

Attachment A14

**Traffic Impact Assessment
187 Thomas Street, Haymarket**



TRAFFIC IMPACT ASSESSMENT

**Proposed Mixed-Use Development
187 Thomas Street, Haymarket**

Reference: 19.462r02v02
Date: March 2020

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1. INTRODUCTION

TRAFFIX has been commissioned by Greaton Development Pty Ltd to undertake a traffic impact assessment (TIA) to accompany a Planning Proposal (PP) for the site at 187 Thomas Street, Haymarket. Approval is sought to vary the floor space ratio and building height controls under the City of Sydney Local Environmental Plan (2012).

A indicative reference scheme has been prepared by Francis-Jones Morehen Thorp Pty Ltd, comprising a mixed-use development with of 234 hotel rooms, 219m² gross floor area (GFA) of retail space, 40,529m² GFA of commercial space (including 7,429m² GFA of innovation space). This report assesses the traffic impacts and parking requirements arising from this scheme, which is considered to be representative of the site being developed to its full potential when incorporating the proposed planning controls.

This report documents the findings of our investigations and should be read in the context of the Planning Proposal Justification Report, prepared separately. The future mixed-use development is considered to be a size or scale that would require referral to the Roads and Maritime Services (RMS) under the provisions of SEPP (Infrastructure) 2007.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the proposed development
- Section 5: Assesses the parking requirements
- Section 6: Assesses traffic impacts
- Section 7: Discusses access and internal design aspects
- Section 8: Presents the overall study conclusions



2. LOCATION AND SITE

The subject site is known as 187 Thomas Street, Haymarket (Lot 100 of DP804958) and is located on the eastern side of Thomas Street, located in between Thomas Street, Valentine Street and Quay Street. It is also located approximately 215 metres north-west of Central Railway Station.

The site has a total site area of approximately 2,351m² and consists of a single 10-storey mixed-use development. The site has an irregular configuration with a western frontage of 70 metres to Thomas Street, a southern boundary of 43 metres to Quay Street, an eastern boundary of 66 metres and a northern boundary of 25 metres to neighbouring commercial developments.

The existing site currently accommodates nine (9) floors of office space, ground floor retail and a public carpark. The site also contains two pedestrian links, one between George Street and Thomas Street and the second between Thomas Street and the corner of Thomas Street and Quay Street.

187 Thomas Street, Haymarket is currently zoned as B8 – Metropolitan Centre with a building height control of 50 metres and a base Floor Space Ratio (FSR) of 9.9:1 (7.5:1 + 1.5:1 accommodation bonus + 10% design excellence bonus).

Vehicular access to the site is currently provided via Thomas Street at the north-western end of the site. The vehicular access currently leads to a Wilson Carpark which provides 92 public parking spaces on the site.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**. Reference should also be made to the Photographic Record presented in **Appendix A** which provides an appreciation of the general character of roads and other key attributes in proximity to the site.

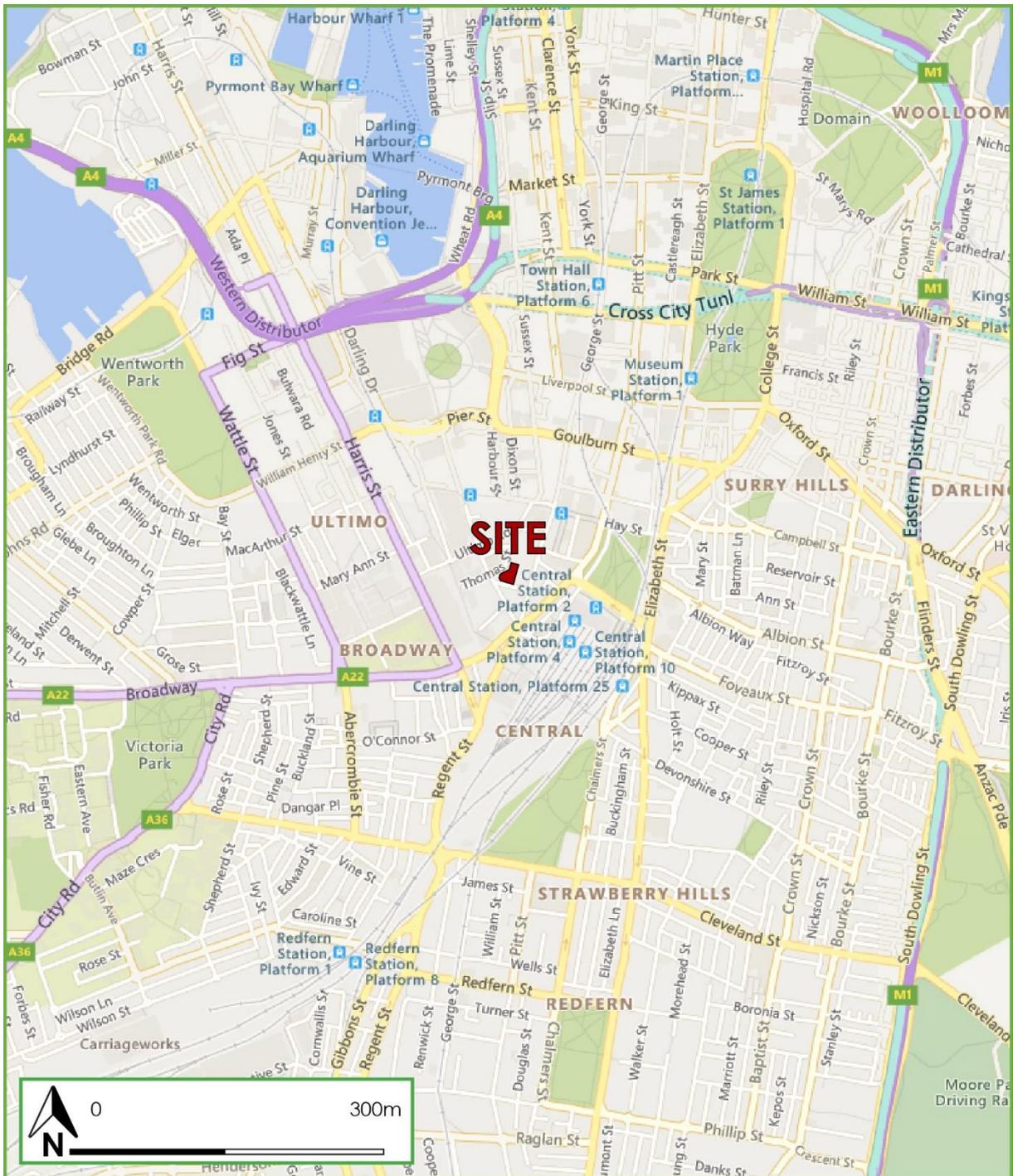


Figure 1: Location Plan

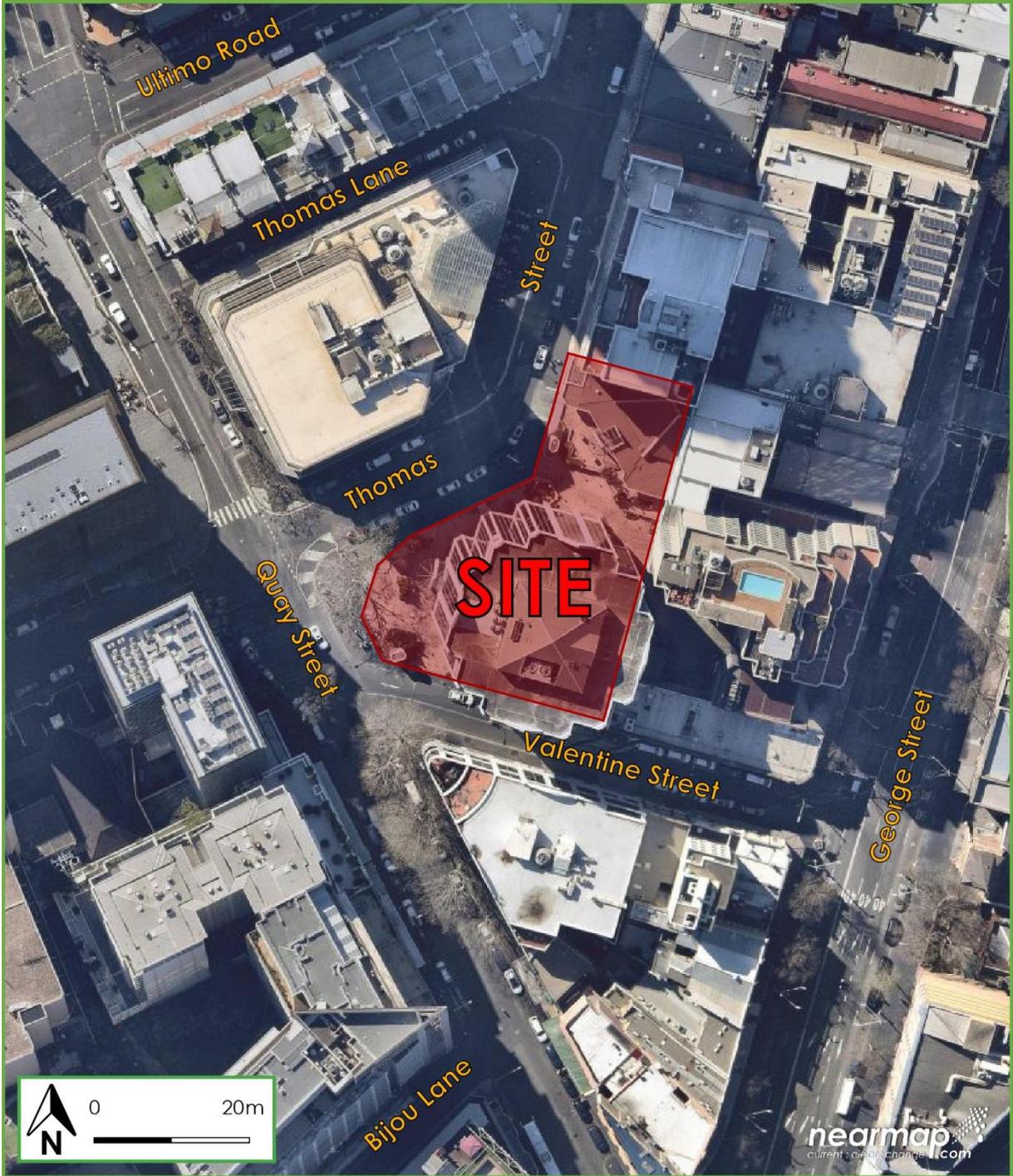


Figure 2: Site Plan



3. ALTERNATIVE TRANSPORT

The alternative transport services operating in the locality are outlined below. It is noteworthy that the subject site is located on the Land Use and Transport Integration (LUTI) Map and the Public Transport Accessibility Level (PTAL) Map. Land described on the LUTI Map is categorised as A, B or C whilst land on the PTAL Map is categorised as D, E or F, with land categorised as A having the best transport integration and land categorised as D having the best accessibility to public transport. The subject site is described as Category 'A' under the LUTI Map and Category 'D' under the PTAL Map, thus provides the best level of transport integration and public transport accessibility.

