CITY OF SYDNEY

Blackwattle Bay State Significant Precinct Design review

Design Review
April 2022

The City of Sydney acknowledges the Gadigal of the Eora Nation as the Traditional Custodians of our local area.

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1. Introduction

1.1. Purpose

1.1.1. Purpose

In July 2021, in response to a Lord Mayoral minute, Council resolved [in part] for the Chief Executive Officer to: undertake a Design review for the consideration of Council via the CEO Update identifying improvements that can be made to this renewal project.

The findings of the design review provide evidence to assist Government to improve its planning for Blackwattle Bay.

The Design review is not an alternative scheme.

1.1.2. Changing the planning controls for the site

The site is subject to the State Government's process to change the planning controls. The recent and future steps in the process are as follows:

- Infrastructure New South Wales [INSW] State Significant Precinct Study was on public exhibition from 2 July to 20 August 2021;
- Over 2,400 submissions were received;
- The feedback was compiled into a Summary of Submissions report by Department of Planning and Environment [DPE] (this is attached at 7);
- INSW will provide a Response to Submissions;
- DPE will undertake a final assessment;
- DPE will make a recommendation to the Minister for Planning to change the planning framework; and,
- Minister for Planning makes the planning changes, expected late 2022.

1.1.3. Design review findings – summary

The major findings of the Design review are that the INSW Blackwattle Bay state significant precinct study [INSW study] needs the following improvements:

- A wider foreshore promenade with more solar access;
- In addition to the promenade, a new park with plenty of sunshine in a prominent location;
- A better response to the site conditions for:
  - a safe and comfortable wind environment for people in public spaces;
  - protection for future residents from air and noise pollution;
  - minimising overshadowing to neighbouring properties; and,
  - safer streets for people walking, cycling, and driving.

  This can be achieved with:
  - fewer, lower towers; and a revised street layout and building envelopes, with a similar yield.

2. Background

2.1. Design review process

The Design review was led by the City's Strategic Planning and Urban Design unit. External urban design, wind and noise consultants gave advice and prepared diagrams and information. Internal advice and review were obtained from specialist City staff. The work was peer reviewed throughout by a sub-committee of the City's Design Advisory Panel.

The Design review considered the INSW study with reference to the Department of Planning and Environment's Study Requirements for the Blackwattle Bay State Significant Precinct.

The Design Advisory Panel [DAP] considered the review and commended it.

2.2. Options testing

Multiple configurations were proposed, tested, and reviewed by the DAP sub-committee. The testing included considering distribution and quality of public space, residential amenity in relation to the Apartment Design Guide (ADG) and technical issues including wind, acoustics, and transport in relation to the study requirements and the technical reports included in the INSW study. Three of the layouts are shown below (Figure 1).

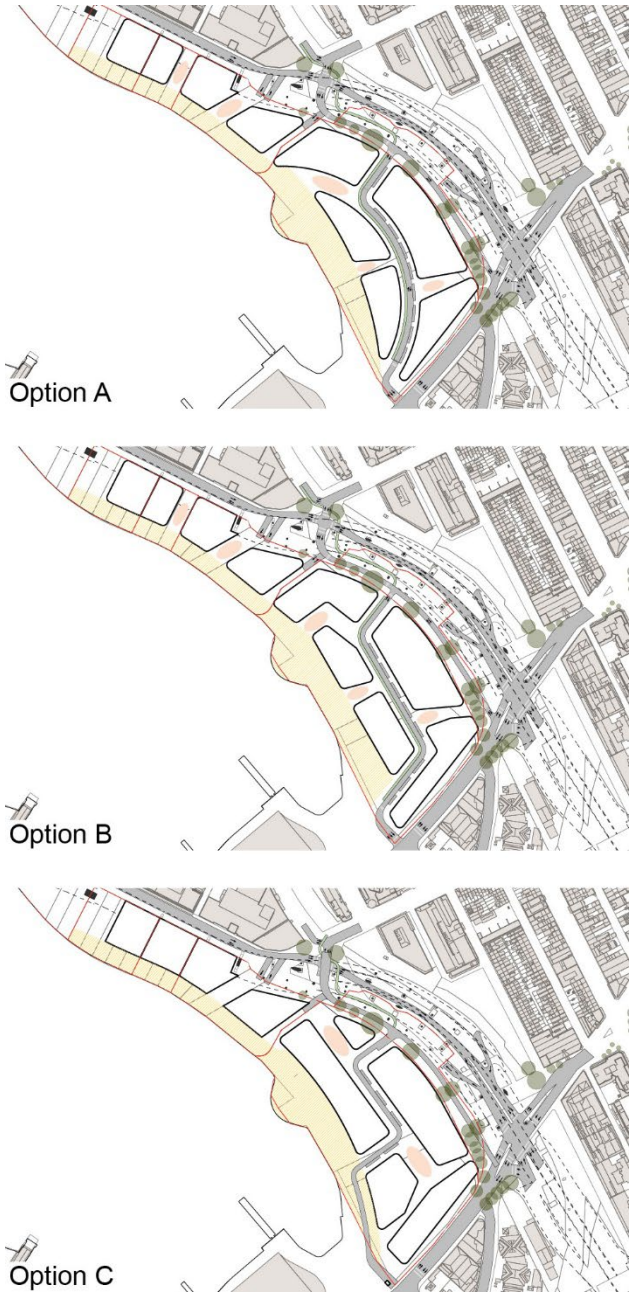


Figure 1 Some initial options tested during the Design review process

Option A delivered the best outcomes for the precinct and was progressed. Option A was further refined including testing of different use arrangements refer Figure 2

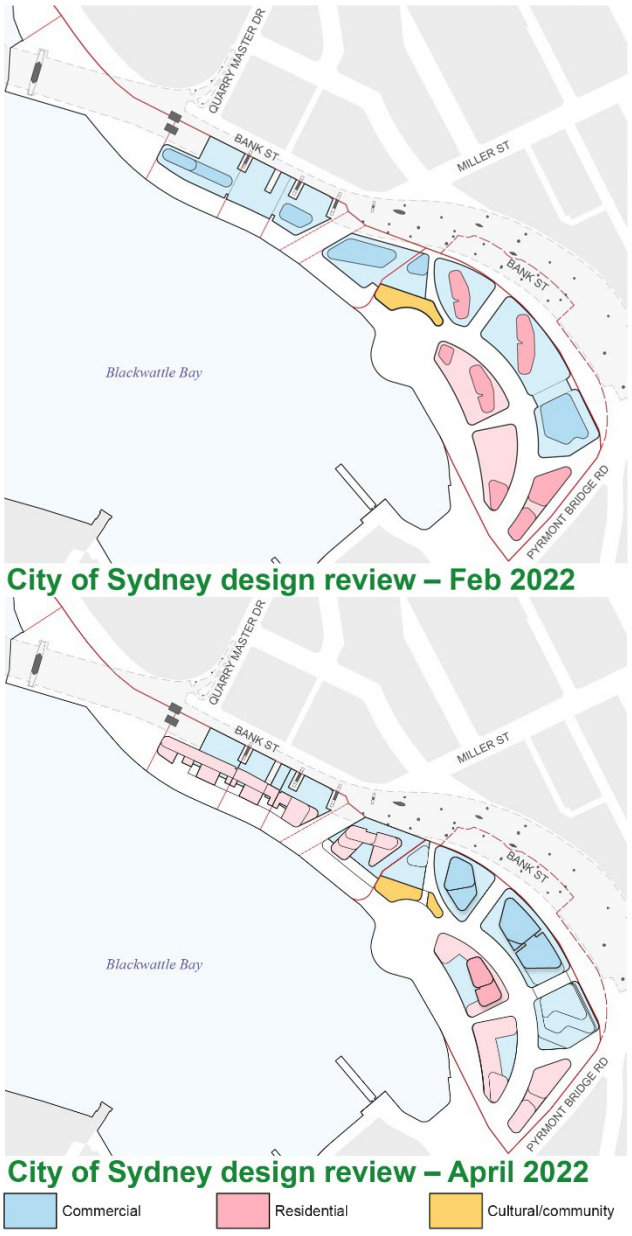


Figure 2 Options testing of different building use arrangements

3. Public space

3.1. Foreshore reserve

3.1.1. Completing over 11 km of continuous foreshore access

The Blackwattle Bay study area contains the last major gap in the City of Sydney's continuous foreshore walk that connects Woolloomooloo to Annandale (refer Figure 3 below). Completing this missing link is a significant benefit of the redevelopment. Foreshore reserves are popular and enjoyed by many Sydneysiders and visitors. The Design review found that the foreshore reserve containing a promenade zone needs to be wide enough for people to enjoy, of sufficient size to accommodate at least the following:

- walking, strolling and running;
- riding bicycles – with children and for exercise;
- sitting and relaxing;
- trees for shade;
- casual meeting and gathering; and,
- outdoor dining.

The foreshore reserve must be comfortable and welcoming. It should provide enough sunlight for trees and grass, and a safe and comfortable wind environment.

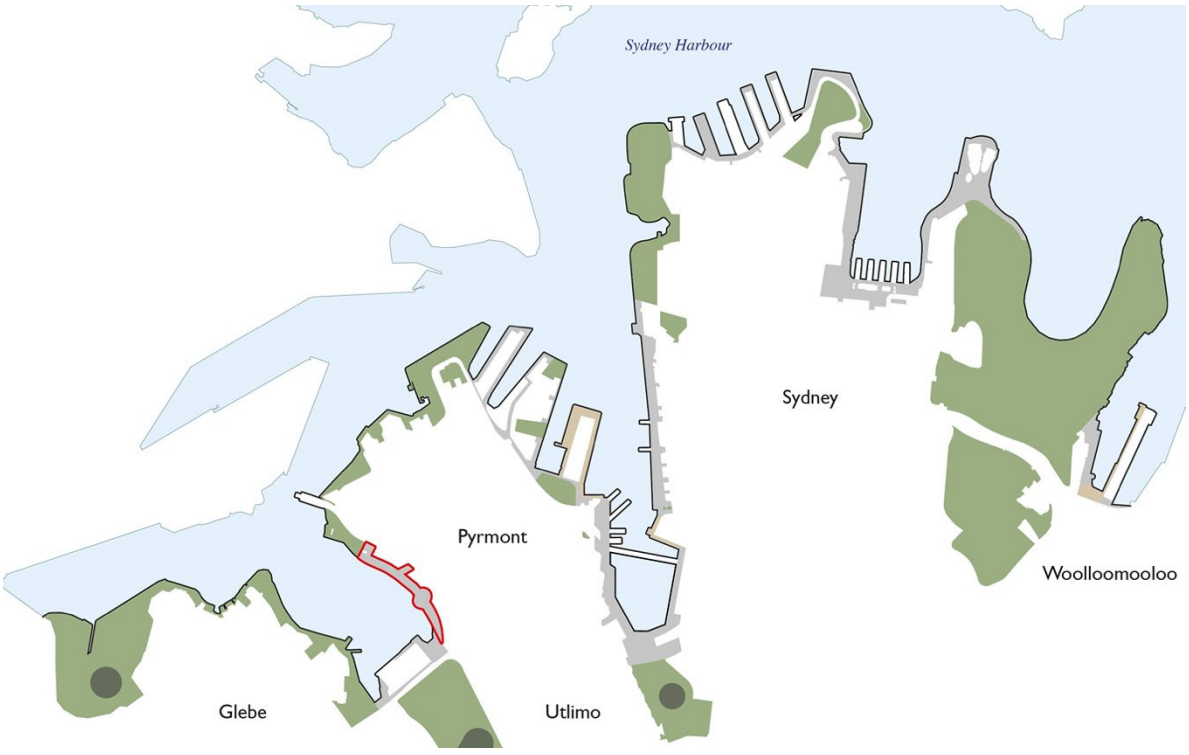


Figure 3 BWB SSP the missing link in City of Sydney's 11 km+ of continuous foreshore

3.1.2. The Pyrmont Peninsula Place Strategy guides the design

Pyrmont Place Strategy's *Big Move 1* is for 'a world-class foreshore walk' (Appendix C). The foreshore walk is a continuous harbour-edge walk for people to engage with and appreciate the natural setting of the harbour. As shown in Figure 4 the supporting Pyrmont Urban Design Report (Appendix D) recommends this walk generally be configured in the following arrangement:

- 3 x 10 metre zones of:
    - 10 metres for walking, cycling;
    - 10 metres for pausing, sitting, meeting;
    - 10 metres for dining and other activity – in some places this could be in a colonnade, like at East Circular Quay.

For the 'Active Recreation' interface that comprises part of the Blackwattle Bay foreshore. The report states that the 'movement space for pedestrians and cyclists to be as wide as possible.'

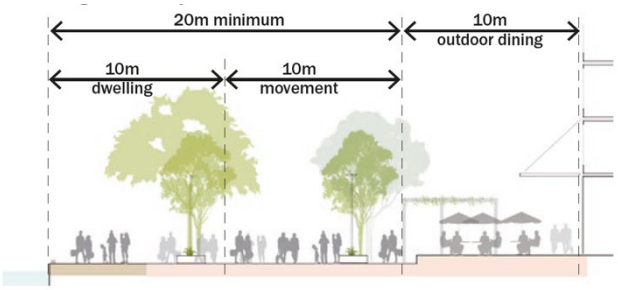


Figure 2.3.1 Indicative dining interface (Hassell)

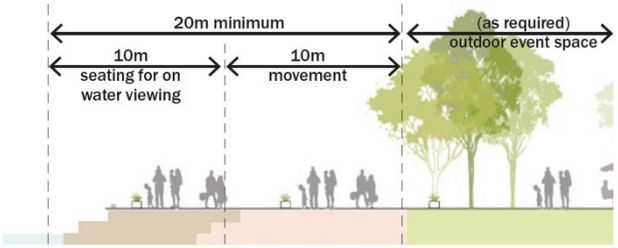


Figure 2.3.2 Indicative event interface (Hassell)

Figure 4 PPPS recommended foreshore interface configurations (Pyrmont Urban Design Report, p. 20)

3.1.3. Review finding – the INSW promenade is too narrow

Figure 5 compares similar promenades in the City of Sydney to the INSW Study. The width and length of promenades and height of adjoining buildings are shown at the same scale. The pink shading shows that the 10-metre-wide INSW study promenade is narrower than the others. The red area on the inset plans show the length of uninterrupted promenades, the INSW study is the longest. The building heights show that the INSW study proposes the tallest waterfront buildings.

In this comparison the INSW study promenade is:

- narrowest;
- longest; and
- with the tallest buildings.

The INSW Study promenade has a 10 metre width, while 30 metres is the predominant width of Sydney foreshore reserves. Figure 6, Figure 7 and Figure 8 compare other foreshore reserves in the City.

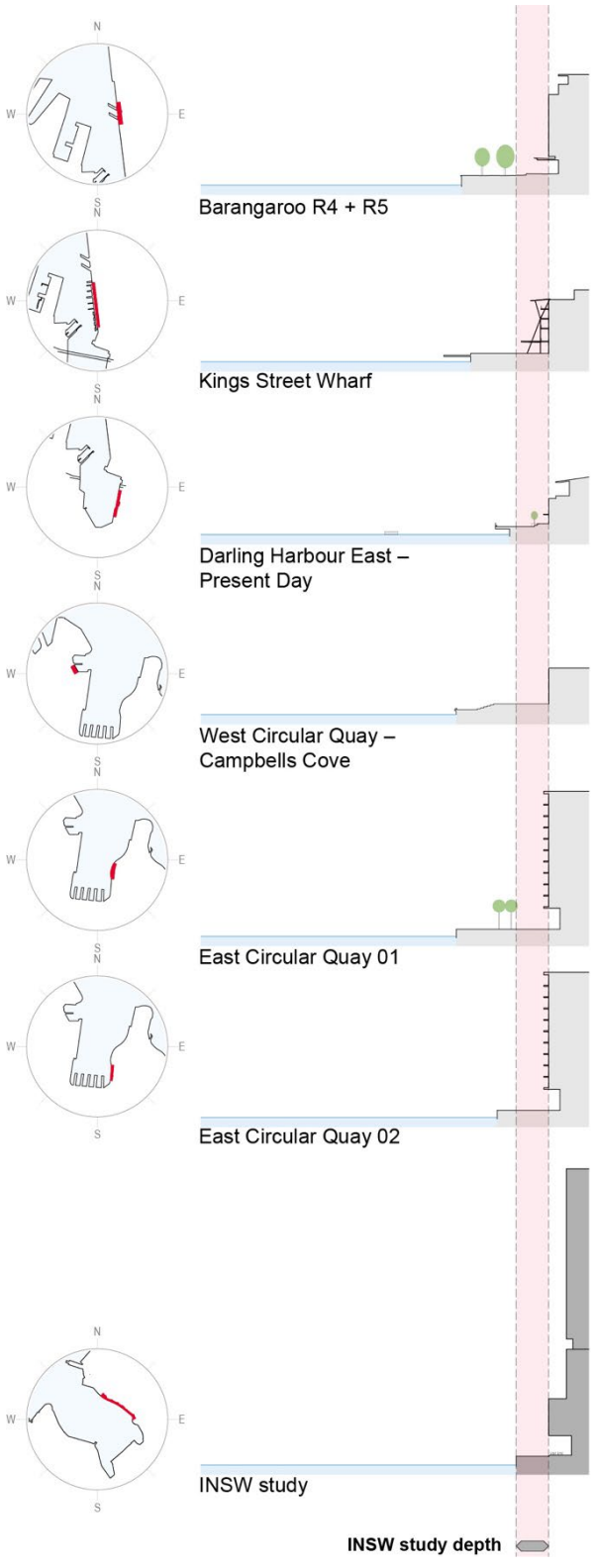


Figure 5 Comparison of the INSW study June 2021 to other City promenades

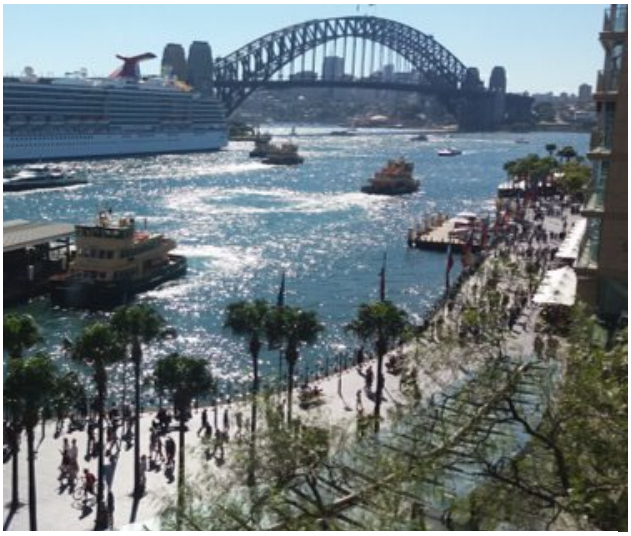


Figure 6 Circular Quay East (Slice, 2017)

Figure 7 Pyrmont Bay Park and foreshore (Hollingworth, 2014)

Figure 8 Barangaroo South (London, 2018)

3.1.4. Review finding – a wider foreshore reserve is needed

As shown in Figure 9, the INSW study proposed a promenade of 10 metres:

- 10-metre-wide combined dwelling and movement zone; with an adjoining,
- 7.5-metre-wide colonnade for outdoor dining in the north west part of the site.

The Design review agreed with the Pyrmont Peninsula Place Strategy. The Design review recommends a foreshore reserve of 30 metres (refer Figure 10), comprising:

- 10 metres for dwelling;
- 10 metres for movement; and,
- 10 metres for outdoor dining, within a colonnade in the north west where the site is not as deep as in the south where the full 30 metres is unimpeded.

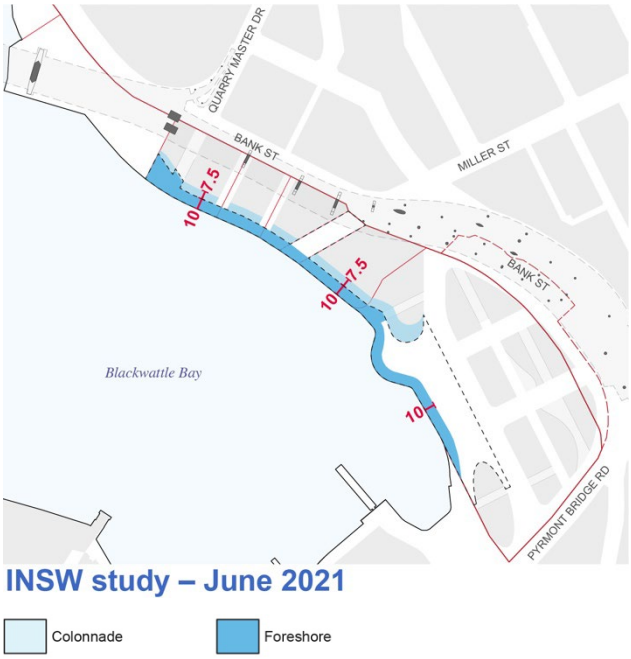


Figure 9 Foreshore width – INSW study June 2021

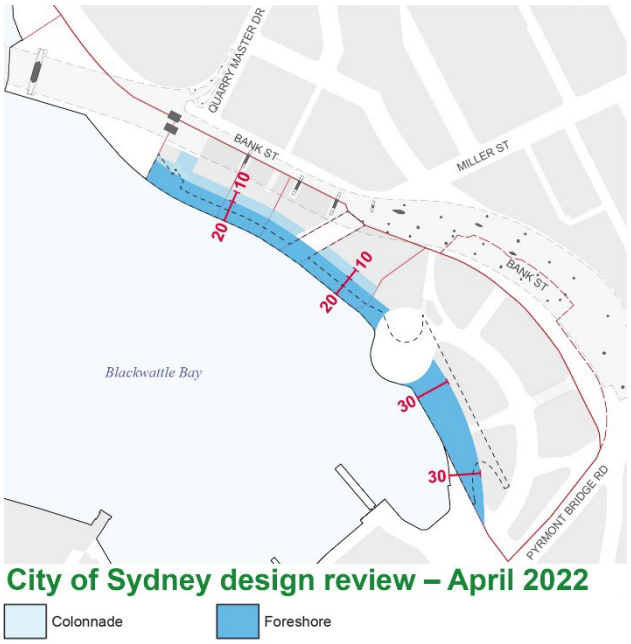


Figure 10 Foreshore width – CoS Design review April 2022

3.2. Foreshore Park

3.2.1. Review finding – INSW park is too narrow

INSW study includes an elongated park in the south on the State Government owned fish market site. The design review, see Figure 11, compares the park to other foreshore parks on the Pyrmont peninsula. The comparison shows in section the width of the INSW study park in the pink shading with the adjacent promenade zone shown with a broken line. The red zone in plan shows the extent of the parks at the same scale. The other parks exceed the width of the INSW study park and are more consolidated rather than extended in shape. The design review finds the park is too narrow, at 30 metres in width and too elongated in shape. The narrow, elongated shape is more difficult to plan for a variety of uses and user groups.

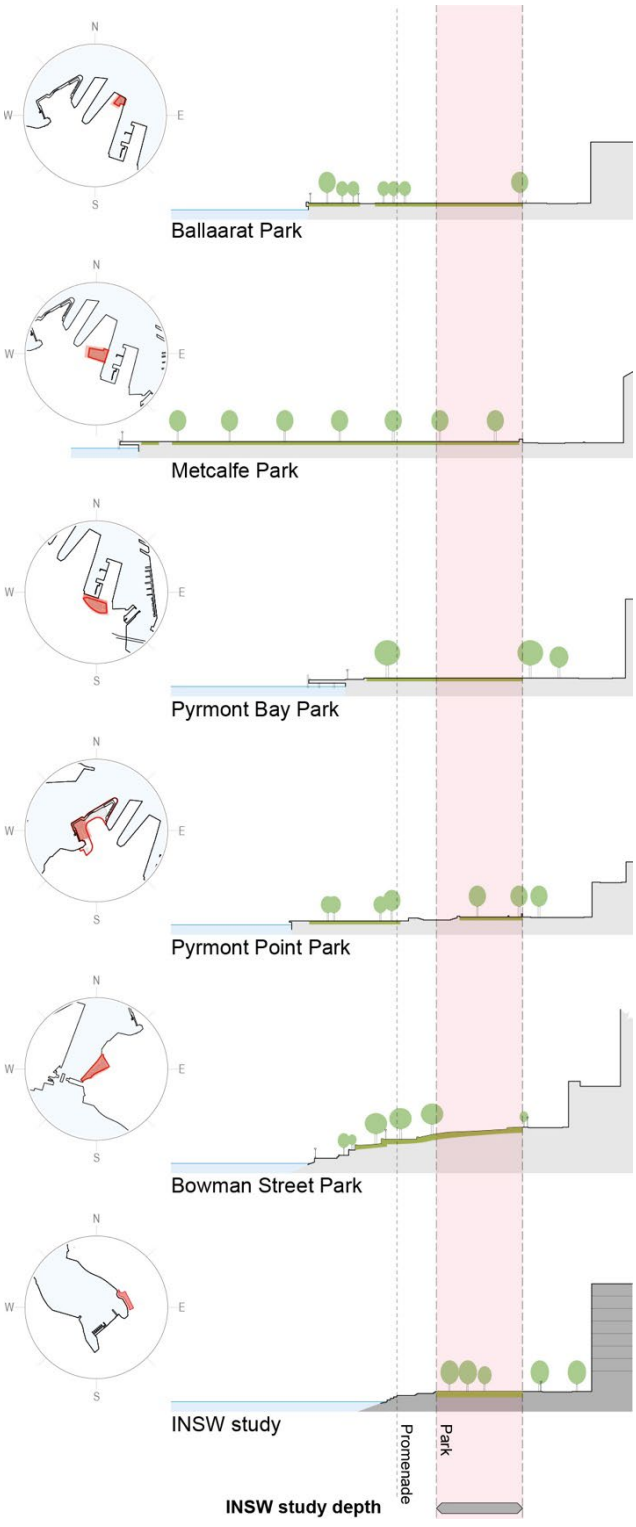


Figure 11 Comparison of the INSW study June 2021 to other City promenades

3.2.2. Review finding – a better park location

The Design review agrees that a park is required as it provides a break or pause along the promenade. Figure 3 shows the full extent of the foreshore reserve in the City consisting of promenades separated by parks. Figure 12 shows the Blackwattle Bay foreshore. Opposite the site in Glebe the promenade is broken into two parts either side of a park in front of the former Glebe Incinerator.

Along the eastern foreshore there is a small promontory opposite the park in front of the Glebe Incinerator. In the water in front of the sea wall that follows the promontory is a small outcrop of rocks. A map from 1845, Figure 13, shows the shoreline protruding in this area. When the map is overlaid on the current cadastre it can be compared with today's shoreline. Pyrmont, Harris and Union Streets and some remaining lot lines are accurately superposed in the diagram. The creases on the map indicate that it has shrunk. The promontory visible today is possibly a remnant of the earlier foreshore and extant promontory.

Figure 12 Park locations within Blackwattle Bay

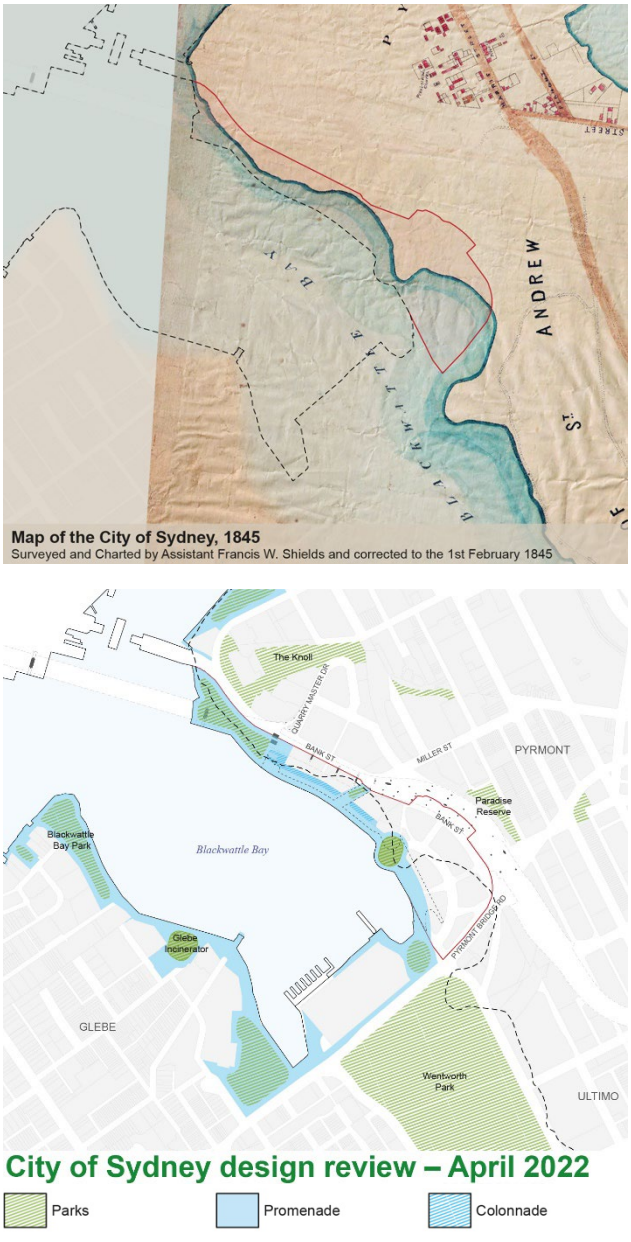


Figure 13 Make a park on a promontory

The park location gives emphasis and protection to the remnant promontory, is visually prominent, and provides a place where the water can be accessed. This aligns with the Pyrmont Place Strategy's objective that the area provides an "opportunity for direct access to and engagement with water" (Pyrmont Place Strategy, pp. 20). As depicted in Figure 14 it is about the same size as the park on the opposite foreshore and breaks the promenade into two parts.

Figure 14 Proposed promontory park superimposed on the Glebe Incinerator Park for reference

3.2.3. Review finding – continuous sun, avenue of deciduous trees

The south-south-west aspect of the northern foreshore is a difficult orientation for ensuring adequate sunlight to support good growing conditions for most tree species (two hours of continuous sunlight at the winter solstice between 9:00 am-3:00 pm). Even a low building behind the promenade would prevent adequate sun access. A minimum of two hours of sunlight at the equinox, as shown in Figure 15 is possible. This supports an avenue of deciduous trees that are dormant and not needing sunlight in winter, but ensuring sufficient canopy shade during the summertime. To provide the continuous band of equinox sunlight along the foreshore a different building form of continuous medium height buildings rather than closely spaced towers is required. This building form is like buildings on the west facing promenades at Barangaroo South or East Circular Quay.

Figure 15 Solar insolation of northern foreshore (Equinox)

3.2.4. Review finding – more sunlight for trees The southern foreshore promenade faces west-south-west. Public spaces with this aspect can be provided with sufficient winter sunlight if building forms allow a minimum two hours of continuous sunlight (between 9:00 am-3:00 pm at the winter solstice). The minimum of two hours of sunshine will support healthy growth for most tree species, see Figure 16.

Figure 16 Solar insolation of southern foreshore (Winter Solstice)

3.2.5. Review finding – more sunlight in the park for grass and people

The INSW study park will not be green. For a park to sustain grass with intensive use and for people's amenity; four hours of sunshine at the winter solstice (21 June) is required. The City's Development Control Plan requires this amount of sunshine for 50% of the area of the park (Sydney DCP 2012, Section 3.1.5, Provision (3)(a)). The INSW study park has no area with four hours sunshine, refer Figure 17. The design review locates the park on the promontory, with a northerly major axis, where sun access is more easily gained with less effect on building form and adjusts the building form to its north to ensure 50% of its area receives four hours sunlight.

