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Parramatta City Centre

Planning Framework Study

23 September 2014

Prepared for Parramatta City Council

DRAFT

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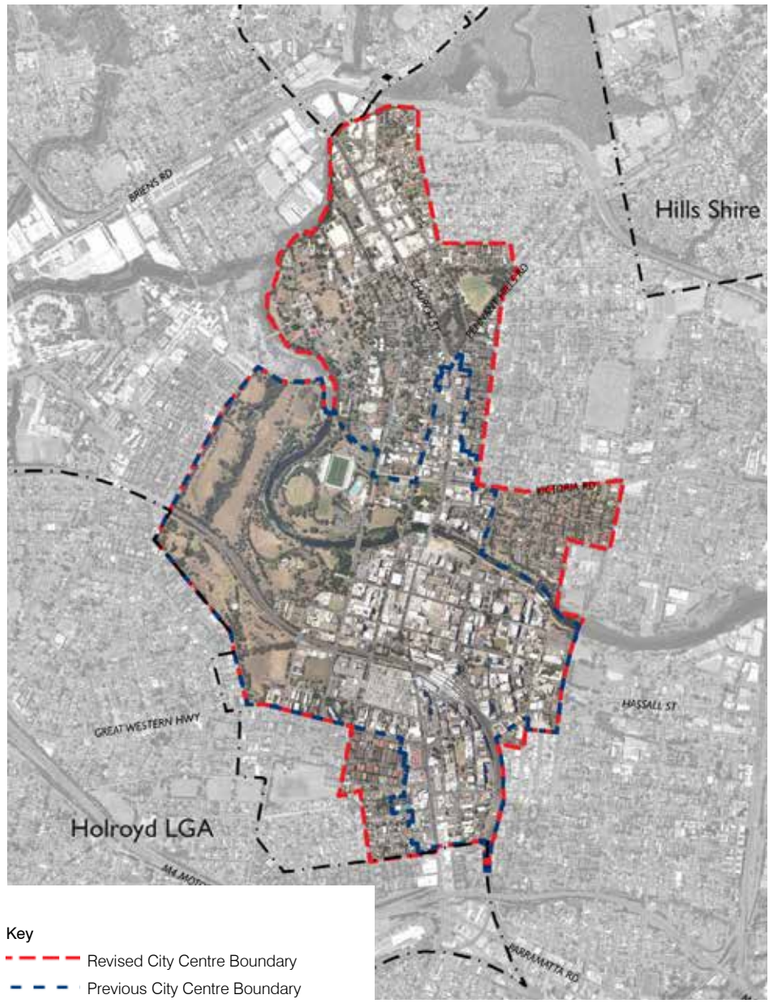
Preface: Council resolution

At the Council meeting of 8 September 2014 this study and SGS Economic Analysis study (separately attached) were discussed. The recommendations and controls adopted by Council, based on Architectus' recommendations with amendments noted in Council's resolution, are provided adjacent. Architectus original recommendations can be found in Section 6.1 of this document.

Council adopted recommendations and controls

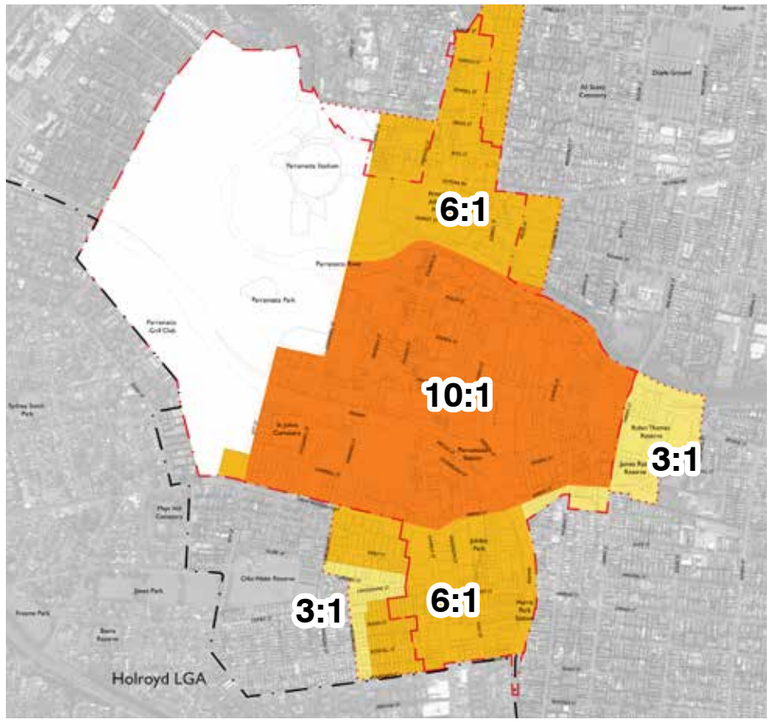
City Centre boundary	
1	Following our studies of boundary options Parramatta Council has advised the boundary to be used for the future Parramatta City Centre (see Diagram 1 opposite).
Primary built form controls	
2	The potential for new development to increase to a Floor Space Ratio control of 10:1 for the main central area of the City Centre is provided with 6:1 and 3:1 in transitional areas of the centre (see Diagram 2 opposite), subject to minimum site sizes.
3	Sun access controls are to be applied, based on retaining sun access to a defined portion of nominated open spaces from 12pm-2pm in midwinter (see Diagram 3 opposite)
4	No specific maximum building height control is provided (other than the sun access controls noted and aviation restrictions to building heights).
5	Any uplift in controls allowing for tall building forms should be provided only for sites of a minimum of 1,000sqm in area.
Land use mix	
6	An expanded commercial core is proposed (see Diagram 4 opposite). The additional area includes the main Westfield Shopping Centre and the Justice Precinct.
7	It is recommended that residential uses are permitted in the commercial core where both of the following conditions are met: • A significant quantum of office space (i.e. 20,000sqm minimum) is built before residential occupation of a development site. • Sites deliver primarily employment uses (i.e. employment uses comprise a minimum 50% of total floorspace). [note: this is to ensure that very large or amalgamated sites do not deliver one modest commercial building and a much larger quantum of residential development]
8	Controls designed to encourage employment uses should be targeted to high-yielding employment uses and not all commercial uses.
9	Minimum non-residential FSR requirements are proposed of 1.0:1 for all sites in the mixed use zone of the City Centre.
10	Non-residential FSR exceeding the minimum requirements above should be exempt from the overall maximum FSR for mixed-use zones.
Value Uplift Sharing	
11	The proposed FSR controls to become the base, and additional higher FSR controls can only be achieved by sharing the value of the uplift. That is any additional new FSR is to be purchased by landowners based on 50% of the nominated dollar value per sqm of GFA. The dollar value is to be scheduled to provide certainty and reviewed annually.
12	This is to operate for residential uses only, not employment uses.
13	This system will operate in addition to the existing Section 94A contributions.
Tower slenderness	
14	The floorplate Gross Building Area (measured to the external facade of the building, including balconies) of residential towers should be limited to a maximum of: • 800sqm for residential buildings up to 75m in height (approx. 25 storeys). • 950sqm for residential buildings which are 75-105m in height (approx. 25-35 storeys). • 1100sqm for residential buildings greater than 105m in height (approx. 35 storeys).
Design excellence	
15	An additional 15% Floor Space Ratio should be provided to proposals which demonstrate design excellence through a nominated design excellence process. (e.g. competitive designs for developments over 30m and a Design Review Panel for developments up to 30m).
16	That a principle to be included in the City Centre Planning Framework, that allows the maximum floor space ratio to be achieved on lots of less than 1 000m2, where the development demonstrates Design Excellence and Merit and meets all other design requirements for the site for that form of development.
17	That an additional S94A Levy of 1.5% (total 4.5%) be provided in the City Centre for recreational purposes.

1. Revised City Centre Boundary



Key
- Revised City Centre Boundary
- Previous City Centre Boundary

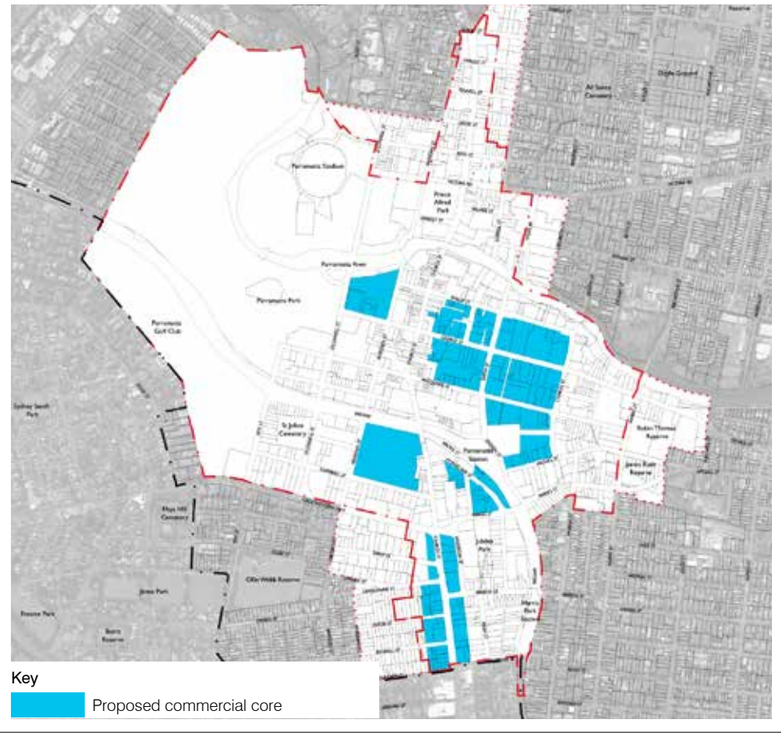
2. Proposed Floor Space Ratios



3. Proposed Solar Access Controls

Key
- Solar access controls - 12pm-2pm midwinter

4. Proposed Land Use Zoning



Key
- Proposed commercial core

Introduction to Study

Architectus and SGS Economics and Planning were engaged by Parramatta City Council to prepare this Planning Framework Study relating to development of the Parramatta City Centre.

This study:

- reviews the current planning framework (statutory and non-statutory) that controls the development of the Parramatta City Centre;
- identifies the opportunities, constraints and market conditions that are impacting on development in the Parramatta City Centre; and
- develops and recommends a planning framework that Council can implement to firmly establish Parramatta as Sydney's premier Regional City and a real alternative to Central Sydney as an employment and mixed use centre.

In response to Council's brief, the study is designed to provide recommendations that are founded on:

1. World's best practice in the planning and development of cities
2. Achieving a strategic balance of land uses
3. Shaping the city form
4. Creating a liveable, active and desirable city
5. Developing economic diversity and prosperity
6. Improving the quality of urban design and the public domain
7. Achieving a creative and prosperous city
8. Celebrating heritage
9. Achieving greater sustainability, design excellence and public domain

Economic analysis

SGS Economics and Planning has undertaken a review of underlying market dynamics of development in Parramatta, and in particular office development. This has covered the following areas:

- An assessment of Parramatta's Context including strategic context, existing controls, precincts and assets, adjacent centres, neighbourhoods and nodes.
- An assessment of Supply and Demand for both residential and commercial uses.
- A review of office development including an overview of office markets, and review of other features of office developments including pre-commitment requirements and prospects for multiple use developments.
- Case studies of secondary centres in other locations (Surrey, Vancouver; North York, Toronto; Croydon, London; Brooklyn, New York; and Planning frameworks in Australian secondary centres).

Further work has also been completed as part of this report into the application of value sharing mechanisms for Parramatta.

Built Form Scenarios

Architectus has undertaken built form scenario testing of the City Centre under a series of different planning controls. These were based on the following four scenarios:

- Existing Controls
- No height or Floor Space Ratio (FSR) controls
- An increased FSR control with no height control
- An increased height control with no FSR control

The scenario testing has been based on a sieving of sites with potential for significant development and assumed amalgamation patterns. This is based on lot-by-lot analysis of land use, existing development, heritage and other restrictions.

Where building forms are not restricted by controls in some scenarios, they have been limited by external factors such as floorspaces which developers are likely to be able to deliver in a single building and building height restrictions relating to airspace requirements relating to Bankstown Airport.

The built form scenario testing of each scenario provides consideration of built form outcomes, views, floorspace outcomes (in relation to SGS's figures for projected demand for Parramatta). Consideration has also been given to how LEP controls have been applied in comparable centres within Sydney.

City Centre Boundary

Architectus have considered the boundary conditions of the City Centre. This work has included consideration of Parramatta's existing structure, barriers to growth, historic structure and a comparison of the Parramatta City Centre to other centres.

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1.0 Introduction

1.1 Scope

Architectus and SGS were engaged by Parramatta City Council to prepare this Planning Framework Study for future development of the Parramatta City Centre.

This study:

- reviews the current planning framework (statutory and non-statutory) controlling the development of the Parramatta City Centre;
- identifies the opportunities, constraints and market conditions that are impacting on development in the Parramatta City Centre; and
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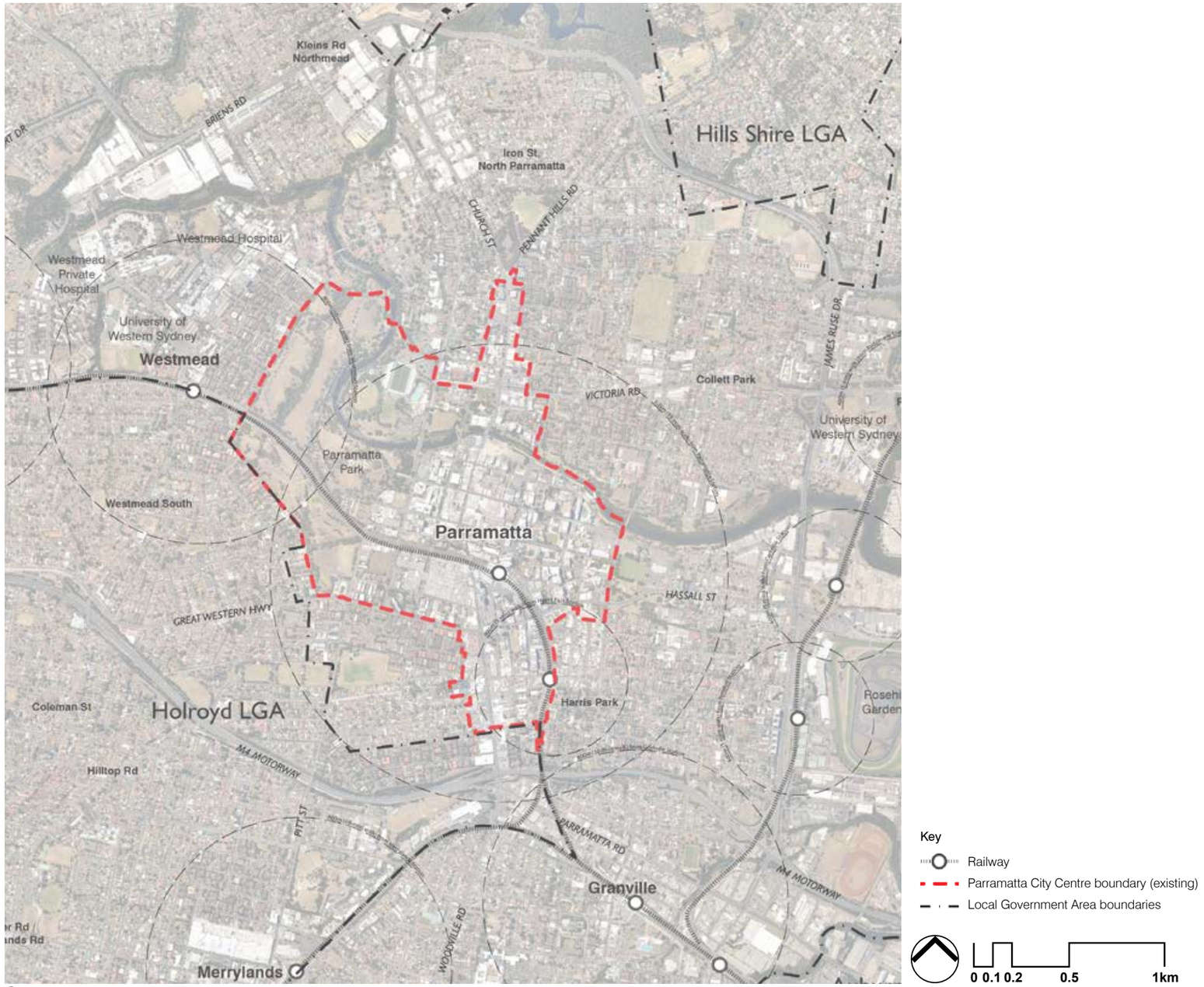
8. Celebrating heritage
9. Achieving greater sustainability, design excellence and public domain

1.2 Location

Key features:

- Parramatta City Centre is approximately 20km west of Central Sydney and is physically central to Metropolitan Sydney.
- The existing Parramatta City Centre includes the major commercial uses within Parramatta. It also notably includes Parramatta Park to the west.
- The existing City Centre adjoins the neighbouring Holroyd Council both to the south along Church Street (where existing uses continue) and to the west of Parramatta Park, south of the railway. The Hills Shire LGA is located approximately 1km to the north and northeast of the City Centre boundary.
- Nearby centres include Granville and Merrylands to the south, Collett Park to the east, Iron Street and Kleins Road to the north and Westmead to the west.



Site Location

1.3 Draft Metropolitan Strategy

Parramatta is noted as the second largest centre in Sydney after 'Global Sydney' (including the Sydney City Centre and North Sydney) in the Draft Metropolitan Strategy. The diagram and quotes adjacent provide an overview of Parramatta's intended role within this document.

Of particular note to this study is the emphasis placed on growth of Parramatta beyond the current City Centre boundaries.

Parramatta as Described within the Draft Metropolitan Strategy

Parramatta is Sydney's Premier Regional City and single biggest concentration of employment outside Global Sydney.

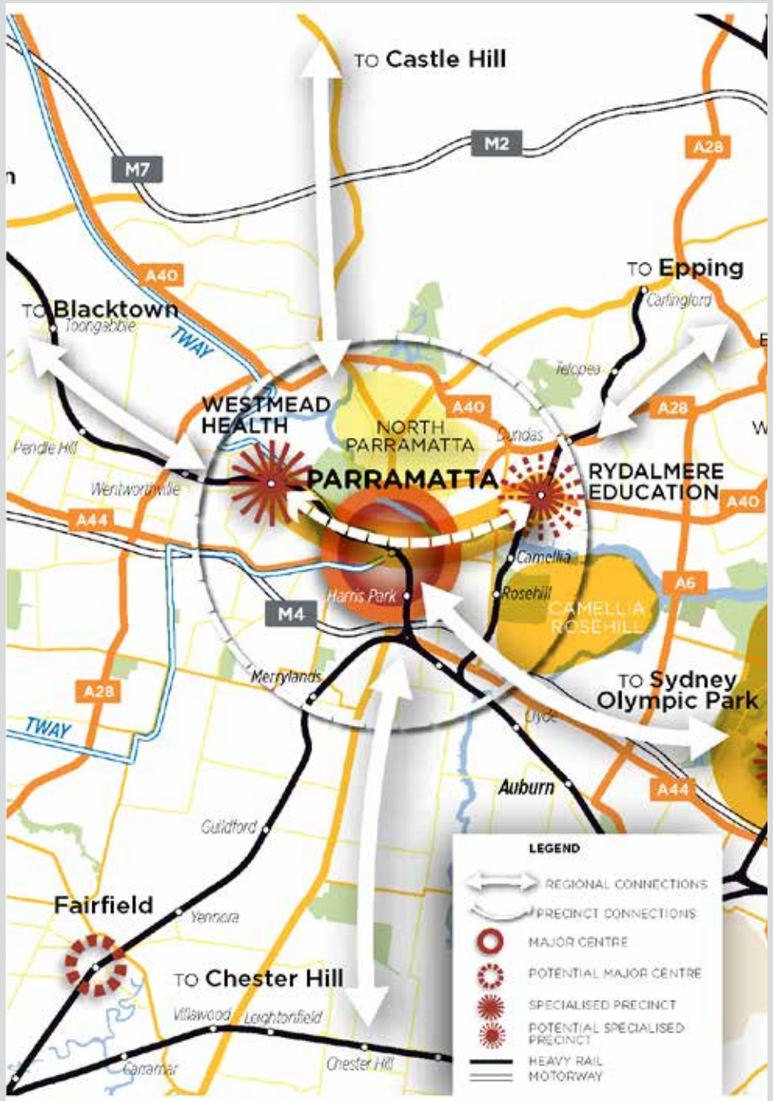
Parramatta is anticipated to be the fastest growing centre outside Global Sydney over the next 20 years.

As Sydney's population grows and changes over the life of this Strategy, more than 50 per cent of Sydneysiders will be residents of Western Sydney and will be serviced by Parramatta.

Parramatta is expected to grow beyond its own City Centre boundaries into the surrounding precincts of Westmead, North Parramatta, Harris Park, Rydalmere (including the University of Western Sydney campus) and Rosehill/Camellia.

Priorities for Parramatta

- *create an additional 21,000 new jobs in Parramatta City Centre and support opportunities for economic clustering by extending the commercial core*
- *provide a further 7,000 new jobs at Westmead and capitalise on the employment and research benefits as Sydney's largest health precinct*
- *develop Rydalmere as Western Sydney's premier university precinct*
- *facilitate efficient movement between Westmead and Rydalmere through the Parramatta City Centre*
- *improve transport connections between Parramatta and other Western Sydney centres and employment precincts and investigate long-term opportunities for light rail that would connect to Castle Hill, Chester Hill, Bankstown, Blacktown and Carlingford*
- *plan for efficient connections to and from Parramatta through bus priority systems, an upgraded interchange and planning for rapid transit to Macquarie Park or Epping in line with the Long Term Transport Master Plan*
- *identify, promote and connect the separate precincts that comprise Parramatta City including North Parramatta and Rydalmere, while recognising important local heritage.*



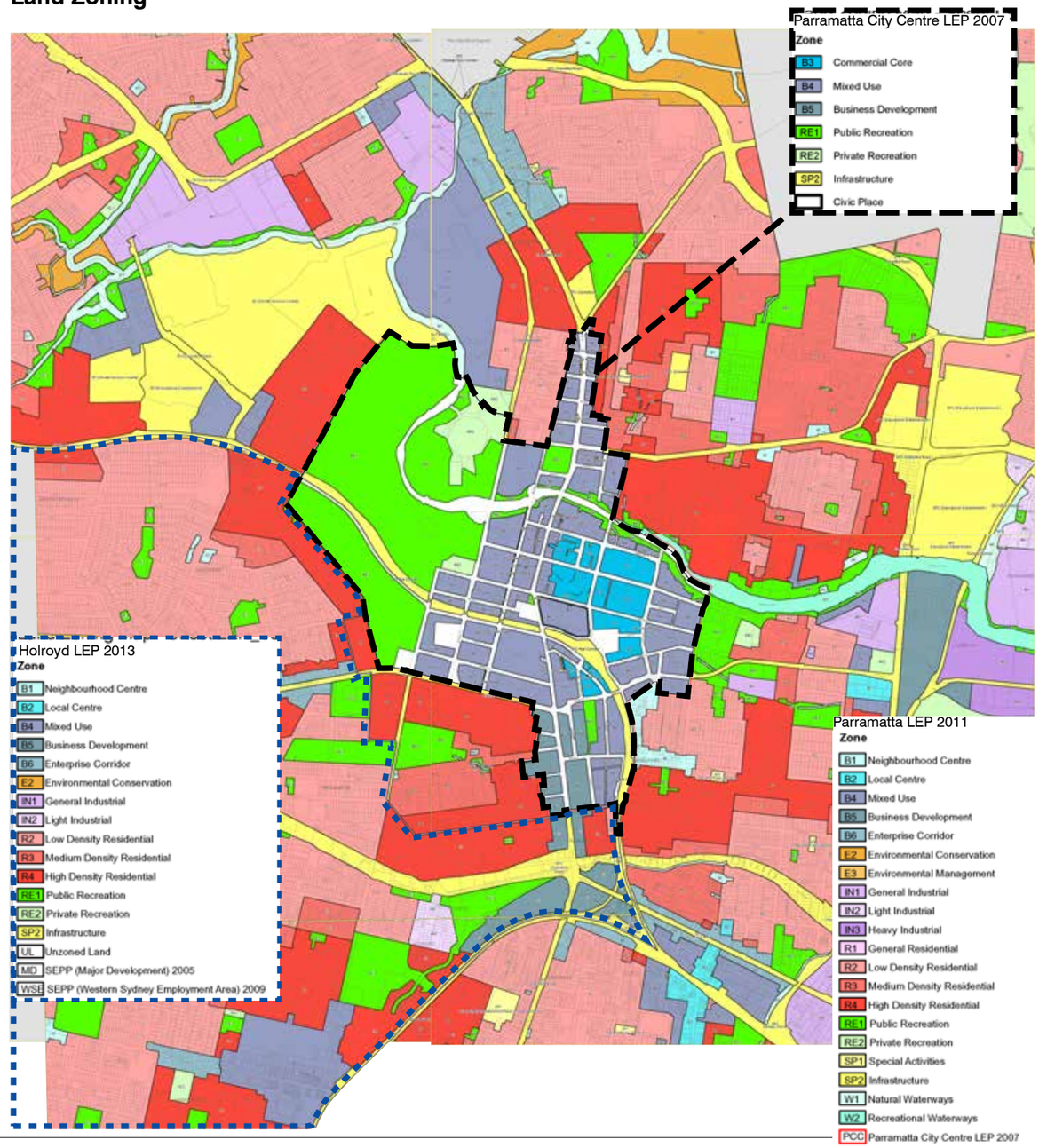
1.4 Key existing LEP controls

An overview of the existing Land Zoning, Height of Buildings, Floor Space Ratio and Heritage LEP controls for Parramatta City Centre and its context has been presented over the following pages. These include extracts from maps provided as part of the following documents:

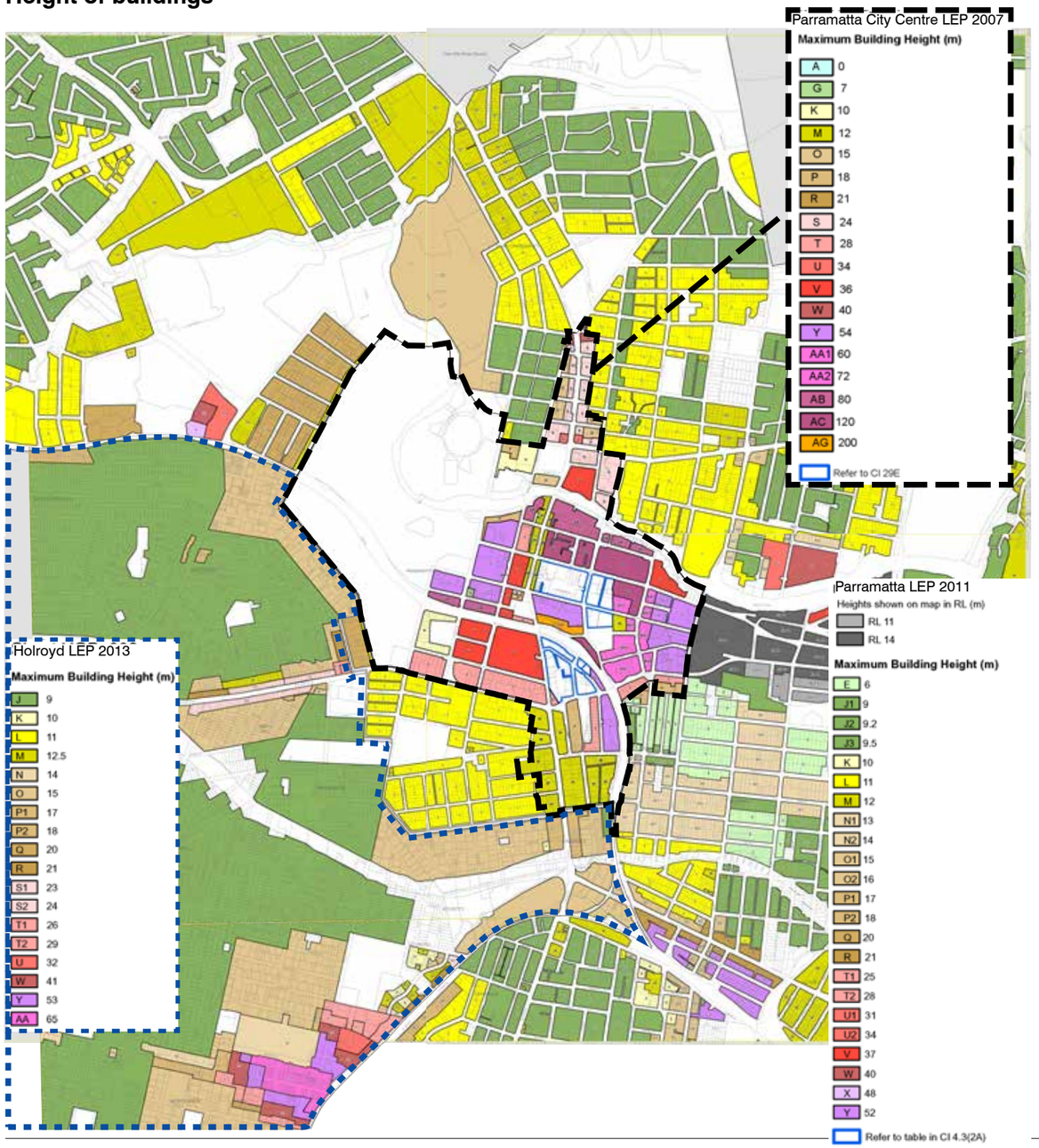
- Parramatta City Centre Local Environmental Plan 2007 (PCCLEP)
- Parramatta Local Environmental Plan 2011 (PLEP)
- Holroyd Local Environmental Plan 2013 (HLEP)

Full versions of all of these maps are available on the New South Wales Government's Legislation Website at the following location: *http://www.legislation.nsw.gov.au*

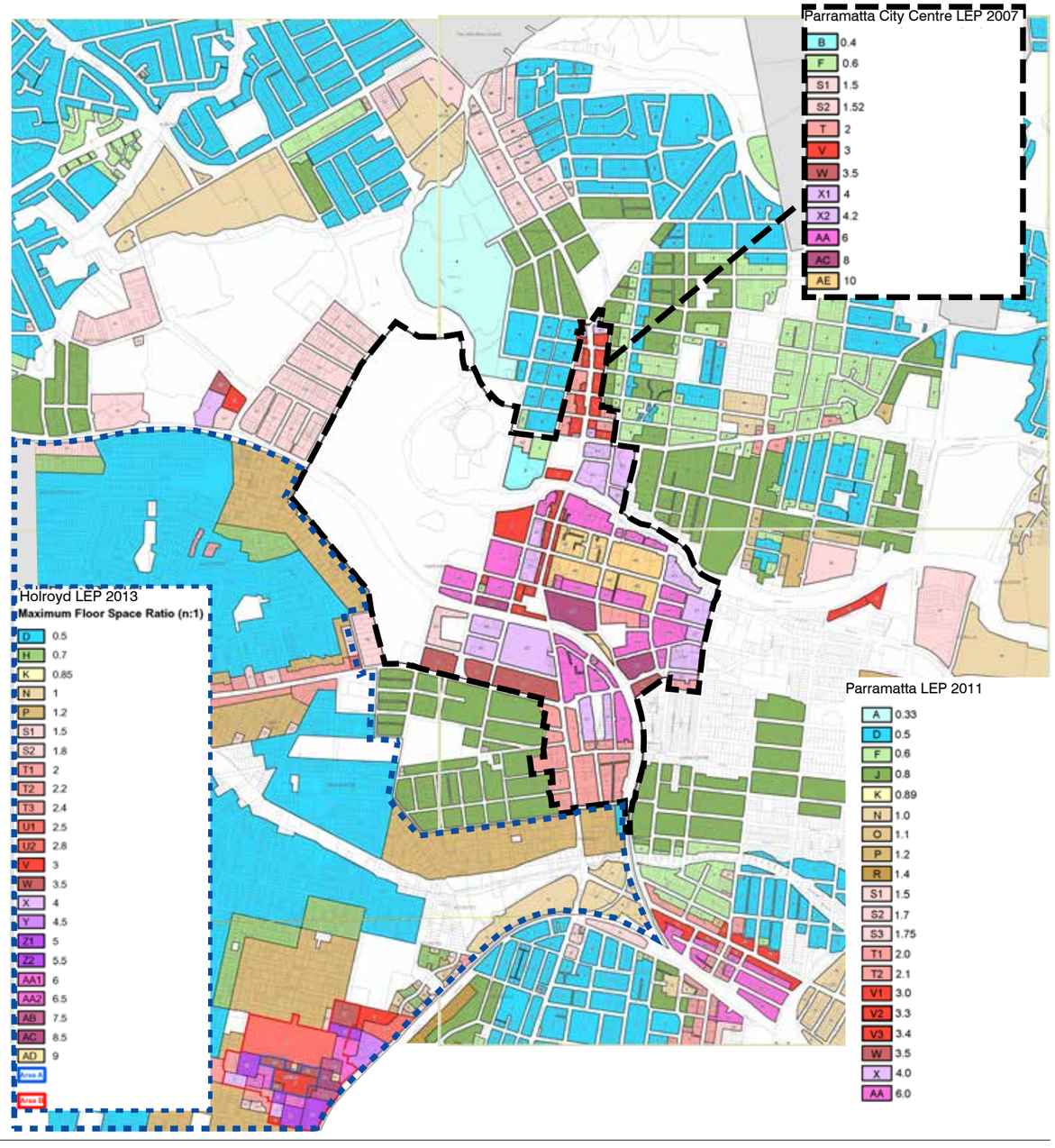
Land Zoning



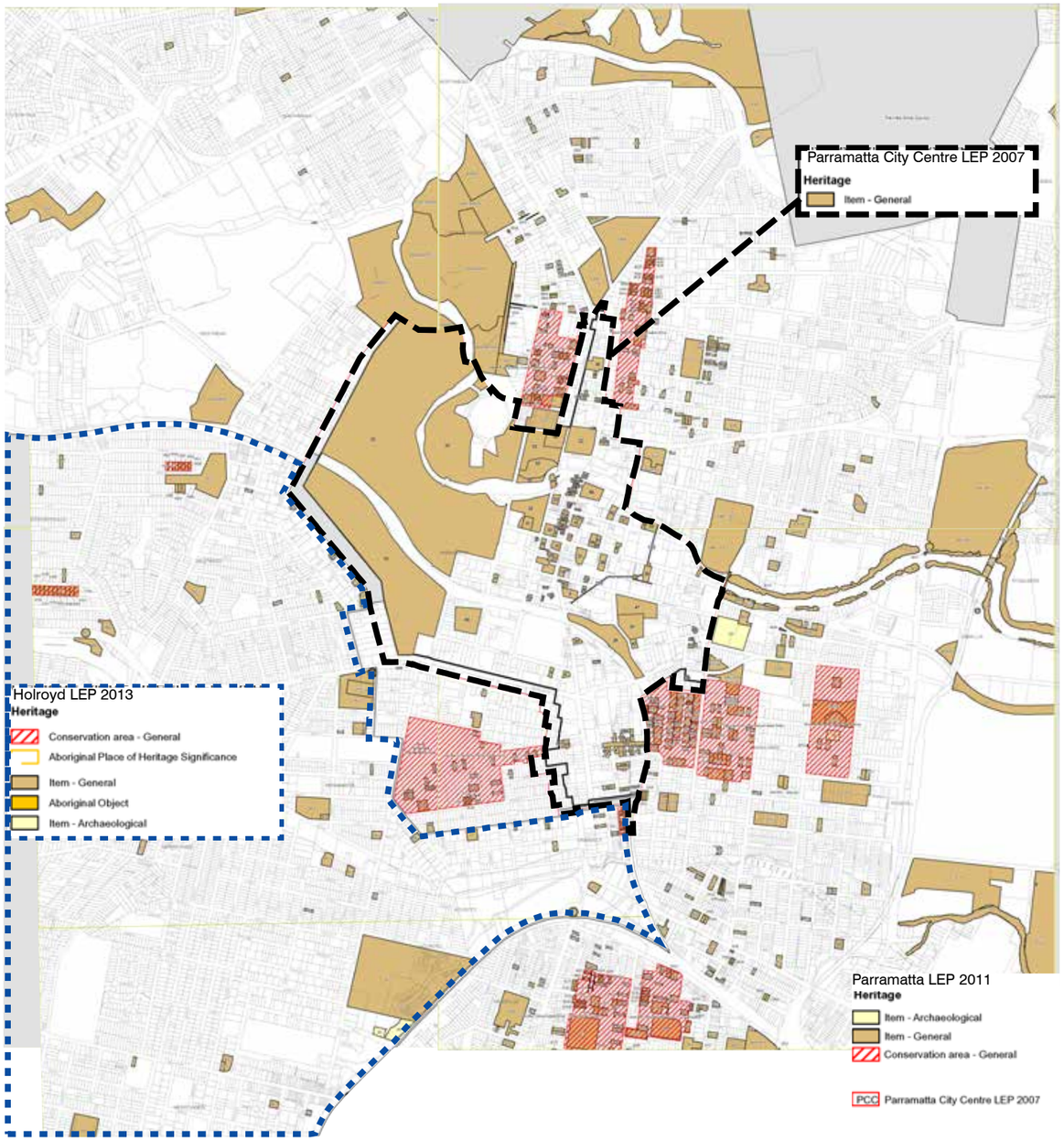
Height of buildings



Floor Space Ratio



Heritage


Parramatta City Centre LEP 2007
Heritage
Item - General
Holroyd LEP 2013
Heritage
Conservation area - General
Aboriginal Place of Heritage Significance
Item - General
Aboriginal Object
Item - Archaeological
Parramatta LEP 2011
Heritage
Item - Archaeological
Item - General
Conservation area - General
PCC
Parramatta City Centre LEP 2007

1.5 Key DCP controls

The Parramatta DCP 2011 (PDCP) was amended on 2 April 2014. These amendments included the consolidation of Parramatta City Centre DCP 2007 within Parramatta DCP 2011and amendments to the City Centre DCP controls, including the addition of the Park Edge as a City Centre Special Area.

As a result of this process, the Parramatta City Centre DCP 2007 has been repealed.

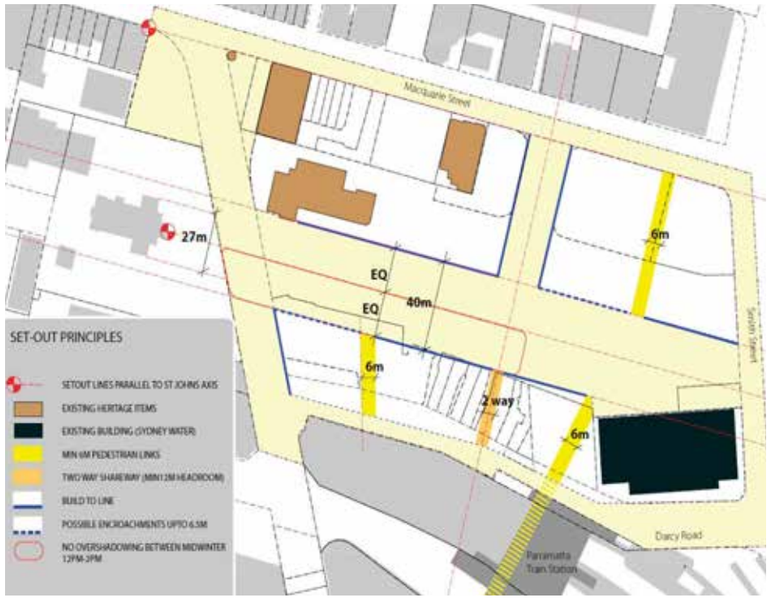
The following pages set out the key diagrams from the draft amendments to Parramatta Development Control Plan 2011 which will have considerable affects on the development pattern across the City Centre.

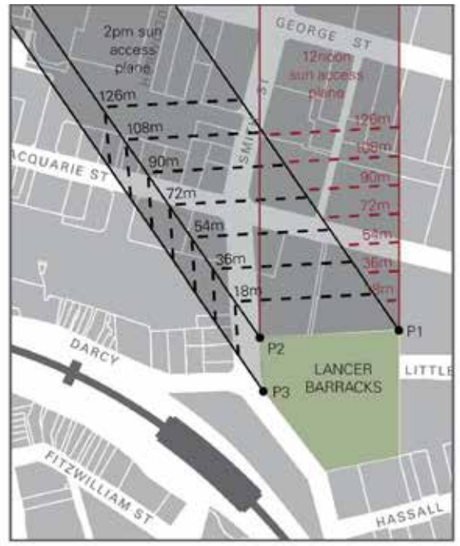
Some areas have been provided with more detailed controls, which have been considered through the built form scenarios process however have not been reproduced here for brevity. They are indicated on the City Centre Special Areas plan.

A key written control which has been considered as having importance for the consideration of sites which may be developable is 4.3.3.1a C.1 which states that "Development parcels are required to have at least one street frontage of 20m or more on land zoned B3 Commercial Core, B4 Mixed Use or B5 Business Development".

This study does not view the DCP controls except for the sun access planes. The DCP street frontage heights, setbacks and boundary separation controls are used in the built form modelling of this study.

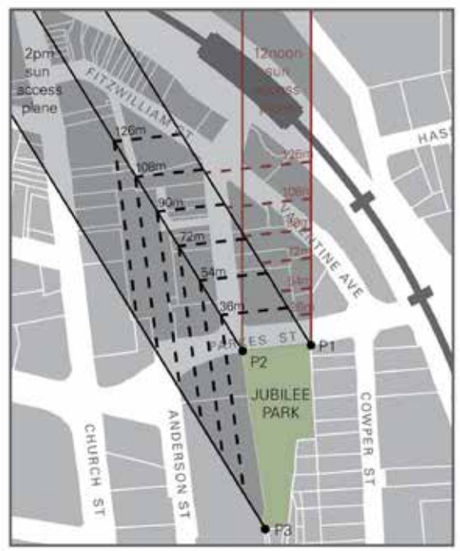
Sun access planes (source: Parramatta DCP 2011 as amended)





The sun access plane is generated from sun access to Lancer Barracks on June 22 between 12 noon and 2pm, measured at 7 metres above surveyed ground level at points P1, P2 and P3 (P1 = 12.9m AHD; P2 = 13.7 AHD). Building heights are indicative only.

Figure 4.3.3.1.13 Sun Access Plane Diagram - Lancer Barracks.



The sun access plane is generated from sun access to Jubille Park on June 22 between 12 noon and 2pm, measured at 20 metres above surveyed gound level at points P1, P2 and P3 (P1 = 9.2m AHD; P2 = 9.9 AHD;
P3 = 12.5m). Building heights are indicative only

Figure 4.3.3.1.14 Sun Access Plane Diagram - Jubilee Park

Street / River Frontage Heights (source: Parramatta DCP 2011 as amended)

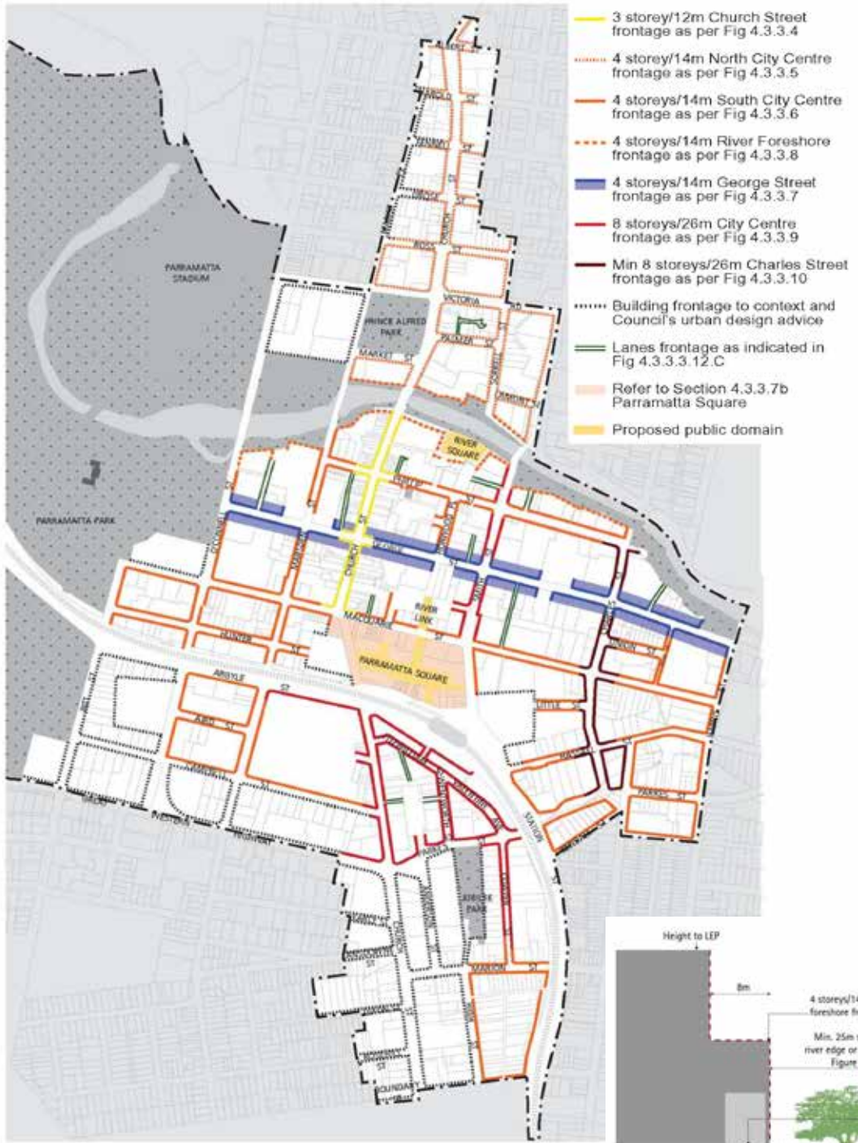


Figure 4.3.3.1.3 Street / River Frontage Heights

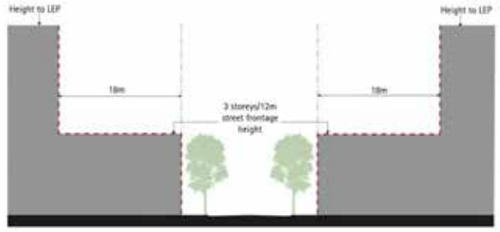


Figure 4.3.3.1.4 Church Street

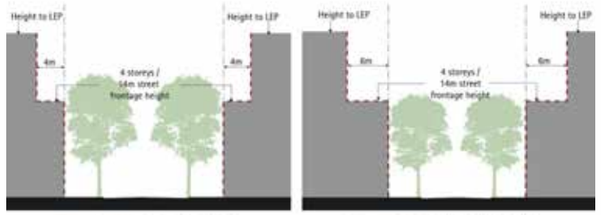


Figure 4.3.3.1.5 City Centre (North)

Figure 4.3.3.1.6 City Centre (South)

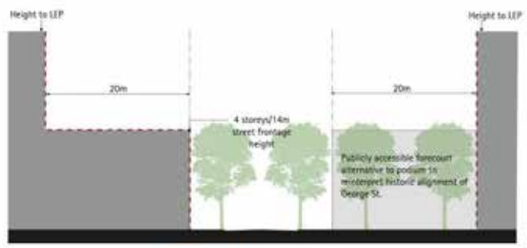
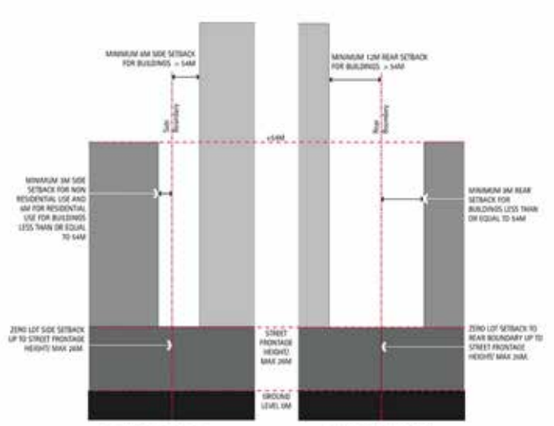


Figure 4.3.3.1.7 George Street

Street Frontage Heights and Upper Level Setbacks



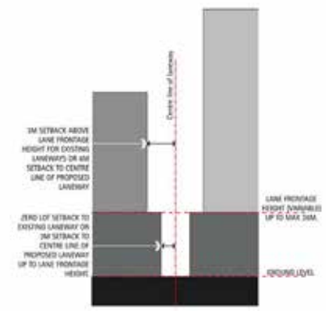


Figure 4.3.3.1.12 Building Separation

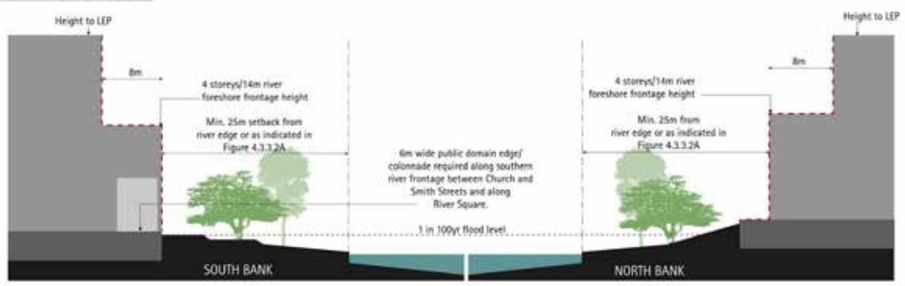


Figure 4.3.3.1.8 River Foreshore

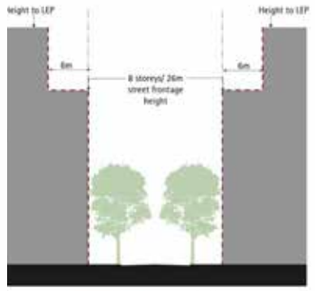


Figure 4.3.3.1.9 26m City Centre

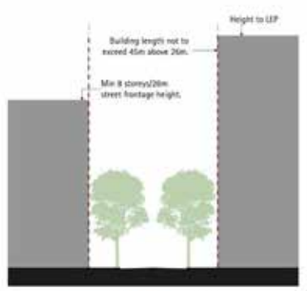


Figure 4.3.3.1.10 Charles Street

Building alignment and front setbacks (source: Parramatta DCP 2011 as amended)

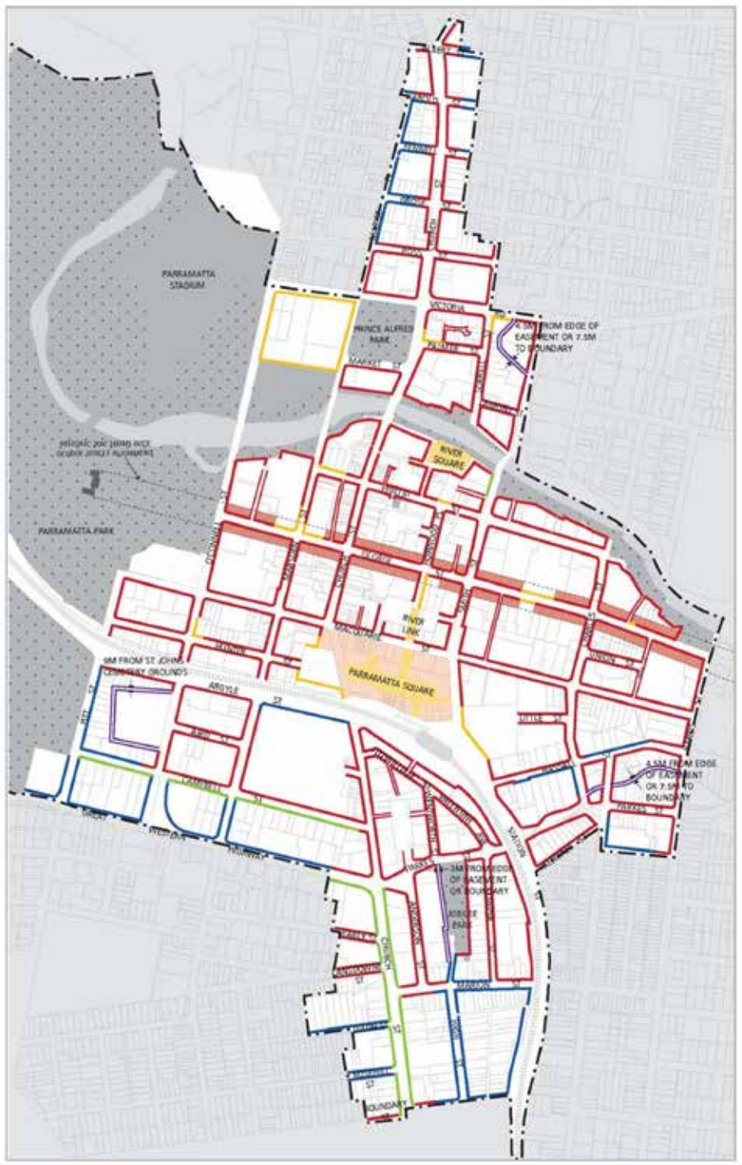


Figure 4.3.3.1.1 Building Alignment and Front Setbacks (to streets, public domain and watercourses)

Existing and desired links (source: Parramatta DCP 2011 as amended)

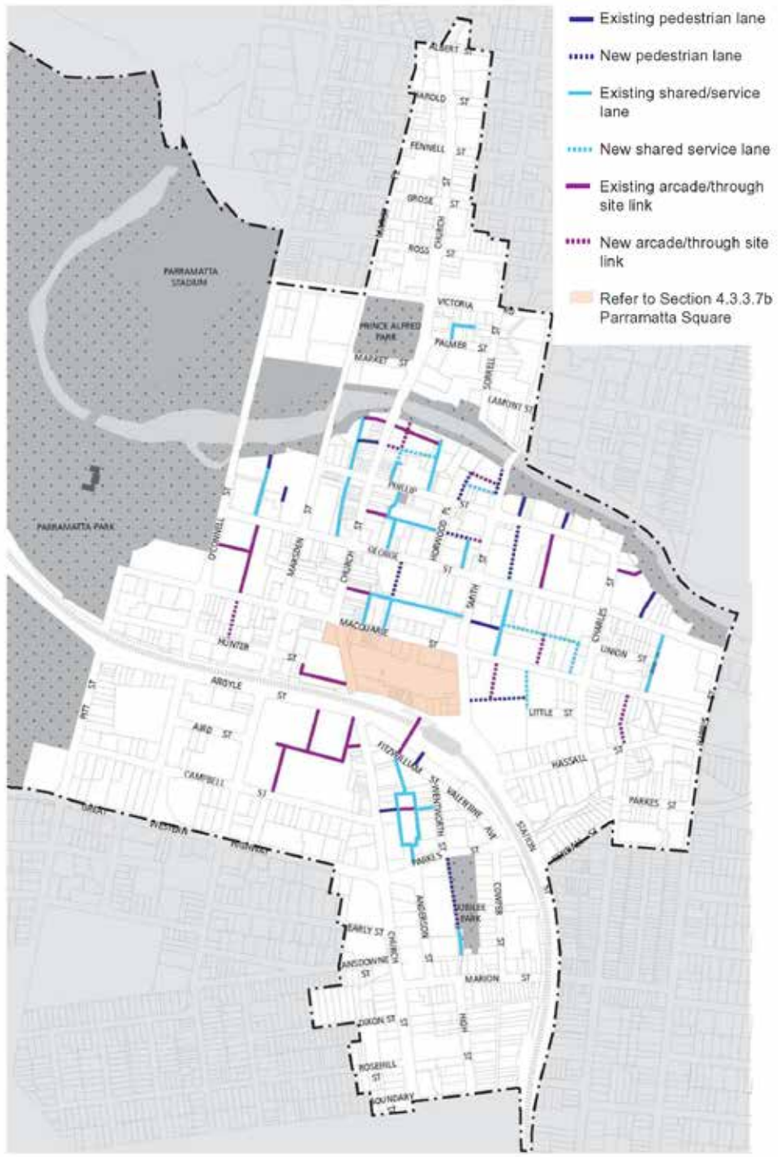


Figure 4.3.3.3.2 Existing and Desired Links

City Centre Special Areas with detailed controls

(source: Parramatta DCP 2011 as amended)

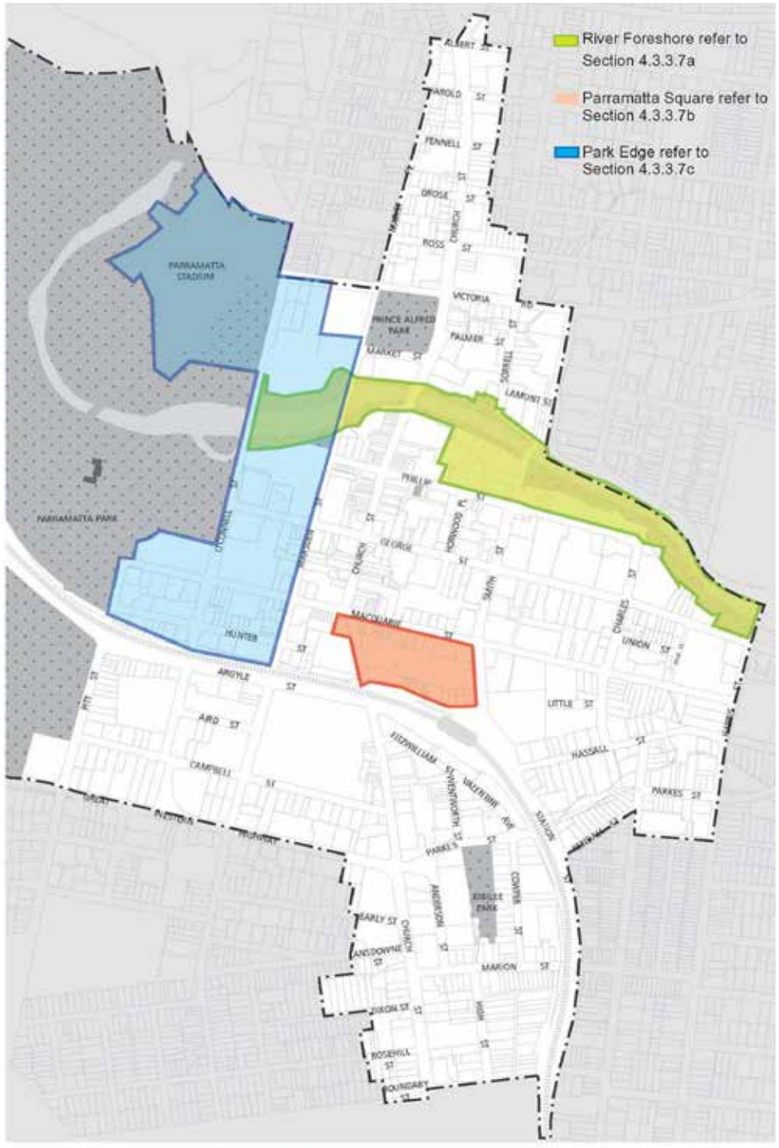


Figure 4.3.3.7.1 City Centre Special Areas

1.6 Key precinct-based projects

A number of projects are taking place within the context of the Parramatta City Centre which will help to shape its future. These are described below and key diagrams are reproduced over the following pages.

Auto Alley

Auto Alley is a 750 metre strip of car yards and ancillary uses along Church Street, extending from the Great Western Highway to the M4 Motorway. In 2010, the State Government identified Auto Alley as part of the Granville "Potential" Urban Renewal Precinct, which triggered consultation with Parramatta and Holroyd Councils and the preparation of an Urban Renewal Study.

A preliminary study has been completed and public consultation sessions held. Option 2D (shown adjacent) represents the most recent thinking on this project and has been used in the built form modelling of this study.

Auto Alley - Option 2D

Westmead Precinct

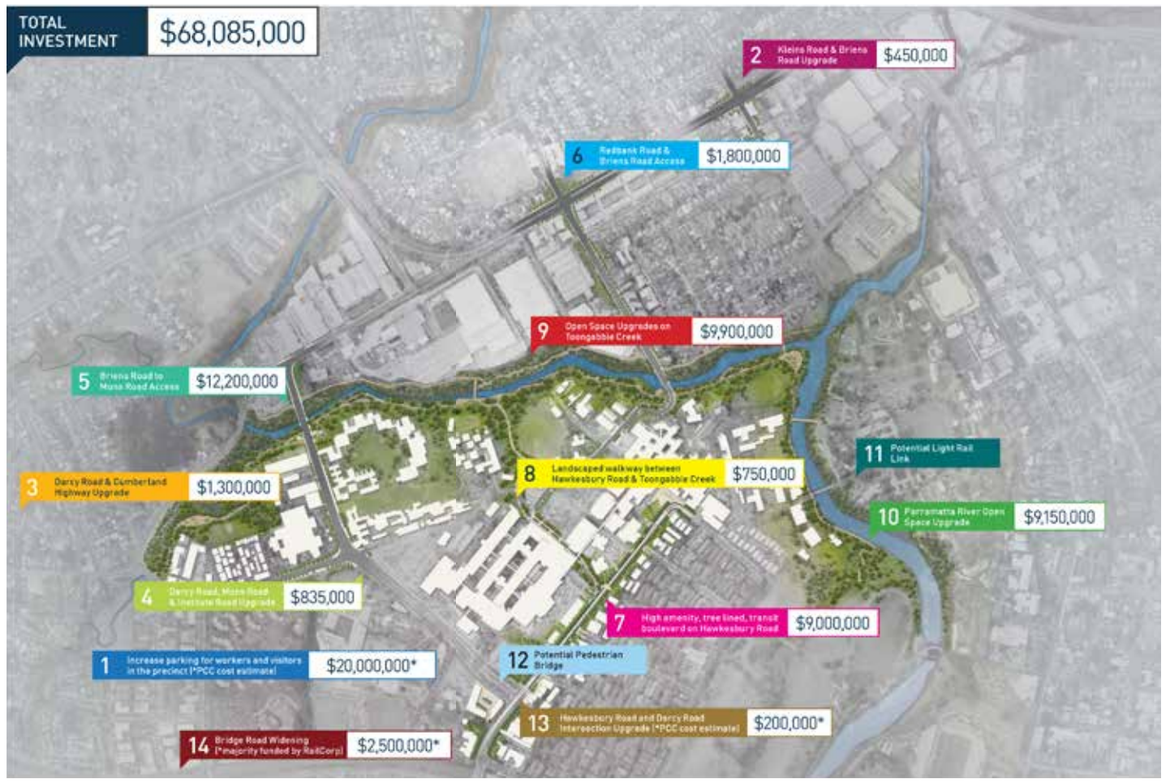
A Concept Plan for the Westmead Precinct (northwest of the Parramatta City Centre) has been produced by the Westmead Alliance. It identifies a number of opportunities for to enhance the precinct, primarily focussed on transport and open space upgrades including some projects which may enhance connectivity to the Parramatta City Centre.

