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# Macquarie Park Plan Review

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## Options Paper

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27 March, 2013

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# 1. Executive Summary

Architectus was commissioned in 2012 by the City of Ryde Council to examine the planning framework and delivery mechanisms to achieve the Macquarie Park road and open space network. Although being a highly successful business park, Macquarie Park has a number of major issues including traffic congestion, a shortage of public open space, a lack of a perceived 'sense of place' including very little day to day amenity for workers, poor connectivity to the three new rail stations for pedestrians and a lack of street address for higher densities of development. For these reasons, successful delivery of the new road and open space network is paramount.

A full review of the Ryde DCP 2010 access network and open space network was conducted by Architectus to refine and rationalise the roads and open space strategies. As a result, Architectus has proposed:

- A new road network consistent with the philosophy of the Ryde DCP 2010 for a fine grain movement network,
- A new open space plan for a better sense of place and to encourage amenity and recreation in more central locations,
- A new pedestrian network which acknowledges the Space Syntax Study commissioned by Council in 2009.
- Place making initiatives including the reinforcement of the east-west spine along Waterloo Road with the development of four activity centres (three along Waterloo Road and one at North Ryde station) as well as an increase of recreation attractors, location of open space and other activities fronting Waterloo Road.
- New height and Floor Space Ratio (FSR) controls that find a balance between giving landowners more capacity and creating a desirable urban environment.
- A new mechanism to achieve the recommended public domain network through dedication and / or contribution.

The proposed new **Access Network Plan** is an alternative to that included in the Development Control Plan (Ryde DCP 2010). The new scheme is the result of careful consideration of the existing roads, traffic studies, urban design best practice, practical implementation, minimising the locations where roads are split over a lot boundary, and where new roads impact existing buildings, and an incentive scheme to ensure the delivery of the roads. The network is based around three new street types: a 20m wide road, a 14m wide lane and an 8m wide pedestrian link to suit a variety of contexts.

Currently, roads are up to 600m apart in Macquarie Park providing extremely limited connectivity. The proposed access network requires a road approximately every 200m and a pedestrian link every 100m; significantly improving permeability.

The inclusion of key connections such as two east-west roads running parallel to Waterloo Road, the additional connection between Herring Road and Macquarie University and the road between Lyon Park Road and Ivanhoe Place will reduce strain from the current road grid congestion.

The proposed **Open Space Network** is different to the Ryde DCP 2010. The scheme concentrates open space along Waterloo Road and consolidates the many smaller open spaces shown dispersed across Macquarie Park in the Ryde DCP 2010 to become three main parks fronting Waterloo Road. In addition,

the surrounding National Park open space assets are better integrated into the Macquarie Park open space network.

The Waterloo Road spine links Macquarie Park together and is more intensified with higher FSRs and heights, transport hubs and a concentration of activities - recreational activity hubs and transport hubs.

The creation of a '**sense of place**' within Macquarie Park will be achieved partly by the development of four activity centres which are to include cafes, restaurants, entertainment uses and recreation uses. The activity centres are spaced along Waterloo Road and by North Ryde Station to ensure all residents and workers have a centre within an easy walk. Active frontages are required to face Waterloo Road and edge the main open spaces.

The other key element of achieving a 'sense of place' is the establishment of a large range of 'recreation and leisure attractors' throughout Macquarie Park and especially along Waterloo Road. These could include a wide range of different uses but the key is to ensure there is an attractive range of recreation options for people working at Macquarie Park and living nearby. It is intended that these diverse recreation and leisure attractors will lead to the development of a corporate recreation culture at Macquarie Park as a point of difference from CBD employment locations.

The proposed **FSR** controls are the result of developing and testing three options. The first is based on the LEP 2010, the second on Ryde LEP 2010 Amendment 1 and the third option rationalises the Ryde LEP 2010 Amendment 1 plan and reinforces Waterloo Road as the spine. The development and assessment of these options has had extensive financial input from HillPDA. From both urban design and economic perspectives, Option 3 is the most likely to encourage the delivery of the access network and provide the best built form outcome.

The proposed Height controls are designed to allow flexibility whilst reinforcing the role of Waterloo Rd. A 'loose-fit' approach, that ensures that the FSR can be achieved within the building envelope.

Comprehensive site testing and financial modeling in support of Option 3 has been undertaken by Architectus and HillPDA and will be discussed in the subsequent Recommendations Paper.



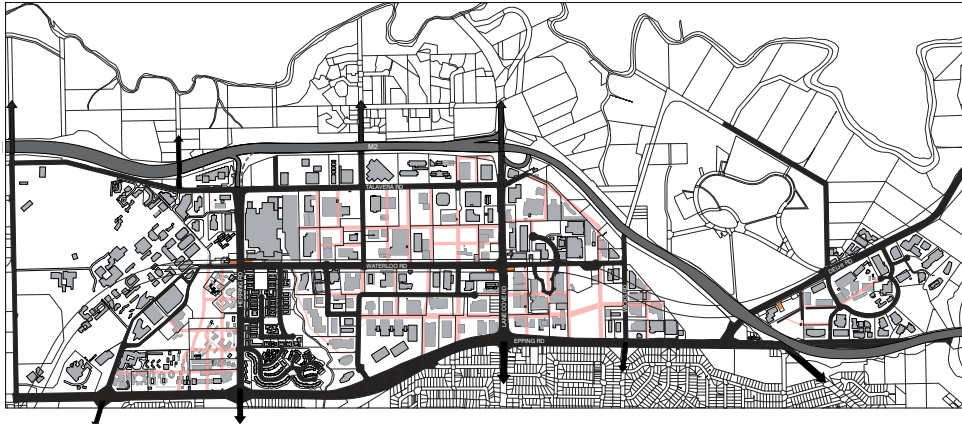
Traffic congestion is a major issue in Macquarie Park.



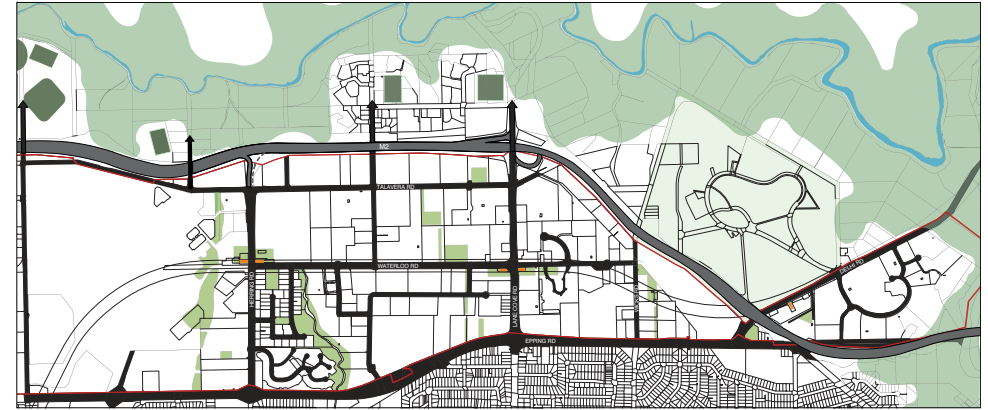
Waterloo Road has the potential to become the main spine through Macquarie Park and will help create a distinct sense of place.

# 1. Executive Summary

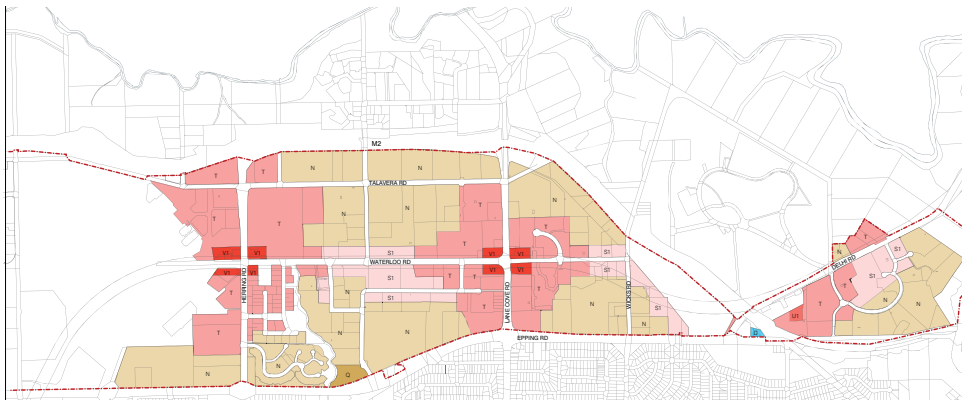
## Existing Controls



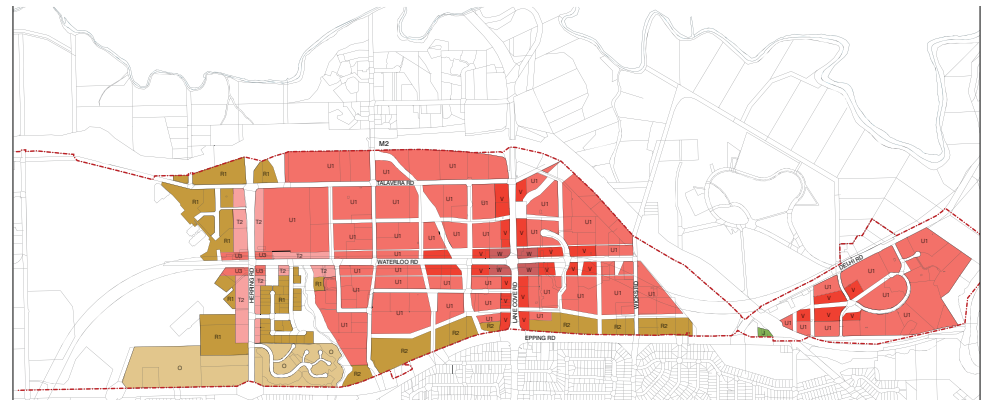
Ryde DCP 2010 Access Network



DCP Open Space Network



Ryde LEP 2010 FSR



Ryde LEP 2010 Building Heights



## 2. Urban Design Options

### 2.1 Proposed Access Network

The existing Macquarie Park street grid has very widely spaced streets resulting in large street blocks and poor vehicular and pedestrian connectivity. In addition, the high levels of car usage and abundant car parking also contribute to the traffic congestion Macquarie Park experiences during peak times. For these reasons, the key strategy behind the new access network is increasing the number of roads in Macquarie Park to disperse traffic and reduce congestion as well as to increase pedestrian permeability and connectivity.

#### Issues

- The Ryde DCP 2010 Access Plan proposes a large number of new roads on a significant number of lots across Macquarie Park. The roads sometimes impact significantly on sites especially small lots which are highly compromised by the land take of the proposed roads.
- The Ryde DCP 2010 roads form a connected fine grained grid and many are located along lot boundaries with half of the width of the road on either side. They are generally proposed to have a reserve of 20m with 10m on each lot. The principle behind this is that if only half the road is built at 10m wide it would still be usable for a two way lane in the interim. This methodology would lead to interface issues between the two sides of the road, as well as at the ends where different halves may have been constructed. It also impacts a large number of lots. Whilst sharing the cost and space impacts, it is not a practical way to implement new roads.
- Topography: Some areas of Macquarie Park have significant topographic changes across lots. Proposed roads must take topography into account in order to ensure feasibility.
- Equity: The roads delivery mechanism should ensure that landowners who are required to provide roads should not be adversely impacted financially compared to landowners who do not.

#### Design response

Architectus proposes less roads than the Ryde DCP 2010 whilst still achieving a fine grained, connected and orthogonal street grid throughout Macquarie Park. A key aspect of the new network is the continued provision of two new east-west streets as recommended by Bitzios Traffic Consultants but located for better implementation. In addition, a series of north-south streets, lanes and pedestrian links which vary in width and location add to connectivity between these east-west streets and particularly connect with Waterloo Road. It is less important that many of the north-south routes are fully aligned across Waterloo Road. Some can be offset without compromising the network objective of connectivity.

Waterloo Road will be developed as the main spine through Macquarie Park and will include all the key attractors and place-making elements. In addition, subject to RMS approval, new roads will connect directly to Epping Road and Lane Cove Road to help disperse the traffic within Macquarie Park. These likely will be 'left in and left out only' roads.

A review of the Architectus proposed access network was conducted by Bitzios Traffic Consultants who concluded that modifications to the internal street network had no noticeable effect on performance when compared to the Ryde DCP 2010 access network. Additionally, the inclusion of the road between Macquarie University and Herring Road which extends through to Lyon Park Road was seen

to have significant benefit as did the potential connection between Wicks Road and Delhi Road which although outside the study area, should be given future consideration.

The main strategic principles and design features are as follows:

#### Features of the new road network:

- Generally a 200m street grid is proposed throughout Macquarie Park with a more fine grained grid of lanes and pedestrian links connecting into Waterloo Road, partially based on existing roads and the private street network.
- A hierarchy of roads with varying street widths is aimed at reducing the impact of roads on the land holdings wherever possible by providing narrower lanes, or pedestrian ways only, rather than wide streets while still increasing permeability across Macquarie Park.
- Despite the road being outside the study area, connecting Wicks Road to Delhi Road by utilising existing roads around the Northern Suburbs Cemetery would be beneficial to traffic flow and should be a long term consideration.
- A potential upgrade to the bus interchange on Herring Road is proposed
- The proposal connects the TCA site near the M2 into the road network around Wicks Road and the rest of Macquarie Park.
- At Riverside in the east, a new road is proposed through the development linking 'The Village' centre more directly to the train station and other parts of Riverside. This allows for higher density development to be achieved in the longer term.
- Where possible, signalised crossings should replace roundabouts along Waterloo Road to improve pedestrian safety and connectivity.

#### Road location:

- Generally, new road locations are fixed and should not be re-negotiated at the DA stage.
- In some locations the road connections to adjacent roads are fixed, but the alignment of the road between those two points is flexible. This is recommended for three large strategic sites to allow for flexibility in the design process and to recognise existing built form constraints. A preferred location of the road is shown within a hatched area. The road can be located in any alignment within the hatched area.
- Where possible, proposed sections of roads have been located on one lot and along a lot boundary rather than shared between lots with half on either side of the boundary as shown in the previous Ryde DCP 2010 Access Map. This reduces the number of lots affected and reduces the number of interfaces between different portions of roads.
- The roads are located on the larger of the lots where there is a choice between two lots.
- Only where half a road has already been built on one side of the boundary have the new roads been located shared on either side of a boundary.

- There are many examples in the Ryde DCP 2010 where new roads clash with existing buildings. These have been reduced to a minimum by aligning new roads away from buildings and on the edge of lots. In the few cases where there is still a clash with existing buildings, it is accepted that the new roads may take longer to occur, where they rely on sites being redeveloped.
- New development cannot be built over the new road alignments. Even if a land owner decides not to take advantage of the FSR incentive and not build a new road they must not build over the road location. This is important in order to ultimately provide a connected street grid for Macquarie Park.

#### Creation of a activity spine on Waterloo Road

- "Main street" linking all parts of Macquarie Park together along Waterloo Road spine.
- Higher FSRs and Heights facing Waterloo Road.
- Focus of recreational attractors and activity hubs along Waterloo Road.



Existing heavy traffic loads will be mitigated by additional roads providing alternative routes.

## 2. Urban Design Options

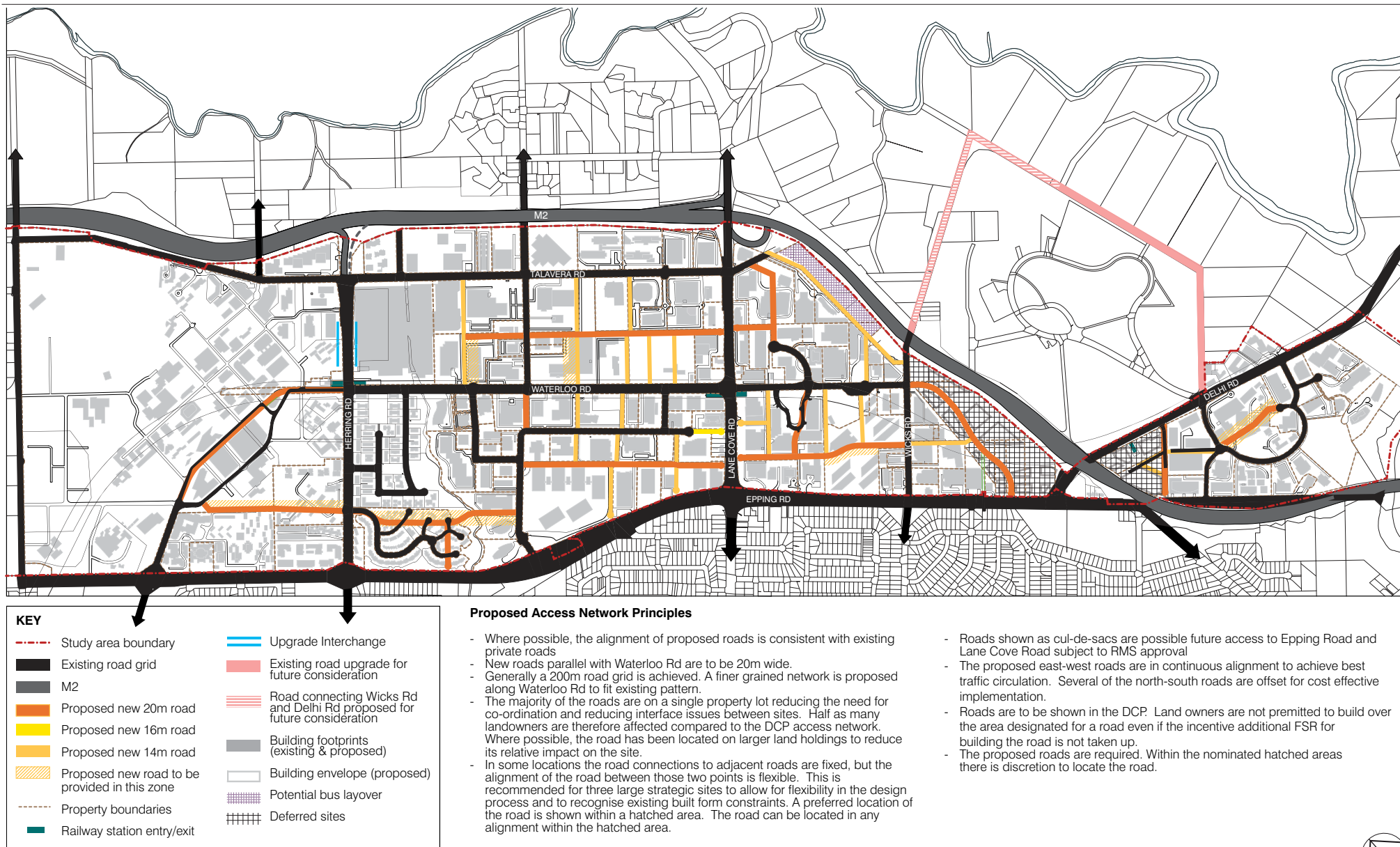


Figure 1: Proposed Access Network Plan

m 50 100 200 400



## 2. Urban Design Options

### Road types: Street and Lane

The proposed access network plan recommends a new system of streets and pedestrian pathways to improve permeability and circulation. Primarily, there are two different street types that respond to existing and future traffic conditions; 20m streets and 14m lanes. This approach simplifies and reduces the street types in the Ryde DCP 2010 and aims to create a legible street hierarchy.

The majority of 20m wide streets run east-west and connect into primary and arterial roads. The 14m lanes then create north-south connections resulting in a highly permeable street grid.

### Principles

- Achieve increased permeability and improved traffic flow through a finer grain network of streets
- Increase pedestrian connectivity by providing continuous footpaths
- Enhance amenity by planting street trees on both sides of the street
- Provide on-street parking where possible
- Provide a clear hierarchy of street widths

### Design response

- The new streets are 20m wide i.e. Type 2 Streets as per the Macquarie Park Public Domain Technical Manual and a new 14m wide lane type is proposed featuring a two way carriageway.
- All new roads parallel with Waterloo Road are 20m wide
- 20m streets are to provide on-street parking on both sides for convenience and traffic calming.
- Both streets and lanes have trees on both sides for amenity and to provide a high quality streetscape
- Both streets and lanes have footpaths on both sides to provide increased pedestrian connectivity.
- Streets and lanes are to be dedicated to Council.
- Streets and lanes are to be provided where shown on the Access Network Plan and to be included in the DCP. All roads are to be designed to Council Standards.

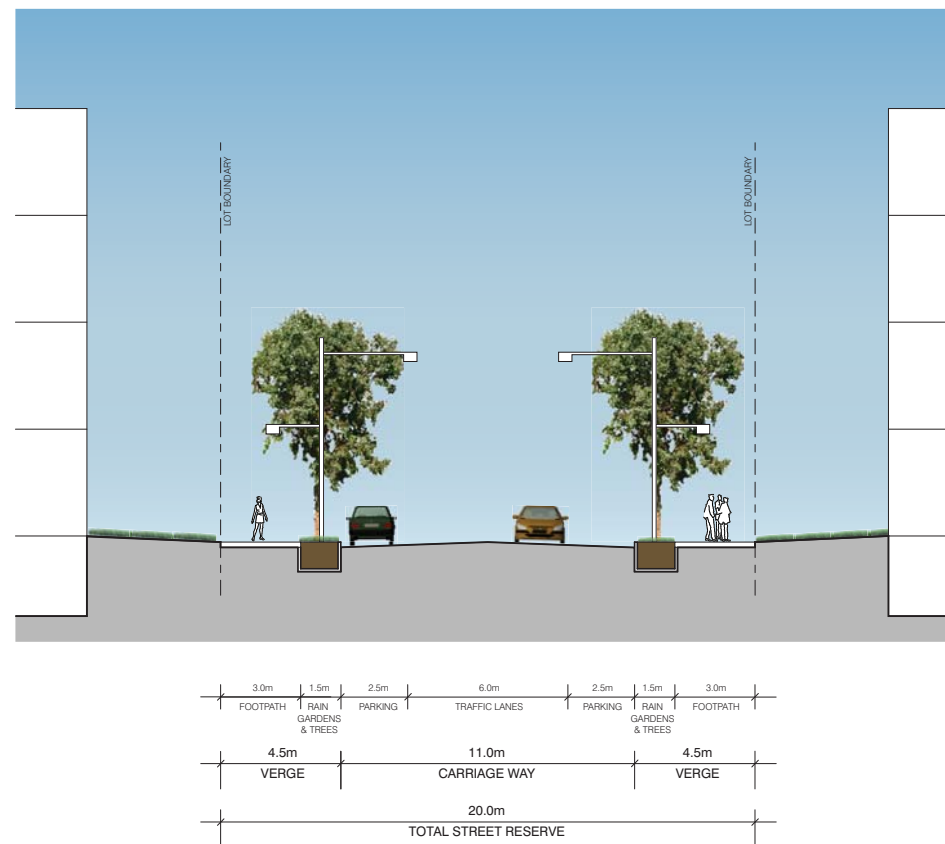


Figure 2: Street Section (20m reserve)

## 2. Urban Design Options

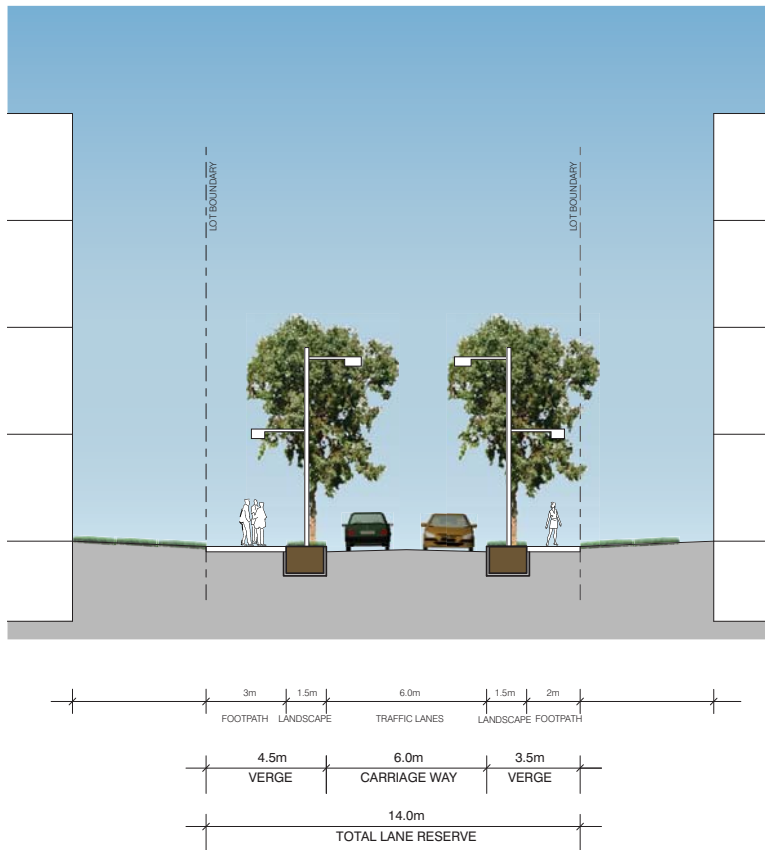


Figure 3: Lane Section (14m reserve)



Existing private roads provide the opportunity for locating new roads and pedestrian links with less disruption to site planning.



Active frontages can include gyms, playing courts and other recreational attractors appropriate to workers at Macquarie Park.



## 2. Urban Design Options

### Pedestrian Links:

There are very few existing pedestrian links through Macquarie Park resulting in poor pedestrian permeability and connectivity. The Proposed Pedestrian Network plan aims to complement the Proposed Access Network plan and respond to the 'Baseline Movement Economy Report' by Space Syntax by providing a pedestrian link approximately every 100m. This will prioritise walking and cycling and improve the overall working and living environment in Macquarie Park.

### Principles

- Increase walking a cycling by providing a pedestrian link approximately every 100m
- Encourage shared use through an increased path width
- Apply principles and findings from the 'Baseline Movement Economy Report' by Space Syntax
- Increase safety and amenity through good lighting and generous spacing

### Design response

- Pedestrian/cycle links are provided to increase permeability across Macquarie Park where a new road is not considered necessary.
- Generally a pedestrian connection, whether a footpath on a road reserve or a pedestrian link, is provided every 100m throughout Macquarie Park.
- The pedestrian links are to be 8m wide comprising 2m of landscaping on either side of a 4m wide shared path.
- Pedestrian links are required to be provided where shown on the Access Network Plan as part of a new development and no incentive will be provided.
- The pedestrian links are to be designed to Council Standards and apply Safer By Design principles such as having good passive surveillance, being direct, well lit and well signposted.
- Proposed pedestrian routes were developed with reference to the principles demonstrated in the 'Baseline Movement Economy Report' by Space Syntax December 2009. The routes were rationalised to respond to the urban form while providing a highly walkable urban environment. Routes were provided along footpaths on streets dedicated pedestrian/bike paths. All additional through links would be encouraged to increase the permeability and connectivity within the pedestrian realm.
- Pedestrian links are to be a right of way only and not dedicated to Council.

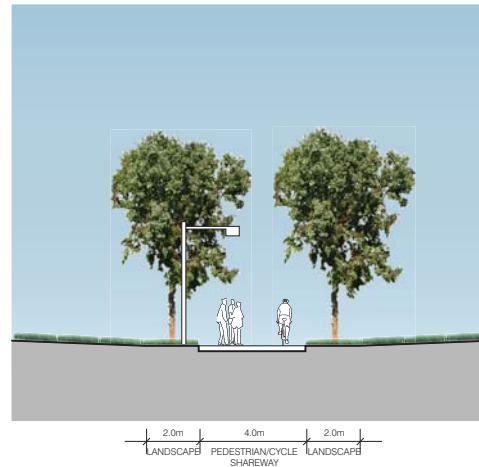


Figure 4: Pedestrian Link Section (8m reserve)

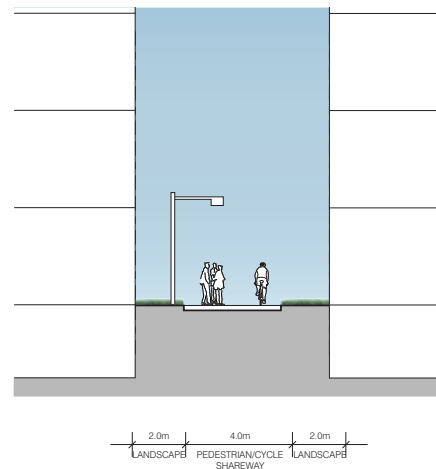


Figure 5: Pedestrian Link Section (8m reserve), where no building setback is provided

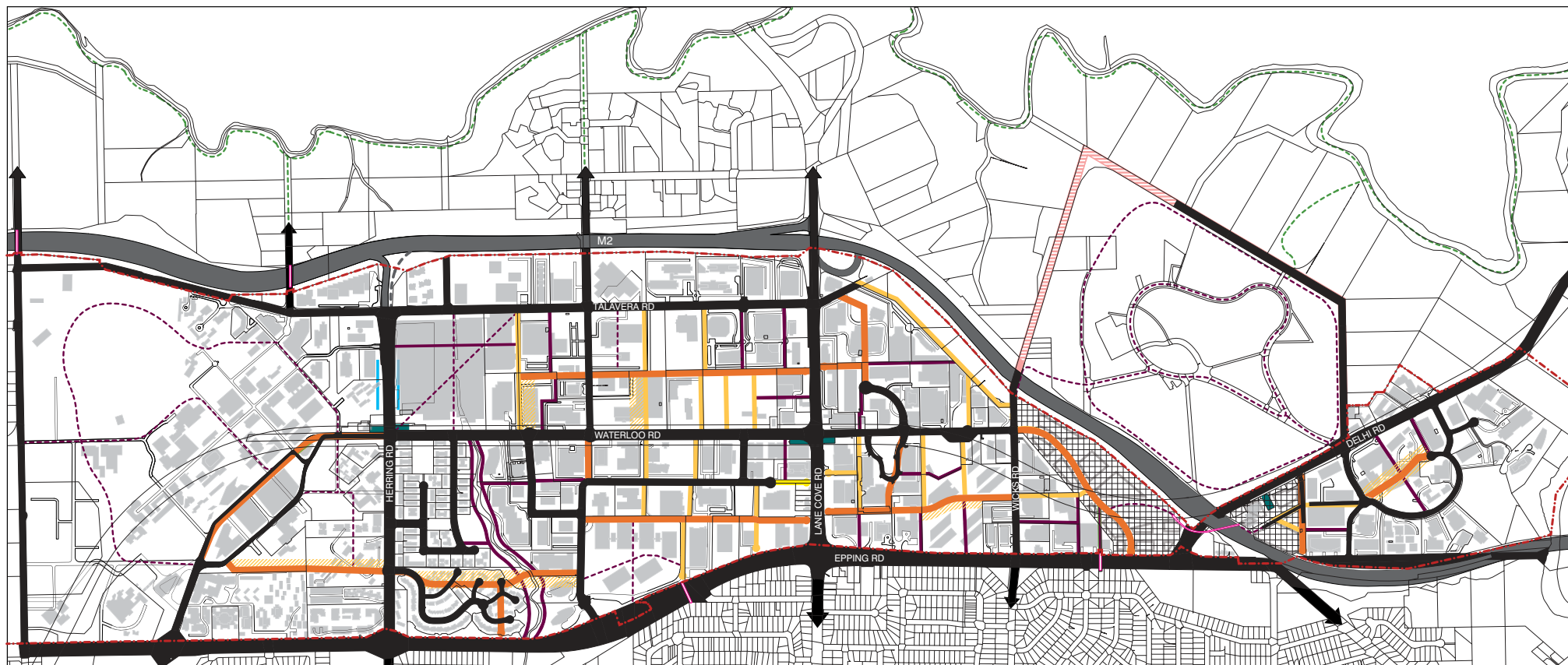


Existing private pedestrian links have potential to be opened up to public access.



At Riverside, existing pedestrian links are well used. Providing more frequent, wider paths with good passive surveillance will increase their popularity.

## 2. Urban Design Options



KEY			
	Study area boundary		Deferred sites owned by TCA
	Existing road grid		Lane Cove National Park pedestrian connections and walking tracks
	M2		Existing and proposed footbridge
	Proposed new 20m road		Railway station entry/exit
	Proposed new 16m road		Upgrade Interchange
	Proposed new 14m road		Required pedestrian connection
	Proposed new road to be provided in this zone		Required pedestrian connections (location flexible)
	Building footprints (existing & proposed)		
	Building envelope (proposed)		
	Road connecting Wicks Rd and Delhi Rd proposed for future consideration		

### Proposed Pedestrian Network Principles

- A pedestrian link is provided every 100m to gain a high level of permeability.
- A 4m path flanked with landscape will encourage shared use
- Principles and findings from the 'Baseline Movement Economy Report' by Space Syntax have been considered and applied
- Increased safety and amenity is achieved through good lighting and generous spacing
- The proposed pedestrian connections and new locations are required. Where the path is shown dashed, location is discretionary. This is specified where there are significant conflicts with existing built form.

Figure 6: Proposed Pedestrian Network

m 50 100 200 400



## 2. Urban Design Options

### 2.2 Proposed Open Space Network

Currently there is very little usable public open space within Macquarie Park and the spaces that are usable are inadequate in scale and program for the recreational needs of the workers and residents of the area. Existing open spaces such as Shrimptons Creek require regeneration and expansion in order to increase their utility and connections to nearby green spaces like Lane Cove National Park and the open space in Macquarie University need significant improvement.

Macquarie Park would also benefit significantly from a large central green space offering both passive and active recreational opportunities near Macquarie Park Station. This also has the potential to function as the main community hub. In order to deliver usable green spaces, Architectus propose that open space be prioritised to deliver spaces that will have the most significant public benefit.

#### **The City of Ryde Draft Integrated Open Space Study**

The City of Ryde Draft Integrated Open Space Study was placed on public exhibition between April and June 2012. The Study identifies an open space deficiency in the Macquarie Park Corridor. This deficiency will only be exacerbated by planned growth in the Corridor. The Ryde Integrated Open Space Study indicated that two new major reserves suitable for active and passive recreation and several smaller open space areas are needed to support planned growth in Macquarie Park.

The Strategy makes the following detailed recommendations:

- That Macquarie Park should accommodate a hierarchy of public spaces, ranging from parks and plazas around 2,000sqm and 3,000sqm to meeting places of 20sqm on key street corners.
- At least one, but ideally two 1.5 hectare parks are required in Macquarie Park.

#### **Issues**

- Lack of open space for passive recreation
- Lack of open space for active recreation
- Poor connectivity to significant green spaces outside the study boundary
- Shrimptons Creek is currently underutilised
- No central 'hub' near Macquarie Park Station
- The Ryde DCP 2010 proposes a series of small open spaces dispersed throughout Macquarie Park in a seemingly random arrangement. It includes a main park on the RailCorp/SPA land on Waterloo Road as well as a number of narrow linear parks along the drainage corridors.

