6.1 Design Principles & Concept Plan

- There are 4 distinct sub-precincts comprising the overall Wyong Education and Business Precinct:
 - University (including student housing)
 - Business Park
 - Central Core (including SMARTS Hub)
 - Sports and Recreation
- Pedestrian Spines are central to each sub-precinct.
- Two linear development corridors are created within the developable area of the site, surrounded by the remaining woodland and wetlands of the 433 ha council owned site. The urban area is defined by access roads fronting the open space to provide addresses to buildings so as to discourage back of buildings facing open space.
- The east-west corridor makes up the bulk of the university campus whilst the north-south corridor contains a proportion of the University and the Business Park.
- A Central Core, in the north-east corner of the site forms the fulcrum of the two corridors and contains the SMARTS Hub, the Library, a hotel and university's administration and the public square.
- Sports facilities are within the adjacent open space, accessed from the adjoining road network.

- The number of parking spaces is a determining factor influencing the amount of usable floor space, the height and bulk of buildings and the character of the campus, Central Core and Business Park.
- The location of two major bus stations, one at the Central Core, one on the Link Road to serve, principally the Business Park can influence the number commuting by public transport to and from the site.
- In the longer term an additional railway station is proposed to serve the Business Park and the University. This may or may not be feasible in the long term, however land needs to be preserved, adjacent to the Link Road bus station.



Figure 35 – Master Plan Components - Design Principles

0

³⁰ Wyong Education & Business Precinct Concept Master Plan

6.2 Relationship to Wyong LEP

- Under the Master Plan some changes to Wyong LEP 2013 are likely to be required in relation to land use, height and density controls.

<u>Height</u>

- To allow the Master Plan to be realised the existing height limit of 12m may need to be increased to 24m across the whole precinct, or to a series of selected 24m spot heights. This will allow up to 6 or 7 storeys to be accommodated flexibly, including at the Central Core of the Precinct at the northern extremity near the existing Link Road roundabout, as well as any multi-level car parks that may be required in later stages of development.

FSR

- The existing precinct-wide FSR of 0.8:1 may _ concurrently require revision upwards to further provide flexibility into the future and assist in allowing the increased heights in various locations.
- The Central Core of the Precinct is to accommodate a landmark height (or heights), including a hotel, library, and the SMARTS Hub. At 6 storeys across this area a FSR of 3:1 will be required. 7 storeys across this area will require a FSR of 3.5:1.
- For the balance of the Precinct a range of FSRs may be required to accommodate the different land uses proposed.
- The University and Student Housing sub-precinct will require a FSR of 1.5:1 to 2.5:1 to accommodate the ultimate level of development following numerous stages. The Student Housing sites have been modelled at 2.5:1 to achieve 1.500 student beds.
- The Business Park will require 1.5:1 to accommodate the ultimate level of development following numerous stages and up to 3 storeys in height. No change to the FSR is required if after the later stages of development a maximum of 2 storeys Nature of Amendment Required is achieved.
- Multi-level car parks may be subject to FSR controls where they are in excess of "council's requirements". This may mean all, some or none of the car parks may be or include GFA. This will be dictated by what Council's existing or future requirements are in relation to the precinct.

- If the car parks are counted as having some form of GFA, then the FSR may need to correspondingly be revised upwards to cater for them, while at the same time not diminishing the development opportunity for the wider precinct.
- Clause 4.6 of the LEP can be utilised to "object" to development standards where adherence to height or FSR controls may be deemed to be unreasonable or unnecessary in the circumstances. This clause typically allows a notional +10% variation to the standard as an unwritten rule-of-thumb. This would only allow development to heights of in the order of 13.2m and a FSR of 0.88:1. Generally, this would not allow the type of in-built certainty required of the LEP to facilitate certain buildings or development of type envisaged in the Master Plan

Land Uses

- A range of land uses presently not nominated as permitted with consent (or even currently prohibited) will require revision to the land use table for the B7 – Business Park zone. The zone objectives too may require updating to cater for the new or extended range of uses and provide for a site-specific response to development.
- New uses to be included in the Permitted with Consent part of the land use table would at minimum include Educational Establishments (even though they would be otherwise made permissible via provision of the Infrastructure SEPP) and Boarding Houses (the only currently recognisable term under planning legislation covering Student Accommodation).
- Existing uses presently Prohibited that would be relocated to Permitted with Consent would include those consistent with the desired range of use under the Master Plan, namely: Commercial Premises, Highway Centres, Industries, Tourist & Visitor Accommodation.

