ARUP

Cockle Bay Park Development
Pedestrian Assessment

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Document Verfication

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Prepared by	*Michael Rumbold and Manuel Lawrence*
Checked by	*Steve Colomb*
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Executive Summary

This report supports the Response to Submissions and amended Concept Proposal associated with a State Significant Development Application (SSDA 7684) submitted to the Minister for Planning and Infrastructure pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act). In particular, this report provides a pedestrian planning analysis of the existing site, and the impact of the amended concept plan. The study considers the development's benefit to both the immediate vicinity of the site, as well as the City as a whole.

DPT Operator Pty Ltd and DPPT Operator Pty Ltd (the Proponent) is seeking to secure approval to establish concept proposal details for the redevelopment of the Cockle Bay Wharf (CBW) Building and surrounding area to create a new area of open space and commercial, retail and tourist precinct in the heart of the CBD (now referred to as Cockle Bay Park). The amended concept plan includes:

- up to 15,000m^2 of publicly accessible open space;
- new retail outlets, including new food and beverage destinations;
- new cultural and entertainment destinations; and
- a new commercial office tower.

This document discusses and quantifies the impact of the proposed development by comparing the pedestrian performance between the existing and proposed, as well as considering its importance within a strategic walkability context for the City.

To quantify this opportunity, Arup have considered a four stage approach including

- Strategic Importance;
- Quality of routes in the vicinity of the site;
- Accessibility of the site (as a result of the quality of routes) and the volumes associated with this catchment; and
- Opportunities during events.

Cities around the world are placing greater emphasis on the benefits and prominence of walking as a key mode of travel. With greater urbanisation of our Cities, the pedestrian activity of a City is a strong indicator of economic vitality and social inclusivity. For these reasons, it is very much a cornerstone of most cities' planning and transport agendas. The study has considered a range of reference materials and concluded that the proposed development aligns with a number of the key principles identified, including:

1. Aligns to the Sydney 2030 Walking Strategy and Action Plan four key priorities

- Make walking quick, convenient and easy;
- Make walking inviting and interesting;
- Make walking safe and comfortable; and
- Create a strong walking culture.

2. Aligns to Jan Gehl's Public Places (referenced within the Sydney 2030 Plan) including the following principles:

- A Waterfront City;
- A green connected city;
- A better city for walking; and
- A strong city identity.

3. Aligns to the Cultural Ribbon and its three-fold purpose:

- A walking trail linking Sydney's leading cultural landmarks along the harbour's edge;
- To provide better information and interpretation of Sydney's rich history and culture for visitors and tourists; and
- A means to strengthen and support the cultural life of the city and help boost Sydney as a cultural destination.

We have conducted an audit of the existing pedestrian infrastructure including vertical transport, bridges, public links and connectivity within the current Cockle Bay Wharf development. Four routes have been detailed and compared against five walkability criteria. The audit of the existing conditions has been compared to the opportunities provided by the amended Concept Plan to assess the impact that the proposal will have on the public amenity for pedestrians.

The existing site provides reasonable connectivity across the Western Distributor with three crossings, supported by three adjacent vertical transport nodes providing connectivity to the waterfront level. However the legibility of the connectivity is lacking, specifically the escalators within the development.

The amended Concept Plan for Cockle Bay Park provides enhanced connectivity across the Western Distributor and improves legibility and wayfinding by providing more direct routes and simplifying the journey. The publicly accessible open space also provides flexibility of movement in all directions.

The route coming from the south from Darling Harbour (Convention Centre) is greatly improved by the proposed development, with the provision of the vertical transport through the site towards Market Street and Sussex Street. The Druitt Street bridge is also improved with improved wayfinding to provide a quick and direct link to the heavy rail network at Town Hall Station, the planned Sydney Metro at Pitt Street Station, the Sydney Light Rail on George Street and the bus services on Druitt Street. The east-west connectivity from Pyrmont Bridge to the CBD is also greatly improved with a more coherent route and the replacement of escalators/stairs with a ramp.

The quality of the existing routes varies depending on the location. Within the existing CBW development the surfaces and routes are of reasonable quality, generally indoors providing shelter and with some benches for resting. The public realm infrastructure is not of the same quality as the CBW development, with some cracked pavement, limited shelter and places for rest. The proposed development provides the opportunity to bring the whole area up to a level of equal or better standard than other recent Sydney waterfront developments. This will lead to improved amenity to all pedestrian routes.

The sense of place of the existing development is focused at the waterfront level, based around the retail offering. The open spaces near the Druitt Street Bridge also provide an opportunity for a sense of place during events with large crowds. The proposed development enhances the opportunity for a sense of place at the waterfront level and adds an additional potential destination in its own right in the publicly accessible open spaces. There are opportunities for these spaces to provide activation on a year round basis and special events, with the views afforded of Darling Harbour.

There is also an opportunity to provide a new green area for the city which is accessible for all, compared to the existing Crescent Garden at Darling Park which is hard to get to and not obvious to all.

Accessibility modelling of the site and the surrounding precinct has been undertaken. The assessment identifies a catchment that is within a 10 minute perceived walk time from Cockle Bay. This catchment of the existing development includes a number of adjacent entertainment precincts, but doesn't extend beyond Darling Harbour to the CBD and its primary transport nodes. The catchment as a result of the proposed development is 50% larger and includes an additional 11,000 existing jobs and is forecast to increase to 14,000 jobs by 2041. The catchment extends along Market St further into the CBD and is within reach of the George Street corridor, providing the opportunity to attract some of the 50,000 daily users on the corridor This aligns with Jan Gehl's strategy of a Better City for Walking, by improving the connectivity between the City's Spine and the Waterfront. The extension of the catchment along Pyrmont Bridge brings additional attractors within reach including the Australian National Maritime Museum and the Casino.

The development itself will draw people to the site and analysis has indicated approximately 1,250 people in the AM peak hour will travel via Market Street and 2,300 via Druitt Street. The width requirements for this demand is estimated to be able to be accommodated within the existing provision and demand.

Overall, from a pedestrian planning perspective the proposed development provides opportunities to improve the amenity of the area, increasing the catchment towards the city, both of which have the potential to increase walking to the site and more generally in the city to the waterfront. The project will add new open space to the Sydney CBD and help to reconnect the city to the Darling Harbour waterfront. Cockle Bay Park will take its place in a revitalised Sydney CBD and speaks directly to local government objectives to create a 'Green, Global and Connected City' (City of Sydney) as well as the strategic vision outlined in 'Towards Greater Sydney 2056' to grow the "*developing central city*".

Background

The Proponent controls the lease of the site, and also of the adjacent Darling Park precinct. The Darling Park site is a successful premium grade office precinct located on the west of the Sydney CBD, the associated Crescent Garden, located to the west of the three existing Darling Park towers, is a key area of open space in this part of the city.

The Proponent has recognised a number key issues with the existing layout of the Darling Park and Cockle Bay precinct, these being:

- The existing Cockle Bay Wharf building is not well integrated with the city, the Western Distributor freeway currently acts as a barrier to separate this area from the CBD;
- Publicly accessible open space is limited to the existing Crescent Garden in Darling Park, and;
- The existing Cockle Bay Wharf building is outdated and is not in keeping with the future of Darling Harbour area as a vibrant entertainment and tourist destination.

The Cockle Bay precinct is at risk of being left behind and undermining the significant investment being made in Darling Harbour that will see it return to the world stage as a destination for events and entertainment. Accordingly, the Proponent is taking a carefully considered and staged approach to the complete revitalisation of the site and its surrounds. The envisaged development, which will be facilitated by the proposed building envelopes will:

- Reconnect the city with the Darling Harbour waterfront and the Darling Park Crescent Garden;
- Create new publicly accessible open space in the heart of the Sydney CBD;
- Provide new access routes between the city and the ICC Sydney / Darling Harbour Live precinct;
- Support the Sydney economy by providing a new premium commercial building and enhanced retail precinct; and
- Refresh and renew an existing entertainment and tourist destination.

Site Description

The site is located within Darling Harbour. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

The site is located to the immediate south of Pyrmont Bridge, within the Sydney CBD on the eastern side of the Darling Harbour precinct. The site is also located within the City of Sydney local government area (LGA).
A locational context area plan and location plan are provided at *Figure 1* below.

The site area has been slightly amended by this Response to Submissions, a comparison of the exhibited and now-proposed site area is provided as *Figure 2*, and the now proposed site area is shown below as *Figure 3*.

The Darling Harbour precinct is undergoing significant redevelopment as part of the SICEEP, Darling Square, and IMAX renewal projects. The urban, built form and public transport / pedestrian context for Harbourside will fundamentally change as these developments are progressively completed.

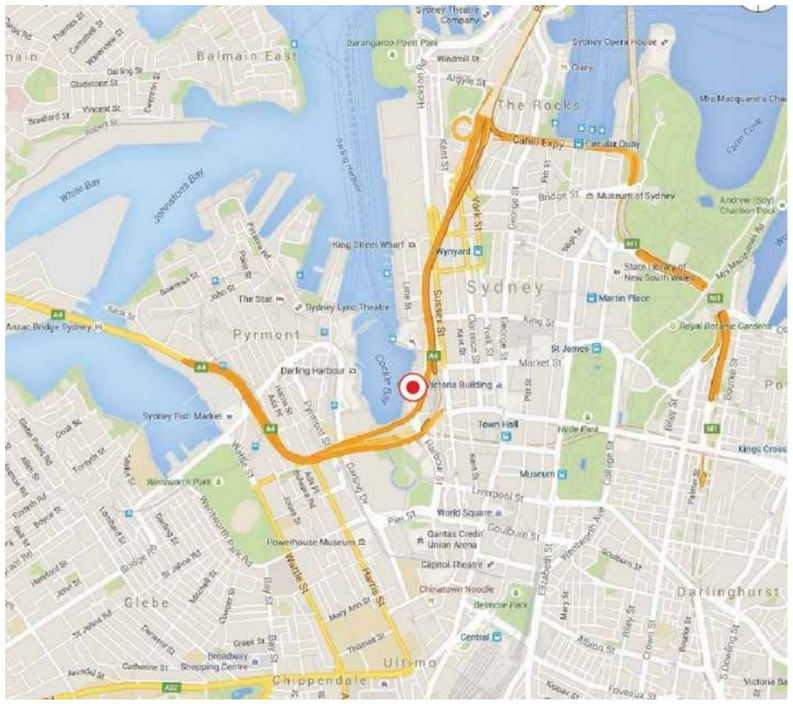


Figure 1 – Location Context Area Plan

Figure 2 – Location Plan (revised site area in yellow)

Figure 3 – Amended Location Plan

Overview of Proposed Development

The proposal relates to a staged development application and seeks to establish concept proposal details for the renewal and re-imagining of Cockle Bay Park. The concept proposal establishes the vision, planning and development framework which will be the basis for the consent authority to assess future detailed development proposals. The Cockle Bay Park site is to be developed for a mix of Retail, Cultural and Commercial (Office) uses, including retail and restaurants, commercial offices, and open space.

The amended Concept Proposal seeks approval for the following key components and development parameters:

- Demolition of existing site improvements, including the existing Cockle Bay Wharf building complex, pedestrian bridge links across the Western Distributor, and obsolete monorail infrastructure;
- Building envelopes;
- Land uses across the site;
- Urban Design and Public Realm design principles to inform the design excellence process; and
- Strategies for utilities and services provision, drainage and flooding, and ecological sustainable development.

Site

Cockle Bay Park is located on the CBD side of Darling Harbour and part of Darling Park, just a few minutes' walk from Chinatown, the Imax Theatre and the CBD. It was opened in 1998 and is approximately 3.5 hectares in size. The site is bounded by water on the west and Wheat Road to the east, with the Imax Theatre to the south, and the Pyrmont Bridge to the north.

