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LOT 3003-3005
LORD SHEFFIELD CIRCUIT
THORNTON

planning proposal

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LOT 3003-3005 LORD SHEFFIELD CIRCUIT THORNTON

PLANNING PROPOSAL DESIGN REPORT

BY

DKO

FOR

St Hilliers

FIRST POINT PROJECTS

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DKO

SYDNEY

C19/38-48 Macarthur Street
Ultimo
NSW 2007
Telephone +61 2 8346 4500

MELBOURNE

Suite 2/112 Newquay Promenade Docklands
VIC 3008
Telephone +61 3 8601 6000

AUCKLAND

Level 10, West Plaza Tower
1-3 Albert St
Auckland 1010
Telephone +64 9 973 4309

NOMINATED NSW ARCHITECTS

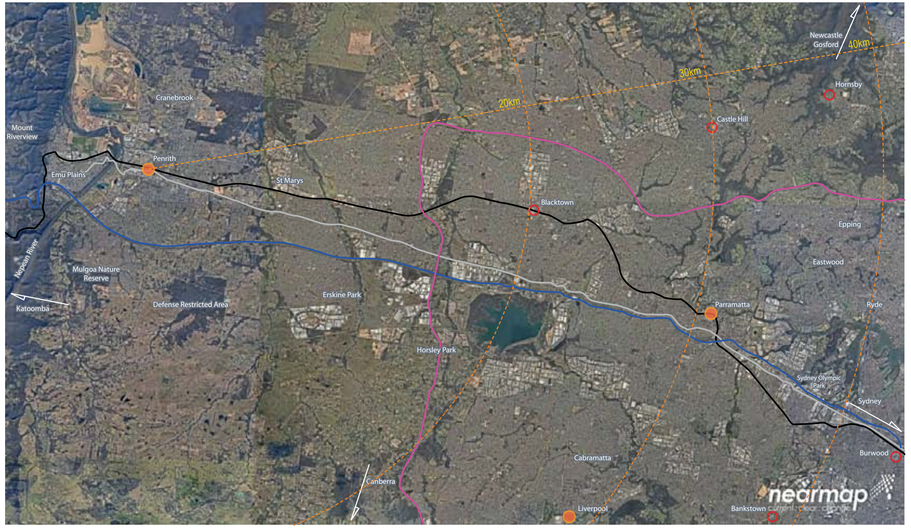
Koos de Keijzer 5767 / David Randerson 8542

1.0 INTRODUCTION

The definition of regional cities as defined in the Metropolitan Strategy is: "A city that is a focal point for regional transport and jobs that also has a full range of business, government, retail, cultural, entertainment and regional activities." - "Penrith City Centre Plan" (2007) p7

PENRITH: A REGIONAL CITY

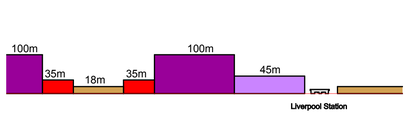
Penrith is a commercial centre located within the Greater Western Sydney. It is designated as a regional city under the NSW Metropolitan Strategy, and is located 50 kilometres west of the Sydney CBD. The city is bisected by the T1 Western line and the Great Western Highway. The City is bounded on the west by the Nepean River and contains attractions such as Panthers World of Entertainment and Penrith Showground which is home to the Penrith Panthers.



- Regional City
- Major Centre
- Railway Line
- A44 Great Western Hwy
- M7 Westlink
- M4 Western Motorway

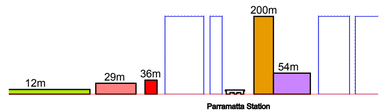
PENRITH MACRO PLAN | NTS |

The Cities Taskforce project has been designed to encourage the increase in employment, housing and lifestyle opportunities in regional cities to enable them to become key drivers of the NSW economy. The project identifies Penrith as being a regional city, with Wollongong, Liverpool, Parramatta, Gosford and Newcastle identified as the other regional cities.- "Penrith Urban Study" p16



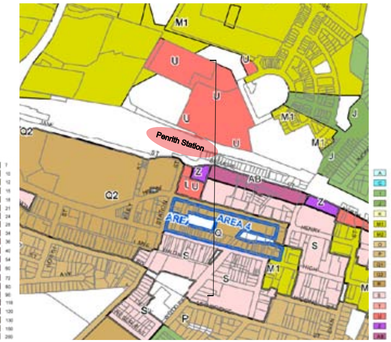
LIVERPOOL

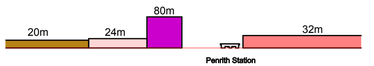
Liverpool's LEP Height map shows significant height (80-100m) around the blocks bounded by Northumberland St, Memorial Ave and George St. The height steps down to 45 then remains at 35 for most of the CBD. The cluster of maximum height is adjacent the railway station and is within walking distance from the station.



PARRAMATTA

Parramatta's LEP Height map shows a radial pattern, with the maximum height (200m) at its centre (the railway station) then steps down the further it moves out. The adjacent blocks are mostly between 60m and 120m with pockets of low heights. The blocks outlined with blue are subject to provisions relating to solar acces.





PENRITH

Penrith's LEP Height map indicates maximum heights (56-80m) adjacent to the southern entry of the railway station. The heights decrease abruptly from 56-80m to 24m and stays predominantly at 20m or below away from the station. Unlike the Liverpool and Parramatta, Penrith's city centre is relatively 'flat'.

REGIONAL CITIES - FLOOR SPACE RATIO

LIVERPOOL

Liverpool's LEP FSR map shows maximum FSR (4-5:1) around the blocks surrounding Macquarie Street, Northumberland Street and George Street. These areas of higher FSR are mostly located close to the railway station. The FSR then becomes progressively lower the further we move out from this centre.

PARRAMATTA

Parramatta's LEP FSR map shows a pocket of high FSR (10:1) along Parramatta Station. Most of the high FSRs (6-10:1) are focused along George Street and then gradually lower to 3-4:1 the further we move out from George Street.

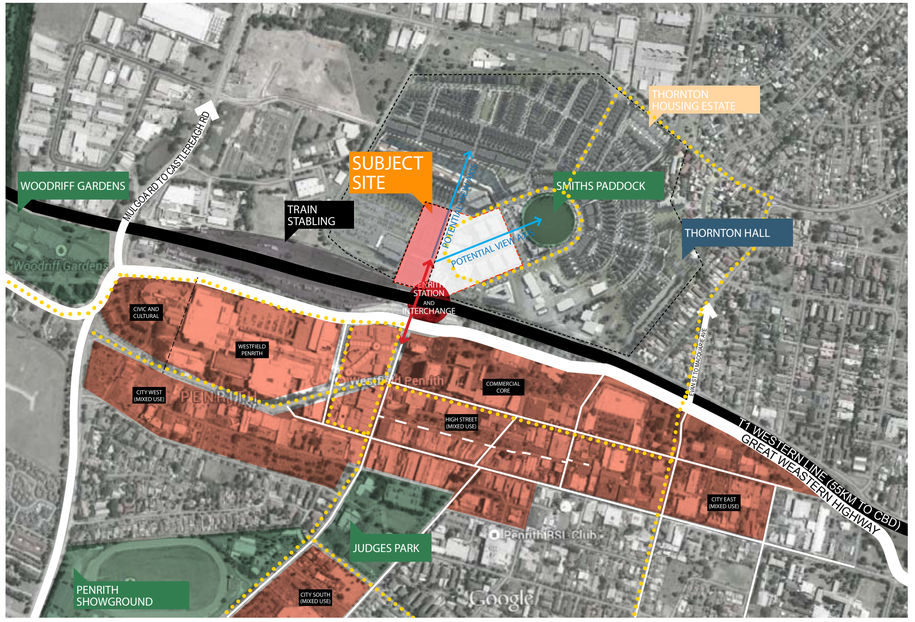
PENRITH

Penrith's LEP FSR map indicates maximum FSRs (3-4:1) along the southern side of the railway station. The rest of the city centre have a lower FSR of 1.5-2:1. The subject site has no FSR controls.

SITE ANALYSIS

The Site Is located adjacent to Penrith Station and sits within a comprehensive bus network. There are limited north/south connections as a consequence of the T1 Western line. There is a strong axial relationship between the site and Station Street as well as the site and Smiths Paddock.

- Indicative bus network
- Future park/reserve/green corridor
- Penrith City Centre
- Views



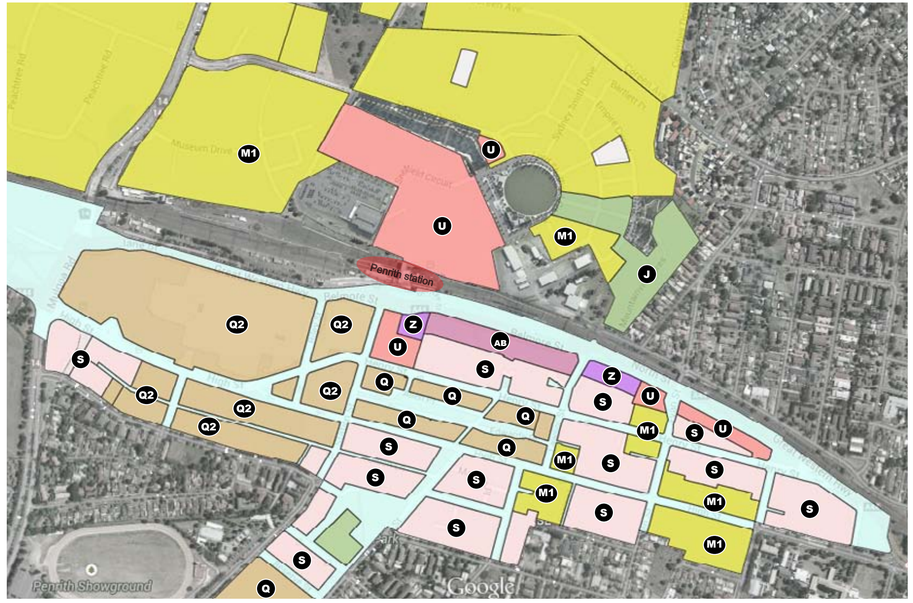
PENRITH SITE ANALYSIS PLAN | NTS |

LEP HEIGHT CONTROLS

Analysis of the Penrith LEP height map shows there is a clear concentration of height around Penrith Station with a maximum height of 80m, this reduces sharply to around 24m then to 20m. From this variation there is a desire to have density located around the station to emphasise this area as the focal point of the city whilst returning to a more suburban scale as the city's extent reaches surrounding residential housing areas.

