



402-420 Pacific Highway, Crows Nest

Transport Impact Assessment

Prepared for:

Prosper

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1 Introduction

1.1 Overview

This transport impact assessment report has been prepared by JMT Consulting to accompany an Environmental Impact Statement (EIS) in support of a State Significant Development Application (SSD-83076206) for the site at 402-420 Pacific Highway, Crows Nest (the site). This report supports the revised development proposal following the public exhibition of the proposal (concluding in May 2026) and supports the preparation of an amendment report.

1.2 Site location

The site is located adjacent to Crows Nest Metro Station and is within the Crows Nest Transit Oriented Development (TOD) Accelerated Precinct which has been identified by the NSW Government to support housing delivery. The Crows Nest TOD Precinct has been subject of recent amendments to the planning controls which came into effect in November 2024.

The site comprises 2,127.7sqm of land at 402-420 Pacific Highway, Crows Nest (SP54033) within North Sydney LGA.

The site is currently developed with a four storey mixed use residential building. Vehicular access to existing basement car parking is from Oxley Street via the adjacent landholding with an easement granting right of carriageway.

The uses surrounding the site comprise:

- Crows Nest Metro Station to the east which has approval for over-station development up to 22 storeys of mixed use residential and is subject of a current SSD application for up to 27 storeys
- An existing car wash facility and four storey commercial building to the north which is subject of a proposal for a 52 storey mixed use residential development being considered through the Housing Delivery Authority pathway as SSD with a concurrent rezoning
- A three storey commercial building to the north west with potential for up to 16 storeys of commercial under the Crows Nest TOD controls
- Three to five story mixed use and commercial buildings fronting Pacific Highway located to the south of the site which are subject of a separate SSD application for a 40 storey mixed use residential development
- Three storey multi-dwelling housing to the west with potential for up to 12 storeys of residential under the Crows Nest TOD controls.



Figure 1 Subject site

1.3 Proposal description

The amended SSD application seeks consent for the following:

- Demolition of all existing structures on the site, tree removal, excavation and site preparation works
- Construction of a 38 storey mixed use building comprising:
 - Six levels of basement car parking
 - A four storey podium comprising retail and commercial floor space
 - Above podium resident communal open space and communal floor space
 - 273 residential apartments including affordable housing
 - Rooftop servicing
- Retention of existing access from Oxley Street to basement car parking and construction of a new driveway from Oxley Street to access the ground floor loading dock
- Associated landscaping and public domain works
- Infrastructure servicing.

For further information in relation to the proposal refer to the Environmental Impact Statement prepared by FPD Planning supporting this application.

1.4 Report purpose

The report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-83076206) on 29 April 2025 relevant to traffic and transport as summarised in Table 1 below.

Table 1 SEARs requirements

Item	Description of Requirement - SSD-83076206	Relevant Section of Report
9. Transport	<i>Provide a Transport Impact Assessment (TIA) in accordance with the processes and methodology recommended in the Guide to Transport Impact Assessment (GITA) published by TfNSW.</i>	The report has also been prepared with consideration of the relevant items contained within the TfNSW Guide to Transport Impact Assessment (GTIA) – Appendix E scoping checklist. It should be noted however that the GTIA provides for a generic set of guidelines across all types of development, with many of the items in the scoping checklist not relevant to a sub-division proposal. Section 1.1.3 of the GTIA specifically notes the following <i>“recommendations in this Guide may not be appropriate in all development situations. Discretion and professional judgement should always be exercised and clearly documented”</i>
	<i>If the construction of the development would cause interruptions to regular pedestrian and transport routes (including public transport, active transport or general traffic), a preliminary Construction Traffic (or Transport) Management Plan (CTMP) should be prepared as part of the TIA to mitigate any such impacts.</i>	A preliminary CTMP has been prepared and provided as Section 5 of this document.

1.5 Response to submissions

Responses to the traffic and transport related submissions from government agencies received following the public exhibition of the proposal (as lodged in April 2026) are provided in the following table:

Table 2 Response to traffic and transport related submissions – exhibited EIS

Agency	Agency Comment	Response
DPHI	Incorporate end-of-trip facilities for commercial premises workers, as recommended in the Transport Impact Assessment.	An end of trip facility is provided for building staff on Level 1 to support cycling as a mode of transport
DPHI	Clarify the bicycle parking provision as the EIS and Traffic Impact Assessment state there are 149 non-caged spaces provided, however, less spaces can be identified in plans.	There are 228 residential storages cages of sufficient size to accommodate a bicycle, alongside a further 45 bicycle parking spaces on the various basement levels.
DPHI	Consider a reduction in car parking spaces given the highly accessible location of the site opposite the Metro station and proximity to other public and active transport modes.	The revised proposal has reduced the number of residential parking bays compared to that provided in the submitted scheme. The revised proposal includes 192 residential parking bays, less than the maximum of 206 spaces permissible under the constrained parking rates noted in the Crows Nest TOD Design Guide.
DPHI	Assess and justify traffic impacts associated with any exceedance of floor space ratio.	It is acknowledged that the subject development application seeks a greater density in comparison to that assumed under the Crows Nest TOD controls. The proposed FSR of 16.97:1 is greater than the 14.4:1 assumed for the site under the Crows Nest TOD, however critically this increased density equates to a very minor increase in traffic movements. The increased density sought on the site is equivalent to approximately 19 additional residential apartments and 1,979sqm of commercial floor space (five commercial parking bays). This would have the combined effect of an additional 3 to 5 traffic movements in the busiest hours of the day which is negligible in the context of existing and future traffic movements through the area. Further, the proposal seeks to mitigate traffic impacts by providing car parking below the already constrained parking rates noted in the Crows Nest TOD Design Guide.

Agency	Agency Comment	Response
DPHI	Prioritise pedestrian amenity and movement along Oxley Street by consolidating access points and reducing both the number and width of driveway crossovers.	While the amended proposal retains two crossovers on Oxley Street, the overall width of these crossovers has reduced in comparison to the originally submitted proposal. Two crossovers are required to accommodate access to the loading dock and car park respectively. The widths of the crossovers have been minimised to reflect the swept paths of the design vehicle. For the loading dock access a single lane driveway is proposed which will reduce the extent of public domain impacted. Another improvement in relation to the driveway accesses compared to the originally submitted scheme is the provision of a break in the driveways approximately 5m in width. This is in contrast to the original proposal which included no such gap / refuge and instead a continuous crossover totalling over 15m in width. To emphasise pedestrian priority along Oxley Street the driveway entries are to be fully integrated with the adjoining footpath, at one continuous level. The treatment will therefore be an area which is designed for pedestrians, across which vehicles can pass slowly. Drivers of vehicles will be guided and encouraged to give way to pedestrians on the footpath as required by law. These crossings would also be designed with consistent pavement material.
North Sydney Council	A substantial reduction of parking should be considered given reduced demand resulting from the accessible location.	The revised proposal has reduced the number of residential parking bays compared to that provided in the submitted scheme. The revised proposal includes 192 residential parking bays, less than the maximum of 206 spaces permissible under the constrained parking rates noted in the Crows Nest TOD Design Guide.

Agency	Agency Comment	Response
North Sydney Council	While the submitted TIA proposes a total of five loading/service spaces (including one space suitable for a 10.5m waste vehicle), reliance on the TfNSW Urban Freight Forecasting Model should not override the minimum requirements of the DCP. Accordingly, compliance with the DCP minimum for the residential component should be clearly demonstrated, with additional provision made for non-residential servicing demands.	The TfNSW Urban Freight Forecasting Model is now the industry standard model to determine the provision of on-site loading bays – this is recognised in the TfNSW Guide to Transport Impact Assessment document. The DCP sets out requirements for loading / servicing based on standalone uses and does not recognise the ability for a mixed use development to share loading dock bays.
North Sydney Council	A detailed Loading Dock Management Plan should be submitted, outlining the operational arrangements for the loading dock, including vehicle scheduling, allocation of loading spaces, waste collection, and measures to minimise conflicts between residential, commercial, and service vehicle movements.	The TIA sets out practices to be implemented with respect to loading dock management. A more detailed loading dock plan may be prepared prior to the initial occupancy of the development and reinforced as a suitably worded consent condition.
North Sydney Council	A left in left out arrangement should be adopted from the driveway to Oxley Street.	Given the relatively minor traffic movements the proposed driveway from Oxley Street can accommodate both left and right turn movements. No objections were raised by TfNSW to the project nor did TfNSW request a left in / left out restriction be enforced.

Agency	Agency Comment	Response
North Sydney Council	The basement layout must comply with all relevant requirements of the Australian Standards, including, AS 2890.1 – Off-street car parking, AS 2890.2 – Off-street commercial vehicle facilities, AS 2890.6 – Off-street parking for people with disabilities, AS 2890.3 – Bicycle parking. Certification from a suitably qualified professional engineer that the site access and basement design complies with these requirements must be provided at Construction Certificate stage.	Noted and agreed. It would be expected this requirement would be reinforced through a suitably worded consent condition.
North Sydney Council	The cumulative impact of approved and potential developments should be considered in the modelling of the subject site to ensure a more accurate representation of future traffic conditions.	This is addressed in the Transport Impact Assessment. In particular, the Crows Nest TOD rezoning was supported by detailed future year traffic modelling assessment to assess the traffic implications of the envisaged uplift in the precinct. The St Leonards and Crows Nest Station Precinct Traffic and Transport Study – Future Year Modelling Report did not identify any future upgrades at the Pacific Highway / Oxley Street intersection to support the development of the broader St Leonards and Crows Nest precinct.

Agency	Agency Comment	Response
North Sydney Council	The following comments were provided on the preliminary construction management plan: • The working hours for the project will be in accordance with the development consent conditions applicable to the site. • All vehicles should be front in and front out only from site and Works Zone. • Reference should be made to North Sydney Council's Standard Requirement for a CTMP. Please note that the Standard Requirements should be addressed in the CTMP report and included as an attachment. • The need for, and location of, a Works Zone will be determined during the assessment of the detailed CTMP followed by Works Zone application. This will ensure forward manoeuvres only, minimise impacts on other road users, maintain safety, and be supported by swept path analysis.	Noted, these comments can be incorporated in an updated and detailed CTMP to be prepared prior to the commencement of construction and reinforced through a suitably worded consent condition.

2 Existing Transport Context

2.1 Travel behaviours

Travel behaviours for residents and employees within the area surrounding the site¹ have been analysed using Journey to Work Census data. The data demonstrates a high proportion of people travelling to and from Crows Nest use public transport, accounting for close to half of all trips in the case of residents travelling to work. This reflects the strong availability and accessibility of public transport in this area, which has improved following the opening of the Crows Nest metro station in August 2024. A high proportion of residents walk to work, which reflects the likelihood that future residents of the site will choose to work in the nearby St Leonards or North Sydney CBD.

Table 3 Existing travel patterns

Mode of travel	Proportion of trips	
	<i>Residents travelling to work from Crows Nest</i>	<i>Employees travelling into Crows Nest for work</i>
Car driver	28%	50%
Car passenger	1%	4%
Bus	21%	10%
Train	28%	25%
Walk	15%	7%
Bicycle	5%	0.5%
Other	2%	3.5%
Total	100%	100%

¹ SA1, code 12104141401 & Destination Zone 114 143 316

2.2 Road network

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 councils. Regional Roads perform an intermediate function between the main arterial network of State Roads and council controlled Local Roads. Key State and Regional roads which provide access to the site are illustrated in Figure 2.

