SSD-99319962

Site "A"
Leppington Civic Centre
173-183 Rickard Road,
Leppington

TRAFFIC AND PARKING ASSESSMENT REPORT

1 June 2026

Ref 26067

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1.0 INTRODUCTION

1.1 Project Summary

This report has been prepared by *Varga Traffic Planning* on behalf of *Leppington (1) 88 Development Pty Ltd* (the **Applicant**) to address the project-specific Secretary's Environmental Assessment Requirements (SEARs) issued for the proposed State Significant Development Application (SSDA) SSD-99319962. The development is located at 173-183 Rickard Road, Leppington (the **Site**) and is located within the South West Growth Area (SWGA) within the Camden Local Government Area (LGA).

The project seeks detailed development consent for the construction of Leppington Civic Centre, comprising shop top housing to support residential development and commercial land uses at 173-183 Rickard Road, Leppington (Figures 1 and 2).

Specifically, the SSDA seeks consent for:

- Demolition and earthworks to prepare the site for future development

- Construction of 8 residential buildings to accommodate:

  - 1493 units, with a portion allocated for affordable housing
  - Approximately 32,321 sqm of retail/commercial Gross Floor Area (GFA)
  - Approximately 156-key hotel
  - Loading and car parking facilities on the lower ground and basement levels

- Approximately 6,500 sqm of open space

The development proposal also includes the construction of new local/internal roads which will provide pedestrian and vehicular access to the proposed development.

Off-street parking is proposed for a total of 3,048 cars in a new seven-level basement car parking area. Vehicular access to the site is to be provided via two new entry/exit driveways located off the new internal roads.

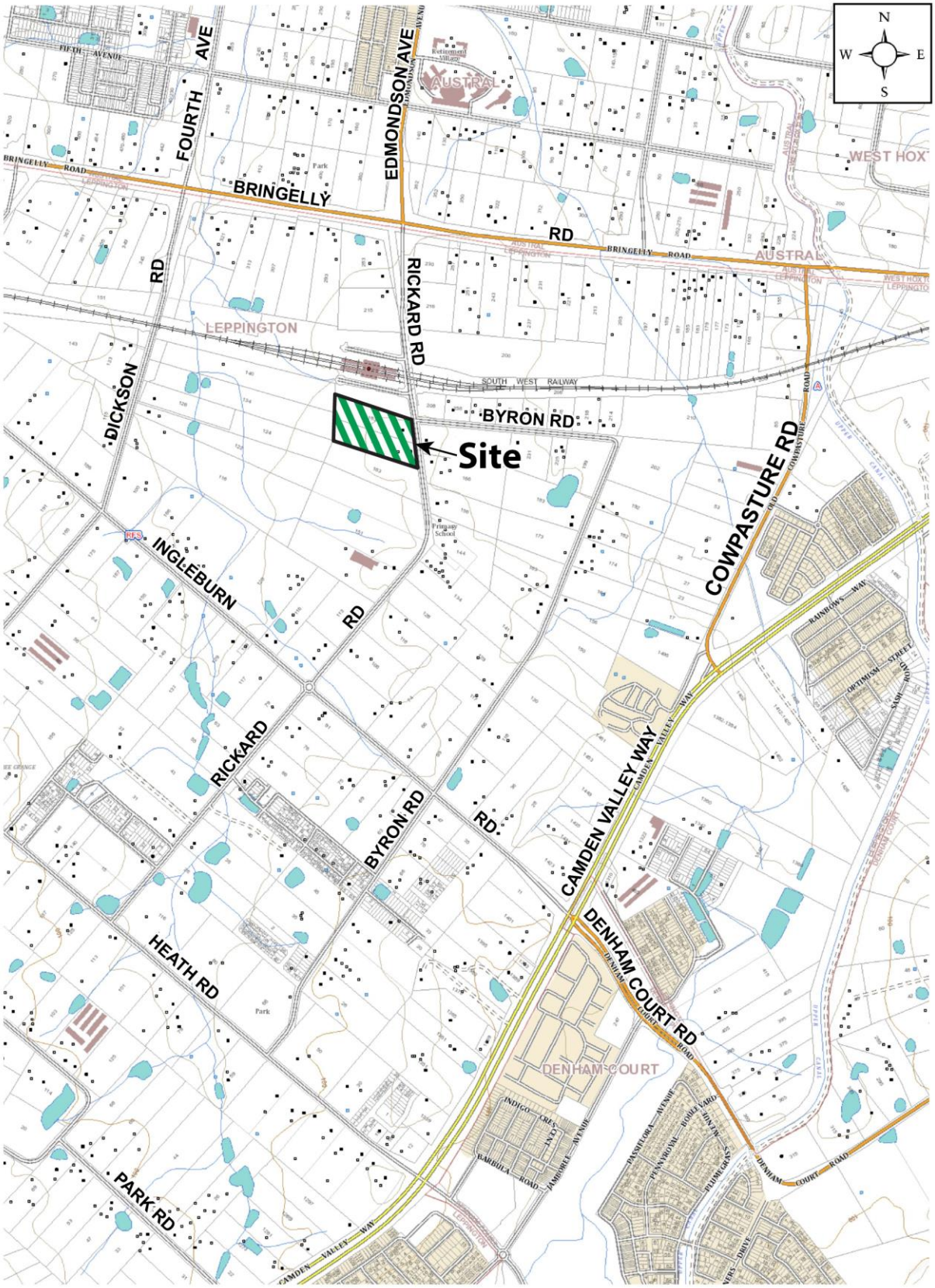
The proposed development is supported by a concurrent rezoning application seeking amendments to the *State Environmental Planning Policy (Precincts – Western Parkland City) 2021, Appendix 5 Camden Growth Centres Precinct Plan* pursuant to the concurrent rezoning process through the Housing Delivery Authority (**HDA**) planning pathway.

The concurrent rezoning will provide the rezoning and variations to development standards required to facilitate the delivery of the Civic Core Precinct and Leppington Town Centre, generally in accordance with the *Leppington Town Centre State-Assessed Rezoning Proposal (SARP).*

1.2 Purpose of this Report

The purpose of this report is to assess the traffic and parking implications of the development proposal and to that end this report:

- describes the site and provides details of the development proposal
- reviews the road network in the vicinity of the site, and the traffic conditions on that road network
- estimates the traffic generation potential of the development proposal, and assigns that traffic generation to the road network serving the site
- assesses the traffic implications of the development proposal in terms of road network capacity
- reviews the geometric design features of the proposed car parking and loading facilities for compliance with the relevant codes and standards
- assesses the adequacy and suitability of the quantum of off-street car parking and loading provided on the site



VARGA TRAFFIC PLANNING Pty Ltd
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LOCATION
FIGURE 1

VARGA TRAFFIC PLANNING Pty Ltd
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SITE
FIGURE 2

1.3 Secretary's Environmental Assessment Requirements

I Robert Varga, confirm this traffic and parking assessment report addresses the requirement of *SEAR No. 9 – Transport and Access* as well as relevant State and local legislation, policies, and guidelines including:

- Roads Act 1993 (NSW)
- State Environmental Planning Policy (Transport and Infrastructure) 2021
- State Environmental Planning Policy (Housing) 2021
- Guide to Transport Impact Assessment (Transport for NSW, Version 1.1 2024)
- Standards Australia AS2890.1 – 2004 (Part 1: Off-street Car Parking)
- Standards Australia AS2890.2 – 2018 (Part 2: Off-street commercial vehicle facilities)
- Standards Australia AS2890.3 – 2015 (Part 3: Bicycle Parking)
- Standards Australia AS2890.6 – 2022 (Part 6: Off-street parking for people with disabilities)
- Traffic Control at Work Sites 2020 (Transport for NSW)

I further confirm that none of the information contained in the traffic and parking assessment report is false or misleading.

Robert Varga
Director
Varga Traffic Planning Pty Ltd

A preliminary Construction Traffic Management Plan (CTMP) has also been included as part of this report, noting that a detailed CTMP will be provided *prior* to the issue of the Construction Certificate. In addition, a separate *Green Travel Plan* has been provided under a separate cover.

The table below details where each of the items raised by the Secretary's Environmental Assessment Requirements (SEARs) issued on 15 December 2025 for the State Significant Development (SSD), SSD-99319962, have been addressed in this report.

Secretary's Environmental Assessment Requirements

SEARs Requirements	Report Section
9. Transport	
– Provide a Transport Impact Assessment (TIA) in accordance with the processes and methodology recommended in the *Guide to Transport Impact Assessment* (GITA) published by TfNSW.	This Report
– 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	Refer to CTMP
Additional Assessment Requirements	**Report Section**
Transport for NSW: The adjoining site is owned by Transport for NSW and currently forms the commuter carpark and bus interchange for Leppington Station. The Department consulted with Transport for NSW and Sydney Trains as part of the preparation of the SEARs (copies attached). The EIS must address the issues raised by both agencies and ongoing consultation must take place as the development progresses and the EIS is prepared.	Chapter 1.4

1.4 Transport for NSW Recommendations

This report also addresses the items raised by TfNSW in their letter dated 5 December 2025 to the *Department of Planning, Housing and Infrastructure (DPHI)* in respect to the abovementioned development proposal (SSD-99319962).