Legend (height in metres)

A	0
C	5
I	8.5
J	9
K	10
M1	12
M2	12.5
O	15
P	18
Q1	19
Q2	20
R	21
S	24
T	27
U	32
Z	56
AB	80



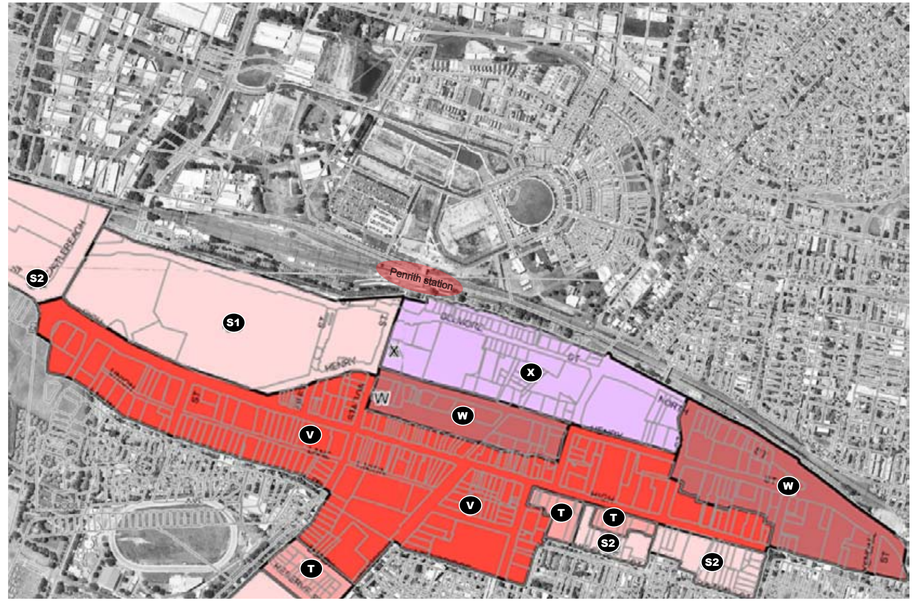
PENRITH LEP HEIGHT MAP | NTS |

LEP FSR CONTROLS

Analysis of Penrith City Centre's LEP Floor Space Ratio map indicates a maximum FSR of 4:1 along the southern side of the railway station. The blocks surrounding this area range between 3:1 and 3.5:1 FSR. Over the rest of Penrith City Centre, the FSR averages at around 1.5:1 to 2:1. It is evident that the intent is to maximise density near the transport node (Penrith Station) and that replicating a similar strategy on the other side of the railway line would be consistent with the existing LEP. There are currently no Floor Space Ratio controls over the subject site.

Maximum Floor Space Ratio (n:1)

A	0
B	0.4
D	0.5
H	0.7
I	0.75
N	1
O	1.1
S1	1.5
S2	1.6
T	2
U	2.5
V	3
W	3.5
X	4



PENRITH LEP FSR MAP | NTS |

The North Penrith Design Guidelines is intended to support the objectives of Schedule 3 of State Environmental Planning Policy (Major Development) 2005 (Major Development SEPP) relating to North Penrith and to ensure the development of retail, commercial, business, residential and light industrial land uses within the precinct are in accordance with the North Penrith Concept Plan approval.

LEGEND

- High Density Residential
- Med Density Residential
- Low Density Residential (heritage)
- Open Space
- Retail
- Public Carpark
- Commercial
- Employment
- Opportunity Site

LAND USES

The above map shows the desired land use around the Village Centre. The mix of uses is intended to provide a vibrant and active space for the North Penrith residents. There is a clear retail focus that interfaces with the public open spaces and commercial uses located around the civic areas.

LEGEND

- Active (Retail)
- Semi-Active (Retail / Commercial)
- Street Address (Residential / Future Commercial)

ACTIVATION FRONTAGE PLAN

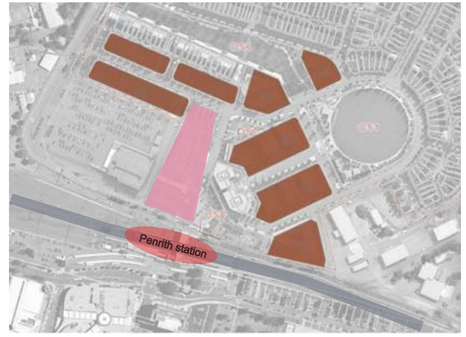
Following on from the intended land uses the active frontage plan shows how the built form should relate to the public spaces such as streets and parks. From this diagram there is a clear desire for there to be active retail uses fronting onto the civic plaza and street and for there to be residential addresses on the ground floor for the residential areas.

LEGEND

- 3 storeys
- 6 storeys

HEIGHT MAPS

The design guidelines height maps show that the intended height in storeys for the Village Centre is 6 storeys this is approximately 18m in height. There is a clear misalignment between the LEP and the Guidelines which permits heights of up to 35m. Currently, heights exceeding 6 storeys are being built or have been approved along the railway station. This variation in heights creates a dynamic, 'village like' built environment close to the transport node.



LEGEND

- Apartment Sites
- Mixed Use Site

APARTMENT SITES

The design guidelines apartment sites map shows sites nominated for key residential flat development. With Penrith's projected population growth indicating a continued decrease in household size, the demand for quality residentail flat developments will increase.
There is an opportunity to develop more high density residential and commercial spaces closer to the railway station which will make the North Penrith Design Guidelines more consistent with the goals highlighted in The Plan for Growing Sydney.

INFRASTRUCTURE AND AMENITY

Civic and Education

Retail and Cultural

Public Open Space

INFRASTRUCTURE AND AMENITY KEY PLAN | NTS |

INFRASTRUCTURE AND AMENITY

1. Penrith Railway and Bus Station

2. Napean College

3. Penrith City Council

4. Napean Hospital

5. Westfield Shopping Centre

6. High Street

7. Museum of Fire

8. Joan Sutherland Performing Arts Centre

9. Judges Park

10. Showground and Swimming Centre

11. Station Plaza

12. Smiths Paddock

KEY STREET VIEWS

STATION STREET VIEWS

Station Street acts as the main North to South connection between the site and Penrith CBD. It is also the most prominent visual and pedestrian link to and from Penrith Station. As North Penrith continues to be developed and revitalised, Station Street's role in creating a vibrant and sustainable city centre will increase.

GREAT WESTERN HIGHWAY VIEWS

Great Western Highway runs parallel with the western railway line. Together, they are the main passageways to and from Penrith. As with other regional centres like Parramatta and Liverpool, Penrith relies heavily on this transport link. Focusing development density along these vital channels will enhance the sense of arrival to the city centre and highlight Penrith as a destination.

SUBJECT SITE VIEWS

Aviators Way runs through the middle of the Thornton Village Development. It is a very strong link between Smiths Paddock and Station Plaza. Development on the subject site will rely on this connection to support the increase in growth and density.

Dunshea Street is adjacent the subject site and the commuter car park. With a projected increase in commercial activity along Station Street and railway patronage, proper planning must ensure that there is sufficient infrastructure to manage this increase.

a. View from Station Street (South)

b. View from Station Street Extension (North)

KEY STREET VIEWS

c. View from Great Western Hwy (West)

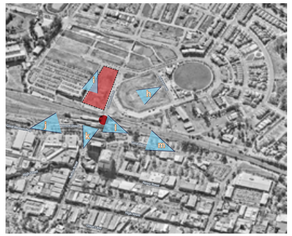
d. View from Aviators Way (North East)

e. View from Dunshea Street (North)

g. View from Station Street Extension (North)

f. View from Station Street (South)

h. View from Great Western Hwy (South East)



There are six heritage items close to the subject site. All of which will be retained as part of the Penrith Station upgrade. It is important that any proposed new development recognises the significance of these heritage items and create spaces that respect and enhance these historical items.

Heritage Item

h. Heritage Platform and Signal Box

i. Heritage Platform and Signal Box

j. Heritage Platform and Signal Box

l. Heritage Station Master's Residence

k. Heritage Platform

m. Heritage Water Tank

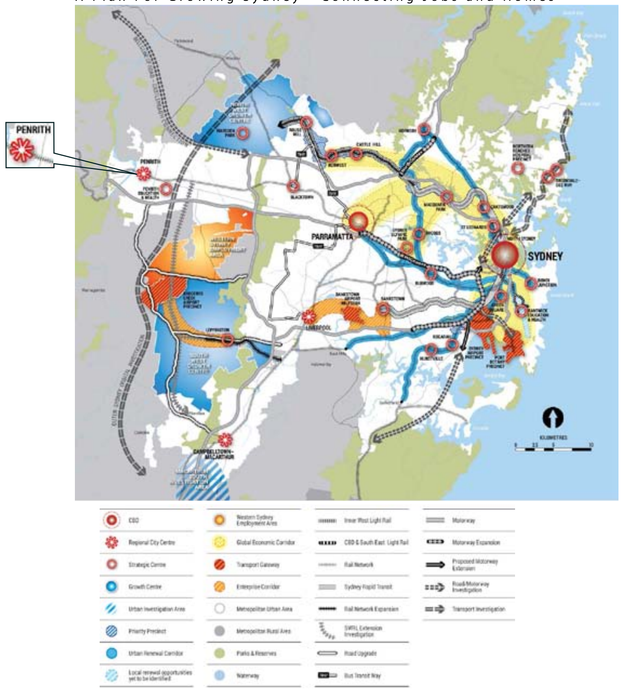
2.0
STRATEGIC FRAMEWORK

"Many of Sydney's greatest opportunities lie in Western Sydney. At the same time many of the challenges Sydney faces are most pressing in Western Sydney. At present, Western Sydney has around 47 per cent of Sydney's residents,7 36 per cent of Sydney's jobs8 and one-third of Sydney's Gross Regional Product.9
Many Western Sydney residents must travel outside of the region for work, particularly for well-paid knowledge-based jobs. Around 28 per cent of the resident workforce, or close to 226,000 people, travel to other parts of the city to get to work.10
Over the next 20 years, the number of people in Western Sydney will grow faster than other parts of Sydney. Almost one million more people will live west of Homebush by 2031.11" - "A Plan For Growing Sydney" (2014) p16