The Pacific Highway fronting the site is a State classified road, and connects the North Sydney CBD to the Northern Suburbs and various motorways including the M1 Sydney to Newcastle Freeway, M2 Lane Cove Tunnel/Gore Hill Freeway and M1 Warringah Freeway/Bradfield Highway. It is a major bus corridor servicing a large number of bus routes connecting the Sydney CBD to the Northern suburbs.

Oxley Street and Nicholson Street which front the site are local roads under the care and control of Council.

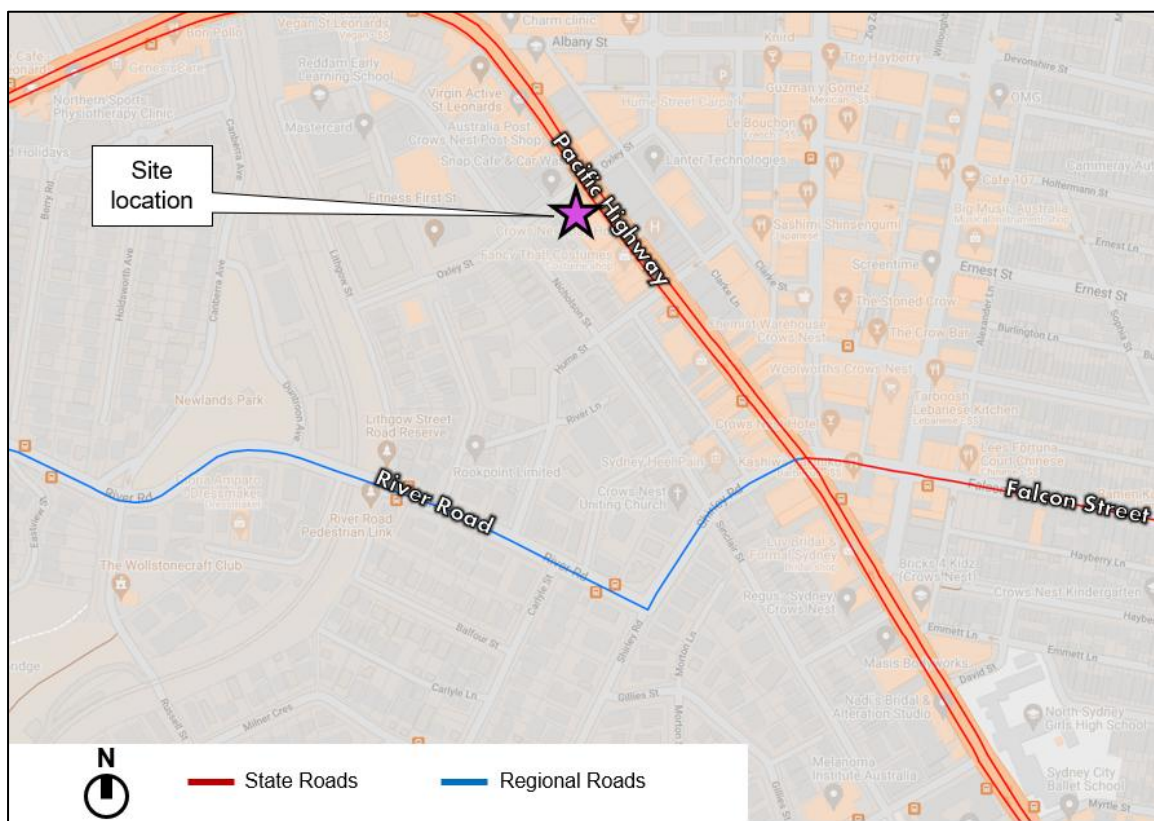


Figure 2 Road network serving the site

2.3 Existing vehicle site access

Vehicular access to the site is currently provided via a driveway at the lower end of Oxley Street, approximately 35m from the Pacific Highway intersection as shown in Figure 3. This access is available via an easement through the adjacent site to the east.



Figure 3 Existing vehicle site access

2.4 Public transport

2.4.1 Public transport overview

The site has excellent access to public transport and is located approximately 10 minute walk from St Leonards Station and high frequency bus stops located on Pacific Highway which are illustrated in Figure 4. It is also adjacent to high frequency bus stops on the Pacific Highway and immediately opposite the Crows Nest Metro Station.



Figure 4 Existing public transport environment

2.4.2 Rail services

St Leonards Station services 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 Epping Station. The station is well served by trains with services every 3 minutes during the peak periods in both directions of travel. Crows Nest Metro Station (further discussed in subsequent sections of this report) is less than a five minute walk away from the site and opened in August 2024.

2.4.3 Bus network

The existing bus routes serving the site are shown in Figure 5. Bus M20 provides access to the city via the Pacific Highway, while the other buses serve various suburbs regionally.

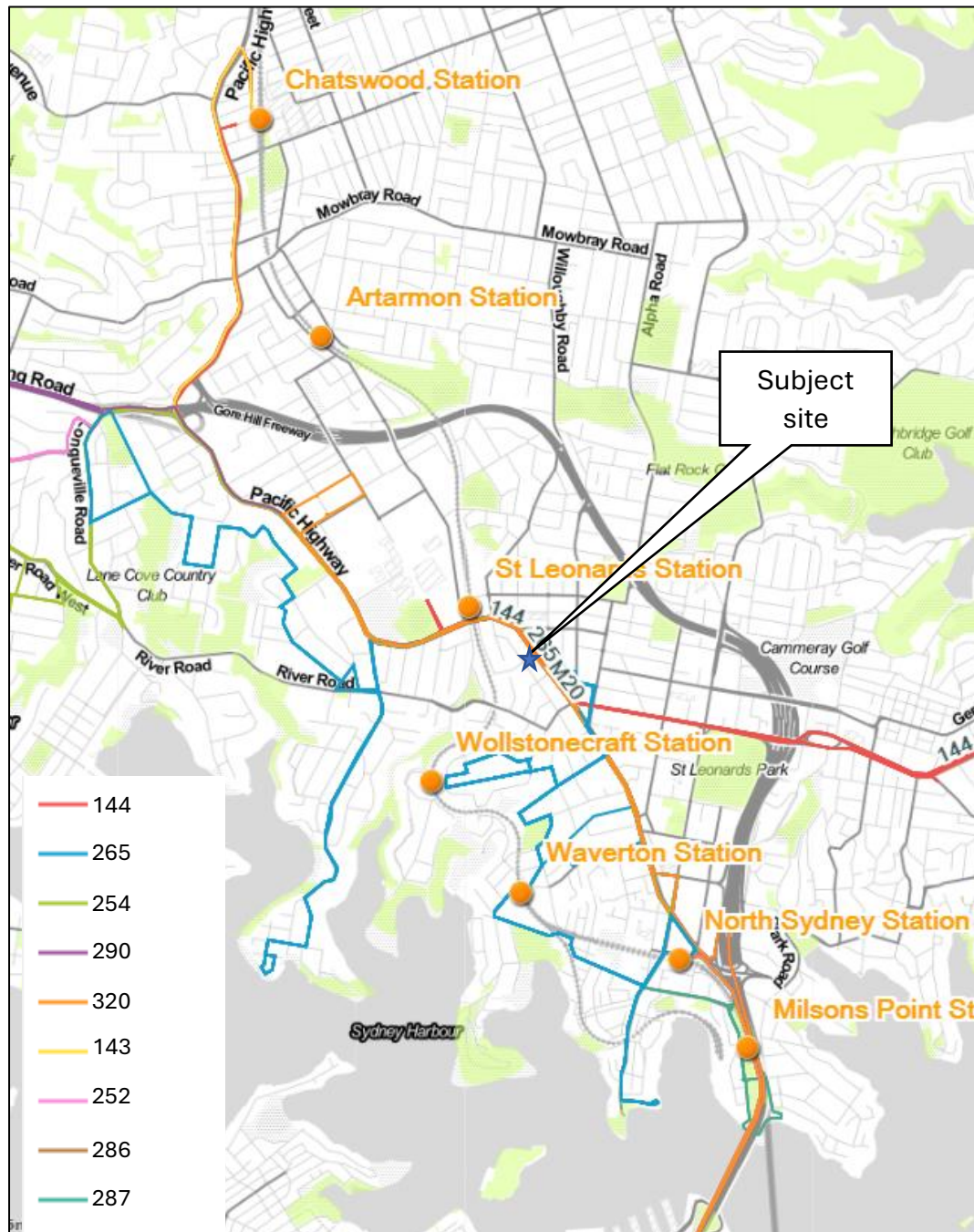


Figure 5 Bus routes serving the site

The extensive network of bus routes servicing the site are summarised in Table 4. Buses connect the local area to the Sydney CBD, Chatswood CBD, Crows Nest, Epping, Lane Cove and surrounding suburbs. Bus services are frequent throughout the day, with express services operating during the peak periods.

Table 4 Existing bus routes servicing the site

Bus Route	Service description
Route 143, Manly and Macquarie University	Services every 20 minutes during peak periods and 30 minutes throughout the day.
Route 144, Chatswood and Manly via Royal North Shore Hospital	Services every 10 minutes during peak periods and 20-30 minutes throughout the day.
Route 200, Chatswood to Bondi Junction	Services every 10 minutes during peak periods and 15 minutes throughout the day.
Route 252, Lane Cove West and City via Pacific Highway	Services every 10 minutes during peak periods and 20-30 minutes throughout the day.
Route 254, Riverview and City via Pacific Highway	Services every 10 minutes during peak periods and 20-30 minutes throughout the day.
Route 265, McMahons Point and Lane Cove via Greenwich Wharf	Services every 20 minutes during peak periods and 30 minutes throughout the day.
Route 286, Denistone East and City via Pacific Highway	Services every 15 minutes during the peak periods between Monday and Friday in each direction. Services every hour at all other times.
Route 287, Ryde and Milsons Point via Pacific Highway and North Sydney	Services every 30 minutes during the peak periods between Monday and Friday in each direction.
Route 290, Epping and City via Macquarie Centre and Pacific Highway	Services every 15 minutes during the peak periods between Monday and Friday in each direction. Services every hour at all other times.
Route 291, Epping to McMahons Point	Services every 30 minutes during the peak periods between Monday to Friday.
Route 622, Dural to Milsons Point via Cherrybrook	Services every 30 minutes during the peak periods between Monday to Friday.
Route 653, West Pennant Hills to Milsons Point	Services every 30 minutes during the peak periods between Monday to Friday.
Route 602X, Rouse Hill to North Sydney	Services every 15 minutes during the peak periods between Monday to Friday.
Route 612X, Kellyville to Milsons Point	Services every 5 minutes during the peak periods between Monday to Friday.
M20, Botany and Gore Hill	Services every 10 minutes during the peak periods in each direction. Services every 15 minutes at all other times.

2.4.4 Metro

The introduction of the Sydney Metro (City and Southwest) service from August 2024 has provided additional connectivity to and from the site. Crows Nest Station was delivered as part of this project and is located between Pacific Highway, Clarke Lane and Oxley Street. This metro station has significantly added to the already well provisioned public transport amenities in the area.

From Crows Nest (directly opposite the site), Central Station may be reached in approximately 11 minutes and Martin Place Station in 7 minutes. The Sydney Metro route and station locations are shown in Figure 6.

