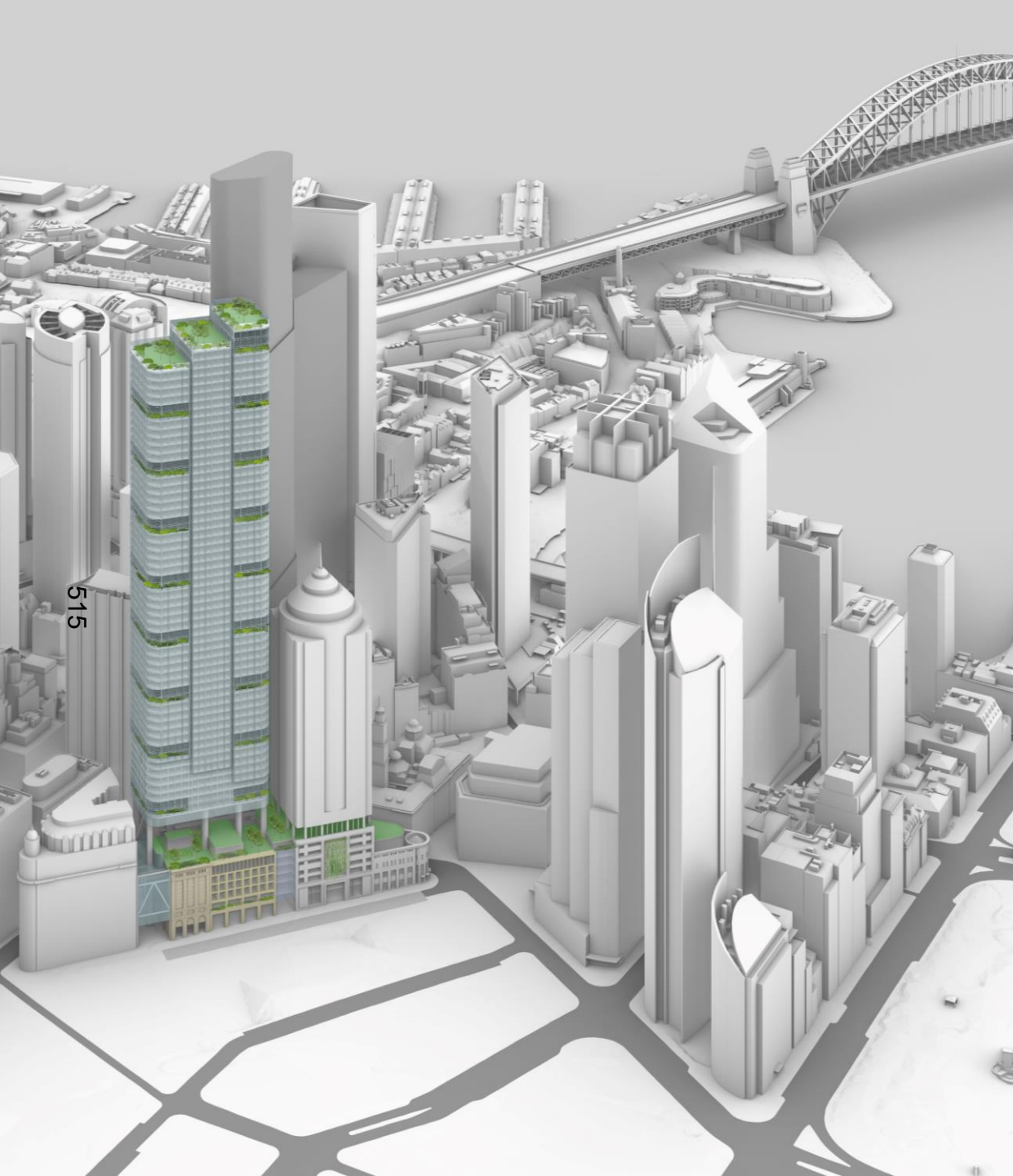


Attachment A7

Pedestrian Assessment Study



The O'Connell Precinct

LEP Amendment:

Pedestrian Planning Report

Eric Rivers

Tony Nichol

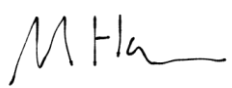


Matthew Hanania

29 February 2024

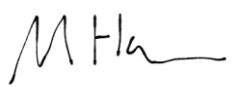


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Project Title The O’Connell Precinct
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Job number 276093-00
Document ref
File reference 07




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		Name	Eric Rivers Tony Nichol Matthew Hanania	Eric Rivers	Eric Rivers
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Development Proposal Introduction

Introduction and Background

This Pedestrian Planning report has been prepared by Arup and supports a Request for a Planning Proposal to amend the Sydney Local Environmental Plan 2012 (Sydney LEP) and amendments proposed to the Sydney Development Control Plan 2012 (Sydney DCP 2012) in relation to the O'Connell Precinct. This report is submitted to the City of Sydney Council (Council) on behalf of the Proponent.

The O'Connell Precinct represents a significant opportunity in Central Sydney to renew a number of aging assets and deliver a highly engaging and multi-dimensional destination. The holistic reimagining of the Precinct will unlock a key site in the commercial heart of Sydney's Central Business District (CBD), bringing a sense of activity, wonder and respite to an established, but evolving locality.

This report should be read in conjunction with all supporting material associated with the Request for a Planning Proposal and DCP amendment, including the Planning Justification Report prepared by Ethos Urban.

The Central Sydney Planning Strategy (CSPS) was first released in 2016 and sets out a 20-year land use vision, planning priorities and actions to achieve a place-led and people-led vision for growth in Central Sydney. The CSPS were endorsed by Council on 14 December 2020 and amendments to the Sydney LEP 2012 were gazetted in December 2021, supported by amendments to the Sydney DCP 2012.

The central aim of the CSPS is to support good growth while balancing the need to protect and enhance the public places that make the city unique. It provides the strategic direction to continue to position and strengthen Central Sydney as Australia's most productive and strategically important employment centre. Through 10 key moves, the CSPS balances opportunities for development to meet demands and achieve Council's job targets through to 2036, being 100,000 jobs unlocked through an additional 2.9 million square metres of employment generating floor space.

Importantly, the CSPS includes opportunities for increased height and density in key locations, balanced with environmental sustainability initiatives and sets criteria for excellence in urban design.

In this context, and over a number of years, the Proponent has brought together the individual sites within the O'Connell Precinct to amalgamate a collective Precinct with the intention to deliver a world class mixed-use commercial redevelopment.

The amendments sought to the Sydney LEP 2012 and Sydney DCP 2012 have been discussed with Council staff over a number of years, including presentations of the proposal to Council's Design Advisory Panel. These pre-lodgement discussions have informed the proposed amendments and scope of the assessment provided within this Report.

Site Location and Context

The O'Connell Precinct is located within the City of Sydney Local Government Area (LGA). The precinct is within the north-eastern portion of the Sydney CBD and is in immediate proximity to existing public transport infrastructure and a diverse mix of business, retail, cultural and entertainment destinations. The Precinct is also strategically located adjacent to the future Hunter Street Metro Station.

Specifically, the O'Connell Precinct has a total area of approximately 6,749m². It is irregular in shape and is bounded by Spring Street and Bent Street to the north, O'Connell Street to the south and south-east. The Precinct formally contains the following lots and street addresses:

- Lot 1 DP814858 or 1 O'Connell Street, Sydney
- Lot 2 DP172068, 8 Spring Street, Sydney
- Lot 1 DP176768 or 10-14 Spring Street, Sydney
- Lot 1 DP724946, 16 Spring Street, Sydney
- Lot 2 DP74923, 17 O'Connell Street, Sydney
- Lot 1 DP131917 or 19 O'Connell Street, Sydney
- Strata DP63932, 23 O'Connell Street, Sydney

Collectively, these lots and addresses are referred to as the 'Precinct' or 'Site' throughout this Report.

The Precinct includes a number of existing buildings, the majority of which are anticipated to be demolished to facilitate the renewal for the new commercial redevelopment. Of note, the heritage listed at 19 O'Connell Street building will be retained, as well as the existing 1 O'Connell Street commercial building, including the heritage listed facades of 1 O'Connell Street.

The boundaries of the O'Connell Precinct are illustrated in Figure 1.



Figure 1: O'Connell Precinct location

Overview of the Proposal

The reimagining of the O’Connell Precinct will comprise an integrated mixed-use commercial development that retains the existing 1 O’Connell Street commercial building, protects existing heritage, introduces a highly permeable and activated ground plane with enhanced public realm edges, provides opportunities for diverse cultural uses, and delivers premium grade commercial floor space in a new office tower.

The realisation of the O’Connell Precinct will be achieved through amendments to the Sydney LEP 2012 and Sydney DCP 2012.

The amendments sought to the Sydney LEP 2012 will encourage and facilitate the reimagining of the Precinct for a non-residential development by allowing for:

- an increased maximum Floor Space Ratio (FSR); and
- an increased maximum Building Height.

Supporting the amendments to the Sydney LEP 2012 is an amendment to the Sydney DCP 2012 which includes site-specific controls that address matters such as building envelope; pedestrian connections; parking; vehicular access and loading; design excellence; heritage; sustainability; and public art.

The proposed amendments will directly support Council’s endorsed CSPPS by unlocking additional employment generating floor space. They will also facilitate significant public benefits to be delivered on site, through new cultural and community uses, east-west through site link, enhanced activation and embellishment of the public domain.

For assessment purposes, the vision for the O’Connell Precinct has been articulated in a reference design prepared by Matt Pullinger Architect and Stewart Architecture (provided under separate cover). This reference design is provided as a supporting document with the Request for a Planning Proposal and DCP amendment, and serves as a baseline proof of concept.

Pedestrian Assessment Purpose and Context

Pedestrian Assessment Purpose

The purpose of this report is to address a general planning requirement to:

Analyse existing traffic flows on surrounding streets, estimate the likely pedestrian movements created by the development proposal, with an ultimate assessment of the impact of increased density on the surrounding pedestrian network.

To address this general requirement, pedestrian movement analysis has been undertaken as follows:

- 525
- Observations of existing pedestrian movement patterns surrounding the Site and the ability of the existing network to support those movements;
 - Analysis of AM peak hour commuter trips using Census ABS Journey to Work data, combined with an appreciation of transport locations (i.e. bus stops, stations, etc.) and the available pedestrian network;
 - Reflections of how planned changes to the pedestrian network and transport systems might impact pedestrian movement patterns around and through the site;
 - A catchment analysis to understand how the Through Site Link might support walking trips across the network; and
 - A NSW Walking Space Guide (WSG) footpath capacity assessment for existing and future scenarios.

The structure of this report generally mirrors these issues.

It should be noted that the first part of the planning requirement is to “analyse existing traffic flows” which implies an understanding of the current background pedestrian flows on the footpath network surrounding the Site.

Unfortunately, the COVID-19 pandemic has limited the ability to collect existing pedestrian counts. Likewise, pandemic-influenced working habits questions the viability and applicability of current pedestrian counts in that it is unclear how pedestrian counts undertaken now could be scaled to a relative pre-pandemic norm.

Efforts to source relevant publicly available pedestrian counts surfaced one possible reference which is the Sydney Metro West technical papers, however, we have not adopted counts from the technical papers into this analysis. Counts from adjacent Environmental Impact Statements (e.g. Hunter Street Station) and Development Applications (e.g. 55 Pitt Street, 15-25 Hunter Street and 105-107 Pitt Street) have failed to offer appropriate and usable data for the O’Connell Precinct. Similarly, City of Sydney (CoS) Walking count survey data ([Walking counts - City of Sydney \(nsw.gov.au\)](https://www.cityofsydney.nsw.gov.au/walking-counts)) do not provide sufficient granularity (i.e. footpath use and directionality) for use in a footpath assessment. The CoS is developing a central business district scale footpath pedestrian model which can be used to estimate pedestrian flows, but that model is not yet available for public use at this stage.

Given the above, the assessment of the pedestrian network and specifically the NSW Walking Space Guide, focusses on footpath availability and capacity rather than an understanding of pedestrian demand.

Public Domain Context

O'Connell Precinct Through-Site Link

As a supplement to the footpath network surrounding the site, a through-site (TSL) link is proposed to link O'Connell Street and Spring Street. This future TSL will form a direct and convenient connection between the future Hunter Street Metro Station east exit and the north and northwest areas of the Sydney CBD via Pitt Street.

The impact of the TSL is described in the Catchment Analysis portion of this report.

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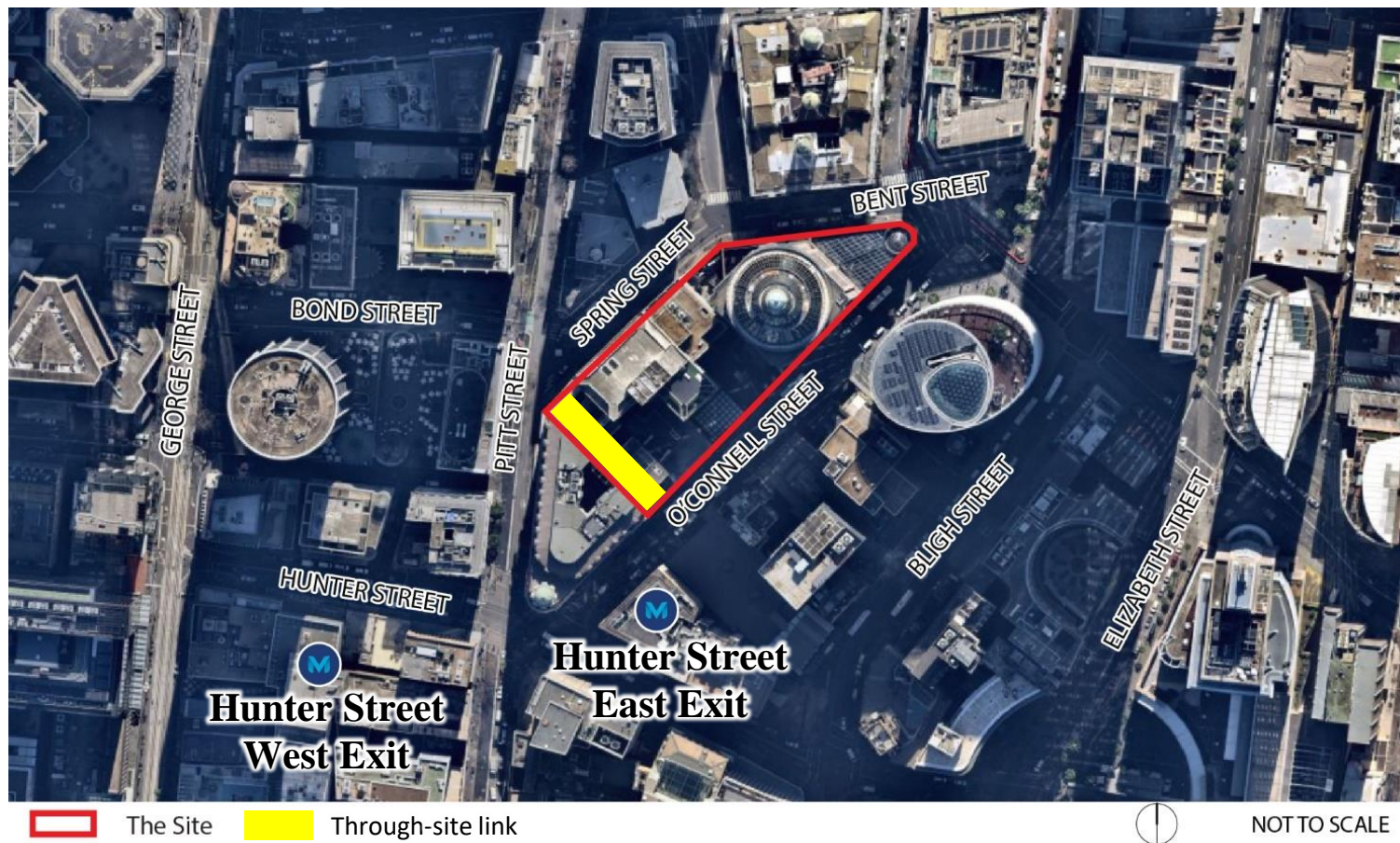


Figure 2: Through-site link location

Precedent Pedestrian Counts

Sydney Metro West Technical Papers

A typical pedestrian assessment should consider the level of background pedestrian flows on the network surrounding a development site, and the new pedestrian trips generated by the site, with impacts assessed using the NSW WSG. As noted previously, source documents were reviewed for applicable information to use in this report.

