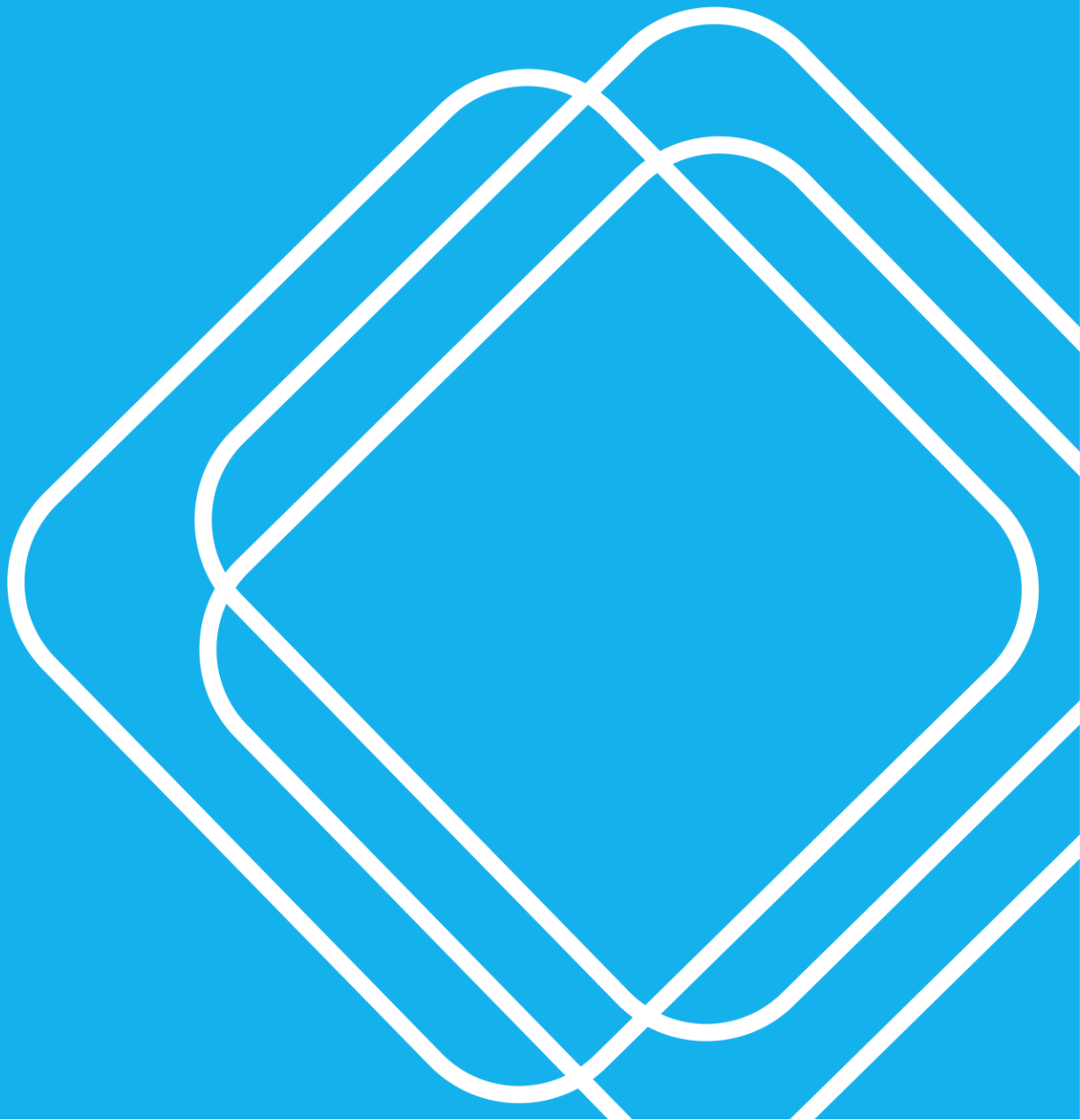
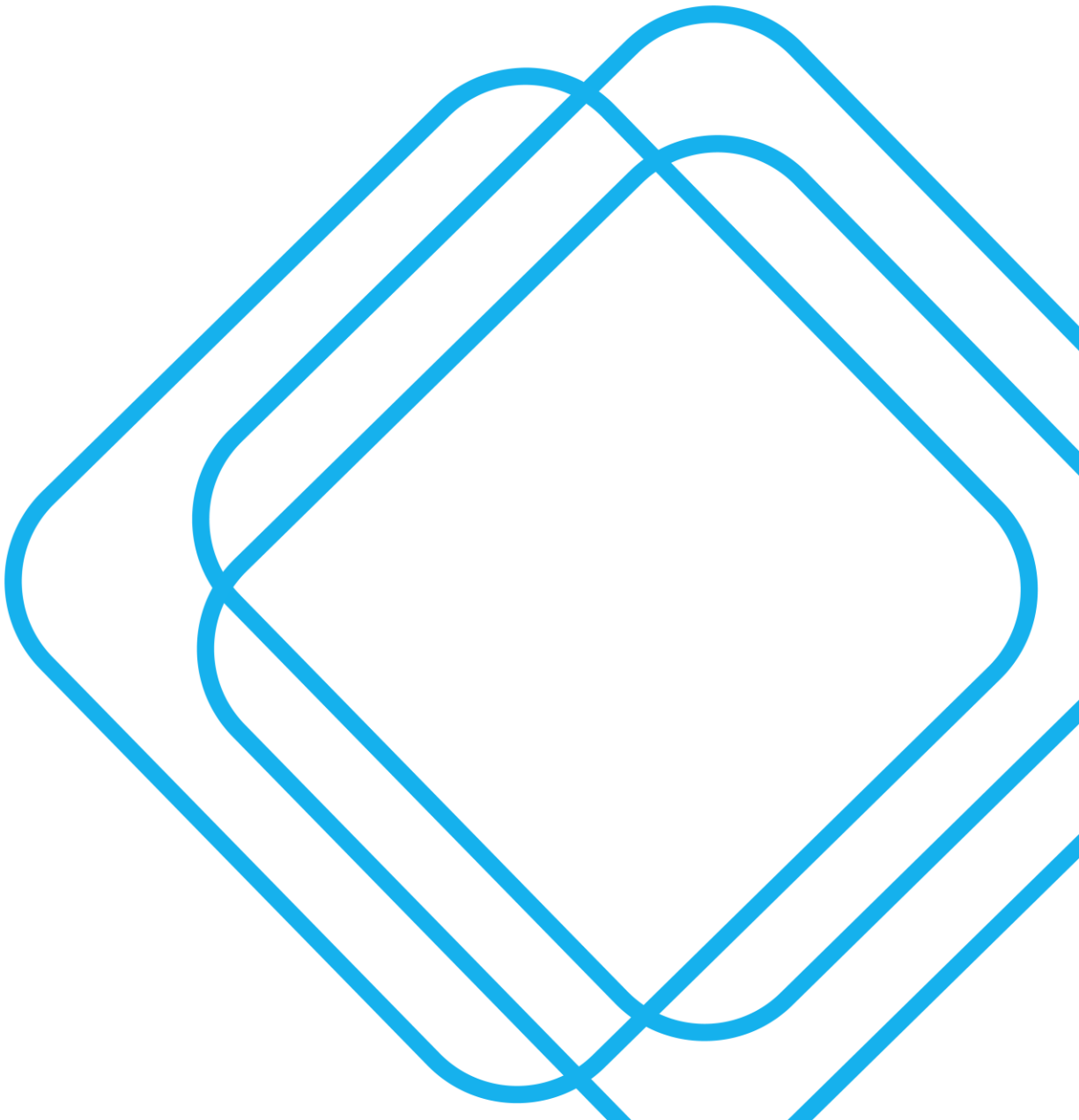
SCT Consulting

270 PACIFIC HIGHWAY CROWS NEST PLANNING PROPOSAL

Traffic and Parking Study

26 JULY 2021





Quality Assurance

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1.0	12 October 2020	Draft report
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3.0	2 February 2021	Updated Final Report
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Contents

Executive Summary

Purpose of this report

SCT Consulting has been engaged by Silvernight (Crows Nest) Landowner Pty Ltd to undertake a Traffic and Parking Study to support a planning proposal for the redevelopment of 270 Pacific Highway, located in Crows Nest in the North Sydney local government area (LGA). The site is bounded by Pacific Highway to the east and Bruce Street to the south, adjoining an existing low-rise commercial building to the north and an array of low-density residential properties to the west.

Figure ES1 Indicative street view of the proposal (looking towards North Sydney on Pacific Highway)

Source: fitzpatrick+partners, 2021

The planning proposal seeks to retain B4 Mixed Use Zoning for the site, but will replace the existing two buildings at 270-272 Pacific Highway and facilitate a 13-storey commercial office and allied health development with a minor retail component at ground level (**Figure ES1**).

Existing transport conditions

Based on 2016 Census Journey to Work data, the study area is serviced by Wollstonecraft and St Leonards Stations as well as frequent buses, contributing to a moderate public transport mode share at 27 per cent in 2016, five per cent more than Sydney average level. Around 48 per cent of Crows Nest-Waverton workers commuted by car, five per cent less than Sydney's average. Seven per cent of the employees walked to work while cycling to work was less than one percent. Main origin of the employees in North Sydney were within the LGA, Northern Beaches and City of Sydney, indicating short-medium journey to work distance.

The site is located in a walkable environment where wide footpaths are provided in different quality such as Pacific Highway, Falcon Street and Willoughby Road. Formal and regular pedestrian crossings are provided at the traffic lights of Pacific Highway / Shirley Road, Pacific Highway / Alexander Street and Pacific Highway / Rocklands Road.

Burlington Street, Clarke Street and Atchinson Street are marked on-road cycle route. Pacific Highway is one of high-frequency bike routes, which may include difficult conditions if separate paths are not provided.

Crows Nest accommodates major bus services on Pacific Highway, Willoughby Road, Alexander Street and Falcon Street. Bus frequencies on Pacific Highway is mostly greater than one service every three minutes during a typical

weekday peak hour. Slightly less frequent services are provided at bus stops along Falcon Street and Willoughby Road. It is expected that this mode share will continue to increase when the new Crows Nest metro station is scheduled to open in 2024.

The major roads in the vicinity of the site include both state roads such as Pacific Highway, Falcon Street and regional road such as Shirley Road. School zones, clearway, transit lane and bus lane exist exists on major roads around the site to improve traffic flows especially during the peak hours. The traffic volume analysis indicated that there is redundant capacity on the surrounding road network.

Future planning context

As part of the vision for the Eastern Harbour City, the Greater Sydney Region Plan identifies Crows Nest and St Leonards for urban renewal and identifies the site as part of the Eastern Economic Corridor which includes St Leonards as a Health and Education Precinct and North Sydney as part of the Harbour CBD. The importance of the precinct as a key employment centre in Greater Sydney combined with the new metro station at Crows Nest, presents an opportunity for renewal and activation. A minimum of 13,000 additional jobs is expected by 2036 in St Leonards.

The North Sydney Local Strategic Planning Statement (LSPS) supports walkable centres and a connected, vibrant and sustainable North Sydney where Pacific Highway would provide cycling corridor to link to a wider cycle network covering North Sydney CBD, Cammeray, Neutral Bay and St Leonards.

The St Leonards & Crows Nest 2036 Plan recommends clear, continuous and direct pedestrian and cycle routes to Crows Nest metro station. It promotes end-of-trip facilities while limits car parking provision for new developments and encourages the use and implementation of car share facilities, in order to minimise reliance on private car use.

Proposed development

The proposed development would be a 13-storey commercial office building with a total Gross Floor Area (GFA) of approximately 22,853 m^2 and 202 total parking spaces.

A 6m wide vehicular access is provided on Bruce Street to connect to the basement car park, loading dock and bicycle parking from street level. The proposed vehicular access will continue to be shared with properties at 63-77 Sinclair Street, providing access to individual properties and their garages.

Pedestrian access is provided along the Pacific Highway and Bruce Street (next to the car access). The main entry would provide a through-site pedestrian link to the café, lobby lounge and main lobby of the proposed site. The end-of-trip facilities will be provided at lower ground level, connected from Bruce Street via a dedicated bicycle ramp.

Transport appraisal

The development proposes to deliver 102 additional parking spaces and a net increase of approximately 15,600 m^2 GFA compared to the existing development. Since the parking rates for the proposal redevelopment adopts less than half of maximum standard in North Sydney DCP to restrict private car use. A more practical approach for vehicle trip generation forecast will be based on parking spaces rather than GFA.

0.77 and 0.59 vehicle trips per parking space were identified for AM and PM peak hour based on surveys of similar office sites documented in the Roads and Maritime *Technical Direction TDT 2013/04a.* Hence, as a result of the proposal, there would be additional 79 and 60 vehicle trips for AM and PM peak hour. Given the good connectivity of the surrounding network, this level of increase of trips will spread out further in various directions further reducing the impacts on the surrounding road network. Hence, traffic modelling is considered not necessary at the planning proposal stage.

The majority of an additional 302 person-trips during the peak hour will be using public transport to access the development. These additional trips during the peak hours can be accommodated through the high frequency metro services and frequent bus services. Impacts on the public transport system are expected to be limited and little capacity issue would be expected.

320 bicycle parking spaces for such an office development means that the development will cater for a large mode share of cyclists, both for workers as well as visitors to the building. Those cycle trips would become an important component for short distance trips by the commuters, supported by planned and proposed infrastructure upgrades by Council and those planned in the St Leonards and Crows Nest Planned Area.

Conclusion

The Traffic and Parking Study concluded that the impacts of the planning proposal are negligible and are at a level able to be accommodated by the existing and planned infrastructure.

1.0 Introduction

1.1 Purpose of report

This Traffic and Parking Study is prepared for submission to North Sydney Council (Council) in support of a planning proposal for the redevelopment of 270 Pacific Highway, Crows Nest (the site), based on the design scheme set out by fitzpatrick and partners. The Traffic and Parking Study considers:

– The existing context of the site and surrounding transport network

– Strategic transport planning context for the study area, including a review of relevant State and Council transport strategies and committed developments

– An integrated approach to determining the optimal mix of land uses and density concentrations as a means of minimising (where possible) trip generation and transport-related demand

– Estimated future demands given the site's location and high public transport accessibility

– Maximise efficiency and safety of the existing / proposed transport systems in proximity to the subject site

– A review of proposed vehicle access, servicing, car parking and bicycle parking provision

– A preliminary assessment of the traffic and transport impacts associated with the redevelopment.

1.2 Development context

The proposed amendments will facilitate a 13-storey commercial office and allied health development with a minor retail component at ground level, providing much needed employment generating floor space. The proposal would contain a Gross Floor Area (GFA) of approximately 22,853 m^2 and 202 total parking spaces.