Parramatta North Urban Renewal

UrbanGrowth NSW is working in collaboration with NSW Government agencies, Parramatta City Council and other stakeholders to prepare a Framework Masterplan to guide the future of publicly owned sites in the area known as Parramatta North Urban Renewal. The project aims to create a vibrant mixed-use precinct in Parramatta North, including housing and employment opportunities. A key objective will be to upgrade and restore heritage buildings and create a sustainable long-term source of funding for their management.

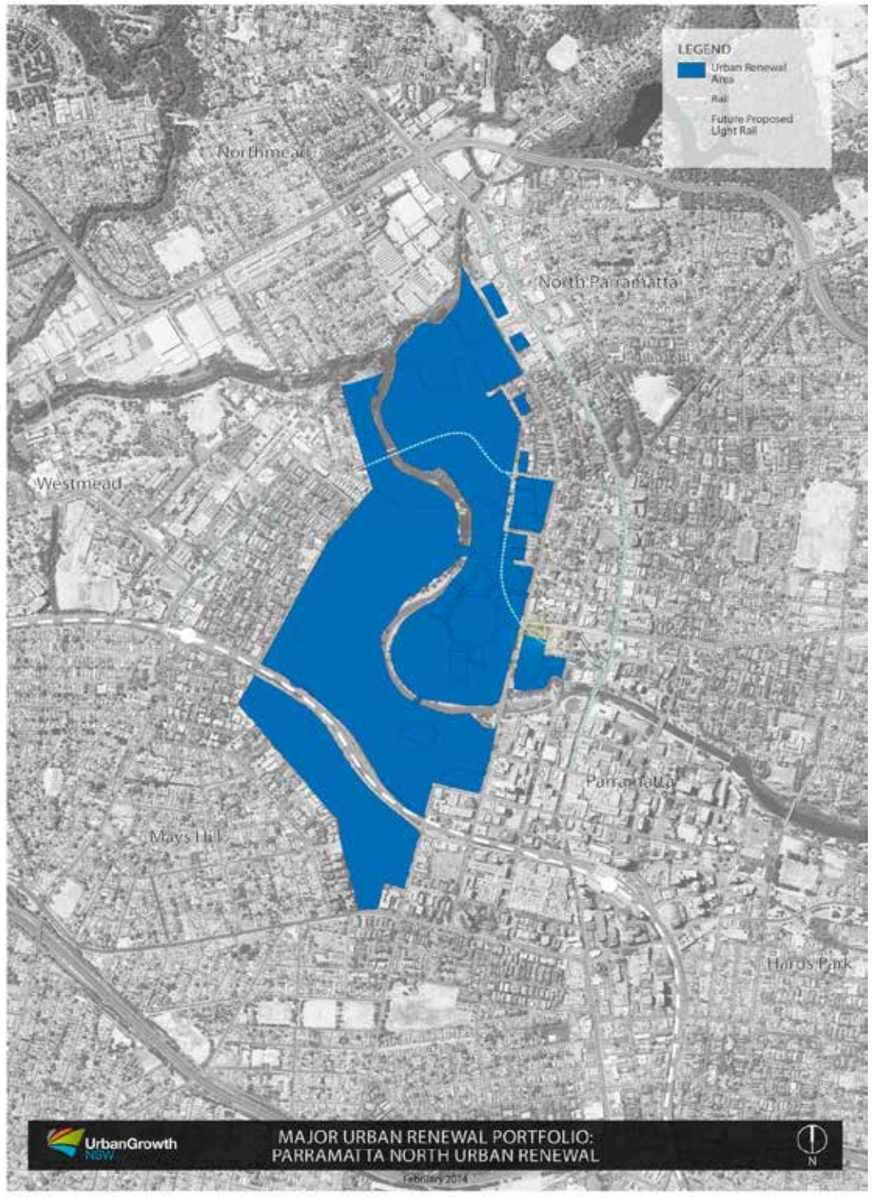
Westmead Precinct

Source: Westmead Precinct Concept Plan - June 2013



Parramatta North Urban Renewal

Source: Urban Growth Project Profile



Camellia Precinct

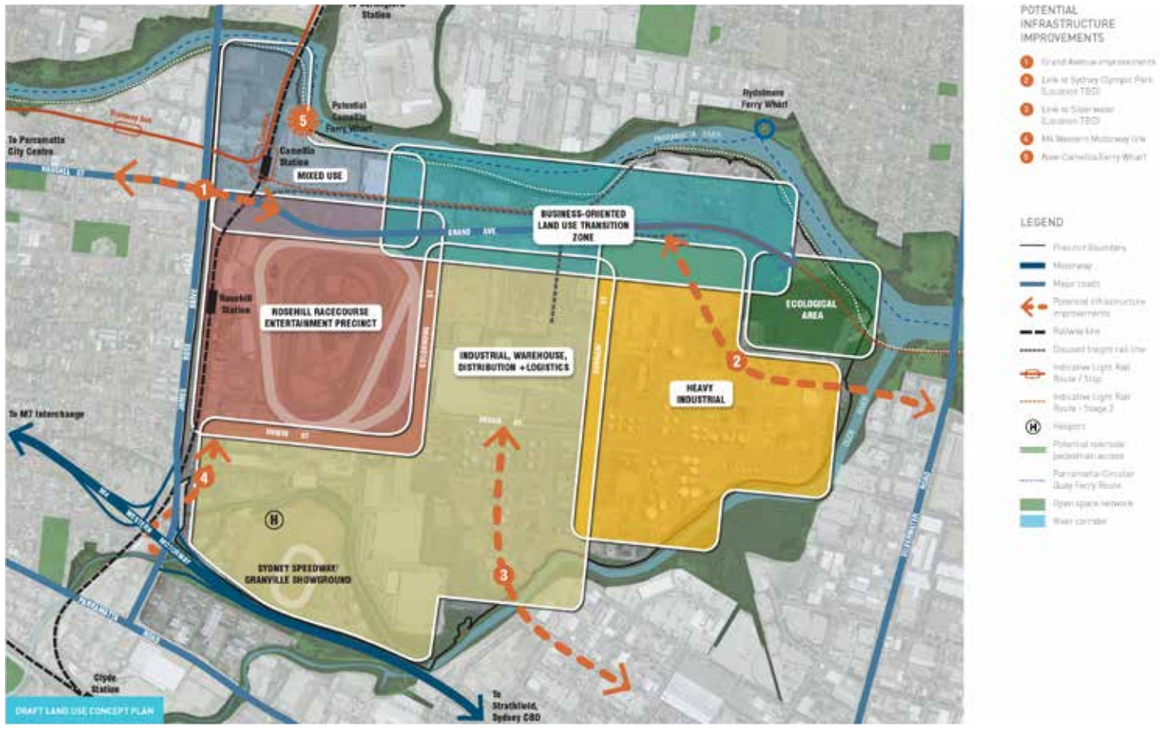
The Camellia precinct lies approximately 1km east of the existing Parramatta CBD boundary.

The announcement by Shell to cease refining activities in Camellia within five years presents a rare opportunity to develop and rehabilitate a large parcel of land into an eco-industrial precinct with significant environmental and employment benefits for Greater Sydney for the next 50-years.

Parramatta City Council proposes developing Camellia into an eco-industrial precinct specialising in the sustainable building, bio-fuel and renewable energy fields. This builds on a number of existing enterprises within the precinct to create employment opportunities and potential links to UWS.

Camellia - Draft Land Use Concept Plan

Source: Camellia Discussion Paper Version 1



1.7 Key transport projects

Western Sydney Light Rail

Parramatta City Council has completed the a feasibility study into the proposed Western Sydney Light Rail Network.

Two lines have been proposed as part of the first stage of the network:

- Westmead to Macquarie Park
- Castle Hill to Rydalmere

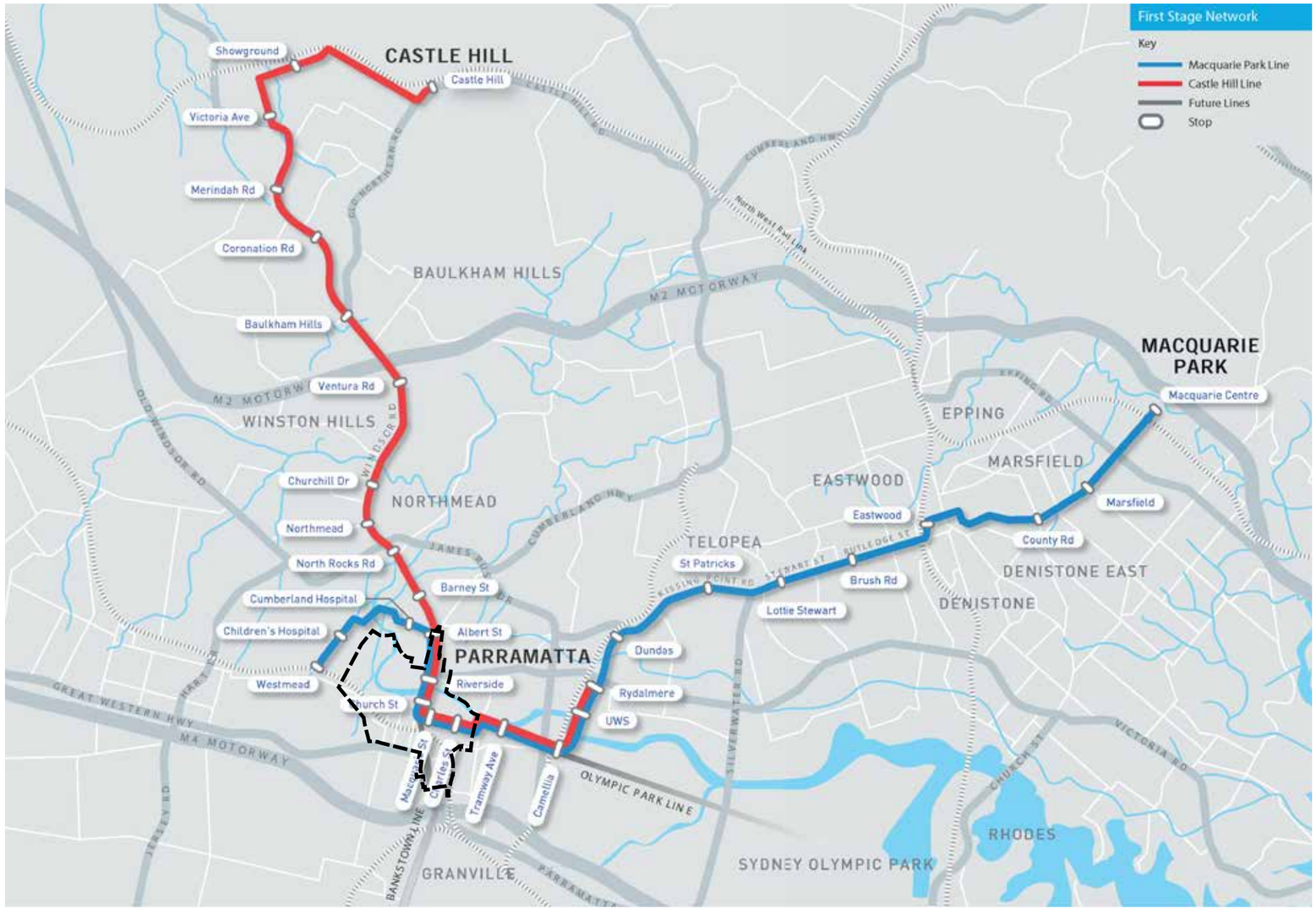
Both of these lines have been identified to run along Church Street (north-south) and Macquarie Street (east-west) through the City Centre.

Future identified stages of the Light Rail network include a further line to the east connecting to Sydney Olympic Park and Rhodes, and a line to the south to Chester Hill and Bankstown (along the southern portion of Church Street to Woodville Road).

Western Sydney Light Rail

Source: Part 2 Feasibility Report August 2013

Approximate city centre boundary added (black dash)



Western Sydney Regional Ring Road

Parramatta Council's Western Sydney Regional Ring Road proposal identifies a series of intersection upgrades along the M4, James Ruse Drive and Cumberland Highway. A Regional Ring Road can improve traffic flow in the region and support the continued growth of the city of Parramatta.

Western Sydney Regional Ring Road

Source: Western Sydney Regional Ring Road document (2011)

Approximate city centre boundary added (black dash)

Westconnex

Urban revitalisation of the Parramatta Road corridor, which approaches the Parramatta City Centre near Granville is proposed as part of the WestConnex infrastructure project.

WestConnex is one of the NSW Government's key infrastructure projects. The 33 kilometre project was a key recommendation of the State Infrastructure Strategy released in October 2012. The Westconnex website (http://www.westconnex.com.au/) states the following:

"The Urban Revitalisation Project will:

- *Fix transport - putting trucks and cars underground and improving above ground public transport from the inner west to the city*
- *Improve the environment by investing in above ground improvements like new trees, footpaths, on street car parking and power pole removal*
- *Amend planning controls to encourage new investment in residential, retail and commercial enterprises*
- *Work with the private sector to deliver high quality new development projects.*

This is expected to see 25,000 new homes and 25,000 new jobs created over the next 20 years. The value of new homes and businesses is expected to exceed $12 billion."

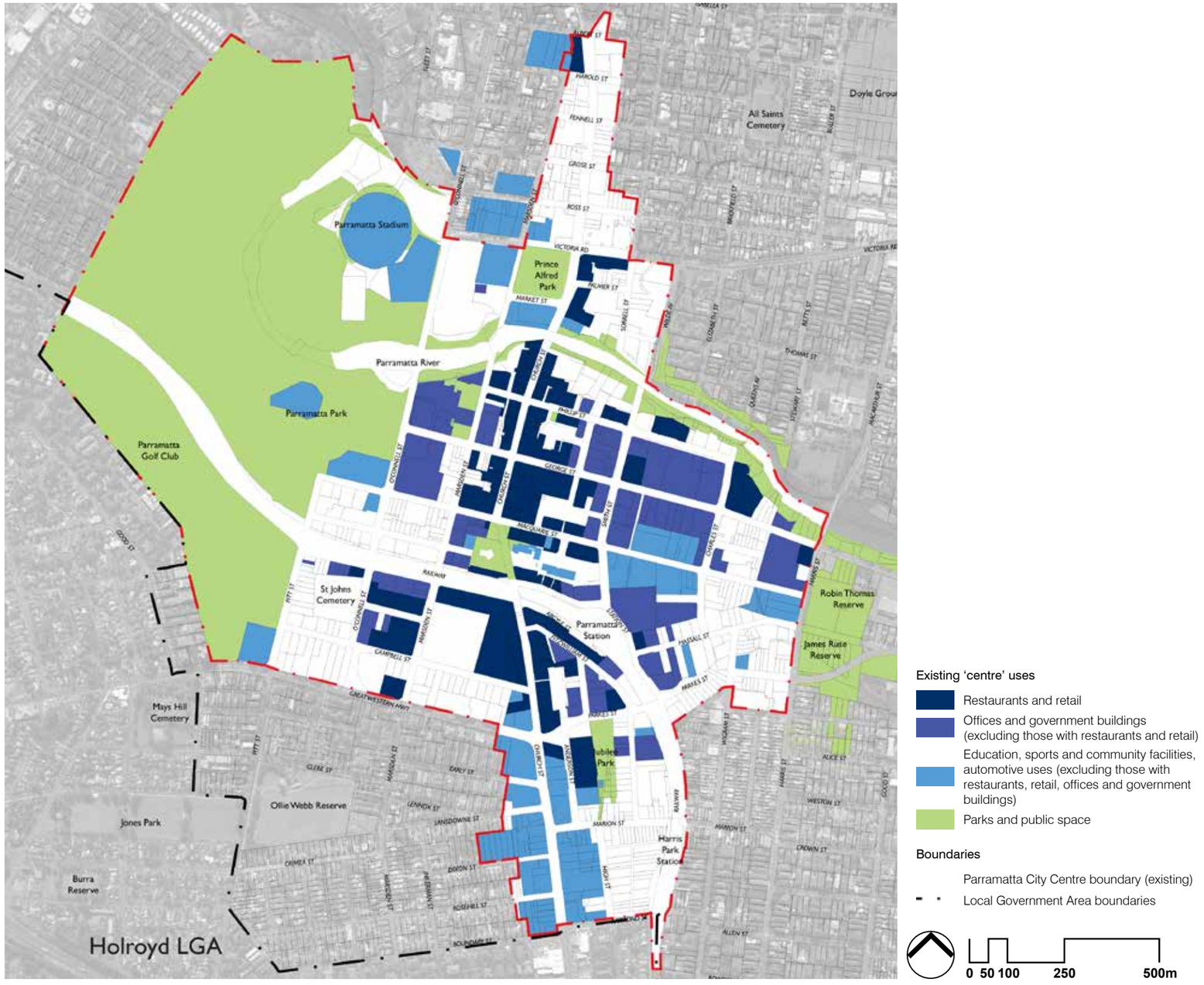
Visualisations of Parramatta Road as existing (above) and Westconnex vision (below)

1.8 Existing uses within the current City Centre

This plan provides a summary of the location of major types of uses across the City Centre.

Key features:

- The existing City Centre boundary is roughly consistent with the edge of commercial uses
- Restaurants and retail uses are generally clustered around Church Street, with some other smaller clusters.
- Offices and government buildings extend east and west from the core of the City Centre, primarily north of the railway station.
- Other clusters of related uses, including Auto Alley to the south, schools and community facilities to the east and northwest of the centre.

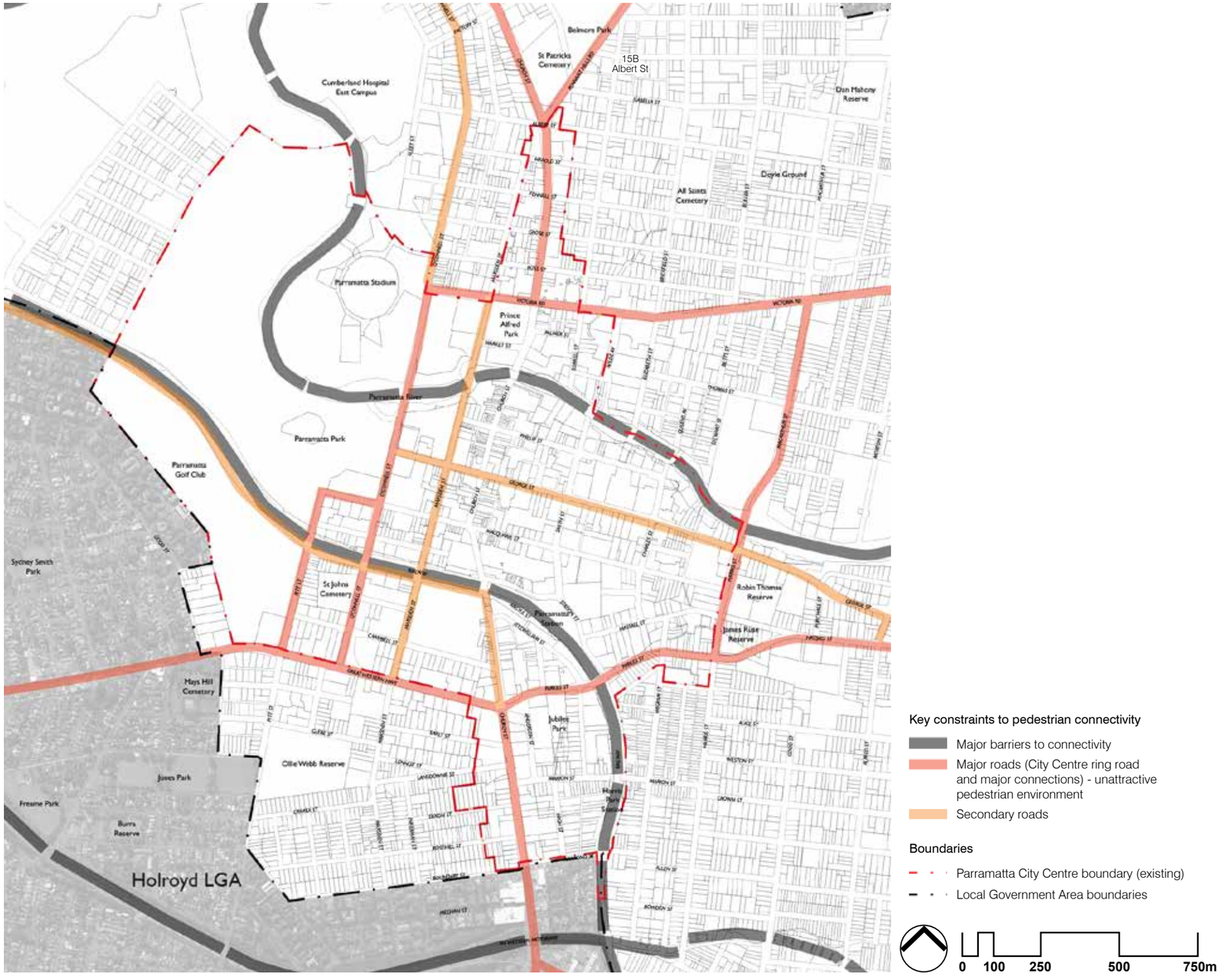


1.9 Existing pedestrian barriers

This plan provides a conceptual structure of the existing Parramatta City Centre and surrounds.

Key features:

- Key existing barriers to pedestrian connectivity include the railway, Parramatta River and the M4 Western Motorway to the south.
- Major road connections around Parramatta have a detrimental impact on the desirability of pedestrian activity along key links from the centre including the northern and southern sections of Church Street.
- The main potential for expanding active areas of the City Centre without crossing major roads or other significant barriers is to the east.



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2.0 Economic analysis

2.1 Summary of economic analysis

As part of this study, SGS Economics and Planning have reviewed underlying market dynamics of development in Parramatta, and in particular office development. An overview of the key outcomes of this analysis is provided below.

The key findings for floorspace capacity to accommodate growth to 2034 are shown in the table overleaf and have been used to analyse the built form scenarios provided in this document.

The full report 'economic analysis' is separately attached.

Context

Parramatta has been designated as Sydney's second CBD for many decades. However, a number of other suburban centres have emerged in Sydney (e.g. Macquarie Park, Norwest Business Park and SOPA/Rhodes) that are now host to significant concentrations of employment, and in particular, office-based employment. These centres will continue to compete with Parramatta as locations for growth in office-based employment.

Access to potential labour markets is a major factor in the locational decisions of large employers. Parramatta can improve its access to labour markets relative to these other centres primarily through improvement in public transport access that would make Parramatta more accessible to more people.

Supply, demand and capacity for housing and employment

Analysis of capacity for new development in the Parramatta CBD – based on an understanding of constraints – suggests that there isn't sufficient floorspace capacity to accommodate the projected employment and housing growth to 2036. Under a 'trend' scenario (27,000 additional jobs and 5000 additional dwellings by 2036) it is estimated that there is a shortfall of almost 660,000 square metres of floorspace. Under a 'high growth' scenario (47,000 additional jobs and 7500 additional dwellings) the shortfall is estimated to be 1.8 million square metres.

Office development

With 690,000 square metres of office development, Parramatta is host to the second largest concentration of office development outside of the Sydney CBD and North Sydney, having recently been surpassed by Macquarie Park/North Ryde (850,000 sqm). Parramatta has low vacancy rates for A grade office space but there is considerable floorspace in the development 'pipeline': around 115,000 square metres of approved floorspace in five developments. These buildings typically host 20,000 to 30,000 square metres and but have not yet progressed for lack of pre-commitments from prospective tenants.

Other suburban employment centres provide a compelling offer to potential tenants: they currently have access to a similar sized labour market, are typically as accessible, as affordable, and despite their different urban forms, have a range of amenities that make them attractive to employers and employees. They also, in general, provide greater opportunity for larger floor plate and campus style developments than the Parramatta CBD.

In the short term, Parramatta is unlikely to attract many large commercial office buildings (e.g. greater than 30,000 square metres) due to the limited scale of growth in the office market, and need for high proportions of pre-commitment before office developments get off the ground, and competition from other centres noted above. This is not to say additional large office developments will not locate in Parramatta, but that the process of attracting such development needs to be viewed as a longer term undertaking.

'Multiple uses developments' – that is developments that comprise a significant mix of both residential and commercial floorspace – are not unprecedented in the Australian context, but are not common. Most examples are located in areas that command relatively high commercial and residential capital values: either a central CBD location and/or a location with water and park views. It may be these conditions do not yet exist in Parramatta. If a developer is able to finance their own development, and is not reliant on risk adverse lenders, or institutional investors, they might undertake a multiple use development.

Findings of case studies of secondary centres in other jurisdictions

To understand the issues faced by Parramatta in a broader context, a series of case studies (via document review and targeted interviews) were undertaken of four international examples of major secondary centres within a larger metropolis: Surrey in Vancouver, North York in Toronto, Croydon in London, and Brooklyn in New York.

When compared with Parramatta the secondary centres considered have either less ambitious employment growth projections, or do not appear to have land supply or capacity constraints. Most of the secondary centres studied appear to have significant land and capacity for employment related development, and none excluded residential development as a means of protecting land

for employment, although the possibility of such a strategy has been raised in relation to Brooklyn. Parramatta has a relatively high employment density compared to the secondary centres studied.

Support from the metropolitan and regional levels of government (in terms of support for both coordinated land use planning and transport) appears to be greater in certain case study centres (e.g. Croydon and North York), than is the case for Parramatta. Local and regional transport links which enhance the 'network' connectedness of centres appear to be crucial to prospects for the growth of secondary centres (e.g. Surrey, Croydon, North York, and Brooklyn).

The key message to emerge from the case studies is that, despite some broad similarities between Parramatta and the case study centres, Parramatta faces a unique and difference set of challenges; namely insufficient land supply for development, constrained transport access, and competition from other centres. These unique characteristics suggest the planning strategies employed in the case studies centres are likely to be of limited relevance.

Discussion

Parramatta's planning framework has been built on a clear and consistent strategy to maintain a commercial core (employment only) as a focus for future employment growth. In the face of pressure for residential development it is important that Council takes a clear position to either 'hold the line' on this policy, or, to change policy and accept a mix of uses.

Retaining this policy of a strict commercial-only core is likely to:

- Provide policy consistency
- Protect an area for future employment uses and thereby contributing to the achievement of metropolitan strategic planning goals
- Maximise employment capacity
- 'Suppress' land values relative to mixed use areas (due to greater demand for residential development over commercial development in the current market)
- Potentially result in a slower pace of renewal, and
- Result in lower levels of activation of the CBD core outside of business hours.

On the other hand, changing the policy to allow residential development in the core is likely to:

- Reduce the longer term employment capacity of the Parramatta centre
- Increase land values closer to those of mixed use areas (depending on the zone or policies put in place)
- Stimulate more new development (predominantly residential but potentially more genuinely mixed use) in the short to medium term, and
- Provide greater activation of the CBD core outside of business hours.

Recommendations to achieve employment outcomes

1. On the balance of evidence it is recommended **to continue to exclude residential development from the Commercial Core** zoned areas of the City Centre. The justification for this position is:

- There is limited capacity in the core given the longer term aspiration for employment growth and it will be much more difficult for Parramatta to perform its second CBD role in the absence of employment opportunities
- There is already capacity for residential development in mixed-use zoned areas of the City Centre.

2. A slightly riskier but relatively conservative approach would be to **allow 'multiple use developments' in the Commercial Core**, but implement a very high threshold requirement for non-residential floorspace (e.g. a minimum of 20,000 or 30,000 square metres) before residential development might be added to the development proposition.

3. Mechanisms and/or incentives for providing commercial floorspace in mixed use zoned areas should be contemplated to maximise the capacity for employment. These might include:

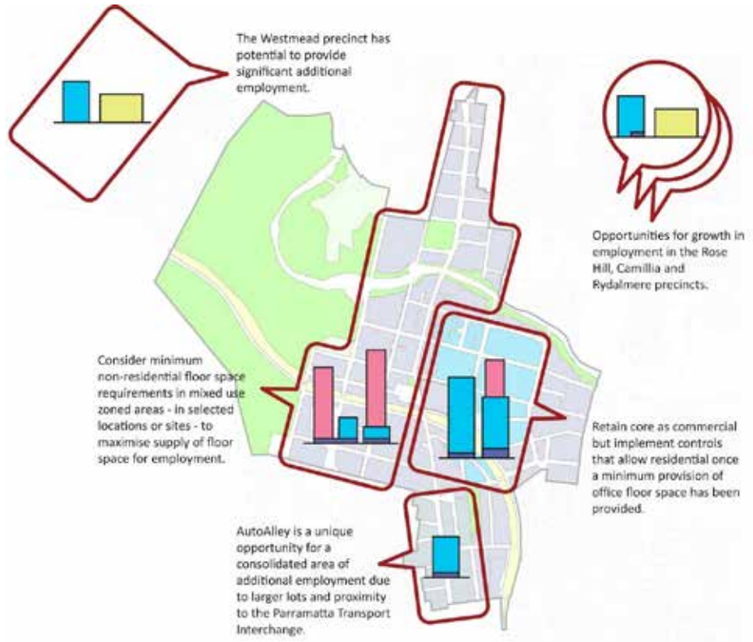
- Requirements for a minimum of proportion of commercial floorspace, as, say, a proportion of the maximum FSR or proportion of total gross floor area of the building
- Incentives to provide retail and commercial floorspace such as FSR exceptions, reduced parking requirements, rate rebates for commercial floorspace, or other financial inducements.

4. Consideration should be given to the **potential to accommodate employment growth in other locations in the Greater Central Parramatta**. In particular the potential for the Auto Alley precinct to host significant future employment should be guaranteed. This issue was foreshadowed in previous studies undertaken by SGS (2012) for that precinct. A Planning and Transport Strategy for a connected cluster of employment lands in Grater Parramatta (including Westmead, Rydalmere, Camellia and Granville) should be prepared.

5. Improved transport links will improve access to potential labour markets relative to other centres and enhance the prospects of attracting additional employment to the Parramatta City Centre. Both metropolitan and local scale interventions are relevant. Advocating for and, where necessary, **facilitating transport improvements should be a priority for Council to enhance the centre's prospects of attracting employment** both in the short and longer term. (It has been noted that the State Government's commitment to undertake further investigations regarding the feasibility of a light rail network centred on Parramatta are encouraging.) Maximising capacity and minimising congestion requires a focus on all 'sustainable transport' options such as mass transit, walking and cycling.

6. If the development potential in the Parramatta City Centre is increased as a result of changes to planning controls (rezoning and/or increases in permissible densities or heights) Council would be justified in seeking to **share part of the value uplift created by these changes, and to use the proceeds of this value share for broader public benefit** (for example: upgrades to the public domain, public transport improvements, affordable housing, open space provision, public art, and so on). The value share 'rates' would ideally be pre-scheduled to promote efficiency and transparency (as opposed to being negotiated on a case-by-case basis which adds uncertainty and cost for all parties). Differential value share rates should be applied to different land uses as they create differential value uplift.

Strategies for maximising the employment capacity of the Parramatta CBD and greater Central Parramatta area (SGS)



Floorspace capacity to accommodate growth to 2036 (Sqm)

Source: Table 5, Parramatta CBD Planning Framework: Economic Analysis (SGS Economics and Planning July 2014), separately attached to this document

Scenario	Land use	Target (additional jobs or dwellings)	Additional floorspace required	Floorspace required + 50%
Scenario 1: Trend employment, Trend residential	Employment	27,000	648,000	972,000
	Housing	5,000	500,000	750,000
	Total	na	1,148,000	1,722,000
Scenario 2: Trend employment, High residential	Employment	27,000	648,000	972,000
	Housing	7,500	750,000	1,125,000
	Total	na	1,398,000	2,097,000
Scenario 3: High employment, High residential	Employment	47,000	1,128,000	1,692,000
	Housing	7,500	750,000	1,125,000
	Total	na	1,878,000	2,817,000

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3.0 City Centre boundary

3.1 Introduction

The current City Centre Boundary

The current Parramatta City Centre boundary generally correlates to a significant boundary in permitted uses, heights and densities. It broadly includes areas of:

- B3 Commercial Core
- B4 Mixed Use
- B5 Business development (around 'Auto Alley')
- RE1 and RE2 Recreation (around Parramatta Park and Parramatta Stadium).

Generally the City Centre is bound by residential uses however there are locations where other non-residential uses adjoin the City Centre including:

- The smaller heritage centre of Harris Park adjoining the southwestern boundary of the City Centre
- The area of 'Auto Alley' to the south of the existing City Centre in Holroyd Council, which generally continues the existing pattern of uses within the City Centre area along Church Street.
- The Parramatta Leagues Club and areas of the Cumberland and Westmead Hospitals to the northwest of the City Centre.
- Open spaces adjoining the City Centre boundary immediately to the east (including Robin Thomas Reserve and James Ruse Reserve).

The potential for minor amendments and localised growth to the existing boundary, based on clarifying this structure of uses, has been considered as part of Options 1 and 2 in this chapter.

The future City Centre boundary

The Draft Metropolitan Strategy envisages the expansion of Parramatta to include the surrounding precincts of "Westmead, North Parramatta, Harris Park, Rydalmere (including the University of Western Sydney campus) and Rosehill/Camellia".

These identified areas include similar uses to the existing City Centre however located between these areas and the City Centre are large areas of existing residential uses (including strata title three storey apartment buildings and low density detached housing). These residential uses are very different from the uses which occupy the existing City Centre, as well as other City Centres generally. This suggests that considering the expansion of Parramatta at this wider scale may require a different approach than that of the current City Centre.

Parramatta City Centre is considered at this scale within Option 3 below.

Parramatta as identified in the Draft Metropolitan Strategy

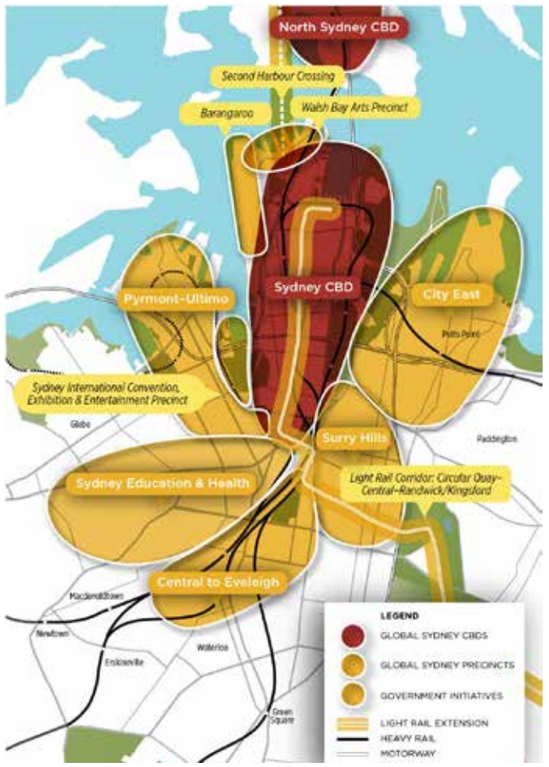
see also Section 1.3 'Draft Metropolitan Strategy' within this document

Comparison to other City Centres

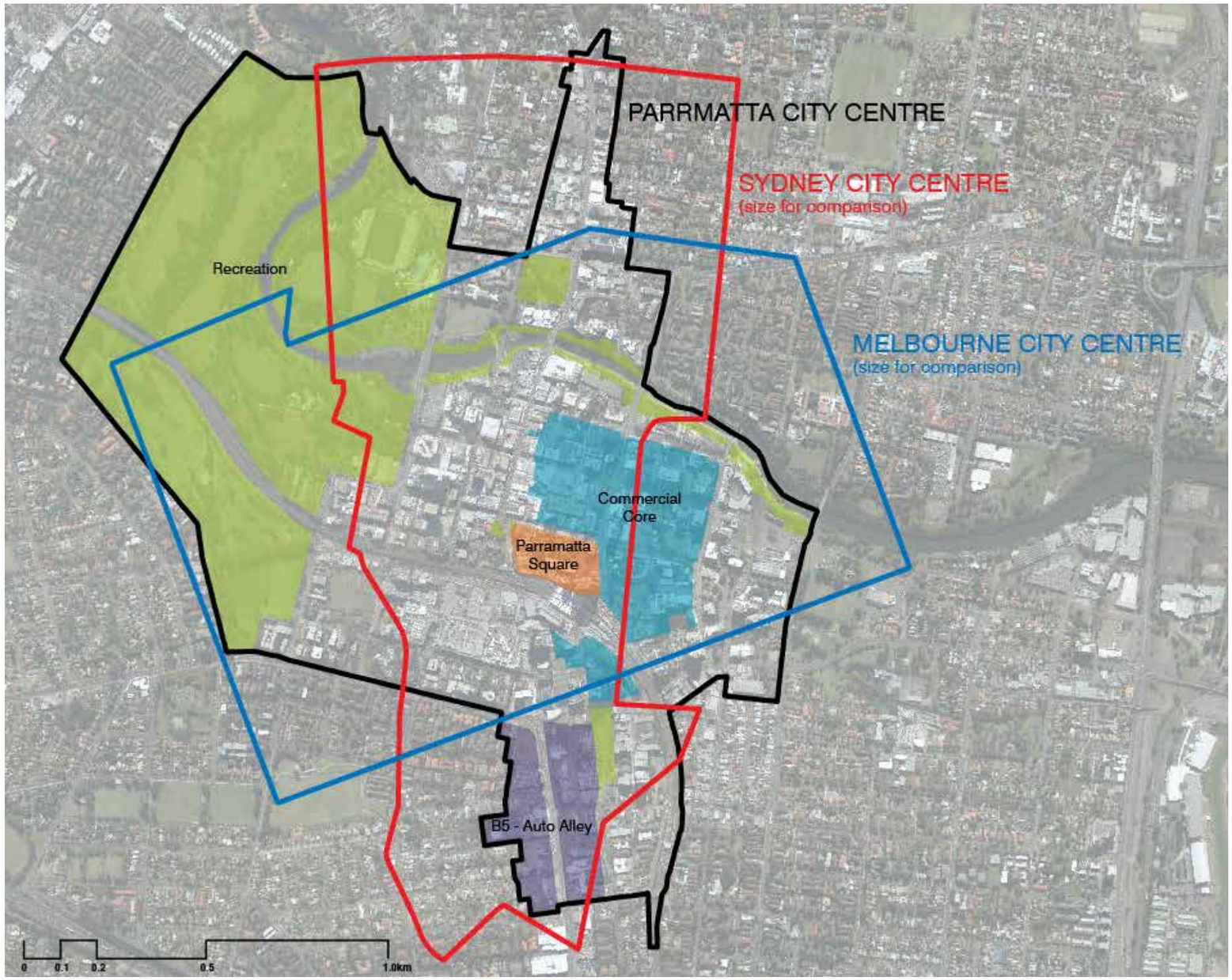
The diagram adjacent provides a size comparison of the Parramatta City Centre with the City Centre areas of Sydney and Melbourne. The current sizes are roughly comparable. Where Parramatta Park is excluded from the comparison, Parramatta City Centre is slightly smaller than both Sydney City Centre and Melbourne City Centre. This suggests that an appropriate modification of the boundary may be moderate.

The diagram below shows an example of the scales at which Central Sydney is structured, according to the Draft Metropolitan Strategy. 'Global Sydney' is comprises two 'CBD's (Sydney and North Sydney) and a series of other precincts. By contrast, Parramatta currently has a 'CBD' however is not defined at any level in terms of its support precincts.

Sydney CBD and 'Global Sydney' (source: Draft Metropolitan Strategy)



Comparison of Parramatta City Centre size to Sydney and Melbourne

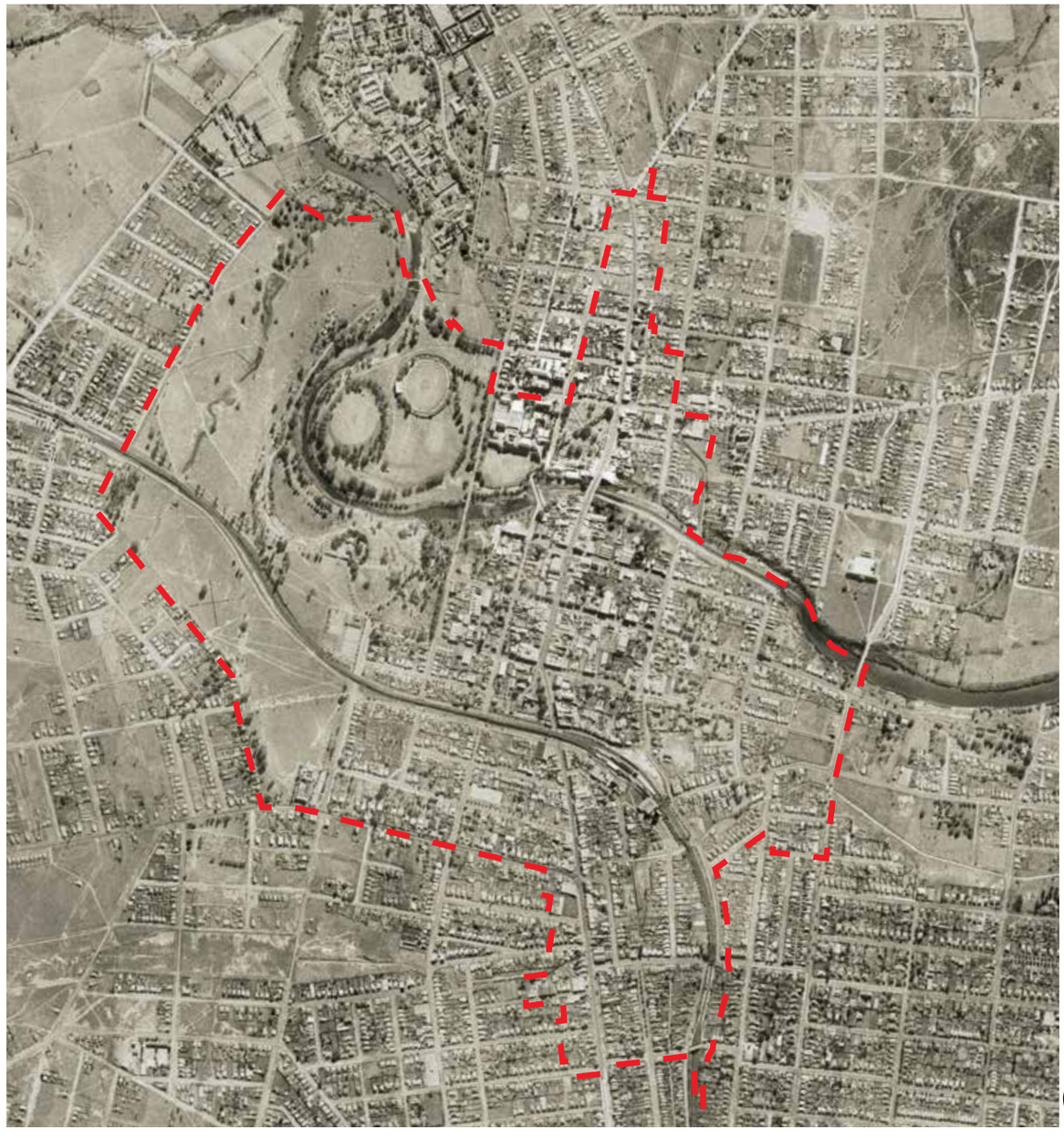


3.2 Historic structure

The plan adjacent shows a 1943 Aerial Photograph. Key features of the structure of the historic City Centre as compared to the existing CBD boundary include:

- Areas to the east and south of the City Centre are less developed for commercial uses and appear to be predominantly residential in use.
- By contrast some of the areas to the north of the City Centre, such as the schools northwest of Prince Alfred Park (which are currently excluded from the CBD boundary) appear to relate strongly to the City Centre at this time, as some of the most significant development within the area.
- Whilst the City Centre includes a core of activity there is also a strong emphasis on commercial 'high streets' extending outwards from the Centre including Church Street, Victoria Road and Marion Street (connecting to Harris Park).

1943 Aerial Photograph (source: SIX maps)



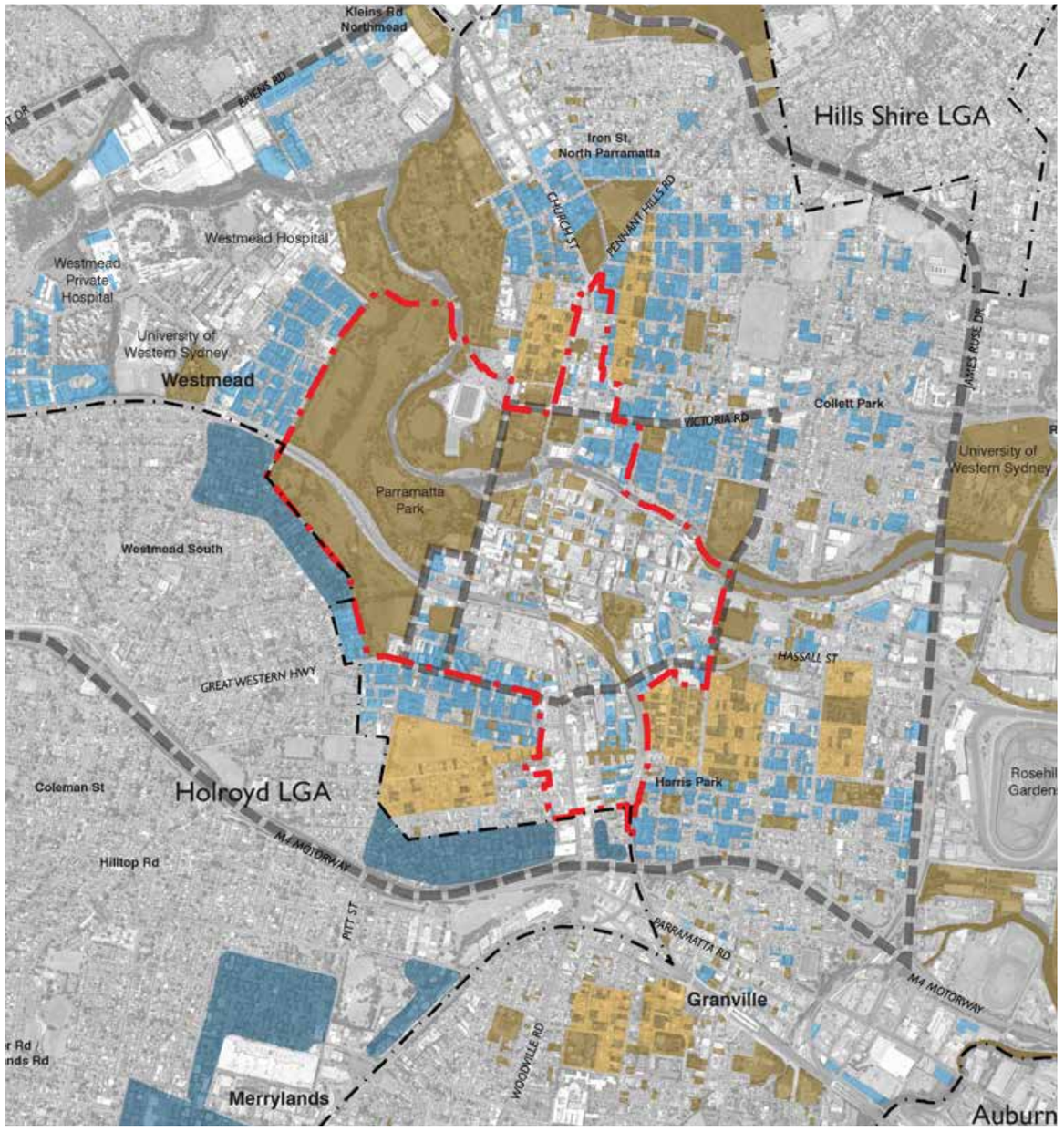
3.3 Barriers to growth

This plan shows key issues which are likely to constrain the growth of the Parramatta City Centre boundary.

Key features:

- The existing City Centre is well defined and enclosed on all boundaries by heritage items and conservation areas, areas of existing strata development (generally 3-6 storeys outside the existing City Centre) and ring roads.
- Existing strata title sites will require an incentive for significant development potential in the future if they are to be redeveloped.
- The existing ring road network (both the City Centre Ring Road and wider Regional Ring Road) provides well defined edges which provide strong barriers, particularly for pedestrian connectivity.
- Some areas of Holroyd LGA are close to the existing City Centre however many of these are also existing strata sites.

Barriers to growth



Key constraints to City Centre growth (Parramatta Council area only unless noted)

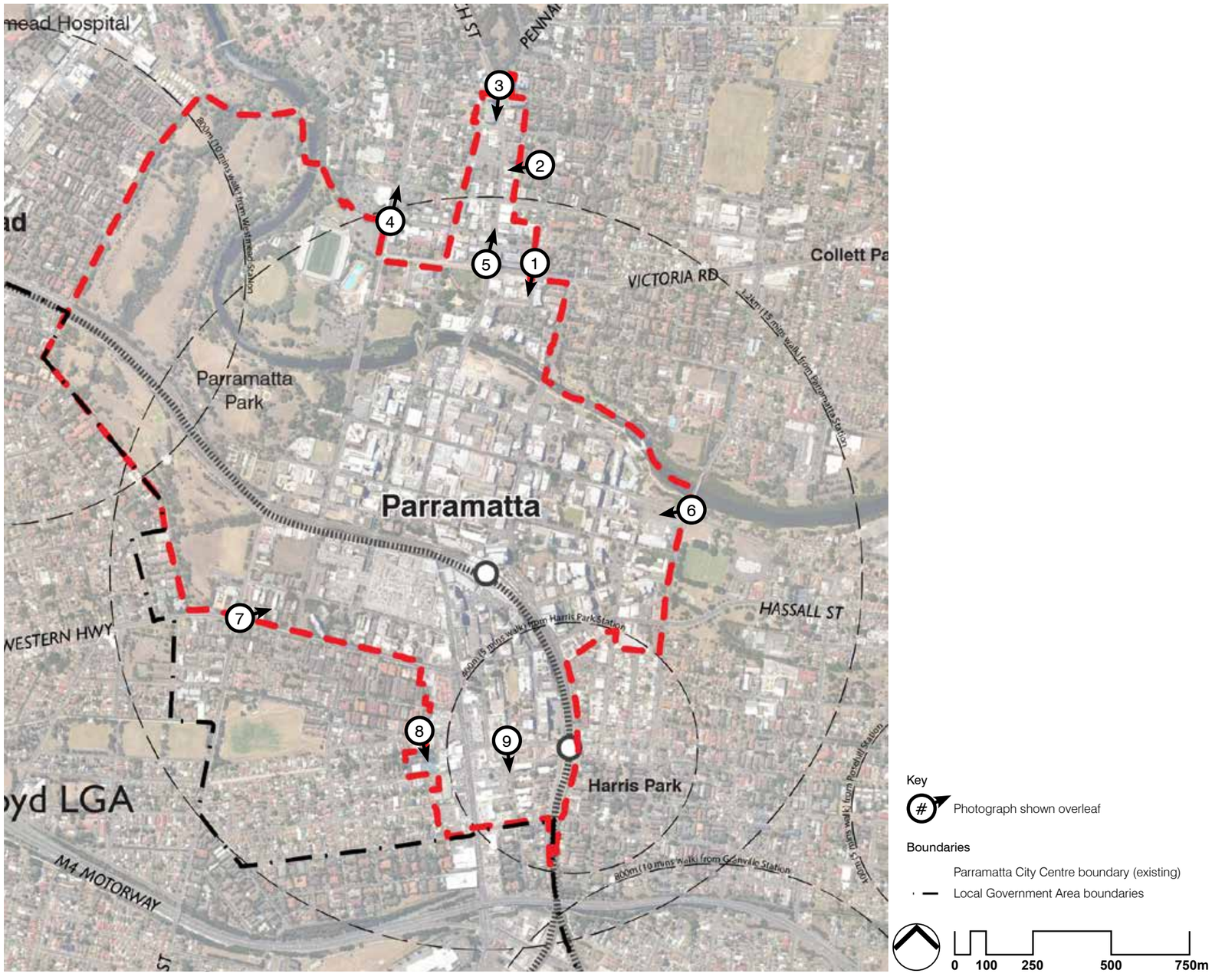
- Heritage items
- Heritage conservation areas
- Areas of existing strata development - redevelopment likely to require significant incentives (within outer Ring Road and north of railway at Granville only)
- Approximate areas of strata development near to City Centre within Holroyd LGA
- Ring roads

Boundaries

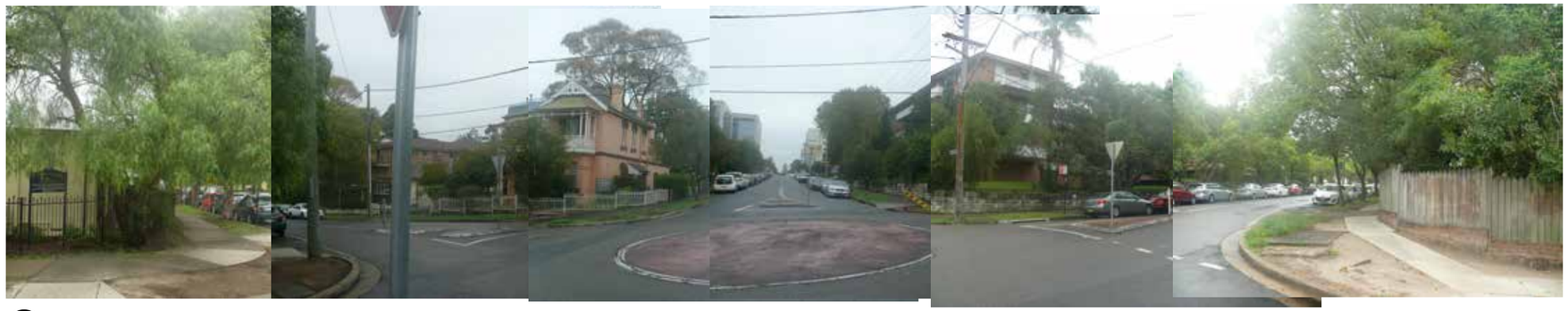
- Parramatta City Centre boundary (existing)
- Local Government Area boundaries

3.4 Key existing City Centre boundary conditions

The photographs overleaf describe some of the key areas of transition around the City Centre. They are located on the plan adjacent.



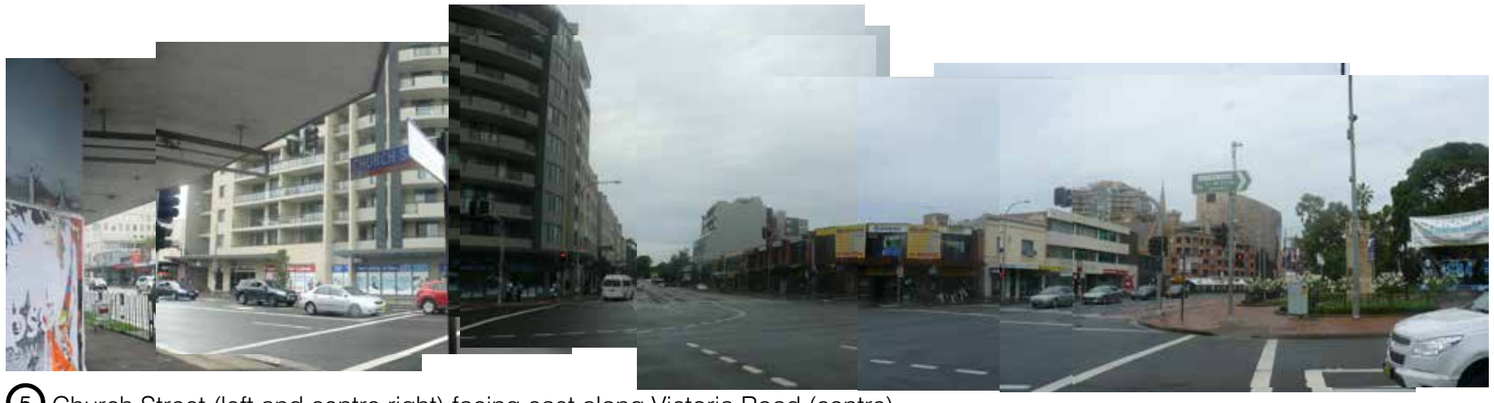
1 The City Centre edge along the southern side of Victoria Road (City Centre to right)



2 Sorrell Street (left and right) within the conservation area, facing along Harold Street (centre) towards the City Centre

3 The Church Street and Pennant Hills Road intersection marks the northern edge of the CBD though some further commercial uses exist outside of the City Centre to the north.

4 O'Connell Street opposite Parramatta Leagues Club. The stadium and open space (centre left) is the only area within this view within the existing City Centre boundary



5 Church Street (left and centre right) facing east along Victoria Road (centre)

6 View facing south from the Wilde Avenue / Smith Street bridge with City Centre to right and open space (Robin Thomas Reserve) to right

7 Intersection of Great Western Highway (centre left and far right) with Pitt Street (far left and centre right) showing edge of City Centre and its transition to the south of the Great Western Highway

8 Lansdowne Street includes a sharp transition from a Heritage Conservation Area (right) to Automotive uses (centre and left) which relate to Auto Alley (left)

9 Marion Street within the City Centre retains some Heritage Items which are of a similar scale to those within the Heritage Conservation Area within Harris Park (including the eastern part of Marion St)

3.5 City Centre boundary option 1 - minor amendments

Overview:

Minor amendments to the City Centre boundary allow it to relate more consistently to the existing structure of uses and built form.

Additions include open spaces to the east of the City Centre and the existing Parramatta Workers Club and Parramatta Leagues Club.

Harris Park, Experiment Farm and Sorrell Street Heritage Conservation Areas remain as key defining edges to the City Centre

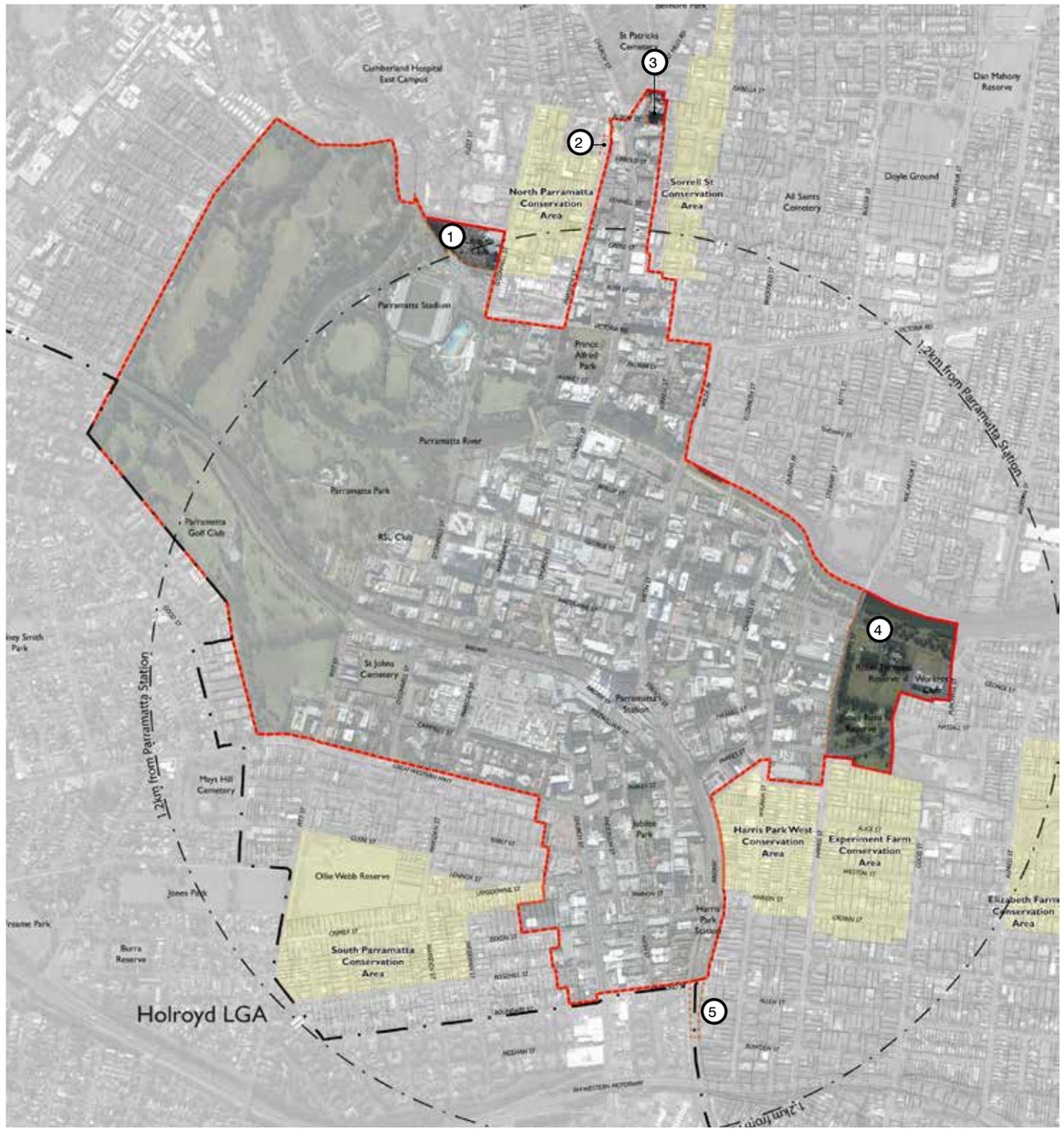
Opportunities:

- Enforce the existing City Centre as the focus for denser, taller development.

Challenges:

- No expansion of development capacity.
- Northern and southern areas of Church Street likely to remain focussed along major roads which are not attractive for pedestrians or retail uses.
- There is merit in including Parramatta Leagues Club as an existing commercial use however without the adjoining area to the east this is effectively isolated from other City Centre built form areas by Parramatta Park.

City Centre boundary option 1 - minor amendments



Proposed boundary changes

1. Inclusion of Parramatta Leagues Club, a type of use which relates to other City Centre uses
2. Exclusion of part of Parramatta North Public School consistent with remainder of school and general alignment of boundary with Marsden St.
3. Inclusion of 36 Albert St. Significant scale of existing building is consistent with adjacent City Centre buildings.
4. Inclusion of Robin Thomas Reserve, James Ruse Reserve and Workers Club. The open spaces provide amenity for the City Centre uses, similar to Parramatta Park. The Workers Club is a type of use which relates to the City Centre uses.
5. Exclusion of part of existing boundary which extends south along railway line.

Key

- Existing City Centre boundary
- Proposed City Centre boundary
- Further potential changes to City Centre boundary
- Heritage Conservation Areas
- Local Government Area boundaries

0 100 250 500 750m

3.6 City Centre boundary option 2 - local growth

Overview:

In addition to those areas noted in Option 1, Changes noted include three smaller additions of land which are strongly linked to the City Centre.

