Western Sydney University

Bankstown City Campus

Urban Design Report

20 December 2018 Issue for Planning Proposal

Contents

1. Introduction

Lyons has been engaged by Western Sydney University (WSU) to undertake an Urban Design Study for the WSU Bankstown City Campus. The purpose of the study is to inform the proposed amendments to the height of building and floor space ratio (FSR) standards that are reasonably achievable for the existing site at 74 Richard Road, Bankstown for a Planning Proposal.

The redevelopment of the site is subject to a concurrent Planning Proposal, to amend the LEP development standards for FSR and Height of Buildings to Canterbury-Bankstown Council, and Development Application for State Significant Development (SSDA) to the Minister for Planning.

The study considers the broader planning framework for the surrounding area and the intent of the Greater Sydney Region Plan: A Metropolis of Three Cities and South District Plan for Bankstown CBD and the role the site plays in Bankstown itself. In formulating the views and building massing strategies for the WSU Bankstown City Campus, Lyons has:

- Visited the site and its immediate and broader context
- Reviewed the Metropolis of Three Cities, South District Plan.
- Reviewed the current controls for Bankstown CBD and the site.
- Researched previous studies done for Bankstown by Council.
- Reviewed other Planning Proposals in the vicinity of the site.
- Review Better Placed, published by the NSW Government Architect.
- Considered the key vantage points including Rickard Road, Paul Keating Park and Appian Way approaching the site by car and public transport.
- Considered international and national examples of best practice educational establishment in city centre locations.
- Met with Council staff and the NSW Government Architect for pre-lodgement meetings to understand views, issues and opinions.
- Revised the building massing strategies with input from Council and the NSW Government Architect.

The detailed architectural design for a building on the site will be subject to a separate SSDA to the Minister for Planning, which will run concurrently with the Planning Proposal process.

2. Project Overview

2.1. Regional context

Bankstown is a major strategic centre anchoring south-western Sydney. Located within the Canterbury-Bankstown local government area, Bankstown is approximately 17km south-west of the Sydney CBD.

Bankstown is bordered by the suburbs of Yagoona and Greenacre (to the north), Punchbowl (to the east), Padstow (to the south) and Condell Park (to the west). Bankstown is connected to the broader region via Stacey Street which connects to the South Western Motorway (south of precinct) and Hume Highway (north of precinct).

Source: Greater Sydney Commission

2.2. Bankstown City Campus

The Bankstown City Campus (BCC) project is a key component of the University of Western Sydney's 'Western Growth Program' and presents an opportunity to contribute to the regeneration and activation in the Bankstown Central Business District, creating an iconic landmark for Bankstown.

The project site, located at 74 Rickard Road, is owned by Canterbury Bankstown Council, and subject to a Lease agreement between the Council and the University. The site is located within the 'Civic Precinct' of the Bankstown CBD, and currently provides open lawn space and at grade public parking, contiguous with Paul Keating Park and road along Appian Way, to the south and east of the site.

The Council is currently undertaking several strategic projects which will influence the future form of the park and urban context. WSU is working closely with the Council to consider how this project can contribute to the City, enhancing and engaging with the surrounding public realm.

The project, entailing a stand-alone vertical campus and commercial use building, will facilitate relocation of teaching, research and staff facilities currently located at the WSU Bankstown Campus at Milperra. The academic program offered at the BCC will reflect its status as a flagship campus for the University, in a region with culturally and linguistically diverse population, strong manufacturing industry and highly connected by public transport. The courses offered will encompass undergraduate and post graduate degrees by coursework and research, as well as Diploma offerings and English Language testing services through The College.

The Academic facilities for staff workspaces, research and teaching will be supplemented by other facilities to create a comprehensive University experience for students and foster connections with local business, industry and community. Facilities that will be incorporated into the Campus include basement parking, ground level Retail spaces, a branch of the University Library, flexible Conference and Event spaces, Commercial spaces, facilities for student social engagement and administrative services, and large outdoor terraces.

3. Site and Context Analysis

3.1. Existing Urban Context

Bankstown is in the inner south west of Sydney's metropolitan region, located within the Future South District of the Greater Sydney Commission's vision for Greater Sydney as a Metropolis of Three Cities. In the plan for the South District, Bankstown is identified as a key Collaboration Area, with an emerging Health and Education Precinct.

Bankstown Plan - Extract from South District Plan, Greater Sydney Commission, with the Site identified.

Within the South District Plan, actions identified to strengthen Bankstown, which are of specific relevance to this project, include:

- Supporting links to tertiary education and research facilities;
- Attracting the development of office and commercial floor space and allowing commercial and retail activities to innovate;
- Activating secondary streets; and
- Enhancing the quality of Paul Keating Park.

As indicated above, the site is located within the existing central business district (CBD) of Bankstown, positioned adjacent to a Paul Keating Park. This portion of the CBD is known as the Civic Precinct, encompassing the Park and the surrounding public buildings and services, including Council Chambers and offices, Bryan Brown Theatre and Bankstown Knowledge Hub. The Civic Precinct is located adjacent to CBD retail and commercial facilities including street front shopping to the south, between the Civic Precinct and Bankstown station, and Bankstown Shopping Centre to the east.

The site presents both a challenge to mediate the varying scales of its immediate surroundings, and opportunity to create a landmark building reinforcing the Bankstown Civic Precinct and the axis of The Appian Way.

The Bankstown Library and Knowledge Centre directly to the west, was completed in 2014. The three level building houses a 5000sqm library, along with the 300 seat Bryan Brown Theatre, public function, conference and exhibition spaces, and a cafe. The building is surrounded by a raised podium to the south which steps down as tiered seating to the Paul Keating Park.

The Paul Keating Park is the focal public open space of the Bankstown Civic Precinct and is used for large scale cultural and community celebrations and events, as a venue for smaller community group activities, and informal park and playground use by the local community.

Paul Keating Park : Left view from south west towards Bryan Brown Theatre, Right view of southern side during a community event.

To the east of the site is the 12 storey Bankstown Civic Tower which houses Bankstown City Council along with commercial tenants. Access from Rickard Road to the Council building basement is via Further to the east and south of the Civic Precinct are the regional shopping centre 'Bankstown Central', a bus Interchange, street front commercial and shopping facilities and Bankstown Train Station. A second bus interchange is located on the southern side of the train station.

View of the site across Paul Keating Park, Knowledge Hub on the left and Bankstown Civic Tower on the right.

Overview of the site from the Knowledge Hub reflection pool, showing the existing carpark, green space and Civic Tower beyond.

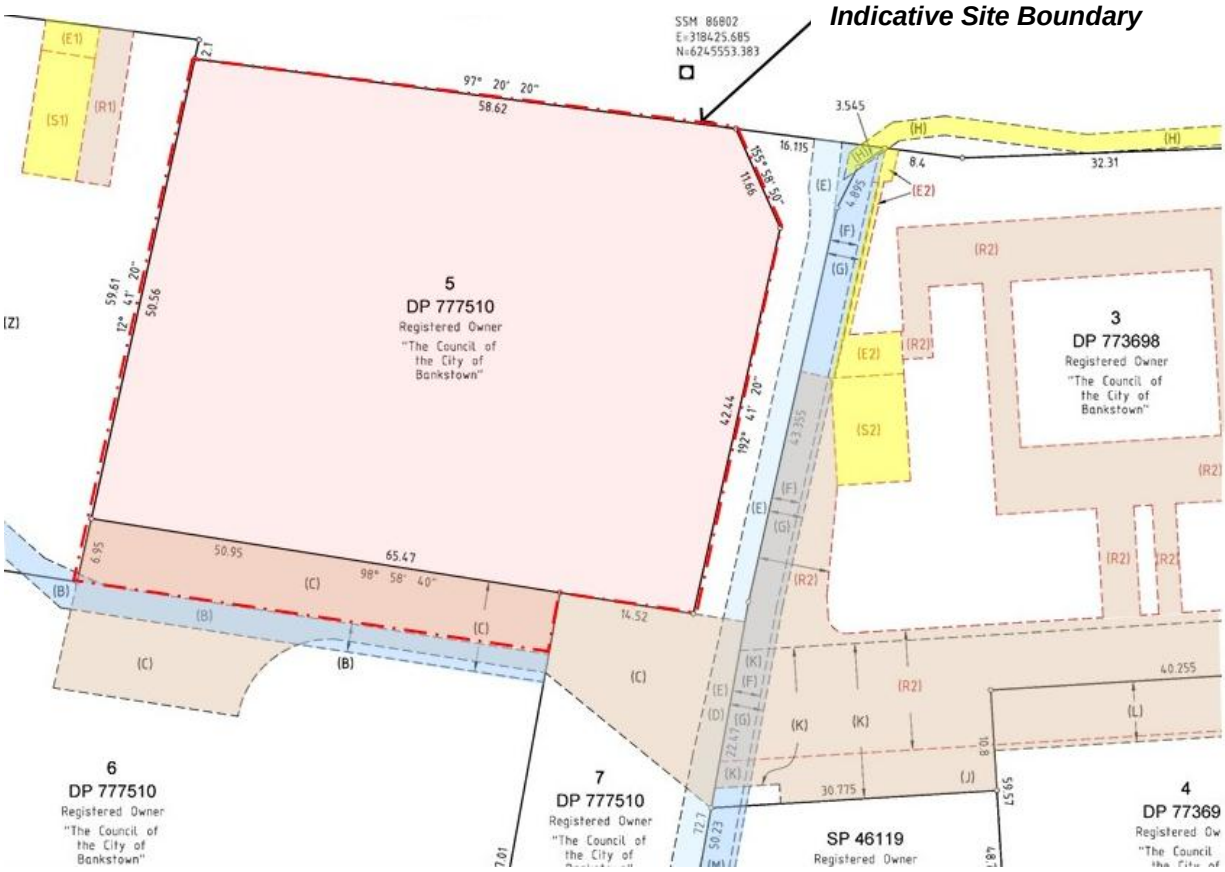
View East along Rickard Road, from Library access road crossover.

View West along Rickard Road, showing the existing parking and Knowledge Hub beyond.