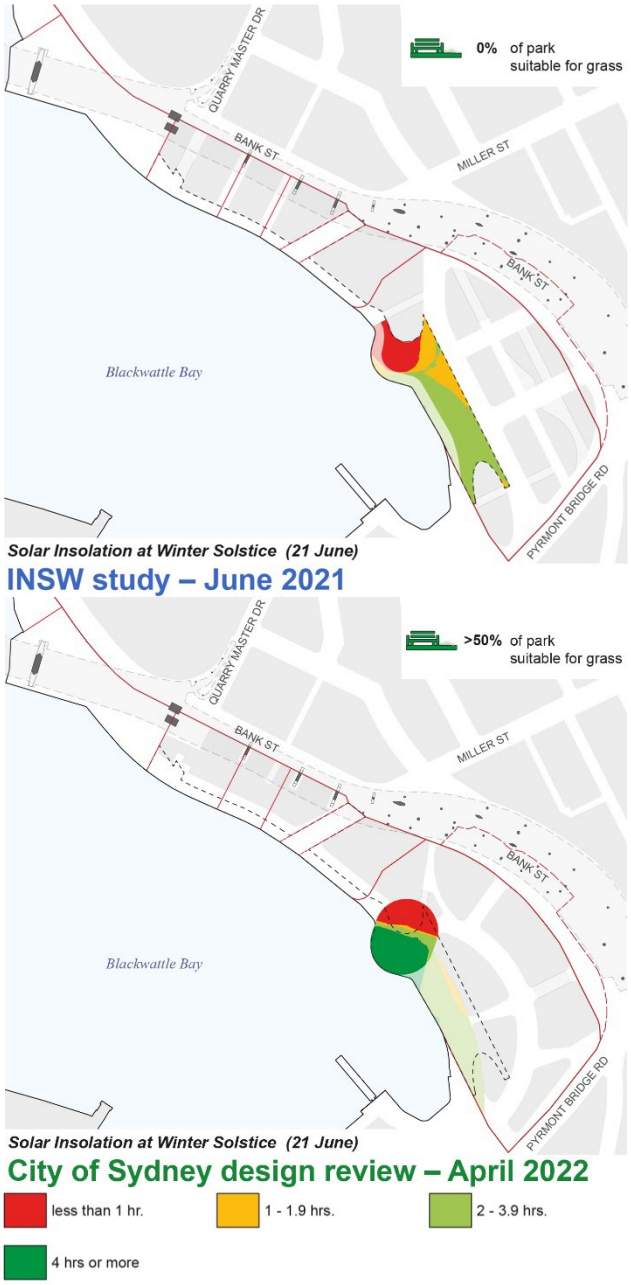


Figure 17 Solar insolation of park (Winter Solstice)

3.3. Street layout

3.3.1. Street layout

The overall street layout for all modes is shown here in Figure 18. For clarity these street layouts have been depicted by mode, vehicle, bicycle and walking. Each mode is discussed separately in subsequent sections.
The main differences between the INSW and CoS proposals are that the CoS layout contains:

- A less direct link through the precinct to discourage rat (regional area traffic) running;
- An additional vehicle entrance off Bank Street to separate the Hymix concrete trucks movements from general traffic; and,
- Modified intersection layouts that prioritise pedestrian movements and reduce the roadway footprint.

The narrow private sites in the north and west part of the study area are served by Bank Street and do not require new streets. A pedestrian connection in the line of Quarry Masters Drive will link this street to the foreshore.

The Sydney Fish Market site to the south is wider and requires a new street for access and address, and pedestrian walkways to connect Miller and Gipps Streets to the foreshore.

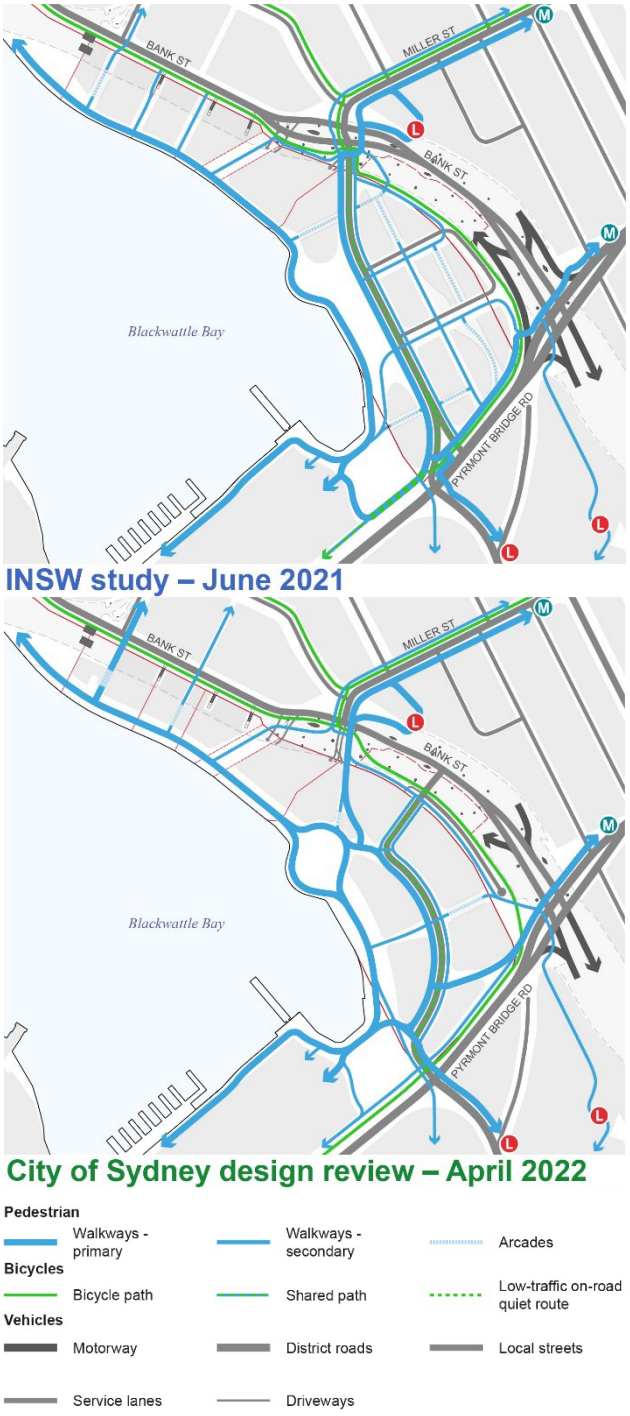


Figure 18 Comparison of site access between the INSW study and CoS Design review

3.3.2. Review finding – street layout channels the wind

The area is exposed to winds with relatively low built form through Pyrmont to the east / north east and an open and unprotected frontage to Blackwattle Bay to the west / southwest (refer Figure 21 and Figure 22 of seasonal temperature wind roses). The wind tunnel study undertaken by Windtech for the INSW study is shown below in Figure 19. Multiple locations experience poor levels of pedestrian comfort and exceed wind safety standards.

The results of the Windtech study indicate that the arrangement of straight, through-streets channel the wind, contributing to uncomfortable and unsafe pedestrian wind environments.

The CoS Design review recommends avoiding straight through-streets from the foreshore to Pyrmont by offsetting streets and connections to significantly reduce or avoid the effects of wind channelling, this is shown in figure 20. These and other changes, described later in this report, reduce wind velocity and provide a safe and comfortable pedestrian environment.

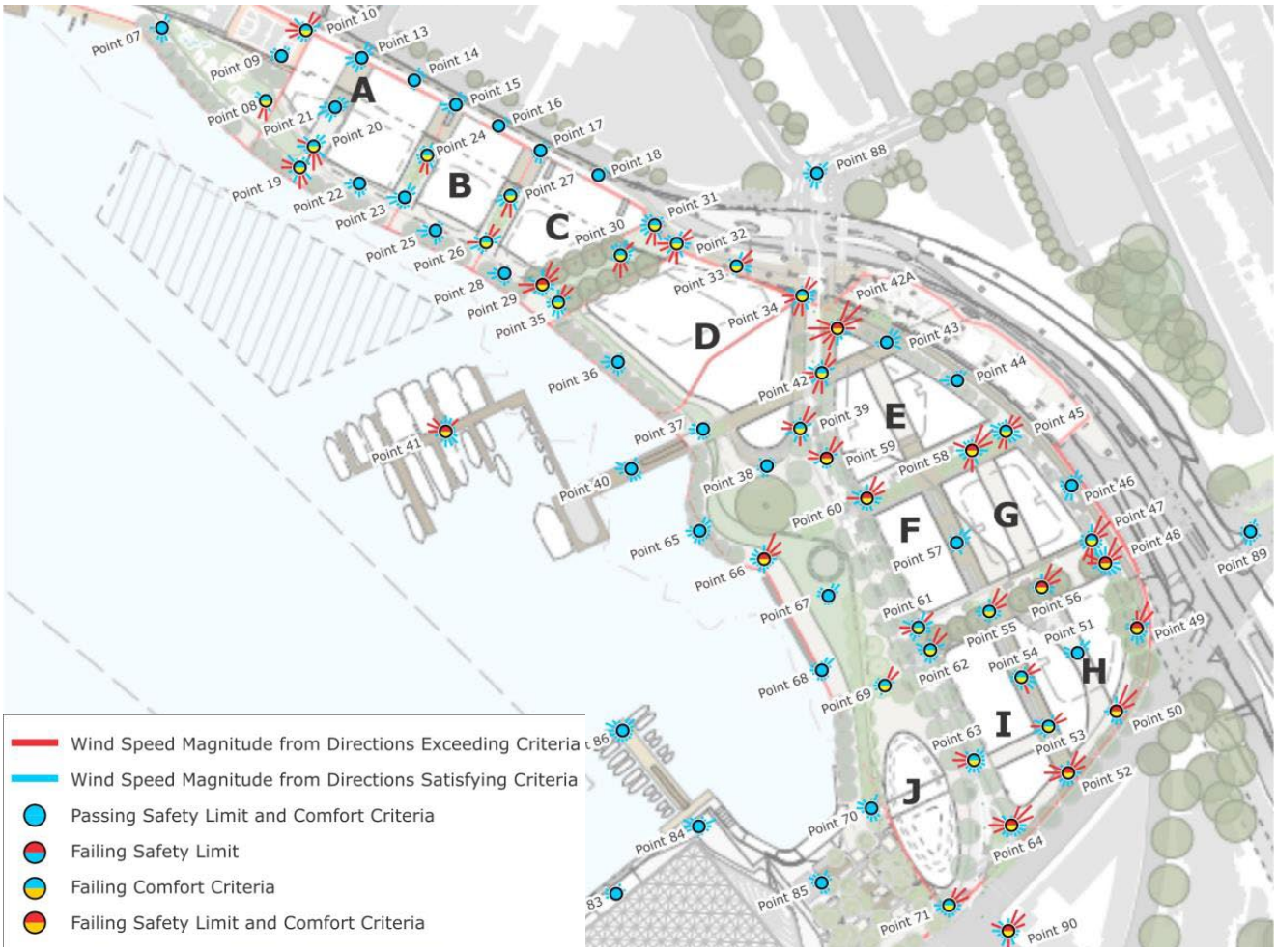
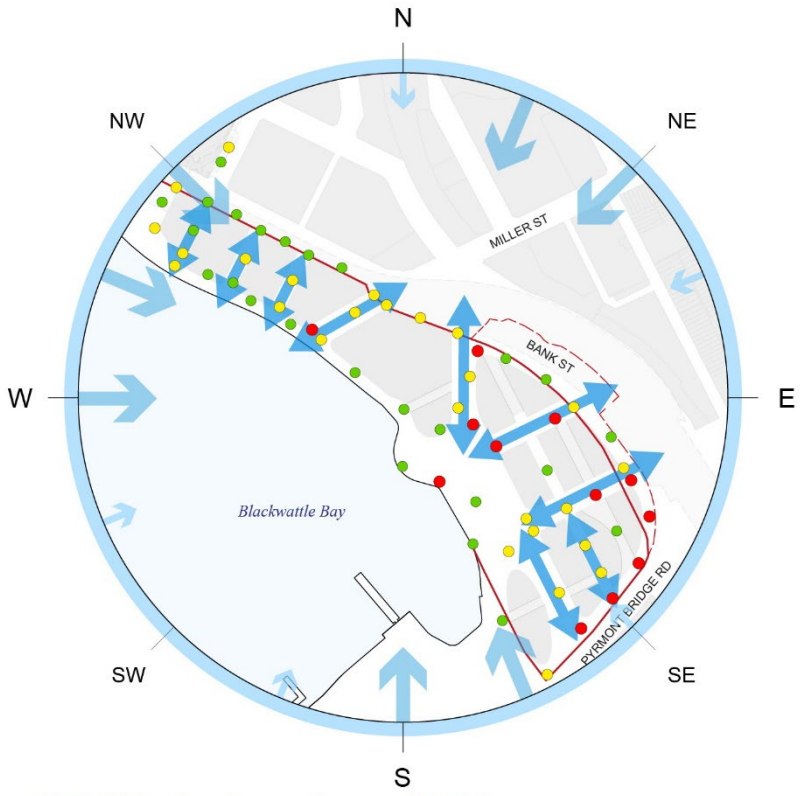
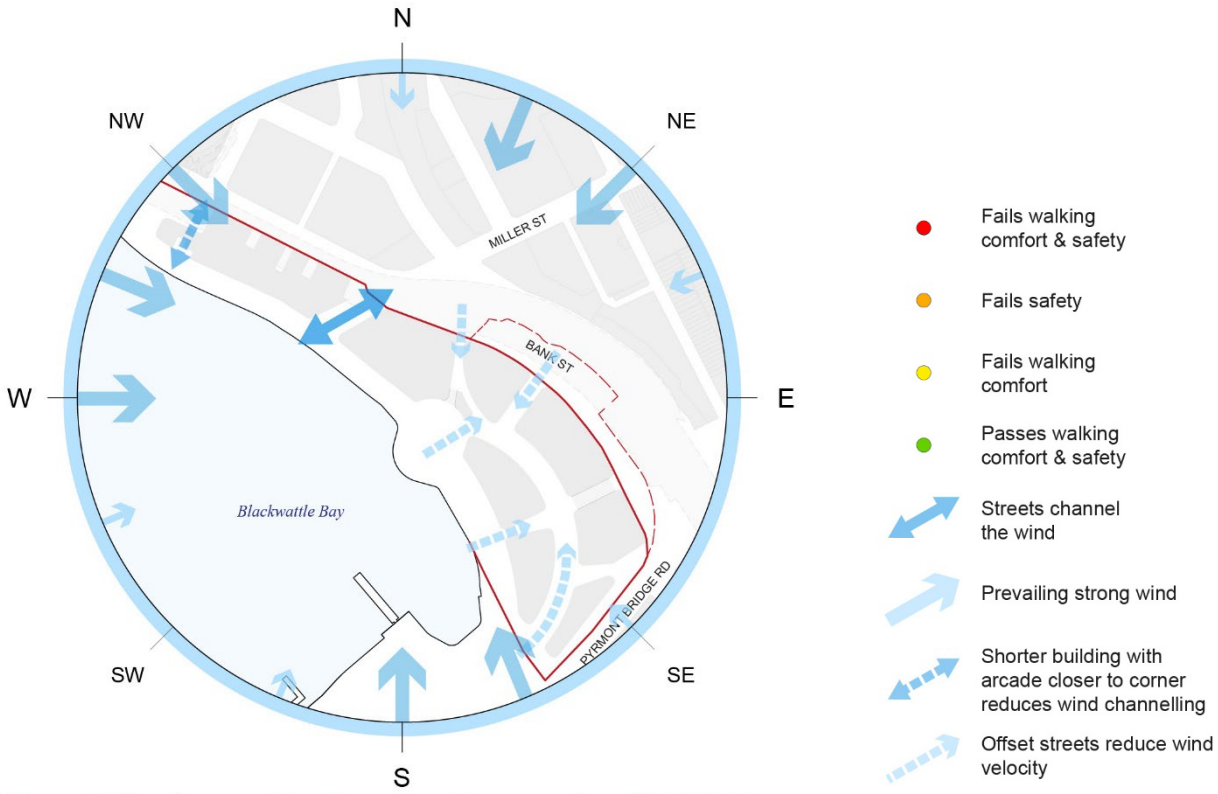


Figure 19 Wind tunnel results of the wind tunnel study undertaken by Windtech for INSW (Appendix I, pp..23, Figure 6)



INSW study – June 2021



City of Sydney design review – April 2022

Figure 20 Comparison of INSW Study June 2021 and CoS Design review April 2022

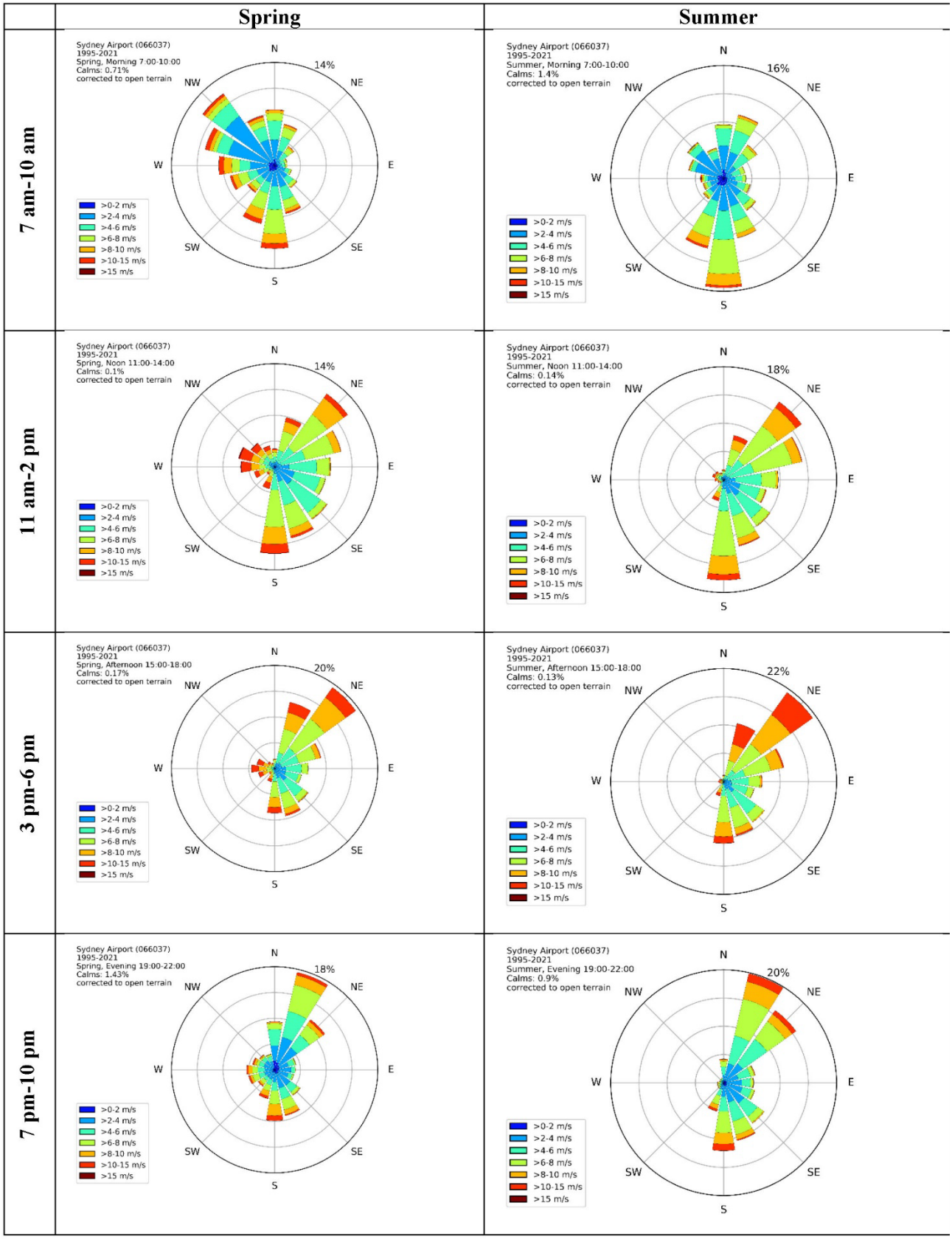


Figure 21 Seasonal wind roses for Sydney Airport – Spring and Winter

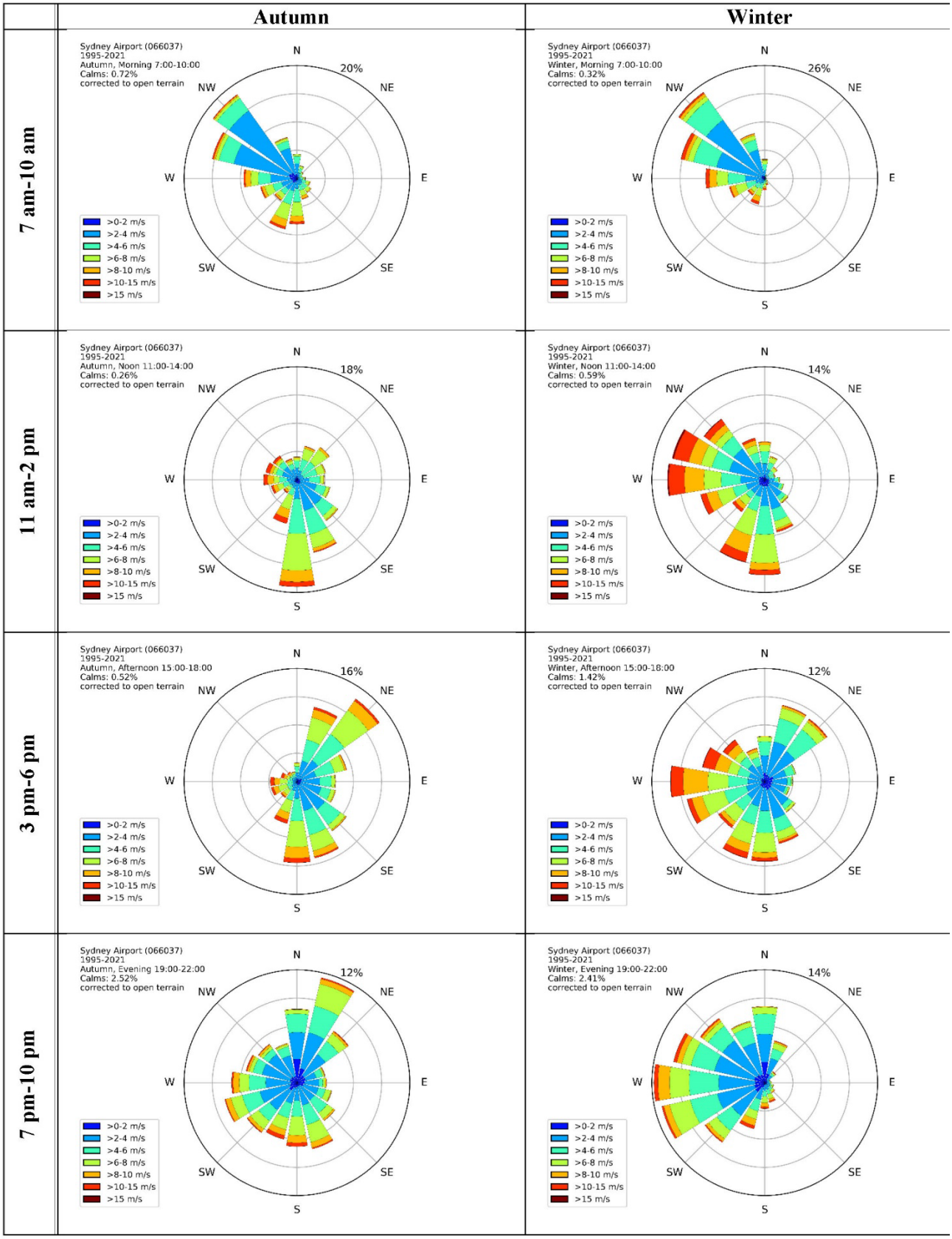


Figure 22 Seasonal wind roses for Sydney Airport – Autumn and Winter

3.3.3. Review finding – make it easier, safer for people walking

Figure 23 shows the hierarchy of pedestrian circulation in the INSW study and CoS Design review.

The primary route along the foreshore is confirmed in the Design review. On the north and western private sites pedestrian connections are consolidated to align with pedestrian connections north of Bank Street for convenience.

In the Design review the Sydney Fish Market site foreshore path is paralleled with a new street connection route and connections from Miller Street and Pyrmont Bridge Road to the foreshore are made more direct. When walking from the metro station along Pyrmont Bridge Road to the new fish market the more convenient route is through the existing fish market site rather than alongside the noisy, polluted Pyrmont Bridge Road.

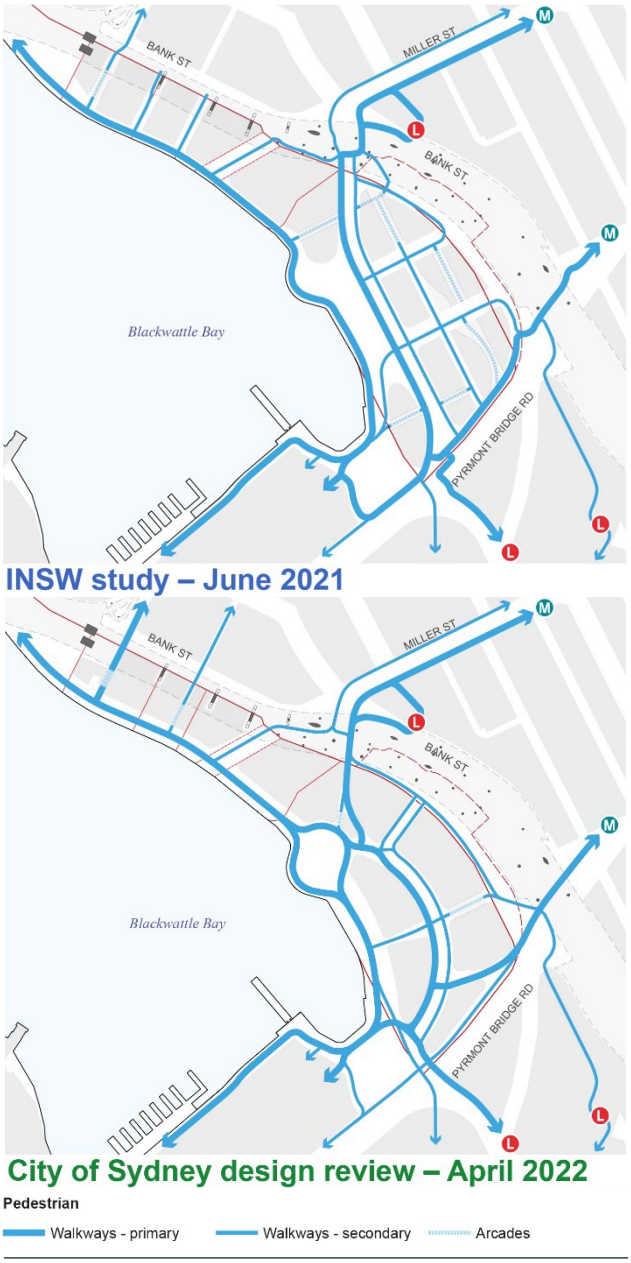


Figure 23 Comparison of major pedestrian routes through the INSW study and CoS Design review

3.3.4. Review finding – cyclists go through, not around

The future cycling network comprises four strategic cycling links surrounding the site:

- Anzac Bridge/Miller Street (existing) – this bi-directional cycleway forms a regional cycling connection from Rozelle through to Pyrmont and on to the city centre;
- Glebe Island Bridge – a regional cycling connection from the Bays precinct through to Pyrmont (identified within the CoS Cycling Strategy Action Plan 2018 and the Pyrmont Peninsula Place Strategy) connecting directly to Bank Street on the northern side of the study area;
- Bridge Road/ Pyrmont Bridge Road – a regional cycling route from the Inner West through to Pyrmont and the city centre, it is planned to connect from Pyrmont Bridge Road to the Miller Street cycleway via the Blackwattle Bay SSP; and,
- The Walking and Cycling Loop – one of the 'Five Big Moves' of the Pyrmont Peninsula Place Strategy, comprising a three-metre-wide bi-directional cycleway along Bank Street.

A regional link can be shared with pedestrians in lower friction environments (such as on Pyrmont Bridge and Jones Street, Ultimo), but are generally separated to allow cyclists to travel at speed. For BWB SPP, a shared space through the site is good for cycle access, but given the density and activation planned, the shared space will be unable to meet the demands of the regional cycle links planned for the area. As such, the Design Review has adopted a similar approach to the INSW study, with some key differences illustrated in Figure 24, as follows:

- Improved geometry and directness of the regional bi-directional cycleway along Bank Street and Pyrmont Bridge Road;
- Removal of major conflicts between cyclists and Hymix trucks around the Miller Street entrance by separating movements; and,
- A safer main street environment for cyclists by reducing the likelihood of rat running and greater speeds by creating a more circuitous route for drivers.

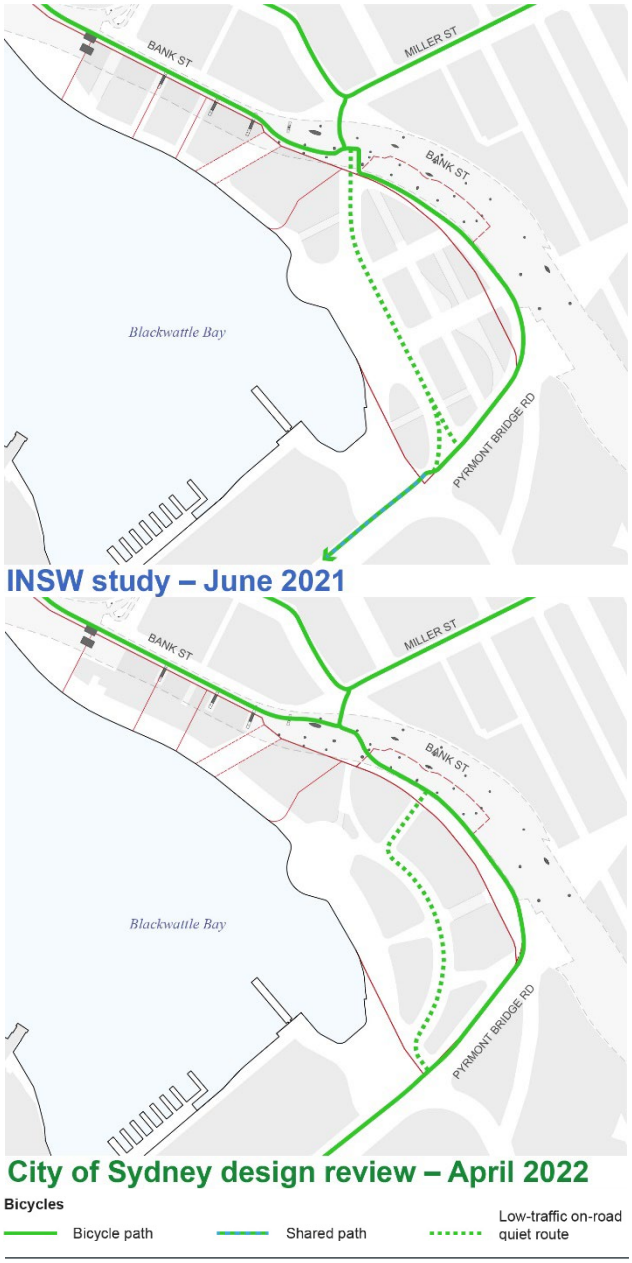


Figure 24 Comparison of primary cycling routes through the INSW study and CoS Design review

For the regional cycling link along Bridge Road from the Inner West, the INSW study has proposed having this as a shared path beyond the BWB SSP precinct in front of the new Sydney Fish Market. This would be the only shared path configuration planned along the route and would occur in a high friction environment with significant pedestrian activity.

In response, the Design review recommends continuing this regional link as a separated bi-directional cycleway.

3.3.5. Review finding – safer for all users

The BWB SSP is bounded by the Anzac Bridge approach/Western Distributor on the east and Pyrmont Bridge Road to the south. These regional roads are visual and physical barriers between the precinct and the rest of the Pyrmont peninsula. The vehicular circulation routes are shown in Figure 25. For the INSW study and CoS Design review. The Design review found that the INSW study:

- Creates unsafe intersections, by:
    - Encouraging high speed vehicle movements through wide intersections with slip lanes and a generally straight new street; and,
    - Creating conflicts between Hymix truck and vehicle movements, particularly at the Miller Street/Bank Street intersection.
- Dedicates too much land to roadway;
- Requires all service street/lane bound vehicles to travel through the main street; and,
- Encourages rat-running between Pyrmont Bridge Road and Miller Street/Bank Street (regional area traffic using a local street).

In response, the following is recommended:

- Create safer intersections, by:
    - Discouraging high speed vehicle movements through consolidated intersections with single stage pedestrian crossings; and,
    - Separating Hymix truck movements from vehicle movements.
- Dedicate less land to roadways;
- Locate the service street outside the site to reduce service vehicles using the main street and reduce service vehicles sharing the street with cyclists; and
- Discourage rat (regional area traffic)-running by creating a less-direct route.