Adjacent to the site is the elevated Western Distributor, which creates both a visual and physical pedestrian barrier between the Wharf and the CBD. The distributor was opened in stages between 1972 and 1995 and as well as providing additional vehicular capacity to the Harbour Bridge, it also allowed the Pyrmont Bridge to be closed to vehicles and instead, carry both pedestrians and bicycles between Darling Harbour Pyrmont and the CBD.

The evolution from Western Distributor construction in the 1980's through to the Darling Harbour of today can be seen in the adjacent photographs. The site and its surrounds has significantly changed since the construction of the Western Distributor as has the City's attitudes to imprvoing active transport and walkability. The amended concept proposal therefore provides an exciting opportunity to strengthen the connection between Darling Harbour and the CBD as well as promoting Sydney's cultural identity by providing an additional gateway to the 'Cultural Ribbon' that hugs the City's iconic foreshore.

This document discusses and quantifies the impact of the proposed development by comparing the pedestrian performance of the existing and proposed, as well as considering its importance within a strategic walkability context for the City.

Pedestrian Overview

From a pedestrian planning perspective, the most prominent aspect of the development includes the provision for over a hectare of 'green' publicly accessible open space, terracing down to the harbour and building over the Western Distributor. This open space will provide a better portal to Market Street, and the opportunity to shift the gateway portal of Cockle Bay Precinct closer to the CBD, attracting more pedestrians to the site, as well as to the foreshore and to Darling Harbour.

Cockle Bay Wharf (2016)

Pyrmont Bridge (2014)

Pyrmont Darling Harbour Western Distributor Construction (early 1980s)

Darling Harbour (2014)

Strategic Importance

Cities around the world are placing greater emphasis on the benefits and prominence of walking as a key mode of travel. With greater urbanisation of our Cities, the pedestrian activity of a City is a strong indicator of economic vitality and social inclusivity. For these reasons, it is very much a cornerstone of most cities' planning and transport agendas.

By 2036, it is expected that 280,000 people will live and 570,000 people will work in the City of Sydney. There is therefore a strong drive to provide greater priority, safety and amenity so people are encouraged to walk more often and to spend more time in public spaces. Sydney is considered on a number of international metrics to be the most walkable city in Australia, and this is likely to improve given the city centre is currently being transformed by the introduction of the Light Rail system on George Street and the pedestrianisation between Bathurst Street and Hunter Street.

The Light Rail will not only provide an invigorated, sustainable transport spine through the City, but it was also transform George Street as a stronger pedestrian link through the CBD.

Therefore, in considering the impact of the amended concept proposal, a number of documents have been reviewed and considered as part of a Strategic Review. These include, but are not limited to the following:

- Walking Strategy and Action Plan, City of Sydney 2030
- The Cultural Ribbon (draft) Strategy, City of Sydney 2030, September 2016
- Sydney /Public Spaces / Public Life, 2007
- Good for Business, Heart Foundation, November 2011
- NSW Long Term Transport Master Plan 2014
- NSW Government Planning Guidelines for Walking and Cycling
- Healthy Spaces & Places: A National Guide to Designing Places for Healthy Living
- Cities Alive, Towards a Walking World, Arup, 2016
- SICEEP, Transport and Traffic Assessment
- Sustainable Sydney 2030
- Transport for NSW, Sydney's Walking Future: Connecting People and Places, 2013
- Transport for London, Improving Walkability, September 2005

In reviewing these documents, there is a strong positive alignment between the key recommendations for a Walking City and the amended concept proposal.

Aligns to Global Challenge

The amended concept proposal has a strong alignment to the City's strategic goals. In particular, the City of Sydney is working actively to improve walkability and for people to spend more time in public places. The City's 'Walking Strategy and Action Plan' initiative identifies that walking is a fundamental part of both the city's life as well as the NSW Transport Masterplan. The priorities for the City's walking strategy are:

1. Make walking quick, convenient and easy
2. Make walking inviting and interesting
3. Make walking safe and comfortable
4. Create a strong walking culture

The analysis of the amended concept proposal (detailed later in this report) demonstrates that there is an improvement on the first priority. A number of the existing routes are not inviting, nor could be considered safe during the evening given poor passive surveillance. The amended concept proposal therefore has the opportunity to tackle both the second and third priority through good design outcomes for the activation of the publicly accessible open space during the day. By improving the first three points the development is encouraging more walking, playing its part to improve the walking culture in the city.

Aligns to Jan Gehl's Public Places

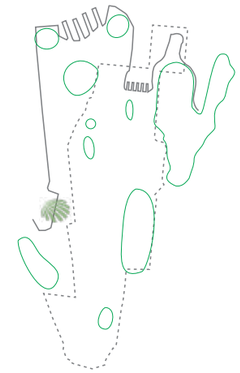
In Jan Gehl's 2007 Public Spaces, Public Life analysis of the City of Sydney, a number of guiding principles were recommended to increase and improve public life. These principles are represented in the figures shown (right), and have been used as further justification to the introduction of Light Rail along George Street. The principles apply equally, if not more so, to the development of Cockle Bay Park.

A Waterfont City: Cockle Bay is a gateway portal to the foreshore, and the cultural ribbon of the City. The portal therefore needs to be welcoming and intuitive. Jan Gehl's recommendation is to create a more extrovert Darling Harbour by improving the interface between Darling Harbour and the City. He highlighted both Market Street and Druitt Street as key links to the water.

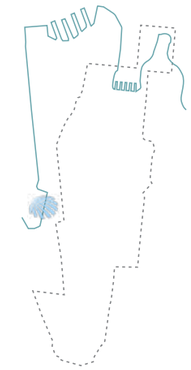
A Green Connected City: The amount of public green plaza space is limited along the western CBD. The publicly accessible open space within Cockle Bay Park will provide a better balance to that of the east. This open space should be welcoming, and provide amenity to all senses (i.e. good level of activation, good level of comfort etc.)

A Better City for Walking: The pedestrianisation of George Street provides the spine of the City. Cockle Bay Park provides the arms that stretch from Darling Harbour across to the new Sydney Modern Gallery. Out analysis demonstrates that the amended concept proposal has the potential to bring the City closer to the foreshore and create a much stronger east-west connection. The closest light rail stop on George Street is likely to be south of Market Street and our analysis shows that the 10 minute (perceived) walking time from Cockle Bay is now very close to this stop.

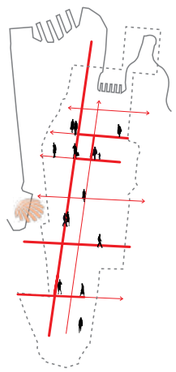
A Strong City Identity: Jan Gehl's strategy considers the city as a connection of City Squares or Places. The notable places being: Circular Quay, Town Hall, and Central. Cockle Bay Park, like Napoleon Plaza to the north has the ability to create a connection of City Squares, and a strong civic space in its own right.



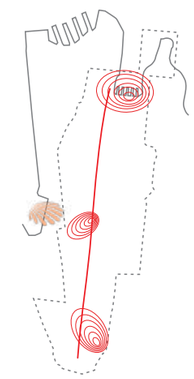
a green connected city



a waterfront city



a better city for walking



a strong city identity

Images courtesy of George Street Concept Design, Gehl Architects and City of Sydney

Aligns to Cultural Ribbon

The Cultural Ribbon was identified as one of "ten key project ideas" in Sustainable Sydney 2030. As described in that document, the Cultural Ribbon had three-fold purpose, being:

- A walking trail linking Sydney's leading cultural landmarks along the harbour's edge
- To provide better information and interpretation of Sydney's rich history and culture for visitors and tourists
- A means to strengthen and support the cultural life of the city and help boost Sydney as a cultural destination

As noted in the strategy, its delivery rests on addressing the fundamental issues of the physical condition of the public domain of the walk. But in addition to the walk itself, the strategy also needs to consider the physical condition of getting to the walk from multiple access points from the CBD. As such, Cockle Bay Park can be seen as a starting, an ending and a stopping point along the Cultural Ribbon.

This Pedestrian Assessment provides both a qualitative (against the 5Cs) and quantitative assessment of the routes to the Cockle Bay Park. The qualitative assessment has shown that the development improves and simplifies the connectivity through the site and provides the opportunity to enhance the quality of the public spaces through increased consistency in surfaces, increased shelter and rest, and in increased sense of place.

By doing so, the amended concept plans intent aligns with the connectivity strategy of the Cultural Ribbon – i.e. to improve the physical amenity of the walk for pedestrians to make it more attractive, accessible and safer for people to explore on foot during the day and at night as well as improving the legibility of the walk by having a fair easier wayfinding experience to an entry portal.

Equally important is the Cockle Bay Parks development's contribution to:

- Liveable Green Network
- Connectivity to the light rail on George St and future Sydney Metro rail
- The City Art Program
- City Centre Access strategy
- Improving foreshore connections and amenity

Pedestrian Movement around Cockle Bay Wharf Precinct

There are a number of attractors around Cockle Bay Wharf which draw people either to the site (as a destination) or past the site (as a transitory movement). The key locations are provided in the adjacent figure. Publicly available data sources have been reviewed to inform our understanding of the relative demand for the routes in the vicinity of the site at various times of day and during events.

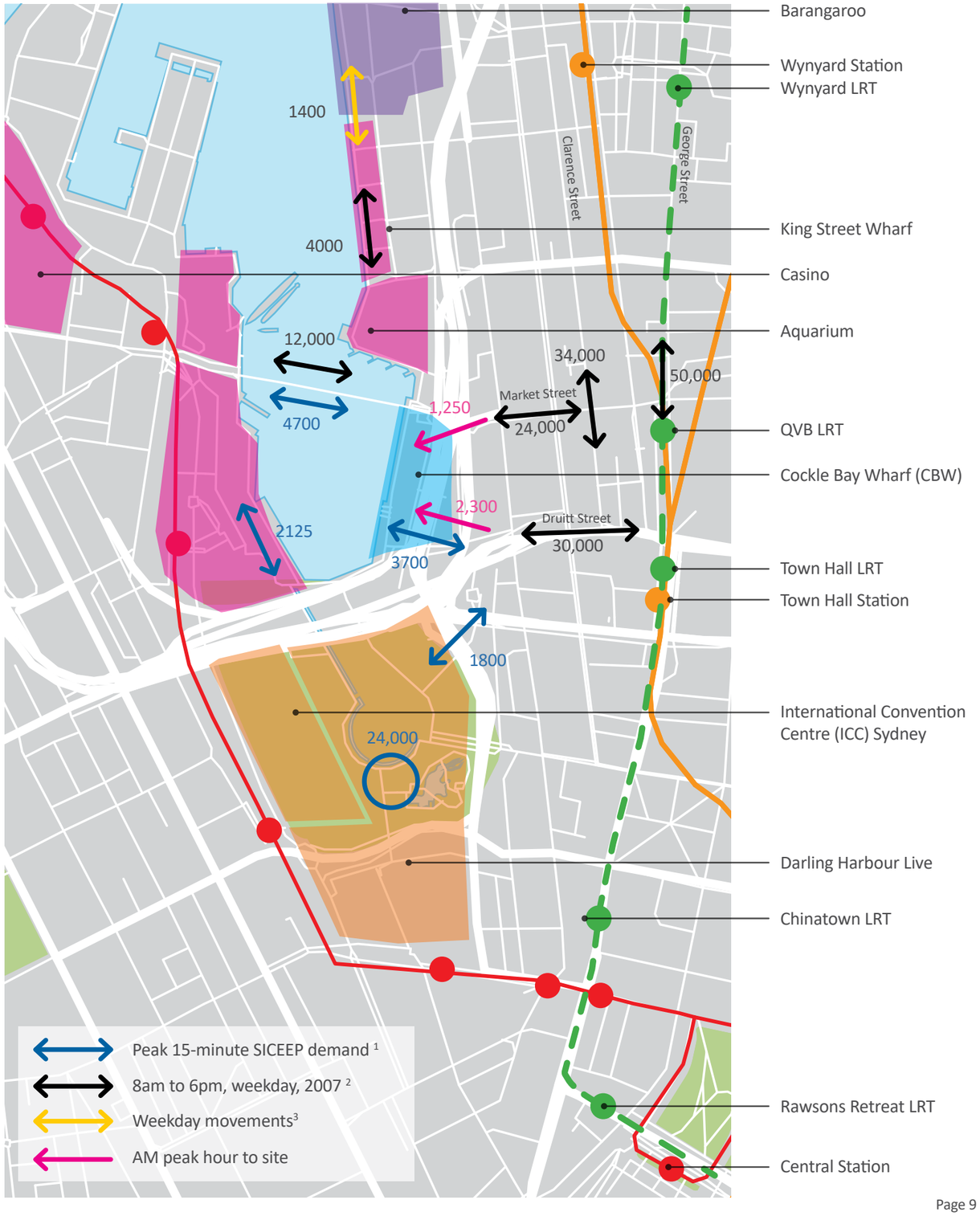
Jan Gehl's 2007 pedestrian survey[2] provides estimates for 8am-6pm on a typical weekday in 2007. This data shows the largest volumes across the day are along the north / south spines of Clarence Street and George Street, compared to the relative smaller flow across the Pyrmont Bridge. This indicates that there is an opportunity for the Cockle Bay Park Development to increase the accessibility of the Development and the waterfront from the CBD. This provides benefits to the city by connecting an increased number of people who are currently using the major north south spines with the waterfront and its activity precinct. The amended concept proposal provides a direct route from the city through to the ICC and vice versa.