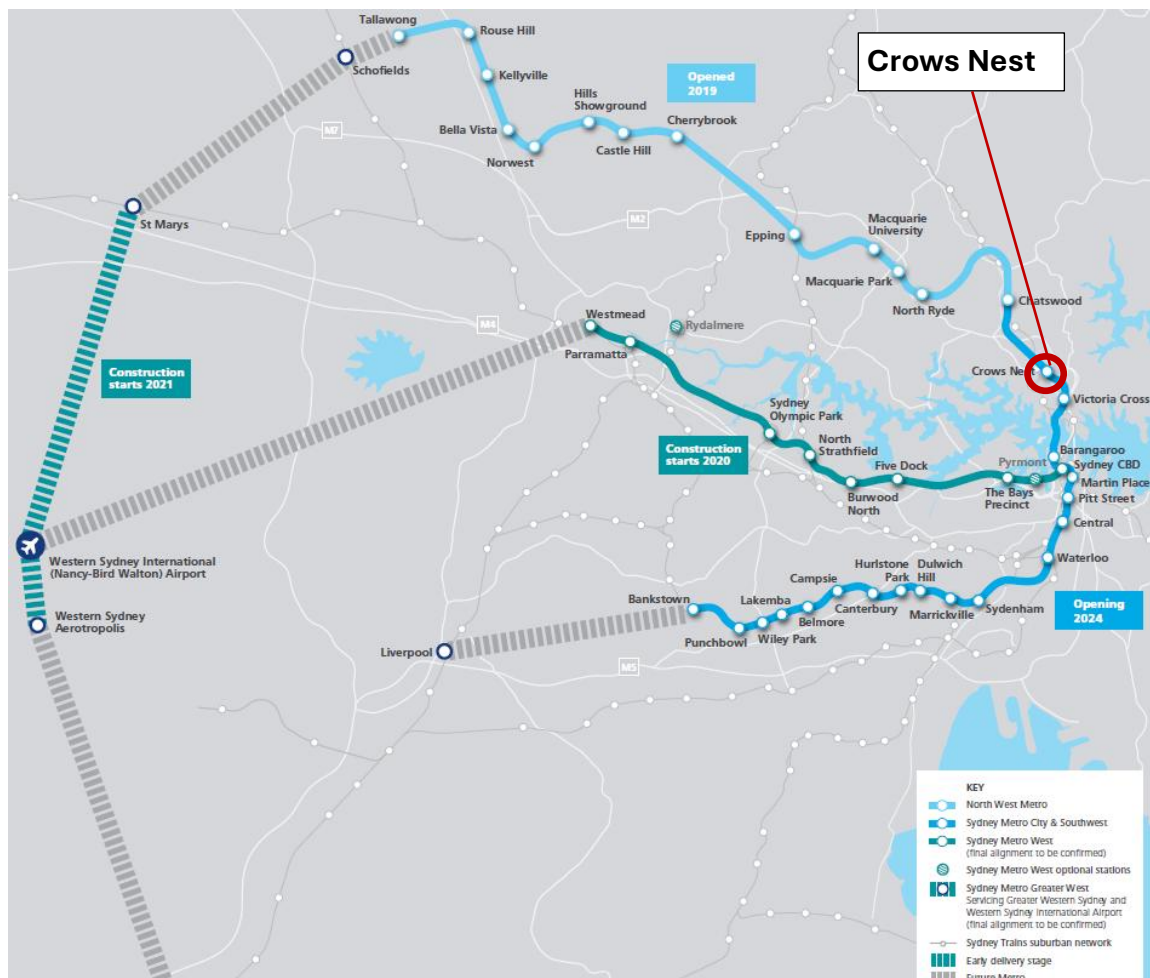


Figure 6 Sydney Metro network

Source: Transport for NSW

2.5 Public transport catchment

An indicator of the level of public transport accessibility a site contains is the number of locations accessible within a 30 minute public transport catchment. A key objective of the Greater Sydney Commission's Greater Sydney Region Plan is to deliver a 30-minute city where jobs, services and quality public transport spaces are in easy reach of residences.

As illustrated in Figure 7 a number of key employment centres across Sydney can be reached within 30 minutes public transport travel time of the site, including Chatswood, Macquarie Park, Sydney CBD and the North Sydney CBD. The highly accessible nature of the site reduces the need for residents to own cars and rely on public transport as a means of accessing their place of work.



Figure 7 30 minute public transport catchment

Source: <https://www.mapnificent.net/sydney>

2.6 Pedestrian and cycling facilities

The site is well served by a good network of local footpaths. Paved footpaths and kerb ramps are provided on both sides of the Pacific Highway and Nicholson Street. All roads on the walking route from the future development site to St Leonards transport interchange and Crows Nest metro station possess paved footpaths and kerb ramps on both sides of the road. Formal pedestrian crossings of the Pacific Highway are available at the adjacent Oxley Street / Pacific Highway signalised intersection.

The site is well connected to a number of cycling routes which consist of both off-road cycling paths as well as on-road marked paths. Nicholson Street in the vicinity of the site forms part of the local cycling network within the North Sydney / Crows Nest area, providing connectivity between St Leonards and North Sydney CBDs via Morton Street. The local cycling routes also connect to the Warringah Freeway cycleway which provides connections to Lane Cove, North Ryde and Chatswood.



Figure 8 Existing cycling network

2.7 Traffic volumes

Traffic counts were undertaken at the intersection of the Pacific Highway and Oxley Street during the morning and afternoon peak hour periods in July 2025 outside of school holiday periods – with this existing traffic data indicated in Figure 9. This traffic data has formed the basis for the road network analysis undertaken and summarised in Section 3 of this document.

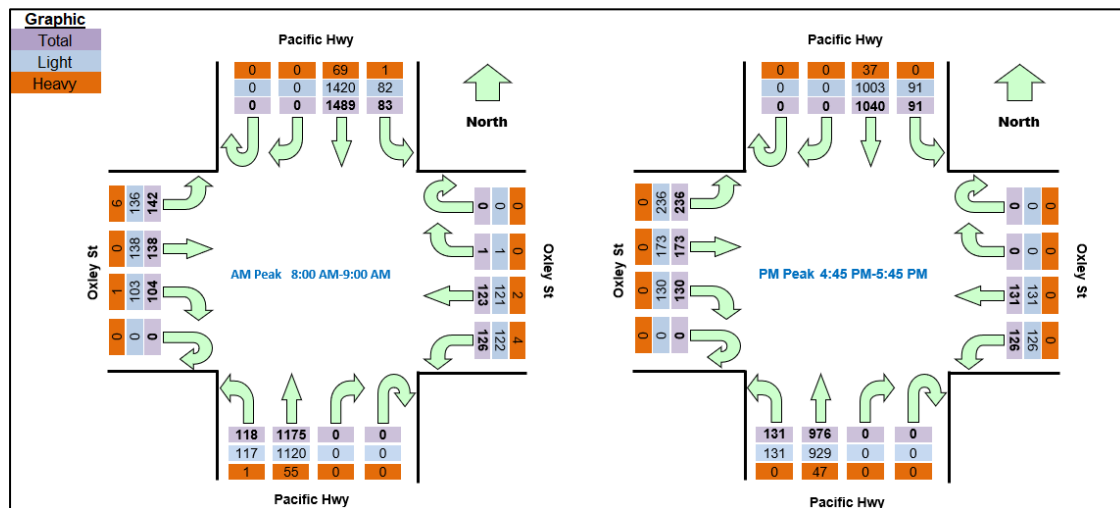


Figure 9 Traffic counts – Pacific Highway / Oxley Street intersection

2.8 Crash history

Crash data published by Transport for NSW for the most recent five year period has been reviewed and is shown in Figure 10. This indicates no recorded crash history adjacent at the existing and planned driveway access to the site on Oxley Street.

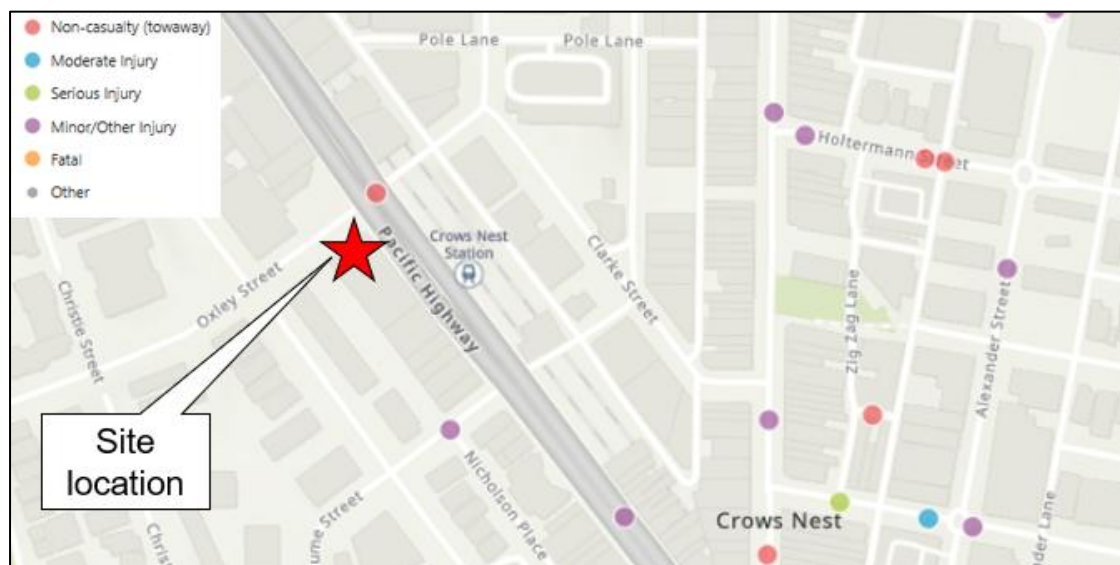


Figure 10 Historical crash data

Source: NSW Centre for Road Safety

3 Transport Impact Assessment

3.1 Vehicle site access

Access from the surrounding street network to the site will be via the southern end of Oxley Street – consistent with existing access arrangements as previously detailed in Section 2.3 of this document.

Two access driveways will be provided that will be utilised by residents, visitors and service vehicles as indicated in Figure 11. The existing driveway through the adjacent property (utilising an easement) will facilitate access to basement level car parking. A new driveway immediately to the east will accommodate access to an on-site loading dock.

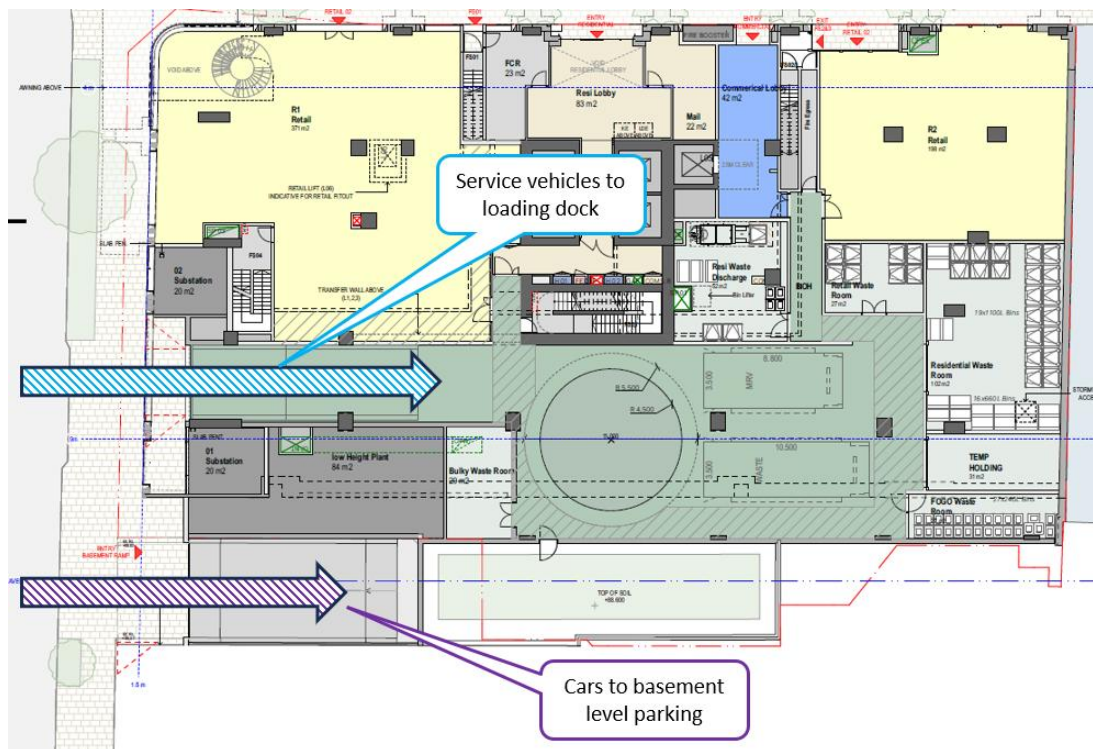


Figure 11 Proposed site access arrangements

While the amended proposal retains two crossovers on Oxley Street, the overall width of these crossovers has reduced in comparison to the originally submitted proposal. Two crossovers are required to accommodate access to the loading dock and car park respectively.

