Stockland Development Pty Ltd

601 Pacific Highway, St Leonards

Transport Impact Assessment

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Arup
Arup Pty Ltd ABN 18 000 966 165

Arup
Level 10 201 Kent Street
PO Box 76 Millers Point
Sydney 2000
Australia
www.arup.com

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Contents

Tables

Figures

1 Introduction

1.1 Background

Arup has prepared this Transport Impact Assessment on behalf of Stockland Development Pty Ltd to support a Planning Proposal to amend the statutory planning controls that apply to 601 Pacific Highway, St Leonards (Lot 71 in Deposited Plan 749690) (the site) under North Sydney Local Environmental Plan 2013 (LEP).

The intended outcome of this Planning Proposal is to amend the LEP planning controls as follows:

- Establish a site-specific building height control, with maximum building height of RL259 metres; and
- Establish a site-specific floor space ratio (FSR) control, with a maximum FSR of 20:1.

The Planning Proposal does not amend the site's existing E2 Commercial Centre zoning. Future development aligned with the Planning Proposal is consistent with the permissible land uses and objectives of Zone E2.

The new planning controls seek to unlock the potential of a strategically-located landholding within the St Leonards centre and facilitate a new commercial building in a precinct earmarked for density uplift.

This Planning Proposal will deliver strategic planning merits commensurate with State and Local government policy and align with the *St Leonards and Crows Nest 2036 Plan* adopted by NSW Department of Planning, Industry and Environment (DPIE) (August 2020). Future development of the site will generate substantial public benefit and make a significant contribution to the evolving character of St Leonards town centre.

1.2 Report Structure

This transport assessment will address the following:

- An overview of the existing transport and planning context;
- A multimodal trip generation for the development;
- Public transport accessibility;
- Car parking, loading and access arrangements;
- Provisions relating to walking and cycling;
- An assessment of the traffic impacts relating to the development; and
- Travel demand management measures outlined in a Framework Green Travel Plan.

2 Existing Conditions

2.1 Site description

The site has a land area of 2,844m^2, located on a prominent 'gateway' corner in St Leonards Town Centre (North Sydney LGA), shown in Figure 1. It currently comprises a 14-storey commercial tower known as the IBM building with ground and plaza level retail plus a 158-space basement car park.

The St Leonards and Crows Nest 2036 Final Plan (The Plan), released by NSW Department of Planning, Industry and Environment in August 2020, has been developed to guide future development in the area.

St Leonards is identified as a strategic centre for which precinct planning will provide capacity for additional commercial floor space to support new jobs and achieve a high job target of 63,500 for St Leonards by 2036.

The site is located within a precinct identified for high-density commercial and mix-used development along Pacific Highway between the St Leonards Train Station and Crows Nest Metro Station. The precinct envisages increased density delivered as transit-oriented development that will take advantage of the precinct's increased accessibility to deliver more jobs. Development in this precinct will create a vibrant, high amenity environment and ensure 24/7 activation between stations.

The planning proposal to amend the North Sydney LEP 2013 planning controls is initiated by the proponent (Stockland) and is consistent with the applicable Section 9.1 Ministerial Directions under the *Environmental Planning and Assessment Act 1979*.

Figure 1: Site location

2.2 Public transport

The site has good access to public transport. St Leonards Station is a 4-minute walk from the site. Bus stops on Pacific Highway in both directions are also within a short walk. The routes to these facilities are presented on Figure 2. Crows Nest Station is currently under construction as part of Sydney Metro City and South East project. The completion of the project and operation of the station is expected to commence in 2024. The access to the proposed Crows Nest Station is approximately a 3-minute walk away south east of the site. Existing public transport services combined with the future Sydney Metro services will result in the site being highly accessible by public transport.

Figure 2: Existing and future public transport around the site

2.2.1 Bus

The existing bus routes serving the site are shown in Figure 3. The site has access to several routes that run along the Pacific Highway and Willoughby Road which connect to major centres such as North Sydney and the Sydney CBD, as well as various suburbs. The bus routes connecting to the bus stops shown in Figure 3 are summarised in Table 1. Overall, the bus stops are well served, with frequent services throughout the day and express buses operating during peak periods. The closest bus stop for individuals traveling north and south bound are within a 2 minute walk of the site (200m).