The development itself will draw people to the site, the estimated total population is 6,000 staff. The mode share and origin of workers in Darling Park has been analysed to estimate which route Cockle Bay Park staff would use to access the site. Modes/ locations considered include Town Hall Station, St James Station, buses, trams, or car parks in the CBD. Initial analysis has indicated approximately 1,050 people in the AM peak hour will travel via Market St and 2,100 via Druitt St to access the commercial development in Cockle Bay Wharf. The width requirements for a performance of LOS C for this demand is approximately 0.4m and 0.8m at Market Street and Druitt Street respectively. The underground connection between Town Hall Station and QVB may provide an opportunity for additional use of the Market Street link in wet weather conditions.

The existing daily flow on Market Street and Druitt Street is shown to be 24,000/day and 30,000/day respectively. The increase in flow on these routes as a result of the proposed commercial development is approximately 20% based on our initial analysis. However, the predominantly entertainment/retail nature of the existing development around Darling Harbour, means that the profile of the pedestrian activity is largely outside the typical commuter peak periods. Therefore the additional trips created by the proposed development are estimated to be accommodated within the existing footpath provision.

A review of the Transport Assessment for the Sydney Convention Centre[1] shows that there will be a peak population of 24,000 in the SICEE precinct. Over a peak 15 minute period there is predicted to be approximately 3,700 people accessing Cockle Bay Wharf, and a further 4,700 using Pyrmont Bridge. The SICEEP development will therefore drive an increase in the frequency and scale of large scale pedestrian events, which the Cockle Bay Wharf Development is able to support through improved public amenity and connectivity with the CBD.

With the development of the George Street Light Rail, Sydney Metro, SICEEP and others, the area around Cockle Bay Wharf will continue to change dramatically and if there is an opportunity to improve the connectivity with the CBD (closer to Clarence and George Street) then the catchment of the Cockle Bay Wharf as a portal to the Convention Centre, Pyrmont and Barangaroo (as part of the Ribbon) is significant. In the following section, we explore the barriers to walking from these key attractors, quantify the routes, and compare to the future development conditions.



[1] Hyder, 2013, SICEEP Transport and Traffic Assessment

[2] Gehl Architects, 2007, Public Space Public Life 2007 - Sydney

[3] Barangaroo Development Authority

Quality Anlaysis of Existing Routes

Approach

Four routes through and to Cockle Bay Wharf site have been assessed. These routes reflect the movements at the precinct level, but at a local scale. The actual travel time of each route has been measured to understand the effectiveness of the site permeability, and to set a baseline for comparison to the future development. The actual travel times have been supported by a calculation of the perceived times. The perceived times are on the basis that travel in a vehicle (train or LRT) is the neutral condition, pedestrian travel on elements such as stairs incurs penalties ranging from 1.5 (escalators), 2 (walking) to 4 (up stairs). Each route has also been assessed relative to the criteria of assessment, which considers the operation and quality of each route at various times of the day/week against five key metrics.

Criteria of Assessment

Connected

Connectivity refers to the urban permeability, the density of the pedestrian network and the ease with which pedestrians can travel from one point to another.

Comfort

Comfort refers to the amenity afforded within the pedestrian environment including access to shade and shelter and the provision of street furniture for rest breaks, hydration and space to mingle.

Sense of place

People are attracted to people. Good built environments encourage social interaction, while also enabling people to choose when, where and with whom that interaction will occur.

Visibility

The visibility of pedestrians within the urban environment and extent to which they can be seen from nearby active land uses and frontages.

Convenient

Walking is the most convenient form of transport within the city environment. A convenient walking environment is one which minimises delays to pedestrians and caters for walking desire lines.

1 *CBD to Pyrmont Bridge*

Route 1 is the primary east-west route through the site, which connects the CBD via Market Street to Pyrmont and the Casino precinct. There is an opportunity to access the waterfront level via the existing escalators and stairs from the bridge. The actual travel time from Market Street / Kent Street to the Pyrmont Bridge is 2:44mins. It is primarily a transitory route with minimal amenity including shade and rest areas. It is fairly direct but involves transitions between the bridge of Sussex Street, the bridge over the Western Distributor, where pedestrians are exposed to increased noise and pollutants levels, and the vertical transport to Pyrmont Bridge.

2 *CBD to Cockle Bay Wharf (north bridge)*

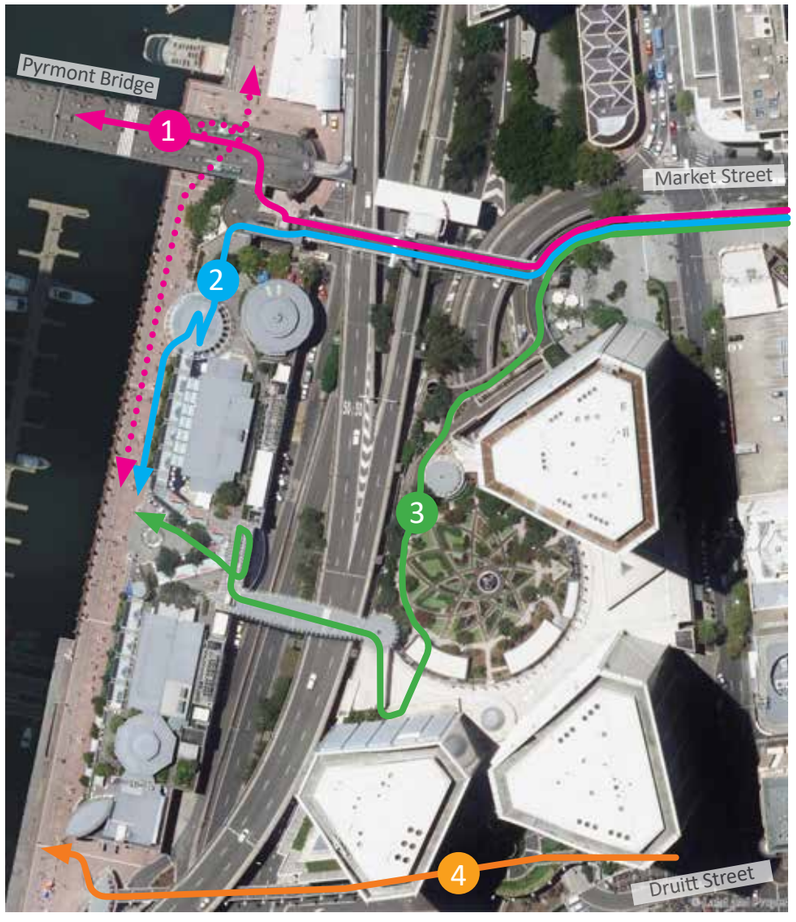
Route 2 is the most direct route from the CBD via Market Street to the Cockle Bay Wharf site. It crosses the northern bridge and utilises the vertical transport within the north end of the existing development. The actual travel time from Market Street / Kent Street to the fountain at the centre of the development is 4:00mins. The section from the city to the development is very basic and primarily a transitory environment with minimal comfort, and includes the pedestrian bride over the Western Distributor exposing pedestrians to increase noise and pollutant levels. The section within the development has improved quality of surfaces, more opportunities for rest and shade, and has more of a sense of place, being integrated with the retail within the development.

3 *CBD to Cockle Bay Wharf (central bridge)*

Route 3 includes the central crossing of the Western Distributor, and connects the Darling Park development and Garden with Cockle Bay Wharf. The actual travel time from Market St / Kent St to the fountain at the centre of CBW is 4:55mins. While it is unlikely travelled as a route as a whole, the crossing from the garden to CBW may be utilised by employees in the darling park development. This crossing is quite circuitous, involving an entrance to the bridge within the lobby of the southern tower, and access to the bridge through doors that are locked after hours. The bridge is covered providing high quality comfort, protection from noise and pollutants generated by the Western Distributor, and a high quality offering through the garden. The bridge is sparsely used, primarily due to the poor connectivity on the east.

