Macquarie

Sydney Metro Martin Place Integrated Station Development

South Tower, SSD DA Stage 2: Transport, Traffic, Pedestrian and Parking Report

CSWSMP-MAC-SMS-TF-REP-999901

Revision 4 | 29 March 2019

Job number 247838

Arup
Arup Pty Ltd ABN 18 000 966 165

Arup
Level 10 201 Kent Street
PO Box 76 Millers Point
Sydney 2000
Australia
www.arup.com

ARUP

Contents

Appendices

Amendments following authority submissions

This report is the version of the Transport, Traffic, Pedestrian and Parking report that was submitted with the EIS for the **South Site** Over Station Development (OSD). It has been augmented, having regard to the submissions received to the exhibition of the EIS.

The table below provides a summary of the relevant comments received, along with the sections where they have been addressed in the report. Where sections of the report have been edited, or where new sections have been included, the relevant text is highlighted in *italics*.

Agency	Comment	Report Reference
Department of Planning and Environment	Clarify the detailed design and management of the proposed shared use of loading, EOT and other service facilities for the whole of the Precinct, including: • Efficiency of shared use of facilities with consideration of security, capacity and user experience (ease of use and safety) • Detailed design of the loading areas with respect to relevant Australian Standards • Comparison with Sydney DCP 2012 requirements • Details of any necessary agreement/covenants to support on-going shared use and management.	• See 4.4 for details of shared use facilities and agreements. • See 4.6 for comparison with DCP requirements. • See 4.7 for design of loading dock and Appendix B for swept path analysis
City of Sydney Council	• The applications include the provision of bicycle parking, loading and end of trip facilities for the south site within the basement of the north site (literally an entire street block away). • The provision of the bicycle parking and end of trip facilities in a different building a block away is not supported. The City recommends that the southern basement be redesigned to fully accommodate the required parking and facilities. Bicycle parking and end of trip facilities should be provided in accordance with Sydney DCP 2012. • In regards to the sharing of the loading dock, this arrangement could potentially be supported subject to the provision of a dedicated service corridor directly connecting the north and south basements, and subject to the creation of the appropriate easements to benefit the south site. • Otherwise, it is noted that the small loading dock on the south site does not appear to have sufficient clearance heights.	• See 4.4 for detail of shared use facilities and description of internal travel routes. • See 4.6 for comparison with DCP requirements • South site loading dock has a height clearance of 3.6m which is typical for commercial CBD loading docks and vehicle types expected. Waste collection will be by a private contractor. • See Appendix A for management of loading

TfNSW	**Point to Point Services** **Comment** • The Transport, Traffic, Pedestrian and Parking Report prepared to support the development application does not include details in relation to point to point transport services for the proposed development. **Recommendation** • It is requested that further details be provided in consultation with the Sydney Coordination Office as part of the applicant's response to submissions for the following: • Likely demand for point to point transport (particularly during peak periods) and how point to point transport services accessing the proposed development will be catered for on the surrounding transport network; and • Potential kerbside locations that are available to accommodate future demand for point to point transport services.	See section 4.9 for estimated demand for Point to Point services. Existing taxi ranks are highlighted along with zones where pick-up and drop-off are permitted. In addition, Sydney Metro are developing an Interchange Access Plan in satisfaction of the CSSI approval, which will set out any proposals for point to point services. Development of this plan is on-going. Anticipated features are described.
	Freight and Servicing **Comment** It is noted that a draft Loading Dock Management Plan (LDMP) has been prepared to support the development application. The LDMP identifies that the development's servicing requirements cannot be accommodated solely within the development's loading dock without the implementation and use of the following measures: • Supply chain consolidation; • Operation of an off-site consolidation centre; and • Providing resilience in contingency situations through the North Tower loading dock. TfNSW advises that it has previously discussed the use of these measures with the applicant to ensure that the freight and servicing requirements of the development can be accommodated entirely within the on-site loading dock. TfNSW strongly supports and encourages the use of these measures which provide numerous benefits for the traffic and transport network. These include • reducing the number of vehicles entering the CBD and using the road network, • reducing the number of vehicles entering the loading dock, • ensuring all freight and service activity is accommodated within the onsite loading dock; and • reducing the likelihood of vehicles servicing the development contributing to traffic queues and congestion. To ensure the development is adequately serviced now and into the future, TfNSW recommends the	A LDMP has been prepared for the site and is presented in Appendix A.

	applicant be conditioned to implement and maintain these measures for the life of the development, or until such time as alternative arrangements are approved by TfNSW which continue to ensure that the freight and servicing task is accommodated wholly within the on-site loading dock. It is also advised that the LDMP needs to include management of conflicts between pedestrians and service vehicles using the loading bays, including the provision of signage/marked walkways. **Recommendation** It is requested that (as stated in TAB B): • The applicant be conditioned to prepare the final LDMP; and • The applicant be conditioned to implement and use supply chain consolidation and off-site consolidation in conjunction with the on-site loading dock, and provide resilience through the North Tower in contingency situations, for the life of the development or until such time as alternative arrangements are approved by TfNSW which continue to ensure that the freight and servicing task is accommodated wholly within the on-site loading dock; and • The LDMP is implemented once the development is operational in order to manage the freight and servicing associated with the proposed development. **TAB B conditions:** **Prior to the Issue of the Occupation Certificate** • The Applicant shall prepare the final Loading Dock Management Plan (LDMP) in consultation with Sydney Coordination Office within TfNSW and submit the final LDMP for the review and endorsement of the Coordinator General, Transport Coordination within TfNSW prior to the issue of the Occupation Certificate. **Post Occupation** • The Applicant shall implement the Loading Dock Management Plan in order to manage the freight and servicing associated with the development. • The Applicant shall implement and use supply chain consolidation and off-site consolidation in conjunction with the development's on-site loading dock, and provide resilience in contingency situations through the North Tower loading dock, to adequately accommodate the development's servicing requirements, in consultation with the Sydney Coordination Office within TfNSW. The use of all these measures shall be maintained for the life of the development, or until such time as alternative arrangements are approved by TfNSW which continue to ensure that the freight and servicing	

	task is accommodated wholly within the on-site loading dock.	
	TAB B condition: **Construction Pedestrian and Traffic Management** **Prior to the Commencement of Works** The Applicant shall update the draft Construction Pedestrian and Traffic Management Plan (CPTMP) in consultation with the Sydney Coordination Office within TfNSW and provide a copy of the final CPTMP for the review and endorsement of the Coordinator General, Transport Coordination, prior to the commencement of any works on site. The CPTMP shall include, but not be limited to, the following: • Consistency with the Construction Traffic Management Framework prepared as part of the Sydney Metro City and Southwest; • Loading and unloading details, including the locations of all proposed work zones; • Haulage routes; • Construction vehicle access arrangements; • Proposed construction hours; • Estimated number and type of construction vehicle movements including morning and afternoon peak and off peak movements, distinguishing concrete pours from other construction activity and noting that construction vehicles would be restricted from using work zones on Castlereagh Street and Elizabeth Street during certain times of the day; • Construction program, highlighting details of peak construction activities and proposed construction 'Staging'; • Details of specific measures to ensure the arrival of construction vehicles to the site does not cause additional queuing on Elizabeth Street, Hunter Street, Castlereagh Street and King Street; • Details of construction vehicle marshalling areas outside the CBD; • Details of pedestrian and traffic management measures; • The staging of works and simultaneous construction with other projects in the precinct including the Sydney Light Rail Project, Sydney Metro City and Southwest and private development to mitigate the cumulative construction impacts of projects; • Any potential impacts to general traffic, cyclists, pedestrians and bus services within the vicinity of the site from construction vehicles during the construction of the proposed works; and • Measures proposed to mitigate any associated general traffic, public transport, pedestrian and	A revised CPTMP has been prepared and is presented in Appendix D.

	cyclist impacts should be clearly identified and included in the CPTMP.	
Roads and Maritime Services	Roads and Maritime has reviewed the submitted application and whilst raises no objection to the proposed development, has provided some advisory comments in regards to the application's, Transport, Traffic, Pedestrian and Parking report in Annexure A. Annexure A: Transport Assessment Section 4.2 'Future Mode Share' • "The removal of the majority on-site car parking is anticipated to reduce the car driver mode share to just 3% with a subsequent increase in the public transport and active travel mode shares as result", however in Section 8: Conclusion "No car parking is being provided as part of the development". Confirmation is required as to which of the above statement is accurate. Appendix B – Swept Path Analysis • Please include the lane configuration on the swept path diagram for trucks entering/exiting the Castlereagh Street.	• It is confirmed that no parking is being provided as part of the development (note four existing spaces at 50 Martin Place are being retained). • See section 4.2 for clarity on car driver mode share. • Swept path analysis updated in Appendix B.

1 Introduction

This report supports a State Significant Development (SSD) Development Application (DA) (SSD DA) submitted to the Minister for Planning (Minister) pursuant to Part 4 of *the Environmental Planning and Assessment Act 1979* (EP&A Act) on behalf of Macquarie Corporate Holdings Pty Limited (Macquarie), who is seeking to create a world class transport and employment precinct at Martin Place, Sydney.

The SSD DA seeks approval for the detailed design and construction of the **South Site** Over Station Development (OSD), located above and integrated with Metro Martin Place station (part of the NSW Government's approved Sydney Metro project). The southern entrance to Metro Martin Place station and the South Site OSD above are located at 39-49 Martin Place.

This application follows:

- Approval granted by the Minister for a Concept Proposal (otherwise known as a Stage 1 SSDA) for two OSD commercial towers above the northern (North Site) and southern (South Site) entrances of Metro Martin Place station (SSD 17_8351). The approved Concept Proposal establishes building envelopes, land uses, Gross Floor Areas (GFA) and Design Guidelines with which the detailed design (otherwise known as a Stage 2 SSDA) must be consistent.
- Gazettal of site specific amendments to the Sydney Local Environmental Plan (LEP) 2012 (Planning Proposal reference: PP_2017_SYDNE_007_00) permitting greater building height (over a portion of the South Site) and additional floor space (over both the North and South Sites).

Lodged concurrently with this SSD DA, is a Stage 1 Amending SSD DA to the Concept Proposal (Stage 1 Amending DA), which seeks approval for an amended concept for the Metro Martin Place Precinct (the Precinct), aligning the approved South Site building envelope with the new planning controls secured for the Precinct.

To ensure consistency, the Stage 1 Amending DA must be determined prior to the determination of the subject Stage 2 SSD DA for the South Site.
This application does not seek approval for elements of the Metro Martin Place Precinct which relate to the Sydney Metro City and Southwest project, which is subject to a separate Critical State Significant Infrastructure (CSSI) approval. These include:

- Demolition of buildings on the North Site and South Site;
- Construction of rail infrastructure, including station platforms and concourse areas;
- Ground level public domain works; and
- Station related elements in the podium of the South Tower.

However, this application does seek approval for OSD areas in the approved Metro Martin Place station structure, above and below ground level, which are classified as SSD as they relate principally to the OSD. These components are within the Sydney Metro CSSI approved station building that will contain some OSD elements not already approved by the CSSI Approval. Those elements include the end of trip facilities, office entries, office space and retail areas, along with other office/retail plant and back of house requirements that are associated with the proposed OSD and not the rail infrastructure.

This report describes the transport, traffic, parking and access features of the South Site OSD and the associated impacts. The report includes background information, the existing and likely estimated future traffic and transport conditions, a description of the proposed OSD development and an assessment of the transport and traffic impact. The report also includes mitigation measures where required. Appended to this report is a 'Loading Dock Management Plan' for the development, as well as a Green Travel Plan and Framework Construction Traffic Management Plan.

Context

The New South Wales (NSW) Government is implementing Sydney's Rail Future (Transport for NSW, 2012), a plan to transform and modernise Sydney's rail network so that it can grow with the city's population and meet the needs of customers in the future.

Sydney Metro is a new standalone rail network identified in Sydney's Rail Future. The Sydney Metro network consists of Sydney Metro Northwest (Stage 1) and Sydney Metro City and Southwest (Stage 2).

Stage 2 of Sydney Metro entails the construction and operation of a new metro rail line from Chatswood, under Sydney Harbour through Sydney's CBD to Sydenham and onto Bankstown through the conversion of the existing line to metro standards. The project also involves the delivery of seven (7) new metro stations, including Martin Place.

This step-change piece of public transport infrastructure once complete will have the capacity for 30 trains an hour (one every two minutes) through the CBD in each direction catering for an extra 100,000 customers per hour across the Sydney CBD rail lines.

On 9 January 2017 the Minister approved the Stage 2 (Chatswood to Sydenham) Sydney Metro application lodged by Transport for NSW (TfNSW) as a Critical State Significant Infrastructure (CSSI) project (reference SSI 15_7400). Work is well underway under this approval, including demolition of buildings at Martin Place.

The OSD development is subject to separate applications to be lodged under the relevant provisions of the EP&A Act. One approval is being sought for the South Site – this application – and one for the North Site via a separate application.

Site Description

The Metro Martin Place Precinct project relates to the following properties (refer to Figure 1):

- 50 Martin Place, 9 – 19 Elizabeth Street, 8 – 12 Castlereagh Street, 5 Elizabeth Street, 7 Elizabeth Street, and 55 Hunter Street (North Site);
- 39 – 49 Martin Place (South Site); and
- Martin Place (that part bound by Elizabeth Street and Castlereagh Street).

This application relates **only to the South Site**, being the land at 39-49 Martin Place (refer to Figure 1)

The North Site is the subject of a Stage 2 SSD DA.

Figure 1: Aerial Photo of the North and South Site of the Metro Martin Place Precinct

Background

Sydney Metro Stage 2 Approval (SSI 15_7400)

The Sydney Metro CSSI Approval approves the demolition of existing buildings at Martin Place, excavation and construction of the new station (above and below ground) along with construction of below and above ground structural and other components of the future OSD, although the fit-out and use of such areas are the subject of separate development approval processes.

On 22 March 2018, the Minister approved Modification 3 to the Sydney Metro CSSI Approval. This enabled the inclusion of Macquarie-owned land at 50 Martin Place and 9-19 Elizabeth Street within Metro Martin Place station, and other associated changes (including retention of the opening to the existing MLC pedestrian link).

Concept Proposal (SSD 17_8351)

On 22 March 2018, the Minister approved a Concept Proposal (SSD 17_8351) relating to Metro Martin Place Precinct. The Concept Proposal establishes the planning and development framework through which to assess the detailed Stage 2 SSD DAs.

Specifically, the Concept Proposal encompassed:

- Building envelopes for OSD towers on the North Site and South Site comprising:
  - 40+ storey building on the North Site
  - 28+ storey building on the South Site (see Figure 2)
  - Concept details to integrate the North Site with the existing and retained 50 Martin Place building (the former Government Savings Bank of NSW)
- Predominantly commercial land uses on both sites, comprising office, business and retail premises
- A maximum total GFA of 125,437m^2 across both sites
- Design Guidelines to guide the built form and design of the future development
- A framework for achieving design excellence
- Strategies for utilities and services provision, managing drainage and flooding, and achieving ecological sustainable development
- Conceptual OSD areas in the approved Metro Martin Place Metro station structure, above and below ground level[1]

[1] Refers to those components within the Metro CSSI approved station envelope that will contain some OSD elements not approved in the CSSI consent. Those elements include the end of trip facilities, office entries, office space and retail areas, along with other office/retail plant and back of house requirements that are associated with the proposed OSD and not the rail infrastructure.

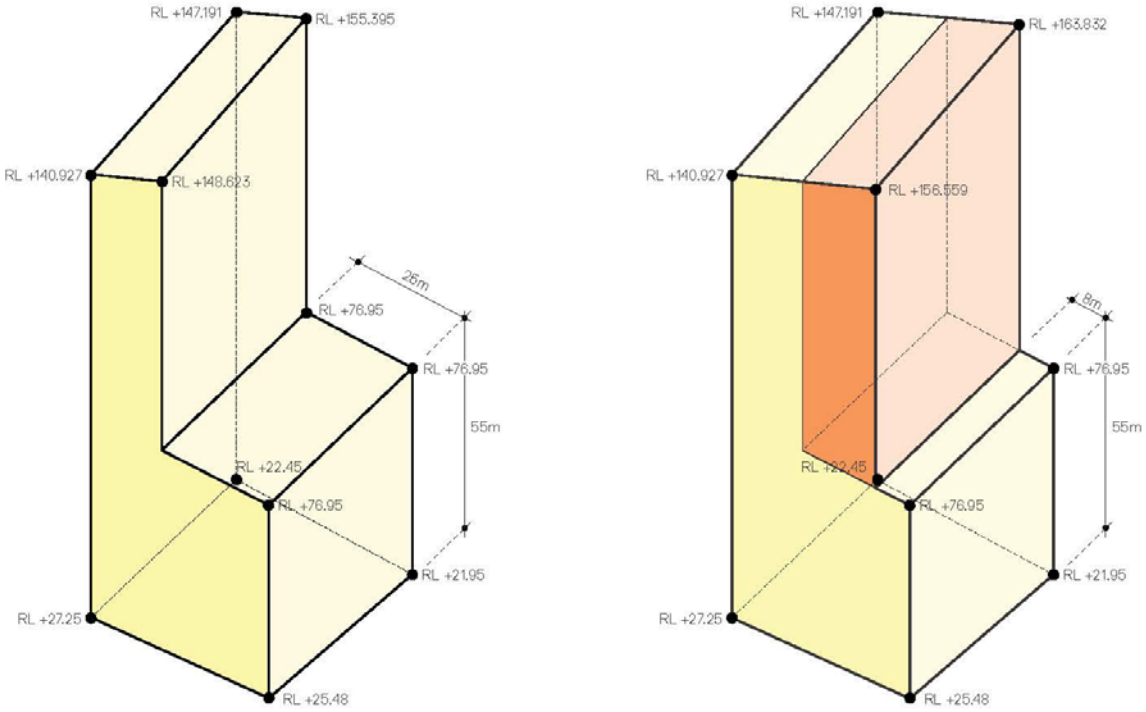
Figure 2: North Site and South Site Approved OSD Building Envelopes

Planning Proposal (PP_2017_SYDNE_007_00) - Amendment to Sydney LEP 2012

The Planning Proposal (PP_2017_SYDNE_007_00) sought to amend the development standards applying to the Metro Martin Place Precinct through the inclusion of a site-specific provision in the Sydney LEP 2012. This site-specific provision reduced the portion of the **South Site** that was subject to a 55 metre height limit from 25 metres from the boundary to Martin Place, to 8 metres, and applies the Hyde Park North Sun Access Plane to the remainder of the South Site, forming the height limit of the tower. It also permits a revised FSR of 22:1 on the South Site and 18.5:1 on the North Site. These amendments were gazetted within Sydney LEP 2012 (Amendment No. 46) on 8 June 2018 and reflect the new planning controls applying to the Precinct.

The Concept Proposal was prepared and determined prior to the site specific Sydney LEP 2012 amendment (PP_2017_SYDNE_007_00) being gazetted and was developed based on the height development standards that applied to the South Site at the time. As a result, the Concept Proposal allows for a tower on the South Site that is now inconsistent with the building envelope envisaged through the amendment to the Sydney LEP 2012. Accordingly, a Stage 1 Amending SSD DA to the Concept Proposal (Stage 1 Amending DA) has been lodged concurrently with this subject Stage 2 SSD DA, which seeks to align the approved Concept Proposal building envelope for the South Site with the revised site specific development standards applying under the Sydney LEP 2012, being increased FSR and building height. This Stage 1 Amending DA seeks to amend

the planning and development framework established under the approved Concept Proposal that is used to assess this Stage 2 SSD DA. The Stage 1 Amending DA is to be assessed concurrently with, and determined prior to the subject Stage 2 SSD DA, with the amended South Site building envelope setting the broad development parameters for the South Site (see Figure 3 below).



Approved South Site OSD Envelope

Proposed Amended South Site OSD Envelope (aligning with site specific amendment to Sydney LEP 2012)

Figure 3: Relationship between the approved and proposed amended South Site building envelope

Overview of the Proposed Development

The subject application seeks approval for the detailed design, construction and operation of the South Tower. The proposal has been designed as a fully integrated station and OSD project that intends to be built and delivered as one development, in-time for the opening of Sydney Metro City and Southwest in 2024. The application seeks consent for the following:

- The design, construction and operation of a new 28 storey commercial OSD tower (plus rooftop plant) within the approved building envelope for the South Site, including office space and retail tenancies.
- Vehicle loading within the basement levels.
- Extension and augmentation of physical infrastructure / utilities as required.
- Detailed design and delivery of 'interface areas' within both the approved station and Concept Proposal envelope that contain OSD-exclusive elements, such as office entries, office space and retail areas not associated with the rail infrastructure.

Planning Approvals Strategy

The *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD) identifies development which is declared to be State Significant. Under Schedule 1 and Clause 19(2) of SEPP SRD, development within a railway corridor or associated with railway infrastructure that has a capital investment value of more than $30 million and involves commercial premises is declared to be State Significant Development (SSD) for the purposes of the EP&A Act.

The proposed development (involving commercial development that is both located within a rail corridor and associated with rail infrastructure) is therefore SSD.

Pursuant to Section 4.22 of the EP&A Act a Concept DA may be made setting out concept proposals for the development of a site (including setting out detailed proposals for the first stage of development), and for which detailed proposals for the site are to be the subject of subsequent DAs. This SSD DA represents a detailed proposal and follows the approval of a Concept Proposal on the site under Section 4.22 of the EP&A Act.

Figure 4 below is a diagrammatic representation of the suite of key planning applications undertaken or proposed by Macquarie and their relationship to the subject application (the subject of this report).

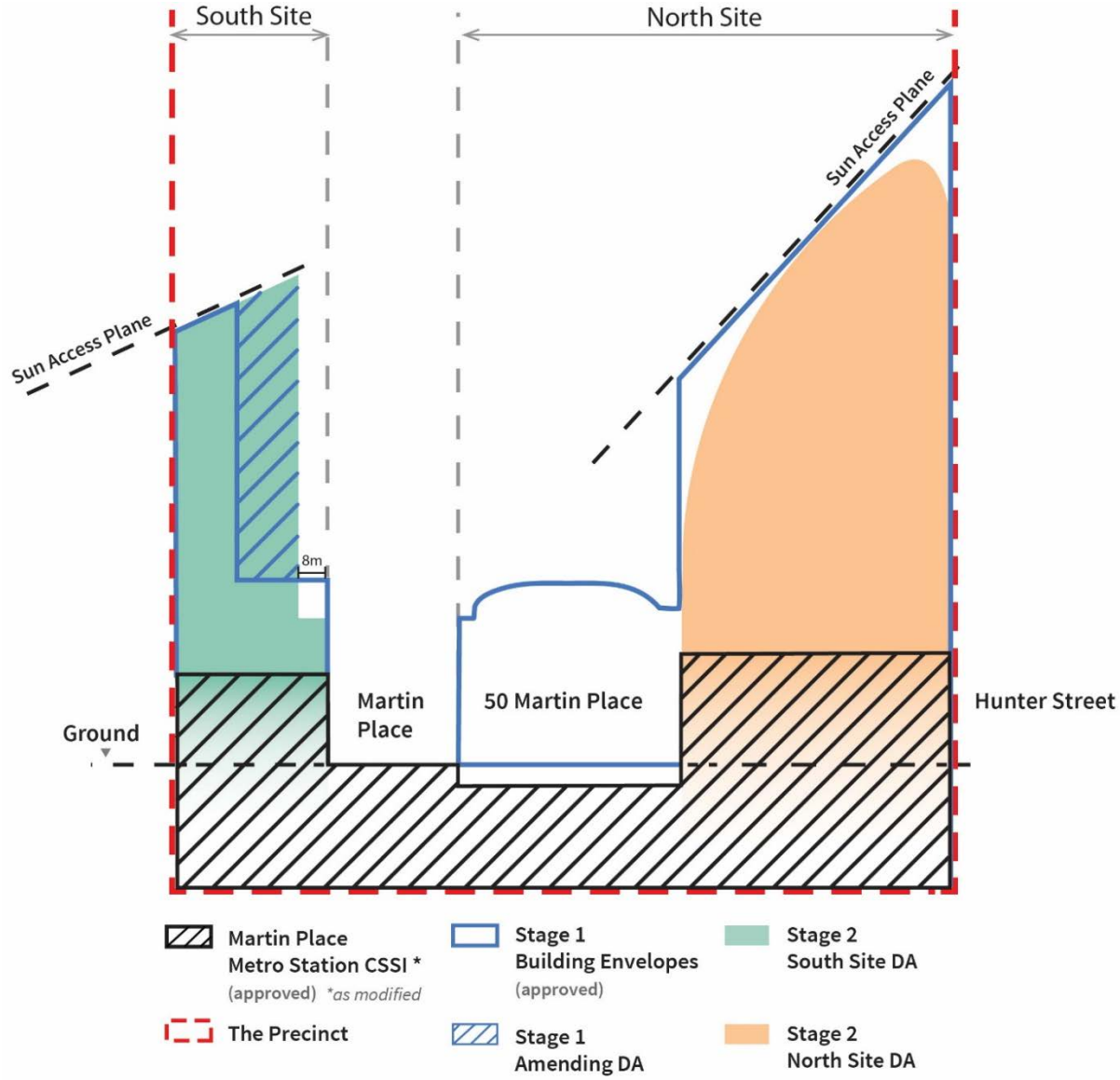


Figure 4: Relationship of key planning applications to the Stage 2 South Site DA (this application)

The Department of Planning and Environment have provided Secretary's Environmental Assessment Requirements (SEARs) to the applicant for the preparation of an Environmental Impact Statement for the proposed development. This report has been prepared having regard to the SEARs as follows:

The EIS shall include a traffic, parking and access assessment providing:

- details on the current and likely estimated future mode share resulting from the proposed development, including a comparison against the travel mode share model assessed in the stage 1 SSD
- details of the current and likely estimated future daily and peak hour vehicle, public transport, pedestrian and bicycle movements from the site, including an indication of whether it relates to the station or OSD, and any associated impacts and/or mitigation measures required

- measures to encourage users of the development to make sustainable travel choices, including a green travel plan, walking, cycling, public transport and car sharing, adequate provision of bicycle parking and end of trip facilities and minimise private car trips
- modelling and analysis of pedestrian and cyclist access to the proposed development in consultation with TfNSW
- details of existing and proposed vehicle access arrangements, including parking, loading dock and servicing management with consideration of precinct wide shared loading docks and/or remote or off-site loading zone hub facilities, ensuring all servicing and loading occurs on-site and does not rely on kerbside controls
- an assessment of pedestrian and cyclist safety with consideration of the relationship with design, access and operation of the station.

The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the EP&A Regulation 2000. Provide these as part of the EIS rather than as separate documents.

In addition, the EIS must include the following:

- Transport, traffic and parking assessment, with public transport accessibility level assessment and draft green travel plan.

Table 1 Relevant Conditions of the Stage 1 Concept Proposal (SSD 8351) to be met as part of future development applications for Stage 2

No.	Condition	See Section
B7	Future Development Application(s) for the construction of new buildings shall be accompanied by an assessment of the traffic and transport impacts on the surrounding road network and intersection capacity, and demonstrate sufficient loading / unloading and access provision. The traffic and transport assessment shall have specific regard for the scope and timing of public transport upgrade infrastructure works in the surrounding road network.	See Section 3, 4, 5 and Loading Dock Management Plan6
B8	Future Development Application(s) shall identify, through green travel plans, opportunities to maximise the use of sustainable transport choices, such as incentives and provision of cycle parking and end of trip facilities in the detailed design.	See Section 4, 5, 6 and Green Travel Plan
B9	The Applicant shall provide a loading dock management plan, prepared in consultation with the Council and Sydney Coordination Office of TfNSW, with any Future Development Application(s). The loading dock management plan shall include, but not limited to, the following: a) Detailed swept path analysis of service vehicles accessing the loading docks b) Confirmation that vehicular access is located as far as reasonably practical away from the traffic control signals on Castlereagh Street and will not result in queuing on Castlereagh Street c) Sufficient capacity exists for the service vehicle demands of the development and Sydney Metro d) Management of incidents at the access to the loading docks e) Loading bay management details, including service vehicle movements during peak periods f) Management of conflicts between pedestrians and the service vehicles using the loading bays g) Arrangements to accommodate the development's servicing requirements, including consideration of off-site consolidation h) Identification of the precinct logistics infrastructure and activities that form part of the development i) Details of pre-booking system j) Details of certification with relevant standards, including relevant Australian Standards.	See Loading Dock Management Plan appended to report
B13	The Applicant shall provide a Construction Pedestrian and Traffic Management Plan (CPTMP), prepared in consultation with the Sydney Coordination Office of TfNSW, with any Future Development Application. The CPTMP shall be consistent with the Construction Traffic Management Framework prepared as part of the Sydney Metro City and Southwest and include, but not be limited to, the following: a) Loading and unloading, including the locations of all proposed work zones b) Haulage routes c) Construction vehicle access arrangements d) Proposed construction hours e) Estimated number and type of construction vehicle movements, including morning and afternoon peak and off peak movements, distinguishing concrete pours from other construction activity, and noting that construction vehicles would be restricted from using	See Draft CPTMP appended to report

	work zones on Castlereagh Street and Elizabeth Street during certain times of the day f) Construction program, highlighting details of peak construction activities and proposed construction staging g) Details of specific measures to ensure the arrival of construction vehicles to the site does not cause additional queuing on Elizabeth Street, Hunter Street, Castlereagh Street and King Street h) Details of any construction vehicle marshalling areas i) The staging of works and simultaneous construction with other projects in the area, including the Sydney Light Rail Project, Sydney Metro and other developments nearby, and identify mitigation measures to ensure the proposal can be constructed while the impacts to rail users (and their connections) are appropriately managed j) Any potential impacts to general traffic, cyclists, pedestrians and bus services within the vicinity of the site from construction vehicles during the construction of the proposed works k) Measures proposed to mitigate any associated impacts of traffic, public transport, pedestrians and cyclists should be clearly identified and included in the draft CPTMP.	

2 Regulatory Transport Context

The following is a brief description of the transport planning provisions, goals and strategic planning objectives which are relevant to this Stage 2 application.

2.1 Sydney Local Environmental Plan 2012

The Sydney LEP 2012 applies to most of the City's local area and is made up of a written instrument and maps. It identifies the maximum number of on-site car parking spaces that can be provided for new developments based on their location and level of transport accessibility. The objective of the car parking rates is to minimise the amount of vehicular traffic generated because of the proposed development.

Clause 7.6 of Sydney LEP 2012 provides that the maximum number of car parking spaces for office and business premises.

No car parking spaces are proposed to be provided as part of the proposed development.

2.2 State Environmental Planning Policy (Infrastructure) 2007

The aim of this policy document is to facilitate the effective delivery of infrastructure across NSW. Clauses relevant to the development include:

Clause 88B: Development near proposed metro stations; and

Clause 104: Traffic generating development

The proposed development is aligned with these clauses.

2.3 Greater Sydney Region Plan

The Greater Sydney Region Plan, *A Metropolis of Three Cities* aims to align infrastructure and growth to restructure economic activity and access across the three cities:

- The established Eastern Harbour City – building on its recognised economic strength and addressing liveability and sustainability.
- The developing Central River City – investing in a wide variety of infrastructure and services and improving amenity.
- The emerging Western Parkland City – establishing the framework for the development and success of an emerging new city

In terms of connectivity, a key concept in the Plan is that of a 30-minute city that connects people to jobs, businesses, schools and services and supports the economic efficiency of trade gateways.

This proposal is consistent with the objectives of this Plan, improving the connectivity of the CBD and catering for additional employment needs.

2.4 Future Transport Strategy 2056

The Future Transport Strategy is an update of the 2012 Long Term Transport Master Plan for NSW. It is a 40-year strategy, supported by plans for regional NSW and for Greater Sydney.

The strategy outlines that transport is an enabler of economic and social activity and contributes to long term economic, social and environmental outcome.

The vision for the strategy is built on six outcomes which are

- Customer Focused
- Successful Places
- Growing the Economy
- Safety and Performance
- Accessible Services
- Sustainability

The proposed development is consistent with and helps to achieve these outcomes.

2.5 Sustainable Sydney 2030

The Vision for The City of Sydney is to be a green, global and connected city, leading the world in all three of these fields. Among the ten strategic directions for Sustainable Sydney are ‘integrated transport for a connected city’ and ‘a city for walking and cycling’. The proposed development is aligned with this vision, through its central location above a Metro and Train station as well as its provision of high quality end of trip facilities for pedestrians and cyclists.

2.6 Sydney’s Bus Future

Sydney’s Bus Future (Transport for NSW, 2013) provides the framework for improving and delivering more frequent and reliable bus services throughout Sydney. The core aim of the strategy is to provide an integrated bus network with seamless connections to other transport services.

The strategy also aims to tailor bus services to customer needs. In this vein, bus services will be focused into three key types, with associated priority and infrastructure investment:

- Rapid routes, which will use priority infrastructure, connect regionally throughout the city and have stops every 800m-1km
- Suburban routes, which will have stops every 400m and have mix of frequent ‘turn up and go’ and timetabled services

- Local routes, which will complete the network using local streets.

Employees of the proposed development will take advantage of these improved connections.

2.7 Sydney's Walking Future

Sydney's Walking Future (Transport for NSW, 2013) sets out a strategy to encourage people in Sydney to walk more through actions that make it a more convenient, better connected and safer mode of transport.

Key points to emerge from the strategy that are relevant to the proposed development include:

- NSW Government commitment to invest in new walking links that connect people to public transport.
- Prioritisation of investment in walking infrastructure to be prioritised within 2km of centres and public transport interchanges.
- Commitment to invest in walking facilities as part of the Transport Access Program, including improved circulation spaces around station precincts and safer walking links.

2.8 Sydney's Cycling Future

Sydney's Cycling Future (Transport for NSW, 2013) provides a framework for the way cycling is planned and prioritised in Sydney. It aims to grow the number of people cycling for transport by investing in safe, connected networks, making better use of existing infrastructure and fostering the formation of partnerships to develop cycling infrastructure. Key points to emerge from the strategy that are relevant to the proposed development include:

- A safe and connected bicycle network benefits the wider transport network by improving access to towns and centres, reducing congestion and increasing capacity on the public transport system.
- The promotion of safe separation of cyclists from motor vehicles and pedestrians where possible.
- Investment in bicycle infrastructure should be prioritised within 5km of public transport interchanges to provide improved connections.
- Promoting 'bike-and-ride' at major public transport interchanges including secure parking facilities integrated with public transport access.

The City of Sydney is moving towards a well-connected cycle network to improve accessibility for workers and visitors to the CBD. The development will encourage people to cycle by providing high quality End of Trip Facilities (EOFT) for employees and visitors.

2.9 Sydney's Light Rail Future

Sydney's Light Rail Future (Transport for NSW, 2012) provides a framework for the way light rail is planned and prioritised in Sydney. The plan identifies four stages for the future of light rail, including the provision of the CBD and South East Light Rail.

This line will be an attractive option to employees and visitors of the development, with Wynyard being the nearest stop.

2.10 Relevant Policies and Guidelines

The following documents have been considered in the development of this report:

- Sydney Streets Design Code and Sydney Streets Technical Specification used to inform any modifications to the street network.
- Roads and Maritime Services (RMS) Guide to Traffic Generating Developments used to inform the traffic assessment undertaken for the project.
- EIS Guidelines – Road and Related Facilities used to inform the preparation of the transport strategy, in particular the assessment of transport impacts.
- NSW Planning Guidelines for Walking and Cycling and NSW Bicycle Guidelines. These documents have been used to inform the development of the walking and cycling measures proposed in this strategy.
- Guide to Traffic Management – Part 12: Traffic Impacts of Developments (AUSTROADS). This guide has been referenced for the appropriate methodology to be used for traffic impact assessment of the development.

3 Existing Transport Conditions

The purpose of this section of the report is provide the transport context in which the development exists, describing the existing travel patterns of employees in the vicinity of the development site, the accessibility of the development site by various travel modes, the availability of on-street and off-street parking and the kerbside lane controls in place surrounding the South Site.

The South Site OSD site is located in the Sydney CBD and is surrounded by Martin Place to the north and retail/commercial developments to the south, east and west as shown in Figure 5. To the west is the MLC Centre (retail and commercial) with 50-58 Elizabeth Street and 60 Elizabeth Street to the east (both commercial buildings and with ground floor retail). To the south is 55 Elizabeth Street (the University of Newcastle's Sydney campus) and 60 Castlereagh Street (the BNP Paribas Centre).

