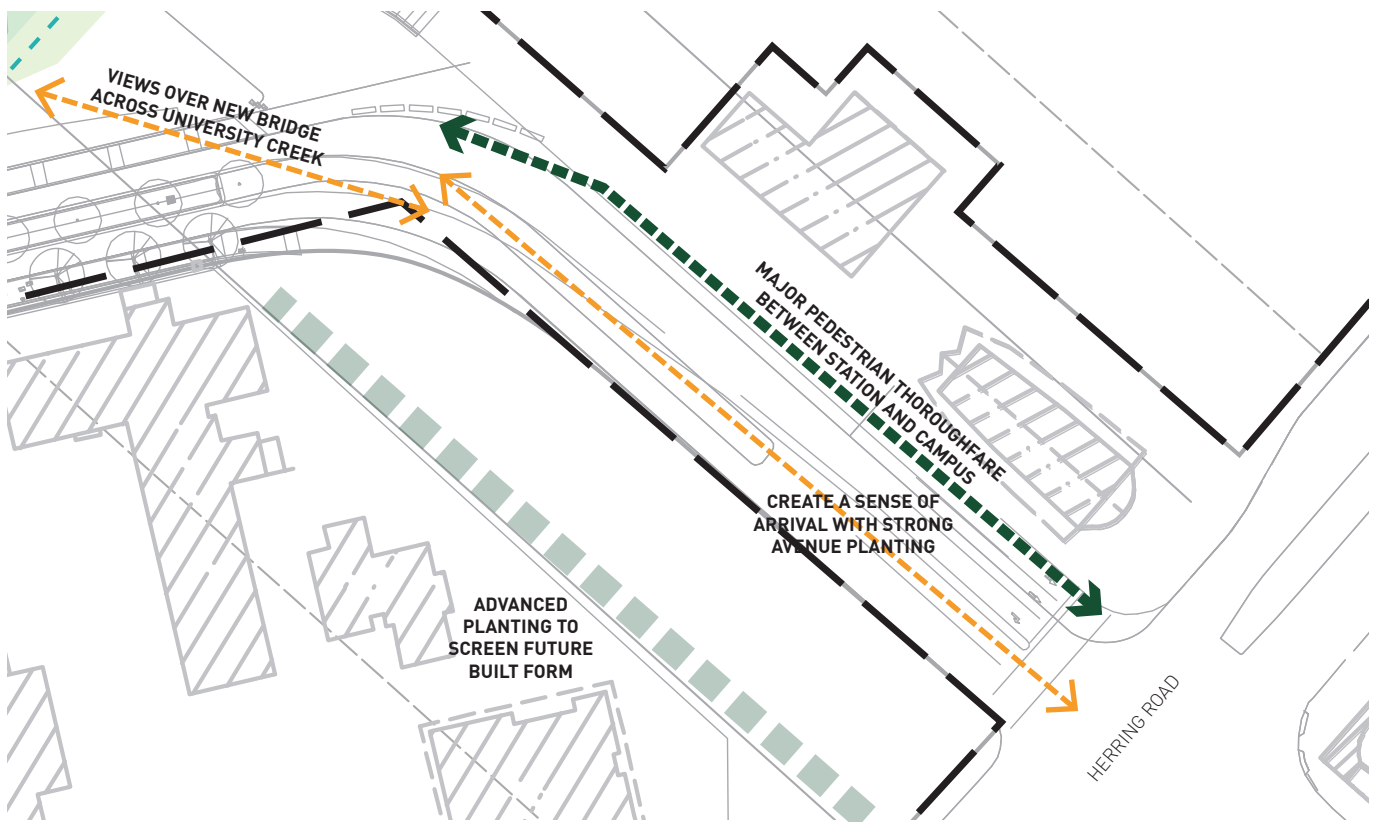


- Direct pedestrian flows into the new University Common.
- Manage student traffic across Herring Road to Macquarie Centre.
- Improve the awareness and relationship to University Creek.
- Develop the built form to reinforce the pedestrian entry experience.
- Entry to have a sense of arrival created by strong avenue planting of large evergreen 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 recognise 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



**LEGEND**

OPEN SPACE / PUBLIC DOMAIN	PRIMARY PEDESTRIAN LINK	WATER SENSITIVE URBAN DESIGN (WSUD)	SIGNIFICANT TREES TO BE RETAINED
EXISTING BUILDING TO BE RETAINED	SECONDARY PEDESTRIAN LINK	SOLAR ACCESS TO OPEN SPACE	SIGNIFICANT TREES TO BE RETAINED IF POSSIBLE
NEW BUILDING PROPOSED WITHIN MASTERPLAN	GREEN LINKS	IMPORTANT VIEW CORRIDORS	EDGE TREATMENT
LOT BOUNDARIES	GROUND FLOOR ACTIVATION		

### 3. PUBLIC DOMAIN

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

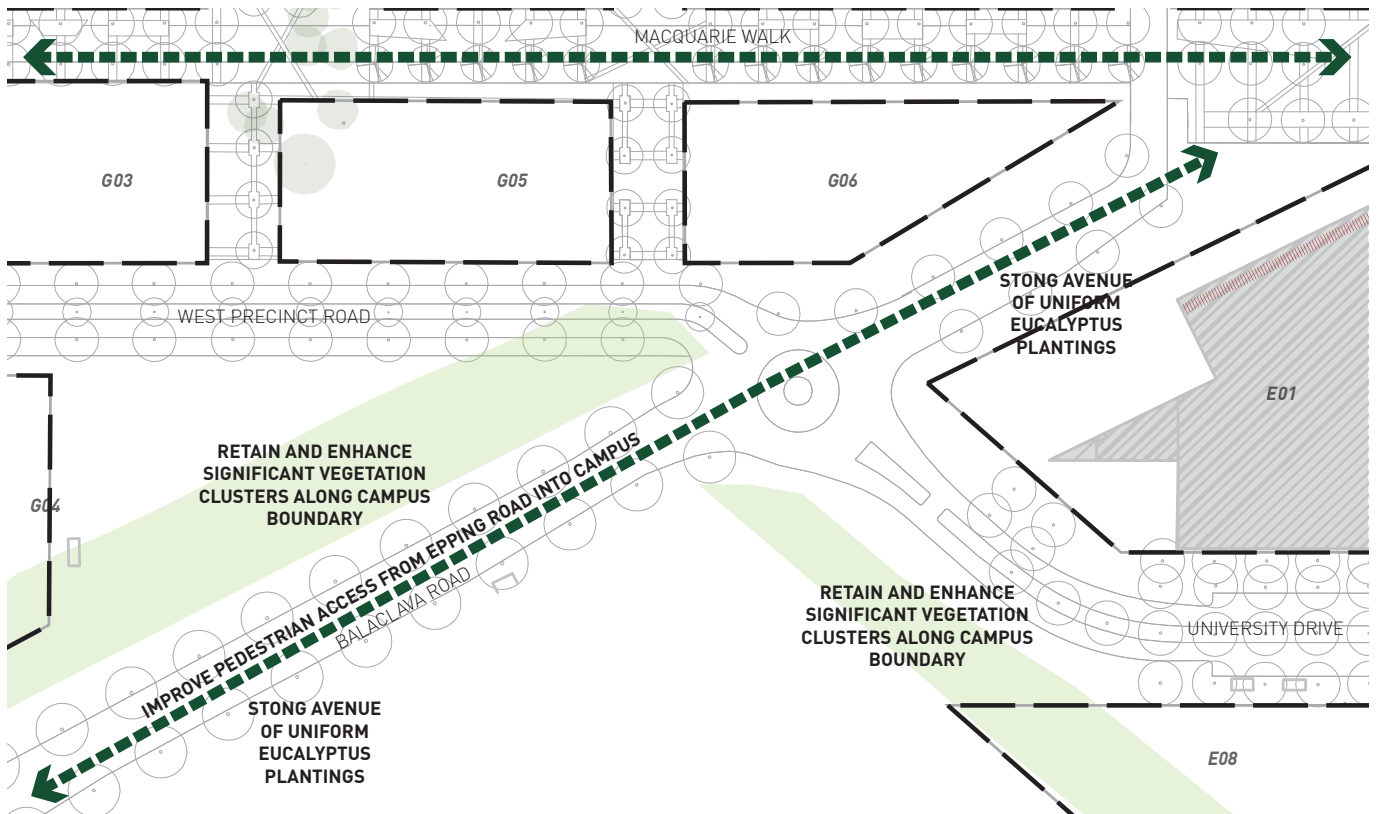
#### Landscape Principles

- 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 is part of an RMS bus priority project.
  - Ensure detailed design of the western car park is screened behind the existing vegetation facing Epping and Balaclava Roads.
  - Entry to have an urban bushland aesthetic strengthened with a strong avenue of uniform eucalyptus plantings.

#### Tree Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
<i>Corymbia maculata</i>	Spotted Gum	20 x 10 m
<i>Eucalyptus pilularis</i>	Blackbutt	20 x 10 m
<i>Eucalyptus saligna</i>	Sydney Blue Gum	20 x 10 m



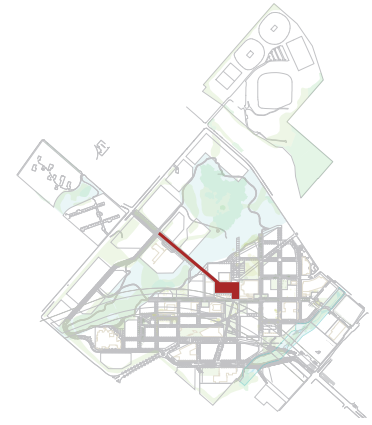


**LEGEND**

OPEN SPACE / PUBLIC DOMAIN	PRIMARY PEDESTRIAN LINK	WATER SENSITIVE URBAN DESIGN (WSUD)	SIGNIFICANT TREES TO BE RETAINED
EXISTING BUILDING TO BE RETAINED	SECONDARY PEDESTRIAN LINK	SOLAR ACCESS TO OPEN SPACE	SIGNIFICANT TREES TO BE RETAINED IF POSSIBLE
NEW BUILDING PROPOSED WITHIN MASTERPLAN	GREEN LINKS	IMPORTANT VIEW CORRIDORS	EDGE TREATMENT
LOT BOUNDARIES	GROUND FLOOR ACTIVATION		