Sydney Metro has submitted an Environmental Impact Statement to the Department of Planning and Environment for rail infrastructure, stations, precincts and operations for the Sydney Metro West project between Westmead and the Sydney CBD. This submission is currently under assessment.

Technical Paper 1 – Operational Transport forms one of several technical documents for the purpose of addressing the Secretary’s environment assessment requirements. Technical Paper 1 utilised counts taken in 2021 and applied an assessment methodology using VisWalk simulation software to model a future year scenario.

Pedestrian counts cited in Technical Paper 1 were undertaken in March 2021 around Hunter Street Station as seen in Figures 3 and 4. However, as stated previously, the viability and applicability of pedestrian count undertaken during pandemic-affected time periods remains a questionable source of information. It also remains unclear how Sydney Metro’s existing pedestrian counts contribute to its future year 2036 modelling (Figures 5 and 6) .

Future year pedestrian modelling undertaken using VisWalk and footpath density assessment have been carried out by Sydney Metro using the Fruin Outdoor Walkway density criteria. Unlike the standards developed by John J. Fruin who studied efficiency of movement within transport facilities in the late 1960s, the WSG reflects pedestrians’ perception of comfort on footpaths in NSW. The WSG also considers street-specific characteristics such as kerbside conditions, obstructions, static activity and activated building edges.

As such, this O’Connell Precinct study has not leveraged Sydney Metro’s 2021 pedestrian counts and adopted the locally-calibrated Transport for NSW Walking Space Guide (WSG) as the COS prescribed guide.

Pedestrian Counts and Future Year Modelling

Sydney Metro West Technical Papers

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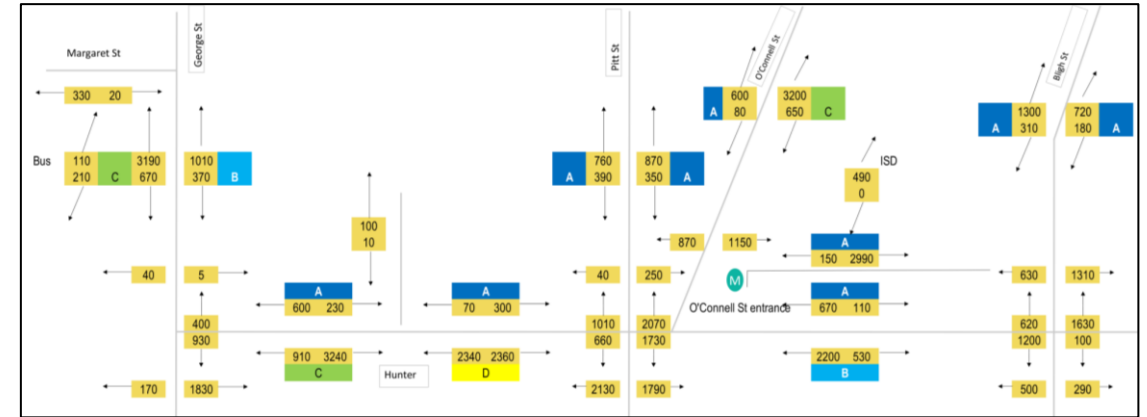
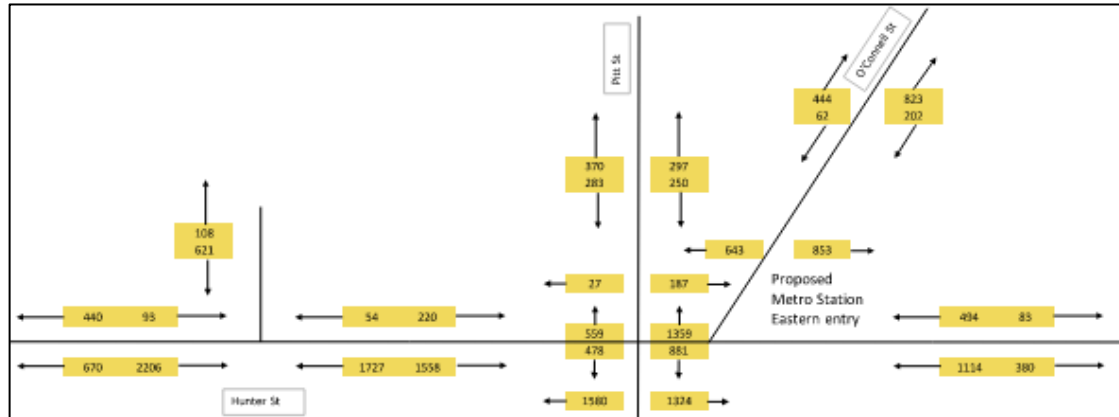


Figure 3: Technical Paper 1 Figure 64, 2021 AM peak hour pedestrian counts (2022)

Figure 5: Technical Paper 1 Figure 115, 2036 AM peak hour pedestrian modelling (2022)

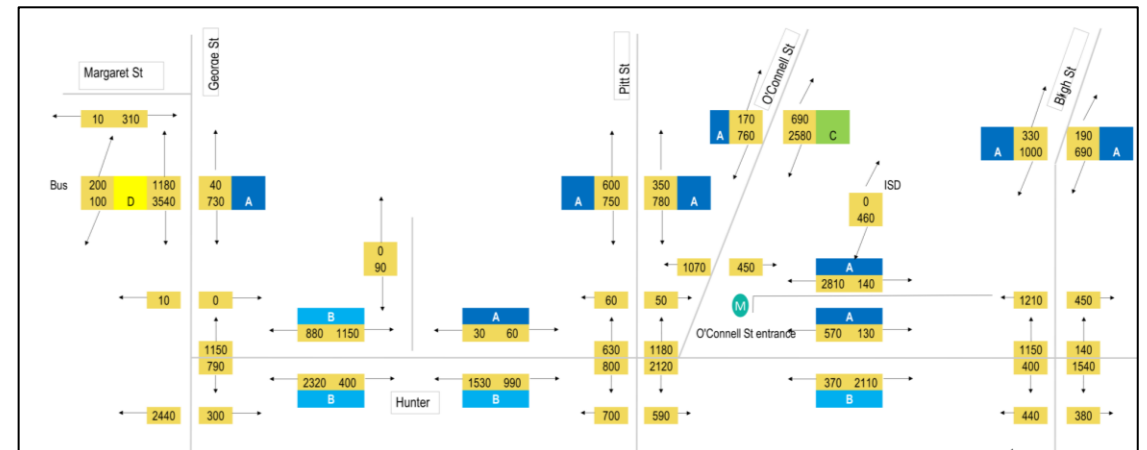
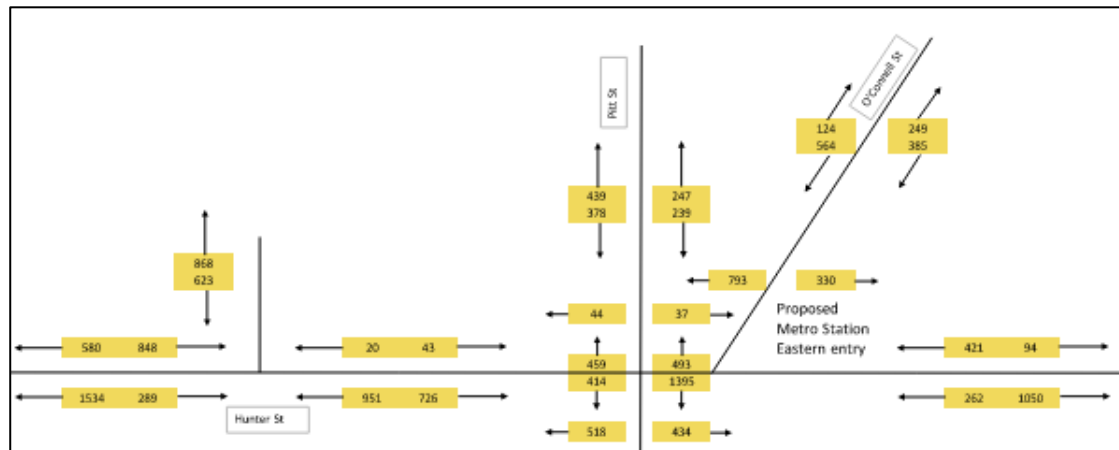


Figure 4: Technical Paper 1 Figure 65, 2021 PM peak hour pedestrian counts (2022)

Figure 6: Technical Paper 1 Figure 116, 2036 PM peak hour pedestrian modelling (2022)

Public Domain Context

City North Public Domain Plan

The City of Sydney’s City North Public Domain Plan is an update to the original 2015 plan which outlined key public domain, improvements over the short, medium and long term.

The City North Public Domain Plan study area is generally bound by George Street, Alfred Street, Macquarie Street and King Street. Since the 2015 plan, significant State government infrastructure and transport projects have been planned for the precinct, including two new Sydney Metro Stations. It has been identified that these changes will significantly increase pedestrian demands on the public domain bounded by George Street, Bridge Street, Macquarie Street and Martin Place (known as the Hunter Street Precinct).

The Hunter Street Precinct includes place-specific street and space upgrade options as illustrated in Figure 7.

The City North Public Domain Plan was adopted by the City of Sydney in March 2023.

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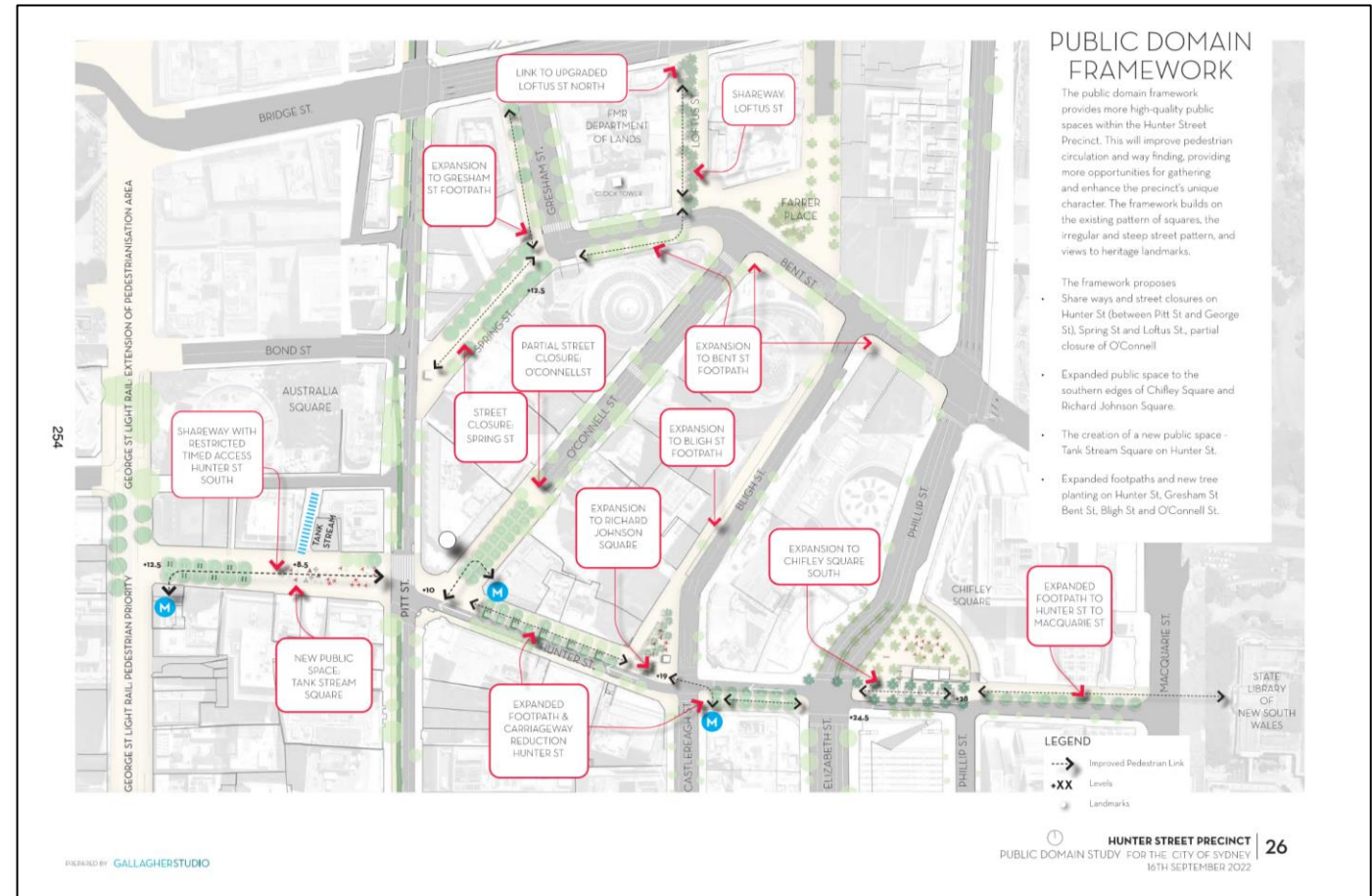


Figure 7: Public Domain Framework (City North Public Domain Plan, 2022)

Existing Movement Patterns

Existing Movement Patterns

Adjacent Informal Street Crossings

This section represents an understanding of how people currently move around the Site and related considerations for the building and the public realm based on two site visits in November 2019 (pre-pandemic) and August 2022.

Currently there is a lack of formal pedestrian crossings over Spring Street and Bent Street aligned with pedestrians' natural desire lines. Figure 9 highlights the issue from the perspective of vehicles travelling along Bent Street (westbound) where there are no official pedestrian crossings. This condition is apparent in Figure 10 with pedestrians walking past the Site along O'Connell street crossing towards Circular Quay.

