

**asongroup**

**16-24 Lord Street & 21-27  
Roseville Avenue, Roseville  
Transport Impact Assessment  
State Significant Development  
Application**

—  
P2792





### Document control

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# Executive Summary

This Transport Impact Assessment (TIA) has been prepared to accompany a detailed State Significant Development Application (SSDA) for a residential development including infill affordable housing at 16-24 Lord Street and 21-27 Roseville Avenue, Roseville. Following formal lodgement of the SSDA to the Department of Housing, Planning and Infrastructure (DPHI), comments were received from various stakeholders including Kur-ring-gai Council (Council), DPHI, and the State Design Review Panel (SDRP). The proposed development has been updated to respond to these comments. The fundamental aspects of the proposal remain consistent with the original application with the proposed land use, access arrangements and parking rates remaining the same. The quantum of apartments and mix of apartment types has been slightly modified.

As such, the TIA has been updated to address these matters, together with the following:

- updating the parking assessment to consider the minor changes to apartment mix
- amending the transport assessment to account for the changes to apartment mix
- including detailed traffic modelling to consider the traffic impact of the proposal on the surrounding road network
- including additional analysis to address relevant stakeholder comments.

The site consists of nine detached dwellings and has been consolidated into an area of approximately 0.94 hectares. The legal description of the site is outlined below.

**Table: Legal Description**

Property Address	Title Description	Site Area
16-24 Lord Street & 21-27 Roseville Avenue, Roseville, NSW 2069	21 Roseville Avenue – Lot 9 DP1046734	0.94 hectares
	23 Roseville Avenue – Lot 66 Section B DP3277	
	25 Roseville Avenue – Lot 65 Section B DP3277	
	27 Roseville Avenue – Lot 64 Section B DP3277	
	16 Lord Street – Lot 14 Section B DP3277	
	18 Lord Street – Lot 15 Section B DP3277	
	20 Lord Street – Lot 16 Section B DP3277	
	22 Lord Street – Lot 17 Section B DP3277 & Lot 1 DP104781	
	24 Lord Street – Lot 18 DP1173328.	

This report concludes that the proposed development is suitable and warrants approval due to the following key points:

- A key strategic priority of the proposal is the objective to leverage the behaviours of future residents and promote sustainable modes of daily travel which aligns with the Transport Oriented Development (TOD) planning objectives detailed by the NSW Government.
- The proposal is required to provide between a minimum 272 parking spaces (based on the Housing SEPP) and maximum 433 spaces (based on DCP 2024). The proposal includes 344 spaces (including resident, visitor and car share spaces), which exceeds the minimum DCP, Housing SEPP and TfNSW requirements while remaining well below the maximum DCP threshold. The parking allocation has been carefully designed to strike a balance between meeting the objectives of the TOD program and meeting the needs of future residents and is considered appropriate from a transport and accessibility perspective.
- The development prioritises provision of sustainable transport infrastructure and includes:
  - Ability for bicycle storage within every residential storage cage and provision of 30 visitor bicycle spaces, which exceeds DCP requirements.
  - Three car share parking spaces for use by residents/ visitors.

- Future provision of electric vehicle infrastructure within all on-site resident parking spaces in accordance with DCP and NCC requirements.
- The proposal also provides an appropriate quantum of adaptable and accessible parking in accordance with DCP requirements.
- The broader project team has advised on vehicle and service/ waste requirements. Waste and servicing areas (as well as entry ramps and aisles to/ from these areas) have been designed to accommodate Council's 6.7-metre-long rear loading waste truck or 7-8-metre-long delivery trucks. The loading area is suitable for accommodating both a waste vehicle or delivery truck and two vans/ utes concurrently (under tandem arrangement). The loading provision is considered appropriate having regard to the anticipated frequency of waste collection, servicing and deliveries.
- The proposal is expected to result in a net increase of between 31 and 42 vehicle trips during the weekday peak hours. The net increase in traffic generated by the proposed development is considered minor, particularly when considering the expected approach and departure routes to the site and the likely increase in traffic at any given intersection. Traffic modelling confirms that the net increase in traffic generated by the proposed development is not expected to have a material impact on the operation of the surrounding road network.
- The car park has been designed as a User Class 1A facility, with car space dimensions and aisle widths meeting or exceeding relevant Australian Standards.
- Minor mitigation measures would be necessary to ensure a secure and functional basement car park and loading area. This includes standard management measures such as flashing warning lights, convex mirrors and associated signage and linemarking to aid daily use of the basement car park access and loading area, together with the interaction between pedestrians and vehicles throughout. These measures are typical and expected of residential flat building developments and able to be developed through design development and subject to any such conditions of consent.



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# 1 Introduction

## 1.1 Background

A State Significant Development Application (SSDA) was lodged for 259 residential apartments under application SSD-78996460. The application has since been modified in response to stakeholder comments with the development now seeking consent for demolition of existing buildings and structures on the site and construction of 252 residential apartments (with a similar affordable housing component). Specifically, the SSDA seeks development consent for:

- demolition of existing buildings and structures and removal of selected trees
- excavation & construction of a three-level basement
- construction of a residential flat building up to nine-storeys in height (RL120.45 metres) to provide 252 apartments including affordable housing, residential amenities and services
- provision of car parking spaces at basement level and bicycle parking
- provision of hard and soft landscaping
- associated works for the provision of infrastructure and servicing.

## 1.2 Purpose of this Report

This report has been prepared to:

- Respond to the requirements contained within the Secretary's Environmental Assessment Requirements (SEAR) dated 14 January 2025 and issued for the SSDA (SSD- 78996460). Specifically, this report has been prepared to respond to the traffic and transport related SEAR requirement included in Table 1.
- Respond to comments received from various stakeholders following submission including DPHI (dated 15 July 2025), SDRP (11 June 2025), and Council (dated 28 May 2025), with these summarised in Table 2 to Table 4, respectively.
- Respond to comments received from DPHI following submission of Version 5 of this report on 3 November 2025, with these summarised in Table 5.

Ason Group engaged with Council as it relates to the development to ensure alignment with strategic priorities and to incorporate any relevant feedback. Evidence of the consultation process is detailed in Appendix A, which outlines Councils recommendation that the TIA be prepared to address the relevant SEAR. Feedback has similarly been sought from TfNSW without response received at the time of writing, likely a result of the location of the site within a TOD precinct, land use type and size, and frontage local streets.



**Table 1: Traffic and transport related SEAR**

SEAR	SEAR Description	Report Section
9. Traffic, Transport and Accessibility	Provide a Transport Impact Assessment (TIA) in accordance with the processes and methodology recommended in the Guide to Transport Impact Assessment (GTIA) published by TfNSW.	The report has been prepared in accordance with the methodology detailed in GTIA.
	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.	Section 9

**Table 2: DPHI comments**

Description	Comment	Report Section/ Response
Residential amenity	16. The EIS states that residents are expected to park their bicycles within their basement storage space. Demonstrate that the storage spaces provided are large enough to accommodate bicycle parking in addition to the minimum storage area recommended by the ADG.	Section 5.2.1. Storage cages are provided in the basement, attached to resident parking spaces. Additional group bike stores are also available for residents who do not have an allocated parking space. Visitor spaces are provided on the lower ground level. Bicycle storage cages are large and vary in size, though generally are a minimum 1.3 metres wide and 2.4 metres long, which exceed the dimensional requirements necessary to accommodate a bicycle as defined by AS2890.3.
Traffic and transport	21. Confirm the location of the proposed 339 bicycle parking spaces.	Section 5.2.1. As mentioned, bicycle parking for residents can be accommodated in secure storage cages provided for each dwelling. Visitor spaces are provided on the lower ground level.
	22. The proposal provides 344 car parking spaces which is 62 spaces more than the minimum rate the Housing SEPP (282 spaces). As the site is located within walking distance of Roseville station, the number of car parking spaces should be reduced to comply with the minimum rates within the Housing SEPP. A reduction in parking should occur in conjunction with amendments to improve bin storage and waste collection arrangements.	Section 5.1. The proposed parking provision is considered acceptable given it exceeds the minimum DCP and Housing SEPP requirements and is consistent with TfNSW requirements while remaining well below the maximum DCP thresholds. Although the site benefits from proximity to public transport, which is anticipated to serve as the primary mode for weekday commuting to/ from work, the location retains a suburban character typical of family-oriented neighbourhoods where private vehicles are commonly used for weekend activities and non-work-related



		trips. As such, provision of an appropriate quantum of parking to reduce any impact to on-street parking relied upon by surrounding residents is critical.
	23. Confirm the number of car parking spaces that will be allocated to the affordable housing units.	Section 5.1. A total of 32 spaces would be allocated to the affordable housing component in accordance with the Housing SEPP.
	24. Provide a revised traffic impact assessment which incorporates the following: a) existing and proposed levels of service	Section 2 and Section 7. Modelling indicates that the proposal would have minimal impact on the operation of the surrounding road network.
	b) clarify how the net increase in vehicle trips was calculated	Section 7. Trip generation rates were based on the rates stipulated in the GTIA.
	c) confirm how the conflict of swept paths crossing over in the basement would be managed	Section 8. All aisle widths are compliant with relevant Australian Standards. With the proposal resulting in moderate traffic volumes and considering inbound/ outbound splits the possibility of two vehicles passing one another within the basement is low. Notwithstanding, the basement layout provides ample passing opportunities throughout including along circulation aisles, ramps and at the site access (noting complete independence is not required under Australian Standards).
	d) provide the estimated number of construction vehicle movements (light and heavy vehicles) anticipated for each stage of construction, provide swept path analysis demonstrating construction vehicles can enter/exit and manoeuvre on the site and assess the impact of construction vehicles on the surrounding road network.	Section 9.7. Construction vehicle numbers are currently unknown at this stage of planning and would be confirmed once a contractor is appointed. However, based on Ason Group’s knowledge of comparable projects the development is expected to produce up to 20 vehicles per hour depending on activities, which are notably lower than operational volumes (which SIDRA modelling indicates would have minimal impact on the operation of the surrounding road network). Notwithstanding, construction vehicle movements during the road network peak hours would be minimised, where practical, to reduce impacts to traffic generally. Furthermore, since the construction vehicle access strategy, staging, vehicle sizes and other construction elements, are currently unknown targeted swept paths would be completed as part of the future detailed CPTMP once these details are confirmed.



	<p>e) provide an updated Table 5 which sets out the minimum car parking requirements under the Housing SEPP. Table 5 has used different figures to calculate car parking (for example, 45 instead of 48 affordable units).</p>	<p>Section 5. This table has been updated.</p>
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**Table 3: SDRP comments**

Description	Comment	Report Section
<p>Traffic and transport</p>	<p>10. Rationalise entries, access and wayfinding to ensure this is clear for users and visitors. Suggest reviewing through the lens of the "pizza delivery test" to assess practical access, particularly for buildings along Lord Street.</p>	<p>Section 4. The vehicle and pedestrian access locations have been appropriately located to ensure visibility and convenient access for both residents and visitors unfamiliar with the site.</p>
	<p>13. Consider the potential construction impacts on existing trees and plan accordingly to maximise retention of existing trees.</p>	<p>Section 9. The future detailed CPTMP would consider reducing impact to existing trees surrounding the site during construction.</p>

**Table 4: Council comments**

Description	Comment	Report Section
<p>Vehicle access and parking</p>	<p>1. The provision of visitors parking and car share space have not been met. Given that the SEPP is silent on visitor parking requirements, Council's DCP requirements prevail. A total of 43 visitor parking spaces and four dedicated car share spaces are required.</p>	<p>Section 5. The scheme has been updated to provide three car share, and 42 visitors spaces in accordance with DCP requirements.</p>
	<p>2. The minimum sight lines for pedestrian safety as per Figure 3.3 of AS2890.1:2004 have not been demonstrated on the exit approach</p>	<p>Section 8. Sight lines at the exit driveway have been reviewed against the requirements of Figure 3.3 in AS2890.1:2004 and appropriately accommodated to ensure safe pedestrian visibility and movement. Structure adjacent to the driveway (kerbs, etc.) would remain below driver height at the property boundary.</p>
<p>Waste management</p>	<p>1. A longitudinal section through the driveway and into the basement carpark is required to clearly demonstrate that there will be 2.6 metres clear headroom along the whole of the travel path required for the small waste collection vehicle. The section must include realistic slab/beam depths, stormwater pipelines and other overhead services.</p>	<p>Section 8. The lower ground level entryway provides a vertical clearance of 3.2 metres, with a void above the entry ramp and loading area. The travel path has been assessed and confirmed to accommodate waste vehicle movements.</p>



**Table 5: DPHI comments**

Comment	Report Section
<p>Confirm the justification for the reduction in bicycle parking spaces</p>	<p>Section 5.2.1. Resident bicycle parking has reduced in response to the reduced apartment yield. However, visitor bicycle parking has increased to 30 spaces to that previously provided. Overall, the bicycle parking provision remains compliant with DCP 2024 requirements.</p>
<p>Provide further detail in Section 7.1 setting out how 24(b) was calculated. Clarify how the net increase in vehicle trips was calculated</p>	<p>Section 7.1. The existing site is currently occupied by nine residential dwellings. The net increase in traffic volumes has been calculated based on applicable traffic generation rates detailed in the GTIA 2024.</p>
<p>Address 24(c) as Appendix D shows a conflict between vehicles: Confirm how the conflict of swept paths crossing over in the basement would be managed</p>	<p>Section 8. Minor overlap of vehicle movements within car parks is acceptable on the basis that fully compliant designs allow for such minor overlaps. This is particularly relevant for residential land uses where turnover is low, users are familiar and the peak flow of vehicles limits opposing vehicle movements. Complete independence is not practical nor required under Australian Standards with no formal management measures necessary. As discussed previously:</p> <ul style="list-style-type: none"> <li>• All aisle widths are compliant with relevant Australian Standards.</li> <li>• The proposal would generate low traffic volumes and when considering inbound/ outbound splits the possibility of two vehicles passing within the basement is low.</li> <li>• The basement layout provides ample passing opportunities throughout including along circulation aisles, ramps and at the site access.</li> </ul>
<p>Address 24(d) and set out the difference between light and heavy vehicles and provide swept paths: Provide the estimated number of construction vehicle movements (light and heavy vehicles) anticipated for each stage of construction, provide swept path analysis demonstrating construction vehicles can enter/exit and manoeuvre on the site and assess the impact of construction vehicles on the surrounding road network</p>	<p>Section 9.5 and Section 9.7. As discussed, detailed information on construction vehicle volumes are unknown at this stage of planning. This is common and accepted and typically documented as part of a detailed CPTMP as part of construction certification and once a contractor is appointed. However, based on our knowledge of comparable projects, the proposal is anticipated to generate up to 20 construction vehicles per hour depending on specific activities and staging. These volumes are noticeably less than the estimated operational volumes (which SIDRA modelling indicates would have minimal impact on the operation of the surrounding road network). On-site construction worker parking would not be provided with all workers encouraged to utilise the available public transport to/ from the site. As such, light vehicle movements during peak hours are expected to be low. Similarly, the detailed construction vehicle access strategy, works staging and construction vehicle sizes are currently unknown. Targeted construction vehicle swept paths would be completed as part of the future detailed CPTMP once such details are known. The site comprises nine individual lots and is therefore appropriately sized to accommodate on-site vehicle loading during construction.</p>



Comment	Report Section
	Construction vehicle movements would be minimised during peak hours to reduce any impact to the surrounding road network.
Note the plans include a 6.64m waste truck, confirm that Council's 6.7m waste truck would comply. Confirm how the conflict between cars and the bin tug is proposed and the conflict between cars and the waste collection truck	<p>Section 8.</p> <p>The swept path accurately captures the 6.7m waste truck (noting the minor discrepancy of six centimetres would not materially change the required turning path).</p> <p>Bin tugs would be used to transport waste bins to/ from collection areas. This would be completed outside peak periods to avoid any conflict with residents. Notwithstanding, the bin tug is small and would not conflict with vehicles at any stage. They would also be active during the day, at times when traffic volumes are lower than during peak periods.</p> <p>Typical measures such as flashing warning lights, convex mirrors and associated signage would facilitate appropriate use of the loading area and interaction between pedestrians and light vehicles, especially for manoeuvring waste and delivery trucks. Notwithstanding, building management could similarly assist with waste vehicle entry/ exit.</p>

This report sets out an assessment of the anticipated transport implications of the development, including consideration of the following:

- existing transport conditions surrounding the site
- active travel connectivity and pedestrian and bicycle requirements
- strategic context of the Roseville Transport Oriented Development program
- summary of the proposal
- suitability of the proposed parking supply, access strategy and overall layout
- green travel initiatives to encourage alternate modes of transport to/ from the site
- traffic generating characteristics of the proposed development
- transport impacts on the surrounding networks
- review of the car parking, waste collection and loading layouts
- overview construction traffic management strategies.

### 1.3 References

In preparing this report, reference has been made to the following:

- Ku-ring-gai Development Control Plan (DCP) 2024
- Ku-ring-gai Local Environmental Plan (LEP) 2015
- Australian Standard, Parking Facilities, Part 1: Off-Street Car Parking AS2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS2890.2:2018
- Australian Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS2890.6:2022
- Guide to Transport Impact Assessment, 2024, TfNSW
- Guide to Traffic Generating Developments, 2002, TfNSW
- Architectural plans for the proposed development prepared by Fender Katsalidis



- Ku-ring-gai Bike Plan, 23 November 2012, GHD
- Transport Oriented Development Program, January 2024, NSW Government
- Liveable Housing Design Guideline, Liveable Housing Australia, 2017.

## 2 Existing Conditions

### 2.1 Site Overview

The site is located at 16-24 Lord Street and 21-27 Roseville Avenue, Roseville within the Ku-ring-gai Local Government Area (LGA). The site has a site area of 0.94 hectares and is legally described as the Lot 9 DP1046734, Lot 14 to 17 and Lot 64 to 66 Section B DP3277, Lot 1 DP104781, and Lot 18 DP1173328.

The urban context surrounding the site is characterised by low-density residential development and Roseville Local Centre. The surrounding locality is described as follows:

- To the north the site is bounded by Roseville Avenue. Existing development consists of low-density residential uses, beyond which is Roseville Park and the suburb of Lindfield.
- To the east the site is bounded by Martin Lane which separates the site from low density residential development consisting of detached single and two storey dwellings beyond which is the Roseville Presbyterian Church.
- To the south the site is bounded by Lord Street. Development consists of low-density residential uses, beyond which is Roseville College, Bancroft Park and Roseville Lawn Tennis Club. Boundary Street is situated approximately 450 metres to the south.
- To the west of the site are low and medium residential uses including three storey walk up flat buildings, beyond which is Roseville Local Centre (Hill Street Precinct) which accommodates a mixture of local scale commercial, retail and health care facilities as well as Roseville train station.

The site is situated within convenient walk of Roseville Railway Station (200 metres), with existing pedestrian access to the station available from Roseville Avenue and Lord Street. Regular train services are available to North Sydney, Chatswood and Sydney CBD to the south, and Hornsby to the north with a direct connection to the Sydney Metro available at Chatswood Station. Bus services are also available on Pacific Highway providing services to Chatswood, Sydney CBD and the wider Kur-ring-gai locality.

The existing development consists of nine detached residential dwellings. There are several large trees and vegetation located throughout the site.

An aerial view of the site is shown in Figure 1, with the broader context presented in Figure 2.



Figure 1: Site Location

Source: Urbis



Figure 2: Local Context

Source: Urbis

## 2.2 Surrounding Road Network

The key local roads near the site include Lord Street, Roseville Avenue, and Martin Lane, with key collector and sub-arterial/arterial roads surrounding the site including Pacific Highway, Boundary Street and Archbold Road.

### 2.2.1 Lord Street and Roseville Avenue

Lord Street and Roseville Avenue are both local roads aligned in an east-west direction along the southern and northern boundaries of the site, respectively. They connect with Archbold Road to the east (a key collector road through Roseville) and Hill Street to the west (a key local road through Roseville town centre and adjacent to the rail corridor). The roads provide local area access to surrounding residential dwellings as well as local businesses closer to the town centre.

They are two-way roads configured with one travel lane in each direction, set within an approximately 13-metre-wide carriageway. Kerbside parking is permitted on both sides and generally comprise both unrestricted and time-restricted parking, particularly closer to the town centre and train station. Both roads have a posted speed limit of 50 kilometres per hour.

### 2.2.2 Martin Lane

Martin Lane is local laneway aligned in a north-south direction along the eastern boundary of the site. It intersects with Lord Street to the south and Roseville Avenue to the north and has a carriageway width of 7.5 metres with a footpath provided on the eastern side. Unrestricted kerbside parking is provided on both sides of the laneway. The laneway primarily provides access to some residential properties.

### 2.2.3 Pacific Highway

Pacific Highway is a classified State Road functioning as an arterial road and is orientated in a north-south direction near the site. It is a major highway travelling through Sydney extending north towards Newcastle, Port Macquarie and beyond. Near the site it is the key north-south spine through Roseville providing connection to Hornsby to the north and south towards North Sydney (where it connects to the Bradfield Highway providing a route over the Sydney Harbour Bridge into the Sydney CBD). Near the site Pacific Highway provides three travel lanes in each direction, separated by a central median, and set within an 18-metre-wide carriageway. Kerbside parking is generally not permitted on either side of the road (subject to clearway restrictions).

Pacific Highway has a posted speed limit of 60 kilometres per hour.

### 2.2.4 Boundary Street

Boundary Street is a classified State Road functioning as a sub-arterial road and orientated in an east-west direction near the site. It intersects with Pacific Highway south-west of the site and extends east towards Roseville Chase. Boundary Street forms a key route for those travelling to/ from the Northern Beaches LGA. Near the site Boundary Street contains two travel lanes in each direction set within a 12-metre-wide carriageway.

Boundary Street has a posted speed limit of 60 kilometres per hour and kerbside parking is not permitted on either side of the road.