- The optimal vehicle to facilitate these adjustments is a Schedule 1 listing in the LEP for the Additional Permitted Uses via a Planning Proposal to the Department of Planning & Environment, which will also deal with remapping heights and FSR as set out above.





Figure 37 – Wyong Shire Council LEP 2013: Existing floor space ratio controls map.

6.3 Sub - Precincts

- There are three distinct sub-precincts making up the overall Wyong Education and Business Precinct; the University (including student housing), the Business Park, and the Central Core.
- The University occupies the east-west arm and a section of the north-south arm, the Business Park taking up the remainder of the north-south arm.
- The Education sub-precinct is located to the north and the Business Park to the south as

 it will be less affected by road/ rail noise and vibrations. The University will have synergies with the existing schools to the north of the Precinct, collocating between primary, secondary and tertiary education.
 Student housing located to assist in activating spaces and distributed to be separated from major noise sources.
- The meeting point of these EW and NS arms hold the Central Core, which includes the SMARTS Hub building, the Library (possibly shared between the university and the council), a hotel, the universities administration and a retail/multi-level car parking building. The main pedestrian square will also contain the bus station.
- Each precinct will need to be subdivided into sub-precincts to reflect their functions. The university could be divided into faculties or functions, each bounded by a road or walkway.
- The Business Park is divided into a broad 200m road network.

 Each sub-precinct can be further subdivided particularly the business park where uses can range from a large enterprise occupying a site of say 200m x 200m or smaller sites when a superblock is developed by say an industrial estate developer.

Development Assumptions

- The general aim of the Education subprecinct is to cater for a 7,000 student university campus with some 1,500 students accommodated in student housing.
- The Business Park would employ 3070 workers, at 35 m² per worker.



Figure 38 – Master Plan Components - Sub-precinct stratégy.

32 Wyong Education & Business Precinct Concept Master Plan

6.4 Building Heights

<u>University</u>

- If the university develops as a first stage series of buildings as outlined in this concept Master Plan, then there is unlikely need to exceed two levels per teaching building, therefore minimising the use of lifts.
- However, any future extensions could incorporate higher buildings where necessary, up to four storeys high. These high buildings could be suitable for small offices and some nonteaching uses.
- The student housing will require heights of 6 storeys to accommodate the target of 1,500 students.

Business Park

 It is assumed that buildings in the Business Park will not exceed three storeys, as most Business Park buildings in say, Norwest and Macquarie Park, are a mixture of office, servicing and warehousing, none of which exceed three storeys.

<u>Central Core</u>

 This section can proclaim the presence of the Wyong Business and Education Precinct by concentrating the highest buildings, particularly the Smart Hub, the hotel and the library. It is likely that the heights would not exceed 8 to 10 storeys.



6.5 Open Space Framework

- The Precinct is bounded to the west by the Porters Creek wetland, providing an open space setting for the whole precinct.
- It is proposed to have a main square within the Central Core as a setting for the SMARTS Hub, library, hotel and university administration buildings.
- This square will be directly served by the bus station. A secondary square will provide a suitable setting for the library.
- Each of the university faculty sectors could have its own open space depending on the buildings future designs. It would be expected that these open spaces would be directly accessed from the main pedestrian spine.
- Access to the wetlands west of the Business Park sub-precinct, would have direct access from the pedestrian ways associated with the road network.



Figure 40 – Master Plan Components - Open space network strategy.

