Kananook Creek Built Form Review

September 2022

Prepared for

Frankston City

Prepared by
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Quality Assurance

FMAC

Kananook Creek Built Form Review

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Issue	Date	Description	Prepared By	Reviewed By	Project Principal
01	29/08/2022	Draft	TS	MN	MN
02	20/09/2022	Draft Version 2	MN	MN	MN
03	27/09/2022	FInal Version	TS	TS	MN

Acknowledgement of Country

Frankston City Council acknowledges the Bunurong people of the Kulin Nation as the Traditional Custodians of the lands and waters in and around Frankston City, and value and recognise local Aboriginal and Torres Strait Islander cultures, heritage and connection to land as a proud part of a shared identity for Frankston City.

Council pays respect to Elders past and present and recognises their importance in maintaining knowledge, traditions and culture in our community.

Council also respectfully acknowledges the Bunurong Land Council as the Registered Aboriginal Party responsible for managing the Aboriginal cultural heritage of the land and waters where Frankston City Council is situated.

Contents

Introduction & Strategic Context

1.1 Study Overview

The Kananook Creek Built Form Review provides for the testing and development of built form recommendations within Precinct 4 : Waterfront of the Frankston Metropolitan Activity Centre (FMAC). The findings of this report have informed future built form controls contained within the Draft Frankston Metropolitan Activity Centre Structure Plan.

Specifically, the Kananook Creek Built Form Review provides for:

- A review of relevant planning policies and controls, and strategic documents that will influence development within the precinct.
- Analysis of the precinct including topography, key views and interfaces.
- Consideration of existing development within the precinct and current development applications.
- Development and application of design principles to ensure development is site responsive and achieves best practice outcomes.
- Testing of built form scenarios utilising 3D modelling to assess the impact of development on key views.
- Establishing benchmarks for maintaining sunlight to key public spaces and testing the built form implications of these benchmarks.
- Development of built form recommendations which balance the role of the precinct within a Metropolitan Activity Centre with the identified sensitivities and constraints of the precinct.

The assessment is supported by a desktop environmental assessment undertaken by Ecology & Heritage Partners, which seeks to understand the environmental impacts of built form on the ecology of the Kananook Creek. This assessment is included as Appendix A.

View across Kananook Creek to the foreshore reserve

1.2 study area

The study area encompasses Precinct 4 - Waterfront as identified in the FMAC Draft Structure Plan. This precinct is focused on Kananook Creek and the foreshore which are distinctive natural features that contribute to the identity of Frankston. These features will offer a high level of amenity for future residents, workers and visitors.

The majority of sites within the study area run between Nepean Highway and Kananook Creek. Original buildings have a primary frontage to Nepean Highway and have limited engagement with Kananook Creek and the foreshore reserve. The South East Water building is the only recent development in the precinct and provides some engagement to the creek.

The Long Island residential area is a particularly sensitive interface within the precinct. Kananook Creek separates this area from future development site however new development will be visually prominent when viewed from rear gardens.

The foreshore and foreshore reserve are other locations where development within the precinct will be visually prominent.

Figure 1. Study Area

1.3 Key Background Documents

2015 FMAC Structure Plan

The 2015 FMAC Structure Plan provided a number of recommendations that affected the study area. The study area was identified as part of the City Centre Precinct which included objectives to provide for mixed use development and opportunities for outdoor dining.

The built form recommendations for the study area are shown in Figure 2, which sought a maximum preferred building height of 32.0m across all sites with a street wall of 12.0m. Wells Street and Playne Street were identified as locations where sunlight to footpaths should be maintained between 9:00am and 3:00pm at the spring equinox.

The Structure Plan also outlined a number of Built Form Principles that applied to the FMAC. The Principles of particular relevance the study area include:

- **Strengthen the connection to the water** - New development should reflect the bayside location and protect long distance views to the water.
- **Retain solar access to key streets and public spaces** - New development should maintain sunlight to footpaths on the opposite side of the street and adjacent public spaces.
- **Reinforce the 'human scale' of key city centre streets** - New development should avoid visually dominant building forms adjacent to city centre streets and public space.
- **Enhance sensitive interfaces** - New development should respond appropriately to sensitive residential, open space and creek interfaces.
- **Enhance views to the Frankston City Centre** - New development should consider the impact of new development on the city centre skyline from surrounding viewpoints.

Figure 2. Building Heights and Setbacks Plan from the 2015 Structure Plan

Frankston Metropolitan Activity Centre Emerging Ideas Paper, April 2022

The Frankston Metropolitan Activity Centre Structure Plan Emerging Ideas Paper was developed to test a range of preliminary ideas for the future planning and development of the FMAC.

The Paper provided some preliminary built form recommendations for the study area that would be tested further through the development of the Structure Plan. These included 8-12 storey building heights across the study area, two mid-block links, a continuation of the Boulevard at the western edge of the Cheeky Squire site, and solar access and visual bulk considerations to the foreshore and the Long Island residential area.

The Paper provided a strong focus on the revitalisation of the Kananook Creek area. It included Key Direction 7 - Create a thriving Kananook Creek promenade under which 5 emerging ideas were proposed. These included enhancing Kananook Creek Boulevard with a streetscape upgrade, continuing the Kananook Creek Promenade through the Cheeky Squire Site to McCombs Reserve, providing two additional mid-block links between Beach Street and Wells Street and providing more opportunities for engagement with the creek.

Key Direction 8 - Transform the Nepean Highway into an Iconic Boulevard, which also impacts the study area. This recommended an upgrade to Nepean Highway which would provide a higher amenity setting for new development.

Figure 3. Kananook Creek and Nepean Highway Sketch visualisations from the Emerging Ideas Paper

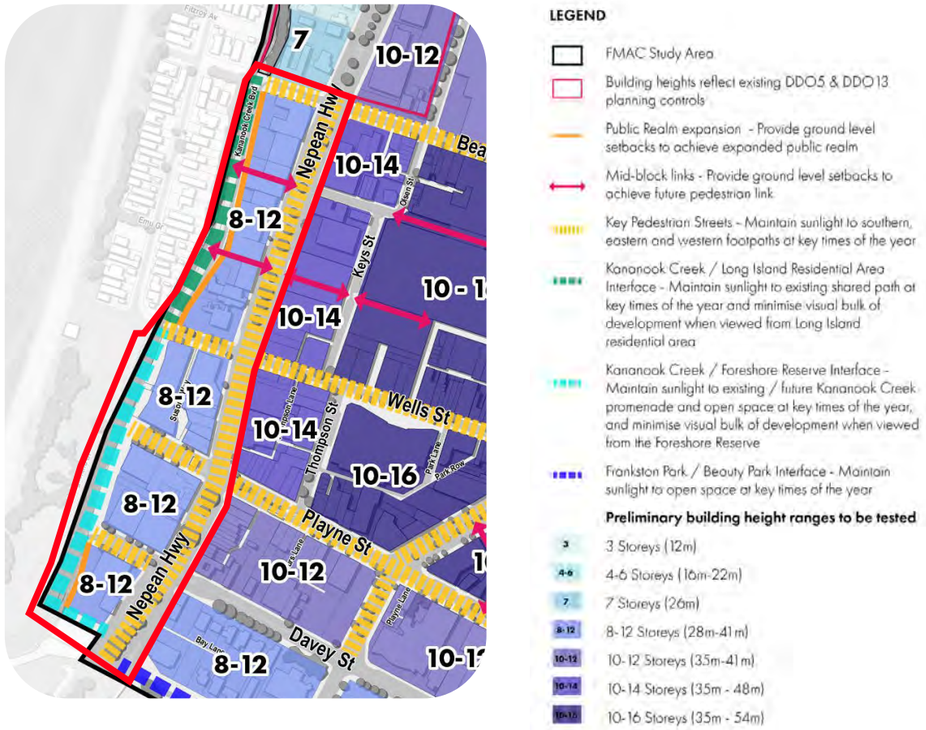


Figure 4. Preliminary Built Form Recommendations from the Emerging Ideas Paper

Kananook Creek Design Principles Draft Report
(December 2021)

The Kananook Creek Design Principles report provides design principles and built form recommendations for development along Kananook Creek Boulevard between Beach Street and Wells Street. This report was developed to provide Council with guidance for assessing development applications in the area.

The report outlined five principles for enhancing the creek. Key principles included:

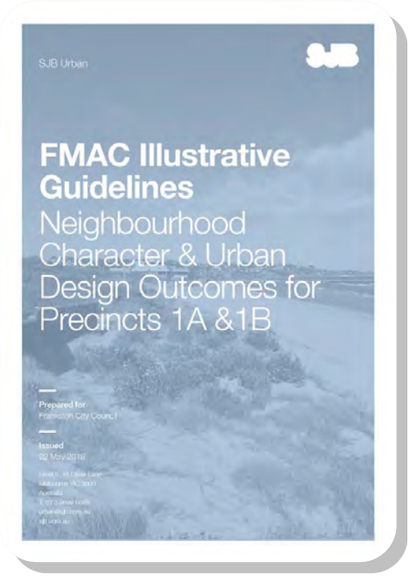
- Principle 1 - Completing the Kananook Creek promenade.
- Principle 2 - Connect the town centre secondary street network with the promenade via an activated and landscaped pedestrian network.
- Principle 3 - Ensure upper levels are setbacks and are spaced to protect views to both the sky and the promenade.
- Principle 4 - Provide a quality and activated public realm to the Nepean Highway interface.
- Principle 5 - Introduce a series of landscaped plazas at the western interface with the promenade.

The Study provided an Integrated Framework Plan and Built Form Guidelines which identified key the recommendations to be delivered through development. Key recommendations included:

- Preferred building heights of 35.0m (10 storeys) between Beach Street and Wells Street.
- Street wall heights of 12.0m (3 storeys) to all frontages.
- Ground level setbacks of 3.0m to Kananook Creek Boulevard to provide for outdoor dining.
- 10m upper level setbacks from the street wall along the Kananook Creek and Nepean Highway frontages.
- Ensuring Kananook Creek is has solar access during the 10:00AM to 2:00PM on the Winter solstice and the eastern footpaths of Nepean Highway is has solar access between 10:00AM and 2:00PM on the Spring equinox.
- Providing 2x 9.0m wide inter-block pedestrian links as shown in Figure 5.
- Providing activated ground level frontages to Kananook Creek, Nepean Highway, Beach Street, Wells Street and the Nepean Highway a minimum of 60% clear glazing.
- Providing primary vehicle access from Nepean Highway and secondary access from Beach and Wells Streets.

Figure 5. Urban Design Framework - Integrated Framework Plan from the Kananook Creek Design Principles Report

FMAC Illustrative Guidelines -
Neighbourhood Character & Urban Design Outcomes for Precincts 1A &1B
(May 2018)



The FMAC Illustrative Guidelines for Precincts 1A and 1B provide best practice urban design outcomes and guidelines for the centre. The built form guidelines relate to active frontages, solar access, interfaces, visual dominance and pedestrian priority among other things. Precinct specific testing and illustrations are also depicted, as well as material suggestions to complement the coastal environment.

The document was adopted by Council in April 2018.

View to Long Island residences from Kananook Creek Boulevard

1.4 Planning Zones and Overlays

Planning Zones

Commercial 1 Zone

The Commercial 1 Zone (C1Z) applies to land north of Wells Street.

The purpose of the C1Z is to create vibrant and mixed use commercial centres and to provide for residential uses at densities complementary to the role and scale of the commercial centre.

As-of-right uses in the C1Z include accommodation, child care, education and exhibition centre, office, place of worship and shop, provided that certain conditions are met. A permit is required for any other use, if it is not prohibited under the zone.

Comprehensive Development Zone - Schedule 2

The Comprehensive Development Zone, Schedule 2 (CDZ2) applies to land south of Wells Street.

The purpose of the CDZ2 is to provide for a range of uses and the development of land in accordance with a comprehensive development plan incorporated into the scheme. The relevant plan under this zone is the Kananook Creek Comprehensive Development Plan, May 1999. This plan seeks to improve the safety and amenity of the foreshore area and to provide for appropriate development that will create business and employment opportunities.

Planning Overlays

Heritage Overlays

Two Heritage Overlays apply to buildings / structures within the study area. HO54 applies to the Comfort Station which is located within the Playne Street road reserve and HO53 applies to the Grimwade Clock Tower which is located within the Nepean Highway Median Strip.

Special Building Overlay

The Special Building Overlay (SBO) applies to a small section of the eastern edge of 510 Nepean Highway. This overlay aims to ensure that the free passage and temporary storage of flood waters is maintained through development.

Parking Overlay - Schedule 1

The Parking Overlay - Schedule 1 (PO1) applies to the entire study area. This Overlay aims to improve car parking provision in the FMAC, reduce the demand for new car parking provision by maintaining and improving existing car parking within the centre, consolidate car parking into large, well located, easily accessible and locatable facilities where possible and to provide for the collection of financial contributions towards the construction of shared car parking facilities.

The overlay outlines car parking rates for a range of land uses.