3.1 Walking and Cycling

3.1.1 Walking Facilities

The site is ideally placed with several pedestrian facilities available in the locality. There are existing pedestrian footpaths surrounding the site, with footpaths provided along both sides of Thomas Street, Quay Street and Valentine Street. The signalised intersections of Quay Street and George Street and Ultimo Road and Quay Street provide signalised pedestrian crossings at all legs, providing pedestrians safe and efficient connections to the wider footpath network. It is also noteworthy that a through site link is provided between Thomas Street and George Street.

3.1.2 Cycling Infrastructure

The site is also located within proximity to separated bicycle lanes, off-road shared paths and bicycle friendly roads available throughout the area. These cycleways can be used concurrently with other bicycle routes to provide connections to various areas around Sydney. The existing cycling facilities are presented in **Figure 3**, with the cycleways summarised as follows:

- Separated Bicycle Lanes Sections of Darling Drive and Castlereagh Street accommodate off-road shared paths for bicycles. These routes provide access to areas towards Pymont, Darling Harbour and Sydney CBD.



- Low Traffic On-road Routes Quay Street, Hay Street and George Street accommodate low-traffic on-road routes. These routes provide access to areas such as Ultimo and Sydney CBD.
- Off-Road Shared Paths Sections of Harbour Street, Belmore Park and Tumbalong Park accommodate off-road shared paths for bicycles. These routes provide access to areas towards Pymont and Darling Harbour.
- Wayfinding Signage Routes Ultimo Road, Hay Street, Castlereagh Street and MaryAnn Street accommodate routes with wayfinding signage. These routes provide access to areas such as Ultimo and the Sydney CBD.

It can be seen from **Figure 3** that the site is conveniently located with respect to the various cycle infrastructure serving the locality. As such, the site is considered highly accessible via the existing cycling network.

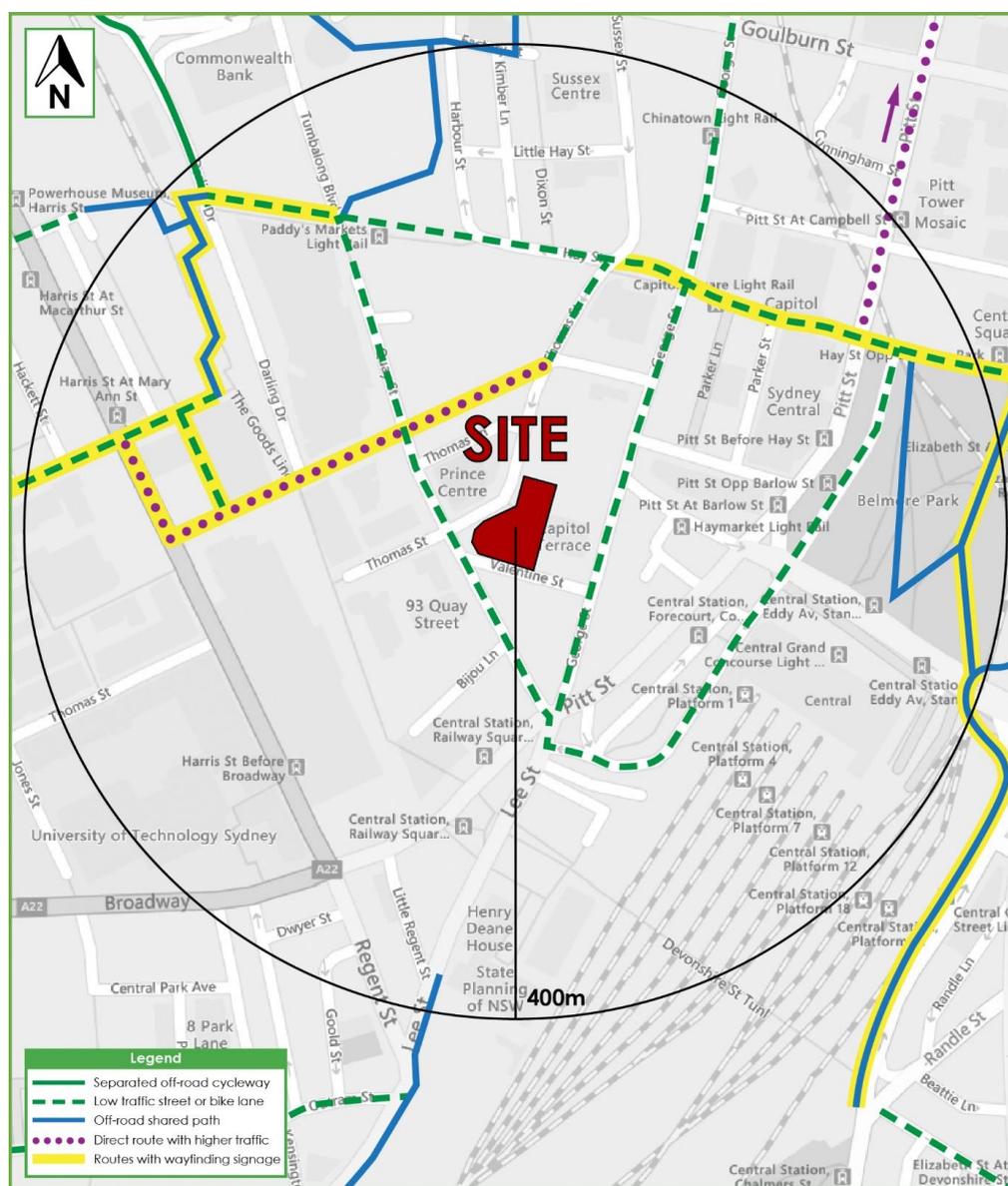


Figure 3: Existing Cycleways in the Locality

3.2 Bus Services

The site is located within 400 metres walking distance of bus stops on Eddy Avenue, George Street, Harris Street, Railway Square and Campbell Street which are serviced by the following routes and are presented in **Figure4**:



Table 1: Bus Routes Servicing the Area

Route Number	Route Name	Route Number	Route Name
308	Marrickville Metro to Central Eddy Ave	431	Glebe Point to City Martin Place
309	Banksmeadow to Central Railway Square	438	Abbotsford to City Martin Place
310X	Banksmeadow to Central Railway Square	439	Mortlake to City Martin Place
X93	Little Bay to Central Railway Square	461	Burwood to City Domain
309X	Port Botany to Central Railway Square	470	Lilyfield to City Martin Place
311	Millers Point to Central Railway Square	L23	Kingsgrove to City Martin Place
338	Clovelly to Central Railway Square	L28	Canterbury to City Martin Place
376	Maroubra Beach to Central Railway Square	L38	Abbotsford to City Martin Place
391	La Perouse to Central Railway Square	L39	Mortlanke to City Martin Place
339	Clovelly to City Gresham Street	M30	Sydenham to Taronga Zoo
374	Coogee to City Circular Quay	422	Kogarah to Central Pitt St
372	Coogee to Central Railway Square	433	Balmain Gladstone Park to Central Central Pitt Street
393	Little Bay to Central Railway Square	436	Rodd Point and Chiswick to Central Pitt Street
395	Maroubra Beach to Central Railway Square	480	Strathfield to Central Pitt Street
412	Campsie to City Martin Place	483	Strathfield to Central Pitt Street
413	Campsie to City Martin Place	440	Bondi Junction to Rozelle
423	Kingsgrove to City Martin Place	501	West Ryde to Central Pitt Street
426	Dulwich Hill to City Martin Place	891	Central Eddy Avenue to UNSW High Street
428	Canterbury to City Martin Place	M10	Maroubra Junction to Leichhardt

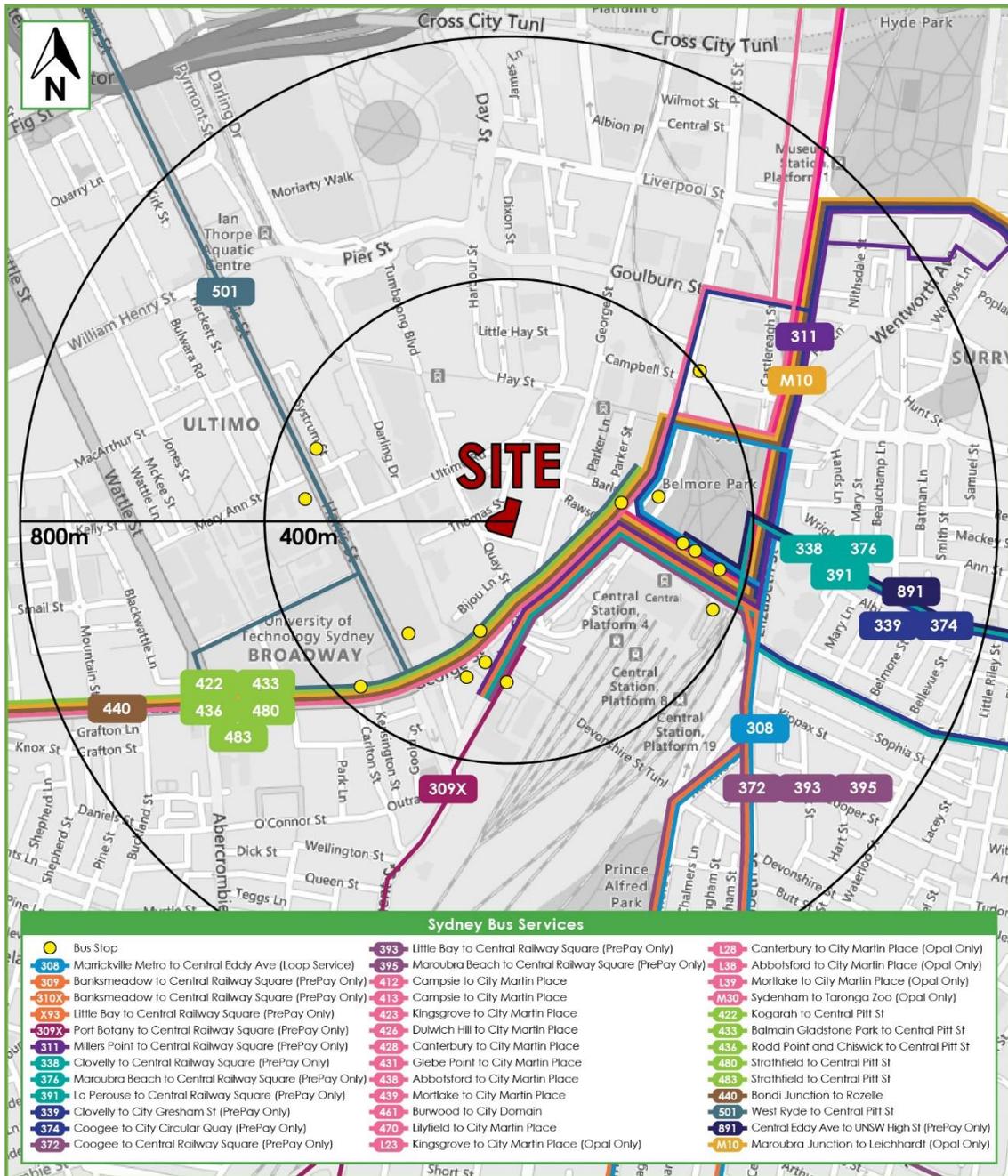


Figure 4: Bus Services in the Locality

It can be seen from Figure 4 that there are several bus services operating in the locality, which provide regular and accessible routes throughout the Sydney region. As such, the site is conveniently placed and highly accessible through the bus network.



