

Atlassian Atlassian Central Station

Transport Assessment

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JMT Consulting

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1 Introduction

1.1 Background

This is a Planning Proposal lodged on behalf of Atlassian Pty Ltd (the applicant) in support of a formal amendment to Sydney Local Environmental Plan 2012 (SLEP 2012) seeking changes to the building height and floor space ratio development standards which apply to the site at 8-10 Lee Street, Haymarket.

1.2 Site location

The Site is located at 8-10 Lee Street, Sydney. It is adjacent to Central Station, Railway Square and Henry Deane Plaza. The site is 3486sqm in area. There is a 68m long boundary with the Central Station Platforms to the South East. There is a 43m boundary to the south west with a commercial building at 14 Lee Street. The existing structure on site was originally the Parcel Shed for the postal service. Currently the site is occupied by Sydney Railway Square Youth Hostel.

The site location is highly strategic and significant, located directly adjacent to Central Railway Station, which is undergoing rapid transformation by the NSW State Government to allow for the integration of rail, metro and light rail transport infrastructure to improve connectivity in Sydney. These infrastructure upgrades will critically elevate the role and function of Central Station not only for transport, but also pave the way for the renewal and revitalisation of the precinct around the Station, which is ideally positioned for more intensive employment growth by these important enhancements



Figure 1 Site location

1.3 Proposal description

The intended outcome of the Planning Proposal is to create Australia's first 'Innovation Precinct' adjacent to Sydney's Central Railway Station, by introducing new built form controls to the site which would provide an iconic commercial office tower for the new global headquarters of Atlassian (who would anchor, grow and nurture the Precinct), a re-imagined and adaptive reuse of the YHA tourism accommodation, and a range of spaces for local and emerging tech/start-up companies to thrive.

As demonstrated in the indicative concept design that accompanies the Planning Proposal, the future development could consist of approximately 68,500m² GFA over 36 levels, including:

- Approximately 58,000m² of commercial (office) GFA
- Approximately 7,500m² GFA for YHA
- Approximately 3,000m² GFA ancillary retail space

1.4 Report purpose

This traffic and transport assessment, prepared by JMT Consulting on behalf of Atlassian, supports the planning proposal. It provides an update to the initial traffic and transport assessment report prepared by Arup in November 2018 for the project. The report covers the following items:

- Existing conditions in the precinct
- Proposed site access arrangements, including servicing/loading
- Future modal splits to the development
- Total trips generated by the proposal
- Traffic impacts on the adjacent road network

2 Existing Transport Conditions

2.1 Vehicle access and parking

The site shares private vehicular access with drop off for the Adina Hotel, with access via Lee Street to the west of the site. Vehicular access is via a boom gate with access primarily to Adina hotel drop off, services and staff parking. On-site parking includes 5 YHA car spaces and space for motorcycle parking. The site shares parking with Adina Hotel with the provision of 16 car spaces, 3 spaces for adjacent retail stores, and 2 spaces reserved privately. The on-site parking is predominately for service vehicles, with hotel parking provided in an underground car park accessed via Ambulance Avenue.



Figure 2 Existing vehicle access point

Within Lot 118 on Ambulance Avenue there are approximately 20 parking spaces which are reserved for authorised Transport for NSW vehicles.



Figure 3 Existing parking within Lot 118

2.2 Public transport access

The site is immediately adjacent to Central railway station – Australia's busiest transport interchange. The interchange provides extensive public transport access across Sydney including local trains, buses, light rail services, country-link services, and private buses and coaches.

Figure 4 shows a visualisation of a 15, 30 and 45 minute catchment that can be reached from the site via. public transport.



Figure 4 Existing public transport catchment

2.3 Bicycle network

Being located adjacent to Sydney's busiest railway station, the site is served by an extensive cycling network. The existing network of cycleway adjacent to the site is shown in Figure 5 below.