## 2.3 Public Transport

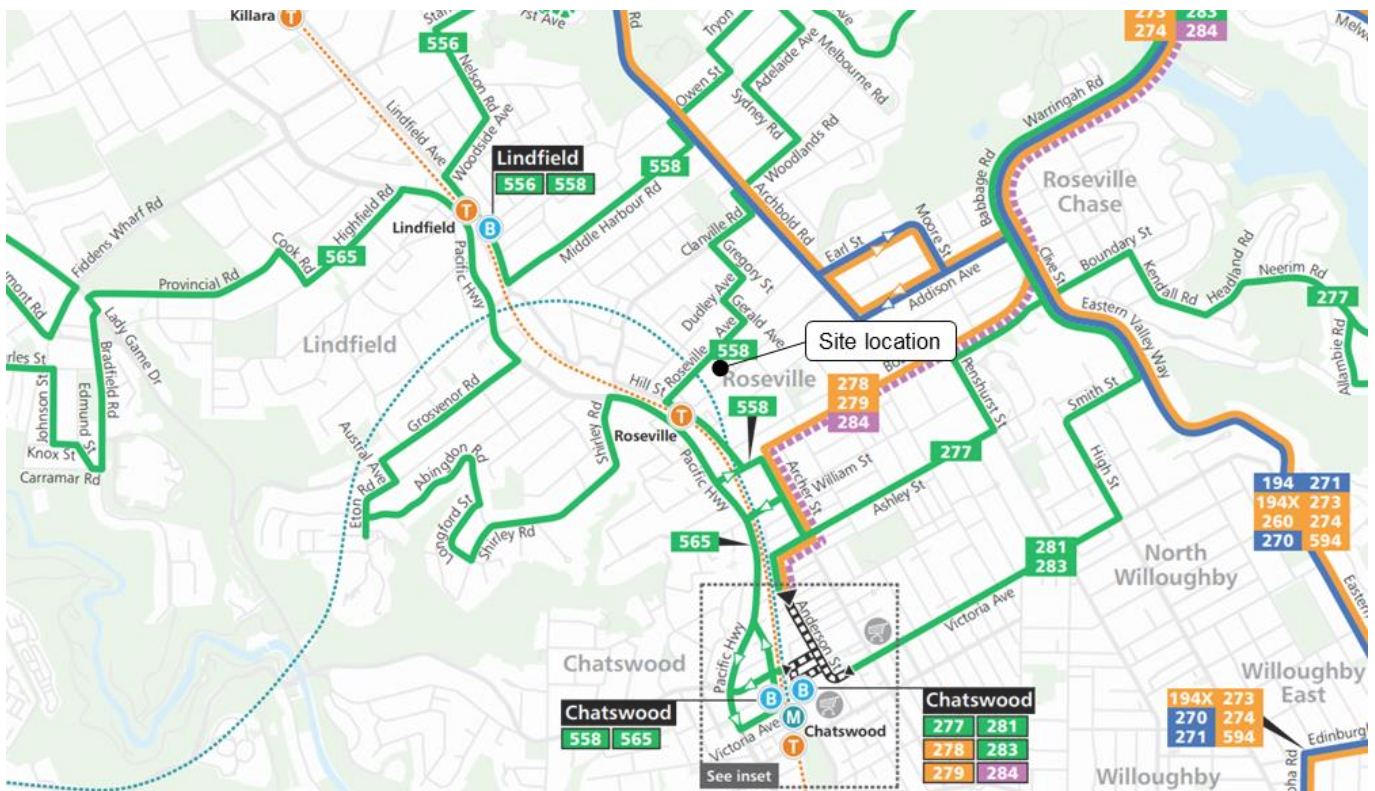
The site has excellent access to high frequency and well-connected public transport networks being located about 200 metres to the east of Roseville Station and nearby to bus routes through the Roseville local centre and along the Pacific Highway. Regular train services are available to North Sydney, Chatswood and Sydney CBD to the south, and Hornsby to the north with a direct connection to the Sydney Metro available at Chatswood Station which in turn connects to other key employment centres such as Macquarie Park and North Ryde. Bus services are also available on Pacific Highway providing services to Chatswood and Sydney CBD.



The surrounding public transport services are summarised in Table 6, with the local bus network relative to the site shown in Figure 3.

**Table 6: Surrounding public transport services**

Mode	Route Number	Description	Frequency (peak/ off-peak)
Train	T1	North Shore & Western Line	5 mins/ 10 mins
	T9	Northern Line	5 mins/ 10 mins
Bus	558	Chatswood to Lindfield	60 mins
	565	Macquarie University to Chatswood	15 mins/ 30 mins



**Figure 3: Surrounding Public Transport Network**

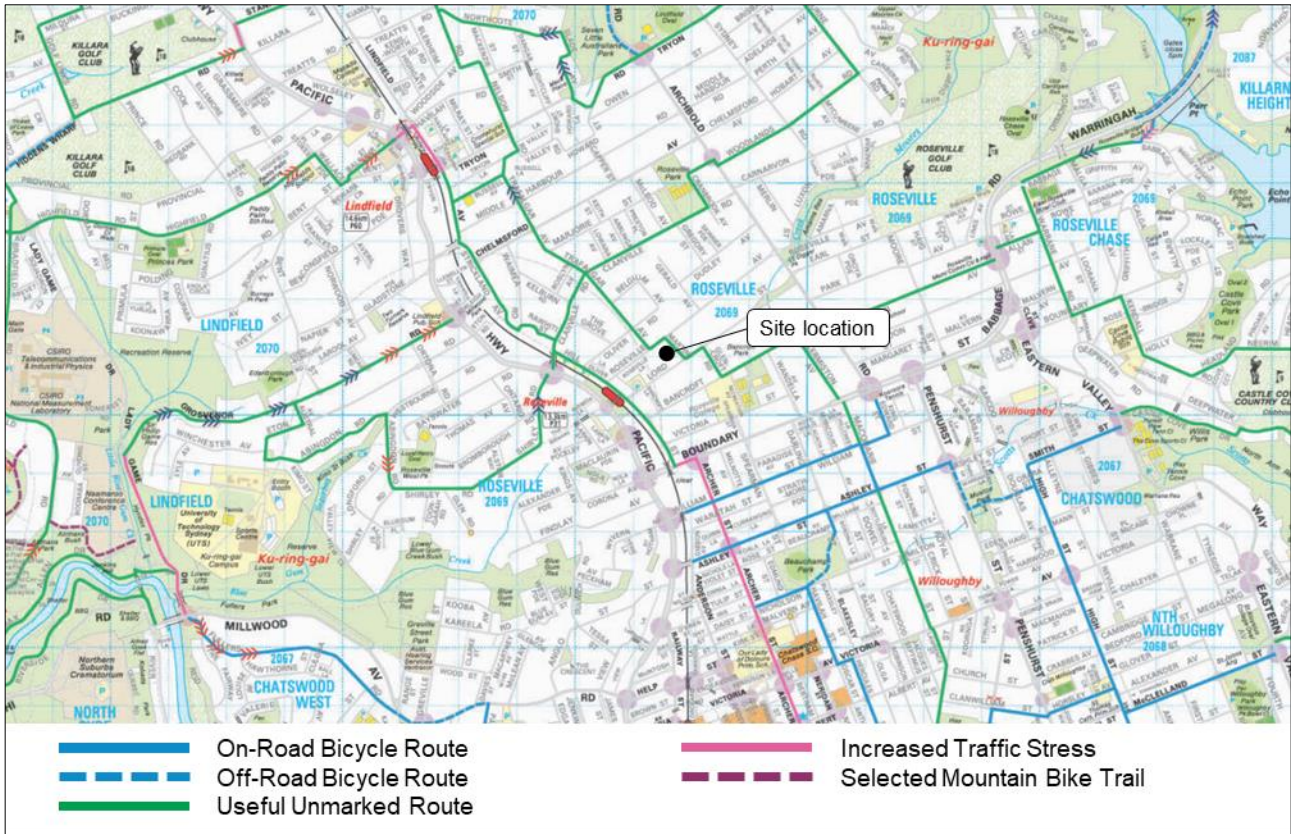
Base image source: [CDC NSW](#)

## 2.4 Active Transport

The surrounding area has well-established footpaths which are typically provided on both sides of most surrounding streets.

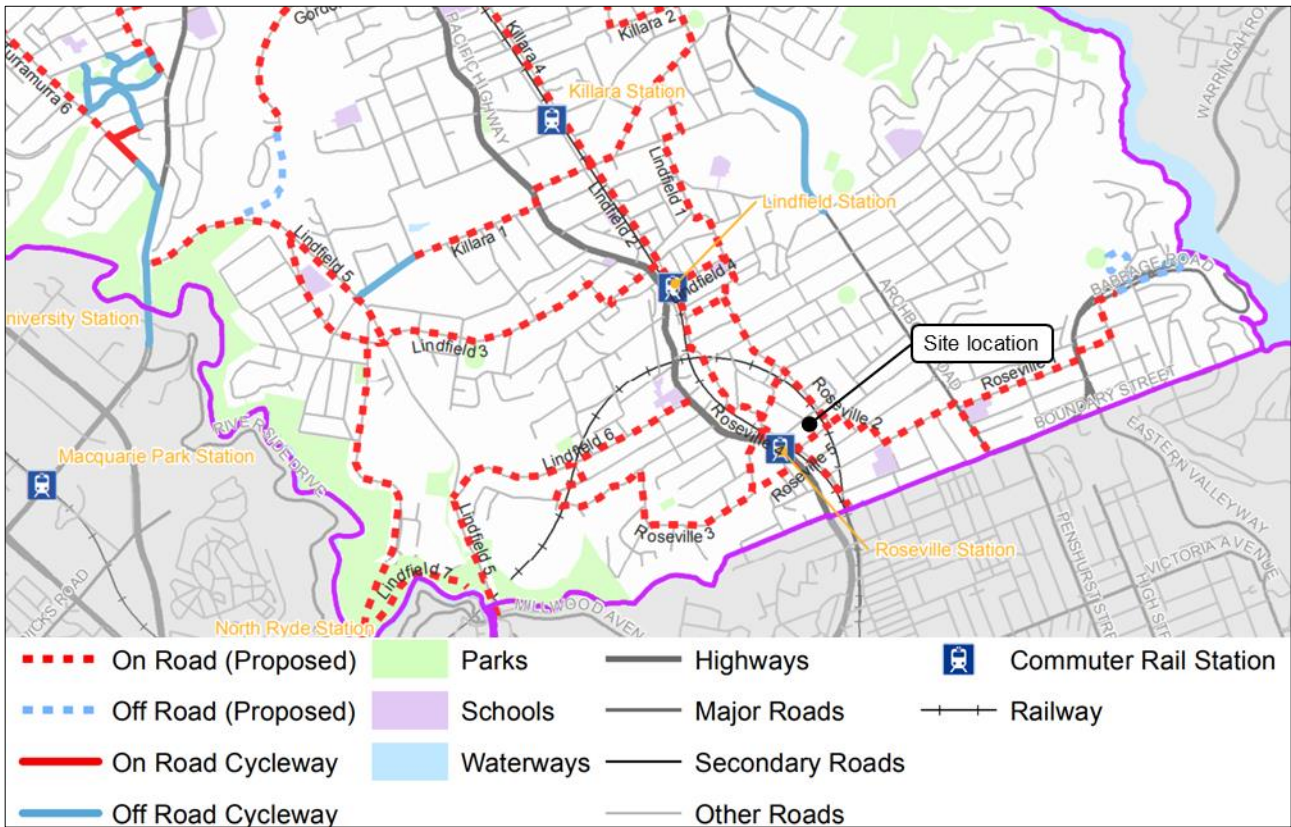
Dedicated cycling infrastructure and paths are currently limited near the site, although segments of Lord Street, Roseville Avenue and Martin Lane have been identified in the Ku-ring-gai cycleways map as unmarked cycling routes due to the favourable on-road conditions (low vehicle speeds, traffic volumes, road grades, etc.), as shown in Figure 4.

Ku-ring-gai Council (Council) has also released a long-term bike plan, which was prepared by GHD in 2012 (titled Ku-ring-gai Bike Plan, dated 23 November 2012). The bike plan proposed on-road cycling paths through the Roseville local centre and along Lord Street, as shown in Figure 5.



**Figure 4: Surrounding Cycling Network – Existing**

Base image source: Cycling Map, Ku-ring-gai Council



**Figure 5: Council Bike Plan**

Base image source: Appendix B of the Ku-ring-gai Bike Plan prepared by GHD dated 23 November 2012

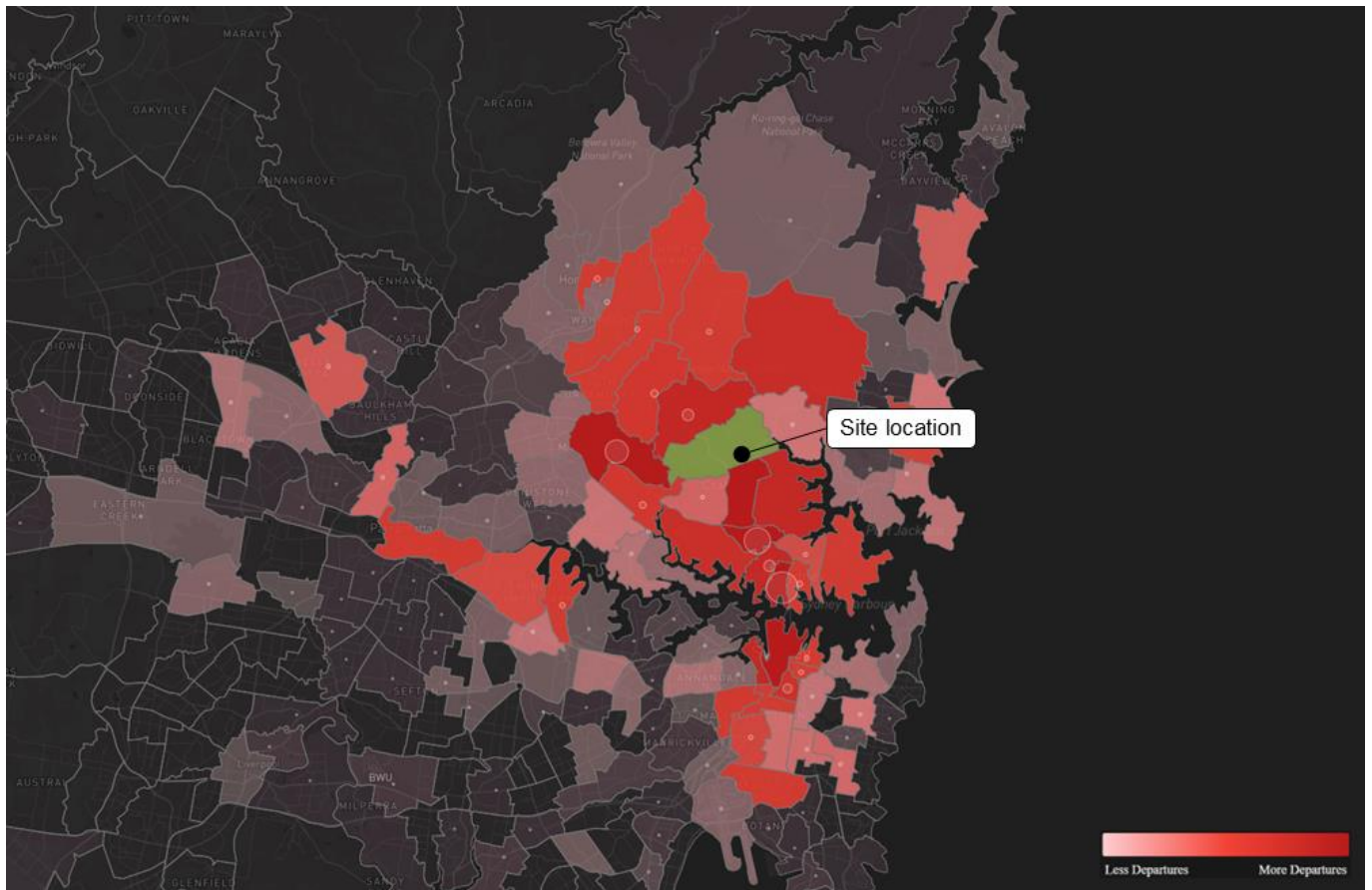
## 2.5 Existing Travel Behaviours

The 2016 Australian Bureau of Statistics (ABS) journey to work data for existing residents in the Statistical Area 2 area surrounding the site is provided in Table 7, with the primary locations of work shown in Figure 6. Given the impacts of the COVID-19 pandemic on travel patterns, reference was not made to 2021 ABS journey to work data.

**Table 7: ABS journey to work (from the statistical area) – 2016**

Mode of Travel	Mode Share [1]
Car (as driver & passenger)	56%
Train	34%
Bus	5%
Walk	4%
Cycle	1%

[1] Not considering those that worked at home or didn't work.



**Figure 6: Place of Work**

Base image source: Ason Group

The ABS data indicates that in 2016, most residents living within the surrounding Statistical Area 2 area used either private vehicle or public transport to travel to work, accounting for 56 per cent and 39 per cent of all journeys, respectively. Walking and cycling accounted for five per cent. The following approximate breakdown is provided for resident places of work:

- 30 per cent in Sydney CBD and immediate areas (Redfern, Surry Hills, Pyrmont, Ultimo, Darlinghurst, Chippendale, Alexandria, etc.).

- 16 per cent within the Lindfield/ Roseville Statistical Area (i.e., work and live in the same area) which would largely include businesses along the Pacific Highway corridor and adjacent town centres.
- Nine per cent in Chatswood/ Artarmon.
- Five per cent toward Pymble, Turramurra, Gordon, Killara, Wahroonga and other adjacent areas.
- Five per cent around the North Sydney.
- Five per cent around St Leonards and Naremburn.
- Five per cent within Ryde, Macquarie, Macquarie Park and Marsfield.
- Three per cent towards Forestville/ Killarney Heights, Frenchs Forest and towards the Northern Beaches.
- Remainder distributed toward other areas of Sydney including Parramatta and the Eastern Suburbs.

## 2.6 Existing Surrounding Traffic Volumes

### 2.6.1 Historic Traffic Counter Data

Publicly available data on traffic volumes has been accessed from the TfNSW Traffic Volume Viewer. Permanent traffic counter stations are located nearby on the Pacific Highway both north and south of the site. The locations are shown in Figure 7, with details summarised in Table 8.



**Figure 7: Location of Permanent Traffic Counters**

Base image source: TfNSW Traffic Volume Viewer

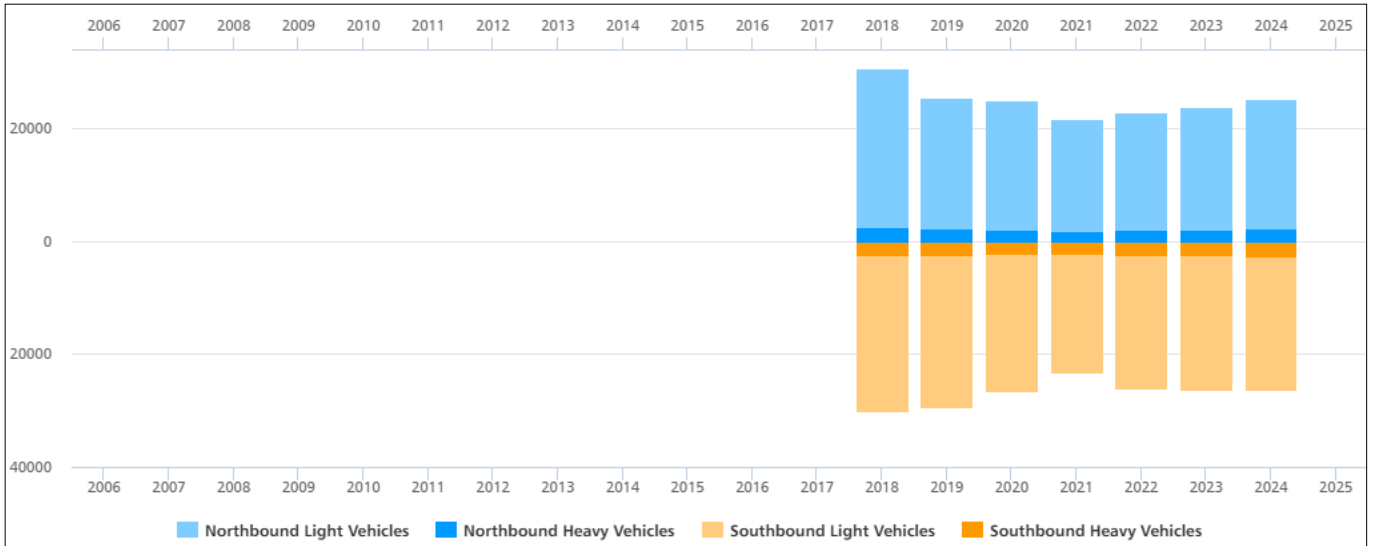
**Table 8: Traffic Counter Details**

Station Id	Road	Location	Data Collection Period
33014	Pacific Highway	80m south of Mowbray Road, Lane Cove North	2018-2025
53004	Pacific Highway	40m north of McIntyre Street, Gordon	2009-2025

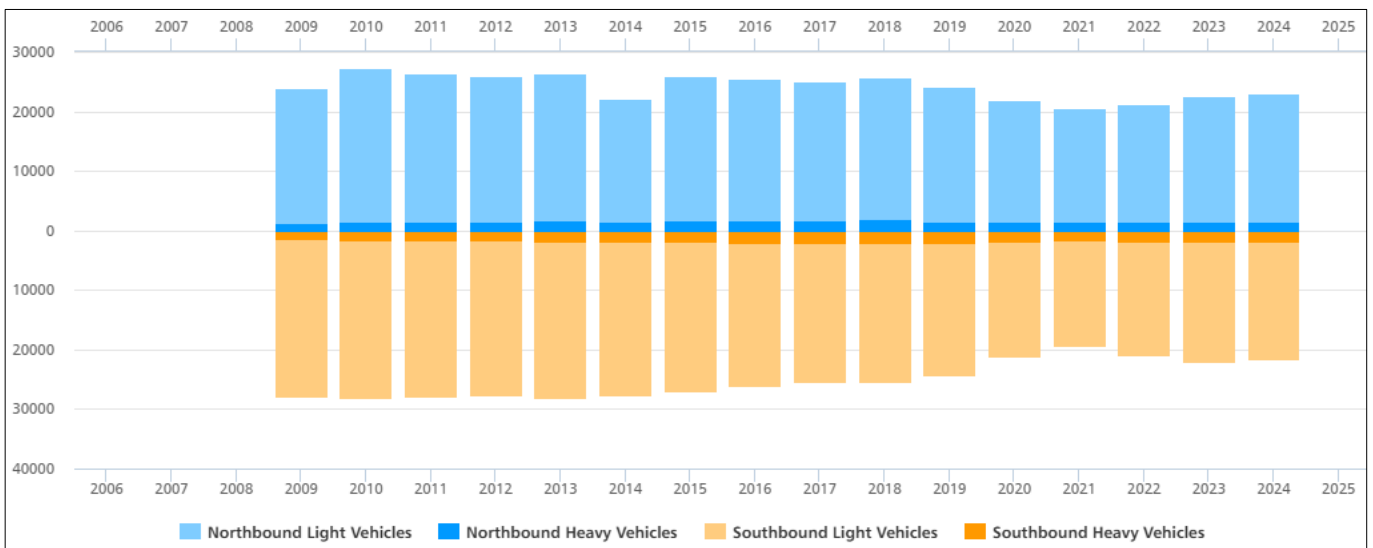


The Pacific Highway carried two-way weekday Average Daily Traffic (ADT) volumes of around 54,000 vehicles near Lane Cove (counter south of the site) and 45,500 vehicles near Gordon (counter north of the site) in 2024.