3.3 Railway Services

3.3.1 Sydney Trains

The site is located approximately 250 metres northwest of Central Railway Station. The services operating at this station are summarised as follows:

Table 2: Central Railway Station Existing Services and Routes

Train Line	Routes	Train Line	Routes
CCN	Central Coast and Newcastle Line	BMT	Blue Mountains Line
SHL	Southern Highlands Line	T1	North Shore, Northern and Western Line
SCO	South Coast Line	T2	Inner West and Leppington Line
Regional NSW	North Coast NSW	T3	Bankstown Line
	North West NSW	T4	Eastern Suburbs and Illawarra Line
	Southern NSW	T7	Olympic Park Line
	Western NSW	T8	Airport and South Line

3.3.2 Sydney Metro

Central Railway Station will also provide services across the future Metro Line between Tallawong Station in Rouse Hill in the north and Bankstown Station in the south.

3.4 Light Rail Services

Further to this, the site is located within 400 metres of several light rail stations along the Inner West and Sydney CBD light rail lines. The Inner West Line provides services to 23 stations along the L1 line between Central and Dulwich Hill. The existing stations located close to the site are outlined below:

- Central Station
- Capitol Square



➤ Paddy's Market

The Sydney CBD and South East lines currently provide a connection between the Rocks and Randwick. Once completed, the line will also service Kingsford with a total of 19 stations. The stations located within walking distance of the site are outlined below:

➤ Haymarket

➤ Chinatown

It is therefore evident the site benefits from excellent connections to a multitude of public transportation options as presented in **Figure 5**. The site is located approximately 250 metres northwest of Central Railway Station and within very close proximity of numerous bus stops and light rail stations in the area which provide an extensive number of services that service the Sydney Metropolitan area, notwithstanding the site is within walking distance of the Sydney CBD.

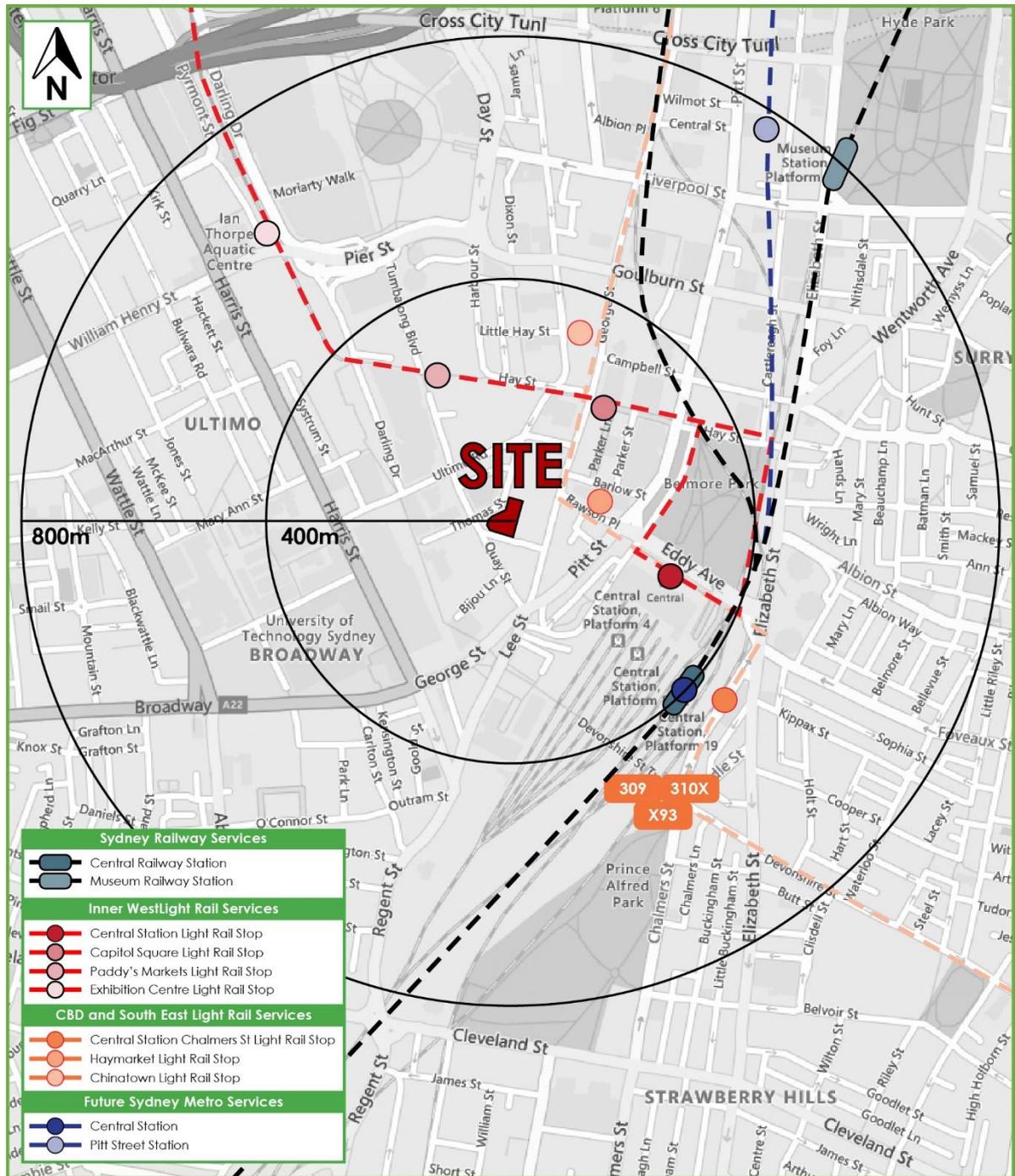


Figure 5: Railway and Light Rail Stations in the Locality



3.5 Car Share Services

The subject site is situated within 400 metres of 8 GoGet car pods. Car share services are able to cater for short-term car related trips. These GoGet pods are presented in **Figure 6**, with the locations summarised as follows:

- Valentine Street, approximately 24 metres west of George Street
- Quay Street, approximately 60 metres northwest of Broadway
- Thomas Street near Quay Street, approximately 13 metres west of Quay Street
- Ultimo Road, approximately 18 metres east of Thomas Street
- Quay Street near Ultimo Road, approximately 57 metres north of Ultimo Road
- Parker Street, approximately 30 metres south of Hay Street
- Mary Ann Street at the intersection with Omnibus Lane
- Sussex Street near Little Hay Street, approximately 9 metres north of Little Hay Street

It should be noted that additional GoGet pods can also be requested closer to and / or within the site, subject only to any future additional demonstrated demand.

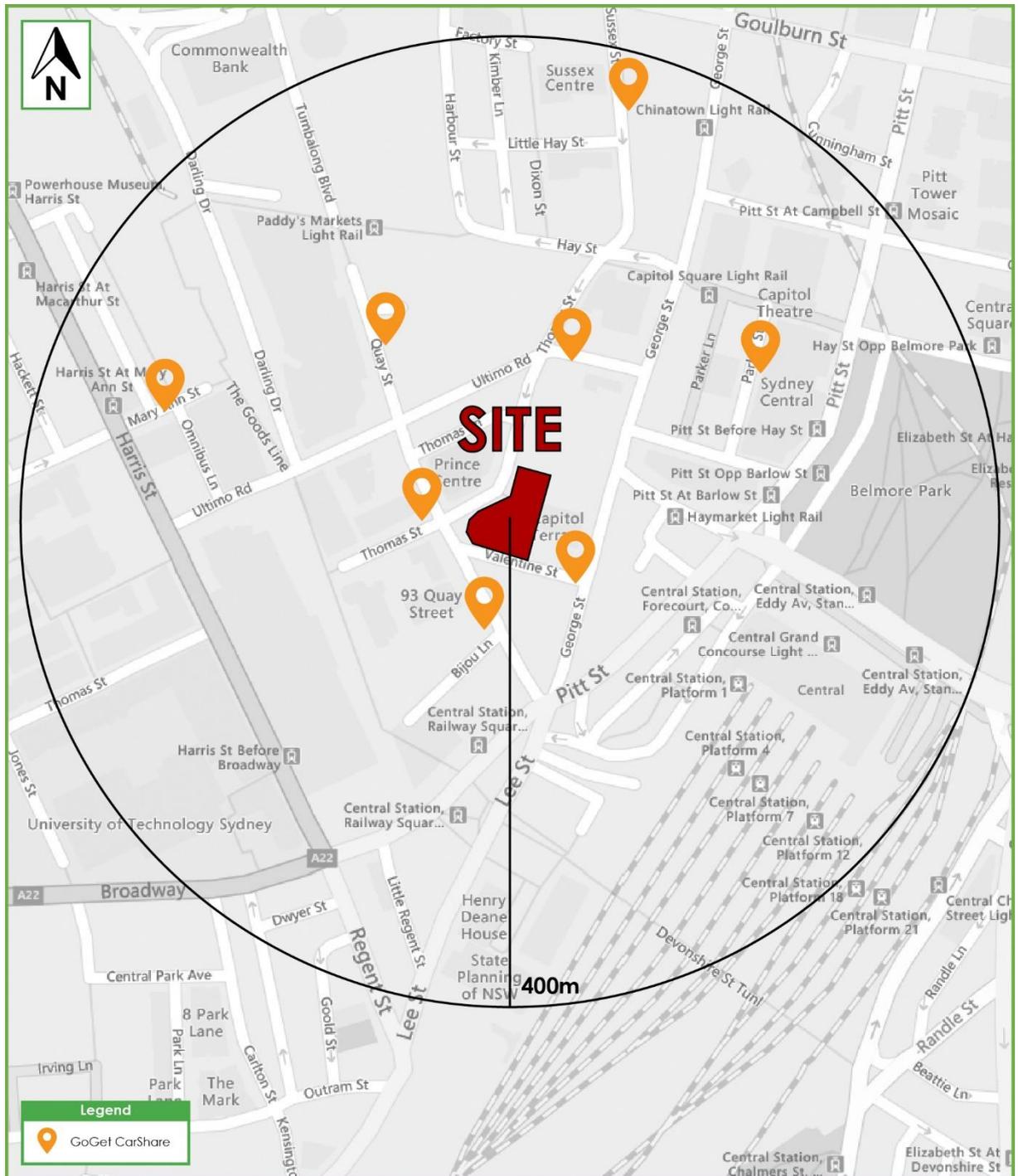


Figure 6: GoGet Pod Locations in the Locality



4. EXISTING TRAFFIC CONDITIONS

4.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 7** with the following roads of particular interest:

- **George Street:** Part of a RMS Highway (HW5) west of the intersection of Quay Street and an unclassified Regional Road (7300) between Park Street and Quay Street. George Street generally runs in a north-south direction between the Cross City Tunnel in the north-east and Harris Street in the south-west. Within the vicinity of the site, George Street is subject to a speed zoning of 40km/h. It generally consists of three (3) traffic lanes in either direction within an undivided carriageway of width 17.5 metres. Kerbside parking is not permitted along this street.
- **Thomas Street:** a local road that traverses in an east-west direction between Thomas Lane in the north-east and ending in a cul-de-sac in the west. Thomas Street between Quay Street and Thomas Lane allows for a single lane of traffic in a south-west direction within a 12.5m wide carriageway. Thomas Street is a high pedestrian area, subject to a speed zoning of 40km/h and permits limited time restricted parking in addition to several loading zones located along the street.
- **Quay Street:** a local road that generally traverses in a north-south direction between the intersection of George Street in the south and Hay Street in the north. It is subject to a speed zoning of 40km/h and carries a single lane of traffic in each direction within a 12.5m wide carriageway. The southern end of Quay Street at the intersection of George Street only allows for entry into Quay Street. Ticketed kerbside parking is permitted along both sides of the road.
- **Valentine Street:** a local road that generally traverses in an east-west direction between George Street in the east and Quay Street in the west. It is subject to a 40km/h speed zoning and carries a single lane of traffic in each direction within a 7.75m wide carriageway. Valentine Street predominantly permits ticketed kerbside parallel parking along the northern side with limited parking spaces



available along the southern side of the street. The eastern end of the street is restricted to one lane with only left turns onto George Street permitted.