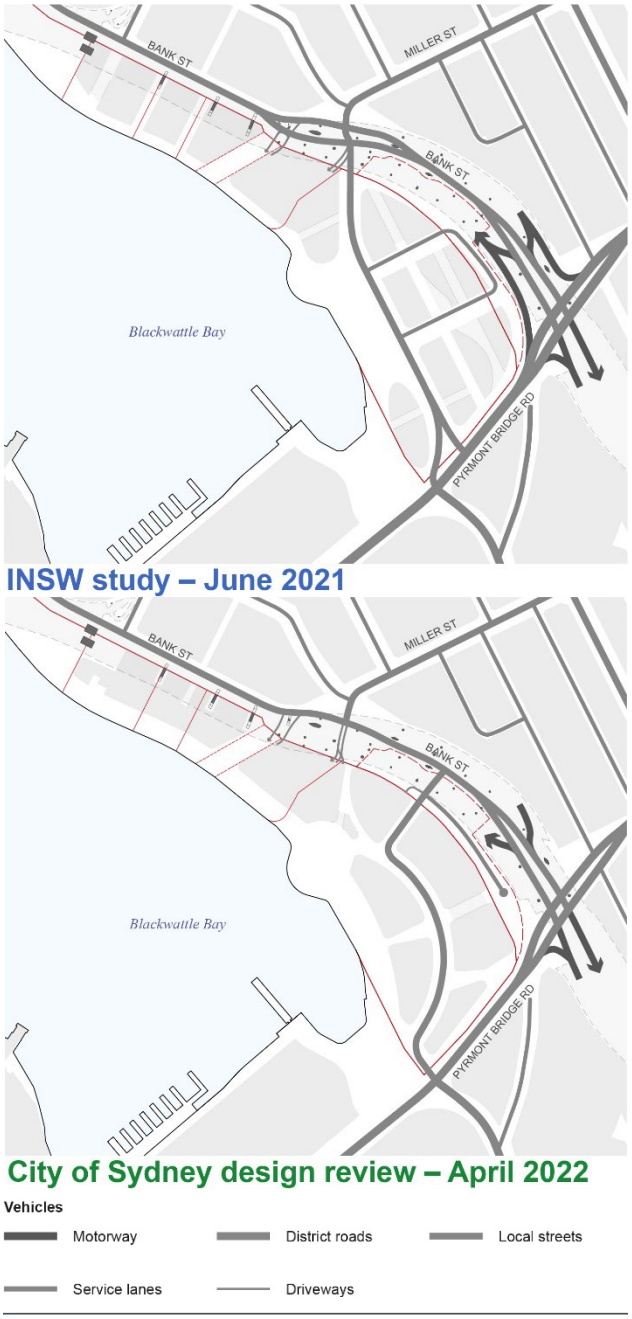


Figure 25 Comparison of major pedestrian routes through the INSW study and CoS Design review

3.3.6. Review finding – safer intersections

As discussed in Section 3.3.5, the BWB SSP is bounded by major roads. This reduces pedestrian, and cycle and vehicular crossings into the site from the three existing intersections of Wattle Street/Bridge Road, Pyrmont Bridge Road/Bank Street and Bank Street/Miller Street, as shown in Figure 26.

The design of these intersections is crucial to ensure that Blackwattle Bay is well-connected, accessible, and integrated with the Pyrmont peninsula for all users. The three intersections are reviewed separately in the subsequent sections (refer Sections 3.3.7, 3.3.8 and 3.3.9)

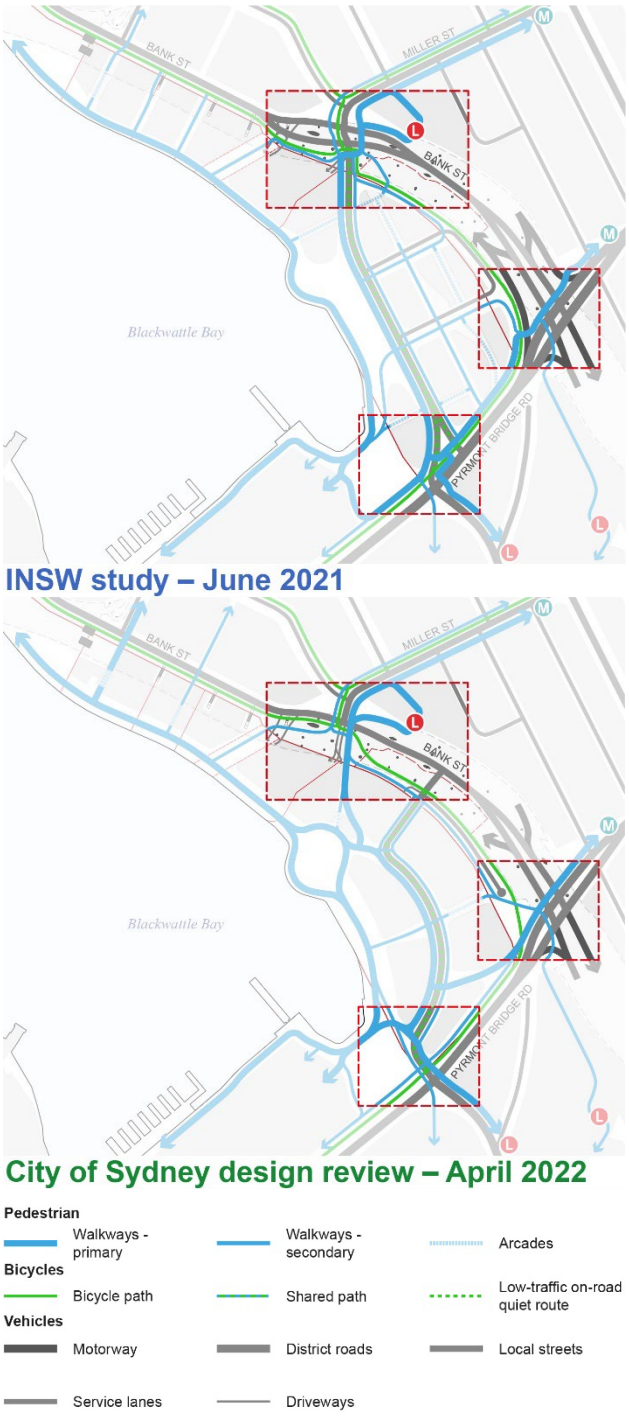


Figure 26 Comparison of site access between the INSW study and CoS Design review

3.3.7. Miller Street intersection review finding – Hymix concrete trucks

The Miller Street intersection is illustrated in Figure 28 below, and shows that:

- Hymix and the associated concrete trucks and double semi-trailers (shown in Figure 27) are likely to continue operating for the foreseeable future (see section 4.1.8), with the trucks entering and leaving the southern site in a counterflow arrangement;
- The INSW study has not accommodated the Hymix concrete trucks into the design, creating an unsafe environment for all users as, the concrete trucks enter the intersection at the pedestrian crossing in an unexpected counterflow arrangement; and,
- The Design review proposes moving the connection of the new street to a position between Miller Street and Pyrmont Bridge Road, away from the entry to the Hymix site. This allows the Miller Street intersection to be consolidated and accommodate the Hymix entry. Pedestrian connection is made safer by a shorter more direct crossing with greater visibility from approaching traffic and continues on to directly connect to the new street, the new park and the foreshore.

Figure 27 concrete trucks and semi-trailers entering the Hymix site through the Miller Street intersection

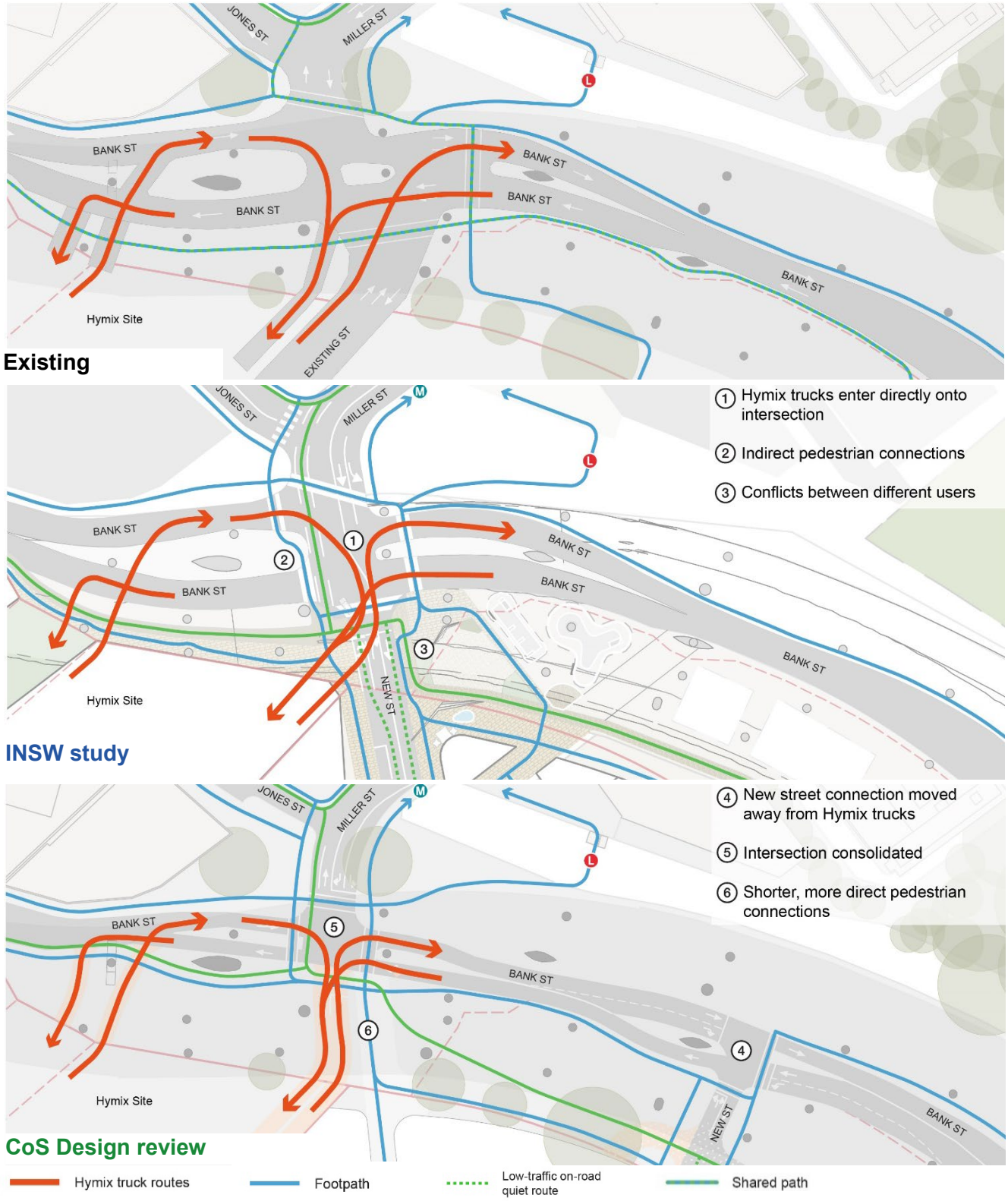


Figure 28 Comparison of existing, INSW study and CoS Design review for the Bank Street and Miller Street arrangement

3.3.8. Wattle Street intersection review finding – remove slip lane, easier walk to fish market

The INSW study proposes a new street connecting at a sharp angle to the existing Wattle Street intersection, necessitating a left-out slip lane, shown at the top of Figure 29.

This creates a number of issues:

- A two phase pedestrian crossing for people walking along the northern footpath of Pyrmont Bridge Road and crossing Pyrmont Bridge Road;
- Vehicles entering the site at unusual, wide angles, hindering sight lines, and increasing speed;
- Conflicts between pedestrians and cyclists, with awkward crossings and 'dog leg' routes; and,
- Dedicates large amount of the public space to roads.

The CoS Design review locates the new street perpendicular to Wattle Street and removes the slip lane and traffic island so that the intersection:

- Allows a single-phase pedestrian/cyclist crossing for all road crossings;
- Has all turning manoeuvres at safer, 90° angles into the New Street, slowing speeds and improving sight lines;
- Reduces conflicts between pedestrians and cyclists; and,
- Dedicates less public space to roads.

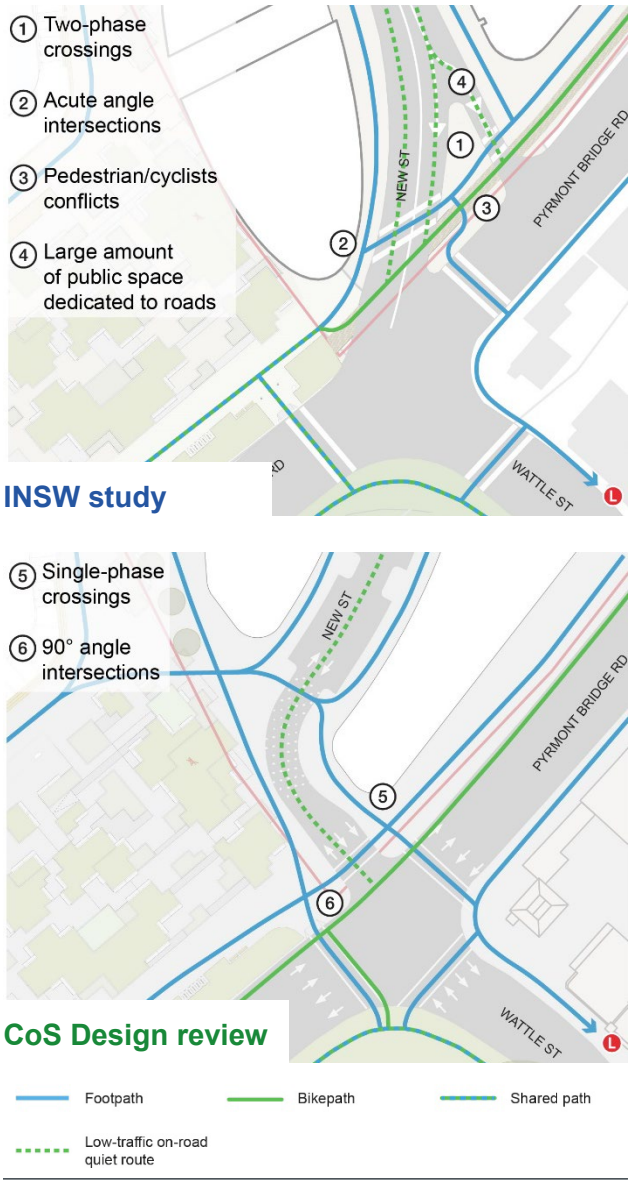


Figure 29 Comparison of INSW study and CoS Design review for the Wattle Street and Pyrmont Bridge Road/Bridge Road arrangement

3.3.9. Bank Street, Pyrmont Bridge Road intersection review finding – less space for vehicles, safer for people walking

The Pyrmont Bridge Road and Bank Street intersection is a sprawling intersection with multi-phase pedestrian crossings that prioritise space to vehicles. As shown in Figure 30, the INSW study maintains the status quo, while increasing pedestrian demand on the constrained pedestrian routes.

The current configuration greatly reduces pedestrian connectivity into the site along the primary Pyrmont Bridge Road route, an issue which is only going to grow with the Blackwattle Bay SSP development and future Sydney Metro station.

The Blackwattle Bay SSP offers an opportunity to rethink this intersection and offer a better outcome for all users. The CoS Design review achieves this by consolidating the west-bound Western Distributor on-ramps and off-ramps into Bank Street. This has several benefits, namely:

- Removes the need for separate, parallel roadways linking the on/off-ramps to Pyrmont Bridge Road;
- Reduces the number of pedestrian crossings from:
    - Three to one – from the City and Pyrmont village into the study area along Pyrmont Bridge Road; and,
    - Three to two – from Wentworth Park Light Rail Station and the PPPS Walking and Cycling Loop across Pyrmont Bridge Road.
- Consolidates the intersection, dedicating more space to pedestrians and potential green spaces/plazas; and,
- Improves wayfinding and legibility, with improved sightlines and intuitive pedestrian circulation.

Owing to the complexity a traffic analysis would be required to determine the exact configuration of this intersection.

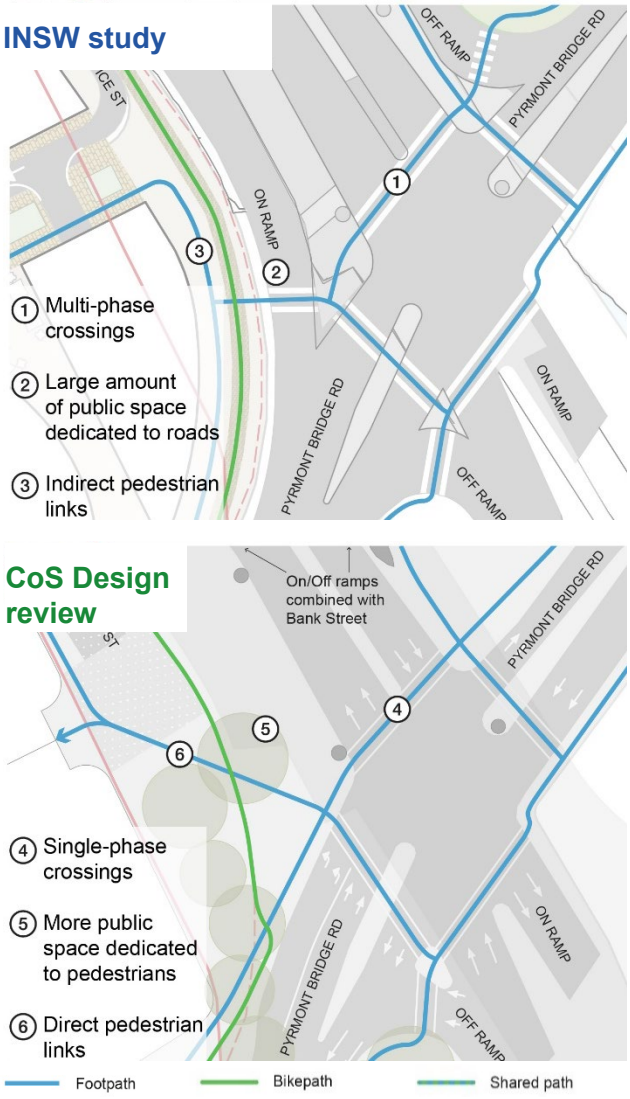


Figure 30 Comparison of INSW study and CoS Design review for the Wattle Street and Pyrmont Bridge Road/Bridge Road arrangement

3.4. Trees

The Study Requirements for Bays Market District (refer Appendix K, section 15.5, pp. 22) stipulates the following minimum canopy cover targets for the public spaces within the study area:

- Streets/laneways – 60%
- Parks – 30%

The INSW study's Urban Forestry Strategy (Attachment 31 of the Blackwattle Bay SSP study, refer Appendix F) proposes the removal of all trees within the site, including multiple established trees within the former Bank Street road reserve. The strategy also stipulates an additional tree canopy target for the promenade, as follows:

- Streets/laneways – 60%
- *Promenade* – *45%*
- Parks – 30%

The detailed solar studies within Sections 3.2.3, 3.3.4, and 3.2.5 indicate low levels of sunlight are received within many of INSW study's public spaces. These spaces support only low sunlight tolerant tree species. As shown in Figure 31, a significant amount of the trees depicted within the exhibited plans are in areas of suboptimal sunlight. The INSW study places underground carparking beneath one of the laneways preventing the street from supporting larger trees, reducing canopy coverage below the target set for streets and laneways.

Figure 31 shows the proposed canopy cover of the INSW study and CoS Design review. By focussing on creating a better climate with more sunlight and comfortable, safe wind speeds, the CoS Design review found that tree canopy cover exceeding the targets can be provided throughout the site's public spaces.

This is achieved by:

- Maximising tree retention;
- Creating a continuous band along the northern foreshore with adequate sunlight to support an avenue of deciduous trees;
- Ensuring solar access to public spaces through the careful arrangement of built form; and,
- Not placing carparking under streets.

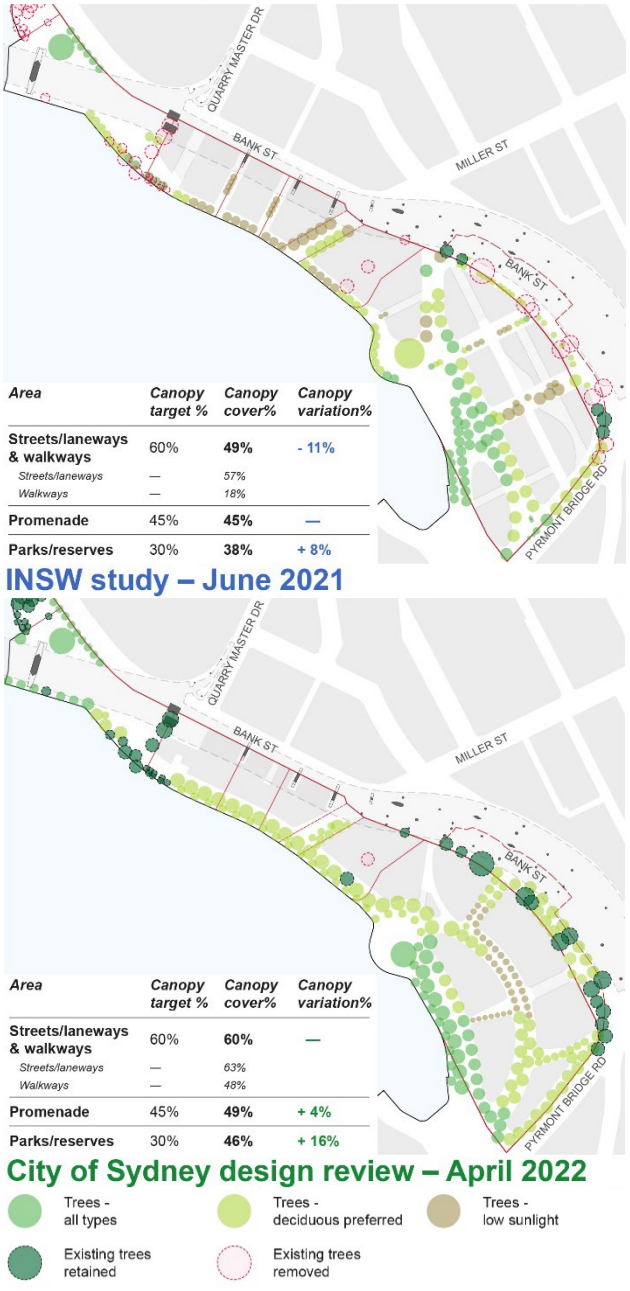
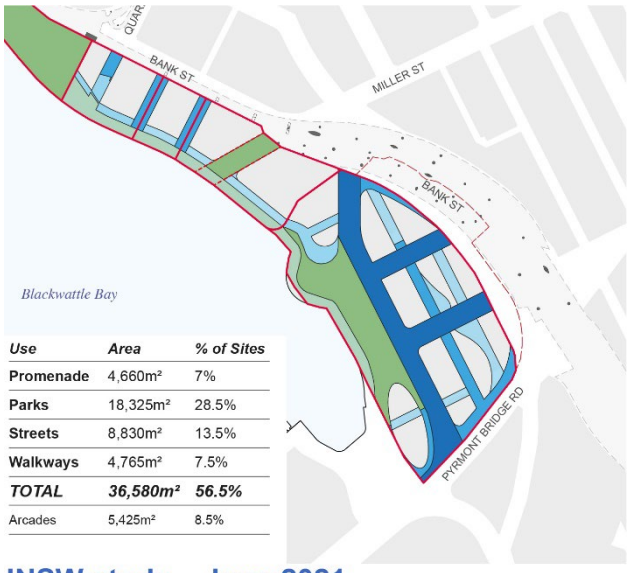


Figure 31 Tree coverage and types

3.5. Public space

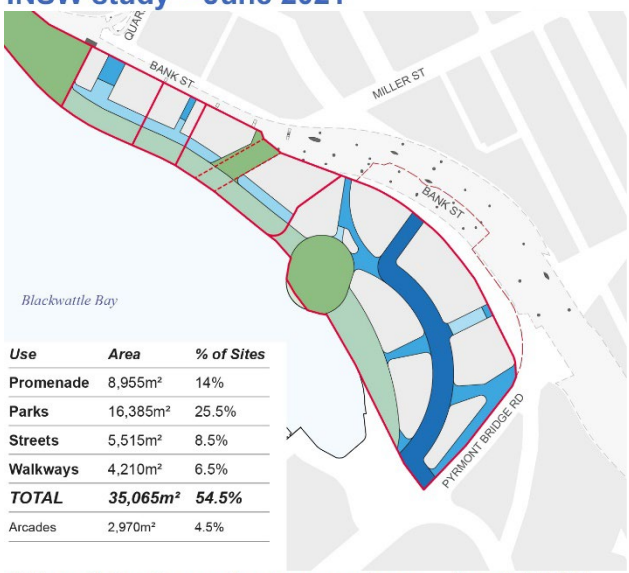
The Design review contains around the same area of public space as the INSW study (see Figure 32). With increased width of the foreshore reserve and consolidation of the park, the proportion of public space available for people's recreation and enjoyment is increased. New streets are consolidated into a new crescent, decreasing the proportion of public space as streets.

In the north, walkways are arranged to coincide to pedestrian routes on the north side of Bank Street rather than across site boundaries. On the fish market site (refer Figure 33) walkways connect Miller and Gipps Street to the foreshore, while a quadrant walkway connects Miller Street to the crescent and another connects the crescent to the foreshore reserve. Taken together the public space, while slightly less in area, is consolidated and more commodious.



Use	Area	% of Sites
Promenade	4,660m²	7%
Parks	18,325m²	28.5%
Streets	8,830m²	13.5%
Walkways	4,765m²	7.5%
TOTAL	*36,580m²*	*56.5%*
Arcades	5,425m²	8.5%

INSW study – June 2021

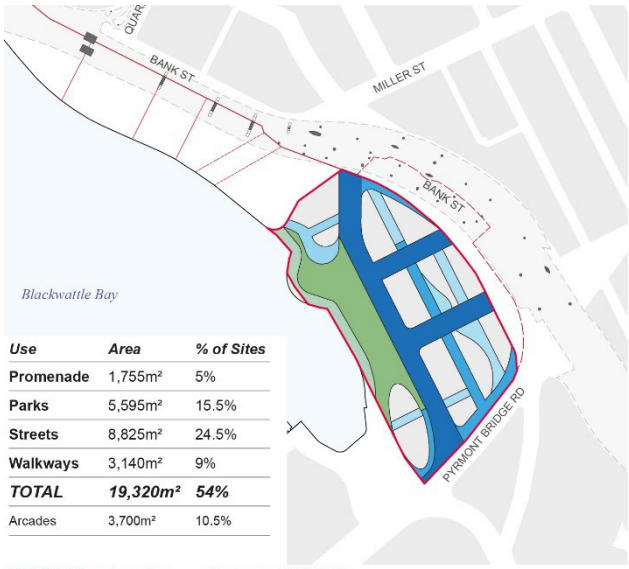


Use	Area	% of Sites
Promenade	8,955m²	14%
Parks	16,385m²	25.5%
Streets	5,515m²	8.5%
Walkways	4,210m²	6.5%
TOTAL	*35,065m²*	*54.5%*
Arcades	2,970m²	4.5%

City of Sydney design review – April 2022

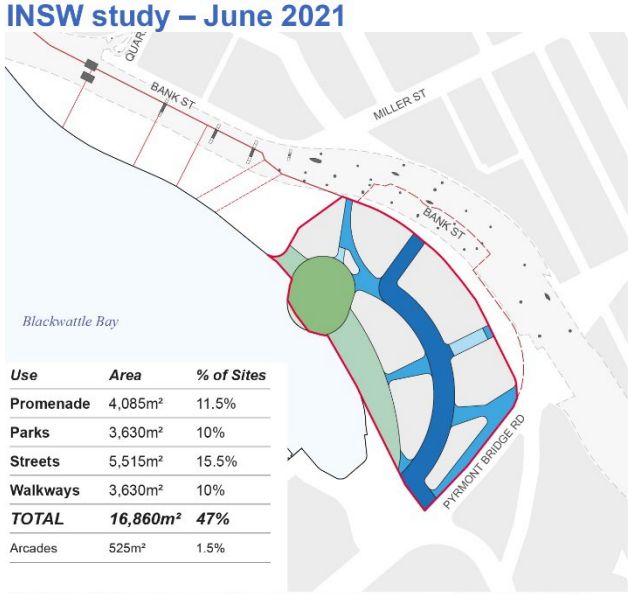
Promenade Parks
Streets Walkways Arcades

Figure 32 Public space distribution across the BWB SSP for the INSW Study and CoS Design review



Use	Area	% of Sites
Promenade	1,755m²	5%
Parks	5,595m²	15.5%
Streets	8,825m²	24.5%
Walkways	3,140m²	9%
TOTAL	*19,320m²*	*54%*
Arcades	3,700m²	10.5%

INSW study – June 2021



Use	Area	% of Sites
Promenade	4,085m²	11.5%
Parks	3,630m²	10%
Streets	5,515m²	15.5%
Walkways	3,630m²	10%
TOTAL	*16,860m²*	*47%*
Arcades	525m²	1.5%

City of Sydney design review – April 2022

Promenade Parks
Streets Walkways Arcades

Figure 33 Public space distribution across SFM for the INSW Study and CoS Design review

4. Private space

4.1. Land division and use

4.1.1. Review finding – build within the site

The Design review found that the INSW study reference plan (refer Figure 34) overestimated the development potential by:

- Including site area outside of the Sydney Fish Market boundary on City owned land; and,
- Encroaching within the pylons/columns, foundation easements and volumetric easements of the Western Distributor and Anzac Bridge approach.

The Design review found the following changes are required:

- Align the Miller Street open space with the cadastral boundaries, not the view corridor (as the PPPS stipulates); and,
- Configure the northern private land sites without multiple mid-block breaks, that created inefficient land use and pedestrian paths that do not connect beyond the site.

The Design review found that the site can be divided to increase the developable area, particularly on the fish market site, and maintain existing site boundaries while providing generous public space. Increasing the developable area lowers the intensity of development and its effects as the same amount of floor area is spread over a larger site area.

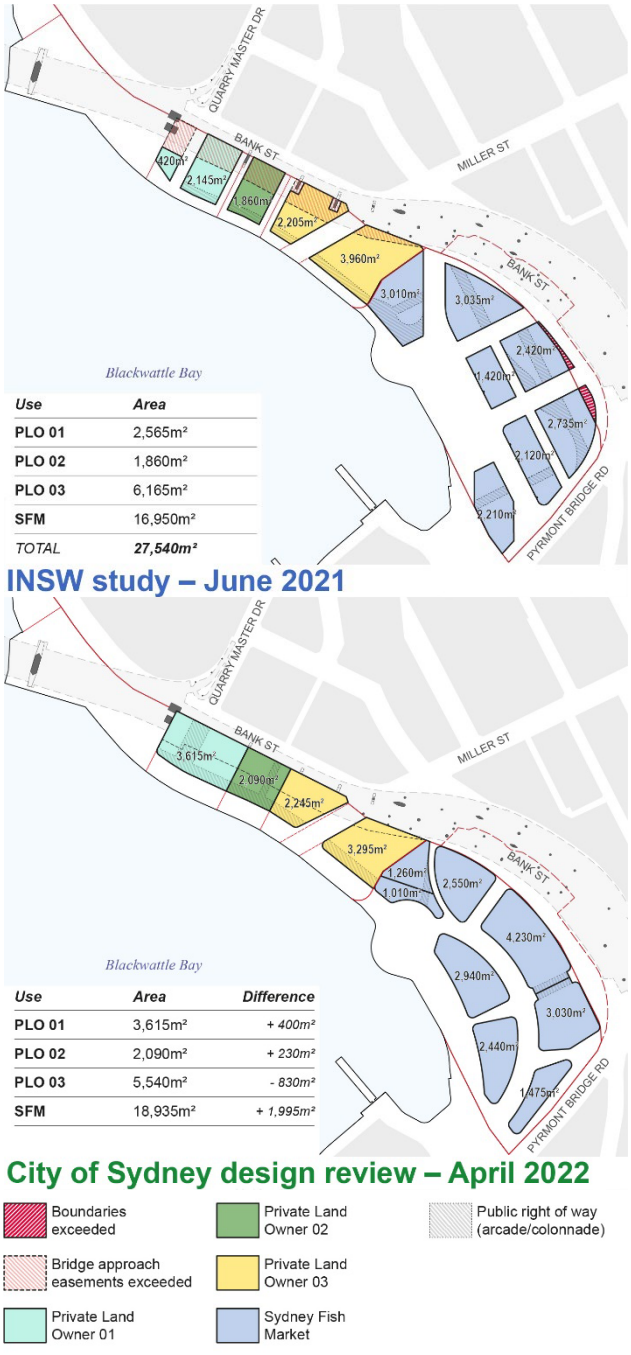


Figure 34 Comparison of developable area between the INSW study and CoS Design review

4.1.2. Review finding – fewer, lower towers

The INSW study proposes seven towers, the tallest exceeding the current tallest building (Sofitel Darling Harbour) on the Pyrmont peninsula by 23 metres. The number of towers shown at the top of Figure 35 creates several issues, including:

- increased visual impact and loss of views;
- greater overshadowing (of both public spaces and neighbouring sites); and,
- more adverse wind effects.

