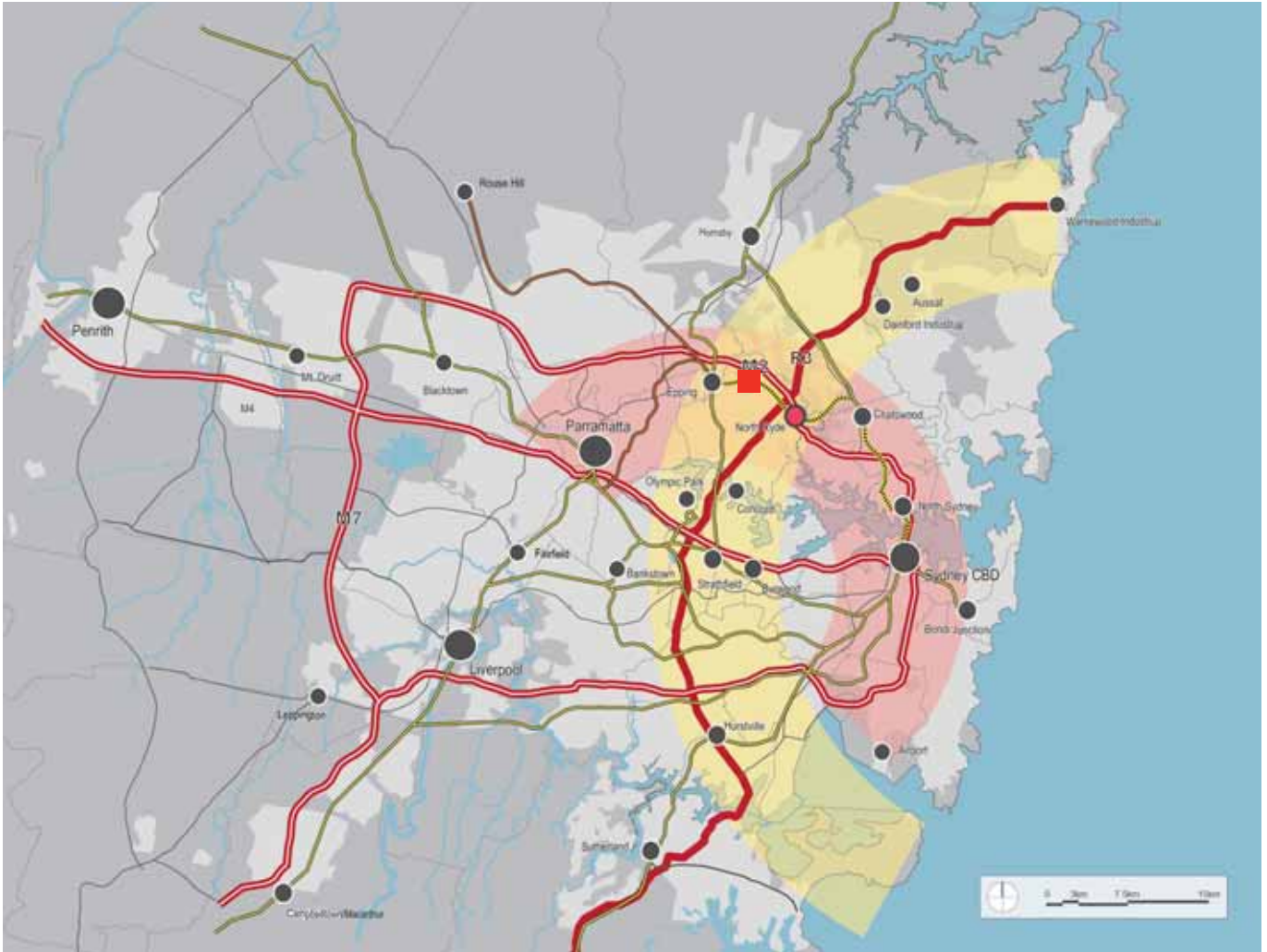
The precinct is particularly well served by Sydney's orbital motorway network. The location, adjacent to the Hills M2 Motorway and close to the important A3 north-south road connection, is one of the most strategic in Sydney. With new access points to the Hills M2 Motorway at Talavera Road, the University is only 15 minutes' drive to the Harbour Bridge and 25 minutes by bus to the CBD. A planned connection to the F3 will form a direct link to the Central Coast and Lower Hunter.

The M2 (and its links to the M4, M5 and M7) provides excellent accessibility to the north-western, western and south regions of the Sydney metropolitan area.

Macquarie is the only major university in Australia with a railway station at its main entrance. The Epping to Chatswood rail link has made North Ryde readily accessible to the rest of Sydney and its imminent expansion from Epping to Rouse Hill (via the North West Rail Link) will connect the campus to NSW's fastest growing region.

The State Government has recognised the importance of the relationship between the University and Macquarie Park, and through its Urban Activation Precinct program, it is looking to intensify uses along the Herring Road corridor. Sites on the edges of the campus, and particularly at the railway station, will need to respond to significant change in the future and should be considered for major new activities in the long term.





MACQUARIE UNIVERSITY AT THE INTERSECTION OF SYDNEY'S GLOBAL ARC AND THE A3 CORRIDOR



MACQUARIE UNIVERSITY WITHIN MACQUARIE PARK CORRIDOR

# 1. INTRODUCTION

## 1.4 THE PLANNING LEGACY

### 1.4.1 The 1964 Campus Plan

Macquarie University was planned from the outset to reflect a specific academic philosophy of a single degree. The plan by Walter Abraham gave rise to academic precincts (broadly termed Humanities, Social Sciences and Sciences, rather than the more traditional faculties) tied together by an academic centre comprising the library, student union and administration.

This structure required a compact Academic Core that allowed students to move from one end of the campus to the other in ten minutes, a distance of around 800m. To emphasise this, a major pedestrian spine was planned. This setting provided opportunity for organic expansion, centred on a clear access way and a defined area. While the whole campus is much larger and the one-degree philosophy has changed, the original compact Academic Core remains the focal point.

The campus was planned in a north-south, east-west direction, so that access to sunlight is optimised. The academic and administration buildings, and access networks, were positioned at 45 degrees to the surrounding road network and the creeks that bisect the campus.

This has given a distinctive geometry to the campus and influenced the layout of roads, pedestrian ways and relationships of buildings.

Macquarie was seen as a motor vehicle University, reflecting the view in the 1960s that mass public transport to Macquarie was unlikely. Despite this, importance was placed on a pedestrian-friendly Academic Core, with parking located clear of future expansion areas and forming an arc around the south side of the core.

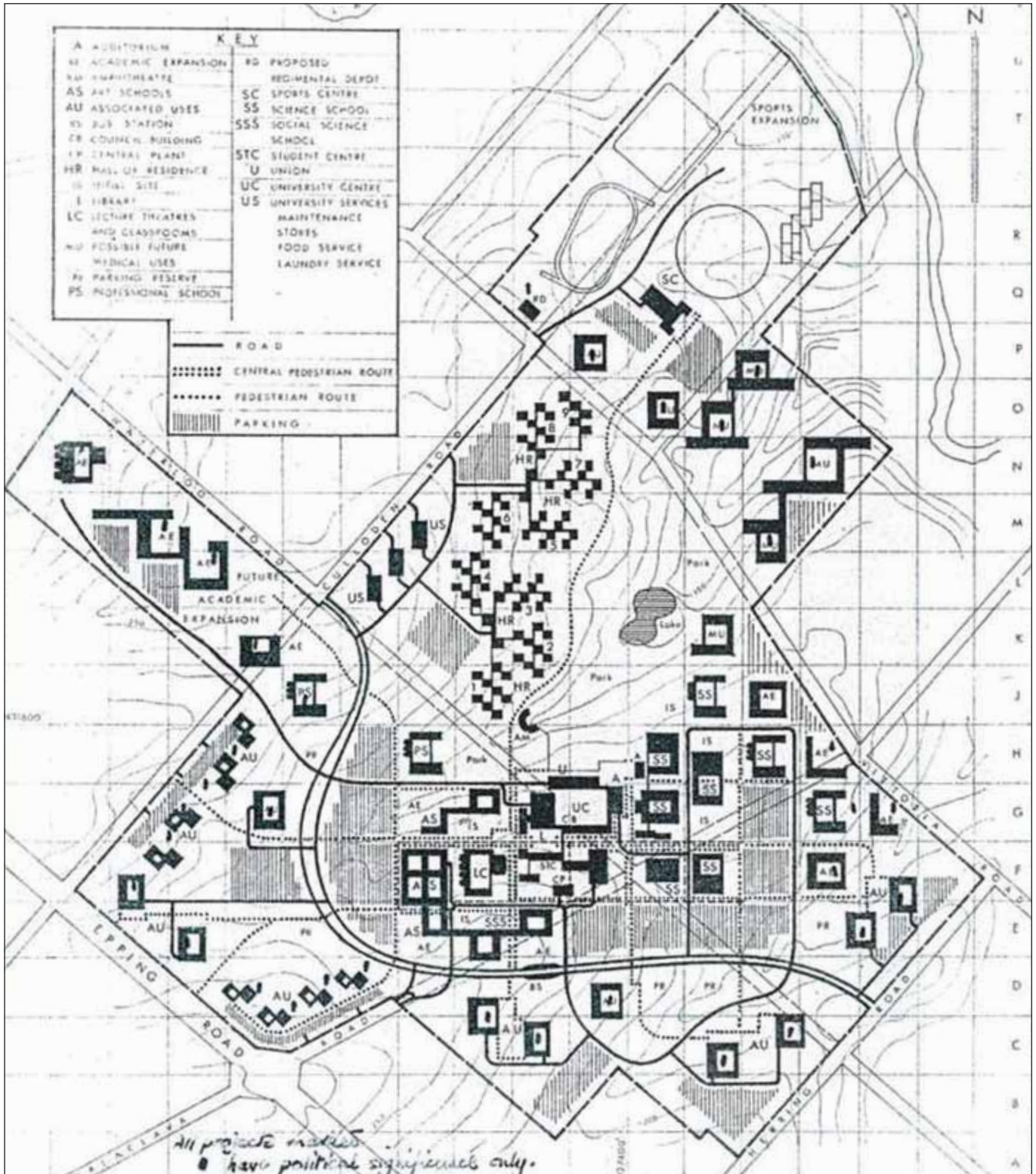
The main vehicular entry was from Epping and Balaclava Roads, with Herring and Culloden Roads as minor entries. This later changed as the eastern section of Waterloo Road became more important, with the build up of the North Ryde industrial area and the opening of Macquarie Shopping Centre in the early 1980s.

The internal road network was designed to access the car parks and allow buses to use Macquarie Drive and University Avenue, south of the Academic Core. The built form developed to include a pedestrian precinct surrounded by car parking access and service roads, reflecting this southern access.

Pedestrian ways and service roads were based on a 300-foot square grid that also provided a site for each core building.

The first Master Plan embodied a number of attributes which remain valid. These include:

- a grid structure that is accessible, particularly by pedestrians
- alternate grids serving pedestrians and utility/service functions
- a grid that defines building sites through the Academic Core
- orientation to the north in a tightly-knit academic core
- building sites outside the academic core which are not as strictly orientated due to topography, external street frontage or visual considerations
- divisions of studies into defined precincts
- a concept of a shared central core
- an east-west pedestrian spine (wally's walk) as the main pedestrian spine of the Academic Core
- landscaping as one of the key features of the University
- ground level car parking, providing the potential as a 'land bank' for future expansion
- Macquarie University as a 'campus in the park', with the Mars Creek parkland as a valuable recreation area and landscaped foreground to the Academic Core
- non-academic buildings, such as student housing, located on the periphery of the site



FIRST CAMPUS PLAN, C.1970

# 1. INTRODUCTION

## 1.4.2 The 1984 Draft Development Plan

When Conybeare Morrison was commissioned to prepare the second plan in 1984, the functional zones were generally in place, reflecting the development over the first 20 years:

- the Academic Core was largely consolidated in the central area
- parking occupied the area south of the campus
- the open space and parklands lay north of the Academic Core
- student housing and colleges were sited in eastern areas fronting Herring Road
- the Australian Film Television and Radio School (AFTRS) was located to the west
- the sports fields were developed north of Talavera Road

The 1984 Draft Development Plan generally reinforced the initial plan, with a particular emphasis on the retention of meaningful open spaces within the Academic Core, as more buildings were developed in the comparatively restricted area.

The plan also:

- proposed a central point of arrival on Macquarie Drive, with a landscaped axis and forecourt
- identified the site for future development on the periphery, reflecting the earlier plan and including the proposed location for the Macquarie Graduate School of Management (MGSM)
- discussed a continuation of a 1:1 Floor Space Ratio (FSR), but anticipating that higher FSRs may be necessary in the future
- highlighted a number of peripheral sites for academic purposes
- identified the need for 5,500 car spaces when the student numbers totalled 20,000 and recommended decked car parking over existing surface car parks
- recommended completion of an internal road network, particularly linking the Culloden Road entry with the other entrances
- recommended improvement and identification of two main entry points : Epping/Balaclava Roads and Herring/ Waterloo Roads

- considered two growth options - a dispersed option and a consolidated option. The consolidated option was recommended so as to confine the campus to the southern side of Mars Creek, enabling large peripheral sites to be left for future University or associated development
- the open space concept sought to reinforce the original landscape structure plan for the University, including the two creek landscape systems.

The 1984 Draft Development Plan included the following key recommendations:

- consolidation of the existing campus
- decked parking to avoid more land take for additional car spaces
- allocation of primary sites for academic area expansion
- allocation of secondary sites for expansion of associated academic uses
- preservation of existing major open space areas and views
- linking the three entry points with an internal road

- 01 Macquarie University c.1970
- 02 Macquarie University campus prior to development
- 03 Macquarie University c.1970



It combined the three basic essentials of movement, open space and development areas. The pedestrian system, road and parking networks were clearly articulated. A clear distinction was also made between sites for expansion of the Academic Core and those for new academic-related uses.

The 1984 Draft Development Plan introduced new academic sites through infill of the Academic Core. In doing this, it also set aside an area as a clear point of arrival from Macquarie Drive, highlighting the need for an open space link back to the main courtyard and the open space beyond.



### 1.4.3 The Campus Development Plan 2004

The 2004 review of the Campus Development Plan responded to the changing context within which the University campus was located. There had been significant infrastructure and land-use changes within the Macquarie Park corridor which would have significant impacts on the University.

The key events affecting the development of the University from 1984 to 2004 were:

- the development of MURP (Macquarie University Research Park) within the campus boundary
- the MGSM (Macquarie Graduate School of Management)
- student numbers exceeded the original target of 20,000
- the development of the M2 Motorway
- final stages of the Sydney Orbital were either completed or under construction, including the:
  - M7 Motorway
  - Lane Cove Tunnel
  - M5 Motorway
  - Eastern Distributor
- the development of the Macquarie Park Corridor
- the commencement of the Parramatta Rail Link (PRL) and the Macquarie University rail station
- Sydney's population growth from 3.3 million (1984) to 4.2 million (2004).

### 1.4.4 The 2009 Concept Plan

The August 2009 Concept Plan provided a formal statutory approval and a planning tool to guide the future development of the site. The plan was developed in response to, and to complement, the 2004 Macquarie Park Corridor Master Plan prepared by the NSW State Government.

Approval was secured for up to 536,000m<sup>2</sup> of commercial development, an additional 61,200m<sup>2</sup> of academic space and 3,450 additional student housing beds. The plan was based on comprehensive analysis and a clear understanding of the context, and was developed with stakeholder consultation. It called for:

- increased densities around the new railway station
- peripheral parking and limited vehicular penetration in the Academic Core
- protection of open space and drainage corridors
- pedestrian linkages with surrounding residential, commercial and retail uses
- a strong planning grid and clear road network
- wide variety of uses to ensure a viable and sustainable urban environment
- adoption of ecologically sustainable development principles

With the opening of the rail station in 2008, Macquarie University became the most accessible university by rail and motorway anywhere in Australia, while promoting industry linkages and retaining its landscape setting.

The 2009 Concept Approval addresses this in part, but does not fully address the extent of growth and intensification which is now possible on campus.

# 1. INTRODUCTION

## 1.5 MASTER PLAN DEVELOPMENT

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Building on the framework identified in the 2009 Concept Master Plan, the 2013/2014 review of the Master Plan has involved:

- site investigations and review of the campus facilities
  - a review of each of the previous Master Plans for the campus, since its inception
  - an analysis of current practice and potential changes in teaching and learning methodology
  - consultation with stakeholders to determine current needs and desires for the campus in the future
  - considering broad development principles for the future campus
  - development of options for the form of the campus, leading to a preferred Master Plan
  - continued analysis of future directions in consultation with the University:
    - teaching and learning strategies
    - research directions
    - interface and collaboration with industry including commercial development
    - conference and meeting opportunities
    - student accommodation
    - space utilisation
    - university commercial objectives
- testing of academic growth scenarios:
    - staff
    - graduate students
    - undergraduate students
    - international students
    - space per student
    - EFTSL/Enrolled students
  - identification of campus population growth assumption
  - development of the public domain framework

As an initial focus for development of the plan, a process of stakeholder consultation has taken place. This has included:

- engagement with the University Executive.
- consultation with academic representatives regarding Research and Administration future needs.
- development and finalisation of whole campus Master Plan
- preparation of a strategy for all existing buildings
- identification of key projects which might act as a catalyst for the updated Master Plan
- development of a phasing strategy
- place making workshops and analysis

### 1.5.1 The Charette Process and Key Outcomes

A key component in the development of the Master Plan was a full day charette held at Macquarie University in May 2013. This workshop explored the conceptual and the physical requirements for future development. It was chaired by the Vice-Chancellor and included many experienced and expert specialists from both Australia and overseas. The aim was to draw on global expertise and experience to create a world-leading framework for the future development and growth of the University.

Four key outcomes were identified:

## 1 Entrance and Identity from Herring Road

- create an iconic entrance or ‘photography moment’ that also becomes a part of the brand and engages people as soon as they arrive, potentially including a strong landscaping component
- develop a mixture of commercial and University activities at the entrance of the campus to maximise economic values, while ensuring the University presence is obvious
- route vehicles away from the main pedestrian flow as early as possible after entering the campus
- develop the relationship to the Herring Road Urban Activation Precinct, transport interchange and regional shopping centre, particularly in regards to the potential development of a Civic Square

## 2 Campus Heart

- the University should have a number of places for different characters and purposes that are activated at different times
- places should be connected and distinctive, making the campus memorable
- the landscape experience could be a significant part of the character of the University

## 3 Public Realm

- the public realm should reflect the campus brand and identity – for example the natural landscape
- outdoor learning spaces could become a unique part of the University’s culture and teaching practices
- the built form should recognise the creeks and natural environmental, creating distinctive spaces
- a more user-friendly network of pathways in and around the University should connect the different precincts and spaces, maximising pedestrian accessibility and amenity

## 4 Sense of Place

- respond to the growing desire from students and staff to feel a part of something bigger and a sense of belonging to the organisation
- create opportunities for teaching outdoors by providing infrastructure such as Wi-Fi and outdoor learning spaces
- plan for mix of uses throughout the University, creating a mini-University town
- create opportunities for more interdisciplinary interaction by bringing people together from different faculties into new or neutral spaces (for example a central food court) – encouraging students, researchers and staff to meet people they would not normally encounter
- undertake further planning of the growing health precinct on campus, to ensure its surrounding area is protected should it wish to expand. This also includes space for a hospital garden that could look out over the lake

# 1. INTRODUCTION

## 1.6 CURRENT STATUTORY CONTROLS AND APPROVALS PATHWAYS

The currently in-force statutory planning regime governing the planning for, and development of, the Macquarie University (MQU) campus is:

- the 2009 approved Part 3A Macquarie University Campus Concept Plan
- the gazetted provisions of Schedule 3 Part 21 of State Environmental Planning Policy (Major Development) 2005 – Macquarie University site (The Major Development SEPP).

This listing makes the Macquarie University campus a State Significant Site (SSS) under current legislation.

The Macquarie University campus Concept Plan was approved by the then Minister for Planning on 13 August 2009, whilst the SSS was gazetted on 11 September 2009. The current listing of the MQU campus as a SSS prevails over Council's LEP 2010 and any other environmental planning instrument – see clause 4 of the SSS listing.

Similarly, the approved Concept Plan by (virtue of Clause 3B(2) (f) of Schedule 6A - Transitional arrangements, repeal of Part 3A under the Environmental Planning and Assessment Act 1979 [the Act]) will continue to have effect and apply despite any provisions in either any environmental planning instrument (SEPPs, LEPs) or a DCP.

This provision provides the Concept Plan with unprecedented power and until this provision is amended or repealed, the general planning regime hierarchy, in order of

precedence, is as follows (to the extent of any inconsistencies between these):

- The approved Part 3A MQU Campus Concept Plan (and its associated Precinct-based Urban Design Guidelines and Design Excellence Strategies, requirements arising from the conditions of approval and the approved final Statement of Commitments)
- The SSS listing of the Macquarie University site under the Major Development SEPP
- Ryde LEP 2010, or any subsequently gazetted LEP
- Any relevant DCP prepared and adopted by Ryde City Council

Ryde Council's LEP 2010 contains significant zoning, density and other development control inconsistencies with the Concept Plan and SSS listing. Due to these inconsistencies, and the overall legislated hierarchy, the LEP controls have little effect.

It should be further noted that the original intent of SSS listings was that they apply until such time as the next comprehensive LEP is prepared and gazetted. In theory, the next Ryde LEP should pick up and adopt the range of controls, standards and other provisions currently contained within the SSS listing and provide for continuation of these provisions, albeit in a LEP not a SEPP. To date this has not been achieved.

A range of other State Environmental Planning Policies (SEPPs) also apply to the site (by virtue that they apply to the State), or as a result of a type of development being proposed.

### 1.6.1 Urban Activation Precinct

The Urban Activation Precinct (UAP) program, announced in March 2013, is a State Government initiative aimed at delivering more homes and jobs in places with access to infrastructure, transport and services, together with increased amenities, services and improved public spaces. New land use and transport plans will be matched by the development of Growth Infrastructure Plans.

The majority of the Macquarie University is within the Herring Road UAP.

The adoption of the UAP at Macquarie University may see a change of land use to create greater flexibility in land use distribution across the campus. Along the Herring Road frontage, increased heights and specific floor area controls have been identified in this important transport interface zone.







20th Anniversary  
Graduation

E5A

20th Anniversary  
Graduation



# 2

OUR UNIVERSITY  
A FRAMING OF  
FUTURES

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# 2. OUR UNIVERSITY

## A FRAMING OF FUTURES

### 2.1 STRATEGIC REVIEW

Since its establishment in 1964, Macquarie University has benefitted from both a clear physical Master Plan and a strong strategic framework.

Now some 50 years since its establishment, Macquarie University has, through the new strategy Our University – A Framing of Futures, identified a clear vision of its future as a leading Australian and international University.

The strategy seeks to build Macquarie as a truly distinctive University on both the Australian and international stage. It positions Macquarie as different and innovative with achievements such as the PACE program of civic and institutional participation, the acceleration of discovery in discrete areas, the fostering of emergent partnerships with corporate and community institutions on and off campus, and the establishment of a unique academic health precinct.

### 2.2 KEY OBJECTIVES

The strategy identifies four key objectives:

- To build an overarching collective sense of purpose that binds the University as an institution now and into the future
- To promote the history and narrative of Macquarie University as a leader in innovation in education, focused excellence in research
- To develop wider engagement with corporate, industry and business partners as well as the professions
- To modernise systems, processes and the approach to communication so that they are responsive, coordinated and efficient to support the realisation of Macquarie's fundamental academic potential and purpose.

The strategy identifies a policy of developing academic quality rather than simple growth with a refocusing from Macquarie's traditional strengths towards Science and Medicine and closer synergies with research and postgraduate studies. It seeks to raise the profile of the University and to make the best use of the campus.

The A Framing of Futures strategy sets a series of priorities to guide the future of the University. Those that relate to the development of the Master Plan are highlighted in blue in the strategy reproduced below.



VIEW TOWARD MARS CREEK LAKE

## Our Purpose, Vision and Values

### Purpose

Macquarie is a university of service and engagement:

- we serve and engage our students and staff through transformative learning and life experiences
- we serve and engage the world through discovery, dissemination of knowledge and ideas, innovation and deep partnerships.

### Vision

We aspire to be:

- a destination of choice for staff and students who share our values
- deeply connected with our stakeholders and partners, and known for this globally
- ranked among the highest performing research universities of Australia and, for key disciplines, to be recognised globally for our preeminence
- **known across Australia and beyond as custodians of a remarkable University campus that blends the vibrancy of a cosmopolitan university village with a setting of Australian natural bushland.**

### Values

As custodians of Macquarie University, we value:

- Scholarship - We believe learning, enquiry and discovery improves lives.
- Integrity - We conduct ourselves ethically, equitably, and for mutual benefit.
- Empowerment - We make our community a source of strength and creativity.

Through our actions, as staff and students, we live these values and it is against them that we hold ourselves accountable.

## Macquarie University's Academic Foundations and Partnerships

### 1. A culture of transformative in a research enriched environment

Teaching and learning is at the centre of our purpose. Macquarie University has already developed a number of innovative education programs that are transforming lives.

We will:

- **offer an experience, within formal settings and beyond, that changes the lives of our students, supports them in achieving their aspirations and which is an incubator for the next generation of leaders**
- expand PACE as a signature program that distinguishes this University
- infuse cutting edge technology into our learning environment to deliver world-class learning and teaching on campus and online
- develop and lead teaching models that promote enquiry-driven learning and prepares students for productive professional and civic lives
- imbue our academic and professional staff with a culture of transformative learning, expand their horizons and nurture their capabilities .

### 2. An accelerating and impactful performance in discovery

The recent acceleration of research performance at Macquarie has been outstanding. We will further our performance in research by:

- **increasing academic staff numbers and strengthening succession planning across the University**
- continuing to invest in areas of existing strength and adding new areas where these offer long-term sustainability

- increasing interdisciplinary research by removing structural barriers
- improving research training to prepare our graduate students to achieve the highest impact in careers both within and outside the academy
- **improving our facilities for research to ensure they are of world class standing**
- placing early emphasis on streamlining the administration of research in order to free researchers to focus on that which they alone can do
- **leading the field in research productive research partnerships and collaborations both within and outside the academy.**

### 3. Aligning the nature and size of the University for the future

Throughout the consultation, one of the most abiding themes was the desire to have a greater sense of sustainable community within the University. Our capacity to achieve and maintain a culture of caring for the wellbeing of all members of the community and our physical environment will be constrained by unrelenting growth. Accordingly our focus will be on:

- **rightsizing our student body**
- balancing the diversity of country of origin of our international intake and the domestic/international mix
- **increasing research student enrolments**
- building on our commitment to inclusiveness through targeted and sustainable collaborative programs with key external partners to recruit and support Indigenous and low socio-economic status students
- aligning and resourcing our investment in support systems and infrastructure with our academic and scholarly goals

## 2. OUR UNIVERSITY

### A FRAMING OF FUTURES

#### 4. Creating an innovation nexus where Macquarie and our partners contribute solutions to the world and develop lasting relationships

Over recent years, Macquarie has made major investments in targeted areas that have strong external relationships, e.g. medicine, healthcare and hearing. We need to consolidate and expand these investments. Therefore, we will extend our engagement locally and beyond by:

- delivering Australia's first university-led integrated academic health campus to bring education, biomedical and translational research together with state-of-the-art clinical care
- expanding our relationship with Cochlear and other hearing-related entities so as to be internationally recognised as a world-leading center of excellence in hearing
- engaging more strategically and sustainably for mutual advantage with the neighbouring technology corridor, as well as industry, commerce, corporations and government beyond
- partnering and working collaboratively with leading global and local NGOs, foundations and similar organisations
- developing new opportunities for student/staff engagement and work with University partners
- using our land asset to support our scholarly and academic goals by bringing key partners onto campus

#### Connecting Macquarie with the World

#### 5. Emboldening Macquarie University's international presence and recognition

Macquarie University has over 130,000 alumni across Australia and 100 countries. We are among the nation's leading providers of education for international students. Around one third of the University's undergraduate and postgraduate enrolments have come from overseas, and a similar proportion of our research students are international. We also have numerous international collaborations at multiple levels of engagement. In refreshing our outreach and international approach, we will:

- emphasise the outcomes and impact of our work both internally and for society at large
- reach out to alumni and friends of the University to engage with us in our work in Australia and around the world
- establish a truly global student population by diversifying the country of origin for student enrolments (undergraduate, postgraduate and higher degree research)
- focus on enhancing opportunities for Macquarie students to study internationally, especially in Asia
- improve students' capacity to engage in Asia by offering relevant language programs
- create and promote opportunities for Macquarie staff to teach and work overseas with our partner institutions
- continue to endorse extensive and diverse collaboration for our individual academic staff and seek to build more collaborative opportunities for professional staff
- ensure that University- and Faculty-level relationships will be only those that are deep, broadly based and sustainable
- commit to developing a limited number of "mentoring" relationships with developing academic institutions
- pursue the potential of at least one creative and deep multi-institutional international partnership (we will not, however, create an off-shore, free-standing campus).

#### Key Supporting Enablers of Success for Macquarie in the Future

#### 6. Developing a vibrant and sustainable campus, clearly at the centre of a rapidly changing neighbourhood in the international, cosmopolitan city of Sydney

With strong commitment to wise stewardship of the endowment of our valuable landholding, we will:

- develop an inspiring and engaging campus that physically represents all that is good about Macquarie
- align our pedagogy and research with the development of new facilities and the renovation of existing facilities
- utilise our land asset as a vehicle to accelerate our development of alternative sources of revenue
- open up the Macquarie campus community and its assets to a diverse range of community, arts, business incubators and other potential partners and collaborators with similar goals and aspirations to our own
- adhere firmly to our commitment to the principles of sustainability in all we do.

#### 7. Improving those aspects of our support services to realise this aspiration and vision

Our systems and processes do not adequately prepare us to meet the challenges ahead. Accordingly, we will:

- strengthen our approach to recruitment, development, retention and renewal of high-performing staff
- ensure our systems, infrastructure investments and resource allocation are deeply aligned with our academic mission, goals and priorities
- seek at all times to simplify and clarify systems, processes and policies so as to free up academic and professional staff time and minimise unproductive duplication or lack of integration across support services.
- invest in modernising our systems and processes through teams drawn together from across the University including the Faculties and Divisions
- invest only in systems and processes which are both significantly effective and efficient have greater regard to comprehensive identification and mitigation of risk within the University.



01 Central Courtyard  
02 Library from West







# 3

## CAMPUS GROWTH

# 3. CAMPUS GROWTH

## 3.1 ACADEMIC AND ORGANISATIONAL REVIEW

As part of the Campus Master Plan review, studies have been undertaken by specialist consultant Learning Space Logic on potential accommodation strategies for each of the University's research, administration and learning and teaching functions.

