



URBIS

URBAN CONTEXT REPORT

9-11 NELSON STREET, CHATSWOOD

POST LODGEMENT REPORT

JUNE 2021

PREPARED FOR STRATA PLAN #65120

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EXECUTIVE SUMMARY

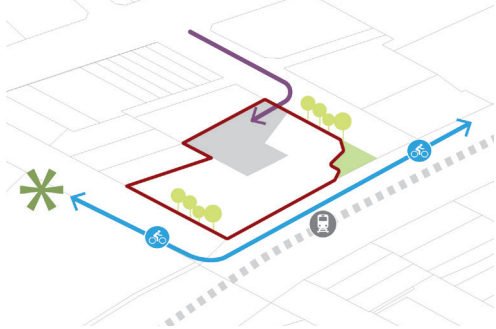
This report has been prepared to investigate and present the strategic and site specific merit in support of the Planning Proposal for 9-11 Nelson St in alignment with the recommendations provided in Willoughby Council's recently endorsed *Chatswood CBD Planning and Urban Design Strategy 2036* (CBD Strategy).

The CBD Strategy presents Council's latest vision and strategic intent for the Chatswood CBD and identifies considerable increase in density and building height for the subject site and surrounding area. As this document provides the most up-to-date position for redevelopment in the CBD it was used to guide the urban design and built form outcomes presented in this report.

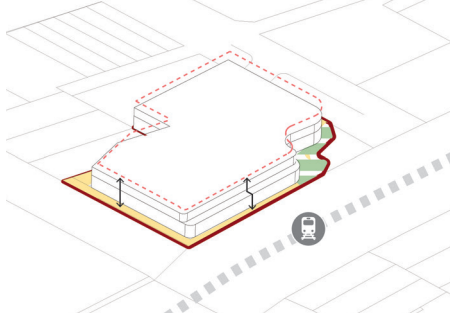
A review of existing strategic planning policy, along with an assessment of the urban context of the site, were undertaken to identify the future context and character of Chatswood CBD. This understanding, together with an appreciation of immediate site opportunities and constraints, was synthesised into the following suite of key directions that informs and shapes the proposed built form outcome identified in this planning proposal.

KEY DIRECTIONS

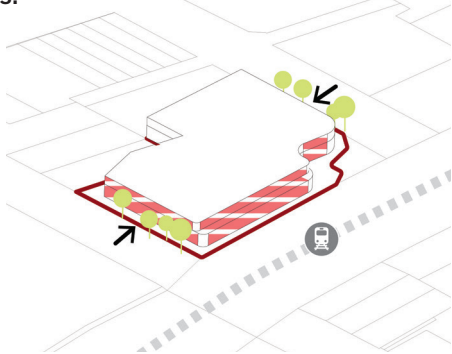
1. Enhance streetscape character by retaining existing street trees, managing vehicular access off Gordon Avenue and accommodating loading and servicing in basement levels.



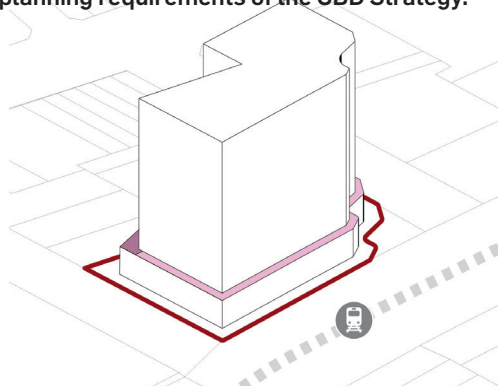
2. Deliver non-residential uses within the podium considering human scale outcomes by responding through localised setbacks and retaining existing pocket park as open space.



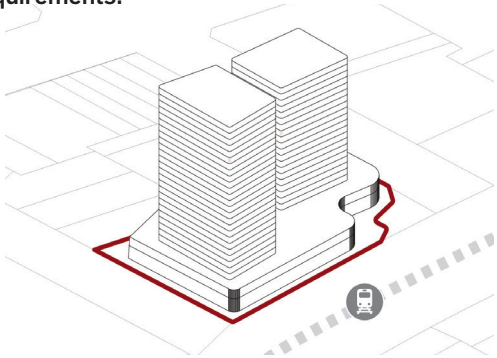
3. Provide active frontages, legible entry points and transparent outlooks to ensure passive surveillance to streets and pedestrian / cycle links.



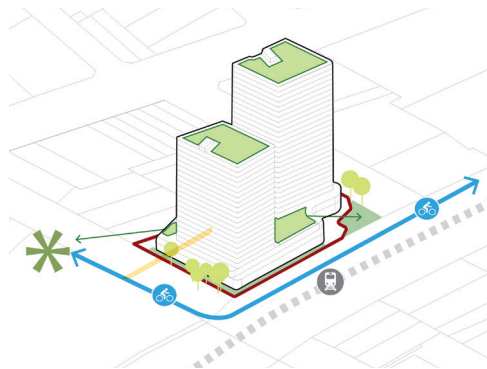
4. Deliver a tower form that makes efficient use of land, realising the potential of the site whilst meeting the planning requirements of the CBD Strategy.



5. Design tower forms to maximise amenity whilst minimising the impacts of towers to surrounding context in accordance with the bulk and scale principles of the CBD Strategy and meeting ADG requirements.



6. Provide communal open spaces to roof top levels and enhance the landscape character through new public domain areas.



Based on the key directions and recommendations provided in the CBD Strategy, the following Reference Scheme was identified as the preferred built form outcome with site-specific merit. This scheme is consistent with all 35 key elements identified in the CBD Strategy. The reference scheme provides benefit through the following means:

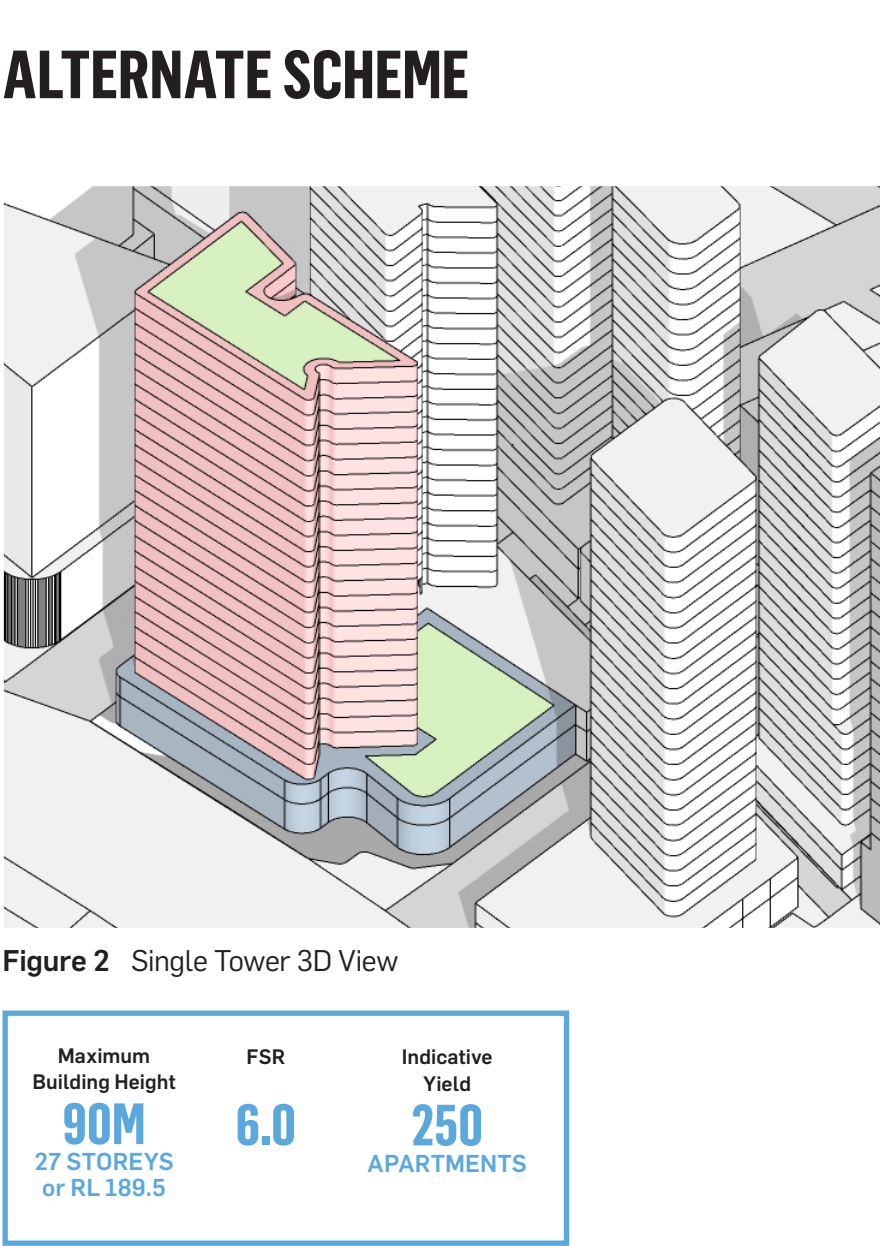
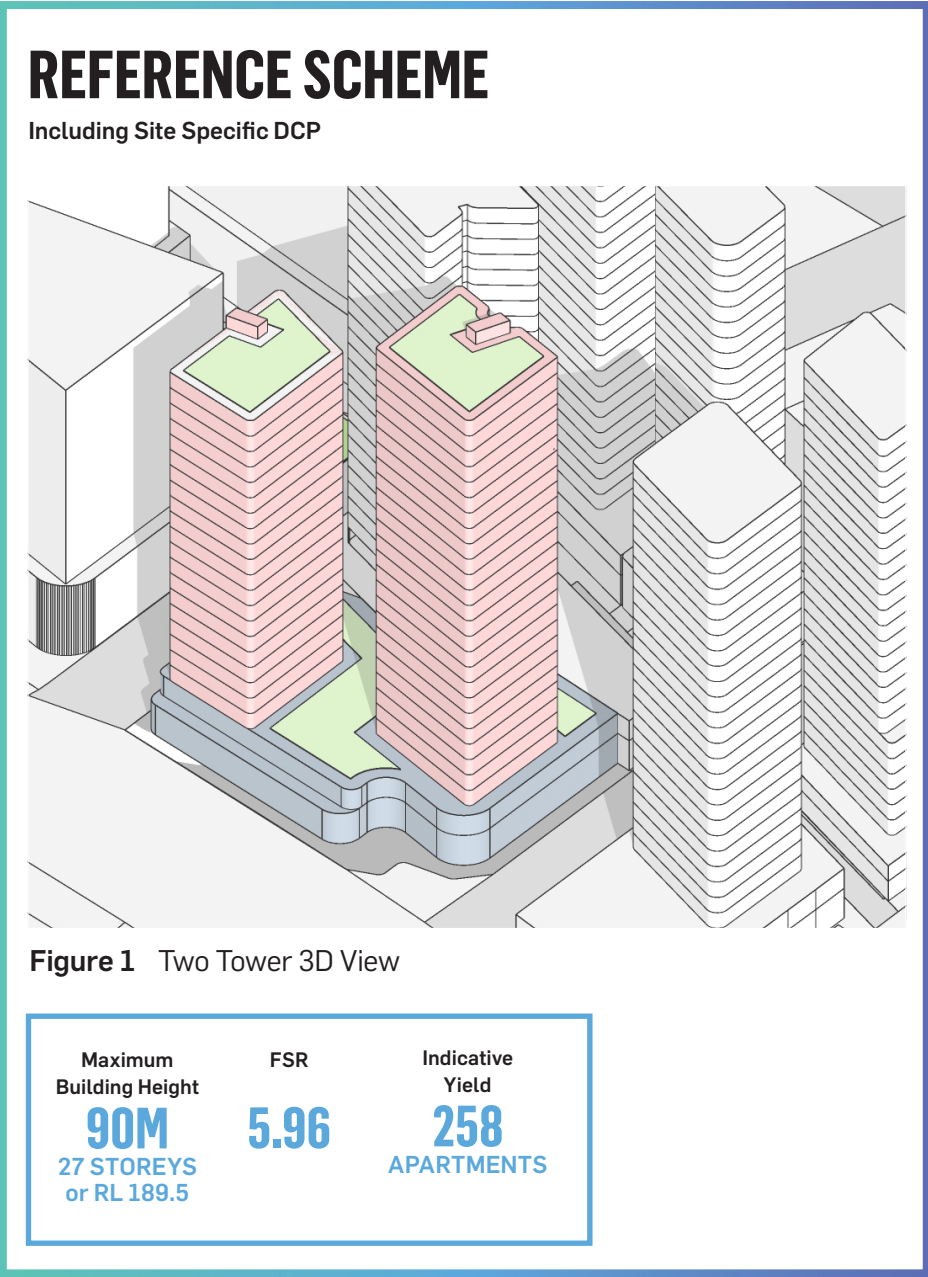
- Consistency with the broader strategic vision for Chatswood CBD as it meets the requirements provided in the CBD Strategy;
- Meets key requirements provided in the ADG to ensure high quality apartment living with sufficient amenity can be provided, i.e. provision for communal open space and sufficient solar access to living rooms and private open spaces;
- Enhances the landscape character by retaining streets trees, introducing green rooftops, and enhancing both the embellishment and quantum of public domain along the eastern frontage to the shared path and existing pocket park;
- Promotes a vibrant, safe and inclusive development through a mix of non-residential uses within the podium and active frontages to encourage passive surveillance;
- Improves pedestrian experience and way-finding by minimising driveway crossovers, integrating outdoor landscaped spaces fronting the public domain, and articulating building facades with legible entry points;
- Overshadowing impacts to neighbouring sites is considered and minimised so that future development and existing housing can achieve minimum solar access; and
- Visual context is considered to reduce the overall bulk and scale of the development and to positively contribute to a visually dynamic future skyline.

A site specific DCP has been prepared a part of the planning proposal in accordance with the Reference Scheme.

As well as the Reference Scheme, an Alternate Scheme with a single, larger floorplate was investigated. We note this scheme meet most of the requirements of the CBD Strategy and ADG performance however the floorplate slightly exceeded the maximum floorplate area stipulated in the CBD Strategy.

Based on Council Pre- and Post Lodgement discussions and correspondence, the Reference Scheme is considered to more closely reflect the desired tower skyline profile and massing outcomes identified within Council's CBD Strategy. A Site-Specific DCP has been prepared for the site in accordance with the Reference Scheme.

The Alternate Scheme is presented in the report for as part of the design investigation process and for future information.



1.0 INTRODUCTION

PURPOSE OF THIS REPORT

Urbis was engaged by the Strata Plan owners of 9-11 Nelson Street, Chatswood to prepare this Urban Context Report in support of the Planning Proposal for the site.

The purpose of this report is to investigate and present the strategic and site specific merit in support of the Planning Proposal for the redevelopment of the existing asset in alignment with the recommendations provided in Willoughby Council's recently endorsed *Chatswood CBD Planning and Urban Design Strategy 2036* (Chatswood CBD Strategy).

The following Urban Context Report includes:

- A summary of strategic planning policy and intent;
- An understanding of the urban context including consideration of the existing and future local character;
- An understanding of the site specific opportunities and constraints for redevelopment;
- Identification and testing of redevelopment options to identify urban design outcomes and a suitable built form response for the site guided by all of the above analysis; and
- Confirmation redevelopment of the site can be achieved generally in alignment with the proposed new planning controls identified within the CBD Strategy.



View 1 along Nelson Street looking to Metro dive site

SITE LOCATION AND DESCRIPTION

The subject site is located at 9-11 Nelson Street, Chatswood, within the Willoughby Local Government Area. The site is legally described as SP65120 and has a total area of 4,219 sqm.

The site currently accommodates a three storey residential complex, with 45 units under a strata plan #65120. Key site characteristics are as follows:

- Located in an urban block between the Pacific Highway and the north-south rail line;
- Dual street frontage to the north (Gordon Ave) and south (Nelson St);
- Eastern boundary adjoins public pedestrian and cycle pathway adjacent to the existing rail line (currently being converted to Metro infrastructure);
- Metro dive site located to the immediate south on Nelson St;
- Residential uses to the north and west with some non-residential uses along Pacific Highway; and
- Existing small-scale open space to the north east corner of the site adjoining Gordon Ave.

The existing built form is consistent with other residential developments of a similar scale in the area, with masonry and cement rendered external elevations. The site contains communal gardens and open space which connect to the shared pathway along the eastern boundary of the site. Dense vegetation is located primarily along the western and southern boundaries, with additional mature street trees on both road frontages.



View 2 of existing shared path adjoining eastern site boundary

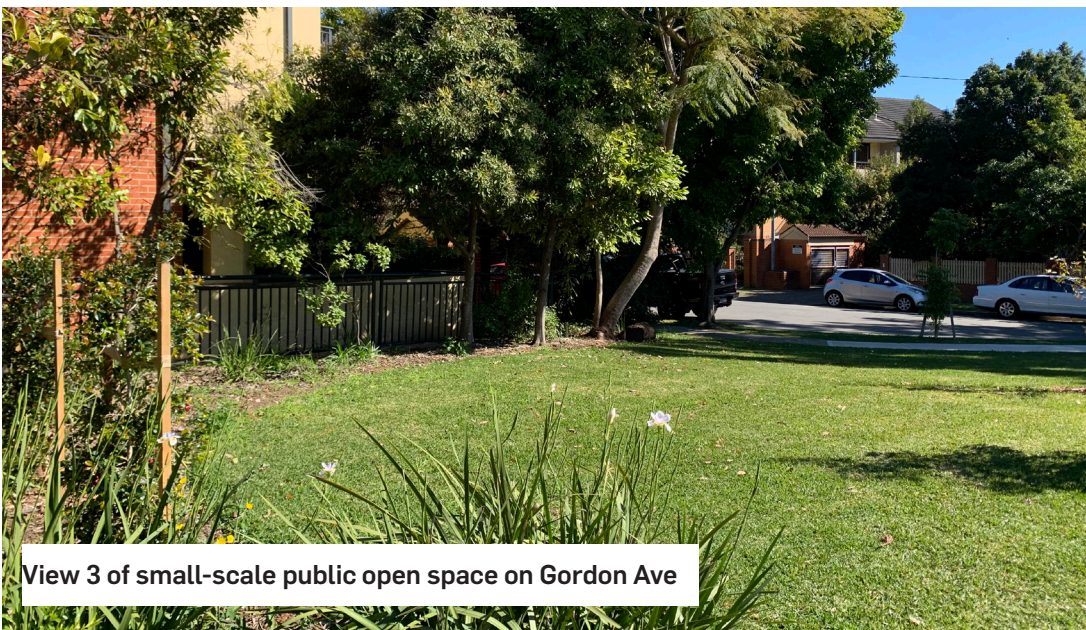


Figure 3 Aerial photograph

PART A

CONTEXT

ANALYSIS

2.0 PLANNING CONTEXT

This section of the document provides a review of existing strategic and local planning policy to understand the future context of Chatswood CBD and key drivers influencing its growth and transformation. Below is a summary of the documents reviewed and key implications for the subject site.

- **Chatswood CBD Strategy:** This document presents Council's latest vision and strategic intent for the area and supports considerable increase in density and building height within the subject site. This document provides the most up-to-date position for redevelopment in the CBD and thus guides the proposed urban design and built form outcomes presented in this report.
- **Willoughby Local Environment Plan 2012:** The WLEP 2012 will be amended in coming years to capture the recommendations of the Chatswood CBD Strategy.
- **-Apartment Design Guide:** This document identifies minimum performance standards to promote comfortable apartment living in NSW. The testing of solar access requirements and impacts to neighbouring sites is required to ensure compliance is achievable.

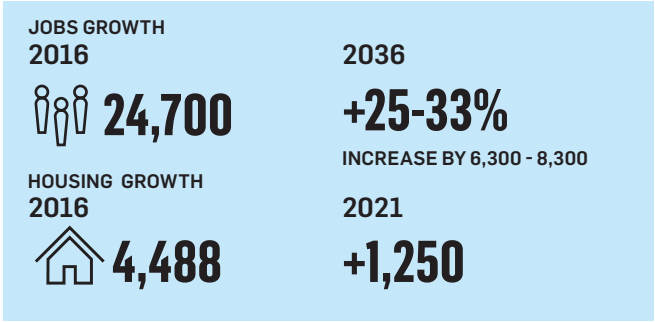
2.1 CHATSWOOD CBD PLANNING AND URBAN DESIGN STRATEGY TO 2036

In September 2020, Council finalised and endorsed the *Chatswood CBD Planning and Urban Design Strategy 2036* (Chatswood CBD Strategy). The Strategy establishes a strong planning and design framework to accommodate and guide future growth and development of a distinctive, resilient and vibrant CBD over the next 20 years. It is anticipated the Strategy will inform changes to Willoughby LEP and DCP.

A key outcome of the Strategy is the expansion of the CBD boundary and the introduction of taller and denser mixed use developments within additional areas of the CBD. This outcome is a response to the identification that Chatswood's office market is 'at risk' and has potential to loose employment to other centres, which would subsequently detract from it's economic role as a strategic centre.

The Strategy proposes changes to planning controls in order to enable the market to meet future demand for jobs growth, and identifies a CBD fringe to accommodate high density residential development. The diagram below highlights the projected jobs and housing growth for the LGA, which is set to increase by about one third over the next twenty years.

Figure 4 Summary of projected growth for Chatswood CBD



The Strategy's vision for Chatswood CBD is underpinned by:

- Seven planning and design principles, summarised as:
 1. Promoting office growth in the core
 2. Residential growth on the periphery of the CBD
 3. Diverse mix of uses
 4. Great public places
 5. Sustainable and active transport
 6. Urban design quality
 7. Greening the centre
- Thirty-five recommendations of future LEP and DCP controls captured in Table 2.

The Chatswood CBD Strategy proposes significant change for the subject site summarised in the table below and the maps that follow on subsequent pages. These recommendations have been used to test built form outcomes presented in Part B.

Table 1 Assessment of the subject site

KEY RECOMMENDATIONS	SUBJECT SITE
Extended CBD Boundary	Within new CBD boundary
Recommended Land Use	B4 Mixed Use
Recommended Maximum FSR	6:1
Recommended Building Height	90 metres
Public Domain Projects	In proximity to: <ul style="list-style-type: none">– New through-site link to the west;– Potential new open space to the south;– Adjoining shared link to the east is maintained.
Recommended Street Frontage Height and Setbacks	North, south and east boundaries to adopt: <ul style="list-style-type: none">– Mixed use frontage with commercial ground floor;– 6-14 metre street wall;– Minimum 3 metre setback above street wall.

The table below provides a detailed breakdown of 'Key Elements of Future LEP and DCP Planning Controls' applied to the built form testing and outcomes for the subject site presented in Part B.

Table 2 Key Elements of Future LEP and DCP Planning Controls applied to subject site

KEY ELEMENT #	KEY ELEMENT DESCRIPTION SUMMARY
1	Map: Chatswood CBD boundary (refer to Figure 4)
2	Map: Recommended land use (refer to Figure 5)
3	The existing DCP limits on office and retail use in parts of the Commercial Core to be removed
4	Serviced apartments to be removed as a permissible use from the B3 Commercial Core zone
5	Planning Agreements will be negotiated to fund public domain improvements.
6	A new Planning Agreements Policy will apply and be linked to a contributions scheme that will provide the public and social infrastructure in the Chatswood CBD
7	All redevelopments in the Chatswood CBD should contribute to public art in accordance with Council's Public Art Policy
8	Design excellence is to be required for all developments based on the following process - competitive designs for developments over 35m high.
9	Achievement of design excellence will include achievement of higher building sustainability standards
10	The Architects for design excellence schemes should be maintained through the development application process and can only be substituted with written agreement of Council
11	Map: Existing FSR under WLEP 2012
12	Minimum site area of 1200sqm for mixed use development in the B4 Mixed Use zone to achieve maximum FSR as shown in Map with urban design outcomes listed.
13	Map: Recommended FSR (refer to Figure 6 and 7)
14	Affordable housing is to be provided within the maximum floor space ratio, and throughout a development rather than in a cluster.
15	Where the maximum floor space ratio of 6:1 is achieved, the minimum commercial floor space ratio sought in development in a Mixed Use zone is 1:1.
16	700sqm GFA for residential towers above Podium within Mixed Use zones.
17	In pursuit of the goal of slender tower forms, the width of each side of any tower should be minimised to satisfactorily address this objective
18	If there is more than one residential tower on a site, sufficient separation is to be provided in accordance with setbacks required in this Strategy, SEPP 65 and the Apartment Design Guidelines,
19	Map: Recommended sun access protection for public spaces
20	Map: Recommended building height (refer to Figure 8)
21	All structures located at roof top level within the height maximums
22	Map: Recommended links and new open space (refer to Figure 9)

23	Any communal open space, with particular regard to roof top level on towers, should be designed to address issues of quality, safety and usability.
24	Public realm or areas accessible by public on private land - is to be designed to respond to context and nearby public domain and should be visible from the street and easily accessible.
25	All roofs up to 30 metres from ground are to be green roofs.
26	A minimum of 20% of the site is to be provided as soft landscaping, which may be located on Ground, Podium and roof top levels or green walls of buildings.
27	Map: Recommended setbacks and street frontages (refer to Figure 10)
28	All towers above podiums in B4 Mixed Use zones are to be setback from all boundaries a minimum of 1:20 ratio of the setback to building height.
29	Building separation to neighbouring buildings is to be in accordance with the Apartment Design Guide for residential uses.
30	At ground level, to achieve the vibrant CBD Council desires, buildings are to maximise active frontages.
31	Site Isolation will be discouraged and where unavoidable joined basements and zero-setback podiums should be provided to encourage future efficient sharing of infrastructure.
32	Controls will be applied to ensure the traditional lot pattern along Victoria Ave east is reflected into the future.
33	Floor space at Ground level is to be maximised, with supporting functions such as car parking, loading, garbage rooms, plant and other services located in Basement levels.
34	Substations are to be provided within buildings, not within the streets, open spaces or setbacks and not facing key active street frontages
35	The CBD Strategy employs a Travel Demand Management approach seeking to modify travel decisions to achieve more desirable transport, social, economic and environmental objectives consistent with Council's Integrated Transport Strategy. In addition, site specific traffic and transport issues are to be addressed.