The Design review finds that the built form can be configured as a predominantly mid-rise development, with three lower towers on the fish market site. This:

- consolidates towers in the widest part of the study area, minimising impacts on surrounding areas;
- diminishes height to the south, minimising overshadowing impacts;
- removes towers from along the foreshore promenade reducing visual, wind and solar impacts on the waterfront; and,
- reduces the overall maximum height from RL 156 metres to RL 120 metres, the same height as the Anzac Bridge south pylon.

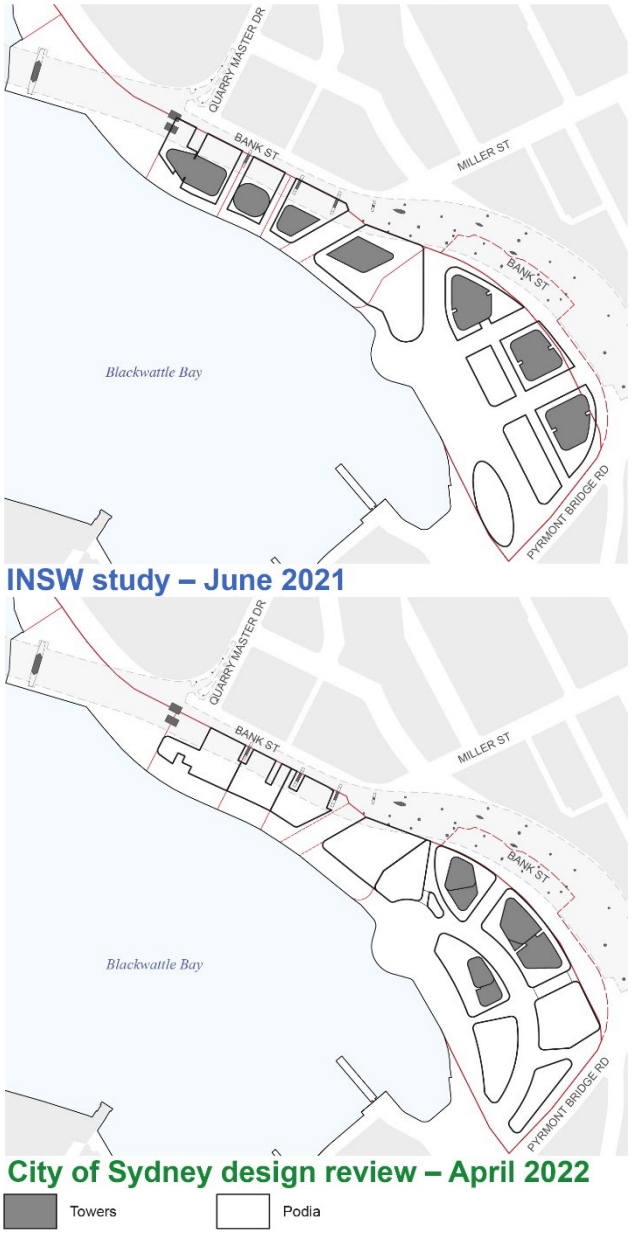


Figure 35 Comparison of tower forms between the INSW study and CoS Design review

4.1.3. Land use planning context

A Ministerial Direction applies to the site which requires:

- any proposal to facilitate development that is consistent with the Place Strategy and the Pyrmont Peninsula Economic Development Strategy (the EDS)
- the future planning controls to align with Eastern City District Plan Planning Priority E7 – "Growing a stronger and more competitive Harbour CBD", and
- any proposal to deliver on the envisaged future character of the Blackwattle Bay sub-precinct outlined in the Place Strategy.

The strategic planning framework – the Place Strategy, the EDS, the District Plan, and Blackwattle Bay sub-precinct master plan – outline a clear future role for the precinct as a mixed-use, primarily commercial office precinct. Residential is discussed, but only as a "supplementary use" and one that "doesn't compromise commercial development".

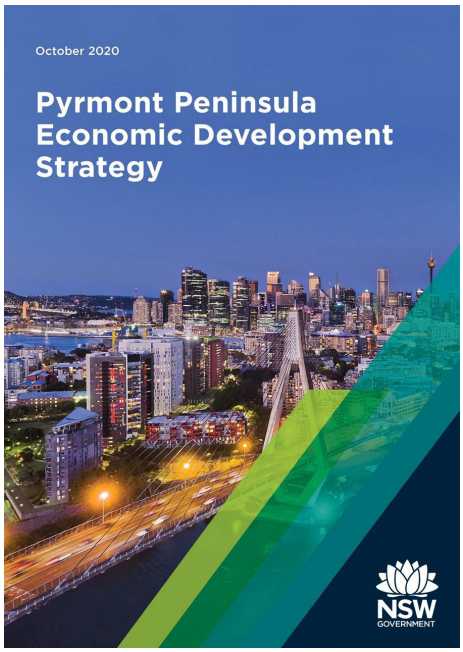
The failure to provide sufficient new commercial floor space to accommodate future growth across the Peninsula is identified as a threat to achieving the vision for the Peninsula outlined in the Place Strategy and the EDS.

The EDS forecasts economic and employment growth across the Peninsula outlining demand for an additional 23,000 jobs and 800,000 square metres of new employment space required across the Peninsula to 2041. The forecasts take into account COVID-19 in terms of its potential impact on demand.

These forecasts assume that "investment in a Metro station will be accompanied by appropriate changes to planning controls (zoning, built form) to support the economic growth". The growth forecast equates to $4.9 billion in additional economic output for the Peninsula by 2041.

The Study Requirements for the Blackwattle Bay State Significant Precinct requires a quantum of floor space to be identified that supports economic development.

The Economic Development, Local Retail and Services Study, prepared by Hill PDA in support of the State Significant Precinct Study, sets a "golden rule" for a successful commercial mix of 100,000sqm of high employment generating uses for the site.



"Consider your critical mass given location: The site benefits from having a large footprint with the potential for amalgamation. As demonstrated in the demand analysis the site could accommodate 100,000sqm of high employment generating uses in Blackwattle Bay which will provide sufficient critical mass to encourage economies of agglomeration."

Hill PDA's "Golden rule for a successful commercial mix", Economic Development, Local Retail and Services Study, March 2021

4.1.4. Review finding – commercial towers not residential

The distribution of uses in the INSW study (refer Figure 36) has shortcomings, including:

- Commercial uses spread across the site, reducing the concentration of the critical mass of commercial uses;
- Residential uses are in close proximity to, and fronting, noise and pollution from the Western Distributor/Anzac Bridge approach; and,
- Mixed-use buildings, with residential towers above commercial podiums that are less suitable to the development market than predominately single use buildings.

The CoS Design review found that the uses within the site can be arranged better by:

- Concentrating commercial uses in a cluster within the southern half of the site to create adequate critical mass, as per the Hill PDA's "golden rule" for a successful commercial mix of 100,000sqm of high employment generating uses for the site (BWB SSP Economic Development, Local Retail and Services, 2021);
- Increased residential floor area on the privately owned sites,
- Locating residential uses to face away from the Distributor/Anzac Bridge on ramps;
- Maximising residential apartments facing the waterfront
- Using more attractive to the market bliulding forms, by minimising mixed use, with residential buildings limiting non-residential uses to the lower two levels rather than residential towers on large floorplate commercial podiums;
- Increased floorspace on the fish market site
- A range of commercial floor plates including larger footprint podia for commercial uses (refer Figure 37); and,
- Locating the cultural uses in a building that forms, and opens to the park.

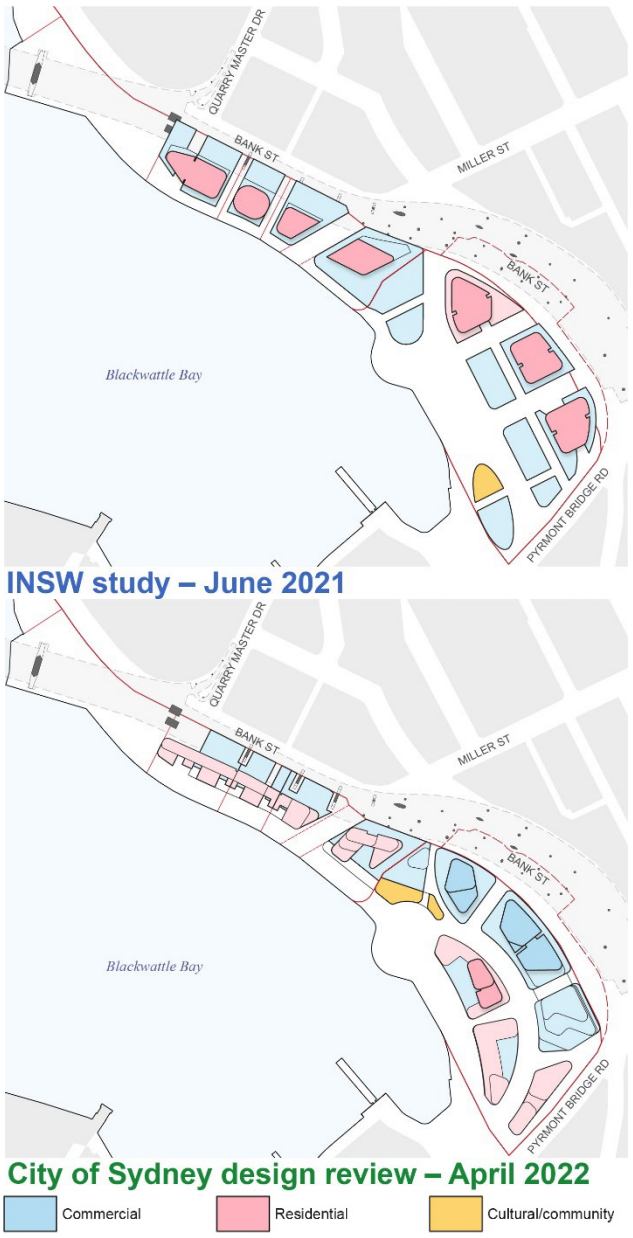


Figure 36 Comparison uses between the INSW study and CoS Design review

Table 1 Comparison of Blackwattle Bay development yields

Precinct	Residential GFA	Non-residential GFA	Cultural GFA	Total Use
Sydney Fishmarkets	69,966 sqm	**70,271 sqm**	2,309 sqm	**142,546 sqm**
Hymix South	7,825 sqm	9,520 sqm	0 sqm	17,345 sqm
Hymix North	7,349 sqm	6,393 sqm	0 sqm	13,742 sqm
Private South - Celestino	8,784 sqm	7,143 sqm	0 sqm	15,927 sqm
Private North - Poulos	9,458 sqm	9,864 sqm	0 sqm	19,322 sqm
Private sites (total)	**33,416 sqm**	32,920 sqm	0 sqm	66,336 sqm
Totals	103,382 sqm	103,191 sqm	2,309 sqm	208,882 sqm

INSW study – June 2021

Precinct	Residential GFA	Non-residential GFA	Cultural GFA	Total Use
Sydney Fishmarkets	28,592 sqm	**112,281 sqm**	2,334 sqm	**143,208 sqm**
Hymix South	10,336 sqm	3,274 sqm	0 sqm	13,610 sqm
Hymix North	6,711 sqm	2,834 sqm	0 sqm	9,545 sqm
Private South - Celestino	7,329 sqm	2,268 sqm	0 sqm	9,597 sqm
Private North - Poulos	12,681 sqm	2,816 sqm	0 sqm	15,497 sqm
Private sites (total)	**37,057 sqm**	11,192 sqm	0 sqm	48,249 sqm
Totals	65,649 sqm	123,473 sqm	2,334 sqm	191,457 sqm

City of Sydney design review – April 2022

When compared to the INSW study, the redistribution of uses and adjustments to the built form in the Design review results in slightly more floor area on the fish market site with more commercial space (refer Table 1) and more residential space on the private sites.

In the table the INSW areas are adjusted to exclude floor area outside the site, within easements and their associated setbacks, and a deep podium converted from residential to commercial use.

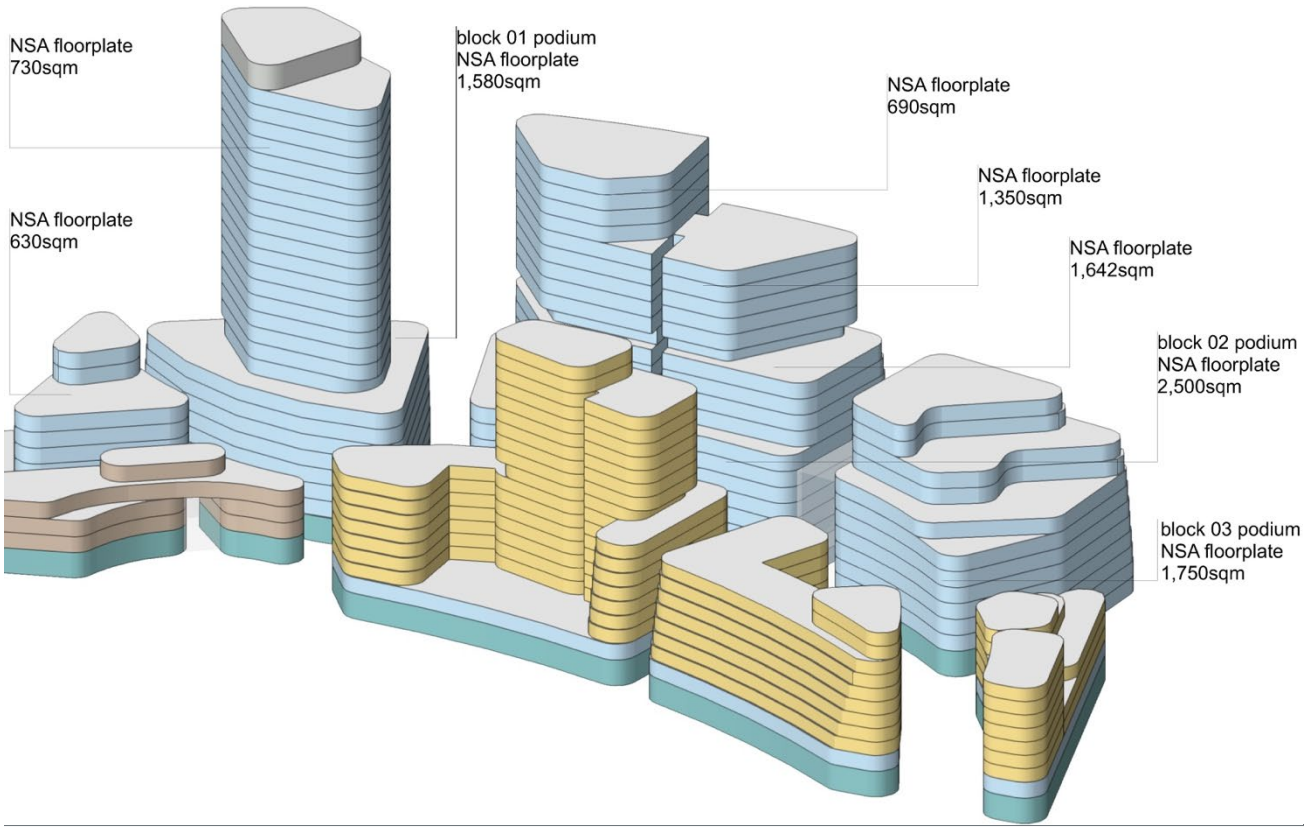


Figure 37 Commercial floor plate sizes on the fish market site within the CoS Design review

4.1.5. Review finding – the Western Distributor generates high noise levels

The Western Distributor generates high levels of ambient noise. The Apartment Design Guide (ADG) stipulates that "*All habitable rooms are naturally ventilated*" (Objective 4B-1).

Sydney DCP 2012 (Section 4.2.3.11 (7) (b)) specifies that the repeatable maximum LAeq (1 hour) for apartments with 'open windows and doors' must not exceed the following levels:

i. 45 dB for bedrooms (10pm-7am); and

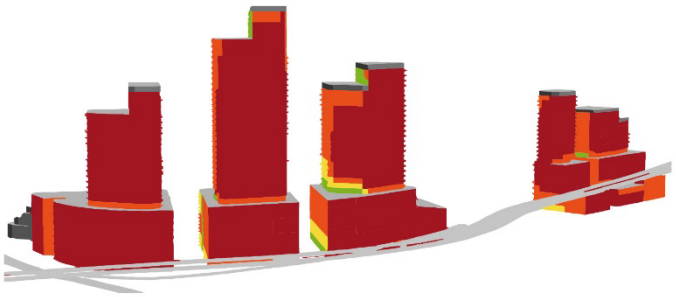
ii. 55 dB for main living areas (24 hours).

The Noise and Vibration Study (Attachment 18 of the Blackwattle Bay SSP study, refer Appendix H, Table 8) outlines categories for night-time noise mitigation, summarised in Table 2 below.

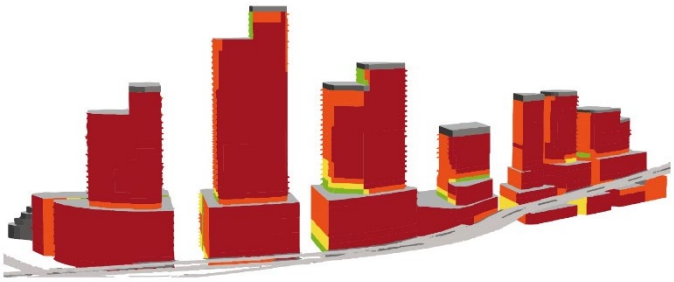
Table 2 Maximum night-time noise levels for natural ventilation

Predicted Façade Noise Levels (dBA)	Façade mitigation to permit natural ventilation
<57	Louvres/screens, balcony absorption
>57 to 60	Enclosed balcony
>60 to 66	Enclosed balcony with attenuated ventilation path
>66	Natural ventilation not advised

Figure 38 depicts the evening noise levels from the Western Distributor applied to the relevant façades of the INSW study buildings. The vast majority of façades facing the Anzac Bridge approach are exposed to noise levels above 66 dBA, the level above which natural ventilation is not advised. Apartments located here cannot meet the apartment design guide Objective 4B-1.



INSW June 2021 – Eastern/North-eastern Facade Road Traffic Facade Noise Map – Night-time
Hymix Stays



INSW June 2021 – Eastern/North-eastern Facade Road Traffic Facade Noise Map – Night-time
Hymix Redeveloped

Figure 38 Eastern/north-eastern façade traffic noise mapfrom the INSW study

4.1.6. Review finding – face apartments away from noise

The Design review finds the high noise levels generated by the Western Distributor are not adequately addressed in the INSW study. The residential apartments facing the Western Distributor experience noise levels above 66 dBA. As shown in Figure 39, the proposed building layout contains multiple apartments on each floor directly oriented towards the noise source. These apartments will not achieve natural ventilation, to meet apartment design guide Objective 4B-1 without subjecting residents to the poor health effects caused by noise.

In addition to this, Objective 4J-1 of the ADG specifies that "the impacts of external noise and pollution are minimised through the careful siting and layout of buildings". Figure 40 shows the CoS Design review finding careful siting of buildings in the Sydney Fish Market site, with residential apartments located in buildings close to Blackwattle Bay, shielded from external noise and pollution sources, along with the considered layout of buildings that allows windows for natural ventilation to be protected from noise.

Where unable to achieve the design criteria due to noise and pollution, the ADG states that alternatives may be considered in the following areas:

- solar and daylight access;
- private open space and balconies; and,
- natural cross ventilation.

As shown in Figure 39, for the northern sites where apartments are in close proximity to the Western Distributor, the buildings are carefully laid out to meet the ADG with reasonable alternative solutions. This includes orienting private open spaces away from the noise source, and the careful design of apartments to ensure all habitable rooms can be naturally ventilated with windows protected from the noise source. On the north-eastern frontage use of fixed secondary windows in living spaces provide solar access; and corridors and non-habitable rooms are also located here.

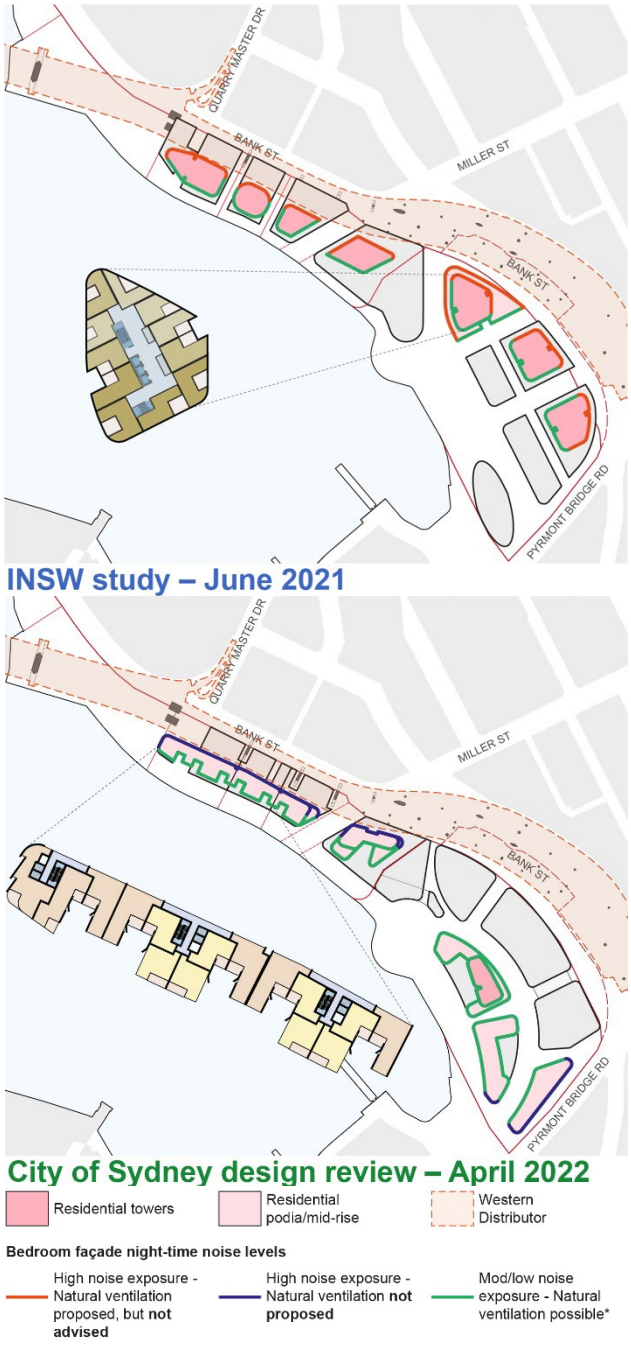


Figure 39 Comparison of noise exposure between the INSW study and CoS Design review

4.1.7. Review finding – arrange apartment buildings to maximise solar access

Figure 40 shows mid-winter views from the sun to demonstrate the careful placement of residential buildings (shown in pink) on the fish market site ensures that at least 70% of apartments receive more than 2 hours sunlight between 9:00 am and 3:00 pm at midwinter. The apartments in the Pyrmont Bridge Road building are laid out like the buildings on the private sites with habitable rooms facing away from the road.

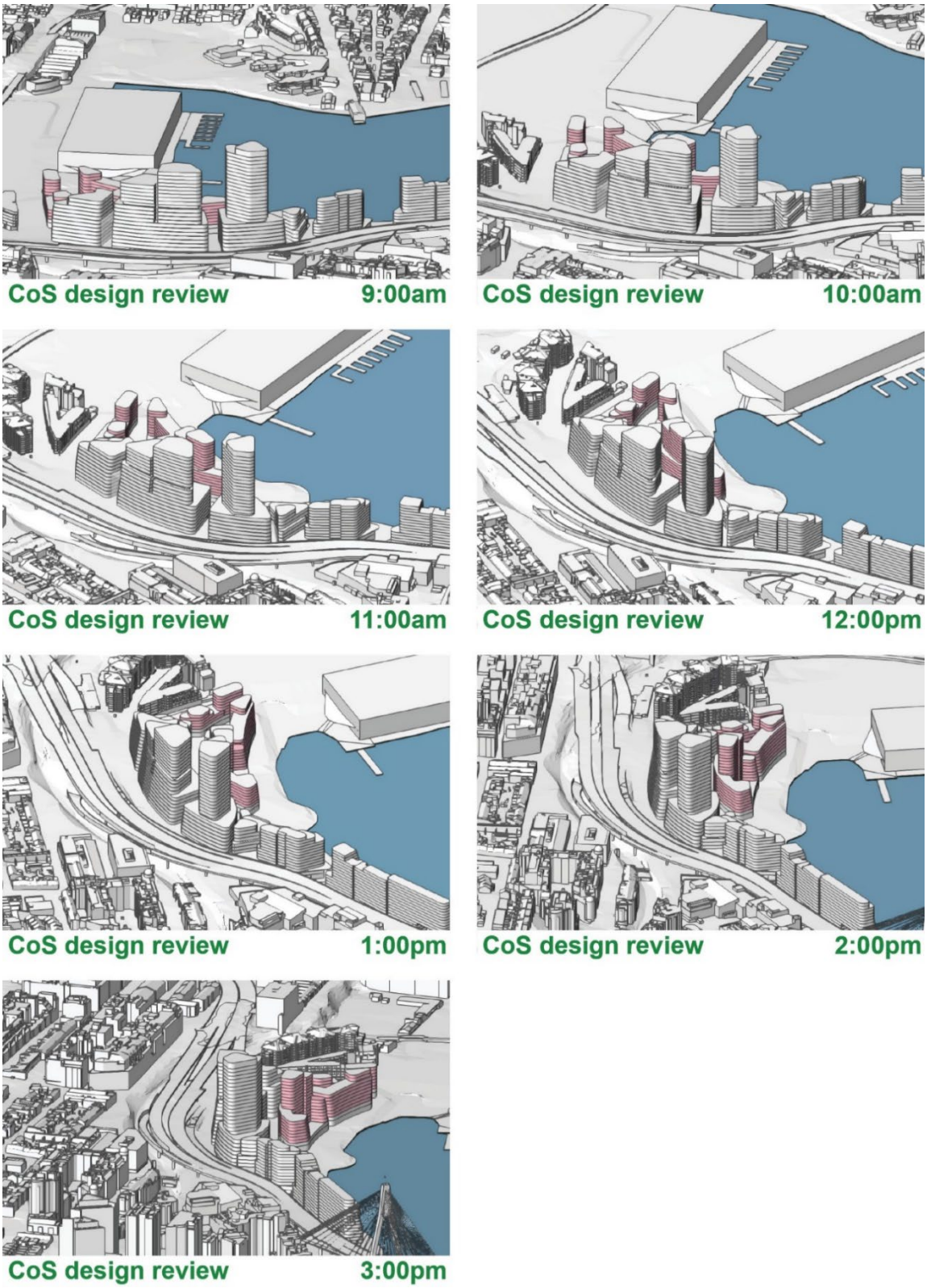


Figure 40 Sydney Fish Market residential uses (pink) are located away from the impacts from the Western Distributor

4.1.8. Review finding – concrete batching plant will remain for some time

Blackwattle Bay is occupied by industrial, retail and port related uses, including a concrete batching plant operated by Hymix that operates 24 hours a day. Hymix's submission to the public exhibition of the INSW Study (02/07/2021 - 20/08/2021), states;

> *"…any outcome that is premised on the closure or relocation of the Hymix concrete batching plant is untenable for Hanson.* ***Hanson will never close or relocate the facility to another site****. As such, any strategic planning outcomes that rely on the closure or relocation of the Hymix Pyrmont concrete batching plant will not be achieved." (Appendix J, pp. 2)*

The INSW study did not assume the concrete batching plant remains in operation, it needs to assume that it remains for the short to medium term.

The Design review found that the built form arrangement can be improved to minimise the effects of the concrete batching plant operations. As shown in Figure 41 these include:

- On the Sydney Fish Market site –
  - Residential uses separated from and face away from the Hymix site;
  - A commercial and a cultural building act as a barrier along the Hymix boundary; and,
  - Provision for a possible, and, temporary structure against the Hymix boundary in the foreshore promenade zone, to complete the boundary protection of the site from air and noise pollution.
- For the northern sites that are further from the batching plant, other solutions are found, including:
  - Modulated façades – produces noise shadows within the building recesses reducing noise levels entering residences; and,
  - A party wall on the Hymix boundary – with no windows or openings on this frontage to reduce acoustic and visual impacts.

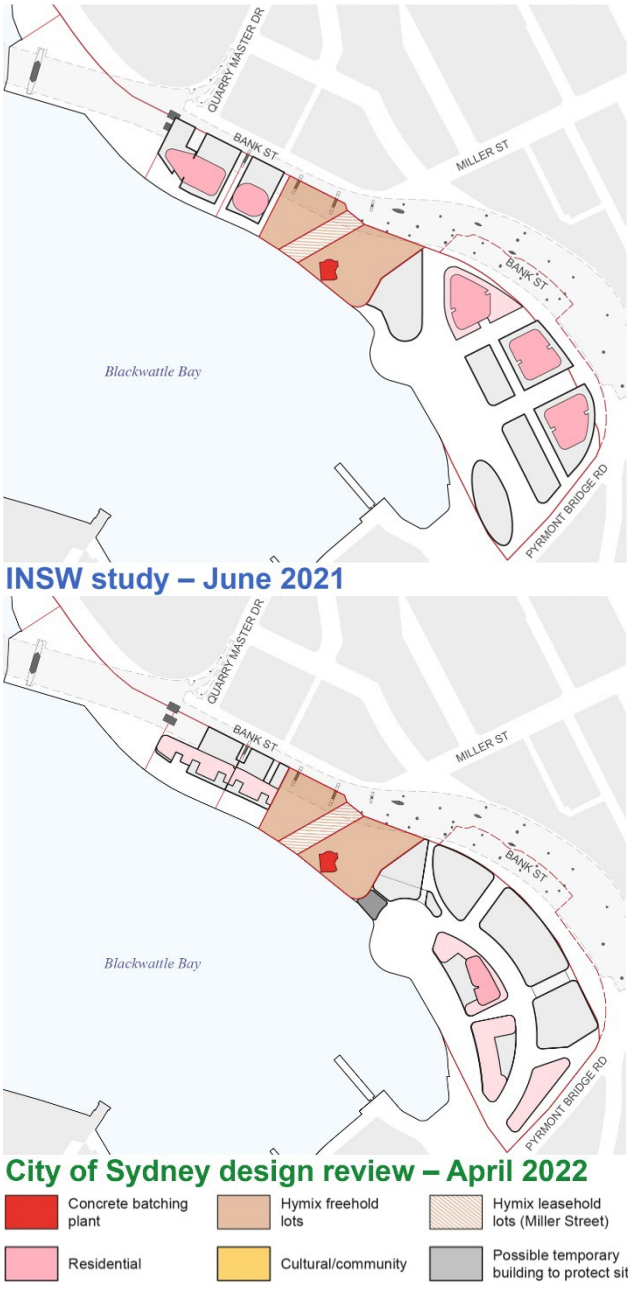


Figure 41 Comparison of uses in relation to the Hymix concrete batching plant between the INSW study and CoS Design review

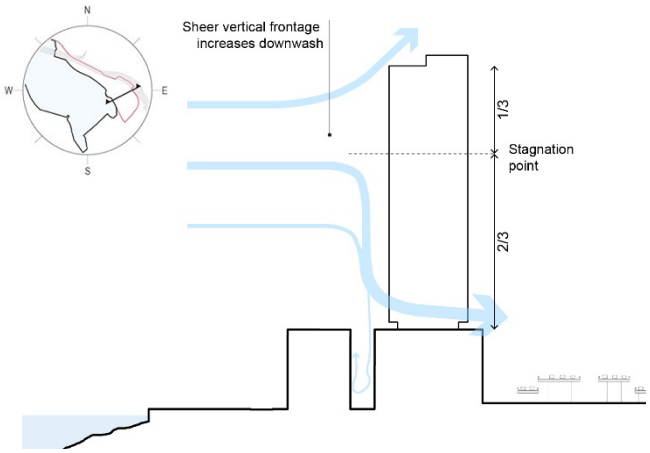
4.2. Built form

4.2.1. Review finding – make a hill not a cliff

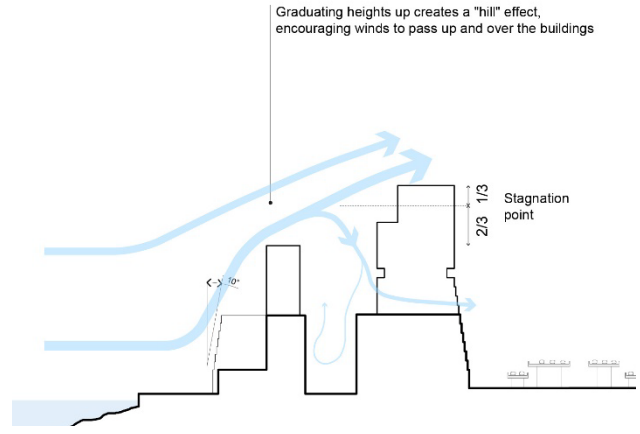
The high levels of exposure of the site to wind, require careful design of the built form, to avoid creating unsafe and uncomfortable pedestrian wind environments in the public space.