The table below details where the responses to each of items raised under *Tab A – TfNSW suggested inclusions* have been addressed in this report.

Transport for NSW Requirements

Tab A – TfNSW advisory comment and suggested inclusions	Report Section
*Transport Impact Assessment (**TIA**)*: A TIA shall be prepared in accordance with the Guide to Transport Impact Assessment (**GTIA**). GTIA replaces the Guide to Traffic Generating Developments and can be found at this link. The TIA will enable TfNSW to understand the impacts the development may have on the transport network, as well as the impacts to the state classified road network resulting from increased vehicular, bus and pedestrian/active transport movements. The TIA must include, but not be limited to, the following:	This Report

• Details of the adequacy of existing public transport or any future public transport infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand for the proposed development; and	Chapter 2.3, 3.5, 3.6
• Measures to integrate the development with the existing/future public transport network.	Chapter 2.4
• A review of the crash data along the identified transport route/s and key nearby intersections for the most recent 5-year reporting period and an assessment of the safety implications of the proposed development and required mitigation measures.	Chapter 3.3
• Details of the site access and pedestrian network and parking provision associated with the proposed development, in accordance with the relevant Australian Standards, Austroads Guide and Council's Development Control Plan (**DCP**).	Chapter 2.4, 5.2, & 5.3
• An assessment of the predicted impacts of development traffic on road safety and the capacity of the road network, including consideration of cumulative impacts of nearby approved developments at key intersections on Bringelly Road/Rickard Road/Edmondson Ave, using SIDRA or similar traffic model (further details at point 2 below).	Chapter 3.9
• Identification of the necessary road network infrastructure upgrades (e.g. signage, pedestrian facilities, intersection upgrades, etc.) on Bringelly Road/Rickard Road that are required to mitigate the development impact on the classified road network, in terms of safety and efficiency for both vehicles and pedestrians. Any proposed intersection upgrades on Rickard Road should consider the broader growth planned for the Leppington precinct. Any required/proposed road network infrastructure upgrades/mitigation measures should be developed in consultation with TfNSW and Council.	Chapter 3.9
• Plans demonstrating how all vehicles likely to be generated during construction can be accommodated on the site to avoid impacts to the transport network. A preliminary Construction Transport Management Plan (**CTMP**) should be prepared as part of the TIA to mitigate any such impacts.	Section 4
• Given the sites proximity to Leppington Train Station and bus interchange TfNSW encourages the proposal to minimise the reliance on car usage through providing minimal parking spaces and the implementation of Travel Demand Management (**TDM**) measures.	Refer to GTP
• The site adjoins the existing bus terminal and rail station, TfNSW does not support any changes to the existing access arrangements for these two facilities. The future project should not interfere with the existing access arrangements. The Rickard Road upgrade is under the care and control of Camden Council.	
• Details of TDM measures to be utilised to minimise the development impact on	Refer to GTP

general traffic and bus operations, including details of a location-specific sustainable travel plan (Green Travel Plan and/or specific Workplace Travel Plan) and the provision of facilities to increase the non-car mode share for travel to and from the site.	
Traffic Modelling: Detailed traffic modelling (e.g. SIDRA) will be required to document the impact of the proposed development on the existing and proposed road network with an existing base and a +10-year background traffic growth scenarios, with and without the proposed development, for weekday AM, PM and weekend peak periods. At a minimum, the traffic modelling should include the following intersections: • Rickard Road / Bringelly Road. • Rickard Road / Ingleburn Road. • Rickard Road / Heath Road. Modelling undertaken must include, but not be limited to, the following: • Be based on current traffic counts; • Ensure the base model is calibrated with on-site observations (e.g. queue lengths, delays). Details on the calibration undertaken must be provided; • Details of any default settings that have been changed, along with supporting justification for each change; and • Ensure the electronic copies of all modelling files are provided to TfNSW for review. SCATS data for signalised intersections can be requested via SCATS.Traffic.Signal.Data@transport.nsw.gov.au. TfNSW recommends that the traffic modelling and concept design be submitted to TfNSW for review during the early stages of the project development. TfNSW is willing to meet with the Applicant to discuss the appropriate access strategy and intersection design for the proposed development.	Chapter 3.7, 3.8, & 3.9
Active Transport: The development should ensure its design is reflective of the Connecting Strategy and the NSW Active Transport Strategy, including, but not limited to: • Delivering integrated land use and transport planning, connecting people to their local metro centre and strategic centres within 30 minutes by public transport; • Enable 15-minute neighbourhoods; • Deliver connected and continuous cycling networks; and • Promote safer and better precincts and main streets.	Refer to GTP
Car Parking: As the site is currently well serviced by rail, and bus and will benefit from the proximity to the public transport network, consideration should be given to ensuring	Chapter 5.2

that car parking provisions are consistent with the requirements identified in the GTIA.	
Sydney Trains: Due to the site's proximity to Leppington Station, TfNSW recommends early engagement with Transport Asset Manager (**TAM**) to understand design requirements related to likely noise and vibration prior to formal submission of a future SSDA.	Refer to EIS
Rezoning: TfNSW notes that this SSDA is subject to a concurrent Planning Proposal to amend the planning controls applying to the site from B3 Commercial Centre to MU1 Mixed Use to enable associated uplift in height and floor space ratio. Details of the proposed amendments to facilitate this development should be provided as part of the Planning Proposal documentation and early consultation with TfNSW is encouraged in the process.	Refer to EIS and Rezoning Proposal

1.5 Council's Comments

On 22 May Camden Council provided their written comments following the meeting held on 15 April.

The table below details where the responses to each traffic/parking item raised in Council's comments have been addressed in this report.

Quantum of Parking	▪ The parking provision should be set at the minimum necessary level, consistent with a centre that encourages walking, cycling and public transport use. ▪ A high parking, car dependent model is inconsistent with the site's strategic location and the intended urban outcomes.	Chapter 2.5 & 5.2
Integration of cycling	To ensure the development integrates properly with the broader movement network, it would be useful for the development / future application to show the full resolution of the surrounding street network, not only the portion the DA is directly responsible for delivering. This site will become a major destination, and its success depends on how well it connects to the wider cycling network, pedestrian routes, and public domain structure. Any application should demonstrate how the proposed design will support safe, legible and continuous cycling connections. That is: ▪ how people riding bikes will transition into and out of the site	Chapter 2.9 & 5.3

	▪ whether the geometry, widths and alignments of the full street allow for protected cycle paths ▪ how the development interfaces with future upgrades planned by Council (or other developers). This development will anchor a key part of the town centre and the surrounding streets are the primary arrival points for people walking, cycling and using public transport. If these connections are not resolved holistically, the development risks becoming inward facing and car dependent, undermining the strategic intent for a walkable, transit oriented centre. For these reasons it is encouraged that the next iteration of the plans include: ▪ a full road design for each frontage, showing how cycle infrastructure, footpaths, planting zones and vehicle lanes are accommodated ▪ clear demonstration of how the development ties into the existing and future cycling network ▪ confirmation that the street design supports safe, intuitive movement for all users ▪ evidence that the proponent has considered the broader public domain vision, not just the boundaries of the site.	
	Byron and Rickard Roads: *Latest assumptions on the interim and ultimate design for the Byron Road and Rickard Road intersection.* A part of the ongoing development of the scheme a comprehensive traffic modelling and assessment for the proposed development within the Leppington Town Centre must be carried out. The study must assess the interaction between the proposed development, surrounding road network, public transport operations, pedestrian activity, and future planned developments within the precinct.	Chapters 2.9, 3.7, 3.8, 3.9

2.0 PROPOSED DEVELOPMENT

2.1 Site

The subject site is located on the western side of Rickard Road, opposite the Rickard Road and Byron Road intersection. The site is irregular in shape and has a street frontage of approximately 142.5m in length to Water Street and occupies an area of approximately 32,420m^2.

The site is currently zoned *B3 Commercial Core* and *SP2 Infrastructure* under the *State Environmental Planning Policy (Precincts – Western Parkland City) 2021* and is located approximately 100m south of Leppington Railway Station. The site is currently occupied by two dwelling houses with associated outbuildings. Off-street parking is provided on the site with vehicular access provided via respective access driveways located off Rickard Road.

A recent aerial image of the site and its surroundings is reproduced below, indicating that construction of the future local road network is yet to be commenced.

Source: Nearmap (Dated Mon Mar 16 2026)

2.2 Leppington Major Centre

The subject site is located within "Leppington Major Centre" as outlined in the *Camden Growth Centre Precincts DCP – Schedule 2 Leppington Major Centre* document. The *DCP* envisages Leppington Major Centre to be the primary focus for employment, retailing, entertainment and community services in the South West Growth Centre.

