

Traffic Impact Assessment;

Large Erecting Shop, South Eveleigh

For Transport Asset Holding Entity 17 August 2022 parking; traffic; civil design; wayfinding; **ptC.**

Document Control

Large Erecting Shop, South Eveleigh, Traffic Impact Assessment

lssue	Date	Issue Details	Author	Reviewed	For the attention of
1	22/05/2022	Work in Progress	PD	AM	Eliza Porter
2	10/06/2022	Final Draft	PD	AM	Lachlan Attiwill
3	12/07/2022	Final	PD/DK	АМ	Transport Asset Holding Entity
4	1/08/2022	Final	PD/DK	AM	Transport Asset Holding Entity
5	17/08/2022	Final	PD/DK	AM	Transport Asset Holding Entity

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1. Executive Summary

ptc. has been engaged by the Transport Asset Holding Entity (TAHE) to undertake a traffic analysis of the surrounding transport network for the proposed Large Erecting Shop (LES) of the South Eveleigh Precinct.

- The subject site is located at south-western end of the South Eveleigh Precinct as shown in Figure 1.
- The project will undergo a State led rezoning followed by an application through the State Significant Development Application (SSDA) process

The proposed project aims to redevelop the LES into a mixed-use development with approximately 15,000m² GFA with a small number of at grade parking spaces.



Figure 1 - Site Location (Source: Google Maps)

1.1 State-Led Rezoning Study Requirements

A request was made to DPE in February 2022 to request the NSW Minister for Planning and Public Spaces undertake a State-led rezoning to enable the adaptive reuse of the LES site. Specifically, a letter was sent to formally request that DPE prepare Study Requirements to inform a future State Significant Precinct (**SSP**) Study for the LES site.

Table 1 provides a summary of the Study Requirements addressed by this report and where the relevant requirement is addressed.

Table 1 – Study Requirements

Study F	Reference	
5.	Transport	
Prepare a comprehensive Transport Strategy and Transport Impact Assessment for the site that:		This report meets the requirements of Section 5 of the Study Requirements.
	a) Identifies the existing situation, including constraints opportunities and key issues;	Section 3 (pg 5-15)
	b) Reviews the trip generating potential for all proposed modes and purposes, develops mode share targets and measures to achieve these targets;	Section 7 (pg 39-42)
	c) Provides an understanding of the travel behaviours and patterns (all modes) of future workers and visitors of the proposal through benchmarking, forecast modelling tools and other sources of evidence;	Section 7 (pg 39-42)
	d) Identifies and assesses the impacts resulting from the proposal with an appropriate level of pedestrian and traffic analysis;	Section 7 (pg 39-42)
	e) Provides details of the proposed transport strategy including, any necessary transport infrastructure and servicing improvements; the proposed approach to pedestrian and bicycle facilities, car parking; and access and egress requirements; and	Section 7 (pg 39-42)
	f) Informs and supports the preparation of the proposed planning framework including any recommended planning controls	The proposal is consistent with the planning controls for parking as described in Section 6 (pg 34- 38)

2. Introduction

2.1 Project Summary

ptc. has been engaged by Transport Asset Holding Entity (TAHE) to undertake a traffic analysis of the surrounding road network for the proposed development of Large Erecting Shop (LES) located at South-Western end of the South Eveleigh Precinct. The building and the site are currently owned by Transport for NSW (TfNSW)

The proposed project aims to redevelop the LES into a mixed-use development with approximately 15,000m² of commercial space with a small number of at grade parking spaces.

The project will undergo a State led Rezoning process and an application through the State Significant Development Application (SSDA) will follow.



Figure 2 - Concept Plan (Source: Mirvac)

2.2 Purpose of this Report

This report presents the following considerations in relation to the Transport & Accessibility Assessment of the Proposal:

Section 2	Introduction;
Section 3	Background information on the site, location and the wider context;
Section 4	Description of the development;
Section 5	A description of the road network serving the development property and existing transport facilities;
Section 6	Assessment of the proposed parking provision in the context of the relevant planning control requirements and previous traffic impact assessments;
Section 7	Determination of the existing traffic volumes at the key local intersections, traffic activity associated with the State led rezoning, and the adequacy of the surrounding road network;
Section 8	Assessment of the proposed car park layout, vehicular access and internal circulation arrangements in relation to compliance with the relevant standards, and Council policies; and
Section 9	Green Travel Plan (GTP) – Preliminary
Section 10	Construction Traffic and Pedestrian Management Plan (CTPMP) – Preliminary
Section 11	Conclusion

3. Background Information

3.1 Site Location

The LES is an isolated building at the northwest of the South Eveleigh Precinct as identified in Figure 5. The South Eveleigh Precinct is located approximately 200m to the southwest of Redfern Train Station and approximately 200m to the west of the future Sydney Metro Waterloo Metro Station. The South Eveleigh Precinct includes an overall area of approximately 13.2 hectares.

The LES site is currently legally described as being part of Lot 5, in Deposited Plan 1175706. This allotment also includes the North Eveleigh Precinct, the rail lines separating the North and South Eveleigh Precincts, and Redfern Railway Station. It is proposed that the LES building will be subdivided from this overall allotment.

The LES is owned by TAHE NSW and managed by Transport Heritage NSW. It is currently being used as a maintenance facility for heritage locomotives, but it requires significant capital investment to bring it up to the required standards for continued use and avoid further deterioration. TfNSW are in the process of moving the trains out and re-locating to a facility at Chullora.

The LES is a rectangular building consisting of two main bays with twin gable roofs running the length of the workshop. Internally, the workshops are articulated with regular cast-iron columns supporting both roof and overhead cranes. Main elevations are regularly articulated with twin semi-circular arched windows with smaller arched windows above. Existing site photographs can be seen in Figure 3 and Figure 4.



Figure 5 - Site Location (Source: Mirvac)



Figure 3 - Easter Elevation of LES (Source: Mrivac)



Figure 4 - Southern Elevation of LES (Source: Mirvac)



An aerial view of the site is provided in Figure 6.

Figure 6 - Aerial View of the Site (Source: Metro Map)

3.2 Local Transport Plans

3.2.1 Draft Community Strategic Plan

Delivering Sustainable Sydney 2030 – 2050 (Draft) is a twenty-year overarching plan that sets direction to Council and stakeholders to work together and provide opportunities to keep Sydney moving forward. The two major actions of this plan in relation to the proposal are as follows:

• "The NSW Government's Metro City and Southwest will open in 2024, and Metro West will open in 2031. This investment can reduce the volume of buses and general vehicles, creating more space for people on major streets."

The document focuses on improving the community in general. No updates to this plan are needed.

3.2.2 Bicycle Plans

City of Sydney Cycling Strategy and Action Plan (2018-2030) is a planning document that outlines the provision of bicycle-related infrastructure and is also a communication strategy designed to promote and increase the rates of cycling in Sydney.

A major intention of this action plan is to provide strategic action plan to improve cycleways and bicycle facilities, identify cycleway routes in the context of key trip generators and to establish a safe, well-connected, and easy-to-use cycling environment within the timeframe of the plan and beyond.

The priorities of this plan are as follows:

- Connecting the Network This priority emphasises the importance of connections within City of Sydney by creating a bike network to make it safer for people to ride in Sydney.
- Supporting people to ride This priority is about supporting people to ride by understanding their challenges and providing them with right tools and solutions.
- Supporting Businesses This priority is about supporting employers to encourage staff to ride for health and productivity, and support bike related enterprises.

City of Sydney Cycling Strategy and Action Plan for proposed site and its connection to the wider network is presented in Figure 7. The plan shows existing and proposed bicycle routes within the vicinity of the site, some of which appear to have already been constructed.



Figure 7 - City of Sydney Cycling Strategy and Action Plan (2018-2030) - Context of Site

3.3 Tech Central Place-based Transport Strategy

Building on the Camperdown-Ultimo Place Strategy, the Tech Central Place-based Transport Strategy (Tech Central Transport Strategy) prepared by TfNSW outlines a 20-year vision for transport in Tech Central that is connected, liveable, sustainable and productive. The proposed rezoning of the LES site will support the overall vision and objectives for the Tech Central Transport Strategy:

- The Camperdown, Eveleigh and Haymarket nodes of Tech Central are integrated through easy and direct transport connections (Connectivity Objective 1),
- An increased number of workers, students and visitors can travel to Tech Central by walking, cycling and public transport within 30 minute (Connectivity Objective 4),
- Public spaces and streets are managed to support flexible uses by businesses and the community (Productivity Objective 3),
- High-quality and well-maintained green and blue spaces are accessible to everyone by walking, cycling or public transport (Liveability Objective 4),
- People can access their daily needs within an easy walk (Liveability Objective 8),
- Multi-use places and networks are flexible and resilient to social, economic and climate-related disruptions, including capitalising on new technologies (Liveability Objective 10), and
- Mode shift towards public transport, walking and cycling away from private vehicles (Sustainability Objective 1).

Overall, the vision for Tech Central is an activated, walkable and integrated innovation district where residents, visitors and workers can interact and linger in great places and public spaces, enabling planned and unplanned interactions between people in support of innovation and creativity

3.4 State Transport or Infrastructure Plans

3.4.1 Future Transport 2056

The Future Transport 2056 Strategy has the vision to construct a safe cycleway network within 20km of the Greater Sydney area. This document appears to address a broader vision and is aimed to provide connectivity on a larger scale. This plan will benefit patrons and staff who travel from across the Greater Sydney Area and beyond.

Growing Sydney's visionary bicycle network is shown in Figure 8.