### 3. PUBLIC DOMAIN



#### 3.7.3 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.

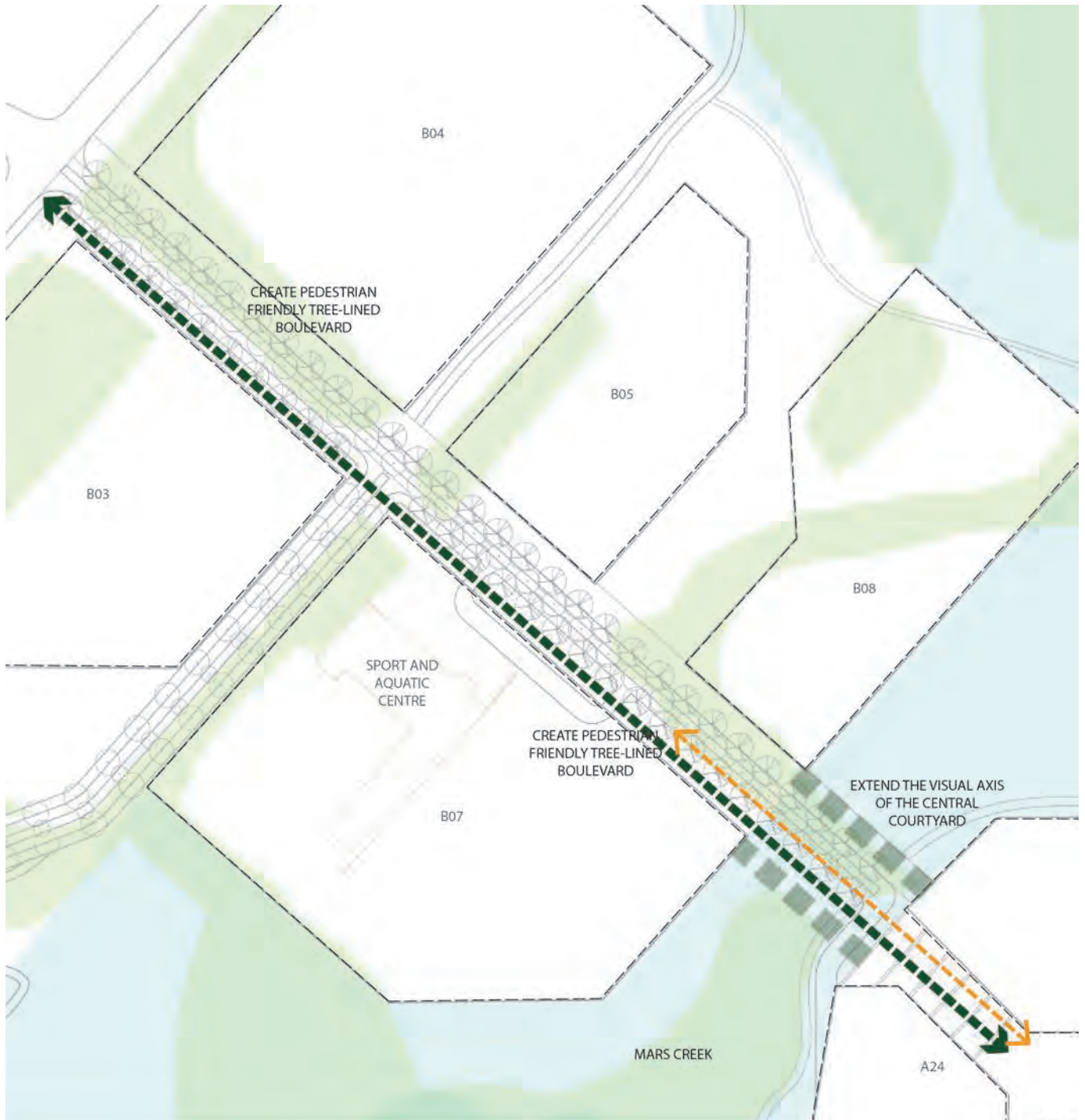
#### Landscape Principles

- 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 the 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 Sport and Aquatic Centre 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.
- 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.

#### Tree Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
<i>Brachychiton acerifolius</i>	Illawarra Flame Tree	10 x 8 m
<i>Jacaranda mimosifolia</i>	Jacaranda	12 x 10 m





**LEGEND**

OPEN SPACE / PUBLIC DOMAIN	PRIMARY PEDESTRIAN LINK	WATER SENSITIVE URBAN DESIGN (WSUD)	SIGNIFICANT TREES TO BE RETAINED
EXISTING BUILDING TO BE RETAINED	SECONDARY PEDESTRIAN LINK	SOLAR ACCESS TO OPEN SPACE	SIGNIFICANT TREES TO BE RETAINED IF POSSIBLE
NEW BUILDING PROPOSED WITHIN MASTERPLAN	GREEN LINKS	IMPORTANT VIEW CORRIDORS	EDGE TREATMENT
LOT BOUNDARIES	GROUND FLOOR ACTIVATION		



### 3. PUBLIC DOMAIN

#### 3.7.4 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.

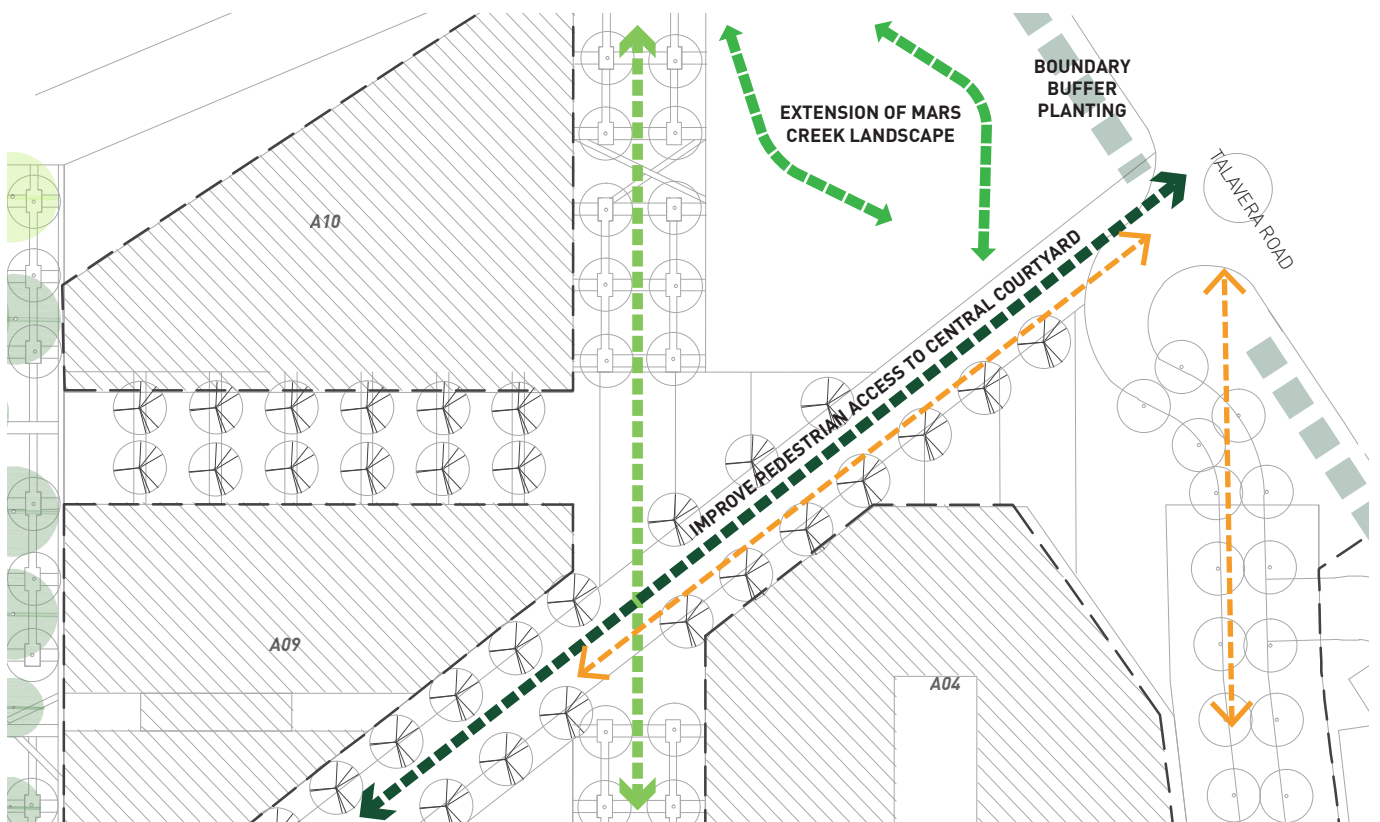
#### Landscape Principles

- 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 northeast.
  - 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.
  - Contemporary urban plaza style landscape to provide a strong entry experience into the campus.

#### Tree Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
Trees within adjoining open space		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Corymbia maculata</i>	Spotted Gum	20 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
Street trees		
<i>Koelreuteria paniculata</i>	Golden Rain Tree	7 x 7 m
<i>Pyrus ussuriensis</i>	Manchurian Pear	9 x 7 m





**LEGEND**

- |   |                           |                                     |  |
|---|---------------------------|-------------------------------------|--|
| OPEN SPACE / PUBLIC DOMAIN              | PRIMARY PEDESTRIAN LINK   | WATER SENSITIVE URBAN DESIGN (WSUD) | SIGNIFICANT TREES TO BE RETAINED             |
| EXISTING BUILDING TO BE RETAINED        | SECONDARY PEDESTRIAN LINK | SOLAR ACCESS TO OPEN SPACE          | SIGNIFICANT TREES TO BE RETAINED IF POSSIBLE |
| NEW BUILDING PROPOSED WITHIN MASTERPLAN | GREEN LINKS               | IMPORTANT VIEW CORRIDORS            | EDGE TREATMENT                               |
| LOT BOUNDARIES                          | GROUND FLOOR ACTIVATION   |                                     |  |



### 3. PUBLIC DOMAIN

#### 3.8 PRIMARY ROADS

##### 3.8.1 University Avenue

The pedestrianisation of Macquarie Walk 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 Walk to traffic will require the relocation of east

bound buses and should assist in reducing the volume of local through traffic.

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

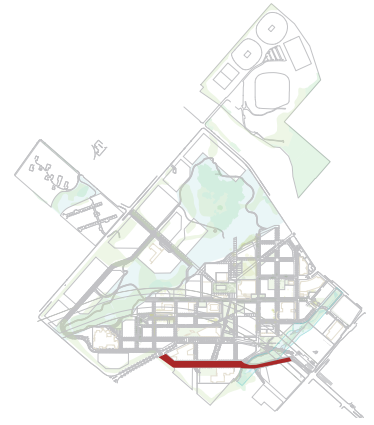
Previous plans identified the need to upgrade University Avenue. The new plan formalises the road treatment, develops new paving and planting, and introduces water sensitive urban design (WSUD) elements in the median. University

Avenue is relocated to the east side of University Creek before sweeping around to Herring Road.

#### Tree Schedule

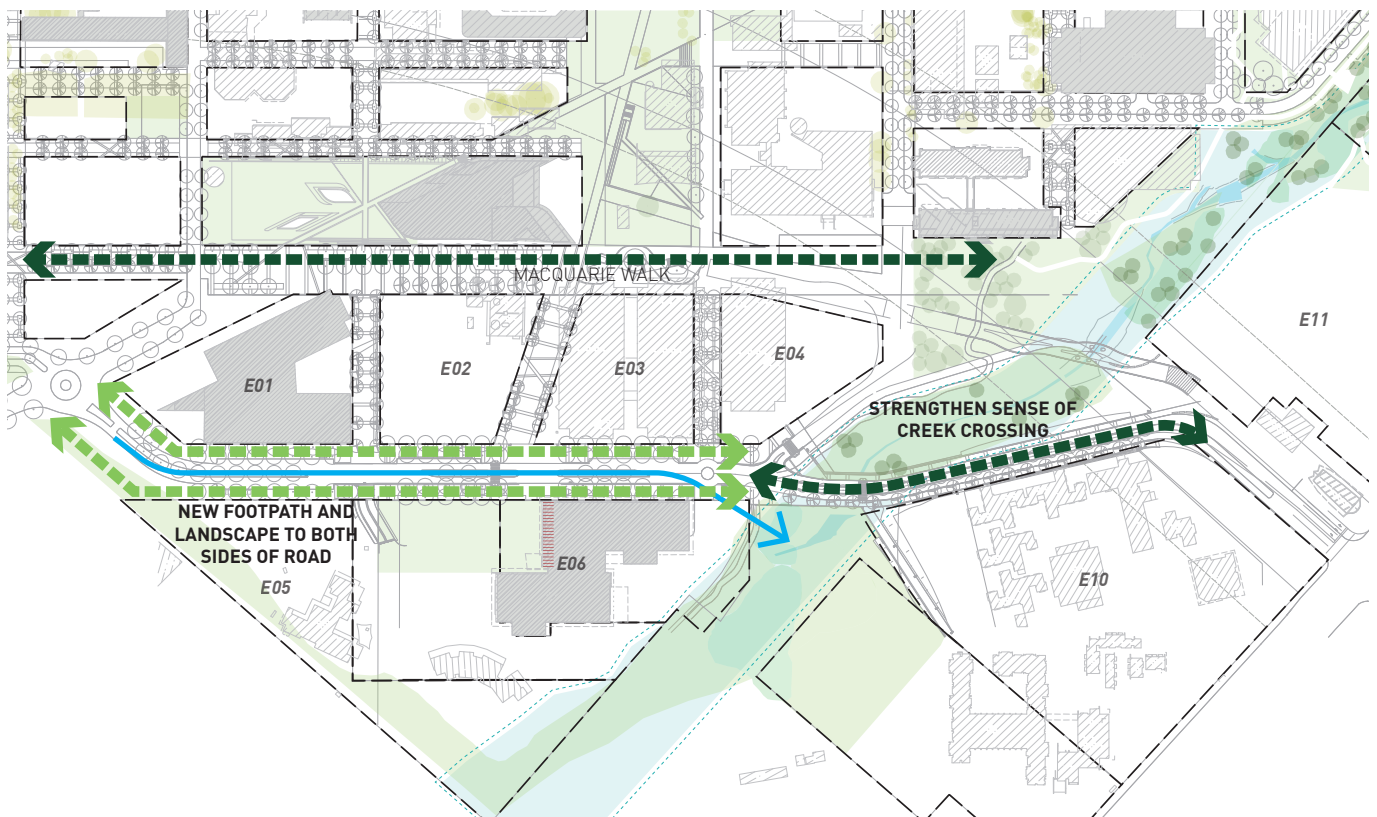
BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
University Creek riparian planting <i>Characteristics - Evergreen riparian planting to the median, complimentary to creek vegetation, no planting along creek frontage</i>		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Allocasuarina littoralis</i>	Black She-Oak	8 x 4 m
<i>Ceratopetalum apetalum</i>	Coachwood	12 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
<i>Synoum glandulosum</i>	Scentless Rosewood	8 x 4 m
<i>Tristaniopsis laurina</i>	Water Gum	10 x 8 m
Non-riparian planting <i>Characteristics - Strong double avenue of deciduous street tree planting</i>		
<i>Agathis robusta</i>	Queensland Kauri Pine	20 x 10 m
<i>Flindersia australis</i>	Crows Ash	15 x 7 m
<i>Malus ionensis</i> 'Plena'	Bechtel's Crabapple	6 x 5 m
<i>Pyrus calleryana</i>	Chanticleer	8 x 5 m
<i>Tristaniopsis laurina</i>	Water Gum	10 x 8 m





## 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.
- Three zones of distinct planting with common elements:
    1. Entry zone – Strong avenue of deciduous and evergreen tree planting.
    2. Creek zone – Evergreen riparian planting to the median and southern edge.
    3. Commercial zone – to extend the contemporary planting themes at Hearing Hub, street tree planting to continue as a strong avenue.