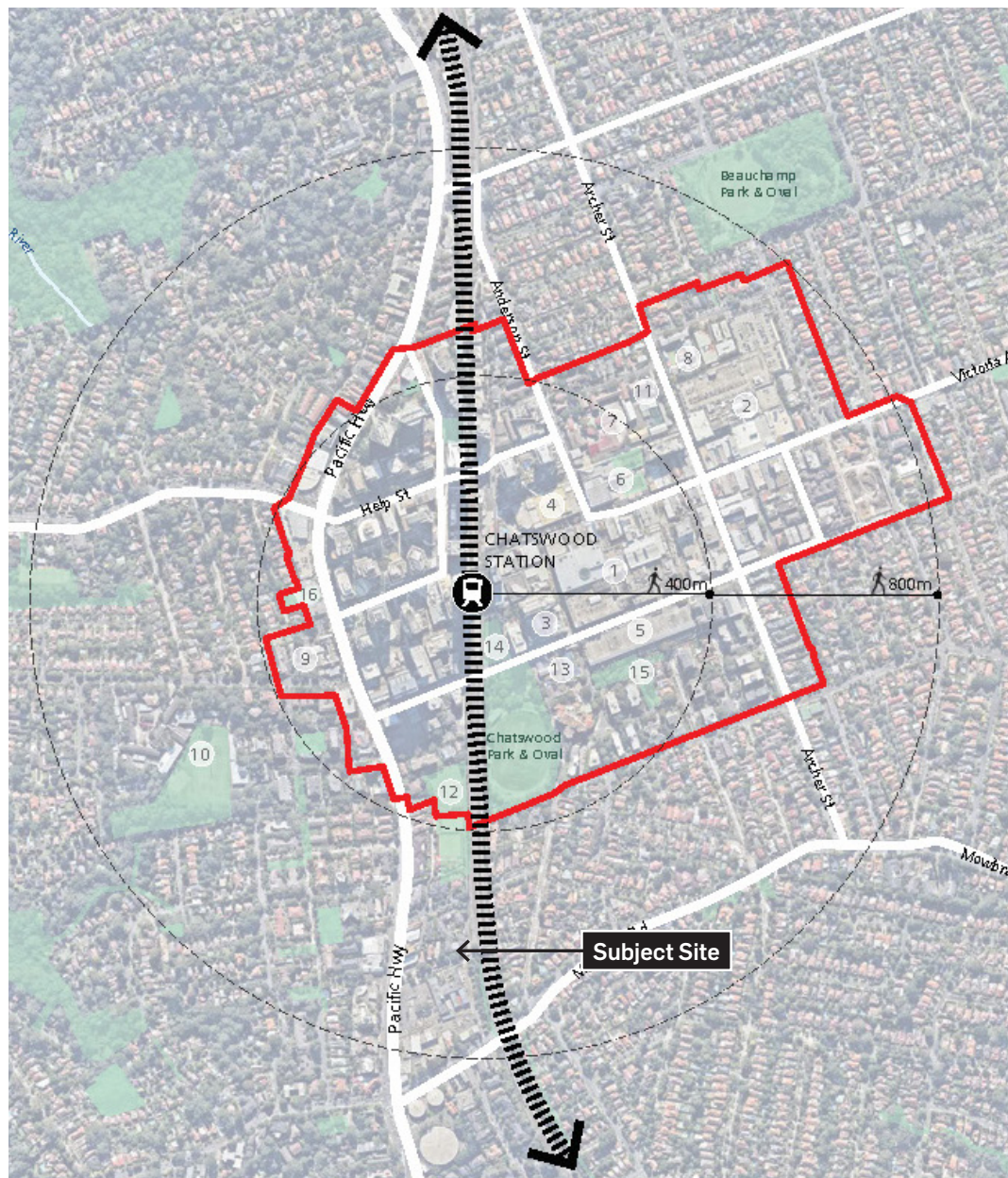


Figure 5 Former Chatswood CBD Boundary

LEGEND

Former Chatswood CBD Boundary

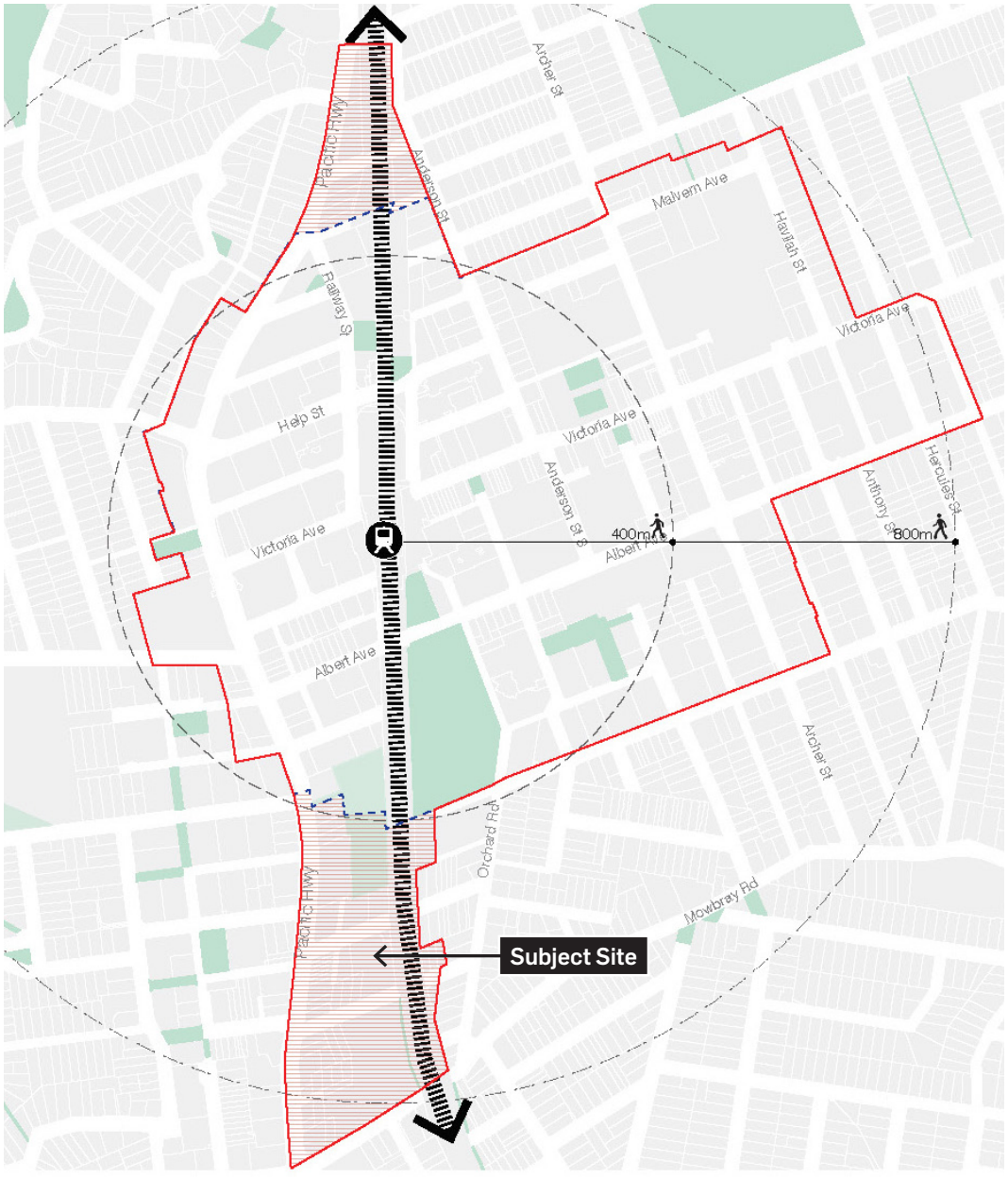


Figure 6 Chatswood CBD Strategy - Extended CBD Boundary

LEGEND

Chatswood CBD Boundary

Additional Extended Areas



Figure 7 Chatswood CBD Strategy - Recommended Land Uses

LEGEND

- CBD boundary
- Open space
- B3 Commercial core
- B4 Mixed use
- No change



Figure 8 Chatswood CBD Strategy - Recommended Maximum FSR

LEGEND

- CBD boundary
- Open space
- FSR 2.5:1
- FSR 2.7:1
- FSR 3.2:1
- FSR 3.6:1
- FSR 3.7:1
- FSR 4.2:1
- FSR 4:1
- FSR 5:1
- FSR 6:1
- No bonus
- No max FSR for commercial

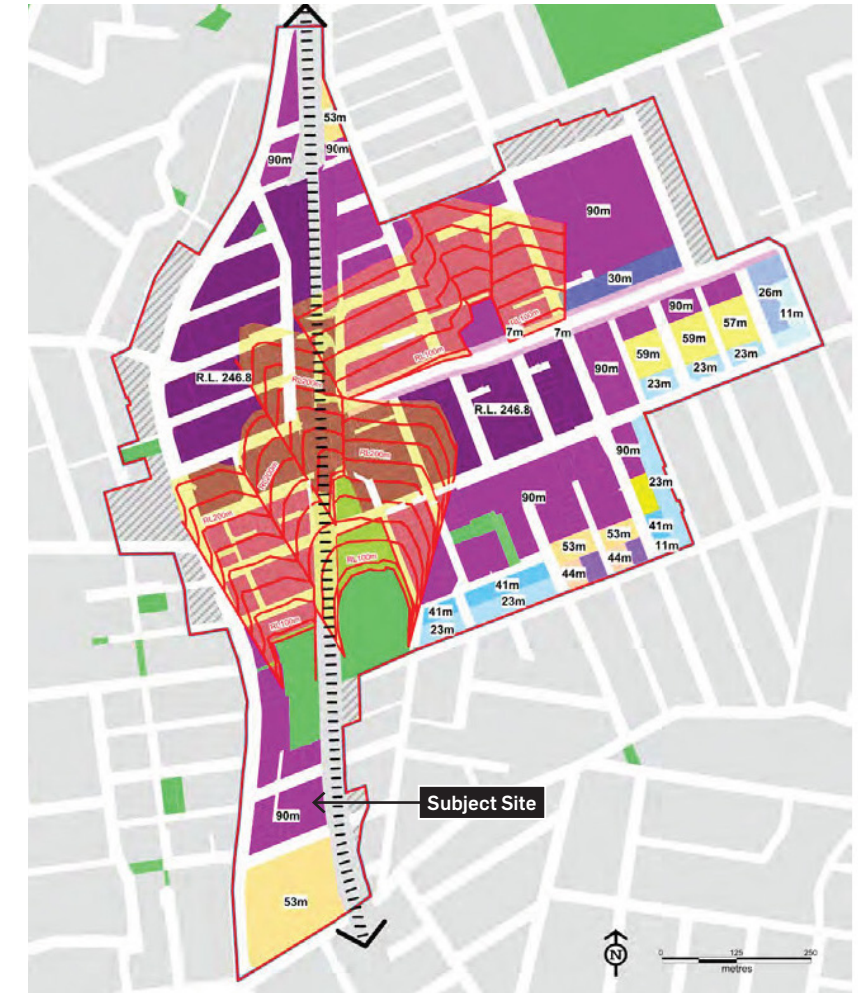


Figure 9 Chatswood CBD Strategy - Recommended Building Height

LEGEND

- CBD boundary
- Open space
- RL 246.8
- 90m
- 68m
- 59m
- 53m
- 44m
- 41m
- 32m
- 30m
- 26m
- 23m
- 11m
- 7m
- No change
- Area protected by sun protection (approximate RLs shown) - see sun access diagram

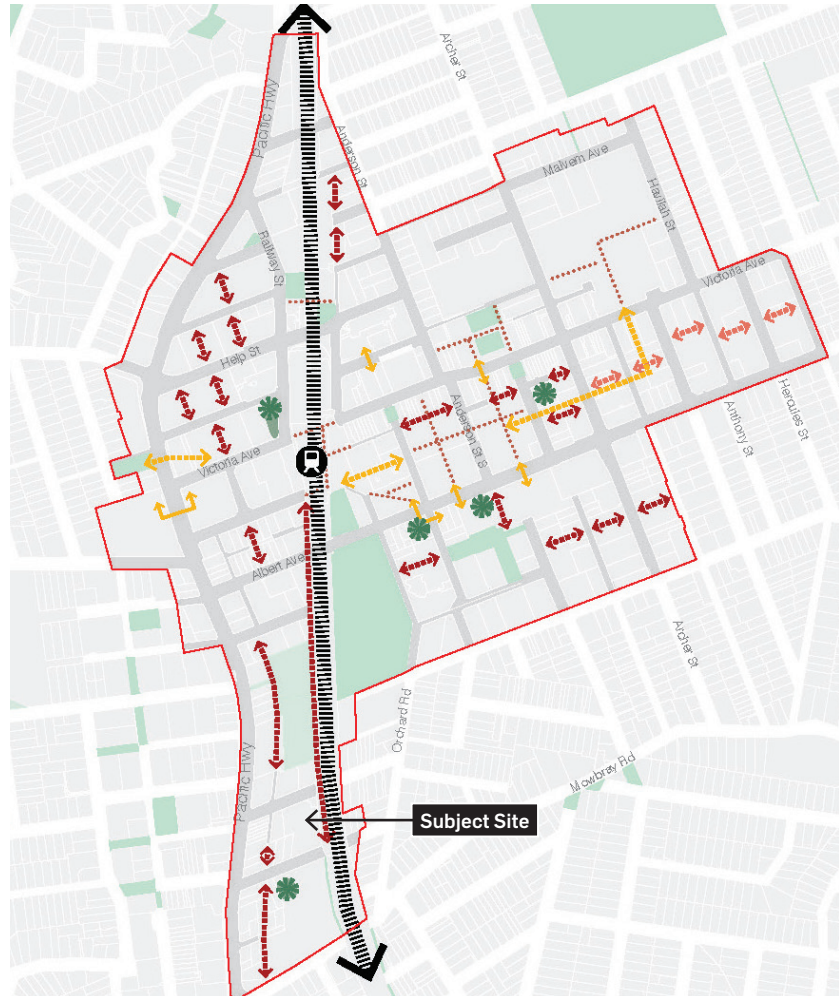


Figure 10 Chatswood CBD Strategy -
Potential Public Domain Projects

LEGEND

- CBD boundary
- Open space
- ✪ New open space
- ↔ Open air 24 hour through-site links
- ↔ Open air 24 hour through-site links within block
- ⋯ Through-building links
- ↔ Existing upper storey links
- ⋯ Proposed upper storey links
- Streets and public places



Figure 11 Chatswood CBD Strategy -
Recommended Street Frontage Heights and Setbacks

LEGEND

- | | |
|--|--|
| CBD boundary | — Southern Precinct |
| Open space | — Anderson Street Interface |
| — Pacific Highway frontage | — Johnson Street interface |
| — Office core frontage | — Bertam Street interface |
| — Urban Core | — Albert Avenue north and Olga Street interface |
| — Victoria Avenue retail frontage | — Mixed use frontage with commercial Ground Floor |
| — Albert Avenue South | |

2.2 WILLOUGHBY LOCAL ENVIRONMENT PLAN 2012

The following maps depict the site's existing local planning controls as identified in the Willoughby Local Environment Plan (WLEP) 2012. The table below compares the WLEP controls against the recommendations of the CBD Strategy.

Given the status of the current WLEP, it does enable any significant uplift from the existing site condition. As such this study does not consider a compliant outcome as its baseline position. Rather it adopts the parameters of the CBD Strategy as a departure point to inform built form options testing.

Table 3 WLEP 2012 vs Chatswood CBD Strategy Planning Controls

	WLEP 2012	Chatswood CBD Strategy
Zoning	R3 Medium Density Residential	B4 Mixed Use
Height of Building	12 metres	90 metres
FSR	0.9	6
Heritage	Nil	Nil

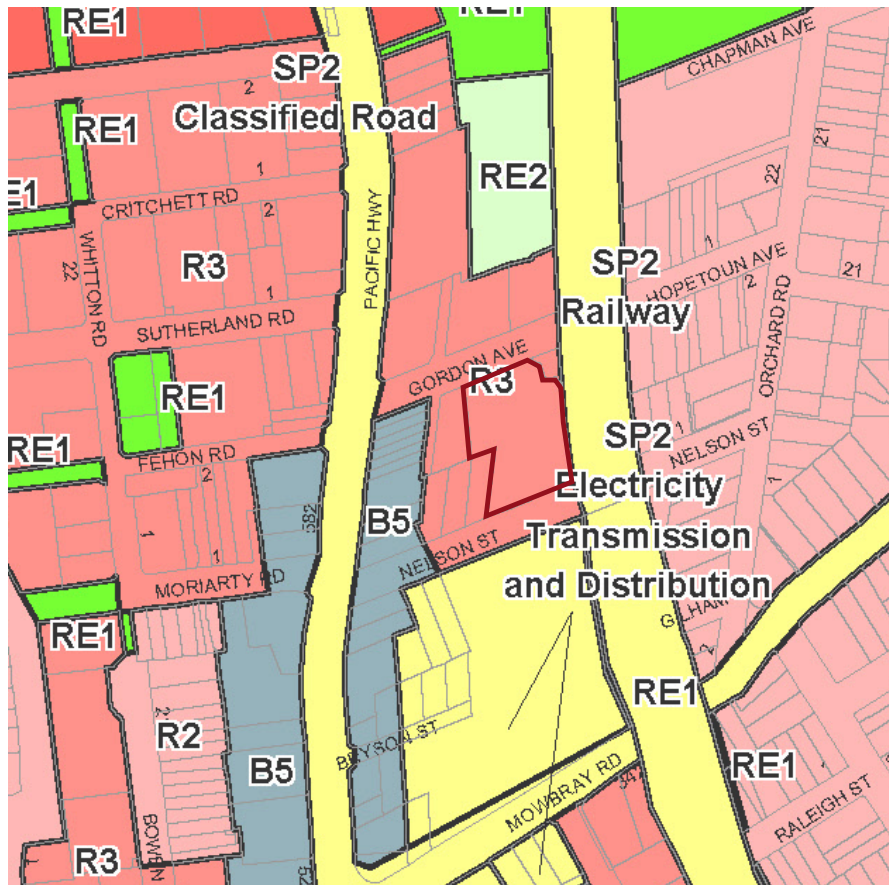


Figure 12 LEP Land Use Zoning Map

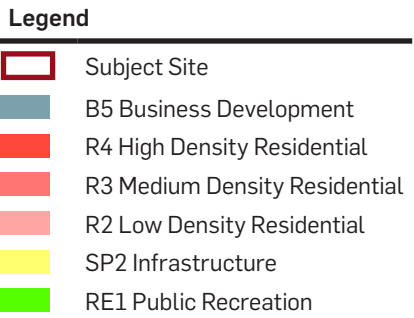


Figure 13 LEP Height of Building Map

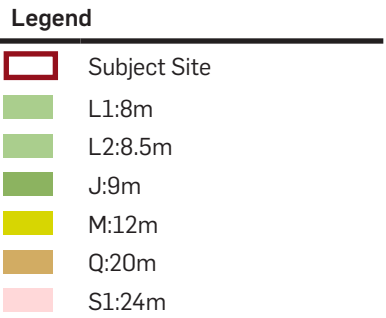




Figure 14 LEP FSR Map

Legend	
	Subject Site
	B: 0.4
	L: 0.9
	H: 0.7
	S1: 1.5
	U1: 2.5



Figure 15 LEP Heritage Map

Legend	
	Subject Site
	Heritage site
	Conservation Area

Heritage Overlay

As captured in the adjacent LEP Heritage Map, to the east of the subject site is the South Chatswood Heritage Conservation Area. This means future development on the subject site should have regard to the following heritage principles:

- Significant view lines and view corridors between heritage items and to and from heritage conservation areas should be retained and protected. New development should not adversely affect existing significant views.
- New development should be contemporary in design and should not replicate the traditional design or detailing of historic buildings in the vicinity. Rather, new development should complement the historic character of an area through the appropriate selection of form, scale and materials.
- New development should consider shadow impacts and solar access to heritage conservation areas.

2.3 APARTMENT DESIGN GUIDE

The Apartment Design Guide (ADG) is policy that aims to improve the planning and design of residential apartment development in NSW. It promotes better residential outcomes by providing benchmarks for designing and assessing residential developments. The table below summarises key ADG requirements that were considered in the site testing.

Table 4 ADG Key Considerations

Building Separation	<div>Minimum separation distances for buildings nine storeys and above (over 25m):<ul style="list-style-type: none">▪ 24m between habitable rooms/balconies▪ 18m between habitable and non-habitable rooms▪ 12m between non-habitable rooms</div>
Building Depth	<div><ul style="list-style-type: none">▪ A range of appropriate maximum apartment depths of 12-18m from glass line to glass line, or up to 22m for the building envelope. This will ensure that apartments receive adequate daylight and natural ventilation and optimise natural cross ventilation.</div>
Communal Open Space & Deep Soil	<div><ul style="list-style-type: none">▪ Communal open space has a minimum area equal to 25% of the site▪ Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9 am and 3 pm on 21 June (mid winter)▪ Deep soil zones may not be possible in locations with limited ground floor setbacks (e.g. CBDs) or there are non-residential uses at ground level - as is the case for the subject site.</div>
Solar Access	<div><ul style="list-style-type: none">▪ Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area▪ In all other areas, living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 3 hours direct sunlight between 9 am and 3 pm at mid winter▪ A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid winter</div>
Natural Ventilation	<div><ul style="list-style-type: none">▪ To achieve adequate natural ventilation, apartment design must address the orientation of the building, the configuration of apartments and the external building envelope.▪ Natural cross ventilation is achieved by apartments having more than one aspect with direct exposure to the prevailing winds, or windows located in significantly different pressure regions, rather than relying on purely wind driven air</div>

3.0 URBAN CONTEXT ANALYSIS

This section investigates local context and provides an understanding of existing, emerging and desired future character. It considers the following overlays:

- Public and active transport
- Topography & building height
- Access & movement
- Open space and public domain
- Built form character and building grain

3.1 PUBLIC AND ACTIVE TRANSPORT

KEY OBSERVATIONS

- The site is within 800m to Chatswood Train and Metro station and Artarmon Train station.
- The site is a ten-minute walk to Chatswood CBD, which offers a range of activities and services including access to jobs. The site is also within walking distance to cafes, retail uses and services along Pacific Highway.
- Proximity to bus routes along Pacific Highway gives the site broader connection within Willoughby LGA.
- The site has direct access the local cycle network, connecting to open spaces and train stations at St Leonards, Artarmon and Chatswood.

INSIGHT

The site is well serviced by both public and active transport. It is within walking distance to Chatswood Train and Metro Station, Artarmon Station, and buses along Pacific Highway.

LEGEND

- Subject Site
- ▭ Chatswood Town Centre Study Boundary
- Train and Metro Station Interchange
- Local Bus Stops
- Main Bus Route and Stops Along Pacific Highway
- On-Road Marked Bike Route
- - - Off - Road bike Route/ Shared Path

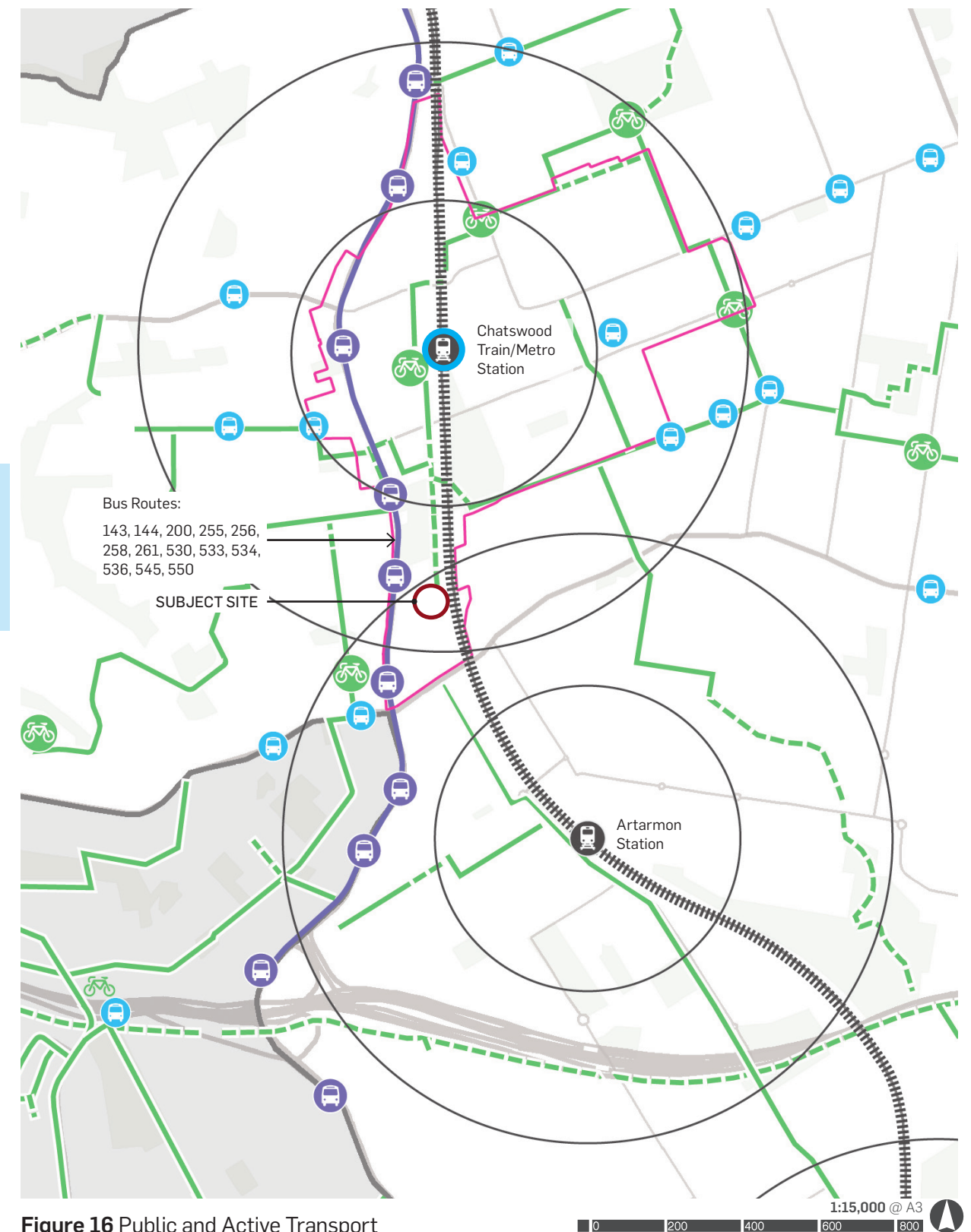


Figure 16 Public and Active Transport

3.2 TOPOGRAPHY AND BUILDING HEIGHT

KEY OBSERVATIONS

- The site's immediate surroundings is on relatively flat terrain. Pacific Highway generally aligns with a natural ridge-line and areas to the west and south east fall away to lower land.
- There is a distinct cluster of tall building forms at Chatswood CBD, which visually highlights the significance of this centre. The relative heights of these tall towers are mapped in the diagram below. These towers act as a visual beacon and assist with legibility and way-finding from surrounding suburbs.
- The proposed change in building height controls in the CBD Strategy are mapped in the adjacent diagram and highlight significant change within the CBD core.

INSIGHT

The site sits within a spine of tall buildings leading to Chatswood CBD, which has the greatest height in the area. Proposed building heights should consider visual and overshadowing impacts to sites on either side of the ridge.

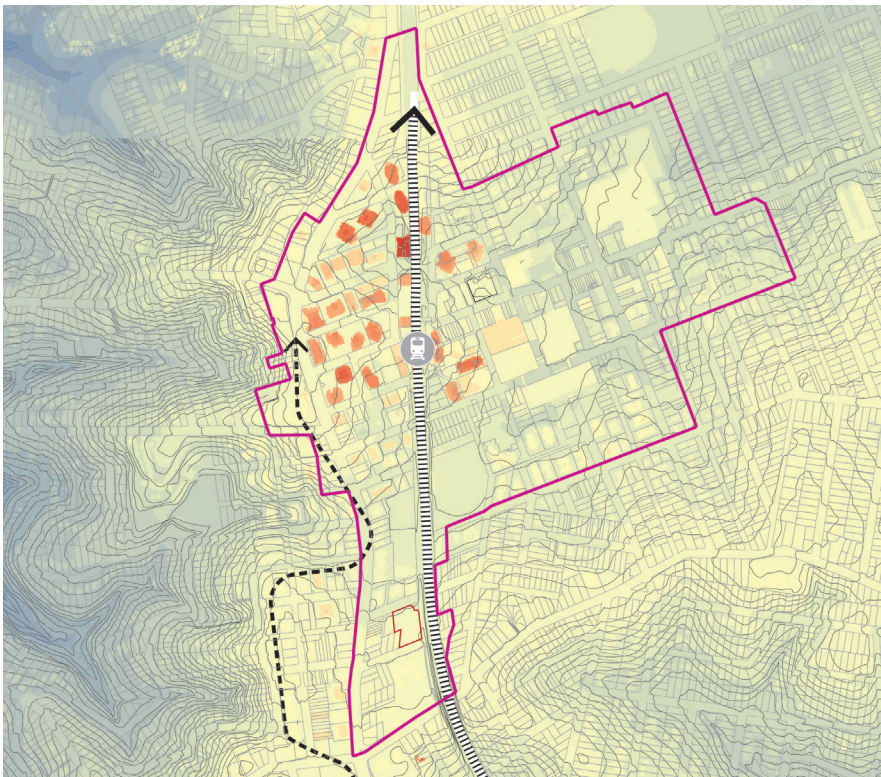


Figure 17 Existing Building Height & Topographical Analysis

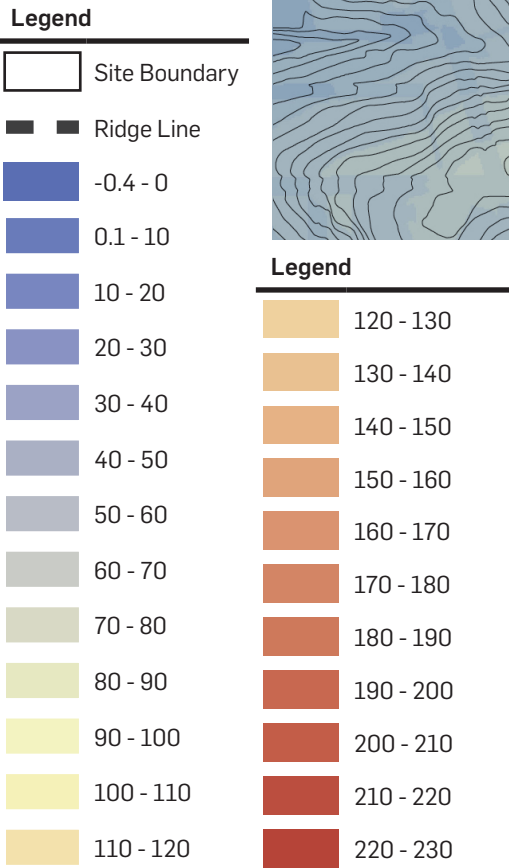


Figure 18 Proposed CBD Strategy Building Heights & Topographical Analysis.