Figure 8 - Growing Sydney's bicycle network (visionary) (Source: Future Transport 2056 Strategy P.141)

3.4.2 Greater Sydney Commission - Easter Harbour City District Plan

This document states the following regarding improvement of walking and cycling:

'Walking is a fundamental part of the transport system, and most journeys start and end with walking. Creating pleasant and safe environments for walking and cycling contribute to great places. Prioritising safe cycling for short trips to centres, transport interchanges and local services such as schools and health services will free capacity for people who need to travel further by road and public transport. Transport for

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NSW is establishing a bicycle network hierarchy in collaboration with councils. The Principal Bicycle Network will establish high quality, high-priority routes to facilitate safe and direct connections to centres. This network will form the transport layer of the Greater Sydney Green Grid. Regional and local routes identified in local government bike plans, will connect to the Principal Bicycle Network to facilitate a seamless and connected network within urban areas. Local streets will connect to these routes to provide door-to-door access for cycling. Secure bicycle parking and end-of-trip facilities should be provided in centres to support cycling throughout the district.'



Figure 9 - Strategic Cycleway Corridors Eastern Harbour City (Source: Eastern Harbour City District Plan)

3.5 Surrounding Land Use

3.5.1 Existing in the Vicinity

The LES site is currently surrounded by Special Purpose Zone – Infrastructure (Zone G), Business Zone – Mixed use (Zone D) and Business Zone – Business Park (Zone C).

The proposed amendments to the Precincts SEPP involve the inclusion of the LES site within the Business Zone—Business Park zone, which applies to the majority of the South Eveleigh Precinct and notably is the existing zoning for the adjacent Locomotive Sheds.

This existing land-use map is presented in Figure 10.



Figure 10 - Land Zoning (Source: SEPP 2005)

3.5.2 Previous Approvals

In 2016, a State Significant Development Application (SSDA) was approved for the urban regeneration of the Australian Technology Park (ATP) precinct, including the redevelopment of 3 car parking lots within ATP. The precinct accommodates predominantly commercial/business uses with a focus on technology and innovation. The existing buildings include:

- Media Centre Building (Channel 7 Building) (approximately 40,000m2 GFA)
- Biomedical Building (approximately 7,600m2)
- NICTA Building (approximately 11,200m2 GFA)
- National Innovation Centre (NIC) (approximately 7,000m2)
- International Business Centre (IBC) (approximately 950m2), and
- Locomotive Workshop (Conference and Exhibition Centre) (has an allowable GFA of approximately 44,000m2, but currently contains 20,000m2 to 25,000m2

The total combined gross floor area is approximately 110,750m2. As discussed in Section 6.2, the car parking usage and occupancy are based on these developments.



Figure 11 - Site Plan (Source: Mirvac)

3.5.3 Impacts of Future Infrastructure Development

3.5.3.1. Sydney Metro

Regarding the future development in the City of Sydney LGA and the larger Greater Sydney Region, the Sydney Metro Station at Waterloo will provide high connectivity to the LES site and significantly impact the existing road network around the site and potential growth centres such as the South Eveleigh Precinct.

The Waterloo Metro station is located at approximately 850m from the LES site and its connectivity is through the Botany Rd onto to the Boundary St and Locomotive St, as shown in Figure 12.



Figure 12 - Distance between the LES Site and Waterloo Metro Station (Source: Google Maps)

Botany Rd, Boundary St and Locomotive Street have compliant footpaths on both sides of the road which provide high level connectivity to all user groups including pedestrians and cyclists with reduced mobility and disabilities.

The Waterloo Metro Station is planned to open in 2024, which also coincides with the indicative target completion of the LES project. It is important to consider the significance of this development and potential impacts it will have on the existing travel mode choice in the surrounding and the positive benefit of the Metro project. The metro route and location of Waterloo Station are shown in Figure 13.



Figure 13 - Sydney Metro Map (Source: www.sydneymetro.info)

3.5.3.2. Redfern Station Upgrades

The Redfern station is planned to undergo a major infrastructure upgrade between 2021-22 as a part of the Transport Access Program (TAP). One of the key upgrades focuses on the development of a new pedestrian concourse to the south of the Lawson Street concourse. This concourse will provide a connection between the Little Eveleigh St and Marian St in Redfern and Eveleigh. The proposed upgrade works also plans to provide new kiss and ride facilities along Gibson St and additional bicycle parking spaces on Marian St.

The proposed upgrades will drastically improve the accessibility for pedestrians and cyclists travelling to and from the LES to Redfern station

4. Rezoning Proposal

The proposed new planning controls are intended to facilitate the following:

- Alterations within the existing LES to convert the ground level into commercial office and retail premises,
- Creation of two new 'internal' storeys within the existing LES building envelope for use as commercial office premises,
- External upgrade and conservation work to the existing LES building to ensure it is fit for purpose and environmentally sustainable,
- Heritage interpretation and conservation work generally throughout the LES site, Services augmentation, and Publicly accessible space upgrades.
- A new loading dock to be located at the south-west frontage with direct access from Locomotive Street.

While external works are required, the proposal does not seek to significantly alter the existing building footprint of the LES. Further it is proposed that the general form of the existing building and key architectural features of the existing building are retained in any future reuse of the building for commercial purposes, noting that the LES is part of the Eveleigh Railway Workshops complex included on the State Heritage Register.

The proposed layout plan is shown in Figure 15 and the architectural plans are shown in Attachment 1.



Figure 14 - Proposed Exterior Layout (Source: Mirvac)



Figure 15 - Proposed Concept Plan (Source: Mirvac)

5. Existing Transport Facilities

5.1 Road Hierarchy

The LES site is located in the suburb of Eveleigh and is primarily served by Locomotive Street (a local Road) to the South. Henderson Road is a local road which runs along the Southern boundary of the site.

A summary of the key roads serving the LES Site is presented in Figure 16 and the following tables.



Figure 16 - Surrounding Road Network (Source: TfNSW Road Hierarchy Portal)

The NSW administrative road hierarchy comprises the following road classifications, which align with the generic road hierarchy as follows

- **State Roads** Freeways and Primary Arterials (RMS managed)
- **Regional Roads** Secondary or Sub Arterials (Council managed, partly funded by the State)
- Local Roads Collector and Local Access Roads (Council managed)

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Table 2 – Locomotive (Westbound)

Locomotive St	
Road Classification	Private Road
Alignment	West – East
Number of Lanes	Single Lane
Carriageway Type	Undivided
Carriageway Width	5m
Speed Limit	10km/h
School Zone	Νο
Parking Controls	No Parking
Forms Site Frontage	Yes



Figure 17 - Locomotive St (Source: Google Maps)

Table 3 – Central Avenue (Westbound)

Central Avenue	
Road Classification	Local Road
Alignment	East – West
Number of Lanes	1 lane in each direction
Carriageway Type	Divided with a kerb
Carriageway Width	7.5m
Speed Limit	40km/h
School Zone	Νο
Parking Controls	1P (Monday to Friday)
Forms Site Frontage	Νο



Figure 18 - Central Avenue (Source: Google Maps)

Table 4 – Henderson Rd (Westbound)

Henderson Rd	
Road Classification	Local Road
Alignment	East – West
Number of Lanes	Varies, 2 lane in each direction, with 3 lanes near intersections, parking lanes on both sides.
Carriageway Type	Divided
Carriageway Width	Varies, 10-12m
Speed Limit	60km/h
School Zone	Νο
Parking Controls	No parking in the close proximity of the site
Forms Site Frontage	No



Figure 19 - Henderson Rd (Source: Google Maps)

Table 5 – Davy Rd (Northbound)

Davy Rd	
Road Classification	Local Road
Alignment	North – South
Number of Lanes	1 lane in each direction, parking lanes on both sides
Carriageway Type	Divided
Carriageway Width	15m
Speed Limit	50km/h
School Zone	No
Parking Controls	2P 8:30am – 6pm (Mon-Fri), 8:30am – 12:30pm (Sat)
Forms Site Frontage	Yes



Figure 20 - Davy Rd (Source: Google Maps)

5.2 Public Transport

The locality has been assessed in the context of available forms of public transport that may be utilised by prospective staff customers and visitors. Reference is made to the NSW Planning Guidelines for Walking and Cycling (2004) where a distance of 400-800m is recommended as a comfortable walkable catchment to access public transport and local amenities. The document also suggests a distance of 1,500m as a suitable catchment for cycling.

Given that the subject site is located to the west of the Redfern Station, there is abundant public transport facilities within the proximity, all of which provide high frequency services throughout each day, including train services and bus routes, as outlined in the following sub-sections.



Figure 21 - 400m and 800m radius of the subject site (Source: Google Maps)

5.2.1 Train Services

Currently, the LES site and the South Eveleigh Precinct are serviced by three train stations of Redfern, Macdonaldtown and Erskineville. The distance between the nearest train station, which is Redfern station from the LES site is approximately 800m as shown in Figure 22.

Redfern Train Station

Th Redfern train station provides access to train services connecting to the Sydney Metropolitan area, providing frequent services 7 days a week through the wider Sydney Trains Network, thus providing visitors and staff with a high level of accessibility to and from the site.

A summary of the available train routes is illustrated in Table 6 below.

Trains Route	Coverage (to and from)	Service Frequency
		Mondays to Fridays: Every 8 mins
11	City to Emu Plains or Richmond & Return	Weekends and Public Holidays: Every 10 mins
		Mondays to Fridays: Every 5 minutes
Т2	City to Parramatta to Leppington & Return	Weekends and Public Holidays: Every 5-10 mins
	City to Liverpool or Lidcombe via Bankstown &	Mondays to Fridays: Every 3 minutes
Т3	Return	Weekends and Public Holidays: Every 3 mins
		Mondays to Fridays: Every 10 minutes
Τ4	Bondi Junction to Waterfall to Cronulla & Return	Weekends and Public Holidays: Every 10 mins
		Mondays to Fridays: Every 15 minutes
Τ7	Olympic Park to Lidcombe & Return	Weekends and Public Holidays: Every 20 mins
		Mondays to Fridays: Every 15 minutes
Т9	North Shore to Hornsby via City and Return	Weekends and Public Holidays: Every 15 mins
ВМТ	Central to Bathurst	Mondays to Fridays: Every 30 minutes from 9am to 12PM
		Weekends: No service

Table 6 – Trains Summary – Redfern Station

Erskineville Station

Erskineville Station is located approximately 900 metres south-west of the LES Site and is within a 12minute walk. The station is serviced frequently by the T3 Bankstown Line (via Lidcombe) and supplemented by the T2 City Circle via Central Line (which begins and ends at Lidcombe) at night. The services and frequency for Erskineville Station are shown in Table 7 below.

