



The Ribbon Mixed Use
Development
31 Wheat Road, Sydney
Transport Impact Assessment

transportation planning, design and delivery

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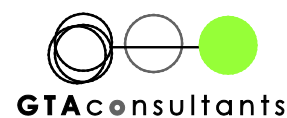
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1. Introduction

1.1 Background

It is understood that a development application (DA) is to be lodged with the Department of Planning for a proposed mixed use development on land located between the Western Distributor elevated roadways and within the Darling Harbour/ Cockle Bay tourist and entertainment precinct in the western fringe of Sydney CBD. The proposed development includes demolition of the existing IMAX building and the construction of a new 20-storey building and a separate two storey building, incorporating a total Gross Floor Area (GFA) of approximately 73,000m² for office, retail, recreation, function purposes and a new IMAX cinema.

GTA Consultants was commissioned by Grocon in May 2012 to address matters raised by the Director General and to undertake a transport impact assessment for the proposed development.

1.2 Purpose of this Report

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

- i existing traffic and parking conditions surrounding the site
- ii suitability of the proposed parking in terms of supply (quantum) and layout
- iii service vehicle requirements
- iv pedestrian and bicycle requirements
- v the traffic generating characteristics of the proposed development
- vi suitability of the proposed access arrangements for the site
- vii the transport impact of the development proposal on the surrounding road network.

This study has also considered the Director General's Requirements (DGR's) for the Environmental Assessment of the proposed development. The DGR's were issued by the NSW Government Department of Planning and Infrastructure for the redevelopment of the IMAX (SSD 5397-2012) on 23 August 2012. Section 6 of the document addresses transport, traffic and car parking, as detailed in Table 1.1.

Table 1.1: Director General's Requirements (DGRs)

DGR Number	Description	Relevant Section
DGR 6.1	Traffic modelling and analysis to identify the daily and peak traffic movements likely to be generated by the proposed development, any impacts on nearby intersections and the need for any upgrading or road improvement works.	Section 8
DGR 6.2	Identify any impacts associated with any proposed road works including closure of internal roads, impacts on existing vehicle access arrangements.	Refer construction traffic management
DGR 6.3	Identify pedestrian and bicycle connections to the site and demonstrate how these provide linkages to public transport networks.	Section 2.5, 5.2
DGR 6.4	Detailed pedestrian modelling to demonstrate that the proposal will achieve improvements in pedestrian flow through the precinct.	Section 6
DGR 6.5	Detail the measures to be implemented to promote sustainable means of transport including public transport usage, pedestrian and bicycle linkages, work place travel plans, bicycle parking and facilities.	Section 5
DGR 6.6	Detail access and parking provision in compliance with the relevant Australian Standards.	Section 4, Appendix B
DGR 6.7	Details of proposed number of car parking spaces and assessment against the maximum car parking provision in draft Sydney Local Environmental Plan 2011.	Section 4
DGR 6.8	Details of how car lifts will operate including queuing calculations and details on where cars will be held. Details of service vehicle movements including vehicle type and likely arrival/ departure times.	Section 8.4
DGR 6.10	Demonstrate that adequate clearance heights are maintained to any staircase networks or pedestrian linkages that are affected by the building.	Refer architectural plans

1.3 References

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

- Several inspections of the site and its surrounds
- City of Sydney Council Local Environment Plan (LEP) 2012
- City of Sydney Council Development Control Plan (DCP) 2012
- Darling Harbour Development Plan No. 1
- Australian Standard, Parking Facilities, Part 1: Off-Street Car Parking AS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2002
- Australian Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS 2890.6:2009
- traffic and pedestrian surveys undertaken by GTA Consultants as referenced in the context of this report
- plans for the proposed development prepared by Hassell, Drawing Number ARC-HSL-DA (whole set), Revision A, dated 23 July 2013
- various technical data as referenced in this report
- other documents and data as referenced in this report.

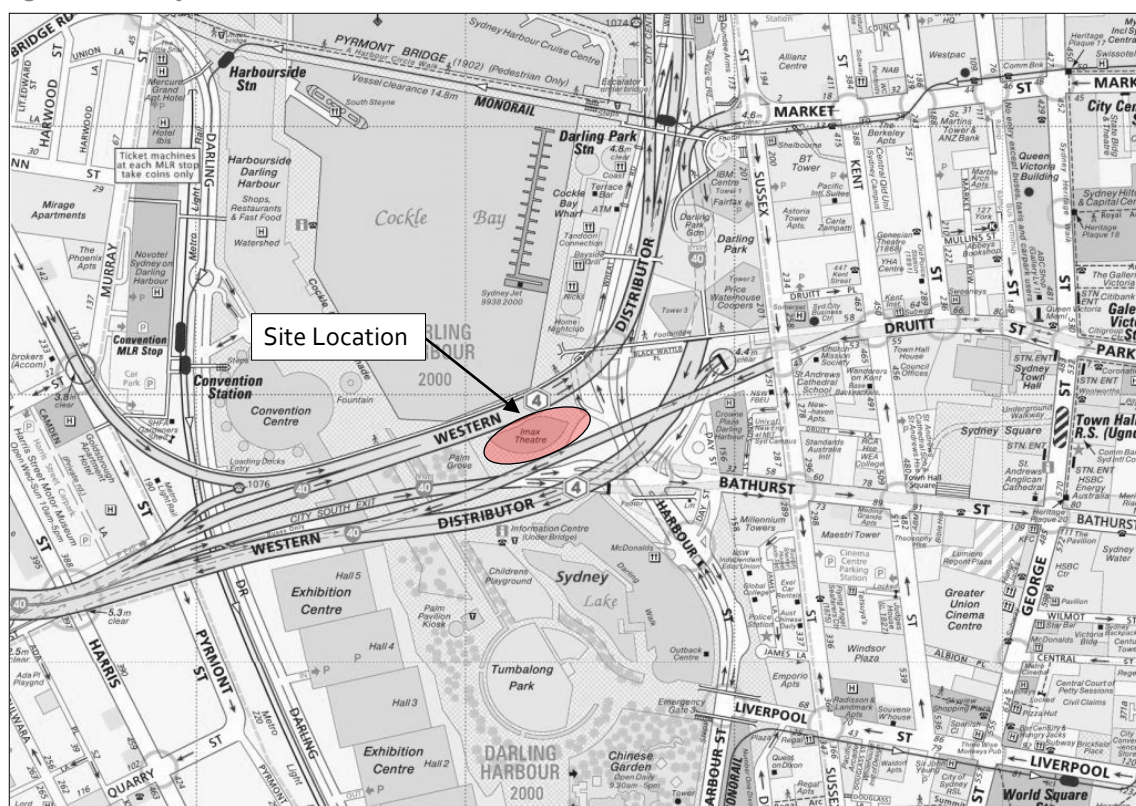
2. Existing Conditions

The subject site is located in a prominent position within Darling Harbour along the western fringe of Sydney CBD. Occupying land between the two Western Distributor elevated roadways, the site of approximately 2,330m² has a frontage primarily north facing to the pedestrian environment of Darling Harbour. The site is under the care and control of the Sydney Harbour Foreshore Authority (SHFA) and is occupied by the IMAX Cinema, function centre and associated restaurants/ cafes.