The ADT volumes for both directions of travel are summarised in Figure 8 and Figure 9 for the traffic counters at Lane Cove North and Gordon, respectively. The data indicates that traffic volumes have generally been consistent across the data collection periods with a general reduction since 2018-19 associated with the post post-pandemic period. This is reflective of the well documented changes in travel patterns, time of day demand, overall travel behaviour and work-from-home arrangements.



**Figure 8: Pacific Highway in Lane Cove North (ID 33014) ADT Weekday Volumes**



**Figure 9: Pacific Highway in Gordon (ID 53004) ADT Weekday Volumes**

Source: TfNSW Traffic Volume Viewer

### 2.6.2 Existing Traffic Volumes

Ason Group commissioned intersection counts surrounding the site on 27 March 2025 between 7:00am and 10:00am and 2:30pm and 6:00pm. The surveyed intersections cover all key approach and departure routes that site generated traffic would likely use daily. The surveyed intersections are as follows, and shown in Figure 10:

- Hill Street/ Lord Street (priority-controlled)
- Hill Street/ Boundary Street (priority-controlled)



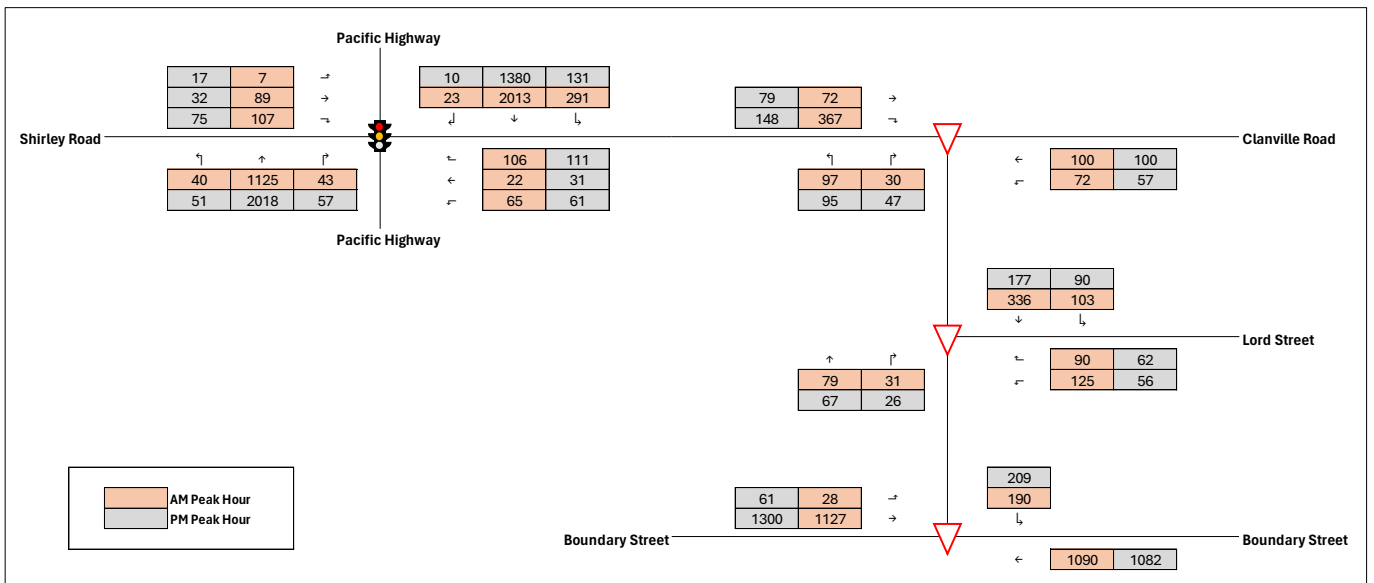
- Hill Street/ Clanville Road (priority-controlled)
- Pacific Highway/ Clanville Road/ Shirley Road (signalised).



**Figure 10: Surveyed Intersections**

Base image source: <https://www.openstreetmap.org>

The peak hours were between 7:30am and 8:30am and 4:45pm and 5:45pm, with the volumes summarised in Figure 11 and survey data included in Appendix B. A site visit was also completed at the time of the surveys to observe overall intersection operation (queues, delays, etc.) and general traffic conditions in the study area. This also allows for accurate calibration of the SIDRA model.



**Figure 11: AM/ PM Peak Hour Traffic Volumes**



## 2.7 Existing Intersection Performance

SIDRA INTERSECTION modelling has been completed to establish the baseline operation of the study intersections. In this regard, the modelling outputs include a range of performance measures relevant to this assessment, including:

- Degree of Saturation (DOS) – The DOS is used to measure the performance of intersections relating traffic volumes to capacity, where a value of 1.0 represents an intersection at theoretical capacity.
- Average Vehicle Delay (AVD) – The AVD (or average delay per vehicle in seconds) for intersections also provides a measure of the operational performance and is used to determine an intersection’s Level of Service (see below). For signalised intersections, the AVD reported relates to the average of all vehicle movements through the intersection. For priority (Give Way, Stop & Roundabout controlled) intersections, the AVD reported is that for the movement with the highest AVD.
- Level of Service (LOS) – This is a comparative measure that provides an indication of the operating performance, based on AVD.

Table 9 shows the criteria that SIDRA adopts in assessing level of service.

**Table 9: Level of Service Criteria for Intersections**

Level of Service	Average Delay per Vehicle (sec/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity, at signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

The SIDRA modelling results related to the existing intersection operation are detailed in Table 10 with movement summaries included in Appendix C. The results indicate the following:

- The Pacific Highway/ Clanville Road/ Shirley Road intersection currently operates at an acceptable Level of Service B/C in the weekday AM and PM peak hours. The Pacific Highway experiences queuing during the peak hours and is common for major intersections having regard to the traffic volumes and the function as a key arterial road.
- The remaining intersections all operate well at LOS A during both peak hours, with spare capacity.



**Table 10: Base Intersection Operation**

Intersection	Peak	DOS	AVD (sec)	95 <sup>th</sup> Percentile Queue (m)	LOS
Pacific Highway/ Clanville Road/ Shirley Road	AM	0.73	29.1	285	C
	PM	0.90	21.6	344	B
Hill Street/ Clanville Road	AM	0.28	7.2	10	A
	PM	0.14	5.8	4	A
Hill Street/ Lord Street	AM	0.24	19.5	7	A
	PM	0.14	11.7	3	A
Hill Street/ Boundary Street	AM	0.21	6.1	5	A
	PM	0.24	6.2	6	A

## 3 Strategic Context

### 3.1 Roseville Transport Orientated Development

The NSW Government Transport-Oriented Development (TOD) initiative was established to address housing shortages by focusing on creating high-density, mixed-use and residential developments around public transport hubs, such as train stations, light rail stops, and major bus interchanges. The goal is to promote sustainable urban growth, reduce car dependency and enhance access to public transport, services and employment opportunities.

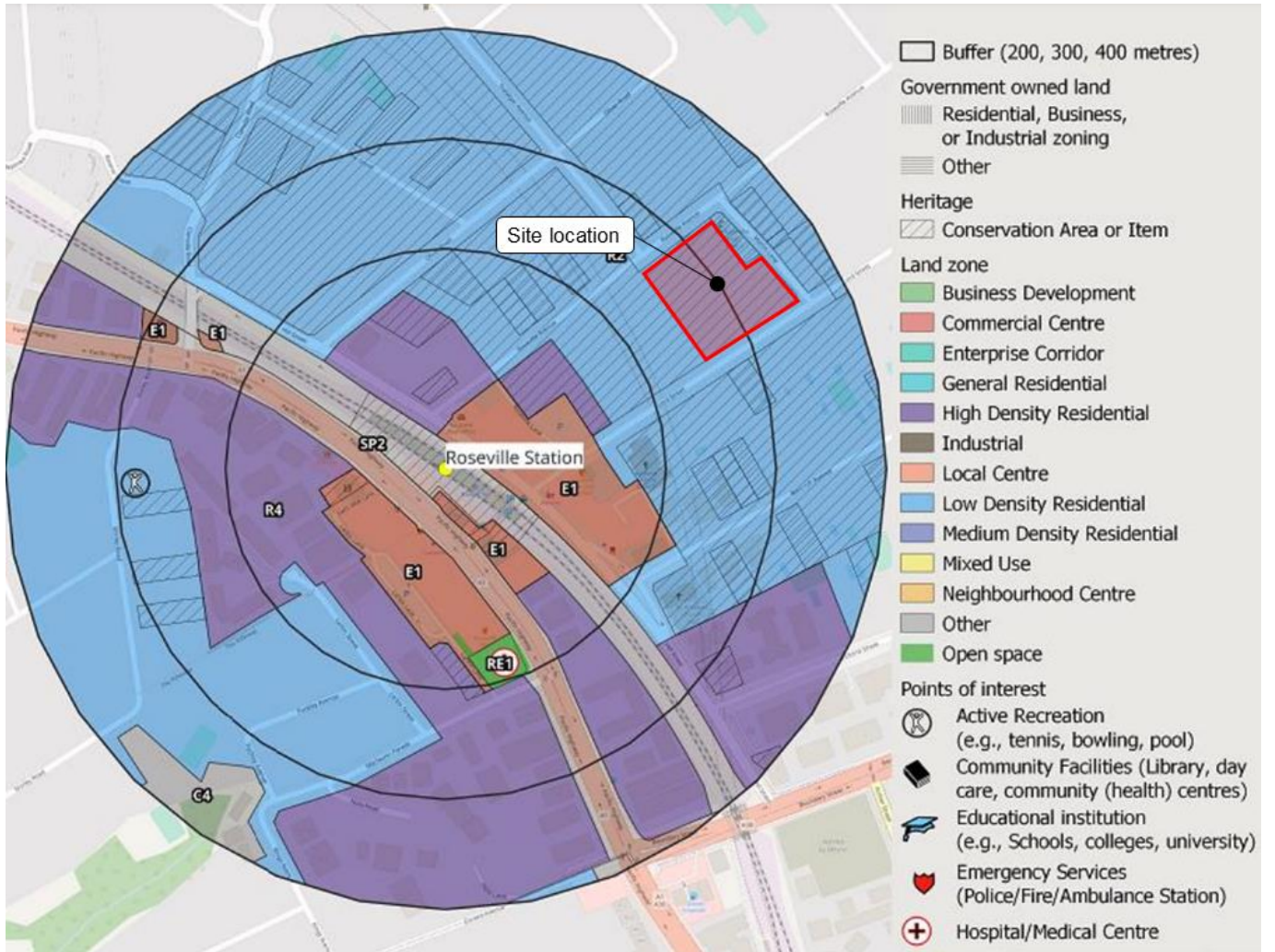
In April 2024, the TOD planning controls commenced for the Roseville precinct with other nearby precincts identified within Ku-ring-ga LGA including Lindfield, Killara, and Gordon. A new section was added to the State Environmental Planning Policy (Housing) 2021 (Housing SEPP) to introduce new planning controls for TODs which applies to sites within 400 metres of these well-connected stations and town centres. The changes permit:

- Residential apartment buildings in all residential zones (R1, R2, R3, and R4) within 400 metres of identified stations.
- Residential apartment buildings and shop-top housing in local and commercial centres (E1 and E2) within 400 metres of identified stations.

Specifically, some key changes to planning controls include the following:

- Permits residential flat buildings up to 22 metres (approximately 6 storeys) and shop-top housing up to 24 metres.
- Sets a maximum FSR of 2.5:1, facilitating mid-rise development.
- Mandates a two per cent affordable housing contribution for developments with a gross floor area (GFA) of at least 2,000 square metres.
- Sets minimum car parking rates for affordable housing as follows:
  - One bedroom dwelling: 0.4 parking spaces per dwelling
  - Two-bedroom dwelling: 0.5 parking spaces per dwelling
  - Three or more-bedroom dwelling: 1.0 parking spaces per dwelling.

The Roseville TOD precinct and site location in this context is shown in Figure 12.



**Figure 12: Roseville TOD Precinct**

Source: Transport Oriented Development Program, NSW Government, January 2024

# 4 Development Proposal

## 4.1 Overview

The proposal incorporates construction of an in-fill affordable housing residential development at 16-24 Lord Street and 21-27 Roseville Avenue, Roseville. Specifically, the proposal includes:

- construction of 252 residential apartments in buildings up to nine storeys in height, according to the following breakdown:
  - 29 1-bedroom apartments
  - 112 2-bedroom apartments
  - 101 3-bedroom apartments
  - 10 4-bedroom apartments
- provision of 30,248 square metres GFA
- provision of 344 basement car parking spaces including 302 resident spaces and 42 visitor spaces as well as an adequate provision of bicycle parking
- provision of 55 affordable housing units in a mix of apartments
- provision of residential amenities and services on site, including swimming pool, gym, lounge, media and games rooms and kids' club
- retention of existing significant trees and provision of landscape planting
- provision of central courtyard.

The purpose of the project is to deliver high quality market and affordable housing within convenient walking distance of Roseville Station and aims to align with the new TOD planning controls added to the Housing SEPP.

The lower ground floor layout is presented in Figure 13.





# 5 Parking Assessment

## 5.1 Parking Requirements

### 5.1.1 Resident and Visitor Car Parking

The parking assessment has referenced several guidelines including:

- **Housing SEPP:** Provides parking rates for in-fill affordable housing (both the affordable and non-affordable component of the building).
- **Ku-ring-gai Council DCP 2024:** Provides minimum and maximum parking rates for residential developments within 800 metres of a train station.
- **TfNSW Guide to Traffic Impact Assessments (GTIA) 2024:** Provides parking rates for residential developments based on proximity to strategic centres and/ or public transport services, car mode share data, and population density.

Chapter 2 of the Housing SEPP provides parking rates for affordable housing (both the affordable and non-affordable component of the building). However, the newly added Chapter 5 which applies to TODs also details that the Apartment Design Guide is the guiding document for developments within TOD locations. Notably, the Apartment Design Guide specifies that for developments within 800 metres of a railway station in the Sydney Metropolitan Area, the minimum car parking requirements for residents and visitors are set out in either the TfNSW Guide to Traffic Generating Developments (which has now been superseded by the GTIA 2024), or the car parking requirement prescribed by the relevant council, whichever is less.

As such this assessment has considered the following scenarios when determining the appropriate car parking provision for the site:

- **Scenario 1:** Housing SEPP rates applied to both the affordable and non-affordable component of the development.
- **Scenario 2:** DCP parking rates applied to the development, noting the DCP provides both minimum and maximum parking rates.
- **Scenario 3:** TfNSW GTIA 2024 parking rates applied to the development.

The parking rates according to each guideline are provided in Table 11 to Table 13.

**Table 11: Housing SEPP parking requirements – minimum**

Size	Apartment Yield		Parking Rate (spaces/ dwelling)		Parking Requirement (spaces)	
	Non-Affordable	Affordable [1]	Non-Affordable	Affordable	Non-Affordable	Affordable
1-bed	14	15	0.50	0.40	7	6
2-bed	84	28	1.00	0.50	84	14
3-bed	89	12	1.50	1.00	134	12
4-bed	10	0	1.50	1.00	15	0
Visitor [2]	-	-	N/A	N/A	0	0
<b>Total</b>					<b>240 spaces</b>	<b>32 spaces</b>

[1] For the purposes of this assessment it has been assumed that affordable housing has been proportionately distributed across the dwelling mix.

[2] SEPP (Housing) 2021 does not formally include the need for visitor parking.



**Table 12: DCP parking requirements – minimum & maximum**

Size	Yield	Parking Rate (spaces/ dwelling)		Parking Requirement	
		Minimum	Maximum	Minimum	Maximum
1-bed	29	0.60	1.00	17	29
2-bed	112	1.00	1.25	112	140
3-bed	101	1.40	2.00	141	202
4-bed	10	1.40	2.00	14	20
Visitor	-	0.17	0.17	42	42
<b>Total</b>				<b>326 spaces</b>	<b>433 spaces</b>

**Table 13: TfNSW parking requirements - minimum**

Size	Yield	Parking Rate (spaces/ unit)	Parking Requirement
1-bed	29	0.60	17
2-bed	112	0.90	101
3-bed	101	1.40	141
4-bed	10	1.40	14
Visitor	-	0.20	50
<b>Total</b>			<b>323 spaces</b>

On this basis the proposal is required to provide between a minimum 272 parking spaces (based on the Housing SEPP) and a maximum 433 spaces (based on the DCP maximum). The proposal provides 344 parking spaces (including 302 resident and 42 visitor spaces). A total of 32 spaces would be allocated to the affordable housing component in accordance with the Housing SEPP. A total of 42 visitor parking spaces is provided on the lower ground which aligns with DCP requirements.

The proposed parking provision is considered acceptable given it exceeds the minimum DCP and Housing SEPP requirements and is consistent with TfNSW requirements while remaining well below the maximum DCP thresholds. It is important to consider the character of surrounding land uses and the anticipated travel patterns of future residents. Although the site benefits from proximity to public transport, which is anticipated to serve as the primary mode for weekday commuting to/ from work, the location retains a suburban character typical of family-oriented neighbourhoods where private vehicles are commonly used for weekend activities and non-work-related trips. As such, provision of an appropriate quantum of parking to reduce any impact to on-street parking relied upon by surrounding residents is critical.

Overall, the proposed parking allocation has been carefully considered and strikes a balance between meeting the objectives of the TOD, recognising Council DCP requirements and considering the daily needs of future residents.

**5.1.2 Accessible/ Adaptable Car Parking**

The DCP stipulates that all dwellings within residential flat building developments are to be of Silver Level and 15 per cent of those are to be designed to a Platinum Level as detailed in the Liveable Housing Design Guideline. Platinum Level dwellings represent the highest standard for accessibility and adaptability in residential design with the DCP stating that each Platinum Level dwelling should be provided with an accessible car space. With the proposal including 38 Platinum Level units and 38 accessible spaces, this satisfies DCP provisions.

The DCP also stipulates that at least one accessible parking space should be provided for use by visitors. With three visitor accessible parking spaces provided on the lower ground floor, this exceeds these requirements.

### 5.1.3 Motorcycle Parking

The DCP stipulates that motorcycle parking is to be provided at a rate of one space for every 50 car parking spaces or part thereof for developments with on-site parking totalling more than 50 car spaces. With provision of 344 car parking spaces, seven motorcycle spaces are required, which is met by an equivalent provision.

## 5.2 Sustainable Transport Infrastructure

### 5.2.1 Bicycle Parking

DCP 2024 requires one bicycle space per dwelling for residents and one space per 10 dwellings for visitors. In this regard, the proposed development is required to provide 277 bicycle spaces (252 for residents and 25 for visitors).

The resident spaces are accommodated within the secure storage cages provided for each dwelling. The storage cages are large and vary in size, though generally are a minimum 1.3 metres wide and 2.4 metres long, which exceed the dimensional requirements necessary to accommodate a bicycle as defined by AS2890.3 (with typical storage cage details provided in the architectural plans). The proposal includes 30 visitor bicycle parking racks which will be located on the lower ground floor within an accessible central bike storage area.

The proposed bicycle parking facilities supports the ongoing adoption of cycling as a practical means of daily travel. With future cycle paths on Lord Street and other surrounding local roads identified in Council's Bike Plan (shown in Figure 5), the provision allows for further growth in cycling travel mode share compared to existing conditions.

### 5.2.2 Car Share

The benefits of car share systems are well recognised and provide the convenience of car use without the responsibility (and cost) of personal ownership, while also supporting broader sustainable travel objectives. Research suggests that a single car share vehicle can replace up to 10 private vehicles and on average services 23 members, which would naturally and meaningfully support residents.

DCP 2024 specifies that at least one car share space should be provided per 90 dwellings. With 252 dwellings, three car share spaces are required, which is met with an equivalent provision. This would ensure quality provision for residents who do not require daily use of a private vehicle and further incentivise lower car ownership and encourage more sustainable travel habits of future residents.

### 5.2.3 Electric Vehicle Charging

DCP 2024 states that all parking bays are to be electric vehicle (EV) ready with design and construction (provision for conduits, switchboards, etc.) to enable future installation of EV charging points. This is also consistent with Clause J9D4 of the National Construction Code (NCC) which stipulates a development should be constructed to support the future installation of a 7kW (32A) Type 2 electric vehicle charge in 100 per cent of the car parking spaces associated with a Class 2 building.

The development would ensure compliance with both DCP and NCC requirements in regard to EV charging facilities.

## 5.3 Loading and Waste Collection Facilities

As advised by the broader project team as it relates to vehicle and service/ waste requirements, the site and entry ramp has been designed to accommodate a 6.7 metre rear loading waste truck, and a range of service vehicles up to 7-8 metres long.

The loading area would also provide for resident move-in/ move-out activity and is located close to the southern lift core. The average residential apartment turnover rate is approximately 0.74 per cent of all apartments in any given week.