The widths of the crossovers have been minimised to reflect the swept paths of the design vehicle. For the loading dock access a single lane driveway is proposed which will reduce the extent of public domain impacted.

Another improvement in relation to the driveway accesses compared to the originally submitted scheme is the provision of a break in the driveways approximately 5m in width. This is in contrast to the original proposal which included no such gap / refuge and instead a continuous crossover totalling over 15m in width.

Access of Oxley Street is appropriate given the Pacific Highway is a State Classified road. Clause 2.118 of SEPP (Transport and Infrastructure) 2021 notes that *“the consent authority must not grant consent to development on land that has a frontage to a classified road unless it is satisfied that where practicable and safe, vehicular access to the land is provided by a road other than the classified road”*.

Given Oxley Street is a local road and can provide suitable vehicular access to the site the driveway location as proposed is considered acceptable. The driveway location has been positioned to maximise the amount of queueing distance available for vehicles to the nearby Pacific Highway / Oxley Street traffic lights. Left and right turning movements into and out of the site from Oxley Street would be permitted.

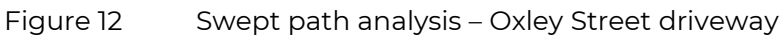
3.2 Driveway design

The proposed driveway design and location complies with the relevant requirements of AS/NZS 2890.1, specifically:

- Table 3.2 – Access driveway widths. The driveways are between 6m to 7m wide which is sufficient to accommodate a Medium Rigid Vehicle (MRVs) passing a car travelling in opposite directions.
- Clause 3.3. driveway gradients including a minimum 5% gradient for the first 6m from the property boundary.

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

Swept paths for passenger cars entering and exiting the basement via Oxley Street are presented in Figure 12.



On-site car parking at basement levels has been designed to facilitate the future development. The car park and associated elements such as car parking space dimensions, circulation aisles and ramp would be designed in accordance with the relevant Australian Standard for car parking facilities, namely AS2890.1 and AS2890.6.

3.4 Loading and servicing

The design makes provision to allow all vehicles to enter and exit the site in a forwards direction, which is a core requirement for North Sydney Council. The

loading dock has minimum head height clearance of 4.5m which is suitable to accommodate the largest vehicle expected to enter the loading dock being delivery trucks for furniture move in / move outs. Swept paths for 10.5m Council waste trucks manoeuvring within the loading dock are provided in Figure 13 which indicates trucks can enter and exit the loading dock in a forwards direction with the use of an on-site turntable. The loading dock design is also consistent with the requirements of AS2890.2 in that it separates truck manoeuvring from the main passenger vehicle access aisle.

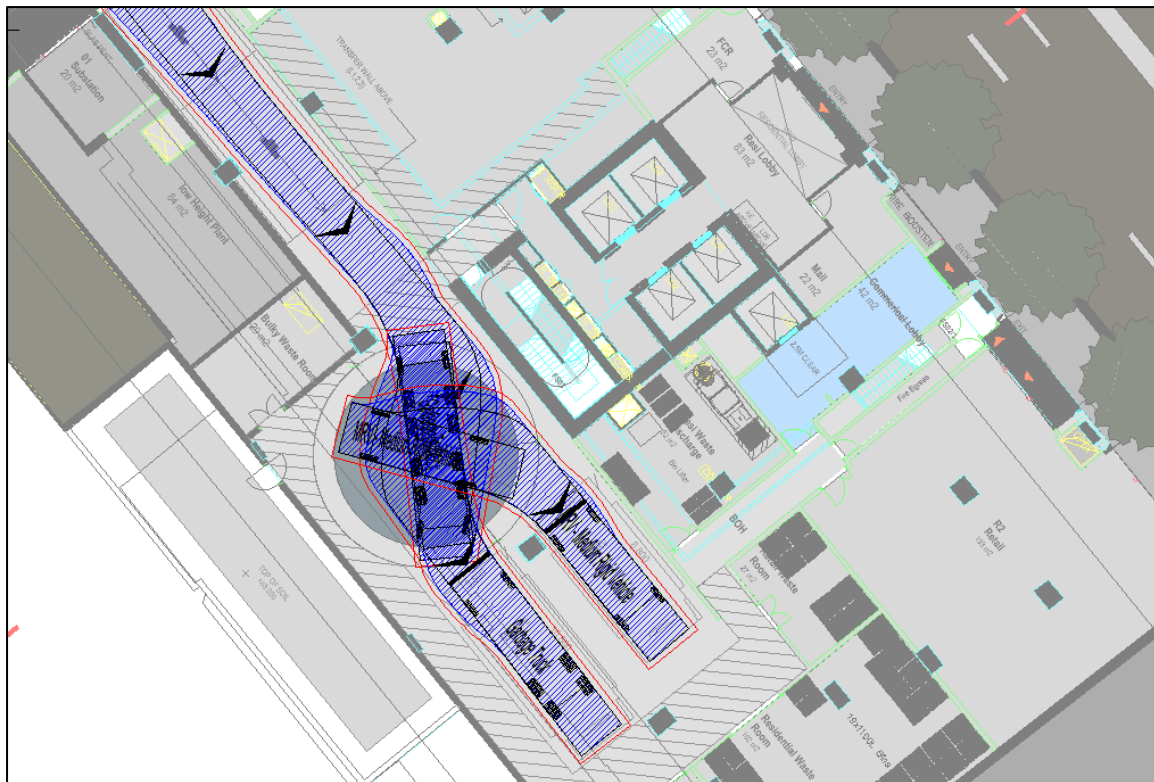


Figure 13 Vehicle swept paths – loading dock

The North Sydney DCP provides generic guidance in relation to service vehicle parking in new developments. The DCP rates are however based on standalone uses rather than a mix of uses within a single development like the subject site. Given the proposal provides for a range of uses there is the opportunity for the sharing of service vehicle spaces. The *Transport for NSW Urban Freight Forecasting Model* can be used as a reference to understand the potential servicing requirements in this instance.

The model, based on the proposed number of service vehicle parking spaces including one waste collection vehicle, one MRV and three van / ute spaces, forecasts an average efficacy of over **95%** - demonstrating a suitable level of on-site vehicle servicing provision. These outputs are presented in the figure below.

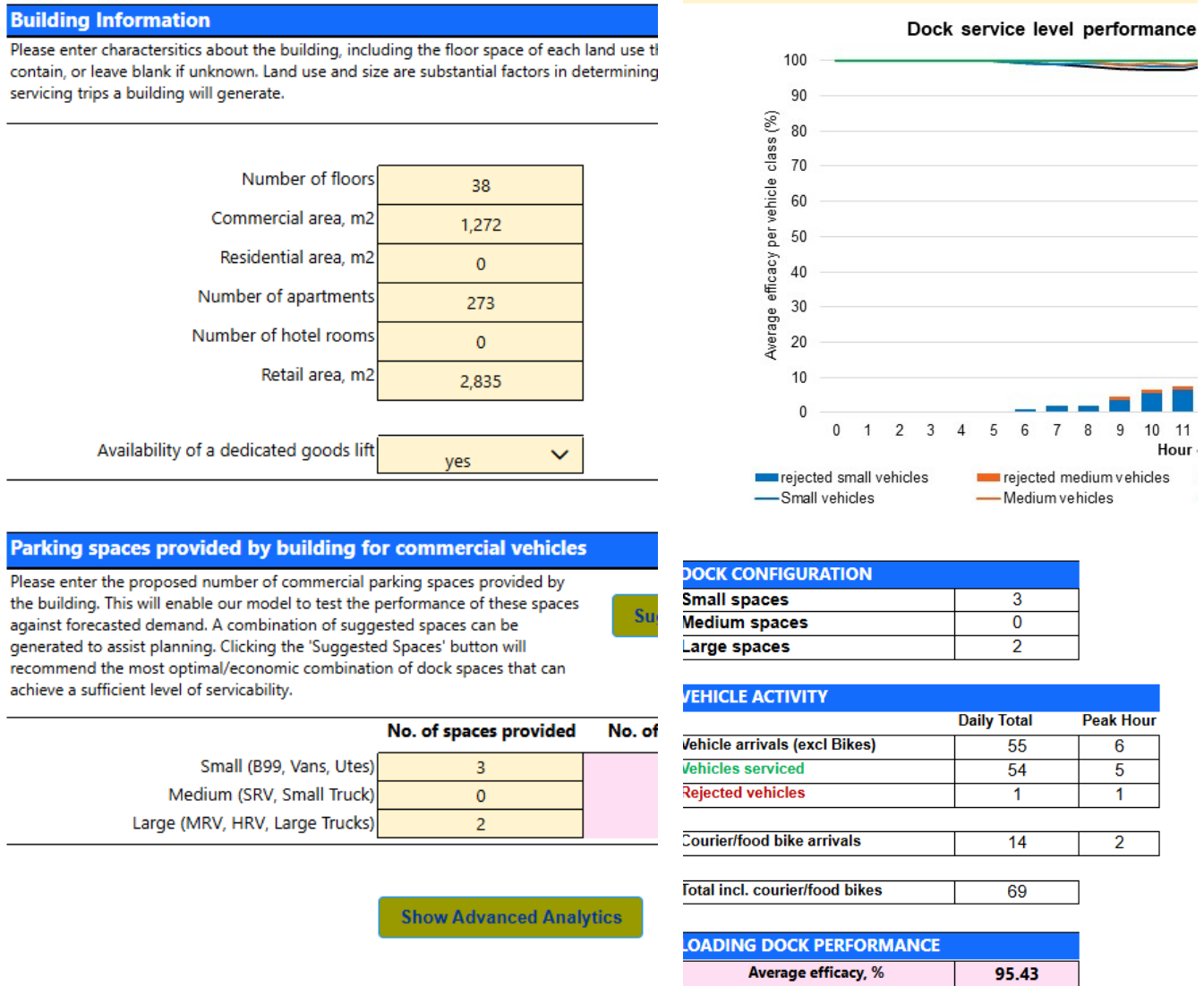


Figure 14 Outputs from TfNSW Urban Freight Forecasting Model

3.5 Loading dock management

The building management team will be required to engage and maintain a Loading Dock Manager to organise and supervise delivery and removal activities. The Building Manager will need to be present on the site during all normal servicing hours and contactable by mobile phone at other times to oversee the operation of the loading dock areas.

Each commercial/retail tenant would be allocated one of the delivery windows for their deliveries to occur. Residents would need to book-in times with building management if they require the loading dock for activities (such as moving/receiving furniture). A delivery schedule will be organised by management to stagger and control arrival of deliveries.