The CoS Design review found improved design for wind is needed (refer Figure 42 and Figure 43). The Design review adopted a range of solutions to the built form, these include:

- Graduating heights up from the west – to create a "hill" effect of built form, to encourage wind to pass up and over it;
- Adjusting the length, height and form of the buildings along the north western promenade to increase the size of the calm zone on the foreshore in the middle of the building, as wind is able to pass up and over the built form and not downwash significantly;
- Tilting the building setback line at least 10 degrees above the calm zone – this increases the success of the calm zone, and lowers the stagnation point – reducing downdraft further improving the wind environment; and,
- Restricting wind flow through the colonnades by impediments such as columns (greater in depth than width) and screens/partial enclosures at ends – this ensures a suitable seating wind environment is achieved as wind cannot move through and out along gaps in the building line.

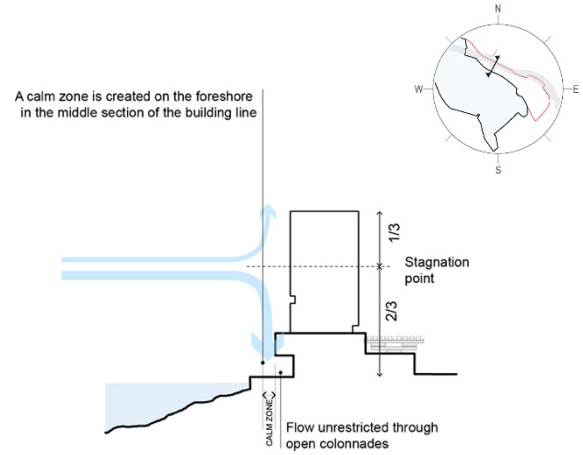


INSW study – June 2021

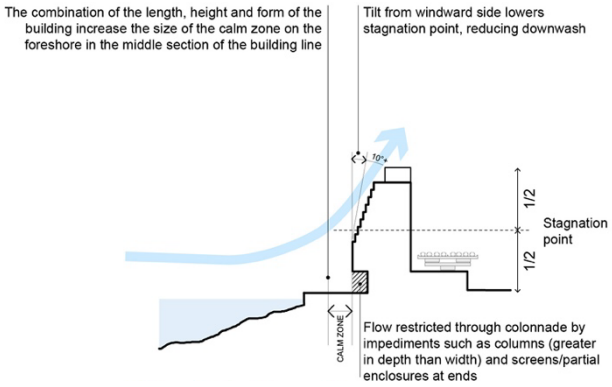


City of Sydney Design review – April 2022

Figure 42 Comparison of response to wind between the INSW study and CoS Design review



INSW study – June 2021



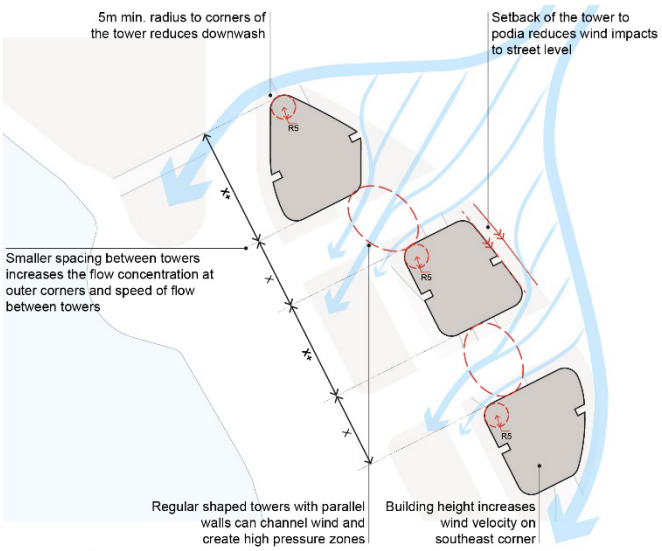
City of Sydney Design review – April 2022

Figure 43 Comparison of response to wind between the INSW study and CoS Design review

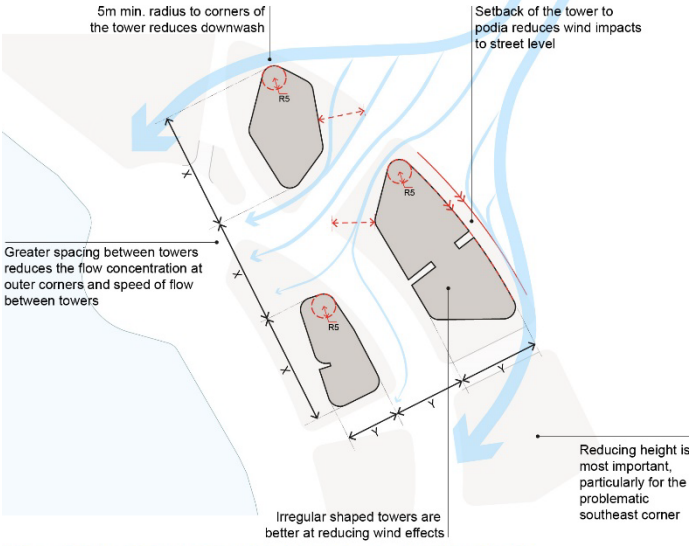
4.2.2. Review finding – allow wind to flow around and through

As outlined in Section 3.3.1, the site is in an exposed area, with relatively low built form through Pyrmont to the east / northeast. Therefore, the layout, form and orientation of the towers is crucial to minimising wind impacts. As shown in Figure 44, key recommendations include:

- Irregular shaped towers are better at reducing wind effects;
- Reduced building heights, particularly for the southeast corner;
- A 5-metre radius to corners of the towers to reduce downwash;
- Setback of the tower to podia including non-parallel setbacks reduces wind impacts to street level; and,
- Greater spacing between towers reduces the flow concentration at outer corners and speed of flow between towers.



INSW study – June 2021



City of Sydney Design review – April 2022

Figure 44 Comparison of response to wind between the INSW study and CoS Design review

4.3. Overshadowing

4.3.1. Review finding – minimise overshadowing of neighbouring residential properties

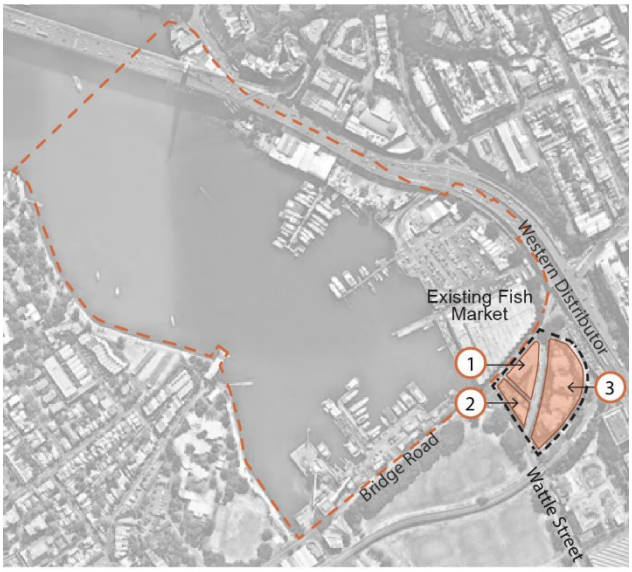
As shown in Figure 45, to the south of the Blackwattle Bay SSP are three residential complexes, two of which are impacted by overshadowing from the INSW study (refer Figure 46):

- Site 01 – 1 Wattle Crescent
- Site 03 – 2-26 Wattle Crescent

The Apartment Design Guide (ADG) provides guidance for minimising overshadowing of existing apartments, described in the CoS's 'Minimising overshadowing of neighbouring apartments' Documentation Guide.

The following section describes a step-by-step approach to establish key solar access planes that minimise overshadowing to the neighbouring apartment buildings.

/ Existing Neighbouring Residential



/ Aerial Map of the Neighbouring Residential (existing)

Figure 45 Neighbouring residential complexes to the south of the BWB SSP

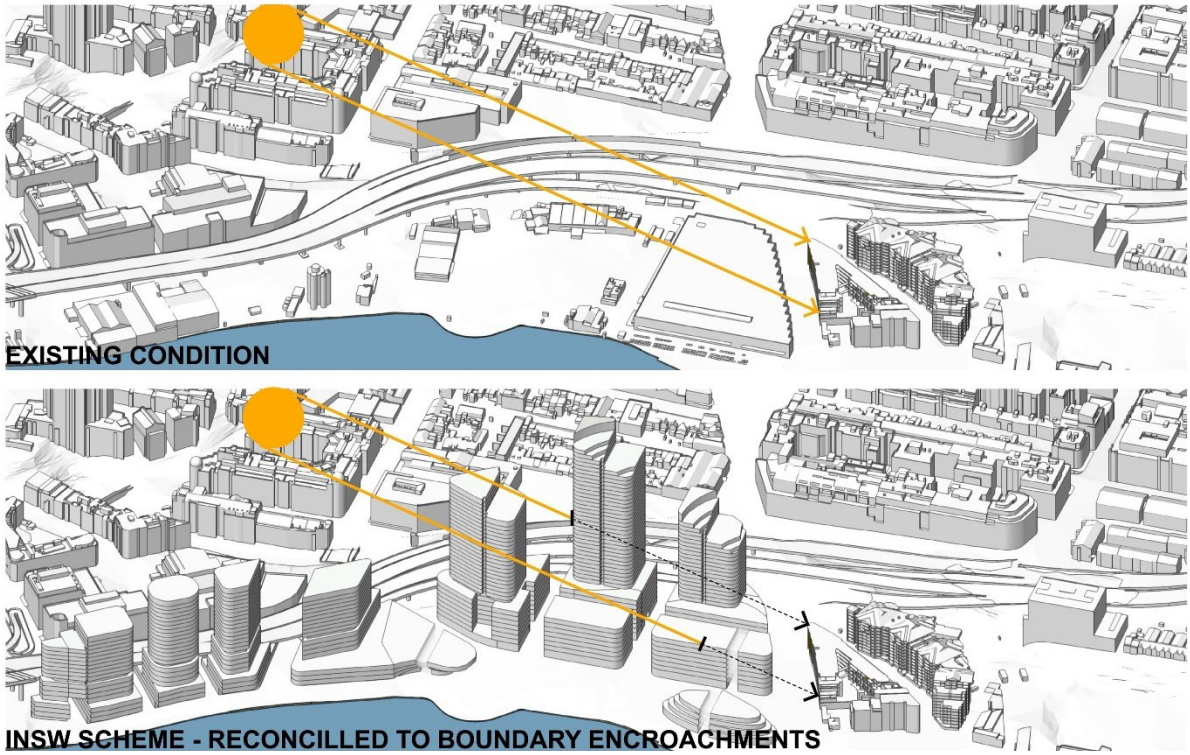


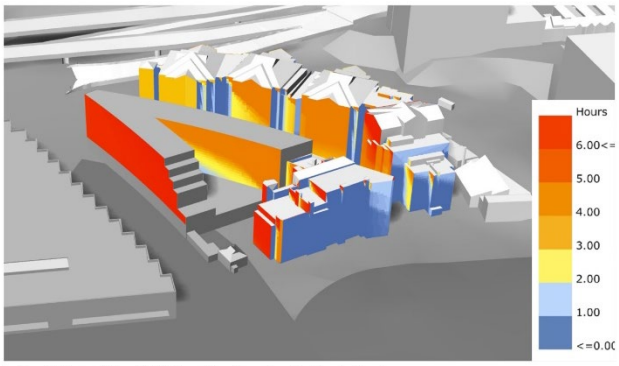
Figure 46 Solar access of the neighbouring residential complexes, showing existing (top) and the INSW study (bottom)

4.3.2. Site 01 – 1 Wattle Crescent

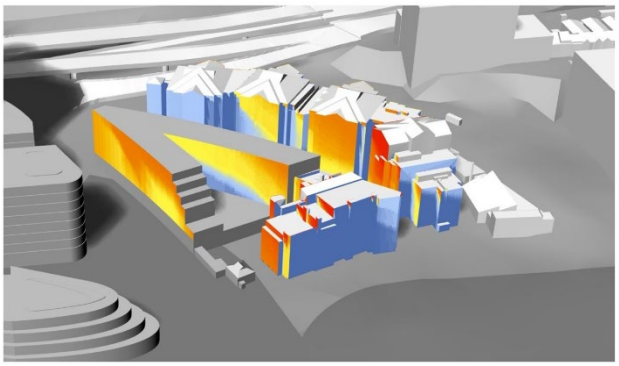
Figure 48 shows that Site 01 has more than 70% of apartments receiving a minimum 2 hours of solar access on 21 June between 9:00 am and 3:00 pm and more than 15% of apartments receive no sunlight.

The northwest façade of Site 01 currently benefits from the two-storey scale of the existing Sydney Fish Market. INSW modelled the existing building on Site 01 incorrectly (Figure 47), and the design review found that the INSW solar study is incorrect:

- INSW Model of Site 01 shows an additional / incorrect storey which may have affected INSW's calculations;
- Views from sun show that the north-western façade cannot geometrically receive sun for 6 hours, as shown in the INSW diagram Figure 47, at the façade line; and,
- Living room windows are recessed from façade and do not receive the same amount of sun as the façade.



/ Heat Map of the Neighbouring Residential (existing)
21 June, 9am - 3pm



/ Heat Map of the Neighbouring Residential (proposed)
21 June, 9am - 3pm

Figure 47 INSW Heat map of the neighbouring residential complexes, showing existing (top) and the INSW study proposed (bottom)

Figure 48 Site 01 – Design review existing condition of solar access

4.3.2.1. *Site 01 – Views from the sun*

Figure 49 shows the views from the sun for Site 01 at one hour intervals from 9:00 AM through to 3:00 pm on the winter solstice. On each façade of the building the living room windows receiving sunlight are highlighted yellow, with the INSW study proposal overlaid above in grey.

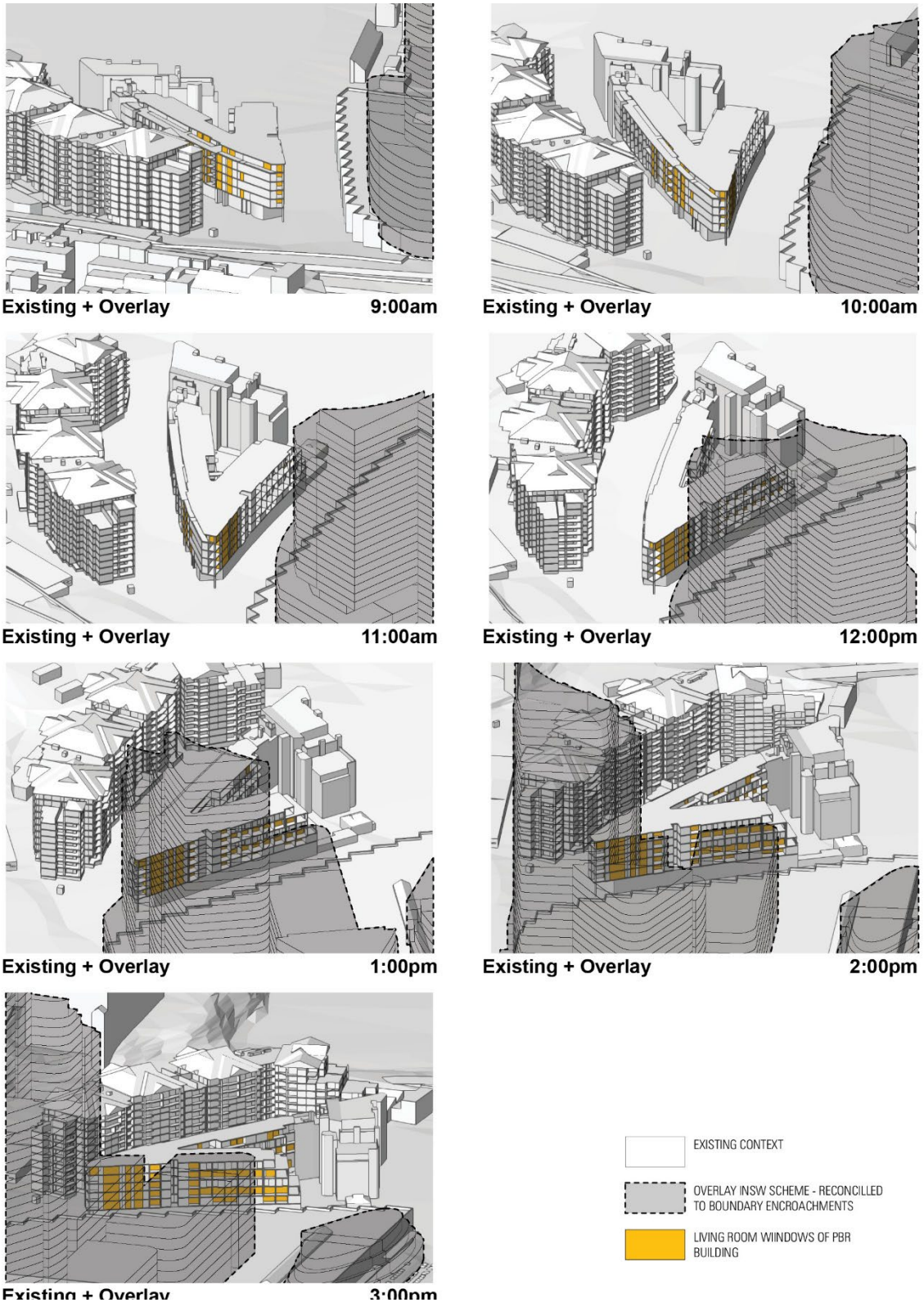


Figure 49 Views from the sun – showing existing living room windows receiving sunlight, with the INSW study proposal overlaid in grey

Shown in Figure 50 are the same views from the sun reduced to the required 2 hour period, cropped to the apartments. The Level 02 floor plan is shown below.

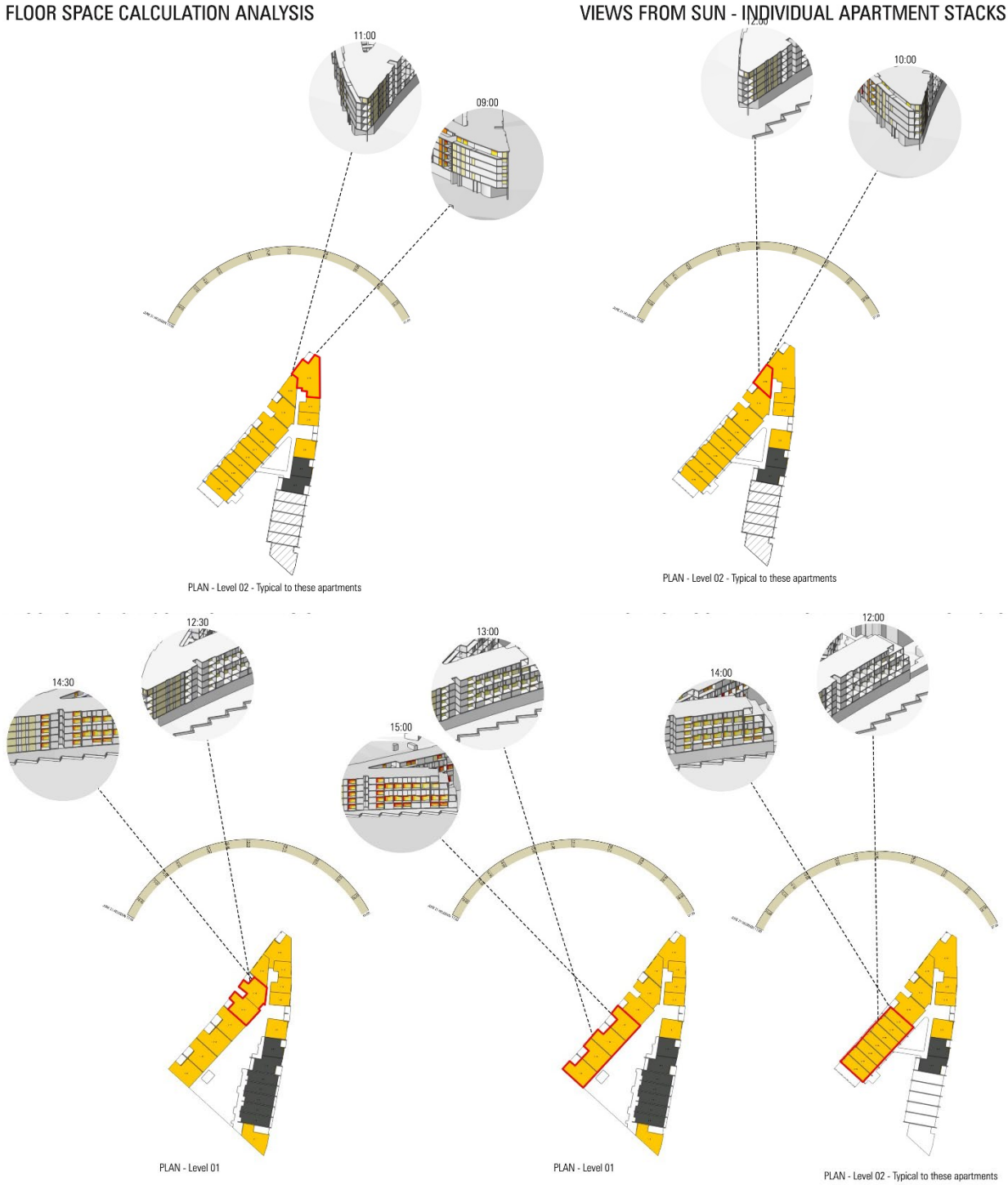


Figure 50 Views from the sun individual apartment stacks – showing existing living room windows receiving sunlight, with the INSW study proposal overlaid in grey

4.3.2.2. *Site 01 – Sun plane 01*

Figure 51 shows the sun planes required to ensure ADG compliance for solar access to 70% of the apartments within Site 01. They demonstrate two options to maintain 70% of apartments receiving the required amount of sunlight and do not increase the number of apartments receiving no sunlight.

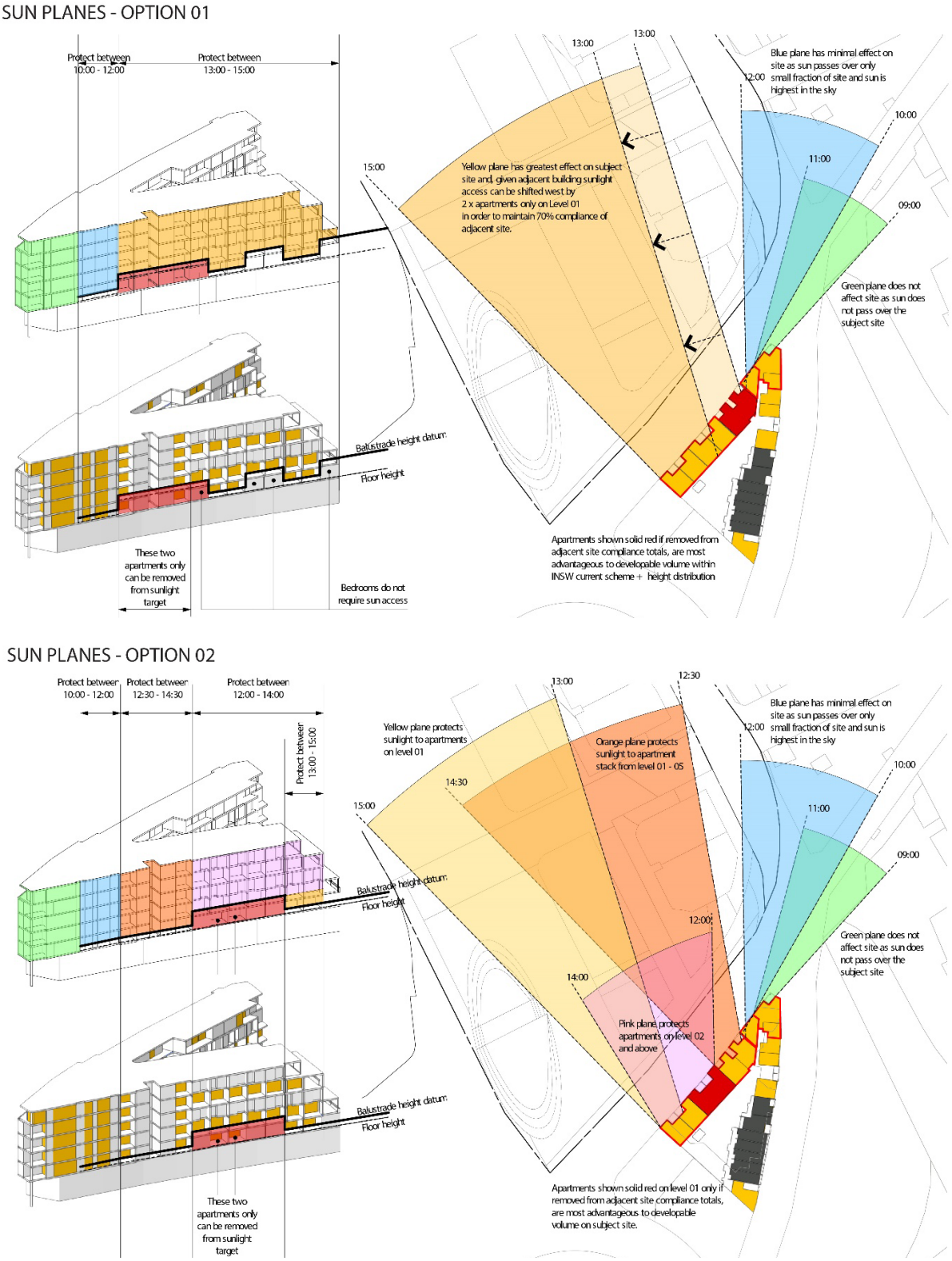


Figure 51 Sun planes – sun planes required to ensure ADG compliance for solar access to Site 01

When compared, the two sun plane options have different impacts on the built form in the INSW study, as shown in Figure 52.

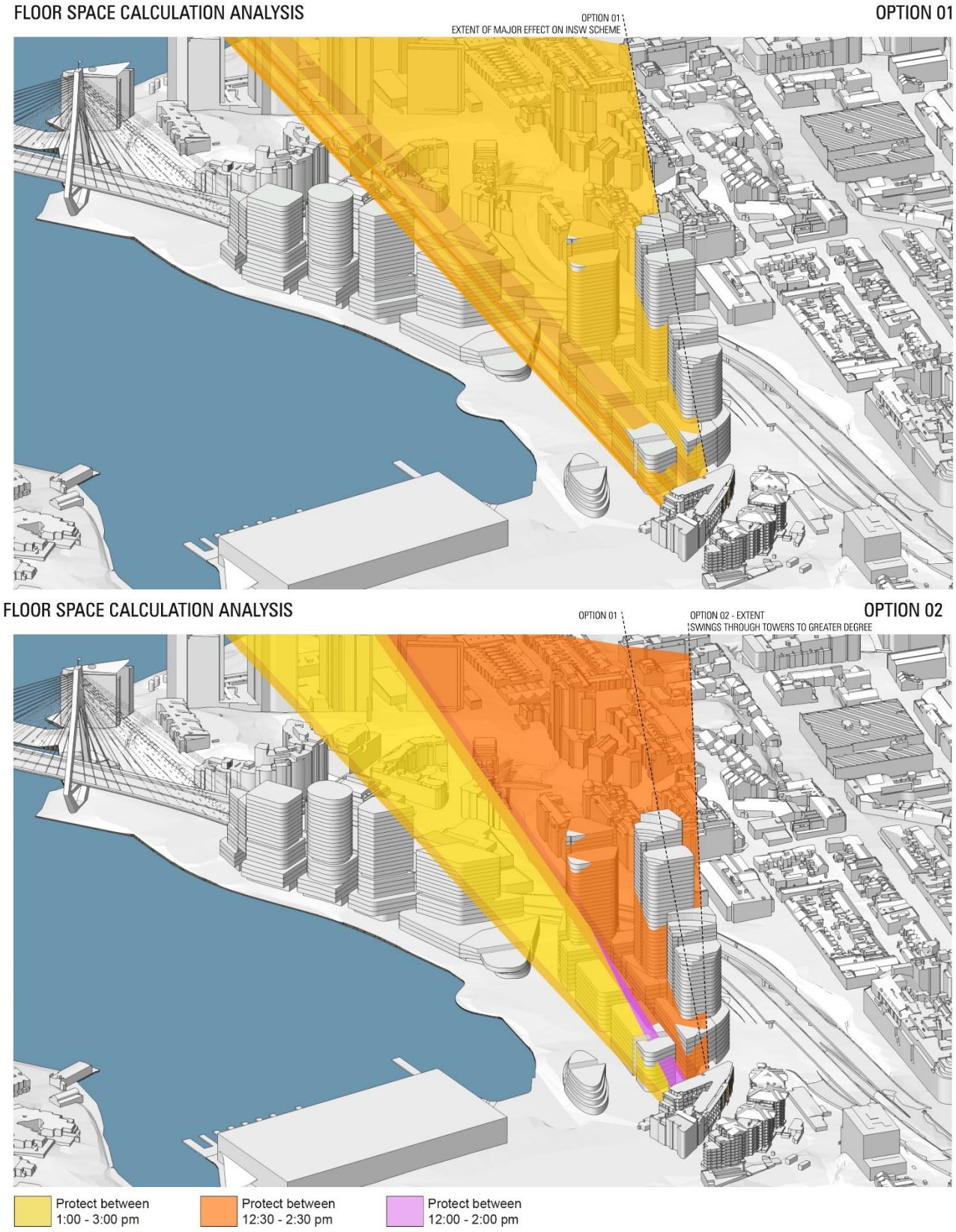


Figure 52 Sun planes Option 01 + Option 02 compared

4.3.2.3. *Site 01 – ADG compliance*

The Design review found that by adopting the Option 01 sun plane shown in Figure 53 the overshadowing impacts on Site 01 comply with the design guidance in the ADG.