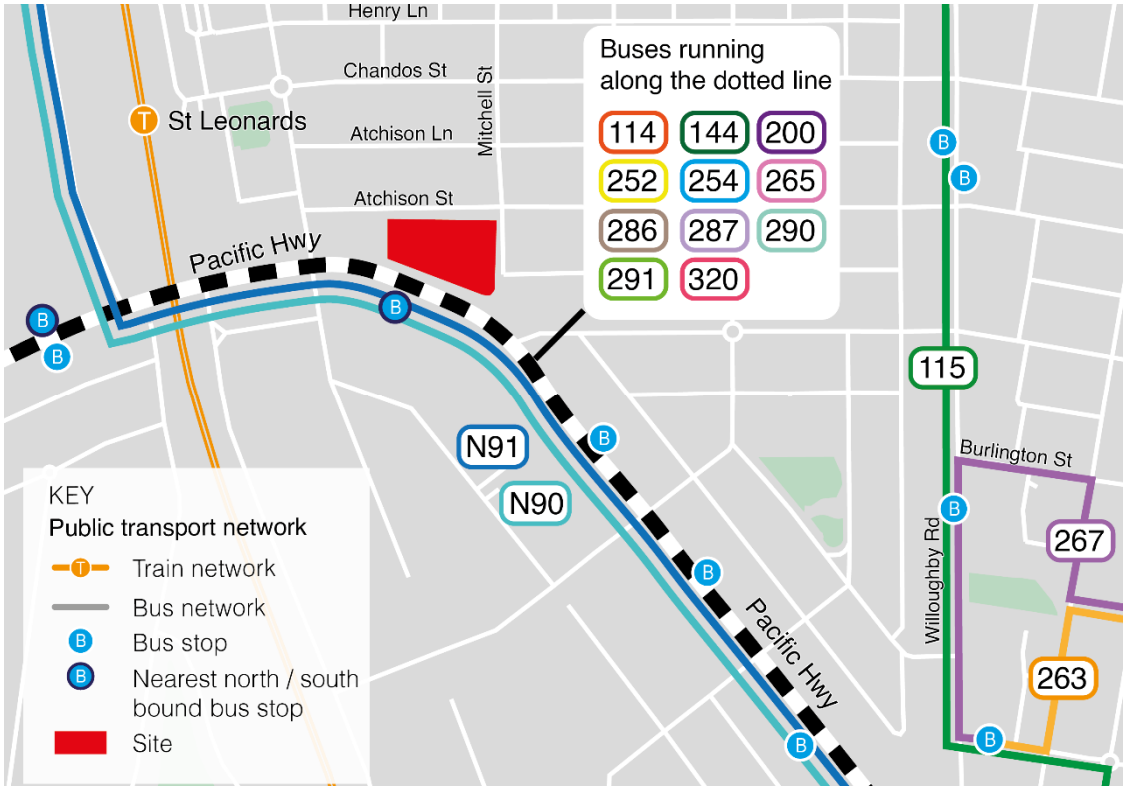

Figure 3: Bus routes in the vicinity of the site

Table 1: Bus routes

Bus Route	Service description	Frequency (services per hour)
114	Balmoral to Royal North Shore Hospital	3
115	Chatswood to City Bridge St via North Sydney	6
144	Manly to Chatswood via St Leonards	3
200	Bondi Junction to Gore Hill	2
252	Gladesville to City King Street Wharf via North Sydney	1
254	Riverview to McMahons Point	1
263	Crows Nest to City Bridge St via Cremorne	2
265	Lane Cove to North Sydney via Greenwich	1
267	Chatswood to Crows Nest	1
286	Denistone East to Milsons Point via St Leonards & North Sydney	2
287	Ryde to Milsons Point via St Leonards & North Sydney	2
290	Epping to City Erskine St via Macquarie University & North Sydney	1
291	Epping to McMahons Point	1
320	Mascot to Gore Hill	6
N90	Hornsby to City Town Hall via Chatswood (Night Service)	1 (between 11pm-4am)
N91	Bondi Junction to Macquarie Park via City Town Hall (Night Service)	1 (between 12pm-5am)

2.2.2 Trains and Metro

St Leonards Station provides access to the Sydney Trains network including the T1 North Shore and Northern lines, and the Central Coast and Newcastle lines. The station is well connected to other major stations such as Central Station, and Chatswood Station and Hornsby Station. At peak times there are train services every 3 minutes in both directions.

The opening of Sydney Metro Northwest (between Chatswood and Tallawong) has improved accessibility to the site from areas such as Epping, Castle Hill and North Western Sydney, via interchange at Chatswood. In 2024, the Sydney Metro City and South West line between Chatswood and Bankstown is planned to open. This link will provide high frequency services to the Sydney CBD and South Western Suburbs, via Crows Nest Station.

The Sydney Trains and Sydney Metro network are outlined on Figure 4.

Figure 4: Sydney Trains and Sydney Metro Networks

2.3 Walking and cycling

Walking facilities surrounding the site are efficient with a comprehensive network of footpaths linking key attractors, such as the train station and bus stops.

The recently published St Leonards and Crows Nest 2036 Plan aims to improve the existing pedestrian environment by improving footpaths, crossings and facilities to enhance street activity and the walking environment. A new pedestrian link highlighted within the plan aspires to better connect pedestrians with St Leonards Train Station at Sergeants Lane. This would create a more convenient walking route between St Leonards Train Station and the site.

Figure 5: St Leonards and Crows Nest 2036 Plan infrastructure improvements

The Northern Sydney Cycling Map, jointly prepared by a number of Sydney councils, is shown in Figure 6. Atchison Street provides an east-west cycle route to St Leonards Station, while Oxley Street, Clarke Street, Nicholson Street and Christie Street provide north-south cycle routes. The site is well situated to take advantage of these cycling routes.

The St Leonards and Crows Nest 2036 Final Plan, also outlines opportunities to improve cycle connectivity with additional marked and separated cycle lanes and paths, proposed along Chandos Street. This plan also recommends improved cycling facilities on Burlington Street with a possible future through-site connection to the Crows Nest Metro Station via Clarke Lane.

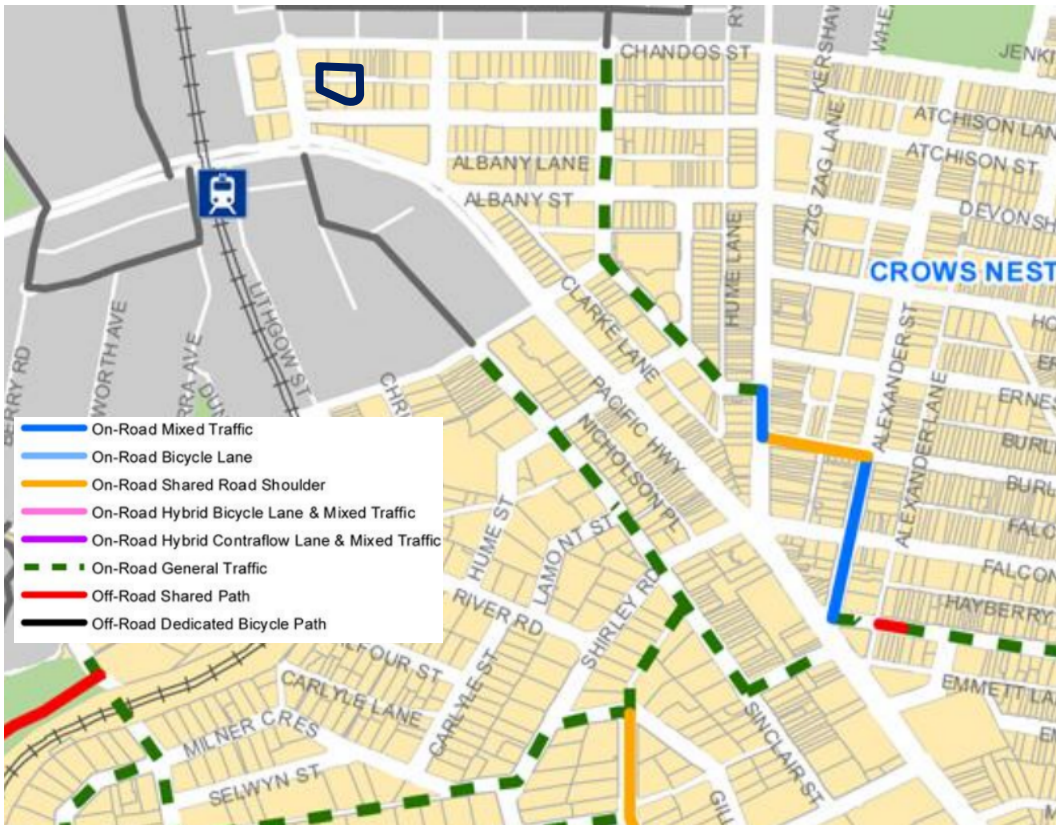

Figure 6: Northern Sydney Cycling Map

2.4 Vehicle access

Existing vehicular access to the site is located off Atchison Street. Loading bays are located near the entry shown in Figure 7. Driveway surveys were carried out at the site in August 2017 during peak hours, with the following results:

- AM, 7:30am to 8:30am, 38 cars entered, 6 cars departed the site
- PM, 5:00am to 6:00pm, 2 cars entered, 31 cars departed the site

Figure 7: Vehicle access to the existing site

The survey results were used to calculate the vehicle trip generation and directional splits for the site based on the 158 car parking spaces within the existing development. These are outlined below:

- AM peak hour – 0.28 trips per parking space, directional split 85% in and 15% out
- PM peak hour – 0.21 trips per parking space, directional split 5% in and 95% out

2.5 Road network

The site is bounded by Pacific Highway to the south, Atchison Street to the north, and Mitchell Street to the east, as presented on Figure 8. To manage the extensive network of roads for which Councils are responsible under the *Roads Act 1993*, Transport for NSW (TfNSW) in partnership with local government established an administrative framework of *State, Regional,* and *Local Road* categories. State Roads are managed and financed by TfNSW and Regional and Local Roads are managed and financed by local Councils.