The "Leppington Major Centre" is an integral part of the South West Growth Area (SWGA), adjoining the Western Sydney Aerotropolis and the Glenfield to Macarthur Urban Renewal Corridor. The SWGA involves NSW Department of Planning and Environment working with local councils and communities to help provide new homes in the south west of Sydney that are close to jobs, parks, schools, and amenities.

The DCP vision for Leppington Major Centre is to be a destination for all residents within the SWGA, with the following objectives:

- establish a primary regional hub for employment, retail, and community services within the SWGA
- concentrate activity around Leppington Station, leveraging high-frequency public transport as the anchor for land use, access and urban structure
- deliver a walkable, fine-grained street network that prioritises pedestrians, cyclists and public transport while still supporting efficient vehicle and service access
- create a high-quality public domain of active streets, plazas, parks and green corridors that encourage social interaction, recreation and safe movement
- integrate natural features, taking advantage of Scalabrini Creek and Bonds Creek
- provide a diverse mix of land uses to encourage vibrancy and to create a wide range of employment opportunities
- enable long-term, flexible growth, ensuring development can occur in stages while maintaining the structural framework of the centre.

Development will be focused on the Leppington train station and will comprise a network of active streets, parks and plazas. The DCP promotes a diverse mix of land uses, concentrating activity around Rickard Road and Main Street.

2.3 Leppington Town Centre Planning Proposal

In 2021-2022, Liverpool City Council and Camden Council jointly submitted planning proposals (PP-2023-284) to the Department to amend the Leppington Town Centre planning controls. The proposals responded to significant changes since the original rezoning in 2013, including development of the Western Sydney Airport and Aerotropolis, and potential rail extensions from Leppington Town Centre.

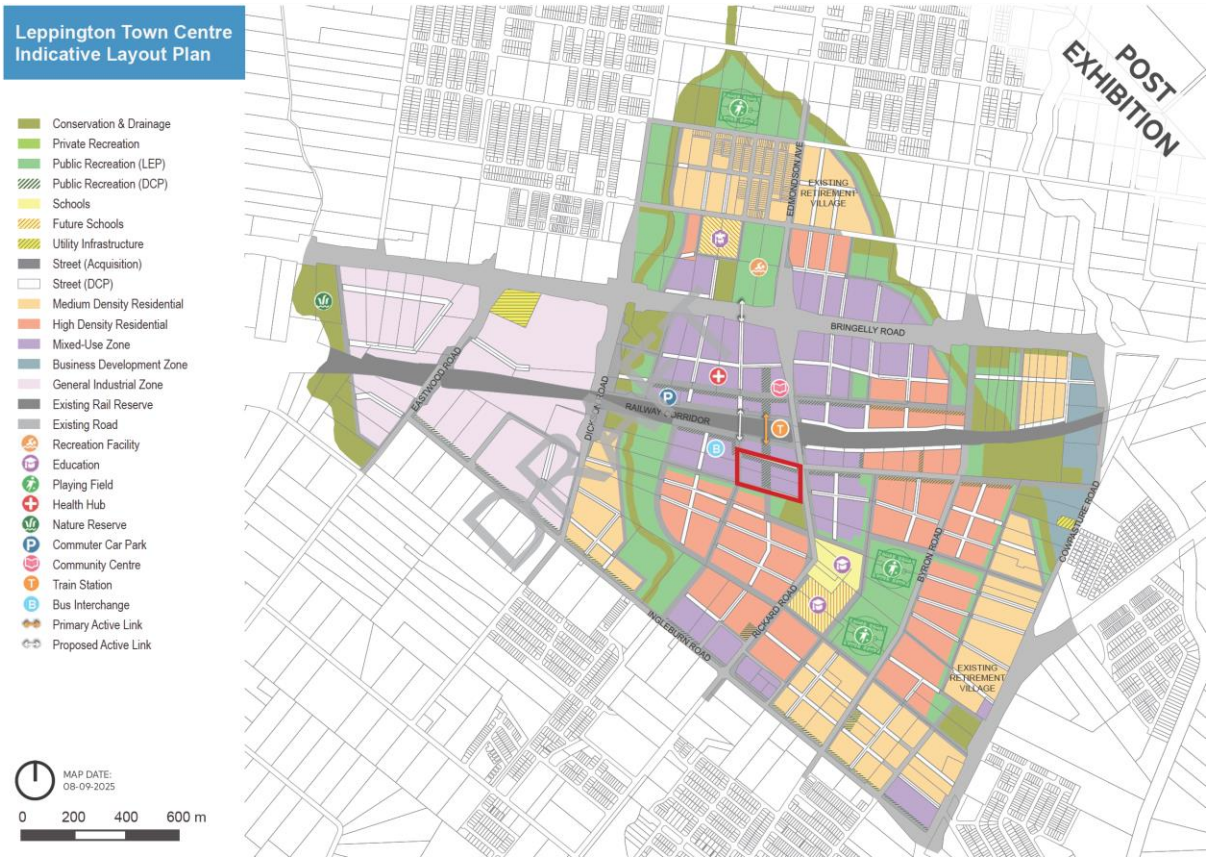
A draft *Leppington Town Centre Development Control Plan (*draft *LTC DCP)* was submitted as part of the PP-2023-284.

In December 2024, the DPHI identified Leppington Town Centre as a State Assessed Rezoning Proposal (SARP), in line with their State Significant Rezoning Policy. This means the Department is responsible for finalising the planning proposals. It is understood that the Department is working towards finalising all technical and supporting studies by mid-2026, including the previously submitted draft *LTC DCP*.

The draft *LTC DCP* details the redevelopment objectives of the area and envisages a range of uses, including new and expanded schools, new community facilities, parks, plazas, better roads, fast buses and trains. The draft *DCP* also indicates the following transport and access objectives:

- Rickard Road/Edmonson Avenue will be the main transit boulevard providing key public transport, pedestrian and cyclist route to and from Leppington Railway Station
- Perimeter Roads (including Byron Road and Bringelly Road) are the main vehicular routes to ensure Rickard Road, Edmonson Avenue and the centre of Leppington Town Centre are focused on public transport, active transport and pedestrians
- Town Centre Streets are active and pedestrian friendly, with capacity for buses to circulate on bus capable streets. Town Centre Streets have active ground floor frontages
- Shared Lanes cater for pedestrians, support compatible secondary active frontages for safety and amenity (e.g. small laneway shops and secondary building entries), and provide direct vehicle access to internal car parks and loading bays.

The post-exhibition precinct *Indicative Layout Plan* is reproduced below.



2.4 Proposed Development

The proposed development involves the demolition of the existing buildings on the site to facilitate the construction of a new mixed-use building comprising eight buildings over a shared basement.

A total of 1,493 residential apartments (including 217 *In-Fill Affordable* & 412 *BTR* units) are proposed in the new building, as follows:

Development Breakdown		
1-bedroom apartments:	469	(including 124 *affordable* units & 194 BTR units)
2-bedroom apartments:	750	(including 93 *affordable* units & 189 BTR units)
3-bedroom apartments:	274	(including 29 BTR units)
TOTAL APARTMENTS:	**1,493**	

A hotel component is also proposed in one of the buildings, comprising 156 keys and 25 staff.

A supermarket/retail component is also proposed on the podium levels with a cumulative ground floor area of approximately 32,225m^2 GFA, with a gross leasable floor area of 29,977m^2 GLFA.

Plans of the proposed development have been prepared by *DKO Architecture Pty Ltd* and are reproduced in **Appendix A**.

2.5 Proposed Car Parking

Off-street parking is proposed for a total of 3,048 cars, comprising 1,765 residential spaces, 101 hotel spaces, and 1,182 retail spaces, in a new basement parking area. Vehicular access to the car parking facilities is to be provided via two separate entry/exit driveway off the Byron Road West extension (residential) and *ILP* Town Centre Road along the western site frontages (hotel and retail).

2.6 Proposed Loading & Servicing

Loading/servicing for the proposed development is expected to be undertaken by a variety of light commercial vehicles such as the *Hyundai iLoad* and similar "white vans", up to and including 12.5m long HRV trucks and 19m long AV trucks.

A dedicated loading area is proposed on the eastern portion of the site at ground floor level, at the rear of the retail tenancies. This loading area has been designed to accommodate all commercial vehicle types up to and including 19m long AV trucks. Vehicular access to this loading area is provided via a new entry/exit driveway off the Byron Road West extension. The loading area has been designed to ensure that all vehicles including 19m long AV trucks can enter and exit the site whilst travelling in a forward direction.

A second loading area is proposed on the western portion of the site on the lower ground floor level. This loading dock has been designed to accommodate all commercial vehicle types up to and including 12.5m long HRV rigid trucks and is configured with a turntable to ensure that all vehicles can enter and exit the loading dock in a forward direction. Vehicular access to this loading area is proposed via a new driveway off the western end of the Byron Road West extension.