Trains Route	Coverage (to and from)	Service Frequency
T2	Inner West to Leppington	Mondays to Fridays: Every 30 minutes Weekends and Public Holidays: Every 30 mins
тз	Bankstown Line	Mondays to Fridays: Every 12 minutes Weekends and Public Holidays: Every 15 minutes

Macdonaldtown Station

Macdonaldtown Station is located approximately 700 metres directly west of the LES Site, however an extensive detour for pedestrians is required due to the railway line and maintenance yards, resulting in a walk time of approximately 15 minutes. Macdonaldtown Station is serviced mainly by the T2 Inner West and Parramatta Line with the T3 Bankstown Line to Liverpool. Services for Macdonaldtown Station are shown in Table 8.

	Table 8 – Trains	Summary -	Erskinville	Station
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Trains Route	Coverage (to and from)	Service Frequency
		Mondays to Fridays: Every 30 minutes
Т2	Inner West to Leppington	Weekends and Public Holidays: Every 30 mins
т2	Panketown Lina	Mondays to Fridays: 1 per day
13		Weekends and Public Holidays: N/A
		Mondays to Fridays: Every 8 mins
T1	City to Emu Plains or Richmond & Return	Weekends and Public Holidays: Every 10 mins
		Mondays to Fridays: Every 5 minutes
Т2	City to Parramatta to Leppington & Return	Weekends and Public Holidays: Every 5-10 mins
		Mondays to Fridays: Every 3 minutes
Т3	City to Liverpool or Lidcombe via Bankstown & Return	Weekends and Public Holidays: Every 3 mins

Trains Route	Coverage (to and from)	Service Frequency
		Mondays to Fridays: Every 10 minutes
Τ4	Bondi Junction to Waterfall to Cronulla & Return	Weekends and Public Holidays: Every 10 mins
Т7	Olympic Park to Lidcombe & Return	Mondays to Fridays: Every 15 minutes
		Weekends and Public Holidays: Every 20 mins
		Mondays to Fridays: Every 15 minutes
Т9	North Shore to Hornsby via City and Return	Weekends and Public Holidays: Every 15 mins
ВМТ	Central to Bathurst	Mondays to Fridays: Every 30 minutes from 9am to 12PM
		Weekends: No service



Figure 22 - LES Site in Context of Surrounding Train Stations (Source: Google Maps)

5.2.2 Bus

The LES site is well serviced by numerous bus services within the bus interchange located along the Henderson Road and Swanson St and adjacent road network of the site. A summary of the bus stop locations and routes servicing the site are illustrated in Figure 23 and Table 9.

Overall, the site is well serviced on weekdays and weekends by numerous bus routes connecting it to the Sydney and Parramatta CBD and wider network of the city's public transport.



Figure 23 - Nearby Bus Routes (Source: TfNSW, 2019 & Google Maps)

Table 9 – Bus Route Summary

Bus Route	Coverage (to and from)	Service Frequency
501	Parramatta to Central Pitt Street via Victoria Road	Monday to Friday: Every 7-8 minutes
		Saturdays: Every 15-30 minutes
		Sundays and Public Holidays: Every 30 minutes
		Monday to Friday: Every 1 hour
521	Parramatta ta Factwood	Saturdays: Every 1 hour
521	Parramatta to Eastwood	Sundays and Public Holidays: Every 1 hour
		Monday to Friday: Every 1 hour
500	Mark Dada da Damana da	Saturdays: Every 1 hour
523	West Ryde to Parramatta	Sundays and Public Holidays: Every 1 hour
524		Monday to Friday: Every 1 hour
	Puda ta Parramatta via Waat Puda	Saturdays: Every 1 hour
	Ryde to Parramatta via West Ryde	Sundays and Public Holidays: Every 2 hours
525	Parramatta to Strathfield via Sydney Olympic Park	Monday to Friday: Every 25 minutes
		Saturdays: Every 30 minutes
		Sundays and Public Holidays: Every 30 minutes
546	Parramatta to Epping via Oatlands and North Rocks	Monday to Friday: Every 30 minutes
		Saturdays: Every 1 hour
		Sundays and Public Holidays: Every 1 hour
549	Parramatta to Epping via North Rocks	Monday to Friday: Every 1 hour
		Saturdays: Every 1 hour
		Sundays and Public Holidays: Every 1 hour

5.3 Active Transport

The locality was reviewed for features that would attract active transport trips (walking and cycling), with reference to the NSW Guidelines for Walking and Cycling (2004).

5.3.1 Cycling Infrastructure

A review of the local cycling infrastructure has been undertaken to determine the overall accessibility of the LES site by active transport. Figure 24 presents the existing bicycle routes within the surrounding area. The site is adequately serviced by both the main bicycle routes and the local bicycle routes, providing access to the surrounding suburbs and to Redfern station.

The site is well situated within Sydney's cycle network with cycle routes surrounding the site and an offroad cycle route passing the site itself. A shared path between Henderson Road and Cornwallis Road runs through the site via Mitchell Way (internal road).

The existing bicycle parking facilities are provided around the precinct with bicycle racks located at the following locations: the top of Cornwallis Street, Innovation Plaza 8 - Central Avenue near the Biomedical Building, and at Mitchell Way.

Based on the review of the cycling infrastructure, the site is considered to be moderately served by the nearby cycleways.



Figure 24 - Local Cycling Network (Source: Transport for NSW – Cycleway Finder Portal)

5.3.2 Pedestrian Facilities

In terms of pedestrian infrastructure, the immediate vicinity of the precinct is served by footpaths providing access from surrounding areas and road network. As shown in Figure 25, the precinct connects to Mitchell Way to the east, which is a designated pedestrian-only laneway. To the west, the precinct is connected to Rowley Lane, which has footpaths on both sides of the road as shown in Figure 26.

Pedestrian connectivity to Henderson Rd through Central Avenue is compliant with paths on both sides as shown in Figure 27. The major intersection of Henderson Road and Davy Road which provides patrons higher connectivity to the greater network has signalised pedestrian crossing as shown in Figure 28.



Figure 25 - Pedestrianised Roadd from LES Site to Central Av – East (Source: Google Maps, 2017)



Figure 26 - Rowley Lane connection to the LES Site - West (Source: Google Maps, 2017)



Figure 27 - Compliant Footpath on Central Av (Source: Google Maps, 2017)



Figure 28 - Compliant Footpath on Davy Rd onto Henderson Rd ((Source: Google Maps, 2017)
5.1 Pedestrian Survey

To assess the current pedestrian activity to and from the precinct, pedestrian count surveys were undertaken at four key locations within the precinct on 26th May 2022 during morning and afternoon peaks (7am-9am & 4pm-6pm).

The peak pedestrian movements were recorded between 8am-9am (In: 1,777; Out: 275) and 4:45pm-5:45pm (In: 290; Out: 1,506).



Figure 29 - Pedestrian Movements

Most of pedestrians used the pedestrian footpath near the Redfern Station (Site 1) to enter and exit the precinct (57% and 66% respectively).



Figure 30 - Morning Peak Pedestrian Distribution



Figure 31 - Afternoon Peak Pedestrian Distribution

5.1.1.1. Pedestrians with Reduced Mobility and Disabilities

Pedestrian with less mobility include people with mobility disabilities, prams & wheelchair users, elderly people, and people under the influence of alcohol and drugs are to be considered during the assessment and development of any pedestrian routes.

In particular, the following design criteria must be addressed:

- In case of a change in elevation, kerb ramps compliant to TfNSW requirements are to be designed and implemented
- Ensure no road signs or devices obstruct the vision of or visibility to younger pedestrians
- The path must be able to be utilised by wheelchairs and pram users, unless it can be clearly demonstrated that the closed path did not cater for such people
- The path must be able to be navigated by those with visual disabilities.

6. Parking Assessment

6.1 Planning Policies

The parking provision associated with the State led rezoning has been assessed with reference to the following planning documents as a guide to an appropriate parking provision:

- City of Sydney DCP 2012 (Sydney DCP)
- RMS Guide to Traffic Generating Developments 2002 (RMS Guide)
- City of Sydney Local Environment Plan (LEP) 2012
- Building Code of Australia 2019 (BCA);

6.2 Car Parking

6.2.1 Existing Precinct Provision

To analyse the existing car parking provision and occupancy rate of the ATP Precinct, reference is made to the Traffic Impact Assessment undertaken by GTA Consultants – "Australian Technology Park, Eveleigh Redevelopment – Traffic Impact Assessment" dated 17th December 2015 & Australian Technology Park (ATP), Eveleigh Master Plan 2005.

In section 2.5 of the 2015 GTA TIA, it is specified that the car parking supply within the ATP precinct comprised a total of 1,453 spaces distributed throughout the precinct as shown in Figure 32.