3.3 ACCESS & MOVEMENT

KEY OBSERVATIONS

- Pacific Highway is a main arterial road that connects Sydney CBD with the Central Coast and beyond. It is a major transport corridor and provides a physical boundary to the west of the site. For pedestrians, the closest signalised intersection on Pacific Highway is approximately 300 metres south of the site at the intersection with Mowbray Road.
- Main access to the subject site is off Nelson Street or Gordon Avenue. Both of these streets have limited access off Pacific Highway and are dead-end roads with limited traffic flow.
- Mowbray Road is a local corridor that runs east-west connecting to the M2 and Macquarie Park.
- The CBD Strategy identifies a new north-south pedestrian link parallel to Pacific Highway, connecting the CBD from Mowbray Road to Albert Avenue (Chatswood train station).
- To the east of the site is a shared (cycle and pedestrian) link that also connects the heart of the CBD from Nelson St to Albert Avenue (Chatswood train station).

INSIGHT

- Given the limited traffic access and flow on Gordon Ave and Nelson St, consider separating residential vehicle access (on Nelson St) from servicing and loading (on Gordon Ave).
- Enhance the existing shared link on the eastern side of the subject site by providing an active frontage to increase passive surveillance and safety.

LEGEND

Subject Site

Chatswood Town Centre Study Boundary

Lot Boundary

Major Signalised Intersections

Highway/ Arterial Roads

Sub-Arterial Roads

Local Roads

Neighbourhood Road Connectors

Previous Road Connection

Pedestrian Crossings (zebra)

Existing Pedestrian Link

New Through Site Link Identified in the Chatswood CBD Strategy



Figure 19 Access and movement analysis plan

3.4 LANDSCAPE CHARACTER & PUBLIC DOMAIN CHARACTER

KEY OBSERVATIONS

- The immediate area has an established tree canopy cover from mature street trees, particularly to the west of Pacific Highway. There is opportunity to further enhance the landscape character of the area by protecting streets trees and introducing green rooftops to new development.
- The site is located within 400m walking distance to Chatswood Park and the Bowls Club. Chatswood Park provides active recreation for kids and adults; this includes a large oval, skate park, picnic and gathering area.
- The site has direct access to a shared path that connects to the CBD. While the shared path currently terminates at the site, there is opportunity to extend it along Nelson Street to Mowbray Road, in order to connect with other local cycle networks and open spaces (to the south and west).

INSIGHT

- Enhance the landscape character of the area by protecting streets trees and introducing green rooftops to new development.
- Chatswood CBD Strategy identifies a new future park immediately south of the subject site. This open space can be complemented with the extension of the shared path along Nelson Street and south to Mowbray Road.



Figure 20 Existing Street Trees along Nelson Street,



Figure 21 Existing Street Trees along Gordon Avenue

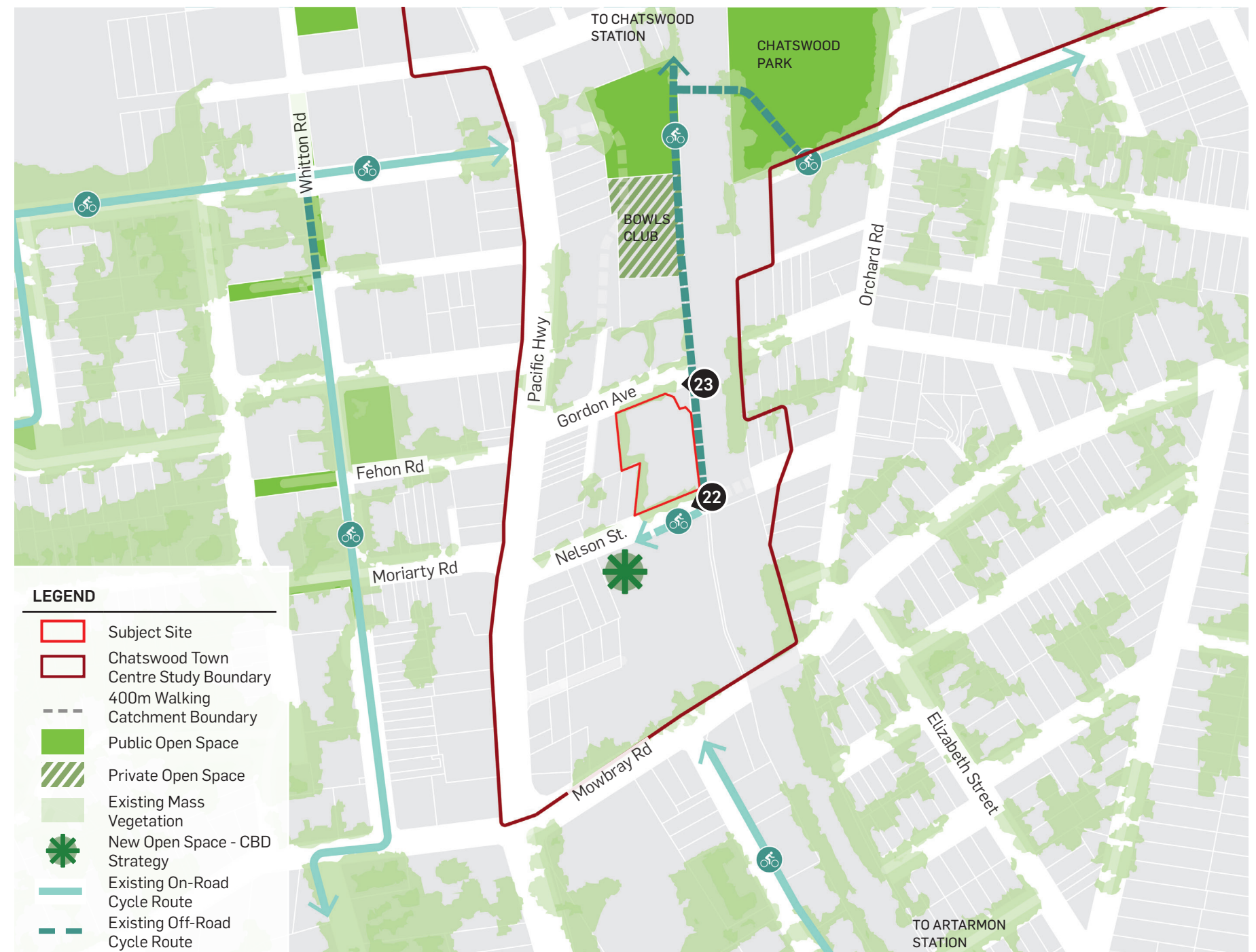


Figure 22 Tree canopy and open spaces plan

3.5 BUILT FORM CHARACTER

KEY OBSERVATIONS

- Chatswood's built form character is defined by different building typologies and land uses, it includes the historical fine grain context to the east of the site, and medium residential density in the form of apartment blocks to the west. There are also large commercial and retail floor plates along Pacific Highway, creating a dense and urban spine.
- The South Chatswood Heritage Conservation Area is a good example of early North Shore residential development. Much of the dwelling stock retains its original detailing and distinctive architectural features. Most retain the original scale and basic form, which, apart from the two storey mansions, is predominantly single storey.
- The Chatswood CBD Strategy will bring considerable change to the local character, with CBD sites transforming into podium and tower forms to create a more urban and dense context.

INSIGHT

- The Chatswood CBD Strategy will bring considerable change to the local character. The subject site and surrounding context will become more urban and dense with podium and tower forms.
- Proposed built form within the subject site needs consider overshadowing and visual impacts to the fine grain conservation area.

LEGEND

- Subject Site
- Chatswood Town Centre Study Boundary
- 400m Catchment Boundary
- Low Density Detached Housing
- Medium Density Residential
- High Density Residential
- Retail (Large Floor Plate)
- Shop-top Housing Development
- Existing Metro Site & Water Reservoir
- Heritage Item

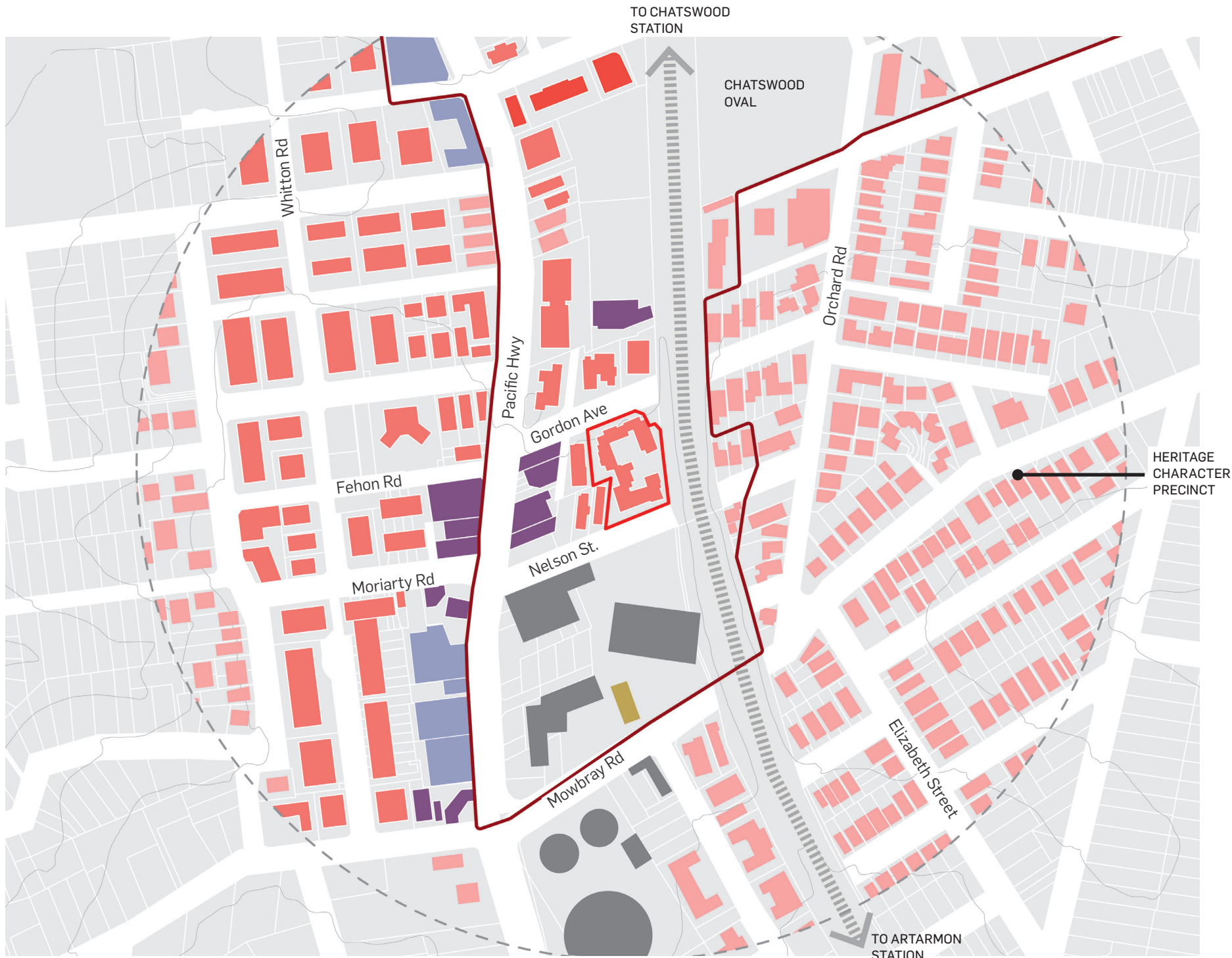


Figure 23 Built form character plan

4.0 SITE ANALYSIS

This section examines current street setback patterns as well as key site opportunities and constraints to inform the design response presented in Part B.

4.1 SETBACKS

KEY OBSERVATIONS

- Existing setbacks in the immediate area surrounding the site vary from zero to ten metres depending on existing trees and built form character.
- Currently the site provides the following setbacks:
 - 5-8-metre front setback along Nelson Street;
 - 0-4 metre setback along Gordon Avenue; and
 - 0-4 metre setback along the existing shared path;
 - 5-8-metre setback on the western boundary
- Chatswood CBD strategy does not identify minimum setbacks for podium levels, rather this is guided by site specific responses. Minimum tower setbacks and building separation distances have been identified in the Strategy, and align with the ADG and promote slender building forms.
- For the subject site this means, the podium can potentially be built to boundary but must have active frontages to north, east and south frontages. It can have a street wall height of 6-14-metre with a minimum tower setback of 3 metres from the street wall. For the western boundary, in order to enable future development to neighbouring sites towers are to be setback 12 metres from the boundary (in line with minimum building separation distances in the ADG).

INSIGHT

- Active ground floor frontages north, east and west boundary.
- Tower form to be setback at least 3 metres from street wall, and 12 metres from western boundary.



Figure 24 CBD Strategy Recommended Setbacks

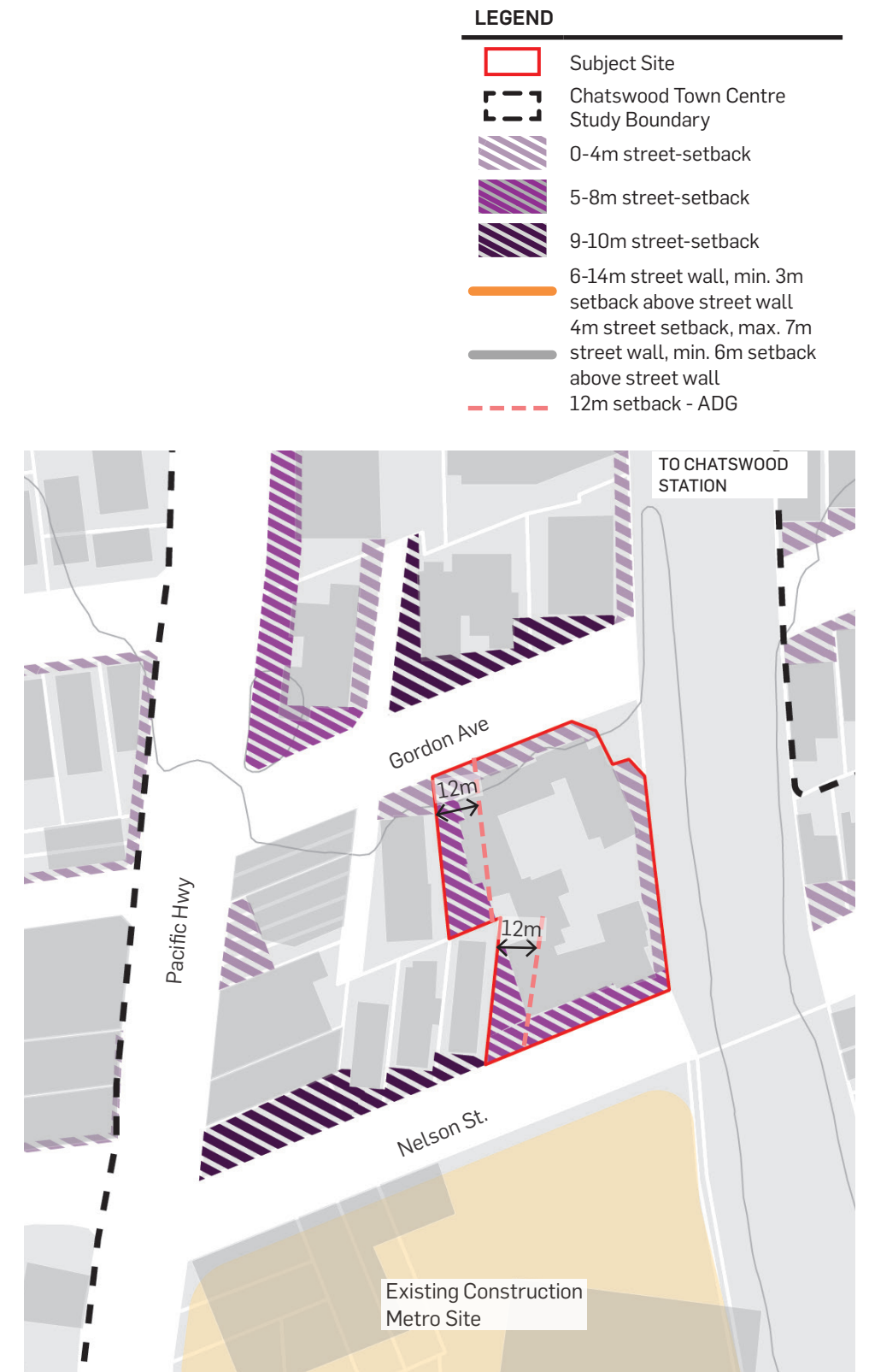


Figure 25 Existing Setback Pattern

LEGEND	
	Subject Site
	Chatswood Town Centre Study Boundary
	0-4m street-setback
	5-8m street-setback
	9-10m street-setback
	6-14m street wall, min. 3m setback above street wall
	4m street setback, max. 7m
	street wall, min. 6m setback above street wall
	12m setback - ADG

4.2 SITE CONSTRAINTS

KEY OBSERVATIONS

- 1 The site sits between the Pacific Highway and heavy rail corridor, which are major north-south transport corridors. These two corridors generate considerable noise, visual and air pollution in proximity to either side of the site.
- 2 The site's proximity to the railway corridor also creates potential vibration impacts which will need to be considered in the design and construction of future development. Refer to geotechnical report for minimum separation distances from future metro corridor.
- 3 While the site is in proximity to Pacific Highway and a high volume of buses, access to bus stops is decreased due to the lack of pedestrian crossings and signalised intersections across Pacific Highway. The closest signalised intersection on the Pacific Highway is about 300 metres south of the subject site and about 600m north.
- 4 Traffic flow and access to the site is hindered as both Nelson Street and Gordon Avenue are dead-end streets. Additionally, vehicle access coming from the south is difficult as there is no ability to right turn into Nelson Street and Gordon Avenue.
- 5 To the east of the site is the South Chatswood Heritage Conservation Area. Impacts to this conservation area, including overshadowing and visual impacts will need to be considered in the design of the site.

LEGEND

Subject Site

Chatswood Town Centre Study Boundary

Direction to closest signalised intersection

High Traffic Volume - Pedestrian Barrier

Dead End Street

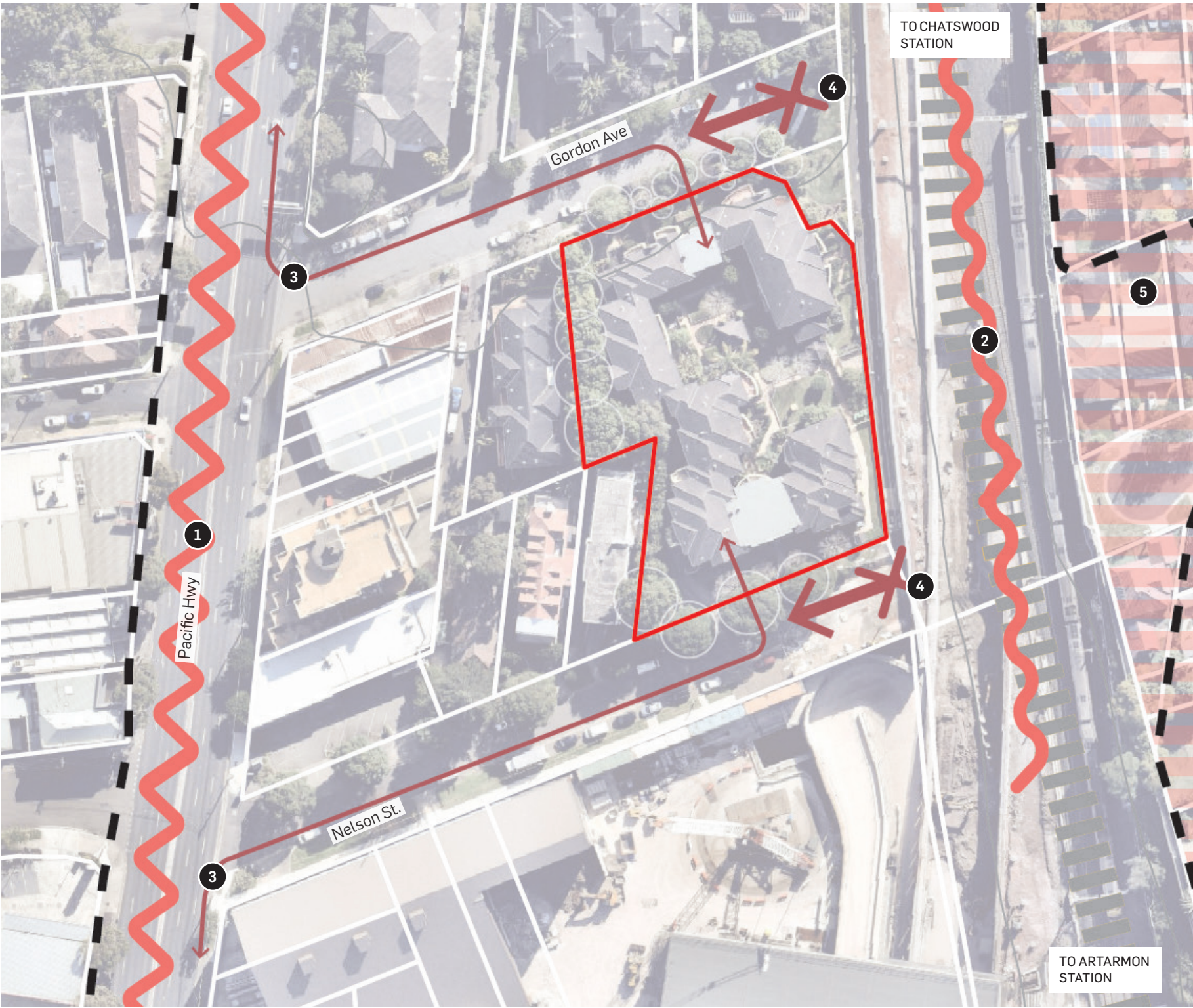


Figure 26 Site Constraints Plan

4.3 SITE OPPORTUNITIES

KEY OBSERVATIONS

- 1 Based on directions from the CBD Strategy, transform the future character of Nelson Street with a pedestrian and active transport focus. Introduce cycle access on Nelson St to connect with existing shared path.
- 2 To manage traffic impacts to the immediate area, limit service access to the site via Gordon Avenue, thus minimising heavy traffic movement along Nelson Street.
- 3 As identified in the CBD Strategy, introduce a new through site connection to Hammond Lane. While this does not directly impact the subject site it highlights Council's vision to promote a vibrant and activated pedestrian experience.
- 4 To promote a vibrancy, safety and street activation, introduce a range of non-residential uses such as a childcare, gym, health services and retail to ground and podium levels.
- 5 Preserve existing vegetation where possible within the site. Introduce soft landscaping to enhance the local character and provide amenity for future residents.
- 6 Extend active transport connectivity along Nelson Street towards Mowbray Road, and where possible enhance the character of the active transport link through active frontages that promote passive surveillance and safety.
- 7 Respond to the amenity afforded by existing open space to the north east corner through visual and physical connections from the site.

LEGEND

Subject Site

Chatswood Town Centre Study Boundary

Pedestrian Link - as per CBD Strategy

Active Uses (such as a childcare, health services or retail)

Existing Street Trees

Future Open Space - as per CBD Strategy

Existing Cycle Link

Proposed Main Vehicle Access

Proposed Service Access

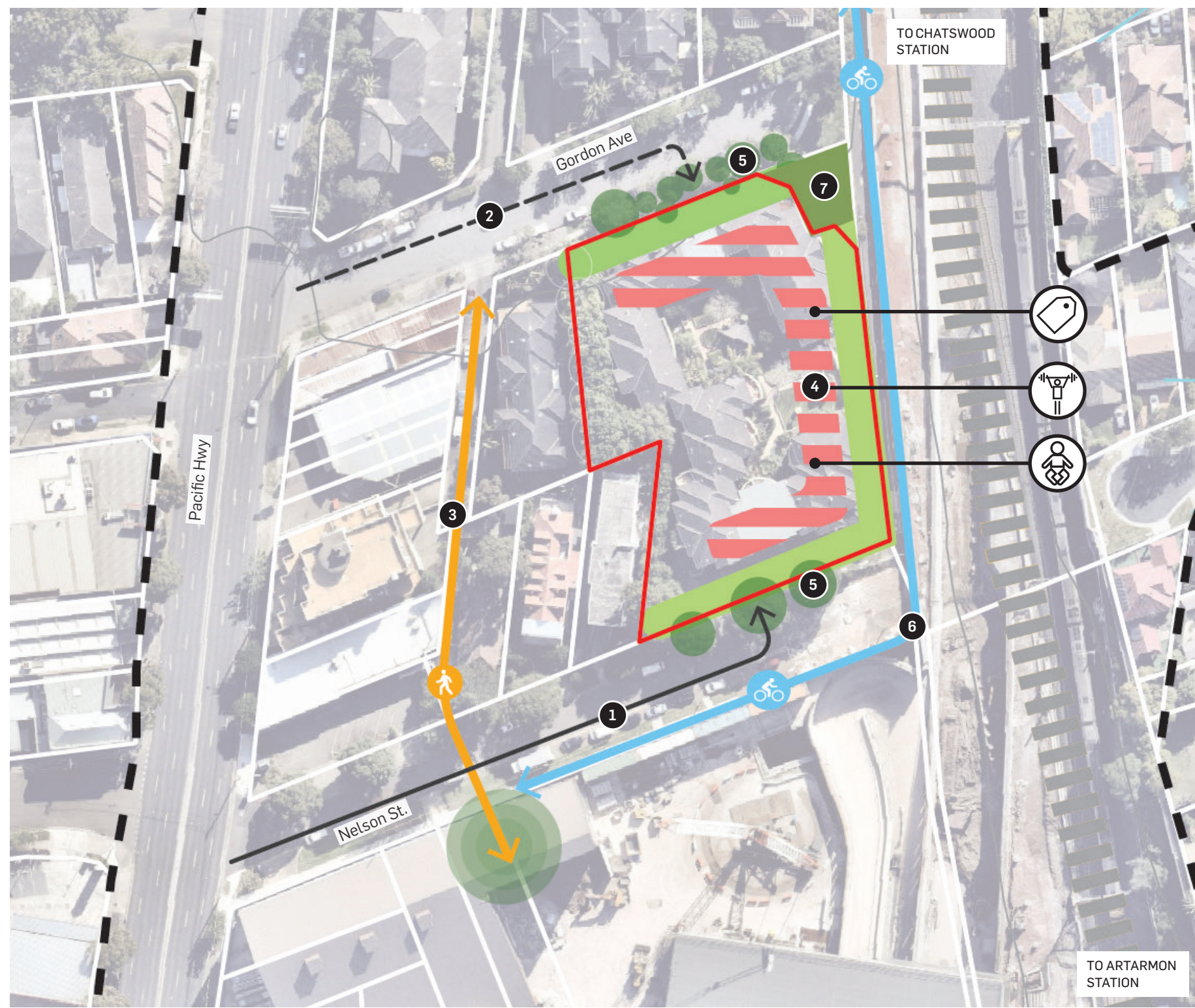


Figure 27 Site Opportunities Plan

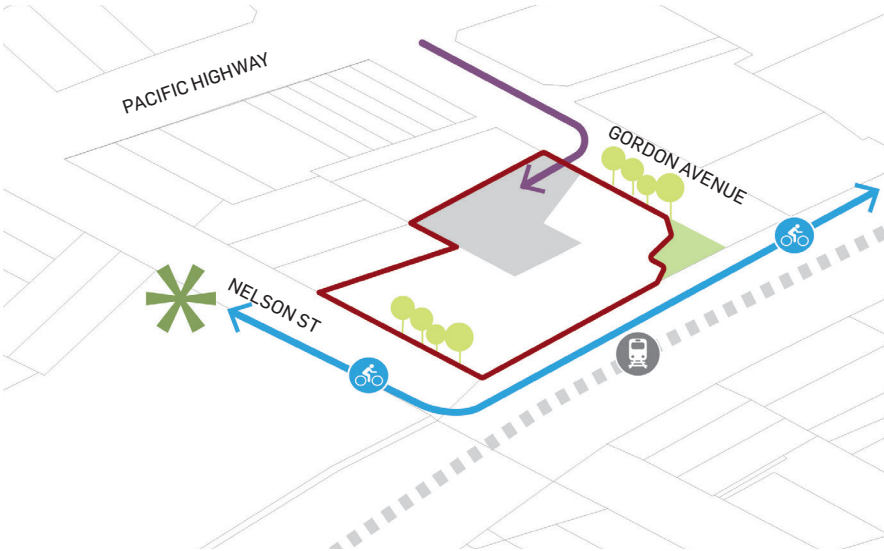
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4.4 KEY DIRECTIONS

The following key directions synthesise the planning context, urban context and site analysis into a suite of outcomes to informs and shape the built form response for the site.