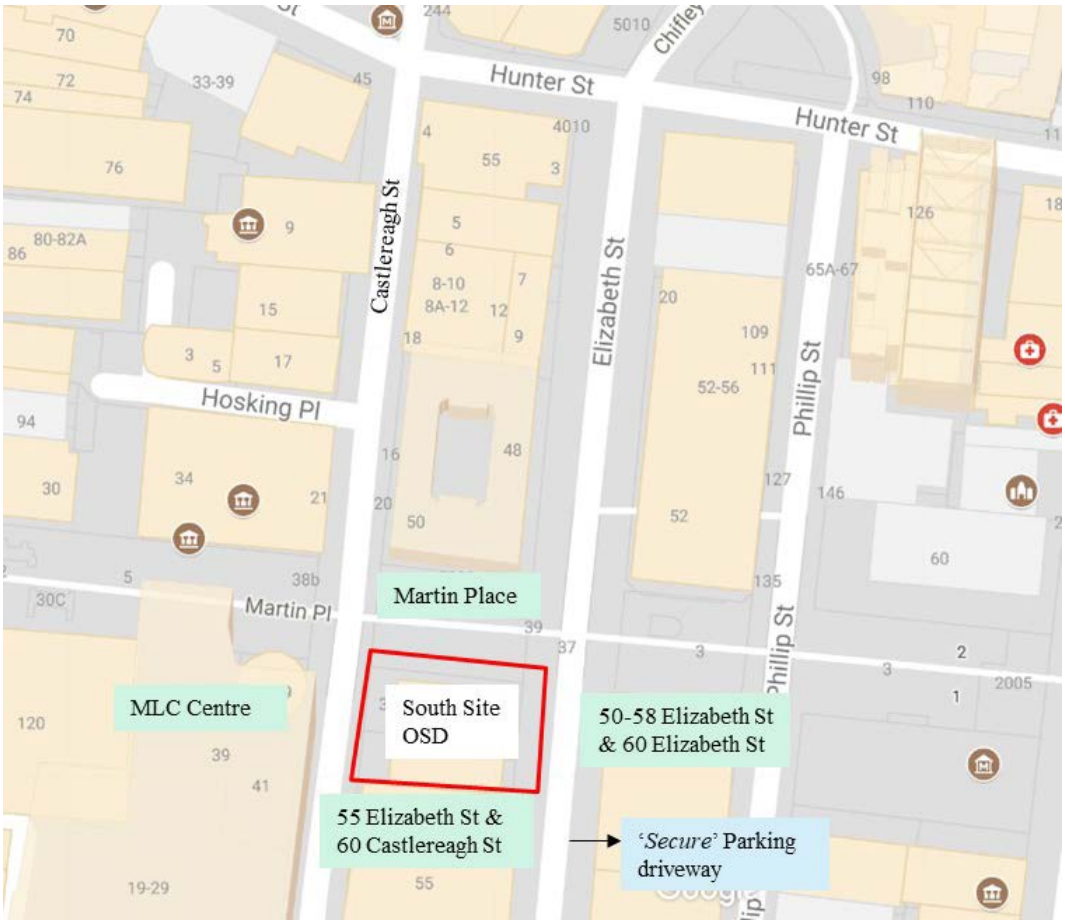


Figure 5: Site location and surrounding development

3.1 Existing Travel Patterns / Mode Share

Census Journey to Work (2016) data has been used to analyse the existing commuter travel behaviour in the area and characterise the public transport conditions in the vicinity of the proposed development site.

The 'Destination Zone' (DZN[2]) to which these statistics apply is the block bounded by Martin Place, Elizabeth Street, Castlereagh Street and King Street, allowing for high quality data in relation to travel patterns (see Figure 6). The South Site is located in the northern end of this DZN.

At the time of the Census (and prior to any demolition works), this zone had an employment population of approximately 2,500 people of which it is estimated that 1,000 people were working in the existing South Site buildings. Their main mode of travel is summarised in Figure 7. Over half of all commuters working in the area travel by train (53%) and a further 26% travel by bus. Travel by private car accounts for 13% of all trips (11% as car driver and 2% as car passenger). This indicates that the vast majority of employees in the area are using public transport for their commute. Walking trips account for 5% of the commuting trips with 1% of trips made by bicycle.

Figure 6: DZN utilised for analysis

[2] DZN 113371071 utilised for the analysis

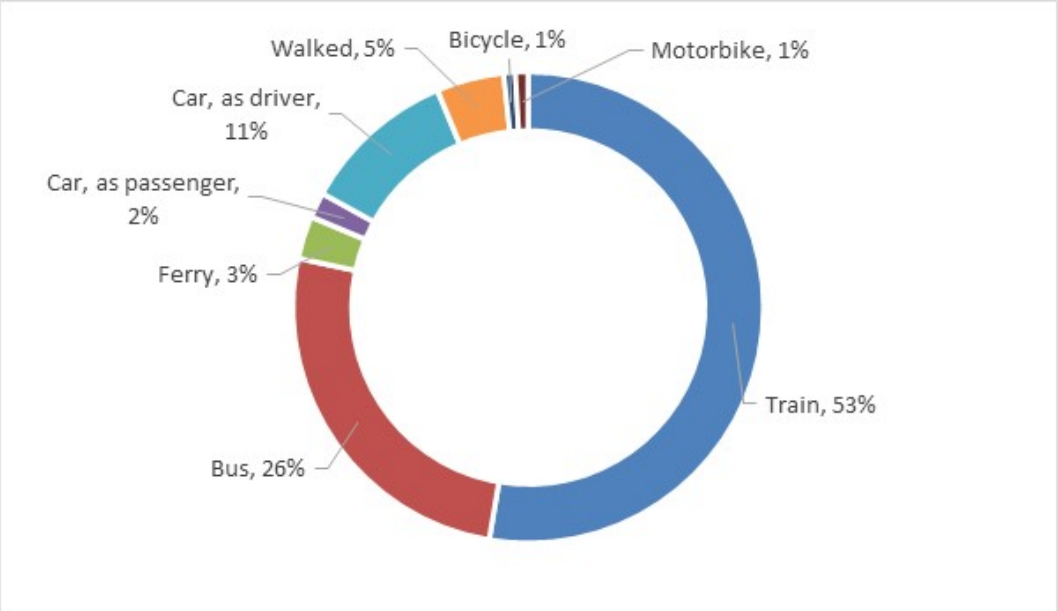


Figure 7: Mode Share

The largest proportion of employees commute from North Sydney (17%) followed by Sydney Eastern Suburbs (14%), and Inner City (13%).

3.2 Existing Vehicular Access and Kerbside Uses

The South Site has two trafficable street frontages. A brief description of these streets in the vicinity of the South Site is described below:

1) Castlereagh Street – (between Hunter Street and King Street)

- Castlereagh Street is a one-way street southbound and consists of one bus lane and one traffic lane. On the both sides of the road, there are parking lanes which are mainly designated as loading bays or bus zones on weekdays, with on-street parking permitted at weekends.
- Castlereagh Street forms a signalised intersection with Hunter Street (to the North) and King Street (to the South) with pedestrian crossings on all arms of the intersections while there is also a wide pedestrian crossing at the intersection with Martin Place.
- There is one existing vehicular access points to the South Site from Castlereagh Street as shown in Figure 8 (prior to any demolition works).

2) Elizabeth Street – (between Hunter Street and King Street)

- Elizabeth Street is a two-way street and generally consists of one bus lane and one traffic lane in each direction. Northbound, north of Martin Place, there are three traffic lanes and no bus lanes.
- On both sides of the road, the kerbside lanes are mainly designated as loading bays or bus zones on weekdays, with on-street parking permitted at weekends. Northbound for 50m on approach to the intersection with Hunter Street, the kerbside lane is a left-turn traffic lane during the day (i.e. ‘no stopping’).

- Elizabeth Street forms a signalised intersection with Hunter Street (to the North) and King Street (to the South) with pedestrian crossings on all arms of the intersections while there is also a wide pedestrian crossing at the intersection with Martin Place. There are no existing vehicle access points to the South Site from Elizabeth Street.

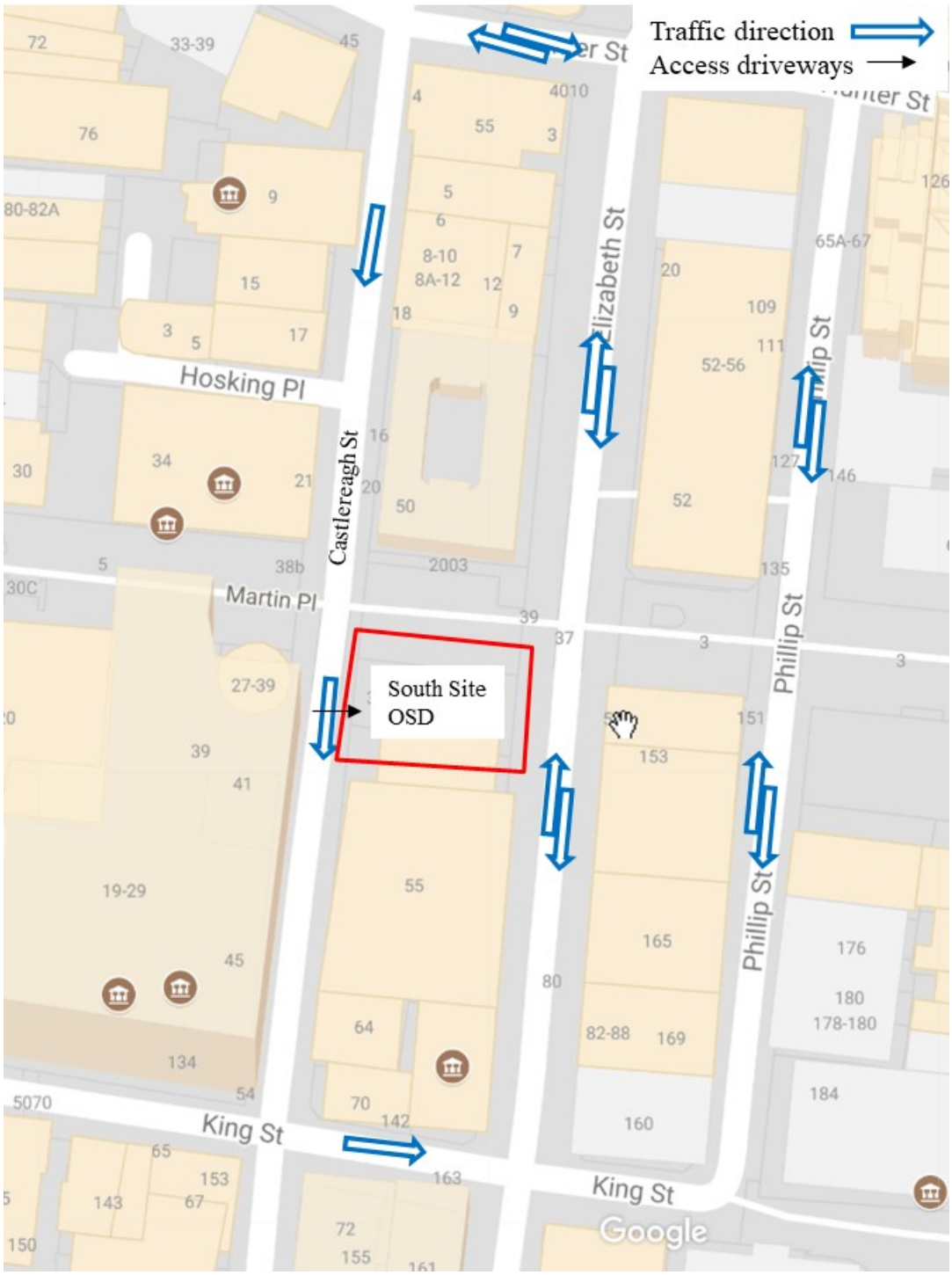


Figure 8: South Site existing vehicle access points

The on-street kerbside parking controls along Castlereagh Street and Elizabeth Street in the vicinity of Martin Place Station are heavily focused on bus and loading zones. On-street vehicle parking in the vicinity of Metro Martin Place precinct is heavily restricted and is generally only permitted overnight and on weekends. The weekday, daytime kerbside uses of the streets surrounding the South Site are shown in Figure 9.

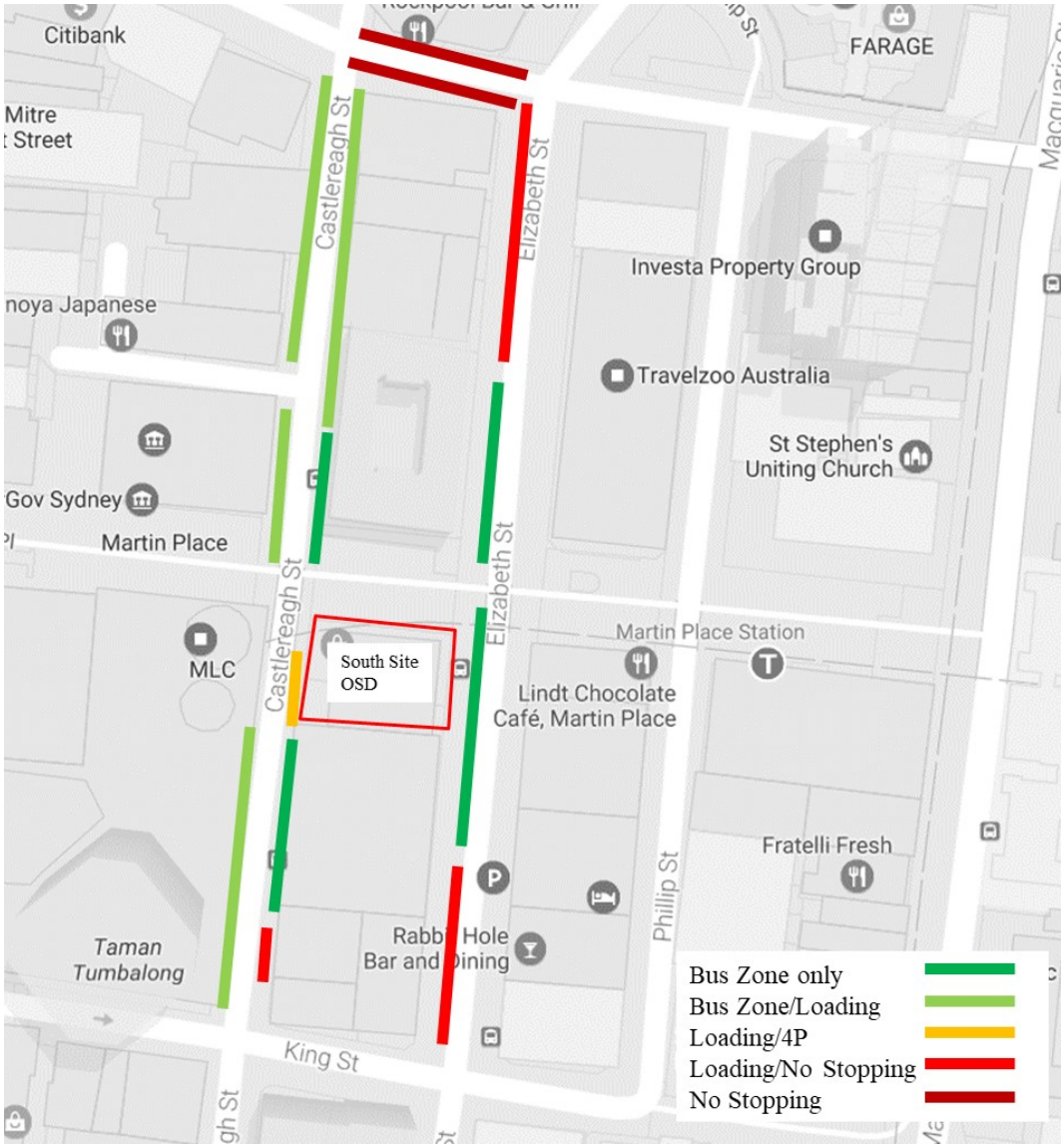


Figure 9: Weekday daytime kerbside uses

3.3 Traffic Volumes

The existing traffic volumes on the surrounding road network in the vicinity of the precinct have been extracted from the Sydney Metro (Chatswood to Sydenham) Critical State Significant Infrastructure (CSSI) EIS ('CSSI EIS') and are presented in Table 2. The following commentary was made in the CSSI EIS in relation to traffic in the local area.

"Elizabeth Street northbound experiences heavy traffic volumes during both peak periods. There is a strong movement from Macquarie Street (southbound) in the east to Castlereagh Street (southbound) via Hunter Street, which contributes to relatively heavy westbound traffic on Hunter Street.

Currently, the Macquarie Street / Bent Street / Eastern Distributor ramps intersection is extremely congested during the AM and PM peaks with the intersection performing above its theoretical capacity at level of service F. Long delays are caused by conflict between high volumes of traffic on the Eastern Distributor ramps (westbound) and Macquarie Street (southbound).

All other intersections near the Martin Place Station construction sites currently operate at level of service B or better. However, at the Elizabeth Street / Phillip Street / Hunter Street intersection, signal coordination along Elizabeth Street causes delays for conflicting right turn movements and vehicles on side-streets.[3]*"*

Table 2 Martin Place Station existing traffic volumes

Road	Direction	AM peak hour (veh'ss per hour)	PM peak hour (vehs per hour)
Castlereagh St (between King St and Hunter St)	Southbound	380	510
Elizabeth Street (between King St and Hunter St)	Northbound	1,130	1,110
	Southbound	410	590
Hunter Street (between Castlereagh St and Elizabeth St)	Eastbound	190	190
	Westbound	790	630

(Source: Sydney Metro (Chatswood to Sydenham) EIS, Chapter 8)

3.4 On-site Parking

The South Site *had* a single existing underground car park which is accessible off Castlereagh Street:

- 39-49 Martin Place (68 spaces) – (to be removed during the Metro demolition works).

These spaces will be removed as part of the development of the South Site.

3.5 Public Transport Access

The area is highly accessible by public transport as reflected by the high usage of trains, buses and ferries as a travel mode to work (approx. 75%). The South Site has some of the highest public transport accessibility in Sydney, with the location of the main rail and ferry transport nodes within 800m walking catchment of the South Site as shown in Figure 10. The future 'Wynyard' light rail stop on George

[3] Sydney Metro (Chatswood to Sydenham) EIS, Chapter 8

Street will also be within walking distance. A summary of the existing and planned future public transport options are summarised below.

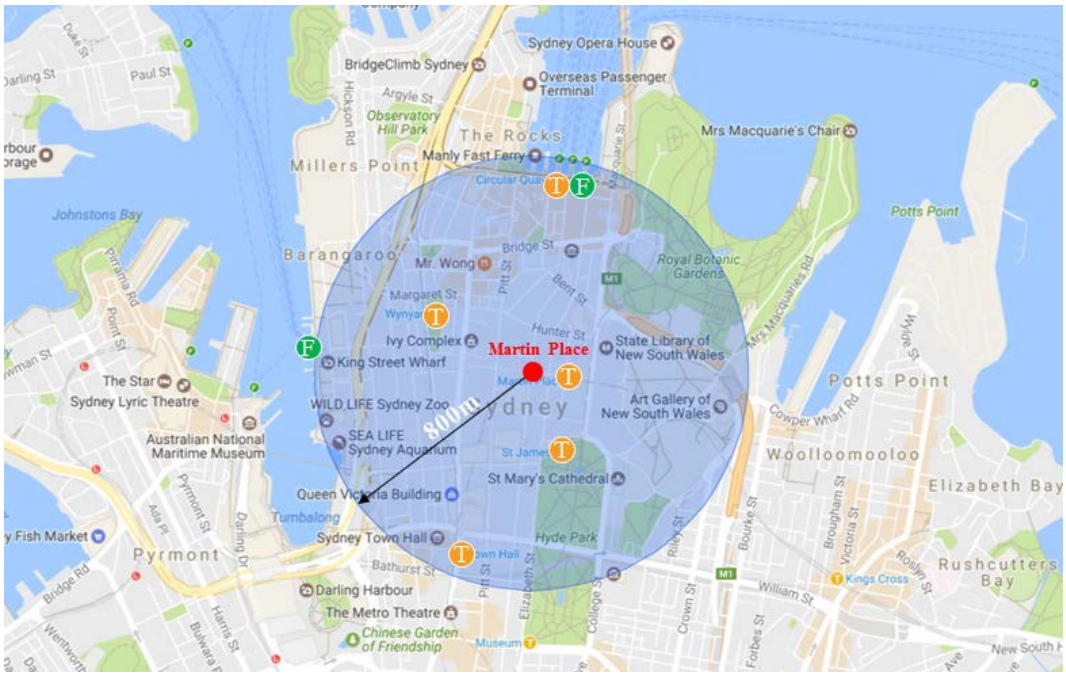


Figure 10: Main public transport nodes surrounding the precinct

3.5.1 Trains & Metro

Metro Martin Place station has a direct pedestrian access to Martin Place, with the station having seven operational pedestrian access points at present. Train services operating at this station include the T4 Eastern Suburbs and Illawarra Lines, offering high frequency services between Bondi Junction and areas in southern Sydney, including Hurstville, Sutherland, Cronulla, Waterfall and Wollongong.

These trains stop at Town Hall (next stop west of Martin Place) which offers direct interchange to most destinations on the Sydney Trains network. At peak times trains are operating at 3-4-minute frequencies in both directions decreasing to 10-minute frequencies in the evening time.

St James Station's entrance on the north side of St James Road is approximately 200m from Martin Place. This station is on the City Circle line offering services to the T3 Airport and East Hills Line, as well as to the Inner West via Circular Quay, Wynyard and Town Hall.

Wynyard Station's George Street entrance is approximately 500m from Martin Place. There are a number of rail services operating from this station including the T1 North Shore & Northern line and the T8 Airport & South Line

The Sydney Metro City and Southwest line, when operational, will have a station at Martin Place with trains every 4-minutes at peak times operating between Epping and Sydenham and in the future to Bankstown. At full capacity, the line is capable of accommodating trains every two minutes during peak periods.

3.5.2 Buses

The CBD is supported by extensive bus networks, which cover most of the area within approximately 10km of the CBD, as well as some longer distance services from the Northern Beaches, Upper North Shore and the Northwest. This network comprises primarily direct services which serve particular suburbs at their outer extent and then converge on corridors as they approach the CBD. The combined service frequencies on a number of these corridors, such as Oxford Street, Broadway and Victoria Road are in the range of 50 to 120 buses per hour.

Sydney Buses

A number of buses stop on Castlereagh and Elizabeth Street in the vicinity of the site (see Figure 11). Services originate from

- Inner West including Ashfield, Burwood, Lilyfield, Abbottsford and Chiswick via Broadway and George Street;
- North West via Victoria Road corridor including areas such as Ryde and Eastwood; and
- South West (Tempe, Kingsgrove, Canterbury, Dulwich Hill).

When leaving the City most services use Castlereagh Street. Services from the Eastern Suburbs generally run along Elizabeth Street.

Another major transport interchange is Wynyard, which has services from the Northern Beaches (B-Line) and Lower North Shore, and the Victoria Road Corridor. The B-line is a ‘turn up and go’ service while other bus services vary in frequency throughout the day.

Private Bus Operators

In addition to the above Sydney Buses services, a number of private operators offer services to the City. These include services from:

- Sydney’s North West (Hillsbus) which generally use the M2 Motorway alignment and Gore Hill Freeway, connecting at Wynyard and then Town Hall and Railway Square; and
- Sydney’s Upper North Shore (Forest Coach Lines and Shorelink) connecting Belrose, North Turramurra, East Wahroonga and Terry Hills stopping at Wynyard and Town Hall.

Convenient bus stops are in the Wynyard area and some inbound services stop at York Street, which is marginally closer to the Metro Martin Place Precinct.

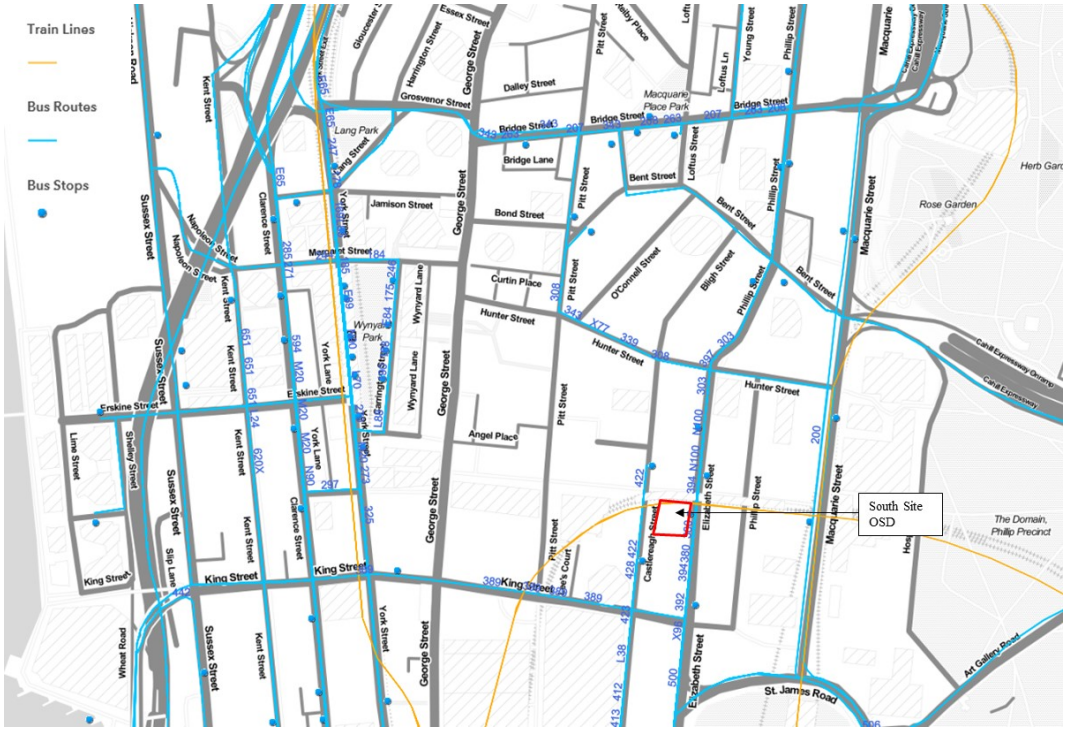


Figure 11: Bus routes and stops in the vicinity of the South Site OSD

3.5.3 Ferry

Circular Quay Ferry Wharves are approximately 800m from Martin Place walking via Bligh Street and Young Street. From Circular Quay, there are regular ferry connections to Manly, Taronga Zoo, Parramatta, Darling Harbour, Neutral Bay, Mosman Bay and Eastern Suburbs. The Sydney Ferry Network is presented in Figure 12.

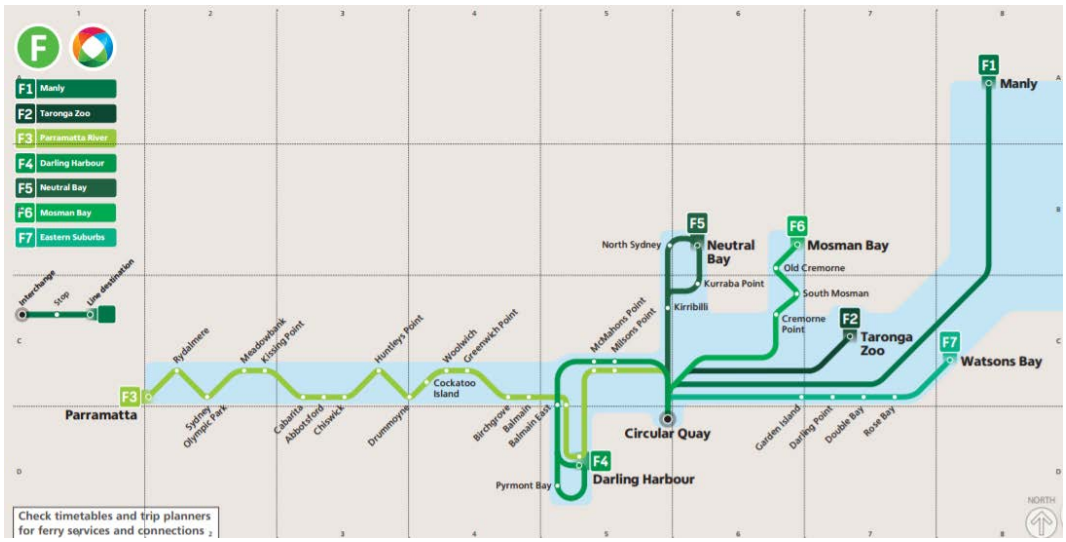


Figure 12: Sydney Ferry Network

3.5.4 Light Rail

The CBD and South East Light Rail is a 12km light rail network currently under construction. When completed, it will operate between Circular Quay and Kingsford/Randwick with 19 stops (including Central Station). The nearest stop to the precinct will be the Wynyard stop on Georges Street, approximately a 5-minute walk.

Construction is expected to be completed with services operational in 2020.

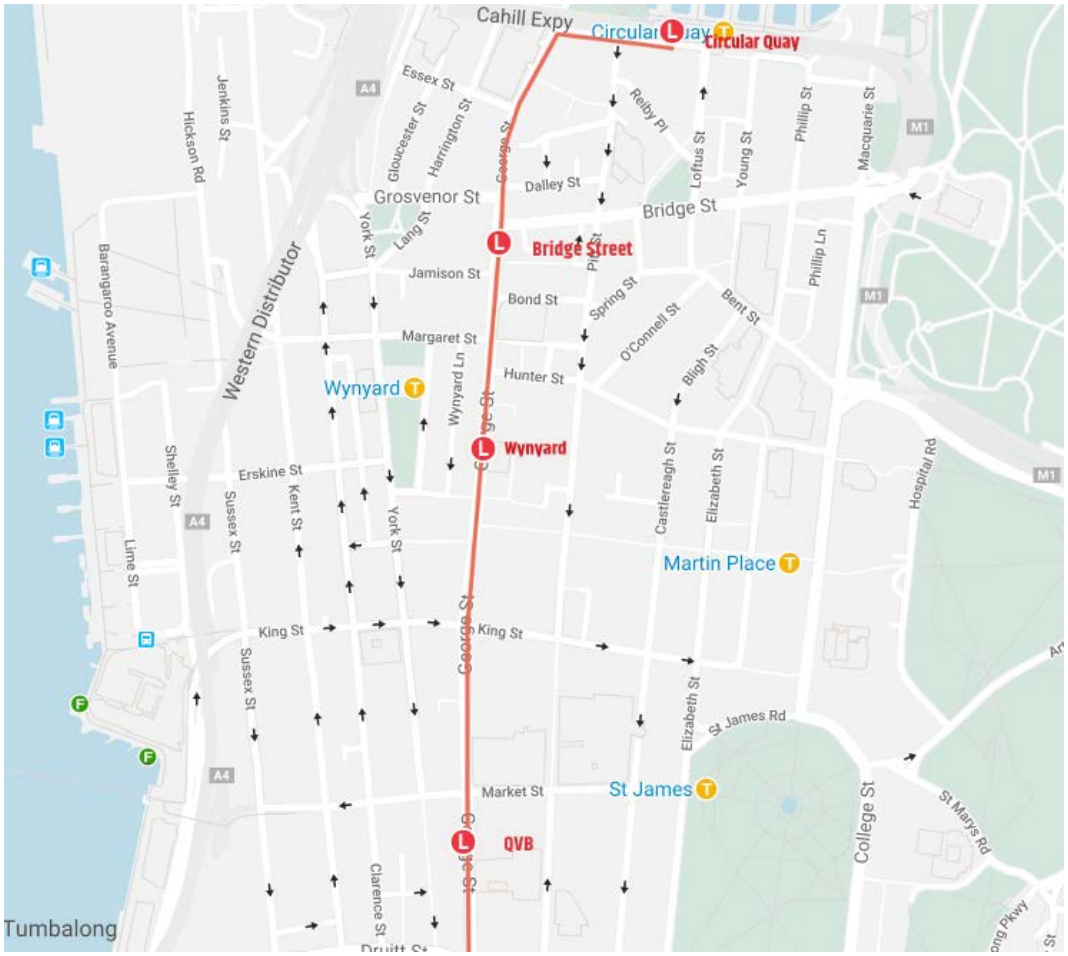


Figure 13 Light rail in vicinity of the OSD

3.6 Pedestrian Access

The main pedestrian access points to the existing South Site building is presented in Table 3. Much of the ground floor space on Castlereagh Street and Elizabeth Street is occupied by retail units, each with individual entrances from street level for pedestrians.

Table 3 Pedestrian Access Points

Building Address	Primary access points	Status
39-49 Martin Place	Castlereagh Street, Martin Place and Elizabeth Street	Demolished/to be demolished as part of Metro

3.7 Pedestrian Volumes

As part of the CSSI EIS, pedestrian surveys were undertaken in December 2015 at the Martin Place / Castlereagh Street and Martin Place / Elizabeth Street pedestrian crossings.

The surveys showed:

- Around 44,300 pedestrians crossed at Castlereagh Street throughout the day, with around 20,950 travelling eastbound and 23,350 travelling westbound. In the AM period the dominant pedestrian movement was westbound towards commercial buildings and George Street, whilst in the PM period the dominant movement was eastbound towards the Sydney Trains Martin Place Station.
- Around 33,900 pedestrians crossed at Elizabeth Street throughout the day, with around 13,700 travelling eastbound and 17,200 travelling westbound. As with Castlereagh Street, the majority of pedestrians travel westbound in the AM period and eastbound in the PM period.[4]

It is noted that these counts were undertaken prior to the recent demolition of buildings in this precinct as part of Metro works.

3.8 Cycling Network

There are a number of key cross-city cycle routes in the CBD which form part of City of Sydney cycling network. These routes are as follows:

- Kent Street (separated, bi-directional cycleway to Liverpool Street)
- Liverpool Street (separated, bi-directional cycleway between Sussex Street and Castlereagh Street)
- Castlereagh Street (separated, bi-directional cycleway between Liverpool Street and Belmore Park)
- King Street (separated, bi-directional cycleway between Pyrmont Bridge and Clarence Street)
- Pyrmont Bridge (shared cycle path)

The draft City of Sydney Cycle Strategy and Action Plan (2018-2030) identifies the completed and planned bike network for the CBD, including regional, local and recreational routes (see Figure 14). In the vicinity of the site, a local bike network on Bent Street and Macquarie Street is planned, connecting to planned regional networks on Pitt Street and Park Street.

[4] Extract from Sydney Metro, Chatswood to Sydenham EIS, Chapter 8

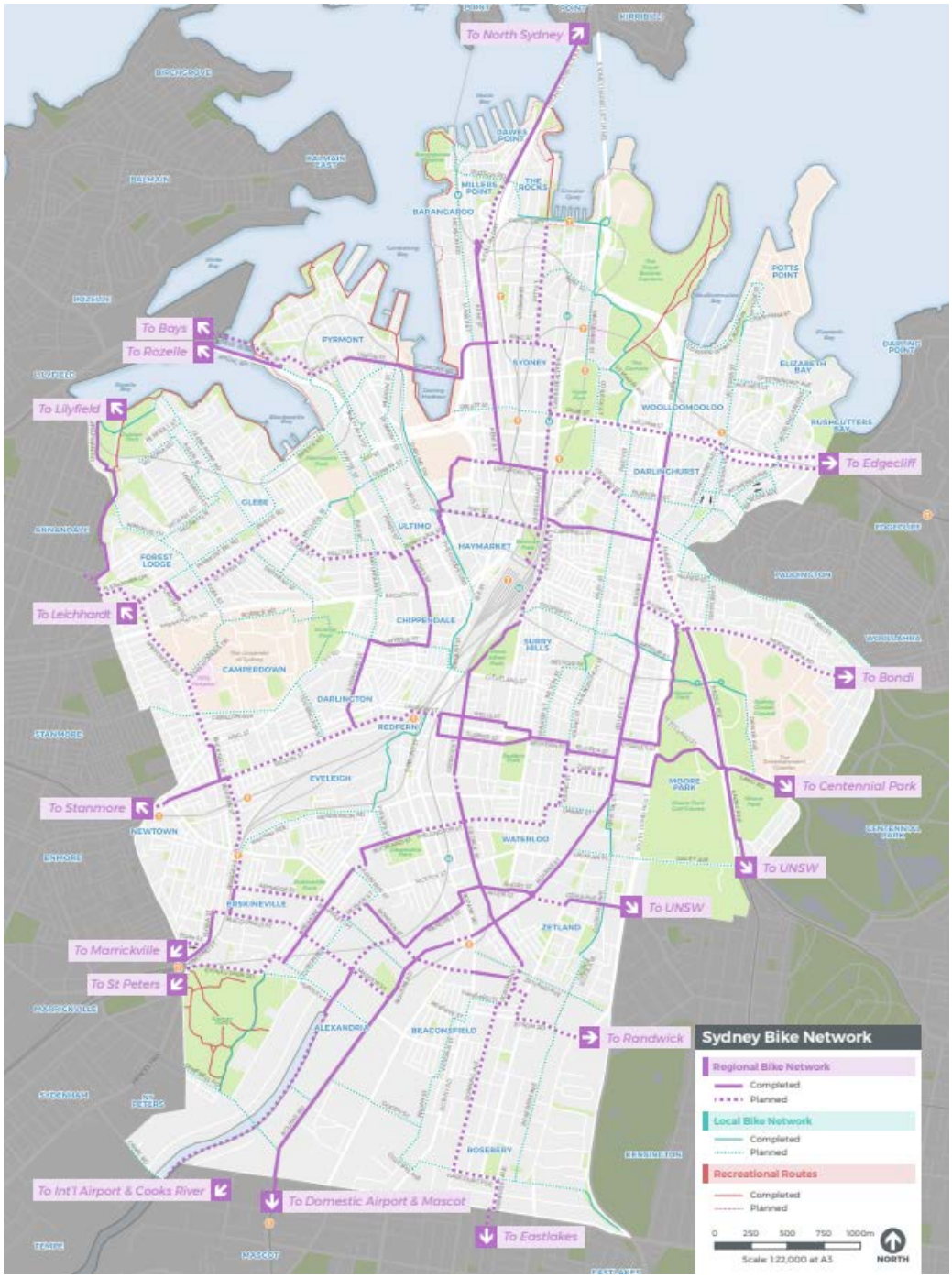


Figure 14 Sydney Future Bike Network

Source: City of Sydney Cycle Strategy and Action Plan (2018-2030)

4 Development Proposal

4.1 Description

An overview of the proposed OSD development is outlined earlier in this report in Section 1. The South Site OSD commercial tower is proposed to have a GFA of 37,553m^2. On the basis of a 1/10m^2 NLA employee density, the commercial tower is expected to have regular occupants of up to 2,980 people.