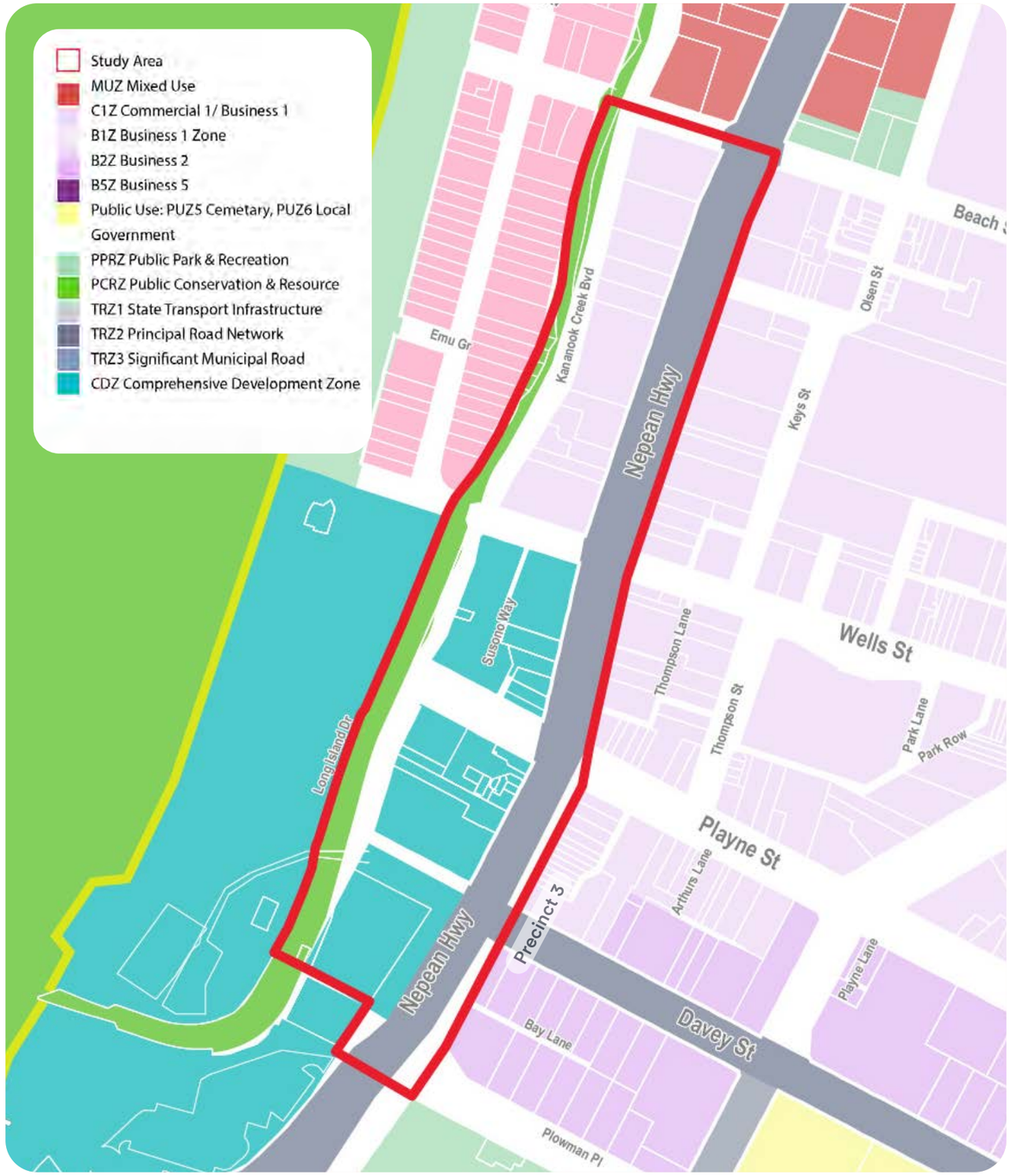


Figure 6. Planning Zones

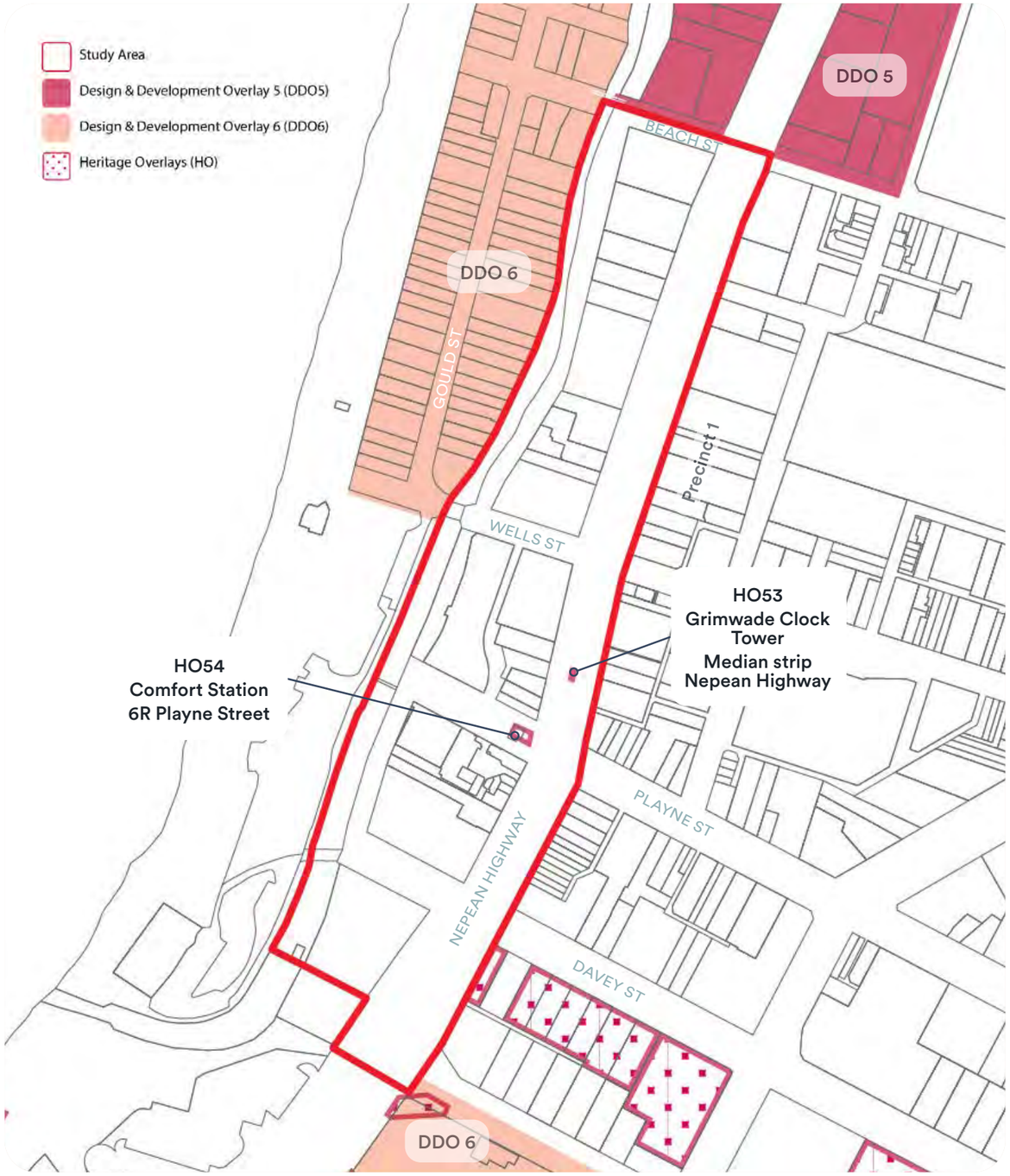


Figure 8. Built Form and Heritage Overlays

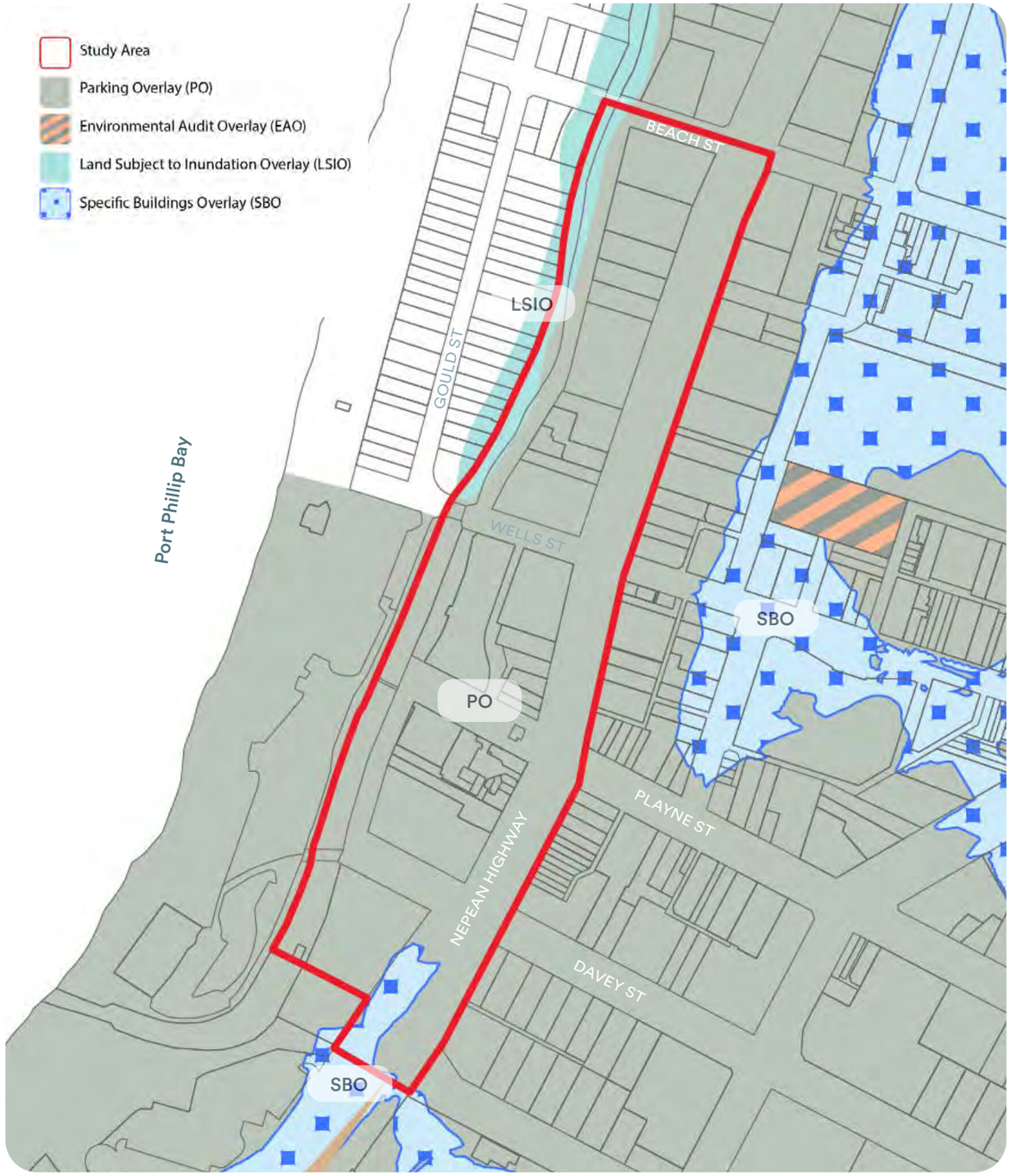


Figure 7. Other Overlays

2.0

Analysis

2.1 Topography

Landform across the study area generally falls from east to west towards Kananook Creek (refer to Figure 9). This results in a height difference of 3.0-4.0m from the Nepean Highway footpath through to the western edge of properties.

West of the creek the dunal landform rises providing for slightly elevated views to the study area from Long Island residences and parts of the foreshore reserve. The landform then falls away again from the top of the primary dune to the water.

Although the landform is lower along foreshore locations, development within the study area is still likely to be visible from the beach. This is demonstrated through the existing visibility of the South East Water building.

The 3.0-4.0m fall across properties within the study area will require careful consideration for new development. It will be important to ensure that ground level uses engage with the footpath at both the Nepean Highway and Kananook Creek frontages.

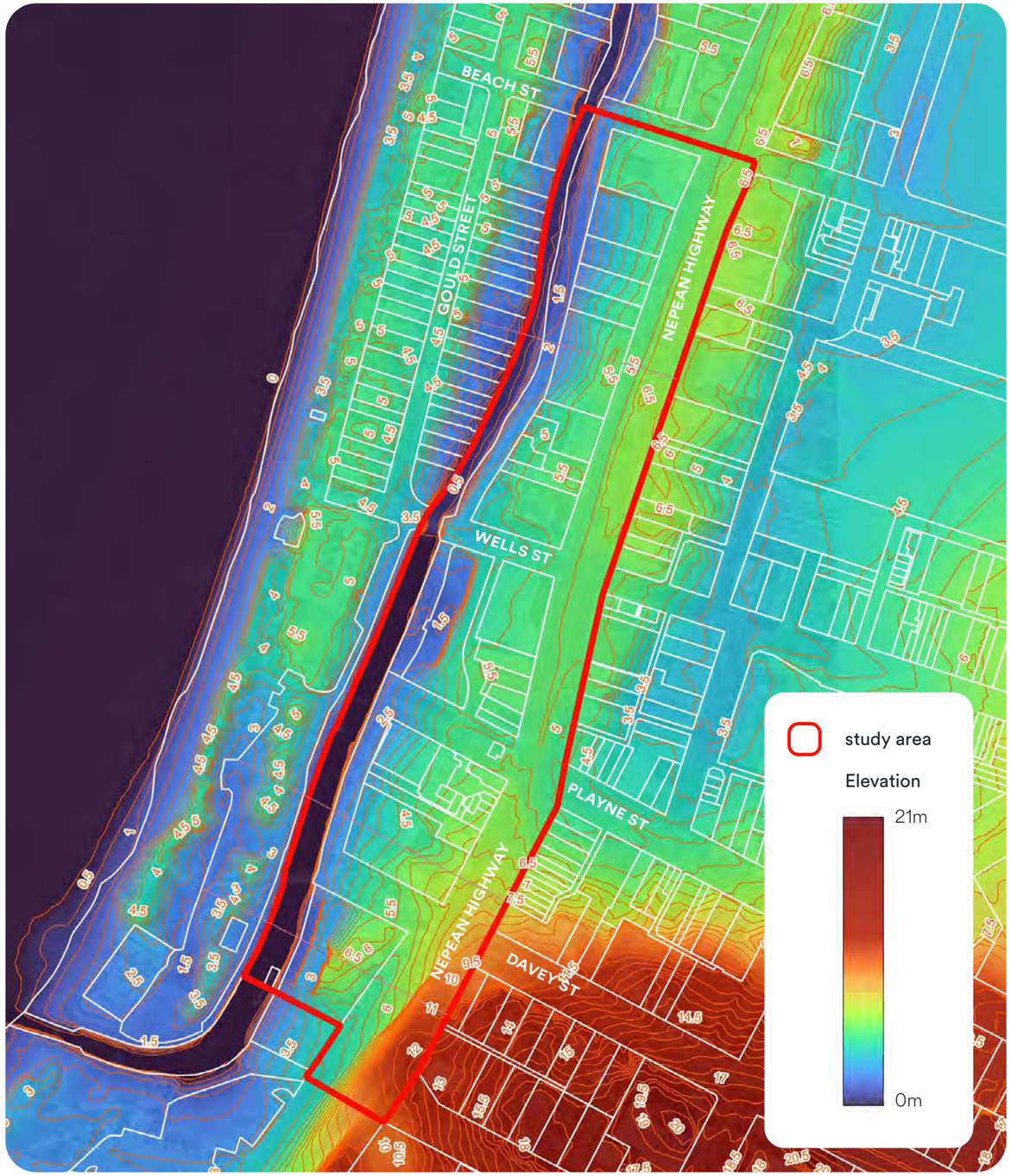


Figure 9. Elevation Plan

2.2 Built Form

Existing Building Heights

Figure 10 demonstrates a mid to low scale building heights across the study area. The exceptions are 'islands' of height provided by the South East Water building (35.6m) and the Quest Hotel (46.2m) on the east side of Nepean Highway. The positioning of these sites and their relationship the key gateways into the FMAC means that they are highly visible and have a significant effect upon the existing skyline.

The Quest Hotel is the tallest building in the FMAC and visible from many locations

The South East Water building is the second tallest building in the FMAC

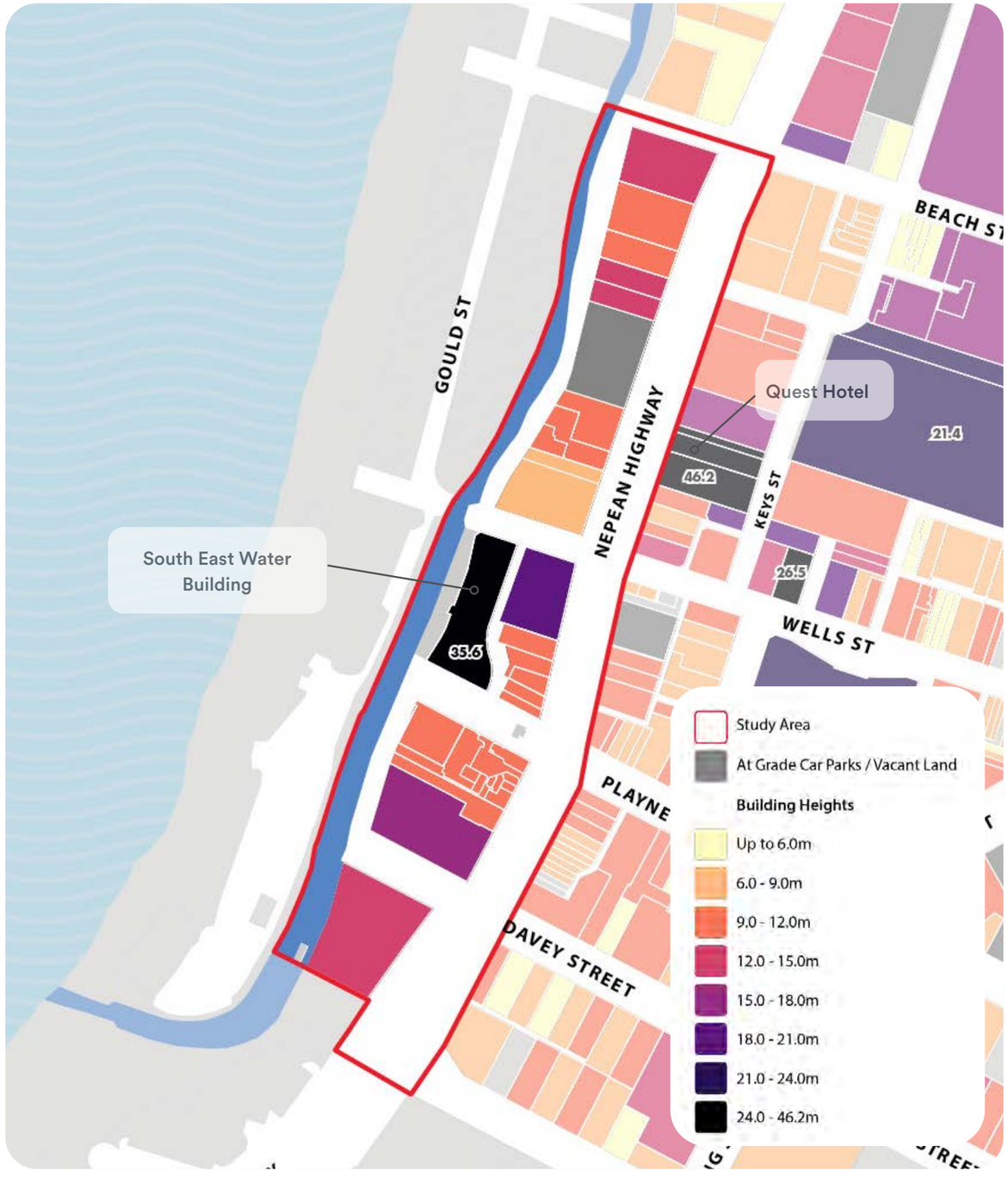


Figure 10. Existing Building Heights

Built Form Address

Development generally provides a poor address to Kananook Creek with car parking and rear of buildings addressing the creek frontage. The South East Water building has provided for some level of activation however the active uses are not provided at the same level as the promenade. In addition the scale of the building dominates the adjoining public space. This is reduced somewhat by the colonnade frontage which provides visual permeability.

The Nepean Highway frontage includes a range of shopfronts and offices with varied level of engagement to the footpath. Most buildings include glazing at street level however land uses are typically business services and secondary retail which provide limited activity.

There is a significant opportunity to enhance the interface to each street within the study area both through building design and active land uses such as hospitality and retail.

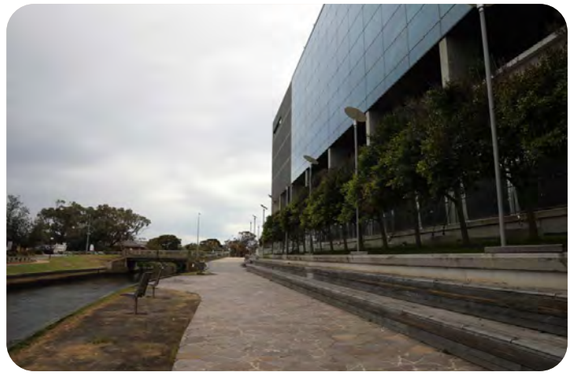
Built Form Design

There are limited examples of high quality buildings in the study area. Buildings are generally 1-2 storeys in height with simple forms and detailing.

The Comfort Station within the Playne Street Road Reserve is a notable historic building and is protected by a Heritage Overlay (HO54).

The South East Water building was developed in 2015 however it is not considered an appropriate outcome for the study area. The building does not have any upper level setbacks to the creek frontage which increases its visual bulk and causes additional overshadowing of the adjoining public realm. The building is over 100m in length without any visual breaks resulting in a monolithic form. In addition the eastern facade includes limited articulation which further adds to the bulky appearance.

Retaining wall and car park frontages to Kananook Creek Boulevard.

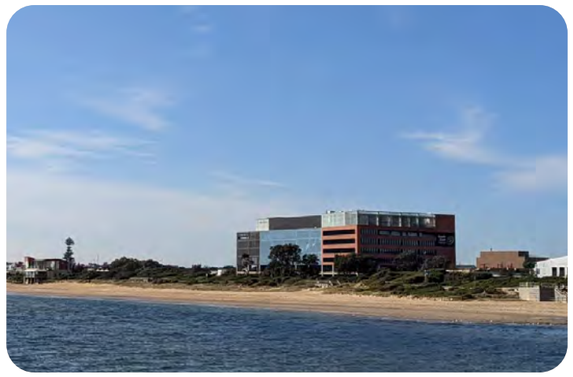


The South East Water building address to Kananook Creek

Car parking frontage to Kananook Creek at the Cheeky Squire site.

Four storey office building along Nepean Highway.

Brick wall to Kananook Creek Boulevard.



The South East Water building is a dominant skyline element from many views.

2.3 Key Interfaces

The study area is a key location within the FMAC for its proximity to Kananook Creek and the foreshore. It also interfaces with a key gateway route along the Nepean Highway. Its location means that there are number of key interfaces that development will need to consider. The key interfaces are outlined as follows and mapped in Figure 11:

Long Island Residential Neighbourhood

The Long Island residential area includes residential properties along Gould Street and is a particularly sensitive interface for the study area. Low-scale housing along Gould Street directly abuts Kananook Creek with rear gardens and decks at the creek edge. Development within the study area will be highly visible from the private open space and rear rooms of dwellings.

Key consideration for this interface:

- Ensuring development is of a scale that does not overwhelm views from rear gardens of the Long Island dwellings.
- Providing breaks between buildings to minimise overall visual bulk when viewed from rear gardens.
- Ensuring development does not overshadow rear gardens at key times of the year.

Kananook Creek Boulevard

The Boulevard has a narrow road reservation. It includes a footpath of approximately 1.8m adjacent to the property boundary, road pavement, limited street tree planting, the Kananook Creek Trail and a small part of the creek embankment. It will be important for development to provide for ground level activation to the Boulevard. A key challenge is that the existing footpath is not wide enough to provide for both pedestrian movement and outdoor dining.

Key consideration for this interface:

- Providing ground level setbacks so that there is sufficient space to support outdoor dining and other retail activity that is clear of the footpath.
- Providing active building frontages at street level.
- Providing an appropriately scaled street wall with generous tower setbacks so that development does not overwhelm the streetscape.
- Maintaining sunlight to the Kananook Creek Trail and Kananook Creek at key times of the year.
- Providing additional landscaping within courtyard spaces, building facades and terrace gardens to strengthen the landscape character of the creek corridor.

The Gould Street interface

Kananook Creek Boulevard interface

Figure 11. Key Interfaces

Kananook Creek Promenade / Kananook Creek Boulevard South / Future extension of Kananook Creek Promenade

This interface includes existing public spaces along Kananook Creek south of Wells Street. The spaces have terraced spaces, seating and some landscaping. Kananook Creek Boulevard South also includes a vehicle access way. Because of the direct abuttal of these spaces to development sites, providing adequate sunlight to the entire space will be challenging.

The Draft FMAC Structure Plan Emerging Ideas Paper proposes an extension of the Kananook Creek Promenade south of Davey Street, along what is curently privately owned land. A ground level building setback will be required to deliver this outcome.

Key consideration for this interface:

- Providing ground level setbacks south of Davey Street to provide for the continuation of the Promenade.
- Providing active building frontages at footpath / public space level.
- Providing an appropriately scaled street wall with generous tower setbacks so that development does not overwhelm the streetscape.
- Maintaining sunlight to the public spaces and Kananook Creek at key times of the year.
- Providing additional landscaping within courtyard spaces, building facades and terrace gardens.

Kananook Creek Boulevard South interface

McCombs Reserve

This land directly abuts the Cheeky Squire site at 510 Nepean Highway. It has been identified by Council as a future park / events space. Because this site directly abuts the Cheeky Squire to the south, it will be challenging to maintain sunlight to the entire site.

Key consideration for this interface:

- Providing active building frontages to McCombs Reserve.
- Providing an appropriately scaled street wall with generous tower setbacks so that development does not overwhelm the future park.
- Providing development on the site that is of exemplary architectural quality to enhance views from the foreshore and the southern FMAC entry along the Nepean Highway.
- Maintaining sunlight to a substantial proportion of McCombs Reserve so that it can fulfil its role as a future open space.
- Providing additional landscaping within courtyard spaces, building facades and terrace gardens to strengthen the landscape character of the foreshore reserve.

Foreshore Reserve / Kananook Creek Trail / Long Island Drive

The foreshore reserve is informally landscaped however includes a number of picnic tables, a timber boardwalk along the dune with lookout points, the Kananook Creek Trail and car parking areas. Development within the study area will be highly visible from this interface particularly from the Kananook Creek Trail. Vegetation elsewhere across the interface may partially screen views to new development.

Key consideration for this interface:

- Ensuring development is of a scale that does not overwhelm views from key pathways and gathering locations within the foreshore reserve.
- Providing breaks between buildings to minimise overall visual bulk when viewed from the foreshore reserve.
- Ensuring development does not overshadow the foreshore reserve.
- Providing development of exemplary architectural quality to enhance views from areas of high pedestrian activity within the foreshore reserve.

Retail Streets

Nepean Highway, Beach Street, Wells Street, Playne Street and Davey Street are locations for retail and hospitality uses. These uses are likely to intensify as the FMAC develops. Development will directly interface with these streets so it is important that buildings are designed in a way that engages with the adjacent footpath.

Key consideration for this interface:

- Providing active building frontages at street level.
- Providing an appropriately scaled street wall with generous tower setbacks so that development does not overwhelm the streetscape.
- Maintaining sunlight to southern and eastern footpaths at key times of the year.
- Providing development of exemplary architectural quality to support the future Boulevard role of Nepean Highway.
- Responding to topography so that entire and ground level uses relate to footpaths on all streets.

2.4 Key Views

The study area is visually prominent within the FMAC and visible from a number of key public viewing locations. A range of key views have been selected based on the sensitivity of the viewing location and / or the amount of people that are likely to experience the view. Key locations are outlined below and shown in Figure 12. Viewpoints 1-9 have been tested through 3D modelling in Chapter 4 of this report.

Viewpoint 1 - Beach Street Pedestrian Bridge over Kananook Creek

This location provides a key public access point to the foreshore. A view along Kananook Creek Boulevard is available from the pedestrian bridge.

Viewpoint 2 - Long Island Residences

A typical view from the rear garden of a dwelling in Gould Street. Development is likely to be highly visible from these locations. This view has not been captured in a photograph however has been tested in the 3D modelling.

Viewpoint 3 - Frankston Foreshore

A view from the foreshore looking back towards the study area. The South East Water building is visible from this location which suggests that new development is likely to be visible and create a new skyline.

Viewpoint 4 - Gould Street

A typical view from the western footpath of Gould Street. The visibility of the Quest Hotel above existing dwellings suggests that new development within the study area will be visible.