Spaces accessible from Davy Road, Central Avenue and Locomotive Street:

0	Channel 7 Building Visitor Parking	-	363 spaces
0	Channel 7 Building Staff Parking	-	339 spaces
0	Open air car park (Lot 12) (adjacent to Locomotive Workshop)	-	280 spaces
0	Biomedical Building Staff Parking	-	33 spaces
0	Open air car park adjacent to Biomedical Building (Lot 8)	-	53 spaces
0	Locomotive Workshop	-	4 spaces
0	Sub-Total	- 1	,072 spaces
Spa	ces not accessible from Davy Road, Central Avenue and Locon	noti	ve Street:
0	Nicta Building	-	66 spaces
0	NIC Building	-	4 spaces
0	IBC Building	-	17 spaces
0	Sub-total	-	87 spaces
Othe	ers		
0	Open air car park west of Davy Road (Lot 9) (currently not		
	in use)	-	272 spaces
0	On-street parking spaces	-	22 spaces
tota	1	- 1	,453 spaces

Figure 32 - Car Parking Provision for ATP Precinct in 2016 (Source: GTA Consultants)

"The 2005 Masterplan for the Australian Technology Park (ATP) in Eveleigh supersedes the original 1994 ATP Masterplan and the 2003 Masterplan. The Masterplan was produced to meet requirements set in the Sydney Regional Environmental Plan No. 26 – City West (REP 26) to set development controls for the ATP site, which also includes the Proposed LES Site. The Masterplan aims to take advantage of the close proximity to Redfern Railway Station and minimise car usage to site. Relevant objectives and controls set by the Masterplan include:

- Enforcement of car parking provision cap of 1,600 spaces for the whole site
- Aim to focus on pedestrian connections and amenity including the provision of a strong link to the Railway Station
- An action plan to establish a 'Transport review group', to monitor and assess the modal share split of the ATP and implement initiatives to reduce car usage, and
- Enforcement to provide end of trip cycling facilities within the site."

The car parking provision requirements for the whole ATP precinct and any parking provision for additional floor space, as highlighted by the masterplan, cannot exceed the rate of one space per 125m². On basis of the GTA TIA, the proposed parking provision for the entire ATP precinct was determined to be 1,574 spaces (26 spaces below the cap of 1,600 spaces). The following excerpt from the GTA TIA describes the parking provision (Figure 33).

Building/Location	Current	Proposed
Channel 7 Building Visitor Parking	363	363
Channel 7 Building Staff Parking	339	339
Open Air Car Park (Lot 8)	53	0
Open Air Car Park (Lot 9)	272	217
Open Air Car Park (Lot 12)	280	489
Biomedical Building Staff Parking	33	33
Locomofive Workshop	4	4
Nicta Building	66	66
National Innovation Centre [NIC]	4	4
International Business Centre (IBC)	17	17
On-street Spaces	22	42
Total	1,453	1,574

Figure 33 - On-site Parking Change for Proposed ATP Site in 2016 (Source: GTA Consultants)

6.2.2 Car Parking Requirements based on Individual Land Uses

To calculate the parking provisions according to each proposed land-use within the LES, reference is made to Part 7 - Section 7.6 of the Sydney Local Environmental Plan 2012 car parking requirement rates.

A building used for office or business premises, which has a floor space ratio of no more than 2:5:1, is permitted to provide 1 space for each 125 square metres of GFA of the building.

The following calculations are based on the rate outlined in Sydney LEP 2012.

Description	cription Floor Area (m2) Maximum Parking Requirement		
Ground Floor – LES	5,873.8	47	
Level 1 - LES	4,162.0	33	20
Level 2 – LES	3,849.1	31	
On-Street parking	-	-	-
Total		111	20

Table 10 – Car Parking Requirements

Based on the LEP, the proposed development is permitted to provide a maximum of 111 car parking spaces relating to the floor area calculation, however, this would exceed the cap of 1,600 spaces applicable to the precinct.

6.2.3 Proposed Provision

The LES project proposes to provide 20 parking spaces in close proximity to the two entry lobbies. It is intended that the limited car parking supply in combination with the presence of the high-quality existing and proposed public and active transport infrastructure will motivate staff and visitors to travel by modes other than private vehicles.

The proposed 20 spaces are provided to enable flexibility to the tenants in proximity of the proposed LES building. This approach is in line with one of the central objectives of the 2005 Masterplan and with the City of Sydney's general development requirements of capping parking within new developments.

6.3 Bicycle Parking

The City of Sydney DCP has been referenced as a guide to determine a suitable bicycle parking provision. The DCP stipulates bicycle parking requirement for commercial use as presented in the following table:

Table 11 – Bicycle Parking Provision

Component	GFA	DCP Parking Rate - Employee	DCP Parking Rate - Visitor	Parking Provision Requirement (min)	Parking Provision Requirement (min)
Commercial	13,900	1 space/150m2	1 space/400m2	93	35
Total				128 proposed	



Figure 34 - Concept Plan showing Bicycle Storage & EOT Facilities (Source: Mirvac)

The development will provide the required bicycle parking requirement which will be further detailed during the SSDA Stage. Figure 34 demonstrates how this might be achieved.

It is noted that commercial bicycle parking spaces are to be in the form of Class 1 (individual bicycle storage lockers) or Class 2 secure bicycle parking spaces (communal bicycle storage room) and visitor bicycle spaces are to be in the form of Class 3 publicly accessible bicycle rails.

6.4 Service Vehicle Parking

The City of Sydney DCP has been referenced as a guide to determine a suitable service vehicle provision. The City of Sydney Council DCP – Schedule 7 specifies the parking rates for service vehicle parking facilities for the development land use for maximum gross floor area and the RMS Guide to Traffic Generating Developments (2002) – Section 5.2.3 outlines the requirements for type of vehicles.

Component	Floor Area (m2)	DCP	Service Rate	Vehicle	RMS Gu Parking R	uide ate	Service Vehicl Parking Provision	 Proposed Parking Provision
Commercial	13,885	At leas 3,300m2	t 1 spa	ce per	50% spaces adequate trucks	of for	4	1 x MRV, 1 x SRV
Total							4	2

Table 12 – Service Vehicle Parking Provision

The development proposes 2 service vehicle bays (1 x MRV Bay & 1 x SRV Bay) which is deemed suitable for a development of this size.

7. Transport Impact Assessment

7.1 Trips and Mode Share

The most recent Journey to Work data from the Australian Bureau of Statistics (ABS) provides the following mode share distribution for employees commuting to the Eveleigh SA2 census area.



The data was collected in 2016 and it is expected that the 2021 census data will be published in coming months. This may indicate a variation to the 'worked at home' category due to the workplace changes resulting from the covid lockdowns. Based on current trends, and given the nature of the proposal (i.e. office space rather than land-uses that require physical presence by employees) it is reason to determine that up to 20% of the employees would work from home on a particular day. This represents an average of each person working from home 1 day per week.

It is clear that the accessibility of the area by active and public transport is reflected in the results, showing that only a third of employees commuted by private vehicles.

While this is a reasonably low proportion in the context of establishing a car usage target, it is relevant to note that the subject State led rezoning includes 20 parking spaces, which represents a significantly reduced proportion. In this regard, the building will target an increase in active and public transport as a proportion of the mode share.

7.2 Projected Active Travel Trips

The building will accommodate up to 1,100 employees and as such will generate pedestrian and cyclist activity.

With regard to cycling, the proposal can accommodate the required number of bicycle spaces, which is 128 spaces according to the DCP. As a proportion of the population, the full use of the bicycle parking would represent 11.6% travelling by bike. This would represent the total active travel percentage recorded in 2016 and therefore the bicycle share is likely to be less in the initial operation of the building. As a mode share goal, it would be reasonable to target 8% of the population riding to the building on any given day.

The active travel distribution within the census is not divided between different active modes, however walking is likely to represent the highest proportion based on our pedestrian surveys undertaken at the precinct. While the surveys recorded the highest proportion of walkers arriving from Redfern Station (therefore they fall into the public transport mode) we recorded 34% of pedestrians arriving from the west and south entries, which are not particularly connected to public transport, but connect with the residential areas surrounding the precinct. To provide some context, over a period of 2 hours in the morning and afternoon peaks, we counted circa 2,500 pedestrians entering the precinct during the morning (the reveres was recorded during the afternoon). Of these 66% were arriving from Redfern Station, meaning that at least 850 people currently walk to the precinct (with circa 1,650 arriving via Redfern Station). Unfortunately, we are not in receipt of the current population within the precinct so are unable to convert these figures to a percentage, however if it is considered that the precinct contains 1,574 parking spaces, with a conservative car occupancy of 1.2 persons per car, means 1,890 people arriving by car compared with 850 walkers, the 2016 census data is likely under estimating the proportion associated with active travel.

Based on the data collected at the precinct and the evidence that walking represents a significant activity at the precinct, we would consider a mode share target of 10% to be a conservative estimate. Application of this mode share to the maximum population would result in 110 additional walking trips to the precinct.

7.3 Projected Public Transport Activity

The census recorded 45% of employees arriving to this area by public transport. While this is not presented by the mode of transport, it is evident that the majority of this activity is associated with the train services at Redfern Station. Since the time of the census survey, the station has been upgraded to ease access and increase capacity.

The Waterloo Metro Station is currently under construction and will be operating in 2024. The station entry will be located 700 metres from the LES entry and therefore the site falls within a reasonable walking catchment. The Metro presents opportunities to connect with high frequency services serving areas not currently covered by the rail network and in this regard it is considered that the use of public transport as a mode share serving the precinct could increase by at least 10%.

7.4 Projected Traffic Activity

The State led rezoning includes the provision of 20 additional car parking spaces associated with the LES Building. This is consistent with the planning principles of the precinct to limit the use of private vehicles and associated traffic activity.

In this regard, the worst-case trip generation arising from the project is an additional 20 trips within an hour, which is insignificant in the context of the surrounding volumes on the road network.

7.5 Travel Mode Targets and Trips Summary

Based on our assessment of the likely mode share across the available and planned transport options, the following mode share targets are reasonable and achievable.



* These figures represent the total arrival / departure activity and is not constrained to a particular peak period. Based on our pedestrian surveys, the arrival and departures occur over a 2-hour period, therefore halving the figures if assessing a single hour.

† In relation to vehicle trips, it is noted that the vehicle usage would represent 6.5% mode share under this scenario, which can be converted to the number of vehicles as follows:

1,100 people x 6.5% equals 71 people arriving by car.

Assuming an average car occupancy of 1.2 persons per car, would result in 60 vehicles commuting to the precinct.

While 20 would be accommodated within the proposed parking, 40 vehicles would park within the spare capacity of the precinct car parks.