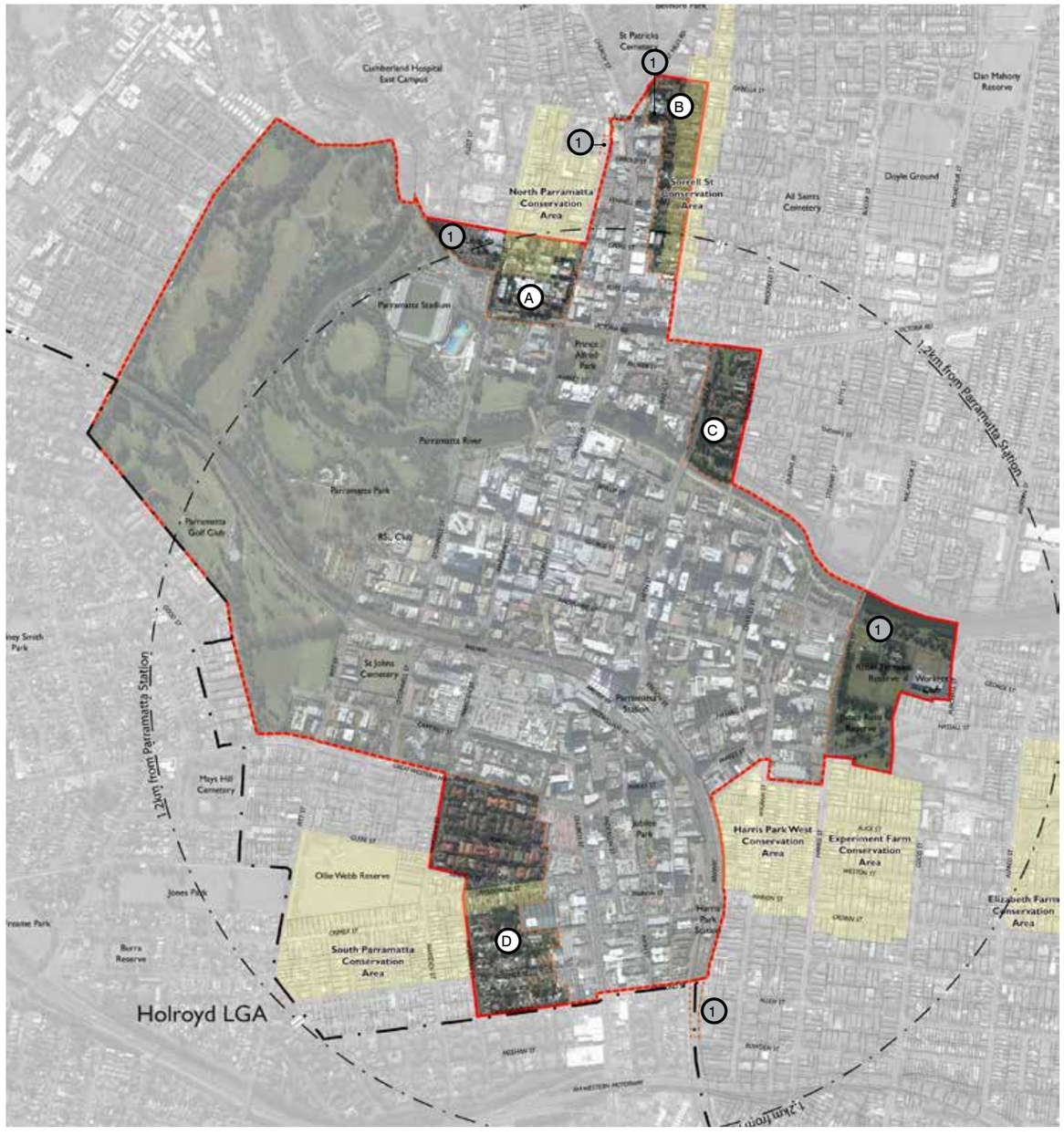
Opportunities:

- Provide some opportunities for expansion
- Enforce the existing City Centre as the focus for denser, taller development.
- Some expansion to the City Centre along Northern and southern areas of Church Street means that some retail and commercial uses do not need to remain solely focussed along major roads which are not attractive for pedestrians or retail uses.

Challenges:

- Extending the boundary partially into Heritage Conservation Areas may give rise to landowner expectation of higher development yields which may not be practical. This may be exacerbated further if land is subject to the existing 3% levy of the City Centre Section 94A Plan.
- Area D is constrained to the north by existing strata development, whilst the area to the south (further from the core of the centre) is predominantly houses and may develop first.

City Centre boundary option 2 - local growth



Proposed boundary changes

1. Changes noted in Option 1
2. A. Inclusion of two blocks. Whilst this area contains many heritage uses it also contains community uses such as education and should be seen to provide a link between of Parramatta to the north linking the Leagues Club to Church Street and Prince Alfred Park.
3. B. Extension of eastern boundary to Sorrell Street. The current City Centre boundary runs midway through the block between Church Street and Sorrell Street.
4. C. Inclusion of 3-27 Elizabeth Street consistent with larger lot sizes and proximity to core City Centre areas to the south across a bridged link
5. D. Inclusion of area to the west of 'Auto Alley'. This should allow for improved connectivity between the existing southern portions of 'Auto Alley' and the City Centre to the north as well as a better transition in land use than the existing jagged boundaries. The area indicated is broadly in line with that identified in recent Auto Alley studies however includes a portion of the South Parramatta Heritage Conservation Area (to allow for a contiguous City Centre) and is reduced on its southern end to retain a reasonably continuous alignment.

Key

- Existing City Centre boundary
- Proposed City Centre boundary
- Further potential changes to City Centre boundary
- Heritage Conservation Areas
- Local Government Area boundaries

0 100 250 500 750m

3.7 City Centre boundary option 3 - significant growth

Overview:

Expansion of the City Centre boundary into adjacent areas to a localised logical boundary, with a focus on areas of around 15 minutes walk (1.2km) from Parramatta Station.

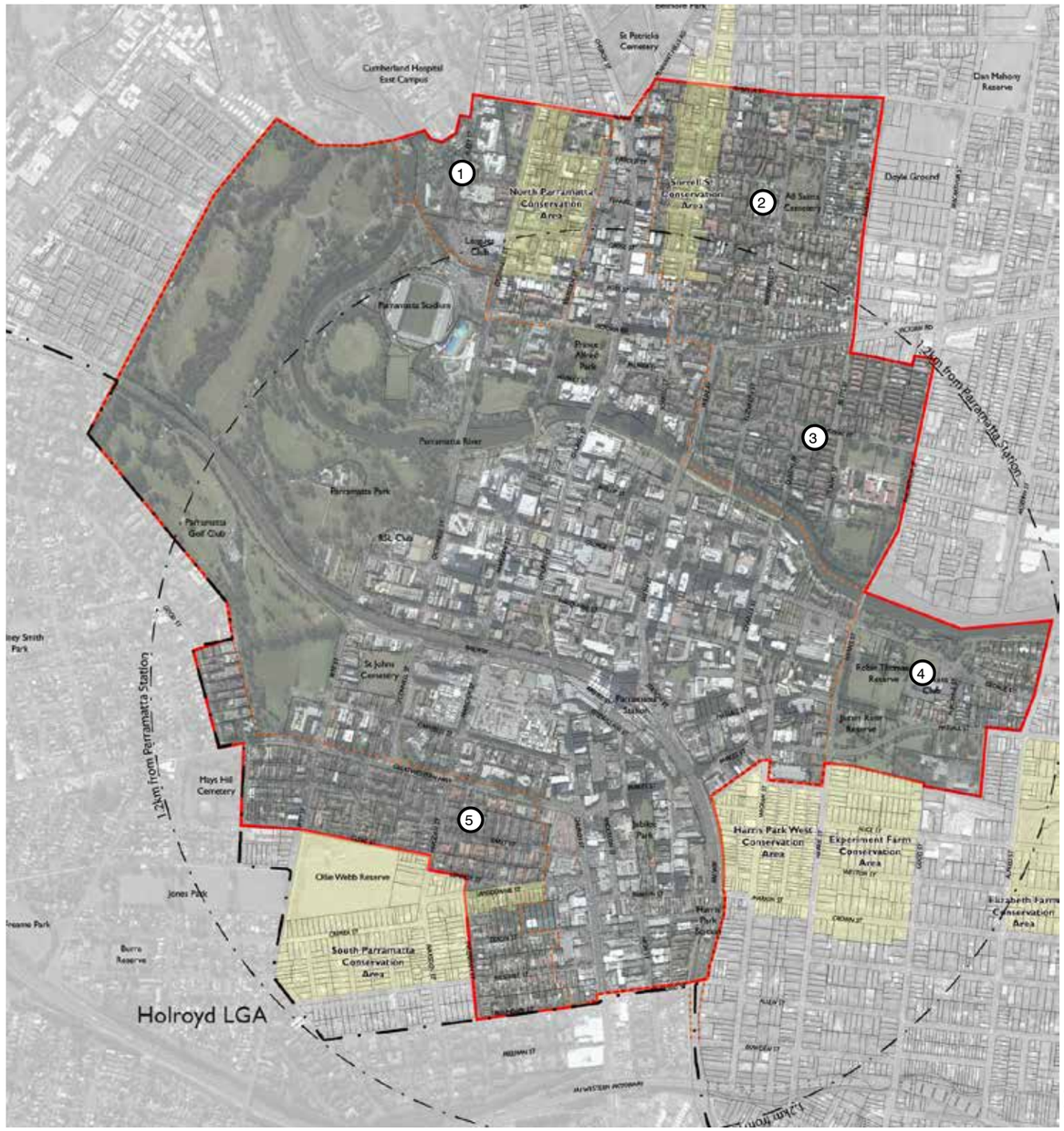
Opportunities:

- Expansion of potential development capacity.
- Develop a more significant commercial presence north of Parramatta River away from busy roads (Church Street and Victoria Road).
- Potential for greater residential development to the periphery of the City Centre may allow for expansion of requirements for commercial uses (extending the existing B3 Commercial Core zone or similar) without affecting the potential of the City Centre to deliver residential uses.

Challenges:

- The majority of the areas shown currently consist of strata-titled blocks of flats. These are likely to require significant incentives of development capacity to amalgamate and redevelop.
- The expanded areas include or are adjacent to several Heritage Conservation Areas as well as individual heritage items.
- Providing attractive ways to access the City Centre which avoid busy roads (Church Street, Great Western Highway, Victoria Road).
- Area 2 includes All Saints Cemetery Precinct which has existing restrictions on height and site amalgamation.

City Centre boundary option 3 - significant growth



Proposed boundary changes

1. **Northwest expansion to Albert St**.
   - Includes the North Parramatta Conservation Area.
   - Not expected to provide significant development capacity however may assist in developing a commercial focus to the north of Parramatta River away from Church Street, particularly linking the existing focus of the Parramatta Leagues Club with the Church Street area.
2. **Northeast expansion to Butler St / Isabella St** (north of Victoria Rd).
   - Includes part of the Sorrell St Conservation Area.
   - Greater distance from Parramatta Railway Station than other proposed areas of the City Centre.
   - Focus on development of a mixed-use precinct which increases residential capacity and provides some commercial/retail uses where appropriate.
3. **Eastward expansion to Macarthur St** (south of Victoria Rd).
   - Extends the City Centre to meet the Collett Park Centre (to the northeast).
   - Potential to provide commercial and office uses north across the Parramatta River from the existing office areas as well as ground-floor retail uses.
   - Potential to expand active use of the northern edge of Parramatta River, however also potential overshadowing of the public domain.
4. **Eastward expansion to Alfred St.**
   - Includes open spaces and heritage items, however may still provide some potential for growth, particularly for commercial uses due to its proximity to the existing commercial core.
5. **Southwest expansion of the City Centre to Glebe St / Inkerman St**.
   - Extends the City Centre generally to the boundary of the South Parramatta Conservation Area (however also includes a small portion of this Conservation Area).
   - Providing attractive routes to the City Centre which avoid the Great Western Highway and Church Street will allow for these areas to form part of the City Centre.
   - Broadly in line with boundaries shown in recent Auto Alley studies.
   - Distant from the existing commercial core and more likely to be attractive for primarily residential uses.

Key

- Existing City Centre boundary
- Proposed City Centre boundary
- Heritage Conservation Areas
- Local Government Area boundaries

0 100 250 500 750m

3.8 City Centre boundary option 4 - broader area

Overview:

Significant expansion of the City Centre boundary to include the surrounding precincts of Westmead, North Parramatta, Harris Park, Rydalmere (including the University of Western Sydney campus) and Rosehill/Camellia.

This scenario accords with the vision for Parramatta set out in the Draft Metropolitan Strategy.

It may not be appropriate to define this wider area as a 'City Centre' although it is useful to consider the influence of Parramatta as a Centre at this scale.

Opportunities:

- Consider the expansion of Parramatta City Centre as part of a poly-centric network of Centres rather than a single boundary.
- Support the City Centre core and its long term aspirations by delivering complementary uses in nearby locations, whether this is through providing additional residential density outside the core or supporting commercial uses which cannot be delivered in the City Centre for nearby locations.
- Consider the potential for residential areas to transition into mixed-use neighbourhoods.
- Improve connectivity between existing City Centre areas and neighbouring larger centres.
- There are a number of proposals for the Camellia precinct and including the broader area into the city centre boundary could be beneficial in informing land uses, built form outcomes and densities for these areas.

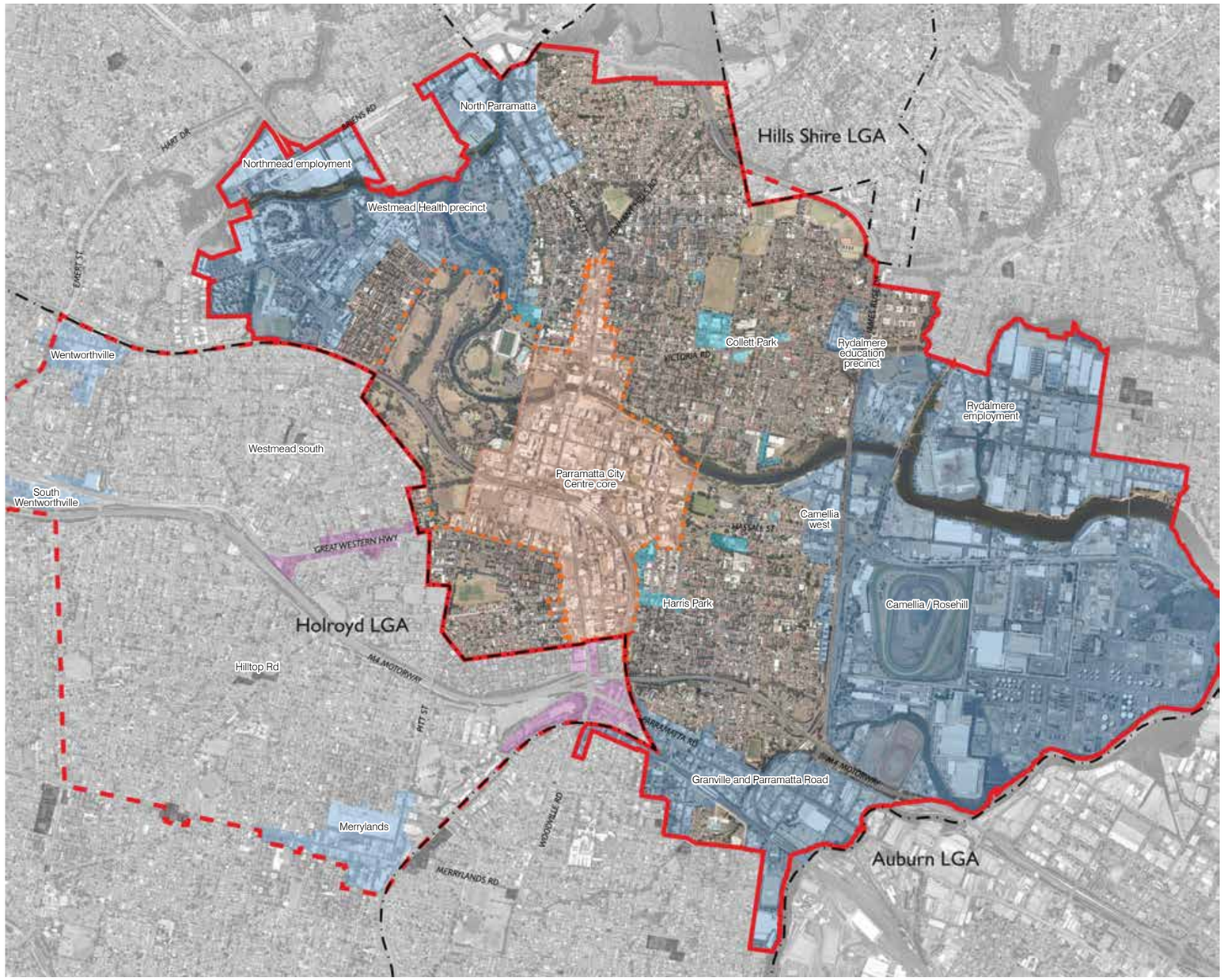
Challenges:

- Ensuring that development of the wider area does not detract from the Parramatta City Centre core.
- Providing enough incentive to redevelop, particularly on sites which are existing strata-title .
- Any transition from residential uses to mixed-use should be handled carefully.
- Consideration of Heritage Conservation Areas and individual Heritage Items.
- Providing good connectivity, particularly to the north further from the main railway line.

Parramatta as identified in the Draft Metropolitan Strategy

see also Section 1.3 'Draft Metropolitan Strategy' within this document

City Centre boundary option 4 - broader area



Key to boundaries

- Local Government Area boundaries
- Proposed boundary
- Existing Parramatta City Centre boundary
- Potential similar extension of Parramatta City Centre focus in adjacent LGAs

Centres

- Parramatta City Centre core (excludes Parramatta Park for clarity)
- Adjacent large centres and major employment uses
- Existing extensions of business uses into Holroyd LGA
- Smaller areas of existing permitted business use within the revised boundary
- Other areas of existing permitted business use

0 0.2 0.5 1.0 1.5km

3.9 Summary of analysis and outcomes

Summary of key issues

Key outcomes from the City Centre boundary testing are as follows:

- The existing Centre boundary generally relates closely to the existing edges of uses. Little change is required to match this however some logical changes are possible.
- The Draft Metropolitan Strategy suggests expansion of the City Centre into the surrounding precincts of Westmead, North Parramatta, Harris Park, Rydalmere (including the University of Western Sydney campus) and Rosehill/Camellia as shown in Option 3. This area is predominantly residential at present and is not likely to support City Centre uses in the short term.
- The Parramatta City Centre has a strong relationship to areas of Holroyd Council which will increase in the future. This presents particular challenges for the coherent planning of these areas, particularly the connection from Granville to Parramatta along Parramatta Road and Church Street.

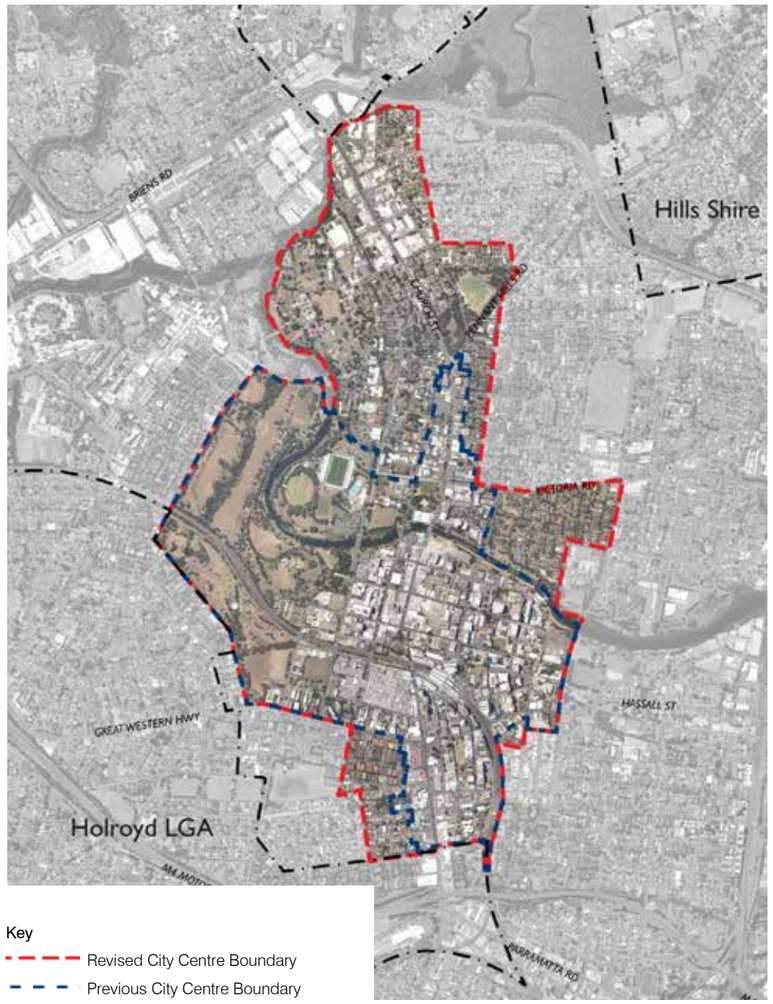
Determining an appropriate boundary

The boundary options shown in this section cannot be considered in isolation. In determining an appropriate boundary for the future of the City Centre consideration will need to be given to the growth potential and other requirements of the City Centre.

Following the analysis undertaken within this chapter and economic analysis (see Section 2.0 ‘Economic analysis’) the area of Scenario 2 was selected for detailed built form scenario testing (Section 5.0 ‘Built form scenarios’).

Conclusions on the future of Parramatta City Centre boundary have been determined with consideration to the outcomes of the capacity testing provided in the Built Form Scenarios. These conclusions are provided in Section 6.0 ‘Conclusions and recommendations’ within this document.

Following consideration of the wider study, Parramatta Council advised Architectus as to the boundary to be used for the future Parramatta City Centre. This is provided adjacent.



Revised CBD Boundary map

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4.0 Basis of the built form scenarios

4.1 Introduction

This chapter sets out the key assumptions behind the development and analysis of Scenarios, which are themselves presented in the following Chapter of this document.

It includes information on the selection of sites and assumptions used in modelling and floorspace testing as well as information on how the scenarios have been developed and analysed (comparing to other centres and information on key issues of solar access and views as they relate to Parramatta).

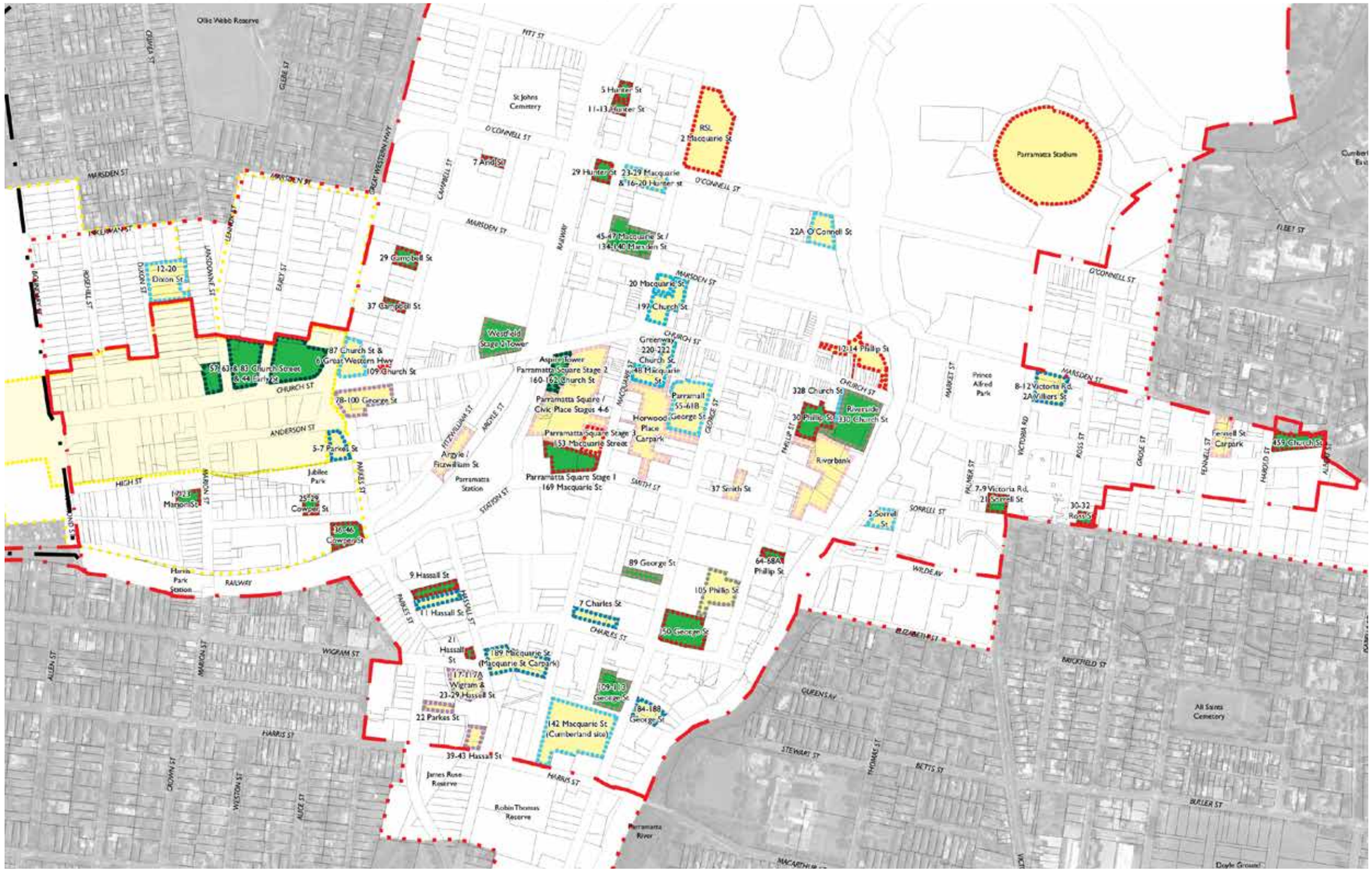
The current development pipeline and assumed influence of this study

The current 'pipeline' of development within the Parramatta City Centre includes sites where Development Applications, State Significant Development Applications and Planning Proposals are either approved, currently under consideration or being prepared as well as future identified future areas for development and growth.

The plan adjacent identifies the assumptions used in this study to differentiate:

- **Sites where the current design / proposal is assumed to come forward.** These sites are shown as currently proposed within each of the scenarios modelled.
- **Sites where the final design / proposal is assumed to be influenced by this study**. These sites will be modelled differently under each scenario.

The current development pipeline and assumed influence of this study



4.2 Sieving of sites with potential for significant development

Sites with potential for significant development

The sites with potential for significant development indicate parts of Parramatta City Centre which are likely to be able to deliver significant commercial or residential development and which the outcome of this study is likely to be able to influence.

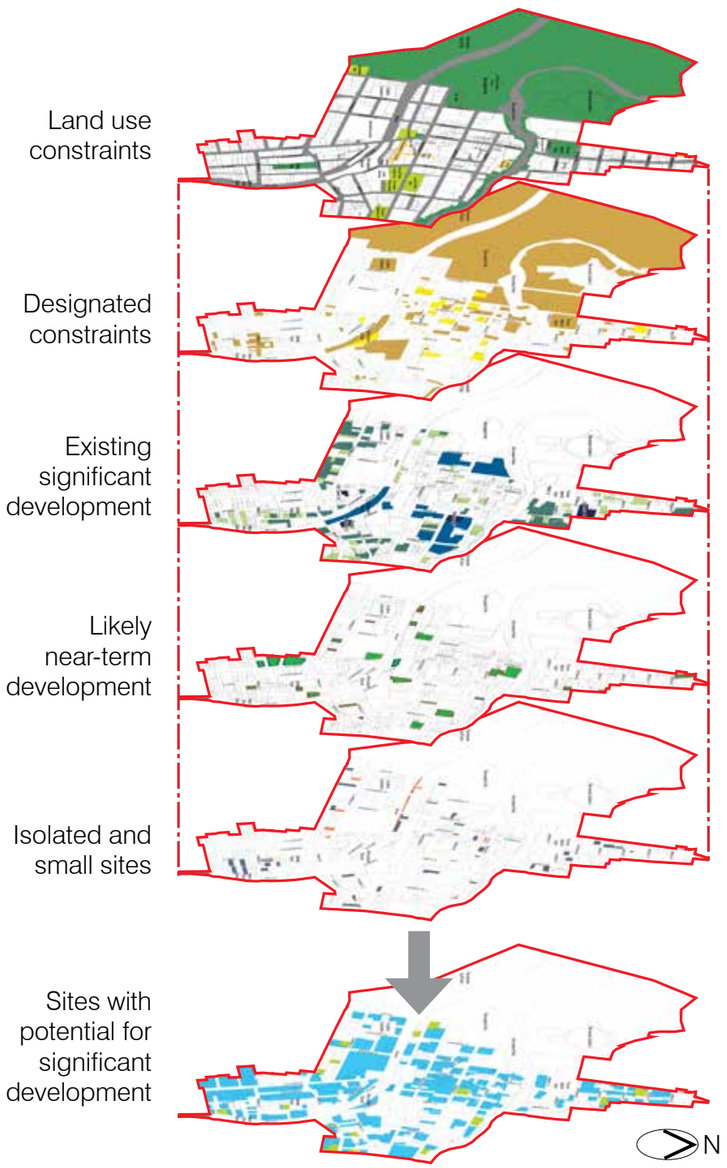
Sieving process

The diagram adjacent indicates how these areas have been identified, through a sieving process which takes away sites or areas of sites where the following mean that a site is unlikely to come forward for significant commercial or retail development:

- Land uses (e.g. open space, roads and schools):
- Designated constraints (e.g. heritage issues).
- Existing significant development (e.g. blocks of flats with strata title or larger commercial developments).
- Existing approvals and other development likely to occur in the near-term, which this project is unlikely to be able to influence.
- Isolated sites and small sites (not large enough to deliver significant development).

Larger versions of each of the plans shown in the diagram adjacent are included overleaf.

Sieving of likely potential development sites

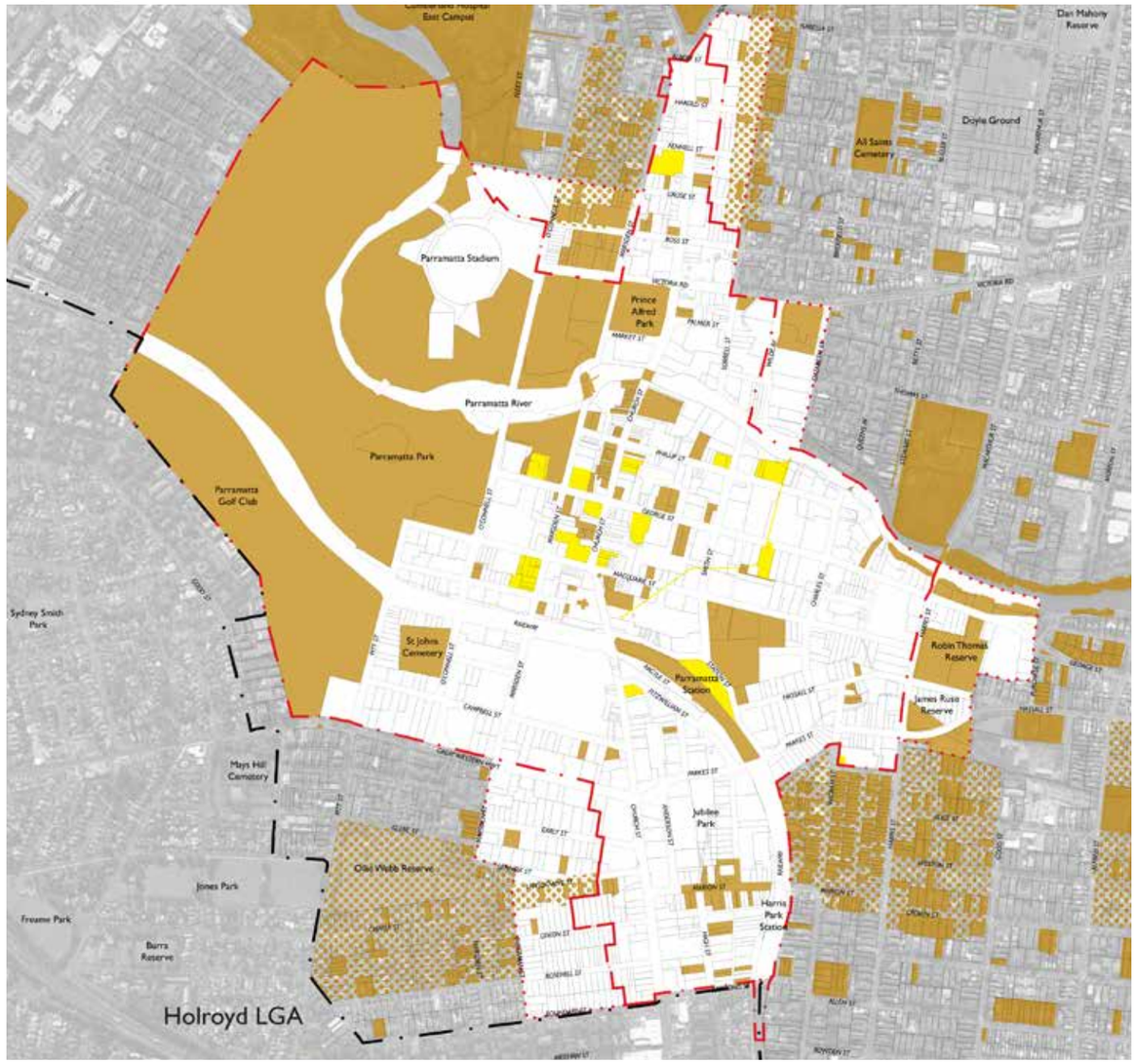


Land uses unlikely to permit significant new commercial or residential development

Key

- Recreational land (zones RE1 and RE2, Parramatta LEP)
- Streets and waterways
- Major community or education facilities (as noted)
- Proposed public open spaces (Parramatta DCP as amended)
- Parramatta City Centre boundary (existing)
- Local Government Area boundaries

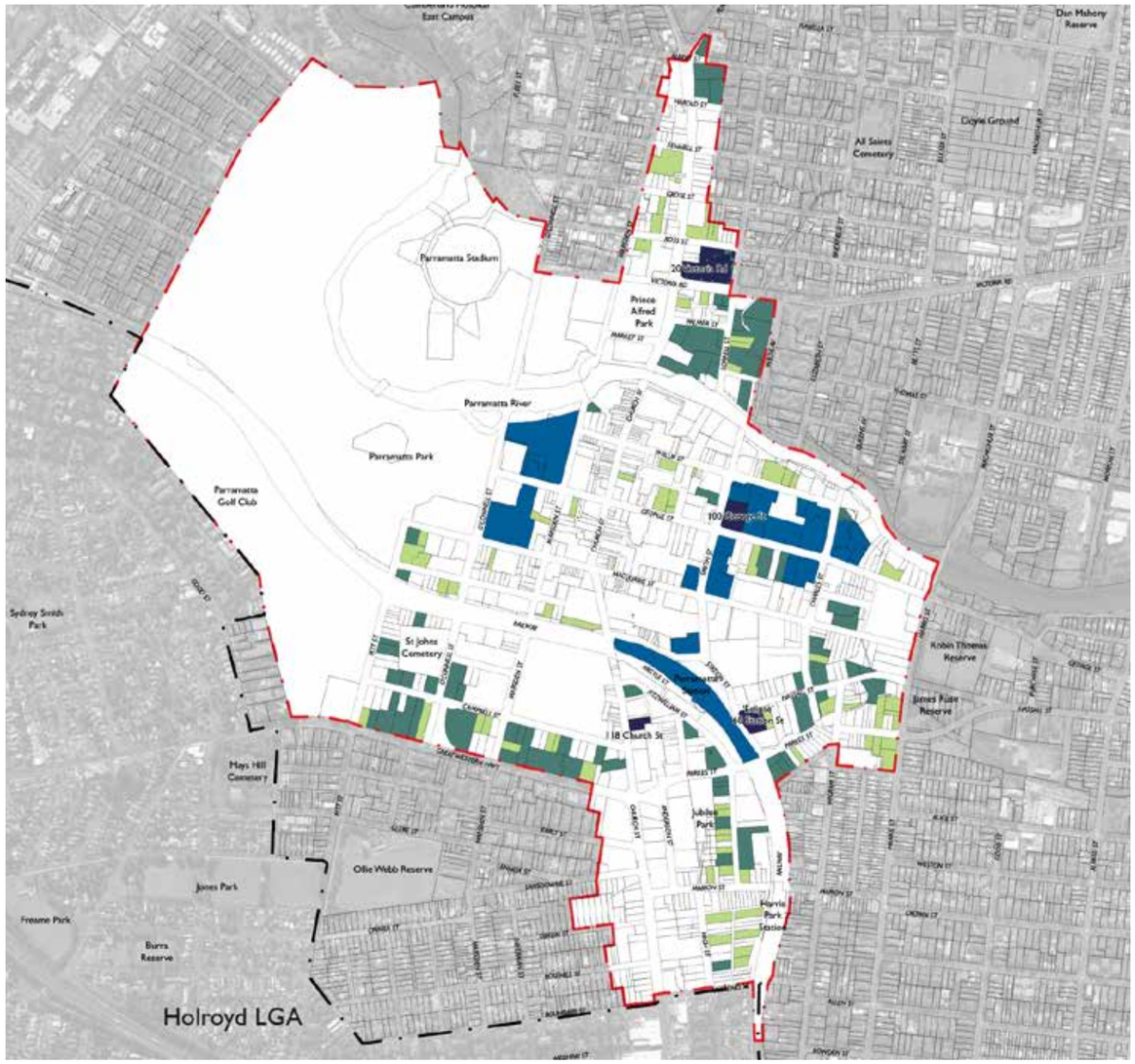
Key designated constraints likely to prevent significant development



Key

- Heritage items - Significant development restricted
- Heritage items - May not to restrict future development (selection based on Council's advice)
- Heritage Conservation Areas(note: outside of current City Centre boundary only)
- Parramatta City Centre boundary (existing)
- Local Government Area boundaries

Existing significant development



Key

Existing strata title sites (based on Parramatta Council Analysis 2012. Differentiation based on consideration of likely number of owners within site areas from aerial photograph only)

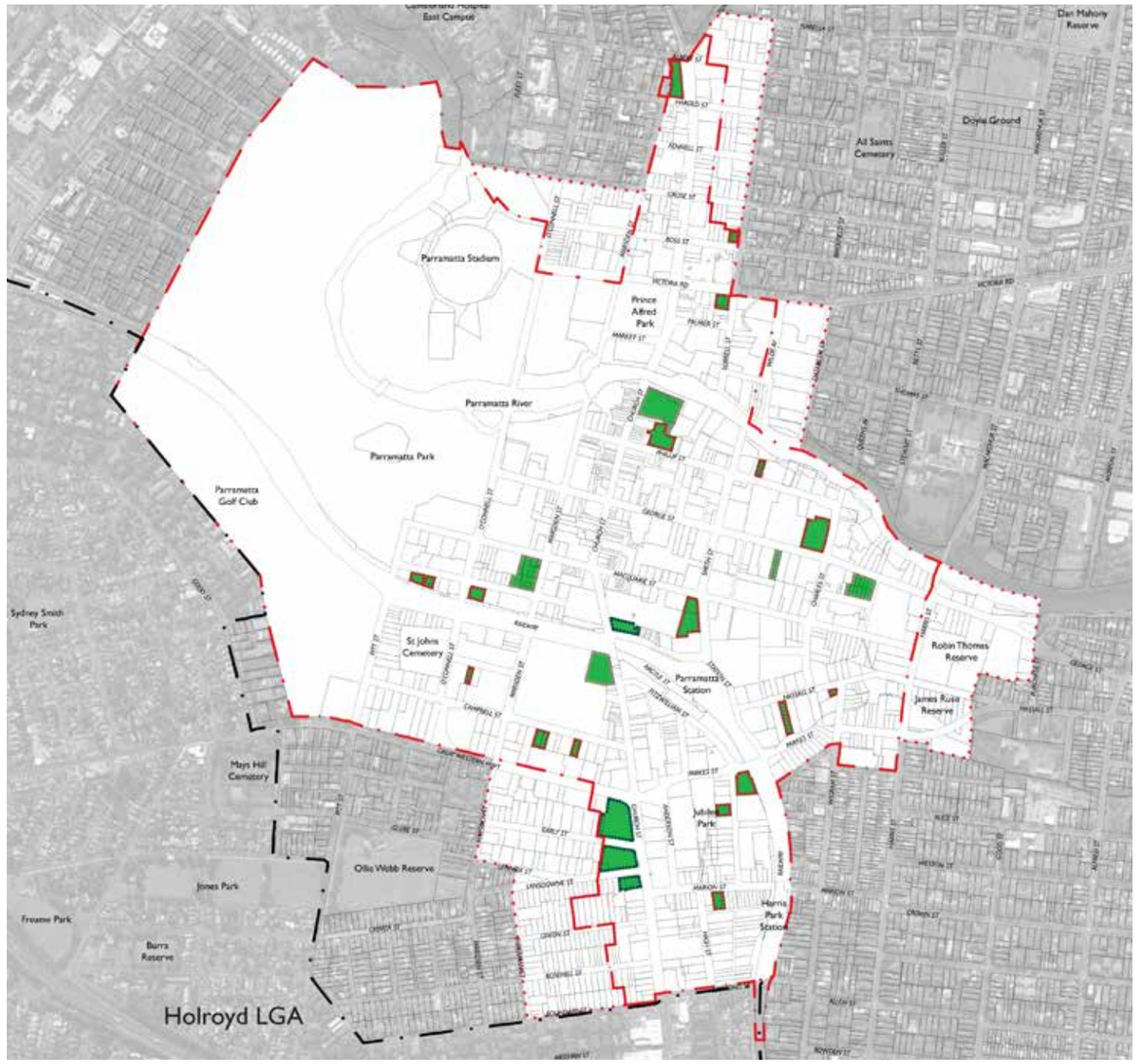
- Unlikely to be redeveloped
- Potential for development if significant incentive given

- Recent large scale developments (based on Parramatta Council Analysis 2012)
- More recent significant development sites (as noted)

- Parramatta City Centre boundary (existing)
- Local Government Area boundaries

0 100 250 500 750m

Likely near-term development



Key

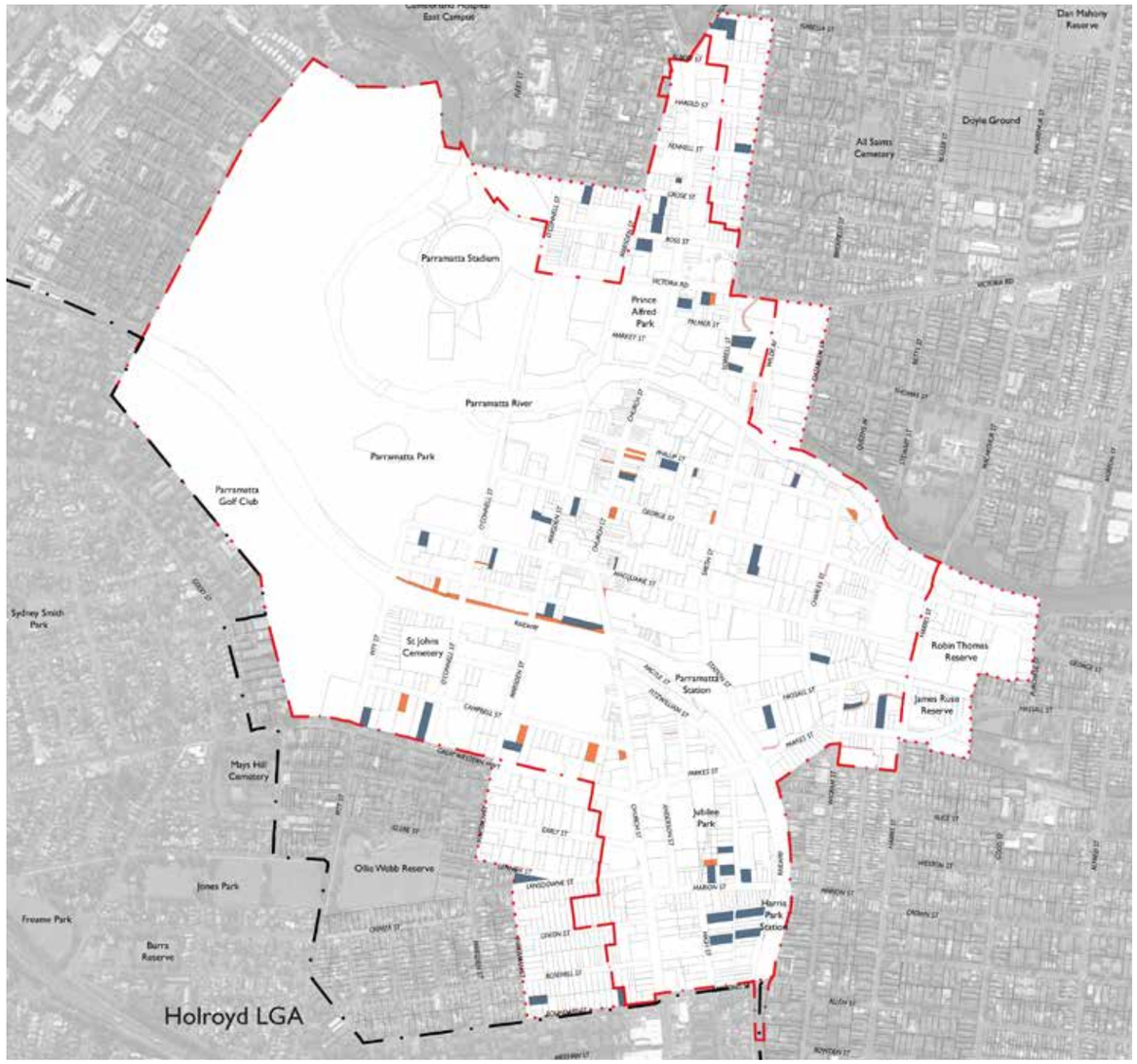
- Planning Proposal forwarded by Council to DP&I for making
- Current DA Approvals (no planning proposal)
- Current State Approvals (no planning proposal)

- Parramatta City Centre boundary (existing)
- Local Government Area boundaries

N.B. An explanation of the selection process for the inclusion of these sites and not others is provided in Section 4.1 'Introduction'

0 100 250 500 750m

Isolated and small sites

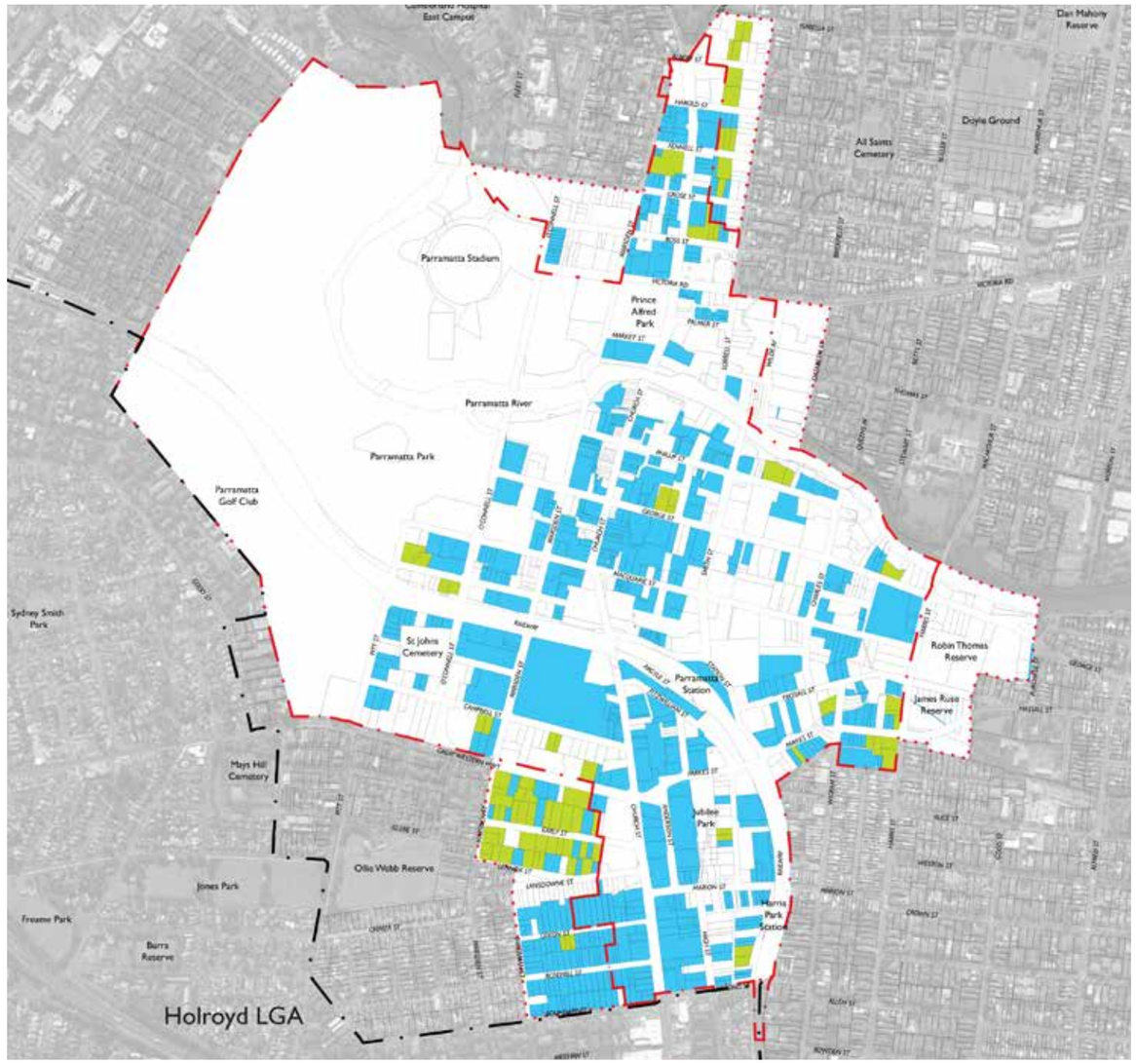


Key

- Sites with less than the DCP minimum building street frontage of 20m (Parramatta DCP 4.3.3.1a C.1)
- Other minor sites unlikely to be able to deliver significant development (generally less than 10m in width)
- Strata title sites which cannot accommodate a tower form (less than 30m width) - assumed unlikely to develop
- Parramatta City Centre boundary (existing)
- Local Government Area boundaries

0 100 250 500 750m

Sites with potential for significant development (sieved from previous plans)



Key

- Sites with the potential for significant development
- Strata sites with the potential for significant development where incentive is provided
- Parramatta City Centre boundary (existing)
- Local Government Area boundaries

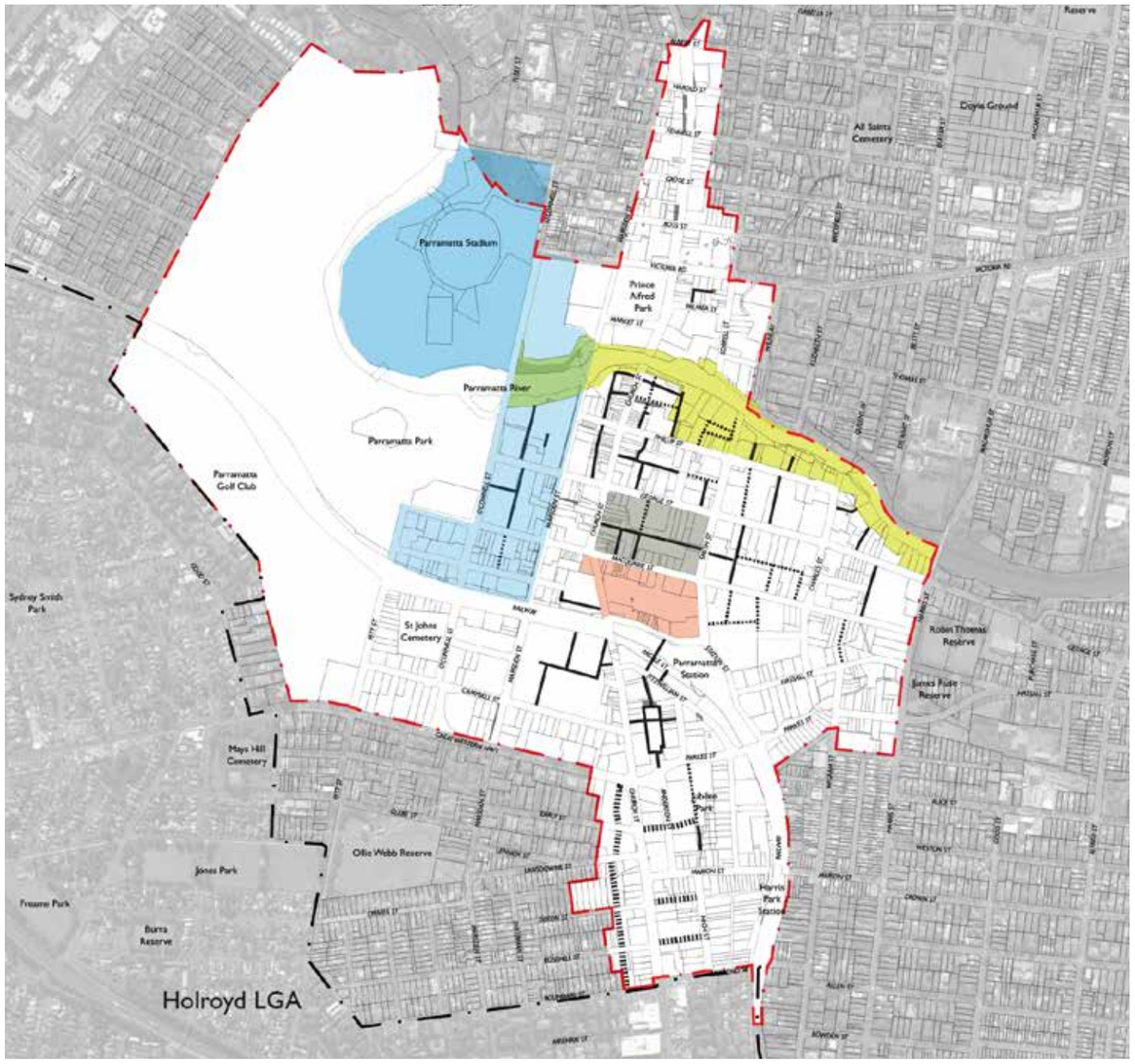
0 100 250 500 750m

4.3 Assumptions used in the scenarios

Site selection, development form and site-based requirements

#	Assumption	Notes
1	The sites considered for development are nominated in Section 4.2 'Sieving of sites with potential for significant development'.	See Section 4.2 'Sieving of sites with potential for significant development'.
2	Tower forms are vertical (with equal floorspace on all storeys) above podium level and are not continuous (setbacks are provided to boundaries).	
3	Sites which are not able to provide the tower floorplate sizes and setbacks described below are assumed to not provide tower development for the purpose of this study.	
4	Tower forms are only shown on sites requiring amalgamation if a Floor Space Ratio of 4:1 or greater can be achieved (a significant incentive to amalgamate over developing low-rise forms on each site individually). Low-scale new development is shown on these sites even where this may not be possible.	
5	Amalgamated strata title sites are assumed to not amalgamate to develop unless they can deliver a Floor Space Ratio of at least 8:1 (note: This requires a tower form to be provided). Existing buildings are shown as being retained where this are not possible.	
6	• Through-site links in accordance with the Parramatta DCP Existing and Desired Links Plan. • Portions of sites reserved for land acquisition under the Parramatta LEP Land Reservation Acquisitions Plan. • For the River Foreshore, Parramatta Square and Park Edge specific requirements as set out in the Parramatta DCP 2011. • The Horwood Place Car Park area requires several through site links and has had some consideration of its likely form as shown in the Parramatta Lanes Strategy and Horwood Place Urban Design Study.	In accordance with the current controls The locations of these requirements is provided in the diagram on the page opposite.
7	Solar access to apartments is assumed to be for 70% in all apartments for at least 2 hours of midwinter between 9am and 3pm. However given the City Centre location this is considered desirable rather than mandatory.	In accordance with the Residential Flat Design Code.
8	Maximum building heights have been limited to 280m above ground level	The most restrictive PANS-OPS surface for aircraft operations from Bankstown Airport is at 305m AHD. An approximate allowance for ground level and height required for construction (e.g. cranes above the highest point of the building) has been made. 280m is also the height of the recent planning proposal for the Aspire Tower which has been designed as a landmark building.

Overview of key existing development constraints



Key

- Land Reservation Acquisition sites (PCCLEP)
- City Centre Special Areas with detailed controls (PDCP)
- Horwood Place Car Park - detailed design work undertaken - see Parramatta Lanes Strategy and Horwood Place Urban Design Strategy
- Existing and desired future connections set out in DCP
- Parramatta City Centre boundary (existing)
- Local Government Area boundaries

Low-rise/podium development and tower setbacks

#	Assumption	Notes
9	The low-rise/podium forms and tower setbacks are derived from the Parramatta Development Control Plan 2011 – Parramatta City Centre. Where the DCP does not indicate podium heights, generally this form has been continued through a 26m/8-storey podium height facing the major roads of Church Street and the Great Western Highway and 14m/4-storey heights to most other areas. Sites outside the existing City Centre but inside the Study Area are assumed to require a similar low-rise/podium form	
10	Maximum podium depths are 20m for mixed-use podiums/low-rise and 30m for commercial podiums/ low-rise	Mixed-use podium figure is based on 18m maximum 'glass-line to glass-line' depth for residential buildings set out in the Residential Flat Design Code, with an allowance for balconies outside this. This allows for 22m depths or larger however 20m is used as an approximate average.
11	Minimum setbacks to rear boundaries are 6m for mixed-use podiums/low-rise and 3m for commercial podiums/low-rise	Mixed-use podium figure based on half of the Residential Flat Design Code minimum building separation distance of 12m between buildings
12	For the Westfield site and bus station site, existing uses remain at lower levels in lieu of a new podium/low-rise. The bus station requirement has been assumed at 10m height	

Tower forms - residential

#	Assumption	Notes
13	Residential tower floorplates have been assumed at 700sqm GFA (935sqm footprint) per floor for towers up to 35 storeys and 900sqm GFA (1200sqm floorplate) for towers greater than 35 storeys. Where this is not possible due to the site dimensions, they have been varied to a minimum of 500sqm GFA (665sqm floorplate). Standard floorplate sizes shown are 24x39m (700sqm GFA),18x39 (525sqm GFA) and 24x27.7m (500sqm GFA). Alternative sizes are shown in Parramatta Square where floorplates similar to the current proposals are shown.	These sizes are generally recognised as providing an appropriate balance between viability, building design and amenity considerations (as addressed in the Residential Flat Design Code) and aesthetic considerations of providing an appropriate height to slenderness ratio. Given experience in Green Square and Rhodes Peninsula urban renewal area for towers greater than 20 storeys, Architectus considers that the maximum floor plate can be increased to 900sqm GFA for towers greater than 35 storeys and still achieve equivalent slender tower proportions.
14	Provide a 12m setback from boundaries with adjacent properties where possible with a minimum of 6m where this is not possible.	These are based on half of the Residential Flat Design Code separation distances which are 12m (6m to boundary if shared across sites) as the minimum and 24m (12m to boundary if shared across sites) as the general requirement for buildings over 8 storeys.
15	Residential storey heights are designed at 3 metres within the towers	This will enable the RFDC 2.7m floor to ceiling heights to be achieved. The market is moving towards slightly larger floor to floor heights (3.1-3.2m) however for the purposes of this planning study it is considered that 3m is appropriate.
16	85% of apartment floor space to be towers of to 30,000sqm GFA and the remainder in towers up to 60,000sqm GFA	Experience over several property cycles in the urban centres of Sydney indicates that there are maximum building volumes for residential or commercial towers that are seen to be marketable. This study assume that most residential towers are unlikely to exceed 300 apartments (30,000sqm GFA) while some may be larger.
17	Residential towers are provided only on sites of minimum 30m width	Allowing for a reasonable tower form with some setbacks (as an example, a 6m setback on either site allows for an 18m tower width including balconies)

Tower forms - commercial

#	Assumption	Notes
18	Commercial tower floorplates are assumed to average 1050sqm GFA (1400sqm floorplate) per floor. Where this is not possible due to the amalgamated dimensions of a site, they have been varied between 750sqm GFA (1000sqm floorplate) and 1500sqm GFA (2000sqm floorplate). Standard floorplate sizes shown are 32x43.75m (1050 GFA tower) and 30x33.3m (750sqm GFA tower).	Based on Architectus' experience of the viability of commercial floor plate sizes.
19	Provide a minimum 3m setback to side boundaries with other lots.	As per Current control in DCP.
20	Commercial storey heights are designed at 4 metres floor to floor.	This slightly exceeds the normal market requirement of 3.6-3.8m but reflects the market trend to higher floor to floor heights and is considered appropriate for the purposes of this study.
21	80% of commercial floorspace in each scenario to be up to 25,000sqm per tower and 20% up to 40,000sqm per tower	Experience over several property cycles in the urban centres of Sydney indicates that there are maximum building volumes for residential or commercial towers that are seen to be marketable. This study assume that most commercial towers are unlikely to exceed 25,000sqm while there may be the odd tower of up to 40,000sqm.

Building use and floorspace testing

#	Assumption	Notes
22	The Gross Floor Area of proposed built form is assumed at 75% of the floorplates shown in the model.	Based on Architectus' experience from other projects to ensure that there is flexibility to accommodate variety in detailed designs.
23	Loss of existing floorspace due to removal of existing building is allowed for on an average basis of 2.0:1 across each street block within the existing City Centre and 1.0 for each block outside the existing City Centre	Based on selective site testing. A site specific assessment is beyond the scope of this study
24	Calculations are based on 50% of the tower footprint within 'podium' levels intersecting with the podium form.	Allows for the simplification of calculations whilst providing a realistic figure
25	For high-rise buildings, Half of the currently permitted maximum car parking rates (as set out in the Parramatta City Centre LEP 2007) is to be provided above ground at the rate of 40sqm of floorplate area per vehicle. 100sqm / residential unit is assumed for the purpose of parking calculations.	The Parramatta DCP notes that above ground parking "may be appropriate for some sites, especially for sites constrained because of flood levels or archaeological conditions". It is beyond the scope of this study to test and model likely parking forms on a site by site basis. The remaining parking may be provided below ground. Parking for low-rise forms may be at grade or below ground.
26	Podiums are assumed to provide retail uses on ground floor with parking being provided above this and residential/commercial uses filling the remaining podium areas.	Provides an approximate mix of uses which is likely to be found across Parramatta
27	To provide consistency across all scenarios, B3 or 'business' zoned sites are assumed to provide commercial or office development whilst in other zones sites are assumed to provide residential development. Both are assumed to provide ground-level retail (see above).	