#### **Design response**

Architectus proposes to consolidate the planned open space into fewer, but larger, more usable and flexible public open spaces. The proposed open spaces are to be located along Waterloo Road which is the central spine to Macquarie Park. The three main open spaces provided along that road are Central Park on the RailCorp/SPA land, the land in the Thomas Holt Drive Island, and the Shrimptons Creek Main Park opposite the Macquarie Park Shopping Centre. It is recommended that the Ryde DCP require master plans for sites providing new parks.

In addition to the main parks, a number of fitness trails are proposed to be introduced to Macquarie Park and the nearby National Park areas with strong links from Waterloo Road. The existing open spaces at Macquarie University will also be better connected and integrated into the overall Macquarie Park open space network.

Details of the different types of proposed open spaces are below:

#### **Shrimptons Creek Park entrance**

The land at the corner of Waterloo Road at Shrimptons Creek presents the opportunity to provide a significant new public open space. Should the site be comprehensively re-developed at some stage in the future. A park in this location would improve the park's street address, without having an unreasonable impact on the site's development capacity.

The park could include:

- Naturalistic areas adjacent to the creek and areas of lawn for casual kick around activities,
- A small café pavilion either in the park or at the ground level of the potential residential development
- A new shared bike/pedestrian path on the east of the creek.

#### **Shrimptons Creek Linear Park Extension with Oval**

In addition to the Shrimptons Creek Park entrance, the Shrimptons Creek Linear Park will be extended and improved. On the eastern side of the creek, it is proposed the park be extended 20m which will be achieved through the voluntary dedication by land owners in exchange for planning incentives. On the western side of the creek on Epping Road the park will also be extended and a new full size playing field with associated amenities will be provided.

The Shrimptons Creek Linear Park and Oval will:

- Include a new full size playing field with associated amenities on Epping Road but accessed from a new park-edge road to its west as part of the redevelopment of the Department of Housing lands,
- Be developed in a naturalistic landscape manner except for the oval and associated areas,
- Generally be lawn and trees, rather than low shrubs, to assist visibility and improve safety,
- Include good lighting to assist safety and to facilitate after hours use, and
- Be designed to CPTED principles for safety through design.
- Include shared bike/pedestrian paths on both sides of the creek between Waterloo Rd and Epping Rd.

#### **Central Park**

Central Park is to be designed to be a focal point and meeting place for Macquarie Park – much like the role that Hyde Park has in Central Sydney. It should have the following characteristics:

- An area of 1 to 1.5 hectares to satisfy the recommendations of the Draft Integrated Open Space Strategy.
- Minimum dimensions of 70m x 130m, to allow for active sports and recreation. These dimensions allow for a 60m x 120m field, with landscaped, buffered edges.
- Opportunities for passive recreation.
- The park should be surrounded by ground level cafes and restaurants overlooking the park and activating the park edges, with commercial towers above.
- Adjacent commercial towers must be located so as to not overshadow the open space.
- Formal planting, giving the park a civic character.

- Good lighting and quality outdoor seating and benches.
- A water feature for amenity and passive kids play.

In accordance with the Draft Integrated Open Space Study, appropriate future uses of Central Park include:

- Unstructured lunchtime sports, such as touch football, basketball and other active recreation uses such as petanque, ping pong, and other sports.
- Shade and shelter, as much as possible provided by trees.
- Capacity to host corporate events and special events (Permanent or readily assembled stage, locations for tents, with power and services available.)

Detailed DCP provisions should be developed to ensure that buildings adjacent to Central Park:

- Do not unreasonably over-shadow this important open space.
- Are designed so as to activate Central Park.

#### **Thomas Holt Drive**

The existing green space in the centre of Thomas Holt Drive is an important asset for the eastern side of Macquarie Park Station. With a character consisting primarily of trees and grass with undulating topography, this space is perfectly suited for passive recreation. Thomas Holt Drive open space also has the potential to be used as a small event space or amphitheater.

#### **TCA Central Open Space**

This site presents the opportunity to provide the second 1 to 1.5 hectare open space recommended by the Draft Integrated Open Space Strategy. The design of this park should allow for the following:

- Informal recreation
- BBQs, picnic areas
- Water Sensitive Urban Design
- A design aesthetic similar to Joynton Park within the Victoria Park master planned area in Zetland

#### **Riverside Park**

A new green space is proposed in Riverside Park adjacent to the new road connecting Julius Avenue West with Newbigin Close. Located in close proximity to the Riverside Village, this park would be well utilised by workers as it would provide informal sporting and lunchtime recreation opportunities.

#### **North Ryde Station Park**

A small triangular park is proposed at the rear of the North Ryde Station plaza. This new passive open space is protected from Delhi Rd providing increased amenity for the workers and future residents adjacent. This park is intended to be an informal recreational space and should provide good connectivity to the urban plaza adjacent.

#### **Urban Plazas**

Urban plazas are proposed at all three train stations and at the connection of Macquarie University and Macquarie Shopping Centre. These plazas will experience high levels of pedestrian activity and provide an important civic role. In accordance with the Ryde DCP, these plazas should incorporate cyclist facilities, high quality public domain and street furniture and be bound by active edges.



## 2. Urban Design Options

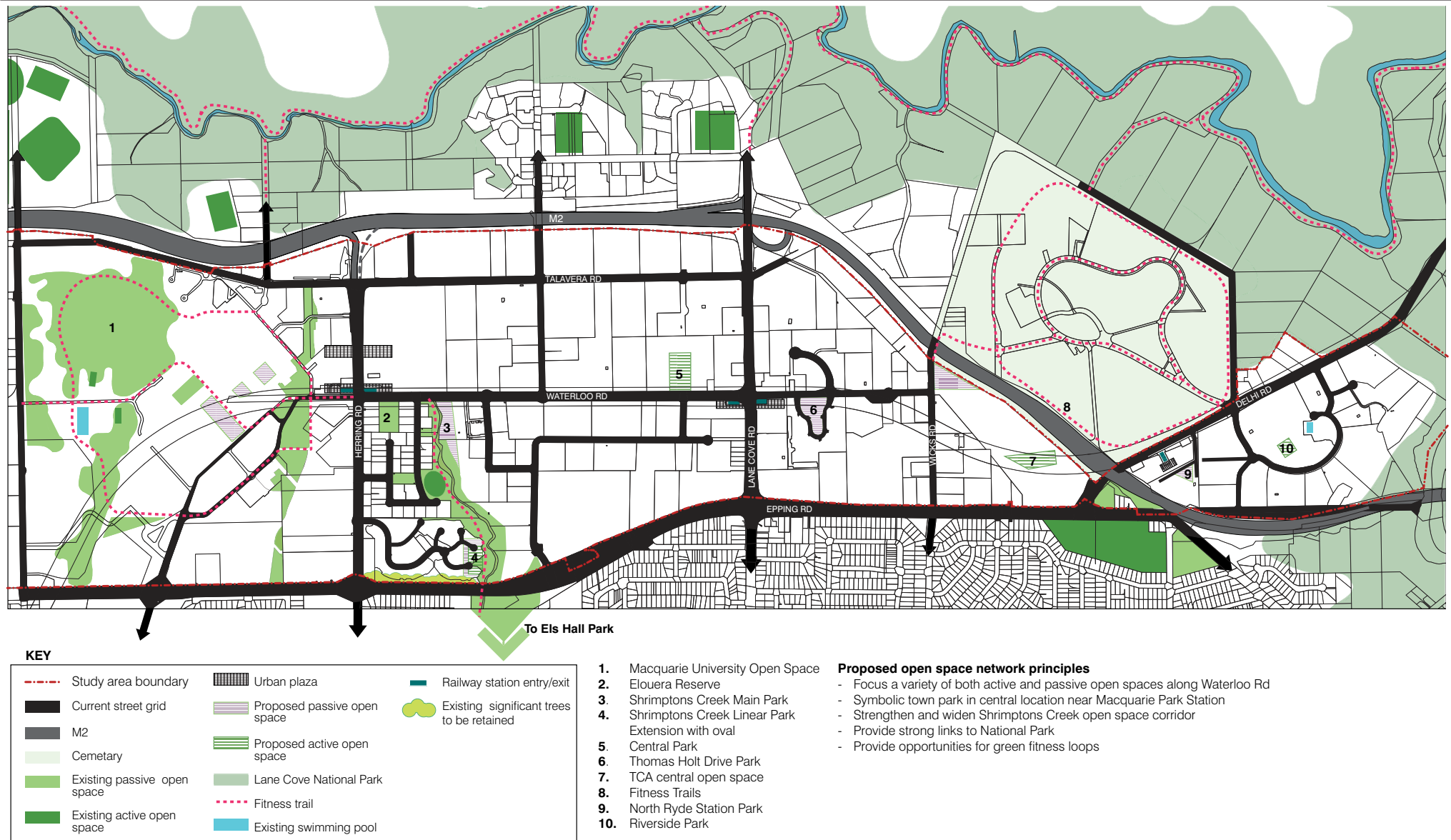


Figure 7: Proposed Open Space Network

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## 2. Urban Design Options

### 2.3 Place making - Creating activity centres in key locations

The existing workers and residents of Macquarie Park currently have very limited entertainment and recreation options. Its location away from Central Sydney and other urban centres and close to large open spaces gives an opportunity to provide at Macquarie Park a significant and diverse collection of recreation and entertainment facilities. Macquarie Park is a large area and therefore needs a range of activities in multiple locations in order to provide amenity to all residents and workers.

A sense of place can be achieved through the provision of an appropriate range of activities and spaces that will allow socialisation, recreation and interaction between like minded people in Macquarie Park.

#### Issues

- Macquarie Park currently lacks a 'sense of place'
- There is no sense of central 'hub'
- There are limited existing recreation and entertainment options
- Currently, Macquarie Park is a poor pedestrian environment which lacks connectivity. This significantly hinders creating a good sense of place.

#### Design response

Key to creating a sense of place at Macquarie Park is the establishment of activity centres that include dining, casual meeting places such as cafes with outdoor seating, entertainment and recreational opportunities as well as service retail such as newsagents and hairdressers. The increasing number of employees at Macquarie Park and additional residential developments along Herring Road will put greater demand on existing facilities but more importantly provide additional critical mass to support new service businesses.

In addition to these activity centres there will also be an extension of active edges facing Waterloo Road. The active edges will contribute to Waterloo Road being developed as the main spine through Macquarie Park, linking all its different features and precincts. Locating active edges along key street frontages is intended to vitalise those areas for pedestrians, particularly, as well as increasing safety by providing passive surveillance and activity throughout the day and evening.

The four key activity centres within Macquarie Park will be:

1. Macquarie Centre at Macquarie University Station;
2. Central Park at Macquarie Park Station;
3. Eden Park Drive and Thomas Holt Drive;
4. The Village at Riverside, North Ryde Station.

Macquarie Park railway station, the TCA land and North Ryde railway station may accommodate secondary activity centres.

#### Macquarie Centre

- The Macquarie Centre will be the largest centre within Macquarie Park.
- It will involve the proposed expansion of the Centre including:
  - opening up to, and activation of, the surrounding streets,
  - increased pedestrian through-ways, and
  - its integration with adjacent Macquarie University which is mooted for substantial development.

#### Central Park

- The Central Park development will be physically connected to Macquarie Park Station along Waterloo Road.
- The primary address of Central Park will be Waterloo Road, positioned in the middle of the site to allow development parcels fronting Waterloo Road on either side.
- Active edges are to be provided on all buildings facing Central Park and facing Waterloo Road.
- Ground floor frontages facing Waterloo Road to include takeaway food outlets, convenience retail and services.
- Ground floor frontages facing Central Park to include cafes, restaurants, entertainment and recreation uses, activating that space as well as benefiting from park views.
- Uses for Central Park could include corporate sports and other active recreation activities

#### Eden Park Drive and Thomas Holt Drive

- Eden Park Drive is already a successful café and restaurant precinct which at lunch times is nearing capacity.
- This area is to be extended across Waterloo Road to integrate with the existing open space in the middle of Thomas Holt Drive

#### The Village at Riverside

- The Village at Riverside is currently a popular destination for the local work force.
- It is relatively difficult to access directly despite its central location.
- The existing design of The Village is relatively insular.
- It is proposed to extend The Village to provide open active frontages along a new road to North Ryde Station including the provision of north facing cafes and restaurants overlooking a new open space which will include a half size playing field.



The Village at Riverside already provides a pleasant activity centre for the area. Convenience retail and cafes would benefit from being more directly accessible from the surrounding area.



Eden Park Drive currently includes a number of well patronised cafes. There is an opportunity to build on this already successful activity centre.

## 2. Urban Design Options

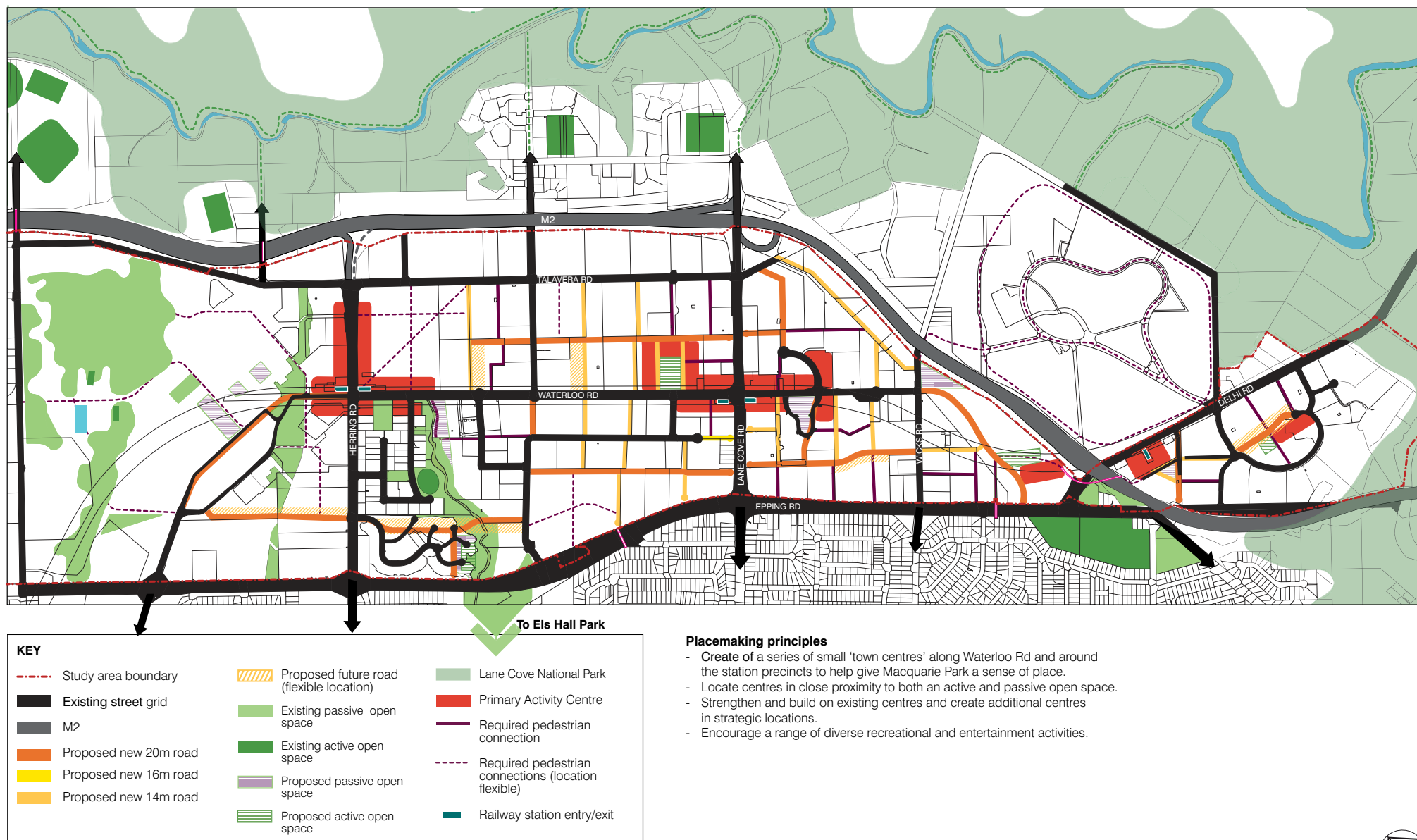


Figure 8: Place making - Creating activity hubs in key locations

m 25 50 100 200



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## 2. Urban Design Options

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### 2.4 Active frontages

There are few active frontages in Macquarie Park and except for at Macquarie University, there is rarely pedestrian movement along the street. This absence of visible activity results in an intensified feeling of lack of place. Active frontages are essential in enlivening the precinct and establishing a cultural shift towards a thriving community of workers and residents.

#### **Issues**

- Lack of activity on the street
- Poor sense of place
- Limited availability of entertainment and recreational activities

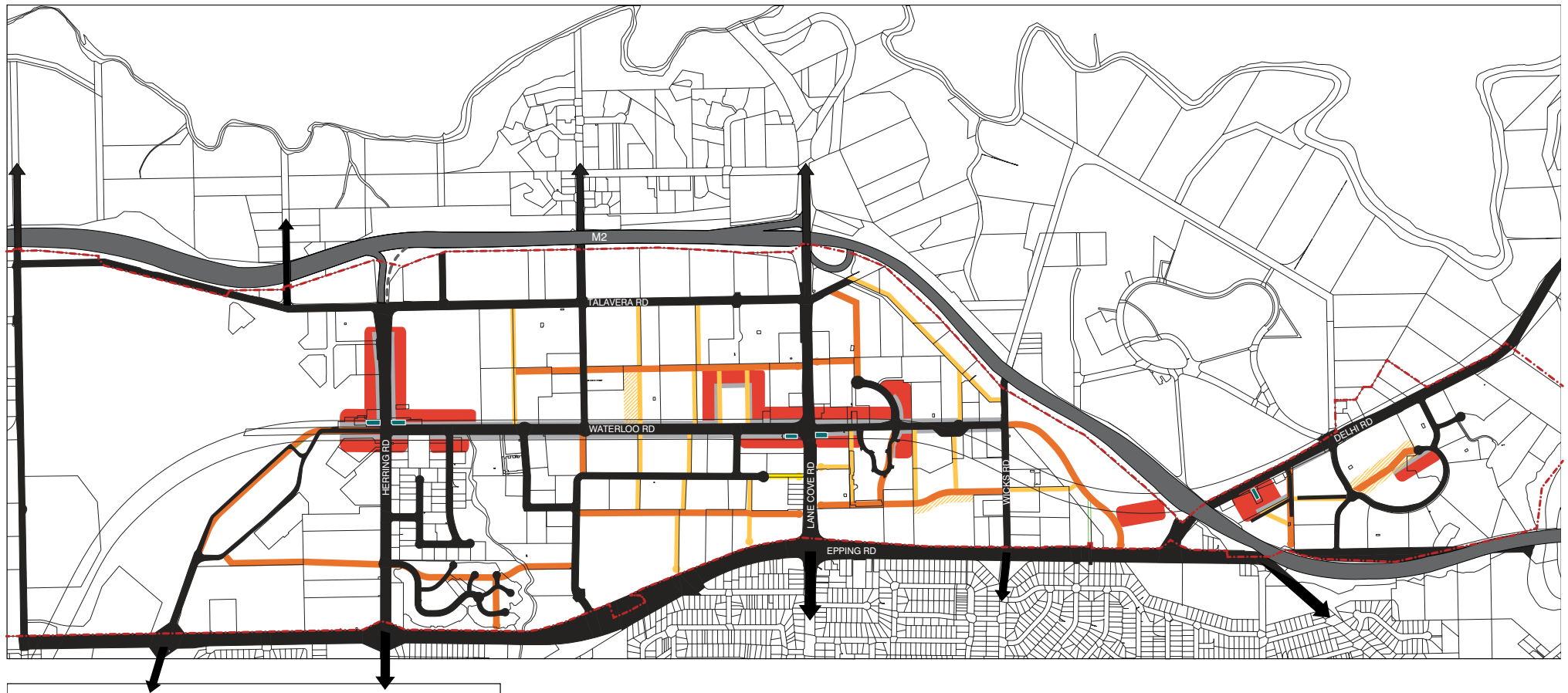
#### **Design response**

As previously discussed, Waterloo Road is the main spine of Macquarie Park. To increase and encourage that role as well as establish a better sense of place, active frontages are required along the whole length of Waterloo Road, around the Central Park and stretching up Eden Park Drive and Herring Road near Macquarie Shopping Centre. In the North Ryde precinct, active frontages are required at the rear of the station and around the existing Village at Riverside.

Active frontages could include recreational attractors that have a visual presence of the activity from the street, childcare as well as more traditional active frontages like cafes, restaurants and retail. Street frontages can also be activated by design. For example, providing multiple entries or glazed building fronts can activate the public domain where the land uses are not necessarily retail or cafes.

Figure 9 shows a series of primary and secondary activity centres. Four primary activity centres are proposed to transform Macquarie Park into a thriving, vibrant centre with high amenity and close proximity to all workers and existing residents. The new central park, lined with active edges will become the new heart of Macquarie Park. Secondary activity centres around Macquarie Park railway station, the TCA land and North Ryde allow for additional pockets of activity in strategic locations.

## 2. Urban Design Options



**KEY**

Study area boundary	Proposed future road (flexible location)
Existing street grid	Railway station entry/exit
M2	Activity Centre
Proposed new 20m road	Active Frontages
Proposed new 16m road	
Proposed new 14m road	

- Active frontage principles**
- Reinforce Waterloo Road
  - Enhance activity centres
  - Development with an 'active frontage' requirement should have retail and food and drink uses at ground level and / or provide a recreational attractor
  - Where these uses are not appropriate, development should activate the street through design (i.e multiple entries, transparent materials, architectural elements).

Figure 9: Active Frontages

m 25 50 100 200





## 2. Urban Design Options

### 2.5 Recreational attractors

Currently, Macquarie Park has a large number of workers, but a vast shortage of activities to attract people outside work hours. Additionally, due to the shortage of active open space available, workers are unable to participate locally in casual or organised sport. For these reasons, an important component to the place making strategy for Macquarie Park is the creation of a series of recreational attractors.

#### Issues

- Lack of opportunities for active or passive recreation
- Shortage of attractors outside work hours
- Lack of sense of place

#### Design response

In addition to creating new and expanding existing activity centres, Architectus propose the inclusion of a number of recreational attractors strategically located primarily along the Waterloo Road spine. The goal is to make Macquarie Park an attractive employment area so companies and their staff will want to stay and expand, relocate from elsewhere or start up.

Recreational attractors are eligible to be counted as active frontages and could include: gyms, pools, indoor courts for basketball, volleyball, health day spa, squash, indoor rock climbing, ten pin bowling, tennis courts and table tennis. All facilities are to include associated cafes and amenities. The design of these facilities should allow the activity to be visible from the street. Suggested locations for recreational attractors can be seen in Figure 9 and active frontage locations can be found in Figure 10.

Recreational attractors are eligible to be recognised as active frontages and must have good visual connection to the street.

#### Fitness Loops

Macquarie Park has the advantage of large open spaces to the north in Lane Cove National Park as well as within the University grounds and the open space associated with the Northern Suburbs Cemetery. As previously noted, these will be developed with fitness trail loops and will be connected and integrated into Macquarie Park as recreational attractors.

The open space network should include three new running /walking trails:

- through the University in the west,
- through Lane Cove National Park to the north,
- around the Northern Suburbs Cemetery in the east, and
- through Shrimptons Creek Parklands to the south.

These trails will be connected via safe direct pedestrian links with clear signage from Waterloo Road. Each loop may include alternative paths providing running/walking trails of different distances.

#### Sports fields

A collection of full size and half size sports fields will be an important element of the strategic recreation plan for use for corporate and team sport opportunities at Macquarie Park. Existing fields are located at Christie Park, Blenheim Park, the University and Shrimptons Creek Park. A half size informal playing field will also be built in Central Park near Macquarie Park Station and a full size playing field in the Shrimptons Creek Linear Park on Epping Road.

#### Macquarie University Open Space

The proposed Open Space Network for Macquarie Park appears to include better integration of the existing open green spaces within the University to facilitate increased use by the community and workers of the area. This would be achieved through improved signage and dedicated paths connecting the University's main open spaces and its Recreation Centre to Waterloo Road and the Macquarie University Station precinct.

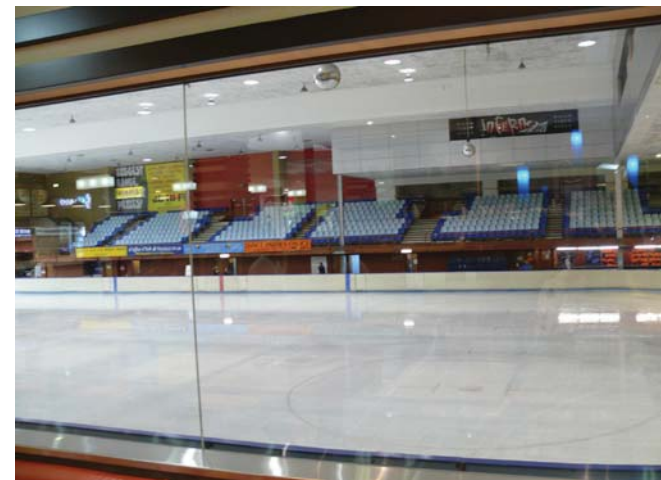
#### Existing attractors

Other existing recreational attractors which need to be made more accessible, well connected and ideally more visible in order to activate the adjacent areas, are the University Recreation Centre and the Macquarie Centre Ice Skating Rink. There is also an existing pool and sports centre at Riverside and a number of gyms throughout Macquarie Park.

#### Activating Waterloo Road

Finally the strategy is to encourage businesses to provide other recreational attractors which will be open to the public and located at ground level on Waterloo Road, if possible, to help activate that street.

Note that most of Macquarie Park is within 600m walk of a rail station given a permeable footpath network. This means that as densities increase and more attractions occur along Waterloo Road, Macquarie Park will have a greater sense of place.

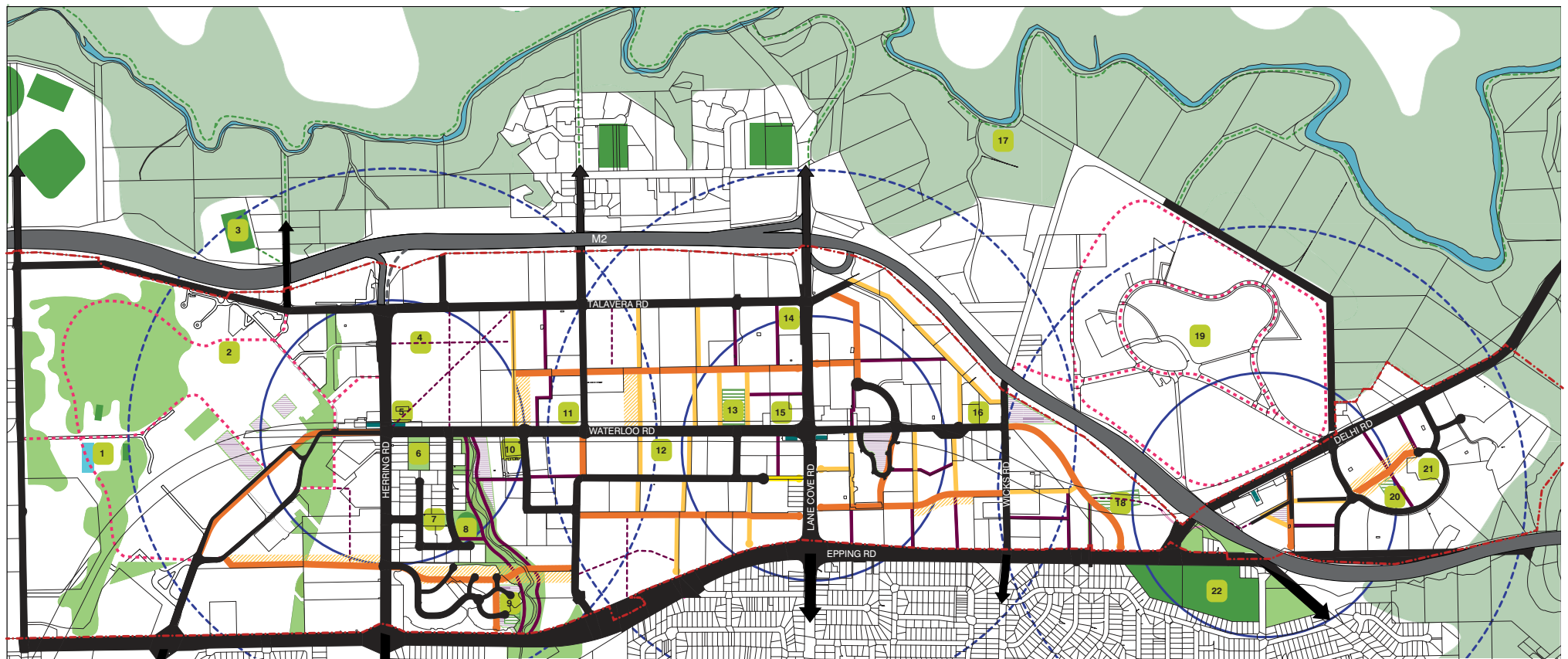


Macquarie Centre Ice-skating Rink provides a unique recreational attractor for Macquarie Park. The opportunity is to provide a visual connection between Waterloo Road and the ice-rink to add to the attractiveness and sense of place of Macquarie Park.



Wilga Park is an excellent recreational asset and is used for informal sporting recreation

## 2. Urban Design Options



KEY	
Study area boundary	800m walking catchment
Current street grid	400m walking catchment
Proposed new 20m road	Existing passive open space
Proposed new 16m road	Existing active open space
Proposed new 14m road	Proposed passive open space
Proposed future road (flexible location)	Proposed active open space
Railway station entry/exit	Lane Cove National Park
Fitness Trail	Recreational attractor
Required pedestrian connection	Existing Macquarie University Sport & Aquatic Centre
Required pedestrian connections (location flexible)	Proposed university fitness loop

- Recreational Attractors Principles:**
- Recreational attractors generally distributed along Waterloo Road to assist in activation
  - Better connections provided to existing attractors
  - Recreational attractors
  - Examples of appropriate recreational attractors include: gym, pool, indoor courts for basketball, volleyball, health day spa, squash, indoor rock climbing, ten pin bowling, tennis courts and table tennis. All facilities to include associated cafes and amenities.

Figure 10: Place making - Recreational Attractors



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## 2. Urban Design Options

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### 2.6 Floor Space Ratios

Architectus have also been asked to review the height and FSR controls for Macquarie Park as part of this overall review. The objective of the FSR controls for Macquarie Park is to allow additional development capacity where possible, whilst ensuring that Macquarie Park does not become so overdeveloped that the area's character is adversely impacted. Macquarie Park's long term success is also reliant on the area being developed to an appropriate scale, having good solar access to public areas and provision of generous, landscaped trees and streets.

Previously, the City of Ryde commenced an amendment to the Ryde LEP 2010 – the Ryde LEP 2010 – Amendment No. 1 – which proposed to increase FSR controls for many of the properties in Macquarie Park. This amendment was not exhibited or made. The recommendations of this Paper, if supported by Council and the Department of Planning and Infrastructure following an exhibition process, would form the basis of a revised Ryde LEP 2010 – Amendment No. 1.

The Urban Activation Precinct Program commenced during the preparation of this report. The outcomes of this program are not yet known and will result in amended planning controls. As a consequence, the FSR's and heights for both the Herring Road Urban Activation Precinct and the North Ryde Station Urban Activation Precinct are deferred.

The report establishes clear principles for the preferred built form and FSR controls for the site, then tests the following three FSR options against these principles:

- Option 1 - the existing FSR controls, as contained in Ryde LEP 2010
- Option 2 - The previously proposed Ryde LEP 2010 Amendment No 1 FSR controls
- Option 3 - New FSR controls, developed by Architectus.

#### Principles

The principles that should guide the development of FSR controls for Macquarie Park are:

#### Maximum FSR of 3:1

Major urban centres of Metropolitan Sydney tend to have floor space ratios in the order of 4.0:1 up to 8.0:1. Macquarie Park is a "Specialised Centre" under the Metropolitan Strategy and encompasses a much larger land area than typical urban centres. Generally, testing has shown that FSRs higher than 3.0:1 at Macquarie Park on a broad basis are not supported because:

1. The area has a different character and amenity to the CBD. Parking, generous setbacks, solar access, trees and green spaces are important parts of Macquarie Park's character and should be maintained.
2. FSRs of up to 3:1 tested against the market will easily accommodate the types of commercial buildings in demand in this area.
3. Over 3:1 is not appropriate for residential in this context as it conflicts with the desired urban structure and may not satisfy SEPP65.

#### Reinforce Waterloo Road

From an urban design perspective, there is benefit in using FSR to reinforce the Waterloo Road spine. Waterloo Road runs through the heart of Macquarie Park, accommodates two of the three train stations in the precinct and terminates at Macquarie University. For these reasons, enforcing Waterloo Road by increasing FSR and height will assist in strengthening the sense of place, will increase legibility and give spatial hierarchy to Macquarie Park.

#### Equity for landowners

The allocation of FSR should be equitable as far as possible. It is noted that the vast majority of land at Macquarie Park is within 400-600m walk of a rail station – from a transport perspective there is no reason for the FSR and density to vary greatly across the site. FSR's should be allocated to reinforce the urban design principles.

#### Rationalise controls

There should be one FSR and one height control per lot.

#### No site is to be reduced in FSR from Ryde LEP 2010

All options should propose the same or higher FSRs than what is stated in the Ryde LEP 2010.

#### Provide additional FSR to achieve new infrastructure

FSRs should encourage development ensuring the new road network is feasible and there is an increased likelihood of delivery.

#### Provide good amenity to new and existing buildings

Providing a maximum FSR of 3:1 should prevent over-development of sites and ensure good amenity for new and existing buildings.

Three options for FSRs and building heights have been developed and specific sites tested to determine both design and financial viability (see Appendix 1 for site testing details). A critical appraisal of these options is as follows:

#### FSR Map Option 1

FSR Option 1 is the current LEP 2010 FSR map. This option focuses density around the stations and along Waterloo Road and then radially decreases the FSR away from the stations.

#### Assessment against principles:

This approach has merit from an urban design perspective, however, there are a number of issues with practical implementation and this plan's capacity to deliver the access network and create a sense of place.

By increasing FSRs around key intersections, an intensity of built form will occur and result in the intersections becoming focal points.

One location where this is proposed is the intersection of Waterloo Road and Lane Cove Road. This intersection is highly trafficked with wide carriageways and does not result in a pleasant urban environment. Additional height and FSR at these points may result in these areas becoming visual markers, but it is unlikely to create a desirable community hub. The Waterloo Road and Herring Road intersection has the potential to be more successful in creating a sense of place as the streets are more narrow and therefore there is better relationship between sides of the street. However, with significant development planned along Herring Road and resulting increases in traffic, this node is also not ideal.

Although there is a slightly increased FSR along Waterloo Road proposed in this option which will strengthen the main spine, the FSR may not be high enough to generate urban renewal development.