The site is bounded by Pacific Highway to the east and Bruce Street to the south, adjoining an existing low-rise commercial building to the north and an array of residential properties to the west. The planning proposal seeks to retain the B4 Mixed Use Zoning for the site and amend the maximum building height and floor space ratio controls, as set out in the North Sydney LEP 2013.

1.3 Report structure

This report has been structured into the following sections:

– **Section 2** provides a summary of the review of all relevant planning documents

– **Section 3** describes the existing transport conditions for all modes of transport

– **Section 4** describes the proposed development, its access strategy and a review of parking and access requirements

– **Section 5** outlines the traffic and transport appraisal which describes the likely trip generation, indicative impact as a result of the proposed development

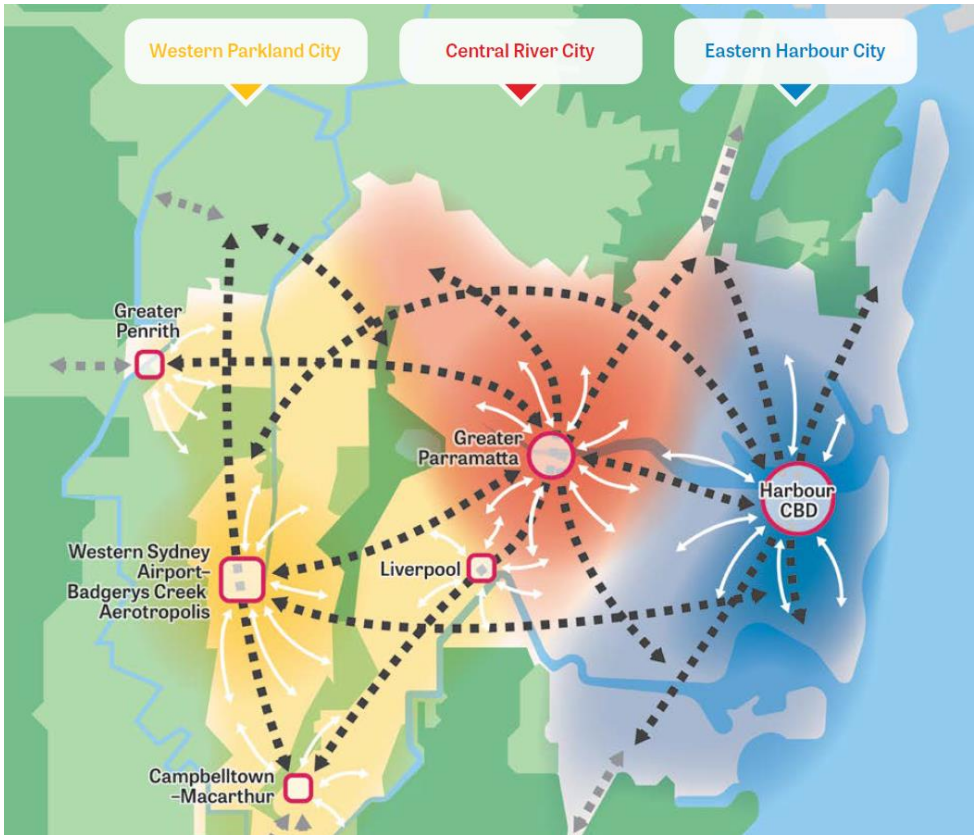
– **Section 6** summarises the report content and presents the final conclusions.

2.0 Strategic Context

2.1 Future Transport 2056 Strategy

NSW Government's Future Transport Strategy 2056[1] sets the long-term vision for transport in NSW. The transport strategy builds on the Greater Sydney Region Plan[2], which identifies that Sydney will grow as a global metropolis with benefits distributed more evenly across the city. It sets out a vision of three cities: the Eastern Harbour City, the Central River City and the Western Parkland City. This vision will guide many of the planning decisions that will deliver faster, convenient and reliable travel times to major centres, as shown in **Figure 2–1**.

Figure 2–1 A future metropolis of three cities



Source: Greater Sydney Commission (2018), Greater Sydney Region Plan: A Metropolis of Three Cities

The development is located in the heart of the Eastern Harbour City, which covers the North Sydney and City of Sydney CBDs and more specifically the urban renewal of Crows Nest and St Leonards. In the Eastern Harbour City, new mass transit connections, including Sydney Metro, will vastly increase the capacity of the public transport network from 2024 onwards – crucial to supporting growth and tackling congestion.

Specific outcomes listed as part of the Future Transport Strategy which will benefit the Eastern Harbour City include:

– 30-minute public transport access for customers to their nearest Centre by public transport 7 days a week

– Encouraging walking, cycling and public transport

– Attractive spaces where people can meet and enjoy their leisure time.

Implications for 270 Pacific Highway: The location of the development near the Crows Nest metro station (currently under construction; planned to open in 2024) supports the aspiration of 30-minute access to employment centres by public transport for everyone. The development should capitalise on its location near the station to support sustainable travel behaviours.

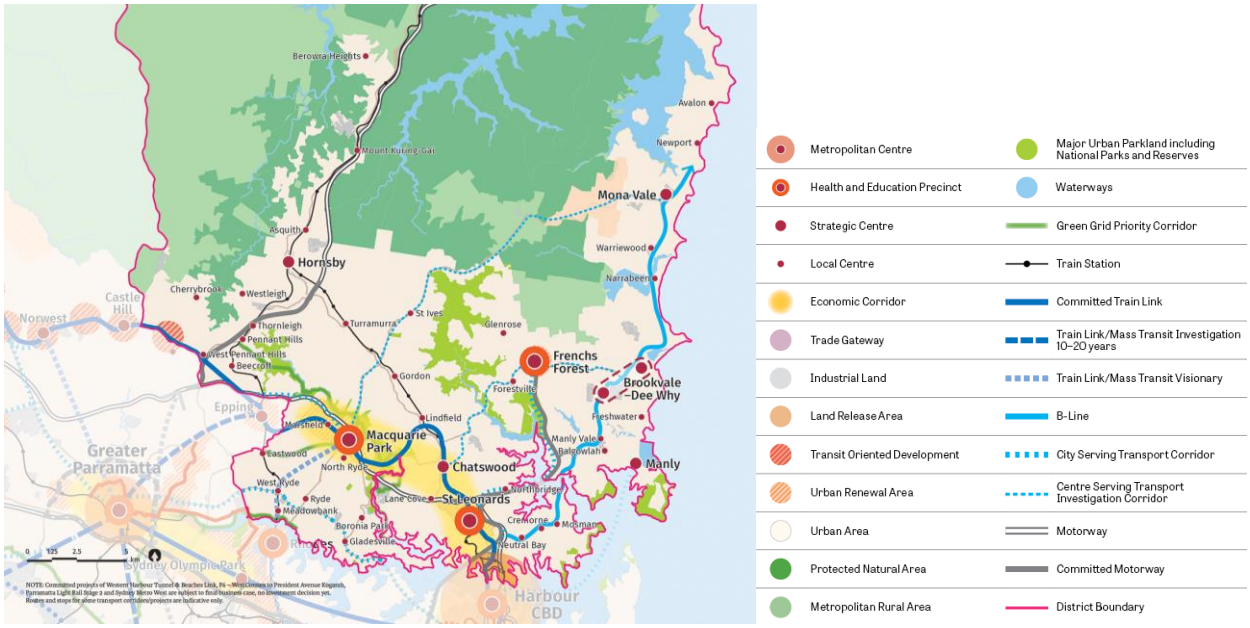
[1] NSW Government (2018), Future Transport Strategy 2056.
[2] Greater Sydney Commission (2018), Greater Sydney Region Plan: A Metropolis of Three Cities.

2.2 North District Plan

The Greater Sydney Commission's North District Plan[3] is a 20-year plan to manage growth in Sydney's North District, supporting the long-term vision for Sydney as a metropolis of three cities. The District Plan assists councils to plan for and support growth and change and align their local planning strategies to place-based outcomes. It guides the decisions of State agencies and informs the private sector and the wider community of approaches to manage growth and change.

The vision for the North District is to enhance the Eastern Economic Corridor (which Crows Nest is part of), supporting jobs growth in strategic centres and creating and renewing great places (**Figure 2–2**).

Figure 2–2 Future of the North District



Source: Greater Sydney Commission (2018), Our Greater Sydney 2056: North District Plan

St Leonards Crows Nest is a Planned Precinct where the strategic centre of St Leonards is a health and education precinct while Crows Nest provides vibrant night-time economy along Willoughby Road. The importance of the precinct as a key employment centre in Greater Sydney combined with the new metro station at Crows Nest, presents an opportunity for renewal and activation.

The plan also emphasises the strategic value and potential of the St Leonards Health and Education Precinct. St Leonards has been assigned a baseline jobs target of 54,000 jobs by 2036 and a higher target of 63,500 jobs by 2036.

In particular, the North District Plan directs St Leonards Crows Nest to:

– Leverage the new metro station at Crows Nest to deliver additional employment capacity
– Grow jobs in the centre
– Reduce the impact of vehicle movements on pedestrian and cyclist accessibility
– Deliver new high-quality open space, upgrade public areas, and establish collaborative place-making initiatives
– Protect and enhance Willoughby Road's village character and retail / restaurant strip.

Implications for 270 Pacific Highway: The development's proposed increase in office space and job offer is supported by the North District Plan. In particular, the location of the development near the new metro station provides excellent access to the public transport network. The development should also consider low car trip generation to reduce the impact of vehicle movements on pedestrian and cyclist accessibility.

[3] Greater Sydney Commission (2018), Our Greater Sydney 2056: North District Plan.

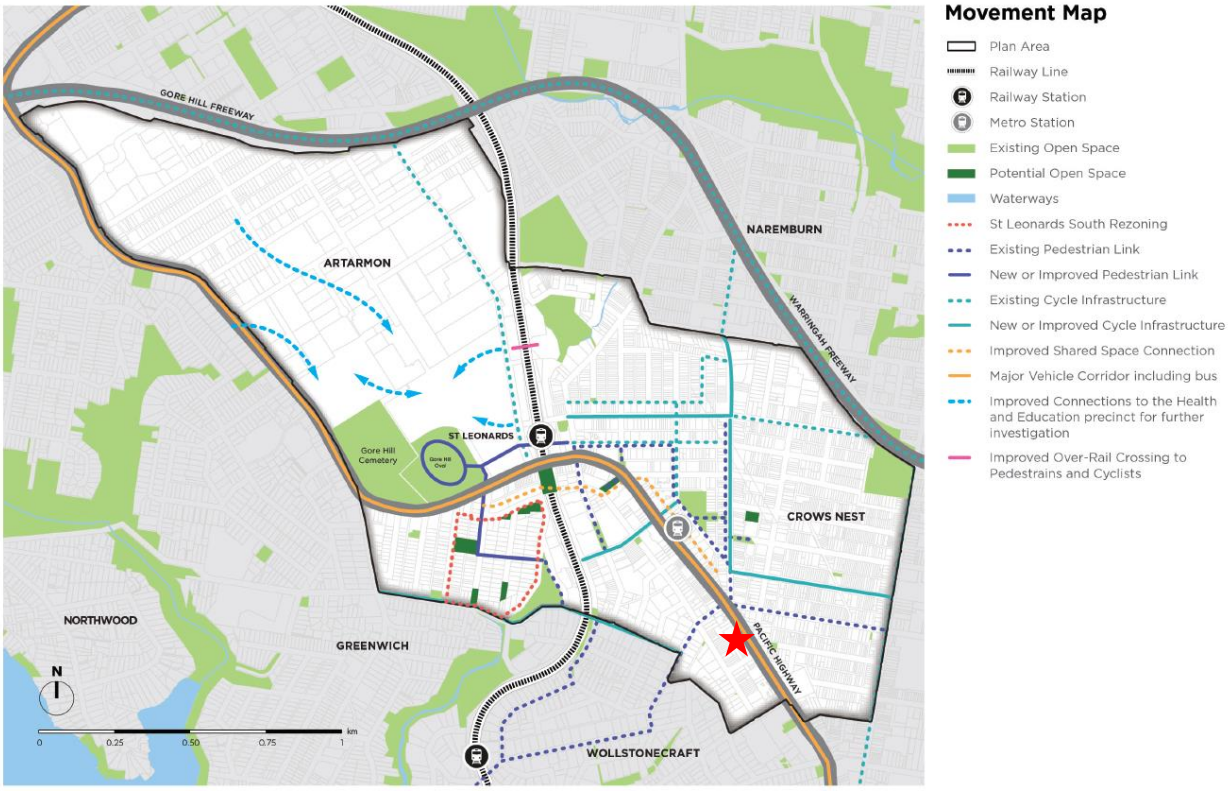
2.3 St Leonards & Crows Nest 2036 Plan

The St Leonards and Crows Nest 2036 Plan was prepared by DPIE and finalised in August 2020. The precinct plan sets a vision to 2036 for the urban renewal of the St Leonards and Crows Nest area which seeks to expand the area's role as an employment centre, improve its public spaces and connections.

As Crows Nest targets to attract more jobs (from 1,950 to 3,020) in 2036, the movement actions and recommendations cover the aspects including public transport, active transport, parking and road network (**Figure 2–3**):

– Provide clear, continuous and direct pedestrian and cycle routes to priority destinations such as the future Crows Nest metro station:
  - Bicycle crossing facilities should form part of upgrades to the signalised intersections along cycling routes including where they cross Pacific Highway and Oxley Street.
  - Cycling infrastructure along the Pacific Highway is identified as a long-term consideration contingent upon a detailed assessment of the effects of major infrastructure investments as part of detailed traffic and transport modelling currently underway
– Investigate pedestrian crossings including a new pedestrian tunnel under the Pacific Highway connecting the new Crows Nest metro station and areas south of the Pacific Highway
– Limit the amount of car parking provided for new developments and encourage the use and implementation of car share facilities
– Promote the provision of end of trip facilities to support cycling.

Figure 2–3 Transport movement map



Source: NSW Department of Planning and Environment (2020), St Leonards and Crows Nest 2036

Implications for 270 Pacific Highway: The proposal is expected to respond to the Plan by reducing car use (limited net car trips) and promoting sustainable transport. The provision of end of trip facility and improved cycle facility in the vicinity of the site will increase bike mode share while public transport will be very accessible around the site including bus and new metro.