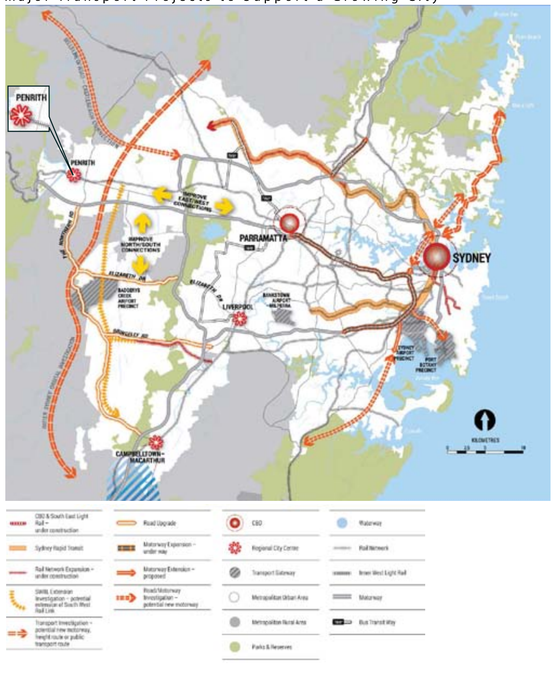
"Parramatta has emerged as a second CBD for Sydney and the Plan seeks to reinforce this. Campbelltown-Macarthur, Liverpool and Penrith are also a major focus for jobs and services for outer suburban communities. The Plan seeks to allow these and other strategic centres to grow to their full potential.
Western Sydney's knowledge economy is growing. Delivering new office markets within strategic centres in Western Sydney will require flexible and timely planning approvals, accompanied by ongoing improvements to public transport." - "A Plan For Growing Sydney" (2014) p19

ACTION 1.7.4: CONTINUE TO GROW PENRITH, LIVERPOOL AND CAMPBELLTOWN-MACARTHUR AS REGIONAL CITY CENTRES SUPPORTING THEIR SURROUNDING COMMUNITIES
As the North West and South West Growth Centres continue to be a focus for greenfield development, new communities in these areas will need to access a broad range of services. Penrith will play an important role in servicing communities in the North West Growth Centre, and Liverpool and Campbelltown-Macarthur will service communities in the South West Growth Centre. These centres will be a focus for employment, services and transport connections as part of a network of strategic centres across Western Sydney. Penrith and Liverpool are a focus for particular initiatives in the Long Term Transport Master Plan, including improved public transport services and improved accessibility for walking and cycling. - Plan For Growing Sydney" (2014) p51

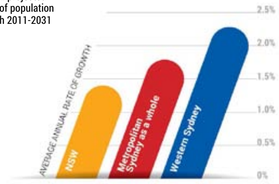
A Plan For Growing Sydney - Connecting Jobs and Homes



Major Transport Projects to Support a Growing City



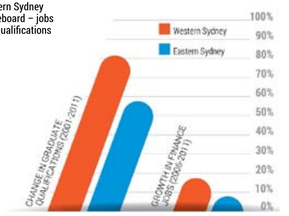
Annual projected rates of population growth 2011-2031



Source: Department of Planning and Environment, 2014, *New South Wales State and Local Government Area Population Projections: 2014 Final*, NSW Government, Sydney.

The Plan For Growing Sydney clearly recognises the vital role that Western Sydney will play in Sydney's future. Its vision for a multi-centered city starts with transportation and using interconnectivity as a way to maximise the potential of each centre. With projected population growth moving fastest in Western Sydney, the integration of transport and land use strategies is integral to ensuring the plan's overall success.

Western Sydney Scoreboard – jobs and qualifications



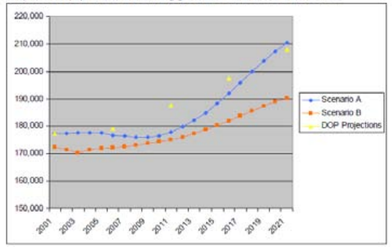
Source: *ABS Census of Population and Housing*, Non School Qualification: level of Education, Time Series Profile 2001, 2006 and 2011.

PENRITH : PROJECTED GROWTH

"Penrith is already a major hub in Western Sydney, with jobs growth and new investment in retail, business, cultural, educational and health industries. This vision plans for an additional 10,000 residents and 10,000 jobs in the Penrith city centre over the next 25 years." - Minister's Statement, "Penrith City Centre Plan" (2007) p3

Future population growth studies were done by I.D. Solutions 2007 and HASSELL 2008. The studies forecast growth for 2 scenarios (low growth and high growth) projected to the year 2031. A low growth scenario envisages a population of 204,503 people while a high growth scenario envisages a population of 233,560 people. These figures indicate that along with the potential 16,000 to 25,000 additional dwellings required to support this growth, there will also be a need to accommodate the increasing number of lone person households.

Comparison of population and dwelling growth of Scenario A and B, 2001-2021



Source: I.D Solutions 2007 and HASSELL 2008

Table 3.2.4.1b: Dwelling Opportunity in Existing Areas

Type	Dwelling Opportunity	Proportion of Opportunity	Key Areas (potential dwellings)
In-centre Development	6,826 dwellings	62%	Penrith City Centre (4,808 dwellings) St Marys Town Centre (1,430 dwellings) Kingswood (388 dwellings) South Penrith (172 dwellings)
Large Residential Lots	2,609 dwellings	23%	St Clair (411) South Penrith (289) St Marys (255) Colyton (243)
Development Sites	587 dwellings	5%	North Penrith Urban Area (524) Claremont Meadows (39) Werrington Centre (24)
Vacant Land	1,077 dwellings	10%	Glenmore Park (339) Cranebrook (135) Emu Plains (106) St Marys (81)
TOTAL	11,100 dwellings	100%	-

Source: I.D Dwelling Opportunities Analysis for Penrith City Council, September 2007

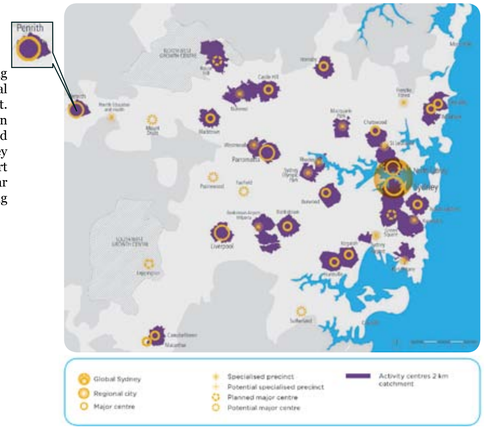
"The City Centre Plan lays a solid foundation to ensure the realisation of securing another 10,000 jobs and 10,000 new residents along with a wide range of retail and cultural facilities. Our City centre, befi tting the leading city in outer Western Sydney, will be a social, safe place where people will want to go, meet, and live. It will have a lively and contemporary retail centre, be a one-stop shop for business services, be pedestrian friendly and an easy place to get around. It will be a regional centre for arts, culture and leisure activities. People will want to live in the city centre with its vibrant daytime activities and vivacious nightlife." - Mayor's Statement, "Penrith City Centre Plan" (2007) p4

TRANSIT-ORIENTED-DEVELOPMENT

The Metropolitan Plan aims to locate 80 per cent of the 770,000 additional homes needed by 2036 within walking distance of centres with good transport accessibility. This will reduce the need for car travel, lower congestion, improve air quality and reduce greenhouse gas emissions. - Tony Kelly Minister for Planning, Lands and Infrastructure METRO STRATEGY 2036 p2

The Metropolitan Plan and the Plan For Growing Sydney both aim to locate most of the additional houses within walking distance of public transport. There are plans to upgrade Penrith Station in conjunction with these plans as well as a projected railway patronage growth. With Western Sydney residents more dependent on cars for transport than those in other parts of Sydney, there are clear economical and environmental benefits to locating the most density close to the transport nodes.

Two Kilometer Catchment Centres



PEDESTRIAN MOVEMENT AND PROXIMITY PLAN

Getting the most out of our expanding public transport system also means growing jobs in centres and concentrating development in established areas close to public transport.- John Robertson Minister for Transport, Lands and Infrastructure METRO STRATEGY 2036 p3

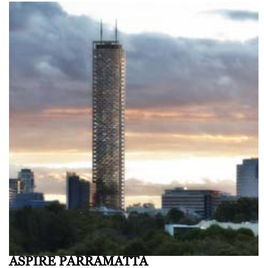
By placing density along the Railway Station, the city centre becomes more compact and subsequently reduces the distance of travel to and from public transport. A walkable city centre encourages an increase in the use of public transport. More activity at the city centre also feeds the existing commercial core and creates a city that is vibrant, active and secure.

3.0
DESIGN RESPONSE

VISION FOR PENRITH

The vision for the subject site is to create a landmark tower to acknowledge the gateway and centre role of the site. Street activation on the podium levels along Station Street will effectively extend the CBD and enhance this main pedestrian desire line. The added density will help in achieving the goals set out on the Plan for Growing Sydney. This vision will maximise the liveability of the area by increasing the supply and choice of housing in Penrith. Locating density near the major transport hub will also allow more homes to be closer to jobs, subsequently reducing the need for private transport and encourage walking or cycling. The vision seeks to assist Penrith in fulfilling its potential and vital role as one of Sydney's regional city centres.

ONE CENTRAL PARK SYDNEY

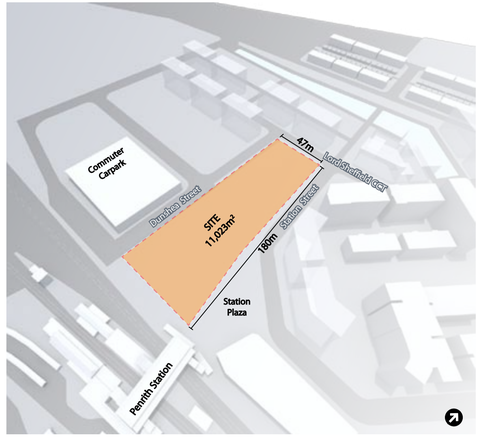


ASPIRE PARRAMATTA

VIC POINT DOCKLANDS

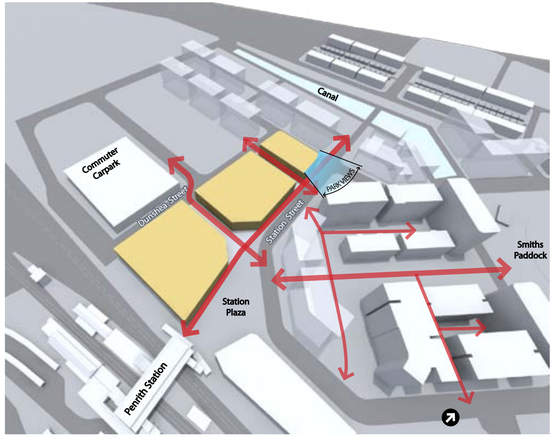
LANDMARK TOWER

The landmark tower is a unique feature in every city centre's skyline. It is a symbol of progress which encapsulates the collective aspirations of a community. The tower suggests heirarchy and usually acts as a natural placeholder for activity and density within a dynamic cityscape. More than these, it is an opportunity to create something that is not just a building - but is a tool which helps drive a community towards their goals.