The employment population of the South Site was estimated to be 1,000, prior to the demolition of buildings as part of the Metro works.

4.2 Future Mode Share – South Site

A future mode share for the South Site has been estimated based on existing and predicted travel patterns to the development site and is presented in Figure 15.

The removal of on-site car parking (*with the exception of existing spaces at 50 Martin Place*) is anticipated to *significantly* reduce the car driver mode share to just 3% with subsequent increases in the public transport and active travel as a result.

The 3% car driver mode share includes trips made by staff to off-site locations (e.g. for meetings), parking in nearby parking lots or when staff travel by car for the longest part of the journey[5]*. As no on-site parking is provided, the proportion of staff driving to the South Site itself will be close to 0%.*

Given the South Site will be accessible directly from Metro Martin Place station, more than half of employment trips to the development site will be by Train/Metro, with travel by bus having the second highest mode share (25%).

Walking and cycling are anticipated to have a mode share of 6% and 5% respectively, with the quality of end of trip facilities encouraging travel by these active modes. The End of Trip Facilities (EoTF) have been designed to accommodate for 7.5% of *regular occupants* cycling.

The nearest light rail stop to the development site will be the Wynyard stop on George Street, just a 5-minute walk to Martin Place and will be attractive mode of travel option, in particular for those commuting from the Eastern Suburbs.

[5] These trips allow for a direct comparison with Census journey to work data

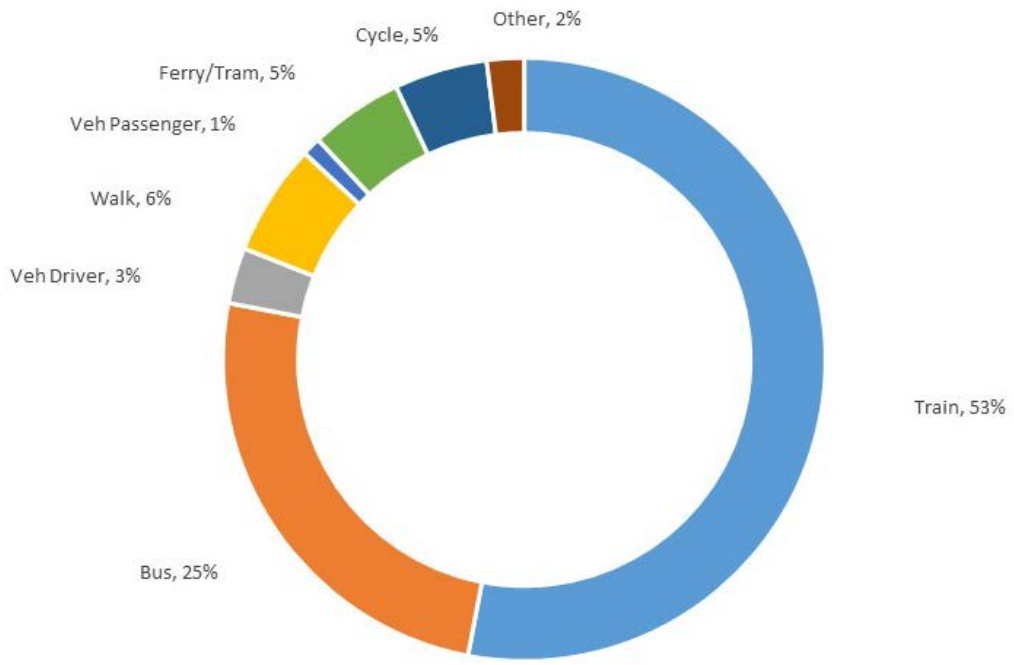


Figure 15: South Site OSD Target Mode Split

The mode split targets for the South Site OSD are unchanged from that assumed as part of the Stage 1 Amending DA for the site.

4.3 Future Daily and Peak Hour Movements

The daily person trip profile for a typical office development in the CBD is presented in Figure 16. It is based on survey data obtained for two office developments in Sydney CBD (on Kent Street and Alfred Street). The profile is based as percentage of the busiest movement in a one-hour period.

The busiest movement occurs during the AM Peak hour (8am-9am), with people entering the development. The PM peak hour 'exit' movement is approximately 80% of that which occurs in the AM peak hour 'entry' movement.

The mid-day peak of 12:30pm -13:30pm typically consists of local pedestrian trips (e.g. to shops, cafes etc.). In terms of volumes, it is approximately 65% of the AM peak hour 'entry' movement and occurs in both directions. While these trips are generally people leaving and returning during their lunch break, the AM and PM peak hour person trips are closely associated with commuting and the use of public transport. The AM peak hour has therefore considered to be most critical and been used to assess the impact to the transport network as a result of the South Site OSD.

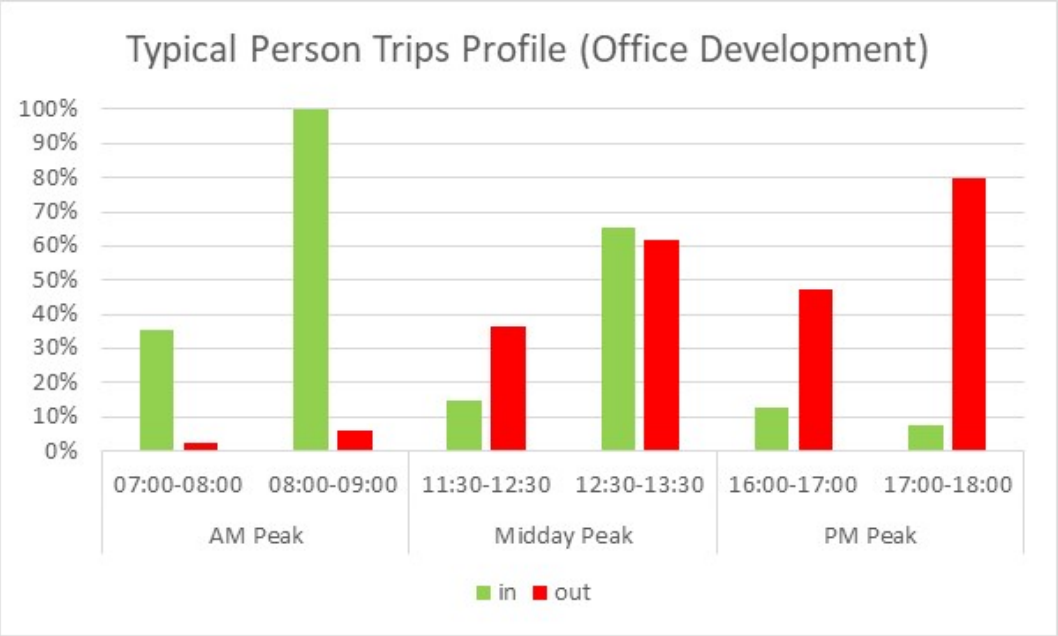


Figure 16: Person trips (as a percentage of the peak hourly movement)

The South Site is anticipated to generate the number of employment arrival trips shown in Table 4 based on a typical working day. These trips would take place over a 3-hour morning peak period, with approximately 50% of trips taking place during the morning peak hour (8am-9am).

Table 4 South Site OSD generated trips

Mode	**Existing Mode Share (pre-demolition)**	**Existing peak hour trips (1,000 occupants.)**	**Future Mode Share**	**Future peak hour trips (2,980 occupants.)**	**Increase in peak hour trips**
Train/Metro	51%	255	53%	790	535
Bus	24%	120	25%	373	253
Vehicle Driver	9%	45	3%	45	0
Walk	6%	30	6%	89	59
Vehicle Passenger	2%	10	1%	15	5
Tram/Ferry	4%	20	5%	75	55
Cycle	2%	10	5%	75	65
Other	2%	10	2%	30	20
Total	**100%**	**500**	**100%**	**1,491**	**991**

As shown in Table 4, the increase in the AM peak hour person trips generated by the OSD (in comparison to the 'existing scenario', i.e. before buildings were demolished for Metro) will be accommodated using sustainable modes with little change in the total number of trips by private car. As a result, the impact to the road network is considered negligible.

The estimated future daily trips generated by the OSD is presented in Table 5. It is based on office block surveys[6] which indicates that trips generated during the AM peak hour account for approximately 15% of the daily number of person trips. Similar to the AM peak hour findings, trips over the course of the day will generally be accommodated using sustainable modes with negligible impact to the road network as a result of trips taken by private car.

Table 5 South Site OSD generated person trips (Daily)

Mode	Existing daily trips (pre-demo) - (1,000 occupants.)	Future daily trips (2,980 occupants.)	Increase in daily trips
Train/Metro	1,700	5,269	3,569
Bus	800	2,485	1,685
Vehicle Driver	300	298	-2
Walk	200	597	397
Vehicle Passenger	67	99	33
Tram/Ferry	133	497	364
Cycle	67	497	430
Other	67	199	132
Total	**3,333**	**9,942**	**6,608**

4.4 Shared precinct facilities

It is proposed to share a number of facilities across the precinct, including bike parking, end of trip facilities and the loading dock. This section sets out the reasons for this (compared to the traditional approach) with examples of other developments, detail of the proposal and how it is intended to be managed along with any agreements required.

4.4.1 South site constraints

The South Tower site provides the following facilities at street level within its footprint:

- *pedestrian access to the new Metro station and existing Eastern Suburbs line station;*
- *a through site link which caters for DDA access through the provision of lifts;*
- *a small loading dock;*
- *main entrance and lobby for the south tower development providing street level access for employees and visitors; and*
- *activation at street-level along its Martin Place frontage with retail.*

[6] Source: RMS Guide to Traffic Generating Developments (td13-04a)

Station plant and the unpaid station concourse occupy the majority of the space on basement levels B1 and B2, with the Eastern Suburbs rail-line running beneath the site on the lower levels adding a further constraint.

Although bike parking, end of trip facilities and loading docks are typically provided at ground level or within the basement levels of developments in the CBD, given the above constraints it is not feasible to provide them within the building footprint at this location (with the exception of a small loading dock).

As a result, it has been proposed that a precinct wide approach be taken to the provision of bike parking and end of trip facilities, with centralised facilities provided in the North Tower basement to serve all developments within the precinct.

4.4.2 Proposed shared facilities

*A centralised bike parking and end of trip facility located on level B2 of the North Tower is proposed. This proposal enables **fully internal access** between the North Tower end of trip facilities (on B2) and the South Tower, via the B3 (unpaid) concourse (a walk distance of approximately 140m). This route is described in further detail in section 4.6.*

The provision of end of trip facilities at a centralised location to serve a precinct is not uncommon in the CBD. One example of this is at Barangaroo, where there is a central bike parking (>1,000 bike racks) and end of trip facilities area for workers in the Barangaroo International Towers. Walk distances between the end of trip facilities and towers in Barangaroo are of similar scale to that proposed at this location (i.e. 100-150m).

The trip time between the South Tower lobby and EoTF is approximately 2 minutes, which given the high quality of the facilities being provided, will not have an adverse effect on the user experience. Wayfinding and signage will ensure the areas are marked, with tours of the facilities provided as part of employee inductions to allow for familiarisation of the most convenient route.

Macquarie have also successfully implemented this type of arrangement in the past, with off-site EoTF facilities currently being provided at 20 Martin Place for staff working at 50 Martin Place. The facility is approximately 80m from 50 Martin Place and is well used by staff.

4.4.3 Security and agreements

It is expected that Macquarie will be the majority North Tower tenant, while the South Tower will likely consist of a mix of tenants.

It will be necessary to ensure that the South Tower employees have access to the bike parking end of trip facilities in the North Tower (on level B2) through a formal agreement/covenant. The agreement will need to be formed between Macquarie and any future owner/tenants of the South Tower ensuring access to the North Tower B2 bike parking and end of trip facilities. The agreement will

remain in place unless alternative facilities are made available for the use of South Tower tenants at a later date.

The agreement will ensure South Tower employees have both internal and external access to the facilities. This will be in the form of a security card providing access to the North Tower EoTF lobby on Castlereagh Street as well as the North Tower EoTF lifts on Lower Ground Level, B2 and B3.

An agreement will also be in place regarding the use of the North Tower loading dock by the South Tower tenants – see the Loading Dock Management Plan for details.

4.5 Pedestrian Access

The primary access point for the South Site OSD is off Castlereagh Street (see Figure 17). A 'through site' link provides access from Elizabeth Street also. The main station access is located along this 'through site' link, with stairs providing access from Elizabeth Street. There is also access to lifts from Elizabeth Street, accommodating DDA access to the station.

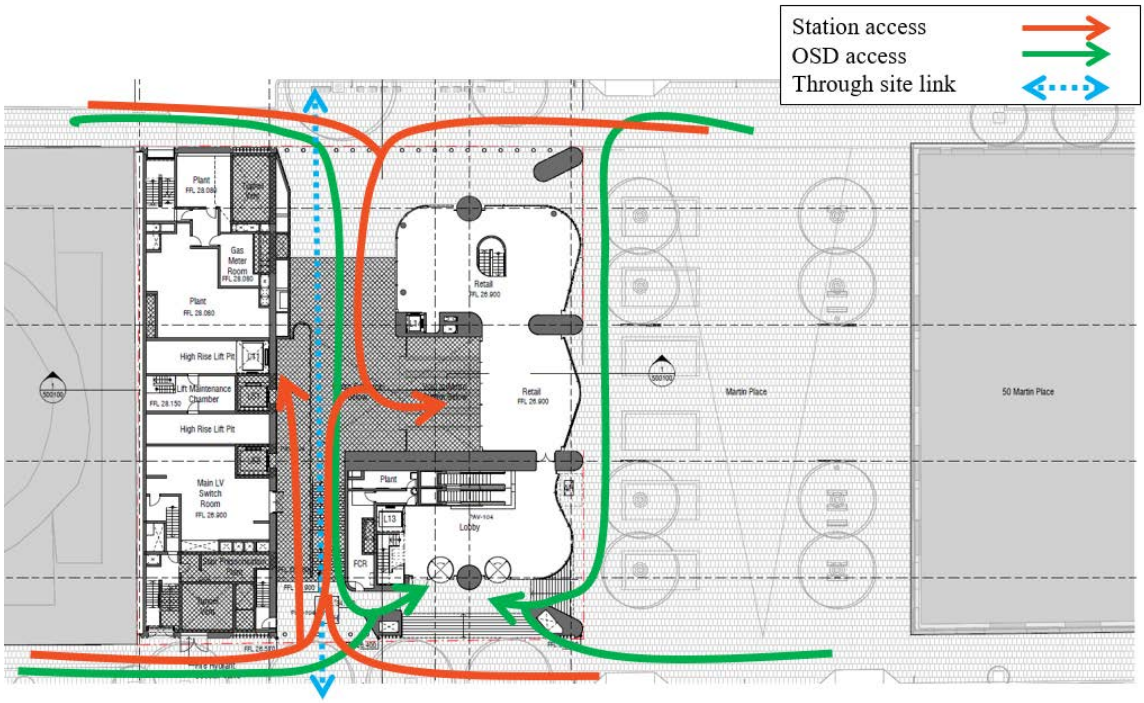


Figure 17 South Site OSD pedestrian access points

4.6 Bicycle Parking and Access

The main bike parking and end of trip facilities for the South Site will be located at basement Level 2 of the North Site OSD. The main access to this facility will be from off Castlereagh Street via a set of lifts and stairs. The facility will provide parking and end of trip facilities for the North Site (including 50 Martin Place), the South Site and retail employees. Shower and locker facilities are also located at this level.

The spaces required to be provided as part of the Metro will be located at Lower Ground level (accessed directly from Castlereagh Street). *Signage at the entrance will ensure they spaces are visible and accessible to the public.*

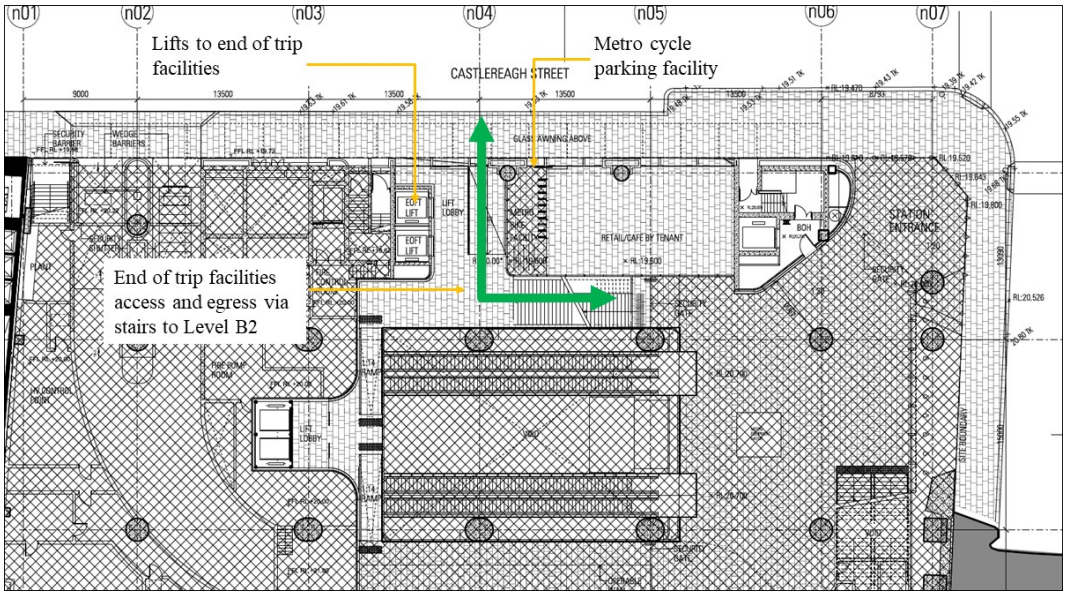


Figure 18 End of trip facilities access route and Metro bike parking

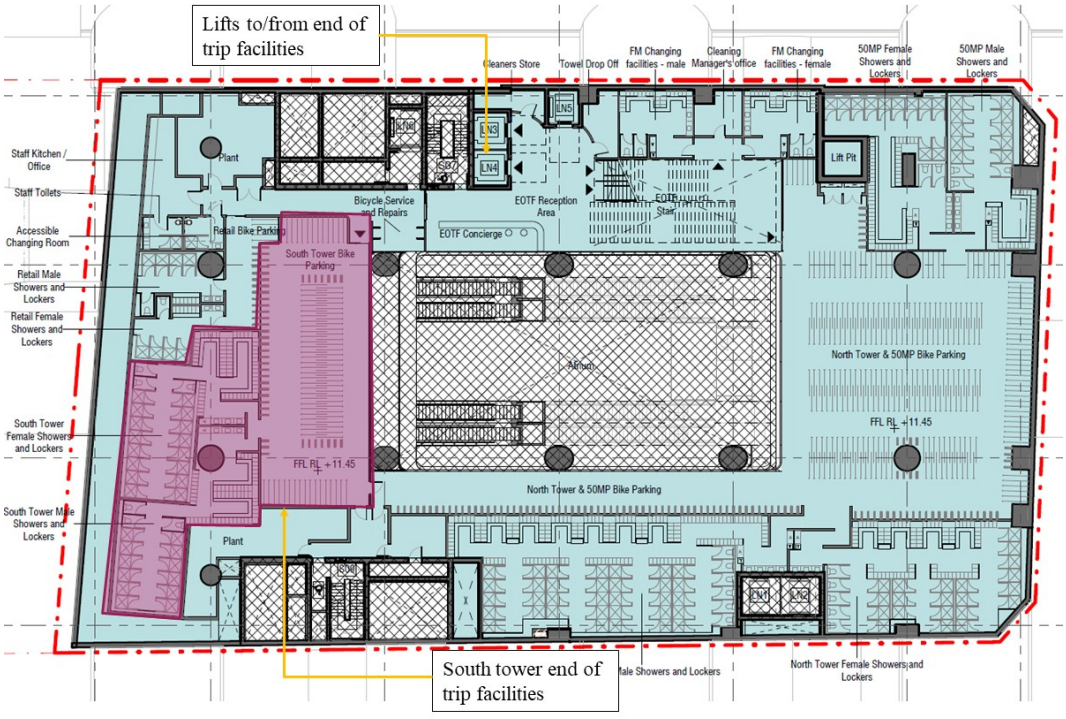


Figure 19 Basement level 2 end of trip facilities

End of trip facilities and bicycle parking will be provided for employees and visitors of the new development in accordance with GBCA 6 Star Green Star requirements.

A comparison of the required amount of bike parking based on Green Star and City of Sydney DCP requirements are presented in in Table 6.

The number of employee bike parking spaces proposed are relatively similar to the DCP requirements, while the number of visitor bike parking spaces are considerably less. The proposed provision is considered appropriate given the central location of the development in the CBD and the very high levels of accessibility by public transport (i.e. Metro, rail, bus and light rail). The existing cycling mode share in the CBD is approximately 2% and therefore the provision of bike parking for 7.5% of staff is considered to sufficiently meet the anticipated demand while also futureproofing for any increase in cycling in the future.

It is also anticipated that the majority of visitors to the commercial towers will do so by public transport or by foot, with many of the trips originating from within the CBD. In consideration of the above, the lower number of visitor bike parking spaces proposed (when compared with DCP rates) are considered appropriate.

To calculate the number of 'regular occupants' as defined by GBCA, a rate of 1 per 10m^2 NLA has been used. Regular occupants are those considered to be present on site on a typical day.

Table 6 South Site OSD bike parking requirements

Standard	Staff Bike Parking Requirement	Visitor Bike Parking Requirement	South Tower Regular Occupants /GFA	Staff bike parking required	Visitor bike parking required	Total
Green Star	7.5% of total regular occupants	5% of peak visitors[7]	*2,983 regular occupants*	*224*	*8*	*232*
2012 DCP	1 per 150sqm GFA	1 per 400sqm GFA	37,553m^2 GFA	250	94	344

The development will also provide end of trip facilities such as lockers and showers/changing cubicles in line with Green Star requirements. A comparison of the required amount of showers and lockers based on Green Star and City of Sydney DCP requirements are presented in Table 7. The proposed provision exceeds the DCP requirements.

Table 7 South Tower end of trip facilities requirements

Standard	Showers	Lockers	South Tower Regular Occupants /bike parking	Showers	Lockers
Green Star	8 for first 500 regular occupants plus 2 per extra 250 occupants	1.2 per bike parking space	*2,983 regular occupants and 224 staff bike parking*	*28*	*269*
2012 DCP	2 showers per 20 bike parking spaces or part thereof	1 personal locker for each bike parking space	250 staff bike parking spaces (using DCP bike parking)	25	250

[7] Peak visitors assumed to be 5% of staff

Bike parking and end of trip facilities associated with the North Tower, 50 Martin Place and Retail will also be provided on basement level 2 of the North Tower. A summary of the overall end of trip provision proposed for the precinct is provided in Table 8.

Table 8 Summary of precinct end of trip facilities

Location	Bikes (tenant and visitor)	Lockers	Showers
North Tower	*484*	*562*	*54*
South Tower	*232*	*269*	*28*
50 Martin Place[8]	*162*	*162*	*18*
Retail	*28*	*34*	*7*
Total	***906***	***1027***	***107***
Metro[9]	*20*	*0*	*0*

Of the total spaces provided, 232 are allocated for the South Tower with 162 provided for 50 Martin Place. Bike parking for Metro customers will be provided in accordance with Sydney Metro requirements.

Class 2 secure bicycle parking spaces will be provided for the employees of the building while Class 3 bicycle racks for visitors and Metro will be provided (i.e. easily accessible and clearly signposted).

To access the South Tower from the EoTF, two options are available (internal and external). By using the concourse link on B3, fully internal access is provided between the South Tower and the end of trip facilities. Alternatively, South Tower employees can take a lift or stairs back to Castlereagh Street and access from street level.

Given the previous Macquarie experience of providing off-site end of trip facilities, the location of South Tower end of trip facilities within the North Tower will not impact the expected uptake of future staff and visitors using these facilities.

[8] *Requirements as per condition 9A of application D/20011/733/H for 50 Martin Place*
[9] *Requirements as per the Sydney Metro SWTC*

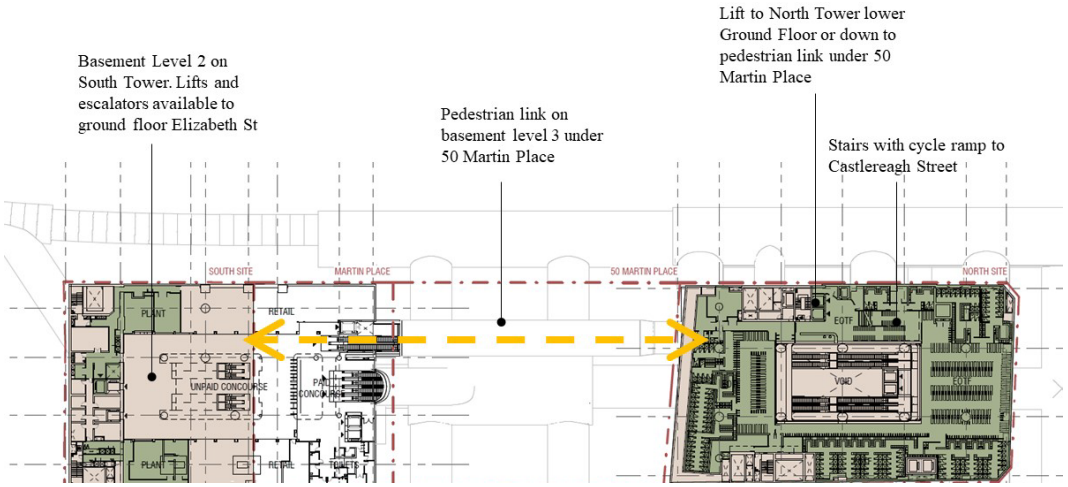


Figure 20 Internal pedestrian connection between South Tower and end of trip facilities

4.7 Vehicular Site Access and Loading Dock

Vehicular access to the South Site will be limited to service vehicles accessing the loading dock turntable. No on-site car parking spaces are proposed, with 68 parking spaces removed as part of the Metro demolition works.

The loading dock access point for the South Site OSD is presented in Figure 21 (on Castlereagh Street). *The dock will have a vertical clearance of 3.6m and be compliant with AS2890.2- 2002. Due to the limited capacity of the dock, it will need to be fully managed, with other strategies such as off-site consolidation and use of the North Tower loading dock also proposed.*

A separate Loading Dock Management Plan has been prepared which discusses the internal layout, capacity and day to day operations of the loading dock for the North and South Site. This is appended to this report in Appendix A.

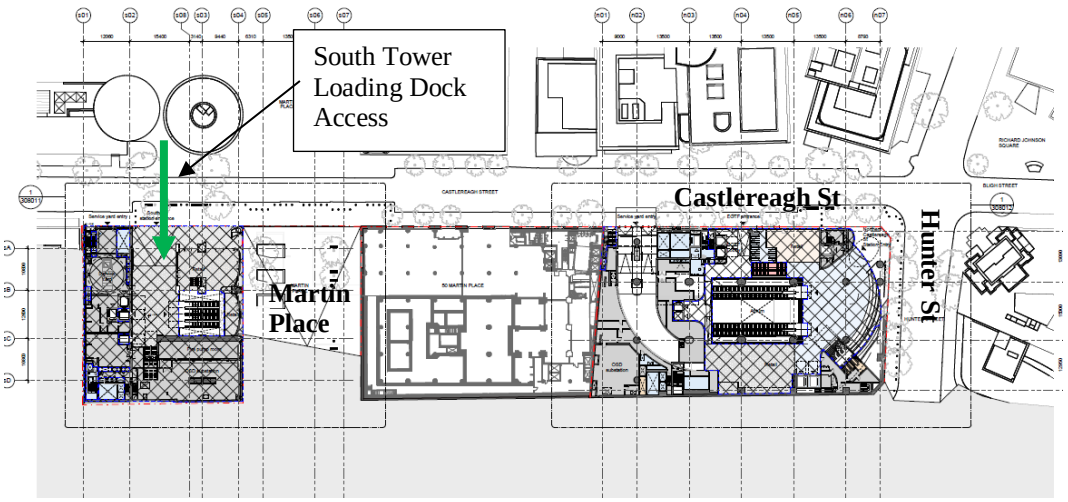


Figure 21: Access points to South Site OSD Loading Dock

For the South Site loading dock, a circular turntable is provided which can accommodate an 8.8m long MRV (or two B99 cars). This will allow vehicles to drive into and out of the loading dock in a forward direction. The driveway is approximately 5.2m in width (7m at the edge of roadway) with the footpath gradient 1 in 40 up to the property line. The vehicle swept paths are appended to this report in Appendix B.

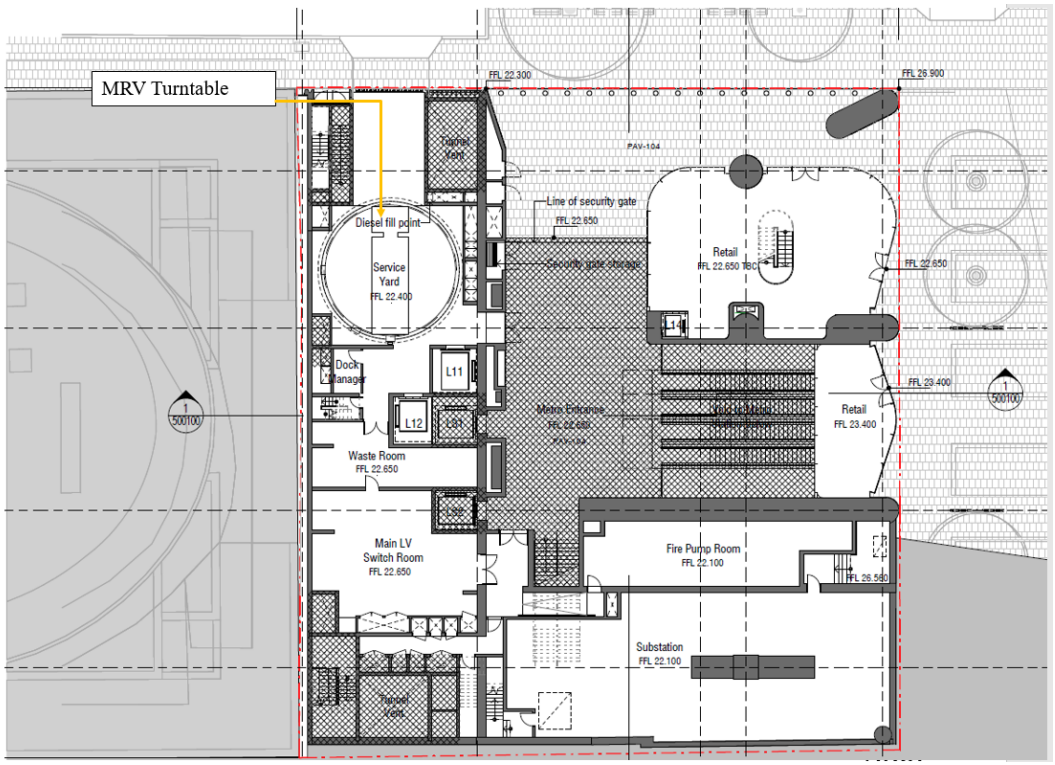


Figure 22: South Site turntable at Lower Ground level

4.8 Emergency Vehicle Access

In the case of emergency, ambulances and fire tenders will be able to use the kerbside lanes along both Castlereagh Street and Elizabeth Street which are designated as bus lane/loading bays depending on the time of the day.

4.9 Point to Point Services

There are a number of existing taxi ranks/stops in the vicinity of the precinct as presented in Figure 23. *There are two taxi ranks along Pitt Street (north and south of Martin Place) which are suitable for serving any demand associated with the South Tower.*

For ride-hail services such as Uber, customers can be picked-up and dropped-off in loading zones or other 'no-parking' zones, as per NSW Road Rule No. 179. The availability of these zones vary throughout the day in the precinct, with many being bus zones from 3pm – 8pm.

Approximately 0.5% of commuting trips to the CBD are by taxi which would indicate a South Tower OSD demand for approximately 7 trips/hour during peak

periods. In addition to this, station users will also generate a demand for 'point to point' services. Demand throughout the day can also be expected for travel to and from meetings by tower tenants.

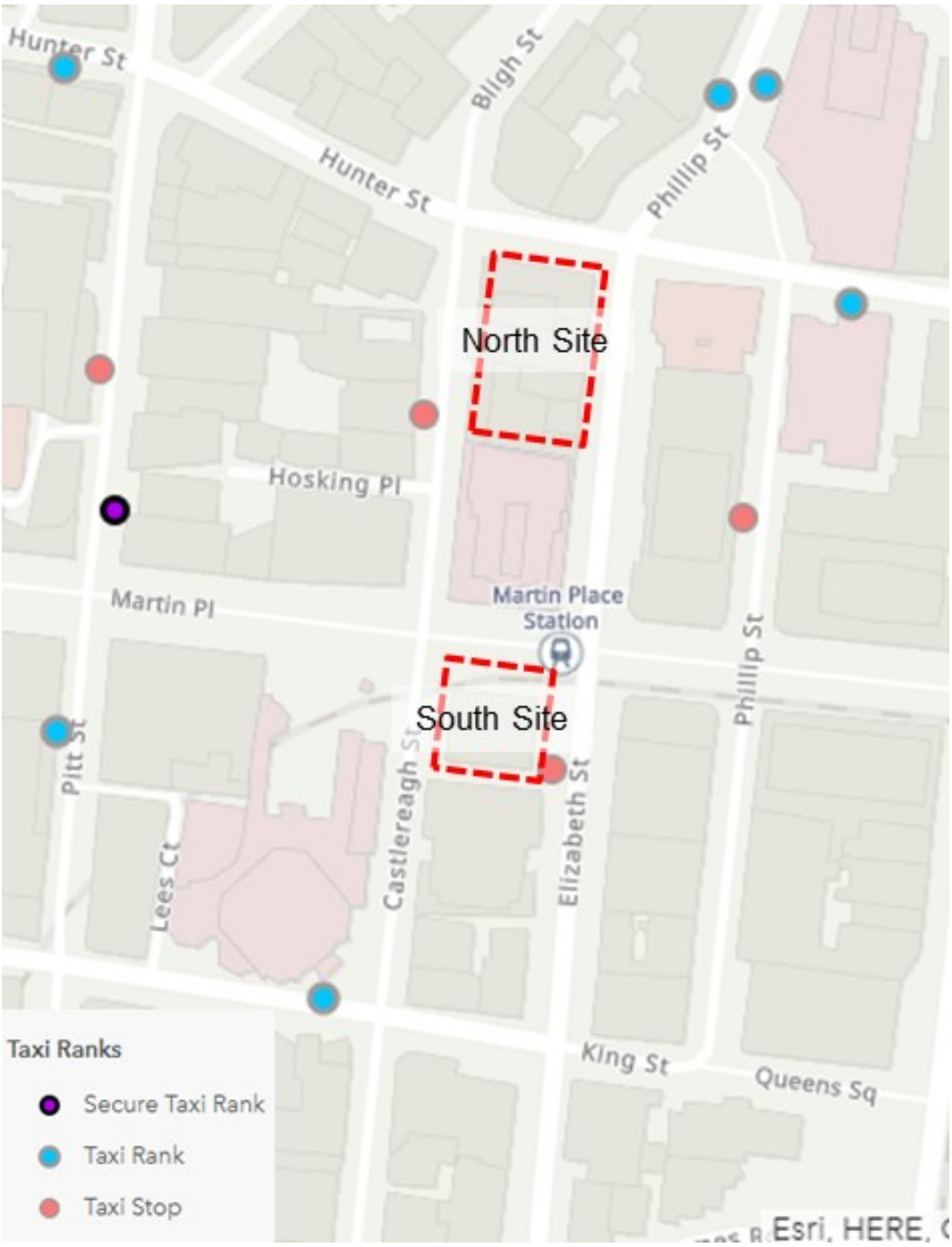


Figure 23 Taxi ranks and stops (source: City of Sydney)

In addition to existing facilities for 'point to point' services, Sydney Metro are preparing an Interchange Access Plan (IAP) for the precinct which will detail kerbside uses throughout the day as well as the extent of any kerb buildouts and footpath widening proposed.