Option 1 proposes that numerous lots throughout Macquarie Park have multiple FSRs. The intention behind this is to strengthen key roads and intersections through focusing development. Practically however, often a developer will 'wash' the combined FSR over the site instead of delineating different FSRs for different areas which dilutes the intention of the controls. For this reason, it is a better urban design practice to place one FSR on each site.

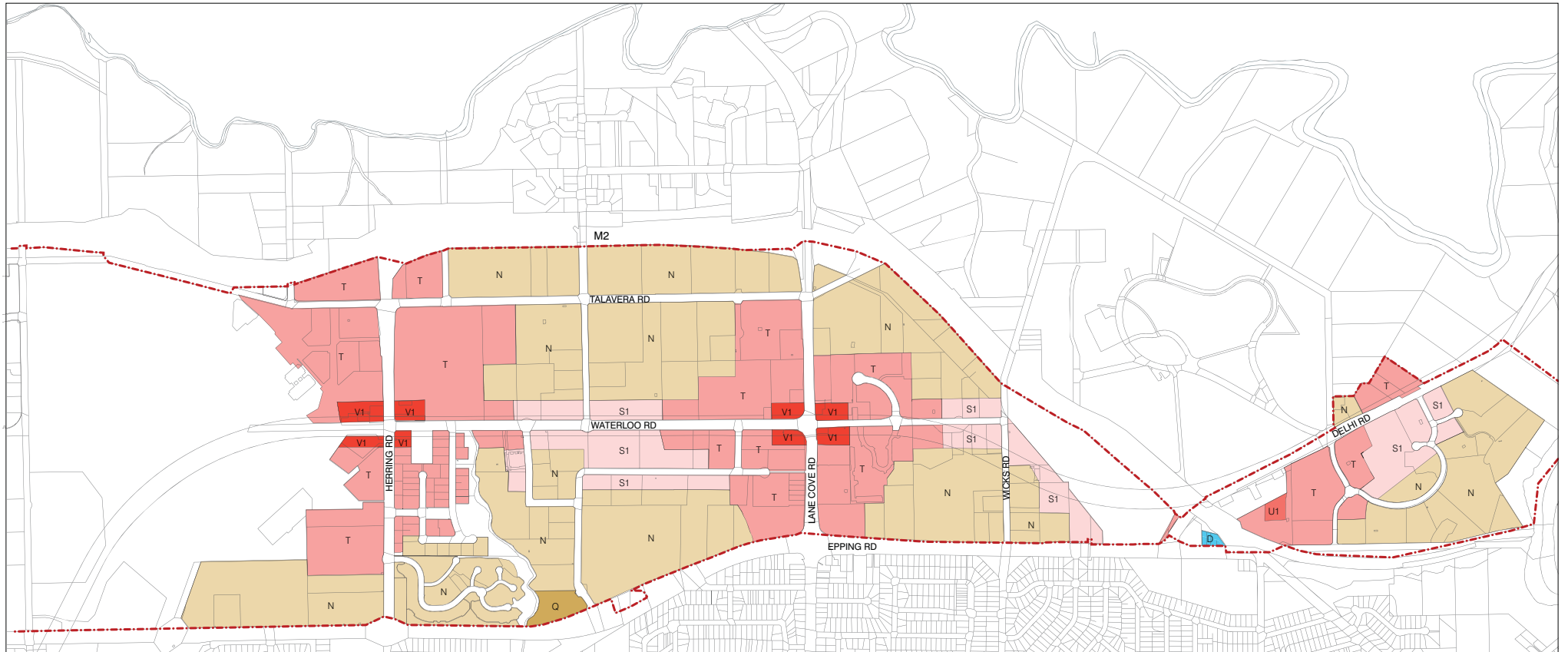
If the access network is to be delivered, the FSRs need to be a sufficient incentive to encourage turn-over and provision of the required infrastructure. The LEP 2010 plan allocates FSRs of between 1:1-3:1. Financial modeling completed by HillPDA indicates that these FSRs will not stimulate development.

The existing LEP 2010 FSR map establishes a good base FSR, but will not offer an incentive for developers to provide the access network and it is unlikely to create a better sense of place.

In the development of future LEP's, amending the plan to allocate one FSR per lot would be advantageous.

Option 1 does not achieve the principles as it fails to reinforce Waterloo Road, does not provide rational, equitable controls and will not provide sufficient incentive to achieve the required new infrastructure.

## 2. Urban Design Options



**KEY - LEP 2010 Floor Space Ratios**

V1	3:1
U1	2.5:1
T	2:1
S1	1.5:1
N	1:1
Q	1.39:1
D	0.5:1

**Features of the Ryde LEP 2010 FSR (existing controls)**

- Focuses density around the stations and along Waterloo Rd
- Radially decrease FSR away from station precincts
- In some cases there are multiple FSR's on a single lot
- Maximum FSR of 3:1

Figure 11: FSR Option 1 - Ryde LEP2010



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## 2. Urban Design Options

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### **FSR Map Option 2 - 'Ryde LEP 2010 Amendment 1'**

FSR Option 2 is the LEP2008 *Amendment 1* map that was drafted by City of Ryde in 2010, but not exhibited or made. This plan offered higher FSRs in exchange for delivering the Ryde DCP 2010 access network.

#### **Assessment against principles**

Option 2 builds on the idea of increasing FSR along Waterloo Road to strengthen it as the main spine in Macquarie Park and only allocates one FSR per lot. It proposes a number of 'gateway' locations by increasing FSRs at key intersections. These intersections include the corner of Wicks Road and Epping Road, and the corners of Byfield Street and Waterloo Road. These 'gateways' are intended to provide a marked sense of arrival to Macquarie Park. Additional gateway sites are suggested in the accompanying height plan (Height Option 2). Whilst recognising this as a plausible strategy, it is unlikely that these 'gateways' will achieve their purpose. It is inequitable to provide a gateway on one corner and not the other, directly adjacent.

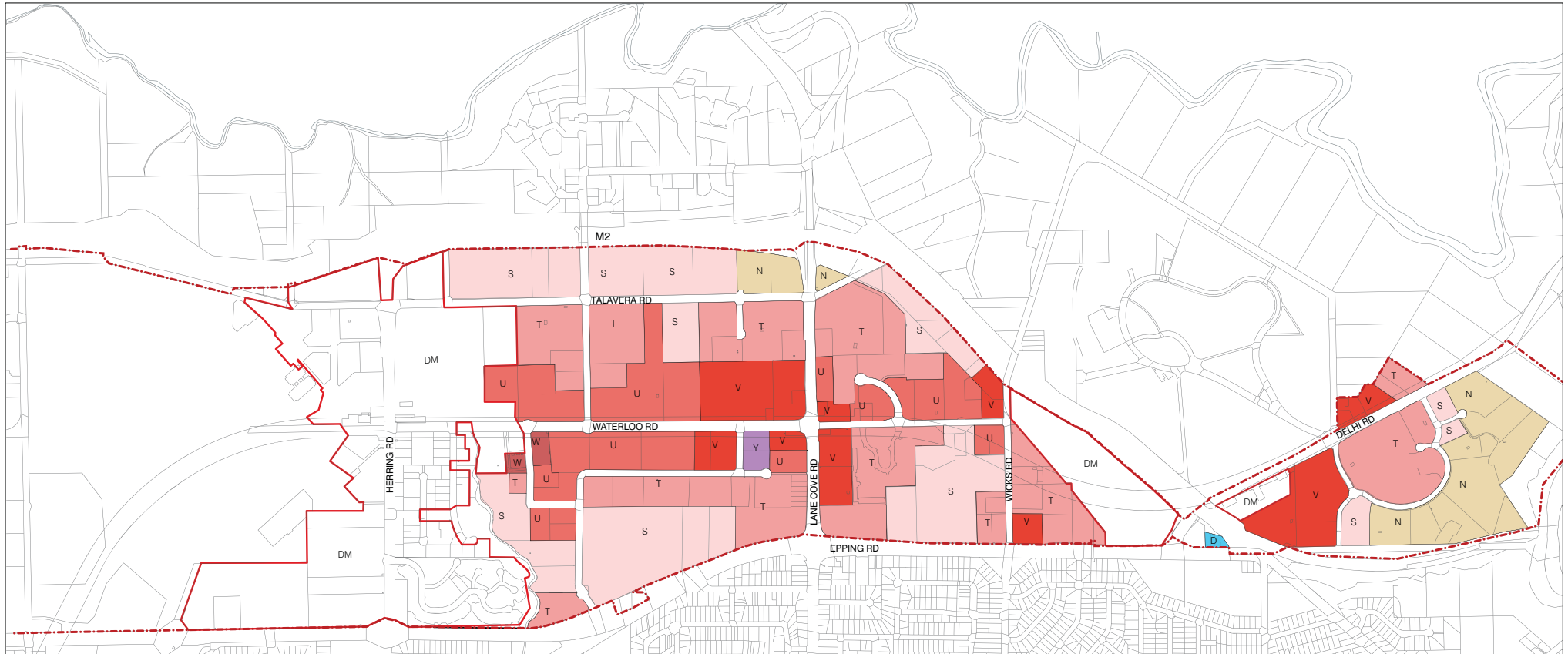
Whilst the LEP2010 had a clear principle of increasing FSRs around railway stations, Amendment 1 seems to be more arbitrary in approach with a combination of FSRs. For example, Waterloo Road has a range of FSRs of 1.5:1-4.5:1 with each extremity being almost equidistant to the railway station. Site testing concluded that the maximum FSR that is appropriate for Macquarie Park is 3:1 due to amenity and market viability.

Additionally, a considerable number of sites are not offered any uplift FSR from the Ryde LEP2010 FSR map in this option.

It is extremely important that the FSRs are allocated as equitably as possible following robust principles and that landowners are offered a desirable incentive to implement the new infrastructure required in Macquarie Park.

Option 2 does not satisfy the principles as the allocation of FSR is inequitable and some FSRs exceed 3:1 compromising amenity for new and existing buildings.

## 2. Urban Design Options



KEY	
D	0.5:1
N	1.0:1
Q	1.39:1
S	1.5:1
T	2.0:1
DM	Deferred Matters
U	2.5:1
V	3.0:1
W	3.5:1
Y	4.5:1

### Features of the Ryde LEP2010 Amendment 1 FSR

- Focuses density around the stations and along Waterloo Rd
- One FSR is allocated per lot
- Creation of 'gateway' sites through higher FSR's at key intersections
- Maximum FSR of 4.5:1 reflecting a Part 3A approval

Figure 12: FSR Option 2 - 'Ryde LEP 2010 Amendment 1'

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## 2. Urban Design Options

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### **FSR Map Option 3**

Option 3 aims to produce the best possible urban design outcome for Macquarie Park and to provide a plan that will encourage landowners to develop their site to include the essential new components of access network. This option consolidates and builds on the principles established in Options 1 and 2 and provides a greater degree of equity amongst landowners.

A rationale for the FSRs is as follows:

#### **3:1 FSR**

- Sites fronting Waterloo Road are eligible for an FSR of 3:1
- Sites that front Elouera Reserve also have 3:1 to maximise amenity of the park and to allow possible amalgamation
- Several sites on Lane Cove Road within 200m of the Macquarie Park station are eligible for 3:1 as they are integral to the proposed road network
- The block immediately adjacent to the North Ryde railway station has 3:1 to both increase density around the railway station and encourage the implementation of the access network

#### **2.5:1 FSR**

- Lots have 2.5:1 if they do not address Waterloo Road and are outside 200m of the station but are strategically important in connecting the access network.
- In the North Ryde Station precinct, all lots have an increase of 0.5:1 with the of the block immediate adjacent to North Ryde Station.

### **Assessment against principles**

Waterloo Road is strengthened as the main spine of Macquarie Park with the focus of commercial development and activity and encourages development that will realise this role. All sites that front Waterloo Road are eligible for an FSR of 3:1.

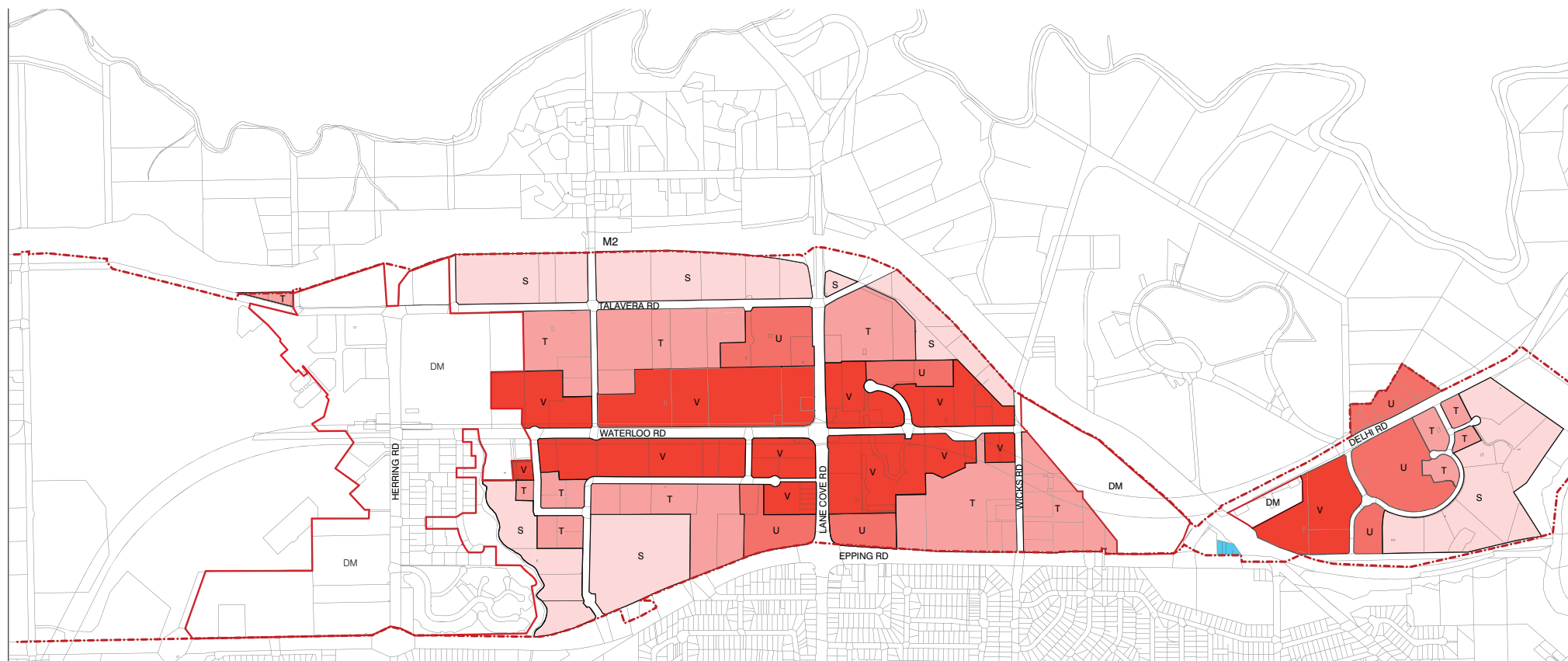
From our site testing, we conclude that the maximum FSR appropriate for Macquarie Park is 3:1. Full documentation of site tests undertaken can be found in Appendix 1. Limiting the FSR to 3:1 aims to ensure that floor plates and building sizes are appropriate for the market and ensure that there isn't an unviable amount of excess floor space available throughout Macquarie Park and a high level of amenity can be achieved.

Where appropriate, we have allowed sites to be eligible for increased FSR from the LEP2010 FSR and the inconsistencies found in Option 2 have been removed including the removal of gateway sites.

Option 3 is consistent with the established principles. Waterloo Road is reinforced as the main spine, a maximum FSR of 3:1 is proposed, FSR distribution is equitable, defensible and adequate to encourage the development of new infrastructure.

Architectus considers that Option 3 is both the best urban design solution and the most likely to achieve the proposed access and open space networks.

## 2. Urban Design Options



KEY	
D	0.5:1
S	1.5:1
T	2.0:1
U	2.5:1
V	3.0:1
DM	Deferred Matters

### Recommended FSR Principles

- Maximum FSR of 3:1
- Reinforce Waterloo Rd
- Provide equity for landowners
- Rationalised approach to allocating FSR
- Provide additional FSR to achieve infrastructure
- Ensure the new road network is feasible
- Provide good amenity for new buildings

### Features

- Consistency with principles
- 3:1 along Waterloo Rd to reinforce it as the main spine
- 2.5:1 in areas that are strategically important
- FSR decreases away from Waterloo Road and train station precincts.

### Note:

The FSR controls presented as part of this review do not anticipate any additional 'bonus FSR' being available through the proposed infrastructure funding model. Should additional FSR be achievable, the recommended FSR controls would require review.

Figure 13: FSR Option 3



## 2. Urban Design Options

### 2.7 Building Height

Building height controls complement FSR controls and describe the preferred built form envelope.

Some issues identified with the current height controls include:

- They do not match with the FSR controls; and
- They are not generous enough to allow innovation, and different types of buildings when it might be appropriate.

In the majority of Macquarie Park, as with most non-residential areas, tenant requirements for large footprints and construction costs associated with taller buildings tend to limit the height of commercial buildings. Because of this reality, Architectus think that a 'loose-fit height' control is appropriate. This generally means that height controls should be generous, and that the FSR is the predominant determinant of building envelope. Should a developer wish to build a taller, more slender office tower, then this outcome could also be achieved under the height controls, subject to merit assessment.

#### **Principles for Building Height controls**

- A 'loose-fit' approach, that ensures that the FSR can be achieved within the building envelope.
- Maximum height controls should generally correspond with FSR controls, and achieve the same urban design strategies - for example, the preferred height controls should also reinforce the role of Waterloo Road.

Architectus have tested three sets of building height controls against these principles:

- Option 1 - The existing building height controls in LEP 2010
- Option 2 – Height controls previously proposed Ryde LEP 2010 Amendment 1
- Option 3 – Revised height controls, as proposed by Architectus

The options and our assessment of each option are set out on the following pages. The preferred option will be progressed as a revised Ryde LEP 2010 Amendment 1.

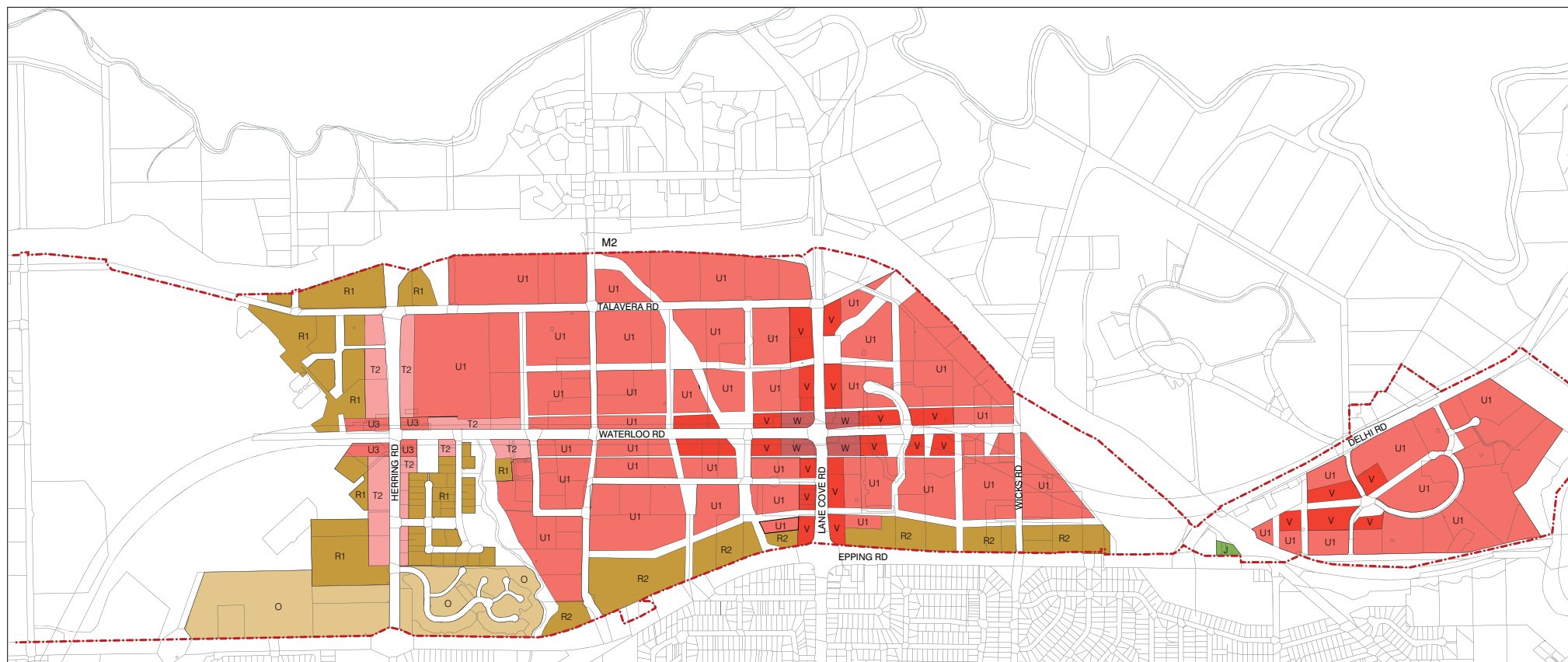
#### **Height of Buildings - Option 1 - Ryde LEP 2010**

Building height and FSR maps are important in determining the size and bulk of development. Option 1 is the LEP 2010 height map. Option 1 for building height accompanies Option 1 FSR and places greater height around railway stations and along Lane Cove Road. It establishes the intersection of Waterloo Road and Lane Cove Road as the hierarchical focal point of Macquarie Park with secondary nodes around Macquarie University and North Ryde railway stations.

The majority of Macquarie Park is proposed to have a maximum height of 30m or approximately 8 storeys and decreases to approximately 5-6 storeys on the periphery. These controls would result in very modest development for Macquarie Park and may not be significant enough to deliver the access network.

No height control has been placed on the access network to protect the roads from being built over as a result of the standard LEP format. It is proposed that this will be achieved through a control in the Ryde DCP 2010.

## 2. Urban Design Options



KEY LEP 2010 - Building Heights			
W	44.5m	R1	21.5m
V	37m	R2	22m
U1	30m	U1	15.5m
U3	33.5m	U3	9.5m
T2	27.5m		

### Ryde LEP2010 Building Height Features

- Increased height around railway stations and along Lane Cove Road
- Emphasises the intersection of Waterloo Road and Lane Cove Road
- Secondary nodes around Macquarie University and North Ryde railway stations
- Maximum height of 44.5m

Figure 14: Height of Buildings Option 1

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## 2. Urban Design Options

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### **Height of Buildings - Option 2**

Option 2 formed part of the *Amendment 1* package of drawings and was designed to accompany the FSR Option 2 map.

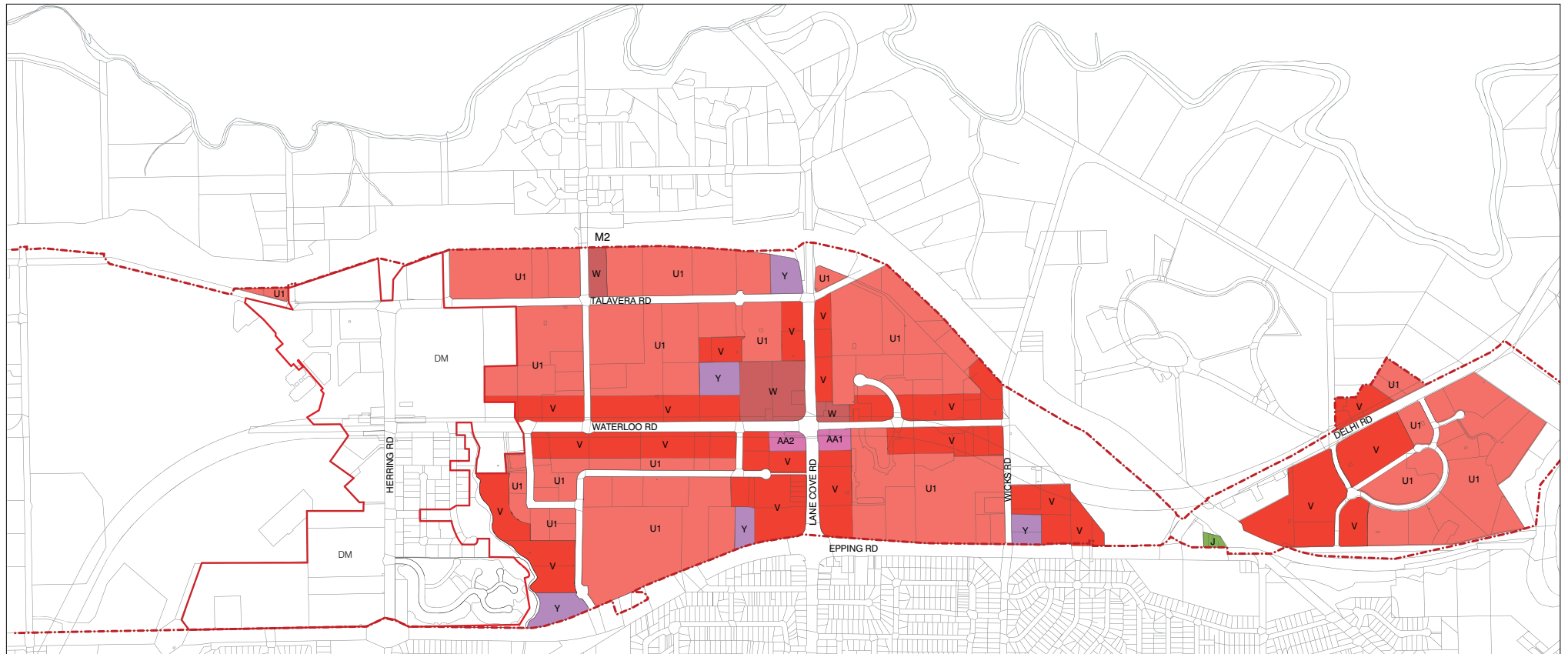
This option proposes scattered pockets of higher buildings often in gateway locations. It focuses development around railway stations and along key roads such as Lane Cove Road, Waterloo Road and Herring Road as well along Shrimptons Creek, adjacent to Macquarie University open space and a pocket near Wicks Road.

A uniform 37m height is proposed along Waterloo Road to increase development along the central spine, however it often results in sites having multiple heights over the one lot. It is considered better practice to have only one height control per site.

Although height and FSR controls do not have a 'match,' there is a substantial disconnect between the expectations and principles of the Option 2 height and FSR plans. Testing demonstrated that the FSR cannot be achieved with given heights on some sites.

In principle, the FSR should be the dominant control and should be achievable.

## 2. Urban Design Options



KEY LEP Amendment 1 - Building Heights					
AB	82.5m	W	44.5m	R1	21.5m
AA3	75m	V	37m	R2	22m
AA2	71m	U3	33.5m	O	15.5m
AA1	67m	U1	30m	J	9.5m
Y	52m	T2	27.5m		

### Option 2: Ryde LEP 2010 Amendment 1 Building Height Features

- Increased height around railway stations, major roads and parks
- Scattered pockets of higher development often in gateway locations
- Strengthen Waterloo Rd as the central spine
- In some cases there are multiple heights on a single lot to encourage higher buildings along key streets
- Maximum height of 82.5m

Figure 15: Height of Buildings Option 2



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## 2. Urban Design Options

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### **Height of Buildings - Option 3**

Site testing has shown that many of the current maximum FSRs cannot be achieved within the height controls in LEP2010.

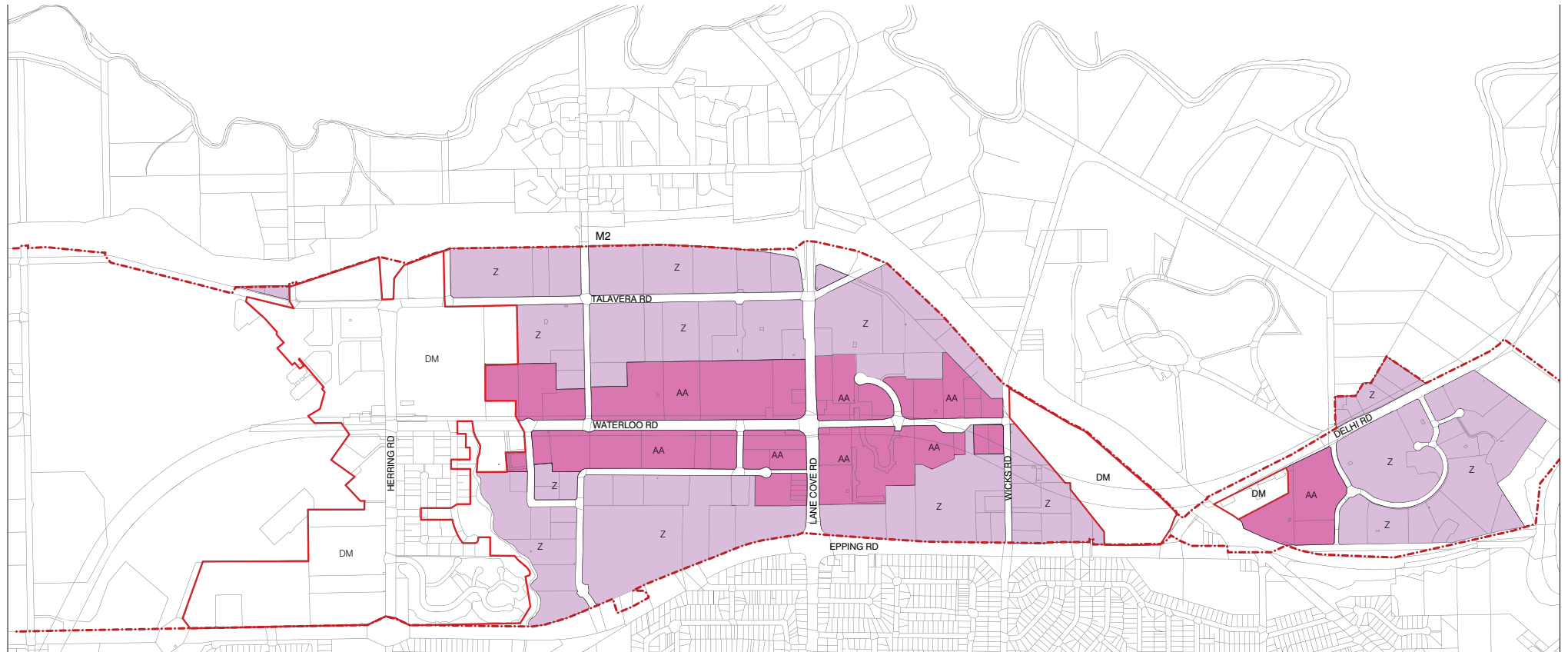
The proposed rationale for height controls:

- Height controls are needed to protect sunlight to open space and within residential areas so that people have a reasonable understanding of how their amenity/outlook may be affected in the long term.
- Maximum height controls are not as crucial for commercial areas where there are mid-range commercial FSR controls. The FSR control usually means that building height is self limiting and fairly predictable. This is because the market wants larger commercial floor plates in an area like Macquarie Park rather than high building heights and prefers that most commercial buildings each have a total floor space of 10-15,000sqm. There is limited market demand for 20-30,000+sqm buildings. Given the many large sites at Macquarie Park it can be seen (and confirmed by the site testing) that building heights rarely exceed 8 storeys with FSRs of 2-3.0:1. By contrast residential development tends to have smaller floor plates and the market prefers higher heights to yield the views. There is an argument that there doesn't need to be any height controls at Macquarie Park other than in the areas already zoned for residential.
- Height controls in conjunction with other built form controls such as street frontage height and setbacks are used to help define the spatial quality of the public domain. A high quality urban centre is usually characterised by buildings that are aligned with the streets and can have a building height or frontage height equivalent to the width of the street – i.e. for a 20m wide street 5-6 storeys. This has come to be generally considered as a human scale where people in buildings can still recognise people at ground level. In the case of Macquarie Park where landscape quality has been traditionally important to the urban pattern it is more in keeping with the area's character to have a blend of the traditional landscape character and the more urban quality associated with street fronting buildings. An option to consider is to have street aligned buildings in the activity centres/ specialised centres and landscape setback buildings elsewhere. Such buildings don't need to take the podium/tower form because the general development will not be much more than 6-8storeys given the FSR and market limits and the number of tall towers is expected to be relatively few and predictable. It is also unnecessary to set height limits for amenity reasons given that most development will be self limiting in height to about 6-8 storeys.
- However, the wider community has come to expect to have height controls and there is a perceived comfort by many people in knowing the tallest height that a building might be built.
- Consequently, it is recommended to have "very loose fit" height controls that readily allow the maximum FSRs to be achieved in a variety of built form configurations. This would avoid the issues that some development proposals have of being a metre or two above an overly restrictive height limit to the detriment of the development and still give the wider community certainty about maximum limits.

Accordingly, following comprehensive site testing, a building height control plan is proposed that simplifies the spread and differential of building heights.

The height controls presented as part of this review do not anticipate any additional 'bonus FSR' being available through the proposed infrastructure funding model. Should additional FSR be achievable, the recommended height controls would require review.

## 2. Urban Design Options



KEY maximum building height (m)	
AA	65m
Z	45m
DM	Deferred Matters

**Option 3: Revised height plan features**

- Strengthens Waterloo Rd as the central spine
- Increased height around North Ryde Station
- Simplified strategy by only having two heights across the study area
- All lots that have 3:1 FSR have a height limit of 65m, all other lots 45m

**Note:** The height controls presented as part of this review do not anticipate any additional 'bonus FSR' being available through the proposed infrastructure funding model. Should additional FSR be achievable, the recommended height controls would require review.

Figure 16: Proposed Building Heights

# 3. Financial Options

HillPDA, Urban Economists, has provided the following comments on financial options to fund the proposed access and open space networks in Macquarie Park.

## 3.1 Introduction

Architectus and Hill PDA have been engaged to undertake a review and analysis of the planning and infrastructure framework for Macquarie Park. Architectus has developed a preferred strategy for new roads, pedestrian links and open space to provide improved traffic circulation, access to public transport and a focus for the Macquarie Park Town Centre. In this section of the report, Hill PDA examines options for funding mechanisms to achieve the proposed new infrastructure at Macquarie Park.

In conjunction with Architectus, Hill PDA have worked closely with Council to understand existing development, the market to establish the potential for additional development within the next 20 years, and options to fund infrastructure through a variety of mechanisms.

This section follows on from the Issues Paper, where Hill PDA presented the outcome of initial investigations and consultation with landowners in relation to economic feasibility, staging and implementation of infrastructure.

## 3.2 Issue

Macquarie Park is designated as a Specialised Centre in the Sydney Metropolitan Plan and is currently evolving from a low density Business Park to a higher density Centre. Major employment opportunities are possible at Macquarie Park, where they are supported by the Epping to Chatswood Rail Link and proposed North West Rail Link. The growing working population, and the associated traffic, are generating the need for new infrastructure in the Macquarie Park Corridor including open space and a new network of streets and pedestrian pathways to improve permeability and circulation.