Vehicle entry to the site is provided from Atchison Street, which is a local road along with Mitchell Street. Pacific Highway is the only State Road in the vicinity of the site.

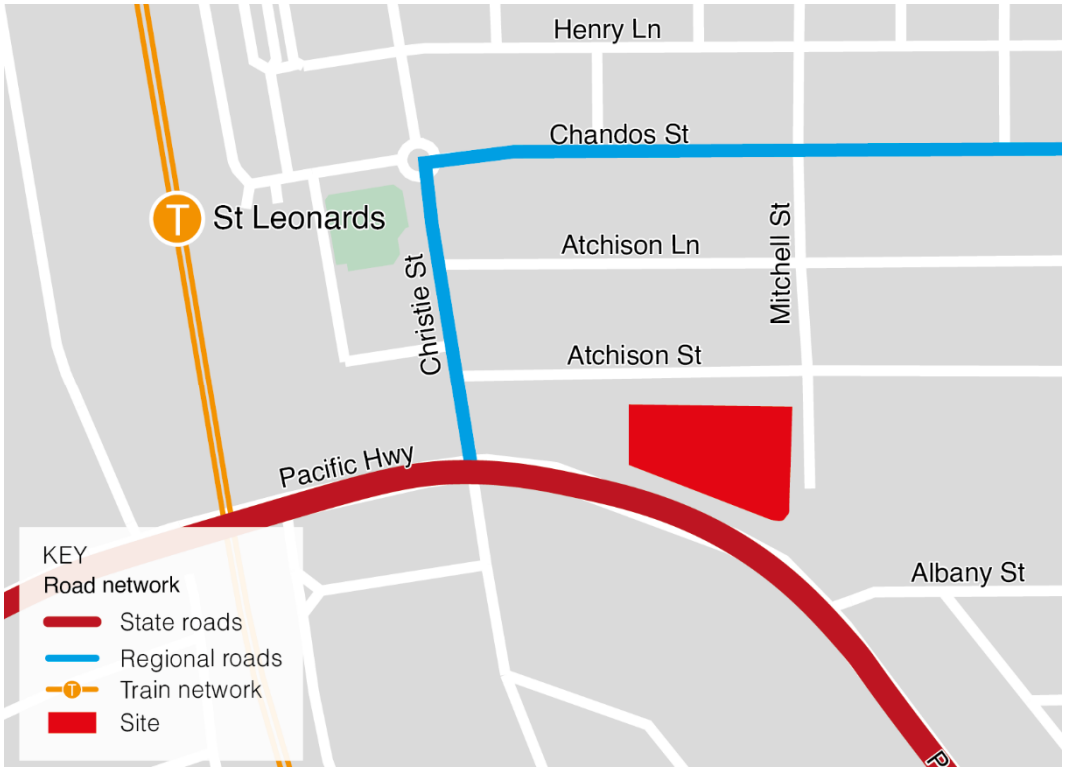

Figure 8: Classified roads surrounding the site

Mitchell Street adjacent to the site has recently been landscaped to improve the public domain and now only provides an access function for a number of surrounding buildings.

Atchison Street operates as a one-way eastbound local street with parking on both sides and includes a line marked contra-flow bicycle lane, as presented in Figure 9.

Figure 9: Atchison Street

2.5.1 On street parking

As the site is located within the commercial core of St Leonards there are only metered restricted parking opportunities available on surrounding streets. Christie Street and Atchison Street are all metered with a 2-hour restrictions between 8.30am and 6pm, Monday to Friday and 8.30am- 12.30pm Saturday. The section of Pacific Highway within the vicinity of the site operates as a T3 transit lane during 3pm to 7pm Monday to Friday and has a 1-hour restriction at other times.

Due to the lack of unrestricted parking opportunities on surrounding streets, office workers are generally discouraged from parking in these areas.

2.6 Mode share

Travel to work data from the 2016 Census for people working in St Leonards is presented in Table 2. This indicates a reasonable proportion of commuters using public transport to access their place of work.

Table 2: Existing travel to work mode share

Mode	Mode share (%)
Train	31
Bus	6
Taxi	0
Car, as driver	53
Car, as passenger	3
Motorbike / scooter	1
Bicycle	1
Walk only	5
Other	0

Figures are rounded to nearest whole number

2.7 Traffic volumes

Traffic count data for the purposes of the analysis was sourced from two previous studies, namely the St Leonards South Strategy, Paramics Base Model – AM Peak, Calibration and Validation Report and St Leonards South Strategy, Paramics Base Model – PM Peak, Calibration and Validation Report for this section of the Pacific Highway (Lane Cove Council, 2013).

Additional data for streets surrounding the site were obtained from a previous traffic impact assessment, Traffic, Parking and Accessibility Report (Brown, 2014), which accompanied a planning proposal for Leighton and Charter Hall's development sites to the east of the site. Existing mid-block traffic volumes during the AM and PM peak periods are shown in Figure 10 and Figure 11.