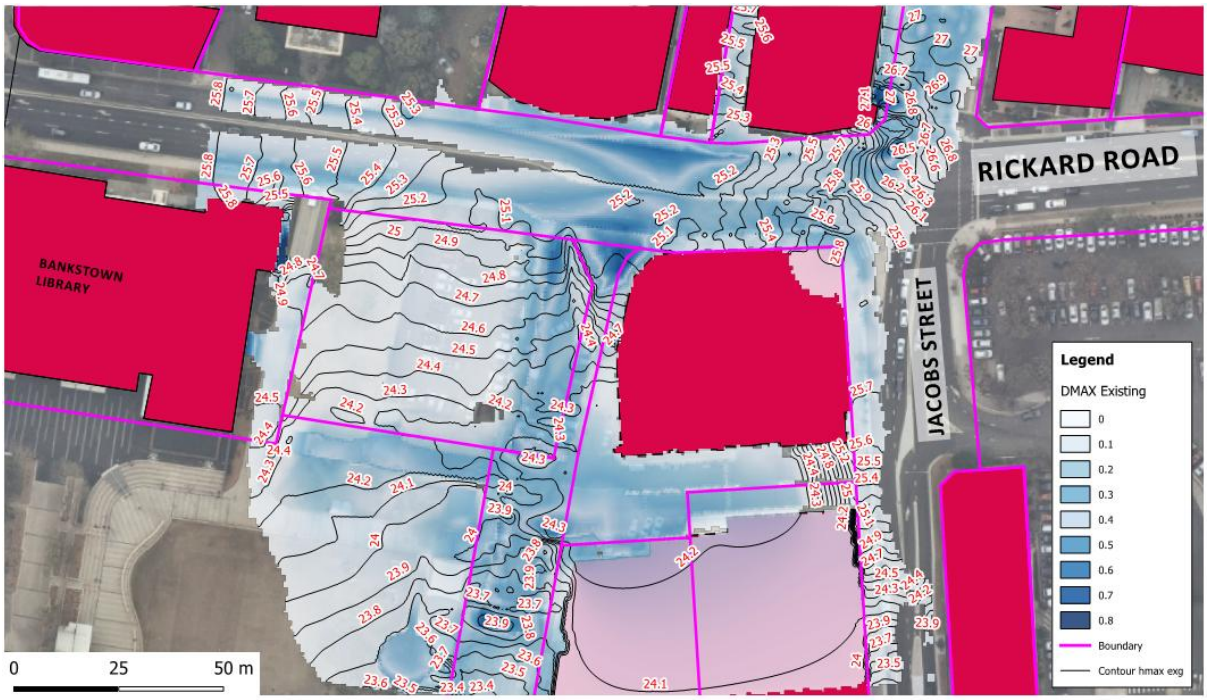
3.2. Topographic & Environmental Context

There are no existing structures on the site which is currently occupied by an on-grade asphalt carpark and an area of open grassed landscape in the western half of the site. The site is relatively flat, with a fall of approximately one metre across the site from the north-western to the south-eastern corner. Refer Appendix A for Site Feature Survey drawings.

The site and adjacent Council owned properties are subject to several easements associated with services authority access and in-ground electricity and stormwater services, and carriageways.

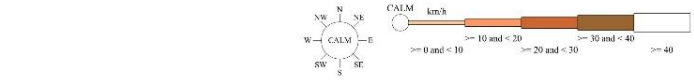


The site is subject to stormwater flooding and is categorised as being Medium to High Risk. Civil Engineers Bonacci Group have provided initial advice regarding strategies to deal with overland flow paths and this is being incorporated into the design of site landscaping, building footprint and ground floor levels, and will be reviewed in further detail as the design progresses.

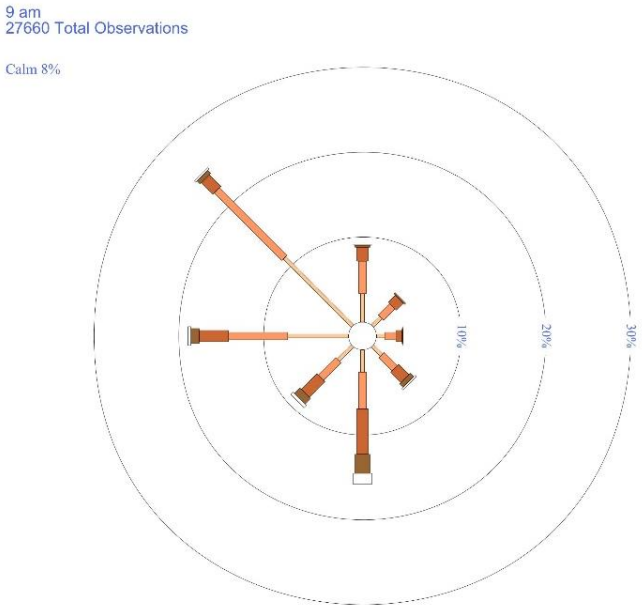


Existing 100 year flood levels (via Bonacci)

Predominant prevailing winds come from the North-West, with winds coming from other directions to a lesser extent. The development is proposed to incorporate several terraces and outdoor spaces with a variety of orientations and outlook. Ongoing design of these spaces will include consideration of wind modelling analysis to ensure comfortable outdoor amenity is created.



Wind direction and wind speed rose for Sydney Airport

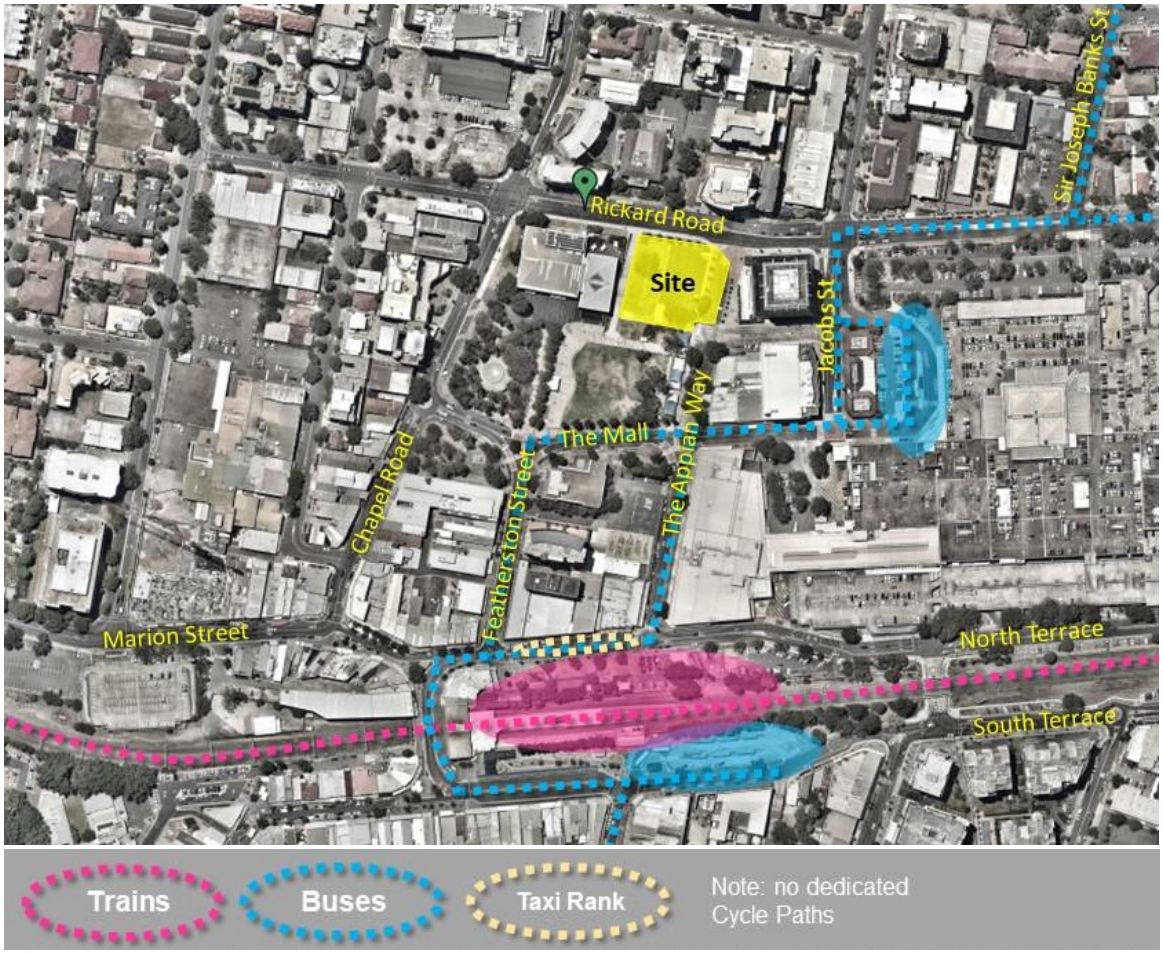


3.3. Transport and Access Context

The site presents good access opportunities on all frontages, including vehicle approaches along Rickard Road from the West, and pedestrian approaches from the South via Appian Way and Paul Keating Park. Traffic Engineering advice for the project is being provided by Arup, who have prepared a Traffic and Parking Report for the Planning Proposal. Arup will provide more detailed traffic planning advice during the design process to inform site landscaping, vehicle access ways and basement design.

The following information and diagrams outline the key transport and access interfaces informing the Urban Design strategies for the site.

The western side of the site is currently bordered by the Knowledge Hub access road, providing access to the existing Library carpark and event and maintenance vehicle access to the Park. The existing off-street parking area at the north end of Appian Way, entered from Rickard Road, also provides access into the Council Building basement carpark, as traffic is not permitted to turn right into the accessway from Jacobs Street.



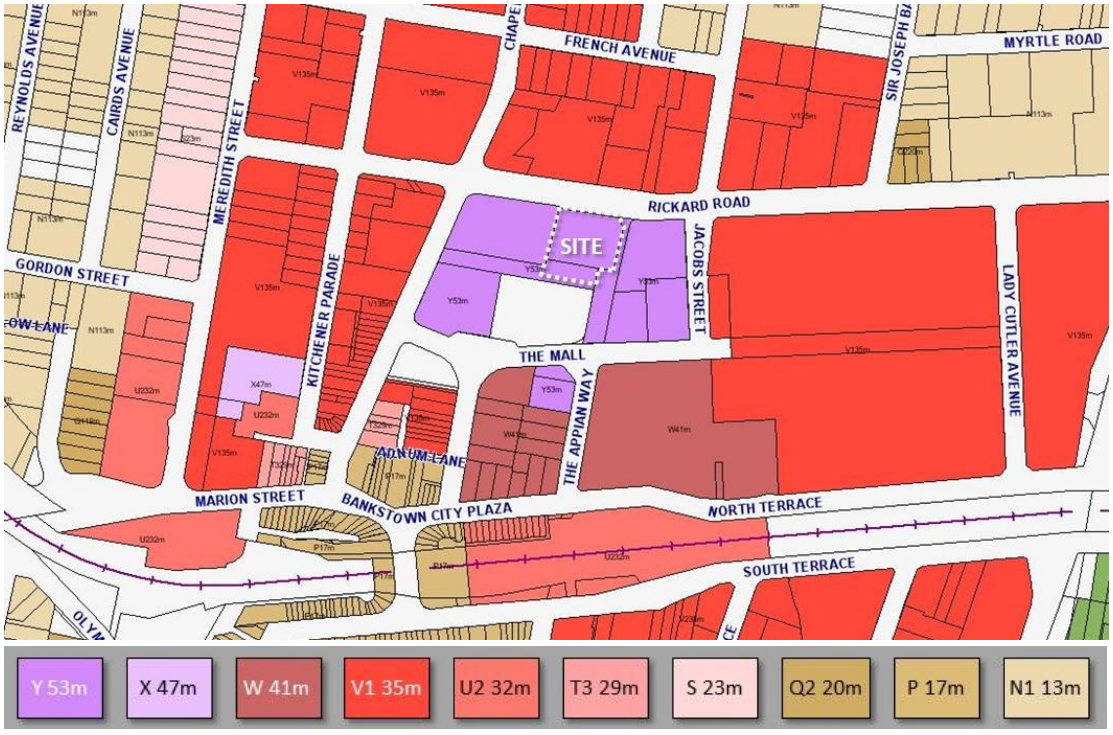
The site is well served by public transport, with a train station and two bus interchanges within easy walking distance. The Bankstown Train Station is approximately 300m (5 minute walk) south of the site, and provides access to Sydney CBD and Liverpool. There is a planned redevelopment of the station as part of the Sydney Metro project, which will provide new high frequency services in 2024.