The subject site is located within close proximity of George Street, an arterial road servicing the area, allowing traffic to be distributed to the wider network.

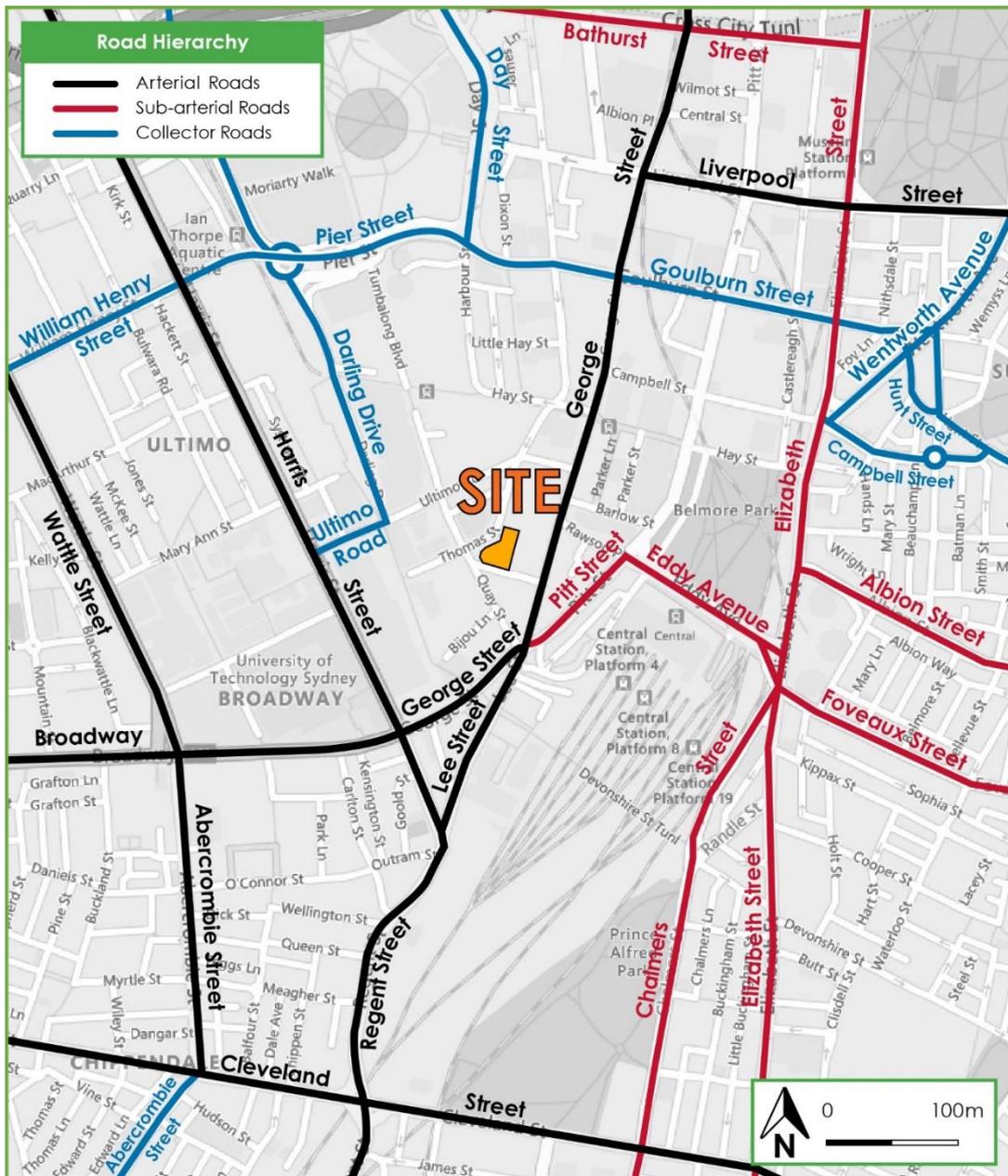


Figure 7: Road Hierarchy



4.2 Existing Parking On-Street/Off-Street

4.2.1 Off-Street Parking

The existing site accommodates a basement carpark which facilitates paid public parking. The carpark operates between the hours 7:00am – 12:00am Monday to Sunday and accommodates 92 parking spaces.

4.2.2 On-Street parking

Thomas Street and Valentine Street provide an opportunity for on-street parking close to the site including timed parking, ticketed parking and time restricted loading zones. Parking adjacent to the site is discussed in detail below:

- Thomas Street:
 - 44.4 metres of time restricted, ticketed parking '2P Ticket 8am-6pm Monday to Friday, 4P Ticket 6pm-10pm and 8am-10pm Saturday to Sunday and Public Holidays'.
 - 24.8 metres of time restricted loading zone and ticketed parking. 'Loading Zone Ticket 6am-6pm Monday to Friday and 6am-10am Saturday, 4P Ticket 6pm-12am Monday to Friday and 10am – 10pm Saturday and 8am-10pm Sunday'.
 - 5.9 metres of time restricted 'P 15 minute' parking.

- Valentine Street:
 - 36.6 metres of time restricted, ticketed parking '1P Ticket 8am-6pm Monday to Friday, 4P Ticket 6pm-10pm and 8am-10pm Saturday to Sunday and Public Holidays'.



4.3 Proposed Changes to Road Conditions

A number of significant changes are proposed in the vicinity of the site to improve pedestrian and cyclist connections with the aim of also improving connectivity between Central Station and Darling Quarter. It is noted that the proposed changes are subject to approval by the RMS. The proposed changes include the following:

- A new shared path along the western side of Quay Street between George Street and Ultimo Road;
- Closure of Quay Street between Thomas Street and Valentine Street to create a new public plaza area with a continuous footpath treatment envisaged for the intersection of Quay Street and Thomas Street; and
- Valentine Street, which allows for two-way flow of traffic under existing conditions is proposed to be converted to a one-way street with traffic flowing in an easterly direction. Additional parking will also be introduced along the southern side of Valentine Street.



5. DESCRIPTION OF PROPOSAL

A detailed description of the changes sought to the City of Sydney Local Environmental Plan 2012 (LEP) is provided in the Planning Proposal, prepared separately. In summary, approval is sought to amend the LEP to allow for an increase in the floor space ratio (FSR) to 9.9:1 (7.5:1 + 1.5:1 accommodation bonus + 10% design excellence bonus).

For the purpose of assessment, an indicative reference scheme for a 49-storey mixed use development has been envisaged, which is representative of the full development potential of the site under the Planning Proposal. It comprises the following components:

Retail Component

- Construction of 219m² GFA retail space.

Commercial Component

- Construction of 40,529m² GFA commercial space, including:
 - 33,100m² GFA of commercial space; and
 - 7,429m² GFA of innovation space.

Hotel Component

- Construction of a 234 room hotel.
- Construction of hotel ancillary areas, including:
 - Pool
 - Bar

Access and Parking

- Modification of an existing access onto Thomas Street.
- Five (5) basement levels providing parking comprising:
 - 79 car parking spaces, including two (2) car share space.
 - Two (2) service bays that can accommodate 8.8m long Medium Rigid Vehicles.
 - Two (2) service bays designated for delivery vans.

The parking and traffic impacts arising from the indicative reference scheme are discussed in **Section 5** and **Section 6** respectively. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix B**.



6. PARKING REQUIREMENTS

6.1 Car Parking

6.1.1 Council Controls

The City of Sydney Local Environmental Plan 2012 specifies parking provisions for the various components of the development based on the land category of the development, as defined in the LEP. The land categories applicable to the site are as follows:

- Category A Land Use and Transport Integration Map
- Category D Public Transport Accessibility Level Map

The maximum car parking provisions for the various components of the development are outlined as follows.

6.1.2 Retail

The City of Sydney LEP specifies parking provisions for retail developments according to the relevant category as shown on the Public Transport Accessibility Level Map. Noting that the site falls under Category D and the floor to space ratio of the retail component is less than 3.5:1, a requirement of 1 parking space per 90m² GFA of the retail component is applicable.

Application of this rate to the 219m² retail GFA results in a maximum parking allowance for two (2) retail spaces.

6.1.3 Commercial

Similarly, the City of Sydney LEP provides maximum parking provisions for office premises and business premises. The site falls under Category D and has floor space ratio greater than 3.5:1. The proposal is comprised of 33,100m² of commercial space and 7,429m² of innovation space which will function similarly to an office space. Accordingly, the maximum parking provision for the commercial components are calculated using the following formula:

$$M = \frac{(G \times A)}{(50 \times T)}$$



Where:

- M = Maximum number of car parking spaces;
- G = 40,529m² GFA (Office/Business premises in the building);
- A = 2,351m² (Site area); and
- T = 51,714m² GFA (Total GFA of all buildings on the site).

Application of the above rate results in a maximum parking allowance for 37 commercial parking spaces.

6.1.4 Hotel

Council's LEP also specifies maximum parking provisions for hotel accommodation. A maximum of 1 space for every 4 bedrooms up to 100 bedrooms and 1 space for every 5 bedrooms more than 100 bedrooms is permitted under these controls.

Application of this rate to the envisages 234 rooms results in a maximum parking allowance for 52 hotel parking spaces.

6.1.5 Overall Parking Provisions

Table 3: Council Parking Rates and Provision

Type	GFA / Rooms	LEP Maximum Car Parking Rate	Permissible Parking ²
Retail			
Ground Floor Retail	219m ²	1 space for every 90m ² GFA	2
Commercial			
Commercial	33,100m ²	$M = \frac{(G \times A)}{(50 \times T)}$	37
Innovation	7,429m ²		
Hotel			
Hotel Rooms	100 rooms	1 space for every 4 bedrooms (up to 100 bedrooms)	52
	134 rooms	1 space for every 5 bedrooms (more than 100 bedrooms)	
Total			91

1 – Yields are indicative and are subject to change at a later DA stage

2- Parking calculations are rounded to the nearest whole number in .



It can be seen from Table 3 that the proposal is permitted to have a maximum car parking provision for 91 spaces. In response, the proposal envisages a total of 79 parking spaces within the basement levels. The proposal to provide parking under the maximum permissible will achieve a sustainable planning outcome and is consistent with local and state government policy. The nature and location of the proposed development suggests that the majority of visitors and workers will either walk or travel via alternative modes of transport to and from the site. This total car parking provision is to be allocated to the various components at a later stage and shall comply with the LEP and DCP requirements.

6.2 Accessible Parking

As the car parking provision has not been designated for each component, the accessible parking spaces will be assessed at a later DA stage. Nevertheless, the accessible parking provision for the development will be assessed in accordance with the City of Sydney DCP Schedule 7, which states one accessible space for 20 car parking spaces or part thereof is to be allocated as accessible visitor parking.