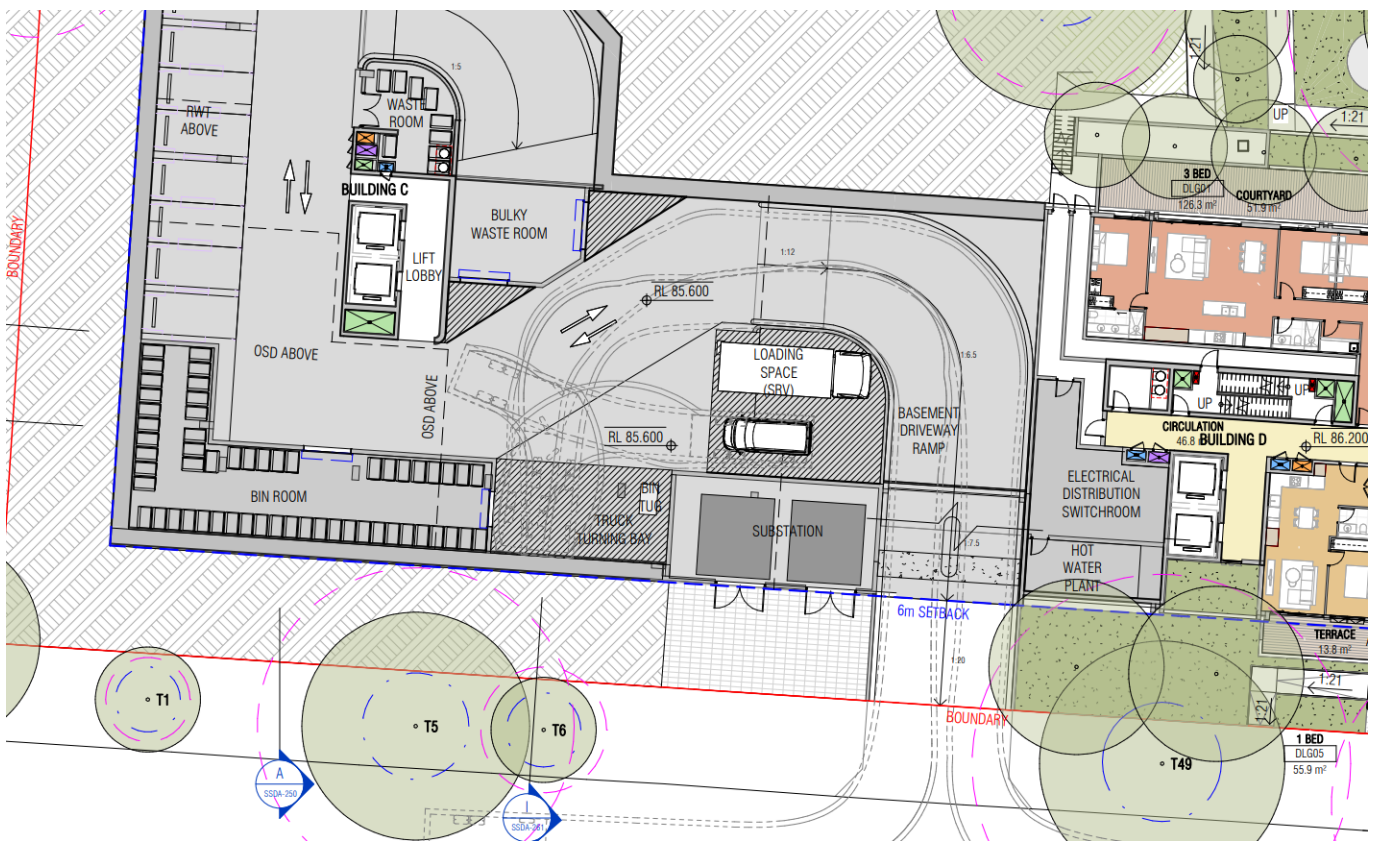
(based on State rental reports completed for the most recent quarter<sup>1</sup>). Considering the proposed 252 apartments, it is expected that an average of two apartments would move in or out in any week.

With home delivery services also becoming more popular it is expected that 10 per cent of residents would purchase groceries via a home delivery service each week. For 252 apartments, this equates to about 25 apartments generating one home delivery per week.

Considering the above and allowing for other bulky goods deliveries, the proposed development would likely generate up to about six or seven service vehicles per day on a typical weekday. Other maintenance and smaller vehicle demand would similarly be able to be accommodated.

The TfNSW Urban Freight Forecasting Model (UFFM) is a useful planning tool to assist in understanding the loading facilities that would be appropriate for a development to be self-sufficient in managing its own freight and servicing activity. It is based on comprehensive data collection across 44 buildings of varying sizes, locations, land use sizes and types. Based on the proposed land use, number of dwellings and number of levels, the UFFM recommends two service bays be provided, including one for vans/ utes and another for small rigid trucks.

The proposal includes a dedicated loading area with capacity for up to three service vehicles (with vans/ utes in tandem arrangement) plus use of a separate space that doubles as a visitor space, as permitted under DCP 2024. Such provision is considered appropriate having regard to the anticipated size and frequency of waste collection services, general servicing and deliveries, as well consideration for the requirements of the UFFM. The proposed loading area is shown in Figure 14.



**Figure 14: Proposed Loading Area**

Source: Fender Katsalidis, project no. 24119, drawing no. SSDA-099, revision no. B, dated 30 October 2025

<sup>1</sup> <https://www.dffh.vic.gov.au/publications/past-rental-reports>

# 6 Preliminary Green Travel Plan

## 6.1 Introduction

A key strategic priority of the proposal is the objective to leverage the behaviours of future residents and promote sustainable modes of daily travel. This aligns with the objectives detailed in Council and Government planning in regard to the TOD program.

Transport is an essential aspect of daily life, impacting the economy, public health, and the environment. The transportation sector stands out as one of the rapidly growing sources of emissions in Australia, presenting a significant opportunity for reducing greenhouse gases. Beyond environmental considerations, offering diverse travel options, prioritising walking, cycling, and public transport, holds substantial public health advantages and contributes to the development of a strong and prosperous community.

While the physical infrastructure discussed in Section 5.2 integrated into the development is a crucial component, it represents only a portion of the overall solution. A Green Travel Plan (GTP) would ensure that the transportation infrastructure, services, and policies both within and beyond the site are tailored to user needs and strategically coordinated to achieve the highest level of sustainability.

### 6.1.1 Context

This Preliminary GTP has been prepared to reinforce the client's commitment towards sustainable development and to ensure that the proposed development not only integrates into but also enhances the existing public and active transport networks.

Given the proposal is in its early stages, the purpose of this Preliminary GTP is to outline the overarching requirements for a future GTP. Noting the proposed use of the site, the focus of the future GTP would be to effect changes in resident and visitor travel to and from the site, and assist in:

- removing barriers to active travel for all
- maximising the number of people who walk, cycle or utilise public transport to and from the site.

This GTP is intended to develop a package of site-specific measures to promote and maximise the use of sustainable travel modes, including walking, cycling, public transport and car sharing. In this regard, this plan sets out objectives and strategies to assist in achieving its goal to improve sustainability. These targets are to be realistic but ambitious enough to initiate substantive behavioural change to achieve the desired outcomes.

As a 'living' document, the GTP is to be updated regularly as part of an ongoing review to ensure it remains relevant and reflective of current conditions.

### 6.1.2 Objectives of GTP

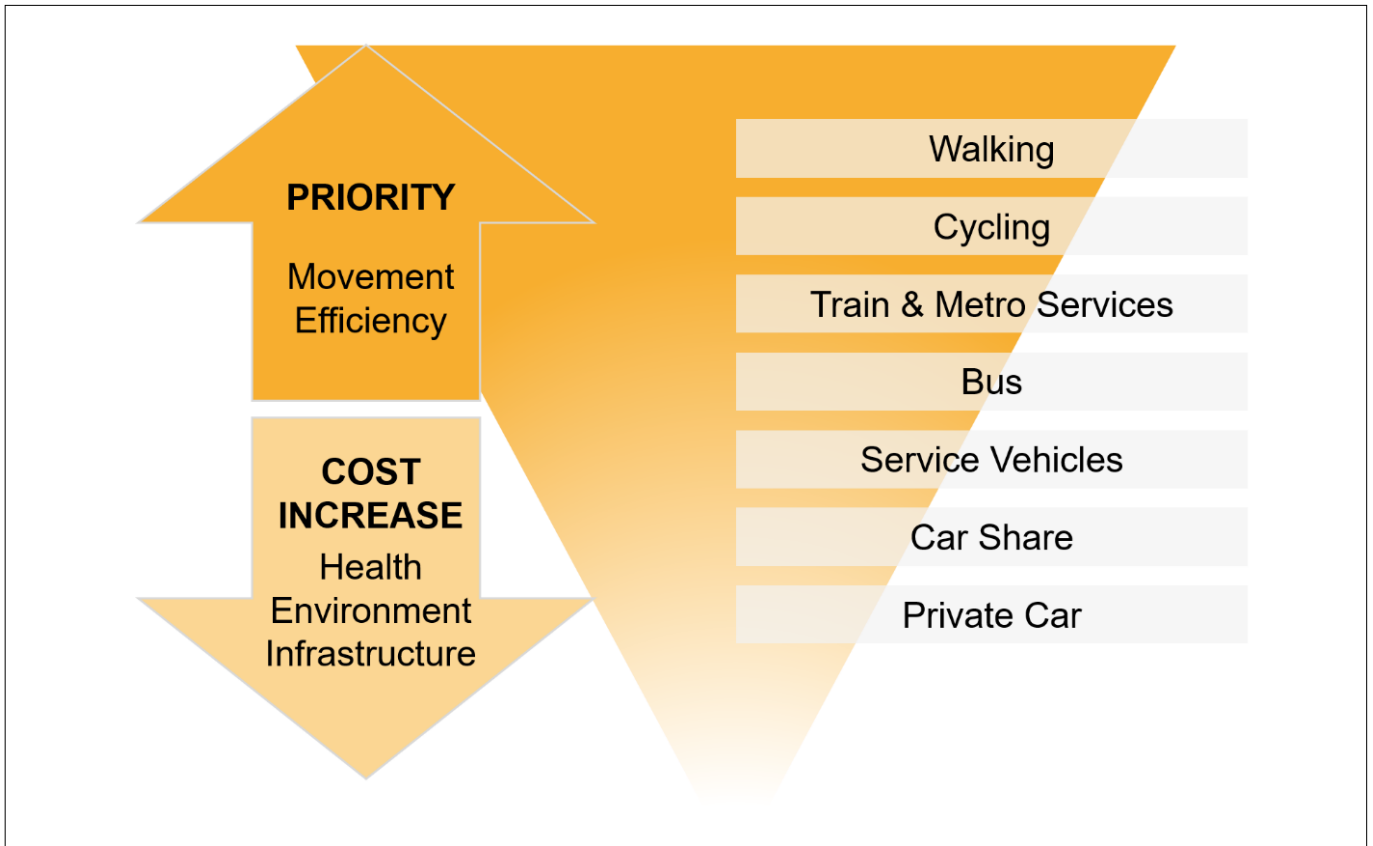
Underpinning this GTP comprises a package of measures which are to be adopted and designed to address the specific travel needs of the site. In this regard, the overall intention is to encourage and facilitate the use of alternative and sustainable modes of transport and to reduce single-occupancy car travel for journeys to and from the site.

The primary objectives of the future GTP would be to:

- reduce the environmental footprint of the site
- set future travel mode share targets
- improve access, amenity, convenience, and safety of sustainable transport modes to/ from the site
- promote the use of 'active transport' modes such as walking and cycling, particularly for short-medium distance journeys
- reduce reliance on the use of private vehicles for all journeys

- encourage a healthier, happier, and more active and public transport use culture.

Having regard for the above, this GTP seeks to adopt the movement hierarchy shown in Figure 15 (noting this is a standard hierarchy and not necessarily site specific), with priority given to ‘active transport’ such as walking and cycling.



**Figure 15: Movement Hierarchy**

## 6.2 Travel Mode Targets

### 6.2.1 Introduction

An audit of the site is required to determine the existing facilities in the area and review existing transport choices. This section would need to be updated prior to implementation of the future site-specific GTP, and at appropriate times, during the period of monitoring and review. The audit should consider the following:

- site conditions, once the development is complete
- public transport services in the area, including proximity to the site, frequency of services and accessibility
- bicycle and pedestrian facilities, including accessibility, connectivity and safety
- mode-split data for the site and local area.

### 6.2.2 Existing Travel Patterns

The baseline travel characteristics of the area collected from the 2016 ABS Census, inclusive of the site were presented in Table 7 and are reproduced in Table 14.



**Table 14: 2016 ABS Journey to Work (from the statistical area)**

Mode of Travel	Mode Share [1]
Car (as driver & passenger)	56%
Train	34%
Bus	5%
Walk	4%
Cycle	1%

[1] Excludes those that worked at home or didn't work.

### 6.2.3 Travel Mode Targets

The ABS data indicated that in 2016, many residents living within the Statistical Area utilised active and public transport methods to travel to work with heavy rail/ bus services accounting for 39 per cent and walking/ cycling accounting for five per cent. Most residents worked within the Sydney CBD, North Sydney, Ryde/ Macquarie, Pymble/ Turramurra/ Gordon or other areas along the train and metro lines which are easily accessible from the site by public transport given proximity to Roseville Station. A decent portion also work more locally in Roseville/ Linfield and Chatswood/ Artarmon which would be accessible from the site by walking or cycling.

The mode share targets, as set out in this report are indicative only and to be confirmed as part of the future detailed GTP for the site. However, the targets place a focus on encouraging modal shift away from private vehicles to utilising public and active transport networks.

Table 15 shows the indicative target mode share for the site. These mode shares have considered the lower provision of private vehicle parking on-site when compared to DCP maximum thresholds. Additional measures and strategies to achieve these targets are discussed in Section 6.3.

**Table 15: Indicative Target Mode Share**

Travel Mode	Residential Target Mode Share
Car (as driver & passenger)	40%
Public transport	50%
Active transport	10%

## 6.3 Measures and Action Strategies

### 6.3.1 Measures

The below includes a range of measures which could achieve the objectives of this GTP with any such details to be reviewed and confirmed prior to implementation of any future plan:

- an introduction to the plan for all residents, setting out its purpose and objectives
- provision of public transport travel information for residents and visitors
- assisted cycle purchase schemes for residents
- interest free loans to assist with cycle and cycle equipment purchase for residents
- provision of public transport information including surrounding routes and timetables on building noticeboards.

### 6.3.2 Site Specific Measures

Numerous possibilities exist to incentivise users to consider alternative travel modes to and from the site. The following potential measures and initiatives could be implemented to encourage more sustainable travel modes:

#### Active Travel

- Establish high-quality, prominent bicycle parking.
- Foster cultural change through initiatives such as:
  - Creating a bike user group, targeting residents working within five kilometres of the site.
  - Providing information outlining opportunities and facilities available to users, including maps of available cycling routes to the site.

#### Promote Carpooling

- Encourage carpooling through the establishment of a carpooling club or registry/ forum.
- Conduct community programs to encourage carpooling for residents.

#### Public Transport

- Develop a Travel Access Guide (TAG), incorporating details on site facilities and surrounding public transport services and active transport initiatives. Update the TAG as the surrounding transport environment evolves.
- Install public transport information boards/ apps to inform residents and visitors about alternative transport options, utilising the TAG as a reference.
  - Display a copy of the TAG in communal areas of the site including (but not limited to):
    - Resident lobbies, lift areas and entrances to buildings.
    - Any marketing material associated with the site, such as websites and newsletters.

#### Welcome Packs

- New residents shall be provided with a ‘welcome pack’ as part of the on-site induction process or when they first providing information in relation to sustainable transport choices. This pack would include copy of the GTP and a TAG, as well as general information regarding the health and social benefits of active transport and advice on where to seek further information. It is recommended that an electric copy of the welcome pack be created and made available to residents.

#### Additional Travel Demand Initiatives

- Provision of electric vehicle charge points to encourage resident uptake of electric vehicles.

## 6.4 Implementation and Monitoring

### 6.4.1 Responsibility for Implementation

The Travel Plan Coordinator (TPC) would be responsible for the running of the future GTP, including its administration and all liaison with interested parties. The role is likely to be undertaken by site/ building Management, or an independent consultant, appointed by building management. The TPC would be appointed following occupation of the development.

### 6.4.2 Travel Plan Coordinator

The TPC should be appointed to act as the primary point of contact for enquiries relating to the progress of the future GTP. The TPC would manage all aspects of the future GTP, including the co-ordination and joint working practices between those on-site.

The TPC would promote participation in and commitment to the future GTP from and would work in partnership with all stakeholders to deliver the strategies and actions.

The TPC should be appointed within one month of the site becoming occupied. Contact details for the TPC should be provided in the implemented GTP.

### 6.4.3 Plan Maintenance

So as to record the overall success, as well as the effectiveness of the individual measures, monitoring and review of the GTP should be conducted at regular intervals. The TPC would act as the primary point of contact for all enquiries relating to the GTP's progress.

The GTP should be monitored around every one to two years, with the first survey being carried out shortly after first occupation of the development (approximately six months). Travel mode surveys would determine the proportion of persons travelling to/from the site by each transport mode. This would be in the form of annual travel mode questionnaire surveys to be completed by all persons attending the site, as far as practicable.

The key considerations when reviewing or monitoring the GTP are as follows:

- Update baseline conditions to reflect any changes to the transport environment in the vicinity of the site such as changes to public transport services, new cycle routes, etc.
- Track progress against target travel mode targets
- Identify any shortfalls and develop an updated action plan to address issues
- Ensure travel modes targets are updated (if necessary) to ensure they are realistic and remain ambitious.

If targets are not met at the end of the initial period of monitoring, the GTP should be reviewed, new measures introduced and would be reassessed at the next monitoring stage.

### 6.4.4 Consultation

It is essential that any parties that may play a part in the future of GTP's and their actions are aware and have an opportunity to discuss. This would enable equitable input and feedback as well maximising their overall efficacy. For this reason, a coordinated approach to GTPs should be implemented (subject to individual tenant participation) to assist in the consultation with the relevant parties, which could include the following:

- Council's traffic and transport department
- Traffic committee
- Local bus operators
- TfNSW.

Other organisations may be added to this list as the plans evolve.

# 7 Traffic Assessment

## 7.1 Traffic Generation

The traffic generation for the proposal has been estimated using the rates stipulated in the TfNSW GTIA 2024. The existing site currently includes nine residential dwellings. The GTIA 2024 stipulates the following relevant traffic generation rates for the existing and future uses:

- low density residential dwellings: 0.68 and 0.77 vehicle trips per dwelling in the AM and PM peak hours, respectively
- high density residential dwellings: 0.19 and 0.15 vehicle trips per dwelling in the AM and PM peak hours, respectively.

The net change in traffic volumes between existing and future scenarios based on the traffic generation rates above is detailed in Table 16.

**Table 16: Traffic Generation**

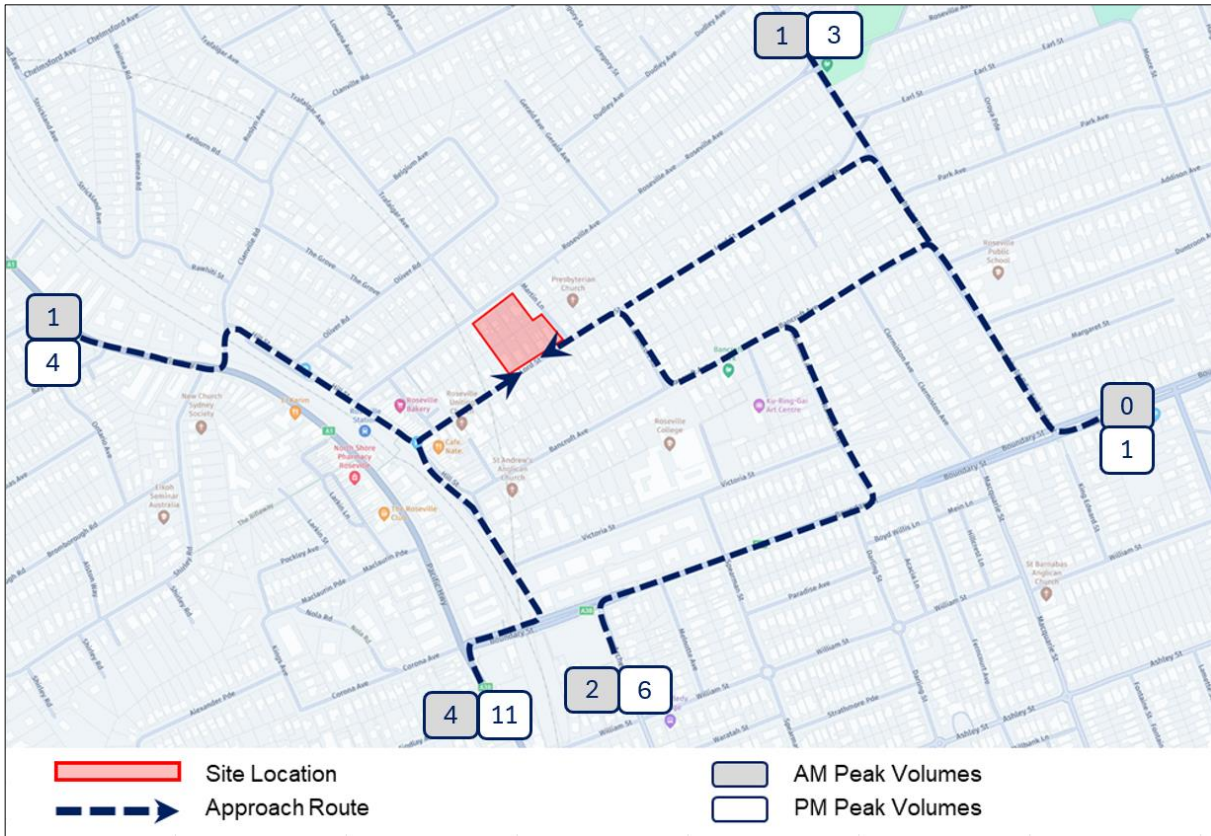
Scenario	Yield	Traffic Generation Rate (vehicle trips/ dwelling/ hour)		Traffic Volumes (vehicle trips/ hour)	
		AM	PM	AM	PM
Existing	9 dwellings	0.68	0.77	-6	-7
Proposed	252 dwellings	0.19	0.15	48	38
<b>Net Change</b>				<b>42</b>	<b>31</b>

**Table 15** indicates that the proposal would result in a net increase of 42 vehicle trips during the weekday AM peak hour and 31 vehicle trips during the PM peak hour.