The development of the IAP is on-going as additional studies as being undertaken, however it is likely to consist of the following elements:

- *Kerb build-out at the intersection of Martin Place and Castlereagh Street, reducing the roadway to two lanes – this is similar to the present temporary arrangement;*
- *No change to uses along Castlereagh Street, with the exception of a 'no parking' zone in front of the two loading dock driveways; and*
- *No change to uses along Elizabeth Street.*

Any additional provision for point to point services within the precinct will be included in the IAP. The IAP will be developed by Sydney Metro and be informed by technical studies and consultation with key stakeholders and authorities.

5 Transport Assessment

5.1 Traffic Generation and Road Network Impact

As no car parking spaces are proposed to be provided, traffic generation will be related to servicing, deliveries etc. It is estimated that 3% of staff will commute by car, resulting in a similar number of car trips during peak times compared to the existing situation. *This includes trips made by staff to off-site locations (e.g. for meetings), parking in nearby parking lots or when staff travel by car for the longest part of the journey. As no on-site parking is provided, the proportion of staff driving to the South Site itself will be close to 0%*. The impact is therefore considered to be negligible.

The South Site OSD is expected to generate 36 deliveries per day with off-site consolidation taking place along with use of the North Site loading dock. *A pre-booking system is proposed to be utilised to assist in managing delivery arrival times and ensuring efficient use of the loading dock in the South and North Tower. The capacity of the loading dock will be 2 vehicles per hour based on 30-minute pre-booked slots.* Refer to the Loading Dock Management Plan for further details.

In consideration of the estimated number of servicing and delivery trips, the provision of a pre-booking system and the timing of deliveries throughout the day, the impact to the road network is considered to be negligible.

5.2 Public Transport

The Sydney Metro and the Eastern Suburbs railway at Martin Place will provide a very high level of accessibility by train. Bus stops and taxi ranks in Castlereagh Street and Elizabeth Street will provide good opportunities for other modes of access. The location also takes advantage of being 350m from George Street for LRT access and 700m from Circular Quay for ferry access. The station and supporting intermodal facilities will create a highly accessible public transport precinct.

As outlined in Section 4.2, the South Site will generate approximately 535 additional Train/Metro trips, 250 additional bus trips and 50 additional Tram/Ferry trips during the morning peak hour (when compared to the office developments that were in place prior to the demolition works for Metro). This increases to approximately 1,950 additional Train/Metro trips, 920 additional bus trips and 200 additional Tram/Ferry trips during the morning peak hour when considering the cumulative impact with the North Site OSD.

The Sydney Metro, along with signalling and infrastructure upgrades across the existing Sydney rail network is anticipated to increase the capacity of train services entering the CBD – from about 120/hr today to 200 services beyond 2024. Considering the significant increase in capacity, the impact of the development on Train/Metro capacity is considered acceptable.

Similarly, the existing extensive bus network and the proposals set out in Sydney's Bus Future to increase services, capacity and journey times across the network, the impact on bus capacities are considered to be acceptable.

5.3 Walking

The footpath network provides a range of routes for access to Martin Place which acts as an important spine for pedestrian movement in this part of the CBD. As outlined in Table 4, the South Site OSD is expected to generate an approximately 990 additional trips during the AM peak hour (when compared to the office developments that were in place prior to the demolition works for Metro).

Of these additional trips, approximately 535 would be by train/metro and 65 by bike, and therefore not likely to impact the surrounding footpaths.

It is therefore expected that there will be approximately 390 additional trips by foot on the surrounding footpaths (including those walking from buses etc.) that are generated by the South Site OSD. This increases to 1,500 when considering the cumulative impact with the North Site OSD.

Based on the 2026 AM peak hour flows pedestrian volumes using in the CSSI EIS, seven footpath locations surrounding the site have been assessed and compared with a 'with OSD' scenario to understand the impact. The assessment is based on the Fruin Level of Service (LoS) for walkways. The locations are assessed are shown in Figure 24.

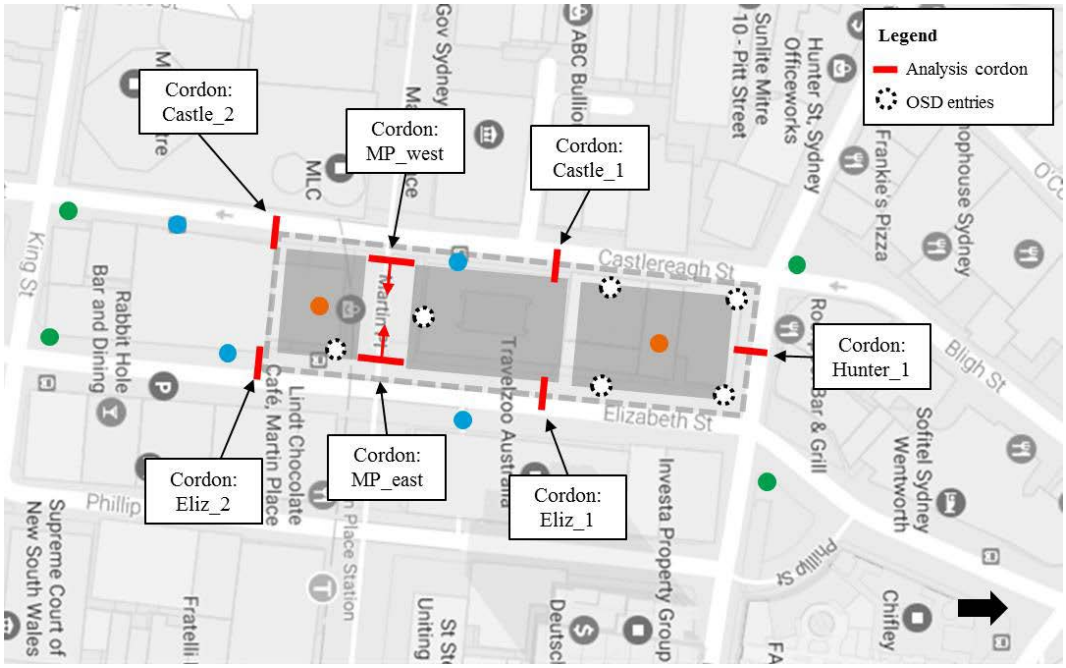


Figure 24: AM precinct distribution for OSD for arrival demand

Key assumptions made as part of the analysis are:

- Nominal footpath width of 2m is adopted throughout the precinct. This is considered a conservative assumption and a minimum expected across the pedestrian network.

- Width of 16m is adopted for the Martin Place entrances from Castlereagh Street and Elizabeth Street.
- Cumulative OSD population of 14,400 (this is higher than the expected OSD population).

The Fruin LoS at these seven locations is presented in Table 9 and Table 10 for the 'CSSI EIS base' and the 'CSSI EIS base + total OSD population' respectively.

Table 9 CSSI EIS pedestrian flows and level of service at cordon locations

Cordon	Castle_1	Castle_2	Eliz_1	Eliz_2	Hunter_1	MP_east	MP_west
People per metre/min	10.3	19.7	11.6	9.7	18.4	2.5	5
LoS (walkways)	A	A	A	A	A	A	A

Table 10 Pedestrian flows and level of service for OSD (proposed population) + CSSI EIS base demand

Cordon	Castle_1	Castle_2	Eliz_1	Eliz_2	Hunter_1	MP_east	MP_west
OSD	11	7.6	30.7	9.2	0	0.9	1.6
EIS (base)	10.3	19.7	11.6	9.7	18.4	2.5	5
Sum (people per metre/min)	21.3	27.3	42.3	18.9	18.4	3.4	6.7
LoS (walkways)	A	B	C[10]	A	A	A	A

When comparing the LoS results, Elizabeth Street west (Eliz_1) is subjected to increased flows that is likely to perform at LoS C (for a given width of 2m) but LoS B for a given width of 3m (which is more accurate). All other locations are expected to perform with a LoS A or B.

Based on the findings of the Fruin LoS analysis (indicating LoS A or B), the impact of the increase in pedestrian flows on Elizabeth Street and Castlereagh Street as a result of the OSD is considered acceptable.

5.4 Cycling

The location of EoTF access on Castlereagh Street is away from the main station access points and mid-way between Martin Place and Hunter Street along Castlereagh Street, reducing potential conflicts between cyclists and the pedestrians.

As the North and South Site share the same bicycle access point, cumulatively 240 additional trips by bicycle are expected in a AM peak hour period (when

[10] further analysis shows that the pavement width in this location is greater than the 2m assumed, which results in an estimated performance of LoS B (walkways).

compared to the office developments that were in place prior to the demolition works for Sydney Metro, including 50 Martin Place).

From the north, cyclists will be able to access the *bike parking end of trip facilities* via Castlereagh Street, dismounting before entering the building. From the south, cyclists will either route, such that they approach via Hunter Street and Castlereagh Street or will need to dismount and walk with their bike from Martin Place. Some cyclists may dismount on Elizabeth Street and walk via the 'through site' link to the facility also, however the presence of a stairs is likely to discourage this.

The provision of a kerb build-out, outside of the access to the facility on Castlereagh Street, is a potential measure which would assist cyclists to safely dismount and access and egress the building without conflicting with traffic or pedestrians.

This access point on Castlereagh Street is expected to be busy for a short period of time in the peak periods, however it is considered to be manageable.

This development will provide bicycle parking for commercial employees, in line with GBCA 6 Star Green Star requirements as well as providing for retail staff and visitors. In total, approximately *906* bicycle parking spaces will be provided in addition to Metro bike parking requirements.

5.5 Green Travel Plan

A Green Travel Plan has been prepared for the South Tower and is appended to this report as Appendix C. The plan details specific measures to encourage workers to use more sustainable modes to and from the development.

Given the lack of staff parking, central location, high levels of public transport accessibility and quality of proposed EoTF, the development is ideally placed to achieve the future travel mode share targets set out in this document.

6 Construction Pedestrian Traffic Management Plan

A Construction Pedestrian and Traffic Management Plan (CPTMP) has been prepared for the South Site and is appended to this report as **Appendix D**. The CPTMP has considered the Construction Traffic Management Framework prepared as part of the Sydney Metro City and Southwest and includes the following:

- Loading and unloading, including the locations of all proposed work zones
- Haulage routes
- Construction vehicle access arrangements
- Proposed construction hours
- Estimated number and type of construction vehicle movements, including morning and afternoon peak and off peak movements, distinguishing concrete pours from other construction activity, and noting that construction vehicles would be restricted from using work zones on Castlereagh Street and Elizabeth Street during certain times of the day
- Construction program, highlighting details of peak construction activities and proposed construction staging
- Details of specific measures to ensure the arrival of construction vehicles to the site does not cause additional queuing on Elizabeth Street, Hunter Street, Castlereagh Street and King Street
- Details of any construction vehicle marshalling areas outside the CBD
- *Details of pedestrian and traffic management measures*
- The staging of works and simultaneous construction with other projects in the area, including the Sydney Light Rail Project, Sydney Metro and other developments nearby, and identify mitigation measures to ensure the proposal can be constructed while the impacts to rail users (and their connections) are appropriately managed
- Any potential impacts to general traffic, cyclists, pedestrians and bus services within the vicinity of the site from construction vehicles during the construction of the proposed works
- Measures proposed to mitigate any associated impacts of traffic, public transport, pedestrians and cyclists should be clearly identified and included in the draft CPTMP.

Consultation with the Sydney Coordination Office (SCO) on the development of this plan is on-going.

7 Agency Consultations

A brief on the upcoming SSDA stage 2 submission was given to the agencies listed below, and the contents of this report were discussed, as well as the Loading Dock Management Plan (LDMP). All designs presented were agreed to in principle.

The Metro Martin Place team met with the following agencies on the following dates:

1. Roads and Maritime Services (RMS), Sydney Coordination Office (SCO), Sydney Buses, and Sydney Metro on 18 April 2018, to discuss this report
2. SCO on 30 April 2018 to discuss the LDMP in further detail
3. SCO on 08 May 2018 to discuss the Construction Traffic Management Plan in further detail
4. SCO on 17 May 2018 to discuss the LDMP in further detail and close out comments
5. Sydney Trains and Sydney Metro on 04 June 2018 to discuss this report
6. City of Sydney on 30 July 2018 to discuss the LDMP

8 Conclusions

This transport traffic pedestrian and parking report supports the Stage 2 SSD DA for the South Tower and confirms SEARs and Stage 1 conditions of consent have been met through the design.

The South Site OSD commercial tower is proposed to have an employment population of up to 2,980 people. The employment population of the South Site was estimated to be 1,000, prior to the demolition of buildings as part of the Metro works.

A turntable loading dock is proposed which will be accessible from Castlereagh Street. It will have capacity for 1 MRV (or 2 B99 sized vehicles). Off-site consolidation will be required. The dock will be managed with a pre-booking system in place. A loading dock management plan has been prepared for the North and South site.

Given the spatial constraints at the South Tower site, it is proposed to have a centralised the bike parking and end of trip facilities for the precinct in the North Tower. High quality end of trip facilities are proposed, with bicycle parking, showers and lockers located on Level B2 of the North Site OSD. Dedicated facilities for South Tower staff will be provided on this level, separate to those provided for North Tower, 50 Martin Place and retail staff.

The end of trip facilities will be accessible from Castlereagh Street via stairs (with an integrated bike ramp) and lifts. Fully internal access is provided between the North Tower end of trip facilities (on B2) and the South Tower, via the B3 (unpaid) concourse. An agreement will be in place to ensure future tenants of the South Tower are provided access to the EoTF in the North Tower.

Approximately 906 cycle parking spaces will be provided (in addition to Sydney Metro bike parking requirements), with 232 of these allocated for the South Tower tenant and visitors.

No car parking is being provided as part of the development and therefore the traffic impact will be negligible. with the main traffic generation related to servicing and deliveries.

A Construction Pedestrian and Traffic Management Plan has also been prepared, describing how it is proposed to manage the impacts to traffic, pedestrians, cyclists and public transport users during the construction stage.

The analysis undertaken shows the impact of increased South Tower Site population due to the development can be accommodated without negatively impacting existing transport or pedestrian infrastructure and systems.

Further, whilst not subject to approval under this SSD DA, the design of the Sydney Metro station has been designed to specifically incorporate the increased OSD pedestrian demand.

Appendix A

Loading Dock Management Plan

Macquarie

Sydney Metro Martin Place Integrated Station Development

South Tower, SSD DA Stage 2: Loading Dock Management Plan

CSWSMP-MAC-SMS-OM-REP-999901

Rev 2 | 28 February 2019

Job number 247838-72

Arup
Arup Pty Ltd ABN 18 000 966 165

Arup
Level 4, 108 Wickham Street
Fortitude Valley
QLD 4006
GPO Box 685 Brisbane QLD 4001
Australia
www.arup.com

ARUP

Contents

1 Introduction

This report supports a State Significant Development (SSD) Development Application (DA) (SSD DA) submitted to the Minister for Planning (Minister) pursuant to Part 4 of *the Environmental Planning and Assessment Act 1979* (EP&A Act) on behalf of Macquarie Corporate Holdings Pty Limited (Macquarie), who is seeking to create a world class transport and employment precinct at Martin Place, Sydney.

The SSD DA seeks approval for the detailed design and construction of the **South Site** Over Station Development (OSD), located above and integrated with Metro Martin Place station (part of the NSW Government's approved Sydney Metro project). The southern entrance to Metro Martin Place station and the South Site OSD above are located at 39-49 Martin Place.

This application follows:

- Approval granted by the Minister for a Concept Proposal (otherwise known as a Stage 1 SSDA) for two OSD commercial towers above the northern (North Site) and southern (South Site) entrances of Metro Martin Place station (SSD 17_8351). The approved Concept Proposal establishes building envelopes, land uses, Gross Floor Areas (GFA) and Design Guidelines with which the detailed design (otherwise known as a Stage 2 SSDA) must be consistent.
- Gazettal of site specific amendments to the Sydney Local Environmental Plan (LEP) 2012 (Planning Proposal reference: PP_2017_SYDNE_007_00) permitting greater building height (over a portion of the South Site) and additional floor space (over both the North and South Sites).

Lodged concurrently with this SSD DA, is a Stage 1 Amending SSD DA to the Concept Proposal (Stage 1 Amending DA), which seeks approval for an amended concept for the Metro Martin Place Precinct (the Precinct), aligning the approved South Site building envelope with the new planning controls secured for the Precinct.

To ensure consistency, the Stage 1 Amending DA must be determined prior to the determination of the subject Stage 2 SSD DA for the South Site.

This application does not seek approval for elements of the Metro Martin Place Precinct which relate to the Sydney Metro City and Southwest project, which is subject to a separate Critical State Significant Infrastructure (CSSI) approval. These include:

- Demolition of buildings on the North Site and South Site;
- Construction of rail infrastructure, including station platforms and concourse areas;
- Ground level public domain works; and
- Station related elements in the podium of the South Tower.

However, this application does seek approval for OSD areas in the approved Metro Martin Place station structure, above and below ground level, which are classified as SSD as they relate principally to the OSD. These components are within the Sydney Metro CSSI approved station building that will contain some OSD elements not already approved by the CSSI Approval. Those elements include the end of trip facilities, office entries, office space and retail areas, along with other office/retail plant and back of house requirements that are associated with the proposed OSD and not the rail infrastructure.

This defines the demand, requirements and operation of the loading dock so that it may be operated safely, efficiently and effectively. It will:

- Determine the vehicle demand that the tower and associated retail areas above and below ground, are likely to generate and use the information to set out the loading dock requirements and specifications;
- Define the overall logistics strategy to be employed for the movement of goods into, and waste and goods out of, the development; and
- Define how the loading dock will operate and the facilities be managed as a basis for the design.

Context

The New South Wales (NSW) Government is implementing Sydney's Rail Future (Transport for NSW, 2012), a plan to transform and modernise Sydney's rail network so that it can grow with the city's population and meet the needs of customers in the future.

Sydney Metro is a new standalone rail network identified in Sydney's Rail Future. The Sydney Metro network consists of Sydney Metro Northwest (Stage 1) and Sydney Metro City and Southwest (Stage 2).

Stage 2 of Sydney Metro entails the construction and operation of a new metro rail line from Chatswood, under Sydney Harbour through Sydney's CBD to Sydenham and onto Bankstown through the conversion of the existing line to metro standards. The project also involves the delivery of seven (7) new metro stations, including Martin Place.

This step-change piece of public transport infrastructure once complete will have the capacity for 30 trains an hour (one every two minutes) through the CBD in each direction catering for an extra 100,000 customers per hour across the Sydney CBD rail lines.

On 9 January 2017 the Minister approved the Stage 2 (Chatswood to Sydenham) Sydney Metro application lodged by Transport for NSW (TfNSW) as a Critical State Significant Infrastructure (CSSI) project (reference SSI 15_7400). Work is well underway under this approval, including demolition of buildings at Martin Place.

The OSD development is subject to separate applications to be lodged under the relevant provisions of the EP&A Act. One approval is being sought for the South Site – this application – and one for the North Site via a separate application.

Site Description

The Metro Martin Place Precinct project relates to the following properties (refer to Figure 1):

- 50 Martin Place, 9 – 19 Elizabeth Street, 8 – 12 Castlereagh Street, 5 Elizabeth Street, 7 Elizabeth Street, and 55 Hunter Street (North Site);
- 39 – 49 Martin Place (South Site); and
- Martin Place (that part bound by Elizabeth Street and Castlereagh Street).

This application relates **only to the South Site**, being the land at 39-49 Martin Place (refer to Figure 1).

The North Site is the subject of a Stage 2 SSD DA.

Figure 1: Aerial Photo of the North and South Site of the Metro Martin Place Precinct

Background

Sydney Metro Stage 2 Approval (SSI 15_7400)

The Sydney Metro CSSI Approval approves the demolition of existing buildings at Martin Place, excavation and construction of the new station (above and below ground) along with construction of below and above ground structural and other

components of the future OSD, although the fit-out and use of such areas are the subject of separate development approval processes.

On 22 March 2018, the Minister approved Modification 3 to the Sydney Metro CSSI Approval. This enabled the inclusion of Macquarie-owned land at 50 Martin Place and 9-19 Elizabeth Street within Metro Martin Place station, and other associated changes (including retention of the opening to the existing MLC pedestrian link).

Concept Proposal (SSD 17_8351)

On 22 March 2018, the Minister approved a Concept Proposal (SSD 17_8351) relating to Metro Martin Place Precinct. The Concept Proposal establishes the planning and development framework through which to assess the detailed Stage 2 SSD DAs.

Specifically, the Concept Proposal encompassed:

- Building envelopes for OSD towers on the North Site and South Site comprising:
  - 40+ storey building on the North Site
  - 28+ storey building on the South Site (see Figure 2)
  - Concept details to integrate the North Site with the existing and retained 50 Martin Place building (the former Government Savings Bank of NSW)
- Predominantly commercial land uses on both sites, comprising office, business and retail premises
- A maximum total GFA of 125,437m^2 across both sites
- Design Guidelines to guide the built form and design of the future development
- A framework for achieving design excellence
- Strategies for utilities and services provision, managing drainage and flooding, and achieving ecological sustainable development
- Conceptual OSD areas in the approved Metro Martin Place Metro station structure, above and below ground level[1]

[1] *Refers to those components within the Metro CSSI approved station envelope that will contain some OSD elements not approved in the CSSI consent. Those elements include the end of trip facilities, office entries, office space and retail areas, along with other office/retail plant and back of house requirements that are associated with the proposed OSD and not the rail infrastructure.*

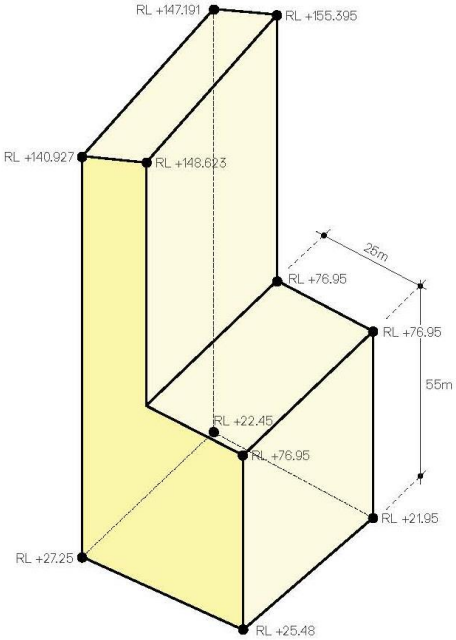
Figure 2: North Site and South Site Approved OSD Building Envelopes

Planning Proposal (PP_2017_SYDNE_007_00) - Amendment to Sydney LEP 2012

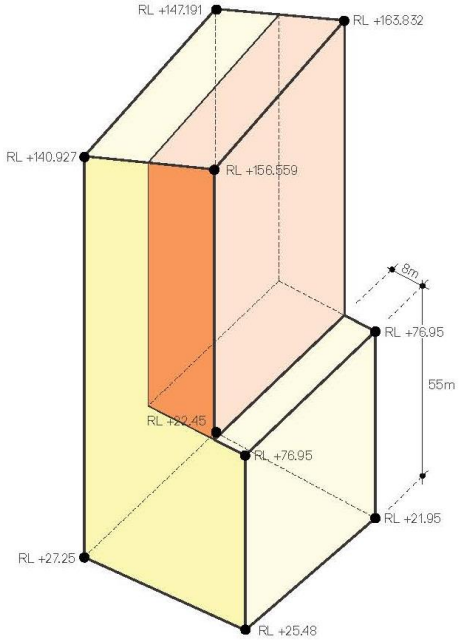
The Planning Proposal (PP_2017_SYDNE_007_00) sought to amend the development standards applying to the Metro Martin Place Precinct through the inclusion of a site-specific provision in the Sydney LEP 2012. This site-specific provision reduced the portion of the **South Site** that was subject to a 55 metre height limit from 25 metres from the boundary to Martin Place, to 8 metres, and applies the Hyde Park North Sun Access Plane to the remainder of the South Site, forming the height limit of the tower. It also permits a revised FSR of 22:1 on the South Site and 18.5:1 on the North Site. These amendments were gazetted within Sydney LEP 2012 (Amendment No. 46) on 8 June 2018 and reflect the new planning controls applying to the Precinct.

The Concept Proposal was prepared and determined prior to the site specific Sydney LEP 2012 amendment (PP_2017_SYDNE_007_00) being gazetted and was developed based on the height development standards that applied to the South Site at the time. As a result, the Concept Proposal allows for a tower on the South Site that is now inconsistent with the building envelope envisaged through the amendment to the Sydney LEP 2012. Accordingly, a Stage 1 Amending SSD DA to the Concept Proposal (Stage 1 Amending DA) has been lodged concurrently with this subject Stage 2 SSD DA, which seeks to align the approved Concept Proposal building envelope for the South Site with the revised site specific development standards applying under the Sydney LEP 2012, being increased FSR and building height. This Stage 1 Amending DA seeks to amend the planning and development framework established under the approved Concept

Proposal that is used to assess this Stage 2 SSD DA. The Stage 1 Amending DA is to be assessed concurrently with, and determined prior to the subject Stage 2 SSD DA, with the amended South Site building envelope setting the broad development parameters for the South Site (see Figure 3 below).



Approved South Site OSD Envelope



Proposed Amended South Site OSD Envelope (aligning with site specific amendment to Sydney LEP 2012)

Figure 3: Relationship between the approved and proposed amended South Site building envelope

Overview of the Proposed Development

The subject application seeks approval for the detailed design, construction and operation of the South Tower. The proposal has been designed as a fully integrated station and OSD project that intends to be built and delivered as one development, in-time for the opening of Sydney Metro City and Southwest in 2024. The application seeks consent for the following:

- The design, construction and operation of a new 28 storey commercial OSD tower (plus rooftop plant) within the approved building envelope for the South Site, including office space and retail tenancies.
- Vehicle loading within the basement levels.
- Extension and augmentation of physical infrastructure / utilities as required.
- Detailed design and delivery of 'interface areas' within both the approved station and Concept Proposal envelope that contain OSD-exclusive elements, such as office entries, office space and retail areas not associated with the rail infrastructure.

Planning Approvals Strategy

The *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD) identifies development which is declared to be State Significant. Under Schedule 1 and Clause 19(2) of SEPP SRD, development within a railway corridor or associated with railway infrastructure that has a capital investment value of more than $30 million and involves commercial premises is declared to be State Significant Development (SSD) for the purposes of the EP&A Act.

The proposed development (involving commercial development that is both located within a rail corridor and associated with rail infrastructure) is therefore SSD.

Pursuant to Section 4.22 of the EP&A Act a Concept DA may be made setting out concept proposals for the development of a site (including setting out detailed proposals for the first stage of development), and for which detailed proposals for the site are to be the subject of subsequent DAs. This SSD DA represents a detailed proposal and follows the approval of a Concept Proposal on the site under Section 4.22 of the EP&A Act.

Figure 4 below is a diagrammatic representation of the suite of key planning applications undertaken or proposed by Macquarie and their relationship to the subject application (the subject of this report).

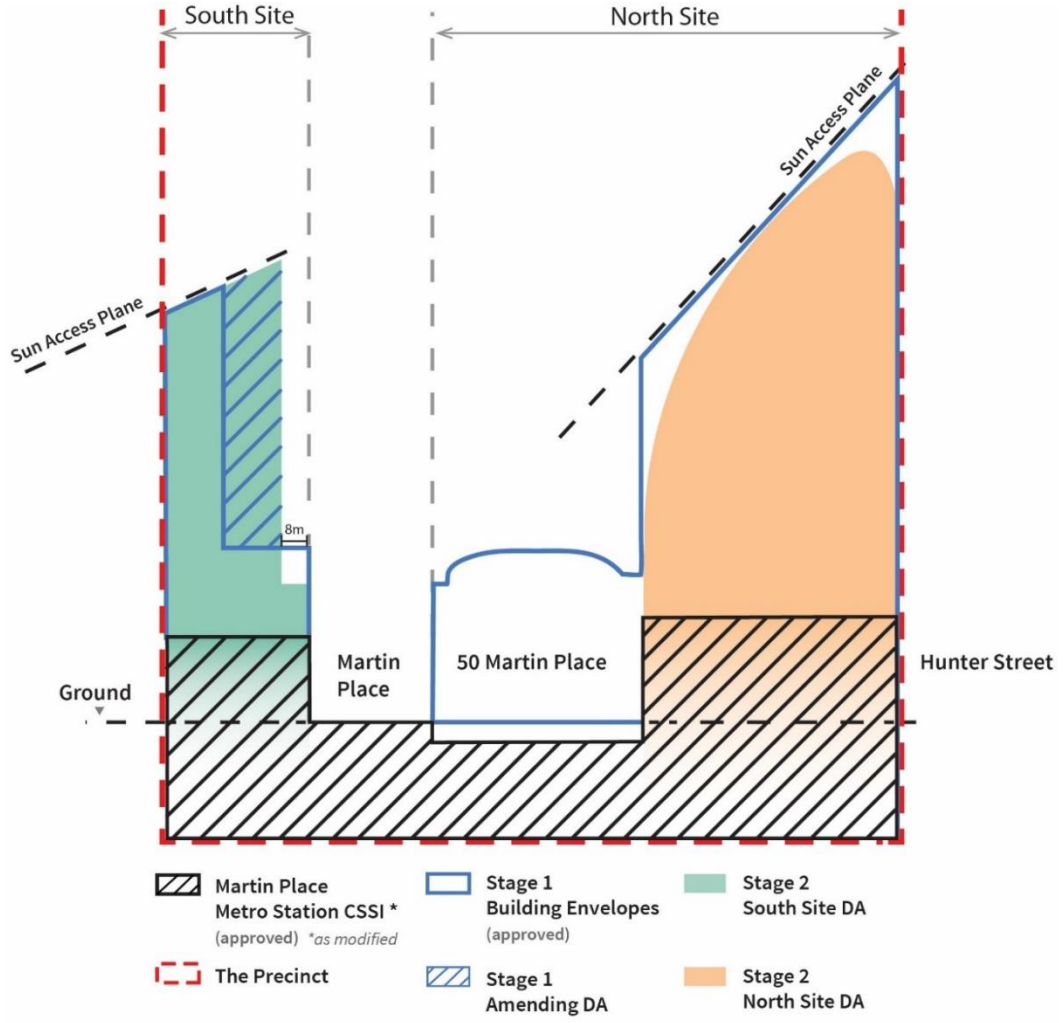


Figure 4: Relationship of key planning applications to the Stage 2 South Site DA (this application)

The Department of Planning and Environment have provided Secretary's Environmental Assessment Requirements (SEARs) to the applicant for the preparation of an Environmental Impact Statement for the proposed development. This report has been prepared having regard to the SEARs as follows:

The EIS shall include a traffic, parking and access assessment providing:

- details of existing and proposed vehicle access arrangements, including parking, loading dock and servicing management with consideration of precinct wide shared loading docks and/or remote or off-site loading zone hub facilities, ensuring all servicing and loading occurs on-site and does not rely on kerbside controls.

The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the EP&A Regulation 2000. Provide these as part of the EIS rather than as separate documents.

In addition, the EIS must include the following:

- Draft loading dock management plan.

Furthermore, Condition B9 of the Development consent, Section 4.38 of the Environmental Planning and Assessment Act 1979, states:

The Applicant shall provide a loading dock management plan, prepared in consultation with Council and the Sydney Coordination Office of TfNSW, with any Future Development Application(s). The loading dock management plan shall include, but not limited to, the following:

a) detailed swept path analysis of service vehicles accessing the loading docks

b) confirmation that vehicular access is located as far as reasonably practical away from the traffic control signals on Castlereagh Street and will not result in queuing on Castlereagh Street

c) sufficient capacity exists for the service vehicle demands of the development and Sydney Metro

d) management of incidents at the access to the loading docks

e) loading bay management details, including service vehicle movements during peak periods

f) management of conflicts between pedestrians and the service vehicles using the loading bays

g) arrangements to accommodate the development's servicing requirements, including consideration of off-site consolidation

h) identification of the precinct logistics infrastructure and activities that form part of the development

i) details of a pre-booking system

j) details of certification with relevant standards, including relevant Australian Standards.

2 Scope

This plan specifically considers the servicing requirements for the majority of the precinct elements; however, some areas have been excluded or partially included as shown in Table 1.

Table 1 Consideration of site elements

Consideration of site elements	
Site Element	**Consideration**
Facilities and technical rooms below street level that support the operations of the South Tower.	Included.
South Tower OSD.	Included.
South Tower and Station entrances, retail and public concourses at street level.	Included.
Technical rooms and risers within South Tower which support the operation of the Station.	Included.

2.1 Applicable Standards

Designed with reference to:

- Australian Standard AS2890.2-2002 Off-street Commercial Vehicle Facilities
- Sydney Development Control Plan 2012

The proposed design is in accordance with AS2890.2-2002 and has been agreed to by the City of Sydney. This LDMP meets the minimum requirements for the layout of the facility, for the loading and unloading of commercial vehicles, including design requirements for access driveways across the property boundary and for internal circulation roadways. Various departures from the standard have been addressed in this LDMP (see Table 2).

Table 2 Departures from AS2890.2-2002

Departures from Australian Standard	
Clause	**Comments and Mitigation**
4.1 General (c) “The design of the service areas shall include the... provision of an appropriate number of SRV bays to accommodate maintenance and other site servicing vehicles.”	No long-dwell vehicles (e.g. maintenance and trade vehicles) will be permitted into the loading dock. These will be re-directed by the dock master to a nominated public carpark suitable for the relevant service vehicles.
Table 4.1 Service Bay Dimensions Recommended Vertical Clearance (min) SRV: 3.5 MRV: 4.5	The Australian Standard (AS2890.2—2002) places no requirement on the vehicle clearance head height for Loading Docks. It merely stipulates the limiting dimensions of potential vehicles.

4.3.1 (h) A major service area should accommodate at least one HRV on a regular service basis.	The waste management contractors will be employed to collect refuse from the site using vehicles that will not be restricted by the height of the Loading Dock.

2.2 Consultation with Sydney Coordination Office (SCO)

Consultation has occurred with the following stakeholders of the SCO to ensure respective needs are incorporated into this document:

- Transport for NSW
- City of Sydney

2.3 Referenced Documents

- CSWSMP-MAC-SMP-AT-DRG-308111: South Tower Level B1 General Arrangement
- CSWSMP-MAC-SMS-AT-DRG-308010: South Tower Level LG General Arrangement
- SK188, NLA/GLAR 06.12.17 Rev F: South Tower area schedule (NLA)
- SK-A-3050: LONG SECTION (Grimshaw)
- CSWSMP-MAC-SMO-WS-REP-999901: OSD Waste Management Plan
- CSWSMP-MAC-SMA-TF-PLN-999901: Traffic and Transport Design Report
- CSWSMP-MAC-SMP-SC-SMP-999901: Security Management Plan
- CSWSMP-MAC-SMA-SC-IMP-999901: Precinct Wide Incident Management Plan

3 Site Details

3.1 Area Use

The relevant elements of the development for the purposes of this report are the South Tower, above and below ground retail, restaurant/café areas and lobby areas.