4 *Druitt Street Bridge*

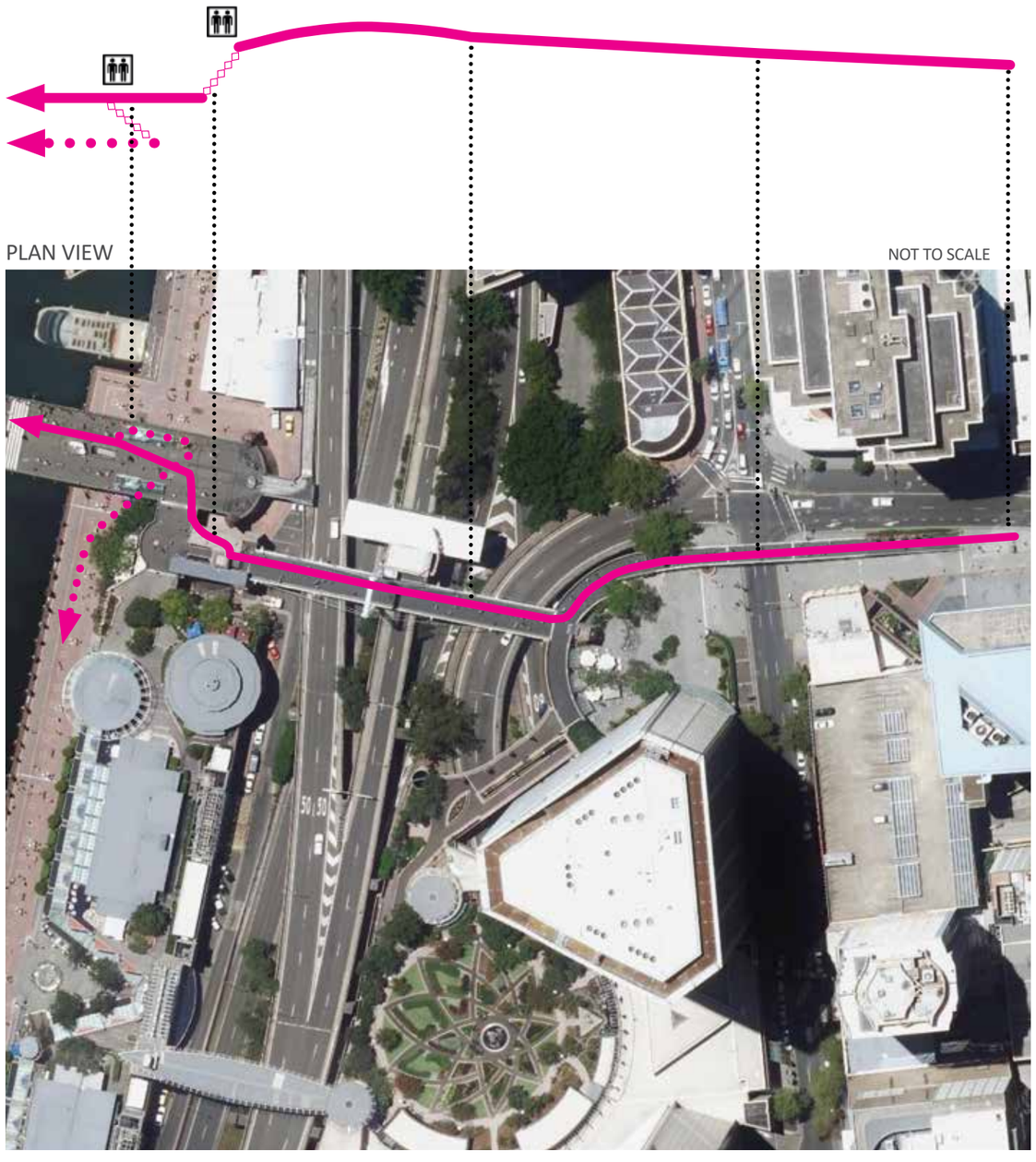
Route 4 is a direct connection from the CBD via Druitt Street to Cockle Bay Wharf and the waterfront. The actual travel time from Druitt St / Kent St to the waterfront at the southern end of CBW is 3:11mins. The route is inconspicuous from the CBD end within minimal signage towards CBW. The quality of the connection is mixed through the various segments. The section underneath the Western Distributor has a low head clearance and poor quality surfaces. The vertical transport to the waterfront is by stairs and lift only. These stairs are utilised during events for informal viewing over the harbour.



Existing permeability of the Cockle Bay Wharf site, four routes.

1 CBD to Pyrmont Bridge

VERTICAL SECTION



Criteria assessment

Connected

- Well connected route
- Lifts required for prams/DDA, can experience long wait times (A)
- Narrow stairs

Comfortable

- Minimal shelter provided
- Good width provided for the high pedestrian volumes (B, C)
- No furniture for rest breaks
- Mix of good and poor quality pavement surfaces (D)
- Noisy environment due to the very high vehicle volumes on the
- Western Distributro below
- Air quality impacted by pollutants from the road below

Sense of Place

- Route provides no sense of place at upper levels, it is almost solely dedicated to moving people
- Sense of place and engagement is good on Pyrmont Bridge due to the high activity levels

Visibility

- Some natural wayfinding, minimal directive wayfinding (E)
- Open spaces with good visibility of surrounds
- Limited visibility from wharf level up to the bridge (F)
- Passive surveillance poor between levels, but strong at the waterfront and bridge levels (G)
- Well lit (H)

Convenient

- Perceived walk time of 5:27mins
- Includes grade changes via stairs/escalators/lifts
- The route takes only small deviations from the shortest path


A


B


C


D


E

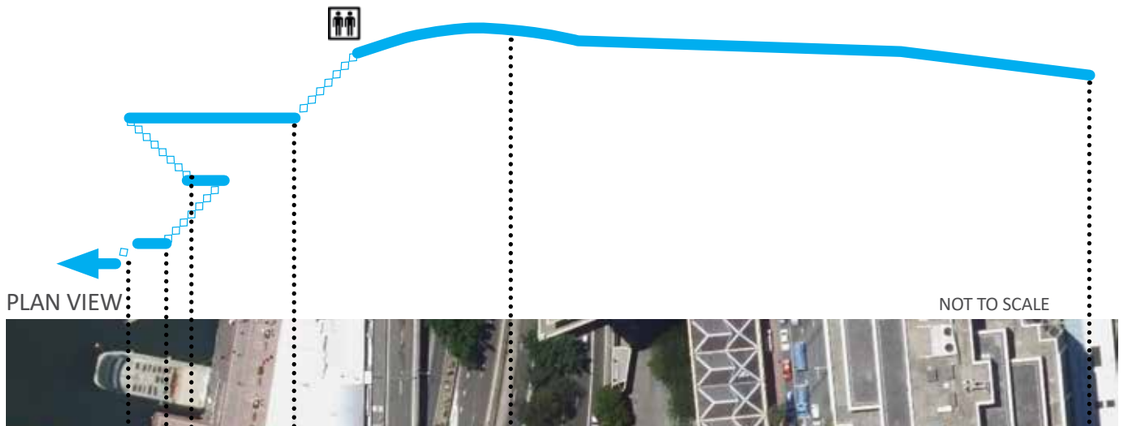

H


G


F

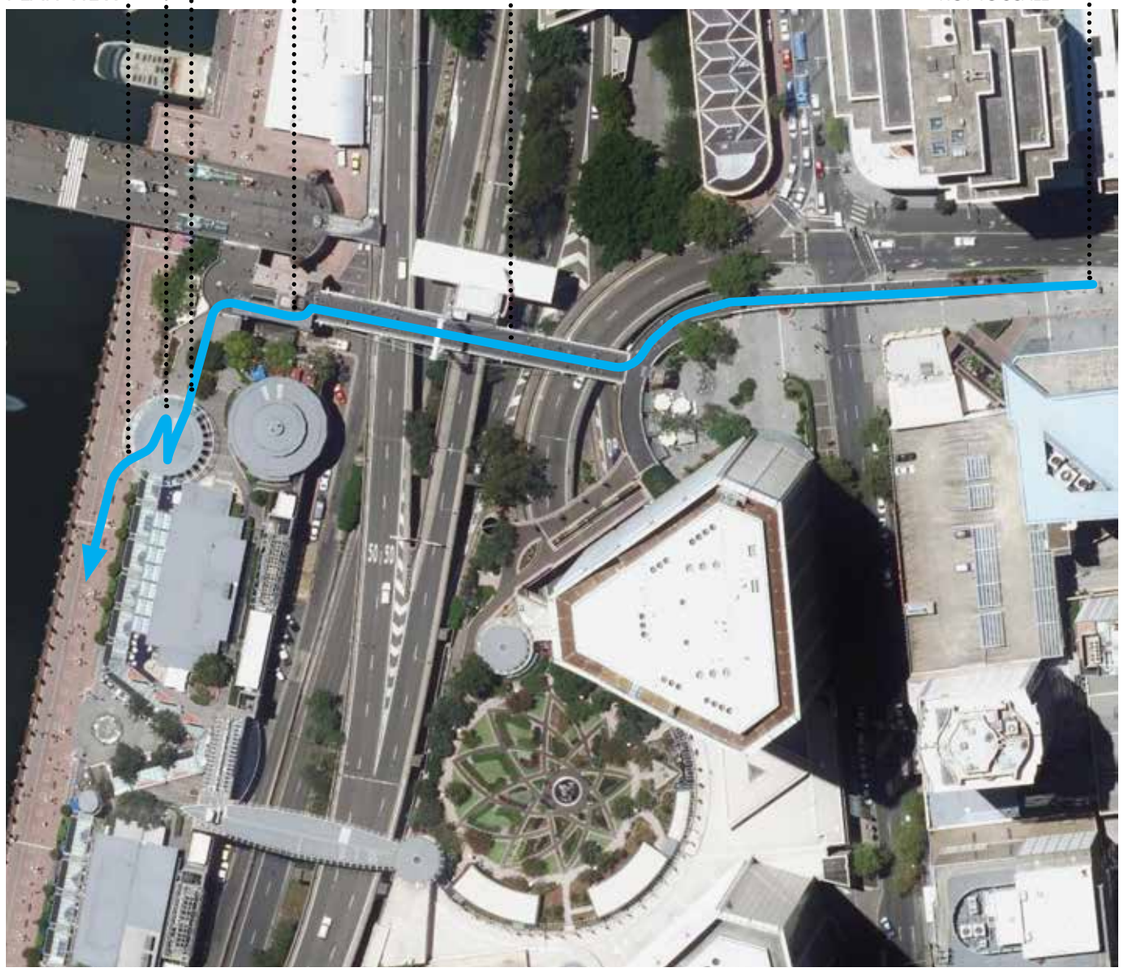
2 CBD to Cockle Bay Wharf (north bridge)

VERTICAL SECTION



PLAN VIEW

NOT TO SCALE



Criteria assessment

Connected

- Well connected, undisturbed route
- Lifts required for prams/DDA, queues experiences at the end of Pyrmont Bridge, lifts within exisitingbuilding are not provided adjacent to escalators to get to the waterfront level
- Connects multiple levels within the existing building

Comfortable

- Local section from bridge to waterfront includes trees and indoor movement (A)
- Benches in the form of planter edges available as seating (A)
- Mix of surfaces from pavement on bridge (some cracked as per route 1), small tiles and timber decking in the outdoor CBW development, varying tiles within the indoor environs
- Quality and amenity within the CBW development is generally acceptable
- Noisy environment due to the very high vehicle volumes on the Western Distributor below
- Air quality impacted by pollutants from the road below

Sense of Place

- Minimal sense of place on bridge
- CBW development provides good amenity and pleasant spaces
- The route is connected to the developmentadjacent to the path

Visibility

- Minimal passive wayfinding to the vertical transport node to the waterfront level from the upper level (C)
- Location of vertical transport node at waterfront level not obvious, as it is within the retail and up a number of steps (D)
- Passive surveillance at vertical transport node to waterfront level poor due to underutilization

Convenient

- Perceived walk time of 8:02mins
- Includes grade changes via stairs/escalators/lifts
- Switchback escalators increase the route length

