338 Pitt Street, Sydney

Mixed Use Development
Transport Impact Assessment

Prepared by: GTA Consultants (NSW) Pty Ltd for Han's Sydney Pty Ltd
on 25/03/2020
Reference: N168210
Issue #: C

GTAconsultants

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Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
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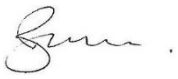
C	25/03/2020	Updated to include revised site access	Ingrid Bissaker	Rhys Hazell	Rhys Hazell	

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1. INTRODUCTION

01

1.1. Background & Proposal

This transport assessment report supports a State Significant Development Application (SSDA) for the mixed-use redevelopment of 338 Pitt Street, Sydney, which is submitted to the City of Sydney (CoS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act). China Centre Development Pty Ltd is the proponent of the SSDA.

The site is on the corner of Pitt Street and Liverpool Street, within the 'Mid Town' precinct of Sydney's Central Business District (CBD). The site is approximately 150 metres west of Museum Station and Hyde Park, and approximately 350 metres from Town Hall Station. The site includes several allotments and constitutes nearly one third of the city block between Bathurst Street, Pitt Street and Liverpool Street. The site is an irregular shape and has a combined area of approximately 5,900m².

The proposed development comprises of hotel, residential, commercial and retail uses and will include:

- demolition of all existing structures
- excavation and site preparation, including any required remediation
- construction and use of a mixed-use development, with an iconic 258m two-tower built form above a podium and internal courtyard
- four to five basement levels and a lower ground level accommodating residential, retail and hotel car parking, motorcycle parking, bicycle parking, loading dock, storage and relevant building services
- lower ground level porte cochere for hotel drop off/ pick up activity
- improvements to the public domain, including landscaping, pedestrian thoroughfares/connections, and landscaping
- augmentation and extension of utilities and services.

A detailed description of development is provided by Ethos Urban within the Environmental Impact Statement.

1.2. Secretary's Environmental Assessment Requirements

The Department of Planning and Environment (DPE) has issued the Secretary's Environmental Assessment Requirements (SEARs) for State Significant Development (SSD) 9627 for the preparation of a transport assessment for the proposed development. Matters raised in the SEARs have been considered during the preparation of this report and addressed within specified sections as shown in Table 1.1.

Table 1.1: Secretary's Environmental Assessment Requirements

SEARs	Report section where addressed
Traffic, Transport Parking and Access (Construction and Operation)	
Details of the current and likely estimated future daily and peak hour vehicle, public transport network, point to point transport, taxis, pedestrian and bicycle movements to/ from the site.	Section 2.3, 2.7, 6.2, 7
An assessment of the operation of existing and future transport networks including the rail, bus, Sydney Light Rail and Sydney Metro City and Southwest, pedestrian and bicycle networks and point-to-point transport and coach facilities and their ability to accommodate the forecast number of trips to and from the development.	Section 2.4, 2.5, 2.6, 3, 6, 7.3
An assessment of the:	
• impact of the proposal on existing traffic and transport performance and safety at key intersections in the area, including but not limited to Pitt St/Liverpool Street/Bathurst	Section 6.3, 7

SEARs	Report section where addressed
Traffic, Transport Parking and Access (Construction and Operation)	
Street, Castlereagh Street/Bathurst Street and Castlereagh Street/Liverpool Street. This must include specific reference to the impact of taxi trips to the performance of nearby intersections	
• likely impact of the proposal on bus operations (stops, routes and parking)	Section 6
• point to point parking in the surrounding streets	Section 5.4
• proposed temporary or permanent changes to transport and access on surrounding streets.	Section 4.2, 6.3
Details of existing and proposed vehicular access, including for hotel drop off and pick up, coach and servicing, and an assessment of any potential impacts, such as potential pedestrian, cyclist and bus conflict. This must include how the access impacts on the pedestrian and bicycle amenity of the area given that the site is in an area with high numbers of pedestrians.	Section 2.3.2, 4, 5.4, 6
Details of any road/intersection upgrades required as a result of the development, supported by appropriate modelling and analysis, and any other measures to mitigate impacts of the development.	Section 7
Details of the proposed vehicle, motorcycle, taxi, bus and coach parking, including compliance with parking requirements and justification for the level of parking on the site.	Section 5
Details of the location of bicycle parking facilities (and end of trip facilities) as these need to be in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance.	Section 6.1
Details of emergency vehicle access arrangements.	Section 5.5
Road and pedestrian safety adjacent to the proposed development and details of required road safety measures.	Section 6
Proposals to encourage employees, guests and residents to make sustainable travel choices, such as walking, cycling, public transport and car sharing and how these will be implemented.	Section 6, 8
Assessment of loading and servicing demand and details of the existing and proposed loading and servicing facilities, including safe and efficient access to loading, deliveries and servicing of the development.	Section 5.5
A draft Construction Pedestrian and Traffic Management Plan that includes, but is not limited to, the following: • assessment of cumulative impacts associated with other construction activities including the construction of the Sydney Light Rail project and the Sydney Metro City and Southwest • assessment of road safety at key intersections and locations subject to heavy vehicle movements and high pedestrian activity • details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process • details of anticipated number of peak hour and daily truck movements to and from the site, vehicle routes, hours of operation, access arrangements and traffic control measures for all demolition/construction activities • details of access arrangements for workers to/ from the site, emergency vehicles and service vehicle movements • details of temporary cycling and pedestrian access during construction • details of proposed construction vehicle access arrangements at all stages of construction • details of mitigation measures for traffic, pedestrian, cyclists, parking and public transport impacts to demonstrate the proposed management of the impact.	Section 9

1.3. Stakeholder Engagement

The project team has been in regular contact with a range of stakeholders over many months. This has included email correspondence and phone discussions plus a meeting on Wednesday 9 October 2019 with Transport for NSW's Sydney Coordination Office (SCO), Roads and Maritime Services (Roads and Maritime) and Traffic Management Centre (TMC). Stakeholder comments (including from City of Sydney) have been incorporated as part of this transport assessment. The key items that were discussed and the report section where these topics have been addressed are detailed in Table 1.2.

Table 1.2: Stakeholder engagement discussion

Topic	Report section where addressed
Coach arrangements, including how they will access the site	Section 5.4
Traffic modelling to consider future Castlereagh Cycleway extension	Section 7.3.3
Concurrent construction activities	Section 9.8

1.4. Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

- existing pedestrian and cycling facilities, and traffic and parking conditions surrounding the site
- suitability of the proposed parking in terms of supply (quantum) and layout
- service vehicle requirements
- pedestrian and bicycle requirements
- the traffic generating characteristics of the proposed development
- suitability of the proposed access arrangements for the site
- the transport impact of the development proposal on the surrounding road network.

1.5. References

In preparing this report, reference has been made to the following:

- several site inspections over recent years, most recently in mid-November 2019
- City of Sydney Local Environmental Plan (LEP) 2012
- City of Sydney Development Control Plan (DCP) 2012
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2018
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- traffic surveys completed in June 2019 as referenced in the context of this report
- plans for the proposed development prepared by FJMT, Project Number: H338, Drawing Number 2000-2007, dated 12 March 2020
- other documents and data as referenced in this report.

2. EXISTING CONDITIONS

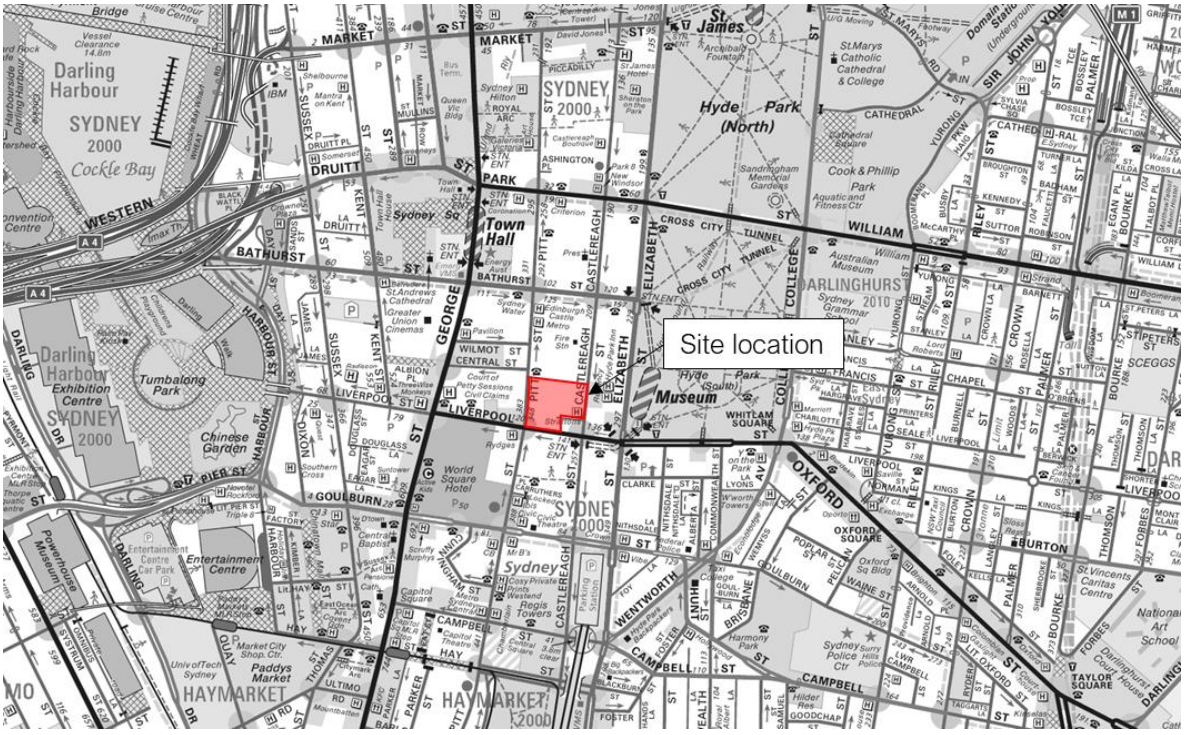
02

2.1. Location

The subject site is at 338 Pitt Street, Sydney and at the corner of Pitt Street and Liverpool Street, within the 'Mid Town' precinct of Sydney's Central Business District (CBD). The site is approximately 150 metres west of Museum Station and Hyde Park, and approximately 350 metres from Town Hall Station. The site includes several allotments and constitutes nearly one third of the city block between Bathurst Street, Pitt Street and Liverpool Street. The site is an irregular shape and has a combined area of approximately 5,900 square metres. The site has a frontage of 90 metres to Pitt Street, 30 metres to Liverpool Street, 84 metres to Castlereagh Street and 23 metres to Dungate Lane.

The site is in a high-activity pedestrian, cyclist and vehicular area with adjacent properties including a mix of retail, commercial and high-density residential uses. The location of the site and its extents is shown in Figure 2.1 and Figure 2.2.

Figure 2.1: Subject site and its environs



Basemap source: Sydway Publishing Pty Ltd

Figure 2.2: Site Extent

Source: Touchstone Partners, December 2019

2.2. Road Network

2.2.1. Adjoining Roads

Pitt Street

Pitt Street travels along the western boundary of the site and operates as a northbound only route. It provides two traffic lanes and kerbside parking on both sides which permit parking and loading at different times of the day. Pitt Street has a posted speed limit of 40 km/h.

A single vehicular access to a commercial basement car park is towards the northern end of the Pitt Street site frontage. Pitt Street also includes 20 metres of motorcycle parking and approximately eight car parking spaces along the site frontage, including:

- One space with loading zone (6:00am to 10:00am Monday to Friday) and disabled parking (other times) restrictions.
- Seven spaces with loading zone (6:00am to 6:00pm Monday to Friday, 6:00am to 10:00am Saturday) and 4P (6:00pm to 10:00pm Monday to Friday, 10:00am to 10:00pm Saturday, 8:00am to 10:00pm Sunday and public holidays) restrictions.

Well-established wide footpaths are provided on both sides of Pitt Street and provide direct access to all properties in the immediate vicinity. Pitt Street is shown in Figure 2.3.

Liverpool Street

Liverpool Street is on the southern boundary of the site. It operates as a one-way road in the westbound direction for general traffic, with three traffic lanes and a two-way on-road separated cycle facility provided along the northern side. Liverpool Street has a posted speed limit of 40 km/h near the site.

Wide footpaths, which provide direct access to all properties, are provided on both sides of Liverpool Street.Liverpool Street is shown in Figure 2.4.

Castlereagh Street

Castlereagh Street travels along the eastern boundary of the site. It operates as a one-way road in the southbound direction and consists of two traffic lanes, a bus lane and a kerbside lane for loading/ parking along the eastern side (opposite the site). Castlereagh Street has a speed limit of 40 km/h near the site.

There is an existing basement car park exit on to Castlereagh Street located towards the northern end of the site plus two other separate crossovers.

Castlereagh Street contains approximately three car parking spaces with the following restrictions:

- No Stopping 6:00am to 10:00am, 3:00pm to 8:00pm Monday to Friday
- Loading Zone 10:00am to 3:00pm Monday to Friday, 6:00am to 10:00am Saturday
- 4P 8pm to 12:00am Monday to Friday, 10:00am to 10:00pm Saturday, 8:00am to 10:00pm Sunday and public holidays.

Wide footpaths, which provide direct access to a range of existing properties are provided on both sides of Castlereagh Street.Castlereagh Street is shown in Figure 2.5.

Dungate Lane

Dungate Lane is a publicly accessible lane at the southern end of the site and close to Liverpool Street. It partially bisects the site and provides access to the rear of adjacent buildings fronting Liverpool Street. Dungate Lane does not provide a through route from Castlereagh Street to Pitt Street.Dungate Lane is shown in Figure 2.6.

Figure 2.3: Pitt Street (looking south)

Figure 2.4: Liverpool Street (looking east)

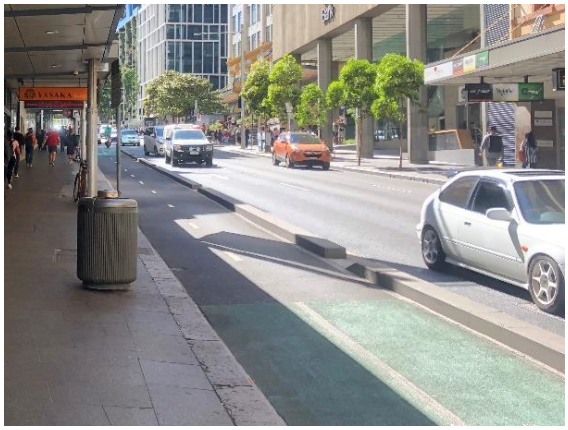


Figure 2.5: Castlereagh Street (looking south)

Figure 2.6: Dungate Lane

2.2.2. Surrounding Intersections

The following key intersections currently exist in the vicinity of the site:

- Liverpool Street/ Pitt Street (signalised)
- Liverpool Street/ Castlereagh Street (signalised)
- Bathurst Street/ Pitt Street (signalised)
- Liverpool Street/ Castlereagh Street (signalised).

2.3. Traffic Volumes

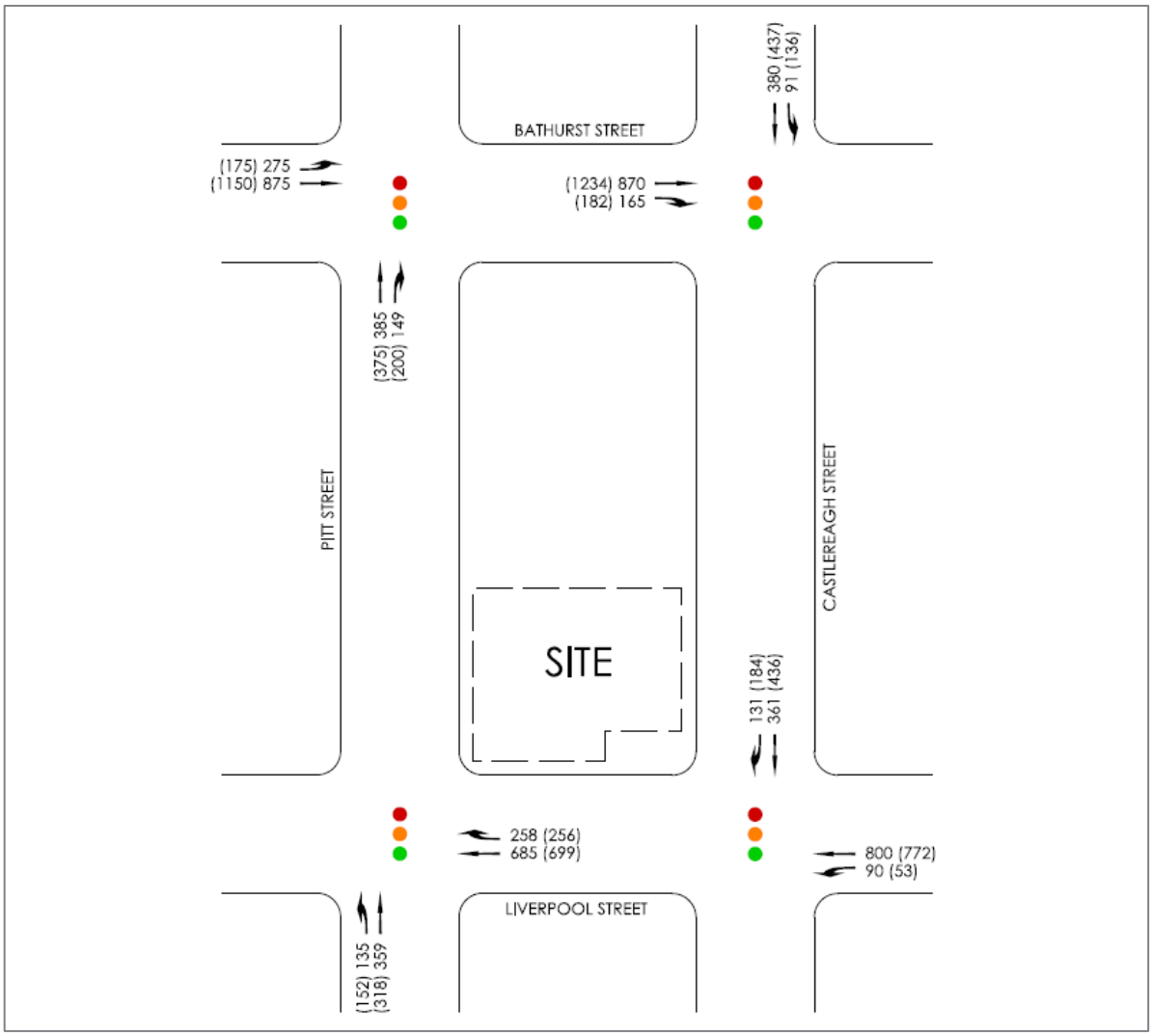
2.3.1. Road Network

GTA commissioned traffic counts on the key intersections in the vicinity of the site on Tuesday 25 June 2019 during the following peak periods:

- 7:30am to 10:00am
- 3:30pm to 7:00pm.

The weekday peak hours were between 8:30am and 9:30am, and 5:00pm and 6:00pm, with the traffic volumes summarised in Figure 2.7. Full survey data included in Appendix A.

Figure 2.7: Existing traffic volumes – weekday AM (PM) peak hours



2.3.2. Site volumes

To understand the traffic generated by the existing on-site commercial tenancy, two-way counts were also commissioned at the Pitt Street (entry only) and Castlereagh Street (exit only) access driveways. The counts indicate the following peak hour vehicle movements:

- Weekday AM: 35 vehicle movements (30 in/ 5 out)
- Weekday PM: 37 vehicle movements (1 in/ 36 out).

2.4. Intersections Operation

The operation of the key intersections within the study area have been assessed using SIDRA INTERSECTION[1], a computer-based modelling package which calculates intersection performance.

[1] Program used under license from Akcelik & Associates Pty Ltd.

The commonly used measure of intersection performance, as defined by the Roads and Maritime, is vehicle delay. SIDRA INTERSECTION determines the average delay that vehicles encounter and provides a measure of the level of service.

Table 2.1 shows the criteria that SIDRA INTERSECTION adopts in assessing the level of service.

Table 2.1: SIDRA INTERSECTION level of service criteria

Level of Service (LOS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Table 2.2 presents a summary of the existing operation of the intersection, with full results presented in Appendix B of this report.