Current estimated Gross Floor Area (GFA) and area use information for the South Tower is provided in Table 3. These have been used as the basis for vehicle demand calculations.

Table 3 - Tower area use and estimated GFA

Tower area use and GFA	
Area Use	**South Tower**
	GFA (m2)
Office	35,282
Retail	1,132.5
Restaurant/Café	1,132.5
Lobby	-
Total	**37,547**

3.1.1 Tenancy

No assumptions have been made on whether the development or each tower will be single or multiple tenancy. This plan has been developed to take into account both possibilities.

3.1.2 Tower Concourse Link

A key consideration in the development of this strategy has been the pedestrian link under 50 Martin Place connecting the North Tower and South Tower (shown in Figure 5). It is understood that this link will be public-facing and in mostly constant use. As such, it has been deemed unsuitable for the movement of any significant quantity of goods and waste. Only in exceptional circumstances will small quantities of goods be moved from the North Tower loading dock to South Tower tenants.

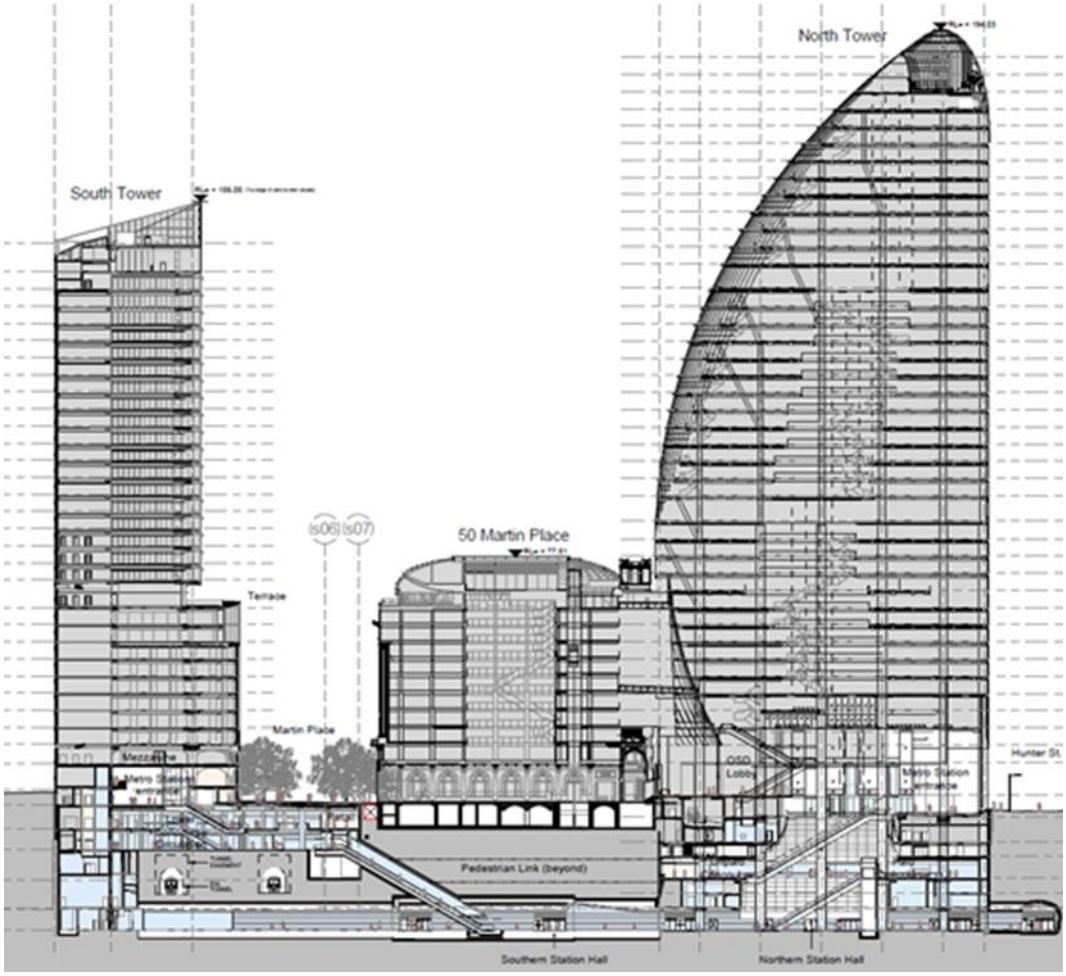


Figure 5: Major site elements (section)

3.2 Loading Dock Provision & Layout

The basement area of the tower is constrained due the spatial requirements of the Metro Martin Place station and the OSD. This has necessitated a more compact loading dock layout than would be ideal for a development of this size. The site will be serviced using:

- The South Tower loading dock, located at Level LG in the South Tower, and consisting of one loading bay with a turntable (1 x Medium Rigid Vehicle (MRV)).

The layout of the loading bay is shown in Figure 6.

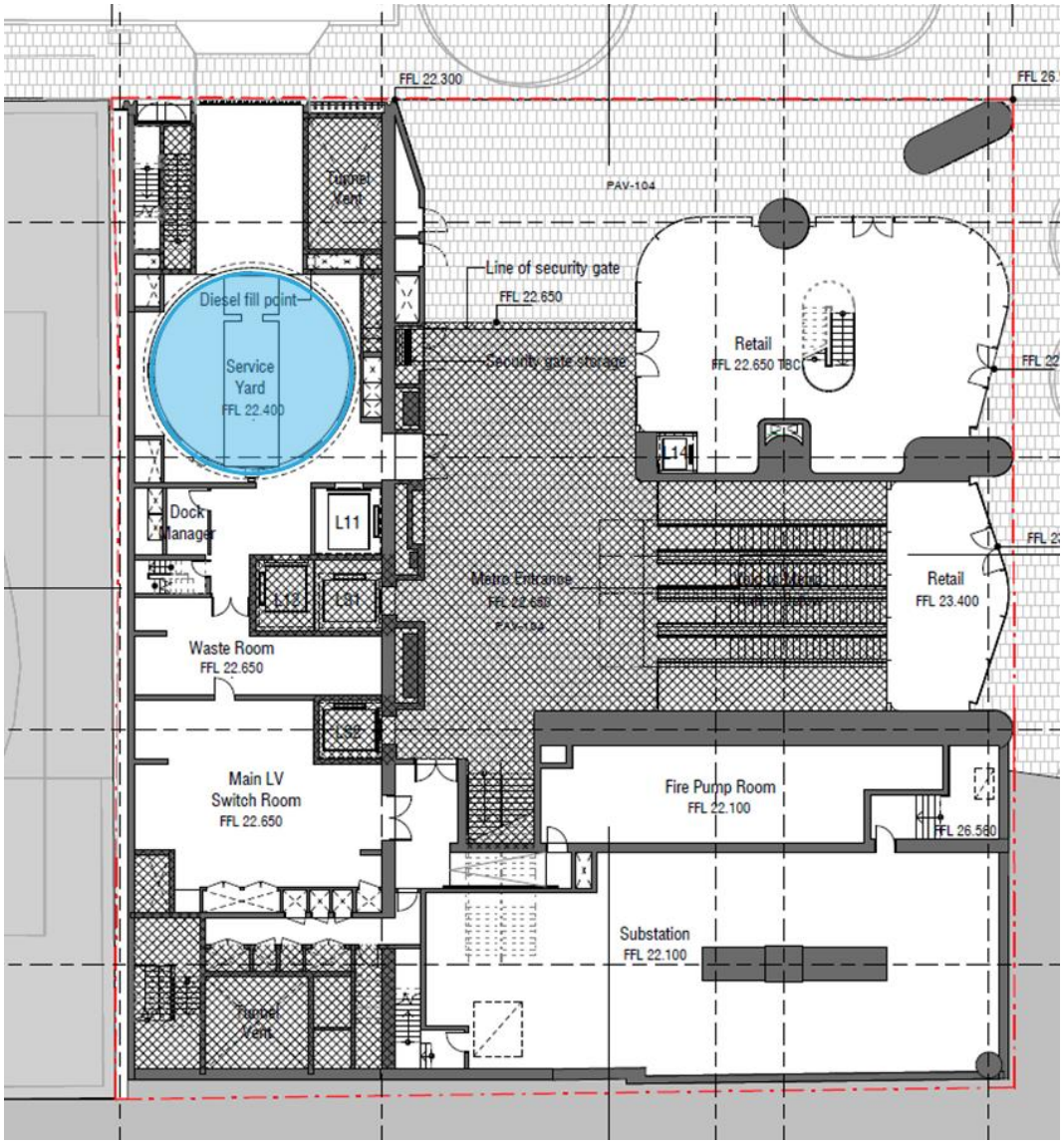


Figure 6: South Tower loading bay layout (LG level)

4 Logistics Strategy

This section presents the over-arching logistics concept that defines the management of the loading dock and sets out the key principles.

Initial vehicle demand modelling for the development was calculated to ascertain the expected daily delivery profile. This analysis indicated that an un-controlled logistics strategy (vehicles arriving and departing at times that suited them with part-loads) could not be accommodated in this development. This was due to peak demand for loading facilities exceeding the capacity of provisioned loading bays. An approach was then developed to reduce and control the demand profile to enable the loading docks to operate effectively.

As this LDMP outlines the approach and strategy, a detailed Loading Dock Operational Management Plan with processes and procedures will be developed to facilitate the readiness for the day one of operations of the South Tower. The Loading Dock Operational Management Plan will include requirements for the supply chain consolidation, Operation of an off-site consolidation centre and provide mitigation strategies for identified risks to the North Tower (or other approved location) loading dock. Alternate approved off-street loading dock locations may be considered to provide risk mitigation for the North Tower.

In addition, a precinct wide management plan will be prepared providing a governance structure for the operation and management of common areas and shared facilities.

4.1 Key Principles

An independent logistics approach to managing the North and South Tower loading docks has been adopted. The approach assumes that the loading docks will operate independently with the North Tower (or other approved location) providing flexibility within the operation for the South Tower should an incident occur, and the dock be inaccessible. The logistics concept showing the movements of goods and vehicles is described in Figure 7.

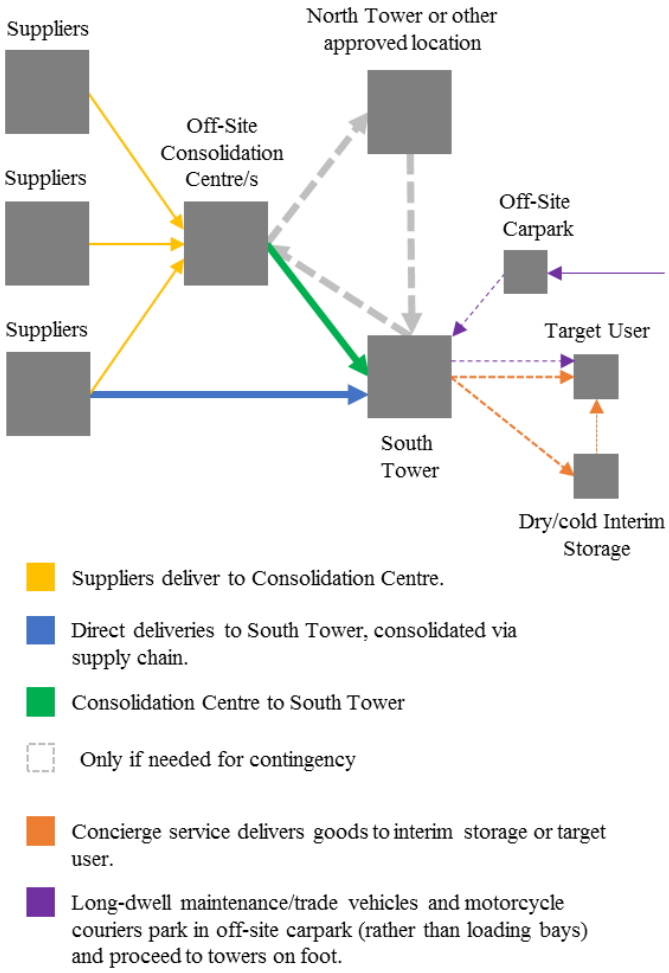


Figure 7: Logistics model

The key operating principles of the approach are:

a) Off-site consolidation of goods will be employed by a nominated carrier to reduce the quantity of daily deliveries and therefore demand on the loading dock.

b) No long-dwell vehicles (e.g. maintenance and trade vehicles) will be permitted into either loading dock. These will be re-directed to a nominated public carpark suitable for the relevant service vehicles.

c) A loading dock booking system will be employed to control access to docks and spread the demand profile over the day. Deliveries will be required to be pre-booked to an allocated time slot. Vehicles will only be allowed to approach loading bays once the occupying vehicle has departed from the bay. The martialling time required is taken into account with the online booking system.

d) Loading dock operating hours will be 18 hours per day seven days per week, though be available for exceptional out-of-hours deliveries 24 hours per day. Note that this is a maximum operating window. Should efficiencies arise and be achieved once operational, then this operating window may be reduced.

e) Should a vehicle arrive outside the scheduled window, the Dock Master will have the discretion to re-schedule or accept the vehicle if there is space available.

f) A dock master and a concierge service or delivery runner will be present during the loading dock operating hours, where practicable. The concierge or runner will move goods away from the loading dock once off-loaded and deliver to the target user.

g) No goods will be moved via the pedestrian link under 50 Martin Place. It is understood that this link will be public-facing and in mostly constant use. As such, it has been deemed unsuitable for the movement of any significant quantity of goods and/or waste.

Further detail is provided in subsequent sections of this plan.

4.2 Proposed Principles of an Operational Management Plan

The Operational Management Plan will equip the Facilities Operations team with the requirements for the day-to-day operations of the South Tower. The preliminary principles to be included for this approach are:

- Key processes and procedures including those needed for in the case of a risk arising (see Table 8);
- Key objectives of the logistics strategy, including dwell time reduction and an avoidance of congestion in the street;
- Roles and responsibilities for loading dock staff including dock master and the concierge service and/or delivery runners;
- Communication protocols between building users' and the loading dock management;
- Training requirements for the management system, safety practices and turntable operation;
- Key performance indicators (KPIs) including dwell times, safety and customer service;
- Procurement agreements of service providers, such as waste and consolidation.

4.3 Benefits

The benefits of a consolidated and managed solution for the development include:

- Reduced number of vehicles entering the CBD and using the road network
- Reduced number of vehicles entering loading docks
- Reduced CO^2 emissions from reduction in vehicles

- Increased level of security with fewer number and known vehicles accessing the site
- Reduced requirement for quantity of loading bays

4.4 Consolidation

The goal of consolidation is to reduce the number of vehicles entering a target area by ensuring their carrying capacity is as fully utilised as possible. Consolidation can achieve a significant reduction in vehicle movements to a specified destination with an associated reduction in emissions, congestion, noise pollution traffic movements in absolute terms, peak traffic levels, queuing and loading bay area requirement.

Consolidation is a growing delivery solution worldwide and emerging to Sydney. TfNSW is exploring options for the inner city. Major department stores have their own consolidation solutions with logistics hubs outside city centres and reduced vehicle movements to the store and point of use.

Arup has conducted a preliminary investigation in the Sydney logistics and consolidation market. To date we have identified the following carriers who have indicated capability and services that provide consolidation for developments such as Martin Place. The following have expressed interest in providing such services:

- Pack and Send Sydney City;
- Fracht Australia;
- StarTrack;
- Toll; and
- Linfox.

While there are a number of methods that can be employed to reach this aim, the two methods selected for this development are the operation of an off-site consolidation centre and supply chain consolidation

4.4.1 Off-site Consolidation Centre

A consolidation centre is a logistics facility that is located in relative proximity to the area it serves. Goods destined for the area are delivered to the consolidation centre by vehicles from multiple suppliers. The goods are then sorted and consolidated onto fewer vehicles, which make the delivery to the final destination. While a consolidation centre is not strictly a warehouse, it can provide short-term storage until goods are required by the customer. This allows users to take advantage of bulk buying discounts when space is limited on their own premises.

4.4.2 Supply Chain Consolidation

Procurement-led consolidation is the sharing of transport resources through collaboration between businesses can lead to a reduction in vehicle trips as well as financial and environmental savings. Bunching orders is a simple solution that

does not involve a major change in the way goods are bought. Regardless of the number of orders placed from tenants in site are given a time period, the supplier only makes the delivery on a given day or date. Individual orders are ‘bunched’ so they arrive together on a single vehicle. This reduces the overall number of trips needed and associated emissions. It results in less delivery costs for the operator and where the minimum order value is increased, leads to less order processing costs for the customer. This approach is ideally suited to daily fresh, frozen or chilled consumables for office, retail and food and beverage tenants.

5 Vehicle Demand

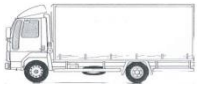
This section sets out the estimated number of daily deliveries and loading bay requirements for each area use within the development.

Trip generation rates are derived from survey information of similar mix-use developments to determine the number of delivery and servicing trips expected to be made to the development.

5.1 Typical Vehicle Types

Typical vehicles delivering goods to the development, including their estimated turnaround time, are shown in Table 4.

Table 4 - Servicing and delivery vehicle types and turnaround times

Servicing and delivery vehicle types and turnaround times			
Vehicle Type	**Vehicle**	**Characteristics**	**Typical Turnaround Time (minutes)**
Bicycle		Bicycle couriers	-
Motorcycle		Motorcycle couriers.	-
Long-stay service vehicle		Typically, does not exceed SRV specifications.	45
Small Rigid Vehicle (SRV)		Typically, 6.4m length, 4 Tonne load capacity, single rear axle and either single or dual tyres.	10 – 15
Medium Rigid Vehicle (MRV)		Typically, 8.8m length, 8 Tonne load capacity, single rear axle and dual tyres.	15 – 20

Note while the above turnaround times are typical for the vehicle types described, a booking slot of 30 minutes has been assumed to allow for arrival time variations. The Booking System is described in further detail later in this document.

5.2 Daily Delivery Trips

This section presents the number of daily delivery trips for the development and the loading bay requirements to manage the daily demand.

The estimated daily trips to the site were calculated using an in-house vehicle generation tool developed to utilise Arup research and other survey information from similar mixed-use developments. The generation tool applies a delivery

vehicle trip rate for each of the proposed area uses to the relevant GFA for that area use.

The trip rates, which are expressed as vehicles per 100m^2 GFA per day, have been derived from survey data from office, retail and other facilities, as well as relevant design guidelines and local authority regulations. The surveys recorded vehicle arrival and departure times, vehicle type and size of goods vehicle use to make the delivery.

The following assumptions have been used to determine daily number of delivery trips:

- 0.18 vehicles/100m²/day for office/commercial deliveries;
- 0.53 vehicles/100m²/day for retail deliveries;
- 2.20 vehicles/100m²/day for restaurant/café deliveries;
- Station loading dock provided within North Tower;
- NLA figures assumed to be 85% of GFA for all areas; and
- Floor area allocated for retail/lobby is assumed to be 50% retail and 50% restaurant/café.

The number of daily deliveries to the loading dock, based on the area schedule, have been calculated and are shown in Table 5.

Table 5: Daily deliveries

Daily deliveries			
Area Use	**South Tower GFA (m2)**	**Daily Trips (unconsolidated)**	**Daily Trips (consolidated)**
Office	35,282	64	20 [1]
Retail	1,132.5	6	3 [2]
Restaurant/Café	1,132.5	25	13 [2]
Total	**37,547**	**95**	**36 [3]**

[1] Consolidation rate of 70% applied
[2] Consolidation rate of 50% applied
[3] Bicycle and motorcycle couriers are excluded from trip calculations

From the daily trips rates, the minimum loading bay requirement has been calculated, and is presented in Table 6.

Table 6 Loading bay requirement

Loading bay requirement			
Vehicle	**Min. Loading Bay Size (m)**	**Arup Calculated Requirement**	**No. Provisioned**
MRV	W3.5 x L8.8	1	1
SRV	W3.5 x L6.4	0	0

Total	**1**	**1**

Assuming a 30-minute booking slot provided for each vehicle (regardless of size) and an 18 hour operating window, the capacity of the dock would be 36 trips (or booking slots) per day, or 2 per hour. This equals the calculated demand of 36 trips/booking slots per day (2 trips per hour).

Direct Food and Beverage deliveries will take precedence during the morning and will be scheduled between 4:00am and 10:00am.

6 Loading Dock Access

6.1 Street Entry

Entry to the South Tower loading dock is via Castlereagh Street. This is a one-way street southbound and consists of one bus lane and one traffic lane. On the both sides of the road, there are parking lanes which are mainly designated as loading bays or bus zones on weekdays. This loading dock strategy specifically excludes the requirement to utilise any on-street loading facilities.

Traffic control signals are located on the intersections of Castlereagh Street with Martin Place and Hunter Street. The entrances to the loading docks have been located as far as possible from the signals as shown in Figure 8.

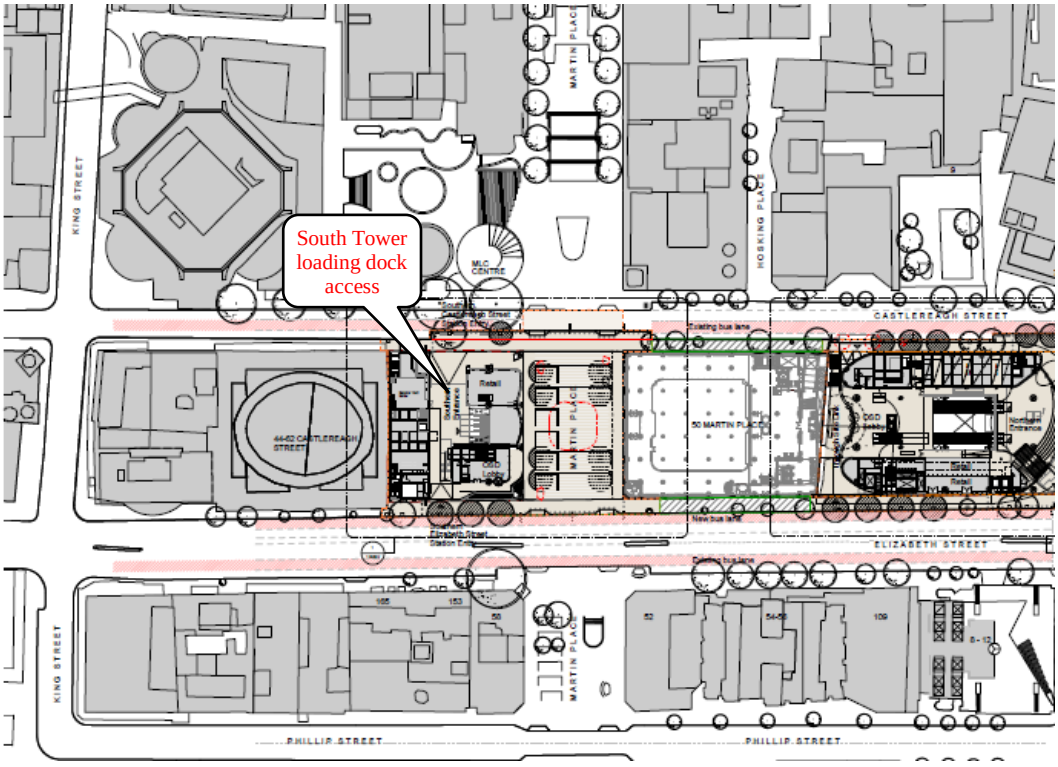


Figure 8: Loading dock entrances

6.2 Driveway

The South Tower dock driveway is approximately 5.2m in width (7m at the edge of roadway) with the footpath gradient 1:40 up to the property line. A height clearance of 3.6m is provided on entry to the property and throughout the service area.

The driveway traverses a footpath, bringing vehicular and pedestrian movement paths into conflict. Safety measures to be implemented at the driveway to provide a safe environment for pedestrian and vehicle movements include the following:

- Warning signage on each side of the crossover for pedestrians and signage for drivers leaving the driveway;

- Yellow flashing warning lights, or similar, at the site boundary for pedestrians as vehicles depart the site;
- CCTV surveillance of the access with connection to the security office;
- An intercom at the entry with an audible device to talk to security; and
- Mirrors to assist exiting drivers to view pedestrians on the footpath.

6.3 Ramp

The South Tower loading dock is located at street level off Castlereagh Street and does not include an access ramp.

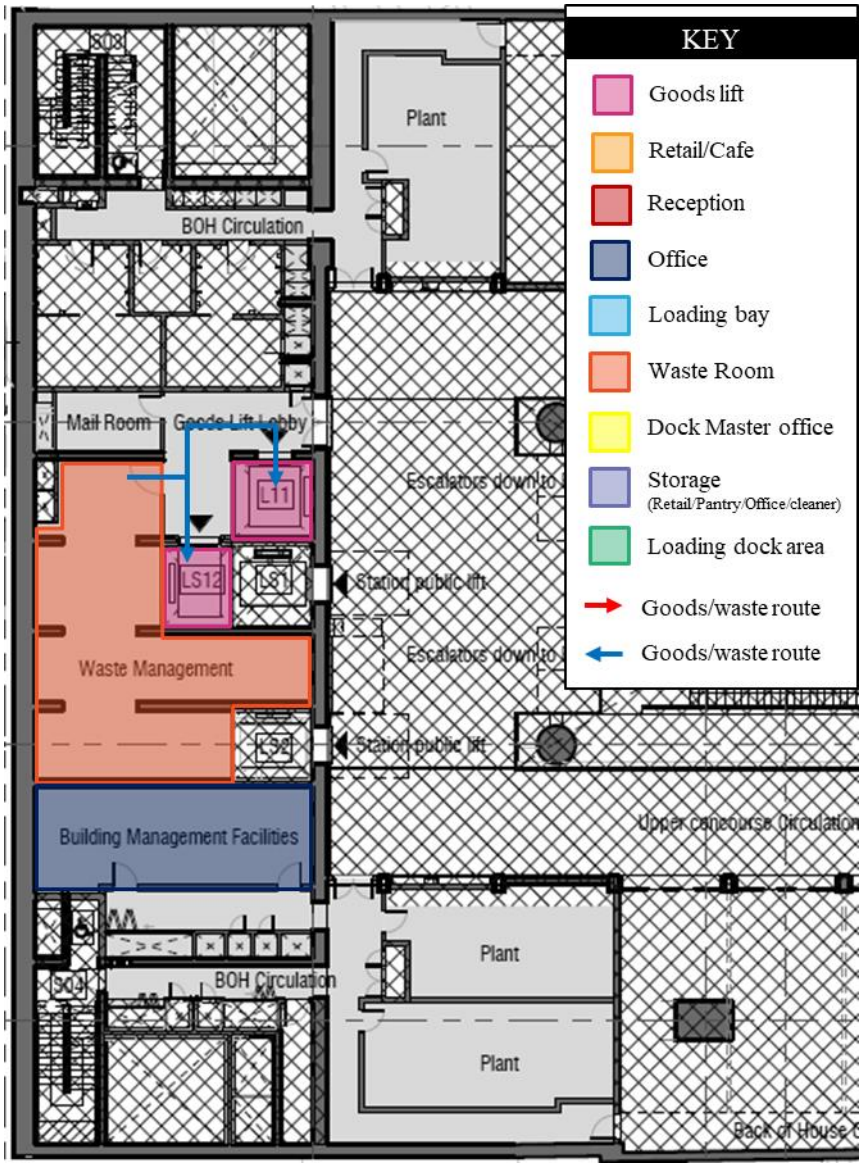
7 Loading Dock Operation

7.1 Operations Management

The loading dock will be managed by the Facilities Manager in accordance with the requirements outlined in this document. The loading dock will have a dock master on-site during the hours of operation to coordinate the safe movement of goods, vehicles and personnel within the loading dock area.

A concierge service or delivery runner will operate with personnel tasked with the onward movement of goods from loading dock areas to interim storage or target users.

The principal facilities and areas for the operation of the loading dock are presented in Figure 9 and Figure 10.



Further detail on the distribution routes for goods from the loading dock throughout the tower are presented in Appendix B.

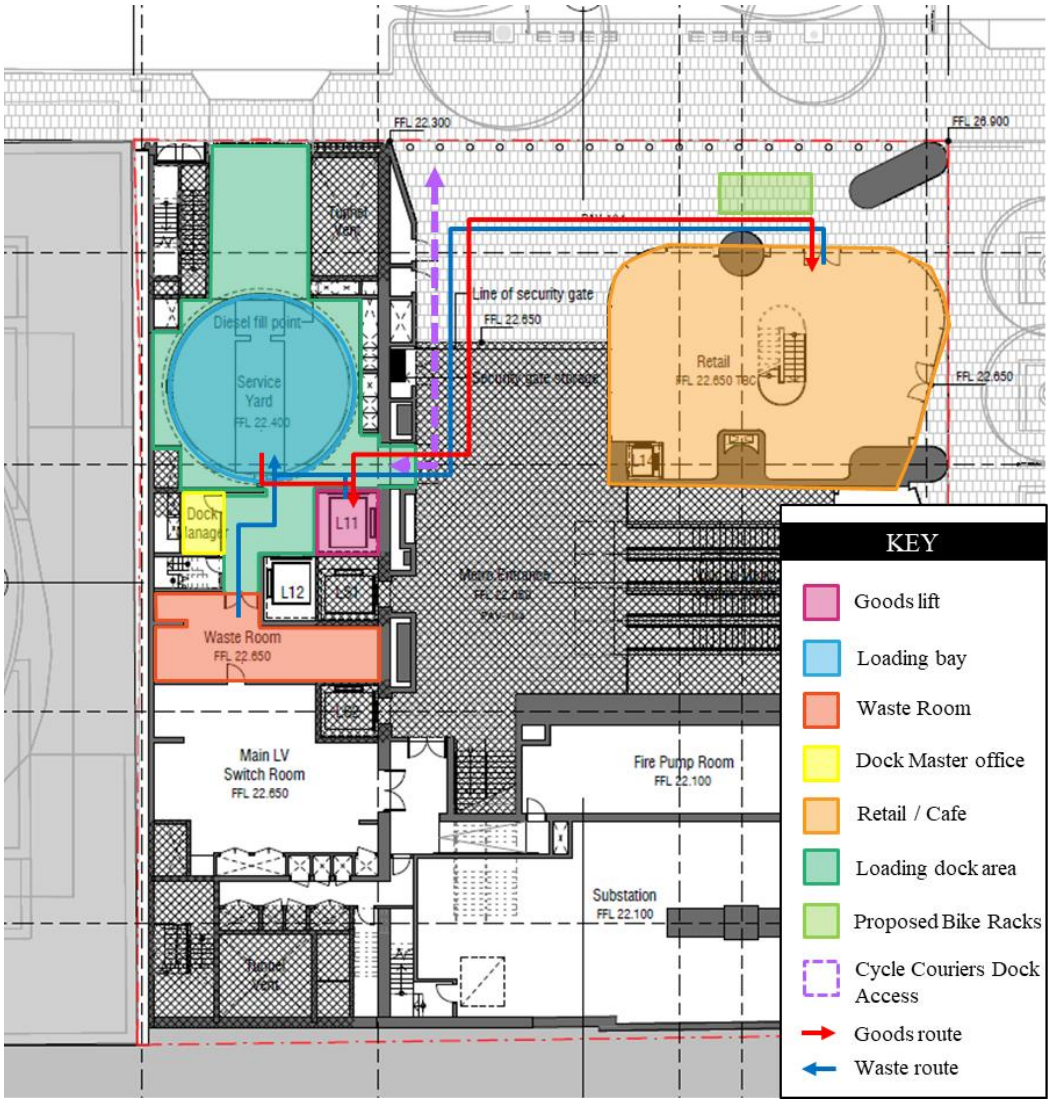


Figure 9: LG level loading dock facilities

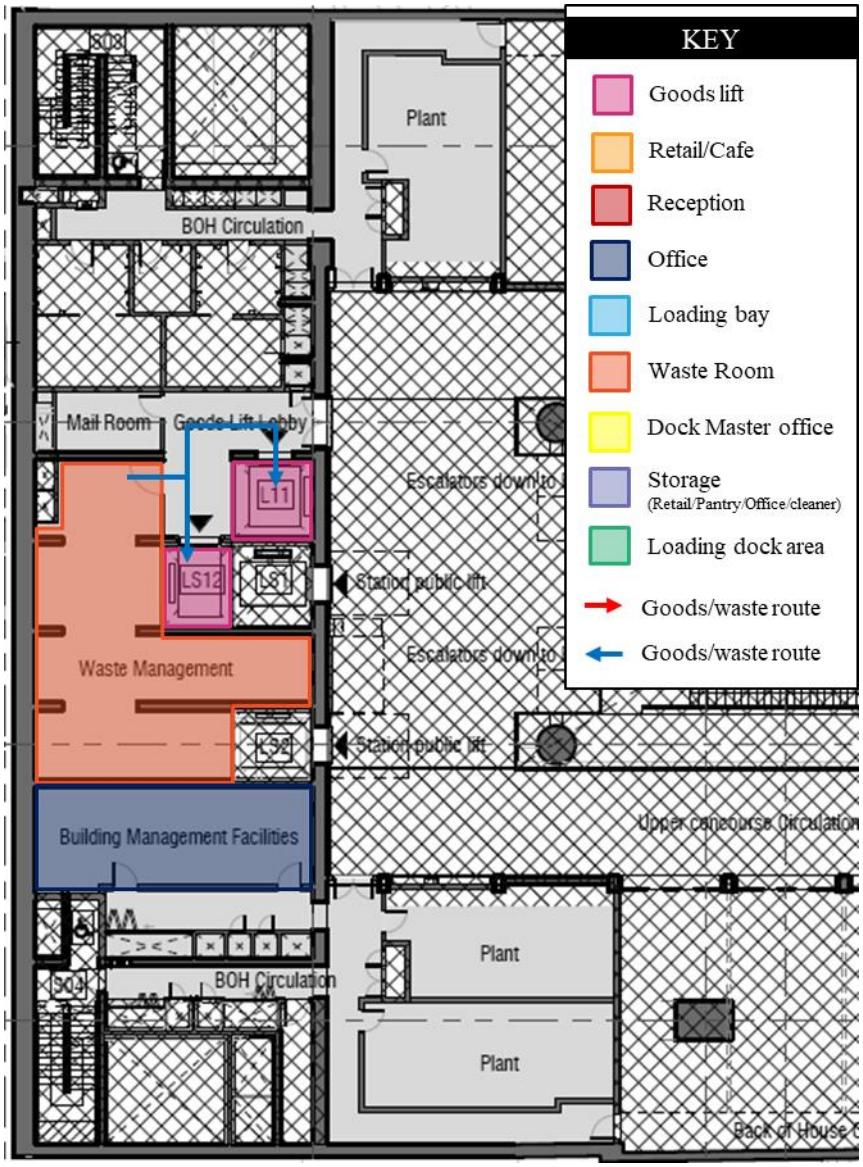


Figure 10: B1 level loading dock facilities

7.2 Delivery and Servicing Arrangements

A range of items will be demanded by tenants in the development. Table 7 describes how deliveries and servicing arrangements will be managed by the type of goods demanded.

Table 7 Delivery arrangements by goods type

Delivery Arrangements	
Goods Type	**Arrangement**
Retail goods	50% of retail deliveries will be consolidated and received to the loading dock.

Delivery Arrangements	
Goods Type	**Arrangement**
Food and beverage (cold/fresh)	50% of cold/fresh goods are consolidated through supply chain rather than off-site consolidation. Deliveries are received to the loading dock.
Food and beverage (dry)	50% of food and beverage deliveries (dry) will be consolidated and deliveries are received to the loading dock.
Office goods	70% of daily consumables will be consolidated and deliveries are received to the North Tower dock then driven to South Tower loading dock by same vehicle ('milk run').
Bulky/exceptional goods, i.e. construction supplies (fit-outs) and waste removal	Outside of operating hours by prior arrangement and booking.
Motorcycle courier deliveries/collections	Redirected off-site to nominated local carpark.
Bicycle courier deliveries/collections	Bicycle couriers will use the End of Trip Facilities (EOTF) for access to the tower. They may park their bicycle using on street parking or at the entrance of the EOTF.
Mail	Received by the South Tower loading dock for target users in the South Tower. Booking required.
Personal goods (e.g. flowers or online packages)	No personal deliveries will be allowed to enter the site, these deliveries will be redirected off-site (e.g. to preferred carrier, consolidation centre, or package lockers).
Long-dwell vehicles (e.g. servicing, trades and maintenance)	Long term deliveries will be re-directed to a nominated local carpark (suitable for the relevant vehicle) unless there is an urgent maintenance or repair requiring an onsite vehicle.