A

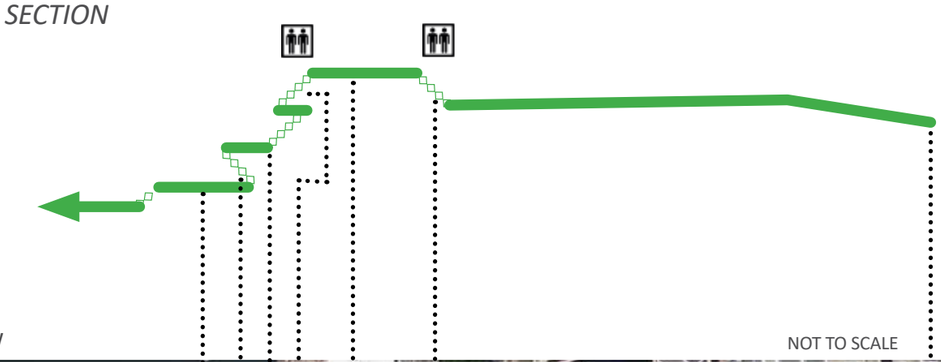
B

C

D

3 CBD to Cockle Bay Wharf (central bridge)

VERTICAL SECTION



PLAN VIEW

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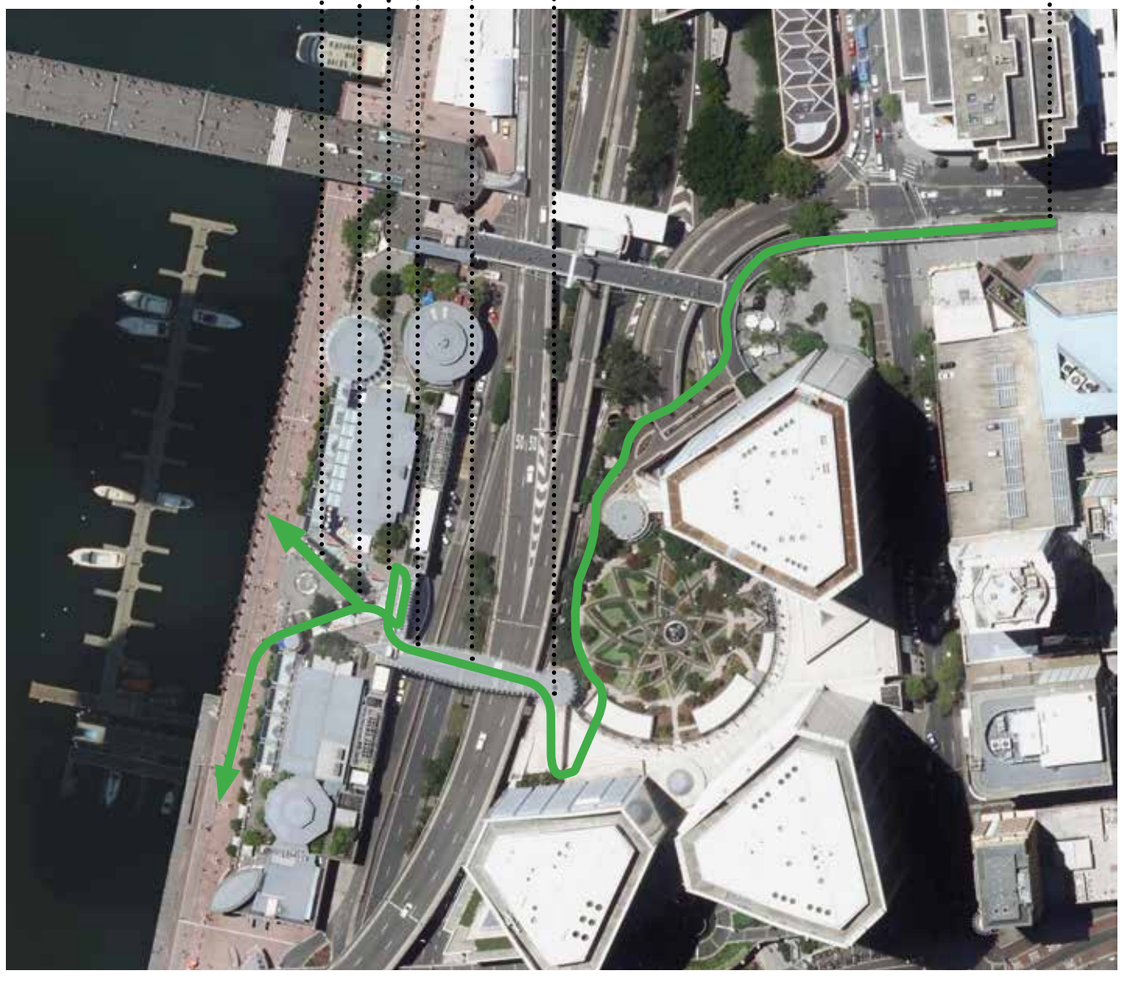


Criteria assessment

Connected

- Route is unintuitive as it is made up of a complex chain of links, including entry to a commercial building
- Lifts required for prams/DDA
- Cockle Bay Bridge not open after hours

Comfortable

- The route on the eastern side of the freeway is very comfortable including shade and benches within garden and pathways (A)
- The bridge is undercover providing protection from the weather and improving comfort (B)
- A mix of surface treatments ranging from paved outdoor paths, timber floorboards and tiles indoors

Sense of Place

- Strong sense of place through the garden and building
- Vertical transport node to waterfront level is central to the existing development (fountain)
- Vertical transport from bridge to CBW is narrow and winding, and not very welcoming for social interactions (C)

Visibility

- Minimal natural wayfinding towards garden from Market St
- No signs guiding movement from inside the building to the bridge from the garden (D)
- Poor passive surveillance through bridge and western vertical transport sections
- Vertical transport at the western end of the bridge is confusing and constrained with limited visibility to the destination
- Vertical transport to the bridge from waterfront level totally hidden from view and inconspicuous (E)

Convenient

- Complicated route requiring knowledge of the area, including passing through two doorways
- Not available after hours
- Perceived walk time of 9:53mins
- Numerous switchback escalator/stairs required (F)

A

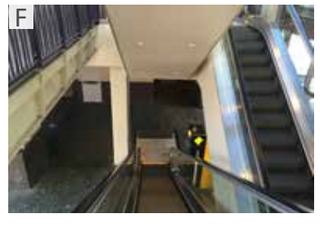
B

C

D

E

F



4 Druitt Street bridge

VERTICAL SECTION

PLAN VIEW

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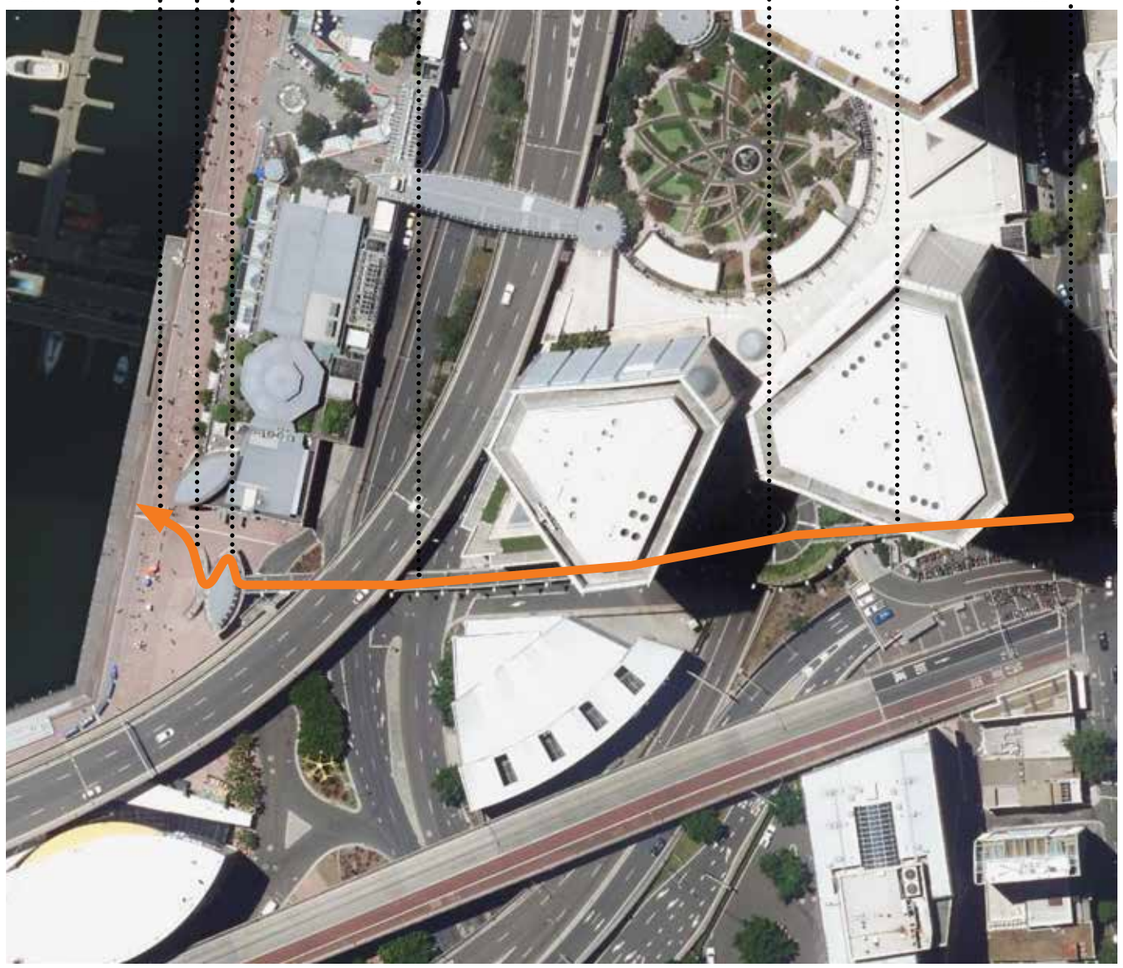


Criteria assessment

Connected

- Direct connection, undisturbed route
- Lift and stair vertical transport to waterfront level, no escalators
- Approximate capacity of 175ppl/min assuming unidirectional flow

Comfortable

- Minimal shelter provided
- No furniture for rest breaks
- Low head clearance underneath freeway (A)
- Uninviting experience, poor passive surveillance
- Loud environment due to high vehicle volumes on roads
- Increased pollutants from Western Distributor

Sense of Place

- Strong sense of place at the stairs to the wharf, being utilised as an informal viewing platforms during events (B)
- Bridge connection predominantly a through route with minimal sense of place

Visibility

- Access to the bridge is clear, but limited signage towards Cockle Bay Wharf (C)
- Visibility from the bridge to the waterfront is good

Convenient

- Perceived walk time of 6:37mins
- Route follows shortest path

A

B

C

Quality Anlaysis of Future Routes

Approach

Three routes through and to the proposed development at the proposed Cockle Bay Park have been assessed and compared to the four routes assessed within the existing conditions. The perceived times are on the basis that travel in a vehicle is the neutral condition, walking travel on elements such as stairs incurs penalties ranging from 1.5 (escalators), 2 (walking) to 4 (up stairs). Each route has also been assessed relative to the criteria of assessment, which considers the operation and quality of each route at various times of the day/week against five key metrics.

Summary of Benefits

Connectivity

- An opportunity for more direct connections between CBD and wharf/ Pyrmont Bridge
- Potential for improved natural wayfinding through open deck and sightlines to waterfront
- Opportunity to improve connectivity with Darling Park and the Crescent Garden
- Increased volumes can be moved/stored comfortably
- Reduces demand on water level boardwalk in event mode

Amenity

- Potential to provide additional shelter and rest areas through landscape design
- Opportunity to provide high quality consistent finished throughout development
- Potential to improve lighting provision for all hours operation
- Increased sense of place with the northern open space area, created as a destination in its own right
- Greater separation of the Western Distributor and the development has the potential to improve both sound and air quality for pedestrians

Accessibility

- Increase in vertical transport provision between Market Street and the foreshore, including more prominent lift locations
- The western end of Pyrmont Bridge is now within 10 minutes perceived time of the development

Events

- Increased capacity for public events with views of Harbour
- The publicly accessible open space provides an area for a range of public and private event types
- Increased flexibility of operations with multiple access points and possible configurations of the space

1 *CBD to Pyrmont Bridge*

Route 1 of the development provides a new, direct connection onto Pyrmont Bridge. The route aims to create better opportunities for access through a landscaped land-bridge rather than a footbridge over a motorway. The capacity of the route is increased where possible, and only constrained at the interface of Market Street footbridge east of Sussex Street.

Route 1 is the primary east-west route through the site, which connects the CBD via Market St to Pyrmont and the Casino precinct. Access to the waterfront level via the existing escalators and stairs from the Pyrmont Bridge, is to be retained.