34 Wyong Education & Business Precinct Concept Master Plan

6.6 Circulation Road & Access

- Motorway and arterial road access is from the M1 Motorway, via Sparks Road, and the Pacific Highway.
- The Link Road will join the Pacific Highway with Sparks Road, and will form the eastern boundary of the Precinct.
- Both the University and Business Park Precinct road structures generally form a 200m x 200m grid network.
- The internal road network gives access to each site, from which key entry points are accessed to each building. Internal roads run parallel to the Link Road and form the edge to the open space. This ensures that the backs of buildings do not front the Link Road or the open spaces, so as to maintain good urban design.



Figure 41 – Local context.



Figure 42 – Master Plan Components - Road network strategy.

6.7 Public Transport

<u>Bus</u>

- All buses will stop at the bus station located in the north of the central core of the Precinct. This interchange will provide an exchange between both the existing, and new bus routes that will facilitate access to the proposed site.
- In addition, buses will stop at the bus station location east of the Business Park main boulevard, especially express services during morning and evening peak times.

Existing Railway Station

- The retention of the existing Warnervale Station is crucial to providing rail access to the proposed precinct. It would be approximately 10 minutes walk from Warnervale Station to the north-east point of the precinct, and approximately a further 10 minutes to the southern end of the Business Park.
- This length of time is not considered conducive to encouraging the use of public transport. For that

reason an additional station is possible to help divert access to the precinct.

- It would become an express station, serving as a major destination in the long term.

Potential Railway Station

- A potential railway station serving the precinct should be adjacent to the main 'boulevard' which leads to the sporting fields and sports & recreational centre, through the Business Park.
- It is suggested that the location of a potential station be identified and provision made for future pedestrian bridges and bus station. This will allow for the future expansion of both the University and Business Park, without the need to provide additional parking space for the additional students and workers.
- According to the 2011 census, about 75% of Wyong's workforce travel to work via car, while only 5.5% travel to work via train or bus. The provision of public transport directly serving the campus will improve this modal share dramatically.



Figure 43 - Busways Central Coast - Existing Bus Routes map, with proposed development in red.



Figure 44 – Master Plan Components - Potential public transport strategy.

6.8 Pedestrian & Cycle Strategy

<u>Pedestrian</u>

- Majority of the site is located within 5 minutes walking distance from a bus station.
- A grid network has been adopted to allow for easy pedestrian access.

<u>Cycle</u>

- A main pedestrian square within the Central Core setting, will provide a key social area.
- The wetlands would have direct access from the pedestrian ways associated with the adjoining road network.
- A cycle path encompasses the Precinct, utilising the scenic open space and view of Porters Creek.
- Bicycle parking will be provided near the SMARTS Hub, to encourage access to the SMARTS Hub building via active transport, by professionals living in close proximity to the site.



6.9 Staging

- Universities evolve over decades indeed centuries until they reach capacity on their campus. The choice is to purchase more land adjacent to their original campus such as the University of Sydney expanding its campus into Darlington or UNSW, strategically accruing adjacent land reserved for Sydney Hospital and for Randwick Council Golf Course. The other option is a multiple campus university like University of Western Sydney. Macquarie University was fortunate enough to be granted a 140 ha site in Sydney's former greenbelt, yet decided to build a very compact campus to allow students to walk between faculties with ease.
- In the case of Warnervale there is a limited area for a university which would constrain the number of students to be accommodated. Notwithstanding this limited campus area, there will need to be a staging program albeit within an overall long term structure plan. Without such an overall plan, future development could be haphazard obviating a maximising of educational floor space on a very tight site.

<u>Transport</u>

- The quantum of parking depends on the proportion of students using public transport, cycling or walking on site. When there is insufficient on-campus parking, students park in adjacent residential areas where all day parking is available. This changes when residents lobby council to have resident parking control and parking limits.
- The provision of public transport directly serving the campus changes the modal share dramatically as has been the experience at Macquarie University following the opening of the Macquarie University Station on the Epping
 Chatswood line in 2009. A good bus service can also influence the modal share.