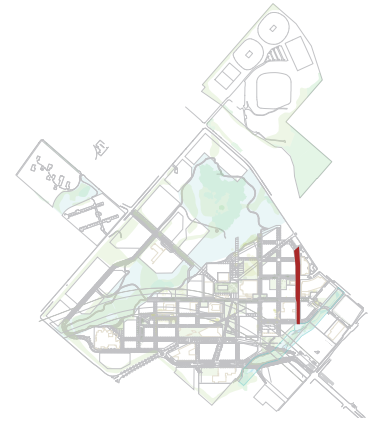


## LEGEND

OPEN SPACE / PUBLIC DOMAIN	PRIMARY PEDESTRIAN LINK	WATER SENSITIVE URBAN DESIGN (WSUD)	SIGNIFICANT TREES TO BE RETAINED
EXISTING BUILDING TO BE RETAINED	SECONDARY PEDESTRIAN LINK	SOLAR ACCESS TO OPEN SPACE	SIGNIFICANT TREES TO BE RETAINED IF POSSIBLE
NEW BUILDING PROPOSED WITHIN MASTERPLAN	GREEN LINKS	IMPORTANT VIEW CORRIDORS	EDGE TREATMENT
LOT BOUNDARIES	GROUND FLOOR ACTIVATION		



### 3. PUBLIC DOMAIN



#### 3.8.2 Research Park Drive

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

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

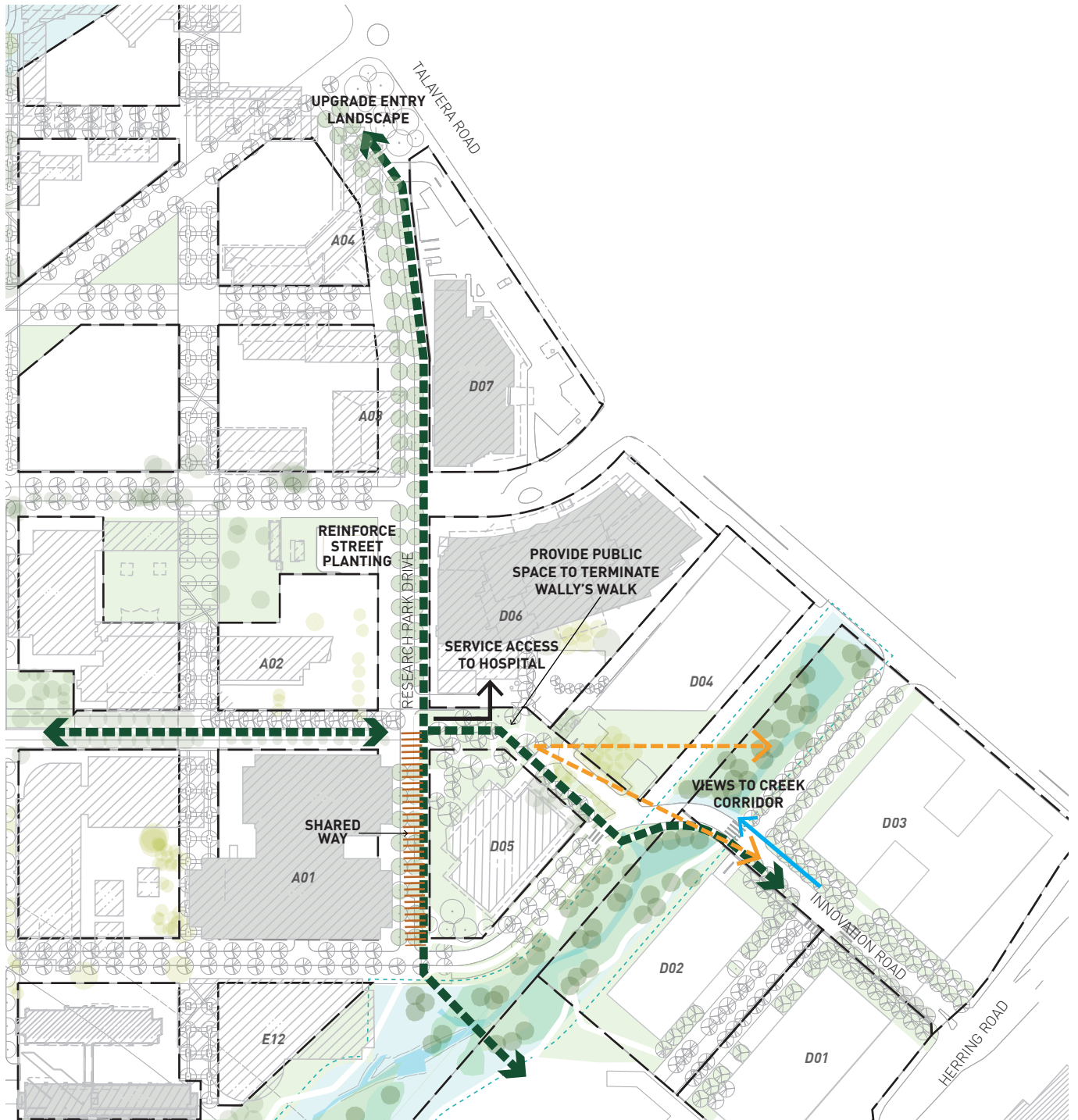
#### Principles

- Closure of the road at University Creek to improve amenity and safety for pedestrians walking to and from the train station.
  - New footpaths and landscaping to both sides.
  - Extensive planting.
  - Redevelopment of carpark sites as new academic buildings with potential for parking below.
  - Create a strong green corridor to frame the campus core and provide a visual boundary.
  - Provision of a shared way environment in the southern section between A01 and D05.
- 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.
  - Upgrade landscape adjacent to the Talavera Road entry.

#### Tree Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
<i>Characteristics - Dark green foliage, dense crown, complimentary to creek vegetation</i>		
<i>Flindersia australis</i>	Crows Ash	10 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
<i>Acmena smithii</i>	Lilly Pilly	10 x 6 m
<i>Toona ciliata</i>	Red Cedar	20 x 10 m
<i>Waterhousia floribunda</i> 'Green Avenue'	Green Avenue Lilly Pilly	15 x 9 m

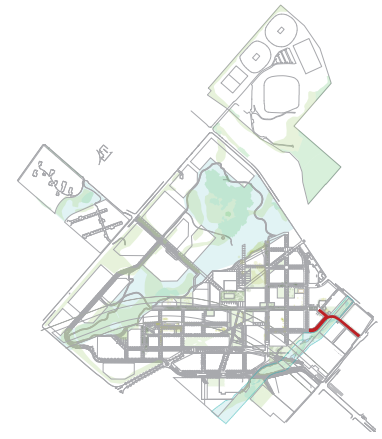




**LEGEND**

- |   |                           |                                     |  |
|---|---------------------------|-------------------------------------|--|
| OPEN SPACE / PUBLIC DOMAIN              | PRIMARY PEDESTRIAN LINK   | WATER SENSITIVE URBAN DESIGN (WSUD) | SIGNIFICANT TREES TO BE RETAINED             |
| EXISTING BUILDING TO BE RETAINED        | SECONDARY PEDESTRIAN LINK | SOLAR ACCESS TO OPEN SPACE          | SIGNIFICANT TREES TO BE RETAINED IF POSSIBLE |
| NEW BUILDING PROPOSED WITHIN MASTERPLAN | GREEN LINKS               | IMPORTANT VIEW CORRIDORS            | EDGE TREATMENT                               |
| LOT BOUNDARIES                          | GROUND FLOOR ACTIVATION   | 0 25 50m                            |  |

### 3. PUBLIC DOMAIN



#### 3.8.3 Innovation Road

As new development is delivered in Precinct D and the population increases, there will be increased demands on the public domain.

Four key initiatives have been identified:

- The realignment of Innovation Road along the creek edge south of Lot D05.
- The widening of the footpath zone at Lot D03 to improve pedestrian amenity and connections from the Hospital to Herring Road.
- Upgrade of Wally's Walk

adjacent to the Hospital to better terminate this important axis with an outlook to the University Creek corridor and to improve accessible links down to Innovation Road.

- Provision of a secondary road between D01 and D02.

#### Principles

- Improve pedestrian access along Innovation Road and connection to Wally's Walk.
- Explore opportunities for the realigned road to contribute to the biodiversity in the University Creek corridor, for instance by

using endemic creek species as street trees in proximity to the creek.

- Provide tall evergreen tree planting to reduce the visual impact of the building and strengthen the connection to University Creek.
- Upgrade creek pathway to the south of Innovation Road to create a continuous path.



#### Tree Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
<i>Corymbia maculata</i>	Spotted Gum	25 x 12 m
<i>Waterhousia floribunda</i>	Weeping Lilly Pilly	18 x 12 m