Application of the above rate to 79 car parking spaces requires four (4) accessible visitor spaces.

6.3 Bicycle Parking

The City of Sydney DCP outlines the bicycle parking provision for the various components of the development. These minimum rates are summarised as follows, noting that these areas and proposed bicycle provisions are subject to change at a later DA stage.

6.3.1 Retail

The City of Sydney DCP provides the parking provision for the shop, restaurant or café (retail) component of the development with the following rates:

- 1 space per 250m² GFA (Staff)
- 2 spaces plus 1 space per 100m² over 100m² GFA (Customers)



6.3.2 Commercial

The City of Sydney DCP provides the parking provision for the commercial component of the development with the following rates:

- 1 space per 150m² GFA (Staff)
- 1 space per 400m² GFA (Visitors)

6.3.3 Hotel

The City of Sydney DCP provides the parking provision for the hotel component of the development with the following rates:

- 1 space per 4 staff (Staff)
- 1 space per 20 rooms (Customers)

6.3.4 End of Trip Facilities

The City of Sydney DCP provides the End of Trip (EOT) provision for the non-residential components of the development. However, as the bicycle parking provision has not been designated for each component, the EOT parking spaces will be assessed at a later DA stage. Nevertheless, the EOT facilities for the development will be assessed in accordance with the City of Sydney DCP, which outlines the following recommended EOT rates:

- 1 personal locker for each space
- 1 shower and change cubicle (up to 10 spaces)
- 2 shower and change cubicles (between 11 to 20 spaces)
- 2 additional showers and cubicles (each additional 20 spaces or part thereof)

6.4 Motorcycle Parking

In accordance with the City of Sydney DCP Schedule 7, motorcycle parking is to be provided at the rate of 1 space per 12 car parking spaces. Application of this rate to the proposed total of 79 car parking spaces, results in the requirement for seven (7) motorcycle spaces.



Due to the conceptual nature of a Planning Proposal, the above motorcycle parking requirements will be provided within the basement car park at a later DA stage.

6.5 Car Share

The City of Sydney DCP provides the *minimum* car share parking provision for the various components of the development with the following rates:

- 1 space per 30 car spaces provided (Category D – Commercial and Retail)

Application of the above rates to 79 Category D spaces will require three (3) car share spaces.

6.6 Passenger Pick-Up and Set-Down

6.6.1 Cars/Taxis/Ride-Share

The City of Sydney DCP Schedule 7, outlines the passenger pick-up and set-down provision for the hotel component of the development, being a requirement for two (2) car spaces. In response, the development proposes to utilise the existing 5.9 metres of restricted 'P 15 minute' parking located along the southern side of Thomas Street and the 18.8 metres of 'No Parking' restriction on the southern side of Valentine Street. The use of existing on-street parking restrictions for passenger pick-up and set-down areas is considered acceptable in this circumstance, noting that taxis/car share/ride-share etc. will not have access to the basement car parking levels.

6.6.2 Buses and Coaches

The City of Sydney DCP Schedule 7 also requires hotels to provide coach/bus parking at a rate of 1 bus or coach space per 100 rooms. Application of the above rate to the 234 hotel rooms, results in the requirement for two (2) bus or coach spaces for passenger pick-up and set-down. It is expected that the majority of buses picking up/dropping off hotel guests will be small airport shuttle buses. In response, the development proposes to utilise the various on-street loading zones located in the vicinity of the site. In this regard, NSW Road Rules 2014, Rule 179 states the following regarding stopping in a Loading Zone:

- (1) A driver must not stop in a loading zone unless the driver is driving:



- (a) a public bus that is dropping off, or picking up, passengers, or
- (b) a truck that is dropping off, or picking up, goods, or
- (c) any of the following vehicles:
 - (i) a vehicle that a person is getting into or out of or getting on or off,
 - (ii) a station wagon or a motor bike that has 3 wheels and is constructed principally for the conveyance of good,
 - (iii) a motor vehicle constructed principally for the conveyance of goods (other than a vehicle referred to in subparagraph (ii)).

It is noted that the term "public bus" means coach, which is defined in the Act to mean a motor vehicle that is:

- (a) constructed principally to carry persons, and
- (b) equipped to seat more than 8 adult persons, and
- (c) used to convey passengers for hire or reward or in the course of trade or business.

Under the definition of a "coach", the proposed bus meets all three (3) requirements of the above definition, and as such are permitted to utilise nearby loading zones to drop-off or pick-up passengers (hotel guests). Furthermore, loading zones within proximity of the site are summarised as follows:

- ▶ Thomas Street the southern side of Thomas Street with the following restrictions:
 - 24.8m long 'Loading Zone Ticket 6am-6pm Mon-Fri, 6am-10am Sat'; and
 - '4P Ticket 6pm-12am Mon-Fri, 10am-10pm Sat, 8am-10pm Sun and public holidays.'

The use of the abovementioned 'loading zones' for bus/coach pick-up/set-down spaces is considered appropriate given the expected limited frequency of such services and having regard for the site constraints, whereby use of the valuable ground floor space to accommodate minimal pick-up/set-down facilities would deliver a compromised planning outcome, noting that a typical coach is a minimum 12.0 metres in length. There are also precedents throughout the LGA for this approach for comparable developments.



For larger coaches, it is proposed that coach parking areas are utilised in the following locations:

- Thomas Street 19m long coach parking with a 15-minute limit along the southern side of Ultimo Road between Quay Street and Thomas Street.
- George Street 25m long coach parking with a 15-minute limit along the eastern side of George Street between Rawson Place and Broadway.
- George Street 24m long coach parking with a 15-minute limit along the eastern side of George Street between Valentine Street and Broadway.

6.7 Refuse Collection and Servicing

The City of Sydney DCP Schedule 7, states the following regarding the parking provision for service vehicles within a mixed-use development:

"The total number of service vehicle spaces for mixed-use developments are 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 service vehicle requirement for different components is calculated are outlined below:

6.7.1 Retail

The City of Sydney DCP Schedule 7, states the following minimum rates for the shops and shopping centres:

- 1 space per 350m² GFA, or part thereof, up to 2,000m²; then
- 1 space per 8,000m² GFA thereafter.

Application of the above rates to the proposed 219m² of retail GFA results in the minimum parking requirement for one (1) service vehicle space.



6.7.2 Commercial

The City of Sydney DCP Schedule 7, states the following minimum rates for the co-work space premises:

- 1 space per 3,300m² GFA, or part thereof, for the first 50,000m²; plus
- 1 space per 6,600m², or part thereof, for additional floor area over 50,000m² and under 100,000m²; plus
- 1 space per 13,200m², or part thereof, for additional floor area over 100,000m².

Application of the above rates to the proposed 40,529m² of commercial and innovation GFA results in the minimum parking requirement for 13 service vehicle spaces.

6.7.3 Hotel

The City of Sydney DCP Schedule 7, states the following minimum rates for the hotel component:

- 1 space per 50 hotel bedrooms, or part thereof, up to 100 bedrooms; then
- 1 space per 100 hotel bedrooms; plus
- 1 space per 400m² of reception, lounge, bar and restaurant area GFA, or part thereof, for the first 2,000m²; then
- 1 space per 8000m² of reception, lounge, bar and restaurant area GFA thereafter.

Application of the above rates to the proposed 234 rooms, results in the minimum parking requirement for three (3) service vehicle spaces.

6.7.4 Overall Service Vehicle Parking Provision

In summary, the maximum car parking allowance for the entire development is outlined in **Table 5** below.



Table 5: Service Vehicle Requirements

Use	GFA / Rooms	Service Vehicle Rate	Service Vehicle Parking Requirement
Retail			
Ground Floor Retail	219m ²	1 space for every 350m ² GFA	1
Commercial			
Commercial	33,100m ²	1 space for every 3,300m ² GFA or part thereof, for the first 50,000m ²	13
Innovation	7,429m ²		
Hotel			
Hotel Rooms	100 rooms	1 space for every 50 bedrooms (up to 100 bedrooms)	3
	134 rooms	1 space for every 100 bedrooms (more than 100 bedrooms)	
Total			17

1 – Parking calculations are rounded to the nearest whole number.

The above requirement assumes independent provision for each land use component (a cumulative assessment) and therefore takes no account of a 'managed' approach, with shared loading arrangements subject to a loading dock management plan. It also does not reflect the likely operational requirements of the proposed uses.

The two (2) proposed loading bays, both accommodating 8.8m long medium rigid vehicles (MRV) and two (2) additional delivery van spaces are considered an acceptable provision in the circumstances having regard for the modest nature of the proposed uses and in particular, the ability to formulate a detailed Loading Dock management Plan.

Whilst detailed information regarding the servicing requirements for the proposed hotel, retail and commercial developments are unknown at this stage of the project, the following service frequencies are estimated based on similar mixed-use developments:

- Hotel deliveries – 7 times per week
- Retail/commercial waste – 5 times per week
- Retail/commercial recycling – 3 times per week
- Retail/commercial deliveries – 5 times per week



As can be seen from the above preliminary servicing demands, the proposed loading bay will be utilised up to four (4) times per day.

To further satisfy Council's concerns, a future DA condition of consent could require a Loading Dock Management Plan (LDMP) is invited, requiring approval prior to the release of an occupation certificate, if deemed necessary by Council. The LDMP would outline the requirements of the site in relation of deliveries and servicing activities, anticipated vehicle sizes and frequencies, noting that this detailed information will be available in the later stages of the project, once tenants are acquired. The LDMP could include the following information:

- Details of all delivery and serving activities to be carried out for all uses on-site;
- Details of how waste services will be accommodated to meet service requirements;
- Details of vehicle types required to conduct expected activities;
- Details of the frequency of visits per day and/or week of vehicles accessing the dock; and
- Details of how activities and vehicles will be managed to optimise use of the onsite loading bay and minimise use of public streets for loading, parking or circulation.

In summary, the proposed loading bay is expected to accommodate the servicing requirements of the mixed-use development and should operate satisfactorily. In addition, a LDMP could be prepared to prior to the release of an occupation certificate if required by Council.

6.8 Parking & Traffic Demand Management

6.8.1 Green Travel Plan

Section 3.11.1 of the DCP provides the following threshold above which a non-residential development (outside Green Square) is required to have a site-specific Green Travel Plan prepared:

- 100 vehicles per hour for non-residential development;



With reference to the traffic generation analysis presented in Section 7, it is evident that the peak hour traffic demand forecasts for the development are not sufficient to warrant the preparation of a Green Travel Plan for the proposed development.

6.8.2 Travel Access Guide

Section 3.11.1 of the DCP requires a site-specific Transport Access Guide to be prepared for developments, with the following relevant exceptions:

- Developments having a floor area of less than 1,000m² gross floor area.
- Businesses employing less than 10 staff.

Based on these thresholds, it is expected that a Travel Access Guide will need to be prepared for the proposed development. It is anticipated that this could be in response to a future approval by Council incorporating an appropriate condition of consent prior to issue of an Occupation Certificate.



7. TRAFFIC AND TRANSPORT IMPACTS

7.1 Existing Site Generation

TRAFFIX conducted traffic surveys at the public car park entrance to determine the existing traffic generation of the site. The surveys were conducted on the 10 March 2020 between 8am - 9am and 5pm – 6pm. The surveys demonstrated the following traffic generation:

- 19 vehicles per hour during the AM peak period (16 in, 3 out); and
- 30 vehicles per hour during the PM peak period (7 in, 23 out).