ACCESS AND STREETScape CHARACTER

- Retain existing street trees where possible.
- Locate loading and servicing within basement levels to maximise ground floor activation.
- Split vehicular and pedestrian access, with Nelson Street as more pedestrian focused, and Gordon Avenue as the main vehicular access and service vehicle road.
- Enhance cycle and pedestrian connections and extend along Nelson Street.

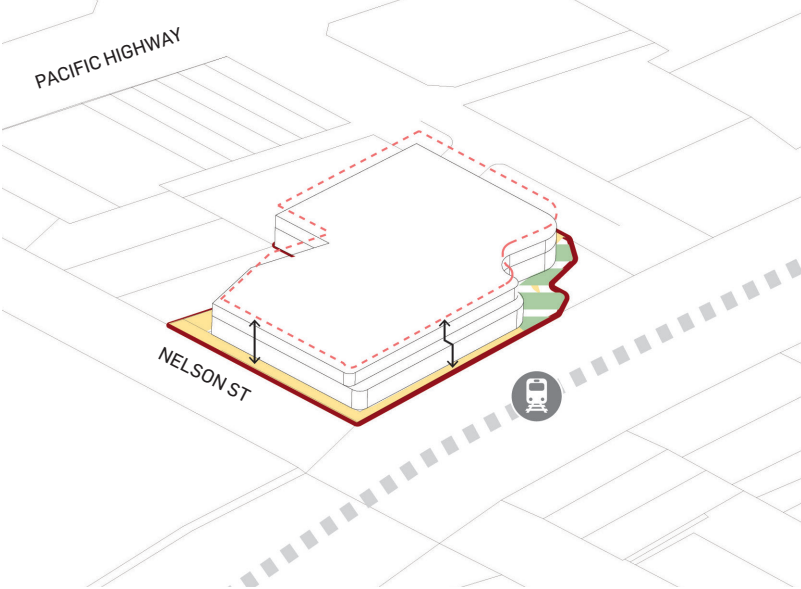


LEGEND

- Subject Site
- Residential Vehicle Road
- Service Vehicle Road
- Pedestrian & Cycle Connection
- Future Public Open Space
- Existing Pocket Park
- Driveway

PODIUM SCALE

- Minimum 3m podium setbacks streets and pedestrian and cycle path to allow for landscape interface and potential deep soil planting.
- Build to boundary on western boundary.
- Explore 2 and 3 storey podium building forms considering human scale outcomes.
- Setback upper levels of podium along pedestrian and cycle connection to deliver human scale outcomes.

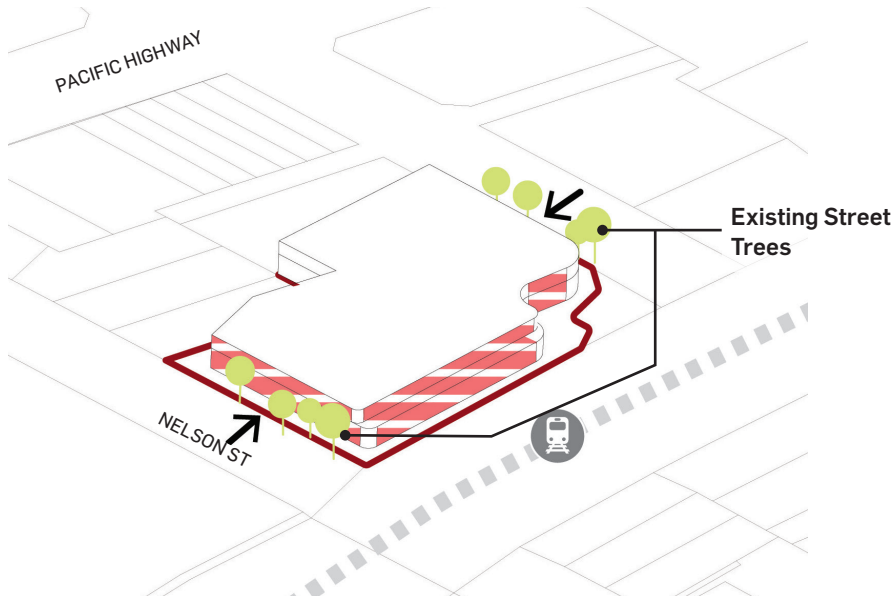


LEGEND

- Subject Site
- Minimum 3m Setback
- Maximum Street Wall (14.5m)
- Larger Setback to Respond to Existing Pocket Park

ACTIVE FRONTAGES & PODIUM USES

- Explore arrangement of non-residential uses to respond to locational characteristics including activation and passive surveillance of existing pocket park, pedestrian and cycle link and street frontages.
- Provide residential access from both Nelson Street and Gordon Avenue.

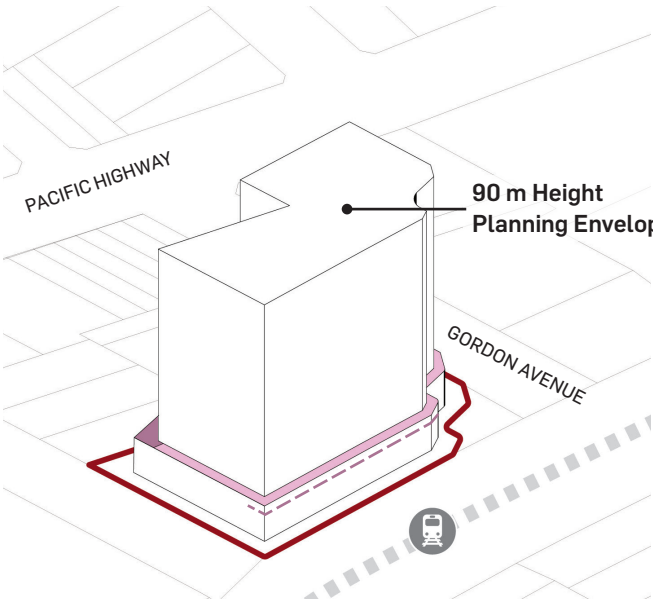


LEGEND

- Subject Site
- Active Frontage
- Access to Residential Tower
- Vehicular Access

TOWER SETBACKS

- 3m setback from podium to streets and pedestrian and cycle link in accordance with Chatswood CBD Strategy.
- 12m setback to western boundary in accordance with ADG requirements.

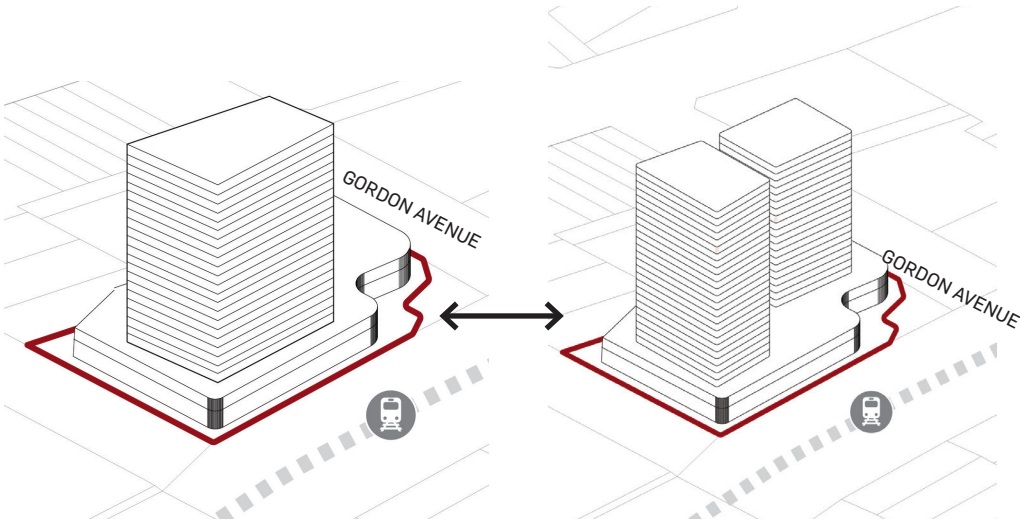


LEGEND

- Subject Site
- 3m Setback (CBD Strategy)
- 12m Setback (ADG)
- 3m Podium Landscape Setback

TOWER MASSING & ARRANGEMENT

- Explore one and two tower options against both Chatswood CBD Strategy and ADG requirements.
- Transition building height down to surrounding context

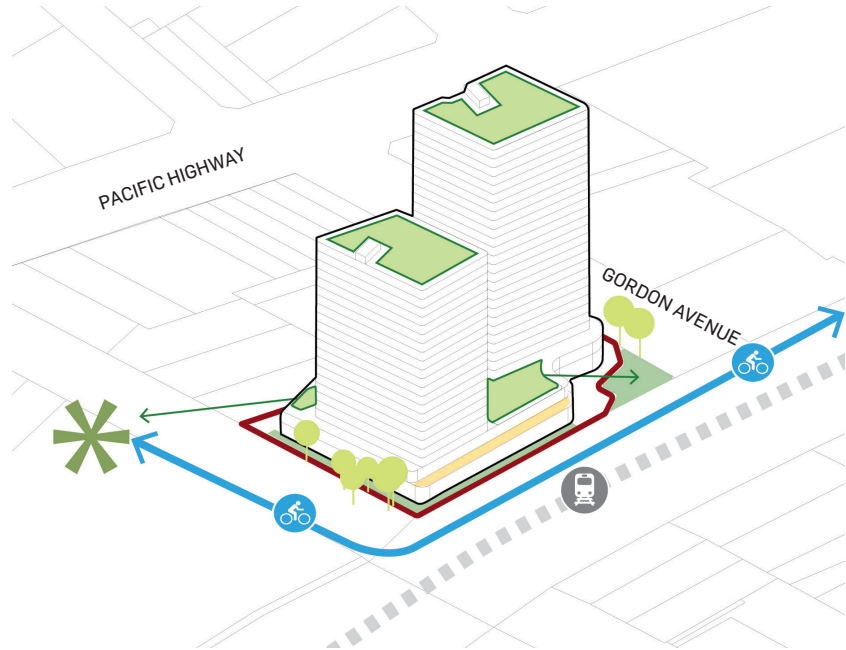


LEGEND

- Subject Site
- Proposed Development

INTEGRATED LANDSCAPE

- Provide podium and tower communal open space and locate to maximise solar access.
- Incorporate landscape setbacks to pedestrian and cycle link.
- Consider stepping of landscape elements and communal open space to respond to existing pocket park.



LEGEND

- Subject Site
- ✱ Future Public Open Space
- Existing Pocket Park
- ↔ Pedestrian & Cycle Connection
- Communal Open Space
- 3m Landscape Setback (on podium level 1)

PART B

URBAN DESIGN

RESPONSE

Part B investigates built form outcomes for the subject site in alignment with recommendations of the CBD Strategy, the requirements of the ADG, and in response to the urban context and site analysis.

This first section examines an optimum podium solution for the site, which is then followed by tower solutions and an assessment of their impact to surrounding context. Two schemes were investigated being:

- **Reference Scheme - Two Towers:** The Reference Scheme was identified as being entirely consistent with the Chatswood CBD Strategy including the key principle of delivering tall slender towers.
- **Alternate Scheme - Single Towers:** The Alternate Scheme was identified as meeting all of the outcomes of the CBD Strategy and ADG performance, except for that of the tower floor plate size in which the scheme slightly exceeds this.

The two tower scheme was identified as the preferred Reference Scheme.

5.0 PODIUM TESTING

The following section tests 2 and 3 storey podiums with a variation of non-residential land uses.

Podium Option 3, a mixed-use 2 storey built form is the preferred solution adopted in the Reference Scheme, as it:

- Satisfies the CBD Strategy's FSR requirement of a minimum 1:1 for non-residential uses;
- Provides active frontages in accordance with the CBD Strategy along Nelson Street, Gordon Avenue and the shared active transport link;
- Offers a mix of land uses to contribute to the vibrancy of the local area; and
- Creates a human scale response through setbacks, stepping and retention of existing trees.

5.1 NON-RESIDENTIAL USES MARKET DEMAND ASSESSMENT

Urbis' Property Economics Research team undertook a market gap assessment for potential non-residential land uses. The approach to the market gap assessment considers a two step approach as follows:

1. Identification of a short-list of possible land uses considering permissible uses in the B4 mixed-use zone of WLEP and identification of those which could realistically attract a tenant at the site location. This eliminated commercial office uses, community facilities a, tertiary education and entertainment.
2. Evaluation of the remaining five (5) land uses against three location success factors and draws implications for the market gap and supportability of these uses at the site. These location success factors are:
 - Market Demand: The number of and growth in surrounding residents and workers is a very important determinant of the commercial viability of many potential land uses.

- Competition: Provision, location and quality of offer of competitors can limit market scope to support additional uses.
- Competitive Positioning of the Subject Site: The competitive positioning of the subject site is a key determinant of the type and scale of land uses that are supportable, and is driven by a number of factors. These include:
 - Road Access, Visibility and Exposure
 - Public Transport Access
 - Proximity to Services, Amenities and Economic Opportunities
 - Synergies with Other Proposed Uses at the Subject Site.

The assessment identified and ranked five potential land uses suitable for the subject site.

MEDICAL

Scored 2 out of 5

- Proportion of the current 2km catchment population aged 0-14 (-0.4%) and aged 65+ (-1.0%) is slightly below the Metropolitan average.
- Moderate projected population growth of 1.0% per annum in the 2km catchment to 2031, is below the Metropolitan Sydney average of 1.5% per annum over the same period
- Projected growth in key age segments is low (0.8% per annum for 0-14 aged residents) to moderate (2.3% per annum for 65+ aged residents).

CHILDCARE

Scored 2 out of 5

- Proportion of the current 2km catchment population in the 0-4 age group of 6.8% is 0.4 percentage points higher than the Metropolitan average
- Projected population growth for the 0-4 age group is fairly low at 0.5% per annum, indicative of only ~300 additional residents in this age category by 2031.
- A higher average per capita (+25.4%) and household income (+16.9%) in the 2km catchment also indicates more disposable income to spend on childcare services.

GYM

Scored 3 out of 5

- The population aged 15-39 (+2.5%) is the largest variation in the 2km catchment compared to the Metropolitan average. Coupled with a higher proportion of lone and group households, this indicates strong existing demand for gyms.
- Projected population growth is fairly low at 0.5% per annum for the 15-39 age group, an additional ~1,800 persons by 2031.
- A higher total retail spending variation (+16.9%) and per capita income (+25.4%) in the 2km catchment is also reflective of a higher likelihood to spend on gym memberships.

RETAIL – SPECIALTY AND F&B

Scored 3 out of 5

- Retail spending for the 2km catchment in food catering (+34.2%) and retail services (+35.6%), is significantly higher than the Metropolitan benchmark.
- A higher average per capita income and household income for the 2km catchment also indicates a higher capacity to spend on retail
- Moderate projected population growth of 1.0% per annum in the 2km catchment to 2031, is below the Metropolitan Sydney average of 1.5% per annum over the same period

RETAIL – BULKY GOODS / SHOWROOM

Scored 4 out of 5

- Total retail spending and spending on bulky goods retail in the 5km catchment is well above the Sydney average (+25.6%).
- Strong population growth of 1.4% per annum projected in the 5km catchment to 2031, is only slightly below the benchmark of 1.5% per annum over the same period.
- A higher average per capita income and household income for residents of the 5km catchment compared to the Sydney benchmark also indicates a higher capacity and propensity to spend on bulky goods and showroom retail.

5.2 PODIUM OPTIONS

Based on the property economics research, three different combinations of non-residential land uses with variable floor space ratios were tested. The three podium options are summarised below.

OPTION 01

Mixed Use Podium

BUILDING HEIGHT: 3 storeys

FSR: 1.40 : 1

LAND USES

Bulky Goods

Small Retail/Specialty/ F&B

Childcare

Gym

Loading Dock to Ground Level

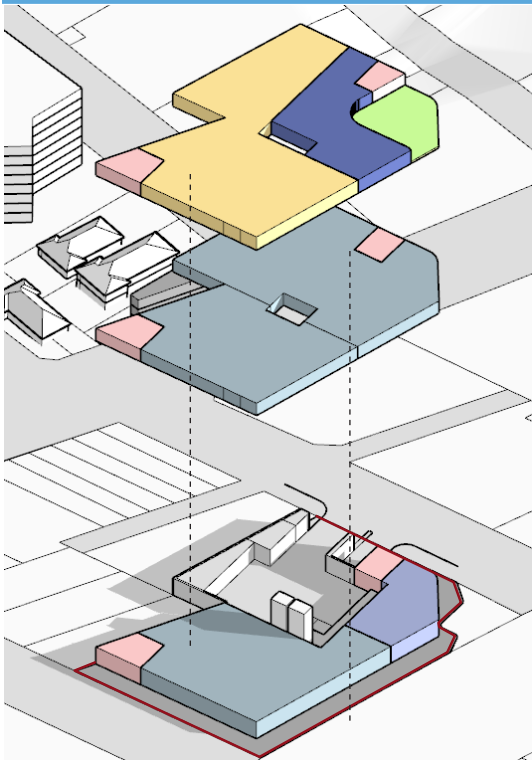


Figure 28 Mixed Use Podium Diagram

OPTION 02

Retail Focused Podium

BUILDING HEIGHT: 3 storeys

FSR: 1.61 : 1

LAND USES

Bulky Goods

Small Retail/Specialty/ F&B

Loading Dock to Ground Level

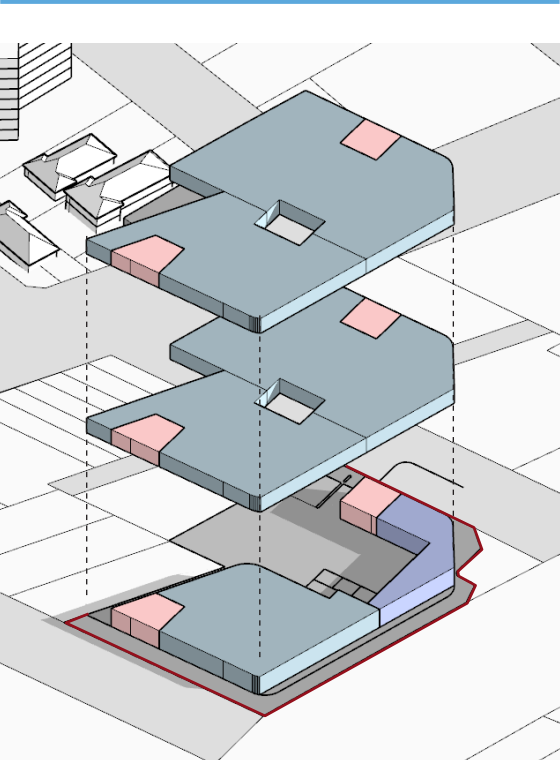


Figure 29 Retail Focused Podium Diagram

OPTION 03 - REFERENCE SCHEME

Condensed Podium

BUILDING HEIGHT: 2 storeys

FSR: 1.0 : 1

LAND USES

Bulky Goods

Small Retail/Specialty/ F&B

Loading Dock to Basement Level

Figure 30 Condensed Podium Diagram

LEGEND	
<div></div>	Subject Site
<div></div>	Bulky Goods
<div></div>	Residential Lobby
<div></div>	Driveway/Loading/Servicing
<div></div>	Small Retail
<div></div>	Gym
<div></div>	Childcare
<div></div>	Childcare Playground

28 9-11 Nelson Street, Chatswood Urban Context Report

5.3 OPTION 01 - MIXED USE PODIUM

Podium Option 1 is a 3 storey podium with mixed uses including bulk good retail, a gym and childcare. The podium has single vehicle access off Gordon Avenue, with servicing and loading sleeved at ground level and basement car parking below.

Table 5 Option 01 Podium Summary

LEVEL	USE	GFA	FSR
Ground Floor	Small Retail (F&B / Specialty)	371	
	Bulky Goods	1,217	
First Floor	Bulky Goods	1,386	
	Bulky Goods	908	
Second Floor	Gym	1,491	
	Childcare	519	
Total		5,891	1.40

TRAFFIC & SERVICING STRATEGY

- Gordon Ave provides access for both servicing and loading (for HRV 12.5m vehicles) as well as driveway to basement car parking. Approximately 50% of the Gordon Avenue street frontage is dedicated to driveway access. While this is not an optimal outcome on Gordon Ave, Nelson Street benefits from a dedicated, active, pedestrian-focused frontage.

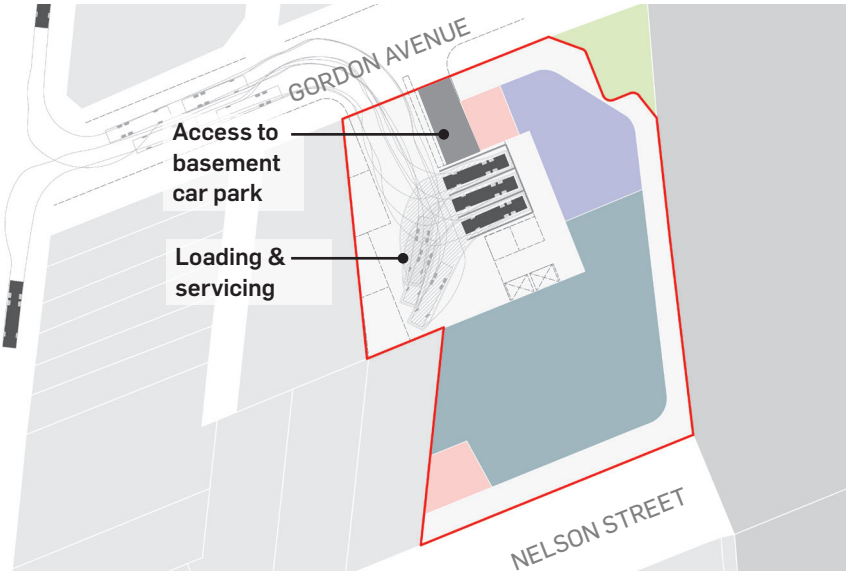


Figure 31 Preliminary Traffic & Servicing Strategy

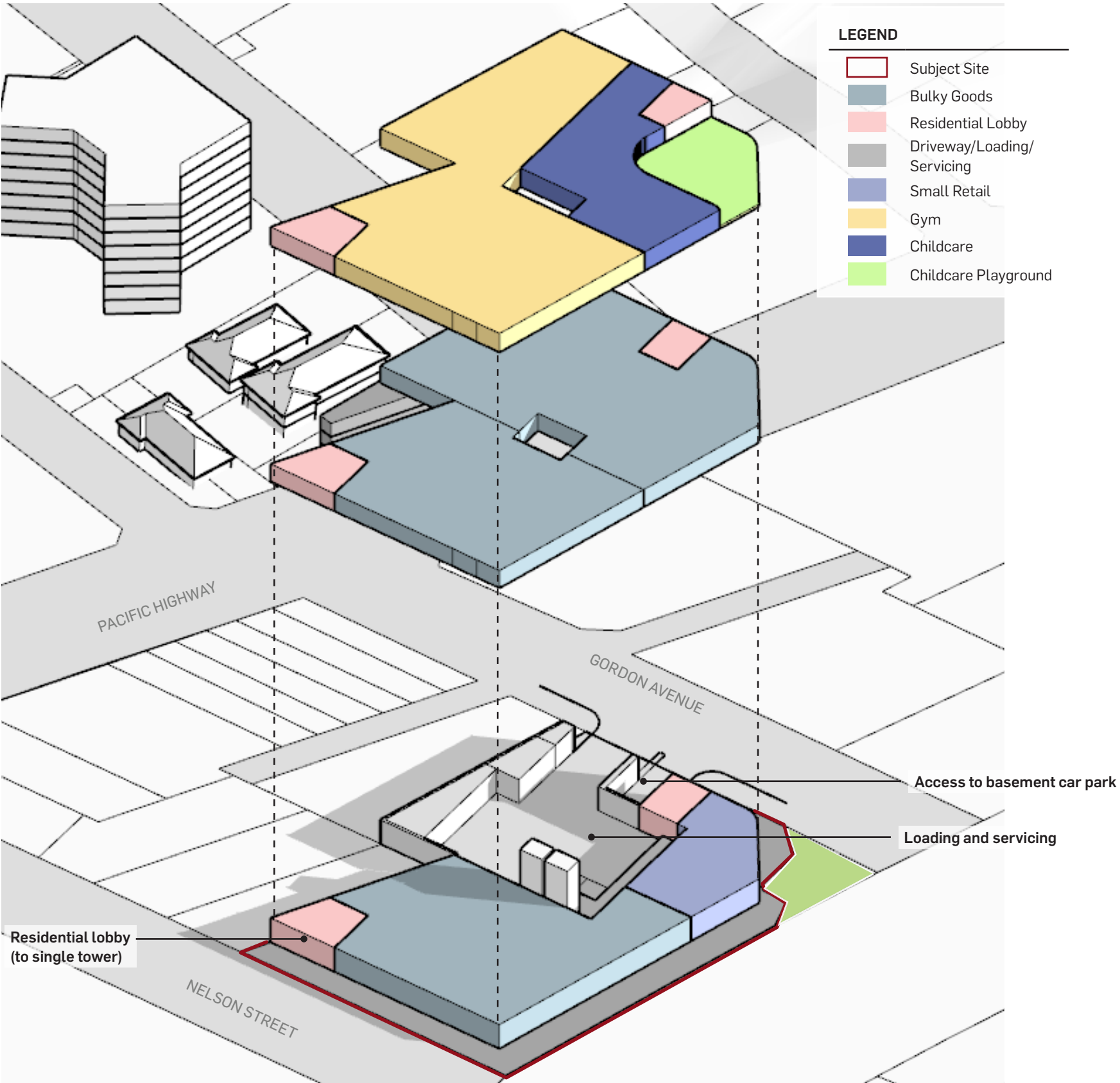


Figure 32 Mixed Use Podium - Exploded Axonometric View

5.4 OPTION 02 - RETAIL FOCUSED PODIUM

Podium Option 2 is a 3 storey podium with retail focused uses. The podium has dual vehicle access with one-way service movement entering from Gordon Avenue and exiting on Nelson Street. Basement car parking is accessed via Gordon Avenue only.

Table 6 Option 2 Podium Summary

LEVEL	USE	GFA	FSR
Ground Floor	Small Retail /F&B / Specialty	300	
	Bulky Goods	950	
First Floor	Bulky Goods	2,780	
Second Floor	Bulky Goods	2,780	
Total		6,809	1.61

TRAFFIC & SERVICING STRATEGY

- This option provides driveway access to basement car parking on Gordon Avenue, as well as one-way servicing/loading circulation with ingress off Gordon Ave and egress off Nelson Street. This servicing design accommodates both HRVs and AVs (i.e. 12.5m and 19m vehicles) to enable maximum flexibility for future retail tenancies. Compared to the other servicing strategies there is moderate impact to the streetscape and pedestrian movement.