The strategies have been based upon consultation with the executive and senior staff of both the University as a whole and of each of the four faculties, on a review of benchmarks and with reference to the University's strategic plans. Each study identified the potential demand for space in each of the accommodation categories, the nature of that space and appropriate locations.

A common theme of the studies has been the need to support the University's strategic plan, and the need for sectoral and divisional plans to flow from a consistent approach.

At the best of times, forecasting space demand can be difficult, not only in terms of the timing and quantum of student population growth, but also variables such as government policy initiatives (for example, international students), local and international competition from other universities and education service providers, and the state of the national economy.

There are also discipline-specific influences. In the context of research, variables include the opportunities to secure key research personnel and grants, student demand, advances in technology and external collaboration and partnerships.

In the context of administration, there is the ability of the University to grow its student and staff population without a commensurate increase in administrative staff numbers, and the efficiency benefits that flow from technology-enabled systems and process improvements. In the context of learning and teaching, there is continuing evolution of pedagogy, the needs of new generations of students and the ability of staff to respond to the challenges those needs generate.

As a result, space forecasting in each of the operational categories needs to be considered on a 'balance of probability' basis and detailed planning undertaken as series of scenarios.

	2003	2004	2005	2006	2007	2008	2009	2010	Growth 2003-2010	Annualised Growth
RMIT University	27,381	28,061	28,128	30,323	32,001	34,588	36,087	38,624	41.1%	5.04%
<b>Macquarie University</b>	<b>18,988</b>	<b>19,677</b>	<b>19,891</b>	<b>20,788</b>	<b>21,408</b>	<b>22,480</b>	<b>24,882</b>	<b>26,661</b>	<b>40.4%</b>	<b>4.97%</b>
University of Wollongong	15,000	15,290	16,291	15,859	16,351	17,408	19,171	20,737	38.2%	4.74%
Griffith University	23,364	23,789	24,992	25,729	26,693	27,743	30,006	31,902	36.5%	4.55%
The University of Newcastle	17,401	17,255	17,605	17,804	18,779	20,058	21,930	23,417	34.6%	4.33%
The University of New South Wales	29,341	27,907	27,051	27,289	30,404	32,329	33,845	36,665	25.0%	3.23%
Monash University	38,833	40,552	40,429	40,576	41,665	42,826	46,195	48,518	24.9%	3.23%
La Trobe University	20,664	20,781	20,293	21,439	21,953	22,386	23,548	25,102	21.5%	2.82%
The University of Queensland	29,391	29,329	28,955	29,066	29,339	29,803	32,047	34,932	18.9%	2.50%
University of Technology, Sydney	21,076	21,694	21,997	23,090	22,800	22,887	23,960	24,511	16.3%	2.20%
Queensland University of Technology	28,187	28,314	27,632	27,546	28,551	28,896	30,144	31,144	10.5%	1.44%
The University of Melbourne	32,869	33,612	33,713	33,949	34,696	35,488	35,887	36,566	11.2%	1.53%
The University of Sydney	36,640	36,589	36,024	35,582	36,132	37,165	38,743	39,711	8.4%	1.16%

TABLE 3.1 – AUSTRALIAN UNIVERSITY GROWTH 2003–2010 (EFTSL)

### 3.1.1 Creating Communities

The accommodation strategies have a common theme in their need to sustain the 'communities of interest' within the University. These communities cannot be served by space alone. A holistic approach needs to combine space, technology, pedagogy, mind sets, systems and processes must be devised.

Key objectives within these communities are:

- **Research** – the need to exist in both the physical and virtual world and extend beyond the boundaries of the campus.
- **Administration** - the need to reinforce a sense of team and common purpose across operations that of necessity must be dispersed across the campus.
- **Learning and teaching** - the need to support and encourage a diverse community of professionals that transcends traditional faculty and departmental boundaries who are seeking to devise new and innovating pedagogies to motivate and inspire their students.

### 3.1.2 Creating Precincts

In physical terms, these communities need physical presence and, as the University grows, it will become increasingly difficult to continue to collocate all functions and interests about the centre of the campus. Accordingly, the accommodation strategy studies conclude that a precinct-based approach to campus growth be considered. These precincts are in part historic, reflecting current centres of activity, and part aspirational, in that they do not directly relate to current organisational structures.

Of particular significance is the designation of a shared central precinct which contains University-wide functions, and the southern 'enterprise' precinct, which provides a focus for the University's outward facing partnerships and alliances.

At the heart of each precinct is proposed a series of hubs that demonstrate the precinct's identity and purpose, provide a focus for student and academic life, and enable the University's localised services to be easily accessed.

### 3.1.3 Accommodating Research

Research excellence forms the foundation of the University's aspiration to 'build prestige' and recent ERA results are testament to the success of the CORES (Concentration of Research Excellence) program and to the quality of the University's research effort. The accommodation strategy for research proposes a number of important initiatives to maintain this momentum:

- the creation of 'homeland' workspace for research-active staff, typically centred around the academic departments, complemented by University-wide networks to encourage and support inter-disciplinary collaborative research
- the classification of research space into generic (office based or 'dry' research), specialist (grant or subject-specific), and hub (providing centralised, discipline-based resources, including pooled equipment, space and resources, that are independent of the departments), with a long term intent to migrate the bulk of research activity to the hubs
- creation of discipline-focused research hubs in central locations within the campus precincts:
  - East Precinct - Biological/ Life Sciences Hub, Physics/ Engineering Hub, Materials Science/Earth Sciences Hub, Business and Economics Hub
  - South Precinct - Hearing Hub, Psychology Hub
  - West Precinct - Media Hub, Education Hub
  - Central Precinct - Museums and Collections Hub
- assessment and allocation of research space based on nominated benchmarks and active monitoring and management of research space utilisation.



CENTRAL COURTYARD

### 3. CAMPUS GROWTH

#### 3.1.4 Accommodating Administration

The University currently has four principal administrative sectors:

- **Executive** – focused on the Chancellery  
The Executive is currently centralised
- **Central** – encompassing HR, IT, Finance, Marketing, Property etc  
Dispersed across the campus, with HR, IT, Finance, Property, Teaching and Learning all located in different buildings
- **Student** – services and 'campus experience'  
Student Services/Experience is focused in two locations – one at the centre of campus and the other at the Sports and Aquatic Centre
- **Academic** – faculties and departments.  
Academic administration resides primarily in Faculty and Department offices

While it would be highly advantageous in terms of operational efficiency to have all of the University's administrative functions centralised and collocated, in reality this is not practicable for reasons of accessibility of services and proximity to customers.

Some administrative functions need to be visible and highly accessible, others do not.

The model of physical hubs and virtual networks for research accommodation applies equally to Administration. At issue is the need to ensure the right balance between centrally located 'centralised' administration, precinct-based 'centralised' administration and precinct-based local administration. This tri-partite model is one of 'hub and spokes'.

In physical terms, and in line with the concept of campus precincts, the following aggregation of administrative functions is proposed:

- 'Hub' functions would be collocated in three centres:
  - Student Services/Campus Experience
  - Central Services, comprising Finance, HR, IT, Marketing, Advancement Development, Property, Teaching and Learning. "Central" in this context refers to the organisational role of these functions, not necessarily their location. As long as they are co-located, they could be located anywhere on the campus
  - Chancellery, comprising the University Executive, noting that it would be operationally advantageous for the workspace for the Executive to be collocated with Central Services and the Chancellery be a ceremonial/conferencing/functions facility

'Spoke' functions that would be located relative to their area of operation, including local collocation where practicable to form centres of activity and destinations for students and staff, would be:

- faculty administrations
- student services operations
- facility management and works operations

It is also recommended that the University adopt new workplace models more closely aligned with contemporary workplace standards, including the integration of space, technology and processes to facilitate workplace mobility, the provision of work settings that support both collaborative and concentrative working in a flexible and adaptable environment, and the adoption of commercially-based workplace standards for occupational density.



C3C LIBRARY

### 3.1.5 Accommodating Learning and Teaching

The strategy proposed for learning and teaching has been built from a study by Arina Consulting in 2011 which identified a significant shortfall in the University's teaching space relative to contemporary benchmarks, one that would be exacerbated by further growth in the student population. The study proposed that this shortfall be mitigated by:

- an increase in the use of e-learning (which reduces space demand)
- the adoption of trimester academic year (which extends the use of current facilities)
- the development of more effective methodologies for space demand forecasting (increasing space utilisation)
- the development of more flexible learning spaces

The learning and teaching accommodation strategy recommends that the provision of learning and teaching space should be derived from and aligned with the University's Learning and Teaching plan, particularly with respect to required pedagogical outcomes and technology. It identifies the need for pedagogical innovation to be encouraged and supported through the provision of experimental learning and teaching space and of staff support associated with this.

The strategy notes, however, that traditional approaches to learning and teaching are still relevant for many staff and students and the two models therefore need to coexist. Hence those staff and students who wish to experiment with new learning and teaching techniques are able to do so, but not at the expense

of traditional approaches. The emphasis therefore becomes one of supporting diversity and providing choice.

In addition to traditional lecture theatres and seminar rooms, the University needs to consider the provision of spaces to support new learning models:

- interactive lectures, where students work in groups as well as receiving didactic instruction
- breakout lectures, where students move to supplementary spaces to undertake group work
- remote lectures, where lectures are broadcast from elsewhere on the campus or from another site
- group learning, where students work corroboratively in a technology-rich environment
- project-based learning, where students work through a cycle of conception, design, implementation and operation within a multi-purpose environment
- immersion learning, where computer generated simulations are used as a primary learning tool
- self-directed learning, where students undertake papers in their own time, either individually or in groups, using pre-recorded or purpose designed learning programs and tools

The strategy notes the importance of evidence-based design in devising these new types of environments and to that end it is recommended that the University initiate a structured programme of piloting and assessing 'new generation' learning environments, continuing and augmenting the work of this nature that has already been undertaken with the C5C Learning Forum.

This program will take some years to take effect and it is recommended that in order to relieve current space pressures and to accelerate the innovation program, a central experimental learning and teaching centre be established that provides a combination of informal and structured learning spaces, with the latter being:

- one or more medium sized lecture theatres modelled on the C5C Forum but with greater capacity
- one or more flat floor teaching space configured to be used either for traditional lectures or "TEAL" group learning
- a suite of smaller seminar rooms capable of accommodating students in group learning mode

The refurbishment of the original Library as a new learning common is an initial step in this process.

The strategy also recommends that:

- all future learning and teaching space be provided within the Central campus precinct to facilitate access and optimise utilisation, except where proximity to specialist functions are required
- the use of social media as a communication tool for staff and students be explored to enable 'just-in-time' timetabling that provides access to learning space on a short-term rather than semester-long basis
- resources be made available to assist academic staff in the use of these new forms of learning and teaching space

## 3. CAMPUS GROWTH

### 3.2 STUDENT GROWTH

#### 3.2.1 Enrolments

Since the early 2000s, Macquarie University has been one of the fastest growing universities in Australia.

In the 2004 Campus Development Plan, growth to 2044 was predicted to be at around 1.0% per annum. Enrolments at the University were expected to reach 33,000 Effective Full Time Student Load (EFTSL) in 2044.

Growth, in reality, has been significantly faster. In 2003 there were 18,988 EFTSL, however this had grown to 26,661 EFTSL by 2010. This represents an annualised rate of 5% per annum between 2003 and 2010. Growth between 2008 and 2010 averaged almost 9% per annum.

Based on this dramatic increase, a series of long-term options have been modelled to test the impacts of different growth rates. Scenarios ranging from 30,000 to 50,000 EFTSL were identified.

Using the 2010 enrolments as a base, different growth scenarios delivered the following timeframes to reach a notional 50,000 EFTSL capacity:

- 2% pa growth – 50,000 EFTSL by 2042
- 3.5% pa growth – 50,000 EFTSL by 2028
- 5% pa growth – 50,000 EFTSL by 2023

The University has now identified a vision for the future where the campus will grow to include new courses, increased research and new commercial partnerships. Growth will be based on quality not quantity of students.

In 2013 there were a total of 37,921 enrolled students. These are made up of:

- 25,603 Full-time students
- 12,318 Part-time students

International students make up 33% of enrolments. There are 1,288 academic staff and 1,423 professional staff.

New academic growth would require new facilities and new buildings, and over the next 50 years, there will be extensive change and renewal across an expanded Academic Core.

Very often, growth is pushed to the edges of a campus where green field sites offer easier outcomes. The effect of this is often to de-activate the heart of a campus.

Building on the original planning concept, based on a five minute walk between academic precincts and the Central Courtyard, new teaching spaces can extend out to the new Arts faculty in the west and over time move into the north of the Academic Core towards Talavera Road.

New pedestrian links will however draw these new zones back to the heart of the campus which is focused on the new University Common and shared facilities in the centre of the Academic Core.

In planning for capacity however, the Master Plan may be seen as independent of the actual rate of growth. A wide range of factors will impact just how quickly growth occurs (change in priorities, government policy, new courses etc), and the Master Plan does not attempt to identify a target. Understanding how growth occurs will facilitate planning for change and delivering new facilities in a timely manner.



EASTERN LEARNING HUB, MELBOURNE UNIVERSITY

### 3.2.2 Space Requirements

A critical element in planning for the future is the space required to deliver programmes at the University.

Space utilisation within universities varies across the different faculties. Analysis by the Tertiary Education Facilities Management Association (TEFMA) shows that technical and science faculties have the highest demand for floor area (Science can reach almost 18m<sup>2</sup>/EFTSL). Within these figures, the average student uses around 3.6m<sup>2</sup> of common space (general uses, shared classrooms, administration, service and support uses etc).

Because of its high percentage of space-efficient courses, Macquarie University has traditionally had a relatively low average gross floor area (GFA) per student (7.6m<sup>2</sup>/EFTSL in 2011). Without large, space intensive courses such as engineering and science, Macquarie University is currently on the lower end of national space provision benchmarks.

The 2004 Development Concept Plan identified a target gross floor area of 8.5m<sup>2</sup>/EFTSL. The accelerated growth of the campus over the last decade has impacted space standards and even with the

refurbishment of the AFTRS as the Arts Faculty in 2010 and the completion of the new Library in 2011, the average floor area across the Academic Core has dropped to 7.6m<sup>2</sup>/EFTSL (26,661 EFTSLs occupying around 203,000m<sup>2</sup>). This reduction from the 2004 target average is consistent with reported shortfalls in teaching space on the campus.

The average overall gross floor area per student across Australian universities is 13m<sup>2</sup>/EFTSL. This is a ratio of the total area of teaching and support spaces to the number of effective full time students enrolled. This average includes space intensive courses such as engineering and medicine that are not currently major streams at Macquarie University. As the course profile at Macquarie changes, so too will the space requirements.

In forecasting growth and identifying floor area on campus, two elements will impact target floor areas:

- changes to enrolments
- changes to course mix

Actual growth will inevitably vary from any assumptions made – new course requirements, changes in teaching methods and different faculty growth factors will all have impacts – however the model identifies the potential growth in floor area across the Academic Core.

The range of useable floor area across faculties varies due to differing faculty space needs. These figures are constantly under review as course delivery methods evolve. These changes are reflected in changes to area needs. (Recommended standards for students are identified in the TEFMA Space Planning Guidelines Edition 3).

The future campus will need to function quite differently and with the increased student population, decentralisation of services (for example, food and beverage outlets) can be expected. Most importantly, these models provide a basis for testing the growth of floor area across the campus.

As the University refines its projections, the model can be adjusted to reflect changes in faculty sizes and assumptions about average floor area per student.

Range of Sizes of Institutions Gross Floor Area (GFA)			
	LOW	MID	UPPER
GFA/EFTS	< 12m <sup>2</sup> / EFTSL	12 to 17m <sup>2</sup> / EFTSL	12 to 17m <sup>2</sup> / EFTSL
% of University campus in range	33%	46%	21%

Source TEFMA

TABLE 3.2 – AUSTRALIAN UNIVERSITY GROSS FLOOR SPACE RANGES

### 3. CAMPUS GROWTH

#### 3.2.3 Changing Delivery Models

It is clear, even from the changes since 2004, that changing course structures, hours and methodology have significant impacts on space requirements.

Significant changes recognised in previous studies include:

- changes from formal teaching to a mixture of formal and informal study
- evolutionary changes in pedagogy
- e-learning" with simultaneous broadcast or on-demand electronic provision of lectures
- 'flexi lectures' with sharing alternate room bookings for the same space
- Variable utilisation of teaching spaces, as these new techniques are adopted
- Trimester now underway for trimester teaching and an

extension of the academic year to make better use of building assets

- Potential for new space types such as 'learning hubs' which combine relationships to academic facilities with food, beverage and social services
- Short-term increase in learning seats with the provision of the Learning Centre (Library)
- Likely shortfall of learning/study space in the near future

Broad Academic Category ASCED Code	m <sup>2</sup> UFA /EFTSL	
	2002	2008-2009
01 – Natural and Physical Sciences	10	8
02 – Information Technology	2	4.5
03 – Engineering and Related Technologies	10	6.7
04 – Architecture & Building	6	8
05 – Agriculture, Environmental & Related Studies	5	No data
06 – Health	14	No data
07 – Education	3	3.7
08 – Management & Commerce	1	1.3
09 – Society and Culture	3.5	2.1
10 – Creative Arts	6	6.1
11 – Food, Hospitality and Personal Services	6.5	No data
12 – Mixed Field Programs	Insufficient data	No data

UFA=66% of GFA

Source TEFMA Space Planning Guidelines

TABLE 3.3 – TEFMA SPACE AVERAGES



### 3.3 RESEARCH NEEDS

The expansion of both research and post graduate programs are seen as critical to Macquarie's future.

The University has previously identified a target to rank amongst the top 200 research intensive universities in the world by 2014. The Australian Research Council's Excellence in Research for Australia (ERA) benchmark of all 41 Australian universities and assessed, 80 per cent of Macquarie's research activity was rated as performing at world standard or higher.

A study of research needs at Macquarie through 2011 has identified key issues and the needs of each research area.

The study has identified both qualitative and quantitative strategies for accommodating the University's research and administrative functions over a 20 year horizon.

Provision for research should include:

- research spaces within faculties
- allowance for variable rates of growth over time
- allowance for security and confidentiality of the research process, particularly where commercially sensitive work is undertaken in campus
- increasing proportions of interdisciplinary and collaborative research

- facilities provided for University partners on campus such as
  - Cochlear
  - The Australian Hearing Hub
  - Macquarie University Hospital
  - tenants within the Research Park
  - other business partners

At this stage, development lots created by the Master Plan allow flexible depth of future buildings and as needs arise, specific floor plate design can be accommodated. The illustrative form of the Master Plan assumes typical maximum floor plates of 25-30m depth, consistent with typical contemporary laboratory forms.

The Master Plan must allow the expansion of postgraduate courses and higher degree research to levels consistent with the University's growth in this important area.



MACQUARIE LAKE

### 3. CAMPUS GROWTH

#### 3.4 STUDENT HOUSING

The University's housing office, Macquarie University Accommodation Services, offers placement for both on and off campus housing. As at December 2013, there are 1,647 beds on campus distributed as follows:

- Macquarie University Village  
1 bedroom, 2 bedroom or 5 bedroom townhouses|  
906 beds
- Dunmore Lang College  
offering full meal board, gym membership, and free academic tutoring  
320 beds
- Robert Menzies College  
self-catered and fully catered accommodation (private, fully-furnished study bedrooms with shared bathrooms or private ensembles)  
312 beds
- Herring Road Apartments  
3, 4 or 6 bedrooms apartments  
109 beds

Off campus housing may be private or shared rental properties, local homestays and short-term accommodation. Most are within walking distance of the campus.

The Macquarie University Apartment options also include a number of properties close to the campus including Macquarie Parklands (University owned apartments at Herring and Epping Roads which consists of 96 beds in 24 single and twin shared rooms with share common areas) and the new Dayman Place apartments (privately owned but managed by the University providing 74 beds).

The provision of new student housing follows a number of guiding principles:

- student housing must support learning and teaching, student engagement, recruitment, retention, personal growth, academic achievement, and graduation of students
- student accommodation services must be integrated with the current thinking of the new student services model which involves a hub and spoke face to face solution and greater online website presence that enables ease of enquiry management and bookings from anywhere in the world

- student accommodation services must better coordinate access to affordable rental housing within close proximity to the campus
- the allocation of available student accommodation must support both academic program objectives and student recruitment and retention goals
- planning for future student accommodation must consider both domestic and international student demand and the additional housing that is likely to be provided by third party operators in the areas adjacent to the campus.

With a trend in student housing models increasingly towards independent living (often as shared accommodation), students are seeking more privacy and better facilities. Increasingly lifestyle is a key issue in the decision of housing choice. The outcome of this trend is higher space needs and higher construction costs.

The 2009 Concept Plan identifies an increase in on-campus student housing by 3,450 beds to a total of approximately 5,000 beds. No limit on floor area is identified. The previous space budget of 20m<sup>2</sup>/bed in single rooms may be revised upwards as the trend towards more graduate student housing evolves and the market demands improved facilities.

Student accommodation performs a critical role in meeting the University's strategic objectives. Fundamentally the University needs to provide sufficient levels of residential student accommodation to meet the demand associated from any increase in the student population. Students need assurance that when they accept an offer from the University that they will be able

to secure affordable, appropriate accommodation that will support their student lifestyle.

The University needs to provide flexible housing types to meet the diverse needs of our student population. For example, with the rapid increase of research student's numbers, there is a current shortage in smaller sized apartment style accommodation for postgraduate students.

Feedback also suggests that Macquarie University students (and in particular international students) would prefer an environment where there is the opportunity to mix with other students (both international and Australian) whilst maintaining privacy. Single study

bedroom and single with en-suite bathroom, shared kitchen facilities and communal areas are very popular. The provision of single sex accommodation is also very important where culturally sensitive issues and security are paramount.

The development of the high value Herring Road frontage will, over time, allow Menzies and Dunmore Lang colleges to move to the west of the campus, close to the sports facilities and where services for resident students can be clustered.

There are opportunities to locate new student housing in the heart of the campus.



THE HUB

### 3. CAMPUS GROWTH

#### 3.5 COMMERCIAL DEVELOPMENT OPPORTUNITIES AND EMPLOYMENT GROWTH

##### 3.5.1 Macquarie Park Context

The original concept for Macquarie Park was based on the successful Stanford Research Park in California's Silicon Valley which was established in 1951 on part of the extensive Stanford University estate. Faced with the loss of protégés such as Bill Hewlett and David Packard to eastern colleges and to General Electric, Professor Frederick Terman sought to foster a closer collaboration between the University and industry using Stanford's land bank as the catalyst.

In 1963 the Macquarie University site was acquired by the NSW Government to establish Sydney's third University and to create a catalyst for new technology jobs and investment. The corridor that has become Macquarie Park was rezoned from green belt land to residential and industrial uses.

Today Macquarie Park has some 850,000m<sup>2</sup> of commercial space. The expanded Macquarie Centre retail complex will have over 138,500m<sup>2</sup> of overall floor area.

The following mix of jobs in Macquarie Park in 2011 has been identified (source *economy id*):

Manufacturing	3,467	12%
Wholesale Trade	6,389	21%
Retail Trade	2,060	7%
Information Media and Technologies	2,085	7%
Professional, Scientific and Technical Services	4,627	16%
Education and Training	2,350	8%
Health Care and Social Assistance	1,826	6%
Other	7,037	24%
TOTAL	29,841	100%

There are over 30,000 jobs in the precinct. A comparison of the existing and planned areas of major employment zones around the world highlights the potential for commercial development on the Macquarie University site.

The opening of the Epping to Chatswood Rail Link in February 2009 has been a major element in growth in Macquarie Park and in particular, the University. The imminent extension of the line to Rouse Hill and Castle Hill (the North West Rail Link) will directly connect Macquarie Park to one of Sydney's major growth areas.

In response to this transformation, the 2009 Macquarie University Concept Plan permits up to 536,000m<sup>2</sup> (excluding Cochlear) of commercial and allied research uses on land to the south, east and west of the Academic Core. If fully developed, this would make Macquarie University alone one of the largest employment centres in Sydney. As a research park, this quantum of space, clearly positions Macquarie University at an international level.

In 2013, Macquarie University was included as part of a new NSW Government Urban Activation Precinct. The UAP proposes to change the main body of the campus to a more flexible mixed use zoning rezone and increase commercial potential.

### 3.5.2 Commercial Uses

Commercial uses on the Macquarie University site represent not only an opportunity to create financial security for the University into the future, but can foster engagement with major technology, research and knowledge-based companies that will underpin Australia's changing economy.

The development of commercial opportunities on the Macquarie University campus began with the development of the Macquarie University Research Park (MURP). This complex of buildings on seven hectares in the east of the site features the Macquarie University Hospital and Clinic building completed in 2010 and four commercial buildings developed in 1999-2000. A fifth commercial building (1 Innovation Drive) was completed in 2004. The commercial buildings are on 99-year ground leases and in 2012 housed almost 50,000m<sup>2</sup> of gross floor space.

Macquarie University purchased back the leasehold interest in both 75 Talavera Road and 162 Herring Road in 2012. As of September 2013, the long-term lessees of the other three buildings are third parties.

Collaboration agreements are in place between the University and all of the tenants of the MURP buildings.

### 3.5.3 Partnerships

The Stanford Research Park as a model for Macquarie University is based on fostering new technologies through a direct interface with the University. It encourages both informal and formal connections between companies and the University. These may be:

- sponsoring of joint research projects with Stanford faculty and students
- conducting seminars and workshops that encourage the exchange of information
- offers of internships to students
- recruiting Stanford graduates
- Inviting faculty to join corporate boards
- retaining faculty as consultants
- consultation with Stanford's Office of Technology licensing
- access to the University's Library systems

Consistent with Macquarie's vision of becoming one of Australia's leading research universities, the University is committed to building relationships with business - particularly those in the Macquarie Park high-technology corridor

Key areas of engagement include:

#### **Enterprise Partnerships and Commercialisation**

Many of Macquarie's collaborations involve the commercialisation of research projects which deliver tangible benefits to the community. Small, medium-sized and large enterprises all have the opportunity to work with a University partner in order to obtain expertise in a specific area relevant to their individual business and objectives.

Partnerships take many forms including:

- contract research and development, and
- collaborative commercialisation opportunities.

#### **Macquarie Technology Business Incubator**

Launched in 2007, the University owned Incubator (located within MURP) provides a low-risk, dynamic and collaborative environment that fast-tracks the development of new technology businesses in the northern Sydney region.

#### **Cancer Proteomics Infrastructure Initiative**

Macquarie is committed to collaborations that produce tangible outcomes and that benefit society. The University's researchers are collaborating with a number of cancer and proteomics experts from various centres of excellence across NSW on central problems in translational cancer research.

### 3. CAMPUS GROWTH

#### Industry Partnerships

Partnerships with key technology developers are seen as a key factor in ensuring the University becomes a world-class research institute. The University has strong relationships with many national and international organisations including Cochlear and the EMC Corporation.

#### Partnering with the Community

Two such partnerships focus on key national priorities: student engagement with science and improved levels of literacy.

Community partnerships such as The Science Partnership and the Making Up Lost Time In Literacy (MULTILIT) program demonstrate how Macquarie is encouraging student engagement with science and improved levels of literacy.

#### Participation and Community Engagement

The PACE program - Participation and Community Engagement aims to:

- produce graduates with highly developed personal, interpersonal and social capabilities, as well as cognitive ones
- develop the capabilities of Macquarie students and staff to contribute actively to the wellbeing of people and the planet
- form partnerships which are mutually beneficial, foster mutual respect, and improve the capacity of partners to meet their mission and purpose
- establish Macquarie as a leading University for transformative learning and research, recognised for excellence in socially inclusive practice

#### Audiology and the Cochlear Experience

At Macquarie University, the 35,000m<sup>2</sup> Cochlear Headquarter building on University Avenue is the only integrated research-manufacture-distribution facility of its type in Australia and at full production, will produce 5000 ear cochlear implants each week. The University owns the land and building and Cochlear has a 20 year lease.

Together with the new Hearing Hub opened in 2013, these new developments on University Avenue signify a closer arrangement between industry and the University than has been seen at MURP.

Cochlear has formed the foundation of the University's Centre of Excellence for Hearing and Audiology.



COCHLEAR BUILDING

Building on Macquarie University's vision as 'Australia's Innovative University', the Centre collaborates closely with the Audiology section of the Linguistics Department which seeks to achieve research and teaching excellence while developing graduates with leadership qualities that prepare them to interact effectively with other medical professions.

With the Hearing Hub, Macquarie University has developed an international multi-disciplinary facility that will collocate a number of hearing related entities including:

- Australian Hearing Service
- National Acoustic Laboratories
- Macquarie University's Audiology Department
- Royal Institute for Deaf & Blind Children
- The Shepherd Centre
- Sydney Cochlear Implant Centre
- Cochlear Limited

### 3.6 HERRING ROAD URBAN ACTIVATION PRECINCT

The NSW State Government has nominated a series of strategic sites across Sydney as new Urban Activation Precincts (UAPs).

The aim of these new UAPs is to deliver increased residential development and economic activity in places with access to infrastructure, transport, services and jobs. The stated aim is to deliver greater housing choices, increased amenities, services and improved public spaces.

The Herring Road UAP is focused primarily on the area between the Macquarie Centre and the University and includes The University lands south of Culloden Road. The proposed zoning may see an increase in commercial potential for the campus and more flexibility in its location on the University site. Education uses and support services (retail, housing etc) are protected.

While making maximum use of existing transport infrastructure, in particular Macquarie University Station and bus services, the precinct will provide opportunities for living close to retail, employment and education.

The plan supports the creation of a vibrant town centre around the Macquarie University Station with high quality public spaces, retail and commercial spaces, potential civic plaza and an enhanced public domain.



HERRING AND TALAVERA ROADS







# 4

## THE MASTER PLAN

# 4. THE MASTER PLAN

## 4.1 VISION

**Create the framework within which Macquarie University can achieve its Strategic Plan.**

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

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.

## 4.2 PLACE CHARACTER

In addition to fulfilling the functional and strategic requirements of the University, the look and feel of the campus reflects the essence of the University brand and its relationship with the people who study, work and live there. The campus place character guides the detailed design of the public realm communicating who it is for, how it will be perceived and what people will be invited to do there.

The Macquarie University Campus Place Character is captured by the following attributes:

- Transformative – engaging with people to support their personal expression
- Organic – unstructured connection to nature and with the ability to evolve and adapt to changing user needs
- Diverse – offering a range of experiences from the intimate to the ritualistic, the formal to the social.

These themes will be confirmed through a series of workshops with staff, students and stakeholders in 2014.