Figure 5 Existing cycleway network

2.4 Pedestrian network

There is a well developed network of pedestrians routes that currently service the site. The majority of pedestrians currently access the site via either:

- Devonshire Street tunnel which provides an east-west connection through Central Station; or
- Railway Square which provides access for pedestrians arriving via bus. Pedestrians cross Lee Street via an existing mid-block pedestrian crossing or via the Lee Street tunnel and Henry Deane Plaza. The Lee Street tunnel provides connectivity to the broader area including UTS and the nearby Goods Line.

<complex-block><complex-block>

These existing pedestrian connections are illustrated in Figure 6.

Figure 6 Existing pedestrian connections

There are a well developed network of footpaths in the vicinity of the site, in particular Lee Street, George Street and Pitt Street. Some existing pedestrian issues in and around the site include:

- Capacity of Devonshire Street tunnel to move significant volumes of pedestrians during the weekday commuter peak hours, leading to congestion around Henry Deane Plaza
- Long wait times and crossing distances at signalised pedestrian crossings of major roads such as Lee Street, George Street and Broadway.
- There is no dedicated footpath along Upper Carriage Lane which provides access to the site for pedestrians arriving via Lee Street (see Figure 7). Further there is no continuous footpath treatment provided along Lee Street across Upper Carriage Lane which does not emphasise pedestrian priority at this location.



Figure 7 Upper Carriage Lane

3 Transport Assessment

3.1 Site access and servicing

A two-staged approach to vehicle access is proposed which aligns with the broader development of the Central Station precinct. This staged vehicle access approach is illustrated in Figure 8 and described in the sections below. The staging considers the following:

- Temporary solution: Prior to an integrated basement being delivered as part of the redevelopment of Henry Deane Plaza by Dexus-Frasers. Access to be via a new driveway located off Lee Street at Upper Carriage Lane.
- Permanent solution: Following the delivery of an integrated basement being delivered as part of the redevelopment of Henry Deane Plaza by Dexus-Frasers, including a single vehicle access point at the southern end of Lee Street.



Figure 8 Proposed vehicle access arrangements

3.1.1 Temporary access arrangements

In the short term vehicle access to the Atlassian building will temporarily be provided via a new dive structure from Lee Street located at Upper Carriage Lane (existing access point to YHA). This ramp would grade down from Lee Street and provide access to the existing Adina Hotel car park (Level B1) and the Atlassian loading dock (Level B2). Ambulance Avenue would cease to function as the access point for the Adina Hotel – with all vehicle access (including taxis / drop off) via the new Lee Street driveway.

The vehicle access arrangements under the temporary solution are shown in Figure 9 below.



Figure 9 Access arrangements - temporary solution

It should be noted that in the event that the integrated basement option (permanent access solution) does not proceed, the temporary solution has the ability to accommodate expected traffic movements for the Atlassian building for the life of the building.

3.1.2 Permanent access arrangements

Under the preferred permanent arrangement, access for all vehicles will be via a new connection as part of the proposal currently being investigated by Dexus-Frasers for the redevelopment of Block B (Henry Deane Place) into a large scale mixed-use development. Vehicle access from the adjacent road network would be via the southern end of Lee Street at the existing driveway located opposite Little Regent Street (previously shown in Figure 8). This driveway currently services the buildings located in Henry Dean Plaza and would act as the singular access point for vehicles in the wider Central Station precinct. Vehicle access for the Adina hotel would also revert to this new connection. A connection between the Atlassian loading dock and the future over-station development (OSD) loading dock is also proposed in this scheme.

An illustration of access arrangements under the permanent solution is provided in Figure 10.



Figure 10 Access arrangements - permanent solution

3.2 Driveway design principles

To emphasise pedestrian priority along Lee Street, driveway entrances which are fully integrated with the adjoining footpath should be provided. The footpath is to be at one continuous level. The treatment will therefore be an area which is designed for pedestrians, across which vehicles can pass slowly. Drivers of vehicles will be guided and encouraged to give way to pedestrians on the footpath as required by law. The crossings would also be designed with consistent pavement material.