There is a bus interchange less than 200m east of the site which is served by 7 regional bus routes connecting the site to Parramatta, Lidcombe, Burwood, Liverpool, Fairfield, Hurstville, & Sutherland. An additional bus interchange is located on the southern side of Bankstown Train Station.

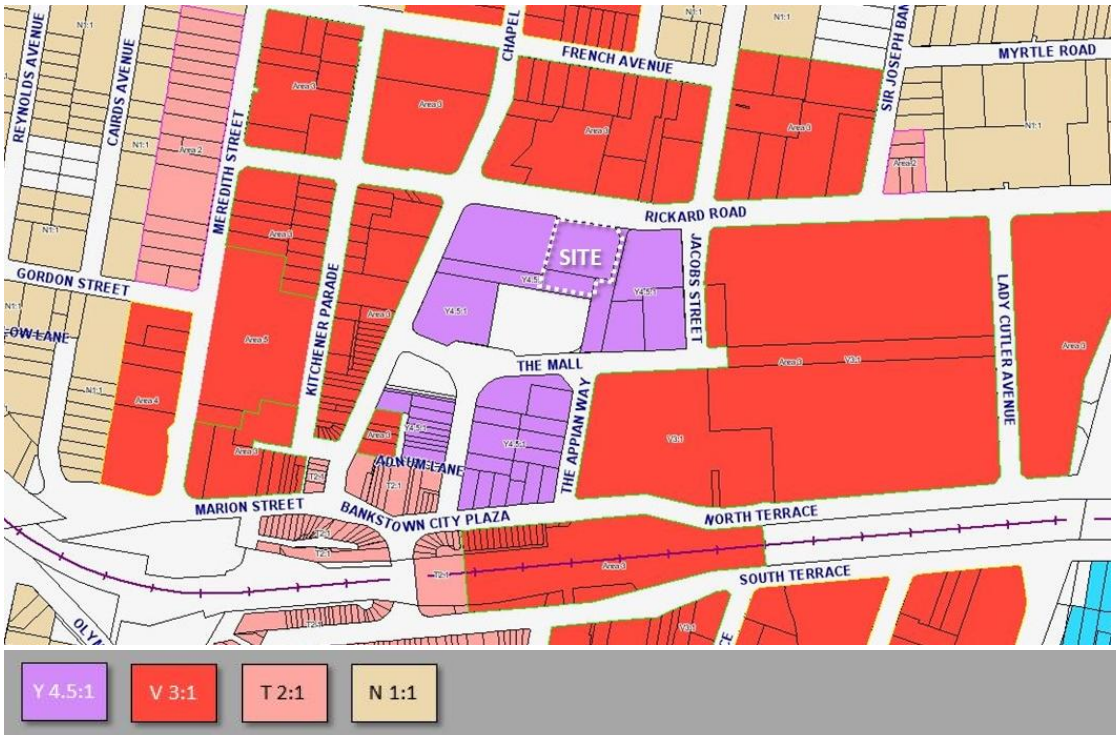
Below is a study of pedestrian access linking the site with near-by public transport networks and pedestrian amenities. Given the high service of public transport nearby the site, it is anticipated that the new campus will predominantly be accessed by foot, approaching the campus from the south via Appian Way. It is anticipated that the pedestrian appeal of this route will increase in the future, aligning with the proposed entrances to the future Metro Station, pedestrian linkages to the bus terminal on the southern side of the railway line, and potential works arising from the Council's 'Complete Streets' pedestrian strategy.

4. Future Development Context

The Bankstown Development Control Plan (2015) anticipates that development in the Civic Precinct, and broader Northern CBD Core, will generally be in the form of tall buildings to create an identifiable skyline image for the Bankstown CBD, with the tallest buildings generally located around Paul Keating Park. This is reflected in the Height and FSR maps in the City of Bankstown LEP.



Height of Buildings map, City of Bankstown LEP 2015

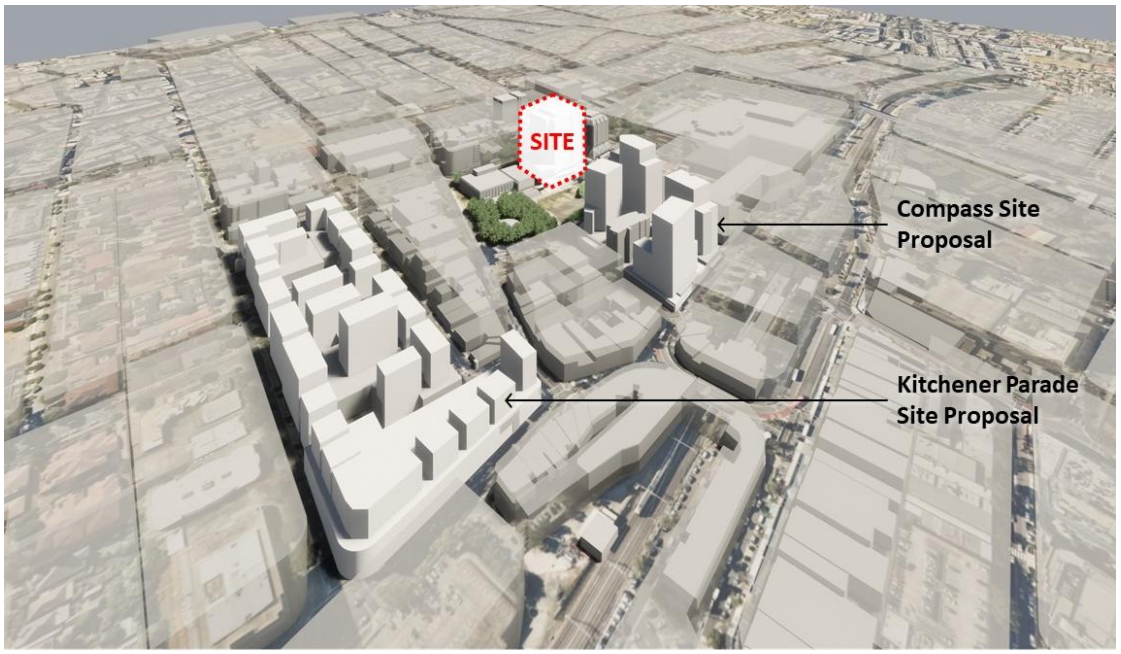


Floor Space Ratio map, City of Bankstown LEP 2015

The commercial sites within the Northern CBD Core precinct, particularly to the East and South of the site are expected to undergo a period of urban renewal and redevelopment in association with the planned construction of a Metro station, due to the age and capacity of existing building stock.

Aerial visualisation of existing development context.

In 2018 the Council approved two large scale mixed use redevelopments near the site. The Compass Site proposal, immediately to the south of Paul Keating Park, entails the construction of 4 new mixed use towers up to 83m tall, together with low height commercial and retail facilities and undercover parking. Planning approval has also been provided for the development of 32 Kitchener Parade, covering a site that extends along the west side of Kitchener Parade from Marion Street to Rickard Road, and includes multiple residential and commercial buildings with a maximum height of 45m.



Aerial visualisation of potential future development context, including Compass Site & Kitchener Road developments, and LEP height volumes.

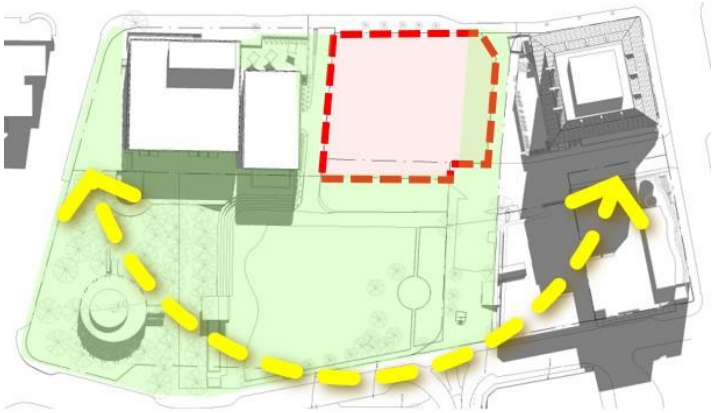
It is understood that the Council is currently undertaking several strategic design projects to address broader Urban Design opportunities, with input from WSU as a key stakeholder. These include the creation of an Urban Design Framework for the Northern CBD Core, Urban Design strategies to engage with the future Sydney Metro station, the Complete Streets Project, and a Masterplan for Paul Keating Park. The BCC project will address the outcomes of these projects when they are available, and as appropriate to enable the project to engage with the potential future context and public realm.

5. Urban Design Principles

The proposed development of the site is based on Urban Design principles that have been established with input from officers of the Canterbury Bankstown Council and consultation with the office of the Government Architect of NSW and State Development Review Panel. These principles aim to ensure that the development on the site works cohesively with the surrounding urban context.

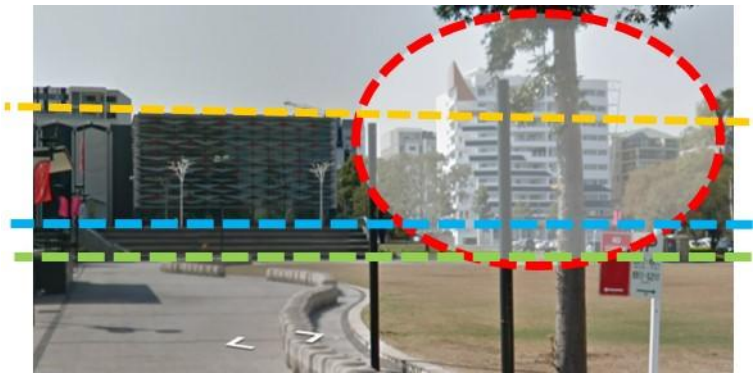
1. Building size considered in relation to the current and future context of the site.