2.7 Proposed Pedestrian Links

As part of the development, a public north-south through-site pedestrian link is proposed through the centre of the site, linking the Byron Road West extension with the proposed new Local Street along the southeastern boundary of the site.

Pedestrian access is provided via separate residential pedestrian lobbies, as well as direct pedestrian access to the supermarket/retail tenancies off the new local roads as well as the via the public north-south pedestrian through-site link.

The pedestrian entries are well separated from the vehicular access driveway and provide safe and convenient pedestrian access to the pedestrian footpaths located along the frontage road. All of these pedestrian footpaths provide safe and convenient pedestrian access to the nearby Leppington Railway Station.

2.8 Proposed Development Staging

The proposed development is to be undertaken in a number of stages, as illustrated on the plan extract below.

Stage 1 of the proposed development includes construction of the basement car parking/loading and retail components as well as the interim roads (see "Proposed Roads" below) to provide two-way traffic around the perimeter of the site within the site boundaries.

2.9 Proposed Roads

The development also includes the construction of new local/internal roads, generally in accordance with the post-exhibition precinct *Indicative Layout Plan*, which will provide pedestrian and vehicular access to the proposed development.

In this regard, the proposed road construction within the site comprises the following:

- Byron Road West – a "Local Street" comprising a 16m road reservation with a carriageway width of 5.6m plus 2.2m wide parking bays on both sides, running along the northern boundary of the site

- *ILP* "Town Centre Road" – comprising a 25m road reservation with a carriageway width of 7m plus 2.6m wide parking bays on both sides of the road running along the western boundary of the site. In the interim, this road will be constructed as a two-way "half road" with a temporary 5.5m carriageway width, with the other "half road" to be completed by others when the adjoining site to the west is redeveloped

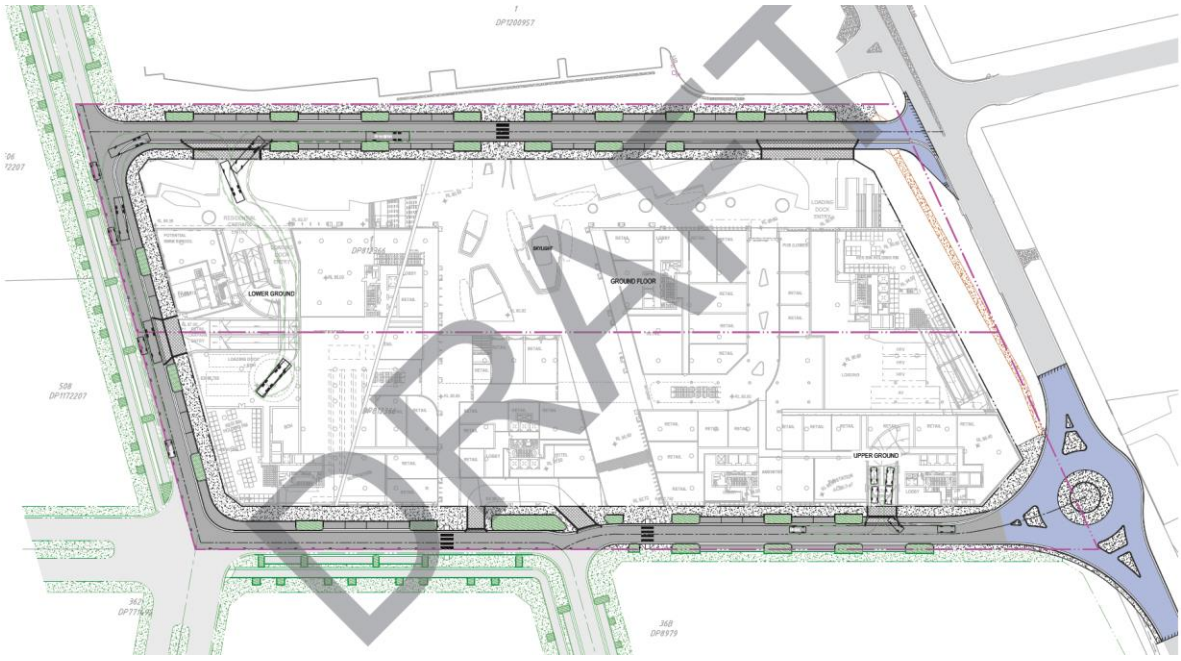
- *ILP* "Town Centre Road" 2 – comprising a 25m road reservation with a carriageway width of 7m plus 2.6m wide parking bays on both sides of the road running along the southwestern boundary of the site. In the interim, this road will be constructed as a two-way "half road" with a temporary 5.5m carriageway width, with the other "half road" to be completed by others when the adjoining site to the south is redeveloped by others

- Proposed "Local Street" – a 16m road reservation with a carriageway of 5.6m plus 2.2m wide parking bays on both sides of the road, running along the southeastern boundary of the site

- Rickard Road and Proposed Local Road 1 intersection at the southeastern corner of the site. This intersection is foreshadowed to be a roundabout.

A plan extract illustrating the proposed *interim scenario roads* proposed to provide two-way traffic around the perimeter of the site prepared by *Telford Civil Pty Ltd* is reproduced below, and the full civil plans are reproduced in **Appendix B**.

A plan illustrating the proposed *future scenario* roads which includes the other "half-road" to be constructed by others outside the site boundaries has also been prepared by *Telford Civil Pty Ltd* and is reproduced below.



The full civil plans are reproduced in Appendix B.

The proposed roads, which have been designed to comply with the dimensions of a "Town Centre Street" and "Local Street" as detailed in the draft *Leppington Town Centre DCP (September 2023)*, as reproduced on the following pages.

It is noted that each of the ILP roads proposed around the perimeter of the site includes provision for cyclists, as follows:

- the width of the DCP's 16m "Local Street" does not allow for dedicated cycleways however the DCP street section allows for 2.2m wide shared pedestrian/cycle paths on both sides of the "Local Street"

- the 25m wide DCP Town Centre street includes provision for a dedicated 2.8m bi-directional cycle lane

- the DCP 37.6m wide Rickard Road street section and plan allows for 2m wide dedicated cycle path on both sides of the road.

It is noted that the DCP "Local Street" with 2.8m traffic lanes *plus* 2.2m indented parking bays appears to cater primarily for the needs of local residential streets in new subdivisions. These lane widths and the provision of indented parking bays on one side of the road may need to be modified to cater for higher frequency heavy vehicle movements such as the two-way movement of buses accessing the proposed DCP bus interchange as envisaged by Council.

The proposed internal road network will ultimately be designed in accordance with Council's and *Austroads'* urban design criteria.

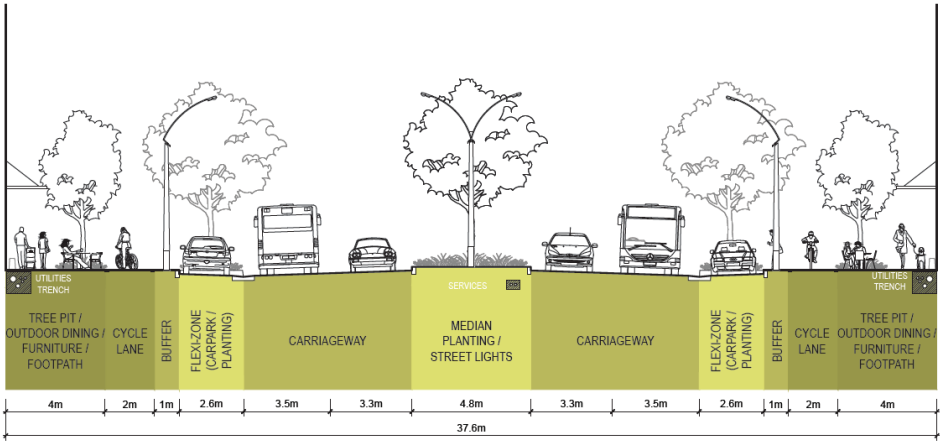
2.10 Neighbouring Development - Site "B" 156-166 Rickard Road, Leppington