### 4.3 PRINCIPLES

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In response to the refocusing of Macquarie University as a centre of excellence, the Master Plan identifies a series of planning and design objectives. These are to:

- create a great and memorable place for learning, research and business
- develop the best long term flexible plan for the University lands
- plan and optimise development capacity in campus
- coordinate with a planned long-term annuity stream for the University achieved through land investment
- provide assurance that campus planning is not compromised into the future
- use University space as efficiently and effectively as possible
- examine the potential for new hubs within the campus for:
  - Arts
  - Human Sciences
  - Business and Economics
  - Science and Medicine
- engage with both the community and business
- allow the integration of research and commercial uses within the campus
- allow for the co-location of business and faculty if necessary to achieve 'best in class' research outcomes
- create flexibility for teaching and learning
- create a valuable legacy for the future
- address the commercial objectives of the University
- enhance access to public transport
- embody environmental sustainability
- consider the accommodation needs of students
- create an environment to attract and retain businesses on the campus
- create a framework for optimising the commercial value and ensuring economic viability of the campus buildings



NEW UNIVERSITY COMMON

## 4. THE MASTER PLAN

### 4.3.1 Environment

#### Enhance the natural environment

The existing campus contains many natural features of high value, including several watercourses, threatened species woodlands, flora and fauna habitats.

They represent a natural wealth that is uncommon in most tertiary campuses, and can remain a distinguishing feature of Macquarie University.

#### Create a robust public domain framework

An underlying robust structure will enable the University to retain clarity of the public domain while buildings evolve over time. The original campus layout provides a strong basis for such clarity but must adapt to new spatial demands.

#### Create functional, attractive and active core/s

New core locations as centres of academic interaction are required. These can provide much better definition of place than currently exist. They can give identity and address to each faculty and provide meaningful places for student interaction.

#### Enhance the existing strengths of the original Master Plan

This study appraises the values and features of the 1964 Master Plan and identifies those which remain relevant to future campus planning.

#### Integrate Environmentally Sustainable Design

Since the origins of the campus in the 1960s and development over subsequent decades, great changes have occurred in energy usage and efficiency. Planning and design must respond to global environmental challenges and incorporate reduced energy use, life cycle properties of buildings and infrastructure, access to appropriate modes of transport and considered land uses.

#### Create a safe, secure and accessible environment

The campus should provide an environment that provides a clear sense of safety for all occupants. Environmental design and operational policy must ensure that campus occupants are safe at all times.

Design for accessibility has evolved since the campus was first developed and is now understood widely to be inclusive of different personal capability in physical mobility, sight, hearing, intellectual impairment and other characteristics.

#### Reinforce the concept of a compact core

The original Master Plan identifies a 5 minute optimum walk between classes on the campus. The developed Master Plan should reinforce this concept through the clustering of faculties and services.

Ease of wayfinding and a clear and permeable plan will assist movement around the Academic Core.

### 4.3.2 Place Making

#### Develop a collaborative process of creating, enhancing and managing people focussed places

New spaces on the campus must respond to and respect the unique attributes of place: the social, economic, environmental and cultural aspects that make each place truly unique.

#### Create a place experience that reflects the University brand and learning offer

The campus should reflect the University values, brand and desired identity through a combination of place design, activation and management.

The campus can contribute to student's education through spatial design that encourages creativity, collaboration and innovative behaviours.

#### Define a hierarchy and network of public spaces

Defining a range of new public spaces across the campus makes it imperative to ensure that the heart of the campus remains clear and legible. Additionally secondary spaces should offer different experiences from the heart and from each other.

The campus public realm should be diverse in character, design and the experiences it offers to different users at different times of the day, week and year.

### 4.3.3 Academic and Student Experience

#### Attract and retain the best graduate and post graduate students, staff and researchers

It is accepted that together with a high standard of research and student achievement, and continued growth in academic achievement, the quality of the campus experience and student facilities are important considerations for prospective graduate students.

#### Recognise the Faculty structure

The study adopts the existing faculty structure, with the likely addition of a new Medical faculty in the medium future. It has been noted that interaction is increasing between students and academics across faculties, however the faculties are expected to remain important as centres of learning disciplines.

#### Optimise learning through effective and efficient space utilisation

The changes in space utilisation occurring through emergent learning practices demand that teaching space capacity and design is reappraised and appropriate spaces are provided to suit future demand. An adjunct to this requirement is flexibility as the University experiences a period of rapid, unsettled change toward new learning practices.

#### Improve the student experience

Findings during the research for this report indicates that students have many unfulfilled aspirations for the built environment on campus. These include the provision of amenities (including student services, food and retail offers), the presentation of existing buildings and their architecture.

### Accommodate emerging ways of learning

Previous studies for this campus and other tertiary institutions have identified substantial changes in teaching and learning which are now prevalent. These have direct implications for the provision of physical teaching space. Major changes include:

- blended learning
- a seamless formal and informal learning environment
- the introduction of technologies (for example, the PDA device in the classroom)
- electronic and broadcast learning
- changes in teaching space needs and utilisation

### Encourage students and staff to value the campus experience

The change toward flexible and remote learning questions the need for campus attendance. A counterpoint to this trend is the value of the physical and social experience of attendance of campus. A quality campus which enables an enriching, memorable experience during an academic career or a graduate course will reinforce the memory of the educational values gained.

### Encourage a broader learning community

Macquarie already attracts and serves a learning community wider than tertiary students. It includes children, collaborations with industry and many activities available to the community in general. This should continue and be clearly visible in the campus plan.

### 4.3.4 Economic Sustainability and Partnering

#### Optimise investment returns on the current site as a long term annuity stream for the University

The North Ryde campus lies at the heart of Sydney's Global Arc and next to the major employment centre of Macquarie Park. Commercial development within the campus represents an opportunity to create secure income for the University into the long term future.

#### Encourage improved interface with research and technology delivery groups

Build direct links with the range of emerging and world leading companies that both enhance the University's identity and create opportunities to commercialise research outcomes.

## 4. THE MASTER PLAN

### 4.4 MASTER PLAN DEVELOPMENT

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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.

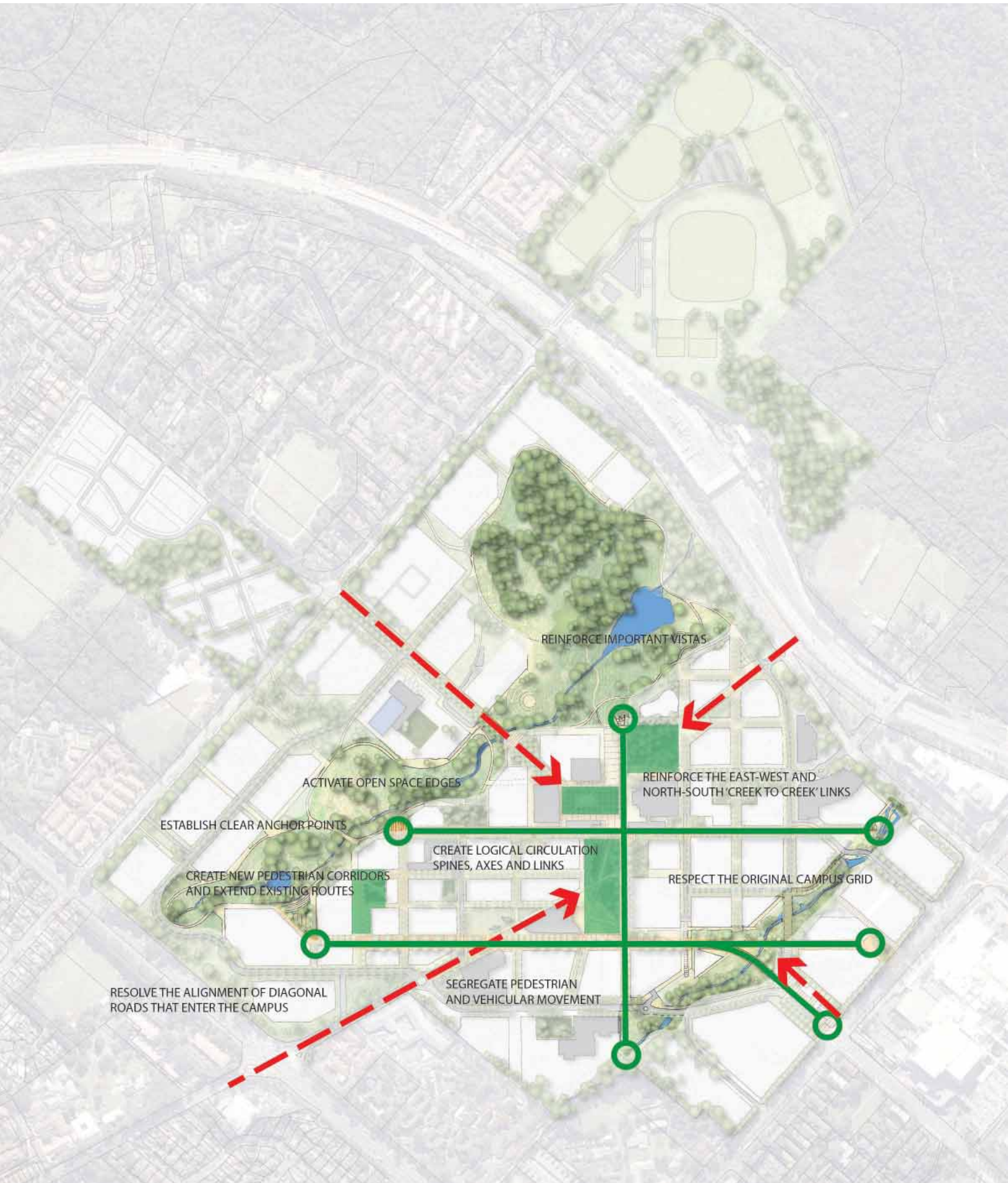
The Master Plan:

- 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

#### 4.4.1 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.



## 4. THE MASTER PLAN

### 4.4.2 Academic and Administrative Structure

The faculty structure will continue to form a major guiding aspect of the physical campus structure. Within the existing distribution of offices and faculties across the campus however, the faculties are indistinct and no obvious 'home' is apparent.

The Master Plan builds on a clear framework within the University where a central core of shared learning spaces is flanked by eastern and western precincts housing each of the faculties. Distinct academic precincts are created around open space hubs:

- Arts in the west of the Academic Core
- Human Sciences to the west of the University core
- Science/Medicine in the north around the Hospital
- Business towards the Herring Road gateway

The Plan anticipates increased flexibility of uses however in principle, the Academic Core has been extended to the northeast, towards Research Park Drive, and westward to include the Arts building. The introduction of new 'hubs' as centres of activity is a means to reinforce the faculty identities and provide a home for each faculty.

The Master Plan responds to the new faculty structure through:

- clustering multiple faculties and common functions around special places within the plan
- creating a stronger identity for faculties and sense of place within all areas of the plan
- creating new open spaces as the focal point of faculties and address points in the campus
- flexibility to accommodate a range of facilities in each faculty hub which could include faculty administration, student services including enrolment, careers and food and beverage outlets

### 4.4.3 Economic Sustainability and Partnering

The strategy Our University: A Framing of Futures clearly establishes the need for a flexible approach to new commercial and research space.

The rezoning of the main campus under the proposed UAP provisions will allow the integration of commercial and research uses across the campus as needed.

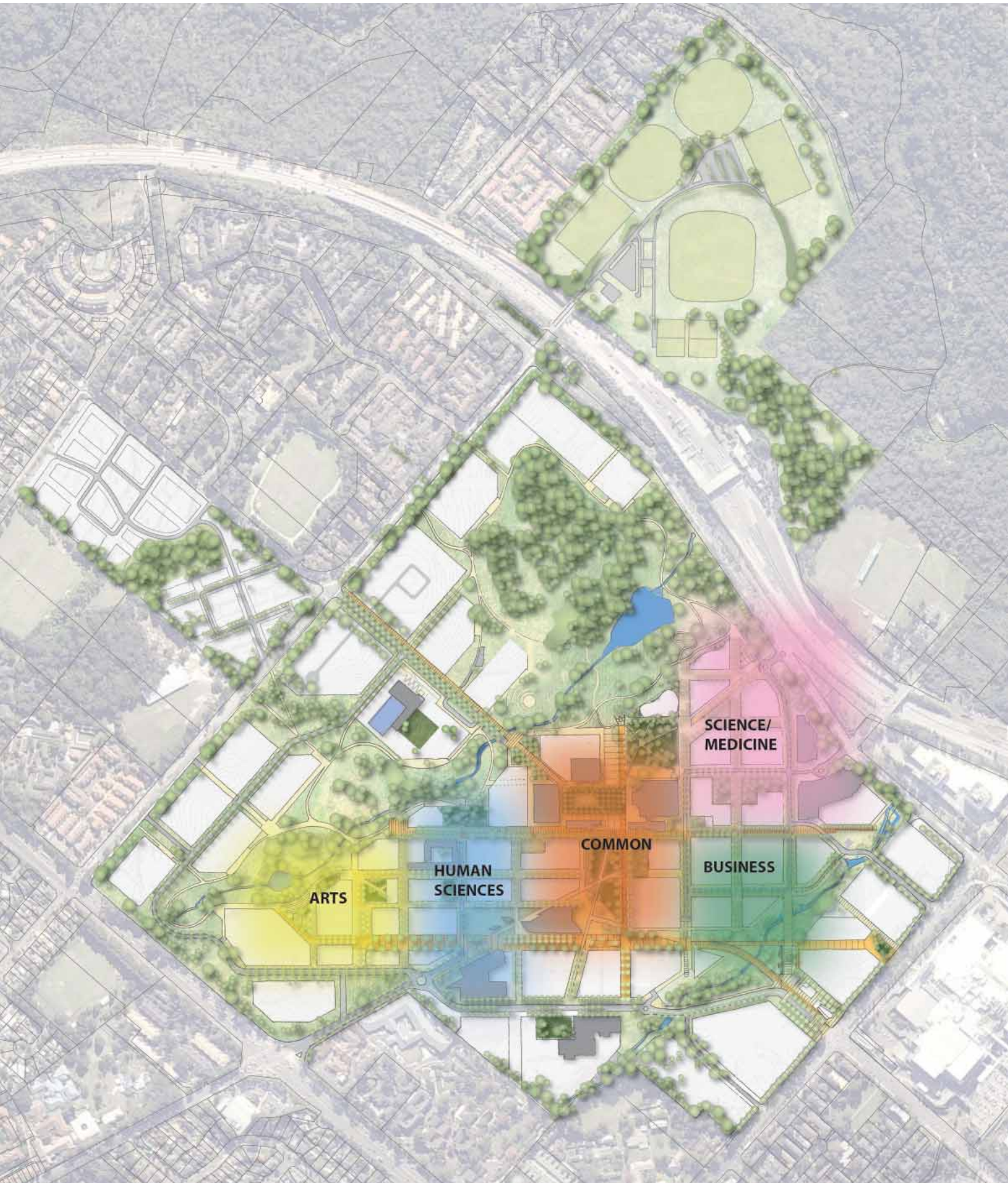
Under the section *Key Supporting Enablers Of Success For Macquarie In The Future - Developing a Vibrant and Sustainable Campus*, the strategy seeks to acknowledge the value of the site and the University's landholding which is "at the centre of a rapidly changing neighbourhood in the international, cosmopolitan city of Sydney": It seeks to:

- develop an inspiring and engaging campus that physically represents all that is good about Macquarie
- align our pedagogy and research with the development of new facilities and the renovation of existing facilities
- utilise our land asset as a vehicle to accelerate our development of alternative sources of revenue
- open up the Macquarie campus community and its assets to a diverse range of community, arts, business incubators and other potential partners and collaborators with similar goals and aspirations to our own

The appropriate introduction of new research and commercial space will have the benefit of providing financial security for the University and engaging the business and research sectors.







## 4. THE MASTER PLAN

### 4.5 THE PLAN

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NEW UNIVERSITY COMMON



## 4. THE MASTER PLAN



HERRING ROAD GATEWAY



## 4. THE MASTER PLAN

### 4.6 ZONES

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The University is adopting a new numbering and building identification system and a new wayfinding concept that is based on:

- a Central zone
- North, South, East and West quadrants
- every building has a street address and name rather than block references.

The system is a geographic not a function organising of address and identity. A series of different uses occur across the different zones.

#### 4.6.1 Central

The Central zone is focused around the original Central Courtyard and the new Library and contains a number of shared and ceremonial functions.

Uses include the old Library (now temporarily an informal learning space), food and beverage uses and administration functions.

The Master Plan requires the following for the Central zone:

- reinforce shared uses and maintain activity in the campus centre
- focus community uses (including food and beverage) in the heart of the campus
- develop a new central open space
  - the University Common and Library Forecourt
- reinforce entries on the diagonal axes into the Academic Core
- ensure that the campus centre has strong ceremonial role

#### 4.6.2 East

The East zone lies in a quadrant from the new University Avenue/ Herring Road gateway to the Talavera Road axis. It includes the Hospital, MURP and much of the Science and Business and Economics faculties. Over time the Medical uses are likely to be increased in this zone.

The zone includes the Herring Road frontage where planning for an Urban Activation Precinct promotes the intensification of uses around the Macquarie University Station. In response to this opportunity, the Herring Road UAP identifies almost 200,000m<sup>2</sup> of permitted development along Herring Road.

The Master Plan addresses the potential for growth in the zone (both Academic and non-Academic) and identifies the potential for new development within the precinct.

The gateway at Herring and Waterloo Roads is now the major entry point to the campus and a suitable design response is needed.

The East zone has a number of opportunities:

- reinforce the Waterloo Road entry as the main entry to the University
- develop the precinct as a mixed use precinct with educational and commercial uses
- accommodate some 200,000m<sup>2</sup> of development along Herring Road under the Urban Activation Precinct controls
- focus commercial uses along the Herring and Talavera Road frontages

- develop opportunities that optimise relationships with the Macquarie Centre and create a community heart (town centre) for Macquarie Park with potential for a civic plaza
- ensure future growth of the Hospital and associated University uses are accommodated
- improve access opportunities to commercial uses from public roads
- extend pedestrian access from Wally's Walk to University Creek
- coordinate improved access across Herring Road into the Macquarie Centre
- structure building heights at the University Avenue entry to reinforce the pedestrian entry experience and emphasise the University's presence
- accommodate student housing options



## 4. THE MASTER PLAN

### 4.6.3 South

The South zone extends from the Balaclava Road axis to the University Avenue gateway. It includes the large area south of Macquarie Walk

The potential for commercial development of the south of the campus was identified in the 2004 Development Master Plan and formally approved in the 2009 Concept Plan consent. The Cochlear building and the new Hearing Hub are the first outcomes of this strategy.

The interface between the University and the business world is becoming increasingly important. The continuing development of this precinct represents an opportunity not only to secure the University's financial future but to foster the important links with business and research.

The Master Plan seeks to:

- continue development of southern precinct as a predominantly commercial zone but mixed with educational uses
- encourage the integration of learning spaces within this zone
- develop an active edge with building entries, lobbies and cafes along the Macquarie Walk frontage
- maintain access opportunities to commercial uses from publicly accessible roads

### 4.6.4 West

The West zone lies between the Gymnasium Road and Balaclava Road axes.

With the exception of the MUSAC complex and the Arts Faculty building (Y3A), this part of the campus has been largely undeveloped with large areas of parking and a number of 'back of house' elements on the main campus and some 930 beds in low rise accommodation north-west of Culloden Road.

A new western common (the Arts Lawn) lies on existing car park sites. The area around the common will be developed as a new focus for Arts and Human Sciences faculties.

Both the 2004 Development Master Plan and the 2009 Concept Plan envisaged the development of commercial uses along the high visibility Epping Road frontage with the AFTRS building being demolished. The 2010 refurbishment of the building however, has extended its useful life quite significantly.

The plan envisages the focus to shift towards the Mars Creek/ Culloden Road zone where a better relationship to the heart of the campus can be developed.

New housing is possible in the west of the site close to MUSAC with the possibility of densities being increased on the Macquarie University Village site.

The opening of the new M2 ramps on Talavera Road has seen a shift in emphasis in traffic movements away from the traditional southern vehicular entry points to the campus. The construction of new parking in the west of the campus will reduce the impact of University-generated traffic particularly on the Herring Road and Epping Road intersection.

The staged construction of new car parking on Culloden Road opposite Marsfield Park will minimise impacts on adjoining housing and allow access to and from parking without drawing cars into the University.

The Master Plan seeks to:

- introduce new research and commercial uses adjacent to Mars Creek
- clearly define the edge of the public domain along the creek frontage
- stage construction of new car parking on the Culloden Road frontage
- locate parking access predominantly from Culloden Road.
- accommodate student housing options
- upgrade and expand accommodation on the existing housing site
- explore new student housing opportunities including intensifying uses on the University Village site



#### 4.6.5 North

The North precinct extends from the Central Courtyard, across the Mars Creek includes the sports fields.

The eastern edge will be defined by the Talavera axis while Gymnasium Road marks the western extent. The precinct will continue to fulfil an important sports and recreation function.

Key uses within the precinct are:

- development adjacent to Mars Creek is constrained by significant plant communities however a looser development structure will allow new buildings such as a possible Great Hall to be woven into the landscape
- the zone towards Talavera Road and the existing MGSM will see an intensification of uses with academic and research uses favoured. Sites along the Creek will need to be developed to lower scale, developing a strong relationship to the open space

Built use on the University's playing fields is limited by bushfire constraints at the national park. There are endangered flora communities, east towards the creek. The topography, creek setbacks and ecological constraints limit further development in this zone. As the University expands, the demands for sports facilities will require review and evaluation.

This zone represents a significant opportunity to accommodate growth in the University and the provision of expanded support functions. The Concept Plan identified some 3,450 new beds in this area. The potential relocation of colleges and an increase in densities on the University Village site, a significant proportion of on-site housing can be provided in this zone.

Within the North zone, the Master Plan seeks to:

- introduce new uses north of Mars Creek
- intensify uses near the Talavera Road axis

- ensure sports facilities match student growth and demand from new employment on the campus
- reinforce student housing in west of campus
- allow for new student housing and the relocation and expansion of existing colleges
- investigate new services and facilities for the expanded resident student population

A new Great Hall and conference centre may be located on the Mars Creek corridor within this precinct.



GRAND HALL CONCEPT SKETCH

## 4. THE MASTER PLAN

### 4.7 KEY UNIVERSITY FUNCTIONS

#### 4.7.1 Campus Services and Amenities

Campus services form a significant part of the student and staff experience. At present these services are heavily clustered around the Central Courtyard. The creation of new learning commons and hubs across the campus should see some relocation or expansion of student services in these locations.

The potential growth in campus density will require increased distribution of food and retail offers throughout the campus. Previous student surveys have indicated that the range of offers does not meet current expectations. In comparison with other large campuses such as Stanford University, the extent of retail on campus is limited. This is partially offset by the presence of the Macquarie Centre retail nearby.

With the predicted growth of enrolments and the creation of new Faculty Hubs, the Master Plan has sought to expand and decentralise food services.

Sports and student amenities are critical elements for the University.

The on-going expansion of the MUSAC centre on Gymnasium Road may need to be complemented by other opportunities across the campus:




- respond to the 'hub and spoke model' by distributing service centres at each hub and adjacent to major open spaces
- the hub zones should be in safe and convenient locations for extended hours student activities
- integrate student services with the provision of food and retail elements

- focus major services with public interface at the southern end of the University Common
- encourage a wide variety of type, size and cost food offering than is presently available
- relate food to hubs and commons
- locate facilities on, or adjacent, major open spaces and pathways to activate primary pedestrian routes and places
- provide flexibility and change opportunity, recognising that retail preferences can change over time
- provide amenities in sunny, protected places to maximise hours of use
- locate major food outlets so that they can be served unobtrusively from the service road network
- provide staff facilities in the Faculty Hubs



NEW DEVELOPMENT ADDRESSES MARS CREEK OPEN SPACE

Legend

-  Student Services
-  Information Centre
-  Food/Retail Locations



## 4. THE MASTER PLAN

### 4.7.2 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.

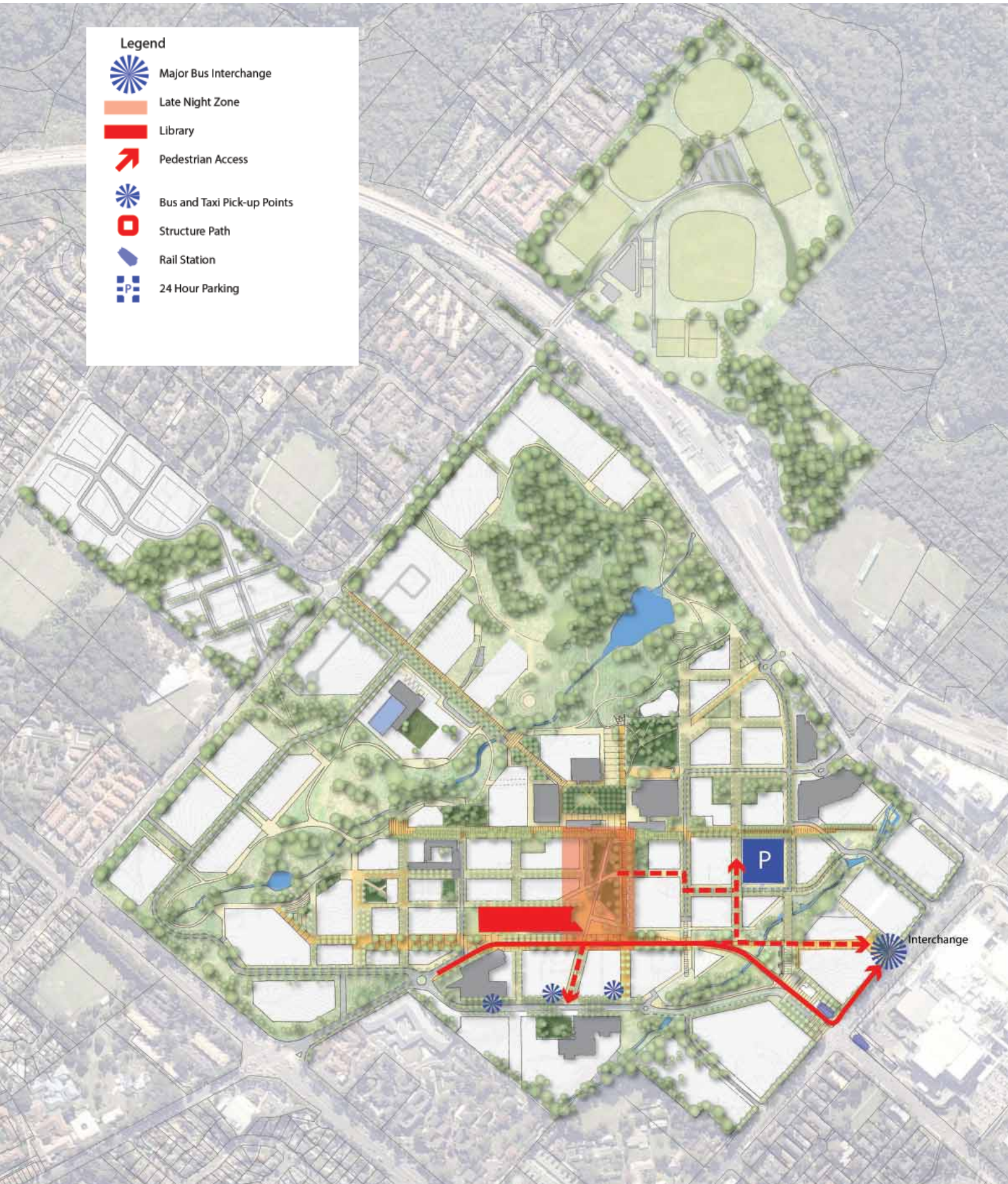
Other potential locations for the campus reception are:

- 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



**Legend**

-  Major Bus Interchange
-  Late Night Zone
-  Library
-  Pedestrian Access
-  Bus and Taxi Pick-up Points
-  Structure Path
-  Rail Station
-  24 Hour Parking



## 4. THE MASTER PLAN

### 4.7.3 Museum Locations

Macquarie University has a number of world class collections across a range of disciplines. These significant collections include:

Collection	Current Location
The Art Gallery	E11A
The Australian History Museum	W6A
University Art Collection	C7A
The Biological Sciences Museum	E8B
The Downing Herbarium	E8C
The Earth Sciences Museum	E5A
The Lachlan Macquarie Room	C7A
The Museum of Ancient Cultures	X5B
Macquarie University Sporting Hall of Fame Museum	W10A
IEC Art Collection	X5B
Sculpture Park	Mars Creek

The Museums are dispersed and not in locations easily discovered by a casual visitor. They should form an important bridge to the wider community and have the potential to greatly enhance the University's profile in Sydney and beyond.

The development of faculty hubs will allow these important resources to be clustered and located where they will have better access and can be enjoyed by the wider public.

It is proposed that much of the University's collection of art and other artefacts could be housed in a new Cultural Centre possibly within an iconic gateway building on the new Herring Road entry at the end of Macquarie Walk.


