SJB Planning

Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

Attn: Emma Hitchens

15 November 2016

Re: Submission to Sydney Olympic Park Masterplan 2030 (2016 Review)

Dear Emma,

This submission is provided on behalf of our client, Bonim 3 Pty Ltd, to the Sydney Olympic Park (SOP) Master Plan 2030 (2016 Review) (the 'MP Review') which is currently on public exhibition.

Bonim 3 Pty Ltd has a 99 year lease over Site 79 being 1-5 Hill Road, which is legally known as Lot 302 DP 541070. The site is located within the southern end of the Haslams Precinct of the Sydney Olympic Park Town Centre (SOPTC) and is adjoined by the Carter Street Priority Precinct to the north, east and south as illustrated in Figure 1 below.

Figure 1. The site and surrounds (Source: *Hill Road Urban Study: 1-5 Hill Road, Homebush*)

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Background

Under the current SOP Master Plan 2030, the site is identified for residential land uses and is subject to a floor space ratio (FSR) of 2.25:1 and a building height limit of 7 and 10 storeys (21m and 30m) (refer to Figure 2). The site is located at the western entry to the Carter Street Priority Precinct (Carter Street), which was rezoned in November 2015 to a higher density mixed use residential and commercial precinct with predominant building heights of 42m up to 72m and FSR of 2:1 to 2.5:1 (refer to Figure 3).

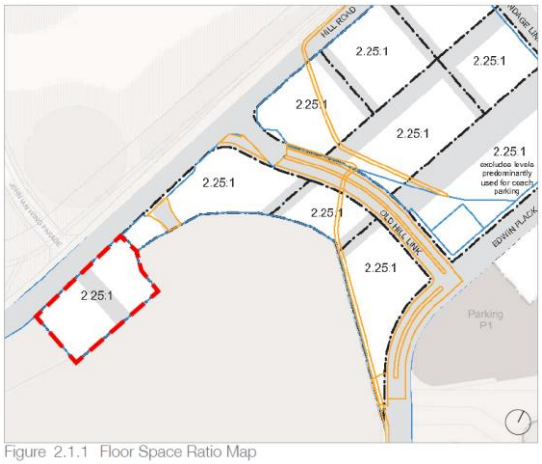

Figure 2.1.1 Floor Space Ratio Map

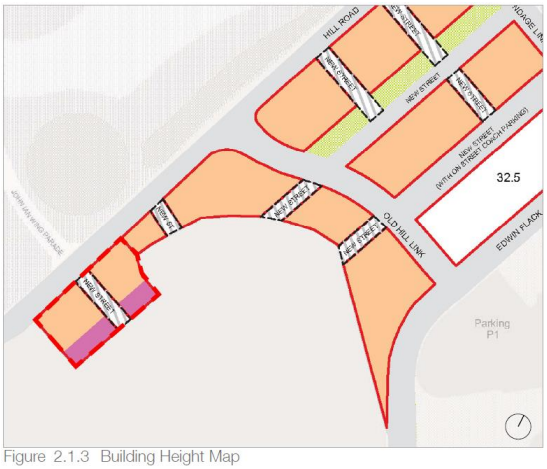

Figure 2.1.3 Building Height Map

Figure 2: Extracts from SOP Master Plan 2030 (Source: *Hill Road Urban Study: 1-5 Hill Road, Homebush*)

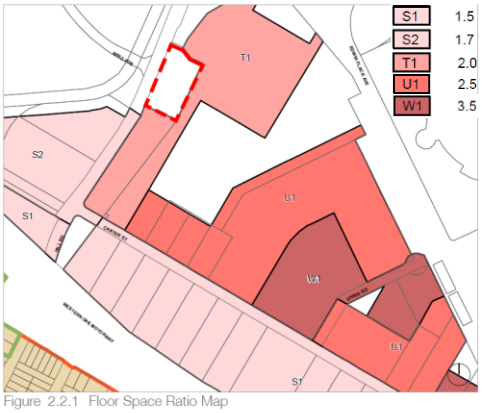

Figure 2.2.1 Floor Space Ratio Map

01 Floor Space Ratio Map

LEP 2010 applies a FSR control of 2:1 to lots surrounding the site to the south and east. Lots located to the south and south west of the site range from 1.5:1 to 3.5:1 and to the west, from 1.5:1 to 1.7:1.

Figure 2.2.2 Height of Buildings Map

02 Height of Buildings Map

LEP 2010 applies a maximum building height control of 42m to lots directly adjacent the site. Building heights to the south east of the site range from 42-72m, and to the west from 24-55m.

Figure 3: Carter Street Priority Precinct - height and FSR controls under Auburn LEP 2010 (Source: *Hill Road Urban Study: 1-5 Hill Road, Homebush*)

As you would be aware, in March of this year, SJB made a submission to the Department of Planning and Environment (DP&E) on behalf of our client. This submission was provided in response to DP&E's peer review of the initial work undertaken by the Sydney Olympic Park Authority (SOPA) for the MP Review and the momentum gathering around redevelopment proposals within the Carter Street Precinct. A copy of this submission is included at Attachment 1.

The submission was underpinned by the *Hill Road Urban Study: 1-5 Hill Road, Homebush.* This was an urban design study which sought to determine an appropriate scale and land use relationship between the Carter Street Precinct and SOPA lands.

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SJB Planning (NSW) Pty Ltd ACN 112 509 501

The identification of an appropriate scale and built form was also intended to assist in the delivery of planned infrastructure, which directly impacted the site, namely:

- The widening of Hill Road to facilitate the new M4 Hill Road off-ramp; and
- A new local road extending through the centre of the site that links to the Carter Street Precinct to the east and John Ian Wing Parade to the east.

The Hill Road Urban Study presented four (4) built form options for the site. A preferred option was identified and the following were recommended as appropriate controls to achieve this option:

- Building heights of 42m and 72m; and
- FSR of 3:1.

Despite the comprehensive analysis presented in our submission, we note that the MP Review does not propose any changes to the building height, FSR or other controls applying to our client's site or the wider Haslams Precinct.

On 20 October 2016 SJB Planning and our client met with representatives from SOPA to discuss the absence of amendments to 1-5 Hill Road and Haslams Precinct in the MP Review. At this meeting SOPA advised that this was largely driven by two (2) factors:

1. The existing waste services facility located within the Haslams Precinct. Due to potential conflicts between this facility and residential development, there has been little development activity within the precinct under the current Master Plan 2030. This is expected to remain the case until such time as the waste services facility is relocated. The current lease for the facility expires in 2025;
2. The establishment of a town centre has been a key focus of the MP Review, and as a result the substantive amendments are proposed within the Central and Stadia Precincts.

SOPA acknowledged that the analysis presented in The Hill Road Urban Study had merit and that the site could accommodate additional height and development potential, than that permitted under the current development standard and Master Plan 2030, particularly given its location at the gateway to the Carter Street Priority Precinct. SOPA recommended that we resubmit this document as our formal submission to the exhibition of the MP Review. An outline of the document is provided below.

Hill Road Urban Study: 1-5 Hill Road Homebush

The *Hill Road Urban Study: 1-5 Hill Road, Homebush* (The Study) included at Attachment 1 provides the following:

- A review of the planning framework applying to the site and the adjoining Carter Street Priority Precinct, with a particular focus on the land uses, building heights and development density (FSR) controls;
- An analysis of the site's urban context including: land uses; access and movement (pedestrians, vehicles and public transport; open space;
- Identification of opportunities and constraints for the site (refer to Figures 4 and 5 overleaf);
- Identification of key project drivers including:
  - Maximising solar access to building envelopes on the site and minimising overshadowing to the planned parks to the east;
  - Setbacks to Hill Road to allow for future road widening associated with the planned M4 Hill Road off ramp;
  - Provision of a 40m roadway through the site, which connects to the planned east-west road through Carter Street. The dimension and character of this road is consistent with the street hierarchy of the precinct and will include a green spine with bio swales; and
  - The opportunity for the site to be a gateway into the Carter Street Precinct, with equivalent building heights to the other gateways into the site.

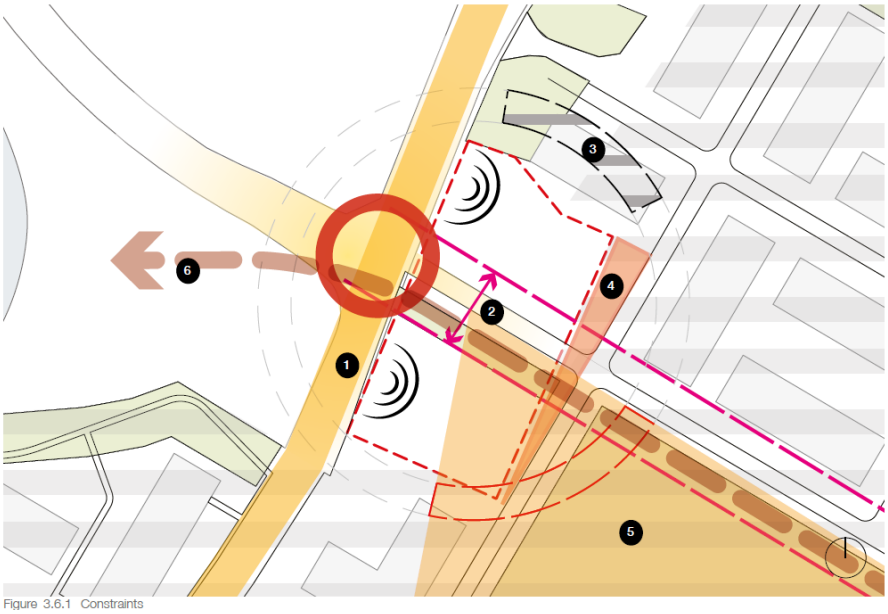

Figure 3.6.1 Constraints

Key

- Site boundary
- Secondary Road
- Congestions
- Sensitive to Overshadowing
- Sensitive Smells
- Bioswale
- Noise Source
- Overland Flow Path

1. Increased noise associated with traffic from Hill Road.
2. Proposed 40m bioswale reduces the developable area of the site.
3. Proximity to SITA Auburn Resource Recovery Centre, which has potential odour impacts
4. Fragmented site due to difference between existing lot boundary and proposed roads.
5. Potential overshadowing of the proposed park located to the south east of the site.
6. Flood risk associated with 1 and 100 year flood events

Figure 4: Site Constraints (Source: *Hill Road Urban Study: 1-5 Hill Road, Homebush)*

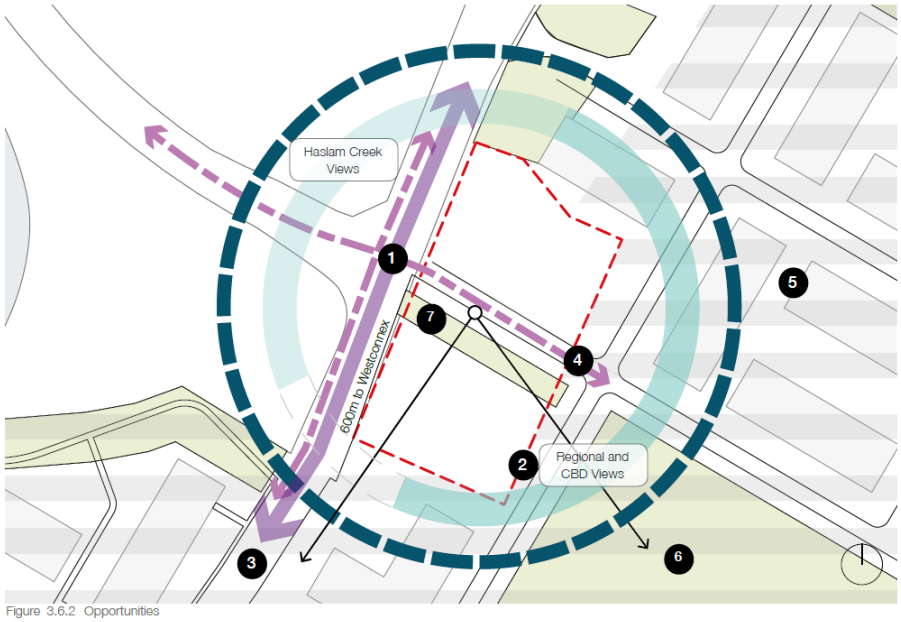

Figure 3.6.2 Opportunities

Key

- Site boundary
- Arterial Road
- Public Transport + Cycleways
- Possible Gateway

1. Possible gateway into both the Carter Street Precinct and SOP.
2. Regional views towards SOP, CBD and Haslams Creek
3. Increased connectivity through the new M4 Western Motorway.
4. High accessibility by public transport and bicycle paths
5. Adjacent to areas earmarked for urban renewal
6. Close proximity to open spaces and a new town centre
7. Opportunity to deliver infrastructure

Figure 5: Site Opportunities (Source: *Hill Road Urban Study: 1-5 Hill Road, Homebush*)

The outcomes of the analysis and the project drivers were used to inform the four (4) urban design studies. Each study provided for a building/tower element on either side of the new road that extended through the centre of the site. The four (4) studies are broadly described below and illustrated in Figures 6 and 7.

1. Study 1: Applying the existing building heights and FSR controls under the current Master Plan 2030.
2. Study 2: Applying the FSR and height controls applying to the adjoining sites within the Carter Street precinct i.e. a FSR of 2:1 and building height of 42m.
3. Study 3: A 42m height limit on the northern building and 72m height limit on the southern building to reflect the sites' potential as a gateway to the Carter Street precinct, while maximising solar access to the facades of the building to the north. The 72m control is consistent with the height control designated for other gateway sites within the precinct e.g.at the intersection of Carter Street and Birnie Avenue.
4. Study 4: A height control of 72m for both buildings to fully reflect the gateway position of the site.

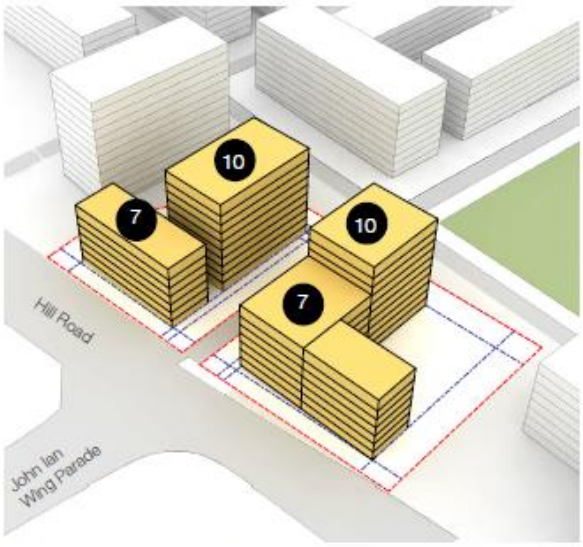

Figure 4.1.1 Design Study 01

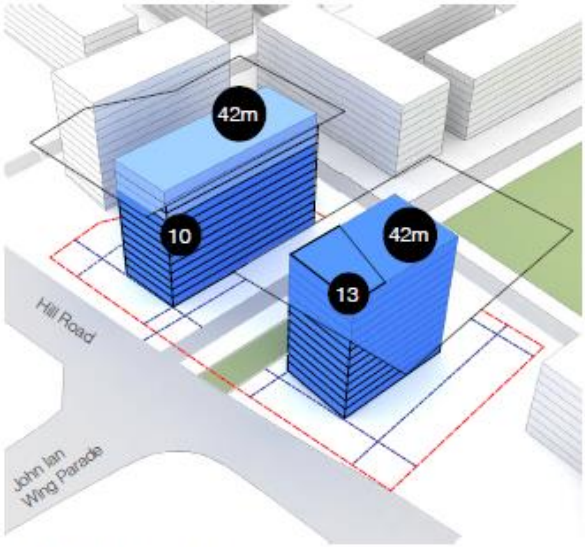

Figure 4.1.2 Design Study 02

Figure 6: Design Study 1 and Design Study 2 (Source: *Hill Road Urban Study: 1-5 Hill Road, Homebush*)

Figure 4.1.3 Design Study 03

Figure 4.1.4 Design Study 04

Figure 7: Design Study 3 and Design Study 4 (Source: *Hill Road Urban Study: 1-5 Hill Road, Homebush*)

For each Study, the massing, solar access and overshadowing impacts were analysed. As a result of this analysis, Study 3 was identified as the preferred option for the following reasons:

- Locating a 72m tower to the north of the site and the 42m building to the south, creates an urban marker at a key intersection and gateway into the Carter Street Precinct, while minimising impacts on the surrounding land;
- Placing the taller tower on the northern end of the site reduces the solar impact on the proposed open space proposed to the south east within the Carter Street Precinct; and
- The location of the taller building to the south ensures solar access is provided to both buildings.

Based on the findings of the analysis, the Study recommends the following as appropriate controls for this site:

- FSR of 3:1; and
- Building heights of 72m and 42m.

Planning Framework

We are of the view that it is important that the planning framework is reviewed now, to facilitate delivery of infrastructure and appropriate built form outcomes, in the same way Carter Street Priority Precinct was approached. We see little reason to delay. The ongoing development of the Carter Street precinct will have implications for the development of our client's site and the wider Haslams Precinct. As noted above, providing a western connection into the Carter Street Precinct relies on the delivery of the new road through our client's site. This can only be reasonably achieved with the redevelopment of our client's site at an appropriate density and scale of development, which is not currently provided for under the existing Master Plan 2030.

While the recent development activity within Carter Street is focused within the southern part of the Precinct, south of Uhrig Road, we understand that a development application (Reference No. 81/2016) was lodged with Auburn Council for a mixed use development at (15, 29 and 35 Carter Street, Lidcombe) which is located in the northern part of the precinct, adjacent to 1-5 Hill Road. While this DA was ultimately withdrawn, this was a consequence of the scale and density of development not being supported by Council. Despite the lack of support for the application, the owner's 2016 purchase of the site for some $600 million clearly demonstrates there is a strong interest in progressing development of the Carter Street precinct promptly, even if it is at a planning approval level.

We are of the view that given the importance of the site to deliver infrastructure in respect to the broader region, that it is appropriate for the planning framework to be in place to facilitate this.

We note that the current Masterplan 2030 and Carter Street controls has a planning framework in place over the site notwithstanding its proximity to the existing waste service facility. The issue that needs to be addressed is not one of land use but of built form.

Infrastructure Provision

The site will be impacted by the proposed new road connecting to Carter Street as well as the widening of Hill Road and other potential works associated with the M4 Hill Road off-ramp. The design and details of these roadworks, particularly to Hill Road, and the full extent to which they will impact on the redevelopment potential of the site are yet to be finalised.

We have contacted the Roads and Maritime authority and Transport for NSW to try and obtain further information regarding the planned works to Hill Road, with little success to date.

In addition, the details and amount of the proposed State Infrastructure Contribution (SIC) that is to be levied on development within SOP and Greater Parramatta to Olympic Park Corridor (GPOP) to fund the light rail and other regional infrastructure are still being formulated by DP&E.

We understand that DP&E is scheduled to release a policy for the SIC by the end of this year.

Conclusion

We are of the view that it is appropriate, based on the detailed Hill Road Urban Study undertaken, to apply the following controls:

- A FSR of 3:1; and
- Building height of 72m and 42m.

This would result in a potential built form more in keeping with the evolving urban context of the surrounding precinct. This site is integral to the upgrade of regional and local infrastructure to facilitate future development of the Carter Street Precinct and SOP, and for this reason a Planning Framework should be settled.