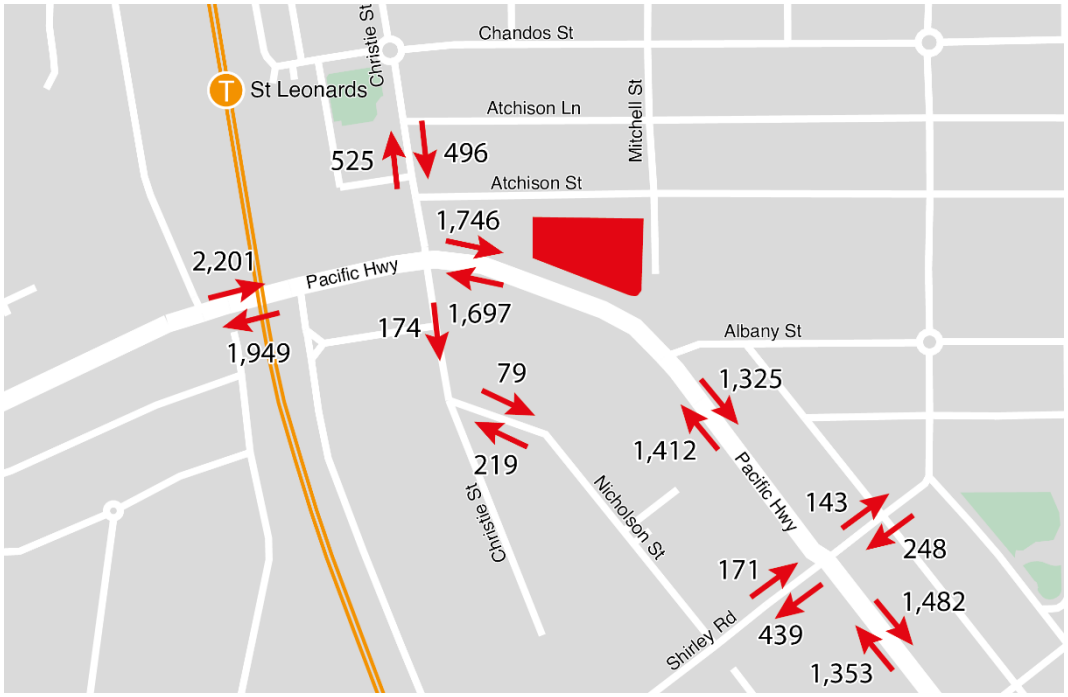

Figure 10: Existing AM peak mid-block traffic volumes

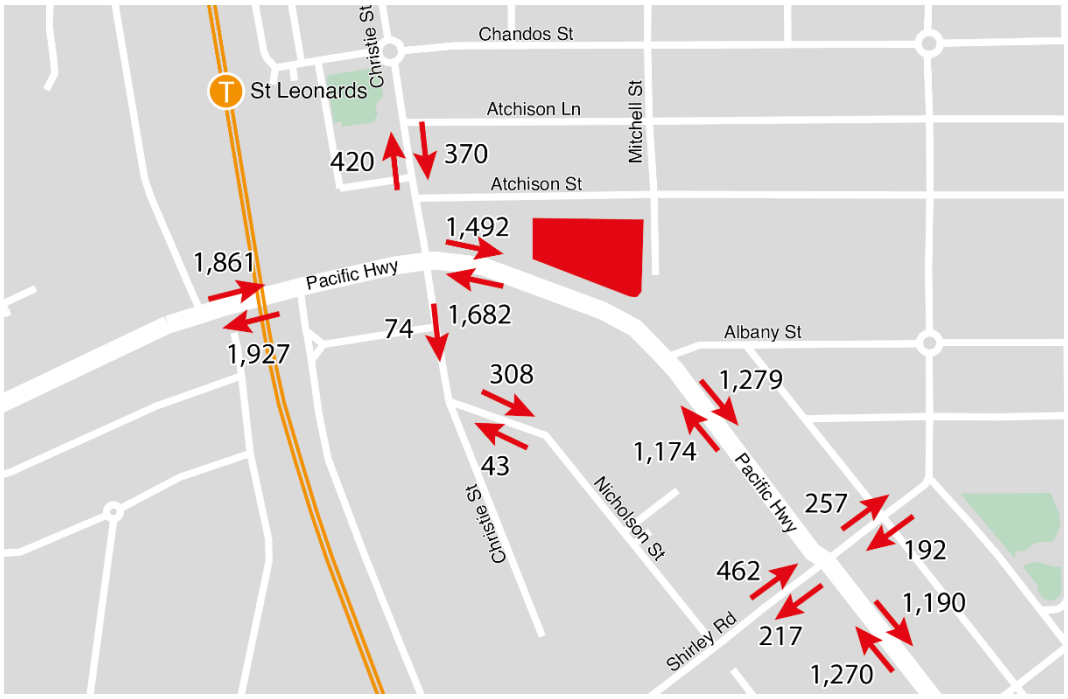

Figure 11: Existing PM peak mid-block traffic volumes

3 Description of Planning Proposal

3.1 Overview

The Planning Proposal for the site located at 601 Pacific Highway seeks approval to amend the building height and floor space ratio controls stated under the North Sydney LEP 2013 to facilitate a future redevelopment. An indicative concept design for the new commercial development has been produced to accompany the Planning Proposal, the development assessed comprises:

- 56,525 sqm GFA of commercial use proposed across 41 storeys;
- 817 sqm GFA of retail located on the lower floors;
- A reconfigured vehicle access via Atchison Street;
- A loading dock servicing all uses on Basement Level 1;
- Tenant parking across four basement levels;
- Cycle parking provided on Basement Level 1 with supporting end of trip facilities on the ground level;
- Two building lobbies providing pedestrians access from Pacific Highway and Atchison Street.

3.2 Vehicle access

Vehicle access to the site will remain in the north western corner of the site providing access for servicing and tenant vehicles into the various basement levels within the site. Figure 12 indicates the vehicle access point for the development. Given a similar access point in this location already exists on Atchison Street it is expected the impacts to street activity would be negligible.

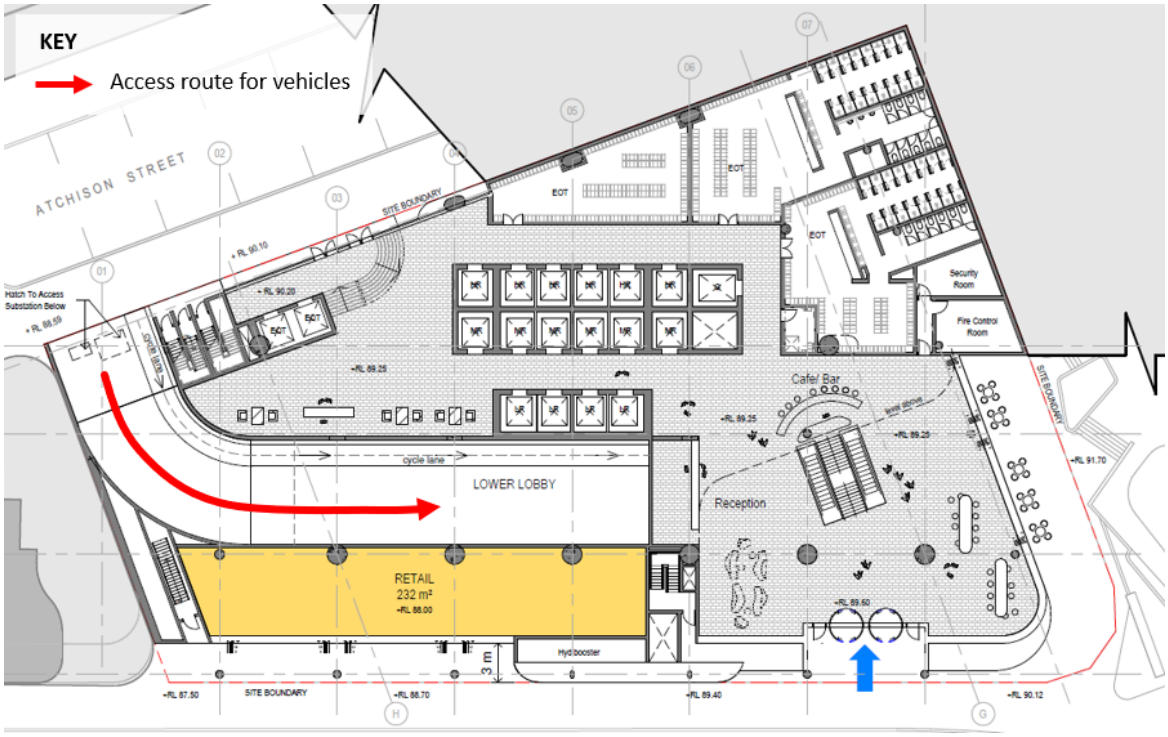

Figure 12: Vehicle access from Atchison Street

3.3 Loading and Servicing

The loading dock for the development is provided on Basement Level 1 with six loading bays of varying sizes provided:

- One Medium Rigid Vehicle (MRV) bay;
- Two Small Rigid Vehicle (SRV) bays; and
- Three Van bays.

The split of bay sizes has been calculated from data relating to the servicing of similar developments across Sydney.

The layout of loading bays on Basement Level 1 is presented on Figure 13.

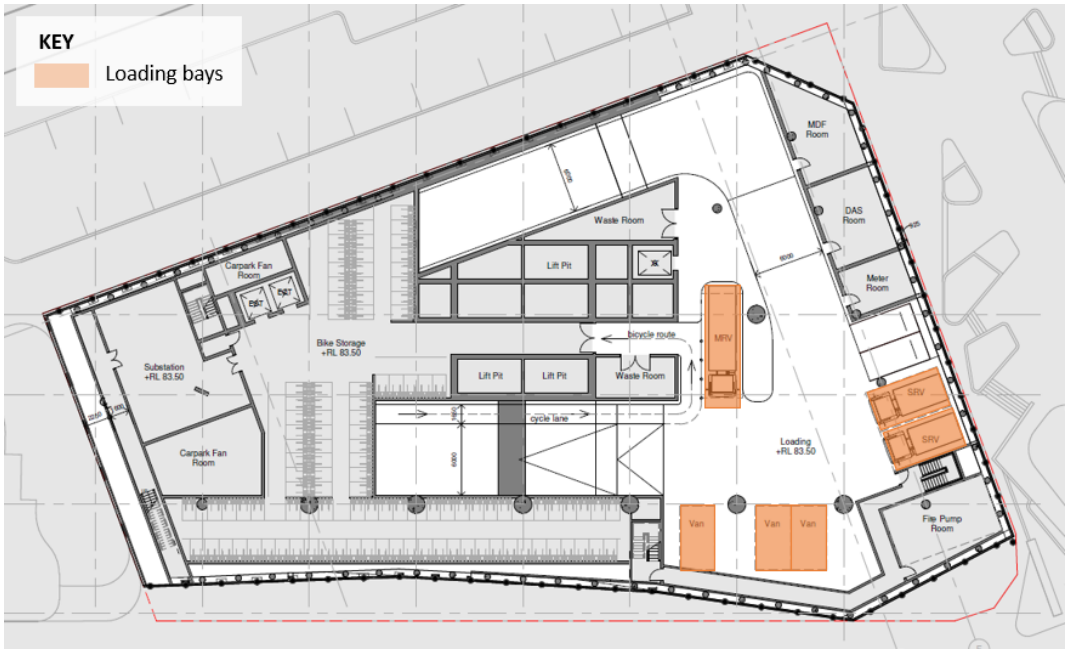

Figure 13: Loading dock on Basement level 1

3.4 Parking

Considering the area schedule for the indicative concept design, the maximum parking threshold for the office, and food and drink premises land uses in line with the North Sydney Development Control Plan (DCP) 2013 is presented in Table 3. Maximum parking rates apply to non-residential uses in Zone E2 (Commercial Centre).

Table 3: Maximum parking requirements

Land Use	GFA (sqm)	Rate	Maximum parking requirement
Office	56,525	1 per 400sqm GFA	142
Food and drink premises	817	1 per 50sqm GFA	17

128 parking spaces are provided across Basement Levels 1-4 with the circulation route for all floors shown on Figure 14. Parking will only be provided for office tenants and workers within the food and drink premises. No visitor parking is to be provided for any of the development uses give the high public transport accessibility of site and parking provisions on street.

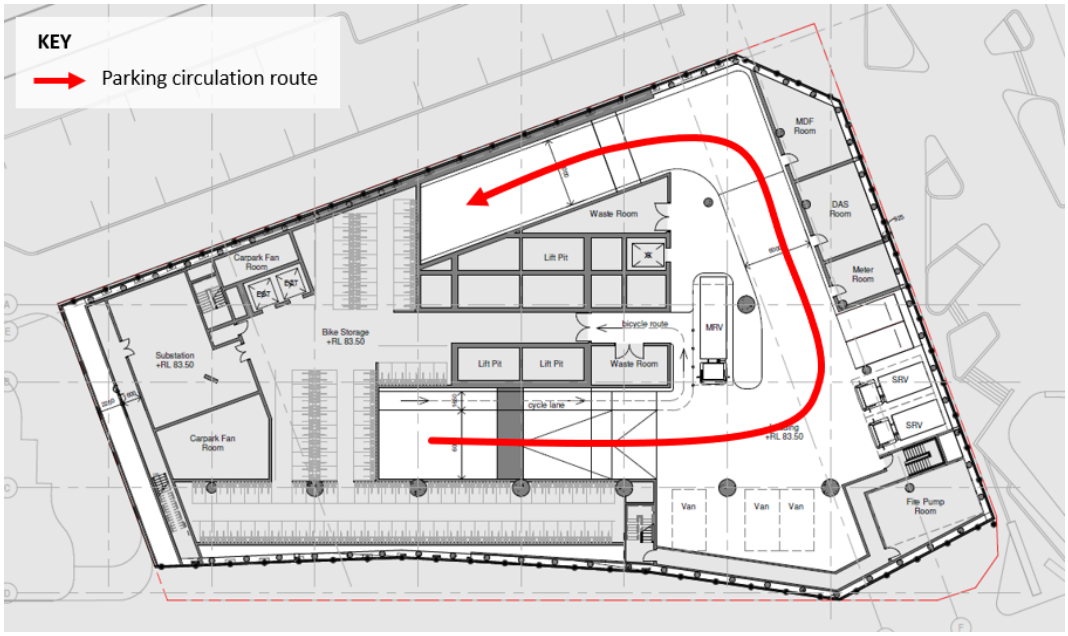

Figure 14: Parking circulation route on Basement 1

3.4.1 Accessible parking

To align with the North Sydney DCP, 1-2% of all non-residential parking spaces are to be designated as accessible spaces equating to 1-3 spaces. Connections to parking levels with disabled spaces will be designed to accommodate mobility impaired users ensuring equitable access.