Adopting the total activity, distributed over two hours, Table 13 presents the peak hour trips for each mode. The predominant mode will be public transport, which will move approximately 300 additional commuters during the peak arrival and departure hours. Through the improvements underway at Redfern Station and the proposed metro services, this increase represents a minor impact on these facilities, particularly in the context of the increase in avoided trip through working from home as an increased share.

The data projects 55 additional pedestrians during the peak hour, which is in addition to those walking from the public transport nodes, i.e. 355 trips. The pedestrian infrastructure throughout the precinct is generous and designed to cater for the whole precinct population, including the recently completed works at the Cornwallis Street shared zone and walkway/staircase connecting with the precinct. We are aware that public domain upgrades are to be undertaken around the metro station project, which will enhance the pedestrian connections to the east. In this regard, the LES project does not require remedial works in order to support the increase in pedestrian activity.

The data projects approximately 44 cycling trips within the peak hours, which can be accommodated by the road network and the existing precinct infrastructure (i.e. Locomotive Street for direct access to the LES) without upgrade works.

We note that the census data refers to 'other' as a mode and in relation to the precinct, this would primarily involve the use of motorbikes. We note that formal motorbike parking is located in a number of areas within the precinct specifically to accommodate this activity.

8. Access and Car Park Assessment

8.1 Vehicular Access

Vehicle access to the project is provide via Locomotive Street, which is a private road within the precinct. The proposed parking spaces are access directly from the Locomotive Street carriageway.

The design of the access has taken into consideration the requirements of AS2890.2 for commercial vehicle access for an 8.8m MRV which will access a new loading area near the south-western corner of the LES.

8.2 Car Park Arrangement

8.2.1 Typical Requirements

The car parking requirements have been assessed against the requirements of AS2890.1:2004 with reference to Class 3A (short-term city and town centre parking) facilities:

•	Car Space Dimensions:	2.6m x 5.4m
•	Aisle Width:	6.6m (double-sided aisles)
		6.9m (single-sided aisles opposite a wall)

All parking spaces have been individually assessed to be compliant with the minimum requirements of AS2890.1:2004. All spaces are to meet the clearance requirements of the parking space envelope requirements provided in Figure 5.2 of AS2890.1:2004.

8.2.2 Accessible Parking

All accessible parking spaces have been individually assessed against the requirements of AS2890.6. The parking spaces have been designed based on the following dimensions:

- Accessible Space Dimensions: 2.4m x 5.4m
- Adjacent Shared Bay: 2.4m x 5.4m

All accessible spaces and shared bays have been individually assessed and confirmed to be compliant with the minimum requirements of AS2890.6, with relevant pavement markings and bollards.

8.2.3 Loading Dock

A loading dock is proposed in southwestern corner of the LES building, which is accessible directly from Locomotive Street.



Figure 35 - Loading Dock Location

The loading dock is accessible via Locomotive Street while a dedicated pedestrian access is provided, separated from the vehicles by landscaping. This arrangement has provided safe vehicular and pedestrian access to the northern part of the campus for many years and will continue to ensure safe pedestrian movement.

An access and swept path assessment has been undertaken using a design SRV and MRV to assess the manoeuvrability of service vehicles within the proposed loading dock area. The swept path output drawings for both options are presented in Attachment 2. The assessment demonstrates that these vehicles are able to enter the loading spaces using the turning head at the western end of Locomotive Street.

Given the commercial use proposed within the LES, it is anticipated that service vehicle activity will be limited to the following types and indicative frequencies:

Activity Type	Vehicle Type	Vehicle Frequency
Office deliveries (stationery etc.)	SRV / Van	1-2 per week
Couriers	Van / car	5 per day
Café deliveries	SRV / Van	2-3 per day (mostly early morning)
General Waste	MRV	2 per week
Recycling	MRV	1 per week

8.2.4 Interaction of Servicing and Active Travel Modes

The LES and South Eveleigh Precinct benefit from a high level of public transport and active transport options, which translates into a large proportion of the population walking and riding through the precinct. In this regard it is important that interactions between pedestrians and vehicles are minimised and where unavoidable, are managed safely through suitable infrastructure.

The pedestrian and cyclist entry to the LES building will be towards the northern end, with access provided by a dedicated footpath along the northern side of Locomotive Street. Access between the northern side of Locomotive Street and the lower-level campus is facilitated by a zebra crossing to the north-east of the LES. The crossing will be located in isolation to the Channel 7 loading area and pedestrians will have the right-of-way over all vehicle movements.

The servicing of the LES will involve a low frequency of vehicles, which will not provide an impact on the movement of cyclists or the use of the existing end-of-trip facilities, which are accessed at the southern end of the Workshops building, opposite the LES.

9. Green Travel Plan (Preliminary)

9.1 Council Policy

As outlined in the City of Sydney Transport Strategy, the City of Sydney Council's transport vision is:

In 2030, transport will play a positive role in supporting a happy, healthy and prosperous Sydney community.

This vision will be achieved through the delivery of the following priorities:

- Safe Travel Trips will be made safely, regardless of travel mode. This will be achieved by reducing traffic speeds to address human physiological limitations and increasing driver awareness of more vulnerable road users.
- **Transport Security** Personal security will be improved through street design that increases on-street activity and improves passive surveillance.
- Social Well-being Residential, commercial, mixed use and neighbourhood centre streets will be social spaces where human interaction will be given the highest priority and the negative impacts of traffic will be minimised.
- Active Health Infrastructure that encourages healthy and active lifestyle and travel choices will be supported.
- Fair Access to Parking Parking policy will be set to encourage people to consider alternatives to driving, reducing parking demand and increasing the availability of the existing parking supply.
- Environmental Sustainability The use of low emission transport options will be encouraged.
- Local Environments Travel modes that have a lower impact on local environments, in terms of air quality, water quality and noise, will be encouraged.
- **Transport Affordability** Cost-effective travel modes will be supported. Consideration will be given to the broad social, health and economic costs and benefits of each travel mode.
- **Congestion** Travel demand management principals will be applied to minimise traffic demand and associated traffic congestion.
- Business Activity Commercial, mixed use and neighbourhood centre precincts will be designed to address the transport needs of target businesses, attract target workforces and to encourage increased activity throughout the day and into the night.

9.2 What is a Green Travel Plan?

A Green Travel Plan (GTP) is a document that outlines how a development intends to make travel to and from the site safer and more sustainable for occupants and their visitors. The GTP addresses local traffic issues around the site and encourages active, safe and sustainable travel methods, such as walking, cycling, scooting, public transport or car sharing. A GTP correlates with the development's overall aspirations and is a document that is monitored and reviewed regularly.

A GTP is not just the installation of bike racks or provision of end-of-trip facilities. An effective GTP aims to promote and maximise the use of more sustainable modes of travel via a range of actions, promotional campaigns and incentives. The plan includes site management tools that encourage staff and visitors to

make more sustainable transport choices. A GTP requires ongoing implementation, monitoring and review. As such, nominating an individual or a team to oversee the implementation of a travel plan is a crucial component of success.

An effective GTP can offer many benefits such as less congestion on the public road networks, health and environmental benefits.

9.3 Why is a Green Travel Plan required?

The implementation of a GTP is generally accepted as one of the best ways to increase active travel to and from the subject site. A successful GTP offers many benefits for the community, including:

- Building confidence and improving social interaction by walking and/or cycling;
- Assists in implementation of health, fitness and wellbeing programs.
- Improving social interaction with others to be more interested and involved with the precinct as they walk or cycle;
- Improving safety by reducing traffic and local road congestion;
- Improving the environment by reducing air pollution from private vehicles;
- Creating opportunities for healthier lifestyles and more vibrant, cohesive and accessible communities;

It is likely that occupants with a good understanding of active and sustainable modes of transport will follow a healthy and active lifestyle, care about the environment and prioritise location and lifestyle over car ownership.

9.4 The objectives of this GTP

The purpose of the GTP is to provide a package of measures with the aim at promoting and reducing the reliance of private car usage and encourage and support the uptake of daily business in a more sustainable way. This may be achieved through the review of existing policies and identifying programmes to encourage occupants and visitors to adopt more active and sustainable forms of transport.



This document identifies the following:

- Review of existing public transport infrastructure and future transport options;
- Assessment of existing travel patterns within the area;
- A modal share target for the development;
- A framework to identify and respond to travel demand from the development and surrounding area;
- Strategies to implement prior and during occupancy; and
- The monitoring strategy to track performance of the GTP.

9.5 Relevant Priorities from the NSW State Plan

- Increase walking and cycling,
- Increase the number of people participating in physical activity,
- Improve health in the community,
- Increase share of journey to work trips on a safe and reliable public transport system,
- Improve the efficiency of the road network,
- Increase the number of jobs closer to home,
- Tackle climate change,
- Improve air quality.

9.6 Potential Outcomes

- Successful negotiations with private transport providers (if necessary) to provide increased public transport services to the precinct.
- Improvements to cycling and walking infrastructure, if required.
- Recommendations for any relevant policy changes will be made to management (e.g. flexible work and work from home/hub policies).
- Campaign promoting the health and other benefits of non-car modes of travel will be implemented for staff.
- End-of-Trip Facilities provided within the site, including lockers to leave items overnight (avoids carrying heavy items home, which can be a deterrent for active transport).
- Collaborate with a local bike shop to provide bike servicing within the locality (this can be extended to the broader community too).
- Monitoring and Evaluation
 - Staff surveys (mode of travel to work)
 - Carpooling use (number of new users)
 - Private car-park usage
 - Feedback from public transport providers
 - Patronage on any new commuter public transport services

9.7 Steps to Set Up a Green Travel Plan

To develop a GTP, there are five key steps to follow to commence its operation as illustrated in Figure 36.



Figure 36 - Steps in developing a GTP

9.7.1 Step 1 – Set up an Advisory Committee

- Appoint an individual to coordinate specific actions and to track the progress of this work;
- Develop a working group that involves representatives from employees within the development;
- Identify ways how employees will be involved and informed of the work (e.g. regular articles / social media).