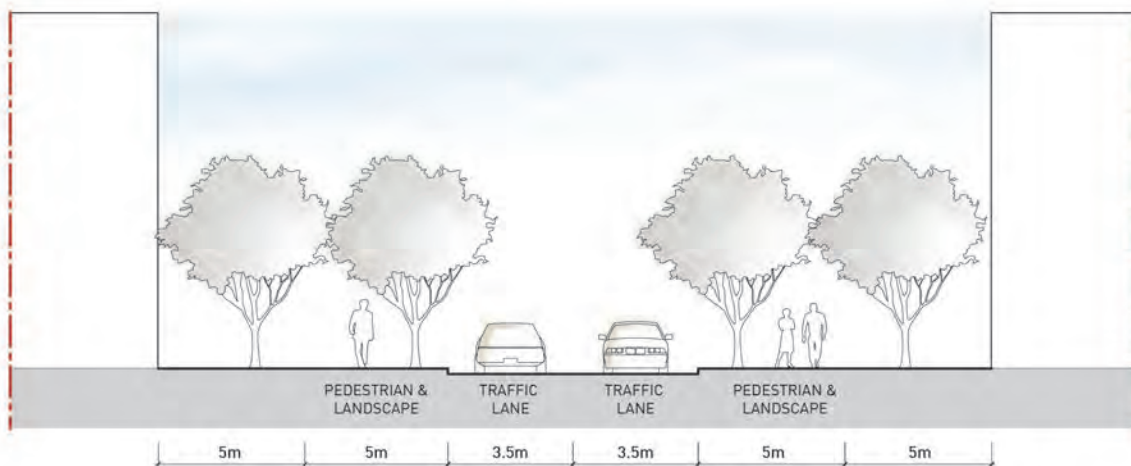


FIGURE 26: SECTION THROUGH INNOVATION ROAD

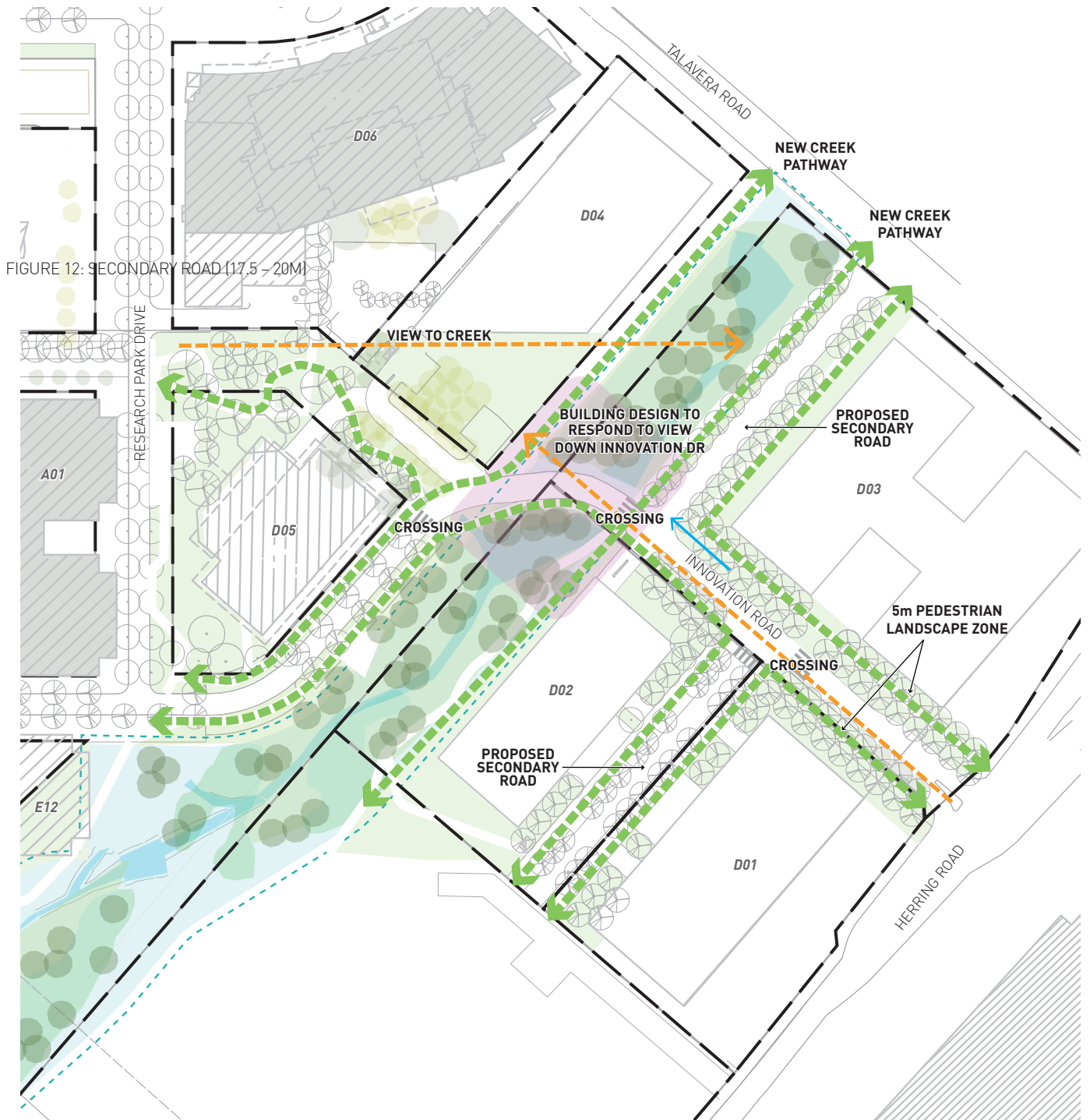


FIGURE 12: SECONDARY ROAD (17.5 - 20M)

LEGEND

- |   |                           |                                     |  |
|---|---------------------------|-------------------------------------|--|
| OPEN SPACE / PUBLIC DOMAIN              | PRIMARY PEDESTRIAN LINK   | WATER SENSITIVE URBAN DESIGN (WSUD) | SIGNIFICANT TREES TO BE RETAINED             |
| EXISTING BUILDING TO BE RETAINED        | SECONDARY PEDESTRIAN LINK | SOLAR ACCESS TO OPEN SPACE          | SIGNIFICANT TREES TO BE RETAINED IF POSSIBLE |
| NEW BUILDING PROPOSED WITHIN MASTERPLAN | GREEN LINKS               | IMPORTANT VIEW CORRIDORS            | EDGE TREATMENT                               |
| LOT BOUNDARIES                          | GROUND FLOOR ACTIVATION   |                                     |  |



### 3. PUBLIC DOMAIN



#### 3.8.4 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.

#### Principles

- Ensure the footprint of the road is kept to a minimum, particularly where it passes through the Mars Creek corridor.

#### Tree Schedule

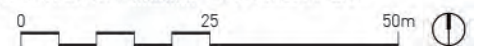
BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
<i>Characteristics - small, evergreen</i>		
<i>Backhousia myrtifolia</i>	Grey Myrtle	6 x 4 m
<i>Cupaniopsis anacardioides</i>	Tuckeroo	8 x 6 m
<i>Tristaniopsis laurina</i> 'Luscious'	Water Gum	10 x 8 m
<i>Waterhousia floribunda</i> 'Green Avenue'	Green Avenue Lilly Pilly	15 x 9 m





**LEGEND**

 OPEN SPACE / PUBLIC DOMAIN	 PRIMARY PEDESTRIAN LINK	 WATER SENSITIVE URBAN DESIGN (WSUD)	 SIGNIFICANT TREES TO BE RETAINED
 EXISTING BUILDING TO BE RETAINED	 SECONDARY PEDESTRIAN LINK	 SOLAR ACCESS TO OPEN SPACE	 SIGNIFICANT TREES TO BE RETAINED IF POSSIBLE
 NEW BUILDING PROPOSED WITHIN MASTERPLAN	 GREEN LINKS	 IMPORTANT VIEW CORRIDORS	 EDGE TREATMENT
 LOT BOUNDARIES	 GROUND FLOOR ACTIVATION		



### 3. PUBLIC DOMAIN



## 3.9 SECONDARY ROADS

### 3.9.1 Eastern Road

Eastern Road currently serves as a secondary service road that is also heavily used by pedestrian traffic. Future works should improve the quality of this street using unit paving to designate it as a shared access route, levelling undulating levels at the southern end, removing open parking areas and screening service yards.

#### Tree Schedule

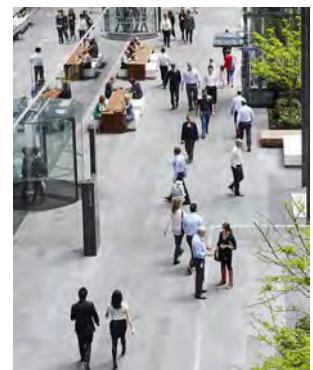
BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
<i>Characteristics – strengthen biodiversity connection between University Creek and Mars Creek</i>		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Eucalyptus paniculata</i>	Grey Ironbark	20 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m

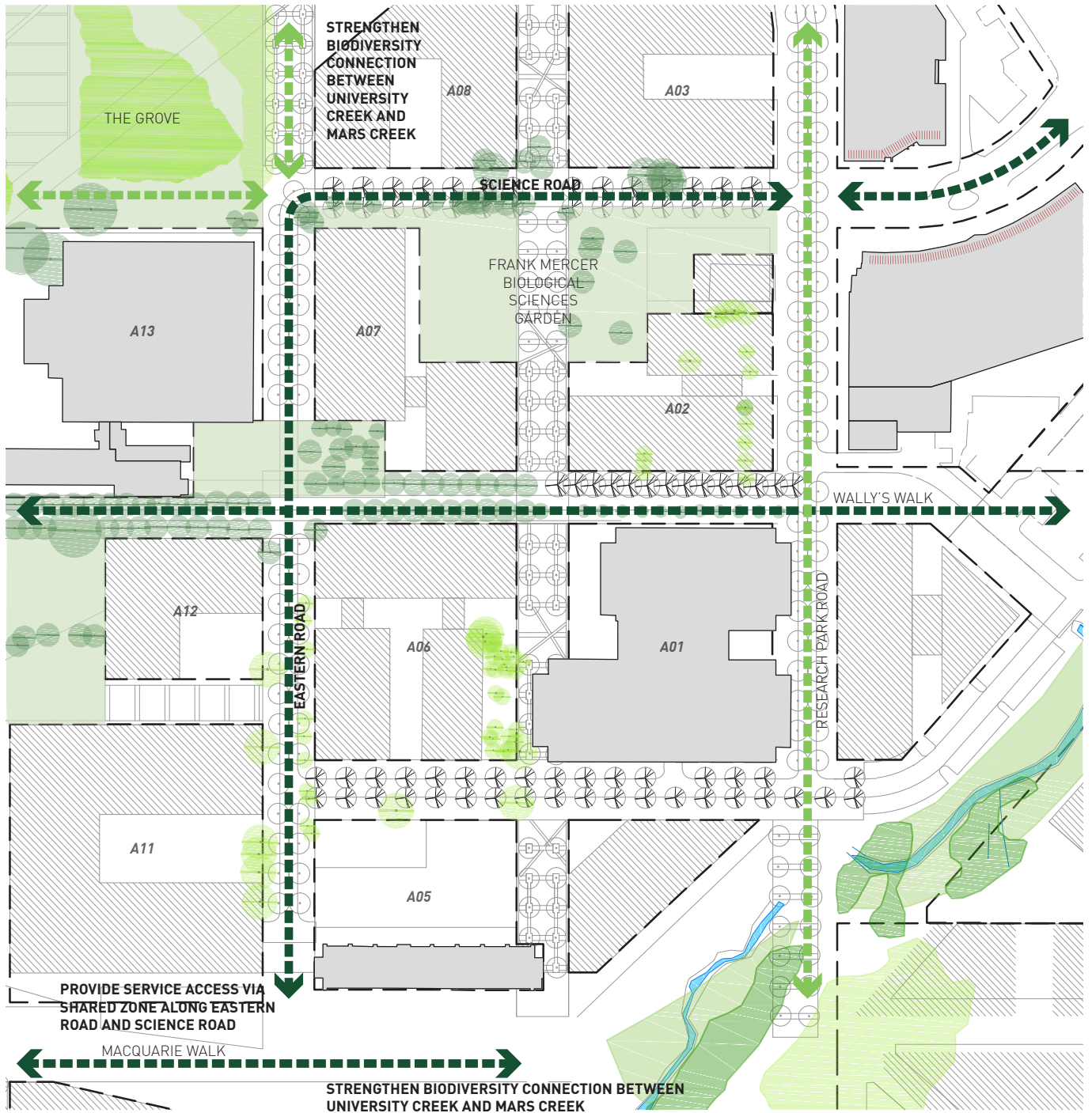
### 3.9.2 Science Road

Science Road currently serves as a secondary service road, also used heavily by pedestrian traffic. Future works should improve the quality of this street by developing it as a paved shared access route, removing open parking areas and screening of service yards.