2.4 North Sydney Local Strategic Planning Statement (LSPS)

The North Sydney LSPS identifies the site within the Five Ways South Education & Medical Precinct, located next to the Crows Nest Village. Council proposes to support walkable centres and a connected, vibrant and sustainable North Sydney through the following actions:

– Encourage and support land use density and diversity within a walkable distance of commercial, mixed-use and neighbourhood centres

– Identify and prioritise improvements to walking and cycling infrastructure within the walking and cycling catchments of commercial, mixed-use and neighbourhood centres

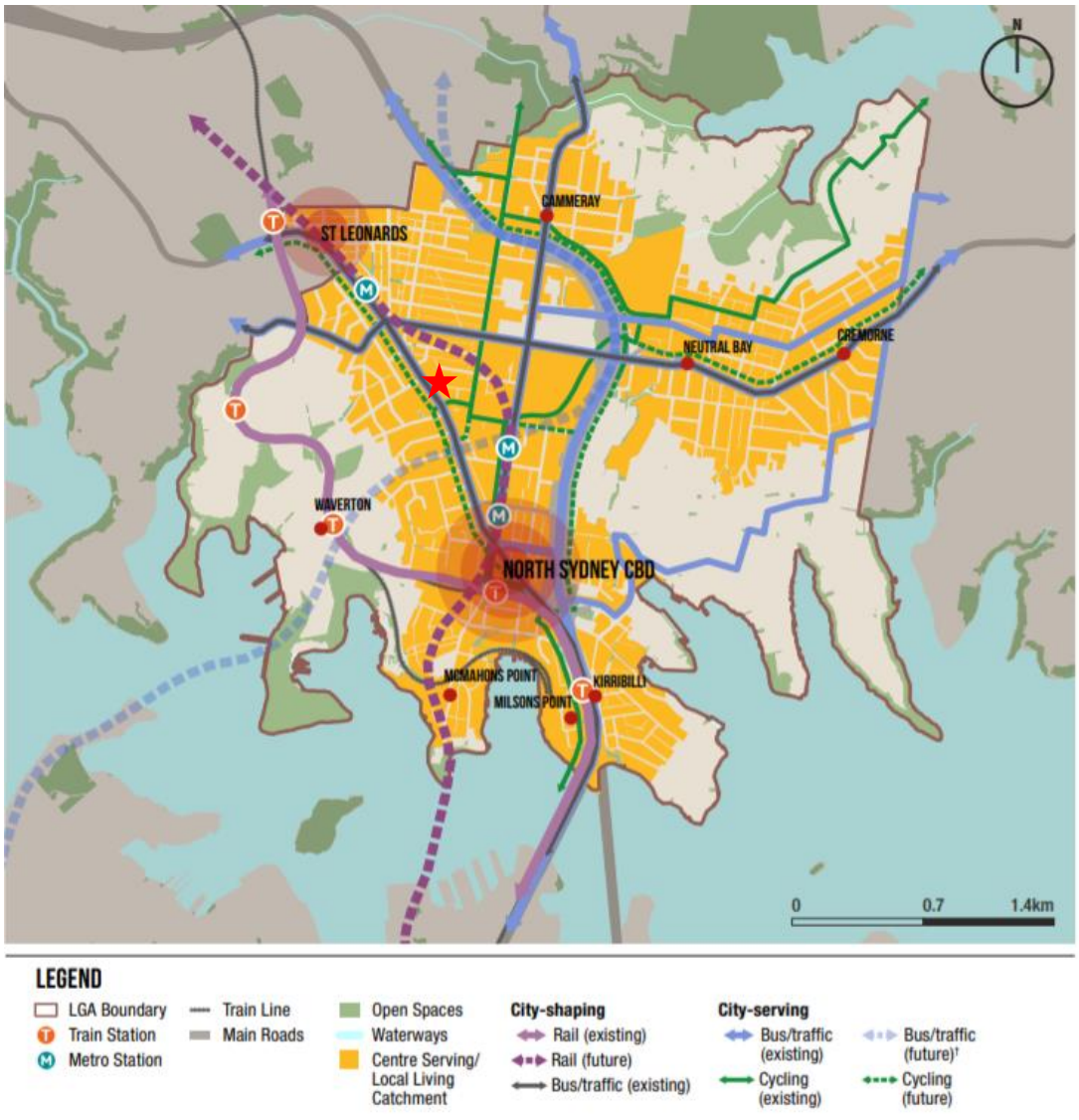
– Advocate for and deliver initiatives that improve public transport access to precincts located outside walkable catchments of high-quality public transport services

– Prepare a Walking Action Plan, Public Transport and Advocacy Action Plan, Local Deliveries and Regional Freight Action Plan, and Parking and Traffic Action Plan

– Review the North Sydney Integrated Cycling Strategy (2013) in line with the directions of the North Sydney Transport Strategy (2017) and North Sydney CBD Transport Masterplan (2019).

A transport map is shown in **Figure 2–4** to plan, prioritise, advocate and deliver transport outcomes that prioritise a modal hierarchy for North Sydney based on walking, cycling and public transport.

Figure 2–4 Transport network as part of the North Sydney LSPS



Source: North Sydney Council (2020), North Sydney LSPS

Implications for 270 Pacific Highway: The site is located in proximity to Crows Nest metro station and network of public and active transport network. The transport map also identified a future city-serving cycling corridor on Pacific Highway that connects a wider cycle network covering North Sydney CBD, Cammeray, Neutral Bay and St Leonards, which would promote bicycle use by the employees.

2.5 North Sydney Transport Strategy

The North Sydney Transport Strategy sets out North Sydney Council's vision for transport and modal hierarchy in North Sydney[4]. According to the Strategy, safe travel, transport security, social well-being, active health, fair access to parking, environmental sustainability, local environments, transport affordability, minimising congestion and business activity should be prioritised. Based on these priorities the Strategy established the following modal hierarchy for the future of North Sydney transport planning (**Figure 2–5**):

Figure 2–5 Modal hierarchy for North Sydney

Source: North Sydney Council (2017), Transport Strategy

Planning for infrastructure and land use should be informed by this modal hierarchy.

Implications for 270 Pacific Highway: The development has great opportunity to reinforce the attractiveness of North Sydney's top three modal priorities by improving amenities for pedestrians and cyclists. The proximity to the metro station will encourage people to use public transport, and the development will need to ensure that access to the station is comfortable and convenient. Limiting parking provision will support Council's objective to reduce car use as North Sydney continues to grow.

2.6 Crows Nest Placemaking and Principle Study

Crows Nest is a mixed-use area, providing retail, commercial, residential and entertainment opportunities for local residents. The metro station will be a catalyst for urban renewal projects that reinforce Crows Nest as a liveable and sustainable centre.

Equitable access has been identified as one of the development principles where Council continues to advocate for and encourage greater use of public transport, walking and cycling as preferred modes of transport and balancing the demand and supply of parking. These include:

– Walking is given the highest priority of all mode types in the study area

– Cycling will be a safe, enjoyable and convenient 'everyday' transport option for residents, workers and visitors of all ages and abilities to St Leonards / Crows Nest

– Access to transport, ever day services, parks and other community facilities will be safe and convenient

– The impact of regional traffic on local communities will be minimised.

The following actions will be supported to achieve an equitable access goal:

– Support infrastructure proposals that prioritise pedestrian amenity and safety such as reducing walking distances, addressing desire lines, removing barriers to movement

– Deliver bus stop upgrades such as real time information, level boarding and alighting, seating & tactile ground surface indicator

– Provide wayfinding for local cycling links between local trip attractors and regional cycling network

[4] North Sydney Council (2017), Transport Strategy.

– Deliver additional cycle parking facilities to accommodate visitor cycle parking demand in local centres

– Investigate and deliver separated cycle lanes on key routes, including Pacific Highway and West Street

– Implement reduced maximum parking rates for developments within a walkable distance of shops, amenities and high-quality public transport infrastructure to cater for less car dependent lifestyles

– Investigate simplifying the intersection at Pacific Highway, Falcon Street, Shirley Road and Willoughby Road to:

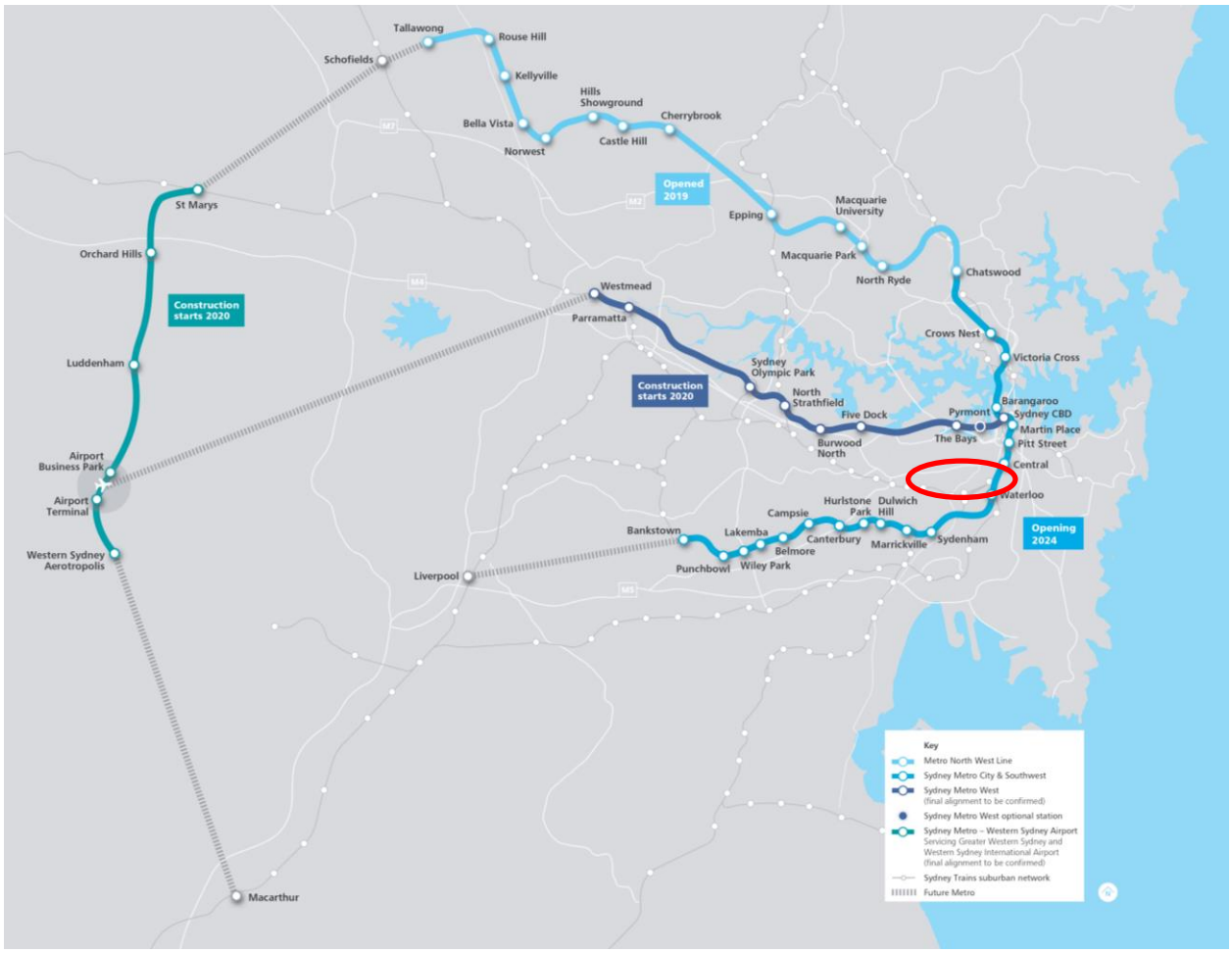
  - Improve the walkability of the southern entrance to the Willoughby Road by reducing the barrier effect of the Pacific Highway
  - Provide opportunities for locating secure cycle parking at the southern entrance to Willoughby Road
  - Provide opportunities for locating bus stops proximate to the southern gateway to Willoughby Road.

Implications for 270 Pacific Highway: The study highlighted that active transport would play a key role in Crows Nest. The upgrade of the pedestrian and cycle facility would attract more employee to use sustainable transport modes to / from work in associated with the cap of parking numbers for developments.

2.7 Sydney Metro

The Metro Northwest Line is being extended under Sydney Harbour, through new underground city stations and beyond to the south west. Crows Nest metro station is currently under construction about 400m to the north of the proposed site. The underground station is due to open in 2024, together with the completion of the Sydney Metro City & Southwest Line from Chatswood to Bankstown via the Sydney CBD (**Figure 2–6**).

Figure 2–6 Sydney Metro network

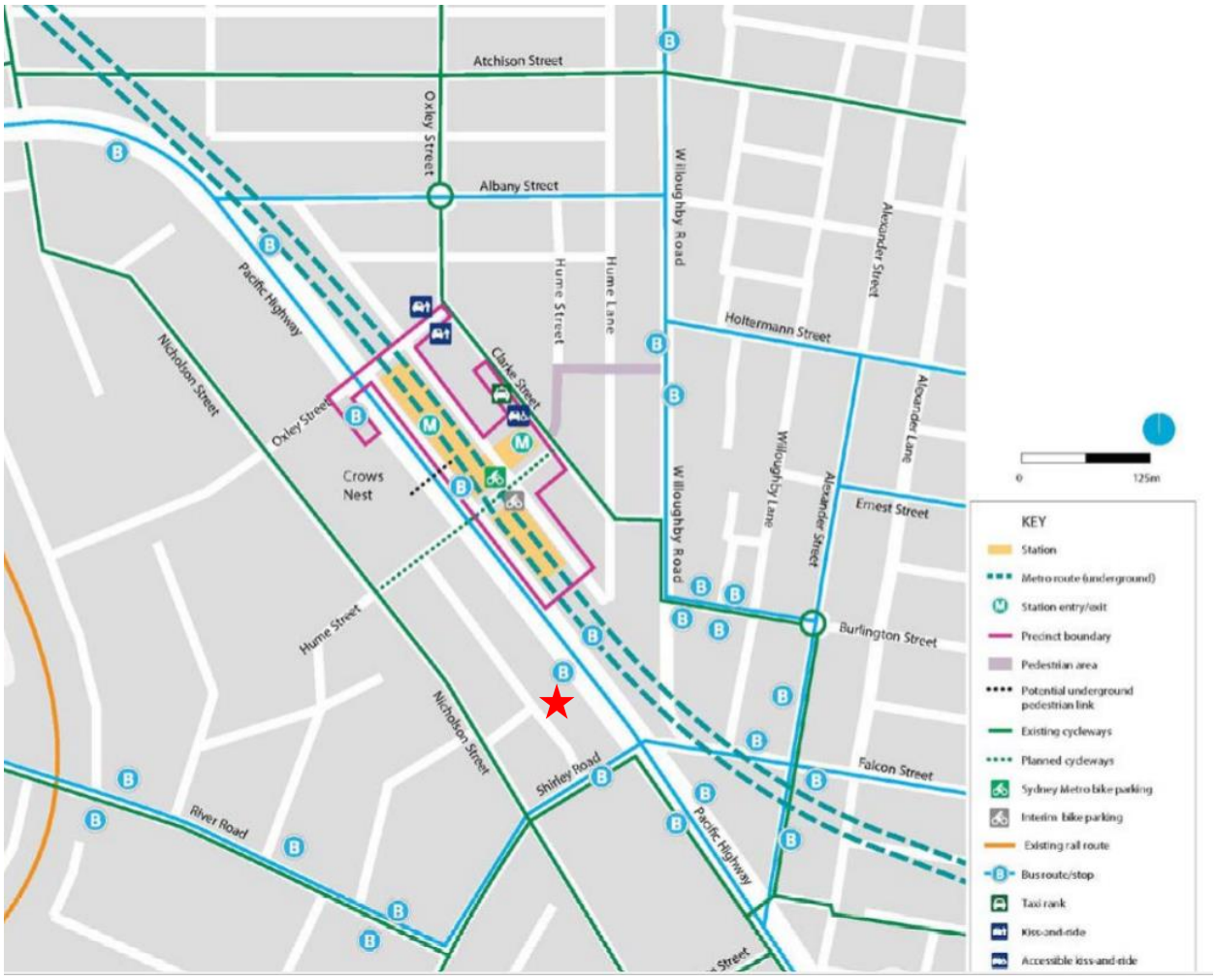


Source: Sydney Metro (2020)

Crows Nest Station is located in the Crows Nest residential area and serves people within walking and cycling distance. It improves travel to local schools, businesses and Crows Nest village. The station creates a new transport focus on the southern side of the St Leonards specialised centre which supports the St Leonards southern gateway to commercial and mixed-use activities. The construction of the station includes (**Figure 2–7**):

- Two station entrances with one located on Pacific Highway between Oxley Street and Hume Street and one located on Clarke Street near the corner of Hume Street
- Public domain works including footpaths, street tree planting, lighting and street furniture
- New pedestrian lights to cross the Pacific Highway on the northern side of Oxley Street intersection
- New pedestrian crossings on Clarke and Hume Streets
- New bike parking on Hume Street, Pacific Highway, Clarke Street and Oxley Street
- New kiss and ride and taxi bays in close proximity to the station
- Installation of wayfinding signage and Sydney Metro information
- Hume Street bi-directional separated cycle link from Clarke Street to Nicholson Street
- Upgraded Hume Street intersection with cycle crossing and increased pedestrian capacity
- Improved pedestrian crossings at intersections of Oxley Street, Pacific Highway, Hume Street and Clarke Street.