Most of the land required for this infrastructure is privately owned and funding to acquire such land is not available. Therefore planning mechanisms such as value capture have been explored, in addition to traditional contributions plans, as a means of delivering infrastructure through the redevelopment of effected sites. A proposal to increase height and FSR within the corridor appears to offer opportunities to achieve this funding subject to resolution of implementation and feasibility constraints.

## 3.3 Principles

The future funding mechanism needs to be consistent with the following principles:

- **Transparency:** This includes a clear understanding of what infrastructure is to be funded and how contribution rates are calculated and applied to individual sites;
- **Equity:** Landowners must be convinced that the framework treats landowners fairly and that both infrastructure and incentives for development are based on equity and fairness;
- **Practical:** The implementation of the mechanism must be practical and occur in a timely fashion to avoid delays and provide certainty for commercial dealings; and
- **Feasibility:** The contributions must be reasonable and provide infrastructure without burdening land such that development is not feasible.

## 3.4 Options for Funding the Proposed Public Domain and Infrastructure Works

The following are known options for collecting money through development for the construction of new public domain and infrastructure. Each system is reviewed below in terms of its suitability in the case of Macquarie Park.

## 3.5 Option 1: Section 94 Contributions Plan

The first option funding option considered was a revised Section 94 Contributions Plan which provides for the new access network in addition to existing infrastructure. This would spread the burden of new infrastructure across all new floor space within the park, but with credits for existing floor space – meaning the renewal of established sites might make less of a contribution whilst contributing equally to an increased population. Section 94 plans are prepared by determining the cost of infrastructure required divided by the total development anticipated in the area and levied as a rate per square metre of gross floor area.

### Advantages

- Section 94 is a well understood mechanism.
- It levies all new floor space which contributes to demand for infrastructure, increasing the pool of levyable FSR, however credits are given for existing floor space.
- Works in kind can be received in lieu of works in kind and/or voluntary Planning Agreements can be used to deliver infrastructure as works in kind.

### Disadvantages

- Section 94 contribution rates would need to increase to around 75% of the uplift in value to cover the cost of the new public domain and infrastructure being proposed - making development in Macquarie Park uncompetitive with other business parks in Sydney.
- It would be difficult to demonstrate the nexus between a significant increase in Section 94 contributions, given the low percentage of residential uses in the precinct (residential uses generate the majority of demand for infrastructure);
- Council's existing Section 94 plan does not levy for open space on commercial floor space, and recent changes to how Council's make Section 94 Plans would make it difficult to do this in the future.
- Land value would need to be recognised for all infrastructure in a Section 94 Plan increasing contributions substantially;
- Constraints on allowable charges for residential development may affect the ability to collect sufficient contributions across the corridor.
- Traditional Section 94 plans have some disadvantages in the case of Macquarie Park because it applies only to new floor space – that is, there are credits for existing floor space. This is often a disadvantage in this area because some existing buildings are very large (e.g. those used for warehouses, assembly manufacturing), and it is difficult to require contributions of new development.

# 3. Financial Options

## 3.6 Option 2: Section 94A Contributions Plan

The second option considered for funding the proposed public domain is a contributions plan made under Section 94A of the EP&A Act 1979 – A Section 94A Plan. Section 94A Contributions Plan and is becoming more prevalent in Sydney as councils seek to simplify contributions systems. This option would again spread the burden of new infrastructure across all new development through a levy based on a percentage of development costs.

### Advantages

- Section 94A contributions allow for Council to levy a contribution that is a flat rate of the cost of the development – usually between 1% and 3%. The Department recommends Section 94A Plans for in-fill areas such as Macquarie Park, because there is no credit system for existing floor space – and contributions can be collected from renewal projects for important new infrastructure.
- Council do not need to demonstrate nexus between development/increased population and demand for infrastructure to make a Section 94A Plan.
- The levy requires no escalation clauses as it is based on development costs calculated at the time of payment.
- Voluntary planning agreements can be used to deliver infrastructure as works in kind.
- Section 94A Plans are more flexible in the way the funds can be expended and easier to administer and there are efficiencies in this.
- Section 94A Plans are easier to administer and more difficult to challenge.
- Section 94A Plans provide increased certainty for industry and Council.

### Disadvantages

- Precedent for Section 94A contributions is likely to limit the rate to 3% of development cost;
- Only one of Section 94 and 94A can be levied on a new development;
- If all infrastructure was to be combined in a Section 94A Plan a contribution rate of over 7%, and possibly as high as 8%, would be required which would make Macquarie Park uncompetitive with other business parks.
- S94a would result in fewer contributions in relation to residential development.

## 3.7 Option 3: Deferral Model

This model involves providing additional floor space for development that makes a contribution towards the delivery of the public domain. This system would exist at the same time as either a Section 94A or 94 Plan.

The model is in operation for the Green Square Town Centre in the City of Sydney LGA, where the new mixed use controls and increased development capacity are only available once the Proponent agrees to enter into a Planning Agreement with Council for the required public domain works or contributions.

Infrastructure contributions in cash or works in kind are delivered through re-development – ensuring the timely provision of the public domain.

In terms of the planning legislation required to implement this funding option, the existing Ryde LEP 2010 would be retained. The controls in this plan are considered to be the 'base height and FSR' – development within these controls is not required to contribute to the infrastructure on site, or contribute financially to infrastructure elsewhere in the precinct. A new, deferred LEP (which allows increased densities) would be made and developers would be able to 'un-defer' the controls in exchange for providing the necessary infrastructure, which would be described and mapped in the Ryde DCP 2010 with the process and rates described in a Guideline.

### Advantages

- A similar model has been adopted in the LEP for the Green Square Town Centre (South Sydney LEP 1998 – Amendment No. 17 (Green Square Town Centre)) so there is evidence that the Department of Planning and Infrastructure would support this approach.
- This funding mechanism/ deferral model can be adopted as part of making LEP Amendment No. 1, which has already been subject to Gateway Determination from the Department of Planning and Infrastructure. The timeframe for implementing option No. 3 is therefore greatly reduced.
- Existing FSR is not further levied under this model reducing barriers to new development;
- An incentive for provision of infrastructure and new development in the Corridor is provided through increased FSR and building height;
- Existing development is not affected by the funding mechanism which levies only new development rights;
- All landowners will be able to take advantage of increased density, whether infrastructure is required on their site or not;
- Compensation for land value is minimised through transfer of FSR to the remainder of the site after infrastructure reserves are created.
- The estimated levy represents less than 50% of land value retaining an incentive for development of increased FSR even when the levy is paid.
- Section 94 contributions are collected separately or combined with a voluntary planning agreement to deliver infrastructure through cash or works in kind.

### Disadvantages

- Where permissible FSR is being developed no deferral or VPA is required and no infrastructure may be delivered. In this scenario, the Ryde DCP 2010 will ensure that the access network land is preserved for the delivery of that infrastructure at a later stage;
- The model is voluntary and, to an extent, relies on market forces to deliver infrastructure. Critical sites with newer buildings may not redevelop and deliver infrastructure in a timely fashion. The situations where this may occur have been minimised through the design of the new access network including the minimisation of road reserves split between landowners;
- The model is voluntary and a landowner may not want the increase in FSR;
- The mechanism for undeferring the LEP amendment is not well understood and may delay issue of development approvals. Clear guidelines to assist developers in navigating the requirements for contributions and a voluntary planning agreement will improve the efficiency of this option;
- The funding is sensitive to the proportion of uplifted FSR being developed to deliver infrastructure and this will tend to occur after permissible FSR has been developed on many sites delaying infrastructure.
- Landowners with multiple holdings within the Corridor may be encouraged to develop sites without infrastructure especially where existing FSR is not yet fully developed – thereby delaying the implementation of a complete network;
- Contributions are not paid until deferred FSR is developed which may be in the latter stages of development, possibly delaying implementation of infrastructure;



# 3. Financial Options

## 3.8 Option 4: Bonus FSR

This mechanism is similar to Option 3 but relies on a different planning instrument to achieve it. A similar system has been adopted in the Green Square Urban Renewal Area in the City of Sydney (the larger area surrounding the Green Square Town Centre), which allows for a specific increase in FSR for a site where infrastructure is provided. It is similar to Option 3 in that a VPA is required to capture the infrastructure commitments before any approvals are granted but differs in that there is no deferred FSR or LEP amendment, simplifying the process.

In terms of planning legislation required, this option could operate with one new LEP that provides a range of height and FSRs. The Ryde DCP 2010 could outline what infrastructure or contributions are required to achieve a height and FSR at the top of that range.

### Advantages

- Simpler system than Option 3 with no deferral mechanism and one LEP;
- The Green Square model is a precedent for this funding mechanism;
- There is an incentive for provision of infrastructure on top of the base FSR in the LEP which has been increased to encourage redevelopment of all land in the precinct and encouraging residential uses unlike Macquarie Park.

### Disadvantages

- The model is voluntary and relies on market forces to deliver infrastructure. The Green Square precinct is not so reliant on critical infrastructure for development as Macquarie Park and residential development rather than commercial development is generally proposed with improved feasibility and demand over commercial uses. Land parcels are also generally smaller with less infrastructure requirements;
- No contributions are collected from owners where there is no infrastructure but there is also no bonus FSR on these sites;
- Option 4 will need to be implemented through a new LEP amendment - the LEP controls required to achieve this option could not be inserted into LEP Amendment No.1 without triggering the need for a new Gateway Determination.
- There is less certainty with this option than provided by Option 3.
- Option 4 is difficult to legislate through Standard Template complaint LEPs.
- It is understood that in recent times the Department of Planning and Infrastructure prefer to implement this kind of system using a deferral model (Option 3) rather than a FSR differential model (Option 4).

## 3.9 Growth Infrastructure Plans

The NSW Government has recently announced that Herring Road and North Ryde have been nominated as Urban Activation Precincts (UAP) (currently on exhibition to Early May 2013) along with six other precincts. The UAP process allows State Government to identify areas with good transport connections for increased residential density and also to dedicate public money to these precincts to pay for new infrastructure to meet the demands of the increased population.

It is understood that approximately \$50 million of State Government funds have been allocated for distribution amongst the eight UAPs. The Herring Road and North Ryde Precincts may be eligible for some of this money, following the UAP rezoning process.

In any case, the UAP process is not an appropriate funding mechanism for the proposed public domain works being proposed for Macquarie Park, which have an estimated value of \$107 million.

Should some of the UAP funds become available, it is recommended that these funds be used towards the construction of the new Shrimptons Creek vehicular crossing.

## 3.10 Development Consent Conditions

With the significant demand for infrastructure funding at Macquarie Park it is important that there is clear delineation between infrastructure for which offsets can be claimed under Section 94 and the uplift mechanisms, and infrastructure which is considered to be a condition of development consent. This is to ensure that the funding mechanism outcomes are not diluted by developers offsetting inappropriate footpath replacement or other similar conditions of consent.

## 3.11 Special Rate Levy

The existing special rate levy provides a reliable if minor source of funds for improving the public domain at a time when development has delivered few Section 94 contributions. Increasing this levy is not considered viable in the current economic climate so it should remain a supplementary source of funds. A reliable revenue stream allows a capital works program to proceed when other contributions are scarce and this levy can address smaller infrastructure issues which still provide improved access for workers in Macquarie Park.

Whether this levy is considered for retention in the future will depend on the level of reserves acquired to fund a consistent capital works program but in principle such a levy probably should not be required in the long term.

## 3.12 Other Considerations

In considering the options, variations to planning controls such as land use zones were considered to increase residential development which offers higher land values and therefore higher contributions are feasible. Furthermore demand for residential development is strong and would improve delivery of infrastructure including displacing a larger proportion of existing improvements than can be achieved with commercial uses.

However the need to preserve Macquarie Park as Sydney's premier business park and specialised employment centre and the extensive mixed uses zone already in place has determined that this strategy is not appropriate.

## 3.13 Preferred Option - Option 3: Deferral Model

The preferred option which responds to the special needs of Macquarie Park and takes into account the timing and implementation of a new mechanism is Option 3, the Deferral Model. This option combines the incentive for redevelopment with funding of infrastructure and encompasses the flexibility of voluntary planning agreements.

The mechanism is considered fair and equitable in that all landowners receiving the benefit of increased FSR will contribute whether there is infrastructure on their land or not. As a value capture mechanism it offers the opportunity to develop an infrastructure funding tool within the planning system which will address infrastructure in other similar precincts requiring renewal.

Option 3 also represents a significant advantage in that it can be implemented as part of making Ryde LEP Amendment No. 1, which has already received a Gateway Determination from the Department of planning and Infrastructure.

Option 3 also represents the lowest risk to Council, because it requires that the developer enters into a formal agreement with Council for the required infrastructure or contributions, before the land is even 're-zoned', or 'underrated'. A development application for a higher density can only be determined following the un-deferral process.

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## 3. Financial Options

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### 3.14 Conclusion - Recommended funding mechanism

The Macquarie Park Corridor has requirements for significant infrastructure as it develops and no one mechanism can provide the required infrastructure. Therefore a combination of mechanisms is expected to deliver the infrastructure with Option 3 considered to be the principal funding mechanism for the revised access network. This preferred mechanism is subject to further testing and analysis combined with a robust system of implementation and administration.

In terms of the secondary system, it is recommended that Council investigate benefits of adopting a Section 94A Plan. These investigations need to be undertaken on a whole of LGA basis, and the flat levy may not be appropriate in considering the balance of land uses, building stock and infrastructure demand in the City of Ryde.

In order to deliver recommendations for implementation Option 3, it is therefore concluded that:

- Further testing of the Option 3, the refined Access Network and LEP Amendment No.1 FSR and Building Height Maps be completed to confirm the contribution rate to deliver the access network;
- Guidelines be developed for applicants and assessors to clearly explain the obligations and processes involved in accessing FSRs in Amendment No.1;
- Guidelines or amendments to the draft VPA Template be developed to confirm the calculation of contributions and detailed terms and conditions of the draft VPA template.

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## 4. Conclusion

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Macquarie Park is a highly successful business park which is unique in the Sydney metropolitan area. Its point of difference is that its very large business area does not include residential development. Therefore a strong and marketable business and technology focus has been developed and maintained for several decades. This is a major attractor for companies looking to establish or relocate within a thriving business area while avoiding the prices and strategic challenges of a CBD location or other urban centres.

While Macquarie Park has this advantage, it currently has issues with traffic congestion, limited open space and is perceived as having no 'sense of place'. Employees need to be increasingly attracted to an area not just to the work place. In order to address these issues, the principles of providing more roads, significant usable open spaces, activity centres with restaurants, bars, cafes and entertainment as well as an extensive range of recreational attractors, have been applied. These principles underpin the proposed Access Network Plan, Open Space Network Plan and Place Making Plans included in this Options Paper.

The Access Network Plan establishes a series of new vehicular and pedestrian links that will give Macquarie Park increased permeability and assist in traffic flow and storage. The proposed new access network was then tested by Bitzios traffic consultants and proved to be advantageous when compared with the access network currently in the Ryde DCP 2010.

The Open Space Network Plan proposes the removal of the linear parks currently in the Ryde DCP 2010 and consolidation of the main open spaces along Waterloo Road. The existing Shrimptons Creek Park is a major asset to Macquarie Park and should be regenerated. The frontage to Waterloo should be widened and a series of new pedestrian and cyclist links should be built on either side to maximise connectivity and safety.

Placemaking for Macquarie Park is essential to create an environment that attracts businesses to invest and stay in the area. Strategies such as the proposed creation of recreational attractors and activity hubs will encourage developments to provide new amenity for workers and existing residents resulting in a more vibrant area that has facilities for day-time use as well as a night-time economy.

Architectus has proposed three new FSR Plan Options with associated Building Heights. The height and floor space ratio options explore the different urban design scenarios and their likelihood to achieve the proposed access network and create a sense of place. From an urban design perspective, Option 3 would be the most successful in achieving those desired outcomes. A thorough testing of a number of sites supports option 3 as promoting the most appropriate built form outcome. A full record of the site testing can be found in Appendix 1. A 'loose fit' height plan accompanies the FSR plan in order to allow landowners to comfortably achieve their designated FSR within the height limit.

A number of different funding mechanisms to deliver the access network were proposed by HillPDA including Section 94, Section 94A, a deferral mechanism and a bonus mechanism. Although all systems have significant opportunity, the most realistic and fastest strategy to implement, is to continue with the deferral mechanism set up in the Amendment 1 to the LEP2008.

Subsequently, the next steps are to proceed with the option 3 for FSR and heights and for them to be thoroughly testing by HillPDA to determine viability and capacity to deliver the proposed access network. Once this has been confirmed, the appropriate planning mechanisms and templates can be established.

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# Appendix

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# Appendix A - Site Testing

## Appendix A - Site Testing

The sites for site testing were selected to cover a range of different scenarios, locations and scales. Each of the sites has a single landowner and some include amalgamated lots.

Sites include those fronting Waterloo Road, Talavera Road, Wicks Road, Delhi Road and Epping Road. Each site was tested with at least three different Floor Space Ratios (FSRs) including the existing FSR, proposed FSR without additional incentive FSR, and FSR including additional incentive FSR where applicable.

We also looked at sites with varying amounts and types of proposed infrastructure, primarily roads and pedestrian links, but also the 43-61 Waterloo Road site with a large public open space proposed.

The following assumptions were the basis for the site testing:

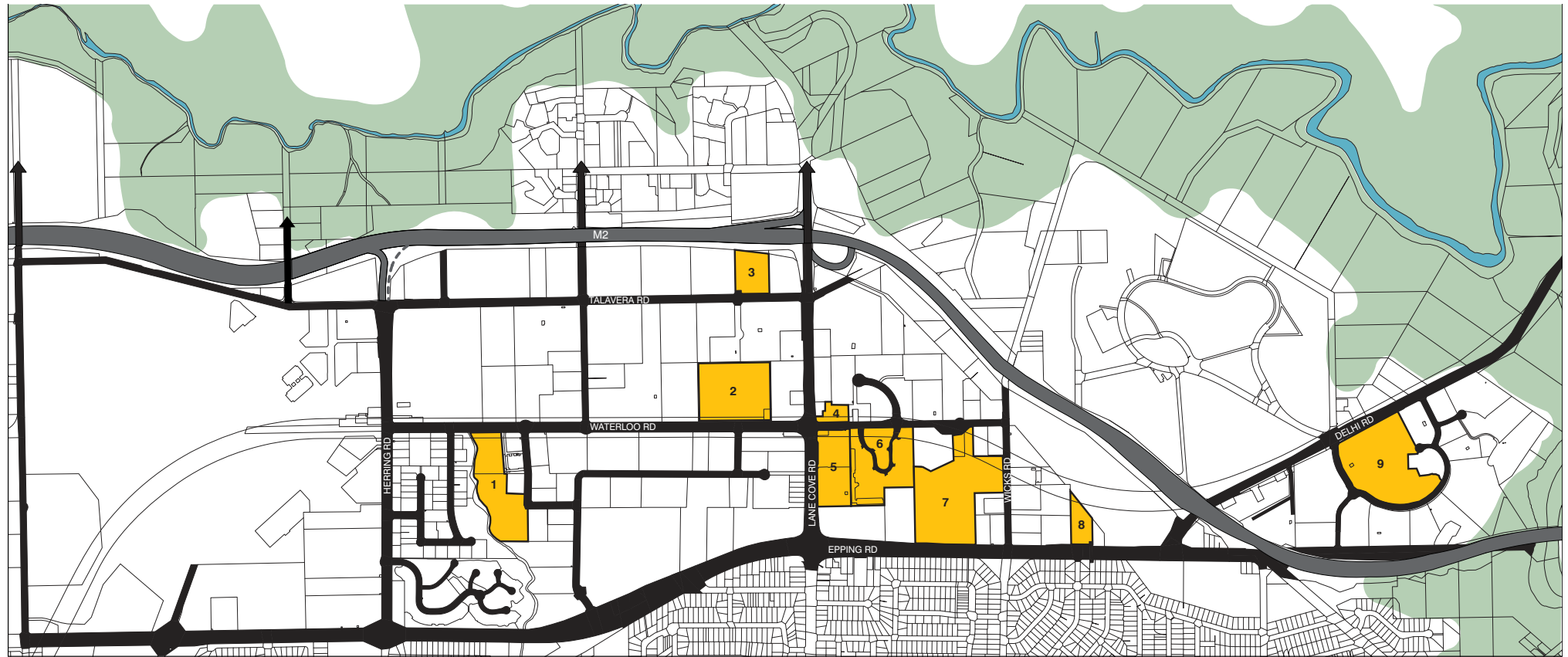
1. Commercial floor plates – generally 2,000 or 4,000sqm GFA made up of connected floor plates with max width of 25m (min 20m) and max length of 80m. 3-4,000sqm in H format with central core/atrium flanked by two floor plates
2. Generally office buildings should be maximum around 10-15,000sqm total each with some opportunities nearest the stations for commercial buildings at 20-25,000sqm each.
3. Assume 85% GFA to envelope for Commercial (market can achieve 90%, but for planning use 85%).
4. Commercial floors at 4m floor to floor height (market is usually 3.6-3.8 but for planning use 4m).
5. Max 20% of site for on grade parking
6. All other parking below ground.
7. For sites fronting Waterloo Road test 10m and 5m front setback
8. For sites fronting other roads test 5m setback
9. Work with controls in the Macquarie Park Ryde DCP 2010. The building separation controls need to be tested (20m between the long face of buildings facing each other and 10m to the short face of a building).
10. Work with road widths/locations as per this document.
11. Waterloo Road frontage to be a wide range of active uses

13. Residential buildings in existing mixed use areas generally should be limited to 700sqm GFA floor plate above 6 storeys. FSR the same as commercial. Assume 75% GFA to envelope for residential.
14. Height limits are not to be set at this stage but as a result of the testing. However, overshadowing of parks should be controlled – at least 50% of a park should be in direct sunlight for 4 hours in mid June. Also, overshadowing of residential needs to be considered as for the RFDC.

The following table demonstrates the diversity of public infrastructure and frontage that was tested.

Address	Roads	Open Space	Pedestrian Links	Waterloo Road Frontage
82-84 Waterloo Road/ 6-8 Byfield St	No	Yes	Yes	Yes
43-61 Waterloo Road	Yes	Yes	Yes	Yes
6-10 Talavera Road	No	No	No	No
33 Waterloo Road	No	No	No	Yes
269-271 Lane Cove Road	Yes	No	No	Yes
26-32 Waterloo Road	Yes	Yes	No	Yes
144 Wicks Road	Yes	No	No	Yes
31-35 Epping Road	No	No	Yes	No
39 Delhi Road	Yes	Yes	Yes	No

# Appendix A - Site Testing



KEY	
1	- 82-84 Waterloo Rd + 6-8 Byfield St
2	- 43-61 Waterloo Rd
3	- 6-10 Talavera Rd
4	- 33 Waterloo Rd
5	- 269-271 Lane Cove Rd
6	- 26-32 Waterloo Rd
7	- 144 Wicks Rd
8	- 31-35 Epping Rd
9	- 39 Delhi Rd

Figure 17: Site Testing Key Plan

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# Appendix A - Site Testing

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# Appendix A - Site Testing

**SITE** 82-84 Waterloo Road  
6-8 Byfield Street

## Site details

Site Area: 10658m<sup>2</sup> (Waterloo Rd)  
22463m<sup>2</sup> (Byfield St)

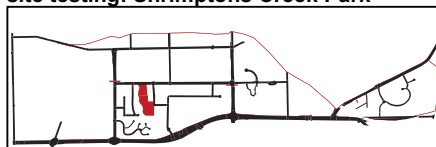
Owner: Goodman / Strata Plan

-  New 8m Pedestrian Paths
-  Zone of Influence
-  Existing Building Footprint
-  Proposed Building Envelope

- Notes:**
- Sites need to be tested individually but considered as one
  - 82-84 Waterloo Rd is zoned Mixed Use and so can be a residential building
  - 6-8 Byfield St is zoned Business Park and so can only be commercial

- Test FSR's**
- 1:1-2:1 Combination (LEP 2008)
  - 1.5:1 LEP Amendment 1
  - Waterloo Rd site 2.0:1, Byfield St site 1.5:1

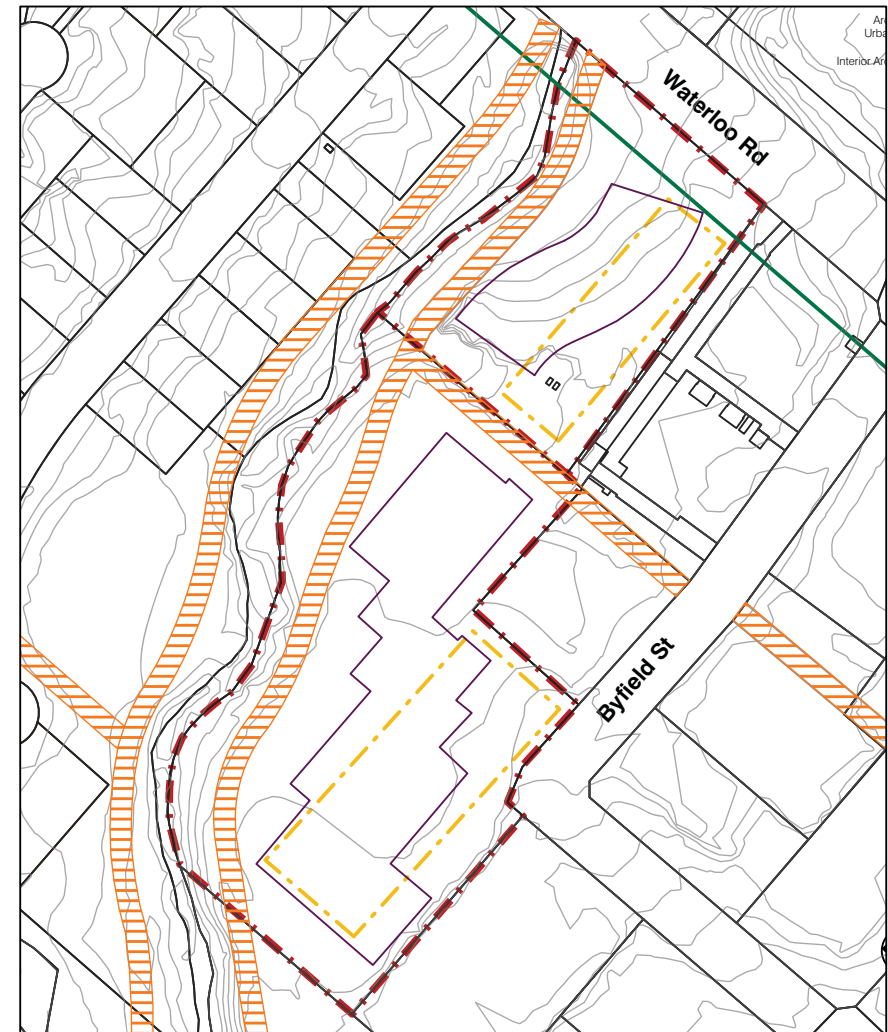
### site testing: Shrimptons Creek Park



## LEP controls










xx:1 FSR      yym Height  
1 car space/ m<sup>2</sup> Car parking LEP 2011





# Appendix A - Site Testing

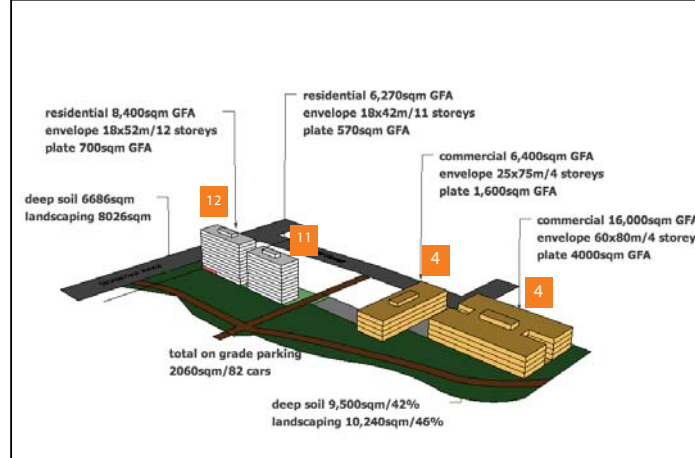
<b>SITE</b>	<b>82-84 Waterloo Rd 6-8 Byfield St</b>	
	<b>setbacks</b>	
	Waterloo Road	10m
	Rear/Side/Byfield St.	5m
	Zone of influence at north 16m	

<b>Key</b>	
	Residential
	Parking
	Commercial
	Landscape area
	Retail/active uses
	Deep soil
	Total storeys

<b>Notes</b>
<b>Waterloo Road site (10,658sqm) :</b> Deep soil minimum 20% or 2132 sqm. Total landscaped area minimum 30% or 3,197sqm.
<b>Byfield Street site (22,463sqm) :</b> Deep soil minimum 20% or 4,493 sqm. Total landscaped area minimum 30% or 6,739sqm. Building footprints and locations sited to maximise open space along creek corridor. Optional retail/active uses on ground floor fronting Waterloo Road.

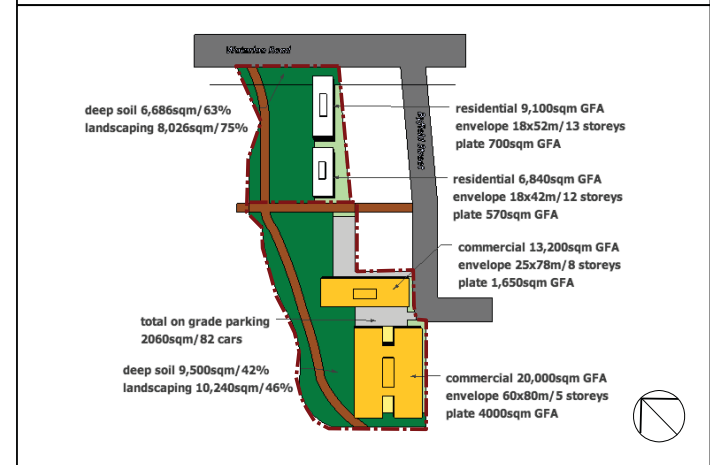
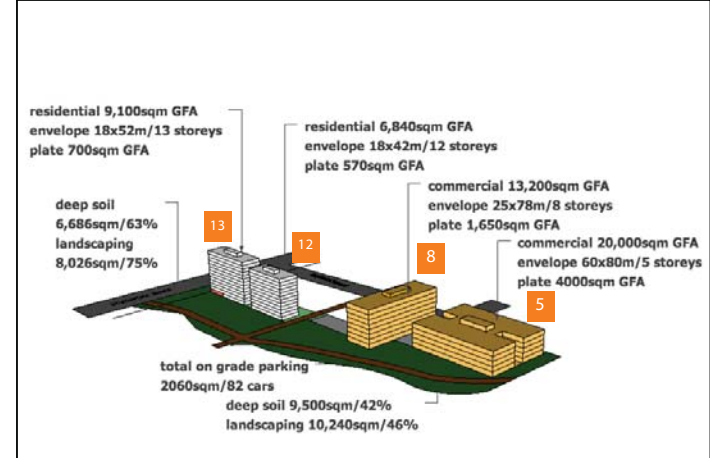
<b>General Comments</b>
Ideally, the land bounded by Waterloo, Byfield and Herring roads, should be a special strategic site with alternative controls at 3:1 FSR mixed use and highest height limit to encourage comprehensive redevelopment and a significant public park given proximity to the station and Macquarie Park Shopping Centre.

## FSRs 1.0:1 & 2.0:1 (LEP 2008)



<b>Commercial</b> Storeys 4 GFA 22,400 sqm FSR 1.0:1	<b>Residential</b> Storeys 11, 12 GFA 14,670sqm FSR 2&1.0:1 Parking 241 cars, basement	<b>Comm. Parking 487 cars</b> On grade:2060sqm/82 cars Basement: 405 cars
<b>Total GFA 37,070 sqm FSR 1.1:1 Max Ht: 12 storeys/37m Landscape: complies</b>		
<b>Comment:</b>		







## FSR 1.5:1 (LEP amendment)



<b>Commercial</b> Storeys 5, 8 GFA 33,200 sqm FSR 1.5:1	<b>Residential</b> Storeys 12, 13 GFA 15,940 sqm FSR 1.5:1 Parking 263 cars, basement	<b>Comm. Parking 722 cars</b> On grade:2060sqm/82 cars Basement: 640 cars
<b>Total GFA ~49,680 sqm FSR 1.5:1 Max Ht: 13 storeys/40m Landscape: complies</b>		
<b>Comment:</b>		

# Appendix A - Site Testing

<b>SITE</b>	<b>82-84 Waterloo Rd 6-8 Byfield St</b>
	<b>setbacks</b> Waterloo Road 10m Rear/Side/Byfield St. 5m Zone of influence at north 16m

<b>Key</b>	
	Residential
	Parking
	Commercial
	Landscape area
	Retail/active uses
	Deep soil

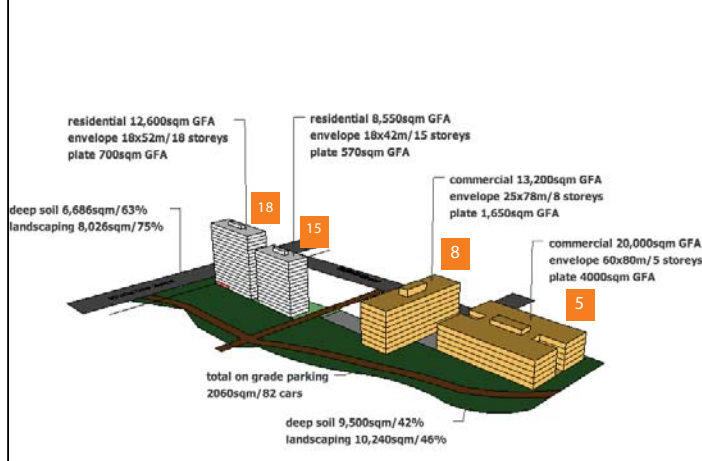
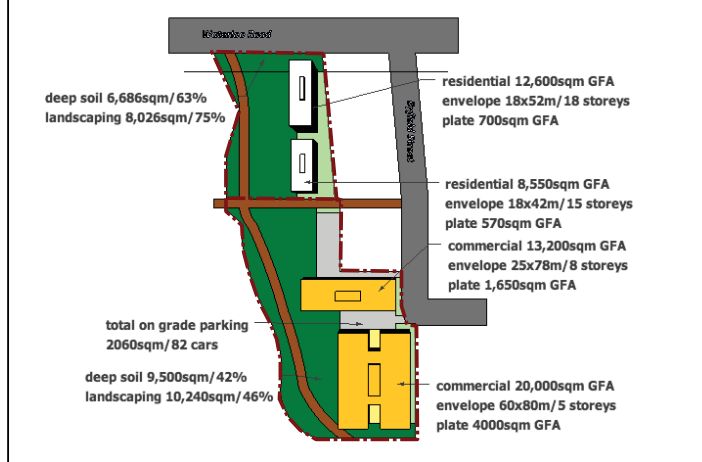
**Notes**

**Waterloo Road site (10,658sqm) :**  
Deep soil minimum 20% or 2132 sqm.  
Total landscaped area minimum 30% or 3,197sqm.

