PLANNING PROPOSAL

18-22A Hunter Street and 23-29 Macquarie Street, Parramatta

PARRAMATTA WE'RE BUILDING AUSTRALIA'S NEXT GREAT CITY

Planning Proposal drafts

Proponent versions:

No.	Author	Version
1.	Allan Caladine	May 2015

Council versions:

No.	Author	Version
1.	City of Parramatta	July 2016 – Section 56(1) submission to DP&E – Council report
2.	City of Parramatta	February 2018 – Section 56(1) submission to DP&E – for Gateway Assessment

Contents

INTRODUCTION

This planning proposal has been prepared in accordance with Section 55 of the *Environmental Planning and Assessment Act 1979* and the Department of Planning and Environment's, 'A Guide to Preparing Local Environment Plans' (April 2013) and 'A Guide to Preparing Planning Proposals' (October 2012).

This planning proposal seeks to amend the *Parramatta Local Environmental Plan (PLEP) 2011* to modify the maximum building height and floor space ratio (FSR) controls that apply to land at 18-22A Hunter Street and 23-29 Macquarie Street, Parramatta. These amendments are sought with the intent to erect a mixed use development with residential and commercial components.

Background and context

On 7 May 2015, Council received this planning proposal and supporting documents from Caladine Town Planning Pty Ltd, on behalf of Southern Han Parramatta for land at 18-22A Hunter Street and 23-29 Macquarie Street, Parramatta, see Figure 1. Legal description Lot 1 DP 127028, Lot 1 DP 947628, Lot 1 961308, SP12198, Lot 15 DP 8610812, Lot 16 DP 861082, Lot 17 DP 861082, Lot 32 DP 75694 and Lot A DP 358326. The site consists of nine lots with a total area of approximately 3,365m². Currently the site is characterised by 2 and 3 storey commercial developments.

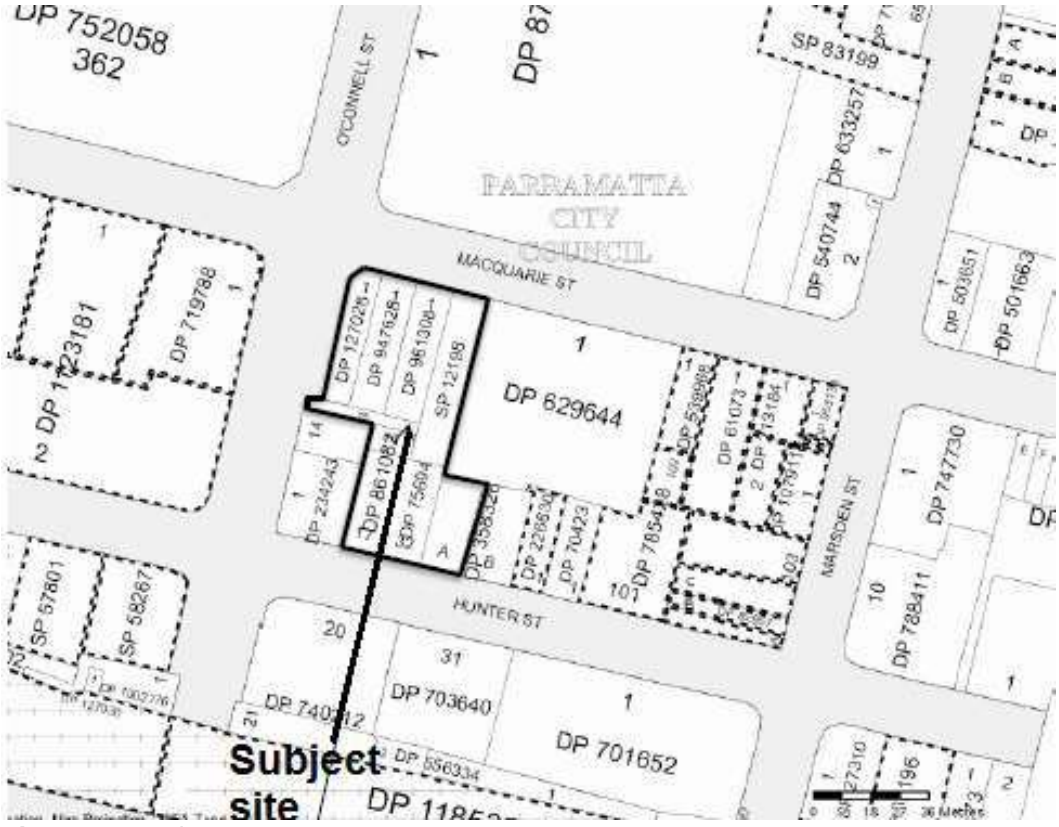

Figure 1 Location map

Under *Parramatta Local Environmental Plan 2011*, the site:

- Is zoned B4 Mixed Use (refer to Figure 11 in Part 4 – Mapping);
- Has a maximum building height of 54m that applies to the majority of the site, with a maximum 7m height applying to 18 Hunter Street, where the site adjoins

heritage items to the east, (refer to Figure 12 in Part 4 – Mapping).
- Has three maximum FSR controls that apply to the site, being 0.6:1, 3:1 and 6:1 (refer to Figure 13 in Part 4 – Mapping).

PART 1 – OBJECTIVES OR INTENDED OUTCOMES

The objective of this planning proposal is to increase the permissible density of development at 18-22A Hunter Street and 23-29 Macquarie Street, Parramatta to enable the future redevelopment of the site for a mixed use development, comprising two tower forms with a four storey podium and public plaza.

PART 2 – EXPLANATION OF PROVISIONS

This planning proposal seeks to amend *Parramatta Local Environmental Plan 2011* (*PLEP 2011*) in relation to the height and FSR controls. In order to achieve the desired objective, the following amendments to *PLEP 2011* would need to be made:

1. Amend the maximum building height in the **Height of Buildings Map** (Sheet HOB_010) from 7 metres and 54 metres to 120 metres. Refer to Figures 12 and 16 in Part 4 of this planning proposal.

2. Amend the maximum FSR in the **Floor Space Ratio Map** (Sheet FSR_010) from 0.6:1 3:1 and 6:1 to 10:1 (plus 1.5:1 design excellence bonus). Refer to Figures 13 and 17 in Part 4 of this planning proposal.

3. Insert a new Clause in Part 7 of the *PLEP 2011* that, consistent with Council's resolution, would read:

7.# Development on land at 18-22A Hunter Street and 23-29 Macquarie Street, Parramatta

1) This clause applies to land marked "Area #" on the Special Provisions Area Map.

2) The consent authority may grant consent to development on land to which this clause applies, but only if the floor plate of any tower is not greater than 800m².

2.1 Other relevant matters

2.1.1 Voluntary Planning Agreement

A formal letter of offer is yet to be received from the applicant. The site and proposed development potential uplift being sought lends itself to the provision of public benefits, consistent with Council's Draft Planning Agreements policy. The applicant will be invited to submit a letter of offer after the Planning Proposal has been issued a Gateway Determination by the Department of Planning and Environment (DP&E).

2.1.2 Draft DCP

A site specific Development Control Plan (DCP) will be prepared and reported to Council to enable it to be exhibited concurrently with this planning proposal. Clauses in this site specific DCP will relate to tower and podium setbacks, and details of the plaza.

PART 3 – JUSTIFICATION

This part describes the reasons for the proposed outcomes and development standards in the planning proposal.

3.1 Section A - Need for the planning proposal

This section establishes the need for a planning proposal in achieving the key outcome and objectives. The set questions address the strategic origins of the proposal and whether amending the LEP is the best mechanism to achieve the aims on the proposal.

3.1.1 Is the Planning Proposal a result of any study or report?

This planning proposal is not the result of any site specific study or report. Council adopted the Parramatta CBD Planning Proposal (CBD PP) at its meeting of 11 April 2016. It is important to note that the proposed controls of the CBD PP do not apply to the subject site. It is located within the Highly Sensitive Park Edge and is subject to a Conservation Agreement between Council the NSW State Government and the Commonwealth. The boundaries of the CBD PP were specifically amended to exclude Area B (Highly Sensitive Park Edge) at its meeting of 27 April 2015 (and reaffirmed at its meeting of 13 July 2015).

3.1.2 Is the Planning Proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

A planning proposal seeking to amend *PLEP 2011* is the most effective way of providing certainty for Council, the local community and the landowner given the location of the site within Area B (Highly Sensitive Park Edge). The existing height and FSR standards do not permit the development envisaged in this planning proposal, nor respond to the emerging CBD character of Parramatta.

3.2 Section B – Relationship to strategic planning framework

This section assesses the relevance of the Planning Proposal to the directions outlined in key strategic planning policy documents. Questions in this section consider state and local government plans including the NSW Government's Draft Sydney Region Plan and Draft Central District Plan, State Environmental Planning Policies, local strategic and community plans and applicable Ministerial Directions.

3.2.1 Is the planning proposal consistent with the objectives and actions contained within the applicable regional or sub-regional strategy?

Draft Regional Plans

On the 22 October 2017, the Greater Sydney Commission released the Draft Greater Sydney Region Plan and revised Draft Central City District Plan. The plans were on released for public exhibition between 22 October and the 15 December 2017. At the time this Planning Proposal was originally prepared these strategic plans had not been released. An assessment of the planning proposal against these draft plans has been provided for completeness.

Draft Greater Sydney Region Plan

The Draft Greater Sydney Region Plan is built on a vision where the people of Greater Sydney live within 30 minutes of their jobs, education and health facilities, services and great places.

The vision seeks to meet the needs of a growing and changing population by transforming greater Sydney into a metropolis of three cities — the Western Parkland City, the Central River City and the Eastern Harbour City.

The purpose of the draft Plan is to:

- Set a 40-year vision (up to 2056) and establish a 20-year plan to manage growth and change for Greater Sydney in the context of economic, social and environmental matters
- Inform district and local plans and the assessment of planning proposals
- Assist infrastructure agencies to plan and deliver for growth and change and to align their infrastructure plans to place-based outcomes
- Inform the private sector of the vision for Greater Sydney and infrastructure investments required to manage growth.

The plan is guided by 10 overarching directions relating to infrastructure and collaboration, productivity, liveability and sustainability with metrics and objectives associated with each.

The City of Parramatta is located within the Central City District.

Revised Draft Central City District Plan

The draft Central City District Plan District Plan is a 20-year plan to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision of Greater Sydney. It is a guide for implementing the Draft Greater Sydney Region Plan at a district level and is a bridge between regional and local planning.

The plan sets out planning priorities and actions for the development of central city district.

This Planning Proposal is consistent with the liveability directions, objectives of the draft Sydney Region Plan and the priorities and actions of the draft Central City District Plan.

The proposal will provide:

- An estimated 400 units (1 – 3+ bedroom units) contributing to housing targets and diversity for the district
- Contributions towards community infrastructure such as community facilities, cycleways and environmental and recreational facilities, and
- The proposal will facilitate the development of a well-designed building that will contribute to renewal of periphery of the CBD, through:
- The preparation of site specific development controls to support this Planning Proposal and design competition process,
- Contributions to local infrastructure upgrades, and
- Consideration of the heritage values of the adjoining State listed item, and the World and National listed Old Government House and Domain (Refer Section 3.3 of this report).

The planning proposal would enable the development of residential dwellings and non-residential uses (including ground floor retail) that will contribute towards dwelling and employment targets on a site located within the Parramatta City Centre. Approximately 400 units with a range of unit types are proposed to promote housing supply and choice. The non-residential uses on the site support Council's vision of the growing Parramatta CBD with a commercial core surrounded by mixed use development. The site will contribute to the vibrant character of the area by activating the ground floor with retail uses.

The site is located in a transport corridor with Parramatta Railway Station/Bus Interchange located within 600m. Although the details of the proposed Light Rail service are not fixed, the stations are likely to be located within close proximity to the site, either along Church Street or in Parramatta Square. The proposal will provide accessible employment and residential uses whilst supporting the growing transport corridor in which Parramatta centres.

3.2.2 Is the planning proposal consistent with the local council's Community Strategic Plan or other local strategic plan?

The following strategic planning documents are relevant to the planning proposal.

Parramatta 2038 Community Strategic Plan

Parramatta 2038 is a long term Community Strategic Plan for the City of Parramatta and it links to the long-term future of Sydney. The plan formalises several big and transformational ideas for the City and the region. Of relevance is the growth of Parramatta CBD.

The planning proposal is considered to meet the strategy and key objectives identified in the plan including; to help build the City as a centre of high, value-adding employment and a driving force behind a generation of prosperity for Western Sydney.

The planning proposal is considered to meet the strategy by allowing for an appropriate mix of residential and non-residential uses located in a centre with public transport, shops and community facilities in close proximity. The proposal will activate the street and improve the walkability of the city centre with retail on the ground floor, a plaza and setbacks that aim to protect the view lines to the heritage items on O'Connell Street. The development will also allow for the concentration of housing around transport nodes and contribute towards dwelling targets for NSW.

Parramatta CBD Planning Strategy and context with Conservation Agreement

The Parramatta CBD Planning Proposal (CBD PP) was endorsed by Council on 11 April 2016. The CBD PP proposes that a potential increase in height and FSR can be sought for sites within the Parramatta CBD subject to the provision of community infrastructure.

In this instance, the subject site is located within 'Area B' Highly Sensitive Park Edge as described in Part 4.3 of the Parramatta Development Control Plan 2011. Sites located in the Park Edge Special Area are not subject the CBD PP as this area was excluded from the CBD PP following resolutions from Council on 27 April 2015 and 13 July 2015.

As the controls proposed in this document would be of greater intensity than those in the Conservation Agreement, a referral to the Commonwealth would be triggered in the event a future development application is lodged with Council. This issue is discussed in further detail in Part 3.3 of this Proposal.

3.2.3 Is the planning proposal consistent with the applicable State Environmental Planning Policies?

The following State Environmental Planning Policies (SEPPs) are of relevance to the site (refer to Table 1 below).

Table 1 – Comparison of planning proposals with relevant SEPPs

State Environmental Planning Policies (SEPPs)	**Consistent: Yes - ✓ No - ✗ or N/A**	**Comment**
SEPP No 1 Development Standards	N/A	This SEPP is not applicable to the subject land under Clause 1.9 of the Parramatta LEP 2011.
SEPP 4 – Development Without Consent and Miscellaneous Exempt and Complying Development	N/A	This SEPP is not applicable to the subject land under Clause 1.9 of the Parramatta LEP 2011.
SEPP 6 – Number of Storeys in a Building	N/A	Standard instrument definitions apply.
SEPP No 55 Remediation of Land	✓	The site is identified as Class 5 on the Acid Sulfate Soils Map in Parramatta Local Environmental Plan 2011. Acid sulfate soils are generally not found in Class 5 areas however this will be addressed further at the development application stage. No further contamination has been identified on the site.
SEPP 64 – Advertising and Signage	N/A	Not relevant to proposed amendment. May be relevant to future DAs.
SEPP No 65 Design Quality of Residential Flat Development	✓	Detailed compliance with SEPP 65 will be demonstrated at the time of making a development application for the site facilitated by this planning proposal and the design excellence competition. During the design development phase, detailed testing of SEPP 65 and the Apartment Design Guidelines was carried out and the indicative scheme is capable of demonstrating compliance with the SEPP.
SEPP No.70 Affordable Housing (Revised Schemes)	N/A	Not relevant to proposed amendment.
SEPP (Affordable Rental Housing) 2009	N/A	Not relevant to proposed amendment.
SEPP (BASIX) 2004	N/A	Detailed compliance with SEPP (BASIX) will be demonstrated at the time of making a development application for the site facilitated by this Planning Proposal.
SEPP (Exempt and Complying Development Codes) 2008	✓	May apply to future development of the site.
SEPP (Infrastructure) 2007	✓	May apply to future development of the site.
Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005	N/A	The proposed development is not located directly on the Sydney Harbour Catchment foreshore. Any potential impacts as a result of development on the site, such as stormwater runoff, will be considered and addressed appropriately at DA stage.
SEPP (Urban Renewal) 2010	N/A	The subject site is not located within the Granville Potential Precinct boundary.

3.2.4 Is the planning proposal consistent with applicable Ministerial Directions (s.117 directions)

In accordance with Clause 117(2) of the *EP&A Act 1979* the Minister issues directions for the relevant planning authorities to follow when preparing planning proposals for new LEPs. The directions are listed under the following categories:

- Employment and resources
- Environment and heritage
- Housing, infrastructure and urban development
- Hazard and risk
- Regional planning
- Local plan making
- Metropolitan planning

The following directions are considered relevant to the subject Planning Proposal.

Table 2 – Comparison of planning proposals with relevant Section 117 Directions

Section	Comment	Compliance
1. Employment and Resources		
Direction 1.1 – Business and Industrial Zones	The planning proposal will maintain the existing zone which allows for a mix of residential and non-residential uses. The proposal will support the mixed use character of the area and the nearby commercial core, by activating the street front with retail uses and increasing the residential population delivering homes close to employment.	Yes
2. Environment and Heritage		
Direction 2.3 - Heritage Conservation	<u>World and National Heritage</u> The site is located within the Park Edge Highly Sensitive Area that surrounds the Old Government House and the Domain (OGHD), refer to Figure 2. This issue is critical to the planning proposal as OGHD is World heritage listed and is one of eleven sites in a group forming the Australian Convict Sites on the World Heritage List. The OGHD is also on the National Heritage List and the NSW State Heritage Register. Council has received correspondence from the Commonwealth Department of the Environment and Energy (dated 7 September 2017) states that development that is not consistent with the controls in the Conservation Agreement would be "likely to have a significant impact on the World and National Heritage values of Old Government House and Domain and would therefore require approval under Part 9 of the EPBC Act" (refer to **Appendix 4**). As the controls proposed in this document would be of greater intensity than those in the Conservation Agreement, a referral to the Commonwealth would be triggered in the event a future development application is lodged with Council. <u>State and Local Heritage</u> The subject site does not contain a heritage item listed under PLEP 2011. However, the site adjoins a state significant heritage item, listed in Schedule 5 of PLEP 2011 as Item 00748 the Travellers' Rest Inn Group, located at 14-16 O'Connell Street, Parramatta, refer to Figure 14. Council is satisfied that the integrity of the item can be maintained under the proposed indicative massing. Further refinement and detail will need to be provided during the Design Excellence process and later at the Development Application stage which will be suitable in ensuring the item is managed appropriately.	Yes

	An assessment of the potential impacts of the proposed controls on the heritage item is outlined in section 3.3.2. A site specific DCP will be required and inform the design excellence and development application process. This will be exhibited alongside this planning proposal.	
3. Housing, Infrastructure and Urban Development		
Direction 3.1 - Residential Zones	The planning proposal is consistent with the objectives of this direction as it will increase residential densities and housing choice in a location that is close to public transport, shops, employment and recreational opportunities. As detailed in this planning proposal, the increased density will have minimal and acceptable impacts.	Yes
Direction 3.4 - Integrating Land Use and Transport	The Planning Proposal is consistent with this direction, in that it: • will provide new dwellings in close proximity to existing public transport links • will enable residents to walk or cycle to work if employed in the Parramatta City Centre or utilise the heavy rail service. • will maintain and provide additional commercial premises in proximity to existing transport links • makes more efficient use of space and infrastructure by increasing densities on an underutilised site.	Yes
4. Hazard and Risk		
Direction 4.1 - Acid Sulfate Soils	The site is identified as Class 5 on the Acid Sulfate Soils Map in Parramatta Local Environmental Plan 2011. Acid sulfate soils are generally not found in Class 5 areas however this will be addressed further at the development application stage.	Yes
Direction 4.3 - Flood Prone Land	Small portions of the site are affected by the 20 and 100 year ARI, the site is also affected by the PMF. A flood statement prepared by HKMA Engineers can be viewed at Attachment 2 and addresses this 117 Direction. This planning proposal is informed by flood statement (refer to **Appendix 3**) which outlines the methods which will be incorporated into the detailed design of the building to ensure awareness, safety and access in the event of a flood. The applicant will be required to submit details of these design features and evacuation measures as part of the development application process. Any potential impacts as a result of development on the site, such as stormwater runoff, will be considered and addressed appropriately at the development application stage. This will also include any design detail required to ensure compliance with Council's water management controls within the Parramatta DCP 2011.	Yes
6. Local Plan Making		
Direction 6.1 - Approval and Referral Requirements	Development that is likely to have a significant impact on the world and national heritage values of the OGHD must be assessed under Part 9 of the EPBC Act and approved by the Commonwealth Minister for the Environment and Energy. It is noted that the site is located within an area subject to a Conservation Agreement executed under the EPBC Act for the World and National heritage-listed Old Government House and Domain. This Conservation Agreement specifies development controls that allow for development to occur without a Commonwealth referral so long as proposed development is consistent with these controls. As development utilising the controls described in this Planning Proposal would exceed those specified in the Conservation	Yes

	Agreement, a referral to the DoEE would be required in any future development application. Approvals from the Office of Environment and Heritage will be required at the development application stage with regard to European and Aboriginal archaeology for any development on the site.	
Direction 6.3 - Site Specific Provisions	A site specific provision is sought as part of this planning proposal to enforce a maximum floor plate of 800m². The floor plate of tower 2 is 460m², which is smaller than the typical floor plate of existing residential towers in Parramatta. To ensure in future the FSR within the proposed tower 2 is not transferred to a larger, bulky, single tower form a site specific LEP clause limiting the maximum floor plate or building envelope to 800m² is proposed.	Yes

3.3 Section C – Environmental, social and economic impact

This section considers the potential environmental, social and economic impacts which may result from the Planning Proposal.

3.3.1 Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

The site is located within a highly modified urban environment and it is very unlikely to contain critical habitat or threatened species, populations or ecological communities, or their habitats.

3.3.2 Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

The main potential environmental impacts to be examined in detail with any future development proposal for the site are:

- European and Aboriginal Archaeology
- Heritage impacts
- Urban Design and Built Form
- Flooding – addressed in 'Hazard and Risk - 4.3 Flood Prone Land', Section B3.2
- Transport and Accessibility Assessment

European and Aboriginal Archaeology

The subject site is located in an archaeologically significant locality. It is categorised as possessing high Aboriginal sensitivity, State archaeological significance and exceptional Archaeological Research Potential.

The site is identified as Parramatta Archaeological Management Unit 2883, 3189 and 3188. The New South Wales Office of Environment and Heritage (NSW OEH) are the consent authority for the disturbance of grounds for State significant archaeological sites. Due to the site's archaeological significance an archaeological assessment will be required prior to lodgement of a development application and inform the design of the development. No further information is required at the planning proposal stage.

World and National Heritage issues

OLD GOVERNMENT HOUSE AND DOMAIN – COMMONWEALTH GOVERNMENT APPROVAL

The site is located within the Park Edge Highly Sensitive Area that surrounds the Old Government House and the Domain (OGHD), see Figure 2. This issue is critical to this planning proposal as the OGHD is World heritage listed and is one of eleven sites in a group forming the Australian Convict Sites on the World Heritage List. The OGHD is also on the National Heritage List and the NSW State Heritage Register.

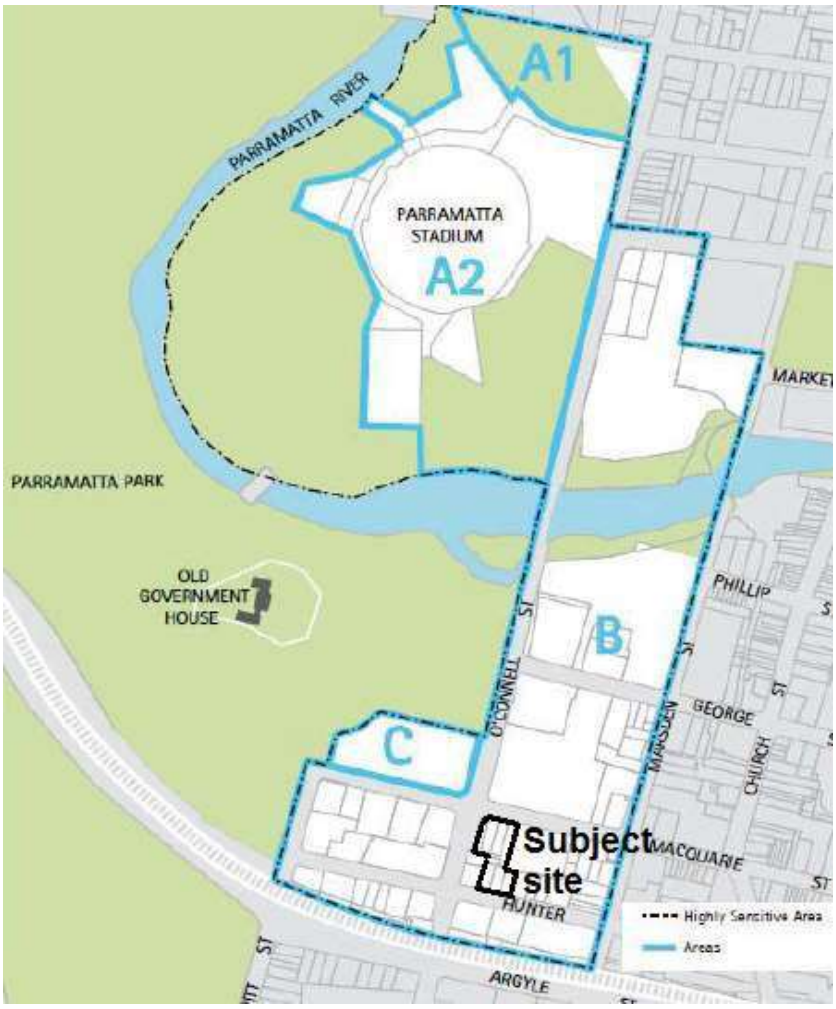

Figure 2 City Centre Special Areas (Extract from Parramatta DCP 2011)

Under the Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999, development that is likely to have a significant impact on the world and national heritage values of the OGHD must be referred to the Commonwealth Government Department of the Environment and Energy (DoEE) for a separate approval under Part 9 of the EPBC Act.

CONSERVATION AGREEMENT

To provide clarity and certainty for development within the setting of the OGHD, Council has worked with the Commonwealth and NSW State Government to enter into a Conservation Agreement (CA). The CA was made under the EPBC Act and executed on 23 December 2015. The Agreement removes the need for the Commonwealth to receive referrals for development within the Park Edge Highly Sensitive Area, provided the proposed development complies with the specified planning controls in the

Agreement.

The planning controls include the applicable maximum building height and floor space ratio controls under the current PLEP 2011. They also include the DCP controls outlined in Section 4.3.3.7(c) Park Edge of the Parramatta DCP 2011.

CURRENT COMMONWEALTH ASSESSMENT OF PROPOSAL

On 7 August 2014 the proponent presented an early version of this Planning Proposal to the DoEE. The purpose of this was to gain approval from the DoEE for the scheme under Part 9 of the EPBC Act.

If the Commonwealth were to approve the development prior to a development application being lodged with Council, this could negate the need for Council to refer the DA application to the DoEE as part of its assessment of the development under Section 79C of the *Environmental Planning and Assessment* (EP&A) *Act 1979 (NSW)*.

In presenting the Proposal to the DoEE, the applicant was advised to submit an urban design study to determine whether the proposal would likely have a significant impact on the OGHD, and therefore be deemed as a "Controlled Action" under the EPBC Act. The application with the Commonwealth Government has subsequently gone through the following processes:

- On 6 October 2014, a detailed urban design submission prepared by Architectus was submitted to the Department of Environment;
- On 9 October 2014, the Department of Environment acknowledged the submission (EPBC Ref: 2014/7359);
- On 19 November 2014, the Department of Environment advised the proponent that they had concluded the proposal was a controlled action under Section 75 of the EPBC Act;
- The submission was placed on public exhibition and no objections were received;
- On 27 January 2015 the DoEE wrote to Southern Han Parramatta Pty Ltd requesting additional information to be provided;
- On 15 June 2015 a Statement of Heritage Impact prepared by Graham Brooks and Associates and a View Analysis including photomontages prepared by Architectus were sent to the DoEE;
- On 26 February 2016 the DoEE requested further additional information from the applicant.

To date, the proponent has provided no further information has been provided to the DoEE to enable the assessment to progress. Ultimately, for the site to be redeveloped in line with the planning controls outlined in this Planning Proposal, the Commonwealth will be required to approve the development under the EPBC Act.

On 27 July 2015 Council resolved the following:

(a) ***That*** *all planning proposals in the Park Edge Highly Sensitive Area adjacent to the World Heritage-listed Old Government House and Domain (OGHD) be referred to Council Chamber for determination and/or recommendation.*

(b) ***Further, that*** *applicant may seek Council's recommendation in concurrent or before consult with relevant Federal and State authorities.*

Since Council's resolution on 27 July 2015 two planning proposals located in the Park Edge Highly Sensitive Area have been endorsed by Council but not supported by the State or Commonwealth Government. In light of the precedence set by the Commonwealth Government not supporting the Justice Precinct planning proposal and DP&E's recent refusal of 5 Hunter Street, Council determined that this planning proposal would not proceed to gateway determination with the DP&E until advice is obtained from the Department of Environment indicating their position on this proposal.

A separate application has been lodged with the Commonwealth Government addressing the EPBC Act, this application deals with local planning controls and local issues. No analysis of how the proposed change in controls may impact the OGHD is provided in this planning proposal."

State and Local Heritage

The subject site does not contain any listed heritage items, however adjoins a state significant heritage item, which is listed as Item 00748 (Travellers' Rest Inn Group) in Schedule 5 of PLEP 2011. The item consists of a single storey corner inn and two cottages which the OEH Statement of Significance identifies as "the most intact and earliest group of cottages in all of Parramatta" and "typical of the Georgian style, rare in Australia and existing only in the very early colonies of NSW and Tasmania". The item is located at 14-16 O'Connell Street, as seen in Figure 5 below.

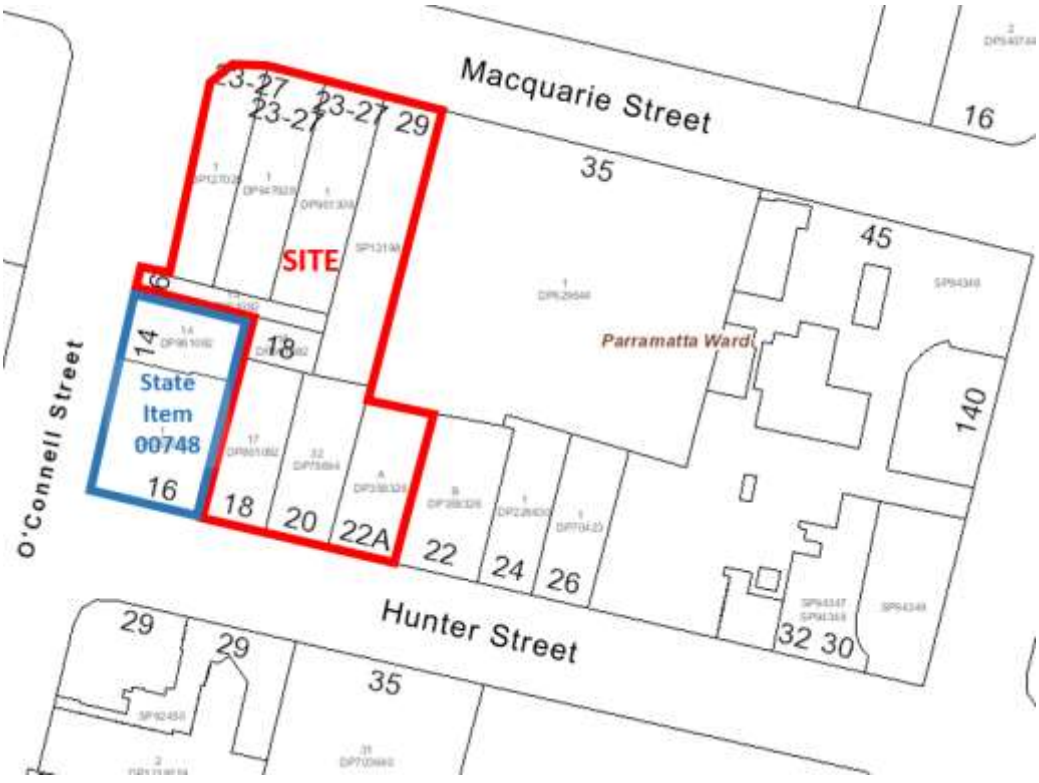

Figure 5 Location of heritage item in relation to the subject site

To protect the heritage significance of the item, an FSR of 0.6:1 applies to the land where the heritage item sited, and to the two lots to the adjoining eastern boundary. To the north of the heritage item, an FSR of 3:1 applies, which acts to provide a buffer to the heritage item. The remainder of the land to the east (to which this Planning Proposal

is partly encroaches) has an FSR of 6:1. Refer to Figure 6 below.

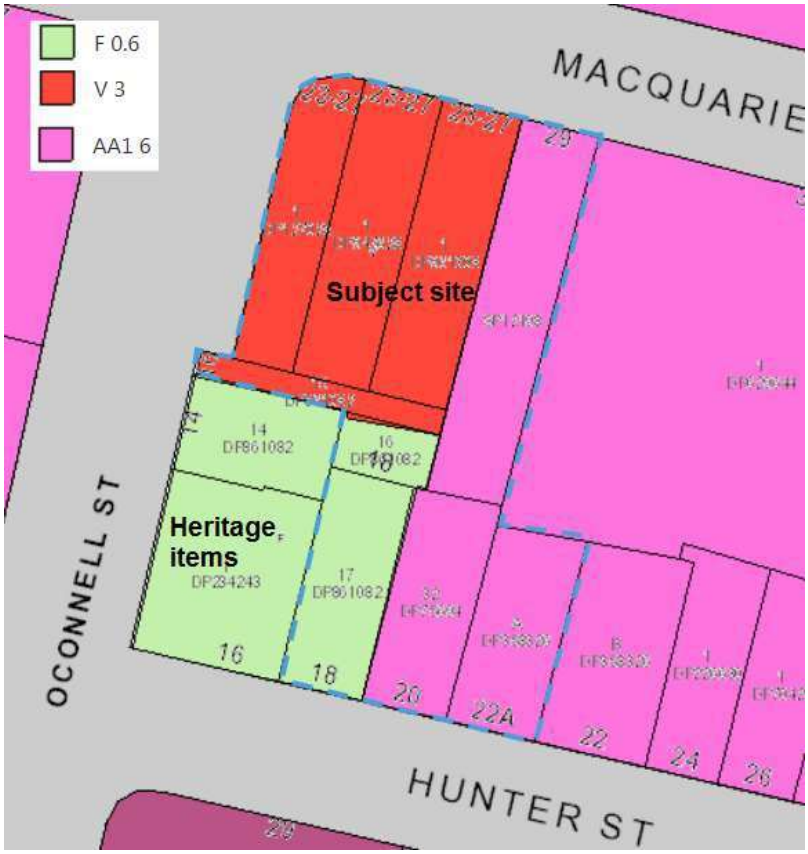

Figure 6 Location of heritage item and FSR context (Source: Council's GIS mapping)

This Planning Proposal seeks to amend the PLEP 2011 to provide for an FSR of 10:1 across the entire site. The FSR of 0.6:1, where the heritage item is located, is would remain unchanged as a result of these amendments.

Increasing the FSR and height north of the heritage item will cause restricted sun access, a changed context and views to the heritage item. Below is an assessment of the potential impacts of a future development in relation to the heritage context of the site, and responses that could mitigate the impact.

- **Plaza**

  An entry plaza is proposed adjoining the heritage item to the north to alleviate the disproportionate scale, provide 'breathing space' for the heritage items and allow some sun access, refer to Figure 8. The podium and tower are set back allowing approximately a 10m separation between the tower and the heritage items. Other site specific measures, including tower separation are expected to be resolved as part of the preparation of a site specific DCP and the design excellence process.

- **View lines**

  A revised urban design report was submitted on 15 May 2016, refer to **Appendix 1.** The report includes a series of indicative view lines to O'Connell Street, Hunter Street and Macquarie Street. This information demonstrates the proposed built

form will not impede the views to the heritage item for motorists or pedestrians travelling along O'Connell Street.

However, Figure 7 provides an indicative view of the heritage item from an eastern perspective down Hunter Street, which shows the subject site in brown will protrude beyond the heritage item. As a result, the item would be obscured from a west facing perspective. It is anticipated that specific controls that mitigate the impacts of the future built form, particularly in relation to podium and tower setbacks, be addressed in a site specific DCP to mitigate impacts on the heritage item.

Figure 7 Indicative view looking east from Hunter Street (Source: Architectus)

- **Setbacks**

The location of Tower 1 (refer to Figure 8 below) will result in overshadowing impacts on the heritage item. A site specific DCP provision detailing the exact setback requirements of Tower 1 to O'Connell Street will assist in mitigating this impact.

- **Podium**

The proposed built form as presented in the urban design report represents the future backdrop to the Travellers' Rest Inn Group. The contrasting scale of the proposed form compared to the heritage item is a matter requiring further attention. It is to be expected that heritage items will be of a contrasting scale in an emerging CBD environment. The plaza located directly north of the heritage item will assist

in easing the contrast of the adjoining sites. To mitigate this contrast further it is recommended through the design excellence process that the relationship of the heritage item to the podium of Tower 1 is addressed in the design brief focusing on height, location and setbacks.

Urban Design

The Planning Proposal is informed by an urban design report prepared by Architectus. The report includes an analysis of the site, its context and existing controls. The report further assesses built form options in terms of solar access, view impacts and compliance with the Apartment Design Guideline. Option 1 is Council's preferred option. The following are key details of the urban design report, some of which require a site specific DCP to resolve outstanding issues with the revised reference design.

- **Floor plates**

The reference design shows a floor plate of "Tower 2" is 460m², which is smaller than the typical floor plate of existing residential towers in Parramatta. There is concern that Tower 2 is not economically viable in the short to medium term, and as a result the applicant may in future seek to transfer the FSR within the proposed Tower 2 to a larger, bulky, single tower form. In endorsing this Proposal, it was resolved that should a Gateway Determination be issued that a site specific clause limiting the maximum floor plate or building envelope to of a tower on the site to 800m² be applied to the site.

- **Setbacks**

The site is located within Area B of the Park Edge Highly Sensitive Area. Parramatta DCP 2011 requires a 6 metre tower setback from the street frontage. The site has three street frontages. The revised reference design demonstrates a tower setback of 4 metres to O'Connell Street and 6 metres to Church and Macquarie Street. It is considered that an approach to tower setbacks for all street frontages that is consistent with Council's DCP can be resolved as part of the design excellence process.

- **Tower separation**

The urban design study dated 15 May 2016 demonstrates that a dual tower form is capable of achieving a distance separation of 24 metres between the towers, and 12 metres separation between the subject site and future building envelopes to the adjoining lots to the east can be achieved. This distance allows for an unconstrained built form that should achieve compliance with the Apartment Design Guidelines, and result in higher quality living conditions for future residents.

- **Plaza**

The revised urban design study demonstrates the boundary of Tower 1 sits on the edge of the public plaza (refer to Figure 8). This will impact on the usability of the plaza limiting solar access, accentuating wind impacts and reducing the amenity of the space. The details of the plaza and the relationship of the plaza to the tower and heritage item needs to be further investigated. This can be undertaken as part of the design excellence process.

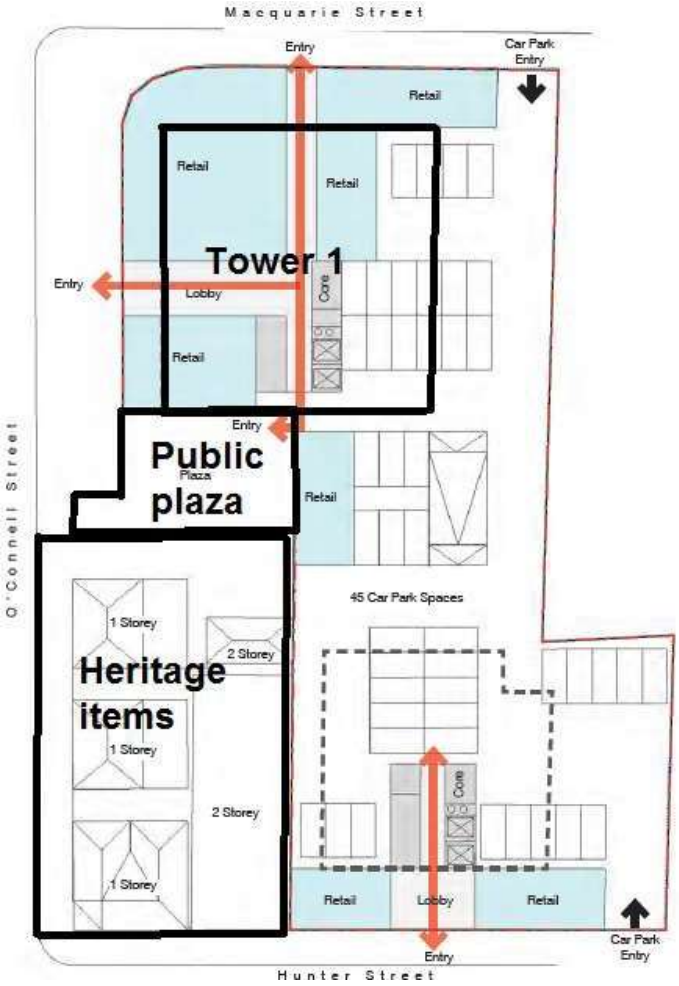

Figure 8 Location of public plaza, tower 1 and heritage items (Source: Architectus)

Flooding

A small portion of the site is affected by 1 in 100 and 1 in 20 Average Recurrence Interval (ARI) events, see Figures 9 and 10. The flooding is limited to the centre of the site. The site is substantially impacted by a Probable Maximum Flood (PMF) event, refer to Figure 10.