Figure 2–7 Accessibility map of Crows Nest station



Source: Adapted from Sydney Metro (2018), Crows Nest Over Station Development

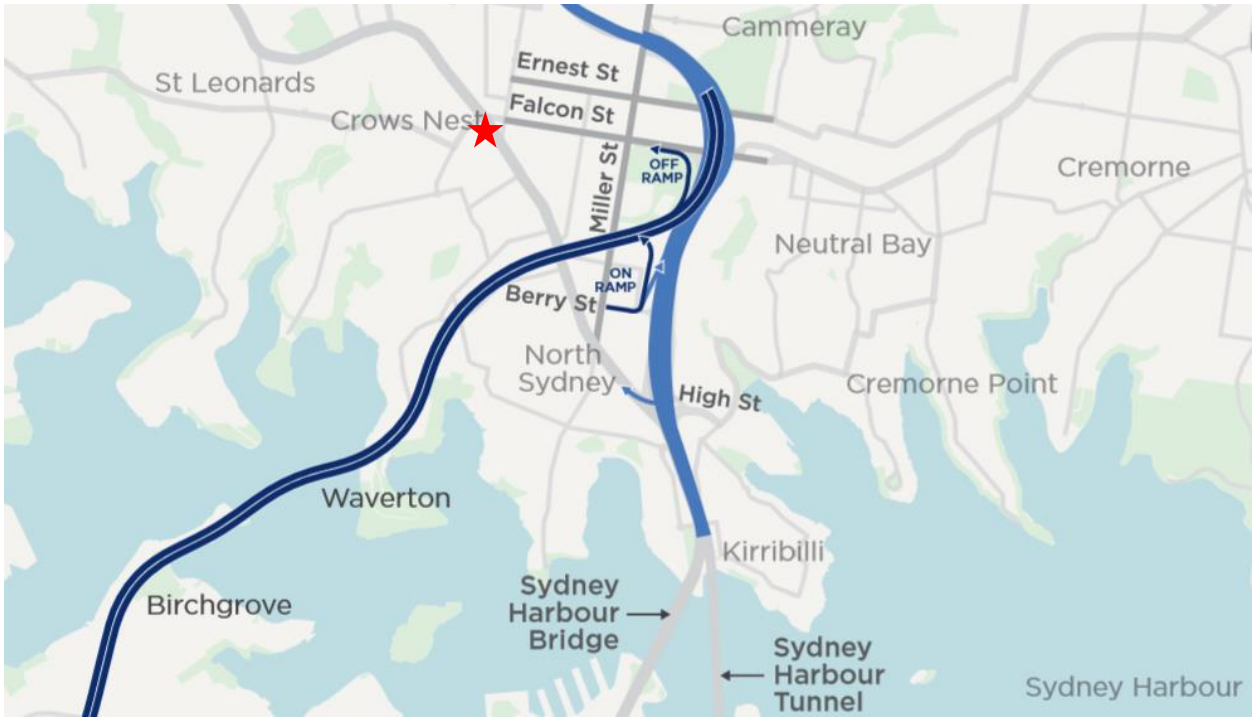
Implications for 270 Pacific Highway: The proposed development is within Crows Nest station's 400m walking catchment area so the future building occupants can benefit from this high-quality and high frequency metro services that connect to other major centres such as Chatswood and Sydney CBD within 5 minutes. Other walking and cycling amenities around the metro station also facilitate improved pedestrian and cyclist access to the station as well as Crows Nest Village.

2.8 Western Harbour Tunnel and Beaches Link (WHTBL)

The NSW Government continues to progress planning for the proposed Western Harbour Tunnel and Beaches Link. The Western Harbour Tunnel would deliver a new crossing of Sydney Harbour to take pressure off the Sydney Harbour Bridge and Tunnel and creates a western bypass of the Sydney CBD. The project also includes upgrading four kilometres of the Warringah Freeway.

In the vicinity of site, an on-ramp is proposed from Berry Street to connect to the southbound carriageways. An off-ramp is proposed to connect to Falcon Street westbound, as shown in **Figure 2–8**.

Figure 2–8 Proposed alignment of the Western Harbour Tunnel in the vicinity of the study area



Source: Roads and Maritime Services (2018), Western Harbour Tunnel project update

Implications for 270 Pacific Highway: Travel time to North Sydney can be saved by around 10 minutes especially from Sydney Inner West[5]. The proposed off-ramp of the Western Harbour Tunnel at Falcon Street could attract more cars to the area where the site is located. This may increase conflicts between walking, cycling and car traffic and result in a less walkable environment surrounding the site, in particular at intersection of Falcon Street and Pacific Highway. Thus, it is critical to ensure limited net increase of the car trips associated with the site and mitigate the conflicts.

[5] Western Harbour Tunnel Project update, Page 5

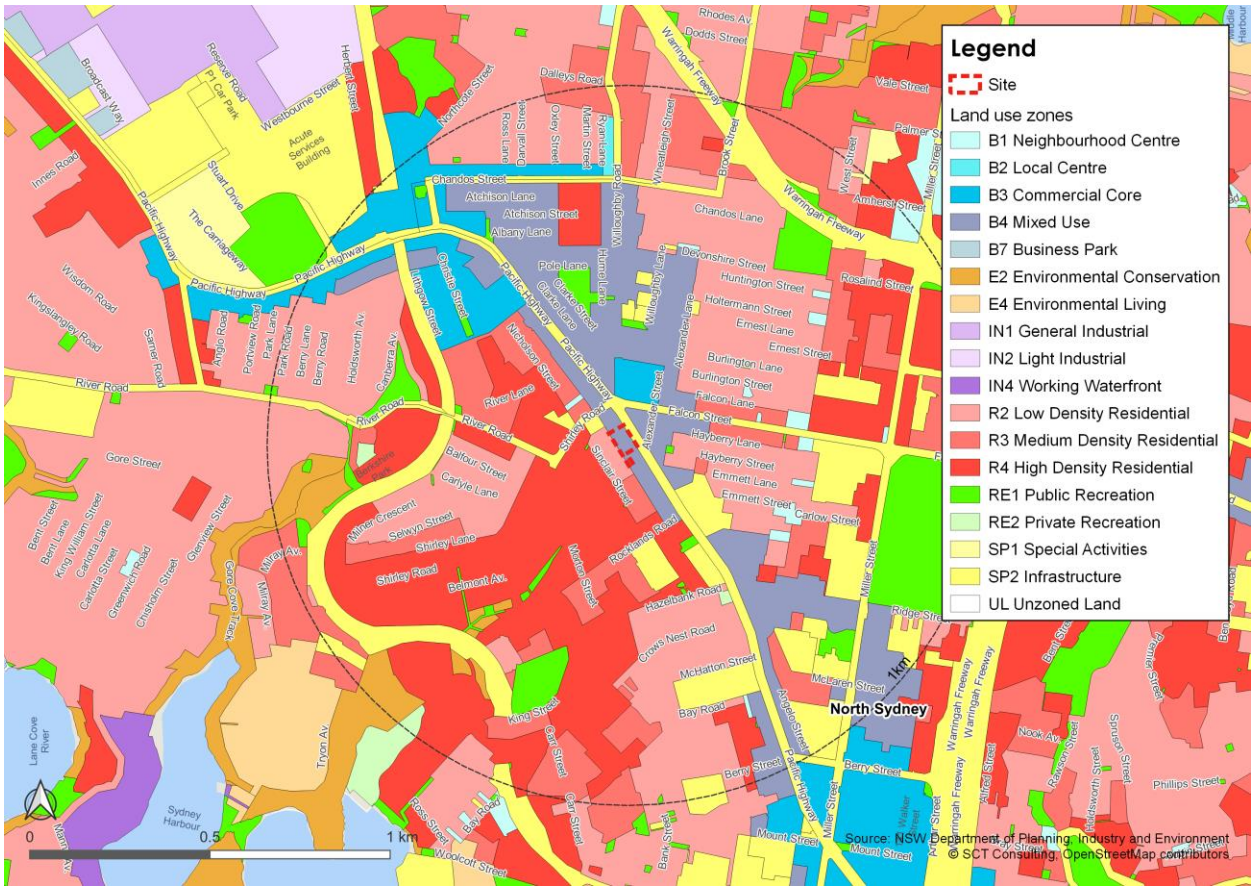
3.0 Existing Conditions

The purpose of this chapter is to provide an understanding of the current traffic and transport condition in the vicinity of the site, located at 270 Pacific Highway, Crows Nest.

3.1 Land use

The existing zoning in the vicinity of the site is shown in **Figure 3-1**.

Figure 3-1 The existing zoning around the site



The site is located in the southern part of B4 Mixed Use along Pacific Highway in St Leonards & Crows Nest Precinct. An extensive land use types exist around the site, including B3 Commercial Core in the heart of St Leonards and Crows Nest centres, supported by R2 – R4 Low to High Density Residential areas surrounding the site.

The SP2 Infrastructure zones form many major employment, mixed-use retail and hospitality, and health establishments such as Royal North Shore Hospital and Mater Hospital in the northwest and south, as well as several educational facilities such as North Sydney Girls High School in the southeast.

3.2 Travel behaviour

2016 Journey to work data from the Bureau of Transport Statistics was analysed to determine the current travel behaviour of the existing employees within the study area during peak periods. The Statistics Area level 2 (SA2) that represents the area is Crows Nest-Waverton, as shown in **Figure 3-2**.

Figure 3-2 Study area analysed for the travel behaviour of the site

The study area is serviced by Wollstonecraft Station and Waverton Station as well as frequent buses along Willoughby Road and Pacific Highway, contributing to a moderate public transport mode share at 27 per cent in 2016, five per cent more than Sydney average level. Nonetheless, approximately 48 per cent of Crows Nest-Waverton workers commuted by car, only five per cent less than Sydney's average. This is likely due to the cheaper parking rates and availability of public parking areas in Crows Nest comparing to other major business districts in Sydney. For active transport mode, seven per cent of the employees walked to work while cycling to work is less than one percent.

The Journey to Work 2016 origins and destinations for arrivals at / departures from North Sydney by Local Government Area (LGA) were investigated. Around 14 per cent of the North Sydney workers lived in the same LGA, making it possible for more short distance commuting by walking and cycling. Northern Beaches generates nine per cent of the total work-related trips to North Sydney, followed by City of Sydney (6.6 per cent), which generally requires less than 30 minutes commuting period by public transport. Other origins were fragmented across the Great Sydney region and were no more than five per cent per origin. The overall origin distribution tallies with moderate use of sustainable transport modes, i.e. 34 per cent for employees in North Sydney LGA given relatively short-medium travel distance and good accessibility to public transport.

3.3 Walking

The site is located in a walkable environment where wide footpaths are provided in different quality on both sides of the road. Given the site's proximity to Crows Nest and a number of schools, large volume of pedestrians is observed throughout the day. Pedestrian crossings are provided at most surrounding intersections except Bruce Street / Pacific Highway.

Willoughby Road sees lots of active frontages, outdoor dining, on-street parking and bus stops, making it busy on both footpaths during commuting peaks and lunchtime.

Alexander Street is slightly inclined with footpath provided along both sides of the road. It starts at the Pacific Highway and ends at Chandos Street to the north with many active frontages.

Pacific Highway is mostly flat between Shirley Road and Rocklands Road with footpath provided on both sides of the road. There are mixed-use frontages with multiple vehicular access points. Formal and regular pedestrian crossings

are provided at the traffic lights of Pacific Highway / Shirley Road, Pacific Highway / Alexander Street and Pacific Highway / Rocklands Road.