- Wyong's workforce use of private transport is at a level of 73% compared with the Sydney average of 59% indicating that a Warnervale Campus cannot rely on public transport for some time.
- Car parking can be provided at-grade on land reserved for academic expansion. This then serves as a 'land bank' until needed for academic buildings. There is then the need to build multi-level car parks, the number depending on the modal share when the campus is fully developed.
- The decision on the staging of built form will need to wait for a university to be established and their teaching, research, specialisation and long term programs identified. It is for that reason two Stage 1 alternative staging plans are identified.

Stage 1 - Scenario A

- Each faculty will have an exclusive first stage building which will occupy an exclusive faculty site.
- Surplus land will serve as a surface car park and form a land bank for future expansion.
- There is then the need to build multi-level car parks, the number depending on the modal share, between public and private transport, when the campus is fully developed.
- The quantum of parking depends on the proportion of students using rail, bus, cycling or walking.
- This has been the Macquarie University model, being a "greenfield" campus.



Figure 46 - Master Plan Components - Stage 1 Scenario A strategy.

6.9 Staging

Stage 1 - Scenario B

- The alternative is to construct a few buildings to be shared by a number of faculties until they need to expand and be decanted into their own purpose built structures.
- This has been the scenario model for UNSW, which started with one building, and various faculty buildings were progressively built as sites became available and student numbers expanded.



Figure 47 – Master Plan Components - Stage 1 Scenario B strategy.

6.9 Staging

Ultimate Stages

<u>University</u>

- With faculties expanding into their own decanted site, the reserved land will incrementally be developed as the university expands.
- The required parking will be relocated into multi-level car parking stations.
- Final expansion of university can cater for undetermined size as new buildings can exceed the assumed 3-storeys when needed.

Business Park

 The business park would expand as the market dictates with, in many cases, early buildings being demolished to make way for new infrastructure.

<u>Transport</u>

 It is assumed that while student numbers increase, the modal share towards public transport will also increase, as the university expands due to improved rail/ bus access.



Figure 48 – Master Plan Components - Ultimate stages strategy.

40 Wyong Education & Business Precinct Concept Master Plan

6.10 Illustrative Master Plan -

- The Illustrative Master Plan indicates a possible distribution of buildings the form of which can only be hypothetical at this stage.
- The concept behind the university is that each 100m x 100m grid contains a faculty or an associated university building, including parking stations.
- The Central Core is a site where the siting of the SMARTS Hub, the Library, the Hotel, University administration. Retail/ Carpark, and bus station, forms a major pedestrian square as part of the Precinct's open space network. This will form the main meeting place for the Precinct.
- The Business Park can be configured in a number of permutations, depending on the type and size of business attracted.



Figure 49 – Illustrative Master Plan diagram.

6.11 University Yield Calculations

University Capacity	
Number of students enrolled	7,000
EFTS* (x 0.66)	4,620
Floor space of education buildings @ 10m ² per EFTS student	46,200m ²
Available site area	100,000m²
Area of building footprints	26,200m²
Floor space at 2 levels	52,400m²
Capacity of students ର 10m² per student	5243 students

Table 5 - Master Plan Components - University capacity yield calculations.

Student Housing	
Available site area (2 sites @ 10,000 each)	20,000m²
Estimated Demand	1,500 students
Floor space required (@ 30m² per student)	45,000m ²
Area of all building footprints	7,650m²
Total floor space area at 6 levels	45,900m ²

Table 6 - Master Plan Components - Student housing capacity yield calculations.

University Capacity

- When 7,000 students are enrolled, the EFTS* capacity is estimated to be 4,620. Based on the conceptual footprint capacity calculations, it is estimated that the capacity for the university will be 5,234 EFTS*.