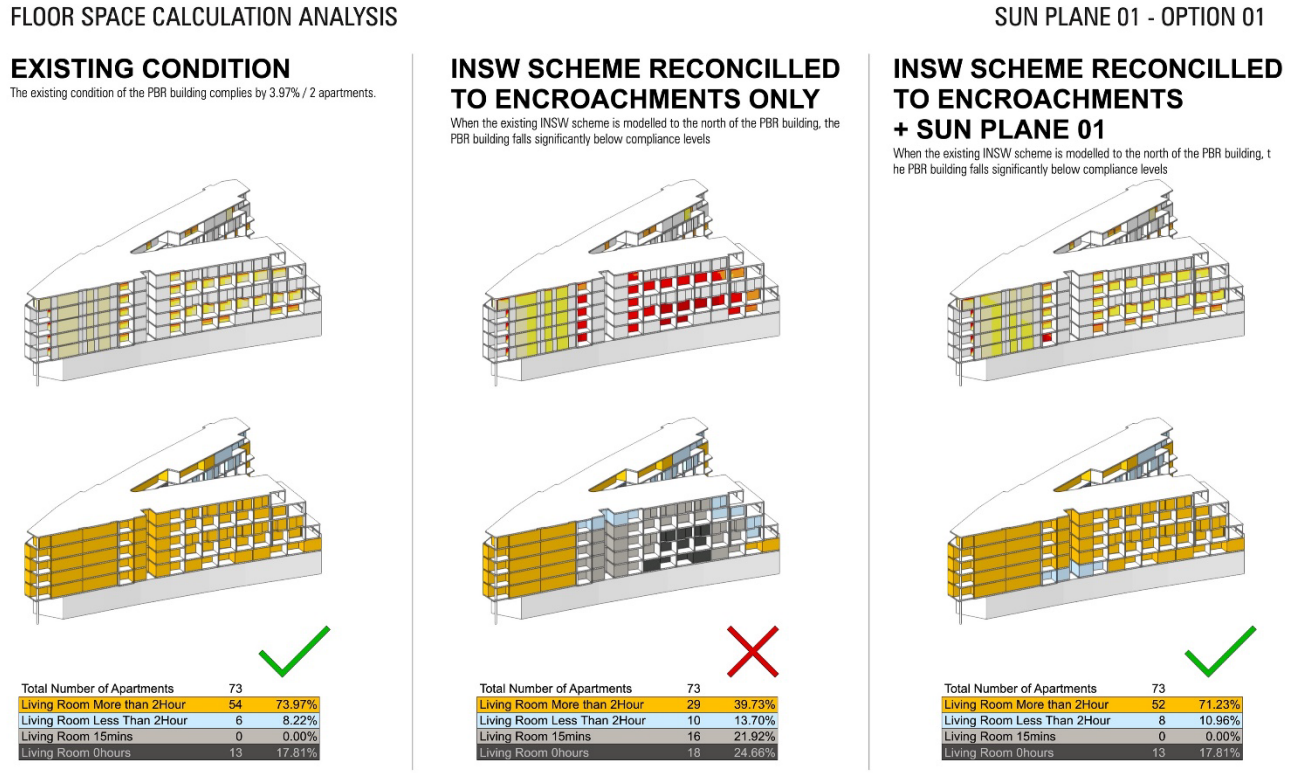


Figure 53 Adopting sun plane Option 01 ensures that the overshadowing impacts on Site 01 comply with the design guidance in the ADG

4.3.3. Site 03 – 2-26 Wattle Crescent

As shown in Figure 54 Site 03 has less than 70% of apartments receiving a minimum 2 hours of solar access on 21 June between 9:00 am and 3:00 pm and more than 15% of apartments receiving no sunlight.

The Design review has found that several assumptions in the BWB SSP Study (Appendix A, pp. 110) are incorrect:

- Only modelling solar access to façades – the site geometry and apartment configuration result in many living rooms being setback from the façade, the Design review has modelled in more detail solar access to the living rooms;
- Shifting the solar window to 10:00 am – 4:00 pm – the Study Requirements, ADG and Sydney DCP all specify solar access between 9:00 am and 3:00 pm, the Design review calculates the solar window as 9:00 am through to 3:00 pm; and
- Reducing the solar access to the building – this would deny a number of apartments of ANY (including a 15 minute window) sunlight (refer Section 4.3.3.3, Figure 58), the Design review maintains solar access.

Figure 55 Aerial map of Site 03 (2-26 Wattle Crescent)

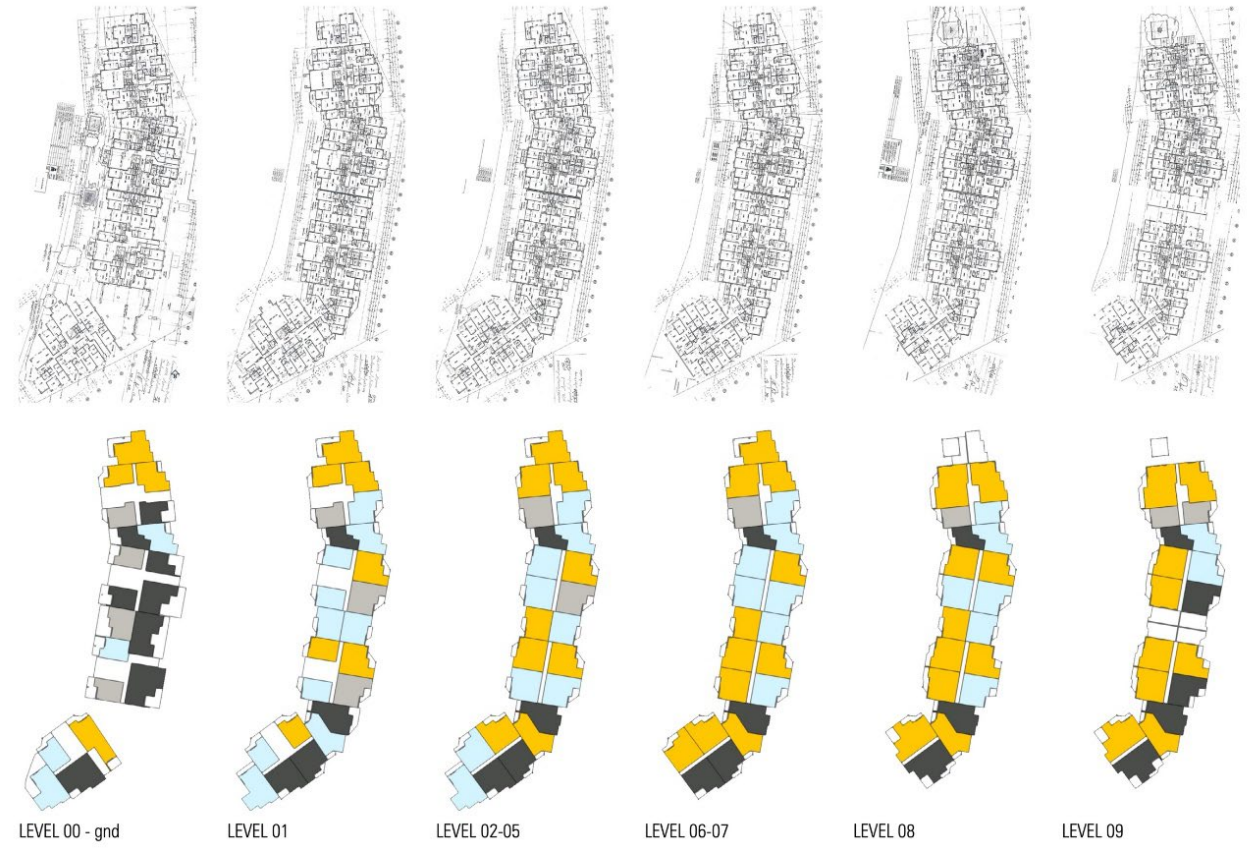
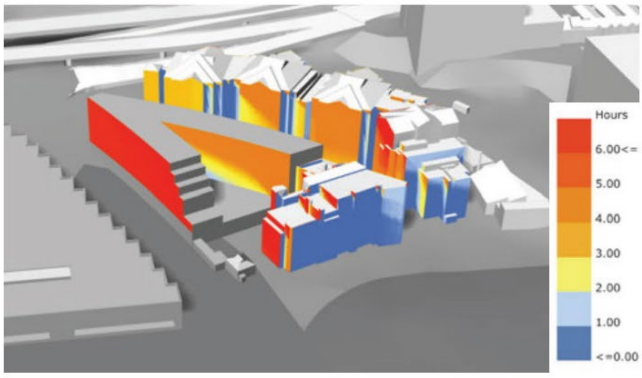


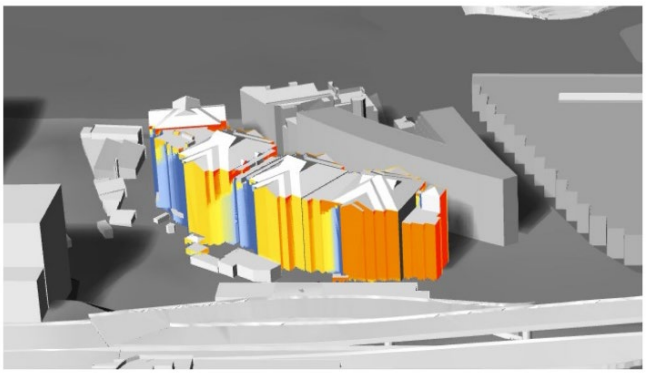
Figure 54 Site 03 – existing condition of solar access

4.3.3.1. *Site 03 – Heat map*

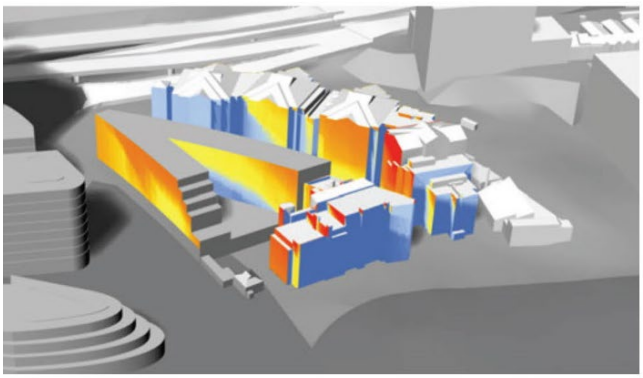
The heat map of Site 03 from the INSW study is shown in Figure 56. The existing heat map of the northwest and southeast facades is shown at the top and middle respectively, while the heat map with the INSW study proposal is shown at the bottom. The analysis shows that solar access to the southeast façades of Site 03 is unaffected by the potential renewal massing.



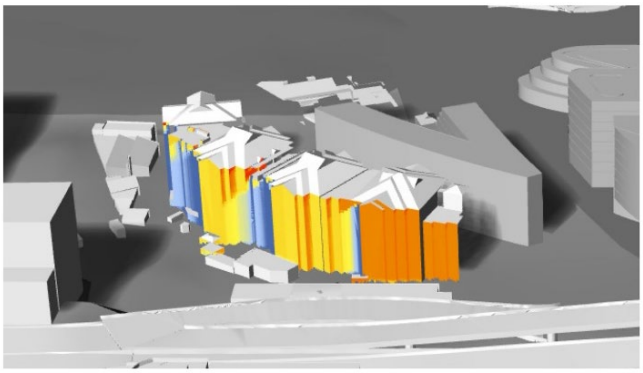
/ Heat Map of the Neighbouring Residential (existing)
21 June, 9am - 3pm



/ Heat Map of the Neighbouring Residential (existing) South-east Facades
21 June, 10am - 4pm



/ Heat Map of the Neighbouring Residential (proposed)
21 June, 9am - 3pm



/ Heat Map of the Neighbouring Residential (proposed) South-east Facades,
21 June, 10am - 4pm

Figure 56 Heat map of Site 03 from the INSW study, showing existing (top) from the northwest (left) and southeast (right) facades and proposed (bottom)

4.3.3.2. *Site 03 – Views from the sun*

Figure 57 shows the views from the sun for Site 03 at one hour intervals from 9:00 AM to 3:00 PM on the winter solstice.

On each façade of the building the living room windows receiving sunlight have been highlighted yellow, with the INSW study with Sun Plane 01 overlaid above in grey.

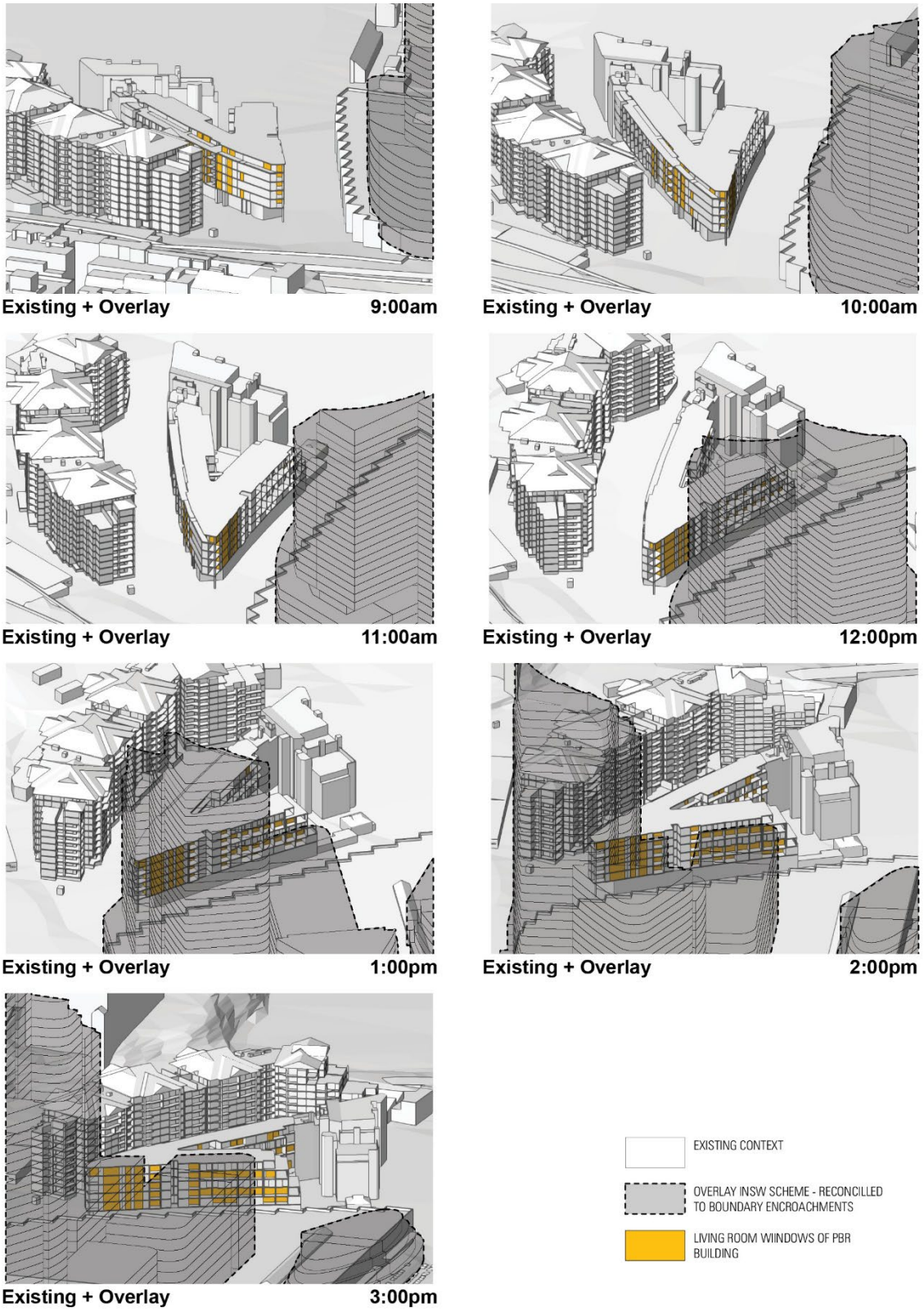


Figure 57 Views from the sun – showing existing living room windows receiving sunlight, with the INSW study proposal overlaid in grey

4.3.3.3. *Site 03 – ADG compliance*

The Design review found that Site 03 has less than 70% of apartments receiving the required amount of sunlight and more than 15% of apartments not receiving sunlight. As shown in Figure 58 Solar Plane 01 (see Section 4.3.2.2 above) does not eliminate the number of apartments receiving less sunlight to their living rooms, and is not enough to minimise overshadowing of the apartments in this building.

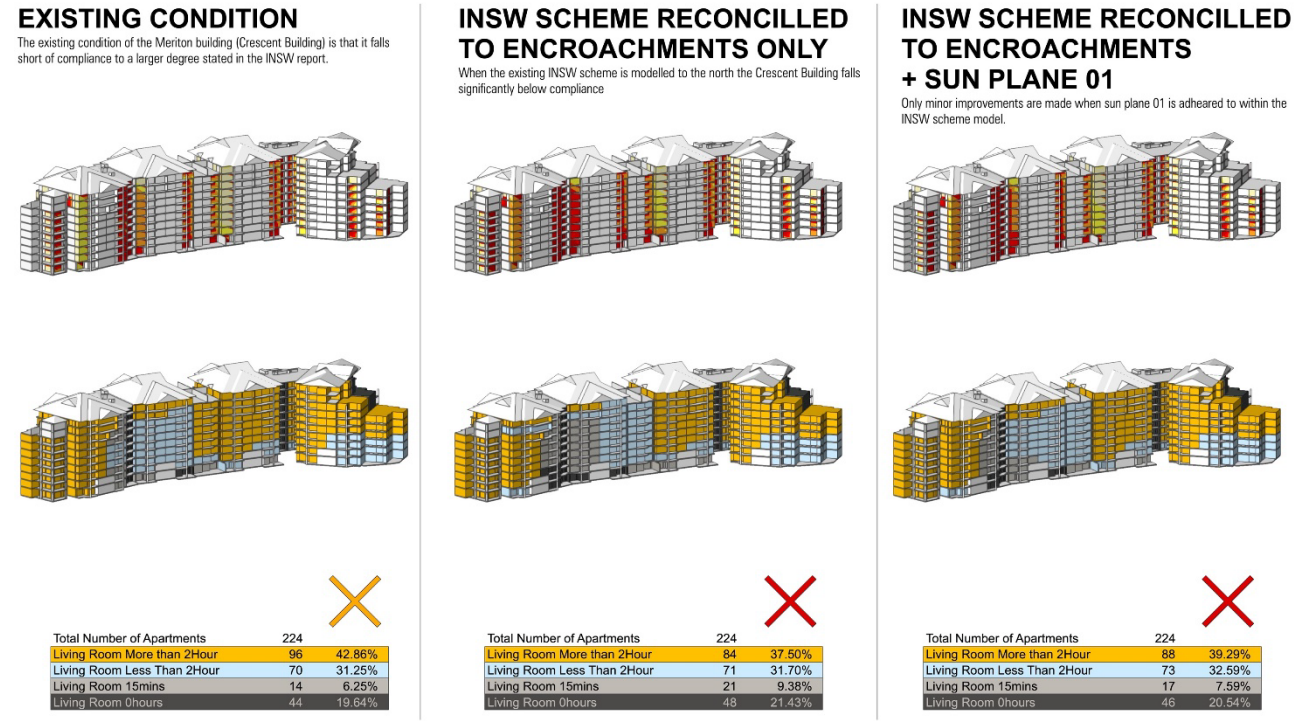


Figure 58 The existing condition of Site 03 does not comply with the ADG design guidance on solar access, the INSW study further reduces the amount of apartments with the required solar access

4.3.3.4. *Site 03 – Sun plane 02*

Figure 59 shows an additional sun plane (Sun plane 02) added to ensure overshadowing is minimised to the apartment within Level 01 within Site 03.

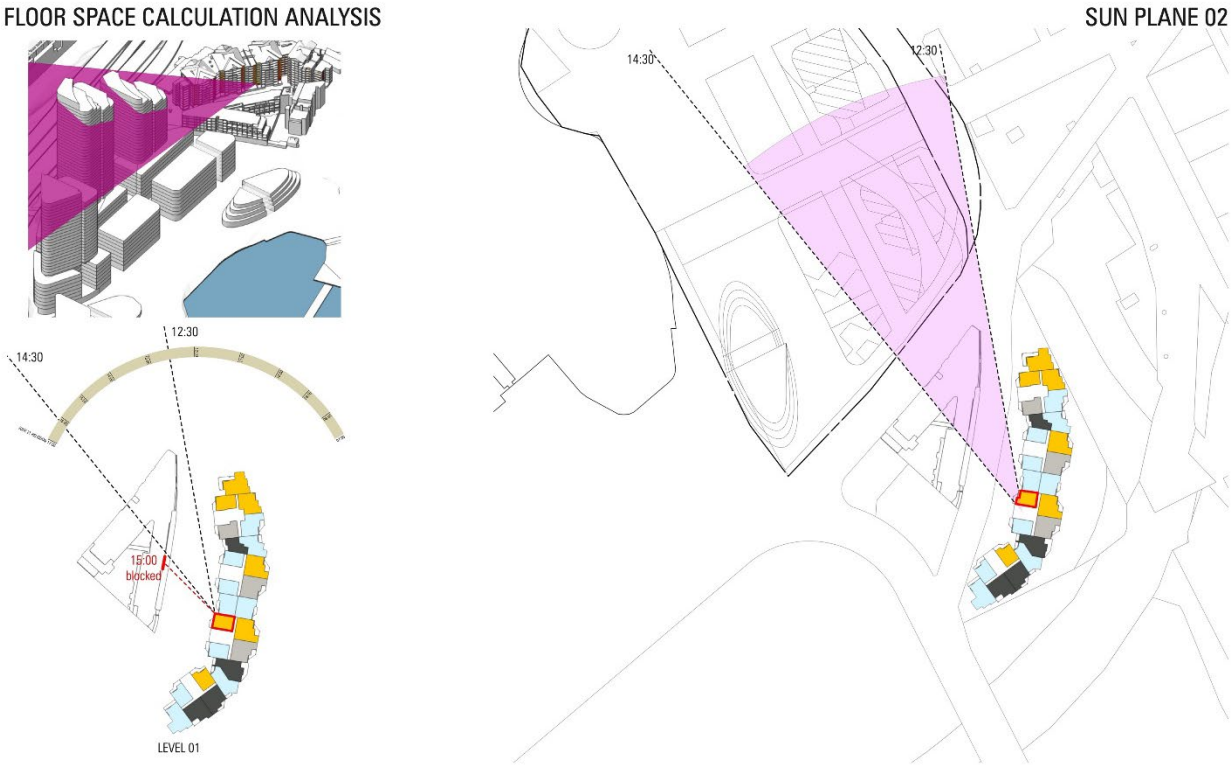


Figure 59 Sun planes 01 + 02 for Site 03

As outlined in Figure 60, the addition of Solar Plane 02 further reduces the overshadowing from the INSW study to Site 03. However, it fails to minimise overshadowing.
Figure 61 illustrates the addition of Sun Plane 03. This sun plane maintains solar access to an additional three ground level apartments with Site 03.

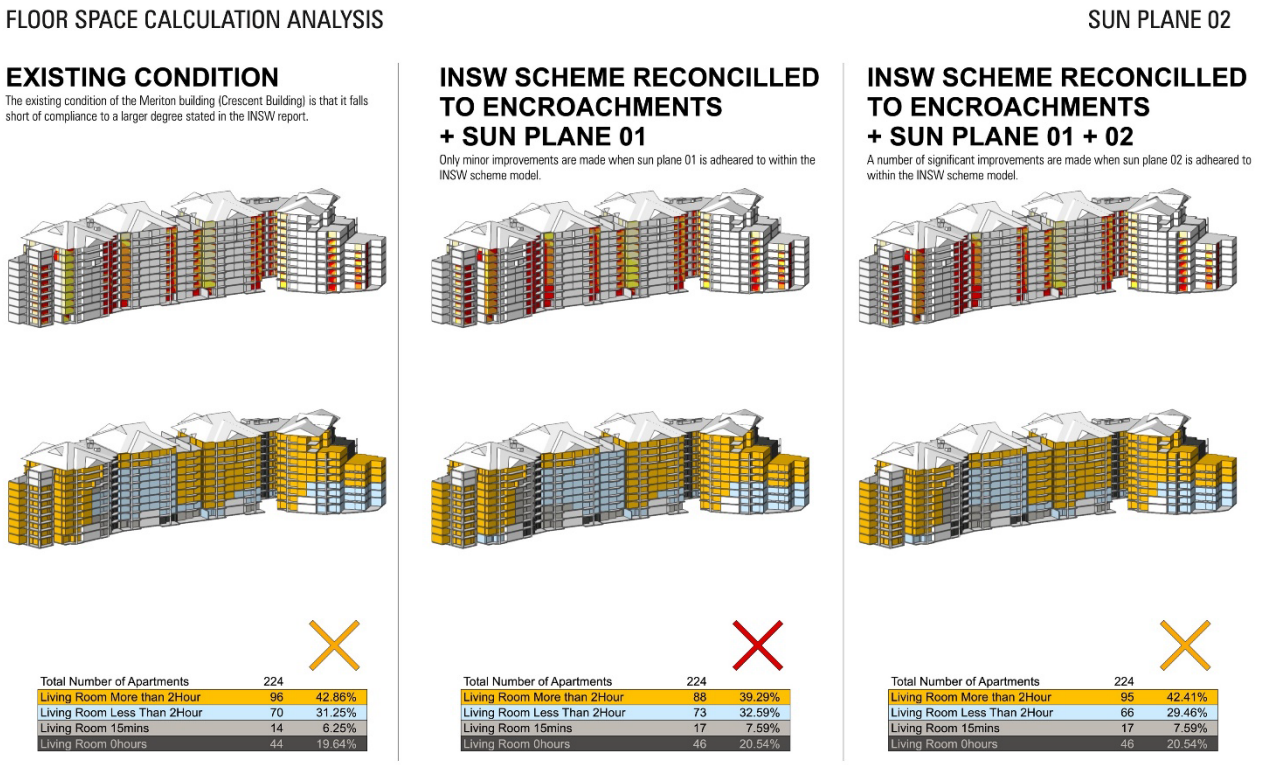


Figure 60 Sun Plane 01 + 02, outlining how compliance with the ADG design guidance on solar access is still not achieved

Figure 61 Sun plane 03 for ground floor apartments within Site 03, shown individually (top) and combined (bottom)

As shown in Figure 62, the addition of Sun Plane 03 maintains the required solar access arrangements for all but one apartment within Site 03.

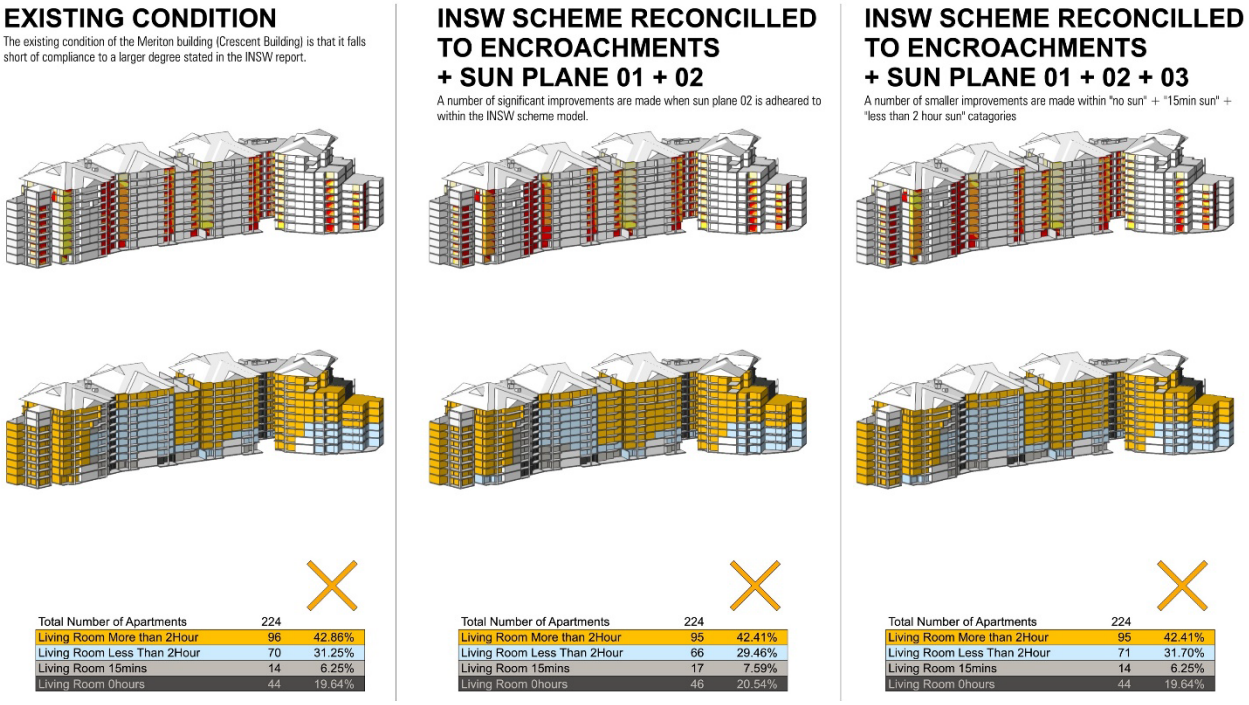


Figure 62 Solar Plan 01+02 compared to Solar Plane 01+02+03 on the solar access for apartments within Site 03

Figure 63, illustrates the addition of Sun Plane 04. This sun plane maintains solar access to an additional ground level apartment with Site 03.

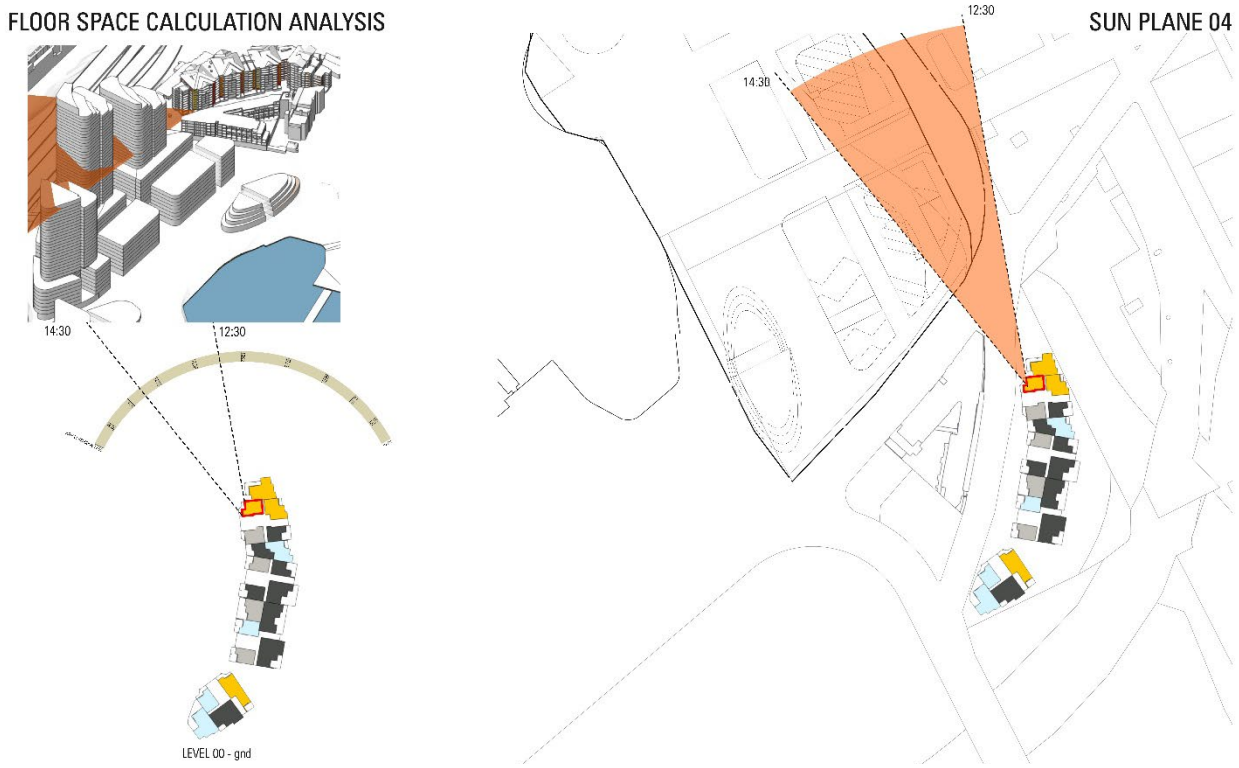


Figure 63 Sun plane 04 for an additional ground floor apartment within Site 03, shown individually (top) and combined (bottom)

The addition of Solar Plane 04 ensures the overshadowing is minimised for Site 03. As shown in Figure 64 the same number of apartments continue to receive 2 hours sunlight at midwinter between 9:00 am and 3:00 pm and the number of apartments receiving no sunlight is not increased.