Table 2.2: Existing operating conditions

Intersection	Peak	Degree of Saturation (DOS)	Average Delay (sec)	Average Percentile Queue (m)	Level of Service (LOS)
Pitt Street/ Liverpool Street	AM	0.65	21	58	B
	PM	0.61	22	61	B
Pitt Street/ Bathurst Street	AM	0.45	16	37	B
	PM	0.48	18	46	B
Castlereagh Street/ Bathurst Street	AM	0.61	16	59	B
	PM	0.79	16	60	B
Castlereagh Street/ Liverpool Street	AM	0.85	28	67	B
	PM	0.85	31	69	C

Table 2.2 indicates that all intersections operate at a satisfactory level of service (Level of Service C or better) in all peak periods. Traffic signal phase times are generally prioritised to favour the Liverpool Street and Bathurst Street approaches and results in slightly higher delays for the Pitt Street and Castlereagh Street approaches. Such outcomes are common and accepted by drivers in high density CBD locations where more minor roads intersect with the major through roads.

It is also noted that the Liverpool Street west approaches to both Pitt Street and Castlereagh Street currently operate at Level of Service D during both the AM and PM road network peak hours. These movements relate to eastbound cyclist movements on the cycleway only noting that Liverpool Street provides for one-way westbound vehicle movements. Such outcomes are common and accepted by cyclists in CBD environments, especially where cyclists oppose vehicle direction of flow.

2.5. Public Transport

The site is ideally located relative to public transport services. Access can be gained to a multitude of services providing connectivity across Sydney and the opportunity for interchange to destinations/ origins in Sydney's outer areas. Most bus services are accessed to the east of the site on Elizabeth Street and Liverpool Street.

Museum railway station is approximately 150 metres (two-minute walk) to the east and Town Hall station is approximately 350 metres (five-minute walk) to the north. Central station is also approximately 800 metres (10-minute walk) to the south and considered a walkable distance from the site. Further, the site is within the catchment of the Inner West and Sydney CBD and South East light rail, accessed near Central Station. In combination, all destinations within the Sydney Trains network can be reached via these stations.

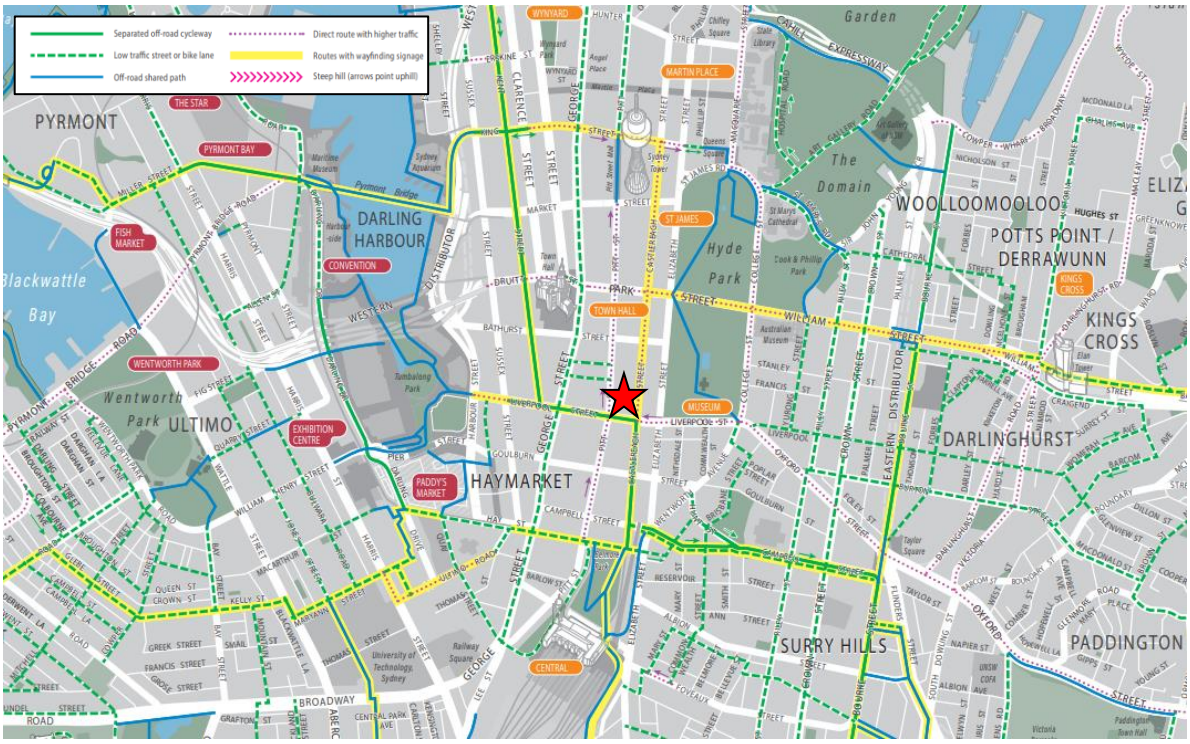
2.6. Pedestrian and Cycle Infrastructure

The site is in a highly accessible area with respect to walking and cycling. It is well connected and near several public transport routes and stations. Naturally, the pedestrian networks provide links between these and the development site. The future Pitt Street Metro Station will also be approximately 150 metres north of the site and will further enhance the site as a highly accessible location.

As is typical in the CBD, existing well-established pedestrian networks are provided around the site, which ensure safe and legible networks for the site as both a destination and origin for people trips. Formal crossing points are provided at local signalised intersections.

As per the pedestrian networks, the site is well located with respect to established and future cycle routes. An extract from the Sydney Cycleways website is presented in Figure 2.8. The Liverpool Street separated cycleway adjacent to the southern site boundary is noted.

Figure 2.8: Cycle network

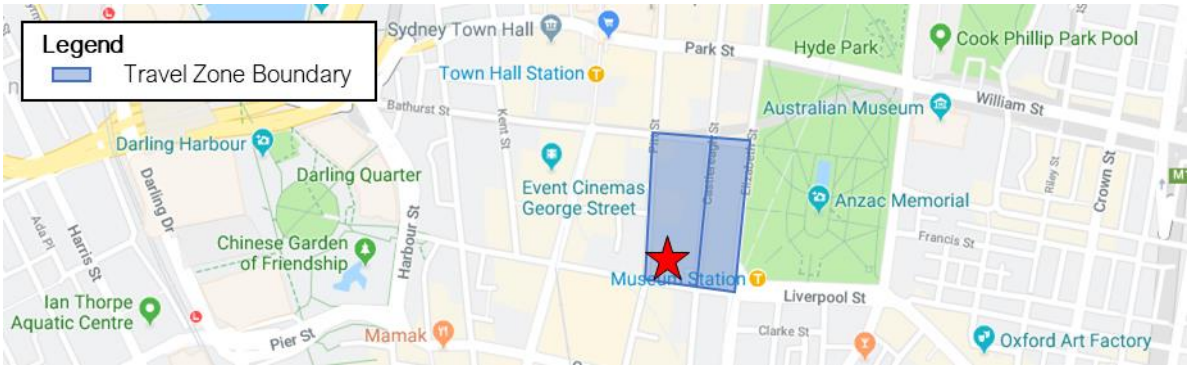


Base image source: Sydney Cycling Map https://www.cityofsydney.nsw.gov.au/__data/assets/pdf_file/0003/314643/Sydney-Cycling-Map-Jun-2019-v1.3-WEB.pdf accessed September 2019.

2.7. Existing Travel Behaviour

Journey to work data has been sourced from the Australian Bureau of Statistics 2016 census and provides an idea of existing travel patterns from the local area. Figure 2.9 details the catchment of census data analysed which corresponds to the Transport for NSW's Transport Performance and Analytics geographical area of a Travel Zone (TZ). The relevant TZ used for this assessment is 115 and 116, Bathurst Street and Castlereagh Street and Bathurst Street and Elizabeth Street, is illustrated in Figure 2.9.

Figure 2.9: Travel zone containing the subject site (TZ 115 and 116)



Base image source: Google Maps

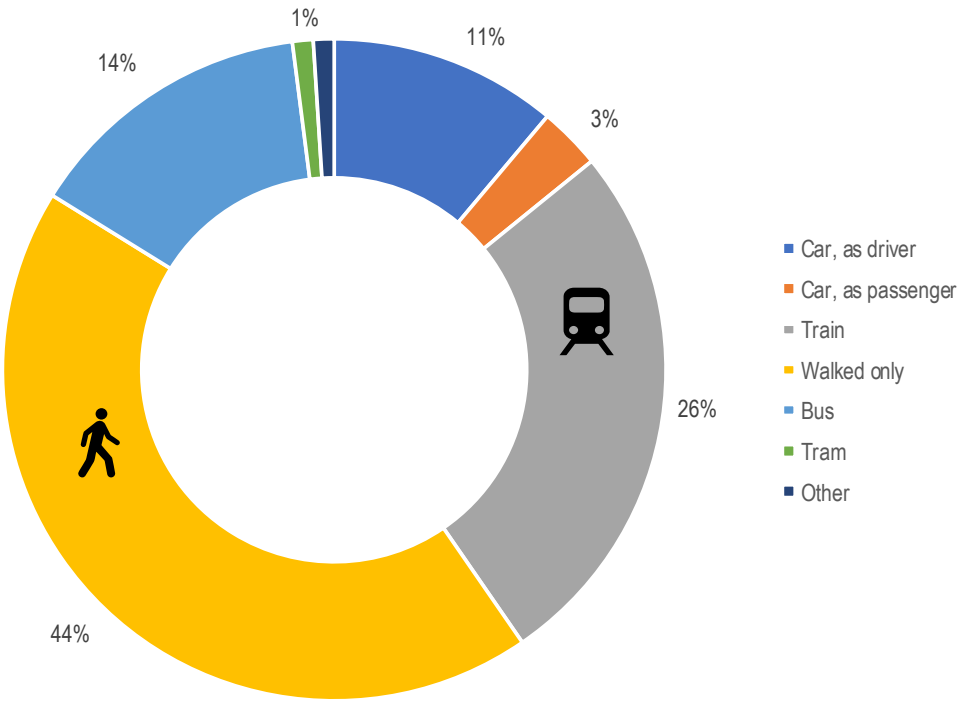
Table 2.3 and Figure 2.10 provide a summary of the existing key transport modes residents in the surrounding area use to get to work. The results indicate that walking is the most common mode of transport from the area, with many workers making use of the well-established pedestrian facilities within the CBD and expanding to surrounding employment generators, including Surry Hills. The results indicate public transport also makes up a significant portion of the mode share, with private vehicle (as driver or passenger) only making up 14 per cent of trips.

Table 2.3: Existing travel mode share (TZ 115 and 116)

Mode of travel	Mode share [1]
Car as driver	11%
Car as passenger	3%
Train	26%
Bus	14%
Walked Only	43%
Bicycle	0%
Tram	1%
Other	1%
Total	**100%**

[1] Does not include residents who worked at home, did not go to work or who were not applicable.

Figure 2.10:Existing travel mode share (TZ 115 and 116)

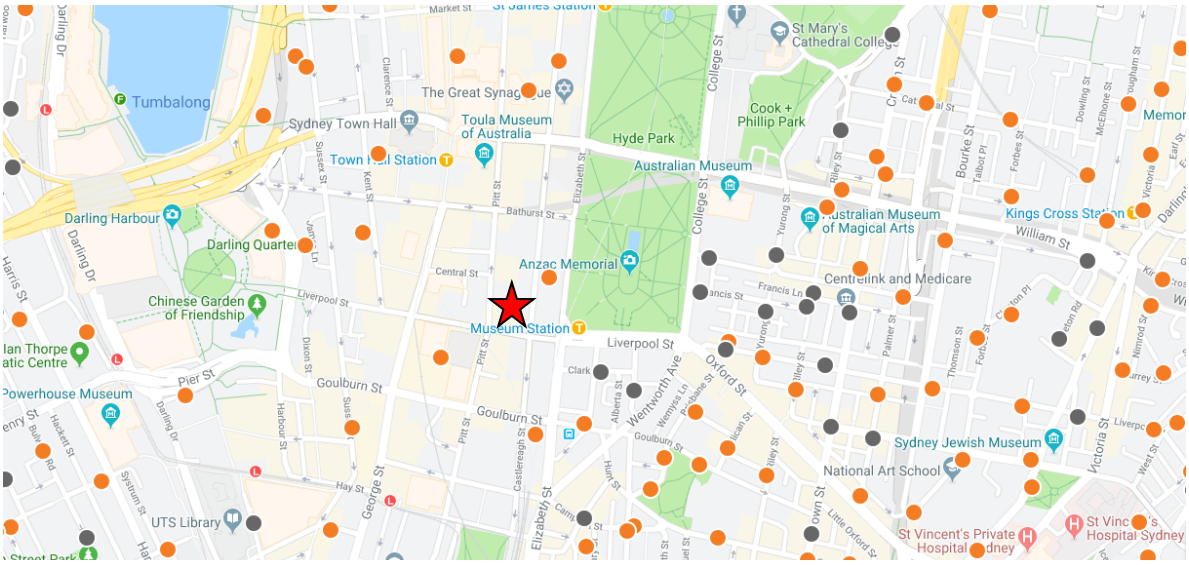


2.8. Local Car Sharing Initiatives

Car share schemes have become increasingly common throughout Sydney and are now recognised as a viable transport option for a range of trip purposes throughout Sydney, particularly or shorter trips. Such facilities are likely to be of benefit to future commercial tenants of the overall site.

There are numerous car share operators throughout Sydney including GoGet, Car next Door and Flexicar. GoGet car share has pods close to the site as shown in Figure 2.11, with the nearest located within 90 metres (a one-minute walk).

Figure 2.11:GoGet car share pods

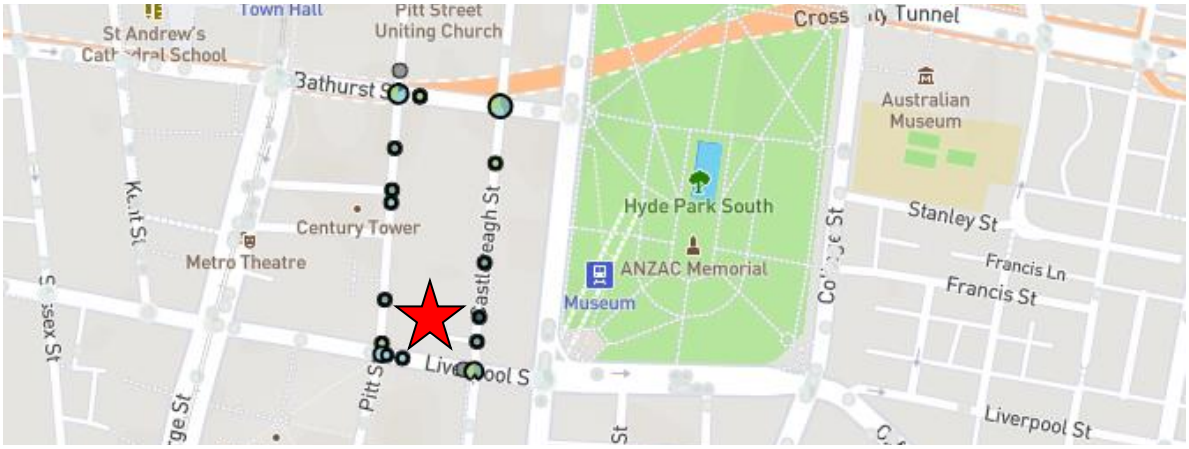


Source: GoGet https://app.goget.com.au/bookings/calendar?path=calendar&&address_target=182%20Pitt%20St%20Sydney&lat=-33.8697627&lon=151.20842800000003 accessed September 2019.

2.9. Crash History

An analysis the most recent five-year period of available crash data between 2014 to 2018 has been completed based on crash data sourced from the Transport for NSW Centre for Road Safety for the roads surrounding the site. The locations and severity of the crash data for the five-year period is shown in Figure 2.12.

Figure 2.12:Crash map from 2014 to 2017



Base image source: Transport for NSW Centre for Road Safety accessed 27 September 2019.

The following key statistics can be drawn from the crash data:

- A total of 35 crashes were recorded along Liverpool Street, Pitt Street, Bathurst Street and Castlereagh Street near the site.
- No fatalities were recorded during the five-year period.
- The majority of crashes were either cross traffic crashes (31 per cent) or pedestrian related crashes (34 per cent).

3. FUTURE TRANSPORT CONTEXT

03

3.1. Introduction

In addition to the high-level provision of existing public transportation surrounding the site, there are also key transport projects within the vicinity that are expected to increase the site's public transportation accessibility and further reduce any such reliance on the need for daily travel by private car.

3.2. CBD and South East Light Rail

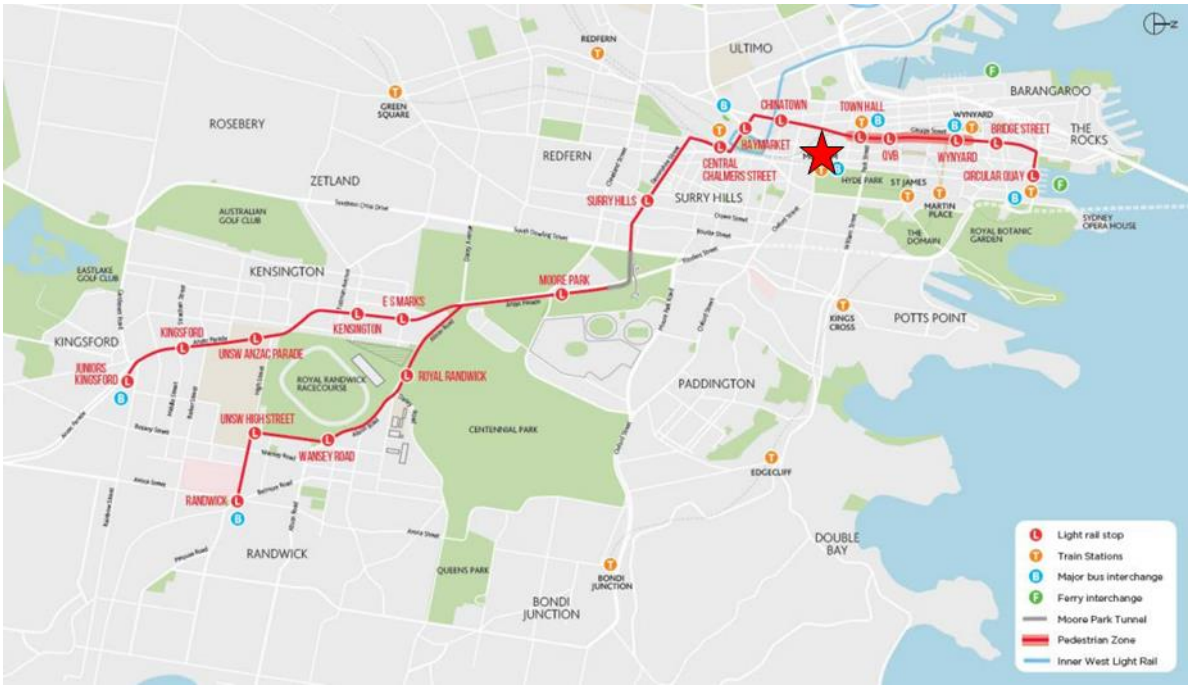
The CBD and South East Light Rail opened on 14 December 2019. It extends from Circular Quay along George Street to Central Station and on to Randwick and Kingsford, delivering approximately 12 kilometres of light rail with 19 light rail stops.

The CBD and South East Light Rail aims to provide services every two or three minutes during peak periods with continued high frequency services throughout the day. It interchanges with heavy rail, bus and ferry services at the major CBD stations of Circular Quay, Wynyard, Town Hall and Central. A pedestrian zone between Hunter Street and Bathurst Street has also been delivered, further improving the pedestrian environment in the CBD.

In the context of the site, light rail services will run along George Street to the west via dedicated light rail corridors. World Square light rail stop is 250 metres (a three-minute walk) to the south-west on George Street. The Town Hall light rail interchange is approximately 400 metres (a five-minute walk) to the north-west along George Street.

The alignment of the CBD and South East Light Rail in context with the site is shown in Figure 3.1.

Figure 3.1: CBD and South East Light Rail – Site Context



Source: http://data.mysydney.nsw.gov.au/documents/CSELR%20route%20alignment%20map.pdfv

3.3. Sydney Metro

Sydney Metro is currently Australia's largest public transportation project, which seeks to deliver over 65 kilometres of metro rail between Rouse Hill and Bankstown with 31 new metro stations. Stage 1 services

began operating in May 2019 using automated metro trains with the expansion into the Sydney CBD and beyond to the south-west expected to be completed in 2024.