While this submission has identified a preferred design option, FSR and height controls for this site, this may alter once the details of the proposed road works and SIC levy are known. At this point, we would like the opportunity to revisit the development options for the site in consultation with SOPA.

We would be happy to meet with SOPA and DP&E to discuss the matters raised in this submission should this be of assistance. We trust this submission will assist in finalising the MP Review, and request that it be considered as part of this review.

Should you require further information, or wish to discuss this matter further, please do not hesitate to contact me on (02) 9380 9911 or by email at amccabe@sjb.com.au

Yours sincerely

Alison McCabe
Director

SJB Planning
SJB Planning (NSW) Pty Ltd ACN 112 509 501

Attachment 1: Hill Road Urban Study – 1-5 Hill Road, Homebush

SJB Planning

SJB Planning (NSW) Pty Ltd ACN 112 509 501

SJB Planning

Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

Attn: Emma Hitchens

30 March 2016

Re: Submission to Review of Sydney Olympic Park Masterplan 2030 – Version 2

Dear Emma,

I refer to our submission dated 24 March and the Hill Road Urban Design Study – 24 March 2016, Final V1, which was submitted having regard to the current review of the SOP Masterplan 2030.

We have had the opportunity to further review this work by:

- Undertaking a more detailed analysis of the FSR achievable under the proposed height limits, by exploring the maximum built form scenarios utilising a floor to floor height of 3.1 metres;
- Update of drawings to reflect this;
- Provided consistent description of height within our design studies so that they are all expressed in metres as opposed to storeys; and
- Provided more explanation of the design studies and assumptions made.

This has resulted in some changes in section 4 and 5 of the report, but has not altered our initial recommendation contained in section 5.

Please find enclosed a Final V2 of the Hill Road Urban Design Study dated 29 March 2016, the purpose of which is to identify potential amendments to the SOP Masterplan 2030 to facilitate a FSR of 3:1, and building heights of 42m and 72m that deliver an appropriate scale relationship as well as delivery of key infrastructure.

We would welcome the opportunity to discuss this work with the Department and SOPA, and request that it be considered as part of the current peer review being undertaken. We trust this study will assist in this work.

Should you require further information, or wish to discuss this matter further, please do not hesitate to contact me on (02) 9380 9911 or by email at amccabe@sjb.com.au

Yours sincerely

Alison McCabe
Director

CC Geoff King

7744_3.2_L001_Submission to Review of SOP Masterplan_160330 - Version 2

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SJB Architects

Hill Road Urban Study

1 - 5 Hill Road
Homebush, NSW

29 March 2016 | Final V2

SJB Architects

Project
Hill Road Urban Design Study
1-5 Hill Road
Homebush, NSW

Ref 5456
Date issued: 29 March 2016
Version: 02
Prepared by: TH, FL
Checked by: AMC

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Contents

Executive Summary

SJB have been appointed by BONIM 3 PTY LTD to prepare an urban design study for the properties located at 1-5 Hill Road, Homebush within Sydney Olympic Park. The purpose of the study is to test the development capacity of the site in a comprehensive manner, taking into consideration the ability to achieve the requirements of the Sydney Olympic Park Authority Master plan 2030 (SOPA), SEPP65 and the Apartment Design Guide (ADG), whilst taking into consideration the recent changes to the Carter Street Precinct.

We have analysed the site, its immediate and broader urban context, focusing specifically on the site's integration with the surrounding movement network, open spaces and landscape, and built form character. Key site features include its location at the intersection of Hill Road and John Ian Wing Parade, proximity to the Carter Street Precinct and the broader Sydney Olympic Park.

Key drivers have been identified and provide the basis of the design studies, and have directly influenced the potential scale of the development.

The design studies have been prepared to investigate potential development yield and density, and to determine the appropriate up-lift in building height and floor space ratio for the site. The studies have tested built form, scale, orientation, overshadowing and amenity, to understand scale relationships and potential impacts in the broader context. The purpose of this study is to identify potential amendments to the SOPA Master plan 2030, given scale and yield changes in the vicinity of the site.

Introduction

Overview of the urban and local context to provide an initial understanding of the site

1.1 Sydney Olympic Park Precinct

Sydney Olympic Park (SOP) offers over 425 ha of parkland, is surrounded by Bicentennial Park, and fronts onto Parramatta River. The Park is divided into 12 areas offering a myriad of activities and land uses in and amongst world class facilities.

SOP is an area in transition, with significant uplift and regeneration planned in the various subprecinct. The SOPA Master plan 2030 identifies the following roles for 9 of the key precincts within the SOP:

1. **Sydney Showground:** This precinct is characterised by exhibition pavilions and conference facilities, and is the home to the Royal Easter Show;
2. **Central:** Currently characterised by low density industrial and commercial uses, it is envisaged to transform into a high density, mixed use neighbourhood;
3. **Sports & Entertainment:** The precinct currently incorporates the major sporting and educational facilities, the precinct will be transformed into a sports and educational campus;
4. **Stadia:** The precinct is home to iconic venues of the 2000 Sydney Olympic and Para-olympic Games. Future commercial expansion of retail and other active uses at ground level is envisioned in this precinct;
5. **Boundary Creek:** At present the precinct incorporates sporting and parking facilities. Future development in this Precinct will include commercial and residential development extending along Olympic Boulevard;
6. **Tennis:** At present the precinct incorporates sporting and parking facilities. Future development in this precinct will include commercial and residential development extending along Olympic Boulevard;
7. **Southern Sports:** The precinct incorporates sporting and parking facilities. Future development in this precinct is limited to commercial and sporting facilities
8. **Parkview:** The precinct currently contains industrial and commercial uses that is transition to a higher density, mixed use precinct;
9. **Haslams:** This precinct currently accommodates a waste service facility and coach parking, it is envisioned that this area will transition to a residential neighbourhood.

In addition to these 9 precincts, SOP is adjoined by 3 areas which include:

10. **Sydney Olympic Archery Centre:** Regionally significant park lands
11. **Bicentennial Park**: Regionally significant park
12. **Millennium Parklands:** Regionally significant park

Outside the park boundaries are two key areas of urban renewal that will bring significant change to the area including:

13. **Wentworth Point:** (Priority Precinct) An area transitioning to a high density area.
14. **Carter Street:** (Priority Precinct) Existing industrial area that will be transformed to a high density neighbourhood

The site is located within the Haslams subprecinct, adjacent to the Carter Street Priority Precinct.

Figure 1.1.1 Sydney Olympic Park Precinct

Key

Sydney Olympic Park

The SIte

1.2 Local Context

The site is 8,336m^2 in area and located on the edge of the Haslams precinct immediately adjacent the Carter Street Priority Precinct and - as illustrated in Fig 1.2.1 - an area earmarked for urban renewal with substantial uplift in commercial and residential uses planned.

Key features in proximity to the site include :

1. Hill Road
The site is located on Hill Road, a main thoroughfare for access to the M4 Western Motoway and access to the city and the western suburbs.

2. SITA Auburn Resource Recovery
Located to the north of the site, this area is located in the Haslams Precinct and identified under the SOPA Master plan 2030 to be redeveloped for residential and commercial use. It's current occupation exists on a 5 year lease.

3. Sydney Olympic Park
A number of large special event spaces and venues exist to the east of the site.

4. Newington Residential Area
Located to the north west of the site, Newington is an existing low density residential area with a local sports ground and public school.

5. Carter Street Precinct
Located directly adjacent to the site, this precinct is earmarked for urban renewal with substantial up-lift converting the existing industrial area into a mix of uses including residential, commercial and open space.

Figure 1.2.1 Local Context

2

Planning Review

A review of the existing planning controls for the site and its surrounding context

2.1 SOPA Master plan 2030 - Haslams Precinct

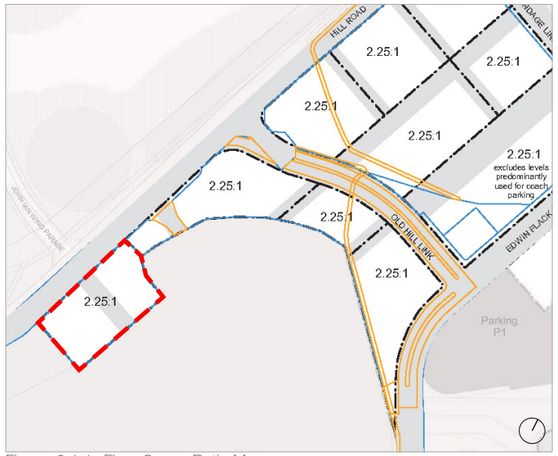


Figure 2.1.1 Floor Space Ratio Map

01 Floor Space Ratio Map

A FSR control of 2.25:1 applies to the site under the SOPA Master plan 2030 with the remainder of the precinct similarly controlled

Key

- Precinct Boundary
- 2:1 Floor Space Ratio
- Floor Space Ratio Boundary (for Calculation of FSR)
- Existing Lot Boundaries
- Existing Easements
- Public Domain
- Land Dedicated For Public Streets

Source: Haslams Precinct - Floor Space Ratio Map

Figure 2.1.2 Land Use Map

02 Land Use Map

The site is identified for residential purpose under the SOPA Master plan 2030. A Development Funded Street is identified running between the two lots. Other sites to the north east, also located within the Haslams Precinct are identified as residential and commercial uses with accommodation for coach parking in the eastern most lot.

Key

- Precinct Boundary
- New Site Boundary
- Preferred Vehicular Access
- Public Domain
- Residentail
- Commercial
- Land Dedicared for ICF Funded Streets
- Land Dedicated for Development Funded Streets

Source: Haslams Precinct - Land Use Map

Figure 2.1.3 Building Height Map

03 Building Height Map

The SOPA Master plan 2030 identifies a maximum building height control of 7 storeys to the north west of the site and 10 storeys to the south east. Adjacent building heights to the east have a 7 storey height maximum with the eastern most site having no increase in the existing ground level.

Key

- Precinct Boundary
- 30 RL (Australian Height Datum)
- New Site Boundary
- 1 Storey Pavilions and Temporary Structures
- 7 Storeys
- 10 Storeys
- Land Dedicared for ICF Funded Streets
- Land Dedicated for Development Funded Streets

Source: Haslams Precinct - Building Height Map

Figure 2.1.4 Building Zone and Setback Map

04 Building Zone and Setback Map

There are two lots identified for the site. A 5m front setback from Hill Road is required of which a minimum of 90% of the building must be built to.

Key

- Precinct Boundary
- New Site Boundary
- Building Zone
- Land Dedicated for Public Domain
- Build to Line (Minimum 90%)
- Front Setback - 3m
- Front Setback - 5m
- Through Site Link (Minimum Dimension)
- Land Dedicared for ICF Funded Streets
- Land Dedicated for Development Funded Streets

Source: Haslams Precinct - Building Zone and Setback Map

2.2 Auburn LEP 2010

The Auburn LEP 2010 sets out the planning framework for the Carter Street Precinct directly adjacent the site and establishes the built form and land use parameters for future development to the north, south and east of the site.

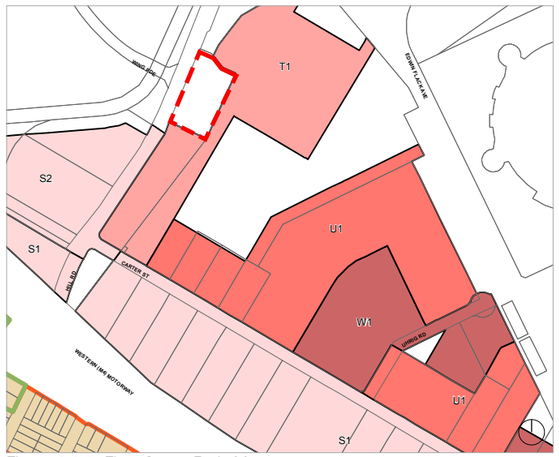


Figure 2.2.1 Floor Space Ratio Map

01 Floor Space Ratio Map

LEP 2010 applies a FSR control of 2:1 to lots surrounding the site to the south and east. Lots located to the south and south west of the site range from 1.5:1 to 3.5:1 and to the west, from 1.5:1 to 1.7:1.

Key

- Precinct Boundary
- D 0.5
- F 0.6
- I 0.75
- N 1.0
- P1 1.2
- P2 1.25
- P3 1.29
- R1 1.4
- R2 1.49
- S1 1.5
- S2 1.7
- T1 2.0
- T2 2.4
- T3 2.49
- U1 2.5
- U2 2.6
- V1 3.0
- V2 3.4
- W1 3.5
- W2 3.6
- W3 3.75
- Z 5.0
- Refer to Clause 4.4(2A)
- Refer to Clause 4.4(2B)
- Refer to Clause 4.4(2C)
- Refer to Clause 4.4(2D)

Cadastre

- Cadastre 05/12/2014 © Land and Property Information (LPI)

Source: Auburn LEP 2010 - Floor Space Ratio Map

Figure 2.2.2 Height of Buildings Map

02 Height of Buildings Map

LEP 2010 applies a maximum building height control of 42m to lots directly adjacent the site. Building heights to the south east of the site range from 42-72m, and to the west from 24-55m.

Key

- Precinct Boundary
- J 9
- K 10
- N1 14
- N2 14.9
- O1 15
- O2 16
- O3 16.9
- P1 17
- P2 18
- Q1 19
- Q2 20
- R 22.9
- S 24
- T1 25
- T2 27
- T3 29.9
- U1 32
- U2 33
- V1 36
- V2 38
- W 42
- X 49
- Z 55
- AA1 60
- AA2 72
- AB 88
- Refer to Clause 4.3(2A)(a)
- Refer to Clause 4.3(2A)(b)

Cadastre

- Cadastre 05/12/2014 © Land and Property Information (LPI)

Source: Auburn LEP 2010 - Height of Buildings Map

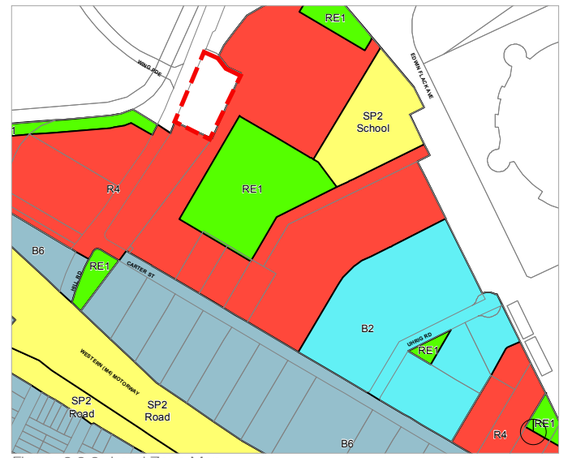


Figure 2.2.3 Land Zone Map

03 Land Zone Map

A R4 - High Density Residential Zoning applies to lands to east, north and south the site. A large area of RE1- Public Recreation zoned land is located in close proximity to the site.

Key

- Precinct Boundary
- B1 Neighbourhood Centre
- B2 Local Centre
- B4 Mixed Use
- B6 Enterprise Corridor
- B7 Business Park
- E2 Environmental Conservation
- IN1 General Industrial
- IN2 Light Industrial
- R2 Low Density Residential
- R3 Medium Density Residential
- R4 High Density Residential
- RE1 Public Recreation
- RE2 Private Recreation
- SP1 Special Activities
- SP2 Infrastructure
- W1 Natural Waterways
- DM Deferred matters
- MD SEPP (Major Development) 2005

Cadastre

- Cadastre 05/12/2014 © Land and Property Information (LPI)

Source: Auburn LEP 2010 - Land Zoning Map

2.3 Carter Street Precinct DCP 2016

The Carter Street Precinct DCP 2016 provides more detailed controls for development immediately adjoining the site to the east, north and south. Key controls are identified as follows:

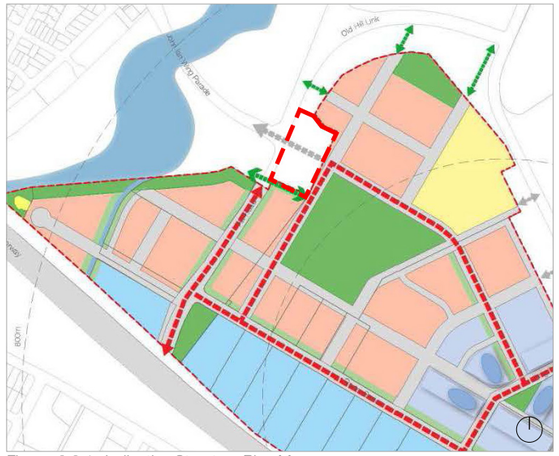


Figure 2.3.1 Indicative Structure Plan Map

01 Indicative Structure Plan Map

The Indicative Structure Plan identifies surrounding land uses which comprise residential and public open space uses.

Key

- Precinct Boundary
- Catchment
- Site Boundary
- Residential
- Business
- Local Centre
- Open Space
- Landscape
- Infrastructure
- Primary Route
- Landscape Setback
- Tower
- Future Link
- Landscape Link

Source: Carter Street Precinct Development Control Plan 2016 - Indicative Structure Plan Map.

Figure 2.3.2 Street Network Map

02 Street Network Map

DCP 2016 applies differing street network controls to the subject site. Uhrig Road, Carter Street and Birnie Avenue are considered to be ‘Primary Roads’ whereas the internal access roads are ‘Local Roads’.

Key

- Precinct Boundary
- Arterial Road
- Site Boundary
- Primary Road (22-23m)
- Local Road (20m)
- Primary Green Spine (20m + swale)
- Share Way (10m)

Source: Carter Street Precinct Development Control Plan 2016 - Street Network Map.

Figure 2.3.3 Active Street Frontages Map

03 Active Street Frontages Map

The DCP 2016 applies an ‘Active Street Frontage’ control to lots bordering Uhrig Road.

Key

- Precinct Boundary
- Active street frontage

Source: Carter Street Precinct Development Control Plan 2016 - Active Street Frontages Map.

2.4 Carter Street Precinct DCP 2016

Figure 2.4.2 Setbacks Map

04 Setbacks Map

There are three setback controls applicable to sites in close proximity to the site as stated by the DCP 2016. Lots along Uhrig Road have a no ground level setback with a 3m setback above the podium, whereas lots to the south-east have a 3m setback applied.

Key

- Precinct Boundary
- No setback
- 3m setback
- 5m setback
- 10m setback
- 20m setback
- 3m setback above podium

Source: Carter Street Precinct Development Control Plan 2016 - Setbacks Map

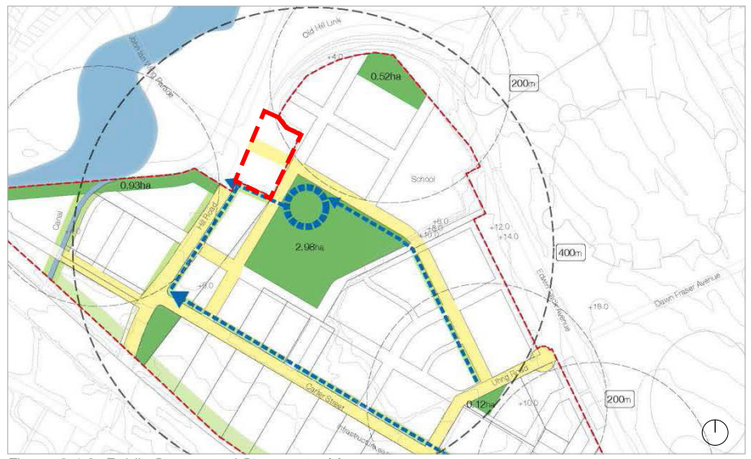


Figure 2.4.3 Public Spaces and Stormwater Map

05 Public Spaces and Stormwater Map

There are two areas of land that are identified as Public Open Space within the DCP 2016. The first located along Uhrig Road is 0.12ha in area, the second is positioned along Edwin Flack Avenue and is 0.2ha in area.