Viewpoint 5 - Corner of Wells Street and Nepean Highway

Wells Street is the primary retail street within the FMAC. The intersection at Nepean Highway is a key location where pedestrians accessing the foreshore will view the study area. This view looks north along Nepean Highway towards Beach Street.

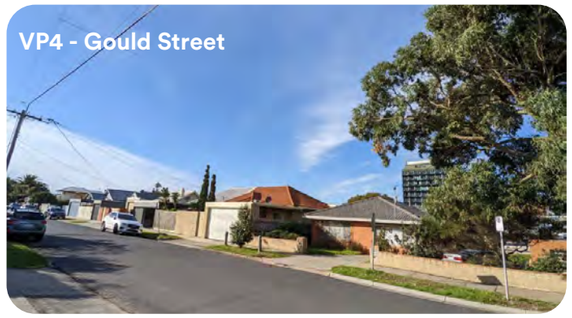


Figure 12. Key Views

Viewpoint 6 - Wells Street Bridge

Wells Street is a key access route between the city centre and the foreshore. This view is captured from the pedestrian bridge looking north along Kananook Creek Boulevard.

Viewpoint 7 - Foreshore carpark near Wells Street Bridge

This view is experienced by many visitors to the foreshore travelling by car. The view looks north towards Kananook Creek Boulevard and captures some of the South East Water Building.

Viewpoint 8 - Bay Trail near Davey Street Bridge

This location provides for an expansive view of the southern sections of the study area with the South East Water building framing the left side of the view. This is a key route between the City Centre and the Yacht Club / foreshore, and the view is likely to be experienced by a large number of people.

Viewpoint 9 - Wuxi Walk near the boat ramp

This is a key targeted view from the popular main foreshore area. The view captures the southern end of the study area including McCombs Reserve.

Viewpoint 10 - Frankston Pier

The pier is an iconic destination within the FMAC and a place of high visitation. This view looks north to capture the entire study area. The existing buildings provide a contrast against the natural foreshore and dunal vegetation.

Viewpoint 11 - Nepean Highway entry

This is a key view experienced when arriving into the FMAC from the south. The view is framed by the foreshore and roadside vegetation with taller buildings creating the skyline. Development within the southern parts of the study area are likely to be visible from this location.

Viewpoint 12 - Olivers Hill Lookout

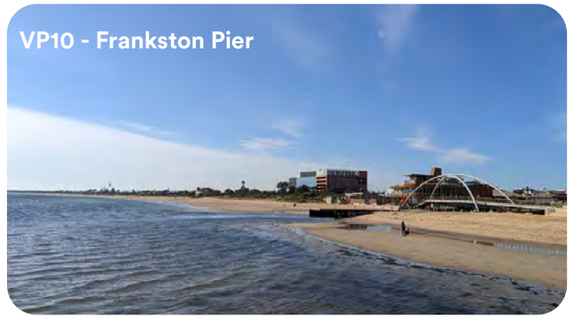
A popular lookout providing for elevated views of the study area which is located approximately 1.5km away. The South East Water building is visible and sits slightly below the mountain range backdrop. The Quest Hotel is taller and protrudes above the backdrop.

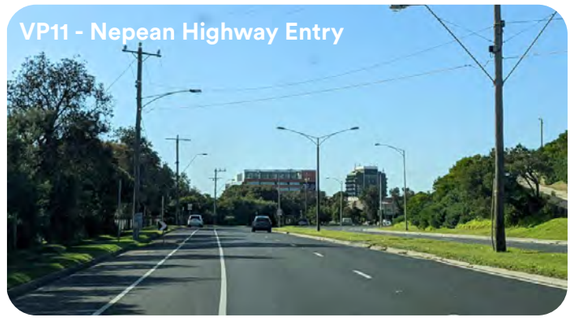
This view has not been tested in Chapter 4 as a 3D model was not created for this area.

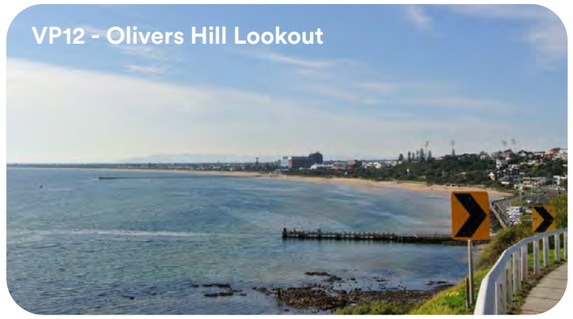
Viewpoint 13 - Davey Street, near Young Street

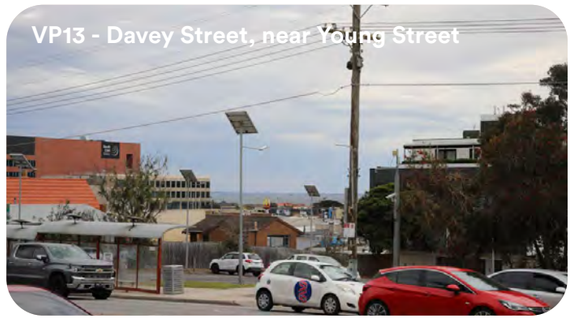
An elevated location near the corner of Davey Street and Young Street where bay views are available. The visibility of the South East Water building indicates that development within the study area is likely to be visible from this location. Development is also likely to block this view to the water however upper level breaks may maintain glimpses.

This view has not been tested in Chapter 4 as a 3D model was not created for this area.









2.5 Development Potential & Activity

Figure 13 shows a significant amount of development potential with most sites greater than 1,000sq.m in area. The development potential is further supplemented by the unique location adjacent to Kananook Creek and the foreshore reserve providing opportunities for water views from upper levels of development.

There is a planning application for a development of a 15 storey building within the study area at 446-450 Nepean Highway.

Figure 13. Development Potential and Activity


5

Design Principles

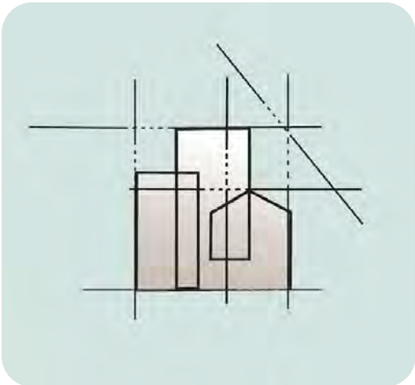
3.1 Key Principles

3.1 Key Principles

The the following principles below have guided the development of the built form recommendations outlined in this document. They have been adopted from the 2015 Structure Plan however have been modified to apply to the Waterfront Precinct.

Principle 1.

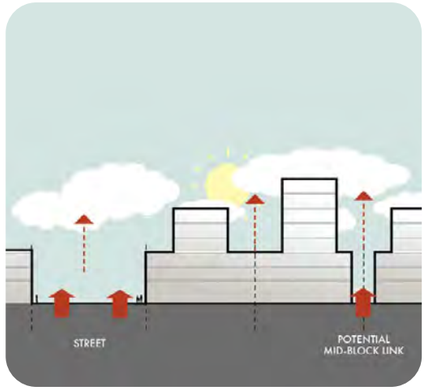
Design Excellence



- The high visibility of the study area and its importance in defining the character of the FMAC will mean that all developments will need to be of exemplary architectural quality.
- Development should provide the highest level of Environmental Sustainable Design.
- Development should contribute to creating high quality gateways into the FMAC along Nepean Highway in the south and north.

Principle 2.

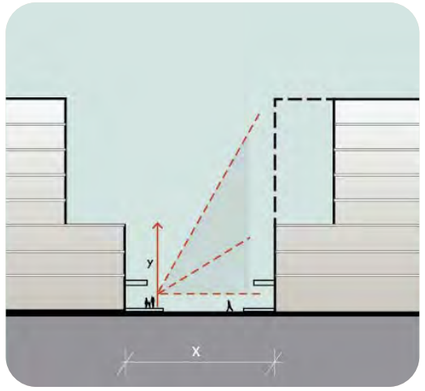
Strengthen the Connection to the Water



- Additional physical links between Nepean Highway, Kananook Creek and the foreshore reserve should be provided within the study area.
- Appropriately sized visual breaks between buildings along Kananook Creek will be important to allow for glimpses to the sky and water from surrounding areas whilst simultaneously reducing the visual bulk of buildings when looking back from the foreshore, the Long Island residences and Kananook Creek.

Principle 3.

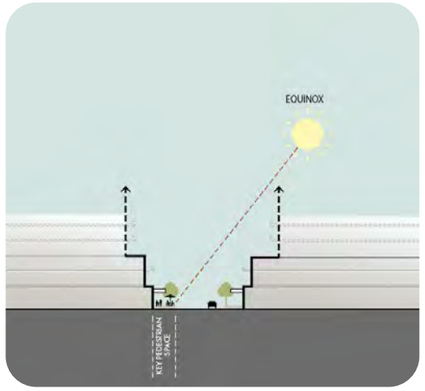
Reinforce the 'human scale' of key city centre streets



- New development should avoid visually dominant building forms adjacent to key retail streets, Kananook Creek Boulevard and Promenade.
- A low scale street wall will ensure that built form does not overwhelm key streetscapes and public spaces. Taller tower forms will be recessed away from the street to reduce visual impact.
- Landscaping within front setbacks, on walls and within balconies will contribute to green streetscapes and soften the impact of built form.
- Grould levle

Principle 4.

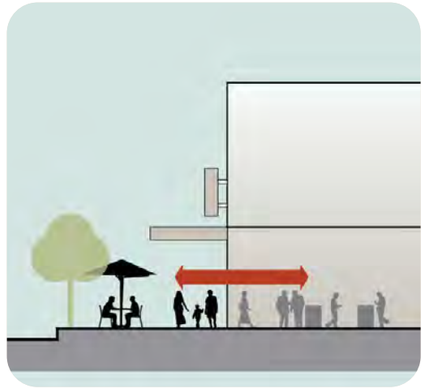
Retain solar access to key streets and public spaces



- Solar access to Wells Street, Playne Street, Davey Street and the eastern footpath of Nepean Highway should be maintained to ensure these streets can fulfil their retail and hospitality roles.
- Kananook Creek should maintain a greater amount of sunlight across the year to support the important ecological values of the creek.

Principle 5.

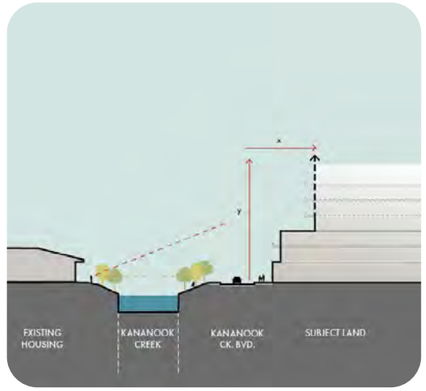
Reinforce a network of active frontages



- New development should contribute positively to the public realm through the provision of active frontages. A high level of pedestrian comfort will be provided at street level to create places that people want to walk in, linger, sit and eat.
- Fine-grain design detailing and glazing in the ground level should be provided to enhance the street interface.
- Ground level setbacks to Kananook Creek Boulevard should be provided to ensure there is adequate space provided for activation of the street and pedestrian movement.

Principle 6.

Enhance Sensitive Interfaces



- New development should provide appropriate setbacks and upper level breaks to ensure built form does not overwhelm views from the adjacent Long Island residential area.

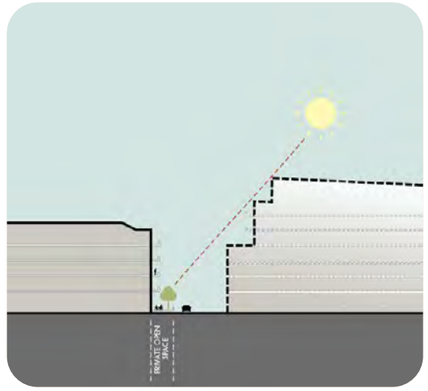
Principle 7.

Enhance views to the Frankston City Centre

- Long distance and closer range views to the study area should be enhanced by providing visual permeability between buildings, an interesting skyline and exemplar quality buildings.

Principle 8.

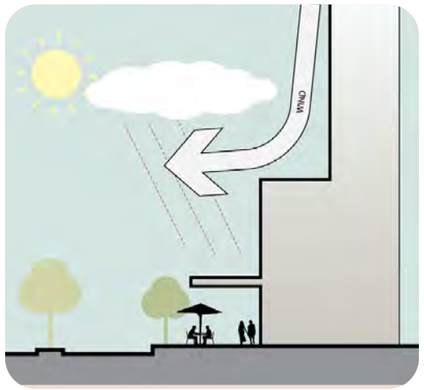
Limit the impact on the amenity of surrounding land uses



- Buildings should provide appropriate separation to ensure all developments can receive adequate sunlight, privacy, and access to views.

Principle 9.

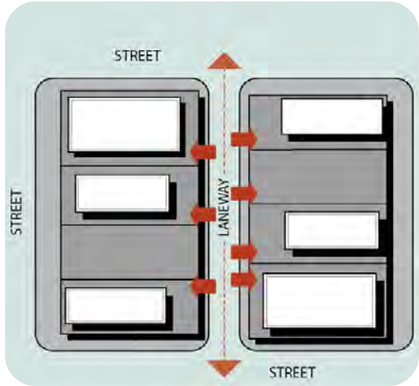
Ensure buildings provide wind and weather protection



- New development will provide weather protection that reduces the impacts of wind and rain and ensures adequate shade for pedestrians.
- Upper level setbacks to the street and awnings will minimise the downward draft impacts of wind on the streetscape.

Principle 10.

Ensure development can be adequately serviced from existing roads



- Access to new car parks will be provided from secondary streets to ensure key retail and hospitality streets are not disrupted by car parking entries and vehicle crossovers.

The southern entry to the FMAC along Nepean Highway


4
Drive Thru
ONE WAY

Built Form Testing

4.1 3D Views Analysis

Overview

This section of the report provides for an assessment of a range of built form scenarios on identified key views within and surrounding the FMAC.

This was undertaken through the development of simplified 3D models for five built form scenarios. The primary aim was to test the impacts of building height on the key views.

The model was developed with the following data inputs:

- Aerial photograph sourced from Nearmap.
- Cadastral boundaries sourced from VicMap.
- 0.5m interval contour data supplied by Frankston City Council.
- Existing building footprints with building height attributes supplied by Frankston City Council

Built Form Scenarios

The table opposite outlines each built form scenario providing an overview of the height and setback parameters that have been adopted. More detail is provided in the 'Standard Parameters' and 'Preferred Scenario Parameter' tables.

The Preferred Scenario

The 3D views outlined in this chapter depict a preferred development scenario which is identified as 'Preferred Scenario: 12 Storeys - 41.0m with preferred setbacks'. This scenario was developed as a result of both the 3D views testing and the shadow testing outlined in Section 4.2.

The preferred scenario provides a balance between maximising development opportunities within the study area whilst achieving the design principles outlined in Chapter 3. Specifically the preferred scenario provides development outcomes that do not overwhelm key views from the Long Island residential area and other key viewing locations. It also provides for optimal solar access outcomes to Kananook Creek and key pathways.

Scenario	Overview
10 Storeys - 35.0m	Maximum building height of 35.0m with 'Standard Parameters' applied.
12 Storeys - 41.0m	Maximum building height of 41.0m with 'Standard Parameters' applied.
15 Storeys - 51.0m	Maximum building height of 51.0m with 'Standard Parameters' applied. This height reflects the building height of the current planning application at 446-450 Nepean Highway.
Preferred Scenario: 12 Storeys - 41.0m with preferred setbacks	Maximum building height of 41.0m with 'Preferred Scenario Parameters' applied. When these parameters were applied, the site at 452 Nepean Highway could only achieve a maximum building height of 35.0m.

Standard Parameters

Street Wall Height

12.0m (3 storeys)

Ground level setbacks

- Between Beach Street and Wells Street - 3.0m to Kananook Creek Boulevard.
- 510 Nepean Highway (Cheeky Squire) - 9.0m ground level setback to Kananook Creek property boundary.
- Elsewhere - 0.0m ground level setbacks

Upper level setbacks:

- Kananook Creek Frontage - 10.0m setback behind the street wall.
- Nepean Highway - 5.0m setback behind the street wall.
- McCombs Reserve - 15.0m setback behind the street wall.

Tower Separation

- 6.0m side setbacks to each boundary to provide for 12.0m tower separation.
- Future mid-block links - 7.5m side setbacks to each property boundary to provide for 15.0m tower separation.

Mid-block Links

- New mid-block links with a total width of 9.0m provided at the following locations:
  - Between 446-450 Nepean Highway and 438-444 Nepean Highway.
  - Between 432 Nepean Highway and 428-430 Nepean Highway.

Preferred Scenario Parameters

Street Wall Height

- As per Standard Parameters

Ground level setbacks

- As per Standard Parameters

Upper level setbacks:

- Kananook Creek Frontage:
  - Up to 35.0m (10 storeys) - 10.0m setback behind the street wall.
  - Above 35.0m (10 storeys) and up to 41.0m (12 storeys) - Additional setbacks to minimise visibility from the Long Island residential area and the Kananook Creek Trail.
  - Nepean Highway - 5.0m setback behind the street wall.
- Upper level setbacks elsewhere as per Standard Parameters and Solar Access Requirements below.

Solar Access Requirements

- Solar access maintained to the following:
  - Southern footpaths of Wells Street, Playne Street & Davey Street between 10am and 2pm at the equinox (September 23).
  - Eastern footpath of Nepean Highway between 10am and 2pm at the equinox (September 23).
  - The eastern edge of Kananook Creek between 10am and 2pm at the winter solstice (June 22).
  - 50% (half) of McCombs Reserve between 10am and 2pm at the equinox (September 23).

Tower Separation

- As per Standard Parameters.

Mid-block Links

- As per Standard Parameters.

Viewpoint Locations

Figure 17 identifies the views that have been tested.

Figure 14. Locations for 3D Views Analysis

Viewpoint 1 (VP1): Beach Street Bridge

View Location Plan

Assessment

The 15 storey scenario shows building heights that appear to be greater than the width of the creek. This creates the appearance of the building overwhelming the creek.

The 10 storey scenario provides a scale that sits comfortably next to the creek corridor. The preferred scenario provides a similar response with levels 11 and 12 only partially visible from this view. The recessed elements also create variation in the skyline.

The 3 Storey street wall addressing the creek provides a good human scale for the public realm. The podium however appears as a solid mass form this view. Variation in podium forms through vertical modulation, and recessed and projected elements will be important to reduce the bulk and create greater visual interest.

Existing Photo (approximate)

Preferred Scenario: 12 storeys - 41.0m with preferred setbacks

15 Storeys - 51.0m

12 Storeys - 41.0m

10 Storeys - 35.0m

3D View Analysis - Viewpoint 2 (VP2): Looking over Kananook Creek from a Long Island dwelling

View Location Plan

Assessment

This is a particularly sensitive view with proposed development located approximately 40.0-50.0m from existing dwellings.

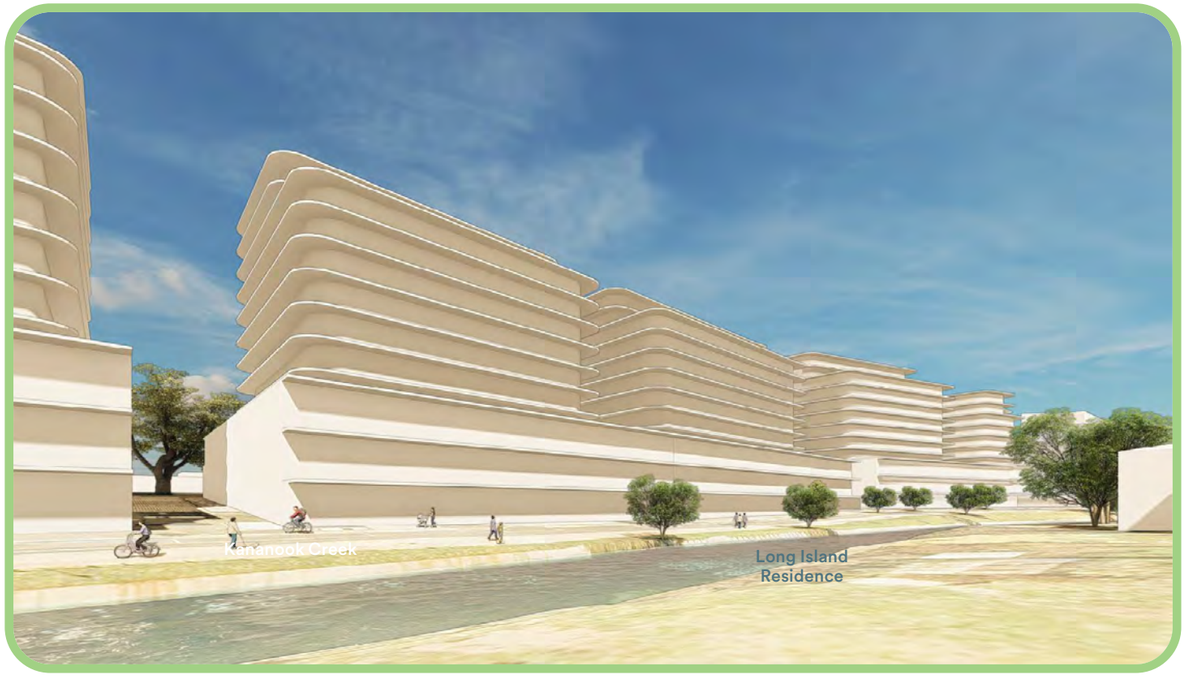
The 15 storey scenario shows buildings that appear to tower over the creek corridor and dominate the view.