**Byfield Street site (22,463sqm) :**  
Deep soil minimum 20% or 4,493 sqm.  
Total landscaped area minimum 30% or 6,739sqm.

Building footprints and locations sited to maximise open space along creek corridor. Optional retail/active uses on ground floor fronting Waterloo Road.

**General Comments**

<b>Waterloo Rd 2.0:1 , Byfield St 1.5:1</b>		
		
		
<p><b>Commercial</b> Storeys 5, 8 GFA 33,200 sqm FSR 1.5:1</p>	<p><b>Residential</b> Storeys 15, 18 GFA 21,150 sqm FSR 2.0:1 Parking 343 cars, basement</p>	<p><b>Comm. Parking 722 cars</b> On grade:2060sqm/82 cars Basement: 640 cars</p>
<p><b>Total GFA ~54,350 sqm FSR 1.6:1 Max Ht: 18 storeys/55m Landscape: complies</b> <b>Comment:</b></p>		

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# Appendix A - Site Testing

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# Appendix A - Site Testing

**SITE** 43-61 Waterloo Road  
Side Park

## Site details

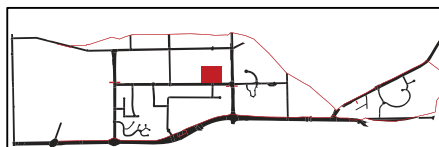
Site Address: 43-61 Waterloo Rd  
Site Area: 40055m<sup>2</sup>  
Owner: TCA

-  2 new roads - 20.5m + 19m
-  DCP site for new park
-  Architectus preferred park size if possible
-  10m DCP setback
-  5m setback

### Notes:

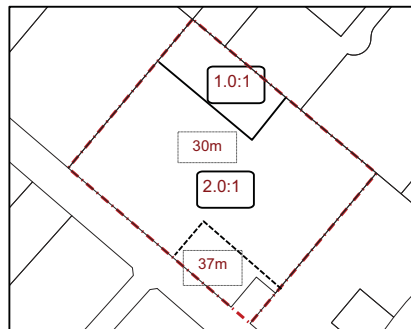
- We are thinking public recreation uses and active edges at ground floor
- The current DCP setback of 10m to Waterloo Rd. We consider a 5m setback may be more appropriate.

Test FSR's  
2.5:1  
3.0:1  
4.0:1

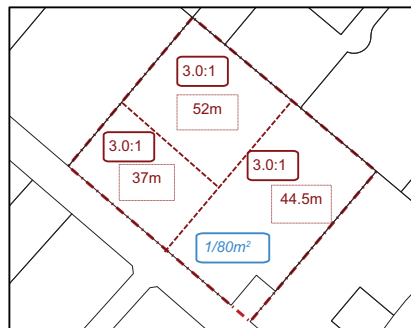


## LEP controls

LEP 2008



LEP Amendment 1



xx:1 FSR      yym Height  
1 car space/m<sup>2</sup> Car parking LEP 2011









1:2000 @ A3



# Appendix A - Site Testing

<b>SITE</b>	<b>43-61 Waterloo Rd</b> site area: 40,055 sqm	
larger side park	<b>setbacks</b>	
	Waterloo Rd	10m
	E/W Road	5m
	N/S Road	0m

**Key**

 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

**Notes**

Remaining developable site area ~15,560sqm. FSR 2.0:1 allows 80,000sqm GFA, the equivalent of FSR 5.0:1 on the remaining land.

Park and streets could satisfy DCP deep soil and landscape area. Remaining site could be developed with urban character.

Ground floor primary frontages public use/active uses.

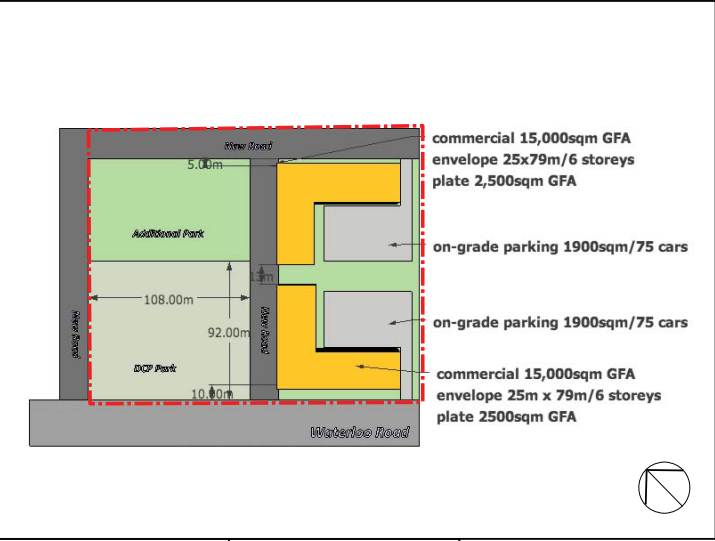
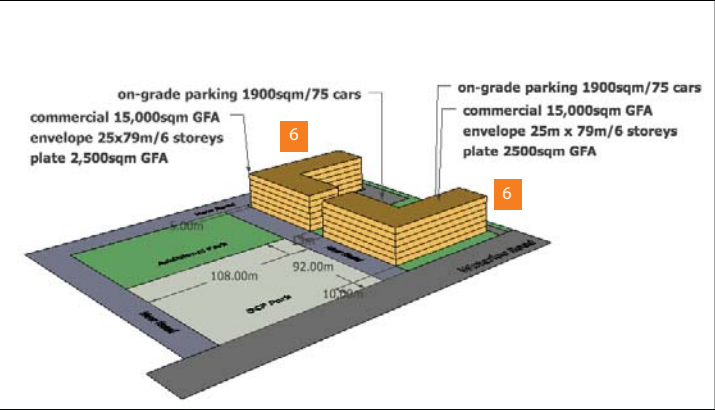
Opportunity for mid-block street/pedestrian link to park.

Setback variations have minimal effect on building form.

**General Comments**

The size of the park while desirable is not financially viable to achieve.

**FSR 1.5:1** Typical commercial development

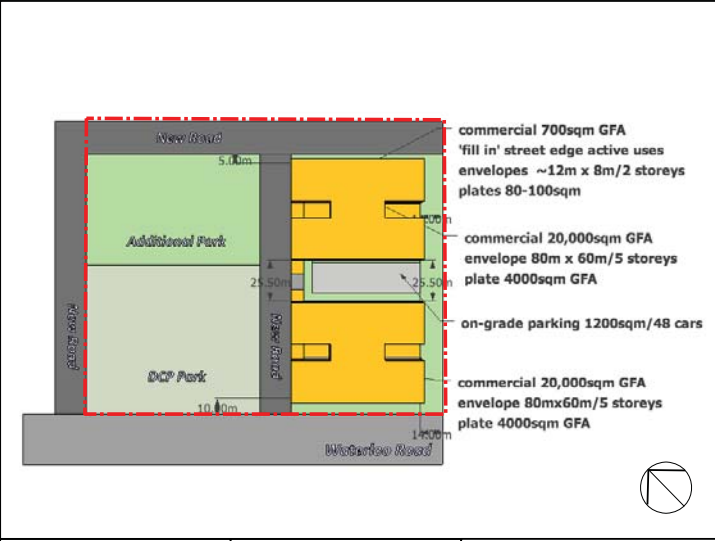
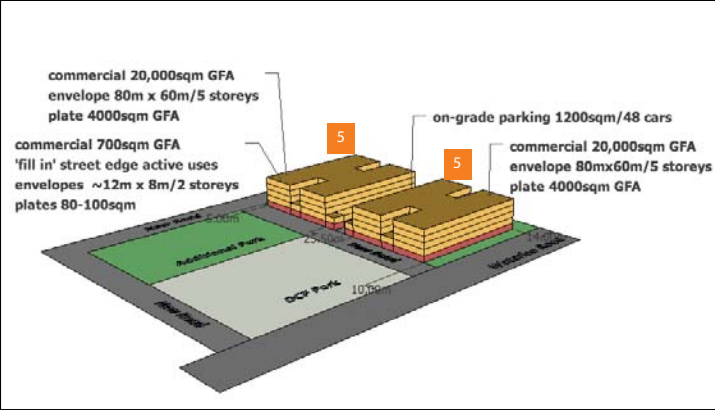


<b>Commercial</b> Storeys 1-6 GFA 30,000 sqm		<b>Parking - 375 cars</b> On grade:3800 sqm/150 cars Basement: 225 cars
--	--	---

**Total GFA:** 30,000 sqm **FSR 0.75:1** **Max Ht:** 6 storeys/24m **Landscape:** Park

**Comment:** Typical commercial buildings on developable parcel well below FSR 1.5:1

**FSR 1.5:1** 'Flagship' commercial buildings



<b>Commercial</b> Storeys 1-5 GFA 40,700 sqm		<b>Parking - 510 cars</b> On grade:1200 sqm/48 cars Basement: 462 cars
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




**Total GFA:** 40,700 sqm **FSR 1.0:1** **Max Ht:** 5 storeys/20m **Landscape:** Park

**Comment:** Large 'flagship' building sizes (but two in this location?) below FSR1.5:1.

# Appendix A - Site Testing

<b>SITE</b>	<b>43-61 Waterloo Rd</b> site area: 40,055 sqm	
larger side park	<b>setbacks</b>	
	Waterloo Rd	10m
	E/W Road	5m
	N/S Road	0m

**Key**

 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

**Notes**

Remaining developable site area ~15,560sqm. FSR 2.0:1 allows 80,000sqm GFA, the equivalent of FSR 5.0:1 on the remaining land.

Park and streets could satisfy DCP deep soil and landscaped area. Remaining site could be developed with urban character.

Ground floor primary frontages public use/active uses.


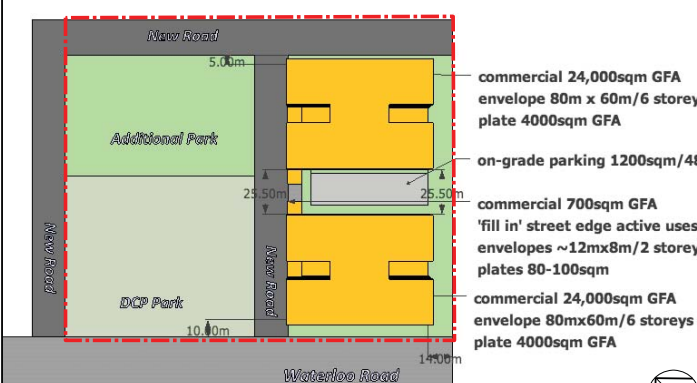
Opportunity for mid-block street/pedestrian link to park.

Setback variations have minimal effect on building form.

**General Comments**

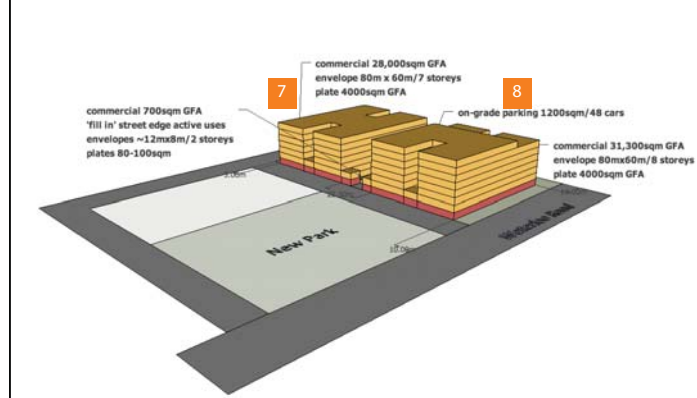

The size of the park while desirable is not financially viable to achieve.

**FSR 1.5:1** Maximum 'flagship' development

<b>Commercial</b> Storeys 1-6 GFA 48,700 sqm	<b>Parking - 610 cars</b> On grade: 1200 sqm/48 cars Basement: 562 cars
<b>Total GFA 48,700sqm FSR 1.2:1 Max Ht: 6 storeys/24m Landscape: Park</b>	
<b>Comment:</b> Upper limits of commercial viability as 2 maximum flagship buildings	

**FSR 1.5:1** Maximum development within target FSR










<b>Commercial</b> Storeys 1-8 GFA 60,000 sqm	<b>Parking - 750 cars</b> On grade: 1200 sqm/48 cars Structure: 702 cars
<b>Total GFA: 60,000 sqm FSR 1.5:1 Max Ht: 8 storeys/32m Landscape: Park</b>	
<b>Comment:</b> Buildings are above 25,000sqm threshold - query viability	

# Appendix A - Site Testing

<b>SITE</b>	<b>43-61 Waterloo Rd</b>	
	site area: 40,055 sqm	
<b>DCP</b>	<b>setbacks</b>	
side park	Waterloo Rd	10m
	E/W Road	5m
	N/S Road	0m

**Key**

 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

**Notes**

Remaining developable site area ~22,500sqm. FSR 2.0:1 allows 80,000sqm GFA, the equivalent of about FSR 3.5:1 on the remaining land.

Park and streets could satisfy DCP deep soil and landscaped area. Remaining site could be developed with urban character.

Ground floor primary frontages public use/active uses.

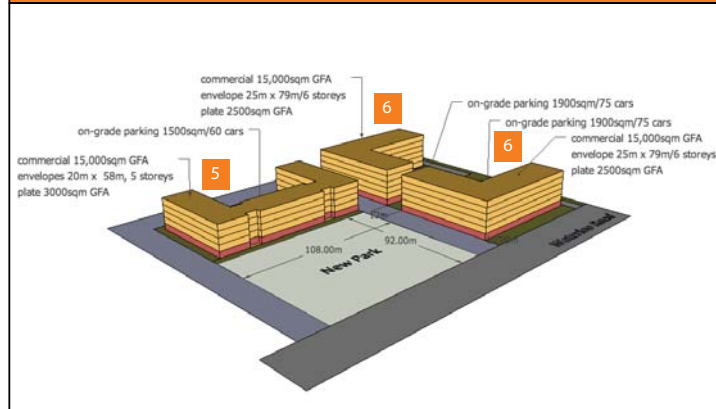
Opportunity for mid-block street/pedestrian link to park.

Setback variations have minimal effect on building form.

**General Comments**

The FSR in this option is too low to be commercial viable.

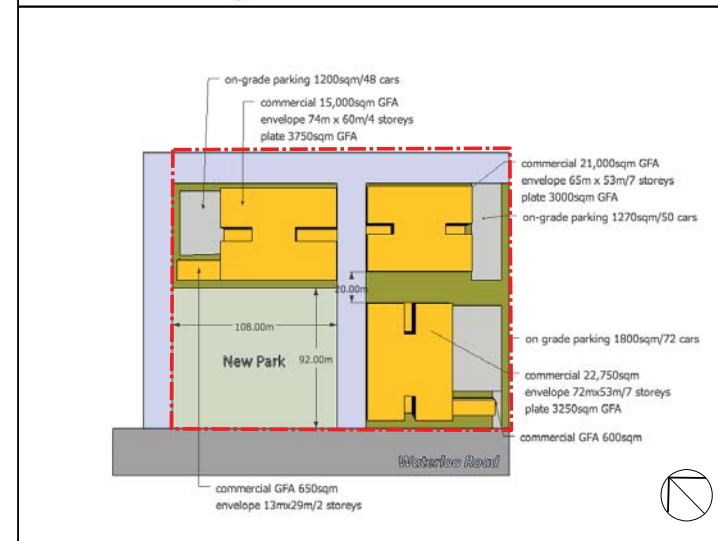
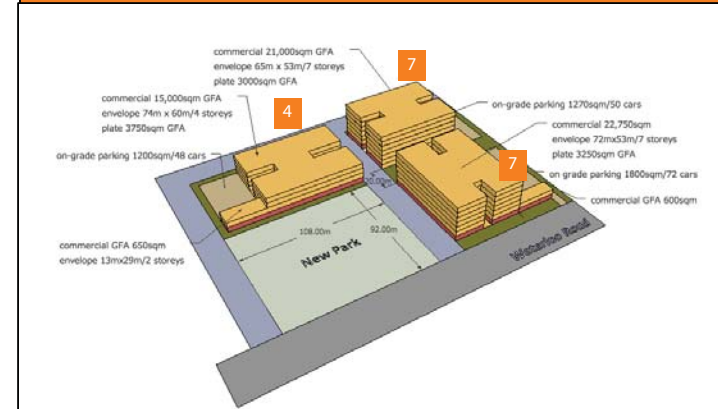
## FSR 1.5:1 Typical commercial development



<b>Commercial</b> Storeys 5 & 6 GFA 45,000 sqm	<b>Parking - 560</b> On grade: 5300 sqm/210 cars Basement: 350 cars
--	---

**Total GFA:** 45,000 sqm **FSR 1.1:1** **Max Ht:** 6 storeys/24m **Landscape:** Park  
**Comment:** Development below FSR 1.5:1

## FSR 1.5:1 Large 'flagship' developments



<b>Commercial</b> Storeys 4 & 7 GFA 60,000 sqm	<b>Parking - 750 cars</b> On grade: 4270 sqm/170 cars Basement: 580 cars
--	--

**Total GFA:** 60,000 sqm **FSR 1.5:1** **Max Ht:** 7 storeys/28m **Landscape:** Park  
**Comment:** Two 'flagship' buildings in one location?

# Appendix A - Site Testing

**SITE** 43-61 Waterloo Road  
Central Park

## Site details

Site Address: 43-61 Waterloo Rd  
Site Area: 40055m<sup>2</sup>  
Owner: SPA

3 new roads - 20m, and 2x12m  
1 pedestrian link - 8m

DCP site for new park

10m DCP setback

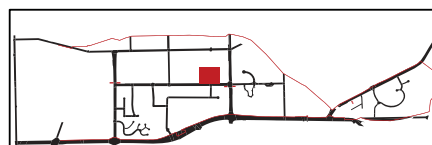
5m setback

### Notes:

- Commercial buildings fronting Waterloo Rd
- Residential Buildings on the remainder of the site

### Test FSR's

- 2.0:1
- 3.0:1
- 4.0:1



## LEP controls

### LEP 2008

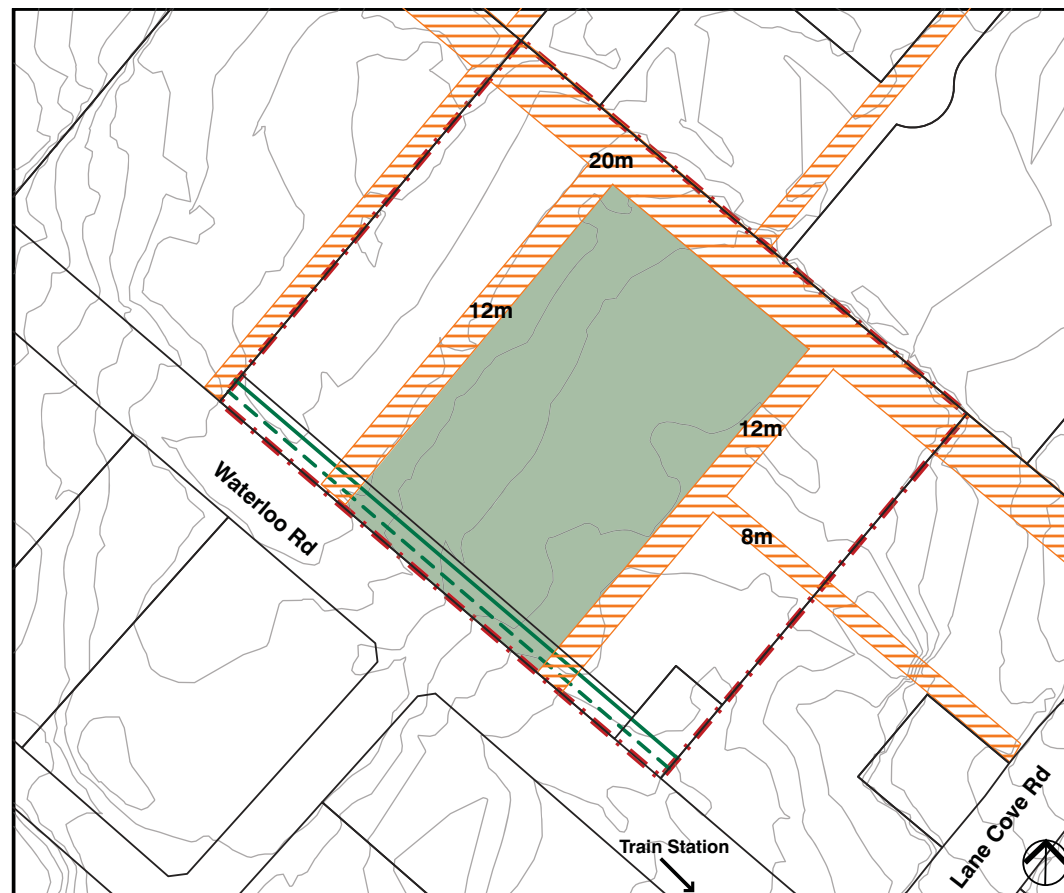


### LEP Amendment 1



xx:1 FSR      yym Height







1 car space/m<sup>2</sup> Car parking LEP 2011



1:2000 @ A3

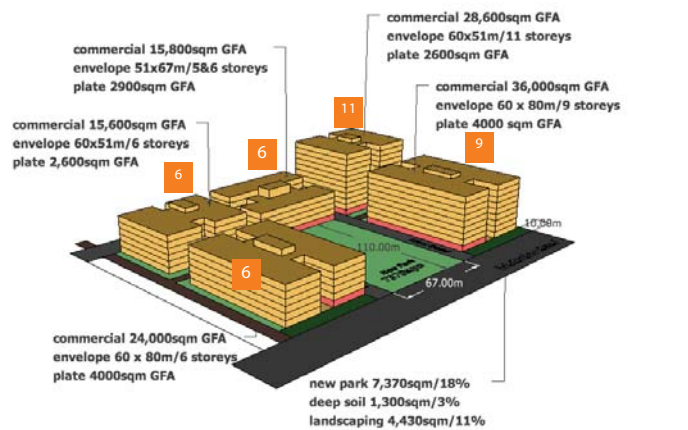
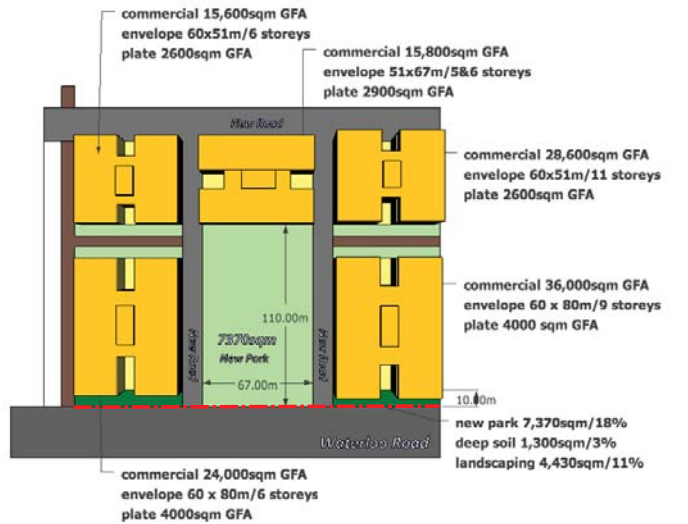
# Appendix A - Site Testing

<b>SITE</b>	<b>43-61 Waterloo Rd</b> site area: 40,055 sqm	
<b>central park</b>	<b>setbacks</b>	
	Waterloo Rd	10m
	N/S Road	0m

<b>Key</b>			
	Commercial		Parking
	Retail/active uses		Landscape area
	Total storeys		Deep soil

<b>Notes</b>
Remaining developable site area ~24,400sqm. FSR 3.0:1 allows 120,000sqm GFA, the equivalent of about FSR 5.0:1 on the remaining developable site.
Park and streets could satisfy DCP deep soil and landscaped area. Remaining site could be developed with urban character.
Ground floor primary frontages public use/active uses.
Opportunity for mid-block street/pedestrian link to park within 20m building separation zone.

<b>General Comments</b>
-------------------------

<b>FSR 3.0:1</b>		All commercial, building bulk south of park	
			
			
<b>Commercial</b>		<b>Parking - 1500 cars</b>	
Storeys 5, 6, 9, 11		Basement: 1500 cars	
GFA 120,000 sqm			
<b>Total GFA: 120,000 sqm FSR 3.0:1 Max Ht: 11 storeys/44m Landscape: Park</b>			
<b>Comment:</b> Building bulk located on southern side of park to reduce overshadowing of new park (7,370sqm). Street edge buildings, i.e. no setback to new roads.			



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# Appendix A - Site Testing

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# Appendix A - Site Testing

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# Appendix A - Site Testing

**SITE** 6-10 Talavera Road

## Site details

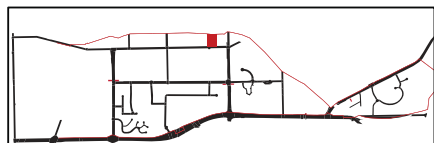
Site Address: 6-10 Talavera Rd  
 Site Area: 12898m<sup>2</sup>  
 Owner: Goodman 'Talavera Business Park'

-  No new roads
-  10m DCP setback along Talavera Rd, 5m setback from side boundaries

**Notes:**

**Test FSR's**

- 1.0:1
- 1.5:1
- 2.0:1



## LEP controls

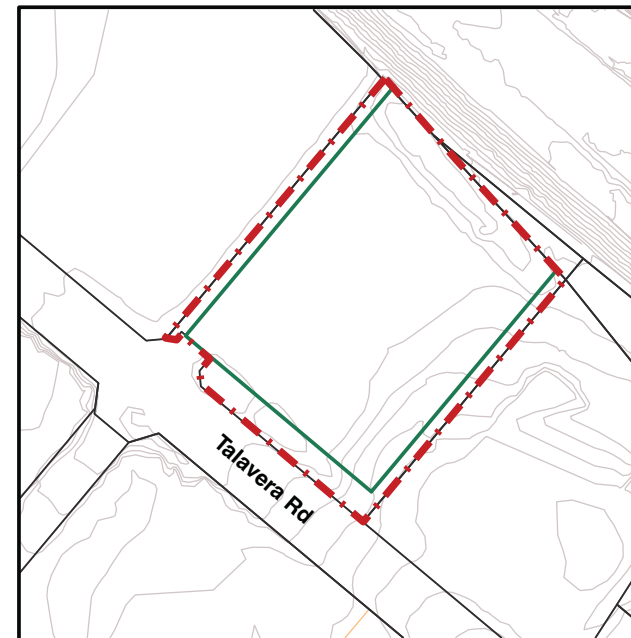
LEP 2010




LEP Amendment 1









xx:1 FSR      yym Height  
1 car space/ m<sup>2</sup> Car parking LEP 2011



 1:2000 @ A3

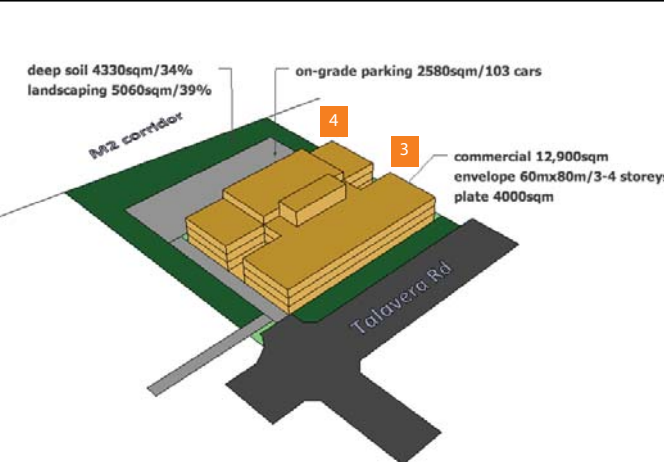
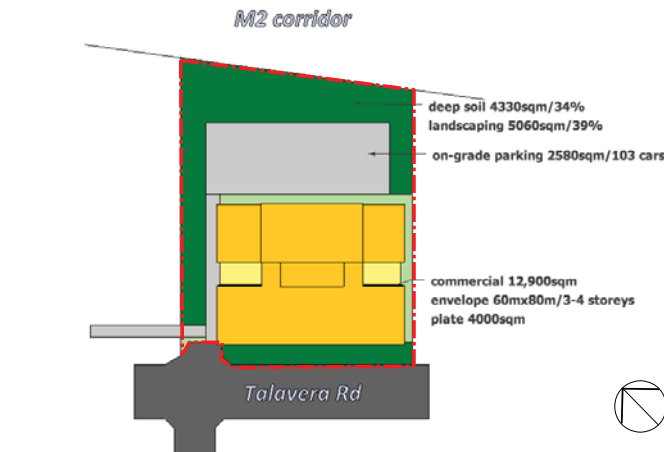
# Appendix A - Site Testing

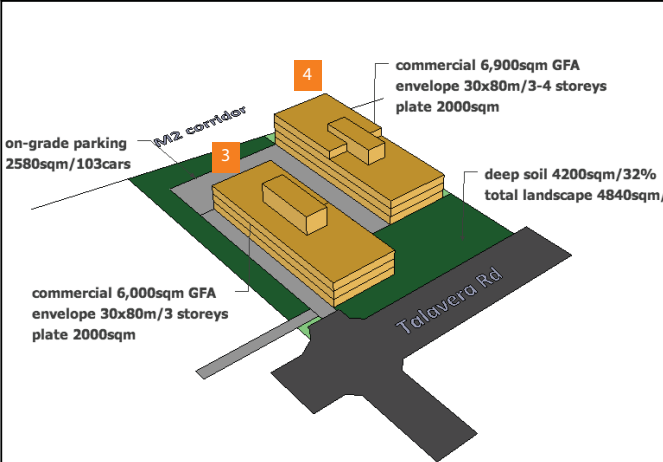
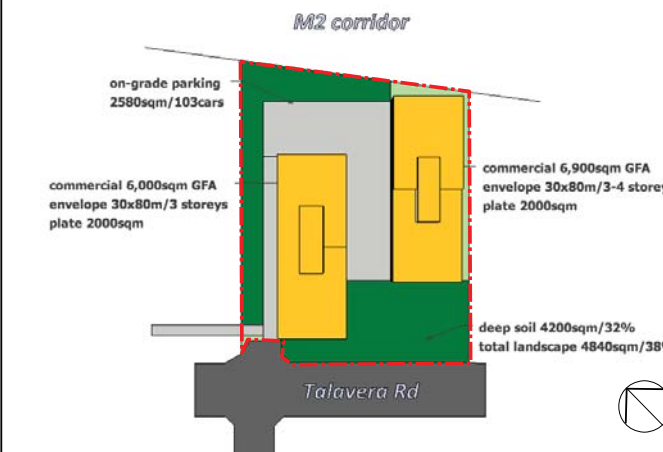
<b>SITE</b>	<b>6-10 Talavera Rd</b> site area: 12,898 sqm
	<b>setbacks</b> Talavera Road 10m Rear/Side 5m

<b>Key</b>	
 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

<b>Notes</b>
Deep soil minimum 15% or 2,580 sqm.
Total landscaped area minimum 30% or 3,870 sqm.







<b>General Comments</b>
FSR insufficient for viability

<b>FSR 1.0:1</b>		Large plate 'H form'
		
		
<b>Commercial</b> Storeys 3,4 GFA 12,900 sqm	<b>Parking - 280 cars</b> On grade:2580sqm/103 cars Basement: 177cars	
<b>Total GFA 12,900 sqm FSR 1.0:1 Max Ht: 4 storeys/16m Landscape: complies Comment:</b>		

<b>FSR 1.0:1</b>		Two buildings, deep soil area on Talavera Road
		
		
<b>Commercial</b> Storeys 3, 4 GFA 12,900 sqm	<b>Parking - 280 cars</b> On grade:2580sqm/103 cars Basement: 117 cars	
<b>Total GFA 12,900 sqm FSR 1.0:1 Max Ht: 4 storeys/16m Landscape: complies Comment:</b> Deep soil/open space area fronts Talavera Road (existing DCP)		

# Appendix A - Site Testing

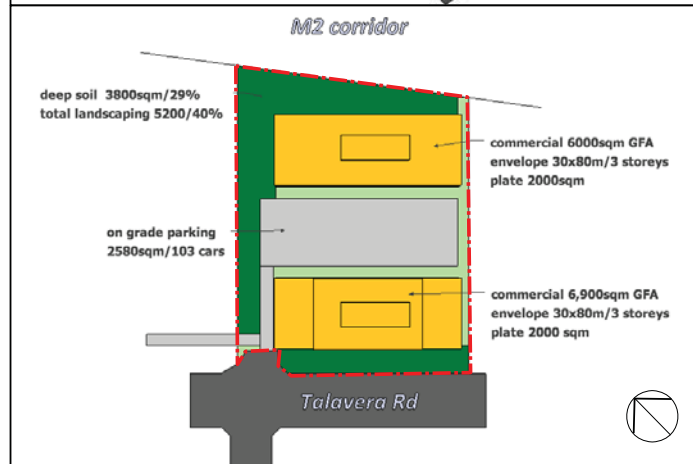
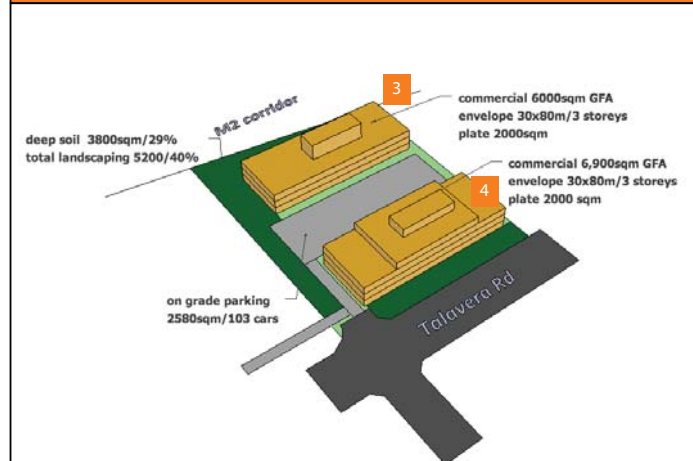
<b>SITE</b>	<b>6-10 Talavera Rd</b> site area: 12,898 sqm
	setbacks Talavera Road 10m Rear/Side 5m

<b>Key</b>	
 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

<b>Notes</b>
Deep soil minimum 15% or 2,580 sqm.
Total landscaped area minimum 30% or 3,870 sqm.