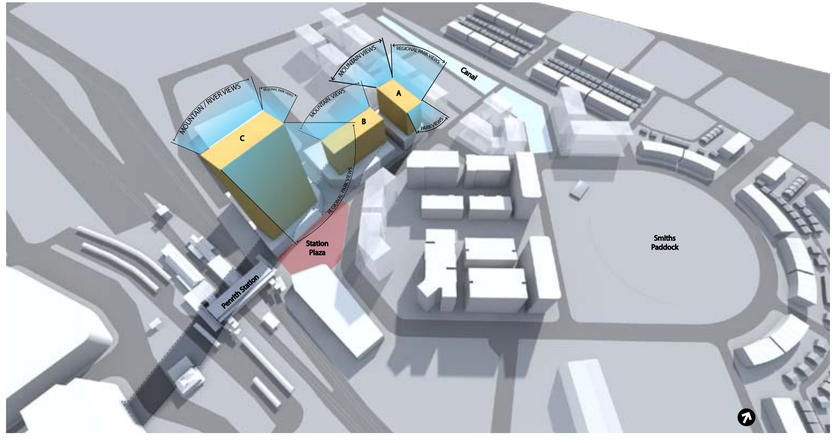
SITE LOCATION

The site is located in North Penrith, on the corner of Station Street extension and Lord Sheffield Circuit. The site area is 11,023m² and is adjacent to the nearly completed Station Plaza, the multi-storey commuter carpark and Penrith Station.



STREET INTERFACE AND ACTIVITY

The podium levels are designed to have active edges along Station Street. There will be a through site link to connect Station Plaza with the existing commuter carpark. Other links will help integrate the site with the other developments in the area. The northern edge of the podium will be designated as residential and the north-east corner will address the park across the street.



SITE A (Lot 3003)

Site A sits at the northernmost part of the site. Orienting the block along Lord Sheffield Circuit will maximise the solar access of apartments facing north. Having all residential use on this site will be an appropriate contextual response to the residential developments further north.

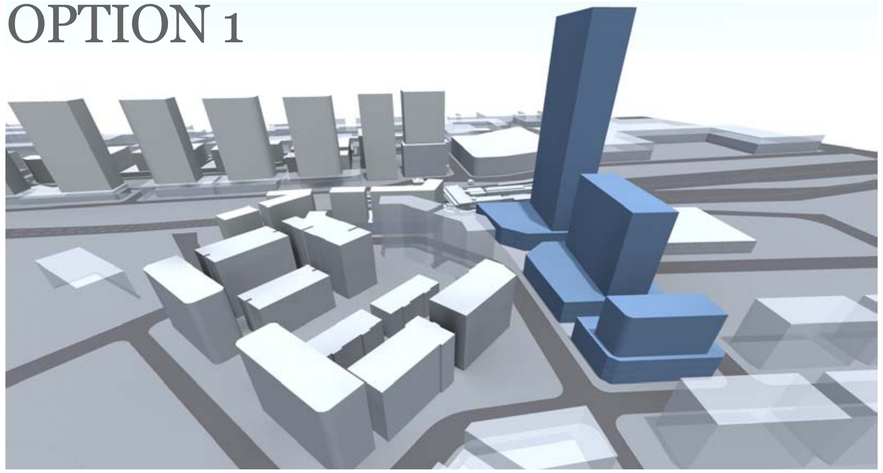
SITE B (Lot 3004)

The orientation and massing of site B directly affects the solar amenity of Station Plaza. Lowering the height will minimise this effect. Placing the mass along Station Street helps define this active street edge and further enhances the connection to Penrith Station.

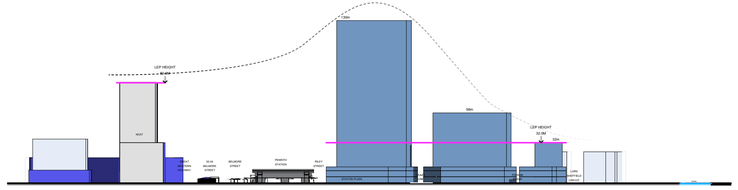
SITE C (Lot 3005)

Site C contains the tower form in order to locate the highest density closest to the transport node. Based on extensive shadow analysis, the tower will cast most if its shadow on Penrith Station and will have negligible added overshadowing on Station Plaza.

OPTION 1

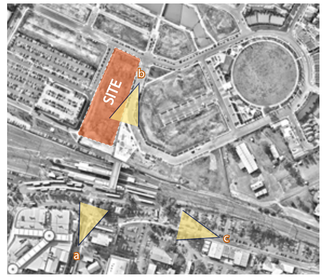


MODEL AERIAL | NTS



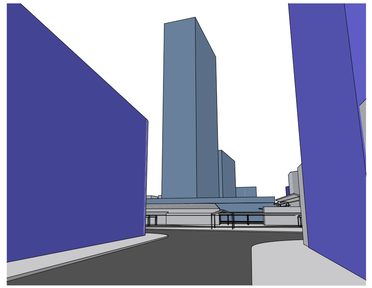
STRENGTHS
-tower defines street edge along Dunshea Street
-tower location has less perceived bulk when viewed from Station Plaza

WEAKNESSES
-tower location has highest density away from the transport node (Penrith Station)
-tower location loses opportunity to frame Station Street and be a landmark for Station Plaza

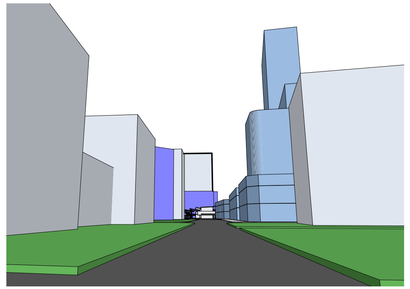


STREET VIEWS | KEY PLAN

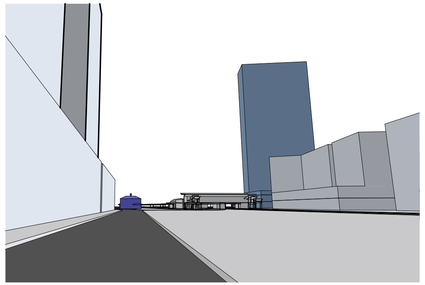
STREET VIEWS



a. View from Station Street (South)

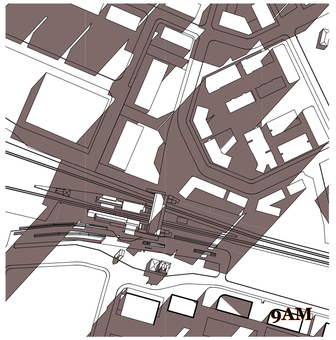


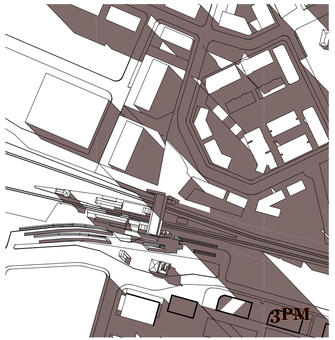
b. View from Station Street Extension (North)



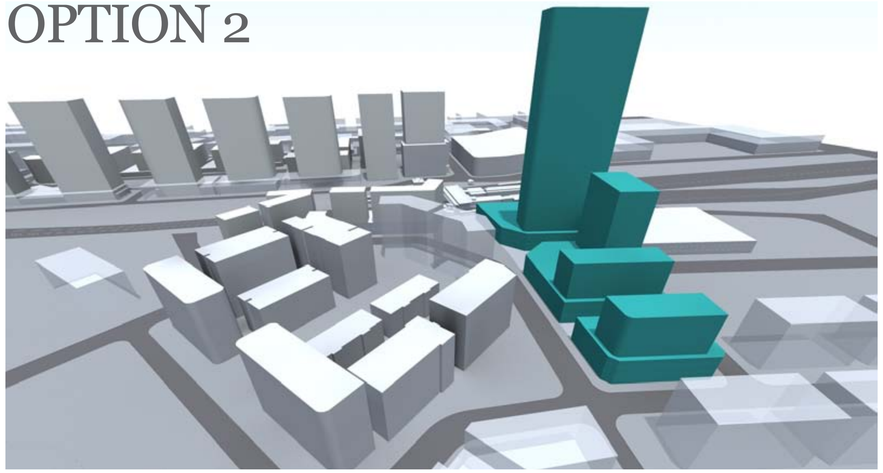
c. View from Great Western Highway (South East)

SHADOW ANALYSIS JUNE 21 - MID WINTER

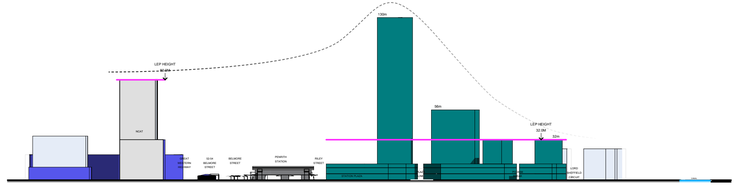




OPTION 2

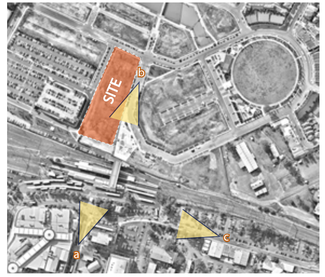


MODEL AERIAL | NTS



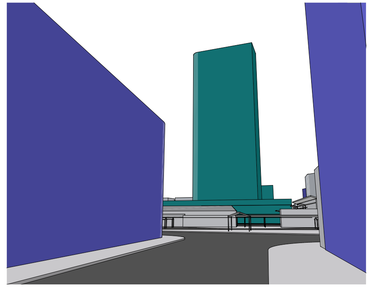
STRENGTHS
-tower orientation defines street edge along pedestrian plaza link
-middle building located along Dunshea street generates minimal shadow impact to Station Plaza

WEAKNESSES
-tower orientation looks like a massive 'wall' when viewed from both ends of Station Street
-middle building location overshadows most of Plaza Link