The 10 storey building scale is most compatible with this view. The setbacks for levels 11 and 12 in the preferred scenario are effective in reducing the visibility of upper levels.

The mid-block link shown in this view is important in providing visual breaks in the podium level.

Note: This 3D view is located on private land and so existing photo could not be taken.

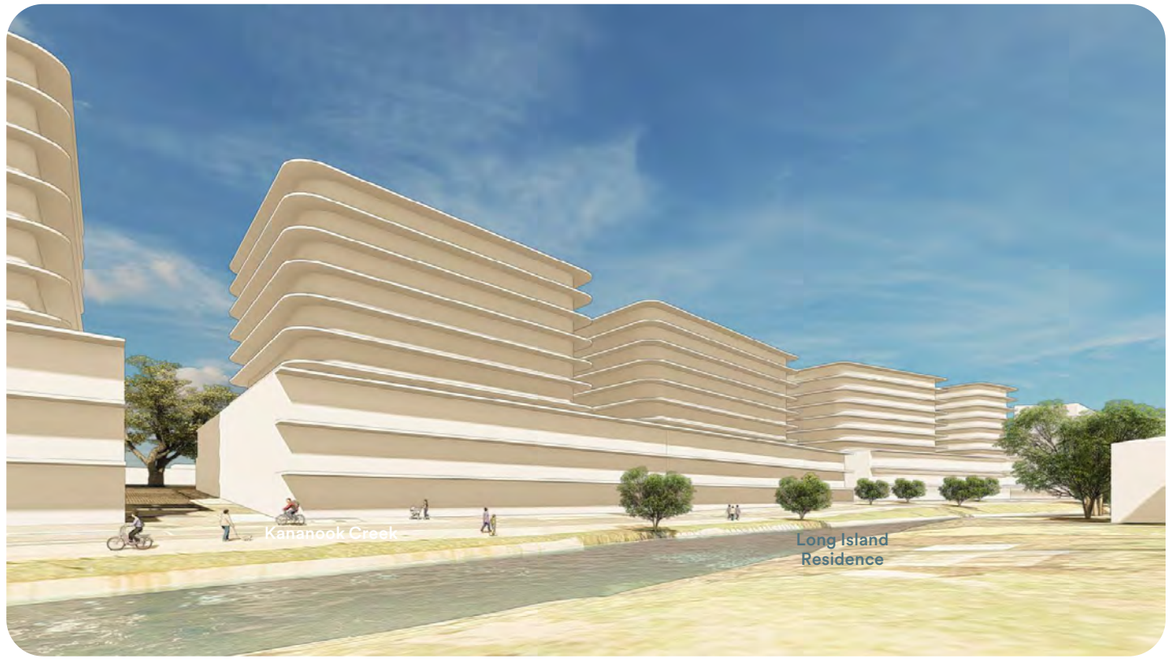
Preferred Scenario: 12 storeys - 41.0m with preferred setbacks



15 Storeys - 51.0m

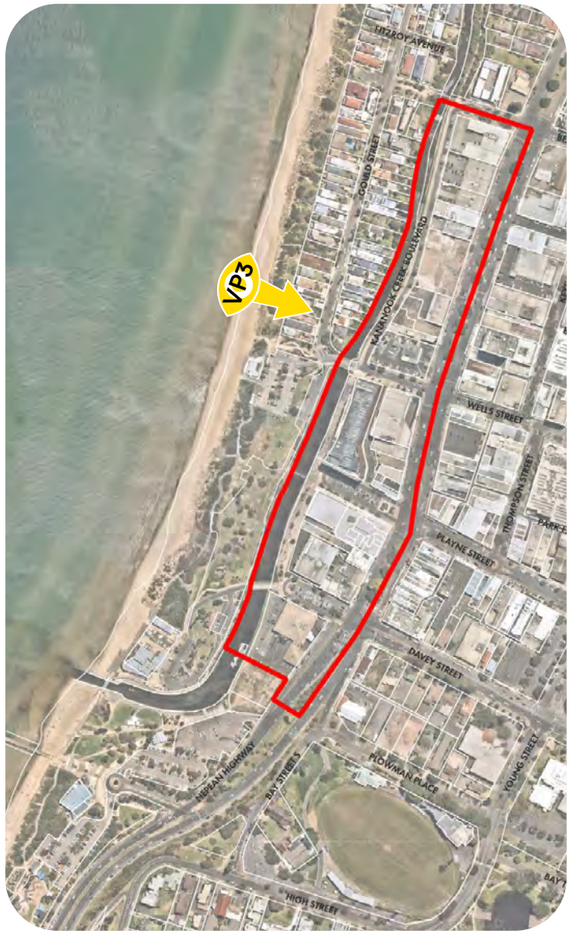
12 Storeys - 41.0m

10 Storeys - 35.0m



3D View Analysis - Viewpoint 3 (VP3): Looking towards Kananook Creek from Frankston Beach

View Location Plan



Assessment

This is a key view that would be experienced by a significant number of people.

The 15 storey scenario shows built form outcomes that tower over the dunes, vegetation and existing dwellings, and dominate the view. The 10 and 12 storey scenarios provide development outcomes that are visible but less dominant.

It is unreasonable to expect new development to be effectively hidden from this view, however it should not overwhelm and dominate the landscape setting as demonstrated in the 15 storey scenario.

This view illustrates the importance of visual breaks between towers. This helps to reduce bulk and creates a visual relationship to the FMAC east of Nepean Highway.

Existing Photo (approximate)

Preferred Scenario: 12 storeys - 41.0m with preferred setbacks

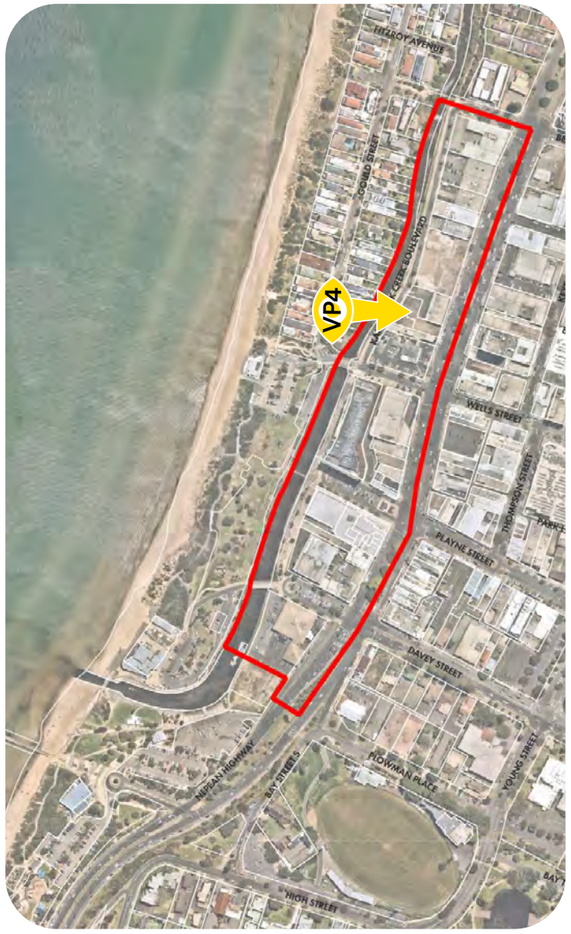
15 Storeys - 51.0m

12 Storeys - 41.0m

10 Storeys - 35.0m

3D View Analysis - Viewpoint 4 (VP4): Looking towards Kananook Creek from Gould Street

View Location Plan



Assessment

Proposed buildings in this view are over 100m from the viewpoint and provide a backdrop behind low scale dwellings.

Buildings in the 15 storey scenario occupy a large proportion of the view and are visually dominant.

The 10 and 12 storey scenarios result in development outcomes that are less dominant in the view with the proposed development occupying a similar proportion of the view as the existing dwellings.

Existing Photo (approximate)

Preferred Scenario: 12 storeys - 41.0m with preferred setbacks

15 Storeys - 51.0m

12 Storeys - 41.0m

10 Storeys - 35.0m

3D View Analysis - Viewpoint 5 (VP5): Corner of Well Street and Nepean Highway

View Location Plan

Assessment

The Emerging Ideas Paper proposes the transformation of the Nepean Highway into an iconic boulevard with a high quality pedestrian environment and active ground level uses. Maintaining adequate sunlight to the eastern footpath of the Nepean Highway will be a key driver for building heights and setbacks along Nepean Highway.

Because of the 39.5m width of Nepean Highway, there are opportunities for taller buildings that do not dominate the streetscape. The 15 storey scenario is close to meeting this objective and only slightly overwhelms the scale of the road.

The preferred scenario shows a lower scale built form at the corner of Wells Street with upper levels set back substantially to provide sunlight to the Wells Street footpath between 10am and 2pm at the equinox. This results in the building having limited presence at an important corner, which is an undesirable outcome. However the objective to maintain sunlight is considered more important for this key link to the foreshore.

Existing Photo (approximate)

Preferred Scenario: 12 storeys - 41.0m with preferred setbacks

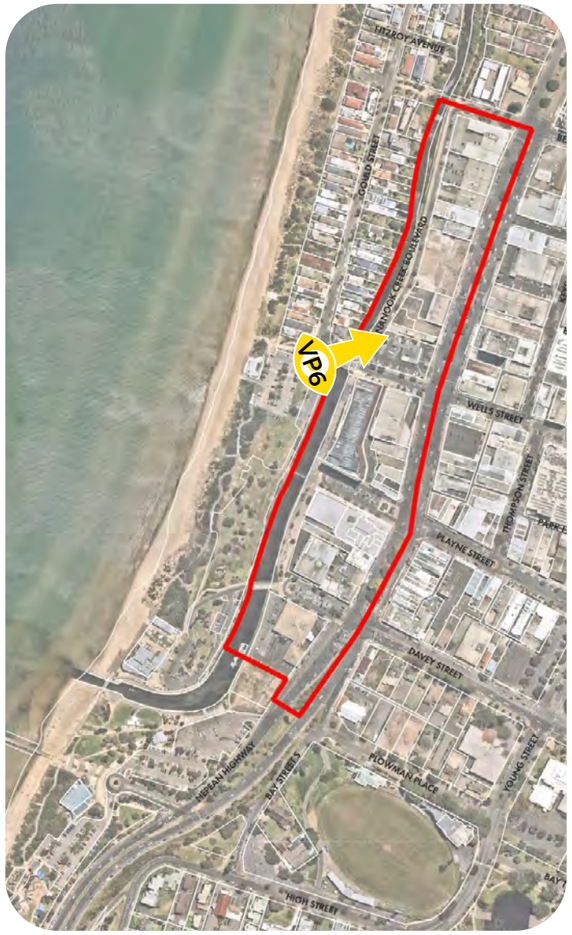
15 Storeys - 51.0m

12 Storeys - 41.0m

10 Storeys - 35.0m

3D View Analysis - Viewpoint 6 (VP6): Well Street Bridge over Kananook Creek

View Location Plan



Assessment

Testing for this view shows that the 15 storey scenario provides built form outcomes that occupy a significant proportion of the view and dominate the scale of Kananook Creek.

The visual relief provided by gaps between towers is not as effective in this view because of the viewing angle. This increases the bulk of development from this view.

The 10 storey building scale is most compatible with this view. The setbacks for levels 11 and 12 in the preferred scenario are effective in reducing the visibility of upper levels and providing a small amount of variation in the skyline.

Existing Photo (approximate)

Preferred Scenario: 12 storeys - 41.0m with preferred setbacks

15 Storeys - 51.0m

12 Storeys - 41.0m

10 Storeys - 35.0m

3D View Analysis - Viewpoint 7 (VP7): Carpark Well Street/Long Island Drive

View Location Plan

Assessment

The existing photo in this view demonstrates the imposing form of the South East Water building due to the absence of upper level setbacks.

The 15 storey scenario provides built form that occupies a significant proportion of the view.

The 10 and 12 storey scenarios provide built form that is more appropriate against this sensitive creek interface and also integrate with the overall height of the South East Water building.

Existing Photo (approximate)

Preferred Scenario: 12 storeys - 41.0m with preferred setbacks

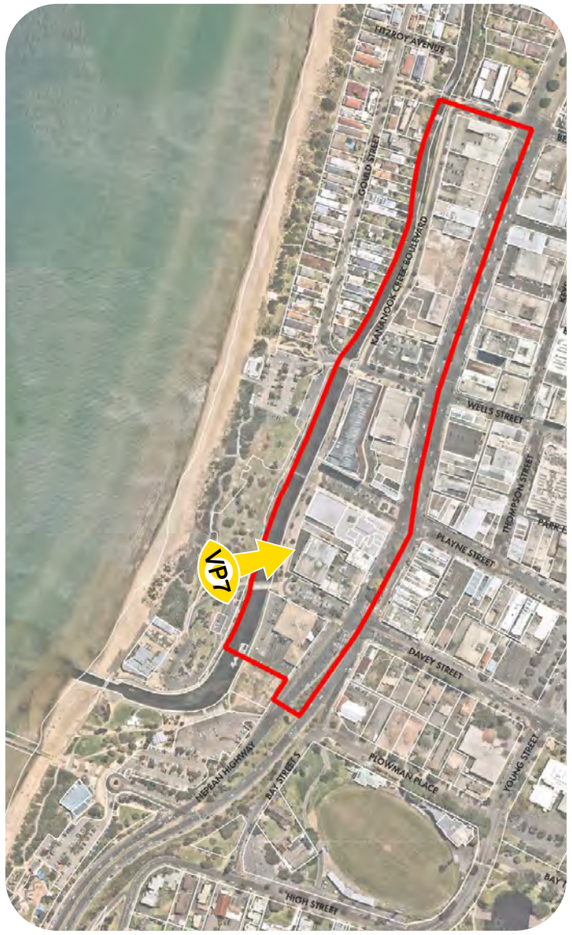
15 Storeys - 51.0m

12 Storeys - 41.0m

10 Storeys - 35.0m

3D View Analysis - Viewpoint 8 (VP8): Carpark Well Street/Long Island Drive

View Location Plan



Assessment

This view tests the impact of development at the southern end of the study area.

Like other views that have been tested, the 10 and 12 storey scenarios provide development outcomes that do not dominate the views and tie-in with the existing scale of the South East Water building. The additional upper level setbacks for levels 11 and 12 shown in the preferred scenario are effective in reducing the visibility of these levels.

The view reinforces the importance of the gaps between buildings to reduce the visual bulk of development.

Existing Photo (approximate)

Photo source: Google Streetview

Preferred Scenario: 12 storeys - 41.0m with preferred setbacks

15 Storeys - 51.0m

12 Storeys - 41.0m

10 Storeys - 35.0m

3D View Analysis - Viewpoint 9 (VP9): Carpark Well Street/Long Island Drive

View Location Plan

Assessment

This view is taken along a key foreshore pathway that is used by a large number of people.

Because of the angle of the view and the approximate 150m distance between the viewpoint and development area, the future development occupies a relatively small proportion of the view.

The 12 storey development scenarios sit comfortably within this view and the scale of the tower is in proportion to the podium and is not visually imposing on the creek.

The view highlights the importance of a high quality development at 510 Nepean Highway (Cheeky Squire) because of its prominence in the view. Both the design of the podium and tower will be critical in this view.

Existing Photo (approximate)

Photo source: Google Streetview

Preferred Scenario: 12 storeys - 41.0m with preferred setbacks

15 Storeys - 51.0m

12 Storeys - 41.0m

10 Storeys - 35.0m

3D View Analysis - Viewpoint 10 (VP10): Looking towards Kananook Creek from Frankston Pier

View Location Plan

Assessment

This is an iconic view in Frankston and demonstrates the impacts of development along the entire study area.

New development dominates the views in each scenario. This is due to the scale of the buildings exceeding the existing scale of the beach and dunes. It should be noted that vegetation in the 3D views is not as extensive as the vegetation in the existing photo, which shows trees partially screening the South East Water building.

This view also demonstrates the importance of variation along the roofline of the buildings which impact the overall skyline. The model demonstrates that if all of the proposed development was constructed to the same height, no variation would be achieved which negatively impacts on the skyline. This results in the buildings presenting as a larger monolithic form.

Given the high number of people that will experience the view from this point, it is critical for all development in the precinct to be of significant architectural quality. Slender building forms, substantial breaks between buildings and varied building massing will be important to enhance this view.

Existing Photo (approximate)

Preferred Scenario: 12 storeys - 41.0m with preferred setbacks

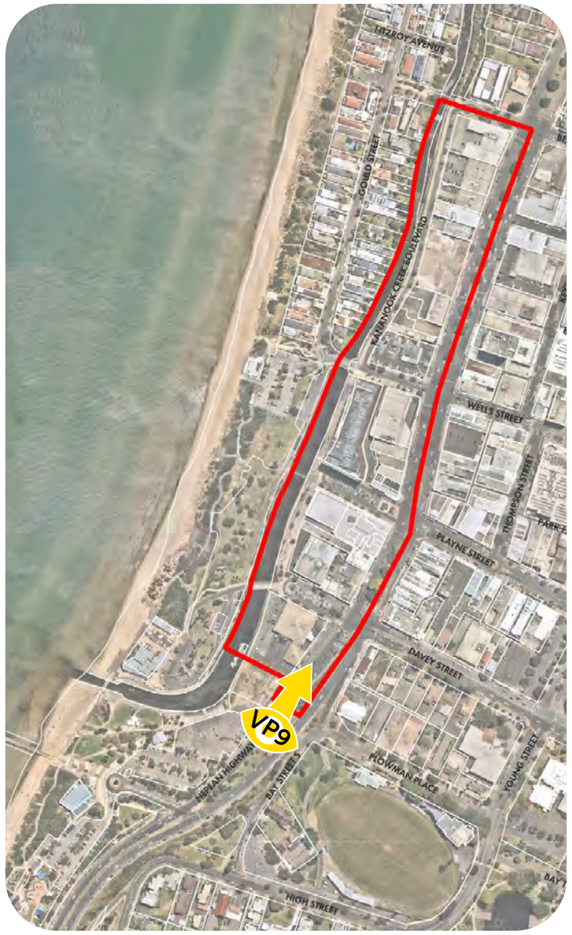
15 Storeys - 51.0m

12 Storeys - 41.0m

10 Storeys - 35.0m

3D View Analysis - Viewpoint 9 (VP9): View from Nepean Highway/Franskton Foreshore

View Location Plan



Assessment

This view point is taken from a location that will be experienced by people travelling by car or by bike and is important as it provides an entry experience into the FMAC.

Development is located approximately 500m from the viewpoint and is framed by a treed hillside on the right side of the view and coastal vegetation on the left side. Because of the distance, buildings do not dominate the view in any of the scenarios.

What is evident in these views are the visibility of the sides of the tower elements on each site. It is important for all buildings to be designed so that they present well from all views.

Similar to Viewpoint 9, this view location highlights the importance of a development of significant quality at 510 Nepean Highway (Cheeky Squire) because of its prominence from this viewpoint.

Existing Photo (approximate)

Preferred Scenario: 12 storeys - 41.0m with preferred setbacks

15 Storeys - 51.0m

12 Storeys - 41.0m

10 Storeys - 35.0m

Conclusions

The 3D view assessment has provided the following conclusions:

- 15 storey built form outcomes overwhelm the creek corridor and dominate most views, particularly those near Kananook Creek, the foreshore and the Long Island Residential Area. The cumulative impact of development at this height across the study area would be an undesirable outcome.
- The 10 and 12 storey building height scenarios provide outcomes that respond to the scale of the creek corridor, the dunal landscape and do not occupy a significant proportion of the key views.
- The additional upper-level setbacks provided in the preferred scenario strikes the balance between maximising development opportunities in the FMAC whilst meeting solar access requirements and reducing visual impact from the Long Island residential neighbourhood and the Kananook Creek trail.
- The proposed mid-block links and tower separations are critical in reducing the overall visual bulk of development and providing visual connections back to the FMAC. This is particularly evident when viewing the study area from locations such as the foreshore, Gould Street and the Long Island residences.
- Because of the predominately low-scale, undeveloped nature of areas to the west and south of the study area, new development will be highly visible from a from a range of key viewpoints. This places particular importance on ensuring that all sides of the tower elements are articulated and present well to the surrounding areas.
- The modelling depicts buildings at the same height across the study area. This results in a largely unbroken skyline which adds to the visual bulk of development. In reality, this is unlikely to occur as not all sites will develop to the same height. However it does highlight the importance of supporting variation in roof forms and other architectural element that would provide greater visual interest to the skyline.
- The 3 storey podium level is particularly important in establishing an 'human' scale to the adjoining streets and public spaces. However, it has the risk of presenting as a solid mass to the surrounding areas. Variation in podium forms through vertical modulation, and recessed and projected elements will be important to reduce building bulk and create greater visual interest.
- 510 Nepean Highway (Cheeky Squire site) is particularly prominent from the southern entrance to the FMAC, the foreshore reserve and Frankston Pier. Development on this site should be of significant architectural quality both for the tower and podium elements.