The photographs below illustrates the Westin Hotel porte-cochere in Pitt Street south of Martin Place. This provides a good example of a driveway crossover located on a street with high pedestrian activity that works well in busy periods.



Figure 11 Westin Hotel porte cochere entrance

Other than promoting drivers to give way to pedestrians, the driveway should also be designed to balance ease of vehicles in utilising the driveway with minimisation of pedestrian crossing distances. It is recommended that the City of Sydney standard driveway width of 5.5m is adopted as part of the design.

3.3 Loading dock size and layout

To determine the appropriate number of vehicles to accommodate within the loading dock, research undertaken by Arup in 2018 has been referenced. This Arup research led to the development of relationship between GFA and loading dock peak hour vehicle movements (shown in Figure 12). While the level of loading activity is dependent on a number of factors and not simply the GFA of the building, this does provide a useful forecasting tool when assessing the loading and servicing requirements for planned office buildings.

Given the Atlassian development proposal is expected to have approximately 72,000 m² GFA, approximately 22 loading dock movements are anticipated during the peak hour.



Figure 12 Relationship between building GFA and peak hour service vehicle activity Source: Arup, 2018

The current design proposes to provide a total of seven service vehicle bays within the loading dock, comprising of:

- Two bays for medium rigid vehicles (MRVs) up to 10m in length
- Three bays for small rigid vehicles (SRVs) 6.5m in length
- Two bays for vans / courier vehicles up to 5.2m in length

This provision (at a turnover rate of approximately 20 minutes) is considered sufficient to accommodate the loading and servicing demands during peak hours.

The current layout of the loading dock is presented in Figure 13 below. This will be refined further following the completion of the design competition phase of the project.



Figure 13 Atlassian loading dock layout

Vehicle swept path diagrams which illustrates the manoeuvrability of vehicles within the loading lock are provided in Appendix A.

3.4 Design vehicle and technical specifications

The following technical specifications have been adopted as part of the design as summarised in the table below.

Design item	Specification	
Vehicle name	Medium Rigid Vehicle (MRV)	
Vehicle length	Up to 10m (typically between 8m – 10m)	
Vehicle width	2.5m	
Vehicle head height	Maximum 3.6m	
Design vehicle turning radius	10m	
Vehicle ramp gradients	 1:20 for at least 6m at the start of the ramp at Lee Street Maximum ramp gradient of 1:6.5 at any one time Transition at the base of the ramp of 1:9 for at least 5m 	
Ramp width (m)	5.5m width kerb to kerb for two way ramps (6.1m wall to wall)	

Table 1 Design vehicle and technical specifications

3.5 Car parking

Given the location of the building immediately adjacent to Central Station, no car parking is proposed to be provided for the use of Atlassian staff or visitors as part of the development. A small number of existing at-grade car parking spaces located at Upper Carriage Lane will be relocated into the basement – at this stage of the design approximately 10 spaces are to be provided in the link zone under the B2 ramp. Therefore the overall number of car parking spaces provided as part of the development will represent a reduction compared to existing conditions.

3.6 Future mode split

A target mode split for the proposal has been set and is presented in Figure 14. Similar to existing travel patterns, more than half of employment trips in the precinct will travel by Train/Metro (75%), with travel by bus (10%) having the second highest mode share. Walking and cycling are both anticipated to have a mode share of 5%.

Although no car parking spaces will be provided for staff of the site, a small amount of employees are expected to continue to drive, parking in neighbouring parking lots, rented spaces or at peripheral park and ride locations.



Figure 14 Forecast future mode split

3.7 Trip generation

The development is anticipated to generate the following number of staff arrival trips based on a typical day (i.e. assumed 90% office occupancy - 3,480 staff travel on a typical day). These trips would take place over a three hour morning peak period, with approximately 50% taking place during the morning peak hour (8am-9am).

In addition, the proposal involves the expansion of the YHA component of the site by approximately 250 beds. It has been conservatively assumed that this expansion will generate 250 trips in the peak hour.