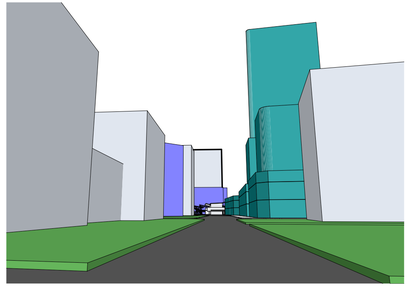


STREET VIEWS | KEY PLAN

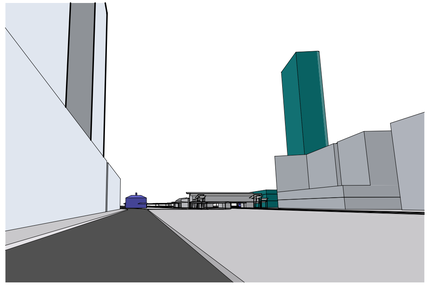
STREET VIEWS



a. View from Station Street (South)

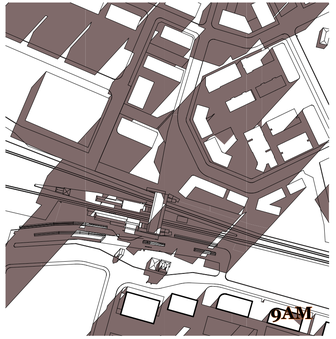


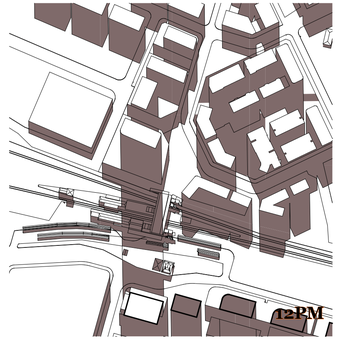
b. View from Station Street Extension (North)

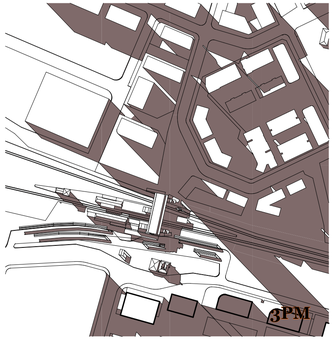


c. View from Great Western Highway (South East)

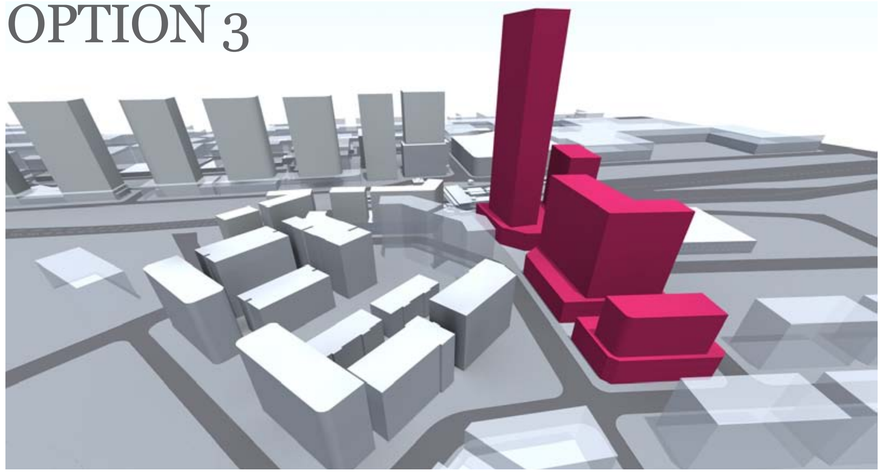
SHADOW ANALYSIS JUNE 21 - MID WINTER



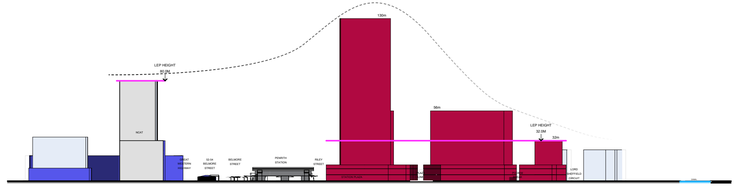




OPTION 3

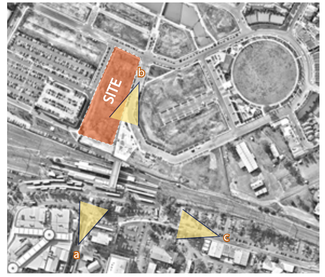


MODEL AERIAL | NTS



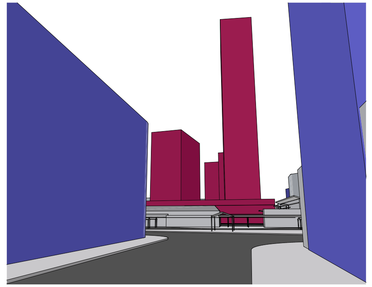
STRENGTHS
-tower orientation strongly defines Station Street edge
-middle building location allows direct sunlight through to Plaza Link

WEAKNESSES
-middle building height generates significant overshadowing onto Station Plaza

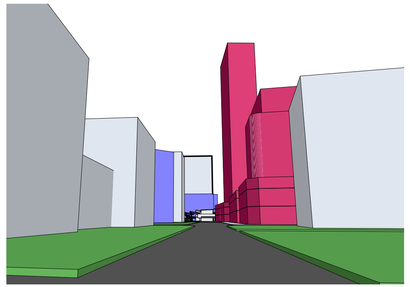


STREET VIEWS | KEY PLAN

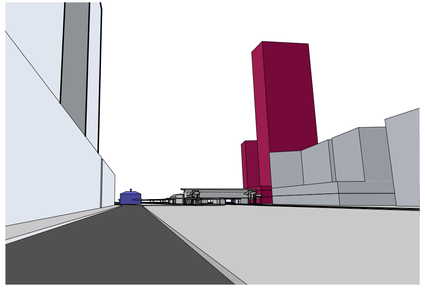
STREET VIEWS



a. View from Station Street (South)

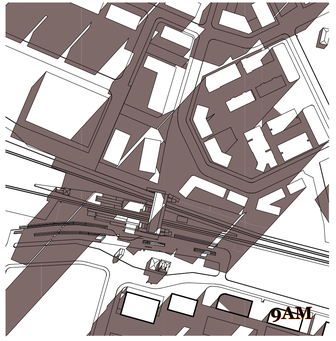


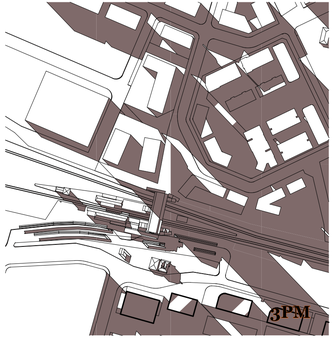
b. View from Station Street Extension (North)



c. View from Great Western Highway (South East)

SHADOW ANALYSIS JUNE 21 - MID WINTER

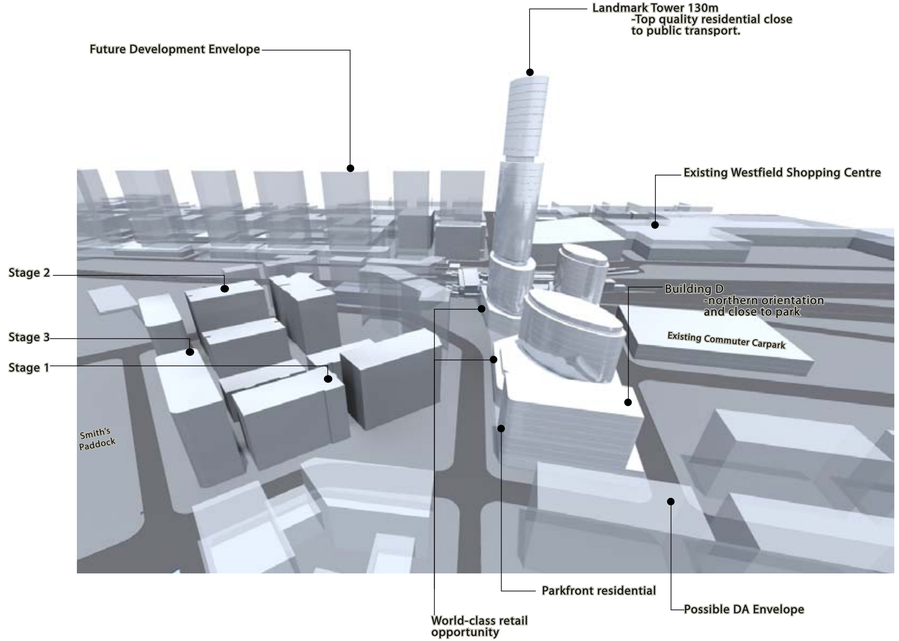




OPTION 4

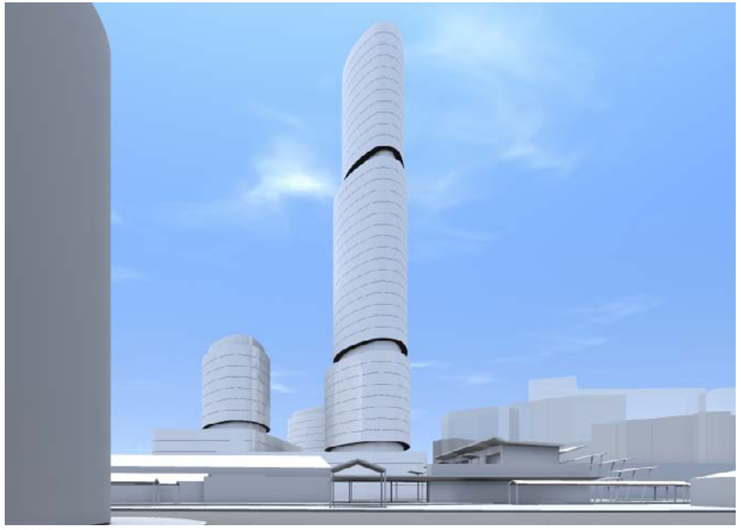
Preferred option

Option 4 is the culmination of all other options. It places the tower and highest density closest to the transport node (Penrith Station). The middle building is lower in height and, along with the other 2 buildings, oriented to true north to minimise the effect of overshadowing. The oval forms create a sculpture rather than a tall block to highlight the intention that this will be the new Penrith landmark. It presents itself as a slender form when viewed from both ends of Station Street and serves as a gateway to Penrith for both railway and highway travelers.



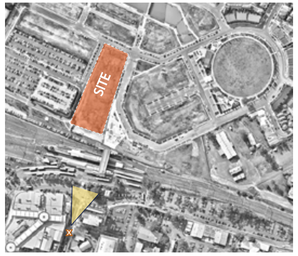
Preferred option

VIEW FROM STATION STREET



OPTION 4

When viewed from Station Street, the intention of the elliptical form becomes clear. The tower presents a slender sculptural form which tapers as the building gets taller.