Key

- Precinct Boundary
- Public Open Space
- Site Boundary
- Landscape Buffer
- Key Roads
- Overland Flow Path
- Detention Basin (Integrated)

Source: Carter Street Precinct Development Control Plan 2016 - Public Spaces and Stormwater Map

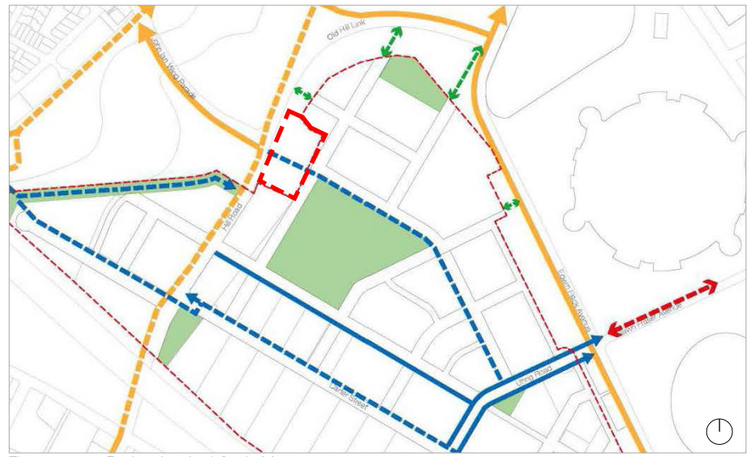


Figure 2.4.1 Pedestrian And Cycle Map

06 Pedestrian and Cycle Map

According to the DCP 2016, there are four Pedestrian and Cycle routes located in proximity to or through the site. An on-road route is proposed along Uhrig Road, an off-road route is proposed along Carter Street. An off-road route exists along Shane Gould Avenue and an on-road route exists along Edwin Flack Avenue.

Key

- Precinct Boundary
- Open Space
- Site Boundary
- Existing On-Road Route
- Existing Off-Road Route
- Proposed On-Road Route
- Proposed Off-Road Route
- Minor Links
- SOPA Link

Source: Carter Street Precinct Development Control Plan 2016 - Pedestrian and Cycle Map

3

Site Analysis

Exploring the existing urban conditions and context, to assist in developing an appropriate urban response

3.1 Movement - Vehicles and Pedestrians

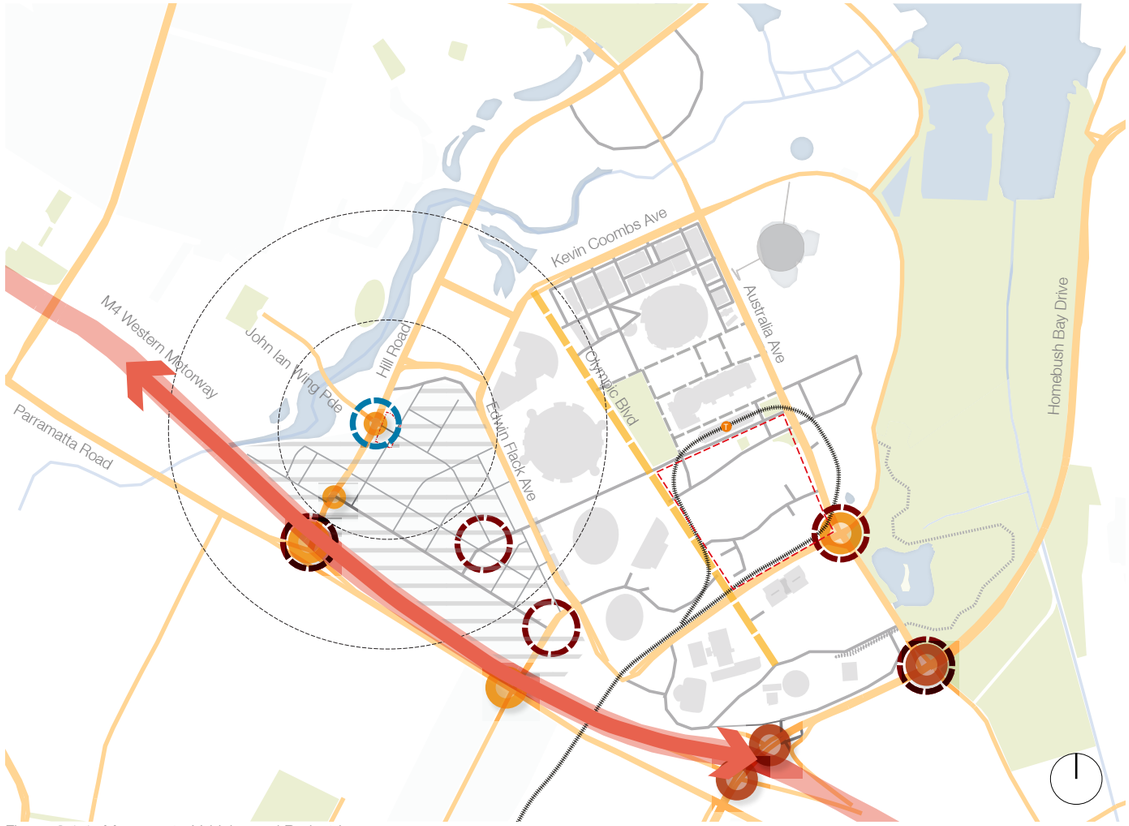


Figure 3.1.1 Movement - Vehicles and Pedestrians

Figure 3.1.2 Local Movement - Vehicles and Pedestrians

- The site is located on Hill Road, north of the connection to M4 Western Motorway.
- The new street network proposed in the Carter Street Precinct proposes a road through the site.
- The site is located at a possible gateway location for both the Carter Street Precinct and the broader SOP.
- Substantial upgrades to the Hill Road/M4 on-off ramp will be delivered as part of the westconnex construction work.

- Under SOPA Master plan 2030, a new road is to be located through the centre of the site.
- The proposed road is identified as a green road in the Carter Street Precinct DCP 2016. The proposed road has a width up to 40m and includes a bioswale allowing overland flow to connect to Haslams Creek.

Key

- Site boundary
- Arterial road
- Secondary road
- Pedestrianised secondary road
- Local road
- Pedestrianised local road
- Proposed Road
- Major Intersection
- Medium Intersection
- Gateway
- Train line
- Open space

3.2 Movement - Public Transport and Cycleways

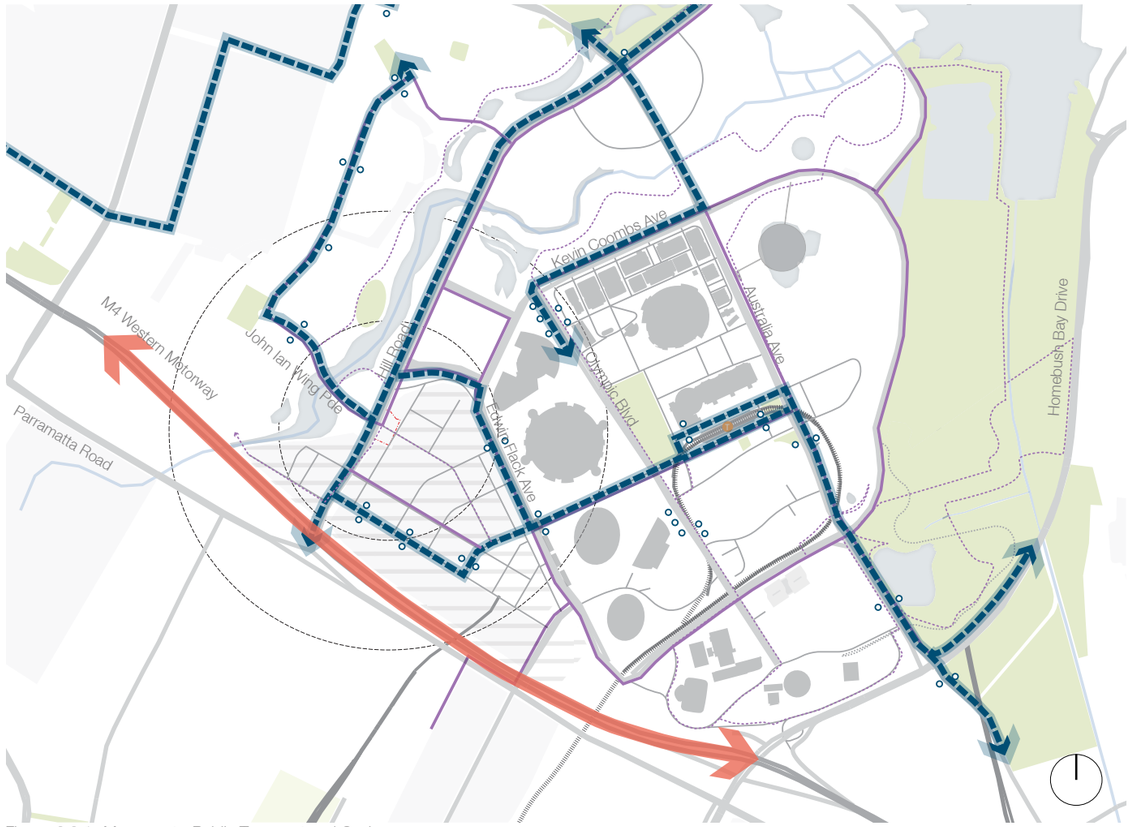


Figure 3.2.1 Movement - Public Transport and Cycleways

Figure 3.2.2 Local Movement - Public Transport and Cycleways

- The site is well connected through existing bus routes and cycleways; tying into existing transport infrastructure in Sydney Olympic Park and Newington.
- The site is 1.23km from Sydney Olympic Park Station.

- Bus routes run directly past the site on Hill Road to Parramatta Road in the south and Silverwater to the north.
- Proposed on and off road cycleways have been proposed for the Carter Street Precinct linking into existing infrastructure in Sydney Olympic Park.
- Cycle routes extend through Haslams Creek open space to the west.

Key
- Site boundary
- Arterial Road
- Bus routes
- Bus stops
- Dedicated cycle paths
- Cycle trails/Bike friendly roads
- Train line
- Open space

3.3 Open Space

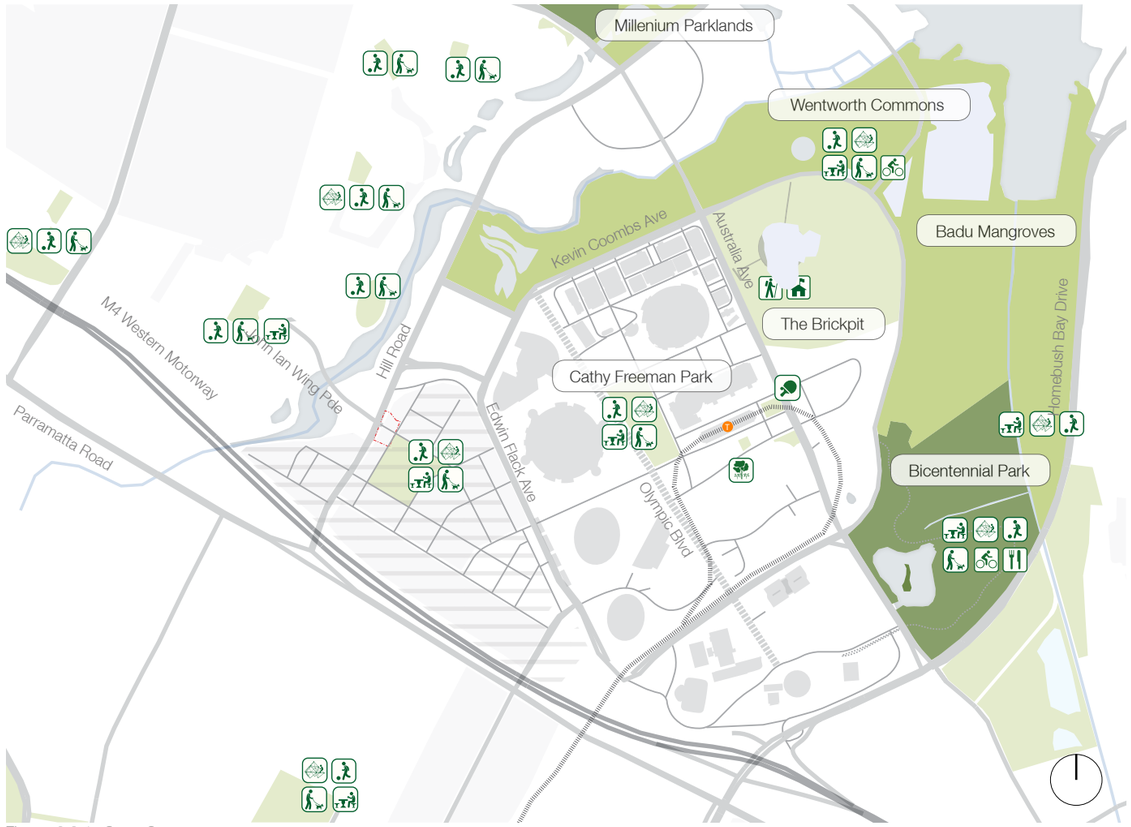


Figure 3.3.1 Open Space

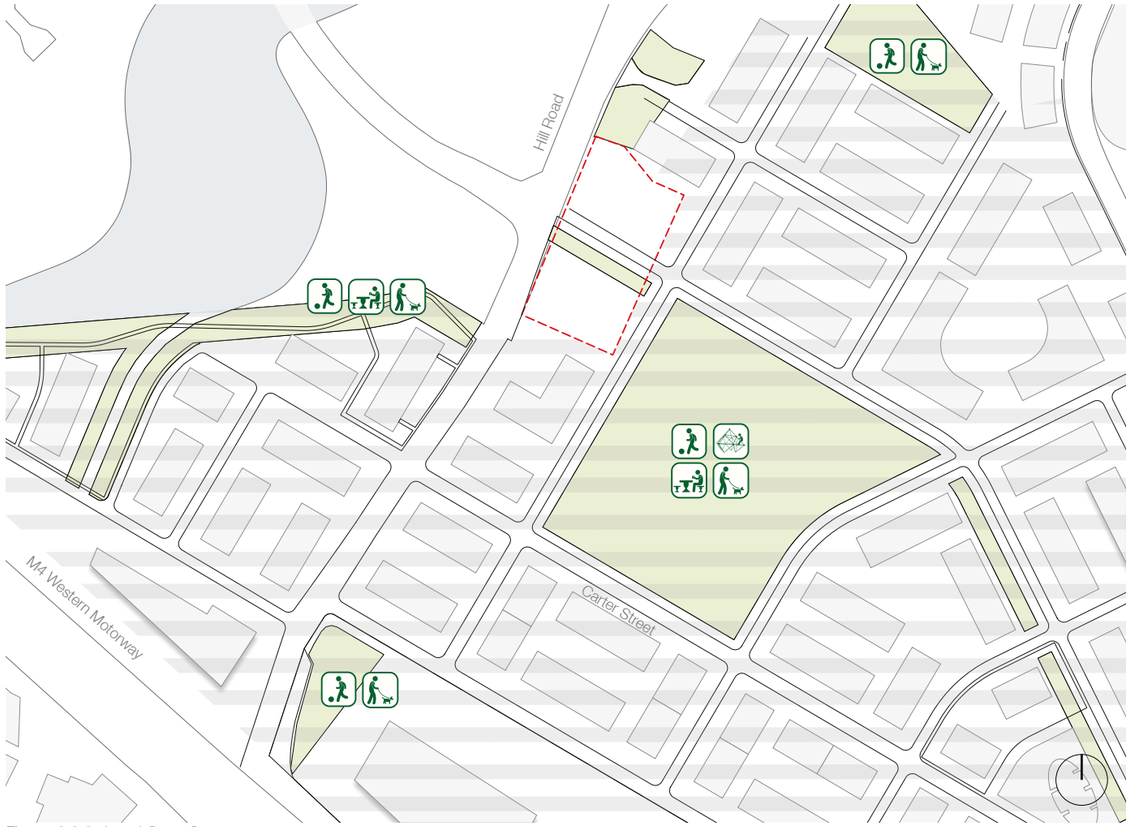


Figure 3.3.2 Local Open Space

Key

- SOP Town Centre
- Central Precinct
- Site boundary
- Regional open space
- Local open space
- Passive open space
- Train line
- Landmark
- Walking trail
- Playground
- Picnic area
- Informal recreation
- Dogs on leash
- Bicycle trail
- Eateries

- The site is well located to a series of easily accessible large open spaces on the edge of Sydney Olympic Park. The diagram above shows the range of activities and local amenity on offer.
- The site is also in proximity to a series of smaller local open spaces proposed under the Carter Street Precinct DCP 2016 as well as parkland adjacent to Haslams Creek.
- A 2.98 hectare park is proposed to be located directly adjacent the site providing for a variety of recreation facilities, providing significant amenity to the site.

3.4 Land use and Amenities

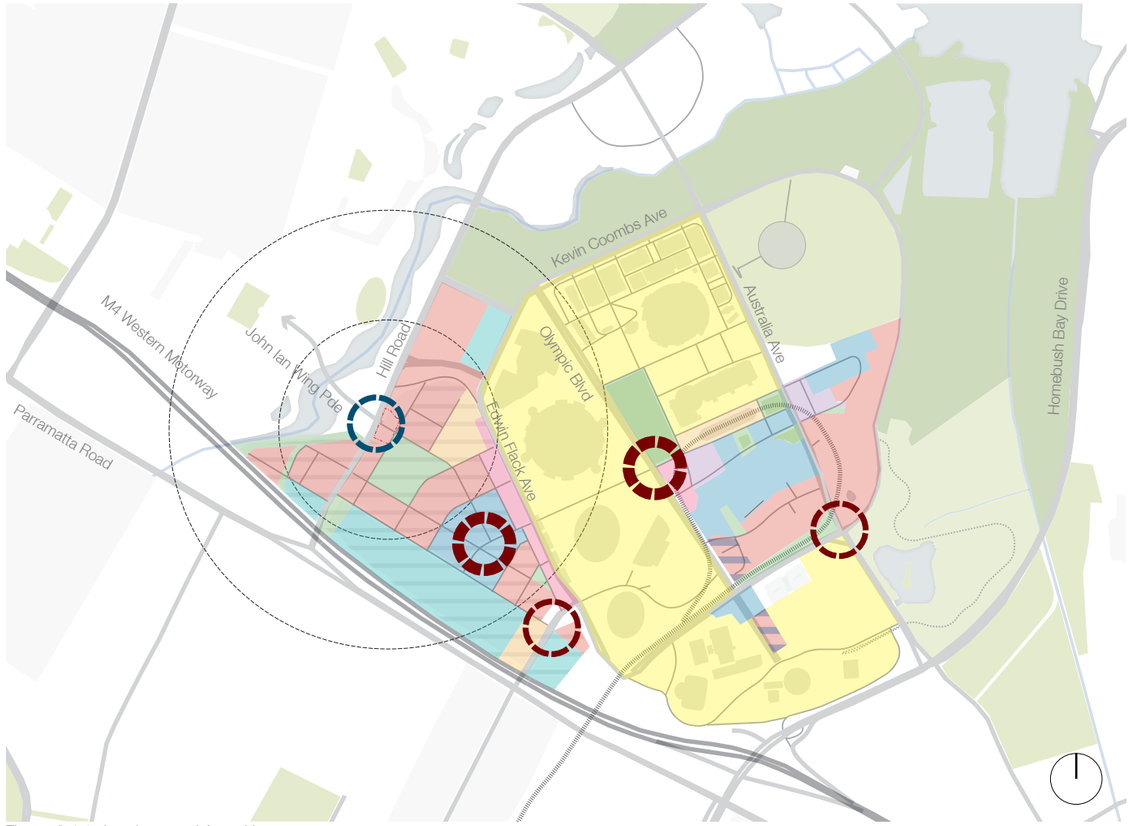


Figure 3.4.1 Land use and Amenities

Figure 3.4.2 Local Land Use and Amenities

- The diagram above shows the proposed land use designation of SOP and Carter Street Precinct and identifies concentration of land uses and proposed commercial activity.
- The site has been identified as a residential area
- The site is within close proximity to the proposed Carter Street Town Centre with a mix of uses throughout the precinct.
- A series of special event spaces sit to the east of the site. These host a number of high intensity events affecting accessibility and noise in and around the SOP and Carter Street Precinct areas.