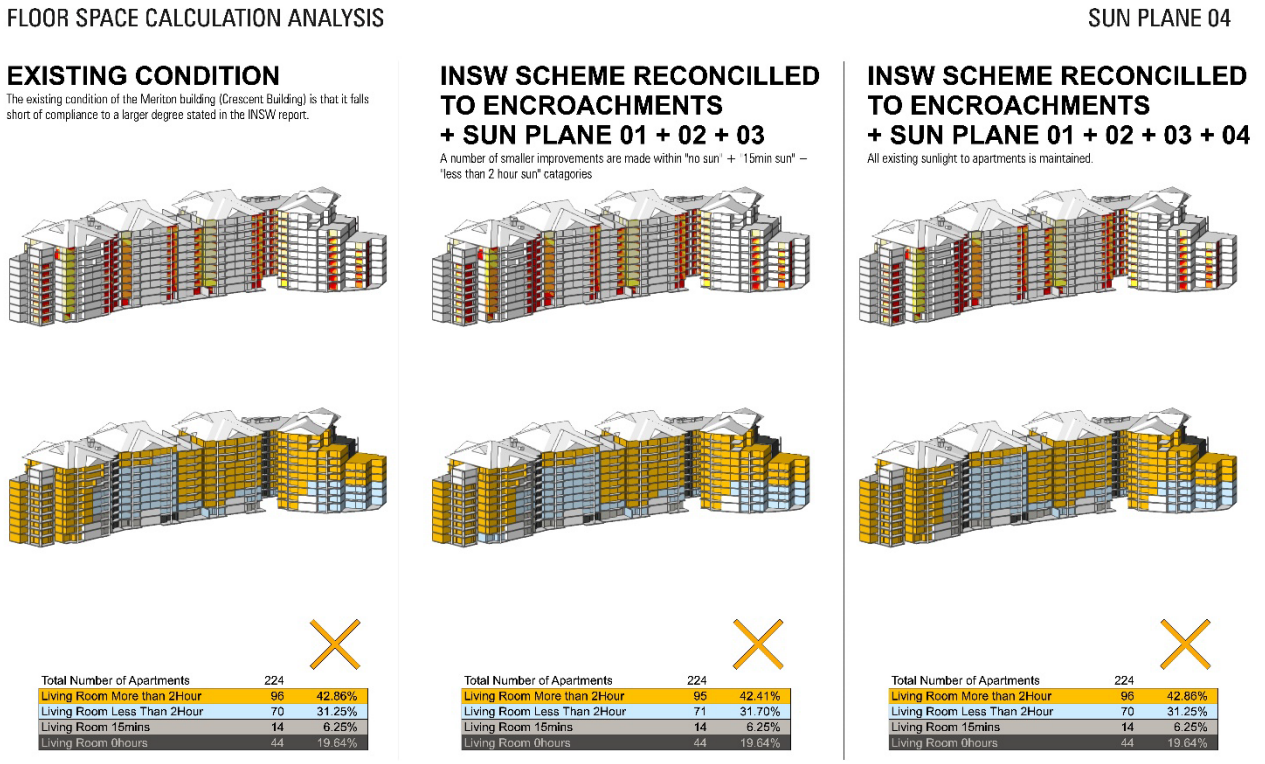


Figure 64 Solar Plan 01+02+03 compared to Solar Plane 01+02+03+04 on the solar access for apartments within Site 03

4.3.3.5. *Review finding – solar access to neighbouring apartments can be maintained*

Figure 65 shows the views from the sun at 12:00 pm and 2:00 pm on the winter solstice to the neighbouring apartment buildings (Sites 01-03). Whereas the INSW study substantially overshadows the neighbouring apartment buildings, the design review shows the built form can be arranged to minimise overshadowing of the neighbouring apartments (Sites 01-03) while maintaining the floor space proposed for the Sydney Fish Market site.

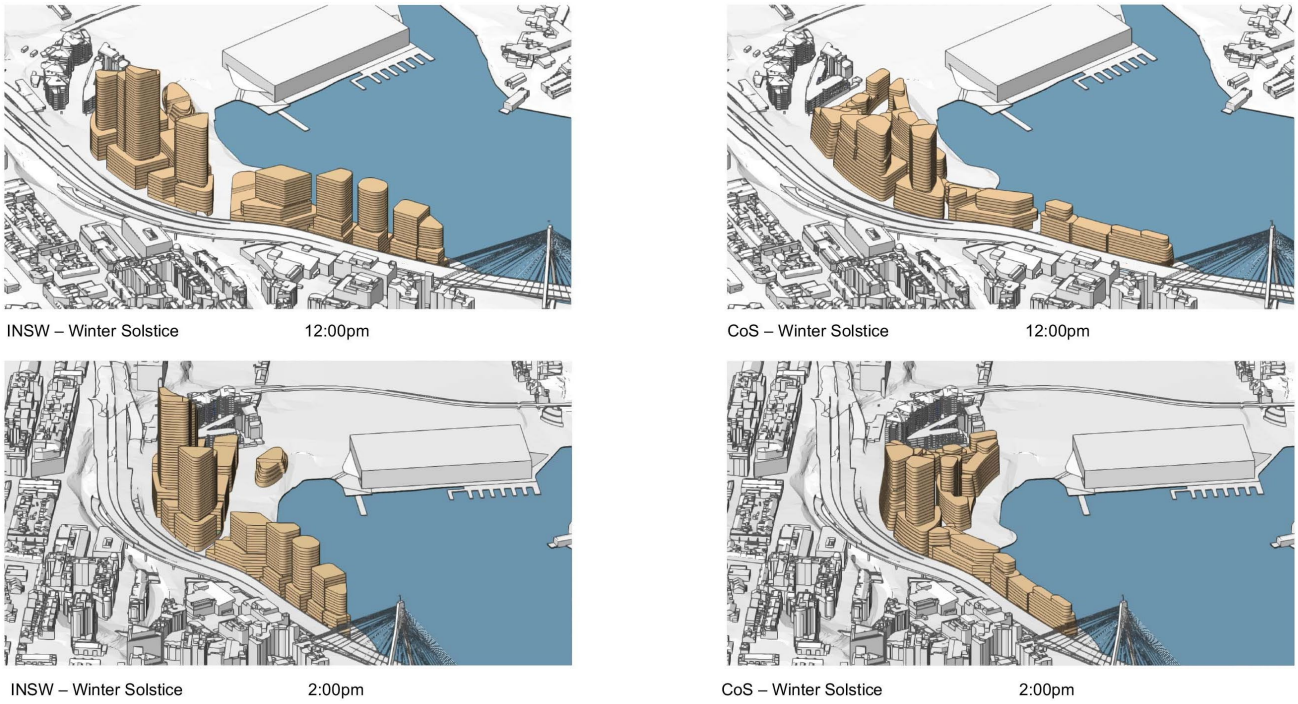


Figure 65 Comparison of overshadowing of adjacent buildings, at 12:00 pm and 2:00 pm on the Winter Solstice

4.3.4. Review finding – minimise overshadowing

Overshadowing was a key issue raised by community during the exhibition. Concern was raised in relation to overshadowing of the Glebe foreshore and maintaining solar access to the new Sydney Fish Market rooftop solar panels. The Design review modelled the shadowing of the INSW study shown as views from the sun in Figure 66 below.

4.3.4.1. *Overshadowing of Glebe foreshore*

At 8:00 am in the morning of the winter solstice, all seven towers within the INSW study overshadow the Glebe foreshore. This is reduced to two towers by 8:30 am.

In the Design review only two towers have impacts on the Glebe foreshore at 8:00 am on the winter solstice with less overshadowing of land beyond the foreshore. By 8:30 am there is no overshadowing of the foreshore.

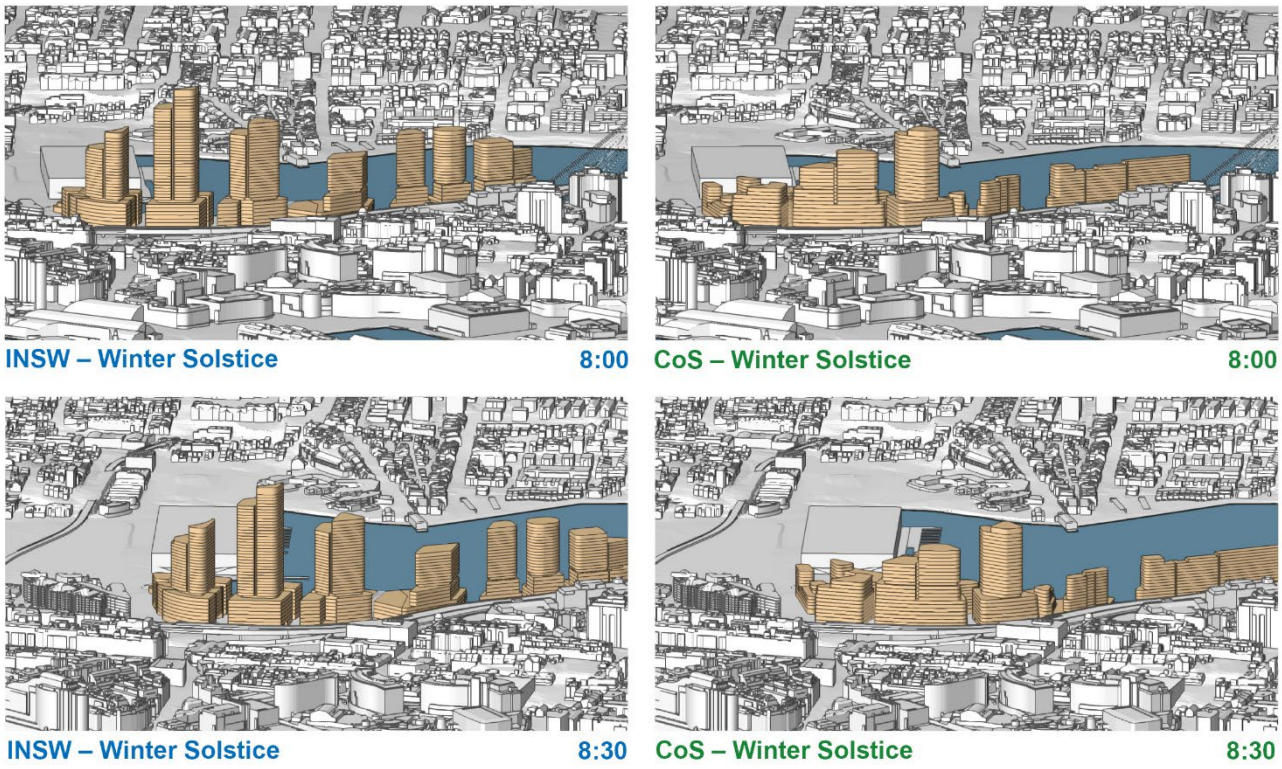


Figure 66 Comparison of overshadowing of the Glebe foreshore, at 8:00 am and 8:30 am on the Winter Solstice

4.3.4.2. *Overshadowing of the new Sydney Fish Market roof mounted photo-voltaic panels*

The low angle of the sun during the winter solstice and position of the site in relation to the new Sydney Fish Market result in overshadowing of the building's roof in the INSW study. As shown in Figure 66 and Figure 67, the overshadowing impacts continue into the morning as the sun swings around, with shadows from different buildings being cast over the Sydney Fish Market roof until after 10:00 am.

The stepped tower form of the CoS Design review allows sunlight to reach the Sydney Fish Market roof from 8:00 am throughout the morning.

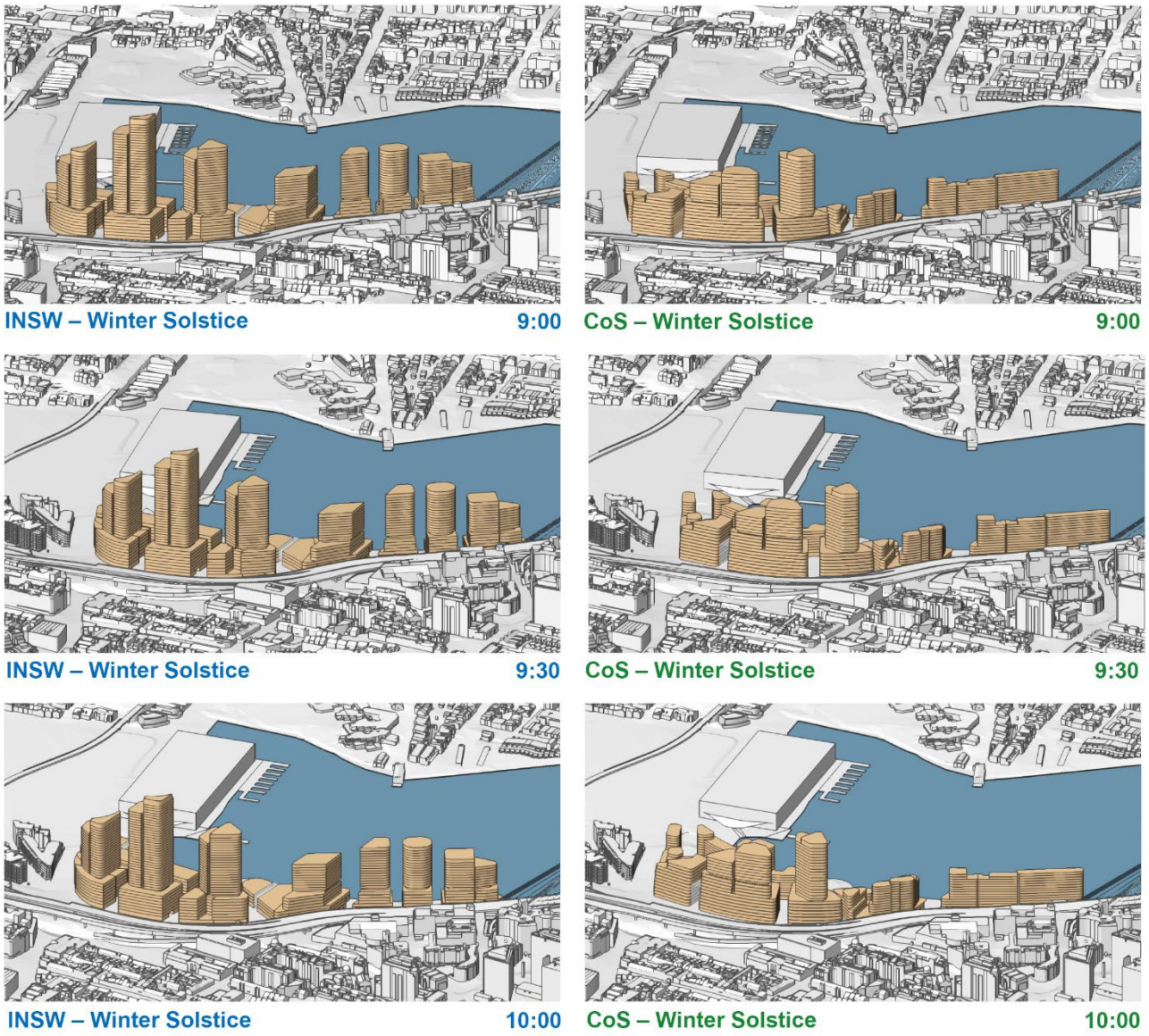


Figure 67 Comparison of overshadowing of the Glebe foreshore, at 9:00 am, 9:30 am and 10:00 am on the Winter Solstice

5. Comparative views

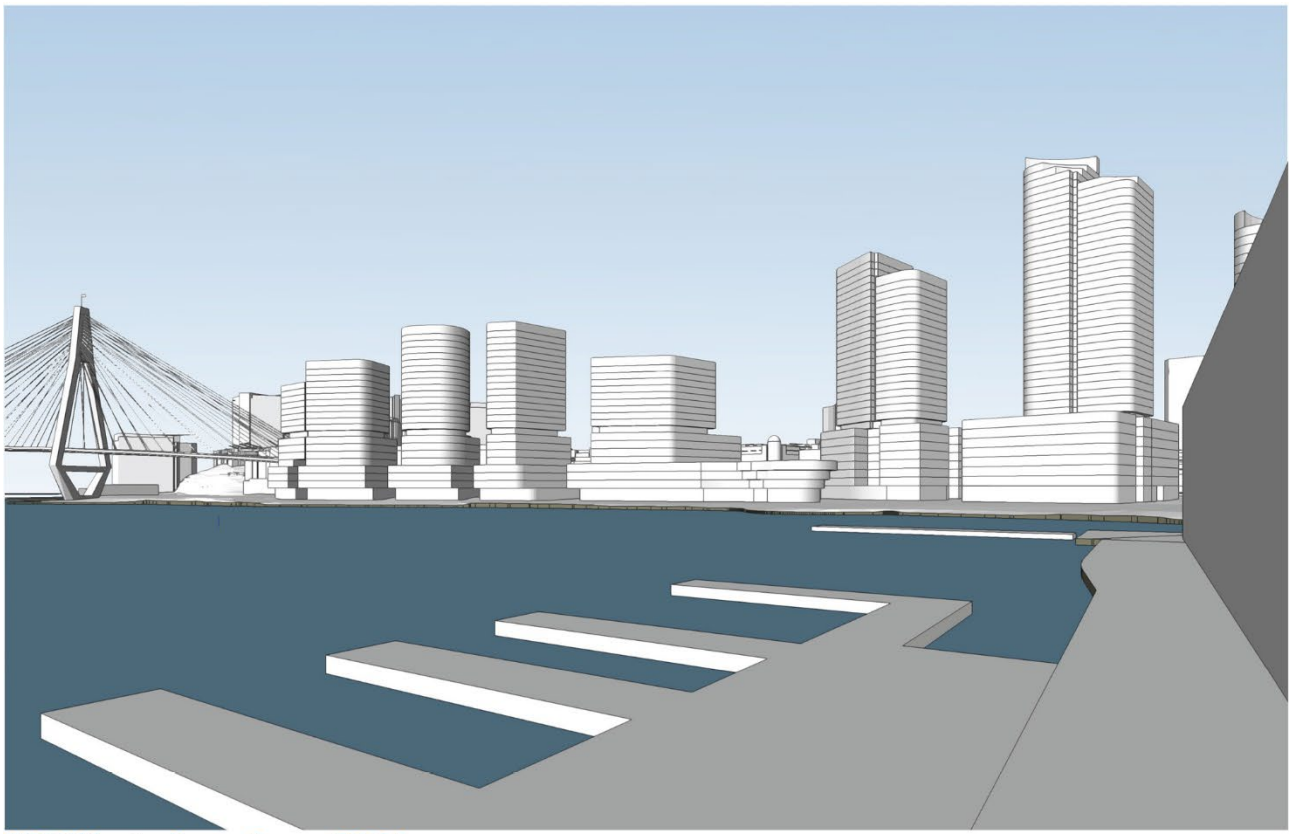
The following section provides comparative views of the INSW study and CoS Design review. To ensure every view is equivalent the following methods have been adopted:

- same base model has been used;
- same sunlight/time of day;
- same 50 mm lens for each view; and
- no landscaping or materials have been depicted.

Disclaimer:

The massing shown for the INSW study and the CoS Design review depicts the gross building envelope (GBE) only, a detailed design would likely produce smaller, more articulated built form outcomes.

The gross building envelopes depicted within the City of Sydney Design review are just one solution that achieves the findings of the Design review. The Design review is not an alternative scheme.



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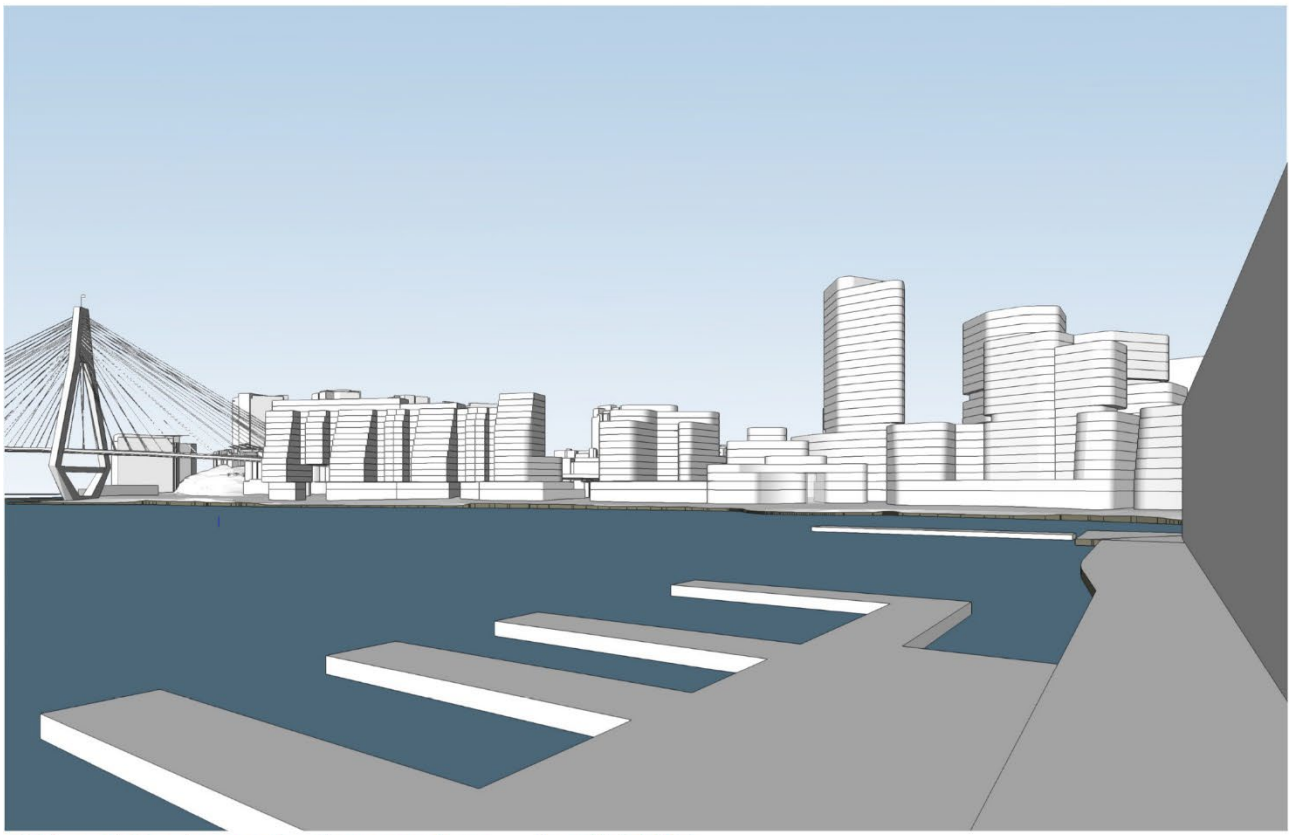
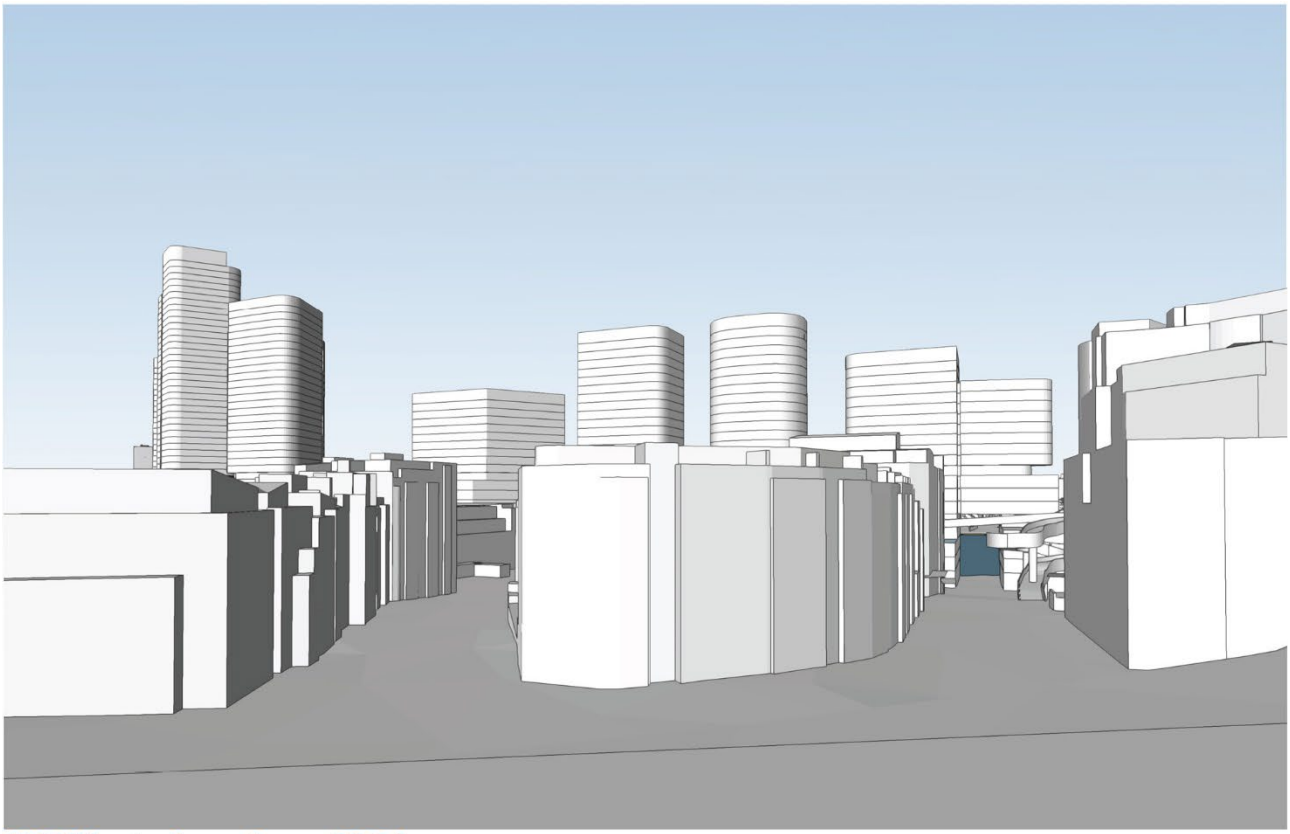
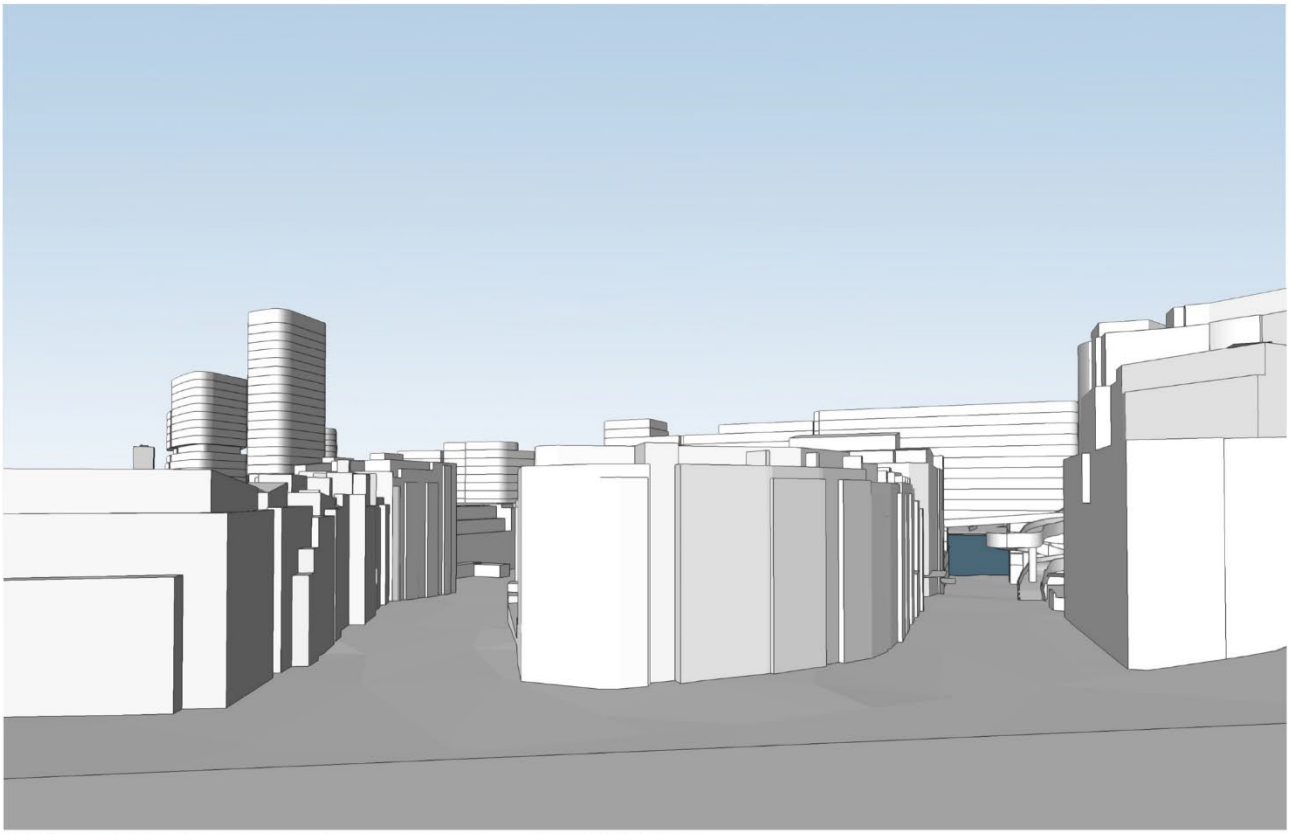