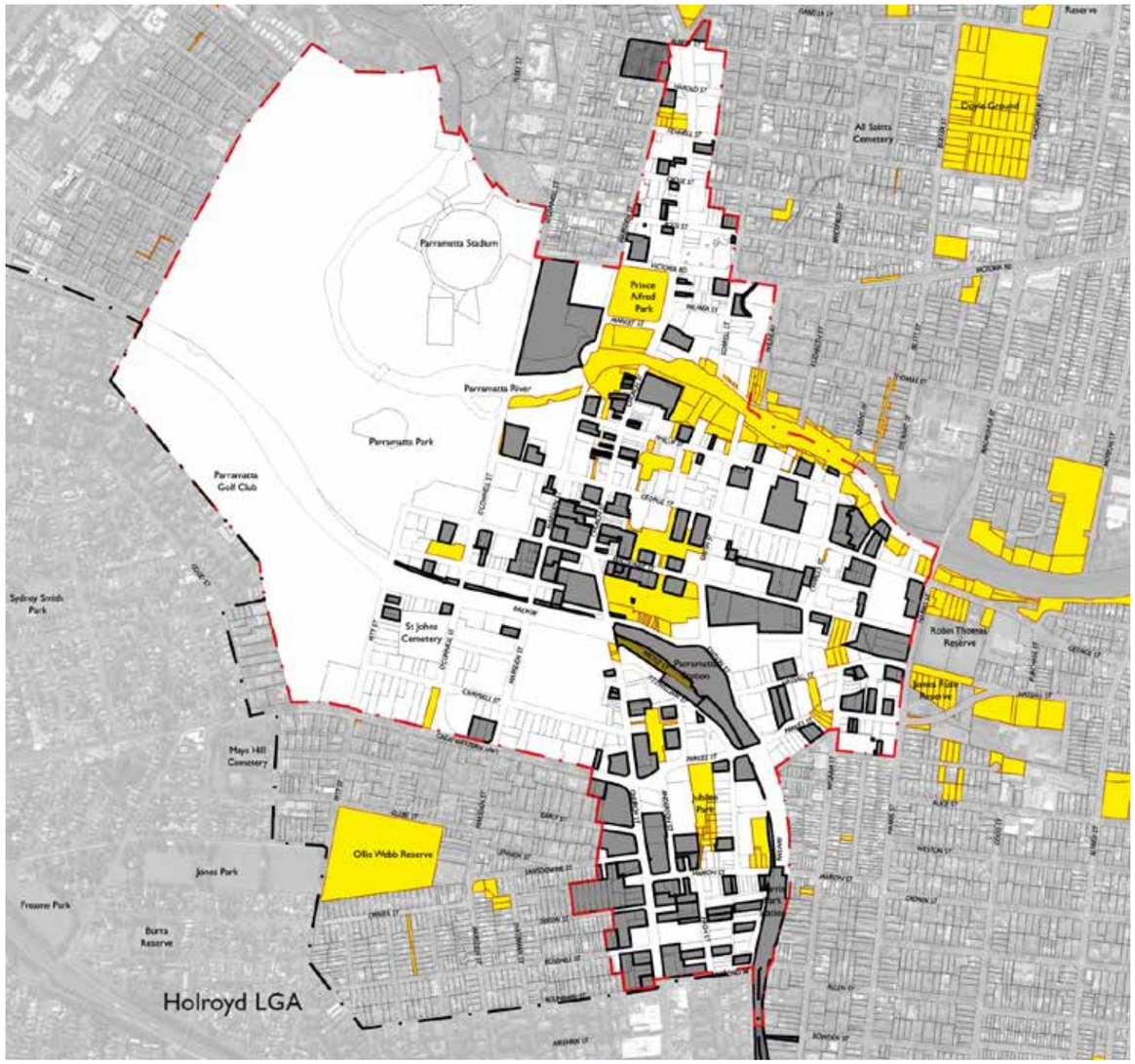
4.4 Assumed amalgamation pattern

An assumed amalgamation pattern has been used as the basis for the 3D modelling of scenarios. It is based on:

- The sites with potential for significant development (see Section 4.2 'Sieving of sites with potential for significant development').
- The assumptions used in the modelling of scenarios (see Section 4.3 'Assumptions used in the scenarios').
- Structuring development to maximise the potential for tower forms whilst assuming minimal amalgamation of sites, based on existing known land ownership patterns (see plan adjacent) and known likely future development sites (see current development pipeline plan within Section 4.1 'Introduction') where possible.

The assumed amalgamation pattern is shown overleaf. This shows the total site area (used for the calculation of Floor Space Ratios) rather than just the developable land (in the case of sites requiring open space or through site links).

Land Ownership within the City Centre

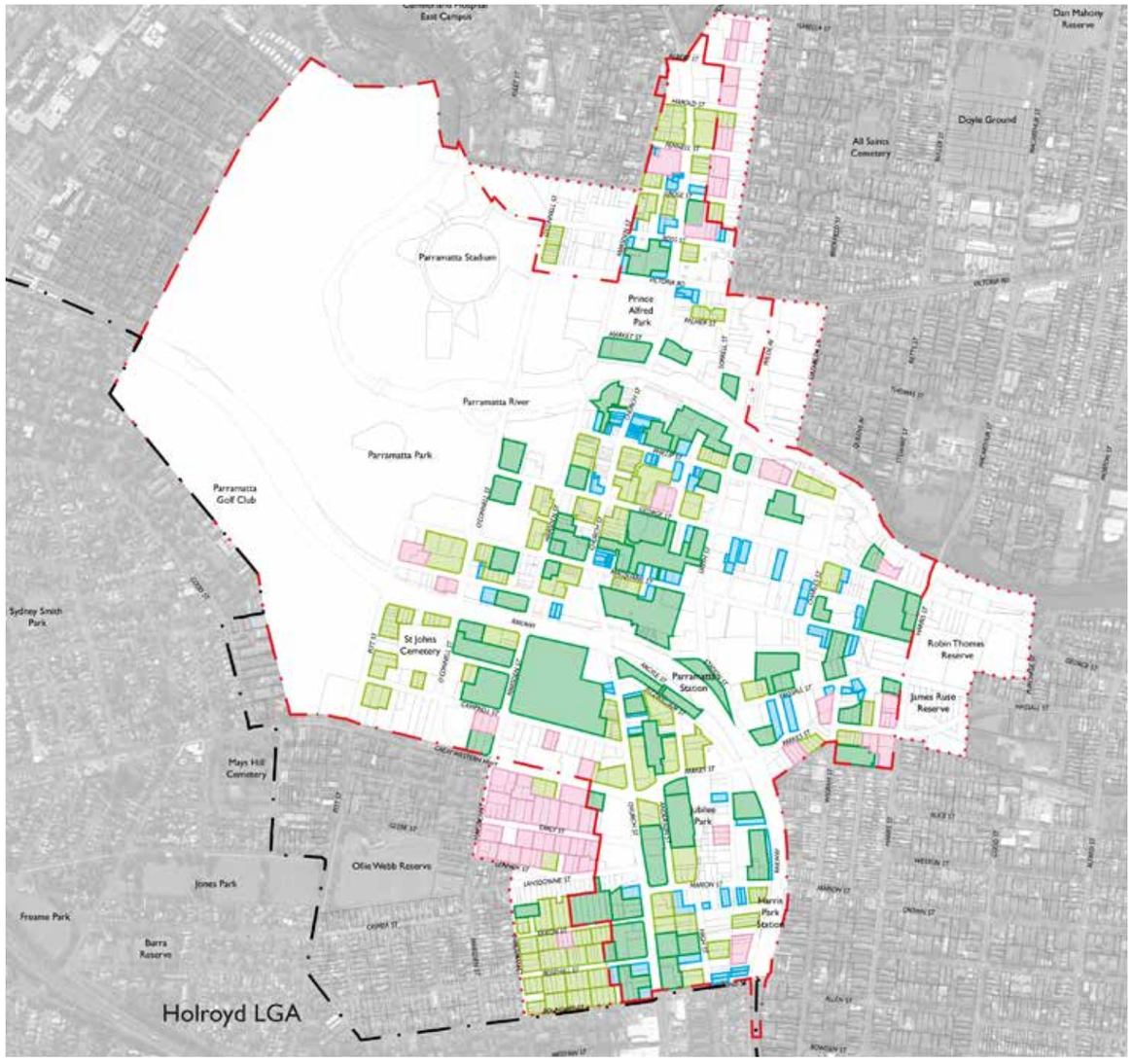


Key

- Council owned land
- Other land understood to be in single ownership
- Parramatta City Centre boundary (existing)
- Local Government Area boundaries

0 100 250 500 750m

Assumed amalgamation pattern



Key

- Sites which do not require amalgamation to deliver significant tower development
- Sites where amalgamation of non-strata sites is required to deliver potential tower development
- Sites where amalgamation of strata-title sites is required to deliver potential tower development
- Sites unlikely to be amalgamated for tower development
- Parramatta City Centre boundary (existing)
- Local Government Area boundaries

0 100 250 500 750m

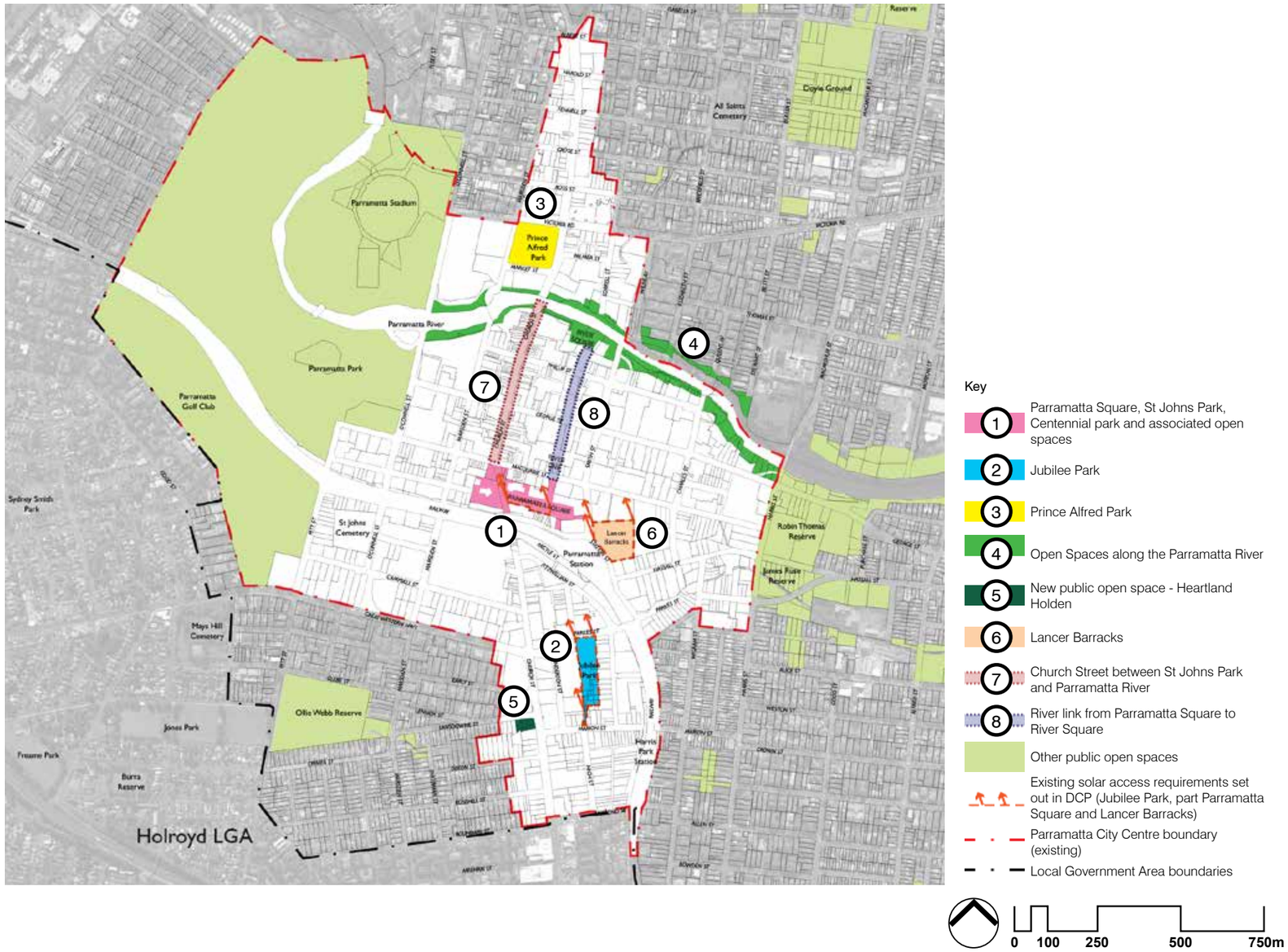
4.5 Solar access to open spaces

A meeting with Council officers identified eight key areas within the City Centre for the detailed consideration of solar access. These include five areas of open space, the Lancer Barracks and two north-south major pedestrian links.

Existing solar access controls exist within the PLEP for three of these areas (see also detailed diagrams shown in Section 1.5 'Key DCP controls') and focus on the provision of good solar to open spaces at lunch time during the most affected times (mid-winter, 12pm-2pm).

The eight key areas are shown in the diagram adjacent.

Solar access, open spaces and the City Centre



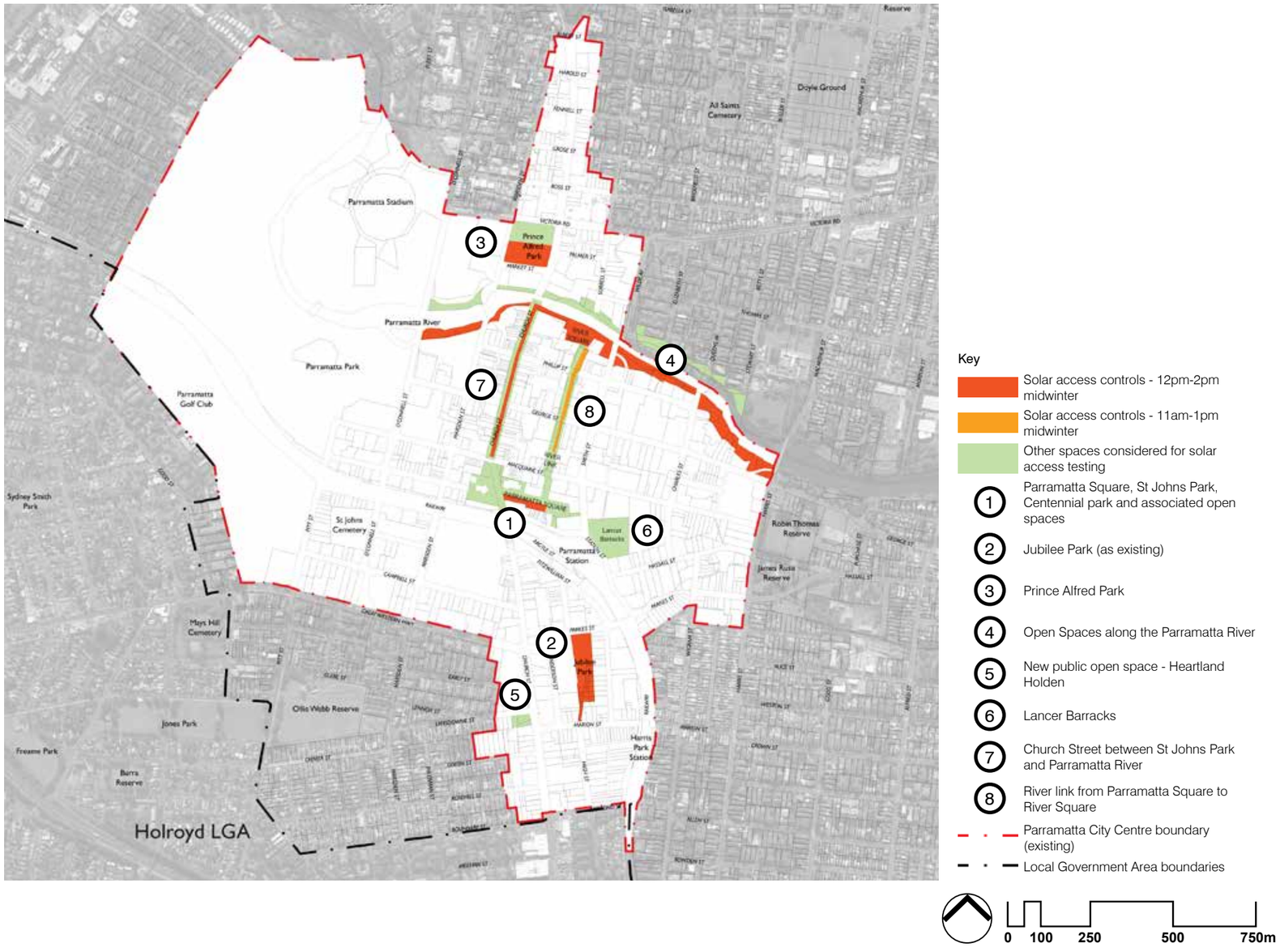
Through consideration of Parramatta's built form and the potential for uplift which is likely to be required to meet the projected floorspace demand forecasts, a set of solar access controls has been developed to test as part of the emerging scenarios. These are described on the plan adjacent and include:

- Solar access controls restricting development from overshadowing the following sites between 12pm-2pm in midwinter (similar to the existing controls):
  - Parramatta Square (as existing).
  - Jubilee Park (as existing).
  - The eastern half of Church Street between Macquarie Street and the River.
  - The southern open spaces along Parramatta River.
  - The southern Half of Prince Alfred Park.
- A solar access control restricting development from overshadowing the following sites between 11am-1pm in midwinter:
  - The eastern half of the proposed River Link between Horwood Place and the River.

Detailed consideration of the impact of these controls is provided within the Scenario Testing of this study.

It was considered that the Lancer Barracks (6), the River Link (8) and new public open space within the Heartland Holden site (5) should not receive solar access protection due to resulting constraints on development potential and that the five protected areas provide appropriate protection of solar access for the key areas of the public domain in the City Centre.

Existing open spaces and key areas for solar access



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4.6 Key LEP controls in comparable centres

This section presents a summary of the approach to key LEP controls in North Sydney and Central Sydney, both part of 'Global Sydney' in the Draft Metropolitan Strategy for Sydney, the only centre of a recognised greater size than Parramatta. Key diagrams are reproduced and key features noted.

A separate section provides a discussion on the commercial core size of Parramatta as compared to other centres.

North Sydney (North Sydney LEP 2013)

Zoning

A central core area of the North Sydney Centre is zoned B3 Commercial Core, surrounded by an area of B4 Mixed Use.

Floor Space Ratio

The majority of sites have no maximum Floor Space Ratio controls, apart from a few selected sites (generally to the periphery of the Centre).

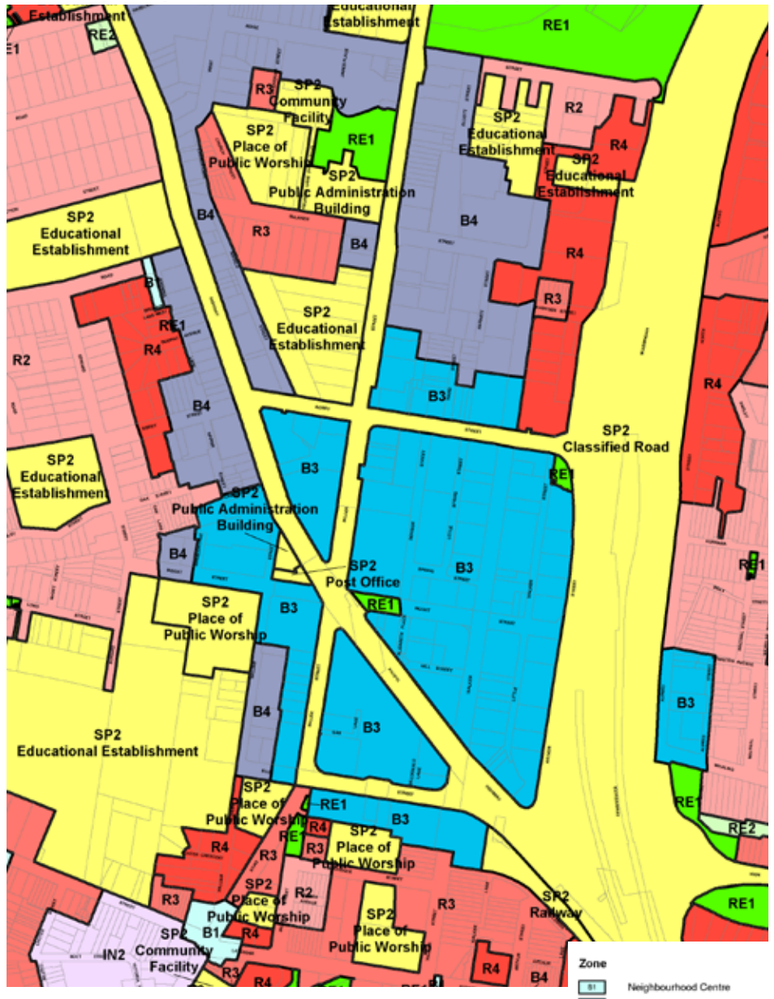
Sun access

A North Sydney Centre Map sets out a number of 'special areas' which are required to retain sunlight access at specific hours (no additional overshadowing between 12pm and 2pm on the majority of sites, and 10am and 2pm on the Don Bank Museum. The special areas generally focus on streets and plazas which are north-south in alignment (such as the eastern edge of Miller Street and Elizabeth Plaza) and areas to the south of wider east-west roads such as Berry Street, as well as some of the larger open spaces associated with plazas. Notably the Recreational Land portion of Mount Street (the most central Recreational Land within the Centre, and one of its most active) is not noted as a 'Special Area'.

Building heights

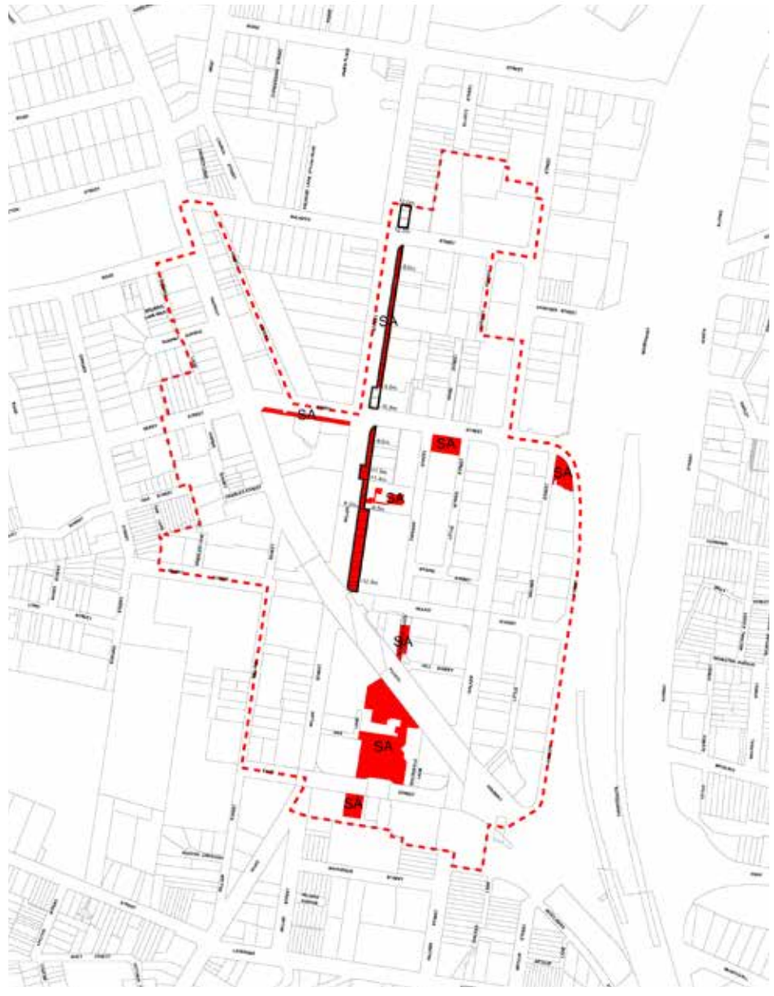
Maximum building heights have been set out for each site individually based on RL heights, generally aiming to transition from the tallest designated building of 100 Miller Street (200m RL) to the surrounding residential areas, which includes low two-storey buildings within close proximity.

North Sydney LEP - Land Zoning Map



North Sydney LEP - Height of Buildings Map

North Sydney LEP - North Sydney Centre Map



Sydney City (Sydney LEP 2012)

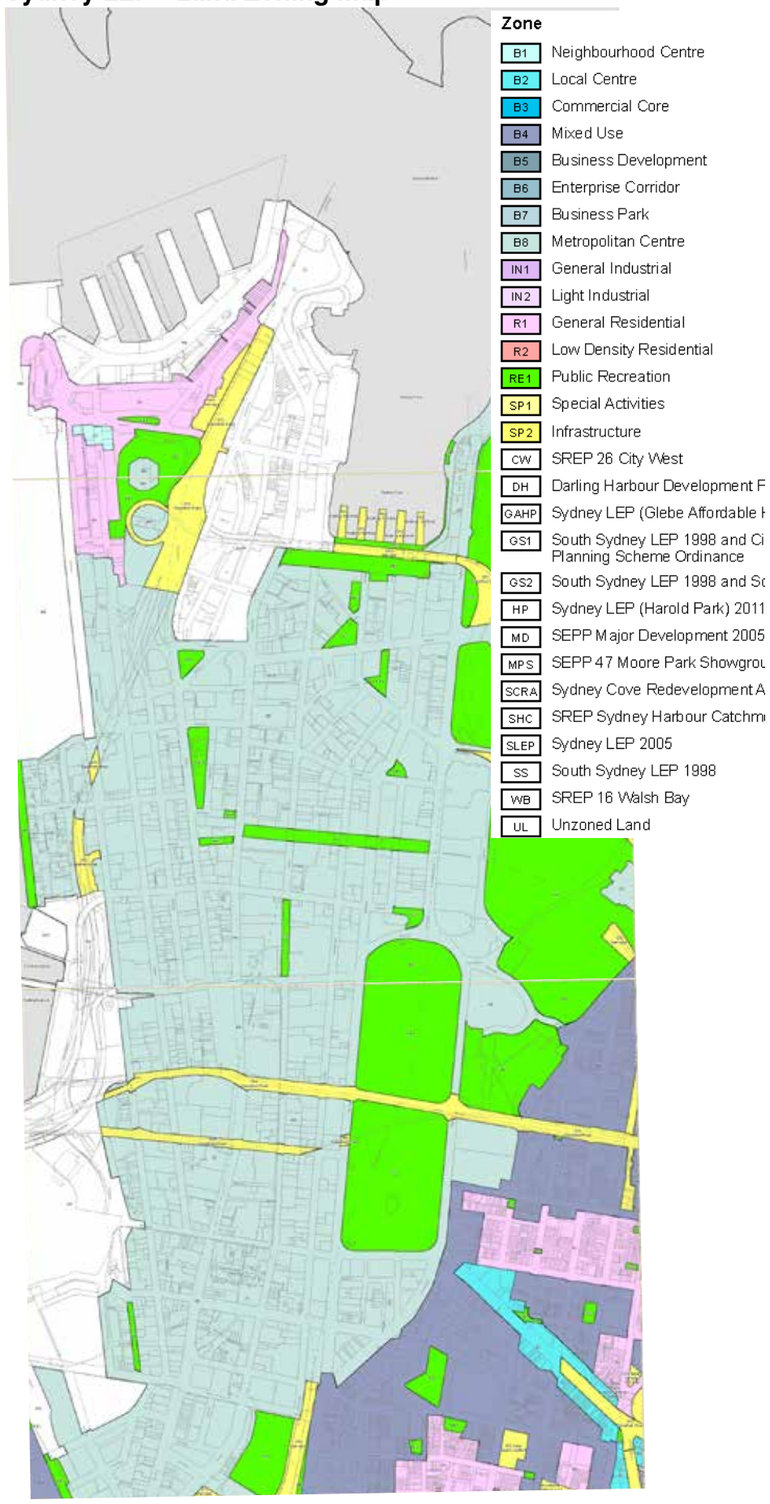
The land zone which covers the majority of Sydney City Centre is ‘B8 Metropolitan Centre’ which is a mixed use zone.

A blanket Maximum Floor Space Ratio of 8:1 is placed over the majority of Central Sydney. Additional FSR up to a total of 12.5:1 and 14.0:1 applies to commercial and residential uses. The additional FSR can be gained by participating in the heritage system. A further 10% FSR can be awarded for achieving design excellence, mainly through a competitive design process.

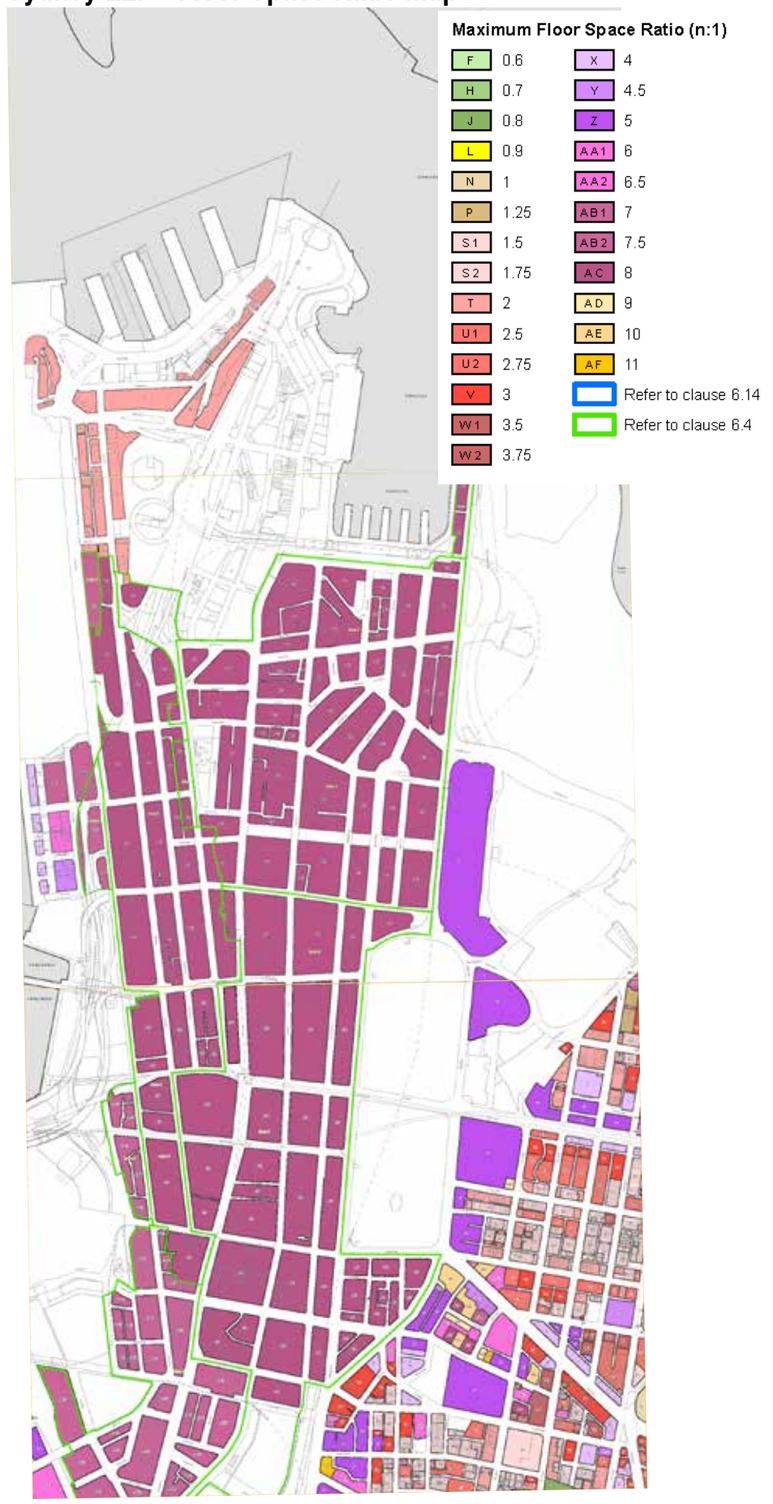
A Sun Access Plane Map sets out individual sites selected for ‘no additional overshadowing’ (generally key public open spaces) as well as those which are provided a less-onerous ‘planes’ (generally these are larger spaces) which are based on protecting solar access for specific open spaces. These angles generally locate these as slightly west of north (indicating solar access protection primarily around midday to early afternoon). Not all recreational lands are protected. Areas without protection include waterfront areas (Circular Quay, King Street Wharf), east-west pedestrian areas (Barrack St, Wynyard Ln), and others (Dixon St).

Maximum Building Heights are defined for the remainder of the City Centre areas which do not have height restrictions due to solar access issues. The highest of these is 235m above street level, which is around the height of the existing tallest buildings within Sydney (equivalent to the underside of Sydney Tower. The total height of Sydney Tower is 309m above ground). Heights generally step down from the high points between George Street and Castlereagh Street. Some sites (particularly those of heritage buildings) have also been designated for a maximum building height which is no taller than the existing building on site.

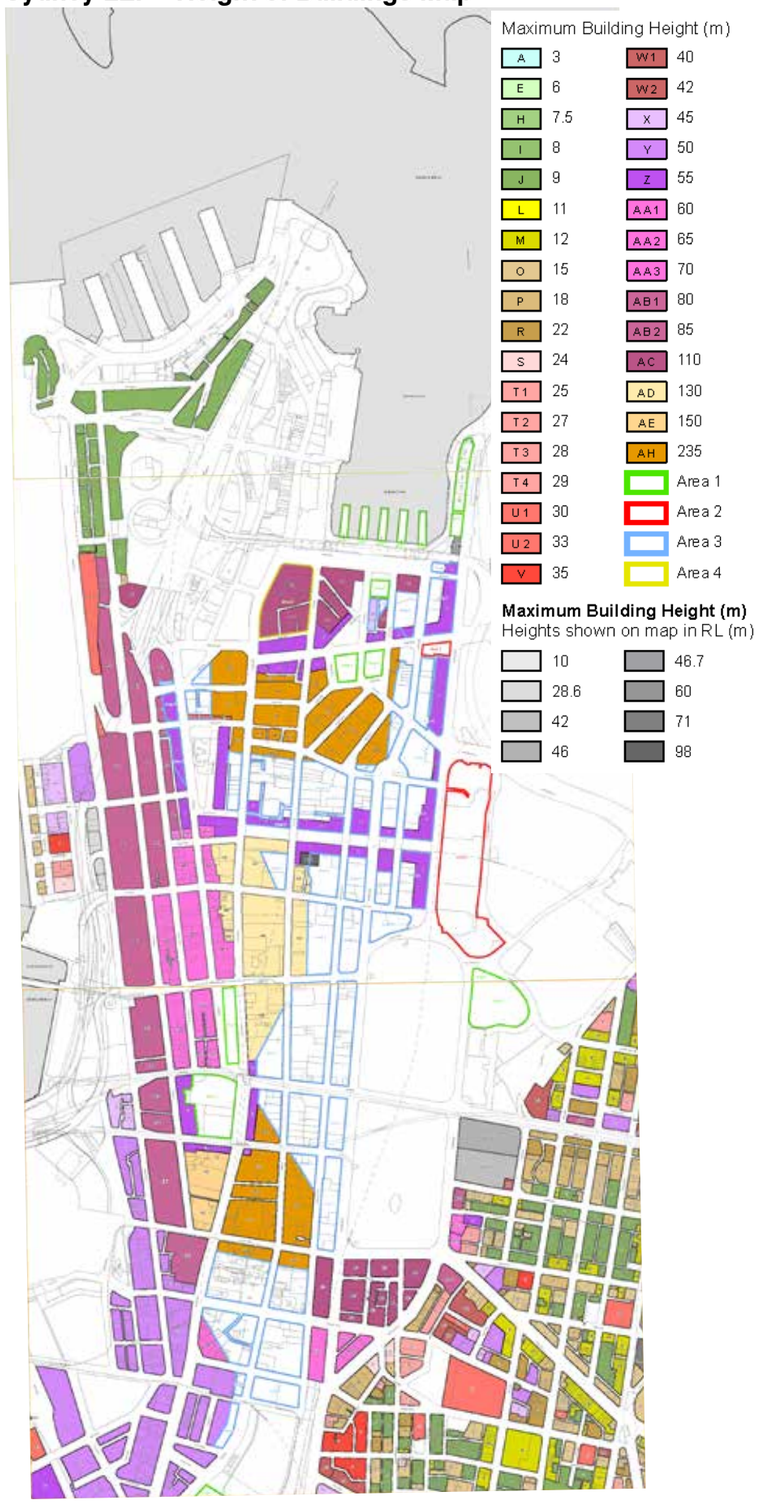
Sydney LEP - Land Zoning Map



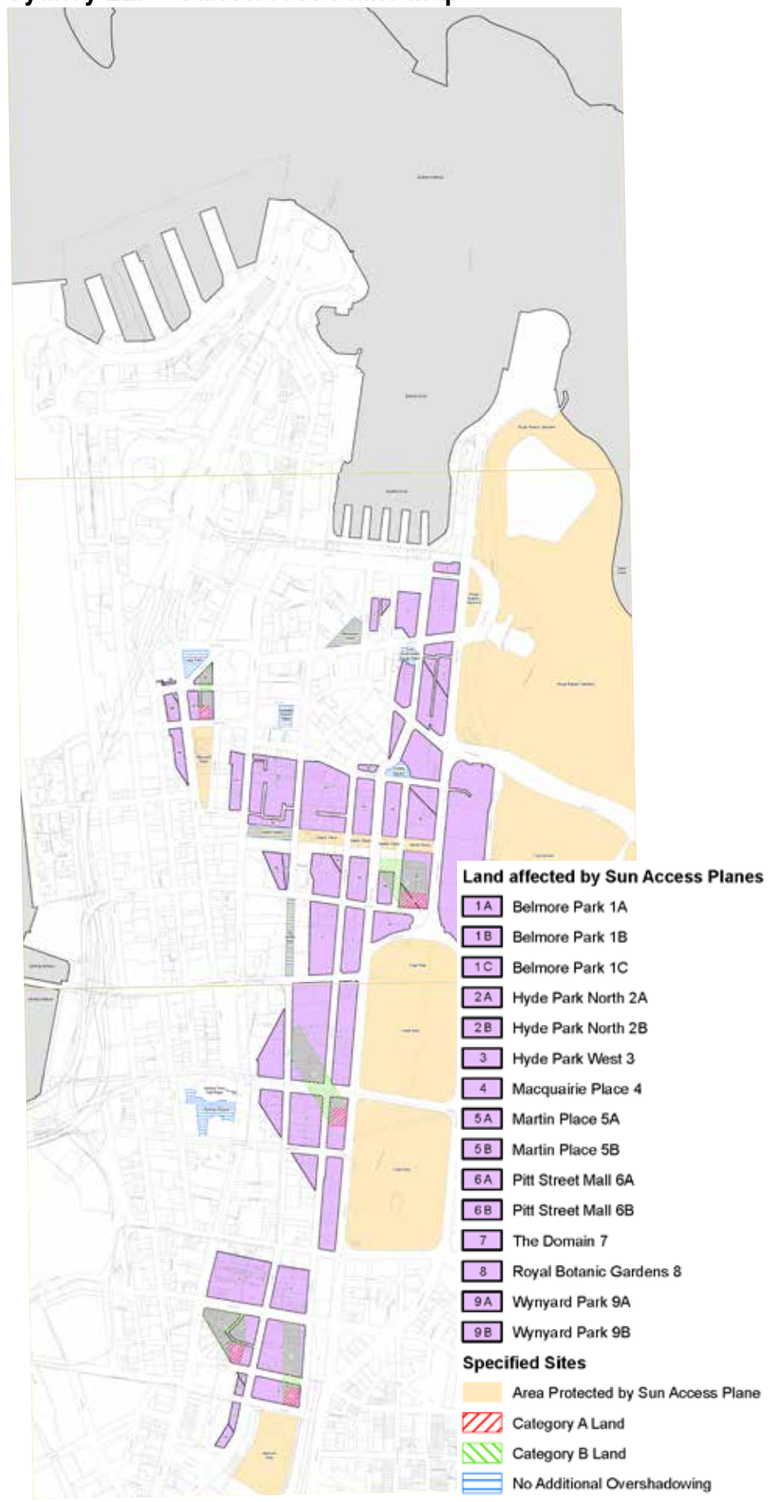
Sydney LEP - Floor Space Ratio Map



Sydney LEP - Height of Buildings Map

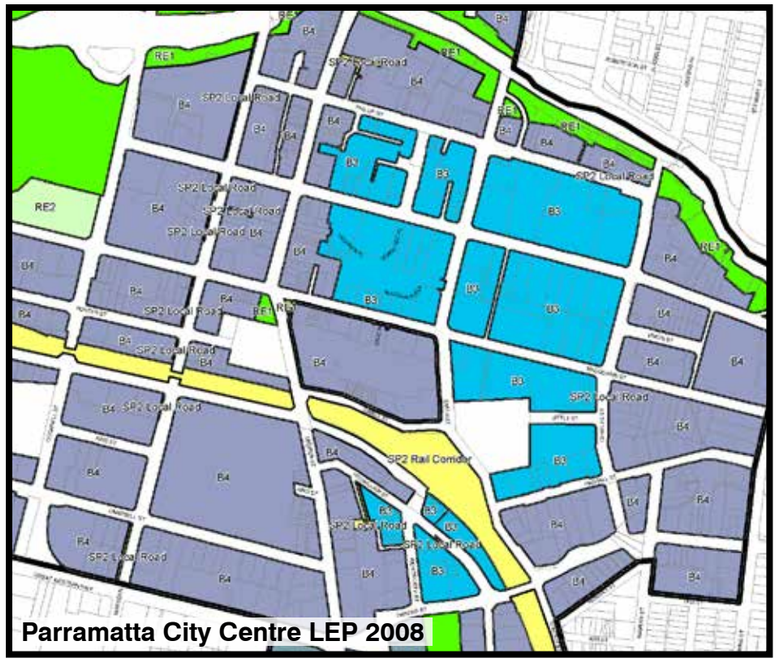


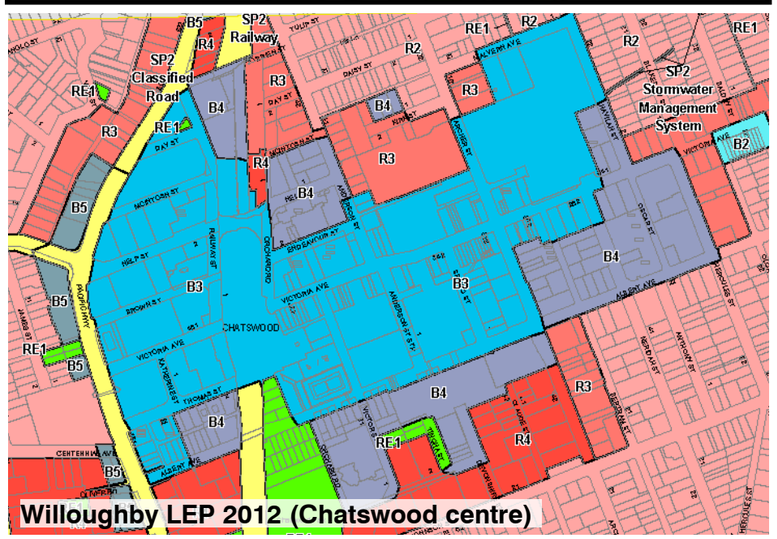
Sydney LEP - Sun Access Plane Map

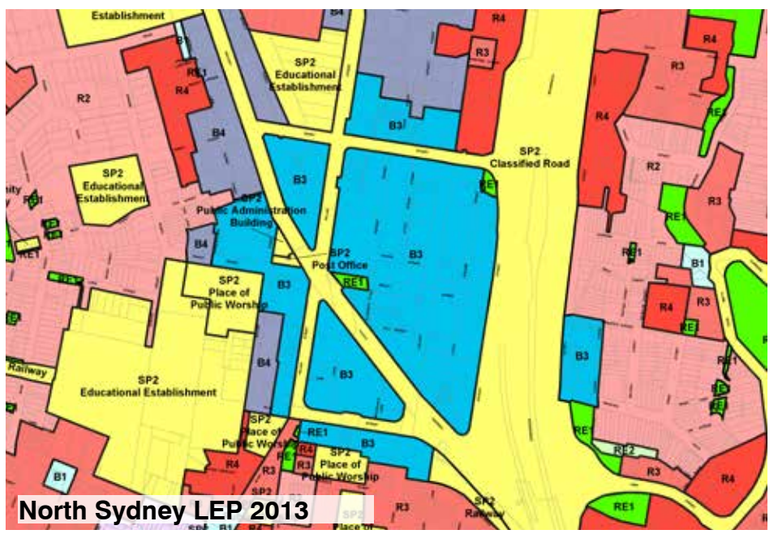


Comparison of Commercial core area to other Centres

As shown in the diagrams adjacent that are all at the same scale, the Commercial Core area of Parramatta City Centre (Zone B3) is smaller than that of both North Sydney and Chatswood Centres, whilst the mixed use zone surrounding is significantly larger.







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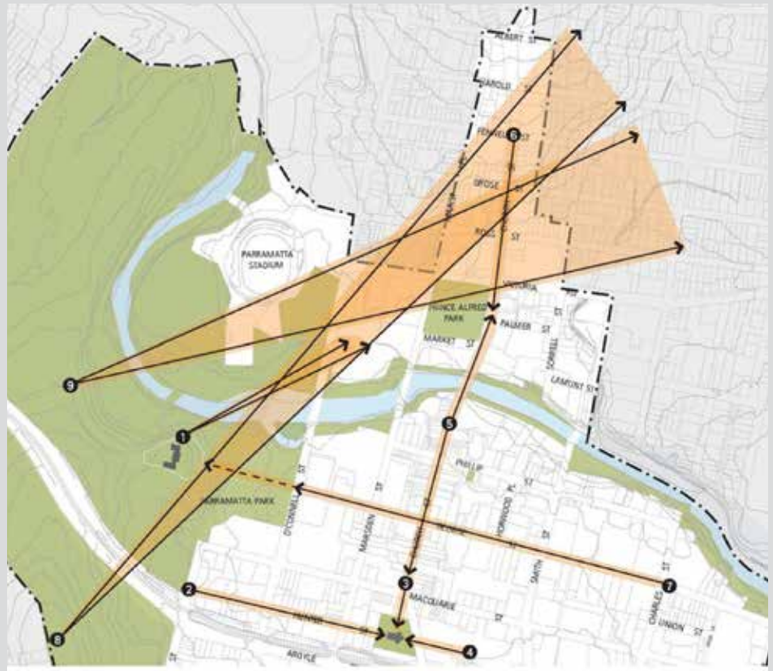
4.7 Importance of views for the skyline study

Views of identified importance in the DCP

The Parramatta DCP 2011 sets out both City Centre Historic Views and views of identified importance for the Old Government House and Domain. The key diagrams and key relevant controls are shown adjacent.

All of these views are either from Parramatta Park or along City Centre streets. The views selected from Parramatta Park vary significantly between the two diagrams.

City Centre Historic Views identified in the DCP



Identified View	Significance
1. Old Government House view northeast to the river, Old King's School building and site of former Government farm.	Key historic view demonstrating the relationship between the Governor, early Government farm and major school institution. Setting of both heritage items.
2. Views east to St John's along Hunter Street, available back to Parramatta Regional Park.	Hunter Street framed view to St John's church.
3. Views to St Johns church and square from north	Historic main street approach to city centre and St John's historic church and other heritage items in view.
4. Views west, from eastern side of square, mall, Civic Place and Town Hall.	Backdrop/setting of church. Views to church and spires.
5. Views north and south along Church Street, including view of ANZ Dome and heritage buildings, St John's Church spires to the south and St Peter's church.	Historic main street and approach to city. A number of heritage buildings.
6. Approach to Parramatta south along Church Street from Fennell Street, sequential views.	Historic main street and approach. Relatively consistent scale and setback of streetscape.
7. Views along George Street to Parramatta Park gatehouse and trees.	Key historic street approach to the park. City edge of park, framing views to gatehouse, trees and Old Government House (not now visible), views of streetscape, heritage items.
8. View from Marys Hill across Parramatta's City Centre to distant hills.	Key historic viewing point from the highest part of the Parramatta Park with best views of the city in the river valley, glimpses to hills behind the city between buildings.
9. View from The Crescent to the distant hills Key historic viewing point from the ridge of The Crescent	Key historic viewing point from the ridge of The Crescent to glimpses of distant hills between buildings.

Figure 4.3.3.4. Historic Views

1. View from Old Government House north-east to Old Kings School, river and former Government farm site

2. View east along Hunter Street to St Johns' Church and spire

3. View from Church Street Mall south of St Johns' Church and spires

4. Views from Civic Place and Town Hall to St Johns' Church and spires

Objectives

O.1 To maintain and enhance views from the city centre to significant heritage or natural features.

O.2 To enhance views along city streets.

O.3 To protect silhouettes of the tops of major buildings or structures as seen against the sky.

Controls

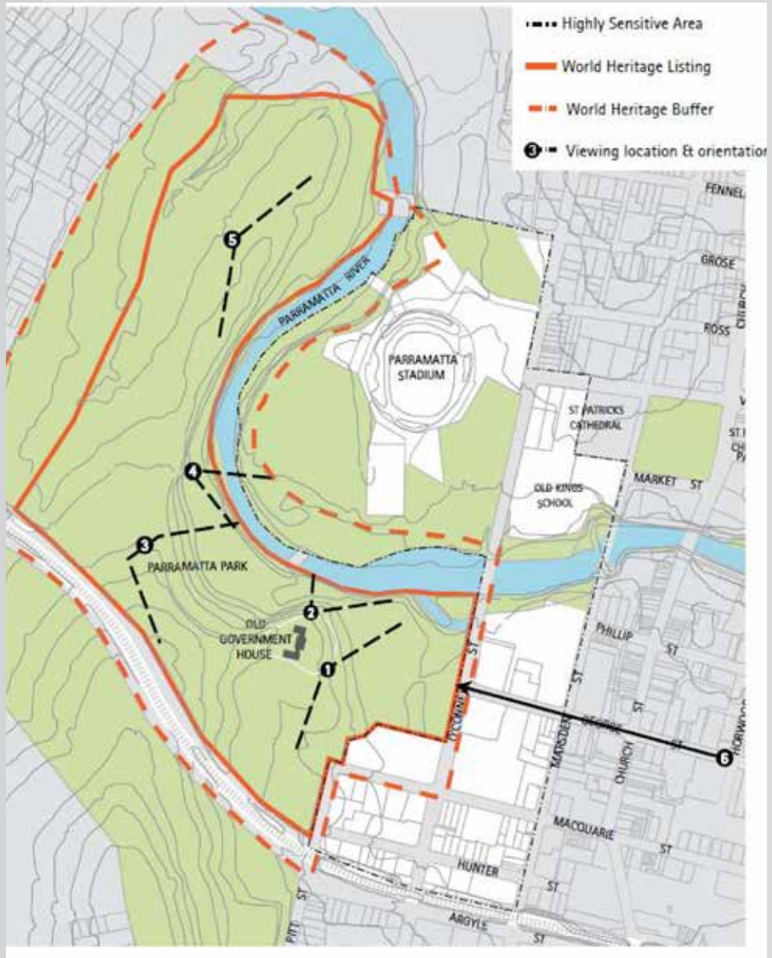
C.1 Views shown in Figure 4.3.3.4 are to be protected in the planning and design of development.

C.2 Align buildings to maximise and frame view corridors between buildings.

C.3 Carefully consider tree selection to provide views along streets and keep under storey planting low where possible.

C.4 Site analysis must address views with the planning and design of building forms taking into account existing topography, vegetation and surrounding development.

Old Government House and Domain views identified in the DCP



"Within the Park Edge Special Area, development must not be carried out that obstructs the sight lines between Old Government House and the Old Kings School site and the spire of St Patrick's Cathedral."

Map reference	View
1	From lawns east and south of OGH towards the city
2	From NE corner of OGH to Old Kings School
3	From Bath House area west of OGH to city
4	Parramatta River views towards city from road within Parramatta Park on west side of river
5	From Dairy Precinct within Parramatta Park looking north east and south east towards city
6	West along George Street towards Gatehouse of OGH

Importance of Old Government House and Domain Views

The Old Government House and Domain views identified in the DCP relate to the Old Government House and Domain World Heritage Site. Controls to this World Heritage Site and in particular the identified 'Highly Sensitive Area' have been agreed between Council and national heritage authorities.

The intent of the highly sensitive zone is to nominate areas that pose a high risk to significant visual impact on Old Government House and Domain. To avoid potential for cumulative impacts the proposal must take into account current or approved developments in relation to spacing between buildings and retaining a sense of openess and sky between buildings:

This agreement has been based on the report '*Development In Parramatta City And The Impact On Old Government House And Domain's World And National Heritage Listed Values: Technical Report'* (Planisphere 2012).

Provided adjacent are key extracts of the Planisphere Report, with key recommendations relating to urban design issues highlighted in bold.

The views studied within this report and their identified significance are summarised in the table and plan opposite.

Extracts from Planisphere report (2012)

Implications For Proposed Development

Proposed development within the areas of high sensitivity of Parramatta risk having a significant impact on the World and National Heritage values of Old Government House and Domain. This impact may be mitigated below the significant impact threshold by adhering to the essential future development guidelines set out in this document. Impacts that cannot be reduced to below the significant impact level would require assessment by the Commonwealth under the EPBC Act.

To avoid potential for cumulative impacts on the World and National Heritage values, ***any new development proposal must take into account current or approved developments in relation to spacing between buildings to retain a sense of openness and sky between buildings.***

Essential Future Development Guidelines

A1 Apply the design excellence provisions of the Parramatta City Centre LEP 2007 to all new developments in this location.

A2 The form, bulk and massing of new buildings must not visually dominate the setting of Old Government House when viewed from within the Domain Parklands. This can be achieved by ensuring that new built form retains a sense of openness and sky between buildings, and does not result in a 'wall' of development when viewed from within the domain, by:

A2.1 ***ensuring that the upper levels of towers that are visible above the established tree canopy of the Domain Parklands, are narrower and /or more slender in form than the lower levels;***

A2.2 ***ensuring that buildings are designed so that the side of towers facing the Domain is no wider than 30m; and,***

A2.3 utilising materials and external finishes that reduce distant visibility against the sky (such as light colours, glass and reflective surfaces).

Development Guidelines for the Sensitive Area ('City Central')

A5 The most intensive development should be contained within the city central precinct to ensure that the city buildings do not visually dominate the skyline over a broad area. This can be achieved by:

A5.1 ensuring that the tallest buildings within Parramatta are located within the City Central precinct; and

A5.2 ensuring that there is a distinctive height edge to the city centre, particularly at Phillip Street.

B6 New development should strengthen the visual connection between the OGHD and the city, when viewed from the Domain, including by improving the legibility of the central city and its buildings (refer to Important Views 1 and 5). This may be achieved by:

B6.1 ensuring that towers are well proportioned, with a visually interesting top, and an elevation that enhances the skyline; and

B6.2 introducing upper level setbacks to allow for view sharing from, and between, buildings; and

B6.3 ensuring buildings are designed to the highest contemporary architectural standards.

B7 New development in George Street should strengthen and frame the vista along the street and further reinforce the formal Georgian town plan. This concept is outlined within the City Centre DCP and includes:

B7.1 consistent setbacks (including consistent front setbacks at street level); and

B7.2 no building facade clutter (including signage), particularly below first floor level is also desirable.

B8 New development throughout the city centre area should reinforce the formal layout of the Georgian town plan with:

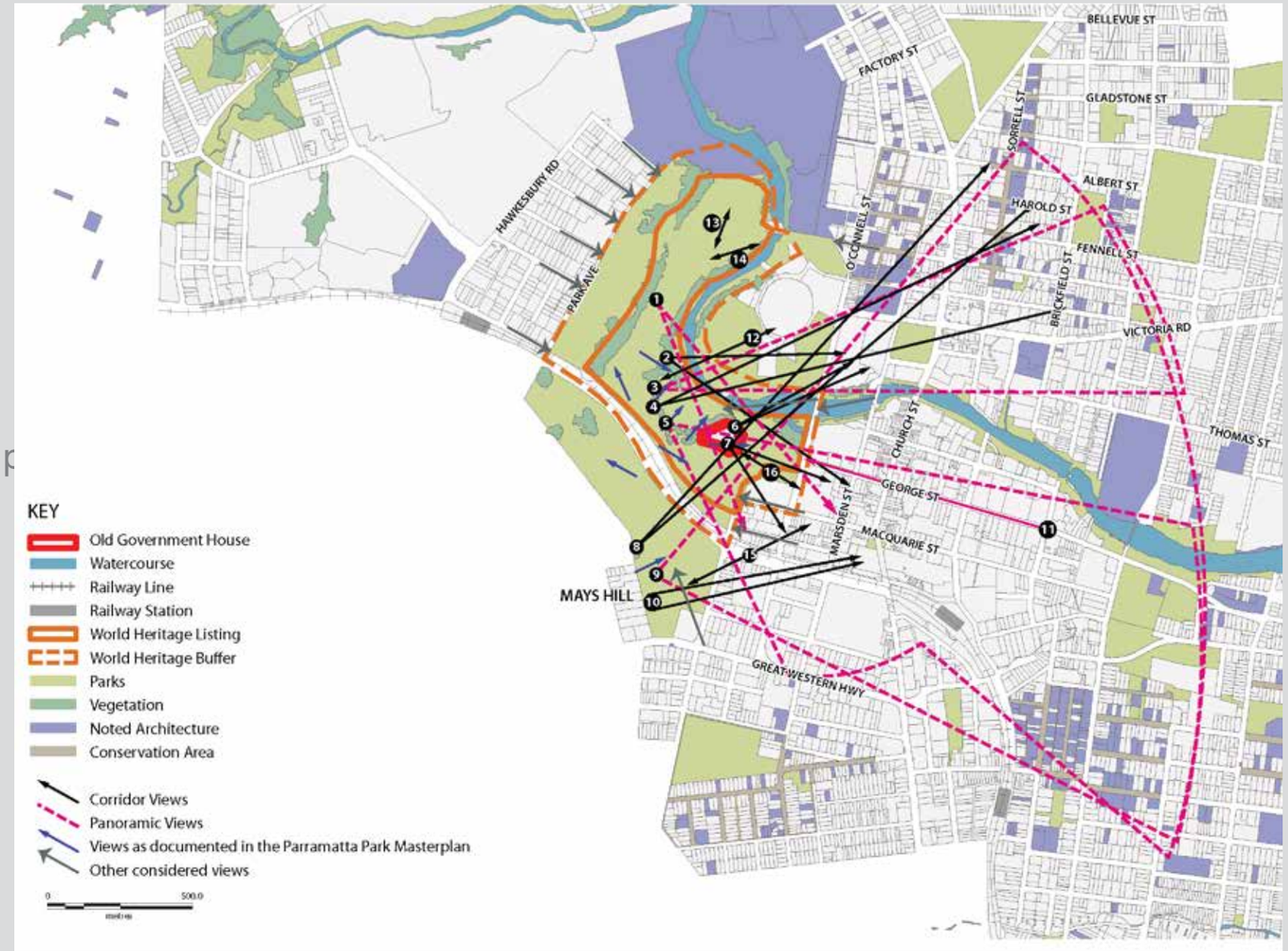
B8.1 consistent setbacks (including continuous front setbacks at street level); and

B8.2 orientation of buildings towards the street grid.

Investigated views and view rating (Planisphere 2012)

VIEWS RATINGS TABLE	HERITAGE VALUES			
VIEWS	MULTILAYERED	PROMINENCE	LANDSCAPE SETTING	TOTAL
1: OGH towards the city	2	3	3	8
1b: OGH courtyard towards the city	3	2	1	6
2: Looking NE towards OGH within domain	2	3	3	8
3: Looking NE towards former Kings School from OGH	3	2	2	7
4: Looking N from the crescent	2	1	3	6
5: Bath house area to city	3	2	2	7
6: Looking NE from the crescent towards the city	2	1	2	5
7: Bath house area to Westmead	1	1	2	4
8: Parramatta River views	2	2	3	7
9: Looking E from the crescent towards the city	2	1	1	4
10: Dairy precinct	3	1	3	7
11: Looking N towards the Female Factory	1	2	1	4
12: George Street	2	3	2	7
13: Macquarie Street	1	2	2	5
14: Hunter Street	2	1	1	4
15: Looking E towards Old Government Farm	3	2	1	6
16: Mays Hill	1	1	2	4

High significance Moderate significance Low significance



Views considered for the skyline study

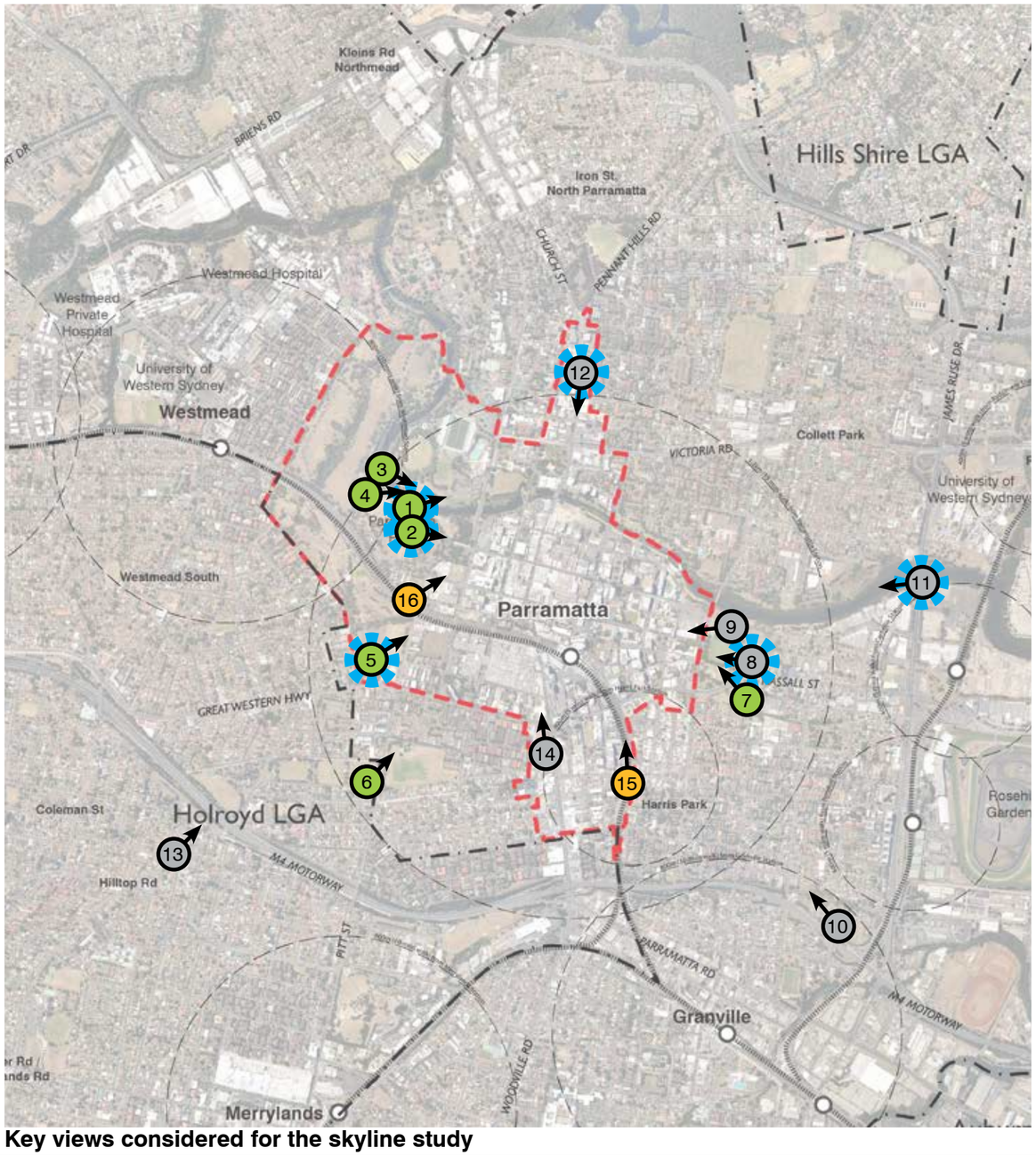
The diagram adjacent shows the views which have been considered within this study. The identified views can be broadly categorised into the following groups:

- Views from key open spaces and heritage items - these include key views from Old Government House and Parramatta Park (as described above), Experiment Farm and other open spaces near the City Centre.
- Views along roads. Many major roads face the Parramatta City Centre. These include the M4 Motorway, Church Street from the north and South and James Ruse Drive from east across the river
- Views from the railway and railway platforms. Key views include the approach to Parramatta from the west across Parramatta Park and from Harris Park railway station.