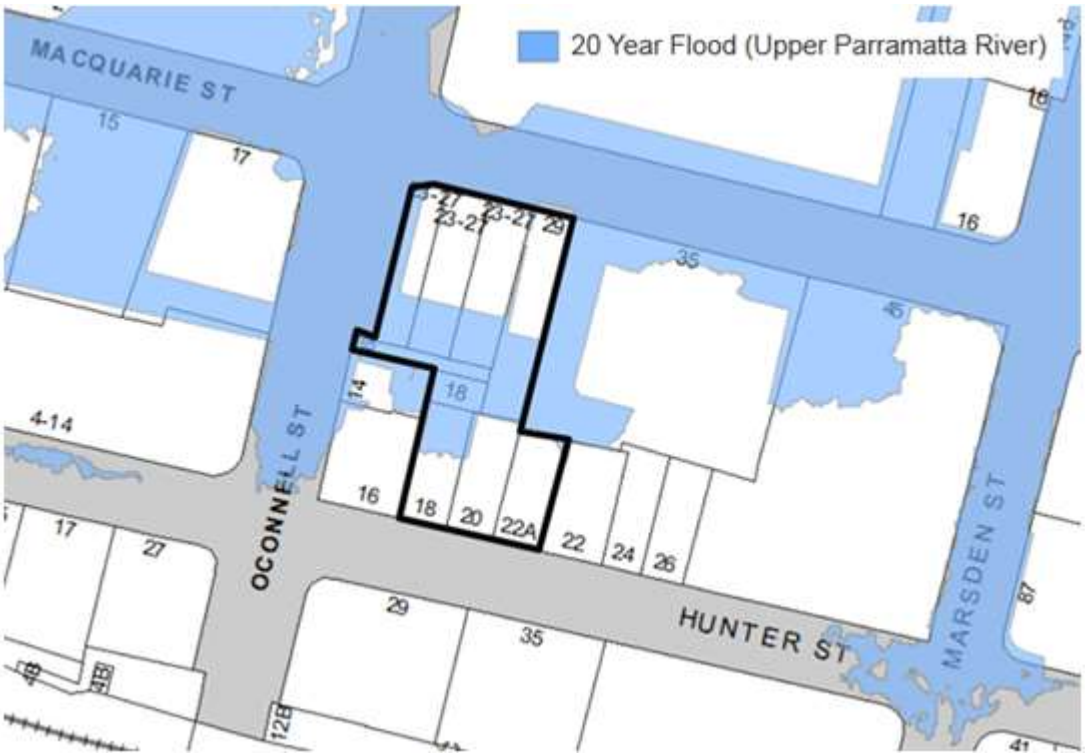

Figure 9 Flooding map, 20 year flood (Source: Council's GID mapping)

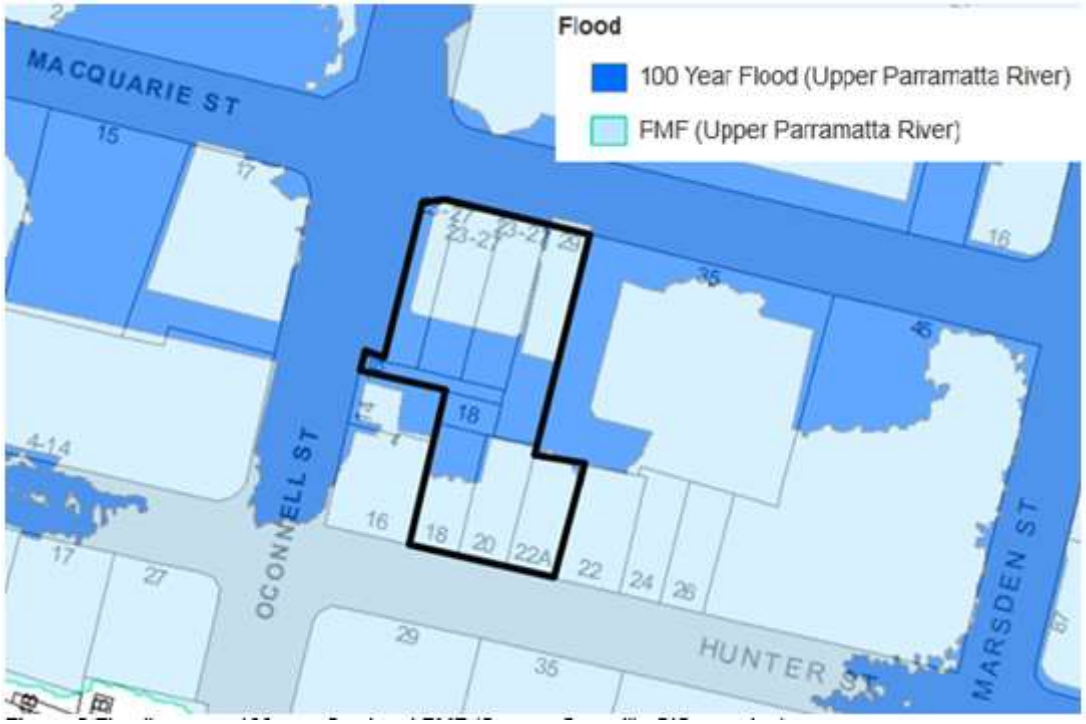

Figure 10 Flooding map, 100 year flood and probable maximum flood (Source: Council's GIS mapping)

A flood statement prepared by HKMA Engineers was submitted alongside the applicant's planning proposal (refer to **Appendix 3**). This statement addresses 117 Direction 4.3 Flood Prone Land.

The planning proposal is informed by the flood statement and outlines the methods which will be incorporated into the detailed design of the building to ensure awareness, safety and access in the event of a flood. The proponent will be required to submit details of these design features and evacuation measures as part of the development application process.

As part of the planning proposal process this level of detail is considered appropriate for the level of flooding that applies to the subject site. The Proposal has been reviewed by Council's catchment management team and they are satisfied the relevant Section 117 Direction is addressed.

Transport and Accessibility

The Planning Proposal is informed by a traffic and transport assessment prepared by Varga Traffic Planning (refer to **Appendix 2**). The planning proposal was endorsed with the following comments:

- The development proposal is in keeping with the maximum parking rate that applies to the site under PLEP 2011.
- Entry to the car park will be via two new entry/exit driveways located on Macquarie Street and Hunter Street, leading to a basement car park and four levels of sleeved podium parking.
- The proposed development will not have any unacceptable traffic implications in terms of road network capacity.

The assessment finds that the proposal is acceptable regarding traffic, transport and parking.

3.3.3 How has the planning proposal adequately addressed any social and economic effects?

There is adequate justification for this planning proposal, which will facilitate an increase in density of housing and employment.

The renewed commercial components of the development will contribute to providing the daily needs for the increased residential population whilst activating the streetscape with vibrant retail uses.

The dominant residential use will deliver a range of housing options located in close proximity to public transport, employment and community facilities.

3.4 Section D – State and Commonwealth Interests

3.4.1 Is there adequate public infrastructure for the planning proposal?

The area is well serviced with public infrastructure that can facilitate the density increase proposed as part of this planning proposal. The subject site is approximately 600m walking distance from Parramatta Railway Station/Bus terminal and 200m from Parramatta Park.

3.4.2 What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

Under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999, development that is likely to have a significant impact on the world and national heritage values of the OGHD must be referred by the applicant to the Commonwealth Government Department of Environment for approval from the Australian Minister for the Environment. Refer to Section 3.3.2 for a detailed summary of the role of the Commonwealth Department of the Environment and Energy in relation to this Planning Proposal. **Appendix 4** provides a response from the DoEE that states the Commonwealth has no statutory role in the plan making process for local environmental planning instruments.

As the site is identified as Parramatta Archaeological Management Unit 2883, 3189 and 3188, an approval from the Office of Environment and Heritage will be required at the development application stage.

PART 4 – MAPPING

This section contains the mapping for this planning proposal in accordance with the DP&E's guidelines on LEPs and Planning Proposals.

4.1 Existing controls

This section contains map extracts from *PLEP 2011* which illustrate the current controls applying to the site.

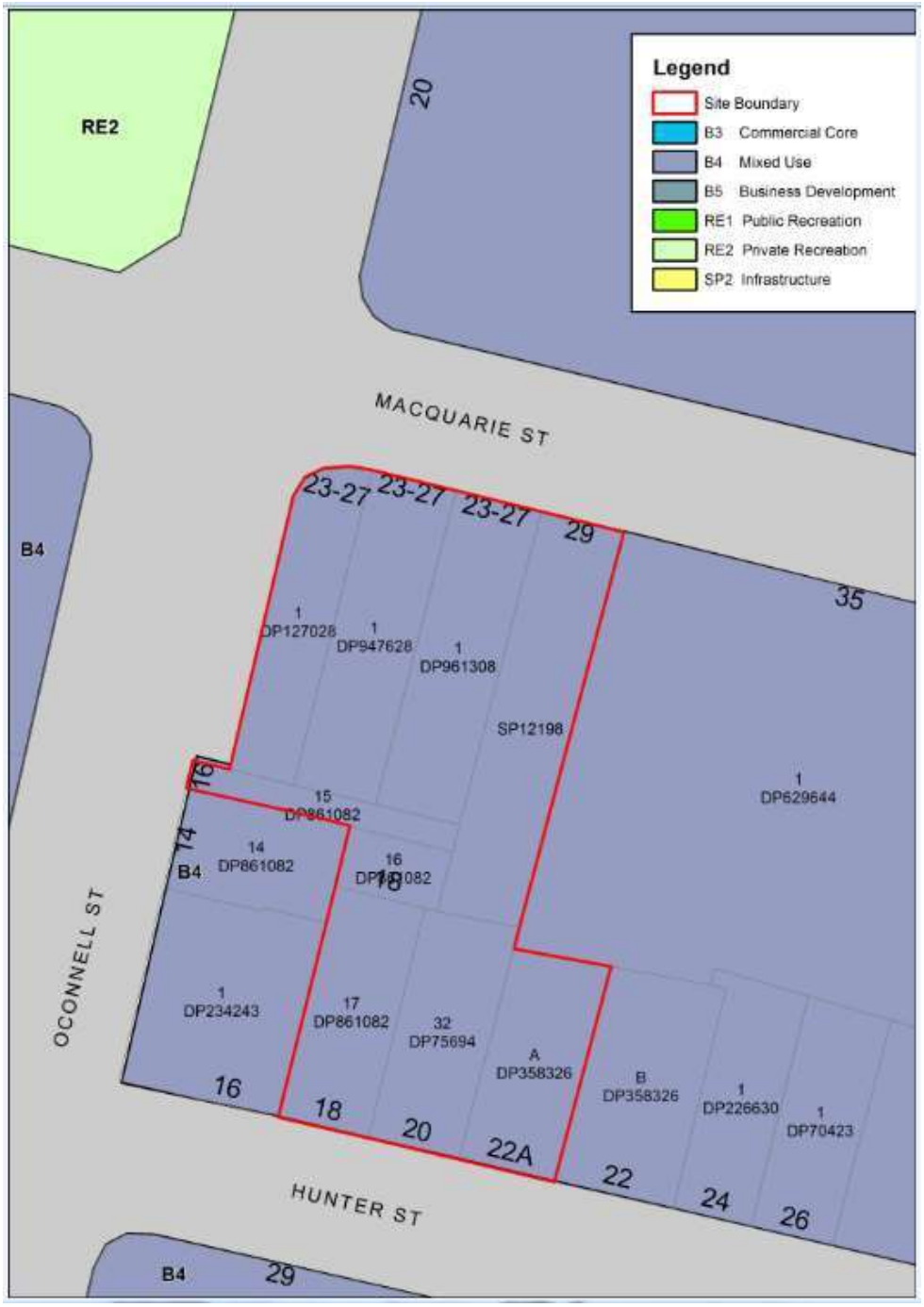

Figure 11 – Existing zoning extracted from the *PLEP 2011* Land Zoning Maps

Figure 11 above illustrates the existing B4 Mixed Use zone over the site.

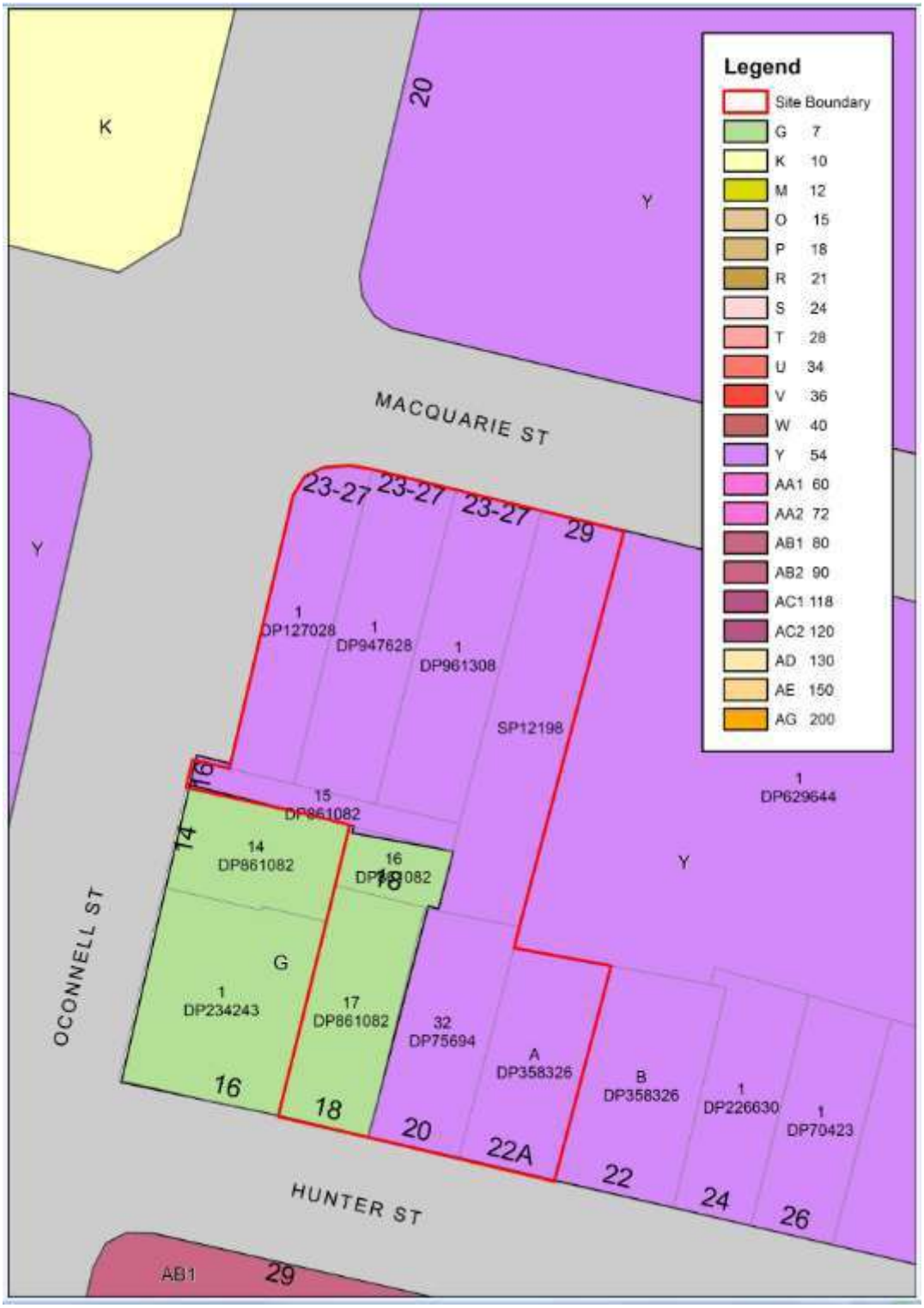

Figure 12 – Existing building heights extracted from the *PLEP 2011* Height of Buildings Maps

Figure 12 above illustrates the existing 7 metre height restriction where the site adjoins heritage items and 54 metre height applying to the remainder of the site.

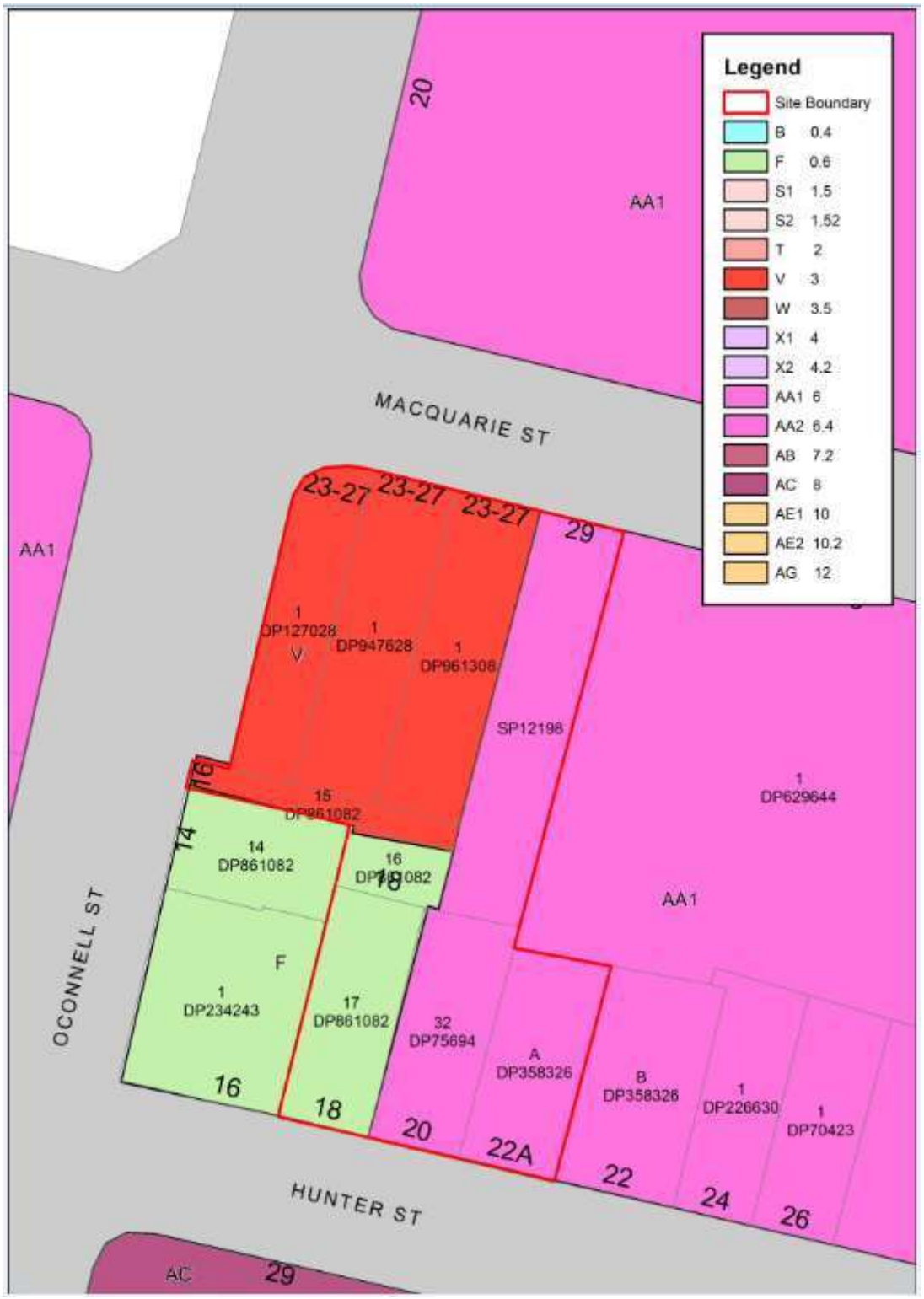

Figure 13 – Existing floor space ratio extracted from the *PLEP 2011* Floor Space Ratio Map

Figure 13 above illustrates the existing FSR of 0.6:1, 3:1 and 6:1 which applies to the site.

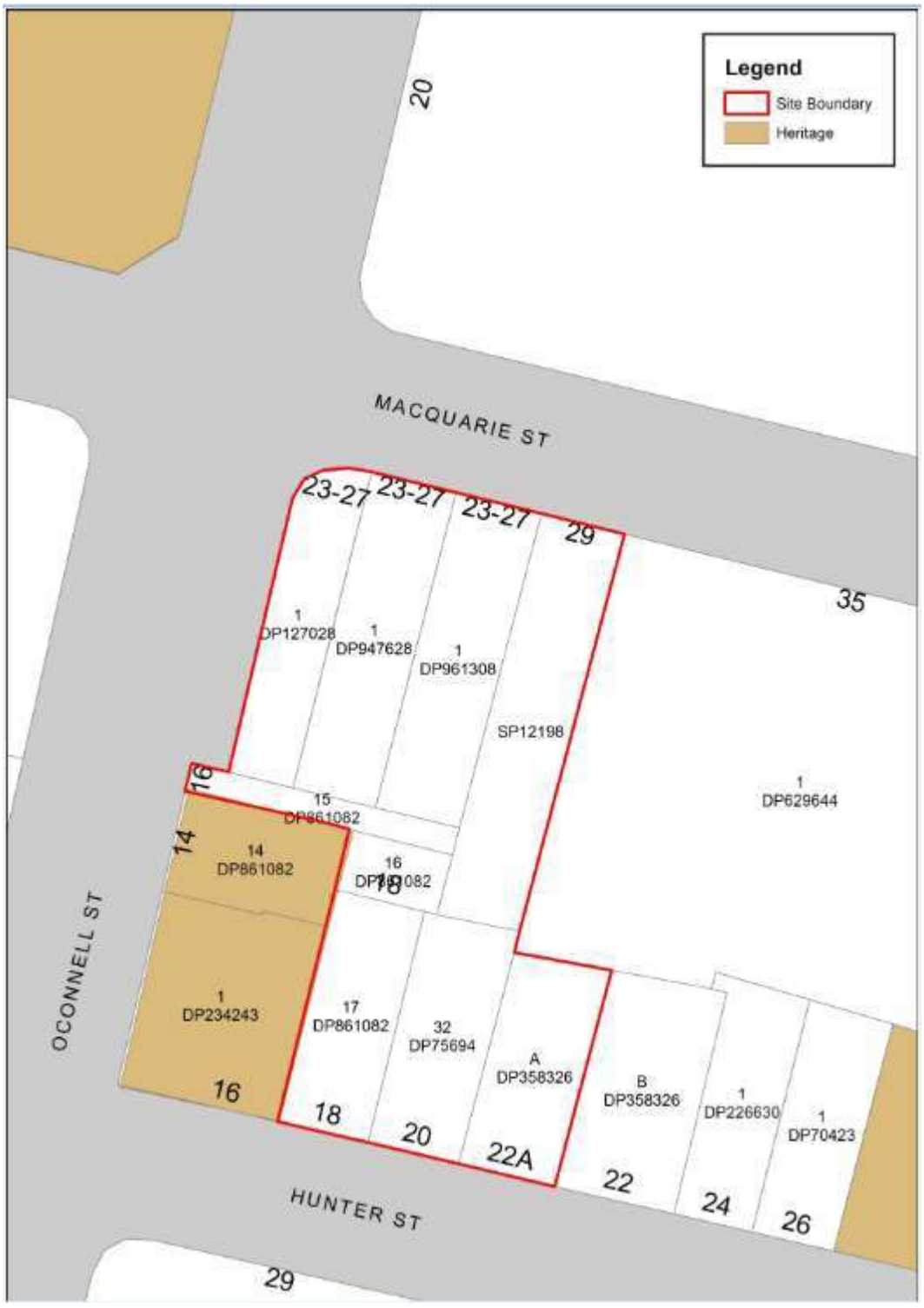

Figure 14 – Existing heritage items extracted from the *PLEP 2011* Heritage Maps

Figure 14 above illustrates the heritage sites adjoining the site.

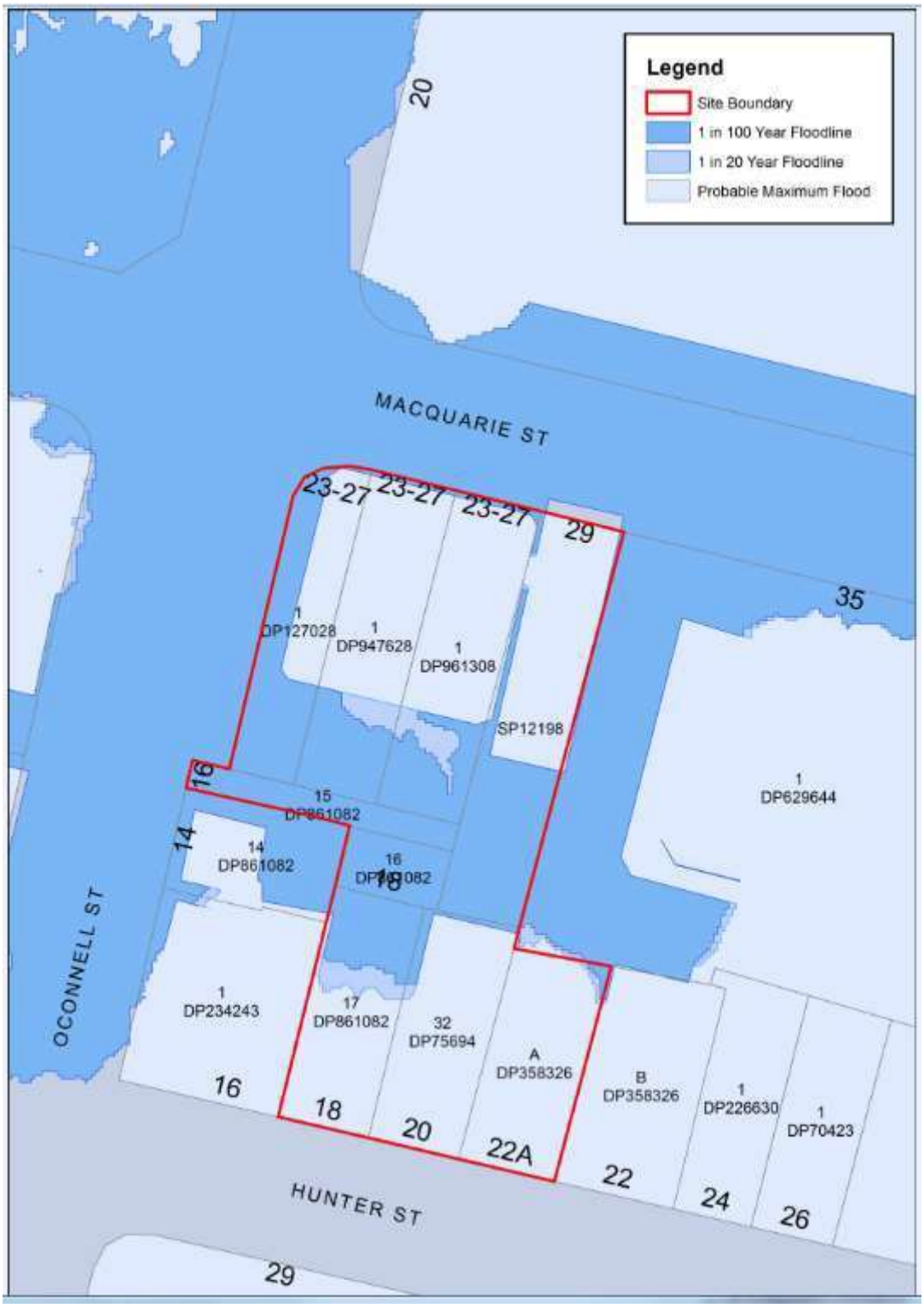

Figure 15 – Existing flooding extant extracted from the *PLEP 2011* Flooding Maps

Figure 15 above illustrates the flooding extent in the vicinity of the site.

4.2 Proposed controls

The figures in this section (Figures 8 and 9) illustrate the proposed building height and floor space ratio controls sought by this Planning Proposal.

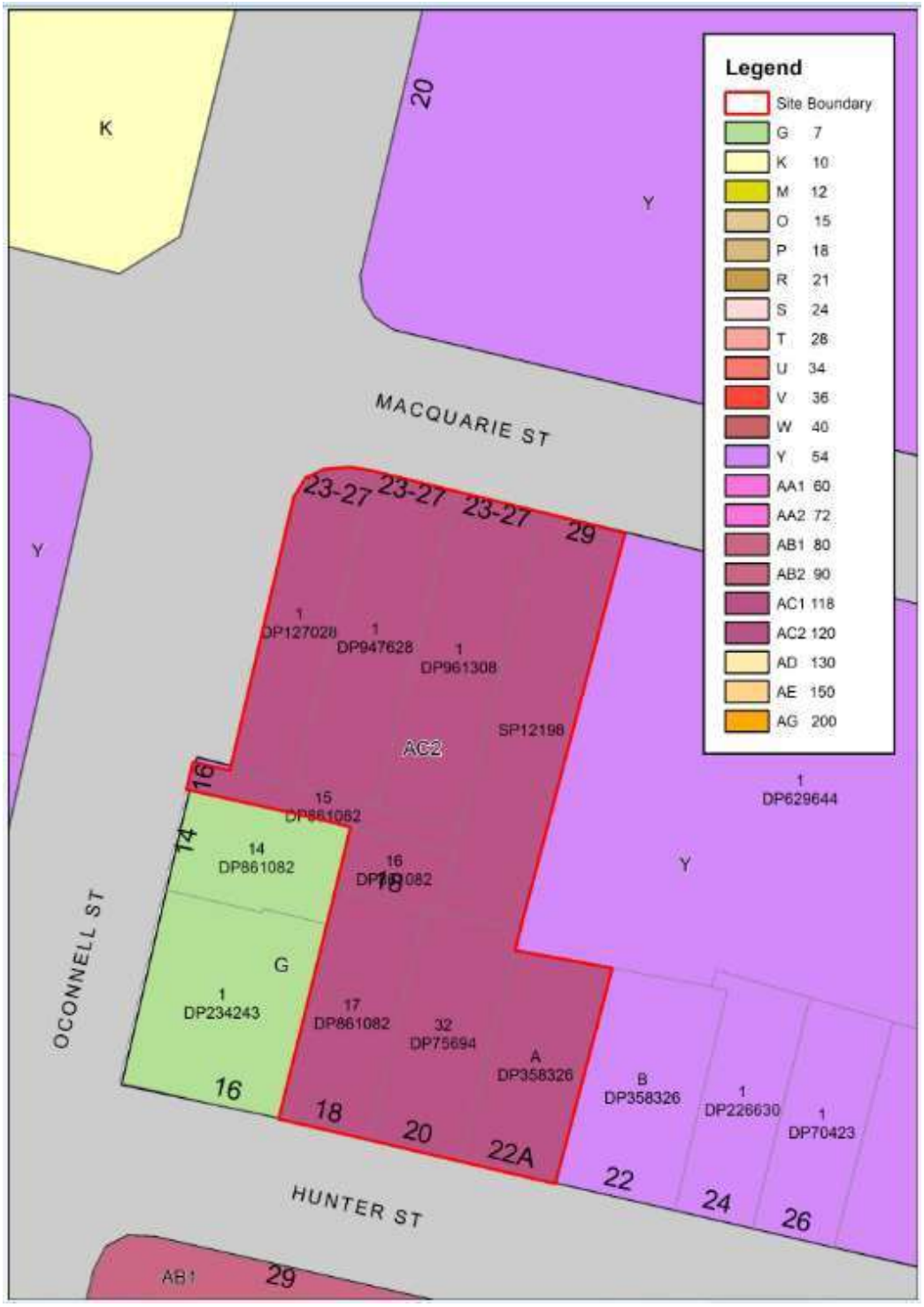

Figure 16 – Proposed amendment to the *PLEP 2011* Height of Building Map

Figure 16 above illustrates proposed maximum building height of 120 metres over the site. The proposed height excludes the additional 15% of GFA that could be achieved through the design excellence process at development application stage.

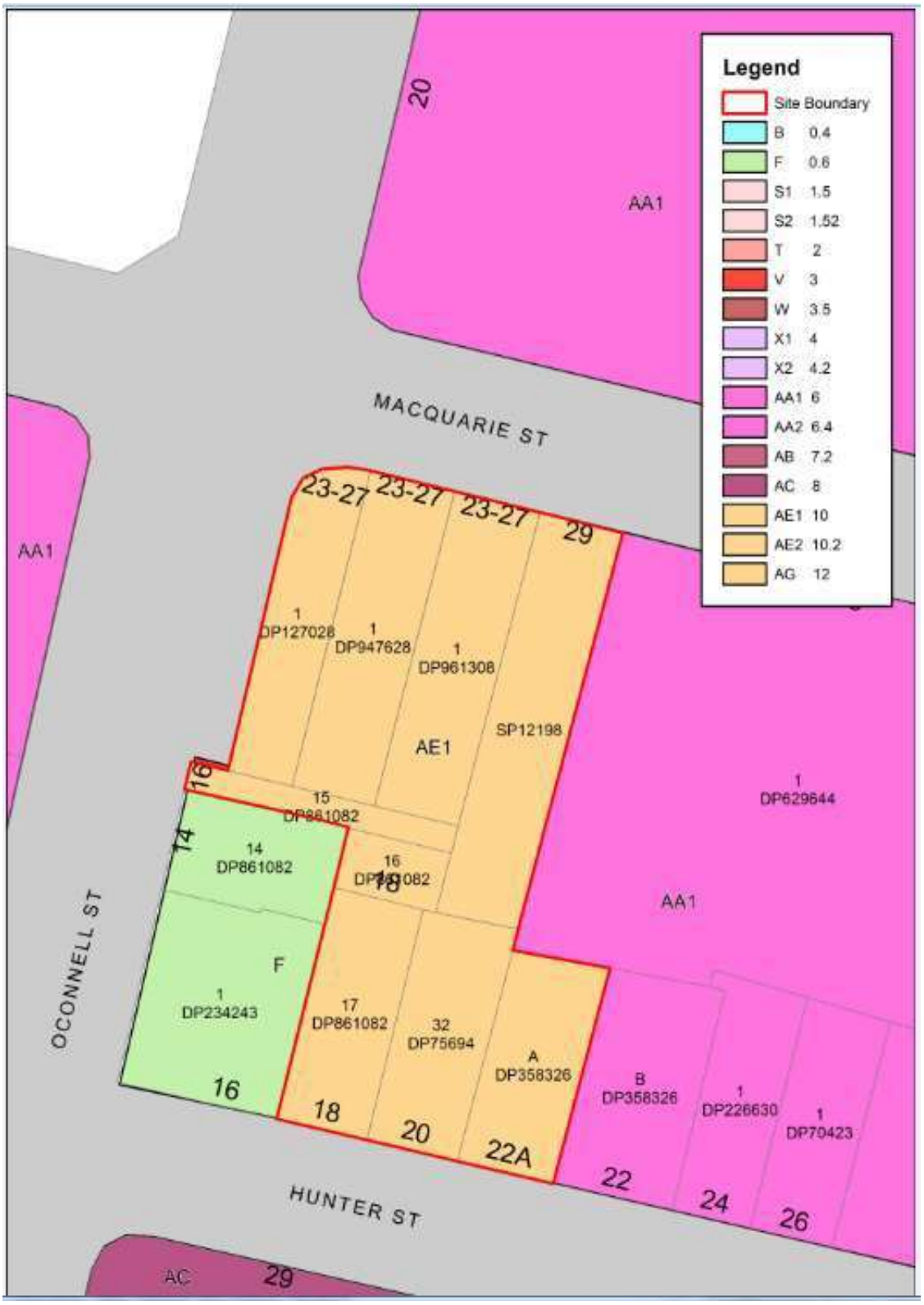

Figure 17 – Proposed amendment to the *PLEP 2011* Floor Space Ratio Map

Figure 17 above illustrates the proposed 10:1 FSR over the site. This excludes the additional 15% of GFA achieved through the design excellence clause at development application stage.

PART 5 – COMMUNITY CONSULTATION

The planning proposal (as revised to comply with the Gateway determination) is to be publicly available for community consultation.

Public exhibition is likely to include:

- newspaper advertisement;
- display on the Council's web-site; and
- written notification to adjoining landowners.

The gateway determination will specify the level of public consultation that must be undertaken in relation to the planning proposal including those with government agencies.

Pursuant to Section 57(8) of the *EP&A Act 1979* the Responsible Planning Authority must consider any submissions made concerning the proposed instrument and the report of any public hearing.

PART 6 – PROJECT TIMELINE

The detail around the project timeline is expected to be prepared following the referral to the Minister for review of the Gateway Determination.

The following steps are anticipated:

- Referral to Minister for a Gateway determination (February 2018)
- Commencement and completion dates for public exhibition period and government agency notification (April 2018)
- Consideration of submissions (May 20118)
- Consideration of proposal post exhibition and reporting to Council (July 2018)
- Submission to the Department to finalise the LEP (August 2018)
- Notification of instrument (October 2018)

Prepared by City of Parramatta

PARRAMATTA WE'RE BUILDING AUSTRALIA'S NEXT GREAT CITY

Appendix 1 – Urban Design Study

architectus™

18 Hunter / 29 Macquarie Street, Parramatta

Urban Design Study

For Planning Proposal

For: Southern Han Parramatta

c/- Caladines Town Planning Pty Ltd

1 Lynbrook Court

Castle Hill NSW 2154

Date: 22/09/2015

Reissued 15/05/2016

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architectus™

Contents

Introduction

Introduction
Overview

Scope

This report addresses the development potential for 18 Hunter Street/ 29 Macquarie Street, Parramatta.

Site Location

The site is well located within the Parramatta City Centre, close to transport, jobs, retail and open space.

– within 600m of Parramatta Station

– within 100m of Parramatta Park and Mays Hill

Key Issues:

– Visual impact of proposed building(s) from Parramatta Park (World Heritage Listed)

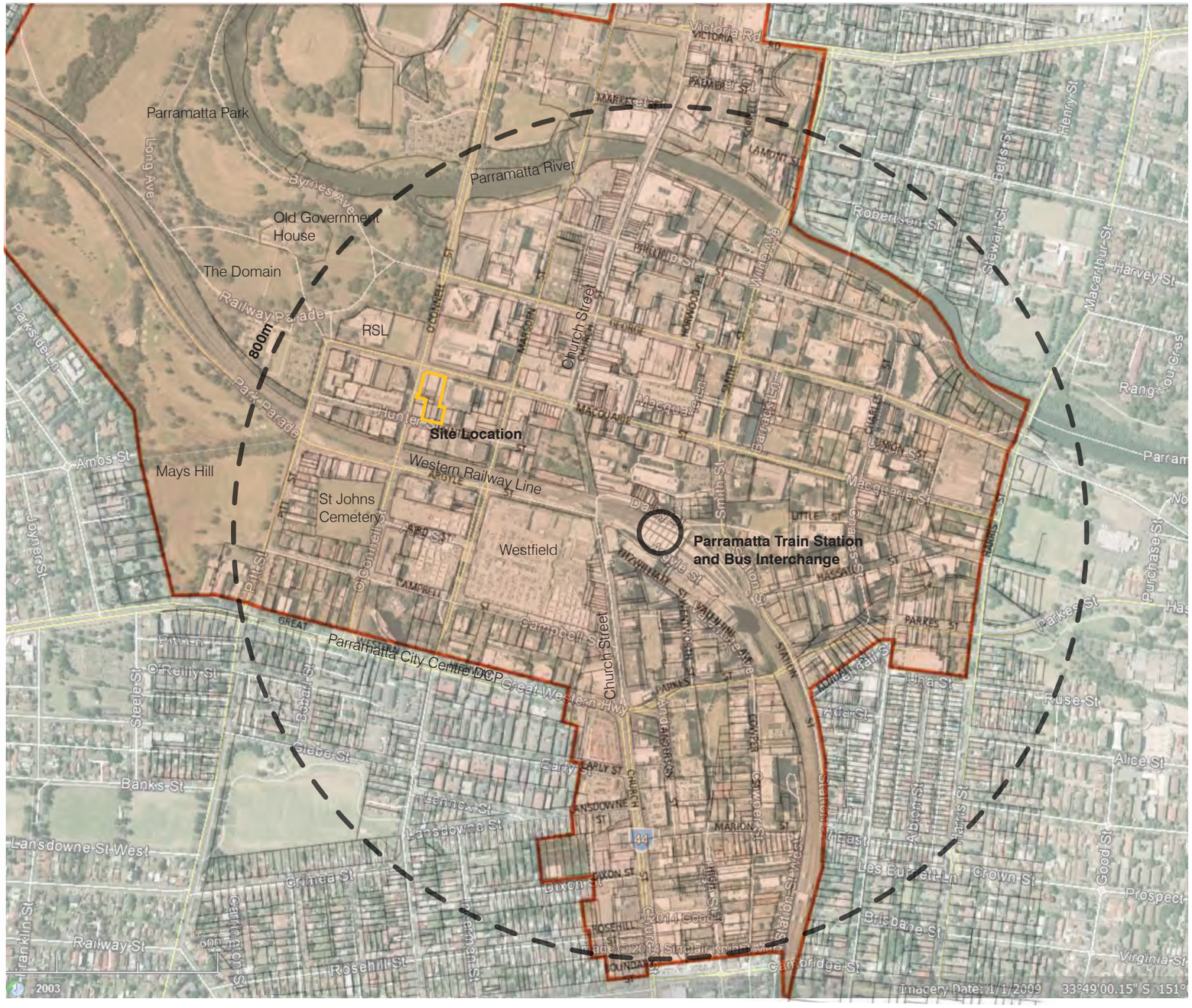
– Neighbouring property to the west is heritage listed

– Site is flood prone so above ground carparking needs to be considered

– Opportunity to review proposed development and consider alternatives

The Proposal

The proposal outlined in this report is for a 4-storey podium with an option for a single residential tower or two lower residential towers. Above-ground car parking is sleeved with retail and residential.



Introduction
Draft Metropolitan Strategy

The Parramatta City Centre is planned as the second largest centre in Sydney after 'Global Sydney' (i.e. Central Sydney and North Sydney) in the Draft Metropolitan Strategy. It is the alternative CBD for Sydney.

Planned growth for metropolitan Sydney comprises:

– 545,000 new houses across Sydney by 2031

– 625,000 new jobs across Sydney by 2031

of which for the West Central and North West sub region targets are:

– 148,000 new houses; and

– 142,000 new jobs

The Parramatta City Centre is the main centre for this growth.

Parramatta as described within the Draft Metropolitan Strategy

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

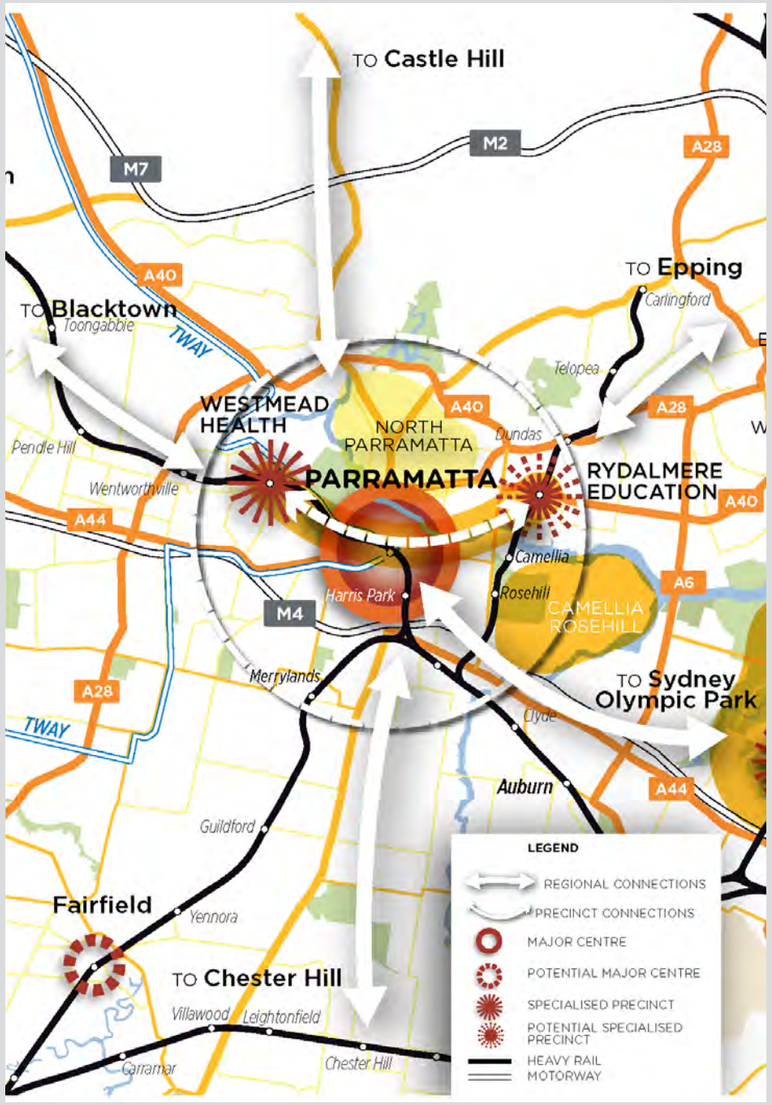
Parramatta is anticipated to be the fastest growing centre outside Global Sydney over the next 20 years.