The surrounding properties predominantly include commercial, tourism and retail uses.

The location of the subject site and its surrounding environs is shown in Figure 2.1.

Figure 2.1: Subject Site and its Environs



Basemap source: Reproduced with permission from Sydway Publishing Pty Ltd

2.1 Road Network

2.1.1 Adjoining Roads

Harbour Street

Harbour Street is classified as a State Road and is aligned in a north-south direction east of the site. It is a two-way divided road configured with 2-3 lanes in each direction and set within a 55 metre wide road reserve (approx). Harbour Street is a key road in the area and links Chinatown/ CBD western fringe and Ultimo directly with Cockle Bay/ King Street Wharf, Barangaroo (under construction) and further to the Sydney Harbour Bridge. Additional lanes are provided at most intersections, particularly where Harbour Street intersects with the Western Distributor off-ramp (eastbound), Bathurst Street and Cross City Tunnel (westbound).

Kerbside parking is not permitted at any time along Harbour Street in the vicinity of the site.

Harbour Street is shown in Figure 2.2 and Figure 2.3 and carries approximately 19,000 vehicles per day¹.

Wheat Road

Wheat Road is classified as a local road and in the vicinity of the site is aligned in a north-south direction. It is a one-way northbound road configured with a one-lane, 5 metre wide carriageway, set within a 10 metre wide road reserve (approx). Wheat Road runs off Harbour Street adjacent to the site and primarily provides access to taxi, bus and loading facilities located adjacent to the site and north of the site, at the rear of the commercial/ retail properties fronting Cockle Bay.

Kerbside parking is permitted, mostly for buses, taxis and for loading purposes along Wheat Road in the vicinity of the site. A limited amount of time restricted parking is also provided north of the site.

Wheat Road is shown in Figure 2.4 and Figure 2.5 and carries approximately 1,000 vehicles per day, north of the site¹.

Wheat Road also provides access to the loading docks and staff parking areas located immediately south of the site.

Figure 2.2: Harbour Street (looking south)



Figure 2.3: Harbour Street and Wheat Road (looking north)



Figure 2.4: Wheat Road (looking north)



Figure 2.5: Wheat Road (looking south)



¹ Based on the peak hour traffic counts undertaken by GTA in May 2012 and assuming a peak-to-daily ratio of 8% for arterial roads and 10% for local roads.

Figure 2.6: Wheat Road Taxi/Bus Area (looking south)



Figure 2.7: Harbour Street/ Wheat Road Intersection



2.1.2 Surrounding Intersections

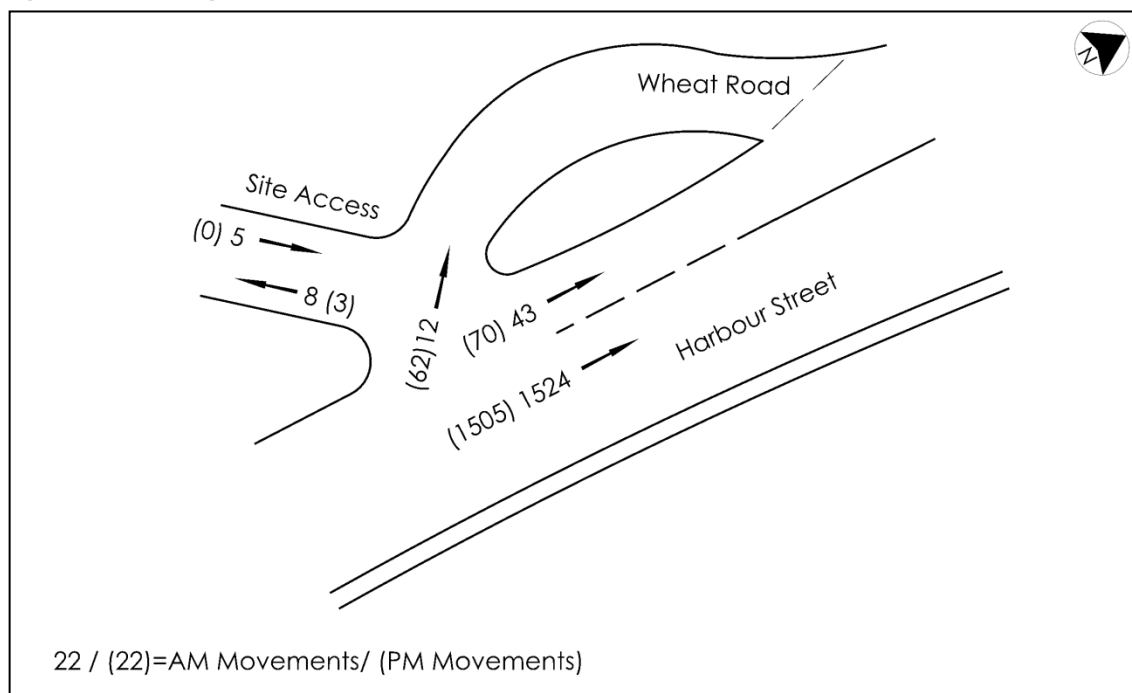
Harbour Street intersects with Wheat Road at two locations in the vicinity of the site. Both are priority controlled and with movements limited to entry access to Wheat Road from Harbour Street. There is no opportunity to exit Wheat Road to gain direct access to Harbour Street, with the available route via Wheat Road to the north, then using Shelley Street and Erskine Street to filter into the arterial/ CBD road network. The southern Harbour Street intersection is located adjacent to the site and the other is located 60m to the north.

Harbour Street intersects with the Western Distributor off-ramp (eastbound), Bathurst Street and Cross City Tunnel (westbound) where the off-ramps provide exits to an at-grade signalised intersection immediately south of the site.