Some of the views identified of the DCP have been selected for study however others have not, particularly where the view does not focus on the skyline elements being tested through this analysis, including where:

- the view is of a streetscape (including George Street, Hunter Street and Church Street views) and the skyline study is unlikely to provide significant information on how these views will be affected by future development as its focus is height and capacity rather than lower-level areas such as podiums.
- the view is focussed on open space areas or away from the City Centre skyline.

The views identified adjacent are presented over the following pages with a summary of their importance.



Key views considered for the skyline study

1 Old Government House facing Parramatta River

	Categorisation	Key features
Importance of view	**High**	Identified in City Centre and OGH&D views
Visibility and importance of skyline in view	**Low-Moderate**	City Centre skyline is generally obstructed by vegetation. Uncertain without testing whether future built form may be visible from this location.
View selection for modelling	✓	

2 Old Government House facing George Street

	Categorisation	**Key features**
Importance of view	**High**	Identified in City Centre and OGH&D views. Key historic view.
Visibility and importance of skyline in view	**Low-Moderate**	City Centre skyline is generally obstructed by vegetation. Generally only new built form in the near distance will be visible
View selection for modelling	✓	

3 Parramatta Park adjacent to Parramatta River

	Categorisation	Key features
Importance of view	**Moderate-High**	Identified in OGH&D views. Low use.
Visibility and importance of skyline in view	**Low**	Only a small portion of the CBD skyline is visible in the view, with the remainder generally obstructed by vegetation. The focus of the view is on the Parramatta River and green spaces
View selection for modelling	✗	

4 The Crescent, Parramatta Park

	Categorisation	Key features
Importance of view	**Moderate-High**	Identified importance in State Heritage listing.
Visibility and importance of skyline in view	**Moderate**	Extensive but partially obscured by vegetation. Does not form the focus of views, which are directed north towards Parramatta River.
View selection for modelling	✗	

5 Mays Hill, Parramatta Park

	Categorisation	Key features
Importance of view	**Moderate-High**	Identified in City Centre views. Prominent location for obtaining views however use of space is generally low.
Visibility and importance of skyline in view	**High**	Skyline forms focus of view, with open space in foreground. Entire skyline is visible from this location.
View selection for modelling	✓	

6 Ollie Webb Reserve

	Categorisation	Key features
Importance of view	**Low-Moderate**	Some public use of the space..
Visibility and importance of skyline in view	**Low**	Parts of the CBD skyline are visible however it is generally distant and obscured by vegetation.
View selection for modelling	✗	

Source: Google Street View

7 Experiment Farm

	Categorisation	Key features
Importance of view	**High**	Identified importance in State Heritage listing.
Visibility and importance of skyline in view	**Moderate**	Extensive but partially obscured by vegetation. Does not form the focus of views, which are directed north towards Parramatta River.
View selection for modelling	✗	

8 Eastern approach - Hassall St / Parkes St

	Categorisation	Key features
Importance of view	**Moderate-High**	High-use by vehicles. Some use by pedestrians
Visibility and importance of skyline in view	**Moderate-High**	Partially obstructed by vegetation
View selection for modelling	✓	

9 Eastern approach - George St

	Categorisation	**Key features**
Importance of view	**Moderate-High**	High-use by vehicles. Some use by pedestrians.
Visibility and importance of skyline in view	**Moderate-High**	Near distance view Partially obstructed by vegetation
View selection for modelling	✗	

Source: Google Street View

10 M4 Motorway near Granville/Rosehill

	Categorisation	Key features
Importance of view	**Low-Moderate**	High use however limited duration of view and distant from majority of City Centre. Visibility is generally focussed on the road.
Visibility and importance of skyline in view	**Moderate**	Some elements of skyline visible but distant
View selection for modelling	✗	

Source: Google Street View

11 James Ruse Drive bridge (Parramatta River)

	Categorisation	Key features
Importance of view	**Moderate-High**	Attractive view with river and vegetation. Some pedestrian activity and high vehicular activity. Also representative of view from river ferry.
Visibility and importance of skyline in view	**High**	Extensive view of majority of skyline
View selection for modelling	✓	

12 Northern Church Street

	Categorisation	**Key features**
Importance of view	**Moderate**	Significant use by pedestrians in northern City Centre and vehicles approaching Parramatta from north. Not an attractive location to stop and obtain views.
Visibility and importance of skyline in view	**Low-Moderate**	Closer elements of skyline obstruct those more distant
View selection for modelling	✓	

13 Burnett Street, Merrylands

	Categorisation	Key features
Importance of view	**Low-Moderate**	Local topography gives some prominence to view. Moderate use by vehicles and pedestrians.
Visibility and importance of skyline in view	**Low-Moderate**	Alignment of road gives prominence to some elements of City Centre skyline however skyline is distant from viewing location and visibility is limited by width of street.
View selection for modelling	✗	

Source: Google Street View

14 Southern Church Street (Auto Alley)

	Categorisation	Key features
Importance of view	**Low-Moderate**	High use by vehicles. Some use by pedestrians. Not an attractive location to obtain views.
Visibility and importance of skyline in view	**Moderate**	Closer elements of skyline obstruct those more distant
View selection for modelling	✗	

15 Harris Park Railway Bridge

	Categorisation	Key features
Importance of view	**Moderate**	Moderately high use however view is currently dominated by railway and rear of buildings.
Visibility and importance of skyline in view	**Moderate**	Recent near buildings will obstruct some areas of CBD
View selection for modelling	✗	

16 Railway approaching Parramatta from Westmead

	Categorisation	Key features
Importance of view	**Low**	First major view of Parramatta City Centre on railway from west, across Parramatta Park. Duration of view is short and breadth of view restricted by vegetation.
Visibility and importance of skyline in view	**Moderate**	Part of the City Centre skyline is visible however
View selection for modelling	✗	

Selection of key views for skyline testing of scenarios

A limited number of views of the City Centre skyline have been included for the purpose of the testing built form the scenarios.

As well as the importance of each view, consideration has been given to ensuring that the selected views represent a distribution of views from different areas in and around the City Centre.

In summary selected views are:

- View 5 and View 11 are the only two views considered with high visibility of the City Centre skyline and have been selected on this basis.
- Views 1 and 2 have been selected as the most significant historic views of the City Centre
- View 8 has been selected as representative of a number of views from east of the City Centre (e.g. View 7 and View 9 also have some significance.)
- View 12 has been selected to represent key corridor-views of the outer Church Street corridor.

Viewpoints considered

View Type	View Number	Location	Importance of view	Visibility of skyline	View selected for testing of scenarios
Open space and historic	1	Old Government House facing Parramatta River	High	Low-Moderate	✓
	2	Old Government House facing George Street	High	Low-Moderate	✓
	3	Parramatta Park adjacent to Parramatta River	Moderate-High	Low	✗
	4	The Crescent, Parramatta Park	Moderate-High	Moderate	✗
	5	Mays Hill, Parramatta Park	Moderate-High	High	✓
	6	Ollie Webb Reserve	Low-Moderate	Low	✗
	7	Experiment Farm	High	Moderate-High	✗
Road	8	Eastern approach - Hassall St / Parkes St	Moderate-High	Moderate-High	✓
	9	Eastern approach - George St	Moderate-High	Moderate-High	✗
	10	M4 Motorway near Granville/Rosehill	Low-Moderate	Moderate	✗
	11	James Ruse Drive bridge (Parramatta River)	Moderate-High	High	✓
	12	Northern Church Street	Moderate	Low-Moderate	✓
	13	Burnett Street, Merrylands	Low-Moderate	Low-Moderate	✗
	14	Southern Church Street (Auto Alley)	Low-Moderate	Low	✗
Railway	15	Harris Park Railway Bridge	Moderate	Moderate	✗
	16	View from train approaching from west	Low	Moderate	✗

DRAFT

5.0 Built form scenarios

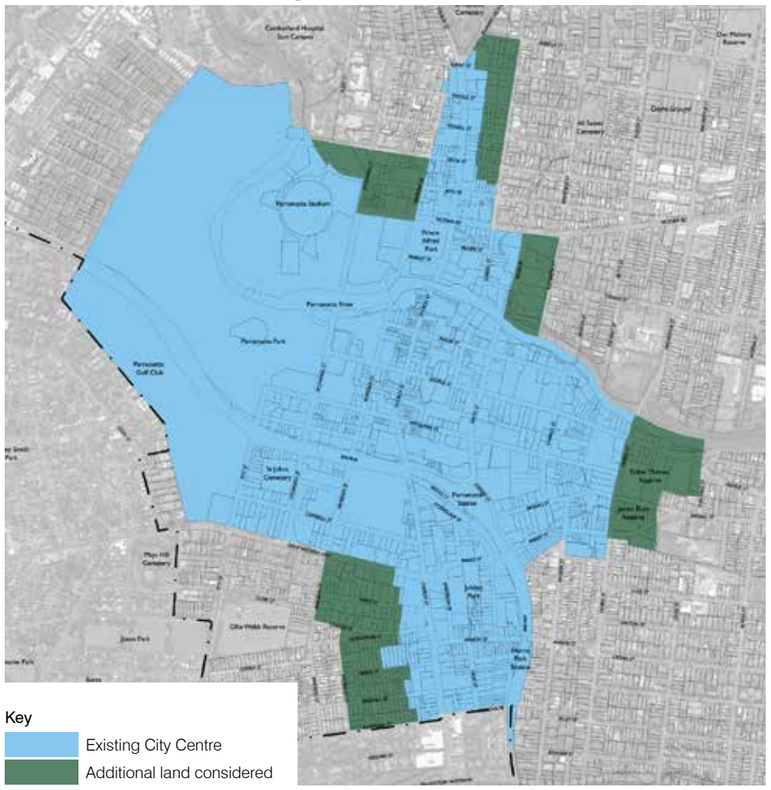
5.1 Introduction

This chapter first presents four built form scenarios for Parramatta, based on the detailed considerations and assumptions provided in Chapter 3 of this document. The diagram adjacent shows the steps used in developing the 3D model of the scenarios.

Analysis of each scenario is provided within this chapter including its built form outcomes, capacity, solar access and key views. These have led to the recommended controls identified in Section 6.0 ‘Conclusions and recommendations’ of this document.

The area selected for built form scenario testing, based on the analysis within Section 3.0 ‘City Centre boundary’ of this document includes the existing City Centre and a small area of additional land. This is described in the diagram below

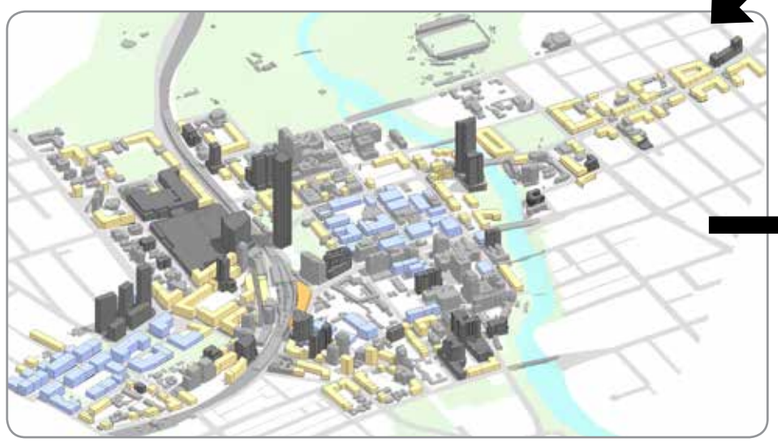
Area selected for testing



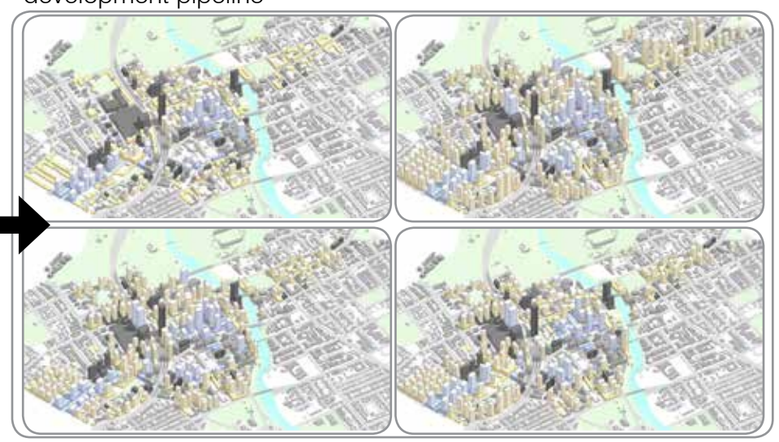
Overview of development of model

Step 1 - Model of existing CBD buildings

Step 2 - Remove likely development sites and add current development pipeline



Step 3 - Add podium/low-rise form to DCP requirements



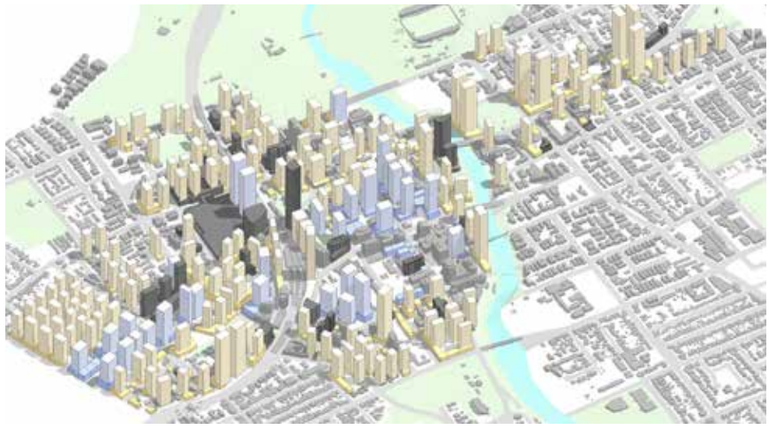
Step 4 - Add tower development for each option and adjust sites where appropriate for possible market delivery

The scenarios shown in this chapter are based on fundamental approaches to height and floor space ratios, each relating to a different approach to describing the key controls within a City Centre. In summary, they are:

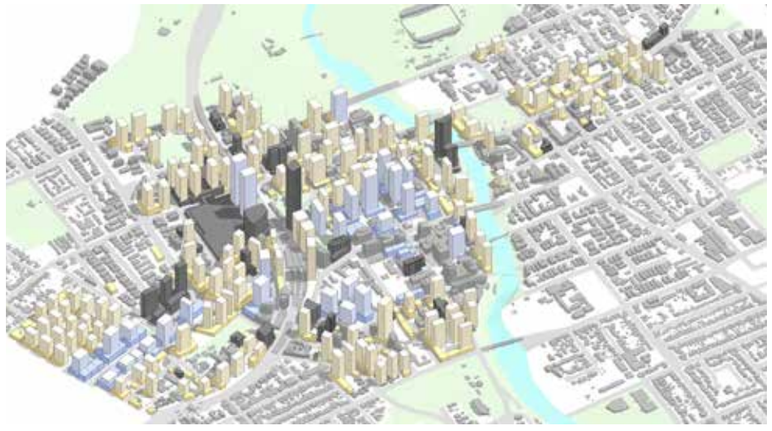
- **Scenario A - existing controls** - based on sites developing to the current controls, including existing solar access requirements and latest Auto Alley proposals.
- **Scenario B - no height or FSR controls** - where the main restriction on development is what the market may deliver.
- **Scenario C - increased FSR, no height control** - based on the provision of a simple, increased FSR control similar to that provided in the City of Sydney.
- **Scenario D - increased height, no FSR control** - based on providing a 'stepped' height transition to adjacent areas and restricting heights to improve solar access outcomes to key areas.

Scenario A - existing controls

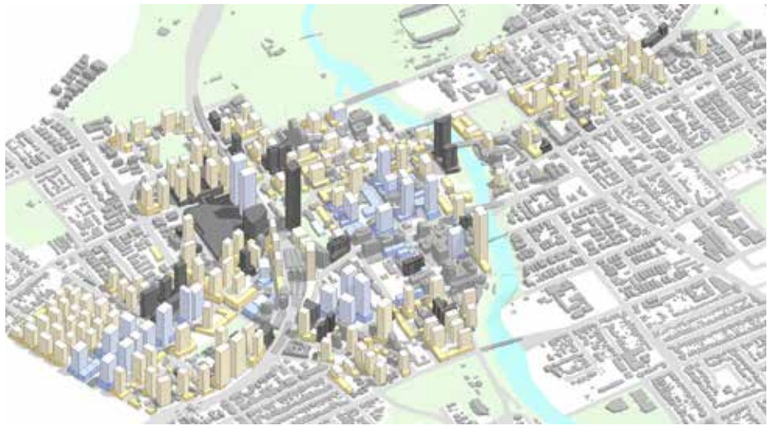
Scenario B - No height or FSR controls



Scenario C - increased FSR, no height control



Scenario D - increased height, no FSR control



5.2 Scenario A - existing controls

Basis of scenario:

- Existing LEP height and floorspace controls respected
- Auto Alley sites developed to the heights set out in the 'Preliminary Development Concept 2' set out in the "Auto Alley Renewal Study Community Consultation" document.
- Solar access requirements to public spaces have been shown as in the current DCP (i.e. for the Lancer Barracks, Jubilee Park and part of Civic Place only).
- The existing Commercial Core is retained as the focus for commercial development.
- Major constraints to development include the existing height, floor space ratio and sun access controls.

Opportunities

- Good sunlight

Challenges

- Does not deliver floorspace projections (below the 1,722,000-2,817,000 sqm GFA target set by SGS Economics and Planning)
- Does not create new skyline for Parramatta
- Little development potential for many sites, particularly to the north, east and west of the city centre.

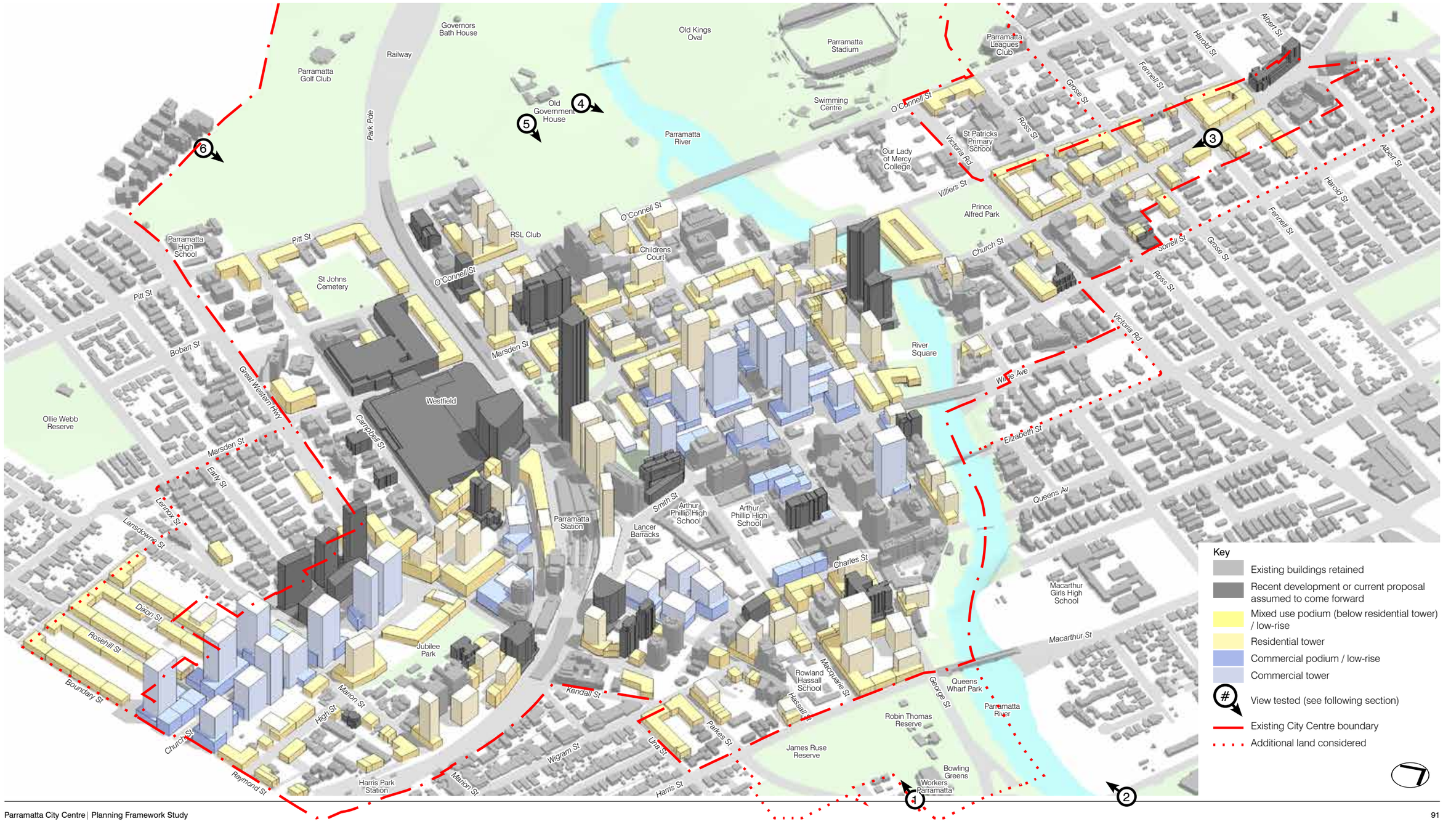
Headline figures:

	Existing Centre	All sites**
New residential GFA*	**700,000 sqm**	**760,000 sqm**
New commercial GFA*	**530,000 sqm**	**530,000 sqm**
Average FSR	**4.0:1**	**3.9:1**

Maximum heights shown 134 metres

* including subtractions for parking in podiums and demolition of existing floorspace

** existing centre plus additional land considered


Governors Bath House
Railway
Old Kings Oval
Parramatta Stadium
Parramatta Leagues Club
Albert St
Harold St
Fennell St
Grose St
Parramatta Golf Club
Park Pde
Old Government House
Swimming Centre
O'Connell St
Ross St
St Patricks Primary School
Victoria Rd
Our Lady of Mercy College
Villiers St
Parramatta River
Prince Alfred Park
Church St
Sorrell St
Parramatta High School
Pitt St
RSL Club
O'Connell St
Childrens Court
St Johns Cemetery
Bobart St
Marsden St
River Square
Westfield
Great Western Hwy
Campbell St
Ollie Webb Reserve
Early St
Lennox St
Lansdowne St
Parramatta Station
Smith St
Arthur Phillip High School
Lancer Barracks
Charles St
Macarthur Girls High School
Macarthur St
Dixon St
Rosehill St
Boundary St
Jubilee Park
Kendall St
Rowland Hassall School
Macquarie St
Hassall St
George St
Queens Wharf Park
Robin Thomas Reserve
James Ruse Reserve
Bowling Greens
Workers Parramatta
Marion St
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Wigram St
Una St
Parkes St
Harris Park Station
Harris St
Raymond St
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Elizabeth St
Queens Av
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Key
Existing buildings retained
Recent development or current proposal assumed to come forward
Mixed use podium (below residential tower) / low-rise
Residential tower
Commercial podium / low-rise
Commercial tower
View tested (see following section)
Existing City Centre boundary
Additional land considered

5.3 Scenario B - no height or FSR controls

Basis of scenario:

- No height or FSR restriction.
- Development is generally limited to what the commercial market may deliver- see assumptions in Section 4.3 ‘Assumptions used in the scenarios’.
- No solar access control is assumed.
- The existing Commercial Core is retained as the focus for commercial development.

Opportunities

- Market perception encouraging development

Challenges

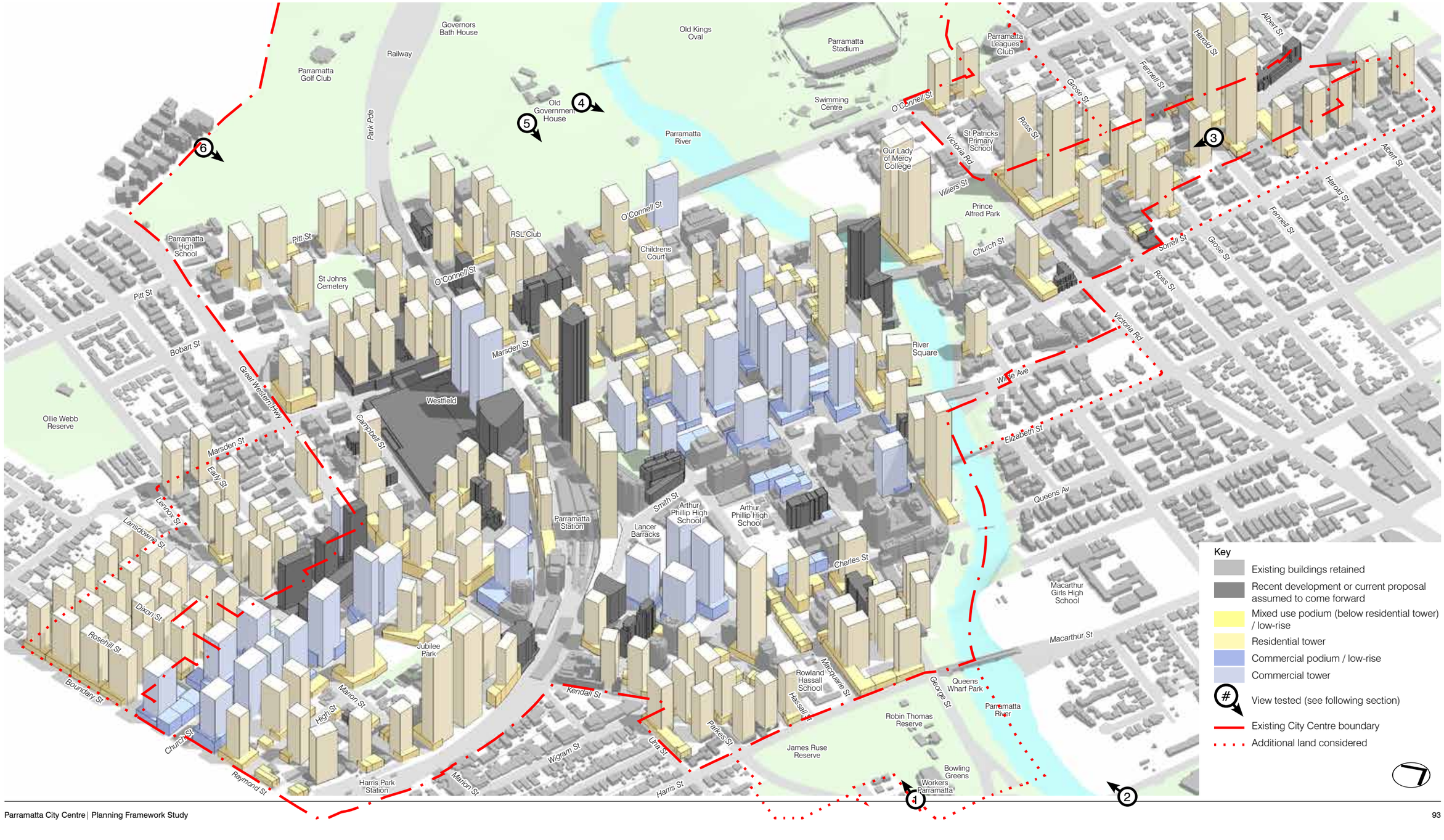
- Land speculation inhibiting development
- Unnecessarily high development potential that the market is unlikely to deliver
- Likely to result in very patchy development and bulky buildings with pressure on tower separation
- Loss of sunlight to majority of City Centre public domain
- No transition to surrounding areas and poor heritage outcomes, including for Old Government House and Domain World Heritage site.
- Multiple sites may develop to similar heights to the approved Aspire Tower. The independent assessment of the Aspire planning proposal justified its approval on the basis that it would be a ‘landmark’ building and recommended that provisions be made to ensure that future development was deferential to the Aspire tower in terms of relative height.

Headline figures:

	Existing Centre	All sites**
New residential GFA*	**2,870,000 sqm**	**3,630,000 sqm**
New commercial GFA*	**1,010,000 sqm**	**1,050,000 sqm**
Average FSR	**8.5:1**	**8.7:1**
Maximum heights shown	**280 metres**	

* including subtractions for parking in podiums and demolition of existing floorspace

** existing centre plus additional land considered


Governors Bath House
Old Kings Oval
Parramatta Stadium
Parramatta Leagues Club
Railway
Parramatta Golf Club
Park Pde
Old Government House
Swimming Centre
O'Connell St
Grose St
Fennell St
Harold St
Albert St
Ross St
Victoria Rd
St Patricks Primary School
Our Lady of Mercy College
Villiers St
Parramatta River
Prince Alfred Park
Church St
Sorrell St
Parramatta High School
Pitt St
RSL Club
Childrens Court
St Johns Cemetery
Bobart St
Marsden St
Great Western Hwy
River Square
Wide Ave
Westfield
Ollie Webb Reserve
Campbell St
Elizabeth St
Early St
Lennox St
Lanscowne St
Smith St
Arthur Phillip High School
Parramatta Station
Lancer Barracks
Queens Av
Charles St
Macarthur Girls High School
Macarthur St
Dixon St
Rosehill St
Jubilee Park
Boundary St
Marion St
High St
Kendall St
Rowland Hassall School
Macquarie St
Hassall St
George St
Queens Wharf Park
Parramatta River
Robin Thomas Reserve
Parkes St
Una St
Wigram St
James Ruse Reserve
Bowling Greens
Workers Parramatta
Harris Park Station
Raymond St
Harris St
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Key
Existing buildings retained
Recent development or current proposal assumed to come forward
Mixed use podium (below residential tower) / low-rise
Residential tower
Commercial podium / low-rise
Commercial tower
View tested (see following section)
Existing City Centre boundary
Additional land considered

5.4 Scenario C - increased FSR, no height control

Basis of scenario:

- FSR controls have been developed (see diagram right) which are comparable to (slightly less than) those of Central Sydney (see Section 4.6 'Key LEP controls in comparable centres'). These are reduced in outer, transitional areas acknowledge neighbouring sensitive areas:
- No height control is provided.
- No solar access control is assumed.
- The existing Commercial Core is retained as the focus for commercial development.

Opportunities

- Consistent with floor space projections
- With no height control, towers are encouraged to be taller, slimmer and well separated
- Tall buildings with gaps between - consistent with principles of Old Government House and Domain World Heritage site agreement
- Retains the core of the City Centre as the focus of activity

Challenges

- Delivering appropriate mix of uses
- Sun access to open spaces

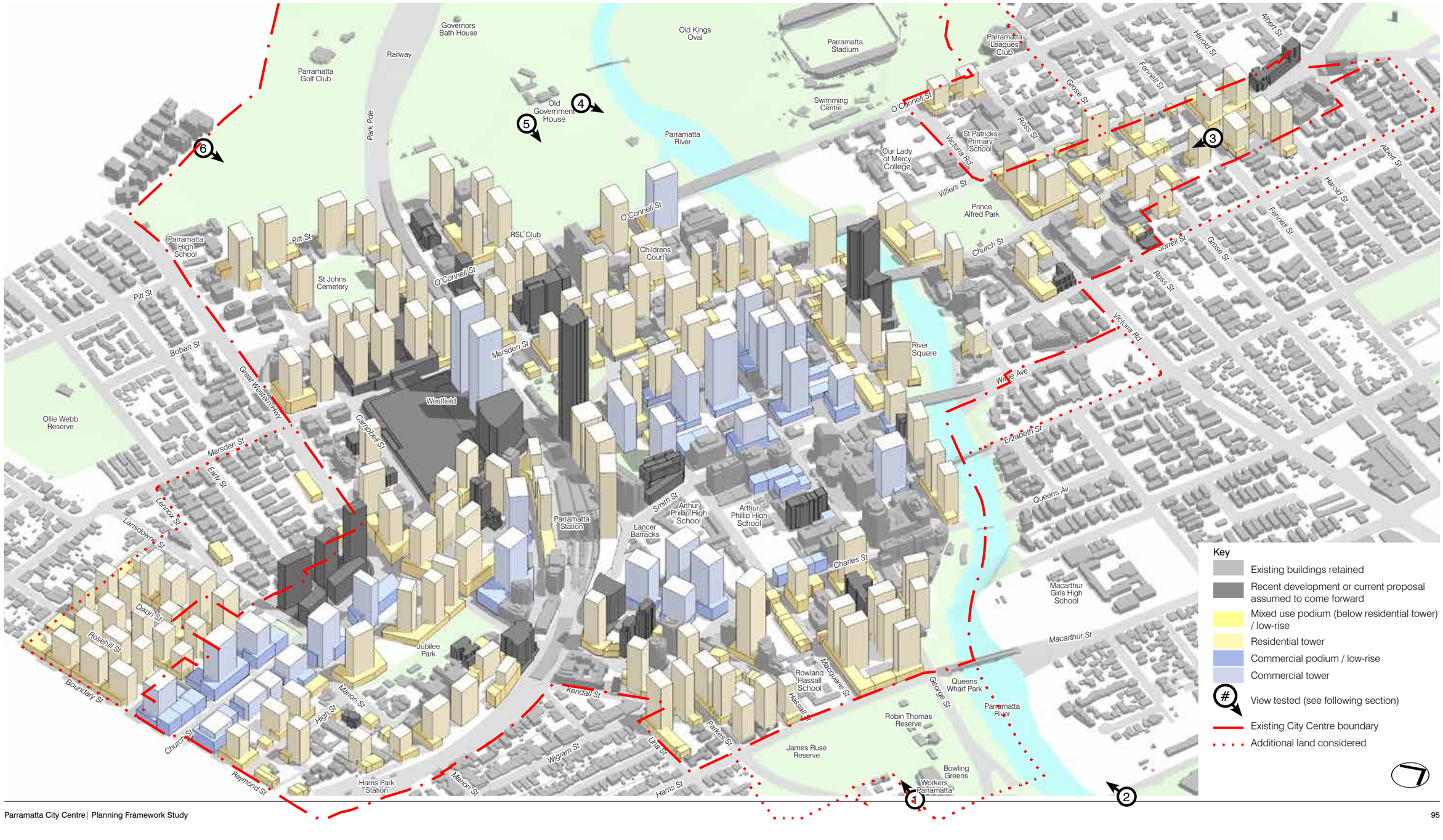
Headline figures:

	Existing Centre	All sites**
New residential GFA*	**2,070,000 sqm**	**2,320,000 sqm**
New commercial GFA*	**760,000 sqm**	**780,000 sqm**
Average FSR	**7.5:1**	**7.3:1**
Maximum heights shown	**234 metres**	

* including subtractions for parking in podiums and demolition of existing floorspace

** existing centre plus additional land considered

Assumed Floor Space Ratios


Governors Bath House
Railway
Old Kings Oval
Parramatta Stadium
Parramatta Leagues Club
Parramatta Golf Club
Park Pde
Old Government House
Swimming Centre
O'Connell St
Grose St
Fennell St
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St Johns Cemetery
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Marsden St
Great Western Hwy
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Lansdowne St
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Jubilee Park
Kendall St
Rowland Hassall School
Hassall St
Macquarie St
George St
Queens Wharf Park
Robin Thomas Reserve
James Ruse Reserve
Bowling Greens
Workers Parramatta
High St
Marion St
Wigram St
Una St
Parkes St
Harris Park Station
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Raymond St
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Key
Existing buildings retained
Recent development or current proposal assumed to come forward
Mixed use podium (below residential tower) / low-rise
Residential tower
Commercial podium / low-rise
Commercial tower
View tested (see following section)
Existing City Centre boundary
Additional land considered

5.5 Scenario D - increased height, no FSR control

Purpose of scenario

- Height controls have been developed (see diagram adjacent) which are based on a simple 'bell curve' shape around the existing centre.
- The tallest heights shown are similar to those of Sydney City and North Sydney (see Section 4.6 'Key LEP controls in comparable centres') and are also lower than the Aspire tower, which has been designed as a landmark building
- 'Stepping' of heights is provided to the edges of the Centre to acknowledge neighbouring sensitive areas.
- No FSR control is provided.
- Heights within the Highly Sensitive Area relating to the Old Government House and Domain (to the west of the City Centre) are retained as in the existing LEP however no FSR is provided.
- New solar access controls are provided (see diagram adjacent and Section 4.5 'Solar access to open spaces' which describes basis of these controls)
- The existing Commercial Core is retained as the focus for commercial development.

Opportunities

- Consistent with floor space projections
- Retains the core of the city centre as the focus of activity

Challenges

- Height limits encourage development which is bulky
- Delivering appropriate mix of uses
- Sun access to open spaces can restrict development in central areas of Parramatta. The Proposed control for the River Link in particular significantly affects the development potential of a number of sites in the Commercial Core.
- No FSR control with height control encourages buildings to 'puff out' and be bulky, causing poor amenity and overshadowing of the public domain.

Headline figures:

	Existing Centre	All sites**
New residential GFA*	**1,740,000 sqm**	**2,170,000 sqm**
New commercial GFA*	**800,000 sqm**	**800,000 sqm**
Average FSR	**6.1:1**	**6.2:1**
Maximum heights shown	**240 metres**	

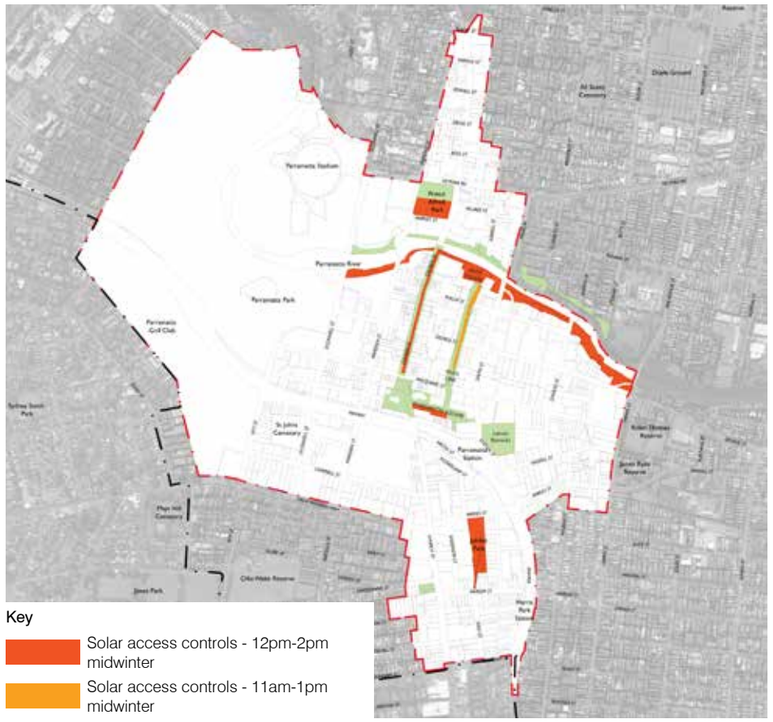
* including subtractions for parking in podiums and demolition of existing floorspace

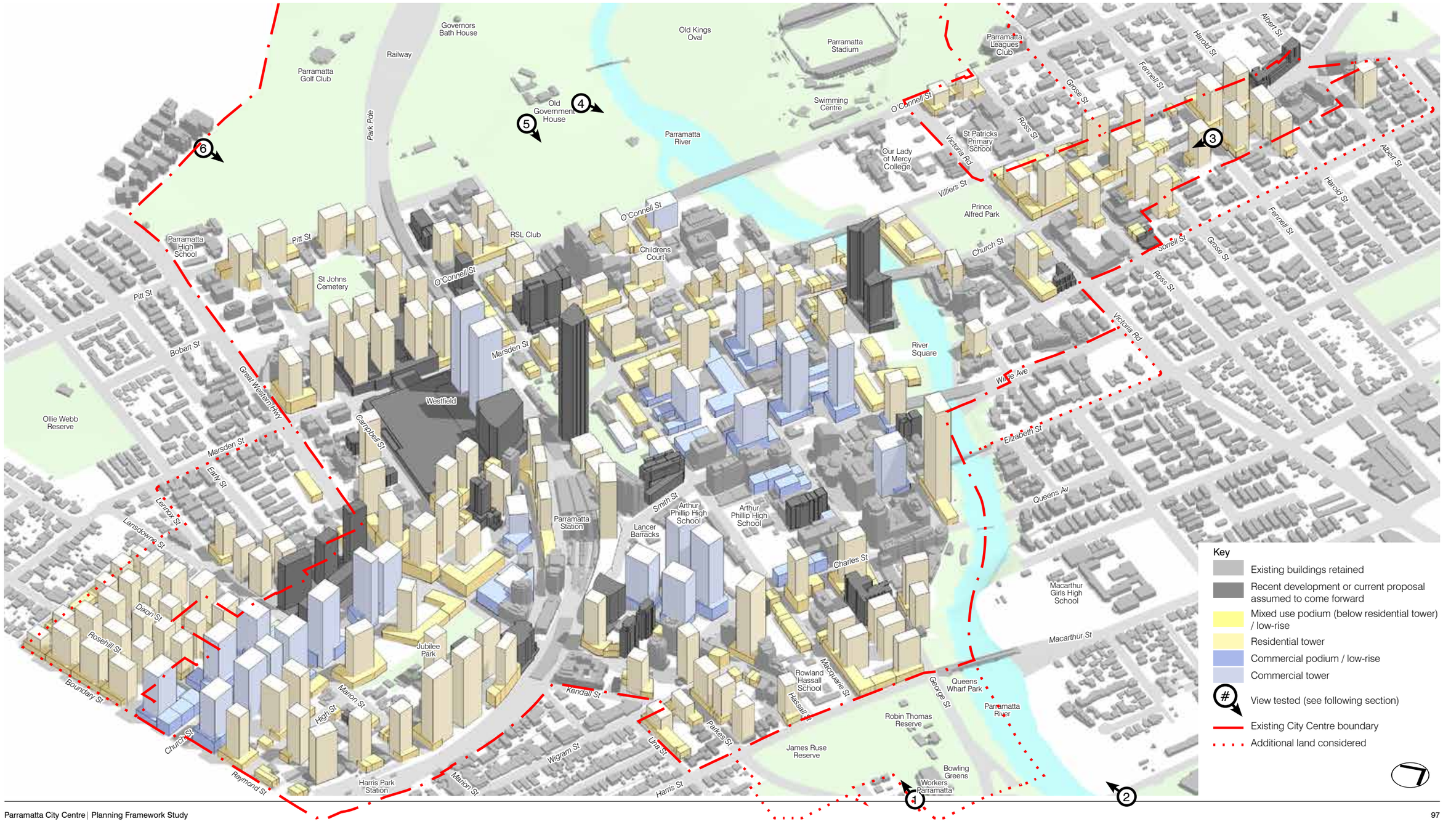
** existing centre plus additional land considered

Assumed Heights

* To be retained as currently set out within LEP due to the Highly Sensitive Area relating to the Old Government House and Domain

Solar Access Controls




Governors Bath House
Old Kings Oval
Parramatta Stadium
Parramatta Leagues Club
Albert St
Harold St
Fennell St
Railway
Parramatta Golf Club
Park Pde
Old Government House
Swimming Centre
O'Connell St
Grose St
Ross St
St Patricks Primary School
Our Lady of Mercy College
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Sorrell St
Parramatta High School
Pitt St
RSL Club
Childrens Court
St Johns Cemetery
Bobart St
Great Western Hwy
Marsden St
Westfield
River Square
Wilde Ave
Elizabeth St
Ollie Webb Reserve
Campbell St
Early St
Lennox St
Lansdowne St
Smith St
Arthur Phillip High School
Parramatta Station
Lancer Barracks
Queens Av
Charles St
Macarthur Girls High School
Macarthur St
Dixon St
Rosehill St
Boundary St
Jubilee Park
Marion St
High St
Kendall St
Rowland Hassall School
Hassall St
Macquarie St
George St
Queens Wharf Park
Robin Thomas Reserve
James Ruse Reserve
Wigram St
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Parkes St
Harris Park Station
Harris St
Raymond St
Bowling Greens
Workers Parramatta
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Key
Existing buildings retained
Recent development or current proposal assumed to come forward
Mixed use podium (below residential tower) / low-rise
Residential tower
Commercial podium / low-rise
Commercial tower
View tested (see following section)
Existing City Centre boundary
Additional land considered

5.6 Analysis of scenarios - views

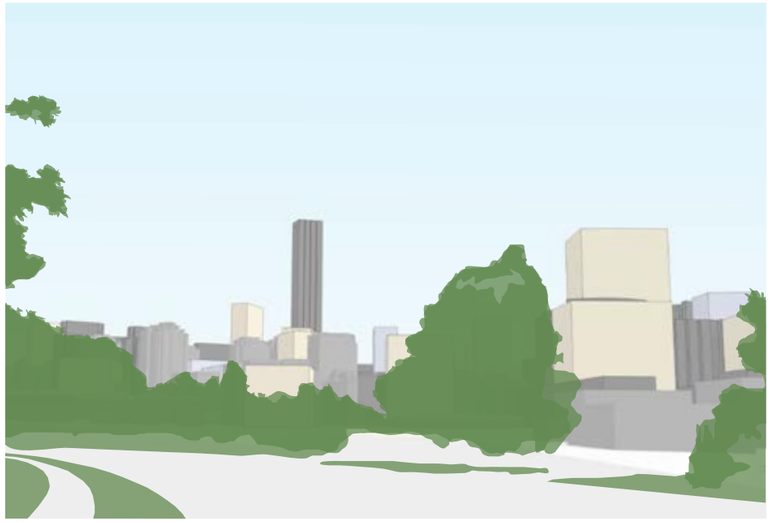
A comparison of views from each scenario is presented over the following pages. Key outcomes from this comparison are the following:

- Scenario C - Increased FSR, no height control generally provides a good outcome with regard to visual separation of towers and emphasis on key locations (particularly the City Centre and waterfront areas). The City Centre is seen to focus on distinct areas and towers under this scenario, rather than forming a single dense wall/cluster of development.
- Scenario B - No height or FSR controls has the potential to create a strong ‘cavernous’ and shadowing effect inside the City Centre. This is noticeable in views within the City Centre itself (such as the view from northern Church Street).
- Views from Mays Hill, historically an important location for obtaining views of Parramatta, are likely to become less important in the future as more buildings are developed which are taller than the view location. This will fundamentally change the view where presently a wide area of the City Centre can be seen as the viewer is ‘looking down’ on it. Stepping of the City Centre heights to this location may improve the view however in all Scenarios it is unlikely that this view will retain the broad visibility which it has enjoyed in the past.
- Some views from Parramatta Park are likely to be further punctuated by further development of the City Centre under all scenarios. Scenario C, where towers are more separated, provides better visual outcomes than a ‘wall of development’ from this location.
- ‘Stepping’ heights as shown in Scenario D to the east and west of the City Centre allow for a ‘bell curve’ shape where distant views see a greater variety of built form. However this also provides some constraint on development forms.

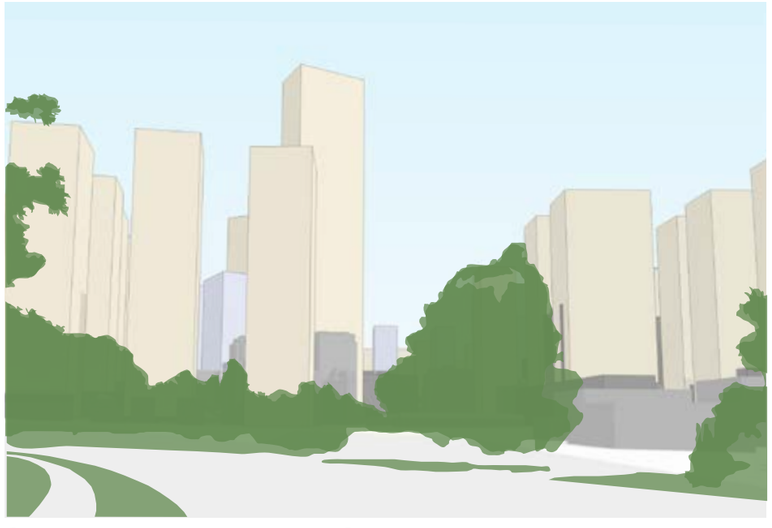
① Hassall Street - approaching City Centre from east

Existing photo

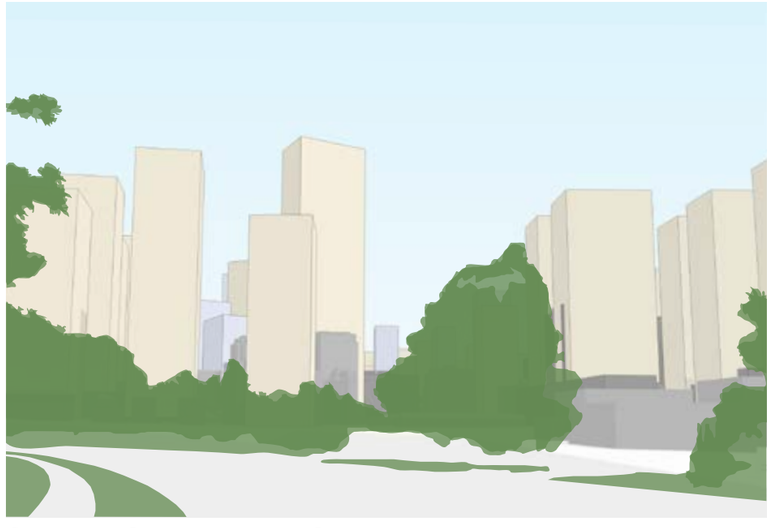
Existing model view



Scenario A - Existing controls



Scenario B - No height or FSR controls



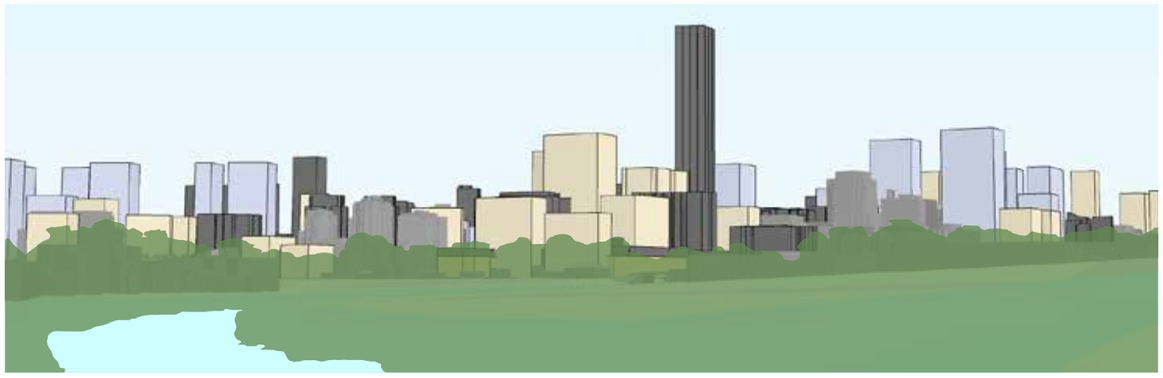
Scenario C - increased FSR, no height control

Scenario D - increased height, no FSR control

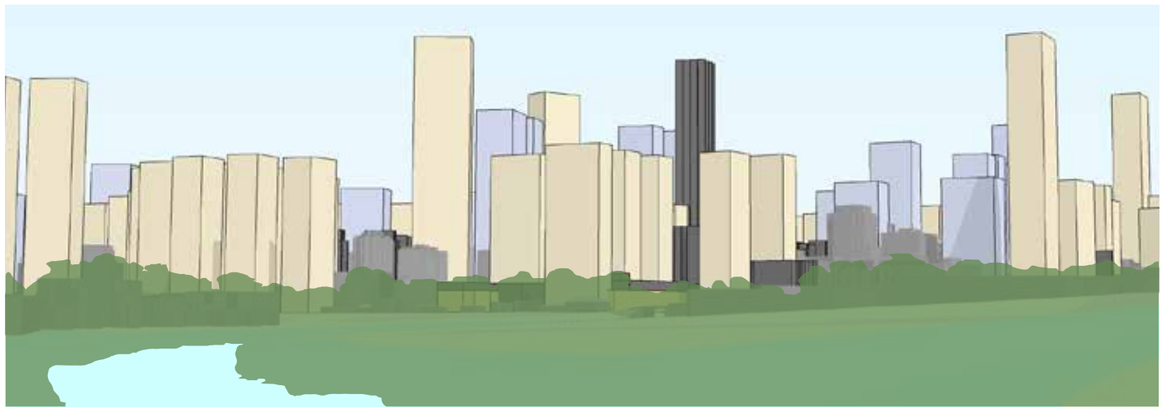
② James Ruse Drive Bridge - from east of City Centre

Existing photo

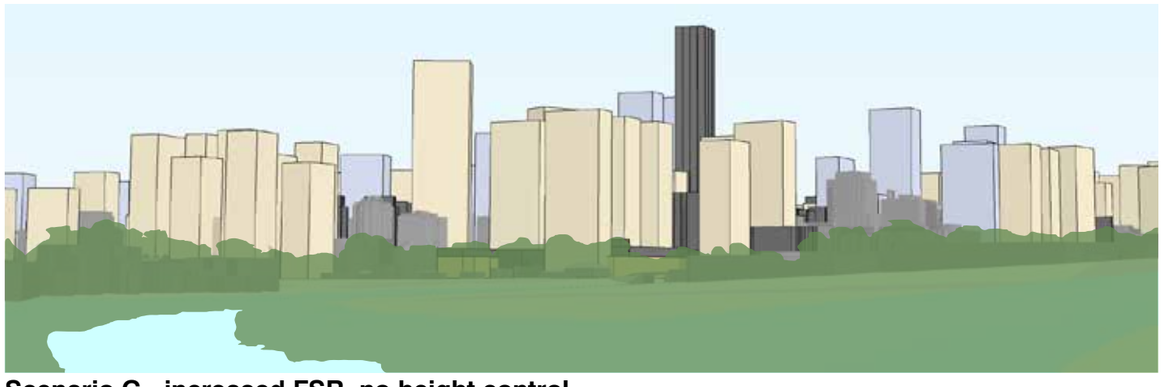
Existing model view



Scenario A - Existing controls



Scenario B - No height or FSR controls



Scenario C - increased FSR, no height control

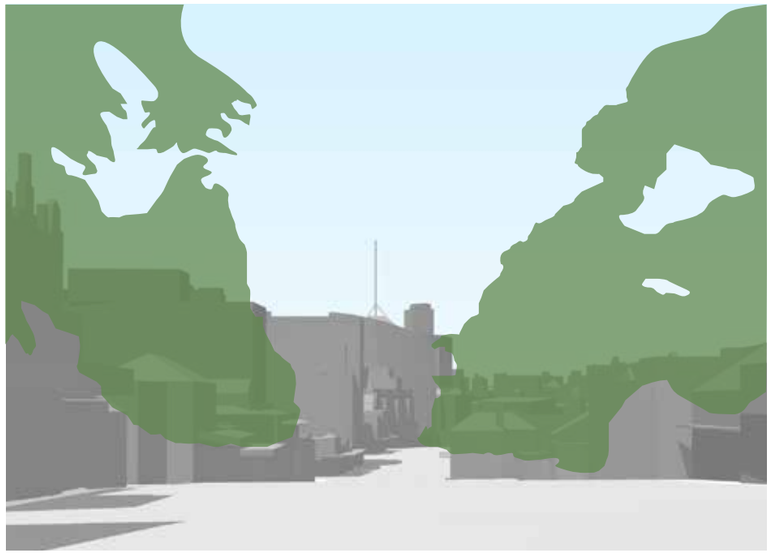
Scenario D - increased height, no FSR control

Approximate outline of vegetation and foreground (derived from existing photo)

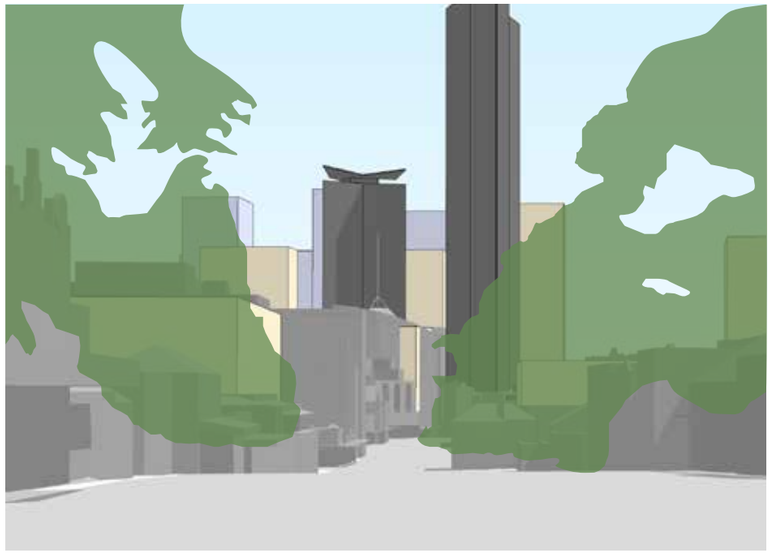
Note: Potential development of sites between the City Centre and the view location (including approved developments at 2 Morton St and 2-12 River Road West) have not been shown in these views.