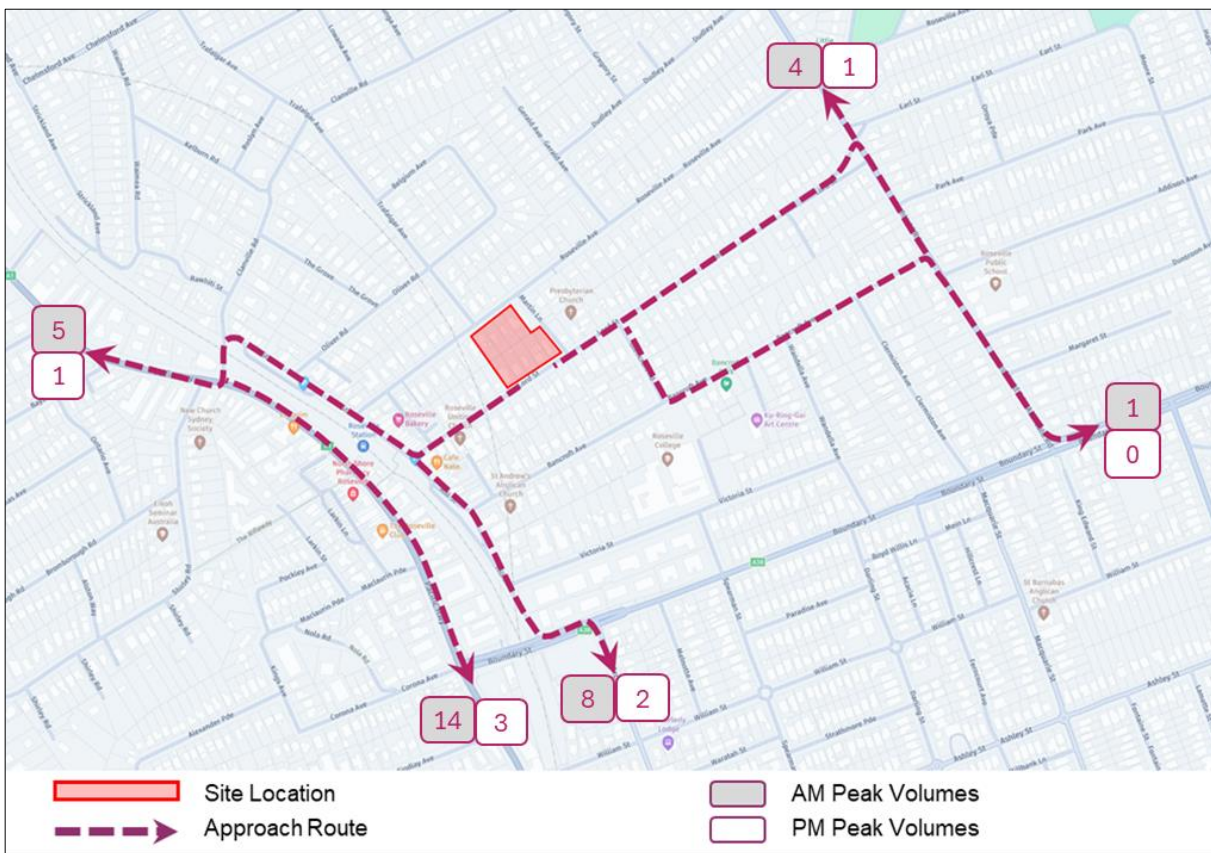
## 7.2 Traffic Distribution

The directional distribution and assignment of traffic generated by the proposed development has been derived from the ABS Census data detailed in Section 2.5. Much of the site generated traffic is expected to use the Pacific Highway and Archer Street on approach and departure, with several travel routes ensuring a distribution of impact from the minor traffic volumes.

Considering the estimated distribution, inbound/ outbound splits and net increase in traffic generation, the anticipated approach and departure volumes are shown in Figure 16 and Figure 17.



**Figure 16: Net Increase in Approach Traffic Volumes**



**Figure 17: Net Increase in Departure Traffic Volumes**

Base image source: Nearmap. Note: There may be some minor discrepancies to due rounding.



### 7.3 Traffic Impact

Overall, the net increase in traffic generated by the proposed development is considered minor, particularly when considering the anticipated approach and departure routes and likely increase in traffic at any given intersection. Overall, the net increase in traffic generated by the proposed development is not expected to have a material impact on the operation of the surrounding road network.

With proximity to high frequency and well-connected public transport, many residents are expected to utilise these services to travel to/ from work during peak periods. This behaviour would also encourage green travel initiatives and provision of sustainable infrastructure. Permanent traffic counters on the Pacific Highway also indicate a general reduction to traffic volumes post COVID-19, as detailed in Section 2.6, reflecting changing work conditions and travel behaviour, which is expected to largely continue.

Based on the above and considering the net increase in traffic generated by the proposed development is minor, the traffic assessment has considered a base plus development scenario only (i.e., no background growth). Table 17 outlines the SIDRA modelling results of future intersection operation considering base plus development scenario, with movement summaries included in Appendix C.

**Table 17: Future Intersection Operation (Base + Development)**

Intersection	Peak	DoS	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (metre)	LOS
Pacific Highway/ Clanville Road/ Shirley Road	AM	0.73	29.7	285	C
	PM	0.90	21.9	345	B
Hill Street/ Clanville Road	AM	0.28	7.2	10	A
	PM	0.14	5.8	6	A
Hill Street/ Lord Street	AM	0.28	19.5	8	A
	PM	0.14	11.7	3	A
Hill Street/ Boundary Street	AM	0.22	6.1	5	A
	PM	0.24	6.2	6	A

The results indicate the proposal would not have any material impact on the operation of key surrounding intersections, with the level of service, average delay, queues and degree of saturation of each remaining consistent with existing operations.

Based on the analysis presented, the proposed development is supported from a transport perspective.

## 8 Design Commentary

The car park layout has been reviewed against the requirements of the Australian Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS2890.6:2022). This assessment included a review of the following:

- access arrangements.
- bay and aisle widths.
- adjacent structures.
- circulation aisles and ramps.
- parking for persons with disabilities.

This review indicates that the car park layout is consistent with the relevant Australian Standards and is expected to operate satisfactorily. Ramp grades have been designed in accordance with the requirements of AS/NZS2890.1:2004. The circulation aisles and car space dimensions meet or exceed Australian Standards and would facilitate efficient movement throughout. The general car park circulation is simple and appropriate given the proposed land uses and expected traffic generation.

Access to the resident car park would be adequately controlled through usage of a car reader/ intercom (or similar) and security roller shutter door. Sight lines at the exit driveway have been reviewed against the requirements of Figure 3.3 in AS2890.1:2004 and appropriately accommodated to ensure safe pedestrian visibility and movement. Structure adjacent to the driveway would remain below driver height at the property boundary.

All resident adaptable dwellings are provided with a 3.8-metre-wide and 6-metre-long adaptable space, which are supportable and would ensure appropriate accessibility. Visitor accessible spaces have been designed to be 2.4-metres-wide and 5.4-metres-long with an adjacent shared area, in accordance with AS2860.6:2022.

The loading area includes capacity for one 7-8 metre long service vehicle and two van/ utes in tandem arrangement. An additional space can be accommodated as part of the visitor spaces, west of the loading area. The lower ground level entryway provides a vertical clearance of 3.2 metres, with a void above the entry ramp and loading area. The travel path has been assessed and confirmed to accommodate waste vehicle movements. Typical measures such as flashing warning lights, convex mirrors and associated signage would facilitate appropriate use of the loading area and interaction between pedestrians and light vehicles, especially for manoeuvring waste and delivery trucks. Notwithstanding, building management could similarly assist with waste vehicle entry/ exit.

Vehicle swept paths confirm appropriate design and are included in Appendix D. As mentioned, all aisle widths are compliant with relevant Australian Standards. With Table 16 indicating the site would generate up to 48 vehicle trips in any peak hour (corresponding to less than one vehicle trip per minute) and considering inbound/ outbound splits the possibility of two vehicles passing one another within the basement is low. Notwithstanding, the basement layout provides ample passing opportunities throughout including along circulation aisles, ramps and at the site access. Complete independence is not practical nor required under Australian Standards with no formal management measures necessary.

Bin tugs would be used to transport waste bins to/ from collection areas. This would be completed outside peak periods to avoid any conflict with residents. Notwithstanding, the bin tug is small and would not conflict with vehicles at any stage. An example of the bin tug used is shown in Figure 18.



**Figure 18: Example bin tug**

Source: [Emoveit](#)

# 9 Overview Construction Pedestrian and Traffic Management Plan

## 9.1 Overview

This section seeks to provide an overview of the Construction Pedestrian and Traffic Management Plan (CPTMP) initiatives to be implemented as part of the construction works associated with the proposed development. Specifically, this overview CPTMP considers the following:

- estimated truck routes to/ from the site
- anticipated truck volumes during all construction stages
- potential construction site access arrangements
- estimated works zones
- pedestrian and cyclist access
- worker parking (if any)
- traffic control measures
- overview of CPTMP requirements.

A detailed CPTMP, confirming the details within this overview CPTMP, would form part of subsequent planning stages.

## 9.2 Principles of Traffic Management

The general principles of traffic management during construction activities are as follows:

- minimise the impact on pedestrian and cyclist movements
- maintain appropriate public transport access
- minimise the loss of on-street parking
- minimise the impact on adjacent and surrounding buildings
- maintain access to/ from adjacent buildings
- restrict construction vehicle movements to designated routes to/ from the site
- manage and control construction vehicle activity near the site
- carry out construction activity in accordance with approved hours of works.

## 9.3 Work Hours

The works would be carried out during the approved work hours. Council's recommended work hours are as follows:

- Weekdays: 7:00am – 5:00pm
- Saturdays: 8:00am – 12:00pm
- Sundays and public holidays: no work permitted.

Workers would be advised of the approved work hours during induction. Any works outside of the approved work hours would be subject to specific prior approval from the appropriate authorities. Such works may include delivery of cranes, large plant or equipment required on the site that require oversize vehicle access.

## 9.4 Worker Induction

All workers and subcontractors engaged on-site would be required to complete site induction. The induction would include permitted arrival and departure routes for all vehicle types, as well as standard environmental, work health and safety (WHS), driver protocols and emergency procedures.

Any workers required to undertake works or traffic control within the public domain would be suitably qualified and covered by all necessary insurances.

## 9.5 Site Access, Loading, and On-Street Works Zones

General construction vehicle access is anticipated to be via Roseville Avenue and Lord Street (subject to future confirmation by the appointed contractor). A combination of internal site loading and works zone are anticipated to support the construction timelines, ensure efficient loading/ unloading activities, and mitigate the effects on the immediate surrounding area. The extent, location and operational times would be confirmed in consultation with relevant stakeholders and detailed as part of the future detailed CPTMP.

All loading would take place internal to the construction site or within any approved on-street work zones.

As part of the detailed CPTMP, Traffic Guidance Schemes (TGS) would be prepared in accordance with the principles of the Traffic Control at Work Sites manual (TfNSW, 2022). The TGS would primarily show where construction signs are to be located at specific locations (such as uncontrolled intersections) along the approved truck routes to warn other road users of the increase in construction vehicle movements. Given the construction vehicle access strategy, staging, vehicle sizes and other construction elements are currently unknown, targeted swept paths would be completed as part of the future detailed CPTMP to confirm vehicle access and turnaround/ loading areas are appropriate. This includes consideration for any impact to existing trees surrounding the site. The site comprises nine individual lots and is therefore appropriately sized to accommodate on-site vehicle loading during construction.

Access to the neighbouring sites by emergency vehicles would not be affected by the works as the road and footpath frontages would be unaffected. Emergency protocols on the site would include a requirement for site personnel to assist with emergency access from the street. All truck movements to the site and/ or incident point would be suspended and cleared.

## 9.6 Construction Worker Parking

Expected construction worker numbers are currently unknown at this stage of planning and confirmed once a contractor is appointed.

No construction worker parking would be provided on-site. Given the site's location to high-frequency public transport services, workers would be encouraged to use public transport to access the site. During site induction, workers would be informed of the existing bus and train network servicing the site. Appropriate arrangements would be made for any equipment/ tool storage and drop-off requirements.

## 9.7 Heavy Vehicle Access Routes

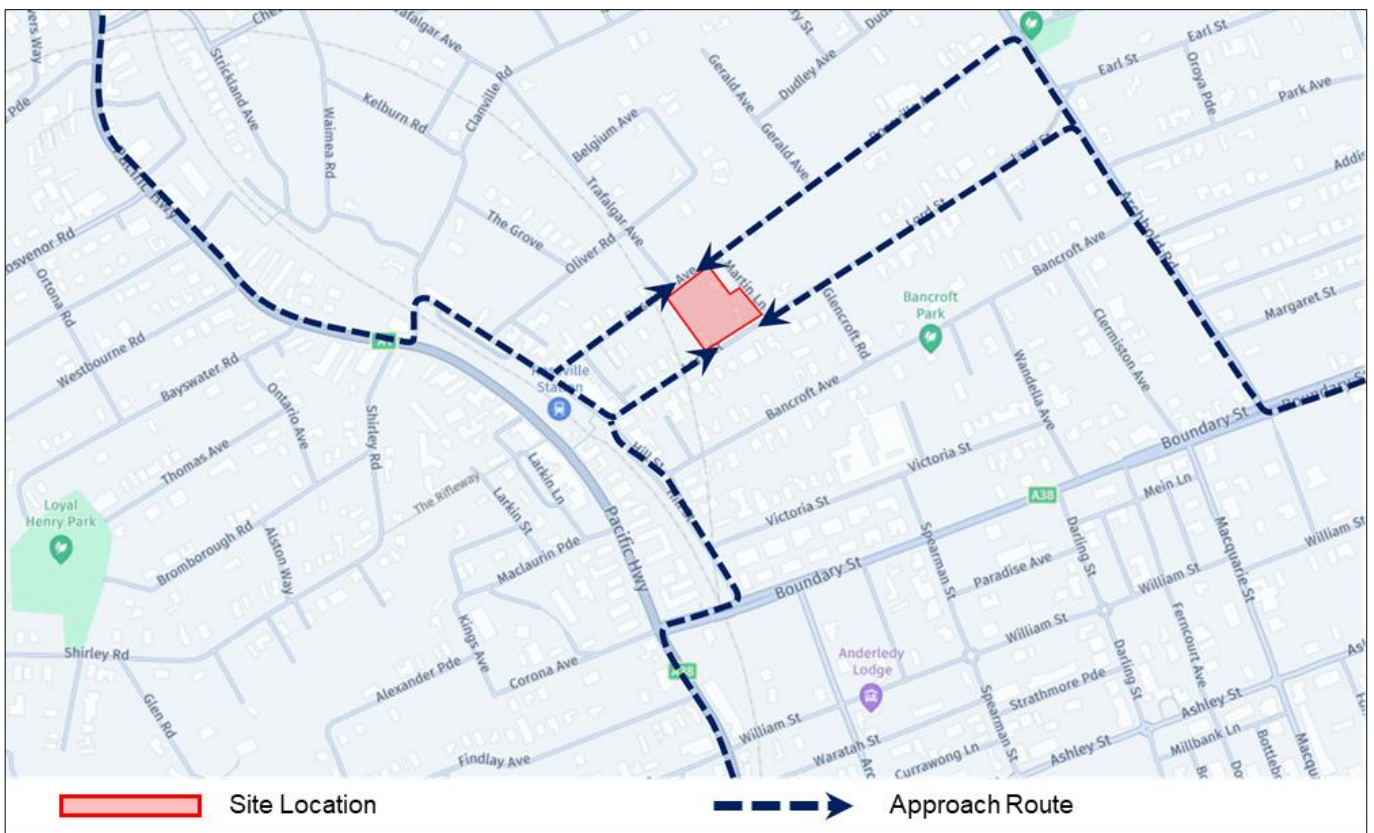
Construction vehicles generated by the site are expected to include vehicles up to 12.5-metre heavy rigid trucks, 18.1-metre truck and dog combinations and 19-metre-metre semi-trailers. Construction vehicle numbers are currently unknown at this stage of planning and would be confirmed once a contractor is appointed. However, based on our knowledge of comparable projects, the development is expected to generate up to 20 construction vehicles per hour depending on activities and staging, noting that these are lower than the estimated operational volumes (which SIDRA modelling indicates would have minimal impact on the operation of the surrounding road network, as detailed in Section 7.3). Construction worker parking would not be provided on-site, workers would be encouraged to utilise the available public transport to/ from the site. As such, light vehicle movements during peak hours are expected to be low.

Specific approval would be sought from relevant authorities for use of any oversize vehicles using local roads to access the site.

Heavy vehicle movements would be restricted to designated routes and confined to the arterial road network wherever feasible. The location of the site presents a number of challenges with regard to heavy vehicle access including:

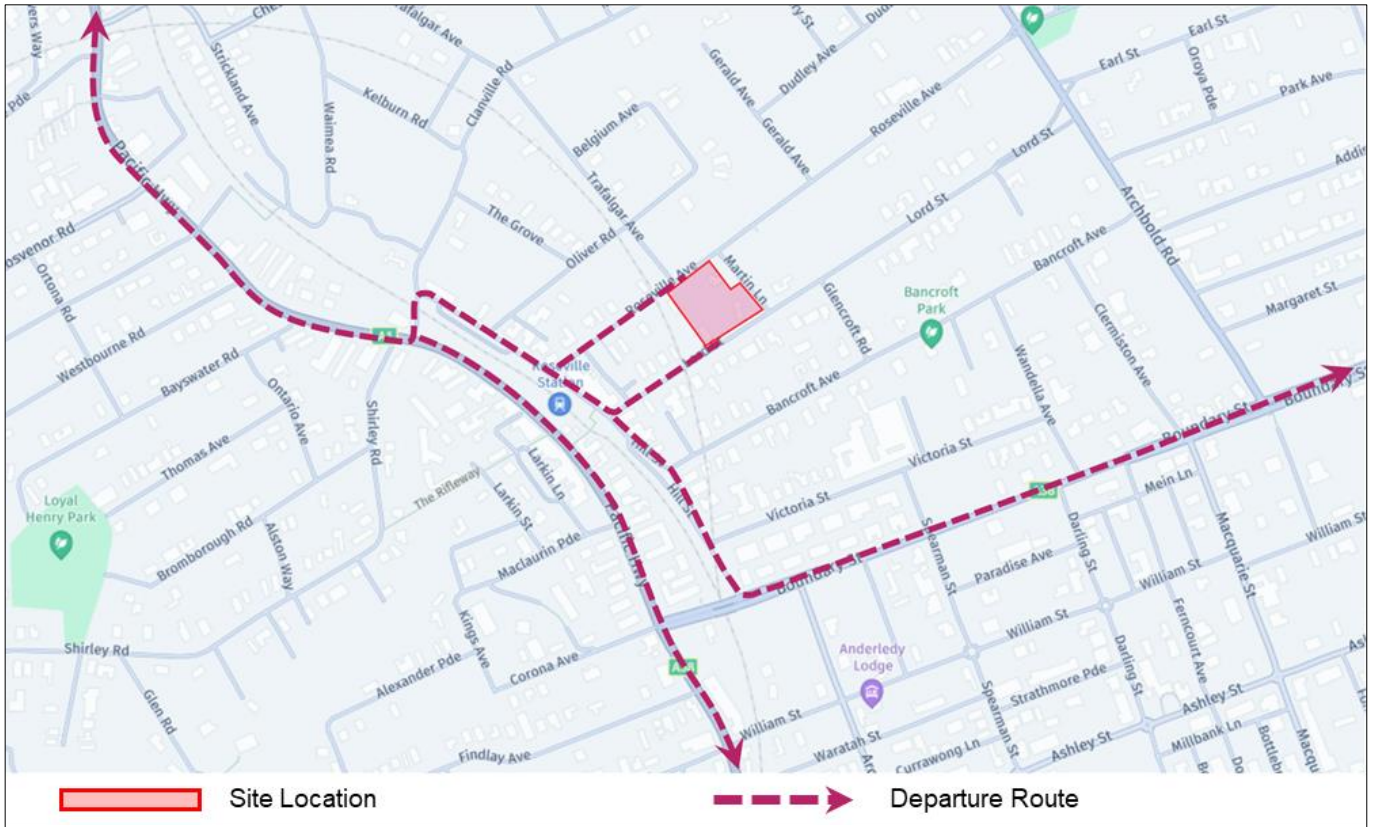
- Heavy vehicle restrictions on some of the surrounding local roads (including Lord Street and Roseville Avenue) which do not permit access to vehicles over three tonnes (noting approach/ departure routes would be confirmed in consultation with Council/ relevant stakeholders).
- Proximity to Roseville local centre.
- Presence of traffic islands, narrow road widths, raised pedestrian crossings and turning bans on the surrounding road network.

The indicative heavy vehicle approach and departure routes are shown in Figure 19 and Figure 20. These routes would be reviewed once construction vehicle sizes are confirmed and in consultation with Council and other relevant stakeholders prior to construction commencing. Targeted swept paths would also be completed at key intersections and any such ‘pinch points’ to confirm the most appropriate access routes. Heavy vehicle movements during road network peak hours would be minimised, where practical, to reduce traffic impacts generally.



**Figure 19: Anticipated Heavy Vehicle Approach Routes**

Base image source: Nearmap



**Figure 20: Anticipated Heavy Vehicle Departure Routes**

Base image source: Nearthmap

### 9.8 Pedestrian and Cyclist Access

A-Class hoarding and fencing would be installed around the perimeter of the site to provide separation between construction works and the public. Pedestrians and cyclists may be temporarily held across the site frontage at times where overhead works are occurring to maintain safe pedestrian and cyclist movements adjacent to the site. The future CPTMP would detail how the construction impacts to pedestrian and cyclist movements would be minimised or any mitigation required to offset any such impacts.

# 10 Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

- This transport impact assessment has been prepared to accompany the SSDA for a residential development including infill affordable housing at 16-24 Lord Street and 21-27 Roseville Avenue, Roseville, and comprises 252 apartments with provision of 344 parking spaces.
- The proposal is required to provide between a minimum 272 parking spaces (based on requirements detailed in the Housing SEPP) and maximum 433 parking spaces (based on requirements detailed in the DCP). The proposal includes 344 parking spaces (including resident, visitor and car share spaces) which exceeds the minimum DCP, Housing SEPP and TfNSW requirements while remaining well below the DCP maximum thresholds.
- The proposal is also compliant with DCP requirements in regard to accessible, car share and motorcycle parking spaces. Future provision has also been made for installation of EV charging facilities in accordance with the NCC and DCP.
- The proposal is required to provide 277 bicycle parking spaces in accordance with DCP 2024 (including 252 for use by residents and 25 by visitors). Resident spaces will be provided within the dedicated resident storage cages which exceed the dimensional requirements to accommodate a bicycle. 30 visitor bicycle racks are proposed as part of the public domain and close to the main building entrances.
- As advised by the broader project team as it relates to vehicle and service and waste collection requirements, the site and main access ramp has been designed to accommodate a 6.7 metre rear loading waste truck or delivery truck, with provision to accommodate 7-8-metre-long rigid vehicles. The loading area has been designed to accommodate up to three service vehicles at any one time with one further space doubling as a visitor space, as permitted by DCP 2024.
- A key strategic priority of the proposal is the objective to leverage the behaviours of future residents and promote sustainable modes of daily travel. This aligns with the objectives detailed in Council and NSW Government Transport Orientated Development program.
- The proposal is expected to result in a net increase of between 31 to 42 vehicle trips during the weekday peak hours. The net increase in traffic is considered minor, particularly when considering the available approach and departure routes and likely increase in traffic through any individual intersection. Traffic modelling similarly confirms that the net increase in traffic generated by the proposed development is not expected to have a material impact on the operation of the surrounding road network.
- The car park has been designed as a User Class 1A facility with car space dimensions and aisle widths meeting or exceeding the relevant Australian Standards.