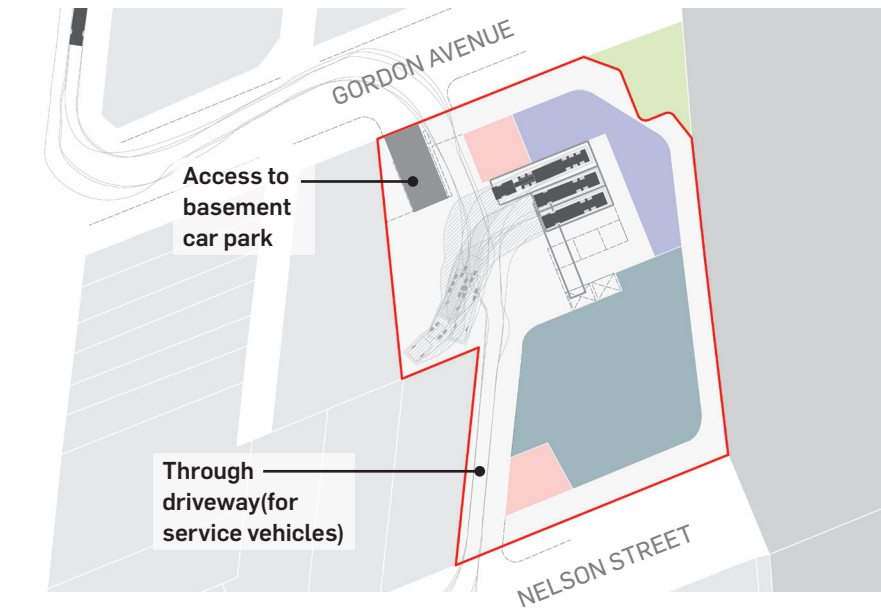


Figure 33 Preliminary Traffic & Servicing Strategy

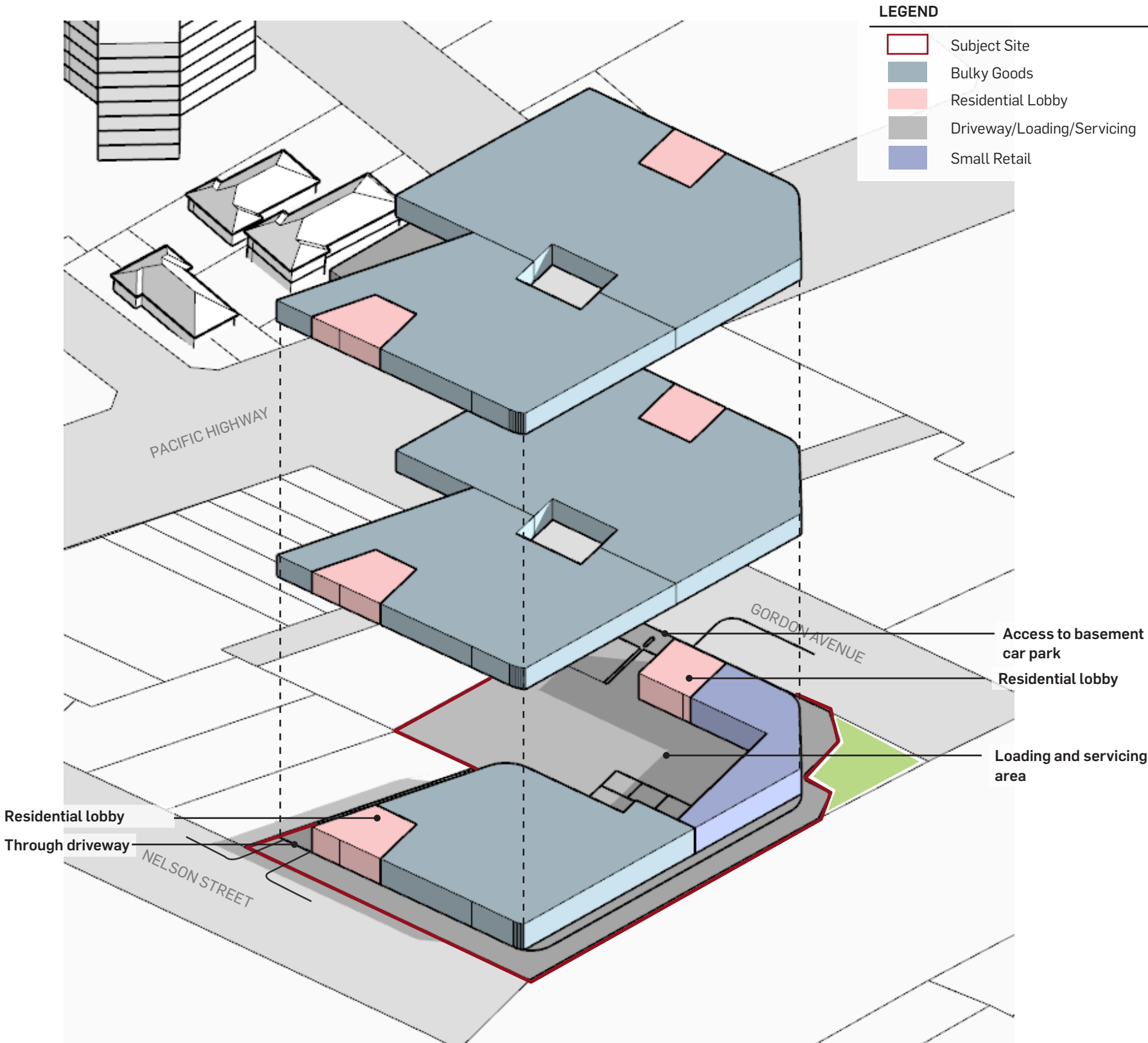


Figure 34 Retail Focused Podium - Exploded Axonometric View

5.5 OPTION 03 - CONDENSED PODIUM (REFERENCE SCHEME)

- This option was adopted in the reference scheme as it:
- Satisfies the CBD Strategy's FSR requirement of 1:1 for non-residential uses, as well as requirements for basement servicing and loading;
 - Provides active frontages in locations required from the CBD Strategy, i.e. Nelson Street, Gordon Avenue and the shared active transport link;
 - Offers a mix of land uses to contribute to the vibrancy of the local area;
 - Comprises of a 2 storey 'human scale' podium form, whereby the podium is in keeping with the existing tree line.
 - Loading and servicing occurs within basement levels as opposed to ground floor.

Table 7 Option 03 Podium Summary

LEVEL	USE	GFA	FSR
Ground Floor	Small Retail /F&B / Specialty	419	
	Bulky Goods	1,305	
First Floor	Bulky Goods	2,495	1.0
Total		4,219	

TRAFFIC & SERVICING STRATEGY

- Gordon Ave provides access to basement servicing and loading (for HRV 12.5m vehicles). Approximately 30% of the Gordon Avenue street frontage is dedicated to driveway access.

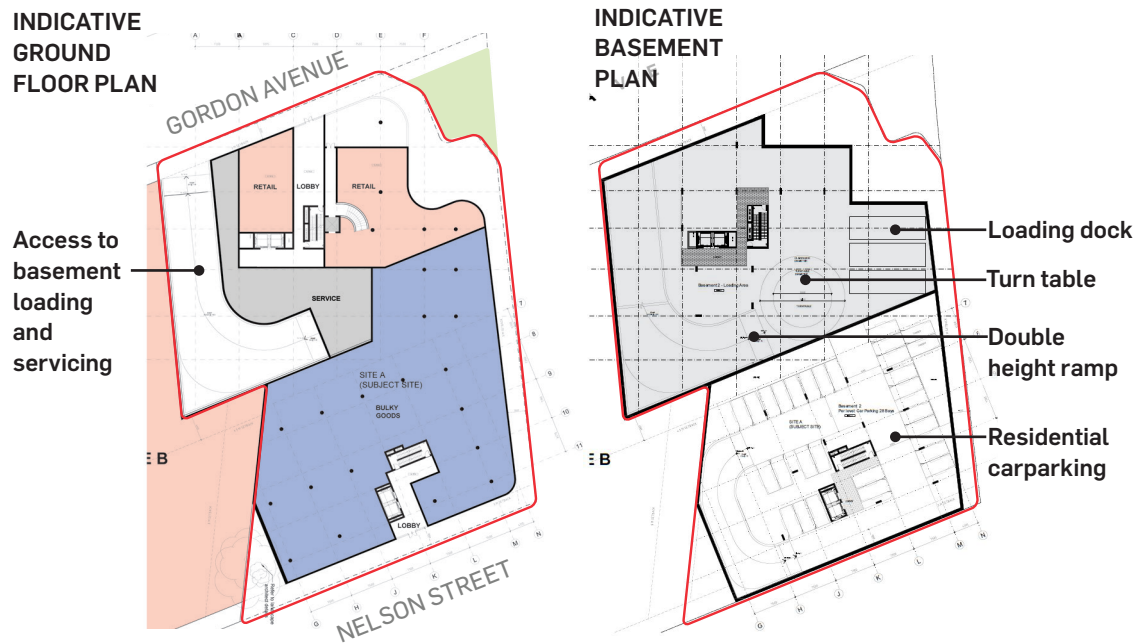


Figure 35 Preliminary Traffic & Servicing Strategy

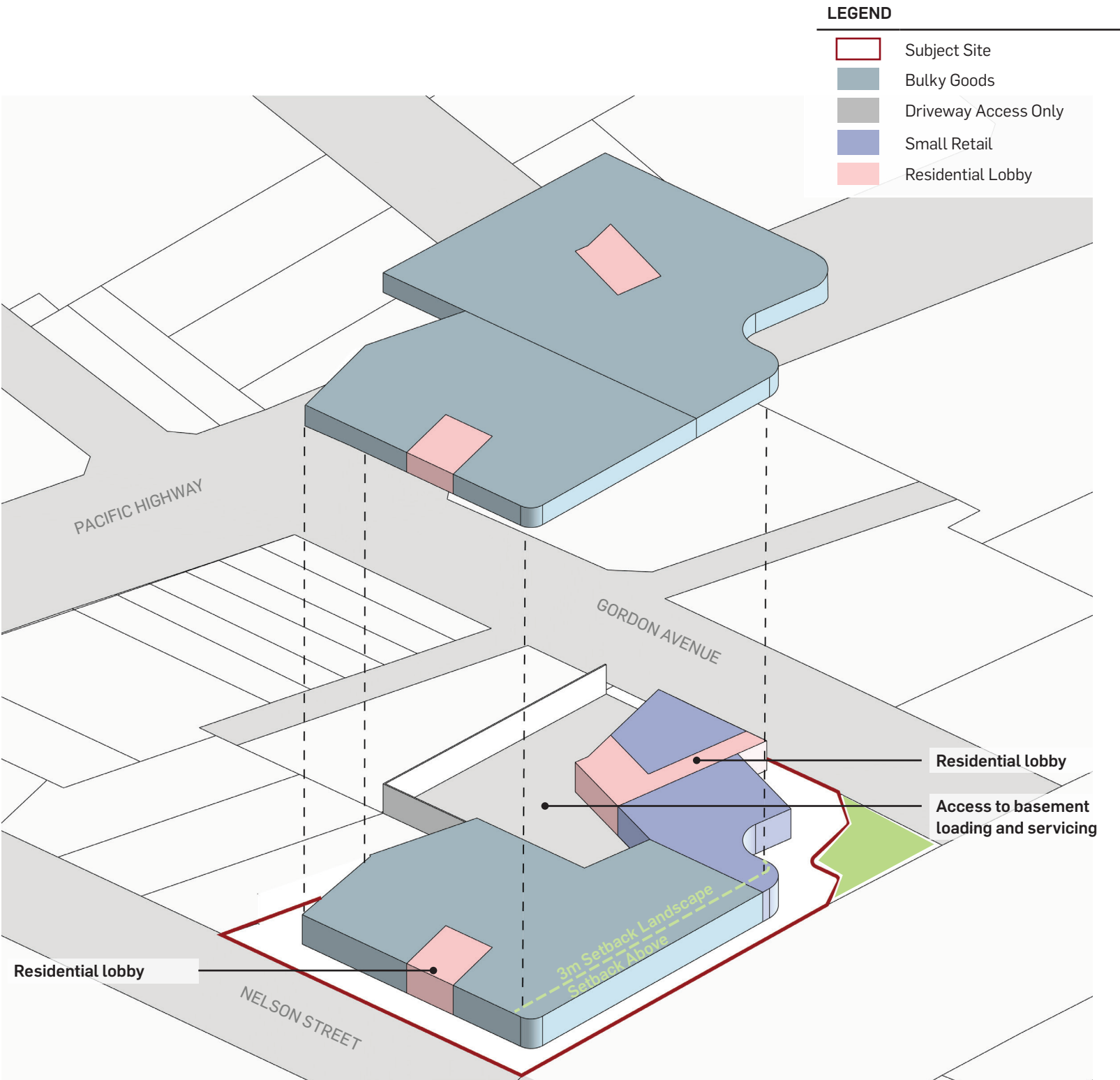


Figure 36 Condensed Podium - Exploded Axonometric View

6.0 TOWER TESTING

The following section tests a single and two tower option on the site, with both options having a total building height less than 90 meters and an FSR up to 6:1 as recommended in the CBD Strategy. A summary of two schemes is outlined below:

- Reference Scheme - Two Towers: The Reference Scheme was identified as being entirely consistent with the Chatswood CBD Strategy including the key principle of delivering tall slender towers.
- Alternate Scheme - Single Towers: The Alternate Scheme was identified as meeting all of the outcomes of the CBD Strategy and ADG performance, except for that of the tower floor plate size in which the scheme slightly exceeds this.

6.1 TOWER OPTIONS OVERVIEW

Two tower options were tested, both adopting the 2-storey podium design presented in section 5. Both the single and two tower options are comparable in terms of overall building height, FSR and indicative yield, these schemes consider different outcomes in terms of tower floor plates, overall building massing and scale, podium landscape and impacts on surrounding sites.

REFERENCE SCHEME

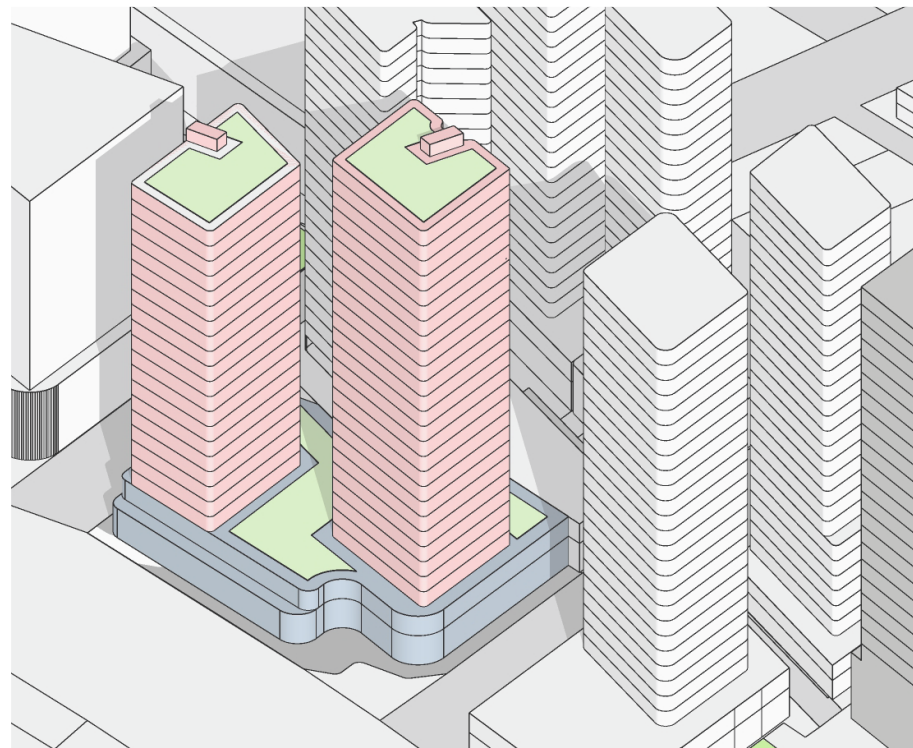


Figure 38 Two Tower Option

Maximum Building Height	FSR	Indicative Yield
90M 27 STOREYS OR RL 189.5	5.96	258 APARTMENTS

ALTERNATE SCHEME

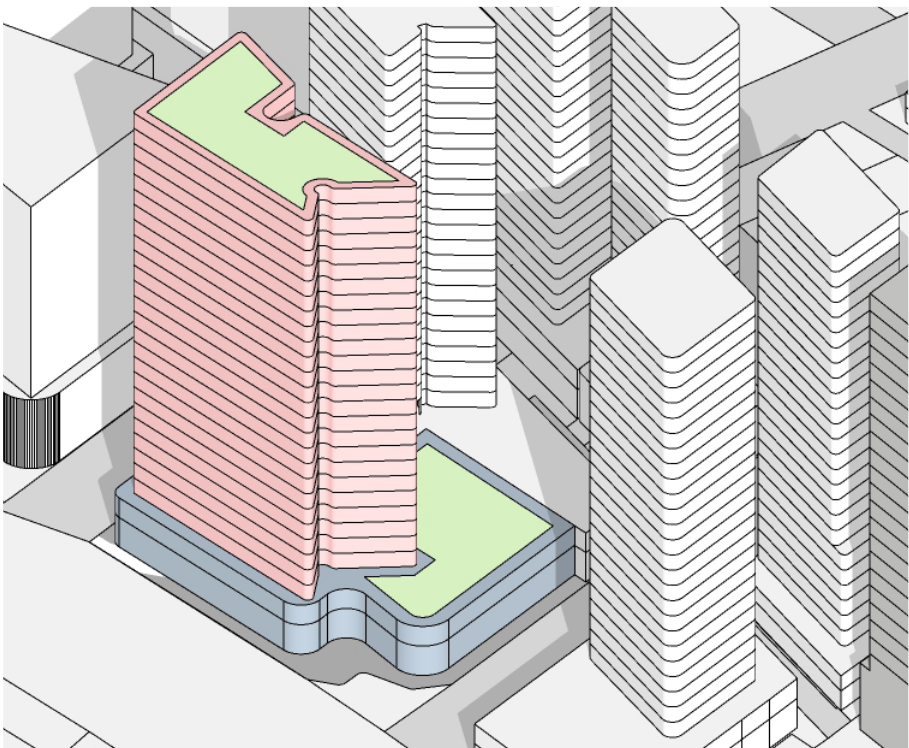


Figure 37 Single Tower Option

Maximum Building Height	FSR	Indicative Yield
90M 27 STOREYS OR RL 189.5	6.0	250 APARTMENTS

6.2 DEVELOPMENT ASSUMPTIONS

Below is a summary of key development assumptions and guiding parameters from the CBD Strategy applied to the built form testing.

DEVELOPMENT ASSUMPTIONS	
Site Area	4,219 sqm
Floor to Floor Height (Residential)	3.1m
Floor to Floor Height (Commercial)	4.5m
GBA to GFA (Residential)	75%
GBA to GFA (Commercial)	87%
GFA to NSA	90%
Standard Apartment size (sqm)	75
Car park rate per dwelling	1.2
Car park area per dwelling (sqm) - includes allowance for circulation, bin storage, cycle parking and building structures.	35sqm
Overall building height includes allowance for rooftop plant, services and lift overrun zone to a maximum height of:	2.5m

CHATSWOOD CBD STRATEGY PARAMETERS	
Podium street setback	0m or in response to surrounding context
Tower setback	3m from street wall or a minimum of 1:20 ratio of the setback to building height.
Max. Podium Height	14m
Max. FSR	6.0
Min. FSR non residential uses	1:1
Maximum Building Height	90m

6.3 CONSIDERATION FOR SURROUNDING CONTEXT

To understand the future context and re-development opportunities and impacts to the immediate area, sites to the west and north were considered in the modelling and analysis. Existing planning proposal on Gordon Avenue were modelled and other sites adopted the planning parameters from the CBD Strategy to inform indicative built form envelopes.

For the subject site, towers were setback a minimum 12 metres from the western boundary to enable future residential development on the adjoining property, in line with key requirements of the ADG (including building separation distances). This complies with the 1:20 setback requirement of the CBD Strategy.

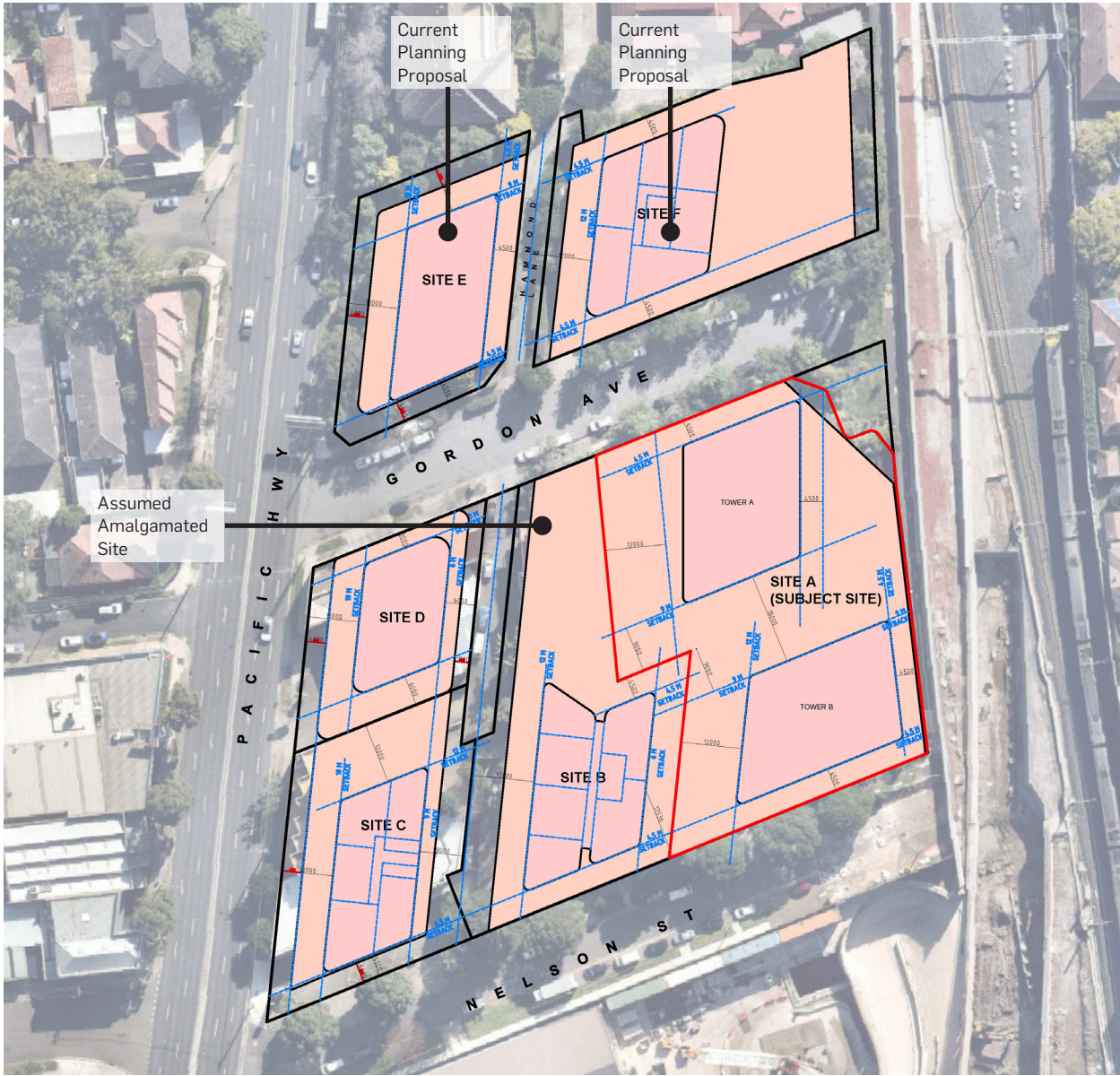


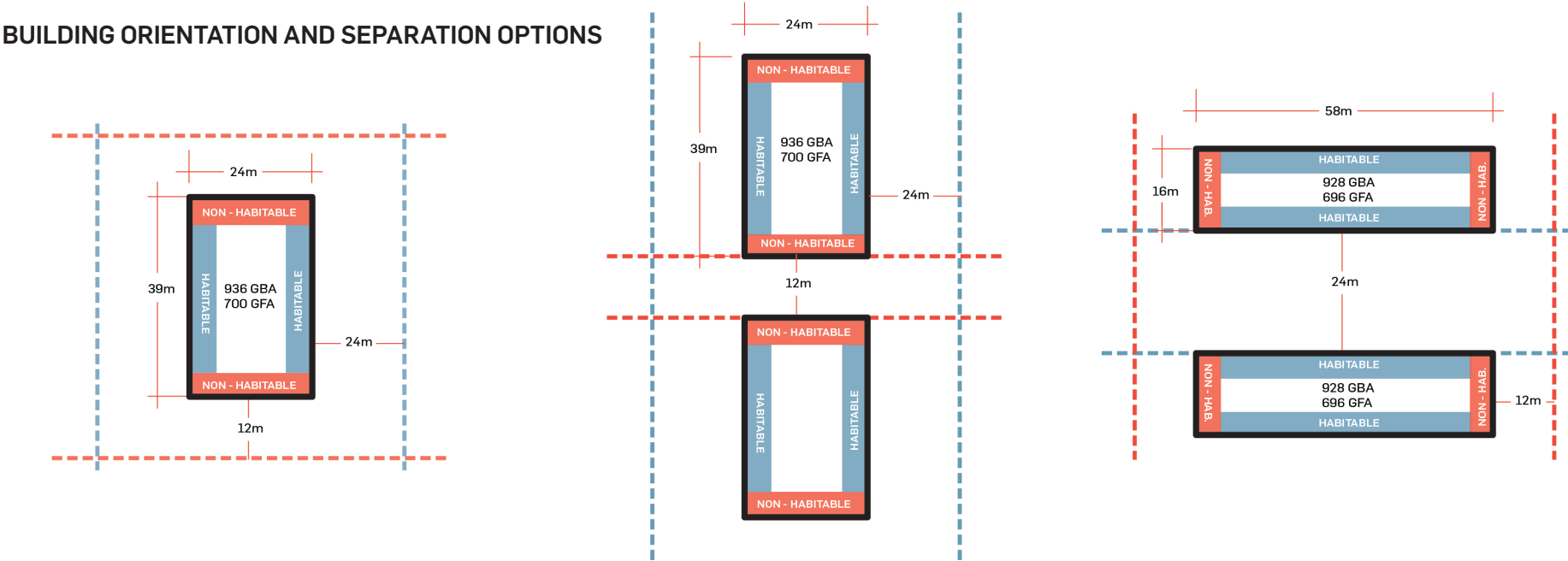
Figure 39 Surrounding Context Plan with Indicative Development

6.4 TOWER INVESTIGATIONS: BUILDING SEPARATION

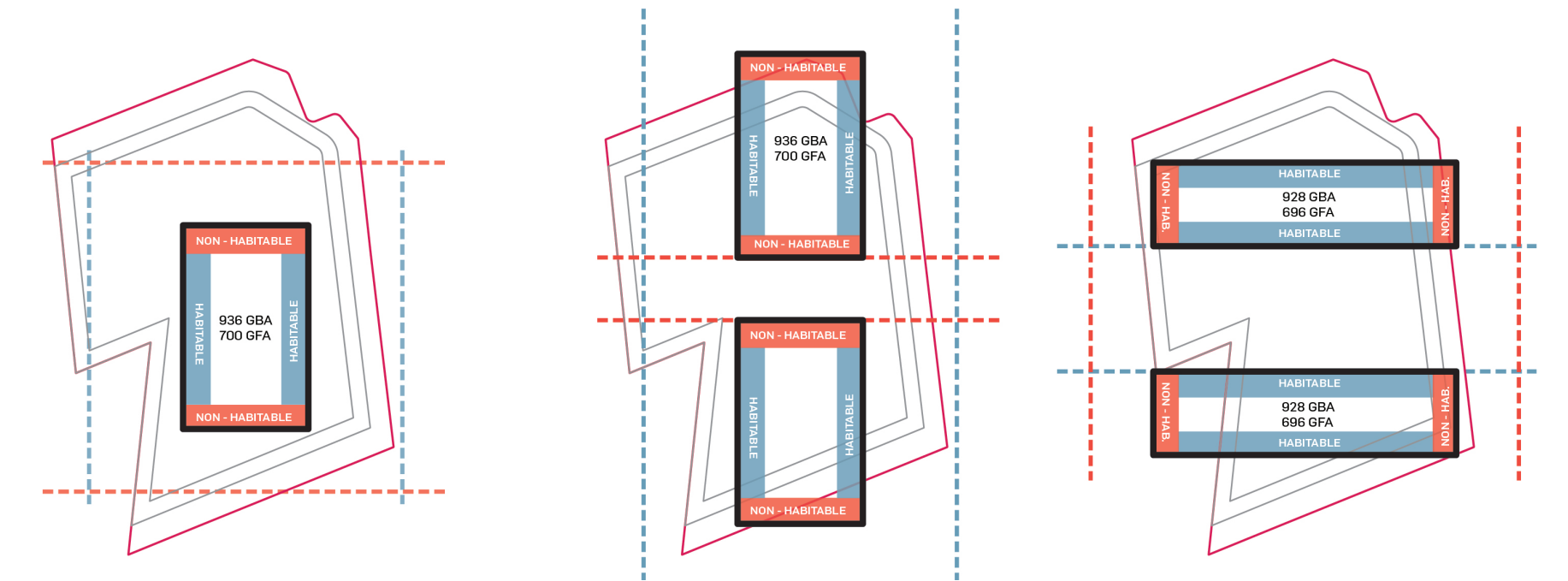
Testing for suitable tower options on the site began with consideration for key requirements of the ADG, in particular building separation and building depth requirements as summarised in the table below.