The Master Plan principles for museums on the campus are to:


- improve access to, and the profile of, the University's art and specialised museum collections
- develop a strategy for museums and galleries across the campus
- consider the consolidation of all or some of the existing collections
- allow some specialised collections to be relocated to the new academic hubs
- develop the concept of a new centralised space at the end of the Macquarie Walk axis and University Avenue gateway





**Legend**

-  Faculty Hubs
- 1 Medicine
- 2 Science
- 3 Human Sciences
- 4 Arts
- 5 Business

 Future Cultural Centre

## 4. THE MASTER PLAN

### 4.8 ACCESS

#### 4.8.1 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

#### 4.8.2 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

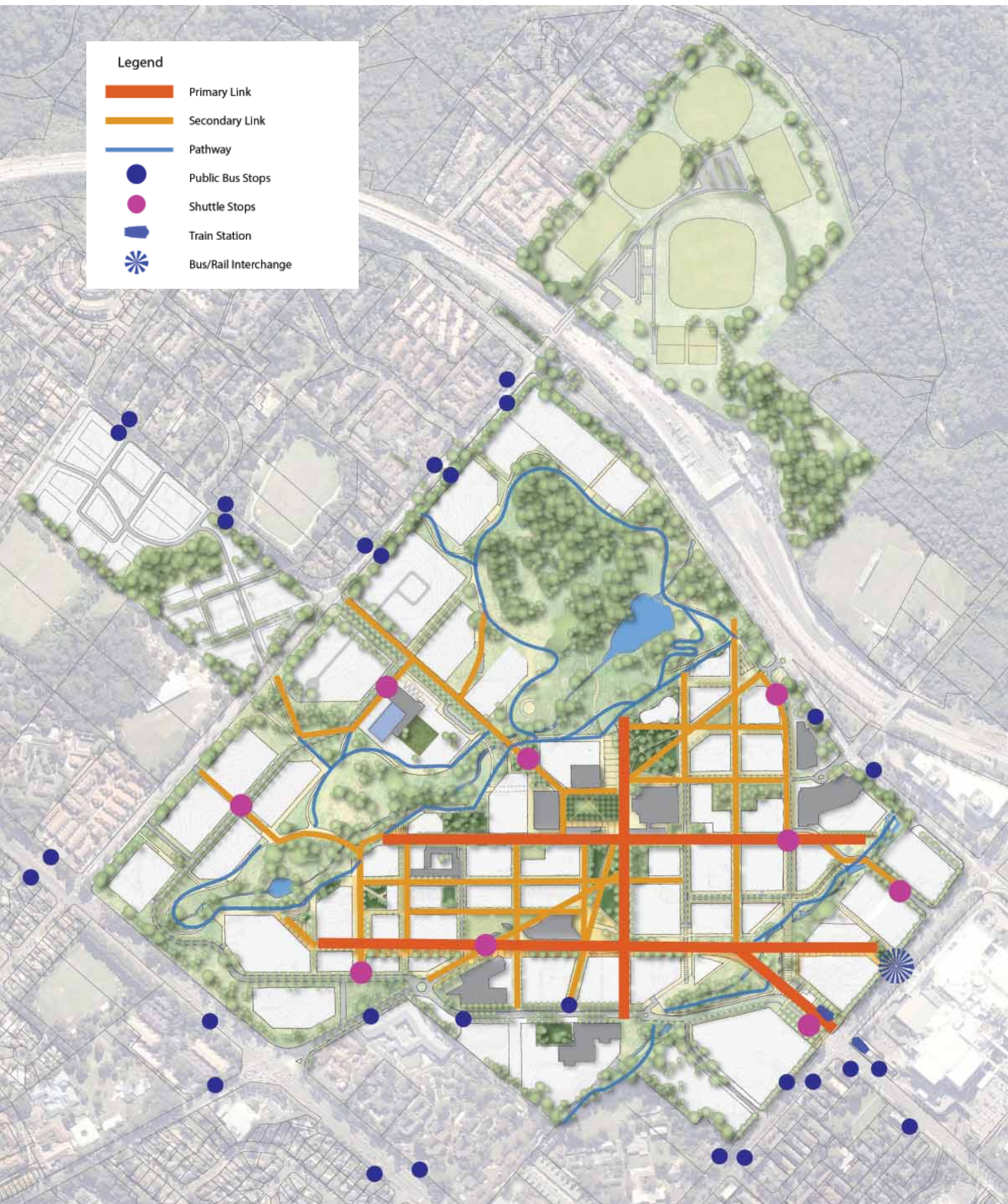


WALLY'S WALK



**Legend**

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



## 4. THE MASTER PLAN

### 4.8.3 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.

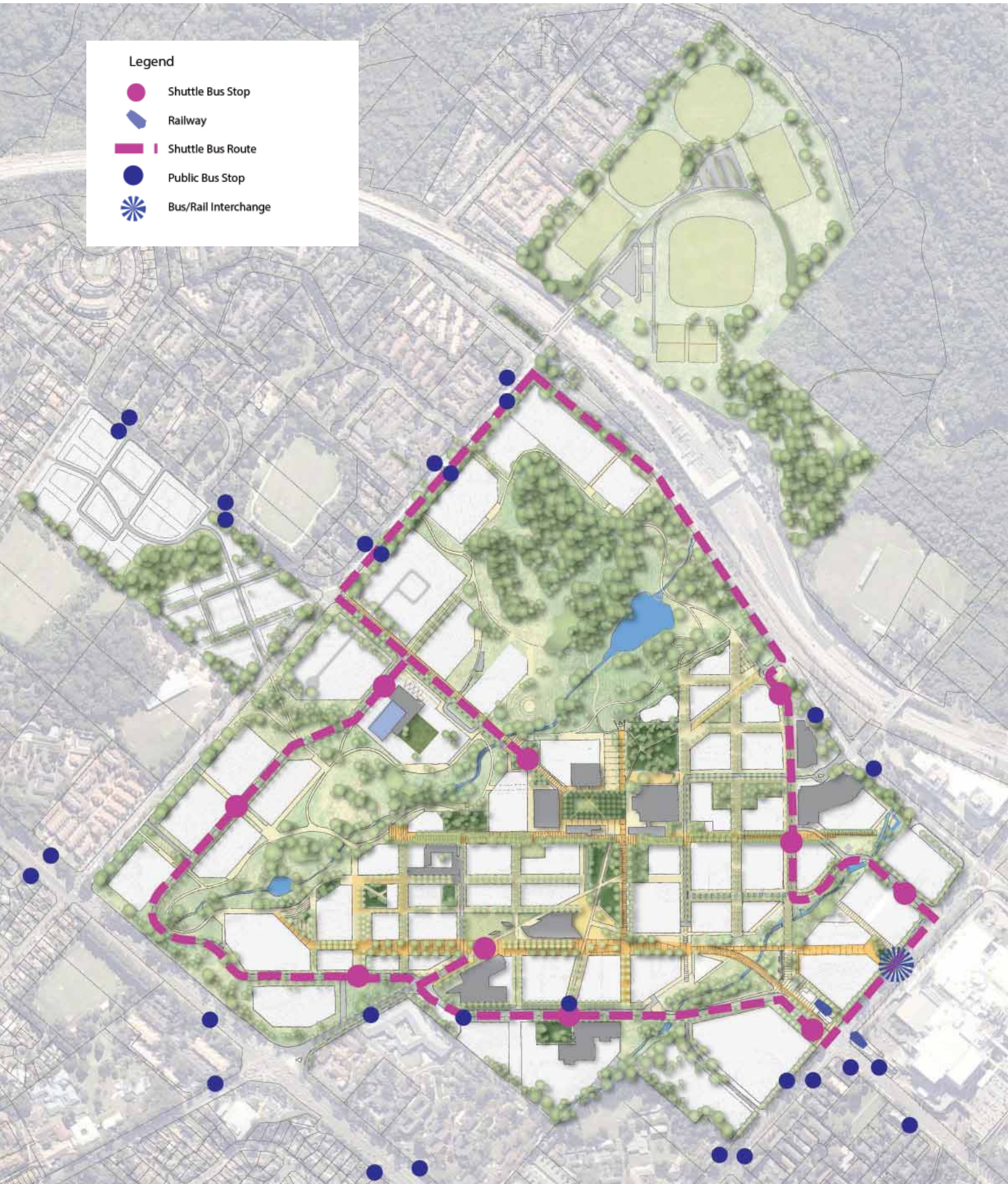
The presence of a rail station on campus facilitates high-volume public traffic to the Waterloo Road campus entry.

The Master Plan seeks to:

- 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
- 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



MACQUARIE UNIVERSITY STATION



## 4. THE MASTER PLAN

### 4.8.4 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

### 4.8.5 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.

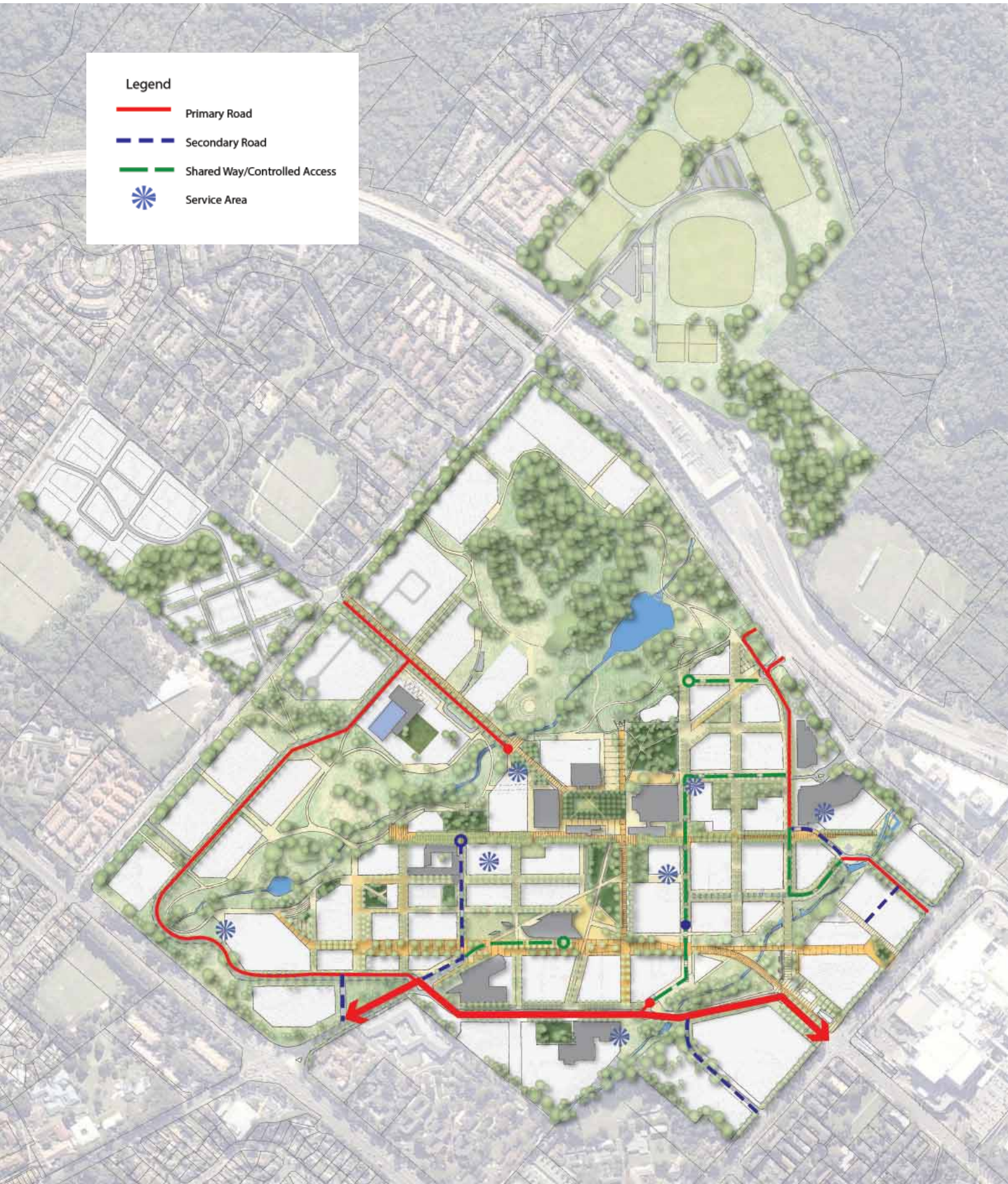
Time-restricted service access could also be explored in the future to reduce service vehicle movements during peak periods..



SHARED ACCESS

**Legend**

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



## 4. THE MASTER PLAN

### 4.8.6 Parking Strategy

The success of both the new station and the University's parking strategy has seen no new student parking added to the site in more than five years despite significant enrolment growth.

Future growth in student and academic staff numbers will require an even greater mode shift to public transport however parking on the campus will still be required.

The 2009 Concept Approval provides for a maximum of 10,800 parking spaces on campus and requires that site car parking be consolidated into a series of major car parks. This strategy calls for the removal of intrusive minor parking areas that obstruct pedestrian flow or impede future redevelopment.

The delivery of new parking and the conversion of valuable sites for University use and future development must be staged to ensure that the quantum of parking on site is not reduced until the final approved numbers are realised at end of the delivery process.

A number of options are possible and these will be driven by the University's development program and the need for new facilities. The capital cost of new structured car parks is not insignificant and will need to be carefully considered in future delivery strategies.

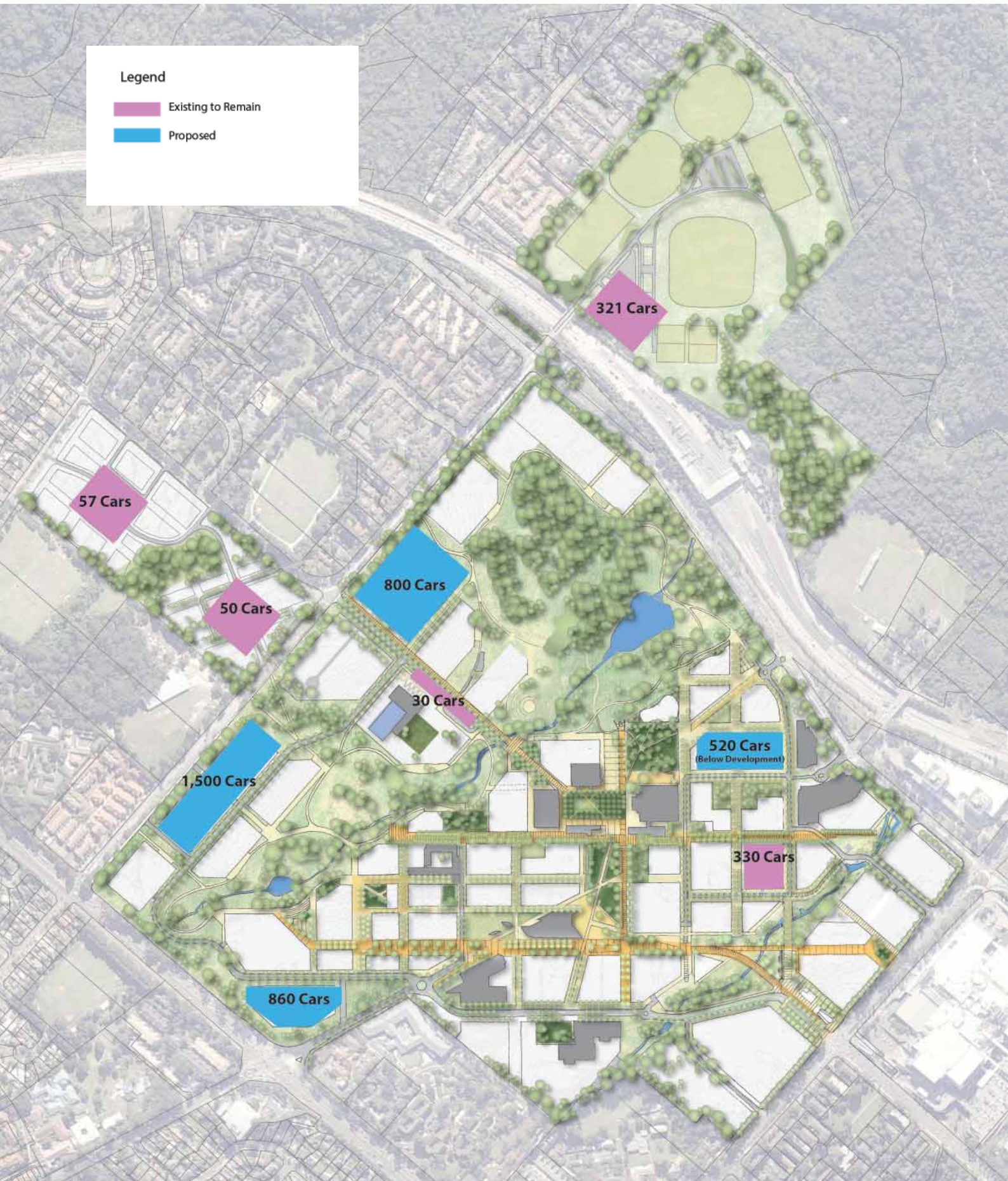
The Master Plan calls for:

- redistribution of approved car spaces across precincts to retain development flexibility
- development of four new parking structures at Research Park Drive (two zones), the Balaclava Road entry and on the Culloden Road frontage

- maintenance of the maximum number of spaces permitted under the Concept Approval (10,800 on campus)
- meeting of the needs of future commercial sites with the balance being provided in the public car parks
- locating of car park entries and exits to be located only on vehicle-priority roadways
- activation of the ground levels of parking structures in major pedestrian areas with uses such as classrooms, offices, building entries and food and beverage opportunities
- treatment of above-ground parking structures with elements such as screening, greenwalls, sculptures etc
- the potential for further development above parking levels



EXISTING PARKING



## 4. THE MASTER PLAN

### 4.8.7 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.







**Legend**

- Primary Bike Route
- Bike Hub

## 4. THE MASTER PLAN

### 4.9 DEVELOPMENT POTENTIAL

The Master Plan aims at ensuring that there is sufficient space to grow into the future. Space demands are certain to vary over time as the University deals with a variety of changing elements. These include:

- growth of the University
- the student mix across faculties
- growth rates within faculties
- changing floor area needs in each faculty
- changes to teaching and learning environments
- increases in common area provision
- the role of research space in the future
- the impact of remote and e-learning on floor space on the campus
- impacts of increasing collaboration with industry

A student population of 50,000 EFTSL was considered in previous studies however with the Our University, A Framing of Futures white paper, the emphasis will shift from undergraduate growth to increased research and an increase in engineering and medical places

The Plan allows for flexibility over time of both use and scale across the campus. Possible allocations of floor space across the campus could see increase in:

- academic space. This will be subject to course mix and space needs
- commercial and research space
- student accommodation.

	Existing	2009 Concept Plan
Academic Space	223,600m <sup>2</sup>	290,000m <sup>2</sup>
Research/Commercial	131,750m <sup>2</sup>	560,343m <sup>2</sup>
Student Housing	41,750m <sup>2</sup>	110,000m <sup>2</sup>
<b>TOTAL</b>	<b>397,100m<sup>2</sup></b>	<b>936,000m<sup>2</sup></b>

Table 41 Floor Area Approved



AERIAL VIEW FROM WEST





# 5

PUBLIC DOMAIN

# 5. PUBLIC DOMAIN

## 5.1 PUBLIC DOMAIN FRAMEWORK

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 framework 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.

### 5.1.1 Campus Landscape Design Philosophy and History

Macquarie University is recognised for its exceptional landscape setting, with its academic buildings and colleges set amongst parklands, verdant courtyards and natural creek lines.

The distinctive, predominantly native landscape at Macquarie University is the result of over 40 years of continuous planting, radically transforming the site of former market gardens and orchards into a 'Campus in a Park'.

As the original landscape architect for the campus, Professor Dick Clough's intention was to create a gradual 'landscape journey' from the 'urban' streetscapes outside the campus through the 'transition' campus building zone to the 'natural landscape' of the Mars Creek Valley and its densely-planted native backdrop beyond.



HERRING ROAD GATEWAY

### 5.1.2 Landscape Strategy

Macquarie University prides itself on its landscape character and quality. It creates a point of difference to the other Sydney universities and for many it is a significant reason for choosing to study at Macquarie.

The landscape strategy supports the direction and the approach of the 'Campus in a Park' and would seek to extend the concept into the new development precincts. The desired sense of formality is derived from its strong relationship with the Academic Core and the extension of the circulation network of the overall campus through to the new Station zones.

The landscape strategy seeks to engage and strengthen the principles below:

#### Reinforce the Concept of a Campus in a Park

- develop strong landscape links between precincts through street tree planting and general mass planting of native species
- reinforce the landscape quality of Mars and University Creeks while increasing visual accessibility and pedestrian permeability
- introduce new signature spaces and courtyards within the campus

#### Create Green Gateways to the Campus

- develop a visual entrance and a sense of arrival into the campus incorporating appropriate hard and soft landscaping
- preserve significant views and vistas
- ensure each entry has a strong identity with common linking themes

#### Develop Distinctive Formal Landscape Theme within the Core

- extend the use of native planting punctuated by the use of deciduous species for feature planting and on main pedestrian walkways
- develop the new north-south and east-west pedestrian spines
- reinforce new north/south links and green connections from the campus core

#### Integrated Landscape and Public Domain

- establishing a co-ordinated suite of public domain furnishings including standardised lighting and street furniture for the whole precinct, which remain sympathetic to the themes established in the Academic Core
- develop a common colour scheme and agreed materials, selection of furnishings, paving types and

signage typology

#### Enhance the Landscape Definition of the Streets

- develop street tree planting of signature tree species identifiable with the Macquarie University campus creating green links that enhance the broader landscape context
- enhance visual amenity for the students and other users of the campus
- ensure legibility and permeability by maximizing pedestrian links between precincts and introducing new cross campus circulation routes in particular back to the station

#### Maintenance and Management

- maintenance and management of the public domain is highly important. The maintenance of a positive environment will encourage good social behaviour and will increase the enjoyment and appreciation of the surrounding elements.
- the plan reinforces a robust landscape infrastructure that is manageable and reduces extensive maintenance requirements and shall include the specification of drought tolerant native species in all planting areas

## 5. PUBLIC DOMAIN

### 5.1.3 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.

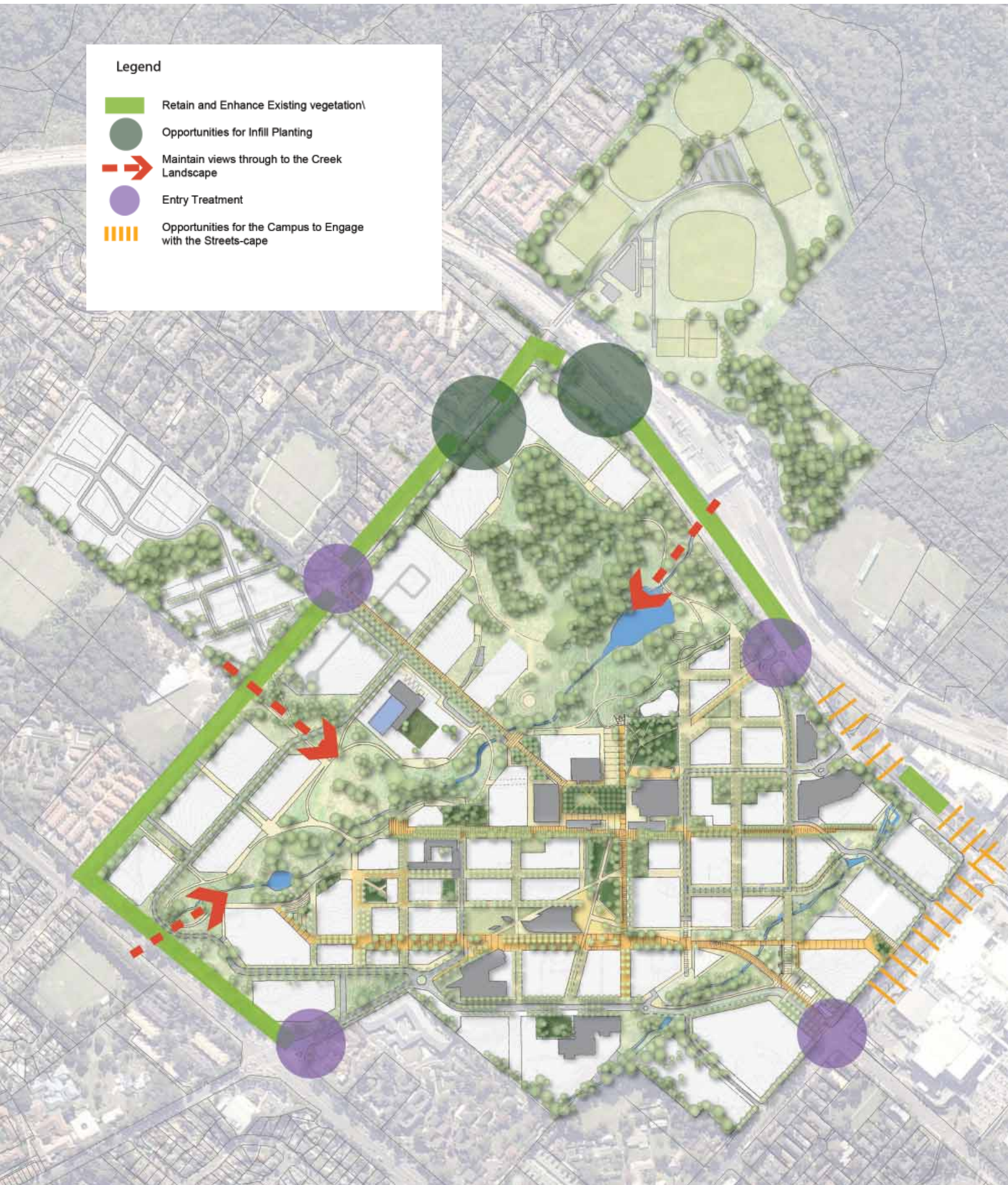
Views into the site are possible at a number of points and should be reinforced by the planting strategy.

### Landscape Principles

- retain existing boundary planting and enhance by planting in any gaps
- new planting 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)







**Legend**

- Retain and Enhance Existing vegetation\
- Opportunities for Infill Planting
- Maintain views through to the Creek Landscape
- Entry Treatment
- Opportunities for the Campus to Engage with the Streets-cape

CAMPUS EDGES

## 5. PUBLIC DOMAIN

### 5.1.4 Edge Markers

At key points along the campus edges there are a number of potential entry, identity and marker points within the landscape buffers. While there will be buildings directly addressing the Herring Road frontage, along the other frontages where there is a stronger landscape edge, there will be a need for elements to define and signal the University.



### Landscape Principles

- place markers to be located in the landscape with respect to the architecture and existing landscape elements
  - place markers are to be designed and sited in locations that engage the public passing the campus in all directions
  - place markers and entry and wayfinding signage to be designed in collaboration to ensure a cohesive and complimentary suite
  - place markers and signage to use Macquarie University colours, fonts and logos to strengthen the University's brand and provide a stronger campus identity
- signage to be constructed from a range of contemporary materials and finishes that complement the 'campus in a park' landscape character that defines the University
  - recommended materials include, timber, corten steel, stone, micaceous iron oxide paint





**Legend**

-  Opportunities For Place Markers
-  Opportunities For Entry Signage

## 5. PUBLIC DOMAIN

### 5.2 GATEWAYS

#### 5.2.1 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.

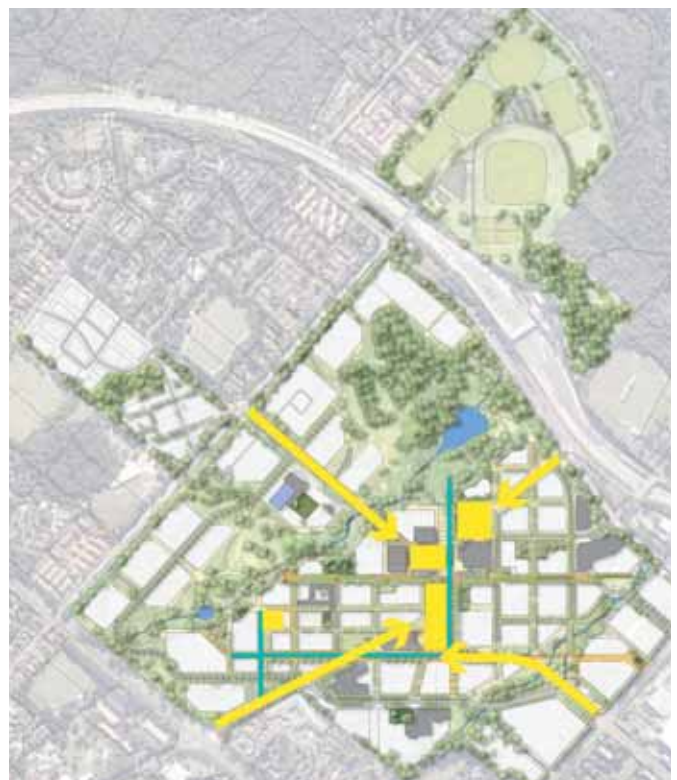
Responding to the potential of future growth in the Macquarie Park corridor, the Master Plan seeks to reinforce the entry and the quality of the arrival experience and accommodate increased flows of students from the station and bus interchange on Herring Road.

#### 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 tricanthos* 'Sunburst' (Golden Honey Locust)



LANDSCAPE GATEWAYS



HERRING ROAD GATEWAY

## 5. PUBLIC DOMAIN



HERRING ROAD GATEWAY



## 5. PUBLIC DOMAIN

### 5.2.2 Balaclava Road Gateway

While pedestrian traffic on the original western entry at Balaclava Road entry is low, the gateway remains important for vehicular traffic including many bus routes.

The entry from Epping Road is dominated by informal stands of indigenous vegetation at the intersection, which changes to formal street planting in toward the new Library/Learning Centre.

A new sculptural element may be located at the end of the entry axis.

#### Principles

- provide a strong eucalyptus framed entry to the University
- retain and enhance the informal tall Eucalypts planting at the Epping Road intersection to provide a distinctive character to the campus
- improve pedestrian access from Epping Road into the campus and extend past the Library into the University Common
- maintain appropriate setbacks to future development
- anticipate impacts from increased regional traffic growth and major upgrades to the Balaclava/Epping Road intersection from 2011 as part of an RTA bus priority project
- ensure detailed design of the western car park is screened behind the existing vegetation facing Epping and Balaclava Roads

#### Landscape

- entry to have an urban bushland aesthetic strengthened with a strong avenue of uniform Eucalyptus plantings.
- recommended species include *Eucalyptus saligna* (Sydney Blue Gum), *Eucalyptus pilularis* (Blackbutt) and *Corymbia maculata* (Spotted Gum)







BALACLAVA ROAD GATEWAY

## 5. PUBLIC DOMAIN

### 5.2.3 Gymnasium Road Gateway

Gymnasium Road off Culloden Road provides the main path of travel for students residing in on-campus accommodation in the north-west quadrant of the campus. As housing provision and academic uses increase in this precinct, the Master Plan seeks to reinforce this corridor as a major access point.

#### Principles

- create a new pedestrian-friendly boulevard from Culloden Road to the Academic Core with wider pedestrian paths and formal tree planting
- extend the visual axis to the Central Courtyard
- create a transition space between Mars Creek and the Central Courtyard
- consider amending north-west corner of existing Library building (C7A) to create a clear visual link between entry and Central Courtyard
- review the Master Plan for the MUSAC complex to facilitate access to the facility and address on Gymnasium Road
- initiate works to the Hub and former Library building to present an improved arrival sequence into the Central Courtyard
- replace the existing open service yard for Central Courtyard facilities with access via a discrete loading entry at the lower end of Gymnasium Road

#### Landscape

- entry to be punctuated by colourful plantings to juxtapose the existing bush land character.
- planting style to complement the domestic garden setting of Culloden Road and beyond.
- recommended species include *Jacaranda mimosifolia* (jacaranda) and *Brachychiton acerifolius* (Illawarra Flame Tree)





## 5. PUBLIC DOMAIN

### 5.2.4 Talavera Road Gateway

With widening and improved access to and from the M2 Motorway, traffic along Talavera Road is expected to increase. The Talavera Road Gateway will create a consolidated point of access for the Research Park precinct, the Private Hospital and the eastern parts of the Academic Core.

#### Principles

- create vistas into the campus
- facilitate wayfinding through the north-east quadrant of the Academic Core
- facilitate pedestrians access into the Central Courtyard
- create new address points to development parcels in the north-east
- separate pedestrian and vehicular movements
- widen the Talavera Road entry
- separate the new pedestrian avenue from vehicle traffic including hospital vehicles
- extend the landscape scheme for Research Park Drive to this entry

#### Landscape

- contemporary urban plaza style landscape to provide a strong entry experience into the campus
- recommended species include *Pyrus ussuriensis* (Manchurian Pear), *Koelreuteria paniculata* (Golden Rain Tree)





TALAVERA ROAD GATEWAY

## 5. PUBLIC DOMAIN

### 5.3 PRIMARY SPACES

#### 5.3.1 Wally's Walk

Wally's Walk is a high quality space linking the east and western ends of the Academic Core that for many is one of the campus's enduring images. It will remain important as an address for many campus buildings and a connector to the open spaces at Mars Creek and University Creek.