The quality of the route is estimated to be enhanced through a new structure and materials. The connectivity across an integrated pathway network provides opportunities for an increased sense of place and interaction with the space as a destination. Along the route there are opportunities to improve pedestrian comfort with a provision of shade through planting/structure, with rest areas within the publicly accessible open space.

2 *CBD to Cockle Bay Park (Landbridge)*

Route 2 provides direct access from the city through to the waterfront. In addition this route passes through a series of landscaped terraces and outdoor seating areas to reach the waterfront. This is in contrast to the existing conditions that requires pedestrians to pass through a series of private switchback escalators.

Route 2 provides a potential to be a highly desirable entrance to the Cockle Bay waterfront. There is opportunity to provide an intuitive design with a continuous visible connection to the waterfront. In addition, there is also the opportunity for an indirect route via retail offerings, therefore supporting different functions for both transitory movement and destination activities.

3 *CBD to Cockle Bay Park (central bridge)*

The publicly accesible open space provides opportunities to link Market Street through to Druitt Street with greater connectivity and amenity. This enables the opportunity for greater activation as well as reducing the walking times for patrons from Pyrmont Bridge to Town Hall Station. The strength of attraction and accessibility can be accessed in consultation and discussions with Space Syntax.

A clearer and more convenient pedestrian route from Druitt Street via the Crescent Garden is proposed. This is expected to encourage pedestrians travelling from Town Hall Station and Druitt Street to permeate towards the northern park to reach Pyrmont Bridge and the Cockle Bay steps and terraces.

Route 3 aligns with and enables a range of pedestrian movements through the site to the wider precinct and the city.

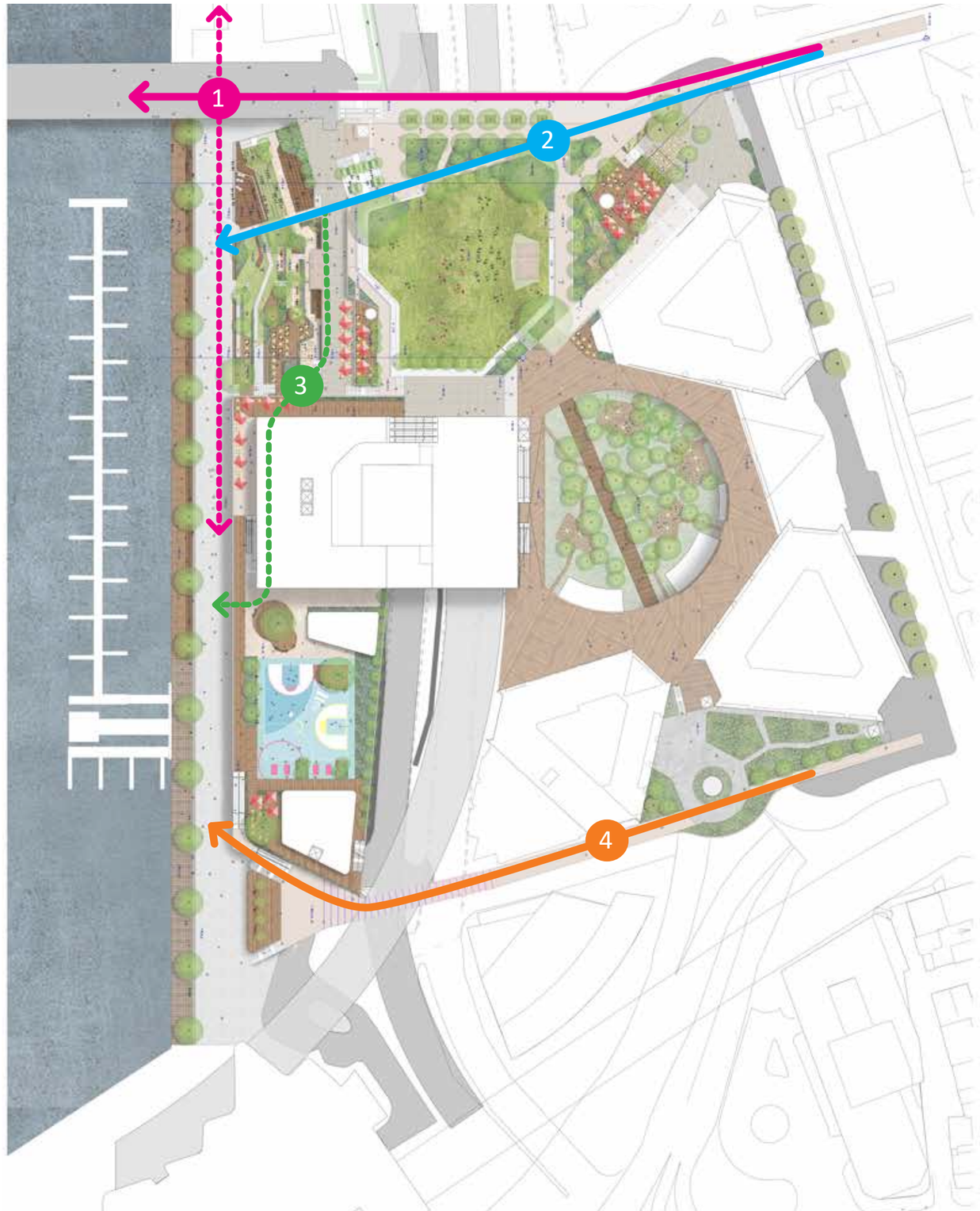
For the purposes of this report this route has not been analysed for comparison against the existng condition due to the number of potential routes now available for the public within the amended concept.

4 *Druitt Street Bridge*

The western end of the Druitt Street footbridge is enhanced with the bridge landing on a terrace that opens to Cockle Bay waterfront. From this terrace stair access is available directly down to the waterfront and additional escalator access to the south to accommodate an anticipated increase in pedestrian movements generated by the Ribbon development and SICEEP. The Druitt Street footbridge is enhanced through a public art programme to encourage pedestrian utilisation and to make the journey a destination in itself. This aims to improve the poor amenity as noted in the existing conditions.

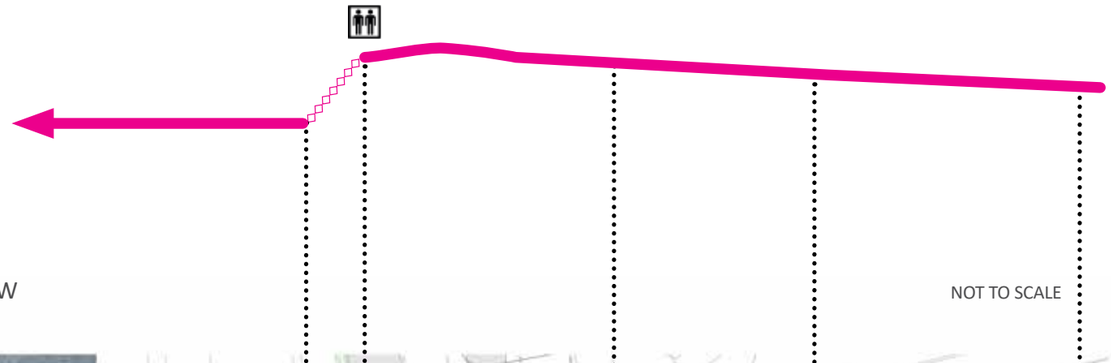
Route 4 is the direct connection from the CBD via the Druitt Street Bridge to Cockle Bay Park and the waterfront. Having the strongest attraction to public transport access.

The Druitt Street link is currently a direct and movement focused connection. The guiding principle for this link is to improve this link with respect to connectivity, comfort and amenity.



1 CBD to Pyrmont Bridge

VERTICAL SECTION



PLAN VIEW

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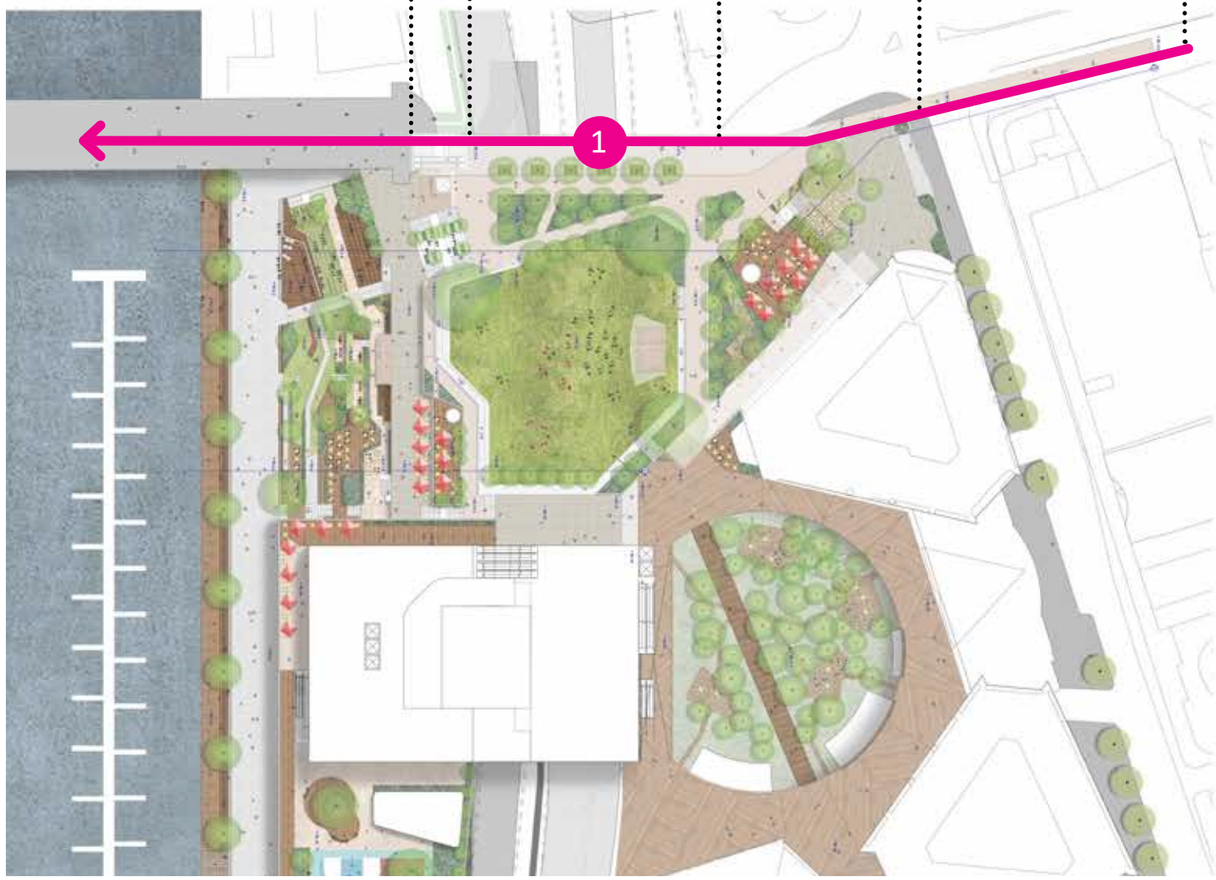


Criteria assessment

Connected

- Well connected, undisturbed route
- Vertical connectivity via ramps, no lifts required. Improving amenity for DDA, prams and cyclists

Comfortable

- Opportunities for increased shelter on the publicly accessible open space, but not directly on the route
- Good width provided for the high pedestrian volumes
- Opportunities to provide furniture within the landscape design
- Opportunity to provide consistent pavement treatment and user experience from Pyrmont Bridge to Sussex St Bridge
- Potential loud environment due to proximity to Western Distributror
- Air quality may be impacted by pollutants from the road below