Sydney Metro aims to provide a metro train every two minutes in each direction within the Sydney CBD. Train services entering the Sydney CBD are proposed to increase from about 120 an hour to 200 services beyond 2024.

In context with the site, two Pitt Street station pedestrian plazas are proposed, as illustrated in Figure 3.2 and Figure 3.3. These are expected to be commissioned by 2022 and each is within 300 metres of the site.

Figure 3.2: Sydney Metro Pitt Street Station site context

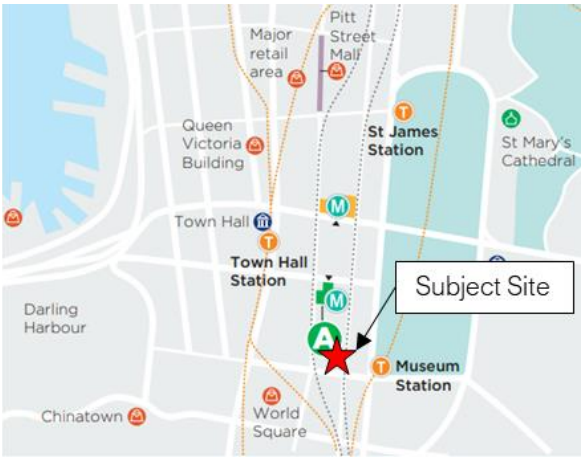
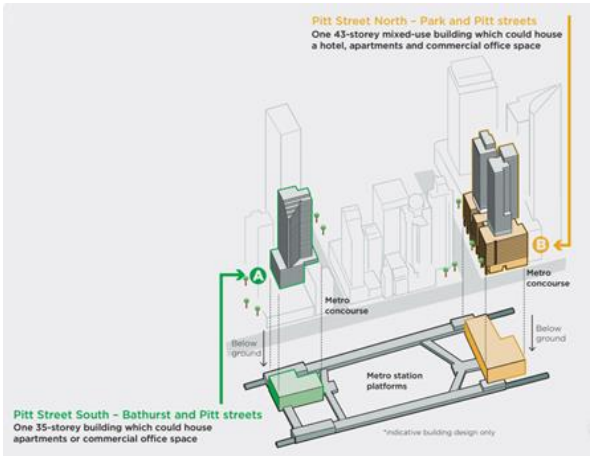


Figure 3.3: Sydney Metro Pitt Street Station platforms



Source: Page 8, 10, https://www.sydneymetro.info/sites/default/files/document-library/Pitt_Street_Over_Station_Development.pdf

3.4. Castlereagh Street Cycleway Extension

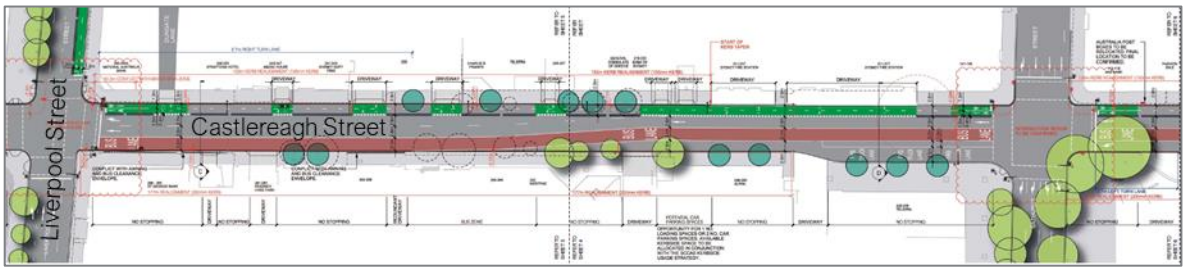
The Castlereagh Street cycleway is a critical component of the city centre cycleway network identified in the Sydney City Centre Access Strategy[2]. It will provide one of the two north-south cycleway links in the CBD. Following public consultation, the Castlereagh Street cycleway was split into two sections, with the southern section between Hay Street and Liverpool Street being constructed in 2015. The northern section between Liverpool Street and King Street is understood to not be proceeding.

Transport for NSW are also currently investigating the Castlereagh Street Cycleway northern extension to King Street.

[2] Sydney City Centre Access Strategy, NSW Government, December 2013
https://www.transport.nsw.gov.au/sites/default/files/media/documents/2017/sydney-city-centre-access-strategy-final-web.pdf

In context with the site, the cycleway extension will travel along the site's eastern frontage to Castlereagh Street, as indicatively shown in Figure 3.4.

Figure 3.4: Castlereagh Street cycleway extension concept design



Base image source: Castlereagh Street Cycleway - Hay Street to King Street, pages 4 and 5, prepared by NSW Government, dated 7 July 2014.

4. DEVELOPMENT PROPOSAL

04

4.1. Land Uses

The proposal includes demolishing the existing structures on the site and constructing a mixed-use development with an iconic 258 metre two-tower built form above a podium and internal courtyard. Four levels of basement parking, a dedicated loading dock and bicycle end of trip facilities plus a porte cochere for drop off/ pick up activities on the lower ground level, all with access via Pitt Street are key. The development is to comprise of the following mix:

- 592 residential apartments
- 4,420 square metres of retail floor area.
- 158 room hotel.

The basements will accommodate all vehicles and bicycles. The design of the basement car park and loading dock includes 461 parking spaces (including ten spaces for the adjacent Telstra site), 11 loading bay spaces (including three bays for the adjacent Telstra site) and bicycle parking with capacity for 736 bicycles.

4.2. Site Layout and Access

The development of the site as a whole has allowed for significantly improved pedestrian permeability through the site and pedestrian connectivity for the surrounding area.

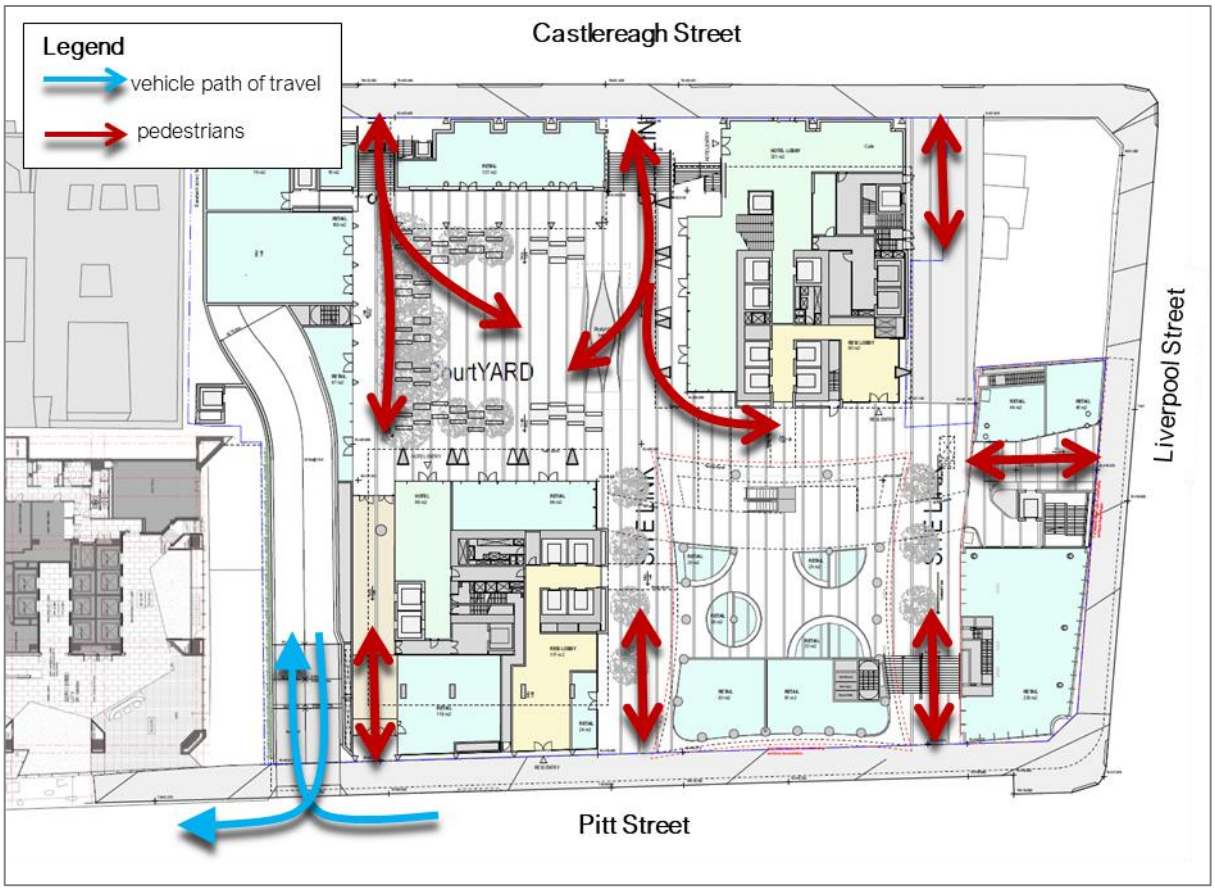
The development includes a proposal to provide new east-west and north-south pedestrian links between Pitt Street and Castlereagh Street. The proposed site links would complement existing pedestrian links in the area such as Wilmot Street and Central Street, which run between George Street and Pitt Street.

As shown in Figure 4.1, Dungate Lane at Castlereagh Street would be maintained to provide rear lane access to 255 Castlereagh Street. Notwithstanding, Dungate Lane is also proposed to provide improved pedestrian amenity as one of the key east-west site links immediately north of Liverpool Street.

The north-south link from Liverpool Street would connect with an internal courtyard and two additional pedestrian links between Pitt Street and Castlereagh Street on the northern end of the site.

All vehicular access into the basement will be consolidated into a single access, provided via a two-way ramp on Pitt Street at the northern end of the site. No vehicular access will be provided along Castlereagh Street and the existing driveways will be removed. A porte cochere with capacity for at least six parked vehicles is proposed on the lower ground level. Private vehicles, minibuses with trailers (for airport transfers etc.), taxis, ride share and hire cars are also expected to make use of this area.

Figure 4.1: Ground floor plan



Base image source: General Arrangement Plans Ground Floor – Hotel Lobby + Residential Lobby + Retail, Sheet no. 2007 Rev 07 prepared by fjmt dated 12 March 2020.

4.3. Loading Areas

The loading dock is proposed on Basement level 1. It is noted that the development is required to provide loading and parking facilities for the adjacent Telstra site. It is understood that the size and quantum of required Telstra parking has been agreed, reflected in the current architectural plans. Service vehicle access (including for Telstra vehicles) will be via the site access ramp on Pitt Street and allows for all vehicles up to 9.25-metre-long Council garbage trucks.

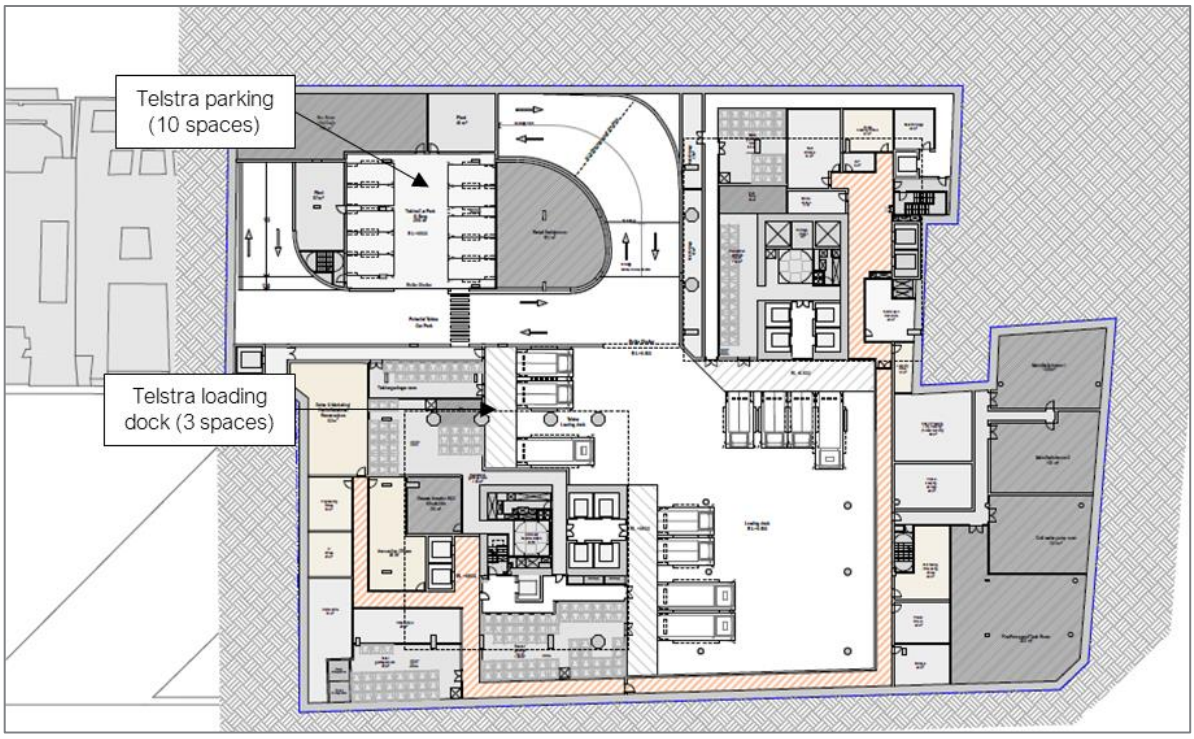
The loading dock and service area includes provision of the following:

- four loading bays for vehicles up to 9.25-metre long Council garbage trucks (including one bay for Telstra)
- seven loading bays for vehicles up to 6.4-metre small rigid vehicles (including two bays for Telstra).

The loading areas have been designed in accordance with the relevant Australian Standards (AS2890.2:2018) and to allow service vehicles to enter and exit the site in a forward direction. Swept paths of all design vehicles requiring access to the loading bays have been completed as part of this assessment.

The layout of the proposed loading dock is shown in Figure 4.2.

Figure 4.2: Basement one layout



Base image source: General Arrangement Plans Basement 1, Sheet no 2004 Rev 07 prepared by fjmt dated 12 March 2020.

5. CAR PARKING

05

5.1. Car Parking Requirements

The car parking requirements for different development types and land uses are set out in CoS LEP 2012 and CoS DCP 2012.

5.1.1. Residential

The maximum allowable car parking provisions for the for the residential component of the proposed development are summarised in Table 5.1.

Table 5.1: LEP residential car parking requirements

Land Use	Size (no. of apartments) [1]	Parking Rate	Maximum Parking Requirement
1 Bedroom	169	0.3 spaces/ 1-bedroom	50
2 Bedroom	321	0.7 spaces/ 2-bedroom	225
3 Bedroom	102	1.0 spaces/ 3+ bedroom	102
Visitor	-	-	0
Total	**592**		**377**

[1] 338 Pitt Street Sydney NSW 2000, Development Summary – SSDA Submission, prepared by FJMT, dated 12 March 2020

Based on Table 5.1, the proposed development is not to exceed a provision of 377 car parking spaces for residential use.

The CoS DCP 2012 also requires one adaptable space per adaptable residential unit plus one accessible visitor space per 20 residential parking spaces. Based on the proposed provision of 377 car parking spaces, 19 accessible car parking spaces are required for the residential uses.

5.1.2. Retail

CoS LEP 2012 does not specify car parking requirements for developments that exceed 2,000 square metres gross floor area used for the purposes of retail premises. With the proposal including 4,420 square metres retail space and with 39 retail spaces on the lower ground level, this equates to a rate of one space for every 113 square metres.

While it is not common for CBD developments to include retail parking on-site, the proposal strikes a positive balance given the intended 'high end' retail offering and would include a booking system. It would not function as a typical publicly accessible car park.

The CoS LEP 2012 also requires one accessible visitor space per 20 retail parking spaces. Based on the proposed provision of 39 spaces, two accessible spaces are required for the retail uses.

5.1.3. Hotel

The maximum allowable car parking provision for the hotel is detailed in CoS LEP 2012. With 158 hotel rooms proposed, the applicable parking rate is one car space for every five rooms indicating that the proposed development is to provide 32 hotel parking spaces. LEP 2012 also requires one accessible visitor space per 20 hotel parking spaces, equating to two accessible spaces.

5.1.4. Summary

Based on the above assessment the proposed development is not to exceed 377 residential parking spaces and 35 hotel spaces. This is met with such provision forming part of the proposal. The quantum of accessible parking has also been accommodated, as required by the relevant controls. As discussed, the 39 retail parking spaces would also compliment the high-end retail offering and not be used by the general public.

5.2. Car Share

CoS DCP 2012 also requires car share spaces at a rate of one car share space per 30 retail parking spaces and one car share space per 50 residential car spaces. Based on the proposed provision of 377 residential spaces and 39 retail spaces, the proposal would require nine car share spaces; eight for the residential uses and one for retail.

The proposed development includes provision of eight residential car share spaces on basement level two and one retail car share space on the lower ground floor and therefore complies with CoS DCP 2012.

5.3. Motorcycle Parking

CoS DCP 2012 requires one motorcycle parking space for every 12 car parking spaces. Thus, for the provision of 451 spaces (excluding the ten Telstra parking spaces), the development requires 38 motorcycle spaces.

The proposed development includes this with 31 residential motorcycle spaces, three hotel and four retail spaces and therefore complies with CoS DCP 2012.

5.4. Pick-Up/ Set-Down Parking Requirements

CoS DCP 2012 specifies set-down and pick-up requirements for hotel developments. It states that for hotel developments with more than 100 rooms, the following minimum provision must be accommodated:

- two car spaces
- one bus/ coach space per 100 rooms.

As discussed, the site includes a porte cochere on the lower ground level with generous space for set-down/ pick-up and minibus activity, including provision for up to six parked cars in accordance with the minimum DCP requirements. The porte cochere is conveniently located adjacent to the hotel lobby/ lift cores, ensuring efficient and easy access for all users. A management plan for the porte cochere will be provided as part of the Construction Certificate or Occupation Certificate and is typically delivered via a hotel operator.

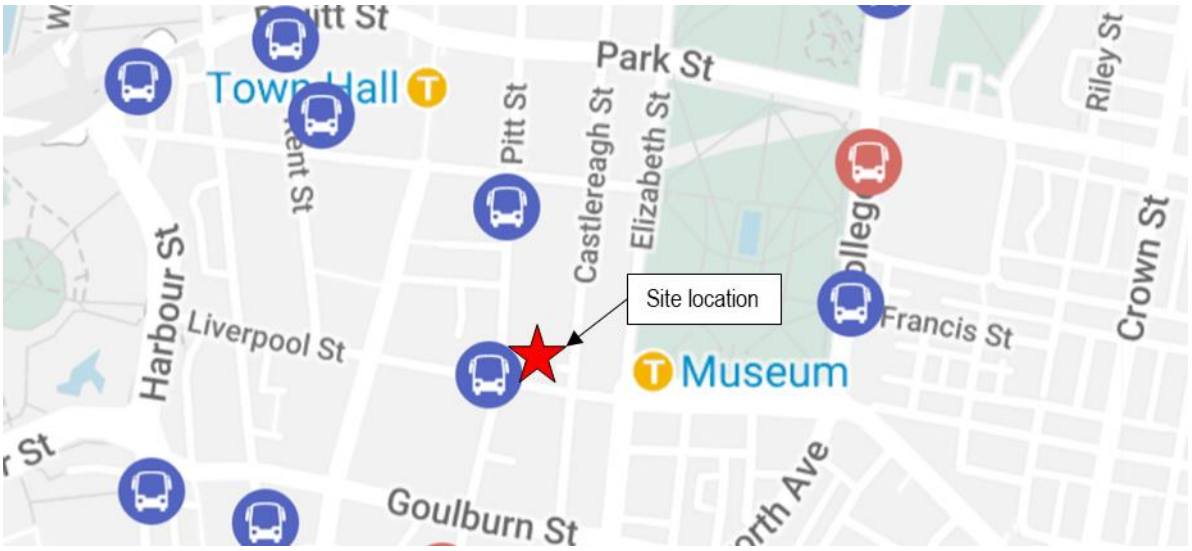
Any additional set-down/ pick-up activity can also naturally be accommodated on street, including ride sharing and taxi activity. It is noted that as ride sharing applications mature, technology will naturally improve and the porte cochere will be identifiable in the applications at the time of the booking.