2.2 Traffic Volumes

GTA Consultants undertook traffic movement counts on key roads in the immediate vicinity of the site on the 9th May 2012 during the weekday AM (7:30am and 9:30am) and PM (4:30pm and 6:30pm) peak periods. The peak hour traffic volumes are summarised in Figure 2.8 with full results contained in Appendix A.

Figure 2.8: Existing AM / PM Peak Hour Traffic Volumes



The traffic surveys also identified various transport modes to/ from the local area as detailed in Table 2.1 and Table 2.2.

Table 2.1: AM Peak Hour Local Traffic Summary

Movement	Car	Taxi	Truck	Bus	Total
Site entry	3	0	2	0	5
Site exit	7	0	1	0	8
Wheat Road entry	5	3	2	2	12
Total Movements	15 (60%)	3 (12%)	5 (20%)	2 (8%)	25

Table 2.2: PM Peak Hour Local Traffic Summary

Movement	Car	Taxi	Truck	Bus	Total
Site entry	0	0	0	0	0
Site exit	3	0	0	0	3
Wheat Road entry	4	53	0	5	62
Total Movements	7 (11%)	53 (82%)	0 (0%)	5 (7%)	65

Harbour Street generally carries more than 1,500 northbound vehicles through the local area while Wheat Road provides access to the area immediately east of the site for more than 60 vehicles during the PM peak period. These are mostly made up of taxis picking up or dropping off passengers. Approximately 60 and 130 vehicles use Wheat Road north of the site during the AM and PM peak periods respectively with up to 15 being private cars (during the AM peak). The on-site loading docks and staff parking area generate less than 10 vehicles per hour during any peak hour.

2.3 Car Parking

The existing site does not provide any public car parking spaces however there is currently 5-6 reserved car spaces for building tenants/ staff within the loading dock area located at the rear (south) of the building with access provided via Wheat Road.

A review of publicly available car parks within in close proximity of the site (500 metre radius) indicates a large number of public car parking spaces as outlined in Table 2.3.

Table 2.3: Public Car Parks

Public Car Park	Location	Distance from site	Parking Incentives and discounts
Darling Quarter	1-11 Harbour Street, Sydney	150m	Discounted Weekend Discounted Night Early bird (Mon-Fri)
Entertainment Car Park	Darling Drive, Haymarket	500m	Early bird (Mon-Fri) Student discounts 'Park and Save'
Exhibition Centre Car Park	Darling Drive, Darling Harbour	300m	-
Harbourside Car Park	100 Murray Street, Pyrmont	400m	Early bird (Mon-Fri) Student discounts 'Park and Save'
Market Street	2 Market Street, Darling Harbour	350m	Discounted Weekend Discounted Night Early bird (Mon-Fri)
Sussex Street	234 Sussex Street, Sydney	250m	Early bird (Mon-Fri)
Dixon Street	1 Dixon Street, Darling Harbour	400m	Discounted Weekend Discounted Night Early bird (Mon-Fri)
Darling Park	201 Sussex Street, Sydney	250m	
Citi Park	204 Sussex Street, Sydney	300m	

Early bird discounts provided by the majority of the identified car parks as outlined in Table 2.3 and primarily involve incentive programs aimed at staff of surrounding commercial buildings. The offer includes a discounted parking rate for entry between 6:00am and 9:30am and exit between 3:30pm and 7:00pm Monday to Friday. Weekend discounts are also aimed to capture the weekend visitor of the Darling Harbour retail and entertainment precincts.

In addition, the Entertainment Car Park and Harbourside Car Park offer a 'park and save' incentive program for IMAX patrons and other recreational precincts within Darling Harbour.

2.4 Public Transport

Given the location of the site within the western fringe of the CBD and the Darling Harbour tourist precinct, the area is well serviced by public transport services. A review of the public transport available in the vicinity of the site is summarised in Table 2.4.

Table 2.4: Public Transport Provision

Service	Route #	Route Description	Location of Stop	Distance to Nearest Stop	Frequency On/Off peak
Bus	500	City to Ryde	Druitt Street	250m	15 min peak only
	504	City to Chiswick			10 min peak/ 30 min off peak
	506, 507,518	City to Macquarie University			
	515	City to Eastwood			30 min all day
	520, M52	City to Parramatta			40 min off peak only
	M50	Coogee to Drummoyne			10 min peak/ 15 min off peak
Light Rail	Zone 1, 2	Central to Lilyfield	Convention Centre	750m	Every 5 minutes
Train	n/a	Multiple City Rail Lines	Town Hall Station	400m	Regular Services

It is also worth noting that in addition to the bus services detailed in Table 2.4, approximately 60 bus routes are provided in the vicinity of QVB and George Street, located approximately 500m east of the site.

2.5 Pedestrian Infrastructure

The surrounding area experiences high levels of pedestrian activity as a result of the surrounding commercial/ retail and tourist land uses including the site's existing uses, most notably the IMAX cinemas and associated function facilities. As such, the area surrounding the site has well established pedestrian facilities as detailed below:

- Pedestrian Overpass – 5m wide path located 50m north of site, providing access to Town Hall Station, as shown in Figure 2.10.
- Harbour Street – 5m wide path located 10m south of site (and adjacent to the site), as shown in Figure 2.11.
- Pedestrian Overpass – 10m wide path located 150m north of site, linking Darling Harbour (via the 'Spanish steps') with the CBD, as shown in Figure 2.12.
- Bathurst Street Pedestrian Bridge, as shown in Figure 2.13.
- At-grade pedestrian crossings on the western and southern approaches to the Harbour Street/ Bathurst Street signalised intersection.
- Pyrmont Pedestrian Bridge – 15m wide bridge located 300m north of site, linking Darling Harbour and Pyrmont with the CBD.
- Darling Harbour Walk – located 500m north of site providing access to the CBD.