Sense of Place

- Proximity to the publicly accessible open space enhances the sense of place while maintaining the primary transport function
- At the waterfront the sense of place is very strong with furniture, shop fronts and place for people to interact and occupy the space
- Activation at deck level required to create gateway to Cockle Bay Wharf

Visibility

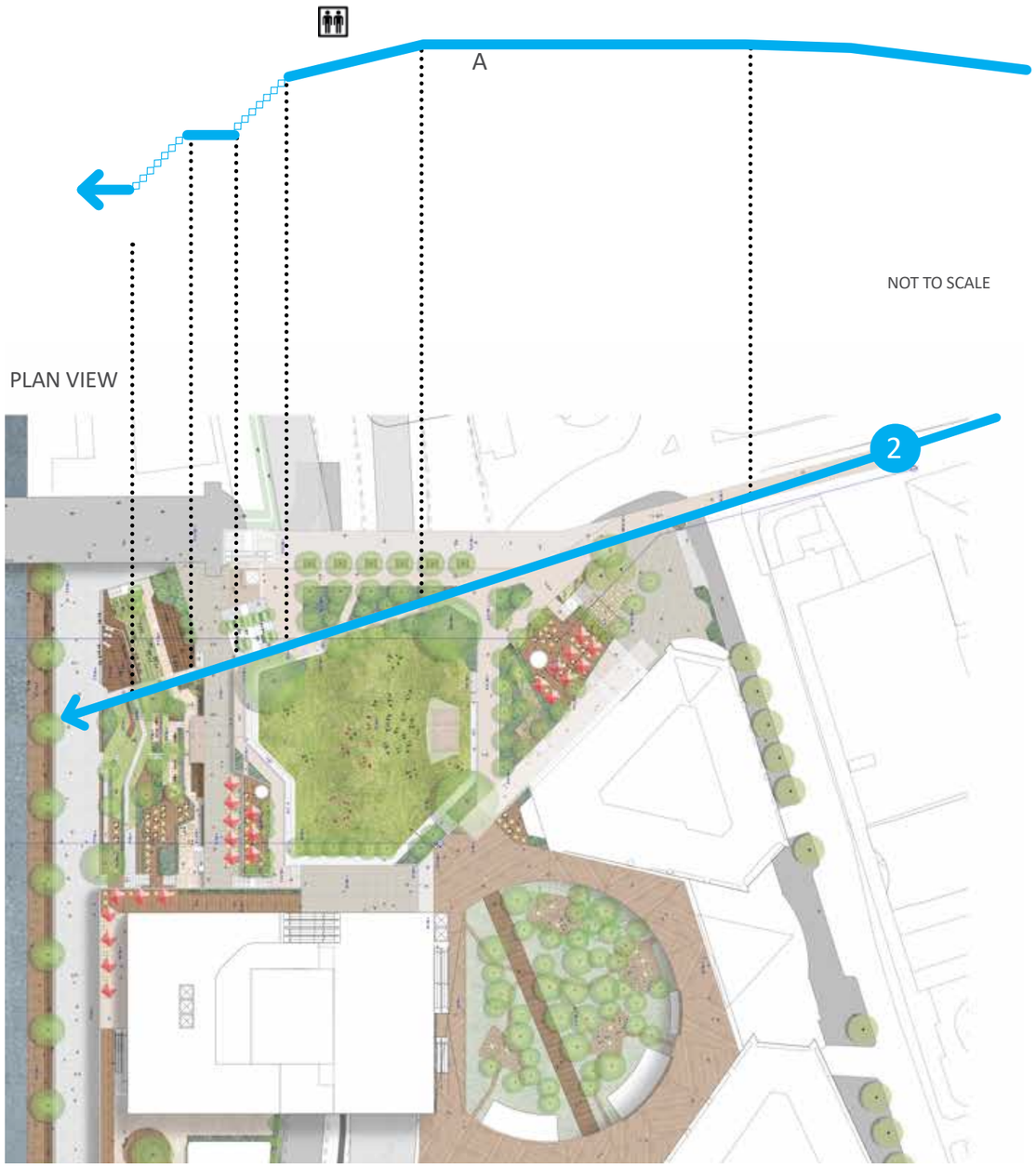
- Natural wayfinding opportunities increased with the removal of vertical transport elements and good sight lines
- Open spaces with good visibility of surrounds

Convenient

- Perceived walk time of 4:40 mins
- All grade changes via ramps, no stairs/escalators/lifts required
- The route takes only small deviations from the shortest path

2 CBD to Cockle Bay Wharf

VERTICAL SECTION



Criteria assessment

Connected

- Well connected, direct and undisturbed route
- Connects to all levels within the development

Comfortable

- The route is now completely outdoors, with opportunities to provide shelter for the vertical transport sections
- Opportunity for the deck to provide a high quality landscape
- design with natural shelter and places to rest
- Opportunity for the deck to provide a consistent design with high quality surfaces to maximise comfort

Sense of Place

- Route through the northern publicly accessible open space and terraced levels offers the opportunity to engage with the new space, which has the opportunity to be a destination and not just a transport link

Visibility

- Good passive wayfinding opportunities provided by the direct connection and sight lines across the deck
- The vertical transport node is integrated with each level of the podium, increasing visibility to and from the many parts of the development
- Potential for increased utilisation of the route due to its enhanced quality and connectivity to increase passive surveillance

Convenient

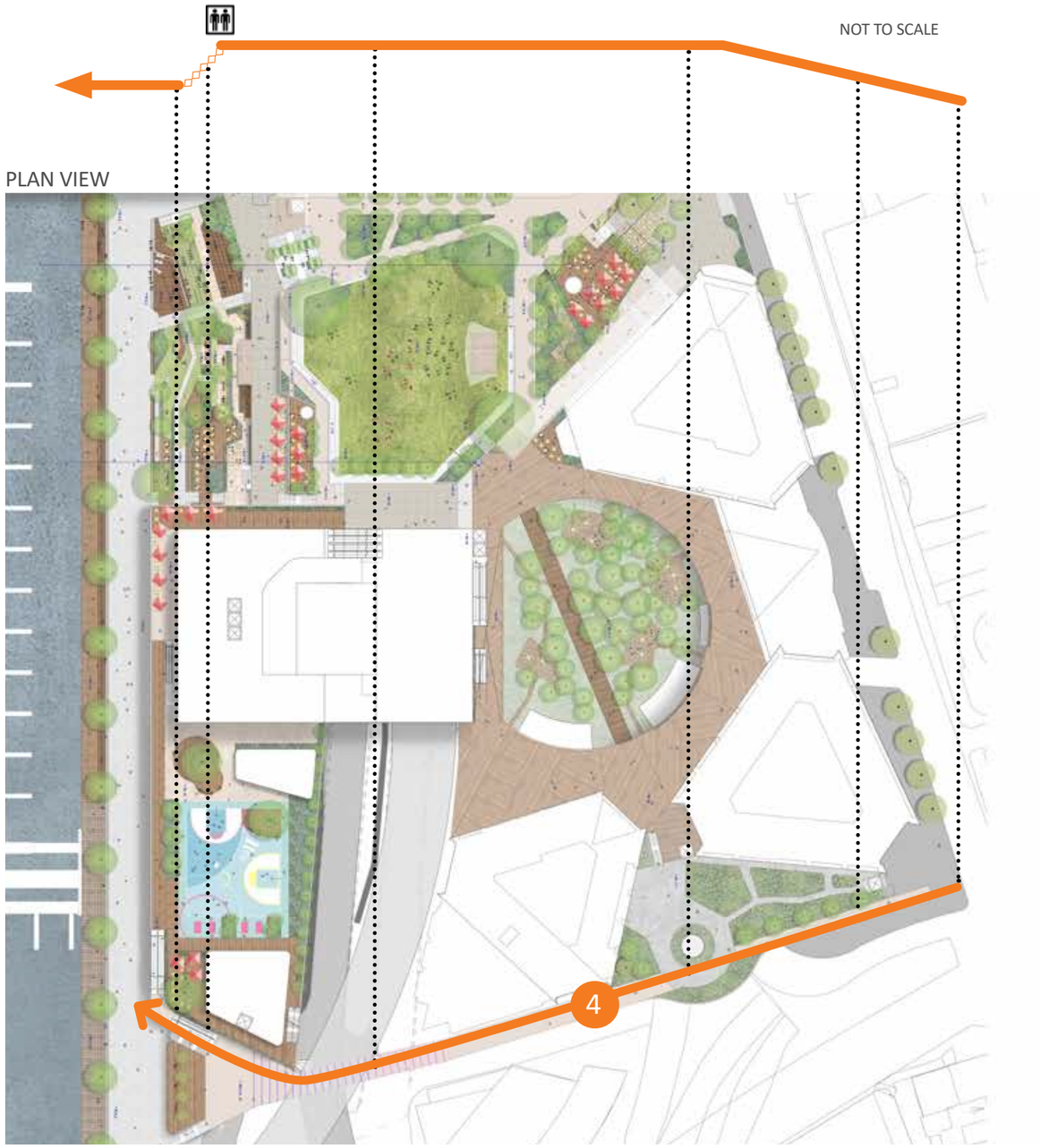
- Perceived walk time of 6:28 mins
- Includes grade changes via stairs/escalators
- No lift access provided along the route, this is provided within the tower structure, and to the south of the podium
- The route takes only small deviations from the shortest path

4 Druitt Street bridge

VERTICAL SECTION

NOT TO SCALE

PLAN VIEW



Criteria assessment

Connected

- Direct connection, undisturbed route
- This route is unique affording opportunity a quick and direct to the following public transport:
  - Heavy Rail Network at Town Hall
  - the planned Sydney Metro at Pitt Street Station
  - the Sydney Light Rail on George Street
  - Bus Services on Druitt Street

Comfortable

- Landscaping, lighting and way finding to be provided to improve route amenity
- Minimal shelter provided
- No furniture for rest breaks
- Low head clearance underneath freeway
- Improved integration with Cockle Bay Park development, with the western end within the podium structure, providing shelter
- Loud environment due to high vehicle volumes on roads
- Increased pollutants from Western Distributor

Sense of Place

- Bridge connection predominantly a through route with minimal sense of place

Visibility

- Access to the bridge is clear, with further improvement through lighting and way finding

Convenient

- Perceived walk time of 6:22 mins
- Route follows shortest path and connectivity to public transport

Accessibility Modelling

Approach

Accessibility modelling has been undertaken of the site and the surrounding precinct in order to assess how far people can be walk to and from the Cockle Bay Park precinct. The assessment identifies a catchment based on the ease of the walking routes (flat ground, using stairs, escalators, into / out of doors etc..) which leads to an overall perceived walking time.

All footpaths and links within the development have been included in the model network for both existing and future development case. The model has been calibrated based on actual walk times between certain points, with an average walk time on flat surfaces of 1.3m/s. Factors have been applied to the actual walk times to reflect the perceived times based on the following factors. These factors are derived from rail planning in London, with the basis that travel in a vehicle (i.e. train or light rail) is the neutral condition.

- Walking on flat or ramps: 2
- On an escalator: 1.5 (up or down)
- Up stairs: 4
- Down stairs: 2.5
- Going through a door: 2
- Queuing at intersections: 3

Existing

The accessibility map for the existing conditions shows the catchment for a 10 minute perceived walk time from the primary address of the development. This has been identified as the fountain at the waterfront level. This is the location of the primary “Cockle Bay Wharf” signage, and is central within the development.