7.2 Potential Development Trip Generation

The impacts of the proposal on the external road network have been assessed having regard for the indicative yield scenarios as summarised in **Section 4** above. This assessment has been undertaken in accordance with the requirements of the RMS Guideline to Traffic Generating Developments (2002) and as such, the traffic generation rates published in the RMS Guide have been adopted for each individual land use. The result of this assessment is summarised below.

7.2.1 Retail

The RMS Guide to Traffic Generating Developments 2002 provides a trip generation rate for retail uses. The ground floor retail space is categorised as Speciality Retail and has a trip generation rate of 4.6 trips per 100m² GFA in the Thursday evening peak.

Due to the site's proximity to an abundance of public transport and walking infrastructure, a 50% reduction factor has been applied to the Thursday peak hour rate which gives a rate of 2.3 trips per 100m² GFA. It is assumed that trip generation in the morning peak hour (associated with staff arrivals) is zero.

Application of the above trip rates to the 219m² GFA of retail space results in the following traffic generation:

- 0 vehicles per hour during the AM peak period (0 in, 0 out); and
- 5 vehicles per hour during the PM peak period (3 in, 2 out).



7.2.2 Commercial

To assess the trip generation of the commercial space in the proposed development, the office rate in the RMS Technical Direction TDT2013/04a for the North Sydney Office (OB1, Appendix D2) has been adopted as the most comparable reference. The following trip generation rates have been adopted:

- AM peak period – 0.38 trips per car space
- PM peak period – 0.32 trips per car space

The above trip generation rates have been adopted for the envisaged scheme with an 80/20 directional split. Application of these rates to the indicative provision of 32 commercial parking spaces results in the following traffic generation:

- 12 vehicles per hour during the AM peak period (10 in, 2 out); and
- 10 vehicles per hour during the PM peak period (2 in, 8 out).

7.2.3 Hotel

The RMSGTGD and TDT 2013/04a does not accurately reflect the anticipated trip generation for hotel developments of this nature. Therefore, in order to undertake an assessment a peak hour trip generation rate of 1 trip per 10 rooms has been adopted based on similar developments within the City of Sydney. This trip generation rate covers vehicle trips, private cars and taxis. Application of the above rate to the proposal for 234 hotel rooms and adopting a 50/50 directional split results in the following traffic generation:

- 23 vehicles per hour during the AM peak period (12 in, 11 out); and
- 23 vehicles per hour during the PM peak period (11 in, 12 out); and

7.2.4 Combined Generation

The combined generation of the retail, commercial and hotel components can be summarised as follows:

- 35 vehicles per hour during the AM peak period (22 in, 13 out); and



- 38 vehicles per hour during the PM peak period (16 in, 22 out); and

7.2.5 Net Trip Generation

The net trip generation with consideration of the existing use of the site can be summarised as follows:

- +16 vehicles per hour during the AM peak period (+6 in, +10 out); and
- +8 vehicles per hour during the PM peak period (+9 in, -1 out).

7.3 Traffic Impacts

As can be seen from the net traffic generation above, the AM and PM peak periods will experience a minor increase in traffic movements, equating to an additional vehicle trip every four (4) minutes during the AM peak period and an additional vehicle trip every eight (8) minutes during the PM peak period. These volumes will be diluted as distance from the site increases and traffic is dispersed onto all available routes. Accordingly, the increases in traffic volumes at the intersections in the vicinity of the site during the AM and PM peaks is minimal and, in any case, within typical fluctuations in background network traffic volumes. In summary, the traffic impacts for the development are considered acceptable and can be readily accommodated by the network with no external improvements considered necessary.



8. ACCESS AND INTERNAL DESIGN ASPECTS

8.1 Site Vehicular Access

The indicative reference scheme proposes a total of 79 parking spaces with access to Thomas Street, a local road. It will therefore require a Category 1 driveway under AS 2890.1 (2004), being a combined entry and exit width of 3.0 to 5.5 metres. In response, a 7.1 metre driveway has been provided for the basement parking, exceeding the minimum requirements of AS 2890.1 (2004).

8.2 Internal Design

The internal car park shall comply with the requirements of AS 2890.1 (2004), AS 2890.2 (2018), AS 2890.3 (2015) and AS 2890.6 (2009), and the following characteristics are noteworthy:

8.2.1 Parking Modules

- All retail car parking spaces (if proposed) are to be designed in accordance with User Class 2, being a minimum width of 2.5m, length of 5.4m and provide a minimum aisle width of 5.8m.
- All commercial (staff) car parking spaces are to be designed in accordance with User Class 1A, being a minimum width of 2.4m, length of 5.4m and provided with a minimum aisle width of 5.8m.
- All hotel car parking spaces are to be designed in accordance with User Class 2, being a minimum width of 2.5m, length of 5.4m and provided with a minimum aisle width of 5.8m.
- All accessible parking spaces are to be designed in accordance with AS 2890.6 (2009), being a minimum width of 2.4m, length of 5.4m and located adjacent a shared zone with the same dimensions.
- All motorcycle spaces are to be designed in accordance with AS 2890.1 (2004), being a minimum width of 1.2m and length of 2.5m.



8.2.2 Vehicle Ramps

- The access ramp is to have a maximum gradient of 1 in 20 (5%) for a minimum of 6.0m inside the property boundary, in accordance with Section 3.3 (a) of AS 2890.1 (2004).
- Ramps accessed by the public (hotels/retail visitors) to have a maximum gradient of 1 in 5 (20%) with sag and summit transitions of maximum 1 in 8 (12.5%), in accordance with AS 2890.1 (2004).
- Ramps accessed by the staff to have a maximum gradient of 1 in 4 (25%) with sag and summit transitions of maximum 1 in 8 (12.5%), in accordance with AS 2890.1 (2004).
- Ramps accessed by service vehicles to be designed in accordance with AS 2890.2 (2018) to facilitate movements of 8.8m long MRVs.
- Curved ramps to provide a minimum inside radius of 4.0m and a minimum outside radius of 11.8m in accordance with AS 2890.1 (2004).

8.2.3 Clear Head Heights

- A minimum clear head height of 2.2m is to be provided for all areas within the basement car park as required by AS 2890.1 (2004).
- A minimum clear head height of 2.5m is to be provided above all accessible spaces and shared areas in accordance with AS 2890.6 (2009).
- Minimum clear head height of 4.5m is to be provided for all trafficable areas for the maximum sized service vehicle (8.8m long MRVs), in accordance with AS 2890.2 (2018).

8.2.4 Service Bays

- Service bay dimensions are to be designed in accordance with AS 2890.2 (2018).
- The maximum gradient for any part of the service bay shall be 1:25 (4%) measured in any direction including directions oblique to the bay centre-line as required by AS 2890.2 (2018).
- Swept path analysis of an 8.8m long MRV entering and exiting the service bays are presented in **Appendix C**.



8.2.5 Other Considerations

- All columns are to be located outside of the parking space design envelope, in accordance with AS 2890.1 (2004), Figure 5.2.
- All spaces located adjacent to obstructions of greater than 150mm in height are to be provided with an additional width of 300mm.
- Dead-end aisles are to be provided with a minimum 1.0m aisle extension in accordance with Figure 2.3 of AS 2890.1 (2004).
- Visual splays are to be provided at the access driveway in accordance with AS 2890.1 (2004), Figure 3.3.
- All bicycle parking spaces are to be designed in accordance with AS 2890.3 (2015).

8.3 Summary

In summary, the internal configuration of the car park is to be designed in accordance with AS 2890.1 (2004), AS 2890.2 (2018), AS 2890.3 (2015) and AS 2890.6 (2009). It is however envisaged that a detailed design is to be assessed for compliance with these standards and as such any minor amendments considered necessary can be dealt with at DA stage.



9. CONCLUSIONS

The following matters are noteworthy:

- Approval is sought to amend the LEP to increase the FSR to a maximum of 9.9:1. A indicative reference scheme for a 49 storey mixed use development is envisaged, containing 219m² GFA of retail space, 40,529m² GFA (including 7,429m² GFA of innovation space), a 234 room hotel and five (5) basement levels of car parking accommodating 79 parking spaces.
 - The subject site is well connected to several forms of sustainable transport with reliable access to regular bus, light rail and train services. In addition to this, the existing pedestrian and cycleways, ensure the site is ideally situated for the proposed commercial and hotel components of the development.
 - The indicative reference scheme provides 79 parking spaces, parking is to be allocated to the different uses at a later stage. However, The City of Sydney LEP stipulates a maximum parking rate with consideration of the proximity of the site to public transport. As such, all normal parking demands will be readily accommodated on-site.
 - The proposed development is envisaged to provide bicycle parking and end of trip facilities in accordance with Council's DCP, subject to site and design constraints and will be accessed further at a later DA stage.
 - The traffic generation arising from the development has been assessed as a net change over existing conditions and results in the following:
 - +16 vehicles per hour during the AM peak period (+6 in, +10 out); and
 - +8 vehicles per hour during the PM peak period (+9 in, -1 out).
- The traffic impacts for the development are considered acceptable and can be readily accommodated by the network with no external improvements considered necessary.
- The basement car park is to be designed to comply with the requirements of AS 2890.1 (2004), AS 2890.2 (2018), AS 2890.3 (2015) and AS 2890.6 (2009), thereby ensuring safe and efficient operation.



- Waste collection for the site and servicing for retail, commercial and hotel uses is to be undertaken onsite via the provision of two (2) 8.8m long MRV spaces within Basement 1. Two (2) additional service van parking spaces are also available within Basement 1.

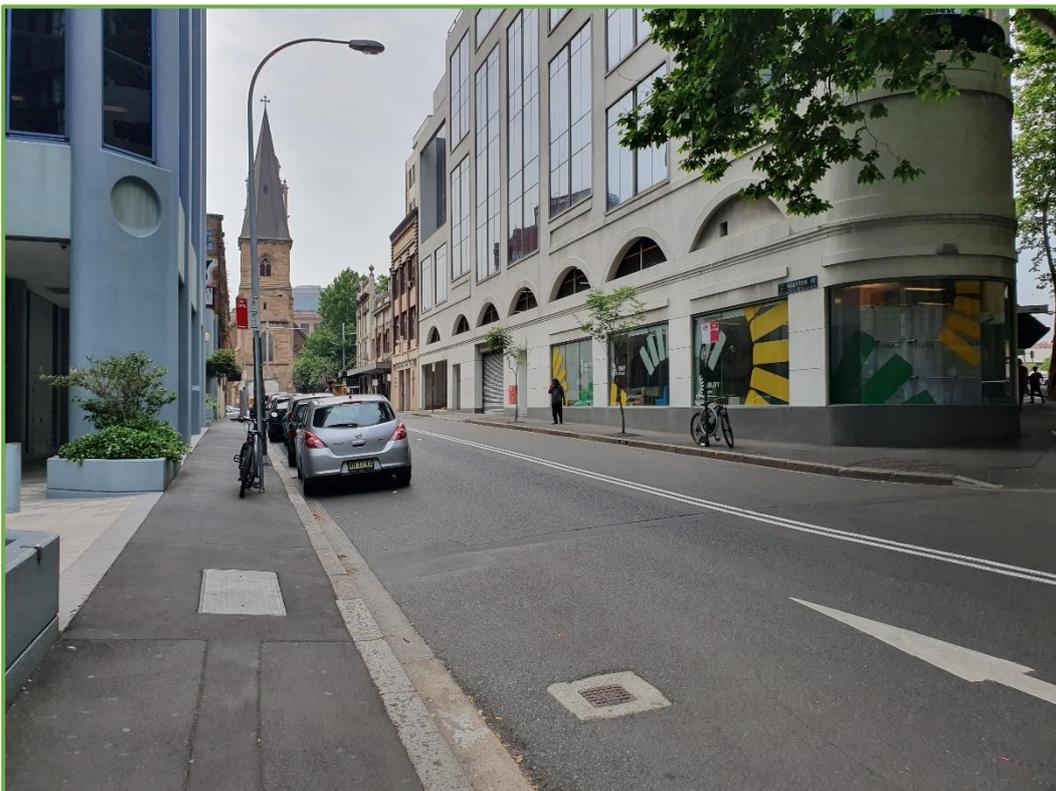
This traffic impact assessment therefore demonstrates that the subject application is supportable on traffic planning grounds. TRAFFIX anticipates an ongoing involvement during the development approval process.