Figure 2.9: Pedestrian Desire Lines

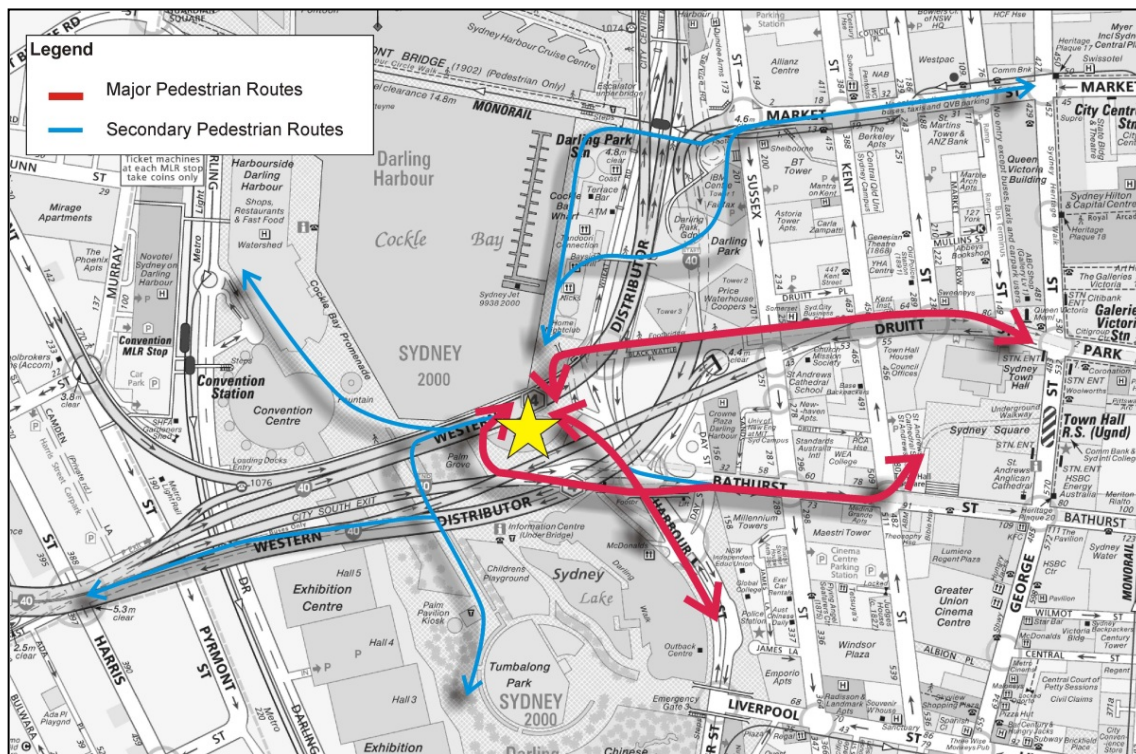


Figure 2.10: Pedestrian Overpass (looking west)



Figure 2.11: Harbour Street Path (looking south)



Figure 2.12: Harbour Street Pedestrian Overpass (looking north)



Figure 2.13: Bathurst Street Pedestrian Bridge (looking east)

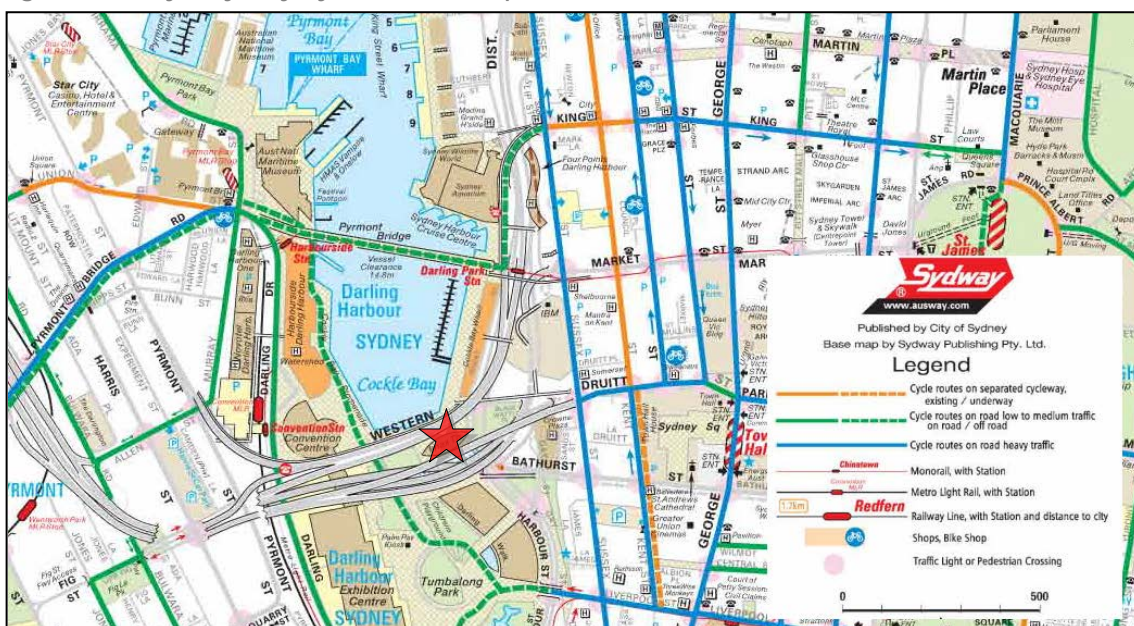


2.6 Cycle Infrastructure

The site is located within close proximity to both on- and off-road cycling facilities as indicated in an extract from the City of Sydney's cycle network map (Figure 2.14). An off-road shared path travels north-south through Darling Harbour connecting Pyrmont Bridge Road in the north-west with the Union Street separated cycleway and Liverpool Street. This route travels within approximately 100m of the site and provides access to the broader cycling network, including via Pyrmont Bridge Road and Kent Street north of the site and Darling Road south-west of the site.

It is also noted that end-of-trip facilities in the form of bike racks, providing capacity for six bikes are provided within the pedestrian areas along the frontage of the site.