- The site is bordered by residential and open space land uses.
- Land has been allocated for the construction of a new local school located to the east of the site and a commercial town centre to the south east of the site.

Key

- Site boundary
- Residential
- Commercial
- Community
- Industrial
- Infrastructure
- Special Event
- Hotels
- Mixed Use
- Open Space
- DCP Proposed Gateway
- Possible Gateway

3.5 Constraints

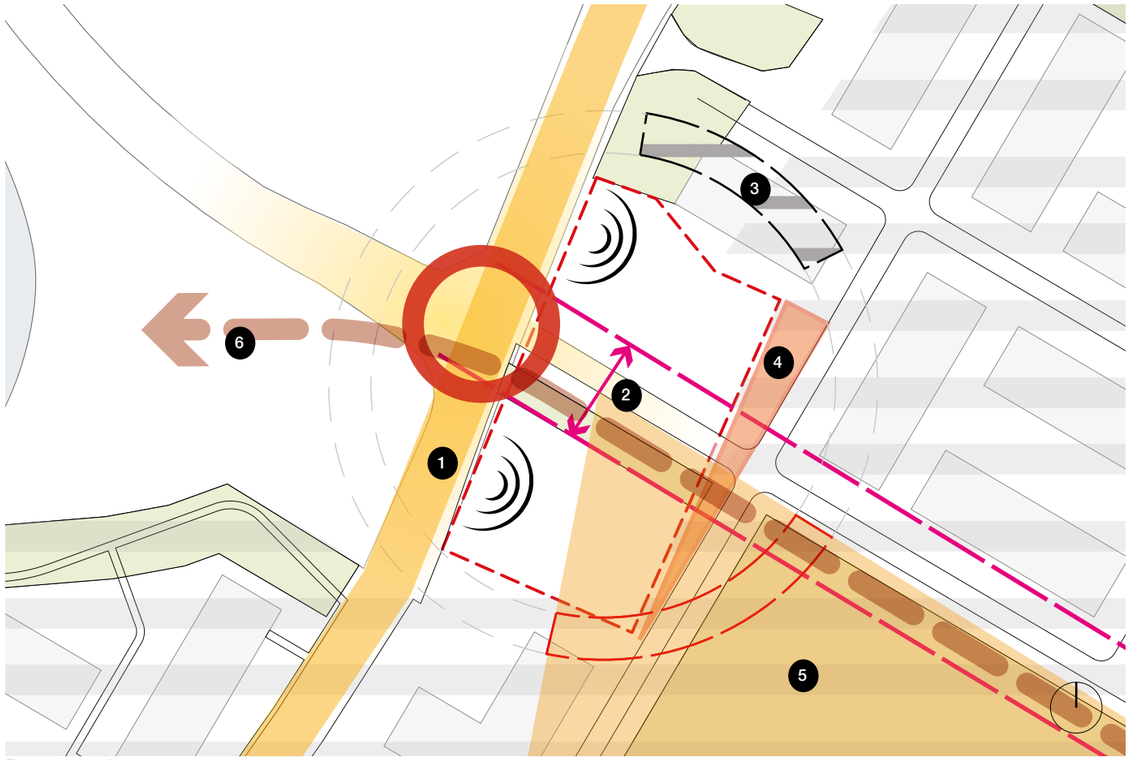


Figure 3.6.1 Constraints

1. Increased noise associated with traffic from Hill Road.
2. Proposed 40m bioswale reduces the developable area of the site.
3. Proximity to SITA Auburn Resource Recovery Centre, which has potential odour impacts
4. Fragmented site due to difference between existing lot boundary and proposed roads.
5. Potential overshadowing of the proposed park located to the south east of the site.
6. Flood risk associated with 1 and 100 year flood events

Key

- Site boundary
- Secondary Road
- Congestions
- Sensitive to Overshadowing
- Sensitive Smells
- Bioswale
- Noise Source
- Overland Flow Path

3.6 Opportunities

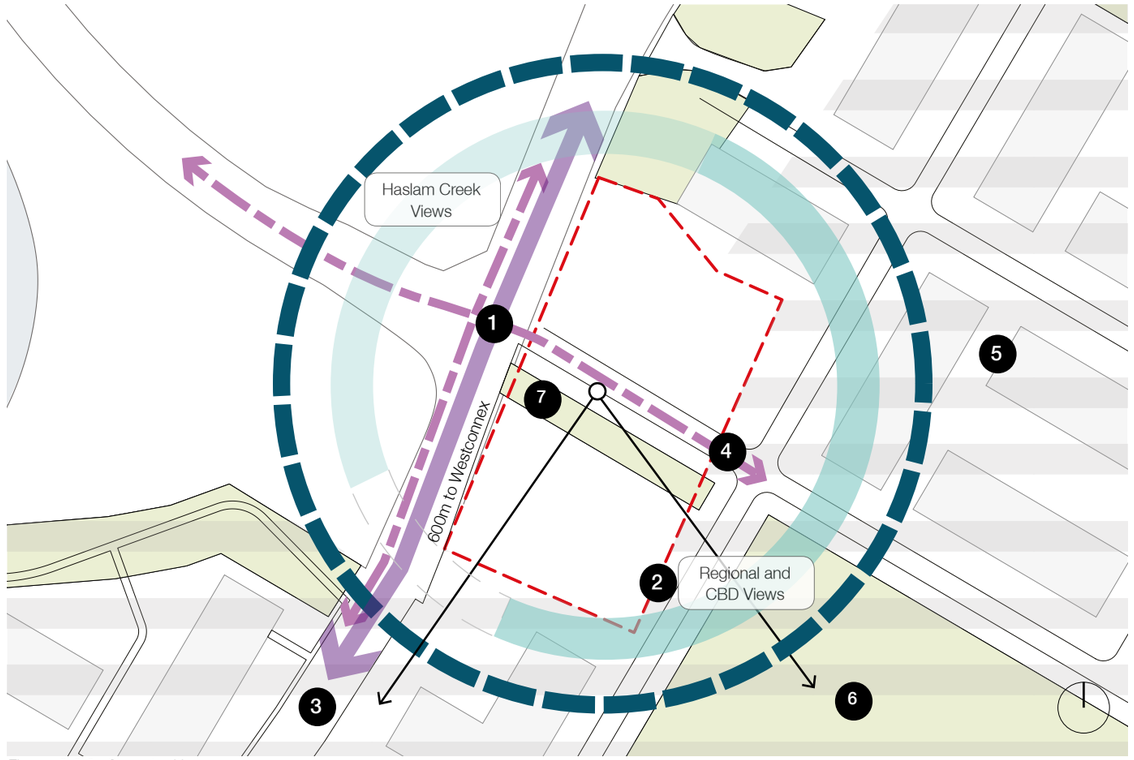


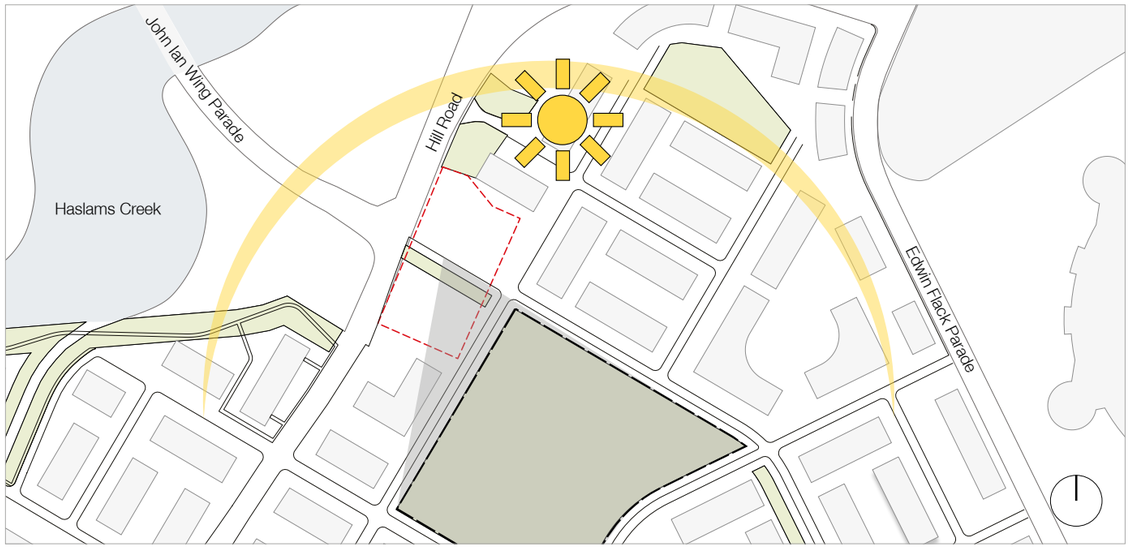
Figure 3.6.2 Opportunities

1. Possible gateway into both the Carter Street Precinct and SOP.
2. Regional views towards SOP, CBD and Haslams Creek
3. Increased connectivity through the new M4 Western Motorway.
4. High accessibility by public transport and bicycle paths
5. Adjacent to areas earmarked for urban renewal
6. Close proximity to open spaces and a new town centre
7. Opportunity to deliver infrastructure

Key

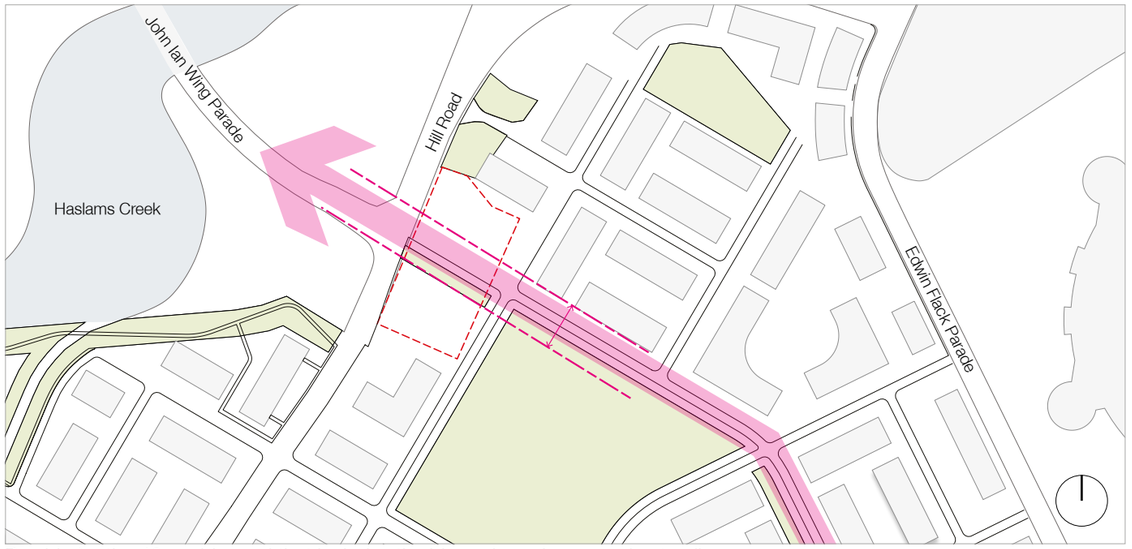
- Site boundary
- Arterial Road
- Public Transport + Cycleways
- Possible Gateway

3.7 Project Drivers



Maximise solar access to proposed envelopes and minimise overshadowing to adjacent park

Figure 3.7.1 Solar Access

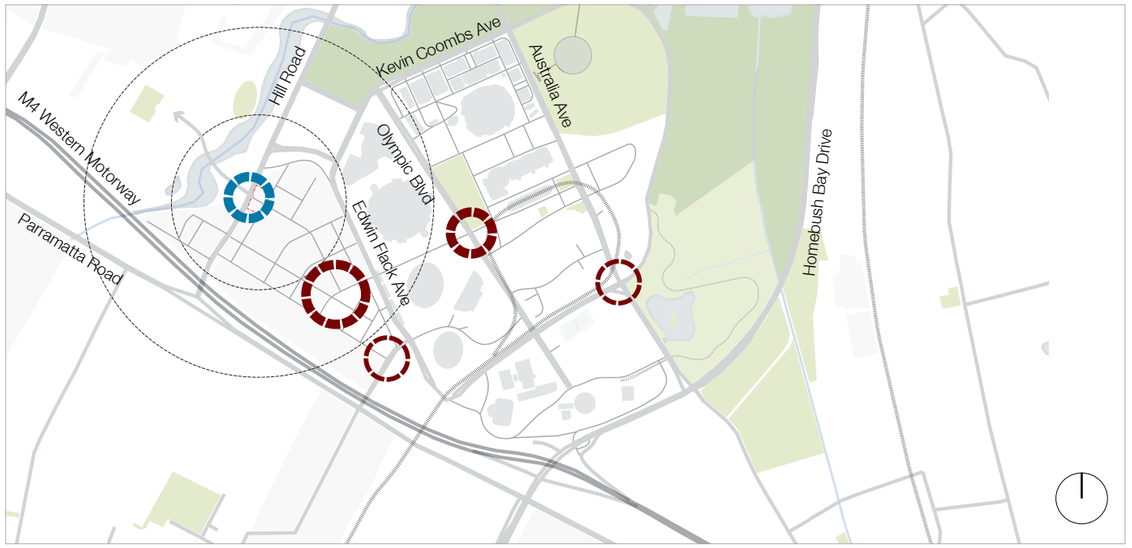


Provide for the 40m wide road that includes the bioswale and green spine to allow for overland flow from the under-park stormwater detention

Figure 3.7.2 New Road

Setbacks to Hill Road and proposed street network of the Carter Street Precinct to be extended over the site.

Figure 3.7.3 Setbacks



The site presents the opportunity to create a gateway into the Carter Street Precinct with potential to match the height of proposed towers at other gateway locations e.g. Birnie Ave and Carter Street

Figure 3.7.4 Gateways

4

Design Studies

Option testing for the site that responds to SOPA Master plan 2030 and Carter Street Precinct DCP 2016

4.1 Study Overview

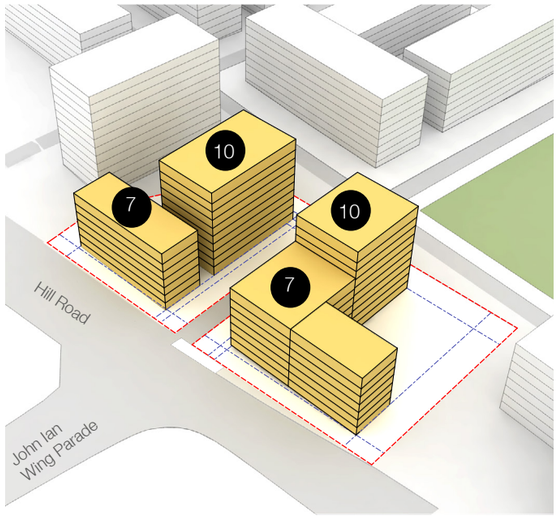


Figure 4.1.1 Design Study 01

Study 1: Current Controls

The first study identifies the permissible built form outcomes outlined in the SOPA 2030 Master plan and places it within the context of the Carter Street Precinct. The SOPA Master plan identifies a new road of 18m through the centre of the site, at the intersection of Hill Road and John Ian Wing Parade. The built form controls in the Master plan promote a continuous street wall along Hill Road and a 18m wide new road through the site.

Assumptions
- Height: 7-10 storeys
- FSR: 2.25:1
- New road: 18m wide on the same alignment of John Ian Wing Parade.
- Side boundary separation as per the Apartment Design Guide (ADG)

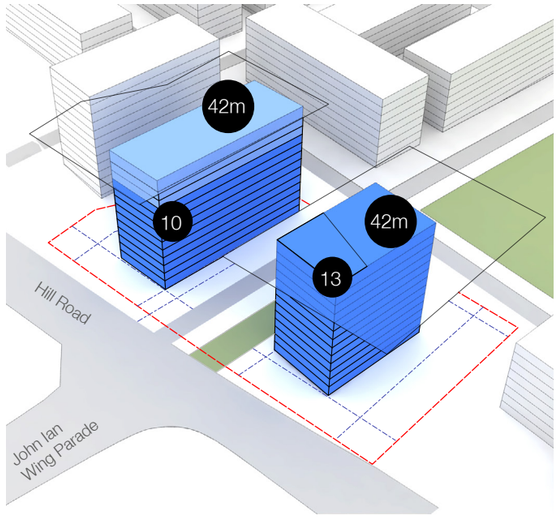


Figure 4.1.2 Design Study 02

Study 2: Consistent FSR Control

Study 02 applies the adjoining Carter Street Precinct heights and FSR controls to the study site. The proposed massing in this study is compliant with both the 2:1 FSR and 42m height limit. The Carter Street Precinct DCP 2016 identifies a green road running through the site up to 40m wide. The proposed controls achieves a 13 and 10 storey building, orientated along the east-west access maximising solar access and minimising frontages to noise associated with traffic from Hill Road.

An additional 3 storeys has been added to the 10 storey massing to test what the FSR for the site would be if both buildings are proposed to a 42m height limit. This result in an FSR of 2.39:1.

Assumptions
- Height: 42m
- FSR: 2:1
- Green Road: 40m wide on the same alignment of John Ian Wing Parade.
- Street Setbacks: 5m new road to the east of the site boundary. 10m From Hill Road.
- Side boundary separation as per the Apartment Design Guide (ADG)

Figure 4.1.3 Design Study 03

Study 3: Exceed existing height

Study 03 increases the height of the southern tower from 42m to 72m, in order to reflect the site's role as a gateway into the precinct. The 72m control reflects height designated to other gateway site's within the precinct e.g the intersection of Carter Street and Birnie Avenue. This height has been applied to the southern tower to maximise solar access to north facing facades.

Assumptions
- Height: 42m for the northern building, 72m for the southern building;
- FSR: 3-3.9:1(FSR will be subject to floor to floor heights and plant room height);
- Green Road: 40m wide on the same alignment of John Ian Wing Parade;
- Street Setbacks: 5m new road to the east of the site boundary. 10m from Hill Road;
- Side boundary separation as per the Apartment Design Guide (ADG); and
- 840m^2 (Gross Building Area) to result in more slender buildings and narrower shadowing.

Figure 4.1.4 Design Study 04

Study 4: Gateway Opportunity

Study 04 increases both proposed towers to a 72m height limit to reflect the gateway position of the site.