Despite the provision of a zebra crossing on Spring Street and a signalised crossing on Bent Street just west of Bligh Street, large numbers of people were observed making informal crossings given the location of the 10 Spring Street through site link (Figure 11).

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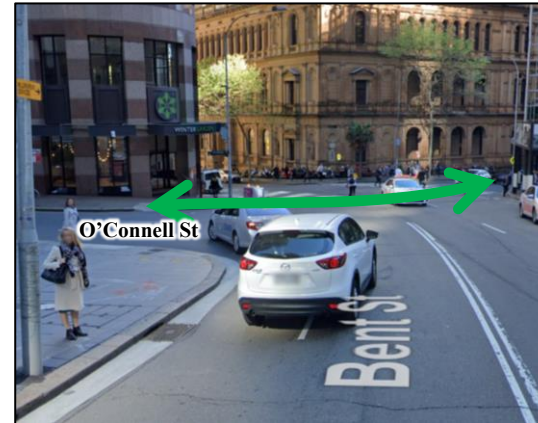


Figure 9: Vehicle travelling westbound along Bent Street

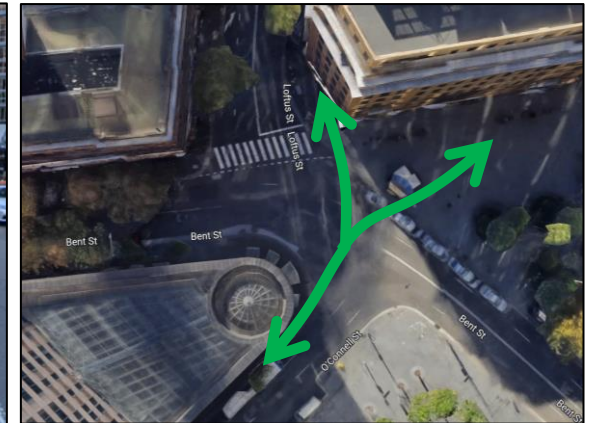


Figure 10: Lack of formal north-south pedestrian crossings

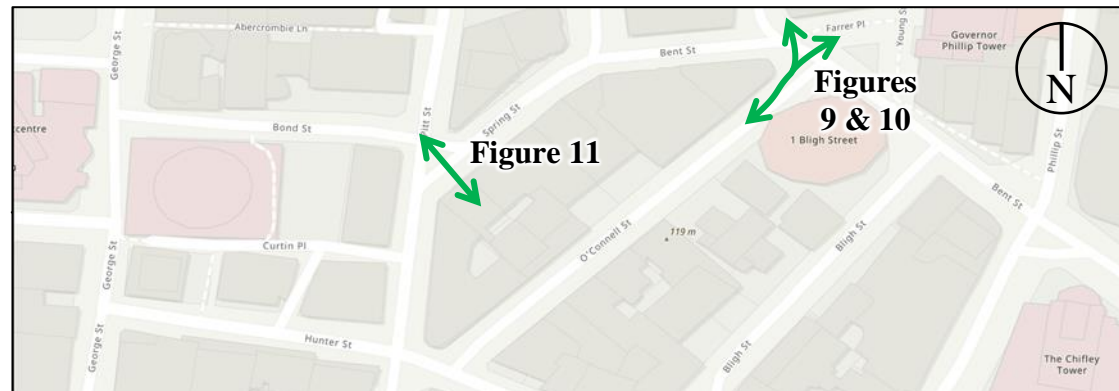


Figure 8: Street network context



Figure 11: Informal pedestrian crossings of Spring Street

Existing Movement Patterns

Adjacent Informal Street Crossings

Site observations from November 2019, prior to the COVID-19 pandemic revealed pedestrians using the building lobbies and through-site links along O'Connell Street as a means to overcome the steep grade change from Spring Street to Pitt Street to Bligh Street. The people crossing O'Connell in Figure 13 are travelling between 6 O'Connell and the southern entrance of the 1 O'Connell Wintergarden. This movement is expected to be prevalent in the future given how buildings connect with the public realm.

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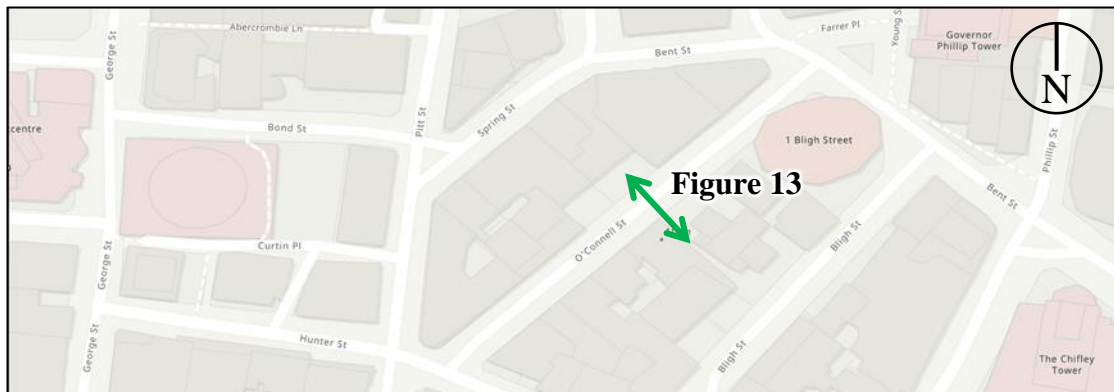


Figure 12: Street network context



Figure 13: O'Connell Street midblock informal crossing

Existing Movement Patterns

Key Footpath Movements

During the AM peak commuting period, heavy congestion was observed along the corner of Pitt, Hunter and O'Connell Streets opposite the Radisson Blu Plaza Hotel. There was congestion at this corner due to numerous different and conflicting pedestrian behaviours and movements:

- Waiting at the signalised crossings to travel west and south (indicated by yellow arrows)
- Moving along the footpaths in all directions, but primarily from Wynyard station travelling east and northeast (indicated by green arrows)
- Using the Radisson steps as a shortcut to continue their journey on Pitt Street or O'Connell Street

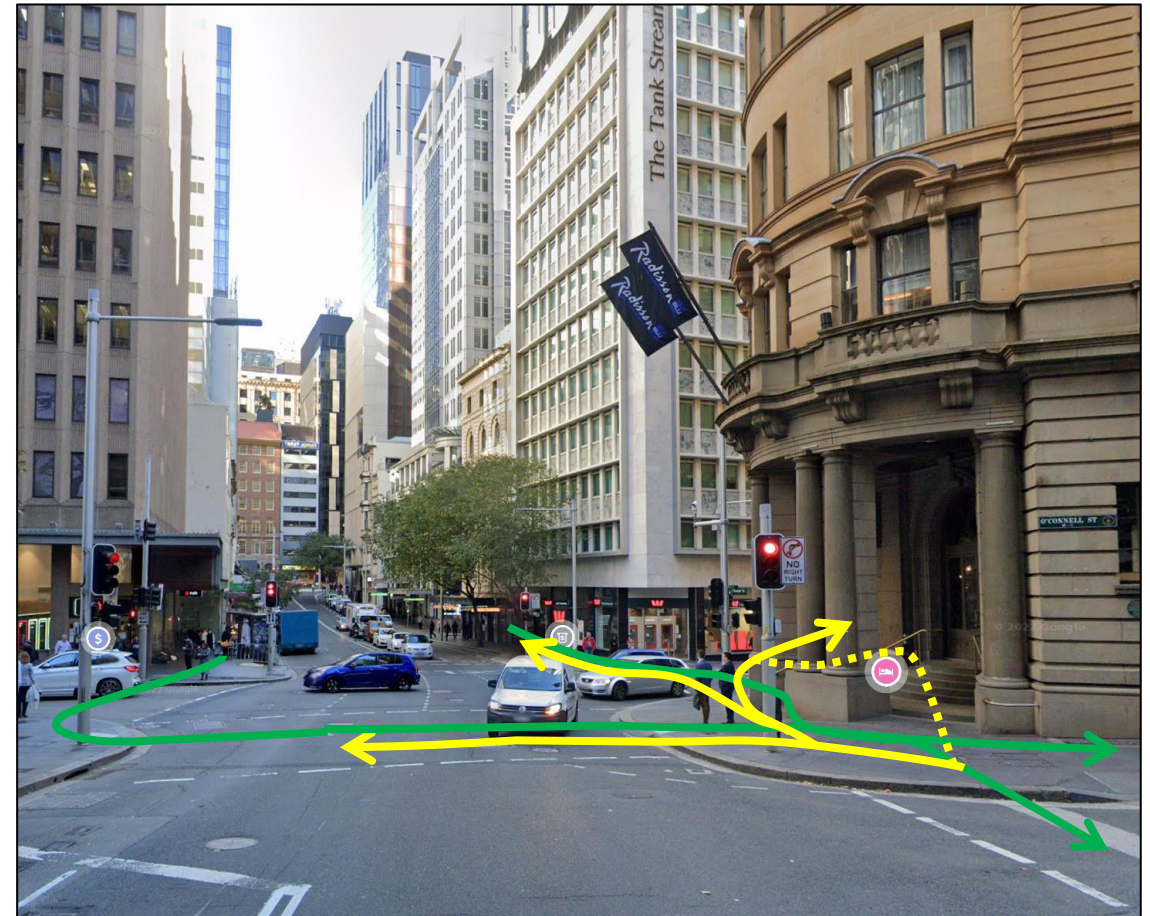


Figure 15: Confluence of movements in front of the Radisson

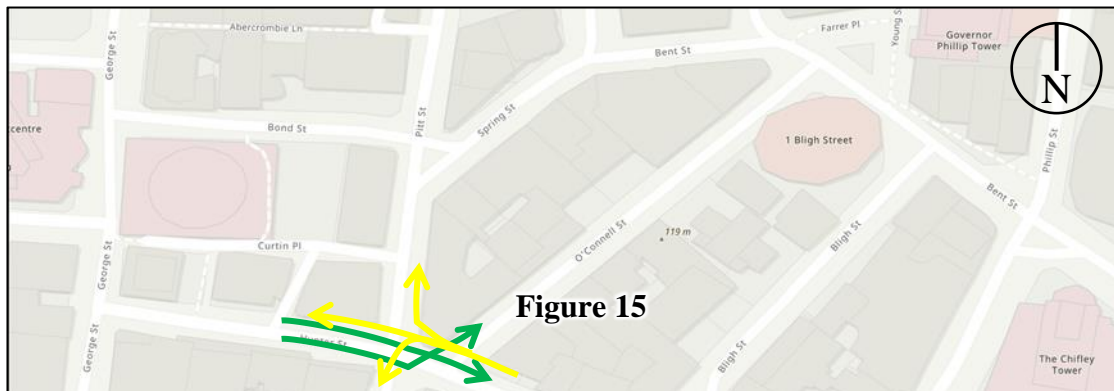


Figure 14: Street network context

Existing Movement Patterns

Key Footpath Movements



Figure 16: Pedestrians using Radisson steps as shortcut

Figure 17: Pedestrians eastbound on Hunter Street in front of the Radisson

City North Public Domain Plan

Street and Space Upgrades

Proposed street and space upgrades as highlighted in Figure 18 in the City North Public Domain Plan may address key issues relating to congestion, safety and amenity for pedestrians as observed in previously described site visits.

North-south desire lines across Bent Street (Figure 9 & 10) and Spring Street (Figure 11) have been addressed with proposed closure of Spring Street and provision of a zebra crossing from Bent Street to the proposed Loftus Street shareway.

Expanded footpaths and reduced vehicle carriageways along Hunter Street between O’Connell Street and Bligh Street provides additional width on the corner of Pitt Street and Hunter Street to help resolve the congestion issues documented in Figures 15, 16 and 17.

Pedestrians seen informally crossing O’Connell Street (Figure 13) are provided with a zebra crossing connecting both sides of O’Connell Street along the natural pedestrian desire line.

The above proposed improvements will improve the congestion and safety issues observed in the existing conditions.

The Plan also shows O’Connell Street closed at the south end of the site, adjacent to the east exit of the proposed Hunter Street Station. This change to the pedestrian network is further discussed in this report due with respect to the TSL and how O’Connell Precinct workers are expected to arrive to the building.

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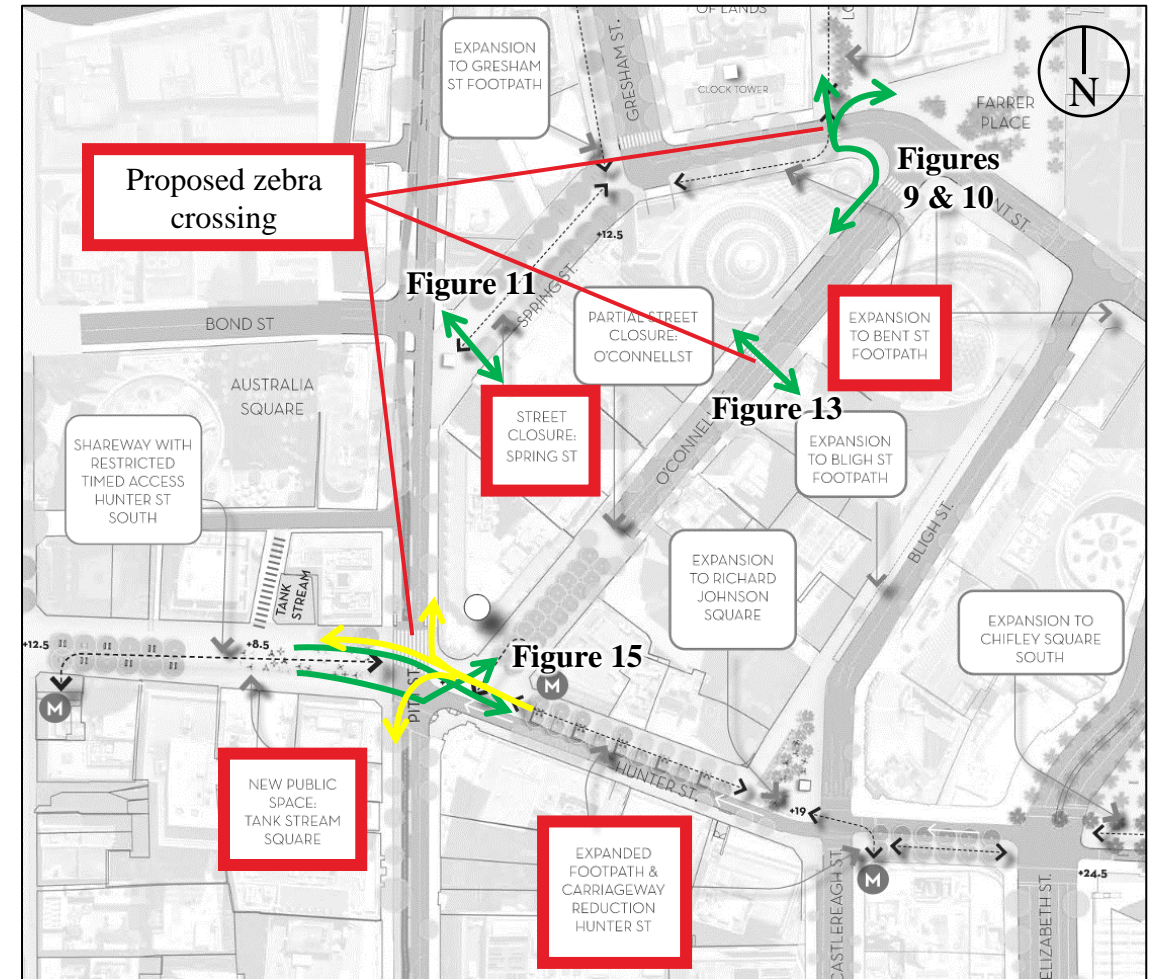


Figure 18: Public Domain Interventions (City North Public Domain Plan, 2022)

Commuter Movements

Approach

This section considers the ‘last mile’ journey of O’Connell Precinct commuters with the aim of understanding how those working at the Site would approach the building from their chosen mode of transport. The purpose of this analysis is to anticipate and estimate the foot traffic on the surrounding streets, footpaths and crossings to the Site.