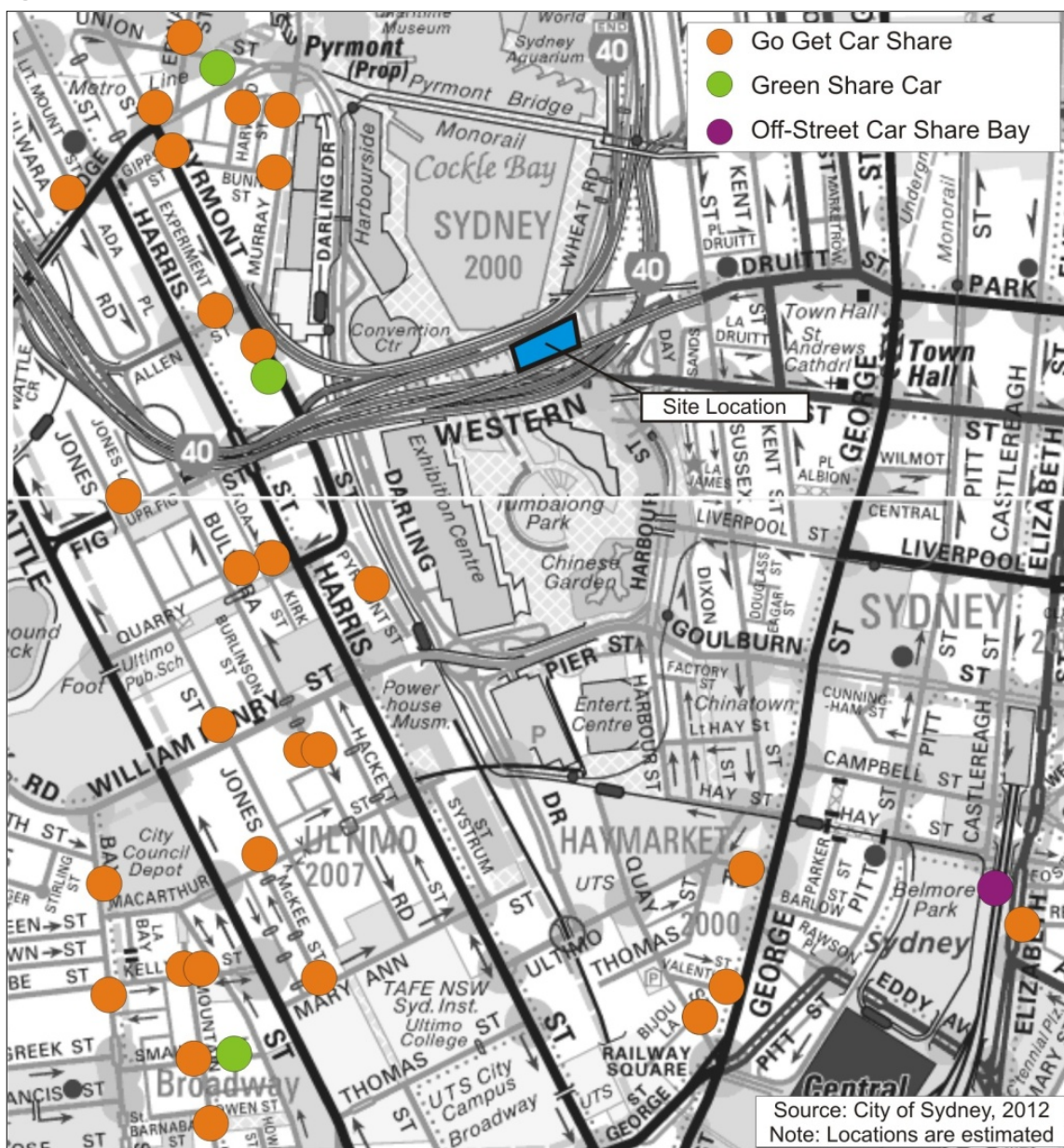
Figure 2.14: City of Sydney Cycle Network Map



2.7 Car Share

Multiple car sharing pods are located in the vicinity of the site as detailed in Figure 2.15.

Figure 2.15: Car Share Locations



3. Development Proposal

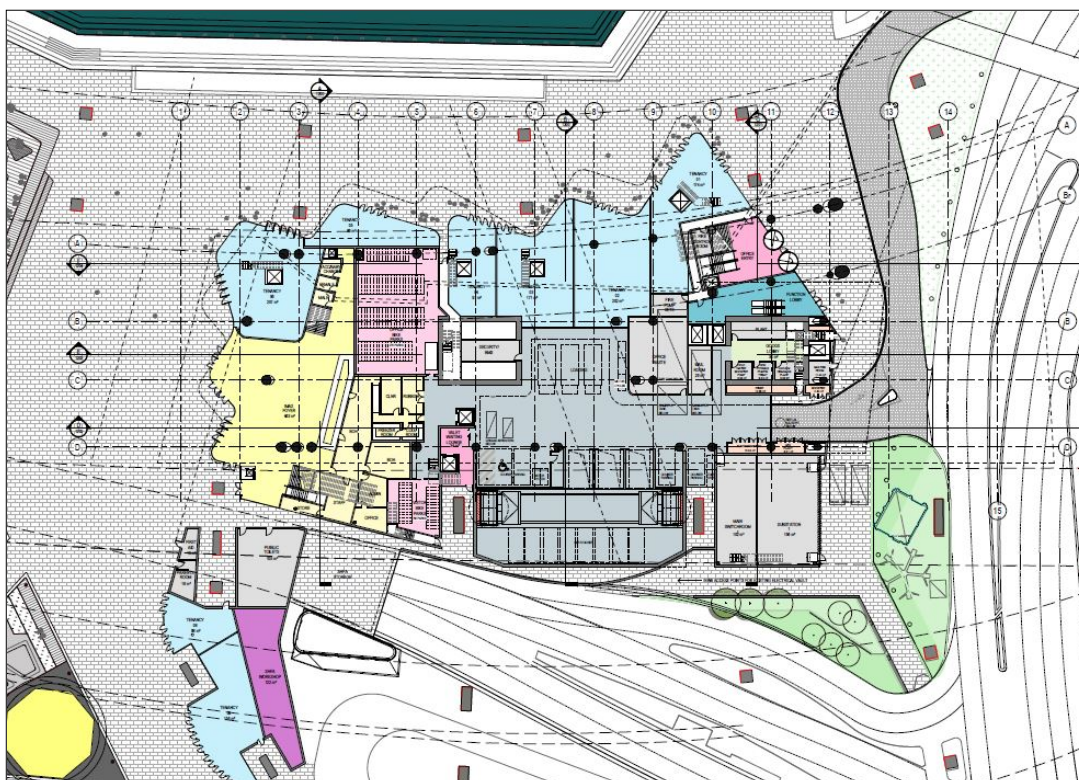
3.1 Land Uses

The proposal includes the construction of a commercial tower over an expanded footprint of 5,060m² comprising 19 levels with 4 levels of retail/ mixed use space, 15 levels of commercial office space and associated parking for 94 vehicles (plus 5 motorbikes) within the ground floor loading area and car stacker facility. This comprises 86 car stacker spaces, 3 loading bays, 5 courier bays (including 1 disabled space) and 5 motorbikes. The existing IMAX cinema complex will also be redeveloped for incorporation into the western portion and cover the lower levels of the development. Upgrades to the surrounding public domain including new playground area are also proposed. The building uses are summarised in Table 3.1 with a development site plan illustrated in Figure 3.1. The total development covers approximately 74,900m² GFA.