It is noted that the size of the hotel, being 158 rooms, just triggers the need for coach parking. Considering it is a higher-end hotel, it is not anticipated to cater for large groups of tourists and is likely to attract smaller groups (and business travellers) instead that will be transported by vans and minibus or Uber, taxi etc. The porte cohere has been designed to accommodate minibuses and if any layover is required, there is capacity in the basement loading dock.

Should coaches be required, its typical for smaller CBD hotels to have an out-of-CBD location where they transfer guests via minibus as required. In the rare event that coach layover is required near the site, it is

recognised that two coach layover zones are currently provided along Pitt Street in close proximity to the site as shown in Figure 5.1. These zones are publicly available, and it is understood that use of the zone to the south-west of the site near the Pitt Street/ Liverpool Street intersection is typically low. It is also recognised that passengers would be set down on the opposite side of Pitt Street, however due to the CBD environment, there are ample crossing facilities and the hotel will naturally assist guests with moving luggage.

Figure 5.1: Coach parking locations Sydney CBD



Source: https://mysydneycbd.nsw.gov.au/interactive-maps, accessed 20 November 2019.

5.5. Service Vehicle Parking Requirements

The service vehicle parking requirements for different development types are set out in CoS DCP 2012.

The service vehicle parking requirements for the individual land uses within the proposed development is summarised in Table 5.2.

Table 5.2: Service vehicle parking requirements

Use	Size	DCP 2012 Parking Rate	Parking Requirement
Residential	592 apartments	1 space for the first 50 dwellings plus 0.5 spaces for every 50 dwellings or part thereafter	6
Retail	4,420m^2	1 space per 350 m^2 GFA, or part thereof, up to 2,000m^2 then 1 space per 800m^2 GFA thereafter	9
Hotel - Bedrooms	158 rooms	Min. 1 space per 50 hotel rooms up to 100, then 1 space per 100 hotel rooms (>100)	3
Hotel – reception/ barista and lounge/ breakfast	N/A	Min. 1 space per 400m^2 of reception, lounge, bar, restaurant area GFA	N/A
Total			**18 spaces**

However, with consideration for the mix of land uses, which would be able to share the same loading bay area rather than each having their own, CoS DCP 2012 also states the following:

For mixed use developments, the total number of service vehicle spaces is to be calculated on a pro rata basis of spaces required for the relative proportions of different uses within the building.

In this regard, the provision of eight loading bays in the Basement one loading dock (excluding provision of three spaces for Telstra), which are to be shared by the residential, retail and hotel land uses, is considered appropriate for the development. The use of the loading dock is to be administered/ monitored by the building manager to ensure capacity of the loading dock is not exceeded at any time. All service vehicles, including Council garbage trucks will enter and exit the site in a forward direction with adequate manoeuvring area provided within the dock.

Where required, additional loading activity could also be carried out on-street along the frontage of the site, with Pitt Street containing loading zone restrictions between 6:00am and 6:00pm and Castlereagh Street containing restrictions between 10:00am and 3:00pm, Monday to Friday. This includes an existing six to seven car spaces on Pitt Street and three spaces on Castlereagh Street (approximately), although noting that the development would not be reliant on any on on-street loading, which may not be available in the future. Such activities represent a convenience only while the on-street zones remain available

Emergency vehicles (including fire appliances) would be able to access the site and frontage streets to ensure practical operations.

5.6. Car Parking Layout Review

The car park layout has been reviewed against the requirements of the Australian Standard for Off Street Parking (AS/NZS2890.1:2004, AS2890.2:2018 and AS/NZS2890.6:2009). This assessment included a review of the following:

- bay and aisle width
- adjacent structures
- turnaround facilities
- circulation roads and ramps
- ramp grades
- height clearances
- internal queuing
- pick-up/ set-down area
- parking for persons with disabilities
- motorcycle/ motor scooter parking.

The basement caters for:

- retail parking on the lower ground level with access via the porte cochere
- loading and service vehicles in basement 1 (including provision for Telstra parking and waste collection)
- residential and hotel parking in basement 2
- residential in the remaining levels.

The residential car spaces have been designed as User Class 1A, with each space a minimum 2.4 metres wide and 5.4 metres long, with adjacent 5.8 metres wide aisles. The proposed hotel car spaces have been designed as User Class 1, with each space a minimum 2.4 metres wide and 5.4 metres long, with adjacent 6.2 metres wide aisles. The retail car parking spaces have been designed as User Class 3, with each space a minimum 2.6 metres wide and 5.4 metres long, with adjacent 6.6 metres wide aisles.

In relation to height clearances, all areas to be accessed by cars comply with the minimum clearance requirement of 2.2 metres, noting a minimum clearance of 2.5 metres will be required above any accessible spaces proposed during future design development.

It is noted that design will continue to be progressed, however in the Basement 1 access and loading dock, the minimum height clearance will be dependent on the size of the garbage truck that will access the site. For a 9.25 metre Council garbage truck, Council requires a minimum clearance height of 4.0 metres, or 3.8 metres clear of all ducts, pipes and other services depending on the gradient of the access and type of collection vehicle.

Circulation is proposed via a combined ramp to ensure efficient circulation paths within the small basement footprint. The ramp will be designed with vertical curves, rather than straight changes in grade, to achieve the required floor to floor height along the ramp to accommodate minibuses and vans accessing the lower ground level porte cochere and vehicles up to a 9.25 metre long Council garbage truck accessing the basement one loading dock. Appropriate gradients and transitions will be provided in accordance with AS2890.2:2018.

Swept paths of the car park layout indicates that the car park would operate satisfactorily, with parking aisles and ramps designed for two-way movement of 99th percentile design vehicles. It is recommended that convex mirrors be installed in key locations on the ramp to improve visibility.

It is also recommended that security doors and/ or boom gates be provided to separate car park users, ensuring secure access always. This includes the provision of a boom gate between the retail car park and porte cochere, between the service vehicle area and remaining basement levels as well as between the hotel and residential parking areas.

6. SUSTAINABLE TRANSPORT

06

6.1. Bicycle Parking

CoS DCP 2012 also sets out minimum bicycle parking rates for the proposed development as detailed in Table 6.1.

Table 6.1: DCP minimum bicycle parking provision

Land Use	User Group	Number of Apartments/ size	DCP Bicycle Parking Rate	No. of Spaces
Residential	Residents	592	1 space per dwelling	592
	Visitor		1 visitor space per 10 dwellings	59
Retail	Employees	4,420 m^2	1 space per 250 m^2	18
	Visitors		2 plus 1 space per 100 m^2 over 100m^2 GFA	45
Hotel	Employees	16 staff [1]	1 per 4 staff	4
	Visitors	158 rooms	1 per 20 rooms	8
Total				**726**

[1] The number of employees is not known at this stage of the development. 1 staff per 10 rooms has been assumed.

Table 6.1 indicates the development would be required to accommodate 726 bicycle parking spaces including 651 for residents, 63 for retail, and 12 for the hotel.

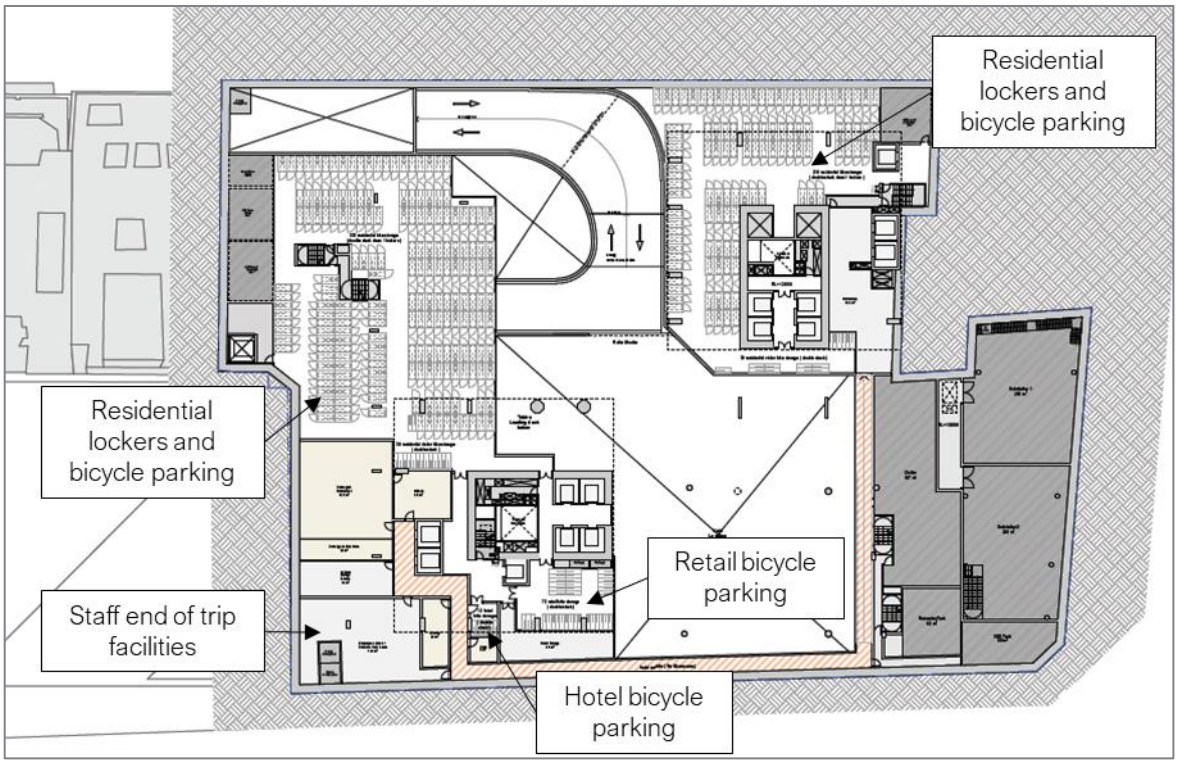
Secure bicycle parking for up to 736 spaces is proposed on the mezzanine of basement one, as shown in Figure 6.1, complying with CoS DCP 2012. This will be available for staff, residents and visitors, with convenient vertical transport connecting the ground floor with the bicycle storage facilities. It is noted that bicycle parking for residents will also be accommodated within individual dwellings and/ or any associated basement storage area.

In addition to this, it is recommended that bicycle hoops/ racks be provided on the ground floor in the public domain for convenient bicycle parking adjacent to retail offerings, and to provide an alternative for residential/ retail visitors that does not involve navigating the basement.

Provision of staff end-of-trip facilities has been made on the mezzanine level near the bicycle parking facilities. It is noted that high quality and readily available end-of-trip and storage facilities will be a key project component and one that is important to satisfy CoS requirements.

Bicycle parking spaces, as a minimum, need to be designed in accordance with relevant Australian Standard (AS2890.3 Bicycle Parking Facilities).

Figure 6.1: Bicycle parking and end-of-trip facilities



Source: General Arrangement Plans Mezzanine, Sheet no. 2005 Rev 07 prepared by fjmt dated 12 March 2020

6.2. Active Travel Trip Generation

Based on the existing mode share near the site (as detailed in Section 2.7) and an assumed average of 1.5 to two people per dwelling, it is likely there would be a demand for 360 to 490 public transport trips and 380 to 510 walking trips during the weekday peak hours. In saying that, this conservatively assumes all residents are working and commuting to work each day.

6.3. Walking and Cycling Network

The proposed development seeks to ensure pedestrians and cyclists remain one of the key considerations. As discussed, the design includes a high level of pedestrian amenity that will ensure good activation of the public domain through provision of three east west through site links.

The site frontages are significantly improved as a result of the development, with the removal of vehicle crossovers on Castlereagh Street and the removal of parallel ramps from both Castlereagh Street and Pitt Street, further improving pedestrian amenity. The Pitt Street site access driveway has been moved further north with the intention of removing this vehicular interface from natural east-west desire lines across Pitt Street.

The convenient connections between the multiple pedestrian through site links and the well-established existing pedestrian network along the site frontages will also be key to ensuring the area functions as intended.

The reduction of vehicle crossovers from Castlereagh Street will vastly improve safety for the proposed Castlereagh Street two-way cycleway extension along the site frontage. Delivery of the cycleway will also ensure the site is well connected to a vast network of separated cycle paths, suitable for encouraging mode shift away from private vehicles.

6.4. Public Transport

As discussed, the site is already well served by several high frequency rail services and bus routes. Rail services provide access to both key local and regional destinations, including Wollongong and Newcastle. As discussed in Section 3, construction of Sydney Metro Stage 2 and recent commencement of Sydney Light Rail services along George Street is expected to further improve accessibility across the CBD, as well as between the CBD and Sydney's north, south and west. Sydney Metro will also improve access across the broader heavy rail network by freeing up services.

Considering the variety of high frequency public transport services available to residents, staff and visitors when travelling to/ from the site, it is unlikely that the development would significantly impact the surrounding public transport network, particularly as Sydney Light Rail further establishes itself as a viable transport option and Sydney Metro Stage 2 opens. This encourages further mode shift away from not only private vehicle travel, but also the existing bus and heavy rail travel. Significantly, the site is conveniently located approximately 150 metres south of the new Pitt Street Metro Station south entrance, as discussed in Section 3.

An overview Green Travel Plan is included later in this report and provides context and strategies necessary to implement small measures over time to encourage non car-based trips in an ever-changing CBD location.

7. TRAFFIC IMPACT ASSESSMENT

07

7.1. Traffic Generation

Traffic generation estimates for the development have been sourced from Roads and Maritime Guidance, including the *Guide to Traffic Generating Developments* (RMS, 2002) and *Technical Direction TDT 2013/ 04 Guide to Traffic Generating Developments Updated traffic surveys* (TDT 2013/ 04) together with GTA's own database of traffic generation surveys from like developments across New South Wales.

Roads and Maritime guidance does not provide a traffic generation rate for hotels, and instead recommends that analysis of proposed hotel developments be based on surveys of similar existing hotels. GTA has previously completed surveys of similar CBD hotels which found an average trip generation rate of 0.17 movements and 0.15 movements per room in the AM and PM peak hours respectively, with taxis/ Uber representing on average 65 per cent of vehicle trips.

In relation to the residential and retail land uses, traffic generation would be influenced by car parking provision. TDT 2013/ 04 provides updated rates for high density residential flat dwellings (2012 surveys) that are close to public transport services, greater than six storeys and almost exclusively residential in nature. TDT 2013/ 04 specifies an average morning and evening peak hour trip generation for Sydney of 0.15 and 0.12 trips per car space, respectively.

Up to 39 parking spaces are proposed for retail use and given the intention is to not provide this for general public use, turnover is expected to be lower than typically experienced at retail developments. As such, it is anticipated that the retail component would generate nominal use during the weekday AM road network peak hour (less than 20 trips). During the PM peak, the car park is anticipated to generate no more than 40 trips.

A summary of the estimated traffic generation is presented in Table 7.1.

Table 7.1: Proposed traffic generation estimate

Description	Size/ no. of spaces	Trip rates		Trip generation	
		AM peak	PM peak	AM peak	PM peak
Residential	377 spaces	0.15 trips per space	0.12 trips per space	57	45
Retail	39 spaces	20 trips [1]	39 trips [1]	20	39
Hotel	158 rooms	0.17 trips per room [2]	0.15 trips per room [2]	27	24
Total				**104**	**108**

[1] Maximum anticipated traffic movements generated by the retail car park
[2] Based on RMS surveys in North Sydney

Table 7.1 indicates that the proposed development would generate up to 110 vehicle trips per hour during an AM and PM peak hours. Assuming 65 per cent of the hotel traffic by taxi/ Uber, this would comprise 15 to 20 trips.

7.2. Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposal will be influenced by several factors, including:

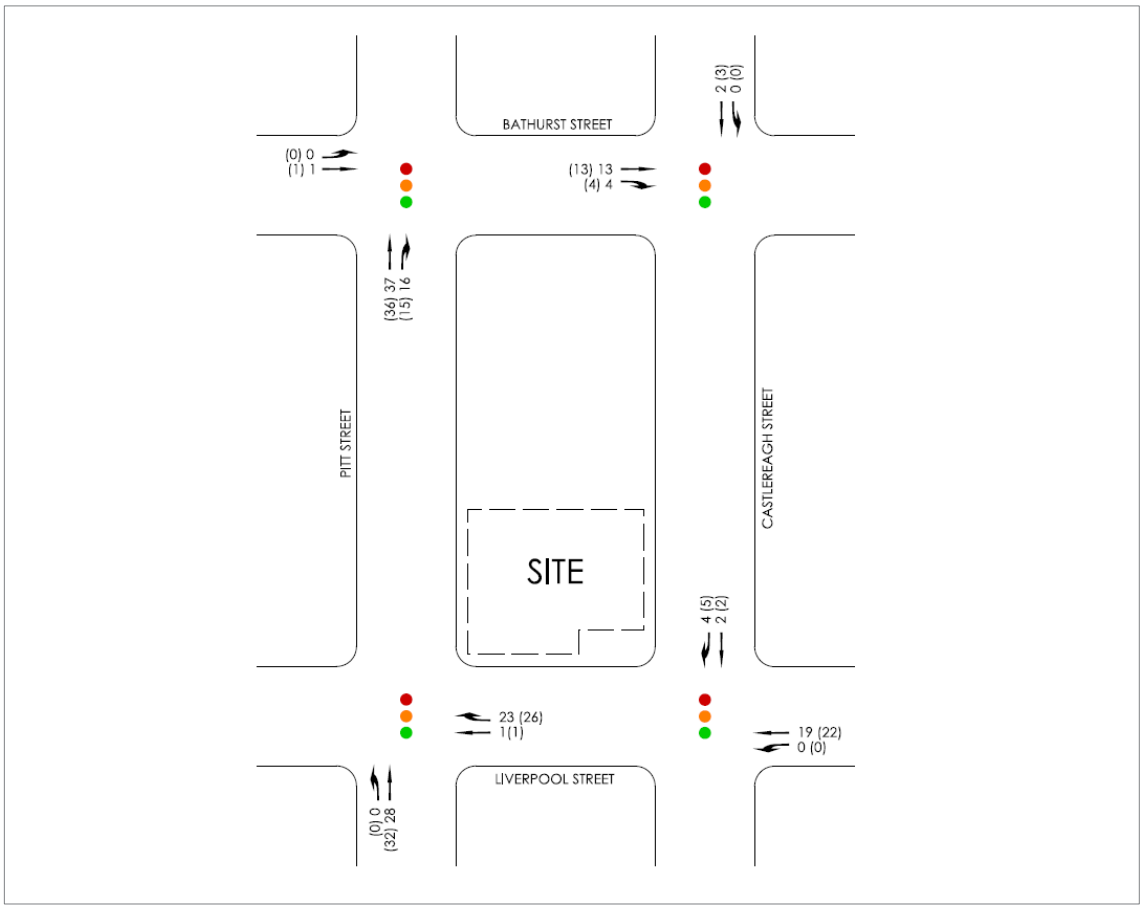
- Existing traffic movements associated with the site.
- Configuration of the arterial road network in the immediate vicinity of the site.

- Existing operation and directional distributions of traffic at intersections providing access between the local and arterial road network.
- Distribution of households in the vicinity of the site.
- Surrounding employment centres, retail centres and schools in relation to the site.
- Configuration of site access points and existing turn bans.

Having consideration for the above and for the purposes of estimating future vehicle movements, the anticipated development traffic has been distributed through the study intersections.

Figure 7.1 has been prepared to show the estimated marginal increase in turning movements near the site following the completed site development.

Figure 7.1: Site generated traffic volumes – weekday AM (PM) peak hours



7.3. Traffic Impact

7.3.1. Comparative Analysis

A comparative analysis of the existing and proposed traffic generation estimates indicates that the proposed site will have a net increase in vehicle generation of between 68 and 71 vehicle trips respectively in the

weekday AM and PM peak periods. This equates to a net increase of just over one vehicle per minute in the AM and PM peak periods.

This is a conservative estimate given the nature of the site and its location, for the following reasons:

- Significant portion of hotel traffic would be taxis and Uber and already generally part of existing road network traffic.
- As is the case for most retail stores in the CBD, most patrons are expected to use public transport or walk to site with some also dropped-off.
- Most traffic will relate to residential uses, hotel drop-off/ pick-up and some staff use.
- The sites proximity to several public transport options including train, bus and future light rail and metro services would produce a notably lower traffic generation rate for the residential land use than that identified by the Roads and Maritime Guide.

Irrespective, this development will not inherently change traffic throughout the Sydney CBD in the weekday AM and PM peak hours.