Overall, the proposed development is supported from a transport and parking perspective.

# Appendix A Stakeholder Engagement

## Connor Hoang

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**From:** Rhys Hazell  
**Sent:** Tuesday, 18 March 2025 4:45 PM  
**To:** Joseph Piccoli  
**Cc:** Amy Ayling; Connor Hoang; Brodee Gregory  
**Subject:** Re: 16-24 Lord St & 19-27 Roseville Ave, Roseville SSD

Hi Joseph,

Many thanks for your response, it's much appreciated.

We obviously understand and will ensure our SSD assessment addresses all relevant SEARs requirements.

Happy to discuss should there be any need in the interim.

Regards

Rhys Hazell  
Principal Lead - Ason Group  
0431 426 532

---

**From:** Joseph Piccoli <piccoli@krg.nsw.gov.au>  
**Sent:** Tuesday, March 18, 2025 2:48:39 pm  
**To:** Rhys Hazell <rhys.hazell@asongroup.com.au>  
**Cc:** Amy Ayling <aayling@krg.nsw.gov.au>; Connor Hoang <connor.hoang@asongroup.com.au>; Brodee Gregory <bgregory@krg.nsw.gov.au>  
**Subject:** RE: 16-24 Lord St & 19-27 Roseville Ave, Roseville SSD

Hi Rhys, thank you for your email and apologies for the missed call.

At this stage I'm not able to comment on the proposal except to recommend that the SEARs transport assessment requirements be addressed. Once the proposal is on formal public exhibition, we will be able to provide comments/feedback to DPHI.

Regards,

**Joseph Piccoli** • Strategic Traffic Engineer • Ku-ring-gai Council  
9424 0962 • [piccoli@krg.nsw.gov.au](mailto:piccoli@krg.nsw.gov.au) • [krg.nsw.gov.au](http://krg.nsw.gov.au)

---

**From:** Rhys Hazell <rhys.hazell@asongroup.com.au>  
**Sent:** Thursday, March 13, 2025 5:43 PM  
**To:** Joseph Piccoli <piccoli@krg.nsw.gov.au>  
**Cc:** Amy Ayling <aayling@krg.nsw.gov.au>; Connor Hoang <connor.hoang@asongroup.com.au>  
**Subject:** 16-24 Lord St & 19-27 Roseville Ave, Roseville SSD

Hi Joseph,

I tried calling you today without luck so thought it best I send a brief email in relation to the potential development on the above site. I have included an aerial of the site below.

We are working with the project team on the SSD for about 260 high density residential dwellings on the consolidated lots in Roseville. It includes a combined ground/ podium with four separate buildings up to about 8-9 levels each. The single basement covers four levels with a single driveway access on Lord Street along the southern boundary. All loading (including for waste collection) would occur in the basement.

The area has obviously been the subject of ongoing discussion following its inclusion as part of the State Government TOD precincts.

Our approach has been to manage parking supply such that it sits between both Council DCP and SEPP/ GTIA requirements with our intention to also complete some level of traffic modelling to allay any concerns around intersection operation and congestion etc. Given the proposal and land use etc., we would estimate that it could result in a net increase of about 40 vehicle trips in any peak hour noting that there are several approach and departure routes through the area that future residents are likely to use.



We are keen to understand any such comments/ feedback you may have in this regard and please don't hesitate to reach out anytime.

Regards

**Rhys Hazell**  
Principal Lead | Ason Group

T: +61 2 9083 6601 | M: +61 431 426 532 | E: [rhys.hazell@asongroup.com.au](mailto:rhys.hazell@asongroup.com.au)  
A: Suite 17.02, Level 17, 1 Castlereagh Street, Sydney NSW 2000

=====  
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# Appendix B Traffic Survey Data

Location Hill Street Duration 7:00 - 10:00  
 Boundary Road - -  
 - 14:30 - 18:00  
 Boundary Road Date Thursday, 27 March 2025  
 Suburb ROSEVILLE Weather -

All Vehicles Time Per 15 Mins	NORTH Hill Street										EAST Boundary Road										TOTAL			
	L			I			R			TOTAL	PEDS	L			I			R			TOTAL	PEDS	TOTAL	
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ				
7:00 - 7:15	38	0	38							38	0	309	15	324						324	0	567	54	621
7:15 - 7:30	63	2	65							65	0	312	12	324						324	0	664	26	690
7:30 - 7:45	73	4	77							77	0	290	13	303						303	0	649	38	687
7:45 - 8:00	66	2	68							68	0	261	12	273						273	0	631	33	664
8:00 - 8:15	63	0	63							63	0	288	13	301						301	0	650	31	681
8:15 - 8:30	87	2	89							89	1	204	9	213						213	0	606	24	630
8:30 - 8:45	68	5	73							73	2	246	12	258						258	0	611	24	635
8:45 - 9:00	70	1	71							71	0	209	22	231						231	0	553	31	584
9:00 - 9:15	55	0	55							55	0	234	15	249						249	0	565	33	598
9:15 - 9:30	49	2	51							51	0	281	17	298						298	0	583	42	625
9:30 - 9:45	44	1	45							45	0	277	21	298						298	0	610	47	657
9:45 - 10:00	39	0	39							39	0	2230	22	2252						2252	0	2511	51	2562
Period End	715	19	734							734	3	5141	183	5324						5324	0	9200	434	9634
14:30 - 14:45	41	0	41							41	1	271	15	286						286	0	555	25	580
14:45 - 15:00	27	0	27							27	1	262	20	282						282	0	606	40	646
15:00 - 15:15	47	0	47							47	2	295	14	309						309	0	658	21	679
15:15 - 15:30	61	0	61							61	1	306	16	322						322	0	674	27	701
15:30 - 15:45	52	2	54							54	0	242	15	257						257	0	654	31	685
15:45 - 16:00	46	1	47							47	1	328	19	347						347	0	713	27	740
16:00 - 16:15	59	0	59							59	0	290	18	308						308	0	630	27	657
16:15 - 16:30	27	0	27							27	1	250	12	262						262	0	640	23	663
16:30 - 16:45	33	0	33							33	2	275	14	289						289	0	648	23	671
16:45 - 17:00	44	0	44							44	4	262	16	278						278	0	624	20	644
17:00 - 17:15	33	0	33							33	1	261	8	269						269	0	670	14	684
17:15 - 17:30	46	0	46							46	3	285	7	292						292	0	680	8	688
17:30 - 17:45	47	0	47							47	1	240	3	243						243	0	680	10	690
17:45 - 18:00	51	0	51							51	2	218	3	221						221	0	614	6	620
Period End	614	3	617							617	20	3785	180	3965						3965	0	9046	302	9348

All Vehicles Time Per 15 Mins	SOUTH										WEST Boundary Road										TOTAL			
	L			I			R			TOTAL	PEDS	L			I			R			TOTAL	PEDS	TOTAL	
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ				
7:00 - 7:15												7	1	8	213	38	251			259	0	567	54	621
7:15 - 7:30												6	0	6	283	12	295			301	0	664	26	690
7:30 - 7:45												6	1	7	280	20	300			307	0	649	38	687
7:45 - 8:00												14	0	14	290	19	309			323	0	631	33	664
8:00 - 8:15												26	1	27	273	17	290			317	0	650	31	681
8:15 - 8:30												21	0	21	294	13	307			328	1	606	24	630
8:30 - 8:45												10	0	10	287	7	294			304	0	611	24	635
8:45 - 9:00												6	0	6	268	8	276			282	0	553	31	584
9:00 - 9:15												4	1	5	272	17	289			294	0	565	33	598
9:15 - 9:30												8	1	9	245	22	267			276	0	583	42	625
9:30 - 9:45												2	0	2	287	25	312			314	0	610	47	657
9:45 - 10:00												10	2	12	232	27	259			271	0	2511	51	2562
Period End												120	7	127	3224	225	3449			3576	1	9200	434	9634
14:30 - 14:45												8	0	8	235	10	245			253	0	555	25	580
14:45 - 15:00												18	1	19	299	19	318			337	0	606	40	646
15:00 - 15:15												17	0	17	299	7	306			323	0	658	21	679
15:15 - 15:30												12	1	13	295	10	305			318	0	674	27	701
15:30 - 15:45												14	0	14	346	14	360			374	0	654	31	685
15:45 - 16:00												17	0	17	322	7	329			346	1	713	27	740
16:00 - 16:15												16	0	16	265	9	274			290	0	630	27	657
16:15 - 16:30												9	1	10	354	10	364			374	0	640	23	663
16:30 - 16:45												11	0	11	329	9	338			349	0	648	23	671
16:45 - 17:00												15	0	15	303	4	307			322	1	624	20	644
17:00 - 17:15												17	0	17	359	6	365			382	0	670	14	684
17:15 - 17:30												12	0	12	337	1	338			350	0	680	8	688
17:30 - 17:45												15	0	15	378	7	385			400	0	680	10	690
17:45 - 18:00												16	0	16	329	3	332			348	0	614	6	620
Period End												197	3	200	4450	116	4566			4766	2	9046	302	9348

Location Hill Street Duration 7:00 - 10:00  
 Boundary Road -  
 - 14:30 - 18:00  
 Boundary Road Date Thursday, 27 March 2025  
 Suburb ROSEVILLE Weather -

All Vehicles Time Per Hour	NORTH Hill Street										EAST Boundary Road										TOTAL				
	L			I			R			TOTAL	PEDS	L			I			R			TOTAL	PEDS	TOTAL		
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	
7:00 - 8:00	240	8	248							248	0				1172	52	1224				1224	0	2511	151	2662
7:15 - 8:15	265	8	273							273	0				1151	50	1201				1201	0	2594	128	2722
7:30 - 8:30	289	8	297							297	1				1043	47	1090				1090	0	2536	126	2662
7:45 - 8:45	284	9	293							293	3				999	46	1045				1045	0	2498	112	2610
8:00 - 9:00	288	8	296							296	3				947	56	1003				1003	0	2420	110	2530
8:15 - 9:15	280	8	288							288	3				893	58	951				951	0	2335	112	2447
8:30 - 9:30	242	8	250							250	2				970	66	1036				1036	0	2312	130	2442
8:45 - 9:45	218	4	222							222	0				1001	75	1076				1076	0	2311	153	2464
9:00 - 10:00	187	3	190							190	0				3022	75	3097				3097	0	4269	173	4442
Period End																									
14:30 - 15:30	176	0	176							176	5				1134	65	1199				1199	0	2493	113	2606
14:45 - 15:45	187	2	189							189	4				1105	65	1170				1170	0	2592	119	2711
15:00 - 16:00	206	3	209							209	4				1171	64	1235				1235	0	2699	106	2805
15:15 - 16:15	218	3	221							221	2				1166	68	1234				1234	0	2671	112	2783
15:30 - 16:30	184	3	187							187	2				1110	64	1174				1174	0	2637	108	2745
15:45 - 16:45	165	1	166							166	4				1143	63	1206				1206	0	2631	100	2731
16:00 - 17:00	163	0	163							163	7				1077	60	1137				1137	0	2542	93	2635
16:15 - 17:15	137	0	137							137	8				1048	50	1098				1098	0	2582	80	2662
16:30 - 17:30	156	0	156							156	10				1083	45	1128				1128	0	2622	65	2687
16:45 - 17:45	170	0	170							170	9				1048	34	1082				1082	0	2654	52	2706
17:00 - 18:00	177	0	177							177	7				1004	21	1025				1025	0	2644	38	2682
Period End																									

All Vehicles Time Per Hour	SOUTH -										WEST Boundary Road										TOTAL				
	L			I			R			TOTAL	PEDS	L			I			R			TOTAL	PEDS	TOTAL		
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	
7:00 - 8:00												33	2	35	1066	89	1155				1190	0	2511	151	2662
7:15 - 8:15												52	2	54	1126	68	1194				1248	0	2594	128	2722
7:30 - 8:30												67	2	69	1137	69	1206				1275	1	2536	126	2662
7:45 - 8:45												71	1	72	1144	56	1200				1272	1	2498	112	2610
8:00 - 9:00												63	1	64	1122	45	1167				1231	1	2420	110	2530
8:15 - 9:15												41	1	42	1121	45	1166				1208	1	2335	112	2447
8:30 - 9:30												28	2	30	1072	54	1126				1156	0	2312	130	2442
8:45 - 9:45												20	2	22	1072	72	1144				1166	0	2311	153	2464
9:00 - 10:00												24	4	28	1036	91	1127				1155	0	4269	173	4442
Period End																									
14:30 - 15:30												55	2	57	1128	46	1174				1231	0	2493	113	2606
14:45 - 15:45												61	2	63	1239	50	1289				1352	0	2592	119	2711
15:00 - 16:00												60	1	61	1262	38	1300				1361	1	2699	106	2805
15:15 - 16:15												59	1	60	1228	40	1268				1328	1	2671	112	2783
15:30 - 16:30												56	1	57	1287	40	1327				1384	1	2637	108	2745
15:45 - 16:45												53	1	54	1270	35	1305				1359	1	2631	100	2731
16:00 - 17:00												51	1	52	1251	32	1283				1335	1	2542	93	2635
16:15 - 17:15												52	1	53	1345	29	1374				1427	1	2582	80	2662
16:30 - 17:30												55	0	55	1328	20	1348				1403	1	2622	65	2687
16:45 - 17:45												59	0	59	1377	18	1395				1454	1	2654	52	2706
17:00 - 18:00												60	0	60	1403	17	1420				1480	0	2644	38	2682
Period End																									

Location **Clanville Street** Duration **7:00 - 10:00**  
**Hill Street**  
**Clanville Street** **14:30 - 18:00**  
 Date **Thursday, 27 March 2025**  
 Suburb **ROSEVILLE** Weather **-**

All Vehicles Time Per 15 Mins	NORTH Clanville Street										EAST Hill Street										TOTAL				
	L			I			R			TOTAL	PEDS	L			I			R			TOTAL	PEDS	LIGHT	HEAVY	TOTAL
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ					
7:00 - 7:15	18	0	18	20	0	20				38	0	19	0	19				5	0	5	24	1	114	1	115
7:15 - 7:30	13	0	13	25	0	25				38	0	21	0	21				1	0	1	22	4	147	2	149
7:30 - 7:45	23	0	23	16	0	16				39	0	32	0	32				12	0	12	44	0	194	4	198
7:45 - 8:00	17	0	17	16	0	16				33	1	30	0	30				3	1	4	34	2	168	5	173
8:00 - 8:15	16	0	16	34	0	34				50	0	21	0	21				9	1	10	31	0	199	2	201
8:15 - 8:30	16	0	16	33	1	34				50	3	14	0	14				4	0	4	18	0	162	4	166
8:30 - 8:45	11	1	12	41	0	41				53	4	16	0	16				0	0	0	16	5	138	5	143
8:45 - 9:00	21	0	21	41	1	42				63	2	26	0	26				6	1	7	33	2	158	5	163
9:00 - 9:15	17	0	17	21	1	22				39	2	12	1	13				6	0	6	19	1	119	3	122
9:15 - 9:30	25	0	25	22	1	23				48	1	21	0	21				6	0	6	27	4	112	2	114
9:30 - 9:45	22	0	22	16	0	16				38	1	21	1	22				7	0	7	29	2	106	4	110
9:45 - 10:00	28	0	28	23	1	24				52	1	16	0	16				6	0	6	22	1	111	2	113
Period End	227	1	228	308	5	313				541	15	249	2	251				65	3	68	319	22	1728	39	1767
14:30 - 14:45	14	0	14	18	1	19				33	0	28	0	28				10	0	10	38	1	126	1	127
14:45 - 15:00	14	0	14	18	3	21				35	2	19	0	19				9	0	9	28	2	105	3	108
15:00 - 15:15	13	0	13	20	0	20				33	0	31	1	32				11	0	11	43	2	118	2	120
15:15 - 15:30	18	0	18	25	0	25				43	0	29	1	30				7	0	7	37	2	133	2	135
15:30 - 15:45	18	1	19	30	0	30				49	0	29	0	29				8	0	8	37	1	130	3	133
15:45 - 16:00	18	0	18	26	0	26				44	0	26	1	27				9	0	9	36	1	141	1	142
16:00 - 16:15	26	0	26	18	1	19				45	1	40	0	40				13	0	13	53	1	148	1	149
16:15 - 16:30	9	0	9	29	0	29				38	0	25	0	25				11	0	11	36	1	123	0	123
16:30 - 16:45	13	0	13	30	1	31				44	0	29	1	30				13	1	14	44	1	126	3	129
16:45 - 17:00	12	0	12	23	0	23				35	0	24	1	25				9	0	9	34	1	129	1	130
17:00 - 17:15	15	0	15	22	0	22				37	2	20	0	20				11	0	11	31	1	122	0	122
17:15 - 17:30	15	0	15	25	1	26				41	0	24	0	24				10	0	10	34	1	134	1	135
17:30 - 17:45	15	0	15	29	0	29				44	1	27	0	27				17	0	17	44	3	140	0	140
17:45 - 18:00	20	0	20	34	0	34				54	0	26	0	26				10	0	10	36	1	131	0	131
Period End	220	1	221	347	7	354				575	6	377	5	382				148	1	149	531	19	1806	18	1824

All Vehicles Time Per 15 Mins	SOUTH Clanville Street										WEST -										TOTAL							
	L			I			R			TOTAL	PEDS	L			I			R			TOTAL	PEDS	LIGHT	HEAVY	TOTAL			
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ								
7:00 - 7:15				9	0	9	43	1	44	53	1														114	1	115	
7:15 - 7:30				13	0	13	74	2	76	89	0															147	2	149
7:30 - 7:45				15	1	16	96	3	99	115	0															194	4	198
7:45 - 8:00				16	0	16	86	4	90	106	5															168	5	173
8:00 - 8:15				22	1	23	97	0	97	120	1															199	2	201
8:15 - 8:30				15	2	17	80	1	81	98	0															162	4	166
8:30 - 8:45				9	2	11	61	2	63	74	1															138	5	143
8:45 - 9:00				18	1	19	46	2	48	67	0															158	5	163
9:00 - 9:15				12	1	13	51	0	51	64	0															119	3	122
9:15 - 9:30				12	1	13	26	0	26	39	0															112	2	114
9:30 - 9:45				19	1	20	21	2	23	43	3															106	4	110
9:45 - 10:00				10	0	10	28	1	29	39	1															111	2	113
Period End				170	10	180	709	18	727	907	12															1728	39	1767
14:30 - 14:45				20	0	20	36	0	36	56	1															126	1	127
14:45 - 15:00				20	0	20	25	0	25	45	2															105	3	108
15:00 - 15:15				18	0	18	25	1	26	44	0															118	2	120
15:15 - 15:30				20	1	21	34	0	34	55	0															133	2	135
15:30 - 15:45				14	1	15	31	1	32	47	1															130	3	133
15:45 - 16:00				20	0	20	42	0	42	62	0															141	1	142
16:00 - 16:15				19	0	19	32	0	32	51	1															148	1	149
16:15 - 16:30				17	0	17	32	0	32	49	0															123	0	123
16:30 - 16:45				9	0	9	32	0	32	41	0															126	3	129
16:45 - 17:00				22	0	22	39	0	39	61	1															129	1	130
17:00 - 17:15				21	0	21	33	0	33	54	1															122	0	122
17:15 - 17:30				18	0	18	42	0	42	60	0															134	1	135
17:30 - 17:45				18	0	18	34	0	34	52	3															140	0	140
17:45 - 18:00				15	0	15	26	0	26	41	1															131	0	131
Period End				251	2	253	463	2	465	718	11															1806	18	1824



Location Hill Street Duration 7:00 - 10:00  
 Lord Street  
 Hill Street 14:30 - 18:00  
 Date Thursday, 27 March 2025  
 Suburb ROSEVILLE Weather -

All Vehicles Time Per 15 Mins	NORTH Hill Street									EAST Lord Street									TOTAL						
	L			I			R			TOTAL	PEDS	L			I			R			TOTAL	PEDS	TOTAL		
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	Σ
7:00 - 7:15	20	0	20	42	1	43				63	43	8	0	8				18	0	18	26	29	101	2	103
7:15 - 7:30	28	1	29	58	1	59				88	96	20	0	20				26	1	27	47	54	147	3	150
7:30 - 7:45	34	0	34	72	3	75				109	163	32	0	32				26	0	26	58	89	186	4	190
7:45 - 8:00	28	0	28	85	3	88				116	160	33	0	33				22	0	22	55	100	188	3	191
8:00 - 8:15	19	0	19	89	0	89				108	167	31	0	31				19	2	21	52	138	186	3	189
8:15 - 8:30	21	1	22	83	1	84				106	107	28	1	29				21	0	21	50	63	191	3	194
8:30 - 8:45	38	0	38	55	3	58				96	143	16	0	16				20	0	20	36	112	151	3	154
8:45 - 9:00	19	1	20	52	1	53				73	54	13	0	13				11	0	11	24	41	113	3	116
9:00 - 9:15	21	0	21	51	0	51				72	42	11	0	11				12	0	12	23	31	111	1	112
9:15 - 9:30	11	1	12	46	2	48				60	34	11	0	11				10	0	10	21	27	90	3	93
9:30 - 9:45	20	1	21	44	1	45				66	15	7	0	7				14	0	14	21	17	99	3	102
9:45 - 10:00	14	0	14	45	1	46				60	32	18	0	18				11	0	11	29	43	103	3	106
Period End	273	5	278	722	17	739				1017	1056	228	1	229				210	3	213	442	744	1666	34	1700
14:30 - 14:45	12	0	12	45	0	45				57	110	6	0	6				11	0	11	17	95	90	0	90
14:45 - 15:00	9	0	9	40	0	40				49	38	9	0	9				9	0	9	18	26	94	1	95
15:00 - 15:15	9	0	9	47	0	47				56	75	9	0	9				15	0	15	24	48	105	1	106
15:15 - 15:30	15	0	15	45	1	46				61	237	27	0	27				16	0	16	43	206	117	2	119
15:30 - 15:45	20	0	20	44	0	44				64	110	16	0	16				16	0	16	32	84	123	1	124
15:45 - 16:00	26	0	26	36	0	36				62	119	23	0	23				19	1	20	43	62	142	1	143
16:00 - 16:15	20	0	20	45	0	45				65	107	14	0	14				15	0	15	29	64	128	0	128
16:15 - 16:30	14	0	14	34	0	34				48	65	8	0	8				10	1	11	19	41	87	3	90
16:30 - 16:45	18	0	18	34	0	34				52	87	6	0	6				14	1	15	21	45	96	1	97
16:45 - 17:00	26	0	26	41	0	41				67	53	14	0	14				13	0	13	27	34	116	0	116
17:00 - 17:15	18	0	18	35	0	35				53	66	12	0	12				10	0	10	22	39	94	0	94
17:15 - 17:30	24	0	24	52	0	52				76	88	20	0	20				18	0	18	38	39	141	0	141
17:30 - 17:45	22	0	22	49	0	49				71	70	10	0	10				20	1	21	31	36	126	1	127
17:45 - 18:00	15	0	15	33	0	33				48	86	21	0	21				23	0	23	44	45	123	0	123
Period End	248	0	248	580	1	581				829	1311	195	0	195				209	4	213	408	864	1582	11	1593