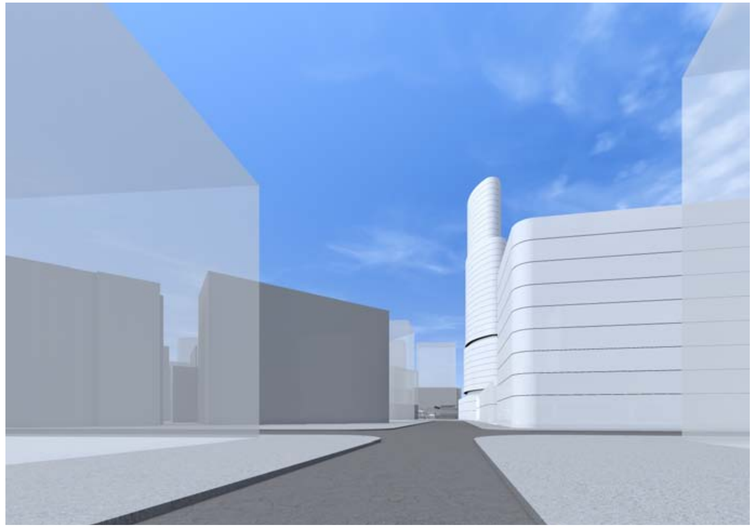
KEY PLAN

EXISTING

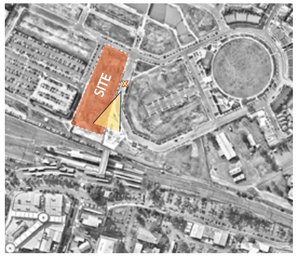
STREET VIEW ANALYSIS

Preferred option

VIEW FROM STATION STREET EXTENSION



From the northern end of Station Street. The podium levels frame the street and the view terminates at Penrith Station. The tower serves as a landmark for the station as well as the plaza.



KEY PLAN

EXISTING

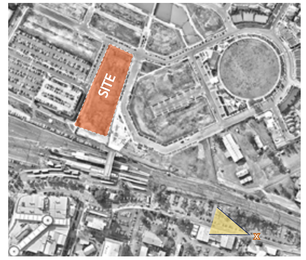
OPTION 4

STREET VIEW ANALYSIS

Preferred option

VIEW FROM GREAT WESTERN HIGHWAY

The tower as a new landmark for Penrith is most evident when viewed from the Great Western Highway. When traveling by car or by rail, the tower will give a sense of arrival to Penrith CBD.



KEY PLAN

EXISTING

OPTION 4

STREET VIEW ANALYSIS - BROADER CONTEXT

Preferred option

VIEW FROM STATION STREET EXTENSION

OPTION 4

From this broader vantage point, it is evident how the height and density increases as we move closer to Penrith Station. The tower serves as a visual marker, signaling where the CBD begins.

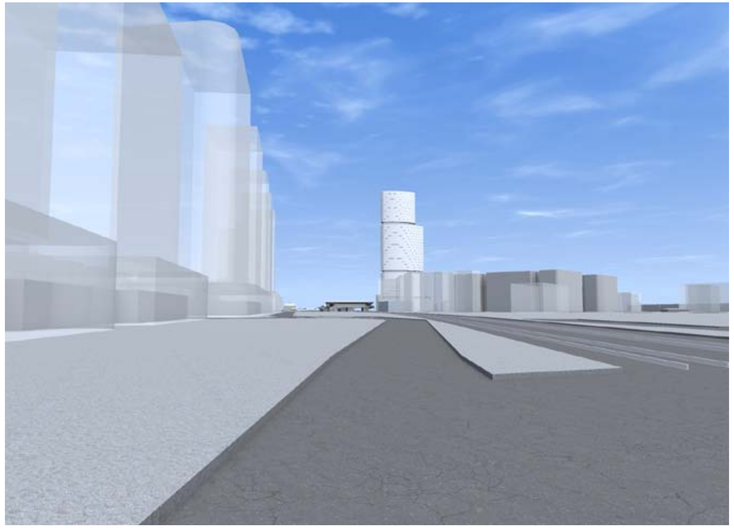
KEY PLAN

EXISTING

STREET VIEW ANALYSIS - BROADER CONTEXT

Preferred option

VIEW FROM CORNER GREAT WESTERN HWY AND EVAN STREET



OPTION 4

The tower as a new landmark for Penrith is most evident when viewed from the Great Western Highway. From this broader vantage point, the tower assists in orienting the viewer towards Penrith Station. Having significant heights on both sides of the Highway also creates a sense of arrival to what is essentially the edge of Penrith CBD.

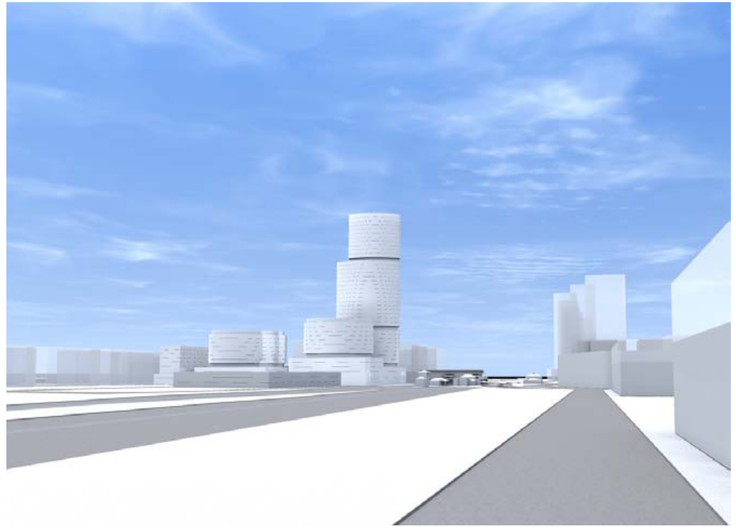
KEY PLAN

EXISTING

STREET VIEW ANALYSIS - BROADER CONTEXT

Preferred option

VIEW FROM GREAT WESTERN HIGHWAY



OPTION 4

The tower as a new landmark for Penrith is most evident when viewed from the Great Western Highway. From this broader vantage point, the tower assists in orienting the viewer towards Penrith Station.

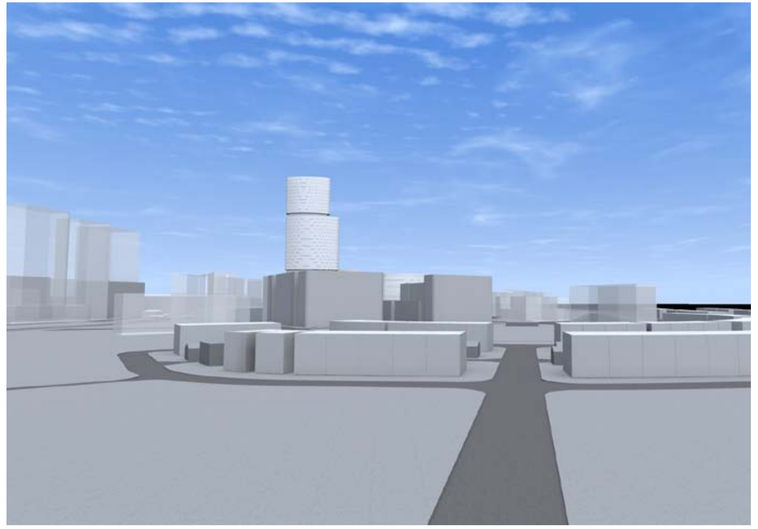
KEY PLAN

EXISTING

THORNTON HALL VISTA ANALYSIS

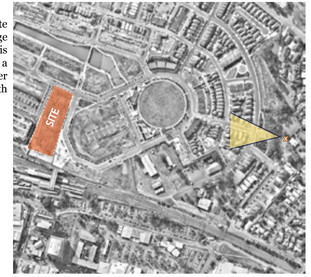
Preferred option

VIEW FROM THORNTON HALL



OPTION 4

The only visible part of the site massing from this vantage point is the tower. From this distance, the tower acts as a guide - orienting the viewer to the location of Penrith Station.



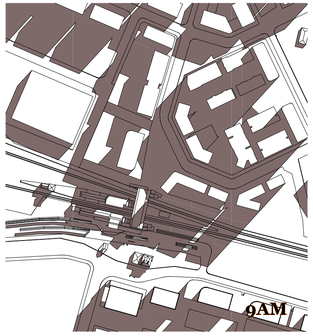
KEY PLAN

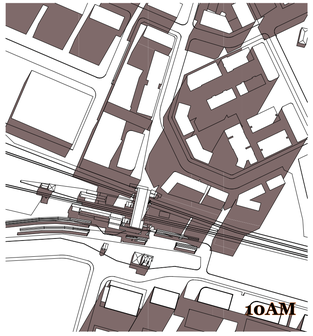
SHADOW IMPACT ANALYSIS - WINTER SOLSTICE

JUNE 21 - WINTER SOLSTICE

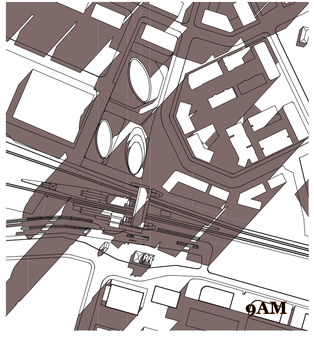
A comparison of the existing LEP Massing and Option 4 shadow impacts reveals that there are no significant additional overshadowing to existing public or private open space. At 9am-10am, the tower form overshadows part of the Westfield roof as well as the commuter carpark spaces along Great Western Highway. From 11am-1pm there is negligible additional overshadowing to Station Plaza. However, the tower does overshadow part of Station Street - only at 11am. The tower also overshadows an existing carpark across the highway at 1pm.
Overall, the proposed additional height does not impose any significant negative impact to any existing infrastructure and amenity.