As shown in Table 2, the additional employee trips generated by the proposal will be accommodated using sustainable modes.

Mode	Mode split	Future Person Trips	
		AM peak period (6.30am – 9.30am)	AM peak hour (8am – 9am)
Heavy rail / metro	75%	3000	1500
Bus	10%	400	200
Car, as driver	4%	160	80
Walked only	5%	200	100
Bicycle	5%	200	100
Car, as passenger	1%	40	20

Table 2 Total trips generated by proposal

3.8 Cumulative traffic impacts

As noted in Table 2, it is expected the development may generate up to 80 vehicle trips during the AM peak hour. These trips will be dispersed however across a number of neighbouring public car parking lots in the Haymarket area, and therefore would not adversely impact the road network. As previously noted the Atlassian proposal actually results in a reduction in the number of car parking spaces on-site due to the removal of existing parking outside the front of the YHA.

Other developments in the Central Station precinct are anticipated to adopt a similar approach to on-site car parking numbers as that adopted by Atlassian – i.e. zero or minimal spaces for staff and visitors.

As part of the transport assessment undertaken for Block B in the Central Station precinct (Henry Deane Place redevelopment), Arup undertook traffic modelling which considered the increased loading / servicing requirements for the entire Western Gateway sub-precinct (including the Atlassian building). The traffic modelling was based on no additional car parking being provided in the precinct for staff or visitors.

The traffic modelling considered the operation of the Lee Street / Regent Street intersection during the morning and evening commuter peak hours. This intersection will, under the preferred permanent access arrangement (described in Section 3.1.2) accommodate all vehicle access and egress to both Block A and Block B. The modelling demonstrated that this intersection would perform satisfactorily at Level of Service B in both peak hours.

Therefore cumulative traffic impacts arising from the redevelopment of the precinct are expected to be minimal.

3.9 Public transport

As previously noted, the site is strategically located directly adjacent to Central Railway Station, which is undergoing rapid transformation by the NSW State Government to allow for the integration of rail, metro and light rail transport infrastructure to improve connectivity in Sydney.

Sydney Metro City and Southwest has been announced to introduce a metro station at Central Station. The station is to be accessed via the existing northern station entry from Eddy Avenue and main northern concourse. The new metro platforms will provide an interchange for suburban, intercity and regional rail services, with buses, coaches and light rail.

As outlined in Section 3.7, the development will generate approximately 1,500 additional Train/Metro trips and 200 bus trips during the morning peak hour. The Sydney Metro, along with signalling and infrastructure upgrades across the existing Sydney rail network is anticipated to increase the capacity of train services entering the CBD – from about 120/hr today to 200 services beyond 2024. Considering the significant increase in capacity, the impact of the development on Train/Metro capacity is considered acceptable.

3.10 Pedestrian movements

The proposal provides for improved pedestrian connectivity and permeability in the precinct. Key features include:

- Vertical transportation (escalators and lifts) from lower ground to upper ground to facilitate access to the building
- Potential connections to over-rail concourse and future metro egress
- Through site connections to Henry Deane Plaza

More broadly the Central Station precinct envisages significant enhancements to the pedestrian network which will enhance accessibility to the future Atlassian building. This includes:

- The opening of the Sydney Metro Central station and the associated 'Central Walk' connection between Ambulance Avenue and Chalmers Street. The walk will connect new light rail services to the new Sydney Metro platforms and existing Sydney Trains platforms. It is expected that Central Walk will largely replace the Devonshire Tunnel as the main access point for rail-based pedestrian trips to the site. Central Walk will relieve existing capacity constraints at Devonshire Street tunnel (as noted in Section 2.4) and provide a direct connection through to the future Atlassian building (Block A).
- Pedestrianisation of Ambulance Avenue which becomes an extension of Central Walk. Vertical transport will be provided on Ambulance Avenue which will provide pedestrians with a direct connection through to the future Atlassian building.
- At-grade pedestrian-only connection between Central Walk West and Devonshire Street tunnel, located immediately adjacent to the future Atlassian building. This link provides a connection between Block A (Atlassian building) and Block B (Henry Deane Place site)

Future pedestrian movements through and around the site, taking into consideration the improvements noted above, are illustrated in Figure 15.