The analysis follows the following steps:

1. Estimate commuter mode split based on ABS census Journey to Work (JtW) data to the Site destination zone (DZN) 113371045.
2. Estimate the approach direction considering:
 - Number of services and availability of surrounding public transport connections to the Site;
 - Availability and location of offsite car parking; and
 - Opportunities for walk only trips.
3. Estimate the overall approach routes to the Site by combining the mode share proportions with approach directions.

The following assumptions have been made for the purpose of this assessment:

- Building population is based on a GFA of approximately 111,857m² resulting in a population of 12,584 people.
- Cyclist population (115) was omitted from calculations because they cycle directly into the building and don’t approach the building on foot during commuting periods.
- Any population number reflected in this study are associated with new GFA only.
- Due to the 2016 ABS JtW data being collected prior to the opening of the CBD and South East Light Rail (CSELR) in 2019, light rail mode share data was uplifted to reflect an increase in light rail mode share usage. This uplift is detailed in the Light Rail Users section.
- It was assumed that 60% of the building population enters during the AM peak hour.
- 2016 ABS JtW data was used as a baseline. A more recent survey was conducted in 2021 but will be heavily impacted due to the pandemic so for the moment, the 2016 data best represents how people travelled when the City was operating at or near capacity.

The access routes have been considered with and without future Sydney Metro stations.

Journey to Work Mode Share

Likely arrival routes to the Site have been assessed to help understand the direction commuters approach the Site in the AM peak. Transport nodes close to the Site were identified and combined with the mode share data to estimate the commuters who would use each mode. 2016 Journey to Work (JtW) data was chosen as a pre-COVID-19 pandemic source of data. 2021 JtW data is pandemic influenced shows a high work from home rate, resulting in a potential misrepresentation of CBD usage.

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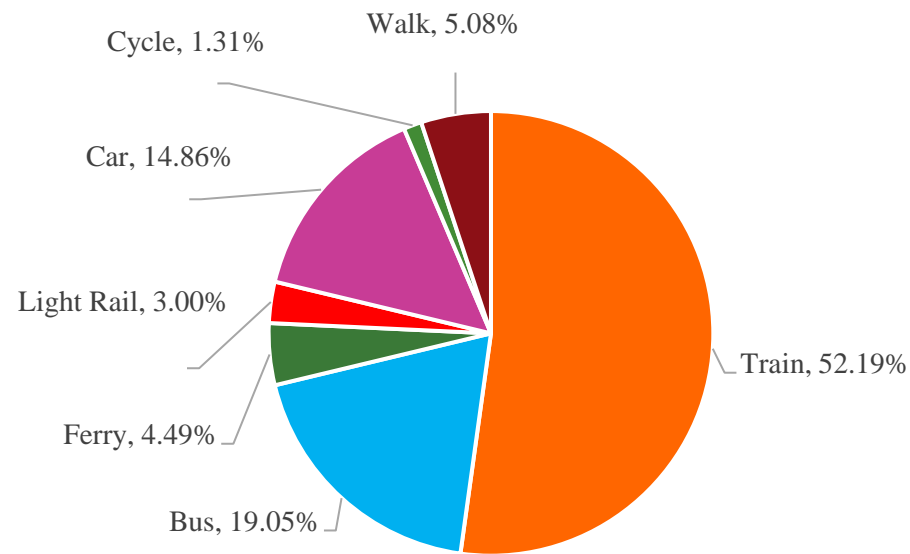


Figure 19: Existing JtW % mode share (ABS 2016)

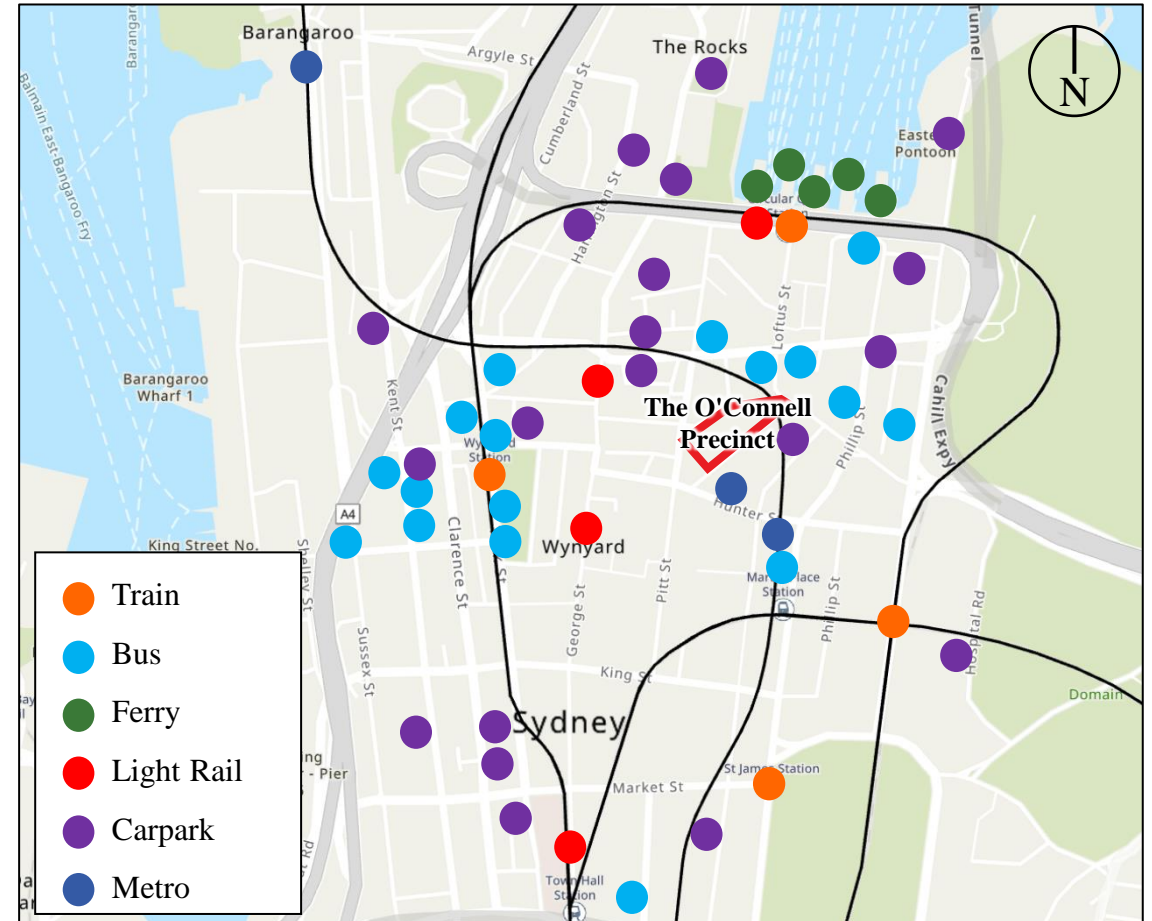


Figure 20: Location of key public transport nodes

Sydney Trains

Existing mode share data indicates that Sydney Train users make up 52.19% of trips. The Site is served by Wynyard and Martin Place Sydney Trains stations which are both located an approximate 5-minute walk away.

Demand has been apportioned to stations using TfNSW AM Peak Train Loads by Line, September 2019. As a result, it is expected that most Sydney Train users (77%) alight at Wynyard Station to access the Site via Hunter Street. The remainder (23%) of Sydney Train users which are made up of the T4 Eastern Suburbs & Illawarra Line, access the Site via Martin Place Station via Elizabeth Street and Hunter Street.

Regardless of station origin, all Sydney Train users are expected approach the Site via the south end of O’Connell Street.

This analysis does not consider the time taken from platform to exit or the amenity of the station / route.

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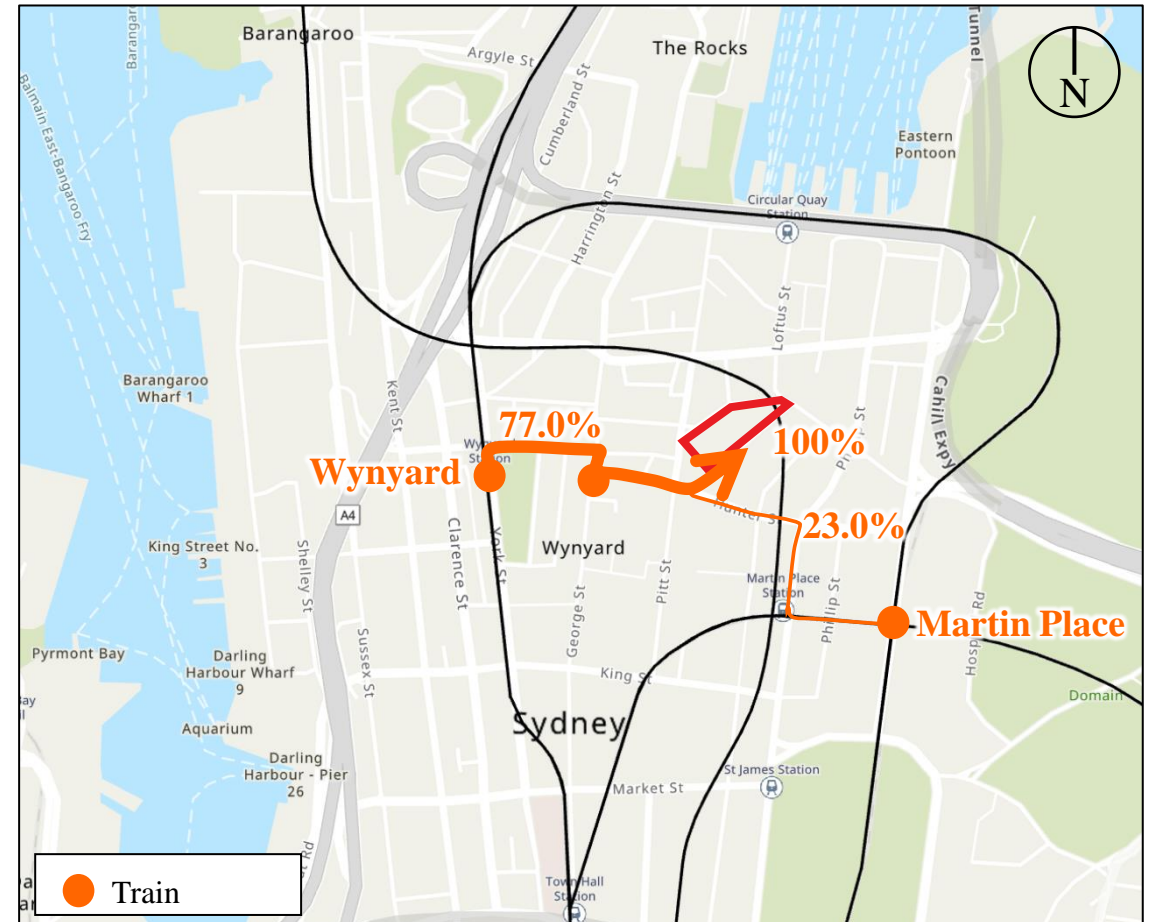


Figure 21: Expected walking route for train users

Buses

Bus users make up 19.05% of the existing mode share. The Site is served by many bus stops with the nearest bus stops located on Bridge Street, Phillip Street and Carrington Street.

Bus users have been apportioned to the network based on the number of routes operating at each bus stop. A greater weighting has been attributed to express services as a means of capturing higher intensity usage. An example of an express service includes the B-Line, which connects the Northern Beaches to the CBD. Bus stops which would have similar walking routes have been grouped together for simplicity.

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NightRide bus services have been omitted from this analysis.

Bus users enter the Site predominantly from the south end of O’Connell Street (69.47%) with the remainder approaching north through the TSL (29.01%) and via O’Connell Street north (1.53%).

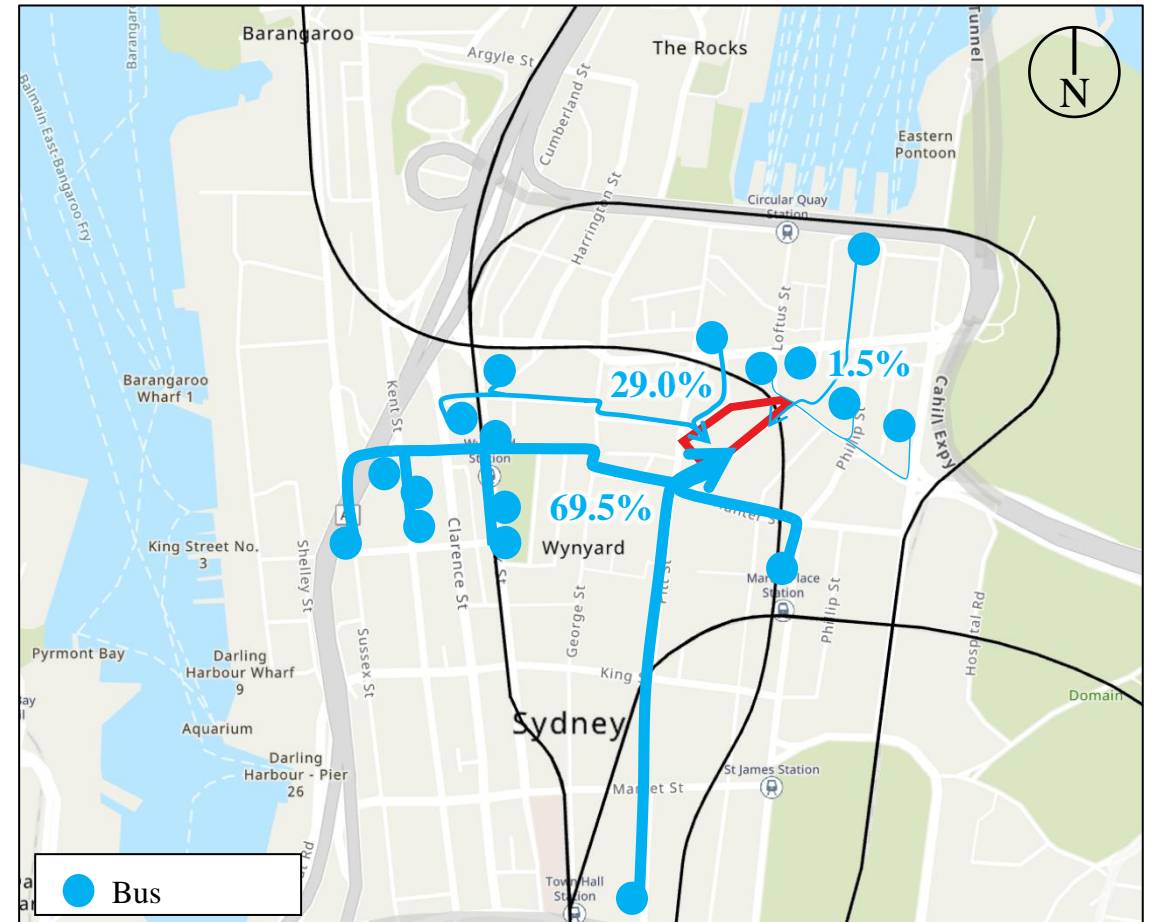


Figure 22: Expected walking route for bus users

Private Vehicles

Private vehicle users make up 14.86% of the existing mode share accessing the Site. Whilst it is assumed there will be some spaces available on Site it is unlikely that there will be enough to cater for all the people who want to drive. This means that private vehicle users will park off-site and access the building on foot.