4.2 Shadow Analysis

Setting the parameters

The 2015 Structure Plan and the FMAC Structure Plan Emerging Ideas Paper identify the need to provide sunlight access to key footpaths and open space recognising that these spaces will become more important as the centre grows and intensifies. Providing adequate sunlight to these spaces will ensure they remain attractive and comfortable places to be in.

The process for testing shadowing was to initially establish the preferred requirements for maintaining solar access. Following that, 3D shadow testing was undertaken to understand if the preferred requirements could be achieved whilst providing feasible development outcomes and providing development outcomes that responded to the findings of the 3D views analysis.

Key footpaths

Many planning schemes across Victoria include planning controls for protecting sunlight to footpaths in activity centres. They generally require sunlight to be provided to footpaths for a specified time at the spring equinox (September 23). The equinox sits mid-point between the winter solstice (June 22) where shadows are at their longest, and the summer solstice (December 22) where shadows are at their shortest.

A benchmark to provide sunlight key footpaths between 10am and 2pm at the equinox is recommended within the study area. This time period provides sunlight to these spaces for key retail and hospitality periods whilst not overly restricting development opportunities.

The foreshore reserve and Kananook Creek

For public open space, more restrictive sunlight controls measured at the winter solstice are regularly applied in planning schemes. This is because of the more important role of parks as places where people gather and spend more time in.

The foreshore reserve is a key public open space that is located adjacent to the study area with proposed buildings located approximately 40m from the edge of the reserve. Shadow testing demonstrated that these areas will receive adequate sunlight at the winter solstice from 10am under all scenarios outlined in this study.

The Ecological Assessment prepared by Ecology and Heritage Partners undertaken as part of this project identified the importance of sunlight in supporting flora and fauna in aquatic environments like Kananook Creek.

The approach is therefore to maximise sunlight to the creek across the year including the winter months. A requirement to maintain sunlight between 10am and 2pm at the winter solstice is recommended for Kananook Creek.

McCombs Reserve

McCombs Reserve directly south of 510 Nepean Highway (Cheeky Squire) has been identified by Council as a future open space area.

Because of the direct abuttal of this site to the southern boundary of 510 Nepean Highway, it will not be possible to keep the entire site in sunlight at any time of the year unless significant ground level setbacks are provided on 510 Nepean Highway. A modified equinox solar access requirement is recommended for 510 Nepean Highway that ensures a feasible development outcome can be provided whilst keeping the majority of McCombs Reserve in sunlight at the equinox.

Preferred Solar Access Requirements

The following Solar Access Requirements are recommended:

Footpaths

Maintain solar access to the following footpaths between 10am and 2pm at the equinox (September 23):

- Wells Street southern footpath
- Playne Street southern footpath
- Davey Street southern footpath
- Nepean Highway Eastern Footpath
- Kananook Creek Trail (between Beach Street and Wells Street)

Open Space and Kananook Creek

Maintain solar access to the following locations between 10am and 2pm at the winter solstice (June 22):

- Foreshore reserve
- Kananook Creek

McCombs Reserve

Maintain solar access to half (50%) of McCombs Reserve south of 510 Nepean Highway between 10am and 2pm at the equinox (September 23).

Tested Scenarios

Two scenarios have been tested to understand how potential shadows impact on adjoining public spaces and Kananook Creek. These scenarios were also tested through the 3D Views analysis. The tested scenarios included:

- **15 Storeys** - This was tested to demonstrate what shadow impacts there would be if future development was approved at the same scale as the current planning application.
- **Preferred Scenario: 12 Storeys - 41.0m with preferred setbacks** - This scenario has been developed to meet the preferred solar access requirements outlined opposite.

15 Storeys - Spring Equinox (September 23)

The 15 storey scenario results in overshadowing impacts to the Kananook Creek Trail and the Kananook Creek promenade before 11am. The eastern footpath of Nepean Highway is almost fully overshadowed from 2pm onwards.

Long Island Residences

- Sunrise to 9am there is significant shadow cast over dwellings and rear gardens but it disappears between 9am and 10am.

Kananook Creek & Foreshore Reserve

- Shadowing to Kananook Creek exists at 10am in the northern parts of the study area however the shadow disappears before 11am.
- The shadow casts to the foreshore reserve at 9am however the shadow disappears by 10am.

Kananook Creek Trail - Beach St to Wells St

- The majority of the Kananook Creek Trail is in shadow at 10am however the shadow disappears by 11am.

Kananook Creek Promenade / Kananook Creek Bvd South - Wells St to Davey St

- The South East Water building shadows the entire promenade at 10am however the shadow disappears by 11am. South of Playne Street the 15 storey buildings cast shadow across the entire promenade however the shadow disappears by 11am.

Future Promenade extension south of Davey Street

- The additional upper level setback reduces shadowing to the future promenade with approximately 50% in shadow at 10am.

McCombs Reserve south of 510 Nepean Highway

- Approximately 50% of the site is in shadow at 10am however this reduced significantly by 11am.

Wells Street, Playne Street, Davey Street - Southern Footpaths

- Each footpath is in shadow at 11am and part of Wells Street is in shadow at 12pm

Nepean Highway - Eastern footpath

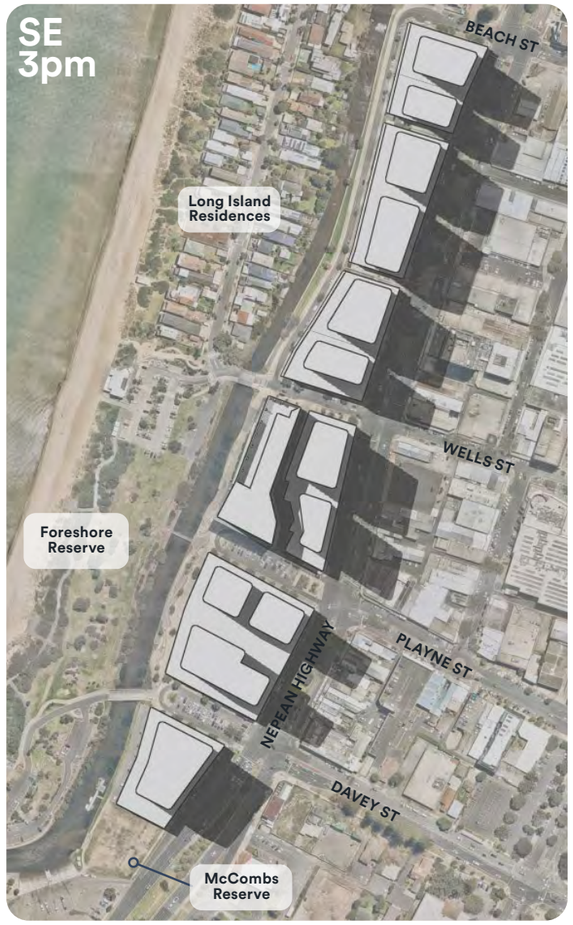
- The majority of the footpath is in shadow from 2pm onwards.

Figure 15. 15 Storeys: Shadow analysis between 9am and 3pm at the spring equinox (September 23)


SE
12noon
BEACH ST
Long Island Residences
WELLS ST
Foreshore Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs Reserve


SE
1pm
BEACH ST
Long Island Residences
WELLS ST
Foreshore Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs Reserve


SE
2pm
BEACH ST
Long Island Residences
WELLS ST
Foreshore Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs Reserve


SE
3pm
BEACH ST
Long Island Residences
WELLS ST
Foreshore Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs Reserve

15 Storeys - Winter Solstice (June 22)

The 15 storey scenario results in significant overshadowing impacts to the Kananook Creek north of Wells Street and south of Davey Street at 10am. Southern footpaths are in shadow for the majority of the testing period and the eastern footpath of Nepean Highway is in shadow from 1pm.

Long Island Residences

- Sunrise to 9am there is significant shadow cast over dwellings and rear gardens. There is partial shadow to properties north of Wells Street at 10am.

Kananook Creek & Foreshore Reserve

- The creek is in shadow at 10am north of Wells Street and south of Davey Street. The shadow disappears before 11am.
- A significant amount of the foreshore reserve is in shadow at 9am however the shadow disappears by 10am.

Kananook Creek Trail - Beach St to Wells St

- Kananook Creek Trail is in shadow at 10am however the shadow disappears by 11am.

Kananook Creek Promenade / Kananook Creek Bvd South - Wells St to Davey St

- The entire space is in shadow at 10am however the shadow disappears by 11am.

Future Promenade extension south of Davey Street

- The entire space is in shadow at 10am however the shadow disappears by 11am.

McCombs Reserve south of 510 Nepean Highway

- A large proportion of the site is in shadow until 11am. The podium level casts a relatively small shadow from 12pm onwards.

Wells Street, Playne Street, Davey Street - Southern Footpaths

- The majority of the southern footpaths remain in shadow until 3pm.

Nepean Highway - Eastern footpath

- The footpath is in shadow from 1pm onwards.

Figure 16. 15 Storeys: Shadow analysis between 9am and 3pm at the winter solstice (June 22)


WS
12noon
BEACH ST
Long Island
Residences
WELLS ST
Foreshore
Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs
Reserve


WS
1pm
BEACH ST
Long Island
Residences
WELLS ST
Foreshore
Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs
Reserve


WS
2pm
BEACH ST
Long Island
Residences
WELLS ST
Foreshore
Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs
Reserve


WS
3pm
BEACH ST
Long Island
Residences
KEYS ST
WELLS ST
THOMPSON ST
Foreshore
Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs
Reserve

Preferred Scenario: 12 Storeys - 41.0m with preferred setbacks - Spring Equinox (September 23)

The preferred scenario has been developed to meet the overshadowing requirements outlined earlier in this section. As a result, sunlight is provided to the southern footpaths of Wells, Playne and Davey Streets, the eastern footpath of Nepean Highway and the Kananook Creek trail between 10am and 2pm.

Long Island Residences

- There is a small amount of shadow to rear gardens at 9am however the shadow disappears by 10am.

Kananook Creek & Foreshore Reserve

- Development shadows the creek at 9am however the shadow disappears by 10am.

Kananook Creek Trail - Beach St to Wells St

- The trail is clear of shadow by 10am.

Kananook Creek Promenade / Kananook Creek Bvd South - Wells St to Davey St

- The South East Water building shadows the entire promenade at 10am however the shadow disappears by 11am. South of Playne a substantial proportion of the promenade is in sunlight at 10am and completely in sunlight at 11am.

Future Promenade extension south of Davey Street

- The additional upper level setback ensures that the majority of the future promenade is in sunlight at 10am.

McCombs Reserve south of 510 Nepean Highway

- A large proportion of the site is in sunlight by 11am as outlined in the preferred requirements.

Wells Street, Playne Street, Davey Street - Southern Footpaths

- Because of the additional upper level setbacks, each footpath is in sunlight by 10am.

Nepean Highway - Eastern footpath

- The footpath is in sunlight from 2pm onwards.

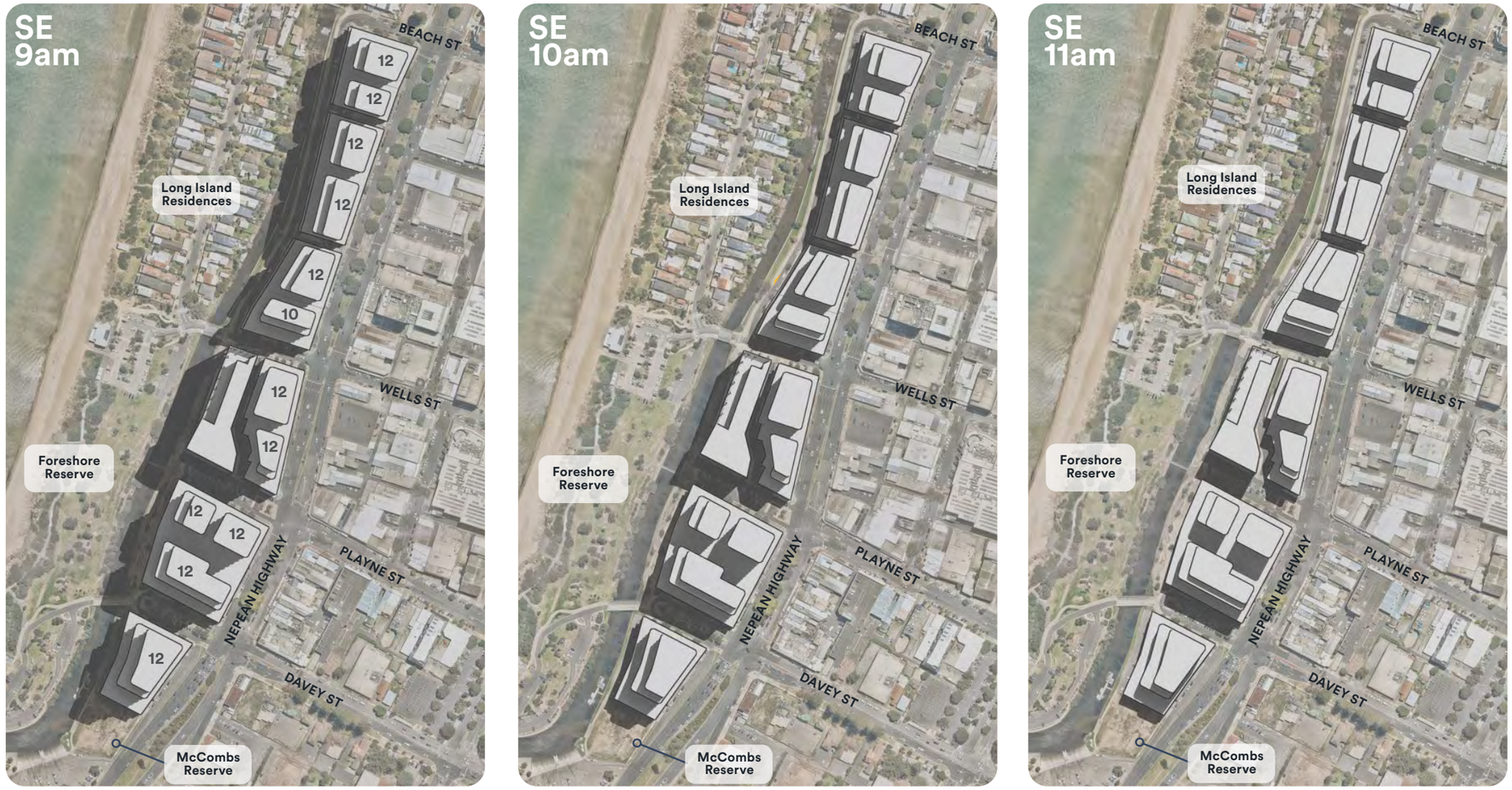


Figure 17. Preferred Scenario: Shadow analysis between 9am and 3pm at the spring equinox (September 23)


SE
12noon
BEACH ST
Long Island Residences
WELLS ST
Foreshore Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs Reserve


SE
1pm
BEACH ST
Long Island Residences
WELLS ST
Foreshore Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs Reserve


SE
2pm
BEACH ST
Long Island Residences
WELLS ST
Foreshore Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs Reserve


SE
3pm

Preferred Scenario: 12 Storeys - 41.0m with preferred setbacks - Winter Solstice (June 22)

The preferred scenario has been developed to meet the overshadowing requirements outlined earlier in this section. As a result the sunlight is provided to Kananook Creek from 10am to 2pm. A small section of the creek in the northern part of the study area receives shadow at 10am however this disappears by 10:10am.

Long Island Residences

- There is substantial shadow at small amount of shadow to rear gardens at 9am however the shadow disappears by 10am.

Kananook Creek & Foreshore Reserve

- The majority of Kananook Creek is out of shadow at 10am with only a very small proportion north of Wells Street receiving shadow.
- The foreshore reserve receives shadow at 9am however the shadow disappears by 10am.

Kananook Creek Trail - Beach St to Wells St

- The trail is in shadow at 10am but in full sunlight at 11am.

Kananook Creek Promenade / Kananook Creek Bvd South - Wells St to Davey St

- The South East Water building and proposed 12 storey buildings shadows the entire boulevard and promenade at 10am however the shadow disappears by 11am.

Future Promenade extension south of Davey Street

- The entire future promenade is in shadow at 10am however it is in full sunlight by 11am.

McCombs Reserve south of 510 Nepean Highway

- A large proportion of the site is in shadow until 11am. The podium level casts a relatively small shadow from 12pm onwards.

Wells Street, Playne Street, Davey Street - Southern Footpaths

- The majority of the southern footpaths remain in shadow until 3pm.

Nepean Highway - Eastern footpath

- The footpath is in shadow from 2pm onwards.

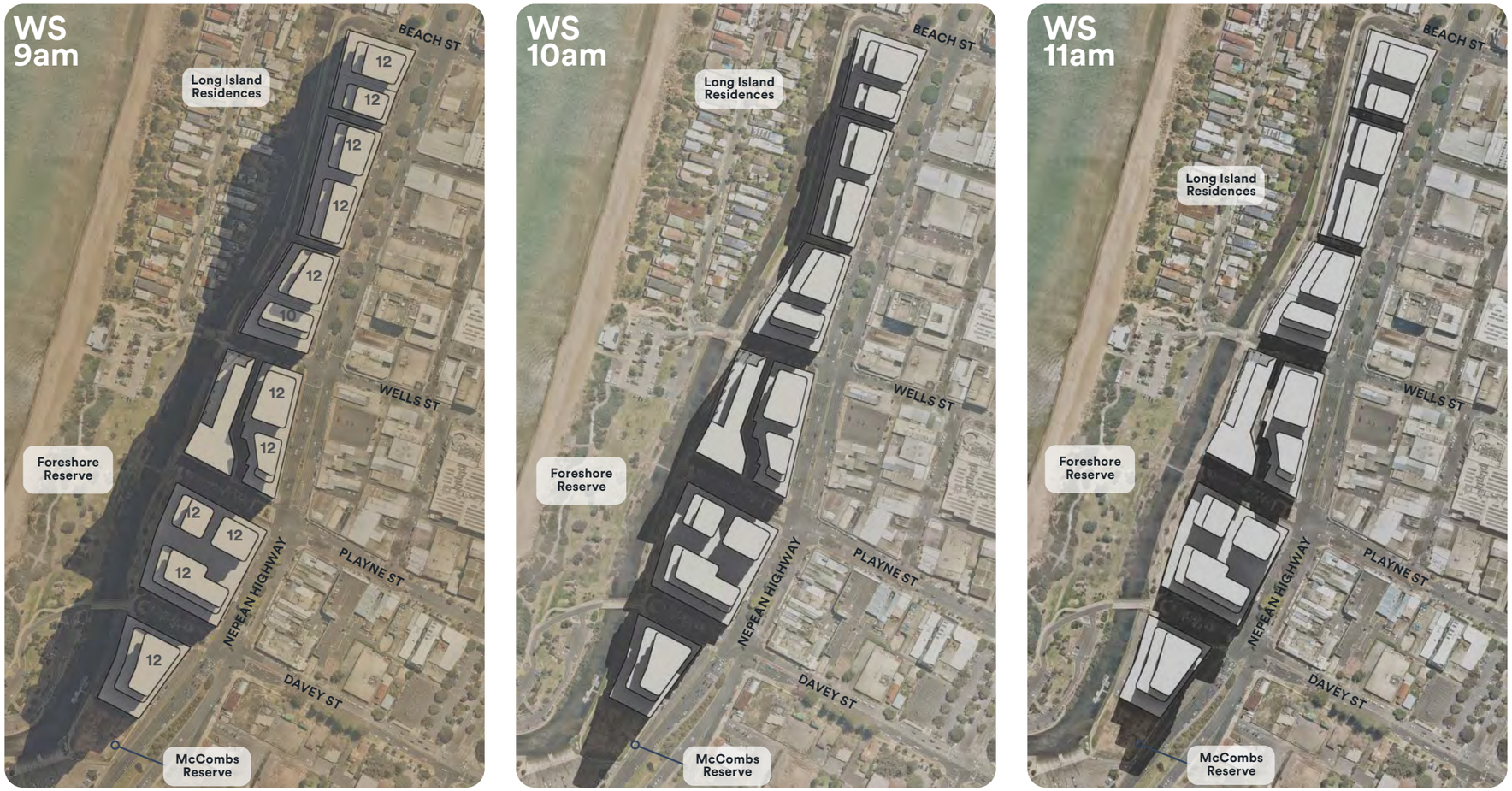
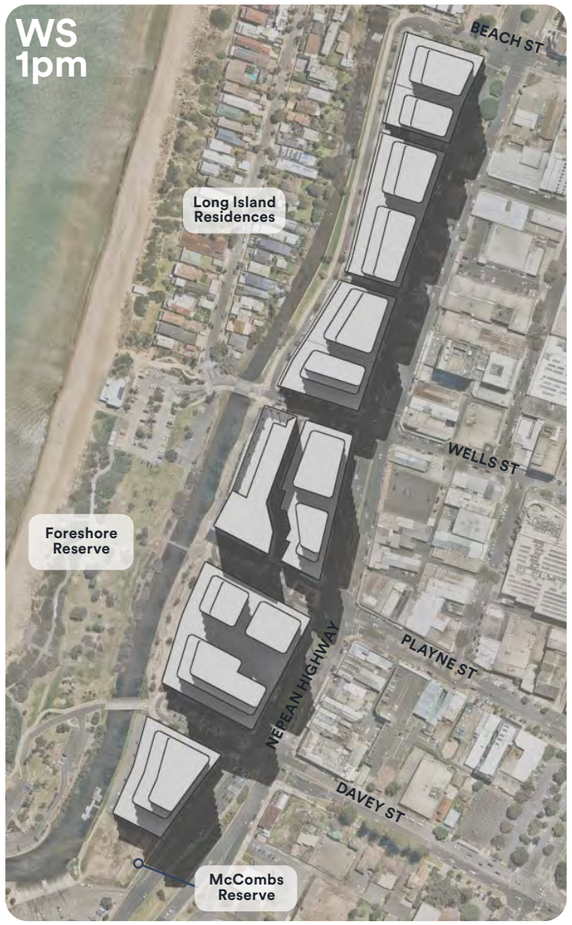


Figure 18. Preferred Scenario: Shadow analysis between 9am and 3pm at the winter solstice (June 22)


WS
12noon
BEACH ST
Long Island
Residences
WELLS ST
Foreshore
Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs
Reserve


WS
1pm
BEACH ST
Long Island
Residences
WELLS ST
Foreshore
Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs
Reserve


WS
2pm
BEACH ST
Long Island
Residences
WELLS ST
Foreshore
Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs
Reserve


WS
3pm
BEACH ST
Long Island
Residences
KEYS ST
WELLS ST
THOMPSON ST
Foreshore
Reserve
NEPEAN HIGHWAY
PLAYNE ST
DAVEY ST
McCombs
Reserve

5

Recommendations

5.1 Summary of Recommendations, Strategic Justification & Rationale

A summary of the preferred building heights, setbacks and other built form recommendations are outlined below along with a discussion of the strategic justification and rationale.