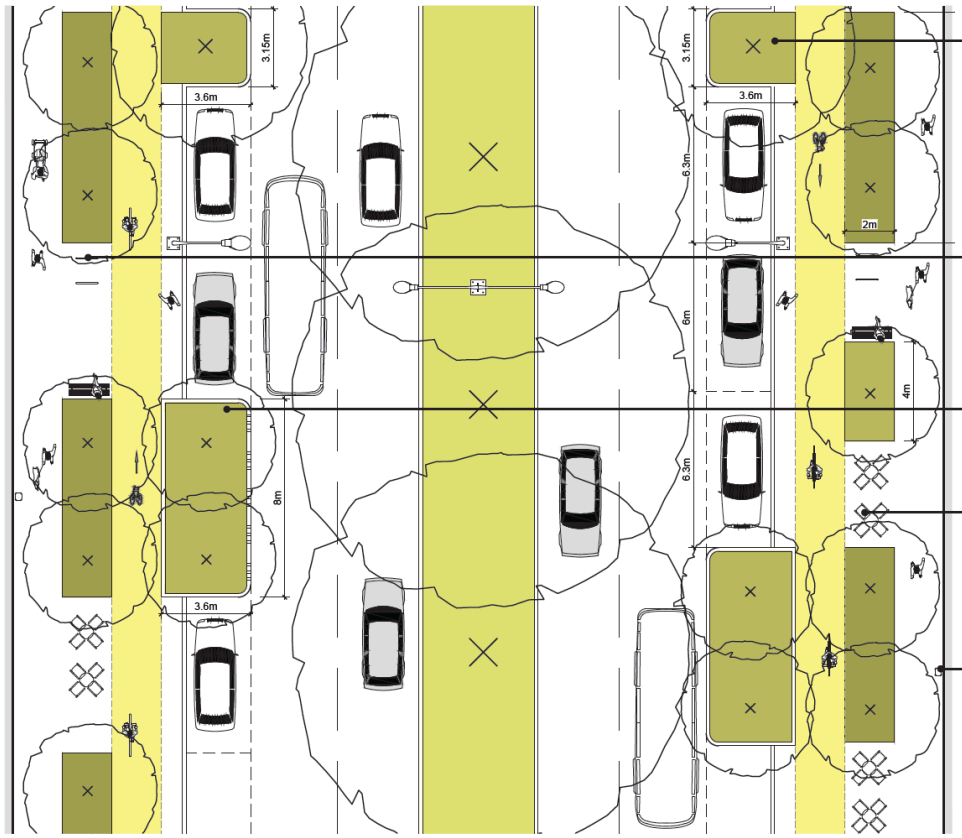
It is understood that the Applicant will submit an Environmental Impact Statement (EIS) to the *NSW Department of Planning* for the proposed Site "B" Leppington Residential Precinct located at 156-166 Rickard Road, Leppington (SSD-84430209).

The Site "B" proposed development will involve the demolition of the existing structures on the site to facilitate the subdivision of the site to create seven lots, and the construction of nine residential buildings, comprising 1,206 apartments (including 189 *in-fill affordable*), as well as 112 serviced apartments.

The Site "B" development also includes the construction of new local roads, generally in accordance with the post-exhibition precinct *Indicative Layout Plan*, which will provide pedestrian and vehicular access to the proposed development.

Accordingly, an assessment of the projected future traffic activity that could reasonably be expected to occur as a result of the proposed Site "A" development *as well as* traffic likely to be generated by the neighbouring Site "B" development has been undertaken in this report.





TREE PIT IN FLEXI-ZONE EVERY THREE PARKING SPACES MUST BE PROVIDED (MIN DIMENSIONS AS SHOWN)

STREET FURNITURE (I.E. BIKE RACKS, SEATS, BINS) LOCATED BETWEEN TREE PITS TO NOT INHIBIT PEDESTRIAN FLOW

TREE PIT IN FLEXI-ZONE EVERY TWO PARKING SPACES MUST BE PROVIDED (MIN DIMENSIONS AS SHOWN)

OUTDOOR DINING IS ENCOURAGED. IT WILL ONLY BE CONSIDERED WHERE A CLEAR PEDESTRIAN PATH IS MAINTAINED

ABOVE GROUND INFRASTRUCTURE ASSOCIATED WITH UTILITIES (I.E. LV PILLAR) SHOULD BE PLACED IN LOCATIONS THAT DO NOT INHIBIT PEDESTRIAN FLOW

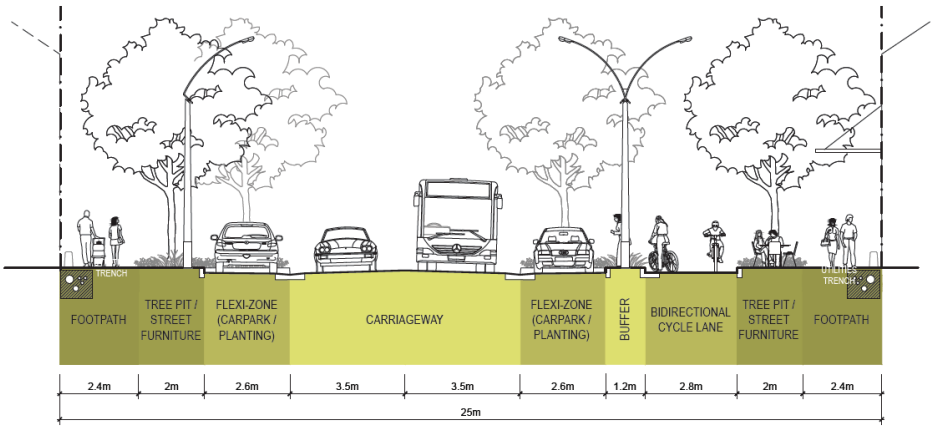
NOTE:

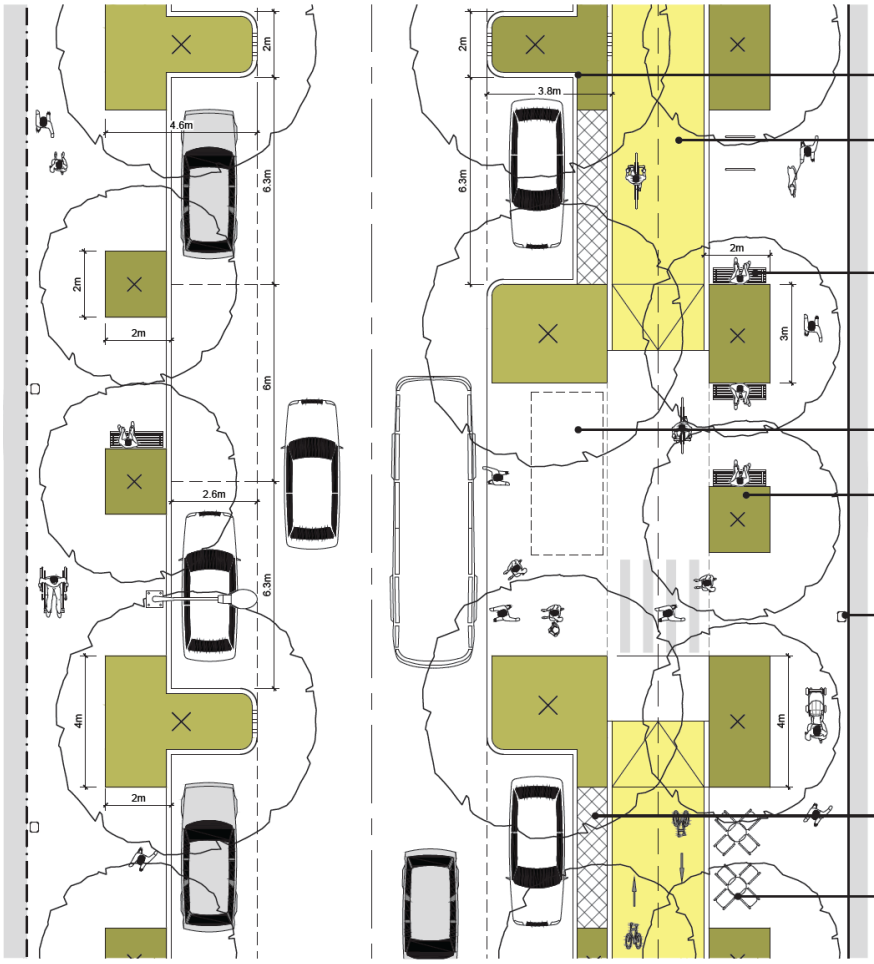
- WSUD TREE PITS WITH GAPS AT KERB TO COLLECT WATER ARE ENCOURAGED.
- TREE PIT LOCATIONS AND DIMENSIONS, IN BETWEEN SPACING AND THE NUMBER OF PARKING SPACES IS INDICATIVE ONLY WITH THE STREET TREE MASTERPLAN TAKING PRECEDENCE OVER THESE DRAWINGS TO PROVIDE GUIDANCE ON THIS.
- EXTEND TREE PIT AND STRATA CELL EXTENTS TO MAXIMUM DIMENSIONS IN RELATION TO SITE CONDITIONS TO ALLOW FULL POTENTIAL TREE GROWTH.
- ANY SERVICE TRENCH LOCATED WITHIN THE MEDIAN TO BE LOCATED ON SIDE TO AVOID INTERFERENCE WITH STREET TREE.