The Walk also serves as an infrastructure service network with its underground service tunnels. This role should be preserved in the future and extended through the Academic Core.

#### Principles

Wally's Walk should:

- retain the distinctive deciduous tree planting along the Walk
- enhance creek connections at each end
- major entries to address the Walk with discrete servicing points only on side corridors
- locate accessible entries and building address points along the Walk
- reinforce active uses and with high visibility into each building from the Walk
- connect to pathways at the western end to the new parking structures

#### Place Making

##### Function

- pedestrian boulevard, university focused

##### Character

- structured, formal, soft, intimate (European landscape)

##### Description

- Wally's Walk is one of the key east-west connections across the campus, linking Mars Creek, the Hub and Macquarie University Hospital. The impressive canopy of established London Plane Trees creates a memorable experience for people as they use the space, one that changes with the seasons and is different from anything else on campus

##### Place principles

- Wally's Walk should build on traditional 'boulevard' character, distinguishing itself as a place that remains connected to the University's rich history

- Wally's Walk is primarily a transitory space, that ebbs and flows with activity as students travel between classes and to other destinations on campus. It is a place for short stays and waiting rather than socialising in a large groups
- Wally's Walk should remain a beautiful and functional pedestrian boulevard, with carefully located, new staying places along its edges, to not obstruct the flow of people along its length. The experience should be extended and gaps filled along its length



### Landscape

- retain the existing language and character of the walkway and enhance with additional squares and formalised open spaces.
- reinforce planting of existing species along the Walkway - *Platanus x hybrida* (London plane)
- retain and enhance understory plantings
- undertake maintenance of the existing trees to ensure longevity



## 5. PUBLIC DOMAIN

### 5.3.2 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

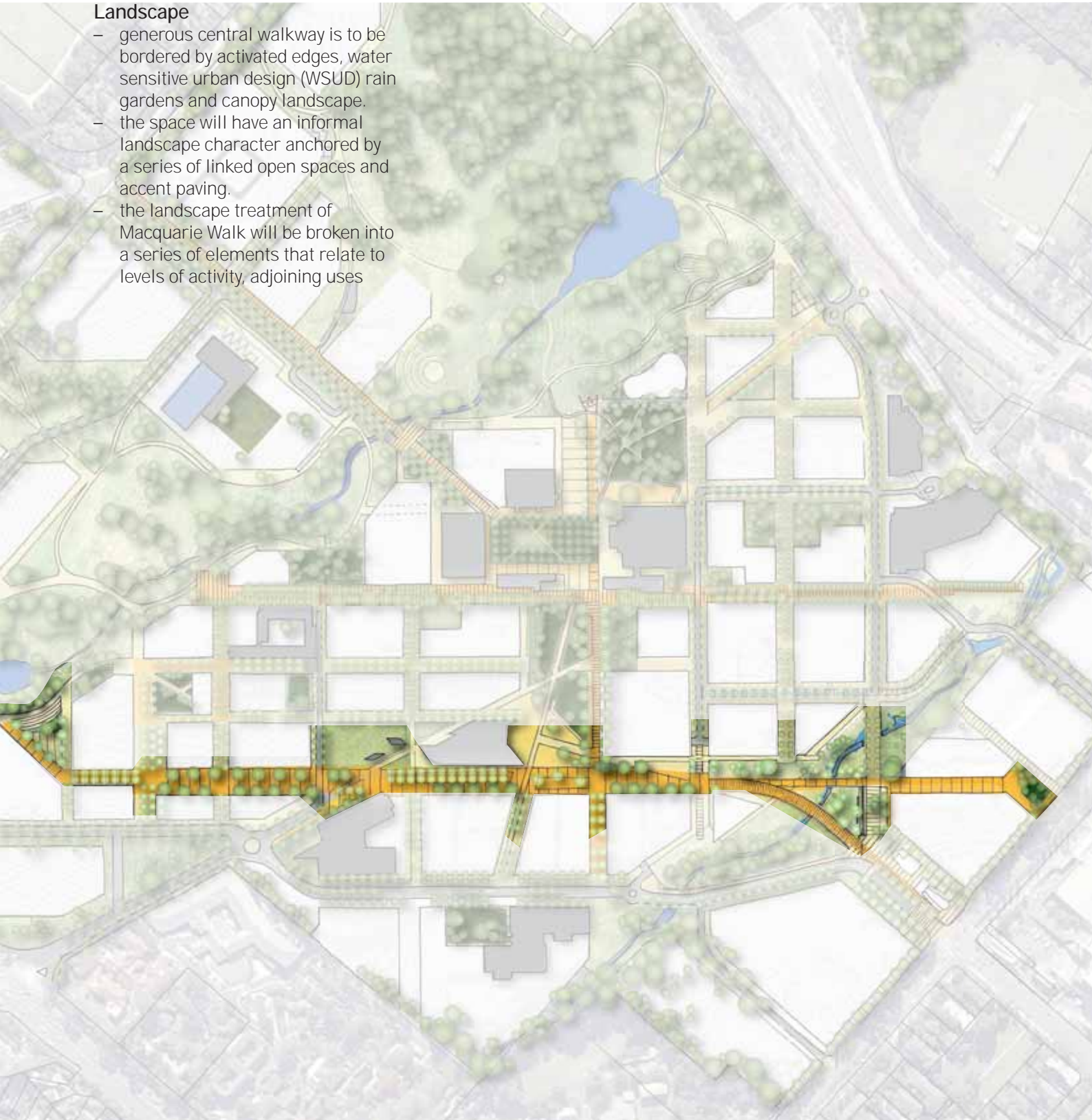
- draw on the character of the creek landscape with predominantly indigenous planting and trees, as well as colour and movement
- the primary activity is pedestrian movement to connect to major destinations along the Walk, this is less a staying place than a place to move through
- the Walk should offer 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



## 5. PUBLIC DOMAIN

### Terminus

The visual termination to the axis at the western end of Macquarie Walk will transition into the future West Common (Arts Lawn). The landscape response is to feature:

- strong avenue planting
- feature paving design
- sophisticated green and white planting palette

### Active

The Active zone stretches through the flat area west of the Library towards the West Common. The ground floor will be activated by building entries and lobbies, cafes and communal spaces.

- northern edge to be characterised by seating nooks, raised turf beds, rain gardens and a contemporary indigenous and non-indigenous colourful planting palette
- activated southern edge enhance by deciduous planting to control solar access
- continuation of strong avenue planting

### Library

The Library zone marks the point where Macquarie Walk begins to slope down towards University Creek in the east. The space will feature a continuation of strong avenue planting. A series of smaller spaces will mediate the level changes at building frontages and will create informal meeting places.

The landscape treatment includes:

- activated southern edge enhanced by deciduous planting to control solar access
- a northern edge to be characterised by seating nooks, raised turf beds, rain gardens
- a contemporary planting palette with a large proportion of native species



## Plaza

The Plaza zone is the area adjacent to the new University Common. It will be a transition space between the east-west flow along Macquarie Walk and the strong north-south movement into the University Common and Sir Christopher Ondaatje Avenue.

Landscape elements are:

- plaza edge to the University Common forming a meeting node
- space to be characterised by complex paving
- the creation of informal and formal seating areas
- activated southern edge to be enhanced by deciduous tree planting

## Creek Transition

The area between University Creek and the new University Common – the Creek Transition zone – will be an active space that mediates between the formality of the Herring Road entry, the riparian zone and the new open spaces at the heart of the campus.

- strong avenue planting west of Eastern Road
- the creation of seating nooks, raised turf beds and rain gardens as the spaces step down from the University Common
- informal rain garden planting feathered into pedestrian plazas
- complex paving design to characterise plaza spaces
- sophisticated riparian planting palette including native grasses at the creek
- opportunities to create terraced plaza spaces adjoining the cultural building

## Overall

Recommended tree species include;

Evergreen

- *Angophora costata* (Smooth Bark Apple),
- *Eucalyptus punctata* (Grey Gum)

Deciduous

- *Pyrus ussuriensis* (Manchurian Pear)
- *Nyssa sylvatica* (Tupelo)
- *Ulmus parvifolia* (Chinese Elm)



## 5. PUBLIC DOMAIN

### 5.3.3 Sir Christopher Ondaatje Avenue

The primary north-south walk through the campus introduces a reinforced north-south corridor through the campus core between the two creeks. It connects Central Courtyard, the new University Common, Macquarie Walk and University Avenue and the Mars and University Creek open spaces. Running north from bus and rail access points, it will form a major address point for important campus destinations.

#### Principles

- complements Wally's Walk as a broad pedestrian pathway
- improves access to Mars Creek and the adjacent parkland from the Academic Core
- terminates at the Lake after a series of stepped levels from the Central Courtyard
- extends through to the South Zone and University Creek in the south, where the vista is contained by existing stands of large eucalypts. A wide pedestrian path engages the creek as it approaches the southern end
- creates a place with a focus on the Sculpture Park
- acts as a principal link between the old and new libraries

#### Place Making

##### Function

- primary pedestrian boulevard linking key public spaces

##### Character

- transitional, unbounded, slow (Asian landscape principles)

##### Description

- Sir Christopher Ondaatje Avenue is a key point of campus connection, linking the Library Forecourt, the University Common and the Central Courtyard and thus binding the social, academic and symbolic hearts of the University together. It provides the opportunity to connect the past, present and future aspects of the University

#### Place principles

- Sir Christopher Ondaatje Avenue should offer a variety of experiences that reflect Asian sensibilities regarding edge and centre, introversion and extraversion, enclosure and openness providing a physical representation of the transformative culture of University
- the Avenue is primarily for walking through, but a slow walk that allows for sitting down to talk, pausing to watch the world go by or entering into one of the adjacent spaces
- the preferred location for history plaques or other memorials or markers
- a highly managed and manicured space, this area should retain a certain distinction and respect



### Landscape

- provide a strong visual connection to Mars and University Creeks
- reinforce the clarity of the spine through a double row of feature trees
- create outdoor rooms and study areas through planting and accent paving
- recommended species include *Toona australis* (Red Cedar), *Flindersia australis* (Crows Ash), *Waterhousea* 'Green Avenue' (Green Avenue Lilly Pilly) and *Acmena smithii* (Lilly Pilly)



## 5. PUBLIC DOMAIN

### 5.3.4 The Central Courtyard

The Central Courtyard will remain an important space within the University. Whilst some central functions such as the Learning Centre have relocated, administrative and civic functions of the University should remain focused in this area. There are plans to activate the edges of the space with additional food and beverage uses.

Renewal of the buildings framing this space will revitalise the courtyard. Creation of a new direct link to Mars Creek towards Gymnasium Road in the north-west of the space will mean a much more accessible connection to the north and to the student housing areas.

#### Principles

- conserve the original Eucalypt planting
- celebrate the original 1960s and 1970s architecture as appropriate
- improve access to and functionality of the Lincoln Building and the former Library
- develop links to adjacent spaces and the northern campus entry points
- maximise visual and spatial links between the Central Courtyard and the four key campus entry points
- prepare a detailed Master Plan for this important location to ensure the best outcome
- maximise northern solar access and visual link between the Central Courtyard and landscaped vista to the north (to the lake and beyond)

#### Place Making

##### Function

- primary student social and leisure hub

##### Character

- informal/organic, interactive, fun

##### Description

- the Central Courtyard should be a people magnet with an offer of both hospitality and experience than can compete with the Macquarie Centre
- all roads lead to the Central Courtyard and it must meet or even exceed expectations as a people focused destination that is flexible, community owned and truly representative of the spirit of campus life as a place of personal and group expression

#### Place principles

- build on the existing informal and unstructured character to create a place that is both bold and iconic but also comfortable, relaxed, fun and changeable
- co-locate food and services offer with high quality experience of the public realm: north facing, sheltered, people watching, vista framing for indoor/outdoor dining
- ensure that the best outdoor playing/eating/relaxing spaces are free, i.e. not commercial
- support and encourage student activation of the place with appropriate services such as power, water, seating and shelter that can be used for a variety of event scales and types



**Landscape**

- retain existing *Corymbia citriodora* plantings
- remove and upgrade paving, upgrade drainage and consider returfing of select spaces within the courtyard as envisaged in the original design
- remove existing benches and allow informal seating
- rejuvenate the space
- undertake maintenance of the existing trees to ensure longevity



CENTRAL COURTYARD

## 5. PUBLIC DOMAIN

### 5.3.5 The University Common

The University Common will be a significant new space that will become a new focal point for Macquarie University. It will have few parallels at other University campuses. With generous dimensions and addressed by major buildings such as the Learning Centre, it will unite Wally's Walk with the Sir Christopher Ondaatje Avenue and create legibility within, and a focal point for the campus. It will receive good solar access throughout the year.

The Learning Centre will provide 18-hour a day activity. The Common and the locality of other major campus functions facing the Common will extend activity in this space.

#### Principles

- create a clear space for the new University Common with the removal of buildings C4A, C4B
- develop a mix of lawn, planted and paved areas
- plan multiple connected pathways across the space
- accommodate pavilion buildings within the space that can serve as orientation centres or social meeting points
- introduce subtle level changes from west to east with terraced landscaping and facilitate potential views to the lake
- demarcate the major pedestrian pathways with new tree planting
- develop the Common as part of a sequence of spaces from Mars Creek to University Creek.
- create a place of assembly and celebration within the campus
- maximise connectivity and accessibility between the new Common and the existing campus Central Courtyard

#### Place Making

##### Function

- traditional park environment for informal and passive enjoyment of the outdoors

##### Character

- informal, unstructured, soft (European landscape)

##### Description

- the University Common is a symbol of the shared space of the campus, an unprogrammed park like environment, where students, staff and visitors can sit on the lawn, under trees or in the sunshine enjoying nature

##### Place principles

- create a traditional, European style park land with lawns, soft leafed vegetation and mature shade trees
- a generally unprogrammed space with park style benches for sitting, reading or quiet conversations, pathways and seating spaces should be separated to create niches of privacy
- minimise planned activities or programs in this area
- utilise the changes in levels to create defined spaces





### Landscape

- create open spaces for informal gathering and campus activities and meetings
- relate spaces to Wally's Walk, Macquarie Walk, the Library and adjoining circulation spaces
- work with levels to ensure significant trees are preserved
- large evergreen trees to frame the spaces while deciduous trees delineate plaza areas
- plan for the integration of major sculptural elements
- recommended species include *Corymbia citriodora* (Lemon Scented Gum), *Angophora costata* (Smooth Bark Apple), *Sapium sebiferum* (Chinese Tallow).



## 5. PUBLIC DOMAIN

### 5.3.6 The Library Forecourt

The Library Forecourt is a distinct place at symbolic centre of learning on the campus. The new space connects to the University Common, Sir Christopher Ondaatje Avenue and Macquarie Walk.

#### Principles

- create a clear address to the Library
- develop a mix of lawn, planted and paved areas
- integrate multiple connected pathways across the space
- manage the level changes from west to east with terraced landscaping and the potential to create new uses below the forecourt
- develop the Forecourt as part of a sequence of spaces from Mars Creek to University Creek.
- maximise connectivity between the new Forecourt and the Central Courtyard



#### Place Making

##### Function

- primary place of exchange and educational engagement

##### Character:

- structured, inspiring, dramatic (European landscape)

##### Description:

- the Library Forecourt should represent the learning culture of the University; transformative, innovative and collaborative
- the Forecourt and adjoining area of the University Common act as the symbolic threshold point into the campus' central precinct, a meeting place and visual representation of the University education quality

#### Place principles:

- represent the formal and intellectual aspect of University life through the creation of a public space that is a counterpoint to the Central Courtyard, a place that is inspiring and engaging
- externalise the learning opportunity for students and visitors alike by creating environments for meeting and for collaboration
- ensure that there are seating and working opportunities for solos, small and large groups, shaded and sunny, and weather protected
- ensure that seating spaces are kept clean and well maintained, provide power for computers



### Landscape

- manage the change in level by creating a series of stepped open spaces, using the terracing to provide seating for informal gatherings
- provide a plaza space adjoining the library entrance that connects the forecourt and through space to Macquarie Walk and Wally's Walk
- integrate the level change design solution of Macquarie Walk through ramping and steps into the forecourt area to create a cohesion of space
- use a mix of deciduous and evergreen tree species to delineate walkways while controlling solar access throughout the year
- plan for the integration of major sculptural elements
- recommended species include *Corymbia citriodora* (Lemon Scented Gum), *Angophora costata* (Smooth Bark Apple), *Sapium sebiferum* (Chinese Tallow), *Pyrus ussuriensis* (Manchurian Pear)

## 5. PUBLIC DOMAIN

### 5.3.7 Arts Lawn (West Common)

The West Common lies in the Arts precinct and is linked to the University Common along a path past the new Library.

Located largely on land currently used for parking, the Arts Lawn forms a link between Wally's Walk and the new Macquarie Walk. This more intimate space is close to the Mars Creek corridor.

#### Principles

- provide a defined open space focus in the west of the Academic Core
- build on the close access to the informal landscape of Mars Creek
- link to the University Core along a new major walkway that also links to the station.
- mediate the landform through a series of stepped levels to the north
- create an important termination in the west of the Academic Core and Macquarie Walk

#### Place Making

##### Function

- intimate social hub for the western campus

##### Character:

- informal, creative, changeable (European landscape)

##### Description:

- the Arts Lawn should provide both soft and hard areas suitable for flexible uses including outdoor art installations and other creative performances or endeavours. The base design should be quirky and flexible enough to be transformed with low cost and resources

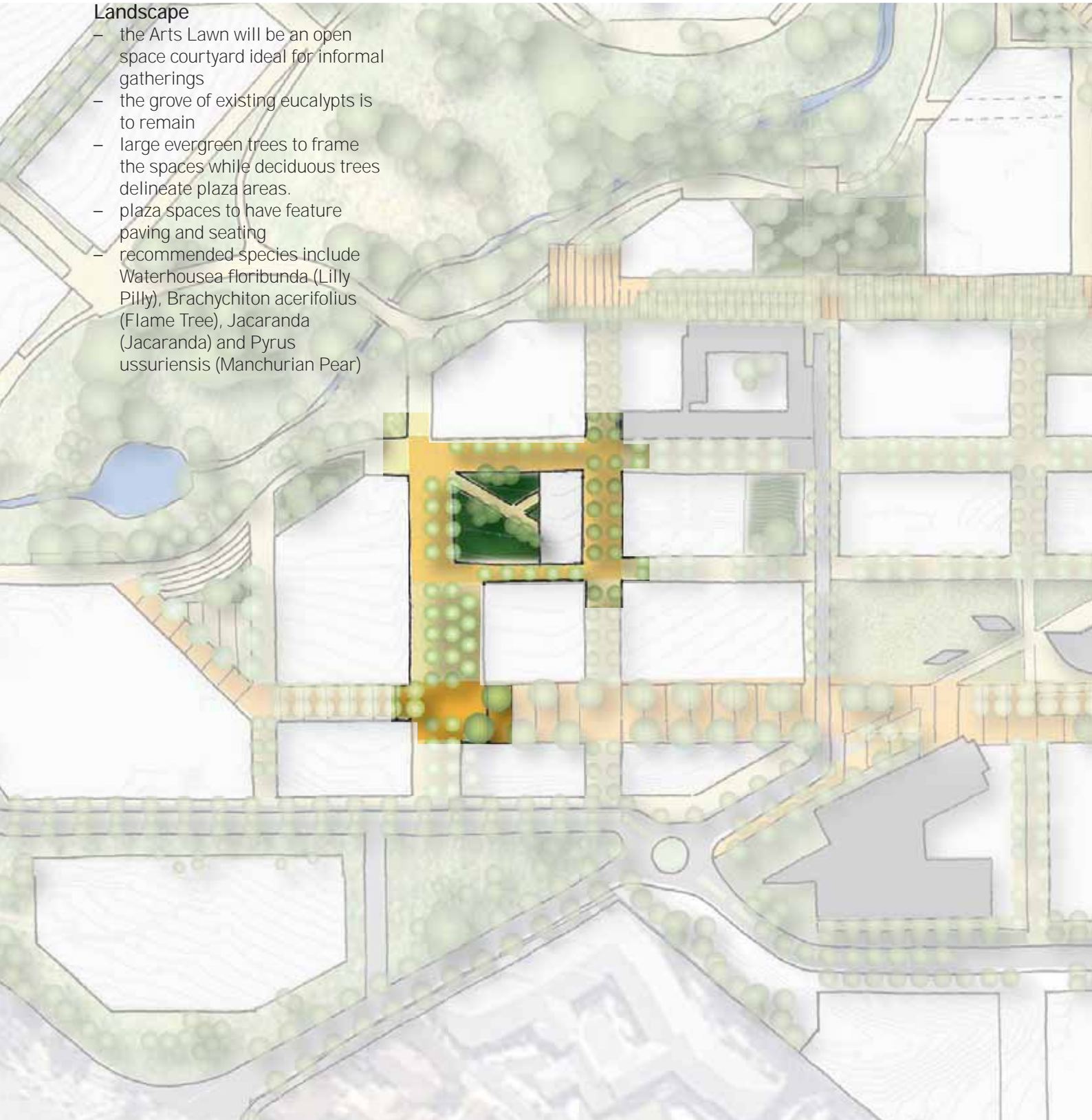
#### Place principles:

- the Arts Lawn should reflect the local student population: a quirky, changeable and creative environment
- deliver a place that can function on a day to day level as a local social activity hub but also has the built in infrastructure to allow for multiple flexible uses eg. power, lighting, catenary structure etc
- focus western amenities such as cafes, student or staff services etc around the edge of the space, even mural walls
- loosen management strictures over the space and invite student ownership of the creative programming of the area



### Landscape

- the Arts Lawn will be an open space courtyard ideal for informal gatherings
- the grove of existing eucalypts is to remain
- large evergreen trees to frame the spaces while deciduous trees delineate plaza areas.
- plaza spaces to have feature paving and seating
- recommended species include *Waterhousea floribunda* (Lilly Pilly), *Brachychiton acerifolius* (Flame Tree), *Jacaranda* (Jacaranda) and *Pyrus ussuriensis* (Manchurian Pear)



## 5. PUBLIC DOMAIN

### 5.3.8 The Grove (East Common)

As the activity in the University increases around the Hospital and new Science programs, there will be a need for a new open space in the north-east of the Academic Core.

The large space has a framework of existing trees which will be an extension of the Mars Creek landscape. The space is located on generally level ground and will have good solar access.

#### Principles

- provide an informal open space focus in the north of the Academic Core
- develop interfaces with the new north-east axis
- acknowledge the growth in programs associated with the Hospital
- create a new open space of similar area to the new University Common

#### Place Making

##### Function

- focal point for Sculpture Park and Arboretum

##### Character

- contemplative, hidden/revealing, (Indigenous landscape)

##### Description

- the grove of mature trees creates a forest like atmosphere and a sense of mystery and discovery. It is a place of contemplation and enjoyment of the arts, through the careful placement of appropriate sculpture, and nature through the arboretum planting.
- the Grove provides the important transitional link between the Indigenous creek landscape and the university grid.

#### Place principles

- enhance the existing forest experience with soft and unstructured paths leading through and down to the creek, and more local species of vegetation
- the Grove is primarily for quiet contemplation and passive enjoyment
- key artworks from the university collection should be integrated into the detailed design of both the path ways and the tree plantings.
- the opportunity exists to link the Sculpture Park and the Arboretum through a site specific artwork to celebrate the next 50 years of the University campus.



### Landscape

- develop the Grove as an extension of the Mars Creek open space
- retain and enhance the existing vegetation
- provide interesting areas of open space for passive recreation and cultural campus events
- provide a walking track that connects to the creek and lake, vegetation pockets and cultural spaces
- provide further opportunities for and encourage art installations within the landscape that relate to the different precincts around Mars Creek



## 5. PUBLIC DOMAIN

### 5.3.9 Mars Creek

Mars Creek is to be celebrated as a substantial natural resource within the campus. It is to be rehabilitated with a modified watercourse and new planting to enable regrowth, establishing a maturing habitat for the University population to enjoy.

Both the Master Plan and the Mars Creek landscape design study contemplate some adjustments to landscape and surface levels.

#### Principles

- create a defined riparian landscape up to the Academic Core and development parcels to the northern bank with perimeter pedestrian and cycle paths to the creek space
- create a more natural sinuous creek alignment at the upper reaches
- ensure that buildings address the open space

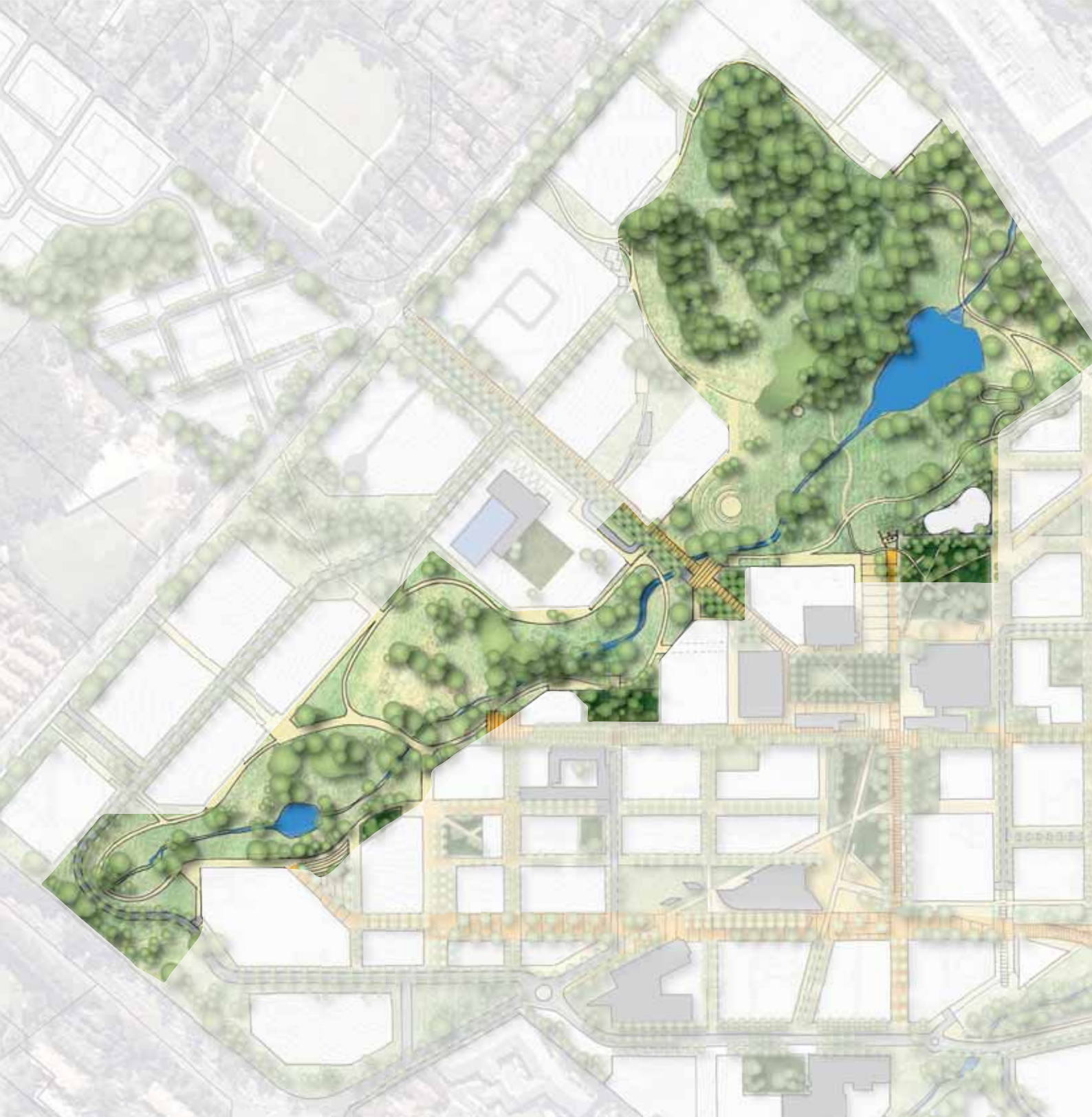
- realign perimeter pathways to promote continuity of the watercourse with small crossings and pathways encouraging visitation
- create a variety of landscapes and water forms, ranging from smaller quieter spaces at the higher western reaches, down to the lake expanse and toward Lane Cove River across the motorway
- ensure that satisfactory pollution control measures are installed at appropriate locations
- manage topography changes through cascading terraces leading to the lake platform from the Central Courtyard and the North-South Walk
- complete flora and fauna studies for the habitat within the creek corridor
- redesign stormwater catchment and outflows to redirect surface catchment from the academic core away from the parkland

#### Landscape

- rehabilitate and naturalise the creek line
- retain and rehabilitate existing vegetation pockets
- provide interesting areas of open space for passive recreation and cultural campus events
- provide a walking track that relates to the creek, vegetation pockets and cultural spaces
- provide further opportunities for and encourage art and sculpture installations within the landscape that relate to the different precincts around Mars Creek







## 5. PUBLIC DOMAIN

### 5.3.10 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

## 5. PUBLIC DOMAIN

### 5.4 SECONDARY SPACES

A series of smaller, informal spaces will provide breakout, recreational and outdoor learning spaces. These are planned to reinforce existing spaces or create opportunities that complement the wider open space network.

An aboriginal based Learning Circle has been proposed in the Mars Creek corridor.

#### 5.4.1 Mars Creek Plaza

Located at the end of the Macquarie Walk, the future Mars Creek Plaza will be an urban space which opens to the afternoon sun and connects to the Mars Creek landscape corridor.

The space is to be integrated with the Mars Creek landscape while the orientation will provide opportunities for access to the winter afternoon sun.