③ Church Street near Fennell St - Northern City Centre facing south

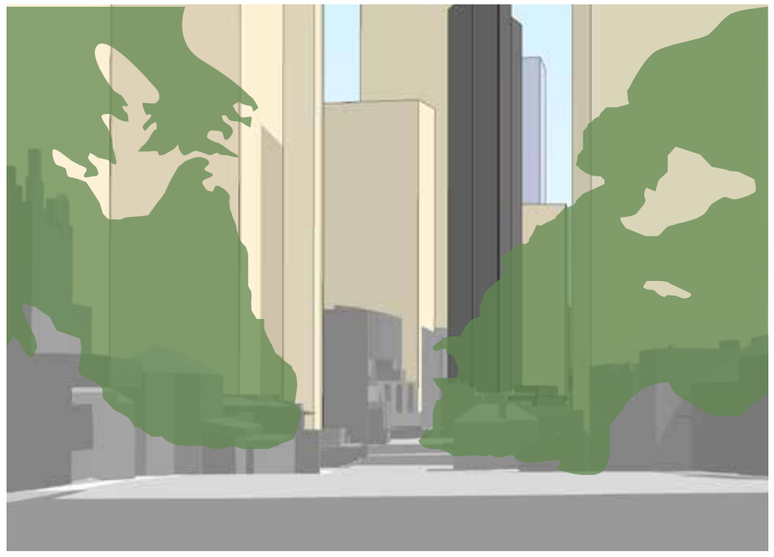
Existing photo



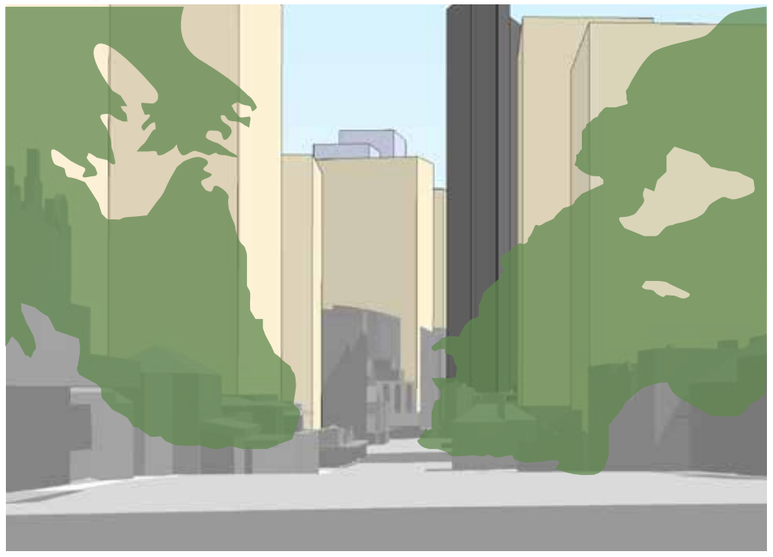
Existing model view



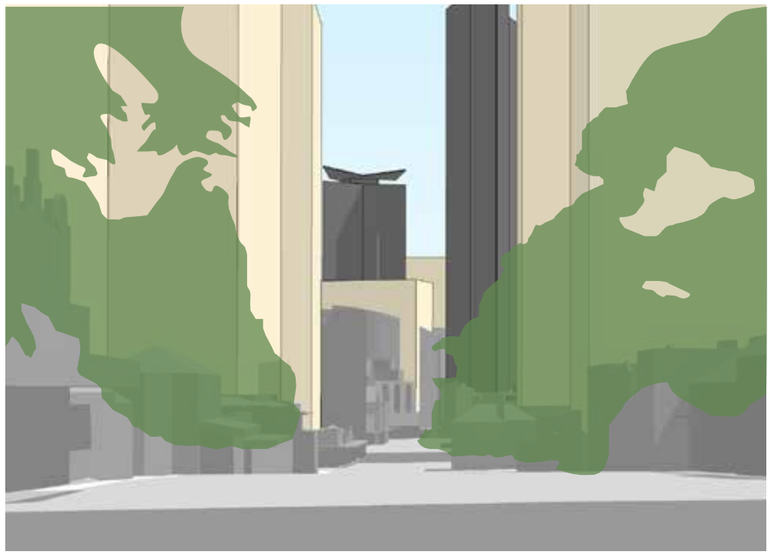
Scenario A - Existing controls



Scenario B - No height or FSR controls



Scenario C - increased FSR, no height control

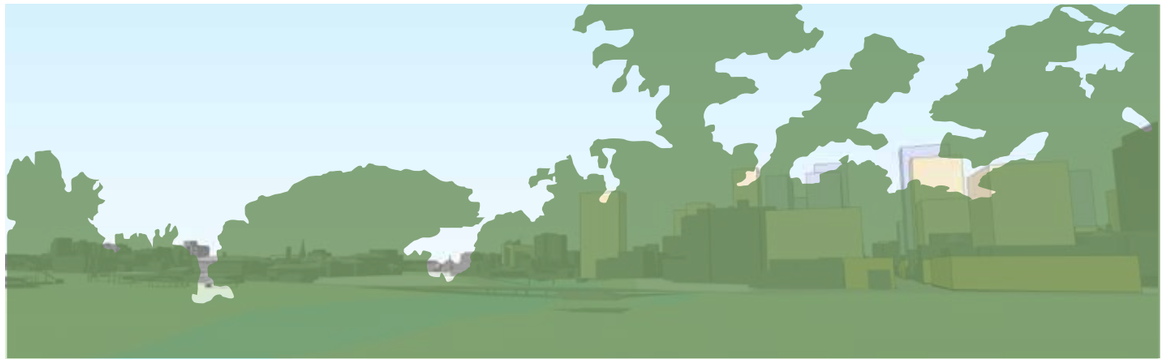


Scenario D - increased height, no FSR control

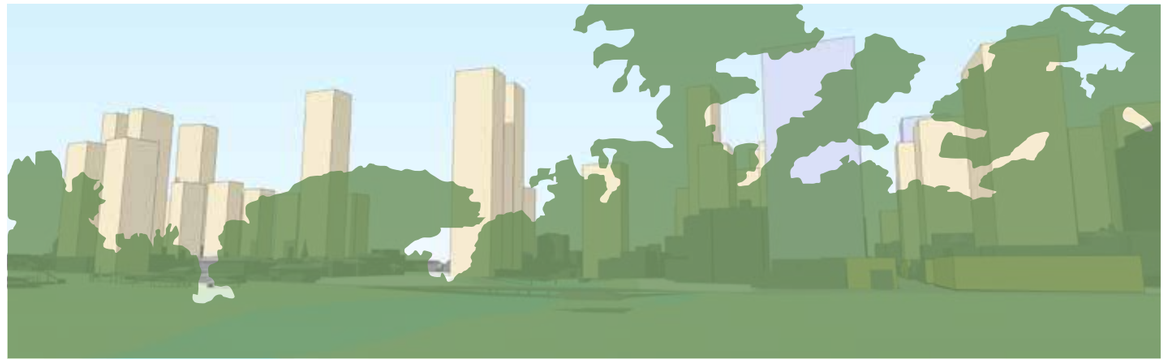
4 From northeast of Old Government House - Western City Centre

Existing photo

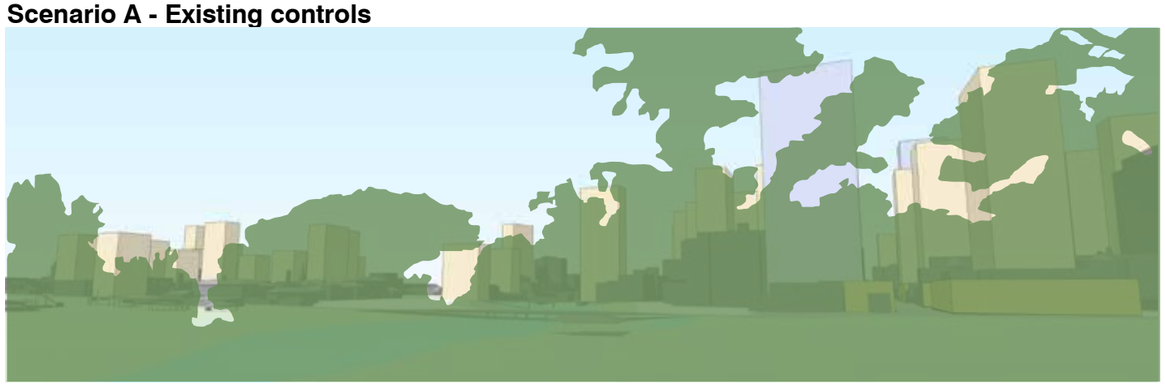
Existing model view



Scenario A - Existing controls



Scenario B - No height or FSR controls



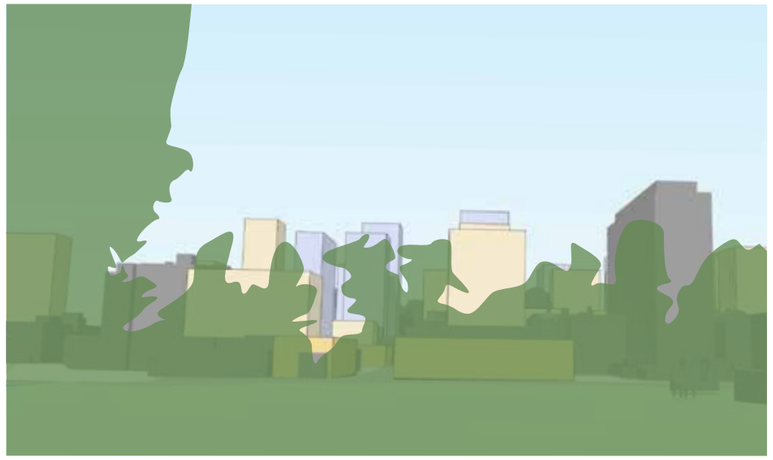
Scenario C - increased FSR, no height control

Scenario D - increased height, no FSR control

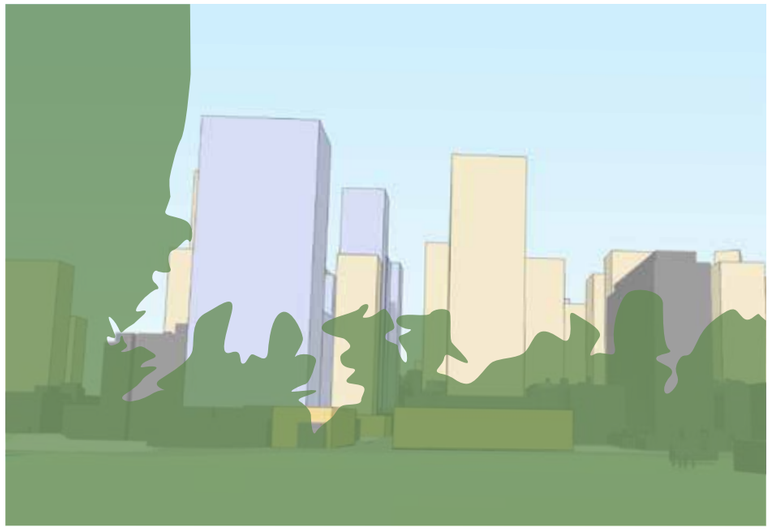
Approximate outline of vegetation and foreground (derived from existing photo)

5 East of Old Government House - West of City Centre

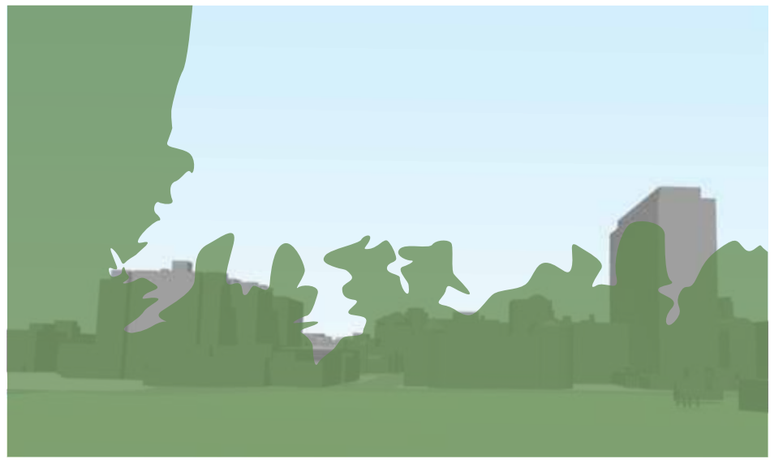
Existing photo



Scenario A - Existing controls

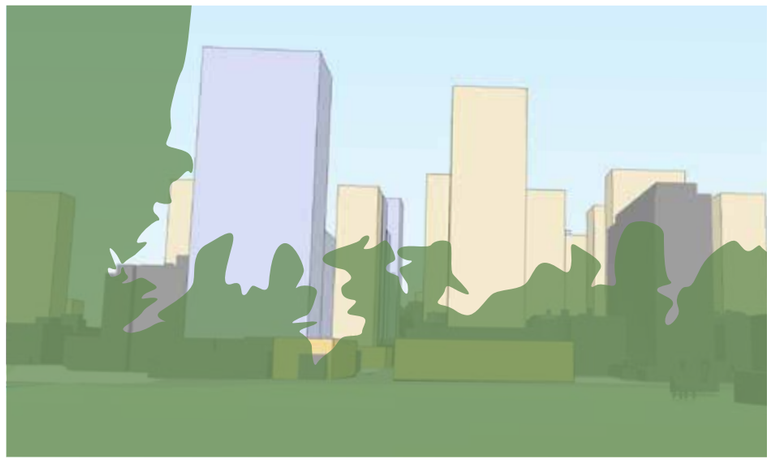


Scenario B - No height or FSR controls

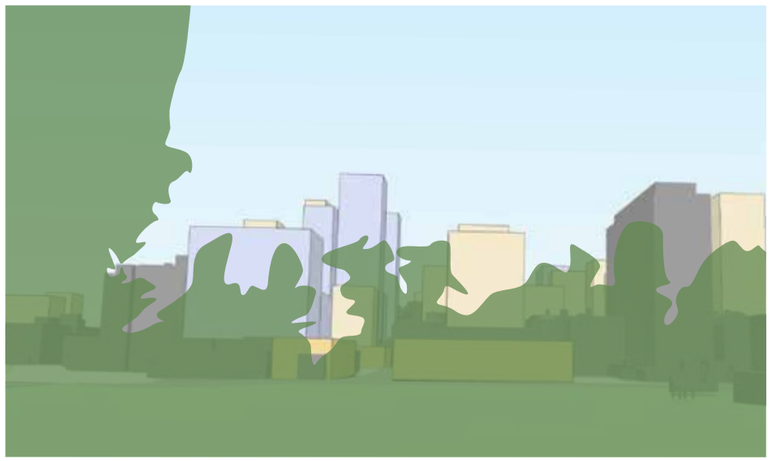


Existing model view

Approximate outline of vegetation and foreground (derived from existing photo)



Scenario C - increased FSR, no height control

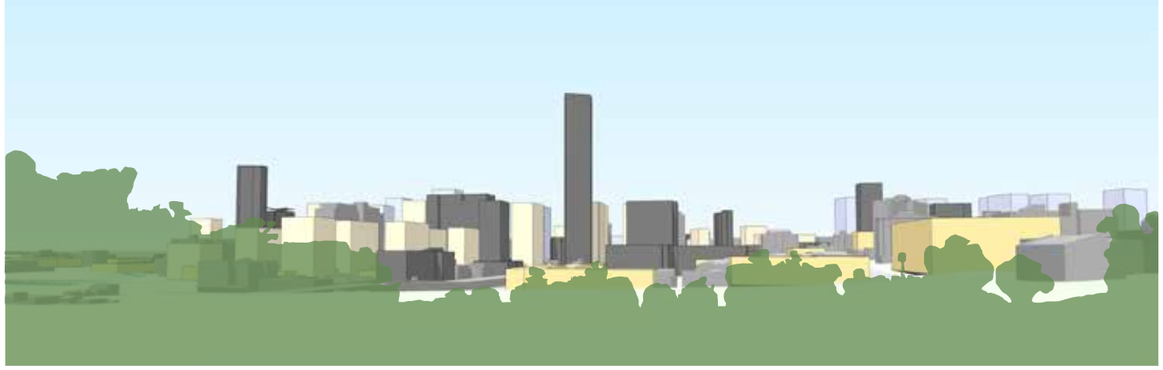


Scenario D - increased height, no FSR control

6 Mays Hill, Parramatta Park - Southwestern portion of City Centre

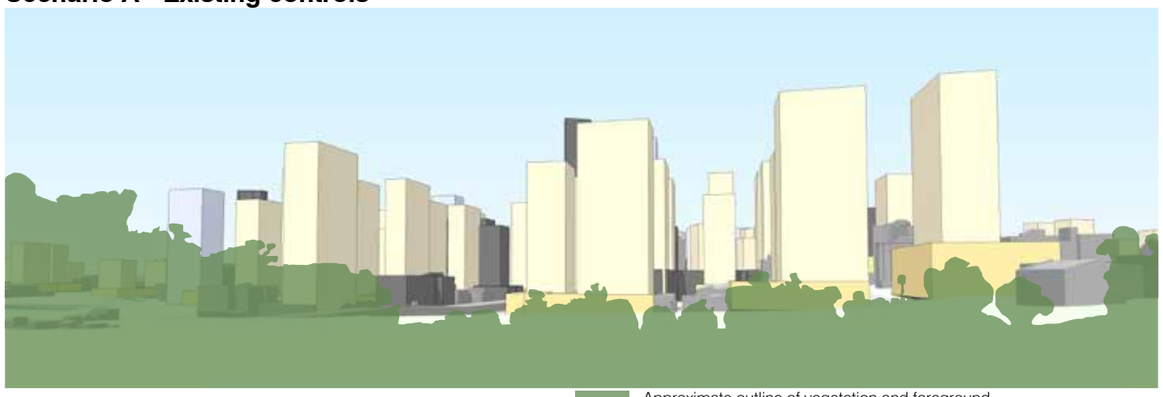
Existing photo

Existing model view

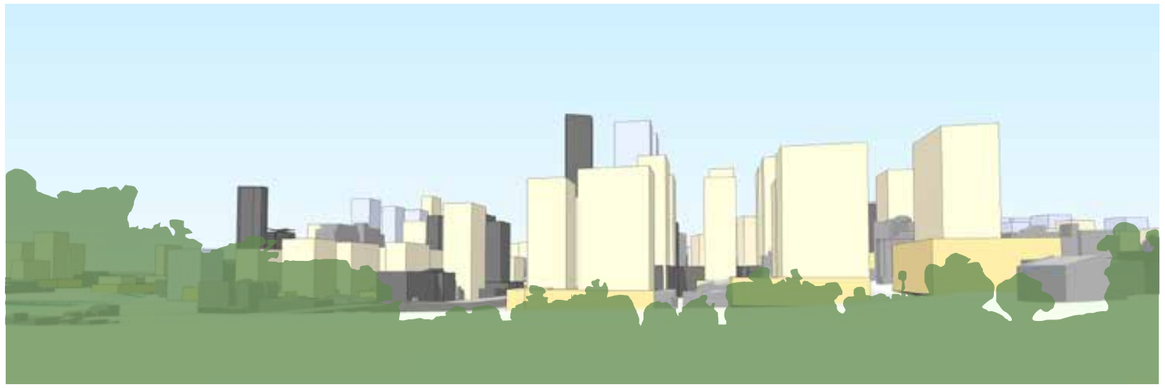


Scenario A - Existing controls

Scenario B - No height or FSR controls



Scenario C - increased FSR, no height control



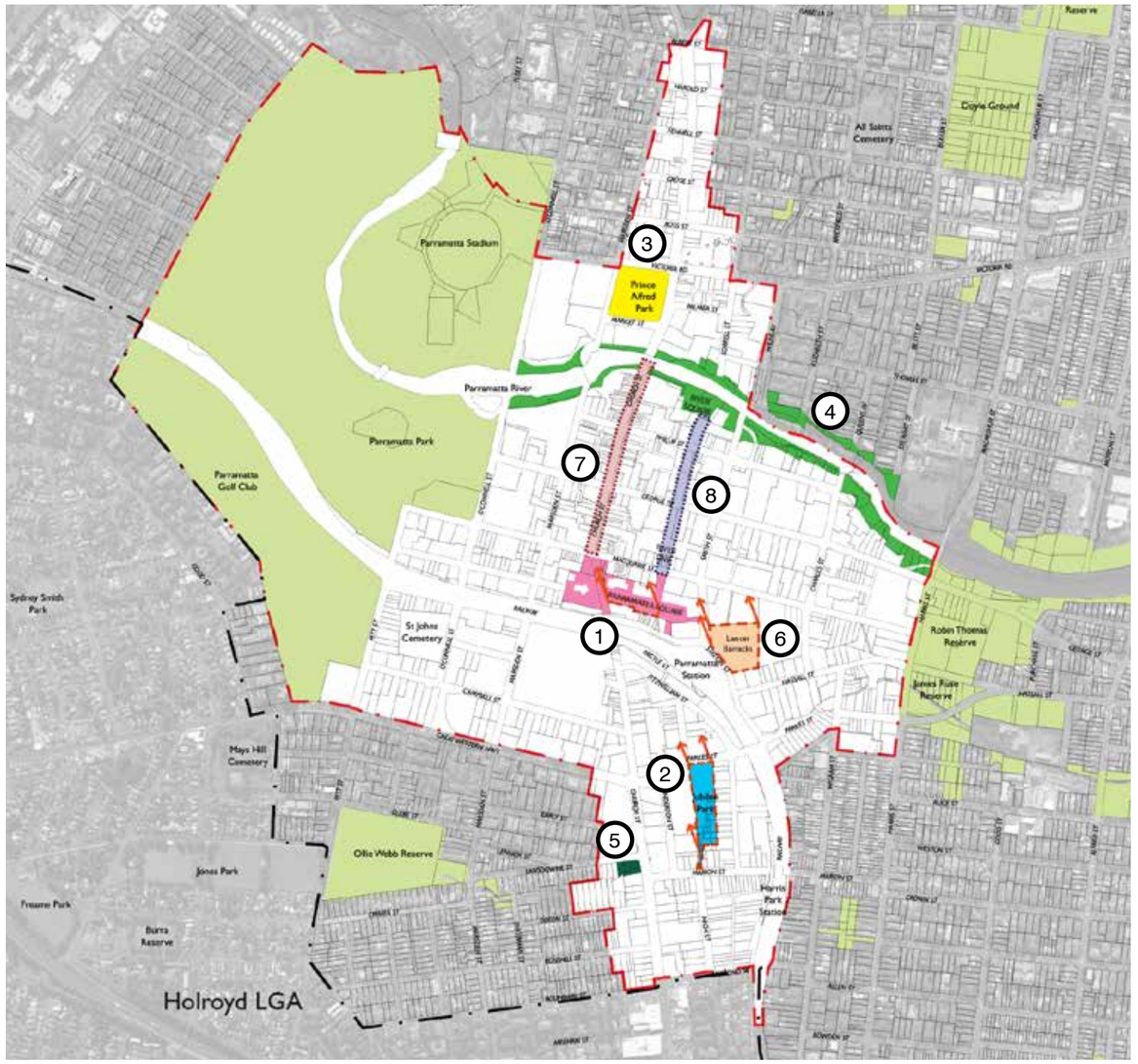
Scenario D - increased height, no FSR control

Approximate outline of vegetation and foreground (derived from existing photo)

5.7 Analysis of scenarios - sun access to open spaces

This section analyses the overshadowing of each of the scenarios on the eight (8) nominated areas for testing of solar access protection for 10am, 12pm and 2pm in midwinter (June 21).

Existing open spaces and key areas for solar access



Key

1. Parramatta Square, St Johns Park, Centennial park and associated open spaces
2. Jubilee Park
3. Prince Alfred Park
4. Open Spaces along the Parramatta River
5. New public open space - Heartland Holden
6. Lancer Barracks
7. Church Street between St Johns Park and Parramatta River
8. River link from Parramatta Square to River Square

Other public open spaces

Existing solar access requirements set out in DCP (Jubilee Park, part Parramatta Square and Lancer Barracks)

Parramatta City Centre boundary (existing)

Local Government Area boundaries

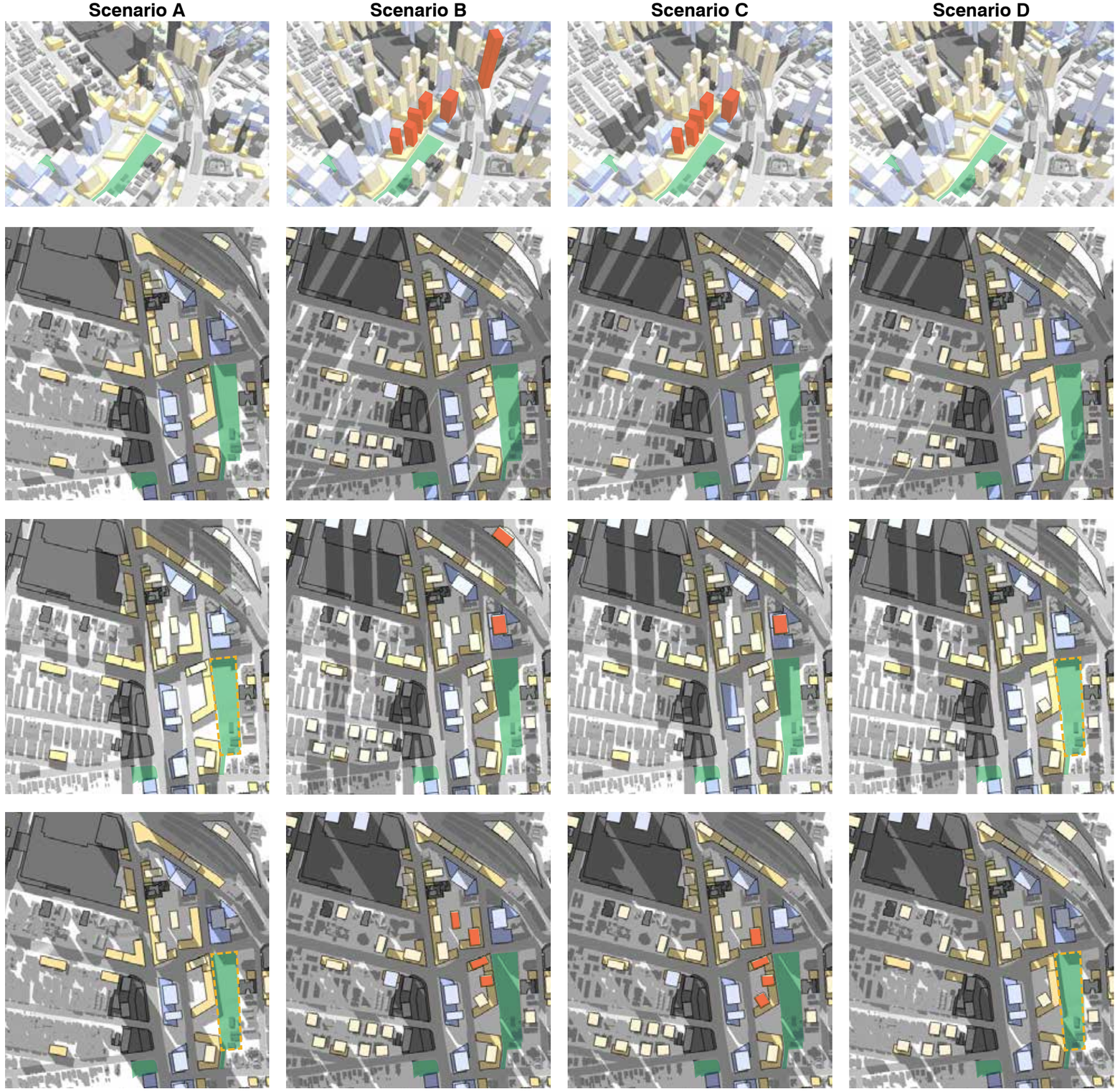
0 100 250 500 750m

Jubilee Park and new open space

- Jubilee Park generally retains good morning solar access in all options due to few development sites to the northeast, however has the potential to be overshadowed during midday and the afternoon in midwinter.
- The new open space to the south of the 'Heartland Holden' site is likely to be overshadowed by development of this site across midwinter.

Conclusion

- Jubilee park should be provided sun access protection.
- The new open space south of the Heartland Holden site should not be provided sun access protection.

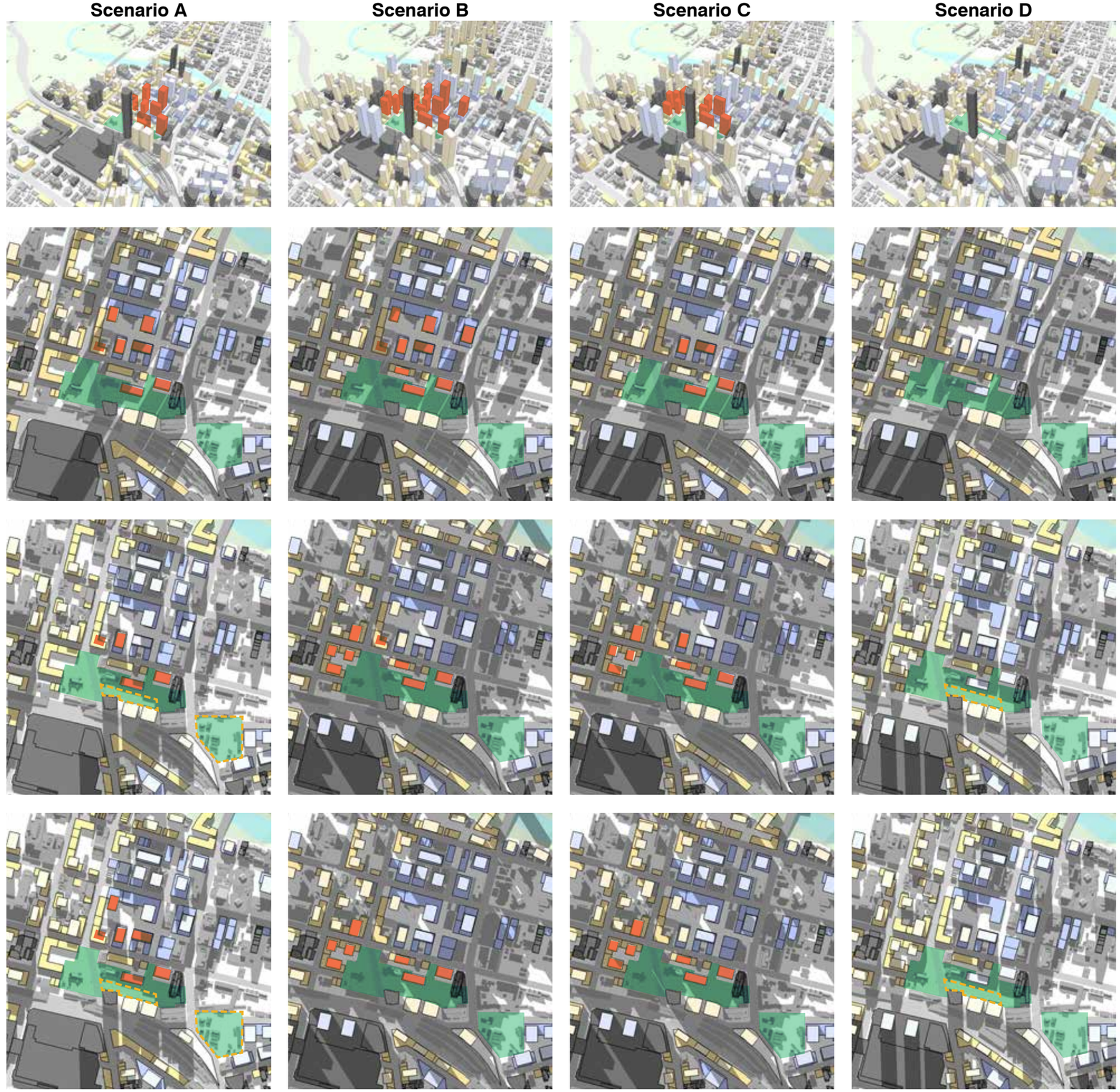


Parramatta Square and Lancer Barracks

- Parramatta Square has the potential to be significantly overshadowed in midwinter (see Scenario B) though part of Church Street Mall will retain solar access at around midday.
- Lancer Barracks is likely to retain generally good solar access except in afternoons, even without a solar access control

Conclusion

- Parramatta Square should be provided sun access protection.
- Lancer Barracks should not be provided sun access protection.

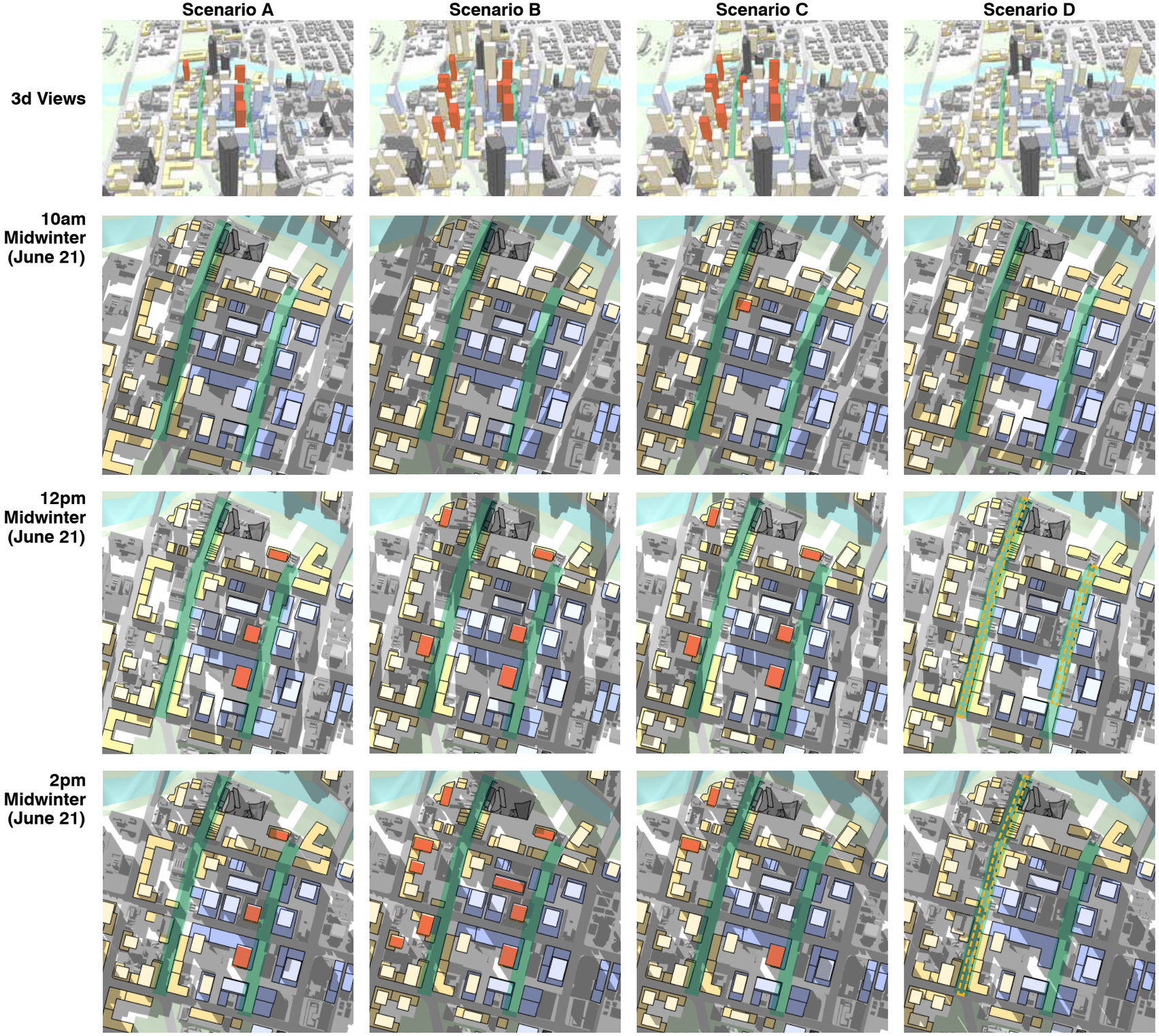


Church Street and River Link

- Church Street is likely to have morning overshadowing, particularly from the approved 'Riverside' development. It should retain good solar access around lunchtime hours however the few development sites to its west of Church Street have the potential to provide afternoon overshadowing.
- A solar access restriction for the River Link would over constrain the development capacity of the City Centre

Conclusion

- Church Street should be provided sun access protection.
- The River Link should not be provided sun access protection.

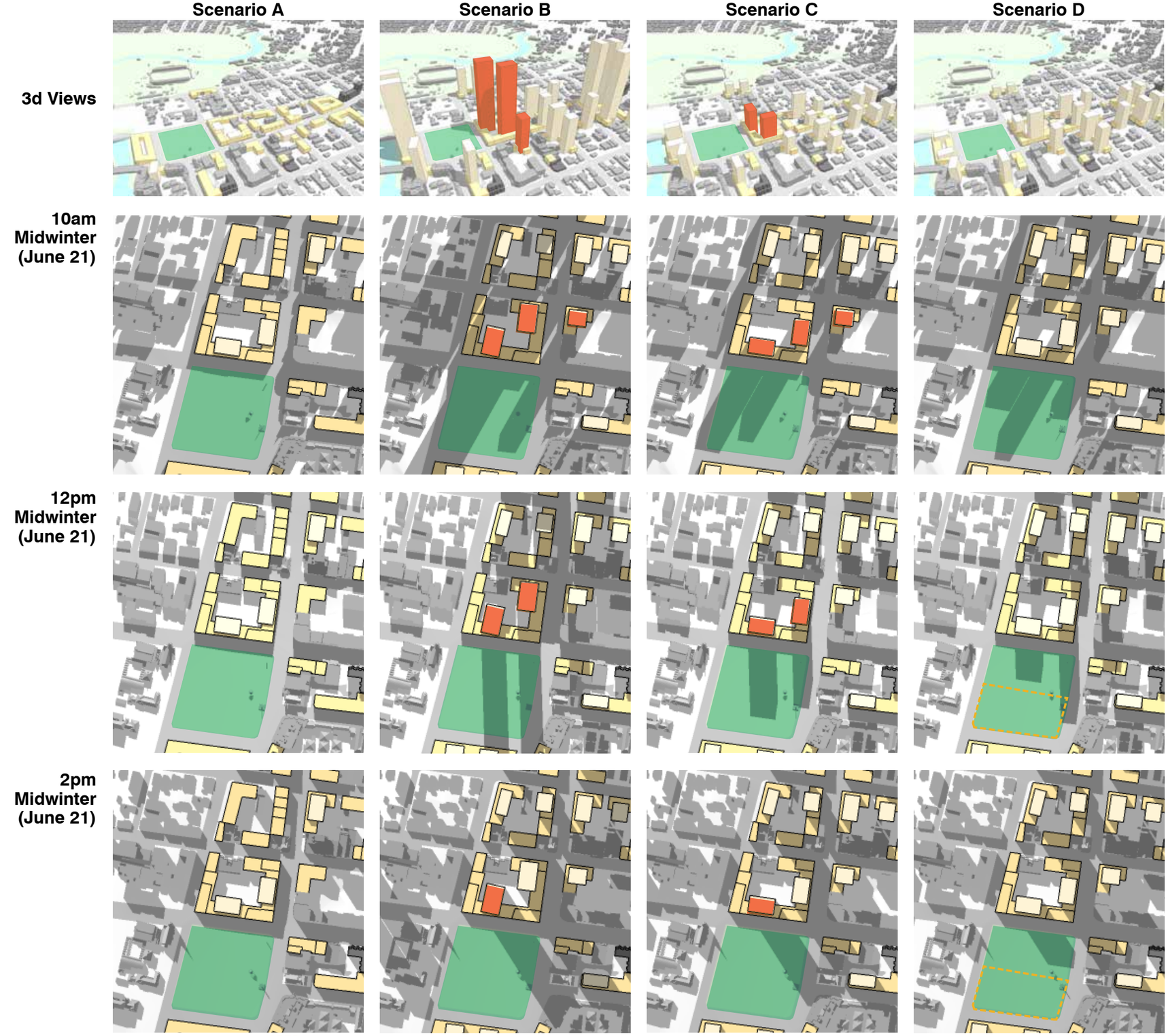


Prince Alfred Park

- Generally good sunlight is provided to this space, except for Scenario B, particularly during morning times.
- The control applied in Scenario D improves solar access outcomes provides certainty in ensuring good outcomes into the future.

Conclusion

- Prince Alfred Park should be provided sun access protection.



Riverside

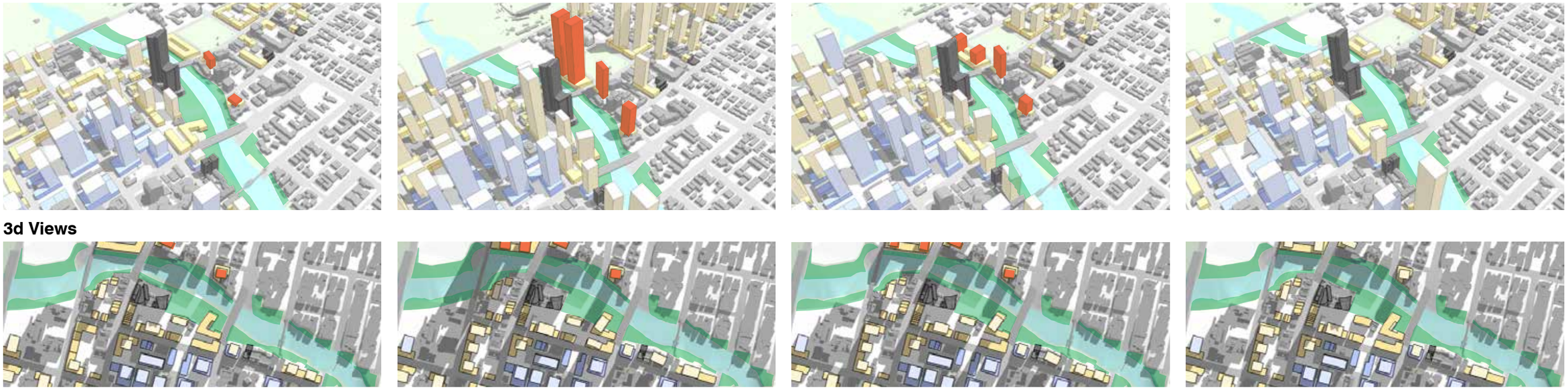
- Generally the southern edge of the Riverside enjoys good solar access outcomes, with the northern side being largely overshadowed by existing development and likely podium forms.
- The control applied in Scenario D allows for improved solar access outcomes to the southern edge of the River.

Conclusion

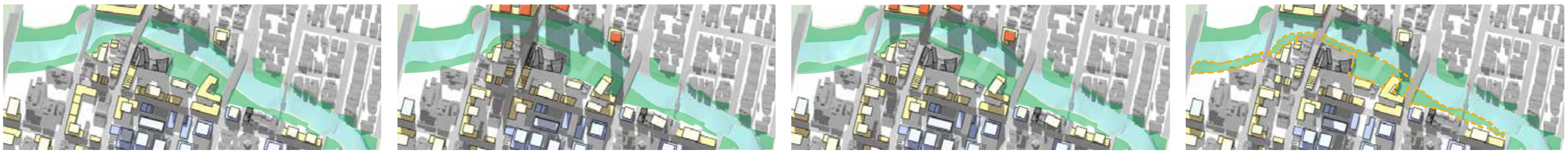
- The southern edge of the riverside should be provided sun access protection.

Scenario A | **Scenario B** | **Scenario C** | **Scenario D**

3d Views



10am Midwinter (June 22)



12pm Midwinter (June 22)

2pm Midwinter (June 22)

Space being considered | Solar access control | Key item overshadowing open space at this time

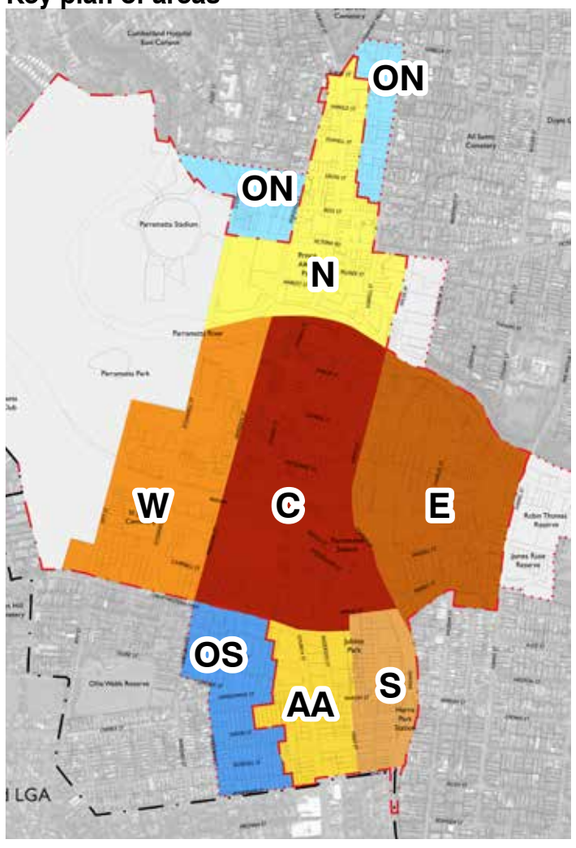
5.8 Analysis of scenarios - floorspace outcomes

Floorspace Outcomes by Area

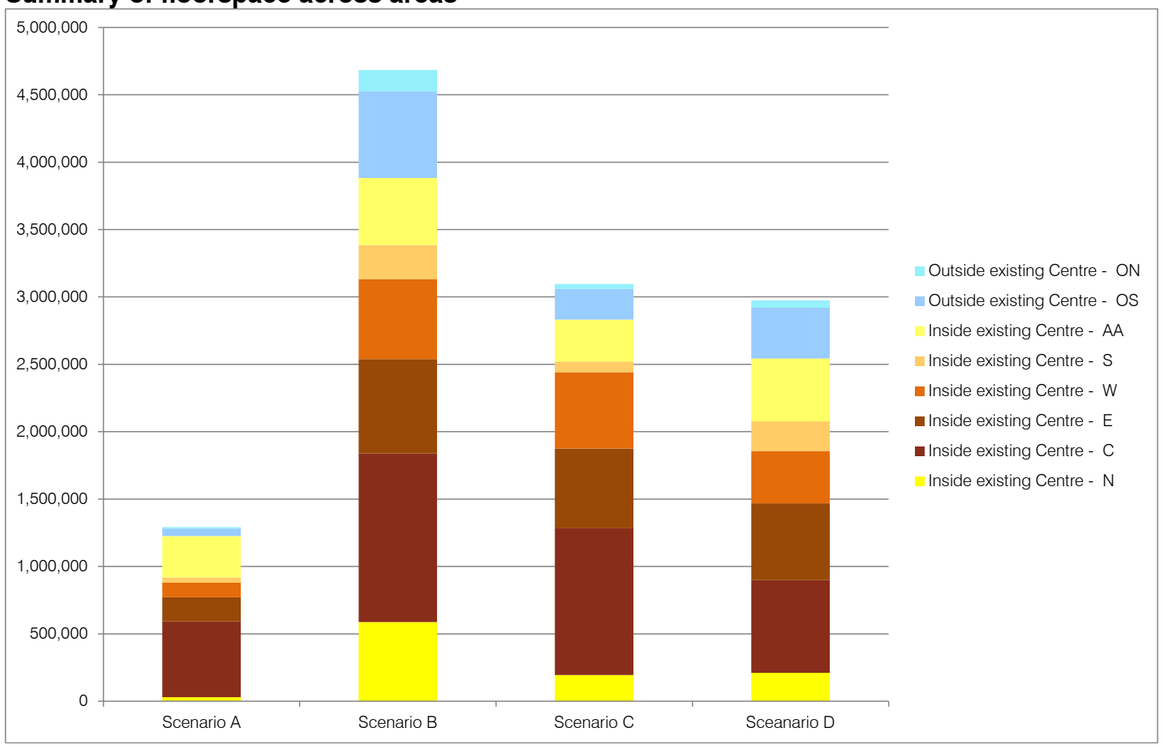
Overview:

- The Central part of the City Centre is the most able to deliver floorspace, delivering around half of the total floorspace within the existing City Centre in all options.
- Scenario A is more reliant on the City Centre than other scenarios.
- The area outside the existing City Centre to the southwest is able to deliver a significant amount of increased floorspace.

Key plan of areas



Summary of floorspace across areas



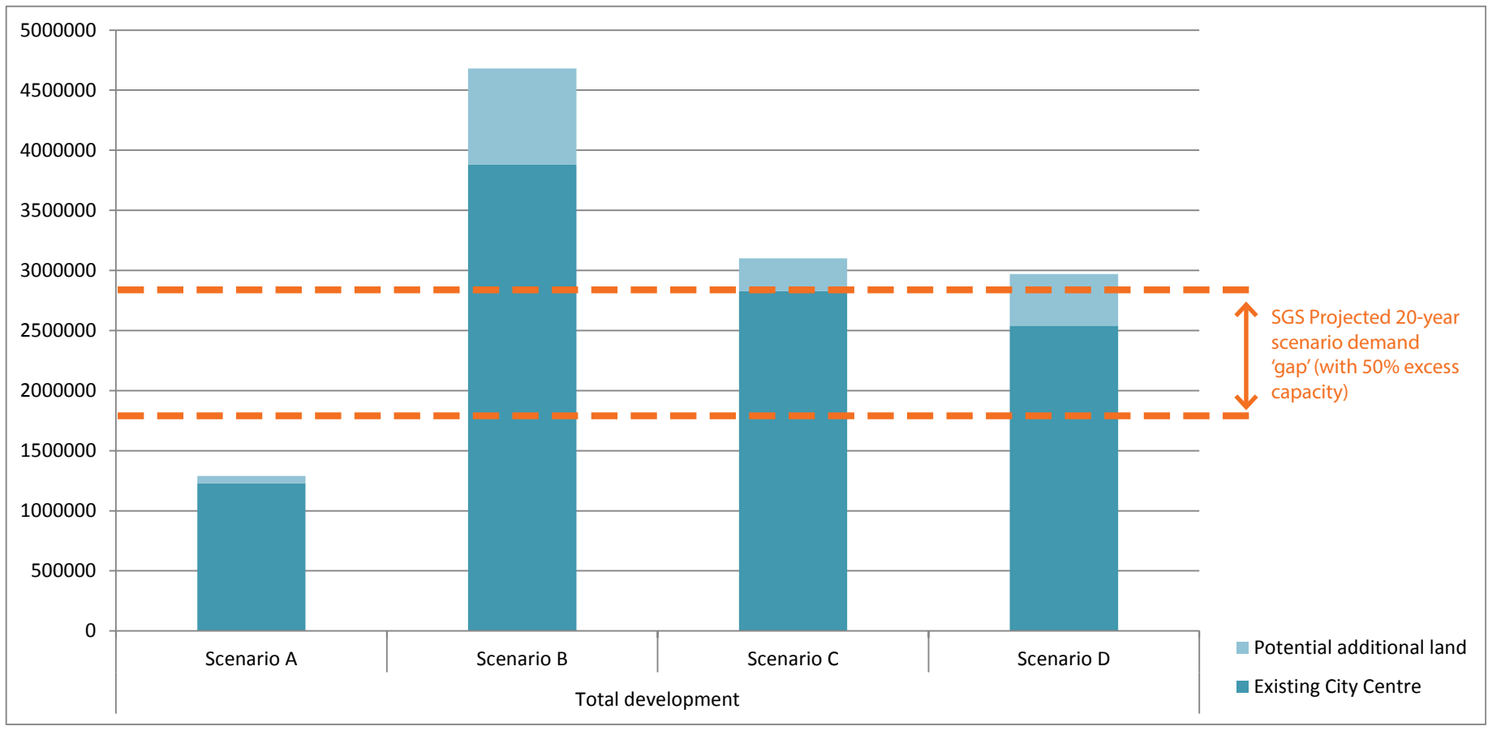
Comparison of floorspace to demand projections

Key outcomes

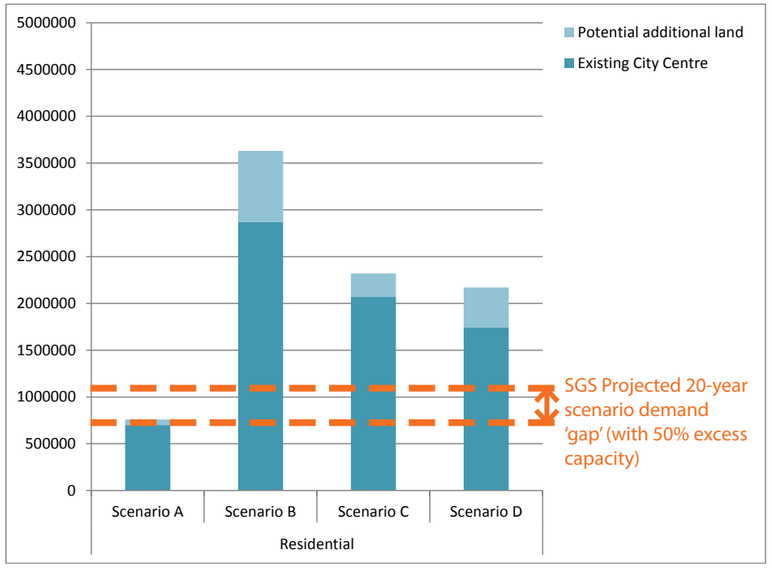
- The existing controls are not capable of delivering the projected floorspace demand in Parramatta over the next 20 years.
- An unconstrained scenario (Scenario B) may provide too much capacity for growth leading to land speculation inhibiting growth.
- Scenarios C and D provide appropriate outcomes with regard to expected demand.
- All of Architectus' scenarios deliver greater residential floorspace and less employment floorspace than SGS' scenarios. This infers that reliance on only:
    - the current B3 zone in the City Centre;
    - the Business areas noted in the Auto Alley plans; and
    - ground floor retail uses in new residential developments;

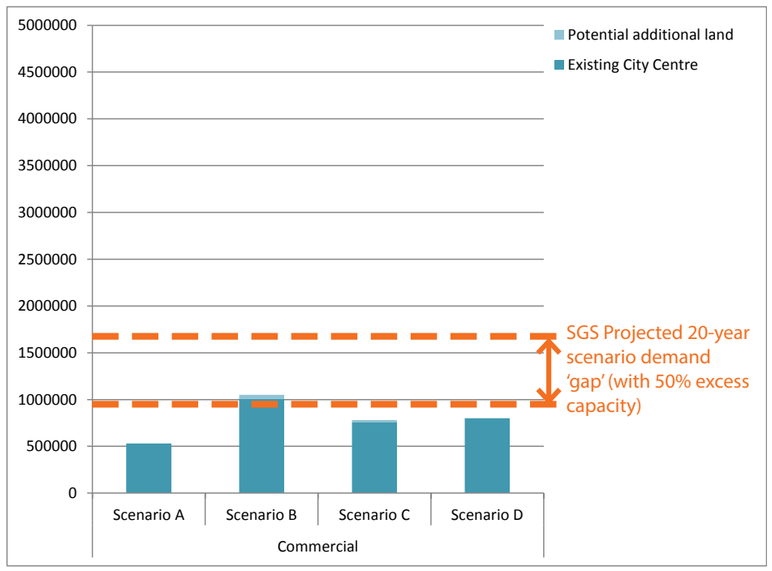
will not be able to deliver the projected future commercial floorspace demand in Parramatta over the next 20 years and therefore consideration will need to be given to how this can be delivered, such as a minimum non-residential FSR for all sites in the mixed use zone.

Comparison of floorspace capacity in the scenarios - overall

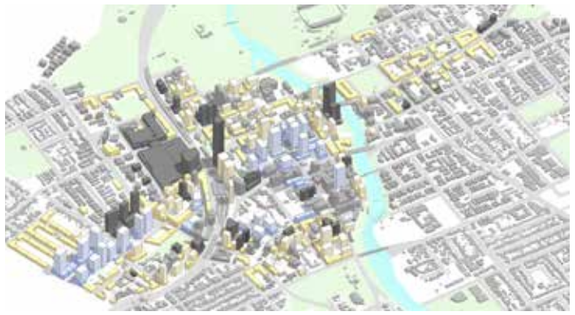
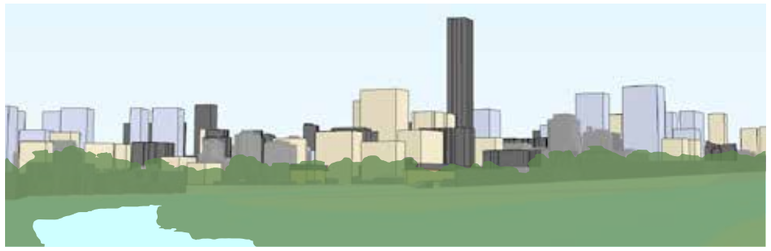
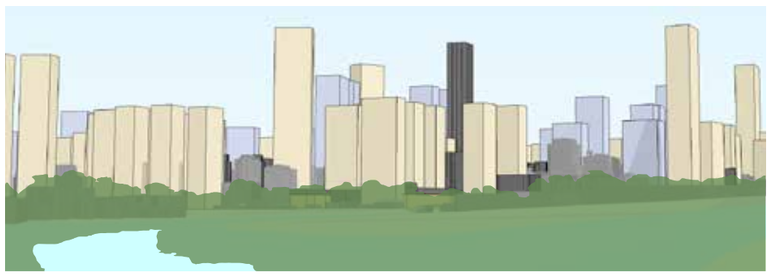
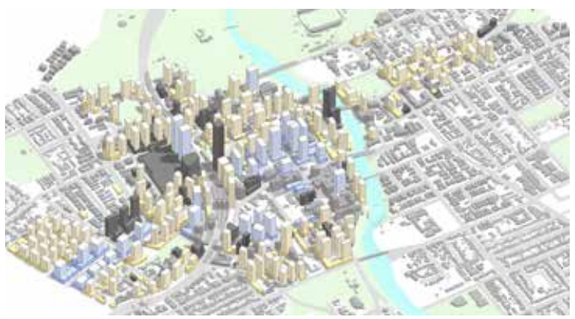
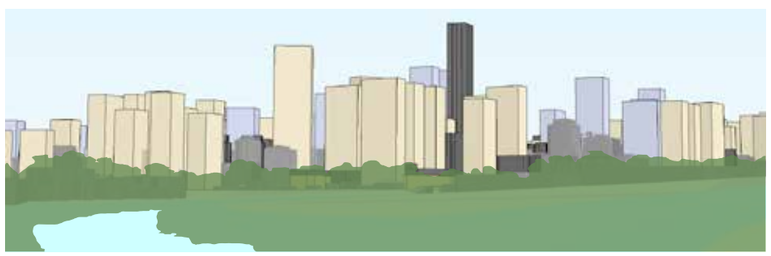
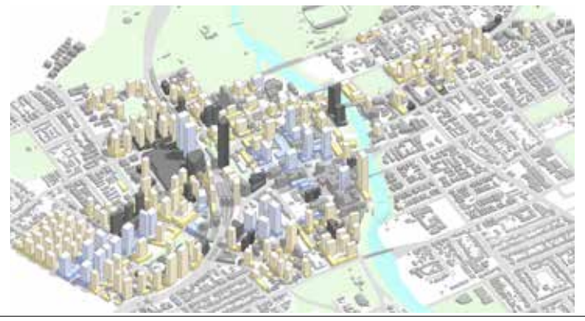
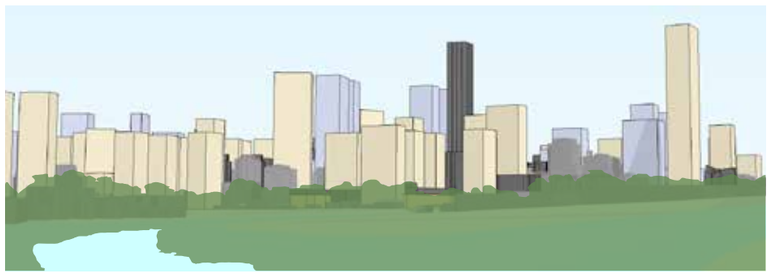


Comparison of floorspace capacity in the scenarios - by use





5.9 Overview comparison of scenarios

	Aerial view	Example view - James Ruse Drive Bridge	Headline figures		
Scenario A **Existing controls**				**Existing Centre**	**All sites****
			New residential GFA*	**700,000 sqm**	**760,000 sqm**
			New commercial GFA*	**530,000 sqm**	**530,000 sqm**
			Average FSR	**4.0:1**	**3.9:1**
			Maximum heights shown	**134 metres**	
Scenario B **No height or FSR controls**				**Existing Centre**	**All sites****
			New residential GFA*	**2,870,000 sqm**	**3,630,000 sqm**
			New commercial GFA*	**1,010,000 sqm**	**1,050,000 sqm**
			Average FSR	**8.5:1**	**8.7:1**
			Maximum heights shown	**280 metres**	
Scenario C **Increased FSR, no Height control**				**Existing Centre**	**All sites****
			New residential GFA*	**2,070,000 sqm**	**2,320,000 sqm**
			New commercial GFA*	**760,000 sqm**	**780,000 sqm**
			Average FSR	**7.5:1**	**7.3:1**
			Maximum heights shown	**234 metres**	
Scenario D **Increased Height, no FSR control**				**Existing Centre**	**All sites****
			New residential GFA*	**1,740,000 sqm**	**2,170,000 sqm**
			New commercial GFA*	**800,000 sqm**	**800,000 sqm**
			Average FSR	**6.1:1**	**6.2:1**
			Maximum heights shown	**240 metres**	

* including subtractions for parking in podiums and demolition of existing floorspace

** existing centre plus additional land considered

Overview of key issues

Yield / Capacity ✗ Does not deliver floorspace projections

Sun access to public domain ✓ Good sun access to public domain

Building bulk ✓

Heritage and transition ✓ Existing controls provide protection for heritage areas

Yield / Capacity ✗ Delivers significantly greater floorspace as compared to demand leading to patchy development and land speculation inhibiting development

Sun access to public domain ✗ Potential loss of sunlight to the majority of public domain

Building bulk ■ Building bulk is not restricted by LEP controls

Heritage and transition ✗ No transition to surrounding areas.

Yield / Capacity ✓ Consistent with overall floorspace projections

Sun access to public domain ■ Potential loss of sunlight where sun access controls are not applied

Building bulk ✓ FSR controls without height limit encourages buildings to be slender and well separated

Heritage and transition ■ Significant uplift creates impacts however controls are designed to provide transition and further work can ensure this is appropriately managed

Yield / Capacity ✓ Consistent with overall floorspace projections

Sun access to public domain ✓ Sun access controls ensure good sun access to the public domain

Building bulk ✗ Height limits encourage development to maximise ‘bulk’, creating shorter, bulkier building forms

Heritage and transition ■ Significant uplift create impacts however controls are designed to provide transition and further work can ensure this is appropriately managed

5.10 Outcomes of scenario testing

The scenario testing provided in this section has been used as a basis to inform the recommended controls for Parramatta which are described in detail in the following section of this document.

Key outcomes of the scenario testing which have led to development of the recommended controls include the following:

- ‘Scenario C - increased FSR, no height control‘ has been determined as the preferred approach for Parramatta, particularly as it both allows for the projected floorspace demand within Parramatta and encourages tall, slim towers.
- Sun access controls, similar to those shown in Scenario D are also recommended to form part of the proposed controls for Parramatta. Testing demonstrates the effectiveness of these controls in retaining sun access to the key public domain areas of Parramatta City Centre.
- Although Scenarios C and D deliver appropriate overall floorspace outcomes, no scenario delivers the appropriate floorspace mix required to match projected demand. This highlights the need to implement mechanisms for encouraging employment uses within Parramatta City Centre.
- The preferred approach (Scenario C) also provides better visual outcomes for the City Centre, as a Floor Space Ratio control basis tends to avoid dense clusters of development.
- Existing views of Parramatta are likely to significantly change if Parramatta is to deliver its projected growth, including historic views such as that from Mays Hill.
- Heritage outcomes may also need to be reconsidered in the light of a significant uplift in development capacity across Parramatta. This includes the existing controls relating to the Old Government House and Domain World Heritage Site as well as low-scale conservation areas which form some of the edges to the existing City Centre.

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6.0 Conclusions and recommendations

6.1 Summary of key recommendations and controls

The following table and diagrams provide a summary of key recommendations and controls.

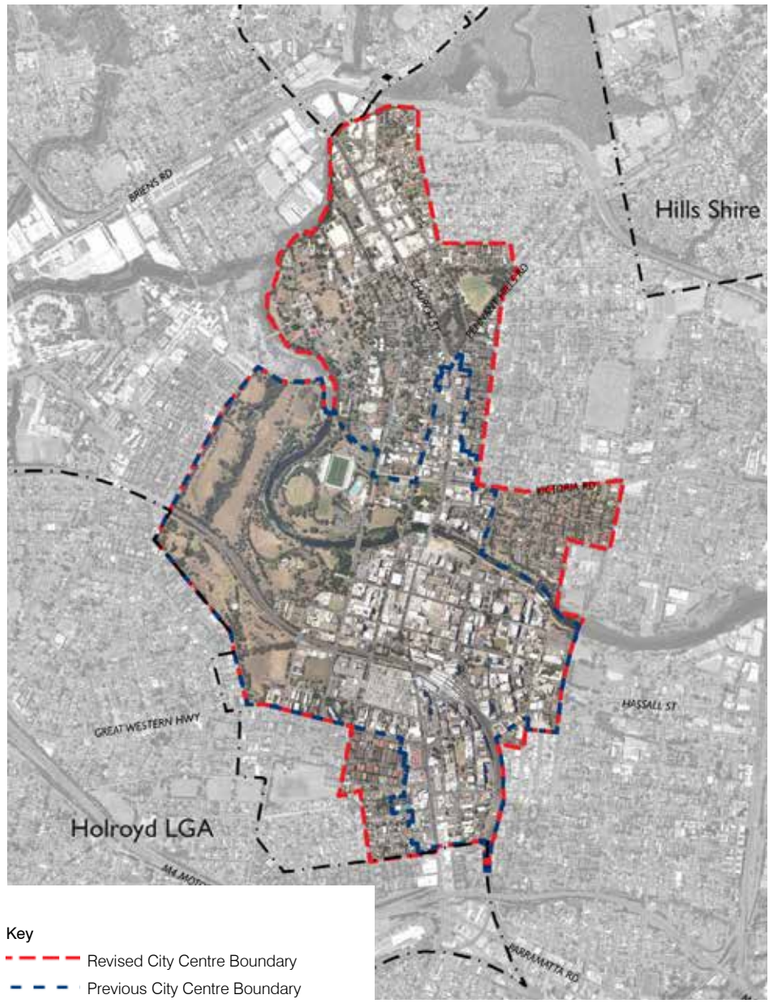
This chapter provides:

- An overview of the development of the controls (providing more detail on the background behind each control).
- A summary of further work recommended following this study.
- 3D modelling which demonstrates a likely built form outcome of the recommended controls (the 'preferred scenario').