2. Preserve open space along the Appian Way alignment.

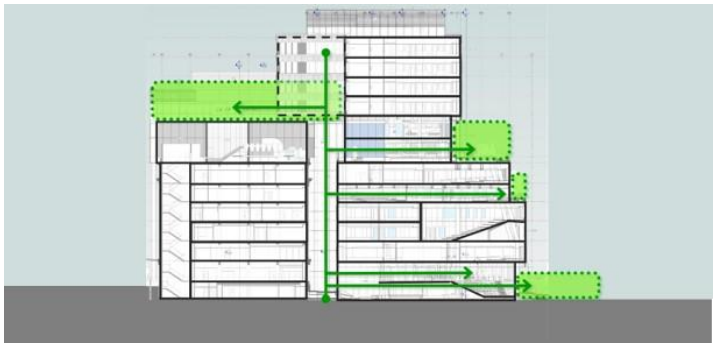


3. Optimise solar access to a diversity of public spaces at Paul Keating Park and Appian Way throughout the year.

4. The building form and materiality shall reflect the typology of a Vertical Campus.



5. Align the lower building form with the adjacent Bankstown Library and Knowledge Hub.



6. Provide new external landscape spaces as an integral component of the Vertical Campus to sustain the University users.

7. A variety of active ground level interfaces will address Appian Way, Paul Keating Park, Library roadway and Rickard Road:
    - Highly connected Ground level pedestrian environment;
    - Retail spaces supporting The Appian Way Eat Street;
    - Showcasing industry and innovations;
    - Consideration of vehicle servicing and entrance points.

8. Flexible and adaptable Campus that supports delivery of a variety of University programs, tailored to the needs of the student catchment:
    - Academic programs that entail a multi-disciplinary curriculum, aligned with key research themes, and partnership opportunities;
    - Accommodation for Relocated and New facilities;
    - Encompassing diploma, undergraduate degree, post graduate coursework and post graduate research offerings;
    - Supporting commencing Student and Staff numbers and future growth.

6. Proposed Development

6.1. Functional Brief

The University has developed an Academic Plan for the Bankstown City Campus development, which reflects its status as a flagship campus located in the centre of Bankstown, in a region with strong manufacturing industry, and highly connected by public transport. The facilities will accommodate a mix of student cohorts, including students undertaking Undergraduate, Post graduate Coursework and Post graduate Research degrees, together with Diploma courses, and providing long term flexibility to accommodate the current and future academic programs.

The University plans to offer academic programs across disciplines of teacher education, psychology, arts and humanities, business (with a focus on Small and Medium Enterprises), IT (with a focus on Entrepreneurship and Industry 4.0), and Non-clinical Health. These academic programs align with three key research themes for the campus, which are

- Health, Aging and Healthy Living;
- Advanced Manufacturing (Focussing on SME and Industry 4.0); and
- Education.

In supporting these programs the University is intending to develop partnerships with local business and industry, through co-located tenancy spaces in the building, and shared use of flexible workspace facilities with research partners.

The University intends to operate the building based on a timetable of 8.00am to 10.00pm on weekdays, with some Saturday teaching between 8.00am and 5.00pm. The future estimated student population is 10,000 Effective Full Time Student Load, which equates to 2,000 per day. The University staff population is 230 Effective Full Time Permanent staff, plus an allocation of desks on hotdesking arrangements estimated at 130, to allow for sessional teaching and casual staff needs. The facilities will also accommodate commercial tenancies with an estimated occupancy of 400. The space allocated for industry partnerships will allow for future expansion of the educational facilities.

6.2. Floor Area

The proposed floor space for the project has been identified by the University to provide the required learning, research, workspace and supporting facilities for the student, staff, research partners, tenants and public users of this stand-alone Vertical Campus facility.

The University has proposed a Net Lettable Area of 26,200 sqm (As defined by Property Council Guidelines for NLA – Office Buildings).

The following table outlines the floor areas of the different facilities provided in the building, noting that the University is developing a detailed Fitout Brief and Design separately to the design and planning approvals process for the Base Building.

Space Type	Fitout NLAm^2	Commentary
Learning Spaces		
Tiered Multi-purpose Space	434	Includes Store
Flat Floor Leaning Environments	8,688	Includes classrooms and informal study spaces
TOTAL	9,122	
Staff Workspaces		(Incorporating Academic, Admin, Research Partners)
University Staff Workspaces	3,505	
End of Trip Facilities	242	
TOTAL	3,747	
Student Support Spaces		
Student Engagement & Concierge	71	
Student Services	460	
Library	1,000	
Student Hub	956	
TOTAL	2,487	
Shared Support Facilities		
Collaborative Research Facilities	776	Including Badanami Centre
Conference Facility	711	
Event Space	662	
Facility Management	325	
TOTAL	2,474	
Commercial Space		
Retail Tenancy space	560	Ground Level
Industry Partnership space	4,518	
TOTAL	5,078	
TOTAL Functional Area	22,908	Plus primary circulation
External Balcony and Terraces	3,155	Plus Ground Level

NOTE: Areas above are functional zones measured from current design drawings reflecting current blocking and stacking configuration, and equate to effective net functional areas, excluding Basement Car Parking and Vehicle Circulation, Amenities, Vertical Circulation & Stairs, Lift Lobbies, Primary circulation space and Plant facilities.

The floor plate sizes appropriate for a Vertical Campus typology are necessarily larger than the floor plates appropriate for other tower forms proposed for development in the vicinity of the site, which entail residential towers with commercial facilities at lower levels. A Campus facility needs to support larger room sizes and circulation spaces to suit cohorts of students, as well as additional vertical circulation and building services infrastructure.

The following diagram provides some representative floor plate examples of similar facilities. Refer also Section 7.2 regarding the Base Building infrastructure proposed to support the Vertical Campus.

Vertical Campus precedents - Typical Floor plate diagrams with NLA shaded yellow, Clockwise from top right:
1. University of Adelaide, AHMS : Typical floor NLA 1,775m²
2. Western Sydney University, 1PSQ : Typical floor NLA 2,360m²
3. University of Newcastle, New Space : Typical floor NLA 1,150m²
4. RMIT, Swanston Academic Building : Typical floor NLA 2,860m²

6.3. Height of Building

The proposed height of the building has been derived from several design constraints and objectives. These are:

- Determination of Ground Floor levels in relation to the 100year flood level at the site. The existing ground plane and potential flood levels vary across the site, and freeboard above the flood levels are subject to confirmation with the relevant authorities;
- Alignment of the building form with the parapet of the adjacent Knowledge Hub and Theatre building;
- Relationship of the building form with the adjacent Civic Tower building;
- Flight path height restrictions, including the PANOPS and Obstacle Limitation Surfaces (OLS) heights as defined by approved plans for Bankstown and Sydney Airports;
- Floor to floor heights appropriate for the proposed spaces within the building, including the teaching space typologies that the University intends to use;
- The services and structural height requirements and clearances associated with the Base Building design solution; and
- The long term urban development context, identifying this location as an appropriate site for a landmark building within the Bankstown CBD and Civic Precinct.

The proposed height of the building is 83.05m above the lowest level of the site, with the peak of the roof proposed RL 106.780 AHD. Refer to Planning Proposal Architectural Drawings for sections and heights of the proposed building form.

The Planning Proposal will seek to amend the LEP height of building standard from 53m to 83m.

6.4. Floor Space Ratio

The Floor Space Ratio (FSR) is the ratio of the Gross Floor Area (GFA), measured in accordance with the Bankstown LEP 2015 definitions, with the site area.

The GFA proposed to meet the functional and NLA requirements for the project is 29,266sqm. The development site area (as indicated on the following plan diagram) is 3,678sqm. This equates to a FSR of 8:1.
The Planning Proposal seeks to amend the LEP FSR standard from 4.5:1 to 8:1.

6.5. Technical Aspects:

Investigation of key technical issues will inform the ongoing detailed design of the Base Building, and will inform the Development Application for State Significant Development, to be lodged with the NSW Department of Planning & Environment, including the following aspects:

› Traffic and Parking analysis, maintaining existing access to adjacent properties and considering new traffic needs. A Planning Proposal Traffic Report prepared by Arup will be included in the Planning Proposal application associated with this Urban Design Report. It is noted that the design currently incorporates:
  - 94 basement car-parking spaces (including DDA spaces)

- 3 basement loading spaces
- 4 car drop off (15 minute parking) at grade on Appian Way
- 2 Small Rigid Van loading bays on Rickard Road

› Sustainable development objectives, including a target 5-star Greenstar as-built rating and NABERS rating for the Tenancy spaces. ESD design approach for the project seeks to deliver a very low energy and highly sustainable building without complicating the design and ongoing operation. Key elements proposed to be incorporated into the design approach include:
  - Building fabric design to address different façade orientations with high insulation;
  - Commissioning, tuning and metering to facilitate optimisation of energy performance;
  - Producing a high indoor environmental quality, with access to outlook, daylight and mixed mode spaces incorporating natural ventilation;
  - Integration of soft landscaping into the building, plus high level of access outdoor spaces;
  - Rooftop photo voltaic energy system;
  - Harnessing more sustainable forms of transport through high accessibility via public transport and bicycle parking facilities, including end of trip facilities and secure undercover bike parking in the basement.

› Addressing flood water management in the resolution of the ground surfaces, levels and building entrances by the consultant team, in conjunction with consultation with the Canterbury Bankstown Council.

› Wind Assessment studies to enable mitigation of potential impacts on existing and new open space use through the detailed design of built elements and soft landscaping.

7. Built Form Concept

The concept for the built form for the project has been developed through three dimensional studies of a range of design options, including consideration of essential massing typologies that can provide sufficient floor space on the site. These base typologies included a low articulated form, a tower form, and a tower form above a podium base.

Model Type 1

Total NLA: Approx. 25000sqm
Maximised floor plate
Minimised height
Height: Approx. 55m
Shortest Model

Model Type 2

Total NLA: Approx. 25000sqm
Minimised Floor Plate/ Building Width
Height: Approx. 84m
Tallest Model

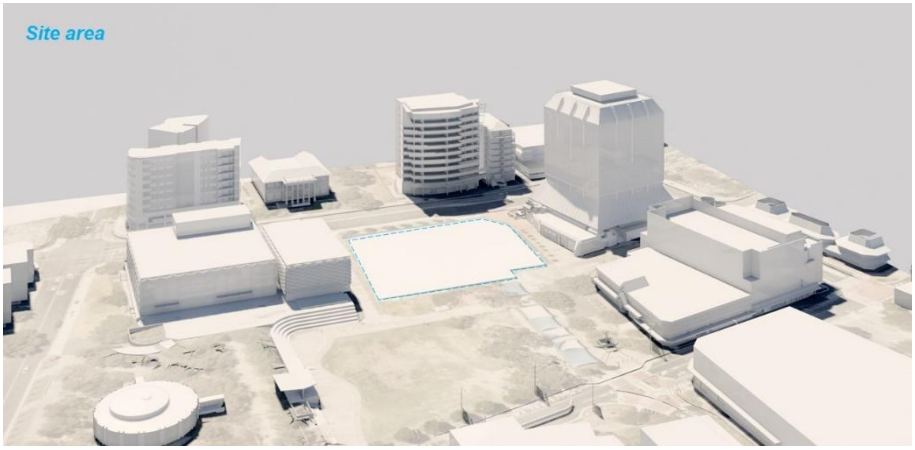
Model Type 3

Total NLA: Approx. 25000sqm
Large floor plate to podium
Minimised floor plate /building width
Height: Approx. 76m
Podium makes tower lower than Model Type 2

Ultimately, a hybrid of these typologies was identified as the most appropriate massing treatment for this site. This enables synchronous minimisation of the building form's visual bulk, and optimisation of solar access to Paul Keating Park and the Appian Way alignment, whilst providing the Vertical Campus capacity needed for the BCC project.