#### Landscape Principles

- Develop a mix of lawn, planted and paved areas
- Plan multiple connected pathways across the space
- Allow for any change in level toward the creek by stepping creating informal seating and gathering nooks
- Characterise space with accent paving forming engaging patterns
- Allow for formalised and informal seating areas
- Retain and enhance views through to Mars Creek and Macquarie Walk
- Retain existing trees if possible
- Recommended species include Eucalyptus punctata (Grey Gum)
- Angophora costata (Smooth Bark Apple), Corymbia maculata (Spotted Gum), Pyrus ussuriensis (Manchurian Pear) and Ulmus parvifolia (Chinese Elm)





MARS CREEK PLAZA

## 5. PUBLIC DOMAIN

### 5.4.2 Wally's Walk Park

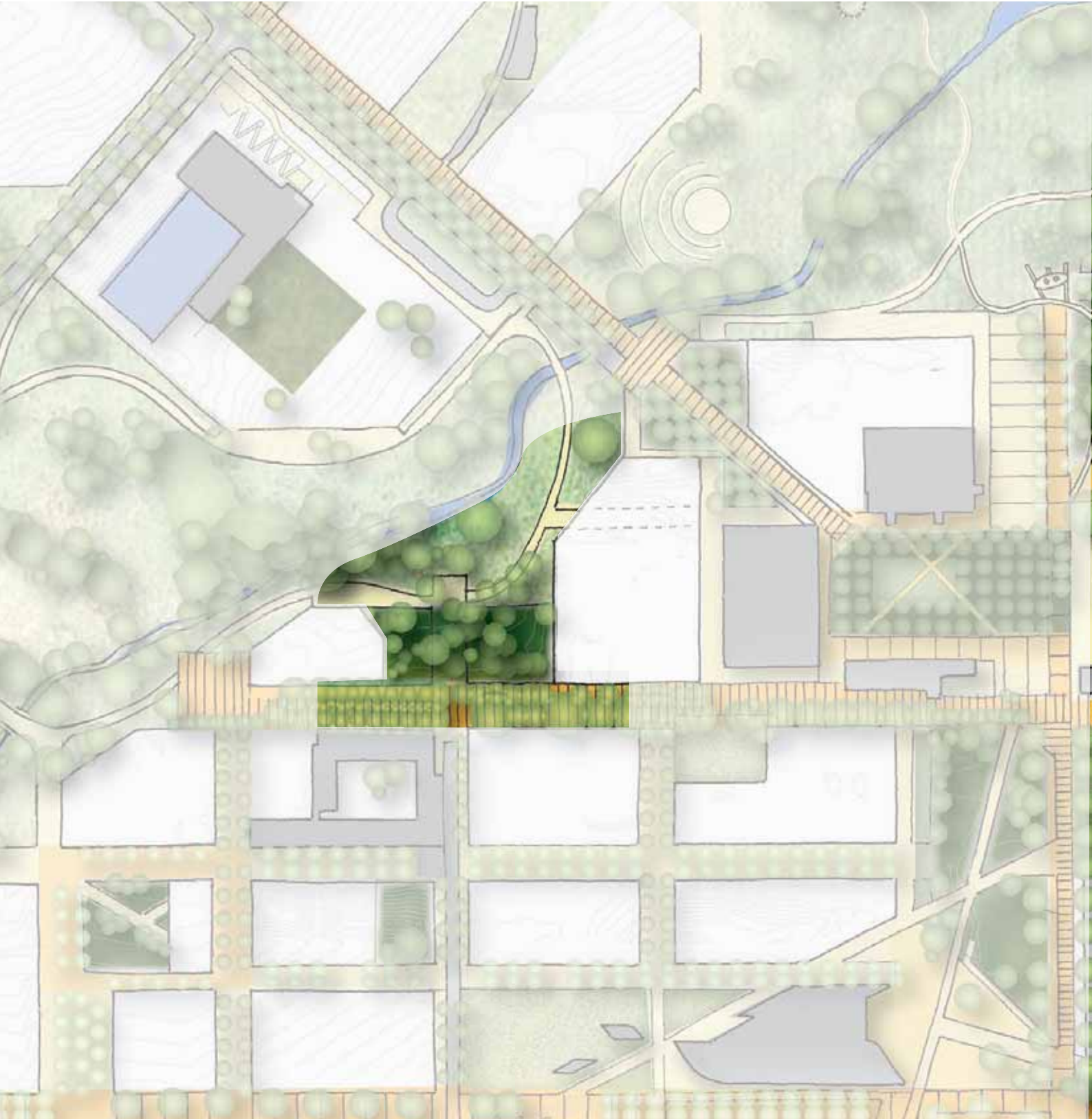
This existing north-facing open space provides excellent views into Mars Creek and the lawns are popular with students and staff.

New development to the east and west will see the core of the space retained and there is the potential to extend the space towards the creek with new seating and landscaped elements.

#### Landscape Principles

- retain existing trees
- maintain and enhance visual connection to Mars Creek and Wally's Walk
- provide opportunities for formal and informal seating
- provide new paths, taking into account popular/informal walking routes
- allow for any change in level toward the creek by stepping creating informal seating and gathering nooks
- provide opportunities for public art
- provide interesting and sensitive creek crossings and elevated walkways (if required)
- provide opportunities for interesting Water Sensitive Urban Design integrated within the landscape





## 5. PUBLIC DOMAIN

### 5.4.3 Macquarie Theatre Courtyard

The recent upgrade of the Macquarie Theatre has seen upgrade work undertaken on the spaces around this focal point on the campus. The high quality landscape.

The existing courtyard is used extensively through the day both as a leisure space and informal teaching. The plaza provides break out spaces from the theatre before and after performances and lectures.

Future development of the Theatre site and surrounding parcels may see new paths introduced and some reworking of the spaces.

#### Landscape Principles

- retain and enhance existing courtyard form and function
- address popular/informal walking routes
- maintain and enhance the connection to Wally's Walk
- provide additional paths through space
- provide opportunities for public art to enhance space







## 5. PUBLIC DOMAIN

### 5.4.4 Jim Rose Earth Science Garden

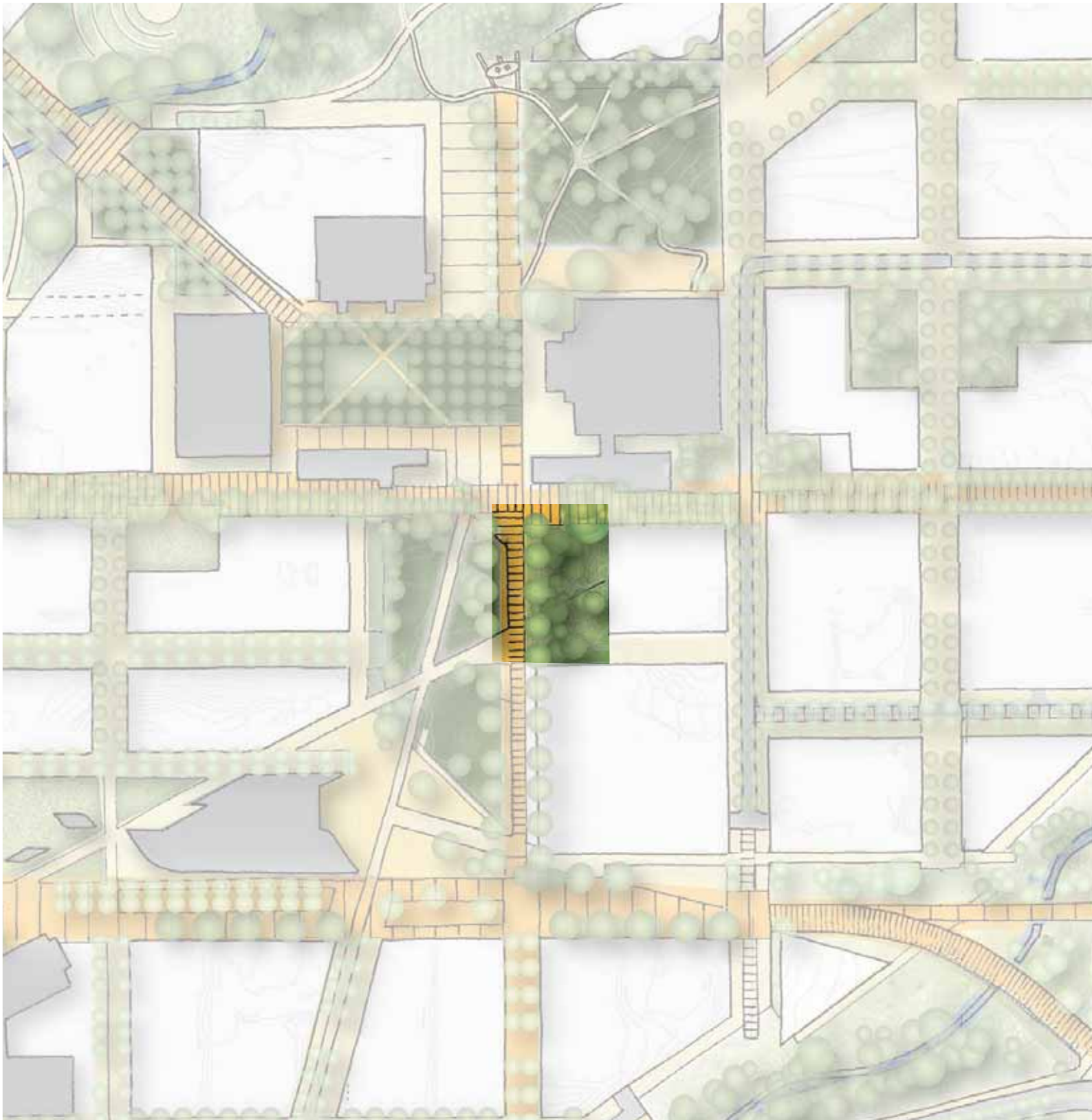
An existing open space on the campus, the Jim Rose Earth Science Garden has an important role both as educational plantings and as a memorial to Jim Rose.

The space lies at the junction of Wally's Walk and the upgraded Sir Christopher Ondaatje Avenue – one of the highest trafficked spaces in the campus' pedestrian network. Planned as a retreat, the landscape treatment is to upgrade the space while preserving the sense of relief from the main pedestrian network.

#### Landscape Principles

- retain and enhance existing courtyard form and function
- maintain and enhance the connection to Wally's Walk
- provide additional paths through space taking into account new desire lines
- retain existing trees where possible and if trees are required to be removed the same species should be replanted elsewhere in the courtyard to ensure the original design intent and integrity of the space is maintained





JIM ROSE EARTH SCIENCE GARDEN

## 5. PUBLIC DOMAIN

### 5.4.5 Talavera Park

The pocket of land east of the existing MGSM lies on Talavera Road between the existing vehicular entry and Mars Creek. The land slopes steeply to the north and the creek.

The space lies to the north of the new Talavera Road entry.

#### Landscape Principles

- integrate plaza space with Mars Creek landscape
- allow for any change in level toward the creek by stepping creating informal seating and gathering spaces
- maintain turf surfacing and provide suitable paths to suit popular/informal walking routes
- allow for informal seating areas
- retain and enhance views through to Mars Creek
- retain existing trees where possible
- maintain and enhance buffer planting along Talavera Rd boundary
- recommended species include *Angophora costata* (Smooth Bark Apple), *Eucalyptus punctata* (Grey Gum) and *Corymbia maculata* (Spotted Gum)





TALAVERA PARK SPACE

## 5. PUBLIC DOMAIN

### 5.4.6 Frank Mercer Biological Sciences Garden

The Biological Science Garden was developed by Professor Frank Mercer in collaboration with the Architect's Planner Office. Garden beds were designed to showcase particular plant biological characteristics: a fern bed, a pond for algae and mosses, a bed displaying monocotyledons, another for dicotyledons, a dry land bed with cacti and succulents, and yet another with plants from two closely related families, the Epacridaceae and the Ericaceae.

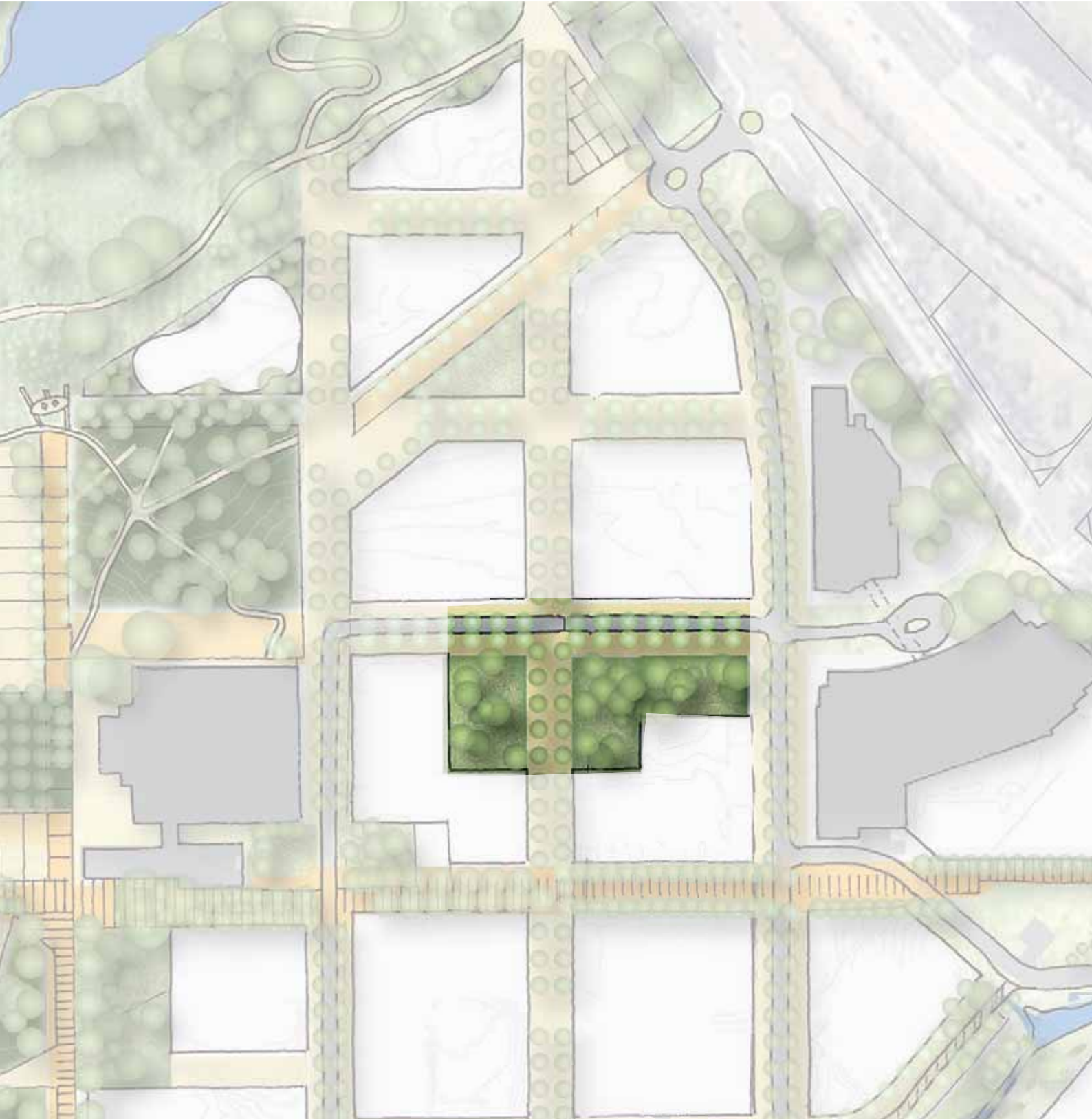
Many of the species planted are either uncommon or sourced from unique locations and there is an opportunity to revive the scientific, educational and thematic display enriching the landscape experience of the University.

The proximity to the Hospital means that the space has potential as an open space accessible by patients and staff.

#### Landscape Principles

- retain and enhance existing garden form and function including arboretum signage
- provide additional paths through space taking into account new desire lines
- retain existing trees
- provide informal seating





FRANK MERCER BIOLOGICAL SCIENCES GARDEN

## 5. PUBLIC DOMAIN

### 5.5 STREETS AND LINKS

#### 5.5.1 University Avenue

The pedestrianisation of Macquarie Drive and the closure of Research Park Drive at the main campus entry will see a change in the role and focus of University Avenue.

University Avenue has long been a major route through Macquarie Park with buses and local traffic using the road as a route between Epping Road and the Macquarie Centre. The closure of Macquarie Drive to traffic will require the relocation of east bound buses and should assist in reducing the volume of local through traffic.

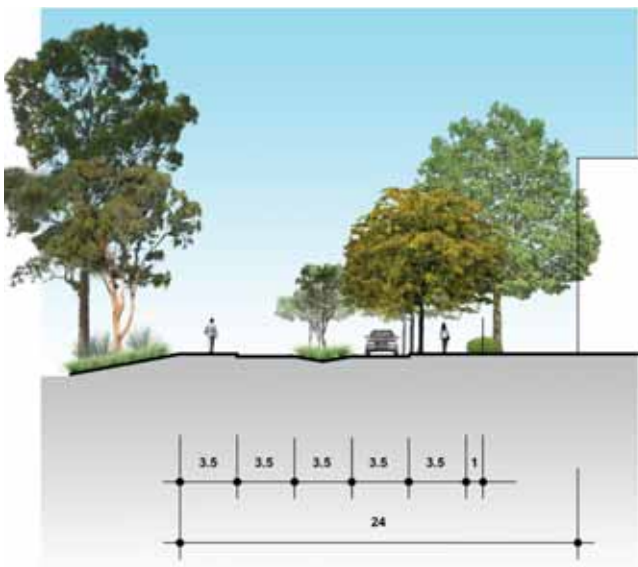
Most significant change will be the increase in development density along this corridor.

Previous plans identified the need to upgrade University Avenue. The new plan formalises the road treatment,

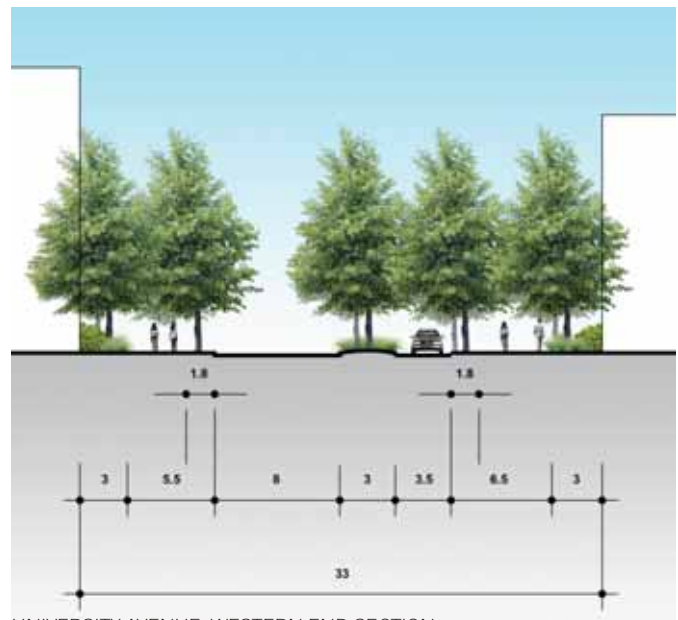
develops new paving and planting, and introduces water sensitive urban design (WSUD) elements in the median. University Avenue is relocated to the east side of University Creek before sweeping around to Herring Road.

#### Principles

- University Avenue is relocated to the east side of University Creek
- widened road reserve
- new footpaths and landscaping to both sides
- median planting and water treatment
- new right turn lanes to access development sites
- upgraded lighting and signage elements



UNIVERSITY AVENUE SECTION AT UNIVERSITY CREEK

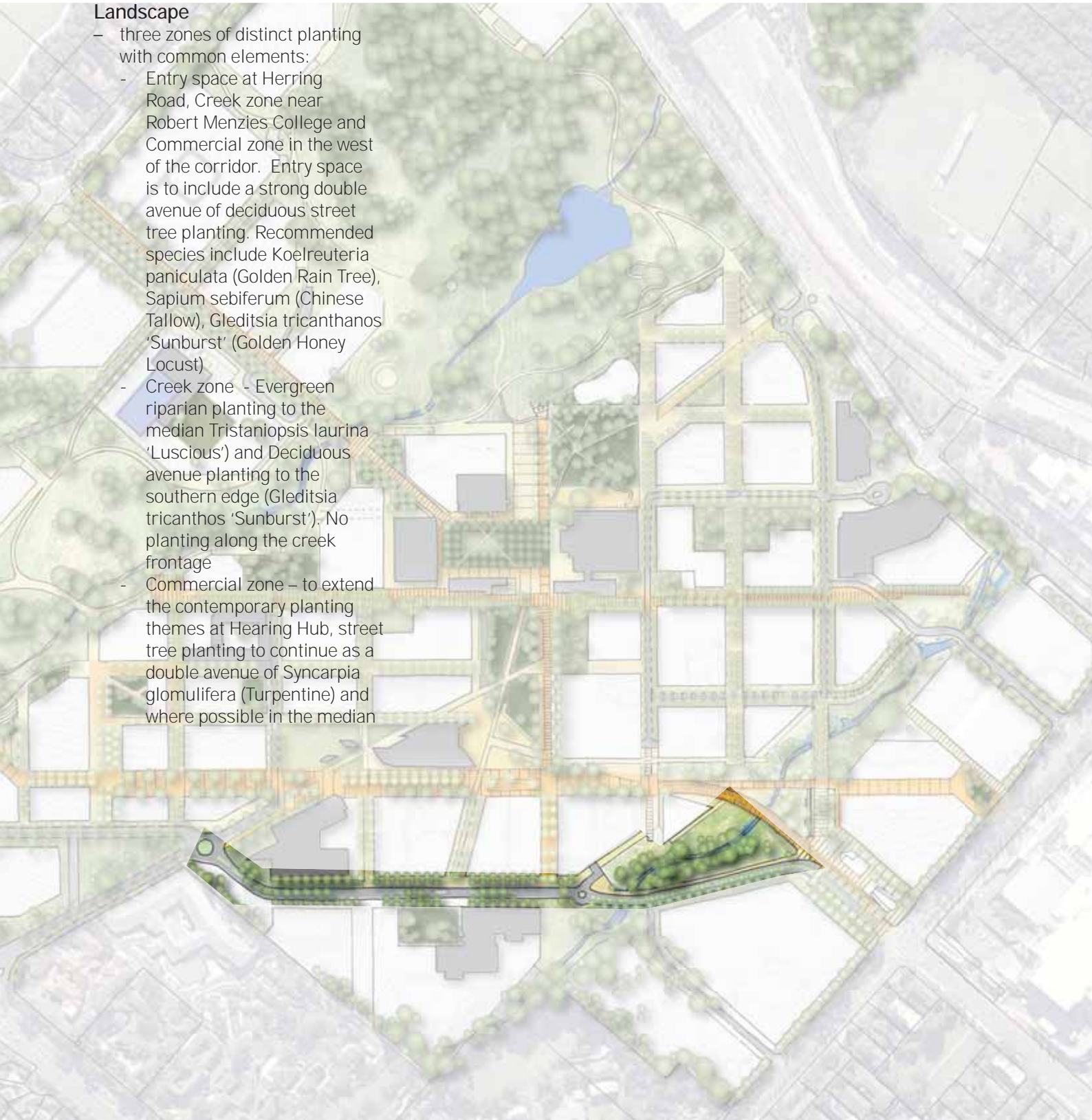


UNIVERSITY AVENUE WESTERN END SECTION



### Landscape

- three zones of distinct planting with common elements:
  - Entry space at Herring Road, Creek zone near Robert Menzies College and Commercial zone in the west of the corridor. Entry space is to include a strong double avenue of deciduous street tree planting. Recommended species include *Koelreuteria paniculata* (Golden Rain Tree), *Sapium sebiferum* (Chinese Tallow), *Gleditsia tricanthos* 'Sunburst' (Golden Honey Locust)
  - Creek zone - Evergreen riparian planting to the median *Tristaniopsis laurina* 'Luscious' and Deciduous avenue planting to the southern edge (*Gleditsia tricanthos* 'Sunburst'). No planting along the creek frontage
  - Commercial zone - to extend the contemporary planting themes at Hearing Hub, street tree planting to continue as a double avenue of *Syncarpia glomulifera* (Turpentine) and where possible in the median



## 5. PUBLIC DOMAIN

### 5.5.2 Research Park Drive

Research Park Drive marks the eastern edge of the Academic Core and marks the edge of major ancillary uses on the campus – Research Park, Macquarie Hospital and the development of the new commercial buildings adjacent to the Railway Station.

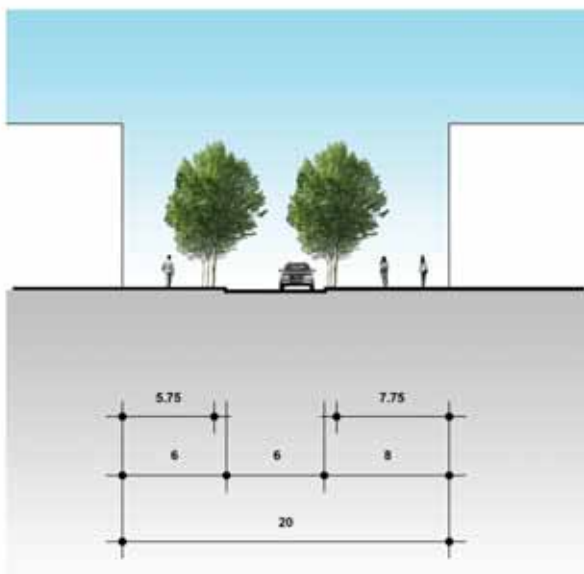
The closure of the road at its southern end will result in reduced traffic and will allow public domain upgrades.

#### Principles

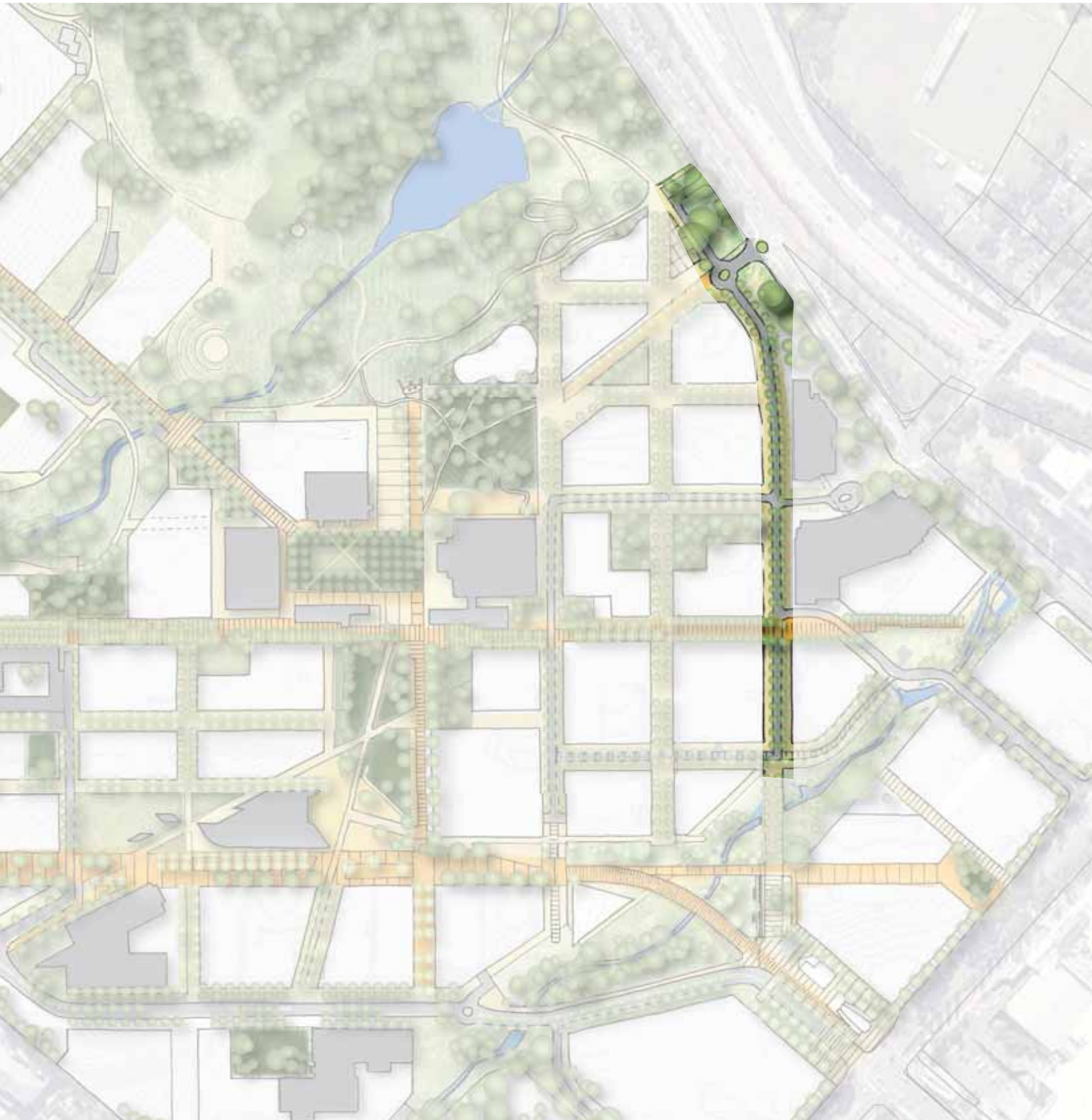
- closure of the road at University Creek to improve amenity and safety for pedestrians walking to and from the railway station
- new footpaths and landscaping to both sides
- extensive planting
- redevelopment of carpark sites as new academic buildings with potential for parking below

#### Landscape

- create a strong green corridor to frame the campus core and provide a visual boundary
- street tree planting to be evergreen medium sized trees to visually link the Research Park Drive with the University Creek landscape
- where possible building setbacks to include buffer planting to strengthen green corridor concept
- recommended street species include *Toona australis* (Red Cedar), *Flindersia australis* (Crows Ash), *Waterhousea 'Green Avenue'* (Green Avenue Lilly Pilly) and *Acmena smithii* (Lilly Pilly)



RESEARCH PARK DRIVE SECTION



## 5. PUBLIC DOMAIN

### 5.5.3 Eastern Road

Eastern Road serves currently as a secondary service road, also used heavily by pedestrian traffic. Future works should improve the quality of this street by:

- levelling undulating levels at the southern end
- developing as a shared access route
- removing open parking areas and screening of service yards

#### Landscape

- small evergreen street trees
- recommended species include *Cupaniopsis anacardioides* (Tuckeroo), *Tristaniopsis laurina* 'Luscious' (Water Gum), *Waterhousea floribunda* 'Green Avenue' (Green Avenue Lilly Pilly), *Backhousia myrtifolia* (Grey Myrtle)

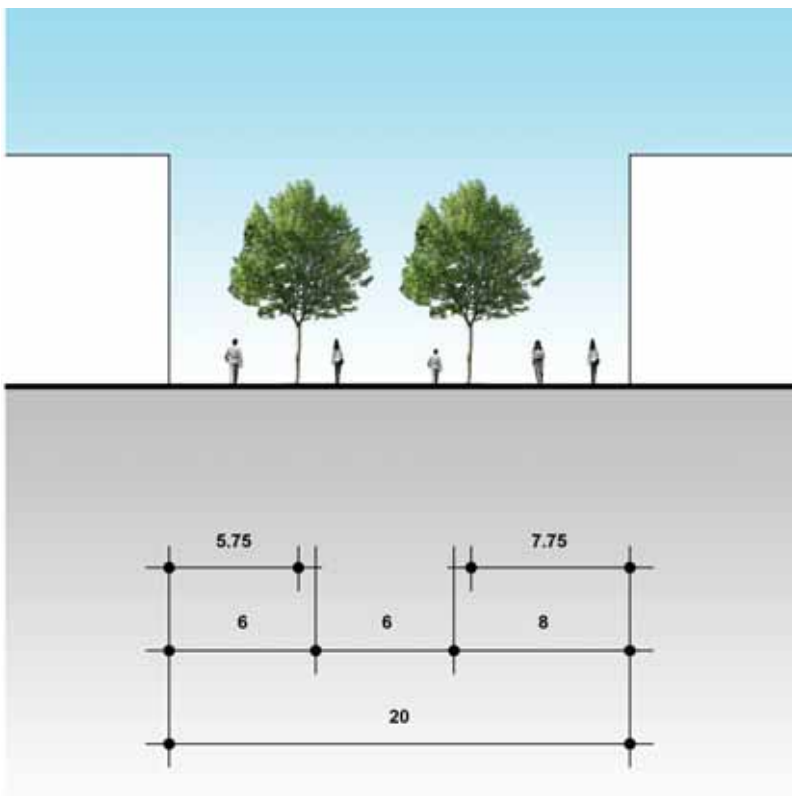
### 5.5.4 Western Road

Western Road will be widened, straightened and paved areas upgraded. It will be a shared way, with access for service vehicles only.