7.3 Hours of Operation

The loading dock will be available 24 hrs per day, with an operational window of 18 hours per day – 4am to 10pm – 7 days per week. This period has been selected to allow for operational flexibility in the timing of deliveries with non-priority deliveries retimed to lower demand periods. Should efficiencies arise and be achieved once operational, then this operating window may be reduced.

On occasion, it will be necessary to receive deliveries (e.g. for exhibitions, building materials, plant and other equipment) and removal of builders' waste. The provision of access outside of operational hours will be at the discretion of, and special arrangement by, the Facilities Manager who may grant access as required. Booking via the booking system will be required.

7.4 Booking System

In order for the tower to be adequately serviced, a delivery booking system will be utilised. The major benefit of the implementation of such a system is demand levelling and reducing loading bay requirement. The allocation of deliveries to timeslots prevents a 'peak hour' for delivery vehicles occurring at the loading dock, which can lead to congestion, delays and incidents. It also largely mitigates

the risk of vehicle queues forming to enter the site, blocking the flow of traffic on Castlereagh Street. It has been assumed that 30 minute booking slots will operate for the dock. The South Tower dock will accept vehicle arrivals from the Consolidation Centre between 0900 and 1200.

The implementation of this system also aims to streamline internal logistics (the onward goods distribution from the loading dock to target users), as the input of goods to the dock is known in advance and sufficient manual handling equipment and resources can be planned to meet demand. Should a vehicle arrive outside the scheduled window, the Dock Master will have the discretion to re-schedule or accept the vehicle if there is space available.

7.4.1 Typical Operation

There are a number of commercial delivery booking systems available. The functionality of a typical system is outlined below:

- A delivery or service vehicle operator logs a delivery or service requirement with the loading dock through an online/mobile app and selects from a list of available timeslots. The delivery or service vehicle operator is provided with:
  - The loading dock entry address and allocated a loading bay for delivery;
  - A security code to be used at the entrance to the dock for access;
  - Contact information for the dock operator and instructions if a timeslot is unable to be met;
  - The vehicle operator is sent a reminder notification or text message to alert them that their timeslot is upcoming; and
  - Upon arrival at the correct dock, the vehicle operator uses the security code provided to gain access to the site, unload goods or provide service, and uses the code to leave the dock area.

7.4.2 Examples

There are numerous examples of managed loading docks in the Sydney CBD. Two examples are as follows:

Barangaroo

- Precinct style dock serving entire Barangaroo development
- Bookings made in advance through Bestrane.
- No booking = no entry!
- Vehicles are pre-allocated a space within the loading dock based on the building they are servicing and the size of the vehicle
- Dock master on site between 6am and 6pm, however 24-hour access to the dock is provided
- Centralised precinct courier / mail room located within the dock

200 George Street

- Concierge directs all deliveries through to loading dock.
- Bookings for deliveries made in advance through 'Scatter' system. This is associated with availability of the goods lift rather than the spaces within the dock
- No booking required for couriers. Most of them are known to the dock master who simply directs them to their space
- Separate contractor parking on B1 (bookings required)
- Dock master on site between 6.30am and 6.30pm
- Bookings only from 7pm

7.5 Access Control

The South Tower will maintain a consistent procedure for controlling access to the loading dock.

Outside of operating hours, vehicular and personnel access to the loading dock will be controlled by a roller shutter door.

During operating hours (when security and dock master are present), the roller door will remain open and boom gates will control vehicular access into and out of the loading dock.

Access will be granted only to those vehicles that are booked via the loading dock booking system. Signage to this effect will be displayed prominently at the loading dock entrance to deter entry attempts by unbooked vehicles.

Depending on the software used, drivers will either receive a code which they will be able to use at the boom gate to access the site and will be directed to their pre-booked space by the dock master. Alternatively, they will communicate with the dock master via intercom before being granted access and being directed to their pre-booked space.

Vehicles may be refused entry for reasons such as arriving before or after their allocated time slot, not having a booking or entering the driveway by mistake. Rejected vehicles will not be granted entry into the loading dock. Should a vehicle be refused entry at the boom gate (via intercom communication with the dock master), they will be required to wait until met by the dock master or security personnel. The dock master/security personnel will stop the passage of pedestrians on the footpath and instruct the driver of the vehicle to reverse safety on to Castlereagh Street and move away.

7.6 Turntable Operation

A circular turntable is provided which can accommodate an MRV. This will allow vehicles to drive into and out of the loading dock in a forward direction. The turntable will be operated by the dock master in accordance with safe working practices.

7.7 Waste Collection

Waste and recycling will be collected outside of operational hours to ensure minimal impact on the operation of loading dock. Waste bins will be provided, moved to the loading dock after hours prior to collection. The waste contractor will return bins to the waste room.

The waste management contractors will be employed to collect refuse from the site using vehicles that will not be restricted by the height of the Loading Dock.

7.8 Loading Dock Management

The loading dock makes provision for a dock master office. This typically houses a desk and chair, computer equipment, small amount of interim storage and other facilities required for the dock master to perform their duties.

The dock master will ensure the loading dock (including designated safe walking routes) are kept clear of goods at all times and ensure delivery vehicles strictly adhere to their allotted booking slot. Any vehicles overstaying their booking will be moved on to ensure later bookings are not affected.

Safe routes for the movement of people and goods between the loading bay and goods lifts that avoid vehicle manoeuvring area have also been designated. Pavement markings will be required to indicate safe access for people and delivery movement through the loading dock area.

Incidents occurring within the loading dock area, or at loading dock entrance, will be managed in accordance with the Precinct Wide Incident Management Plan.

7.9 Associated Infrastructure

This section describes the associated infrastructure required for the loading dock to operate effectively.

7.9.1 Interim Goods Storage

No space has been provided in the loading dock area for the temporary storage of goods.

7.9.2 Mail Room

The tower includes a mail room for the receipt and sortation of mail, located in B1, see Appendix B.

7.9.3 Goods Lifts

Direct access has been provided for the movement of goods from the loading docks to the goods lifts. From the lifts, goods will be distributed to target users.

The South Tower loading dock will utilise one (1) goods lift for vertical circulation to the final destination of the goods (identified in Figure 9). The lift is:

- L11 Goods Lift.

7.10 Risk and Mitigation Strategies

7.10.1 *Risks*

A degree of flexibility has been built in to the assumptions used in this plan. For example, 30mins booking slots have been assumed to allow for variations in arrival times of vehicles even though turn-around times are typically 15-20mins. An 18-hour operating window has been designated to provide the flexibility to retime lower priority deliveries to quieter parts of the day.

For the single loading bay in the South Tower, flexibility will be provided through the North Tower or an alternate off-street location .

7.10.2 Mitigation Strategies

To test the logistics and loading dock management strategy, a number of incidents have been considered for the loading dock. In each case, operational procedures are proposed to maintain the flow of deliveries into the docks. Mitigation strategies have been prepared to address identified risks. The mitigation strategies are shown below:

Table 8: Mitigation Strategies for potential risks

Mitigation Strategies for potential risks	
Incident and Impact	**Response**
Blocked access - A vehicle has broken down at the entrance driveway to the loading dock and cannot be moved. This has prevented other service vehicles accessing the loading docks.	A towing service will be called immediately to remove the vehicle. Deliveries will be re-timed through the dock management system. Carriers will be advised by text message of the changed time slot.
Blocked access – The roller shutter door has failed to open blocking the entry and exit. This has prevented service vehicles accessing the loading docks.	A maintenance worker will be called immediately to fix the roller shutter door. Deliveries will be re-timed through the dock management system. Carriers will be advised by text message of the changed time slot.
Delivery outside of booking slot - A vehicle has arrived at the entrance to the loading dock without a booking. This has temporarily blocked access for booked vehicles.	The driver will communicate via intercom with dock master. Option 1 - The Dock Master will have discretion to allow entry if there is available capacity either during peak hours or non-peak hours. Option 2 - If there is no available capacity within the dock the driver will be asked to turn vehicle away, assisted by the dock master to move away safely. The dock master will be appropriately trained and equipped to do this task.

Mitigation Strategies for potential risks	
Incident and Impact	**Response**
Driver taking too long to deliver - A driver has had an issue making a delivery and has exceeded the delivery slot allocated. This will impact other vehicles arriving for their booked timeslot and delay the daily operation.	The dock master will be responsible for monitoring delivery timeslots and moving on slow drivers. This will be further mitigated by drivers not leaving the loading dock area, with a concierge service responsible for the onward movement of goods from loading dock/interim storage to target user.
Failure of turntable - The turntable in the South Tower loading dock has mechanically failed, preventing the turntable from rotating. The impact of the failure means that service vehicles are unable to be rotated and are therefore unable to enter or exit the loading dock in a forward gear. Access to the loading dock is unaffected.	Some turntable suppliers can provide turntables with a redundant drive system, where should this system have a failure with the motor or controller, the faulty drive can be disengaged within 15 minutes without the need of an *urgent* call out of an engineer. Meaning the turntable will be operational within 15 minutes of the mechanical failure. Option 1 - An engineer will be called immediately to respond to the failure. Only high-priority deliveries will be accepted. The dock master who will be appropriately trained and equipped, will guide vehicles into the loading dock in reverse gear ensuring safety. The vehicle will be unloaded and move out of the dock in forward gear. Option 2 - An engineer will be called immediately to respond to the failure. Only high-priority deliveries will be accepted. Vehicles will enter the loading dock in a forward gear. The dock master will rotate the turntable manually (this is dependent on manufacture of turntable). The vehicle will unload and exit the dock in forward gear. Depending on length of expected outage, non-priority deliveries will either be re-timed to a 24 hours operation, or they will be delivered to the North Tower outside of peak times, and moved to South Tower target users through the pedestrian link public street level thoroughfares or via the consolidation centre vehicle once the turn table is repaired.

Mitigation Strategies for potential risks	
Incident and Impact	**Response**
Urgent access - A burst water pipe has occurred within the South Tower loading dock requiring *urgent* access for responders. The plumbing contractor vehicle requires exclusive use of the loading dock for some time in order to resolve the issue. This has prevented other service vehicles accessing the South Tower loading dock.	A plumbing contractor will be called immediately to respond to the issue. Critical deliveries (e.g. fresh produce) will be directed to the North Tower loading dock, non-critical deliveries will be re-timed through the dock management system. Non-critical North Tower deliveries will be retimed to free capacity if required. Carriers will be advised by text message of the changed location and time for delivery. Goods will be moved from the North Tower dock to South Tower users through the pedestrian link under 50 Martin Place, via public street level thoroughfares or via the consolidation centre vehicle.

7.11 Swept Path Analysis

Swept path analysis has been conducted to ascertain whether the arrangement of the loading dock is able to accommodate the manoeuvring and parking of service vehicles requiring access.

The swept path analysis was conducted for the following vehicle sizes:

- Medium Rigid Vehicle (MRV)

The vehicle used for the tracking was an Austroads 2013 design vehicle, provided in the vehicle library of the vehicle tracking software. The swept path analysis drawings are appended to this report.

8 Agency consultations

The table below summarises the agency consultations that were held throughout 2018. Table 9 details the queries of various stakeholders throughout the development of this Loading Dock Management Plan and documents the comments and mitigation measures that Arup provided to address the concerns raised. The relevant agencies involved in these consultations consisted of Savills, the Sydney Coordination Office, the City of Sydney, Macquarie Capital, Lendlease and Arup.

Table 9 Summary of Agency Consultations

Date	Attendees	Purpose	Issue	Comments & Mitigation
30-04-18	Holly Rhoades (Savills) Stephanie Ballango (Savills) Alex Prenzel (Savills) Michael Stokoe (SCO) Matt Hazard (SCO) Phil Ransom (MacCap) Anthony Henry (MacCap) Angela Roche (Lendlease) Peter Scuderi (Arup) Chris Boge (Arup) Libby Ashton (Arup) Nick Suslak (Arup)	Meeting with Sydney Coordination Office (SCO) to review the Stage 2 SSDA over station development Loading Dock Management Plans for the North and South sites	1. SCO requested to see scenarios of the docks during incidences. 2. SCO requested more information regarding the proposed consolidation solution for the South Tower 3. SCO were concerned that suppliers would park in the street if they can't get to the loading dock. 4. SCO queried the procedure of goods distribution throughout the facility.	1. Arup provided detailed contingency arrangements to provide resilience for the South Tower loading dock for various scenarios. 2. Arup has provided details of the preferred loading dock management solution for the development, including graphical representation of daily delivery demand and a detailed scenario analysis. 3. Strict processes and procedures will need to be upheld by the dock master, security and FM staff. 4. Further detail was provided regarding goods distribution to various users such as food and beverage, retail and personal deliveries, waste arrangements, handling of trades, consolidated deliveries and interim storage.
24-05-18	Michael Stokoe (SCO) Matt Hazard (SCO)	Meeting with the SCO to discuss the progress made on	1. Dwell time was discussed, it was agreed that extra resilience was required for the vehicle dwell times.	1. A degree of resilience has been built in to the delivery booking slots, 30min booking

Date	Attendees	Purpose	Issue	Comments & Mitigation
	Katherine McCray (SCO) Angela Roche (Lendlease) Megan Rolls (Lendlease) Peter Kazaglis (Lendlease) Toni Blume (Lendlease) Phil Ransom (MacCap) Alex Prenzel (Savills) Holly Rhoades (Savills) Peter Scuderi (Arup) Andrew Hulse (Arup) Libby Ashton (Arup)	the LDMP for both the North and South towers. Arup presented two options: a. Separate towers b. One precinct These options were used as discussion themes in the meeting.	2. It was agreed that on-site logistics management would be required to manage deliveries. 3. Where possible, access to the South Tower loading dock should be limited to consolidated deliveries. 4. Arup and SCO agreed that for consolidation and resilience purposes that option B is the best approach. 5. Macquarie required more contacts to confirm the consolidation approach and costing with providers.	slots have been assumed to allow for variations in the arrival times of vehicles. 2. The proposed operation of the dock is highly managed, employing an on-site dock master and concierge service to ensure goods are received and moved to target users in a safe and efficient manner. 3. The majority of deliveries to the south tower will be in the form of consolidated goods (see Table 6) 4. A precinct wide approach was adopted, though Option A was subsequently adopted with the North Tower providing the South Tower with resiliency when responding to various incidents (see *Table 8*). 5. Arup provided a market sounding brief to confirm the feasibility and pricing of this approach.
25-07-18	Phil Ransom (Macquarie) Michael (Macquarie) Alex Prenzel (Savills) Stephen Spacey (Sydney Metro) Peter Scuderi (Arup)	Meeting with Macquarie to discuss the vehicle Logistics Strategy and loading docks for the North and South towers.	1. SCO held concerns regarding the operational effectiveness of the fully managed docks 2. Sydney Metro queried the procedures that will be in place to ensure the security levels are maintained and that unauthorised and potentially dangerous vehicles are not provided with access.	1. The LDMP highlights the importance of trained dock master and their role in the effective management of the loading docks. All deliveries must be booked in (and screened for security) via the computerised loading dock management system, if vehicles that do not have a booking arrive at the loading dock they will be turned away by the dock master 2. Depending on the software used, drivers will either receive a code which they will be able to use at the boom gate to access the site and will be directed to their pre-

Date	Attendees	Purpose	Issue	Comments & Mitigation
				booked space by the dock master. Alternatively, they will communicate with the dock master via intercom before being granted access and being directed to their pre-booked space. For more information see section 7.5.
30-07-18	Shannon Rickersey (CoS) Andrew Aspden (CoS) Phil Ransom (Macquarie) Libby Ashton (Arup) Peter Scuderi (Arup) Chris Boge (Arup) Holly Rhoades (Savills)	Meeting with the City of Sydney (CoS) to discuss the SSD DA Stage 2 LDMP for North and South towers.	1. CoS queried the longevity of the off-site consolidation options, as it is not a common practice in the state of NSW. 2. CoS queried the proximity of the South Tower's loading dock entrance to the South Tower station entrance and questioned whether vehicle interface management was in place.	1. Arup explained consolidation options that have been proposed for further investigation, as well as precedence of off-site consolidation around Sydney (i.e. Westfield) and the ambitions from TfNSW to implement this approach more in the future. No objections were made by CoS. 2. Safety measures to be implemented at the driveway to provide a safe environment for pedestrian and vehicle movements have been included in the LDMP.

9 Conclusion

As has been demonstrated in this LDMP, the South Site loading dock has been designed to deliver an efficient operation while minimising its impact on city infrastructure.

Operationally, it demonstrates that sufficient vehicle manoeuvring envelopes and capacity exists for the level of demand that the development is expected to generate. The proposed operation of the dock is highly managed, employing a pre-booking system, on-site dock master and concierge service or delivery runner to ensure goods are received and moved to target users in a safe and efficient manner.

The plan requires no use of on-street loading bays, minimises the risks of vehicles queuing onto Castlereagh Street and disrupting traffic flows, proposes measures to minimise the risk of vehicle-pedestrian collisions at the driveway-footpath interface and outlines mitigation strategies to be employed should disruption to operations occur. Furthermore, it proposes the use of off-site consolidation to reducing the number of deliveries made to the site which commensurately works to reduce CO2 emissions and inner-city road network congestion. As such, risks of impacts to the city have been mitigated insofar as possible. For these reasons, the LDMP meets the requirements of SEARS and conditions of SSDA Stage 1.

Appendix A

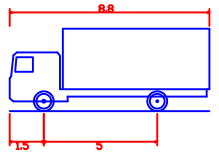
Swept Path Analysis

A3

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



MRV - Medium Rigid Vehicle

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m

Issue	Date	By	Chkd	Appd
F	25/01/19	JF	AMH	AMH
E	14/03/18	JF	AMH	AMH
D	12/02/18	JRT	AMH	AMH
C	10/11/17	JRT	AMH	AMH
B	08/08/17	JRT	AMH	AMH
A	19/05/17	JL	AMH	AMH

ARUP

Arup, Level 10, 201 Kent St
Sydney, NSW, 2000
Tel +61(02)9320 9320 Fax +61(02)9320 9321
www.arup.com.au

Client
Grimshaw

Job Title
SMMPS
South Tower

Drawing Title
Turning Paths
Turn-table

Scale at A3 1:200

Discipline Transport

Drawing Status
For information

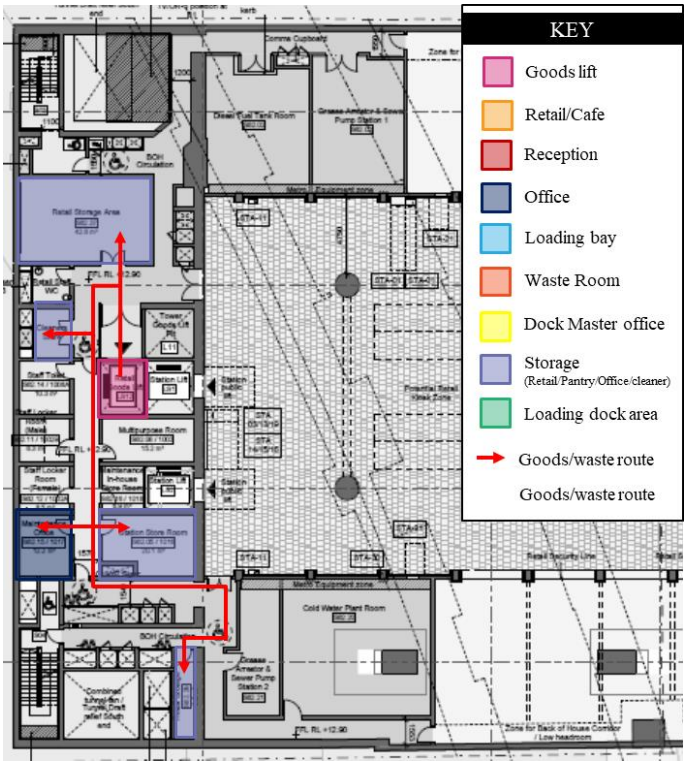
Job No	Drawing No	Issue
247838	**SKT004**	**F**

Do not scale

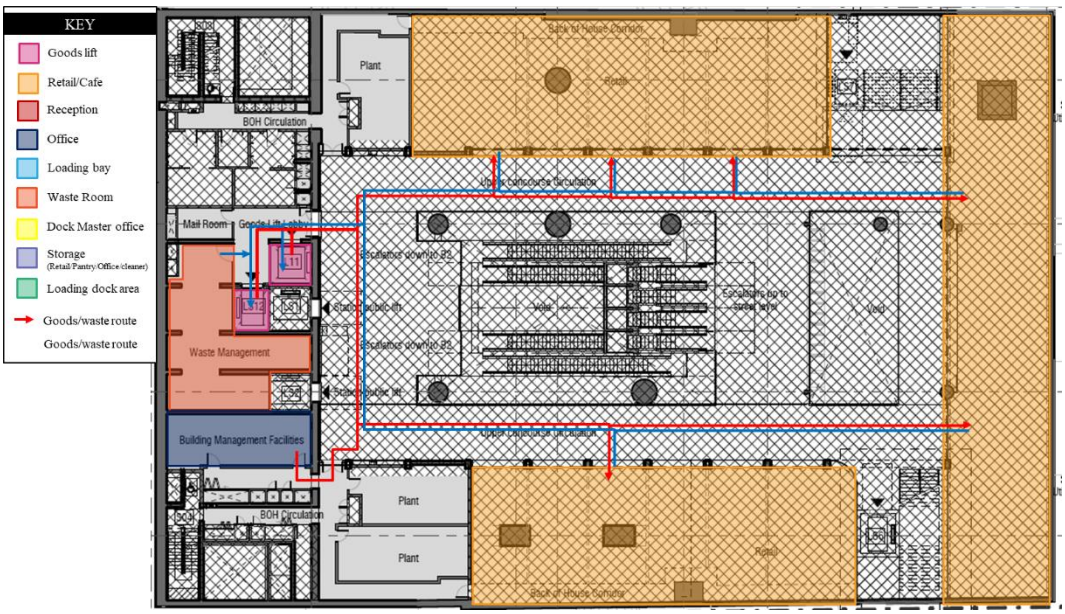
Appendix B

Goods Distribution Routes

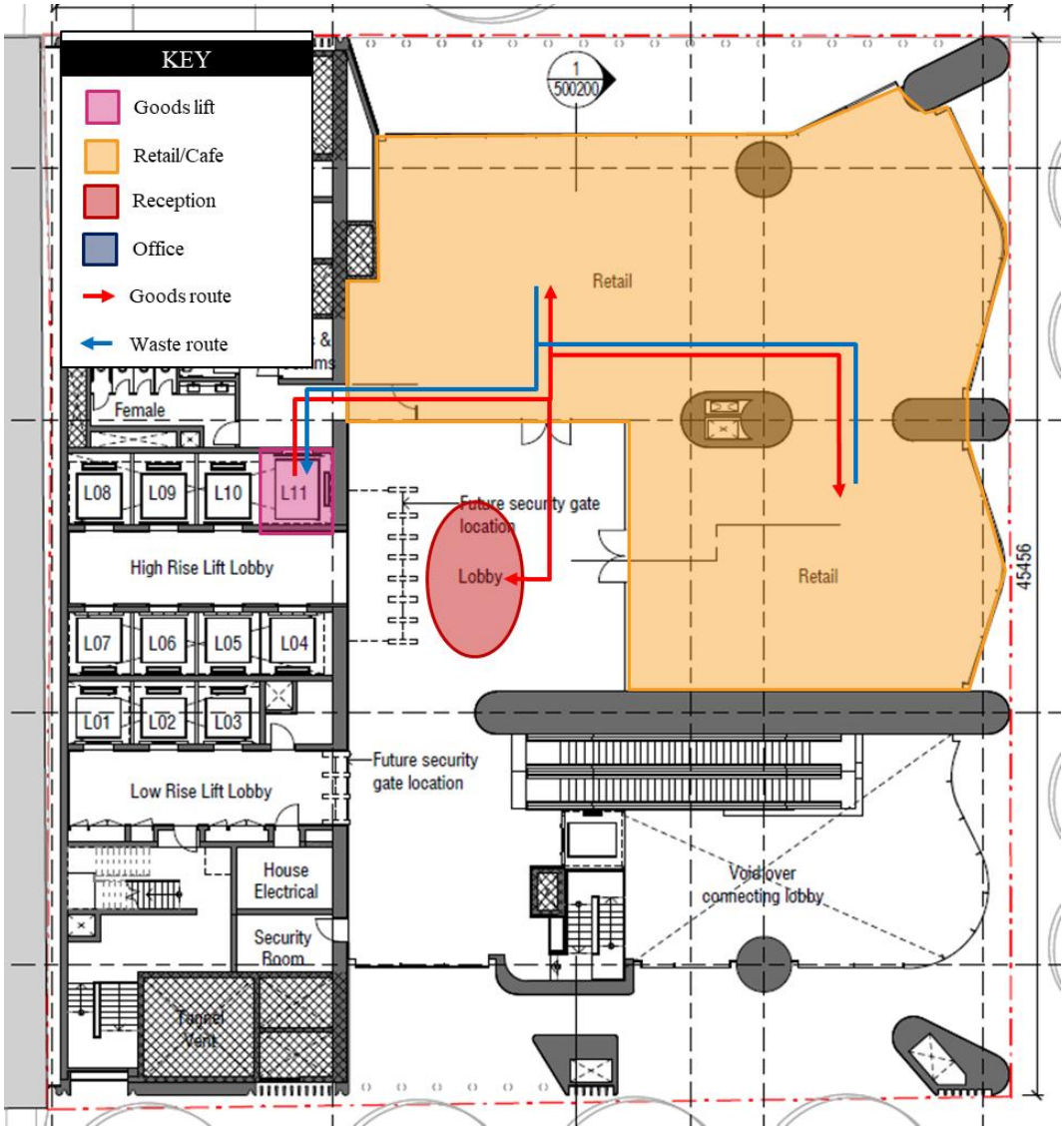
LEVEL B2 PLAN - LOWER CONCOURSE



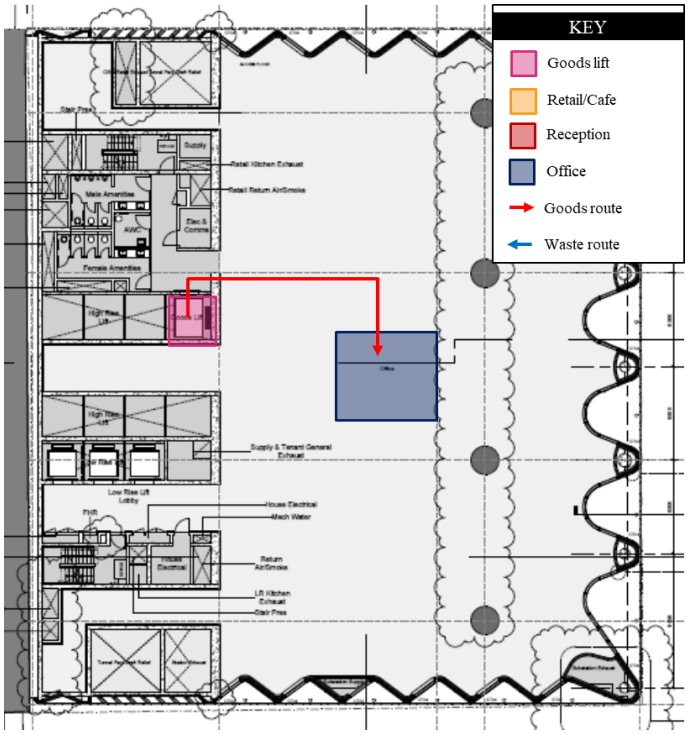
LEVEL B1 PLAN - UPPER CONCOURSE



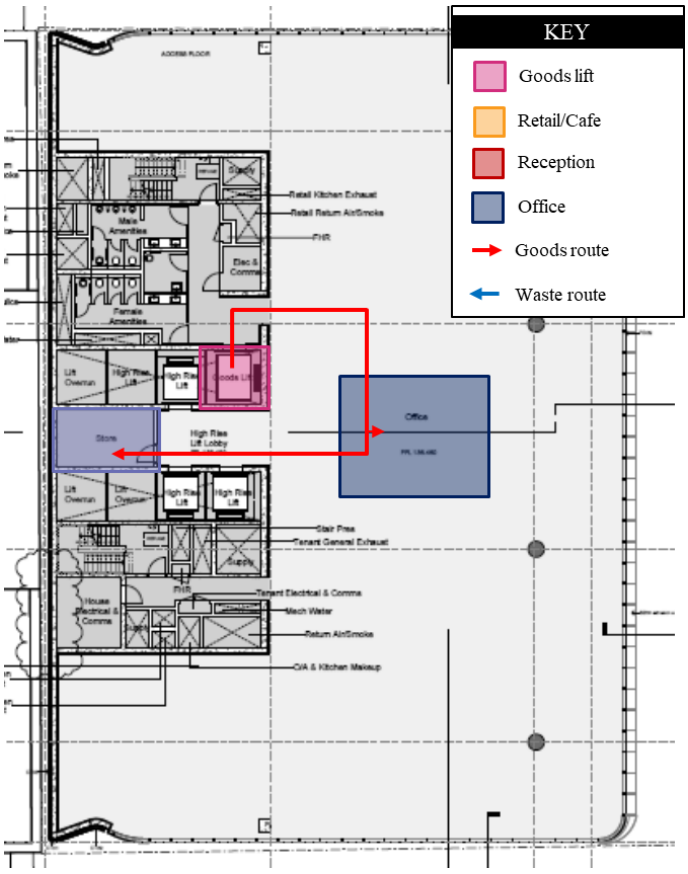
LEVEL MEZZANINE



INDICATIVE OF LEVELS 1-9, 11-26



LEVEL 27



Appendix B

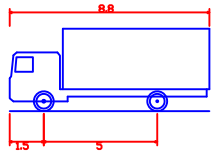
Swept path analysis

A3

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



MRV - Medium Rigid Vehicle

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m

Issue	Date	By	Chkd	Appd
F	25/01/19	JF	AMH	AMH
E	14/03/18	JF	AMH	AMH
D	12/02/18	JRT	AMH	AMH
C	10/11/17	JRT	AMH	AMH
B	08/08/17	JRT	AMH	AMH
A	19/05/17	JL	AMH	AMH

ARUP

Arup, Level 10, 201 Kent St
Sydney, NSW, 2000
Tel +61(02)9320 9320 Fax +61(02)9320 9321
www.arup.com.au

Client
Grimshaw

Job Title
SMMPS
South Tower

Drawing Title
Turning Paths
Turn-table

Scale at A3 1:200

Discipline Transport

Drawing Status
For information

Job No	Drawing No	Issue
247838	**SKT004**	**F**

Do not scale

Appendix C

Green Travel Plan

Macquarie

Sydney Metro Martin Place Integrated Station Development

South Tower, SSD DA Stage 2: Green Travel Plan

CSWSMP-MAC-SMS-TF-REP-999903

Revision 02 | 28 February 2019

Job number

Arup
Arup Pty Ltd ABN 18 000 966 165

Arup
Level 10 201 Kent Street
PO Box 76 Millers Point
Sydney 2000
Australia
www.arup.com

ARUP

Contents

1 What is a Green Travel Plan?

A Green Travel Plan (GTP) is generally a tool to minimise the negative impact of private vehicle travel on the environment. It is a package of measures put in place to encourage more sustainable travel. GTP describes ways in which the use of sustainable transport may be encouraged. Using public transport, cycling, walking, working from home, carpooling, etc. are all more sustainable means of transport than single occupant driving.

More generally, the principles of a GTP are applied to all people travelling to and from a site. Government authorities around the nation are placing increasing emphasis on the need to reduce the number and length of motorised journeys and in doing so encourage greater use of alternative means of travel which have less environmental impact than cars.

1.1 Benefits of a Green Travel Plan

The GTP can bring a number of benefits to the occupants of the South Tower and visitors, including:

- Employees can enjoy improved health, less stress, a better quality of life, cost and time savings, and greater travel choice;
- Reduced traffic congestion;
- Benefit from improved air quality, less noise and pollutants; and
- Deliver health benefits, tackle obesity and improve quality of life

1.2 Green Travel Plan Framework

A GTP for the South Tower will need to address the following issues:

- What are the objectives in terms of commuting and business travel journeys;
- How are the set objectives going to be met? What measures are going to be implemented and encouraged?
- Who is going to be responsible for the management, implementation and administration of the measures?

The key element to reducing the reliance on private vehicle for the South Tower will be maximising the use of public transport, walking and cycling for commuting and business trips.

1.3 Green Travel Plan Objectives

The main objectives of the GTP are to reduce the need to travel and promotion of sustainable means of transport. The more specific objectives for staff and visitors include:

- To achieve high modal share targets set for public transport, cycling and walking to work;
- To ensure adequate facilities are provided at the site to enable staff and visitors to commute by sustainable transport modes;
- To reduce the number of car journeys associated with business travel by staff and visitors;
- To facilitate the sustainable and safe travel of new employees;
- To reduce the need to travel for work-related activities; and
- To raise awareness of sustainable transport amongst staff.
- To work in partnership with neighbouring organisations/developments, local authorities, retailers and other relevant bodies in achieving the maximum mode shift away from the private car.
- To continually develop, implement, monitor, evaluate and review the progress of the travel plan strategy.

2 Transport and Access Service Strategy

2.1 Existing Mode Split and Future Target

Census Journey to Work (2016) data has been used to analyse the existing commuter travel behaviour in the area and characterise the public transport conditions in the vicinity of the proposed development site.

The 'Destination Zone' (DZN[1]) to which these statistics apply is the block bounded by Martin Place, Elizabeth Street, Castlereagh Street and King Street, allowing for high quality data in relation to travel patterns (see Figure 1). The South Site is located in the northern end of this DZN.

At the time of the Census (and prior to any demolition works), this zone had an employment population of approximately 2,500 people of which it is estimated that 1,000 people were working in the existing South Site buildings. Their main mode of travel is summarised in Figure 2. Over half of all commuters working in the area travel by train (53%) and a further 26% travel by bus. Travel by private car accounts for 13% of all trips (11% as car driver and 2% as car passenger). This indicates that the vast majority of employees in the area are using public transport for their commute. Walking trips account for 5% of the commuting trips with 1% of trips made by bicycle.

Figure 1: DZN utilised for analysis

[1] DZN 113371071 utilised for the analysis

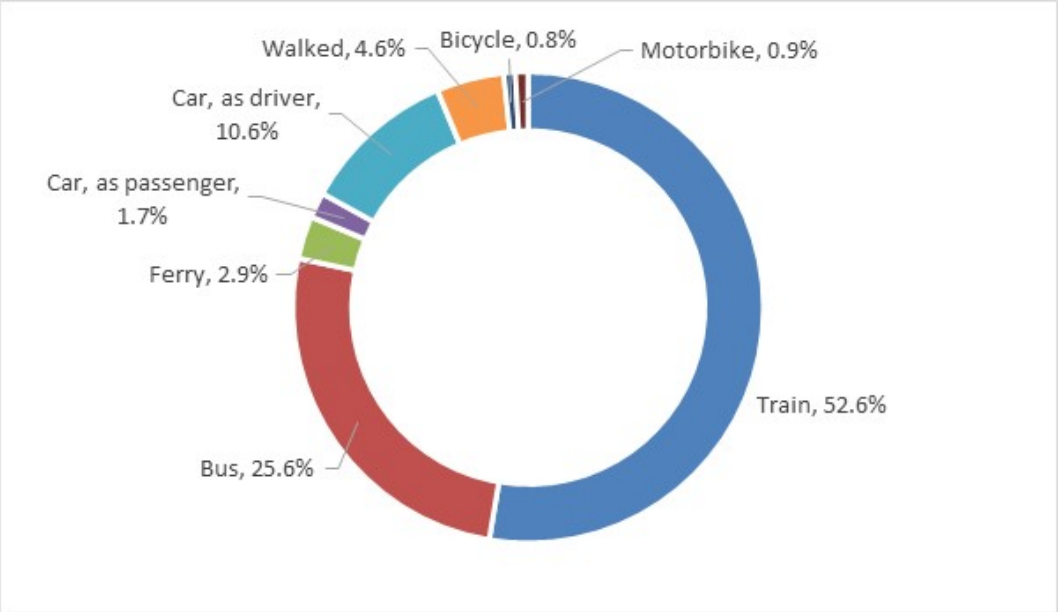


Figure 2: Mode Share

The largest proportion of employees commute from North Sydney (17%) followed by Sydney Eastern Suburbs (14%), and Inner City (13%).