3.6 Car parking provision

3.6.1 Residential parking

Car parking for residential uses is to be provided in accordance with the Crows Nest Transport Oriented Development Precinct Design Guide (DHPI, November 2024). These parking rates and associated parking requirements are summarised Table 5. This confirms that the proposed level of parking less than the maximum level of parking permissible under the Crows Nest Precinct design guide.

Table 5 Car parking – residential uses

Type		No. of units	Max. Parking Rate – Residential Uses		Spaces provided
			Parking Rate	No. of Spaces	
Residential Apartments	Studio / 1 bed	57	0.4	23	192
	2 bed	109	0.7	76	
	3/4 bed	107	1.0	107	
Total		273	-	206	

3.6.2 Non-residential parking

The North Sydney DCP provides for a maximum parking rate of 1 space per 400m² of non-residential uses, with no minimum requirement. Based on the approximately 4,107m² of non-residential uses the site could provide for a maximum of 10 parking spaces and a minimum of zero spaces. 10 parking spaces are proposed for the commercial / retail use which complies with the maximum parking rates in force within the North Sydney DCP.

3.7 Accessible car parking

Accessible car parking spaces are provided in accordance with North Sydney Council requirements, including:

- 1 accessible space for every adaptable unit; and
- 1%-2% of non-residential parking bays

A total of 55 accessible car parking spaces are provided as part of the proposal.

3.8 Motorcycle parking

The North Sydney DCP requires motorcycle parking be provided at the rate of 1 space for every 10 regular car parking spaces. Based on the proposed parking provision of approximately 200 spaces there would be a requirement for 20 motorcycle spaces. The proposal complies with this requirement by providing for 21 motorcycle spaces across the various parking levels.

3.9 Forecast travel demand

Surveys undertaken by the TfNSW of high density residential developments indicates a person trip generation rate of approximately 0.60 trips / dwelling. The equivalent trip generation rate for commercial/retail uses was found to be 2.26 trips per 100m² GFA in the AM peak hour and 1.73 trips per 100m² GFA in the PM peak hour. Applying these rates to the yields proposed under the SSDA results in the following total development trips as shown in Table 6:

Table 6 Development trip generation

Use	Yield	Quantum	Trip rate (per unit / 100m ²)		Number of trips	
			AM peak hour	PM peak hour	AM peak hour	PM peak hour
Residential	273	units	0.66	0.56	180	153
Retail/Commercial	4107	m ² GFA	2.26	1.73	93	71
Total trips					273	224

Based on the existing travel behaviours of residents and employees, available public transport services (particularly Sydney Metro), as well as the constrained parking rates for the various site uses, forecast mode shares have been developed. These mode shares, along with the forecast trip generation noted in Table 6, have been used to estimate the number of trips by mode to and from the site. This is summarised in Table 7 and demonstrates the additional travel demand by mode of transport is relatively low. The frequency of public transport services, including the metro station at Crows Nest, will comfortably be able to accommodate this level of travel demand.

Table 7 Trip generation by mode

Travel mode	Residential trips to/from the site			Retail/Commercial trips to/from the site			Total trips to/from the site	
	Mode share	AM peak hour	PM peak hour	Mode share	AM peak hour	PM peak hour	AM peak hour	PM peak hour
Car driver	20%	36	31	25%	23	18	59	48
Car passenger	3%	5	5	2%	2	1	7	6
Bus	2%	4	3	10%	9	7	13	10
Train / Metro	54%	97	83	42%	39	30	136	112
Walk	20%	36	31	20%	19	14	55	45
Other	1%	2	2	1%	1	1	3	2
Total	100%	180	153	100%	93	71	273	224

3.10 Forecast traffic generation

3.10.1 Residential traffic generation

Given the proximity of the site to public transport services the forecast traffic generation for the residential uses has been determined based on the surveyed rate of high density residential uses for St Leonards as published by TfNSW which are as follows:

- AM peak hour: 0.14 vehicle trips per unit
- PM peak hour: 0.07 vehicle trips per unit

This approach in using the outcomes of surveys of a site with similar characteristics aligns with the ‘benchmarking’ methodology recommended in the TfNSW Guide to Transport Impact Assessment document.

3.10.2 Commercial traffic generation

Transport for NSW published a Technical Direction that described vehicular trip rates for commercial developments. Comparable commercial developments have been considered in order to understand the likely traffic generation resulting from the site. Three sites were selected given their similar proximity to nearby public transport as well as similar car parking rates, which were sites located in North Sydney, Chatswood, and Parramatta.

The average peak hour trip rates per parking space for the surveyed locations were estimated to be 0.40 and 0.25 trips per 100m² GFA during the AM and PM network peak hour respectively.

3.10.3 Net traffic generation

Considering the various uses envisaged within the proposal, along with the traffic movements generated by the existing site uses, the overall increase in traffic generation is summarised in Table 8. This indicates the site may generate an additional 43 vehicle movements in the AM peak hour and 24 vehicle movements in the PM peak hour – equivalent to less than one vehicle every minute in a worst case scenario.

Table 8 Forecast additional traffic generation resulting from proposal

Scenario	Use	Quantum	Unit	Forecast Traffic Generation		Forecast Traffic Generation	
				AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Proposal	Residential	273	Apartments	0.14 / unit	0.07 / unit	+36	+18
	Commercial	10	Parking Spaces	0.40 / space	0.25 / space	+3	+2
Net Additional Traffic						+43	+24

3.11 Road network impacts

It is important to note that the subject site is within the Crows Nest Transit Oriented Development (TOD) Accelerated Precinct which has been identified by the NSW Government to support housing delivery. DPHI has undertaken various technical studies to confirm the suitability of the proposed level of development in the area which has included various transport studies and modelling. The transport modelling undertaken by DPHI for the Crows Nest TOD precinct would have already considered traffic movements arising from the subject site. Therefore the impacts of the future site development, as envisaged under the Crows Nest TOD, have been considered as part of this modelling. The proposed design of the subject site is compliant with the relevant height and FSR controls and therefore the level of traffic generation expected would be consistent with that envisaged as part of the detailed traffic modelling supporting the precinct.

Notwithstanding the above investigations have been undertaken to understand the existing and future operation of the Pacific Highway / Oxley Street intersection.

Traffic counts undertaken in mid 2025 (see Section 2.7) were used to develop a SIDRA traffic model. The SIDRA traffic model was calibrated via the use of video footage of the intersection – with this video footage corresponding to the date of the original traffic surveys. The video footage was used to calibrate the model in the following ways:

- Traffic light phasing arrangements.
- Typical phase and cycle times of the traffic lights.
- Impact of pedestrian crossing movements to delays for left and right turning vehicles from Oxley Street.
- Extent of typical queues and delays for vehicles on the Pacific Highway.

An example screenshot of the video footage from the AM peak hour survey period is provided in Figure 15.

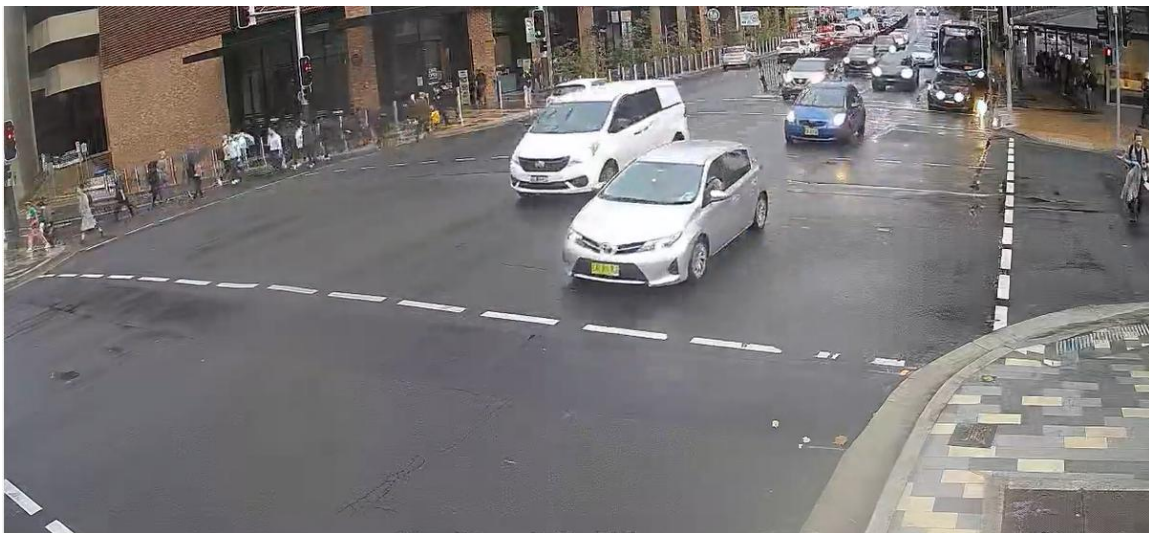


Figure 15 Pacific Highway / Oxley Street intersection – AM peak hour

This modelling undertaken by JMT Consulting based on traffic data collected in 2025 confirms that the intersection continues to operate with spare levels of capacity, refer to Table 9 and Appendix A. The additional traffic generated by the project does not alter the intersection level of service nor the total average vehicle delay experienced in the peak hours of the day.

Table 9 Pacific Highway / Oxley Street intersection operation

Peak Hour	Existing Conditions			Existing Conditions + Proposal		
	Average Vehicle Delay	Degree of Saturation	Level Of Service	Average Vehicle Delay	Degree of Saturation	Level Of Service
AM Peak Hour	21 seconds	0.31	B	23 seconds	0.32	B
PM Peak Hour	27 seconds	0.29	B	28 seconds	0.29	B

Given the spare capacity that exists at this intersection the additional vehicle trips, generated by the proposal, amounting to less than one extra vehicle every minute, would not materially impact the operation of the intersection.

In this context the proposal, with its minimal traffic generation and spare capacity available at the nearby intersection, would not impact the operation of the surrounding road network.

3.12 Cumulative traffic impacts

There are a number of nearby sites that are the subject of planned or approved development proposals which may have the potential to increase traffic movements on key roads surrounding the subject site. Directly opposite the subject site is the Crows Nest Over Station Development (OSD) which is approved and under construction. The traffic assessment completed for this project indicated a relatively minor increase in traffic movements of approximately 20 vehicles per hour during peak periods. This quantum of traffic generation was noted as being lower than that estimated for the pre-existing land uses on the OSD sites prior to demolition commencing for the Crows Nest Station.

Of further relevance is that the proposal is generally consistent with the controls and densities identified in the Crows Nest Transient Oriented Development rezoning proposal. To support this rezoning a detailed future year traffic modelling assessment was carried to assess the traffic implications of the envisaged uplift in the precinct. The St Leonards and Crows Nest Station Precinct Traffic and Transport Study – Future Year Modelling Report did not identify any future upgrades at the Pacific Highway / Oxley Street intersection to support the development of the broader St Leonards and Crows Nest precinct.

The subject development proposal adds less than one vehicle every minute in the commuter peak hours of the day and therefore would not impact the outcome of the detailed traffic modelling undertaken for the precinct. Further the proposal complies with the maximum car parking rates in force for the precinct which further assists in managing the traffic related impacts of development.

3.13 Public transport accessibility

The advent of Sydney Metro (City and Southwest) which opened in August 2024 has provided additional connectivity to and from the site. Crows Nest Metro Station opened in August 2024 and is located immediately opposite the site and support travel to/from the site via public transport. From Crows Nest Metro Station (within a five minute walk), Central Station may be reached in approximately 11 minutes and Martin Place Station in 7 minutes. This metro station has significantly added to the already well provisioned public transport amenities in the area.