9.7.2 Step 2 – Data Collection and Review Existing Situation

To identify how employees within the LES will travel to and from the site for work, an initial survey should be conducted to identify the travel behaviour of employees and visitors within six months from the occupation of the development. This may be conducted as an online survey or an intercept survey of those accessing the site.

As a minimum the following questions should be considered:

- Are you an employee or visitor to the site?
- Did you park on site today? If so, where?

Employee Only Questions

- If you are a employee, do you have an allocated parking space within the precinct?
- How do you currently travel to work and the distance to their travel?
- Based on the public transport and other sustainable travel options available, which would be their preferred mode of travel?
 - Walk/run
 - Bicycle
 - Bus
 - Drive car
 - Passenger in car
 - Other
- Is your place of residence in an area which is not currently serviced by any of the identified transport options?
- Do you need to drive to work for another reason? Why and how often this would occur (i.e. shift work).

Visitors Only Questions

- If you are a visitor, where did you travel from today?
- What mode of transport did you use?
- Why did you use this particular mode of transport?

All Users

- Have you heard of car share? If this was readily available to you, would you use car share if car parking was unavailable?
- If not, what are the barriers to you using car share to travel to and from the site?
- What would make you consider using car share to access the site?
- Do you have any suggestions/recommendations to encourage uptake of sustainable modes of transport etc.?

Once the survey findings are available, methods to achieve specific targets can be identified with proposed time frames.

In the interim, a reasonable target mode share to aim for would be a 10% reduction in private car usage within five years from the baseline survey.

9.7.3 Step 3 – Prepare the Green Travel Plan

Based on the data, an overall vision for the travel modes should be considered with clear objectives. The GTP should be prepared based on these objectives, notably:

- Build a precinct culture that supports active travel by motivating and encouraging the community to get involved.
- Set specific SMART (Specific, Measurable, Achievable, Relevant, Timed) targets
- Develop an action plan that lists activities and strategies that eliminates the community's barriers to active travel to meet the objectives.
- Estimate the budget required to meet the objectives, identify funding source, and develop implementation strategies.
- Review and consult with the community.

9.7.4 Step 4- Deliver and Implement

Once developed, launch the GTP and carry out regular monitoring (every 12 months is recommended) as part of the implementation strategy. Travel mode data should be collected and reviewed each quarter.

9.7.5 Step 5 – Recognise Progress

The successes of the GTP should be celebrated regularly, for example at key community events. The plan should regularly be reviewed and include new ideas, targets, and benchmarks.

9.8 Proposed Action Items

In developing the GTP, it may not be possible to implement all action items at the same time, therefore a staged implementation should be considered. There may be some crucial actions that can be implemented immediately, while others might take longer to plan and develop.

Before implementing any actions, relevant stakeholders must be consulted to approve the changes.

The following travel mode hierarchy is proposed for this GTP:



Figure 37 - Mode Hierarchy

There are several actions which can be employed to encourage non-car modes of transport to and from the site. The following sections outline the potential strategies that can be adopted in achieving future transport targets.

9.8.1 Walking

Walking is the most space efficient mode of transport for short trips and presents the highest benefits. Cobenefits where walking replaces a motorised trip include improved health for the individual, reduced congestion on the road network and reduced noise and emission pollution. The following action items could be implemented to increase walking amongst employees within the development:

- Employees living within 1km of the precinct could be targeted to walk to work for their commuting journey;
- A working partnership could be established with City of Sydney Council to determine whether there are opportunities to improve the pedestrian connectivity to the precinct.
- Employees could be encouraged to implement the '10,000 steps per day initiative' to measure their daily step count as a way of promoting a healthy lifestyle; and
- Employees could be encouraged to participate in 'Walk to Work' day on an annual basis.

9.8.2 Cycling

Of the total (TBC) bicycle parking spaces, a target of (TBC%) electric bicycle charging spaces has been adopted to encourage utilisation of cycling as a mode of transport. This results in an estimated provision of (TBC) electric bicycle spaces with associated charging outlets.

9.8.3 Public Transport

The site is well connected by public transport within a comfortable walking distance. To increase the public transport uptake by employees and visitors, the following measures could be considered:

- Create a map identifying the location of bus stops and routes and make this available to all users;
- Improve wayfinding signage between the site and nearby public transport interchanges could be discussed with City of Sydney Council; and
- Promote the use of apps for public transport connectivity.

As outlined in Section 5, the site is situated within 300m walking distance (approx. 6-minute walk) to the future Waterloo Metro Station which is anticipated to be operational by 2024. This will be a convenient form of transportation for employees and visitors as it will provide connections to the Sydney CBD and the wider Sydney region.

9.8.4 Car Share

Several car share pods are available within the vicinity of the site which are operated by GoGet as shown in Figure 38.



Figure 38 - GoGet Car Share Pods within vicinity of site (Source: Google Maps)

Car sharing provides an alternative to private vehicle ownership and has community benefits such as avoided embodied carbon from reduced parking provision, reduction in greenhouse gas emissions and overall greater amenity for the local community.

9.9 Promotion and Marketing Strategy

Once the plan has been adopted, it is essential to maintain interest in the scheme. Each new initiative in the plan will need to be publicised with effective marketing. Actions are the core of a GTP, therefore, the GTP needs to have a variety of actions that guide strategies relating to promotion, facilities, and policies to create incentives for sustainable travel behaviour. If actions are to be staged, a staging strategy should be outlined in the plan.

Strategic promotion of travel plans and associated initiatives tend to result in higher uptake of sustainable travel modes. It is imperative to ensure that all users are aware of the initiatives. From time to time, assistance should be sought from the City of Sydney Council, Bicycle NSW, Pedestrian Council Australia, TfNSW and other stakeholders.

Another way to promote non-vehicle mode of transport is to print a map on the back of business cards or brochures. Best practice suggests that the information should be as concise, simple and site specific as possible. If instructions are too complex, staff members are likely to ignore them.

9.10 Monitoring and Evaluation

A travel plan should not simply be a list of actions. Monitoring and reviewing a travel plan is one of the most critical components of the travel planning process. It is crucial to understand whether and how the travel plan is having an impact on the mode share. An annual review of the GTP is recommended to identify how mode share has changed over time. This will assist in understanding whether progress is being made.

The monitoring strategy should ensure that the GTP is achieving the desired benefits. As stated in Section 9.7.2, it is essential to undertake the initial data collection of the existing mode share to establish targets and overall goals. Surveys will help to identify which actions are having an impact on occupant's travel behaviour and whether some are more effective than others. It may also help to identify ongoing or unresolved issues and barriers that are preventing greater improvement.

The overall success of the GTP will depend on good communication. It will be necessary to explain the reason for adopting the plan, promote benefits and provide information about alternatives to driving. It will also be necessary to provide feedback to occupants to ensure that they can see the benefits of sustainable transport.

Once data are updated, the targets and actions of the travel plan will need to be reviewed. The review should consider:

- Are the targets still realistic? Are they still ambitious? Should they be updated?
- Are employees and visitors struggling to achieve particular targets? What are the likely reasons for this?
- Are there any gaps with regards to actions?
- What is preventing further improvement on mode share and how can this be addressed?

The GTP Coordinator will be responsible for ensuring that annual performance reports are provided to Council for at least the first five years from occupation of the development. Consultation with the City of Sydney Council during the monitoring and evaluation process will ensure that the targets are still achievable and allow for any existing strategies to be adjusted or developed to achieve the outlined mode share targets.

The steps outlined above should not considered as a linear process, rather be an ongoing cycle. Travel planning requires regular review and adjustment which may reveal the need to reconsider objectives or targets or to add new actions to create greater incentives for the uptake of sustainable transport choices.

10. Construction Traffic and Pedestrian Management Plan (Preliminary)

10.1 Traffic Management Planning Process

Temporary Traffic Management (TTM) for the project has been planned in accordance with Transport for NSW, *Traffic control at work sites – Technical Manual, Issue No.6.0,* 14 September 2020 (TCAWS). The process is shown in Figure 39.



Figure 39 - Construction Vehicle Ingress Route

An iterative process is being adopted in collaboration with relevant stakeholders to adopt the most appropriate traffic management approach and develop the associated documents for the work.

10.2 Traffic Management Strategy

A traffic management strategy has been chosen to support the appropriate allocation of time, funds and resources for the project, and allow for consultation in determining the safest and most efficient way for road users to interact with the work site.

The traffic management strategy included consistent engagement with TfNSW through the development and submission of an initial Construction Traffic and Pedestrian Management Plan (CTPMP). The CTPMP process highlighted the initial data collection and options assessment to ensure the lowest net risk for all stakeholders were considered. The following have been considered in determining the TTM method:

Detour options

No detours are necessary or proposed by the client and therefore, disproportionate amount of disruption to the road users will NOT be introduced.

Site location

The site is located on the corner of Locomotive Street. Further locations TBC

Work area

The area needed to safely perform the work does not require any road closure as all work will be performed on site.

Vulnerable road users

Desire lines of pedestrians, cyclists, motorcyclists and users of scooters do not impact on works or create undesired interaction between these road users and traffic

Community facilities and needs

The presence of the surrounding bus stops on Henderson Road and the train station at Redfern does not create conflict with the work.

10.3 Decisions of TTM Method

After considering the factors in Section 10.2 and the recommendation of the client, the TTM method chosen is "Around (elimination)" as traffic can and will be completely separated from the work area. This method will provide the lowest overall net risk option.

10.4 Objectives

The traffic management plan associated with the construction activity aims to ensure the safety of all workers and road users within the vicinity of the construction site and the following are the primary objectives:

- To minimise the impact of the construction vehicle traffic on the overall operation of the road network;
- To ensure continuous, safe and efficient movement of traffic for both the general public and construction workers;
- Installation of appropriate advance warning signs to inform users of the changed traffic conditions;
- To provide a description of the construction vehicles and the volume of these construction vehicles accessing the construction site;
- To provide information regarding the changed access arrangement and also a description of the proposed external routes for vehicles including the construction vehicles accessing the site;
- Establishment of a safe pedestrian environment in the vicinity of the site.