Assumptions
- Height: 72m across the site;
- FSR: 3.53-3.69:1 (FSR will be subject to floor to floor heights and plant room height);
- Green Road: 40m wide on the same alignment of John Ian Wing Parade;
- Side boundary separation as per the Apartment Design Guide (ADG);
- 840m^2 (Gross Building Area) to result in more slender buildings and narrower shadowing.
-

4.2 Design Study 01 - Current Controls

Figure 4.2.1 Site Layout Plan

Figure 4.2.2 Massing view from the south west

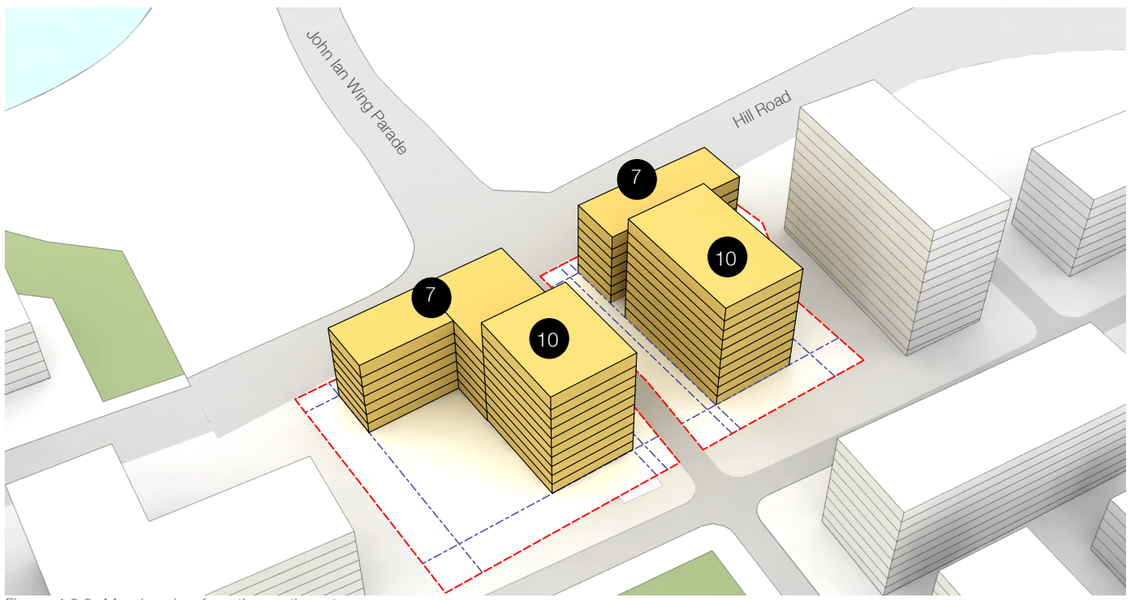


Figure 4.2.3 Massing view from the south east

Option 01	Storeys	GBA	GFA[1]	Dwellings[3]
Building 01				
level 1-7[2]		1,327	1,060	12
level 8-10[*]		785	628	7
Sub Total	10	11,644	9,315	110
Building 02				
level 1-7[2]		1,496	1,196	14
level 8-10[2]		580	463	5
Su Total	10	12,212	9,770	115
Total		23,856	19,085	225
FSR[4]	2.3:1			

Assumptions
1 GFA is 80% of GBA
2 Represents the typical areas per floor
3 Dwellings equal 1 unit per 85m² of GFA
4 FSR based on the 8,336m² site area

4.3 Design Study 01- Massing

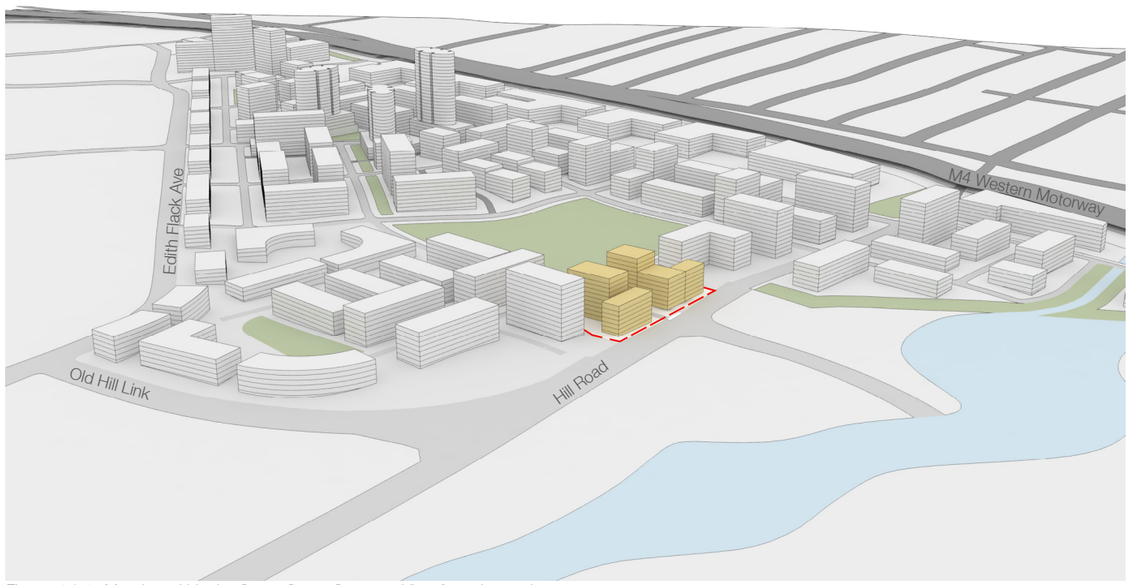


Figure 4.3.1 Massing within the Carter Street Context - View from the north

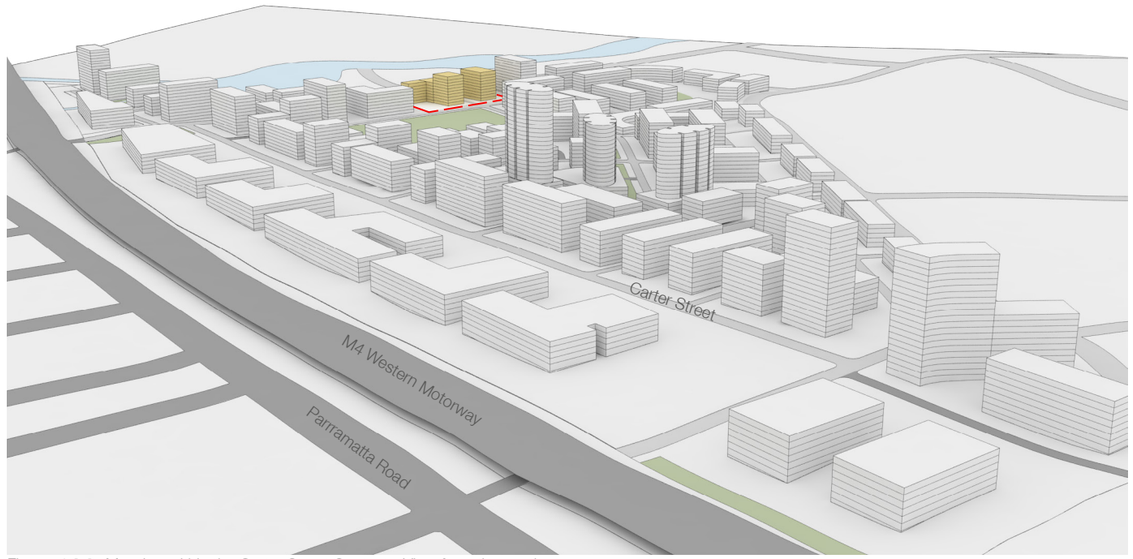


Figure 4.3.2 Massing within the Carter Street Context - View from the south

- Option 01 shows permissable built form outcomes outlined in the SOPA 2030 Master plan that are smaller in height and scale to indicative adjacent residential development under the Carter Street Precinct DCP 2016.

4.4 Design Study 01 - Shadow Analysis

The diagrams below show the extent of shadow resulting from the proposed massing. The option will cast short shadows that move east to west with overshadowing to the north west edge of the adjacent park from 1pm.

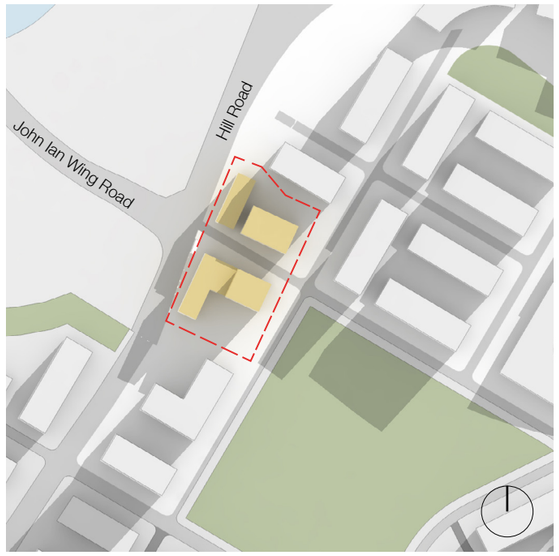


Figure 4.4.1 _9am Shadow

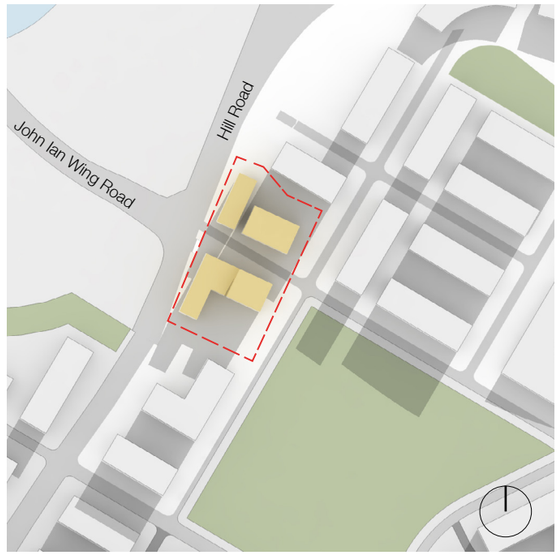


Figure 4.4.2 _10am Shadow

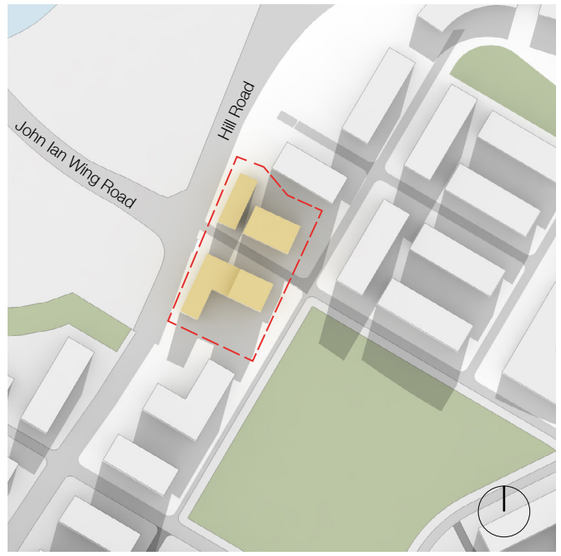


Figure 4.4.3 _11am Shadow

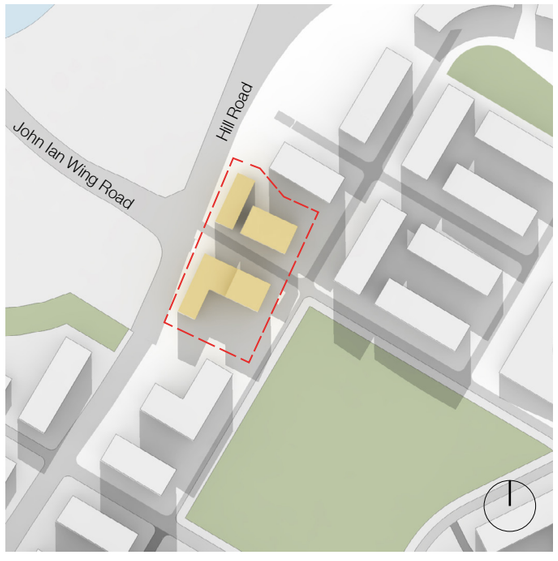


Figure 4.4.4 _12pm Shadow

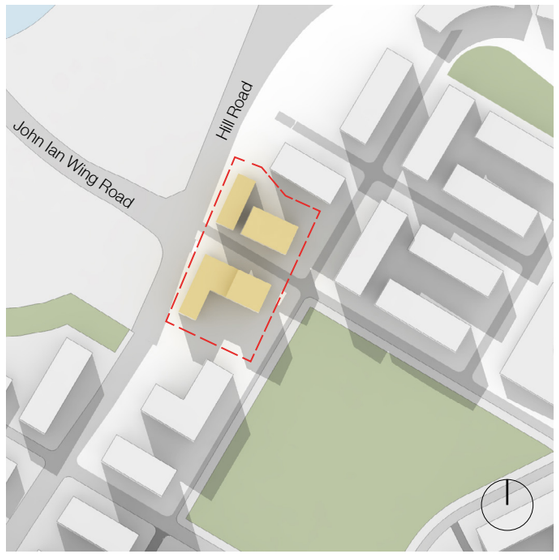


Figure 4.4.5 _1pm Shadow

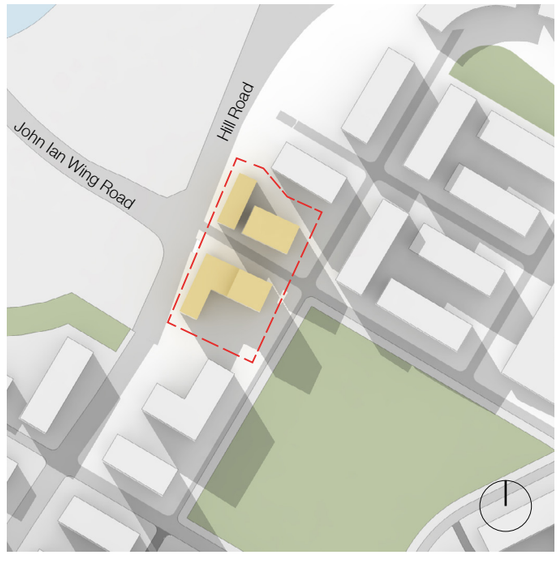


Figure 4.4.6 _2pm Shadow

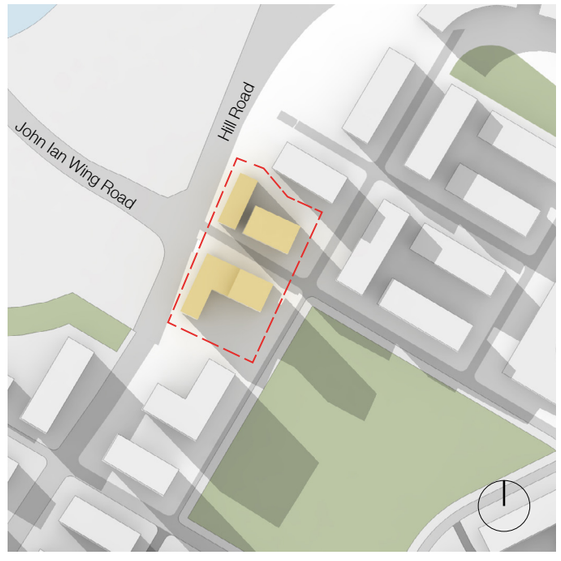


Figure 4.4.7 _3pm Shadow

4.5 Design Study 01 - Solar Access

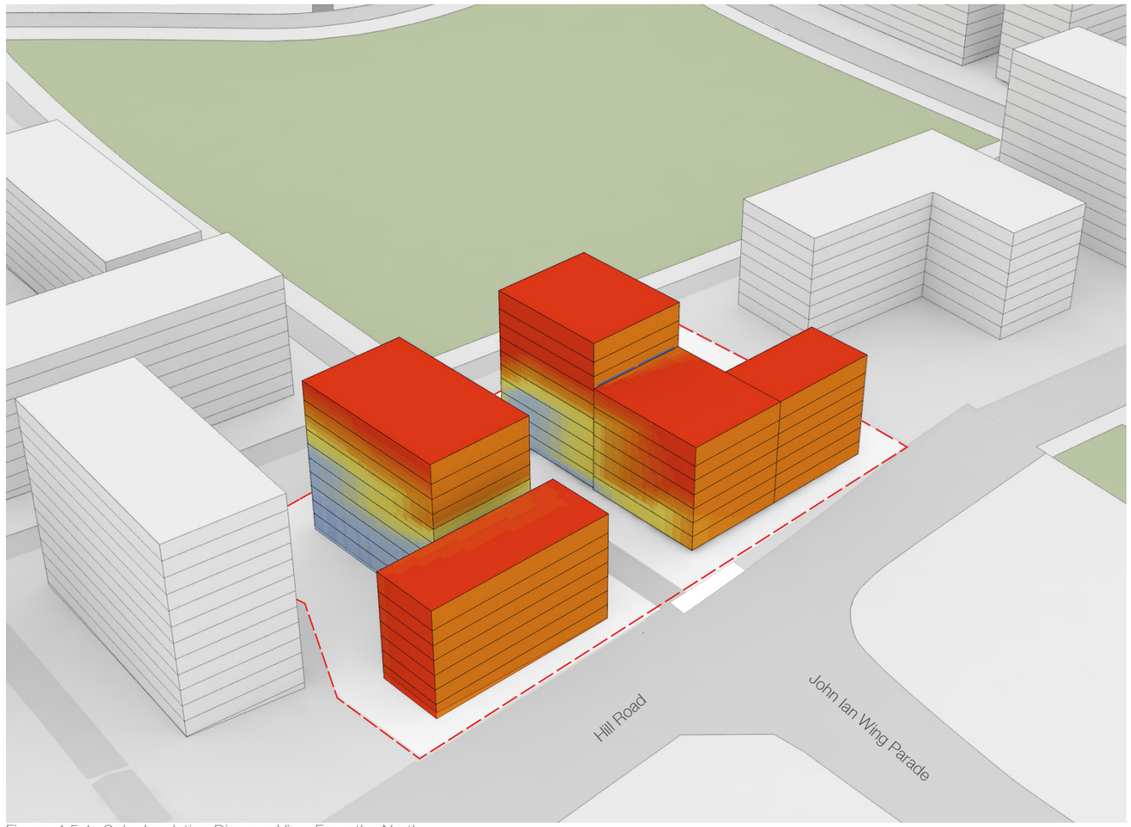


Figure 4.5.1 Solar Insulation Diagram View From the North

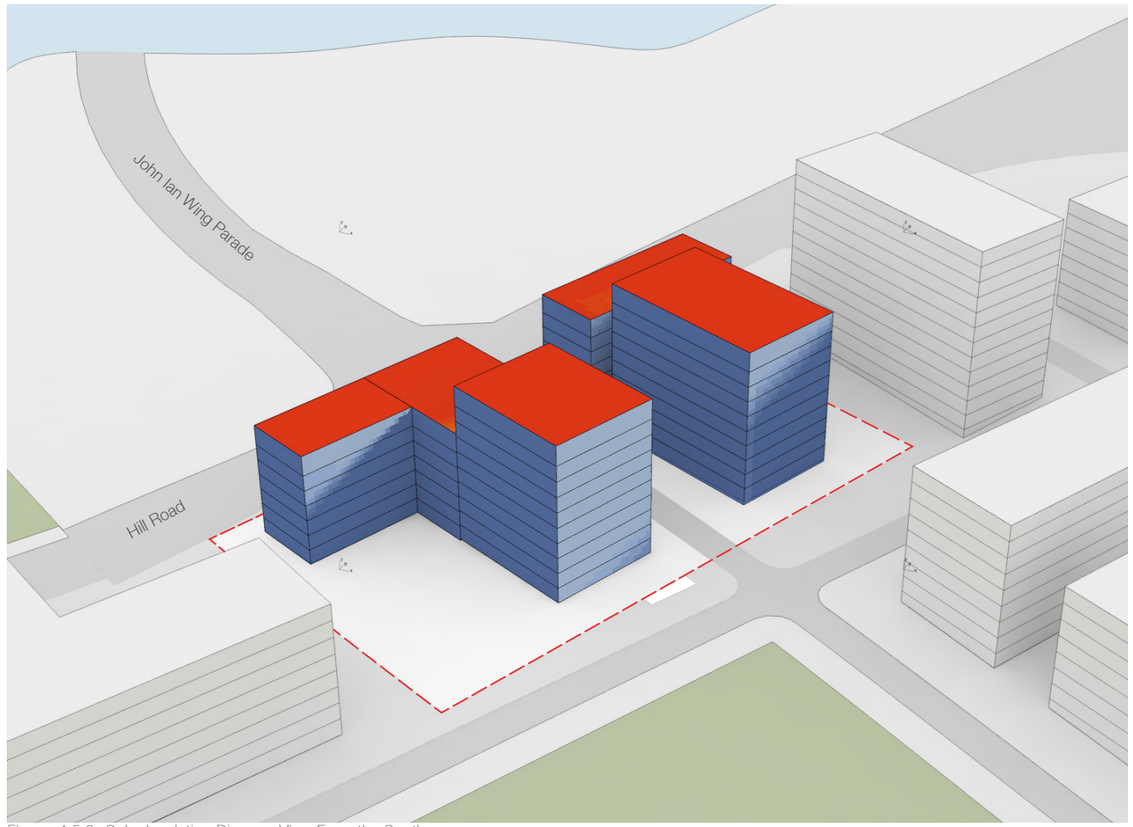
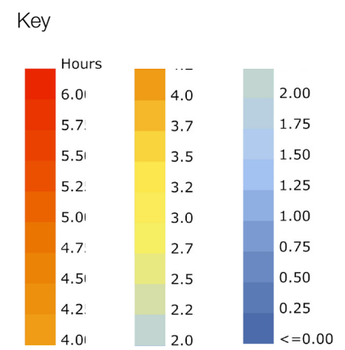


Figure 4.5.2 Solar Insulation Diagram View From the South



The diagrams above show the extent of daylight access the proposed building envelopes will receive on the 21st of June. The range of colours represent the hours of the day they will receive solar access with the warmer colours illustrating greater amounts of sunlight.