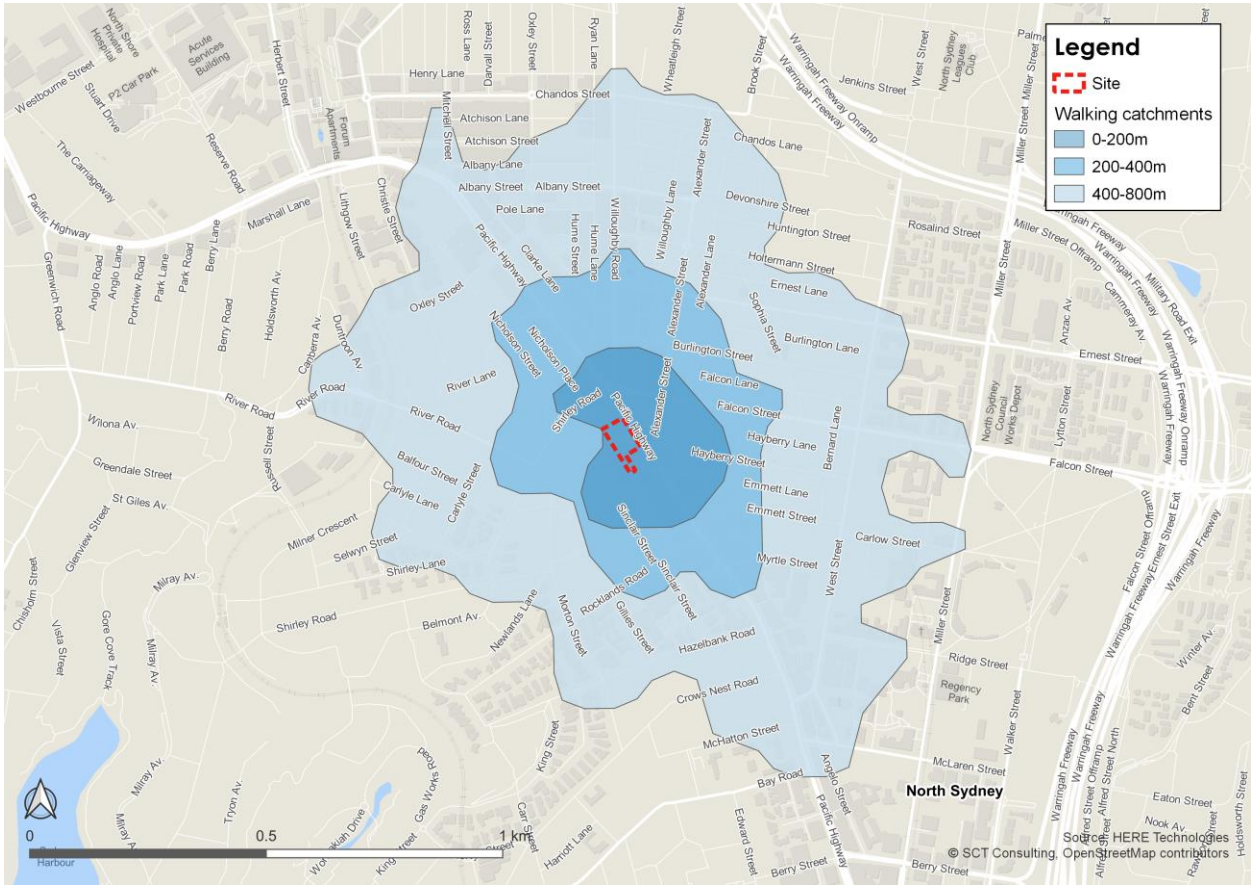
Walking catchments to / from the site are shown in **Figure 3-3**, which covers a wide area as follows:

– The 200-metre walking catchment covers Woolworths Crow Nest and many activities and services in the southern part of Willoughby Road

– The 400-metre catchment further includes the Crows Nest retail and community village, low-density residential development in Wollstonecraft, North Sydney Girls High School to the east and Mater Hospital to the south.

– North Sydney Boys High School, Marist College North Shore and North Sydney Public School are within 800-metre walking distance from the site. Other high-density residential and commercial development are also within 800m walking distance to the southeast near North Sydney CBD and to the northwest near St Leonards. Open spaces such as Brennan Park, St Leonards Park, St Leonards and Wollstonecraft Station are just beyond the 800-metre catchment area.

Figure 3-3 Walking catchment map for the site



3.4 Cycling

The North Sydney Transport Strategy notes that the proportion of people cycling in North Sydney is low compared to international standards[6]. However, it is a mode of transport that the council is committed to increasing. Gaps in the network and difficult sections have a negative impact on cycling participation as poor amenity or potentially dangerous sections of the road are a disincentive for those who might otherwise take up cycling. Cyclists must manoeuvre around frequently stopping buses and high traffic flow. At times, cyclists ride on the footpath to avoid difficult or dangerous sections, increasing the potential for conflict with pedestrians.

[6] North Sydney Council (2017), Transport Strategy.

Within Crows Nest, Burlington Street, Clarke Street and Atchinson Street are marked on road cycle route. Willoughby Road, Burlington Street, West Street, Ridge Street, Miller Street and Pacific Highway are high-frequency bike routes, which may include difficult conditions if separate paths are not provided as shown in **Figure 3-4**.

Figure 3-4 Cycle routes serving the study area

Source: North Sydney Council, Northern Sydney Cycle Guide + Map

The North Sydney Integrated Cycling Strategy[7] identified the following gaps and difficult aspects of the cycling network:

– Cyclists are forced to ride along busy roads and negotiate busy intersections without formal bicycle facilities

– Cyclists encounter pinch points where road space is suddenly lessened, and they are forced to merge with fast-moving traffic

– Cyclists encounter situations which compromise the mobility advantages gained from riding (such as wheel ramps up steps)

– Cyclists ride on the footpath to avoid difficult or dangerous sections, increasing the potential conflict with pedestrians.

There are no dedicated cycling facilities in the vicinity of the site to connect to a wider cycle network, indicating potential needs to improve the cycle infrastructure.

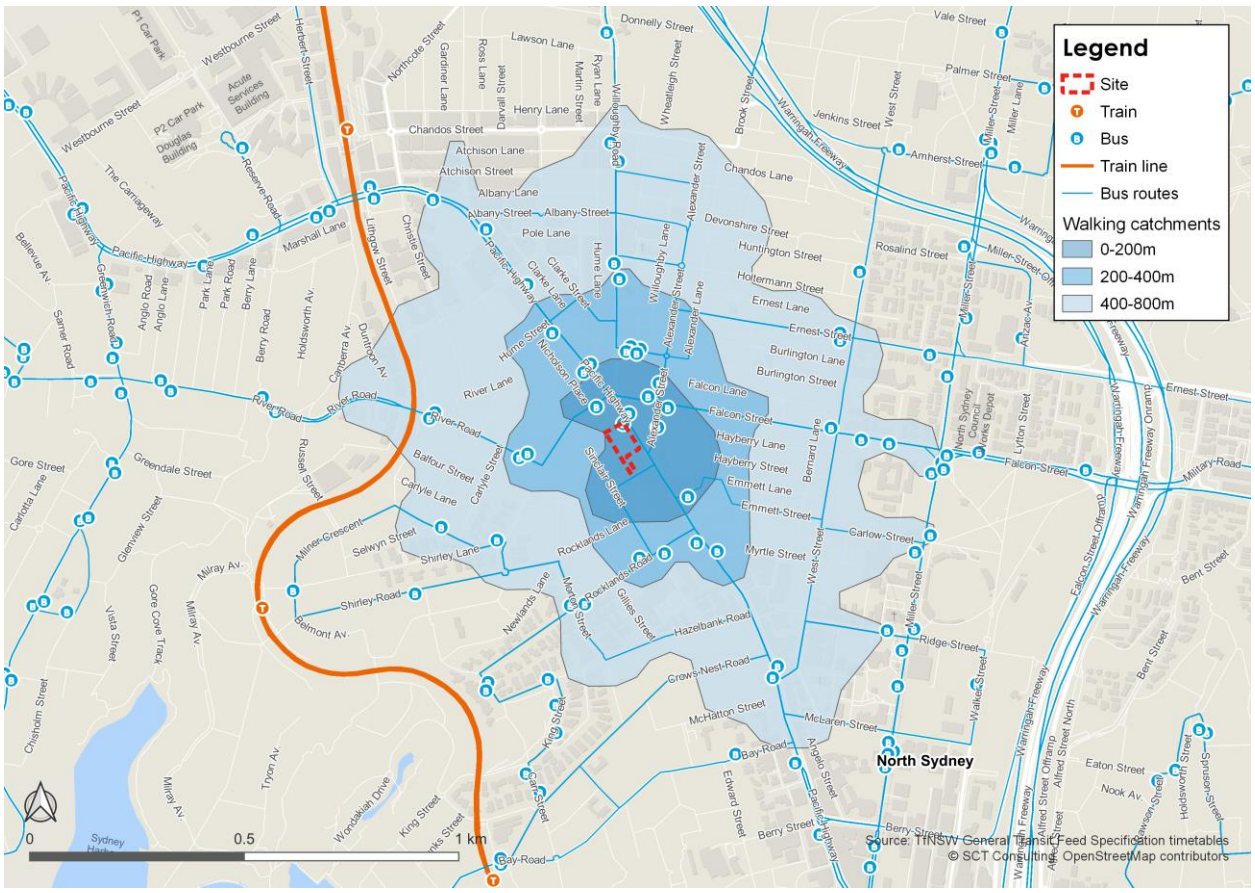
[7] North Sydney Integrated Cycling Strategy, 2014

3.5 Public transport

Crows Nest accommodates major bus services on Pacific Highway, Willoughby Road, Alexander Street and Falcon Street. The site is also within a 15-minute walk from St Leonards and Wollstonecraft Stations. The proximity to regular public transport is reflected in the public transport mode share above Sydney average. North Sydney Council sims to continue to prioritise public transport over private vehicles, and it is expected that this mode share will continue to increase when the new metro station around 400m north to the site is scheduled to open in 2024.

The public transport network servicing the site is shown in **Figure 3-5** where multiple bus stops are located within 200m walking distance.

Figure 3-5 Public transport servicing the site



3.5.1 Bus

Bus frequencies on Pacific Highway is mostly greater than one service every three minutes during a typical weekday AM peak hour, as shown in **Figure 3-6**. Slightly less frequent services are provided at bus stops along Falcon Street and Willoughby Road in the north and east of the site.

Figure 3-6 Service frequency during a typical weekday AM peak

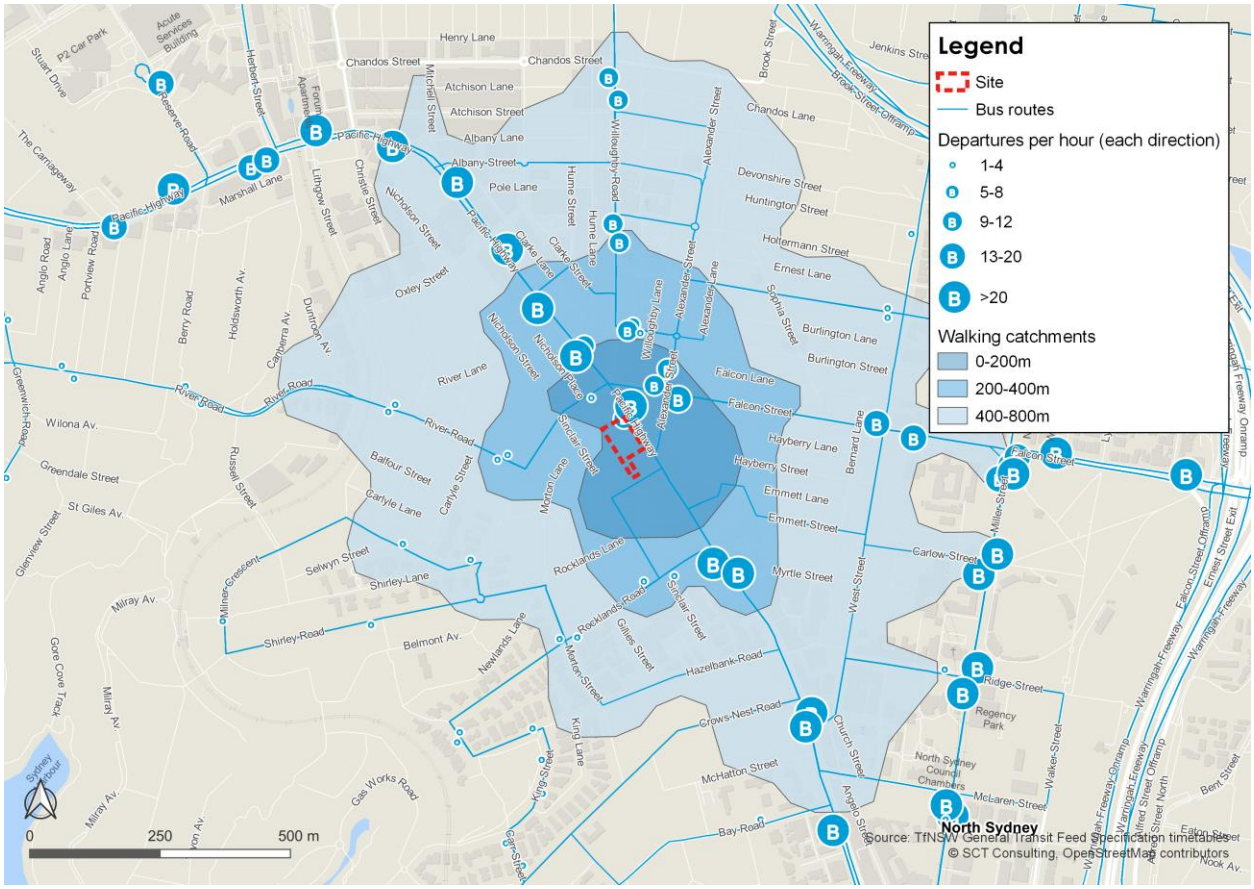


Table 3-1 shows the frequency of bus services in the vicinity of the site. The data shows that the site is well serviced by buses during the peak hours for weekdays with an interval of around one minute per bus, covering origins and destinations including a wide range of strategic centres and local centres across Sydney, such as Bondi Junction, Chatswood, Kingsford, Ryde, Epping, Mascot, Manly and Castle Hill etc.