All Vehicles Time Per 15 Mins	SOUTH Hill Street									WEST -									TOTAL										
	L			I			R			TOTAL	PEDS	L			I			R			TOTAL	PEDS	TOTAL						
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	
7:00 - 7:15				8	0	8	5	1	6	14	0														101	2	103		
7:15 - 7:30				14	0	14	1	0	1	15	0															147	3	150	
7:30 - 7:45				12	1	13	10	0	10	23	0															186	4	190	
7:45 - 8:00				15	0	15	5	0	5	20	0															188	3	191	
8:00 - 8:15				20	1	21	8	0	8	29	0															186	3	189	
8:15 - 8:30				30	0	30	8	0	8	38	0															191	3	194	
8:30 - 8:45				14	0	14	8	0	8	22	1															151	3	154	
8:45 - 9:00				15	1	16	3	0	3	19	1															113	3	116	
9:00 - 9:15				14	1	15	2	0	2	17	0															111	1	112	
9:15 - 9:30				12	0	12	0	0	0	12	0															90	3	93	
9:30 - 9:45				9	1	10	5	0	5	15	0															99	3	102	
9:45 - 10:00				13	1	14	2	1	3	17	0															103	3	106	
Period End				176	6	182	57	2	59	241	2															1666	34	1700	
14:30 - 14:45				14	0	14	2	0	2	16	0																90	0	90
14:45 - 15:00				24	1	25	3	0	3	28	0																94	1	95
15:00 - 15:15				21	1	22	4	0	4	26	0																105	1	106
15:15 - 15:30				11	1	12	3	0	3	15	0																117	2	119
15:30 - 15:45				22	1	23	5	0	5	28	0																123	1	124
15:45 - 16:00				31	0	31	7	0	7	38	0																142	1	143
16:00 - 16:15				30	0	30	4	0	4	34	0																128	0	128
16:15 - 16:30				15	2	17	6	0	6	23	0																87	3	90
16:30 - 16:45				19	0	19	5	0	5	24	0																96	1	97
16:45 - 17:00				18	0	18	4	0	4	22	0																116	0	116
17:00 - 17:15				12	0	12	7	0	7	19	0																94	0	94
17:15 - 17:30				22	0	22	5	0	5	27	0																141	0	141
17:30 - 17:45				15	0	15	10	0	10	25	0																126	1	127
17:45 - 18:00				25	0	25	6	0	6	31	0																123	0	123
Period End				279	6	285	71	0	71	356	0																1582	11	1593

Location Hill Street Duration 7:00 - 10:00  
 Lord Street -  
 Hill Street 14:30 - 18:00  
 -  
 Date Thursday, 27 March 2025  
 Suburb ROSEVILLE Weather -

All Vehicles Time Per Hour	NORTH Hill Street								EAST Lord Street								TOTAL			
	L		T		R		TOTAL	PEDS	L		T		R		TOTAL	PEDS	TOTAL	LIGHT	HEAVY	TOTAL
	LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY			LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY						
7:00 - 8:00	110	1	111	257	8	265	376	462	93	0	93	92	1	93	186	272	622	12	634	
7:15 - 8:15	109	1	110	304	7	311	421	586	116	0	116	93	3	96	212	381	707	13	720	
7:30 - 8:30	102	1	103	329	7	336	439	597	124	1	125	88	2	90	215	390	751	13	764	
7:45 - 8:45	106	1	107	312	7	319	426	577	108	1	109	82	2	84	193	413	716	12	728	
8:00 - 9:00	97	2	99	279	5	284	383	471	88	1	89	71	2	73	162	354	641	12	653	
8:15 - 9:15	99	2	101	241	5	246	347	346	68	1	69	64	0	64	133	247	566	10	576	
8:30 - 9:30	89	2	91	204	6	210	301	273	51	0	51	53	0	53	104	211	465	10	475	
8:45 - 9:45	71	3	74	193	4	197	271	145	42	0	42	47	0	47	89	116	413	10	423	
9:00 - 10:00	66	2	68	186	4	190	258	123	47	0	47	47	0	47	94	118	403	10	413	
Period End																				
14:30 - 15:30	45	0	45	177	1	178	223	460	51	0	51	51	0	51	102	375	406	4	410	
14:45 - 15:45	53	0	53	176	1	177	230	460	61	0	61	56	0	56	117	364	439	5	444	
15:00 - 16:00	70	0	70	172	1	173	243	541	75	0	75	66	1	67	142	400	487	5	492	
15:15 - 16:15	81	0	81	170	1	171	252	573	80	0	80	66	1	67	147	416	510	4	514	
15:30 - 16:30	80	0	80	159	0	159	239	401	61	0	61	60	2	62	123	251	480	5	485	
15:45 - 16:45	78	0	78	149	0	149	227	378	51	0	51	58	3	61	112	212	453	5	458	
16:00 - 17:00	78	0	78	154	0	154	232	312	42	0	42	52	2	54	96	184	427	4	431	
16:15 - 17:15	76	0	76	144	0	144	220	271	40	0	40	47	2	49	89	159	393	4	397	
16:30 - 17:30	86	0	86	162	0	162	248	294	52	0	52	55	1	56	108	157	447	1	448	
16:45 - 17:45	90	0	90	177	0	177	267	277	56	0	56	61	1	62	118	148	477	1	478	
17:00 - 18:00	79	0	79	169	0	169	248	310	63	0	63	71	1	72	135	159	484	1	485	
Period End																				

All Vehicles Time Per Hour	SOUTH Hill Street								WEST -								TOTAL			
	L		T		R		TOTAL	PEDS	L		T		R		TOTAL	PEDS	TOTAL	LIGHT	HEAVY	TOTAL
	LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY			LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY						
7:00 - 8:00			49	1	50	21	1	22	72	0							622	12	634	
7:15 - 8:15			61	2	63	24	0	24	87	0							707	13	720	
7:30 - 8:30			77	2	79	31	0	31	110	0							751	13	764	
7:45 - 8:45			79	1	80	29	0	29	109	1							716	12	728	
8:00 - 9:00			79	2	81	27	0	27	108	2							641	12	653	
8:15 - 9:15			73	2	75	21	0	21	96	2							566	10	576	
8:30 - 9:30			55	2	57	13	0	13	70	2							465	10	475	
8:45 - 9:45			50	3	53	10	0	10	63	1							413	10	423	
9:00 - 10:00			48	3	51	9	1	10	61	0							403	10	413	
Period End																				
14:30 - 15:30			70	3	73	12	0	12	85	0							406	4	410	
14:45 - 15:45			78	4	82	15	0	15	97	0							439	5	444	
15:00 - 16:00			85	3	88	19	0	19	107	0							487	5	492	
15:15 - 16:15			94	2	96	19	0	19	115	0							510	4	514	
15:30 - 16:30			98	3	101	22	0	22	123	0							480	5	485	
15:45 - 16:45			95	2	97	22	0	22	119	0							453	5	458	
16:00 - 17:00			82	2	84	19	0	19	103	0							427	4	431	
16:15 - 17:15			64	2	66	22	0	22	88	0							393	4	397	
16:30 - 17:30			71	0	71	21	0	21	92	0							447	1	448	
16:45 - 17:45			67	0	67	26	0	26	93	0							477	1	478	
17:00 - 18:00			74	0	74	28	0	28	102	0							484	1	485	
Period End																				





# Appendix C SIDRA Outputs

# MOVEMENT SUMMARY

Site: 101 [101 - Pacific Highway / Clanville Road - 2025 AM  
(Site Folder: 2025 AM Base Case)]

Network: N101 [2025 AM  
(Network Folder: 2025 Base Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 146 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Shirley Rd															
1	L2	All MCs	7	0.0	7	0.0	0.671	78.1	LOS F	7.7	54.3	1.00	0.84	1.06	25.5
2	T1	All MCs	89	0.0	89	0.0	*0.671	73.5	LOS F	7.7	54.3	1.00	0.84	1.06	16.8
3	R2	All MCs	107	1.9	107	1.9	0.671	78.6	LOS F	7.7	54.3	1.00	0.83	1.07	24.7
Approach			203	1.0	203	1.0	0.671	76.3	LOS F	7.7	54.3	1.00	0.83	1.07	21.8
East: Pacific Highway East															
4	L2	All MCs	40	12.5	40	12.5	0.528	13.8	LOS A	14.5	105.1	0.38	0.37	0.38	47.1
5	T1	All MCs	1125	3.4	1125	3.4	0.528	8.2	LOS A	14.5	105.1	0.38	0.36	0.38	52.8
6	R2	All MCs	43	9.3	43	9.3	*0.677	68.5	LOS E	3.3	24.8	0.93	0.90	1.17	18.8
Approach			1208	3.9	1208	3.9	0.677	10.5	LOS A	14.5	105.1	0.40	0.38	0.41	50.9
North: Clanville Rd N															
7	L2	All MCs	65	0.0	65	0.0	0.470	109.4	LOS F	4.3	30.3	0.96	0.76	0.96	19.4
8	T1	All MCs	22	0.0	22	0.0	*0.696	109.8	LOS F	9.0	63.6	1.00	0.85	1.07	19.4
9	R2	All MCs	106	0.9	106	0.9	0.696	113.4	LOS F	9.0	63.6	1.00	0.85	1.07	18.9
Approach			193	0.5	193	0.5	0.696	111.6	LOS F	9.0	63.6	0.99	0.82	1.04	13.7
West: Pacific Highway West															
10	L2	All MCs	291	2.7	291	2.7	0.730	27.8	LOS B	38.9	277.0	0.78	0.76	0.78	33.5
11	T1	All MCs	2013	1.7	2013	1.7	0.730	27.6	LOS B	40.2	285.4	0.78	0.73	0.78	43.7
12	R2	All MCs	23	8.7	23	8.7	0.125	43.4	LOS D	0.9	7.0	0.57	0.70	0.57	37.6
Approach			2327	1.9	2327	1.9	0.730	27.8	LOS B	40.2	285.4	0.77	0.73	0.77	40.3
All Vehicles			3931	2.4	3931	2.4	0.730	29.1	LOS C	40.2	285.4	0.68	0.63	0.69	39.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
					[ Ped ped	Dist ] m					
South: Shirley Rd											
P1	Full	47	67.3	LOS F	0.2	0.2	0.96	0.96	221.1	200.0	0.90

East: Pacific Highway East											
P2	Full	30	67.2	LOS F	0.1	0.1	0.96	0.96	221.1	200.0	0.90
North: Clanville Rd N											
P3	Full	47	67.3	LOS F	0.2	0.2	0.96	0.96	221.1	200.0	0.90
All Pedestrians		124	67.2	LOS F	0.2	0.2	0.96	0.96	221.1	200.0	0.90

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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 \P2792m01.sip9

# MOVEMENT SUMMARY

Site: 102 [102 - Clanville Rd / Hill St - 2025 AM (Site Folder: 2025 AM Base Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 AM (Network Folder: 2025 Base Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Clanville Rd South															
2	T1	All MCs	72	5.6	72	5.6	0.280	0.7	LOS A	1.4	9.8	0.24	0.47	0.24	45.6
3	R2	All MCs	367	2.2	367	2.2	0.280	4.3	LOS A	1.4	9.8	0.24	0.47	0.24	26.2
Approach			439	2.7	439	2.7	0.280	3.7	NA	1.4	9.8	0.24	0.47	0.24	36.3
East: Hill St East															
4	L2	All MCs	97	0.0	97	0.0	0.102	4.8	LOS A	0.3	1.9	0.20	0.48	0.20	41.4
6	R2	All MCs	30	6.7	30	6.7	0.040	7.2	LOS A	0.1	1.0	0.46	0.67	0.46	43.3
Approach			127	1.6	127	1.6	0.102	5.4	LOS A	0.3	1.9	0.26	0.53	0.26	42.2
North: Clanville Rd North															
7	L2	All MCs	72	0.0	72	0.0	0.120	4.6	LOS A	0.0	0.0	0.00	0.23	0.00	47.5
8	T1	All MCs	100	1.0	100	1.0	0.120	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	47.5
Approach			172	0.6	172	0.6	0.120	2.0	NA	0.0	0.0	0.00	0.23	0.00	47.5
All Vehicles			738	2.0	738	2.0	0.280	3.6	NA	1.4	9.8	0.19	0.42	0.19	42.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# MOVEMENT SUMMARY

Site: 103 [103 - Hill St / Lord St - 2025 AM (Site Folder: 2025 AM Base Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 AM (Network Folder: 2025 Base Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
SouthEast: Hill St SE															
22	T1	All MCs	79	2.5	79	2.5	0.097	3.2	LOS A	0.6	4.5	0.60	0.71	0.60	38.2
23	R2	All MCs	31	0.0	31	0.0	0.097	19.5	LOS B	0.6	4.5	0.60	0.71	0.60	43.0
Approach			110	1.8	110	1.8	0.097	7.8	LOS A	0.6	4.5	0.60	0.71	0.60	40.4
NorthEast: Lord St NE															
24	L2	All MCs	125	0.8	125	0.8	0.244	6.0	LOS A	1.0	6.9	0.48	0.68	0.48	42.2
26	R2	All MCs	90	2.2	90	2.2	0.244	8.2	LOS A	1.0	6.9	0.48	0.68	0.48	42.2
Approach			215	1.4	215	1.4	0.244	6.9	LOS A	1.0	6.9	0.48	0.68	0.48	42.2
NorthWest: Hill St NW															
27	L2	All MCs	103	1.0	103	1.0	0.232	4.6	LOS A	0.0	0.0	0.00	0.48	0.00	46.0
28	T1	All MCs	336	2.1	336	2.1	0.232	3.2	LOS A	0.0	0.0	0.00	0.48	0.00	43.9
Approach			439	1.8	439	1.8	0.232	3.5	LOS A	0.0	0.0	0.00	0.48	0.00	44.8
All Vehicles			764	1.7	764	1.7	0.244	5.1	NA	1.0	6.9	0.22	0.57	0.22	43.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# MOVEMENT SUMMARY

Site: 104 [104 - Boundary St / Hill St - 2025 AM (Site Folder: 2025 AM Base Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 AM (Network Folder: 2025 Base Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
North: Hill St North															
7	L2	All MCs	190	1.6	190	1.6	0.165	6.1	LOS A	0.7	4.9	0.44	0.63	0.44	47.6
Approach			190	1.6	190	1.6	0.165	6.1	LOS A	0.7	4.9	0.44	0.63	0.44	47.6
West: Boundary St West															
10	L2	All MCs	28	14.3	28	14.3	0.214	5.8	LOS A	0.0	0.0	0.00	0.04	0.00	59.1
11	T1	All MCs	1127	8.1	1127	8.1	0.214	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			1155	8.2	1155	8.2	0.214	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			1345	7.3	1345	7.3	0.214	1.0	NA	0.7	4.9	0.06	0.10	0.06	57.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# MOVEMENT SUMMARY

Site: 101 [101 - Pacific Highway / Clanville Road - 2025 PM  
(Site Folder: 2025 PM Base Case)]

Network: N101 [2025 PM  
(Network Folder: 2025 Base Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 145 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Shirley Rd															
1	L2	All MCs	17	0.0	17	0.0	0.854	89.8	LOS F	5.3	37.2	1.00	0.96	1.42	23.3
2	T1	All MCs	32	0.0	32	0.0	*0.854	85.2	LOS F	5.3	37.2	1.00	0.96	1.42	15.0
3	R2	All MCs	78	3.8	78	3.8	0.854	90.4	LOS F	5.3	37.2	1.00	0.96	1.44	22.9
Approach			127	2.4	127	2.4	0.854	89.0	LOS F	5.3	37.2	1.00	0.96	1.43	21.3
East: Pacific Highway East															
4	L2	All MCs	51	3.9	51	3.9	*0.899	14.7	LOS B	48.7	344.3	0.64	0.63	0.66	46.7
5	T1	All MCs	2018	0.9	2018	0.9	0.899	11.9	LOS A	48.7	344.3	0.58	0.57	0.61	50.8
6	R2	All MCs	57	0.0	57	0.0	0.334	30.1	LOS C	2.4	17.1	0.61	0.73	0.61	31.6
Approach			2126	1.0	2126	1.0	0.899	12.5	LOS A	48.7	344.3	0.58	0.58	0.61	49.5
North: Clanville Rd N															
7	L2	All MCs	61	0.0	61	0.0	0.540	116.5	LOS F	4.1	29.0	0.98	0.76	0.98	18.9
8	T1	All MCs	31	0.0	31	0.0	*0.879	128.1	LOS F	10.4	73.4	1.00	1.05	1.38	17.1
9	R2	All MCs	111	1.8	111	1.8	0.879	131.8	LOS F	10.4	73.4	1.00	1.05	1.38	16.8
Approach			203	1.0	203	1.0	0.879	126.6	LOS F	10.4	73.4	1.00	0.96	1.26	12.4
West: Pacific Highway West															
10	L2	All MCs	131	0.0	131	0.0	0.426	18.1	LOS B	16.8	118.3	0.52	0.54	0.52	41.3
11	T1	All MCs	1380	1.1	1380	1.1	0.426	14.1	LOS A	17.1	121.0	0.52	0.48	0.52	49.5
12	R2	All MCs	10	0.0	10	0.0	0.154	52.9	LOS D	0.6	3.9	0.75	0.72	0.75	31.2
Approach			1521	1.0	1521	1.0	0.426	14.7	LOS B	17.1	121.0	0.52	0.49	0.52	47.9
All Vehicles			3977	1.0	3977	1.0	0.899	21.6	LOS B	48.7	344.3	0.59	0.58	0.63	43.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
					[ Ped ped	Dist ] m					
South: Shirley Rd											
P1	Full	41	66.7	LOS F	0.2	0.2	0.96	0.96	220.6	200.0	0.91

East: Pacific Highway East											
P2	Full	16	66.7	LOS F	0.1	0.1	0.96	0.96	220.5	200.0	0.91
North: Clanville Rd N											
P3	Full	36	66.7	LOS F	0.1	0.1	0.96	0.96	220.6	200.0	0.91
All Pedestrians		93	66.7	LOS F	0.2	0.2	0.96	0.96	220.6	200.0	0.91

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: 102 [102 - Clanville Rd / Hill St - 2025 PM (Site Folder: 2025 PM Base Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 PM (Network Folder: 2025 Base Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Clanville Rd South															
2	T1	All MCs	79	0.0	79	0.0	0.136	0.5	LOS A	0.6	4.0	0.22	0.38	0.22	46.4
3	R2	All MCs	148	0.0	148	0.0	0.136	4.2	LOS A	0.6	4.0	0.22	0.38	0.22	28.9
Approach			227	0.0	227	0.0	0.136	2.9	NA	0.6	4.0	0.22	0.38	0.22	42.2
East: Hill St East															
4	L2	All MCs	96	1.0	96	1.0	0.128	4.8	LOS A	0.4	2.7	0.21	0.48	0.21	41.4
6	R2	All MCs	47	0.0	47	0.0	0.049	5.8	LOS A	0.2	1.2	0.35	0.60	0.35	44.2
Approach			143	0.7	143	0.7	0.128	5.2	LOS A	0.4	2.7	0.25	0.52	0.25	42.8
North: Clanville Rd North															
7	L2	All MCs	57	0.0	57	0.0	0.082	4.6	LOS A	0.6	4.3	0.00	0.20	0.00	47.8
8	T1	All MCs	100	1.0	100	1.0	0.082	0.0	LOS A	0.6	4.3	0.00	0.20	0.00	47.8
Approach			157	0.6	157	0.6	0.082	1.7	NA	0.6	4.3	0.00	0.20	0.00	47.8
All Vehicles			527	0.4	527	0.4	0.136	3.1	NA	0.6	4.3	0.16	0.37	0.16	44.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# MOVEMENT SUMMARY

Site: 103 [103 - Hill St / Lord St - 2025 PM (Site Folder: 2025 PM Base Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 PM (Network Folder: 2025 Base Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
SouthEast: Hill St SE															
22	T1	All MCs	67	0.0	67	0.0	0.069	3.2	LOS A	0.4	2.8	0.46	0.58	0.46	41.0
23	R2	All MCs	26	0.0	26	0.0	0.069	11.7	LOS A	0.4	2.8	0.46	0.58	0.46	44.4
Approach			93	0.0	93	0.0	0.069	5.6	LOS A	0.4	2.8	0.46	0.58	0.46	42.5
NorthEast: Lord St NE															
24	L2	All MCs	56	0.0	56	0.0	0.115	5.1	LOS A	0.4	3.0	0.33	0.58	0.33	43.2
26	R2	All MCs	62	1.6	62	1.6	0.115	6.2	LOS A	0.4	3.0	0.33	0.58	0.33	43.2
Approach			118	0.8	118	0.8	0.115	5.7	LOS A	0.4	3.0	0.33	0.58	0.33	43.2
NorthWest: Hill St NW															
27	L2	All MCs	90	0.0	90	0.0	0.139	4.6	LOS A	0.0	0.0	0.00	0.49	0.00	45.9
28	T1	All MCs	177	0.0	177	0.0	0.139	3.2	LOS A	0.0	0.0	0.00	0.49	0.00	43.7
Approach			267	0.0	267	0.0	0.139	3.6	LOS A	0.0	0.0	0.00	0.49	0.00	44.9
All Vehicles			478	0.2	478	0.2	0.139	4.5	NA	0.4	3.0	0.17	0.53	0.17	44.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# MOVEMENT SUMMARY

Site: 104 [104 - Boundary St / Hill St - 2025 PM (Site Folder: 2025 PM Base Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 PM (Network Folder: 2025 Base Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn Class	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
North: Hill St North															
7	L2	All MCs	209	1.4	209	1.4	0.187	6.2	LOS A	0.8	5.6	0.46	0.64	0.46	47.6
Approach			209	1.4	209	1.4	0.187	6.2	LOS A	0.8	5.6	0.46	0.64	0.46	47.6
West: Boundary St West															
10	L2	All MCs	61	1.6	61	1.6	0.240	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	58.4
11	T1	All MCs	1300	2.9	1300	2.9	0.240	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.6
Approach			1361	2.9	1361	2.9	0.240	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles			1570	2.7	1570	2.7	0.240	1.1	NA	0.8	5.6	0.06	0.11	0.06	57.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# MOVEMENT SUMMARY