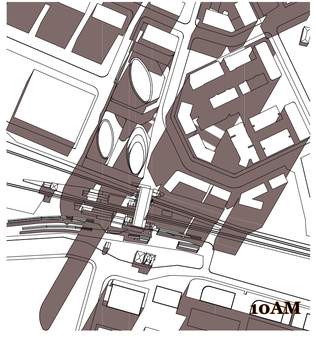
LEP MASSING





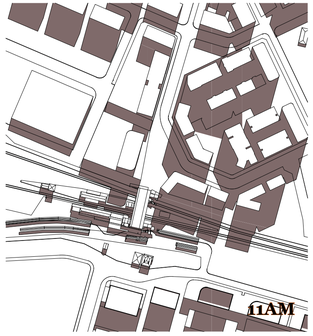
OPTION 4

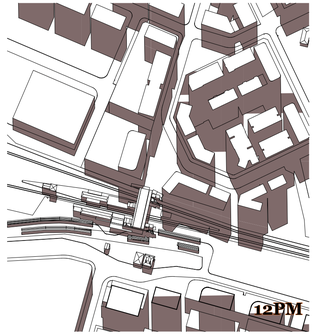


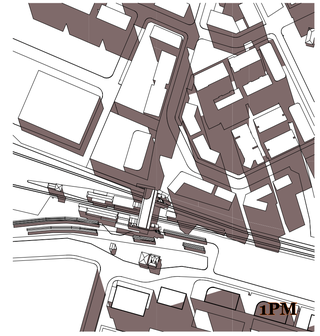


SHADOW IMPACT ANALYSIS - WINTER SOLSTICE

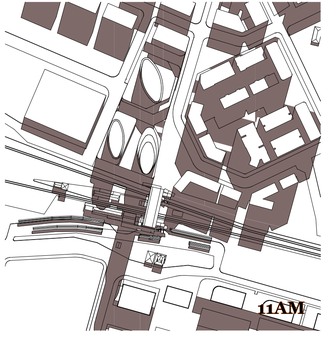
LEP MASSING

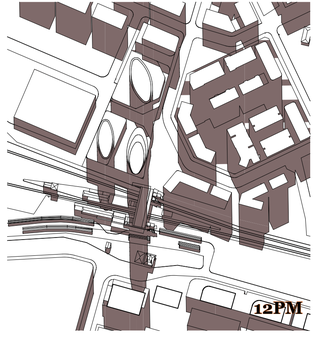


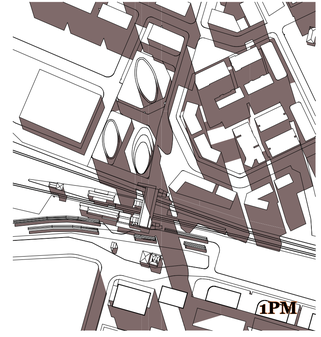




OPTION 4 Preferred option

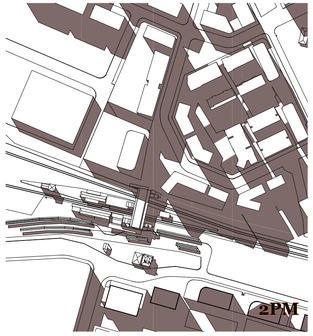


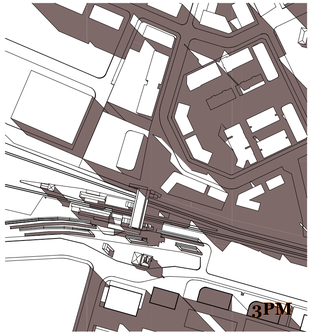




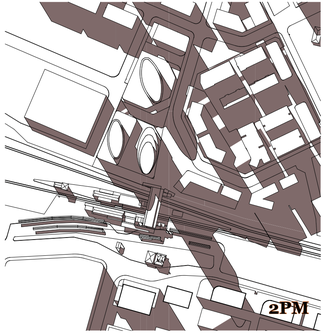
SHADOW IMPACT ANALYSIS - WINTER SOLSTICE

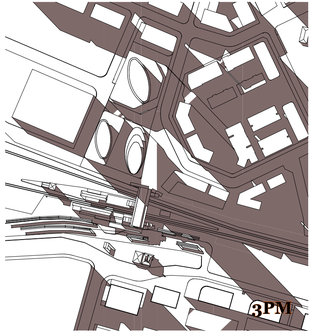
LEP MASSING





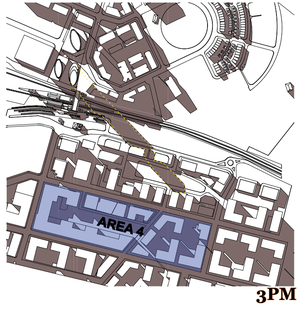
OPTION 4 Preferred option





LEP LAND "AREA 4"

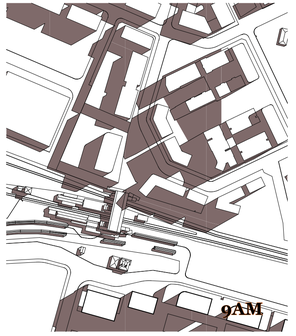
As shown below, the proposed additional height does not negatively affect the blocks identified as "Area 4" under the LEP (clauses 7.16, 8.2 and 8.4). The plan shadow below illustrates the worst case scenario which occurs at 3PM - where the shadow casted by the tower form is closest to the aforementioned area.

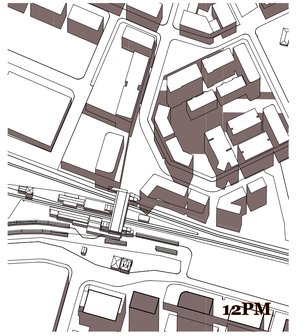


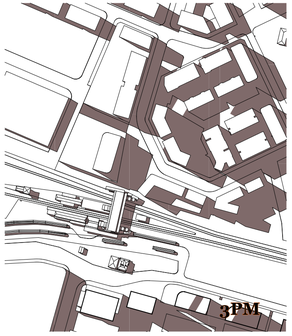
SHADOW IMPACT ANALYSIS - EQUINOX

Preferred option

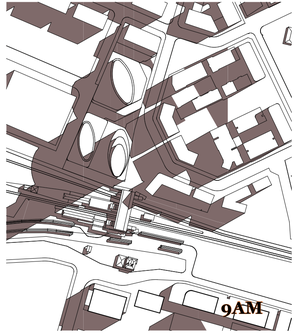
LEP MASSING

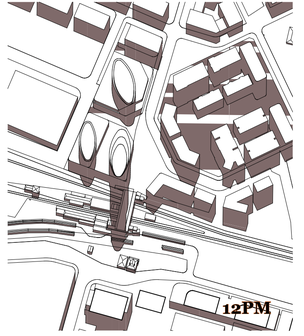


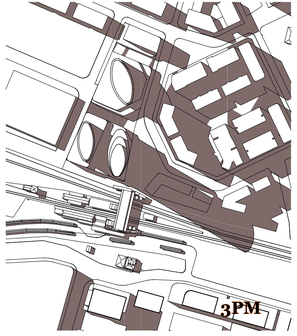




OPTION 4 Preferred option







MAR 23 / SEPT 23 - EQUINOX

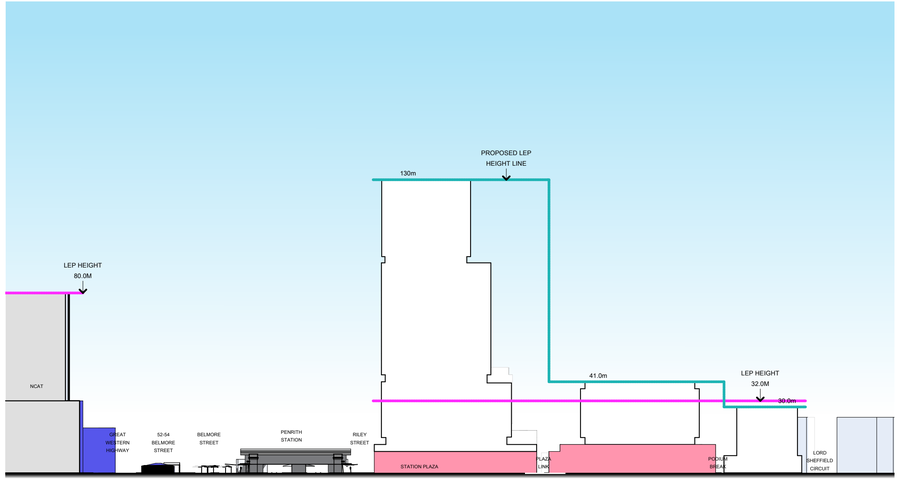
During the Equinox, the tower form does not overshadow any structures or public open spaces across the Great Western Highway. The only noticeable difference between the existing LEP and option 4 equinox shadow is the overshadowing on Station Plaza at 2pm. Other than the aforementioned, there are no significant added overshadowing due to the proposed increase in height.

SITE SECTION

Preferred option

SECTION THROUGH SITE

Option 4 massing sets the maximum height at 130m on site C which will be the new Penrith landmark tower. The heights then step down to 41m on site B and then to 30m on site A. The Plaza Link will be the main active thoroughfare between the existing commuter carpark and Station Plaza. There will be an additional podium break to increase the permeability of the site. The podium levels will contain mostly retail which will activate station street - effectively creating a vibrant, passively secure and self-sustaining hub close to a transport node (Penrith Station) and the existing CBD.

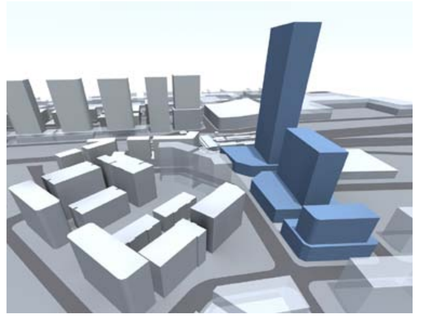


SECTION THROUGH SITE | NTS

Commercial

Residential

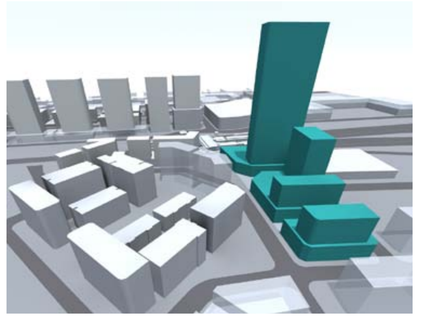
COMPARATIVE SUMMARY



OPTION 1

STRENGTHS
-tower defines street edge along Dunshea Street
-tower location has less perceived bulk when viewed from Station Plaza

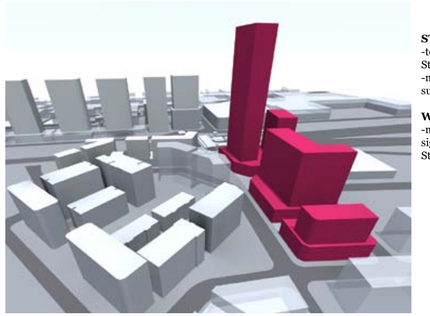
WEAKNESSES
-tower location has highest density away from the transport node (Penrith Station)
-tower location loses opportunity to frame Station Street and be a landmark for Station Plaza