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

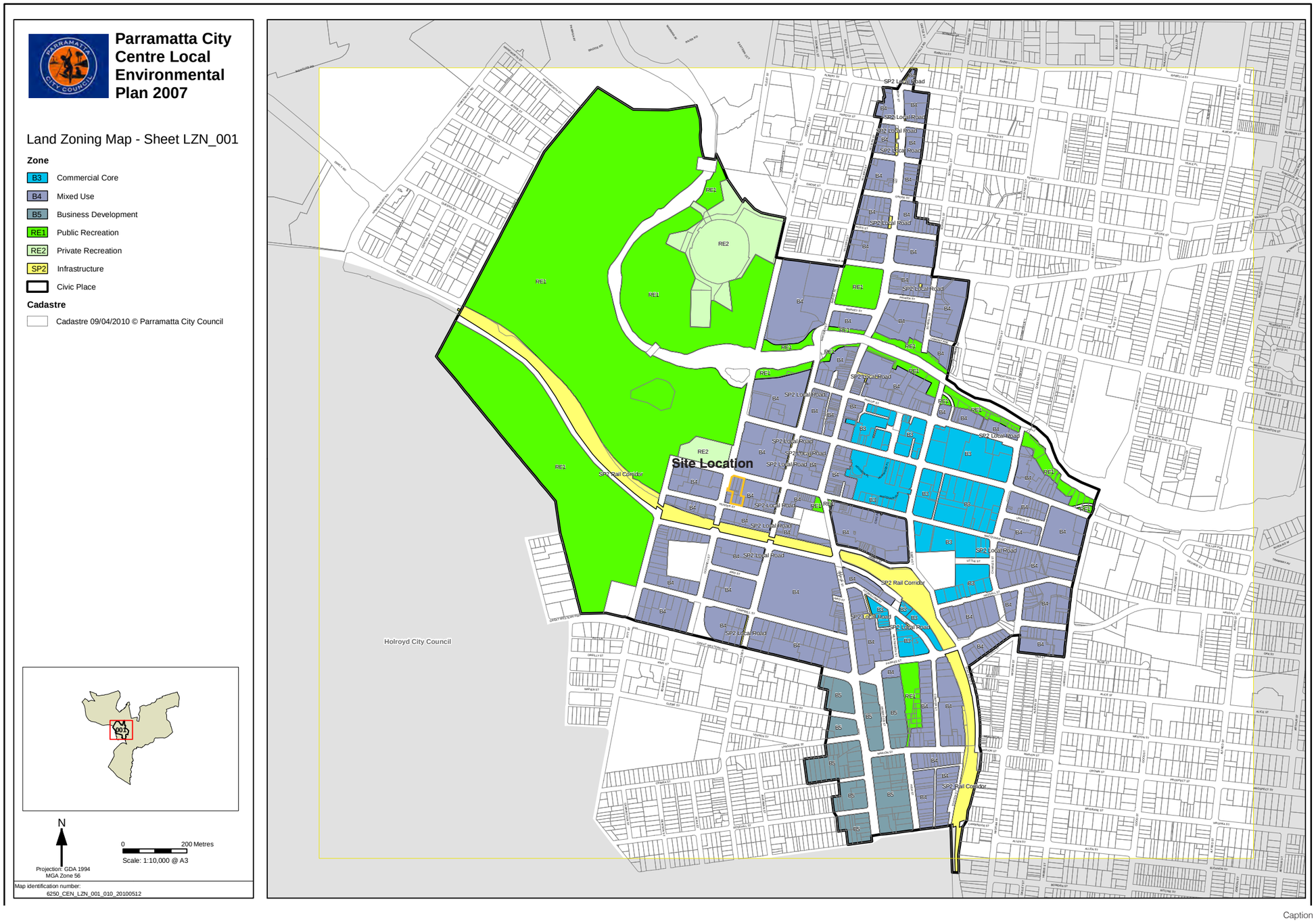
- *create an additional 21,000 new jobs in Parramatta City Centre and support opportunities for economic clustering by extending the commercial core*
- *provide a further 7,000 new jobs at Westmead and capitalise on the employment and research benefits as Sydney's largest health precinct*
- *develop 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.*



Existing Planning Controls
LEP Land Use Zoning

Existing Land Use Zoning

- The site and street block is currently zoned B4 Mixed Use
- The site is not located within the commercial core area of Parramatta CBD and the lot dimensions do not allow for marketable large commercial floor plates (typically 1,800m^2).
- The site is suitable for residential development with retail frontage at street level.



Caption

Existing Planning Controls
LEP Floor Space Ratio (FSR)

Site Area

The site has three (3) FSR controls ranging from 0.6:1 adjacent the heritage building to the west, 3.0:1 for the north-west corner, and 6.0:1 for the remainder of the site.

The site area is over 3,000m^2 which means the maximum FSR can be applied.

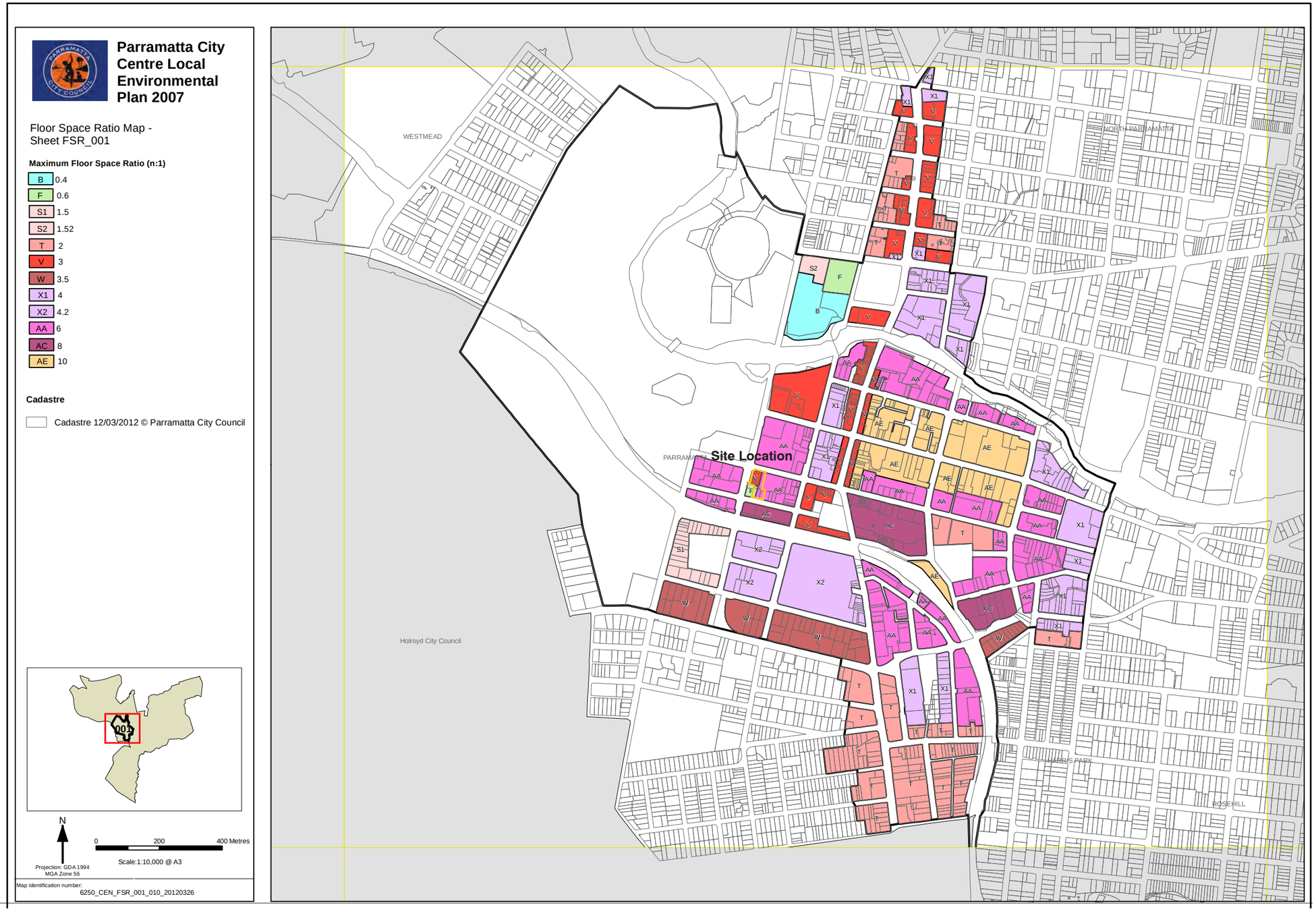
Above ground parking

Proposed above ground car parking provided to meet planning controls is not included in GFA for FSR calculations

Existing FSR

– FSRs for the subject site's street block are the same as to the north, but lower than the block to the east

– There is a mismatch of FSR and Height of Building (HOB) for the subject site - the area nominated FSR 3.0:1 has a HOB of 54m, the same as FSR 6.0:1.



Existing Planning Controls
LEP Height of Building (HOB)

Existing Height of Building

– The site has a maximum building height of 54m (same as the street block), stepping down to 7m adjacent to the heritage building

– A residential tower that is 95m HOB / 30 storeys on the same street block was approved and is under construction (134 Marsden Street).

Parramatta City Centre Local Environmental Plan 2007

Height of Buildings Map - Sheet HOB_001

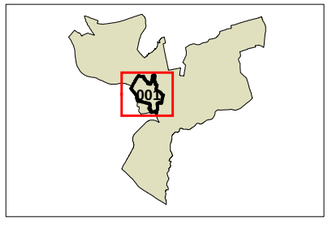
Maximum Building Height (m)

A	0
G	7
K	10
M	12
O	15
P	18
R	21
S	24
T	28
U	34
V	36
W	40
Y	54
AA1	60
AA2	72
AB	80
AC	120
AG	200

Refer to Cl 29E

Cadastre

Cadastre 12/03/2012 © Parramatta City Council



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0 200 400 Metres

Scale:1:10,000 @ A3

Projection: GDA 1994 MGA Zone 56

Map identification number:
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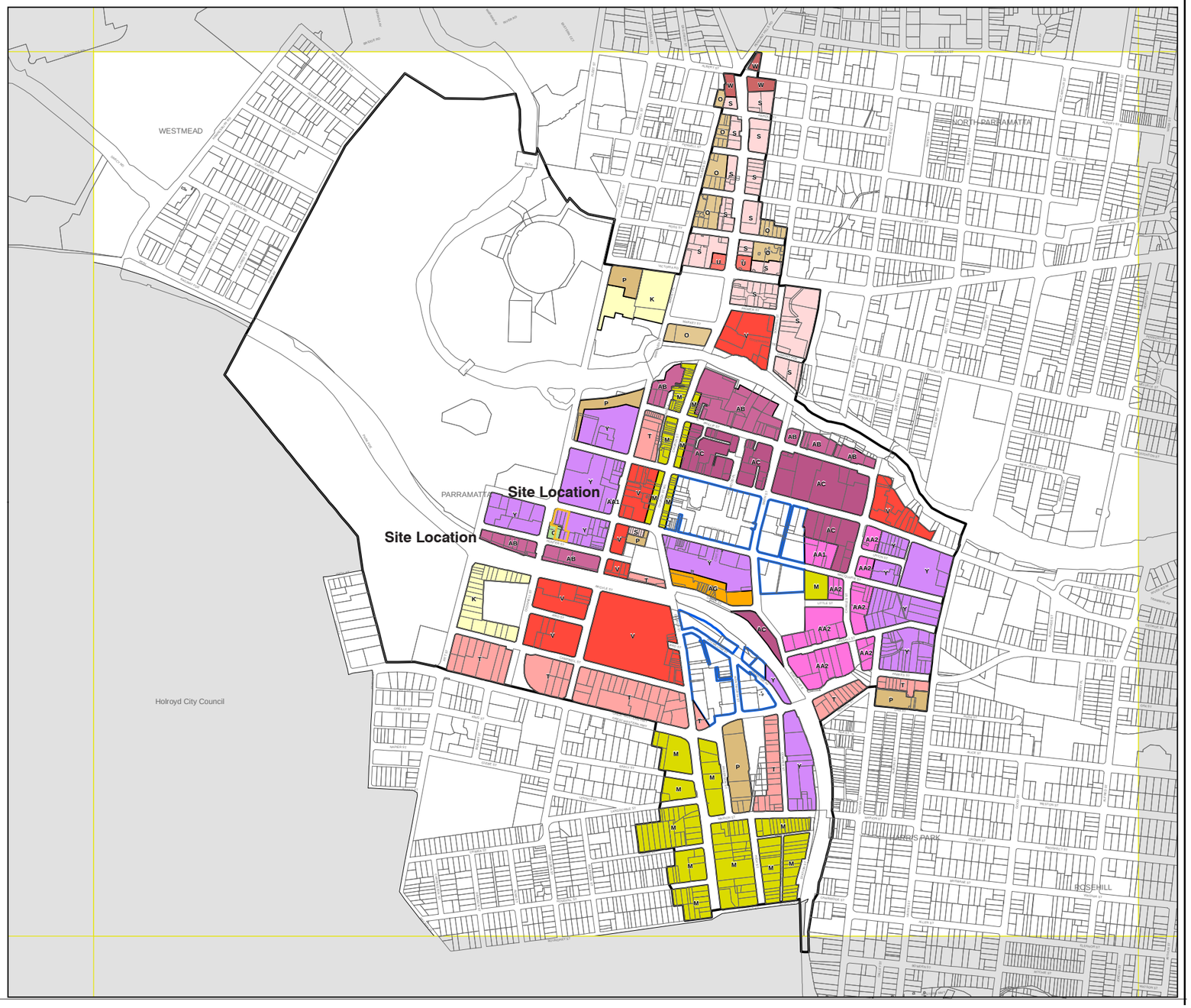


Existing Planning Controls
LEP Heritage

Heritage

– The site is adjacent a heritage item (State) - 14 O'Connell Street Travellers' Rest Inn Group and potential archaeological site

– Parramatta Regional Park (State and World heritage listed) is near to the site.

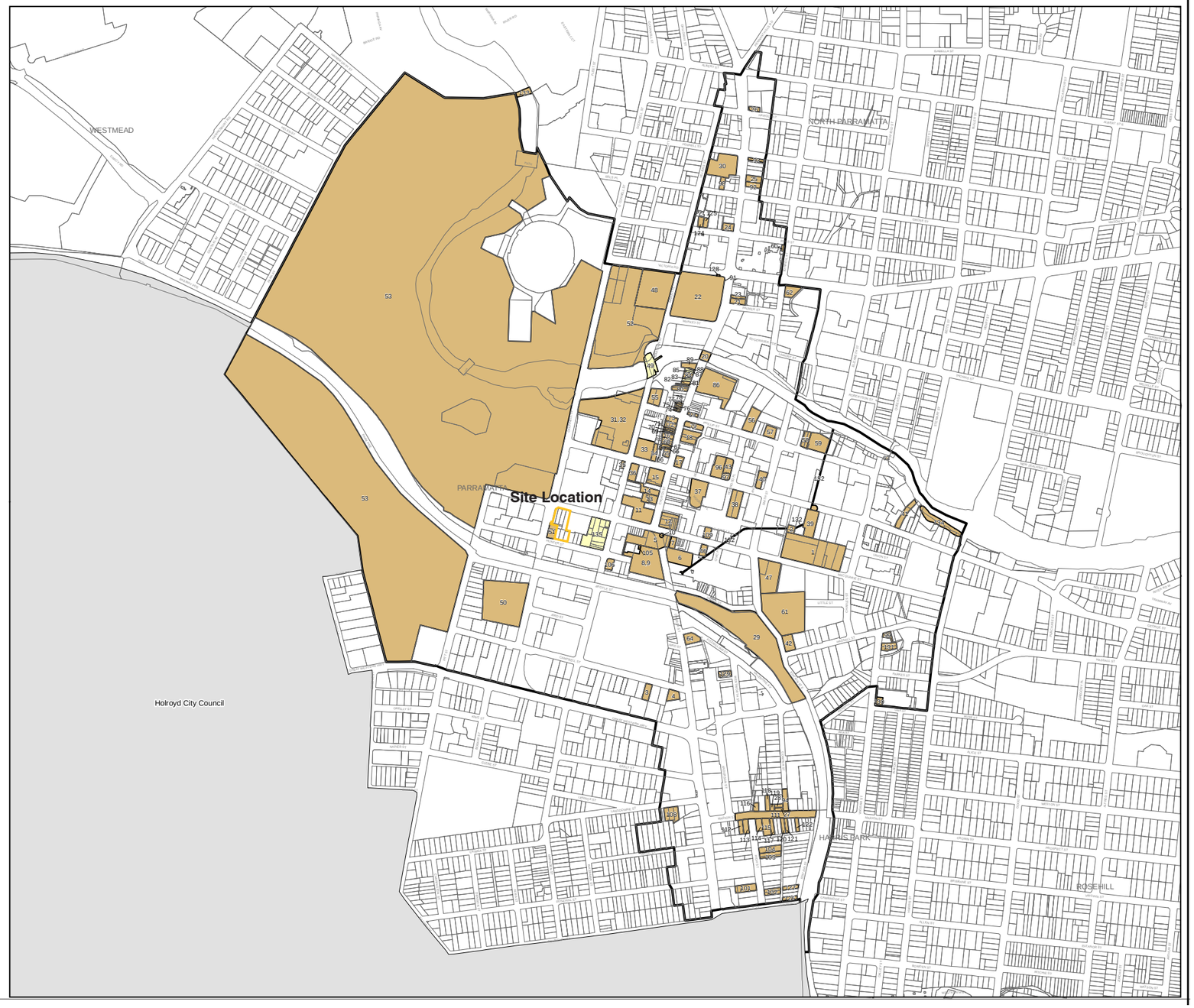
Parramatta City Centre Local Environmental Plan 2007

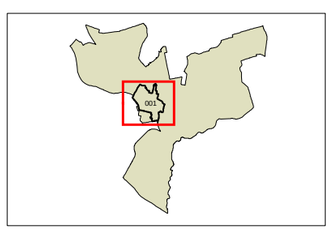
Heritage Map - Sheet HER_001

Item - Archaeological
Item - General

Cadastre

Cadastre 21/06/2013 © Parramatta City Council





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Scale: 1:10,000 @ A3

Projection: GDA 1994
MGA Zone 56

Map Identification Number: 6250_CEN_HER_001_010_20131002

Existing Planning Controls
Visual Sensitivity

Visual Sensitivity

The subject site is located on the edge of the 'Highly Sensitive' zone in 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).

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:

Parramatta City Council has been working with the State and Federal Governments to provide development guidelines for development within the visually sensitive areas of the Parramatta CBD.

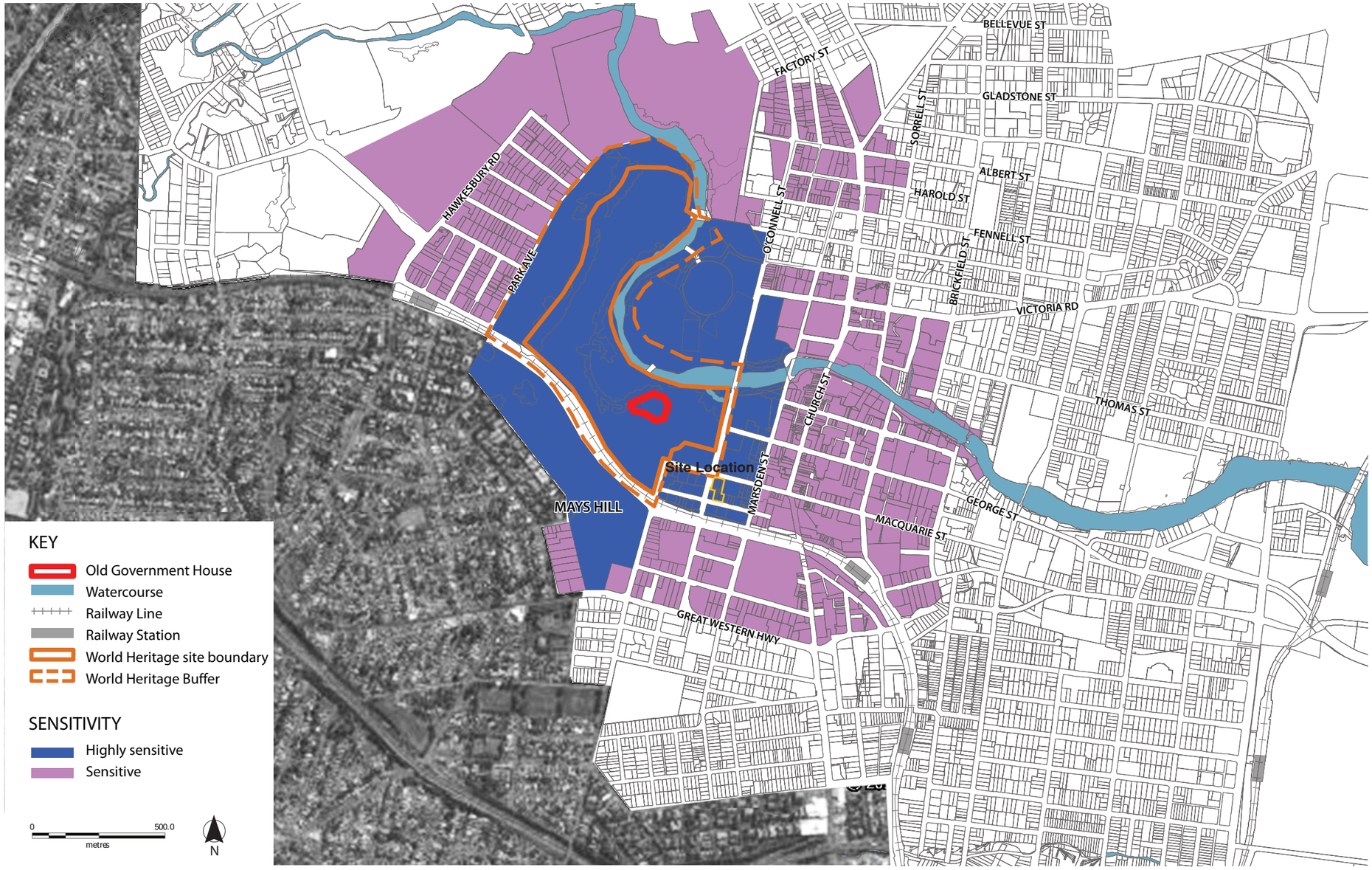
Implications For Proposed Development

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.

(Planisphere, 2012. p.80)

THE AREA OF SENSITIVITY



Existing Planning Controls
Important views

VIEWS RATINGS TABLE

VIEWS	HERITAGE VALUES: 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

(Source: Planisphere, 2012. p.31)

Visual Impact from Parramatta Park

Views and their 'values significance' are nominated in the Planisphere report with potential impact for the subject site are:

High values significance:

View 1: OGH towards the City

View 1a: OGH Courtyard towards the City

View 5: Bath House area to City

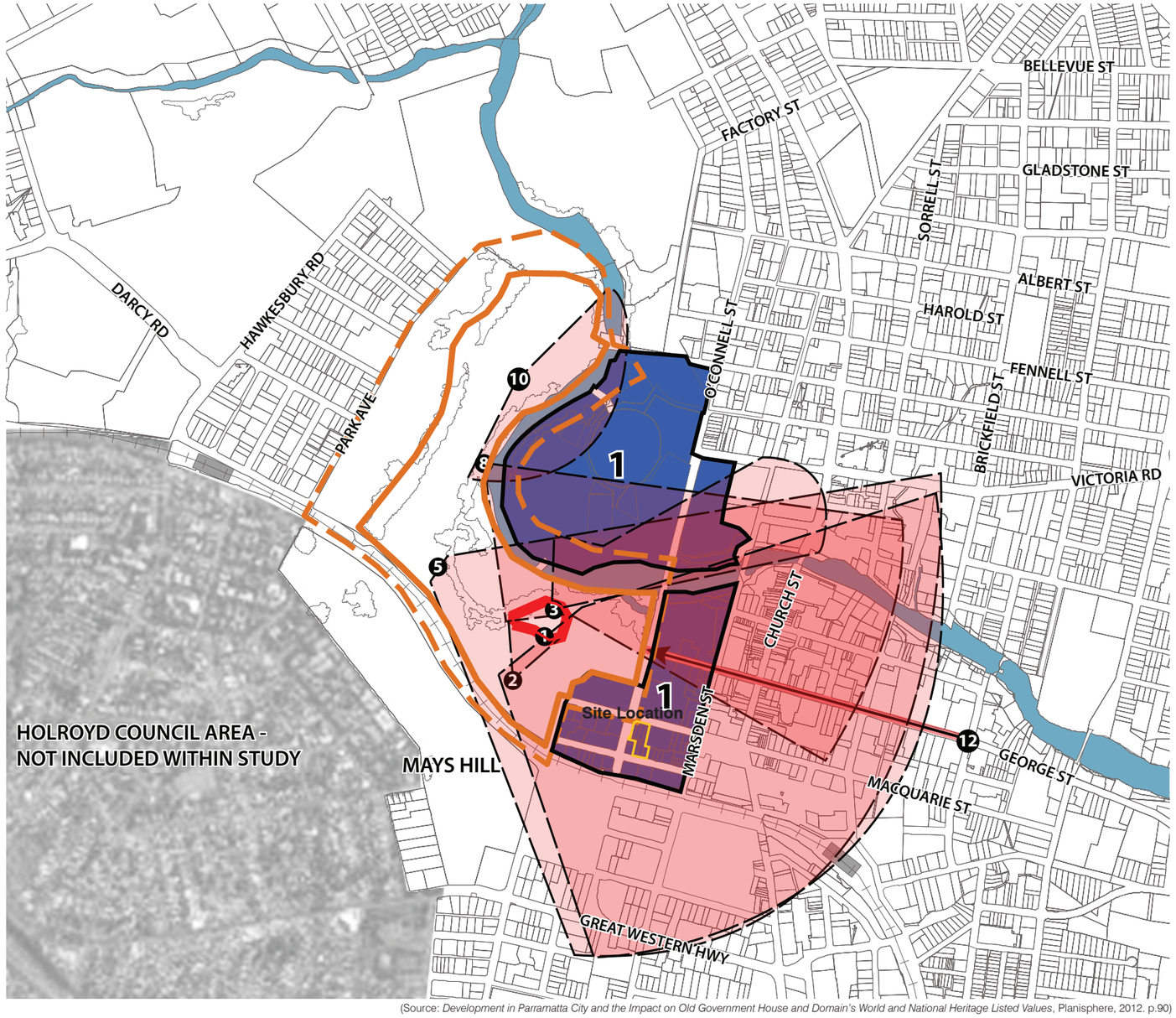
Moderate values signficance:

View 14: Hunter Street

View 16: Mays Hill

More details of the potential impact on key views are discussed in Section 2 - View Analysis.

LOCATION OF IMPORTANT VIEWS



(Source: *Development in Parramatta City and the Impact on Old Government House and Domain's World and National Heritage Listed Values*, Planisphere, 2012. p.90)

Existing Planning Controls
Development Guidelines for Visual Sensitive Area

Development Guidelines for the Highly Sensitive Area ('Park Edge')

Planisphere (2012) recommends the following development guidelines to minimise visual impact of tower development to Parramatta Park:

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')

Planisphere (2012) recommends the following development guidelines to minimise visual impact of tower development to Parramatta Park:

Desirable Future Development Guidelines

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:

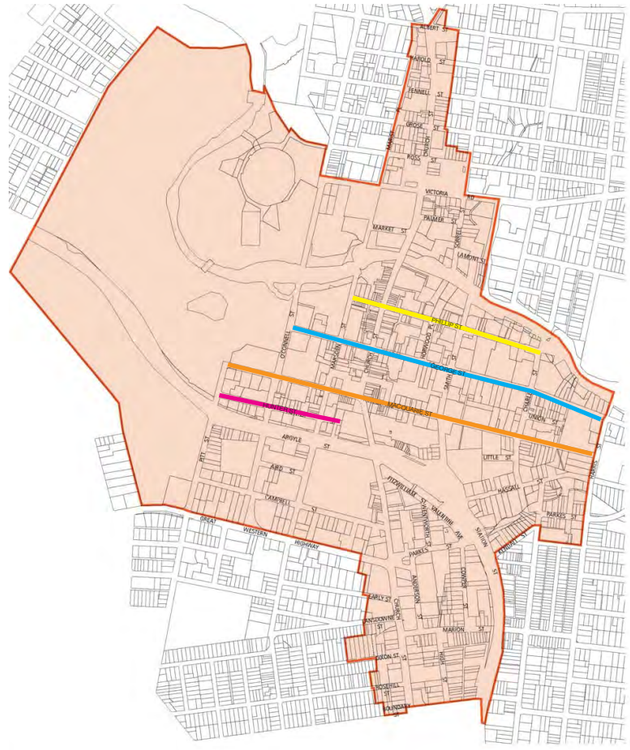
B7.1 consistent setbacks (including consistent front setbacks at street level); and

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.



(Source: Parramatta City Council DCP 2011, pg.2)

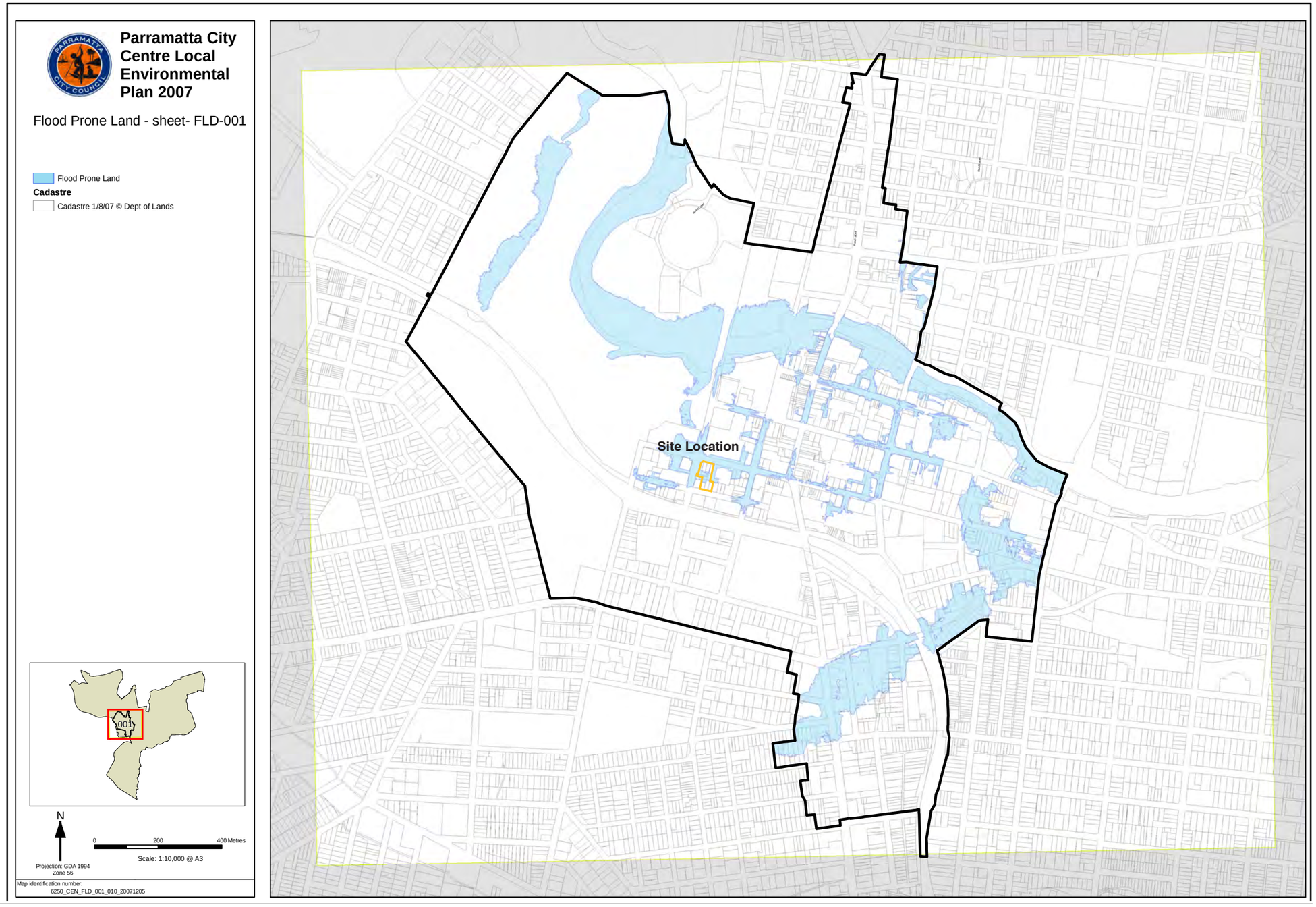
Existing Planning Controls
LEP Flood Prone Land

Flooding

The site is partly within the LEP flood prone land. A more detailed flood study is required to determine actual flood risk.

Car Parking

Above ground car parking needs to be considered given the potential flood risk and the practice by Council to allow above ground parking for flood prone sites.



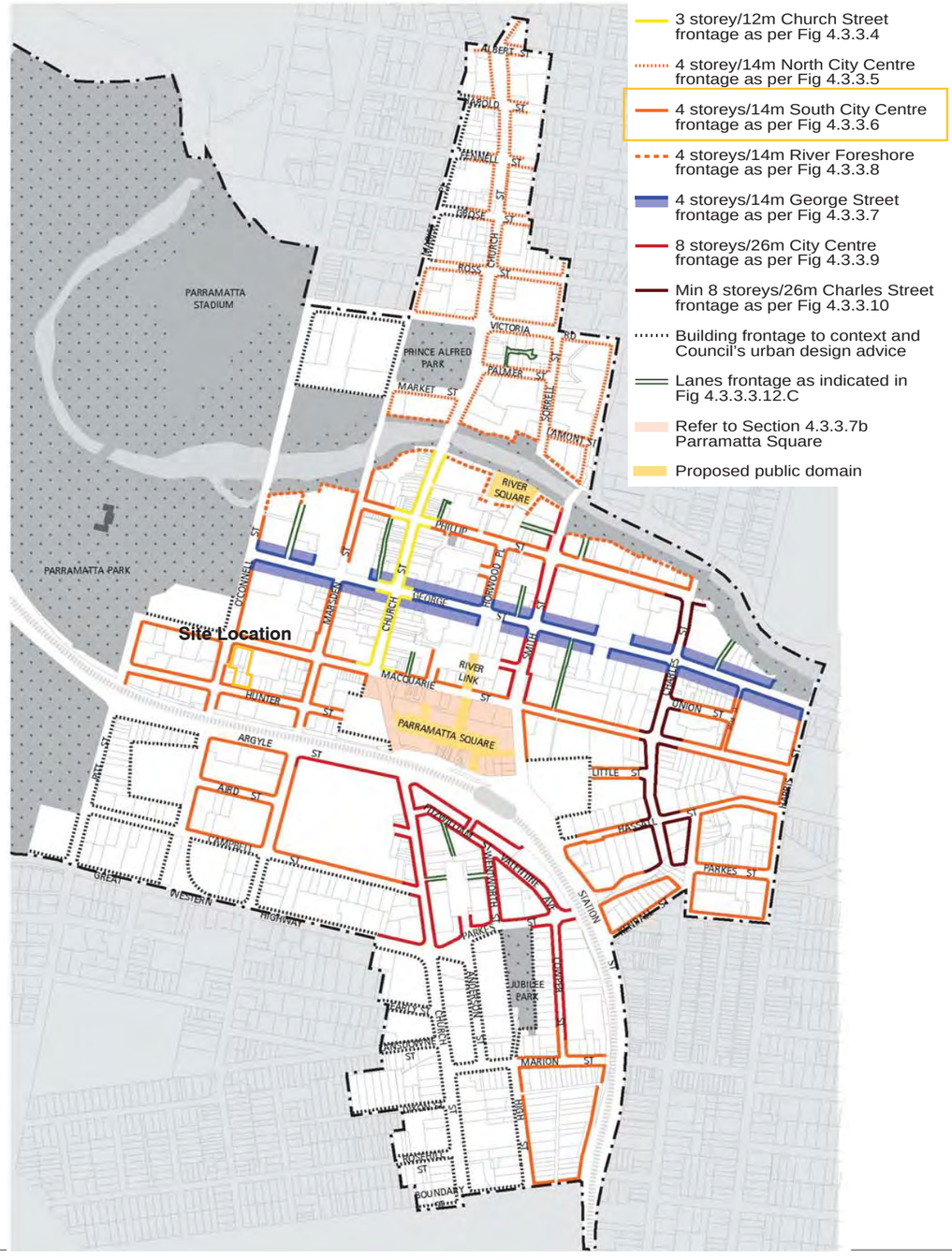
Existing Planning Controls
DCP - Street frontage height

Podium level setbacks

Parramatta DCP requires the following setbacks:

– zero setback for street frontage to 4 storeys / 14m for Hunter Street

– zero setback for side and rear boundaries up to the street frontage height



Existing Planning Controls
DCP - Tower setbacks and podium car park sleeving

Setbacks

For built form above the 4 storey / 14m street frontage height:

– 6m front setback for buildings above the street frontage height

– 6m side setback for non-residential uses

– 12m side setback for residential uses

Podium car park sleeving

– The Parramatta City Centre DCP requires above ground car parking to the sleeved with retail, commercial or residential development

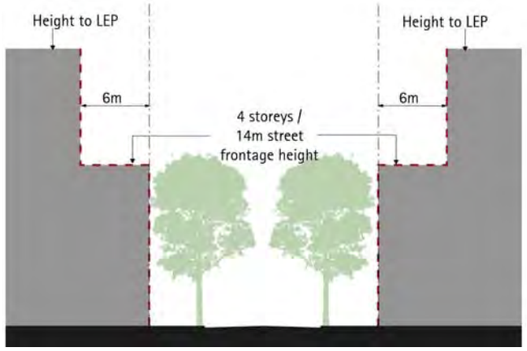
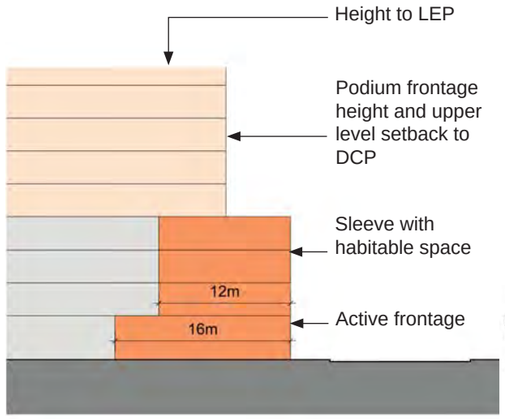
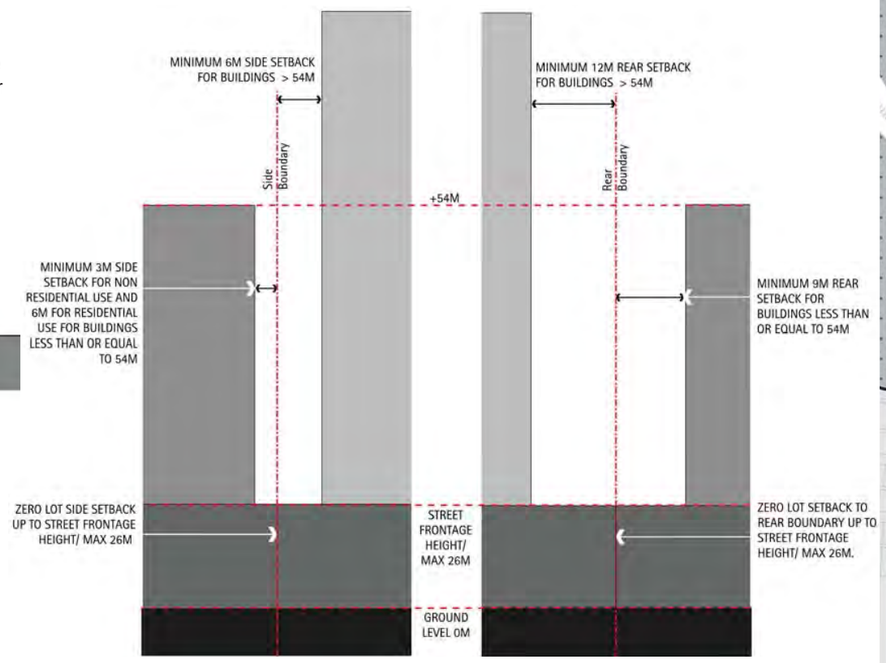


Figure 4.3.3.1.6 City Centre (South)

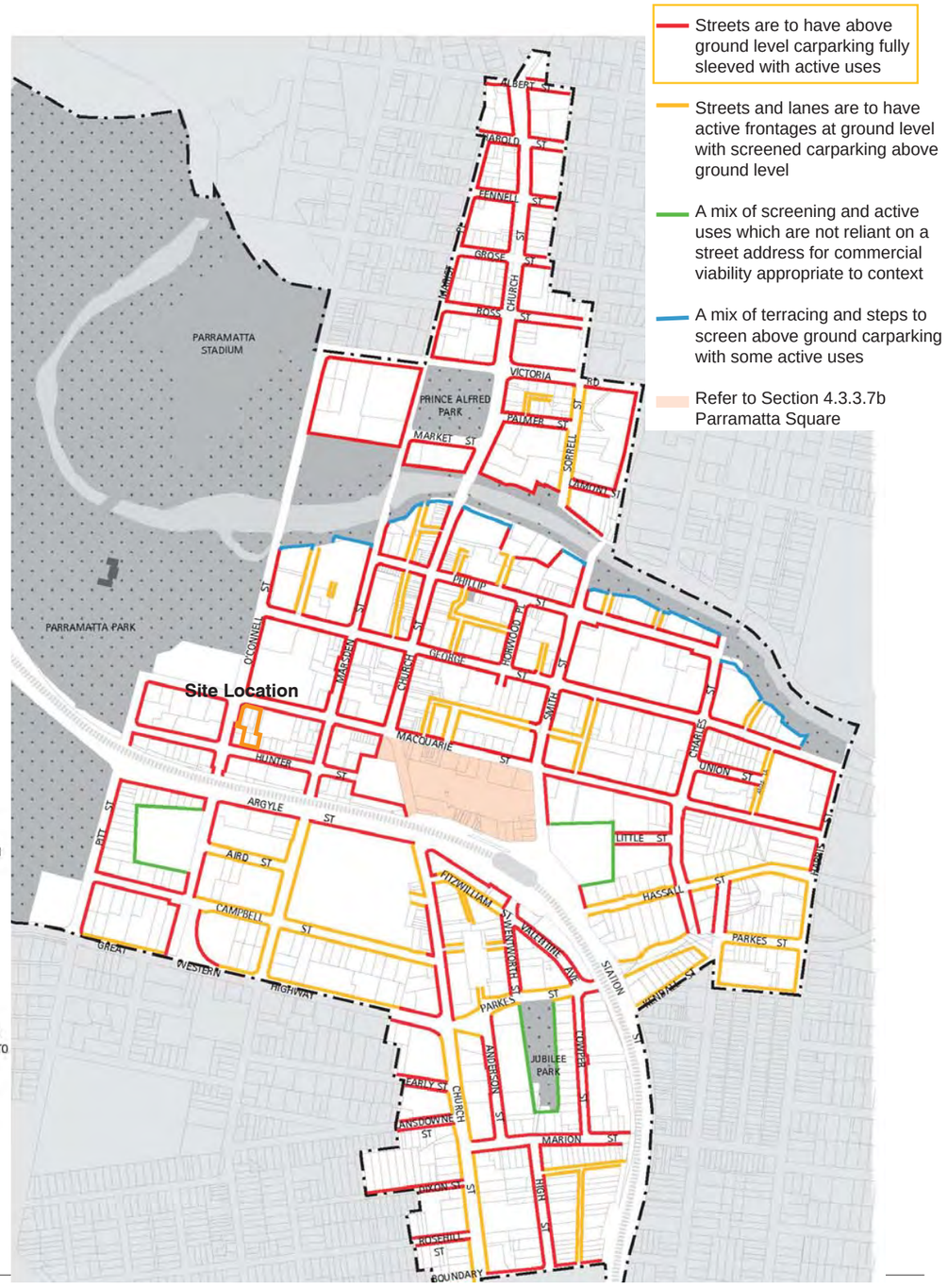


NOTE: 12m is the maximum desirable depth for residential including a circulation corridor. Commercial uses may be greater than 12m deep.