Table 3.1: Development Schedule

Use	Size (NLA)
Commercial	41,900m ²
Retail	2,225m ²
Function	1,485m ²
Gym	1,780m ²
Retail Office	1,415m ²
Cinema	1,815m ²
SHFA Commercial	560m ²
Total	51,180m²

Figure 3.1: Proposed Development



Source: Hassell

3.2 Vehicle Access

A single 6 metre (approximately) wide two-way east-west site access driveway will link the on-site ground level loading facilities and car stacker with Wheat Road. This site access driveway has been designed to accommodate access by vehicles up to 8.8m medium rigid vehicles and allows for two vehicles to pass.

The existing bus zone (including tourist coach set-down) and a 5 minute parking space/ set-down/ pick-up space will be provided within Wheat Road adjacent to the site.

3.3 Car Parking

The proposed development will provide a total of 86 car parking spaces within a car stacker facility, accessed via the at-grade site access driveway via Wheat Road/ Harbour Street. The car stacker will be spread over a significantly smaller area than that required for a typical car park and includes five levels (some with reduced height clearances) with access proposed via the use of three transfer cabins to reduce the incidence of queuing on entry to the site, particularly during the AM peak period.

The suitability of the car parking provision and layout is discussed in Section 4 of this report.

3.4 Pedestrian Facilities

Pedestrian access to the development is proposed via several locations detailed as follows:

- Commercial offices – access via the eastern end of the building by way of two revolving doors to a ground level foyer with direct access to a level one commercial lobby/ podium provided via escalators/ stairs and a single lift.
- Function areas – access via the eastern end (south of the commercial access) via doors adjacent to Wheat Road to stairs and lifts with direct access to level 2.
- Cinema complex – access via the western end to a lobby located on ground level.
- Retail tenancies – accesses located along the northern frontage of the building, within the pedestrian precinct of Darling Harbour.

Tenants using the car stacker facilities are able to use the valet lift within the valet waiting lounge for direct access to the level 1 commercial lobby/ podium. The ground level loading areas are also linked to the upper levels via a goods lobby located within the eastern lift core and another adjacent to the valet waiting area for use by the lower levels.

The suitability of the proposed pedestrian facilities is discussed in Section 5 of this report.

3.5 Bicycle Facilities

The development plans show parking for approximately 330 bicycles located in two separate areas adjacent to the IMAX cinema and comprise 276 spaces for use by office tenants and 56 spaces for use by visitors. Access to both areas is provided via the loading area and the Wheat Road shared area adjacent to the eastern boundary of the site.

Additional bike parking facilities will be incorporated into the design external to the building and located within a safe and visible area, in close proximity to the main office entry/ function lobby and the cinema foyer, and available for use by visitors/ tourists.

The proposed development plans also show the provision of 26 showers divided into two change rooms (male/ female) and provision for approximately 145 lockers. These are located on the level 1 commercial lobby and lounge.

The suitability of the bicycle provisions is discussed in Section 5 of this report.

3.6 Loading Areas

A loading area is proposed within the ground level and has been designed to service both the commercial and retail loading requirements of the building.

There are three loading spaces proposed and all are capable of accommodating vehicles up to 8.8m medium rigid vehicles. The garbage storage areas are located adjacent to the loading area.

There are also four courier bays (including one combined courier/ disabled space) and five motorcycle parking spaces proposed within the loading area and one short-term (5 minute) parking space within Wheat Road, north of the bus set-down/ pick-up area.

The suitability of the proposed loading arrangements is discussed in Section 6 of this report.

3.7 Building Clearances

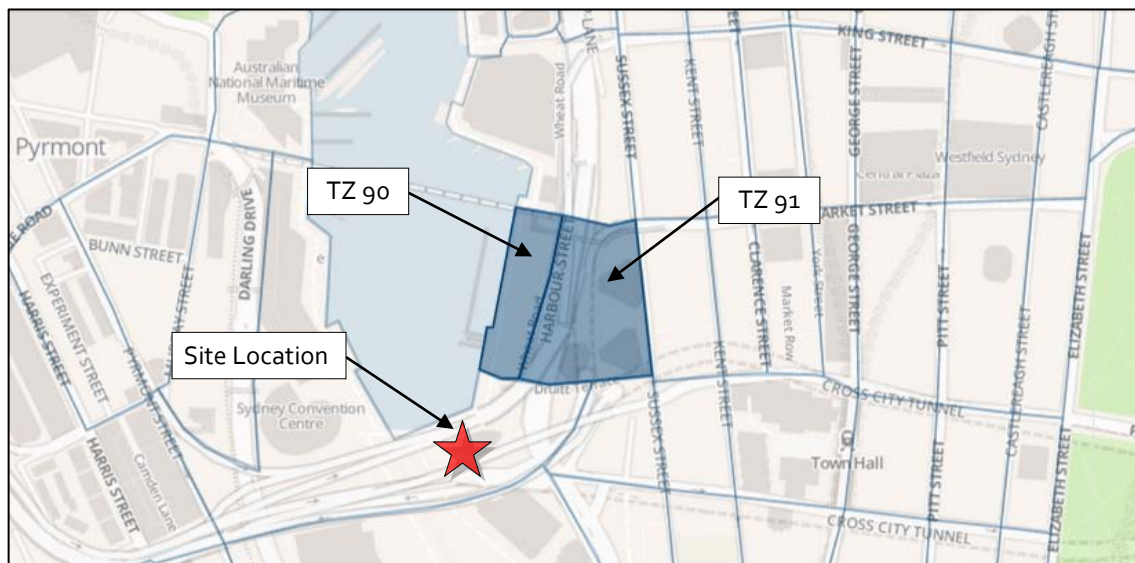
The development plans show a minimum clearance of 1.5m between the building structure and the Western Distributor elevated roadways and is in accordance with the minimum Roads and Maritime Services (RMS) requirements for set-backs to allow maintenance to each.

3.8 Journey to Work Data

Given the CBD location, an alternative way to determine the travel mode choice is assessing Census Journey to Work (JTW) data. The existing mode share distribution of traffic within the surrounding road network can be found by referencing the 2011 Census JTW data (Bureau of Transport Statistics, 2013). JTW data provides information relating to the origin and destination of journeys to work and includes mode of travel.

The smallest geographical area for which JTW data is available is a Travel Zone (TZ). JTW data was analysed for the principal employment areas adjacent to the subject site (TZ 90 and 91) to understand the current mode share distribution for trips to work. The area analysed was bounded by Sussex Street, Darling Harbour, CCT and Market Street as illustrated in Figure 3.2.