A future mode share for the South Site has been estimated based on existing and predicted travel patterns to the development site and is presented in Figure 3.

The removal of the majority of on-site car parking is anticipated to reduce the car driver mode share to just 3% with subsequent increases in the public transport and active travel mode shares as a result. *The 3% car driver mode share includes trips made by staff to off-site locations (e.g. for meetings), parking in nearby parking lots or when staff travel by car for the longest part of the journey*[2]*. As no on-site parking is provided, the proportion of staff driving to the South Tower itself will be close to 0%.*

Given the South Site will be accessible directly from Metro Martin Place station, more than half of employment trips to the development site are estimated to be by Train/Metro (53%, a slight increase from existing), with travel by bus having the second highest mode share (25%, a slight increase from existing).

Walking and cycling are anticipated to have a mode share of 6% and 5% respectively, with the quality of end of trip facilities encouraging travel by these active modes. The End of Trip Facilities (EOFT) are designed to accommodate a 7.5% cycle mode share.

The nearest light rail stop to the development site will be the Wynyard stop on George Street, just a 5-minute walk to Martin Place and will be attractive travel option, in particular for those commuting from the Eastern Suburbs.

[2] *These trips allow for a direct comparison with Census journey to work data*

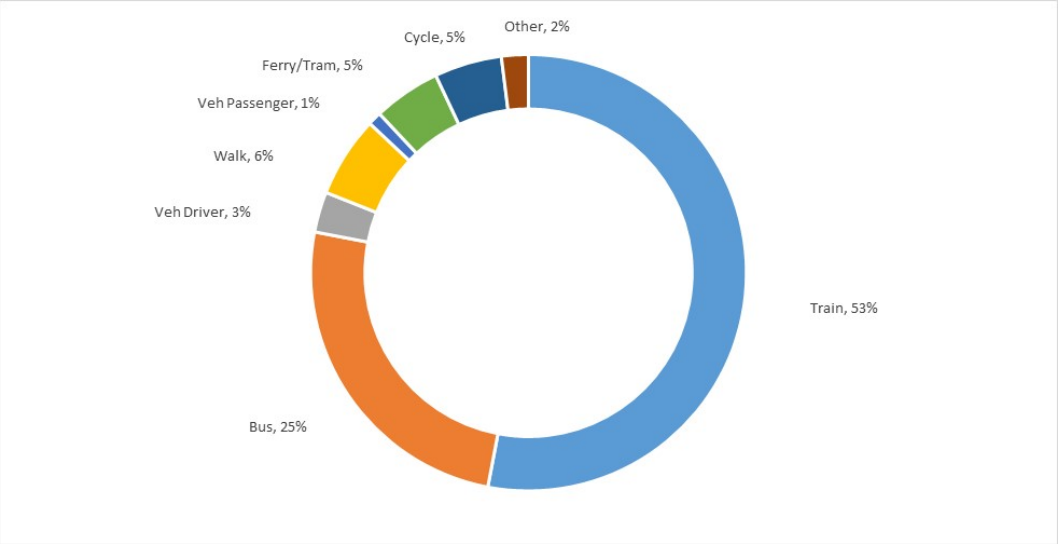


Figure 3: South Site OSD Target Mode Split

2.2 Bicycle Network

There are a number of key cross-city cycle routes in the CBD which form part of City of Sydney's cycling network. These routes are as follows:

- Kent Street (separated, bi-directional cycleway)
- King Street (separated, bi-directional cycleway)
- Pyrmont Bridge (shared cycle path)
- Macquarie Street (mixed street environment)
- Alfred Street north (shared cycle path)
- College Street (separated, bi-directional cycleway)

The Sydney City Centre Access Strategy was released by the NSW Government in December 2013. The strategy outlines the future city centre cycleway network to encourage growth in cycling and reduce pressure on the public transport system. The future city centre cycle network is shown in Figure 4, and includes:

- Extending the Kent Street cycleway south to Liverpool Street
- Construction of a bi-directional cycleway on Liverpool Street
- Construction of a bi-directional cycleway on Castlereagh Street and Pitt Street, providing a new north-south connection through the CBD – (noted that the construction of Castlereagh Street north cycle has been deferred by Roads and Maritime Services)
- Extending the existing King Street cycleway to Castlereagh Street
- Extending the east-west cycleway along Park Street to Castlereagh Street

There is a small amount of on-street bicycle parking (c.15 stands) located along the streets surrounding the precinct. Most of the stands are attached to street furniture (see

Figure 5) with three dedicated stands located at the corner of Castlereagh Street and Martin Place.

Figure 4: Strategic Cycleway Network Map

(Source: Sydney City Centre Access Strategy)

Figure 5: Local cycle parking facilities

2.3 Public Transport Access

The area is highly accessible by public transport as reflected by the high usage of trains, buses and ferries as a travel mode to work (approx. 75%). The South Site has some of the highest public transport accessibility in Sydney, with the location of the main rail and ferry transport nodes within 800m walking catchment of the South Site as shown in Figure 6. The future 'Wynyard' light rail stop on George Street will also be within walking distance. A summary of the existing and planned future public transport options are summarised below.

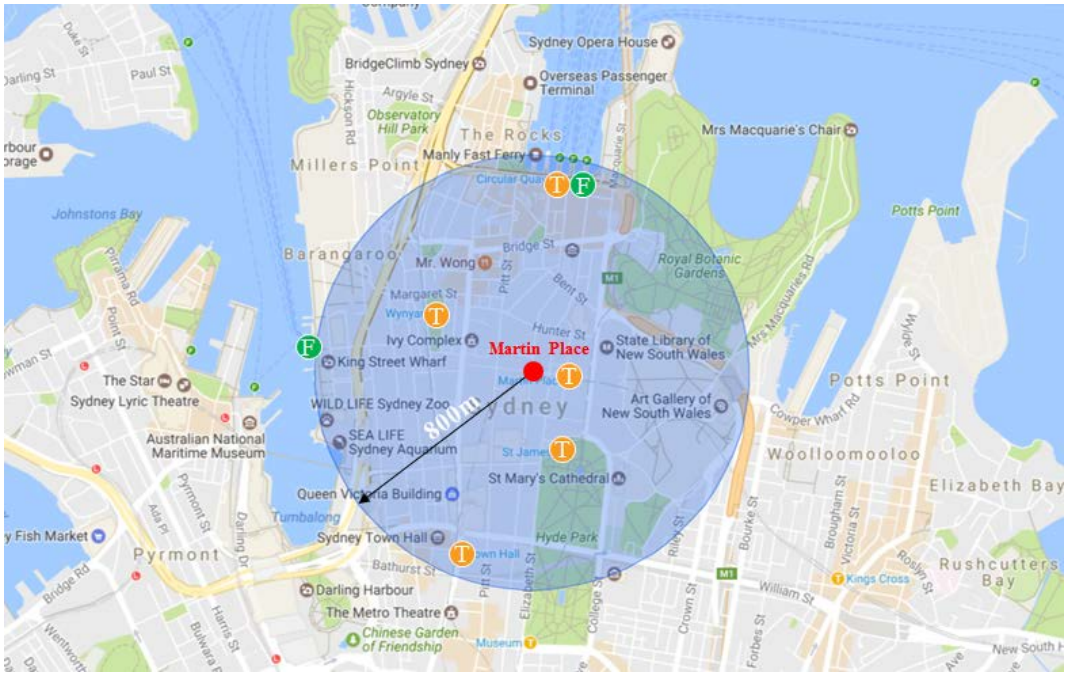


Figure 6: Main public transport nodes surrounding the precinct

2.3.1 Trains & Metro

Metro Martin Place station has a direct pedestrian access to Martin Place, with the station having seven operational pedestrian access points at present. Train services operating at this station include the T4 Eastern Suburbs and Illawarra Lines, offering high frequency services between Bondi Junction and areas in southern Sydney, including Hurstville, Sutherland, Cronulla, Waterfall and Wollongong.

These trains stop at Town Hall (next stop west of Martin Place) which offers direct interchange to most destinations on the Sydney Trains network. At peak times trains are operating at 3-4-minute frequencies in both directions increasing to 10-minute frequencies in the evening time.

St James Station's entrance on the north side of St James Road is approximately 200m from Martin Place. This station is on the City Circle line offering services to the T3 Airport and East Hills Line, as well as to the Inner West via Circular Quay, Wynyard and Town Hall.

Wynyard Station's George Street entrance is approximately 500m from Martin Place. There are a number of rail services operating from this station including the T1 North Shore & Northern line and the T8 Airport & South Line

The Sydney Metro City and Southwest line, when operational, will have a station at Martin Place with trains every 4-minutes at peak times operating between Epping and Sydenham and in the future to Bankstown.

2.3.2 Buses

The CBD is supported by extensive bus networks, which cover most of the area within approximately 10km of the CBD, as well as some longer distance services

from the Northern Beaches, Upper North Shore and the Northwest. This network comprises primarily direct services which serve particular suburbs at their outer extent and then converge on corridors as they approach the CBD. The combined service frequencies on a number of these corridors, such as Oxford Street, Broadway and Victoria Road are in the range of 50 to 120 buses per hour.

Sydney Buses

A number of buses stop on Castlereagh Street and Elizabeth Street in the vicinity of the site. Services originate from

- Inner West including Ashfield, Burwood, Lilyfield, Abbottsford and Chiswick via Broadway and George Street;
- North West via Victoria Road corridor including areas such as Ryde and Eastwood; and
- South West (Tempe, Kingsgrove, Canterbury, Dulwich Hill).

When leaving the City most services use Castlereagh Street. Services from the Eastern Suburbs generally run along Elizabeth Street.

Another major transport interchange is Wynyard, which has services from the Northern Beaches (B-Line) and Lower North Shore, and the Victoria Road Corridor. The B-line is a 'turn up and go' service while other bus services vary in frequency throughout the day.

Private Bus Operators

In addition to the above Sydney Buses services, a number of private operators offer services to the City. These include services from:

- Sydney's North West (Hillsbus) which generally use the M2 Motorway alignment and Gore Hill Freeway, connecting at Wynyard and then Town Hall and Railway Square; and
- Sydney's Upper North Shore (Forest Coach Lines and Shorelink) connecting Belrose, North Turramurra, East Wahroonga and Terry Hills stopping at Wynyard and Town Hall.

Convenient bus stops are in the Wynyard area and some inbound services stop at York Street, which is marginally closer to the precinct.

2.3.3 Ferry

Circular Quay Ferry Wharves are approximately 800m from Martin Place walking via Bligh Street and Young Street. From Circular Quay, there are regular ferry connections to Manly, Taronga Zoo, Parramatta, Darling Harbour, Neutral Bay, Mosman Bay and Eastern Suburbs. The Sydney Ferry Network is presented in Figure 7.

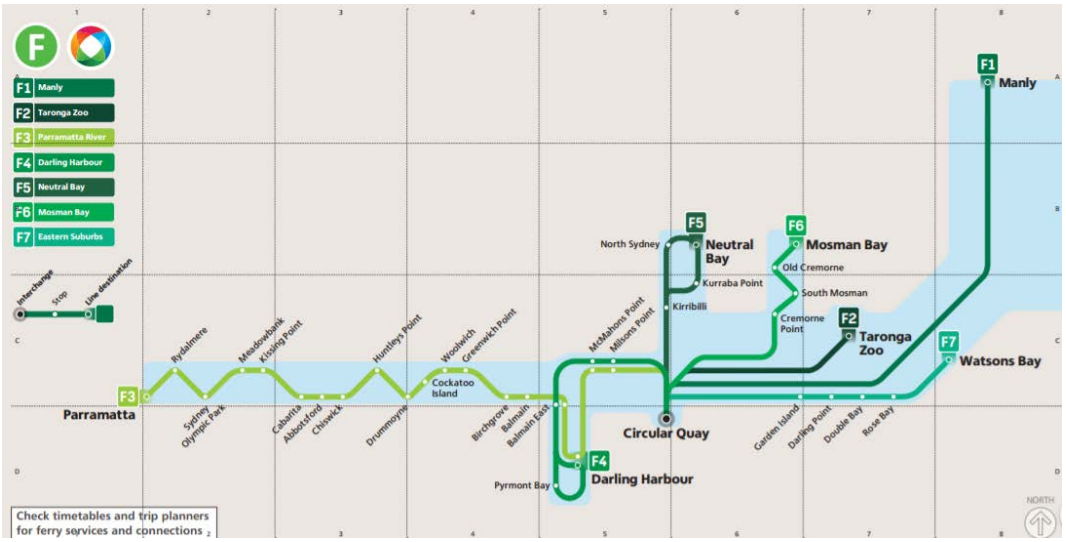


Figure 7: Sydney Ferry Network

2.3.4 Light rail

The CBD and South East Light Rail is a 12km light rail network currently under construction. When completed, it will operate between Circular Quay and Kingsford/Randwick with 19 stops (including Central Station). The nearest stop to the precinct will be the Wynyard stop on Georges Street, approximately a 5-minute walk.

Construction is expected to be completed with services operational in 2020.

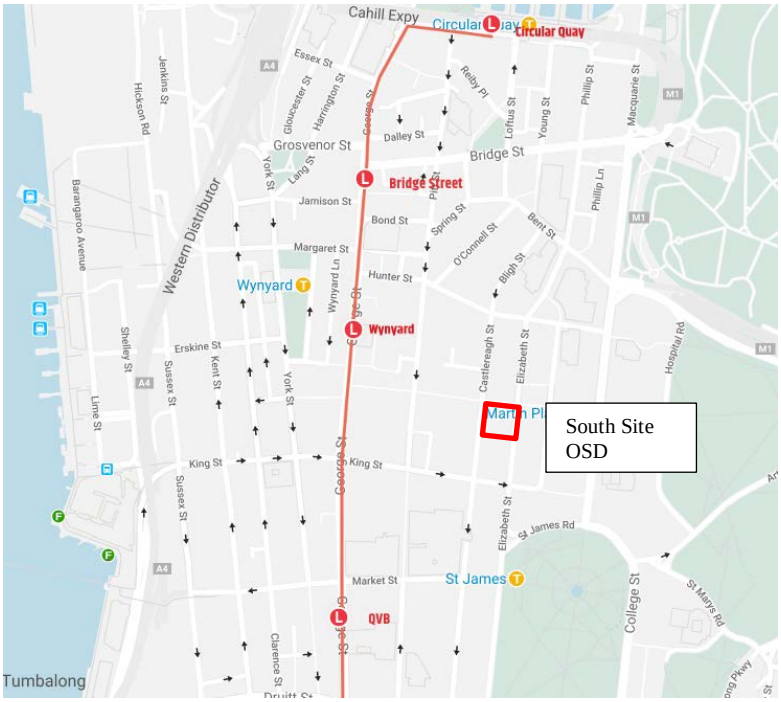


Figure 8: Light rail in vicinity of the OSD

3 Green Travel Plan Measures

In order to meet the objectives and targets of the GTP, the following physical and management measures should be implemented.

3.1.1 General Marketing and Promotion

Marketing the benefits and promoting the sustainable alternatives available are crucial in encouraging staff to adopt the GTP measures. It is important that at an early stage, staff are made aware of the need for the GTP, and that it is emphasised that the measures are being introduced to support and encourage people to travel more sustainably. In addition to raising general awareness, any successes achieved will be fully publicised to staff in order to motivate them to use sustainable modes of transport.

- A dedicated webpage for employees of the South Tower will be created to include travel information, including information on bicycle parking and useful links to public transport websites specific to the office location.
- Support and promote events such as National Bike Week, Bike2Work Days, walk to work day to staff through, broadcast messages and intranet.

3.1.2 Reducing the need to travel

To ensure that sustainable transport options are promoted to staff when making journeys for work purposes, and to reduce the need to travel, the following measures are recommended to be implemented.

- Provision of travel information screens at lift lobbies;
- Active promotion of the office teleconferencing facilities as an alternative to face to face meetings;
- Consider a more formal approach to working from home and actively encourage staff to consider this option.

3.1.3 Spreading Travel Demand

Currently the highest travel demand occurs in the peak periods between 7am and 9am and 4pm to 6pm. Public Transport services are in lower demand during the inter peak and off peak. The future occupants of the South Tower building could be encouraged to implement flexible working hours allowing the employees to arrive at work and leave work during the shoulders of the peak e.g. start work at 10am and finish at 6.30 pm or start at 7am and finish at 3.30pm.

3.1.4 Travel During the Working Day

To provide South Tower staff with a choice of convenient sustainable transport options for work – related travel during the working day, the following initiatives should be promoted:

- Use of the public transport network to travel to places that are on or near public transport stops; and
- Walk to places that are close by rather than taking the taxi.

3.1.5 Cycling

The South Tower will have good access to the cycling network and provide high quality end of trip facilities for cyclists (located in the North Tower, level B2). In order to activate and promote cycling the following is recommended:

- Consider providing interest-free loans for staff to buy a bicycle
- Partner with a local bicycle store to provide bicycle maintenance classes and discounted prices;
- Provide secure bicycle parking and end of trip facilities;
- Provide Sydney cycle maps to staff;
- Participate in annual events such as 'Ride to Work Day';
- Staff who cycle to work should be encouraged to form a Bicycle User Group; and
- Set up ‘Bike Buddies’ scheme for less confident staff interested in cycling.

3.1.6 Public Transport

To promote the use of public transport work-related trips and journeys to/from the South Tower, the following is recommended:

- Create and maintain an intranet ‘Public Transport links page’ containing useful links to journey planning websites in Sydney;
- Provide useful public transport maps and promotional items to potential and current public transport users; and
- Investigate the possibility of purchasing an Opal Card for general use of staff for business journeys, in lieu of cars and taxis.

3.1.7 Walking

Specific measures designed to encourage more walking trips to and from work and for business trips include:

- Produce walking related articles for inclusion in the office newsletter, focussing on ‘walking champions’ to highlight best practise in walking to business meetings;
- Create and maintain an intranet ‘useful walking routes’ containing useful information on ‘shaded routes’, shortcuts and distances to key parts of the Sydney CBD; and
- Participate in Walk to Work day.

3.1.8 Staff Induction

To ensure new members of staff are aware of the GTP, all new staff members should be made aware of the Plan as part of their induction process. The GTP section of the induction should provide new starters with the following:

- A brief introduction to the GTP and its purpose;
- Tour of the office to include a visit to cycle parking areas and shower and changing facilities; and
- Information on incentives to use sustainable means of transport e.g. how to apply for interest-free bike loans etc.

3.2 Scheme Administration

3.2.1 Administration

A GTP co-ordinator should be appointed for the South Tower. This person would be a member of the tenant organisation and form a GTP management team, enabling a consistent and organised approach.

The role should be undertaken by an enthusiastic and high quality communicator in order to promote measures that will encourage employees to think about travel other than as a single occupancy car user. They will need to be an enthusiastic and respected member of staff who is keen to champion the cause of the GTP.

Senior management support is critical to ensuring the success of any travel plan for a number of reasons such as to:

- Lead by example;
- Allow budget allocations for the implementation of measures; and
- Give support to changes or development of policy documentation.

3.2.2 Consultation

The success of the GTP will rely on the support of the employees which will be overseen by the GTP co-ordinator. The GTP co-ordinator will be responsible for all liaisons with outside bodies, including local transport operators, planning and highway authorities.

Liaison with officers of the City of Sydney, e.g. those responsible for cycling and public transport will be undertaken as required. The GTP co-ordinator should also seek to join and attend meetings with any local travel forums as appropriate in order to exchange ideas with other like-minded organisations.

3.2.3 Promotion

All employees will be made aware of the details of the GTP, its objectives in enhancing the environment and the role of individuals in achieving its objectives at its launch.

The promotional material will advise employees wishing to raise specific transport-related matters to discuss them with the appropriate nominated GTP co-ordinator who in turn would liaise with the GTP management team, transport operators and the local authority as required.

3.2.4 Updating, reviewing and monitoring

The GTP is a strategy that will evolve over time. Although the objectives of the plan to 'educate' employees and to facilitate travel by sustainable modes will not change, it may be possible over time to define or re-define specific targets.

Target setting should reflect an ambition for continued progress year on year and there should be a mechanism to review targets in the light of annual monitoring surveys. The monitoring measures could include collecting data on employee travel patterns for journeys to work and also during the working day. The recorded data would provide information on modes of transport used and distance travelled, from which energy consumption and emissions could be estimated.

Following the implementation to the GTP, the GTP Management team should meet annually to undertake a review of the travel demand measures. The objective will be to measure their success and to identify the potential for refinements.

The GTP Management team will then compile a review report outlining the results of the review. The report will also incorporate the results of on-going monitoring processes throughout each of the preceding periods.

4 Conclusion

The implementation of a GTP is essential part of ensuring that commuting and business trips generated by the future development are sustainable.

The Metro Martin Place Precinct is centrally located within the Sydney CBD with prime access to public transport, and will include high quality end of trip facilities to serve the South Tower. As a result, the South Tower does not require on-site parking and is ideally placed to achieve the future travel mode share targets set out in this document.

The GTP will contribute to a healthier and better quality of life for staff. The work place will benefit from more productive staff, cost savings and reduced demand for car parking.

Appendix D

Construction Pedestrian and Traffic Management Plan

Macquarie

Sydney Metro Martin Place integrated station development

South Tower, SSD DA Stage 2: Construction Pedestrian and Traffic Management Plan

CSWSMP-MAC-SMS-TF-REP-999902

Rev 4 | 29 March 2019

Job number 247838

Arup
Arup Pty Ltd ABN 18 000 966 165

Arup
Level 10 201 Kent Street
PO Box 76 Millers Point
Sydney 2000
Australia
www.arup.com

ARUP

Contents

1 Description of construction works

1.1 Site description

The Metro Martin Place precinct development consists of the Martin Place Metro station, Over Station Development (OSD) and the associated integrated civic, retail and commercial areas. This proposed redevelopment is to create a transportation metro precinct that offers mixed use space including commercial office space, modern retail outlets and civic space. The South Tower OSD consists of 29 storeys of office space.

The precinct is located between Hunter Street to the north, 39 Martin Place to the south, Elizabeth Street to the east and Castlereagh Street to the west.

The buildings located at 39 Martin Place, 55 Hunter Street, 5 Elizabeth Street, 7 Elizabeth Street, 8-12 Castlereagh Street and 9-19 Elizabeth Street will be demolished, and the site excavated by the Tunnel and Station Excavation Works (TSE) Contractor prior to the Contractor commencing site establishment.

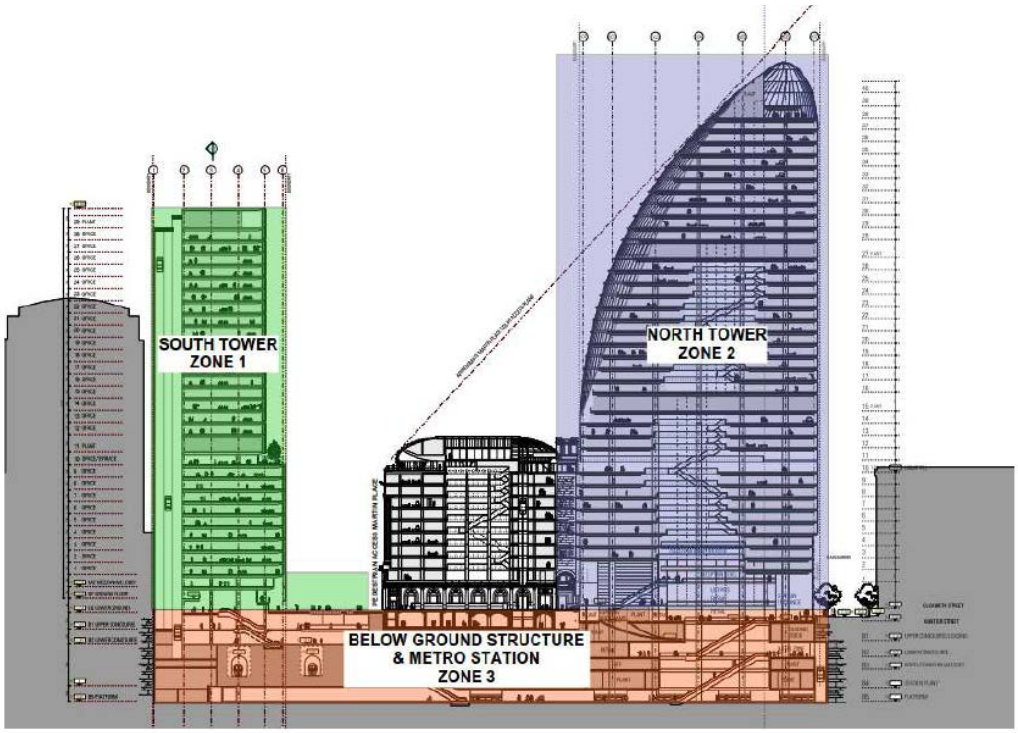


Figure 1: Construction zone break up

This Construction and Pedestrian Traffic Management Plan (CPTMP) provides an assessment of the impact to road users during the South Tower OSD construction and describes the mitigation measures proposed. Where relevant, reference is made to Sydney Metro (Chatswood to Sydenham) Critical State Significant Infrastructure (CSSI) EIS ('CSSI EIS') given the integration of projects, location of the site and representative nature of the construction traffic volumes and impacts for the North and South Tower OSD.

1.2 Description of the works

The South Site OSD proposal indicated in Figure 1 above (Zone 1), involves the redevelopment of the site, as well as the following:

- Construction of the 29 story South Tower, comprising a rear core reinforced concrete structure with a podium level to 45 metres;

1.3 Amendments following authority submissions

This report is the version of the Framework Construction Pedestrian and Traffic Management Plan that was submitted with the EIS for the **South Site** Over Station Development (OSD). It has been restructured from that previously submitted in order to accurately respond to the submissions received to the exhibition of the EIS. Given the level of detail now provided, the word 'framework' has been removed from the title of this document.

The Sydney Coordination Office within TfNSW requires a number of items to be addressed as part of the CPTMP for the project. These items are listed in Table 1, along with the relevant section in which it is contained within this report.

Table 1 CPTMP requirements

Requirement	Reference
Consistency with the Construction Traffic Management Framework prepared as part of the Sydney Metro City and Southwest;	This plan is consistent with the framework. Further information provided in section 1.4.
Loading and unloading details, including the locations of all proposed work zones;	See section 2.3
Haulage routes;	See section 2.5
Construction vehicle access arrangements;	See section 2.3
Proposed construction hours	See section 2.2
Estimated number and type of construction vehicle movements including morning and afternoon peak and off peak movements, distinguishing concrete pours from other construction activity and noting that construction vehicles would be restricted from using work zones on Castlereagh Street and Elizabeth Street during certain times of the day	See section 2.4 for traffic generation and 2.3 for proposed use of work zones.
Construction program, highlighting details of peak construction activities and proposed construction 'Staging';	See section 2.1
Details of specific measures to ensure the arrival of construction vehicles to the site does not cause additional queuing on Elizabeth Street, Hunter Street, Castlereagh Street and King Street;	See section 2.5 for routing which avoids movements which could cause additional queuing. The traffic generation is reduced during peak times as per section 2.4.
Details of construction vehicle marshalling areas outside the CBD;	See section 2.9

Details of pedestrian and traffic management measures;	See section 2.3 and 2.8
The staging of works and simultaneous construction with other projects in the precinct including the Sydney Light Rail Project, Sydney Metro City and Southwest and private development to mitigate the cumulative construction impacts of projects;	See section 1.5
Any potential impacts to general traffic, cyclists, pedestrians and bus services within the vicinity of the site from construction vehicles during the construction of the proposed works; and	See section 3
Measures proposed to mitigate any associated general traffic, public transport, pedestrian and cyclist impacts should be clearly identified and included in the CPTMP.	See section 4

1.4 Sydney Metro City and Southwest Construction Traffic Management Framework

The Construction Traffic Management Framework (CTMF), produced by Sydney Metro, sets out the approach to managing traffic impacts during the construction of the Chatswood to Sydenham component of the Sydney Metro City and Southwest project.

It has been prepared to address the general requirements for contracts which form part of the project that was approved under the CSSI EIS. It establishes the traffic management processes and acceptable criteria to be considered and followed in managing roads and footpaths adjacent to Project worksites.

Although the OSD works do not form one of the contracts approved under the CSSI, given the location of the work and integrated nature of the project, the principles of the CTMF have been considered.

The preparation of the CPTMP for the OSD works considers the CTMF in terms of the approval process, content and issues to be addressed. This is described in the following sections.

1.4.1 CPTMP approvals process

The approval process for the OSD CPTMP is summarised as:

- Preparation in consultation with SCO;
- Submitted to SCO for review and comment;
- After review and agreed edits, it will be submitted for approval following the SCO endorsement, prior to the OSD construction works commencing; and
- Issued to DP&E as required under the SSDA consent.

1.4.2 CPTMP content

The CTMF requires site specific CTMPs to comprise of other plans and drawings, including:

- Traffic Staging Plans
- Traffic Control Plans
- Vehicle Movement Plans
- Pedestrian Movement Plans
- Parking Management Plans

This CPTMP provides preliminary Traffic Staging Plans for the OSD works in section 2.3. This plan also indicates the proposed movement plans for vehicles, pedestrians and any proposed changes to parking, buses and loading zones.

Once the principals of the Traffic Staging Plans have been endorsed, Traffic Control Plans will be produced along with other plans as required and included in the CPTMP for approval.

1.4.3 Site specific issues

The CTMF sets out a number of site-specific issues for Martin Place to be addressed as part of any site-specific CTMP. The issues are listed in Table 2.

Table 2 Martin Place site-specific issues

Martin Place Issues	Section
Pedestrian and cyclist safety, and access through Martin Place, particularly during weekday AM, weekday lunch, weekday PM and special events.	The traffic staging plans (see section 2.3) describe how pedestrians and cyclists will be managed on weekdays, with the impact described in section 3.2. Controls during special events will be discussed and agreed on a case by case basis with the SCO.
Heavy pedestrian activity in Martin Place, Castlereagh Street, Elizabeth Street, Hunter Street.	The management of pedestrians and cyclists is summarised in section 2.8.
Access to Martin Place station including marshals to direct commuters during peak periods.	The requirement of marshals to be discussed with SCO.
Impact on bus stops and bus operations	Discussed in section 3.3
Special events	Discussed in section 2.10
Impact on service vehicle parking and car parking.	Discussed in section 3.4 and 3.5
Cumulative construction traffic from other developments.	Identified concurrent developments discussed in section 1.5. Cumulative traffic generation discussed in section 2.4.

1.5 Concurrent construction projects

There are a number of construction sites already established and proposed within the Sydney CBD. Surrounding construction activities include (but are not limited to):

- Sydney Metro - *expected to be operational by 2024*
- 1 Carrington Street (Wynyard Place) – *expected to be completed by 2020*
- 280 George Street – *expected to be completed by 2020*
- One Circular Quay – *expected to be completed by 2022*
- AMP Quay Quarter – *expected to be completed by 2022*
- Barangaroo Precinct – *expected to be completed by 2024*
- Sydney Light Rail - *expected to be completed by end of 2019 and operational by May 2020*

Works at the majority of these sites are expected to be completed by 2022. With South Tower OSD works anticipated to commence in February 2021, it is works at Barangaroo, Circular Quay, Quay Quarter and those associated with the Sydney Metro that are expected to be the main construction traffic generating sites overlapping with the South Tower OSD works. North Tower OSD works will also be taking place from January 2021 (North Site basement works approved under the CSSI will commence in June 2020).

Ongoing review of cumulative heavy vehicle traffic generation and coordination of heavy vehicle routes used by such major projects will be undertaken on a regular basis between the Project Team and Sydney Coordination Office to minimise impacts on the road network.

2 Methodology

2.1 Duration and staging of works

The timeline of construction works relating to the South Tower Site is shown in Table 3. Given the integrated nature of the project, works approved under the CSSI are provided for information also. Those works are not, however, subject to this CPTMP.

Underground station and basement works (including the concourse tunnel) are approved under the CSSI and will be carried out by a separate Lendlease construction team.

The works are to be carried out over 30 months with a planned start date in February 2021 and a completion date in August 2023. It is anticipated that handover of the site to Lendlease will occur in February 2021, with SSDA approved works commencing in August 2021. Station fit-out works will be occurring concurrently with the OSD works.

Table 3 Staging and duration

Stage	Activities	Start Date	Finish Date	Duration	Approval
1	Concourse Tunnel	February 2021	November 2021	10 months	CSSI
2	Basement structure	February 2021	January 2022	12 months	CSSI
3	South Tower cores	August 2021	July 2022	12 months	SSDA
4	Podium, Low Rise and High Rise Floor plates	October 2021	January 2023	15 months	SSDA
5	Façade	May 2022	July 2023	14 months	SSDA
6	Plant and Services	September 2022	July 2023	10 months	SSDA
7	Vertical Transportation	September 2022	April 2023	7 months	SSDA
8	Finishes and Station Fit-out	July 2021	April 2023	21 months	CSSI
9	Finishes and South Tower Fit-out	March 2022	July 2023	16 months	SSDA
10	Commissioning	September 2022	August 2023	11 months	CSSI/SSDA

Stage 1 and 2: Excavation works are completed, and station/basement structure works commence along with the concourse tunnel. Given level differences between the site and adjacent streets during this stage, vehicle access into the site is not possible.

Stage 3: The South Tower core will advance ahead of suspended slabs below. There are 2 core structures within the site, with jumpform being used from level B1 and above.

Stage 4: Floor slabs will follow the construction of cores. Once the lower ground floor level structure is completed and stripped, vehicles will be able to access the site from Castlereagh Street (just north of the future loading dock driveway).

A second access from Castlereagh Street (at Martin Place) is proposed once the pedestrian link tunnelling and basement slabs are completed.

Stages 5 -10: These stages generally follow the base building structure. The façade will be installed from the floors. There are no significant changes to the site access points during these stages.

It is noted that the North Tower is proposed to be constructed between June 2020 and June 2023, with OSD works commencing in January 2021. Demolition and tunnelling works for Sydney Metro, already approved under the CSSI, are the responsibility of the TSE contractor and are taking place on-site at present.

2.2 Hours of construction

Main site working hours will be governed by the final State Significant Development Application (DA) consent conditions, however the following is proposed for this CPTMP for the South Tower OSD works only (i.e. from lower ground level and above).

- Mondays to Fridays inclusive: 7am - 7pm
- Saturdays: 7am - 5pm
- Sundays and public holidays: No work
- Works may be undertaken outside these hours where:
    - It is required by a major works authorization deed executed with Roads and Maritime Services (RMS); or
    - The delivery of materials is required outside these hours by the Police or other authorities; or
    - It is required in an emergency to avoid the loss of life, damage to property and/or environmental harm; and
    - Variation is approved in advance in writing by the Director General

Works approved under the CSSI are subject to the hours of construction set out in the associated conditions of consent.

2.3 Site access and traffic staging plans

Three traffic staging plans (TSP 1, TSP 2 and TSP 3) have been proposed for the South Site to manage traffic at different stages of construction. These are described in the following sections, along with the location of the site access points.

2.3.1 TSP 1

Stages of construction: 1, 2, 3 (generally below ground level works and associated with the station structure)

Indicative time period: February 2021 – August/September 2021 (approx. 6 months)

Site Access: No access to site. Work zones used.