Table 3-1 Bus route details for the site

Route	Terminals	Total trips in two directions	
		AM (8am to 10am)	PM (4pm to 6pm)
602X	Bella Vista Station - North Sydney	10	12
612X	Castle Hill - North Sydney	14	16
622	Milsons Point - Dural	4	4
252	North Sydney - Gladesville	13	13
254	McMahons Point - Riverview	14	11
257	Mosman - Chatswood	15	14
261	Lane Cove - Sydney	8	9
265	North Sydney - Lane Cove	10	10
286	Denistone East - Milsons Point	3	6
287	Ryde - Milsons Point	4	3
291	McMahons Point - Epping	11	9
143	Manly - Chatswood	11	17
144	Manly - Chatswood	19	17

Route	Terminals	Total trips in two directions	
		AM (8am to 10am)	PM (4pm to 6pm)
200	Chatswood - Bondi Junction	13	12
343	Chatswood - Kingsford	26	27
320	Mascot - Gore Hill	19	22
Total		**194**	**202**

Source: TfNSW Opal Data, 2020

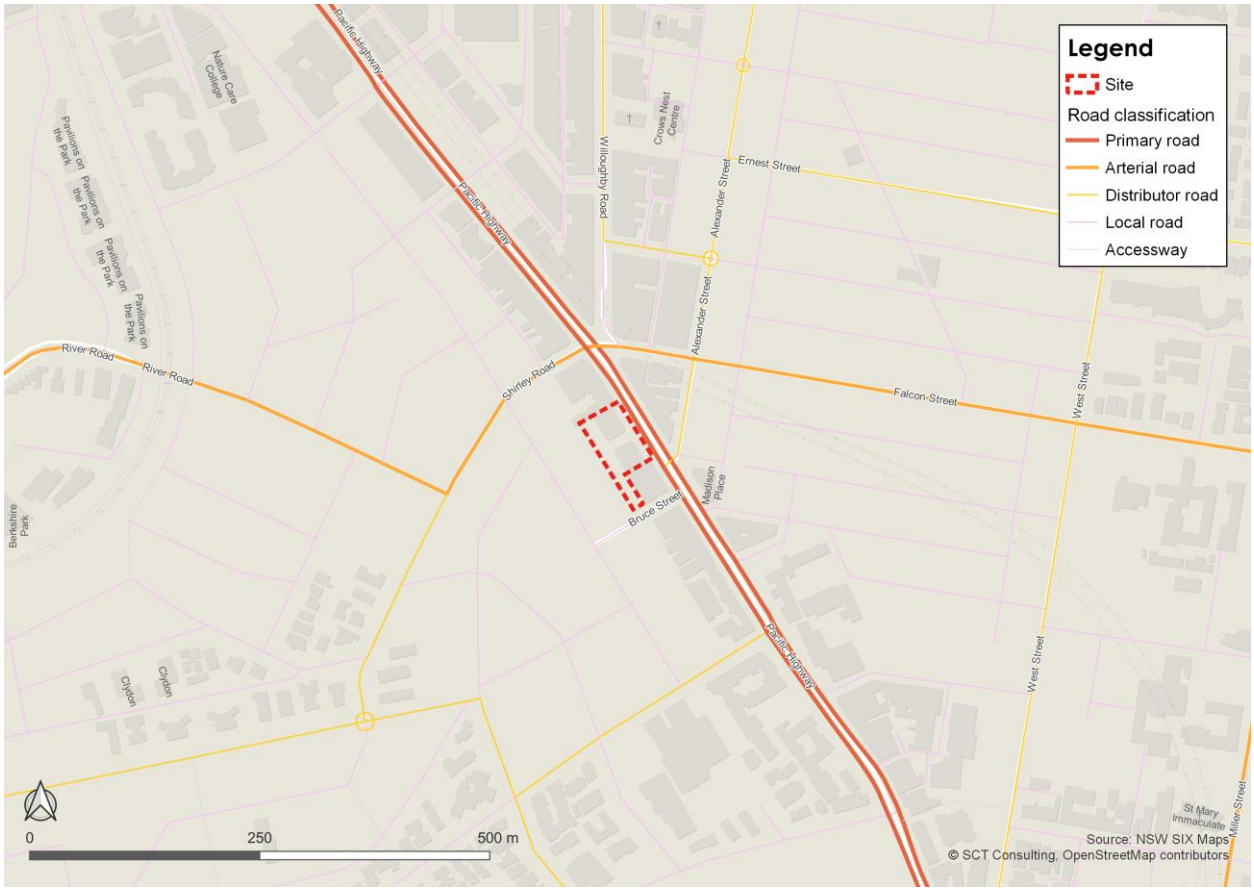
3.5.2 Train

The site is within a 15-minute walk or a 2-4 minutes bus ride from St Leonards and Wollstonecraft stations. These stations are part of the T1 and T9 lines and provide frequent services to destinations across Greater Sydney. People walk between St Leonards station and the site mainly via the Pacific Highway and between Wollstonecraft Station and the site via Shirley Road.

3.6 Road network

The major roads near the site include Pacific Highway, Falcon Street, Shirley Road, Alexander Street, Willoughby Road, Sinclair Street and Bruce Street as shown in **Figure 3-7**.

Figure 3-7 Road network around the site

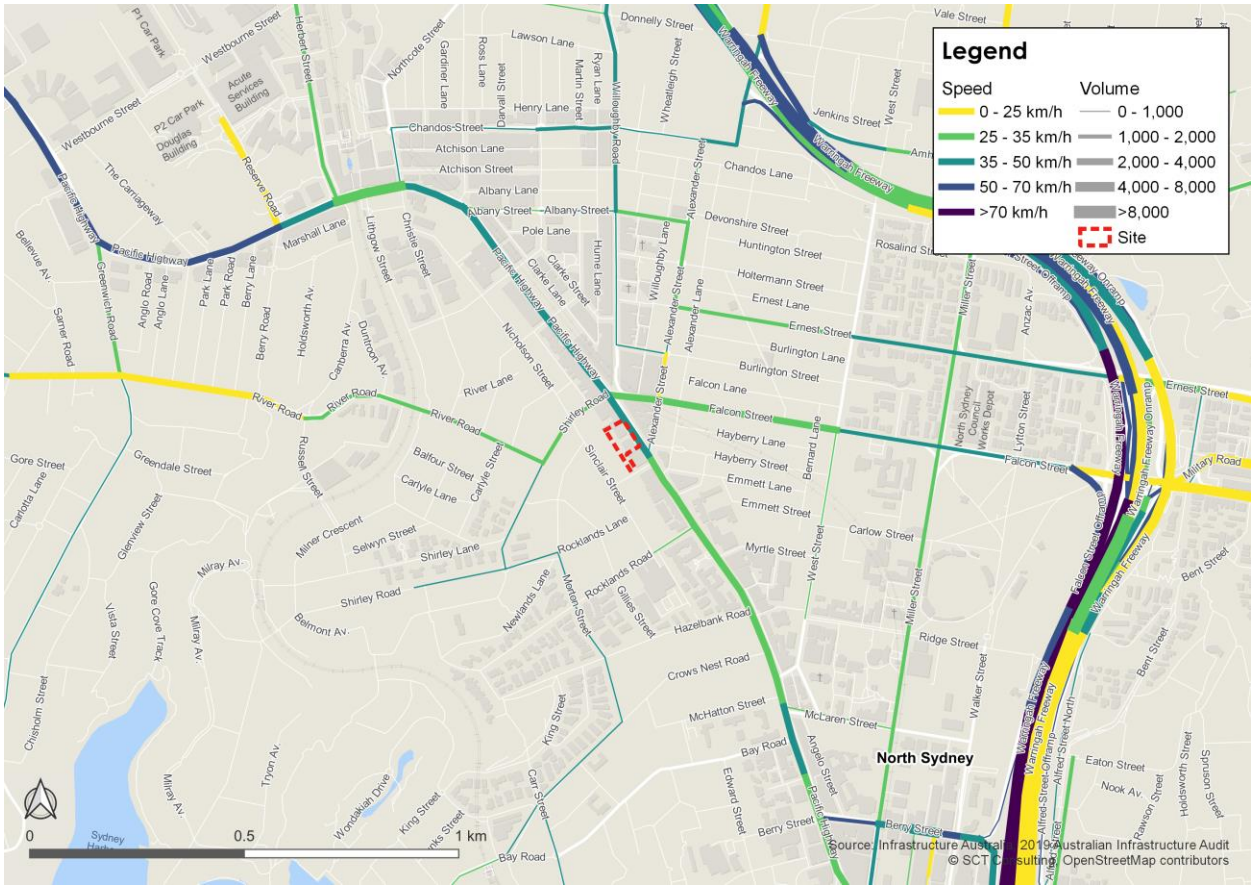


The key roads around the site are:

- **Pacific Highway** to the east of the site is a primary arterial road managed by TfNSW. The travel lanes vary from two to three lanes per direction in the vicinity of the site with localised intersection widening at Alexander Street and Rocklands Road to provide turning lanes. Right turn movements from Pacific Highway are prohibited at the intersection of Pacific Highway / Falcon Street / Shirley Road. The Pacific Highway is dominated by its movement function for local and through vehicle traffic at a speed limit of 60 km/h. Transit lanes and bus lanes are designated in the vicinity of the site for northbound (during PM peak hours) and southbound (during AM peak hours) movements, respectively. There is a school zone between Emmett Lane and Rocklands Road, in the vicinity of North Sydney Girls High School and Cammeraygal High School. Standard footpaths exist on both sides of the road and pedestrian crossings are provided at traffic lights with an average spacing of about 200 m near the site. Time restricted on-street parking are only allowed outside commuting peak hours.
- **Falcon Street** is an east-west arterial road to the east of the site with peak hour clearways implemented on both sides of the street. It is a state road managed by TfNSW and has two lanes in both directions between Pacific Highway and the Warringah Freeway with a speed limit of 60 km/h. There is a school zone between West Street and Miller Street for North Sydney Boys High School. Time restricted parking exist outside clearway hours.
- **Shirley Road** is also an arterial road to the northwest of the site extending from Falcon Street to connect with River Road. It is a regional road managed by Council and has two lanes in both directions. The speed limit is 50 km/h with no on-street parking available along the road, north of River Road. Pedestrian crossings are provided at Pacific Highway while footpaths are provided on both sides of the road. A marked area together with ‘keep clear’ zone exist in front of a Crows Nest Fire Station, where no queuing is allowed.
- **Alexander Street** is a north-south distributor road that connects Pacific Highway to the south with Chandos Street to the north. It has one travel lane in each direction with a speed limit of 50 km/h. Time restricted on-street parking is provided on most of the road segments. Generous footpaths and frequent pedestrian crossings are observed along the road, make it a pedestrian-friendly environment to connect to Crows Nest village centre.
- **Willoughby Road** is a north-south distributor road to the north of the site. It has one travel lane in each direction with a speed limit of 40 km/h between Pacific Highway and Albany Street given frequent pedestrian crossings and high pedestrian activities on the footpaths, acting as the main street of Crows Nest village centre. On-street parking and footpath are provided on most of the road segments. The road is one lane southbound (with angled parking facility) between Burlington Street and Falcon Street, with a left turn only permitted to access Falcon Street.
- **Sinclair street** is a local road to the west of the site with a 50 km/h speed limit, providing accesses to residential development along this street. However, vehicular access to 63-77 Sinclair Street is provided via the right-of-way shared with 270 Pacific Highway, accessed via Bruce Street. It operates as one-way southbound between Shirley Road and Bruce Street. Time restricted on-street parking are provided while footpaths exist on both sides of the street.
- **Bruce Street** is a 10m wide local road starting from Sinclair Street to the south of the site with a steep uphill slope approaching Pacific Highway. Left-in left-out priority treatment is implemented at the intersection with Pacific Highway where close proximity of Bruce Street and Alexander Street makes it challenging to access the right turn bay into Alexander Street. It has one lane in each direction with a posted speed limit of 50 km/h. Footpath and on-street parking are provided on both sides of the road. Bruce Street currently has a restriction on heavy vehicles over 2 tonnes.

As summarised in **Figure 3-8**, Pacific Highway in the vicinity of the site operates with an average speed of 35 to 50 km/h during typical weekday peak hours (7:00-9:00am), whereas Falcon Street and Shirley Road operate between 25 to 35km/h. The bandwidth of the map indicated peak hour traffic volume up to 4,000 vehicles (for a two-hour peak) on a four-lane to six-lane carriageway on Pacific Highway or Falcon Street, which is anticipated to have redundant capacity.

Figure 3-8 Travel speeds surrounding the site



3.7 Shared vehicles

Car share decreases the need for some people to own a car or a second car. From a commercial office context, it reduces the need for businesses to own / purchase company car(s), while having it parked in the car park when not in use. Hence, availability to car share vehicle is expected to reduce parking demand and traffic generation.

It differs from traditional car hire companies in that cars can be hired by half hour increments and cars are located near to where people live or work. Car share is available from either companies that own a vehicle fleet or peer-to-peer services for individual owners to share their vehicles.

In 2016, there are approximately 1,500 business members in car share scheme in North Sydney. The benefits realisation of car share schemes, is documented within the Committee for Sydney document *'Carsharing: Sydney Snapshot'* as follows:

– A reduction in vehicle kilometres travelled by approximately 2,000 km per year for each user with corresponding increases in walking, riding a bicycle or using public transport. This has flow on impacts to the health of residents

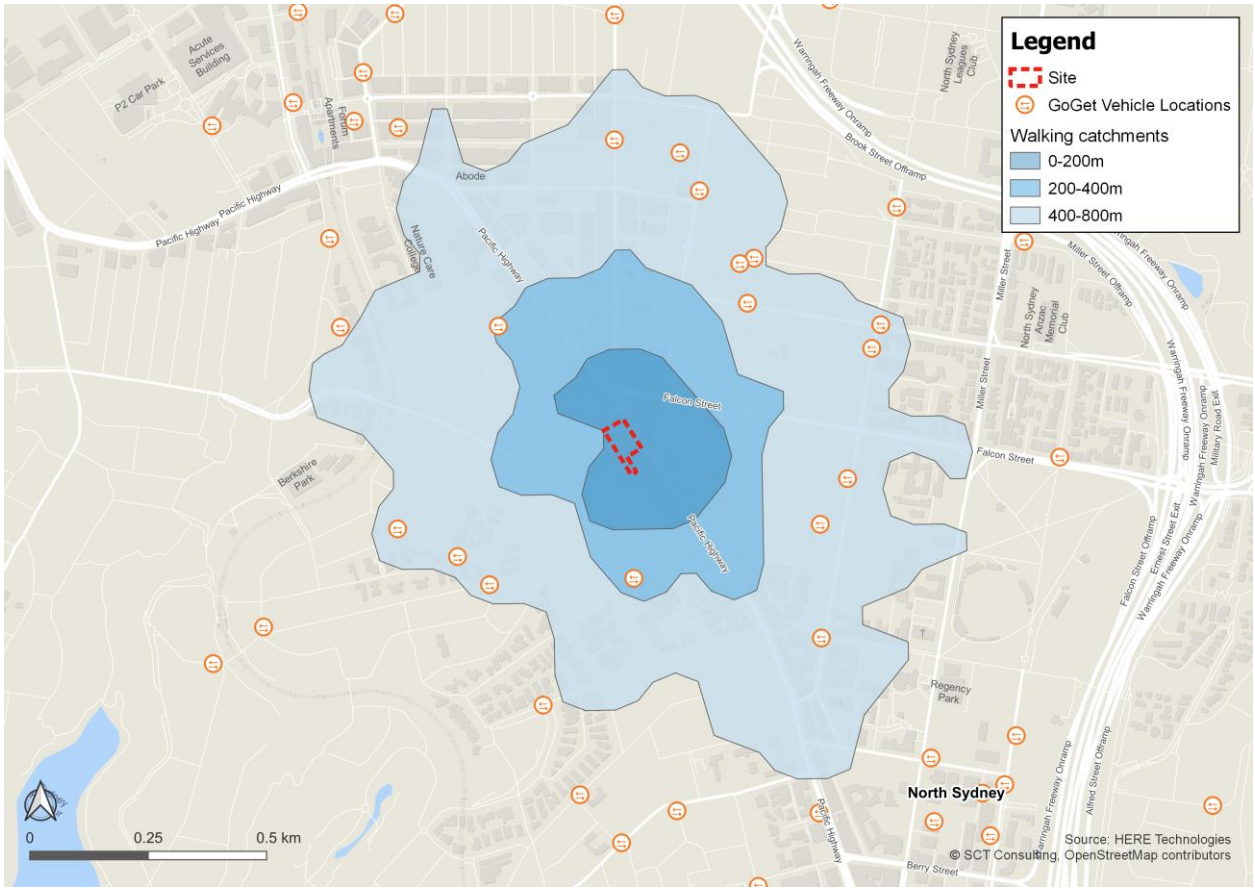
– Each car space in a multi-storey car park can cost between $30,000 - $70,000 to construct when a car space is provided. These cost savings are passed on to developers

– The current benefit that each car share vehicle provides is estimated at $59,673. This takes into consideration factors such as congestion, environmental factors such as emissions, opportunity cost of not owning a car space, management fees and community value of space.