**Site: 101 [101 - Pacific Highway / Clanville Road - 2025 AM  
(Site Folder: 2025 AM Project Case)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

**Network: N101 [2025 AM  
(Network Folder: 2025 Project Case)]**

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 146 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Shirley Rd															
1	L2	All MCs	7	0.0	7	0.0	0.733	80.5	LOS F	7.9	55.5	1.00	0.87	1.13	25.1
2	T1	All MCs	89	0.0	89	0.0	*0.733	75.9	LOS F	7.9	55.5	1.00	0.87	1.13	16.5
3	R2	All MCs	107	1.9	107	1.9	0.733	81.0	LOS F	7.9	55.5	1.00	0.87	1.14	24.3
Approach			203	1.0	203	1.0	0.733	78.7	LOS F	7.9	55.5	1.00	0.87	1.13	21.4
East: Pacific Highway East															
4	L2	All MCs	40	12.5	40	12.5	0.528	13.8	LOS A	14.5	105.1	0.38	0.37	0.38	47.1
5	T1	All MCs	1125	3.4	1125	3.4	0.528	8.2	LOS A	14.5	105.1	0.38	0.36	0.38	52.8
6	R2	All MCs	43	9.3	43	9.3	*0.677	68.6	LOS E	3.3	24.9	0.93	0.90	1.17	18.7
Approach			1208	3.9	1208	3.9	0.677	10.5	LOS A	14.5	105.1	0.40	0.38	0.41	50.9
North: Clanville Rd N															
7	L2	All MCs	80	0.0	80	0.0	0.571	109.9	LOS F	5.4	37.7	0.98	0.78	0.98	19.4
8	T1	All MCs	22	0.0	22	0.0	*0.726	110.5	LOS F	9.5	66.7	1.00	0.87	1.10	19.3
9	R2	All MCs	111	0.9	111	0.9	0.726	114.1	LOS F	9.5	66.7	1.00	0.87	1.10	18.8
Approach			213	0.5	213	0.5	0.726	112.2	LOS F	9.5	66.7	0.99	0.84	1.06	13.6
West: Pacific Highway West															
10	L2	All MCs	292	2.7	292	2.7	0.730	27.8	LOS B	38.9	277.2	0.78	0.77	0.78	33.5
11	T1	All MCs	2013	1.7	2013	1.7	0.730	27.7	LOS B	40.2	285.6	0.78	0.73	0.78	43.7
12	R2	All MCs	23	8.7	23	8.7	0.125	43.4	LOS D	0.9	7.0	0.57	0.70	0.57	37.6
Approach			2328	1.9	2328	1.9	0.730	27.8	LOS B	40.2	285.6	0.78	0.73	0.78	40.3
All Vehicles			3952	2.4	3952	2.4	0.733	29.7	LOS C	40.2	285.6	0.68	0.64	0.70	38.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
					[ Ped ped	Dist ] m					
South: Shirley Rd											
P1	Full	47	67.3	LOS F	0.2	0.2	0.96	0.96	221.1	200.0	0.90

East: Pacific Highway East											
P2	Full	30	67.2	LOS F	0.1	0.1	0.96	0.96	221.1	200.0	0.90
North: Clanville Rd N											
P3	Full	47	67.3	LOS F	0.2	0.2	0.96	0.96	221.1	200.0	0.90
All Pedestrians		124	67.2	LOS F	0.2	0.2	0.96	0.96	221.1	200.0	0.90

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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 \P2792m01.sip9

# MOVEMENT SUMMARY

Site: 102 [102 - Clanville Rd / Hill St - 2025 AM (Site Folder: 2025 AM Project Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 AM (Network Folder: 2025 Project Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Clanville Rd South															
2	T1	All MCs	72	5.6	72	5.6	0.281	0.7	LOS A	1.4	9.8	0.24	0.47	0.24	45.6
3	R2	All MCs	368	2.2	368	2.2	0.281	4.3	LOS A	1.4	9.8	0.24	0.47	0.24	26.2
Approach			440	2.7	440	2.7	0.281	3.7	NA	1.4	9.8	0.24	0.47	0.24	36.2
East: Hill St East															
4	L2	All MCs	117	0.0	117	0.0	0.132	4.8	LOS A	0.3	2.4	0.21	0.48	0.21	41.4
6	R2	All MCs	30	6.7	30	6.7	0.041	7.2	LOS A	0.1	1.0	0.46	0.67	0.46	43.3
Approach			147	1.4	147	1.4	0.132	5.3	LOS A	0.3	2.4	0.26	0.52	0.26	42.1
North: Clanville Rd North															
7	L2	All MCs	72	0.0	72	0.0	0.126	4.6	LOS A	0.0	0.0	0.00	0.23	0.00	47.5
8	T1	All MCs	100	1.0	100	1.0	0.126	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	47.5
Approach			172	0.6	172	0.6	0.126	2.0	NA	0.0	0.0	0.00	0.23	0.00	47.5
All Vehicles			759	2.0	759	2.0	0.281	3.6	NA	1.4	9.8	0.19	0.43	0.19	42.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# MOVEMENT SUMMARY

Site: 103 [103 - Hill St / Lord St - 2025 AM (Site Folder: 2025 AM Project Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 AM (Network Folder: 2025 Project Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
SouthEast: Hill St SE															
22	T1	All MCs	79	2.5	79	2.5	0.106	3.2	LOS A	0.7	4.9	0.61	0.73	0.61	37.8
23	R2	All MCs	35	0.0	35	0.0	0.106	19.2	LOS B	0.7	4.9	0.61	0.73	0.61	42.8
Approach			114	1.8	114	1.8	0.106	8.1	LOS A	0.7	4.9	0.61	0.73	0.61	40.3
NorthEast: Lord St NE															
24	L2	All MCs	134	0.7	134	0.7	0.282	6.1	LOS A	1.2	8.3	0.50	0.69	0.51	42.0
26	R2	All MCs	110	1.8	110	1.8	0.282	8.3	LOS A	1.2	8.3	0.50	0.69	0.51	42.0
Approach			244	1.2	244	1.2	0.282	7.1	LOS A	1.2	8.3	0.50	0.69	0.51	42.0
NorthWest: Hill St NW															
27	L2	All MCs	104	1.0	104	1.0	0.232	4.6	LOS A	0.0	0.0	0.00	0.48	0.00	46.0
28	T1	All MCs	336	2.1	336	2.1	0.232	3.2	LOS A	0.0	0.0	0.00	0.48	0.00	43.9
Approach			440	1.8	440	1.8	0.232	3.5	LOS A	0.0	0.0	0.00	0.48	0.00	44.8
All Vehicles			798	1.6	798	1.6	0.282	5.3	NA	1.2	8.3	0.24	0.58	0.24	43.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# MOVEMENT SUMMARY

Site: 104 [104 - Boundary St / Hill St - 2025 AM (Site Folder: 2025 AM Project Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 AM (Network Folder: 2025 Project Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn Class	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
North: Hill St North															
7	L2	All MCs	199	1.5	199	1.5	0.173	6.1	LOS A	0.7	5.1	0.44	0.63	0.44	47.6
Approach			199	1.5	199	1.5	0.173	6.1	LOS A	0.7	5.1	0.44	0.63	0.44	47.6
West: Boundary St West															
10	L2	All MCs	32	12.5	32	12.5	0.215	5.7	LOS A	0.0	0.0	0.00	0.05	0.00	59.0
11	T1	All MCs	1127	8.1	1127	8.1	0.215	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach			1159	8.2	1159	8.2	0.215	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles			1358	7.2	1358	7.2	0.215	1.1	NA	0.7	5.1	0.06	0.11	0.06	57.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# MOVEMENT SUMMARY

Site: 101 [101 - Pacific Highway / Clanville Road - 2025 PM  
(Site Folder: 2025 PM Project Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 PM  
(Network Folder: 2025 Project Case)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 145 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Shirley Rd															
1	L2	All MCs	17	0.0	17	0.0	0.854	89.8	LOS F	5.3	37.2	1.00	0.96	1.42	23.3
2	T1	All MCs	32	0.0	32	0.0	*0.854	85.2	LOS F	5.3	37.2	1.00	0.96	1.42	15.0
3	R2	All MCs	78	3.8	78	3.8	0.854	90.4	LOS F	5.3	37.2	1.00	0.96	1.44	22.9
Approach			127	2.4	127	2.4	0.854	89.0	LOS F	5.3	37.2	1.00	0.96	1.43	21.3
East: Pacific Highway East															
4	L2	All MCs	51	3.9	51	3.9	*0.899	14.8	LOS B	48.9	345.3	0.64	0.63	0.66	46.6
5	T1	All MCs	2018	0.9	2018	0.9	0.899	12.0	LOS A	48.9	345.3	0.58	0.57	0.61	50.7
6	R2	All MCs	57	0.0	57	0.0	0.336	30.2	LOS C	2.4	17.1	0.61	0.73	0.61	31.6
Approach			2126	1.0	2126	1.0	0.899	12.5	LOS A	48.9	345.3	0.58	0.58	0.61	49.5
North: Clanville Rd N															
7	L2	All MCs	64	0.0	64	0.0	0.577	117.4	LOS F	4.4	30.7	0.99	0.78	1.02	18.8
8	T1	All MCs	31	0.0	31	0.0	*0.895	131.0	LOS F	10.4	73.4	1.00	1.08	1.42	16.8
9	R2	All MCs	112	1.8	112	1.8	0.895	134.6	LOS F	10.4	73.4	1.00	1.08	1.42	16.4
Approach			207	1.0	207	1.0	0.895	128.8	LOS F	10.4	73.4	1.00	0.99	1.30	12.3
West: Pacific Highway West															
10	L2	All MCs	135	0.0	135	0.0	0.427	18.1	LOS B	16.8	118.7	0.52	0.54	0.52	41.2
11	T1	All MCs	1380	1.1	1380	1.1	0.427	14.2	LOS A	17.2	121.5	0.52	0.49	0.52	49.5
12	R2	All MCs	10	0.0	10	0.0	0.154	52.9	LOS D	0.6	3.9	0.75	0.72	0.75	31.2
Approach			1525	1.0	1525	1.0	0.427	14.8	LOS B	17.2	121.5	0.52	0.49	0.52	47.8
All Vehicles			3985	1.0	3985	1.0	0.899	21.9	LOS B	48.9	345.3	0.59	0.58	0.64	43.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
					[ Ped ped	Dist ] m					
South: Shirley Rd											
P1	Full	41	66.7	LOS F	0.2	0.2	0.96	0.96	220.6	200.0	0.91

East: Pacific Highway East											
P2	Full	16	66.7	LOS F	0.1	0.1	0.96	0.96	220.5	200.0	0.91
North: Clanville Rd N											
P3	Full	36	66.7	LOS F	0.1	0.1	0.96	0.96	220.6	200.0	0.91
All Pedestrians		93	66.7	LOS F	0.2	0.2	0.96	0.96	220.6	200.0	0.91

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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 \P2792m01.sip9

# MOVEMENT SUMMARY

Site: 102 [102 - Clanville Rd / Hill St - 2025 PM (Site Folder: 2025 PM Project Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 PM (Network Folder: 2025 Project Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Clanville Rd South															
2	T1	All MCs	79	0.0	79	0.0	0.137	0.5	LOS A	0.6	4.0	0.22	0.38	0.22	46.4
3	R2	All MCs	149	0.0	149	0.0	0.137	4.2	LOS A	0.6	4.0	0.22	0.38	0.22	28.9
Approach			228	0.0	228	0.0	0.137	2.9	NA	0.6	4.0	0.22	0.38	0.22	42.2
East: Hill St East															
4	L2	All MCs	99	1.0	99	1.0	0.132	4.8	LOS A	0.5	3.8	0.21	0.48	0.21	41.4
6	R2	All MCs	47	0.0	47	0.0	0.049	5.8	LOS A	0.2	1.2	0.35	0.60	0.35	44.2
Approach			146	0.7	146	0.7	0.132	5.2	LOS A	0.5	3.8	0.25	0.52	0.25	42.8
North: Clanville Rd North															
7	L2	All MCs	57	0.0	57	0.0	0.082	4.6	LOS A	0.8	5.8	0.00	0.20	0.00	47.8
8	T1	All MCs	100	1.0	100	1.0	0.082	0.0	LOS A	0.8	5.8	0.00	0.20	0.00	47.8
Approach			157	0.6	157	0.6	0.082	1.7	NA	0.8	5.8	0.00	0.20	0.00	47.8
All Vehicles			531	0.4	531	0.4	0.137	3.2	NA	0.8	5.8	0.16	0.37	0.16	44.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# MOVEMENT SUMMARY

Site: 103 [103 - Hill St / Lord St - 2025 PM (Site Folder: 2025 PM Project Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 PM (Network Folder: 2025 Project Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
SouthEast: Hill St SE															
22	T1	All MCs	67	0.0	67	0.0	0.083	3.2	LOS A	0.5	3.2	0.46	0.59	0.46	40.8
23	R2	All MCs	37	0.0	37	0.0	0.083	10.3	LOS A	0.5	3.2	0.46	0.59	0.46	44.3
Approach			104	0.0	104	0.0	0.083	5.7	LOS A	0.5	3.2	0.46	0.59	0.46	42.7
NorthEast: Lord St NE															
24	L2	All MCs	58	0.0	58	0.0	0.118	5.1	LOS A	0.4	3.1	0.33	0.58	0.33	43.2
26	R2	All MCs	63	1.6	63	1.6	0.118	6.3	LOS A	0.4	3.1	0.33	0.58	0.33	43.2
Approach			121	0.8	121	0.8	0.118	5.7	LOS A	0.4	3.1	0.33	0.58	0.33	43.2
NorthWest: Hill St NW															
27	L2	All MCs	91	0.0	91	0.0	0.140	4.6	LOS A	0.0	0.0	0.00	0.49	0.00	45.9
28	T1	All MCs	177	0.0	177	0.0	0.140	3.2	LOS A	0.0	0.0	0.00	0.49	0.00	43.7
Approach			268	0.0	268	0.0	0.140	3.6	LOS A	0.0	0.0	0.00	0.49	0.00	44.9
All Vehicles			493	0.2	493	0.2	0.140	4.6	NA	0.5	3.2	0.18	0.53	0.18	44.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# MOVEMENT SUMMARY

Site: 104 [104 - Boundary St / Hill St - 2025 PM (Site Folder: 2025 PM Project Case)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2025 PM (Network Folder: 2025 Project Case)]

New Site  
 Site Category: (None)  
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn Class	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
North: Hill St North															
7	L2	All MCs	211	1.4	211	1.4	0.187	6.2	LOS A	0.8	5.6	0.45	0.64	0.45	47.6
Approach			211	1.4	211	1.4	0.187	6.2	LOS A	0.8	5.6	0.45	0.64	0.45	47.6
West: Boundary St West															
10	L2	All MCs	72	1.4	72	1.4	0.242	5.6	LOS A	0.0	0.0	0.00	0.09	0.00	58.2
11	T1	All MCs	1300	2.9	1300	2.9	0.242	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach			1372	2.8	1372	2.8	0.242	0.4	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles			1583	2.7	1583	2.7	0.242	1.1	NA	0.8	5.6	0.06	0.11	0.06	57.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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 Gap.

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.

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# Appendix D Vehicle Swept Paths



ASION ACCEPTS NO RESPONSIBILITY FOR THE USE OF UNAPPROVED PLANS IN ANY CONSTRUCTION OR FOR ANY COMMERCIAL PURPOSES. SET OUT DIMENSIONS OF ALL DESIGN LINES, GRID LINES, CONTROL LINES, RECOVERY MARKS AND BENCH MARKS SHOULD BE VERIFIED AND CONFIRMED AGAINST THE LATEST INFORMATION AT CONSTRUCTION. ASION IS TO BE NOTIFIED IMMEDIATELY OF ANY ERROR OR DISCREPANCY AND THE MATTER RESOLVED PRIOR TO THE COMMENCEMENT OR CONTINUATION OF ANY WORK. THIS NOTE IS AN INTEGRAL PART OF THIS PLAN/DATA. REPRODUCTION OF THIS PLAN OR ANY PART OF IT WITHOUT THE WRITTEN PERMISSION OF ASION GROUP IS STRICTLY PROHIBITED. THE INFORMATION SHOWN ON SUCH REPRODUCTION IS UNLAWFUL AND NOT SUITABLE FOR USE. ASION GROUP SHALL BE LIABLE TO THE USER OF THIS INFORMATION FOR ANY LOSS OR DAMAGE CAUSED BY THE USER'S RELIANCE ON THIS INFORMATION. THE USER SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED TO ASION GROUP. THE USER SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED TO ASION GROUP. THE USER SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED TO ASION GROUP.



**Small Garbage Vehicle**

**VEHICLE ENVELOPE**

- 300mm CLEARANCE
- 500mm CLEARANCE

Overall Length: 6.640m  
 Overall Width: 2.370m  
 Overall Body Height: 2.600m  
 Min Body Ground Clearance: 0.160m  
 Track Width: 2.370m  
 Lock-to-lock time: 6.00s  
 Curb to Curb Turning Radius: 7.100m

**GENERAL NOTES**

This drawing is provided for information purposes only and should not be used for construction.  
 Base Plan: Prepared by Fender Katsalidis, dated 2 October 2025.  
 Aerial: Nearmap

DESIGNED Connor Hoang	PAPER SIZE A3
APPROVED BY Rhys Hazell	DATE 03.11.2025
SCALE 1:300	0 3 6

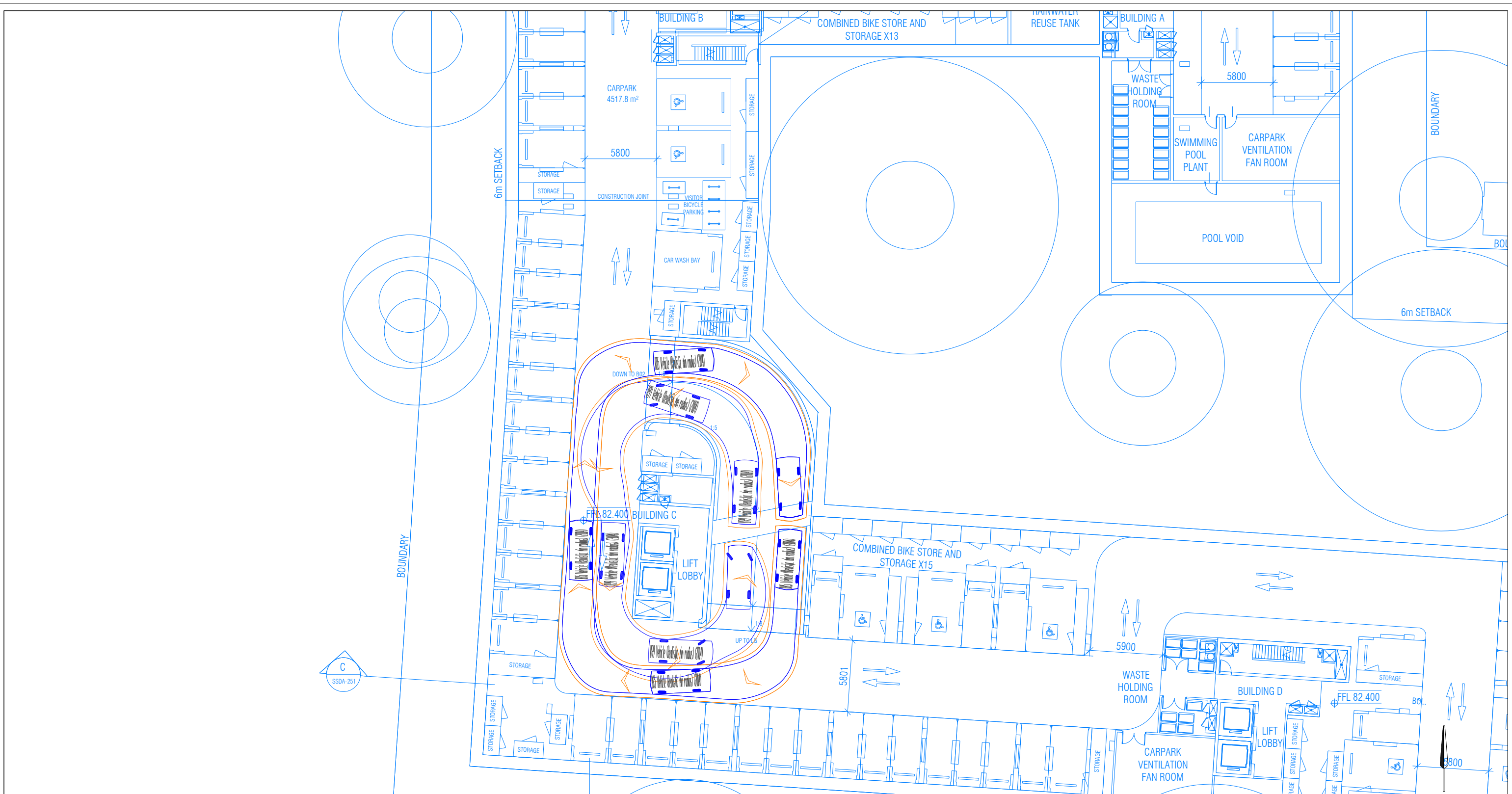
CLIENT Hycorp Property Group
PROJECT P2792
16-24 Lord Street & 21-27 Roseville Avenue, Roseville

DOCUMENT INFORMATION	
SWEPT PATH ASSESSMENT	
FILE NAME AG2792_01_v05.dwg	SHEET AG02

**asongroup**

Suite 17.02, Level 17, 1 Castlereagh St  
 Sydney NSW 2000  
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B99 Vehicle (AS/NZS2890.1:2004)	
<b>VEHICLE ENVELOPE</b>	
<b>300mm CLEARANCE</b>	
<b>500mm CLEARANCE</b>	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.30m

B85 Vehicle (AS/NZS2890.1:2004)	
<b>VEHICLE ENVELOPE</b>	
<b>300mm CLEARANCE</b>	
<b>500mm CLEARANCE</b>	
Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

**GENERAL NOTES**

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Base Plan: Prepared by Fender Katsalidis, dated 2 October 2025.

Aerial: Nearmap

DESIGNED Connor Hoang	PAPER SIZE A3	CLIENT Hycorp Property Group
APPROVED BY Rhys Hazell	DATE 03.11.2025	PROJECT P2792
SCALE 1:300		16-24 Lord Street & 21-27 Roseville Avenue, Roseville

DOCUMENT INFORMATION	
SWEPT PATH ASSESSMENT	
FILE NAME AG2792_01_v05.dwg	SHEET AG03

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