- develop as a shared access route
- remove open parking areas and screen service yards

#### Landscape

- small evergreen street trees
- recommended species include *Cupaniopsis anacardioides* (Tuckeroo), *Tristaniopsis laurina* 'Luscious' (Water Gum), *Waterhousea floribunda* 'Green Avenue' (Green Avenue Lilly Pilly), *Backhousia myrtifolia* (Grey Myrtle)





## 5. PUBLIC DOMAIN

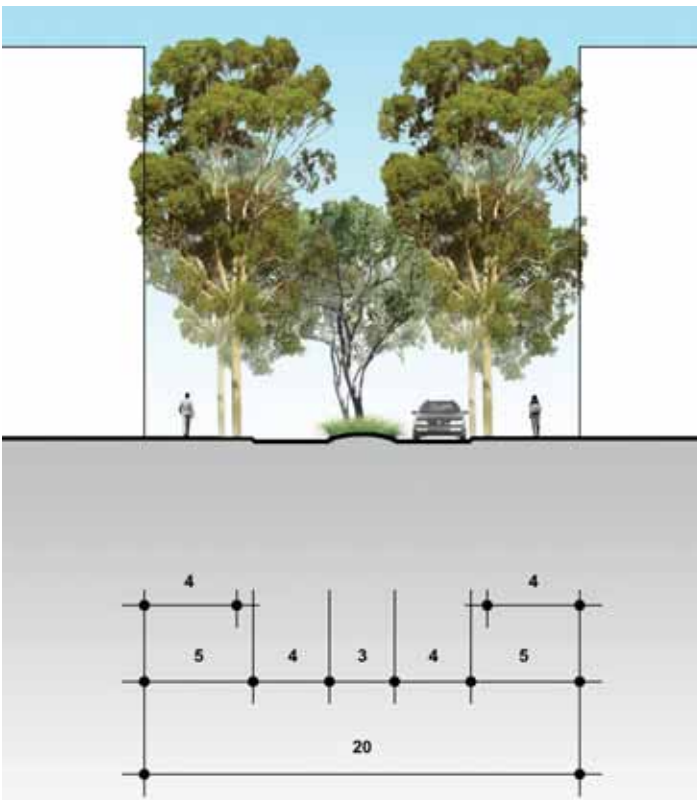
### 5.5.5 West Precinct Road

A new road is to be constructed in the zone west of Mars Creek. Much of the car park traffic will be on Culloden Road allowing the new road to deal with campus traffic and providing access to new development in the west of the site.

The street will be a simple two-lane street (one lane each way) with parking recessed into a landscape zone.

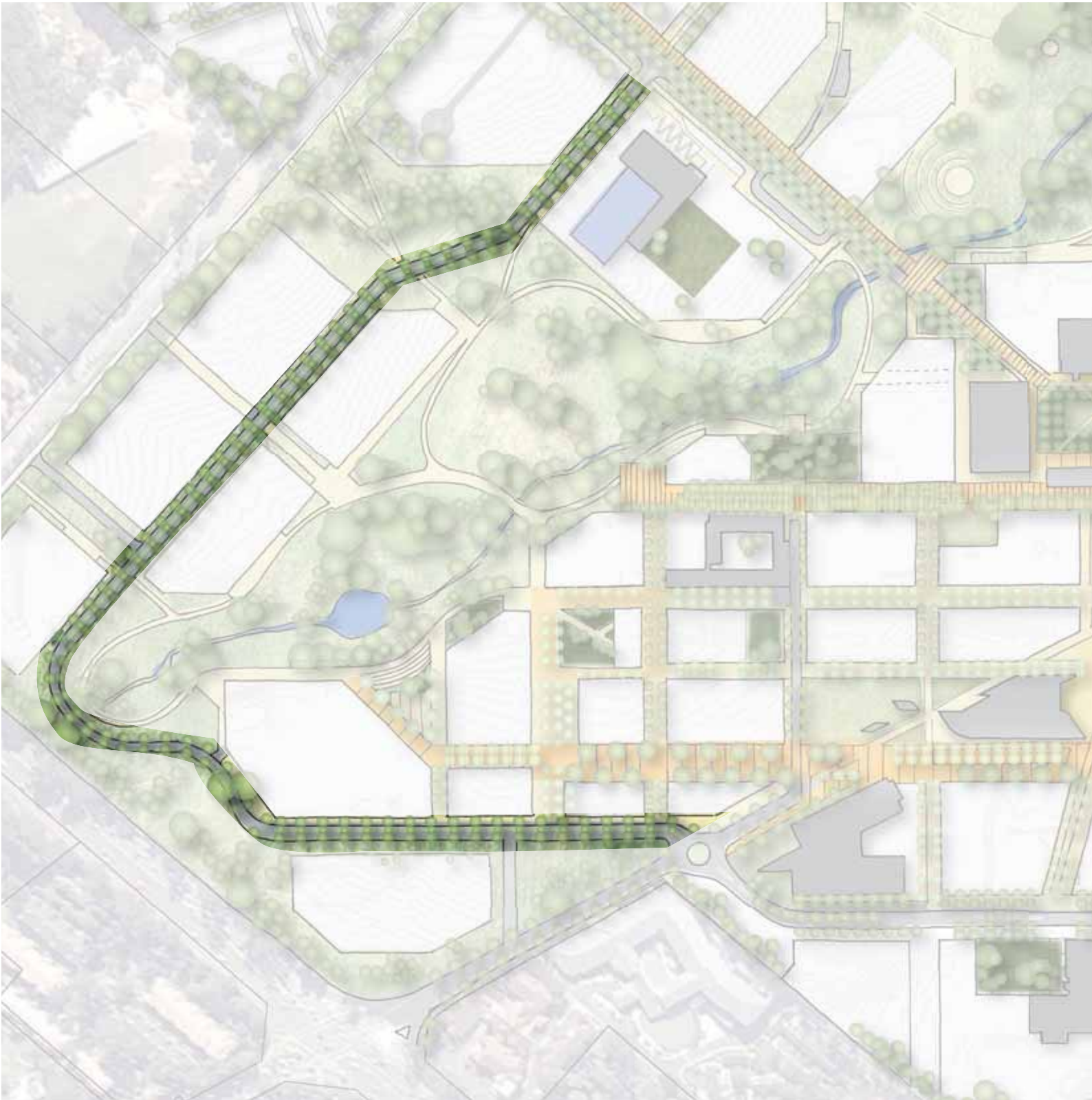
### Landscape

- small evergreen street trees
- recommended species include *Cupaniopsis anacardioides* (Tuckeroo), *Tristaniopsis laurina* 'Luscious' (Water Gum), *Waterhousea floribunda* 'Green Avenue' (Green Avenue Lilly Pilly), *Backhousia myrtifolia* (Grey Myrtle)



WEST PRECINCT ROAD SECTION





WEST PRECINCT ROAD

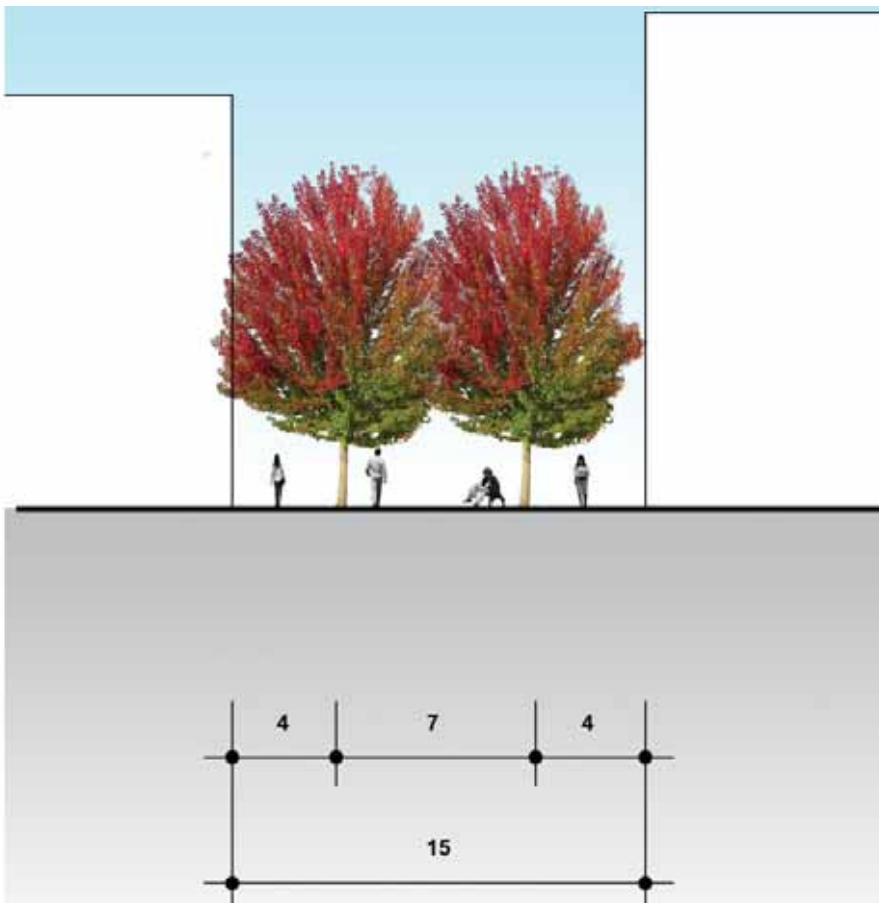
## 5. PUBLIC DOMAIN

### 5.5.6 East-West Pedestrian Connections

The existing network of minor links will be formalised and upgraded across the campus. These pedestrian spaces will have a simple central path with a zone for landscape buffers and open spaces on either side.

#### Landscape

- small deciduous trees
- recommended species include *Pyrus ussuriensis* (Manchurian Pear), *Pistacia chinensis* (Chinese pistachio), *Ulmus parvifolia* (Chinese Elm)



EAST-WEST LINK SECTION





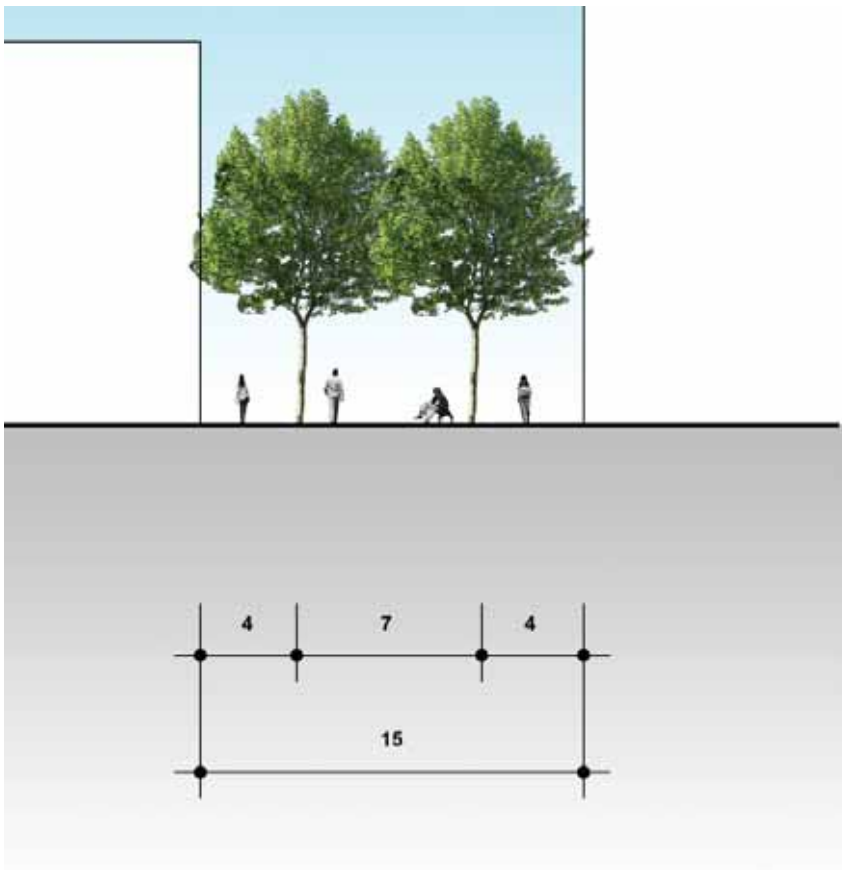
## 5. PUBLIC DOMAIN

### 5.5.7 North-South Pedestrian Connections

Like the east-west links, the existing network of north-south pedestrian links will be formalised and upgraded across the campus. The links are planned to have a central path with areas for landscape and open spaces on either side.

#### Landscape

- small evergreen trees
- recommended species include *Cupaniopsis anacardioides* (Tuckeroo), *Tristaniopsis laurina* 'Luscious' (Water Gum), *Waterhousea floribunda* 'Green Avenue' (Green Avenue Lilly Pilly), *Backhousia myrtifolia* (Grey Myrtle), *Flindersia australis* (Crows Ash)



NORTH-SOUTH LINK SECTION







**HELP POINT**  
DIRECT LINK TO SECURITY OFFICE  
PRESS CALL BUTTON  
RECORDING WILL  
COMMENCE IMMEDIATELY



# 6

BUILT FORM

# 6. BUILT FORM

## 6.1 BUILDING LIFE

All buildings on the campus have a life that is determined by age, cultural or architectural value, changes in needs or potential for adaptability. Some elements have historic or social significance and some recent additions or upgrades mean that they can be expected to be in use over the longer term.

Since the campus was opened in the 1960s, the changing approach to energy usage, sustainability and building performance has meant that existing building fabric is assessed differently. Rising expectations in response to environmental change, measured energy use, and life cycle properties of buildings and infrastructure, have led to a more critical approach to building performance and life.

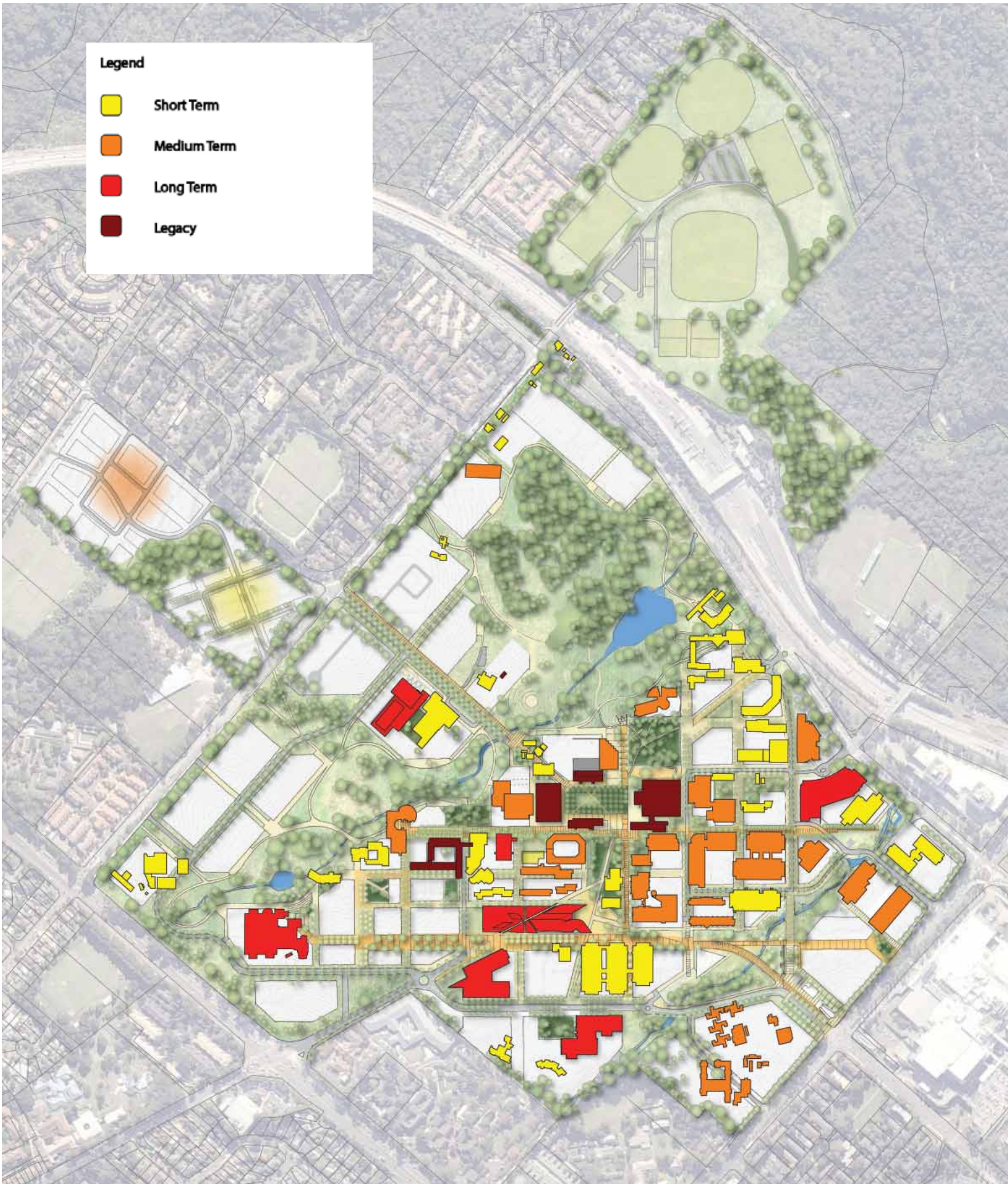
The Master Plan assumes that only very recent and legacy buildings (of potential historic or social significance) are to remain and these are shown on the Master Plan. The process however is not immediate nor prescriptive and there will be a staged transition.

Detailed assessment will be undertaken as the need for new accommodation is recognised, however preliminary work has identified the likely physical or functional obsolescence of buildings across the campus.

During implementation of the Master Plan, various buildings will be demolished and replaced:

- prioritise the removal of buildings that are functionally or physically obsolescent
- identify which buildings can be removed to make way for new spaces and places
- plan for new buildings of sufficient scale to ensure that the site yields can be attained





## 6. BUILT FORM

### 6.2 DEVELOPMENT PARCELS

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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





## 6. BUILT FORM

### 6.3 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

## 6. BUILT FORM

### 6.4 BUILDING DEFINITION

The definition of spaces and the public domain is a critical element in the Master Plan. The identification of setbacks and recommended building frontages is intended to ensure the definition of principal public domain spaces by built form.


Controls identified seek to:

- create of building lots within the grid planning structure
- encourage consistent facade alignments on major thoroughfares, to reinforce the edges of major spaces
- require facades to address and define the public domain



WEST COMMON CONCEPT SKETCH

Legend

 Build to Alignment  
(80% of Facade Length)



## 6. BUILT FORM

### 6.5 BUILDING ADDRESSES



Building entries for new campus buildings should recognise the primary campus pedestrian network. They should enable simple way finding across campus with obvious, simple addresses:

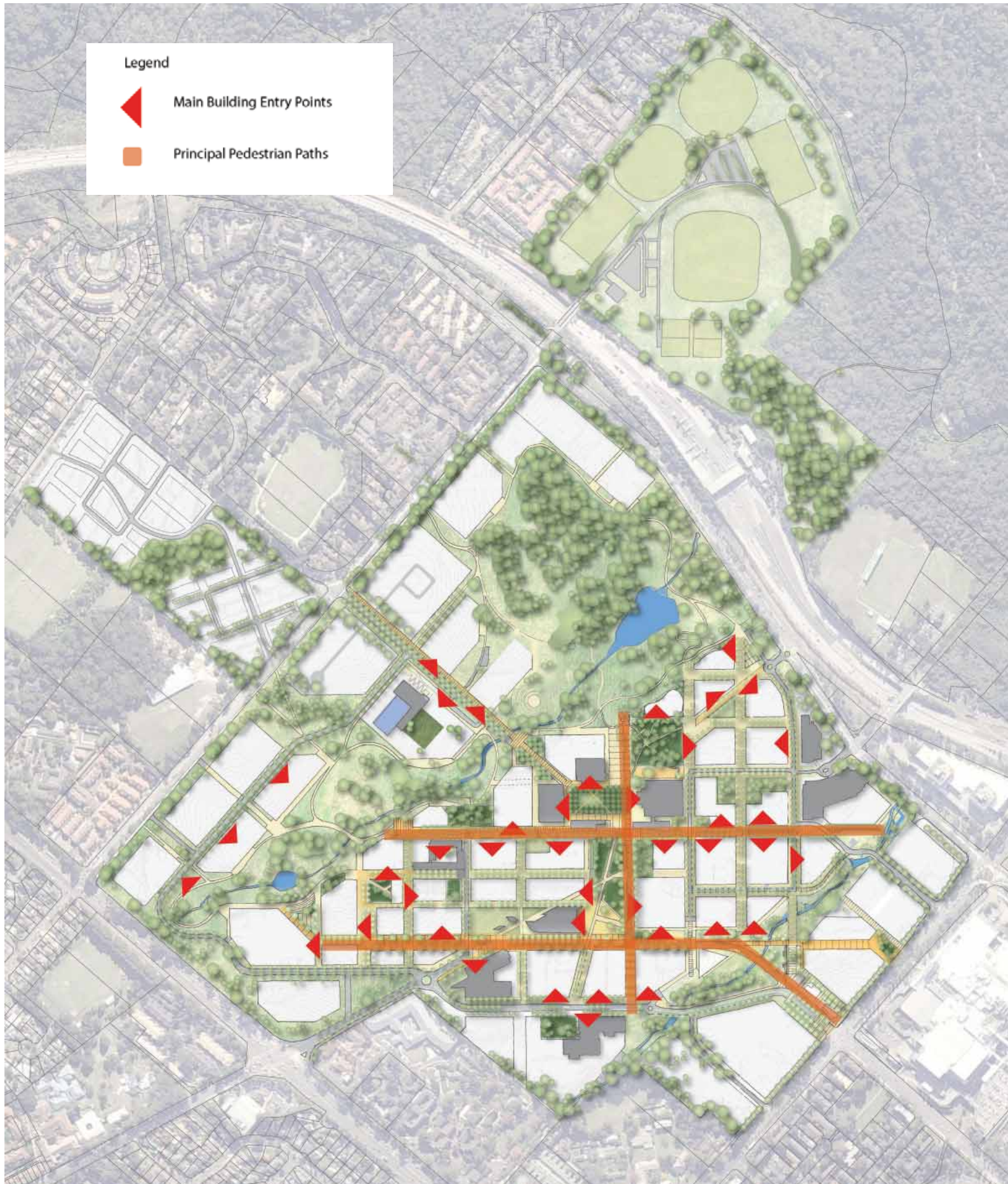
- primary Building entries should be identified and clearly articulated for each site
  - primary entries to be located on principal pedestrian corridors or open space
  - building entries for general use should not conflict with vehicle and service access
  - entry floor levels should relate closely to pedestrian paths to enable full compliance with current access standards
  - principal entry doors should coincide with accessible entries
- links within development parcels which enable through-site secure connections should be encouraged
  - generally, the principle entry to any building should be at the main address point
  - floor levels will be counted with the address level being Level 0



WALLY'S WALK

**Legend**

-  Main Building Entry Points
-  Principal Pedestrian Paths



## 6. BUILT FORM

### 6.6 RAIL CORRIDOR IMPACTS

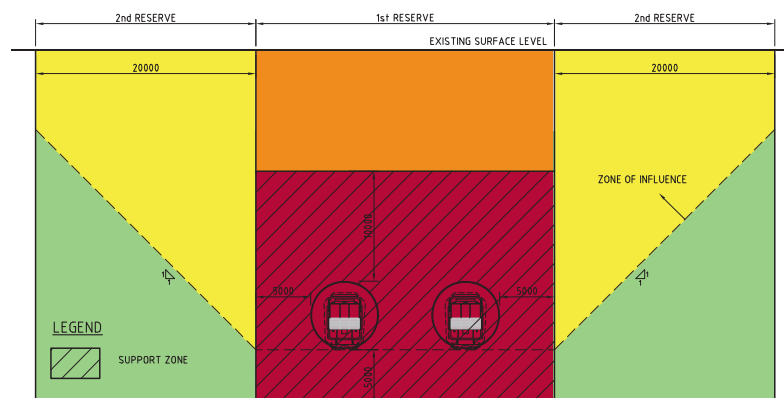
The construction of the Epping to Chatswood Rail Line has had enormous benefits to the University. Macquarie University is the only major University in Australia with a rail station at its front door.

The planned construction of the NWRL will extend the Epping to Chatswood Rail Link north-west to Castle Hill and Rouse Hill and dramatically increase patronage to and through the Macquarie University station.

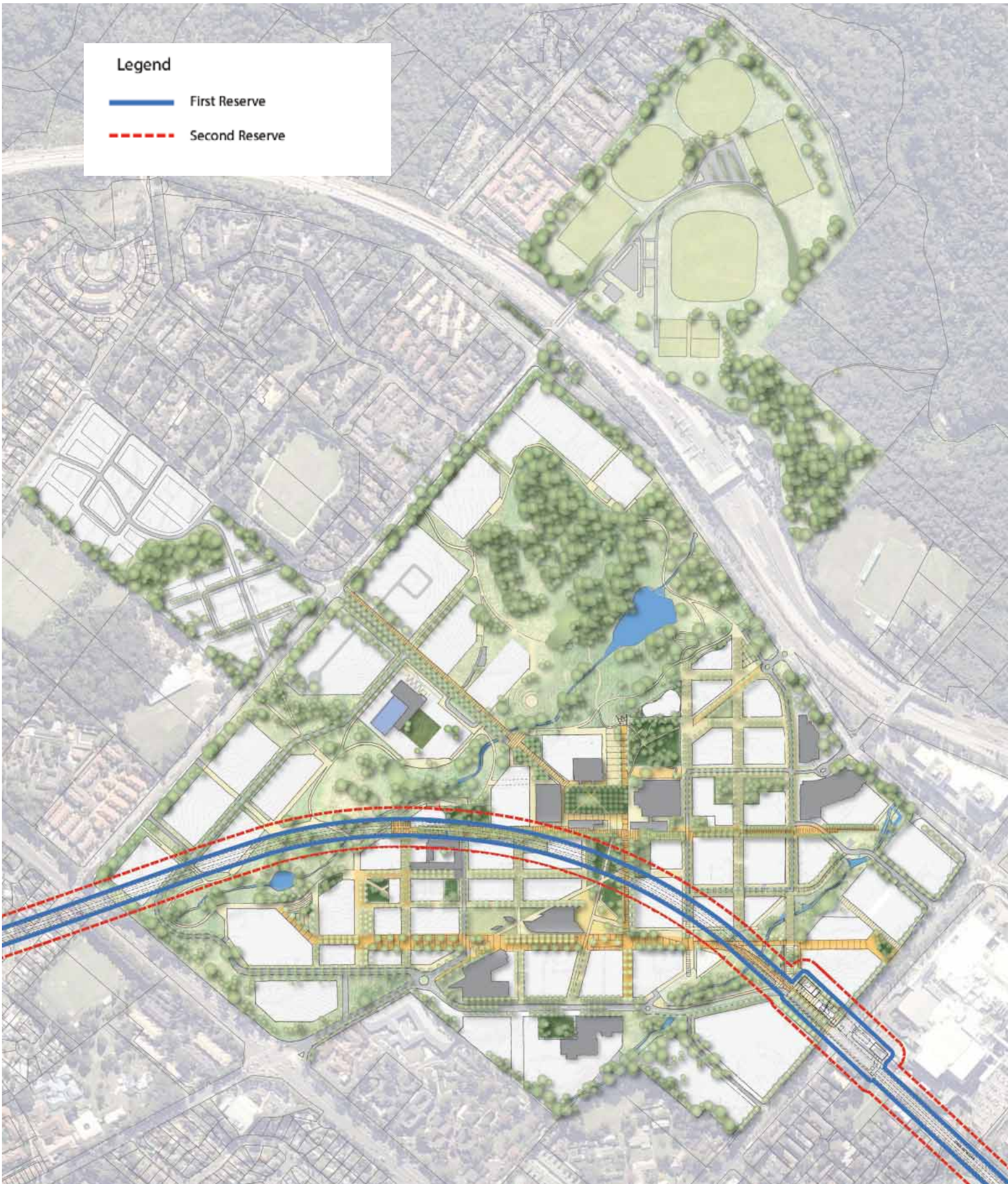
Transport for NSW limits development within the zone of influence of the tunnels and any significant development above the tunnel reserves will need formal approval:

- no development of structural elements within the tunnel zone (First Reserve)
- structural elements are permitted in the Second Reserve (and in the First Reserve outside the Support Zone) within 3m of grade
- structural elements are permitted in the Second Reserve (a zone struck at 45 degrees from the bottom and 20m to the side of the First Reserve)

	First Reserve within Support Zone	First Reserve outside Support Zone	Second Reserve within Zone of Influence	Second Reserve outside Zone of Influence
Excavations	Not permitted	Excavation less than 3m require no assessment Excavation more than 3m require assessment	Excavation less than 3m require no assessment Excavation more than 3m require assessment	Excavation less than 3m require no assessment Excavation more than 3m require assessment
Shallow Footings	Not permitted	Shallow footings require assessment	Shallow footings require no assessment	Shallow footings require no assessment
Deep Foundations	Not permitted	Deep foundations require assessment	Deep foundations require assessment	Deep foundations may not require assessment
Tunnels and Underground Excavations	Not permitted	Tunnels and underground excavations require assessment	Tunnels and underground excavations require assessment	Tunnels and underground excavations require assessment
Demolition of Existing Subsurface Structures	Not permitted	Demolition of existing subsurface structures require assessment	Demolition of existing subsurface structures require assessment	Demolition of existing subsurface structures require assessment







**Legend**

- First Reserve
- - - Second Reserve

## 6. BUILT FORM

### 6.7 LEGACY BUILDINGS

An assessment of the campus was undertaken and drew on its well documented history as well as interviews with key contributors such as the University's original landscape architect, Dick Clough.