APPENDIX A

Photographic Record



View looking south-east from Quay Street towards subject site



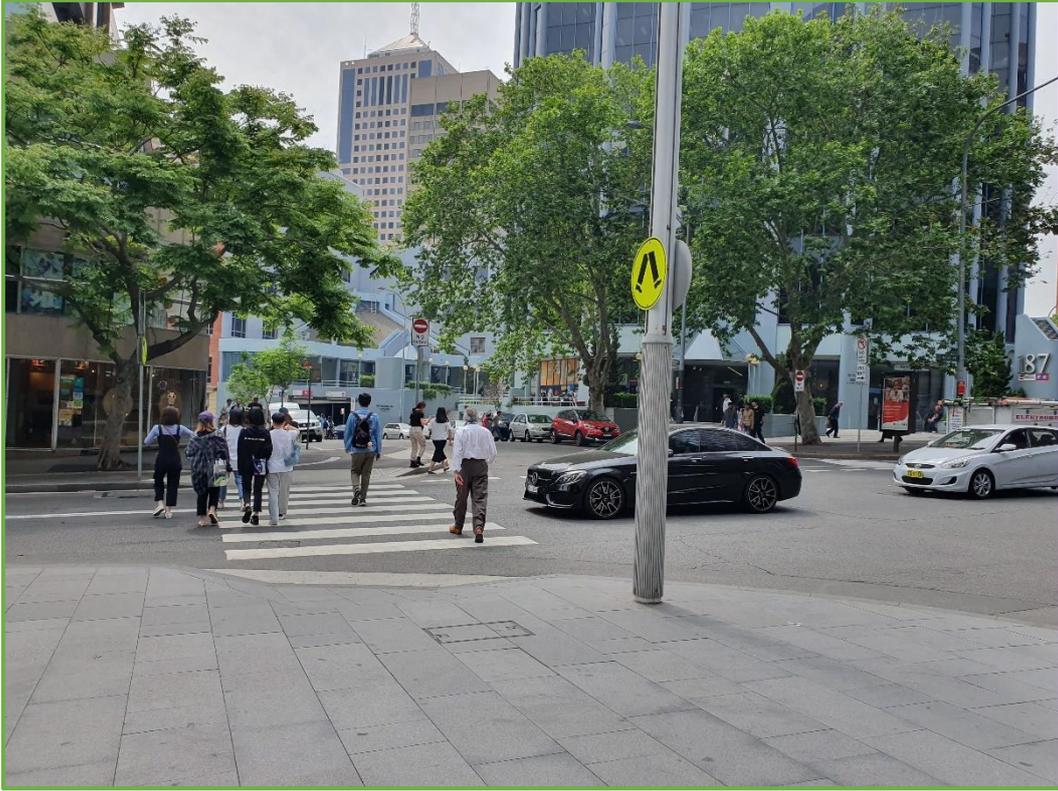
View looking east from intersection of Quay Street and Valentine Street



View looking south-west along Thomas Street



View looking south-west at intersection of Thomas Street and Quay Street



View looking west towards intersection of Thomas Street and Quay Street



View looking east towards pedestrian connection to George Street



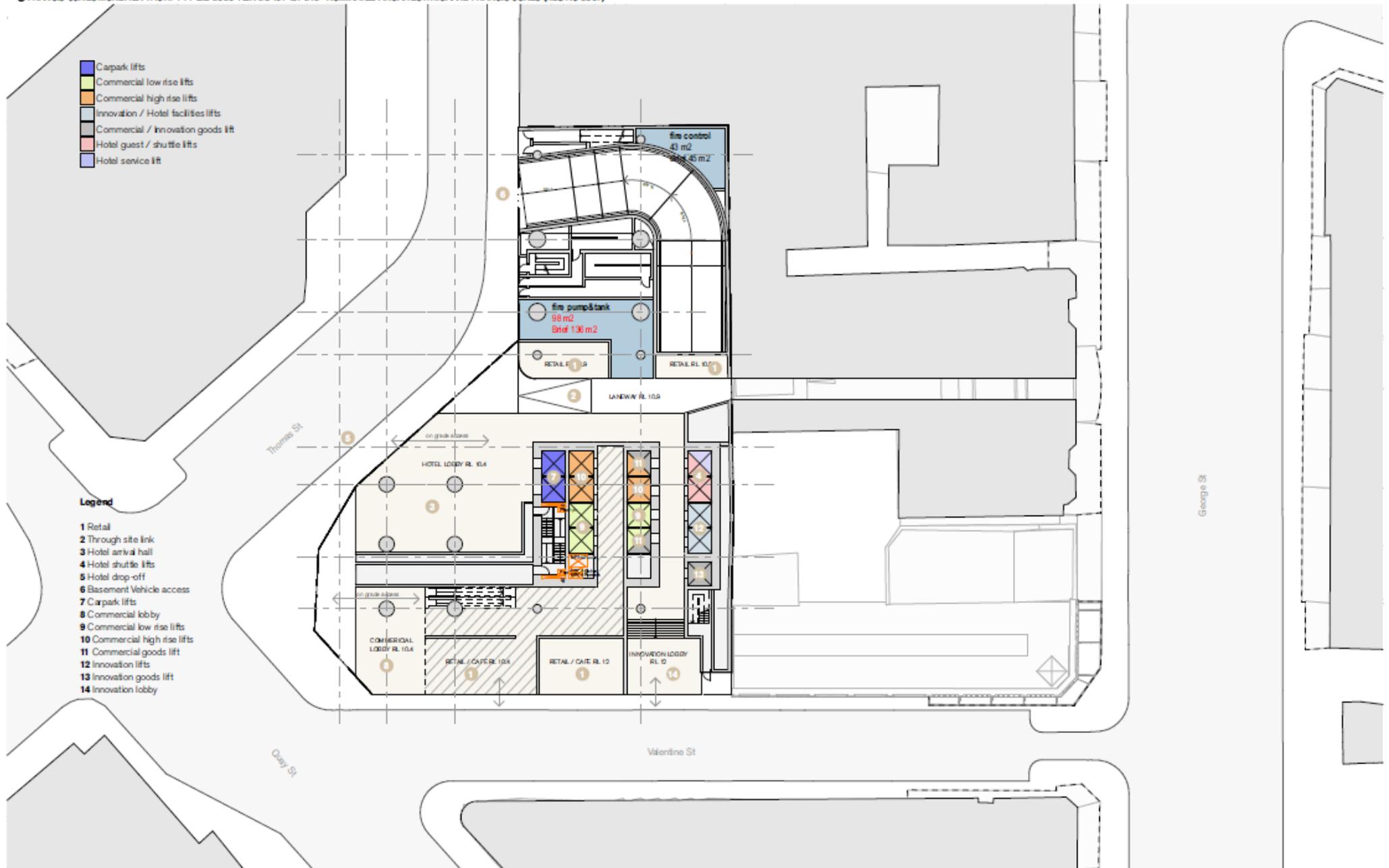
View looking west from pedestrian connection between George Street and Thomas Street



View looking west from subject site towards Thomas Street

APPENDIX B

Reduced Plans



- Carpark lifts
- Commercial low rise lifts
- Commercial high rise lifts
- Innovation / Hotel facilities lifts
- Commercial / Innovation goods lift
- Hotel guest / shuttle lifts
- Hotel service lift



- Legend**
- 1 Vehicle entry from Thomas St
 - 2 Carpark lifts
 - 3 Commercial goods lift
 - 4 Hotel shuttle lifts
 - 5 Loading
 - 6 Innovation goods lift

- Carpark lifts
- Commercial low rise lifts
- Commercial high rise lifts
- Innovation / Hotel facilities lifts
- Commercial / Innovation goods lift
- Hotel guest / shuttle lifts
- Hotel service lift



Carparking Summary

- Basement 1
3 cars (incl. 1 small car space)
- Basement 2
11 cars (incl. 4 small car spaces)
4 motorbike spaces
- Basement 3
11 cars (incl. 4 small car spaces)
4 motorbike spaces
- Basement level 4
27 cars (incl. 7 small car spaces, 2 car share spaces, 1 electric charging station)
- Basement level 5
27 cars (incl. 7 small car spaces)
- TOTAL**
79 cars (incl. 23 small cars, 2 car share spaces, 1 charging station)
14 motorbike spaces