3.4.2 Car share

The North Sydney DCP, Section 10.2.2 Car Sharing Schemes outlines recommended provisions for car sharing in residential, mixed use and commercial developments. This document states that car share parking spaces provided should not replace more than 25% of the maximum off-street parking requirement if those car share spaces had not been provided, excluding any residential visitor parking spaces. Each car share spaces does not replace less than 3 or more than 4 of the maximum residential and / or non-residential parking space requirements.

The installation of car share parking to replace general off-street parking is optional and at the discretion of the developer. A rate of 1 per 30 parking spaces would usually be recommended for a development of this size based on nearby Council areas.

3.4.3 Motorcycle parking

The North Sydney DCP for motorcycle parking is a minimum rate of 1 space per 10 car parking spaces or part thereof. These spaces will need to be allocated in the final planning of the basements.

3.5 Bicycle parking

Bicycle parking spaces are to align with the rates outlined in the North Sydney DCP 2013. Table 4 outlines the cycle parking requirement for tenants and visitors.

Table 4: Bicycle parking requirement

Land Use	GFA (sqm)	Tenant parking requirement		Visitor parking requirement	
		Rate	No. spaces	Rate	No. spaces
Office	56,525	1 per 150m² GFA	377	1 per 400m² GFA	142
Shop, restaurant, or café premises	817	1 per 250m² GFA	4	2 + 1 per 100m² GFA over 100m²	10

The majority of cycle parking spaces will be provided on Basement Level 1 as outlined on Figure 15. A small number of cycle parking will be provided in the public realm for visitors. The cycle parking can be accessed via a marked lane on the left side of the vehicle ramp providing direct access prior to the loading dock. A number of lifts are also available from the ground floor level.

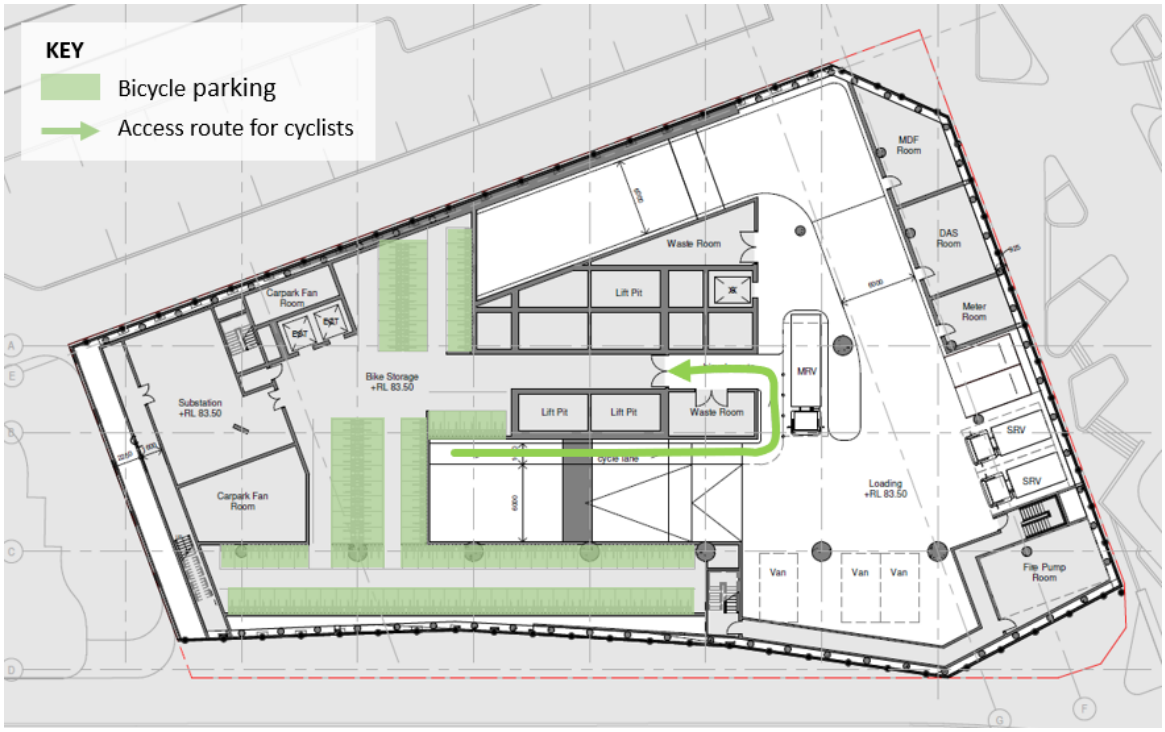

Figure 15: Access route to bicycle parking on Basement Level 1

3.5.1 End of trip facilities

The future design development will determine the quantum of showers and lockers for the end of trip facilities. Indicative provisions and locations are shown on the concept proposal. The detailed design of the development will be subject to a future DA.

The locations of the end of trip facilities within the indicative concept design are presented on Figure 16. The facilities are located on the ground floor and lifts provide connections from the ground floor to the cycle parking on the level below.