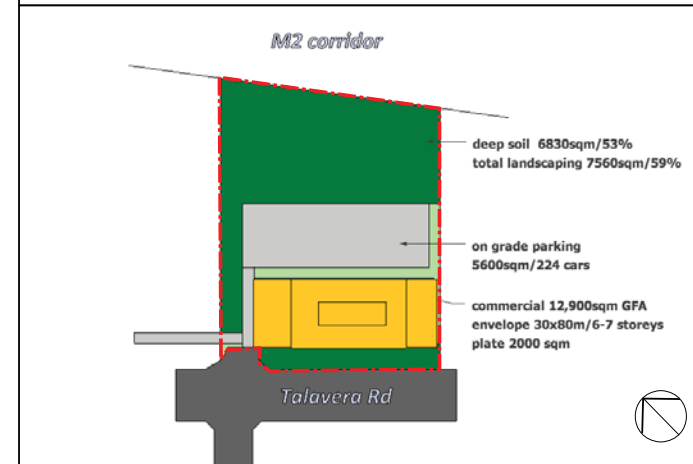
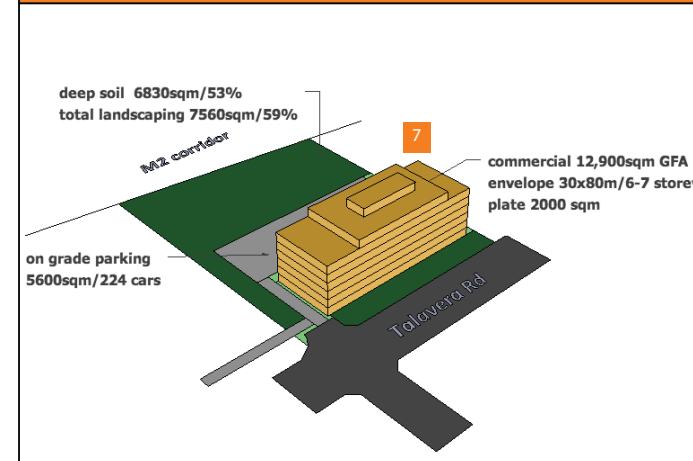
<b>General Comments</b>
FSR insufficient for viability

<b>FSR 1.0:1</b>	Two buildings, long side fronting Talavera Rd
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<b>Commercial</b> Storeys 3,4 GFA 12,900 sqm	<b>Parking - 280 cars</b> On grade:2580sqm/103 cars Basement: 117 cars
<b>Total GFA 12,900 sqm FSR 1.0:1 Max Ht: 4 storeys/16m Landscape: complies Comment:</b>	

<b>FSR 1.0:1</b>	Higher building
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




<b>Commercial</b> Storeys 7 GFA 12,900 sqm	<b>Parking - 280 cars</b> On grade:2580sqm/103 cars Basement: 117 cars
<b>Total GFA 12,900 sqm FSR 1.0:1 Max Ht: 7 storeys/28m Landscape: complies Comment: Large site area to landscaping</b>	



# Appendix A - Site Testing

<b>SITE</b>	<b>6-10 Talavera Rd</b>
	site area: 12,898 sqm
	<b>setbacks</b> Talavera Road 10m Rear/Side 5m

**Key**

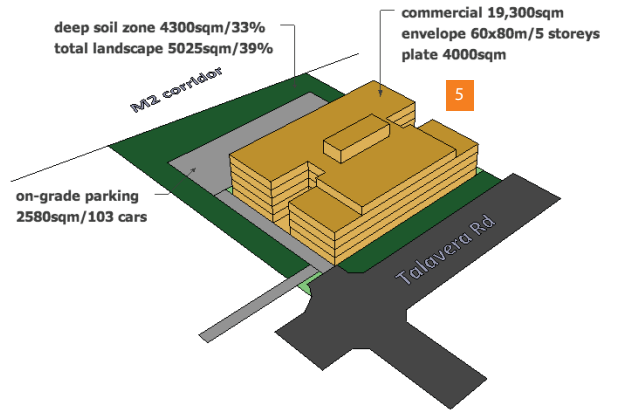
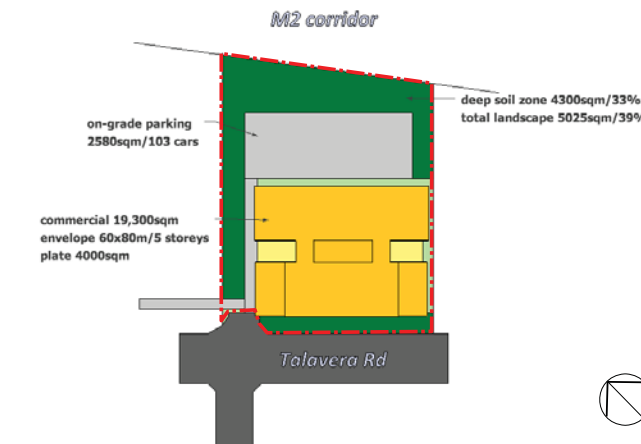
 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

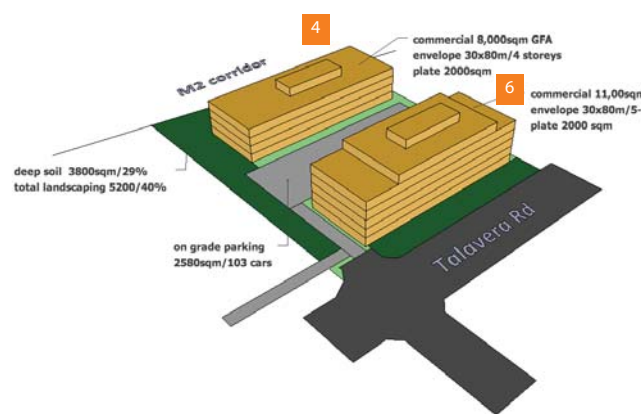
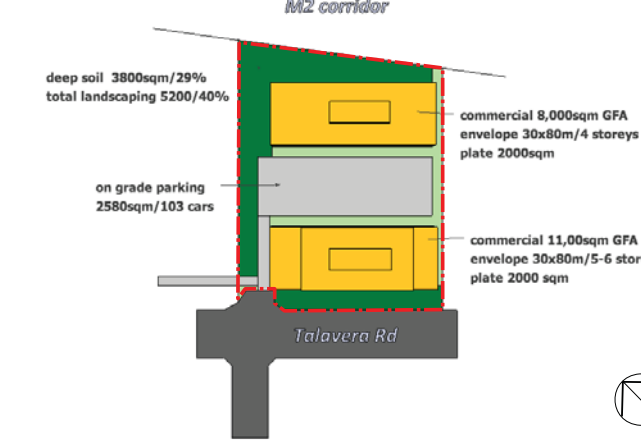
**Notes**

Deep soil minimum 15% or 2,580 sqm.  
 Total landscaped area minimum 30% or 3,870 sqm.

**General Comments**

This option is viable as it provides two buildings of marketable size.







<b>FSR 1.5:1</b>		Large plate 'H form'
 <p>deep soil zone 4300sqm/33% total landscape 5025sqm/39%</p> <p>commercial 19,300sqm envelope 60x80m/5 storeys plate 4000sqm</p> <p>on-grade parking 2580sqm/103 cars</p> <p>M2 corridor</p> <p>Talavera Rd</p>		
 <p>M2 corridor</p> <p>on-grade parking 2580sqm/103 cars</p> <p>commercial 19,300sqm envelope 60x80m/5 storeys plate 4000sqm</p> <p>deep soil zone 4300sqm/33% total landscape 5025sqm/39%</p> <p>Talavera Rd</p>		
<b>Commercial</b> Storeys 5 GFA 19,300 sqm	<b>Parking - 420 cars</b> On grade:2580sqm/103 cars Basement: 317 cars	
<b>Total GFA 19,300 sqm FSR 1.5:1 Max Ht: 5 storeys/20m Landscape: complies</b> <b>Comment:</b>		

<b>FSR 1.5:1</b>		Two buildings
 <p>deep soil 3800sqm/29% total landscaping 5200/40%</p> <p>commercial 8,000sqm GFA envelope 30x80m/4 storeys plate 2000sqm</p> <p>commercial 11,000sqm GFA envelope 30x80m/5-6 storeys plate 2000 sqm</p> <p>on grade parking 2580sqm/103 cars</p> <p>M2 corridor</p> <p>Talavera Rd</p>		
 <p>M2 corridor</p> <p>deep soil 3800sqm/29% total landscaping 5200/40%</p> <p>on grade parking 2580sqm/103 cars</p> <p>commercial 8,000sqm GFA envelope 30x80m/4 storeys plate 2000sqm</p> <p>commercial 11,000sqm GFA envelope 30x80m/5-6 storeys plate 2000 sqm</p> <p>Talavera Rd</p>		
<b>Commercial</b> Storeys 4,6 GFA 19,000 sqm	<b>Parking - 413 cars</b> On grade:2580sqm/103 cars Basement: 310 cars	
<b>Total GFA 19,000 sqm FSR 1.5:1 Max Ht: 6 storeys/24m Landscape: complies</b> <b>Comment:</b>		

# Appendix A - Site Testing

<b>SITE</b>	<b>6-10 Talavera Rd</b> site area: 12,898 sqm
	<b>setbacks</b> Talavera Road 10m Rear/Side 5m

**Key**

 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

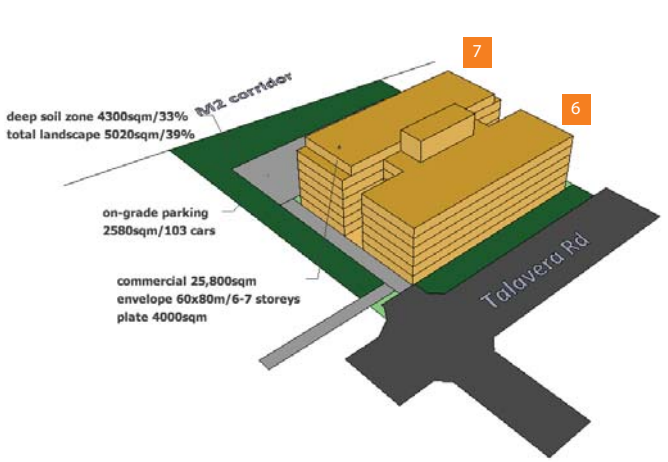
**Notes**

Deep soil minimum 15% or 2,580 sqm.  
Total landscaped area minimum 30% or 3,870 sqm.

**General Comments**

A singular building is too large for the market in this location but it can be two buildings which would be viable at 2:1.

**FSR 2.0:1** Large plate 'H form'



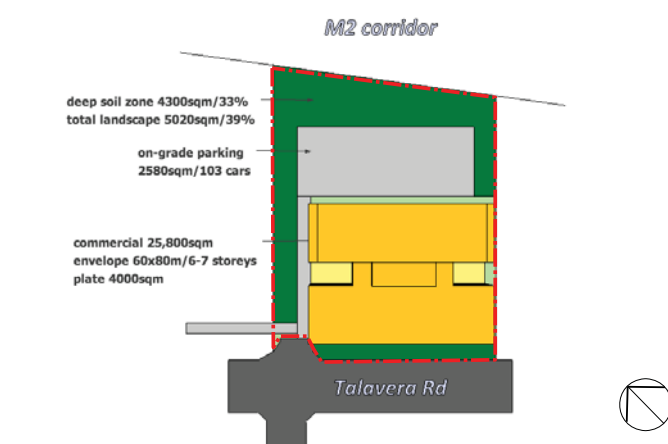
deep soil zone 4300sqm/33%  
total landscape 5020sqm/39%

on-grade parking 2580sqm/103 cars

commercial 25,800sqm envelope 60x80m/6-7 storeys plate 4000sqm

M2 corridor

Talavera Rd



deep soil zone 4300sqm/33%  
total landscape 5020sqm/39%

on-grade parking 2580sqm/103 cars

commercial 25,800sqm envelope 60x80m/6-7 storeys plate 4000sqm

M2 corridor

Talavera Rd

<b>Commercial</b> Storeys 6,7 GFA 25,800 sqm	<b>Parking - 560 cars</b> On grade: 2580sqm/103 cars Basement: 457 cars
--	---

**Total GFA 25,800 sqm FSR 2.0:1 Max Ht: 7 storeys/28m Landscape: complies**  
**Comment:**

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# Appendix A - Site Testing

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# Appendix A - Site Testing

**SITE** 33 Waterloo Road

## Site details

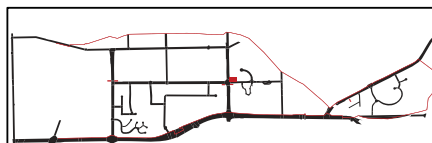
Site Address: 31-33 Waterloo Rd  
 Site Area: 4510m<sup>2</sup>  
 Owner: John Goubran

-  No new roads
-  Train station locations
-  10m DCP setback
-  5m setback

**Notes:**

**Test FSR's**

- 2.0:1
- 2.5:1
- 3.0:1
- 5.0:1 (as requested by land owner)

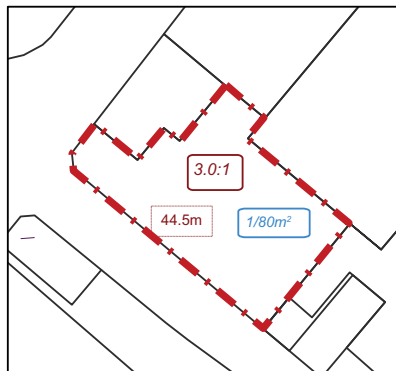


## LEP controls

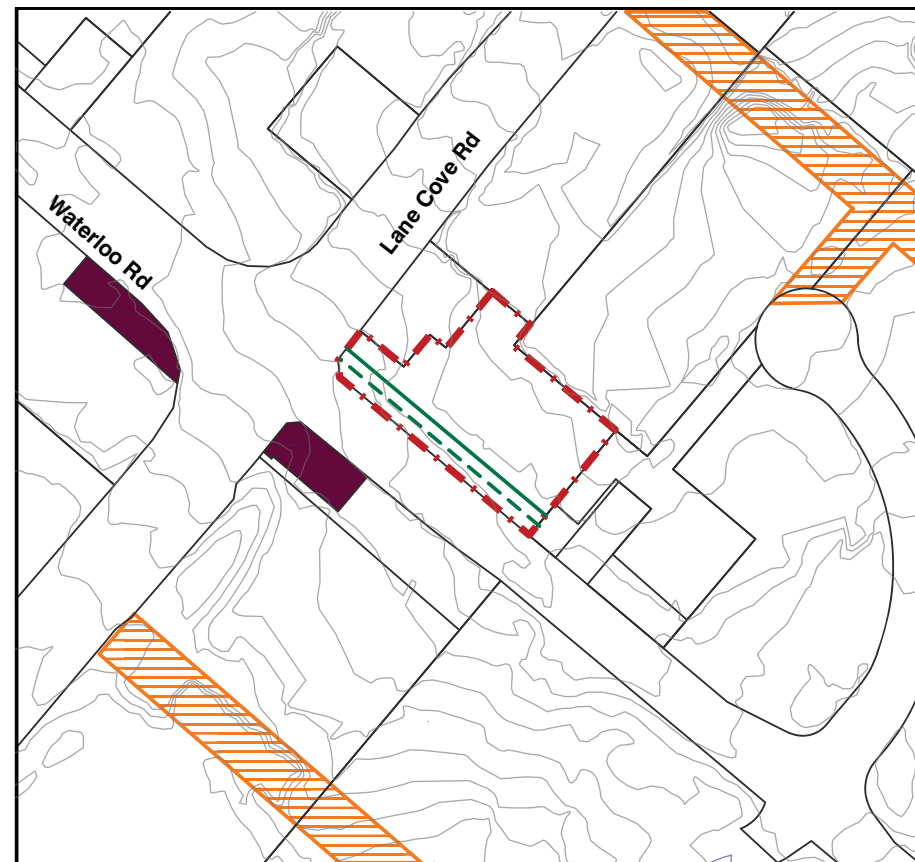
LEP 2010



LEP Amendment 1



xx:1 FSR      yym Height  
 1 car space/ m<sup>2</sup> Car parking LEP 2011



1:2000 @ A3

# Appendix A - Site Testing

<b>SITE</b>	<b>33 Waterloo Rd</b> site area: 4,510 sqm
	<b>setbacks</b> Waterloo Rd 10m Lane Cove Road 5m Rear/Side 5m

**Key**

<span style="display: inline-block; width: 15px; height: 15px; background-color: #f4a460; border: 1px solid black;"></span> Commercial	<span style="display: inline-block; width: 15px; height: 15px; background-color: #cccccc; border: 1px solid black;"></span> Parking
<span style="display: inline-block; width: 15px; height: 15px; background-color: #ff6666; border: 1px solid black;"></span> Retail/active uses	<span style="display: inline-block; width: 15px; height: 15px; background-color: #90ee90; border: 1px solid black;"></span> Landscape area
<span style="display: inline-block; width: 15px; height: 15px; background-color: #ffcc00; border: 1px solid black; border-radius: 50%;"></span> Total storeys	<span style="display: inline-block; width: 15px; height: 15px; background-color: #008000; border: 1px solid black;"></span> Deep soil

**Notes**

Waterloo Road 10m setback over the zone of influence.  
 Deep soil minimum 15% or 676sqm.  
 Total landscaped area minimum 30% or 1353sqm.  
 Ground floor primary frontages public/active uses.  
 Setback to rear and sides assumes 5m, except low rise corner retail building (1m rear).  
 Site would benefit from lot consolidation at awkward corner of Lane Cove Road and Waterloo Road.

**General Comments**

FSR 1.5:1		
<b>Commercial</b> Storeys 5 GFA 6,765 sqm		<b>Parking - 85 cars</b> On grade: 630sqm/25 cars Basement: 60 cars
<b>Total GFA 6,765 sqm FSR 1.5:1 Max Ht: 5 storeys/20m Landscape: complies</b> <b>Comment:</b> Simple 25m depth envelope constrained by corner. Could also have small retail building on corner.		







FSR 2.0:1		
<b>Commercial</b> Storeys 2, 7 GFA 9,000 sqm		<b>Parking - 112 cars</b> On grade: 630sqm/25 cars Basement: 87 cars
<b>Total GFA 9,000 sqm FSR 2.0:1 Max Ht: 7 storeys/28m Landscape: complies</b> <b>Comment:</b> Simple 25m depth envelope constrained by corner. Retail corner.		



# Appendix A - Site Testing

<b>SITE</b>	<b>33 Waterloo Rd</b> site area: 4,510 sqm
	<b>setbacks</b> Waterloo Rd 10m Lane Cove Road 5m Rear/Side 5m

**Key**

 Commercial	 Parking
 Retail/active uses	 Landscape
 Total storeys	 Deep soil

**Notes**

Waterloo Road 10m setback over the zone of influence.

Deep soil minimum 15% or 676sqm.

Total landscaped area minimum 30% or 1353sqm.

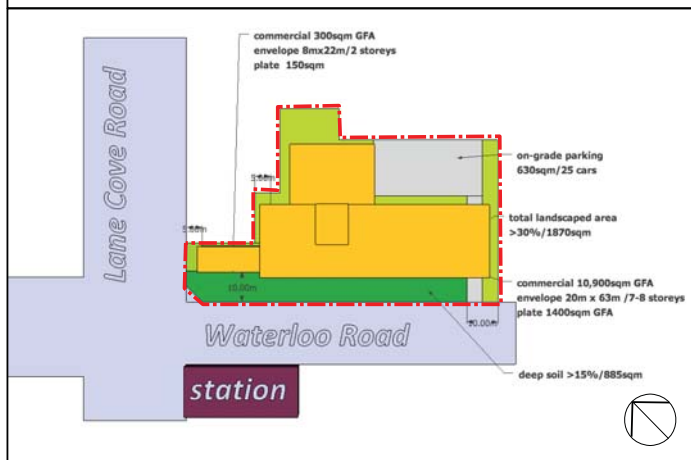
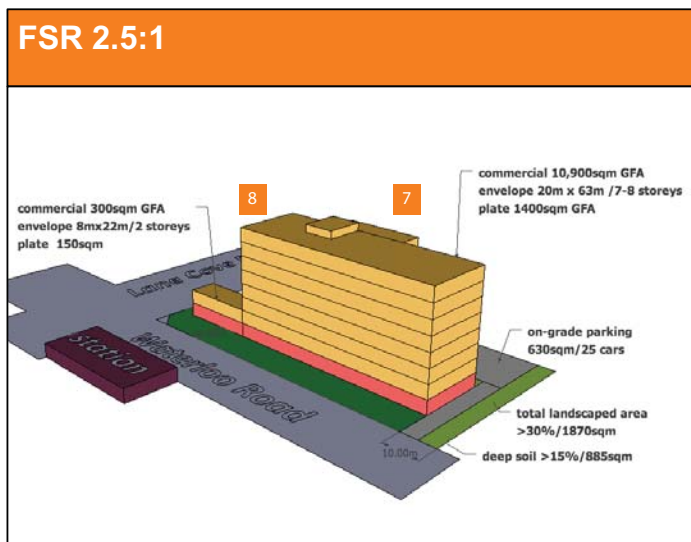
Ground floor primary frontages public/active uses.

Setback to rear and sides assumes 5m, except low rise corner retail building (1m rear).

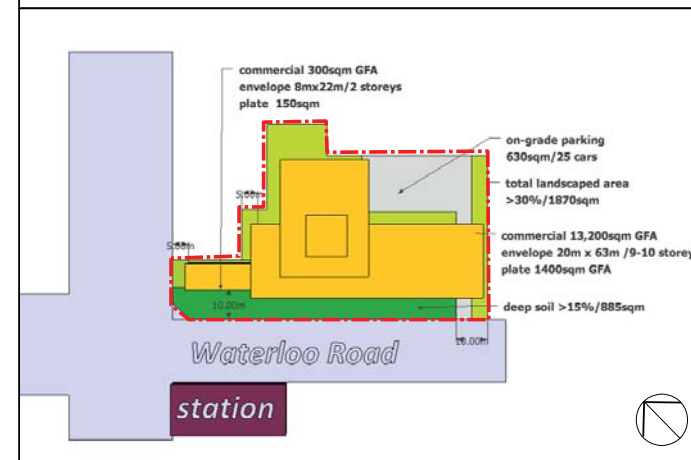
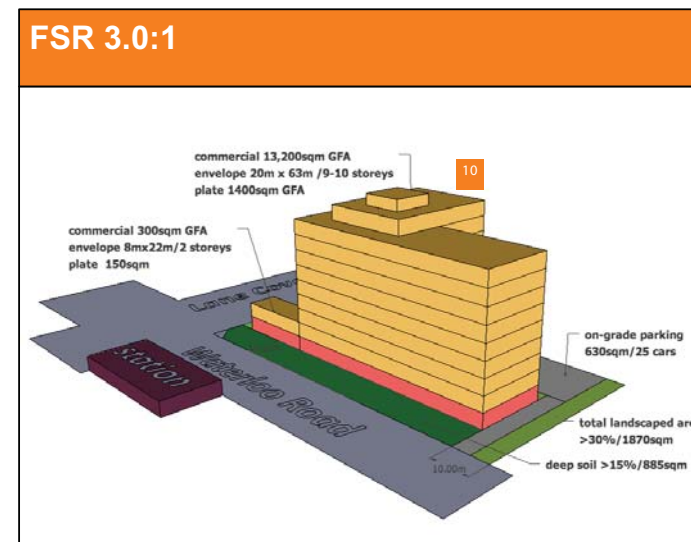
Site would benefit from lot consolidation at awkward corner of Lane Cove Road and Waterloo Road.

**General Comments**

This site test shows that a FSR of 3:1 works. Both the floor plate and the building size are ok for the market. However, a higher FSR may be too big for the market at 15 storeys and a total of 19,000sqm in one building.



<b>Commercial</b> Storeys 2, 8 GFA 11,200 sqm	<b>Parking - 140 cars</b> On grade: 630sqm/25 cars Basement: 115 cars
<b>Total GFA 11,200 sqm FSR 2.5:1 Max Ht: 8 storeys/32m Landscape: complies</b> <b>Comment:</b> Simple 25m depth envelope constrained by corner. Retail corner.	



<b>Commercial</b> Storeys 2, 10 GFA 13,500 sqm	<b>Parking - 169 cars</b> On grade: 630sqm/25 cars Basement: 144 cars
<b>Total GFA 13,500 sqm FSR 3.0:1 Max Ht: 10 storeys/40m Landscape: complies</b> <b>Comment:</b> Simple 25m depth envelope constrained by corner. Retail corner.	

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# Appendix A - Site Testing

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# Appendix A - Site Testing

**SITE** 269-271 Lane Cove Road

**Site details**

Site Address: 269-271 Lane Cove Road  
 Site Area: 23400m<sup>2</sup>  
 Owner: Mirvac Funds Ltd

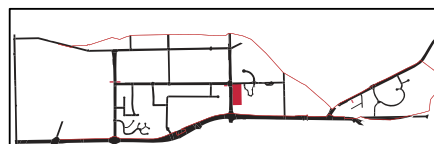
-  Two new roads (One 20m, One 12m)
-  34-34a Waterloo Rd
-  Train station locations
-  5m setback
-  Zone of Influence

**Notes:**

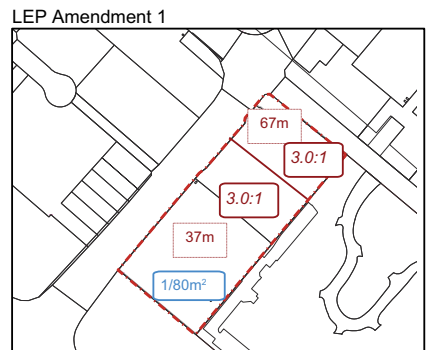
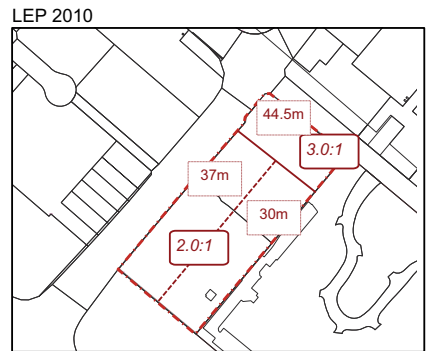
•

**Test FSR's**

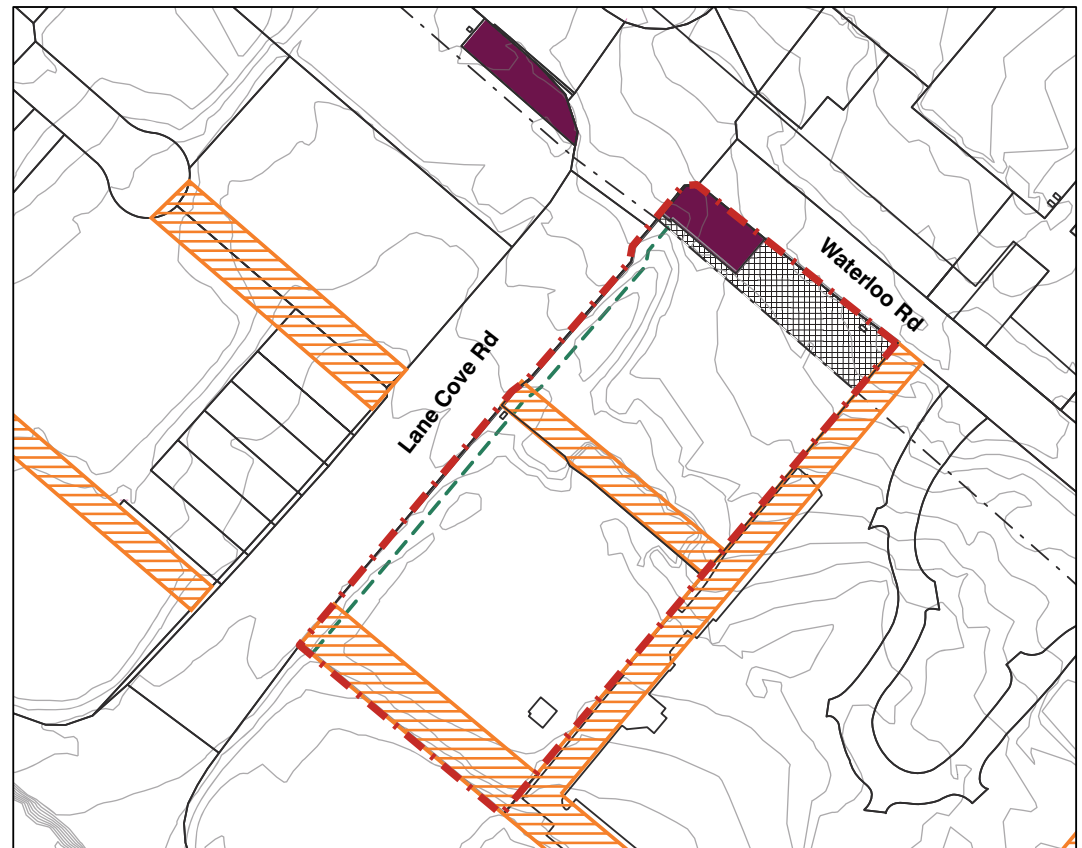
- 2.0:1
- 3.0:1
- 4.0:1



**LEP controls**









-  FSR
-  Height
-  Car parking LEP 2011



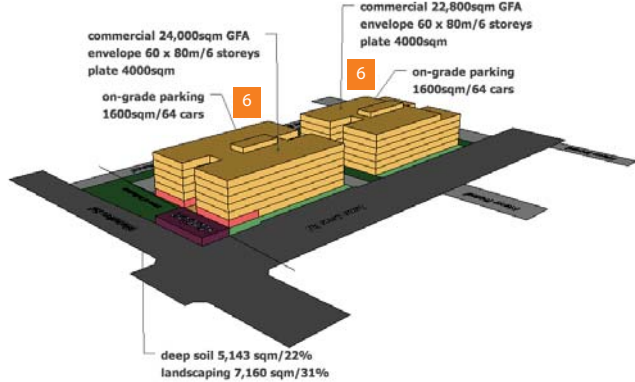
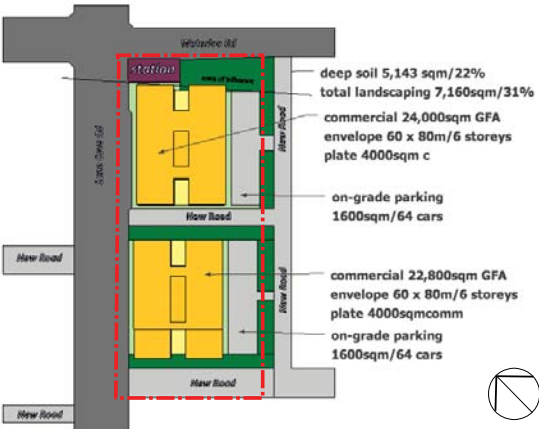
# Appendix A - Site Testing

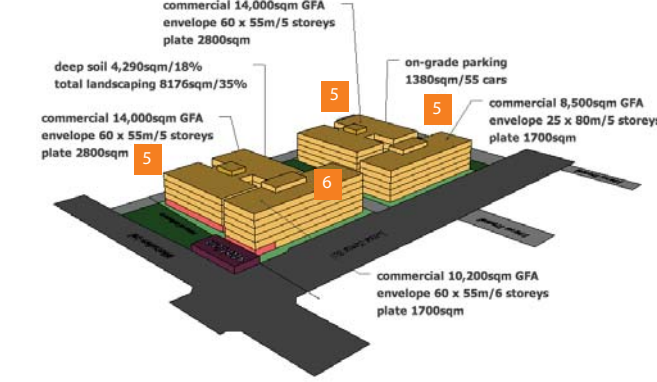
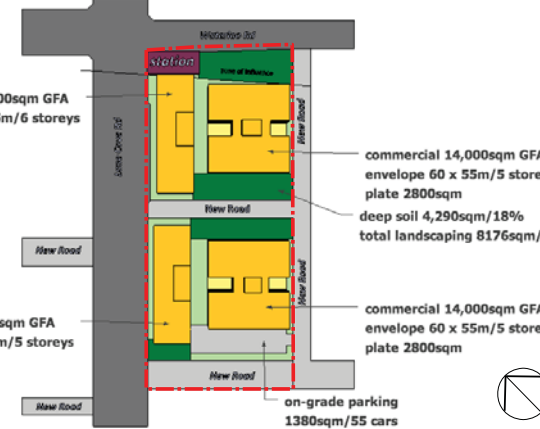
<b>SITE</b>	<b>269-271 Lane Cove Rd</b> site area: 23,400 sqm
	<b>setbacks</b> Lane Cove Road 5m Rear/Side 5m Zone of influence at NE

<b>Key</b>	
 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

<b>Notes</b>
Deep soil minimum 15% or 3,510sqm.
Total landscaped area minimum 30% or 7,020sqm.
Zone of influence placemaking opportunities at station, such as deep soil open space, paved 'village square' fronted by retail and lunch cafes or car park.

<b>General Comments</b>
This option creates workable buildings at 2:1

<b>FSR 2.0:1</b>		Large plate 'H form'
 <p>commercial 24,000sqm GFA envelope 60 x 80m/6 storeys plate 4000sqm on-grade parking 1600sqm/64 cars</p> <p>commercial 22,800sqm GFA envelope 60 x 80m/6 storeys plate 4000sqm on-grade parking 1600sqm/64 cars</p> <p>deep soil 5,143 sqm/22% landscaping 7,160 sqm/31%</p>		
 <p>deep soil 5,143 sqm/22% total landscaping 7,160sqm/31%</p> <p>commercial 24,000sqm GFA envelope 60 x 80m/6 storeys plate 4000sqm c on-grade parking 1600sqm/64 cars</p> <p>commercial 22,800sqm GFA envelope 60 x 80m/5 storeys plate 4000sqm comm on-grade parking 1600sqm/64 cars</p>		
<b>Commercial</b> Storeys 6 GFA 46,800 sqm		<b>Parking - 585 cars</b> On grade: 3200sqm/128 cars Basment: 457 cars
<b>Total GFA 46,800 sqm FSR 2.0:1 Max Ht: 6 storeys/24m Landscape: complies</b>		
<b>Comment:</b> Two large 'flagship' buildings at maximum floor space size.		

<b>FSR 2.0:1</b>		Mid range buildings, deep soil midblock
 <p>commercial 14,000sqm GFA envelope 60 x 55m/5 storeys plate 2800sqm</p> <p>deep soil 4,290sqm/18% total landscaping 8176sqm/35%</p> <p>commercial 14,000sqm GFA envelope 60 x 55m/5 storeys plate 2800sqm</p> <p>commercial 8,500sqm GFA envelope 25 x 80m/5 storeys plate 1700sqm</p> <p>on-grade parking 1380sqm/55 cars</p> <p>commercial 10,200sqm GFA envelope 60 x 55m/6 storeys plate 1700sqm</p>		
 <p>commercial 10,200sqm GFA envelope 60 x 55m/6 storeys plate 1700sqm</p> <p>commercial 14,000sqm GFA envelope 60 x 55m/5 storeys plate 2800sqm</p> <p>deep soil 4,290sqm/18% total landscaping 8176sqm/35%</p> <p>commercial 8,500sqm GFA envelope 25 x 80m/5 storeys plate 1700sqm</p> <p>commercial 14,000sqm GFA envelope 60 x 55m/5 storeys plate 2800sqm</p> <p>on-grade parking 1380sqm/55 cars</p>		
<b>Commercial</b> Storeys 5,6 GFA 46,700 sqm		<b>Parking - 583 cars</b> On grade: 1380sqm/55 cars Basement: 528 cars
<b>Total GFA 46,700 sqm FSR 2.0:1 Max Ht: 6 storeys/24m Landscape: complies</b>		
<b>Comment:</b> Mid range commercial building sizes. Pedestrian route NS to station between buildings. Small park over zone of influence with ground level retail/cafes?		