Building Height

Recommendation 1

The preferred maximum building height is 35.0m (10 storeys) for 452 Nepean Highway and 41.0m (12 storeys) for the balance of the study area. This includes additional requirements to reduce the visibility of upper levels between Beach Street and Wells Street when viewed from Long Island residences.

Strategic justification / Rationale

The recommended building heights strike a balance between maximising development capacity so that Frankston can fulfill its role as a Metropolitan Activity Centre, ensuring that development does not visually overwhelm the creek and foreshore environment and maintaining adequate sunlight to the creek and key footpaths.

The 3D view testing demonstrated that the 10 and 12 storey scenarios provided development outcomes that did not dominate views or overwhelm the scale of Kananook Creek.

The additional upper level setbacks recommended opposite the Long Island residential area will ensure that levels 11 and 12 have minimal visibility from residences. This is particularly important as this view will be experienced by residents within dwellings that are located only 40-45m from future development and from rear gardens where residents views are likely to be focused towards the creek and new development.

A similar approach is recommended south of Wells Street where levels 11 and 12 will be set back to reduce their visibility from the Kananook Creek Trail on the west side of Kananook Creek.

The preferred maximum building height is reduced to 35.0m (10 storeys) for 452 Nepean Highway. This is due to the additional upper level setbacks required to maintain solar access to Wells Street combined with building separation setbacks from the northern boundary of the site. With these setbacks applied, development above 35.0m resulted in building depths of less than 15.0m.

Street Wall

Recommendation 2

A 12.0m street wall height is recommended for each frontage across the study area

Strategic justification / rationale

A continuous 3 storey built edge will provide for a building scale that does not overwhelm the adjoining street and public spaces. This height will allow for a generous ground level to support a variety of uses and two additional levels above which can provide for further passive surveillance with inset balconies.

Because of the east-west fall through the development sites, the street wall at Kananook Creek will most likely be one storey taller than Nepean Highway. However a split-level podium response could provide for three storey heights to both frontages.

Above the 3 storey edge, upper level setbacks between 5.0m and 15.0m will allow for significant visual distinction between the podium and tower elements of buildings. This will also assist in mitigating local wind patterns and gusts by helping to deflect down drafts.

In addition to the street wall height, it will be important to create high quality, comfortable and inviting public spaces adjacent to the buildings. Fine grain design detailing in the street wall levels with glazing in the ground level will enhance these interfaces.

Built Form Sub-Precincts
Existing Open Space
Existing Heritage Overlay
City street solar access requirements
Kananook Creek Trail / Kananook Creek Boulevard / Kananook Creek Promenade solar access requirements
Kananook Creek solar access requirements
Melbourne Water Land solar access requirements
Ground level setback
Ground level setbacks for future pedestrian link
A-1 Interface types - Refer to cross sections

Preferred Building Heights

35.0m - 10 storeys
41.0m - 12 storeys

Figure 19. Built Form Recommendations Plan

Ground level setbacks

Recommendation 3

1. 3.0m ground level setback to Kananook Creek Boulevard between Beach Street and Wells Street
2. 9.0m ground level setback to Kananook Creek along the western edge of 510 Nepean Highway.
3. Zero ground level setback elsewhere.

Strategic justification / rationale

Kananook Creek Boulevard

The narrow road reservation of Kananook Creek Boulevard means that it will be unable to fulfill its role as a street that supports hospitality, entertainment uses and outdoor dining, whilst providing for north-south pedestrian movement along the property frontages.

A 3.0m ground level setback will provide sufficient space within private land that can support outdoor dining and landscaping. This setback will also assist with reducing overshadowing to the adjoining Kananook Creek Trail and reduce the visual impact of development.

It is recommended that this requirement is mandatory to ensure consistent outcomes along the streetscape.

510 Nepean Highway

The continuation of Kananook Creek Promenade south of Davey Street is identified in the FMAC Structure Plan Emerging Ideas Paper. This will provide for continuous pedestrian access between Wells Street and the foreshore reserve.

To deliver this outcome a ground level setback of 9.0m to the western property boundary is recommended. This will provide for a 12.0m wide promenade when it is combined with existing public land adjacent to the creek edge.

This width is similar to the width of the promenade in front of the South East Water building and will support a range of activities including outdoor dining, pedestrian and cycle movement, seating and creek engagement.

Kananook Creek Promenade & Kananook Creek Boulevard South

Along Kananook Creek Promenade and Kananook Creek Boulevard south, a variety of setbacks are encouraged to create plaza and courtyard spaces. This will allow opportunities for additional landscaping to soften building edges and also break-up continuous walls of development to the creek.

Zero Ground Level Setback

A zero ground level setback is recommended in every other location across the study area. This is considered appropriate to reinforce a consistent built form edge to streets and maximise opportunities for activation from ground level uses.

Mid-block links

Recommendation 4

Provide two mid-block pedestrian connections of 9.0m in width between Beach Street and Wells Street. Refer to Figure 23 for locations.

Strategic Justification / Rationale

The proposed mid-block links were identified in the FMAC Structure Plan Emerging Ideas Paper. They are considered to be important to increase visual and physical connections between the city centre and Kananook Creek.

The existing block between Beach and Wells Street is unbroken for a distance of 300m. As a comparison, the blocks between Wells and Davey Street are 100-120m in width. Providing street blocks of a similar width between Beach and Wells Street will significantly increase pedestrian permeability to Kananook Creek.

The locations selected align with existing key pedestrian links. The northern link generally aligns with Ross Smith Avenue West and a key pedestrian link through the Bayside Shopping Centre. A new signalised pedestrian crossing on Nepean Highway would ensure this link is fully integrated into the walking network.

The southern link aligns with an existing signalised pedestrian crossing on Nepean Highway. The Emerging Ideas Paper identifies this link connecting back into Shannon Street Mall and Station Street Mall.

The 3D views assessment also demonstrates the importance of providing breaks in the podiums of future development along Kananook Creek, particularly when viewed from the Long Island residential area.

The recommended width of 9.0m will require a 4.5m ground level setback from each property. The total width of the links at 9.0m is a similar width to Station Street Mall and Shannon Street Mall. This width provides opportunities for a range of uses to activate the link by providing outdoor dining and seating which will provide a comfortable space for pedestrians to move through the link.

Solar Access

Recommendation 5

The following Solar Access Requirements are recommended for the study area:

- Maintain solar access to the following footpaths between 10am and 2pm at the equinox (September 23):
  - Wells Street southern footpath
  - Playne Street southern footpath
  - Davey Street southern footpath
  - Nepean Highway Eastern Footpath
  - Kananook Creek Trail (between Beach Street and Wells Street)
- Maintain solar access to the following locations between 10am and 2pm at the winter solstice (June 22):
  - Foreshore reserve
  - Kananook Creek
- Maintain solar access to half (50%) of McCombs Reserve south of 510 Nepean Highway between 10am and 2pm at the equinox (September 23).

Strategic justification / rationale

Refer to section 4.2 which outlines the strategic justification and rationale for the recommended solar access requirements. The testing undertaken in Section 4.2 demonstrates that these requirements can be met whilst supporting significant development opportunities within the study area.

The shadow testing also demonstrated that sites across the study area will cast varied shadows due to subtle changes in the orientation of properties and the creek. This will make it challenging to completely satisfy the solar access requirements on every site. For this reason, it is recommended that overshadowing controls are discretionary rather than mandatory to account for these variations.

Upper Level Setbacks

Recommendation 6

A range of primary upper level setbacks are proposed across the study area. The solar access and visibility requirements may require additional upper level setbacks. The primary upper level setbacks include:

- 10.0m upper level setback from the street wall to the Kananook Creek frontage between Beach Street and Davey Street.
- 10.0m upper level setback from the street wall of development at 510 Nepean Highway to McCombs Reserve.
- 5.0m upper level setback from the street wall at Beach Street, Wells Street, Playne Street, Davey Street and Nepean Highway.

Strategic justification / rationale

The 10.0m minimum upper level setbacks to Kananook Creek provide multiple benefits. This is a particularly sensitive interface and increased setback will reduce the visual impact of development to Long Island residences, Kananook Creek and the foreshore reserve. Additional upper level setbacks are required to achieve the solar access requirements to Kananook Creek.

For all of the streets, a recommended 5.0m upper level setback will provide for adequate podium and tower separation. This setback is likely to be applied across the balance of the FMAC for the city centre streets which will provide for integration.

Additional upper level setbacks will be required for Wells Street, Playne Street and Davey Street to maintain solar access to southern footpaths. This will further reduce visual bulk to these key east-west streets.

Building Separation

Recommendation 7

For development above the podium level the preferred minimum setback to common / shared boundaries is 6.0m up to the preferred maximum building height. This will allow for 12.0m separation between towers.

Strategic Justification / Rationale

Tower separation is particularly important for the FMAC to ensure that the future development potential of adjoining sites is not significantly compromised by the first development.

The recommended setbacks from side and rear boundaries will ensure adjoining buildings have sufficient separation, to limit overshadowing and ensure adequate privacy for apartments and access to daylight. In addition, the seperation will increase opportunities for views to the water from future development.

Equally important are the visual benefits of tower separation. Space between buildings allows for additional views to the sky when viewed from the city centre which provides the connection to the creek and foreshore. When looking back from the foreshore and Kananook Creek, gaps between buildings reduces the overall visual bulk of development, which is demonstrated in the 3D views analysis.

Other Recommendations

Recommendation 8 - Maximum Building lengths

In addition to the tower separation requirements, it is recommended that buildings are no longer than 45.0m in length.

This will ensure that development is not visually dominant on the skyline. The South East Water building provides an example where a significant building length results in an undesirable outcome with significant visual bulk.

If it is not practical to limit development to this length, development should provide variation in massing, articulation and roof form to reduce visual bulk.

Recommendation 9 - Building Design

Development across the study area will need to be of significant architectural quality because of the high visibility of development. New development will be highly visible from a from a range of key viewpoints which places particular importance in ensuring that all sides of the tower elements are articulated and present well to the surrounding areas.

Slender tower forms are also encouraged to reduce the overall visual bulk of development.

Recommendation 10 - Fine-grain articulation

It will be important for the podium levels of development to provide fine-grain articulation. Variation in podium forms through vertical modulation, and recessed and projected elements will reduce the bulk and create greater visual interest.

Recommendation 11 - Active Frontages

All streets and public space interfaces across the study area are recommended have active frontages with buildings designed with a high level of transparency and engagement. Weather protection in the form of building awnings should be provided to support pedestrian comfort.

Recommendation 12 - Surveillance

The podium levels should provide surveillance of the adjoining public realm at each level. Primary activity will be provided at ground level however embedded balconies for the second and third levels should allow for additional surveillance. Car parking that directly interfaces with the adjoining street or public space should be avoided in the podium.

Recommendation 13 - Landscaping

Because of the location of this precinct adjacent to Kananook Creek and the foreshore, it is important that additional landscaping is provided within development so that it integrates with the surrounding natural landscape and softens the visual impact of development.

Landscaped ground level courtyard spaces and setbacks combined with green balconies and terraces, and green walls will ensure development integrates with Kananook Creek and the foreshore.

Recommendation 14 - Vehicle Access

The Emerging Ideas Paper identifies major transformation for both Nepean Highway and Kananook Creek Boulevard to become pedestrian focused environments with a high level of activity. Vehicle entries to basement or podium level car parks should be avoided where possible from these streets to ensure footpaths and ground level active uses are not disrupted. Vehicle access to car parks should be prioritised from Beach Street, Wells Street, Playne Street and Davey Street.

5.2 Sub-Precinct Recommendations

Sub-Precinct A

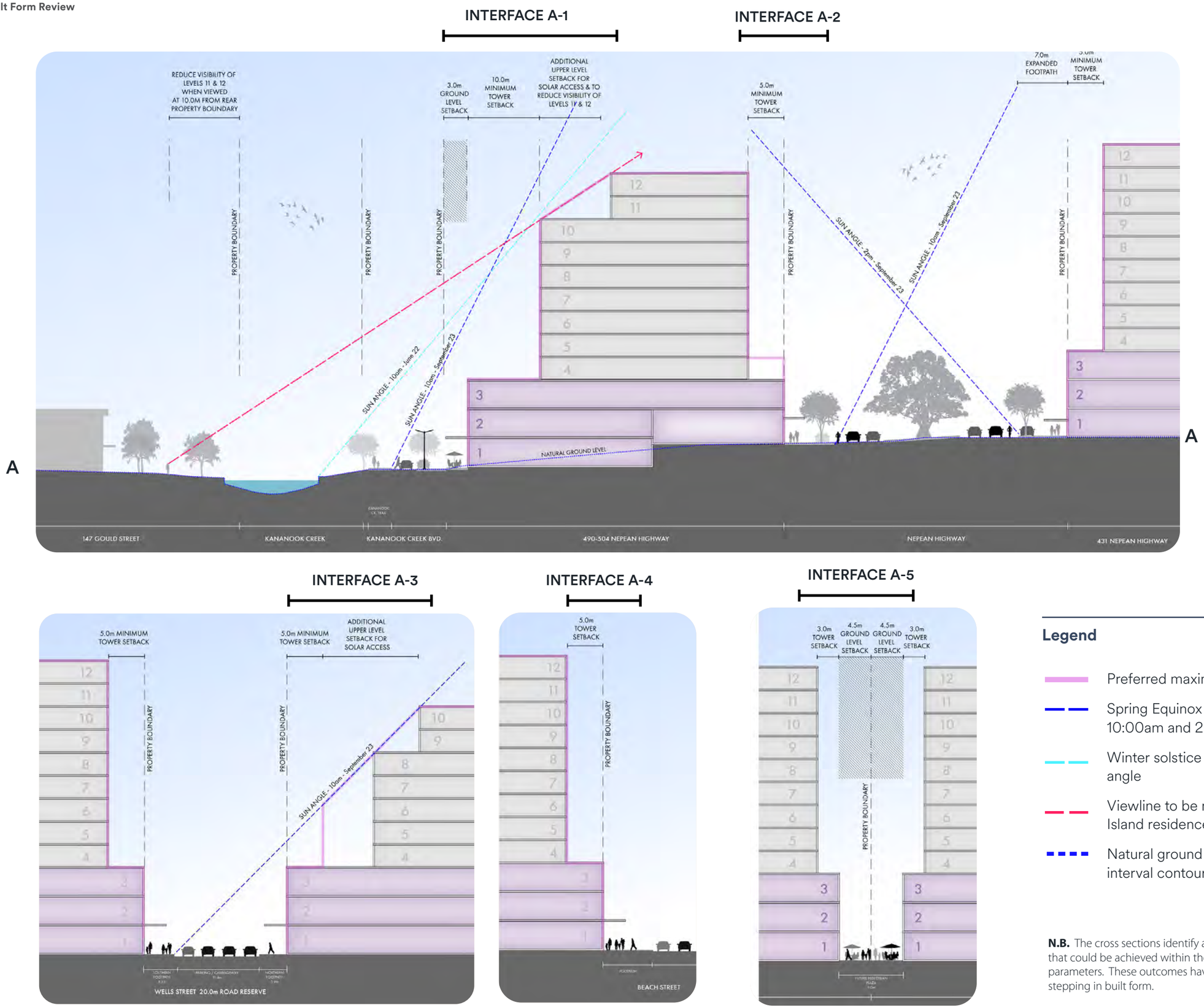
Figure 20. Built Form Recommendations Plan - Sub-Precinct A

Element	Development Requirements
Preferred Building Heights	• 452 Nepean Highway - Preferred Maximum Building Height is 35.0m (10 storeys) above natural ground level as measured from the western property boundary (Kananook Creek frontage) • Elsewhere - Preferred Maximum Building Height is 41.0m (12 storeys) natural ground level as measured from the western property boundary (Kananook Creek frontage)
Preferred Street Wall Heights	• Preferred street wall height is 12.0m (3 storeys).

Mandatory Street & Ground Level Setbacks	• 3.0m ground level setback to Kananook Creek Boulevard to provide an outdoor dining / activation zone for new development.
	• Future pedestrian links between Nepean Highway and Kananook Creek Boulevard - 4.5m ground level setback to the following:
	  • Northern property boundary of 446 Nepean Highway
	  • Southern property boundary of 438 – 444 Nepean Highway
	  • Northern property boundary of 432 Nepean Highway
	  • Southern property boundary of 428-430 Nepean Highway

Preferred Street & Ground Level Setbacks	• 0.0m to Nepean Highway, Beach Street and Wells Street
Preferred Upper-Level Setbacks	• Kananook Creek interface - 10.0m setback for upper-level development from the street wall. • Development above 35m (10 storeys) should be set back so it has minimal visibility from the opposite Gould Street properties. The level of visibility should be measured from a distance of 10.0m from the rear boundary of the Gould Street properties. • 5.0m setback for upper-level development from the street wall to Beach Street, Wells Street and Nepean Highway. • Future pedestrian links - 3.0m setback for upper-level development from the future laneway street wall to create a total of 15.0m building separation. • Provide additional upper-level setbacks as required to achieve the solar access requirements outlined below.

Solar Access	• Ensure solar access is maintained to the following:
	  • The eastern edge of Kananook Creek between 10am and 2pm at the winter solstice (June 22).
	  • The Kananook Creek trail between 10am and 2pm at the equinox (September 23).
	  • Within 7.0 metres of the eastern property boundary of Nepean Highway between 10am and 2pm at the equinox (September 23). This measurement accounts for future widening of the Nepean Highway footpath.
	  • The entire southern footpath of Wells Street between 10am and 2pm at the equinox (September 23).



Legend

- Preferred maximum building envelope
- Spring Equinox (September 23) - 10:00am and 2:00pm sun angle
- Winter solstice (June 22) - 10:00am sun angle
- Viewline to be maintained from Long Island residences
- Natural ground level (derived from 0.5m interval contour data)

N.B. The cross sections identify a potential development outcome that could be achieved within the recommended built form parameters. These outcomes have been designed to minimise stepping in built form.