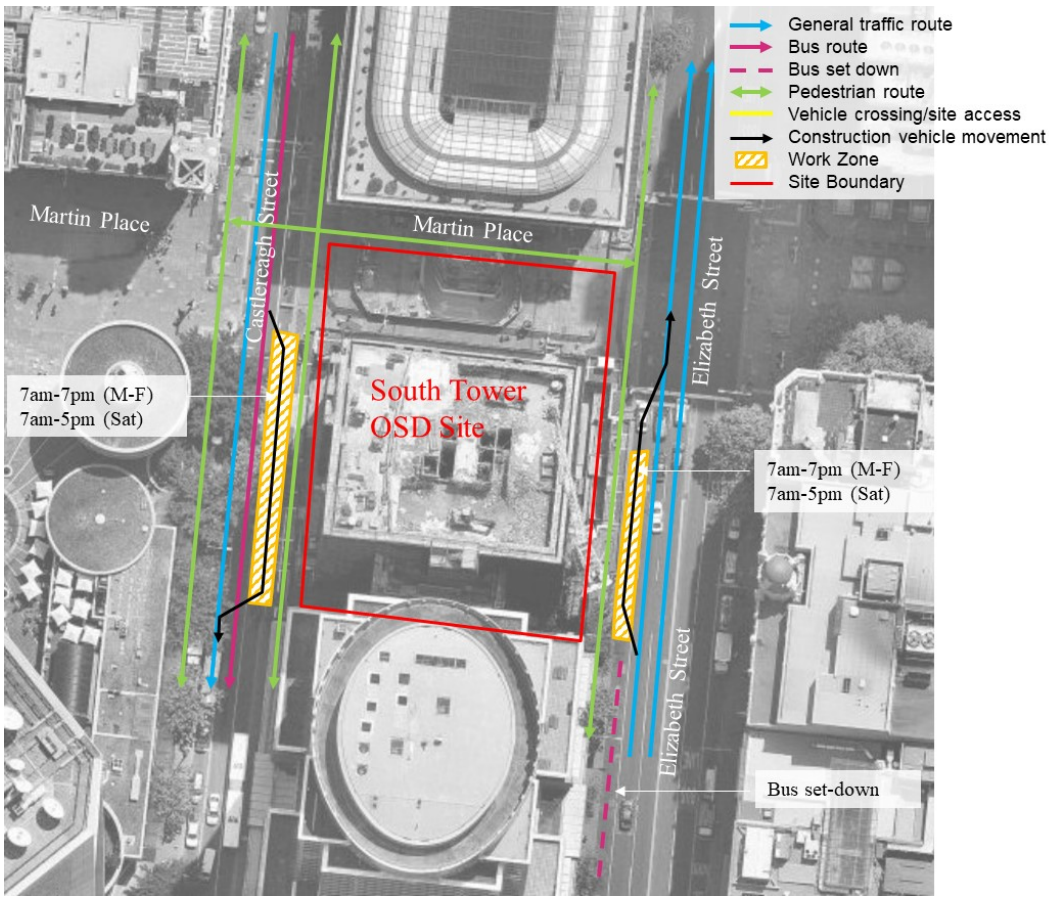


Figure 2 TSP 1 Site Access and Traffic Staging Plan

Site Access

As presented in Figure 2, no vehicle access into the site is proposed during this stage. Vehicles will access the work zones, with loading and unloading of vehicles taking place from there.

Work Zones

A work zone is proposed along Castlereagh Street and Elizabeth Street as presented in Figure 2. It is proposed to operate both work zones from 7.00am-7.00pm Monday to Friday and 7.00am-5.00pm on Saturday in accordance with the hours of construction. The proposed changes to kerbside uses on Castlereagh Street (eastside) and Elizabeth Street (westside) are summarised in Table 4 and Table 5 respectively.

Table 4 Castlereagh Street (eastside) kerbside use

Kerbside Use	Existing times	Proposed times
Work zone	n/a	7am-7pm (Mon-Fri) 7am-5pm (Sat)
Mail Zone	24/7	None
Loading zone (ticket)	6am - 6pm (Mon-Fri) 6am - 10am (Sat)	None
4P (ticket)	6pm-10pm (Mon-Fri) 10am-10pm (Sat) 8am - 10pm (Sun/Bank Hol)	7pm – 10pm (Mon-Fri) 5pm – 10pm (Sat) 8am - 10pm (Sun/Bank Hol)

On Castlereagh Street, the work zone will replace a loading zone and mail zone. It does not impact the bus zone during the proposed hours of operation. On Saturdays it would replace 4P parking.

Table 5 Elizabeth Street (westside) kerbside use

Kerbside Use	Existing times	Proposed times
Work zone	n/a	7am-7pm (Mon-Fri) 7am-5pm (Sat)
Bus Set-Down	24/7	7pm – 7am (Mon-Fri) 5pm-7am (Sat) All day Sunday

The work zone would be approximately 30m in length on Elizabeth Street and replace a section of Bus Zone. The existing ‘no stopping’ zone just south of the Martin Place pedestrian crossing on Elizabeth Street will be retained as per the existing situation.

The proposed work zones would not affect the pedestrian and cyclist routes.

2.3.2 TSP 2

Stages of construction: Parts of 1, 2, 3 and 4 (Ground plane established on southern section of site however concourse tunnel works ongoing)

Indicative time period: August/September 2021 – May 2022 (approx. 9-10 months)

Site Access: Combined entry and exit on Castlereagh Street.

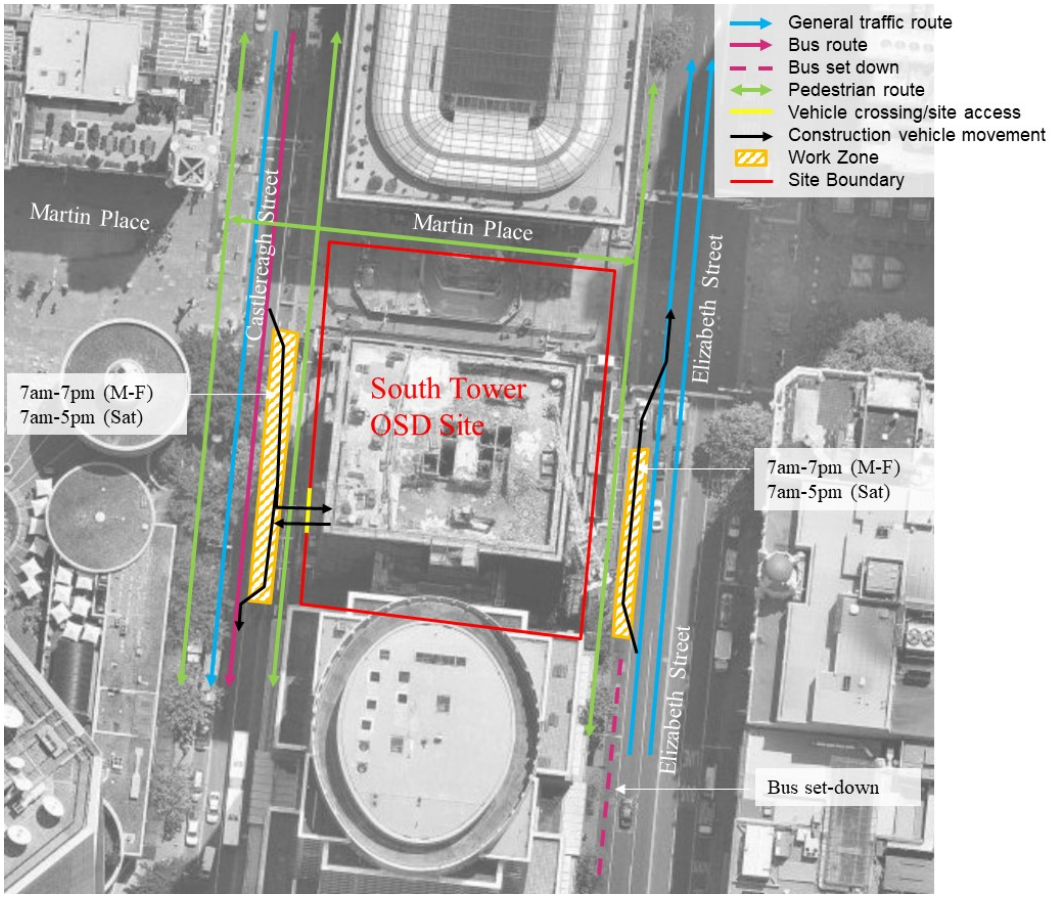


Figure 3 TSP 2 Site Access and Traffic Staging Plan

Site Access

As presented in Figure 3, a combined entry and exit off Castlereagh Street is proposed during TSP 2. This is just north of the future loading dock driveway. Vehicle movements would be restricted to left-in, left-out only.

Traffic signals at the Martin Place pedestrian crossing on Castlereagh Street will generate sufficient gaps in traffic to enable heavy vehicles to safely exit the site.

Pedestrian movements on the footpath across the site access/egress points on Castlereagh Street would be managed by traffic controllers and concertina gates.

The largest construction vehicle to access the subject site would be a rigid vehicle with overall length up to 9.4m.

Work Zones

The proposed work zones along Castlereagh Street (eastside) and Elizabeth Street (westside) described as part of the TSP 1 arrangement will continue to be in place during this stage.

2.3.3 TSP 3

Stages of construction: From completion of ground floor slab over concourse tunnel to completion of works

Indicative time period: May 2022 – completion

Site Access: Two combined entry and exit points on Castlereagh Street.

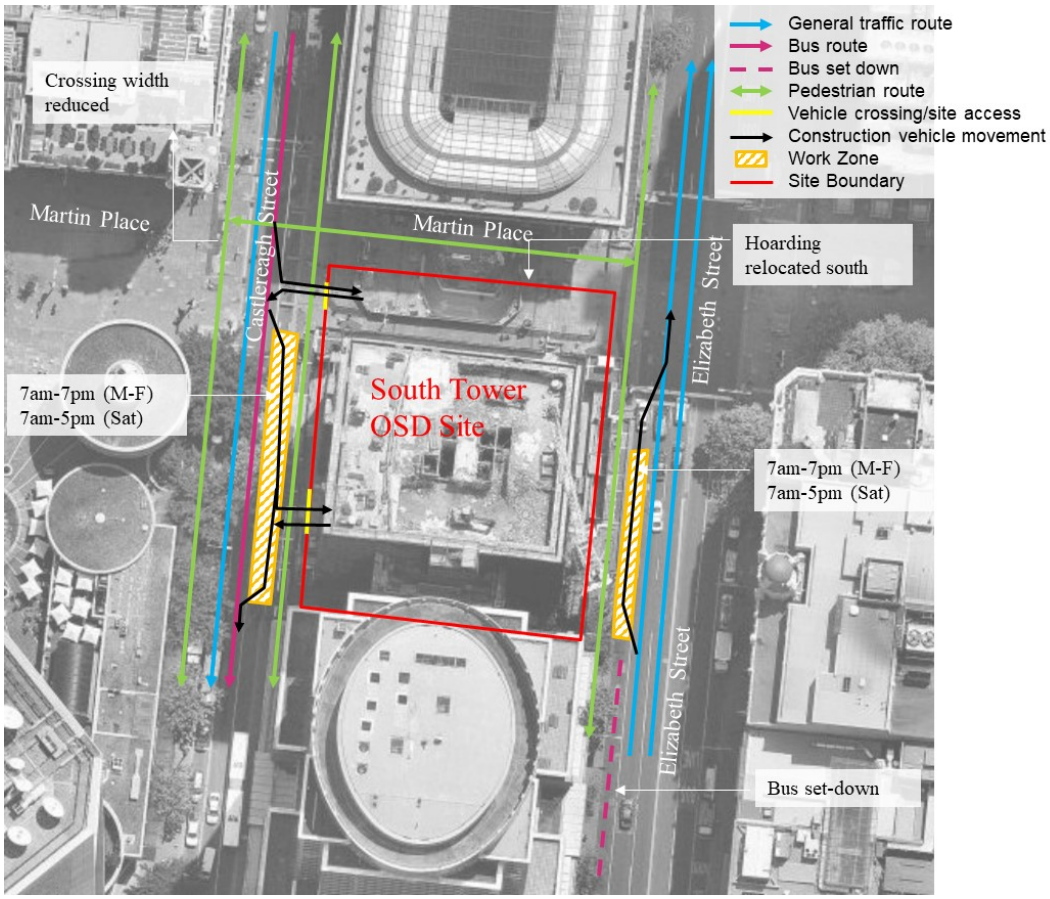


Figure 4 TSP 3 Site Access and Traffic Staging Plan

Site Access

As presented in Figure 4, two combined entry and exits off Castlereagh Street is proposed during TSP 3. The southern entry is a continuation of the access established as part of the TSP 2 arrangement. The other is a new combined entry to the north at Martin Place, just north of the South Tower building.

Construction vehicles would turn left-in from Castlereagh Street and enter the site in a forward direction. To exit the site, trucks would turn left-out from the site in a forward direction on Castlereagh Street.

The largest construction vehicle to access the subject site would be a rigid vehicle with overall length up to 9.4m.

Traffic signals at the Martin Place pedestrian crossing on Castlereagh Street will generate sufficient gaps in traffic to enable heavy vehicles to safely exit the site.

Work Zones

The proposed work zones along Castlereagh Street (eastside) and Elizabeth Street (westside) operating as part of the TSP 1 and TSP 2 will continue to be in place during this stage.

Pedestrian Crossing Changes

This new vehicle access established in TSP 3 is located in the centre of the existing signalised mid-block pedestrian crossing at the intersection of Martin Place and Castlereagh Street.

To facilitate this arrangement such that pedestrians do not cross in front of the new vehicle access, the following measures are required

- Reduce the width of the mid-block pedestrian crossing on Castlereagh Street
- Provide barriers along Castlereagh Street (west side) to channel pedestrians towards pedestrian crossing

The 'A-class' hoarding line along Martin Place will also be moved to the south to provide a 15m wide pedestrian route along Martin Place at this time. Pedestrian movements on the footpath across both site access points would be managed by traffic controllers and concertina gates.

2.4 Traffic generation

The CSSI EIS estimated precinct wide construction volumes of 6 heavy vehicles per hour (i.e. 12 heavy vehicle movements) during peak times, increasing to 26 heavy vehicles per hour (i.e. 52 heavy vehicle movements) outside of peak times.

During peak time periods, it is estimated the North Site and South Site will collectively generate 6 heavy vehicles (i.e. 12 heavy vehicle movements). This would be shared evenly between the sites.

This may increase to a peak of 26 heavy vehicles per hour (i.e. 52 heavy vehicle movements) during the middle of the day, however it is expected to generally be lower than this and in the range of 15-20 heavy vehicles per hour.

Traffic generation shared across both sites during the peak periods and middle of the day would be as follows:

- AM peak period (7am-10am) – Up to 6 heavy vehicles per hour which would generate up to 12 heavy vehicle movements per hour.
- Middle of the day (10am-4pm) – Up to 26 heavy vehicles per hour but typically in the range of 15-20 vehicles per hour (i.e. 30-40 heavy vehicle movements per hour).
- PM peak period (4pm-7pm) – Up to 6 heavy vehicles per hour which would generate up to 12 heavy vehicle movements per hour.

A summary of the anticipated traffic volume associated with the construction works are provided in Table 6.

Table 6 Construction traffic generation

	Time Period			Daily
	7am-10am	10am-4pm	4pm-7pm	7am-7pm
No. of heavy vehicles	6 veh/h	15-20 veh/h (max. 26 veh/h)	6 veh/h	Up to 192 (max)
No. of heavy vehicle movements	12 veh/h	30-40 veh/h (max. 52 veh/h)	12 veh/h	Up to 384 (max)

Given the shorter working day on Saturday (7am to 5pm), there would be less vehicle movements across the day.

Large Concrete Pours

During days when large concrete pours are anticipated, heavy vehicle traffic volumes may increase outside of peak periods. At this stage, late 2021 and early 2022 have been identified as the periods of time when large concrete pours will be occurring at both sites.

The mitigation of impacts associated with large concrete pours will be discussed with SCO.

2.5 Haulage routes

The effective management of haulage operations is not only critical to the success of the project but is also necessary to minimise the impact on the road network and to maintain the safety of pedestrians.

Haulage routes have been selected on the basis that trucks are to utilise State and Regional Roads first before travelling on Local Roads. It is understood that City of Sydney could approve access for oversize and/or over mass vehicles on the City's roads following the submission of Oversize & Over Mass Vehicle Permit Application.

The proposed arrival and departure haulage routes are listed as follows and illustrated in Figure 5. It is noted that other secondary routes may also be available for use and that preferred routing will be finalised with the SCO.

Arrival Routes

The primary arrival route to be adopted to minimise traffic disruptions in the CBD is the route from the south or west where the majority of haulage trucks would originate. Key routes identified are:

- From South/East: Trucks will approach from the Eastern Distributor (ED) (northbound), then turn off at Exit 4 and left onto William Street and continuing straight until turning right onto Elizabeth Street. To access Castlereagh Street, vehicles also need to turn left onto Hunter Street and left onto Castlereagh Street.
- From West: Trucks will approach the site from Western Distributor, exit onto King Street and turn left onto Elizabeth Street (tuning left onto Hunter Street and turn left onto Castlereagh Street to access that part of the site).

- From North: Trucks will approach the site from the Harbour Bridge, then Cahill Expressway, exit onto Bridge Street and then use Gresham Street, Bent Street and Bligh Street to access the site. Outside of peak time, Macquarie Street and Hunter Street may also be used to access the site when traffic conditions are lighter.

Departure Routes

The primary departure route is to the south or west where the majority of vehicles would travel to. Where possible, the left-turn movement from Castlereagh Street to King Street will be avoided during peak periods due to congestion. Key routes identified are:

- To South/East: From Castlereagh Street continue south before turning left onto Park Street. Continue along Park Street/William Street until turning left onto Bourke Street to access the ED (southbound). From Elizabeth Street, it is proposed to use Philip Street and Bent Street to access the ED and travel south.
- To West: From Castlereagh Street continue south before turning right onto Park Street and continue towards the Western Distributor. From Elizabeth, vehicles will initially need to turn left onto Hunter Street and then Castlereagh Street.
- To North: From Castlereagh Street continue south before turning left onto Park Street. Continue along Park Street/William Street until turning left onto Palmer Street to access the ED (northbound). Outside of peak times, King Street and Elizabeth Street may be used.

  From the work zone on Elizabeth Street, continue north onto Philip Street before turning right on Bridge Street and continue towards the Cahill Expressway.

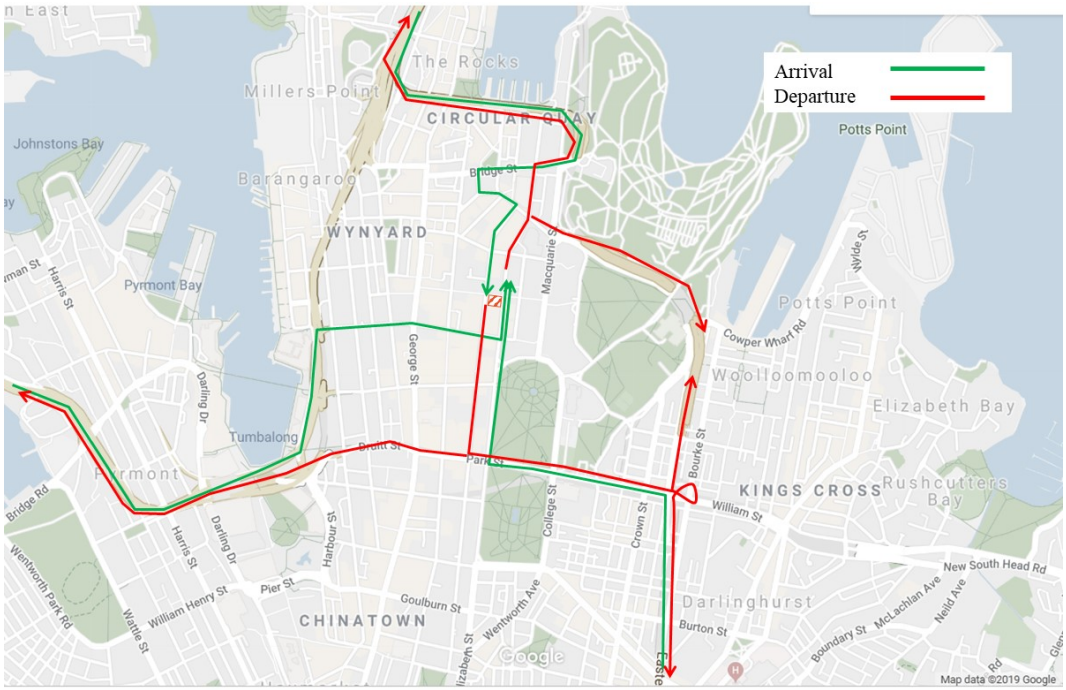


Figure 5: Construction vehicle routes to and from the site

2.6 Traffic management

Truck movements to and from the subject site would be scheduled to minimise traffic disruption in the surrounding road network. This would comprise the following measures:

- Heavy vehicles to be compliant with all relevant laws and regulations including Heavy Vehicle National Law (HVNL) and Chain of Responsibility law.
- Oversized vehicles would be transported to/from the site in strict accordance with Roads and Maritime guidelines and City of Sydney requirements, subject to one-off approval, to minimise traffic disruption during normal business hours.
- Haulage routes would be designated and communicated to all truck drivers to ensure truck movements to/from the site are as efficient as possible.
- The loading and unloading of trucks would be planned to ensure each individual truck haulage capacity is fully utilised reducing the number of truck movements.

2.7 On-site parking

Vehicles associated with the subject site must not park in any on-street parking spaces. Onsite parking will not be made available for employees working on the project. Staff will be encouraged to use public transport when travelling to/from the site, hence minimizing traffic impacts on the surrounding road network.

All construction vehicles associated with the site will be parked wholly within the site.

2.8 Pedestrian and cyclist management

B-class hoarding would be erected over the footpath on Castlereagh Street (east side) and Elizabeth Street (west side) to provide overhead protection to pedestrians and maintain pedestrian thoroughfare during the construction period. A class hoarding will be in place along Martin Place.

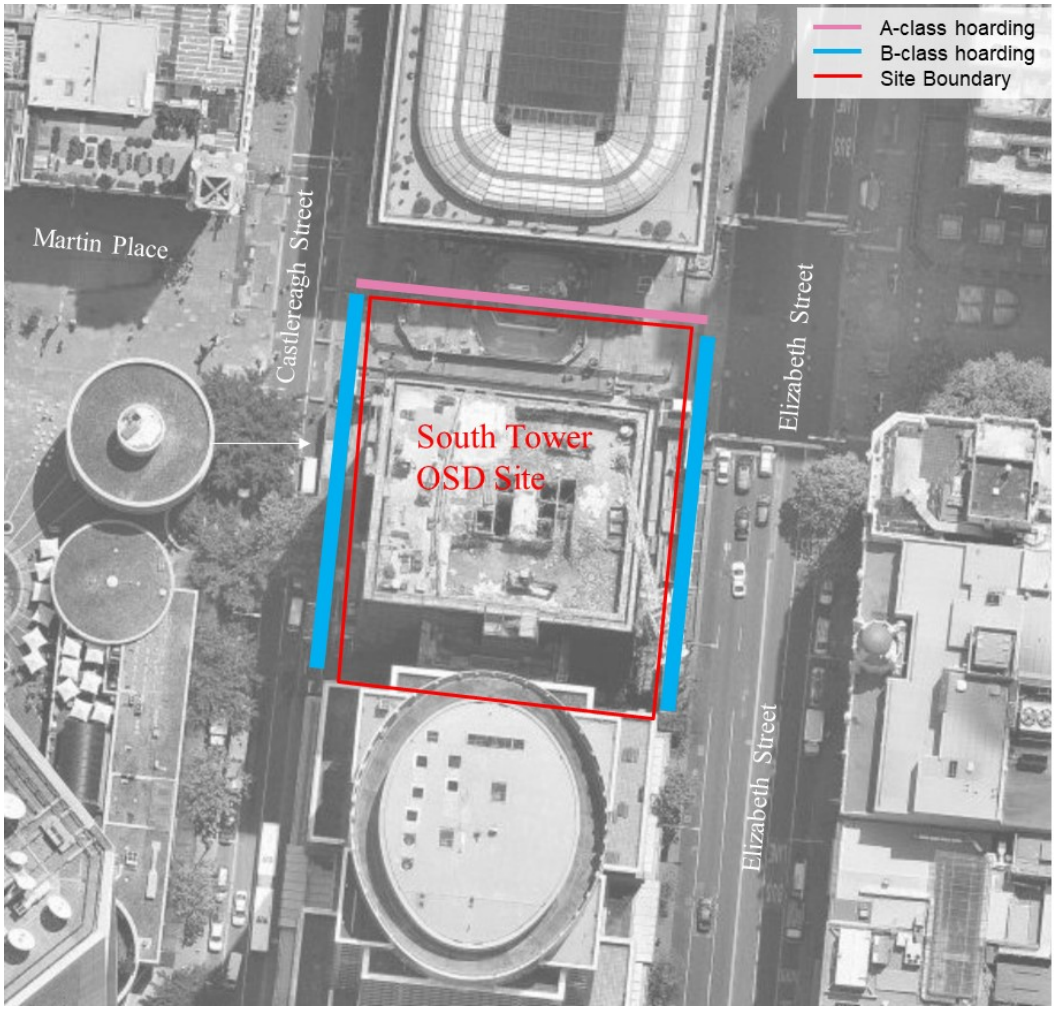


Figure 6 Hoarding Plan during TSP 3

Relevant permits required for hoarding installation to be undertaken would be sought prior to any works taking place. Pedestrian access would be maintained along the footpath in Castlereagh Street, Martin Place and Elizabeth Street. During TSP 3, the pedestrian route along Martin Place will be widened to 15m.

Qualified traffic controllers with approved clothing would be in place to manage and control pedestrian movements. Concertina gates would be used to manage pedestrian movements at the vehicle crossing.

Pedestrian concertina gates would extend across the footpath on both sides of the vehicle crossing(s) to temporarily contain pedestrians when the vehicle access is

in use. When the vehicle crossing(s) is not in use the pedestrian concertina gates would be opened and pedestrian activity along the footpath would be available.

Traffic controllers would not stop pedestrians in anticipation. Pedestrians have the right-of way at all times. Pedestrians may be held only for short periods by the pedestrian concertina gate to ensure safety when trucks are entering and leaving the site.

Cyclists in Elizabeth Street and Castlereagh Street would not be affected by the construction works. Cyclists would be required to follow the traffic controller's directions as are other road users.

2.9 Construction vehicle marshalling areas

The need for construction vehicle marshalling areas outside of the CBD will be determined closer to the time of construction when there is more detailed information available regarding the origin of construction vehicle trips.

If required, potential areas will be identified, and their suitability discussed with the relevant stakeholders.

Construction vehicles will not be permitted to use local streets or circulate surrounding streets as a method of 'marshalling'.

2.10 Special events

There are a number of events throughout the year in Sydney which will result in changes to normal day to day traffic management, including road closures. (e.g. NYE celebrations, during Vivid etc.).

Lendlease will work proactively with the SCO to understand the impact of these special events and any changes or new measures required to mitigate the impact of the works during these time periods.

3 Assessment of impacts

3.1 Impact to emergency service access

Access to the subject site and neighbouring sites by emergency vehicles would not be affected by the works as the road and footpath frontage would be unaffected. Emergency protocols on the site would include a requirement for suitably accredited site personnel to assist with emergency access from the street.

Consequently, any potential impacts on emergency access would be effectively managed throughout the works.

Liaison shall be maintained with the police and emergency services agencies throughout construction and a 24-hour contact would be made available for 'out of hours' emergencies and access. The emergency services will be briefed through the appropriate forum.

Lendlease would assist with emergency access along Castlereagh Street and Elizabeth Street as part of the emergency protocols on-site. Thus, there would be no adverse impacts on the provision of existing emergency vehicle access to other neighbouring properties as a result of the proposed construction activities

3.2 Impacts to pedestrians and cyclists

During construction works, pedestrian access adjacent to the site along Elizabeth Street, Martin Place and Castlereagh Street would be maintained and all footpaths would be kept clear and trafficable at all times. Vehicle access to the site will be via Castlereagh Street only while during TSP 1 there will no vehicle access to the site.

The mid-block crossing of Castlereagh Street on Martin Place will need to be reduced in TSP 3 so that pedestrians do not cross in front of the site access.

Qualified traffic controllers would be located at proposed site accesses to separate pedestrian and vehicle movements. Any impacts are anticipated to be manageable.

Cycle access would be maintained in Castlereagh Street and Elizabeth Street during normal the works. Haulage vehicles would not impose adverse impacts on cyclists travelling along these streets nor any other local streets.

3.3 Impact to bus zones and bus services

A work zone is proposed on Elizabeth Street during all stages which would reduce the bus set-down area by approximately 30m from 7am-7pm (Monday-Friday) and 7am-5pm (Saturdays). As the zone is for set-down only, it is understood that demand is greatest during the morning peak period. Additionally, the opening of the light rail in 2020 may result in a reduction in the number of buses using Elizabeth Street for set-down (subject to confirmation with TfNSW).

In consideration of the above, it is anticipated that the future bus zone would continue to operate adequately.

The proposed work zone on Castlereagh Street would not impact any bus zone or services in any of the proposed arrangements.

3.4 Impact to on-street parking

The proposed work zone on Castlereagh Street would have a minor impact to on-street parking on weekdays by starting an hour later (Monday to Friday) and from 5pm on Saturdays.

The proposed 4P on-street parking times will be

- 7pm – 10pm (Mon-Fri)
- 5pm – 10pm (Sat)
- 8am - 10pm (Sun/Bank Hol)

Demand for parking during the construction works would decrease, thus the change in times is expected to have a minor impact on the surrounding area.

3.5 Impact to loading zones

The proposed work zone on Castlereagh Street would impact the existing loading zone at that location.

Demand for parking and loading during the construction works would decrease, thus, reduced loading spaces surrounding the site would be expected to have a minor impact on the surrounding area.

3.6 Impact to mail zone

There is an Australia Post box and corresponding mail zone located within the proposed work zone on Castlereagh Street (east side). Australia Post has been consulted previously regarding a work zone adjacent to the North Site and advised that Australia Post vehicles would be scheduled to undertake mail collection after 6.00pm on weekdays and Sunday. No collection occurs on Saturday.

It is anticipated that a similar arrangement will be in place for the impacted mail zone on Castlereagh Street, with access to the post box made available for Australia Post vehicles as necessary. Lendlease will consult with Australia Post to confirm this arrangement is acceptable.

Thus, the proposed work zone adjacent to the South Site will not impact the operation of the post box and no adjustments to the mail zone arrangement will be required.

4 Mitigation measures

4.1 Parking/Loading Zone/Bus Zone signage

Signage would be updated along the Elizabeth Street and Castlereagh Street to reflect

- the approved work zone times
- new parking and loading zone times
- any changes to the extent of bus zones
- any changes to bus stops

4.2 Traffic control plans

TCPs illustrate the arrangement of signage and devices to manage traffic at worksites during construction. The preparation of TCPs for the South Site will consider the following:

- Warning signage for vehicles and pedestrians at the site access to alert them of the presence of heavy vehicle traffic generated by the works, to warn/ inform drivers of changes to the usual road conditions, and to guide drivers through the worksite.
- Qualified traffic controllers to manage pedestrian and control activity at proposed site accesses.
- The movement of trucks to/ from the site access would be under normal traffic conditions.
- Pedestrians and all passing vehicles shall maintain priority at all times.
- Clear definition of the work site boundary to be provided by erection of hoarding around site boundaries adjacent to roads.
- All signage would be clean, clearly visible and not obscured.
- All vehicle movements generated by construction works would be minimised, where possible, during peak periods.

An example of a TCP which has been prepared previously for the South Site is presented in Figure 7.

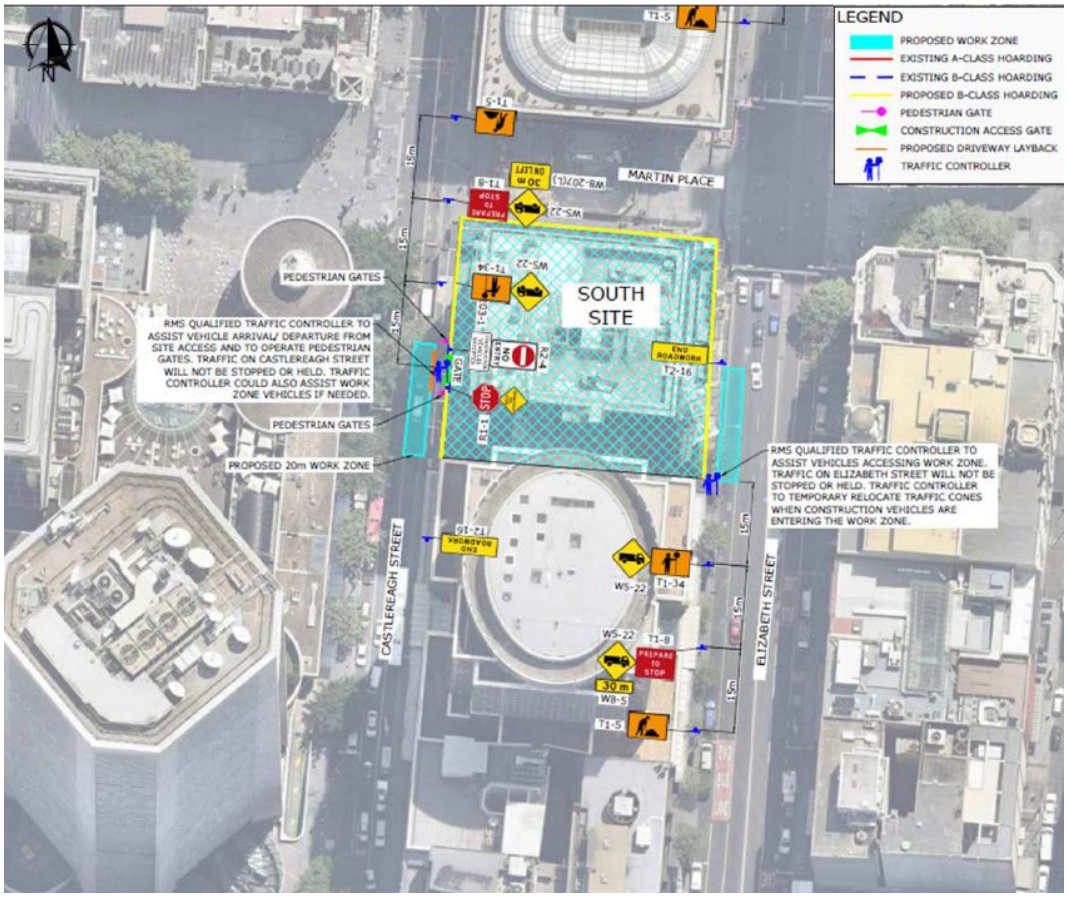


Figure 7 Example TCP for the South Site

4.3 Pedestrian access management

Pedestrian access shall be maintained at all times along the frontage streets. Existing pedestrian crossing movements and facilities are to be maintained at mid-block locations on Castlereagh Street and Elizabeth Street.

B-class hoarding would provide overhead protection above the pedestrian footpath on Castlereagh Street and Elizabeth Street. All hoardings would feature lighting to ensure pedestrian safety at night and would remain throughout the remaining construction period.

Footpath widths under the B-class hoarding would allow two-way pedestrian flow in line with Austroads requirement to provide sufficient space to accommodate prams and wheelchairs.

Along Martin Place (between Castlereagh Street and Elizabeth Street), the pedestrian route will be located along the northern side of Martin Place as part of the Sydney Metro CSSI approved works. This arrangement will continue to be in place during TSP 1 and TSP 2.

During TSP 3, the A-class hoarding will be moved to the south and a 15m wide pedestrian route provided along Martin Place. The mid-block crossing of Castlereagh Street will be reduced in width to match that. Pedestrian barriers are proposed on Castlereagh Street (west-side) to ensure pedestrians use the crossing.

Suitable signage including the “Watch for Pedestrians” signs would be provided at egress points for construction vehicles to maintain pedestrian safety when pedestrians travel across the proposed vehicle crossings.

Traffic controllers located at site accesses would be notified by two-way radio whenever there is a heavy vehicle approaching and leaving the subject site. The traffic controllers would ensure the safe and efficient movement of pedestrians across the site access while also maintaining awareness of pedestrians crossing Castlereagh Street away from signalised crossings.

Cyclist access and safety would be managed as would general traffic in Castlereagh Street.

4.4 Sydney Coordination Office discussions

A meeting was held on 18 April 2018 with the SCO of TfNSW which discussed the CPTMP for the project. It is proposed to share this revised draft plan with the SCO as requested in the ‘Response to Submissions’ so that it can be developed further as required.

Another meeting was held on 13 March 2019 with SCO to discuss the draft plan. Comments from SCO regarding traffic generation, vehicle routing and work zones have been incorporated into this revised plan.

Discussions with SCO and other relevant stakeholders will continue in the future on the proposed traffic management measures during the various stages of the works. The potential impacts to road users will be assessed with solutions put forward to mitigate those impacts.

5 Conclusion

This CPTMP has been prepared for the South Tower OSD and outlines:

- a description of the construction works
- the duration of the works and proposed hours of construction
- proposed site access points and traffic staging plans
- proposed haulage routes;
- pedestrian and traffic management measures;
- assessment of impacts; and
- mitigation measures;

Construction of the South Tower OSD will be part of an integrated project which includes the station and North Tower OSD. The traffic impact during peak times is expected to be manageable and not impact on the performance of surrounding intersections.

Ongoing consultation shall be held with SCO and other relevant authorities to ensure that this CPTMP, subject to approval, is implemented in accordance with the requirements.