Legend

- 1 Vehicle up ramp
- 2 Vehicle down ramp
- 3 Carpark lifts

Basement 4-5 - Carparking

GREATON - 187 Thomas St



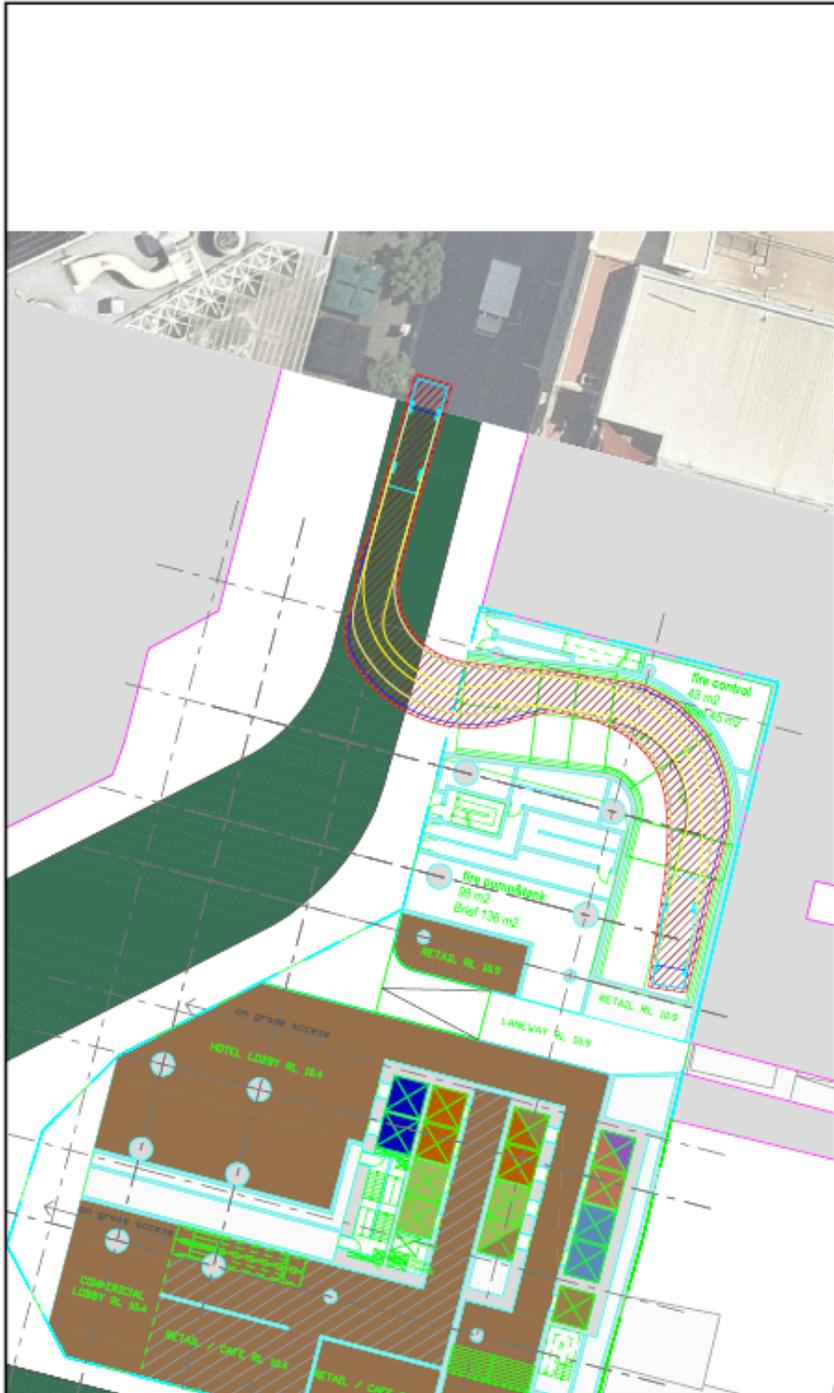
0 4 10 20m

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For Information fjmt-1003

APPENDIX C

Swept Path Analysis



Notes:
 This drawing is prepared for information purposes only. It is not to be used for construction.
 TRAFFIX is responsible for vehicle sweep path diagrams and/or drawing mark-ups only. Base drawing prepared by others.
 Vehicle sweep path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2866 (2006) Parking facilities - off-street car parking, and/or AS/NZS 2200 (2008) Parking facilities - off-street commercial vehicle facilities. These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability / behaviour.

Rev.	Revision Note	By	Date
A	Design Review	SW	12-03-20

Sweep Path Legend
 Wheel Path
 Vehicle Body Envelope
 Clearance Envelope (300mm)

Architect

Client
 Creation Development Pty Ltd
 Suite 3301 Level 3, 52 Martin Place
 Sydney NSW 2000

Scale / Plan Orientation
 0 4 8 12 16m
 1:400 @ A3

Project Description
 187 Thomas Street, Haymarket NSW

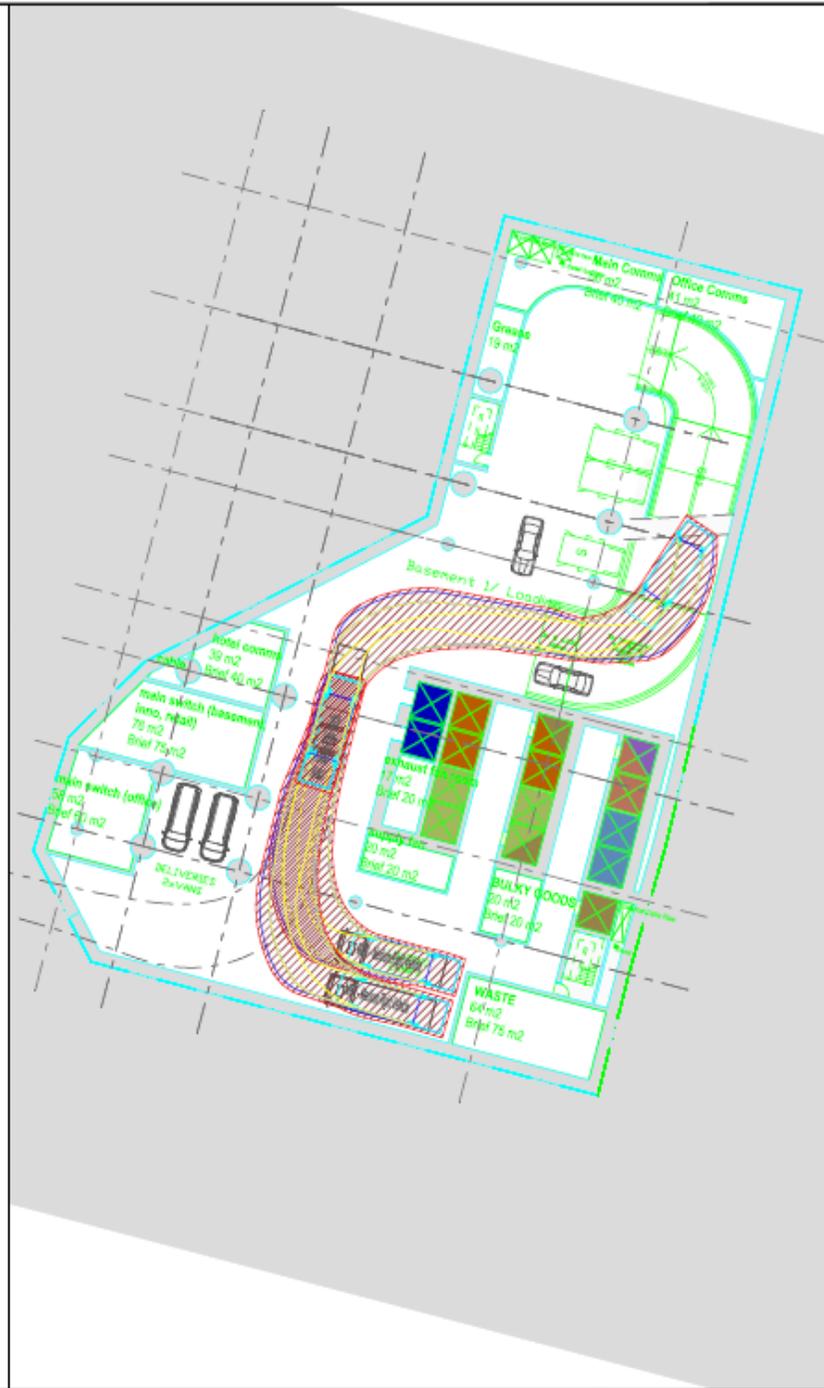
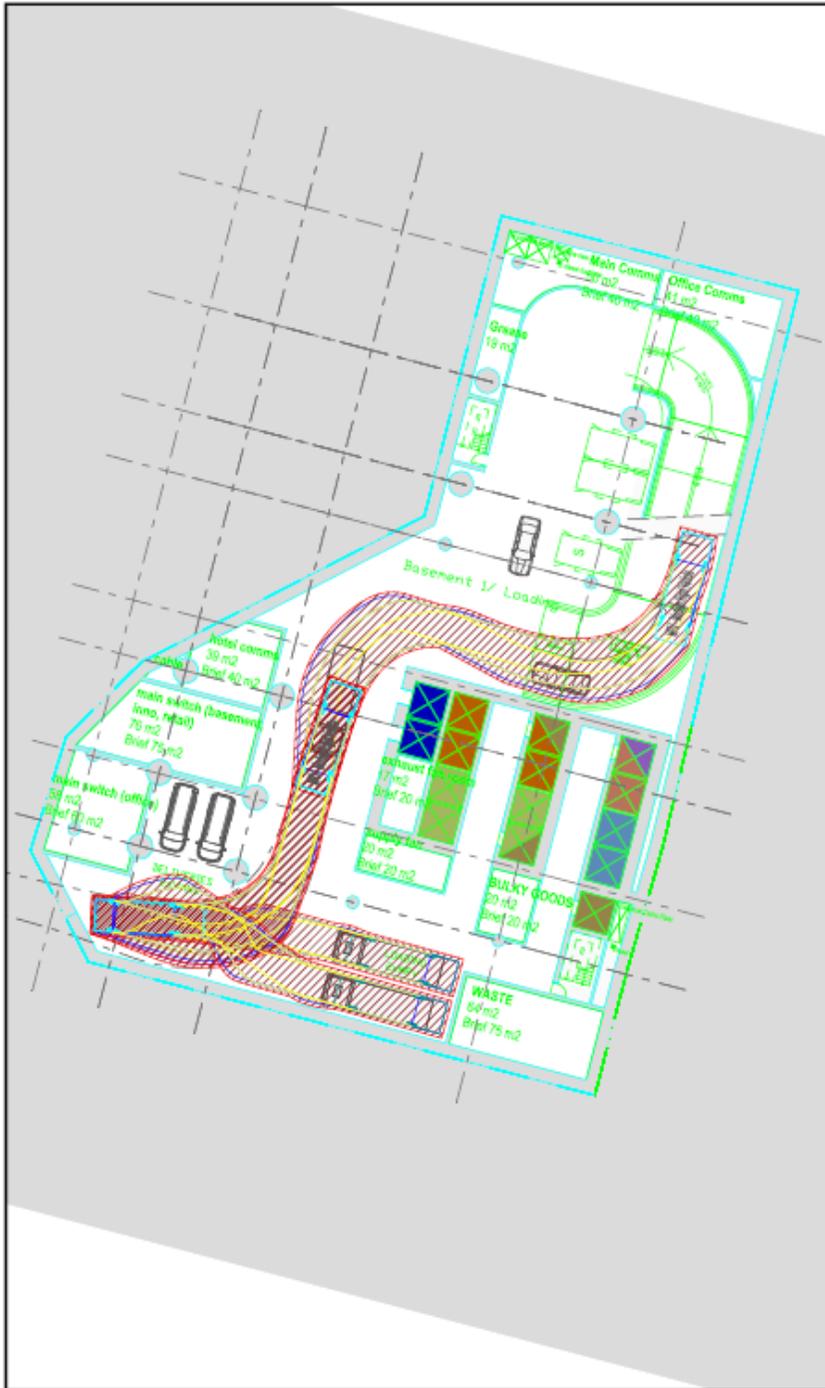
Drawing Prepared By
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Drawing Title
 Sweep Path Analysis
 8.8m Medium Rigid Vehicle
 Ground Floor
 Left: Entry Movement Right: Exit Movement

Drawn:	SW	Checked:	BL	Date:	12-03-20
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18_462.dwg | TRAFFIX (2000) Plans | Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
18.462	PP	TX.01	A



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Rev.	Revision Note	By	Date
A	Design Review	SW	12-03-20

Sweep Path Legend

	Wheel Path
	Vehicle Body Envelope
	Clearance Envelope (300mm)

Architect

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Project Description
 187 Thomas Street, Haymarket NSW

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Drawing Title
 Sweep Path Analysis
 6.8m Medium Rigid Vehicle
 Basement Level 1
 Left: Entry Movement Right: Exit Movement

Drawn: SW	Checked: BL	Date: 12-03-20
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18.4626101 TRAFFIX (part of Plans) Design Review.dwg			
Project No.	Drawing Phase	Drawing No.	Rev.
18.462	PP	TX.02	A