3.14 Bicycle parking and end of trip facilities

The proposal makes provision for one bicycle parking space (either a bicycle parking space or within a storage cage) for every residential apartment – complying with the requirements of the North Sydney DCP. There are 228 residential storages cages of sufficient size to accommodate a bicycle, alongside a further 45 bicycle parking spaces on the various basement levels – totalling 273 spaces for residents. A further 65 bicycle parking spaces are provided for residential visitors (28 spaces) and retail / commercial users (37 spaces). The bicycle parking provision included within the proposal meets the minimum number of spaces required by North Sydney Council as presented in the table below.

Table 10 Bicycle parking provision

Land Use	No. of units / GFA	User type	Bicycle parking requirement	
			Rate	Number
Residential	273 units	Residents	1 / unit	273
		Visitors	1 / 10 units	28
Commercial / Retail	4107m ²	Staff	1 space per 150 m ²	27
		Visitors	1 space per 400 m ²	10
Total				338

An end of trip facility is provided for building staff on Level 1 to support cycling as a mode of transport. This end of trip facility is indicated in Figure 16.

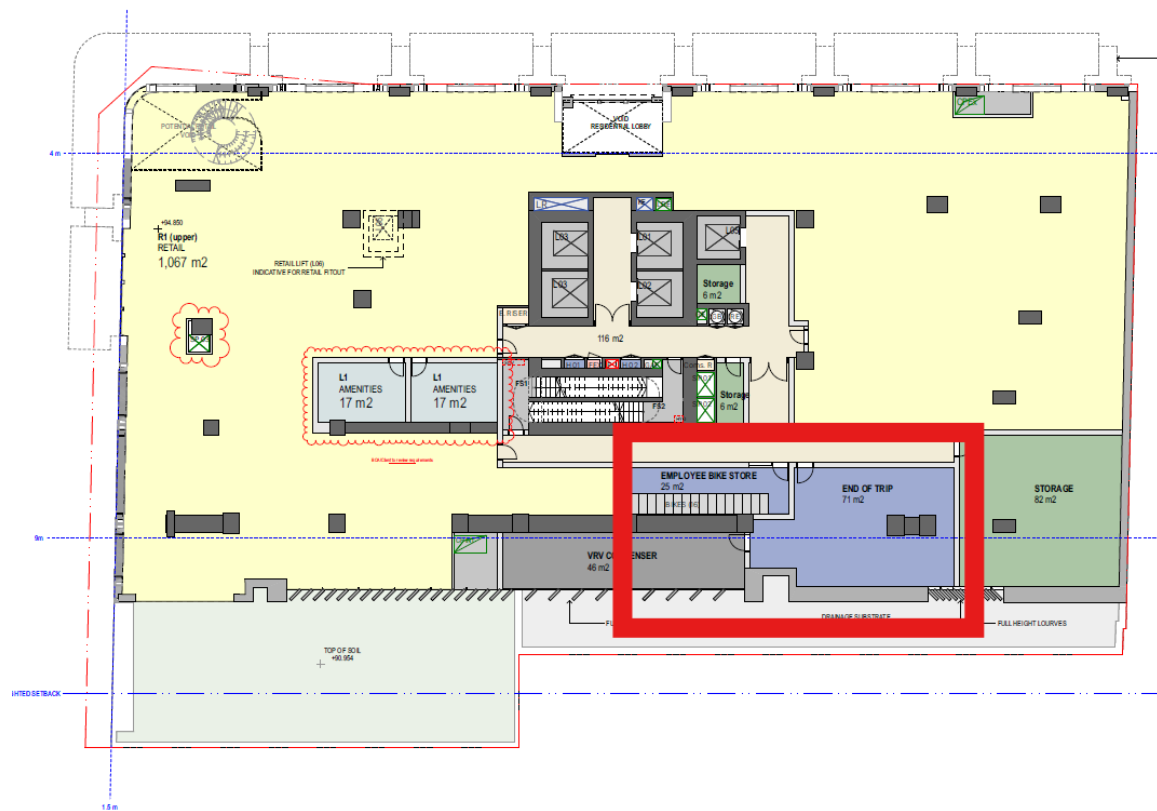


Figure 16 End of trip facility

4 Preliminary Green Travel Plan

4.1 GTP purpose

This report includes a preliminary Green Travel Plan (GTP) identifying some key items that could be included in a more detailed plan to be completed prior to the initial opening of the development. A more detailed GTP will be prepared prior to occupancy which reflects the needs of the users of the building and outlines contemporary transport conditions. The requirement for the preparation of a detailed GTP prior to occupation is commonplace in major developments such as the subject site and can be reinforced through an appropriately worded condition of consent.

4.2 GTP overview

A Green Travel Plan is a package of measures put in place by the development occupants to try and encourage more sustainable travel. It is a means for a development to demonstrate a commitment and take a pro-active step towards improving the environmental sustainability of its activities.

More generally, the principles of a GTP are applied to all people travelling to and from a site. Government authorities are placing increasing emphasis on the need to reduce the number and lengths of motorised journeys and in doing so encourage greater use of alternative means of travel with less negative environmental impacts than the car.

4.3 GTP objectives

A GTP is a package of measures aimed at promoting and encouraging sustainable travel and reducing reliance on the private car. The GTP for the site will assist in reducing car reliance by promoting alternative, sustainable modes of travel. The GTP aims to encourage and support the broader use of sustainable travel options by the community in carrying out their daily activities.

Sustainable travel options include active transport (including travel by foot, bicycle and other non-motorised vehicles) and public transport. The GTP focuses on minimising the impact of events on the local and wider transport network and encourages those accessing the site to do so by sustainable modes of transport, thereby reducing car dependency for residents, staff and visitors of the site.

The key objectives of the GTP are to:

- Achieve a high modal share for public transport, cycling and walking journeys for residents, staff and visitors of the site;
- Reduce private vehicle dependency as a means of access to the site;

- Ensure adequate facilities are provided at the site to enable users to travel by sustainable transport modes; and
- Raise awareness of, and actively encourage the use of, sustainable transport amongst users.

4.4 Mode share targets

The aim of the GTP is to encourage a modal shift away from private vehicles by implementing measures that influence the travel patterns of residents living at the site. The implementation of the GTP would be regularly monitored to ensure that the GTP is having the desired effect. The success of the GTP is measured by setting modal share targets and identifying the measures and actions that have the greatest impact.

The mode share targets have been set based on the site's location near the North Sydney CBD and Crows Nest metro station – therefore having strong access to public transport, employment and general services. Bicycle parking will be provided for building staff, with complementary end of trip facilities, and therefore this mode of transport is expected to increase compared to current conditions. All residents will also be provided with secure bicycle parking facilities. The overall mode share targets for the site are summarised in Table 11 below.

Table 11 Mode share targets

Mode of travel	Existing Mode Share		Target Mode Share	
	<i>Residents</i>	<i>Employees</i>	<i>Residents</i>	<i>Employees</i>
Car driver	28%	50%	14%	25%
Car passenger	1%	4%	1%	5%
Bus / Light Rail	21%	10%	21%	10%
Train / Metro	28%	25%	40%	46%
Walk / Bicycle	15%	7%	20%	10%
Other	5%	0.5%	2%	0.5%
Did not go / Work from Home	2%	3.5%	2%	3.5%
Total	100%	100%	100.00%	100.00%

4.5 Design initiatives

A number of initiatives have been incorporated within the design of the building to promote travel by sustainable modes and reduce car dependency – in line with the objectives of the GTP. These design measures include:

- Bicycle parking for residents, staff and visitors in line with the minimum requirements outlined in the North Sydney DCP.
- End of trip facilities (showers, lockers, change areas) for staff of the building.
- Strong access to nearby public transport including bus stops on the Pacific Highway and the Crows Nest metro station.

The information provided within the GTP will be provided to residents staff and visitors in the form of a package of easy to understand travel information known as a Transport Access Guide (TAG).

TAGs provide customised travel information for people travelling to and from a particular site using sustainable forms of transport – walking, cycling and public transport. It provides a simple quick visual look at a location making it easy to see the relationship of site to train stations, light rail stations, bus stops and walking and cycling routes. Such TAGs encourage the use of non-vehicle mode transport and can reduce associated greenhouse gas emissions and traffic congestion while improving health through active transport choices.

They can take many forms from a map printed on the back of business cards or brochures. Best practice suggests that the information should be as concise, simple and site centred as possible and where possible provided on a single side/sheet. If instructions are too complex, people are likely to ignore them.

5 Preliminary Pedestrian Construction Traffic Management Plan

5.1 Overview

For the purposes of the proposal a preliminary Construction Pedestrian Traffic Management Plan (CTPMP) has been prepared. This preliminary CPTMP outlines the key principles for how construction may be carried out on the site, subject to further planning to be undertaken during subsequent stages of the project. As the project is in very early concept phase details around construction timeframes, methodology and processes are not yet clear.

Prior to the commencement of construction for the subject site a detailed CPTMP will be prepared. The purpose of the CTPMP is to assess the proposed access and operation of construction traffic associated with the proposed development with respect to safety and capacity. The Contractor will be responsible for preparing the CTPMP, ensuring the following are addressed:

- Proposed construction vehicle routes;
- Indicative construction programme;
- Expected construction vehicle types and volumes;
- Car parking arrangements and site access during construction;
- Safety measures to minimise impacts to pedestrians and cyclists. T

The Contractor will also be responsible for monitoring and coordinating all vehicles entering and exiting the site.

5.2 Work hours

Consistent with standard North Sydney Council guidelines working hours for the project would likely be as follows:

- Monday to Friday 7.00am to 6.00pm
- Saturday 7:00am to 5:00pm
- Sunday/ public holiday No work

The appointed contractor will be responsible for instructing and controlling all subcontractors regarding the hours of work. Any work outside the approved construction hours would be subject to specific prior approval.

5.3 Vehicle types

To facilitate the works on site it is expected that a range of vehicles will be utilised, including:

- 12.5m Heavy Rigid Vehicles (HRVs)
- 8.8m Medium Rigid Vehicles (MRVs)
- 6.4m Small Rigid Vehicles (SRVs).

On a daily basis it is also expected that smaller utes and vans will access the site. Special permits and approval from Council will be required to bring in larger and oversize vehicles during the works if required. These will be managed on a case by case basis in close consultation with North Sydney Council.

5.4 Construction traffic volumes

Based on movements generated of similar projects construction traffic generation of approximately 50 vehicles per day is anticipated at the peak of the works, with 40 of these vehicles to be heavy vehicles and 10 light vehicles. It is anticipated that a peak of 10 two-way truck movements may occur during a one hour period. This volume of construction traffic movements will be confirmed closer to the time of construction following the appointment of a contractor and outlined in the detailed CPTMP.

As previously detailed in Section 3.11 of this document, the surrounding road network has the ability to accommodate this volume of traffic subject to appropriate management.

Trips generated by construction staff will typically be outside of the main road network peaks. The impact of construction traffic volumes on the external network is therefore expected to be low. The good availability of public transport in the area, particularly St Leonards transport interchange and the Crows Nest metro station, will encourage workers to minimise private vehicle use which will further reduce the impacts on the local road network.

5.5 Construction vehicle routes

The proposed construction vehicle access routes have been selected to align with key arterial roads such as the Pacific Highway, Warringah Freeway, Falcon Street and Epping Road. All vehicles will turn into and out of Oxley Street, with no vehicle set down permitted on the Pacific Highway during peak hour to manage impacts on the classified road network. The construction vehicle routes will be developed as the project progresses further, however for the purposes of this preliminary assessment the anticipated routes are illustrated in Figure 17 below.