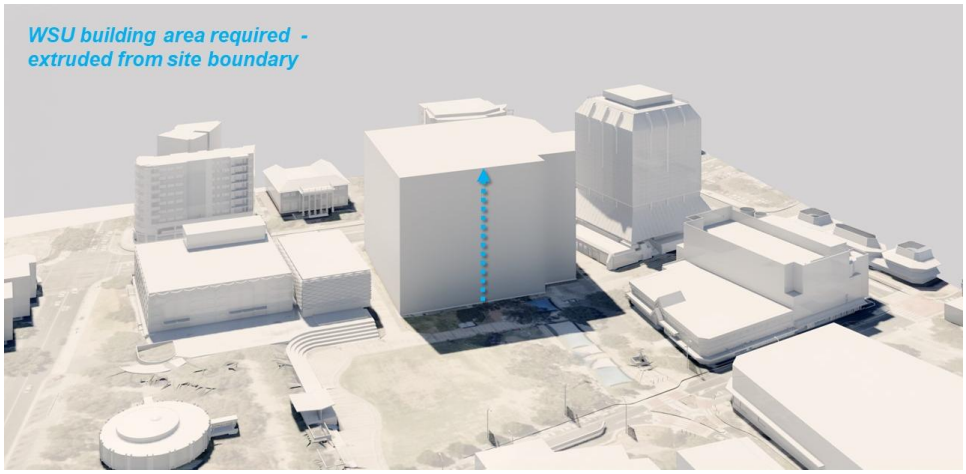
7.1. Massing Strategy

The following sequence of Massing Strategy Diagrams outlines how the form has been generated, with reference to the Urban Design principles identified in Section 5 of this report.



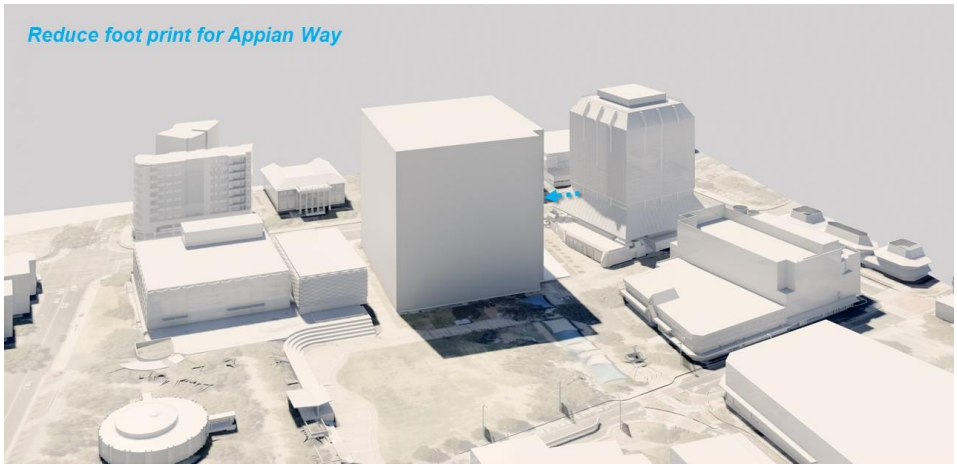
The site has an area of 3,678sqm and sits on the North side of Paul Keating Park.

Massing Strategy Diagram 1



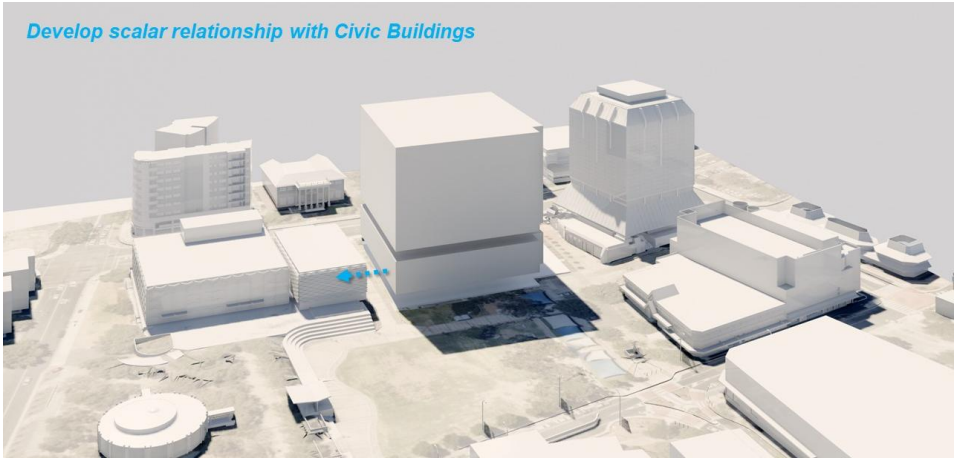
The spatial volume of the building, generated by extruding the Site area to the height needed to create the required floor area.

Massing Strategy Diagram 2



The building form set back on the eastern side to maintain clear and open view along the Appian Way alignment.

Massing Strategy Diagram 3

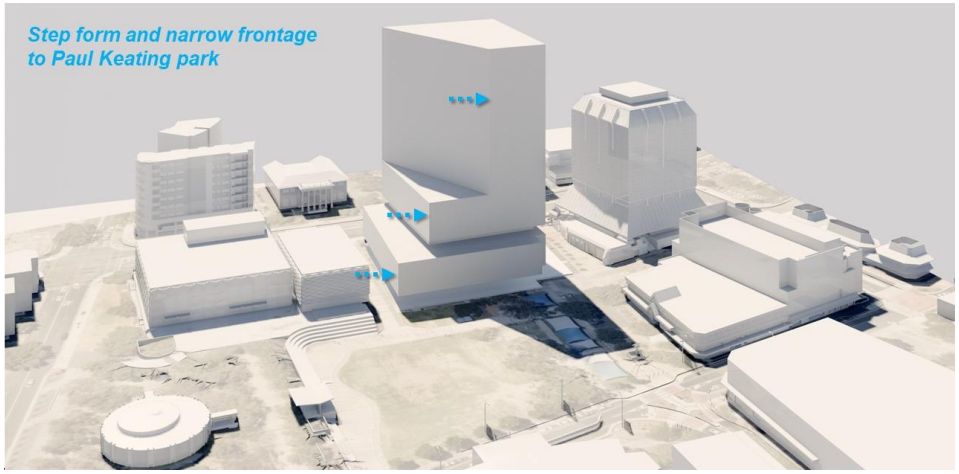


The building form has a horizontal break to align with the top of the adjacent Knowledge Hub and Bryan Brown Theatre buildings.

Massing Strategy Diagram 4

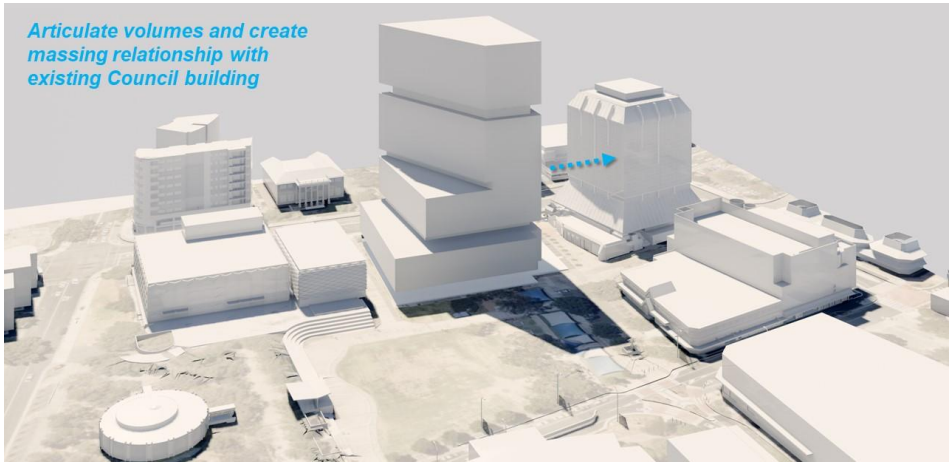
The form above the horizontal break is set back to enable the alignment of the podium form to be read.

Massing Strategy Diagram 6



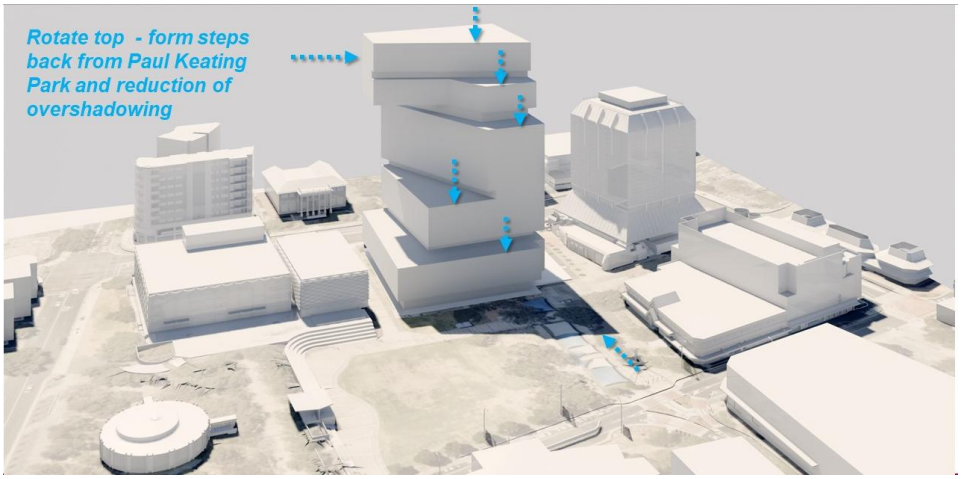
To reduce the bulk of the tower form when seen from the Park and Appian Way, the upper portion of the tower is narrowed at this end, and shaped as a taller wedge.

Massing Strategy Diagram 7



A horizontal break is introduced into the tower wedge, creating a volumetric relationship with the existing Civic Tower.