# Appendix A - Site Testing

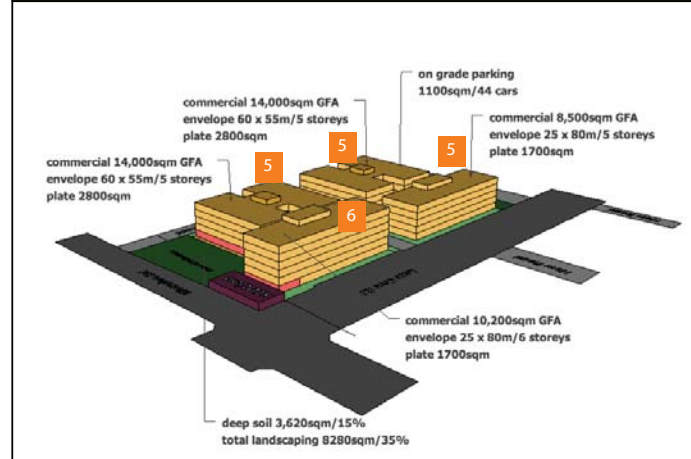
<b>SITE</b>	<b>269-271 Lane Cove Rd</b> site area: 23,400 sqm
	<b>setbacks</b> Lane Cove Road 5m Rear/Side 5m Zone of influence at NE

<b>Key</b>	
<span style="display: inline-block; width: 15px; height: 15px; background-color: #f4a460; border: 1px solid black;"></span> Commercial	<span style="display: inline-block; width: 15px; height: 15px; background-color: #cccccc; border: 1px solid black;"></span> Parking
<span style="display: inline-block; width: 15px; height: 15px; background-color: #ff6666; border: 1px solid black;"></span> Retail/active uses	<span style="display: inline-block; width: 15px; height: 15px; background-color: #90ee90; border: 1px solid black;"></span> Landscape area
<span style="display: inline-block; width: 15px; height: 15px; background-color: #ffcc99; border: 1px solid black; text-align: center; line-height: 15px;">5</span> Total storeys	<span style="display: inline-block; width: 15px; height: 15px; background-color: #008000; border: 1px solid black;"></span> Deep soil

<b>Notes</b>
Deep soil minimum 15% or 3,510sqm.
Total landscaped area minimum 30% or 7,020sqm.
Zone of influence placemaking opportunities at station, such as deep soil open space, paved 'village square' fronted by retail and lunch cafes or car park.

<b>General Comments</b>
This site test shows that 3:1 also results in workable buildings.

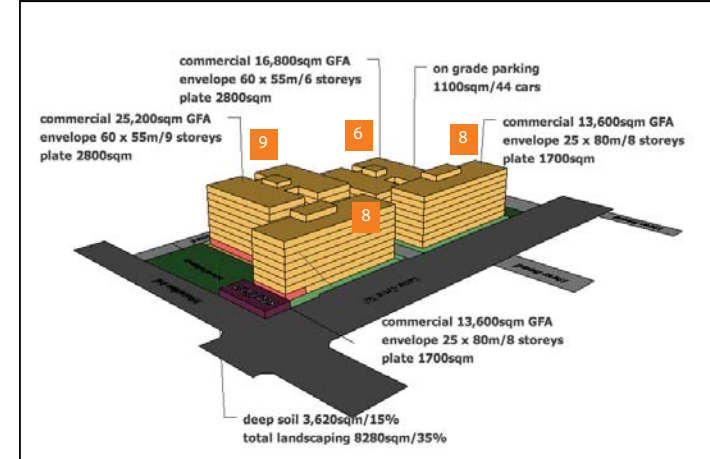
## FSR 2.0:1 Mid range buildings, station park over Z of I



<b>Commercial</b> Storeys 5,6 GFA 46,700 sqm	<b>Parking - 583 cars</b> On grade: 1100sqm/44 cars Basement: 539 cars
--	--

**Total GFA 46,700 sqm FSR 2.0:1 Max Ht: 6 storeys/24m Landscape:** complies  
**Comment:** Mid range commercial building sizes. Pedestrian route NS to station between buildings. Small park over zone of influence with ground level retail/cafes?

## FSR 3.0:1 As for adjacent 2.0:1 scenario with extra height









<b>Commercial</b> Storeys 6, 8, 9 GFA 69,200 sqm	<b>Parking - 865 cars</b> On grade: 1100sqm/44 cars Basement: 821 cars
--	--

**Total GFA ~70,200 sqm FSR 3.0:1 Max Ht: 9 storeys/36m Landscape:** complies  
**Comment:** One flagship. Pedestrian route NS to station between buildings. Small park over zone of influence with ground level retail/cafes? Building separation 10m?



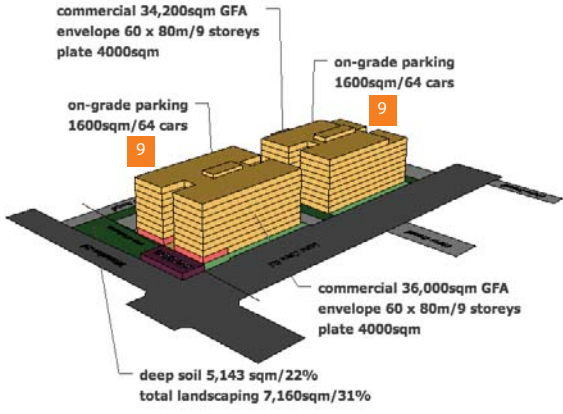

# Appendix A - Site Testing

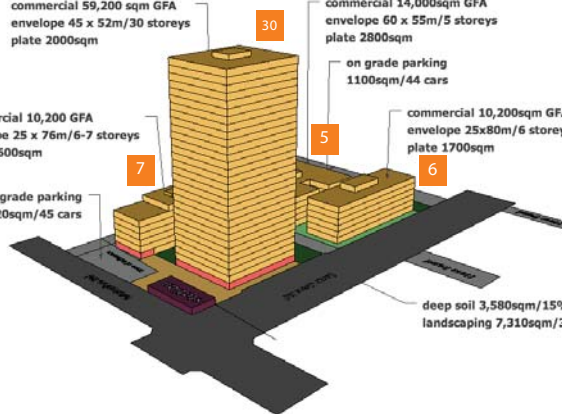
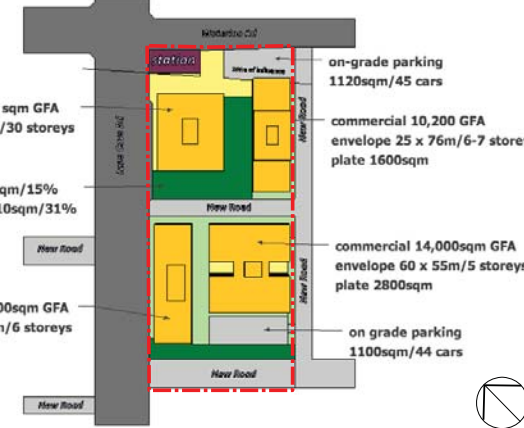
<b>SITE</b>	<b>269-271 Lane Cove Rd</b> site area: 23,400 sqm
	<b>setbacks</b> Lane Cove Road 5m Rear/Side 5m Zone of influence at NE

<b>Key</b>	
 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

<b>Notes</b>
Deep soil minimum 15% or 3,510sqm.
Total landscaped area minimum 30% or 7,020sqm.
Zone of influence placemaking opportunities at station, such as deep soil open space, paved 'village square' fronted by retail and lunch cafes or car park.

<b>General Comments</b>
Given the prominence of the corner site, 4:1 may be justified but the size of the building may not be marketable (59,200sqm in one building).

<b>FSR 3.0:1</b>		<b>Supersized 'flagships'</b>	
 <p>commercial 34,200sqm GFA envelope 60 x 80m/9 storeys plate 4000sqm</p> <p>on-grade parking 1600sqm/64 cars</p> <p>commercial 36,000sqm GFA envelope 60 x 80m/9 storeys plate 4000sqm</p> <p>deep soil 5,143 sqm/22% total landscaping 7,160sqm/31%</p>			
 <p>commercial 36,000sqm GFA envelope 60 x 80m/9 storeys plate 4000sqm c</p> <p>on-grade parking 1600sqm/64 cars</p> <p>commercial 34,200sqm GFA envelope 60 x 80m/9 storeys plate 4000sqm</p> <p>on-grade parking 1600sqm/64 cars</p> <p>deep soil 5,143 sqm/22% total landscaping 7,160sqm/31%</p>			
<b>Commercial</b>		<b>Parking - 877 cars</b>	
Storeys 9		On grade: 320sqm/128cars	
GFA 70,200 sqm		Basement: 749 cars	
<b>Total GFA 70,200 sqm FSR 3.0:1 Max Ht: 9 storeys/36m Landscape: complies</b> <b>Comment:</b> Same site planning concept as 1.5:1 scenario. Beyond advised upper limit of 'flagship' commercial building size.			

<b>FSR 4.0:1</b>		<b>Office tower</b>	
 <p>commercial 59,200 sqm GFA envelope 45 x 52m/30 storeys plate 2000sqm</p> <p>commercial 14,000sqm GFA envelope 60 x 55m/5 storeys plate 2800sqm</p> <p>on grade parking 1100sqm/44 cars</p> <p>commercial 10,200 GFA envelope 25 x 76m/6-7 storeys plate 1600sqm</p> <p>on-grade parking 1120sqm/45 cars</p> <p>commercial 10,200sqm GFA envelope 25x80m/6 storeys plate 1700sqm</p> <p>deep soil 3,580sqm/15% landscaping 7,310sqm/31%</p>			
 <p>commercial 59,200 sqm GFA envelope 45 x 52m/30 storeys plate 2000sqm</p> <p>on-grade parking 1120sqm/45 cars</p> <p>commercial 10,200 GFA envelope 25 x 76m/6-7 storeys plate 1600sqm</p> <p>deep soil 3,580sqm/15% landscaping 7,310sqm/31%</p> <p>commercial 14,000sqm GFA envelope 60 x 55m/5 storeys plate 2800sqm</p> <p>on grade parking 1100sqm/44 cars</p> <p>commercial 10,200sqm GFA envelope 25x80m/6 storeys plate 1700sqm</p>			
<b>Commercial</b>		<b>Parking - 1170 cars</b>	
Storeys 5,6,7,30		On grade: 2200sqm/89 cars	
GFA 93,600 sqm		Basement: 1,081 cars	
<b>Total GFA 93,600 sqm FSR 4.0:1 Max Ht: 30 storeys/120m Landscape: complies</b> <b>Comment:</b> Relies on office tower (well above LEP height limit and not a recommended commercial type) Ground level retail and lunch place at station.			

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# Appendix A - Site Testing

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# Appendix A - Site Testing

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# Appendix A - Site Testing

**SITE** 26-32 Waterloo Road

## Site details

Site Address: 26-32 Waterloo Rd  
 Site Area: 39994m<sup>2</sup>  
 Owner: Acpp Office Pty Ltd

-  3 new roads (12m, 2x20m)
-  Zone of Influence

### Notes:

- This site currently has two tenants
- Need to regularise the shape of the park

### Test FSR's

1:5, 2.0:1	(Combination) - Current LEP
2.0:1	Amendment 1 LEP
3.0:1	Our proposed FSR
4.0:1	Our proposed FSR incentive

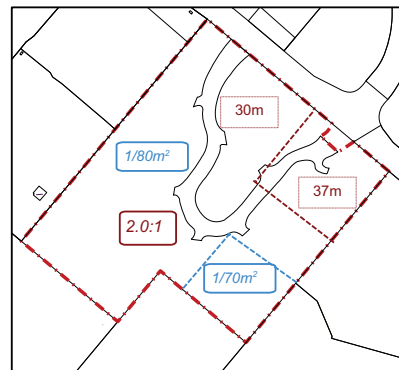


## LEP controls

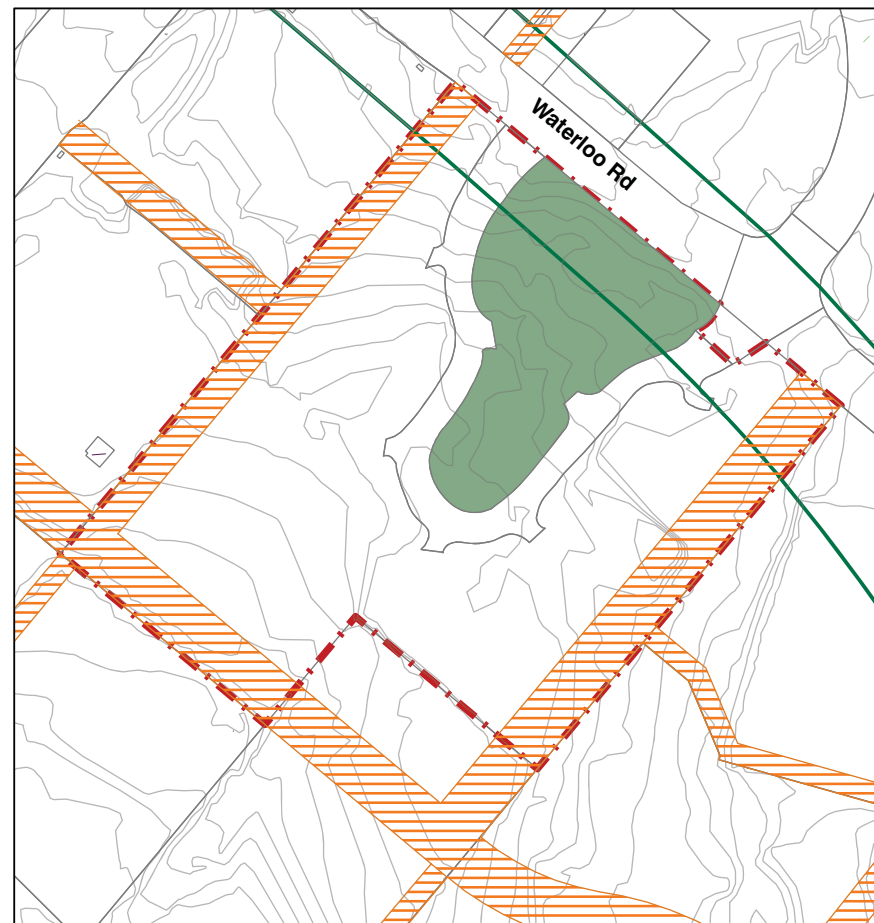
LEP 2008



LEP Amendment 1



xx:1 FSR      yy Height  
1 car space/ m<sup>2</sup> Car parking LEP 2011









1:2000 @ A3

# Appendix A - Site Testing

<b>SITE</b>	<b>26-32 Waterloo Rd</b> site area: 39,994 sqm
	<b>setbacks</b> Waterloo Road 10m New Roads/Side 0m Zone of influence at north

**Key**

 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

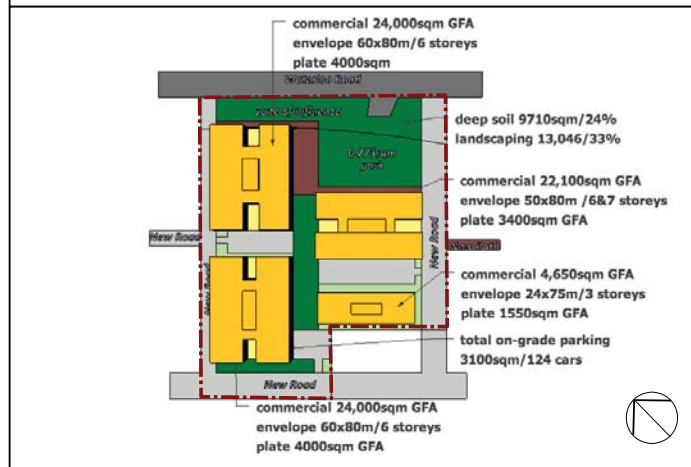
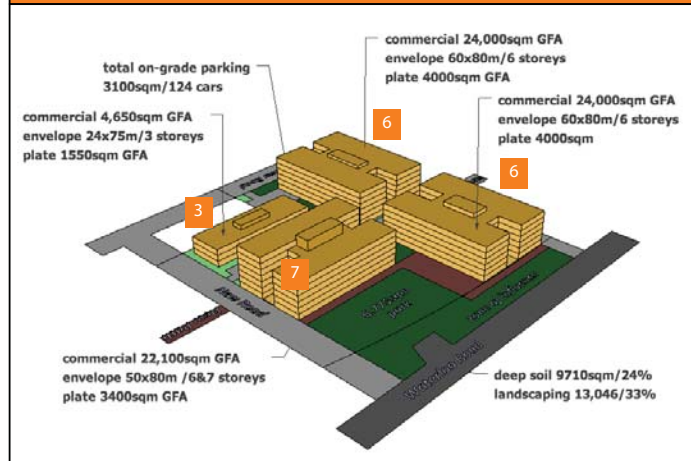
**Notes**

Deep soil minimum 20% or 8,000 sqm.  
 Total landscaped area minimum 30% or 12,000 sqm.  
 Aiming to formalise existing open space (~7200sqm) as a new park.  
 May be possible to have pedestrian links through site connecting proposed new roads.

**General Comments**

While reconfiguration and replacement of buildings is desirable, the existing buildings are unlikely to be developed for many years.

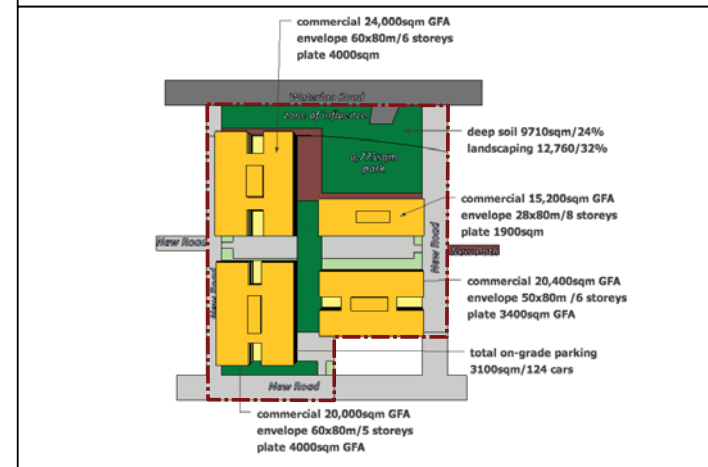
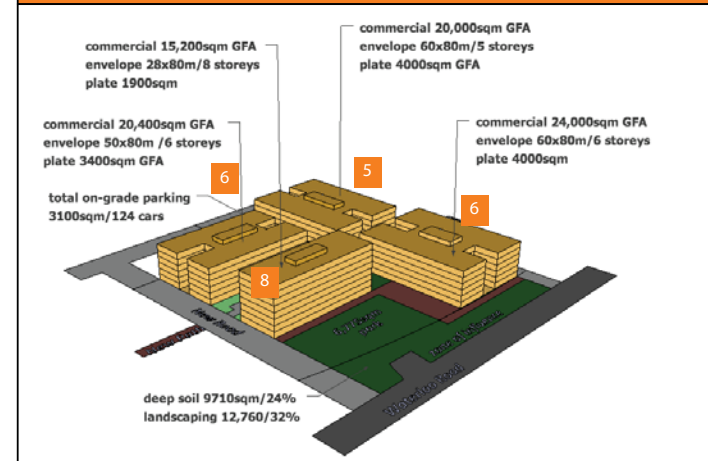
**FSR 1.0:1 & 2.0:1** Existing LEP FSRs



<b>Commercial</b> Storeys 3, 6, 7 GFA 74,650 sqm		<b>Parking - 941 cars</b> On grade: 4250sqm/170 cars Basement: 771 cars
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**Total GFA 74,650 sqm FSR 1.9:1 Max Ht:** 7 storeys/28m **Landscape:** complies  
**Comment:** FSR 1.0:1 corner restricts building to 3 storeys. One building is above recommended 'flagship' floor area. Possible to retain pedestrian links across site.

**FSR 2.0:1** Street edge buildings, formalized park









<b>Commercial</b> Storeys 5,6 GFA 79,400 sqm		<b>Parking - 1029 cars</b> On grade: 2675sqm/127 cars Basement: 902 cars
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**Total GFA ~80,000 sqm FSR 2.0:1 Max Ht:** 6 storeys/24m **Landscape:** complies  
**Comment:** Total landscape % omplies with DCP building separation controls. Vehicle access along pedestrian route to improve surveillance. On-grade parking

# Appendix A - Site Testing

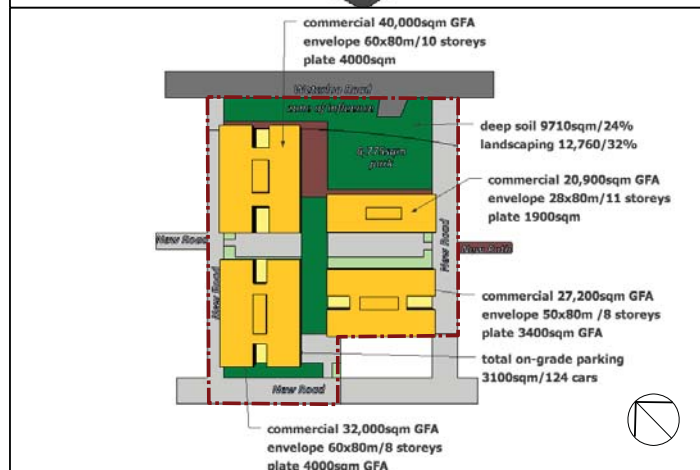
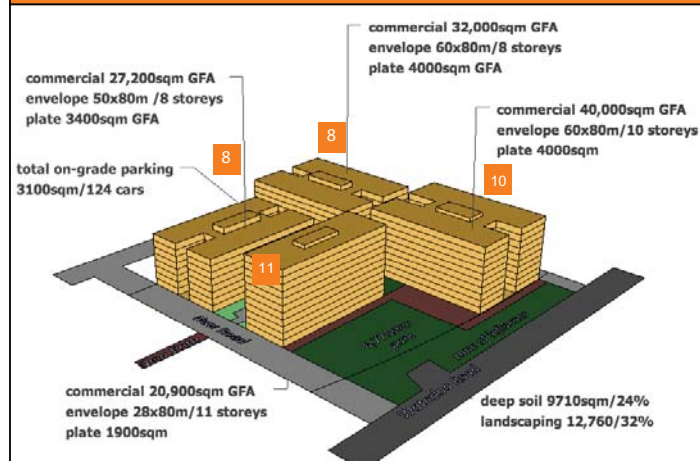
<b>SITE</b>	<b>26-32 Waterloo Rd</b> site area: 39,994 sqm
	<b>setbacks</b> Waterloo Road 10m New Roads/Side 0m Zone of influence at north

<b>Key</b>	
 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

<b>Notes</b>
Deep soil minimum 20% or 8,000 sqm.
Total landscaped area minimum 30% or 12,000 sqm.
Aiming to formalise existing open space (~7200sqm) as a new park.
May be possible to have pedestrian links through site connecting proposed new roads.

<b>General Comments</b>
A FSR of 3:1 is still possible for this site, but the individual buildings are very large (at 30-40,000sqm) and are unlikely to be marketable.

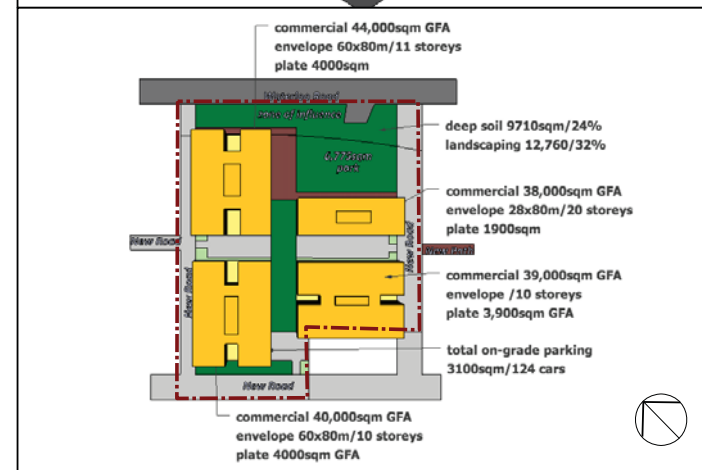
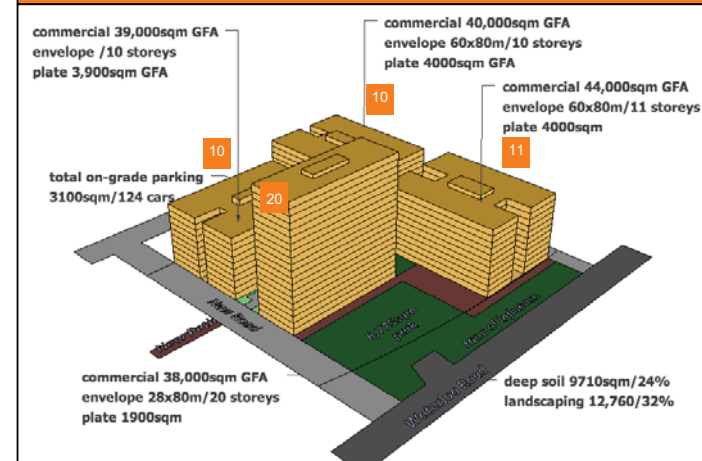
<b>FSR 3.0:1</b>	As FSR 2.0:1 with extra height on Waterloo Rd
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<b>Commercial</b> Storeys 8, 10, 11 GFA 120,100 sqm	<b>Parking - 1,550 cars</b> On grade:3100sqm/124 cars Basement: 1426 cars
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**Total GFA ~120,000 sqm FSR 3.0:1 Max Ht: 11 storeys/44m Landscape: 32%**  
**Comment:** Total GFA building sizes are above recommended commercial viability. Pedestrian linkages through site. Park approximately same area as existing space.

<b>FSR 4.0:1</b>	One tower, three 'flagships'
------------------	------------------------------



<b>Commercial</b> Storeys 10, 11, 20 GFA 161,100 sqm	<b>Parking - 2000 cars</b> On grade:3100sqm/124 cars Basement: 1876 cars
--	--

**Total GFA ~160,000 sqm FSR 4.0:1 Max Ht: 20 storeys/80m Landscape: 32%**  
**Comment:** Relies on a tower building and oversized 'flagship' buildings to fulfil floorspace. No setbacks to new roads.



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# Appendix A - Site Testing

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# Appendix A - Site Testing

**SITE 144 Wicks Road**

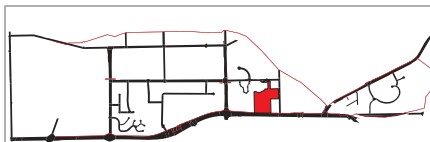
## Site details

Site Address: 144 Wicks Rd  
 Site Area: 57084m<sup>2</sup>  
 Owner: Dexus

-  2 new roads
-  Road with flexible location within this zone
-  Zone of Influence
-  Required Pedestrian Connection

- Notes:**
- Master plan approved for 9 commercial buildings (one building has a DA)

- Test FSR's**
- 1:1 (Current LEP)
  - 1.5:1 (Amendment 1 LEP)
  - 2.0:1 (Consistent with surrounding sites)

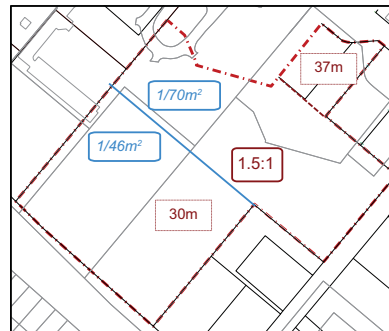





## LEP controls

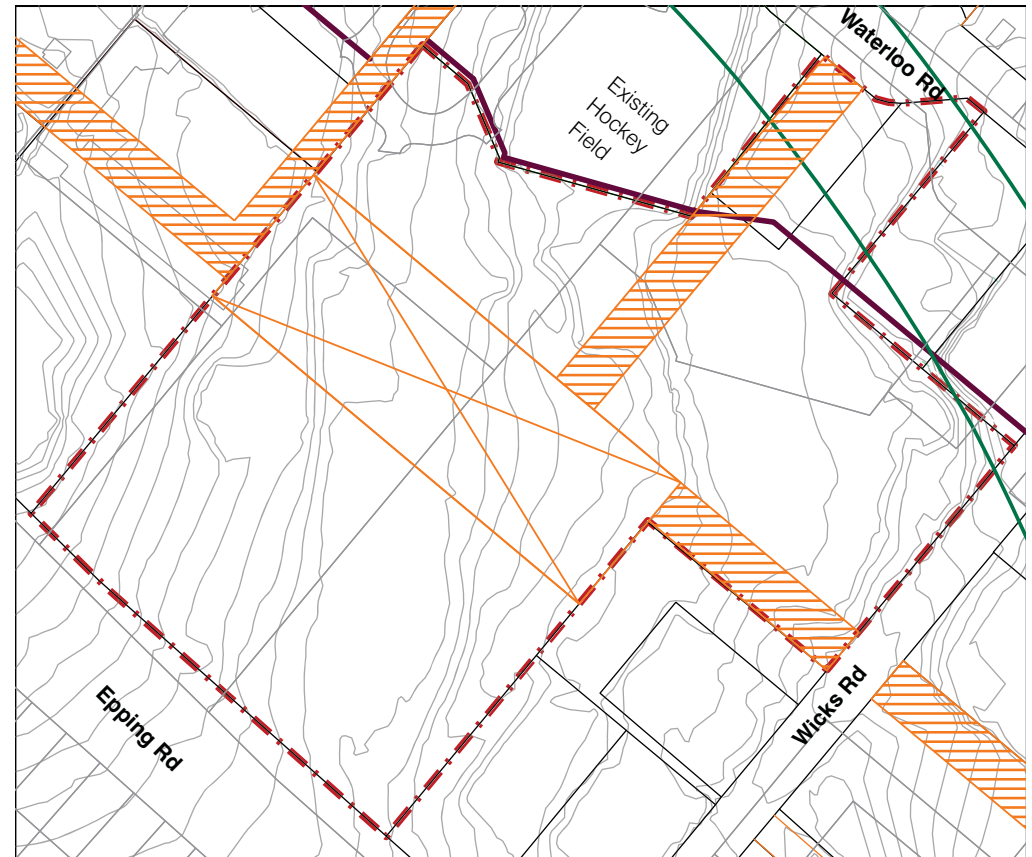
LEP 2010



LEP Amendment 1



-  FSR
-  Height
-  Car parking LEP 2011









1:2000 @ A3



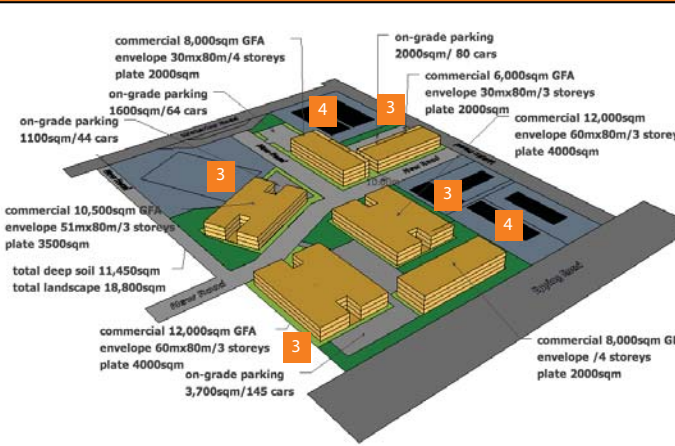
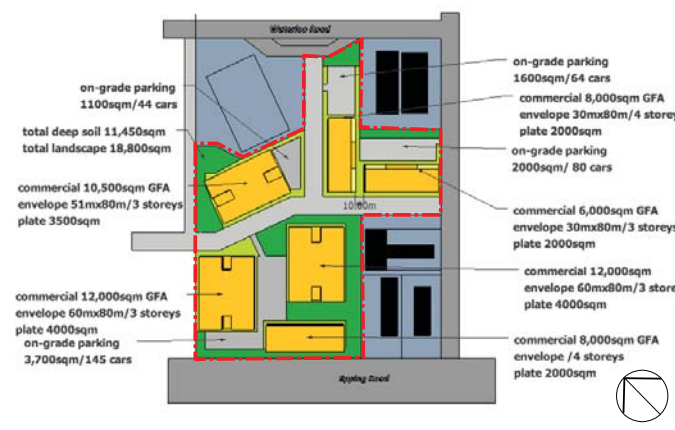
# Appendix A - Site Testing

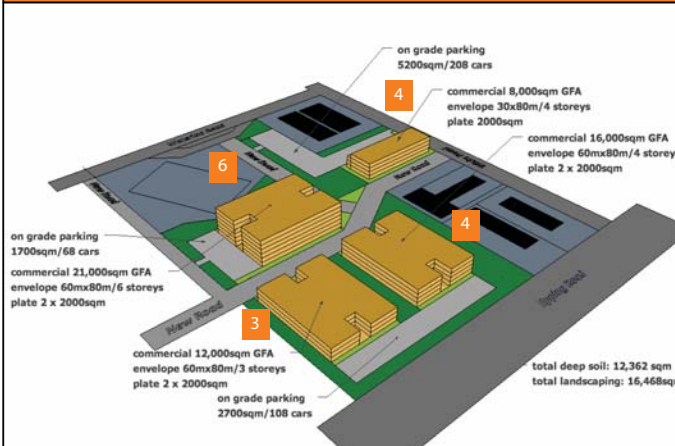
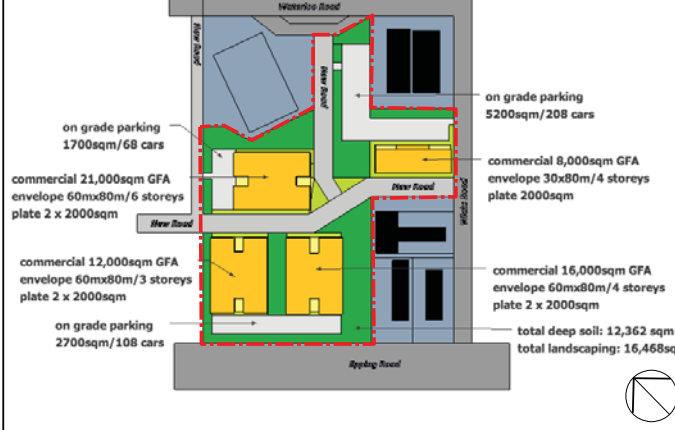
<b>SITE</b>	<b>144 Wicks Rd</b> site area: 57,080 sqm
	<b>setbacks</b> Epping Road 10m Wicks/New Roads 5m Rear/Side 5m

<b>Key</b>	
 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

<b>Notes</b>
Deep soil minimum 20% or 11,416 sqm.
Total landscaped area minimum 30% or 17,124 sqm.
Setback to rear and sides assumes 5m.
Opportunities for pedestrian connection from Epping Road to Waterloo Road.