These statistics support the notion of using car share schemes, to achieve reductions in car parking spaces. GoGet is currently one of the operators[8]. A map of the GoGet parking locations indicates the availability of the vehicles, i.e. no car share pods within 200m catchment, two pods in 400m walking catchment area and further 14 pods in 800m catchment area, indicating the potential for on-site car share spaces (**Figure 3–9**).

[8] Popcar is another local provider that offers two spots in 400m catchment area and one more in 800 catchment area.

Figure 3–9 Go Get pods around the site



Source: SCT Consulting, 2020

3.8 Current access arrangement

The existing site has an access of on Bruce Street as shown in **Figure 3-10**, immediate to the west of the access to 250 Pacific Highway.

Figure 3-10 Access for the existing site

Source: Google map street view, 2019

The access is providing access to:

– The existing basement parking of 270 Pacific Highway via a ramp

– Some at-grade parking (six spaces) at the back of the existing building of 270 Pacific Highway via a right-of-way. Vehicles accessing these parking spaces of 270 Pacific Highway will enter the right-of-way from Bruce Street and then travel in an anticlockwise loop and leave the site via the part of the right-of-way shared with development at 63-77 Sinclair Street.

4.0 The proposed development

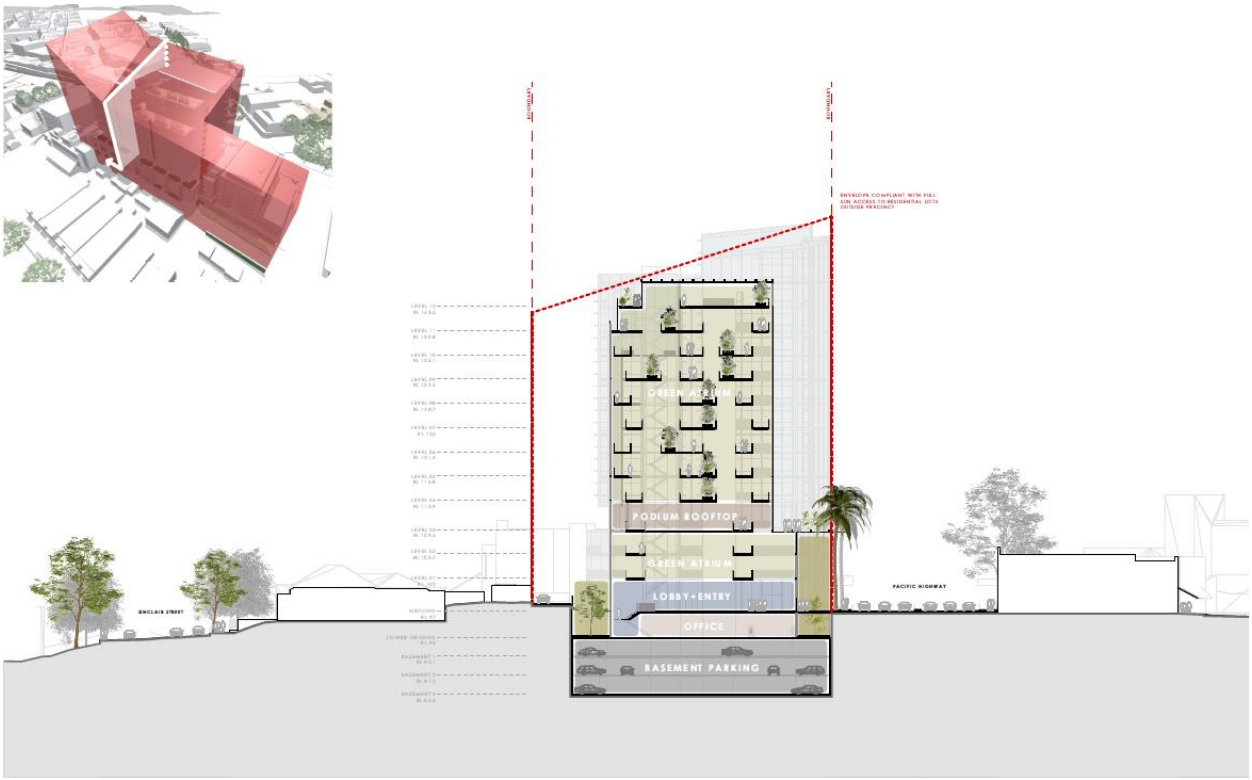
4.1 Proposed building and public realm design

Located near the southern end of St Leonards and Crows Nest plan, the planning proposal seeks to retain the B4 Mixed Use Zoning for the site and amend the maximum building height and floor space ratio controls, as set out in the North Sydney LEP 2013. The proposed amendments will replace the existing two buildings at 270-272 Pacific Highway and facilitate a 13-storey commercial office and allied health development with a minor retail component at ground level, providing much needed employment generating floor space.

The proposed redevelopment of 270 Pacific Highway is located about 400m from the future Crows Nest metro station, Mater Hospital and a few education entities. It will be densified and developed into a vibrant community, employment hub, greener and accessible place while the street wall of the development is expected to match neighbouring heritage buildings such as Crows Nest Fire Station and Former National Australia Bank.

Figure 4-1 shows a section of the proposed building.

Figure 4-1 Section of the proposed building (looking north)



Source: fitzpatrick+partners, 2021

4.2 Site yield

The proposed development will see a total Gross Floor Area (GFA) of approximately 22,853 m^2 with 202 total parking spaces as shown in **Table 4-1**.

Table 4-1 Proposed yield of the site

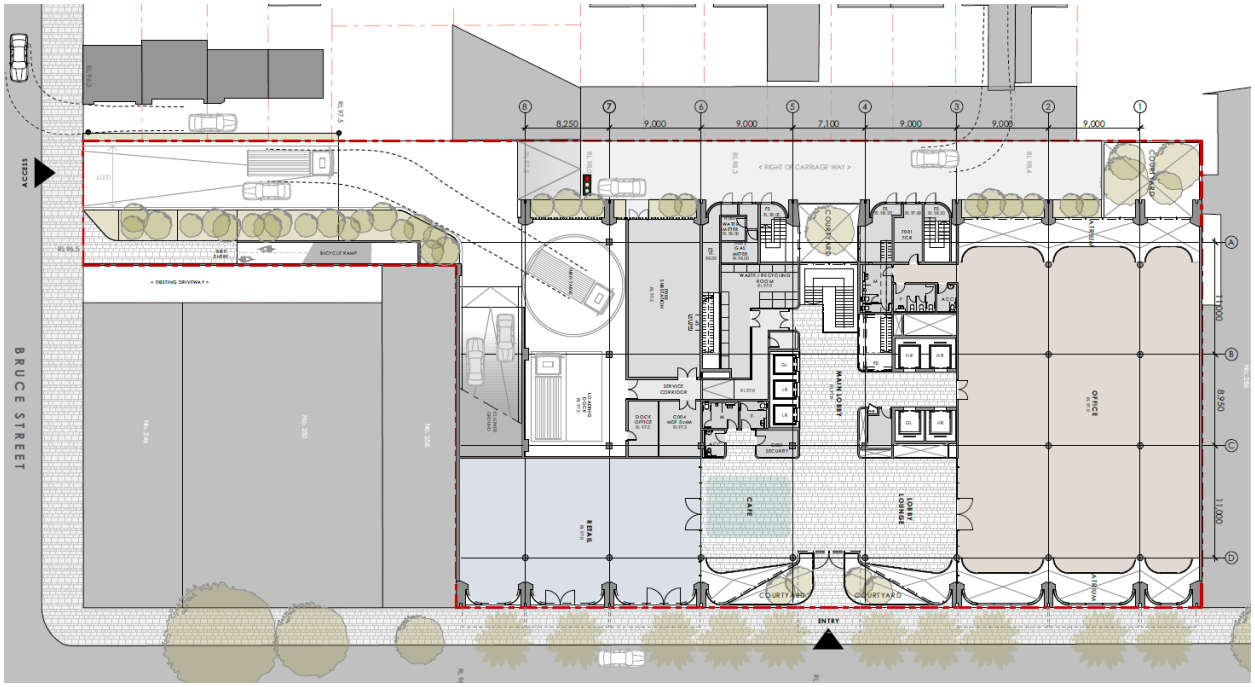
Item	Current development	Proposal	Yield
Total GFA	7,245m^2 GFA	22,853m^2 GFA	A net increase of approximately 15,600m^2 GFA
Total parking spaces	100 spaces	202 spaces	+102 spaces

Source: SCT Consulting, 2020

4.3 Proposed transport access

The proposed transport access to / from the site needs to cater to the travel characteristics of the proposal as well as integrated appropriately with the surrounding road network as shown in **Figure 4-2**.

Figure 4-2 Proposed site plan of the ground floor



Source: fitzpatrick+partners, 2021

4.3.1 Vehicular access

A 6m wide vehicular access is provided on Bruce Street to connect to the basement car park, loading dock and bicycle parking from street level. The proposed vehicular access will continue to be shared with properties at 63-77 Sinclair Street, providing access to individual properties and their garages. It is recommended to install vertex mirrors at the internal intersection to ensure a safe traffic operation where there could be conflicts among traffic to / from the basement, neighbour residential traffic and trucks from / to the loading dock.

4.3.2 Active transport access

Pedestrian access is provided along the Pacific Highway and Bruce Street (next to the car access). The main entry would provide a through-site pedestrian link to the café, lobby lounge and main lobby of the proposed site.

The end-of-trip facilities will be provided at lower ground level, connected from Bruce Street via a dedicated bicycle ramp.

4.4 Parking requirements and provision

The NSW Government already operates a car parking space levy scheme to discourage car use around St Leonards Station. Transport upgrades including the Crows Nest metro station will provide additional transport capacity to reduce the need for parking and encourage mode shift. New development should consider car share schemes and reduced parking provision within the precinct.

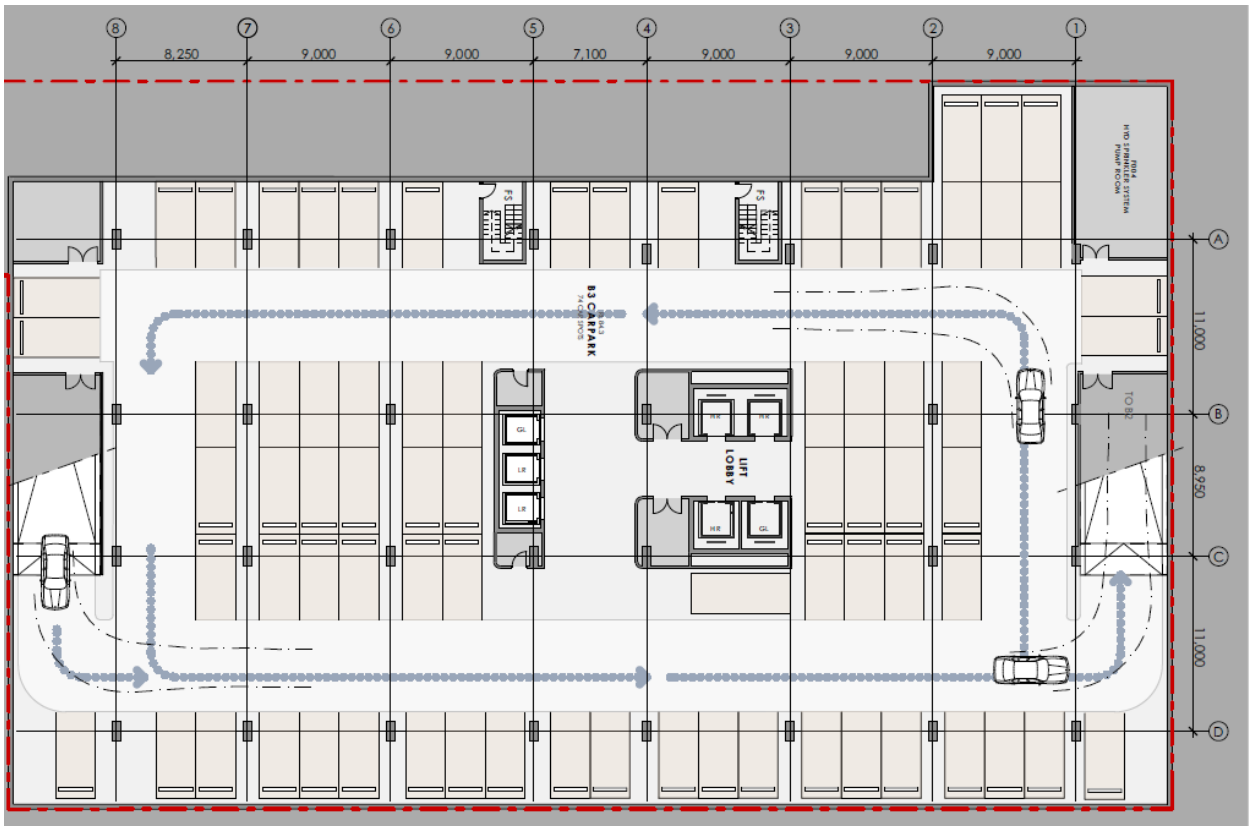
The North Sydney Development Control Plan (DCP) 2013 provides maximum parking rates for developments in the local area. The objectives of the DCP's parking requirements are to minimise reliance on private car use and to facilitate the use of public and alternative transport modes while ensuring sufficient car parking to cater to the users of the development.

Provisions for vehicles, bicycles and service vehicles are analysed as below.

4.4.1 Car parking

The proposed basement car park comprises three basement levels and could accommodate a maximum of 202 car parking spaces, which is equivalent to around one space per 113 m^2 (**Figure 4-3**).

Figure 4-3 Proposed typical level for basement parking



Source: fitzpatrick+partners, 2021

It is noted the provision of the parking space adopts parking rates lower than the North Sydney Council DCP requirement where B4 Mixed Use in Crows Nest adopts 1 space per 60 m^2 non-residential GFA. This is considered acceptable given the site's proximity to Crows Nest metro station and its intent to discourage private car use and promotes mode shift to other sustainable transport method.