Table 8 ADG building separation and building depth requirements	
Building Separation	<p>Minimum separation distances for buildings are</p> <p>Up to four storeys (approximately 12m):</p> <ul style="list-style-type: none"> 12m between habitable rooms/balconies 9m between habitable and non-habitable rooms 6m between non-habitable rooms <p>Five to eight storeys (approximately 25m):</p> <ul style="list-style-type: none"> 18m between habitable rooms/balconies 12m between habitable and non-habitable rooms 9m between non-habitable rooms <p>Nine storeys and above (over 25m):</p> <ul style="list-style-type: none"> 24m between habitable rooms/balconies 18m between habitable and non-habitable rooms 12m between non-habitable rooms
Building Depth	<p>A range of appropriate maximum apartment depths of 12-18m from glass line to glass line, or up to 22m for the building envelope. This will ensure that apartments receive adequate daylight and natural ventilation and optimise natural cross ventilation.</p>

BUILDING ORIENTATION AND SEPARATION OPTIONS



BUILDING OVERLAY ON SUBJECT SITE



6.5 TOWER INVESTIGATIONS: LOCATION AND ORIENTATION

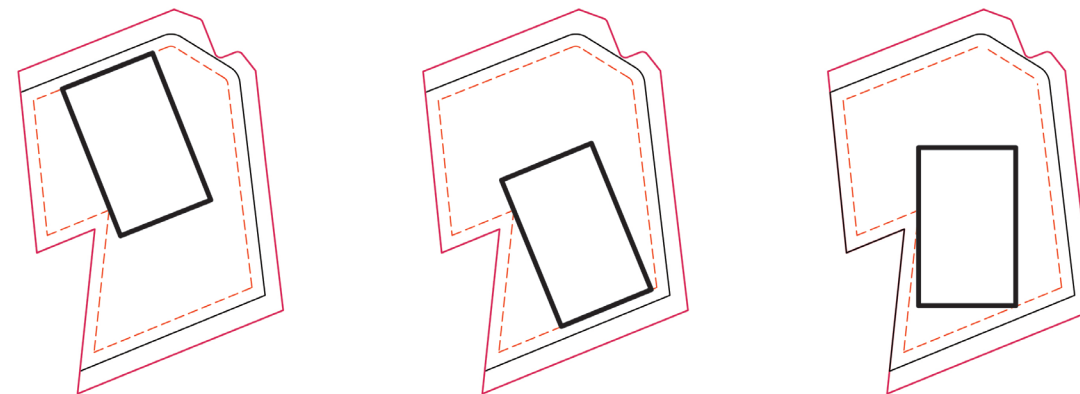
The testing of tower options also considered the location and orientation of buildings, with the following objectives:

- To minimise overshadowing and visual impacts to surrounding context (particularly public open spaces)
- To maximise solar access to the residential units
- To maximise solar access to communal open space and childcare playground
- To realise development potential

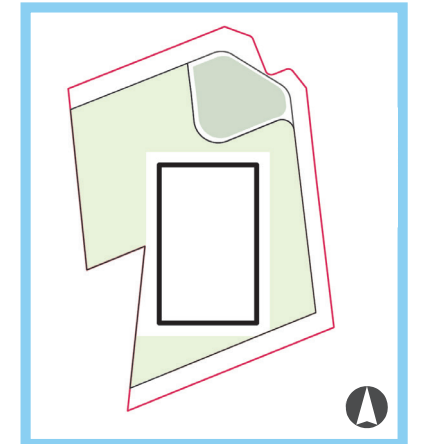
The adjacent images capture a selection of tower locations and orientations considered to inform optimal and suitable outcomes for the site. Two options were identified for further testing and detailed design development.

SINGLE TOWER

1. Single tower options

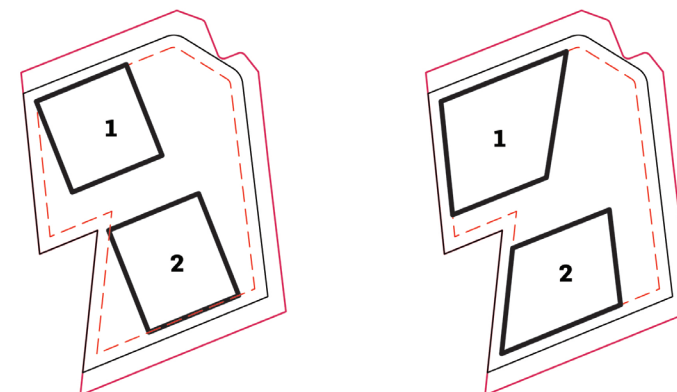


2. Optimum outcome to test further

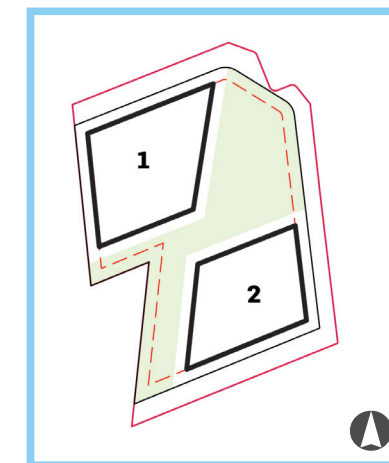


DOUBLE TOWER

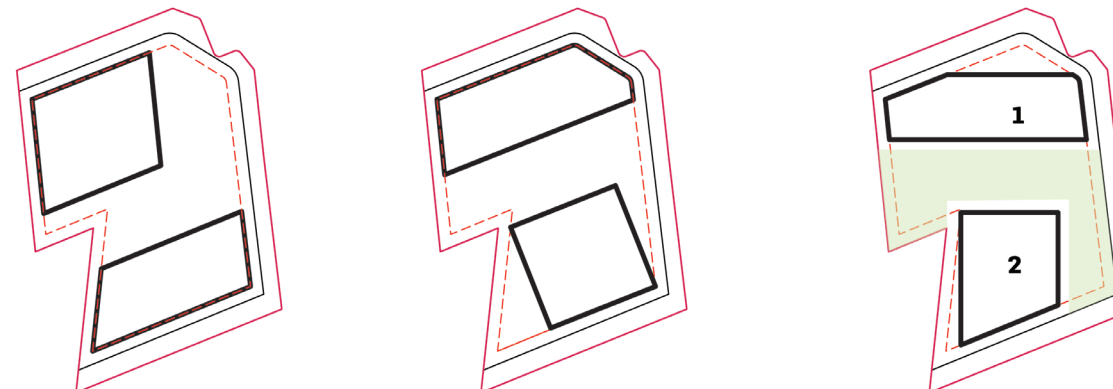
1. Double tower options



2. Optimum outcomes to test further



1. Double tower options - no outcome to test further (due to solar access limitations)



6.6 REFERENCE SCHEME

DESIGN CHARACTERISTICS

- The total building height of the two towers are 27 and 22 storeys. This variation in height is intended to create visual interest in Chatswood's future CBD skyline with transition to the south.
- The two towers are 18 metres apart assuming a habitable to non-habitable interface (between Tower A and B), in line with the requirements of the ADG.
- The towers are setback a minimum 3 metres from the podium (as per the CBD Strategy) and 12 metres from the western boundary.
- The facade of the tower forms are articulated for visual interest and to meet the requirements of the ADG (in particular solar access and natural ventilation).
- The tower floor plates have a GFA of 555sqm and 540sqm, this equates to approximately 6 units per floor plate.
- The first level of apartments have access to private courtyards on the podium rooftop. The remainder of the podium rooftop as well as the tower rooftops are dedicated to communal open space. Refer to *Landscape Concept Report* for further detail.

Table 9 Reference Scheme Development Summary

USE	# STOREYS	MAX. HEIGHT	GFA	FSR	RESI. YIELD
Podium	2	10m	4,219	-	-
Residential Tower - A	25	77.5m	11,649	-	144
Residential Tower - B	20	62m	9,279	-	114
Total Residential	-	-	20,928	-	258
Total	27 & 22	90m	25,147	5.96	258
		(RL 189.5)			



Figure 40 Reference Scheme Plan View

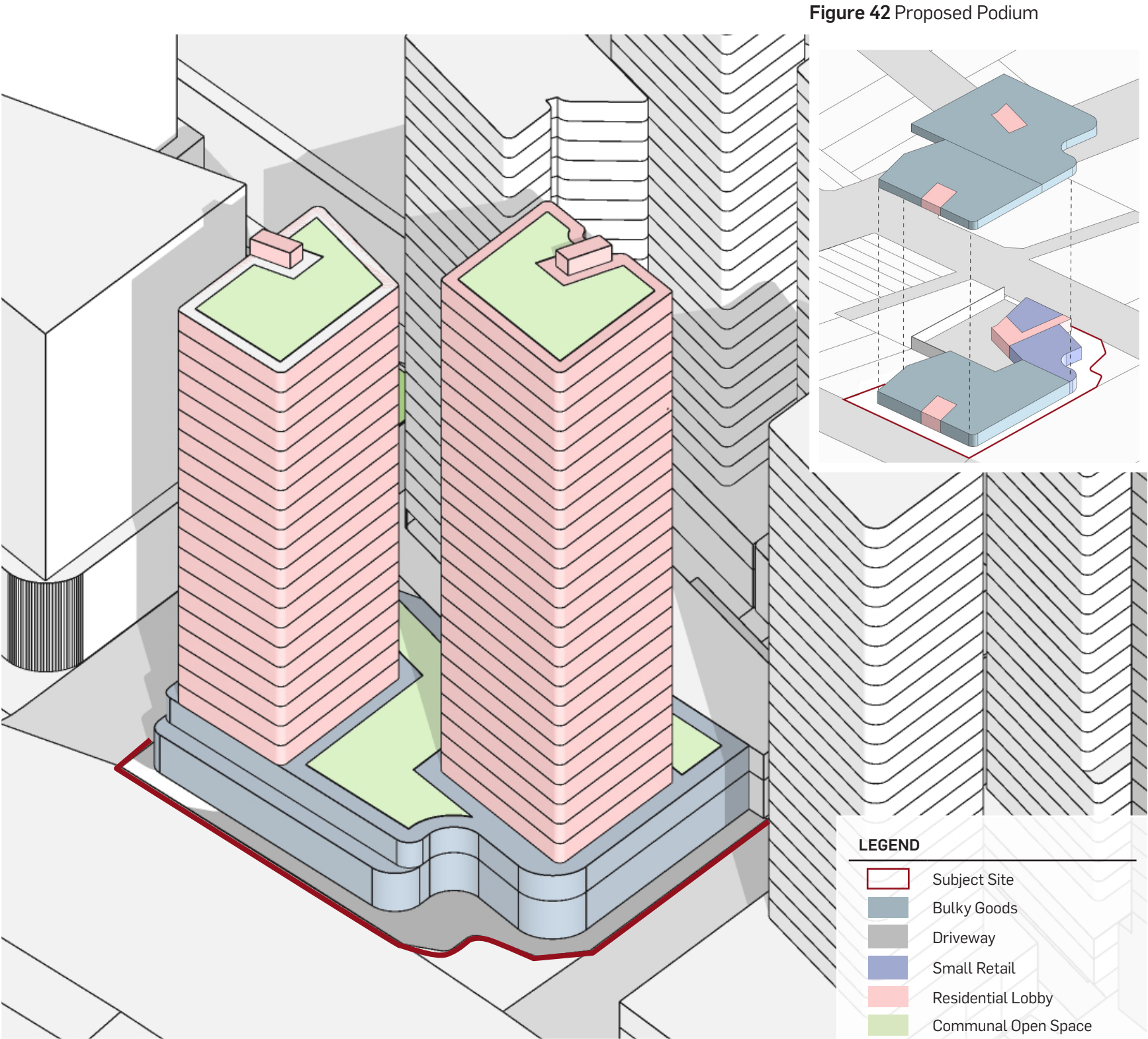
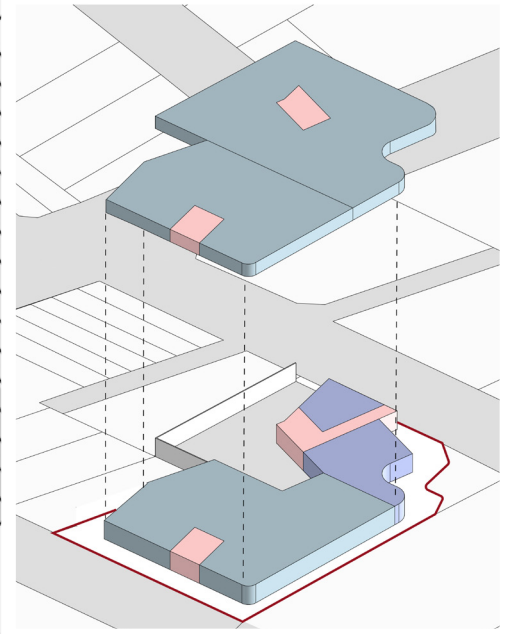


Figure 41 Reference Scheme 3D View

Figure 42 Proposed Podium



6.7 ALTERNATE SCHEME

DESIGN CHARACTERISTICS

- The total building height is 27 storeys.
- The tower has a north-south orientation to maximise solar access to apartments
- The tower is setback a minimum 3 metres (as per the CBD Strategy) from the podium and 12 metres from the western boundary.
- The tower form is articulated for visual interest and to meet the requirements of the ADG (in particular solar access and natural ventilation).
- The tower floor plate GFA is 840sqm, or approximately 20% greater than the maximum GFA identified in the CBD Strategy (i.e. 700sqm). This equates to approximately 9 units per level, which is within the ADG range of 8-12 apartments.
- The first level of apartments have access to private courtyards on the podium rooftop. The remainder of the podium rooftop and tower rooftop are dedicated to communal open space. Refer to *Landscape Concept Report* for further detail.

Table 10 Alternate Scheme Development Summary

USE	# STOREYS	MAX. HEIGHT	GFA	MAX. FSR	RESI. YIELD
Podium	2	10m	4,219	-	-
Residential Tower	25	77.5m	21,000	-	250
Total	27	90m (RL 189.5)	25,219	6.0	250

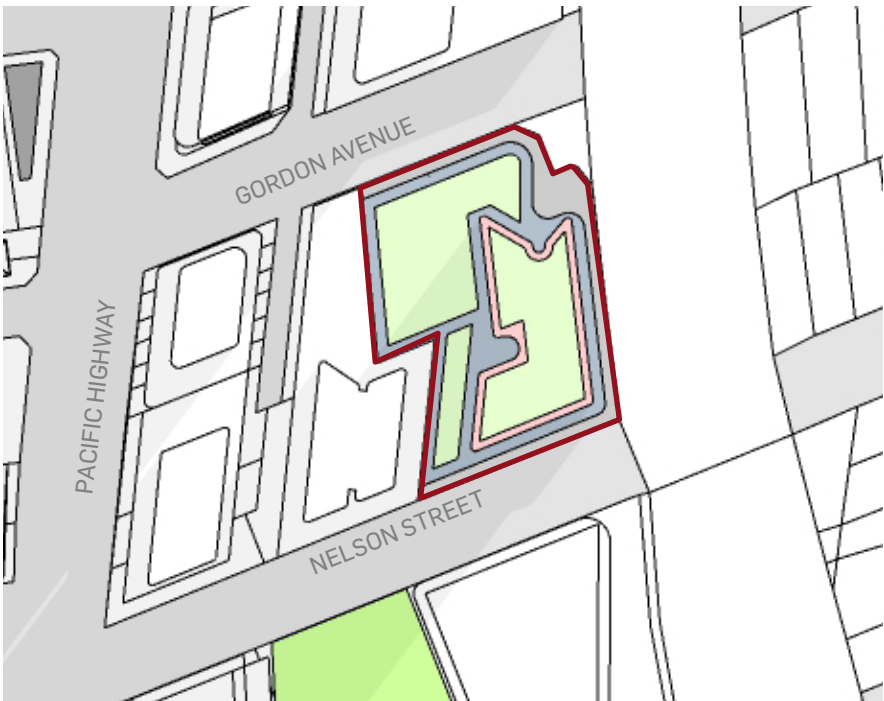


Figure 43 Alternate Scheme Plan View

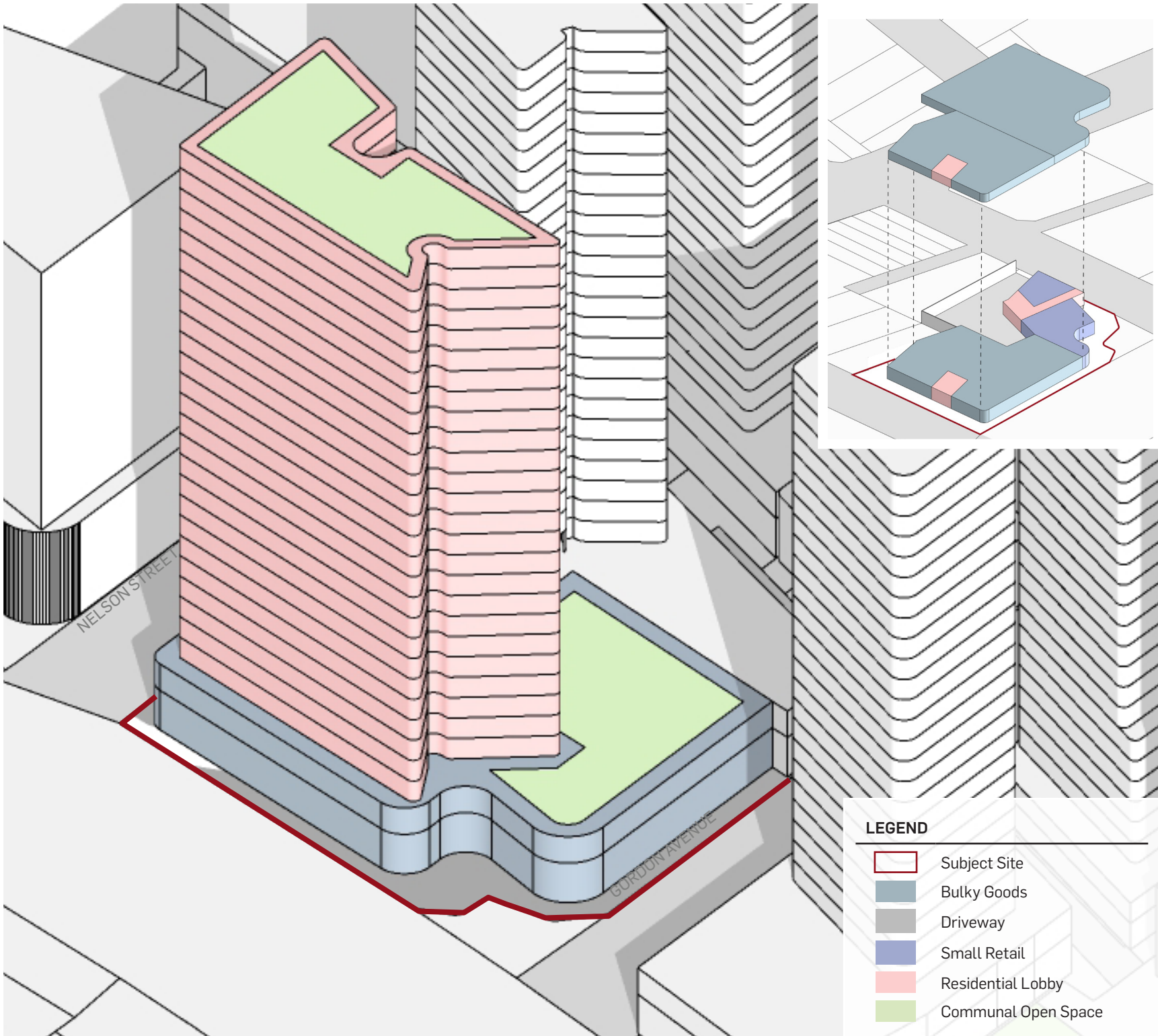
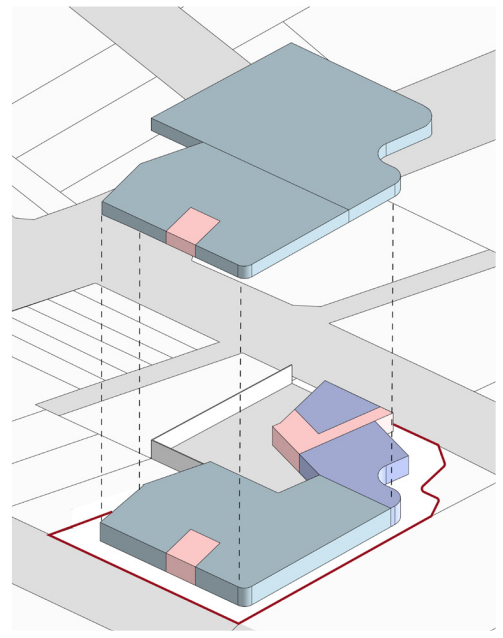


Figure 44 Alternate Scheme 3D View

Figure 45 Proposed Podium



7.0 ANALYSIS OF SCHEMES

The following section analyses overshadowing impacts of the potential tower schemes on the surrounding context between 9 am and 3 pm on the 21st of June (mid-winter) in accordance with requirements of the ADG.

KEY OBSERVATIONS

- The proposed towers are predominately north-south orientated with slender forms to create relatively fast moving shadows.
- Sites to the immediate south on Nelson Street will be the most impacted by proposed development, noting these are within the CBD Strategy area as well. Fast moving shadows significantly affect these sites between 9am - 11am with limited impacts occurring to the north-eastern corner after this. The ADG solar amenity performance of future schemes on these sites will be subject to site specific investigation, however we note that solar amenity to the sites are possible between the hours of 12pm-3pm which exceeds the two hour requirement. We note a key insights is the potential to relocate the future park to the north east corner of the block to offer the most beneficial solar access, as well as potentially improve visual and physical connectivity from the existing shared link alongside the railway.
- From 2pm onwards the proposal on the subject site casts shadows over the conservation area to the eastern side of the railway. However these locations receive at least 3 hours of solar access during the morning and early afternoon.
- Solar amenity outcomes for future residential towers to the west of the subject site will be subject to site specific investigations.

INSIGHT

The shadow impacts of both schemes is in keeping with the anticipated uplift identified in the CBD Strategy. The key differences between the two schemes are:

- Generally both schemes result in slender, fast moving shadows.
- At 9am the single tower scheme casts a slightly longer and consolidated shadow while the two tower scheme casts two shadows with sunlight between them.
- There is little difference in the shadows cast between the two schemes from 10am-12 pm.
- From 1pm-3pm both schemes cast a consolidated shadow with the two tower scheme being shorter in length.
- Compared to the Alternate Scheme, the Reference Scheme creates marginally less overshadowing in the morning and afternoon, being approximately less than 20% overshadowing at 9am and 3pm.

7.1 SHADOW IMPACTS

ALTERNATE SCHEME - SINGLE TOWER



9 AM



10 AM



11 AM

REFERENCE SCHEME - TWO TOWER



9 AM



10 AM



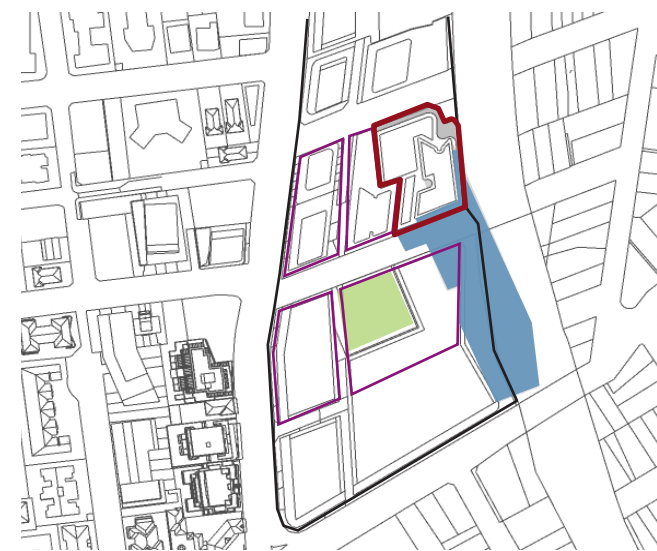
11 AM

LEGEND

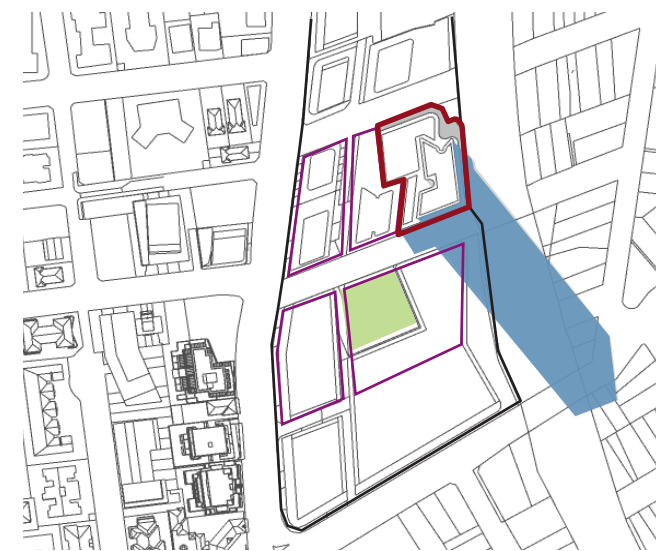
- Site boundary
- Chatswood Town Centre Study Boundary
- Shadows cast by Reference Scheme
- Shadows cast by Alternate Scheme
- Potential future residential development that get less than 2 hours of sunlight
- Public Open Space



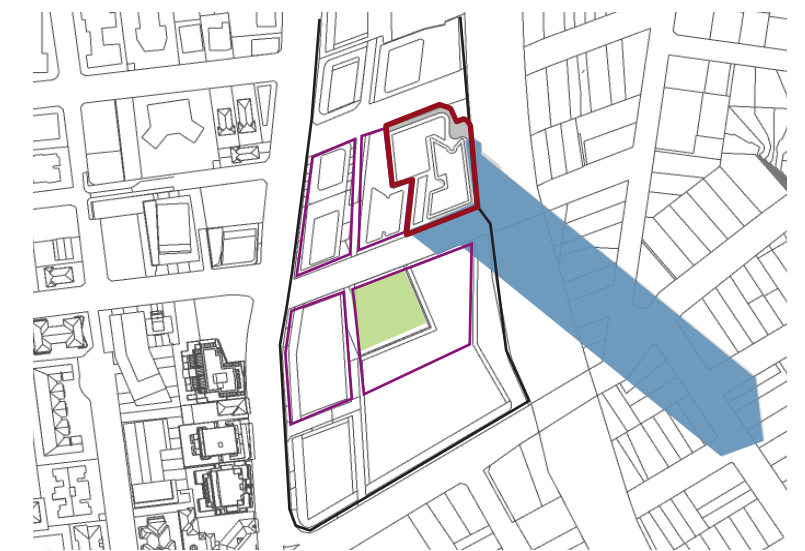
12 PM



1 PM



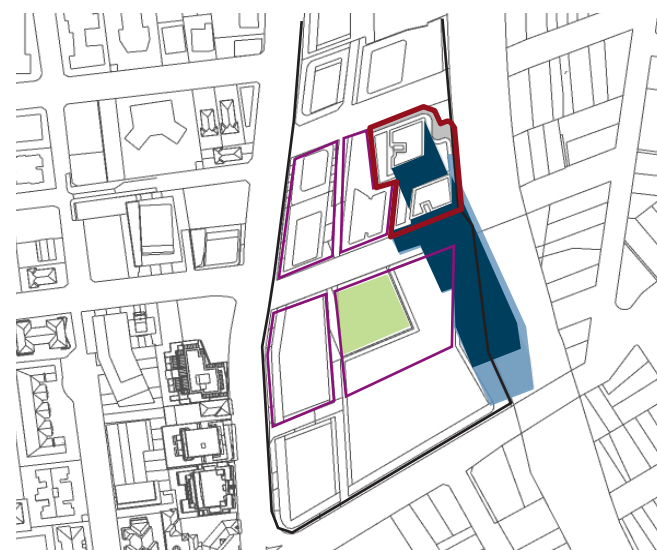
2 PM



3 PM



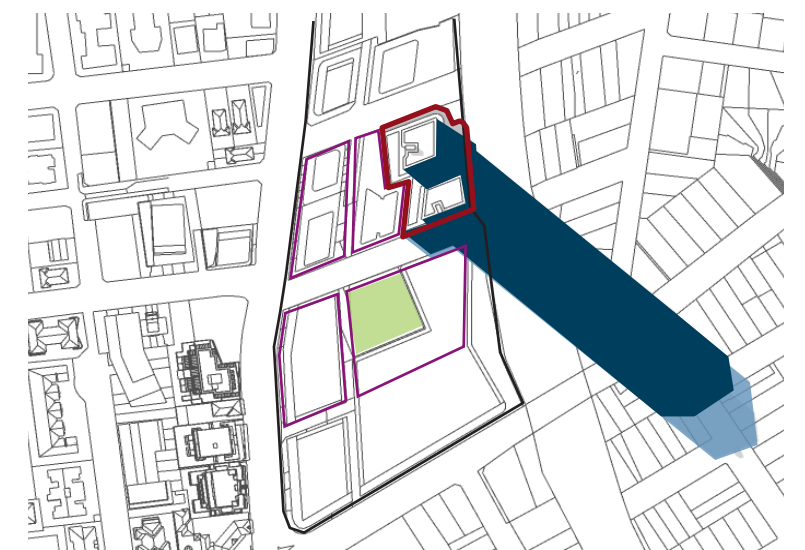
12 PM



1 PM



2 PM



3 PM

7.2 SOLAR ACCESS TO COMMUNAL OPEN SPACE

The ADG stipulates the following requirements for Communal Open Space:

- Communal open space has a minimum area equal to 25% of the site, i.e. 1055 sqm for the subject site.
- Development achieves a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9 am and 3 pm on 21 June (mid winter).