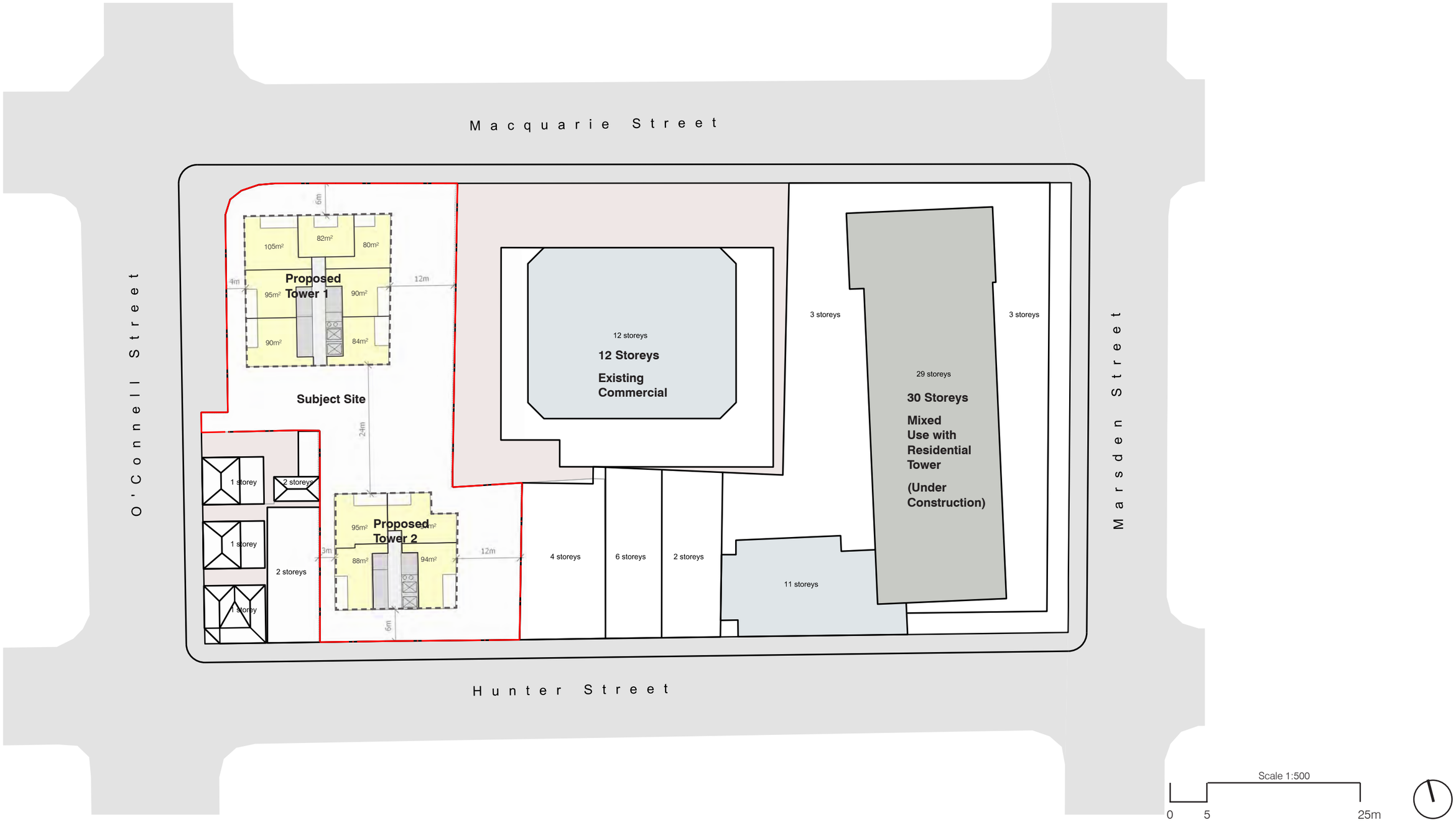
A. SIDE SETBACK

B. REAR SETBACK

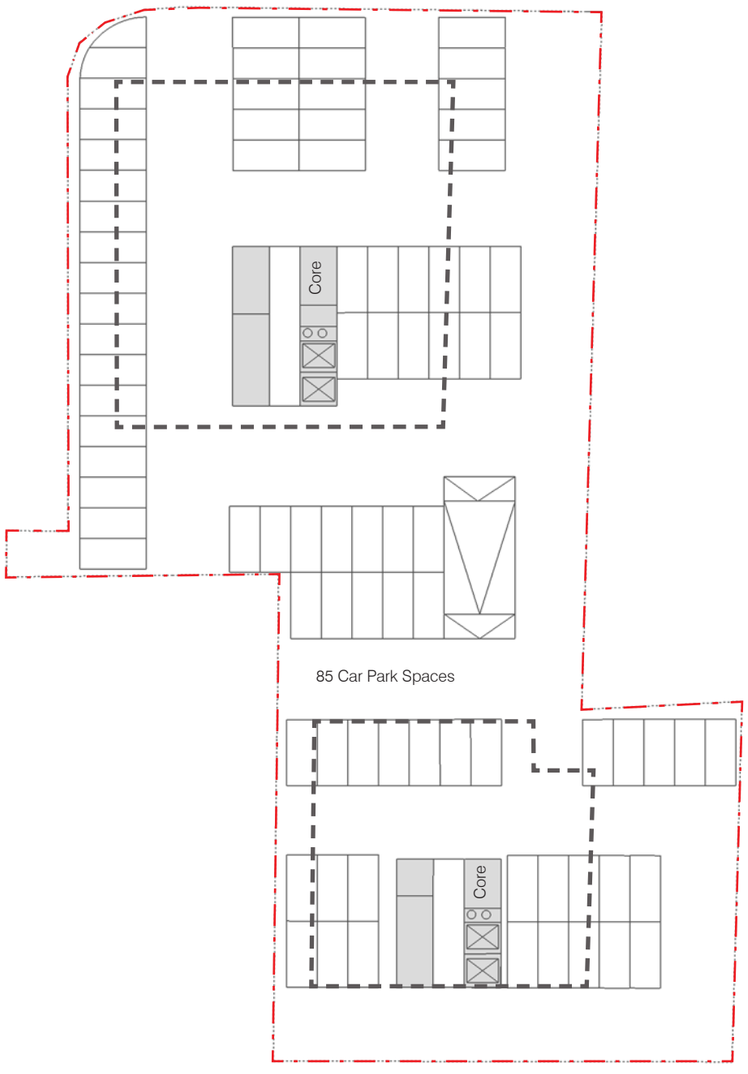


Options

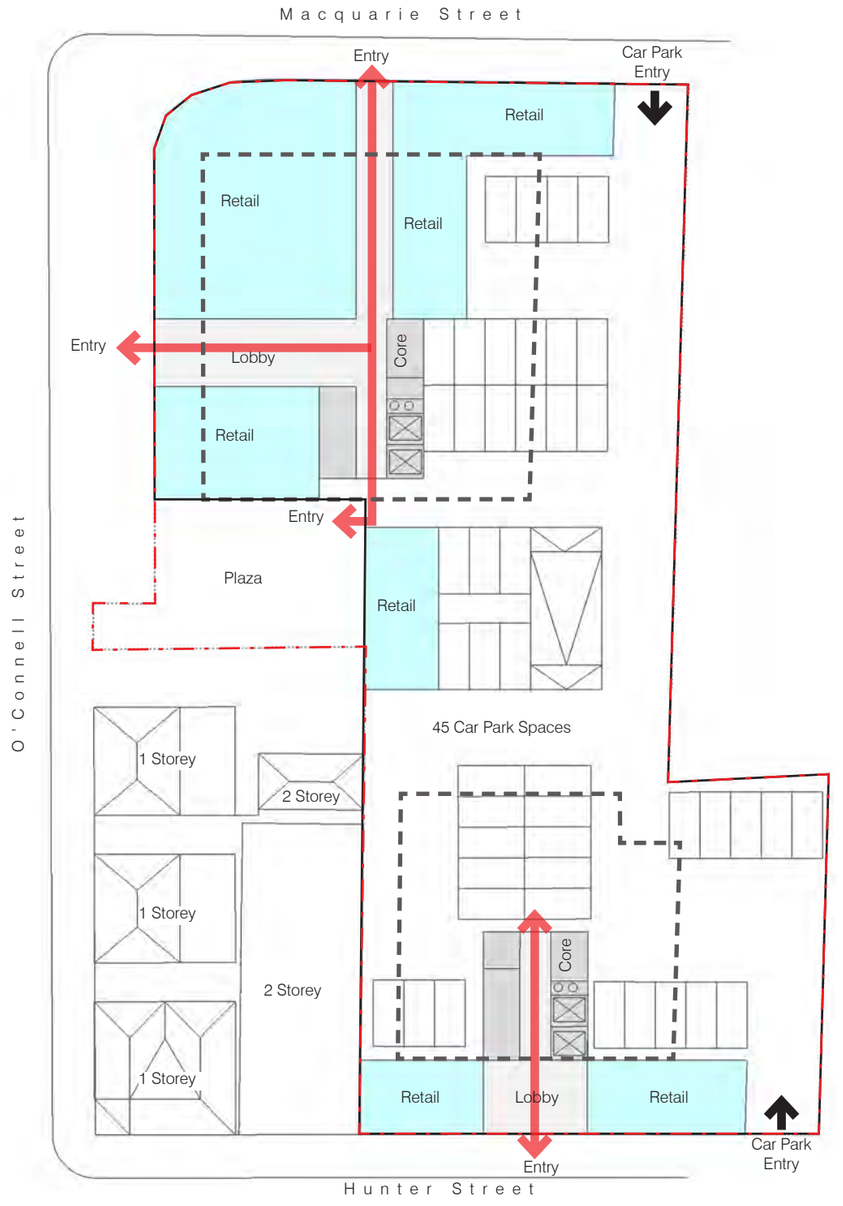
Proposal Option 1
Block Plan



Proposal Option 1
Typical Plans



Basement Parking

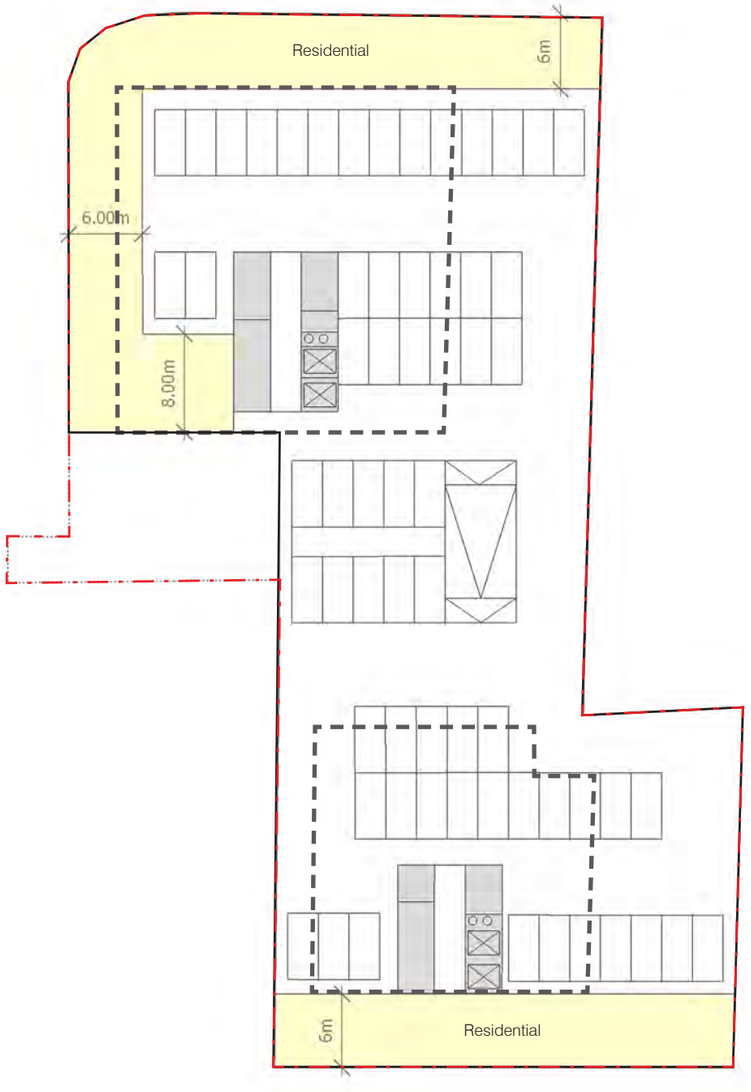


Ground Level with retail sleeving

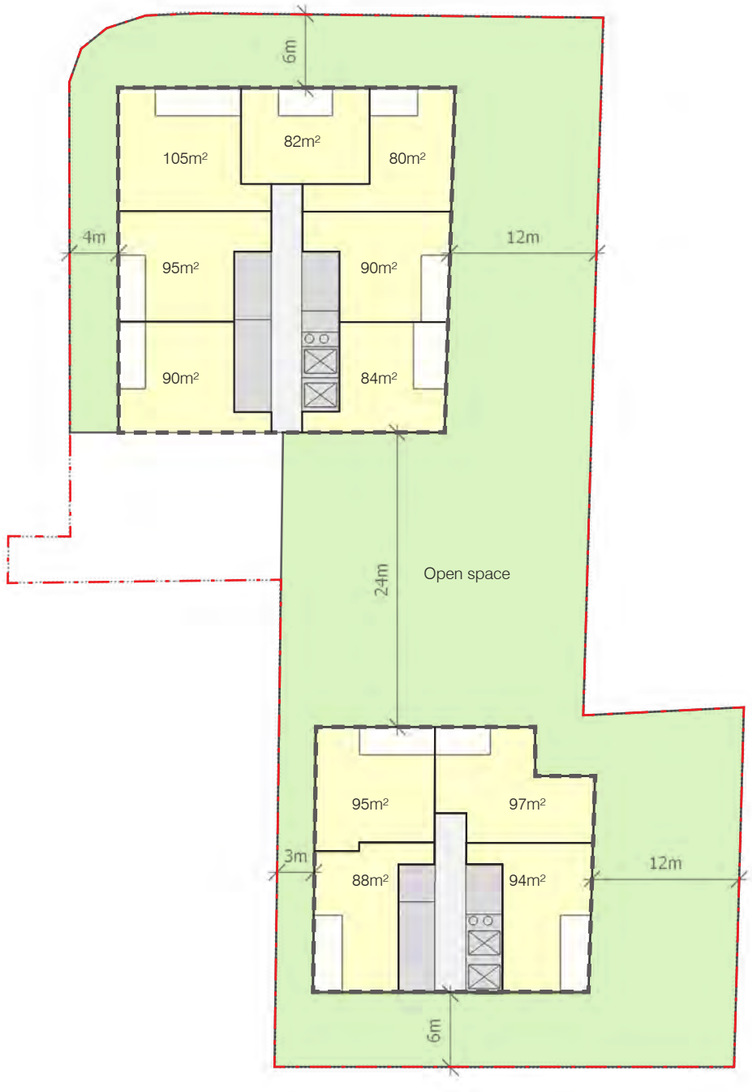
Scale 1:500

0 5 25m

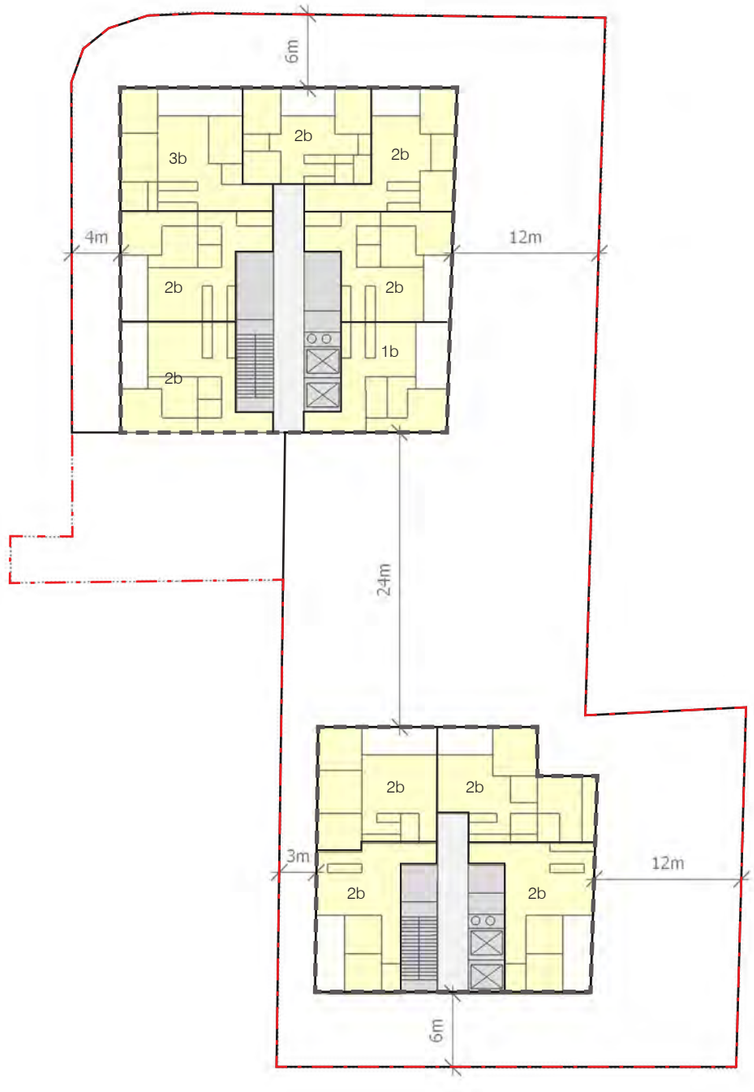
Proposal Option 1
Typical Plans



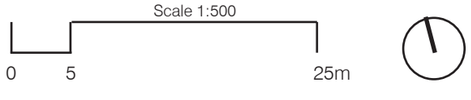
Podium Level with parking and residential sleeving



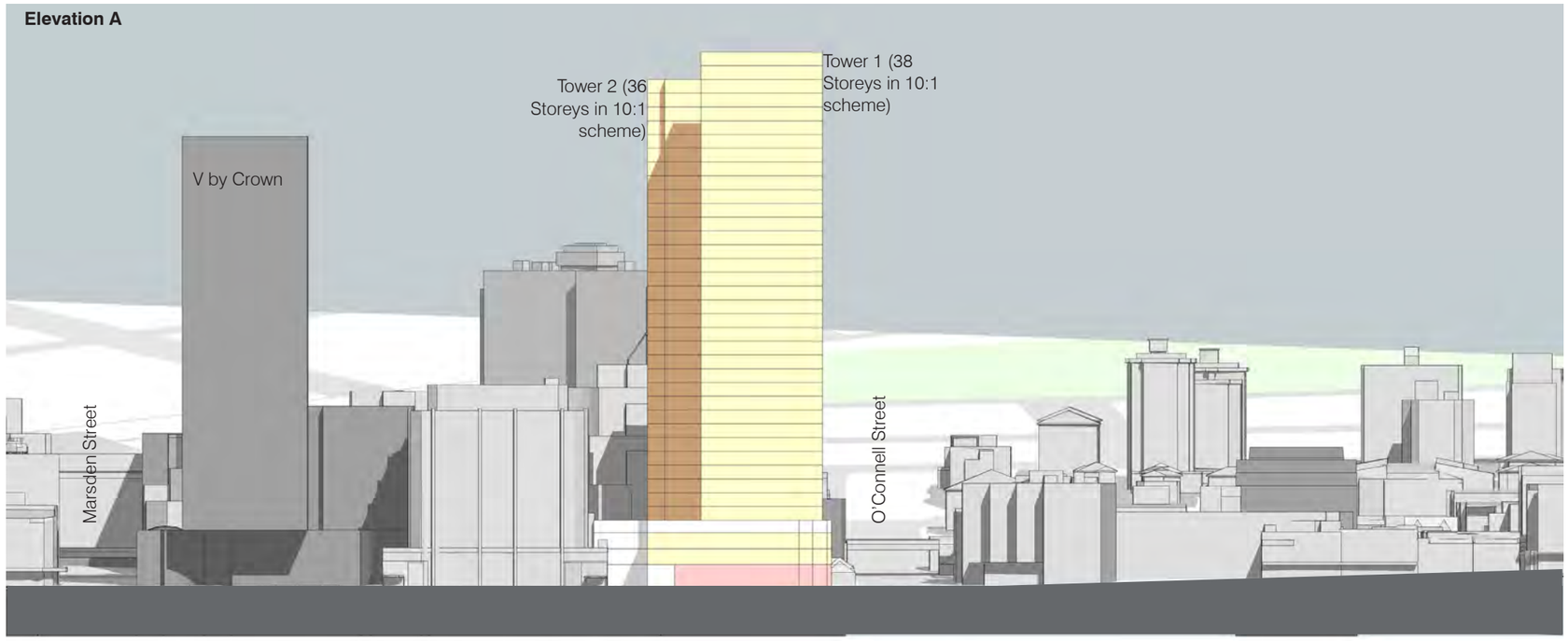
Typical tower Plan with communal open space

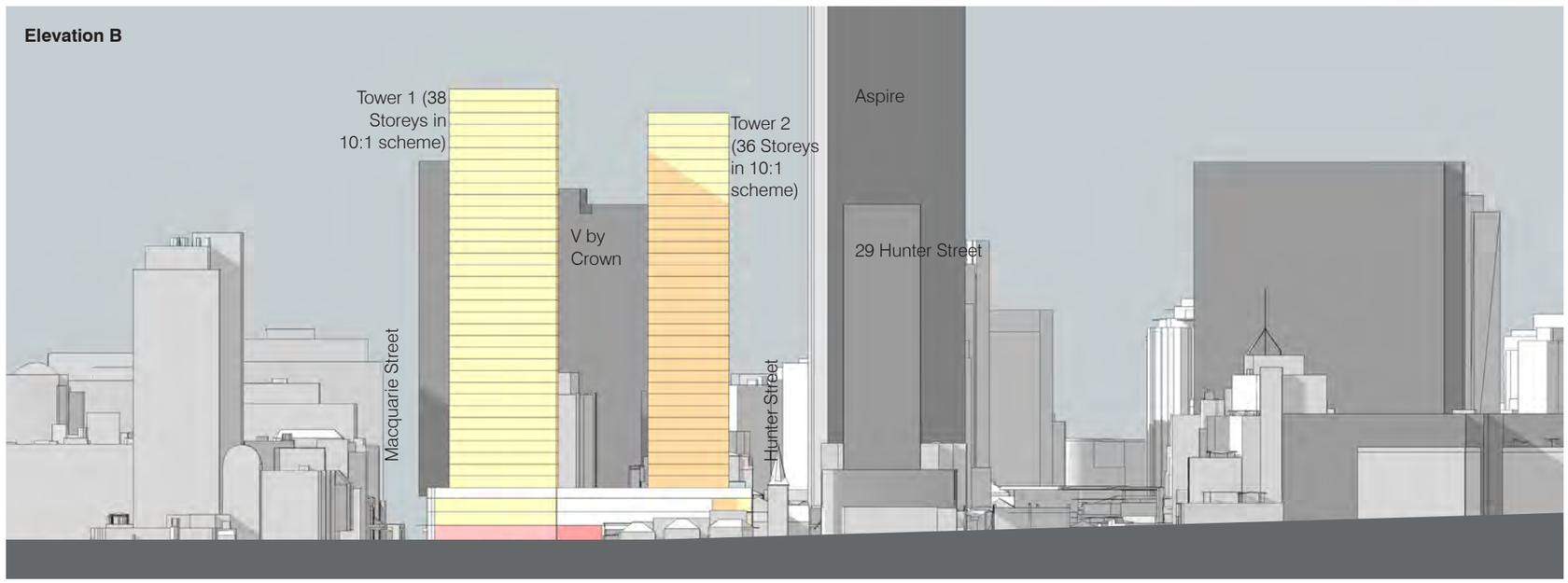


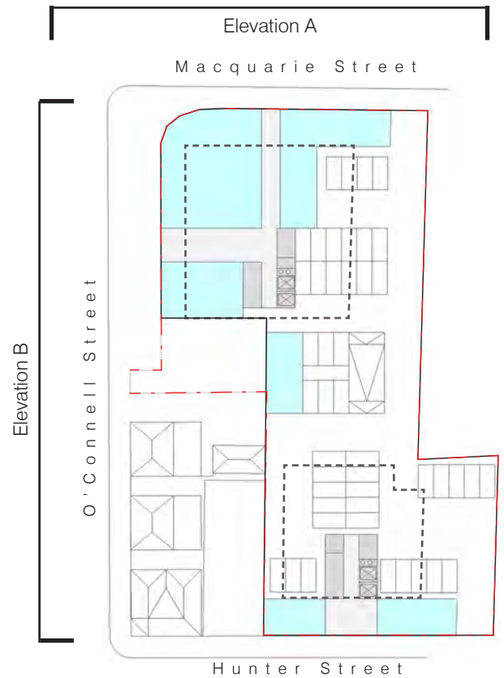
Typical tower Plan



Proposal Option 1 (10:1)
Elevations



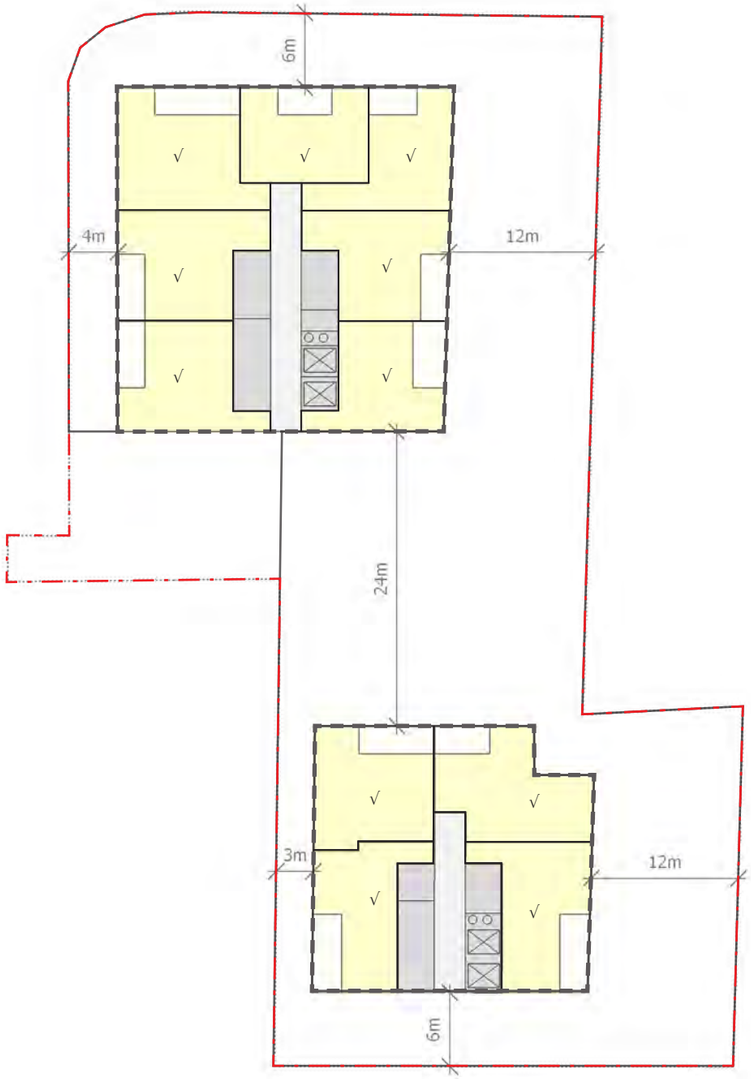




Key Plan

Proposal Option 1
Solar access & cross ventilation testing

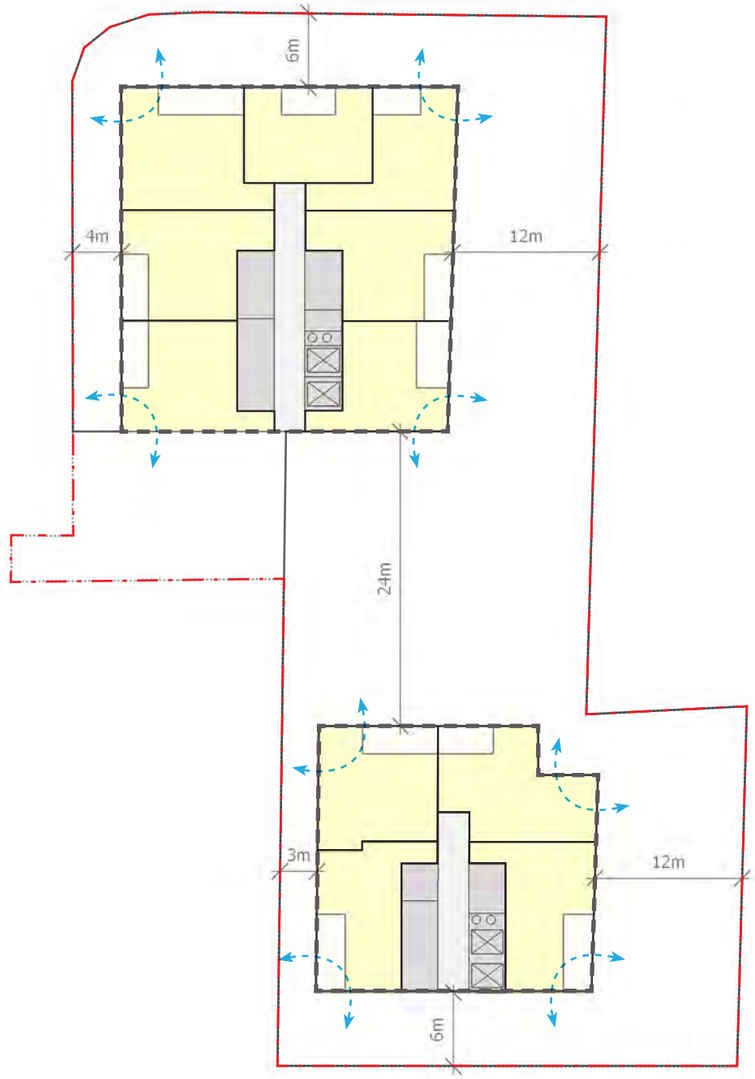
Solar access



– Solar access is 100%.

– Further detail will be provided in the solar access study.

Cross Ventilation



– Cross Ventilation is 72.7%.

– 8 out of 11 units cross ventilate.

Key

- Cross Ventilation
- Solar access
- Apartment
- Site Boundary

Scale 1:500

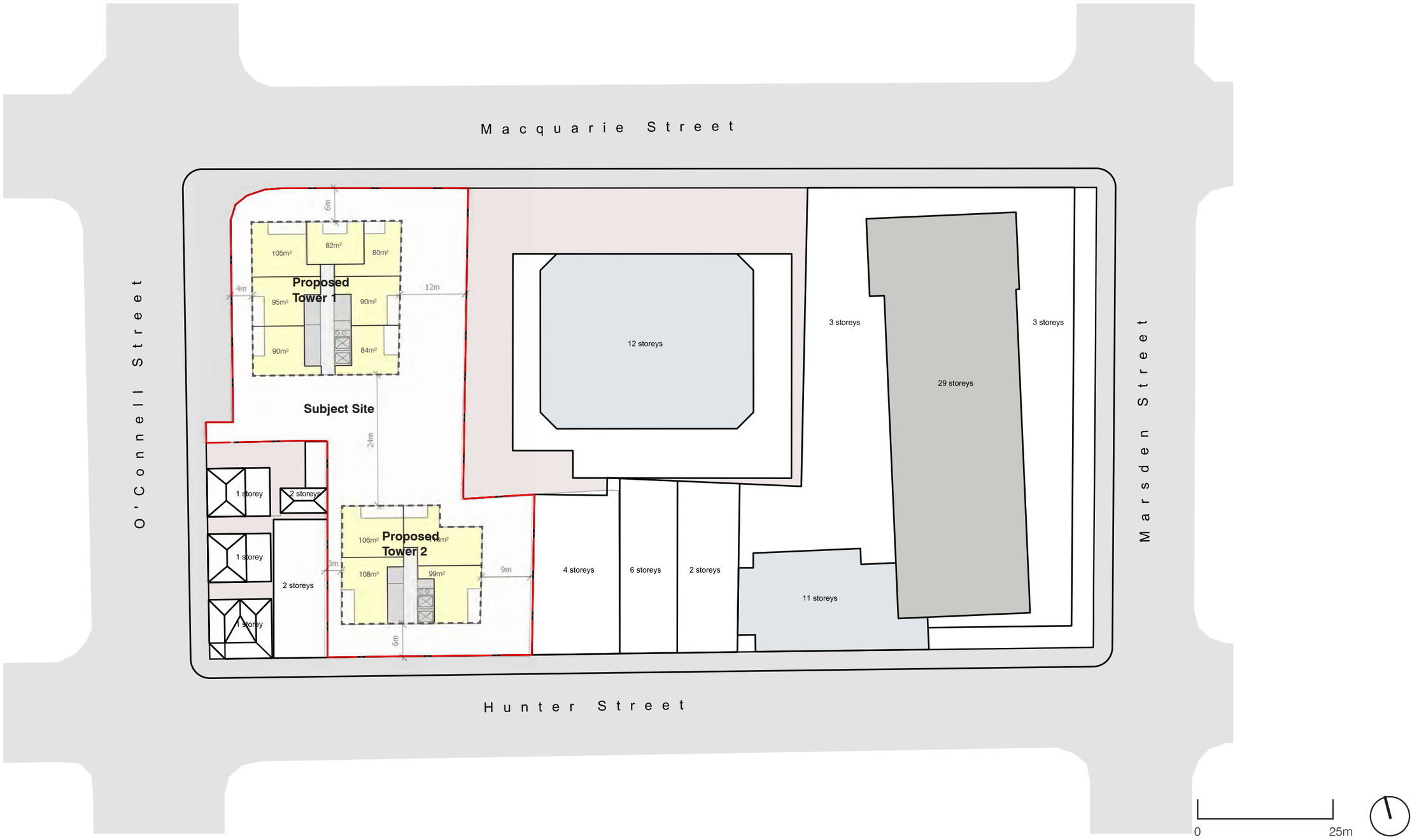
0 5 25m

Proposal Option 1
Yield

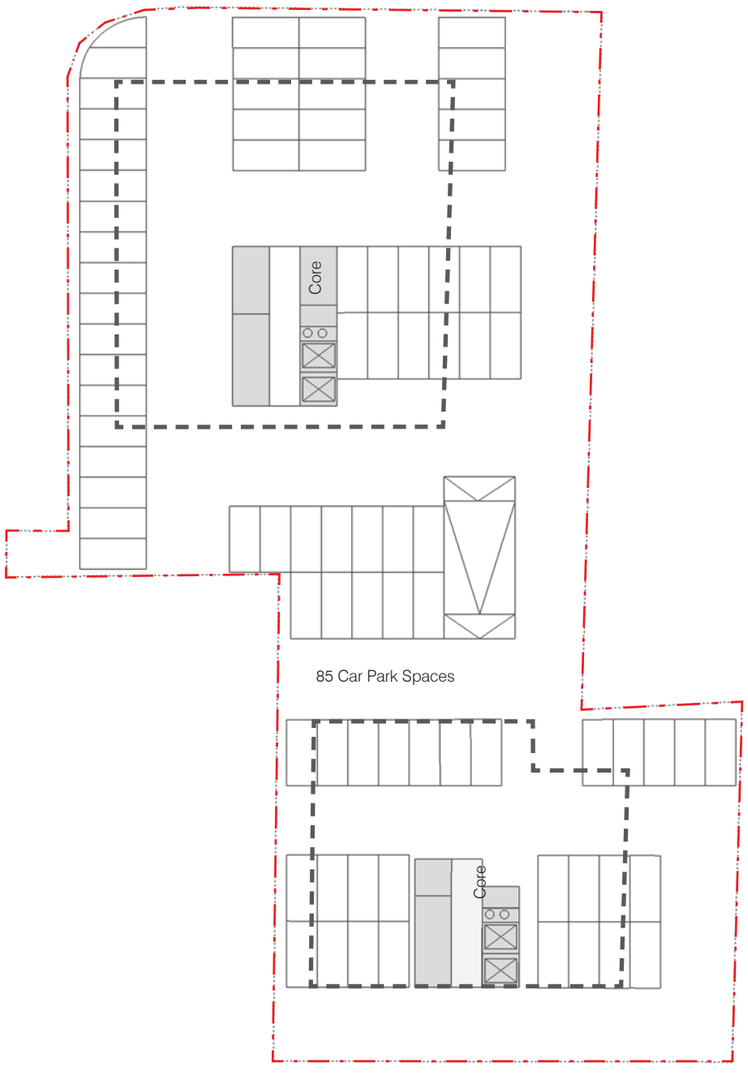
FSR 10.0 @ 75%	BEA	Efficiency	Levels	GFA	Floor Height	Height (m)	Total HOB (m) (excl. plant and lift overun)	Total Levels
Residential Tower 1	767	75%	34	19,559	3.1	105.4	119.4	38
Residential Tower 2	461	75%	32	11,059	3.1	99.2	113.2	36
Podium								
L1 Ground Retail	1,250	90%	1	1,125	4	4		
L2 Residential	1,100	75%	1	825	3.6	3.6		
L3 Residential	1,100	75%	1	825	3.6	3.6		
L4 Carpark	-	-	1	-	2.8	2.8		
Podium HOB						14		
Total GFA				33,393				
Site Area				3,343				
FSR				9.99				

FSR 11.5 @ 75%	BEA	Efficiency	Levels	GFA	Floor Height	Height (m)	Total HOB (m) (excl. plant and lift overun)	Total Levels
Residential Tower 1	767	75%	41	23,585	3.1	127.1	141.1	45
Residential Tower 2	461	75%	35	12,096	3.1	108.5	122.5	39
Podium								
L1 Ground Retail	1,250	90%	1	1,125	4	4		
L2 Residential	1,100	75%	1	825	3.6	3.6		
L3 Residential	1,100	75%	1	825	3.6	3.6		
L4 Carpark	-	-	1	-	2.8	2.8		
Podium HOB						14		
Total GFA				38,456				
Site Area				3,343				
FSR				11.50				