Some of the off-street parking spaces could be dedicated to shared vehicle or electrical vehicle parking spaces, to be confirmed during detailed design stage.

4.4.2 Bicycle parking and facilities

The objective of DCP is to encourage the use of bicycles as an environmentally beneficial form of transport and an alternative to the use of private motor vehicles. The DCP requires developments to provide:

– Bicycle parking in accordance with the rate of 1 space per 150 m^2 GFA and 1 space per 400 m^2 GFA for occupants and visitors, respectively

– Lockers are to be provided at the rate of 1 locker per space

– Shower and change cubicles are to be provided at a rate of 2 shower / change cubicles per 20 spaces.

Table 4-2 compares the DCP requirements and proposed bicycle parking and highlights the required lockers, change rooms and shower facilities. It is noted the provision of the bicycle parking satisfies the DCP requirements by providing more than the minimum requirements whereas the provision of changing and shower facilities required for the proposed site, as required by the DCP, will be detailed in development application stage.

Table 4-2 Bicycle parking and end-of-trip facilities provision

DCP requirement	Rate	Required provision	Proposed provision
Total spaces (minimum) for occupants	1 space / 150m^2 GFA	153	320
Total spaces (minimum) for visitors/customers	1 space / 400m^2 GFA	57	
Lockers	1 / space	210	TBC at detailed design
Shower / change cubicles	2 / 20 spaces	21	

Source: SCT Consulting, 2021

4.5 Loading and servicing facilities

The objective of DCP is to ensure that adequate off-street loading, delivery and servicing facilities are provided. Off-street loading and unloading facilities are a requirement for all major commercial and industrial premises. The DCP does not specify a required number of spaces; instead, the number and size of loading bays are determined by Council on a case-by-case basis, having regard for the intended use of the premises, frequency of deliveries, size of the deliveries, size of the vehicles, practicality of accommodation and impacts on traffic and safety on adjoining roads.

The development provides two loading dock spaces for Medium Rigid Vehicle at ground floor adjacent to the car park ramp. The loading dock is accessed via Bruce Street at the southern side of the site. A truck turntable is proposed to ensure the truck manoeuvring in a forward direction and avoid vehicle's reversing in such a compact site.

Traffic safety measures would be recommended to improve driver's sight distance and minimise the conflicts with other traffic flows on site.

4.6 Travel Demand Management

Sustainable transport and Travel Demand Management (TDM) strategies involve the application of policies, objectives, measures and targets to influence travel behaviour, to encourage uptake of sustainable forms of transport, i.e. non-car modes, wherever possible. TDM measures have proven to reduce congestion created by growth within urban areas and unlock urban renewal opportunities. They result in travel behaviour that uses less road space than a single occupant vehicle commute and takes advantage of spare transport capacity outside the morning and afternoon peaks.

TDM strategies generally guide all relevant customers (residents, employees and visitors) in changing the travel behaviour in the following ways:

– Reduce travel

– Re-mode (consideration of travel via alternative modes)

– Re-time (consideration of travel at alternative times)

– Re-route.

A Travel Plan should be developed by future developers and monitored by strata management to deliver best practice travel programs and initiatives to manage travel demand for a transit-oriented development. Key initiatives and measures of Travel Demand Management Strategies should be further developed into a Travel Plan to:

– Re-think the mode of travel
  - Walking and cycling:
    - A highly permeable and safe pedestrian network throughout and surrounding the development
    - Dedicated cycle routes that connect to the regional routes and major transport hubs
    - Key design principles to integrate walking and cycling network and facilities into the planning and delivery of the development
    - High quality, safe and accessible end-of-trip facilities (centralised cycle hubs that are integrated within development at convenient locations, on-street secure bicycle storage located conveniently at end of cycle destinations, parking hubs for shared bikes, lockers and showers)
    - Promotion of bicycle initiatives – NSW bicycle week, cycle to work day, free bike check-up events
    - Establishment of a Bicycle User / Consultation Group.
  - Public transport:
    - Good quality public transport stops in the vicinity of the development
    - Tailored information with clear mapping and walking catchments at public transport stops
    - Provision of public transport information from home via television channel or community app.
  - Parking measures to encourage alternative modes of travel:
    - Reduced parking rates with flexibility in parking arrangements such as shared parking between non-conflicting uses, shared vehicles parking and / or carpooling to accommodate parking needs of all employees
    - Parking spaces dedicated to electric vehicles, with charging stations
    - Parking spaces dedicated to car share scheme and community car-share vehicles, both on-street and incorporated in easily accessed public car parks.
  - Development and use of carpooling app for the wider precinct and community.
– Re-time and Re-route journeys:
  - Development of specific community app / community engagement program to enable changing travel behaviour which includes:
    - Active and public transport maps
    - Personalised journey planner
    - Notifications to latest travel information
    - Shared vehicles information
    - Car-pooling opportunities
    - Other precinct-related information
  - Real-time information embedded into development and public transport stops
  - Employers to promote and encourage flexible working hours and arrangements.

While it is important to develop a Travel Plan that is aimed at managing travel demand and reducing reliance on car travel, it is more important to monitor and evaluate the effectiveness of individual measures and the need to adjust the measures. The planning and implementation of a targeted Travel Plan with the above green travel initiatives / principles could support the delivery of a transit-oriented development that provides significant opportunities for alternative travel options and reduces the need for car travel.

5.0 Transport Impact Assessment

5.1 Trip generation

5.1.1 Vehicle trip generation

According to **Section 4.2**, the development proposes to deliver 104 additional parking spaces and a net increase of approximately 15,600 m^2 GFA compared to the existing development. Since the parking rates for the proposal redevelopment adopts less than half of maximum standard in North Sydney DCP to restrict private car use. A more practical approach for vehicle trip generation forecast will be based on parking spaces rather than GFA. It is assumed that retail component would not generate additional traffic given it is very likely to service the office building and surrounding development within a walking catchment, without the generation of any additional vehicular trips.

Surveyed trip rates (per parking space) for office land use were compared in **Table 5-1** based on Roads and Maritime *Technical Direction TDT 2013/04a.*

Table 5-1 Trip rates comparison for surveyed office sites

Site No. and location	Site 1 North Sydney	Site 2 Chatswood	Site 3 Hurstville	Site 4 Macquarie Park	Site 5 Parramatta	Site 6 Liverpool	Average
Total GFA	31,400m^2	10,214m^2	3,254m^2	5,748m^2	27,000m^2	2,817m^2	-
Parking spaces	136	150	66	269	402	28	-
AM car trips	51	47	65	119	185	57	-
PM car trips	44	36	60	72	75	46	-
Vehicular trip generation (vehicle trips per space)							
AM Peak	0.38	0.31	0.98	0.44	0.46	2.04	**0.77**
PM Peak	0.32	0.24	0.91	0.27	0.19	1.64	**0.59**

Source: SCT Consulting, based on Roads and Maritime Services, 2020

0.77 and 0.59 vehicle trips per parking space were identified for AM and PM peak hour. Hence, as a result of the proposal, there would be additional 79 and 60 vehicle trips for AM and PM peak hour as a result of the additional 102 parking spaces.

5.1.2 Person trip generation

The uplift of GFA leads to increased person trip demand during peak hours. It is assumed that those demand will use the surrounding footpaths to access public transport or cycle to / from the site.

According to Roads and Maritime *Technical Direction TDT 2013/04a*, the average person trip rates for the above surveyed sites are 2.44 and 1.88 person trips per hour for AM and PM peak. This leads to an additional 302 and 234 person trips considering the offset by car users during AM and PM peak hour (**Table 5-2**).

Table 5-2 Persons trip generation for the proposal

Proposed activity	Yield	Person trips	
		Weekday AM	Weekday PM
Office	+15,600m^2 GFA	2.44 / 100m^2 GFA	1.88 / 100m^2 GFA
Total:		**381 pers/h**	**294 pers /h**
Less persons in cars^		-79 pers/h	-60 pers/h
Total non-car trips		**302 pers/h**	**234 pers/h**

Source: SCT Consulting, based on Roads and Maritime Services, 2021

^Assuming the car occupancy for the vehicle trip generation is 1.0 person / vehicles. AM Peak trip generation = 79*1 = 79 persons and PM Peak trip generation = 60*1.0 = 60 persons.

Given its location adjacent to future Crows Nest Station and extensive bus network, most of these person trips associated with the site will be using surrounding public transport services, some would be walking / cycling from trip origins given a number of the employees could reside in the same LGA and well provided end of trip facilities on site.

5.2 Transport impact appraisal

5.2.1 Public transport network impact

The site is located within 400m of the future Crows Nest metro station. The wide network coverage, train frequency, journey-time reliability and improved customer offering of Sydney Metro, will increase journey to work trips by non-car modes. The extensive bus network on Pacific highway and Falcon Street also continues to play a key role to attract commuters to public transport.

The delivery of this site would support a development with sustainable travel behaviour, by providing increased mixed-use density in proximity to high frequency and capacity public transport services. Sydney Metro will provide employees with greater access to public transport and employment options, while promoting the use of sustainable travel options.

On this basis, **Section 5.1.2** estimated the majority of an additional 302 person-trips during the peak hour that generated by the proposal will be using public transport to access the development. These additional trips during the peak hours can be accommodated through the high frequency metro services and frequent bus services.

Impacts on the public transport system are expected to be limited and little capacity issue would be expected.

5.2.2 Pedestrian network impact

Based on the non-car generation of the preferred development option, approximately 302 additional pedestrians would be generated in the busiest peak period (AM peak), which is considered as a moderate generation of pedestrian activities.

Therefore, the number of trips generated by the development during the peak periods is considered at a level that can be accommodated by the existing footpaths along Pacific Highway and the crossing facilities at surrounding critical intersection. Being situated in a high density area accessible to public transport, those demand will be closely linked with Crows Nest metro station and bus stops on Falcon Street and Pacific Highway as well, making it important to ensure a safe, quality and well connected footpaths system around the site to promote the sustainable transport use.

5.2.3 Cycling network impact

The development will encourage the uptake of cycling in North Sydney through the provision of 320 bicycle parking spaces and good quality end-of-trip facilities. 320 bicycle parking spaces for such an office development means that the development will cater for a large mode share of cyclists, both for workers as well as visitors to the building. Those cycle trips would become an important component for short distance trips by the commuters, supported by planned and proposed infrastructure upgrades by Council and those planned in the St Leonards and Crows Nest Planned Area.

5.2.4 Road network impact

Based on **Section 3.2**, the employees in North Sydney LGA come from a wide area of Sydney Metropolitan Area with top origins of North Sydney, Northern Beaches and City of Sydney. However, the majority of the vehicle trips are expected to use Pacific Highway to access the site.

Given the left-in left-out configuration at Bruce Street / Pacific Highway, incoming southbound traffic may turn right at Rocklands Road (the next intersection to the south) and access Bruce Street via Sinclair Street and the outgoing southbound traffic will also use the same route and signals at Rocklands Road to turn right to Pacific Highway.

The resultant additional traffic would be therefore less than 40 vehicles in each direction given a peak hour trip generation of 80 vehicle trips (assuming some traffic does not use Pacific Highway, such as Falcon Street, Shirley Road). This increment of the traffic volume on the surrounding road network is expected to be negligible based on speed and traffic volume analysis in **Section 3.6**.

The exit movement from Bruce Street - Pacific Highway - Alexander Street to access Falcon Street requires a three-lane changing manoeuvring within a short spacing of the intersections. However, given relative low demand, the opportunity to undertake this movement safely can be created by gaps of traffic created at the intersection of Pacific Highway / Rocklands Road. Alternatively, a rerouting can be made via Bruce Street - Sinclair Street - Rocklands Road and Pacific Highway (about 500m more travel distance) such that the right turners can enter from the right turn bay to Alexander Street without the need to cross three traffic lanes within a short distance.

It is expected that the increase in vehicular trips would be fewer than 100 trips per peak hour, hence the impacts on the surrounding road network should be quite minimal as discussed above. Given the good connectivity of the surrounding network, this level of increase of trips will spread out further in various directions further reducing the impacts on the surrounding road network. Hence, traffic modelling is considered not necessary at the planning proposal stage.

5.2.5 Parking impact

The site currently adopts low car parking rates less than half of the DCP requirement while the provision of bicycle parking is more than DCP. This proposal would fully support the initiative of mode shift to green transport and reduction car use in an area that is located near the Crows Nest metro station.

On site car share spaces can be designated to densify the car share locations in the local area and further reduce business-related car trips.

6.0 Summary and Conclusions

6.1 Summary of findings

From a transport perspective, the proposal is consistent with strategic planning directions to support job growth around public transport corridors and promotion of sustainable transport modes use.

The area that the site is located, reflects higher public transport and active transport mode share than Sydney average level for the employees due to shorter than average travel distance and good accessibility by green transport methods. This trend would be further enhanced associated with the opening of Crows Nest metro station, further investment in public transport and cycle network upgrade in the vicinity of the site by state and local governments as discussed in the strategic plans.

The proposal would include an office tower with minor retail totalling to approximately 22,853 m^2 GFA and 202 parking spaces. In summary:

– The site is located within the 400m walking catchment of Crows Nest metro station and hence supports the aspiration of 30-minute access to employment centres such as North Sydney, Chatswood and Sydney CBD by high frequency and high-quality mass transit.

– The site's proximity to frequent bus services along Pacific Highway / Falcon Street will encourage future employees to commute by bus.

– The site's proximity to future cycling network and continuous footpath system will also encourage local short trips to be made by walking and cycling. Pedestrian crossing on Bruce Street at the Pacific Highway intersection is recommended.

– The provision of end of trip facility on site caters for future cycling demand of the site and facilitate both employee and visitor's travel by bike.

– Vehicular and bicycle access to the development is proposed via Bruce Street. The access will be shared with current access to individual properties at 63-77 Sinclair Street. Traffic safety measures would be taken on internal road to mitigate potential conflicts between different vehicular movements.

– A three-level basement car park is designed that could accommodate up to 202 parking spaces, which is significantly less than the maximum standard set out in Council DCP. The proposal of restrained parking at this site would restrict private car use and minimise the impact on road network.

– The proposed development is expected to generate up to 80 additional vehicle trips during each of the peak hours based on similar office land use in Sydney with restrained parking and located in proximity to frequent public transport services. Given the good connectivity of the surrounding network, this level of increase of trips will spread out further in various directions further reducing the impacts on the surrounding road network. Hence, traffic modelling is considered not necessary at the planning proposal stage.

– The 302 additional person trips will be mainly using public transport and active transport, which is considered to be accommodated by the existing and planned services.

– On site car share spaces can be designated to densify the car share locations in the local area and further reduce business-related car trips.

6.2 Conclusions

The Traffic and Parking Study concluded that the impacts of the planning proposal are negligible and are able to be mitigated by the existing and planned infrastructure.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