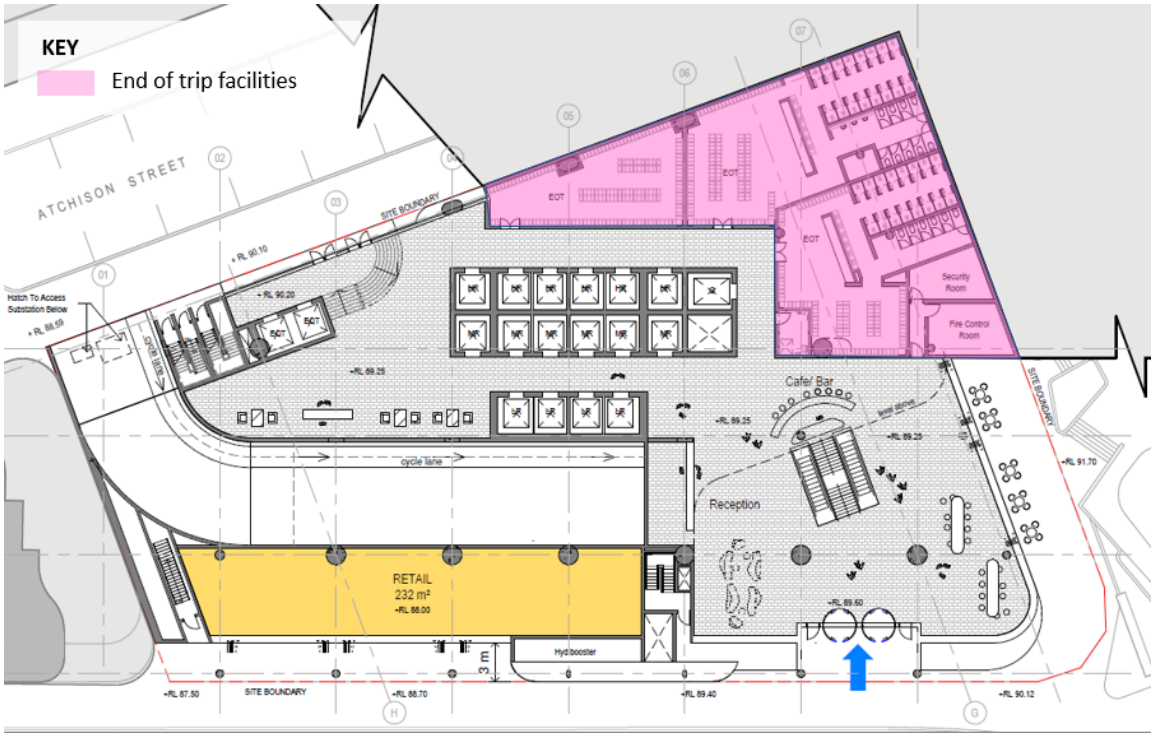

Figure 16: End of trip facilities on Ground Floor

4 Transport Assessment

4.1 Person trip generation

4.1.1 Commercial and retail person trips

A first principles approach was used to calculate the person trips generated by the commercial land use as outlined in Table 6. This assumed one employee per 15m² GFA for commercial and one employee per 30m² for retail, a daily attendance rate of 90% (accounting for those sick / on leave) and 50% of employees arriving in the commuter peak hour.

Table 5: Office person trips

Land use	Gross Floor Area (sqm)	Number of employees	AM peak hour trips	PM peak hour trips
Commercial	56,525	3,392	1,696	1,696
Retail	817	25	13	13

4.1.2 Combined traffic generation

To confirm the net traffic generation relating to the site the traffic generation relating to the existing and proposed uses were considered.

Table 6 outlines the vehicle trips related to each of these items and presents the net traffic impact.

Table 6: Net traffic generation

Development type	Number of parking spaces	AM peak hour		PM peak hour	
		Rate	Car trips	Rate	Car trips
Existing development	158*	2017 survey	44	2017 survey	33
Proposed Development	128	2017 Survey (0.28 trips per space)	36	2017 Survey (0.21 trips per space)	27
Net trips generated			-8		-6

*Parking spaces within the existing development

This indicates that due to an overall reduction in parking, the traffic generated by the development will also reduce. Given the reduction in vehicle trips, the impact to the surrounding network is expected to be negligible. This traffic has been applied to the surrounding road network in the following sections.

4.2 Traffic distribution

Traffic distribution profiles are presented on Figure 17 and Figure 18. These were based on Journey to Work census data discussed in Section 2.6 and origins / destinations in relation to the site.