10.5 Hours of Work

All works associated with the project will be restricted the following working hours:

- Monday to Friday
 TBC, subject to consent conditions
- Saturday
 TBC, subject to consent conditions
- Sunday and Public Holidays TBC, subject to consent conditions

10.6 General Requirements

In accordance with Transport for New South Wales (TfNSW) requirements, all vehicles transporting loose materials will have the entire load covered and/or secured to prevent any large items, dust or dirt particles depositing onto the roadway during travel to and from the site. All subcontractors must be inducted by the lead contractor to ensure that the procedures are met for all vehicles entering and exiting the construction site. The contractors will monitor the roads leading to and from the site and take all necessary steps to rectify any road deposits caused by site vehicles.

Vehicles operating to and from and within the site shall do so in a manner which does not create unnecessary noise or vibration.

No tracked vehicles will be permitted or required on any paved roads. Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like, under any circumstances. No construction vehicles are permitted to double park, or park on the public road.

10.7 Construction Process

- Construction Program / Milestones
 - Stage 1 Building works and fit out months
 - Stage 2 Landscaping months
- Average construction workers per day during the main construction phase is about persons;

It is expected that the construction will involve approximately the following number of vehicles during each stage of the project:

- Stage 1 Building works and fit out: per day (Truck and Dog)
- Stage 2 Landscaping: per week (Mainly up to 20m Articulated Vehicle)

Within the context of the broader road network, construction traffic activity, which will be spread throughout each day, is not anticipated to cause a notable impact upon the capacity or operation of the road network and will fall within typical daily traffic variations.

The abovementioned construction works are to be completed within the main works. The plan for the proposed works is shown in Figure 40

Figure 40 - Construction Plan (TBC)

10.8 Construction Vehicle Types

The construction stage of the development will involve the use of a number of different vehicle types in relation to the various stages and tasks involved. The main building structure will be constructed using precast elements; Therefore, the maximum vehicle size has been determined on the basis that the largest precast member have been chosen. All vehicles will be limited to up to a 20m long Articulated Vehicle (TBC) for all material removal and deliveries.

Any oversized vehicle (including the use of mobile cranes) that is required to travel to the project into the vicinity of the site will be dealt with separately, with the submission of required permits to and subsequent approval by Council and TfNSW prior to any delivery being undertaken.

Refer to Section 10.10 for further details regarding special deliveries.

10.9 Construction vehicle Routes

The site is located on the corner of Locomotive Street. Locomotive Street has been constructed to link to Garden St which connects to Henderson Road (Regional Roads).

The proposed construction vehicle routes have regard for the surrounding traffic arrangements in the vicinity of the site. No queuing or marshalling of trucks is permitted on any public road and all loading and unloading of materials will be undertaken within the site as described in Section 10.7. All vehicle routes to and from site are constrained to existing public roads that have the physical geometry to accommodate the turning movements.

10.9.1 Road Rules 2014 - NSW Legislation Regulation 28

The following has been extracted from the road rules which allows for the use of multi-lanes to perform a left turn manoeuvre for the proposed heavy vehicles.

A driver may approach and enter the intersection from the marked lane next to the left lane as well, or instead of, the left lane if:

- (a) the driver's vehicle, together with any load or projection, is 7.5 metres long, or longer, and
- (b) the vehicle displays a do not overtake turning vehicle sign, and
- (c) any part of the vehicle is within 50 metres of the nearest point of the intersection, and
- (d) it is not practicable for the driver to turn left from within the left lane, and
- (e) the driver can safely occupy the next marked lane and can safely turn left at the intersection by occupying the next marked lane, or both lanes.

10.10 Construction Vehicle Access and Work Zone Provision

(TBC)

10.11 Traffic Control Measure

The Traffic Guidance Schemes (TGS) outlines the proposed traffic management to inform road users of the changed traffic conditions in the vicinity of the works site. This will minimise conflicts between construction vehicles and existing traffic in the locality.

The TGSs have been set out in accordance with the RMS Traffic Control at Works Site. These specific TGSs will be provided by the traffic management contractor prior to commencement of works and submitted to Council / TfNSW for approval.

A trained and accredited TfNSW traffic controller will be required to meet the requirements of the TCAWS.

10.12 Pedestrian Access

The general public will not be allowed access to the site. The contractor will ensure that the proposed site fencing is maintained in a clean, well illuminated and safe manner at all times, throughout the duration of the project. Due to the nature of the site and the emphasis placed on materials handling, the efficient control and protection of pedestrian traffic is of utmost importance.

The site perimeter boundaries consist of site fencing, installed during the various construction phases. The site fencing will be established immediately following site possession and fitted with appropriate public directional signage.

It should be noted that Traffic Controllers are **NOT** to stop general traffic, pedestrians or cyclists on the public street(s) to allow trucks to enter or leave the site. They **MUST** wait until a suitable gap in traffic allows them to assist trucks to enter or exit the site. Special treatment is not to be given to trucks leaving a construction site - the vehicles already on the road and pedestrians on the footpath have right-of-way.

Pedestrians may be held only for very short periods to ensure safety when trucks are leaving or entering BUT the contractor must NOT stop pedestrians in anticipation i.e. **at all times the pedestrians have right-of-way on the footpath, not construction vehicles**.

10.13 Special Deliveries

It is understood that oversize vehicles are generally not allowed to travel on Local Roads unless approval for a one-off occasion is obtained from the National Heavy Vehicle Regulator (NHVR) and Council. Requests to use these vehicles must be submitted to the NHVR 28 days prior to the vehicle's scheduled travel date. For more information, please contact the NHVR on 1300 696 487 or www.nhvr.gov.au.

Should the lead contractor require a partial road closure on State, Regional and/or Local Roads, or carry out work within 100m of Traffic Signals, an application will be made to the relevant authority to obtain their approval.

10.14 Cumulative Effect of Adjacent Developments

We are aware that the Waterloo Metro Station Quarter project will likely be under-construction while the LES project commences, however the sites are located at a sufficient distance to not cause a significant overlap within the road network.

10.15 Construction Staff Parking

As discussed in Section 4.4, the average number of construction staff per day will be approximately <mark>...</mark> No parking spaces will be provided for the construction staff.

To minimise car usage, the contractor will be encouraged to assist in the transportation of workers to the site and all site personnel will be made aware of the public transport options available in the vicinity of the site (refer to Section ...) and encouraged to utilise these facilities.

Site personnel who choose to drive will also be encouraged to consider car-pooling wherever practicable.

10.16 Work Site Security

To provide security to the works site and protection to the general public, it is likely that the site perimeter boundaries will comprise of site fencing, installed during the various construction phases. The site fencing will be established immediately following site possession and fitted with appropriate public directional signage. The exact location of the site fencing will be determined by the contractor.

All gates are securely locked outside of working hours and may be regularly patrolled by security staff. This security network should work closely with the contractor to ensure that security is being maintained throughout the construction period.

The contractor should maintain a site entry register requiring all visitors to sign in upon entry. All visitors will be required to wear an identification "visitor" badge and wear appropriate PPE at all times while on site.

All visitors to the site will also be issued with temporary site access ID card, in order to gain authorised entry to the project site and for display whilst being escorted on site.

10.17 Construction Staff Induction

All construction staff and subcontractors are required to undergo a site-specific induction which outlines the construction procedures and management framework specific to the project. The induction is aimed at instilling in each person a common-sense approach to safety, to ensure they employ the responsible environmental practices and awareness needed to deliver the project in accordance with the relevant regulations and standards.

A record of all site inducted personnel will be retained on site as well as within the site induction management platform.

10.18 Emergency Vehicle Access

The proposed traffic control arrangements do not propose closure of any local roads. Any emergency vehicles requiring access to the project site will do so via the site access along Locomotive St.

A detailed Emergency Management Plan will be further developed by the contractor prior to site establishment works.

10.19 Access to Adjoining Properties

Access to all adjoining properties will be maintained throughout the works. The adjacent landowners will be notified of works in accordance with the Community Communication Strategy and road signage to be

advised of anticipated truck movements in operation with access to adjoining properties being maintained at all times.

10.20 Occupational Health and Safety

Any workers required to undertake works or traffic control within the public domain shall be suitably trained and will be covered by adequate and appropriate insurances. All traffic control personnel will be required to hold TfNSW accreditation in accordance with Section 2.4 of Traffic Control at Worksites.

The comprehensive Work Health & Safety Management Plan will be provided by the contractor and shall be constantly reviewed as the design and construction methodology progress.

10.21 Method of Communicating Traffic Changes

During construction the contractor shall each morning, prior to work commencing, ensure all signage is erected in accordance with the TGS and clearly visible. Each evening, upon completion of work, the contractor is to ensure signage is either covered or removed as required.

Any variation to the layout of the TGS on site is to be recorded and certified by authorised TfNSW accredited personnel. The associated TGS road signage will inform drivers of works activities in the area including truck movements in operation.

10.22 Contact Details for On-Site Enquires and Site Access

name

designation 0000 000 000

10.23 Maintenance of Road and Footpath

The roads and footpaths along the route of travel will be kept in a serviceable state at all times. Any damage arising as a result of the proposed truck movements will be treated / repaired by the contractor at no cost to Council in accordance with consent condition D13.