Several options exist for secure off-street parking near the Site. These options are within a reasonable walking distance from the Site. Parking locations which would have similar walking routes have been grouped together for simplicity. It is assumed that private vehicle users would not pay more than \$40 for all day weekday parking (8:30 AM – 5:30 PM).

This analysis found the majority (39.39%) of private vehicle users are likely to approach the Site via O’Connell Street south.

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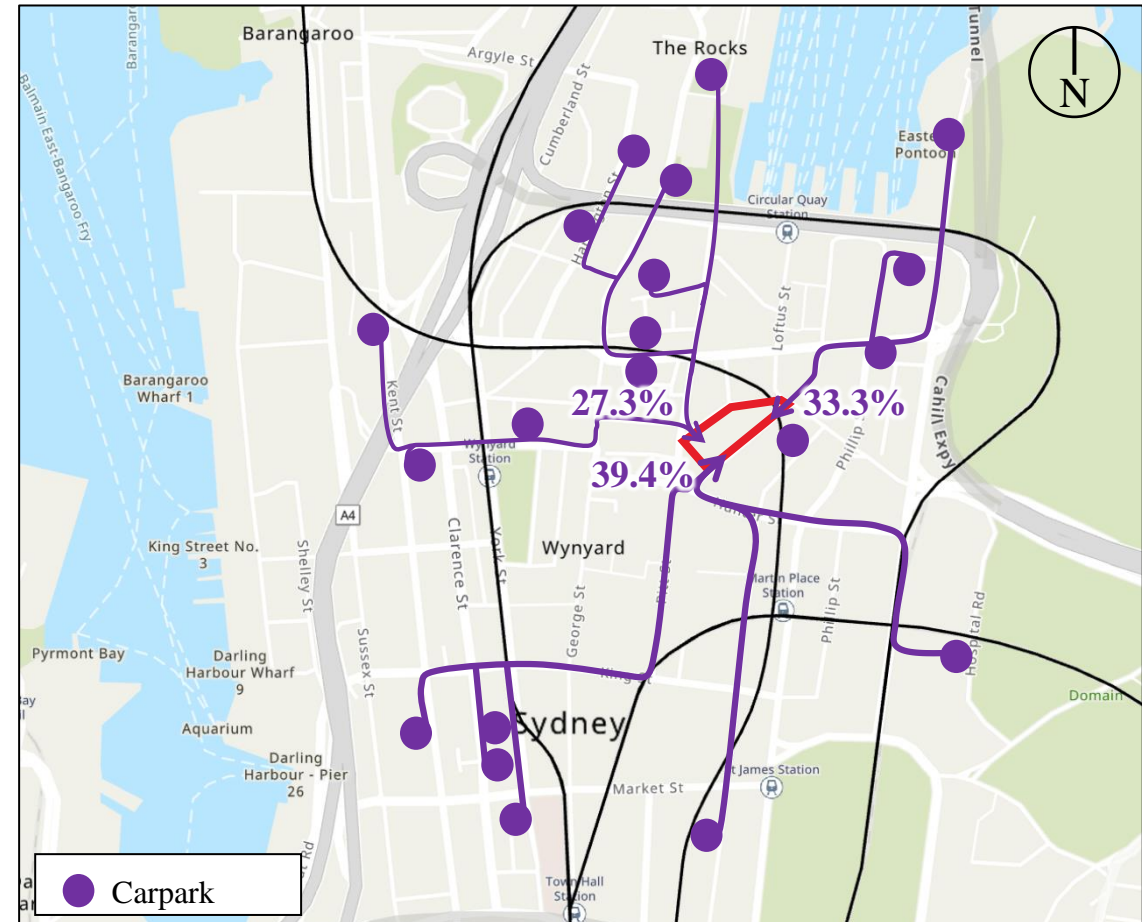


Figure 23: Expected walking route for private vehicle users

Ferries

2016 ABS data indicates that 4.49% of end of mile trips to the O’Connell Precinct destination zone utilise ferries. The Site is served by 6 wharfs at Circular Quay with Wharf 4 accounting for 39% of peak AM weekday services.

An analysis was undertaken to determine the most likely used path from Circular Quay to the Site; key metrics included distance, travel time, average slope, number of zebra crossings, signalised and unsignalised crossings. It was found that the Loftus Street route was the most convenient for Wharf 2-3 users.

The ferry users were then apportioned to the network based on the number of services operating within a weekday AM peak hour combined with the most likely used path to Site.

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Table 1: Walking routes from Circular Quay

Route	Distance (m)	Travel Time (min)	Average Slope	No. Zebra Crossings	No. Signalised Crossings	No. Unsignalised Crossings
Pitt St	626	7.84	1.80%	2	1	1
Loftus St	394	4.94	3.30%	0	1	2
Loftus St via Macquarie Place Park & Pitt St	568	7.12	2.30%	2	1	1

This analysis concluded that 71.4% of ferry users approach the Site via the through-site link and the remaining 28.6% approach the Site from O’Connell Street north.

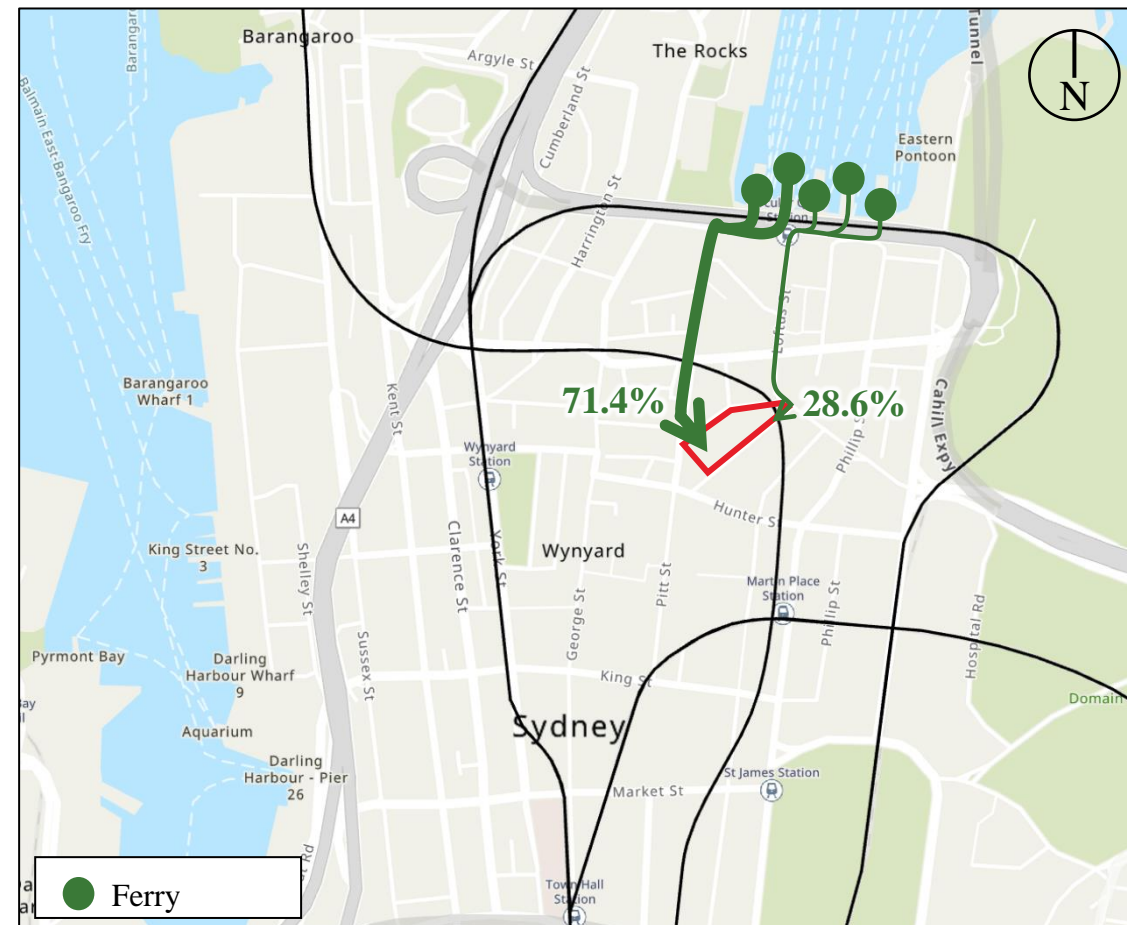


Figure 24: Expected walking route for ferry users

Light Rail

Original 2016 ABS data indicated that Light Rail accounted for 0.28% of the last mile mode share. It should be noted that data was collected prior to the launch of the CBD and South East Light Rail (CSELR) which now makes up the L2 and L3 lines. The L2 and L3 lines provide services between the Sydney CBD and Sydney's eastern suburbs such as Kingsford and Moore Park, including the University of New South Wales Kensington campus.

25 bus routes were cancelled¹ following the opening of the CSELR. Adjustments were then made to the mode share to account for the cancellation of bus services and the opening of the CSELR. It was assumed that 3% of the existing mode share chose to use Light Rail services, taken from the bus mode share.

Although Bridge Street and Wynyard Light Rail stops offer the same walking to distance the Site, it was assumed all Light Rail users alighted at the Wynyard stop.

This analysis concluded that all Light Rail users approached the Site via O'Connell Street south.

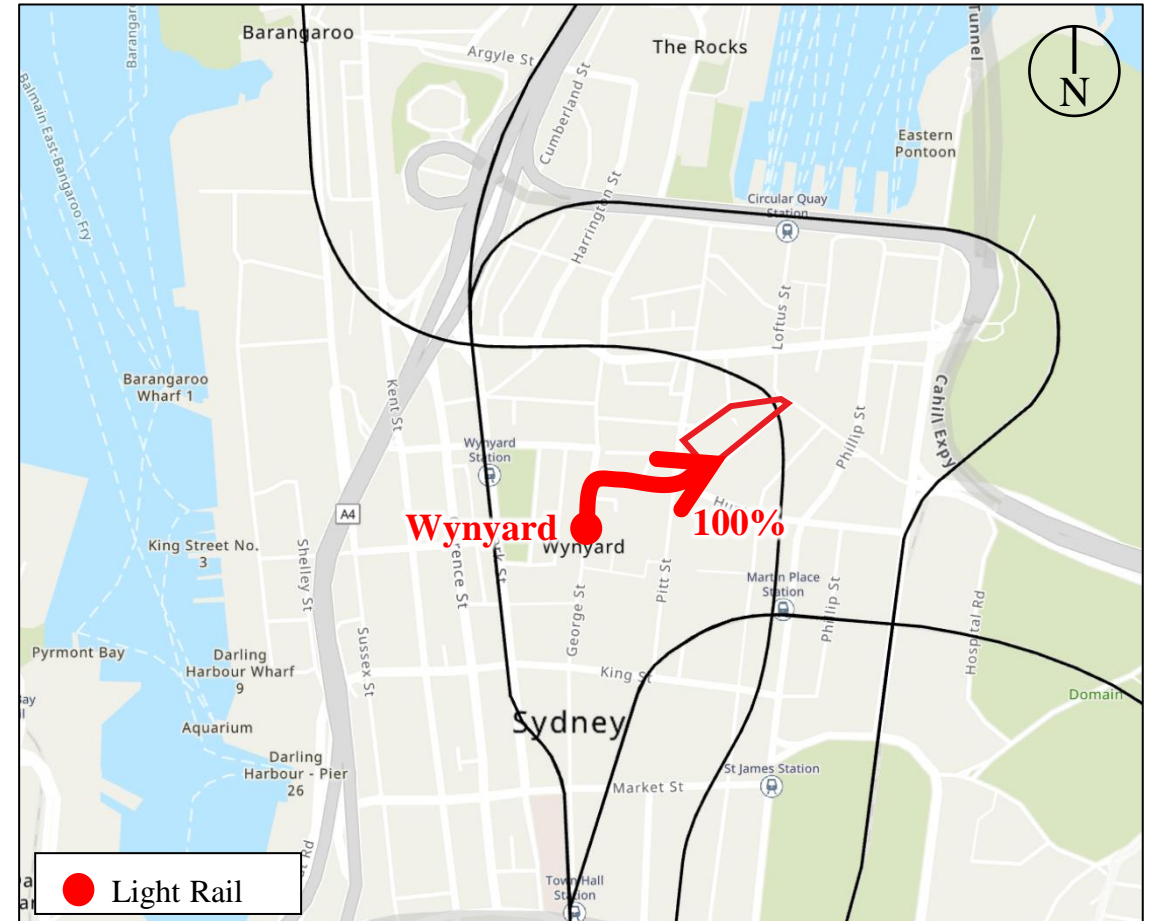


Figure 25: Expected walking route for Light Rail users

¹ <https://www.smh.com.au/national/nsw/dozens-of-sydney-bus-services-cut-in-eastern-suburbs-transport-overhaul-20210506-p57pd7.html>

Walkers

Walking made up 5.08% of last mile journeys to work according to adjusted ABS data. A methodology was developed to analysis last mile walking trips to the O'Connell Precinct Destination Zone (DZN: 113371045).

It was found the following Statistical Area Level 4s (SA4s) accounted for walking trips to The O'Connell Precinct DZN:

- Sydney - City and Inner South;
- Sydney - Eastern Suburbs;
- Sydney - Inner West; and
- Sydney - North Sydney and Hornsby.

The O'Connell Precinct is located within the Sydney - City and Inner South SA4 and was subsequently split into SA1s, offering a higher level of detail. Statistical Areas were then assigned an approach to the Site.