7.3.2. Intersection Operation

Table 7.2 presents a summary of the anticipated future operation of the intersections following full development of the site, with full results included in Appendix B of this report. It is noted that turning movements in and out of the existing site have been deducted from the background volumes and replaced with traffic generated by the proposal.

Table 7.2: Post development operating conditions

Intersection	Peak	Degree of Saturation (DOS)	Average Delay (sec)	Average Percentile Queue (m)	Level of Service (LOS)
Pitt Street/ Liverpool Street	AM	0.66	22	58	B
	PM	0.62	21	61	B
Pitt Street/ Bathurst Street	AM	0.49	16	37	B
	PM	0.51	18	46	B
Castlereagh Street/ Bathurst Street	AM	0.61	17	59	B
	PM	0.81	16	61	B
Castlereagh Street/ Liverpool Street	AM	0.85	28	67	B
	PM	0.82	30	64	C

Table 7.2 demonstrates that all intersections will continue to operate similar to their existing condition detailed in Table 2.2, with increased intersection delays of up to one second, if at all, during the AM and PM peak periods, indicating that development will not inherently change traffic conditions throughout the Sydney CBD.

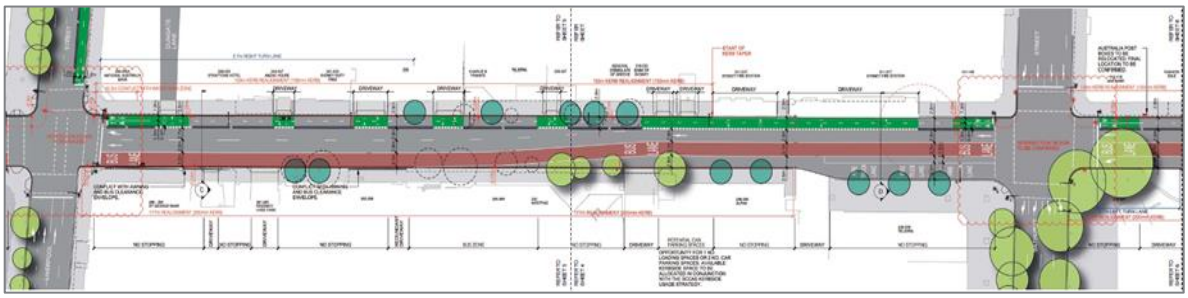
Table 7.2 also indicates that the intersection of Liverpool Street/ Pitt Street and Liverpool Street/ Castlereagh Street will experience reduced traffic delays by one second in the PM peak hour due to removal of existing driveway and associated traffic from Castlereagh Street.

7.3.3. Castlereagh Street Cycleway Extension

Transport for NSW requested an assessment of the future intersection operation following the future extension of the Castlereagh Street cycleway. A concept design for the Castlereagh Street cycleway, made

available to the public in July 2014 and used for model development is shown in Figure 6.1. The necessary traffic signal phasing modifications are based on similar intersections in Sydney CBD.

Figure 7.2: Castlereagh Street cycleway extension concept design



Base image source: Castlereagh Street Cycleway - Hay Street to King Street, pages 4 and 5, prepared by NSW Government, dated 7 July 2014

The modifications are necessary to accommodate various cyclist through and turning movements at each intersection. An additional signal phase was included at each intersection with a minimum phase time of 12 seconds. This results in less intersection capacity for vehicles however given that each intersection currently operates with spare capacity in peak periods, there is capacity to accommodate such minor modifications.

Overall, a range of scenarios were considered and specifically included greater impacts to Castlereagh Street phasing rather than the major east-west roads of Liverpool Street and Bathurst Street. That said, without further discussions with both Transport for NSW around their signal phasing expectations, the assessment results are considered indicative only and have not been formally included in this document. Notwithstanding, the SIDRA Intersection files are available for review by Transport for NSW, if required.

8. OVERVIEW GREEN TRAVEL PLAN

08

8.1. Introduction

8.1.1. Travel Plan Framework

Transport is a necessary part of life which has effects that can be managed. The transport sector is one of the fastest growing emissions sectors in Australia and therefore a travel plan provides an opportunity for reducing greenhouse gases, and for managing traffic congestion (which has adverse economic, health and social outcomes). As well as delivering better environmental outcomes, providing a range of travel choices with a focus on walking, cycling and public transport will have major public health benefits and will ensure strong and prosperous communities.

The physical infrastructure being provided as part of the development is only part of the solution. A green travel plan will ensure that the transport infrastructure, services and policies both within and external to the site are tailored to the users and co-ordinated to achieve the most sustainable outcome possible.

8.1.2. What is a Green Travel Plan

A green travel plan (GTP) is a package of actions and strategies aimed at encouraging sustainable modes of transport such as walking, cycling, public transport and higher-occupancy car use for travel. The GTP for the development will aim to mitigate (as far as possible) private car commuting to allow people to carry out their daily business in a more sustainable manger using the following measures:

- Measures which encourage reduced car use (disincentives or 'sticks').
- Measures which encourage or support sustainable travel (such as active transport, public transport and multi-occupant vehicle use).
- Reduce the need to travel or make travelling more efficient (incentives or 'carrots').

A GTP would allow residents, staff and visitors to the proposed facility to achieve the above outcomes by providing flexibility to residents, staff and visitors about how and when they travel. This is especially important in regionally significant precincts, such as Sydney CBD, which attracts a high number of visitors and staff per day. As part of the proposed development, a GTP would be implemented after the opening of the development.

The GTP would seek to understand the existing public transport, cycling and walking catchments to identify gaps in the network for improvement. Similarly, opportunities would also be identified to provide better connectivity between the site and other centres. The GTP would also understand the origins and destinations of future residents and staff to understand what targeted actions would bring about the most benefit. Future travel conditions, including expected mode shares for different scenarios would be considered prior to the development of actions.

Implementation of a GTP for the development will benefit from the established pedestrian and cycling network surrounding it as well as the high frequency of bus and train services and future Metro and Light Rail that runs next to it. The travel plan will seek to:

- Advise residents, staff and visitors on the wider travel choices available to them and encourage use of sustainable travel modes.
- Aim to reduce congestion on the surrounding road network by causing mode shift from private vehicles, or at the very least encourage higher vehicle occupancy to reduce private vehicle trips.

8.2. Key objectives

The aim of the GTP is to bring about better transport arrangements for living and working at the site. The key objectives of the Travel Plan are:

- to encourage walking
- to encourage cycling
- to encourage the use of public transport
- to reduce the use of the car, in particular single car occupancy
- where it is necessary to use the car, encourage more efficient use.

It is the intention therefore that the travel plan will deliver the following benefits:

- enable higher public and active travel mode share targets to be achieved
- contribute to greenhouse gas emission reductions and carbon footprint minimisation
- contribute to healthy living for all
- contribute to social equity and reduction in social exclusion
- improve knowledge and contribute to learning.

8.3. Site specific measures

The location of the site, in terms of its proximity to a wide range of sustainable transport is a key consideration for development of the site.

A GTP will put in place measures to raise awareness and further influence the travel patterns of people living, working or visiting the site with a view to encouraging modal shift away from cars.

The following potential measures and initiatives could be implemented to encourage more sustainable travel modes:

1. Limiting on-site parking provision.
2. Provide a Travel Access Guide (TAG) which would be provided to all residents and staff and publicly available to all visitors. The document would be based on facilities available at the site and include detail on the surrounding public transport services and active transport initiatives. The TAG would be updated as the surrounding transport environment changes.
3. Providing public transport information boards/ apps to inform residents, staff and visitors of alternative transport options (the format of such information boards would be based upon the TAG).
4. Providing a car sharing pod(s) on-site or nearby and promoting the availability of car sharing pods for trips that require the use of private vehicles.
5. Providing bicycle facilities including secure bicycle parking for staff, bicycle racks/ rails for visitors and shower and change room facilities.
6. Encouraging staff that drive to work and park on surrounding roads to carpool through creation of a carpooling club or registry/ forum.
7. Regularly promoting ride/ walk to work days.
8. Providing a regular newsletter to all residents and staff members bringing the latest news on sustainable travel initiatives in the area.

8.3.1. Travel Access Guide

A TAG provides information to residents, staff and visitors on how to travel to the site using sustainable transport modes such as walking and public transport. The information is presented visually in the format of a map (or app) showing the site location and nearby transport modes highlighting available pedestrian and cycle routes. The information is usually presented as a brochure (or app) to be included in a welcome pack or on the back of company stationery and business cards.

8.3.2. Information and Communication

Several opportunities exist to provide residents, staff and visitors with information about nearby transport options. Connecting residents, staff and visitors with information would help to facilitate journey planning and increase their awareness of convenient and inexpensive transport options which support change in travel behaviour. These include:

- Transport NSW provides bus, train and ferry routes, timetables and journey planning through their Transport Info website: http://www.transportnsw.info.
- CoS provides a number of services and a range of information and events to encourage people of all levels of experience to travel by bicycle, or at least to be more active: https://www.cityofsydney.nsw.gov.au/vision/sustainable-sydney-2030/transport-and-access

In addition, connecting residents, staff and visitors via social media may provide a platform to informally pilot new programs or create travel-buddy networks and communication.

8.3.3. Monitoring of the GTP

There is no standard methodology for monitoring the GTP, but it is suggested that it be monitored to ensure that it is achieving the desired benefits and modify it if required. It will not be possible at this stage to state what additional modifications might be made as this will be dependent upon the particular circumstances prevailing at that time.

The GTP should be monitored on a regular basis, e.g. yearly, by carrying out travel surveys. Travel surveys will allow the most effective initiatives of the GTP to be identified, and conversely less effective initiatives can be modified or replaced to ensure the best outcomes are achieved. It will clearly be important to understand people's reasons for travelling the way they do: - any barriers to changing their behaviour, and their propensity to change.

To ensure the successful implementation of the GTP, a Travel Plan Coordinator (TPC) should be appointed to ensure the successful implementation of the GTP. This could be the building manager or a member of the body corporate.

8.4. Summary

The proposed development would be able to develop and utilise a travel plan to actively promote increased use of sustainable transport modes. Although it is difficult to predict what measures might be achievable, the above measures provide a framework for the site and implementation of a future travel plan.

9. OVERVIEW CONSTRUCTION TRAFFIC MANAGEMENT PLAN

09

9.1. Overview

This section seeks to provide an overview of the Construction Traffic Management Plan (CTMP) initiatives to be implemented as part of the construction works associated with the proposed development.

Specifically, this overview CTMP considers the following:

- construction site access arrangements
- anticipated truck volumes during construction stages
- truck routes to/ from the site
- requirements for works zones
- pedestrian and cyclist access
- site personnel parking
- traffic control measures
- overview of CTMP requirements.

9.2. Principles of Traffic Management

The general principles of traffic management during construction activities are as follows:

- Minimise the impact on pedestrian and cyclist movements.
- Maintain appropriate public transport access.
- Minimise the loss of on-street parking.
- Minimise the impact on adjacent and surrounding buildings.
- Maintain access to/ from adjacent buildings.
- Restrict construction vehicle movements to designated routes to/ from the site.
- Manage and control construction vehicle activity near the site.
- Carry out construction activity in accordance with approved hours of works.

9.3. Description of Works

The development involves the following works:

- Demolition of existing buildings and excavation of car park.
- Construction of podium.
- Construction of north and south towers.

The expected duration of the works is four years, with the project expected to commence in January 2022 and be completed by January 2026. The key milestones for the project are shown in Table 9.1, with details of the main activities and duration for each stage.

Table 9.1: Proposed works program

Stage	Start Date	End Date	Duration
Site Preparation	January 2022	December 2022	12 months
Demolition and Excavation	January 2023	December 2023	12 months
Construction – Towers	January 2024	June 2025	18 months
Construction - Podium	January 2025	December 2025	12 months

9.4. Work Hours

The works will be carried out during the approved work hours. Indicative work hours are as follows:

- Weekdays: 7:00am – 7:00pm
- Saturdays: 7:30am – 5:00pm
- Sundays and public holidays: no work permitted.

Workers would be advised of the approved work hours during induction. Any works outside of the approved work hours would be subject to specific prior approval from the appropriate authorities. Such works may include delivery of cranes, large plant or equipment required on the site that require oversize vehicle access.

9.5. Site Access and Loading

Construction vehicle access will generally be provided via Pitt Street and Castlereagh Street, with vehicles entering the site along Pitt Street and exiting the site via Castlereagh Street.

Traffic controllers will likely be needed at both site accesses to manage pedestrian movement when trucks are entering and exiting the site. All loading is expected to take place wholly within the site. Should a works zone be required, an application will be made to the relevant authorities prior to commencement of works.

As part of the detailed CTMP, a traffic control plan (TCP) will be prepared in accordance with the principles of the Roads and Maritime Services Traffic Control at Work Sites manual. The TCPs primarily show where construction signs will be located at specific locations (such as uncontrolled intersections) along the approved truck routes to warn other road users of the increase in construction vehicle movements.

Access to the neighbouring sites by emergency vehicles would not be affected by the works as the road and footpath frontages would be unaffected. Emergency protocols on the site would include a requirement for site personnel to assist with emergency access from the street. All truck movements to the site and/or incident point would be suspended and cleared.

9.6. Construction Staff Parking

It is anticipated that there will be up to 100 workers on-site at any given time during peak activities.

No construction worker parking will be provided. Given the site's proximity to a range of high frequency public transport services, workers will be encouraged to use public transport to access the site. During site induction, workers will be informed of the existing bus, rail and light rail networks servicing the site. Appropriate arrangements will be made for any equipment/ tool storage and drop-off requirements.

9.7. Heavy Vehicle Traffic Generation

Construction vehicles generated by the site would generally include vehicle up to 12.5 metre heavy rigid vehicles. There is expected to be up to 20 trucks per day or one to two trucks per hour accessing the site during peak activities.

Based on these low volumes, it is anticipated that the construction traffic would have a minimal impact on the surrounding road network. Notwithstanding, construction vehicle movements will be minimised/ avoided during peak hours where possible.

9.8. Concurrent construction activities

It is noted that construction is anticipated to commence after both Sydney Light Rail and Sydney Metro construction activities have finished. The incumbent contractor will naturally liaise with SCO to ensure construction impact of any concurrent construction activities within the CBD are minimised.

9.9. Heavy Vehicle Access Routes

Heavy vehicle movements would be restricted to designated routes and confined to the arterial road network wherever feasible. Truck routes to/ from the site have been identified with the aim of providing the most direct routes to/ from the site as well as minimising the impact of heavy vehicles on local roads and other surrounding developments including Sydney Football Stadium and CSELR.

Figure 9.1 provide a summary of the anticipated construction vehicle routes to/ from the site. Truck drivers will be advised of the designated truck routes to/ from the site.

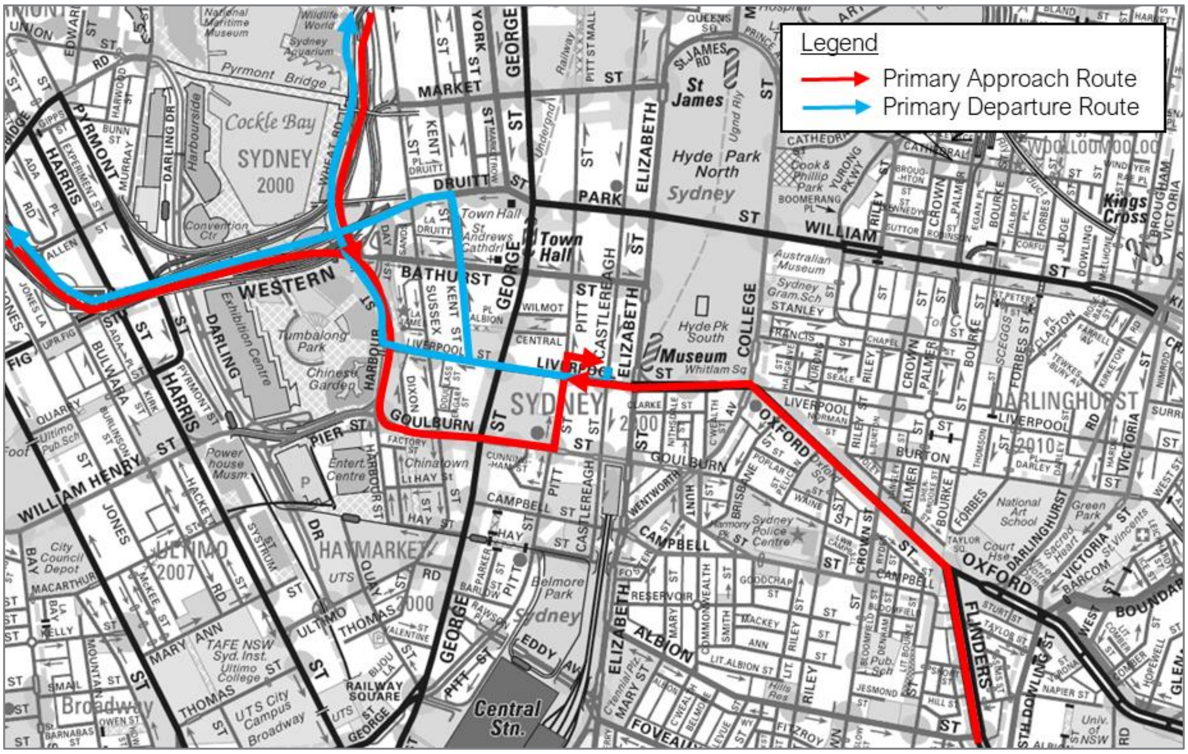
Approach Routes

- North: Cahill Expressway, Western Distributor, Harbour Street, Goulburn Street, Pitt Street
- South: M1, Dowling Street, Flinders Street, Oxford Street, Liverpool Street, Pitt Street
- West: A4, Bathurst Street, Harbour Street, Goulburn Street, Pitt Street.

Departure Routes

- North: Castlereagh Street, Liverpool Street, Cross City Tunnel, M1
- South: Castlereagh Street, Liverpool Street, Western Distributor, Cahill Expressway
- West: Castlereagh Street, Liverpool Street, Kent Street, Druitt Street, A4.

Figure 9.1: Construction vehicle routes



Base image source: Sydway

9.10. Pedestrian and Cyclist Access

B-Class hoardings will be installed along all frontages to ensure safe pedestrian and cyclist passage adjacent to the site. Protection will also be provided between the site and adjacent developments. Traffic controllers will be provided at each site access to also manage pedestrian/ cyclist movements when heavy vehicles are accessing the site. This is critical at the Castlereagh Street access as the Castlereagh Street cycleway extension is expected to be open prior to construction commencing. The corresponding traffic management plans will assist in minimising the impacts to pedestrian and cyclist movements along Pitt Street and Castlereagh Street from construction related traffic.

Truck movements will be avoided during peak hours where possible to minimise the impact on pedestrians and cyclists.

9.11. Other Construction Details

No road closures are expected to be required during construction. Should a road closure be required, the appropriate approvals will be sought prior to construction commencing.

Any use of cranes during the construction works will be completed within the bounds of the site.

9.12. Stakeholder Consultation Strategy

Prior approval from City of Sydney and Transport for NSW Sydney Coordination Office will be required. Ongoing consultation with key stakeholders and adjacent landowners will be key to ensuring construction impact is minimised.

9.13. Overview of CTMP Requirements

This section provides an overview of the CTMP initiatives that would be implemented for the demolition and construction of the development. A detailed CTMP would cover the following additional information:

- Description of construction activities and duration.
- Construction work hours.
- Detailed assessment of construction traffic impacts including any cumulative impacts.
- Details regarding any one-off activities for installation of cranes and other equipment.
- Swept path analysis of heavy vehicle access to the site and Works Zone.
- Detailed assessment of on-street parking impacts.
- Emergency vehicle access.
- Impacts to public transport services.
- Traffic Control Plan(s).
- Contact details of key project personnel.