10.24 Hazard and Risk Identification

All construction projects entail a set of risks—from a transport perspective—that may need to be mitigated. Some of these hazards and risks are related to:

- moving traffic
- queued traffic
- site vehicle access and egress points
- topographical constraints

This is appropriate for the construction of Large Erecting Shop (LES) because of the following (TBC):

• R1,R2

As there is no guarantee that the contractor responsible for implementing the TGSs are fully aligned with the intention of this traffic report, this remains a risk to be assessed. As such, a risk matrix has been prepared as shown in Table 14 using the following definitions:

Risk Rating

- Very High (VH)
- High (H)
- Medium (M)
- Low (L)

Likelihood

- Insignificant: Illness, first aid or injury not requiring medical treatment. No lost time.
- Minor: Minor injury or illness requiring medical treatment. No lost time post medical treatment.
- Moderate: Minor injuries or illnesses resulting in lost time.
- Major: 1 to 10 serious injuries or illnesses resulting in lost time or potential permanent impairment\
- Severe: single fatality and/or 11 to 20 serious injuries or illnesses* resulting in lost time or potential permanent impairment.
- Catastrophic: multiple fatalities and/or more than 20 serious injuries or illnesses* resulting in lost time or potential permanent impairment.

Consequence

- Almost certain: expected to occur multiple times (10 or more times) during any given year
- Very likely: expected to occur occasionally (1 to 10 times) during any given year.
- Likely: expected to occur once during any given year.
- Unlikely: expected to occur once every 1 to 10 years.
- Very unlikely: expected to occur once every 10 to 100 years.
- Almost unprecedented: not expected to occur in the next 100 years.

Table 14 - Risk Matrix

Consequence						
	Insignificant C6	Minor C5	Moderate C4	Major C3	Severe C2	Catastrophic C1
Almost certain L1						
Very likely L2			R1, R2			
Likely L3						
Unlikely L4						
Very unlikely L5						
Almost unprecedented L6						

Some recommended risk mitigation measures include:

• Council to monitor the implementation of the Traffic Guidance Schemes (TGSs). As necessary, the appropriate officer visiting the site shall have the authority to enforce compliance with illegal parking. This will also allow documentation of any form of illegal parking or parking contrary to this CTPMSP.
10.25 CTPMP Approval, Monitoring and Review

This CTPMP has been reviewed and endorsed by the designer's one-up manager who holds a current Prepare Works Zone Traffic Management Plan qualification. This approved CTPMP has been used to inform the development of all TGSs for the work.

Regular monitoring and review are to be conducted throughout the life of the project to ensure that the CTPMP remains current and addresses all risks at the work site for the duration of the project or activity.

To ensure that this CTPMP is kept up to date, the activities identified in Table 15 will be undertaken to facilitate review and continuous improvement

Stage	Activity	Purpose	Qualification	Tools and checklists
Planning	TGS verification	To ensure that the TGS selected or designed is suitable for the works and location.	ITCP or PWZTMP	TCAWS Appendix E.2 TGS verification checklist
During TTM	Weekly TTM inspections (includes preopening inspection)	To ensure that the CTPMSP and relevant TGS are appropriate and operating safely, effectively and efficiently	PWZTMP	TCAWS Appendix E.3 Weekly TTM inspection checklist
	Shift TTM inspections	 To ensure that the TGS is implemented as designed. This includes at a minimum, twice per shift and when: A TGS is installed, changed or updated. At regular frequency afterwork commences, recommended every 2hours; and Once after care arrangements have been installed if required 	ITCP or PWZTMP	TCAWS Appendix E.4 Shift / Daily TTM inspection checklist
	CTPMP review	To ensure that CTPMSP controls are achieving the required outcomes.	PWZTMP	Not provided
	Client inspections	Verification of TTM through the Transport Traffic Engineering Services, Work Health and Safety Branch, Surveillance Officers or other client representatives.	Divisionally determined	Not provided
Post Completion	Post- completion inspection	To ensure that the site has been demobilised as planned and is safe for opening to traffic	ITCP or PWZTMP	Appendix E.5 Post completion inspection checklist

Table 15 - Monitoring Activities

All relevant changes must be considered and recorded in the CTPMP with any changes made by an appropriately qualified person. A copy of all documentation relating to the endorsement of the changes must be available to be accessed, either electronically or in hard copy, by the person responsible for the works, and the amended version to be forward to the Planning Secretary.

11. TGS Confirmation and Approval

Traffic Guidance Scheme (TGS) outlines the proposed traffic management to inform road users of the changed traffic conditions in the vicinity of the works site. The TGS must be set out in accordance with Issue 6.0 of the Traffic control at work sites Technical Manual, November 2020 (TCAWS).

A TGS is to be implemented on _____ throughout the project to warn road users that trucks will be turning into and out of the site, in accordance with TCAWS TGS D.4.7.

It is noted that any changes to the existing parking restrictions will require a minimum fourteen (14) days notification to adjoining property owners prior to the implementation of any temporary traffic control measures; Refer to Community communication strategy.

Any revisions or additional TGSs ones must be prepared by a PWZTMP qualified person upon engagement of the traffic management contractor and prior to commence of works on site.

11.1 TGS Verification

TCAWS TGS D.4.7 has been approved as being appropriate for use at the work site. Site confirmation must be undertaken via the completion of the TGS verification.

A TGS verification must be undertaken to confirm the selected or designed TGS is fit for purpose. A TGS verification must be completed in accordance with Section 8.1.2 TGS verification by an ITCP or PWZTMP qualified person. TGS verification must include an inspection of the work site where the TGS will be implemented.

11.2 TGS Approval

The PWZTMP qualified person who has designed or modified the relevant TGS has approved the TGS for use. Approval of the TGS includes:

- Review of the relevant TMP, risk assessment and associated TTM specific documentation;
- Design, redesign or modification of the TGS must be in accordance with the requirements of TCAWS;
- Confirmation that the TGS provides the relevant information for the ITCP person to safely implement on-site.

The one up manager of the PWZTMP qualified person has approved the TGS, including:

- Any non-standard or unaccepted signs or devices;
- Any departures from the requirements of TCAWS;
- If a manual traffic controller is proposed for use.

12. Conclusion

ptc. has been engaged by TAHE to undertake a traffic analysis of the surrounding road network for the proposed development of Large Erecting Shop (LES) located at South-Western end of the South Eveleigh Precinct.

The State led rezoning is intended to permit the redevelopment of the LES into a mixed-use development with approximately 15,000m² of commercial space with 20 at grade parking spaces and 2 at grade pickup & drop-off bays.

The site is well serviced by public and active transport and is in proximity to numerous bus stops as well as Redfern Train Station, and the future Waterloo Metro Station. Our assessment has confirmed that the site is able to benefit from this range of transport options enabling a mode share predominantly involving public and active transport modes. The resulting use of the surrounding public transport and public domain infrastructure is able to support the projected increase in activity with no remedial works required.

With regards to parking provisions, application of the City of Sydney Council DCP parking rates to the proposal results in a maximum permissible parking provision of 111 car parking spaces. The proposal provides 20 parking spaces. It is intended that the limited car parking supply in combination with the presence of the high-quality existing and proposed public and active transport infrastructure will motivate staff and visitors to travel by modes other than private vehicles.

An assessment of the concept car parking layouts has been undertaken with respect to the minimum requirements of the ASS2890 series. The maximum sized vehicle expected to access the site will be an 8.8m MRV and the swept path analysis in Attachment 2 demonstrates that an 8.8m MRV is able to manoeuvre into and out of the site in a forward direction.

For the purposes of this assessment, **ptc.** has undertaken a review of the traffic analysis framework, concept car parking layout, loading dock arrangements, and based on our assessment, the proposed car park and access arrangements are deemed suitable and to be capable of complying with the requirements of the relevant Australian Standards and planning policies.

Attachment 1. Architectural Drawings





2022

Legend -JONES MOREHEN THOR



fjmtstudio / architecture / interiors / urban / landscape / place





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Commercial Office

ES MOREHEN THORPI Legend Retail / F&B

Circulation





11/8/2022





Attachment 2. Loading Dock Swept Paths

	comments	A1
	TYPICAL	
	Please note the following complian	nce requirements:
	Height Clearance: 2.2m (min) throuch the car park accessi bicycles. 2.5m above accessi bicycles.	ughout all areas of the ble to vehicles and cessible and shared bays
	<i>Sight Splays:</i> Zm right-angled (AS2890.1). Ens	and safety clearance in the form of a 2.5m x d triangle to be provided ure design avoids visual
	Parking Spaces: The parking envice the functions in some serving the parking envice of all including height	sight splay (i.e. dense I fencing/walls etc.) /elopes shown, must be physical obstructions, t clearance reductions.
	Accessible Spaces: To be designed Accessible Spaces: To be designed As2890.6. i.e, s with adjacent sh	exceed 1:20 (1:40 for exceed 1:20 (1:40 for). I in accordance with tandard parking space hared bay (2.4m x 5.4m)
	to be installed a requirements (b <i>Bicycle Parking:</i> Bicycle spaces a envelope of 500	as per AS2890.6 ollard and markings). are to allow for a Dmm by 1800mm, with f 2000mm for locker
	<i>Control Measures:</i> Please note recomposition of the storage, or 1500 <i>Control Measures:</i> Please note recomposition pressures, inclue signage, bollarcomposition of the stores.	Dmm for racks. Dmm for racks. Dmmended control ding line markings, ds, convex mirrors, lights
	VEHICLE PROFILE	
	EGRESS	INGRESS
	B99 Vehicle (Realistic min radius) (2004) B99 Vehicle (Realistic min radius) (2004) Overall Width Overall Body Height Min Body Ground Clearance Track Width	5.200m 1.940m 1.878m 0.272m 1.840m 4.00s
	Curb to Curb Turning Radius	6.250m
	MRV – Medium Rigid Vehicle Overall Length Overall Width Min Body Height Min Body Ground Clearance Track Width Lock-to-lock time Lock-to-lock time Curb to Curb Turning Radius	
	PARKING TEMPLATE CLASS 1A FACILITY WIDTH 2.6m LENGTH 5.4m	
3 TITLE	CLIENT MIRVAC	PRELIMINARY
ig Dock Swept Paths	DRAWING # PTC-001 PRO.IFCT # 22-0332	AFV P1
	SCALF 1:100 @ A1	- - \