Analysis concluded 80% of walking trips approached the Site from O'Connell Street south, 16% from the TSL and 4% from O'Connell Street north.

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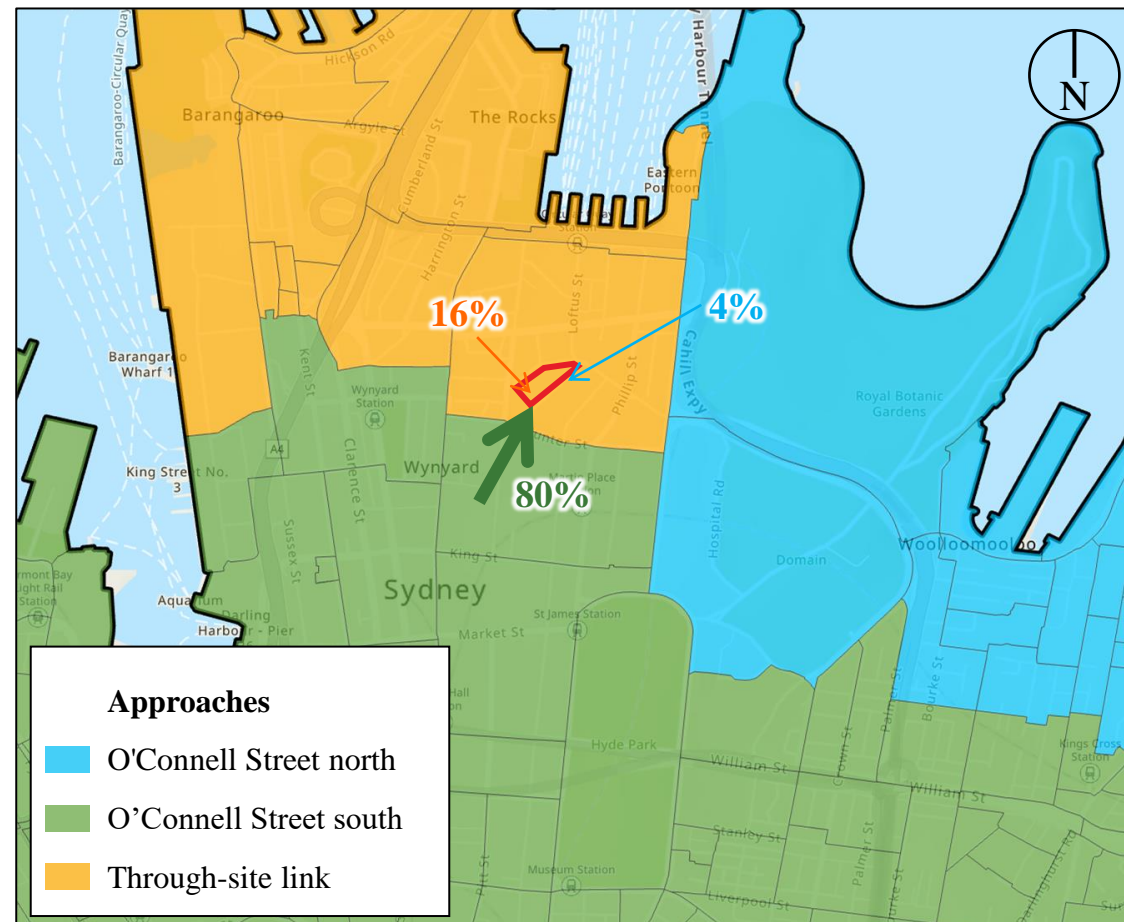


Figure 26: Expected walking route for walkers

Estimated Approach Summary (no Metro)

The last mile pedestrian access route of workers on each transport mode from 2016 ABS data was combined to understand the overall distribution of the commuter population across the local footpath network.

Whilst most commuters accessing the building use train, metro and bus mode shares, there is a significant proportion (9.88%) travelling via private vehicle and parking off-site.

79% (around 5,917 people) of the commuter population is estimated to approach the Site from O'Connell Street south, 13% via the TSL (around 949 people) and 8% (around 586 people) via O'Connell Street north.

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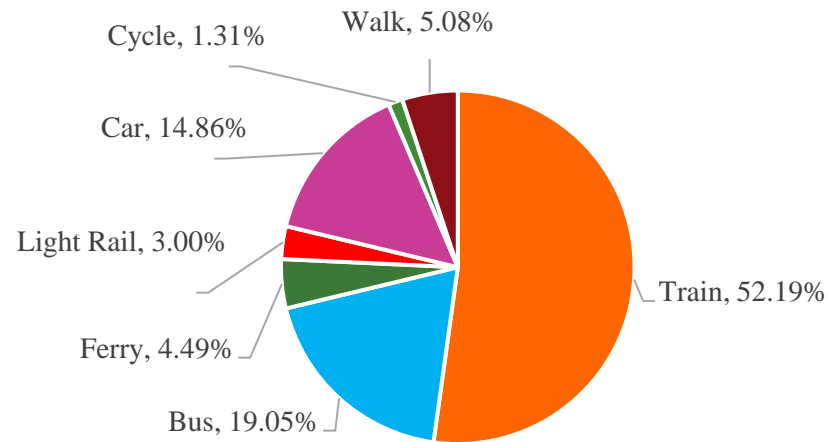


Figure 27: Existing JTW % mode share (ABS 2016)

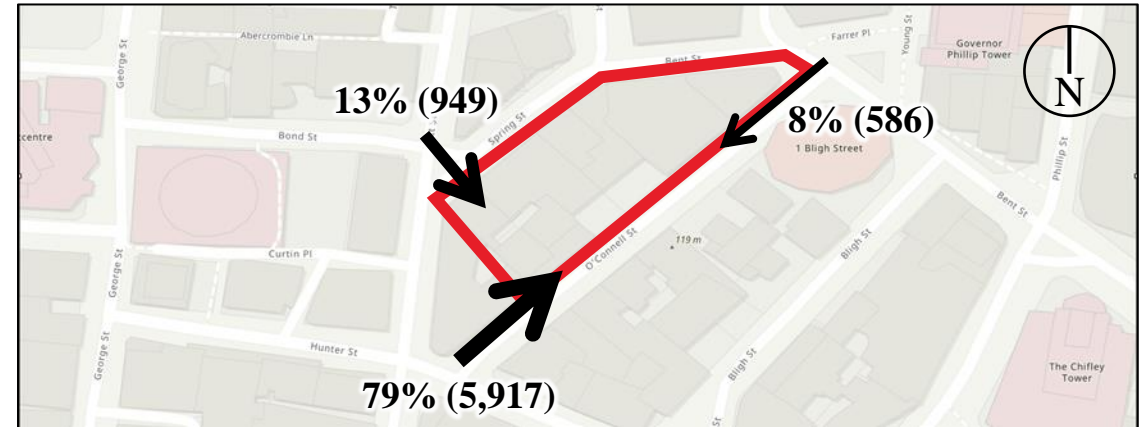


Figure 28: Overall entry proportions, without Metro

Sydney Metro Influence

Hunter Street Station is currently being planned as part of the Sydney Metro West project due for completion in 2030. This new underground railway will connect Greater Parramatta with the Sydney CBD with a travel time of around 20 minutes. Hunter Street Station will have West and East entrances with access on Bligh, O'Connell and George Streets.

Hunter Street Station is the only stop on the Sydney Metro West project in the Sydney CBD. This new station is expected to bring a substantial uplift in rail capacity to and from Western Sydney and is highly likely to reinforce rail (train and metro) mode share.

Metro Martin Place Station, part of the Sydney Metro City and Southwest (CSW) project is expected to be complete in 2024. CSW is an extension of the Metro Northwest line, providing a connection between Tallawong through to Bankstown.

It is expected that 100% of Metro users will approach the Site via the south end of O'Connell Street.

This analysis does not consider the time taken from platform to exit or the amenity of the station / route.

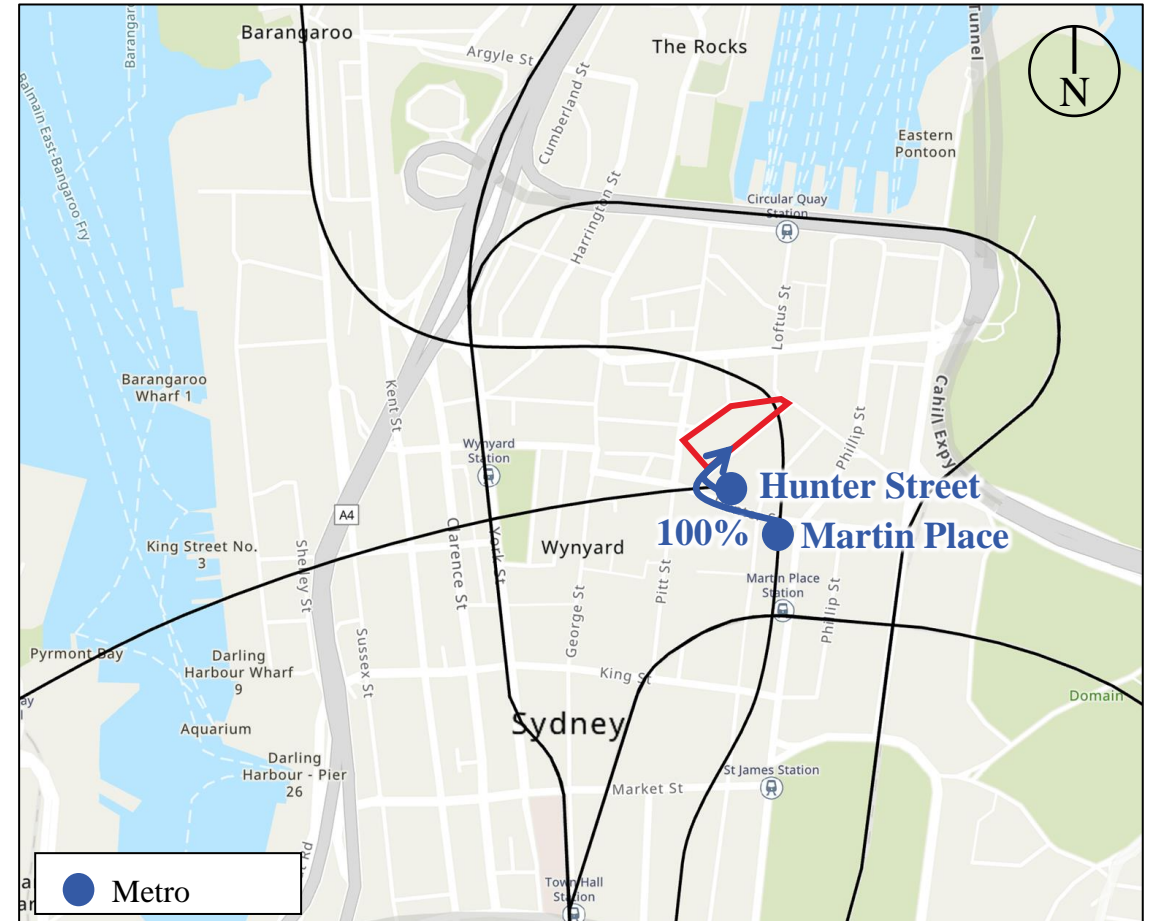


Figure 29: Expected walking routes for Metro users

Estimated Approach Summary (with Metro)

The ultimate mode share shift to Metro is unknown, however, it is very likely that there will be a shift from train, bus and private vehicles to Metro. As an estimate, we have tested a 30% switch from train, bus and car to Sydney Metro once the new Metro City and Southwest and Metro West lines are operational (incorporating Martin Place and Hunter Street Stations, respectively).

Given these assumptions, the opening of these two lines results in a 5% increase to the proportion of users entering the Site from O’Connell Street south to 84% (around 6,292 people). Of the remaining, 6% (around 476 people) enter via O’Connell Street north and 9% (around 684 people) approach via the TSL.

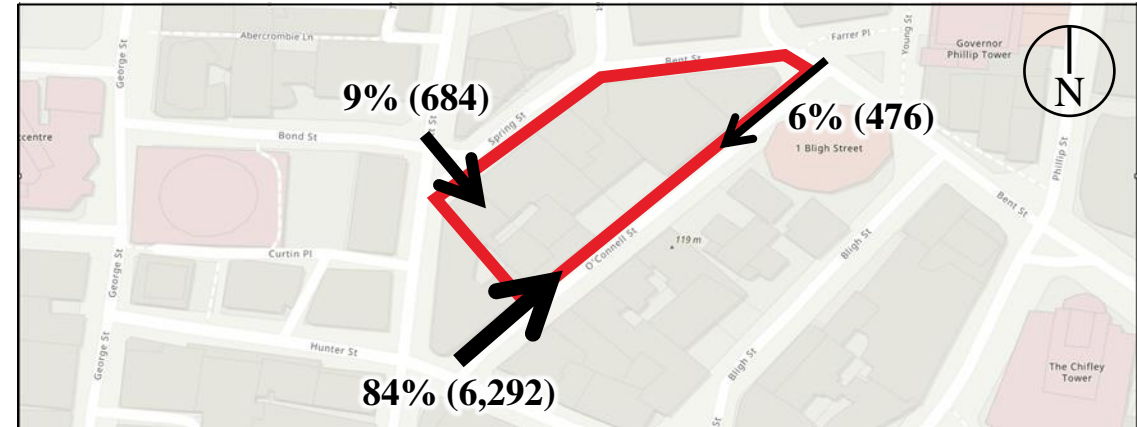


Figure 31: Overall entry proportions, with Metro

547

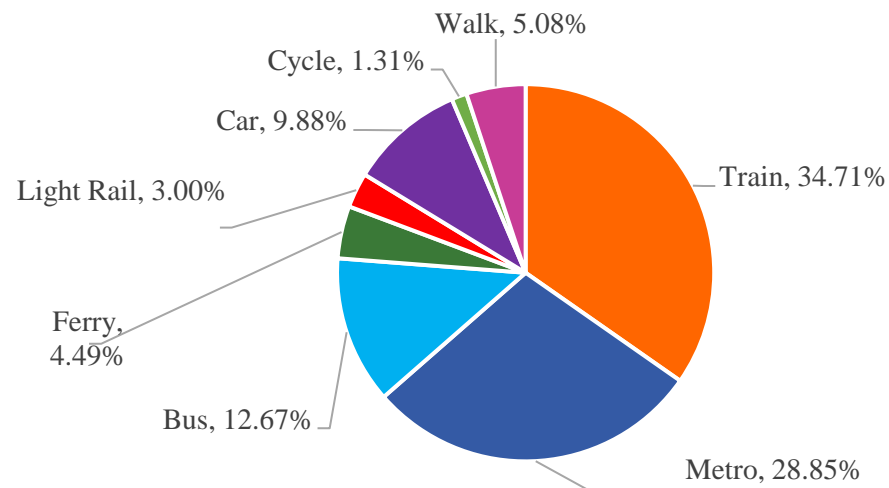


Figure 30: Estimated % mode share (30% Mode share shift from car, bus, train to Metro)

NSW Walking Space Guide Assessment

NSW Walking Space Guide Assessment

Pedestrian Counts & General

An assessment of the footpaths surrounding the Site using the NSW Walking Space Guide (WSG) was undertaken. The WSG is a state-wide guide to be applied in the design of comfortable walking spaces.