The analysis shows that the 10 minute catchment extends to:

- The Aquarium to the north
- Kent St to the east on Market St
- Sussex St to the east on Druitt St
- Darling Quarter to the south
- Hard Rock Café to the west along the harbour front
- Halfway along Pyrmont Bridge to the west

This catchment includes a number of adjacent entertainment precincts, but does not extend beyond Darling Harbour to the CBD and its primary transport nodes.

Development Overview

The future accessibility map shows the catchment for a 10 minute perceived walk time from the development. This analysis assumes that through development of the publicly accessible open space and appropriate urban design treatment, the precinct has both a foreshore and City entrance address. This is on the basis that the deck will be a destination in its own right with activation, and not just a transitory space.

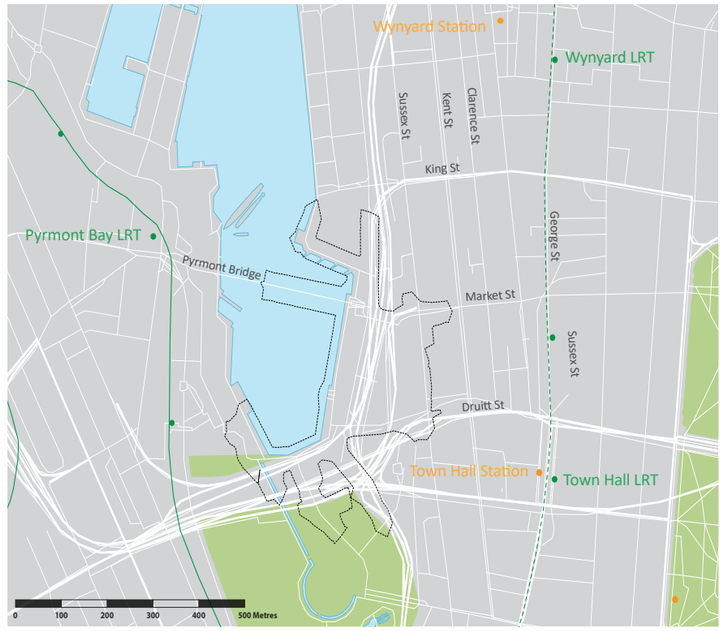
Analysis of the impact of the proposed publicly accessible open space as part of The Development, increases the 10 minute perceived walk time catchment by 50% because the opportunity exists to integrate the development back towards the city, creating an equally attractive front and back door. This area corresponds to an increase capture of 11,000 workers at 2016 levels, increasing to an estimated 14,000 workers at 2041 levels.

Areas shaded in pink represent the additional catchment that has been gained as a result of the development. The key areas now included within the catchment are:

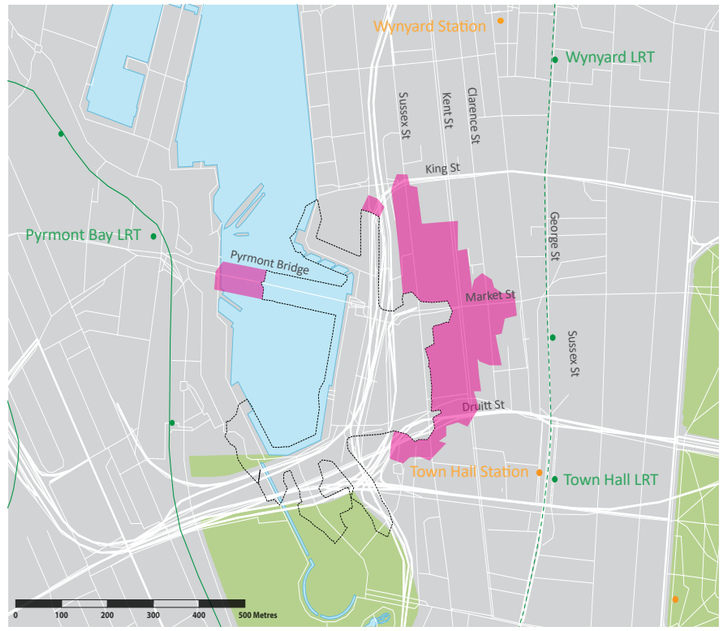
- York Street to the East on Market Street
- Western end of Pyrmont Bridge

The catchment also extends to Clarence Street and almost to George Street. Thus the potential to capture the 50,000 thousand people per day that traverse this major north-south spine is far greater than before. The actual amount of capture will depend on the urban design, activation and human experience delivered at the publicly accessible open space level and the offering of the complex. This is understood to be detailed through the design excellence space of the project.

The extended catchment along Market Street highlights how the development is growing further into the CBD and is almost within reach of the George Street corridor. This aligns with Jan Gehl’s strategy of a Better City for Walking, by improving the connectivity between the City’s Spine and the Waterfront. The extension of the catchment along Pyrmont Bridge brings additional attractors within reach including the Australian National Maritime Museum and the Casino.



Existing 10-minute perceived walking accessibility from Cockle Bay Wharf



Future 10-minute perceived walking accessibility from Cockle Bay Wharf. Area shaded in pink shows the increased capture as a result of the proposed deck.

Perceived Walking Time Comparison

	Existing Condition	Amended Concept Plan	Comments
1. CBD to Pyrmont Bridge	5.27mins	4.40mins	Improved / reduced – 47 seconds
2. CBD to Cockle Bay Wharf / Cockle Bay Park (north)	8.02mins	6.28mins	Improved / reduced – 1.34mins
3. CBD to Cockle Bay Wharf / Cockle Bay Park (central bridge)	9.53mins	*N/A	For the purposes of this report the amended concept plan did not analyse this route as it is not one of the key routes. Multiple new options are available through the development.
4. Druitt Street Bridge	6.37mins	6.22mins	Improved / reduced – 15 seconds

Events

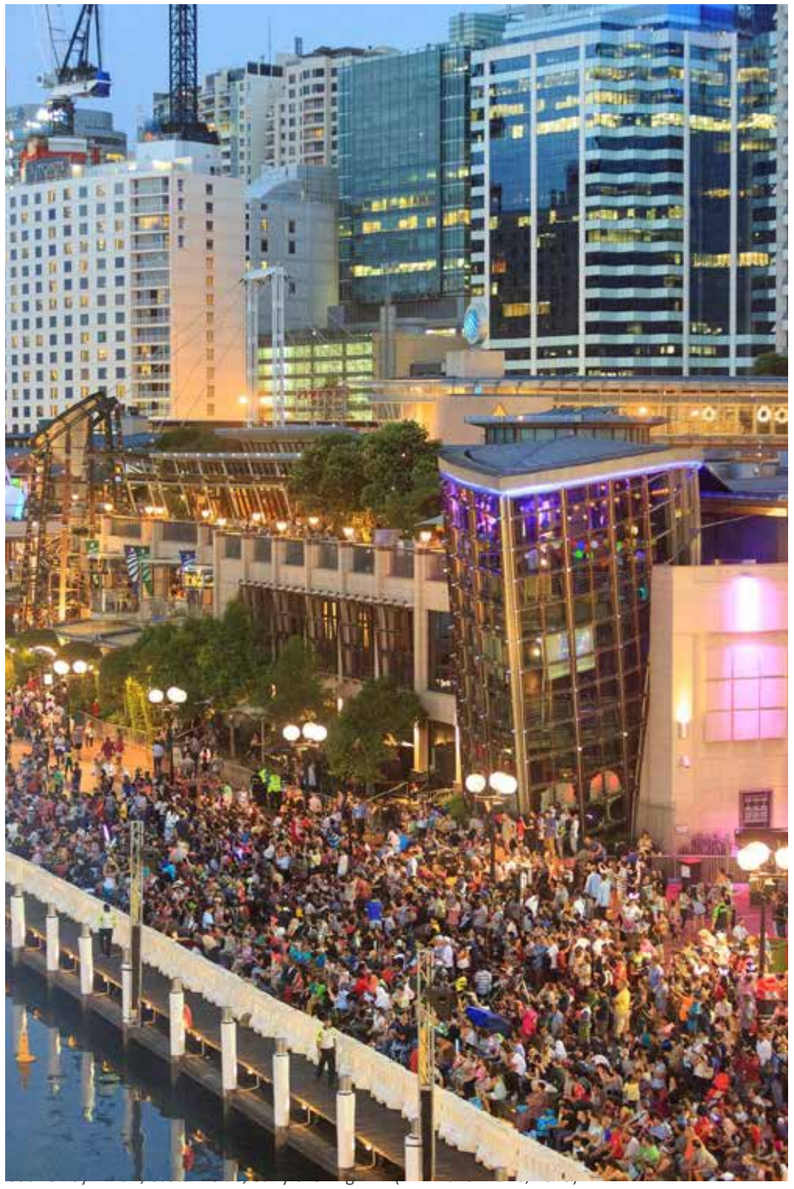
The proposed publicly accessible open space offers the opportunity to provide new public space in the Cockle Bay precinct. This not only provides better connectivity to the City but also provides an opportunity to enhance the movements to and from Cockle Bay Park and Darling Harbour as a place in itself for casual engagement and organized events.

The northern accessible open space will provide a public area of up to 4,000m^2, complete with urban furniture, vegetation and activated spaces for retail. In terms of patronage, this equates to a demand up to 8000 people based on Green Guide recommendations of 0.5m^2/person and the current drawings. The demand and capacity for events will vary significantly as it is influenced by specific event overlays which may include other requirements to maintain through movements, provide food stalls and other temporary retail which will occupy space on the publicly accessible open space.

For large gatherings such as Vivid and NYE, the publicly accessible open space also provides significant increase in capacity to move to / from the foreshore to the city via Market Street. This is important as the Pyrmont Bridge vertical capacity is limited and movement from the foreshore to the City is therefore constrained. The diagonal spine therefore provides a substantial increase in capacity and resilience for major events. In this respect, the northern portion of the open space will increase the capacity of the precinct, provide unique views from well above the wharf as well as provide operational flexibility and resilience during large crowd gatherings. However, it should be noted that in light of this, the wider transport events management plan will need to be reviewed to consider both the opportunity to increase demand as well as the impact of larger movements through this area.

Cycleway Extension

The proponent will investigate, with TfNSW's CBD Coordination Office, options to connect the existing pedestrian / cycleway infrastructure on the Western Distributor (south of Druitt Street Pedestrian Bridge) with the King and Kent Street cycleway options via the proposed development site prior to submission of the Stage 2 DA.



Amended Concept Plan Routes and Design Excellence:

Through the Design Excellence stage of the development the Proponent and their design teams will utilise the City of Sydney Walking Strategy and Action Plan as a constant reference such that the Cockle Bay Park development is welcoming of the public.

Through the Design Excellence Stage, the Proponent will be assessing the development of the design against the following criteria:

Convenience:

- The routes should be well connected and direct, drawing on preliminary studies and recommendations conducted by Arup and Space Syntax.
- Routes should enable a mix of functions – including a good mix of both direct and indirect routes to-from the city, within the development and from the city to foreshore.
- Routes should further consider the benefits of Druitt Street and connections between Druitt Street and Market Street, if possible.
- Clear and intuitive wayfinding.

Inviting and Interesting:

- Routes should allow for engagement with the new space which presents the opportunity for the development to be a destination
- Explore opportunities to improve fragmented and circuitous pedestrian routes

Safe and Comfortable:

- Reduced noise for route from existing conditions over the Western Distributor
- Improvement of the micro climate with the incorporation of landscaping and planting
- Opportunities for improved seating and shelter to enable people to sit and dwell
- Lighting to improve visibility and safety to create a strong walking culture
- Improved pavement surfaces

Cockle Bay Park Development

Pedestrian Assessment