City Centre boundary	
1	Following our studies of boundary options Parramatta Council has advised the boundary to be used for the future Parramatta City Centre (see Diagram 1 opposite).
Primary built form controls	
2	The potential for new development to increase to a Floor Space Ratio control of 10:1 for the main central area of the City Centre is provided with 6:1 and 3:1 in transitional areas of the centre (see Diagram 2 opposite), subject to minimum site sizes.
3	Sun access controls are to be applied, based on retaining sun access to a defined portion of nominated open spaces from 12pm-2pm in midwinter (see Diagram 3 opposite)
4	No specific maximum building height control is provided (other than the sun access controls noted and aviation restrictions to building heights).
5	Any uplift in controls allowing for tall building forms should be provided only for sites of a minimum of 1,000sqm in area.
Land use mix	
6	An expanded commercial core is proposed (see Diagram 4 opposite). The additional area includes the main Westfield Shopping Centre and the Justice Precinct.
7	It is recommended that residential uses are permitted in the commercial core where both of the following conditions are met: • A significant quantum of office space (i.e. 20,000sqm minimum) is built before residential occupation of a development site. • Sites deliver primarily employment uses (i.e. employment uses comprise a minimum 50% of total floorspace). [note: this is to ensure that very large or amalgamated sites do not deliver one modest commercial building and a much larger quantum of residential development]
8	Controls designed to encourage employment uses should be targeted to high-yielding employment uses and not all commercial uses.
9	Minimum non-residential FSR requirements are proposed of 1.0:1 for all sites in the mixed use zone of the City Centre.
10	Non-residential FSR exceeding the minimum requirements above should be exempt from the overall maximum FSR for mixed-use zones.
Value Uplift Sharing	
11	The existing FSR controls to remain in place. The additional higher FSR controls can only be achieved by 'sharing' the value of the uplift. That is the additional new FSR is to be purchased by landowners based on 50% of the nominated dollar value per square metre GFA. The dollar value is to be scheduled to provide certainty and reviewed annually.
12	This is to operate for residential uses only, not employment uses.
13	This system will operate in addition to the existing Section 94A contributions.
Tower slenderness	
14	The floorplate Gross Building Area (measured to the external facade of the building, including balconies) of residential towers should be limited to a maximum of: • 800sqm for residential buildings up to 75m in height (approx. 25 storeys). • 950sqm for residential buildings which are 75-105m in height (approx. 25-35 storeys). • 1100sqm for residential buildings greater than 105m in height (approx. 35 storeys).
Design excellence	
15	An additional 15% Floor Space Ratio should be provided to proposals which demonstrate design excellence through a nominated design excellence process. (e.g. competitive designs for developments over 30m and a Design Review Panel for developments up to 30m).

Note: The recommendations and controls provided above are those of Architectus. On 8 September 2014 Council resolved to adopt these recommendations with changes. These are shown in the Preface to this document

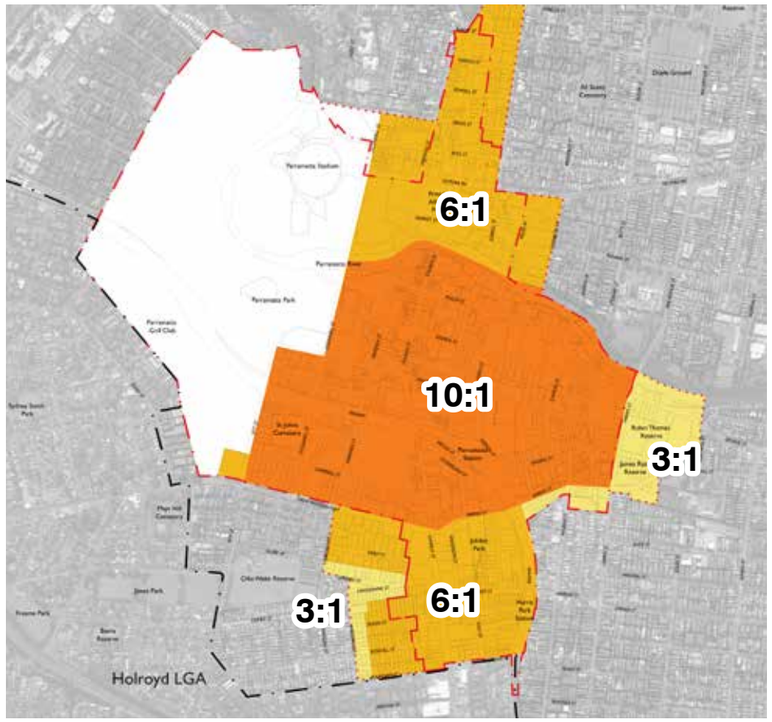
1. Revised City Centre Boundary



Key

- Revised City Centre Boundary
- Previous City Centre Boundary

2. Proposed Floor Space Ratios

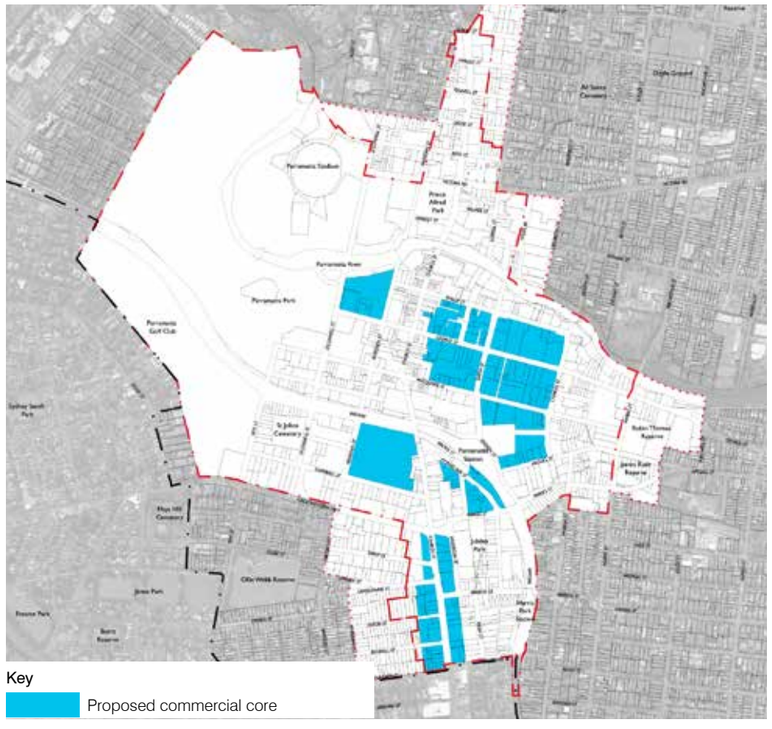


3. Proposed Solar Access Controls

Key

Solar access controls - 12pm-2pm midwinter

4. Proposed Land Use Zoning



Key

Proposed commercial core

6.2 Overview of key issues and development of controls

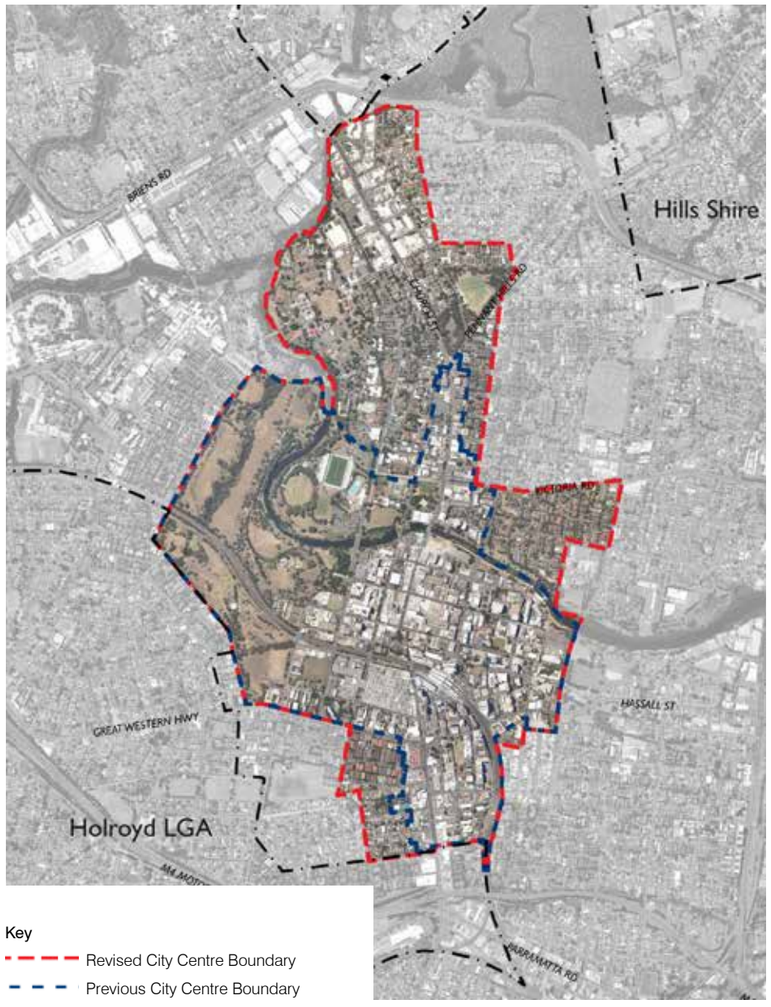
City Centre Boundary

City Centre boundary

Architectus provided a presentation of the study to the Parramatta Council Steering Committee on 25 June 2014. This presentation included the City Centre Boundary options provided in Section 3.0 ‘City Centre boundary’ within this report.

Following this, Parramatta Council advised Architectus as to the boundary to be used for the future Parramatta City Centre. This is provided adjacent.

Architectus recommends that further work is undertaken to consider the controls which should be provided where not covered within this study.



Revised CBD Boundary map provided to Architectus by Council

Broader structure

In addition to the City Centre boundary, there is a need for Parramatta to more effectively develop at a broader scale.

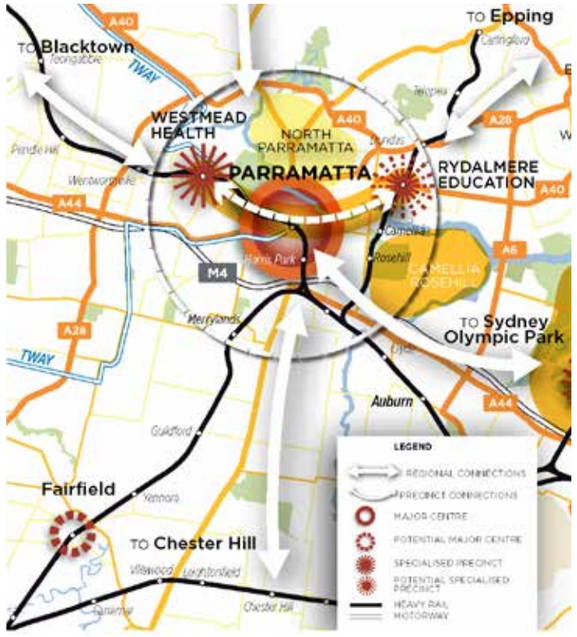
Other large centres are not structured as one single ‘CBD’ but as a network of supporting precincts, structured around a Centre (for example, see the diagram of Sydney in the draft Metropolitan Strategy shown adjacent).

Parramatta is located close to a number of secondary centres including Westmead, Rydalmere, Camellia, Granville and Merrylands. The Draft Metropolitan Strategy already places an emphasis on connecting these centres to central Parramatta.

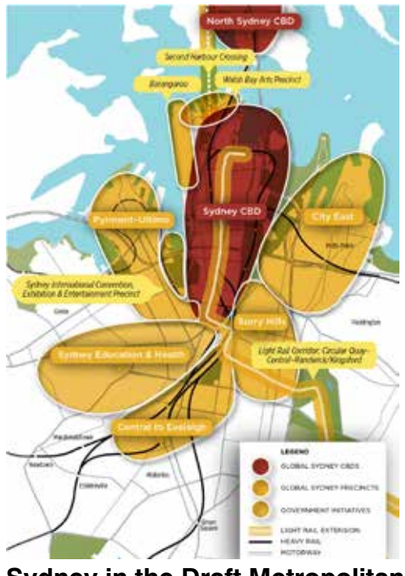
Transport improvements including the proposed Western Sydney Light Rail network will improve this connectivity considerably.

The majority of land between Parramatta Centre and the centres noted above consists of residential neighbourhoods of low-rise strata title apartment blocks and detached houses. Architectus recommends that further work is done to consider how these areas can best support the Centre of Parramatta.

The boundary between the Parramatta and Holroyd Local Government Area is in some locations directly adjacent to the Parramatta City Centre boundary. This creates difficulties in the organised planning of precincts surrounding and supporting the Parramatta City Centre. Ideally a coordinated planning strategy should be developed which covers both LGAs across the areas between Parramatta Centre, Merrylands and Granville.



Parramatta in the Draft Metropolitan Strategy



Sydney in the Draft Metropolitan Strategy

Major controls (building heights, floor space ratio, sun access)

Floor Space Ratio

FSR is an important regulator of development because it:

1. provides certainty to the general community (landowners, developers, financiers, residents and other citizens)
2. enables efficiency in land valuation and the real estate market
3. enables development capacity to be calculated and as a basis for providing/forecasting for services and transport
4. enables landowners in a precinct to be treated equitably
5. enables high architectural design quality to be achieved when combined with well considered built form controls such as tower separation and tower slenderness/floorplates
6. can reward design excellence with additional FSR
7. can be used as a mechanism to transfer floor space to achieve urban design and public benefits
8. can be the basis for a value capture mechanism to fund public benefits such as public domain improvements for enhancing the general amenity of an area as urban densities increase, the conservation of heritage buildings, affordable housing (e.g. long term below market rental accommodation for key workers), and public transport improvements.
9. enables administrative efficiency and transparency of the planning system underpinned by fairness and sound urban planning logic.
10. inhibits corruption where it is transparent and certain (ICAC)

Building Heights

Building height controls can provide some, but not all of the positives ascribed to Floor Space Ratio above. The drawbacks of building height controls in a city centre are that they:

- encourage development to 'bulk out' within the height limit, which creates a number of poor outcomes (see discussion of 'slender towers' below).
- discourage the provision of open space (as open space will reduce floorspace able to be provided within the height limit).
- are less efficient and transparent in understanding the development potential of sites, for the general public, landowners, developers, financiers, and the wider community.
- cannot as easily be used as a mechanism to transfer floor space.

There are constraints on building heights which do not form part of the local planning system, including aviation limits. Architectus understands that the prescribed Airspace of Bankstown airport includes an OLS at 156m AHD and a PANS-OPS surface at 305m AHD (the ground level in the core of the City Centre is around 10m AHD). The scenario testing provided in this document demonstrates that some developments may seek to exceed the height of the OLS surface however it is unlikely that developments will seek to exceed the height of the PANS-OPS surface (approximately the height of the approved Aspire Tower).

Sun access

The provision of sun access to open spaces and public areas of a centre is an important factor in its perceived quality which impacts on its attractiveness for residential, employment and retail uses.

In Sydney's climate, some large centres (e.g. Central Sydney, North Sydney, Green Square Town Centre) focus on the protection of sun access to open spaces between the hours of 12pm-2pm (lunch time hours) at all times of year (with midwinter being the 'worst case'). This is the approach of the current sun access controls for three areas in Parramatta City Centre.

The scenario testing in this study demonstrates that a significant uplift in controls for the City Centre has the potential to provide significant overshadowing of the City Centre's open spaces and that additional areas should have solar access controls for 12pm-2pm in midwinter as this is the most appropriate method for retaining good sun access to open spaces.

It is recommended that to protect good sun access to public open spaces within Parramatta City Centre, whilst minimising the impact on development potential:

- The existing sun access controls are retained for Jubilee Park, and Parramatta Square.
- The existing sun access control to the Lancer Barracks be removed as it retains good solar access under any of the scenarios.
- New sun access controls should be provided for the open spaces of Prince Alfred Park, open spaces along the Parramatta River and Church Street, which have the potential to be significantly overshadowed by an uplift in controls.
- No new sun access control can reasonably be provided to the new proposed public open space south of the 'Heartland Holden' site as this is too small and is likely to be already significantly overshadowed by proposed buildings to its north.
- No new sun access control should be applied to the proposed River Link. Although this has been tested (see Scenario D), it is considered that this is likely to be too restrictive for development, particularly in the Commercial Core. Other nearby spaces (Parramatta Square, Church Street, River Square) can also provide alternative locations for sun access to public open spaces.

Solar access to apartments should generally be provided in accordance with the Residential Flat Design Code at 70% of apartments in all developments for at least 2 hours of midwinter between 9am and 3pm. However given the City Centre location this is considered desirable rather than mandatory.

Application of increased FSR controls

The expectation of increased floorspace potential on smaller sites is often difficult to realise as providing commercially viable floorplate sizes and good separation between towers cannot be generally realised.

Where Floor Space Ratios may be significantly increased from the existing control it is recommended that a minimum site size is applied to ensure that there is no expectation of the delivery of floorspace on sites which cannot provide good building separation.

Architectus recommends a minimum site size of 1,000sqm for any site to achieve a significant uplift from the existing controls. This is based on the site testing that we have done in order to provide slender towers that are well separated. As a point of comparison, the minimum lot size for towers in Central Sydney (decided following over 40 representative site tests) was concluded at 800sqm.

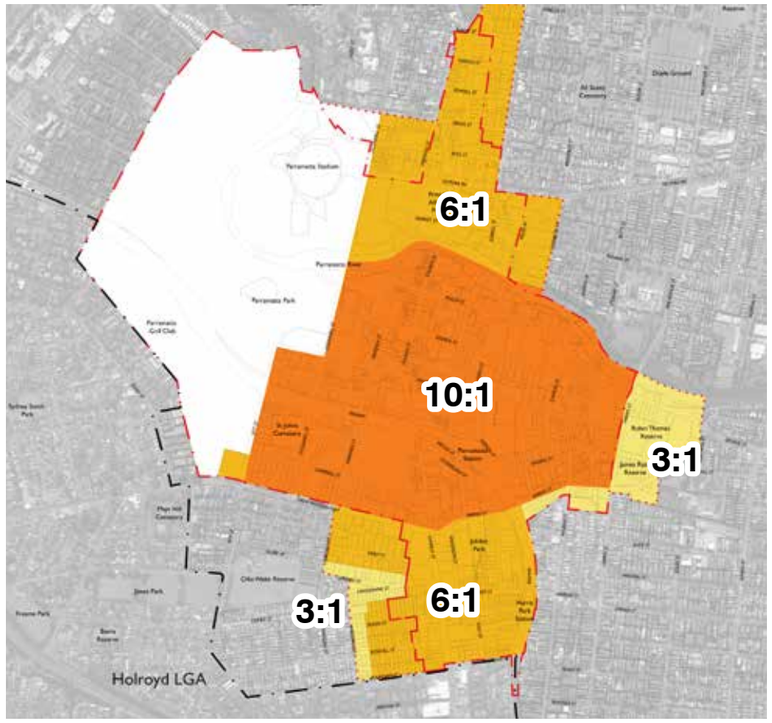
If site sizes less than 1,000sqm are to be considered for additional FSR, detailed site testing is necessary to demonstrate this.

Conclusion

For the above reasons, Architectus recommends:

- The potential for new development to increase to a Floor Space Ratio control, as in Scenario C, which is generally equitable to land owners across wider, well-defined areas and is able to deliver Parramatta's long-term floor space capacity targets.
- Selected sun access controls (as described above, varying slightly from those tested in Scenario D) to be in place. Site testing indicates that sites affected by the sun access controls can still generally achieve the proposed maximum FSR.
- No specific maximum building height control, other than the sun access controls noted and the airspace restrictions to building heights.
- Any uplift in controls allowing for tall building forms should be only for sites of a minimum of 1,000sqm in area.

Proposed Floor Space Ratios



Note: Council's resolution of 8 September 2014, as detailed in the Preface to this Study, recommends that a principle be included in the City Centre Planning Framework, that allows the maximum FSR to be achieved on lots less than 1,000m², where the development demonstrates Design Excellence and Merit and meets all other design requirements for the site for that form of development.

Proposed Solar Access Controls

Land Use Mix

The need to encourage employment use

A key aspiration of this study is that Parramatta is to become Sydney's premier Regional City. In order to compete with similar high-order centres Parramatta will need to be a strong employment centre.

The market demand for residential uses in Parramatta is currently stronger than that for commercial uses. This has given rise to pressure on the existing commercial core.

However the scenario testing and economic analysis provided in this study demonstrate that the current commercial core zone and proposed additions in Auto Alley alone will not be able to deliver the projected employment growth for Parramatta over the next 20-30 years.

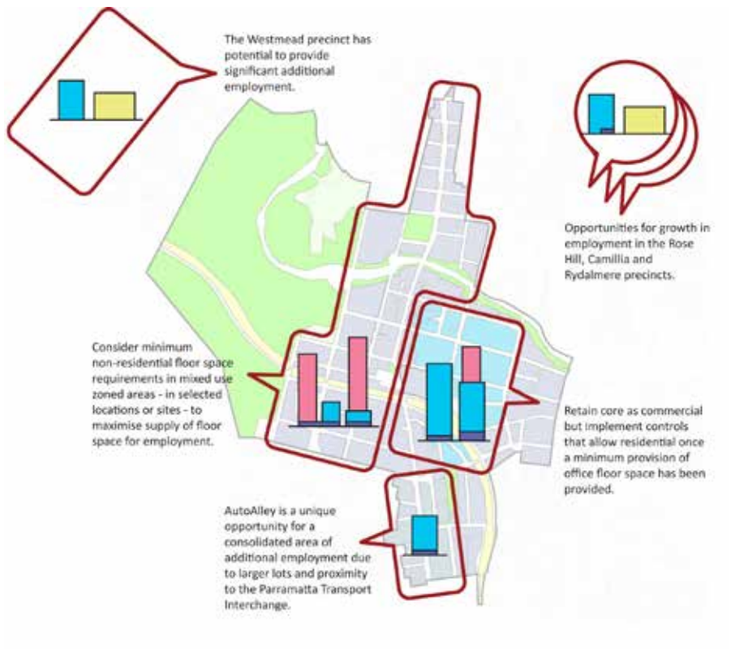
If central sites are permitted to develop for residential uses they are unlikely to be available for commercial use in the future (even where there is demand) due to strata ownership. Commercial sites, conversely, can be more easily developed for residential uses.

Due to the above factors, there is a need to ensure that employment uses are encouraged within Parramatta within the short term and that land is protected from residential use to allow for future employment demand.

Strategies for encouraging employment

Architectus and SGS have considered a number of strategies for encouraging employment uses within Parramatta. These are shown in the diagram adjacent. These strategies are discussed in more detail below.

Strategies for employment use (SGS)



Westmead, Rose Hill, Camellia, Rydalmere

These wider employment-led and specialised centres can help to contribute to the continuing success of Parramatta. These areas lie outside the main focus of this study (the Parramatta City Centre) however it is recommended that employment uses are encouraged in these centres to support the vitality of Parramatta. Improved connectivity between these centres and the Parramatta Centre (such as proposed in the Western Sydney Light Rail network) will also help to encourage these areas to contribute to the vitality of the Parramatta City Centre.

Commercial Core and Auto Alley

As described above, the existing core and proposed commercial sites in Auto Alley may not be able to provide for Parramatta's employment potential alone. As shown in the analysis (Section 4.6 'Key LEP controls in comparable centres') it is also smaller than the commercial core provided in other centres in Sydney, other than Central Sydney which is large enough to support commercial uses without a specific commercial core zone.

Architectus recommends expansions to the Commercial Core zone where possible, particularly where there are existing large areas of commercial uses. Locations where this may be possible include the main Westfield Shopping Centre site and the Parramatta Justice Precinct. This is shown in the diagram following.

The commercial core should primarily provide employment uses. However it is recognised that demand for employment can be 'lumpy' and hence large sites may not be able to deliver all of their potential floorspace in a single commercial development.

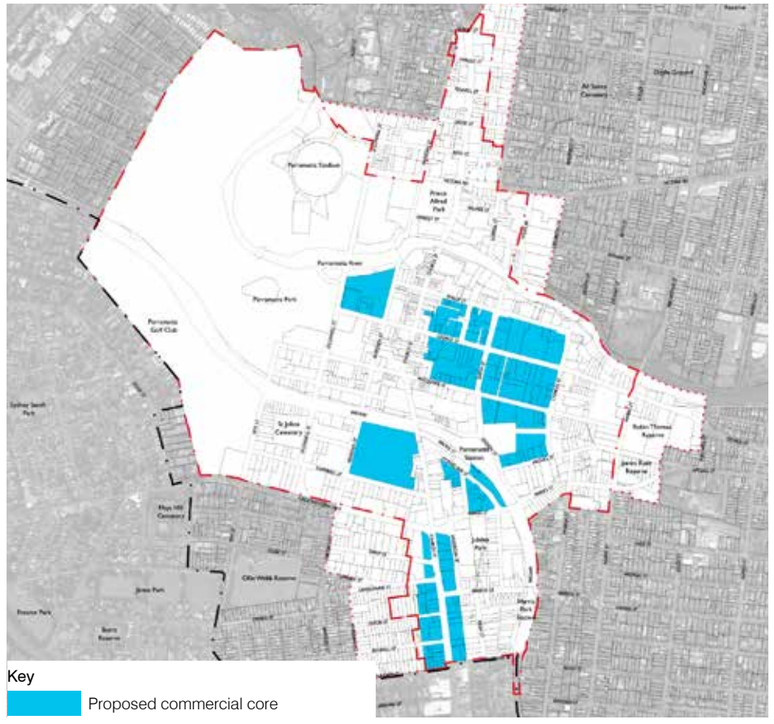
It may therefore be appropriate to allow residential development within commercial zones where a significant quantum of employment uses is also delivered.

It is recommended that residential uses are permitted in the commercial core where both of the following conditions are met:

- A significant quantum of office space (i.e. 20,000sqm) is built before residential occupation.
- Sites deliver primarily employment uses (i.e. employment uses comprise a minimum 50% of total floorspace). [note: this is to

ensure that very large or amalgamated sites do not deliver one modest commercial building and a much larger quantum of residential development.

Proposed Land Use Zoning



Mixed use zones

In order to encourage Parramatta as a vibrant commercial and retail (as well as residential) centre, all sites within the centre should provide some commercial use. The following potential approaches have been considered for encouraging commercial uses within the mixed use zone:

- The provision of a minimum non-residential floor space ratio on each site.
- Different Maximum Floor Space Ratios permitted for residential and commercial uses (this is the approach taken in Central Sydney).

A minimum non-residential FSR requirement of 1.0:1 for all sites in the centre is encouraged to promote this. Typically this will be provided in the form of ground floor retail with further retail and/or offices for at least part of one storey above this.

To further encourage non-residential uses within mixed use zones, non-residential FSR exceeding the minimum requirements above could be exempt from the overall maximum FSR.

Ensuring appropriate commercial types

Another important factor in the encouragement of employment uses is to ensure the freedoms and offsets intended for employment uses are not applicable to other commercial uses. This has been a problem for other centres in Sydney where commercial uses which are not employment-focussed such as serviced apartments and SOHO (small office, home office) units have formed a large portion of development within commercial zones. Controls designed to encourage employment uses should therefore not be applicable to all commercial uses.

Share value uplift

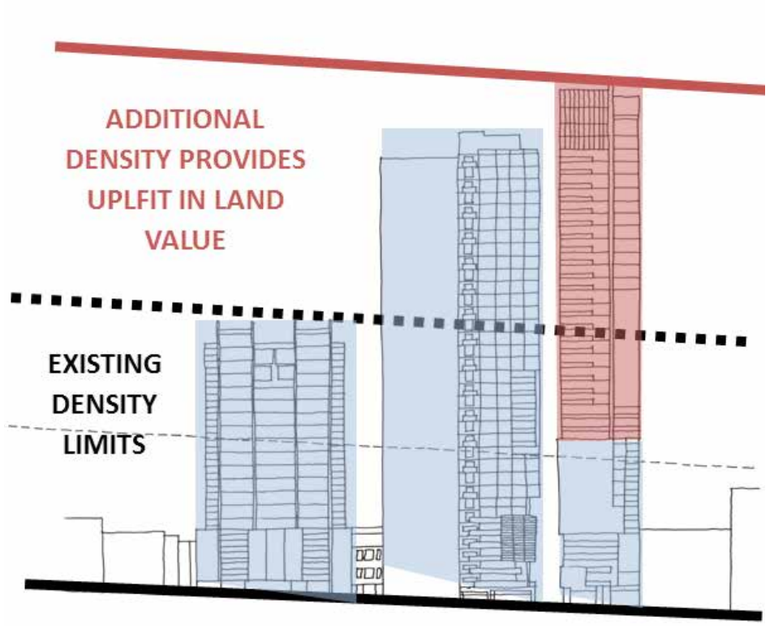
A mechanism to share the value uplift which is created by new controls will be critical in ensuring that Parramatta can deliver the high-quality urban amenity which is demanded by a high-order centre to be attractive as both a residential and commercial destination.

Key factors to the success of a value sharing mechanism includes:

- To be brought in with new controls to reduce land value speculation.
- To be transparent and simple.
- To minimise the need for protracted negotiation processes for each development by having a standard simple VPA process.
- Apply to only residential development in the City Centre so that employment uses are not discouraged.

A proposed value sharing mechanism has been developed which involves the existing FSR controls to remain and additional FSR to be shared by a value mechanism. This is to operate for residential uses only. This system will operate in addition to the existing Section 94A contributions.

Illustration of value sharing with additional density (SGS)



Note: Council's resolution of 8 September 2014, as detailed in the Preface to this Study, recommends that the proposed FSRs put forward in this Study would become the base, and that additional higher FSR controls can only be achieved by sharing the value of the uplift

Tower slenderness and separation

It is generally acknowledged that cities should avoid large, bulky towers that overshadow and visually overwhelm the public domain detrimentally. Controls are generally required for residential towers to ensure slender towers are provided for the purpose of:

- allowing for views of sky between buildings from the public domain.
- addressing overshadowing to ensure sunlight and daylight generally permeate the City Centre.
- encouraging good residential amenity

In Parramatta this is generally only needed for residential towers as commercial towers need to be encouraged and their floorplates are significantly larger (1,500sqm to 2,000sqm Gross Building Area floorplates are likely).

Examples of restrictions on residential building floorplates in Sydney include the following:

- In the Lachlan Precinct (part of Green Square) detailed consideration has been given to the slenderness of towers. The resulting controls allow for 22-storey towers to a maximum of 750sqm of floor area including balconies. A significant separation distance between towers (60m) is also provided as this site is not within a centre.
- In Central Sydney, a 1,000sqm sqm GFA maximum is applied to residential tower buildings. A maximum horizontal dimension of the building facade of 40m is also applied.

Internationally, floorplates are not always restricted in the same way. An extract from a study for the City of Toronto (www1.toronto.ca/city_of_toronto/city.../Tall-buildings-Final-pt5.pdf) is reproduced below which provides a brief comparison of a number of North American cities and their approach to tower slenderness.

"In Boston, buildings are evaluated on a project-specific basis and floorplate size is determined based on context. The average floorplate size of any one building may not exceed 2,090 square metres.

In Calgary the maximum floorplate size is 650 square metres of net residential floor area (i.e. not including elevator cores, balconies etc.).

Chicago does not limit floorplate size, but requires reduction in massing for the upper storeys to convey a sense of sculpting towers.

New York regulates floorplate size by the percentage of the lot that may be covered by a tower. Towers must cover 40% or less of a site area, with special exceptions up to 50% for smaller sites.

In San Francisco, buildings must incrementally scale back as height increases. The lower tower must not exceed 1,600 square metres and the upper tower must not exceed 1,100 square metres.

In Vancouver the maximum floorplate size is 604 square metres of net residential floor area and the maximum horizontal dimension of a tower is 27.5m. Open balconies may extend beyond this provided they are less than 1/3 the overall façade length.

Every city is unique and has different priorities. While the larger cities allow more flexibility in the floorplate size of towers, smaller cities prefer very slender towers that are spaced far apart.

Toronto falls somewhere in the middle. Toronto places a higher value on access to sky views and sunlight than cities like Chicago, but Downtown is more compact in development form than cities like Vancouver. Therefore a floorplate size restriction is an important tool for controlling the negative impacts of tall buildings, but it need not be as stringent as some of the smaller cities."

Architectus recommend for Parramatta that the Gross Building Area (measuring to the external facade of the building, including balconies) of residential towers should be limited to a maximum of:

- 800sqm for residential buildings up to 75m high (approx. 25 storeys)
- 950sqm for residential buildings which are 75-105m high (approx. 25-35 storeys).
- 1100sqm for residential buildings greater than 105m high (approx. 35 storeys).

The existing DCP provisions and Residential Flat Design Code provide appropriate outcomes with regard to separation between towers within a centre of the scale of Parramatta. It is not considered that additional separation requirements are needed.

Design excellence

There are several methods to demonstrate design excellence that have been developed by government authorities in recent years in NSW – all are appropriate for substantial development:

1. **Open design competition**

Appropriate for highly significant and iconic development – especially public projects

2. **Limited design competition**

Council and Developer nominate design jurors, run according to an agreed process (e.g. AIA guidelines)

3. **Design alternatives**

Developer runs the process, different architects provide designs, developer lodges alternative schemes with preferred scheme and reasons for selection

4. **Design Review Panel or Design Jury**

Panel advises whether a design exhibits design excellence

5. **Qualified designer**

Architect is qualified by demonstrating design excellence in a similar scale project and land use through winning a recognised design professional award (e.g. AIA award) and has the capacity/ resources to undertake the project.

Architectus recommends for Parramatta City Centre that all proposals over 30m (approximately 9 residential storeys) go to a Design Competition/Design Alternatives process and that all competitive processes are to include an AIA award winning architect, experienced in the scale of project, Other proposals (30m and below) should go to a Design Review Panel. Council should clearly state that the extra costs borne by the design excellence process is to be recovered by the award of an additional 15% FSR including a guideline that architects costs should be reimbursed at the rate of 25% of the DA fee. Architectural services through to construction are to be agreed between the proponent and the architects prior to the start of the competitive process.

30m has been selected as this height is generally considered a threshold for high-rise development. For instance fire ratings require sprinkler systems to be installed for all buildings with floor levels above 25m in height (so an overall height of a building could be 28-30m).

A DA condition should commit the DA architect to provide services through to construction which can only be changed with Council's approval.

As a point of comparison, Central Sydney require a design competition process for buildings higher than 55m.

Design excellence bonus

In order to compensate for the cost of a design competition, a bonus of 15% FSR may be applied.

Further controls

Public domain and active frontages

Architectus recommends that all buildings in the City Centre be permitted to provide active frontages at ground floor. A map provided in the DCP or similar should show the minimum required active frontages.

Building sustainability

While Council cannot require more than BASIX for residential development under the existing controls Council may require additional measures be achieved as a means of achieving the additional FSR and design excellence provisions.

Old Government House and Domain - Park Edge Special Area

The existing controls for the Park Edge Special Area relating to the Old Government House and Domain World Heritage Site have been agreed by Council and national heritage authorities.

In order to deliver the projected floorspace demand of Parramatta it is necessary that there will be a significant uplift in development capacity near to the Park Edge Special Area. It is recommended that the controls which currently apply to this area are revisited in light of their changing context. The principles on which the existing controls have been based include the provision of slender, well spaced towers. This is encouraged through the recommended controls of this document and is possible to achieve whilst allowing for an uplift in development capacity on these sites.

6.3 Recommendations for further studies

Architectus makes the following recommendations for further studies to resolve key issues as part of preparation of new planning controls for the City Centre:

- Further consider the FSR controls by site testing for the transitional areas (i.e. areas covered by 3:1 and 6:1) within the City Centre boundary.
- The majority of additional land included within the new City Centre boundary consists of low-rise strata title apartment blocks and detached houses. Architectus recommends that further site testing is done to consider appropriate controls for these areas. Further consideration should also be given to the heritage value and development potential of the Sorrell Street and North Parramatta Heritage Conservation Areas.

The wider network of centres (such as Granville, Camellia, Rydalmere, Westmead and Merrylands) can also help to contribute to the continuing success of Parramatta. These areas lie outside the focus of this study (the Parramatta City Centre). It is recommended that employment uses and higher density residential uses are encouraged in these centres to support the vitality of Parramatta. Improved connectivity between these centres and the Parramatta Centre (such as proposed in the Western Sydney Light Rail network) will also help to encourage these areas to contribute to the vitality of the Parramatta City Centre.

6.4 Potential outcomes of recommended controls

Basis of modelling

Following development of the recommended controls, a further 3D model has been produced, demonstrating potential built form outcomes of the recommended controls including heigh controls for solar access to selected open spaces. This is demonstrated over the following pages, including an overview of the City Centre, modelled example views and diagrams illustrating likely sun access to open spaces.

Outcomes

The recommended controls are suitable to deliver the objectives of the study, including the following key features:

- Delivery of floorspace which is appropriate to the projected requirements within the future of Parramatta City Centre.
- Parramatta's future as an employment centre is protected whilst allowing capacity for residential growth.
- Good sun access to open spaces.
- Retaining the City Centre as the focus of Parramatta.
- Sharing the value of 'uplift' in development capacity for Council in order to be able to deliver improvements to the public realm.
- High quality built form outcomes are achieved through a design excellence process.
- Tower developments are encouraged to be slim and well separated.

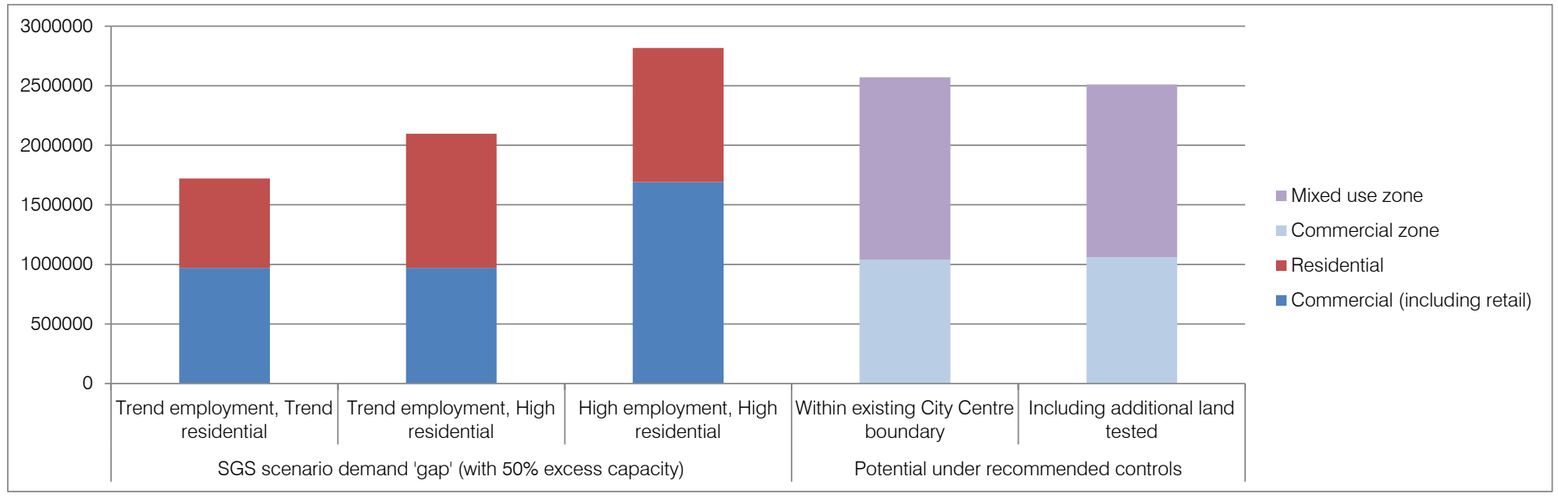
Headline figures:

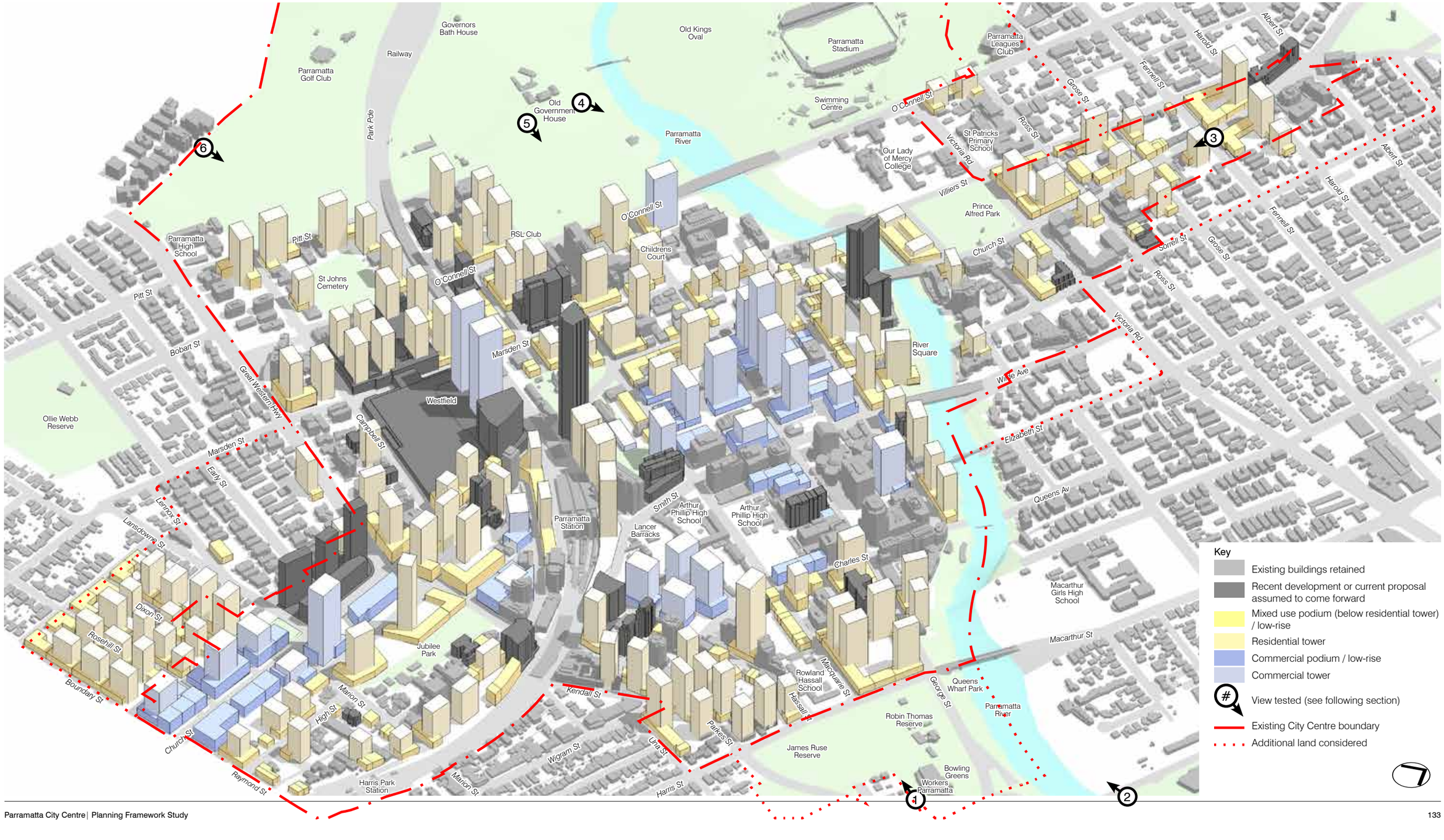
	Existing Centre	All sites**
New residential GFA*	**1,530,000 sqm**	**1,730,000 sqm**
New commercial GFA*	**1,040,000 sqm**	**1,060,000 sqm**
Average FSR shown	**5.9:1**	**5.8:1**

* including subtractions for parking in podiums and demolition of existing floorspace

** existing centre plus additional land considered

Comparison of floorspace capacity

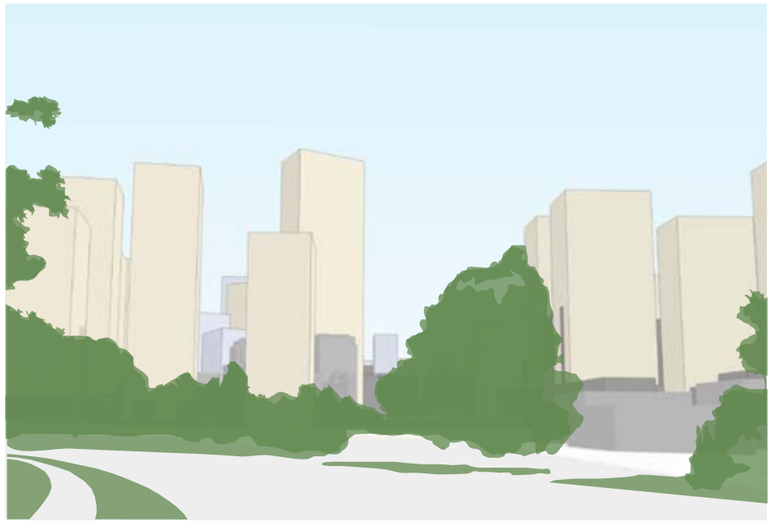



Governors Bath House
Railway
Old Kings Oval
Parramatta Stadium
Parramatta Leagues Club
Parramatta Golf Club
Park Pde
Old Government House
Swimming Centre
O'Connell St
Grose St
Fennell St
Harold St
Albert St
Ross St
St Patricks Primary School
Our Lady of Mercy College
Victoria Rd
Villiers St
Parramatta River
Prince Alfred Park
Parramatta High School
Pitt St
RSL Club
Childrens Court
Church St
Sorrell St
St Johns Cemetery
Bobart St
Great Western Hwy
Marsden St
River Square
Westfield
Campbell St
Ollie Webb Reserve
Early St
Lennox St
Lansdowne St
Smith St
Arthur Phillip High School
Parramatta Station
Lancer Barracks
Charles St
Macarthur Girls High School
Macarthur St
Dixon St
Rosehill St
Jubilee Park
Boundary St
Marion St
High St
Kendall St
Rowland Hassall School
Macquarie St
Hassall St
Queens Wharf Park
George St
Robin Thomas Reserve
James Ruse Reserve
Parkes St
Una St
Wigram St
Harris Park Station
Raymond St
Harris St
Bowling Greens
Workers Parramatta
White Ave
Elizabeth St
Queens Av
1
2
3
4
5
6
7
Key
Existing buildings retained
Recent development or current proposal assumed to come forward
Mixed use podium (below residential tower) / low-rise
Residential tower
Commercial podium / low-rise
Commercial tower
View tested (see following section)
Existing City Centre boundary
Additional land considered

View comparison

1 Hassall Street - approaching City Centre from east

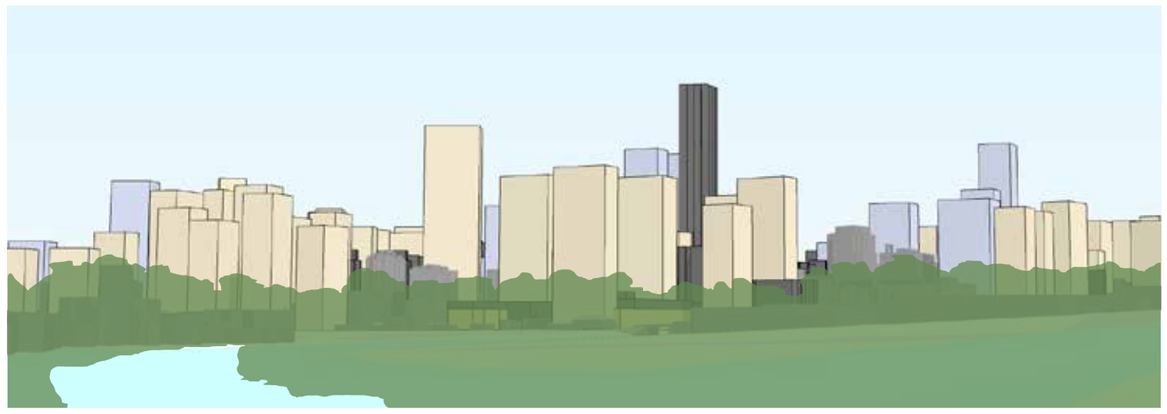
Existing photo



Potential under recommended controls

2 James Ruse Drive Bridge - from east of City Centre

Existing photo

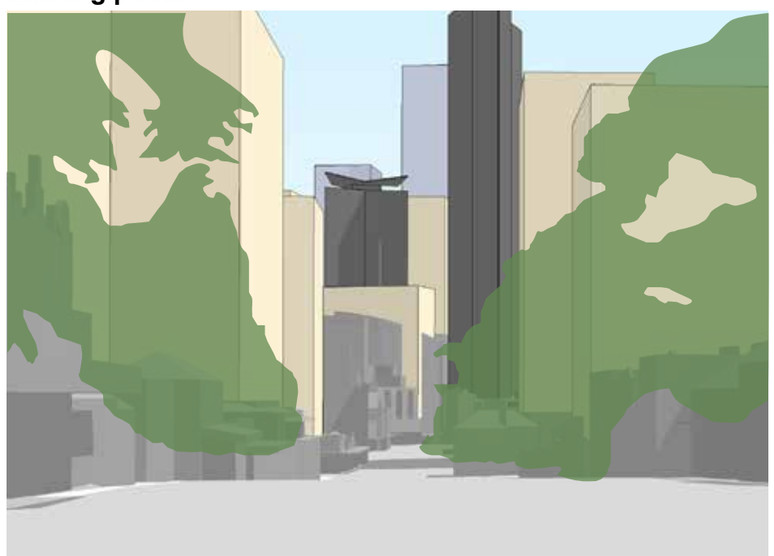


Potential under recommended controls

Approximate outline of vegetation and foreground (derived from existing photo)

③ Church Street near Fennell St - Northern City Centre facing south

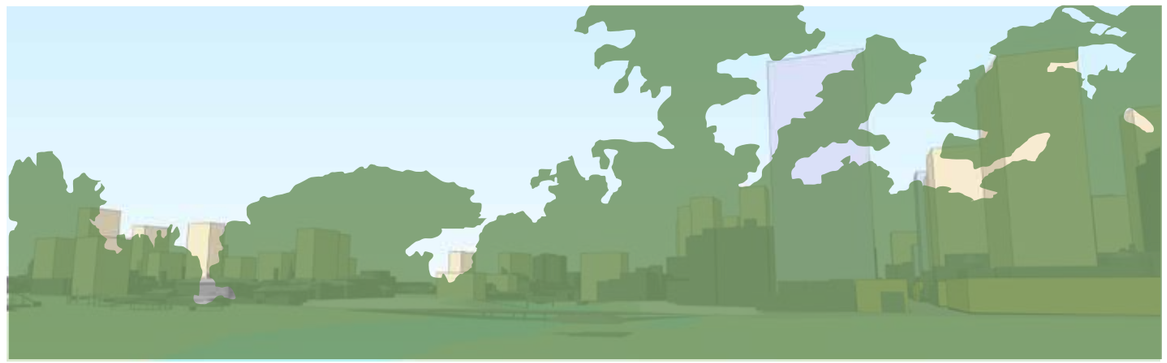
Existing photo



Potential under recommended controls

④ From northeast of Old Government House - Western City Centre

Existing photo

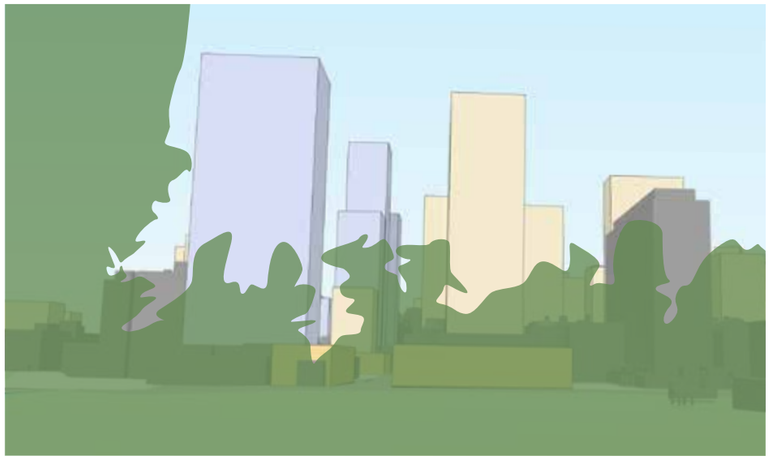


Potential under recommended controls

Approximate outline of vegetation and foreground (derived from existing photo)

5 East of Old Government House - West of City Centre

Existing photo



Potential under recommended controls

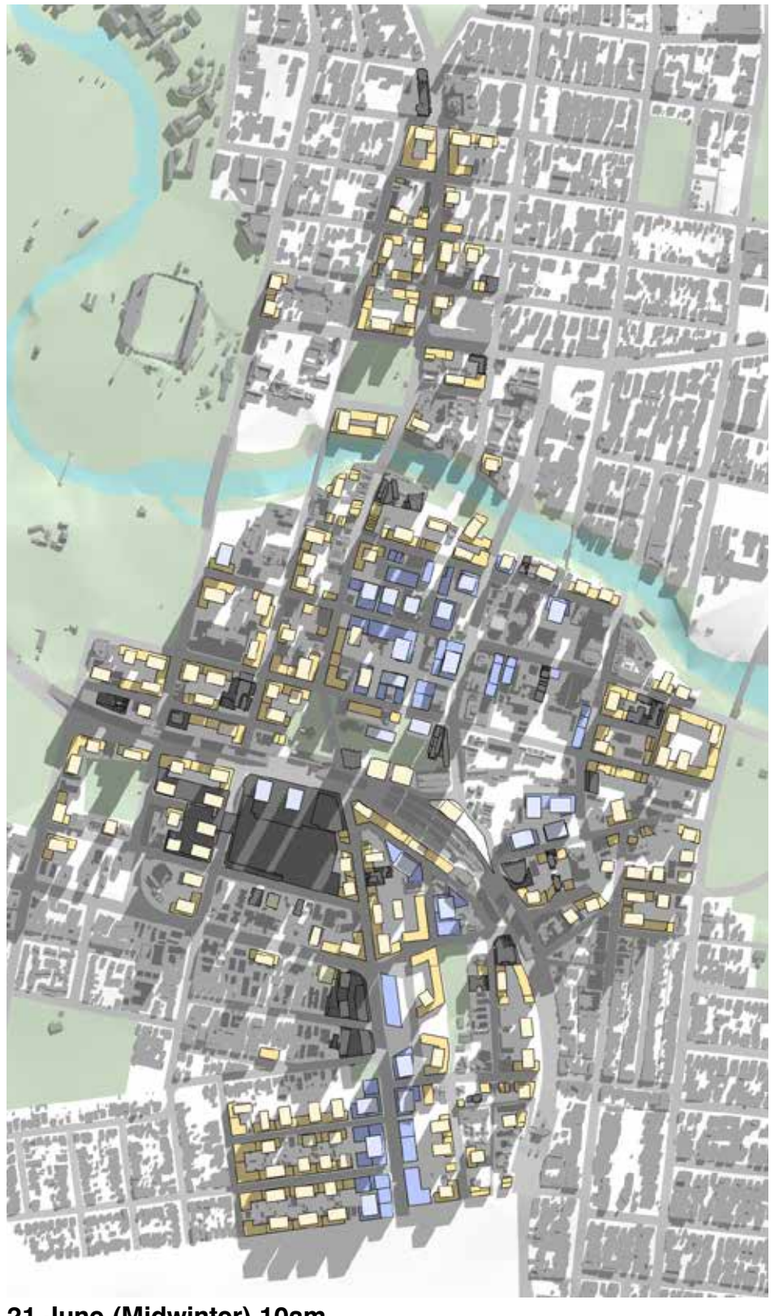
6 Mays Hill, Parramatta Park - Southwestern portion of City Centre

Existing photo

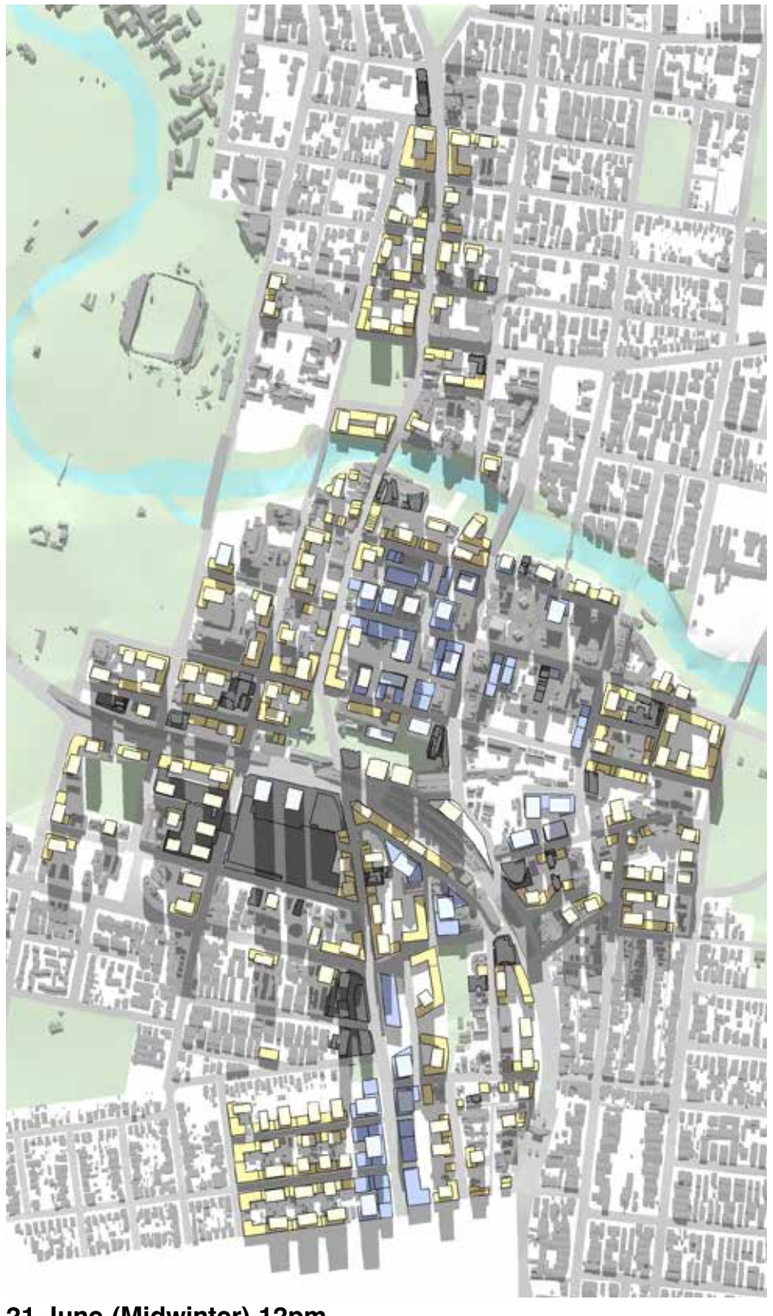
Potential under recommended controls

Approximate outline of vegetation and foreground (derived from existing photo)

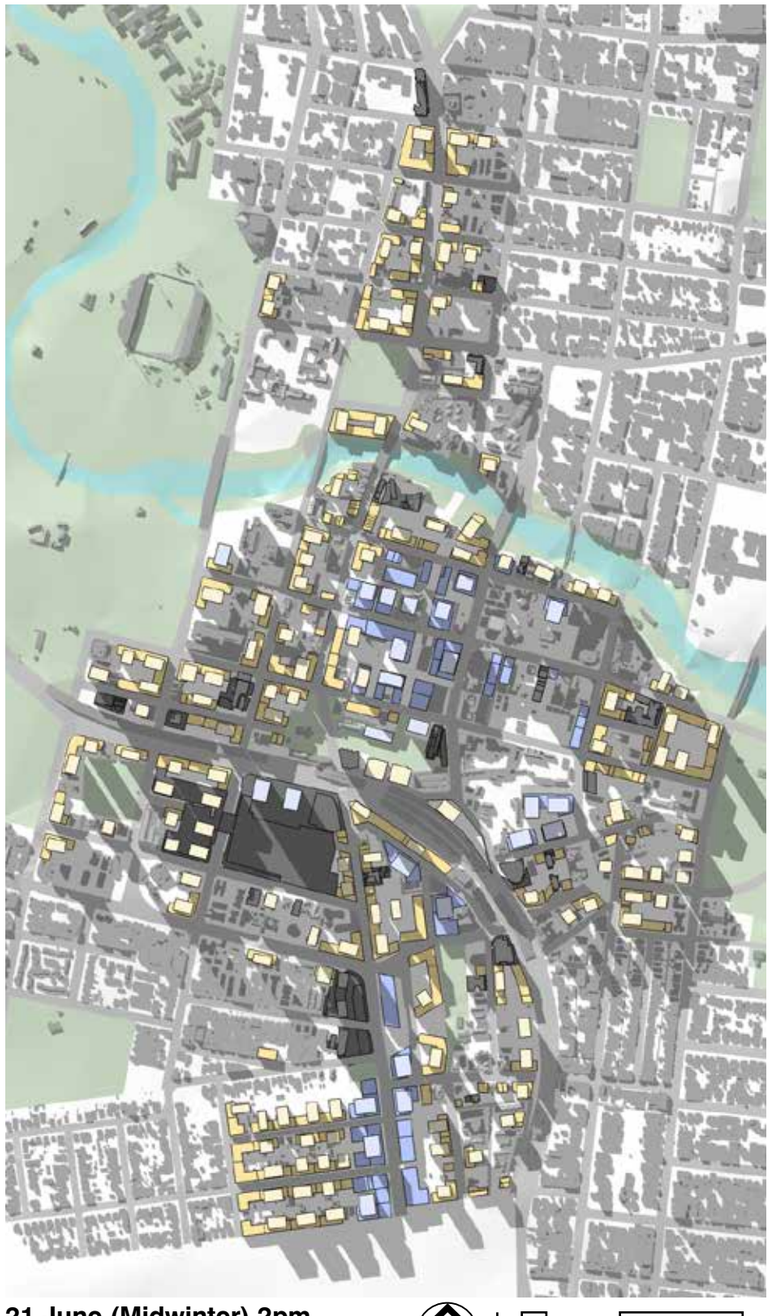
Sun access to open spaces during midwinter (21 June)



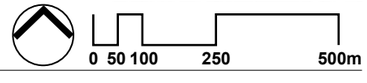
21 June (Midwinter) 10am



21 June (Midwinter) 12pm



21 June (Midwinter) 2pm



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Appendix A Scenario Schedules

The following pages present a site-by-site breakdown of development tested under each scenario model. The numbers provided in this schedule are reflected in the 3D modelling and in the headline figures provided within the text. Calculations are based on the model itself and the assumptions behind each scenario as described in the main document.

This work is intended to show a broad approximation of development capacity across the City Centre. The Gross Floor Areas (GFA) described in this schedule are calculated on this broad basis only without consideration to each site in detail and do not necessarily reflect an achievable floorspace under each scenario for each site.