10. SUMMARY

10

SUMMARY

Based on the analysis and discussions presented within this report, the following conclusions are made:

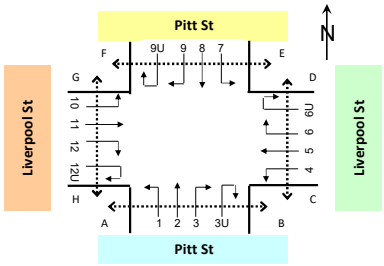
- The proposed development includes hotel, residential and retail uses within twin 258 metre towers above a podium and internal courtyard. It intends to deliver 592 residential apartments, 158 hotel rooms and 4,420 square metres of retail space.
- The site and surrounding area are clearly capable of supporting the proposed land uses on transport grounds with residents, visitors and staff able to travel to and from the site with manageable impacts on the surrounding CBD environment.
- The site access arrangements are appropriate, resulting in a considerable improvement to the current site access arrangements through consolidation of access arrangements to be via Pitt Street only, and able to accommodate the anticipated peak traffic volumes.
- The proposal includes an expansive ground level public domain with a high level of pedestrian permeability through provision of three east-west pedestrian through site links.
- Traffic generation will be moderate and relatively consistent with the volumes generated by the existing use as an all-day car park, albeit with improvements associated with consolidating the basement access along Pitt Street and reducing the flow of vehicles on Castlereagh Street.
- The proposal is expected to generate a net increase of approximately 70 vehicle trips in both the weekday AM and PM peak periods.
- The calculated traffic volumes and review of intersection operation indicates that the development will not inherently change traffic conditions throughout Sydney CBD.
- Basement parking for 451 vehicles complies with CoS LEP 2012 (excluding 10 spaces reserved for Telstra) and is expected to adequately service the mixed-use site.
- Basement parking for eight residential and one retail car share space complies with CoS DCP 2012. It is recommended that consultation with a car share provider (such as GoGet) be initiated as to an equitable number of car share spaces within the development.
- Secure parking for some 736 bicycles would ensure active travel end-of-trip facilities are provided in accordance with DCP 2012.
- The provision of loading facilities is expected to be adequate to service the development, noting provision of three additional spaces for the Telstra use and the typical need for dock management measures for day to day use.
- The provision of pedestrian and active travel connectivity through the site is important and how best to incorporate into the surrounding network critical to realising improved pedestrian amenity and connectivity throughout.
- From a transport perspective, the development does not raise specific issues with respect to impacts on the road network.

A.SURVEY RESULTS

A

Job No. : N5133
Client : GTA
Suburb : Pitt Street
Location : 1. Pitt St / Liverpool St

Day/Date : Tues, 25th June 2019
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



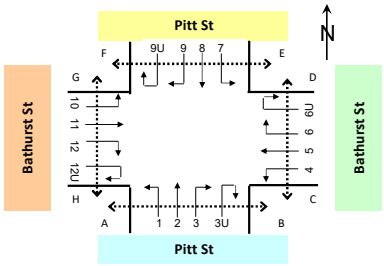
MATRIX Traffic and Transport Data

	Approach	Pitt St						Liverpool St						Pitt St						Liverpool St						Grand Total
	Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
AM	8:15 to 9:15	458	16	15	15	0	**504**	911	34	2	138	0	**1,085**	0	0	0	0	0	**0**	0	0	0	33	0	**33**	**1,622**
PM	16:45 to 17:45	476	2	2	12	0	**492**	950	12	5	42	0	**1,009**	0	0	0	0	0	**0**	0	0	0	53	0	**53**	**1,554**

Approach	Pitt St						Liverpool St						Pitt St						Liverpool St						Grand Total
Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
7:30 to 8:30	413	20	14	12	0	**459**	847	32	0	128	0	**1,007**	0	0	0	1	0	**1**	0	0	0	28	0	**28**	**1,495**
7:45 to 8:45	410	13	14	14	0	**451**	893	30	0	144	0	**1,067**	0	0	0	1	0	**1**	0	0	0	30	0	**30**	**1,549**
8:00 to 9:00	436	16	16	15	0	**483**	894	34	2	145	0	**1,075**	0	0	0	1	0	**1**	0	0	0	39	0	**39**	**1,598**
8:15 to 9:15	458	16	15	15	0	**504**	911	34	2	138	0	**1,085**	0	0	0	0	0	**0**	0	0	0	33	0	**33**	**1,622**
8:30 to 9:30	463	17	14	14	0	**508**	898	42	3	104	0	**1,047**	0	0	0	0	0	**0**	0	0	0	25	0	**25**	**1,580**
8:45 to 9:45	471	27	12	16	0	**526**	875	41	3	72	0	**991**	0	0	0	1	0	**1**	0	0	0	21	0	**21**	**1,539**
9:00 to 10:00	486	25	8	11	0	**530**	824	38	1	44	0	**907**	0	0	0	1	0	**1**	0	0	0	8	0	**8**	**1,446**
AM Totals	**1,110**	**56**	**30**	**31**	**0**	**1,227**	**2,145**	**91**	**3**	**241**	**0**	**2,480**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**55**	**0**	**55**	**3,764**
15:30 to 16:30	410	6	3	7	0	**426**	864	13	3	25	0	**905**	0	0	0	2	0	**2**	0	0	0	25	0	**25**	**1,358**
15:45 to 16:45	436	7	4	8	0	**455**	899	10	3	27	0	**939**	0	0	0	2	0	**2**	0	0	0	32	0	**32**	**1,428**
16:00 to 17:00	457	6	3	9	0	**475**	921	9	3	25	0	**958**	0	0	0	1	0	**1**	0	0	0	37	0	**37**	**1,471**
16:15 to 17:15	482	6	1	11	0	**500**	934	8	4	26	0	**972**	0	0	0	1	0	**1**	0	0	0	41	0	**41**	**1,514**
16:30 to 17:30	473	4	2	12	0	**491**	957	11	5	38	0	**1,011**	0	0	0	0	0	**0**	0	0	0	48	0	**48**	**1,550**
16:45 to 17:45	476	2	2	12	0	**492**	950	12	5	42	0	**1,009**	0	0	0	0	0	**0**	0	0	0	53	0	**53**	**1,554**
17:00 to 18:00	467	1	2	17	0	**487**	938	10	7	42	0	**997**	0	0	0	0	0	**0**	0	0	0	69	0	**69**	**1,553**
17:15 to 18:15	444	0	2	21	0	**467**	921	11	6	50	0	**988**	0	0	0	0	0	**0**	0	0	0	74	0	**74**	**1,529**
17:30 to 18:30	466	0	1	25	0	**492**	927	8	3	40	0	**978**	0	0	0	0	0	**0**	0	0	0	72	0	**72**	**1,542**
17:45 to 18:45	457	0	0	28	0	**485**	897	6	4	44	0	**951**	0	0	0	0	0	**0**	0	0	0	69	0	**69**	**1,505**
18:00 to 19:00	444	1	1	27	0	**473**	877	6	1	45	0	**929**	0	0	0	1	0	**1**	0	0	0	57	0	**57**	**1,460**
PM Totals	**1,560**	**11**	**7**	**55**	**0**	**1,633**	**3,171**	**34**	**12**	**125**	**0**	**3,342**	**0**	**0**	**0**	**3**	**0**	**3**	**0**	**0**	**0**	**172**	**0**	**172**	**5,150**

Job No. : N5133
Client : GTA
Suburb : Pitt Street
Location : 2. Pitt St / Bathurst St

Day/Date : Tues, 25th June 2019
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



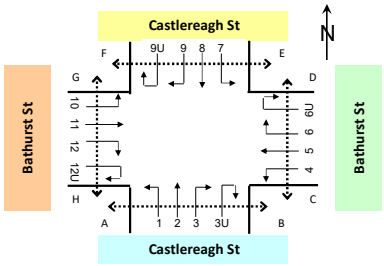
MATRIX Traffic and Transport Data

	Approach	Pitt St						Bathurst St						Pitt St						Bathurst St						Grand Total
	Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
AM	9:00 to 10:00	537	31	6	20	0	**594**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,107	76	7	4	0	**1,194**	**1,788**
PM	17:00 to 18:00	566	5	4	19	0	**594**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,301	13	11	23	0	**1,348**	**1,942**

Approach	Pitt St						Bathurst St						Pitt St						Bathurst St						Grand Total
Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
7:30 to 8:30	438	27	17	22	0	**504**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,135	44	4	7	0	**1,190**	**1,694**
7:45 to 8:45	444	19	12	28	0	**503**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,101	49	7	9	0	**1,166**	**1,669**
8:00 to 9:00	447	29	14	29	0	**519**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,056	50	6	8	0	**1,120**	**1,639**
8:15 to 9:15	473	30	12	32	0	**547**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,080	59	7	5	0	**1,151**	**1,698**
8:30 to 9:30	490	33	11	29	0	**563**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,081	60	9	6	0	**1,156**	**1,719**
8:45 to 9:45	492	39	12	24	0	**567**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,098	64	6	5	0	**1,173**	**1,740**
9:00 to 10:00	537	31	6	20	0	**594**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,107	76	7	4	0	**1,194**	**1,788**
AM Totals	**1,192**	**78**	**30**	**56**	**0**	**1,356**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,801**	**143**	**14**	**15**	**0**	**2,973**	**4,329**
15:30 to 16:30	472	6	4	10	0	**492**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,164	30	6	6	0	**1,206**	**1,698**
15:45 to 16:45	505	8	4	9	0	**526**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,199	29	3	5	0	**1,236**	**1,762**
16:00 to 17:00	521	6	2	9	0	**538**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,218	25	5	5	0	**1,253**	**1,791**
16:15 to 17:15	542	6	1	9	0	**558**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,228	24	5	10	0	**1,267**	**1,825**
16:30 to 17:30	570	8	2	13	0	**593**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,230	19	9	14	0	**1,272**	**1,865**
16:45 to 17:45	569	7	4	15	0	**595**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,262	16	11	17	0	**1,306**	**1,901**
17:00 to 18:00	566	5	4	19	0	**594**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,301	13	11	23	0	**1,348**	**1,942**
17:15 to 18:15	544	4	4	21	0	**573**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,295	8	12	24	0	**1,339**	**1,912**
17:30 to 18:30	539	1	2	18	0	**560**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,263	5	7	23	0	**1,298**	**1,858**
17:45 to 18:45	529	0	1	17	0	**547**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,228	8	4	25	0	**1,265**	**1,812**
18:00 to 19:00	504	0	1	17	0	**522**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	1,170	9	3	19	0	**1,201**	**1,723**
PM Totals	**1,831**	**15**	**9**	**50**	**0**	**1,905**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,260**	**60**	**23**	**51**	**0**	**4,394**	**6,299**

Job No. : N5133
Client : GTA
Suburb : Pitt Street
Location : 3. Castlereagh St / Bathurst St

Day/Date : Tues, 25th June 2019
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



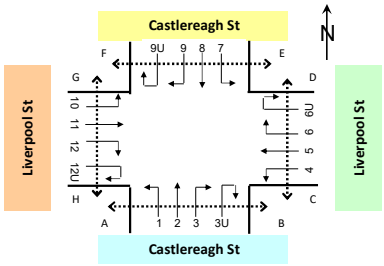
MATRIX Traffic and Transport Data

	Approach	Castlereagh St						Bathurst St						Castlereagh St						Bathurst St						Grand Total
	Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
AM	9:00 to 10:00	0	0	0	0	0	**0**	0	0	0	0	0	**0**	350	27	74	13	0	**464**	1,028	65	6	1	0	**1,100**	**1,564**
PM	17:00 to 18:00	0	0	0	0	0	**0**	0	0	0	0	0	**0**	455	4	114	45	0	**618**	1,390	12	14	33	0	**1,449**	**2,067**

Approach	Castlereagh St						Bathurst St						Castlereagh St						Bathurst St						Grand Total
Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
7:30 to 8:30	0	0	0	0	0	**0**	0	0	0	0	0	**0**	225	25	64	7	0	**321**	964	41	5	4	0	**1,014**	**1,335**
7:45 to 8:45	0	0	0	0	0	**0**	0	0	0	0	0	**0**	253	22	72	7	0	**354**	933	44	7	5	0	**989**	**1,343**
8:00 to 9:00	0	0	0	0	0	**0**	0	0	0	0	0	**0**	310	25	69	4	0	**408**	896	40	7	6	0	**949**	**1,357**
8:15 to 9:15	0	0	0	0	0	**0**	0	0	0	0	0	**0**	344	27	74	10	0	**455**	950	48	6	4	0	**1,008**	**1,463**
8:30 to 9:30	0	0	0	0	0	**0**	0	0	0	0	0	**0**	375	24	72	13	0	**484**	973	54	8	5	0	**1,040**	**1,524**
8:45 to 9:45	0	0	0	0	0	**0**	0	0	0	0	0	**0**	387	25	71	13	0	**496**	1,000	52	5	3	0	**1,060**	**1,556**
9:00 to 10:00	0	0	0	0	0	**0**	0	0	0	0	0	**0**	350	27	74	13	0	**464**	1,028	65	6	1	0	**1,100**	**1,564**
AM Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**766**	**64**	**174**	**23**	**0**	**1,027**	**2,485**	**125**	**15**	**9**	**0**	**2,634**	**3,661**
15:30 to 16:30	0	1	0	0	0	**1**	0	0	0	0	0	**0**	424	7	74	15	0	**520**	1,126	26	7	9	0	**1,168**	**1,689**
15:45 to 16:45	0	0	0	0	0	**0**	0	0	0	0	0	**0**	415	8	87	20	0	**530**	1,177	26	5	9	0	**1,217**	**1,747**
16:00 to 17:00	0	1	0	0	0	**1**	0	0	0	0	0	**0**	383	7	90	19	0	**499**	1,179	23	5	7	0	**1,214**	**1,714**
16:15 to 17:15	0	1	0	0	0	**1**	0	0	0	0	0	**0**	417	9	101	25	0	**552**	1,228	21	4	14	0	**1,267**	**1,820**
16:30 to 17:30	0	1	0	0	0	**1**	0	0	0	0	0	**0**	418	7	109	27	0	**561**	1,265	19	9	17	0	**1,310**	**1,872**
16:45 to 17:45	0	1	0	0	0	**1**	0	0	0	0	0	**0**	419	4	113	34	0	**570**	1,300	17	11	23	0	**1,351**	**1,922**
17:00 to 18:00	0	0	0	0	0	**0**	0	0	0	0	0	**0**	455	4	114	45	0	**618**	1,390	12	14	33	0	**1,449**	**2,067**
17:15 to 18:15	0	0	0	0	0	**0**	0	0	0	0	0	**0**	439	4	110	48	0	**601**	1,344	9	15	36	0	**1,404**	**2,005**
17:30 to 18:30	0	0	0	0	0	**0**	0	0	0	0	0	**0**	440	4	110	56	0	**610**	1,311	6	9	35	0	**1,361**	**1,971**
17:45 to 18:45	0	0	0	0	0	**0**	0	0	0	0	0	**0**	460	4	100	49	0	**613**	1,272	8	5	31	0	**1,316**	**1,929**
18:00 to 19:00	0	0	0	0	0	**0**	0	0	0	0	0	**0**	457	3	88	44	0	**592**	1,190	8	4	23	0	**1,225**	**1,817**
PM Totals	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1,519**	**19**	**327**	**115**	**0**	**1,980**	**4,314**	**56**	**27**	**69**	**0**	**4,466**	**6,448**

Job No. : N5133
Client : GTA
Suburb : Pitt Street
Location : 4. Castlereagh St / Liverpool St

Day/Date : Tues, 25th June 2019
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



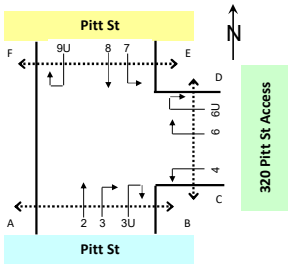
MATRIX Traffic and Transport Data

	Approach	Castlereagh St						Liverpool St						Castlereagh St						Liverpool St						Grand Total
	Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
AM	8:30 to 9:30	0	0	0	48	0	48	860	27	3	57	0	947	396	31	65	8	0	500	0	0	0	21	0	21	1,516
PM	17:15 to 18:15	0	0	0	22	0	22	793	9	5	21	0	828	512	5	102	36	0	655	0	0	0	73	0	73	1,578

Approach	Castlereagh St						Liverpool St						Castlereagh St						Liverpool St						Grand Total
Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
7:30 to 8:30	0	0	0	33	0	33	833	24	0	88	0	945	232	28	42	6	0	308	0	0	0	24	0	24	1,310
7:45 to 8:45	0	0	0	51	0	51	852	23	0	92	0	967	261	26	57	5	0	349	0	0	0	27	0	27	1,394
8:00 to 9:00	0	0	0	52	0	52	887	24	2	90	0	1,003	293	27	57	4	0	381	0	0	0	34	0	34	1,470
8:15 to 9:15	0	0	0	48	0	48	887	25	3	78	0	993	335	32	62	7	0	436	0	0	0	27	0	27	1,504
8:30 to 9:30	0	0	0	48	0	48	860	27	3	57	0	947	396	31	65	8	0	500	0	0	0	21	0	21	1,516
8:45 to 9:45	0	0	0	34	0	34	832	27	3	39	0	901	429	34	61	8	0	532	0	0	0	17	0	17	1,484
9:00 to 10:00	0	0	0	23	0	23	756	25	1	28	0	810	443	38	64	8	0	553	0	0	0	8	0	8	1,394
AM Totals	**0**	**0**	**0**	**89**	**0**	**89**	**2,055**	**63**	**3**	**151**	**0**	**2,272**	**849**	**80**	**140**	**16**	**0**	**1,085**	**0**	**0**	**0**	**48**	**0**	**48**	**3,494**
15:30 to 16:30	0	0	0	12	0	12	776	10	1	18	0	805	488	7	61	21	0	577	0	0	0	25	0	25	1,419
15:45 to 16:45	0	0	0	7	0	7	812	10	1	21	0	844	488	11	70	19	0	588	0	0	0	32	0	32	1,471
16:00 to 17:00	0	0	0	5	0	5	840	8	0	19	0	867	480	9	80	20	0	589	0	0	0	39	0	39	1,500
16:15 to 17:15	0	0	0	4	0	4	834	8	2	19	0	863	492	8	87	24	0	611	0	0	0	43	0	43	1,521
16:30 to 17:30	0	0	0	8	0	8	834	13	5	25	0	877	497	5	96	24	0	622	0	0	0	49	0	49	1,556
16:45 to 17:45	0	0	0	14	0	14	820	12	5	23	0	860	512	3	103	27	0	645	0	0	0	50	0	50	1,569
17:00 to 18:00	0	0	0	17	0	17	808	10	7	21	0	846	514	3	103	33	0	653	0	0	0	61	0	61	1,577
17:15 to 18:15	0	0	0	22	0	22	793	9	5	21	0	828	512	5	102	36	0	655	0	0	0	73	0	73	1,578
17:30 to 18:30	0	0	0	22	0	22	776	2	2	16	0	796	501	7	95	42	0	645	0	0	0	75	0	75	1,538
17:45 to 18:45	0	0	0	20	0	20	738	3	4	18	0	763	487	4	79	40	0	610	0	0	0	76	0	76	1,469
18:00 to 19:00	0	0	0	19	0	19	702	3	2	23	0	730	486	5	64	33	0	588	0	0	0	71	0	71	1,408
PM Totals	**0**	**0**	**0**	**50**	**0**	**50**	**2,718**	**27**	**10**	**71**	**0**	**2,826**	**1,729**	**20**	**275**	**98**	**0**	**2,122**	**0**	**0**	**0**	**180**	**0**	**180**	**5,178**

Job No. : N5133
Client : GTA
Suburb : Pitt Street
Location : 5. 320 Pitt St Access / Pitt St

Day/Date : Tues, 25th June 2019
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



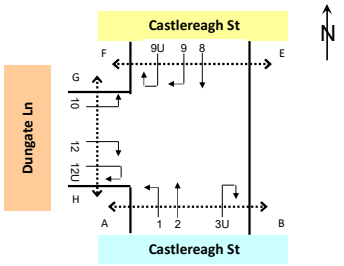
MATRIX Traffic and Transport Data

	Approach	Pitt St						320 Pitt St Access						Pitt St						Grand Total
	Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
AM	8:30 to 9:30	540	32	12	33	0	**617**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	**617**
PM	17:00 to 18:00	543	4	2	20	0	**569**	0	0	0	0	0	**0**	0	0	0	1	0	**1**	**570**