Both the Reference and Alternate Schemes have communal landscaped gardens to the podium and tower rooftop levels that significantly exceed the minimum area of 1,055sqm (or 25% of the site). In addition to this over 50% of these communal areas achieve 2 hours of solar access in mid-winter. We note that the single tower scheme achieves 2 or more hours of solar access to 70% of the communal open space.

REFERENCE SCHEME

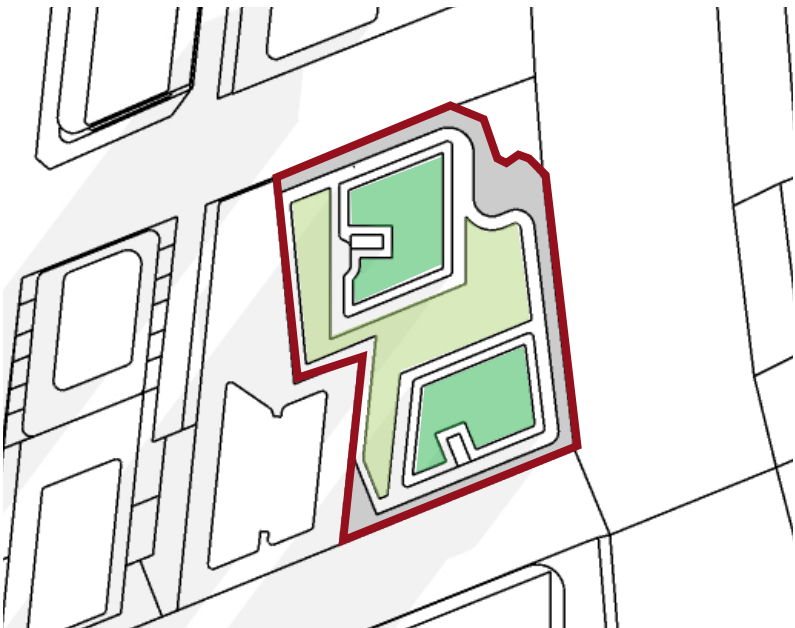
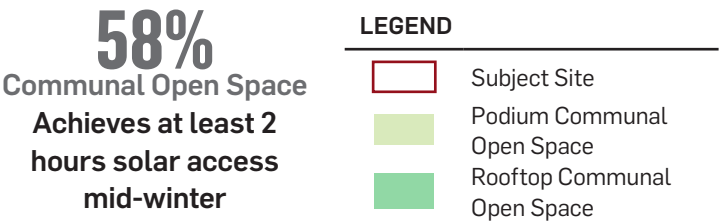


Table 11 Reference Scheme-Communal Open Space Area

USE	AREA (SQM)	% OF SITE AREA
Minimum Requirement ADG	1,055	25%
Podium	921	-
Tower A	436	-
Tower B	406	-
Total Communal Open Space	1,763	42%



ALTERNATE SCHEME

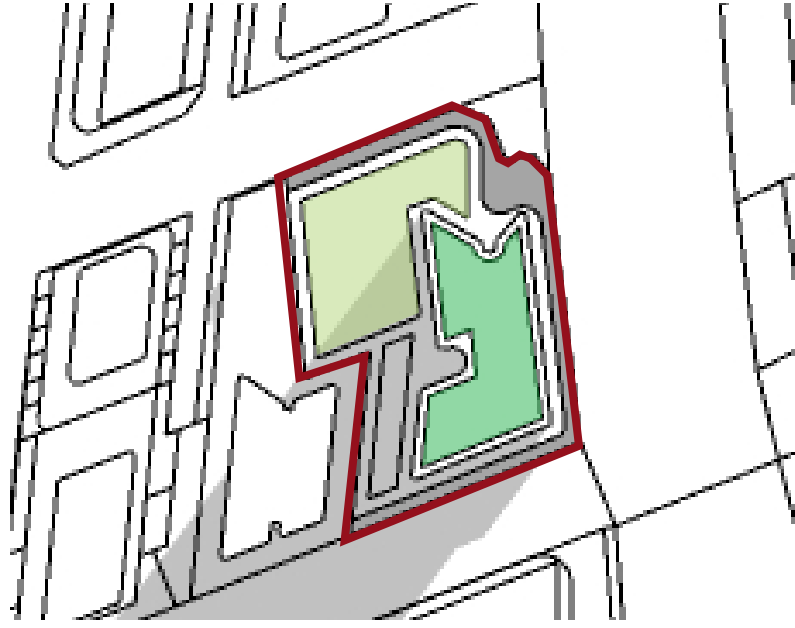
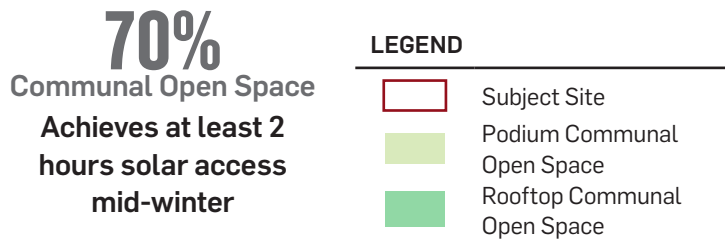


Table 12 Alternate Scheme -Communal Open Space Area

USE	AREA (SQM)	% OF SITE AREA
Minimum Requirement ADG	1,055	25%
Podium	1,190	-
Tower	850	-
Total Communal Open Space	2,040	48%



7.3 SOLAR ACCESS TO LIVING ROOMS AND PRIVATE OPEN SPACE

The ADG stipulates the following requirements for Solar Access for Living Areas and Private Open Space:

- Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter.
- A maximum of 15% of apartments receive no direct sunlight between 9am and 3pm in mid winter.

Testing of indicative floorplate layouts demonstrated both schemes meet the requirements of ADG in terms of solar amenity to apartments with the Reference Scheme resulting in an overall better performance as outlined below:

Reference Scheme:

- Tower A: 87.5% of apartments have living rooms and private open spaces that receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter.
- Tower B: 64.9% of apartments have living rooms and private open spaces that receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter.
- Overall Total: 77.5% of apartments have living rooms and private open spaces that receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter. As a total, the two towers exceed the minimum standard of 70%.
- Less than 15% of apartments receive no direct sunlight between 9am and 3pm in mid winter.

Alternate Scheme:

- 70% of apartments have living rooms and private open spaces that receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter.
- Less than 15% of apartments receive no direct sunlight between 9am and 3pm in mid winter.

REFERENCE SCHEME

77.5%

Of apartments across the two towers achieve at least 2 hours solar access in mid-winter.

TOWER A LEVEL 2 - 20
TOWER B LEVEL 2 - 15



TOWER A LEVEL 21 - 26
TOWER B LEVEL 16 - 21



Table 13 Reference Scheme - Solar Access to Residential Units

		ACHIEVES >=2 HOURS	% OF TOTAL
TOWER A	Level 2 - 19	90	
	Level 20	6	
	Level 21 - 26	30	
	SUB-TOTAL	126	87.5%
TOWER B	Level 2 - 15	56	
	Level 16-21	18	
	SUB-TOTAL	74	64.9%
	TOTAL	200	77.5%

LEGEND

- Subject Site
- Solar Access (>=2 H)
- 1 Bed
- 2 Bed
- 3 Bed

ALTERNATE SCHEME

70%

Of apartments achieve at least 2 hours solar access in mid-winter.

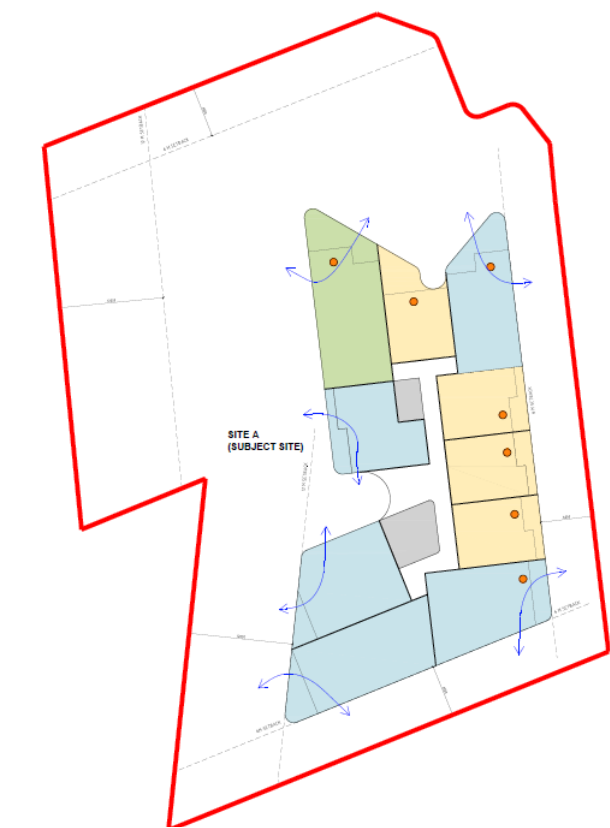


Table 14 Alternate Scheme - Solar Access to Residential Units

		ACHIEVES >=2 HOURS	% OF TOTAL
Level 2 - 26		7 apartments per floor	
TOTAL		175	70%

7.4 VISUAL CONTEXT

OVERVIEW

The two schemes were compared from a visual change perspective based on three key vantage points. A detailed assessment of these three views are captured in the Visual Impact Assessment Report.

The three viewpoints are located to the north and east of the site where the future development is most visible from a distance across the rail corridor. Views to the south and west of the site are of less importance as the proposal will be masked by future buildings in the foreground.

BUILDING HEIGHT STRATEGY

The recommended height map in the CBD Strategy shows a transition in building height at an overall precinct-wide scale to southern and eastern fringes. This means the edges of the CBD will be clearly defined through stepped change in building height that positively contributes to the identification of the CBD urban form.

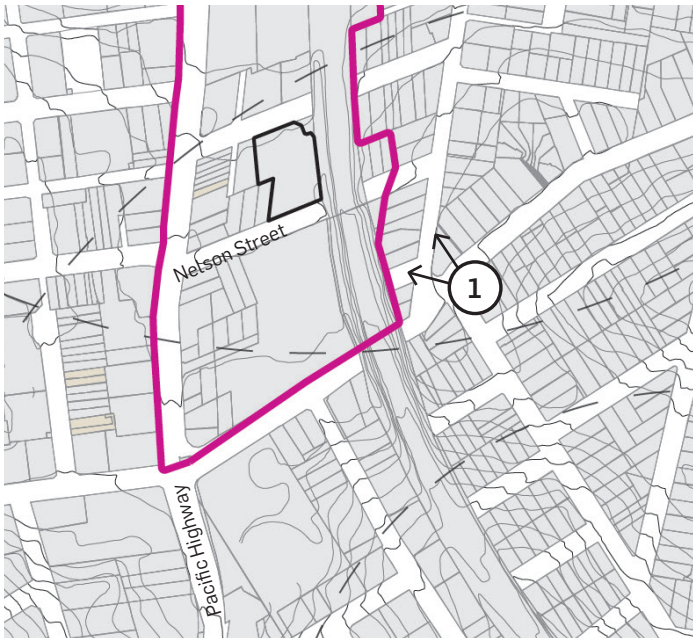
While the overall building height strategy for the CBD provides for flexibility, there is also risk that future towers within the bulk of the CBD core will maximise height controls (i.e. 90 meters or RL246.8) and create a flat and undefined skyline that lacks distinction and form.

With this in mind, the two towers in the Reference Scheme intentionally distributes height to achieve a 'stepped' building profile that adds variation of height and visual interest to the future CBD skyline. Variation in the future skyline is an important consideration for providing visual identity to Chatswood's urban form.

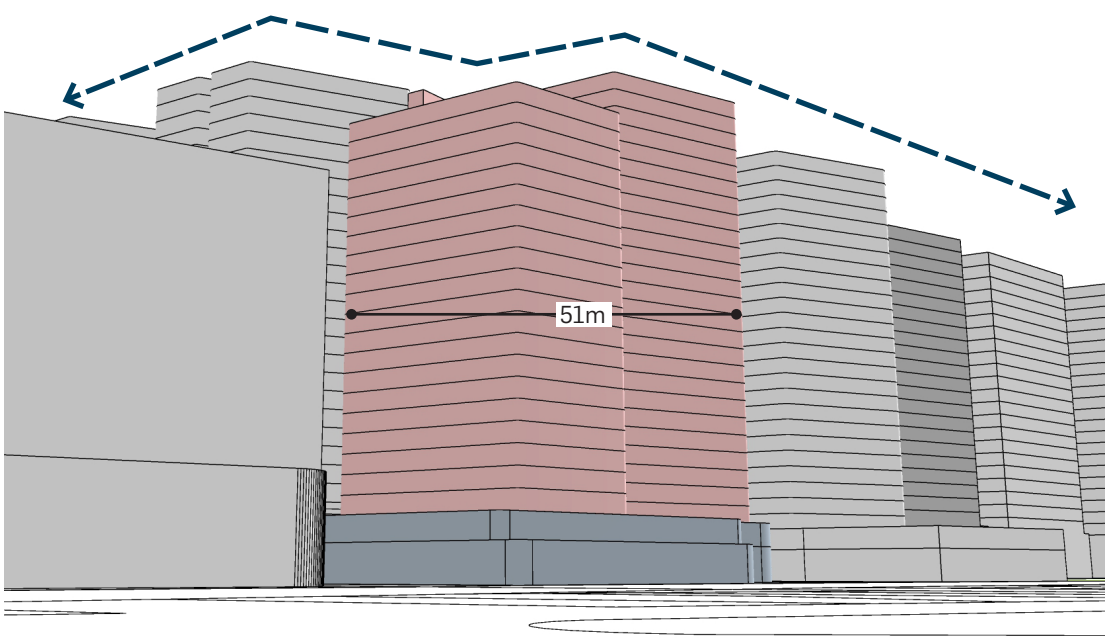
BULK AND SCALE

Views to the west (refer to View 1 and 2) highlight that the Reference Scheme with two slender towers of varying height reduces the visual bulk and scale of the proposal compared to the larger single tower option. In contrast, View 3 to the north highlights that the single tower appears considerably more slender and with less visual impact framed by the sky. From the north, the two tower option creates a "wider" building mass however overall the two tower forms provide more articulation.

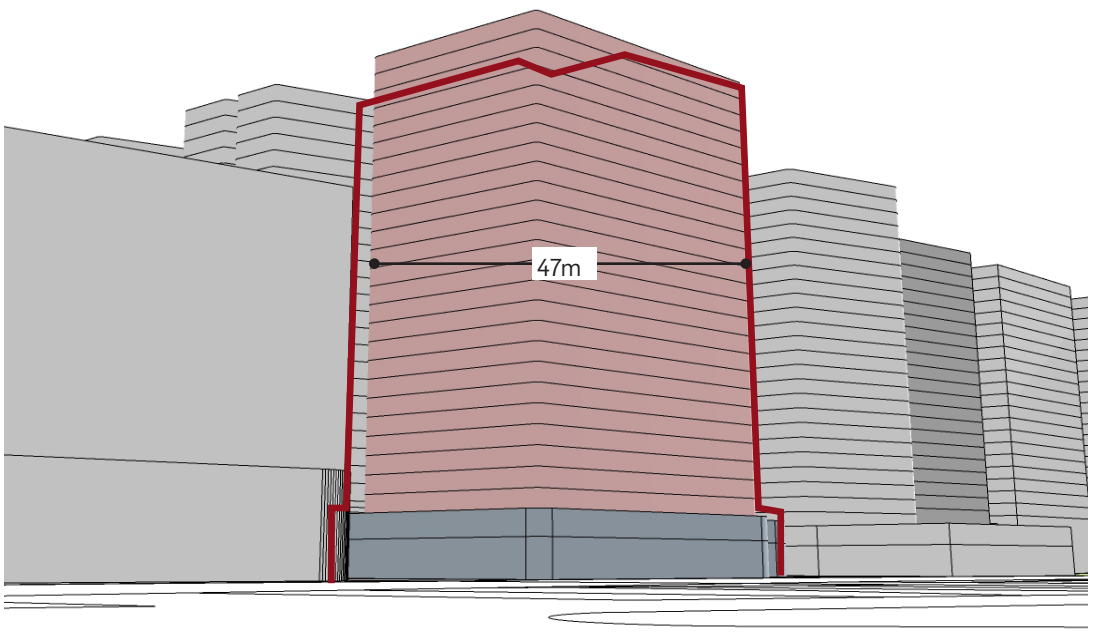
VIEW 1



Key Map



Reference Scheme- View from SE Corner - Mowbray Road and Elizabeth Street



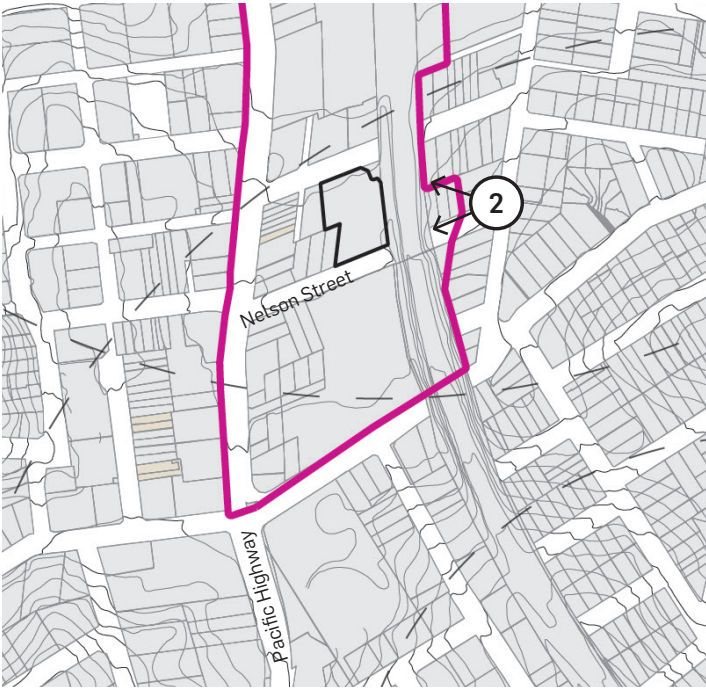
Alternate Scheme- View from SE Corner - Mowbray Road and Elizabeth Street

LEGEND

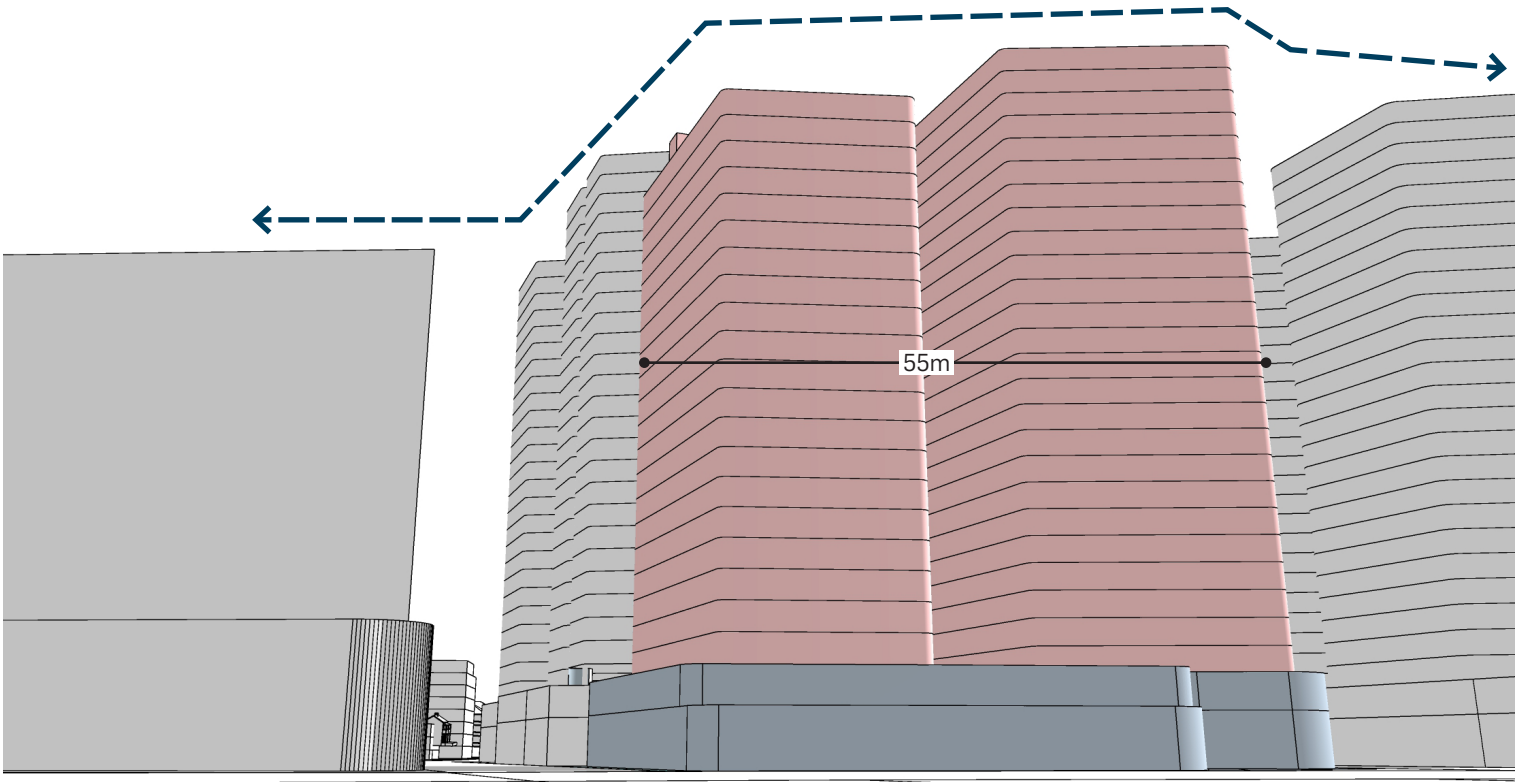
Reference Scheme building outline

Possible 'stepped' skyline profile

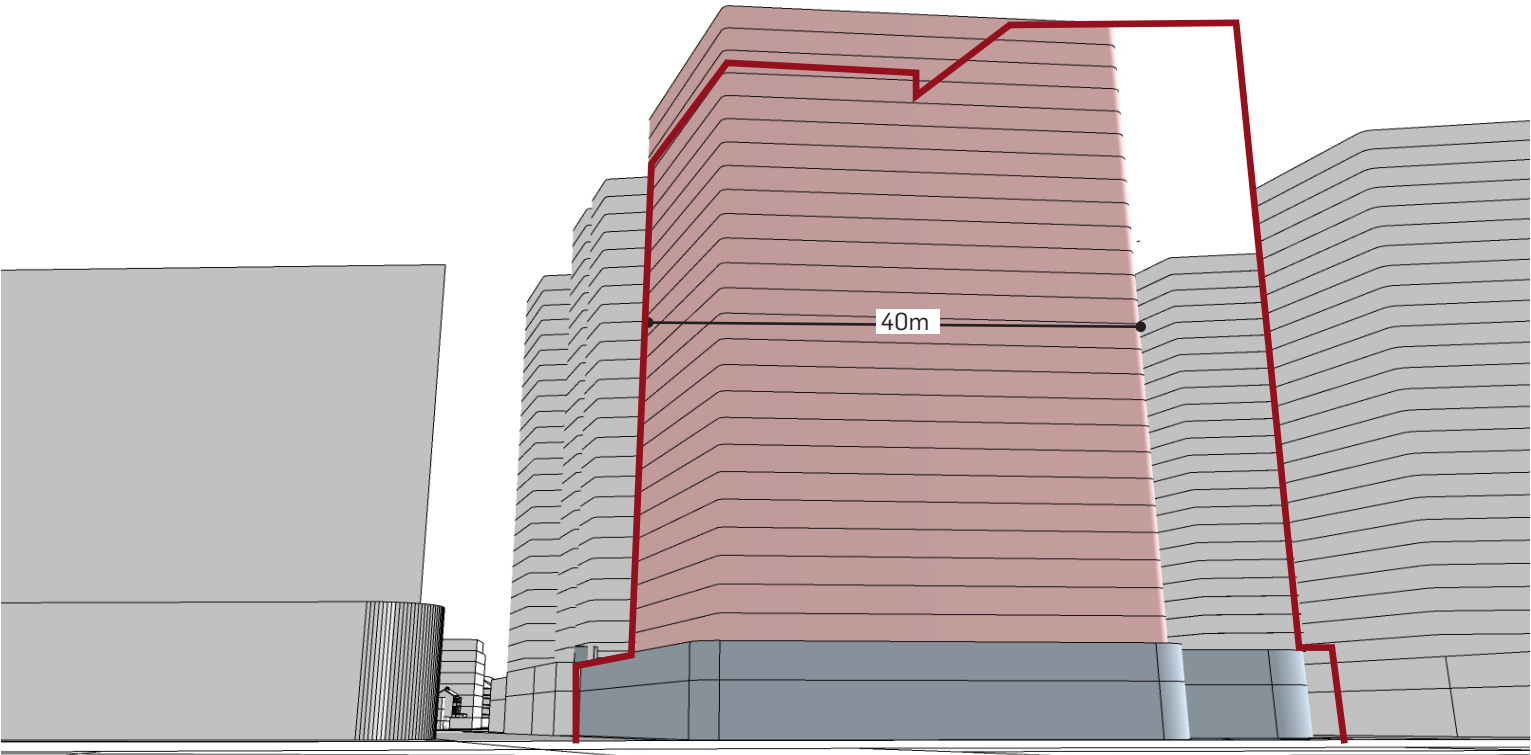
VIEW 2



Key Map



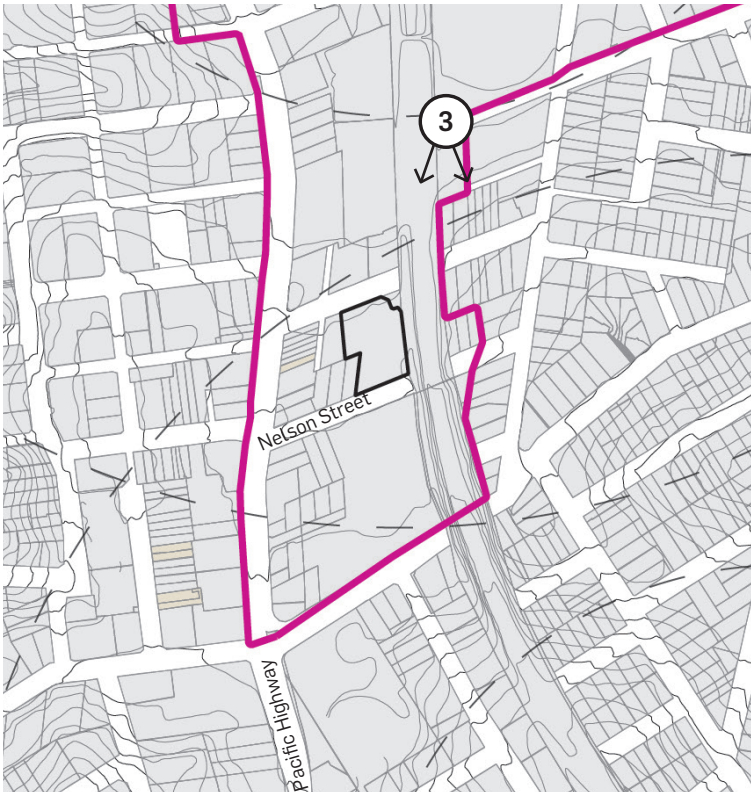
Reference Scheme- View from east end Nelson Street / Berkeley Court