#### Tree Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
<i>Characteristics – small, evergreen</i>		
<i>Backhousia myrtifolia</i>	Grey Myrtle	6 x 4 m
<i>Cupaniopsis anacardioides</i>	Tuckeroo	8 x 6 m
<i>Tristaniopsis laurina</i> 'Luscious'	Water Gum	10 x 8 m
<i>Waterhousia floribunda</i> 'Green Avenue'	Green Avenue Lilly Pilly	15 x 9 m



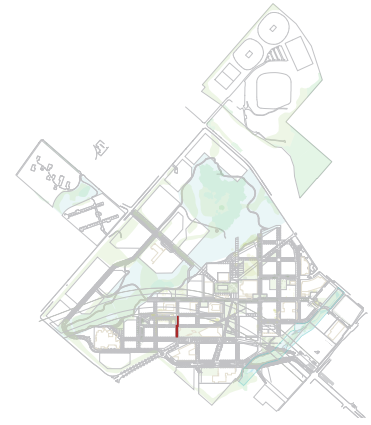


**LEGEND**

- |   |                           |                                     |  |
|---|---------------------------|-------------------------------------|--|
| OPEN SPACE / PUBLIC DOMAIN              | PRIMARY PEDESTRIAN LINK   | WATER SENSITIVE URBAN DESIGN (WSUD) | SIGNIFICANT TREES TO BE RETAINED             |
| EXISTING BUILDING TO BE RETAINED        | SECONDARY PEDESTRIAN LINK | SOLAR ACCESS TO OPEN SPACE          | SIGNIFICANT TREES TO BE RETAINED IF POSSIBLE |
| NEW BUILDING PROPOSED WITHIN MASTERPLAN | GREEN LINKS               | IMPORTANT VIEW CORRIDORS            | EDGE TREATMENT                               |
| LOT BOUNDARIES                          | GROUND FLOOR ACTIVATION   |                                     |  |



### 3. PUBLIC DOMAIN



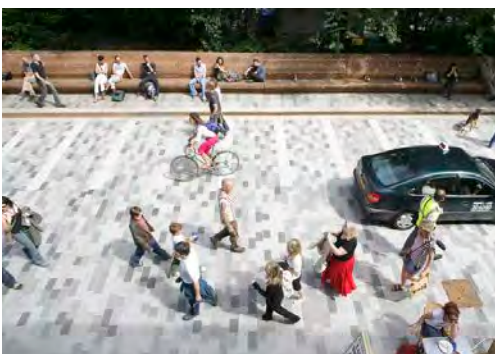
#### 3.9.3 Western Road

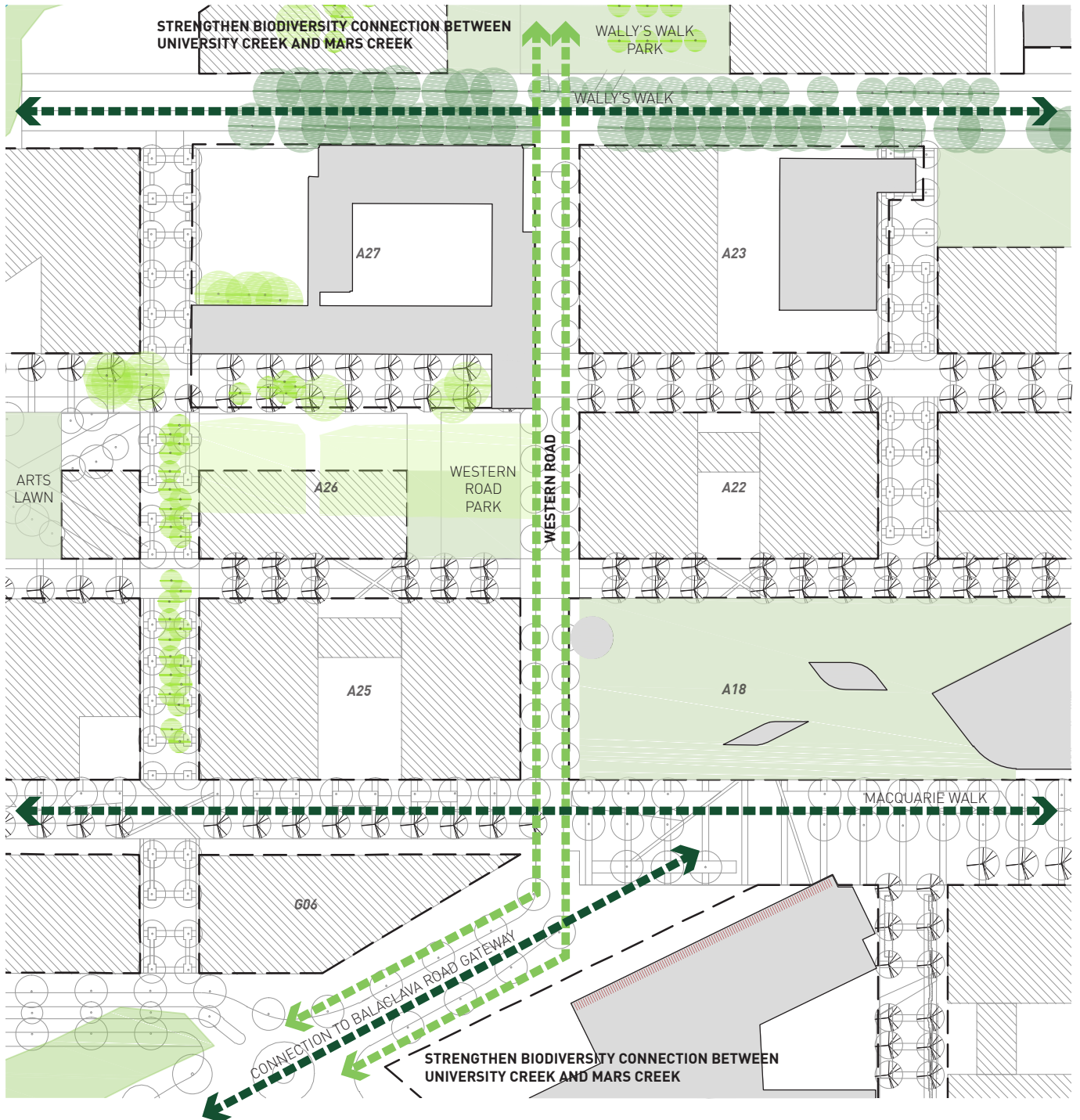
Western Road will be widened, straightened and paved areas upgraded. It should be a shared way with access for service vehicles only, with open parking areas removed and service yards screened.

Western Road also provides an opportunity to form a biodiversity corridor together with the buffer vegetation along the south-western boundary of the campus to create a north-south ecological connection between University Creek and Mars Creek. The planting palette of Western Road should therefore reflect the ecological communities of the creek corridors.

#### Tree Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
<i>Characteristics – strengthen biodiversity connection between University Creek and Mars Creek</i>		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Eucalyptus paniculata</i>	Grey Ironbark	20 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m





**LEGEND**

- |   |                           |                                     |  |
|---|---------------------------|-------------------------------------|--|
| OPEN SPACE / PUBLIC DOMAIN              | PRIMARY PEDESTRIAN LINK   | WATER SENSITIVE URBAN DESIGN (WSUD) | SIGNIFICANT TREES TO BE RETAINED             |
| EXISTING BUILDING TO BE RETAINED        | SECONDARY PEDESTRIAN LINK | SOLAR ACCESS TO OPEN SPACE          | SIGNIFICANT TREES TO BE RETAINED IF POSSIBLE |
| NEW BUILDING PROPOSED WITHIN MASTERPLAN | GREEN LINKS               | IMPORTANT VIEW CORRIDORS            | EDGE TREATMENT                               |
| LOT BOUNDARIES                          | GROUND FLOOR ACTIVATION   |                                     |  |



### 3. PUBLIC DOMAIN



#### 3.10 SHARED WAYS

A Shared Way is a road where the road space is shared safely by vehicles and pedestrians. The maximum speed limit is always 10 km/h. and vehicles must give way to pedestrians. The minimum trafficable width is 2.8 metres. The minimum total width of the corridor is 15 metres (refer Section 2.2.2 Figure 13). There are no road lines and no kerb or gutter in a Shared Zone to show that pedestrians and vehicles are equal. Drivers must give way to pedestrians at all times.

The pavement surface shall be changed to highlight the difference in the street environment from the surrounding road network. It must be clearly distinguishable by colour, texture and materials.

At the entrance and exit points there is usually a raised threshold to bring the road surface and pedestrian surface levels together, and prominent features such as signs, architectural or landscape features must be provided to indicate a change in the street environment and highlight the start / end of the scheme.

Traffic calming or a suitable treatment must also be provided to reduce speeds within the zone. Other features such as architectural and landscaping may also be provided to enhance the scheme.

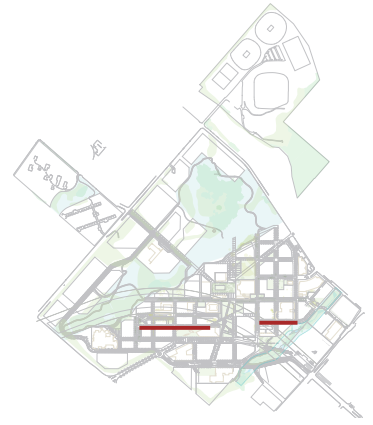
Provide deciduous trees for summer shade and winter sun. The size and species of all proposed trees should

be selected to respect the scale of the surrounding buildings and the width of the shared way.

#### Tree Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
<i>Pistacia chinensis</i>	Chinese pistachio	8 x 6 m
<i>Acer freemanii</i> 'Jeffersred'	Autumn Blaze	13 x 10 m
<i>Lagerstroemia</i> 'Natchez'	Crepe Myrtle "White"	6 x 4 m
<i>Malus ioensis</i>	Bechtel's Crab Apple	5 x 3.5 m





### 3.11 SECONDARY PEDESTRIAN CONNECTIONS

#### 3.11.1 Secondary East-West Pedestrian Connections

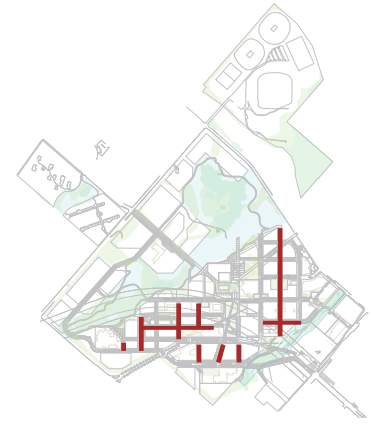
The existing network of minor links will be formalised and upgraded across the campus. These pedestrian spaces will have a simple central path with a zone for landscape buffers and open spaces on either side.

##### Tree Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
<i>Characteristics - small, deciduous</i>		
<i>Pistacia chinensis</i>	Chinese pistachio	8 x 6 m
<i>Pyrus ussuriensis</i>	Manchurian Pear	9 x 7 m
<i>Ulmus parvifolia</i>	Chinese Elm	10 x 11 m



### 3. PUBLIC DOMAIN

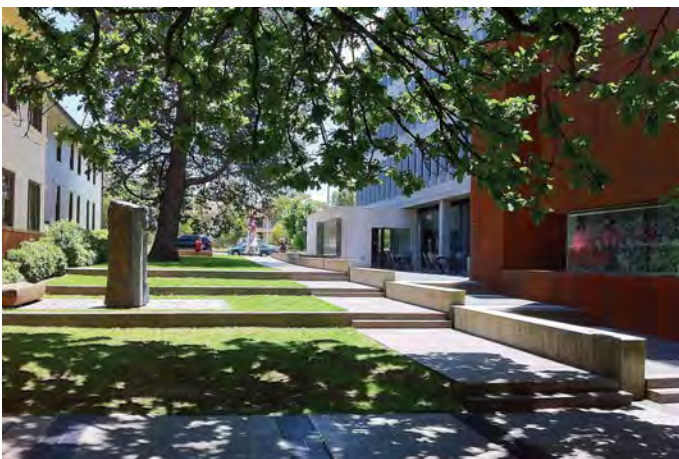


#### 3.11.2 Secondary North-South Pedestrian Connections

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.

#### Tree Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
<i>Characteristics - small, evergreen</i>		
<i>Backhousia myrtifolia</i>	Grey Myrtle	6 x 4 m
<i>Cupaniopsis anacardioides</i>	Tuckeroo	8 x 6 m
<i>Flindersia australis</i>	Crows Ash	10 x 8 m
<i>Tristaniopsis laurina</i> 'Luscious'	Water Gum	10 x 8 m
<i>Waterhousia floribunda</i> 'Green Avenue'	Green Avenue Lilly Pilly	15 x 9 m



### 3.12 PLANTING SCHEDULES

The campus will be defined by open space planting and tree lined avenues that soften and scale the built areas of the public domain.