Figure 21. Interface Cross sections - Sub-Precinct A

Sub-Precinct B

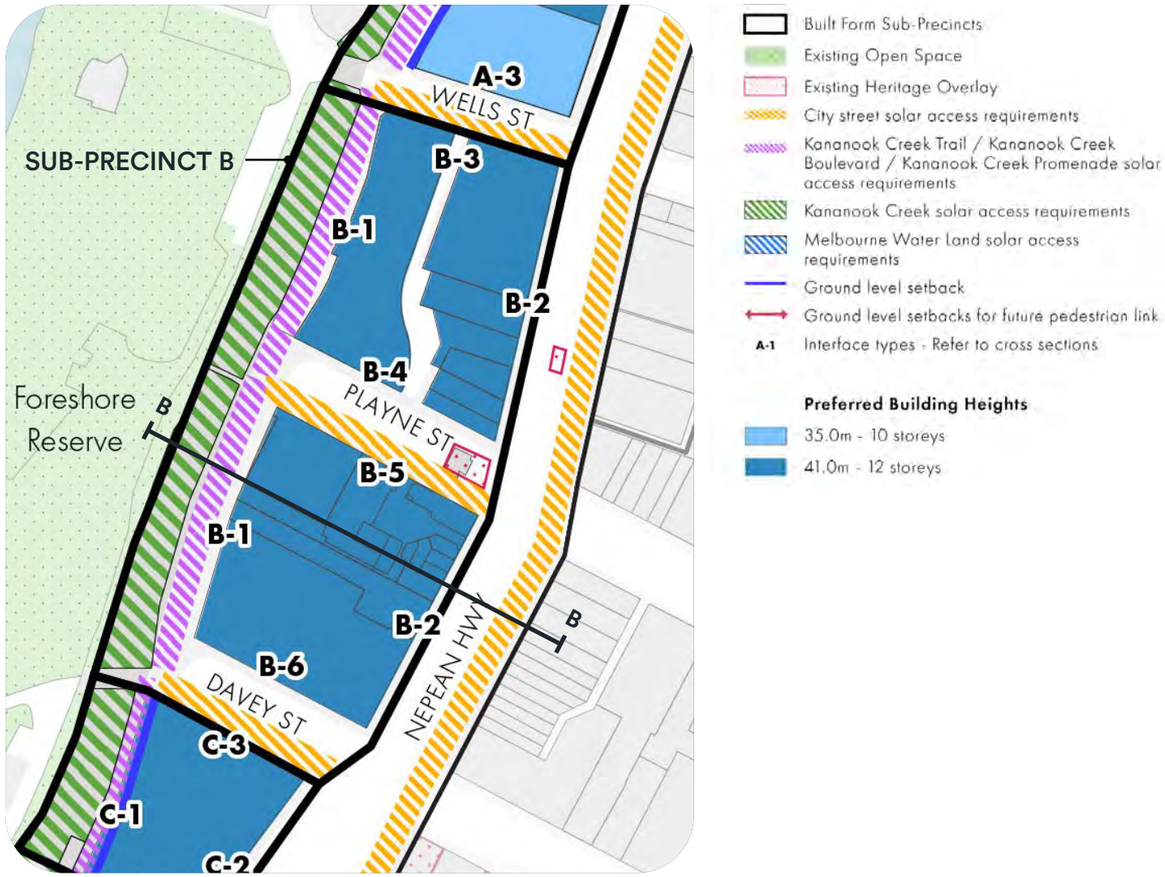


Figure 22. Built Form Recommendations Plan - Sub-Precinct B

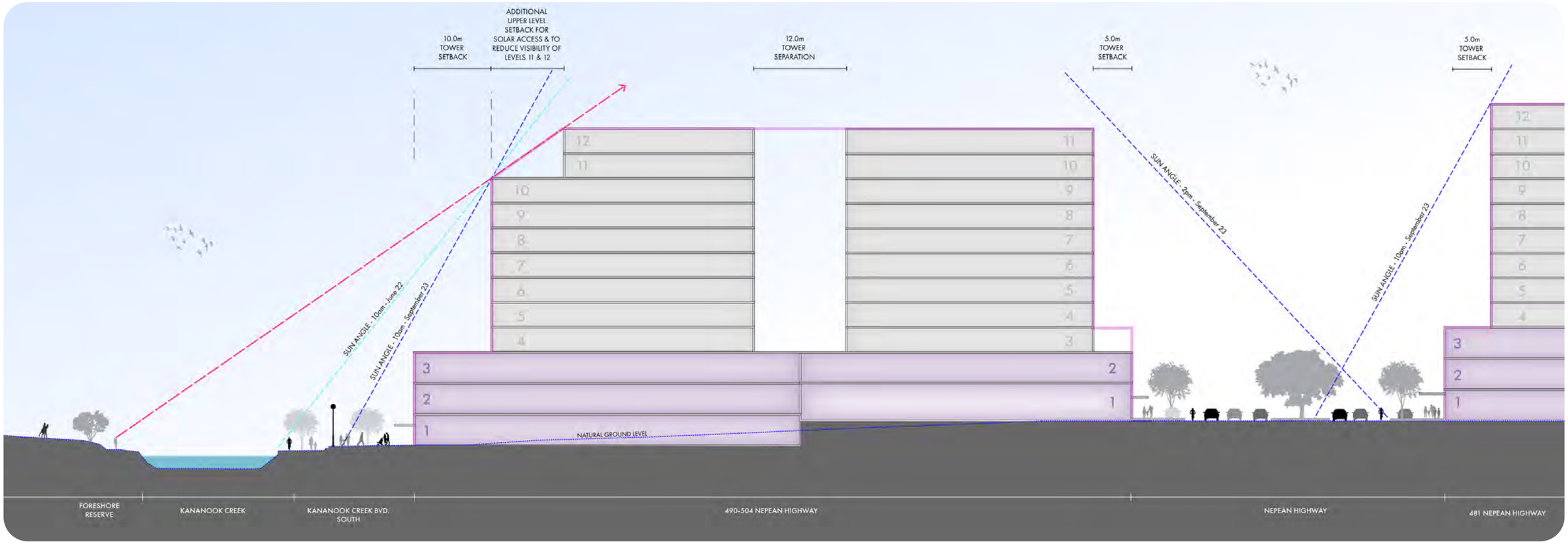
Element	Development Requirements
Preferred Building Heights	• Preferred Maximum Building Height is 41.0m (12 storeys) above natural ground level as measured from the western property boundary (Kananook Creek frontage)
Preferred Street Wall Heights	• Preferred street wall height is 12.0m (3 storeys).
Preferred Street & Ground Level Setbacks	• 0.0m to Kananook Creek Boulevard South, Nepean Highway, Wells Street, Playne Street and Davey Street
Preferred Upper-Level Setbacks	• Kananook Creek interface - 10.0m setback for upper-level development from the street wall. • 5.0m setback upper-level development from the street wall to Wells Street, Playne Street, Davey Street and Nepean Highway. • Development above 35.0m (10 storeys) should be set back so it has minimal visibility from the Kananook Creek trail within the foreshore reserve opposite. • Provide additional upper-level setbacks as required to achieve the solar access requirements outlined below.

Solar Access	• Ensure solar access is maintained to the following:
	  • The eastern edge of Kananook Creek between 10am and 2pm at the winter solstice (June 22).
	  • 40% of Kananook Creek Boulevard South between 10am and 2pm a the equinox (September 23).
	  • Within 7.0 metres of the eastern property boundary of Nepean Highway between 10am and 2pm at the equinox (September 23). This measurement accounts for future widening of the Nepean Highway footpath.
	  • The entire southern footpath of Playne Street and Davey Street between 10am and 2pm at the equinox (September 23).

INTERFACE B-1

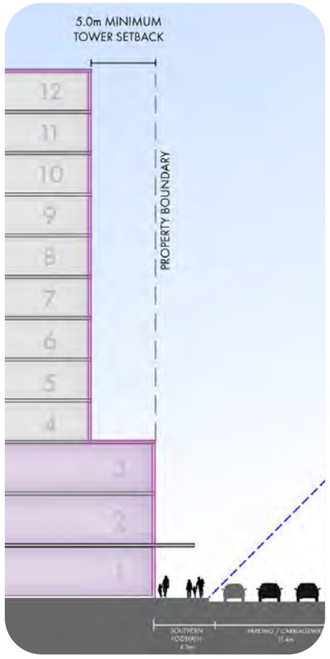
INTERFACE B-2

B



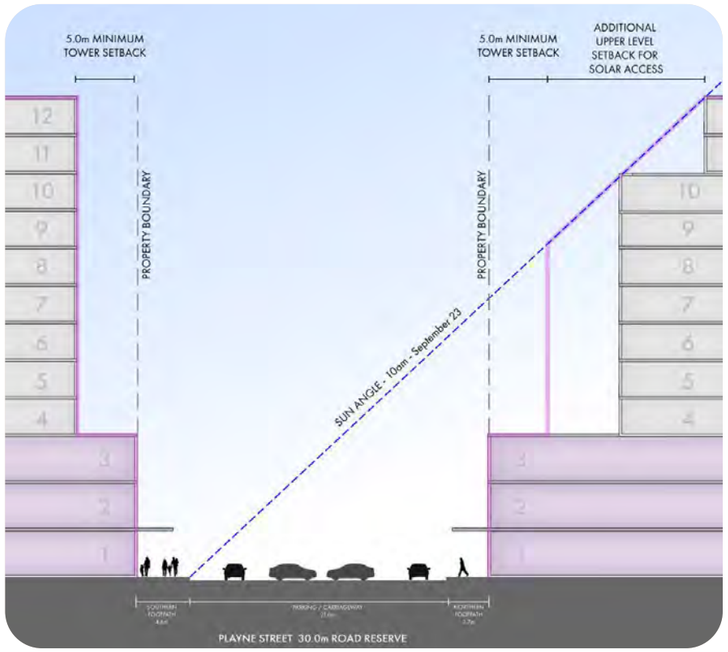
B

INTERFACE B-3

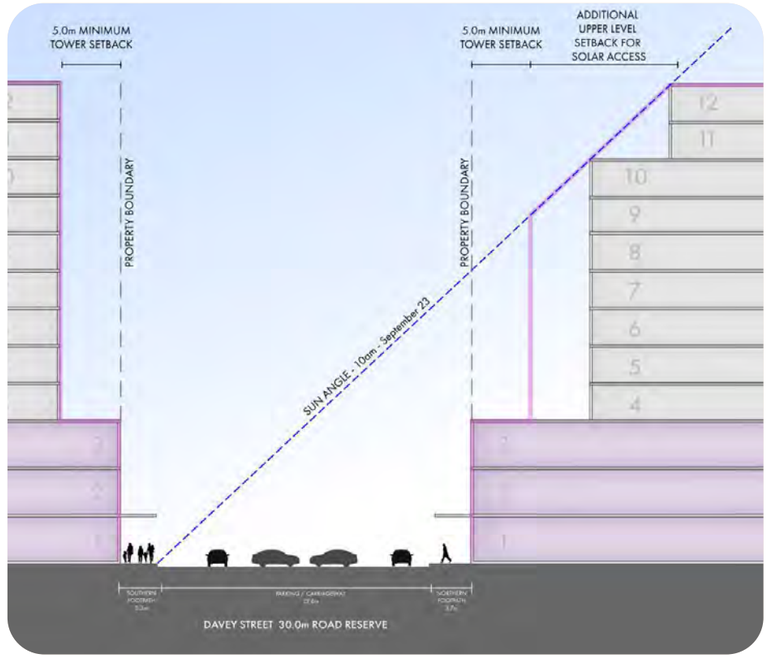


INTERFACE B-5

INTERFACE B-4



INTERFACE B-6



Legend

- Preferred maximum building envelope
- Spring Equinox (September 23) - 10:00am and 2:00pm sun angle
- Winter solstice (June 22) - 10:00am sun angle
- Viewline to be maintained from Kananook Creek Trail
- Natural ground level (derived from 0.5m interval contour data)

N.B. The cross sections identify a potential development outcome that could be achieved within the recommended built form parameters. These outcomes have been designed to minimise stepping in built form.

Figure 23. Interface Cross sections - Sub-Precinct B

Sub-Precinct C

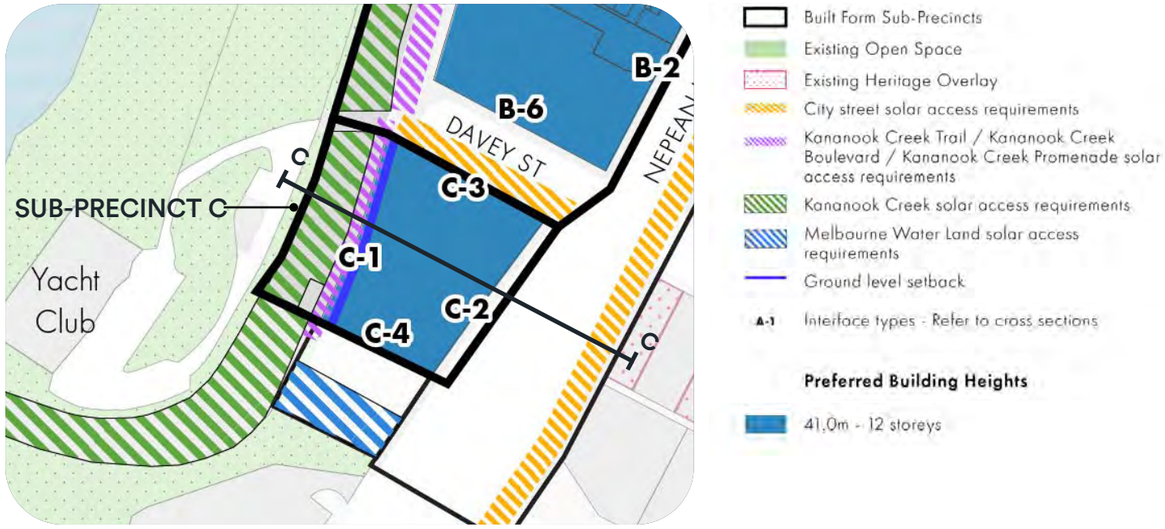


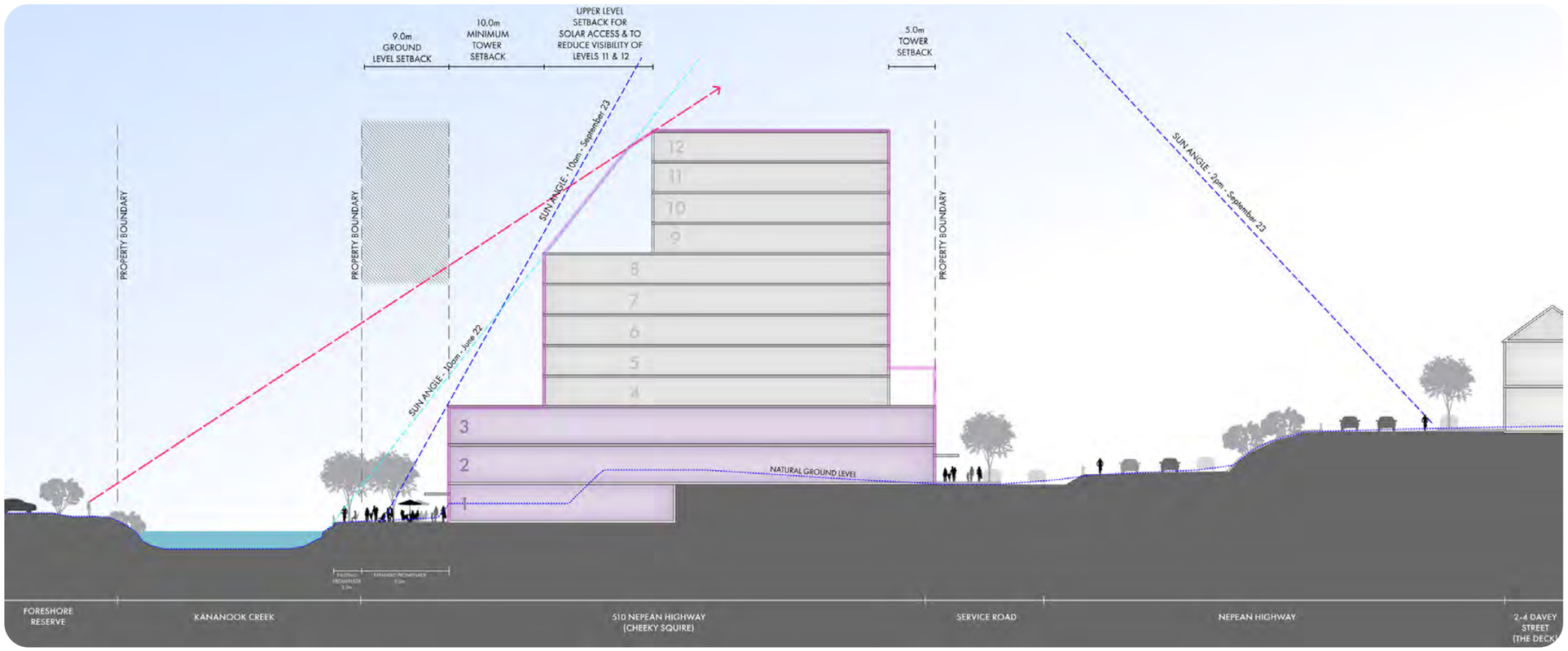
Figure 24. Built Form Recommendations Plan - Sub-Precinct C

Element	Requirements
Preferred Building Heights	• Preferred Maximum Building Height is 41.0m (12 storeys) above natural ground level as measured from the western property boundary (Kananook Creek frontage)
Preferred Street Wall Heights	• Preferred street wall height is 12.0m (3 storeys).
Mandatory Street & Ground Level Setbacks	• 9.0m ground level setback to Kananook Creek Boulevard to provide an outdoor dining / activation zone for new development.
Preferred Street & Ground Level Setbacks	• 0.0m to Nepean Highway, Davey Street and southern boundary of 510 Nepean Highway
Preferred Upper-Level Setbacks	• Kananook Creek and McCombs Reserve interface - 10.0m minimum setback for upper-level development from the street wall. • Davey Street and Nepean Highway - 5.0m setback upper-level development from the street wall. • Development above 35.0m (10 storeys) should be set back so it has minimal visibility from the Kananook Creek trail within the foreshore reserve opposite. • Provide additional upper-level setbacks as required to achieve the solar access requirements outlined below.

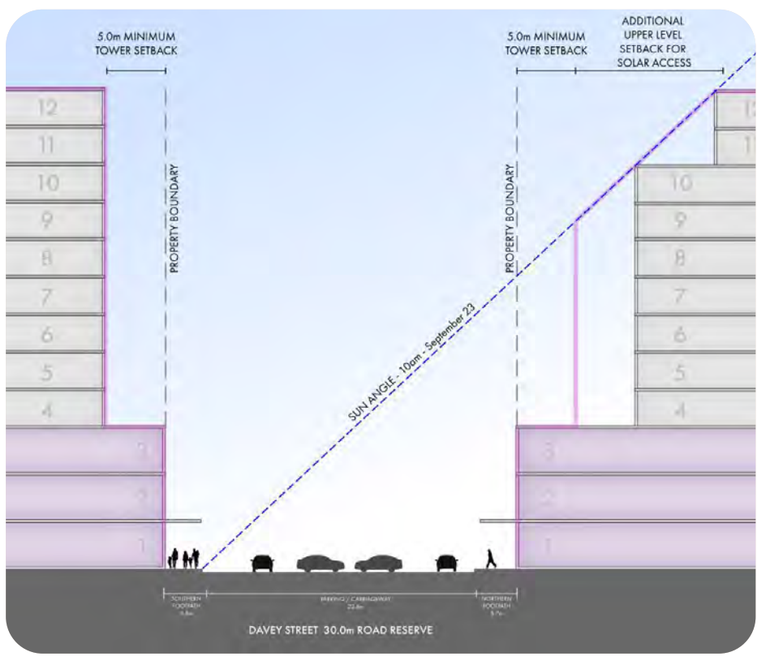
Solar Access	• Ensure solar access is maintained to the following:
	  • The eastern edge of Kananook Creek between 10am and 2pm at the winter solstice (June 22).
	  • Future Kananook Creek Promenade (510 Nepean Highway) - Beyond a distance of 7.0m from the eastern edge of the future promenade between 10am and 2pm at the spring equinox (September 23).
	  • McCombs Reserve - Beyond a distance of 20.0m from the northern property boundary between 10am and 2pm at the spring equinox (September 23).
	  • The eastern footpath of Nepean Highway between 10am and 2pm at the equinox (September 23).

INTERFACE C-1

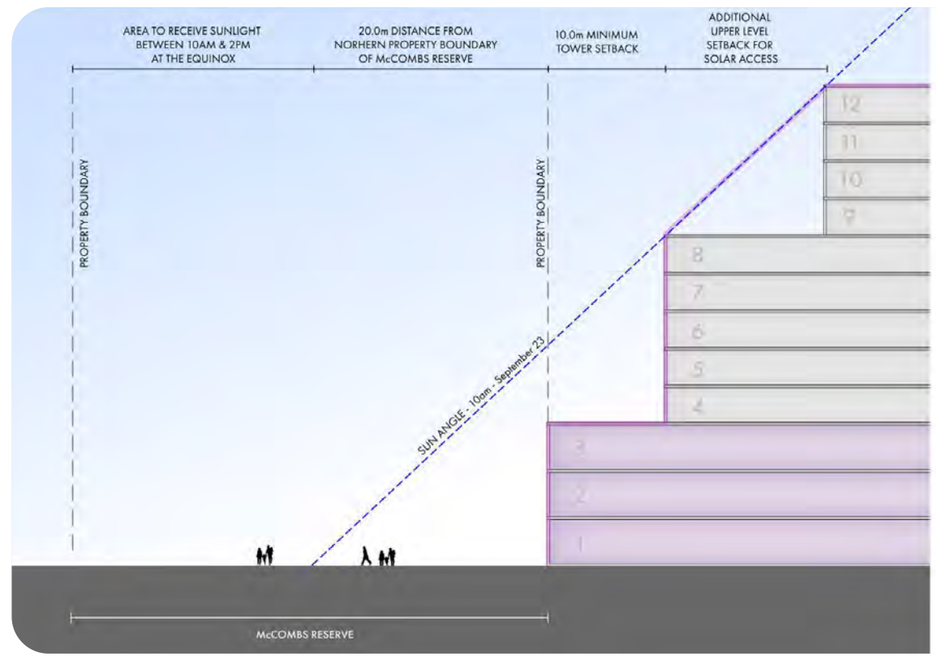
INTERFACE C-2



INTERFACE C-3



INTERFACE C-4



Legend

- Preferred maximum building envelope
- Spring Equinox (September 23) - 10:00am and 3:00pm sun angle
- Winter solstice (June 22) - 10:00am sun angle
- Viewline to be maintained from Kananook Creek Trail
- Natural ground level (derived from 0.5m interval contour data)

N.B. The cross sections identify a potential development outcome that could be achieved within the recommended built form parameters. These outcomes have been designed to minimise stepping in built form.