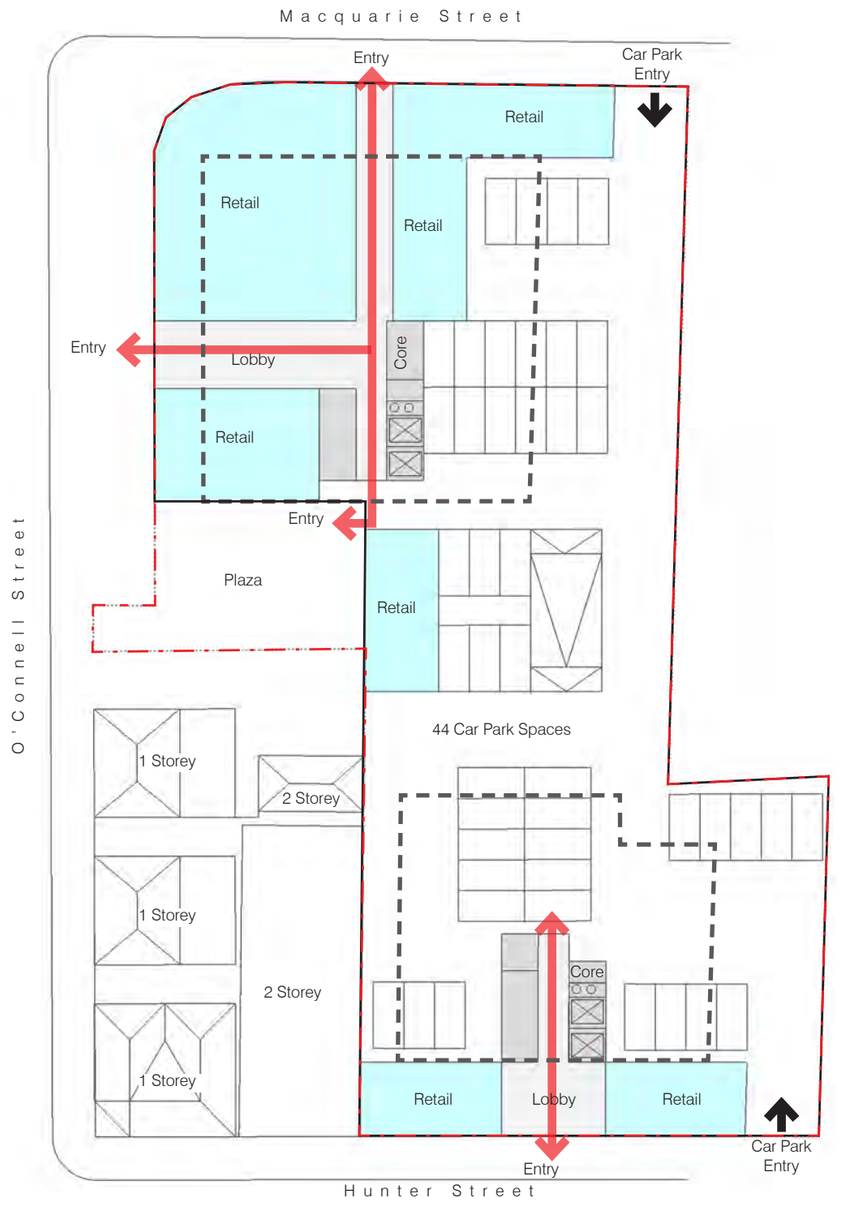
Proposal Option 2
Block Plan



Proposal Option 2
Typical Plans



Basement Parking

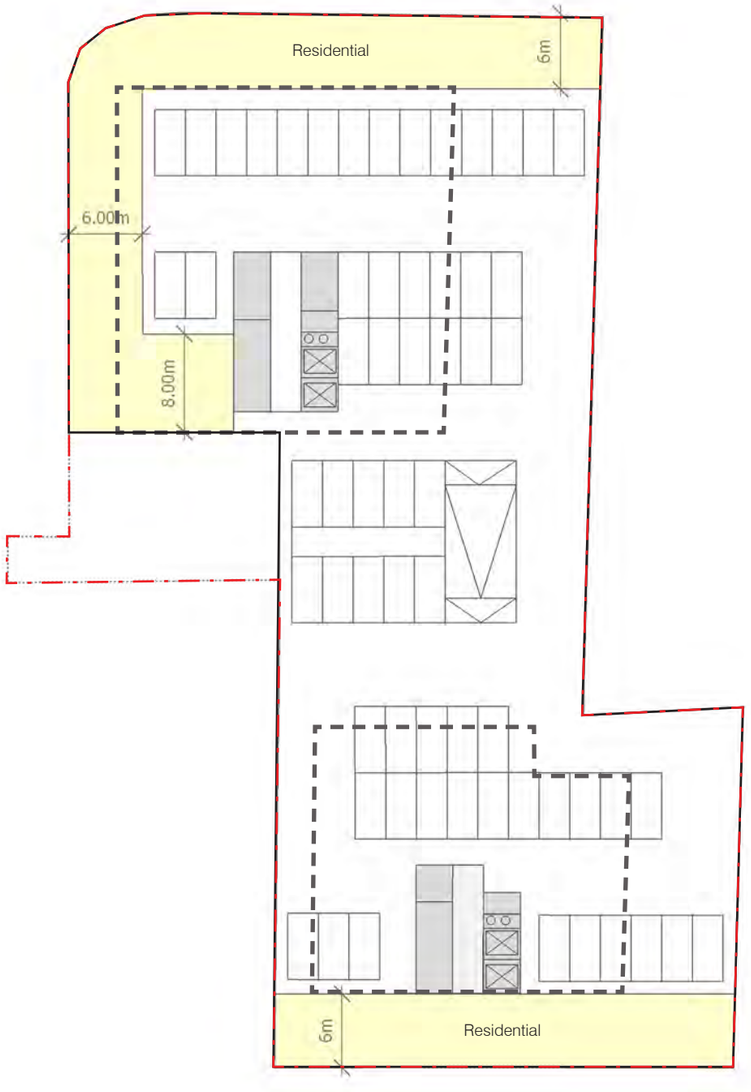


Ground Level with retail sleeving

Scale 1:500

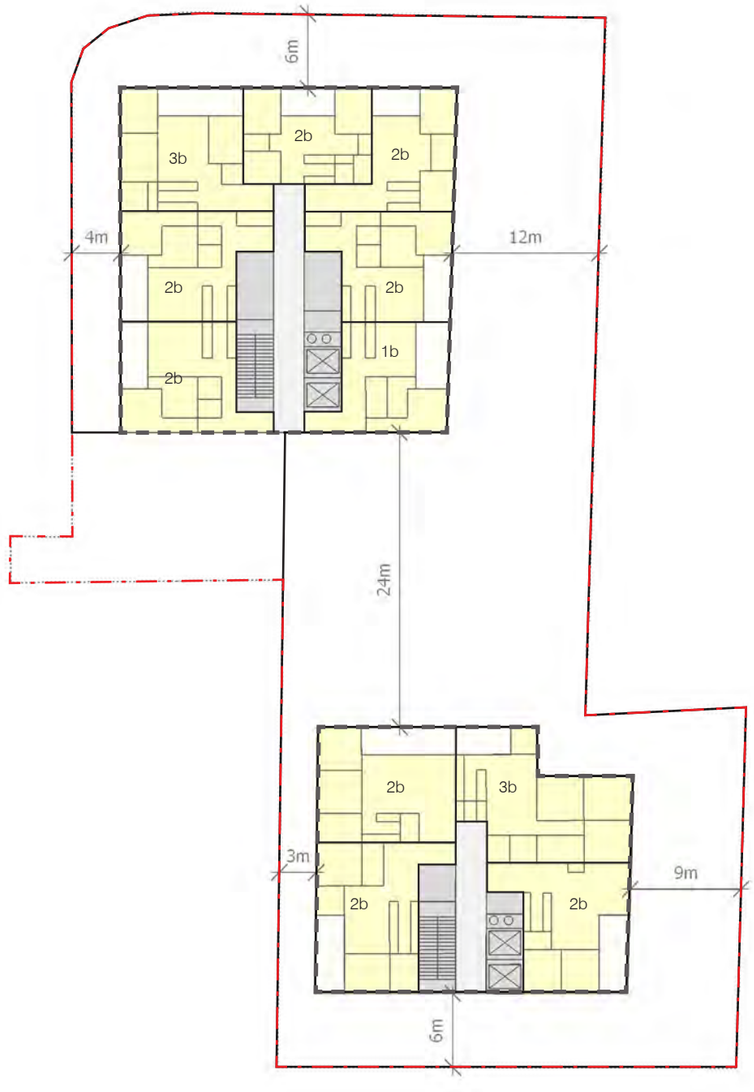
0 5 25m

Proposal Option 2
Typical Plans

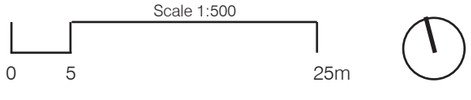


Podium Level with parking and residential sleeving

Typical tower Plan with communal open space

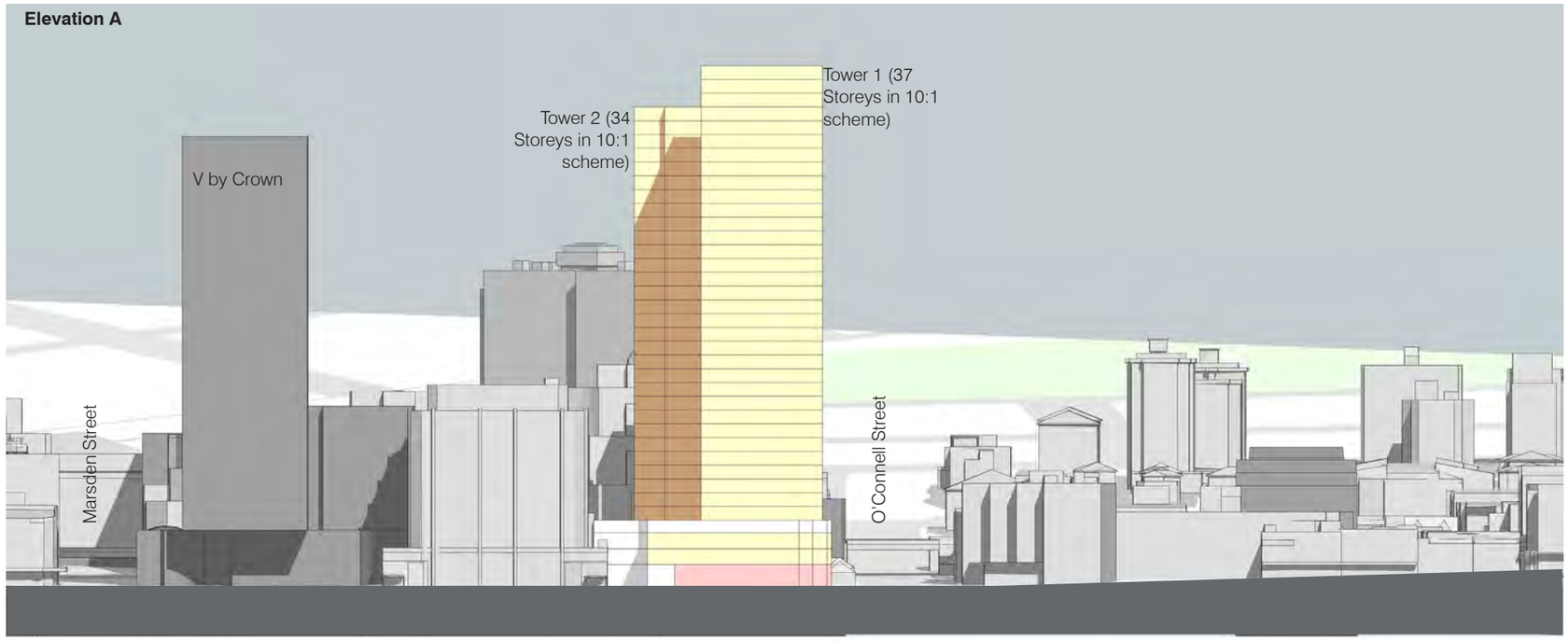


Typical tower Plan

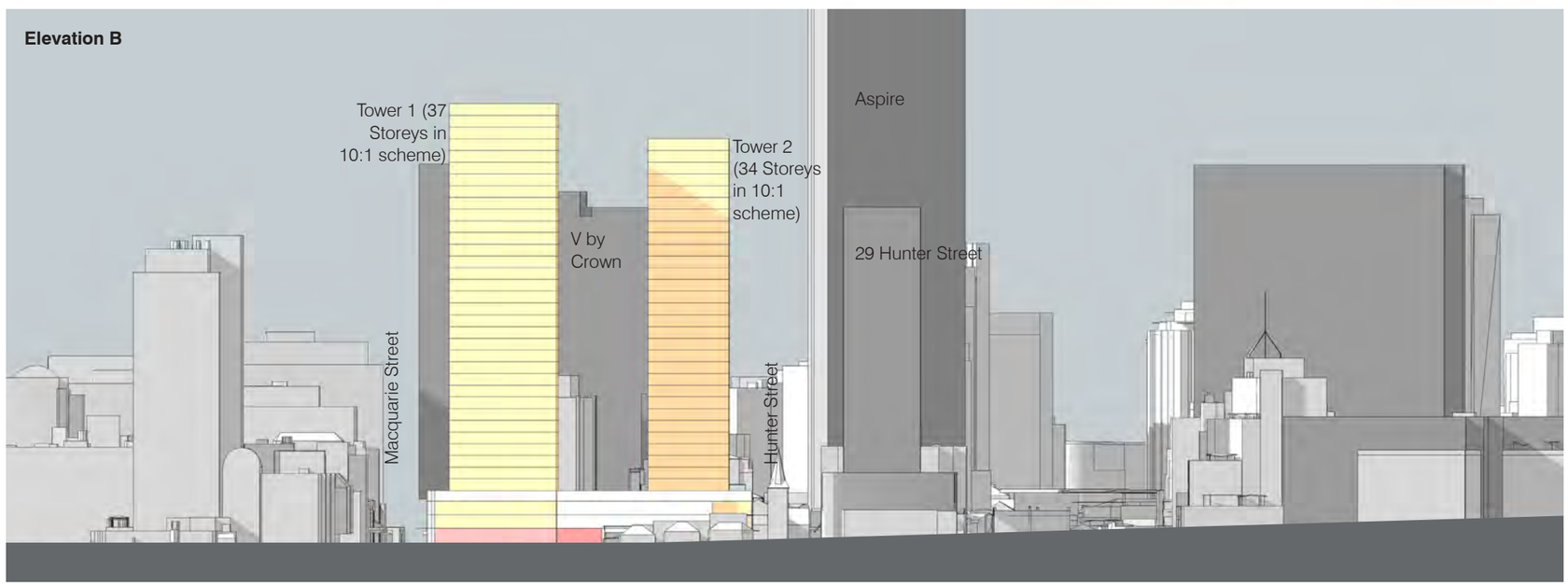


Proposal Option 2 (10:1)
Typical Elevations

Elevation A



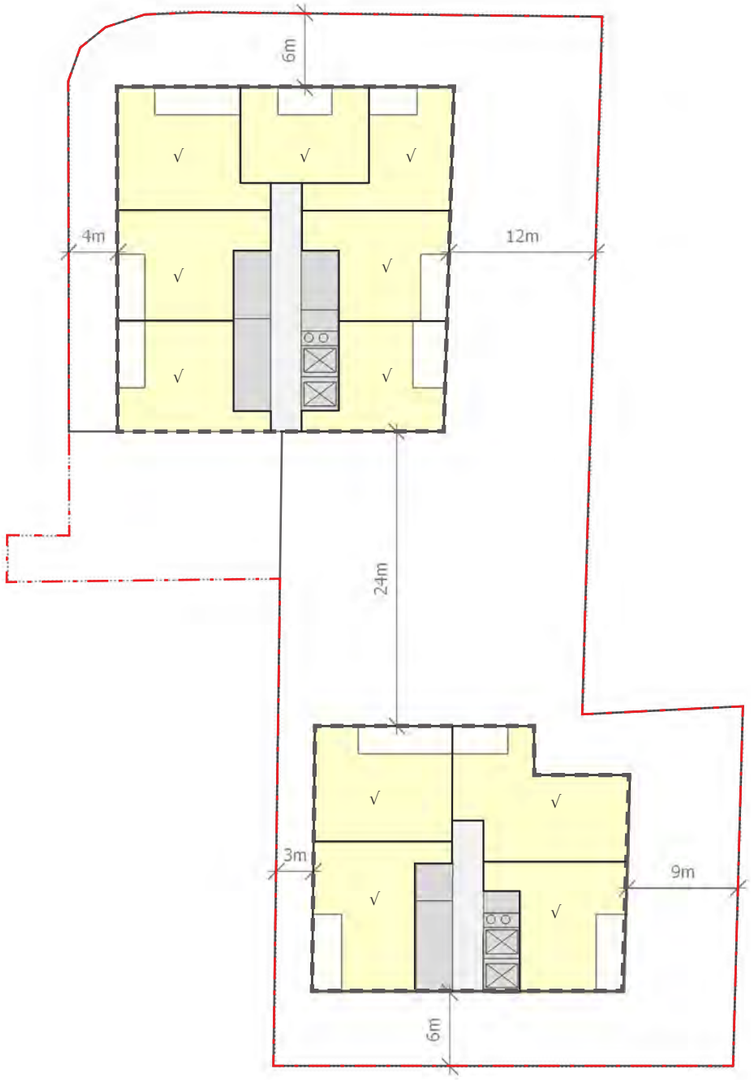
Elevation B



Key Plan

Proposal Option 2
Solar access & cross ventilation testing

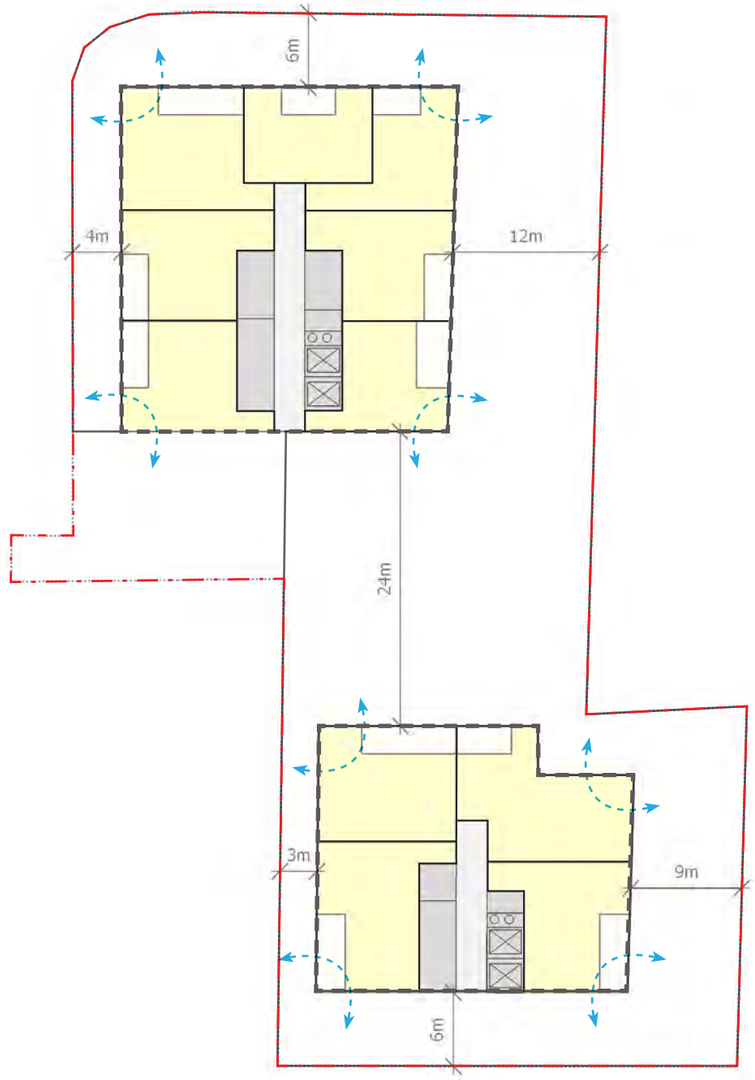
Solar access



– Solar access is 100%.

– Furthure detail will be provided in the solar access study.

Cross Ventilation



– Cross Ventilation is 72.7%.

– 8 out of 11 units cross ventilate.

Key

- Cross Ventilation
- Solar access
- Apartment
- Site Boundary

Scale 1:500

0 5 25m

Proposal Option 2
Yield

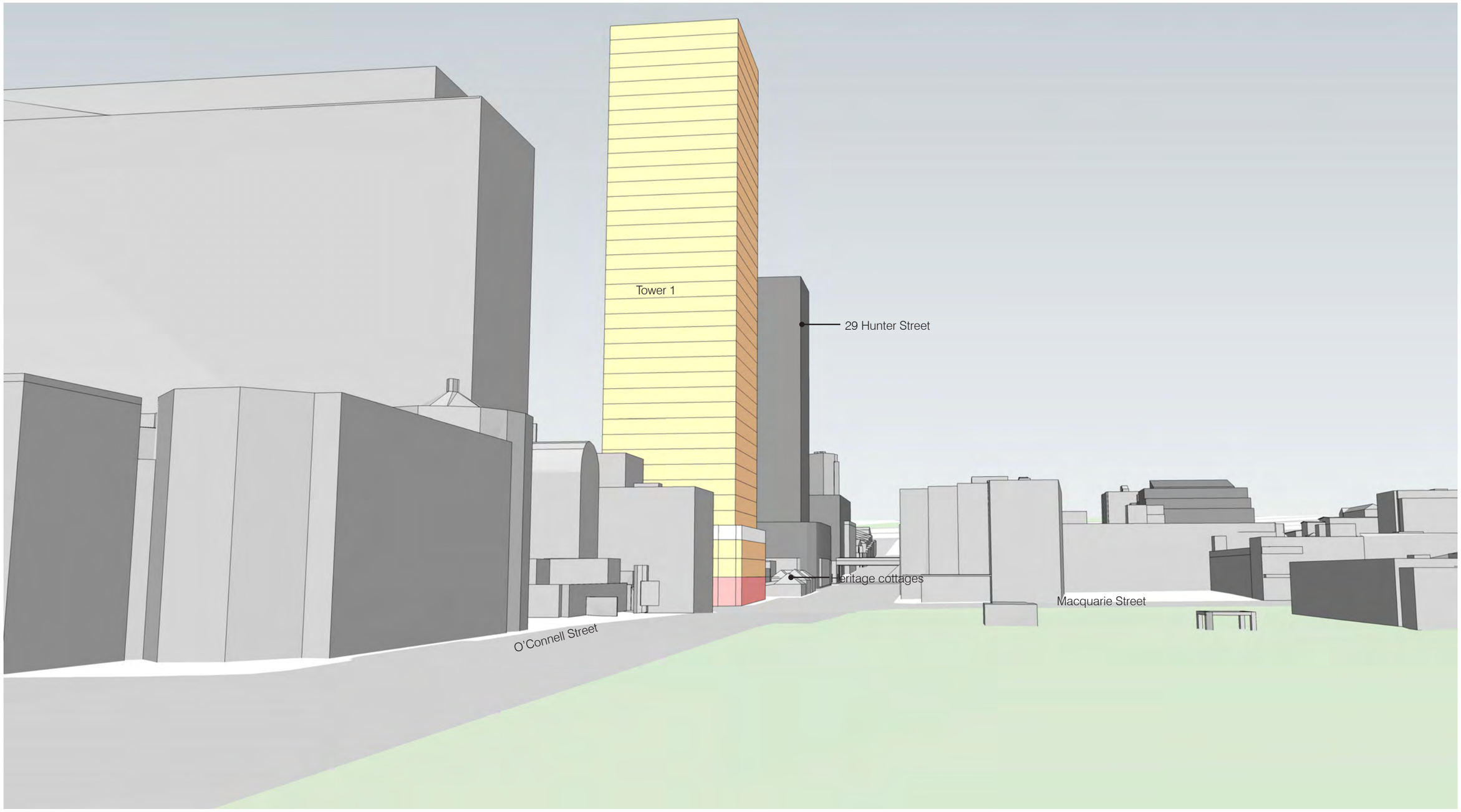
FSR 10.0 @ 75%	BEA	Efficiency	Levels	GFA	Floor Height	Height (m)	Total HOB (m) (excl. plant and lift overun)	Total Levels
Residential Tower 1	767	75%	33	18,983	3.1	102.3	116.3	37
Residential Tower 2	511	75%	30	11,498	3.1	93	107	34
Podium								
L1 Ground Retail	1,250	90%	1	1,125	4	4		
L2 Residential	1,100	75%	1	825	3.6	3.6		
L3 Residential	1,100	75%	1	825	3.6	3.6		
L4 Carpark	-	-	1	-	2.8	2.8		
Podium HOB						14		
Total GFA				33,256				
Site Area				3,343				
FSR				9.95				

FSR 11.5 @ 75%	BEA	Efficiency	Levels	GFA	Floor Height	Height (m)	Total HOB (m) (excl. plant and lift overun)	Total Levels
Residential Tower 1	767	75%	40	23,010	3.1	124	138	44
Residential Tower 2	511	75%	33	12,647	3.1	102.3	116.3	37
Podium								
L1 Ground Retail	1,250	90%	1	1,125	4	4		
L2 Residential	1,100	75%	1	825	3.6	3.6		
L3 Residential	1,100	75%	1	825	3.6	3.6		
L4 Carpark	-	-	1	-	2.8	2.8		
Podium HOB						14		
Total GFA				38,432				
Site Area				3,343				
FSR				11.50				

architectus™

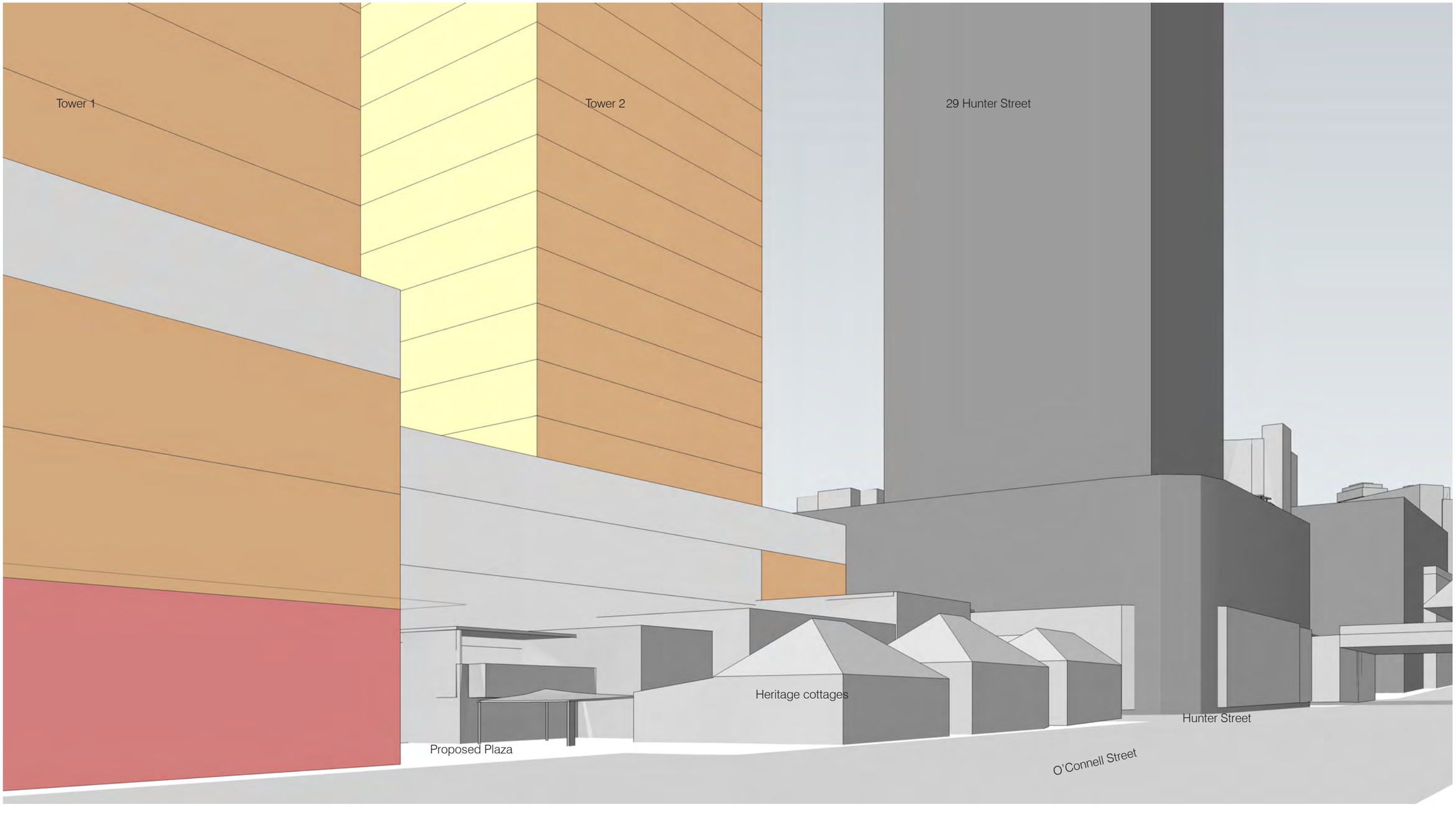
Assessment

View from O'Connell Street (looking south)



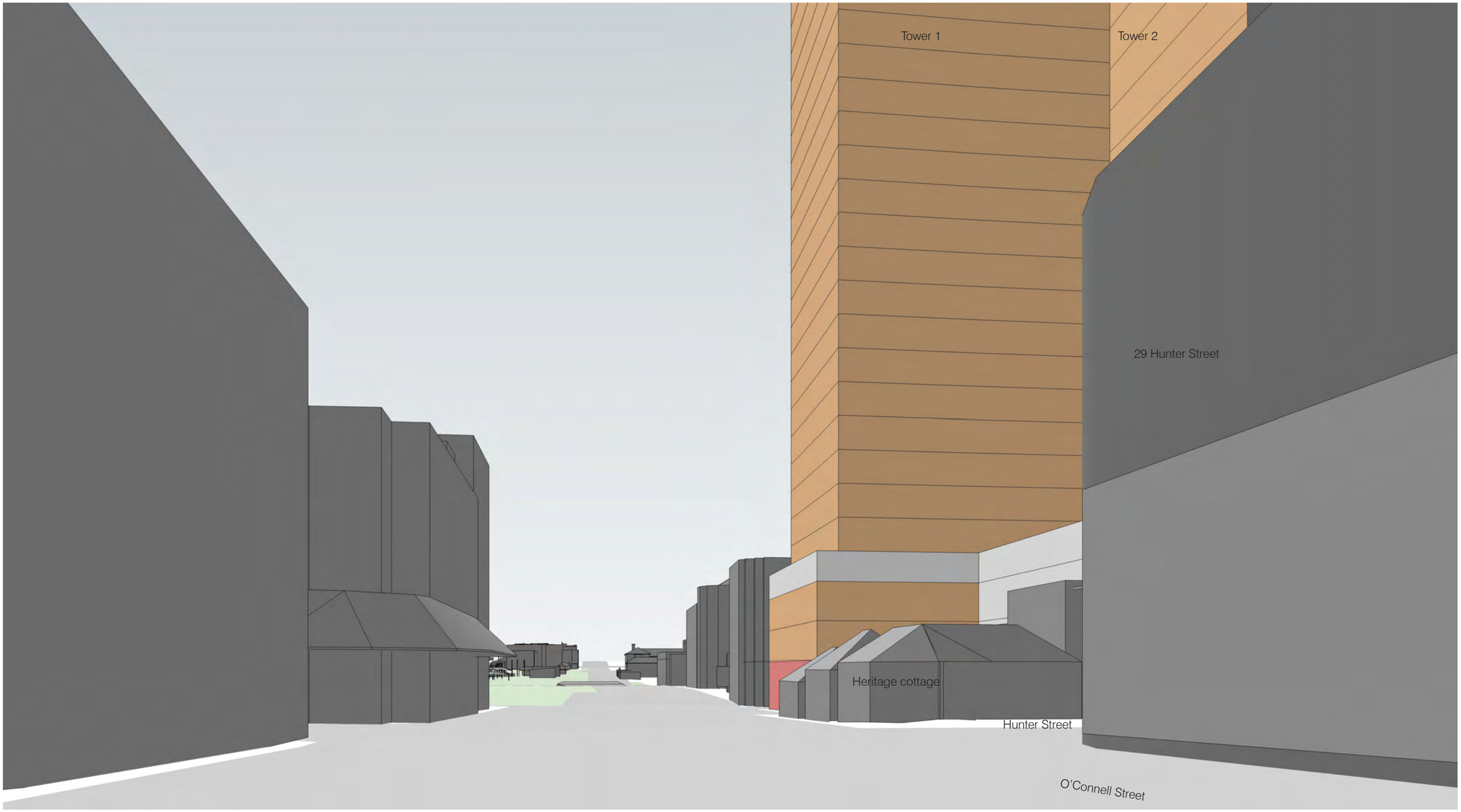
View from O'Connell Street (looking south)

View from O’Connell Street (looking south)

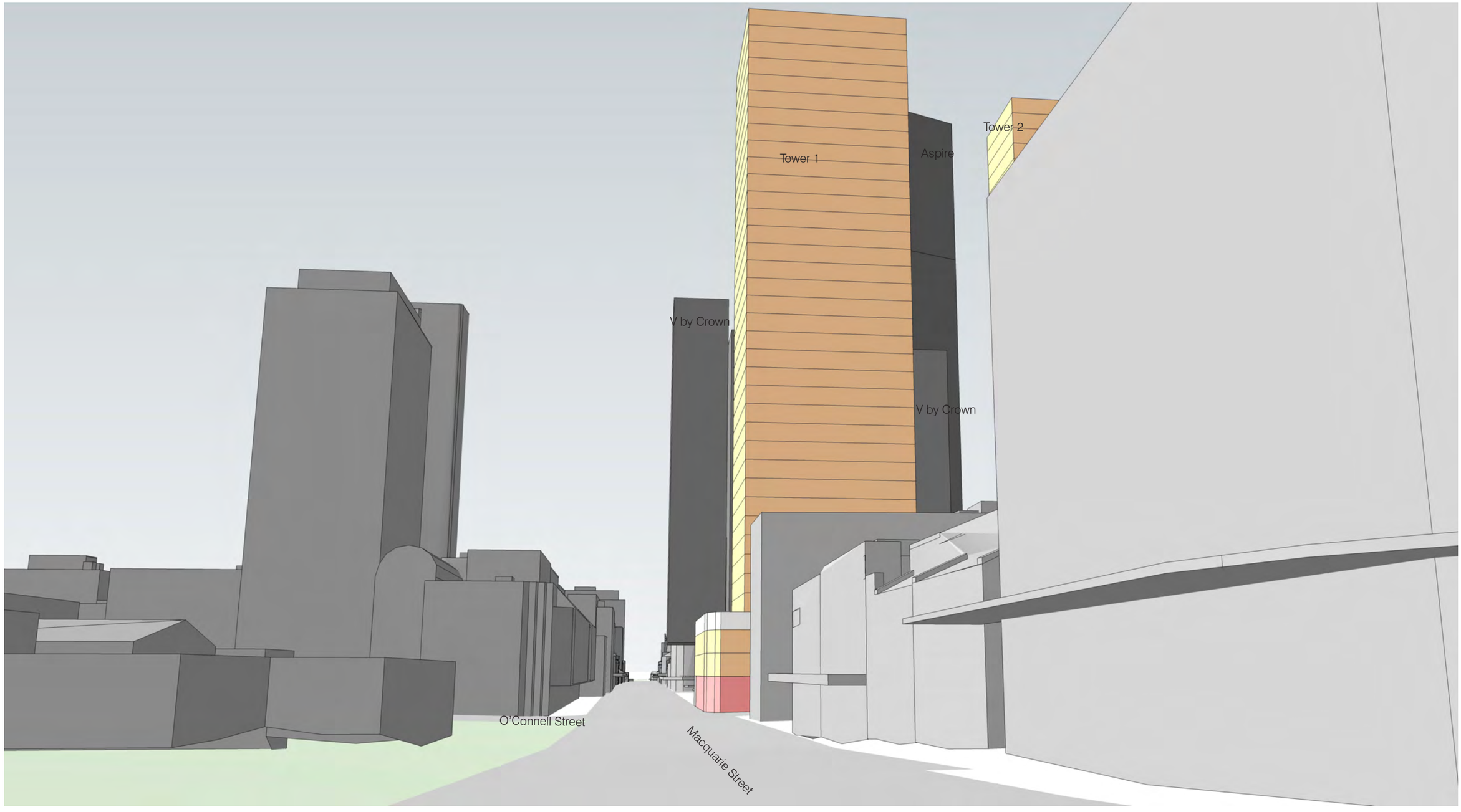


View from Hunter Street (looking east)

View from O'Connell Street (looking north)

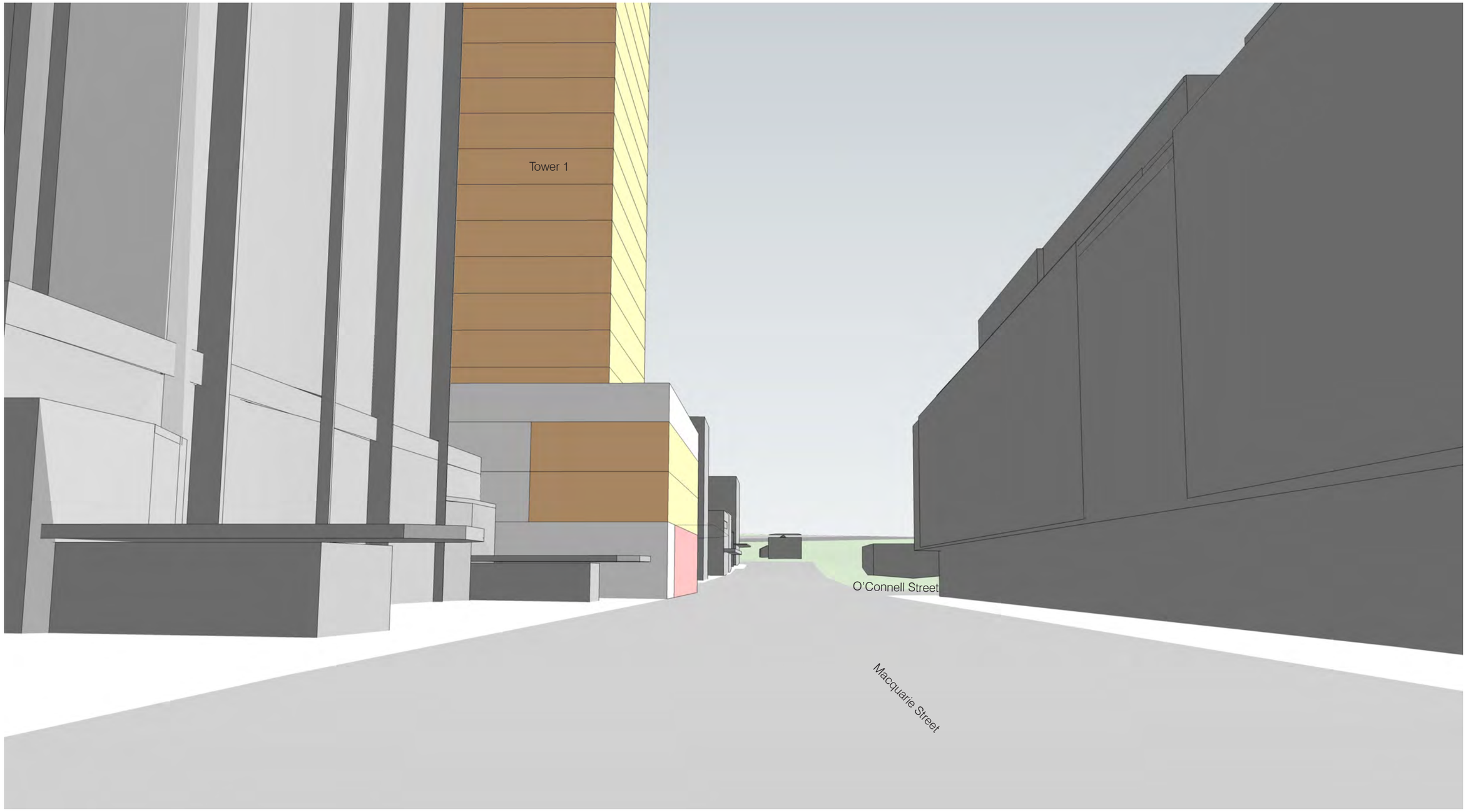


View from Macquarie Street (looking east)



View from Macquarie Street (looking west)

View from Macquarie Street (looking west)



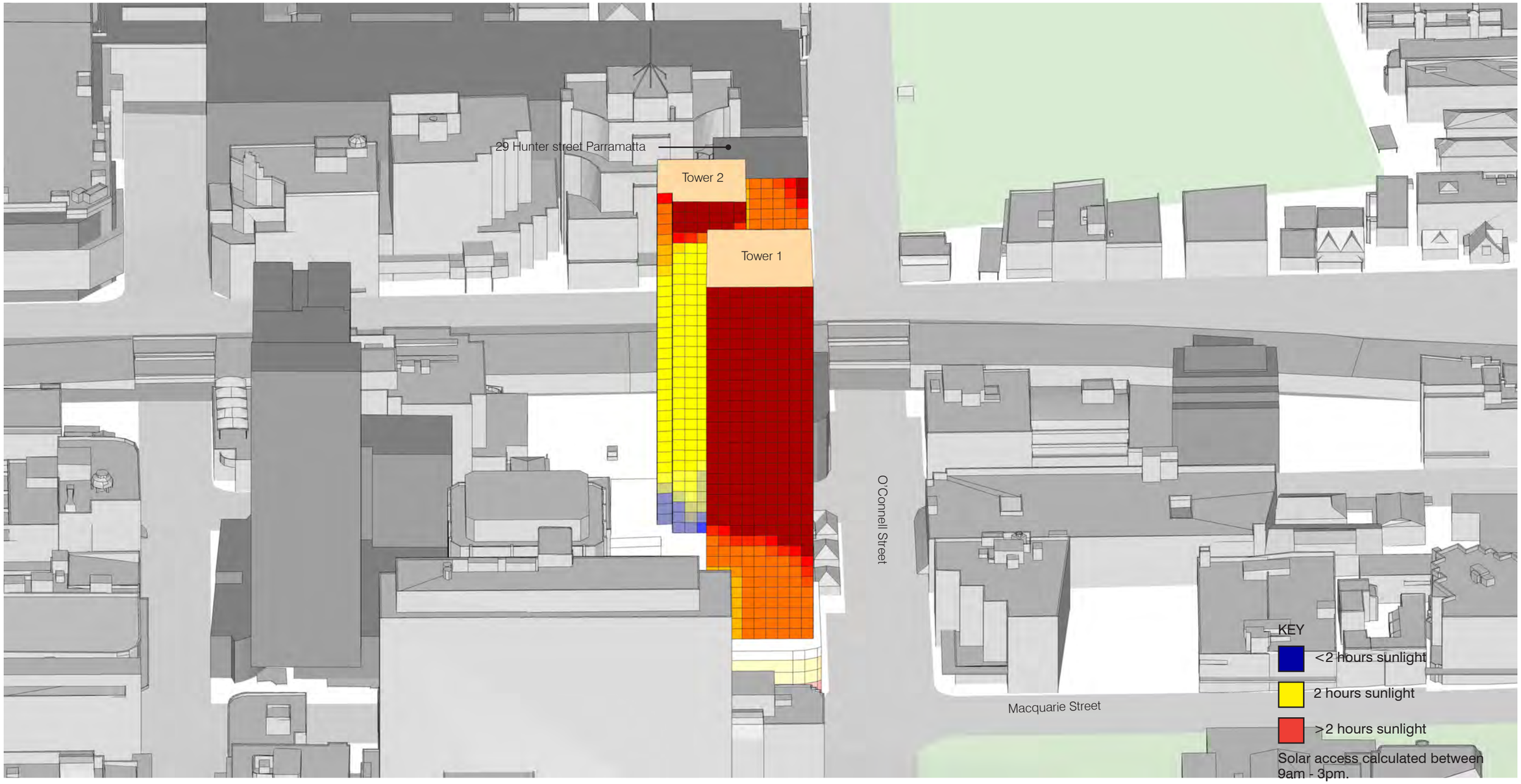
Option 1- solar access - 9am (winter solstice)

Option 2- solar access - 9am (winter solstice)