The proposed road reserves have been designed to prioritise pedestrians, then cyclists, public transport and lastly private vehicles. The landscape design of each streetscape has given way to this hierarchy

#### Primary Public Domain Spines Planting Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
Wally's Walk		
<i>Platanus x acerifolia</i>	London Plane	14 x 10 m
Macquarie Walk		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Nyssa sylvatica</i>	Black Gum	11 x 6 m
<i>Pyrus ussuriensis</i>	Manchurian Pear	9 x 7 m
<i>Ulmus parvifolia</i>	Chinese Elm	10 x 11 m
Sir Christopher Ondaatje Avenue		
<i>Flindersia australis</i>	Crows Ash	10 x 8 m
<i>Syzygium smithii</i>	Narrow-Leaved Lilly Pilly	10 x 6 m
<i>Toona ciliata</i>	Red Cedar	20 x 10 m
<i>Waterhousia floribunda</i> 'Green Avenue'	Green Avenue Lilly Pilly	15 x 9 m

#### Primary Parks and Plazas Planting Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
The University Common		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Corymbia citriodora</i>	Lemon Scented Gum	20 x 10 m
<i>Pyrus ussuriensis</i>	Manchurian Pear	9 x 7 m
<i>Sapium sebiferum</i>	Chinese Tallow	8 x 8 m
The Central Courtyard		
<i>Corymbia citriodora</i>	Lemon Scented Gum	20 x 10 m
The Grove (East Common)		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Eucalyptus crebra</i>	Narrow-Leaved Ironbark	20 x 10 m
<i>Eucalyptus fibrosa</i>	Red Ironbark	20 x 10 m
<i>Eucalyptus notabilis</i>	Mountain Mahogany	20 x 10 m
<i>Eucalyptus paniculata</i>	Grey Ironbark	20 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
Arts Lawn (West Common)		
<i>Brachychiton acerifolius</i>	Illawarra Flame Tree	10 x 8 m
<i>Jacaranda mimosifolia</i>	Jacaranda	12 x 10 m
<i>Pyrus ussuriensis</i>	Manchurian Pear	9 x 7 m
<i>Waterhousia floribunda</i> 'Green Avenue'	Green Avenue Lilly Pilly	15 x 9 m

### 3. PUBLIC DOMAIN

#### Secondary Parks and Plazas Planting Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
Frank Mercer Biological Sciences Garden		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Eucalyptus crebra</i>	Narrow-Leaved Ironbark	20 x 10 m
<i>Eucalyptus fibrosa</i>	Red Ironbark	20 x 10 m
<i>Eucalyptus notabilis</i>	Mountain Mahogany	20 x 10 m
<i>Eucalyptus paniculata</i>	Grey Ironbark	20 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
Jim Rose Earth Sciences Garden		
<i>Araucaria cunninghamii</i>	Hoop Pine	25 x 10 m
<i>Araucaria heterophylla</i>	Norfolk Island Pine	25 x 10 m
<i>Buckinghamia celsissima</i>	Ivory Curl Tree	8 x 6 m
<i>Protea caffra</i>	Common Sugar Bush	5 x 5 m
Mars Creek Plaza, Wally's Walk Park		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Corymbia maculata</i>	Spotted Gum	20 x 10 m
<i>Pyrus ussuriensis</i>	Manchurian Pear	9 x 7 m
<i>Ulmus parvifolia</i>	Chinese Elm	10 x 11 m
Western Road Park		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Eucalyptus paniculata</i>	Grey Ironbark	20 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
Macquarie Theatre Courtyard, Faculty of Science Garden, Cochlear Forecourt		
<i>Brachychiton acerifolius</i>	Illawarra Flame Tree	10 x 8 m
<i>Jacaranda mimosifolia</i>	Jacaranda	12 x 10 m
<i>Pyrus ussuriensis</i>	Manchurian Pear	9 x 7 m
<i>Waterhousia floribunda</i> 'Green Avenue'	Green Avenue Lilly Pilly	15 x 9 m
Library Lawn		
<i>Eucalyptus haemastoma</i>	Scribbly Gum	15 x 10 m
<i>Eucalyptus microcorys</i>	Tallowwood	20 x 10 m
<i>Eucalyptus saligna</i>	Sydney Blue Gum	20 x 10 m

### Creek Corridors and Parklands Planting Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
University Creek		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Allocasuarina littoralis</i>	Black She-Oak	8 x 4 m
<i>Allocasuarina torulosa</i>	Forest Oak	8 x 4 m
<i>Ceratopetalum apetalum</i>	Coachwood	12 x 8 m
<i>Eucalyptus globoidea</i>	White Stringybark	20 x 10 m
<i>Eucalyptus paniculata</i>	Grey Ironbark	20 x 10 m
<i>Eucalyptus saligna</i>	Sydney Blue Gum	20 x 10 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
<i>Synoum glandulosum</i>	Scentless Rosewood	8 x 4 m
<i>Tristaniopsis laurina</i>	Water Gum	7 x 5 m
Mars Creek		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Corymbia maculata</i>	Spotted Gum	20 x 10 m
<i>Eucalyptus crebra</i>	Narrow-Leaved Ironbark	20 x 10 m
<i>Eucalyptus eugenioides</i>	Thin-Leaved Stringybark	20 x 10 m
<i>Eucalyptus fibrosa</i>	Red Ironbark	20 x 10 m
<i>Eucalyptus globoidea</i>	White Stringybark	20 x 10 m
<i>Eucalyptus notabilis</i>	Mountain Mahogany	15 x 10 m
<i>Eucalyptus paniculata</i>	Grey Ironbark	20 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
Culloden Creek		
<i>Eucalyptus crebra</i>	Narrow-Leaved Ironbark	20 x 10 m
<i>Eucalyptus eugenioides</i>	Thin-Leaved Stringybark	20 x 10 m
<i>Eucalyptus fibrosa</i>	Red Ironbark	20 x 10 m
<i>Eucalyptus globoidea</i>	White Stringybark	20 x 10 m
<i>Eucalyptus paniculata</i>	Grey Ironbark	20 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Eucalyptus resinifera</i>	Red Mahogany	25 x 10 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m

### 3. PUBLIC DOMAIN

#### Sports Fields Planting Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
Macquarie University Sports Fields		
<i>Angophora costata</i> *	Smooth-Barked Apple	15 x 10 m
<i>Corymbia gummifera</i> *	Red Bloodwood	25 x 10 m
<i>Eucalyptus haemastoma</i> *	Broad-Leaved Scribbly Gum	15 x 10 m
<i>Eucalyptus piperita</i> *	Sydney Peppermint	20 x 10 m
<i>Eucalyptus racemosa</i>	Scribbly / Snappy Gum	20 x 10 m
<i>Eucalyptus sclerophylla</i> *	Hard-Leafed Scribbly Gum	20 x 10 m
<i>Eucalyptus squamosa</i> *	Scaly Bark	12 x 7 m

\* denotes species from the broader Sydney Sandstone Ridge-top Woodland community.

#### Campus Gateways Planting Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
Herring Road Gateway		
<i>Agathis robusta</i>	Queensland Kauri Pine	20 x 10 m
<i>Malus ionensis</i> 'Plena'	Bechtel's Crabapple	6 x 5 m
<i>Pyrus calleryana</i>	Chanticleer	8 x 5 m
<i>Syzygium anisata</i>	Ringwood	12 x 6 m
<i>Tristaniopsis laurina</i>	Water Gum	7 x 5 m
Balaclava Road Gateway		
<i>Corymbia maculata</i>	Spotted Gum	20 x 10 m
<i>Eucalyptus pilularis</i>	Blackbutt	20 x 10 m
<i>Eucalyptus saligna</i>	Sydney Blue Gum	20 x 10 m
Gymnasium Road Gateway		
<i>Brachychiton acerifolius</i>	Illawarra Flame Tree	10 x 8 m
<i>Jacaranda mimosifolia</i>	Jacaranda	12 x 10 m
Talavera Road Gateway – adjoining open space		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Corymbia maculata</i>	Spotted Gum	20 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
Talavera Road Gateway – street trees		
<i>Koelreuteria paniculata</i>	Golden Rain Tree	7 x 7 m
<i>Pyrus ussuriensis</i>	Manchurian Pear	9 x 7 m

### Shared Services Roads Planting Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
Eastern Road <i>Characteristics – Strengthen biodiversity connection between University Creek and Mars Creek</i>		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Eucalyptus paniculata</i>	Grey Ironbark	20 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
Science Road <i>Characteristics – Small, evergreen</i>		
<i>Backhousia myrtifolia</i>	Grey Myrtle	6 x 4 m
<i>Cupaniopsis anacardiodes</i>	Tuckeroo	8 x 6 m
<i>Tristaniopsis laurina</i> 'Luscious'	Water Gum	10 x 8 m
<i>Waterhousia floribunda</i> 'Green Avenue'	Green Avenue Lilly Pilly	15 x 9 m
Western Road <i>Characteristics – Strengthen biodiversity connection between University Creek and Mars Creek</i>		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Eucalyptus paniculata</i>	Grey Ironbark	20 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m

### Primary Internal Roads Planting Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
University Avenue (University Creek riparian planting) <i>Characteristics - Evergreen riparian planting to the median, complimentary to creek vegetation, no planting along creek frontage</i>		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Allocasuarina littoralis</i>	Black She-Oak	8 x 4 m
<i>Ceratopetalum apetalum</i>	Coachwood	12 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
<i>Synoum glandulosum</i>	Scentless Rosewood	8 x 4 m
<i>Tristaniopsis laurina</i>	Water Gum	10 x 8 m
University Avenue (non-riparian planting) <i>Characteristics - Strong double avenue of deciduous street tree planting</i>		
<i>Agathis robusta</i>	Queensland Kauri Pine	20 x 10 m
<i>Flindersia australis</i>	Crows Ash	15 x 7 m
<i>Malus ionensis</i> 'Plena'	Bechtel's Crabapple	6 x 5 m
<i>Pyrus calleryana</i>	Chanticleer	8 x 5 m
<i>Tristaniopsis laurina</i>	Water Gum	10 x 8 m

### 3. PUBLIC DOMAIN

#### Primary Internal Roads Planting Schedule (continued)

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
Research Park Drive <i>Characteristics - Dark green foliage, dense crown, complimentary to creek vegetation</i>		
<i>Flindersia australis</i>	Crows Ash	10 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
<i>Toona ciliata</i>	Red Cedar	10 x 6 m
<i>Acmena smithii</i>	Lilly Pilly	18 x 12 m
<i>Waterhousia floribunda</i> 'Green Avenue'	Green Avenue Lilly Pilly	15 x 9 m
Innovation Road <i>Characteristics - Dark green foliage, dense crown, complimentary to creek vegetation</i>		
<i>Angophora costata</i>	Smooth-Barked Apple	15 x 10 m
<i>Eucalyptus punctata</i>	Grey Gum	15 x 8 m
<i>Syncarpia glomulifera</i>	Turpentine	25 x 12 m
<i>Corymbia maculata</i>	Spotted Gum	25 x 12 m
<i>Waterhousia floribunda</i>	Weeping Lilly Pilly	18 x 12 m
Western Precinct Road <i>Characteristics - Small, evergreen</i>		
<i>Backhousia myrtifolia</i>	Grey Myrtle	6 x 4 m
<i>Cupaniopsis anacardioides</i>	Tuckeroo	8 x 6 m
<i>Tristaniopsis laurina</i> 'Luscious'	Water Gum	10 x 8 m
<i>Waterhousia floribunda</i> 'Green Avenue'	Green Avenue Lilly Pilly	15 x 9 m

### Secondary East-West Links Planting Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
Secondary East-West Streets <i>Characteristics – Small, deciduous</i>		
<i>Pistacia chinensis</i>	Chinese pistachio	8 x 6 m
<i>Pyrus ussuriensis</i>	Manchurian Pear	9 x 7 m
<i>Ulmus parvifolia</i>	Chinese Elm	10 x 11 m

### Secondary North-South Links Planting Schedule

BOTANICAL NAME	COMMON NAME	MATURE SIZE (H x W)
Secondary North-South Streets <i>Characteristics – Small, evergreen</i>		
<i>Backhousia myrtifolia</i>	Grey Myrtle	6 x 4 m
<i>Cupaniopsis anacardioides</i>	Tuckeroo	8 x 6 m
<i>Flindersia australis</i>	Crows Ash	10 x 8 m
<i>Tristaniopsis laurina</i> 'Luscious'	Water Gum	10 x 8 m
<i>Waterhousia floribunda</i> 'Green Avenue'	Green Avenue Lilly Pilly	15 x 9 m

### 3. PUBLIC DOMAIN

#### 3.13 WATER MANAGEMENT

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Water management strategies across the campus have been developed to improve both the flow of water on the site and its quality.

A number of principles and objectives have been identified:

- The identification and control of flood and public safety issues.
- Limitation of frequent creek flows and creek flow velocities to avoid creek bed/bank erosion and sedimentation.
- Enhanced ecological health and biodiversity within the riparian corridors.
- Integration of bio-retention systems with the overall landscape strategy for the campus.
- Enhancement of visual amenity.
- Intergenerational equity attained through the provision of a healthy, functioning riparian corridor.
- Provision of site based, street level and corridor edge bio-retention systems.
- Extensive vegetation of lots and streetscapes.
- Provision of extensive deep rooted vegetation in strategic areas.