The solar access diagram above shows that the north-west facades are achieving the solar requirements of the Apartment Design Guide

4.6 Design Study 02 - Consistent FSR Control

Figure 4.6.1 Site Layout Plan

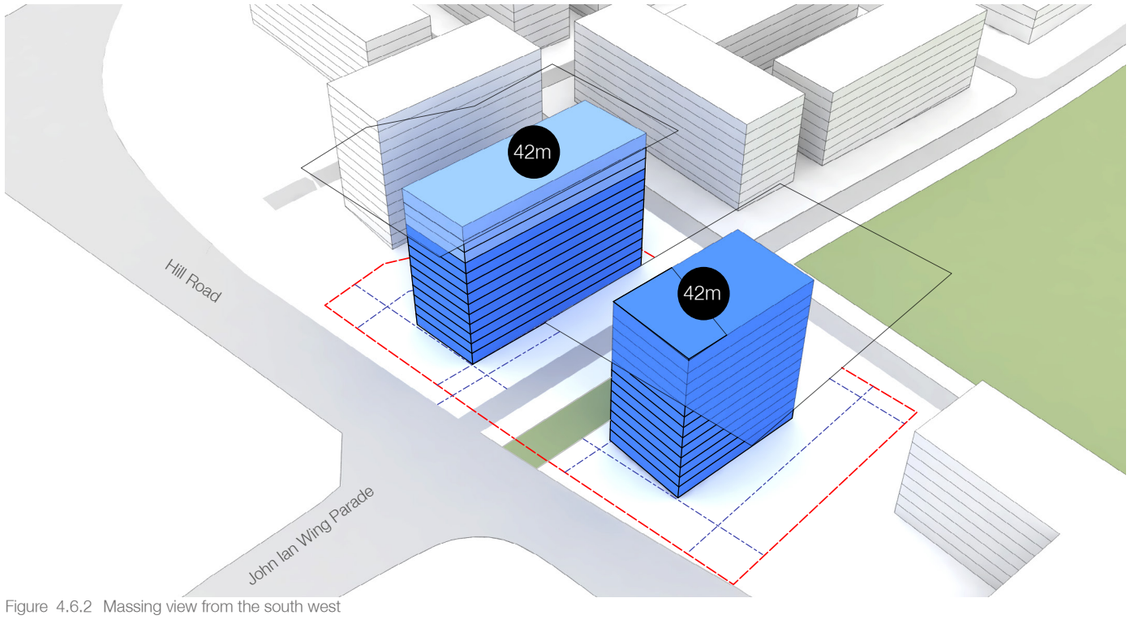


Figure 4.6.2 Massing view from the south west

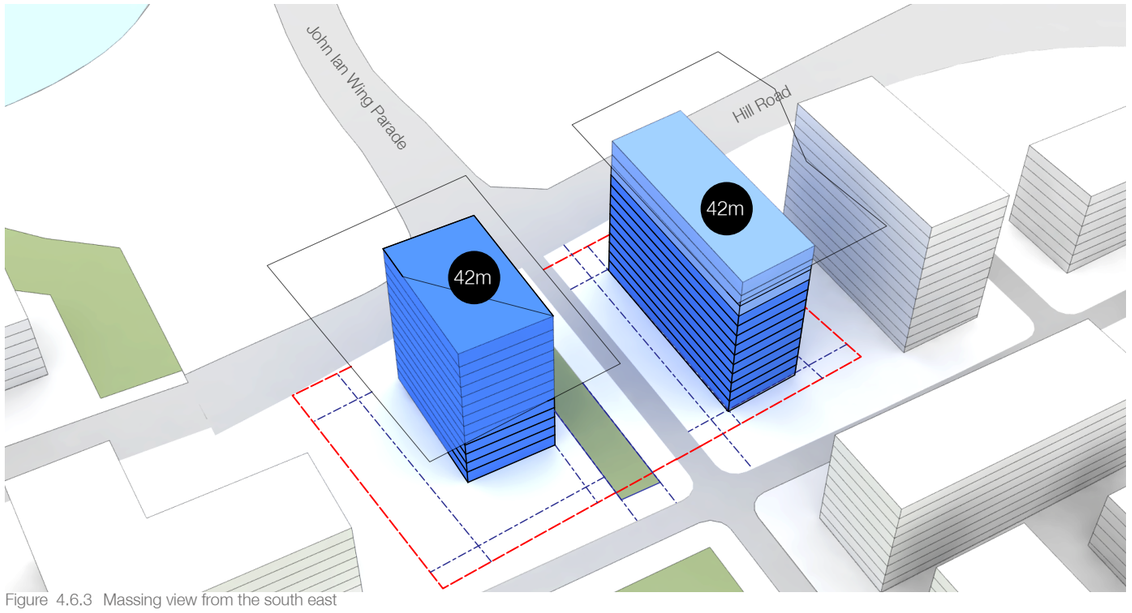


Figure 4.6.3 Massing view from the south east

Option 02	Storeys[6]	GBA	GFA[1]	Dwellings[3]
Building 01				
Per Level[2]	10	1,089	871	
Sub Total	10[7]	10,886	8,708	102
Building 02				
Per Level[2]		792	634	7
Sub Total	13	10,296	8,237	97
Total Without additional Height		21,182	16,945	199
FSR[4] without additional height	2:1			
Total With Additonal Height		24,900	19,926	230
FSR[4] with additional height	2.39:1			

The table to the left shows a maximum built form scenario based on a 42m height limit, a floor to floor height of 3.1m and a lift over run of 4.2m from the last level served. The FSR achieved on the site will be subject to floor to floor heights and height allowance for lift overruns.

Assumptions
1 GFA is 80% of GBA
2 Represents the typical areas per floor
3 Dwellings equal 1 unit per 85m² of GFA
4 FSR based on the 8,336m² site area
5 Additional massing above the existing GFA to reach the height permitted in the Carter Street Precinct DCP 2016
6 Assumes a 3.1m floor to floor and a 1.1m lift overrun
7 Storey height to achieve the allowable 2:1 FSR
8 Storeys required to achieve the 42m height limit.

Massing above the allowable FSR to meet the height control
Proposed massing that achieves the 2:1 FSR

4.7 Design Study 02 - Massing

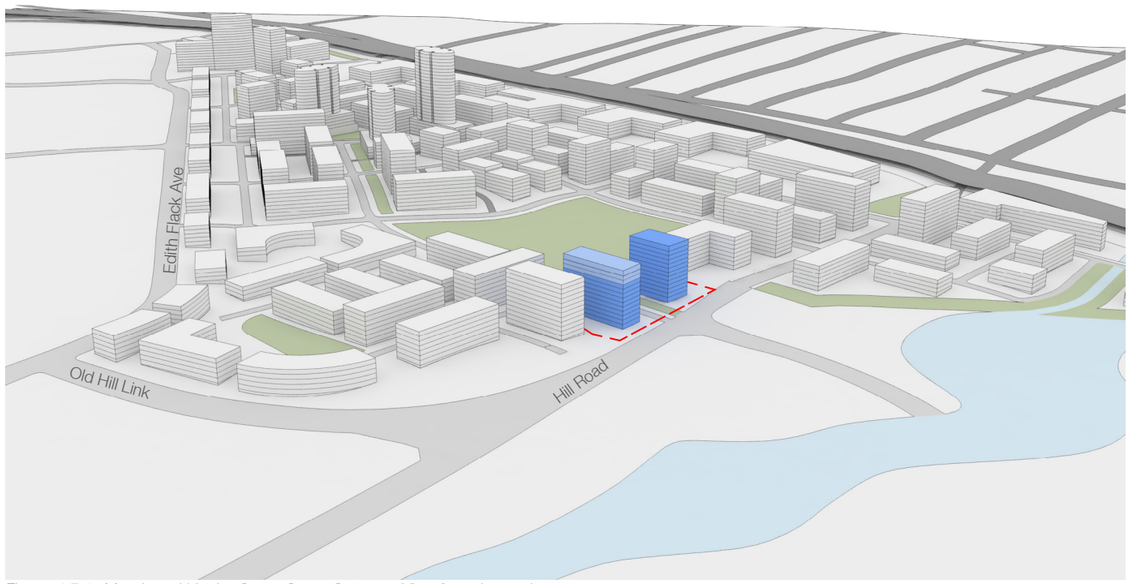


Figure 4.7.1 Massing within the Carter Street Context - View from the north

- Option 02 investigates the built form outcomes of a scheme that is compliant with the permissible FSR controls in the adjoining Carter Street Precinct, as well as a scheme that achieves a height permitted under the Carter Street Precinct DCP 2016 and a greater FSR. The proposed massing orientates along the east-west access maximising solar access and minimising frontages to noise associated with traffic from Hill Road.

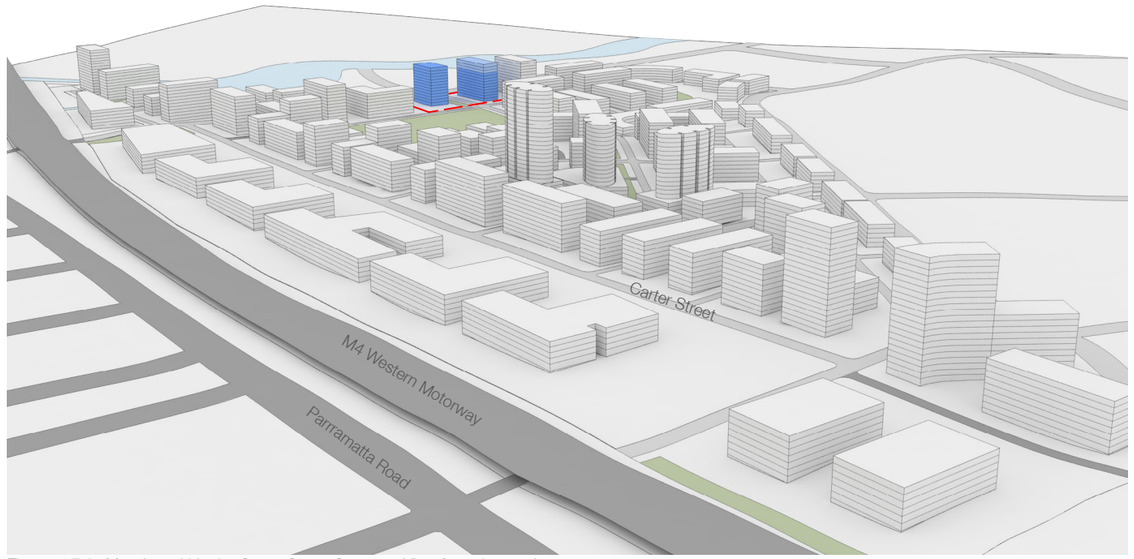


Figure 4.7.2 Massing within the Carter Street Context - View from the south

- Option 02 allows for development to match adjacent proposed indicative development and provides views over the proposed park and Carter Street Precinct.

4.8 Design Study 02 - Shadow Analysis

The diagrams below show the extent of shadow caused by the proposed massing, this option will cast shadows that move east to west with the building separation between the two options allowing solar access to the northern edge of the park