Massing Strategy Diagram 8

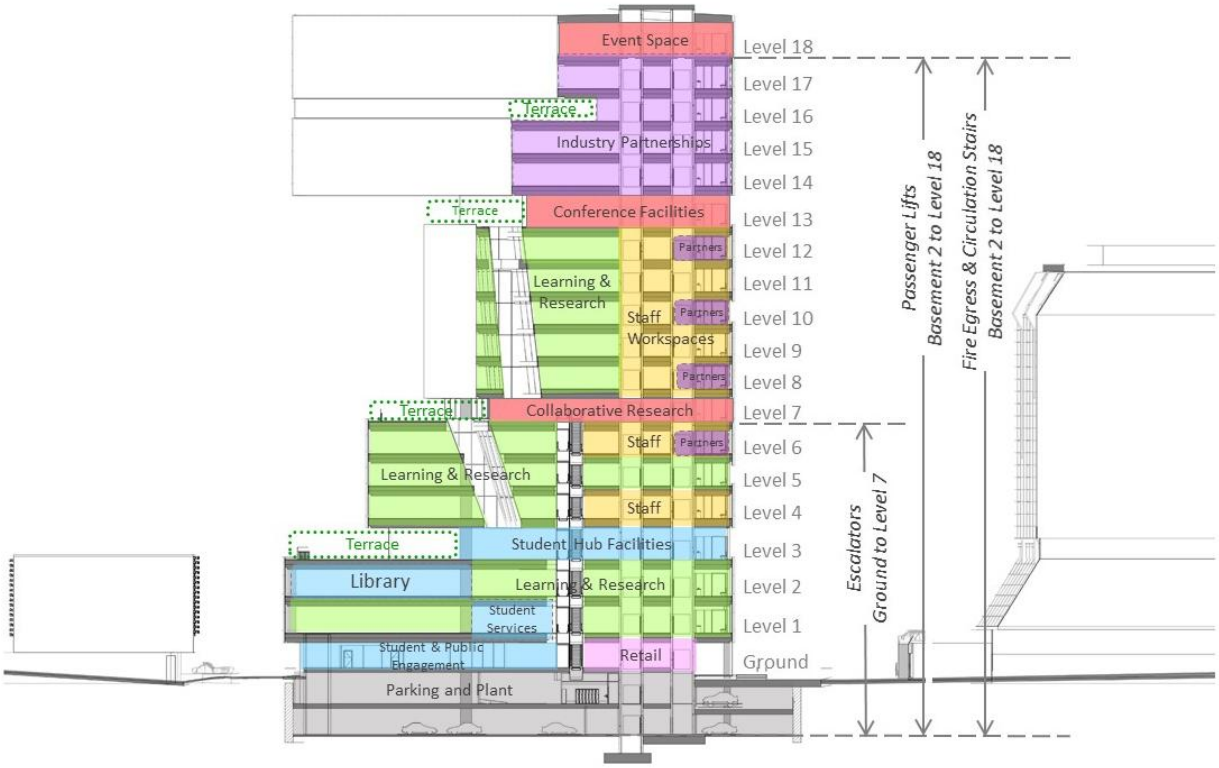


The top portion of the tower is rotated, stepping the form back from the Park, reducing the shadow cast onto the public open space whilst maintaining floor space within the maximised height.

Massing Strategy Diagram 9

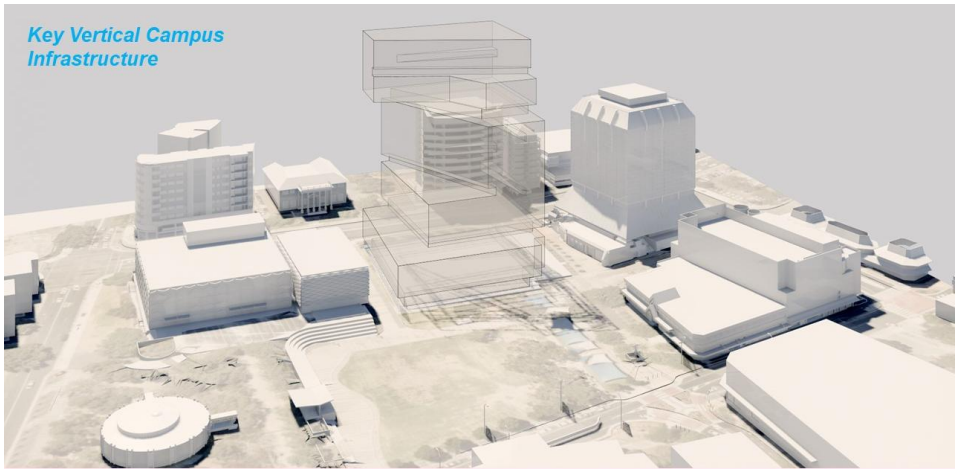
7.2. Vertical Campus

In order for the Building Form to facilitate a Vertical Campus, key connection and activation infrastructure needs to be incorporated into the Base Building. These infrastructure elements will ensure that fitout can provide the diversity of a campus in a vertical setting, enhancing the serendipitous encounters that foster a student centred academic community. The ongoing design of the Base Building will also address long term Campus flexibility, and the capability to respond to changing educational needs, through considered coordination of the building services and structural design of the building.



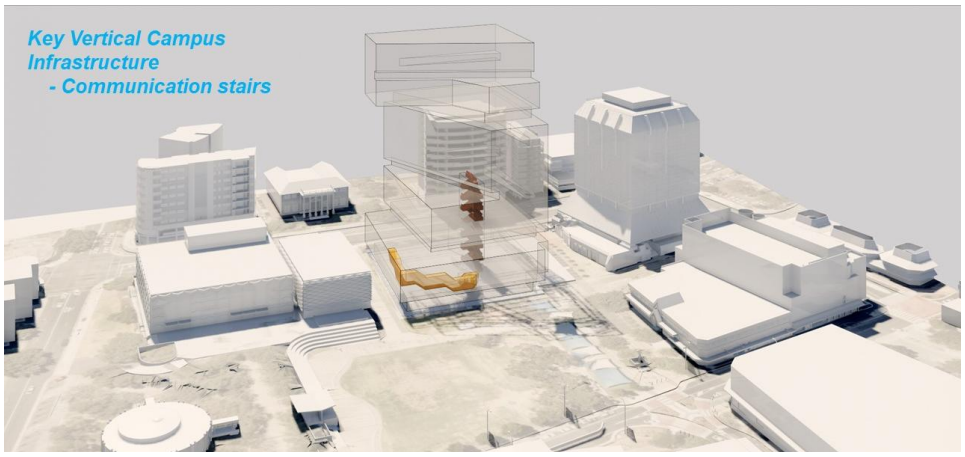
Section Diagram showing indicative stacking of Vertical Campus functional zones

The following sequence of diagrams identifies key building form infrastructure that will support the Vertical Campus:



Vertical Campus Diagram 1

To provide the connectivity and functionality of a Vertical Campus, key infrastructure needs to articulate and connect through the resultant form.



Vertical Campus Diagram 2

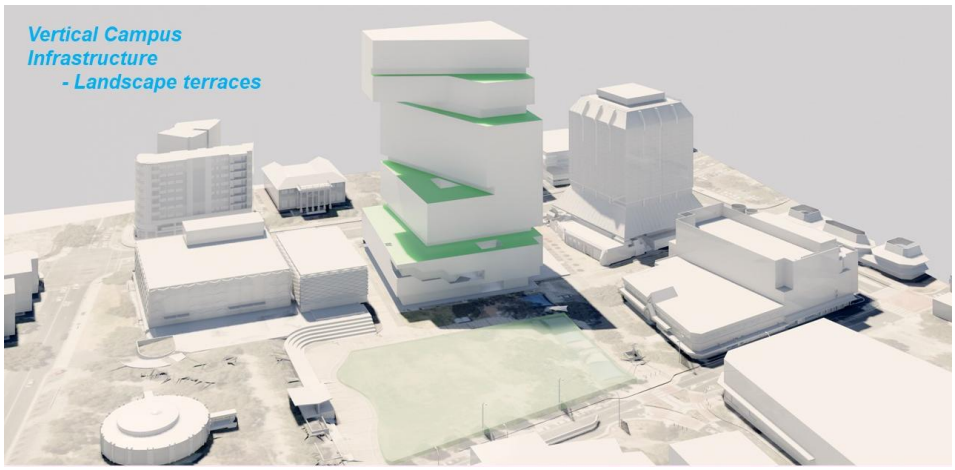
To provide efficient access between floors Escalators are proposed up to Level 7, plus open communication stairs on the Park side. These are supplemented by Lifts and Egress stairs.

Vertical Campus Diagram 3

To provide further connection across levels, a series of multi-level voids are inserted, providing visual links and increased opportunities for access to daylight and natural ventilation.

The voids and circulation infrastructure create penetrations through floor plates and articulation to the external form.

Vertical Campus Diagram 4



The steps in the form create a series of terraces, providing break-out space and access to outdoor amenity, complementing the shared use destinations on these levels.

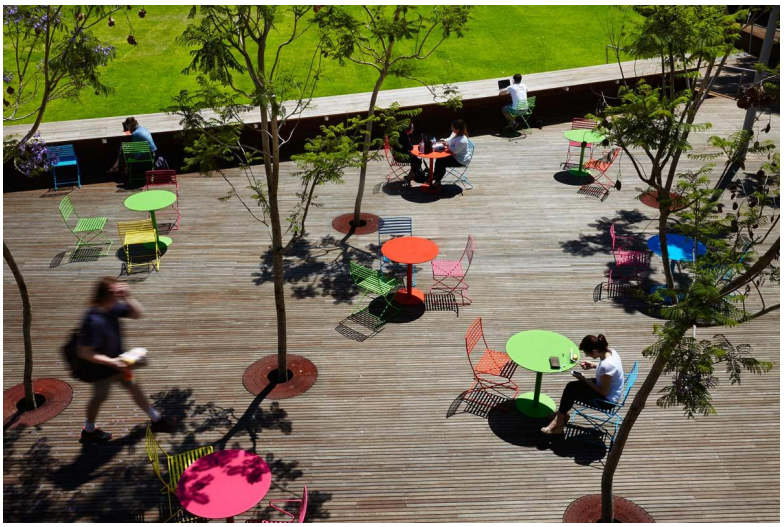
Vertical Campus Diagram 5

7.3. Landscape Terraces and Balconies

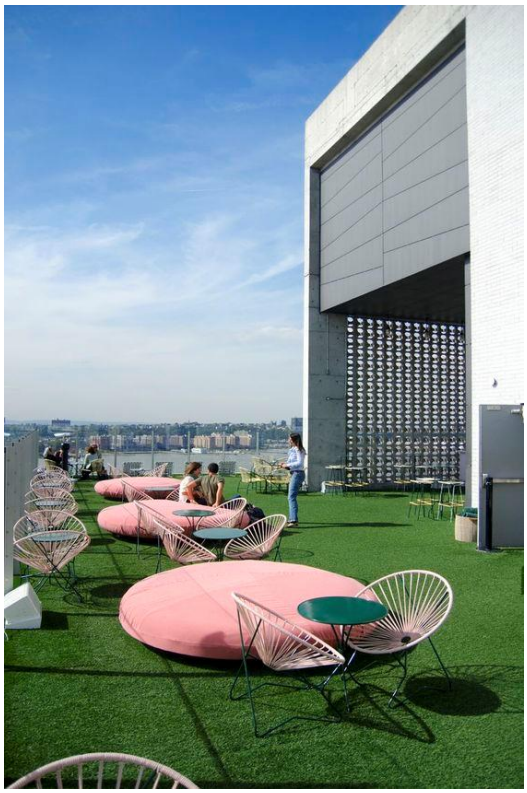
As identified in the Vertical Campus Diagrams above, a series of generous landscape terraces and balconies are equitably distributed throughout the Building Form, orientated west and south west towards Paul Keating park to take advantage of the view over the open space and showcasing the activity of the University to the public.