#### Flood Management

Extensive studies have been undertaken on the performance and management of University Creek. The plan formulated by TTW seeks to manage flows within the creek corridor and develop solutions that are environmentally and hydrologically sustainable.

Modifications in the creek zone have been designed to manage flood conditions, at Talavera Road in particular, while ensuring that low flow figures for 5-year storm events are not increased.

Two other stakeholders have been consulted in the process – the New South Wales Office of Water and the City of Ryde.

The New South Wales Office of Water has confirmed that their objectives are to achieve the following:

- Soft engineering solutions.
- Bank stabilisation with emphasis on fully structured planting solutions.
- Protection of endangered communities.
- Extent of in-stream storage to remain neutral.
- Existing inlets to be addressed to limit erosion.
- Proposed relocation of stream course not an issue.

Ryde Council's particular areas of interest are reducing flooding over Council assets and water quality and biodiversity.

Key outcomes of the strategy are:

- Raising in-stream storage capacity generally and reducing flows rates at crossings.
- Raising the level of University Avenue at the creek crossing to allow management of flows in the creek corridor.
- Raised crossing levels to limit overflow at crossings.
- Return creek reaches to natural wetland environment.
- Reconfigure existing stormwater outflow pipes throughout the creek where undercut by water flows and cause erosion.
- Localised widening of the creek to maintain low velocities and enable in-stream planting with no change proposed to stream depth.

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### **Water Sensitive Urban Design**

The proposed stormwater management strategy focuses on minimising the impacts of development on the total water cycle and maximising the environmental, social and economic benefits achievable by adopting responsible and sustainable stormwater management practices. The stormwater management strategy consists of the following elements.

#### **On Lot Treatments**

Adoption of appropriate waterwise landscaping practices and maximisation of pervious areas.

On-site stormwater detention in accordance with Council's DCP requirements.

### **Street Level Treatments**

Gross pollutant traps will be used on all site outlets to remove litter and vegetative matter, and 80% of sediment load. This strategy keeps litter and sediment out of the bio-retention swales and the University Creek riparian corridor.

#### **Bio-Retention Systems**

Selected zones of bio-retention swales and "raingardens" will be integrated within targeted open space areas to achieve nutrient reductions. They will also function to assist in detaining first flush flows to replicate the natural wetting and drying regime discharging to University Creek and Mars Creek Corridors.

### **Edge Treatments**

Additional bio-retention systems are proposed along the edge of corridor perimeter roads to attain higher than nominated Council nutrient reductions. They are to be integrated with the riparian corridor as an edge buffer.

The above treatments form a treatment train to reduce sediment and nutrient loads to meet Council's stormwater quality targets.

## 3. PUBLIC DOMAIN

### 3.14 LIGHTING, SAFETY AND SECURITY

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Successful precincts work both during the day and at night with lighting a crucial element that both attracts people and helps navigate precincts. Very often, the highest usage is actually after hours and it is essential that lighting is functional and inviting.

Energy efficiency in light selection and operation will be important to the sustainability goals of the University.

There are three areas where lighting plays a role:

#### Identity

Lighting can reinforce the identity and character of an area or precinct at night. Through effects, lighting can highlight key elements or simply unify a precinct through a common approach.

#### Safety

Security lighting is essential. Lighting main circulation paths and adjoining areas so that there are no dark spots or shadows that could harbour threats will add to the enjoyment of users.

#### Variety

Lighting can be used to change the character and mood of a place on a seasonal or special event purpose. The lighting of elements to reflect a holiday or season is an effective and popular device to add variety or interest to a place.

A number of principles have been identified. These include:

#### Precinct Lighting

In order to unify the precinct, a common lighting colour is proposed.

#### Iconic Building Lighting

The lighting of key building facades reinforces the University's identity and creates landmarks within the campus. Selected buildings can be lit with coloured lights to emphasise entry points.

Illuminated advertising is not permitted.

#### Approach Lighting

The introduction of specialised lighting on the approaches to entry points reinforces the sense of the precinct as a unique place. This sense of identity and anticipation will enhance the experience and perception of all precincts.

#### Open Space Lighting

Each space will have its own character and identity and lighting of these spaces at night for safety and legibility is important whether they are in use or not.

Pedestrian zones can use animated or moving projections over horizontal (and some vertical) planes.

Temporary lighting can also be used before and during special events to further highlight the occasion.

Each space will have the minimum level of security lighting needed through the later night hours.

Solar lighting is encouraged.

#### Street Lighting

Street lighting shall be provided to at least City of Ryde standards. Metal halide lamps that provide a white light that better renders flesh tones are to be used across the campus.

Public lighting is divided into smart poles and pedestrian poles. Smart poles and pedestrian poles will be used for public lighting.

Bus shelters will have integrated lighting.

#### Security

Feeling safe and secure, even at night or when people are on their own, is important on the campus. Crime Prevention Through Environmental Design (CPTED) guidelines should be used for all developments and projects. It aims to reduce the opportunities for crime by increasing the effort and risks for offenders, as well as reducing the rewards.




Principles include:

- Occupied buildings with windows overlooking public spaces and streets.
- Quality street lighting, and lighting to public places, that enhances visibility and safety.
- Prominent, well-located and well-lit pedestrian entrances.
- Public places that attract people rather than discourage people from gathering.

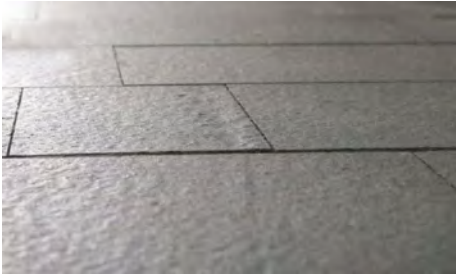


### 3.15 PAVING


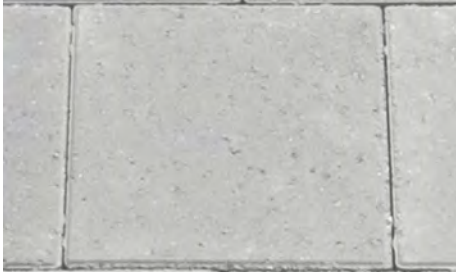

Paving materials in the precincts are to match existing campus areas. The paving will be patterned to delineate the different character and use of areas within the streetscape and public domain. The palette will be a mix of honed concrete pavers, insitu concrete paths and granite paving.

The surface treatments through the riparian corridor will take a softer organic approach and will consist of timber, sandstone and decomposed granite as juxtaposition to the urban campus environment.

LOCATION	PAVING TYPE	IMAGES	ADDITIONAL NOTES/ COMMENTS
<b>Primary public domain spines</b>			
<b>Wally's Walk</b>	Paving Body: <ul style="list-style-type: none"> <li>– Insitu coloured concrete with saw cut paving pattern to match existing Wally's Walk paving</li> </ul>	<i>Existing Wally's Walk Insitu concrete</i> 	All new paving works as per existing specifications.
<b>Macquarie Walk and Sir Christopher Ondaatje Avenue</b>	Paving Body: <ul style="list-style-type: none"> <li>– Insitu off-white concrete with exposed aggregate finish</li> <li>– Aggregate: 10mm Nepean River Gravel</li> <li>– Finish: Exposed aggregate</li> </ul> Header Course/Banding: <ul style="list-style-type: none"> <li>– 300 x 300mm precast concrete paver</li> <li>– Colour: Dark grey, equal to Adbri Masonry 'Charcoal'</li> <li>– Finish: Standard</li> </ul>	<i>Insitu concrete</i>  <i>Precast concrete paver</i> 	-

### 3. PUBLIC DOMAIN

LOCATION	PAVING TYPE	IMAGES	ADDITIONAL NOTES/ COMMENTS
<b>Campus gateways</b>			
All	Paving Body: <ul style="list-style-type: none"> <li>- Equal to G684 Black Fuding (dark grey) granite pavers</li> <li>- Finish: Flame exfoliated</li> <li>- Size: 600 x 300 x 60mm and 300 x 300 x 60mm</li> </ul>	<i>Black Fuding granite pavers</i> 	-
<b>Shared ways and service roads</b>			
All	Paving Body: <ul style="list-style-type: none"> <li>- Ecotrihex® 181 x 88 x 80mm</li> <li>- Colour: 'Charcoal'</li> <li>- Finish: Standard</li> </ul> Header Course/Banding: <ul style="list-style-type: none"> <li>- Ecotrihex® 181 x 88 x 80mm</li> <li>- Colour: 'Natural'</li> <li>- Finish: Standard</li> </ul>	<i>Ecotrihex® 'Charcoal'</i>   <i>Ecotrihex® 'Natural'</i> 	Unit paving to communicate shared spaces.

LOCATION	PAVING TYPE	IMAGES	ADDITIONAL NOTES/ COMMENTS
<b>Primary internal roads</b>			
All	Paving Body: <ul style="list-style-type: none"> <li>- Insitu asphaltic concrete paving</li> </ul> Header Course/Banding: <ul style="list-style-type: none"> <li>- 300 x 300mm precast concrete paver</li> <li>- Colour: Off-white or light grey, equal to Adbri Masonry 'Ivory'</li> <li>- Finish: Standard</li> </ul>	<p><i>Asphaltic concrete</i></p>  <p><i>Header course/banding</i></p> 	Header and body paving to pathways only.  Carriageway as per Engineers specifications.
<b>Secondary east-west and north-south links</b>			
All	Paving Body: <ul style="list-style-type: none"> <li>- Asphaltic concrete paving</li> </ul>	<p><i>Asphaltic concrete</i></p> 	-

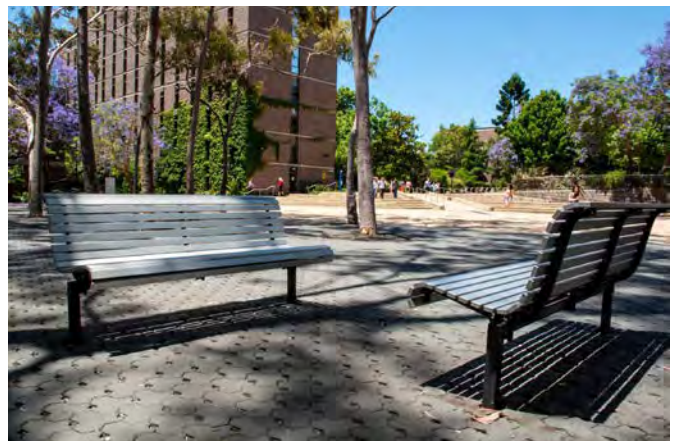
### 3. PUBLIC DOMAIN

#### 3.16 STREET FURNITURE

Although a relatively minor element of the campus landscape, street furniture has a significant influence on the experience of the public domain. A uniform suite of street furniture is to be used throughout the campus to ensure that the various precincts are integrated with a discrete background language. The palette of street furniture will need to include benches, tables, bins, bollards, bicycle racks, bubblers and water refill stations, tree pits/guards, lighting and bus shelters.

##### Street Furniture Principles

- High quality street furniture should provide a fresh and contemporary appearance appropriate to the environmental requirements of the campus.
  - Furniture should be robust, with minimal maintenance requirements and the ability to withstand heavy use.
  - Maintain consistent materials, layout and geometry in sourcing and installing street furniture.
- With the exception of individually designed elements, street furniture should be readily commercially available to ensure a consistent palette can be sourced in the future.
  - The suite of street furniture will need to include DDA compliant elements and options.
  - Minimise clutter by grouping streetscape elements together to maximise legibility and usability of the public domain.



### 3.17 PUBLIC ART

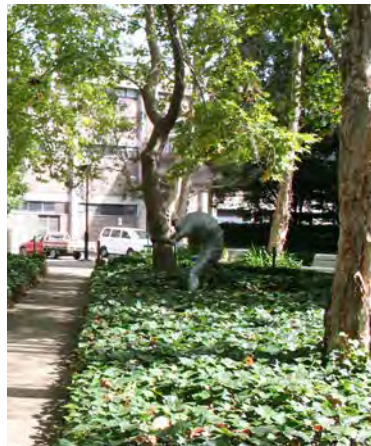
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Macquarie University is committed to the introduction of public art across the campus. The provision of public art within the campus is an important step to contributing to the identity of the campus' public domain and establishing a sense of 'place' at Macquarie University.