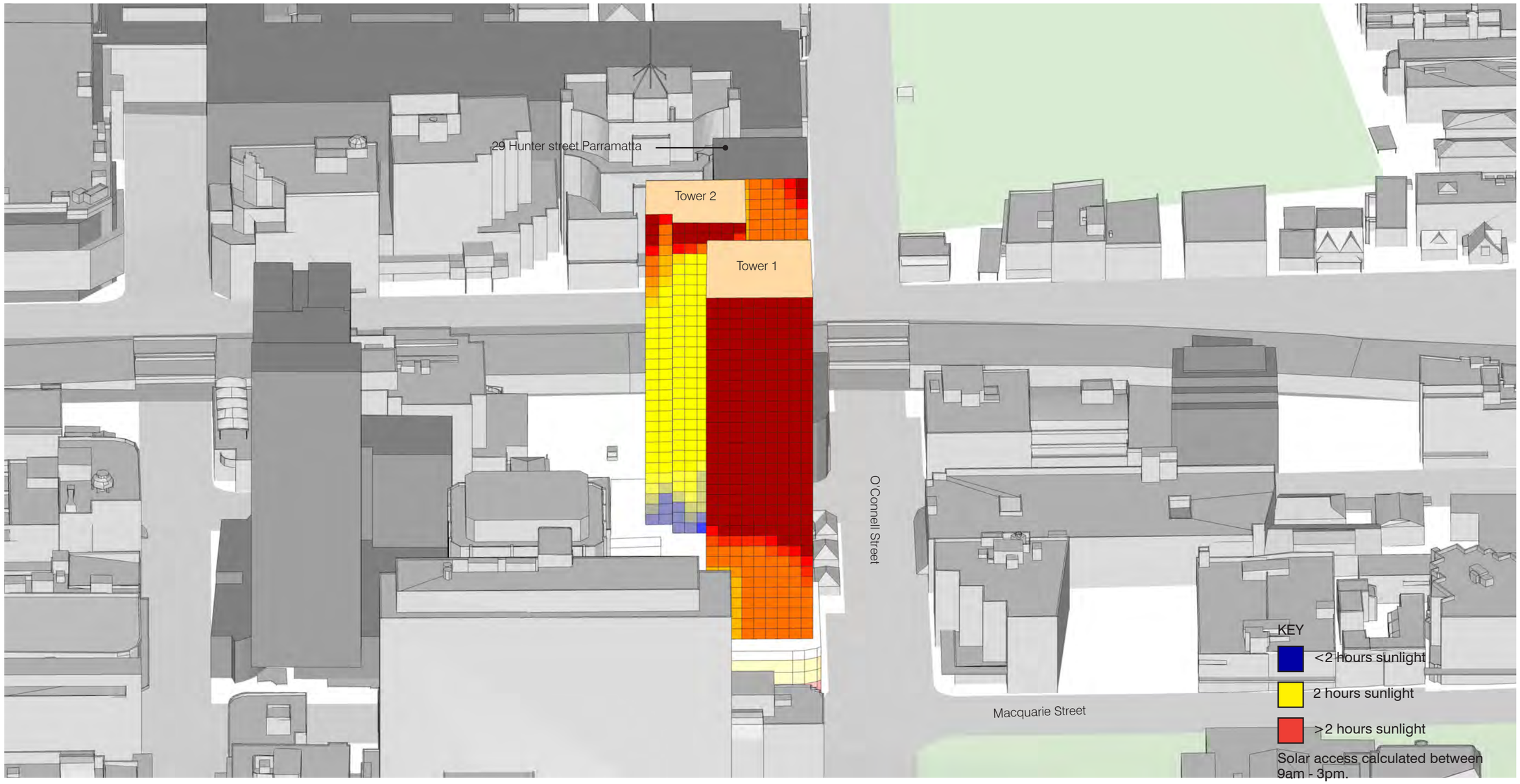
Option 1- solar access - 10am (winter solstice)

Option 2- solar access - 10am (winter solstice)

Option 1- solar access - 11am (winter solstice)



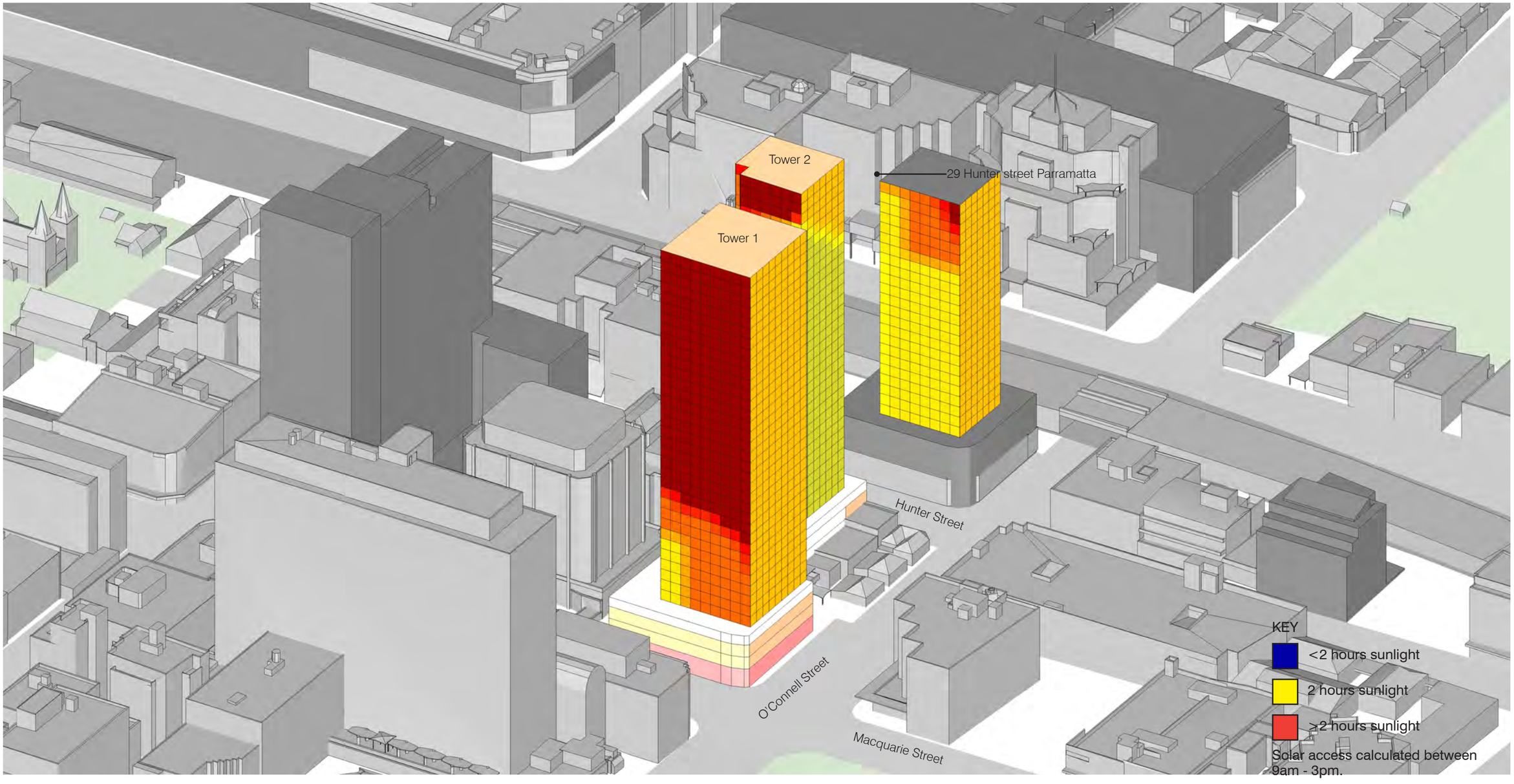
Option 2- solar access - 11am (winter solstice)



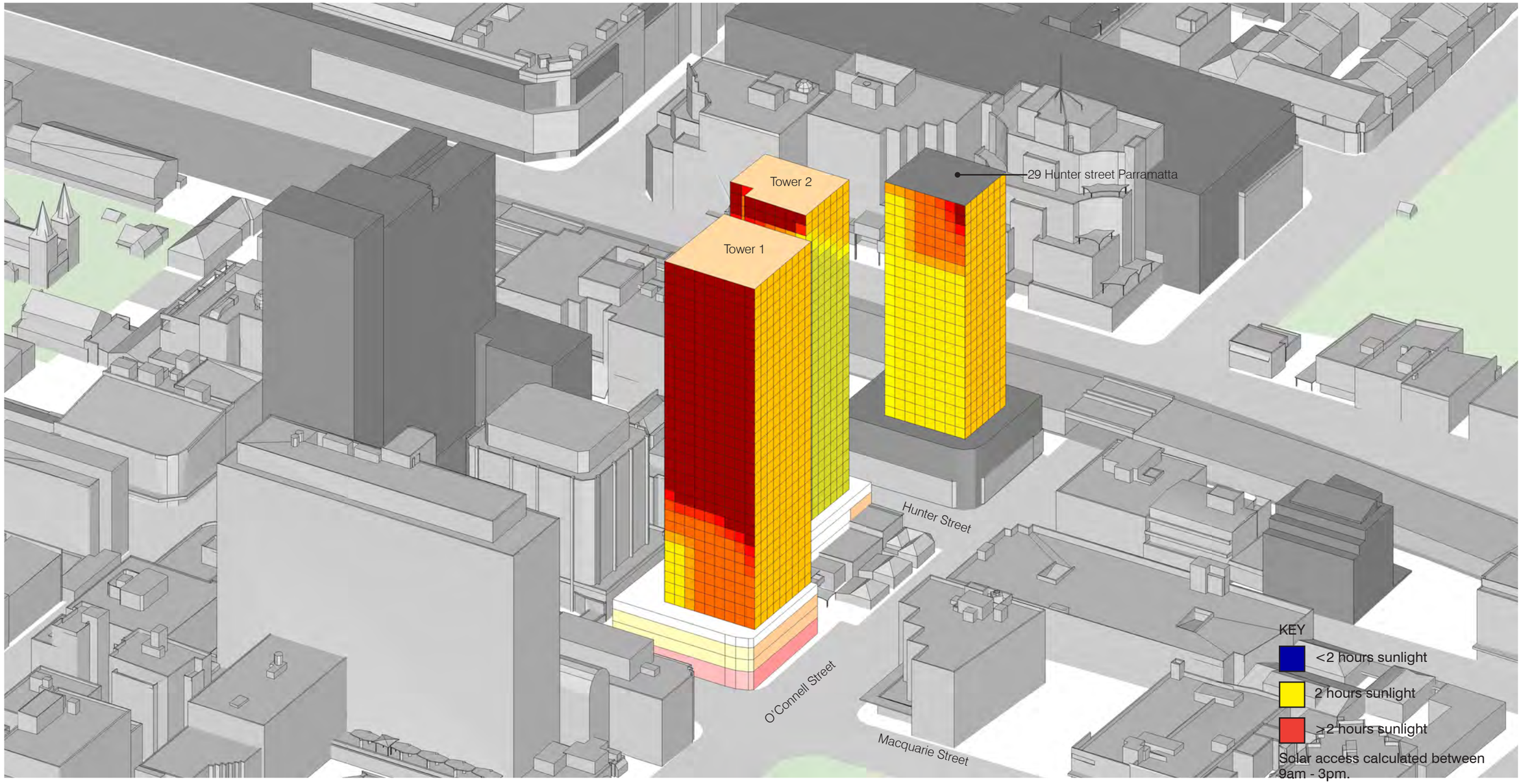
Option 1- solar access - 12pm (winter solstice)

Option 2- solar access - 12pm (winter solstice)

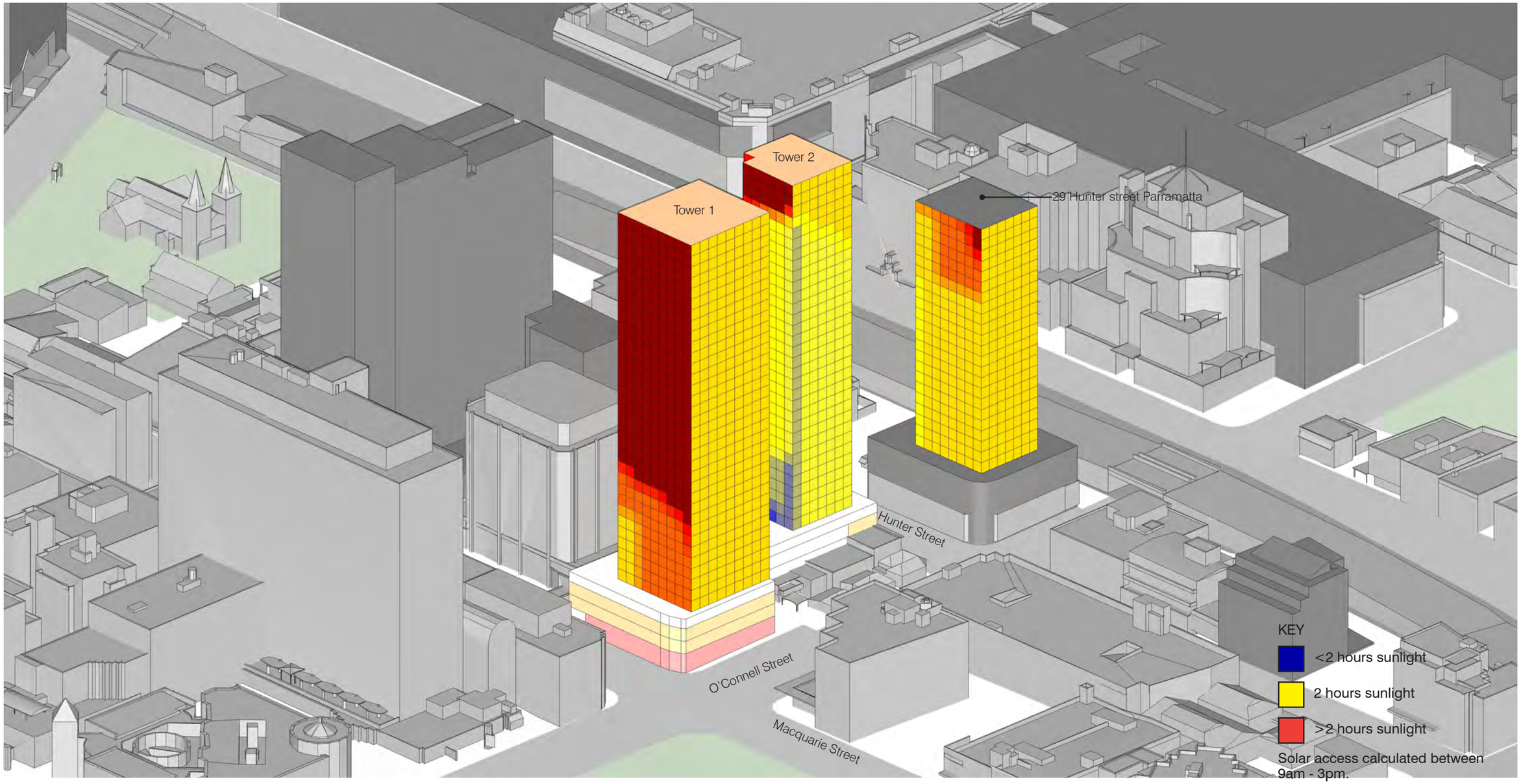
Option 1- solar access - 1pm (winter solstice)



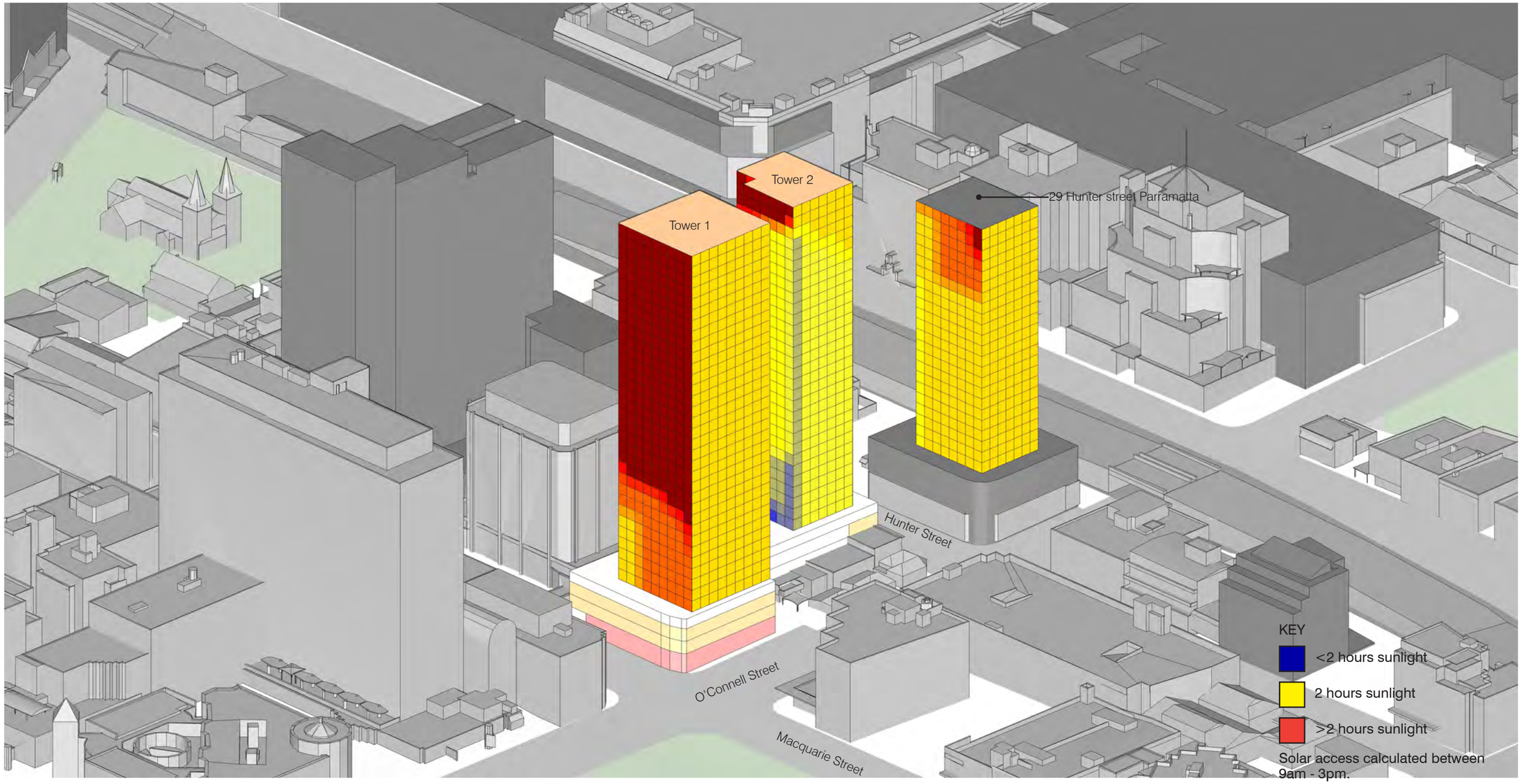
Option 2- solar access - 1pm (winter solstice)



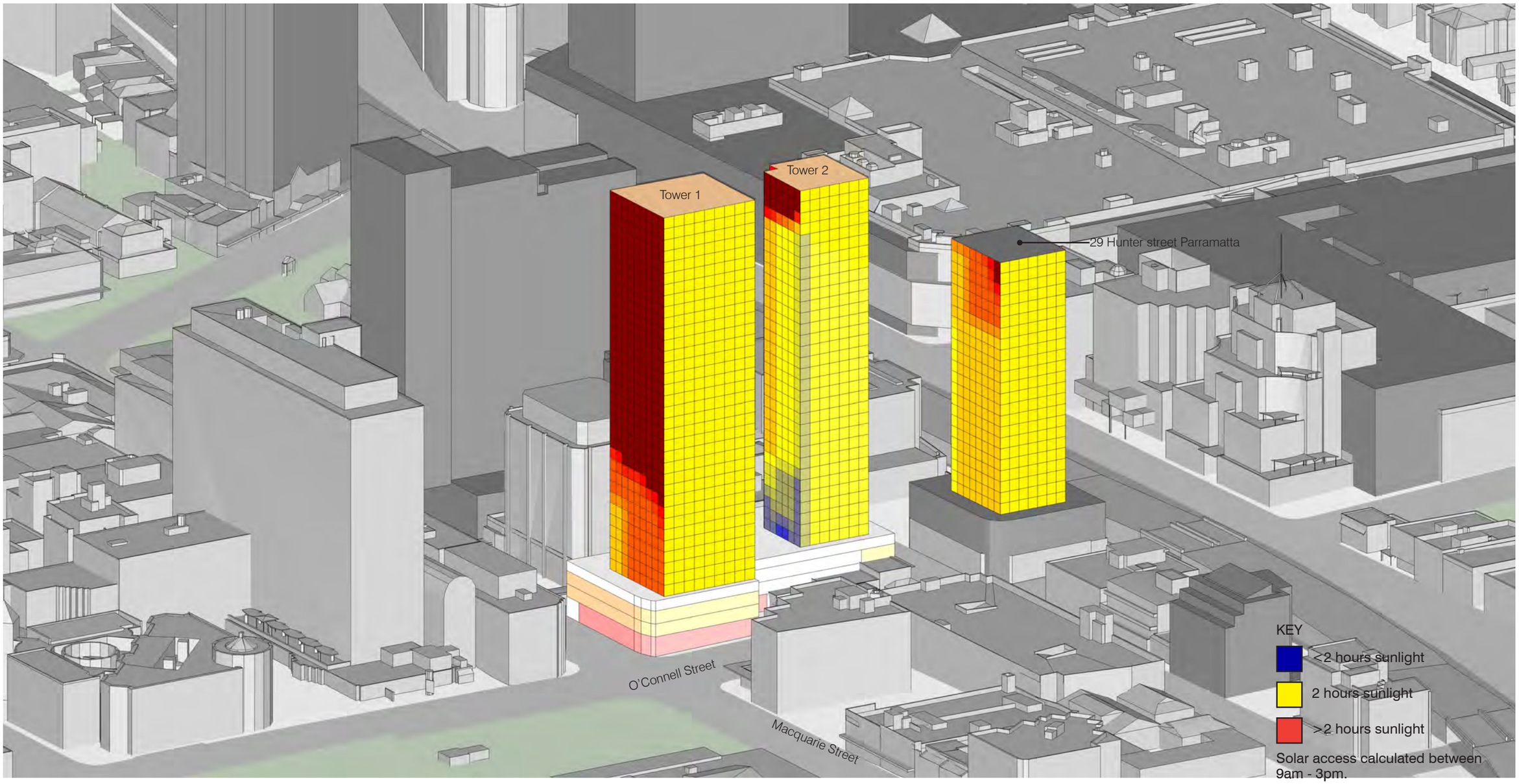
Option 1- solar access - 2pm (winter solstice)



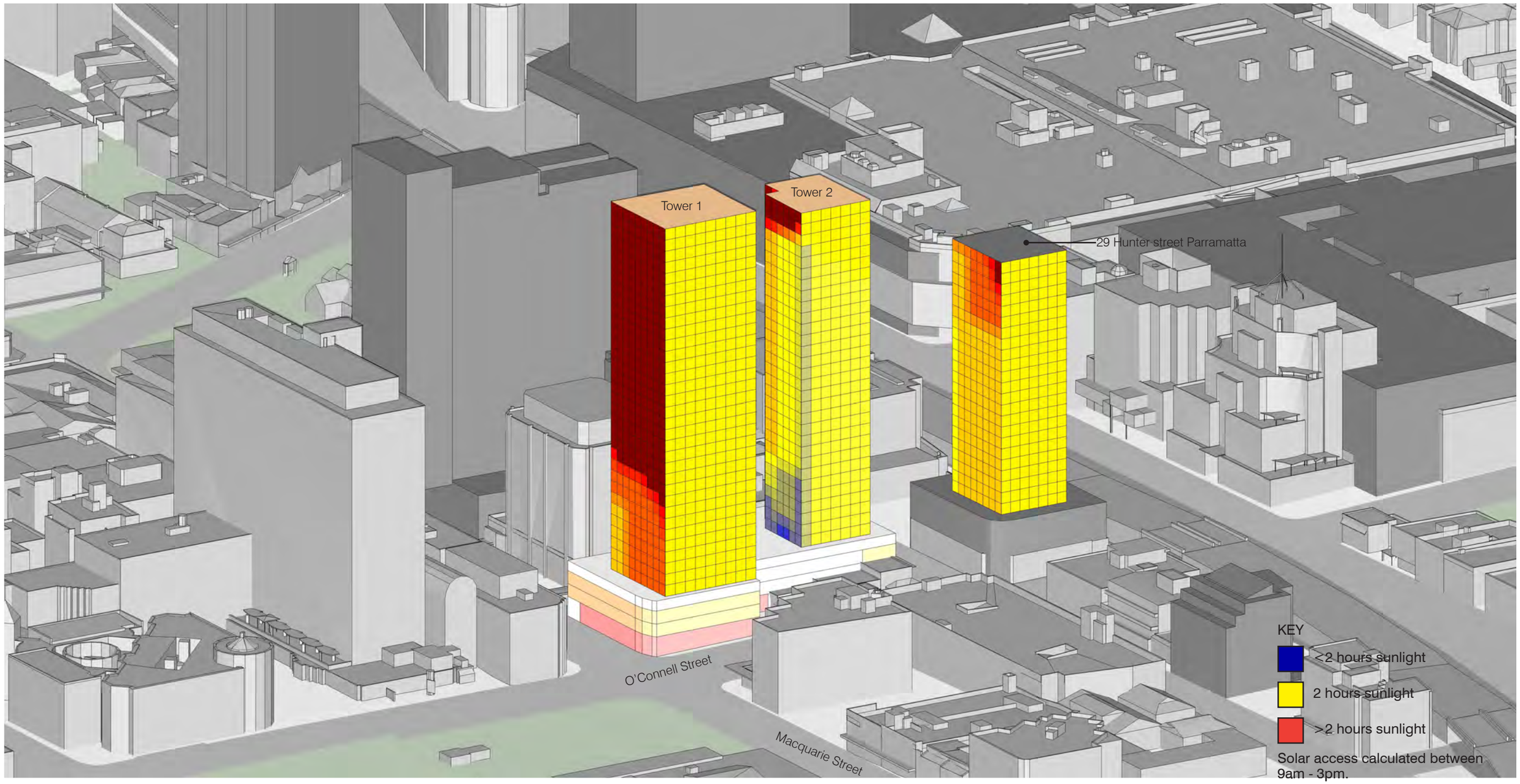
Option 2- solar access - 2pm (winter solstice)



Option 1- solar access - 3pm (winter solstice)



Option 2- solar access - 3pm (winter solstice)



Appendix 2 – Traffic and Parking Assessment Report

Planning Proposal

18 Hunter St & 29 Macquarie St, Parramatta

TRAFFIC AND PARKING ASSESSMENT REPORT

1 May 2015

Ref 15218

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants

Suite 6, 20 Young Street, Neutral Bay NSW 2089 - PO Box 1868, Neutral Bay NSW 2089
Ph: 9904 3224 Fax: 9904 3228, Email: varga@vtp.net.au

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

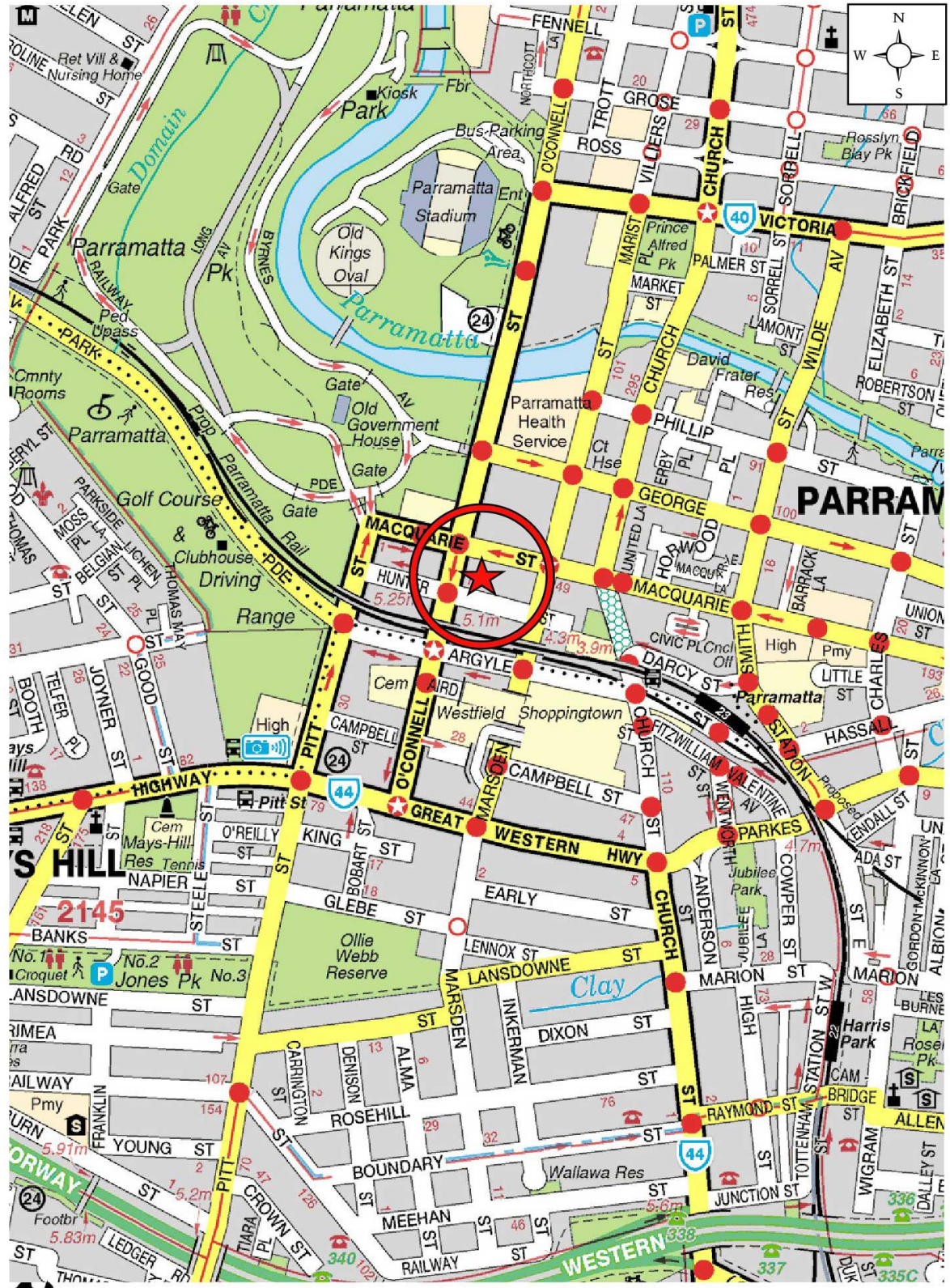
1. INTRODUCTION

This report has been prepared to accompany a planning proposal to Parramatta City Council for a mixed-use development to be located at 18 Hunter Street & 29 Macquarie Street, Parramatta (Figures 1 and 2).

The Planning Proposal envisages the construction of a new mixed-use development with approximately 392-393 new residential apartments and a number of retail units with an estimated cumulative floor area of 930m² in two new buildings. Car parking is to be provided in a new basement car parking areas, with the number of spaces to be provided in accordance with Council's requirements.

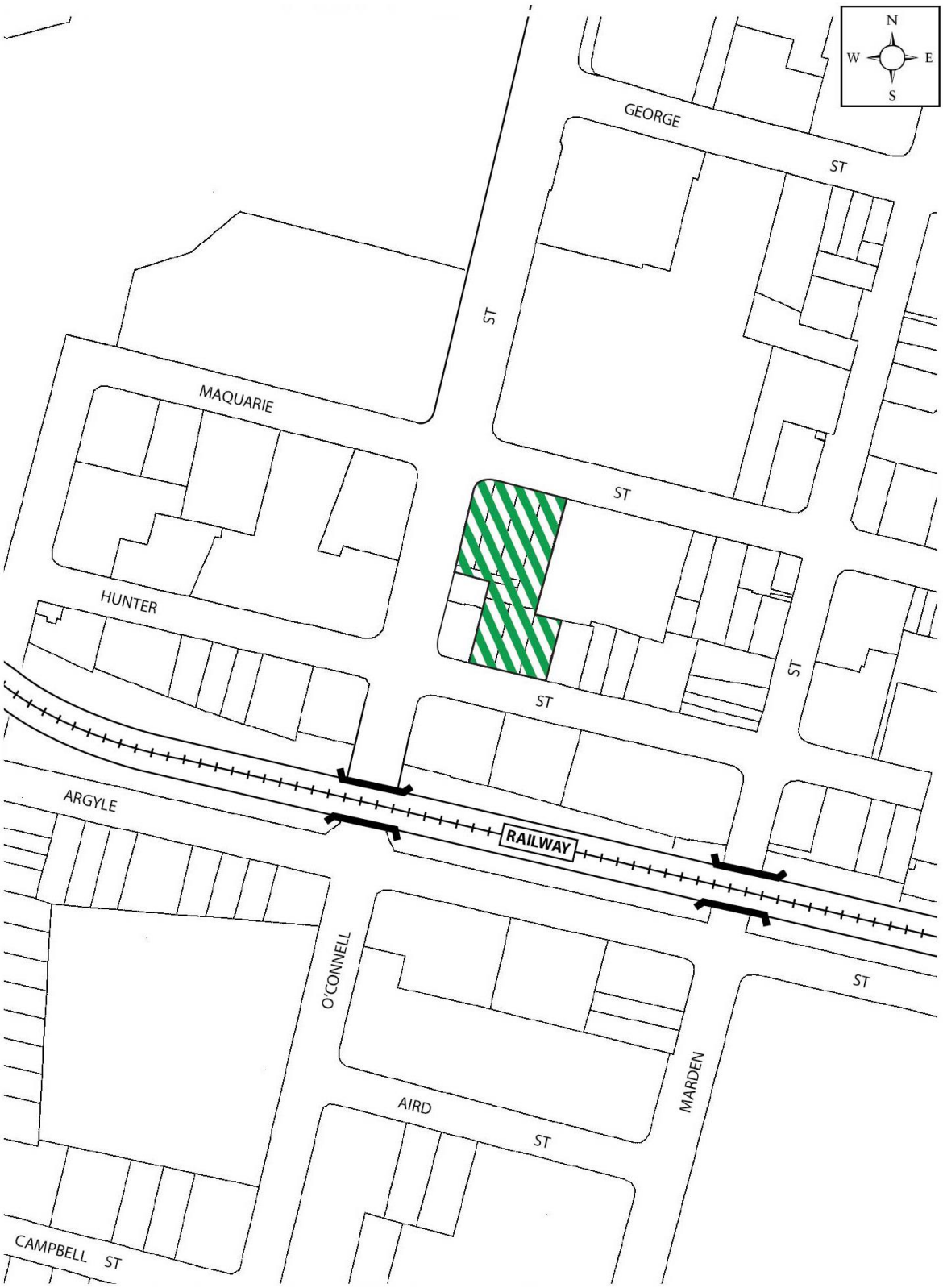
The purpose of this report is to assess the traffic and parking implications of the development proposal and to that end this report:

- describes the site and provides details of the development proposal
- reviews the road network in the vicinity of the site
- estimates the traffic generation potential of the development proposal
- assesses the traffic implications of the development proposal in terms of road network capacity
- reviews the geometric design features of the proposed car parking facilities and internal roadway for compliance with the relevant codes and standards
- assesses the adequacy and suitability of the quantum of off-street car parking provided on the site.



VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants

LOCATION
FIGURE 1



VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants

SITE
FIGURE 2

2. PROPOSED DEVELOPMENT

Site

The subject site is located on the eastern side of O'Connell Street, between Macquarie Street and Hunter Street. The site has street frontages approximately 37m in length to Hunter Street, approximately 42m in length to Macquarie Street and approximately 47m in length to O'Connell Street. It occupies an area of approximately 3,343m^2.

The site is currently occupied by a number of commercial buildings with an approximate cumulative floor area of 3,850m².

Off-street parking is provided for all commercial buildings off O'Connell Street and Hunter Street.

Planning Proposal

The Planning Proposal involves the construction of a new mixed-use development with approximately 392-393 new residential apartments and a number of retail units with an estimated cumulative floor area of 930m² in two new buildings.

Car parking is to be provided in a new basement car parking area, with the number of spaces to be provided in accordance with Council's requirements. Vehicular access to the car parking facilities is to be provided via two new entry/exit driveways, with one located towards the eastern side of Macquarie Street and the other to be located towards the eastern side of Hunter Street.

3. TRAFFIC ASSESSMENT

Road Hierarchy

The road hierarchy allocated to the road network in the vicinity of the site by the Roads and Maritime Services is illustrated on Figure 3.

The Great Western Highway is classified by the RMS as a *State Road* and provides the key east-west road link in the area. It typically carries three traffic lanes in each direction in the vicinity of the site, with opposing traffic flows separated by a central median island.

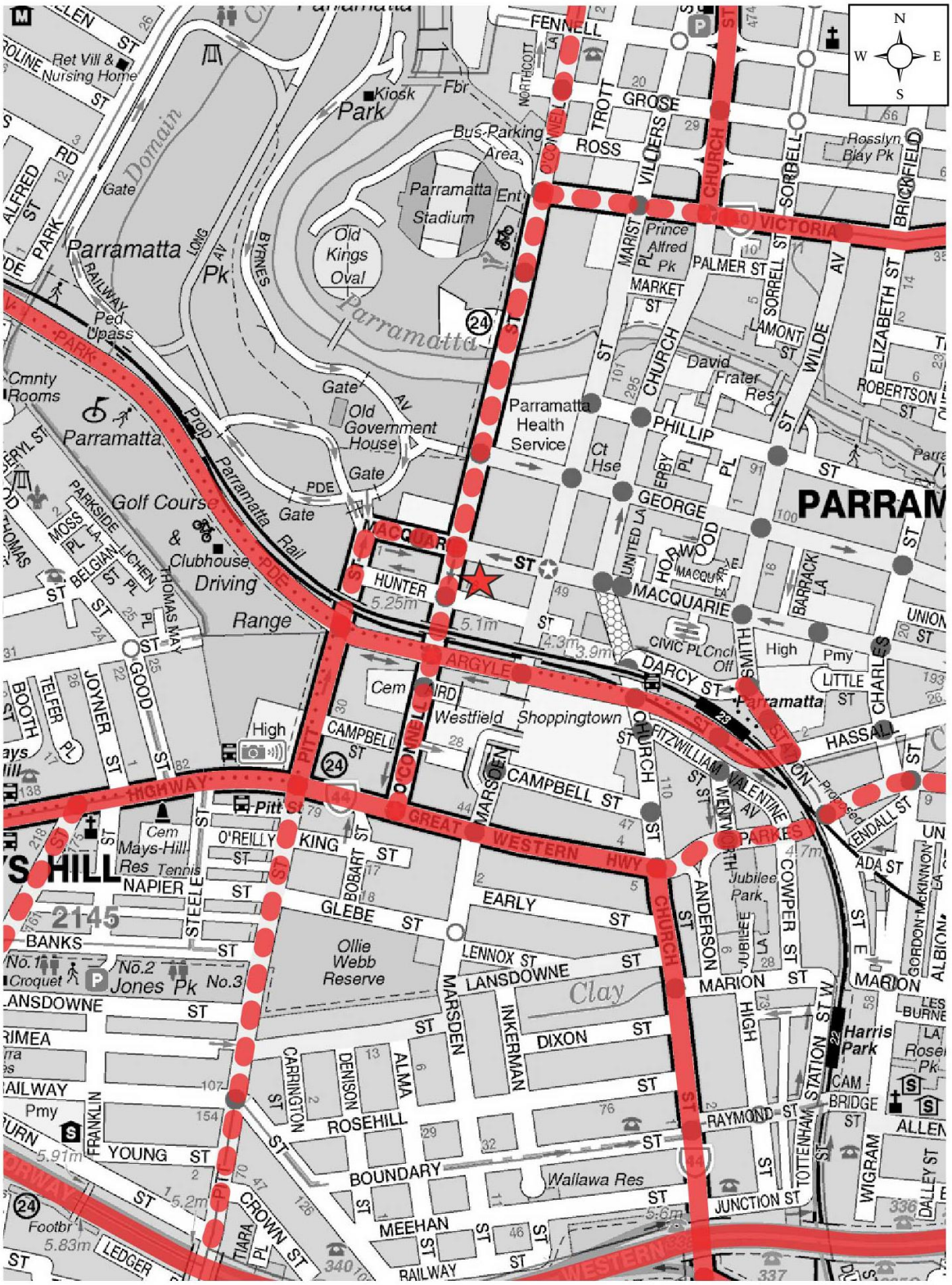
O'Connell Street / Macquarie Street (west of O'Connell Street) / Pitt Street are classified by the RMS as a *Regional Road* and provides the key north-south road link in the area. It typically carries four traffic lanes with additional lanes provided at key locations.

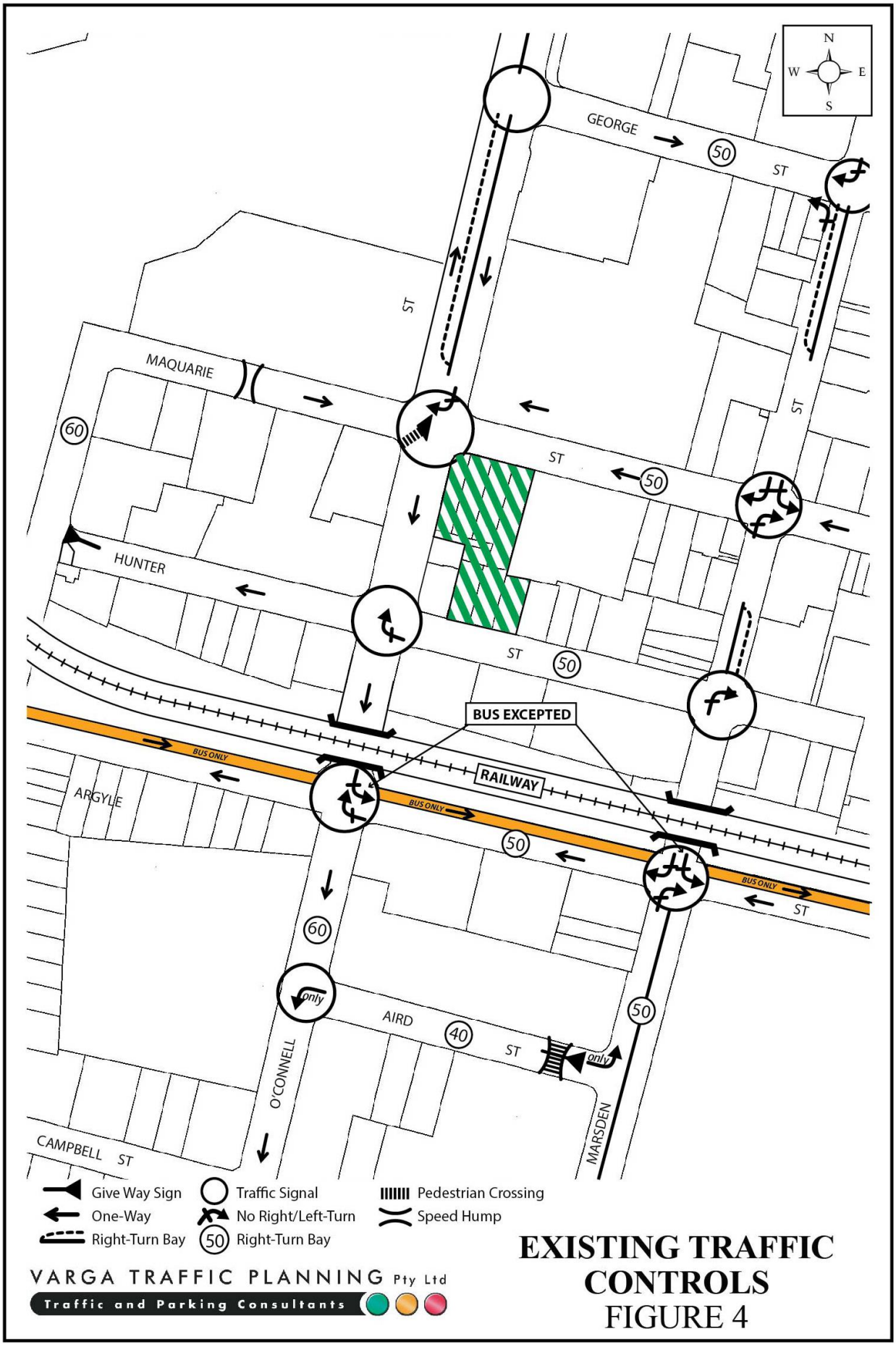
Hunter Street is a local, unclassified road which is primarily used to provide vehicular and pedestrian access to frontage properties. Restricted kerbside parking is generally permitted both sides of the road.