Following the development of the precinct access to the Atlassian building will primarily be via the following routes:

- Central Walk connection with vertical transport provided via Ambulance Avenue, for passengers arriving via the Sydney Metro network, suburban rail network or Sydney Light Rail;
- Devonshire Street tunnel for passengers arriving via the suburban rail network; and
- Lee Street pedestrian crossing for passengers arriving via bus at Railway Square.

The existing Lee Street surface footpath will form a secondary access route to the building, with connections through the redeveloped Henry Deane Plaza.

These future pedestrian connections through to the site are shown in Figure 16.



Figure 16 Future pedestrian access to Atlassian building Image Source: Arup (2019), modified by JMT Consulting

3.11 Bicycle access and parking

End of trip facilities and bicycle parking will be provided for employees and visitors of the new development in accordance with the Sydney City DCP 2012 and Green Star requirements.

Bicycle parking is required to be Class 2 secure bicycle spaces for the employees of the building and Class 3 bicycle racks for visitor spaces (which are easily accessible and clearly signposted).

The allocation and location of bicycle parking and access arrangements will be addressed in future applications. The current concept design has allocated space within the building footprint to accommodate the required bicycle parking and end of trip facilities.

3.12 Travel plan

Atlassian are acutely aware of the importance of facilitating and encouraging travel to and from the workplace by alternative modes to private car. With around 4,000 employees expected to be working in the building, there will be a need to implement a Travel Plan which will encourage employees to travel by sustainable modes.

The travel plan will promote commuting and business trips by walking, cycling and public transport and outline incentives which promote the use of these modes. The lack of parking provided as part of the development will, in itself, discourage employees from travelling by private car.

It is envisaged that regular staff travel surveys will be undertaken as part of the monitoring programme and to obtain feedback.

4 Summary

This report examines the transport, traffic, pedestrian and parking implications of the planning proposal for the site at 8-10 Lee Street, Haymarket. The site is very accessible by non-car modes, which will be further enhanced following the construction of the Sydney Metro City and South West rail line. The mode split target set for the site increases the proportion travelling by non-car modes further compared to the current situation.

It is anticipated that the proposal will have a negligible traffic impact on the road network, with no car parking spaces proposed for the use of Atlassian. The additional pedestrian trips generated as a result of this proposal will also have an acceptable impact on the surrounding footpaths and crossings considering the various route choices and entrances available.

Further detail regarding proposals for the site will be submitted in future applications for the site.

Appendix A: Vehicle swept path diagrams



;	
	Legend Body Envelope
	300mm Envelope 600mm Envelope
	Design Vehicle(s)
,	
	MRV - Medium Rigid Vehicle
	Overall Lengtn 8-800m Overall Width 2.500m Overall Body Height 3.633m Min Body Ground Clearance 0.428m Track Width 2.500m Lock to Lock Time 4.00 eac
I	Curb to Curb Turning Radius 10.000m
1	
	A 29'07/19 J Milston For information
	Issue Date By
	JMT Consulting
l	JMT Consulting ABIN: 44002755385
	Client
	Atlassian
	Job Title
	Atlassian Central Station
	Drawing Title
	Turning Paths - MRV
	Serie et 42
	Discipline Transport
	Drawing Status Draft Inb. No. Draving No.
	1902 Drawing No Issue A



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	Legend	Body Envelope	
		300mm Envelope	
		Wheel Envelope	
	Design Vehic	cle(s)	
	88		
	1.5 5		
1	MRV - Medium Rigid Overall Length Overall Width Overall Body Height Min Body Ground Cle	arance	8.800m 2.500m 3.633m 0.428m
	Track Width Lock to Lock Time Curb to Curb Turning	Radius	2.500m 4.00 sec 10.000m
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