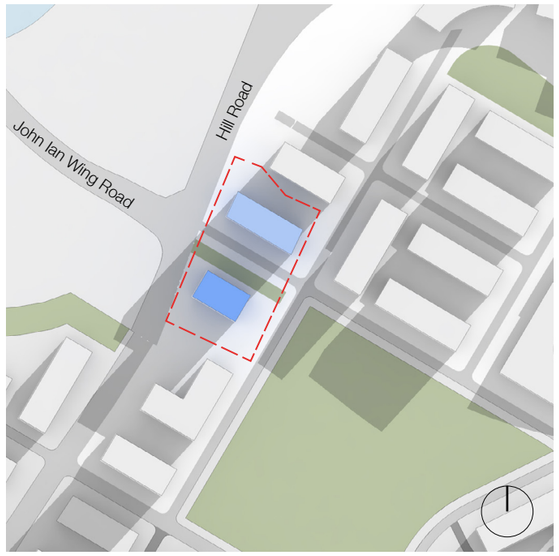


Figure 4.8.1 _9am Shadow

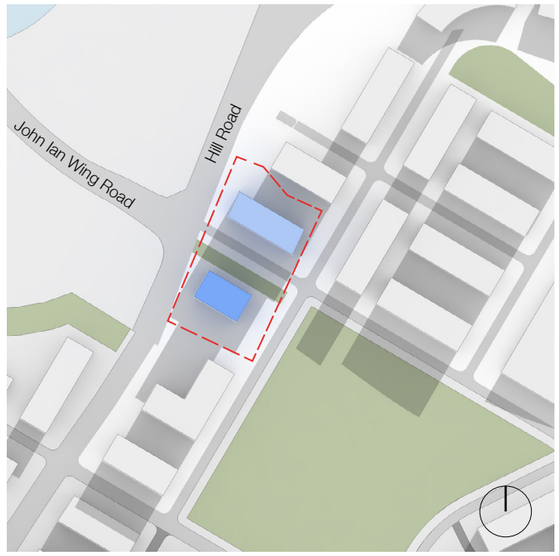


Figure 4.8.2 _10am Shadow

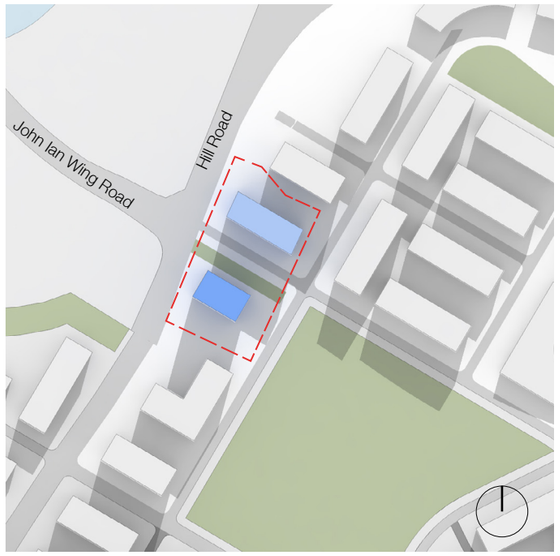


Figure 4.8.3 _11am Shadow

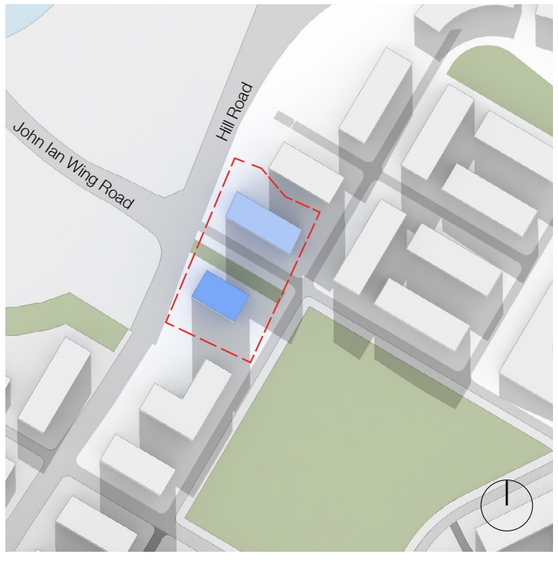


Figure 4.8.4 _12pm Shadow

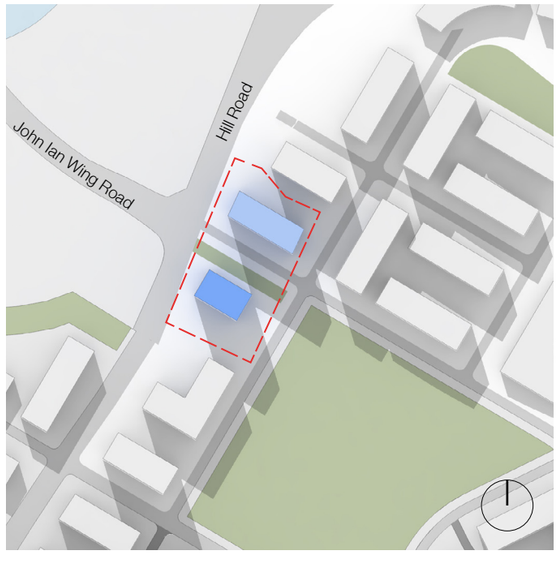


Figure 4.8.5 _1pm Shadow

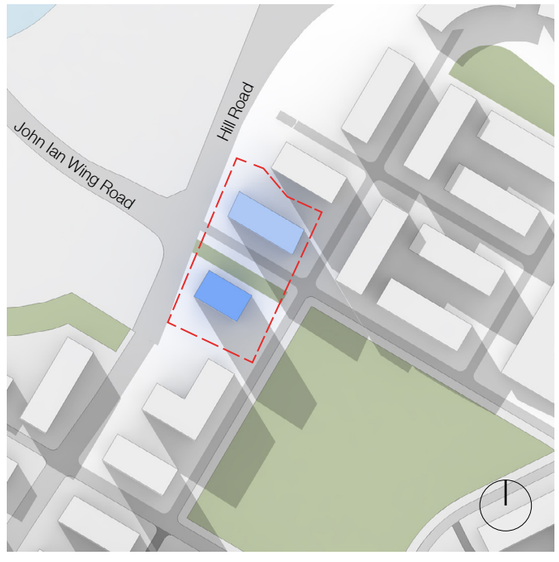


Figure 4.8.6 _2pm Shadow

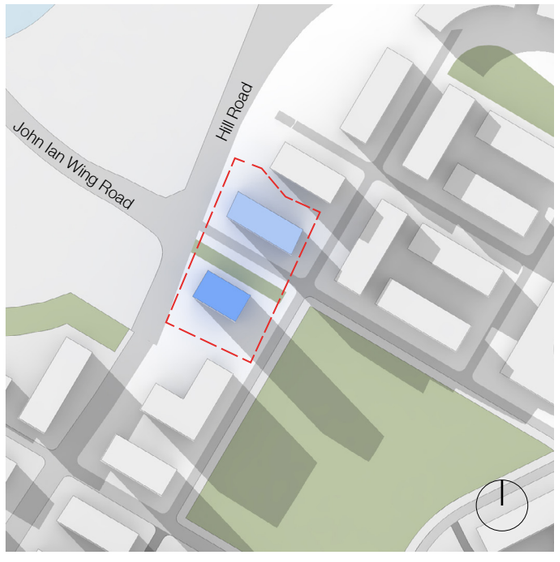


Figure 4.8.7 _3pm Shadow

4.9 Design Study 02 - Solar Access

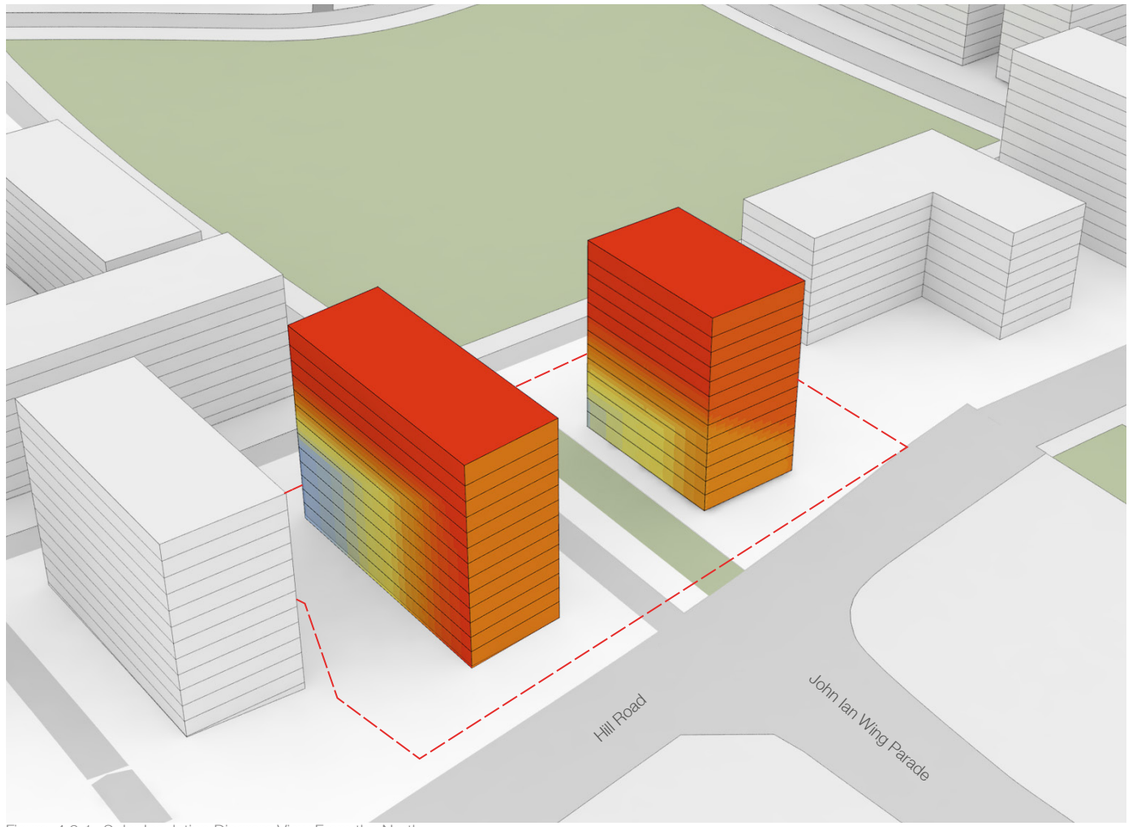


Figure 4.9.1 Solar Insulation Diagram View From the North

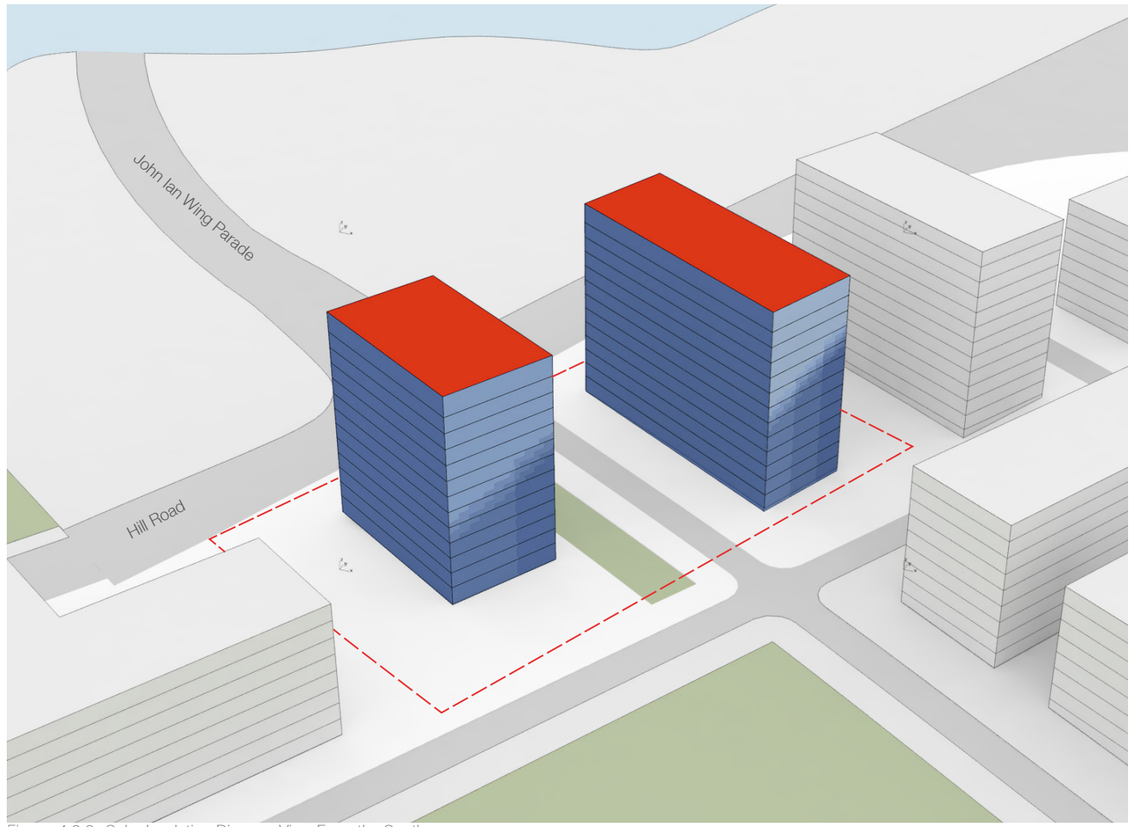
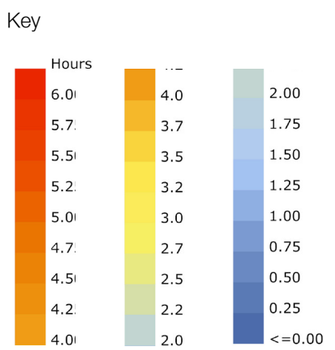


Figure 4.9.2 Solar Insulation Diagram View From the South

The diagrams above show the extent of daylight access the proposed building envelopes will receive on the 21st of June. The range of colours represent the hours of the day they will receive solar access ,with the warmer colours illustrating greater amounts of sunlight.

The solar access diagram above show that the north-west facades are achieving the solar requirements of the Apartment Design Guide



4.10 Design Study 03 - Exceed Existing Height

Figure 4.10.1 Site Layout Plan

Figure 4.10.2 Massing view from the south west

Option 03	Storeys[6]	GBA	GFA[1]	Dwellings[3]
Building 01				
Per Level[2]		1,088	870	10
Sub Total	13	13,056	10,445	123
Building 02[2]				
Per Level		836	669	8
Sub Total	23	19,228	15,382	181
Total		32,228	25,782	280
FSR[4]	3.09:1			

The table to the left shows a maximum built form scenario based on a 42 and 72m height limit, with a floor to floor height of 3.1m, and a lift over run of 4.2m from the last level served. The FSR achieved on the site will be subject to floor to floor heights and height allowance for lift overruns.

Assumptions
1 GFA is 80% of GBA
2 Represents the typical areas per floor
3 Dwellings equal 1 unit per 85m² of GFA
4 FSR based on the 8,336m² site area
5 Additional massing above the existing GFA to reach the height permitted in the Carter Street Precinct DCP 2016
6 Assumes a 3.1m floor to floor and a 1.1m lift overrun

Figure 4.10.3 Massing view from the south east

4.11 Design Study 03 - Massing

Figure 4.11.1 Massing within the Carter Street Context - View from the north

- Option 03 increases the height of the southern tower, to allow to site to reflect its location as an important gateway into the precinct.

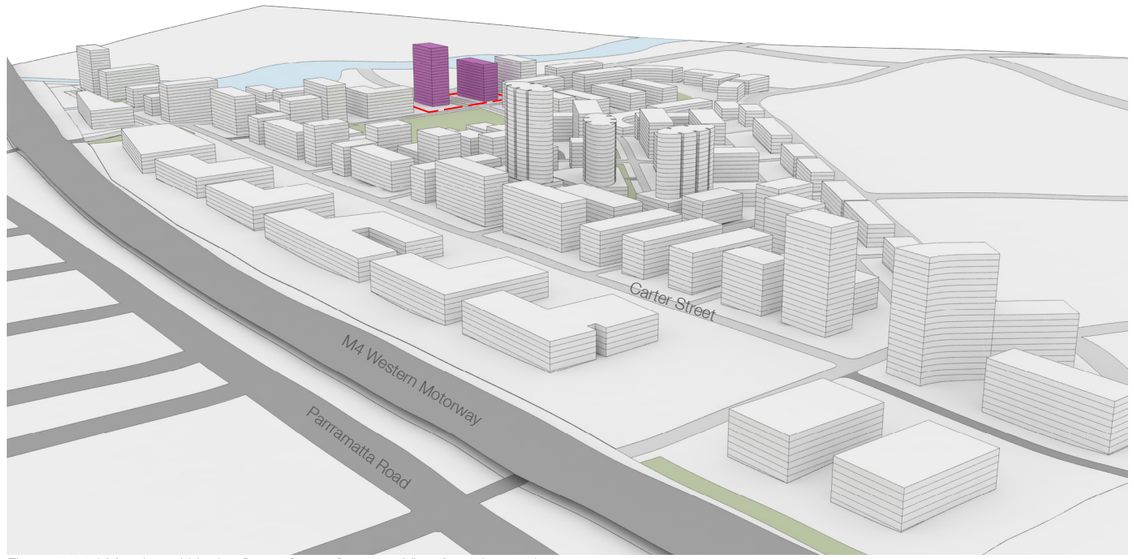


Figure 4.11.2 Massing within the Carter Street Context - View from the south

- Option 03 applies height to the southern tower similar to that applied to the Carter Street Town Centre and the southern gateway site.
- The height of the northern massing matches the height control of the adjacent development under Carter Street Precinct DCP 2016.

4.12 Design Study 03 - Shadow Analysis

The diagrams below show the extent of shadow caused by the proposed massing. The southern tower will cast a long shadow over the park. The north east face of the adjacent lot to the south will be overshadowed by this option in the morning, while the adjacent park will experience long fast moving shadows from 1-3pm. The building separation due to provision for a bioswale allows for sunlight to access the northern corner of the park.

Figure 4.12.1 _9am Shadow

Figure 4.12.2 _10am Shadow

Figure 4.12.3 _11am Shadow

Figure 4.12.4 _12pm Shadow

Figure 4.12.5 _1pm Shadow

Figure 4.12.6 _2pm Shadow

Figure 4.12.7 _3pm Shadow

4.13 Design Study 03 - Solar Access

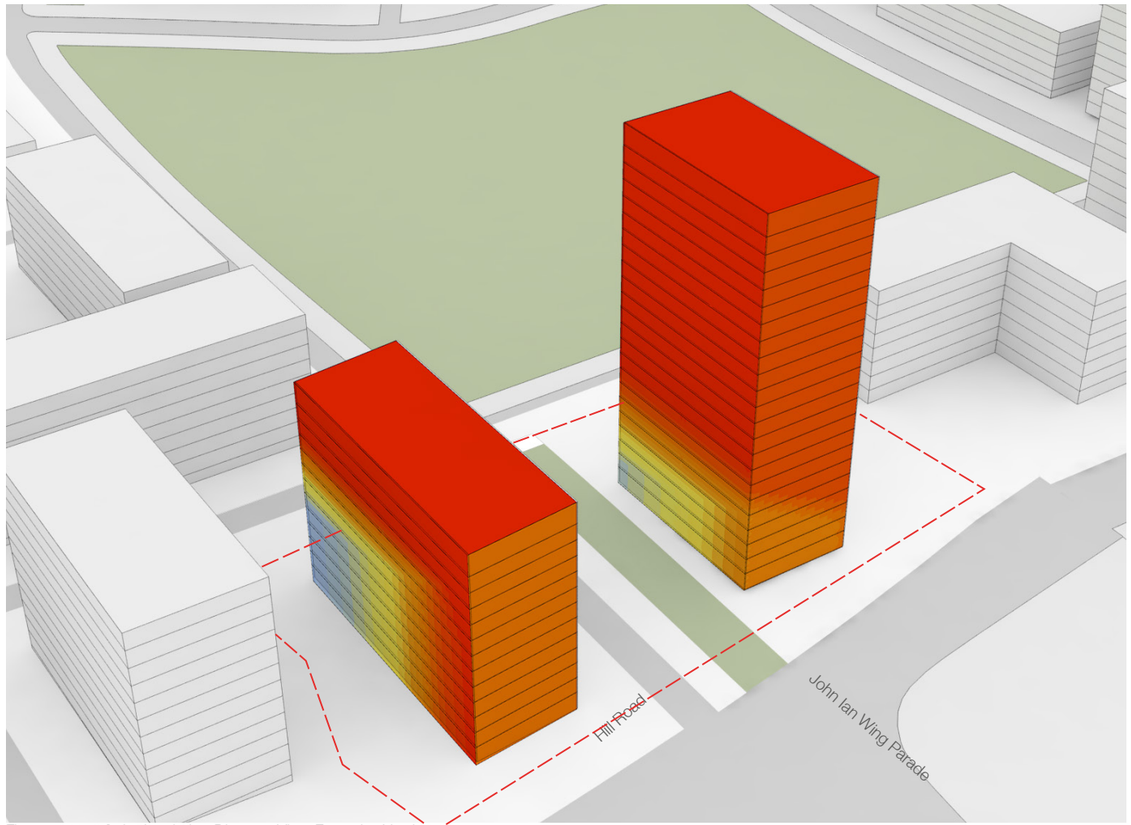


Figure 4.13.1 Solar Insulation Diagram View From the North

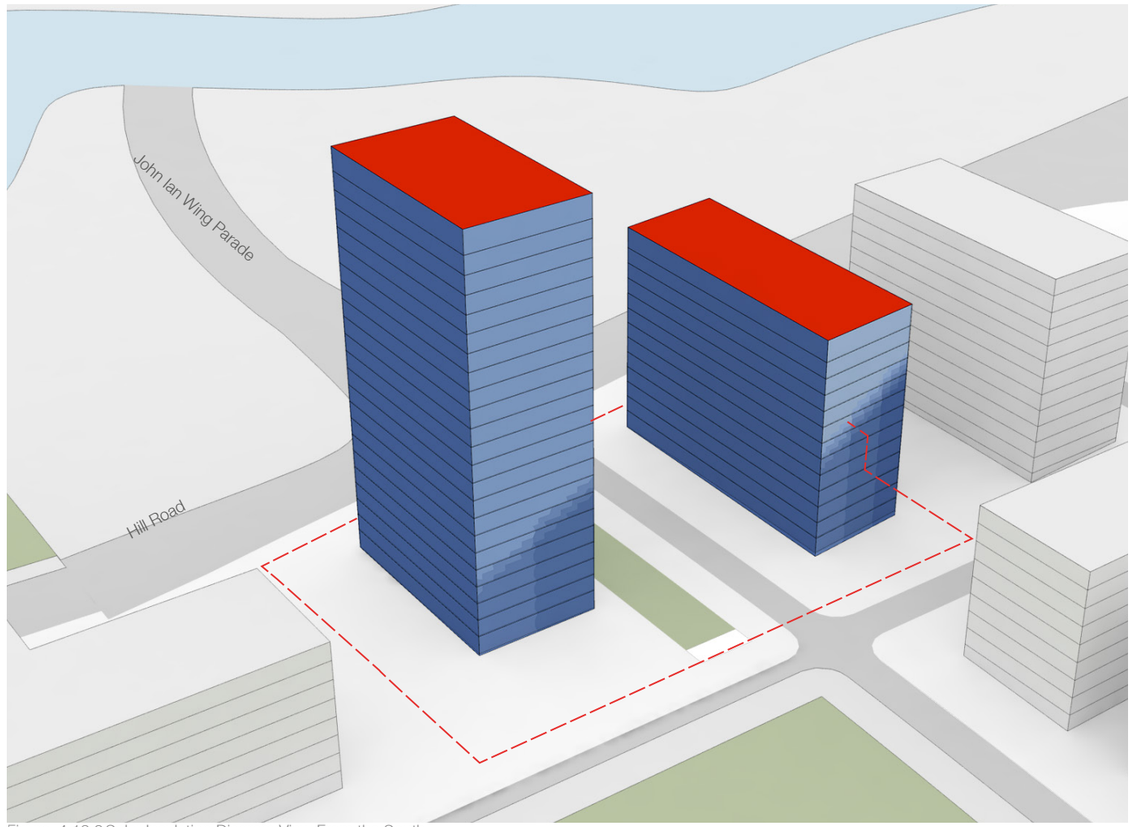
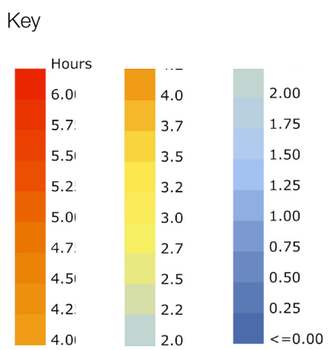


Figure 4.13.2 Solar Insulation Diagram View From the South

The diagrams above show the extent of daylight access the proposed building envelopes will receive on the 21st of June. The range of colours represent the hours of the day illustrating they will receive solar access with the warmer colours greater amounts of sunlight.