Approach	Pitt St						320 Pitt St Access						Pitt St						Grand Total
Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
7:30 to 8:30	471	24	14	26	0	**535**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	**535**
7:45 to 8:45	482	18	13	35	0	**548**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	**548**
8:00 to 9:00	498	23	16	41	0	**578**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	**578**
8:15 to 9:15	521	27	13	40	0	**601**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	**601**
8:30 to 9:30	540	32	12	33	0	**617**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	**617**
8:45 to 9:45	531	37	11	25	0	**604**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	**604**
9:00 to 10:00	542	34	6	18	0	**600**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	**600**
AM Totals	**1,271**	**73**	**28**	**66**	**0**	**1,438**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,438**
15:30 to 16:30	457	8	5	8	0	**478**	0	0	0	0	0	**0**	0	0	0	1	0	**1**	**479**
15:45 to 16:45	479	7	5	6	0	**497**	0	0	0	0	0	**0**	0	0	0	2	0	**2**	**499**
16:00 to 17:00	484	5	4	9	0	**502**	0	0	0	0	0	**0**	0	0	0	2	0	**2**	**504**
16:15 to 17:15	503	6	3	10	0	**522**	0	0	0	0	0	**0**	0	0	0	2	0	**2**	**524**
16:30 to 17:30	518	5	2	13	0	**538**	0	0	0	0	0	**0**	0	0	0	1	0	**1**	**539**
16:45 to 17:45	535	5	3	18	0	**561**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	**561**
17:00 to 18:00	543	4	2	20	0	**569**	0	0	0	0	0	**0**	0	0	0	1	0	**1**	**570**
17:15 to 18:15	522	2	2	24	0	**550**	0	0	0	0	0	**0**	0	0	0	3	0	**3**	**553**
17:30 to 18:30	520	2	1	24	0	**547**	0	0	0	0	0	**0**	0	0	0	3	0	**3**	**550**
17:45 to 18:45	511	1	0	20	0	**532**	0	0	0	0	0	**0**	0	0	0	4	0	**4**	**536**
18:00 to 19:00	480	2	1	20	0	**503**	0	0	0	0	0	**0**	0	0	0	3	0	**3**	**506**
PM Totals	**1,734**	**16**	**9**	**52**	**0**	**1,811**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**6**	**1,817**

Job No. : N5133
Client : GTA
Suburb : Pitt Street
Location : 6. Dungate Ln / Castlereagh St

Day/Date : Tues, 25th June 2019
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



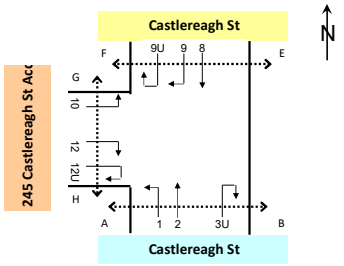
MATRIX Traffic and Transport Data

	Approach	Castlereagh St							Castlereagh St						Dungate Ln						Grand Total
	Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total		Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
AM	9:00 to 10:00	0	0	0	1	0	**1**		452	29	53	8	0	**542**	0	0	0	0	0	**0**	**543**
PM	17:15 to 18:15	0	0	0	1	0	**1**		546	4	99	31	0	**680**	0	0	0	0	0	**0**	**681**

Approach	Castlereagh St							Castlereagh St						Dungate Ln						Grand Total
Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total		Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
7:30 to 8:30	0	0	0	3	0	**3**		259	34	46	6	0	**345**	0	0	0	0	0	**0**	**348**
7:45 to 8:45	0	0	0	1	0	**1**		290	27	46	6	0	**369**	0	0	0	0	0	**0**	**370**
8:00 to 9:00	0	0	0	1	0	**1**		319	25	54	8	0	**406**	0	0	0	0	0	**0**	**407**
8:15 to 9:15	0	0	0	1	0	**1**		368	20	56	9	0	**453**	0	0	0	0	0	**0**	**454**
8:30 to 9:30	0	0	0	1	0	**1**		419	21	54	8	0	**502**	0	0	0	0	0	**0**	**503**
8:45 to 9:45	0	0	0	2	0	**2**		426	25	62	7	0	**520**	0	0	0	0	0	**0**	**522**
9:00 to 10:00	0	0	0	1	0	**1**		452	29	53	8	0	**542**	0	0	0	0	0	**0**	**543**
AM Totals	**0**	**0**	**0**	**5**	**0**	**5**		**895**	**75**	**127**	**18**	**0**	**1,115**	**0**	**0**	**0**	**0**	**0**	**0**	**1,120**
15:30 to 16:30	0	0	0	0	0	**0**		488	12	63	19	0	**582**	0	0	0	0	0	**0**	**582**
15:45 to 16:45	0	0	0	0	0	**0**		510	11	70	22	0	**613**	0	0	0	0	0	**0**	**613**
16:00 to 17:00	0	0	0	0	0	**0**		504	7	82	24	0	**617**	0	0	0	0	0	**0**	**617**
16:15 to 17:15	0	0	0	0	0	**0**		516	4	86	32	0	**638**	0	0	0	0	0	**0**	**638**
16:30 to 17:30	0	0	0	0	0	**0**		506	3	94	29	0	**632**	0	0	0	0	0	**0**	**632**
16:45 to 17:45	0	0	0	0	0	**0**		533	4	102	32	0	**671**	0	0	0	0	0	**0**	**671**
17:00 to 18:00	0	0	0	0	0	**0**		532	5	102	35	0	**674**	0	0	0	0	0	**0**	**674**
17:15 to 18:15	0	0	0	1	0	**1**		546	4	99	31	0	**680**	0	0	0	0	0	**0**	**681**
17:30 to 18:30	0	0	0	1	0	**1**		537	3	90	27	0	**657**	0	0	0	0	0	**0**	**658**
17:45 to 18:45	0	0	0	1	0	**1**		509	3	76	35	0	**623**	0	0	0	0	0	**0**	**624**
18:00 to 19:00	0	0	0	1	0	**1**		511	3	66	37	0	**617**	0	0	0	0	0	**0**	**618**
PM Totals	**0**	**0**	**0**	**1**	**0**	**1**		**1,776**	**21**	**279**	**103**	**0**	**2,179**	**0**	**0**	**0**	**0**	**0**	**0**	**2,180**

Job No. : N5133
Client : GTA
Suburb : Pitt Street
Location : 7. 245 Castlereagh St Access / Castlereagh St

Day/Date : Tues, 25th June 2019
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



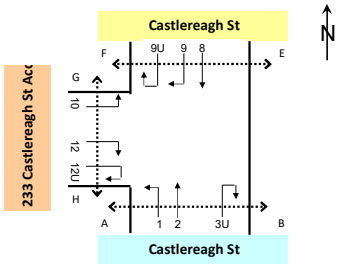
MATRIX Traffic and Transport Data

	Approach	Castlereagh St							Castlereagh St						245 Castlereagh St Access						Grand Total
	Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total		Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
AM	9:00 to 10:00	0	0	0	0	0	**0**		457	41	64	8	0	**570**	0	0	0	0	0	**0**	**570**
PM	17:15 to 18:15	0	0	0	0	0	**0**		560	6	97	42	0	**705**	4	0	0	0	0	**4**	**709**

Approach	Castlereagh St							Castlereagh St						245 Castlereagh St Access						Grand Total
Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total		Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
7:30 to 8:30	0	0	0	0	0	**0**		255	29	42	8	0	**334**	0	0	0	0	0	**0**	**334**
7:45 to 8:45	0	0	0	0	0	**0**		287	27	54	6	0	**374**	0	0	0	0	0	**0**	**374**
8:00 to 9:00	0	0	0	0	0	**0**		309	27	52	5	0	**393**	0	0	0	0	0	**0**	**393**
8:15 to 9:15	0	0	0	0	0	**0**		349	34	56	9	0	**448**	0	0	0	0	0	**0**	**448**
8:30 to 9:30	0	0	0	0	0	**0**		402	31	61	10	0	**504**	0	0	0	0	0	**0**	**504**
8:45 to 9:45	0	0	0	0	0	**0**		436	34	61	10	0	**541**	0	0	0	0	0	**0**	**541**
9:00 to 10:00	0	0	0	0	0	**0**		457	41	64	8	0	**570**	0	0	0	0	0	**0**	**570**
AM Totals	**0**	**0**	**0**	**0**	**0**	**0**		**884**	**84**	**135**	**19**	**0**	**1,122**	**0**	**0**	**0**	**0**	**0**	**0**	**1,122**
15:30 to 16:30	0	0	0	0	0	**0**		501	9	59	16	0	**585**	1	0	0	0	0	**1**	**586**
15:45 to 16:45	0	0	0	0	0	**0**		504	12	69	17	0	**602**	0	0	0	0	0	**0**	**602**
16:00 to 17:00	0	0	0	0	0	**0**		483	9	76	20	0	**588**	1	0	0	0	0	**1**	**589**
16:15 to 17:15	0	0	0	0	0	**0**		499	8	83	25	0	**615**	1	0	0	0	0	**1**	**616**
16:30 to 17:30	0	0	0	0	0	**0**		522	6	90	28	0	**646**	3	0	0	0	0	**3**	**649**
16:45 to 17:45	0	0	0	0	0	**0**		543	3	95	34	0	**675**	3	0	0	0	0	**3**	**678**
17:00 to 18:00	0	0	0	0	0	**0**		560	4	98	41	0	**703**	2	0	0	0	0	**2**	**705**
17:15 to 18:15	0	0	0	0	0	**0**		560	6	97	42	0	**705**	4	0	0	0	0	**4**	**709**
17:30 to 18:30	0	0	0	0	0	**0**		518	7	95	44	0	**664**	2	0	0	0	0	**2**	**666**
17:45 to 18:45	0	0	0	0	0	**0**		497	5	83	44	0	**629**	2	0	0	0	0	**2**	**631**
18:00 to 19:00	0	0	0	0	0	**0**		486	5	67	36	0	**594**	2	0	0	0	0	**2**	**596**
PM Totals	**0**	**0**	**0**	**0**	**0**	**0**		**1,783**	**24**	**269**	**104**	**0**	**2,180**	**6**	**0**	**0**	**0**	**0**	**6**	**2,186**

Job No. : N5133
Client : GTA
Suburb : Pitt Street
Location : 8. 233 Castlereagh St Access / Castlereagh St

Day/Date : Tues, 25th June 2019
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



MATRIX Traffic and Transport Data

	Approach	Castlereagh St							Castlereagh St						233 Castlereagh St Access						Grand Total
	Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total		Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
AM	9:00 to 10:00	0	0	0	0	0	**0**		433	41	61	6	0	**541**	6	0	0	0	0	**6**	**547**
PM	17:00 to 18:00	0	0	0	0	0	**0**		534	3	96	36	0	**669**	34	0	0	3	0	**37**	**706**

Approach	Castlereagh St							Castlereagh St						233 Castlereagh St Access						Grand Total
Time Period	Lights	Heavies	Buses	Cyclists	Trams	Total		Lights	Heavies	Buses	Cyclists	Trams	Total	Lights	Heavies	Buses	Cyclists	Trams	Total	
7:30 to 8:30	0	0	0	0	0	**0**		264	30	43	3	0	**340**	1	0	0	0	0	**1**	**341**
7:45 to 8:45	0	0	0	0	0	**0**		310	27	56	2	0	**395**	1	0	0	0	0	**1**	**396**
8:00 to 9:00	0	0	0	0	0	**0**		322	27	55	2	0	**406**	1	0	0	0	0	**1**	**407**
8:15 to 9:15	0	0	0	0	0	**0**		353	33	59	5	0	**450**	4	0	0	0	0	**4**	**454**
8:30 to 9:30	0	0	0	0	0	**0**		387	30	60	7	0	**484**	5	0	0	0	0	**5**	**489**
8:45 to 9:45	0	0	0	0	0	**0**		411	36	59	7	0	**513**	5	0	0	0	0	**5**	**518**
9:00 to 10:00	0	0	0	0	0	**0**		433	41	61	6	0	**541**	6	0	0	0	0	**6**	**547**
AM Totals	**0**	**0**	**0**	**0**	**0**	**0**		**880**	**84**	**134**	**10**	**0**	**1,108**	**7**	**0**	**0**	**0**	**0**	**7**	**1,115**
15:30 to 16:30	0	0	0	0	0	**0**		484	9	59	12	0	**564**	24	0	0	0	0	**24**	**588**
15:45 to 16:45	0	0	0	0	0	**0**		488	12	69	13	0	**582**	29	0	0	0	0	**29**	**611**
16:00 to 17:00	0	0	0	0	0	**0**		457	9	79	16	0	**561**	29	0	0	0	0	**29**	**590**
16:15 to 17:15	0	0	0	0	0	**0**		485	8	85	21	0	**599**	35	0	0	0	0	**35**	**634**
16:30 to 17:30	0	0	0	0	0	**0**		490	6	91	20	0	**607**	40	0	0	3	0	**43**	**650**
16:45 to 17:45	0	0	0	0	0	**0**		513	2	96	29	0	**640**	35	0	0	3	0	**38**	**678**
17:00 to 18:00	0	0	0	0	0	**0**		534	3	96	36	0	**669**	34	0	0	3	0	**37**	**706**
17:15 to 18:15	0	0	0	0	0	**0**		517	5	96	39	0	**657**	31	0	0	3	0	**34**	**691**
17:30 to 18:30	0	0	0	0	0	**0**		489	6	95	45	0	**635**	26	0	0	0	0	**26**	**661**
17:45 to 18:45	0	0	0	0	0	**0**		476	5	83	41	0	**605**	27	0	0	0	0	**27**	**632**
18:00 to 19:00	0	0	0	0	0	**0**		462	5	67	34	0	**568**	25	0	0	0	0	**25**	**593**
PM Totals	**0**	**0**	**0**	**0**	**0**	**0**		**1,699**	**23**	**270**	**91**	**0**	**2,083**	**103**	**0**	**0**	**3**	**0**	**106**	**2,189**

B.SIDRA OUTPUTS

B

MOVEMENT SUMMARY

Site: 2322 [1 - Pitt / Liverpool AM Existing]

Network: N101 [1. Existing AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt														
1	L2	143	2.9	143	2.9	0.651	41.2	LOS C	3.6	26.0	0.94	0.82	1.02	15.4
2	T1	392	7.3	392	7.3	0.439	28.7	LOS C	5.1	37.0	0.86	0.71	0.86	12.8
Approach		535	6.1	535	6.1	0.651	32.0	LOS C	5.1	37.0	0.88	0.74	0.90	13.8
East: Liverpool														
5	T1	814	4.0	814	4.0	0.471	12.4	LOS A	7.9	57.6	0.48	0.41	0.48	18.0
6	R2	288	5.1	288	5.1	0.471	25.3	LOS B	7.9	57.6	0.84	0.79	0.84	8.9
Approach		1102	4.3	1102	4.3	0.471	15.8	LOS B	7.9	57.6	0.57	0.51	0.57	15.4
West: Liverpool														
10	L2	4	0.0	4	0.0	0.075	42.5	LOS D	0.7	1.8	0.97	0.66	0.97	7.3
11	T1	22	0.0	22	0.0	0.075	42.5	LOS D	0.7	1.8	0.97	0.66	0.97	7.3
Approach		26	0.0	26	0.0	0.075	42.5	LOS D	0.7	1.8	0.97	0.66	0.97	7.3
All Vehicles		1663	4.8	1663	4.8	0.651	21.4	LOS B	7.9	57.6	0.68	0.59	0.68	14.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	1265	10.8	LOS B	1.6	1.6	0.50	0.50
P2	East Full Crossing	959	31.7	LOS D	2.1	2.1	0.86	0.86
P3	North Full Crossing	481	9.5	LOS A	0.6	0.6	0.46	0.46
P4	West Full Crossing	854	30.7	LOS D	1.8	1.8	0.84	0.84
All Pedestrians		3559	21.0	LOS C			0.67	0.67

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2312 [2 - Pitt / Bathurst AM Existing]

Network: N101 [1. Existing AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt														
2	T1	435	8.5	435	8.5	0.395	20.5	LOS B	3.9	28.4	0.68	0.57	0.68	24.0
3	R2	158	6.0	158	6.0	0.448	24.6	LOS B	2.7	19.8	0.65	0.72	0.65	18.3
Approach		593	7.8	593	7.8	0.448	21.6	LOS B	3.9	28.4	0.67	0.61	0.67	22.6
West: Bathurst														
10	L2	293	5.8	293	5.8	0.359	19.9	LOS B	5.0	36.8	0.68	0.73	0.68	20.2
11	T1	924	6.0	924	6.0	0.292	10.3	LOS A	4.2	30.6	0.54	0.47	0.54	18.2
Approach		1217	6.0	1217	6.0	0.359	12.6	LOS A	5.0	36.8	0.58	0.53	0.58	19.0
All Vehicles		1809	6.6	1809	6.6	0.448	15.5	LOS B	5.0	36.8	0.61	0.56	0.61	20.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	1439	12.0	LOS B	2.0	2.0	0.53	0.53
P2	East Full Crossing	586	27.9	LOS C	1.2	1.2	0.80	0.80
P3	North Full Crossing	1085	10.8	LOS B	1.4	1.4	0.50	0.50
P4	West Full Crossing	961	30.0	LOS D	2.0	2.0	0.83	0.83
All Pedestrians		4072	18.2	LOS B			0.63	0.63

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2281 [3 - Castlereagh / Bathurst AM Existing]

Network: N101 [1. Existing AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
North: Castlereagh														
7	L2	96	22.0	96	22.0	0.276	35.5	LOS C	2.2	18.2	0.87	0.75	0.87	12.3
8	T1	414	19.3	414	19.3	0.607	28.8	LOS C	8.2	59.1	0.89	0.76	0.89	12.5
Approach		509	19.8	509	19.8	0.607	30.1	LOS C	8.2	59.1	0.89	0.76	0.89	12.4
West: Bathurst														
11	T1	918	5.4	918	5.4	0.294	5.5	LOS A	2.7	19.7	0.27	0.23	0.27	26.4
12	R2	175	9.0	175	9.0	0.388	33.5	LOS C	4.1	30.9	0.91	0.80	0.91	7.2
Approach		1093	6.0	1093	6.0	0.388	10.0	LOS A	4.1	30.9	0.37	0.32	0.37	20.2
All Vehicles		1602	10.4	1602	10.4	0.607	16.4	LOS B	8.2	59.1	0.54	0.46	0.54	16.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	941	11.2	LOS B	1.2	1.2	0.51	0.51
P2	East Full Crossing	606	30.4	LOS D	1.3	1.3	0.83	0.83
P3	North Full Crossing	817	12.2	LOS B	1.1	1.1	0.53	0.53
P4	West Full Crossing	586	28.7	LOS C	1.2	1.2	0.81	0.81
All Pedestrians		2951	18.9	LOS B			0.64	0.64

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2282 [4 - Castlereagh / Liverpool AM Existing]

Network: N101 [1. Existing AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Castlereagh														
1	L2	41	0.0	41	0.0	0.104	42.5	LOS D	1.0	2.8	0.97	0.68	0.97	13.7
Approach		41	0.0	41	0.0	0.104	42.5	LOS D	1.0	2.8	0.97	0.68	0.97	13.7
East: Liverpool														
4	L2	97	0.0	97	0.0	0.199	30.7	LOS C	2.0	14.1	0.81	0.73	0.81	13.9
5	T1	899	3.5	899	3.5	0.345	12.7	LOS A	5.2	37.7	0.60	0.52	0.60	10.4
Approach		996	3.2	996	3.2	0.345	14.5	LOS A	5.2	37.7	0.62	0.54	0.62	11.2
North: Castlereagh														
8	T1	388	21.7	388	21.7	0.854	49.4	LOS D	9.4	67.4	1.00	0.93	1.12	16.0
9	R2	138	12.2	138	12.2	0.829	56.3	LOS D	4.1	31.7	1.00	0.89	1.20	10.8
Approach		526	19.2	526	19.2	0.854	51.2	LOS D	9.4	67.4	1.00	0.92	1.14	14.7
West: Liverpool														
12	R2	11	0.0	11	0.0	0.027	44.0	LOS D	0.3	0.7	1.00	0.64	1.00	9.3
Approach		11	0.0	11	0.0	0.027	44.0	LOS D	0.3	0.7	1.00	0.64	1.00	9.3
All Vehicles		1574	8.4	1574	8.4	0.854	27.7	LOS B	9.4	67.4	0.76	0.67	0.81	13.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	882	14.4	LOS B	1.3	1.3	0.58	0.58
P2	East Full Crossing	469	26.2	LOS C	0.9	0.9	0.77	0.77
P3	North Full Crossing	896	13.3	LOS B	1.3	1.3	0.55	0.55
P4	West Full Crossing	509	36.3	LOS D	1.2	1.2	0.91	0.91
All Pedestrians		2757	20.1	LOS C			0.66	0.66

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2322 [1 - Pitt / Liverpool PM Existing]