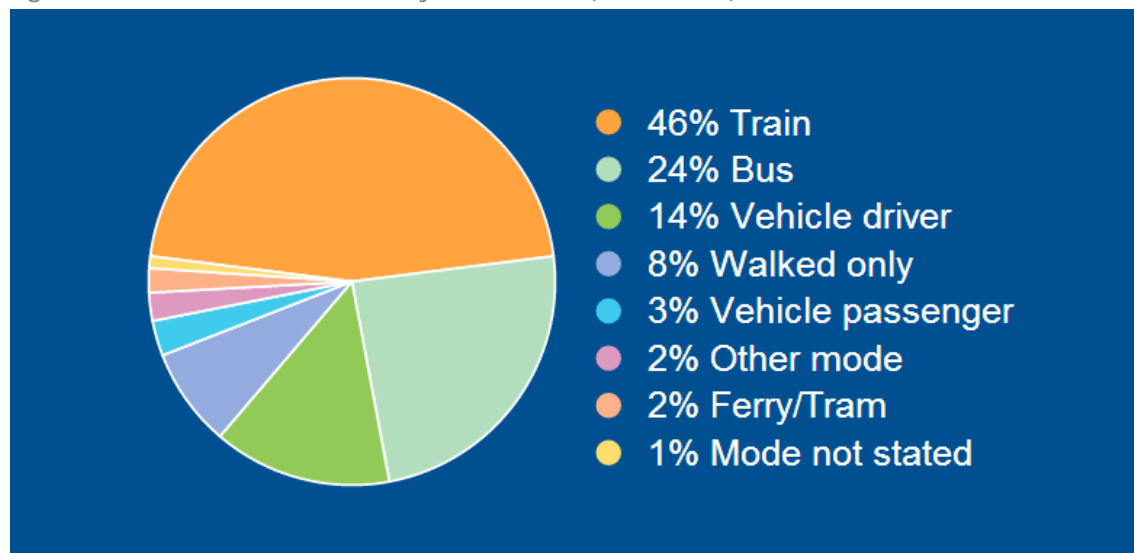
Figure 3.2: Travel Zones Analysed



Source: <http://visual.bts.nsw.gov.au/jtwbasic/#90.91>

GTA Consultants undertook analysis of all trips to work made to TZ 90 and 91, the results of which are summarised in Figure 3.3. Of the 8,426 people employed in these two Travel Zones was found that 70% of all journey to work trips were made using public transport (train, bus) with 14% by car (as driver) and 3% by car (as passenger).

Figure 3.3: 2011 Census Data Journey to Work Data (TZ 90 and 91)



Source: <http://visual.bts.nsw.gov.au/jtwbasic/#90.91>

4. Car Parking

4.1 Car Parking Requirements

The proposed development is to be located on land within Darling Harbour and is therefore under the management and control of the Sydney Harbour Foreshore Authority (SHFA) and bounds the City of Sydney. Given the site's proximity and DGR 6.7, GTA Consultants has referenced the City of Sydney's Local Environment Plan (LEP) 2012 for the on-site car parking requirements. It is noted that DGR 6.7 refers to the draft LEP 2011 which has now been superseded by LEP 2012 with no subsequent change to parking provision.

The LEP car parking provision provides the following calculation for the maximum number of car parking spaces based on the GFA of the proposed development:

$$M = (G \times A) \div (50 \times T)$$

Where:

- A = site area (building footprint)
- G = GFA of specific land-uses
- T = total GFA of all on-site buildings.

A review of the car parking requirement rates and the floor area schedule results in an LEP car parking requirement for the proposed development as summarised in Table 4.1.

Table 4.1: City of Sydney LEP 2012 Car Parking Requirements

Description	Size (GFA)	Parking Rate	Maximum Parking Requirement
Commercial (excl. SHFA)	63,194m ²	$M = (G \times A) \div (50 \times T)$	77 spaces
Other Uses	10,969m ²		13 spaces
Total	74,869m ²		90 spaces

4.2 Similar Sites

The Darling Walk site (Commonwealth Bank Place) is a recent development located 50m-100m south of the proposed development. Darling Walk was approved providing 200 car parking spaces for both commercial and retail tenants and an additional 600 public car parking spaces.

The tenant parking requirements were calculated using the City of Sydney's LEP 2005 which stated that 1 space was to be provided per 50m² of site area. The site area is 38,000m² and therefore the car parking requirement equated to 760 car parks. The provided car parking supply of 800 spaces complied with Council's car parking requirements, noting that the majority of these were provided as publicly accessible car spaces and subject to charges, including for on-site staff, as required.

4.3 Adequacy of Parking Supply

The development proposes a total of 86 car parking spaces (within the car stacker) intended for use by the commercial tenancy with no allocation of parking for the retail space, function area or cinema. This

provision is less than Council's maximum car parking requirement of 90 spaces and is therefore appropriate for a development in this location.

It should be noted that the combined courier/ disabled space, located outside the car stacker will accommodate disabled person access. The car stacker is also able to act as accessible parking given the adequate clearances (width and height) within the transfer bays and specific spaces within the stacker facility. The proposed supplier, Wohr has accommodated such requirements in other facilities and has also provided feedback supporting this approach.

4.4 Car Parking Layout Review

Given that the car park is proposed to be a car stacker arrangement, the typical assessment against the requirements of the Australian Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009) is not entirely appropriate. That said the site access driveway and associated transfer cabins, together with on-site queuing capacity and analysis are referenced to ensure appropriate design. This assessment included a review of the following:

- transfer cabin dimensions and accessibility
- adjacent structures
- turnaround facilities
- access driveway
- height clearances
- on-site queuing, specifically the car stacker assessment
- set-down/ pick-up facilities
- parking for persons with disabilities
- motorcycle parking.

Details of this review are provided below. This review indicates that the proposed car stacker/ loading areas and site access driveway are expected to operate satisfactorily, subject to the adoption of recommendations discussed below and shown graphically at Appendix C.

The site access driveway runs east-west and provides access to the on-site loading areas and car stacker directly via Harbour Street/ Wheat Road. The driveway is approximately 5.5m-6.0m wide (with adjacent 1.6m wide at-grade pedestrian path) with the 3 car stacker transfer cabins accessible by vehicles up to 99th percentile cars, with queuing capacity for 3 vehicles within the property boundary. An additional 4 vehicles are able to queue between the property boundary and Harbour Street and is appropriate for the location and the car stacker service rates. The queuing analysis is detailed in Section 8.4. The car stacker is capable of accommodating up to 86 vehicles with a further 4 courier spaces (including 1 disabled space) and 5 motorbike spaces located on the ground level.

The loading area provides 3 loading bays capable of accommodating vehicles up to 8.8m medium rigid vehicles with additional capacity for 4 couriers, as discussed above. These vehicles are able to enter the site, reverse into the bays (with the other bays occupied) and drive out in a forward direction. Additional space will be provided directly north of the loading dock to ensure the loading/ unloading of service vehicles is possible while maintaining pedestrian thoroughfare.