Existing Traffic Controls

The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4. Key features of those traffic controls are:

- an 60 km/h SPEED LIMIT which applies to O'Connell Street
- a 50 km/h SPEED LIMIT which applies to Hunter Street, Macquarie Street and all other local roads in the area
- TRAFFIC SIGNALS in O'Connell Street where it intersects with Macquarie Street and Hunter Street
- ONE WAY eastbound restriction in Macquarie Street (west of O'Connell Street)


Key:
State Road
Regional Road
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
UBD
ROAD HIERARCHY
FIGURE 3


N
W
E
S
GEORGE
50
ST
MAQUARIE
60
HUNTER
BUS EXCEPTED
BUS ONLY
RAILWAY
ARGYLE
AIRD
40
O'CONNELL
MARSDEN
CAMPBELL ST
Only
Give Way Sign
One-Way
Right-Turn Bay
Traffic Signal
No Right/Left-Turn
Right-Turn Bay
Pedestrian Crossing
Speed Hump
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING TRAFFIC CONTROLS
FIGURE 4

- ONE WAY westbound restriction in Macquarie Street (east of O'Connell Street)

- ONE WAY southbound restriction in O'Connell Street (south of Macquarie Street).

Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak period traffic surveys undertaken as part of this traffic study. The traffic surveys were undertaken in O'Connell Street where it intersects with Macquarie Street and with Hunter Street. The results of the traffic surveys are reproduced in full in Appendix A and reveal that:

- one-way traffic flows in O'Connell Street are typically in the order of 2,000 vehicles per hour (vph) during peak periods

- one-way traffic flows in Macquarie Street are typically in the order of 1,000 vehicles per hour (vph) during peak periods

- one-way traffic flows in Hunter Street are typically in the order of 200 vehicles per hour (vph) during peak periods.

Projected Traffic Generation

An indication of the traffic generation potential of the development proposal is provided by reference to the Roads and Traffic Authority's publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002).*

The RMS *Guidelines* are based on extensive surveys of a wide range of land uses and nominates the following traffic generation rates which are applicable to the development proposal:

High Density Residential Flat Buildings in Sub-Regional Centres
0.29 peak hour vehicle trips/dwelling

The RMS *Guidelines* also make the following observation in respect of high density residential flat buildings:

> **Definition**
>
> A *high density residential flat building* refers to a building containing 20 or more dwellings. This does not include aged or disabled persons housing. *High density residential flat buildings* are usually more than 5 levels, have basement level car parking and are located in close proximity to public transport services. The building may contain a component of commercial use.
>
> **Factors**
>
> The above rates include visitors, staff, service/delivery and on-street movements such as taxis and pick-up/set-down activities.

The RMS *Guidelines* do not nominate a traffic generation rate for small, local shops, referring only to major regional shopping centres incorporating supermarkets and department stores. For the purposes of this assessment therefore, the traffic generation rate of 2.0 peak hour vehicle trips/100m^2 GFA nominated in the RMS *Guidelines* for commercial premises has been adopted in respect of the retail component of the development proposal.

Application of the above traffic generation rates to the various components of the development proposal yields a traffic generation potential of approximately 133 vehicle trips per hour during commuter peak periods as set out below:

Projected Future Traffic Generation

Residential Apartments (392-393 Apartments):	114 peak hour vehicle trips
Commercial Premises (930m^2):	19 peak hour vehicle trips
TOTAL TRAFFIC GENERATION POTENTIAL:	**133 peak hour vehicle trips**

That projected future level of traffic generation potential should however, be offset or *discounted* by the volume of traffic which could reasonably be expected to be generated by the existing uses of the site, in order to determine the *nett increase* in traffic generation potential expected to occur as a consequence of the development proposal.

The RMS *Guidelines* nominates the following traffic generation rates which are applicable to the existing developments on the site:

Commercial Premises

2.0 peak hour vehicle trips per 100m^2 GFA

Application of the above traffic generation rates to the existing commercial buildings on the site yields a traffic generation potential of approximately 77 vehicle trips per hour during commuter peak periods.

Accordingly, it is likely that the proposed development will result in an *increase* in the traffic generation potential the site of approximately 56 vph as set out below:

Projected Nett Increase in Peak Hour Traffic Generation Potential as a Consequence of the Development Proposal

Projected Future Traffic Generation Potential:	133 vehicle trips
Less Existing Traffic Generation Potential:	77 vehicle trips
NETT INCREASE IN TRAFFIC GENERATION POTENTIAL:	**56 vehicle trips**

That projected increase in traffic activity as a consequence of the development proposal is minimal, and will clearly not have any unacceptable traffic implications in terms of road network capacity as is detailed in the following section of this report.

Traffic Implications - Road Network Capacity

The traffic implications of development proposals primarily concern the effects that any *additional* traffic flows may have on the operational performance of the nearby road network. Those effects can be assessed using the SIDRA program which is widely used by the RMS and many LGA's for this purpose. Criteria for evaluating the results of SIDRA analysis are reproduced in the following pages.

The results of the SIDRA analysis of the O'Connell Street / Hunter Street intersection are reproduced in Appendix B and are summarised on Table 3.1 below, revealing that:

- the O'Connell Street / Hunter Street intersection currently operates at *Level of Service "A"* under the existing traffic demands with total average vehicle delays in the order of 11 second/vehicle

- under the projected future traffic demands expected to be generated by the development proposal, the O'Connell Street / Hunter Street intersection will continue to operate at *Level of Service "A",* with increases in average vehicle delays of ***less than*** 1 second/vehicle.

The results of the SIDRA analysis of the O'Connell Street / Macquarie Street intersection are reproduced in Appendix B and are summarised on Table 3.2 below, revealing that:

- the O'Connell Street / Macquarie Street intersection currently operates at *Level of Service "B"* under the existing traffic demands with total average vehicle delays in the order of 20 seconds/vehicle

- under the projected future traffic demands expected to be generated by the development proposal, the O'Connell Street / Macquarie Street intersection will continue to operate at *Level of Service "B",* with increases in average vehicle delays of ***less than*** 1 second/vehicle.

In the circumstances, it is clear that the proposed development will not have any unacceptable traffic implications in terms of road network capacity.

TABLE 3.1 - RESULTS OF SIDRA ANALYSIS OF O'CONNELL STREET / HUNTER STREET

Key Indicators		Existing Traffic Demand		Projected Development Traffic Demand	
		AM	**PM**	**AM**	**PM**
Level of Service		A	A	A	A
Degree of Saturation		0.290	0.376	0.303	0.383
Average Vehicle Delay (secs/veh)					
Hunter Street (East)	L	55.0	44.7	53.6	44.9
	T	51.4	36.6	49.7	36.7
O'Connell Street (North)	L	10.0	15.8	10.7	15.9
	T	4.4	10.2	5.1	10.3
	R	10.1	16.0	10.8	16.0
TOTAL AVERAGE VEHICLE DELAY		**8.4**	**13.7**	**9.8**	**13.9**
		OCO_HUNX		OCO_HUNP	

TABLE 3.2 - RESULTS OF SIDRA ANALYSIS OF O'CONNELL STREET / MACQUARIE STREET

Key Indicators		Existing Traffic Demand		Projected Development Traffic Demand	
		AM	**PM**	**AM**	**PM**
Level of Service		B	B	B	B
Degree of Saturation		0.616	0.441	0.627	0.446
Average Vehicle Delay (secs/veh)					
Macquarie Street (east)	L	51.0	37.4	49.4	37.5
	R	58.8	44.7	58.4	44.9
O'Connell Street (north)	T	14.7	24.7	15.2	24.7
Macquarie Street (west)	L	11.1	15.8	11.6	15.8
	R	4.9	4.9	4.9	4.9
TOTAL AVERAGE VEHICLE DELAY		**16.0**	**23.5**	**16.8**	**23.6**
		OCO_MACX		OCO_MACP	

Criteria for Interpreting Results of Sidra Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'B'	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
'C'	Satisfactory.	Satisfactory but accident study required.
'D'	Operating near capacity.	Near capacity and accident study required.
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.
'F'	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation.	Good operation.
B	15 to 28	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
C	29 to 42	Satisfactory.	Satisfactory but accident study required.
D	43 to 56	Operating near capacity.	Near capacity and accident study required.
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by traffic signals[1] both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a roundabout or GIVE WAY or STOP signs, satisfactory intersection operation is indicated by a DS of 0.8 or less.

[1] *The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.*

4. PARKING IMPLICATIONS

Existing Kerbside Parking Restrictions

The existing kerbside parking restrictions which apply to the road network in the vicinity of the site are illustrated on Figure 5 and comprise:

- CLEARWAY restrictions along the eastern side of O'Connell Street during commuter peak periods

- NO STOPPING restrictions along both sides of O'Connell Street and along various sections both sides of Macquarie Street, including along the site frontages

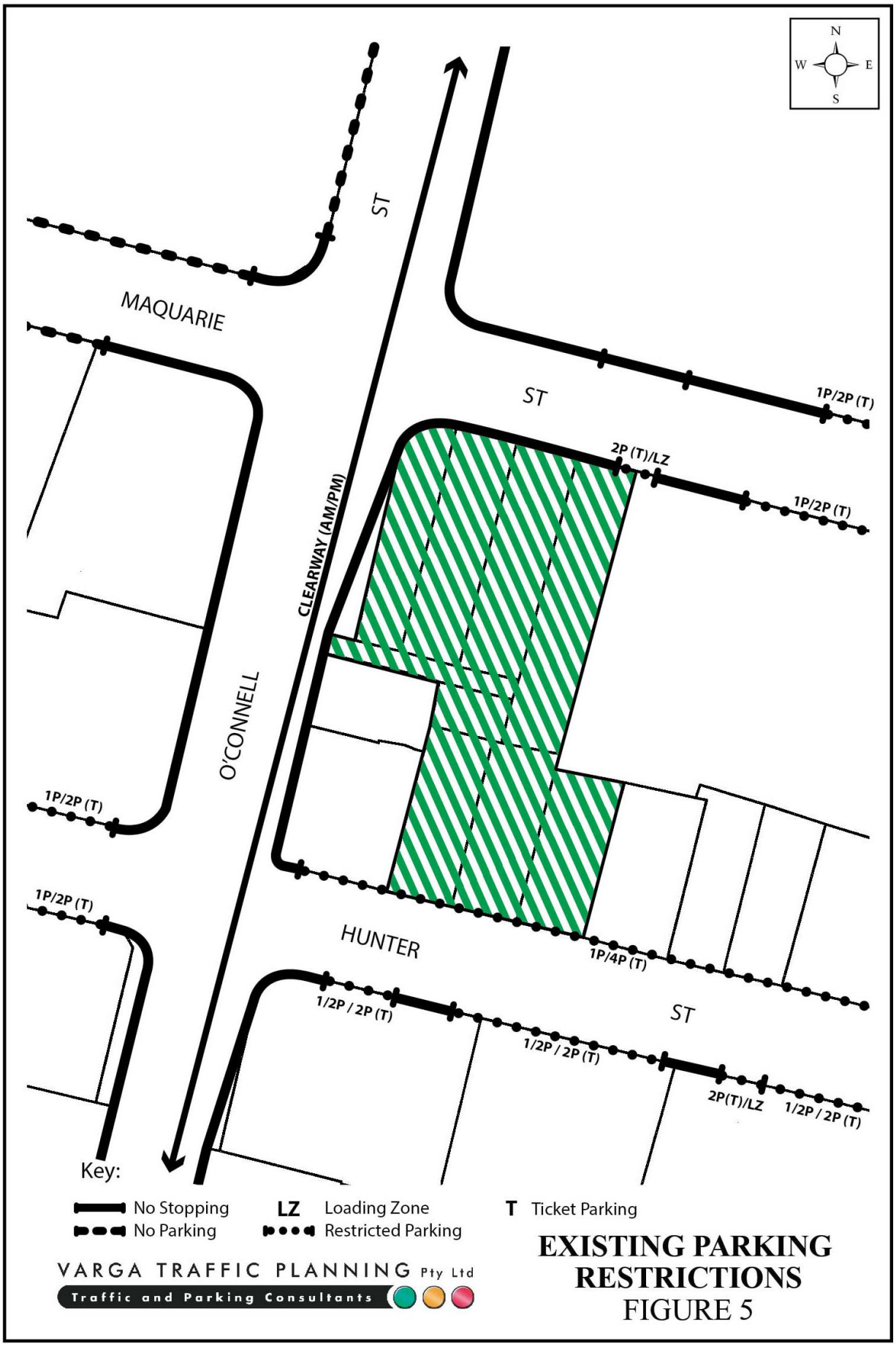
- 1 HOUR PARKING / 4 HOUR PARKING (TICKET) restrictions along the northern side of Hunter Street, including the site frontage

Off-Street Parking Provisions

The maximum off-street parking provision permitted on the site as part of the development proposal are specified in Camden Council's *City Centre Local Environmental Plan 2007 Section 22C Car Parking* document in the following terms:

> **Multi Dwelling Housing**
> A maximum of 1 parking space per dwelling, *plus*
> 1 parking space per 5 dwellings for visitors
>
> **Shops**
> A maximum of 1 parking space per 30m² GFA

Whilst the precise unit mix and retail floor area of the Planning Proposal is not yet determined, it is expected that Council's numeric requirements for parking spaces will be satisfied, and that the design layout of all off-street car parking areas will comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1.2004.*


N
W
E
S
MAQUARIE
ST
ST
1P/2P (T)
2P (T)/LZ
1P/2P (T)
CLEARWAY (AM/PM)
O'CONNELL
1P/2P (T)
1P/2P (T)
HUNTER
1P/4P (T)
1/2P / 2P (T)
ST
1/2P / 2P (T)
2P(T)/LZ
1/2P / 2P (T)
Key:
No Stopping
No Parking
LZ Loading Zone
Restricted Parking
T Ticket Parking
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING PARKING RESTRICTIONS
FIGURE 5

The geometric design layout of the proposed future car parking facilities will be designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1.2004* in respect of garage dimensions and internal roadway gradients and widths.

In summary, the proposed parking facilities satisfy the relevant requirements specified in both Council's Parking Code as well as the Australian Standards and it is therefore concluded that the proposed development will not have any unacceptable parking implications.

APPENDIX A

TRAFFIC SURVEY DATA

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : Varga Traffic Planning
Job No/Name : 5577 PARRAMATTA O'Connell St
Day/Date : Tuesday 21st April 2015

Lights

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	4	148	14	0	0	0	0	0	0	5	6	0	**177**
0715 - 0730	8	205	28	0	0	0	0	0	0	6	15	0	**262**
0730 - 0745	19	300	41	0	0	0	0	0	0	7	9	0	**376**
0745 - 0800	29	314	43	0	0	0	0	0	0	12	18	0	**416**
0800 - 0815	27	355	53	0	0	0	0	0	0	9	22	0	**466**
0815 - 0830	25	321	64	0	0	0	0	0	0	12	19	0	**441**
0830 - 0845	31	378	57	0	0	0	0	0	0	7	14	0	**487**
0845 - 0900	35	356	65	0	0	0	0	0	0	13	12	0	**481**
Period End	**178**	**2377**	**365**	**0**	**0**	**0**	**0**	**0**	**0**	**71**	**115**	**0**	**3106**

Heavies

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	0	1	0	0	0	0	0	0	0	0	0	0	**1**
0715 - 0730	1	6	0	0	0	0	0	0	0	0	0	0	**7**
0730 - 0745	0	2	0	0	0	0	0	0	0	0	0	0	**2**
0745 - 0800	0	2	0	0	0	0	0	0	0	0	0	0	**2**
0800 - 0815	2	0	0	0	0	0	0	0	0	0	0	0	**2**
0815 - 0830	0	2	0	0	0	0	0	0	0	0	0	0	**2**
0830 - 0845	0	5	0	0	0	0	0	0	0	0	0	0	**5**
0845 - 0900	0	1	0	0	0	0	0	0	0	0	0	0	**1**
Period End	**3**	**19**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22**

Lights

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	60	967	126	0	0	0	0	0	0	30	48	0	**1231**
0715 - 0815	83	1174	165	0	0	0	0	0	0	34	64	0	**1520**
0730 - 0830	100	1290	201	0	0	0	0	0	0	40	68	0	**1699**
0745 - 0845	112	1368	217	0	0	0	0	0	0	40	73	0	**1810**
0800 - 0900	118	1410	239	0	0	0	0	0	0	41	67	0	**1875**
PEAK HOUR	**118**	**1410**	**239**	**0**	**0**	**0**	**0**	**0**	**0**	**41**	**67**	**0**	**1875**

Heavies

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	1	11	0	0	0	0	0	0	0	0	0	0	**12**
0715 - 0815	3	10	0	0	0	0	0	0	0	0	0	0	**13**
0730 - 0830	2	6	0	0	0	0	0	0	0	0	0	0	**8**
0745 - 0845	2	9	0	0	0	0	0	0	0	0	0	0	**11**
0800 - 0900	2	8	0	0	0	0	0	0	0	0	0	0	**10**
PEAK HOUR	**2**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**

Combined

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	4	149	14	0	0	0	0	0	0	5	6	0	**178**
0715 - 0730	9	211	28	0	0	0	0	0	0	6	15	0	**269**
0730 - 0745	19	302	41	0	0	0	0	0	0	7	9	0	**378**
0745 - 0800	29	316	43	0	0	0	0	0	0	12	18	0	**418**
0800 - 0815	29	355	53	0	0	0	0	0	0	9	22	0	**468**
0815 - 0830	25	323	64	0	0	0	0	0	0	12	19	0	**443**
0830 - 0845	31	383	57	0	0	0	0	0	0	7	14	0	**492**
0845 - 0900	35	357	65	0	0	0	0	0	0	13	12	0	**482**
Period End	**181**	**2396**	**365**	**0**	**0**	**0**	**0**	**0**	**0**	**71**	**115**	**0**	**3128**

Peds

	NORTH	WEST	SOUTH	EAST	
	O'Connell St	*Hunter St*	*O'Connell St*	*Hunter St*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0700 - 0715	16	0	4	6	**26**
0715 - 0730	22	0	3	12	**37**
0730 - 0745	33	3	6	10	**52**
0745 - 0800	18	0	8	2	**28**
0800 - 0815	37	3	7	3	**50**
0815 - 0830	44	0	3	6	**53**
0830 - 0845	39	4	5	2	**50**
0845 - 0900	25	3	7	4	**39**
Period End	**234**	**13**	**43**	**45**	**335**

Combined

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	61	978	126	0	0	0	0	0	0	30	48	0	**1243**
0715 - 0815	86	1184	165	0	0	0	0	0	0	34	64	0	**1533**
0730 - 0830	102	1296	201	0	0	0	0	0	0	40	68	0	**1707**
0745 - 0845	114	1377	217	0	0	0	0	0	0	40	73	0	**1821**
0800 - 0900	120	1418	239	0	0	0	0	0	0	41	67	0	**1885**
PEAK HOUR	**120**	**1418**	**239**	**0**	**0**	**0**	**0**	**0**	**0**	**41**	**67**	**0**	**1885**

Peds

	NORTH	WEST	SOUTH	EAST	
	O'Connell St	*Hunter St*	*O'Connell St*	*Hunter St*	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0700 - 0800	89	3	21	30	**143**
0715 - 0815	110	6	24	27	**167**
0730 - 0830	132	6	24	21	**183**
0745 - 0845	138	7	23	13	**181**
0800 - 0900	145	10	22	15	**192**
PEAK HR	**145**	**10**	**22**	**15**	**192**

R.O.A.R DATA

Reliable, Original & Authentic Results

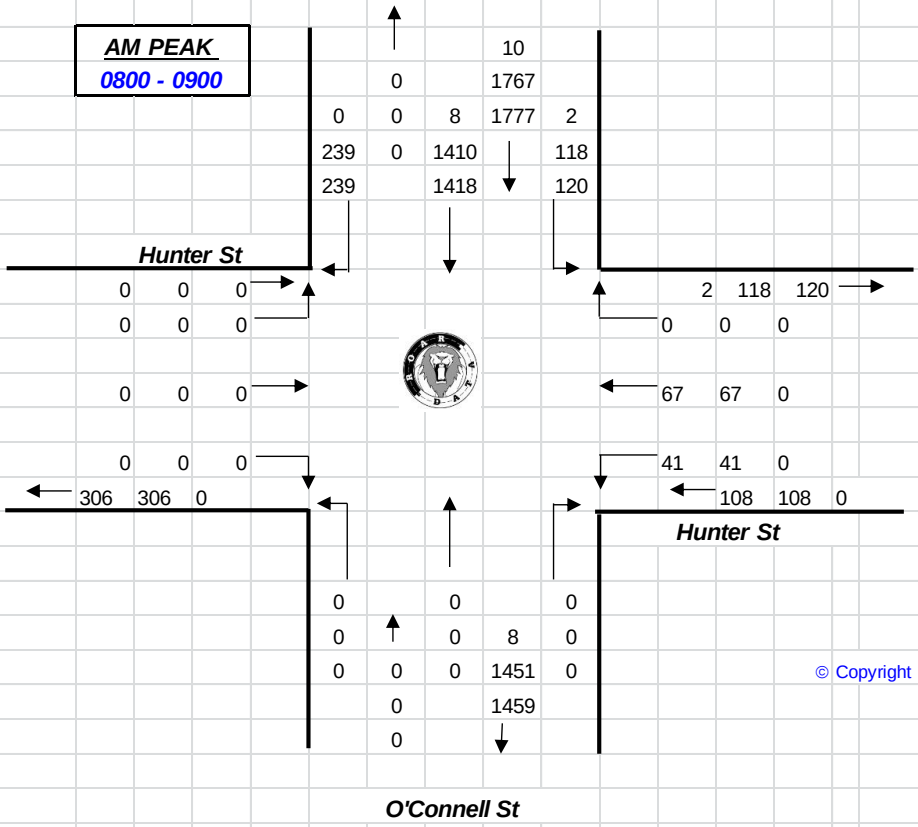
Ph.88196847, Fax 88196849, Mob. 0418 239019

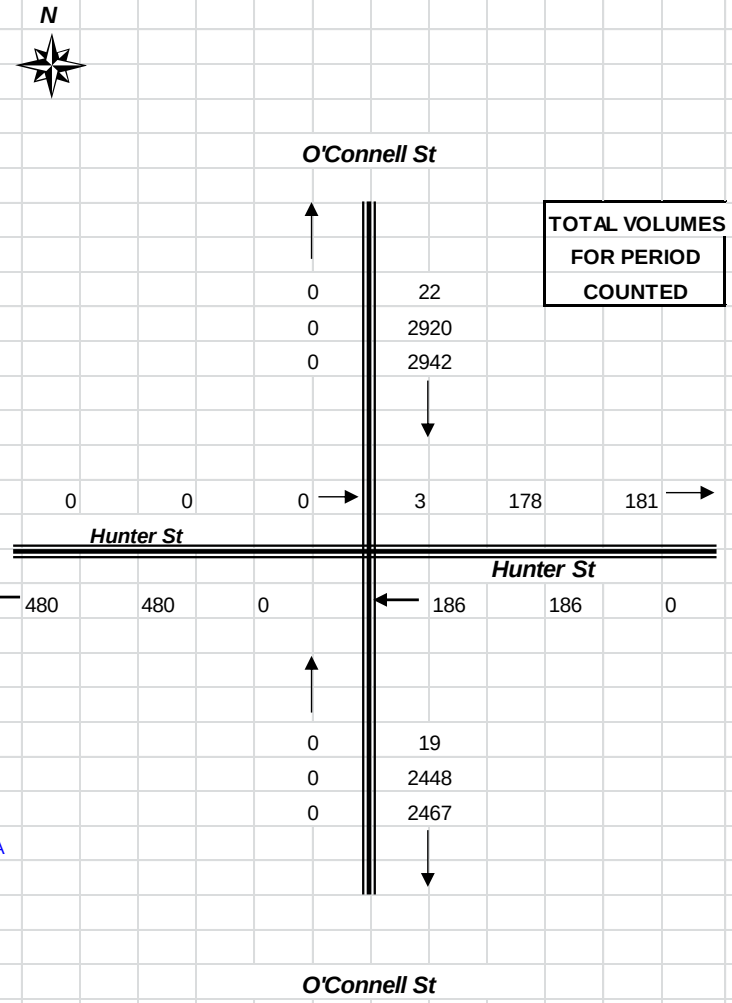
Client : Varga Traffic Planning

Job No/Name : 5577 PARRAMATTA O'Connell St

Day/Date : Tuesday 21st April 2015

Hours 1 | Hours 2 | Hours 3 | Hours 4 | Hours 5





R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : Varga Traffic Planning
Job No/Name : 5577 PARRAMATTA O'Connell St
Day/Date : Tuesday 21st April 2015

Lights

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	26	420	6	0	0	0	0	0	0	44	5	0	**501**
1615 - 1630	15	453	15	0	0	0	0	0	0	55	11	0	**549**
1630 - 1645	8	440	8	0	0	0	0	0	0	44	6	0	**506**
1645 - 1700	15	400	2	0	0	0	0	0	0	47	12	0	**476**
1700 - 1715	8	439	7	0	0	0	0	0	0	55	13	0	**522**
1715 - 1730	10	423	15	0	0	0	0	0	0	39	7	0	**494**
1730 - 1745	8	473	15	0	0	0	0	0	0	44	7	0	**547**
1745 - 1800	10	474	18	0	0	0	0	0	0	33	5	0	**540**
Period End	**100**	**3522**	**86**	**0**	**0**	**0**	**0**	**0**	**0**	**361**	**66**	**0**	**4135**

Heavies

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	0	2	0	0	0	0	0	0	0	0	0	0	**2**
1615 - 1630	0	2	0	0	0	0	0	0	0	0	0	0	**2**
1630 - 1645	0	1	0	0	0	0	0	0	0	0	0	0	**1**
1645 - 1700	0	1	0	0	0	0	0	0	0	0	0	0	**1**
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1715 - 1730	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1730 - 1745	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1745 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Period End	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**

Lights

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	64	1713	31	0	0	0	0	0	0	190	34	0	**2032**
1615 - 1715	46	1732	32	0	0	0	0	0	0	201	42	0	**2053**
1630 - 1730	41	1702	32	0	0	0	0	0	0	185	38	0	**1998**
1645 - 1745	41	1735	39	0	0	0	0	0	0	185	39	0	**2039**
1700 - 1800	36	1809	55	0	0	0	0	0	0	171	32	0	**2103**
PEAK HOUR	**46**	**1732**	**32**	**0**	**0**	**0**	**0**	**0**	**0**	**201**	**42**	**0**	**2053**

Heavies

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	0	6	0	0	0	0	0	0	0	0	0	0	**6**
1615 - 1715	0	4	0	0	0	0	0	0	0	0	0	0	**4**
1630 - 1730	0	2	0	0	0	0	0	0	0	0	0	0	**2**
1645 - 1745	0	1	0	0	0	0	0	0	0	0	0	0	**1**
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	**0**
PEAK HOUR	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**

Combined

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	26	422	6	0	0	0	0	0	0	44	5	0	**503**
1615 - 1630	15	455	15	0	0	0	0	0	0	55	11	0	**551**
1630 - 1645	8	441	8	0	0	0	0	0	0	44	6	0	**507**
1645 - 1700	15	401	2	0	0	0	0	0	0	47	12	0	**477**
1700 - 1715	8	439	7	0	0	0	0	0	0	55	13	0	**522**
1715 - 1730	10	423	15	0	0	0	0	0	0	39	7	0	**494**
1730 - 1745	8	473	15	0	0	0	0	0	0	44	7	0	**547**
1745 - 1800	10	474	18	0	0	0	0	0	0	33	5	0	**540**
Period End	**100**	**3528**	**86**	**0**	**0**	**0**	**0**	**0**	**0**	**361**	**66**	**0**	**4141**

Peds

	NORTH	WEST	SOUTH	EAST	
	O'Connell St	*Hunter St*	*O'Connell St*	*Hunter St*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1600 - 1615	36	3	5	8	**52**
1615 - 1630	51	3	7	8	**69**
1630 - 1645	55	0	10	9	**74**
1645 - 1700	36	5	7	10	**58**
1700 - 1715	38	2	10	10	**60**
1715 - 1730	33	2	8	3	**46**
1730 - 1745	33	1	7	9	**50**
1745 - 1800	24	1	0	0	**25**
Period End	**306**	**17**	**54**	**57**	**434**

Combined

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Hunter St*			*O'Connell St*			*Hunter St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	64	1719	31	0	0	0	0	0	0	190	34	0	**2038**
1615 - 1715	46	1736	32	0	0	0	0	0	0	201	42	0	**2057**
1630 - 1730	41	1704	32	0	0	0	0	0	0	185	38	0	**2000**
1645 - 1745	41	1736	39	0	0	0	0	0	0	185	39	0	**2040**
1700 - 1800	36	1809	55	0	0	0	0	0	0	171	32	0	**2103**
PEAK HOUR	**46**	**1736**	**32**	**0**	**0**	**0**	**0**	**0**	**0**	**201**	**42**	**0**	**2057**

Peds

	NORTH	WEST	SOUTH	EAST	
	O'Connell St	*Hunter St*	*O'Connell St*	*Hunter St*	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1600 - 1700	178	11	29	35	**253**
1615 - 1715	180	10	34	37	**261**
1630 - 1730	162	9	35	32	**238**
1645 - 1745	140	10	32	32	**214**
1700 - 1800	128	6	25	22	**181**
PEAK HR	**180**	**10**	**34**	**37**	**261**

R.O.A.R DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : Varga Traffic Planning

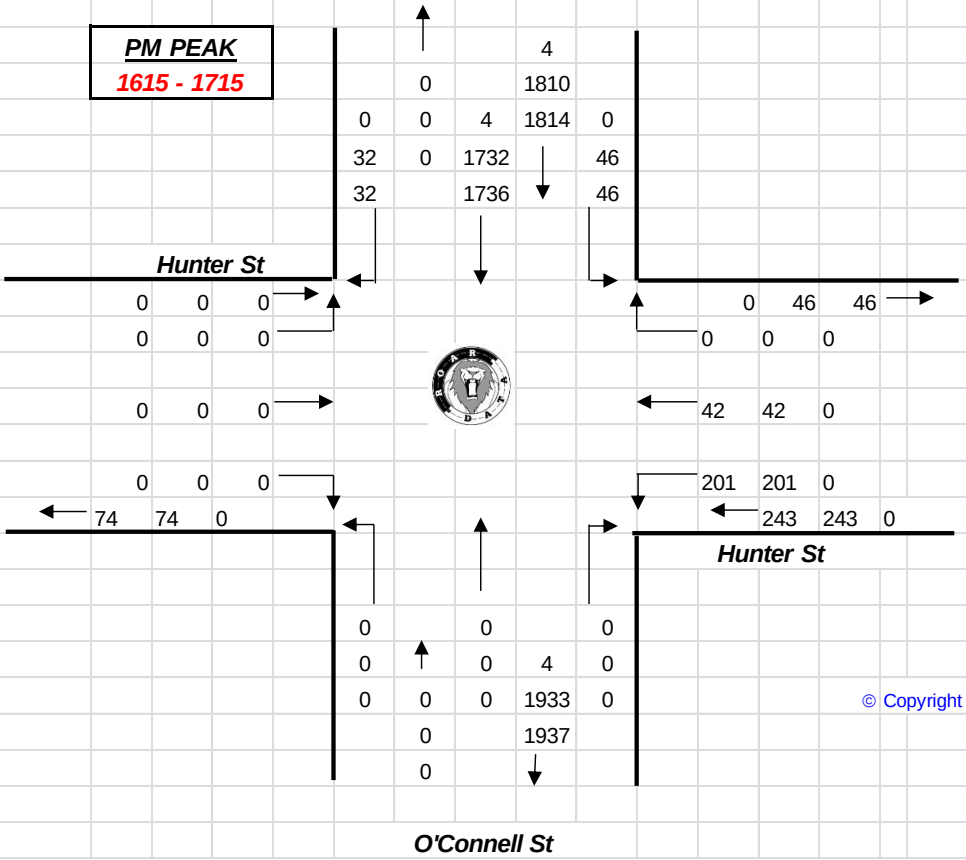
Job No/Name : 5577 PARRAMATTA O'Connell St

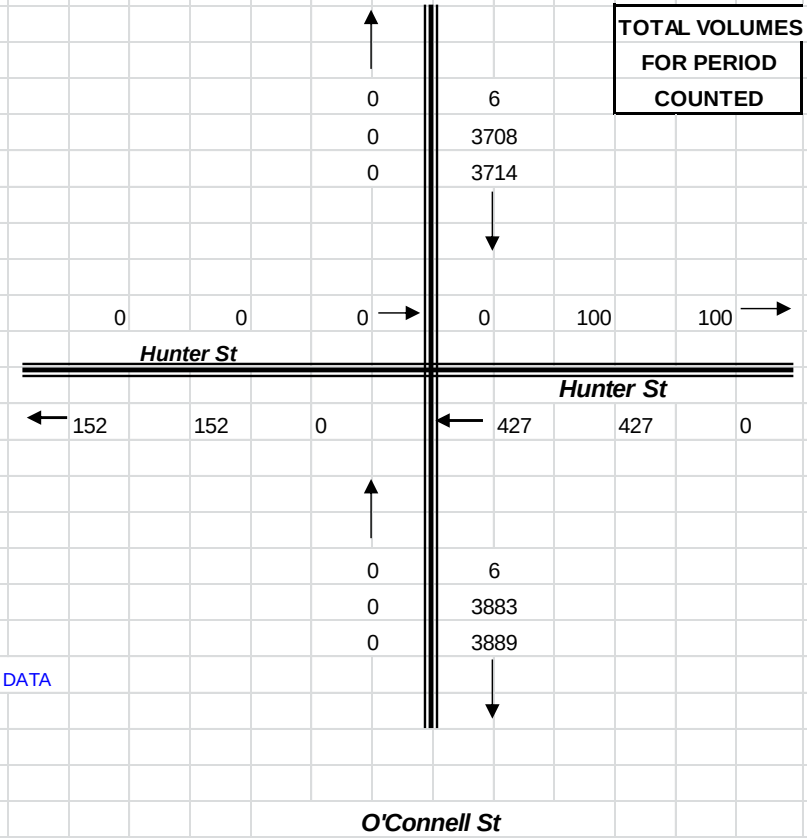
Day/Date : Tuesday 21st April 2015

Hours 1 | Hours 2 | Hours 3 | Hours 4 | Hours 5

PM PEAK

1615 - 1715





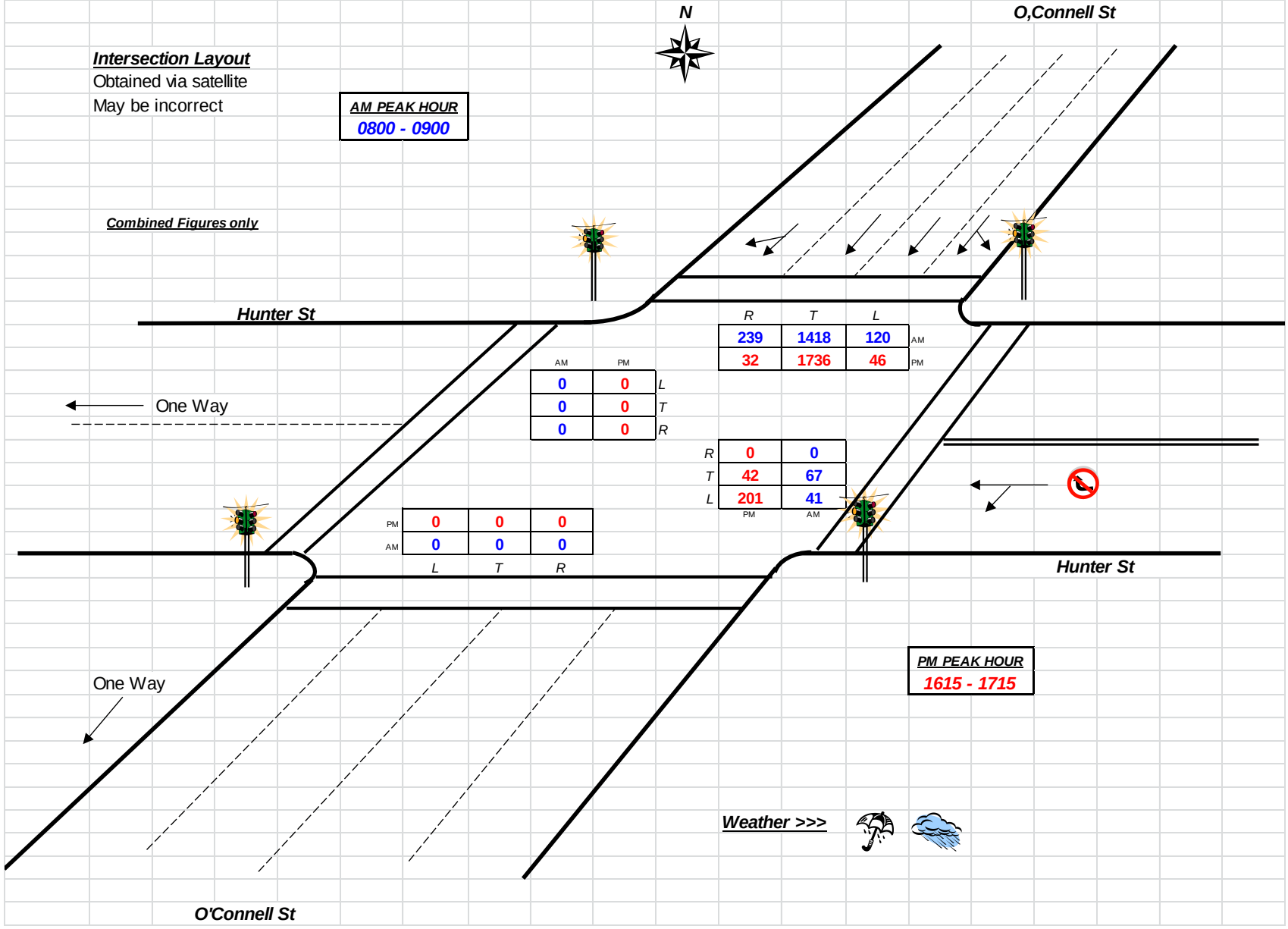
R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 5577 PARRAMATTA O'Connell St
Day/Date	: Tuesday 21st April 2015

Intersection Layout
Obtained via satellite
May be incorrect

AM PEAK HOUR
0800 - 0900

Combined Figures only



	R	T	L	
	239	1418	120	AM
	32	1736	46	PM

AM	PM	
0	0	L
0	0	T
0	0	R

R	0	0
T	42	67
L	201	41
	PM	AM

PM	0	0	0
AM	0	0	0
	L	T	R

PM PEAK HOUR
1615 - 1715

Weather >>>

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : Varga Traffic Planning
Job No/Name : 5577 PARRAMATTA O'Connell St
Day/Date : Tuesday 21st April 2015

Lights

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	0	131	0	271	0	27	0	0	0	22	0	14	**465**
0715 - 0730	0	184	0	344	0	38	0	0	0	33	0	19	**618**
0730 - 0745	0	244	0	453	0	78	0	0	0	42	0	21	**838**
0745 - 0800	0	260	0	483	0	75	0	0	0	46	0	22	**886**
0800 - 0815	0	268	0	438	0	83	0	0	0	52	0	38	**879**
0815 - 0830	0	260	0	412	0	83	0	0	0	61	0	35	**851**
0830 - 0845	0	302	0	419	0	94	0	0	0	62	0	42	**919**
0845 - 0900	0	266	0	393	0	93	0	0	0	55	0	40	**847**
Period End	**0**	**1915**	**0**	**3213**	**0**	**571**	**0**	**0**	**0**	**373**	**0**	**231**	**6303**

Heavies

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	0	1	0	0	0	0	0	0	0	0	0	0	**1**
0715 - 0730	0	5	0	0	0	1	0	0	0	1	0	1	**8**
0730 - 0745	0	1	0	2	0	0	0	0	0	1	0	2	**6**
0745 - 0800	0	1	0	1	0	0	0	0	0	1	0	1	**4**
0800 - 0815	0	1	0	1	0	1	0	0	0	0	0	1	**4**
0815 - 0830	0	2	0	0	0	0	0	0	0	0	0	1	**3**
0830 - 0845	0	5	0	0	0	0	0	0	0	0	0	1	**6**
0845 - 0900	0	1	0	1	0	0	0	0	0	0	0	3	**5**
Period End	**0**	**17**	**0**	**5**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**10**	**37**

Lights

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0800	0	819	0	1551	0	218	0	0	0	143	0	76	**2807**
0715 - 0815	0	956	0	1718	0	274	0	0	0	173	0	100	**3221**
0730 - 0830	0	1032	0	1786	0	319	0	0	0	201	0	116	**3454**
0745 - 0845	0	1090	0	1752	0	335	0	0	0	221	0	137	**3535**
0800 - 0900	0	1096	0	1662	0	353	0	0	0	230	0	155	**3496**
PEAK HOUR	**0**	**1090**	**0**	**1752**	**0**	**335**	**0**	**0**	**0**	**221**	**0**	**137**	**3535**

Heavies

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0800	0	8	0	3	0	1	0	0	0	3	0	4	**19**
0715 - 0815	0	8	0	4	0	2	0	0	0	3	0	5	**22**
0730 - 0830	0	5	0	4	0	1	0	0	0	2	0	5	**17**
0745 - 0845	0	9	0	2	0	1	0	0	0	1	0	4	**17**
0800 - 0900	0	9	0	2	0	1	0	0	0	0	0	6	**18**
PEAK HOUR	**0**	**9**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**4**	**17**

Combined

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	0	132	0	271	0	27	0	0	0	22	0	14	**466**
0715 - 0730	0	189	0	344	0	39	0	0	0	34	0	20	**626**
0730 - 0745	0	245	0	455	0	78	0	0	0	43	0	23	**844**
0745 - 0800	0	261	0	484	0	75	0	0	0	47	0	23	**890**
0800 - 0815	0	269	0	439	0	84	0	0	0	52	0	39	**883**
0815 - 0830	0	262	0	412	0	83	0	0	0	61	0	36	**854**
0830 - 0845	0	307	0	419	0	94	0	0	0	62	0	43	**925**
0845 - 0900	0	267	0	394	0	93	0	0	0	55	0	43	**852**
Period End	**0**	**1932**	**0**	**3218**	**0**	**573**	**0**	**0**	**0**	**376**	**0**	**241**	**6340**

Peds

	NORTH	WEST	SOUTH	EAST	
	O'Connell St	*Macquarie St*	*O'Connell St*	*Macquarie St*	
Time Per	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**TOT**
0700 - 0715	17	11	3	6	**37**
0715 - 0730	21	15	4	10	**50**
0730 - 0745	20	12	8	12	**52**
0745 - 0800	23	15	9	7	**54**
0800 - 0815	22	9	3	6	**40**
0815 - 0830	25	11	12	14	**62**
0830 - 0845	29	9	16	3	**57**
0845 - 0900	36	21	15	10	**82**
Period End	**193**	**103**	**70**	**68**	**434**