A plan is provided opposite indicating the reference numbers for each site which has been used in the schedule. The circled labels are references for street blocks. The references have been located meaning:

- N - Northern Precinct
- C - Central Precinct
- E - Eastern Precinct
- W - Western Precinct
- S - Southern Precinct
- AA - Auto Alley Precinct
- ON - Outside Existing CBD North - Potential enlargement of CBD Boundary
- OS - Outside Existing CBD South - Potential enlargement of CBD Boundary

The alphabetical letters are potential development sites within each street block.

The schedule is divided into sections as follows:

Site

- An **Area**, **Block** and **Site** are provided identifying each amalgamated site on the plan opposite.

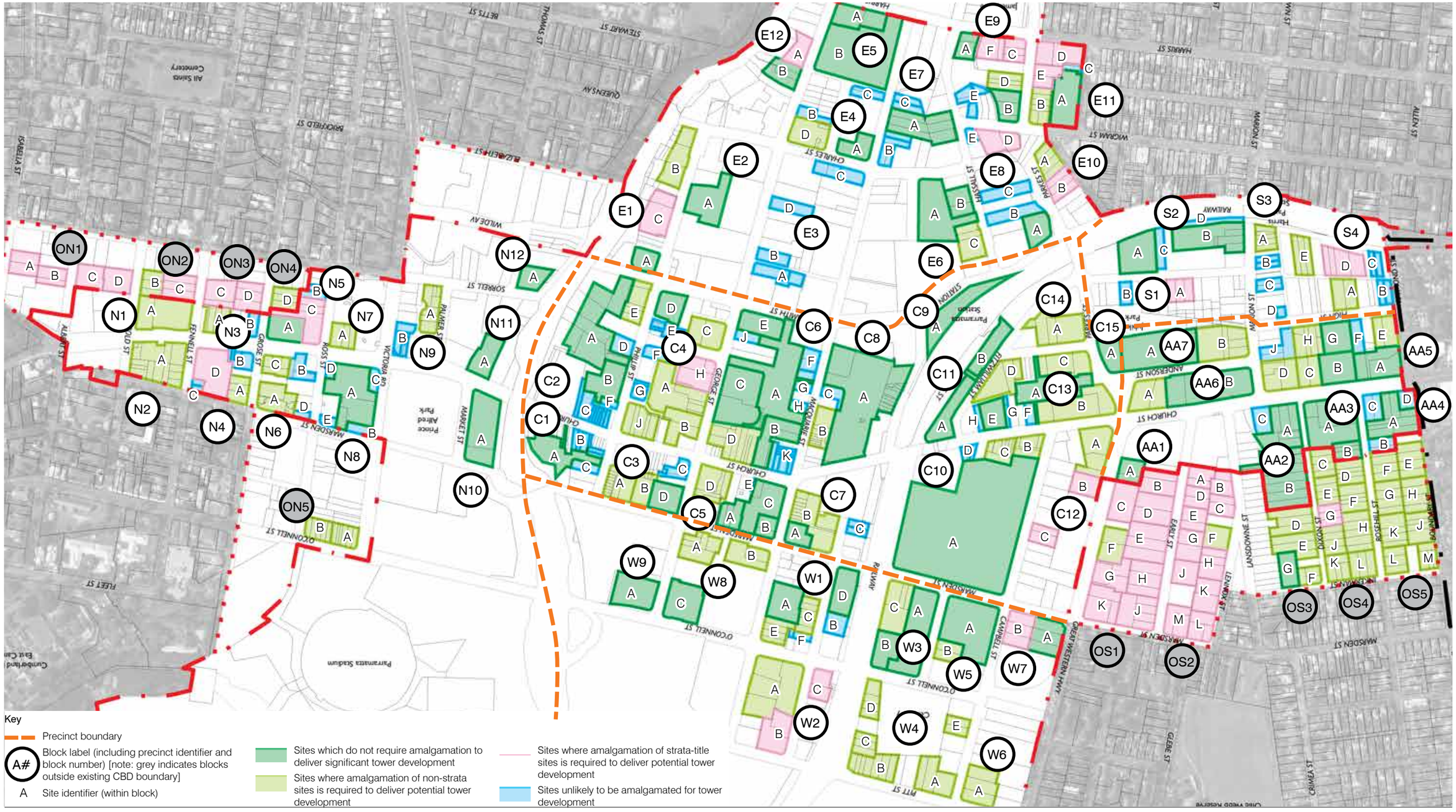
Site Information

- A **site area** is provided for each amalgamated site.
- **Suitability of site for tower development** provides an overview of the site's potential for tower development. Single-ownership, amalgamated and strata-title sites may provide different development forms under different circumstances (see the assumptions within Section 4.3 of the main document). Only sites which have the potential to provide tower forms are shown within the schedule.
- **Potential to amalgamate** indicates any further sites where the site has been considered as having the potential to amalgamate with in order to provide a larger floorplate tower.

Scenarios

- **Key development constraints** are provided indicating factors which limit the development potential of each site under each scenario. These vary by scenario and may include the following:
  - FSR controls
  - Numeric height controls
  - Sin access planes
  - Maximum marketable floorspace per tower (as described within the assumptions within Section 4.3 of the main document)
  - Smaller floorplate tower - smaller floorplate towers are restricted to a maximum of 35 storeys in height under the assumptions used.
- **Development shown** including:
  - Whether a low-rise form is provided under this scenario
  - Whether a tower form is provided under this scenario
  - The use assumed for the site under this scenario
  - The number of towers shown
  - The height of tower (note: where two towers are present on a single site, generally their heights are equal except in the case where sun access planes create particular restrictions, where in which case height may be an average)
- **GFA (Gross Floor Area)** outcomes shown foe each site, including:
  - The total Gross Floor Area shown.
  - Additional Gross Floor Area only (excluding an allowance for demolition).

Plan of sites for schedule (based on amalgamation plan)



Site			Site information			Scenario A									Scenario B								
						Key development constraints		Development shown					GFA		Key development constraints		Development shown					GFA	
Area	Block	Site	Site area (sqm)	Suitability of site for tower development	Potential to amalgamate with second site	Existing FSR Control	Existing height control (including sun access)	Low rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Maximum marketable floorspace per tower	Smaller floorplate tower - restricts maximum height	Low rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)
N	1	A	5063	Yes - amalgamated		■		✓		M	-	-	12,402	2,276	■		✓	✓	M	1	212	70,611	60,485
N	2	A	6348	Yes - amalgamated		■		✓		M	-	-	16,675	3,978	■		✓	✓	M	2	214	136,790	124,093
N	3	A	1957	Yes - amalgamated		■		✓		M	-	-	3,521	-		■	✓	✓	M	1	107	19,029	15,115
N	4	A	1636	Yes - amalgamated		■	■	✓		M	-	-	4,374	1,103		■	✓	✓	M	1	107	19,874	16,603
N	4	D	4570	Yes - Strata amalgamation		■	■			M	-	-	-	-		■			M	-	-	-	-
N	5	A	2633	Yes - single site	N5C	■		✓	✓	M	1	20	7,892	2,626		■	✓	✓	M	1	107	28,192	22,926
N	5	C	3413	Yes - Strata amalgamation		■				M	-	-	-	-		■			M	-	-	-	-
N	6	A	2980	Yes - amalgamated		■	■	✓		M	-	-	6,044	84		■	✓	✓	M	1	107	22,319	16,359
N	6	C	1494	Yes - amalgamated		■		✓		M	-	-	3,774	786		■	✓	✓	M	1	107	19,274	16,286
N	7	A	1782	Yes - amalgamated		■		✓		M	-	-	4,858	1,293		■	✓	✓	M	1	107	20,358	16,793
N	8	A	7070	Yes - single site		■		✓	✓	M	2	17	14,861	721	■		✓	✓	M	2	214	133,575	119,436
N	9	A	2408	Yes - amalgamated		■		✓		M	-	-	6,635	1,818		■	✓	✓	M	1	107	22,910	18,093
N	10	A	6044	Yes - single site			■	✓		M	-	-	18,097	6,009	■		✓	✓	M	2	214	138,212	126,123
N	11	A	2646	Yes - single site		■		✓	✓	M	1	35	7,169	1,877		■	✓	✓	M	1	107	19,769	14,477
N	12	A	1839	Yes - single site		■		✓	✓	M	1	23	6,180	2,503		■	✓	✓	M	1	107	20,141	16,464
C	1	A	3949	Yes - single site		■		✓	✓	M	1	80	16,569	8,671		■	✓	✓	M	1	107	21,294	13,396
C	2	A	9934	Yes - single site		■		✓	✓	M	2	80	38,916	19,047		■	✓	✓	M	2	107	49,952	30,083
C	2	B	3455	Yes - single site		■		✓	✓	M	1	77	20,031	13,122	■		✓	✓	M	1	212	64,911	58,002
C	3	A	2745	Yes - amalgamated	C3B	■		✓		M	-	-	6,532	1,041		■	✓	✓	M	1	107	28,270	22,779
C	3	B	1821	Yes - amalgamated		■		✓		M	-	-	2,908	-		■	✓	✓	M	1	107	18,408	14,767
C	3	D	2451	Yes - single site		■		✓	✓	M	1	26	7,876	2,973		■	✓	✓	M	1	107	21,383	16,480
C	4	A	5602	Yes - amalgamated	C4B	■		✓	✓	C	2	102	54,435	43,230	■		✓	✓	C	2	190	94,035	82,830
C	4	B	2928	Yes - amalgamated		■		✓	✓	C	1	102	25,435	19,578	■		✓	✓	C	1	146	33,685	27,828
C	4	C	2922	Yes - amalgamated		■	■	✓	✓	C	1	118	28,737	22,893	■		✓	✓	C	1	146	33,987	28,143
C	4	D	2213	Yes - single site		■		✓	✓	C	1	70	21,870	17,444	■		✓	✓	C	1	158	38,370	33,944
C	4	H	3166	Yes - Strata amalgamation		■		✓	✓	C	1	118	28,269	21,936	■		✓	✓	C	1	146	33,519	27,186
C	4	J	2879	Yes - amalgamated		■		✓	✓	M	1	107	21,015	15,257		■	✓	✓	M	1	107	21,015	15,257
C	5	A	1828	Yes - single site		■	■	✓	✓	M	1	35	6,900	3,243		■	✓	✓	M	1	107	18,900	15,243
C	5	B	1282	Yes - single site		■		✓	✓	M	1	20	5,102	2,538		■	✓	✓	M	1	107	19,602	17,038
C	5	C	4280	Yes - single site		■	■	✓	✓	M	1	36	13,275	4,715		■	✓	✓	M	1	108	34,807	26,247
C	5	D	3185	Yes - amalgamated		■		✓		M	-	-	6,138	-		■	✓	✓	M	1	108	34,848	28,478
C	6	A	10083	Yes - single site		■		✓	✓	C	1	86	30,313	10,147	■		✓	✓	C	1	118	37,813	17,647
C	6	B	3662	Yes - single site		■		✓	✓	M	1	77	22,260	14,935		■	✓	✓	M	1	107	29,272	21,948
C	6	C	6780	Yes - single site		■		✓	✓	C	1	134	45,961	32,401	■		✓	✓	C	1	166	54,361	40,801
C	6	D	4719	Yes - amalgamated		■		✓	✓	M	1	107	29,844	20,405		■	✓	✓	M	1	107	29,844	20,405
C	6	E	2697	Yes - single site		■		✓	✓	C	1	58	26,819	21,424	■		✓	✓	C	1	118	42,569	37,174
C	7	A	1499	Yes - single site	C7B	■		✓	✓	M	1	14	4,742	1,744		■	✓	✓	M	1	107	20,242	17,244
C	7	B	5156	Yes - amalgamated		■		✓		M	-	-	10,862	551	■	■	✓	✓	M	2	107	48,062	37,751
C	8	A	18000	Yes - single site		■		✓	✓	M	4	116	140,123	104,123	■	■	✓	✓	M	4	107	127,759	91,760
C	8	B	2272	Yes - amalgamated		■		✓		M	-	-	-	-		■	✓	✓	M	1	107	16,275	11,730
C	9	A	4495	Yes - single site		■		✓	✓	M	1	118	37,800	28,809	■		✓	✓	M	1	208	59,214	50,224
C	10	A	40344	Yes - single site			■	✓		M	-	-	-	-	■		✓	✓	C	2	188	79,800	79,800
C	10	B	1740	Yes - amalgamated		■		✓	✓	M	1	26	10,329	6,849		■	✓	✓	M	1	107	23,795	20,315
C	10	C	1900	Yes - amalgamated		■		✓	✓	M	1	26	7,968	4,167		■	✓	✓	M	1	107	21,434	17,633
C	11	A	3260	Yes - single site		■		✓	✓	M	2	26	23,462	16,942		■	✓	✓	M	2	107	51,812	45,292
C	11	B	2806	Yes - single site		■		✓	✓	M	1	32	16,720	11,107		■	✓	✓	M	1	107	29,845	24,232
C	12	A	3886	Yes - amalgamated		■	■	✓		M	-	-	18,183	10,412		■	✓	✓	M	1	107	37,117	29,346
C	12	B	1806	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	20,647	17,036
C	12	C	1475	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	19,224	16,274
C	13	A	5229	Yes - single site	C13B	■		✓	✓	M	1	68	7,350	-		■	✓	✓	M	1	107	14,175	3,717
C	13	B	5795	Yes - amalgamated		■		✓	✓	M	2	50	34,442	22,853		■	✓	✓	M	2	107	57,740	46,151
C	13	C	3383	Yes - amalgamated			■	✓		M	-	-	17,905	11,140		■	✓	✓	M	1	107	36,839	30,074
C	13	D	3466	Yes - amalgamated		■		✓	✓	C	1	42	20,793	13,861	■		✓	✓	C	1	118	40,743	33,811

Site			Scenario C									Scenario D									Recommended Controls								
			Key development constraints			Development shown					GFA		Key development constraints				Development shown					GFA			Key development constraints				Development shown					GFA	
Area	Block	Site	FSR control	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Height control	Sun access plane	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Sun access plane	FSR Control	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)
N	1	A	■			✓	✓	M	2	56	32,002	21,876	■				✓	✓	M	2	80	43,202	33,076		■		■	✓	✓	M	1	86	29,202	19,076
N	2	A	■			✓	✓	M	2	65	40,475	27,778	■				✓	✓	M	2	80	47,475	34,778		■		■	✓	✓	M	1	104	37,675	24,978
N	3	A	■			✓	✓	M	1	68	12,526	8,612	■				✓	✓	M	1	80	14,527	10,613		■			✓	✓	M	1	62	11,525	7,612
N	4	A	■			✓	✓	M	1	50	10,374	7,103	■				✓	✓	M	1	80	15,374	12,103		■			✓	✓	M	1	44	9,374	6,103
N	4	D	■		■			M	-	-	-	-	■		■				M	-	-	-	-		■	■				M	-	-	-	-
N	5	A	■			✓	✓	M	1	59	16,992	11,726	■		■		✓	✓	M	1	80	21,892	16,626		■			✓	✓	M	1	53	15,592	10,326
N	5	C	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
N	6	A	■			✓	✓	M	1	86	18,644	12,684	■				✓	✓	M	1	80	17,594	11,634		■			✓	✓	M	1	80	17,594	11,634
N	6	C	■			✓	✓	M	1	50	9,774	6,786	■				✓	✓	M	1	80	14,774	11,786		■			✓	✓	M	1	44	8,774	5,786
N	7	A	■			✓	✓	M	1	53	11,358	7,793	■				✓	✓	M	1	80	15,858	12,293		■			✓	✓	M	1	47	10,358	6,793
N	8	A	■			✓	✓	M	2	80	44,261	30,121		■			✓	✓	M	2	71	40,061	25,921	■	■		■	✓	✓	M	2	71	40,061	25,921
N	9	A	■			✓	✓	M	1	62	15,035	10,218	■				✓	✓	M	1	80	18,185	13,368		■			✓	✓	M	1	56	13,985	9,168
N	10	A	■			✓	✓	M	2	56	37,697	25,609		■			✓	✓	M	2	26	23,697	11,609	■			■	✓	✓	M	2	26	23,697	11,609
N	11	A	■			✓	✓	M	1	89	16,619	11,327		■			✓	✓	M	1	50	9,794	4,502	■				✓	✓	M	1	50	9,794	4,502
N	12	A	■			✓	✓	M	1	56	11,665	7,987		■			✓	✓	M	1	62	12,662	8,985		■			✓	✓	M	1	50	10,668	6,990
C	1	A			■	✓	✓	M	1	107	21,294	13,396		■			✓	✓	M	1	41	9,744	1,846	■				✓	✓	M	1	41	9,744	1,846
C	2	A			■	✓	✓	M	2	107	49,952	30,083		■			✓	✓	M	2	20	14,391	-				■	✓	✓	M	2	107	49,952	30,083
C	2	B			■	✓	✓	M	1	107	27,044	20,134		■			✓	✓	M	1	77	24,538	17,628				■	✓	✓	M	1	107	27,044	20,134
C	3	A	■		■	✓	✓	M	1	107	28,270	22,779		■			✓	✓	M	1	41	12,843	7,352		■	■		✓	✓	M	1	101	26,868	21,377
C	3	B			■	✓	✓	M	1	107	18,408	14,767		■			✓	✓	M	1	44	7,908	4,267	■				✓	✓	M	1	44	7,908	4,267
C	3	D			■	✓	✓	M	1	107	21,383	16,480		■			✓	✓	M	1	47	11,378	6,475	■				✓	✓	M	1	47	11,378	6,475
C	4	A	■			✓	✓	C	2	110	58,035	46,830		■			✓	✓	C	2	50	31,035	19,830	■				✓	✓	C	2	50	31,035	19,830
C	4	B	■			✓	✓	C	1	130	30,685	24,828			■		✓	✓	C	1	146	33,685	27,828		■	■		✓	✓	C	1	122	29,185	23,328
C	4	C	■			✓	✓	C	1	126	30,237	24,393			■		✓	✓	C	1	146	33,987	28,143		■	■		✓	✓	C	1	118	28,737	22,893
C	4	D	■			✓	✓	C	1	86	24,870	20,444			■		✓	✓	C	1	158	38,370	33,944		■			✓	✓	C	1	70	21,870	17,444
C	4	H	■			✓	✓	C	1	142	32,769	26,436		■					C	-	-	-	-		■	■		✓	✓	C	1	134	31,269	24,936
C	4	J			■	✓	✓	M	1	107	21,015	15,257			■	■	✓	✓	M	1	107	21,015	15,257			■	■	✓	✓	M	1	107	21,015	15,257
C	5	A	■		■	✓	✓	M	1	107	18,900	15,243		■			✓	✓	M	1	47	8,900	5,243		■			✓	✓	M	1	101	17,900	14,243
C	5	B	■			✓	✓	M	1	71	13,602	11,038		■			✓		M	-	-	3,102	538	■				✓		M	-	-	4,102	1,538
C	5	C			■	✓	✓	M	1	108	34,807	26,247		■	■		✓	✓	M	1	63	21,350	12,790	■			■	✓	✓	M	1	63	21,350	12,790
C	5	D	■			✓	✓	M	1	102	33,053	26,684		■			✓		M	-	-	6,138	-	■				✓		M	-	-	6,138	-
C	6	A		■		✓	✓	C	1	118	37,813	17,647		■	■		✓	✓	C	1	86	30,313	10,147	■			■	✓	✓	C	1	86	30,313	10,147
C	6	B			■	✓	✓	M	1	107	29,272	21,948		■	■		✓	✓	M	1	77	22,260	14,935	■				✓	✓	M	1	77	22,260	14,935
C	6	C		■		✓	✓	C	1	166	54,361	40,801		■			✓		C	-	-	12,361	-				■	✓	✓	C	1	166	54,361	40,801
C	6	D			■	✓	✓	M	1	107	29,844	20,405			■	■	✓	✓	M	1	107	29,844	20,405			■	■	✓	✓	M	1	107	29,844	20,405
C	6	E	■			✓	✓	C	1	74	31,019	25,624			■		✓	✓	C	1	118	42,569	37,174		■			✓	✓	C	1	58	26,819	21,424
C	7	A	■			✓	✓	M	1	80	15,742	12,744			■	■	✓	✓	M	1	107	20,242	17,244		■			✓	✓	M	1	74	14,742	11,744
C	7	B			■	✓	✓	M	2	107	48,062	37,751		■			✓	✓	M	2	47	24,062	13,751	■				✓	✓	M	2	47	24,062	13,751
C	8	A			■	✓	✓	M	4	107	127,759	91,760		■			✓	✓	M	4	35	28,849	-	■				✓	✓	M	4	35	28,849	-
C	8	B			■	✓	✓	M	1	107	16,275	11,730		■			✓		M	-	-	-	-	■				✓		M	-	-	-	-
C	9	A	■			✓	✓	M	1	160	44,859	35,869		■	■		✓	✓	M	1	139	38,579	29,588	■			■	✓	✓	M	1	139	38,579	29,588
C	10	A		■		✓	✓	C	2	188	79,800	79,800			■		✓	✓	C	2	188	79,800	79,800				■	✓	✓	C	2	188	79,800	79,800
C	10	B	■			✓	✓	M	1	80	19,307	15,827				■	✓	✓	M	1	107	23,795	20,315		■			✓	✓	M	1	68	17,312	13,832
C	10	C	■			✓	✓	M	1	104	20,935	17,134				■	✓	✓	M	1	107	21,434	17,633		■			✓	✓	M	1	92	18,940	15,139
C	11	A	■			✓	✓	M	2	62	36,062	29,542				■	✓	✓	M	2	107	51,812	45,292		■		■	✓	✓	M	1	74	31,862	25,342
C	11	B	■		■	✓	✓	M	1	107	29,845	24,232		■			✓	✓	M	1	98	28,270	22,657		■			✓	✓	M	1	95	27,745	22,132
C	12	A			■	✓	✓	M	1	107	37,117	29,346			■	■	✓	✓	M	1	107	37,117	29,346			■	■	✓	✓	M	1	107	37,117	29,346
C	12	B	■			✓	✓	M	1	104	20,122	16,511				■	✓	✓	M	1	107	20,647	17,036		■			✓	✓	M	1	92	18,022	14,411
C	12	C	■			✓	✓	M	1	86	15,549	12,599			■	■	✓	✓	M	1	107	19,224	16,274		■			✓	✓	M	1	80	14,499	11,549
C	13	A			■	✓	✓	M	1	107	14,175	3,717		■			✓	✓	M	1	65	6,825	-	■			■	✓	✓	M	1	98	12,600	2,142
C	13	B			■	✓	✓	M	2	107	57,740	46,151				■	✓	✓	M	2	107	57,740	46,151		■		■	✓	✓	M	2	107	57,740	46,151
C	13	C	■			✓	✓	M	1	104	36,138	29,372		■			✓		M	-	-	15,100	8,335	■				✓		M	-	-	17,905	11,140
C	13	D	■			✓	✓	C	1	110	38,643	31,711		■			✓	✓	C	1	70	28,143	21,211	■				✓	✓	C	1	70	28,143	21,211

Site			Site information			Scenario A									Scenario B								
						Key development constraints		Development shown					GFA		Key development constraints		Development shown					GFA	
Area	Block	Site	Site area (sqm)	Suitability of site for tower development	Potential to amalgamate with second site	Existing FSR Control	Existing height control (including sun access)	Low rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Maximum marketable floorspace per tower	Smaller floorplate tower - restricts maximum height	Low rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)
C	13	E	2041	Yes - single site		■		✓	✓	M	1	56	12,195	8,113		■	✓	✓	M	1	107	21,120	17,038
C	14	A	4537	Yes - amalgamated		■		✓	✓	C	1	30	23,194	14,120	■		✓	✓	C	1	118	46,294	37,220
C	15	A	2005	Yes - single site		■		✓	✓	M	1	17	6,028	2,019		■	✓	✓	M	1	107	21,778	17,769
E	1	A	1585	Yes - single site		■		✓	✓	M	1	29	9,170	6,001		■	✓	✓	M	1	107	22,177	19,007
E	1	B	3461	Yes - amalgamated		■		✓	✓	M	2	50	20,389	13,466	■		✓	✓	M	1	212	67,398	60,475
E	1	C	3388	Yes - Strata amalgamation		■				M	-	-	-	-		■	✓	✓	M	1	107	27,456	20,681
E	2	A	4328	Yes - single site		■		✓	✓	C	1	118	33,526	24,871	■		✓	✓	C	1	106	30,376	21,721
E	4	A	2003	Yes - single site		■		✓	✓	M	1	26	12,535	8,529		■	✓	✓	M	1	107	26,035	22,029
E	4	D	2965	Yes - single site		■		✓	✓	M	1	53	17,612	11,683		■	✓	✓	M	1	107	30,235	24,305
E	5	A	3104	Yes - single site		■		✓	✓	M	1	41	12,234	6,025		■	✓	✓	M	1	107	23,784	17,575
E	5	B	12475	Yes - single site		■		✓	✓	M	4	54	45,939	20,990	■	■	✓	✓	M	4	108	96,429	71,480
E	6	A	6510	Yes - single site	E6B	■		✓	✓	C	2	58	37,678	24,658	■		✓	✓	C	2	166	94,378	81,358
E	6	B	2050	Yes - single site		■		✓	✓	C	1	34	11,555	7,455	■		✓	✓	C	1	106	30,455	26,355
E	6	C	2650	Yes - amalgamated		■		✓	✓	C	1	46	15,834	10,535	■		✓	✓	C	1	106	31,584	26,285
E	7	A	5210	Yes - single site		■		✓	✓	M	2	53	23,916	13,496	■		✓	✓	M	1	212	66,531	56,111
E	8	A	2197	Yes - single site		■		✓	✓	M	1	71	14,859	10,464		■	✓	✓	M	1	107	20,859	16,464
E	8	D	2353	Yes - Strata amalgamation		■				M	-	-	-	-		■	✓	✓	M	1	107	25,246	20,541
E	9	A	1481	Yes - single site		■		✓	✓	M	1	20	5,489	2,527		■	✓	✓	M	1	107	19,989	17,027
E	9	B	2183	Yes - single site	E9D	■		✓	✓	M	1	29	8,527	4,162		■	✓	✓	M	1	107	26,721	22,355
E	9	C	1499	Yes - Strata amalgamation	E9F	■				M	-	-	-	-		■	✓	✓	M	1	107	19,798	16,801
E	9	D	1838	Yes - amalgamated		■		✓		M	-	-	2,857	-		■	✓	✓	M	1	107	18,357	14,681
E	9	F	1826	Yes - Strata amalgamation		■				M	-	-	-	-		■	✓	✓	M	1	107	20,036	16,384
E	10	A	1982	Yes - amalgamated		■		✓		M	-	-	5,042	1,079		■	✓	✓	M	1	107	20,550	16,587
E	10	B	1934	Yes - Strata amalgamation	E10A	■				M	-	-	-	-		■	✓	✓	M	1	107	20,768	16,901
E	11	A	4327	Yes - single site		■		✓	✓	M	1	14	8,449	-		■	✓	✓	M	1	107	30,141	21,487
E	11	B	2133	Yes - amalgamated		■		✓		M	-	-	5,657	1,392		■	✓	✓	M	1	107	21,165	16,899
E	11	D	3067	Yes - Strata amalgamation	E11E	■				M	-	-	-	-		■			M	-	-	-	-
E	11	E	1622	Yes - Strata amalgamation		■				M	-	-	-	-		■	✓	✓	M	1	107	18,930	15,686
E	12	A	1645	Yes - Strata amalgamation		■				M	-	-	-	-		■	✓	✓	M	1	107	19,746	16,457
E	12	B	2185	Yes - single site		■		✓	✓	M	1	35	7,200	2,831		■	✓	✓	M	1	107	19,836	15,467
W	1	A	3391	Yes - single site		■		✓	✓	M	1	53	14,217	7,436		■	✓	✓	M	1	107	26,813	20,031
W	1	C	1927	Yes - amalgamated		■		✓	✓	M	1	50	11,127	7,272		■	✓	✓	M	1	107	21,102	17,247
W	1	D	3056	Yes - single site		■		✓	✓	M	1	80	22,695	16,583		■	✓	✓	M	1	107	28,993	22,881
W	1	E	1952	Yes - amalgamated		■	■	✓		M	-	-	5,465	1,561		■	✓	✓	M	1	107	28,692	24,787
W	2	A	8388	Yes - amalgamated		■		✓	✓	M	3	53	40,249	23,472	■	■	✓	✓	M	3	107	71,299	54,522
W	2	B	3283	Yes - Strata amalgamation		■				M	-	-	-	-		■	✓	✓	M	1	107	29,068	22,501
W	2	C	1738	Yes - Strata amalgamation		■				M	-	-	-	-		■	✓	✓	M	1	107	20,334	16,858
W	3	A	6854	Yes - single site	W3B		■	✓		M	-	-	-	-	■	■	✓	✓	M	2	126	42,075	42,075
W	3	B	2527	Yes - single site		■		✓	✓	M	1	35	8,890	3,837		■	✓	✓	M	1	107	20,860	15,807
W	3	C	3986	Yes - amalgamated		■		✓		M	-	-	8,201	230		■	✓	✓	M	1	107	29,940	21,968
W	4	A	3368	Yes - amalgamated		■	■	✓		M	-	-	6,240	-		■	✓	✓	M	1	107	27,978	21,243
W	4	B	3196	Yes - amalgamated	W4C	■	■	✓		M	-	-	6,857	465		■	✓	✓	M	1	107	28,596	22,203
W	4	C	1534	Yes - amalgamated		■	■	✓		M	-	-	3,301	233		■	✓	✓	M	1	107	18,762	15,694
W	4	D	1874	Yes - amalgamated		■	■	✓		M	-	-	5,038	1,290		■	✓	✓	M	1	107	21,313	17,565
W	4	E	1251	Yes - amalgamated		■	■	✓		M	-	-	2,843	342		■	✓	✓	M	1	107	18,343	15,842
W	5	A	8149	Yes - single site			■	✓		M	-	-	-	-	■	■	✓	✓	M	3	126	57,038	57,038
W	5	B	1576	Yes - amalgamated		■	■	✓	✓	M	1	35	6,567	3,415		■	✓	✓	M	1	107	18,567	15,415
W	6	A	3536	Yes - amalgamated		■		✓		M	-	-	6,910	-		■	✓	✓	M	1	107	28,648	21,575
W	7	A	3258	Yes - single site		■	■	✓		M	-	-	13,315	6,799		■	✓	✓	M	1	107	32,249	25,733
W	7	B	2739	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	30,927	25,449
W	8	A	3043	Yes - amalgamated		■		✓	✓	M	1	50	17,859	11,773		■	✓	✓	M	1	107	34,906	28,820
W	8	B	2640	Yes - amalgamated		■		✓	✓	M	1	53	13,129	7,848		■	✓	✓	M	1	107	22,606	17,325
W	8	C	3957	Yes - single site		■		✓	✓	M	1	53	19,901	11,987		■	✓	✓	M	1	107	36,050	28,136
W	9	A	3928	Yes - single site		■		✓	✓	M	1	35	11,173	3,316	■		✓	✓	C	1	122	29,111	21,254

Site			Scenario C										Scenario D										Recommended Controls									
			Key development constraints				Development shown					GFA					Development shown					GFA					Development shown					GFA	
Area	Block	Site	FSR control	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Height control	Sun access plane	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Sun access plane	FSR Control	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)
C	13	E			■	✓	✓	M	1	107	21,120	17,038		■			✓	✓	M	1	83	16,920	12,838	■				✓	✓	M	1	83	16,920	12,838
C	14	A		■		✓	✓	C	1	118	46,294	37,220		■			✓	✓	C	1	30	23,194	14,120	■				✓	✓	C	1	30	23,194	14,120
C	15	A	■			✓	✓	M	1	101	20,728	16,719		■			✓		M	-	-	4,453	444	■				✓		M	-	-	5,503	1,494
E	1	A	■			✓	✓	M	1	80	17,674	14,505				■	✓	✓	M	1	107	22,177	19,007		■			✓	✓	M	1	68	15,673	12,504
E	1	B	■			✓	✓	M	2	98	36,389	29,466			■		✓	✓	M	1	212	67,398	60,475		■		■	✓	✓	M	2	92	34,389	27,466
E	1	C			■	✓	✓	M	1	107	27,456	20,681			■	■	✓	✓	M	1	107	27,456	20,681			■	■	✓	✓	M	1	107	27,456	20,681
E	2	A		■		✓	✓	C	1	106	30,376	21,721			■		✓	✓	C	1	106	30,376	21,721			■		✓	✓	C	1	106	30,376	21,721
E	4	A	■			✓	✓	M	1	80	21,535	17,529				■	✓	✓	M	1	107	26,035	22,029		■			✓	✓	M	1	68	19,535	15,529
E	4	D			■	✓	✓	M	1	107	30,235	24,305			■	■	✓	✓	M	1	107	30,235	24,305		■			✓	✓	M	1	104	29,533	23,604
E	5	A			■	✓	✓	M	1	107	23,784	17,575	■				✓	✓	M	1	80	19,059	12,850			■	■	✓	✓	M	1	107	23,784	17,575
E	5	B			■	✓	✓	M	4	108	96,429	71,480	■				✓	✓	M	4	78	68,379	43,430				■	✓	✓	M	3	108	73,989	49,040
E	6	A	■			✓	✓	C	2	118	69,178	56,158			■		✓	✓	C	2	166	94,378	81,358		■	■		✓	✓	C	1	206	64,978	51,958
E	6	B	■			✓	✓	C	1	74	22,055	17,955			■		✓	✓	C	1	106	30,455	26,355		■	■		✓	✓	C	1	66	19,955	15,855
E	6	C	■			✓	✓	C	1	94	28,434	23,135			■		✓	✓	C	1	106	31,584	26,285		■	■		✓	✓	C	1	86	26,334	21,035
E	7	A	■			✓	✓	M	1	167	53,073	42,653	■		■		✓	✓	M	1	158	50,382	39,961		■	■		✓	✓	M	1	161	51,279	40,858
E	8	A			■	✓	✓	M	1	107	20,859	16,464			■	■	✓	✓	M	1	107	20,859	16,464			■	■	✓	✓	M	1	107	20,859	16,464
E	8	D	■		■	✓	✓	M	1	107	25,246	20,541				■	✓	✓	M	1	107	25,246	20,541		■			✓	✓	M	1	95	23,245	18,540
E	9	A	■			✓	✓	M	1	80	15,489	12,527	■				✓	✓	M	1	80	15,489	12,527		■			✓	✓	M	1	74	14,489	11,527
E	9	B	■			✓	✓	M	1	92	23,222	18,857	■		■		✓	✓	M	1	80	20,423	16,058		■	■		✓	✓	M	1	86	21,823	17,457
E	9	C	■			✓	✓	M	1	83	15,796	12,799	■				✓	✓	M	1	80	15,296	12,298		■			✓	✓	M	1	77	14,795	11,798
E	9	D			■	✓	✓	M	1	107	18,357	14,681	■				✓	✓	M	1	80	13,857	10,181		■	■	■	✓	✓	M	1	107	18,357	14,681
E	9	F	■			✓	✓	M	1	101	19,035	15,384	■				✓	✓	M	1	80	15,533	11,882		■			✓	✓	M	1	95	18,035	14,383
E	10	A	■		■	✓	✓	M	1	107	20,550	16,587	■				✓	✓	M	1	80	16,048	12,084		■			✓	✓	M	1	101	19,550	15,586
E	10	B	■			✓	✓	M	1	104	20,268	16,401	■				✓	✓	M	1	80	16,266	12,399		■			✓	✓	M	1	98	19,268	15,400
E	11	A			■	✓	✓	M	1	107	30,141	21,487	■				✓	✓	M	1	38	14,047	5,393			■	■	✓	✓	M	1	107	30,141	21,487
E	11	B			■	✓	✓	M	1	107	21,165	16,899	■				✓	✓	M	1	38	9,659	5,394		■	■	■	✓	✓	M	1	107	21,165	16,899
E	11	D			■	-	-	M	-	-	-	-	■						M	-	-	-	-			■	■			M	-	-	-	-
E	11	E	■			✓	✓	M	1	95	16,929	13,685	■						M	-	-	-	-		■			✓	✓	M	1	89	15,928	12,684
E	12	A	■			✓	✓	M	1	92	17,245	13,955	■				✓	✓	M	1	80	15,244	11,954		■			✓	✓	M	1	86	16,244	12,955
E	12	B			■	✓	✓	M	1	107	19,836	15,467			■	■	✓	✓	M	1	107	19,836	15,467			■	■	✓	✓	M	1	107	19,836	15,467
W	1	A			■	✓	✓	M	1	107	26,813	20,031	■				✓	✓	M	1	53	14,217	7,436			■	■	✓	✓	M	1	107	26,813	20,031
W	1	C	■			✓	✓	M	1	101	20,052	16,197	■				✓	✓	M	1	53	11,652	7,797		■			✓	✓	M	1	95	19,002	15,147
W	1	D			■	✓	✓	M	1	107	28,993	22,881		■			✓	✓	M	1	17	8,001	1,888	■				✓	✓	M	1	17	8,001	1,888
W	1	E	■			✓	✓	M	1	74	20,450	16,546	■				✓	✓	M	1	53	15,206	11,301		■			✓	✓	M	1	68	18,952	15,047
W	2	A			■	✓	✓	M	3	107	71,299	54,522	■				✓	✓	M	3	53	40,249	23,472				■	✓	✓	M	3	107	71,299	54,522
W	2	B			■	✓	✓	M	1	107	29,068	22,501	■						M	-	-	-	-			■	■	✓	✓	M	1	107	29,068	22,501
W	2	C	■			✓	✓	M	1	95	18,333	14,857	■				✓	✓	M	1	80	15,832	12,355		■			✓	✓	M	1	89	17,333	13,856
W	3	A			■	✓	✓	M	2	126	42,075	42,075			■	■	✓	✓	M	2	126	42,075	42,075				■	✓	✓	M	2	108	33,660	33,660
W	3	B			■	✓	✓	M	1	107	20,860	15,807			■	■	✓	✓	M	1	107	20,860	15,807			■	■	✓	✓	M	1	107	20,860	15,807
W	3	C			■	✓	✓	M	1	107	29,940	21,968			■	■	✓	✓	M	1	107	29,940	21,968			■	■	✓	✓	M	1	107	29,940	21,968
W	4	A			■	✓	✓	M	1	107	27,978	21,243	■		■		✓	✓	M	1	80	21,667	14,932			■	■	✓	✓	M	1	107	27,978	21,243
W	4	B			■	✓	✓	M	1	107	28,596	22,203	■		■		✓	✓	M	1	80	22,285	15,892			■	■	✓	✓	M	1	107	28,596	22,203
W	4	C	■			✓	✓	M	1	92	16,269	13,200	■				✓	✓	M	1	80	14,274	11,205		■			✓	✓	M	1	86	15,271	12,203
W	4	D	■			✓	✓	M	1	98	19,738	15,990	■				✓	✓	M	1	80	16,588	12,840		■			✓	✓	M	1	92	18,688	14,940
W	4	E	■			✓	✓	M	1	77	13,343	10,842	■				✓	✓	M	1	80	13,843	11,342		■			✓	✓	M	1	71	12,343	9,842
W	5	A			■	✓	✓	M	3	126	57,038	57,038				■	✓	✓	M	3	126	57,038	57,038				■	✓	✓	M	3	108	45,630	45,630
W	5	B	■			✓	✓	M	1	95	16,567	13,415			■	■	✓	✓	M	1	107	18,567	15,415		■			✓	✓	M	1	89	15,567	12,415
W	6	A			■	✓	✓	M	1	107	28,648	21,575	■		■		✓	✓	M	1	80	22,337	15,264			■	■	✓	✓	M	1	107	28,648	21,575
W	7	A			■	✓	✓	M	1	107	32,249	25,733			■	■	✓	✓	M	1	107	32,249	25,733			■	■	✓	✓	M	1	107	32,249	25,733
W	7	B	■			✓	✓	M	1	101	29,524	24,046			■	■	✓	✓	M	1	107	30,927	25,449		■			✓	✓	M	1	89	26,719	21,241
W	8	A	■			✓	✓	M	1	98	32,214	26,128	■				✓	✓	M	1	53	18,756	12,670		■	■		✓	✓	M	1	92	30,420	24,334
W	8	B			■	✓	✓	M	1	107	22,606	17,325	■				✓	✓	M	1	53	13,129	7,848			■	■	✓	✓	M	1	107	22,606	17,325
W	8	C			■	✓	✓	M	1	107	36,050	28,136	■				✓	✓	M	1	53	19,901	11,987			■	■	✓	✓	M	1	107	36,050	28,136
W	9	A		■		✓	✓	C	1	122	29,111	21,254	■				✓	✓	C	1	54	13,862	6,005			■		✓	✓	C	1	122	29,111	21,254

Site			Site information			Scenario A									Scenario B								
						Key development constraints		Development shown					GFA		Key development constraints		Development shown					GFA	
Area	Block	Site	Site area (sqm)	Suitability of site for tower development	Potential to amalgamate with second site	Existing FSR Control	Existing height control (including sun access)	Low rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Maximum marketable floorspace per tower	Smaller floorplate tower - restricts maximum height	Low rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)
S	1	A	1815	Yes - Strata amalgamation			■			M	-	-	-	-		■	✓	✓	M	1	107	19,027	15,398
S	2	A	4266	Yes - single site		■		✓	✓	M	2	53	29,233	20,700		■	✓	✓	M	2	107	48,133	39,600
S	2	B	5453	Yes - single site		■		✓	✓	M	2	53	24,170	13,263	■		✓	✓	M	2	214	126,047	115,140
S	3	A	1550	Yes - amalgamated			■	✓		M	-	-	4,215	1,114		■	✓	✓	M	1	107	19,676	16,575
S	4	A	3270	Yes - amalgamated			■ ■	✓		M	-	-	5,220	-		■	✓	✓	M	1	107	26,959	20,419
S	4	D	3137	Yes - Strata amalgamation			■ ■			M	-	-	-	-		■	✓	✓	M	1	107	27,675	21,401
S	4	E	2094	Yes - amalgamated			■ ■	✓		M	-	-	3,341	-		■	✓	✓	M	1	107	25,080	20,891
AA	1	A	1721	Yes - single site		■		✓	✓	M	1	23	6,231	2,789		■	✓	✓	M	1	107	20,238	16,796
AA	2	A	4447	Yes - single site		■		✓	✓	C	1	118	40,159	31,265	■		✓	✓	C	1	106	37,009	28,115
AA	2	B	8465	Yes - single site		■		✓	✓	M	2	23	13,223	-	■	■	✓	✓	M	2	107	52,493	35,564
AA	3	A	7143	Yes - single site		■		✓	✓	C	1	118	49,125	34,840	■		✓	✓	C	1	118	49,125	34,840
AA	3	B	1465	Yes - single site		■		✓	✓	M	1	17	3,327	396		■	✓	✓	M	1	107	18,334	15,404
AA	4	A	4593	Yes - single site		■		✓	✓	C	1	118	40,965	31,779	■		✓	✓	C	1	106	37,815	28,629
AA	5	A	3582	Yes - single site		■		✓	✓	C	1	78	34,657	27,494	■		✓	✓	C	1	118	45,157	37,994
AA	5	B	2375	Yes - single site		■		✓	✓	C	1	78	26,920	22,170	■		✓	✓	C	1	118	37,420	32,670
AA	5	C	1718	Yes - amalgamated		■		✓	✓	C	1	118	34,761	31,324	■		✓	✓	C	1	118	34,761	31,324
AA	5	D	2790	Yes - amalgamated		■		✓	✓	C	1	78	27,943	22,363	■		✓	✓	C	1	118	38,443	32,863
AA	5	E	2084	Yes - amalgamated		■		✓		M	-	-	5,353	1,184		■	✓	✓	M	1	107	20,810	16,641
AA	5	G	2083	Yes - single site		■		✓	✓	M	1	20	5,237	1,071		■	✓	✓	M	1	107	25,595	21,429
AA	5	H	2281	Yes - amalgamated		■		✓		M	-	-	4,145	-		■	✓	✓	M	1	107	25,907	21,345
AA	6	A	3114	Yes - amalgamated		■		✓	✓	C	1	118	47,345	41,117	■		✓	✓	C	1	118	47,345	41,117
AA	6	B	7632	Yes - single site		■		✓	✓	C	2	118	54,260	38,996	■		✓	✓	C	2	152	67,647	52,384
AA	7	A	8054	Yes - single site			■	✓		M	-	-	9,524	-	■	■	✓	✓	M	2	107	42,074	25,967
AA	7	B	4969	Yes - amalgamated		■		✓	✓	M	1	89	27,236	17,297		■	✓	✓	M	1	107	31,434	21,495

Site			Scenario C									Scenario D									Recommended Controls								
			Key development constraints			Development shown					GFA		Key development constraints				Development shown					GFA		Key development constraints			Development shown				GFA	
Area	Block	Site	FSR control	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Height control	Sun access plane	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Sun access plane	FSR Control	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)
S	1	A	■					M	-	-	-	-				■	✓	✓	M	1	107	19,027	15,398		■					M	-	-	-	-
S	2	A	■			✓	✓	M	2	53	29,233	20,700				■	✓	✓	M	2	107	48,133	39,600		■		■	✓	✓	M	1	56	25,033	16,500
S	2	B	■			✓	✓	M	2	77	35,390	24,483	■		■		✓	✓	M	2	158	92,851	81,944		■		■	✓	✓	M	2	71	32,585	21,678
S	3	A	■			✓	✓	M	1	50	10,200	7,099			■	■	✓	✓	M	1	107	19,676	16,575		■			✓	✓	M	1	44	9,202	6,102
S	4	A	■			✓	✓	M	1	80	20,648	14,108			■	■	✓	✓	M	1	107	26,959	20,419		■			✓	✓	M	1	74	19,245	12,705
S	4	D	■					M	-	-	-	-			■	■	✓	✓	M	1	107	27,675	21,401		■					M	-	-	-	-
S	4	E	■			✓	✓	M	1	59	13,860	9,671			■	■	✓	✓	M	1	107	25,080	20,891		■			✓	✓	M	1	53	12,457	8,268
AA	1	A	■			✓	✓	M	1	53	11,233	7,791	■				✓	✓	M	1	80	15,736	12,294		■			✓	✓	M	1	47	10,233	6,791
AA	2	A	■			✓	✓	C	1	74	28,609	19,715			■		✓	✓	C	1	106	37,009	28,115		■	■		✓	✓	C	1	66	26,509	17,615
AA	2	B	■		■	✓	✓	M	2	107	52,493	35,564	■				✓	✓	M	2	80	39,870	22,941		■	■	■	✓	✓	M	2	101	49,688	32,759
AA	3	A	■			✓	✓	C	1	110	47,025	32,740			■		✓	✓	C	1	118	49,125	34,840		■	■		✓	✓	C	1	94	42,825	28,540
AA	3	B	■			✓	✓	M	1	53	9,330	6,399	■				✓	✓	M	1	80	13,832	10,902		■			✓	✓	M	1	47	8,329	5,389
AA	4	A	■			✓	✓	C	1	74	29,415	20,229			■		✓	✓	C	1	106	37,815	28,629		■	■		✓	✓	C	1	66	27,315	18,129
AA	5	A	■			✓	✓	C	1	42	25,207	18,044			■		✓	✓	C	1	118	45,157	37,994		■			✓	✓	C	1	26	21,007	13,844
AA	5	B	■			✓	✓	C	1	42	17,470	12,720			■		✓	✓	C	1	118	37,420	32,670		■			✓	✓	C	1	26	13,270	8,520
AA	5	C	■			✓	✓	C	1	38	13,761	10,324			■		✓	✓	C	1	118	34,761	31,324		■			✓	✓	C	1	26	10,611	7,174
AA	5	D	■			✓	✓	C	1	50	20,593	15,013			■		✓	✓	C	1	118	38,443	32,863		■			✓	✓	C	1	34	16,393	10,813
AA	5	E	■			✓	✓	M	1	62	13,331	9,162			■	■	✓	✓	M	1	107	20,810	16,641		■			✓	✓	M	1	56	12,334	8,165
AA	5	G	■			✓	✓	M	1	56	13,661	9,495			■	■	✓	✓	M	1	107	25,595	21,429		■			✓	✓	M	1	50	12,257	8,091
AA	5	H	■			✓	✓	M	1	59	14,675	10,113			■	■	✓	✓	M	1	107	25,907	21,345		■			✓	✓	M	1	53	13,271	8,709
AA	6	A	■			✓		C	-	-	23,195	16,967			■		✓	✓	C	1	118	47,345	41,117		■			✓	✓	C	1	26	23,195	16,967
AA	6	B	■			✓	✓	C	1	198	51,897	36,634			■		✓	✓	C	2	150	66,860	51,596		■	■		✓	✓	C	1	162	44,810	29,546
AA	7	A			■	✓	✓	M	2	107	42,074	25,967		■			✓	✓	M	2	80	32,624	16,517	■				✓	✓	M	2	80	32,624	16,517
AA	7	B	■			✓	✓	M	1	104	30,734	20,796			■	■	✓	✓	M	1	107	31,434	21,495		■	■		✓	✓	M	1	98	29,335	19,396

Site			Site information			Scenario A									Scenario B								
						Key development constraints		Development shown					GFA		Key development constraints		Development shown					GFA	
Area	Block	Site	Site area (sqm)	Suitability of site for tower development	Potential to amalgamate with second site	Existing FSR Control	Existing height control (including sun access)	Low rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Maximum marketable floorspace per tower	Smaller floorplate tower - restricts maximum height	Low rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)
OS	1	B	2544	Yes - Strata amalgamation		■	■			M	-	-	-	-		■			M	-	-	-	-
OS	1	C	2876	Yes - Strata amalgamation		■	■			M	-	-	-	-		■			M	-	-	-	-
OS	1	D	3487	Yes - Strata amalgamation		■	■			M	-	-	-	-		■			M	-	-	-	-
OS	1	E	4670	Yes - Strata amalgamation		■	■			M	-	-	-	-		■			M	-	-	-	-
OS	1	F	2566	Yes - amalgamated		■	■	✓		M	-	-	4,703	2,137		■	✓	✓	M	1	107	20,978	18,412
OS	1	G	2929	Yes - Strata amalgamation		■	■			M	-	-	-	-		■			M	-	-	-	-
OS	1	H	3430	Yes - Strata amalgamation		■	■			M	-	-	-	-		■			M	-	-	-	-
OS	1	J	3773	Yes - Strata amalgamation		■	■			M	-	-	-	-		■			M	-	-	-	-
OS	1	K	3448	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	28,712	25,264
OS	2	A	1548	Yes - Strata amalgamation	OS2D	■	■			M	-	-	-	-		■	✓	✓	M	1	107	18,654	17,107
OS	2	B	1534	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	19,229	17,695
OS	2	C	1598	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	18,526	16,927
OS	2	D	1580	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	18,711	17,132
OS	2	E	1747	Yes - Strata amalgamation	OS2G	■	■			M	-	-	-	-		■	✓	✓	M	1	107	18,910	17,163
OS	2	F	1788	Yes - amalgamated		■	■	✓		M	-	-	3,398	1,610		■	✓	✓	M	1	107	18,906	17,118
OS	2	G	2367	Yes - Strata amalgamation		■	■			M	-	-	-	-		■			M	-	-	-	-
OS	2	H	2343	Yes - Strata amalgamation	OS2K	■	■			M	-	-	-	-		■	✓	✓	M	1	107	19,749	17,407
OS	2	J	1810	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	18,992	17,183
OS	2	K	2520	Yes - Strata amalgamation		■	■			M	-	-	-	-		■			M	-	-	-	-
OS	2	L	2129	Yes - Strata amalgamation	OS2M	■	■			M	-	-	-	-		■	✓	✓	M	1	107	20,864	18,735
OS	2	M	2228	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	21,035	18,807
OS	3	D	3326	Yes - amalgamated	OS3E	■	■	✓		M	-	-	6,890	3,564		■	✓	✓	M	1	107	28,582	25,256
OS	3	E	2961	Yes - amalgamated		■	■	✓		M	-	-	6,495	3,534		■	✓	✓	M	1	107	22,770	19,809
OS	3	F	1203	Yes - amalgamated		■	■	✓		M	-	-	6,723	5,520		■	✓	✓	M	1	107	22,998	21,795
OS	3	G	1830	Yes - single site		■	■	✓		M	-	-	4,622	2,792		■	✓	✓	M	1	107	20,130	18,299
OS	4	C	2027	Yes - amalgamated		■	■	✓		M	-	-	4,050	2,023		■	✓	✓	M	1	107	19,558	17,531
OS	4	D	2083	Yes - amalgamated	OS4F	■	■	✓		M	-	-	3,617	1,535		■	✓	✓	M	1	107	19,125	17,042
OS	4	E	1936	Yes - amalgamated		■	■	✓		M	-	-	3,936	1,999		■	✓	✓	M	1	107	19,443	17,507
OS	4	F	2317	Yes - amalgamated		■	■	✓		M	-	-	3,884	1,567		■	✓	✓	M	1	107	19,391	17,074
OS	4	G	1444	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	18,720	17,276
OS	4	H	3363	Yes - amalgamated		■	■	✓		M	-	-	5,608	2,245		■	✓	✓	M	1	107	27,300	23,937
OS	4	J	2004	Yes - amalgamated		■	■	✓		M	-	-	4,088	2,084		■	✓	✓	M	1	107	19,596	17,592
OS	4	K	1858	Yes - amalgamated	OS4L	■	■	✓		M	-	-	4,785	2,928		■	✓	✓	M	1	107	20,293	18,435
OS	4	L	2097	Yes - amalgamated		■	■	✓		M	-	-	5,132	3,035		■	✓	✓	M	1	107	20,640	18,543
OS	5	E	2779	Yes - amalgamated	OS5H	■	■	✓		M	-	-	5,060	2,281		■	✓	✓	M	1	107	26,752	23,973
OS	5	F	2404	Yes - amalgamated	OS5G	■	■	✓		M	-	-	4,150	1,746		■	✓	✓	M	1	107	19,658	17,254
OS	5	G	2675	Yes - amalgamated		■	■	✓		M	-	-	4,888	2,213		■	✓	✓	M	1	107	26,581	23,906
OS	5	H	2805	Yes - amalgamated		■	■	✓		M	-	-	5,095	2,290		■	✓	✓	M	1	107	26,788	23,983
OS	5	J	2499	Yes - amalgamated	OS5M	■	■	✓		M	-	-	4,671	2,172		■	✓	✓	M	1	107	26,363	23,864
OS	5	K	2651	Yes - amalgamated	OS5L	■	■	✓		M	-	-	4,856	2,204		■	✓	✓	M	1	107	26,548	23,897
OS	5	L	1833	Yes - amalgamated		■	■	✓		M	-	-	4,783	2,951		■	✓	✓	M	1	107	20,291	18,458
OS	5	M	1433	Yes - amalgamated		■	■	✓		M	-	-	4,432	2,999		■	✓	✓	M	1	107	19,940	18,507
ON	1	A	2026	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	18,692	16,666
ON	1	B	1540	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	20,853	19,313
ON	1	C	1941	Yes - Strata amalgamation	ON1D	■	■			M	-	-	-	-		■	✓	✓	M	1	107	19,007	17,066
ON	1	D	2009	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	18,974	16,964
ON	2	B	1664	Yes - amalgamated	ON2C	■	■	✓		M	-	-	3,700	2,036		■	✓	✓	M	1	107	19,208	17,544
ON	2	C	2530	Yes - Strata amalgamation		■	■			M	-	-	-	-		■			M	-	-	-	-
ON	3	C	2444	Yes - Strata amalgamation	ON3D	■	■			M	-	-	-	-		■			M	-	-	-	-
ON	3	D	2335	Yes - Strata amalgamation		■	■			M	-	-	-	-		■	✓	✓	M	1	107	19,540	17,205
ON	4	D	1855	Yes - amalgamated		■	■	✓		M	-	-	3,331	1,476		■	✓	✓	M	1	107	18,839	16,983
ON	5	A	1697	Yes - amalgamated		■	■	✓		M	-	-	4,807	3,110		■	✓	✓	M	1	107	20,315	18,617
ON	5	B	1673	Yes - amalgamated		■	■	✓		M	-	-	4,770	3,097		■	✓	✓	M	1	107	20,277	18,604

Site			Scenario C									Scenario D									Recommended Controls								
			Key development constraints			Development shown					GFA		Key development constraints			Development shown					GFA		Key development constraints			Development shown				GFA	
Area	Block	Site	FSR control	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Height control	Sun access plane	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)	Sun access plane	FSR Control	Maximum marketable floorspace per tower	Smaller floorplate tower	Low-rise	Tower	Use (M=Mixed, C=Commercial)	Number of towers	Height of towers (average) (m)	Total (sqm)	Additional (excludes demolition) (sqm)
OS	1	B	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
OS	1	C	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
OS	1	D	■					M	-	-	-	-	■		■				M	-	-	-	-		■	■				M	-	-	-	-
OS	1	E			■			M	-	-	-	-	■		■				M	-	-	-	-			■	■			M	-	-	-	-
OS	1	F	■			✓	✓	M	1	80	16,253	13,687	■		■		✓	✓	M	1	80	16,253	13,687		■			✓	✓	M	1	74	15,203	12,637
OS	1	G	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
OS	1	H	■					M	-	-	-	-	■		■				M	-	-	-	-		■	■				M	-	-	-	-
OS	1	J	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
OS	1	K	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
OS	2	A	■					M	-	-	-	-	■				✓	✓	M	1	80	14,152	12,604		■					M	-	-	-	-
OS	2	B	■					M	-	-	-	-	■				✓	✓	M	1	80	14,727	13,193		■					M	-	-	-	-
OS	2	C	■					M	-	-	-	-	■				✓	✓	M	1	80	14,024	12,425		■					M	-	-	-	-
OS	2	D	■					M	-	-	-	-	■				✓	✓	M	1	80	14,209	12,630		■					M	-	-	-	-
OS	2	E	■					M	-	-	-	-	■				✓	✓	M	1	80	14,408	12,660		■					M	-	-	-	-
OS	2	F	■			✓		M	-	-	3,398	1,610	■				✓	✓	M	1	80	14,404	12,615		■			✓		M	-	-	3,398	1,610
OS	2	G	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
OS	2	H	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
OS	2	J	■					M	-	-	-	-	■				✓	✓	M	1	80	14,490	12,680		■					M	-	-	-	-
OS	2	K	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
OS	2	L	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
OS	2	M	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
OS	3	D	■			✓	✓	M	1	74	20,885	17,559	■	■			✓	✓	M	1	80	22,284	18,959		■			✓	✓	M	1	68	19,485	16,160
OS	3	E	■			✓	✓	M	1	83	18,570	15,609	■				✓	✓	M	1	80	18,045	15,084		■			✓	✓	M	1	77	17,520	14,559
OS	3	F	■			✓		M	-	-	6,723	5,520	■				✓	✓	M	1	38	10,923	9,720		■			✓	✓	M	1	14	6,723	5,520
OS	3	G	■			✓	✓	M	1	23	6,123	4,292	■				✓	✓	M	1	38	8,624	6,794		■			✓	✓	M	1	17	5,122	3,292
OS	4	C	■			✓	✓	M	1	68	13,054	11,028	■				✓	✓	M	1	80	15,055	13,029		■			✓	✓	M	1	62	12,054	10,027
OS	4	D	■			✓	✓	M	1	71	13,122	11,039	■				✓	✓	M	1	80	14,623	12,540		■			✓	✓	M	1	65	12,121	10,039
OS	4	E	■			✓	✓	M	1	65	12,440	10,503	■				✓	✓	M	1	80	14,941	13,005		■			✓	✓	M	1	59	11,439	9,503
OS	4	F	■			✓	✓	M	1	80	14,889	12,572	■				✓	✓	M	1	80	14,889	12,572		■			✓	✓	M	1	74	13,889	11,572
OS	4	G	■					M	-	-	-	-	■				✓	✓	M	1	80	14,218	12,774		■					M	-	-	-	-
OS	4	H	■			✓	✓	M	1	80	21,002	17,639	■	■			✓	✓	M	1	80	21,002	17,639		■			✓	✓	M	1	74	19,603	16,240
OS	4	J	■			✓	✓	M	1	65	12,593	10,588	■				✓	✓	M	1	80	15,094	13,090		■			✓	✓	M	1	59	11,592	9,588
OS	4	K	■			✓		M	-	-	4,785	2,928	■				✓	✓	M	1	38	8,787	6,930		■			✓		M	-	-	4,785	2,928
OS	4	L	■			✓		M	-	-	5,132	3,035	■				✓	✓	M	1	38	9,134	7,037		■			✓		M	-	-	5,132	3,035
OS	5	E	■			✓	✓	M	1	68	17,655	14,876	■	■			✓	✓	M	1	80	20,454	17,675		■			✓	✓	M	1	62	16,256	13,477
OS	5	F	■			✓	✓	M	1	80	15,156	12,752	■				✓	✓	M	1	80	15,156	12,752		■			✓	✓	M	1	74	14,155	11,751
OS	5	G	■			✓	✓	M	1	65	16,784	14,109	■	■			✓	✓	M	1	80	20,283	17,608		■			✓	✓	M	1	59	15,385	12,710
OS	5	H	■			✓	✓	M	1	68	17,691	14,886	■	■			✓	✓	M	1	80	20,490	17,685		■			✓	✓	M	1	62	16,291	13,486
OS	5	J	■			✓	✓	M	1	62	15,867	13,368	■	■			✓	✓	M	1	80	20,065	17,566		■			✓	✓	M	1	56	14,467	11,968
OS	5	K	■			✓	✓	M	1	65	16,751	14,100	■	■			✓	✓	M	1	80	20,250	17,599		■			✓	✓	M	1	59	15,352	12,701
OS	5	L	■			✓		M	-	-	4,783	2,951	■				✓	✓	M	1	38	8,785	6,953		■			✓		M	-	-	4,783	2,951
OS	5	M	■			✓		M	-	-	4,432	2,999	■				✓	✓	M	1	38	8,434	7,001		■			✓		M	-	-	4,432	2,999
ON	1	A	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
ON	1	B	■					M	-	-	-	-	■				✓	✓	M	1	80	16,351	14,811		■					M	-	-	-	-
ON	1	C	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
ON	1	D	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
ON	2	B	■			✓	✓	M	1	56	10,703	9,039	■				✓	✓	M	1	80	14,705	13,041		■			✓	✓	M	1	50	9,703	8,039
ON	2	C	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
ON	3	C	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
ON	3	D	■					M	-	-	-	-	■						M	-	-	-	-		■					M	-	-	-	-
ON	4	D	■			✓	✓	M	1	65	11,835	9,980	■				✓	✓	M	1	80	14,337	12,481		■			✓	✓	M	1	59	10,835	8,979
ON	5	A	■			✓	✓	M	1	50	10,810	9,113	■				✓	✓	M	1	38	8,809	7,112		■			✓	✓	M	1	44	9,809	8,112
ON	5	B	■			✓	✓	M	1	50	10,773	9,100	■				✓	✓	M	1	38	8,772	7,099		■			✓	✓	M	1	44	9,772	8,099