Large terraces on Level 3,7,13 and 16 service the adjoining facilities on those floors and provide destinations or recognisable points of orientation within a vertical campus. The large student terrace on level 3 is cleverly connected by an external stair to the Park and major pedestrian flows arriving from the southern train station via Appian Way. The connected stair and terrace allow for social exchange and movement from the public realm to the heart of the campus building.

The terraces orientation and alignment ensure the spaces receives ample sunlight and varying degrees of shade from the building throughout the day and student year. All terraces aim to embed students and researchers in landscape, creating welcoming, sheltered and well considered external spaces, that ensure landscape is given ample space to grow and flourish well into the future. Each terrace aims to provide a mixture of flexible and well-connected meeting places, playful yet quiet learning spaces for the individual and large yet inviting groups throughout the seasons.



Colurful and casual meeting places for all. Monash University, Caulfiled, Taylor Cullity Lethlean Landscape Architects



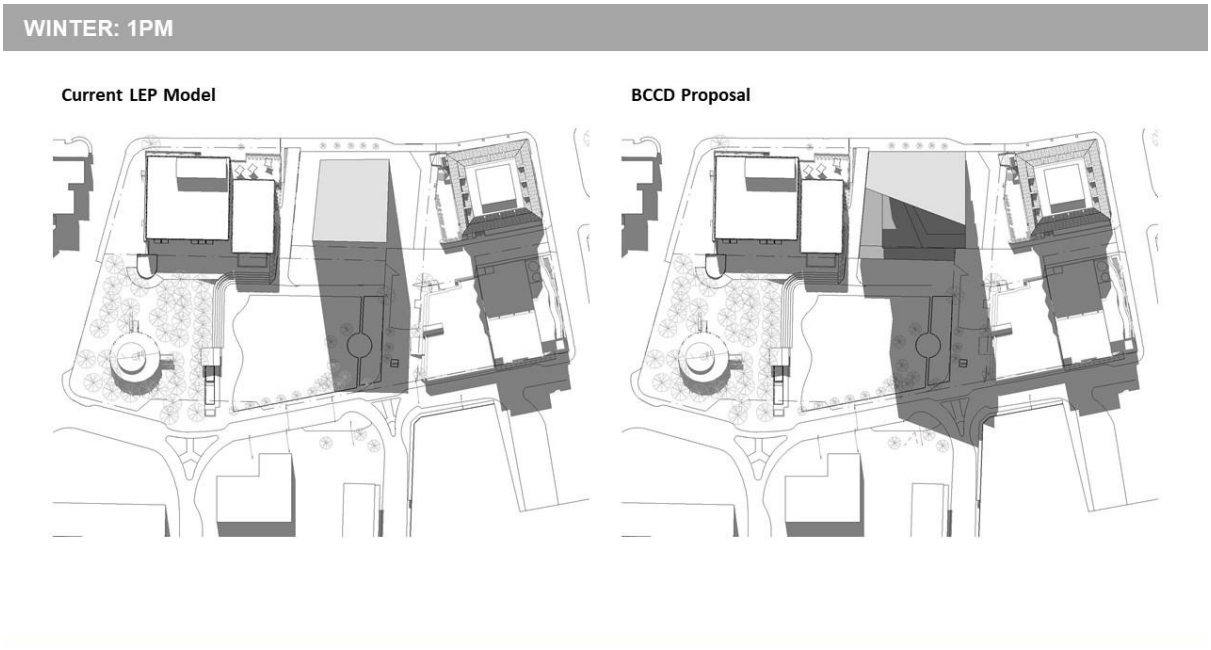
Left - Playful options for exterior learning and places to socialise. Above - Consider Comfort - provide student amenity and shade throughout the year.

8. Solar Access Analysis

The process of developing the proposed building form included extensive review and comparison of the shadow impacts of different form options. This process has ensured that the proposed form addressed both the University's facility requirements and maximises solar access to Paul Keating Park and Appian Way throughout the year, as per the Urban Design Principles (Refer Section 4).

At the request of Council comparative shadow study diagrams have been prepared to illustrate the shadows cast by an LEP compliant development on the site, having maximum height of 53m and FSR of 4.5:1, centred on the site, in comparison to the proposed form, which will be subject to the SSDA, having a maximum height of 83.05 and FSR of 8:1. Diagrams showing these studies side by side, for hourly intervals on the Equinox and Winter Solstice, are provided in Appendix C.

These diagrams demonstrate that although the building is considerably larger than the LEP compliant form, the shadows are comparable. Further, the proposed building form enables direct sun access to a diversity of public activity zones across Paul Keating Park and the Appian Way throughout the year.



Shadow Study Comparison for Winter Solstice at 1pm

9. Activation of the Public Domain

Site context diagram highlighting pedestrian connections through the site.

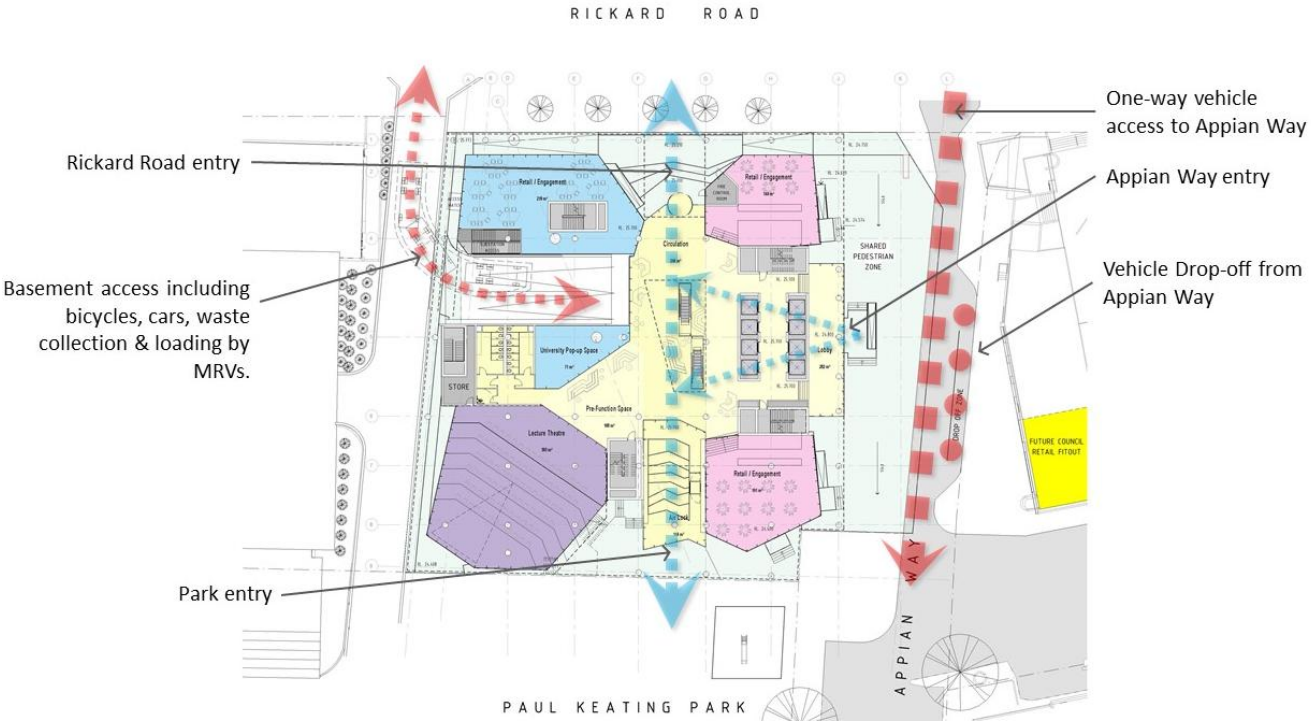
The design concept for the site and ground level layout has been developed in response to several functional and spatial objectives:

- Negotiation of level changes across the site, from a high point at the North West corner to a low point at the South West corner, ensuring that the changes in ground level integrate with the building foyer spaces, and providing seamless equitable access for all users.
- Maintaining vehicle access to Civic Tower car parking and access for delivery vehicles.
- Management of flood water levels across and around the site, including establishment of the building floor level and entry points, and careful design of the landscape treatments around the building to ensure that the potential flood water doesn't impact on other properties.
- Creating active and occupied frontages at ground level, in alignment with the Bankstown Development Control Plan 2015 for Rickard Road, and engaging with the current understanding of Council's intentions for the future streetscape along Appian Way, and extending also to the interface with the Park.
- Maintaining shared use of the Appian Way for vehicles and pedestrians, and additionally responding to the Council's objective that it provides a clear pedestrian link between Rickard Road and The Mall, on the southern side of Paul Keating Park.
- Minimising the impact of building's operational and servicing areas on the ground level frontages by incorporating Loading and Waste collection access into the Basement and proposing that the Substation be located at Basement level also, subject to Authority approval. These facilities are positioned on the western side of the site, utilising the existing Library service road on the adjacent Council property.

9.1. Ground Floor Concept

These needs have informed the design concept of creating a porous building at the ground and lower levels, that draws both landscape and pedestrians into and through the building. Key entry points are provided at the centre of the Rickard Road and Paul Keating Park frontages, connected by

an internal 'University Street' and escalator route to high student use spaces above. A Foyer space to Appian Way provides easy access from visitor drop off cars bays to the internal street and the side Lift Core. The corners of the Ground level are formed by Retail spaces, and a tiered multi-purpose space, providing settings for visual and active engagement between the University and public community, and placing educational activity and innovation on display.