City of Sydney design review – April 2022

Figure 68 From new Sydney Fish Market jetties looking northeast

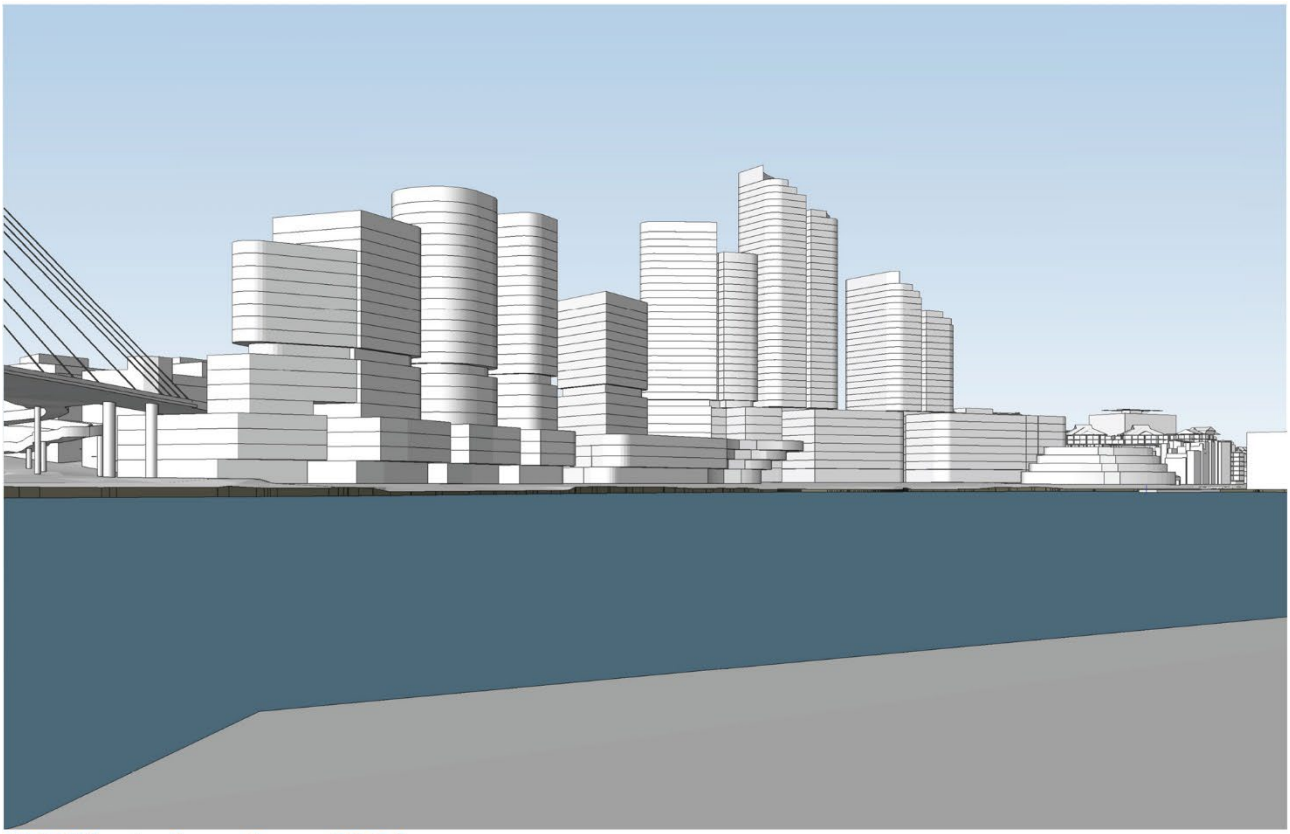


INSW study – June 2021



City of Sydney design review – April 2022

Figure 69 From the Knoll looking south



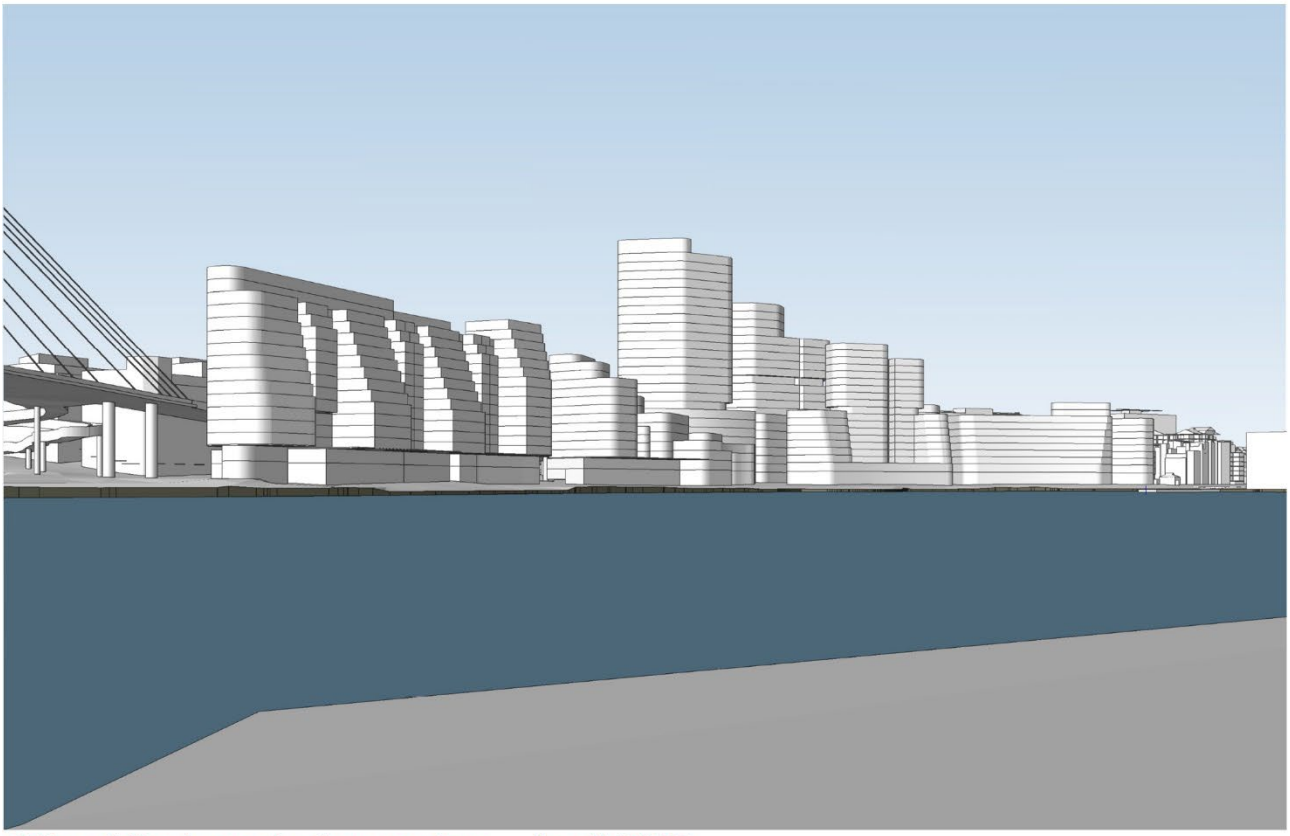
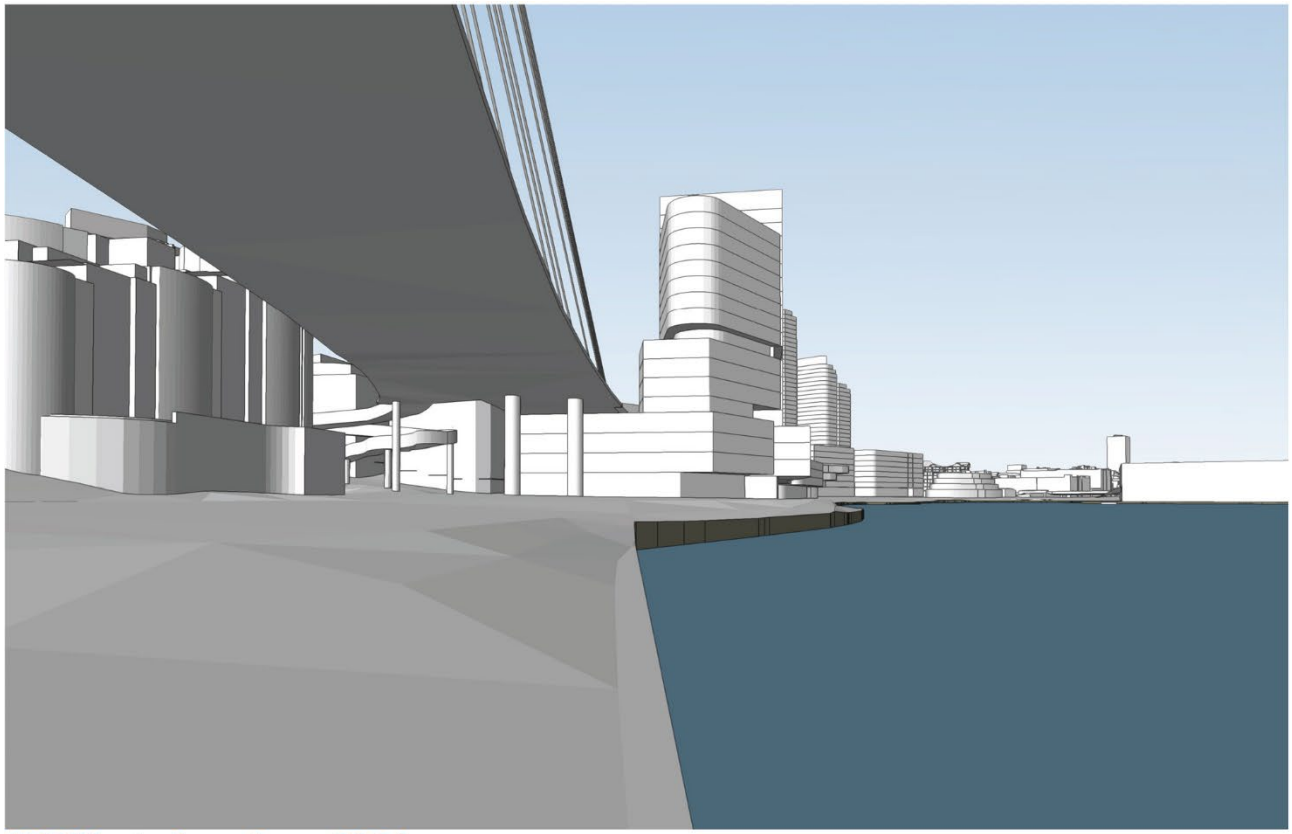
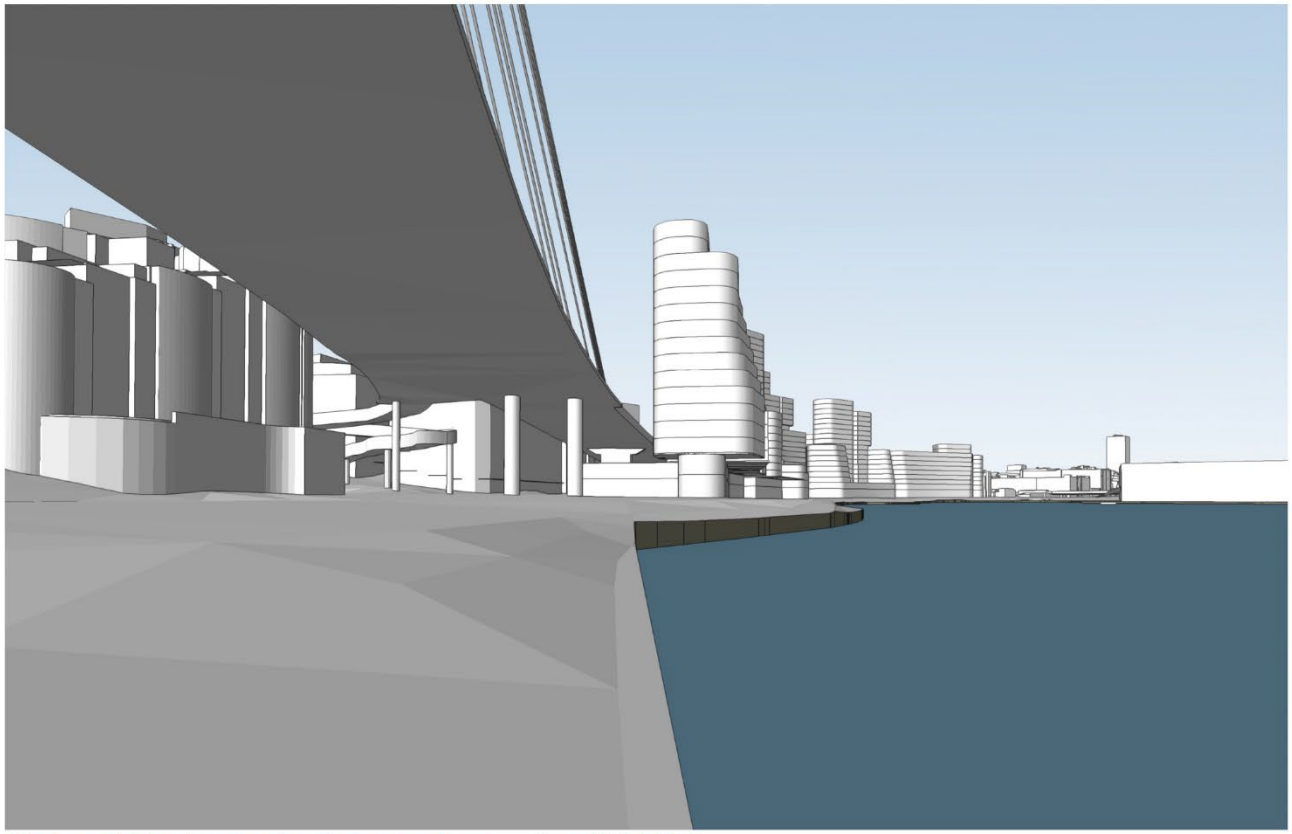


Figure 70 From Blackwattle Bay Park looking southeast

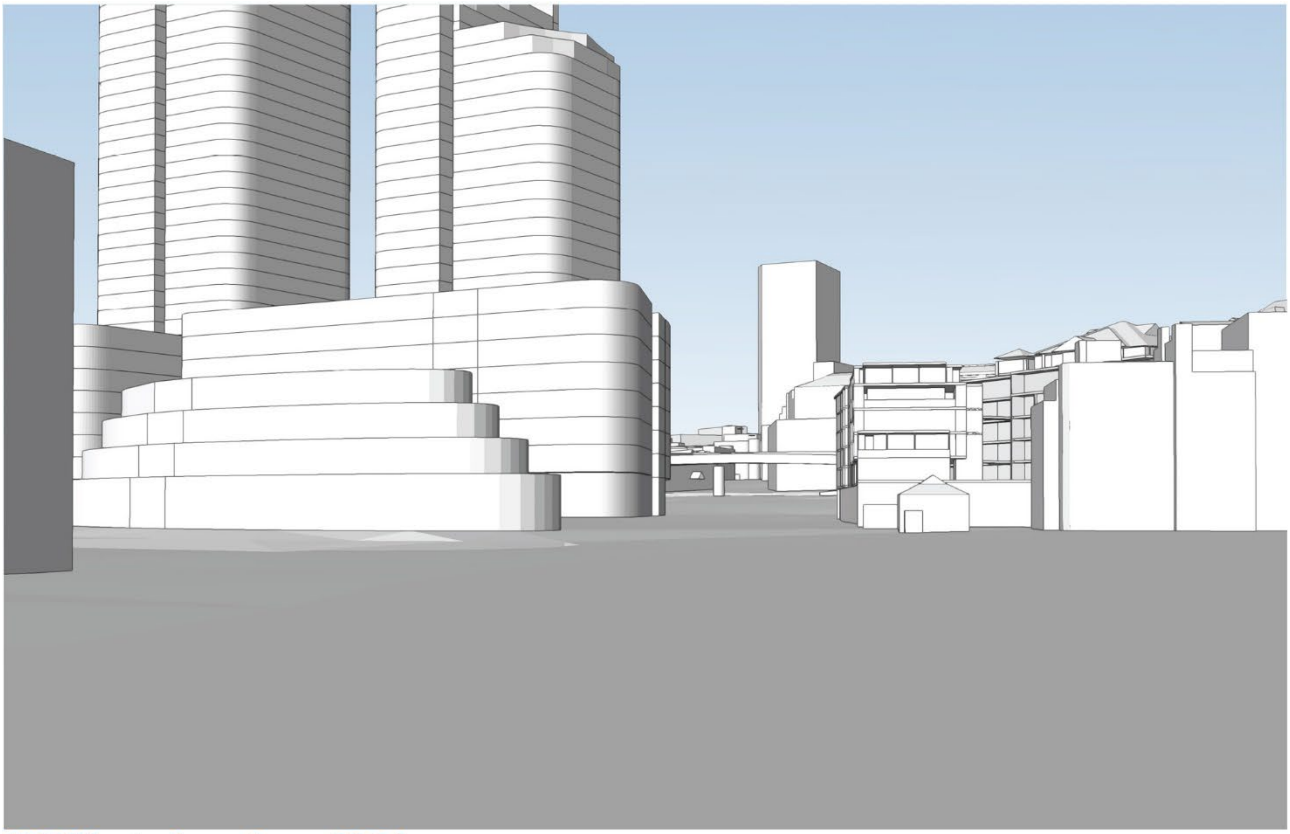


INSW study – June 2021



City of Sydney design review – April 2022

Figure 71 View from north (beneath Anzac Bridge) looking southeast



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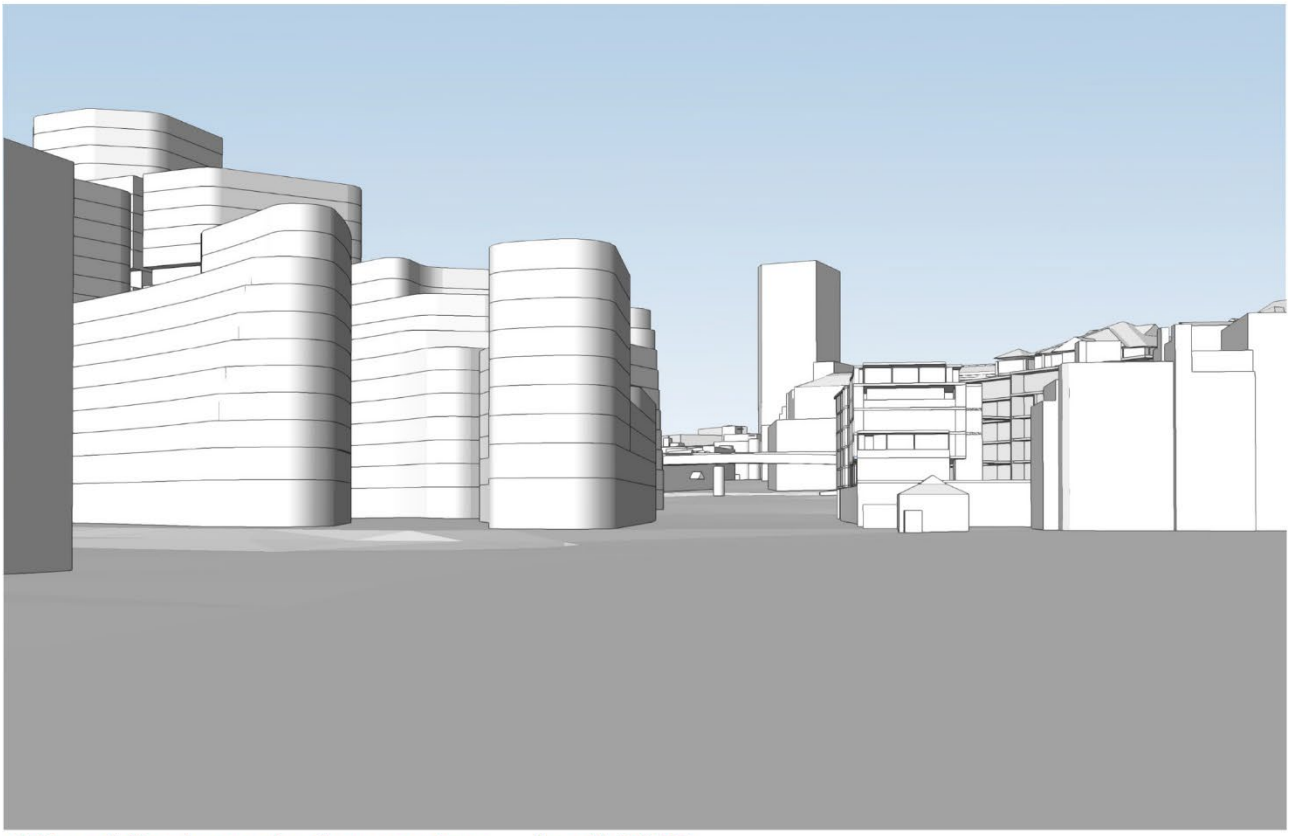

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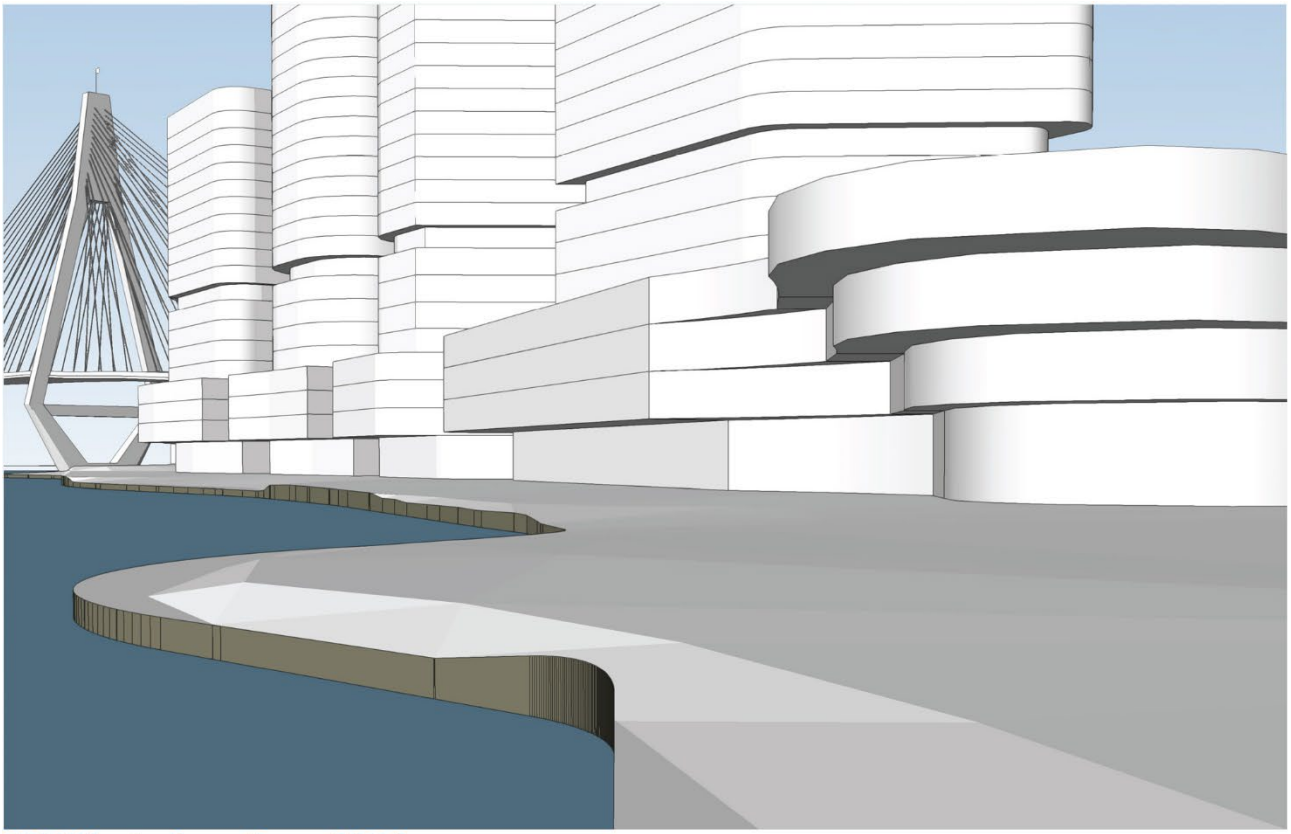
Figure 72 View looking east along Bridge Road to Pyrmont Bridge Road



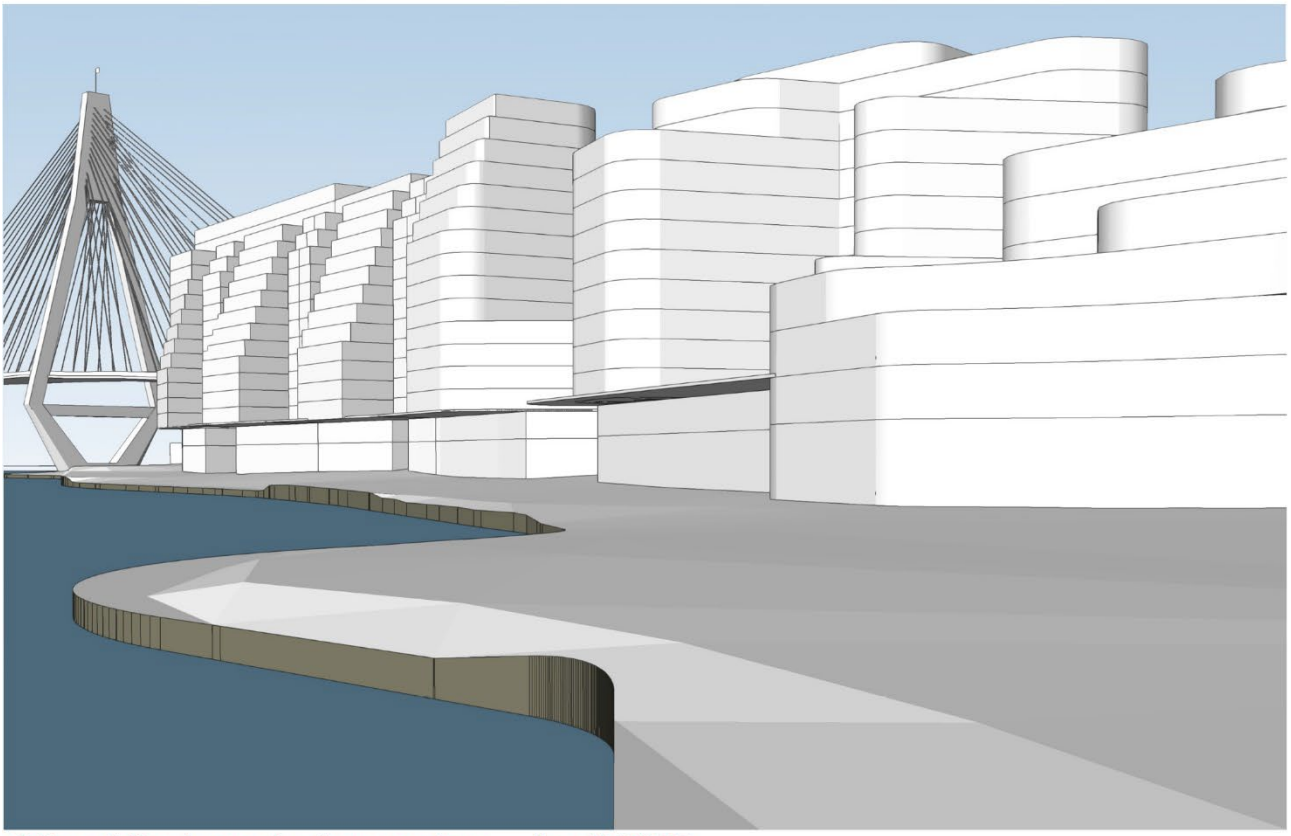
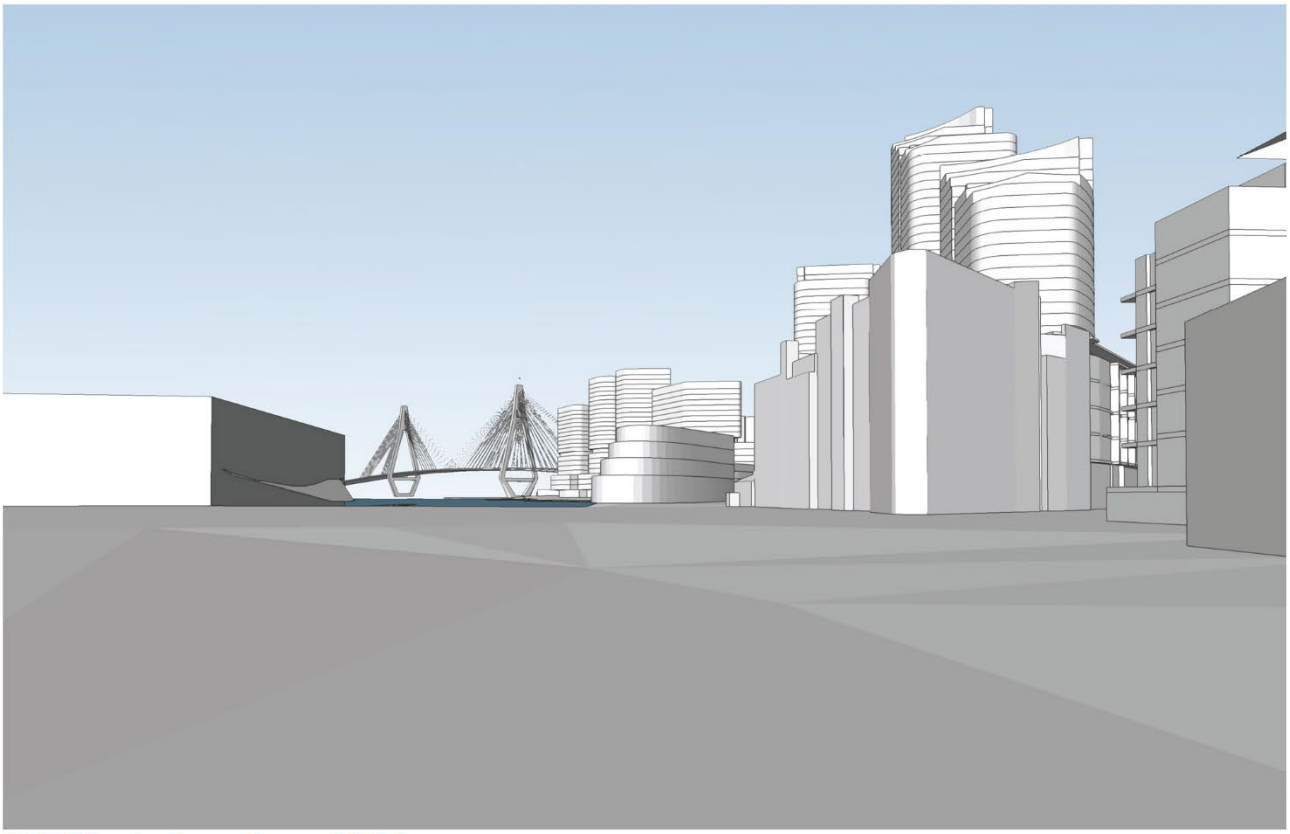


Figure 73 View of promontory and northern foreshore looking north



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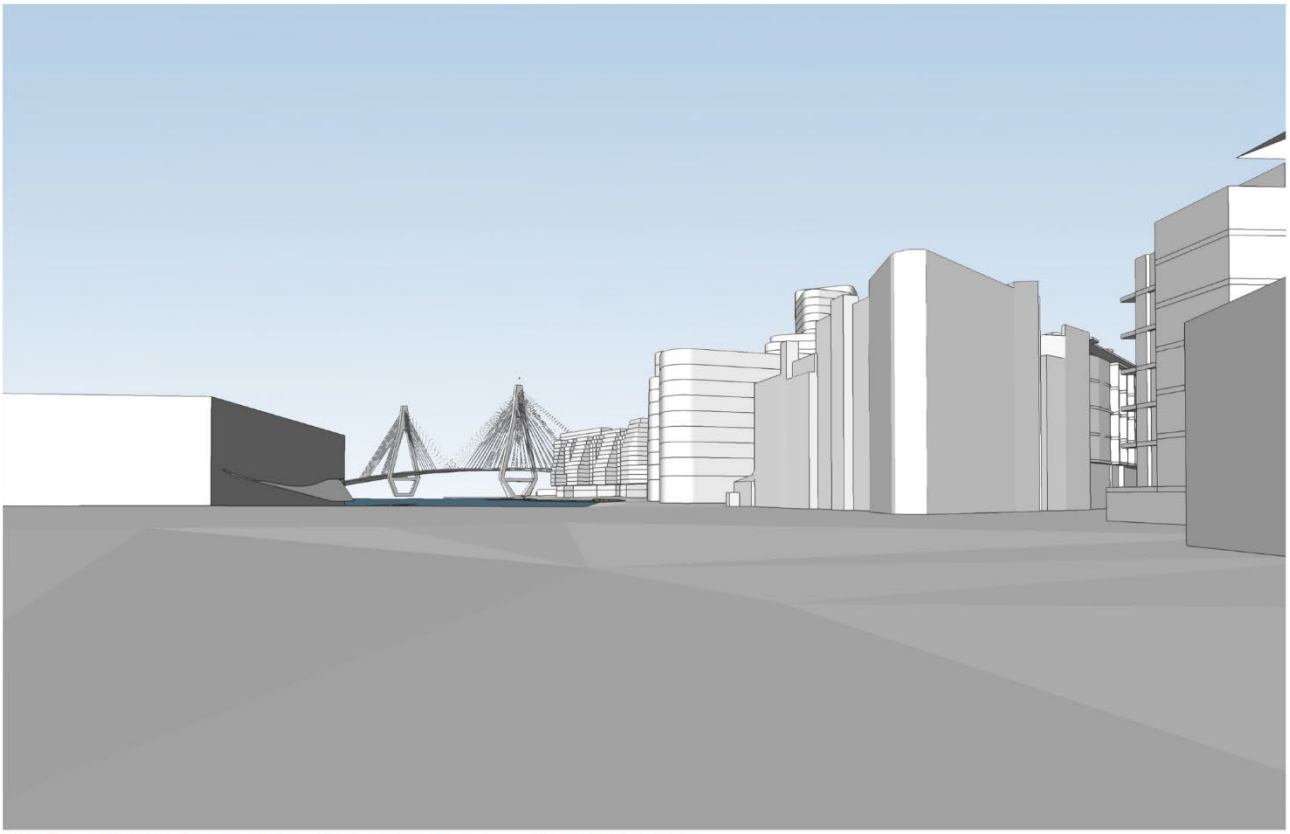

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Figure 75 View from Wattle Street looking north

6. Conclusion

The major findings of the Design review are that the Blackwattle Bay study needs the following improvements:

- A wider foreshore promenade with more solar access;
- In addition to the promenade, a new park with plenty of sunshine in a prominent location;
- A better response to the site conditions for:
    - a safe and comfortable wind environment for people in public spaces;
    - protection for residents from air and noise pollution;
    - minimising overshadowing to neighbouring properties; and,
    - safer streets for people walking, cycling, and driving.
- This can be achieved with:
    - fewer, lower towers; and,

      a revised street layout and building envelopes, with a similar yield.

7. Appendices

Appendix A. Blackwattle Bay SSP Study
Appendix B. Blackwattle Bay SSP – Submissions Summary Report
Appendix C. Pyrmont Peninsula Place Strategy
Appendix D. Pyrmont Peninsula Place Strategy – Volume 3 – Urban Design Report
Appendix E. Blackwattle Bay SSP Study – Attachment 03.1-Urban Design Statement Volume 1
Appendix F. Blackwattle Bay SSP Study – Attachment 03.2-Urban Design Statement Volume 2
Appendix G. Blackwattle Bay SSP Study – Attachment 31 Urban Forestry Strategy
Appendix H. Blackwattle Bay SSP Study – Attachment 18 Noise and Vibration Study
Appendix I. Blackwattle Bay SSP Study – Attachment 39 Pedestrian Wind Environment Stage 2
Appendix J. Public Submissions made during the Public Exhibition of the INSW Study June 2021 – Hymix Submission
Appendix K. Study Requirements for Bays Market District

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