RICKARD ROAD (BRINGELLY TO SCHOOL) - 37.6m

LEPPINGTON NORTH DCP - Street Section and Plan

DRAFT





TREE PIT IN FLEXI-ZONE EVERY THREE PARKING SPACES MUST BE PROVIDED. (MIN DIMENSIONS AS SHOWN)

BIDIRECTIONAL CYCLE LANE RAISED UP TO THE FOOTPATH LEVEL FOR BUS STOP & PEDESTRIAN CROSSING

STREET FURNITURE (I.E. BIKE RACKS, SEATS, BINS) LOCATED BETWEEN TREE PITS TO NOT INHIBIT PEDESTRIAN FLOW

BUS STOP / SHELTER

TREE PITS BETWEEN PARKING SPACES ON FOOTPATH MUST BE PROVIDED (MIN DIMENSIONS AS SHOWN)

ABOVE GROUND INFRASTRUCTURE ASSOCIATED WITH UTILITIES (I.E. LV PILLAR) SHOULD BE PLACED IN LOCATIONS THAT DO NOT INHIBIT PEDESTRIAN FLOW

STRATA CELL UNDER PAVING TO PROVIDE SUFFICIENT SOIL VOLUME

OUTDOOR DINING IS ENCOURAGED. IT WILL ONLY BE CONSIDERED WHERE A CLEAR PEDESTRIAN PATH IS MAINTAINED

NOTE:

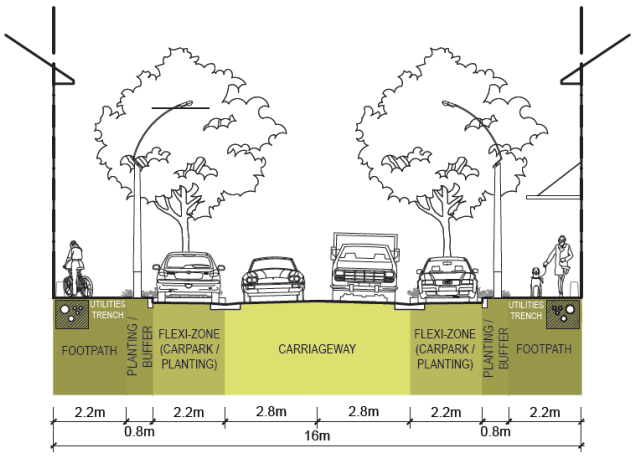
- WSUD TREE PITS WITH GAPS AT KERB TO COLLECT WATER ARE ENCOURAGED.
- TREE PIT LOCATIONS AND DIMENSIONS, IN BETWEEN SPACING AND THE NUMBER OF PARKING SPACES IS INDICATIVE ONLY WITH THE STREET TREE MASTERPLAN TAKING PRECEDENCE OVER THESE DRAWINGS TO PROVIDE GUIDANCE ON THIS.
- EXTEND TREE PIT AND STRATA CELL EXTENTS TO MAXIMUM DIMENSIONS IN RELATION TO SITE CONDITIONS TO ALLOW FULL POTENTIAL TREE GROWTH.
- ANY SERVICE TRENCH LOCATED WITHIN THE MEDIAN TO BE LOCATED ON SIDE TO AVOID INTERFERENCE WITH STREET TREE.

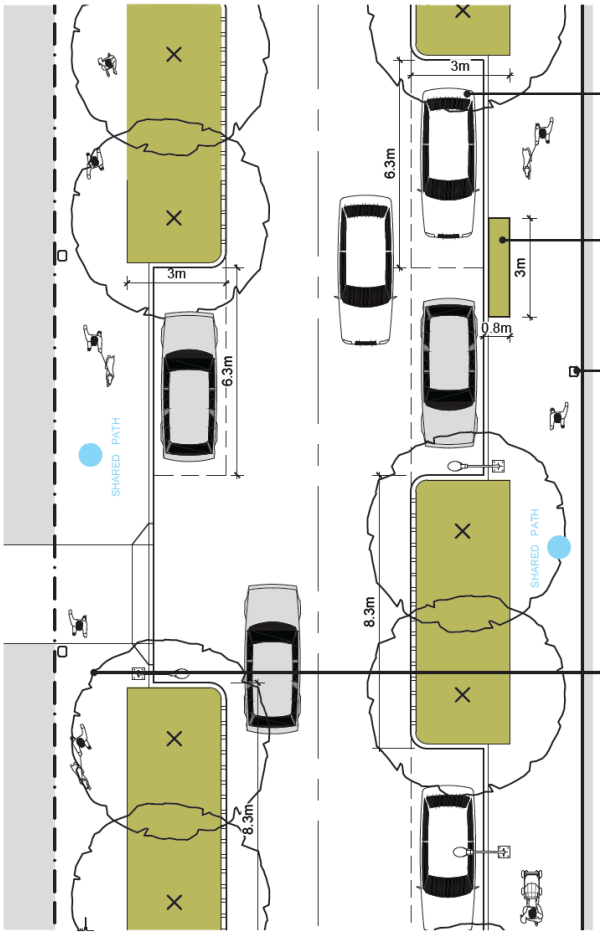
camden council

TOWN CENTRE STREET - 25 m

LEPPINGTON NORTH DCP - Street Section and Plan

DRAFT





POTENTIAL OUTDOOR DINING IN FLEXI-ZONE TO ACTIVATE THE STREET (ADJACENT TO MIX-USE)

PLANTING BED BETWEEN TWO PARKING SPACES ON SHARED PATH MUST BE PROVIDED (MIN DIMENSIONS AS SHOWN)

ABOVE GROUND INFRASTRUCTURE ASSOCIATED WITH UTILITIES (I.E. LV PILLAR) SHOULD BE PLACED IN LOCATIONS THAT DO NOT INHIBIT PEDESTRIAN FLOW

DRIVEWAY LOCATIONS MUST BE PLACED ON COVENANT AT SUBDIVISION OR INTEGRATED DEVELOPMENT STAGE TO ENSURE GENERAL CONSISTENCY WITH THIS CROSS SECTION AND PLAN

NOTE:

- WSUD TREE PITS WITH GAPS AT KERB TO COLLECT WATER ARE ENCOURAGED.
- TREE PIT LOCATIONS AND DIMENSIONS, IN BETWEEN SPACING AND THE NUMBER OF PARKING SPACES IS INDICATIVE ONLY WITH THE STREET TREE MASTERPLAN TAKING PRECEDENCE OVER THESE DRAWINGS TO PROVIDE GUIDANCE ON THIS.
- EXTEND TREE PIT AND STRATA CELL EXTENTS TO MAXIMUM DIMENSIONS IN RELATION TO SITE CONDITIONS TO ALLOW FULL POTENTIAL TREE GROWTH.
- ANY SERVICE TRENCH LOCATED WITHIN THE MEDIAN TO BE LOCATED ON SIDE TO AVOID INTERFERENCE WITH STREET TREE.

camden council

LOCAL STREET - 16 m

LEPPINGTON NORTH DCP - Street Section and Plan

DRAFT

3.0 TRAFFIC ASSESSMENT

3.1 Road Hierarchy

The road hierarchy allocated to the road network in the vicinity of the site by Transport for New South Wales (TfNSW) is illustrated on Figure 3.

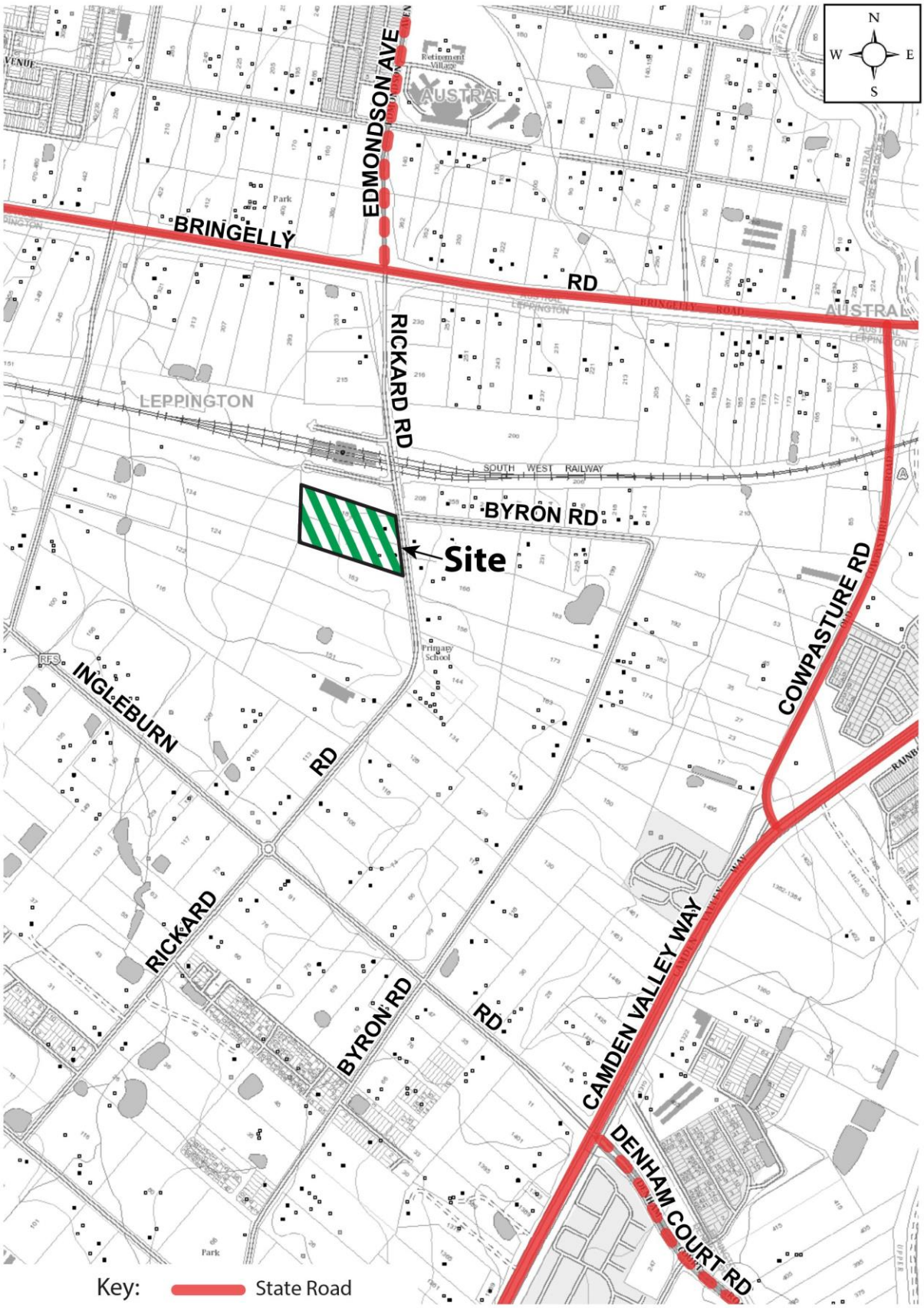
Camden Valley Way is classified by TfNSW as a *State Road* and provides the key north-south route in the area, linking Hume Highway in the north at Casula to the A9 Narellan Road in the south at Narellan. It typically carries two traffic lanes in each direction with opposing traffic flows separated by a landscaped central median island.