In the absence of representative existing pedestrian counts due to COVID-19 related impacts, width measurements were used to determine spatial Level of Service (LoS) from a capacity perspective.

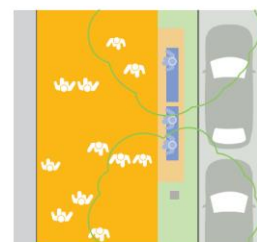
The WSG specifies that the highest LoS (aka worst LoS) is applied to the footpath on a single side of the street for the length of the street block. In this analysis, it is assumed that a change in street type, access, or significant improvements in infrastructure such as pedestrianisation and through-site links can yield separate LoS performance on different parts of the block.

NSW Walking Space Guide Assessment

Footpath Type

Table 2A (Figure 32) Columns B-D of the WSG is used to classify footpath type. It was assumed the footpaths surrounding the Site are Type 5 footpaths (Figure 33). Type 5 footpaths are characterised as footpaths near transport interchanges with associated entries and overflows with a very large number of people.

Type 5
Main street footpath –
Very high activity



Very high activity main street footpaths are appropriate where it is very busy most of the time.

These footpaths provide enough space for large numbers of people to walk comfortably.

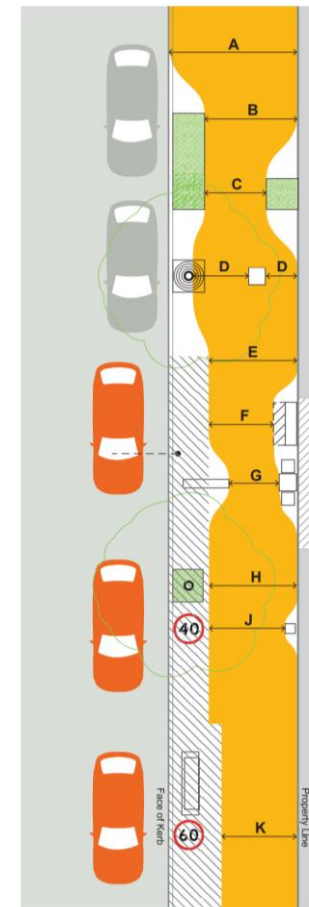


Figure 33: NSW WSG, Footpath Type 5 (left) and Walking Space (right) (2020)

Table 2A – Footpath Type Classification

Footpath Type	Column A Peak Hour number of people on the footpath (People Per Hour – PPHr)	Column B Land use characterisation	Column C Proximity to public transport	Column D Proximity to places of interest (where a block is measured to a major pedestrian dispersal point like a street intersection)
Type 5	Greater than 2000 PPHr	use, employment, retail, transport or entertainment areas, significant public places or buildings with very large numbers of people, transport interchanges and associated waiting areas, entries and overflow areas	interchange including at least 2 modes	metropolitan place of interest (Table 2B List 3)

Figure 32: NSW WSG, Table 5 Walking Space Level of Service Targets and Comfort Percentiles (2020)

NSW Walking Space Guide Assessment

Level of Service

As specified in the WSG, a spatial LoS ranging from A (the best) to F (the worst) was used to help provide an indication of comfort percentiles on footpaths.

Unlike the widely used Fruin LoS, the WSG LoS has been calibrated to Australian urban norms, relatively Australians have a clear preference for more space. Table 5 of the WSG (Figure 35) outlines the correlation of LoS and comfort percentile. For example, a LoS A would indicate 85% of people are expected to be comfortable.

It should be noted the WSG is typically applied to open-air footpaths. It assumed the guide is also applicable to the TSL.

The WSG specifies a minimum target criteria of LoS C in which 50% of people would expect to be comfortable.

Table 5 – LOS Targets and Comfort Percentiles

Level of Service	Target	Comfort percentile (base of band)
LOS A		85th
LOS B		66th
LOS C	Minimum Target	50th
LOS D		33rd
LOS E	At Risk	15th
LOS F	Intervention Trigger	less than 15th

Table 4A – Walking Space Level of Service

Footpath Type	Adjacent to Active Edge	Walking Space and LOS					
		Types 1-4 Minimum Walking Space in metres (m)					Type 5 Minimum Walking Space in metres (m) and Maximum Peak Hour flow rate in PPMM
		LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
Type 5	Min. width (m)	5.2	4.6	3.9	3.4	2.9	Less than 2.9
	Max. PPMM	4.0	6.0	9.5	13.5	18.0	Greater than 18.0

Figure 34: NSW WSG, Table 4A Walking Space Level of Service excerpt (2020)

Figure 35: NSW WSG, Table 5 Walking Space Level of Service Targets and Comfort Percentiles (2020)

NSW Walking Space Guide Assessment

Existing Conditions

Given the WSG footpath type for this area of the CBD, the majority of streets including all bounding streets (Spring, Bent, O’Connell, Pitt and Hunter Streets), fail the LoS C target and operate at LoS F simply due to the available width. The minimum unobstructed walking space required to meet the WSG LoS C target is 3.9m and the surrounding streets fall short of this dimension.

Existing footpaths surrounding the Site indicate LoS ranging between D and F. A LoS F is categorised as an “Intervention Trigger” where performance at this level is considered very poor and an increase of walking space is urgently needed. Just west of the Site along Pitt Street improves with a LoS E, which is considered bordering “At risk”.

Table 2: Existing effective width and LoS

Street	Side/Section	Effective Width (m)	LoS
Spring Street	North	2.8	F
	South	2.6	F
Bent Street	North	2	F
	South	2.7	F
O’Connell Street	North	2.7	F
	South	2.8	F
Hunter Street	North	1.5	F
	South	2.5	F
Pitt Street	East	2.6	F
	West	3.1 (between Hunter Street & Curtin Place), 2.6 (between Curtin Place and Bond Street)	E, F

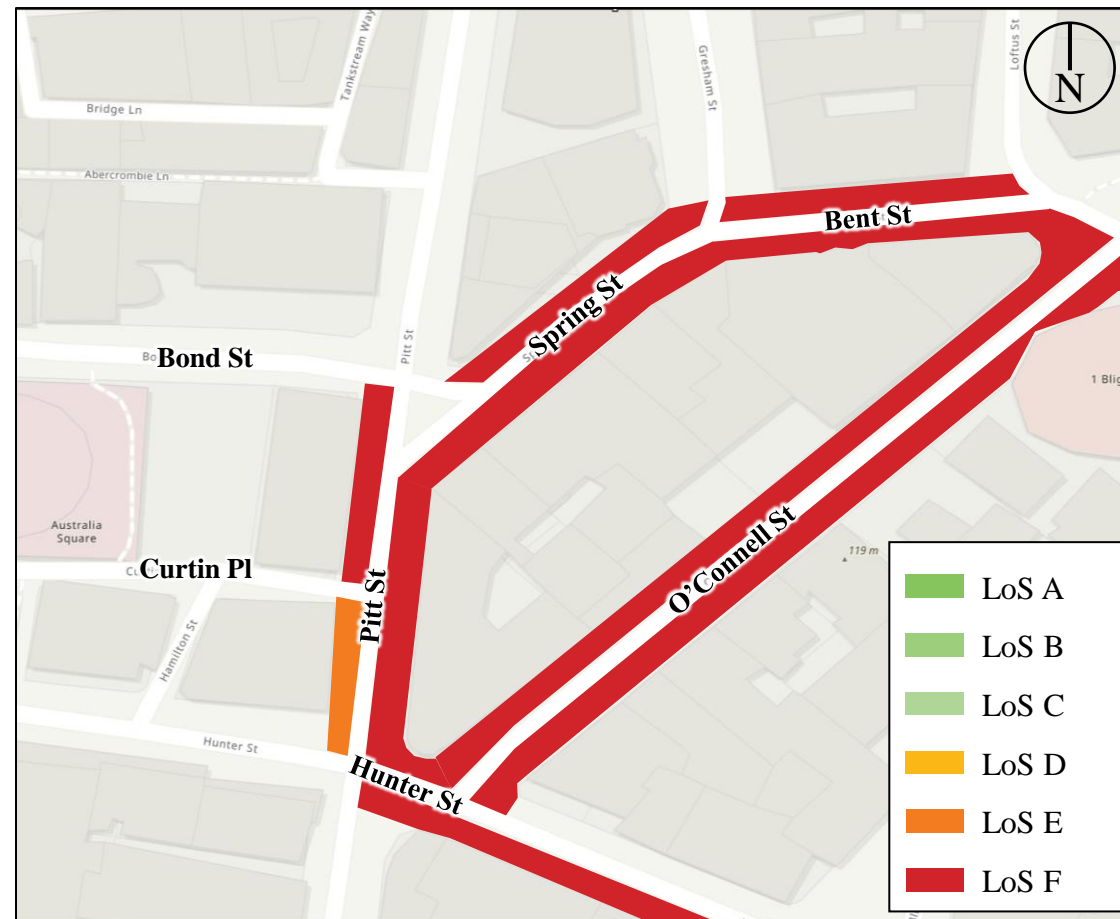


Figure 36: Existing conditions

NSW Walking Space Guide Assessment

Future with The O’Connell Precinct

Introduction of a through-site link greatly improves the permeability of the surrounding street network and provides direct access between Hunter Street Station east and the northwest portion of the CBD. In addition, the TSL is expected to provide connection to nearby city blocks from the current Martin Place Station and future Metro Martin Place Station.

Improvements are ultimately constrained to areas of intervention as the surrounding footpath network is not expected to change at this point in time.

Table 3: Future with The O’Connell Precinct effective width and LoS

Street	Side/Section	Effective Width (m)	LoS
Spring Street	North	2.8	F
	South	2.6	F
Bent Street	North	2	F
	South	2.7	F
O’Connell Street	North	2.7	F
	South	2.8	F
Hunter Street	North	1.5	F
	South	2.5	F
Pitt Street	East	2.6	F
	West	3.1 (between Hunter Street & Curtin Place), 2.6 (between Curtin Place and Bond Street)	E, F
Through-Site Link	N/A	6.2	A



Figure 37: Future with The O’Connell Precinct conditions

NSW Walking Space Guide Assessment

Future with The O’Connell Precinct and City North Public Domain Plan

Future improvements such as the footpath upgrades at Bent Street, Hunter Street and pedestrianisation of the southern end of O’Connell Street and Spring Street present opportunities for a potential outcome of LoS A. Although the ultimate LoS outcome is dependent on the future pedestrian volumes that will use these spaces, this finding is particularly significant in the portion of O’Connell Street just outside the future Hunter St Station east exit.

It is assumed that street furniture outlined in the City North Public Domain Plan will not impede with walking space. Effective widths have been discounted by 400mm to account for trees where appropriate.

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Table 4: Future with the City North Public Domain Plan effective width and LoS

Street	Side/Section	Effective Width (m)	LoS
Spring Street	Pedestrianised	15.9	A
Bent Street	North	2	F
	South	6.6	A
O’Connell Street	Pedestrianised	10.5	A
	North	2.7	F
	South	2.8	F
Hunter Street	North	7.3	A
	South	2.3	E
	East	2.6	F
Pitt Street	West	2.6 (between Hunter Street & Curtin Place), 3.1 (between Curtin Place and Bond Street)	E, F
		Through-Site Link	N/A



Figure 38: Future with The O’Connell Precinct and City North Public Domain Plan conditions

TSL Catchment Analysis

TSL Catchment Analysis

The TSL provides the opportunity for direct access between Spring and O'Connell Streets through the Site. A catchment analysis has been developed to understand how the Through Site Link might support walking trips across the network, specifically passengers moving between the northwest of the CBD and Sydney Trains Martin Place Station, Metro Martin Place Station, and Metro Hunter Street Station east exit.

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The basis of this assessment is the City of Sydney internal floorspace survey (2017) which describes the scale and use-type of nearly all buildings within the CBD. The survey is not current for 2022 but it does provide a consistent basis for understanding relative GFA, and thus the relative attractiveness for work trips, across the pedestrian network.

The catchment analysis has been undertaken for two separate user groups:

- Hunter Street Station east exit customers, and
- Metro Martin Place Station and Sydney Trains Martin Place Station customers.

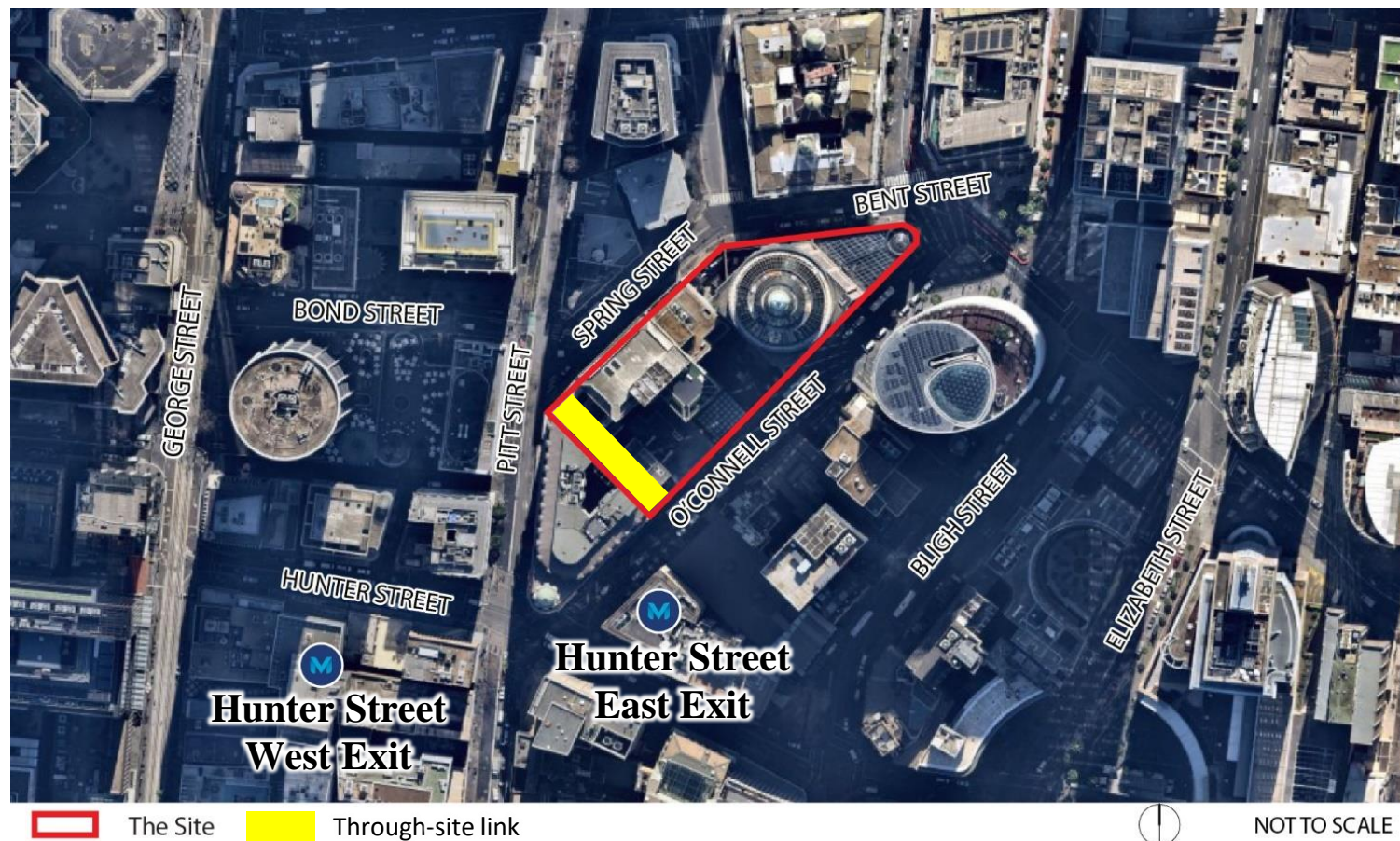


Figure 39: Through-site link location

Hunter Street Station East Exit Catchment

Metro West Customers

Hunter Street Station will include a West exit and an East exit. In this analysis, city blocks within a 10-minute walk have been allocated to either exit in terms of convenience and access across the pedestrian network.