Alternate Scheme- View from east end Nelson Street / Berkeley Court

- LEGEND
- Reference Scheme building outline
 - Possible 'stepped' skyline profile

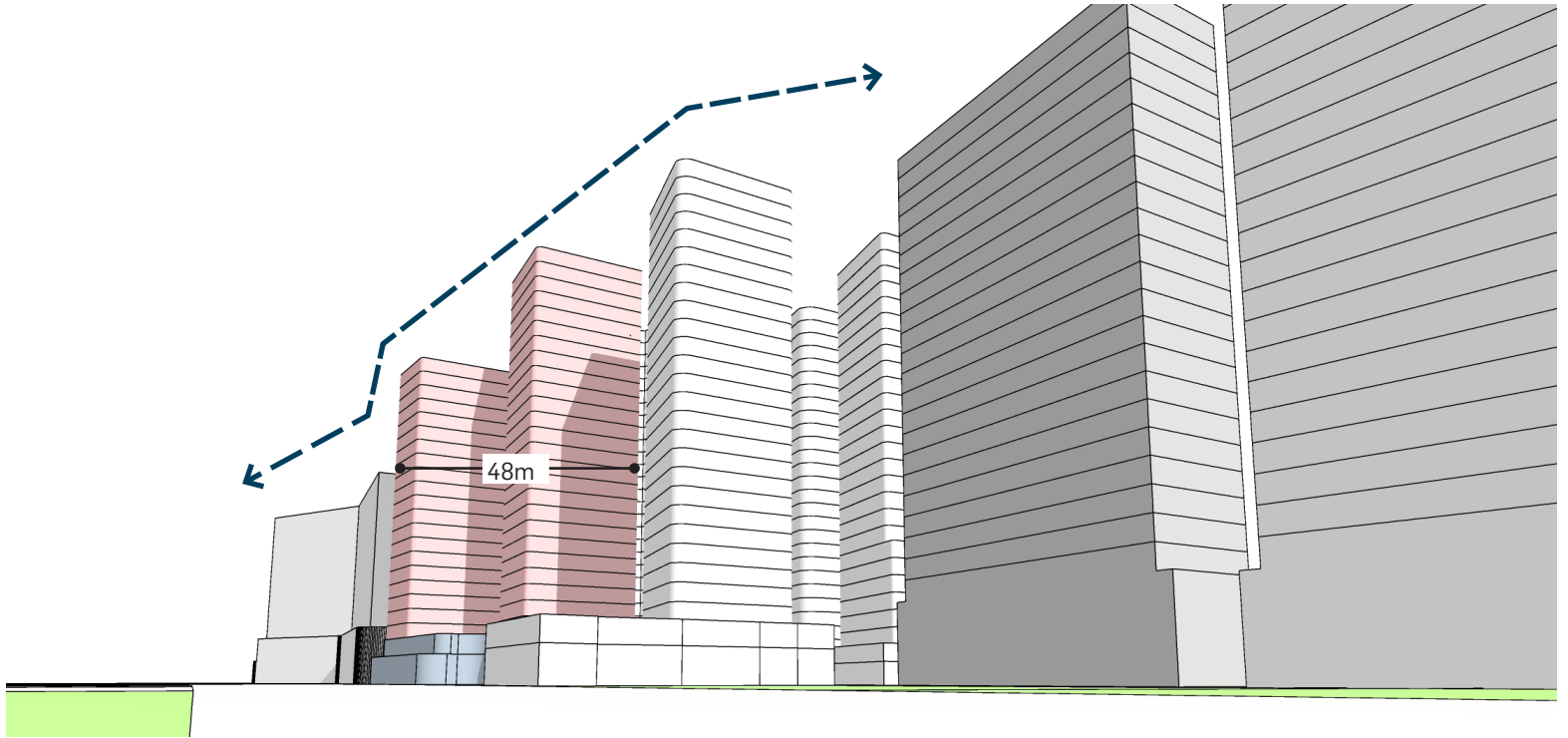
VIEW 3



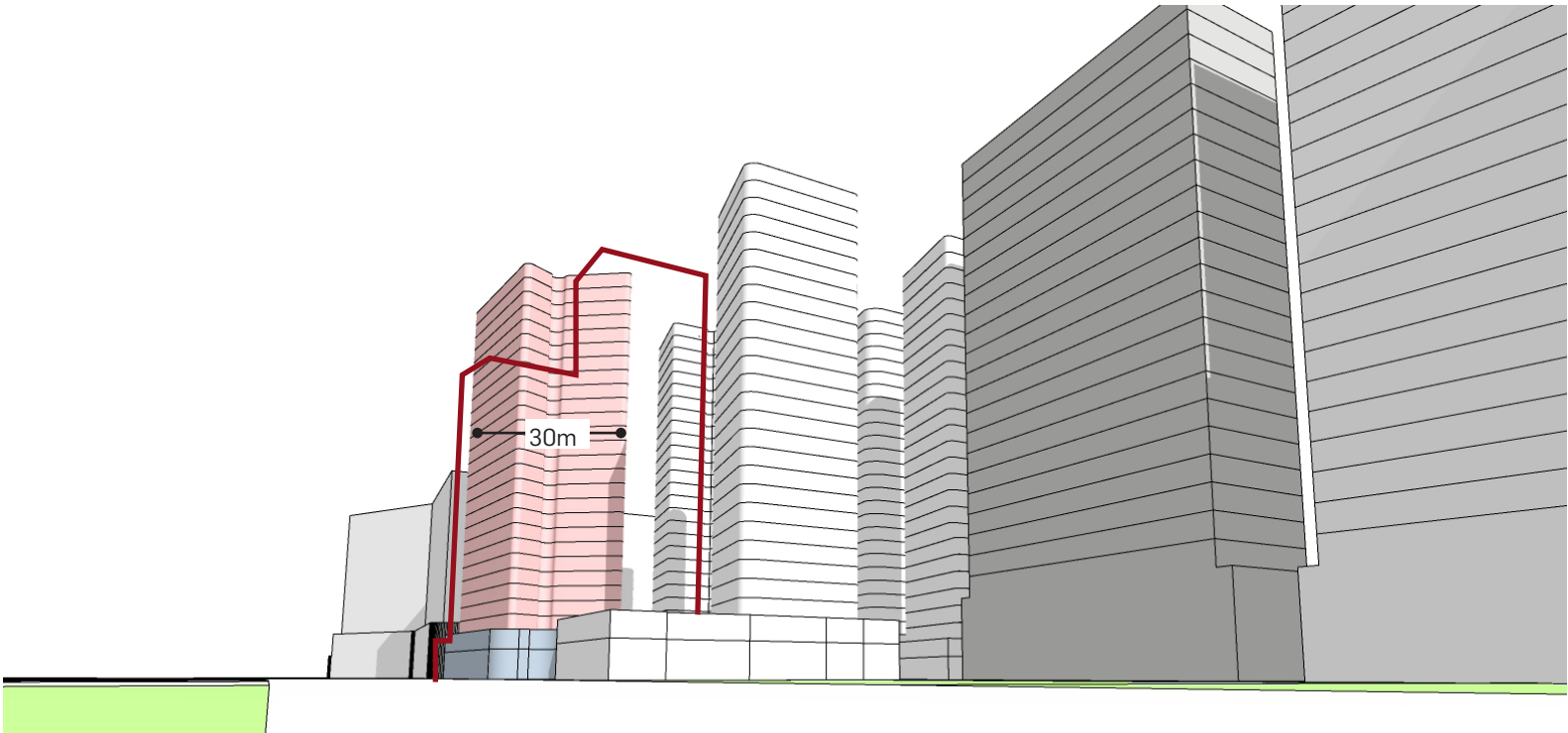
Key Map

LEGEND

- Reference Scheme building outline
- Possible 'stepped' skyline profile



Reference Scheme- View Chatswood Park

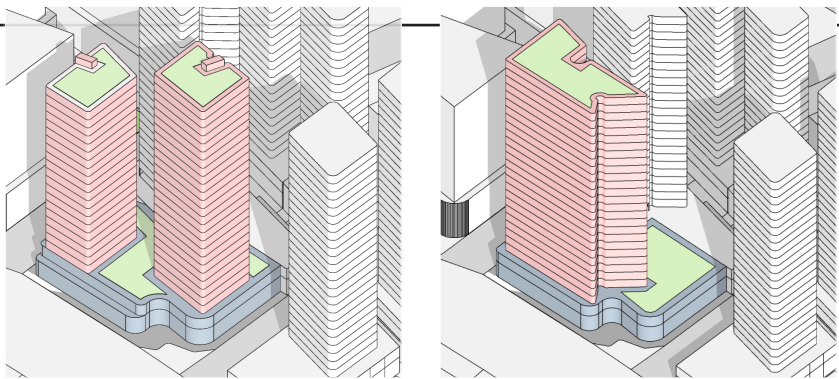


Alternate Scheme- View Chatswood Park

7.5 SCHEME COMPARISON

The table opposite summarises the analysis between the two schemes based on requirements of the Chatswood CBD Strategy and ADG.

Council Pre- and Post Lodgement discussions and correspondence have identified that the outcomes of the Reference Scheme is considered to more closely reflect the desired tower skyline profile and massing outcomes identified within Council's CBD Strategy.



Criteria/Requirements		REFERENCE SCHEME	ALTERNATE SCHEME	Preferred Outcome
CBD Strategy	Building height - maximum 90m	Tower A - 74.5m (22 Storeys) Tower B - 90m (27 Storeys)	Tower A - 90m (27 Storeys)	Reference Scheme - results in more interesting and varied CBD skyline.
	FSR - maximum 6:1	5.96:1	6:1	Both
	Tower floor plate - max.700sqm GFA	555 & 540 sqm	840 sqm	Reference Scheme - Floor plates are within CBD Strategy requirements
	Basement car parking and servicing	Basement car parking, servicing and loading dock	Basement car parking, servicing and loading dock	Both
ADG	Preliminary yield	258 Units - tower floor plates accommodate diversity in unit sizes and flexibility in layouts between different floors	250 units - tower floorplate accommodate diversity in unit sizes however limits flexibility in layouts between different floors	Reference Scheme - accommodates greater flexibility and diversity
	Apartment Mix	Tower A - 31% (1b): 61% (2b): 8% (3b) Tower B - 31% (1b): 59% (2b): 11% (3b)	Tower A - 40% (1b): 50% (2b): 10% (3b)	Comparable across the two scheme
	Development feasibility	6 units per floor plate	10 units per floor plate	Both - however note that development feasibility of Reference Scheme may be more challenging due to smaller floor plates
	Residential Units - solar access	Overall total 77.5%	70%	Reference Scheme - has greater number of apartments meeting solar amenity requirements
	Communal open space - min. 25%	1,763 sqm (or 42%)	2,040 sqm (or 48%)	Both - exceed requirement of 25% with small percentage increase in Alternate Scheme.
	Communal open space area solar access - min. 50%	Approx. 58%	Approx. 70%	Both - noting that the Alternate Scheme realises 70% of communal open space receiving 2 or more hours of solar access.
	Neighbouring residential solar access	Shorter shadow with sunlight between towers at 9am. Shorter shadow between 1pm-3pm.	Longer consolidated shadow at 9am. Longer shadow between 1pm-3pm.	Reference Scheme - 20% reduction in shadow at 9am and 3pm.
	Visual bulk and massing	Two slender offset towers with variation in height.	Single consolidated tower form	Reference Scheme - Overall tower result in a taller, slimmer bulk, definition between buildings and greater variation in skyline

8.0 RECOMMENDATION

In summary this report presents a supportable two-tower Reference Scheme that demonstrates the ability for this site to meet and deliver on the recommendations provided in the CBD Strategy, thus meeting both strategic and site-specific merit. The Reference Scheme provides benefit through the following means:

- Consistency with the broader strategic vision for Chatswood CBD through meeting all of the requirements identified in the CBD Strategy;
- Meets the key requirements of the ADG to ensure high quality apartment living with sufficient amenity can be provided, including communal open space provision and solar amenity access to living rooms and private open spaces;
- Enhances the landscape character by retaining streets trees, introducing green podium spaces, and enhancing both the embellishment and quantum of public domain along the eastern frontage to the shared path and existing pocket park;
- Promotes a vibrant, safe and inclusive development through a mix of non-residential uses within the podium including active frontages and facilitating passive surveillance;
- Improves pedestrian experience and way-finding by minimising driveway crossovers, integrating outdoor landscaped spaces fronting the public domain, and articulating building facades with legible entry points.
- Overshadowing impacts to neighbouring sites is considered and minimised through stepping of tower forms;
- Visual context is considered to reduce the overall bulk and scale of the development and to positively contribute to a visually dynamic future skyline.

Based on Council Pre- and Post Lodgement discussions and correspondence, the Reference Scheme is considered to more closely reflect the desired tower skyline profile and massing outcomes identified within Council's CBD Strategy. A Site-Specific DCP has been prepared for the site in accordance with the Reference Scheme.

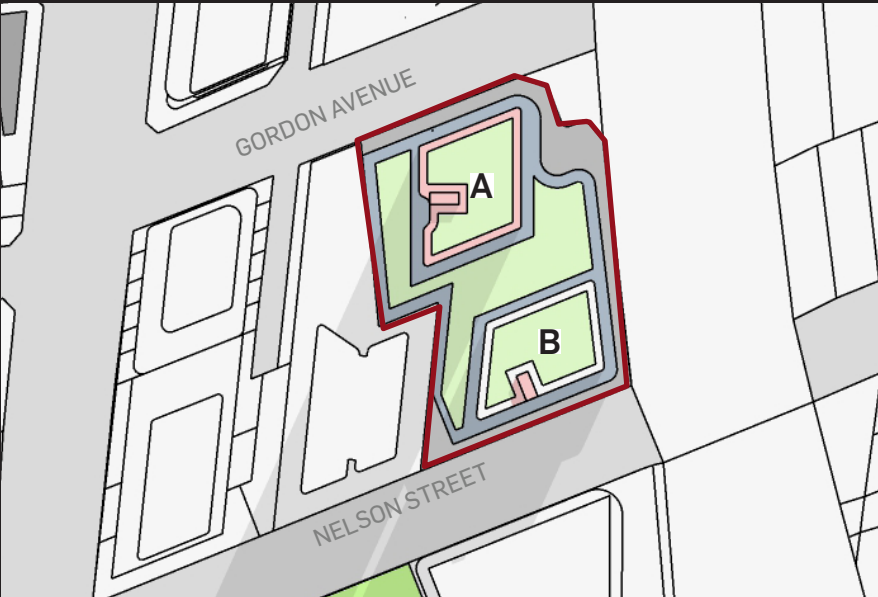
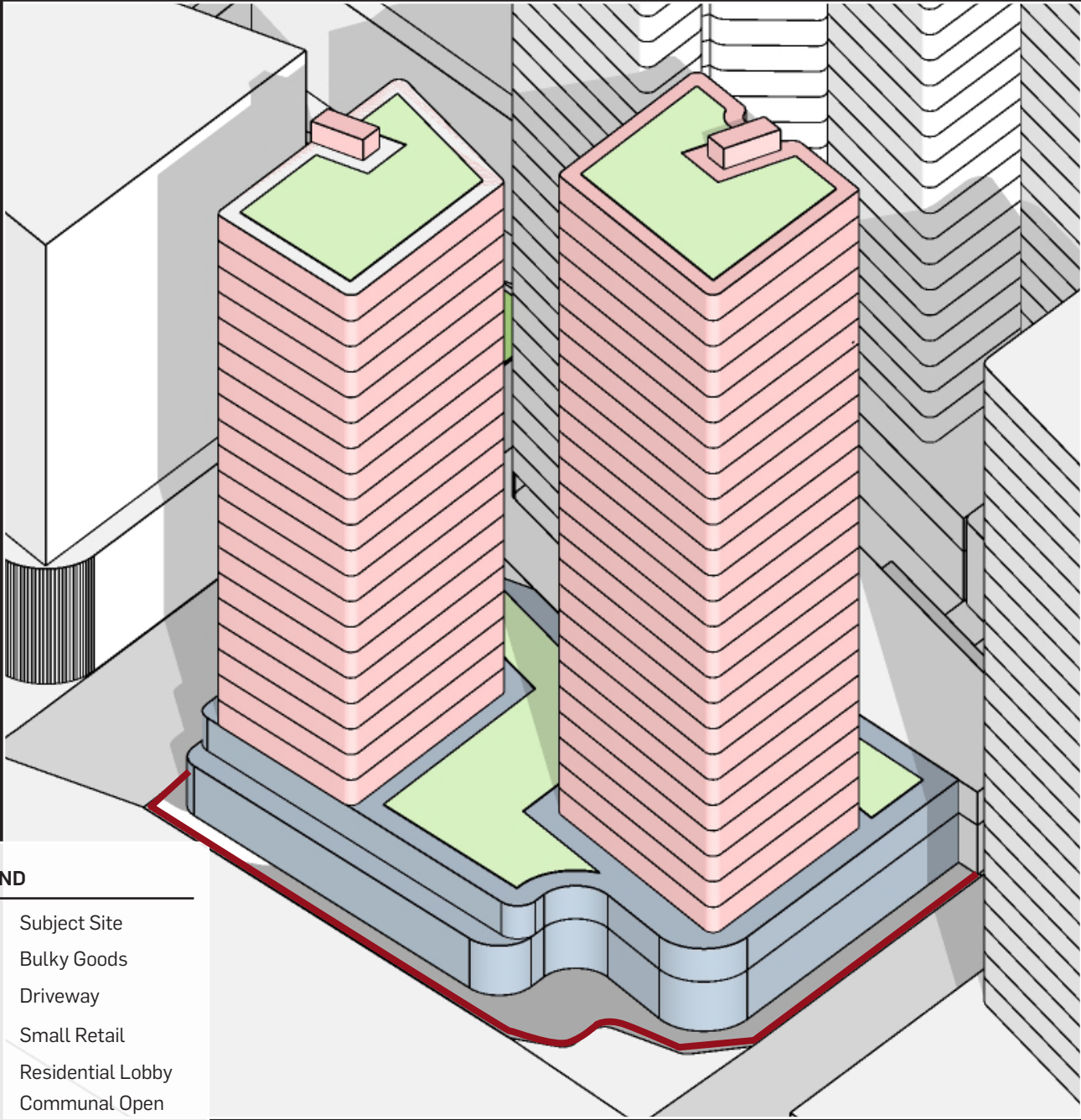


Figure 46 Reference Scheme Plan View

Table 15 Reference Scheme Development Summary

USE	# STOREYS	MAX. HEIGHT	GFA	FSR	RESI. YIELD
Podium	2	10m	4,219	-	-
Residential Tower - A	25	77.5m	11,649	-	144
Residential Tower - B	20	62m	9,279	-	114
Total Residential	-	-	20,928	-	258
Total	27 & 22	90m (RL 189.5)	25,147	5.96	258



LEGEND

Subject Site

Bulky Goods

Driveway

Small Retail

Residential Lobby

Communal Open Space

Figure 47 Reference Scheme 3D View

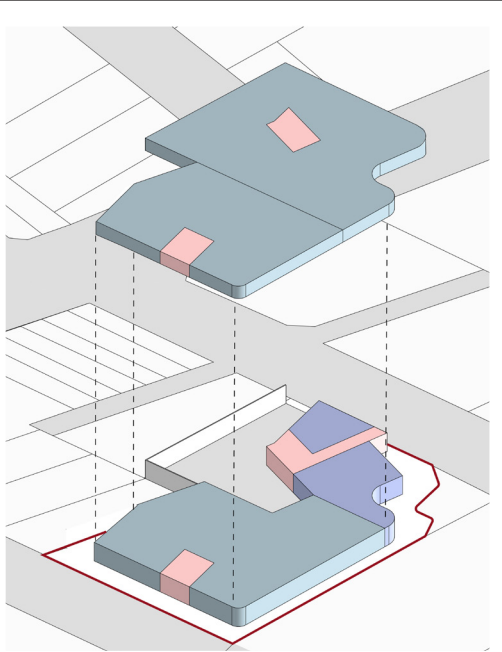


Figure 48 Reference Scheme Podium Arrangement

DESIGN CHARACTERISTICS

- The total building height of the two towers are 27 and 22 storeys. This variation in height is intended to create visual interest in Chatswood's future CBD skyline with transition to the south.
- The two towers are 18 metres apart assuming a habitable to non-habitable interface (between Tower A and B), in line with the requirements of the ADG.
- The towers are setback a minimum 3 metres from the podium (as per the CBD Strategy) and 12 metres from the western boundary.
- The facade of the tower forms are articulated for visual interest and to meet the requirements of the ADG (in particular solar access and natural ventilation).
- The tower floor plates have a GFA of 555sqm and 540sqm, this equates to approximately 6 units per floor plate.
- The first level of apartments have access to private courtyards on the podium rooftop. The remainder of the podium rooftop as well as the tower rooftops are dedicated to communal open space. Refer to *Landscape Concept Report* for further detail.

8.2 REFERENCE SCHEME CONSISTENCY WITH THE CBD STRATEGY

The table below provides a checklist of outcomes for the Reference Scheme against the CBD Strategy's 'Key Elements of Future LEP and DCP Planning Controls'. The Reference Scheme is consistent with all relevant outcomes noting some items are subject to detailed design development as part of a future DA for the site.

Table 16 Key Elements of Future LEP and DCP Planning Controls Checklist		
KEY ELEMENT #	KEY ELEMENT DESCRIPTION SUMMARY	REFERENCE SCHEME CONSISTENCY
1	▪ Map: Chatswood CBD boundary	✓
2	▪ Map: Recommended land use	✓
3	▪ The existing DCP limits on office and retail use in parts of the Commercial Core to be removed	N/A
4	▪ Serviced apartments to be removed as a permissible use from the B3 Commercial Core zone	N/A
5	▪ Planning Agreements will be negotiated to fund public domain improvements.	Coordinated as part of future DA
6	▪ A new Planning Agreements Policy will apply and be linked to a contributions scheme that will provide the public and social infrastructure in the Chatswood CBD	Coordinated as part of future DA
7	▪ All redevelopments in the Chatswood CBD should contribute to public art in accordance with Council's Public Art Policy	Coordinated as part of future DA
8	▪ Design excellence is to be required for all developments based on the following process - competitive designs for developments over 35m high.	Coordinated as part of future DA
9	▪ Achievement of design excellence will include achievement of higher building sustainability standards	Coordinated as part of future DA
10	▪ The Architects for design excellence schemes should be maintained through the development application process and can only be substituted with written agreement of Council	Coordinated as part of future DA
11	▪ Map: Existing FSR under WLEP 2012	N/A
12	▪ Minimum site area of 1200sqm for mixed use development in the B4 Mixed Use zone to achieve maximum FSR as shown in Map with urban design outcomes listed.	✓
13	▪ Map: Recommended FSR	✓
14	▪ Affordable housing is to be provided within the maximum floor space ratio, and throughout a development rather than in a cluster.	Coordinated as part of future DA
15	▪ Where the maximum floor space ratio of 6:1 is achieved, the minimum commercial floor space ratio sought in development in a Mixed Use zone is 1:1.	✓
16	▪ 700sqm GFA for residential towers above Podium within Mixed Use zones.	✓

KEY ELEMENT #	KEY ELEMENT DESCRIPTION SUMMARY	REFERENCE SCHEME CONSISTENCY
17	▪ In pursuit of the goal of slender tower forms, the width of each side of any tower should be minimised to satisfactorily address this objective	✓
18	▪ If there is more than one residential tower on a site, sufficient separation is to be provided in accordance with setbacks required in this Strategy, SEPP 65 and the Apartment Design Guidelines,	✓
19	▪ Map: Recommended sun access protection for public spaces	N/A
20	▪ Map: Recommended building height	✓
21	▪ All structures located at roof top level within the height maximums	✓
22	▪ Map: Recommended links and new open space	✓
23	▪ Any communal open space, with particular regard to roof top level on towers, should be designed to address issues of quality, safety and usability.	✓
24	▪ Public realm or areas accessible by public on private land - is to be designed to respond to context and nearby public domain and should be visible from the street and easily accessible.	✓
25	▪ All roofs up to 30 metres from ground are to be green roofs.	✓
26	▪ A minimum of 20% of the site is to be provided as soft landscaping, which may be located on Ground, Podium and roof top levels or green walls of buildings.	✓
27	▪ Map: Recommended setbacks and street frontages	✓
28	▪ All towers above podiums in B4 Mixed Use zones are to be setback from all boundaries a minimum of 1:20 ratio of the setback to building height.	✓
29	▪ Building separation to neighbouring buildings is to be in accordance with the Apartment Design Guide for residential uses.	✓
30	▪ At ground level, to achieve the vibrant CBD Council desires, buildings are to maximise active frontages.	✓
31	▪ Site Isolation will be discouraged and where unavoidable joined basements and zero-setback podiums should be provided to encourage future efficient sharing of infrastructure.	✓
32	▪ Controls will be applied to ensure the traditional lot pattern along Victoria Ave east is reflected into the future.	N/A
33	▪ Floor space at Ground level is to be maximised, with supporting functions such as car parking, loading, garbage rooms, plant and other services located in Basement levels.	✓
34	▪ Substations are to be provided within buildings, not within the streets, open spaces or setbacks and not facing key active street frontages	Coordinated as part of future DA
35	▪ The CBD Strategy employs a Travel Demand Management approach seeking to modify travel decisions to achieve more desirable transport, social, economic and environmental objectives consistent with Council's Integrated Transport Strategy. In addition, site specific traffic and transport issues are to be addressed.	✓