These installations will provide the visitors with an intellectual aspect to the environment to complete the cultural enrichment that can be gained by enjoying what the campus open spaces have to offer.

#### Public Art Principles

- Public artworks are to be integrated into the public domain.
- Artworks should provide interest, create engagement and be the expression of contemporary culture.
- A description of each artwork and its concept should accompany the artwork as a story of its installation.



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# 4

BUILT FORM

# 4. BUILT FORM

## 4.1 PRINCIPLES

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The success of the campus plan will be subject to the quality of development realised.

### Urban Form

Macquarie University's success as a built environment has been largely through the quality of its landscape and parkland setting. New development should be consistent with the overall identity of the campus while creating a distinct identity for key precincts.

The plan aims to maintain the overall character and environment of the campus. Principles underpinning the built form strategy are:

- Definition of major spaces by built form.
- Encourage consistent facade alignments on major thoroughfares, to reinforce the edges of major spaces.
- Focused activation of ground levels on major spaces with retail, cafes or student services.
- Buildings to have a clear address to either a road or a main open space.
- Locate tallest development at the train station.
- Increased height in the Academic Core to contain the size and increase the vitality of the Core.
- Preservation of solar access to key open spaces.
- Lower buildings located furthest from the train station.

The public domain will be defined through the creation of built edges to streets and open spaces.

A range of setback types including fixed build-to lines that define an 'urban edge' for high activity, high density environments, and minimum setbacks that allow more flexibility and can incorporate landscape for a less formal 'open space edge'.

The plan seeks to create a defined scale to the public domain through active podium edges with taller elements setback from street, open space and building edges. Articulation zones provide interest and variety as well as modulation in form, rhythm and scale.

### Design Outcomes

To meet these expectations, high quality design is required. Innovative design that maximises the potential of sites and their location must add to the overall quality and character of the campus.

Within this strong public domain setting, the challenge is to create a consistent built form approach that while reinforcing a common language, creates opportunities for diversity and variety within the campus. Just as the environment has played an important role in the public domain, new buildings on campus will be expected to adopt innovative environmental initiatives.

Key considerations for the new buildings are:

- Respond to the strong landscape setting.
- Adopt key built form elements that define the public domain.
- Allow for individual expression in building design within a common language of materials and finishes.
- Use colours and materials that are consistent and/or responsive to the design palette of common materials, colour and finishes within the precinct.
- Embody environmentally sensitive design principles.
- Ensure that building facades are environmentally responsive.
- Windows with northern, eastern and western aspects are to incorporate shading elements.



FIGURE 27: BUILDING DEFINITION

## 4. BUILT FORM

### 4.2 BUILDING HEIGHTS

As described in the Concept Plan, the key principles of building heights across the campus are:

- Highest development at the train station.
- Increase the height in the Academic Core to contain the size and increase the vitality of the Core.
- Preservation of solar access to key open spaces.

There are two levels of control on the building heights. The zone of development along Herring Road which falls under the Herring Road Priority Precinct has nominated maximum FSR and heights under the LEP, and the rest of the campus has 'Illustrative Heights' outlining the recommended heights proposed.

Controls to limit overshadowing of key open spaces are identified in individual lot controls. The definition of heights are taken from existing ground level.

At the Herring Road Gateway, heights are managed to create a symmetry around the Waterloo Road axis. The scale of the adjacent buildings is limited on the street frontage to create a human scale to the entry.

Roofs that are visible from surrounding buildings should be activated.

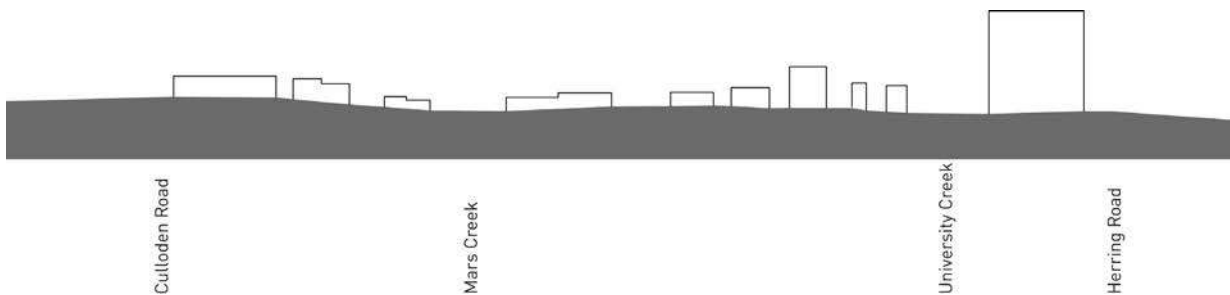


FIGURE 27: SECTION THROUGH CAMPUS SHOWING TOPOGRAPHY AND INDICATIVE BUILDING HEIGHTS

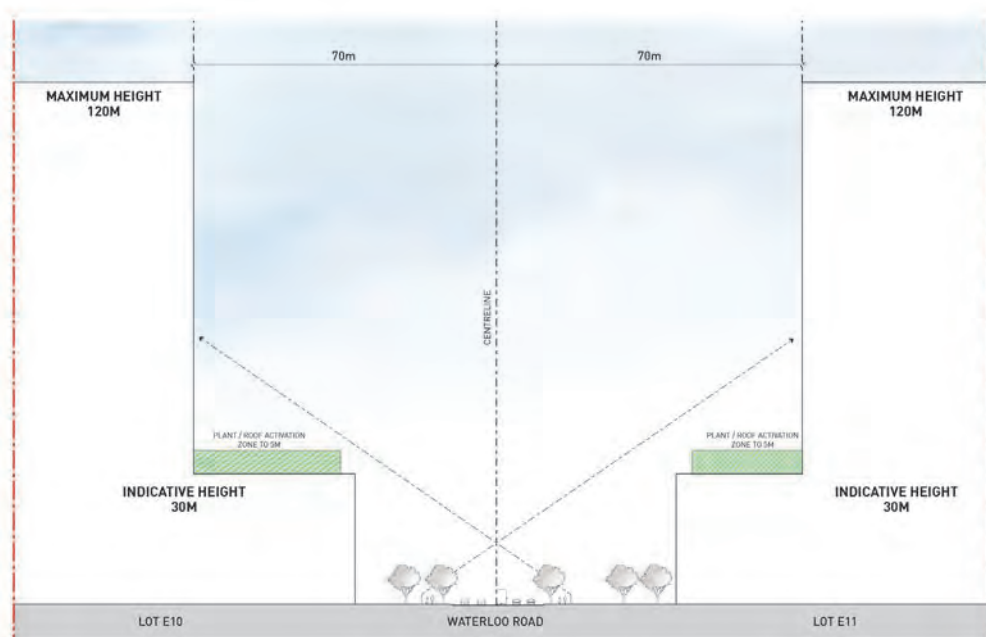


FIGURE 29: SECTION THROUGH HERRING ROAD GATEWAY AND MAXIMUM/INDICATIVE BUILDING HEIGHTS



FIGURE 30: INDICATIVE BUILDING HEIGHTS

## 4. BUILT FORM

### 4.3 ARTICULATION

The key architectural objective of the precinct guidelines is the development of a high quality architecture that responds appropriately to its environmental and site context. The development of a rich and interesting architecture on sites is dependent on both the massing of buildings and their detailing and articulation.

The key principles for the articulation of buildings across the campus are:

- Buildings must demonstrate contemporary expression and environmental responsiveness and function must respond to place, environment and the urban character of each precinct.
- Elements such as balconies and sun shading that create a sense of scale or rhythm on the facades are to be employed to add to the richness of the architectural expression.
- To mediate the level changes across a number of the sites, a masonry base (brick, stone or terracotta) is recommended on all sites.
- Building entries must be clearly articulated and be visible from the public domain.
- Building articulation is to be generated 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.

#### Basements

With significant level changes occurring across a number of sites, the treatment of basement parking and the design resolution of these frontages to major pedestrian spaces is an important issue.

Designs are to ensure:

- Minimise the extent of parking levels that extend above grade.
- Basement parking on commercial and academic buildings should not extend by more than one level above adjoining grade levels.
- All parking to be screened where possible by active uses or by high quality facades.
- Treatment of frontages to major pedestrian spaces to ensure a high quality pedestrian experience.



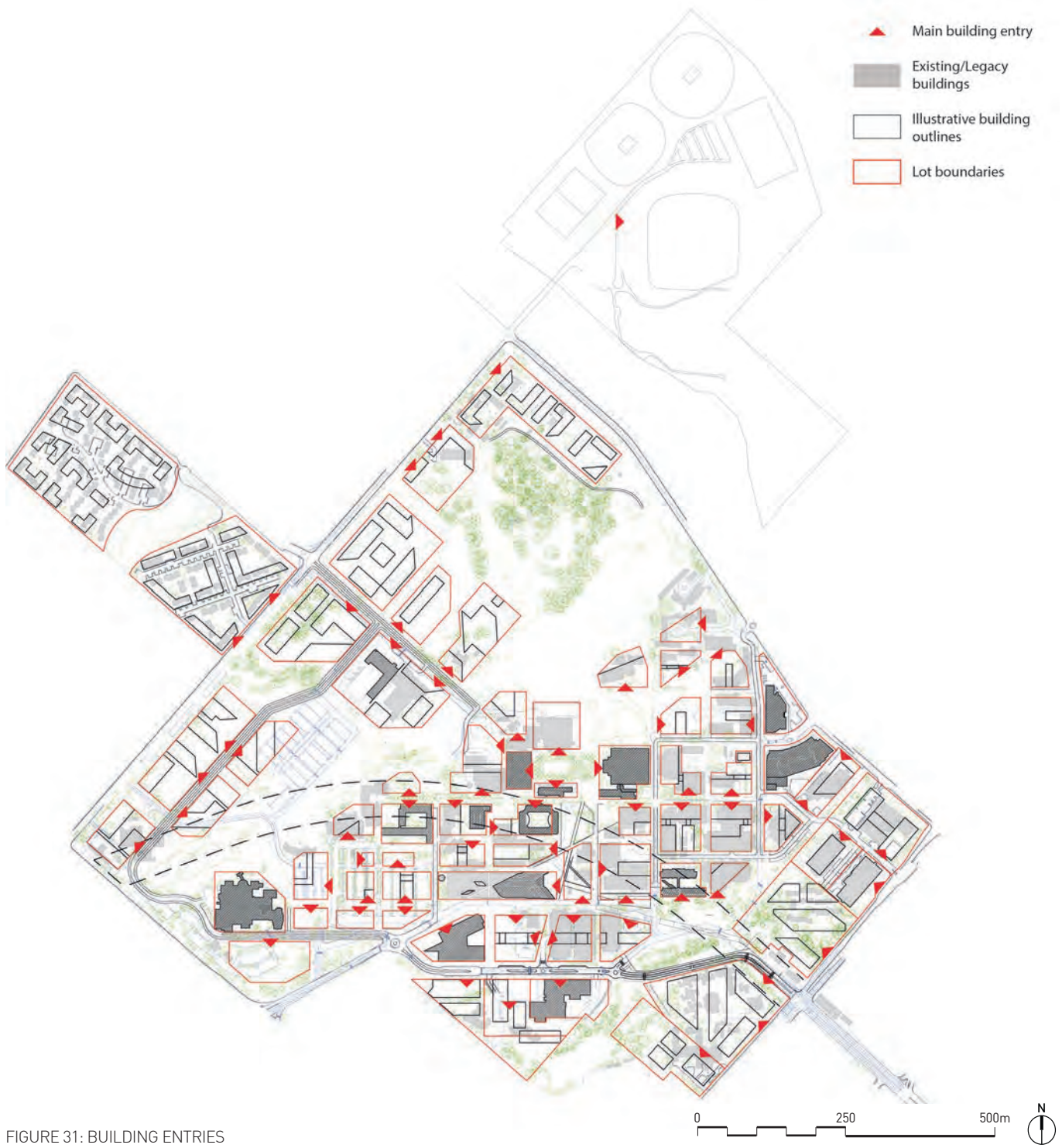


FIGURE 31: BUILDING ENTRIES