Figure 25. Interface Cross sections - Sub-Precinct C

5.3 Other Recommendations

Building Form and Design

- Enhance the southern gateway to the FMAC along Nepean Highway with development of exemplary architectural quality with forms that create an interesting skyline.
- Buildings should be designed to enhance views from Kananook Creek and foreshore reserve with architectural elements that assist in creating an interesting and varied skyline.
- Towers should be designed with slender forms with bulk minimised to the sensitive interfaces including of the foreshore reserve and Long Island residential area.
- Building facades should be articulated through the design of openings, balconies, varied materials, recessed and projected elements, and revealing structural elements. Facades should not rely on excessive use of materials to achieve visual interest.
- Where buildings that include a tower component that is separated from adjoining boundaries, ensure that the building is designed with articulated facades to each interface.
- Upper levels above the podium and roof forms should be integrated with the overall building design.
- Buildings should have a maximum tower length of 45.0 metres to reduce visual bulk and allow for sharing of views.
- Buildings should utilise materials that do not generate glare, and can withstand the effects of weathering.
- Encourage new development that provides for narrow tenancies at ground level or utilises articulation and building forms to create the sense of a fine-grain subdivision to the streetscape.

Building Heights and Setbacks

- The preferred maximum building height excludes rooftop services which should be hidden from view from any adjoining public space or designed as architectural roof top features. Roof top services includes but is not limited to plant rooms, air conditioning, lift overruns and roof mounted equipment.
- Architectural features may exceed the preferred building heights.
- To support a high level of internal amenity and adaptation to other uses over time, buildings should provide the following minimum floor to floor heights:
  - Ground level – 4.0 metres
  - Above ground level up to street wall height (including car parking) – 3.5 metres
  - Residential uses – 3.2 metres
  - Non-residential uses – 3.5 metres
- Development that exceeds the identified Preferred Heights should demonstrate each of the following:
  - The development meets or does not significantly exceed the overshadowing requirements outlined in the Sub-Precinct Development Requirements.
  - Levels above the preferred maximum height are set back further behind the street wall.
  - The development provides significant public realm benefits. This could include:
    - Provision of a new public pedestrian link through the site.
    - Expansion of the adjoining footpath space for public use.
    - The provision of new or expanded public open space within the development.
    - A demonstrable benefit to the broader community.
    - Provides for affordable housing within the development.
- Projections such as balconies, building services and architectural features should not intrude into the preferred ground level and upper-level setbacks.
- Development should avoid repetitive stepped building forms by providing a common street and rear setback for the majority of the upper levels above street wall.
- Where development shares a common boundary and no interface treatment is identified in the Precinct Requirements, the following side and rear setbacks should be provided to achieve adequate sunlight, outlook and privacy for habitable rooms and reduce the visual bulk of development:

Overall Building Height	Preferred minimum side and rear setback above the street wall
Up to 28.0m	4.5m
Between 28.0m and 42.0m	6.0m
Above 42.0m	10.0m

- N.B. Where the common boundary is a laneway, the setback is applied from the centre of the laneway.

Street Interface

- Design buildings to respond to the topography so that ground level of the buildings meets the existing footpath level at both the Kananook Creek and Nepean Highway frontages.
- Provide plaza spaces along the Kananook Creek frontage to create high quality spaces for pedestrian amenity and outdoor dining, and assist in reducing wind speeds.
- All street and promenade frontages and frontages the new pedestrian links should be treated as Primary Active Frontages providing a minimum of 75% of the ground level frontage with clear glazing or building entries. Provide ground level uses that engage with the adjoining public realm.
- Materials within podium levels should be tactile and visually interesting to reinforce the human scale. Avoid long expanses of floor to ceiling glazing.
- Buildings on corner sites should be designed to actively address both frontages at both the street and upper levels.
- Upper levels of buildings should be designed to provide habitable rooms with windows or balconies that overlook the public realm.
- Avoid the presentation of blanks walls to the public realm. Wall on boundaries that will eventually be built out should still have some form of articulation while awaiting adjoining development - i.e. art, pre-cast patterned concrete etc.
- Provide embedded balconies within the podium levels above ground floor to support surveillance of the streets and adjoining public spaces.
- Provide building awnings to Nepean Highway, Beach Street, Wells Street Playne Street, Davey Street and the Kananook Creek interfaces where appropriate.

Access and Services

- Provide vehicle access to basement car parks from Beach Street, Wells Street, Playne Street and Davey Street rather than from Nepean Highway and Kananook Creek Boulevard. Where this is not possible, minimise the width of the car park entries and impact on street trees.
- Provide basement car parking where possible to avoid inactive building frontages. Where this not possible and parking needs to be provided above ground in the podium level, ensure parking levels are sleeved with active uses.
- Pedestrian entries to buildings should be clearly visible and easily identifiable from the street and accessible for all abilities.
- Residential entries should be distinguished from retail and commercial entries.
- Screen air conditioning services, antennas and other utilities from public view using balcony treatments / roof structures / architectural elements. Avoid using walls to screen services.
- Avoid and minimise building services and utilities at ground floor street frontages to prioritise active frontages at these locations. Integrate services and utilities with the building design.

Landscaping

- Provide landscaping and planting that relates to the native habitat planting within the Kananook Creek Corridor.
- Encourage a range of landscaped courtyard and plaza spaces along the Kananook Creek frontage.
- Communal garden spaces should be provided at podium and rooftop levels where appropriate to create amenity for residents, workers and visitors. The gardens should take into consideration, aspect, materials and solar orientation.
- Utilising green roofs, walls and balconies to provide additional landscaping and soften the visual impact of buildings.

Environmental Sustainable Design

- All new buildings are to incorporate best practice Environmentally Sustainable Development (ESD) principles. Refer to the Frankston Ecologically Sustainable Development Design Guide - Buildings, 2009.


6

Appendices

Appendix A Ecology and Heritage Partners Report

ecology & heritage partners

Potential Shadowing Impacts on Aquatic Flora and Fauna, Kananook Creek, Frankston, Victoria

Date: 21 September 2022

Author: Matthew Boyd (Ecologist)

Ref: 16309

1 Introduction

Ecology and Heritage Partners Pty Ltd was commissioned by Tract to undertake a review of the potential impacts of shadowing on Aquatic Flora and Fauna at Kananook Creek, Frankston, Victoria. We understand that Tract are assisting Frankston City Council with a built form review of the potential impacts of development adjacent to Kananook Creek.

One of the inherent impacts associated with developing the areas adjacent to Kananook Creek for residential or commercial use, is overshadowing on aquatic flora and fauna values. The purpose of this assessment was to undertake a literature review of the potential impacts of overshadowing and to summarise the potential impacts on aquatic flora and fauna species. This report presents the results of the assessment and discusses the potential ecological and legislative implications associated with the proposed action.

2 Study Area

The study area is located at Kananook Creek, Frankston and is approximately 35 kilometres south-east of Melbourne's CBD (Figure 1). The study area covers approximately 7.5 hectares and is bound by Beach Street to the north, City of Frankston to the south, Nepean Highway to the east and Port Phillip Bay to the west.

Kananook Creek runs through the western portion of the study area, flowing from an outlet at Patterson Lakes, through the suburbs of Seaford and Frankston, and discharging into Port Phillip Bay, approximately 500 metres to the south-west. The study area is currently used as a boulevard and walking trail adjacent to Kananook Creek, with residential and commercial buildings also present.

According to the Department of Environment, Land, Water and Planning (DELWP) NatureKit Map (DELWP 2022a), the study area is located within the Gippsland Plain bioregion, Melbourne Water (previously Port Phillip and Westernport) Catchment Management Authority (CMA) and Frankston City Council municipality.

3 Methods

3.1 Desktop Assessment

Relevant literature, online-resources and databases were reviewed to provide an assessment of flora and fauna values associated with the study area. The following information sources were reviewed:

- The DELWP NatureKit Map (DELWP 2022a) and Native Vegetation Information Management (NVIM) Tool (DELWP 2022b) for:

  - Modelled data for location risk, native vegetation patches, scattered trees and habitat for rare or threatened species; and,
  - The extent of historic and current Ecological Vegetation Classes (EVCs).
- Visualising Victoria's Biodiversity (VBB) (VBB 2022) for assistance with the identification of aquatic fauna species;
- The online VicPlan Map (DELWP 2022c) to ascertain current zoning and environmental overlays in the study area;
- The Victorian Biodiversity Atlas (VBA) for previously documented flora and fauna records within the project locality (DELWP 2022d);
- Aerial photography of the study area; and
- Other reports relevant to the study area, including:
  - Flora and Fauna Assessment: Kananook Creek Arboretum. Ranges Environmental Consulting 2020.

4 Discussion

One of the risks associated with developing the eastern side of the creek for use as commercial precinct is the potential impact of overshadowing on the Kananook Creek. Given that aquatic flora rely on light for photosynthesis, there are implicit risks that the development may inhibit the growth of aquatic flora, and concurrently, limit the availability of food for aquatic fauna species.

Ecology and Heritage Partners have been requested by Tract to assess the loss of two hours of sunlight to Kananook Creek between 8am and 10am. This time period was selected to assess a worst-case scenario for shadow impacts to the creek.

At the winter solstice (June 22), the sun rises at approximately 7:40am. Some parts of the creek may receive sunlight around this time as there are a number of vacant sites and at-grade car parking areas along the creek. The planning controls which are being developed through the Draft Structure Plan, will seek to maintain sunlight to the creek from 10am at the winter solstice. Therefore, there may be approximately two hours of additional overshadowing to the creek if development occurs under the recommended planning controls.

This represents a worst-case scenario as the shadows cast at the winter solstice are the longest shadows across the year. The shadow impacts to the creek will reduce before and after the winter solstice.

4.1 Overshadowing

Understanding the effects of abiotic conditions, such as availability of light, on the growth and distribution of organisms is essential to anticipating the anthropologically induced environmental change across ecosystems (Theus *et al.*, 2022). The interactive effects of multiple abiotic factors make it difficult to predict the response of ecosystems and populations when environmental changes occur. Even temporal variations or reductions in these abiotic conditions can alter the growth and performance of organisms. Changes in the photoperiod regime (i.e. the period of time each day where organisms receive light) can alter the intensity of light

(irradiance) which is received, and the temperature of aquatic ecosystems. In areas which experience shorter photoperiods (i.e. shorter days), the availability of light over the course of the day is reduced, causing a decline in growth rates of aquatic primary producers (Theus *et al.,* 2022).

Primary production in the context of an aquatic ecosystem, is the production of organic material through photosynthesis where light is the source of energy (Howarth & Michaels, 2000). To carry out this process, abiotic conditions such as sunlight and carbon dioxide, and nutrients such as nitrogen and phosphorus, are required. Primary and secondary consumers, particularly benthic organisms play a role in the regulation of nutrient concentrations, and the overall productivity in estuarine systems. Thus, primary producers which rely on sunlight for photosynthesis have the potential to be impacted when reducing the amount of available sunlight. Primary producers play an important role in the flow of energy through aquatic food webs, providing the basal resources for higher trophic levels to thrive (Kiffney *et al.*, 2014).

While primary production may be limited by low nutrient concentrations in unshaded streams, primary production in streams that are bordered by well-developed terrestrial plant communities appears to be strongly affected by low light levels (Hill *et al.*, 1995). In a natural creek context, where terrestrial vegetation occur adjacent to the creek, light availability for aquatic species is limited primarily by streamside vegetation and as such, changes in the structure and composition of these streamside plant communities can naturally alter the photoperiod, influencing stream primary production, which in turn, modifies stream nutrient dynamics and higher trophic level production (Warren *et al.*, 2016). In an artificial setting, a reduction of two hours in availability of sunlight is likely to reduce the amount of sunlight entering the aquatic ecosystem, and concurrently, reducing the amount of primary production which may occur. This is likely to be more prevalent during winter month when the percentage reduction of direct light availability would be substantially higher, due to shorter light hours per day. Where the reduction of sunlight is influenced by artificial structure, such as buildings, these changes in stream nutrient dynamics are lost. It is known that a reduction in sunlight reduces the amount of primary production which occurs, however, there are no studies which analyse the incremental change in primary production from reduced sunlight hours (i.e. 6 hrs of sunlight per day vs. 8 hours of sunlight per day). Although changes in light is often analogous to primary production, several factors such as temperature, light, turbidity, nutrient concentration, species composition and species abundance, play an important role in primary production (Gameiro *et al.,* 2011). Whilst a reduction of two hours of morning sunlight may influence the amount of primary production which occurs in Kananook Creek, the associated impact is inherently influenced by the existing ecological values. The below sections outline aquatic flora and fauna which may be utilising the study area.

4.2 Aquatic Flora Habitat

The study area is largely developed, with existing urban infrastructure predominating in the area. As such, ecological values in the area have been highly modified.

Based on the NVIM tool (DELWP 2022b), 2005 modelled vegetation identifies one EVC within the southern portion of the study area: Coast Banksia Woodland/Coastal Dune Scrub Mosaic (EVC 921) (Plate 1). The NVIM tool models the condition of native vegetation within and around the study area, and overall it varies between 0.00 and 0.40, which is representative of very low to low quality habitat (Plate 2).

Plate 1. Modelled extent of Coast Banksia Woodland/Coastal Dune Scrub Mosaic (pink; EVC 921) predicted to occur within the study area.

Plate 2. Modelled native vegetation condition within the study area (ranging between 0.00 and 0.40) which is predicted to occur within the study area.

According to VBA records (DELWP 2022d), there have been no National or State significant species detected within or immediately adjacent the study area. There is one record of Lacey River Buttercup *Ranunculus amplus* (2002), an aquatic/semi-aquatic species, approximately five kilometres upstream from the study area. The species is listed as critically endangered under the *Flora and Fauna Guarantee Act 1988* (FFG Act). There is a low-moderate likelihood of its occurrence in the study area, given that there is only a single record in the riparian corridor and 20 years have elapsed since it was recorded. Regardless, shadowing would not be expected to adversely affect the species given its tolerance of part-shade conditions.

A Flora and Fauna Assessment was conducted by Ranges Environmental consulting (2020), which focussed on a section of river approximately 1.2 kilometres up-stream from the study area. The findings of this report indicated that the section of river adjacent to RF Miles Reserve hosted two EVC's: Coast Banksia Woodland (EVC 2) and Swamp Scrub (EVC 53). These EVCs were categorized as moderate-high quality, providing habitat for native flora and fauna. Whilst these ecological values are not analogous with the study area, it highlights an area of river which is likely to support a higher diversity of aquatic flora and fauna species which utilise the area (Ranges 2020).

Based on the highly modified nature of the study area, landscape context and the proximity of previous records, no other significant flora species are expected to occur due to the high levels of disturbance and lack of suitable habitat.

4.3 Aquatic Fauna Habitat

Due to the highly urbanised nature of the study area, the proximity of human and vehicle traffic has created an environment characterised by high levels of noise and light pollution. Vegetation in the southern portion of the study area is indicative of coastal and estuarine habitat. Given the landscape context of Kananook Creek within a highly urbanised setting that has been subject to extensive historical land clearance, there is limited suitable habitat within the study area to support aquatic fauna species, however due to the transient nature of aquatic fauna, they are likely to disperse to the north and south to areas of better habitat for dispersal,

foraging and breeding purposes The presence of native vegetation is likely to be a key indicator for the condition and diversity of aquatic habitat within the study area. Some more mobile fauna species are likely to persist within the remaining habitat or opportunistically visit the study area.

According to VBA records (DELWP 2022d), there have been no National or State significant species detected within the study area. While many significant species have been recorded within five kilometres of the study area, these have overwhelmingly been migratory birds or waterbirds that are highly mobile when moving between areas of suitable habitat (e.g. Eastern Great Egret *Ardea modesta*). No significant water-dependent species (e.g. Dwarf Galaxias *Galaxiella pusilla*) have been recorded within the creek.

Due to the transient nature of aquatic fauna, it likely that the study area hosts a range of commonly observed fish species, which may utilise better habitat further to the north of the study area, adjacent to RF Miles Reserve. The VBB (2022), indicated several commonly observed aquatic fauna, including Common Galaxias *Galaxias maculatus,* Southern Shortfin Eel *Anguilla australis,* Yellow-eye Mullet *Aldrichetta forsteri,* Tupong *Pseudaphritis urvillii,* Bridled Goby *Arenigobius bifrenatus,* Flatheaded Gudgeon *Philypnodon grandiceps*. According to the Kananook Creek Association, 15 species of fish and crustacean have been recorded within Kananook Creek, including six native species. However, none are listed as significant under federal or State legislation.

While locally common frog species may use the stream and associated vegetation for foraging, shelter and breeding purposes, they are predominantly nocturnal and would not be affected by changes in light intensity during diurnal hours. Reptiles (e.g. lizards) may utilise the heat of the sun for thermoregulation, however the localised restriction of direct light for 2 hours per day is not expected to affect them negatively. Given their high levels of mobility, individuals could readily seek out more suitable habitat attributes in the landscape (e.g. exposed rocks in direct sun).

4.4 Terrestrial Fauna

Due to the proximity to the coastline, migratory birds, shorebirds and waders may fly over the study area en route to more suitable habitat. However, they are unlikely to rely on habitat within the study area for breeding or foraging purposes. The creek and surrounding banks may be frequented by common wetland birds (e.g. Little Pied Cormorant *Microcarbo melanoleucos*, Australian Wood Duck *Chenonetta jubata*) and other locally common birds that are tolerant of modified, open areas (e.g. Australian Magpie *Cracticus tibicen*, Rainbow Lorikeet *Trichoglossus haematodus*). However, given the high mobility of avian species, there are no adverse effects expected with overshadowing.

5 Conclusion

Kananook Creek and the surrounding area is proposed to be developed through the re-configuration of the road space. This is intended to deliver a pedestrian focused environment that supports hospitality and retail use by upgrading the Kananook Creek boulevard, improving connections between Kananook Creek and Frankston City Centre, and provide better public engagement with the Creek. Development is proposed to occur on the eastern side of the creek to allow for commercial development. Due to the development being adjacent to Kananook Creek, there is the implicit concern that shadowing may impact aquatic flora and fauna values within Kananook Creek.

Light availability is a fundamental constraint on primary production in aquatic environments. In the context of this development, the height of the proposed commercial buildings is predicted to cause a reduction in light of approximately two hours between 8am and 10am. Due to the relatively small degree of shadowing which is proposed to occur, it is unlikely that a reduction of two hours of available light will significantly impact aquatic flora and fauna values within Kananook Creek. It is likely that shadowing to this degree will reduce primary production. However, it's unlikely that a reduction of two hours will have a substantial, detrimental impact on primary production or on species that rely on primary producers.

Based on the VBA data, there are no National or State significant flora and fauna which are likely to be impacted by the proposed development. Despite the absence of significant aquatic flora and fauna, common fish species are likely to be present within Kananook Creek. Based on the desktop assessment, the degree of shadowing caused by the proposed development is likely to have a negligible impact on significant aquatic flora and fauna species within Kananook Creek; however, due to the reduction in sunlight, it is likely that common aquatic flora and fauna species are likely to be impacted.

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Figures

Legend

- Study Area
- Railway
- Freeway
- Major Road
- Collector Road
- Minor Road
- Proposed Road
- Minor Watercourse
- Permanent Waterbody
- Parks and Reserves
- Crown Land
- Localities

Figure 1

Location of the study area

Biodiversity Assessment for Frankston Metropolitan Activity Centre Structure Plan – Kananook Creek

N

0 250 500

Metres

Map Scale: 1:20,000 @ A4
Coordinate System: GDA 1994 MGA Zone 55

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16309_Fig01_StudyArea 26/06/2022 psorensen

Figure 2
Ecological features
Biodiversity Assessment for Frankston Metropolitan Activity Centre Structure Plan – Kananook Creek

Legend
Study Area

N

0 25 50
Metres

Map Scale: 1:3,500 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

VicMap Data: The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

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Aerial source: Nearmap 2022

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