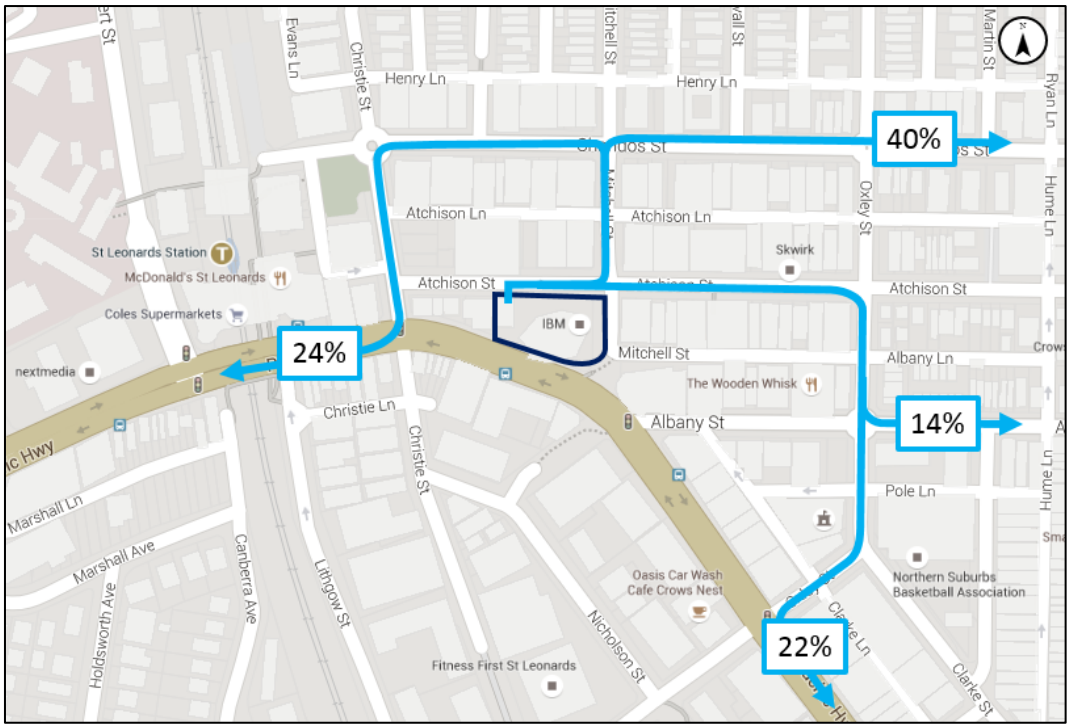

Figure 17: Trip distribution of vehicles leaving the site

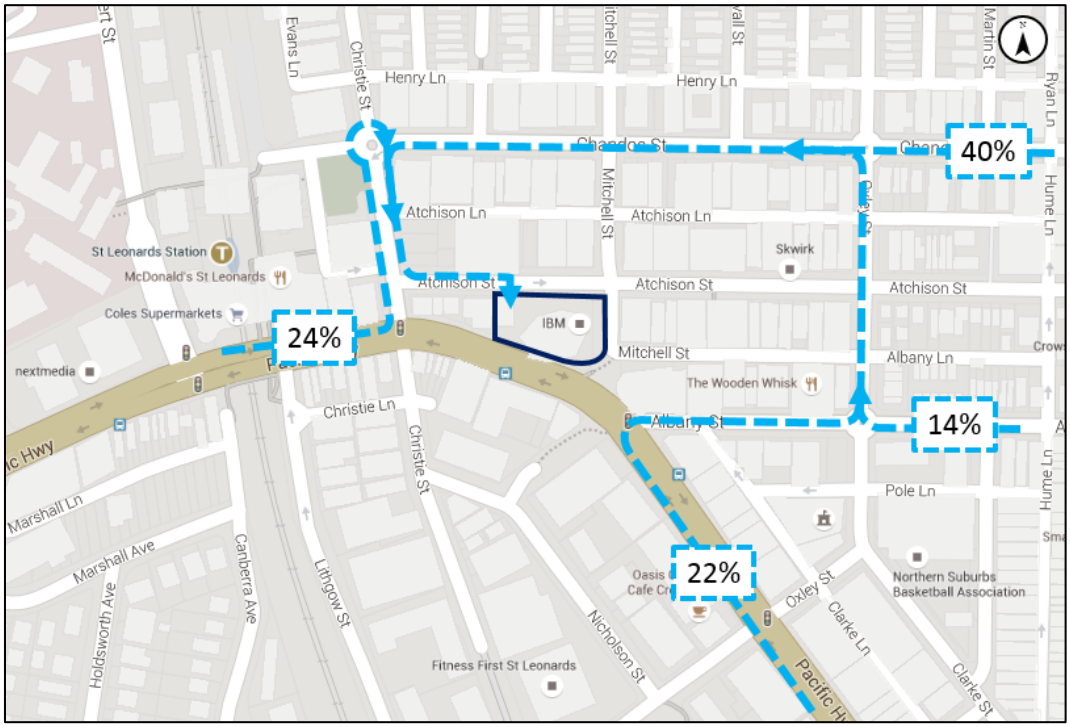

Figure 18: Trip distribution of vehicles entering the site

4.3 Road network impacts

Using the traffic generation (Section 4.1.2) and distribution assumptions (Sections 4.2), the likely traffic impact on the surrounding road network in both peak hours is presented on Figure 19 and Figure 20.

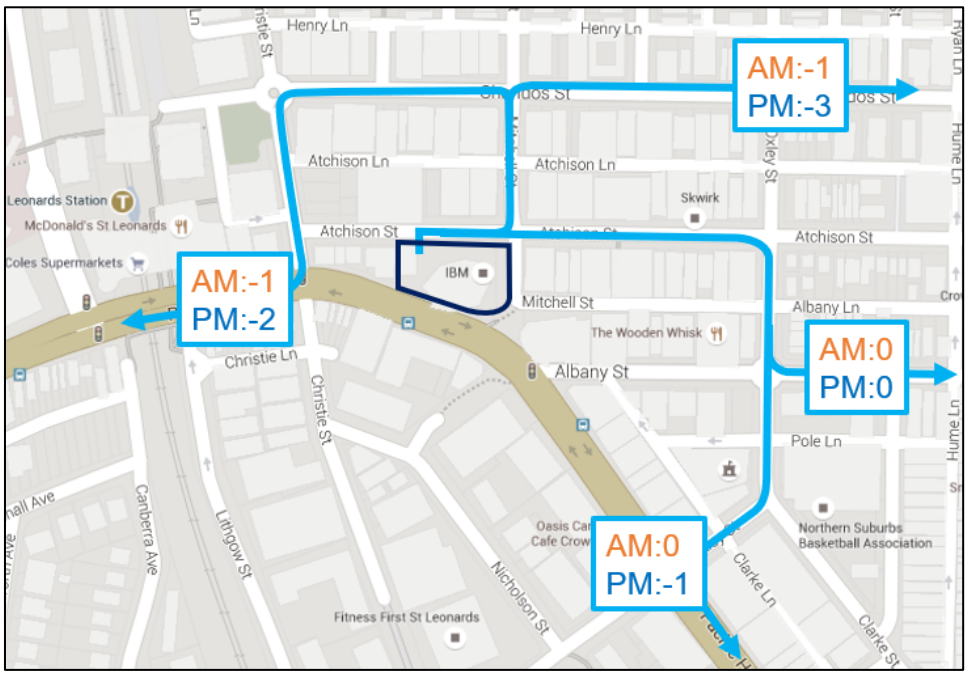

Figure 19: Traffic impact, leaving the site

Figure 20: Traffic decrease, entering the site

The net traffic generation when applied to the surrounding network is likely to have a negligible impact during the peak periods.

Given the high level of public transport accessibility of the site these estimates are considered conservative. Further, the opening of the Sydney Metro from 2024 which will increase the public transport options available to tenants and visitors.

4.4 Public transport

The development in accordance with the indicative concept design is forecast to generate demand for train and bus services. The distance to the train station is less than a 5 minute walk, while the bus stops on Pacific Highway are also within a 5 minute walk.

In addition, the Crows Nest Metro Station will be within viable walking distance for tenants. Once operational, the Sydney Metro is expected to operate at a 4 minute frequency and will provide high quality public transport access to the site. Sydney Metro will also relieve capacity at St Leonards train station to facilitate the additional trips generated by any new development on the site.

5 Travel demand management

5.1 Green Travel Plan

A Green Travel Plan (GTP) is a tool to minimise the negative impact of private vehicle travel on the environment. The GTP is a package of measures put in place to encourage more sustainable travel and describes ways in which the use of sustainable transport may be encouraged. Using public transport, cycling, walking, working from home, carpooling, making business vehicles more fuel efficient and the use alternative fuels are all more sustainable means of transport than single occupant driving.

More generally, the principles of a GTP are applied to all people travelling to and from a site. The main objectives of the GTP are to reduce the need to travel and promotion of sustainable means of transport.

The more specific objectives include:

- To reduce the level of single occupancy car borne trips associated with commuting.
- To facilitate the sustainable and safe travel of visitors to the site.
- To reduce site traffic congestion and associated pollution in order to enhance, improve and make safe journeys of minority/sustainable transport mode users.
- To work in partnership with neighbouring organisations/developments, local authorities, retailers and other relevant bodies in achieving the maximum mode shift away from the private car.
- To continually develop, implement, monitor, evaluate and review the progress of the travel plan strategy.
- To facilitate all residents' access to key facilities such as retail, leisure, health and education.

5.2 Green Travel Plan Measures

In order to meet the objectives and targets of a GTP, the following physical and management measures should be implemented in future design and planning of the site.

- Travel packs
- General marketing and promotion
- Car sharing
- Alternatives to travel during the day
- Cycling
- Public transport
- Walking
- Staff travel plan group

6 Summary

The TIA assesses the traffic and parking demands of the indicative concept design to inform planning proposal and demonstrates that the site is capable of accommodating future development aligned with the proposed planning control changes (FSR and building height).

A detailed assessment of traffic and parking impacts of future development will be subject to a detailed development application.

Key findings of this assessment are as follows:

- The main vehicle access point to the development is located in the north western corner of the site;
- The indicative concept design identifies tenant parking spaces across four basement levels. This is an overall reduction in parking provided within the site and compliant with the North Sydney DCP 2013;
- The site has high accessibility to public transport through St Leonards Station and bus stops on Pacific Highway. This will be further improved by the opening of Sydney Metro Crows Nest Station;
- Based on the traffic generation and distribution assumptions, the net traffic generated by the development will decrease causing negligible impacts to the surrounding road network;
- Secure bicycle parking and high quality end of trip facilities are proposed which will support commuting via active modes; and
- Travel demand management measures are also suggested through the Framework Green Travel Plan to encourage a mode shift away for private vehicle.