Figure 40 illustrates the city blocks that are assumed to be serviced by the East exit (as opposed to the West exit). Of those city blocks attributed to the East exit, each block within this catchment was then split by the likely method of access (TSL or at-grade) from the East exit.

Analysis indicates that 15% of the total internal floor space serviced by Metro Hunter Street Station East would utilise the through-site link. This finding suggests that the TSL is convenient for some Metro West customers, but the at-grade connections are far more prevalent.

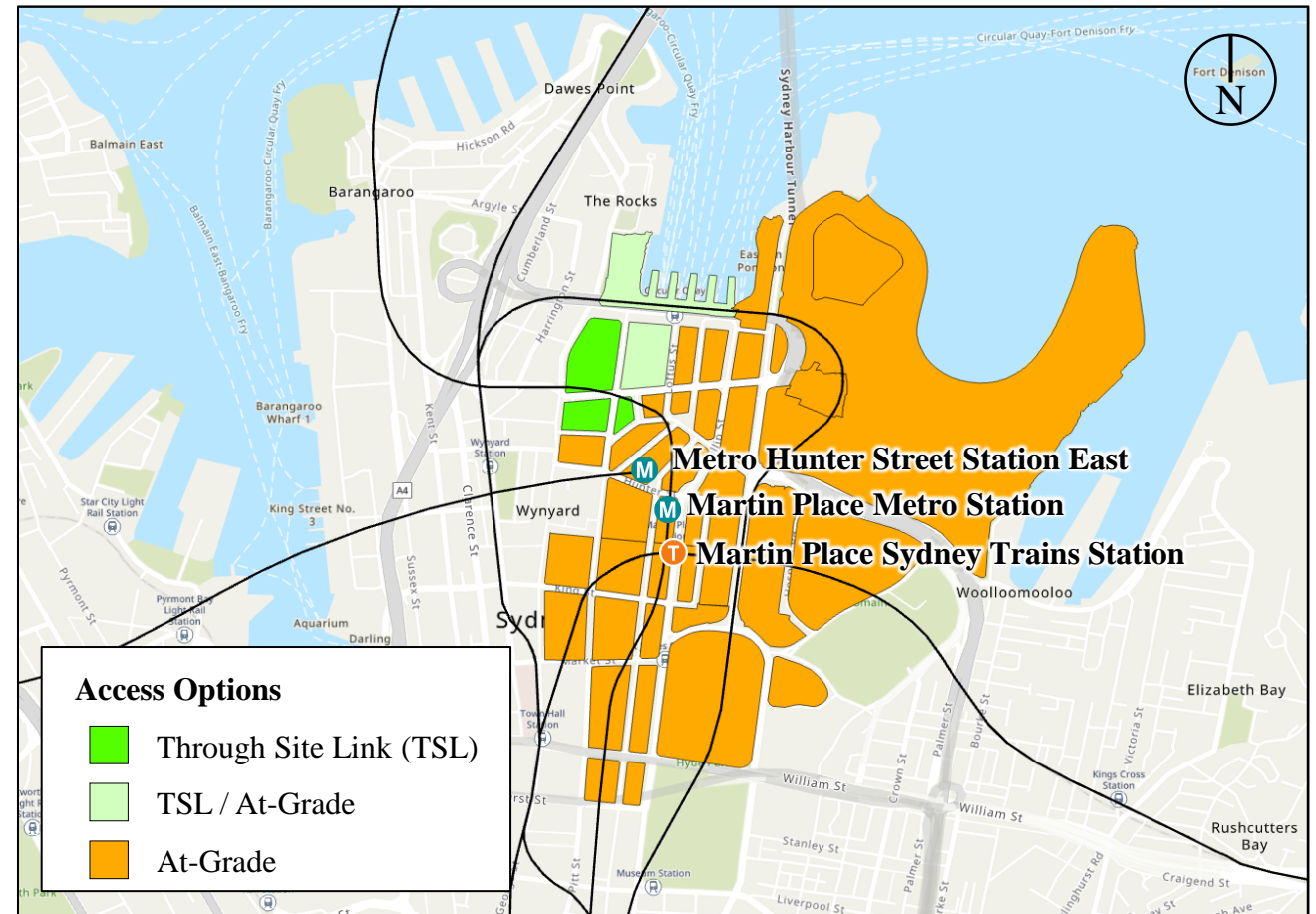


Figure 40: Hunter Street Station East exit access options by city block

Martin Place Metro & Sydney Trains Catchment

Martin Place Customers

It is understood that Martin Place Sydney Trains Station and the Metro Martin Place Station are planned to connect through the Metro Hunter Street Station east exit to O'Connell Street via underground links. These underground connections are expected to be a primary route for those customers who are destined to points north, northwest and west of Hunter Street Station. As such, these Martin Place customers are prime candidates to use the TSL to reach their ultimate destination.

Like the analysis of the East exit catchment, Figure 41 illustrates the city blocks assumed to be captured by the TSL for these two Martin Place Station customers. City blocks captured by Metro City Barangaroo Station (as opposed to Martin Place Station), essentially those blocks west of the Western Distributor, are excluded from this catchment area.

Each city block within the TSL catchment for the two Martin Place Stations was then split by the likely method of access (TSL or at-grade) from the Hunter Street east exit. Of the internal floor space in this catchment area, analysis indicates that 71% is serviced by the TSL. This finding suggests that the TSL is a very important pedestrian connection between the northwest CBD and the two Martin Place Stations.

Given Sydney Metro future year patronage figures (which are currently confidential), more analysis could be undertaken to quantify TSL usage and thus, the number of Martin Place Station customers who would benefit from this link.

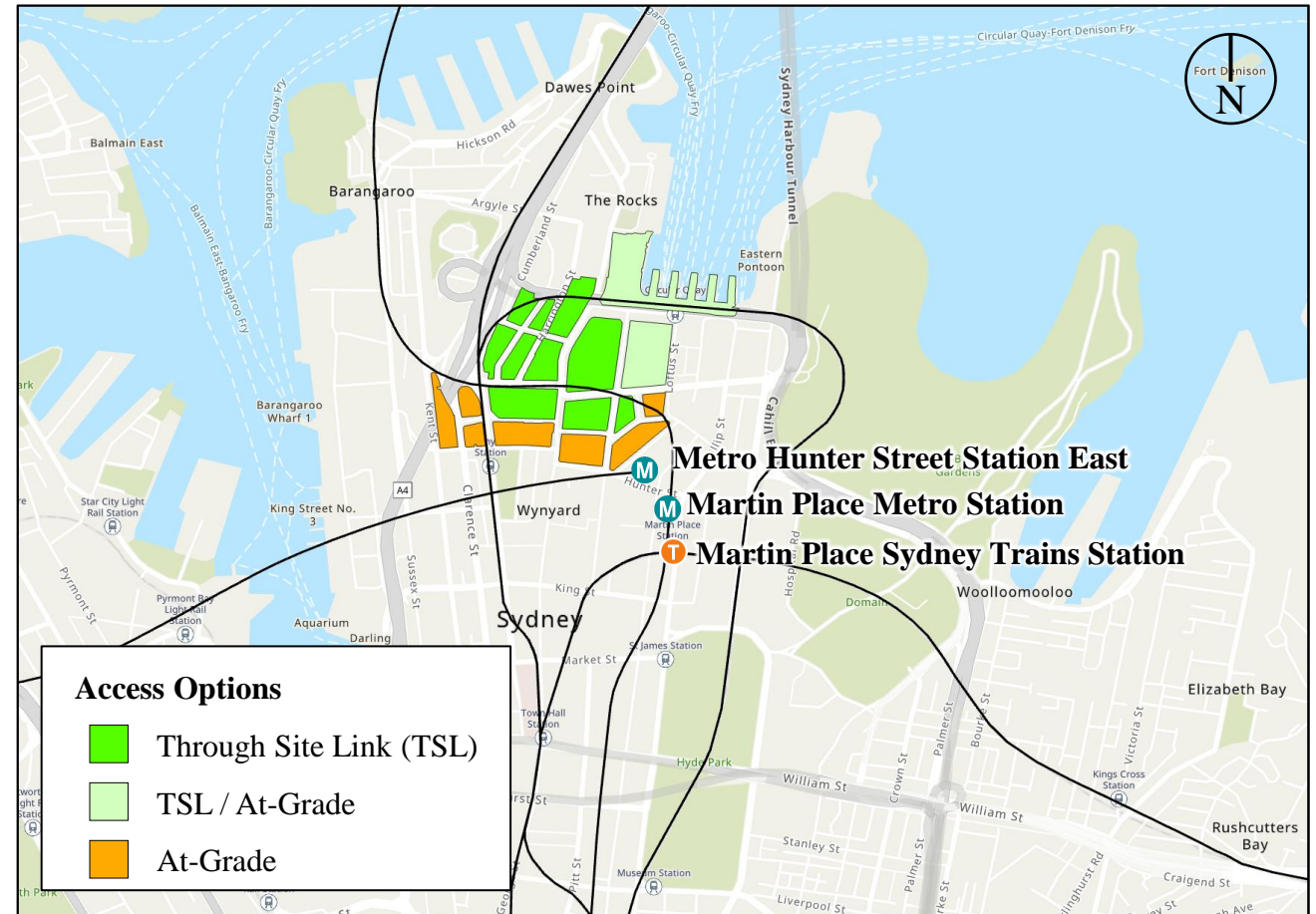


Figure 41: Martin Place Metro & Sydney Trains access options by city block

Findings Summary

TSL and Existing / Future Footpath Network

The Walking Space Guide assessment indicates that all footpaths around the Site are functioning at LoS F based solely on width, and will continue to function at LoS F without any changes to the pedestrian network. The corner of Pitt, Hunter and O’Connell Streets in front of the Radisson is likely to be extremely busy in the future.

Site observations as discussed in the Existing Movement Pattern section document the current poor performance of the footpaths on the corner of Hunter, Pitt and O’Connell Streets in front of the Radisson. Such evidence confirms the findings of the WSG existing conditions analysis.

Additional demand originating from the future Hunter Street station east exit and Martin Place stations is expected to put strain on the already congested footpaths, as indicated in Figure 42.

The TSL provides a convenient path between the Stations and the northwest of the CBD, introducing much needed capacity. Depending on the number of Hunter Street and Martin Place Station exits, the volume of people moving from Spring to O’Connell Street could be dwarfed by the number of people moving from Stations to Spring Street. The TSL removes both groups of people from the section of Pitt Street between Spring and Hunter Streets which is already performing at WSG LoS F based on its width.

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Figure 42: Existing footpath conditions combined with Hunter Street movements



Figure 43: Future conditions combined with through-site link and Hunter Street movements

TSL and Public Domain Plan Improvements

The proposed through-site link coupled with the proposed upgrades in the City North Public Domain Plan (specifically the pedestrianisation of Spring and O'Connell Street South) provides a coherent north-south connection for station customer movements.

Together, the through-site link and proposed street upgrades will provide additional walking space resulting in greater comfort and safety for The O'Connell Precinct users and more broadly, Sydney CBD pedestrians.

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Figure 44: Future conditions combined with through-site link movements, Hunter Street movements and City North Public Domain Plan proposed changes

O'Connell Precinct Approach Summary

For Users of the Proposed Development

The Approach assessment indicates that 84% of O'Connell Precinct users will approach from the south given that it is the most convenient path to the development from the Light Rail, numerous bus stops and heavy rail at Wynyard, Hunter Street, and Martin Place Stations. 9% of users will approach via the TSL and the remaining 6% is expected to approach via O'Connell Street north.

Combining the Approach assessment with the proposed TSL and the proposed Public Domain Plan shows that there is mutual benefit in both the pedestrianisation of the south end of O'Connell Street, Spring Street and the TSL. Pedestrianisation supports the ~84% of people arriving on O'Connell Street from points south, the TSL supports station exits moving northwest and jointly they both help the Pitt Street footpath and the congested node in front of the Radisson steps.

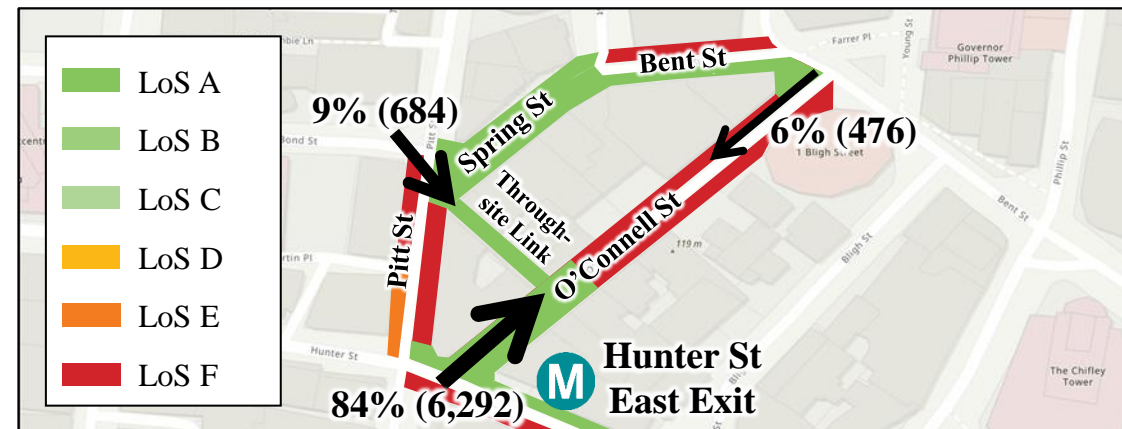


Figure 45: Future approach directions with TSL and O'Connell St pedestrianisation