OPTION 2

STRENGTHS
-tower orientation defines street edge along pedestrian plaza link
-middle building located along Dunshea street generates minimal shadow impact to Station Plaza

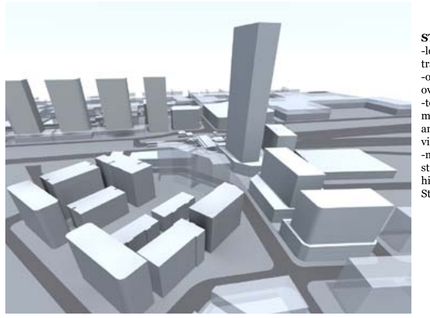
WEAKNESSES
-tower orientation looks like a massive 'wall' when viewed from both ends of Station Street
-middle building location overshadows most of Plaza Link



OPTION 3

STRENGTHS
-tower orientation strongly defines Station Street edge
-middle building location allows direct sunlight through to Plaza Link

WEAKNESSES
-middle building height generates significant overshadowing onto Station Plaza



OPTION 4
preferred option

STRENGTHS
-locates highest density closest to the transport node
-oval forms minimise the effect of overshadowing and perception of bulk
-tower oriented to True North to minimise the effect of overshadowing and to present a slender form when viewed from Station Street
-massing location strongly defines the street edge along Station street and highlights the view termination at Station Plaza and Penrith Station

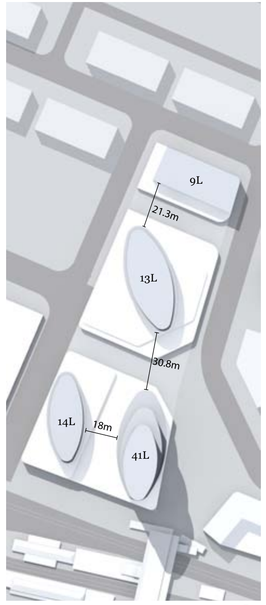
ADG COMPLIANCE

BUILDING SEPARATION

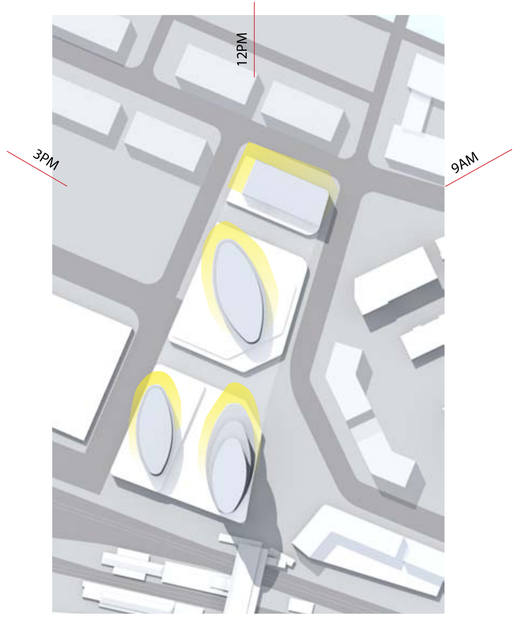
The preferred massing option has been planned considering the required building separation set out in the Apartment Design Guide. With very few fine design adjustments, a complying scheme can be drawn from the massing option demostrated in this report.

SOLAR ACCESS

The preffered massing option maximises solar access through careful manipulation of height, orientation and building articulation. The true north orientation of the tower yields the best solar access for the most apartments while the lower buildings north of the tower further enhances solar access for the rest of the site and its surrounding areas.



BUILDING SEPARATION PLAN



SOLAR ACCESS PLAN

LEFT BLANK

AERIAL VIEW FROM SOUTHERN SIDE OF RAILWAY STATION

VIEW FROM CORNER OF STATION STREET AND THRONTON DRIVE

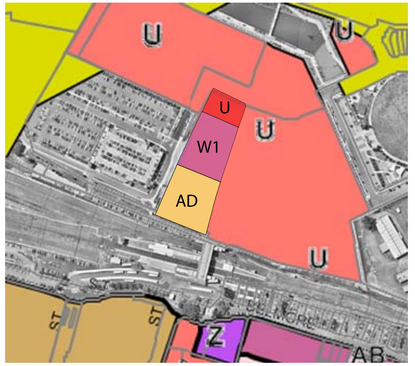
4.0 CONCLUSION

PLANNING PROPOSAL

This report has studied the existing conditions in and around the site as well as the future effects of its broader context.

The existing controls on the site seem inconsistent with the overall vision and growth projection for Penrith. Furthermore, Penrith's role as one of Sydney's regional centres creates a strong case for review of its existing controls to make it more in-line with the plan for growing Sydney's goals.

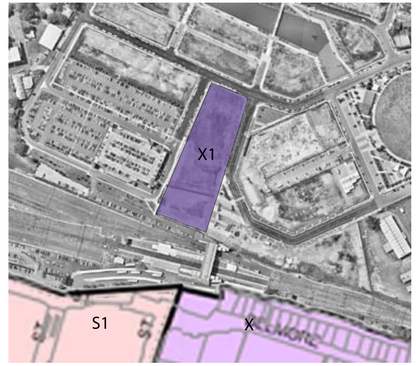
This report concludes that it is reasonable and appropriate to increase both height and FSR for the subject site based on: Penrith's role as a regional and specialised centre; Penrith's projected growth; the site's proximity to the transport node; and based on intensive analysis - that the proposed increase in height and FSR will not have any negative impacts to existing and/or future developments or amenity.



Legend (height in metres)

A	0
C	5
I	8.5
J	9
K	10
M1	12
M2	12.5
O	15
P	18
Q1	19
Q2	20
R	21
S	24
T	27
U	32
W1	41
Z	56
AB	80
AD	130

PROPOSED LEP HOB MAP | NTS

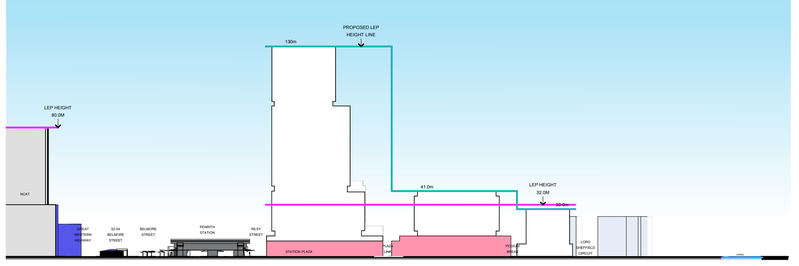


Maximum Floor Space Ratio (n:1)

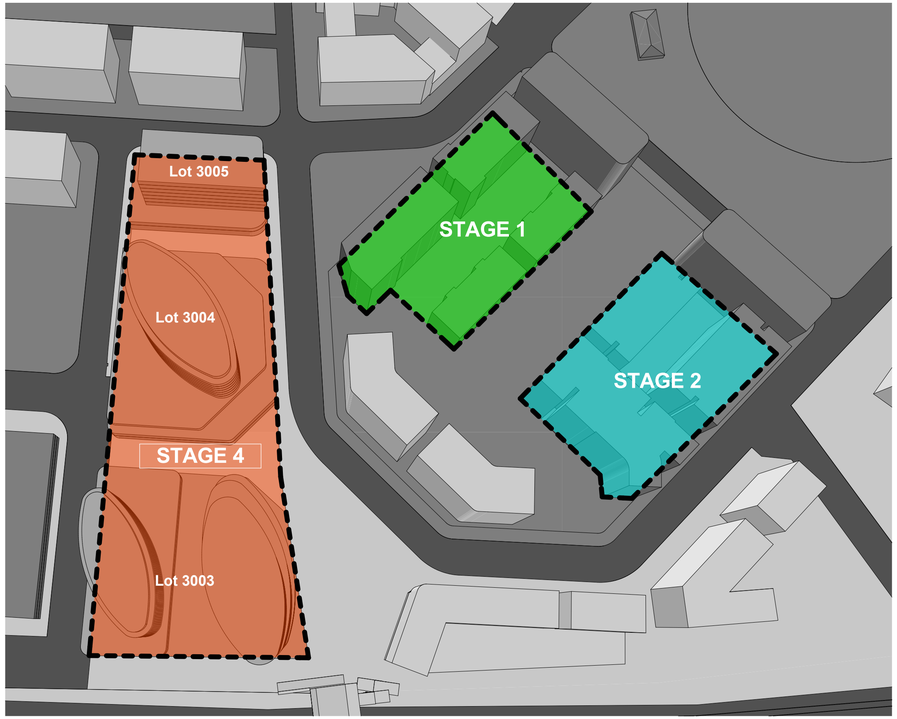
A	0
B	0.4
D	0.5
H	0.7
J	0.75
N	1
O	1.1
S1	1.5
S2	1.6
T	2
U	2.5
V	3
W2	3.5
X	4
X1	5.2
Z	8

PROPOSED LEP FSR MAP | NTS

Assumes above ground car parking floor space is excluded from GFA calculations



SECTION THROUGH SITE | NTS



STAGE 4

Lots 3003, 3004 and 3005

SITE = 11,023 m2 GFA = 56,293 m2 NSA = 41,120 m2 NLA = 5,500 m2 YIELD = 586 aprt. FSR = 5.1	SITE = 11,023 m2 GFA = 72,643 m2 NSA = 41,120 m2 NLA = 5,500 m2 YIELD = 586 aprt. FSR = 6.6

5.0 REFERENCES

-Metropolitan Plan for Sydney 2036 (NSW Government, December 2010)
-Sydney's Walking Future - Connecting People and Places (NSW Government, December 2013)
-A Plan For Growing Sydney - A Strong Global City, A Great Place to Live (NSW Government, December 2014)

-Penrith City Centre Strategy (Penrith City Council, July 2006)
-Revitalising Penrith - City Centre Plan (Regional Cities Taskforce, December 2007)
-Penrith Heritage Study - Volume 1 (Paul Davies Pty Ltd, November 2007)
-Penrith Urban Study - Managing Growth to 2031 (Penrith City Council and HASSELL, 2009)

-Penrith Station Upgrade - Review of Environmental Factors (NSW Government, October 2015)
-Penrith Station Upgrade Project - Statement of Heritage Impact (AECOM, October 2015)
-Penrith Station Updgrade - Traffic, Transport and Access Impact Assessment (GTA Consultants, October 2015)

DKO

St Hilliers FIRST POINT PROJECTS DKO urbis