Combined

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0800	0	827	0	1554	0	219	0	0	0	146	0	80	**2826**
0715 - 0815	0	964	0	1722	0	276	0	0	0	176	0	105	**3243**
0730 - 0830	0	1037	0	1790	0	320	0	0	0	203	0	121	**3471**
0745 - 0845	0	1099	0	1754	0	336	0	0	0	222	0	141	**3552**
0800 - 0900	0	1105	0	1664	0	354	0	0	0	230	0	161	**3514**
PEAK HOUR	**0**	**1099**	**0**	**1754**	**0**	**336**	**0**	**0**	**0**	**222**	**0**	**141**	**3552**

Peds

	NORTH	WEST	SOUTH	EAST	
	O'Connell St	*Macquarie St*	*O'Connell St*	*Macquarie St*	
Peak Per	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**TOT**
0700 - 0800	81	53	24	35	**193**
0715 - 0815	86	51	24	35	**196**
0730 - 0830	90	47	32	39	**208**
0745 - 0845	99	44	40	30	**213**
0800 - 0900	112	50	46	33	**241**
PEAK HR	**99**	**44**	**40**	**30**	**213**

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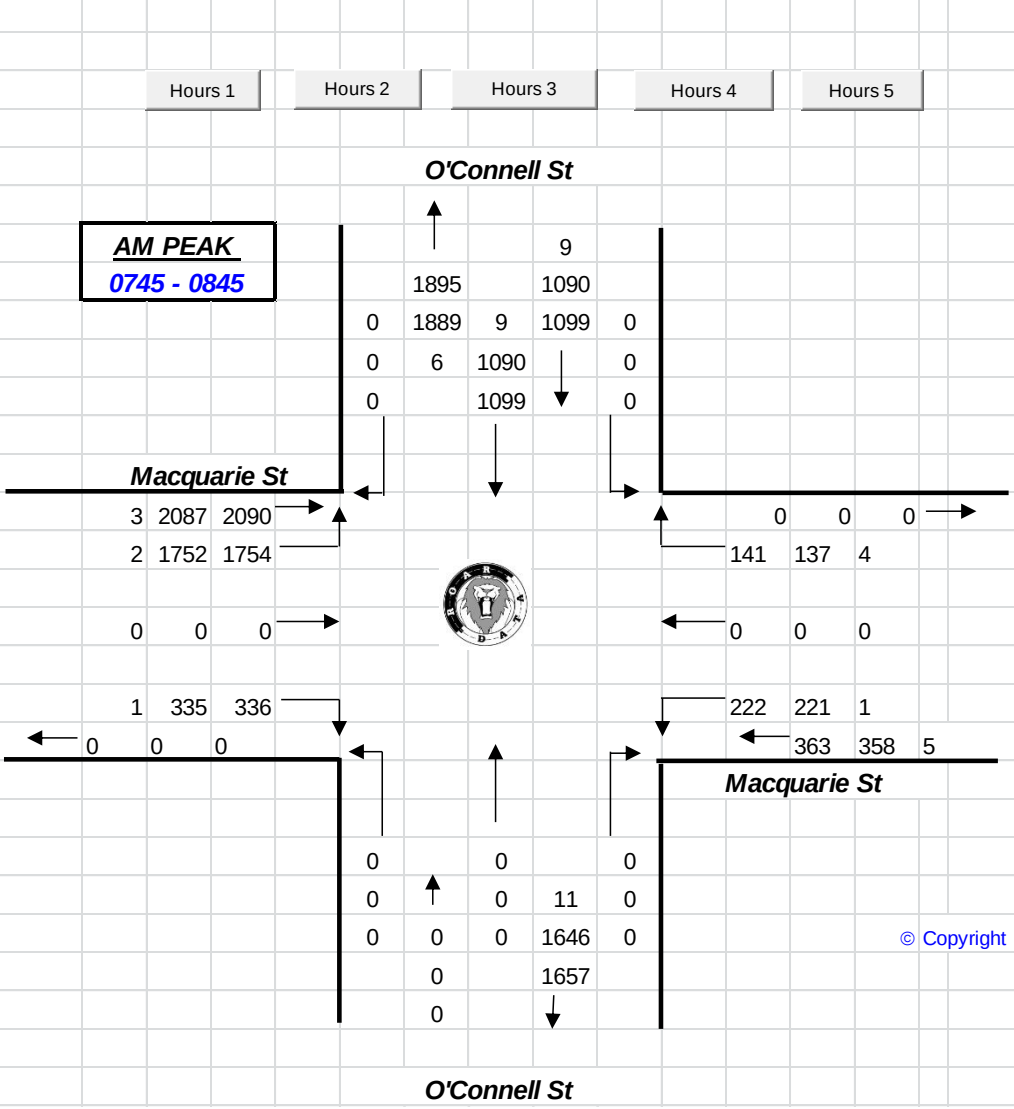
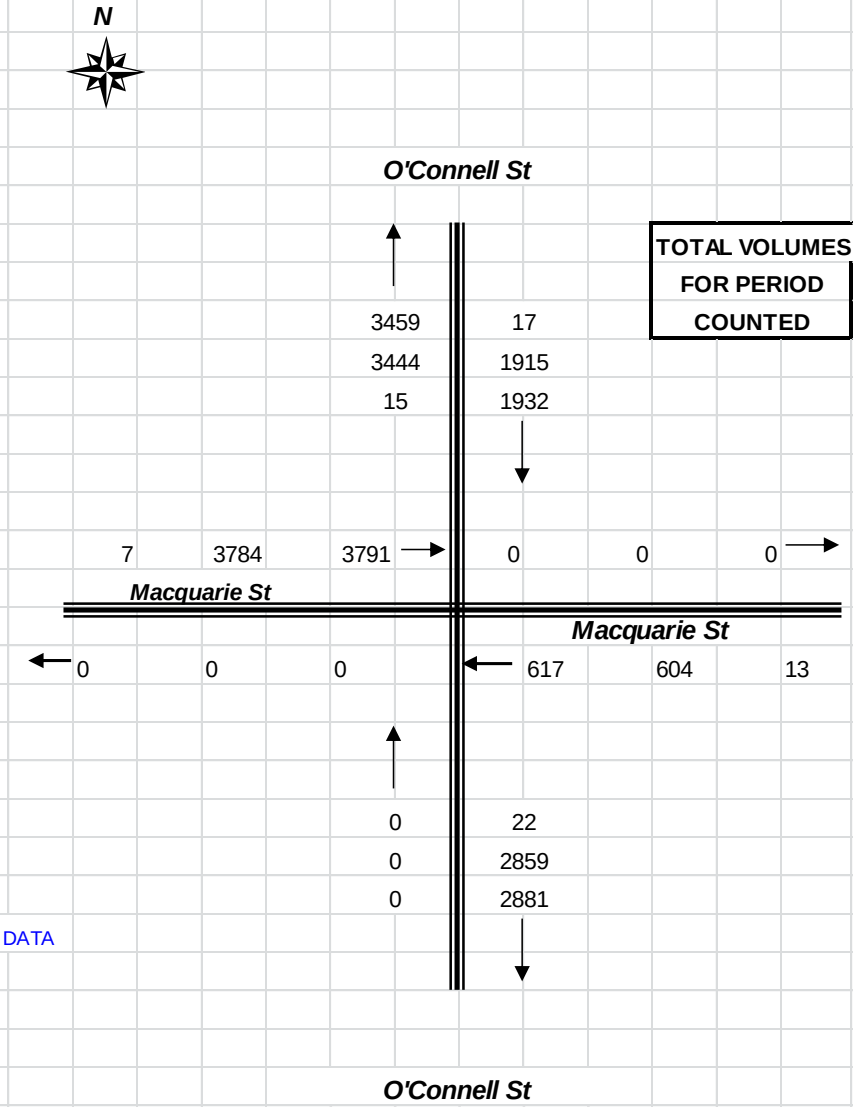
Job No/Name : 5577 PARRAMATTA O'Connell St
Day/Date : Tuesday 21st April 2015

Hours 1 | Hours 2 | Hours 3 | Hours 4 | Hours 5





R.O.A.R. DATA

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Client : Varga Traffic Planning
Job No/Name : 5577 PARRAMATTA O'Connell St
Day/Date : Tuesday 21st April 2015

Lights

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	0	269	0	228	0	51	0	0	0	123	0	44	**715**
1615 - 1630	0	277	0	246	0	78	0	0	0	108	0	27	**736**
1630 - 1645	0	256	0	248	0	69	0	0	0	122	0	43	**738**
1645 - 1700	0	212	0	269	0	69	0	0	0	124	0	47	**721**
1700 - 1715	0	250	0	287	0	68	0	0	0	130	0	53	**788**
1715 - 1730	0	265	0	262	0	68	0	0	0	113	0	61	**769**
1730 - 1745	0	291	0	244	0	62	0	0	0	132	0	39	**768**
1745 - 1800	0	334	0	227	0	44	0	0	0	109	0	47	**761**
Period End	**0**	**2154**	**0**	**2011**	**0**	**509**	**0**	**0**	**0**	**961**	**0**	**361**	**5996**

Heavies

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	0	2	0	1	0	0	0	0	0	0	0	1	**4**
1615 - 1630	0	1	0	0	0	0	0	0	0	0	0	2	**3**
1630 - 1645	0	1	0	1	0	0	0	0	0	0	0	0	**2**
1645 - 1700	0	1	0	0	0	0	0	0	0	0	0	3	**4**
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1715 - 1730	0	0	0	2	0	0	0	0	0	0	0	1	**3**
1730 - 1745	0	0	0	0	0	0	0	0	0	0	0	2	**2**
1745 - 1800	0	0	0	1	0	0	0	0	0	0	0	1	**2**
Period End	**0**	**5**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**20**

Lights

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	0	1014	0	991	0	267	0	0	0	477	0	161	**2910**
1615 - 1715	0	995	0	1050	0	284	0	0	0	484	0	170	**2983**
1630 - 1730	0	983	0	1066	0	274	0	0	0	489	0	204	**3016**
1645 - 1745	0	1018	0	1062	0	267	0	0	0	499	0	200	**3046**
1700 - 1800	0	1140	0	1020	0	242	0	0	0	484	0	200	**3086**
PEAK HOUR	**0**	**1140**	**0**	**1020**	**0**	**242**	**0**	**0**	**0**	**484**	**0**	**200**	**3086**

Heavies

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	0	5	0	2	0	0	0	0	0	0	0	6	**13**
1615 - 1715	0	3	0	1	0	0	0	0	0	0	0	5	**9**
1630 - 1730	0	2	0	3	0	0	0	0	0	0	0	4	**9**
1645 - 1745	0	1	0	2	0	0	0	0	0	0	0	6	**9**
1700 - 1800	0	0	0	3	0	0	0	0	0	0	0	4	**7**
PEAK HOUR	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**7**

Combined

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	0	271	0	229	0	51	0	0	0	123	0	45	**719**
1615 - 1630	0	278	0	246	0	78	0	0	0	108	0	29	**739**
1630 - 1645	0	257	0	249	0	69	0	0	0	122	0	43	**740**
1645 - 1700	0	213	0	269	0	69	0	0	0	124	0	50	**725**
1700 - 1715	0	250	0	287	0	68	0	0	0	130	0	53	**788**
1715 - 1730	0	265	0	264	0	68	0	0	0	113	0	62	**772**
1730 - 1745	0	291	0	244	0	62	0	0	0	132	0	41	**770**
1745 - 1800	0	334	0	228	0	44	0	0	0	109	0	48	**763**
Period End	**0**	**2159**	**0**	**2016**	**0**	**509**	**0**	**0**	**0**	**961**	**0**	**371**	**6016**

Peds

	NORTH	WEST	SOUTH	EAST	
	O'Connell St	*Macquarie St*	*O'Connell St*	*Macquarie St*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1600 - 1615	58	40	16	12	**126**
1615 - 1630	40	30	12	18	**100**
1630 - 1645	52	52	20	20	**144**
1645 - 1700	45	48	19	10	**122**
1700 - 1715	42	42	7	1	**92**
1715 - 1730	29	35	12	5	**81**
1730 - 1745	16	16	4	5	**41**
1745 - 1800	10	21	11	1	**43**
Period End	**292**	**284**	**101**	**72**	**749**

Combined

	NORTH			WEST			SOUTH			EAST			
	O'Connell St			*Macquarie St*			*O'Connell St*			*Macquarie St*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	0	1019	0	993	0	267	0	0	0	477	0	167	**2923**
1615 - 1715	0	998	0	1051	0	284	0	0	0	484	0	175	**2992**
1630 - 1730	0	985	0	1069	0	274	0	0	0	489	0	208	**3025**
1645 - 1745	0	1019	0	1064	0	267	0	0	0	499	0	206	**3055**
1700 - 1800	0	1140	0	1023	0	242	0	0	0	484	0	204	**3093**
PEAK HOUR	**0**	**1140**	**0**	**1023**	**0**	**242**	**0**	**0**	**0**	**484**	**0**	**204**	**3093**

Peds

	NORTH	WEST	SOUTH	EAST	
	O'Connell St	*Macquarie St*	*O'Connell St*	*Macquarie St*	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1600 - 1700	195	170	67	60	**492**
1615 - 1715	179	172	58	49	**458**
1630 - 1730	168	177	58	36	**439**
1645 - 1745	132	141	42	21	**336**
1700 - 1800	97	114	34	12	**257**
PEAK HR	**97**	**114**	**34**	**12**	**257**

R.O.A.R DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : Varga Traffic Planning

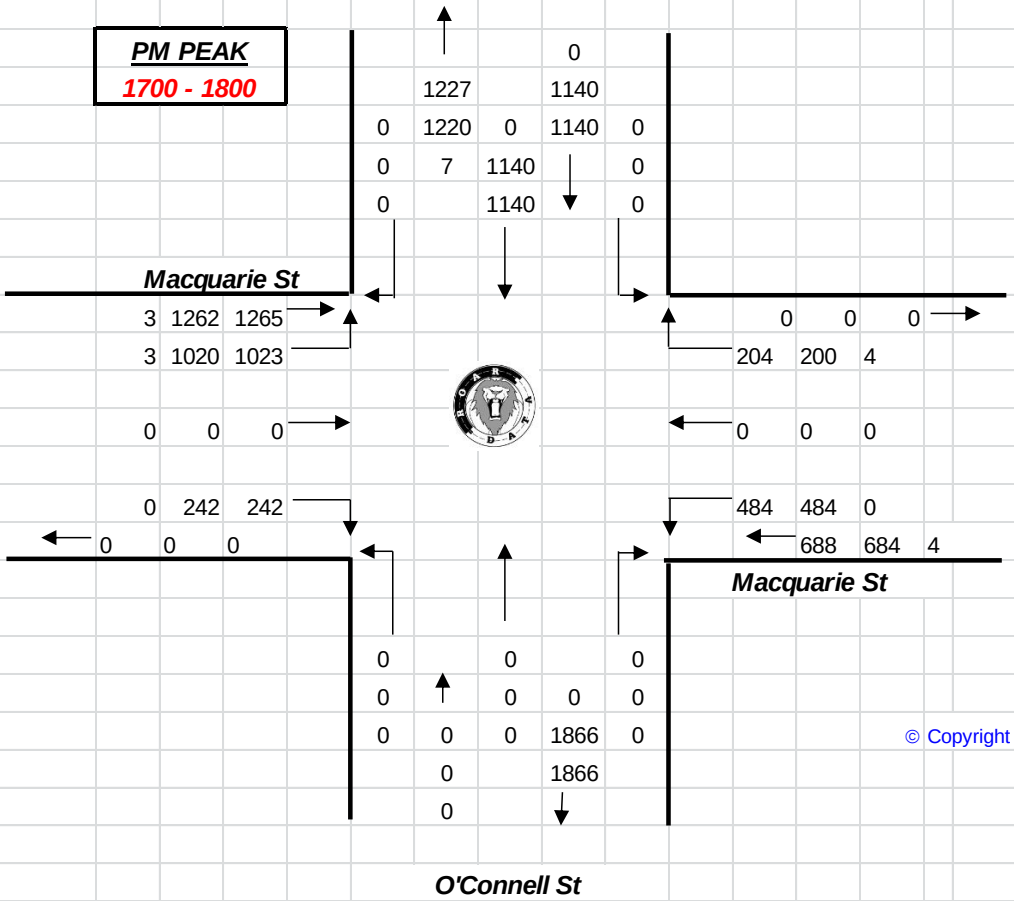
Job No/Name : 5577 PARRAMATTA O'Connell St

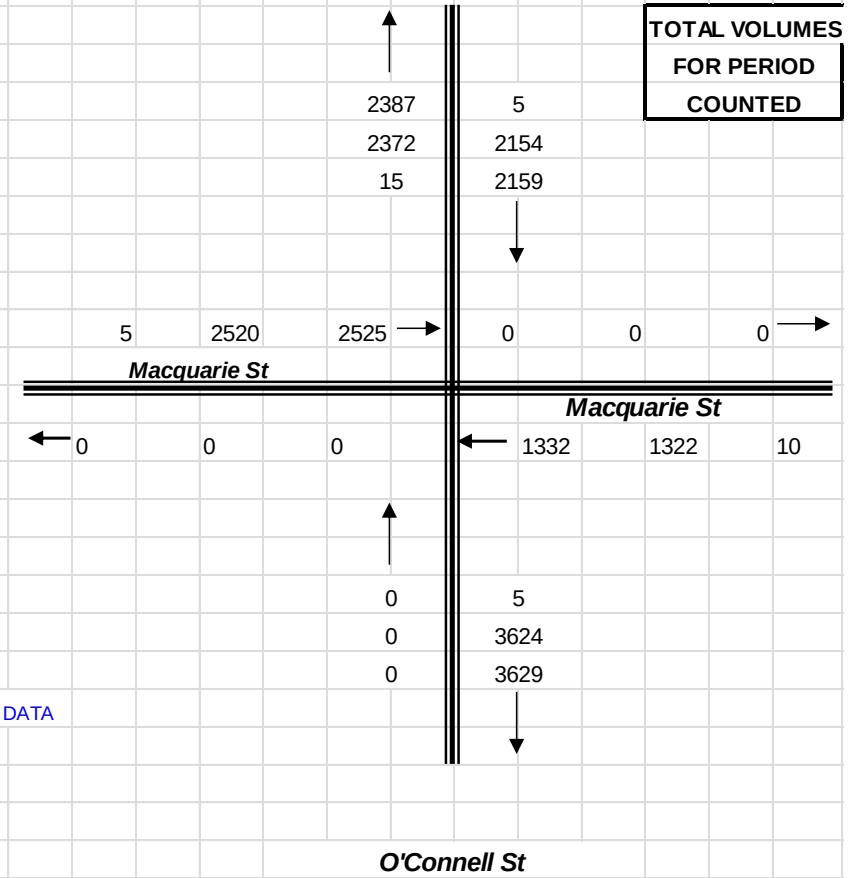
Day/Date : Tuesday 21st April 2015

Hours 1 | Hours 2 | Hours 3 | Hours 4 | Hours 5

PM PEAK

1700 - 1800





TOTAL VOLUMES FOR PERIOD COUNTED

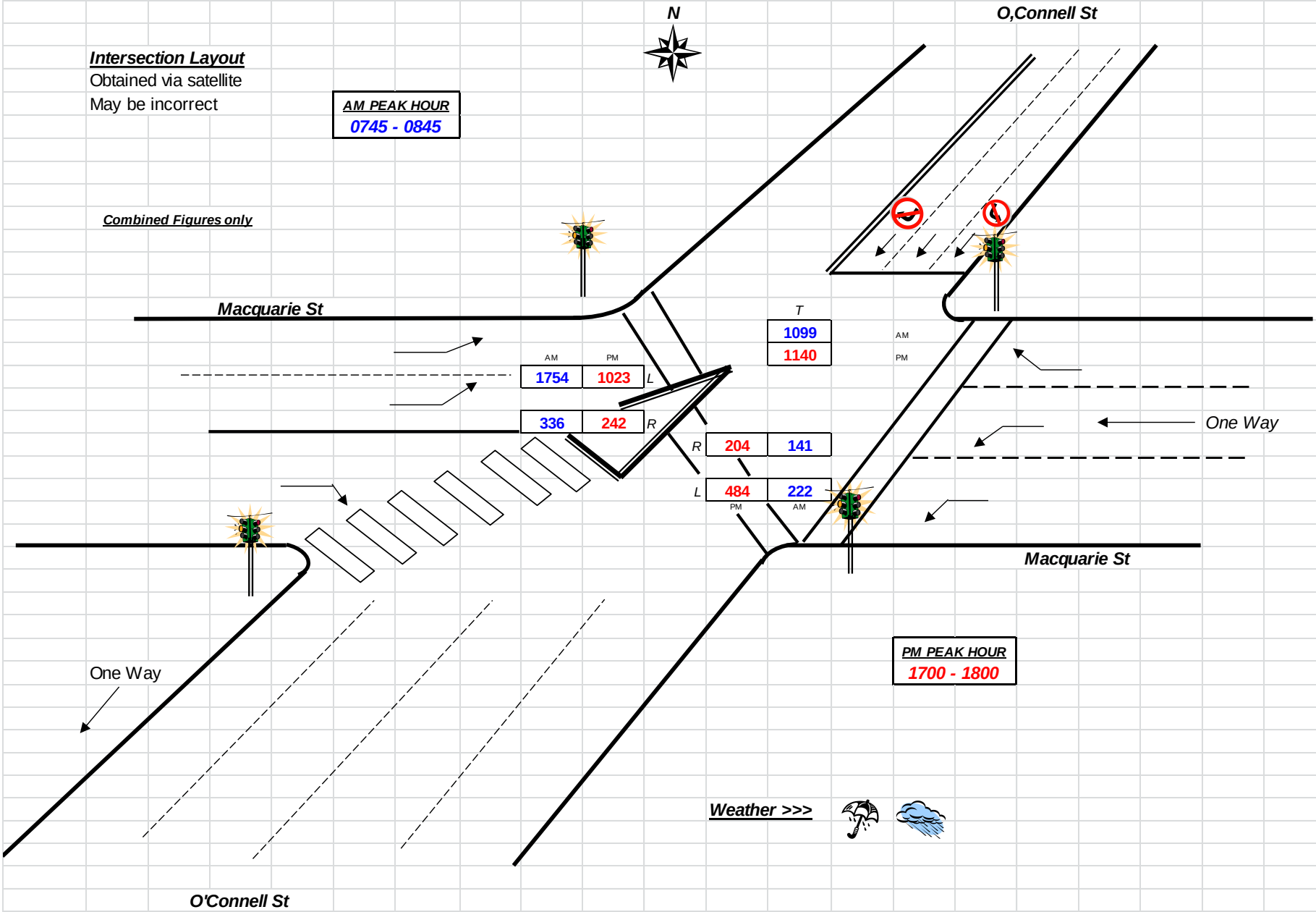
R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 5577 PARRAMATTA O'Connell St
Day/Date	: Tuesday 21st April 2015

Intersection Layout
Obtained via satellite
May be incorrect

AM PEAK HOUR
0745 - 0845

Combined Figures only



PM PEAK HOUR
1700 - 1800

Weather >>>

APPENDIX B

SIDRA INTERSECTION LAYOUTS & RESULTS

MOVEMENT SUMMARY

Site: Existing AM

O'Connell Street & Hunter Street, Parramatta
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Hunter St (E)											
4	L2	40	0.0	0.162	55.0	LOS D	2.1	14.8	0.92	0.73	29.5
5	T1	73	0.0	0.281	51.4	LOS D	3.9	27.5	0.94	0.73	29.4
Approach		113	0.0	0.281	52.7	LOS D	3.9	27.5	0.93	0.73	29.4
North: O'Connell St (N)											
7	L2	114	1.8	0.290	10.0	LOS A	7.3	51.3	0.32	0.40	49.7
8	T1	1377	0.7	0.290	4.4	LOS A	7.4	51.9	0.32	0.35	55.3
9	R2	217	0.0	0.290	10.1	LOS A	7.2	50.6	0.32	0.52	48.1
Approach		1708	0.6	0.290	5.5	LOS A	7.4	51.9	0.32	0.37	53.9
All Vehicles		1821	0.6	0.290	8.4	LOS A	7.4	51.9	0.36	0.39	51.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	23	54.2	LOS E	0.1	0.1	0.95	0.95
P2	East Full Crossing	13	6.0	LOS A	0.0	0.0	0.32	0.32
P3	North Full Crossing	138	54.5	LOS E	0.4	0.4	0.96	0.96
P4	West Full Crossing	7	5.1	LOS A	0.0	0.0	0.29	0.29
All Pedestrians		181	49.0	LOS E			0.88	0.88

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Existing PM

O'Connell Street & Hunter Street, Parramatta
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Hunter St (E)											
4	L2	171	0.0	0.368	44.7	LOS D	8.3	58.1	0.87	0.79	32.2
5	T1	32	0.0	0.066	36.6	LOS C	1.4	9.9	0.79	0.59	33.3
Approach		203	0.0	0.368	43.4	LOS D	8.3	58.1	0.86	0.76	32.4
North: O'Connell St (N)											
7	L2	36	0.0	0.376	15.8	LOS B	12.6	88.1	0.50	0.47	46.7
8	T1	1809	0.0	0.376	10.2	LOS A	12.6	88.4	0.50	0.46	51.2
9	R2	55	0.0	0.376	16.0	LOS B	12.6	87.9	0.50	0.48	46.0
Approach		1900	0.0	0.376	10.5	LOS A	12.6	88.4	0.50	0.46	50.9
All Vehicles		2103	0.0	0.376	13.7	LOS A	12.6	88.4	0.53	0.49	48.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	25	41.7	LOS E	0.1	0.1	0.83	0.83
P2	East Full Crossing	22	11.3	LOS B	0.0	0.0	0.43	0.43
P3	North Full Crossing	128	41.9	LOS E	0.4	0.4	0.84	0.84
P4	West Full Crossing	6	10.0	LOS B	0.0	0.0	0.41	0.41
All Pedestrians		181	37.1	LOS D			0.77	0.77

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Proposed AM

O'Connell Street & Hunter Street, Parramatta
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Hunter St (E)											
4	L2	62	0.0	0.223	53.6	LOS D	3.2	22.7	0.92	0.75	29.9
5	T1	88	0.0	0.301	49.7	LOS D	4.7	32.6	0.93	0.73	29.8
Approach		150	0.0	0.301	51.3	LOS D	4.7	32.6	0.93	0.74	29.8
North: O'Connell St (N)											
7	L2	129	1.6	0.303	10.7	LOS A	8.0	56.5	0.35	0.43	49.1
8	T1	1390	0.6	0.303	5.1	LOS A	8.1	57.3	0.35	0.37	54.7
9	R2	227	0.0	0.303	10.8	LOS A	8.0	55.8	0.35	0.54	47.6
Approach		1746	0.6	0.303	6.2	LOS A	8.1	57.3	0.35	0.39	53.2
All Vehicles		1896	0.6	0.303	9.8	LOS A	8.1	57.3	0.39	0.42	50.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	23	52.3	LOS E	0.1	0.1	0.93	0.93
P2	East Full Crossing	13	6.7	LOS A	0.0	0.0	0.33	0.33
P3	North Full Crossing	138	52.6	LOS E	0.4	0.4	0.94	0.94
P4	West Full Crossing	7	5.7	LOS A	0.0	0.0	0.31	0.31
All Pedestrians		181	47.4	LOS E			0.87	0.87

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Proposed PM

O'Connell Street & Hunter Street, Parramatta
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Hunter St (E)											
4	L2	178	0.0	0.383	44.9	LOS D	8.7	60.7	0.88	0.79	32.2
5	T1	36	0.0	0.074	36.7	LOS C	1.6	11.2	0.80	0.60	33.3
Approach		214	0.0	0.383	43.5	LOS D	8.7	60.7	0.86	0.76	32.3
North: O'Connell St (N)											
7	L2	65	0.0	0.383	15.9	LOS B	12.9	90.2	0.50	0.49	46.5
8	T1	1813	0.0	0.383	10.3	LOS A	13.0	90.8	0.50	0.47	51.1
9	R2	58	0.0	0.383	16.0	LOS B	12.9	90.3	0.50	0.49	45.9
Approach		1936	0.0	0.383	10.7	LOS A	13.0	90.8	0.50	0.47	50.7
All Vehicles		2150	0.0	0.383	13.9	LOS A	13.0	90.8	0.54	0.50	48.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	25	41.7	LOS E	0.1	0.1	0.83	0.83
P2	East Full Crossing	22	11.3	LOS B	0.0	0.0	0.43	0.43
P3	North Full Crossing	128	41.9	LOS E	0.4	0.4	0.84	0.84
P4	West Full Crossing	6	10.0	LOS B	0.0	0.0	0.41	0.41
All Pedestrians		181	37.1	LOS D			0.77	0.77

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Existing AM

O'Connell Street & Macquarie Street, Parramatta
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Macquarie St (E)											
4	L2	222	0.5	0.327	51.0	LOS D	5.7	40.2	0.91	0.77	30.5
6	R2	141	2.8	0.581	58.8	LOS E	8.0	57.3	0.99	0.80	28.6
Approach		363	1.4	0.581	54.0	LOS D	8.0	57.3	0.94	0.79	29.7
North: O'Connell St (N)											
8	T1	1099	0.8	0.333	14.7	LOS B	11.2	79.2	0.57	0.50	48.3
Approach		1099	0.8	0.333	14.7	LOS B	11.2	79.2	0.57	0.50	48.3
West: Macquarie St (W)											
10	L2	1754	0.1	0.616	11.1	LOS A	22.2	155.9	0.48	0.72	45.7
12	R2	336	0.3	0.181	4.9	LOS A	0.0	0.0	0.00	0.60	45.8
Approach		2090	0.1	0.616	10.1	LOS A	22.2	155.9	0.40	0.70	45.8
All Vehicles		3552	0.5	0.616	16.0	LOS B	22.2	155.9	0.51	0.65	44.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	40	54.2	LOS E	0.1	0.1	0.95	0.95
P2	East Full Crossing	30	14.5	LOS B	0.1	0.1	0.49	0.49
P3	North Full Crossing	99	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	44	51.4	LOS E	0.1	0.1	0.93	0.93
All Pedestrians		213	48.1	LOS E			0.88	0.88

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Existing PM

O'Connell Street & Macquarie Street, Parramatta
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Macquarie St (E)											
4	L2	484	0.0	0.425	37.4	LOS C	10.8	75.7	0.81	0.79	34.4
6	R2	204	2.0	0.431	44.7	LOS D	10.0	71.3	0.88	0.80	32.1
Approach		688	0.6	0.431	39.6	LOS C	10.8	75.7	0.84	0.79	33.7
North: O'Connell St (N)											
8	T1	1140	0.0	0.441	24.7	LOS B	15.2	106.7	0.74	0.65	42.7
Approach		1140	0.0	0.441	24.7	LOS B	15.2	106.7	0.74	0.65	42.7
West: Macquarie St (W)											
10	L2	1023	0.3	0.430	15.8	LOS B	14.5	102.0	0.53	0.72	43.2
12	R2	242	0.0	0.130	4.9	LOS A	0.0	0.0	0.00	0.60	45.8
Approach		1265	0.2	0.430	13.7	LOS A	14.5	102.0	0.43	0.70	43.7
All Vehicles		3093	0.2	0.441	23.5	LOS B	15.2	106.7	0.64	0.70	40.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	34	54.2	LOS E	0.1	0.1	0.95	0.95
P2	East Full Crossing	12	22.8	LOS C	0.0	0.0	0.62	0.62
P3	North Full Crossing	97	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	114	38.6	LOS D	0.3	0.3	0.80	0.80
All Pedestrians		257	45.9	LOS E			0.87	0.87

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Proposed AM

O'Connell Street & Macquarie Street, Parramatta
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Macquarie St (E)											
4	L2	254	0.4	0.343	49.4	LOS D	6.5	45.3	0.90	0.78	30.9
6	R2	162	2.5	0.627	58.4	LOS E	9.2	65.8	0.99	0.81	28.7
Approach		416	1.2	0.627	52.9	LOS D	9.2	65.8	0.94	0.79	30.0
North: O'Connell St (N)											
8	T1	1099	0.8	0.338	15.2	LOS B	11.5	80.8	0.58	0.51	48.0
Approach		1099	0.8	0.338	15.2	LOS B	11.5	80.8	0.58	0.51	48.0
West: Macquarie St (W)											
10	L2	1754	0.1	0.623	11.6	LOS A	23.0	161.5	0.50	0.73	45.5
12	R2	336	0.3	0.181	4.9	LOS A	0.0	0.0	0.00	0.60	45.8
Approach		2090	0.1	0.623	10.5	LOS A	23.0	161.5	0.42	0.71	45.5
All Vehicles		3605	0.5	0.627	16.8	LOS B	23.0	161.5	0.53	0.66	43.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	40	54.2	LOS E	0.1	0.1	0.95	0.95
P2	East Full Crossing	30	15.0	LOS B	0.1	0.1	0.50	0.50
P3	North Full Crossing	99	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	44	50.5	LOS E	0.1	0.1	0.92	0.92
All Pedestrians		213	48.0	LOS E			0.88	0.88

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Proposed PM

O'Connell Street & Macquarie Street, Parramatta
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Macquarie St (E)											
4	L2	494	0.0	0.444	37.5	LOS C	11.1	77.5	0.82	0.79	34.4
6	R2	211	1.9	0.446	44.9	LOS D	10.4	74.0	0.89	0.80	32.1
Approach		705	0.6	0.446	39.7	LOS C	11.1	77.5	0.84	0.79	33.7
North: O'Connell St (N)											
8	T1	1140	0.0	0.441	24.7	LOS B	15.2	106.7	0.74	0.65	42.7
Approach		1140	0.0	0.441	24.7	LOS B	15.2	106.7	0.74	0.65	42.7
West: Macquarie St (W)											
10	L2	1023	0.3	0.430	15.8	LOS B	14.5	102.0	0.53	0.72	43.2
12	R2	242	0.0	0.130	4.9	LOS A	0.0	0.0	0.00	0.60	45.8
Approach		1265	0.2	0.430	13.7	LOS A	14.5	102.0	0.43	0.70	43.7
All Vehicles		3110	0.2	0.446	23.6	LOS B	15.2	106.7	0.64	0.70	40.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	34	54.2	LOS E	0.1	0.1	0.95	0.95
P2	East Full Crossing	12	22.8	LOS C	0.0	0.0	0.62	0.62
P3	North Full Crossing	97	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	114	38.6	LOS D	0.3	0.3	0.80	0.80
All Pedestrians		257	45.9	LOS E			0.87	0.87

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Appendix 3 – Flood Statement

General Manager
Parramatta City Council
30 Darcy Road,
PARRAMATTA NSW 2150

April 28, 2015

PROJECT: ***18-22A HUNTER STREET & 23-29 MACQUARIE STREET, PARRAMATTA***

RE: ***PLANNING PROPOSAL***

This letter is prepared in support of the Planning Proposal for 18-22A Hunter Street and 23-29 Macquarie Street, Parramatta. The letter has been prepared to respond to the relevant key issues contained within the Section 117 Direction in relating to flooding. The relevant provisions are outlined below with a response provided against each point. The Planning Proposal contains an address of all 117 Directions while this letter is confined to the key flooding issues that must be considered.

(4) A planning proposal must include provisions that give effect to and are consistent with the NSW Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005 (including the Guideline on Development Controls on Low Flood Risk Areas).

- Although Parramatta City Council's Flood Map indicates the site as being partially flood affected in the1% and 5% AEP Event, The local flood regime is actually a function of local catchment runoff exceeding the capacity of the formal stormwater pipe system. The major system flowpath is the road reserve adjoining both the northern and western boundaries of the site.

- The existing LEP contains flood related planning development controls that would apply to any development proposal on the subject site. These provisions are retained and the underlying zone of the land remains unchanged.

- The redevelopment of the allotment is able to occur in a manner consistent with the provisions of the Floodplain Development Manual 2005 and Councils own flooding controls that would apply to the development. It is expected that detailed assessment of flooding and analysis of consistent with Councils flood related development controls would occur at DA stage.

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(6) A planning proposal must not contain provisions that apply to the flood planning areas which:

(a) permit development in floodway areas,

- A very small area adjacent to the western boundary of the site is within the designated 1:100 year ARI (1%AEP) flowpath. The depth is considered shallow as it is a function of local catchment runoff exceeding the capacity of the formal stormwater pipe system rather than mainstream flood storage.

- The site is classified as flood prone land as it *is "land susceptible to flooding by the PMF"* as described in the Floodplain Development Manual 2005

- The appropriate Flood Planning Level (FPL) for this site will be the 1% AEP (1 in 100 year) Flood Event plus 0.5m freeboard.

- Flood management strategies will be implemented for the PMF event and will be detailed in a Flood Risk Assessment Report with any Development Application.

It is important to note that the NSW Floodplain Management Manual 2005 states the following:

"it is neither feasible nor socially or economically justifiable to adopt the PMF as the basis for FPL's. FPL's for typical residential development would generally be based around the 1% AEP flood event plus an appropriate freeboard (typically 0.5m)"

For the purpose of this project, the following overland flowpath levels are applicable

HUNTER STREET FRONTAGE

- R.L. 11.23m AHD as the 1% AEP flood level
- R.L. 12.87m AHD as the PMF level.

MACQUARIE STREET FRONTAGE

- R.L. 9.22m AHD as the 1% AEP flood level
- R.L. 12.91m AHD as the PMF level.

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GROUND FLOOR LEVELS

The boundary levels around the perimeter of the site are currently at an average of R.L. 8.60m AHD at the Macquarie Street frontage (i.e 600mm below the 1% AEP flow path level) and R.L. 11.30m AHD at the Hunter Street frontage (i.e 100mm above the 1 1% AEP flow path level)

Accordingly, the minimum ground floor levels would be set as

HUNTER STREET FRONTAGE

- R.L. 11.73m AHD minimum floor level

MACQUARIE STREET FRONTAGE

- R.L. 9.72m AHD minimum floor level

BASMENT ACCESS RAMPS.

The access ramp to the basement car park should be from Hunter Street as the entire frontage is above the 1% AEP level. The driveway access will need to ramp up to a crest before sloping down to the basement car park (to achieve 500mm freeboard)

RESIDENTIAL LEVELS

Given that the ground floor will be commercial/retail and floor to floor heights in this zone would typically exceed 4m, the first floor level will be at least R.L. 13.72m AHD

This means all residential levels will be above the PMF level (PMF R.L. 12.91m AHD).

(b) permit development that will result in significant flood impacts to other properties,

- A small area along the western boundary of the site is inundated by the 5% and 1% AEP flood event. The depth of flow along the western site boundary at this location is relatively shallow and therefore any impacts on existing flood storage will be negligible and there will be no significant impacts to other properties. The provision of an on-site stormwater detention tank will be required as part of the development and this will assist with the localized flooding in O'Connell Street and Macquarie Street

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(c) permit a significant increase in the development of that land,

- The Planning Proposal will result in additional occupants on the site. As the site is in a highly urbanized catchment, the flood durations are relatively short and occupants are likely to shelter in place rather than evacuate the site. Accordingly, the need for increased services is considered minimal.

(d) are likely to result in a substantially increased requirement for government spending on flood mitigation measures, infrastructure or services, or

- Development on the site will not, in all likelihood, result in a need for substantially increased requirements for government spending on flood mitigation measures, infrastructure, or services as the floodwater and flooding impacts can be addressed through design measures rather than broader measures that would require changes to the catchment. The proposal does not create a need for any spending for flood mitigation measures or infrastructure as the design at ground level does not create any detrimental effects on the flood regime at the site and throughout the associated catchment. This will be comprehensively detailed in the flood risk assessment which will be submitted at the DA stage.

I trust explains our position regarding this application, if you have any queries, please do not hesitate to contact me on (02) 9687-9222

Sincerely Yours,

Steve Arraj
Director – Civil Engineering

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Appendix 4 – Correspondence from Commonwealth Department of the Environment and Energy

Australian Government
Department of the Environment and Energy

EPBC Ref: 2014/7359

Mr Neal McCarry
Acting Service Manager – Land Use Planning
City of Parramatta
PO Box 32
PARRAMATTA NSW 2124

Dear Mr McCarry

The purpose of this letter is to advise the City of Parramatta (Council) of the Australian Government's policy approach to development in the 'Highly Sensitive Area' of Parramatta, as it relates to Old Government House and Domain.

As discussed with Department of the Environment and Energy (the Department) officers on 10 August 2017, it also provides the Commonwealth's position on planning proposals that seek to amend local planning controls, specifically the Southern Han commercial development at Hunter and Macquarie Streets, Parramatta (EPBC 2014/7359; your reference RZ/12/2015 - D04323222).

Conservation Agreement

As you are aware, on 23 December 2015, the *Conservation Agreement for the protection and conservation of the World Heritage Values and National Heritage Values of the Australian Convict Sites, Old Government House and Domain, Parramatta, New South Wales* (Conservation Agreement) was executed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) between the Commonwealth of Australia, State of New South Wales and City of Parramatta.

The Conservation Agreement seeks to protect and conserve the significant World and National Heritage listed views and settings associated with Old Government House and Domain. The Conservation Agreement provides that development within the identified 'Highly Sensitive Area' which complies with the planning controls set out in the Conservation Agreement does not require approval under Part 9 of the EPBC Act. This provision recognises that such developments are not likely to have a significant impact on the listed heritage values of Old Government House and Domain.

Conversely, we consider that development within the 'Highly Sensitive Area' which does not comply with the planning controls is likely to have a significant impact on the World and National Heritage values of Old Government House and Domain and therefore will require approval under Part 9 of the EPBC Act. Our position in relation to such developments is that they will only be approved in exceptional circumstances.

The Department has advised a number of proponents about the Government's position. The proponents include Crown Landmark Development Pty Ltd, which varied the *V by Crown* mixed used development at 45-47 Macquarie Street and 134-140 Marsden Street to meet the requirements of the Conservation Agreement.

Planning proposals

I understand that Caladines Town Planning Pty Ltd (the applicant), on behalf of Southern Han Pty Ltd, has applied to Council to amend the Parramatta Local Environmental Plan 2011, to increase the maximum building height and floor space ratio controls prescribed for the site at Hunter and Macquarie Streets. In August 2016, Council resolved to require the applicant to obtain the Commonwealth's support for its planning proposal in order for it to progress to the NSW Department of Planning and Environment (DPE) for a gateway determination.

As discussed, the Australian Government will not provide comment on this matter as it has no formal role or policy position in the consideration of amendments to local and state planning instruments. Ultimately, these considerations are at the discretion of Council and DPE. As such, we neither support nor oppose the planning proposal submitted by the applicant.

This does not affect our position (as stated above) regarding the application of the EPBC Act to development in the 'Highly Sensitive Area' of Parramatta that does not comply with the planning controls set out in the Conservation Agreement. Such development requires approval under Part 9 of the EPBC Act and will only be approved in exceptional circumstances.

If you would like to discuss this matter further, please contact Mike Smith on 02 6274 1428 or mike.smith@environment.gov.au.

Yours sincerely,

Dane Roberts
A/g Assistant Secretary
Assessments (NSW, ACT) and Fuel Branch
7 September 2017