The car parking areas and loading bays have been provided in accordance with the requirements of AS2890.1:2004 and AS2890.2:2002. An overview compliance review and swept path analysis is included in Appendix B. The car stacker has been designed in accordance with industry standards with

respect to transfer cabin dimensions, service rates and height clearances and in consultation with the proposed supplier, Wohn.

5. Sustainable Transport Infrastructure

5.1 Bicycle End-of-Trip Facilities

The *NSW Planning Guidelines for Walking and Cycling* (Department of Infrastructure, Planning and Natural Resources, 2004) aims to assist land use planners and related professionals to improve consideration of walking and cycling in their work. The guidelines have been designed to provide a walking and cycling focus to the NSW Government's *Integrating Land Use & Transport Planning* policy package. The *Planning Guidelines for Walking and Cycling* contain suggested bicycle parking provision rates for different land use types.

It is anticipated that the proposed development will accommodate between 3,500 and 4,000 staff, based on a building density of 1 person per 10-12m². Given this, the suggested bicycle parking provision for the development is summarised in Table 5.1.

Further discussion on the staff numbers associated with the development are contained in Section 6 of this report.

Table 5.1: Suggested Bicycle Parking Rates

Land Use Type	Suggested Parking Rate		Suggested Parking Provision	
	Staff (long-term use)	Customers/ visitors (short-term use)	Staff (long-term use)	Customers/ visitors (short-term use)
Commercial Offices	3% of staff	5% of staff	105-120	175-200

As shown in Table 5.1, it is suggested that the proposed development provide up to 120 bicycle parking spaces for staff and up to 200 spaces for customers/ visitors. Given the location of the development and the opportunities for bicycle parking surrounding the site, the provision of 276 bicycle parking spaces for use by staff and 56 spaces for use by visitors is considered appropriate and generally in accordance with the aims of the *NSW Planning Guidelines for Walking and Cycling* for such a land use in a constrained CBD location.

It should be noted that the rate for visitors is considered disproportionate for a building dominated by office space and the 56 spaces, (provided they are well signposted) in conjunction with other well located external bicycle parking facilities within the surrounding open space is thought to be satisfactory for the proposed development.

The location of the bicycle parking areas allows cyclists to access both tenant and visitor areas from the east via Harbour Street/ Wheat Road. A dedicated shared area adjacent to the northern loading dock/ site access driveway will ensure safety for all users and separate pedestrians/ cyclists from both loading activity and vehicles accessing the car stacker. Cyclists would be able to then access the on-site parking areas and use the dedicated internal stairs to access the end-of-trip facilities on Level 1.

5.2 Walking and Cycling Network

5.2.1 Pedestrian Network

The proposed development is located within the pedestrian precinct of Darling Harbour. The development will integrate with the City of Sydney's existing local pedestrian network, with the

revolving doors adjacent to the eastern boundary of the site designed to link the commercial foyer and the existing pedestrian desire lines for pedestrians approaching via the north, south and east. This provides a convenient link between the site and major transport hubs in the CBD, including Town Hall and Wynyard, via the pedestrian overpass 40m north of the site which provides access to Sussex Street. This bridge is accessible via a lift and stairs from Darling Harbour.

West of the site, pedestrian access is provided via the Darling Harbour pedestrian precinct to Harbourside and Pyrmont.

5.2.2 Cycle Network

The proposed development will link with the City of Sydney's existing local and regional bicycle network. Cycle access west of the site is provided through Darling Harbour which provides a key link to Pyrmont Bridge Road and Anzac Bridge, connecting with the inner western suburbs.

The pedestrian and cycle bridge 40 metres north of the site provides access to Sussex Street, Drutt Street and the CBD providing access to the inner Sydney bicycle network (ramp to/ from CBD, lift/ stairs to/ from Darling Harbour). The Kent Street bi-directional, separated cycleway is located 300 metres east of the site which provides direct bicycle access to the Sydney Harbour Bridge. Direct access to the eastern suburbs would be via Drutt Street, and the bicycle shoulder lanes on Park Street and William Street. Bicycle access south of the site will be via Darling Harbour/ Darling Park as well the bicycle shoulder lanes on Darling Drive.

It is noted that on completion, the Ultimo Pedestrian Network will provide direct pedestrian and bicycle access between Darling Harbour and Central Transport Interchange.

5.3 Public Transport

The NSW Bureau of Transport Statistics² shows that 80% of commuter trips made to and from the City of Sydney are made by public transport. This number is broken down as follows:

- 39% commuter trips made by train
- 18% commuter trips made bus.

It is therefore expected that the proposed development will have a high demand for public transport.

The site is accessible by a number of modes of public transport. Pedestrian links to Town Hall Railway Station are approximately 750 metres walking distance, providing direct access to nine train lines and highly frequent train services.

Buses to the inner west are accessed via Drutt Street, a distance of approximately 250 metres. An additional 60 (approximately) bus routes are accessible from the QVB on George Street, located 750 metres east of the site.

The inner west light rail is accessible from the Convention Centre, approximately 750 metres west of the site, providing a convenient mode of transport for the inner western suburbs as far as Leichhardt/ Lilyfield.

² <http://visual.bts.nsw.gov.au/tz/>

5.4 Green Travel Plan

Travel plans are designed to reduce the reliance on private car travel, or at least single occupant vehicles to destinations by boosting and encouraging the use of active and sustainable transport modes.

Large organisations use travel planning as an effective tool to meet a range of different travel-related goals. Examples include initiatives to reduce traffic congestion and/ or parking demand (both on and off-street), reduce absenteeism, improve staff retention, increase physical activity, improve air quality and to improve morale.

Each site has unique characteristics so the objectives, programs, initiatives and measures contained in the travel plan must be tailored and site specific. Successful travel plans are iterative processes supported by senior management and generally delivered by a full-time staff member (or team). It is recommended that a green travel plan be prepared for the proposed development to reduce single occupant vehicle usage and encourage the use of active and sustainable transport modes.

The Green Travel Plan would include:

- a 'reach' transport goal / target to reduce single occupant vehicle travel demand
- infrastructure to support walking, cycling, motorcycling and public transport access to the site
- programs to reduce drive-alone travel behaviour by staff, visitors and customers
- tenant policies to reduce drive-alone travel demand at the subject site
- staff travel coordinator responsibilities
- monitoring tools and an evaluation program to document performance.