Parking

- There would need to be a concerted effort to encourage students to use some form of public or active transport. If this is not possible then the student numbers would need to be capped at an appropriate amount.
- Of the 4,620 EFTS, if 70% travel by car, 3,234 car parking spaces will be required on the site. These parking spaces will be provided in the on-street parking within the Precinct, Central Core parking station, university surface parking, and in the 5 university multi-level parking stations.
- The SMARTS Hub visitors will have the option to park in the Central Core parking station or on the on-street parking surrounding the Central Core sub-precinct.
- The Overflow Open Space Parking will only be required if on-street parking has been fully occupied.

Student Housing

- Wyong Shire Council has proposed the target for providing accommodation for 1,500 students. Approximately 45,000 m² is required for this, based on the standard of 30m² per student. To cater for this, the two nominated locations will require 6 storey envelopes.

* EFTS = Equivalent Full Time Students, the number of students present on site at a time (66% has been determined, based on studies and experience by Cox Richardson Architects and Planners, the model used in the academic strategic planning of UWS Campbelltown Campus)

University Car Parking Provision	
Demand	
If 70% of 4,620 students come by car	
On street parking around the university sub-princincts @25m² per surface car space	
Central Core car parking station	
Surface parking area	
Number of cars @25 m ² per surface car space	
Remaining required car parking spaces	
Multi-level parking required @35m ² per car space	
Multi-level car parking stations footprint	
Required levels for multi-level car parking stations	
Required parking stations	

Table 7 - Master Plan Components - University car parking yield calculations.



Figure 50 - Master Plan Components - University car parking provisions

4,620 EFTS 4,620 x 0.7 = 3,234 cars Approximately 250 spaces 1260 m² (footprint) x 6 levels = 7.554m² 7,554/35 per car = 215 cars 13.900m² 13,900/25 = 556 cars 3,234 - (250 +215 +556) = 2213 spaces 2213 x 35 $= 77.455 \text{m}^{2}$ 16,584m² 77,455/16,584 = 4.7 average number of floors 3×4 level parking stations + 2×6 level parking stations

6.12 Business Park Yield Calculations

Business Park Capacity	
Total available site area	116,600m²
Total building footprint	42,069m ²
Number of workers at hybrid 2 & 3 storey buildings scenario (@ 35m² per worker)	part 3 storey footprint = 23,294 m ² x 3 = 69,882 m ² 69,882/35 =1997 workers part 2 storey footprint = 18,775 m ² x 2 =37,550 m ² 37,550/35 = 1073 workers total number of workers = 3070
Number of workers at 2 floor buildings (@ 35m² per worker)	42,069m² x 2 = 84,138m² 84,138/35 =2404 workers
Number of workers at 3 floor buildings (@ 35m² per worker)	42,069m ² x 3 = 126,207m ² 126,207/35 =3606 workers

Table 8 - Master Plan Components - Business park capacity yield calculations.

Business Park Car Parking Capacity	
Remaining land (site area - footprints)	116,600 - 42,069 = 74,531m ²
If 80% available for surface parking, and 20% for landscaping	74,531m² x 0.8 = 59,625m²
Available parking spaces @ 25m² per surface car space	59,625/25m² =2385 spaces
Modal share (d 2 floor buildings	2385 spaces/2404 workers =99% by car
Modal share (d 3 floor buildings	2385 spaces/3638 workers =66% by car
Modal share @ hybrid 2&3 floor buildings	2385 spaces/3070 workers =78% by car

Table 9 - Master Plan Components - Business park car parking yield calculations.



Figure 51 - Master Plan Components - Business park car parking provisions.

- development) some 2,404, 3,070, or 3,606 jobs are potentially created, respectively.
- at-grade can cater for some 2,385 parking spaces.
- development scenario would allow 66% of workers to drive.
- 78%.

- Based on a series of development scenarios (2-storey, part 2 and part 3-storey, and 3-storey

- All parking is proposed at-grade centrally within development parcels. Residual space provided

- In a 2-storey development scenario, this would allow a car-based mode share of 99%. A 3-storey

- A hybrid scenario of part 2 and part 3-storey development would result in a car-based mode share of