The assessment identified a number of key elements including:

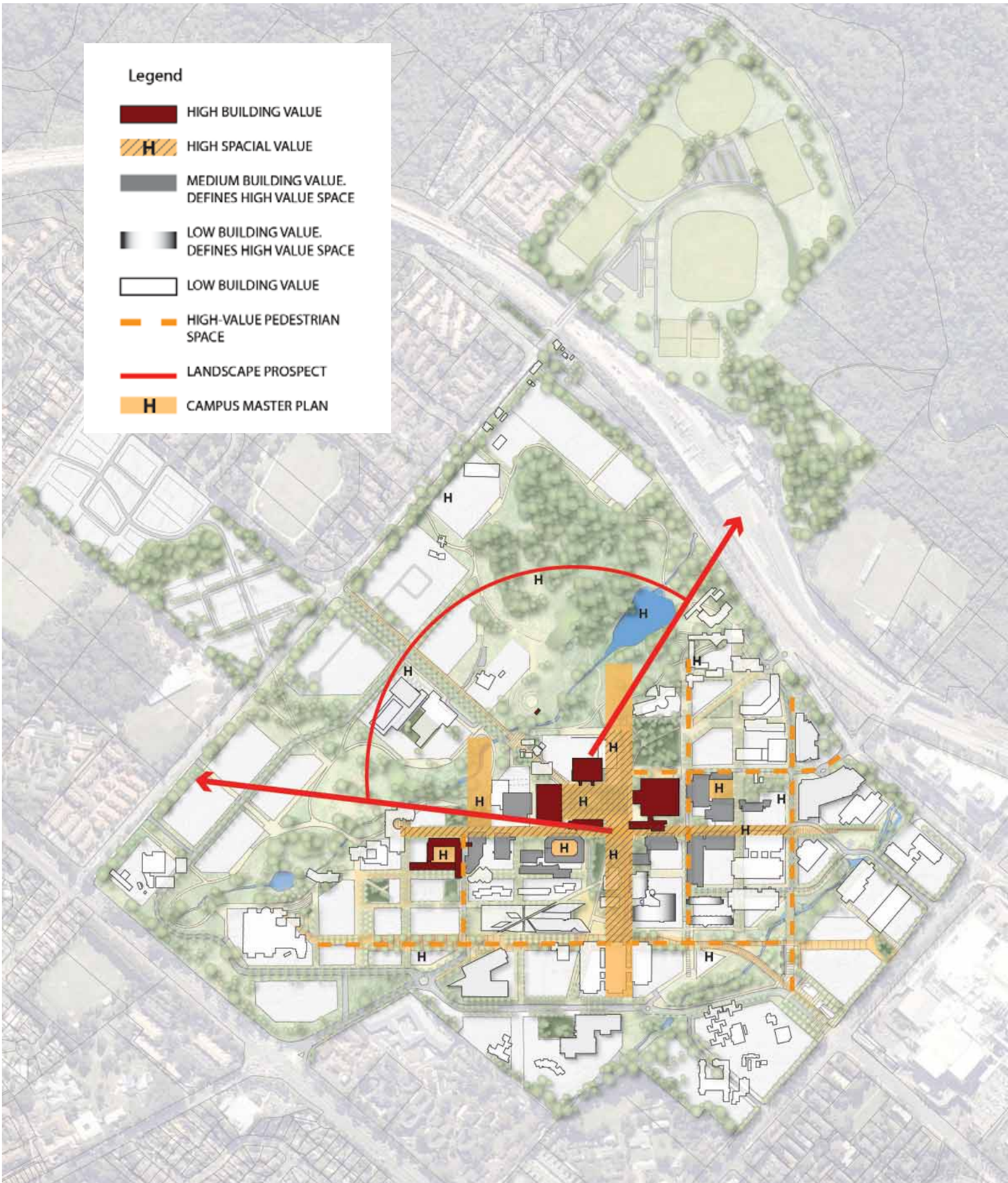
- the Campus Master Plan and design philosophy
  - Sustainability Philosophy (current design philosophy)
  - Building Language Philosophy
    - limited palette using 'off-form' concrete and dark brick building along Wally's Walk
  - original Building Flexibility and Adaptability Philosophy (original design concepts - still relevant today)
- courtyards – external (enclosed by adjacent building) & internal courtyards (located within buildings eg W6A & W6B)
- vista and connections to Northern Landscape, Mars Creek and Macquarie Lake
- Central Courtyard & scented Eucalypts
- East-West Walk (Wally's Walk) including trees and spatial nodes located along Wally's Walk
- the junction of Wally's Walk and Eastern Road
- Central Courtyard junction with Wally's Walk
- orthogonal N-S Campus streets
- internal Courtyards generally
- University / College Creek
- Building E7 – the first building constructed on the site (Teaching Building).
- Building C7A, the former library – the second building constructed on the site (Core Building)
- Building W6 – the third building constructed on the site
- Building C8A - Council Building (Administrative Centre)
- Building C10A - Union Building
- elevated connections and bridges between buildings



CENTRAL COURTYARD

**Legend**

-  HIGH BUILDING VALUE
-  HIGH SPACIAL VALUE
-  MEDIUM BUILDING VALUE. DEFINES HIGH VALUE SPACE
-  LOW BUILDING VALUE. DEFINES HIGH VALUE SPACE
-  LOW BUILDING VALUE
-  HIGH-VALUE PEDESTRIAN SPACE
-  LANDSCAPE PROSPECT
-  CAMPUS MASTER PLAN



## 6. BUILT FORM

### 6.8 DESIGN EXCELLENCE

Within the University's strong landscape and public domain setting, the challenge is to create a consistent architectural approach that develops a common language while creating opportunities for diversity and variety within the precinct. To meet the Master Plan's expectation of high quality design, innovative and exciting designs that maximise the potential of sites and their location are expected and will add to the overall quality and character of the campus.

Just as the environment has played an important role in the public domain, new buildings on the campus will be expected to adopt innovative environmental initiatives. Key considerations for the new buildings within the precinct are:

- Embody environmentally sensitive design principles
- ensure that building facades are environmentally responsive
- windows with northern, eastern and western aspects are to incorporate shading elements
- allow for individual expression in building design within a common language of materials and finishes
- adopt key building design elements that define the public domain
- use colours and materials that are consistent and/or responsive to the design palette of common materials, colour and finishes within the precinct
- develop a comprehensive and unified lighting strategy
- respond to the strong landscape setting

#### Urban Form

Macquarie University's success as a built environment has been very much through the quality of its landscape and parkland setting. New development should generally be consistent with, and enhance the overall identity of the campus. The Master Plan aims to maintain the overall character and environment of the campus and principles underpinning the built form strategy are:

- definition of major spaces by built form
- reinforcement of main circulation spines with buildings that overlook the spaces
- activation of ground levels on major spaces with retail, cafes student services or lobbies
- buildings to have a clear address to either a road or a main open space or a pedestrian link
- preservation of access to sunlight for key open spaces
- definition of the public domain through the creation of built edges to streets and open spaces

#### Articulation

Buildings are to be articulated through the expression of overall massing as well as separate parts of a building, such as entries, access stairs, walkways, sun shading and balconies. Elements that are required to moderate environmental conditions, such as sunlight, breezes and screening, are to be designed to enliven a building's facade. Buildings must demonstrate contemporary expression and environmental responsiveness and function must respond to place, environment and the urban character of the campus.

#### Materials

The materials used on campus should belong to a common palette appropriate to place and environment that will unify the buildings across the campus and to create a common theme and reinforce the contemporary and modern expression of buildings in the precinct.

#### Lighting

The careful illumination of buildings and open spaces for access, accents and building identification within private lots will contribute to the success and night time experience on the campus.

#### Signage

Signage will be controlled to create an attractive public domain and not impact on the character and quality of the campus.

#### Sustainability

Macquarie University is committed to incorporating sustainability into its actions and practices as part of its responsibility to the community and the environment, as well as promoting a healthy workplace and campus for staff and students. All new developments are to meet the University's sustainability guidelines.

#### Design Approval

All development proposals will be reviewed for consistency with this Master Plan and require the approval of the University prior to seeking statutory approval.

**Legend**

- Legacy Buildings
- Future Buildings







# 7

## SUSTAINABILITY

# 7. SUSTAINABILITY

## 7.1 LEGACY

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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.

The Sustainability Campus Vision is:

Our Vision is that Macquarie University will be a model collaborative community demonstrating global leadership and innovation in the sustainable development of built and natural environments

In the 1960s, the University's Professional Board took a view that the location of the University should allow for 'sufficient space for the university to be developed as a traditional university consisting of groups of well-designed buildings enclosing green spaces for gardens and recreational places for students and staff', and that the University should be located 'close to a railway station' to reduce the need for bus transport.

These early ideas are reflected in the development of the campus 50 years later, where courtyards provide an informal external environment surrounded by teaching spaces, and more recently a significant shift to train travel has occurred with the opening of the Macquarie University station in 2010.



CENTRAL COURTYARD



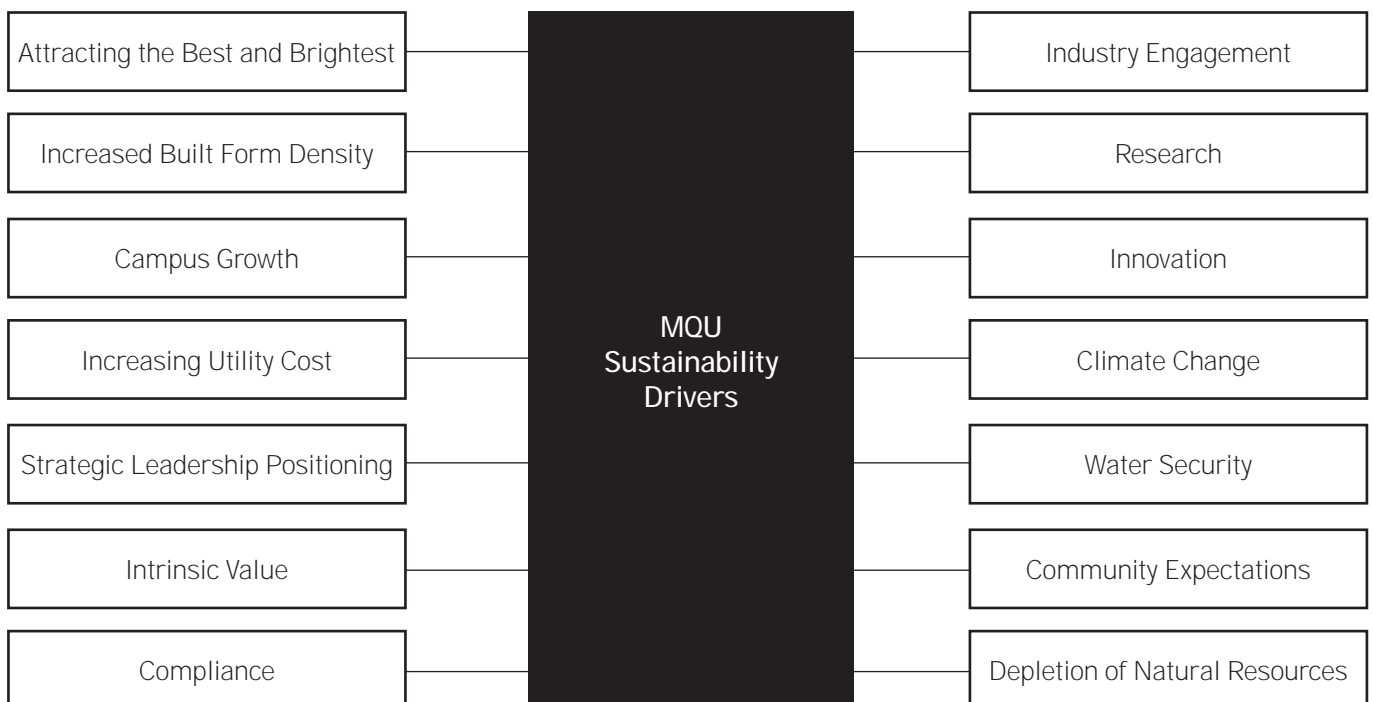
## 7.2 SUSTAINABILITY PLANNING CONTEXT

The focus of sustainability in the Master Plan aligns with other environmental, social and economic drivers for the University and provides benefits to the broader University community. The drivers for sustainable development of the campus are shown in the following diagram.

The framework for sustainable development in the Master Plan is supported by a number of voluntary and compliance commitments.

These include:

- Macquarie University Concept Plan 2009
- Macquarie University Energy Strategy 2013
- University Travel Plan 2012-2017.



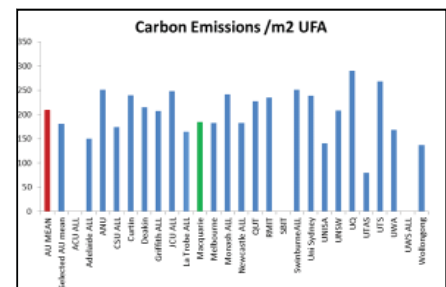
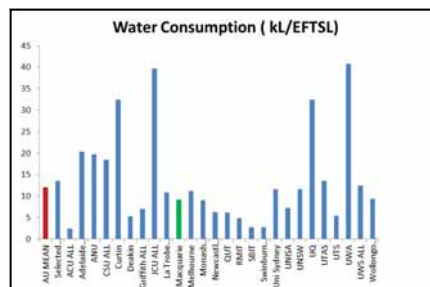
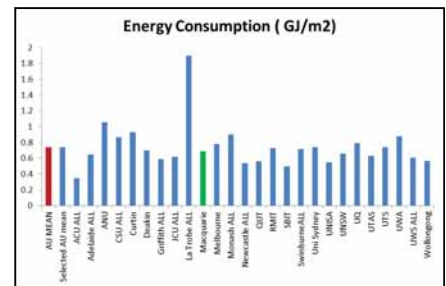
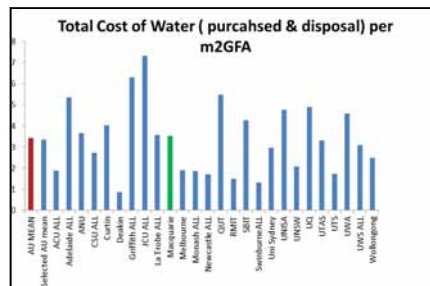
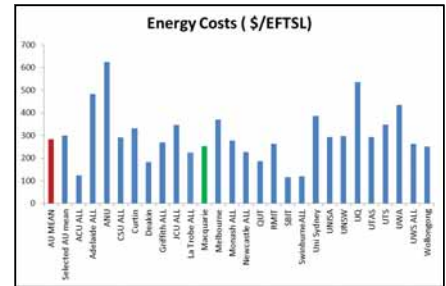
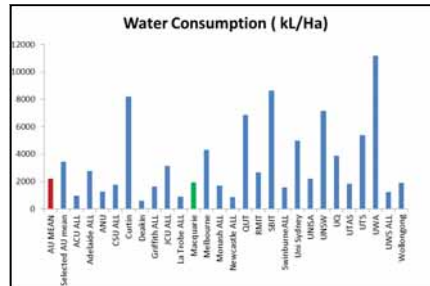
## 7. SUSTAINABILITY

### 7.3 WHERE ARE WE NOW?

The Macquarie University Property Sustainable Development Strategic Plan will be developed in 2014. The Plan will outline initiatives to position the University as a sustainable development leader into the next decade and beyond, focusing on 2020 and 2030 as milestone years.

An initial research phase is now complete, during which an operational baseline (i.e. current performance) was determined. This provides a benchmark for assessing sustainability progress in the Master Plan. A gap analysis will also be completed which will identify key areas for improvement.

The outcomes of the initial research exercise show the University's current performance as follows:



AUSTRALIAN UNIVERSITY BENCHMARKS

#### THE UNIVERSITY'S IMPACT ANNUAL IMPACT

- Energy consumption per annum = 237.1 TJs
- Energy cost 2013 = >\$9m
- Greenhouse gas emissions per annum = 44,575 tonnes
- Total campus eco-footprint = 1.3 Planets (exceeds One Planet goal)
- Total waste generated annually = 1458 Tonnes
- Potable water used = 212,300 kL

### 7.3.1 Eco-footprint: one planet

- the campus ecological footprint is exceeding the biological capacity of the planet by 30% at 1.3 Planets
- One Planet pilot project implemented to begin reducing ecological footprint of campus
- operational expenditure (38%), buildings (32%) energy (17%) are the key drivers of Macquarie's ecological footprint

### 7.3.2 Energy

- in 2012-13, the University consumed 237.1 TJs of energy making it a 'large energy user'
- energy cost is \$9 million in 2012/2013
- Macquarie University has been an early adopter of technologies such as district trigeneration, thermal energy towers, geothermal heat displacement, solar hot water and solar energy

### 7.3.3 Green house gas (GHG)

- GHG emissions increased to 44,575 tonnes in 2013 continuing an average yearly increase of 8% since 2009 (37,414 tonnes)

### 7.3.4 Materials

- total amount of waste generated is 1,458 tonnes (includes furniture, e-waste, contaminated waste and sanitary waste)
- alternative waste treatment has been implemented with 66% diversion from landfill
- the Furniture Store reuse facility recirculated 1,750 items valued at \$1.1 million and diverted 380 tonnes from landfill since 2010
- source separated paper and cardboard makes up 7% of the waste stream and is recycled separately to avoid contamination

### 7.3.4 Water

- 212,300 kL grid based potable usage in 2012
- Sports Fields irrigation accounts for approximately 30% of annual water consumption
- limited onsite water harvesting currently implemented. There is as opportunity to increase this

### 7.3.5 Biodiversity and conservation

- the University contains around 8.5 hectares of remnant native vegetation, some occurring within future development zones
- native and planted areas are used as fauna habitats, particularly by larger water bird species
- bushland restoration and new habitat connections (especially around water courses) are high current priorities for biodiversity on the campus
- the University adopts a policy of offset-planting for trees lost to natural attrition or removal.

- tree replenishment aims to enhance biodiversity values using locally native species, maintain or enhance amenity, and provide continuous tree canopy along significant landscape corridors. Replacement of removed landscape trees is at a 2:1 ratio.
- trees with identified remnant native habitat value, or with connections to the historic heritage of the local area (e.g. orchard remnants), are replaced at a higher planting rate, typically at 3:1 trees, or via habitat planting with both canopy and shrub species.

## 7. SUSTAINABILITY

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- **7.3.6 Research and collaboration**
  - Living laboratory projects:
    - Vegetation Research site: five-year, field-based project investigating early growth-stage traits of planted Australian natives
    - Environmental Management : Water testing and field survey of Mars Creek
  - Foundation Ecology
    - Ecological survey of on-campus ecology reserve and fauna park remnant
  - One Planet Faculty case studies
  - personal mobility device trial
- Australian Environmental Futures:
    - Urban watercourse and landscape management

The University aims to reduce its ecological footprint to One Planet by 2030. As the Macquarie University campus grows to accommodate more students, as well as research and development partnerships, it is important that we also reduce our impact on the earth. The question that ecological footprinting asks is: "How many earths would it take to support us, if everyone lived like this?"


The overall biocapacity of the earth is measured in 'global hectares' and divided by the total world population for the year. Hence the total biological capacity is adjusted for the world population in order to 'measure how much nature we have, how much we use, and who uses what or how close we are to the goal of sustainable living' (Global Footprint Network, 2012). To calculate the ecological footprint of the campus, life cycle assessment has been employed to take an annual snap shot of the University's ecological footprint by measuring annual consumption of:

- Ecological value of the land (Biocapacity)
- Materials
- Operational energy
- Operational water
- Transport
- Fit-outs and furniture
- Operational expenditure and infrastructure

MACQUARIE UNIVERSITY  
**ONE PLANET**  
**2030**   
COMMUNITY - ENVIRONMENT - LIVING LABORATORY

Ecological Supply = Ecological Demand



 SUSTAINABILITY

## 7.4 NEXT PHASE

Work must be done to decouple Macquarie University's campus growth with growth in emissions, resource consumption and overall environmental loads.

The sustainable development strategic 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
- revised travel plan
- sustainable procurement guideline of materials for infrastructure
- innovative programs geared towards achieving the One Planet Eco-footprint goal.

The University will achieve this through the implementation of its One Planet and Green Building goals in design, and through a focus on reducing operational impacts, improving process, engagement and research. New facilities and refurbishments will foster new research opportunities, including research questions that centre on the 'campus-as-subject' – enhancing the function of the campus as a Living Laboratory.

## 7.5 SUSTAINABILITY TARGETS

### 1. DESIGN

- a 'One Planet' or better ecological footprint for the University campus by 2030
- a net increase in quality and connectivity of on-campus biodiversity assets, i.e. healthy bushland and waterways
- 5 Star or better Green Star ratings for commercial buildings on campus
- flexibility of the built environment – physically and socially adaptable to changing needs

### 2. OPERATIONAL IMPACTS

- 4.5 Star NABERS energy and water rating targets for commercial buildings on campus
- minimum 40% reduction of greenhouse gas emissions intensity per square metre of gross floor area through on-site initiatives (from 2009 baseline)

- \$10 million in operational energy savings in net present value terms by 2030 (from 2009 baseline)
- closed-loop waste cycle – 90% waste diversion from landfill by 2020
- reduce total water consumption per equivalent full time person (EFTP) by 40% of 2007 figures

### 3. COMMUNITY ENGAGEMENT

- continue to embed spaces which encourage collaboration in building design
- promote industry sustainability leadership, and develop partnerships with corporate and community groups to enhance sustainability outcomes.
- promote research opportunities and enhance formal and informal learning and teaching outcomes

## OUR FUTURE

- 5 Star or better Green Star ratings for commercial buildings on campus
- Minimum 4.5 Star NABERS energy and water rating targets for commercial buildings on 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 for new commercial buildings
- 90% waste diversion from landfill by 2020.

## 7. SUSTAINABILITY

NEXT PHASE	WHAT IT WILL LOOK LIKE
<b>DESIGN</b>	
<b>LEADING BUILDING DESIGN</b>	<ul style="list-style-type: none"> <li>– New and refurbished buildings which demonstrate leadership in sustainability outcomes</li> <li>– Sustainable design guidelines created and implemented for all new build and refurbishment projects</li> <li>– New research and technologies incorporated into the design and operation of buildings where feasible and in line with the University's strategic positioning</li> </ul>
<b>ONE PLANET ECO-FOOTPRINT</b>	<ul style="list-style-type: none"> <li>– Increased space efficiency</li> <li>– Preferential use of materials which consider life cycle, embodied energy and potential for reuse</li> <li>– Shared and flexible multi-functional learning and teaching spaces</li> <li>– Reduction of ecological footprint by achieving global hectare equivalent to One Planet targets for all refurbishments and tenancy fitouts</li> </ul>
<b>OPERATIONAL IMPACT</b>	
<b>INTEGRATED WATER RESOURCE MANAGEMENT</b>	<ul style="list-style-type: none"> <li>– For University Creek, Mars Creek and Culloden Creek: <ul style="list-style-type: none"> <li>– Increased habitat flow</li> <li>– Catchment consideration in planning</li> </ul> </li> <li>– Water Sensitive Urban Design, including: <ul style="list-style-type: none"> <li>– Increased monitoring and testing</li> <li>– Porous pavements</li> <li>– Grassed and landscaped swales</li> <li>– Filtration</li> </ul> </li> <li>– Reduction of potable water use through rain water harvesting and recycling</li> <li>– Consumption meters installed in buildings</li> <li>– Exploration of opportunities for district and/or distributed urban water solutions such as membrane bioreactors</li> </ul>
<b>PUBLIC AND ACTIVE TRANSPORT</b>	<ul style="list-style-type: none"> <li>– Increased mode shift to public and active transport</li> <li>– New end of trip facilities and signage for cyclists</li> <li>– Cycle skills training workshops delivered</li> <li>– Pilot bicycle fleet on campus</li> <li>– New shared pedestrian and cycling user path network for the campus, to ensure safe and continuous paths and to improve mobility across campus by connecting east and west precincts to Macquarie University Station</li> <li>– Promotion of active transport modes on campus, for example, fitness trail</li> <li>– Increased shuttle bus frequency</li> </ul>

<b>ENERGY</b>	<ul style="list-style-type: none"> <li>– Energy efficiency targets implemented for academic and administrative buildings</li> <li>– Efficiency measures integrated into building maintenance schedules</li> <li>– Improve operational sustainability monitoring and reporting coverage</li> <li>– Review of energy demand to identify local/precinct opportunities</li> <li>– Leverage key partnerships with industry to implement 'hybrid-district' energy strategy</li> </ul>
<b>WASTE</b>	<ul style="list-style-type: none"> <li>– Closed loop waste cycles</li> <li>– Landfill diversion</li> </ul>
<b>BIODIVERSITY AND CONSERVATION</b>	<ul style="list-style-type: none"> <li>– Best-practice management for the campus's biodiversity assets, with links to learning and teaching</li> <li>– Strategic green space planning to maximise amenity</li> <li>– Habitat fragments augmented through bush regeneration and where possible connecting corridors</li> </ul>
<b>PROCESS</b>	
<b>EMBEDDING PERFORMANCE STANDARDS</b>	<ul style="list-style-type: none"> <li>– Design and operational performance specifications included in project briefs to ensure contractors deliver the University's sustainability performance standards</li> </ul>
<b>SUSTAINABLE PROCUREMENT</b>	<ul style="list-style-type: none"> <li>– Sustainability is being considered in all major projects and tenders</li> <li>– Sustainability approval gateway introduced to the tender review process</li> <li>– University buying power leveraged to help drive industry take up of environmentally and socially sound products</li> </ul>
<b>ENGAGEMENT AND RESEARCH</b>	
<b>LIVING LABORATORY</b>	<ul style="list-style-type: none"> <li>– Promote public, private sector and University student and staff engagement in the sustainable development of the campus</li> <li>– Specific collaborations: <ul style="list-style-type: none"> <li>– Exploration of specific research questions through the University's PACE initiative, and research projects.</li> <li>– Continue development of the collaboration between Macquarie Property and Department of Environment and Geography</li> </ul> </li> </ul>

## 7.6 UNIQUE ASPECTS AND CHALLENGES

### 7.6.1 Growing Energy Demands, Utility Costs and Greenhouse Gas Emissions

Macquarie University is one of the top 200 energy users in the state of NSW, producing approximately 44 tonnes of greenhouse gases per year, principally from the use of grid electricity. In FY13 the University used 237 TJ of energy from electricity and gas, with electricity costs exceeding \$10 million, continuing the trend of annual growth in both greenhouse emissions and energy demand. Historically, campus growth has also meant increased energy and carbon impact.

The key role of Macquarie University's Energy Strategy is to decouple this relationship (Macquarie University Energy Strategy 2013). The University's building and refurbishment program will present considerable opportunities to counter this trend.

In Australia, university building stock generally lags progress made in the commercial office sector in terms of building energy performance. Major property trusts have grown in size while reducing net greenhouse gas emissions through reductions in energy intensity.

Between 2009 and 2012, Australian Real Estate Investment trusts (AREITs) significantly increased their energy efficiency performance, with the typical AREIT portfolio now averaging a 4.5 Star NABERS energy rating. As a long-term asset owner with self-tenanted buildings within a large proportion of its building portfolio, the University has clear incentives to invest in energy efficiency.

The Macquarie University Sustainable Development Strategic Plan (under development) will ensure that growing energy loads on campus will be mitigated by:

minimum energy performance specifications for new buildings and refurbishments

- reductions in peak energy demand through energy efficiency upgrades
- strategic asset management
- distributed energy solutions

Energy efficiency will be the biggest factor contributing to managing the University's future energy price risk, capital costs with grid connection and reducing greenhouse gas emissions. A hybrid approach of energy efficiency and precinct-distributed energy supply will be considered, as recommended by the Energy Strategy. Work such as upgrades and distributed energy initiatives will take into account the University's need for energy continuity to support research and other activities, particularly in eastern precincts where science laboratories support experiments which rely on uninterrupted power supply.



CENTRAL COURTYARD

## 7. SUSTAINABILITY

### 7.6.2 Green Space Planning – renewal of the ‘Campus in a Park’ Concept

The development strategy within this Master Plan features expansion to the built environment across academic, commercial and mixed use precincts. The greater portion of new development involves ‘infill’ throughout the eastern and central precincts.

The remainder of development is situated in the University’s greenfield spaces. Increasing density and development in the surrounding local population will heighten the relative importance of the significant biodiversity areas and green spaces on campus.

It is recognised that strategies for building layouts and landscaping are required to preserve the inherited parkland setting of Macquarie University through to 2030 and beyond. This is relevant both for infill and greenfield precincts of the campus. Infill development means building occurring on previously developed land, while greenfield development means building occurring on previously un-developed land.

As a complement to several new public spaces proposed throughout the academic core (infill), the priorities and strategies below apply predominantly to greenfield development zones.

The following priority areas are identified as the key landscape ‘anchors’ which are of highest importance to maintaining the parkland aesthetic of the main University grounds, and providing a green visual buffer to new development:

- Mars and University Creeks – each creek corridor will be managed according to a tailored landscape/environmental plan. Small spines of tree landscaping running perpendicular to Mars Creek form a part of its vegetation network
- the Culloden Road ridgeline – a forested setback of mature planted trees currently exists along approximately half of the campus frontage along Culloden Road, providing one of the only native-landscaped ridgelines in the Macquarie Park area. It is proposed to enhance this asset by replicating the current setback plantings along the majority of this street frontage
- the natural bushland area between the Mars Creek lake and the M2 motorway embankments on Talavera Road – a management plan is to be prepared covering this bushland remnant and any planted extension areas intended as vegetation offset sites
- Epping Road frontage – small clusters of original native trees presently line the University boundary across the Mars Creek valley on Epping Road. Opportunities to supplement these trees within a landscaped setback will be activated in the future re-development of this precinct and the re-aligned internal road network
- a landscaped setback associated with any re-development (for example, high-rise) of the existing student housing on Culloden Road. The landscaped zone will provide a vegetated border linking with the neighbouring Council bushland reserves, and also enhance the landscaping of the campus perimeter on Culloden Road



WALLY'S WALK



### 7.6.3 Transport and Connectivity

Sustainable transport will be a critical factor in determining the future success of the University as a vibrant centre of education and commerce. Macquarie University is a major travel destination and is currently attracting approximately 30,000 staff and students from across the Sydney metropolitan region. Negative costs associated with travel can reduce the competitiveness of the University.

Addressing congestion, travel time and increasing public transport mode share will enhance the University's ability to attract students and staff, increase social inclusion and relieve pressure on University infrastructure, including the costs of supplying parking.

Building on the University Travel Plan 2012-2017, an updated travel action plan will be produced as part of the Sustainable Development Strategic Plan. It will incorporate actions to increase sustainable transport mode share, overlay a continuous network of safe bicycle and pedestrian pathways through campus, provide enhanced end-of-trip facilities for cyclists, investigate ways to increase shared transport modes such as carpooling and a bike-share scheme, and investigate public or active transport options to displace car use for short trips to and from surrounding campus amenities.

Active liaison with the Macquarie Park Transport Management Association will also be maintained in an effort to coordinate implementing initiatives.



MACQUARIE UNIVERSITY STATION



MACQUARIE  
UNIVERSITY

COX