Network: N101 [1. Existing PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt														
1	L2	165	0.0	165	0.0	0.607	37.6	LOS C	4.0	27.4	0.92	0.79	0.93	16.2
2	T1	347	0.9	347	0.9	0.273	21.3	LOS B	3.7	25.3	0.74	0.61	0.74	15.5
Approach		513	0.6	513	0.6	0.607	26.6	LOS B	4.0	27.4	0.80	0.67	0.80	15.8
East: Liverpool														
5	T1	772	1.9	772	1.9	0.563	12.9	LOS A	8.7	61.4	0.51	0.45	0.51	17.3
6	R2	277	1.1	277	1.1	0.563	30.6	LOS C	8.7	61.4	0.92	0.82	0.92	7.5
Approach		1048	1.7	1048	1.7	0.563	17.6	LOS B	8.7	61.4	0.62	0.55	0.62	14.8
West: Liverpool														
10	L2	5	0.0	5	0.0	0.176	41.9	LOS C	1.8	5.0	0.97	0.71	0.97	7.4
11	T1	67	0.0	67	0.0	0.176	41.9	LOS C	1.8	5.0	0.97	0.71	0.97	7.4
Approach		73	0.0	73	0.0	0.176	41.9	LOS C	1.8	5.0	0.97	0.71	0.97	7.4
All Vehicles		1634	1.3	1634	1.3	0.607	21.5	LOS B	8.7	61.4	0.69	0.59	0.69	14.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	1777	15.6	LOS B	2.8	2.8	0.61	0.61
P2	East Full Crossing	1238	25.5	LOS C	2.4	2.4	0.77	0.77
P3	North Full Crossing	718	13.8	LOS B	1.0	1.0	0.56	0.56
P4	West Full Crossing	1542	25.1	LOS C	3.0	3.0	0.77	0.77
All Pedestrians		5275	20.4	LOS C			0.69	0.69

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2312 [2 - Pitt / Bathurst PM Existing]

Network: N101 [1. Existing PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt														
2	T1	409	1.3	409	1.3	0.315	21.7	LOS B	3.5	24.1	0.65	0.54	0.65	23.7
3	R2	216	2.0	216	2.0	0.481	35.8	LOS C	4.7	33.1	0.85	0.79	0.85	14.6
Approach		625	1.5	625	1.5	0.481	26.5	LOS B	4.7	33.1	0.72	0.62	0.72	20.5
West: Bathurst														
10	L2	185	1.1	185	1.1	0.244	21.4	LOS B	3.2	22.6	0.68	0.71	0.68	19.5
11	T1	1234	1.9	1234	1.9	0.407	13.4	LOS A	6.6	46.2	0.64	0.56	0.64	15.6
Approach		1419	1.8	1419	1.8	0.407	14.4	LOS A	6.6	46.2	0.64	0.58	0.64	16.4
All Vehicles		2044	1.7	2044	1.7	0.481	18.1	LOS B	6.6	46.2	0.67	0.59	0.67	18.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	1602	14.3	LOS B	2.4	2.4	0.58	0.58
P2	East Full Crossing	788	25.0	LOS C	1.5	1.5	0.76	0.76
P3	North Full Crossing	1374	13.0	LOS B	1.9	1.9	0.55	0.55
P4	West Full Crossing	1374	27.2	LOS C	2.8	2.8	0.80	0.80
All Pedestrians		5138	19.1	LOS B			0.66	0.66

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2281 [3 - Castlereagh / Bathurst PM Existing]

Network: N101 [1. Existing PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
North: Castlereagh														
7	L2	145	13.0	145	13.0	0.373	35.3	LOS C	3.4	25.9	0.88	0.77	0.88	12.3
8	T1	505	20.8	505	20.8	0.591	27.1	LOS B	9.1	59.9	0.87	0.74	0.87	12.9
Approach		651	19.1	651	19.1	0.591	28.9	LOS C	9.1	59.9	0.87	0.75	0.87	12.7
West: Bathurst														
11	T1	1333	1.3	1333	1.3	0.426	6.2	LOS A	4.4	30.9	0.31	0.27	0.31	25.1
12	R2	193	4.9	193	4.9	0.794	41.2	LOS C	5.2	37.5	0.95	0.89	1.14	6.1
Approach		1525	1.8	1525	1.8	0.794	10.7	LOS A	5.2	37.5	0.39	0.35	0.42	19.6
All Vehicles		2176	7.0	2176	7.0	0.794	16.1	LOS B	9.1	59.9	0.54	0.47	0.55	16.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	1166	12.4	LOS B	1.6	1.6	0.54	0.54
P2	East Full Crossing	571	28.7	LOS C	1.2	1.2	0.81	0.81
P3	North Full Crossing	1107	13.4	LOS B	1.6	1.6	0.56	0.56
P4	West Full Crossing	618	27.1	LOS C	1.2	1.2	0.79	0.79
All Pedestrians		3462	18.0	LOS B			0.63	0.63

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2282 [4 - Castlereagh / Liverpool PM Existing]

Network: N101 [1. Existing PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Castlereagh														
1	L2	17	0.0	17	0.0	0.043	42.1	LOS C	0.4	1.1	0.96	0.64	0.96	13.8
Approach		17	0.0	17	0.0	0.043	42.1	LOS C	0.4	1.1	0.96	0.64	0.96	13.8
East: Liverpool														
4	L2	56	7.5	56	7.5	0.147	33.7	LOS C	1.2	9.1	0.84	0.72	0.84	13.1
5	T1	833	1.6	833	1.6	0.430	18.4	LOS B	5.7	40.8	0.73	0.62	0.73	7.9
Approach		888	2.0	888	2.0	0.430	19.4	LOS B	5.7	40.8	0.73	0.63	0.73	8.5
North: Castlereagh														
8	T1	493	22.2	493	22.2	0.659	40.7	LOS C	10.3	68.5	1.00	0.85	1.00	17.6
9	R2	195	1.1	195	1.1	0.855	56.8	LOS E	5.9	41.2	1.00	0.92	1.21	10.7
Approach		687	16.2	687	16.2	0.855	45.3	LOS D	10.3	68.5	1.00	0.87	1.06	15.6
West: Liverpool														
12	R2	28	0.0	28	0.0	0.072	44.5	LOS D	0.7	2.0	1.00	0.68	1.00	9.2
Approach		28	0.0	28	0.0	0.072	44.5	LOS D	0.7	2.0	1.00	0.68	1.00	9.2
All Vehicles		1621	8.0	1621	8.0	0.855	31.0	LOS C	10.3	68.5	0.85	0.73	0.88	13.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	814	19.3	LOS B	1.4	1.4	0.67	0.67
P2	East Full Crossing	479	20.4	LOS C	0.8	0.8	0.68	0.68
P3	North Full Crossing	1066	18.2	LOS B	1.8	1.8	0.65	0.65
P4	West Full Crossing	525	29.4	LOS C	1.1	1.1	0.82	0.82
All Pedestrians		2884	20.9	LOS C			0.69	0.69

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2322 [1 - Pitt / Liverpool AM Pdev]

Network: N101 [2. Pdev AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt														
1	L2	143	2.9	143	2.9	0.656	41.3	LOS C	3.6	26.0	0.94	0.83	1.02	15.4
2	T1	403	7.0	403	7.0	0.453	28.8	LOS C	5.3	38.3	0.86	0.71	0.86	12.8
Approach		546	6.0	546	6.0	0.656	32.1	LOS C	5.3	38.3	0.88	0.74	0.90	13.7
East: Liverpool														
5	T1	814	4.0	814	4.0	0.476	12.3	LOS A	8.0	58.2	0.47	0.41	0.47	18.0
6	R2	298	4.9	298	4.9	0.476	25.3	LOS B	8.0	58.2	0.84	0.79	0.84	8.8
Approach		1112	4.3	1112	4.3	0.476	15.8	LOS B	8.0	58.2	0.57	0.51	0.57	15.3
West: Liverpool														
10	L2	4	0.0	4	0.0	0.075	42.5	LOS D	0.7	1.8	0.97	0.66	0.97	7.3
11	T1	22	0.0	22	0.0	0.075	42.5	LOS D	0.7	1.8	0.97	0.66	0.97	7.3
Approach		26	0.0	26	0.0	0.075	42.5	LOS D	0.7	1.8	0.97	0.66	0.97	7.3
All Vehicles		1684	4.8	1684	4.8	0.656	21.5	LOS B	8.0	58.2	0.68	0.59	0.68	14.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	1265	10.8	LOS B	1.6	1.6	0.50	0.50
P2	East Full Crossing	959	31.7	LOS D	2.1	2.1	0.86	0.86
P3	North Full Crossing	481	9.5	LOS A	0.6	0.6	0.46	0.46
P4	West Full Crossing	854	30.7	LOS D	1.8	1.8	0.84	0.84
All Pedestrians		3559	21.0	LOS C			0.67	0.67

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2312 [2 - Pitt / Bathurst AM Pdev]

Network: N101 [2. Pdev AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt														
2	T1	473	7.8	473	7.8	0.429	20.7	LOS B	4.4	31.4	0.69	0.58	0.69	23.9
3	R2	175	5.4	175	5.4	0.494	24.8	LOS B	3.1	22.6	0.67	0.73	0.67	18.2
Approach		647	7.2	647	7.2	0.494	21.8	LOS B	4.4	31.4	0.69	0.62	0.69	22.6
West: Bathurst														
10	L2	293	5.8	293	5.8	0.359	19.9	LOS B	5.0	36.8	0.68	0.73	0.68	20.2
11	T1	924	6.0	924	6.0	0.292	10.3	LOS A	4.2	30.6	0.54	0.47	0.54	18.2
Approach		1217	6.0	1217	6.0	0.359	12.6	LOS A	5.0	36.8	0.58	0.53	0.58	19.0
All Vehicles		1864	6.4	1864	6.4	0.494	15.8	LOS B	5.0	36.8	0.62	0.56	0.62	20.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	1439	12.0	LOS B	2.0	2.0	0.53	0.53
P2	East Full Crossing	586	27.9	LOS C	1.2	1.2	0.80	0.80
P3	North Full Crossing	1085	10.8	LOS B	1.4	1.4	0.50	0.50
P4	West Full Crossing	961	30.0	LOS D	2.0	2.0	0.83	0.83
All Pedestrians		4072	18.2	LOS B			0.63	0.63

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2281 [3 - Castlereagh / Bathurst AM Pdev]

Network: N101 [2. Pdev AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
North: Castlereagh														
7	L2	96	22.0	96	22.0	0.276	35.5	LOS C	2.2	18.2	0.87	0.75	0.87	12.3
8	T1	415	19.3	415	19.3	0.609	28.8	LOS C	8.3	59.3	0.89	0.76	0.89	12.5
Approach		511	19.8	511	19.8	0.609	30.1	LOS C	8.3	59.3	0.89	0.76	0.89	12.4
West: Bathurst														
11	T1	932	5.3	932	5.3	0.298	5.9	LOS A	2.9	21.2	0.29	0.25	0.29	25.8
12	R2	178	8.9	178	8.9	0.395	33.7	LOS C	4.2	31.5	0.91	0.80	0.91	7.2
Approach		1109	5.9	1109	5.9	0.395	10.3	LOS A	4.2	31.5	0.39	0.34	0.39	19.9
All Vehicles		1620	10.3	1620	10.3	0.609	16.6	LOS B	8.3	59.3	0.54	0.47	0.54	16.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	941	11.2	LOS B	1.2	1.2	0.51	0.51
P2	East Full Crossing	606	30.4	LOS D	1.3	1.3	0.83	0.83
P3	North Full Crossing	817	12.2	LOS B	1.1	1.1	0.53	0.53
P4	West Full Crossing	586	28.7	LOS C	1.2	1.2	0.81	0.81
All Pedestrians		2951	18.9	LOS B			0.64	0.64

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2282 [4 - Castlereagh / Liverpool AM Pdev]

Network: N101 [2. Pdev AM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Castlereagh														
1	L2	41	0.0	41	0.0	0.104	42.5	LOS D	1.0	2.8	0.97	0.68	0.97	13.7
Approach		41	0.0	41	0.0	0.104	42.5	LOS D	1.0	2.8	0.97	0.68	0.97	13.7
East: Liverpool														
4	L2	97	0.0	97	0.0	0.199	30.7	LOS C	2.0	14.1	0.81	0.73	0.81	13.9
5	T1	907	3.5	907	3.5	0.350	12.8	LOS A	5.3	38.3	0.61	0.52	0.61	10.3
Approach		1004	3.1	1004	3.1	0.350	14.5	LOS A	5.3	38.3	0.63	0.54	0.63	11.1
North: Castlereagh														
8	T1	386	21.8	386	21.8	0.848	49.1	LOS D	9.3	66.7	1.00	0.93	1.11	16.0
9	R2	139	12.1	139	12.1	0.835	56.5	LOS D	4.1	32.0	1.00	0.89	1.20	10.7
Approach		525	19.2	525	19.2	0.848	51.1	LOS D	9.3	66.7	1.00	0.92	1.14	14.7
West: Liverpool														
12	R2	11	0.0	11	0.0	0.027	44.0	LOS D	0.3	0.7	1.00	0.64	1.00	9.3
Approach		11	0.0	11	0.0	0.027	44.0	LOS D	0.3	0.7	1.00	0.64	1.00	9.3
All Vehicles		1581	8.4	1581	8.4	0.848	27.6	LOS B	9.3	66.7	0.76	0.67	0.81	13.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	882	14.4	LOS B	1.3	1.3	0.58	0.58
P2	East Full Crossing	469	26.2	LOS C	0.9	0.9	0.77	0.77
P3	North Full Crossing	896	13.3	LOS B	1.3	1.3	0.55	0.55
P4	West Full Crossing	509	36.3	LOS D	1.2	1.2	0.91	0.91
All Pedestrians		2757	20.1	LOS C			0.66	0.66

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2322 [1 - Pitt / Liverpool PM Pdev]

Network: N101 [2. Pdev PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt														
1	L2	165	0.0	165	0.0	0.620	37.8	LOS C	4.0	27.5	0.92	0.80	0.95	16.2
2	T1	381	0.8	381	0.8	0.305	21.6	LOS B	4.1	28.7	0.75	0.62	0.75	15.4
Approach		546	0.6	546	0.6	0.620	26.5	LOS B	4.1	28.7	0.80	0.67	0.81	15.7
East: Liverpool														
5	T1	764	1.9	764	1.9	0.574	12.0	LOS A	8.6	60.8	0.49	0.43	0.49	17.7
6	R2	301	1.0	301	1.0	0.574	29.5	LOS C	8.6	60.8	0.90	0.82	0.90	7.7
Approach		1065	1.7	1065	1.7	0.574	17.0	LOS B	8.6	60.8	0.61	0.54	0.61	15.0
West: Liverpool														
10	L2	5	0.0	5	0.0	0.176	41.9	LOS C	1.8	5.0	0.97	0.71	0.97	7.4
11	T1	67	0.0	67	0.0	0.176	41.9	LOS C	1.8	5.0	0.97	0.71	0.97	7.4
Approach		73	0.0	73	0.0	0.176	41.9	LOS C	1.8	5.0	0.97	0.71	0.97	7.4
All Vehicles		1684	1.3	1684	1.3	0.620	21.1	LOS B	8.6	60.8	0.68	0.59	0.69	14.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	1777	15.6	LOS B	2.8	2.8	0.61	0.61
P2	East Full Crossing	1238	25.5	LOS C	2.4	2.4	0.77	0.77
P3	North Full Crossing	718	13.8	LOS B	1.0	1.0	0.56	0.56
P4	West Full Crossing	1542	25.1	LOS C	3.0	3.0	0.77	0.77
All Pedestrians		5275	20.4	LOS C			0.69	0.69

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2312 [2 - Pitt / Bathurst PM Pdev]

Network: N101 [2. Pdev PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt														
2	T1	443	1.2	443	1.2	0.341	20.5	LOS B	3.8	26.7	0.66	0.55	0.66	24.2
3	R2	231	1.8	231	1.8	0.514	36.0	LOS C	5.0	35.3	0.84	0.79	0.84	14.5
Approach		674	1.4	674	1.4	0.514	25.8	LOS B	5.0	35.3	0.72	0.63	0.72	20.8
West: Bathurst														
10	L2	185	1.1	185	1.1	0.244	21.4	LOS B	3.2	22.6	0.68	0.71	0.68	19.5
11	T1	1235	1.9	1235	1.9	0.407	13.4	LOS A	6.6	46.2	0.64	0.56	0.64	15.6
Approach		1420	1.8	1420	1.8	0.407	14.4	LOS A	6.6	46.2	0.64	0.58	0.64	16.4
All Vehicles		2094	1.7	2094	1.7	0.514	18.1	LOS B	6.6	46.2	0.67	0.60	0.67	18.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	1602	14.3	LOS B	2.4	2.4	0.58	0.58
P2	East Full Crossing	788	25.0	LOS C	1.5	1.5	0.76	0.76
P3	North Full Crossing	1374	13.0	LOS B	1.9	1.9	0.55	0.55
P4	West Full Crossing	1374	27.2	LOS C	2.8	2.8	0.80	0.80
All Pedestrians		5138	19.1	LOS B			0.66	0.66

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2281 [3 - Castlereagh / Bathurst PM Pdev]

Network: N101 [2. Pdev PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
North: Castlereagh														
7	L2	145	13.0	145	13.0	0.373	35.3	LOS C	3.4	25.9	0.88	0.77	0.88	12.3
8	T1	508	20.7	508	20.7	0.596	27.2	LOS B	9.2	60.6	0.87	0.75	0.87	12.9
Approach		654	19.0	654	19.0	0.596	29.0	LOS C	9.2	60.6	0.88	0.75	0.88	12.7
West: Bathurst														
11	T1	1345	1.3	1345	1.3	0.432	6.5	LOS A	4.6	32.1	0.32	0.28	0.32	24.7
12	R2	197	4.8	197	4.8	0.807	41.9	LOS C	5.3	38.8	0.95	0.90	1.17	6.0
Approach		1542	1.8	1542	1.8	0.807	11.0	LOS A	5.3	38.8	0.40	0.36	0.43	19.2
All Vehicles		2196	6.9	2196	6.9	0.807	16.4	LOS B	9.2	60.6	0.54	0.48	0.56	16.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	1166	12.4	LOS B	1.6	1.6	0.54	0.54
P2	East Full Crossing	571	28.7	LOS C	1.2	1.2	0.81	0.81
P3	North Full Crossing	1107	13.4	LOS B	1.6	1.6	0.56	0.56
P4	West Full Crossing	618	27.1	LOS C	1.2	1.2	0.79	0.79
All Pedestrians		3462	18.0	LOS B			0.63	0.63

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2282 [4 - Castlereagh / Liverpool PM Pdev]

Network: N101 [2. Pdev PM]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Castlereagh														
1	L2	17	0.0	17	0.0	0.043	42.1	LOS C	0.4	1.1	0.96	0.64	0.96	13.8
Approach		17	0.0	17	0.0	0.043	42.1	LOS C	0.4	1.1	0.96	0.64	0.96	13.8
East: Liverpool														
4	L2	56	7.5	56	7.5	0.147	33.7	LOS C	1.2	9.1	0.84	0.72	0.84	13.1
5	T1	856	1.6	856	1.6	0.440	18.5	LOS B	5.9	41.9	0.73	0.63	0.73	7.8
Approach		912	2.0	912	2.0	0.440	19.4	LOS B	5.9	41.9	0.74	0.63	0.74	8.5
North: Castlereagh														
8	T1	467	23.4	467	23.4	0.612	40.2	LOS C	9.6	63.6	1.00	0.85	1.00	17.7
9	R2	188	1.1	188	1.1	0.824	55.4	LOS D	5.6	39.3	1.00	0.90	1.16	10.9
Approach		656	17.0	656	17.0	0.824	44.5	LOS D	9.6	63.6	1.00	0.86	1.05	15.7
West: Liverpool														
12	R2	28	0.0	28	0.0	0.072	44.5	LOS D	0.7	2.0	1.00	0.68	1.00	9.2
Approach		28	0.0	28	0.0	0.072	44.5	LOS D	0.7	2.0	1.00	0.68	1.00	9.2
All Vehicles		1613	8.0	1613	8.0	0.824	30.3	LOS C	9.6	63.6	0.85	0.73	0.87	13.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	814	19.3	LOS B	1.4	1.4	0.67	0.67
P2	East Full Crossing	479	20.4	LOS C	0.8	0.8	0.68	0.68
P3	North Full Crossing	1066	18.2	LOS B	1.8	1.8	0.65	0.65
P4	West Full Crossing	525	29.4	LOS C	1.1	1.1	0.82	0.82
All Pedestrians		2884	20.9	LOS C			0.69	0.69

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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