Bringelly Road is classified by TfNSW as a *State Road* and provides the key east-west road link in the area, linking Camden Valley Way in the east at Leppington to the A9 The Northern Road in the west at Bringelly. It has recently been upgraded and widened from two lanes to six lanes with a landscaped central median to separate opposing traffic flows. Kerbside parking is generally not permitted on either side of the road.

Cowpasture Road is classified by TfNSW as a *State Road* and provides the key north-south route in the area, linking The Horsley Drive in the north at Bossley Park to Camden Valley Way in the south at Leppington. It typically carries two traffic lanes in each direction with opposing traffic flows typically separated by a central median island.

Edmondson Avenue is classified by TfNSW as a *Regional Road* which performs the function of a north-south *collector route* through the local rural area. Kerbside parking is generally permitted on both sides of the road. In the future, Edmondson Avenue will be upgraded to a *transit boulevard road*.

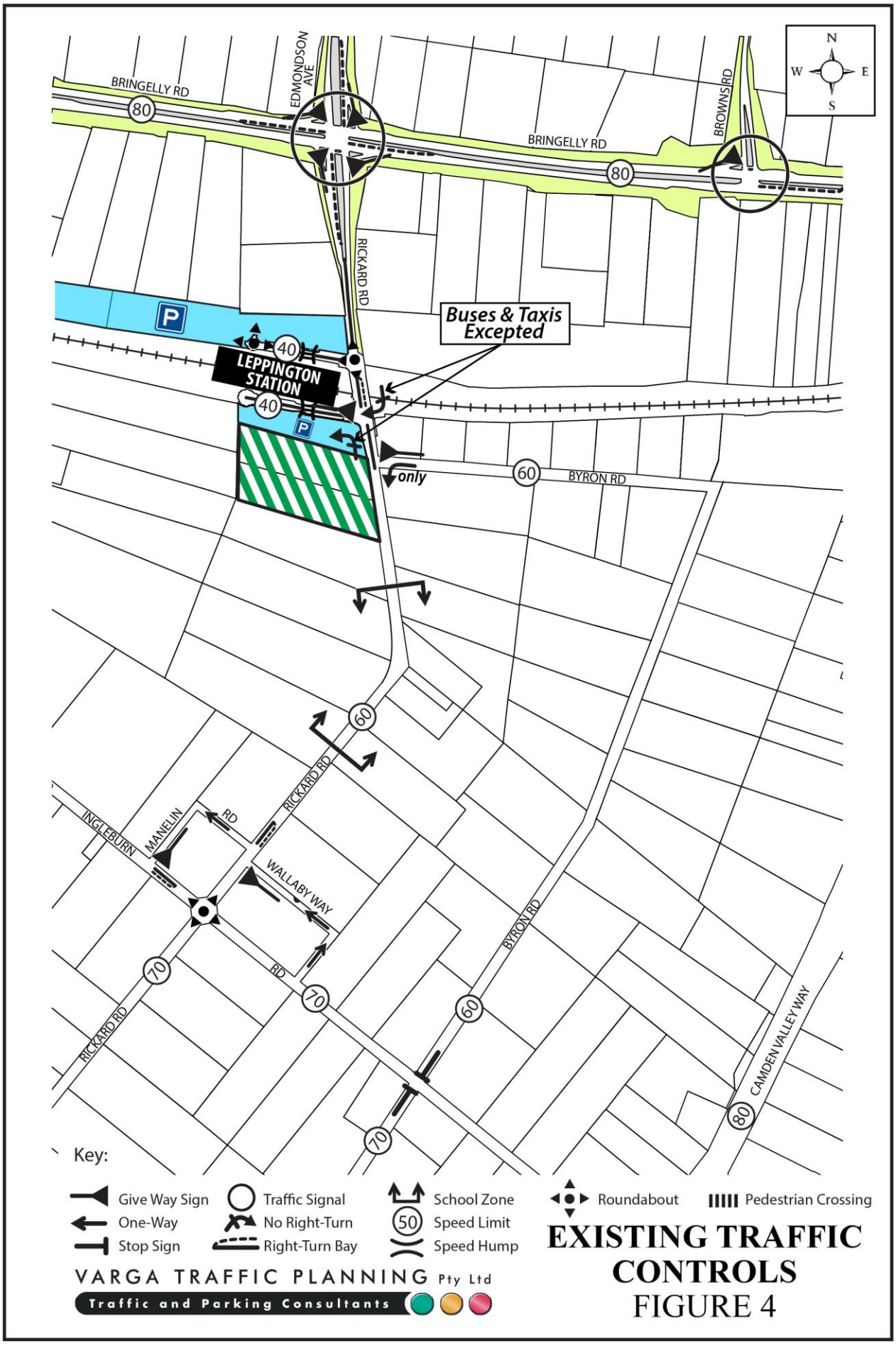
Rickard Road is classified as a local, unclassified road which performs the function of a north-south *sub-arterial route* through the local area. Kerbside parking is generally permitted here shoulder widths permit. In the future, Rickard Road will be upgraded to a *transit boulevard road* within the Leppington Major Centre, and will be the key public transport, pedestrian and cyclist route to and from the centre and Leppington Station.


N
W
E
S
EDMONDSON AVE
BRINGELLY RD
RICKARD RD
LEPPINGTON
SOUTH WEST RAILWAY
BYRON RD
Site
COWPASTURE RD
INGLEBURN RD
RICKARD RD
BYRON RD
CAMDEN VALLEY WAY
DENHAM COURT RD
Key:
State Road
Regional Road
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
ROAD HIERARCHY
FIGURE 3