The solar access diagram above show that the north-west facades are achieving the solar requirements of the Apartment Design Guide



4.14 Design Study 04 - Gateway Opportunity

Figure 4.14.1 Site Layout Plan

Figure 4.14.2 Massing view from the south west

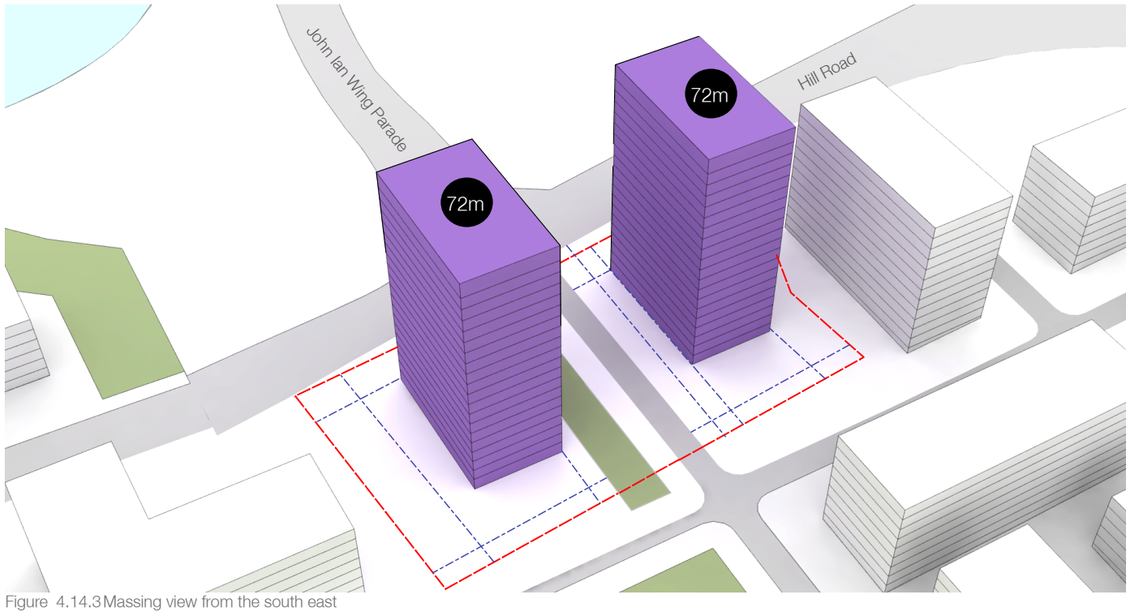


Figure 4.14.3 Massing view from the south east

Option 04	Storeys[6]	GBA	GFA[1]	Dwellings[3]
Building 01				
Per Level[2]		836	669	8
Sub Total	23	19,228	15,382	181
Building 02				
Per Level[2]		836	669	8
Su Total	23	19,228	15,382	181
Total		38,456	30,764	362
FSR[4]	3.69:1			

The table to the left shows a maximum built form scenario based on a 72m height limit, with a floor to floor height of 3.1m, and a lift over run of 4.2m from the last level served. The FSR achieved on the site will be subject to floor to floor heights and height allowance for lift overruns.

Assumptions
1 GFA is 80% of GBA
2 Represents the typical areas per floor
3 Dwellings equal 1 unit per 85m² of GFA
4 FSR based on the 8,336m² site area
5 Additional massing above the existing GFA to reach the height permitted in the Carter Street Precinct DCP 2016
6 Assumes a 3.1m floor to floor and a 1.1m lift overrun

4.15 Design Study 04 - Massing

Figure 4.15.1 Massing within the Carter Street Context - View from the north

- Option 04 increases both proposed towers to a 72m height limit to reflect the gateway position of the site.

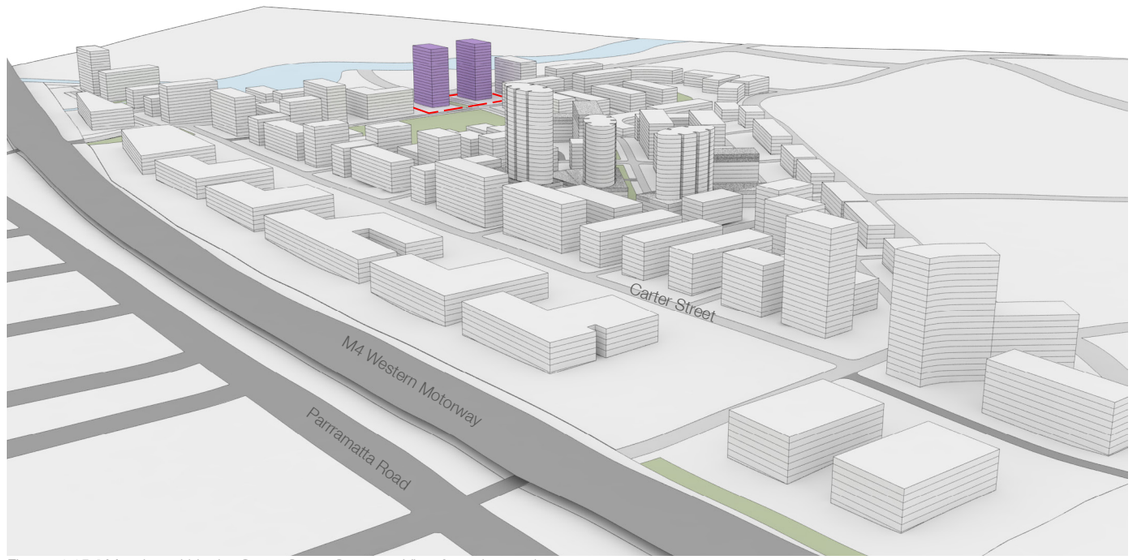


Figure 4.15.2 Massing within the Carter Street Context - View from the south

- The 72m height limit reflects heights designated to other gateway sites in the Carter Street Precinct including at the intersection of Carter Street and Birnie Avenue.

4.16 Design Study 04 - Shadow Analysis

The diagrams below show the extent of shadow resulting from the proposed massing. The towers will cast long shadows from east to west, with the southern tower having the most impact on the park.

The north east face of the adjacent lot to the south will be overshadowed by this option in the morning while the adjacent park will experience long fast moving shadows from 12-3pm.

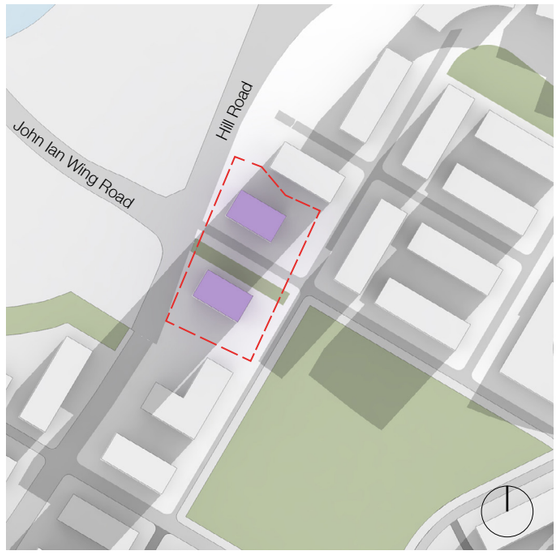


Figure 4.16.1 _9am Shadow

Figure 4.16.2 _10am Shadow

Figure 4.16.3 _11am Shadow

Figure 4.16.4 _12pm Shadow

Figure 4.16.5 _1pm Shadow

Figure 4.16.6 _2pm Shadow

Figure 4.16.7 _3pm Shadow

4.17 Design Study 04 - Solar Access

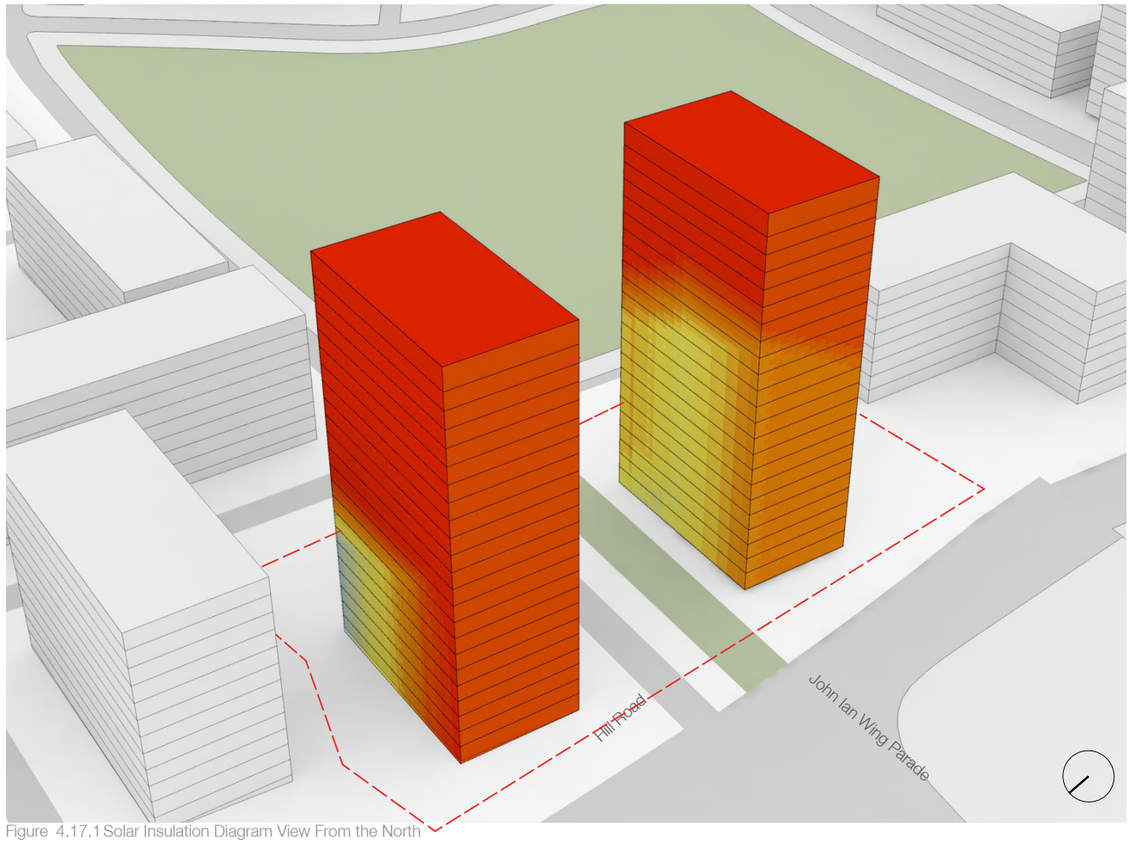


Figure 4.17.1 Solar Insulation Diagram View From the North

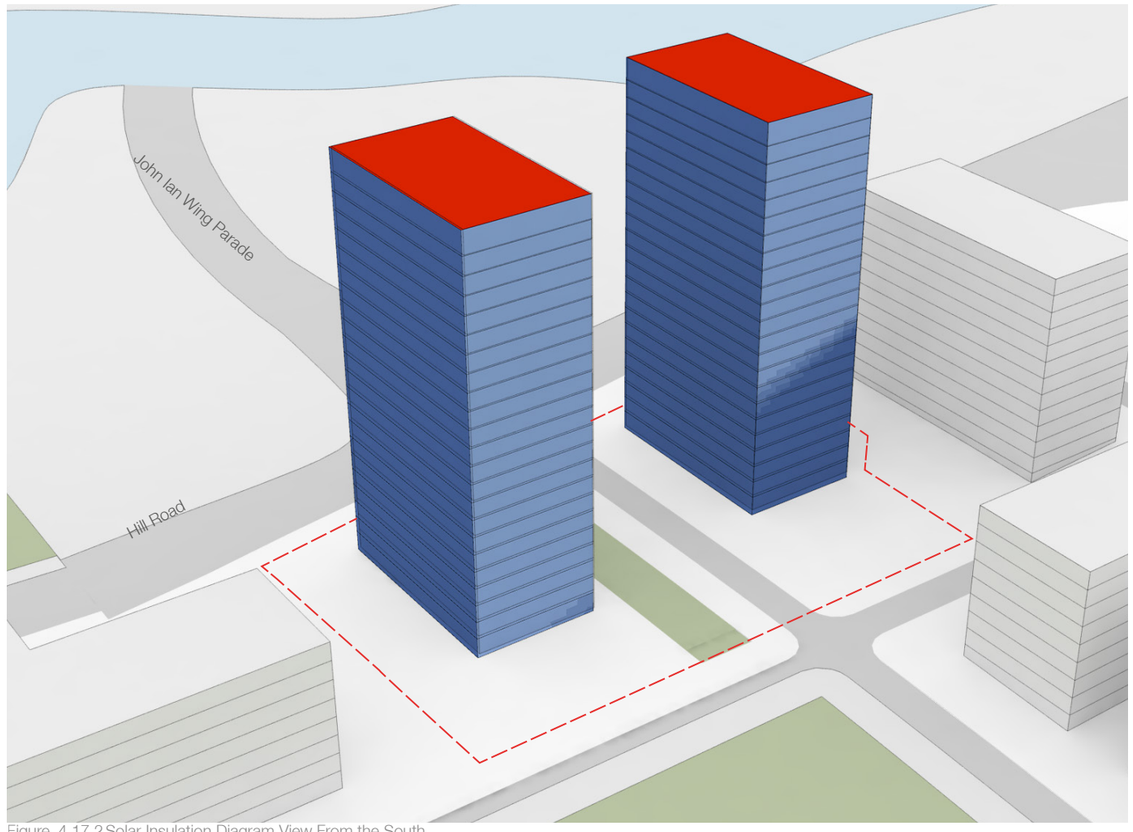
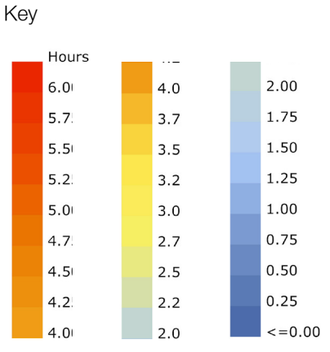


Figure 4.17.2 Solar Insulation Diagram View From the South



The diagrams above show the extent of daylight access the proposed building envelopes will receive on the 21st of June. The range of colours represent the hours of the day in which they will receive solar access with the warmer colours illustrating greater amounts of sunlight.

The solar access diagram above show that the north-west facades are achieving the solar requirements of the Apartment Design Guide

5

Recommendations

5.1 Recommended Option

Located on Hill Road, the site is on the boundary between the SOPA 2030 Master plan (Haslams Precinct) and the Carter Street Priority Precinct, which was zoned in November 2015 to provide a mix of residential and commercial development. Having regard to the surrounding area and the future built form, we have undertaken four built form studies with a view to identifying an appropriate scale and land use relationship between the Carter Street Precinct and SOPA lands.

In response to the Carter Street planning framework, additional FSR and height was tested in order to deliver the green road and bioswale through the site.

We believe a reconfiguration of option 3 (Option 3A), which locates the 72m tower to the north of the site and the 42m building to the south, will provide a more appropriate outcome as this creates an urban marker at a key intersection and getaway into the precinct that minimises its impact on the surrounding context. Placing the taller tower on the northern end of the site reduces the solar impact on the proposed open space (as seen in Figure 4.12.7 & Figure 4.16.7) and will still allow solar access to the southern building (refer to Figure 4.17.1)

To this end we recommend that the appropriate controls for this site are:

- FSR of 3:1
- 72m and 42m

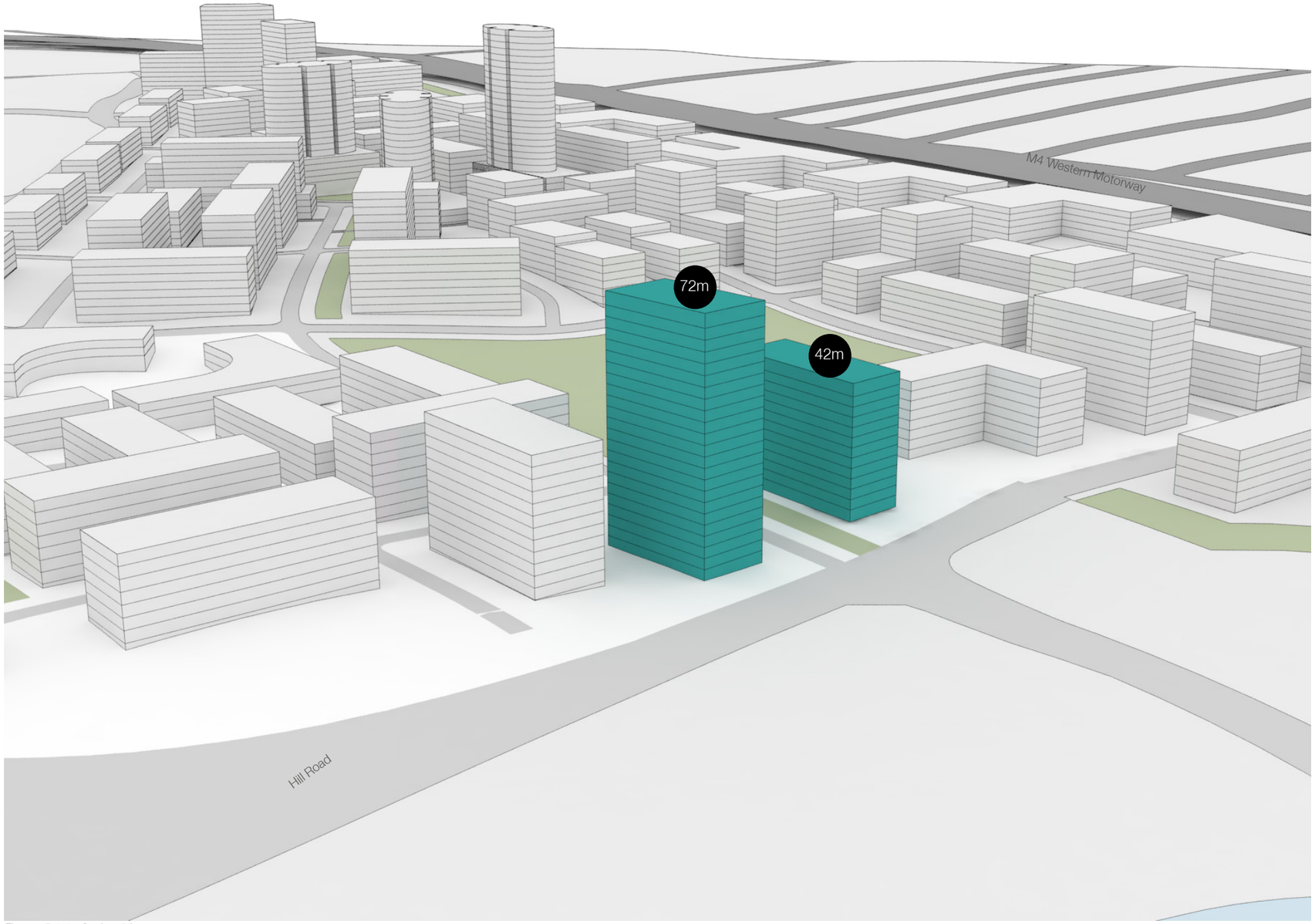


Figure 5.1.1 Option 3A

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