<b>General Comments</b>
The layout in this option is workable, but 1:1 is underdeveloped

<b>FSR 1.0:1</b> Mix mid range commercial, low rise	
	
	
<b>Commercial</b> Storeys 3,4 GFA 56,500 sqm	<b>Parking - 1046 cars</b> On grade:8400sqm/333 cars Basement: 713 cars
Total GFA ~57,000 sqm <b>FSR 1.0:1 Max Ht:</b> 4 storeys/16m <b>Landscape:</b> complies <b>Comment:</b> Assumes low rise model.	

<b>FSR 1.0:1</b> One flagship, remaining mid range	
	
	
<b>Commercial</b> Storeys 3, 4, 6 GFA 57,000 sqm	<b>Parking - 1,023 cars</b> On grade:9600sqm/384 cars Basement: 639 cars
Total GFA 57,000 sqm <b>FSR 1.0:1 Max Ht:</b> 6 storeys/24m <b>Landscape:</b> 28% <b>Comment:</b> Possible open space corridor (pedestrian connection) from Waterloo Road to Epping Road	

# Appendix A - Site Testing

<b>SITE</b>	<b>144 Wicks Rd</b> site area: 57,080 sqm
	<b>setbacks</b> Epping Road 10m Wicks/New Roads 5m Rear/Side 5m

<b>Key</b>	
Commercial	Parking
Retail/active uses	Landscape area
Total storeys	Deep soil

<b>Notes</b>
Deep soil minimum 20% or 11,416 sqm.
Total landscaped area minimum 30% or 17,124 sqm.
Setback to rear and sides assumes 5m.
Opportunities for pedestrian connection from Epping Road to Waterloo Road.







<b>General Comments</b>
This option is workable but would be better at a higher density.

<b>FSR 1.5:1</b>		<b>Mix of buildings</b>
<b>Commercial</b> Storeys 3-6 GFA 85,500 sqm		<b>Parking - 1,505 cars</b> On grade: 6400sqm/256 cars Basement: 1,249 cars
<b>Total GFA 85,500 sqm FSR 1.5:1 Max Ht: 6 storeys/24m Landscape: complies</b> <b>Comment:</b> Development with a mix of commercial building sizes from 7,500 to 21,000sqm.		

<b>FSR 1.5:1</b>		<b>Five similar buildings (masterplan)</b>
<b>Commercial</b> Storeys 3,5 GFA 86,000 sqm		<b>Parking - 1,527 cars</b> On grade: 6400sqm/256 cars Basement: 1,272 cars
<b>Total GFA ~85,600 sqm FSR 1.5:1 Max Ht: 5 storeys/20m Landscape: complies</b> <b>Comment:</b> Four, upper range commercial buildings in one location?		

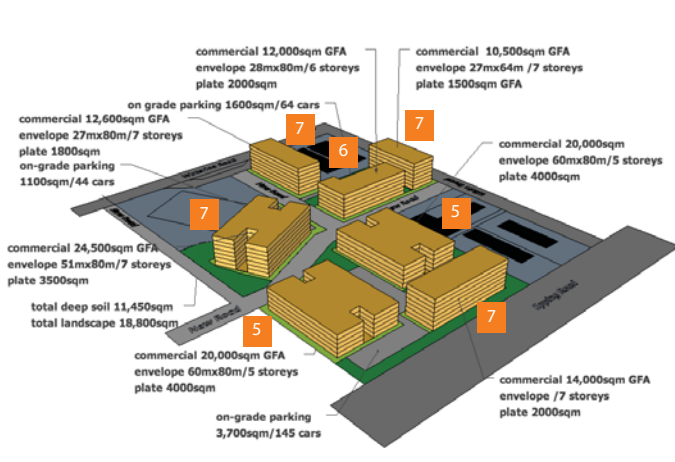

# Appendix A - Site Testing

<b>SITE</b>	<b>144 Wicks Rd</b> site area: 57,080 sqm
	<b>setbacks</b> Epping Road 10m Wicks/New Roads 5m Rear/Side 5m

<b>Key</b>	
 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

<b>Notes</b>
Deep soil minimum 20% or 11,416 sqm.
Total landscaped area minimum 30% or 17,124 sqm.
Setback to rear and sides assumes 5m.
Opportunities for pedestrian connection from Epping Road to Waterloo Road.

<b>General Comments</b>
Workable at 2:1 FSR but there are 3 buildings at about 20-25,000sqm each. It is unlikely that more FSR will be taken up.

<b>FSR 2.0:1</b> Same building footprints as 1.5:1, extra height	
	
	
<b>Commercial</b> Storeys 5,6,7 GFA 113,600 sqm	<b>Parking - 2,025 cars</b> On grade: 6400sqm/256 cars Basement: 1769 cars
<b>Total GFA 113,600 sqm FSR 2.0:1 Max Ht: 7 storeys/28m Landscape: complies</b> <b>Comment:</b> Three, upper range commercial buildings in one location?	









# Appendix A - Site Testing

**SITE** 31-35 Epping Road

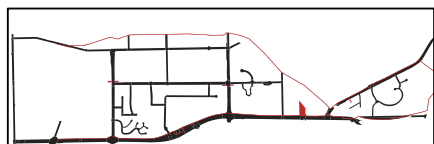
## Site details

Site Address: 31-35 Epping Rd  
 Site Area: 7725m<sup>2</sup>  
 Owner: Caladru North Ryde

-  No new roads
-  Future TCA development
-  Pedestrian Access
-  Pedestrian Access flexible location but must connect through
-  Existing footbridge
-  10m setback to Epping Rd

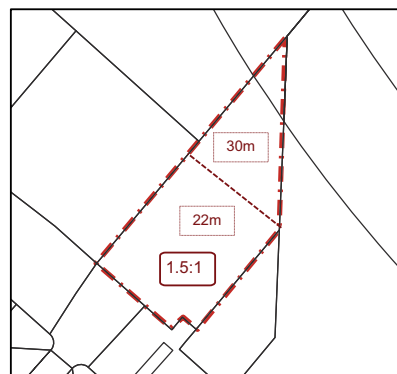
- Notes:**
- The railway zone of influence sweeps through the top of the site

**Test FSR's**  
 1.5:1  
 2.0:1  
 2.5:1

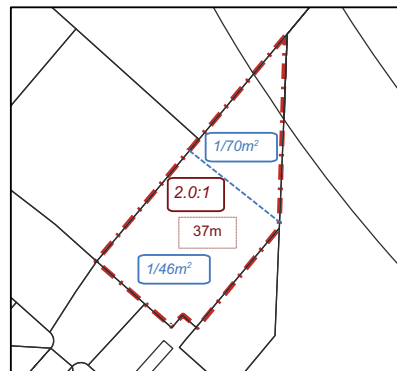


## LEP controls

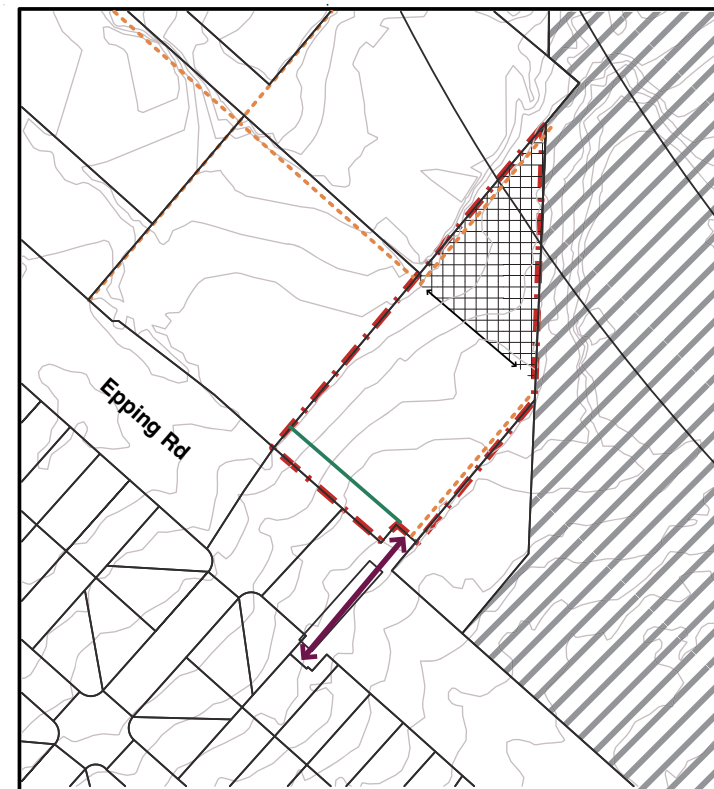
LEP 2010



LEP Amendment 1



xx:1 FSR      ymm Height  
1 car space/m<sup>2</sup> Car parking LEP 2011



1:2000 @ A3



# Appendix A - Site Testing

<b>SITE</b>	<b>31-35 Epping Rd</b> site area: 7,725 sqm
	<b>setbacks</b> Epping Road 10m Rear/Side 5m Zone of influence at rear

<b>Key</b>	
Commercial	Parking
Retail/active uses	Landscape area
Total storeys	Deep soil

<b>Notes</b>
Deep soil minimum 20% or 1545 sqm.
Total landscaped area minimum 30% or 2317 sqm.







<b>General Comments</b>
Workable at 1.5:1 FSR but long facades face the side boundaries

<b>FSR 1.5:1</b>		Large plate 'H form'
<b>Commercial</b> Storeys 4 GFA 11,500 sqm		<b>Parking - 250 cars</b> On grade: 1070sqm/40 cars Basement: 210 cars
<b>Total GFA 11,500 sqm FSR 1.5:1 Max Ht: 4 storeys/16m Landscape:</b> complies <b>Comment:</b> Questionable outlook from building along northern side boundary. Car parking at rear and the side driveway help passive surveillance of pedestrian ways.		

<b>FSR 1.5:1</b>		Single plate, building separation compliant
<b>Commercial</b> Storeys 5,6 GFA 11,500 sqm		<b>Parking - 250 cars</b> Basement: 250 cars On grade: Alternative in north side setback
<b>Total GFA 11,500 sqm FSR 1.5:1 Max Ht: 6 storeys/24m Landscape:</b> complies <b>Comment:</b> Complies with DCP building separation controls. Vehicle access along pedestrian route to improve surveillance. On-grade parking optional on north side.		

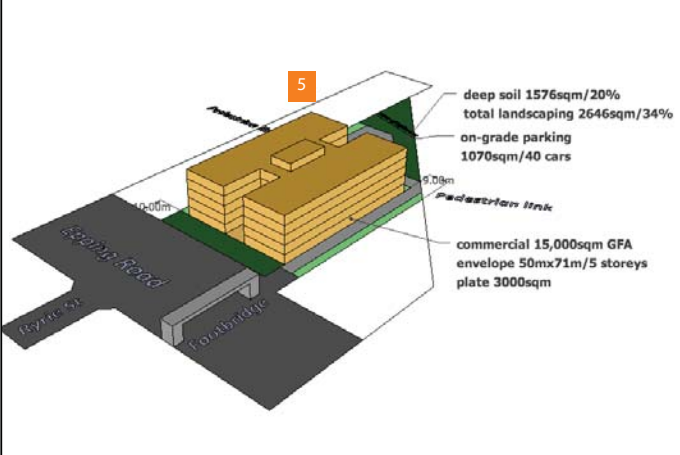
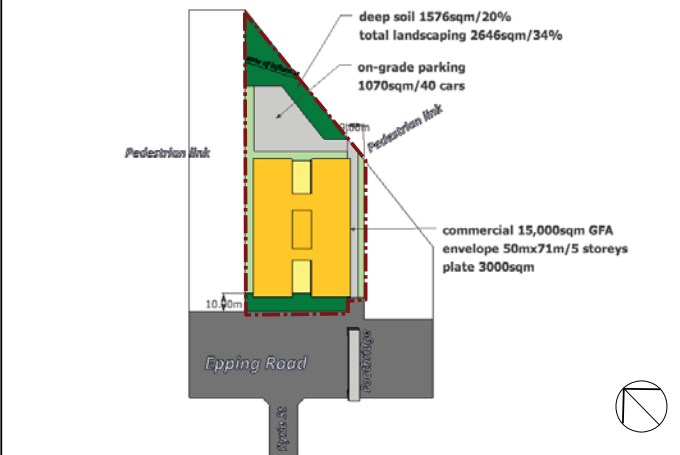
# Appendix A - Site Testing

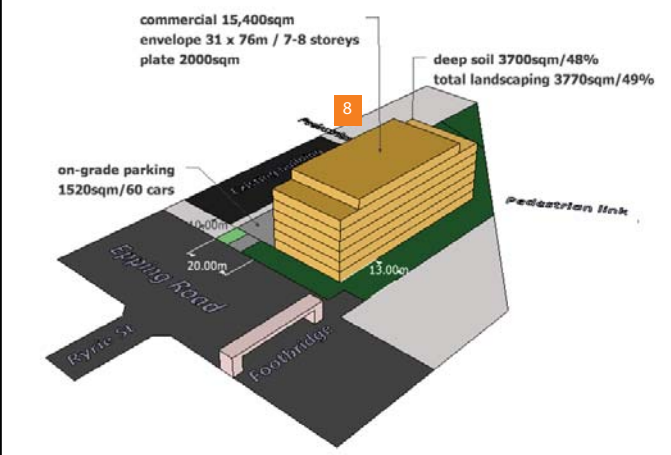
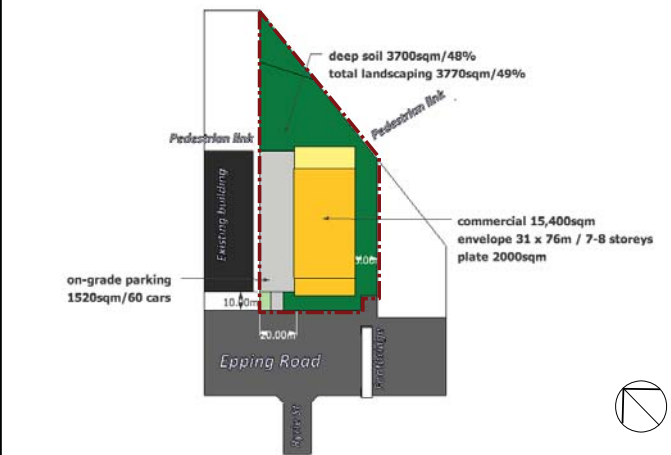
<b>SITE</b>	<b>31-35 Epping Rd</b> site area: 7,725 sqm
	<b>setbacks</b> Epping Road 10m Rear/Side 5m Zone of influence at rear

<b>Key</b>	
 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

<b>Notes</b>
Deep soil minimum 20% or 1545 sqm.
Total landscaped area minimum 30% or 2317 sqm.

<b>General Comments</b>
This option is workable at 2:1 with a 2000sqm floor plate and 8 storeys resulting in a total building of 15,400sqm.

<b>FSR 2.0:1</b> As for 1.5:1 'H-form' with extra storey	
	
	
<b>Commercial</b> Storeys 5 GFA 15,000 sqm	<b>Parking - 326 cars</b> On grade: 1070sqm/40 cars Basement: 286 cars
<b>Total GFA ~15,450 sqm FSR 2.0:1 Max Ht: 5 storeys/20m Landscape: complies</b>	
<b>Comment:</b> Same site planning concept as 1.5:1 scenario. Upper limit of typical commercial building size.	

<b>FSR 2.0:1</b> Extra storeys on 1.5:1 single plate, on-grade parking	
	
	
<b>Commercial</b> Storeys 7,8 GFA 15,400 sqm	<b>Parking - 335 cars</b> On grade: 1520sqm/60 cars Basement: 275 cars
<b>Total GFA 15,400 sqm FSR 2.0:1 Max Ht: 8 storeys/32m Landscape: complies</b>	
<b>Comment:</b> 20m building separation along north side boundary. On-grade parking optional on north side. Retains trees in deep soil zone in awkward triangle area.	

# Appendix A - Site Testing

<b>SITE</b>	<b>31-35 Epping Rd</b> site area: 7,725 sqm
	<b>setbacks</b> Epping Road 10m Rear/Side 5m Zone of influence at rear

<b>Key</b>	
Commercial	Parking
Retail/active uses	Landscape area
Total storeys	Deep soil

<b>Notes</b>
Deep soil minimum 20% or 1545 sqm.
Total landscaped area minimum 30% or 2317 sqm.

<b>General Comments</b>
A FSR of 2.5:1 is likely to result in a building that is too large for the market.

<b>FSR 2.5:1</b> As for 2.5:1 'H-form' with extra storeys	
<b>Commercial</b> Storeys 6-7 GFA 19,300 sqm	<b>Parking - 412 cars</b> On grade:1070sqm/40 cars Basment : 372 cars
<b>Total GFA 19,300 sqm FSR 2.5:1 Max Ht: 7 storeys/28m Landscape: complies</b>	
<b>Comment:</b> 'Flagship' size building but not location or setting? Questionable outlook from lower levels of building along northern side boundary.	






<b>FSR 2.5:1</b> Maximum height single plate, small NE building	
<b>Commercial</b> Storeys 3,9 GFA 19,300 sqm	<b>Parking - 412 cars</b> On grade:1420sqm/56 cars Basement: 356 cars
<b>Total GFA 19,300 sqm FSR 2.5:1 Max Ht: 9 storeys/36m Landscape: complies</b>	
<b>Comment:</b> 'Flagship' size building but not location or setting? At 9 storey maximum height, maybe small building in NE for remaining floor space?	

# Appendix A - Site Testing

**SITE** 39 Delhi Road

## Site details

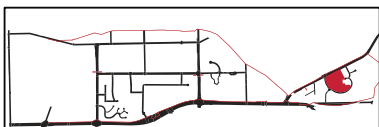
Site Address: 39 Delhi Rd  
 Site Area: 51792m<sup>2</sup>  
 Owner: Cascade Pty Ltd

-  One 20m new road
-  Two 8m pedestrian links
-  Proposed open space (size flexible)
-  Proposed 'town centre' (cafe's, restaurants etc)
-  5m Setback

**Notes:**

**Test FSR's**

- 2.0:1
- 3.0:1
- Mix of 2.0:1, 1.5:1, 1:1 as per LEP2010

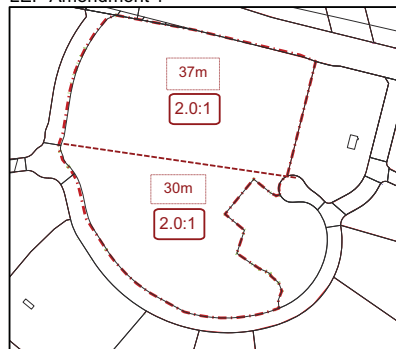


## LEP controls

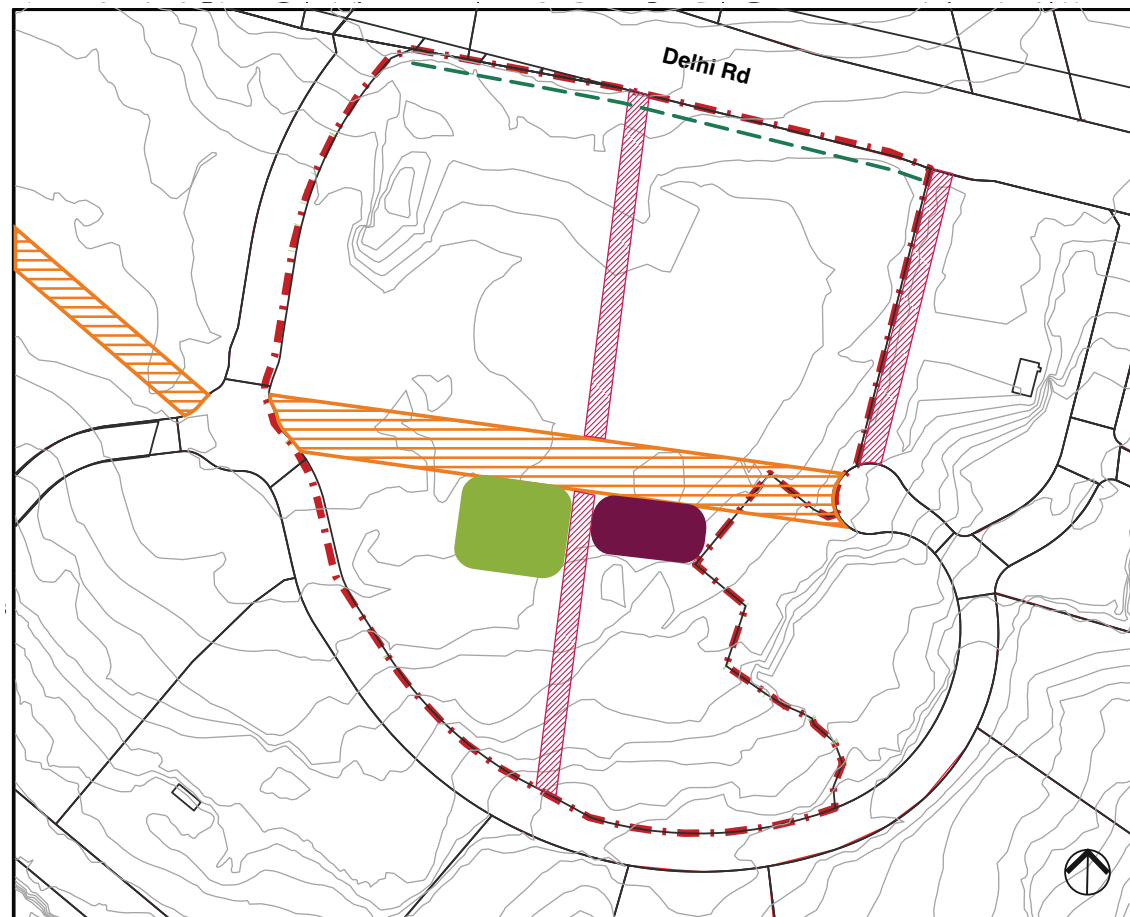
**LEP 2010**



**LEP Amendment 1**



xx:1 FSR      yym Height  
 1 car space/ m<sup>2</sup> Car parking LEP 2011









1:2000 @ A3

# Appendix A - Site Testing

<b>SITE</b>	<b>39 Delhi Road</b>
	site area: 51,792 sqm
	<b>setbacks</b>
	Delhi Road 5m
	Rear/Side 5m
	Other roads 0m

**Key**

	Commercial		Parking
	Retail/active uses		Landscape area
	Total storeys		Deep soil

**Notes**

Deep soil minimum 20% or 10,358sqm.

Total landscaped area minimum 30% or 15,537sqm.

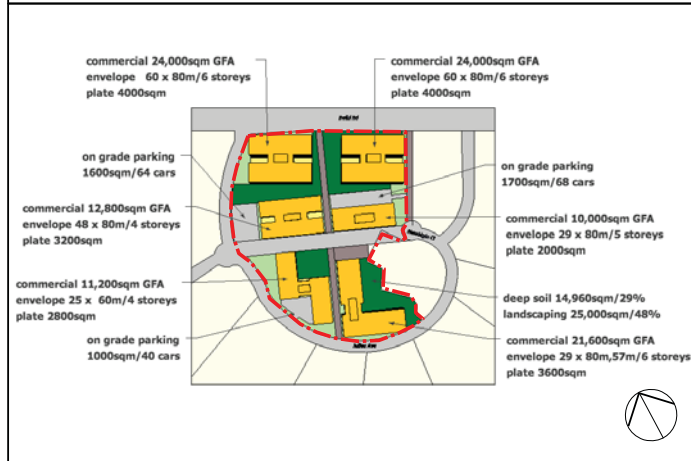
Slope across site not shown in these studies, but two southern buildings have split plates for level changes.

**General Comments**

2:1 yields 3 buildings at 21-24,000sqm likely to be too big for the market.

3:1 results in too many buildings that are too big for the likely market.

## FSR 2.0:1 Two 'flagships' on Delhi Road, one at town centre

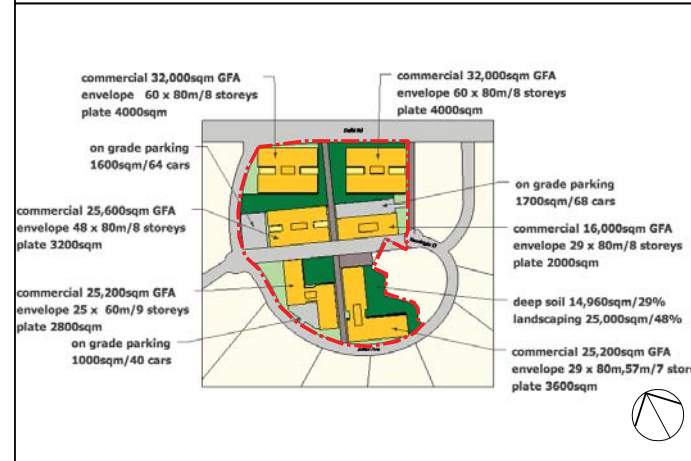
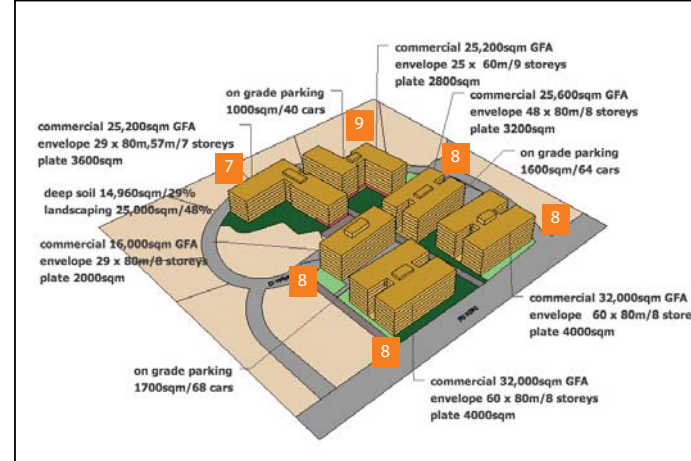


<b>Commercial</b> Storeys 4,5,6 GFA 103,600 sqm	<b>Parking - 1,480 cars*</b> On grade:4300sqm/172 cars Basement: 1308 cars <small>*averaging 1 space/70sqm GFA</small>
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**Total GFA 103,600 sqm FSR 2.0:1 Max Ht: 6 storeys/24m Landscape:** complies

**Comment:** Street edge, lower buildings around town park for solar acces and town centre character , EW pedestrian access also in top block.

## FSR 3.0:1 Same footprint as 2.0:1 with extra storeys



<b>Commercial</b> Storeys 7,9 GFA 156,000 sqm	<b>Parking - 2,228 cars*</b> On grade:4300sqm/172 cars Basement: 2,056 cars <small>*averaging 1 space/70sqm GFA</small>
---	--







**Total GFA ~155,376 sqm FSR 3.0:1 Max Ht: 9 storeys/36m Landscape:** complies

**Comment:** Building sizes at or beyond recommended maximum commercial viability. Height above LEP controls. Overshadowing of town square and park.



# Appendix A - Site Testing

<b>SITE</b>	<b>39 Delhi Road</b> site area: 51,792 sqm
	<b>setbacks</b> Delhi Road 5m Rear/Side 5m Other roads 0m

<b>Key</b>	
 Commercial	 Parking
 Retail/active uses	 Landscape area
 Total storeys	 Deep soil

<b>Notes</b>
Deep soil minimum 20% or 10,358sqm.
Total landscaped area minimum 30% or 15,537sqm.
Slope across site not shown in these studies, but two southern buildings have split plates for level changes.

<b>General Comments</b>
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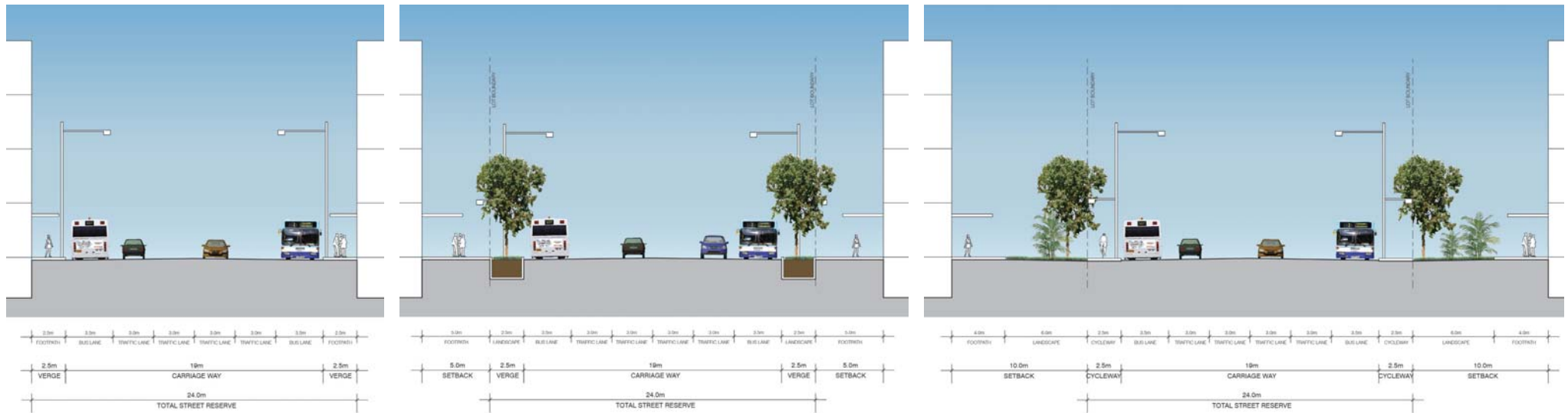
<b>LEP mix of FSRs 1.0:1 1.5:1 2.0:1</b> See page 78 for allocation of LEP2010 FSR's		
Commercial Storeys 3,4,6 GFA 78,400 sqm	<b>Allowable GFA on FSRs</b> 2:1 = 24,880 sqm 1.5:1 = 44,676 sqm 1:1 = 9280 sqm	<b>Parking - 1,151 cars</b> On grade: 4300sqm/172 cars Basement: 979 cars
<b>Total GFA ~78,836 sqm FSR 2.0:1 Max Ht: 6 storeys/24m Landscape: complies</b> <b>Comment:</b> Compared to FSR 2.0:1 across whole site, the LEP's mixed FSRs allows about 25% less GFA.		



# Appendix B - Waterloo Road Setback Options

## Appendix B - Waterloo Road Setback Options

Waterloo Rd is currently 30m wide between Lane Cove Road and Herring Road with a 10m setback required by the Ryde DCP. It is recommended that a 5m setback would result in a better design solution. This change should be reflected in the DCP controls and Public Domain Manual.

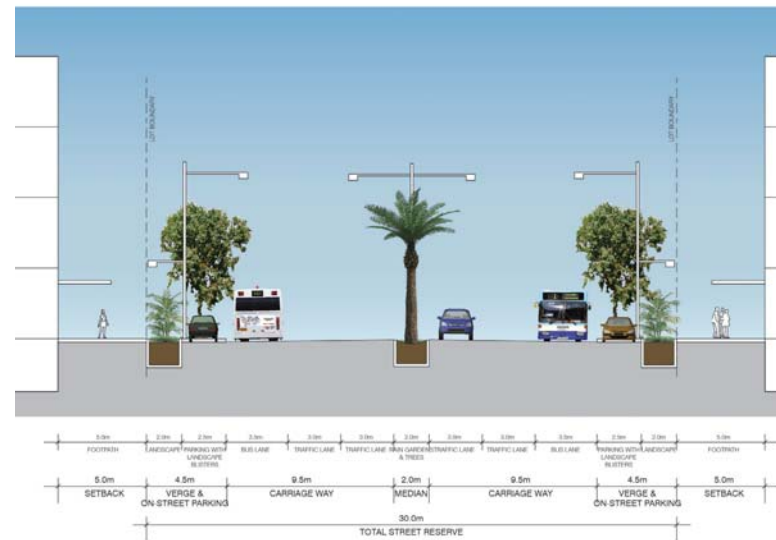
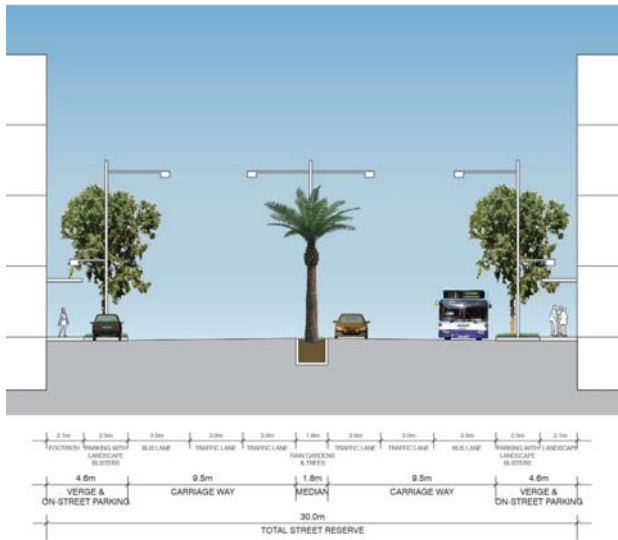


**Waterloo Road 24m, 0m Setback**

**Waterloo Road 24m, 5m Setback**

**Waterloo Road 24m, 10m Setback**

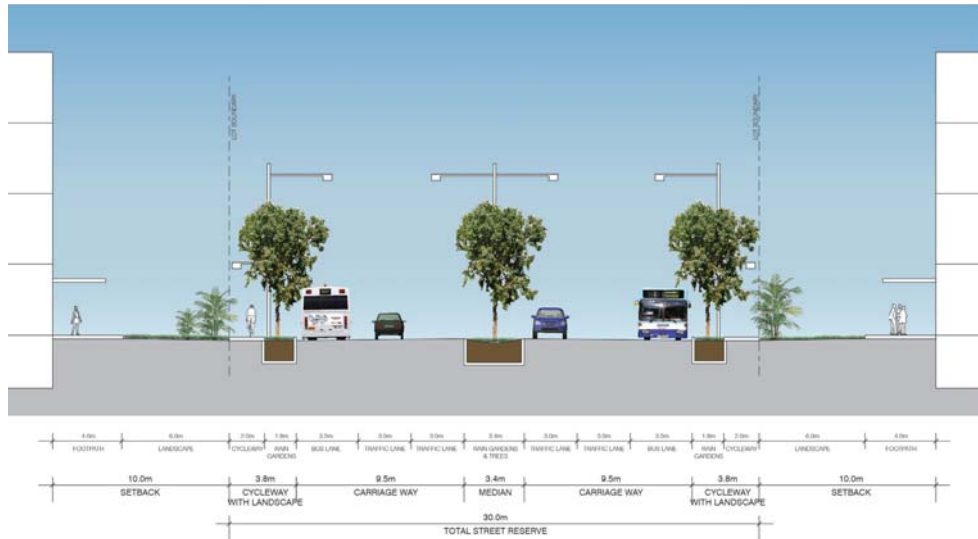
# Appendix B - Waterloo Road Setback Options



**Waterloo Road 30m, 00m Setback**

**Waterloo Road 30m, 5m Setback**

# Appendix B - Waterloo Road Setback Options



**Waterloo Road 30m, 10m Setback**