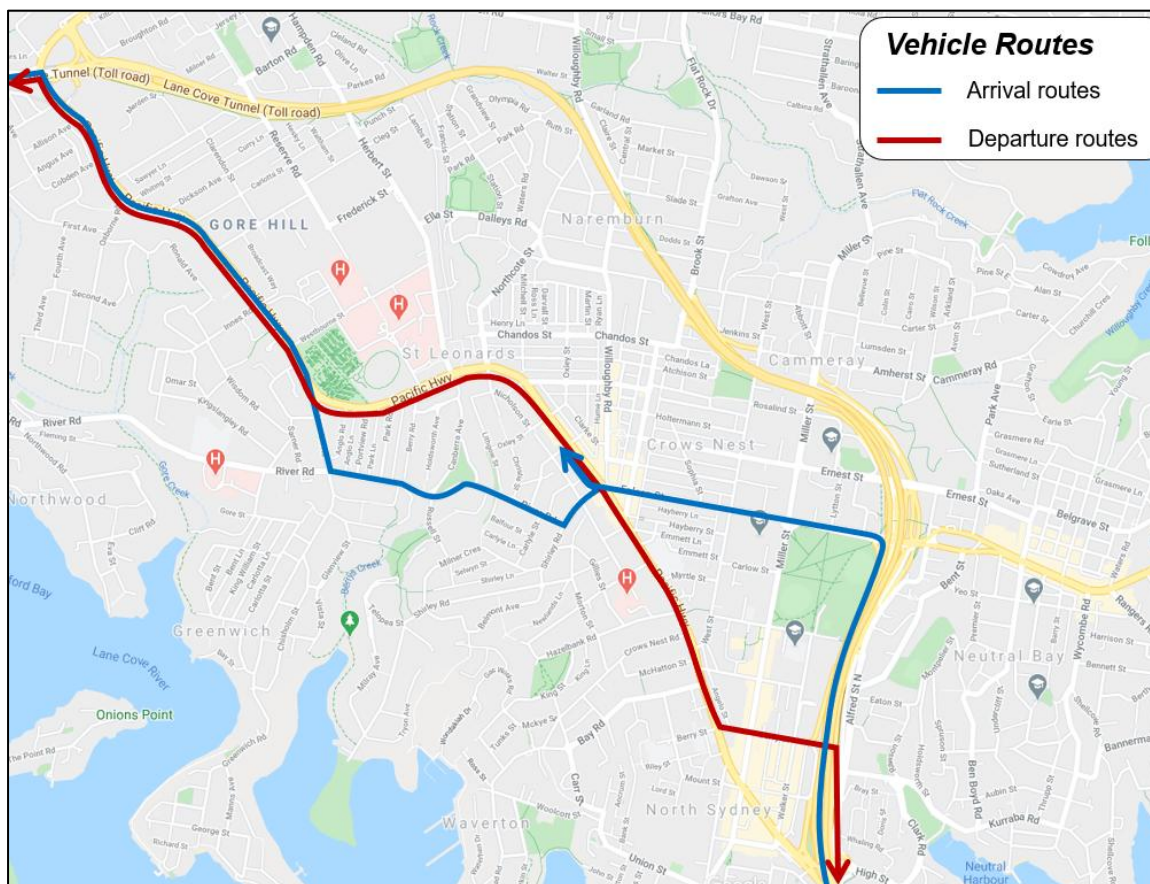


Figure 17 Construction vehicle routes

5.6 Pedestrian management

Temporary fencing and hoardings will be installed along frontage of the works site to maintain pedestrian movements and ensure the safety of pedestrians walking adjacent to the construction site. Footpaths will remain open at all times to pedestrians and therefore minimal impacts are anticipated.

Traffic controllers will be positioned at vehicle site access points to manage interactions between vehicles and pedestrians on the adjoining footpaths. Traffic control plans detailing further measures to manage pedestrian safety will be provided as part of the detailed CPTMP to be prepared prior to the commencement of construction on the site.

5.7 Works zones

To facilitate the construction project, a work zone may potentially be established on the northern side of Oxley Street adjacent to the site. The work zone would require the temporary removal of approximately 4 existing on-street parking spaces. The work zone would be approximately 25m in length and allow for large items to be lifted by cranes positioned within the site.

Should a works zone be installed on Oxley Street, a B-Class hoarding will be installed adjacent to the work zone to provide protection to pedestrians.

The requirement for this works zone will be confirmed following the appointment of a contractor at the time of the preparation of the detailed CPTMP.

5.8 Road closures and road occupancy

It is not anticipated that the works will necessitate the need for any road closures or occupation of roadways during the project. Should this need arise the appointed contractor would liaise closely with North Sydney Council and TfNSW and schedule these works well in advance to minimise impacts to road users.

5.9 Construction worker parking

Given the location of the site, workers will be encouraged to use public transport as a means of access. Initially, there would be very little on-site parking, however, once the basement and parking levels are completed, contractors may be able use these facilities subject to availability. All other parking will be the responsibility of the individual and those requiring car parking will be directed to the nearby public car parks. It is intended that the majority of contractors will be utilising the excellent public transport services to travel to and from the site.

The potential car parking arrangements will be outlined within the detailed Construction Traffic Management Plan (CTMP) to be prepared prior to the commencement of works on the site. This CTMP would outline how workers will

travel to the site and measures to be in place to minimise impacts to the surrounding street network. These measures may include (but are not limited to):

- During site induction staff will be informed of the existing public transport network servicing the site
- Identification of suitable off-site parking areas from where workers can either walk or use public transport to access the site; and
- To support construction workers in utilising public transport, appropriate arrangements will be made for any equipment/ tool storage and drop-off requirements

5.10 Cumulative construction impacts

There may be other construction projects occurring at the same time as the proposed works at the site. Ongoing review of cumulative heavy vehicle traffic generation and coordination of heavy vehicle routes used by these projects will be undertaken on a regular basis between the appointed contractor, Council and TfNSW to minimise impacts on the road network. As other CTPMPs become available for adjacent projects, these will be reviewed by the contractor and discussions held with relevant stakeholders.

It is noted that the works at the site are anticipated to generate a relatively low level of construction vehicle activity of at most 10 vehicles per hour. This volume of vehicles would not impact the operation of the surrounding road network.

5.11 Emergency vehicle access

Emergency vehicle access will be maintained at all times, or if necessary site personnel will grant access to emergency vehicles entering the site itself.

The contractor will liaise with the NSW Police, Fire Brigade and emergency services agencies throughout construction and a 24-hour contact would be made available for 'out of hours' emergencies and access. The emergency services will be briefed through the appropriate forum.

5.12 Mitigation measures

Mitigation measures would be adopted during construction to ensure traffic movements have minimal impact on surrounding land uses and the community in general, and may include the following:

- Trucks to minimise the use local streets for access to the construction site;
- Trucks to enter and exit the site in a forward direction;

- Pedestrians near the ingress/egress points will not be held unnecessarily.
- At construction vehicle access/egress points, priority is to be given to trucks accessing the site over trucks egressing the site so as to have no impact to traffic flow on surrounding roads (unless exceptional circumstances do not permit)
- Trucks to not circulate on the road network to wait to enter the site (unless exceptional circumstances do not permit)
- Restrict construction vehicle activity to designated routes which do not utilise any local roads;
- Truck drivers will be advised of the designated truck routes to/ from the site;
- Construction access from the external road network to mainly occur at signalised intersection;
- Pedestrian movements adjacent the construction site will be managed and controlled by site personnel where required;
- Pedestrian warning signs and construction safety signs/devices to be utilised in the vicinity of the site and to be provided in accordance with WorkCover requirements;
- Construction activity to be carried out in accordance with approved hours of work;
- Truck loads would be covered during transportation off-site;
- Activities related to the construction works would not impede traffic flow along adjacent roads;
- Construction vehicles not to queue on adjacent streets
- During site induction, workers will be informed of the existing bus, train and light rail network servicing the site; and
- Development and enforcement of driver charter.

These mitigation measures will be further developed as the project progresses and outlined in detail in the CPTMP to be prepared prior to the commencement of construction.

5.13 Site induction

All staff employed on the head contractor (including sub-contractors) would be required to undergo a site induction. The induction would include permitted access routes to and from the construction site for site staff and delivery vehicles, parking arrangements, as well as standard environmental, workplace health and safety, driver protocols and emergency procedures. The approved work hours must be included as part of this induction.

5.14 Driver code of conduct

The appointed contractor will include the following in all subcontract procurement packages:

- a copy of the approved truck routes as previously detailed in this document.
- the approved maximum truck size
- any other entry restrictions, or site access restrictions as agreed to by the authorities.

The appointed contractor will be responsible for managing all site access points and monitoring subcontractor behaviour and subcontractor truck access arrangements to ensure compliance with conditions of the contract. They will be responsible for ensuring there is no access to or from the site before or after approved construction hours and no queueing occurs on the surrounding road network.

6 Summary

JMT Consulting has prepared this traffic and transport study on behalf of Prosper to inform the preparation of a State Significant Development Application for the site located at 402-420 Pacific Highway, Crows Nest. The study considers the implications of the proposal with respect to future traffic movements, access arrangements, parking provision and pedestrian circulation. Key findings of the study are as follows:

- The site has excellent access to public transport, which has been further enhanced through the provision of the Crows Nest metro station which is located immediately opposite the site.
- Vehicle access into the site would be via Oxley Street which is away from the State classified road of the Pacific Highway.
- An on-site loading dock is provided to accommodate loading and servicing for the building.
- The on-site car park and loading areas have been designed in accordance with the relevant Australian Standards AS2890.1 and AS2890.2.
- Car parking is provided in accordance with the relevant controls outlined in both the North Sydney DCP and the Crows Nest Precinct design guide.
- The site is within the Crows Nest Transit Oriented Development (TOD) Accelerated Precinct which has been the subject of detailed traffic analysis to support housing delivery. The technical studies undertaken for the Crows Nest TOD does not identify any future traffic capacity constraints near the site and the proposal is compliant with the relevant planning controls, therefore the traffic generation arising from the site would have been contemplated in the detailed traffic modelling.
- The proposal is forecast to generate a relatively minor amount of additional traffic movements, equivalent to less than one vehicle a minute during the busiest times of the day. This level of additional traffic is considered minimal and would not materially impact the operation of the surrounding road network.
- Bicycle parking is to be provided to support cycling as a mode of transport to and from the site.
- Travel demand management measures have been suggested to improve the mode share of public transport and active transport.

Based on the above key findings, it is considered that the impact of the SSDA on the transport network will be acceptable.