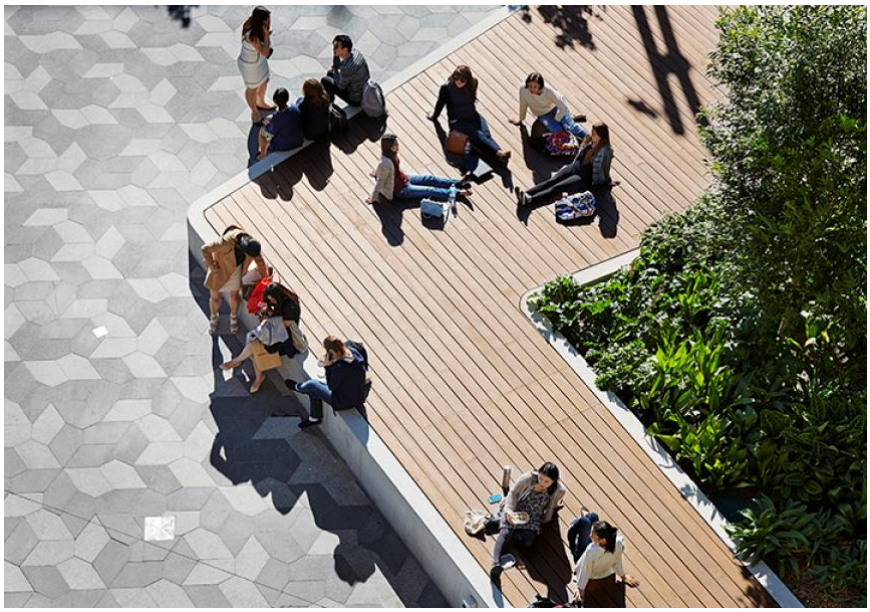
Ground Floor Plan highlighting primary entry and access points

9.2. The Appian Way and Shared Street

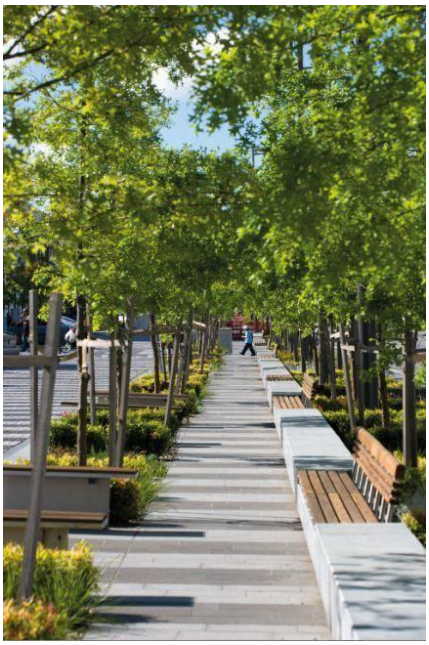
The landscape strategy along the Appian way is to clearly define pedestrian movement within this shared use zone, create a progression of useable and public green and social spaces from north to south along the axis of Appian Way, integrate vehicular drop off into a shared street environment that is paved with high quality materials and slow the flow of stormwater with deep pockets of landscape. The careful combination of these principles helps to define the intended uses of the Appian way along its extent and ensure it is well connected to transport links, public amenities and the broader urban context. Refer to Appendix B for the Landscape Concept Drawings.

Larger areas of lawn to the north and south create inviting point of entry, capture the lunch time sun and offer a meeting point conveniently located adjacent to retail spaces that spill out into the Appian way. The extent is bound by several large deciduous shade trees and large areas of dense underplanting which aim to capture, and filter site run off and offer more intimate zones for respite as a counter point to the busy lawns and pedestrian spine.

Trees are positioned to the east of the building basement to take advantage of a deep soil zone and are aligned to create and strengthen a tree lined boulevard further defining intimate spaces seating zones and a shared street environment for occasional traffic and drop off. Seating is intended to create vibrant social zones that allow for students and the public to simply sit and watch the events of the day. Their orientation will ensure there is a seat for every purpose.



Precedent Landscape: Social decks and spaces create vibrant social spaces.



A tree lined boulevard with a variety of options for seating and meeting.

Clear hierarchy of pedestrian and vehicular movement in a shared street. High quality pavement defines intended uses.

9.3. Building Form Visualisations

The following images show the proposed building form and massing in the context of the existing surroundings and public domain. The architectural treatment of the form, as well as overall design progression integrating building services and structural design inputs, and ground level resolution, will be addressed through the Development Application for State Significant Development, to be lodged with the NSW Department of Planning & Environment.

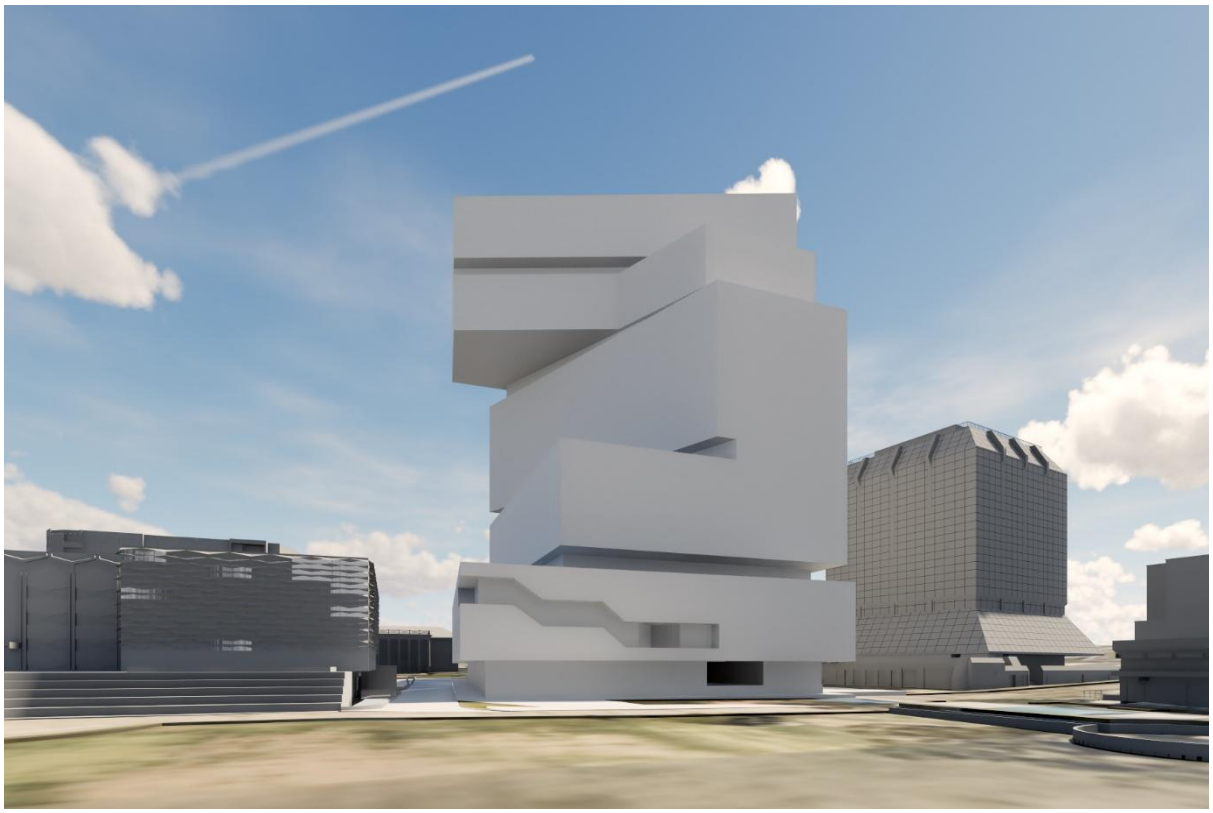
Aerial view over Paul Keating Park

Aerial View from the North West, over Rickard Road and the Bankstown Knowledge Hub

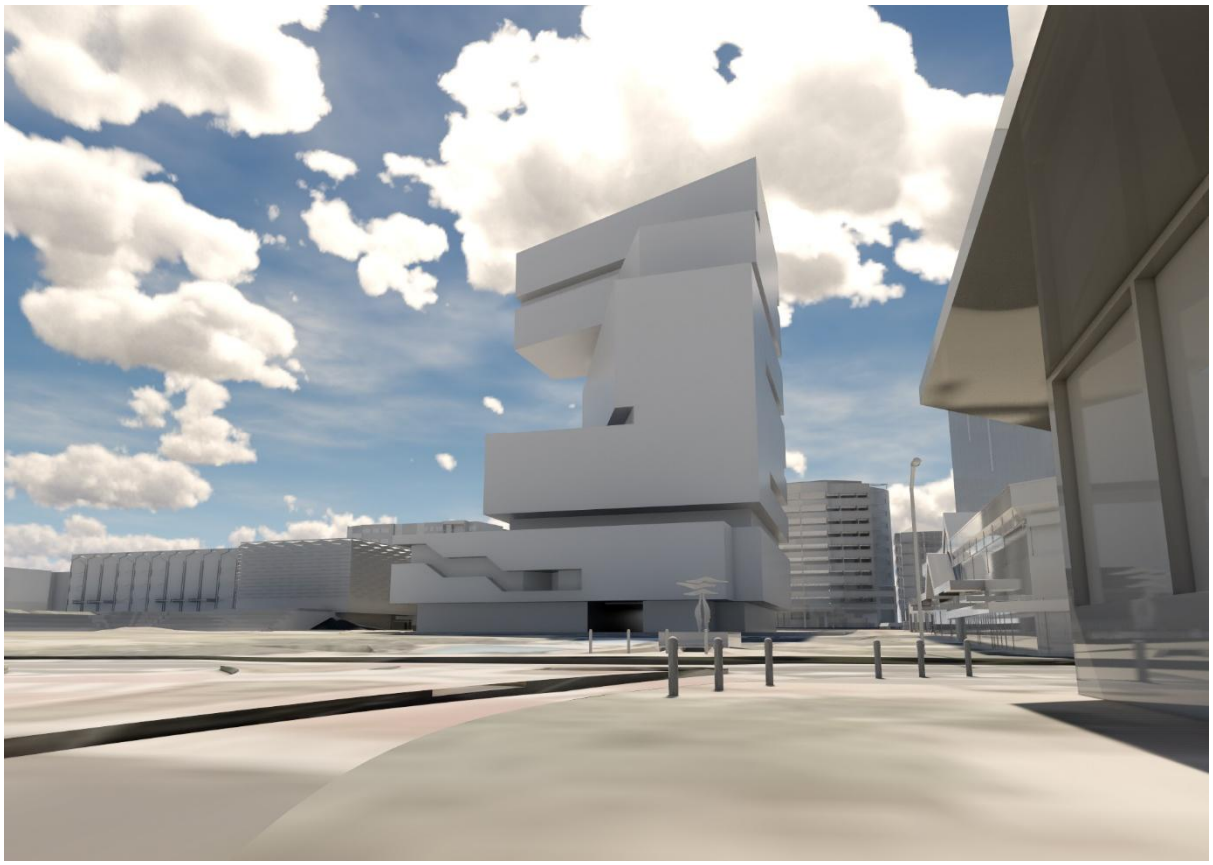
Street view along Rickard Road from the west.

Street view from the corner of Rickard and Jacobs Street, past the Bankstown Civic Tower.

View looking up Appian Way from The Mall.



View across Paul Keating Park, showing the adjacent Knowledge Hub and Bankstown Civic Tower.



View of the approach from Appian Way, south of The Mall.

Appendix

A Site Levels and Feature Survey (Surveyors)

B Landscape Concept Drawings (ASPECT – A3 size)

C Shadow Diagrams (Lyons - A4 size document)