Appendix A: Traffic Modelling Outputs

MOVEMENT SUMMARY

 **Site: [1 (4)] PM Existing + Proposal (Oxley-Pac Hwy)**
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Pacific Hwy / Oxley St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh. veh]	[Dist] m				km/h
			veh/h	%	veh/h	%	v/c	sec							
SouthEast: Pacific Highway (SE)															
21	L2	All MCs	142	0.0	142	0.0	0.286	34.3	LOS C	15.8	113.5	0.72	0.68	0.72	39.4
22	T1	All MCs	1027	4.8	1027	4.8	0.286	26.3	LOS B	16.1	117.4	0.71	0.62	0.71	41.6
Approach			1169	4.2	1169	4.2	0.286	27.3	LOS B	16.1	117.4	0.71	0.63	0.71	41.3
NorthEast: Oxley Street (NE)															
24	L2	All MCs	133	0.0	133	0.0	0.155	27.0	LOS B	4.8	33.5	0.61	0.73	0.61	40.4
25	T1	All MCs	146	0.0	146	0.0	0.153	19.1	LOS B	5.0	34.9	0.58	0.48	0.58	45.8
Approach			279	0.0	279	0.0	0.155	22.9	LOS B	5.0	34.9	0.60	0.60	0.60	43.0
NorthWest: Pacific Highway (NW)															
27	L2	All MCs	96	0.0	96	0.0	* 0.290	36.3	LOS C	16.1	115.3	0.72	0.66	0.72	39.5
28	T1	All MCs	1095	3.6	1095	3.6	0.290	26.4	LOS B	16.5	118.9	0.71	0.62	0.71	41.6
Approach			1191	3.3	1191	3.3	0.290	27.2	LOS B	16.5	118.9	0.71	0.62	0.71	41.4
SouthWest: Oxley Street (SW)															
30	L2	All MCs	249	0.0	249	0.0	0.293	28.9	LOS C	9.8	68.3	0.67	0.76	0.67	39.5
31	T1	All MCs	184	0.0	184	0.0	0.192	19.6	LOS B	6.4	45.0	0.60	0.50	0.60	45.5
32	R2	All MCs	139	0.8	139	0.8	* 0.290	32.5	LOS C	5.8	41.1	0.70	0.76	0.70	38.2
Approach			573	0.2	573	0.2	0.293	26.8	LOS B	9.8	68.3	0.65	0.68	0.65	40.9
All Vehicles			3212	2.8	3212	2.8	0.293	26.8	LOS B	16.5	118.9	0.69	0.63	0.69	41.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Pacific Highway (SE)												
P5	Full	115	121	59.4	LOS E	0.4	0.4	0.96	0.96	213.3	200.0	0.94
NorthEast: Oxley Street (NE)												
P6	Full	305	321	59.9	LOS E	1.1	1.1	0.97	0.97	213.8	200.0	0.94

NorthWest: Pacific Highway (NW)												
P7	Full	141	148	59.5	LOS E	0.5	0.5	0.96	0.96	213.4	200.0	0.94
SouthWest: Oxley Street (SW)												
P8	Full	68	72	59.3	LOS E	0.3	0.3	0.96	0.96	213.2	200.0	0.94
All		629	662	59.7	LOS E	1.1	1.1	0.96	0.96	213.5	200.0	0.94
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Pac Hwy_SIDRA_2025.sipx

MOVEMENT SUMMARY



Site: [1] AM Existing (Oxley-Pac Hwy)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Pacific Hwy / Oxley St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh. veh	Dist] m				km/h
SouthEast: Pacific Highway (SE)															
21	L2	All MCs	124	0.8	124	0.8	0.258	24.6	LOS B	15.0	108.5	0.59	0.58	0.59	44.2
22	T1	All MCs	1237	4.7	1237	4.7	0.258	17.0	LOS B	15.1	110.2	0.58	0.52	0.58	46.6
Approach			1361	4.3	1361	4.3	0.258	17.7	LOS B	15.1	110.2	0.58	0.53	0.58	46.4
NorthEast: Oxley Street (NE)															
24	L2	All MCs	133	3.2	133	3.2	0.212	37.7	LOS C	5.9	42.4	0.75	0.76	0.75	36.0
25	T1	All MCs	129	1.6	129	1.6	0.180	29.1	LOS C	5.4	38.6	0.71	0.58	0.71	40.7
Approach			262	2.4	262	2.4	0.212	33.4	LOS C	5.9	42.4	0.73	0.67	0.73	38.2
NorthWest: Pacific Highway (NW)															
27	L2	All MCs	87	1.2	87	1.2	* 0.314	26.8	LOS B	19.0	137.5	0.61	0.57	0.61	44.1
28	T1	All MCs	1567	4.6	1567	4.6	0.314	17.7	LOS B	19.1	138.9	0.60	0.54	0.60	46.3
Approach			1655	4.5	1655	4.5	0.314	18.2	LOS B	19.1	138.9	0.60	0.54	0.60	46.2
SouthWest: Oxley Street (SW)															
30	L2	All MCs	149	4.2	149	4.2	0.242	38.3	LOS C	6.7	48.9	0.76	0.76	0.76	35.8
31	T1	All MCs	145	0.0	145	0.0	0.200	29.3	LOS C	6.2	43.1	0.72	0.59	0.72	40.6
32	R2	All MCs	109	1.0	109	1.0	* 0.314	44.6	LOS D	5.5	38.6	0.82	0.77	0.82	33.9
Approach			404	1.8	404	1.8	0.314	36.8	LOS C	6.7	48.9	0.76	0.70	0.76	36.8
All Vehicles			3682	4.0	3682	4.0	0.314	21.1	LOS B	19.1	138.9	0.62	0.56	0.62	44.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Pacific Highway (SE)												
P5	Full	97	102	59.4	LOS E	0.4	0.4	0.96	0.96	213.2	200.0	0.94
NorthEast: Oxley Street (NE)												
P6	Full	277	292	59.9	LOS E	1.0	1.0	0.97	0.97	213.7	200.0	0.94

NorthWest: Pacific Highway (NW)												
P7	Full	114	120	59.4	LOS E	0.4	0.4	0.96	0.96	213.3	200.0	0.94
SouthWest: Oxley Street (SW)												
P8	Full	77	81	59.3	LOS E	0.3	0.3	0.96	0.96	213.2	200.0	0.94
All		565	595	59.6	LOS E	1.0	1.0	0.96	0.96	213.5	200.0	0.94
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Pac Hwy_SIDRA_2025.sipx

MOVEMENT SUMMARY

 **Site: [1 (3)] AM Existing + Proposal (Oxley-Pac Hwy)**
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Pacific Hwy / Oxley St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh. veh]	[Dist] m				km/h
			veh/h	%	veh/h	%	v/c	sec							
SouthEast: Pacific Highway (SE)															
21	L2	All MCs	125	0.8	125	0.8	0.262	25.3	LOS B	15.3	110.4	0.60	0.59	0.60	43.8
22	T1	All MCs	1237	4.7	1237	4.7	0.262	17.6	LOS B	15.4	112.3	0.59	0.53	0.59	46.3
Approach			1362	4.3	1362	4.3	0.262	18.3	LOS B	15.4	112.3	0.59	0.54	0.59	46.0
NorthEast: Oxley Street (NE)															
24	L2	All MCs	133	3.2	133	3.2	0.208	36.9	LOS C	5.8	41.8	0.74	0.76	0.74	36.3
25	T1	All MCs	134	1.6	134	1.6	0.182	28.4	LOS B	5.6	39.4	0.70	0.58	0.70	41.1
Approach			266	2.4	266	2.4	0.208	32.6	LOS C	5.8	41.8	0.72	0.67	0.72	38.6
NorthWest: Pacific Highway (NW)															
27	L2	All MCs	87	1.2	87	1.2	* 0.319	27.4	LOS B	19.3	139.8	0.62	0.58	0.62	43.8
28	T1	All MCs	1567	4.6	1567	4.6	0.319	18.3	LOS B	19.4	141.4	0.61	0.55	0.61	45.9
Approach			1655	4.5	1655	4.5	0.319	18.8	LOS B	19.4	141.4	0.61	0.55	0.61	45.8
SouthWest: Oxley Street (SW)															
30	L2	All MCs	154	4.1	154	4.1	0.243	37.6	LOS C	6.9	49.7	0.75	0.76	0.75	36.1
31	T1	All MCs	152	0.0	152	0.0	0.204	28.7	LOS C	6.4	44.5	0.71	0.59	0.71	40.9
32	R2	All MCs	114	0.9	114	0.9	* 0.319	43.8	LOS D	5.6	39.8	0.82	0.77	0.82	34.2
Approach			419	1.8	419	1.8	0.319	36.0	LOS C	6.9	49.7	0.75	0.70	0.75	37.1
All Vehicles			3702	4.0	3702	4.0	0.319	21.6	LOS B	19.4	141.4	0.63	0.57	0.63	44.1

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped]	[Dist] m			sec	m	m/sec
SouthEast: Pacific Highway (SE)												
P5	Full	97	102	59.4	LOS E	0.4	0.4	0.96	0.96	213.2	200.0	0.94
NorthEast: Oxley Street (NE)												
P6	Full	277	292	59.9	LOS E	1.0	1.0	0.97	0.97	213.7	200.0	0.94

NorthWest: Pacific Highway (NW)												
P7	Full	114	120	59.4	LOS E	0.4	0.4	0.96	0.96	213.3	200.0	0.94
SouthWest: Oxley Street (SW)												
P8	Full	77	81	59.3	LOS E	0.3	0.3	0.96	0.96	213.2	200.0	0.94
All		565	595	59.6	LOS E	1.0	1.0	0.96	0.96	213.5	200.0	0.94
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 **Site: [1 (2)] PM Existing (Oxley-Pac Hwy)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Pacific Hwy / Oxley St

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130.0 seconds (Site User-Given Cycle Time)

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]						[Veh. veh]	[Dist] m				km/h
			veh/h	%	veh/h	%	v/c	sec							
SouthEast: Pacific Highway (SE)															
21	L2	All MCs	138	0.0	138	0.0	0.283	34.0	LOS C	15.7	112.5	0.71	0.67	0.71	39.5
22	T1	All MCs	1027	4.8	1027	4.8	0.283	26.0	LOS B	15.9	116.2	0.71	0.62	0.71	41.8
Approach			1165	4.2	1165	4.2	0.283	26.9	LOS B	15.9	116.2	0.71	0.62	0.71	41.5
NorthEast: Oxley Street (NE)															
24	L2	All MCs	133	0.0	133	0.0	0.156	27.3	LOS B	4.8	33.7	0.62	0.73	0.62	40.2
25	T1	All MCs	138	0.0	138	0.0	0.145	19.3	LOS B	4.7	33.0	0.58	0.48	0.58	45.7
Approach			271	0.0	271	0.0	0.156	23.2	LOS B	4.8	33.7	0.60	0.60	0.60	42.8
NorthWest: Pacific Highway (NW)															
27	L2	All MCs	96	0.0	96	0.0	* 0.288	35.9	LOS C	16.0	114.7	0.72	0.66	0.72	39.6
28	T1	All MCs	1095	3.6	1095	3.6	0.288	26.1	LOS B	16.4	118.3	0.71	0.62	0.71	41.7
Approach			1191	3.3	1191	3.3	0.288	26.9	LOS B	16.4	118.3	0.71	0.62	0.71	41.5
SouthWest: Oxley Street (SW)															
30	L2	All MCs	248	0.0	248	0.0	0.294	29.2	LOS C	9.8	68.3	0.67	0.76	0.67	39.4
31	T1	All MCs	182	0.0	182	0.0	0.191	19.8	LOS B	6.4	44.7	0.60	0.50	0.60	45.4
32	R2	All MCs	138	0.8	138	0.8	* 0.288	32.8	LOS C	5.8	41.0	0.70	0.76	0.70	38.1
Approach			568	0.2	568	0.2	0.294	27.0	LOS B	9.8	68.3	0.66	0.68	0.66	40.8
All Vehicles			3195	2.8	3195	2.8	0.294	26.6	LOS B	16.4	118.3	0.69	0.63	0.69	41.5

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Pacific Highway (SE)												
P5	Full	115	121	59.4	LOS E	0.4	0.4	0.96	0.96	213.3	200.0	0.94
NorthEast: Oxley Street (NE)												
P6	Full	305	321	59.9	LOS E	1.1	1.1	0.97	0.97	213.8	200.0	0.94

NorthWest: Pacific Highway (NW)												
P7	Full	141	148	59.5	LOS E	0.5	0.5	0.96	0.96	213.4	200.0	0.94
SouthWest: Oxley Street (SW)												
P8	Full	68	72	59.3	LOS E	0.3	0.3	0.96	0.96	213.2	200.0	0.94
All		629	662	59.7	LOS E	1.1	1.1	0.96	0.96	213.5	200.0	0.94
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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