3.2 Existing Traffic Controls

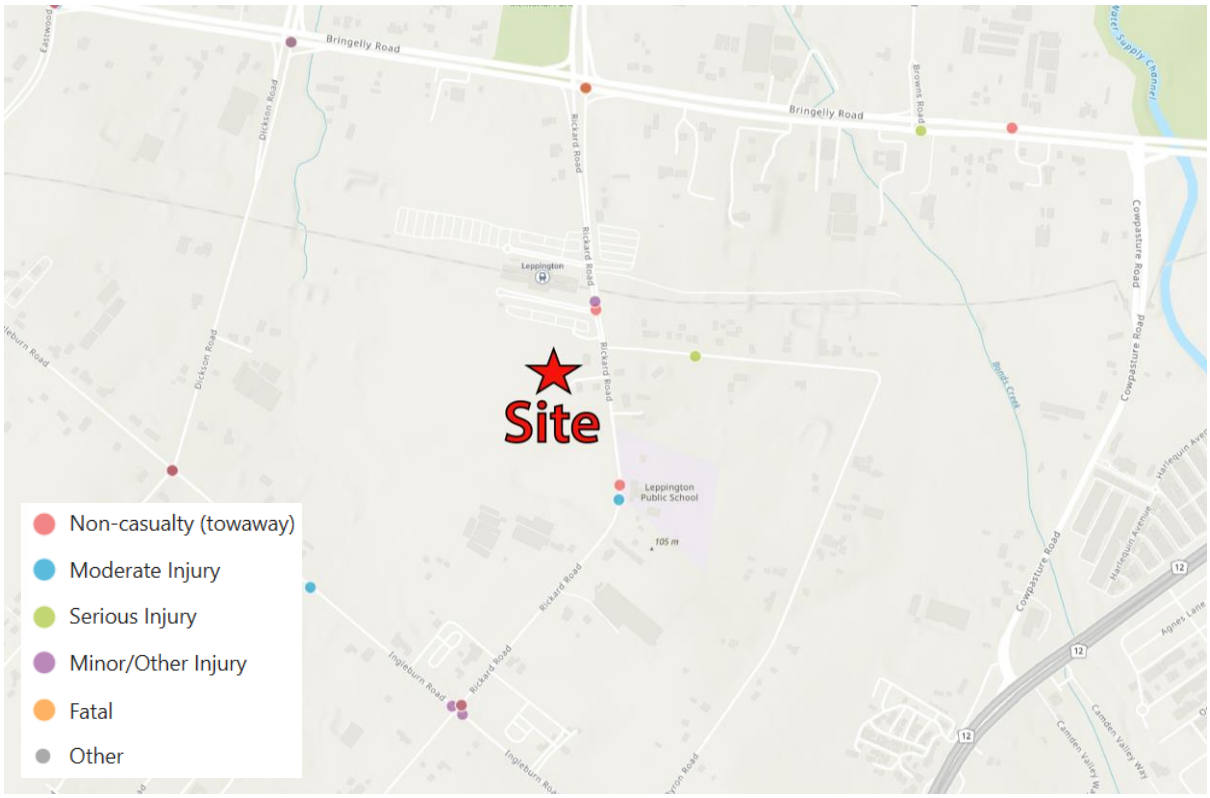
The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4. Key features of those traffic controls are:

- an 80 km/h SPEED LIMIT which applies to Bringelly Road
- a 60 km/h SPEED LIMIT which applies to Rickard Road and Byron Road
- a 40 km/h SPEED LIMIT which applies to the Leppington Station bus interchange and northern Park & Ride access roads
- a 40 km/h SCHOOL ZONE SPEED LIMIT which applies to Rickard Road in the vicinity of Leppington Public School
- TRAFFIC SIGNALS in Bringelly Road where it intersects with Rickard Road and Browns Road
- ROUNDABOUTS in Rickard Road where it intersects with Ingleburn Road and the northern Park & Ride access road
- NO LEFT TURN/NO RIGHT TURN (Buses & Taxis Excepted) restriction in Rickard Road, turning onto the bus interchange access road
- GIVE WAY signs where roads intersect with Rickard Road, including Byron Road, Wallaby Way, and the bus interchange access road
- a LEFT TURN ONLY restriction in Byron Road turning onto Rickard Road
- RAISED PEDESTRIAN CROSSINGS in the bus interchange and northern Park and Ride access roads, in the vicinity of Leppington Station
- a RIGHT-TURN LANE for southbound traffic in Rickard Road turning onto the bus interchange access road


BRINGELLY RD
80
EDMONDSON AVE
BRINGELLY RD
80
BROWNS RD
N
W
E
S
RICKARD RD
Buses & Taxis Excepted
P
40
LEPPINGTON STATION
40
P
only
60
BYRON RD
60
RICKARD RD
INGLEBURN
MANELIN
RD
WALLABY WAY
RD
70
70
70
RICKARD RD
BYRON RD
60
CAMDEN VALLEY WAY
80
Key:
Give Way Sign
One-Way
Stop Sign
Traffic Signal
No Right-Turn
Right-Turn Bay
School Zone
50
Speed Limit
Speed Hump
Roundabout
Pedestrian Crossing
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING TRAFFIC CONTROLS
FIGURE 4

3.3 Crash History

The most recent 5-year crash history data in the vicinity of the site is shown in the figure below.



Source: Transport for NSW – Centre for Road Safety

The results of the crash assessment are summarised in the table below:

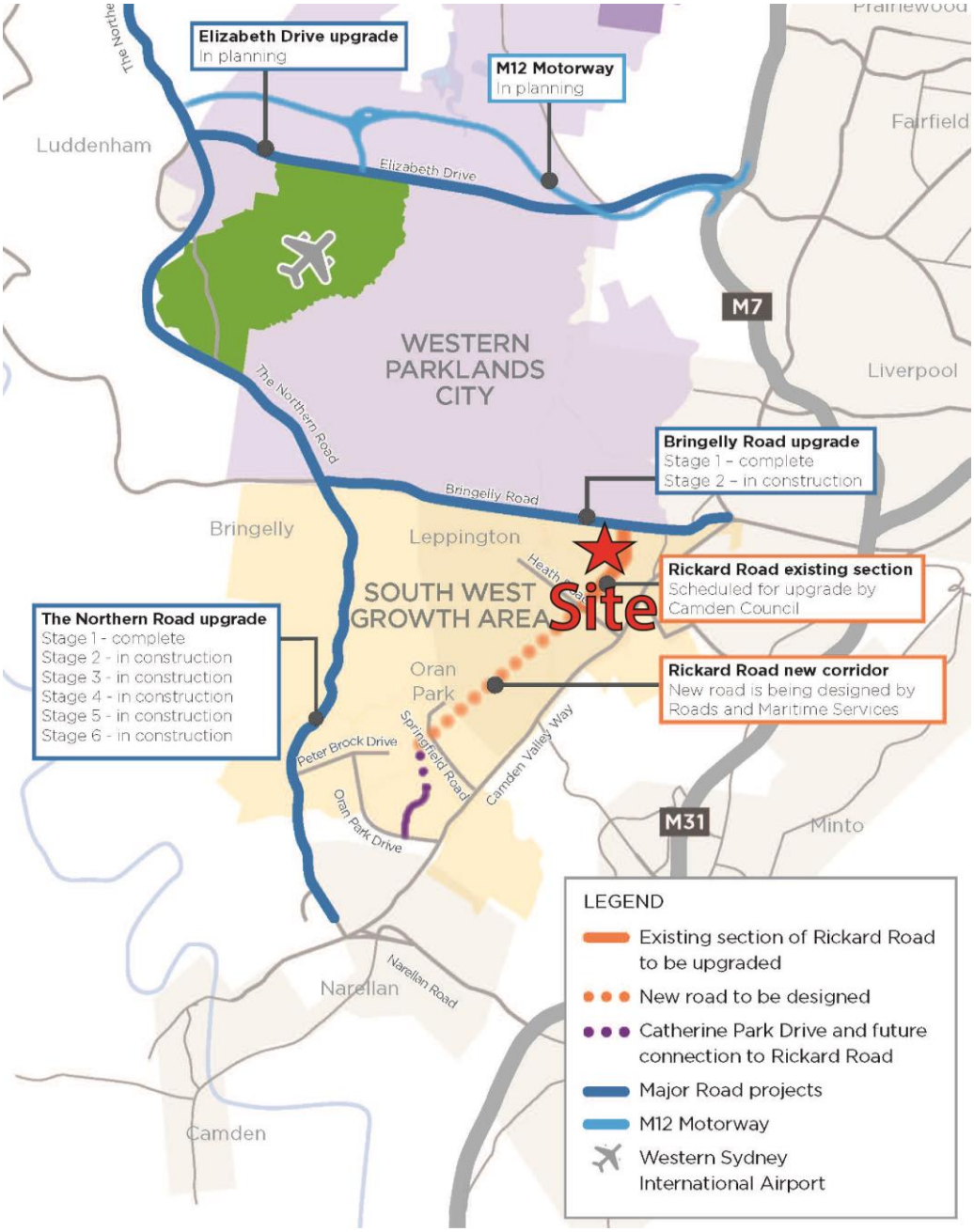
Accident Data Summary (2020-2024)			
Location	**Total Crashes**	**Injury Crashes**	**Heavy Vehicles**
Rickard Rd and Bringelly Rd Intersection	5	4	1
Rickard Rd between Bringelly Rd and Byron Rd	2	1	0
Rickard Rd between Byron Rd and Ingleburn Rd	2	1	0
Byron Rd between Rickard Rd and Ingleburn Rd	1	1	0
Rickard Rd and Ingleburn Rd Intersection	4	1	0
TOTAL	**14**	**8**	**1**

The above crash history indicates that the majority of the crashes occur at intersections and/or driveways, mostly involving right-angle and rear-end collisions, with one accident involving heavy vehicles. There were no fatal accidents recorded in the vicinity of the site.

3.4 Road Network Upgrades

An upgrade of Rickard Road is proposed, extending from Bringelly Road to Catherine Park Drive, as illustrated in the figure below. The upgraded road would improve safety, reduce congestion, improve travel times, connect the public transport network, and support population growth in South Western Sydney.

The existing section of Rickard Road, including along the site frontage, is currently scheduled for upgrade by Camden Council.



Source: [Rickard Road upgrade | Transport for NSW]

3.5 Existing Public Transport Services

The existing public transport services available in the vicinity of the site are illustrated on Figure 5.

The site is located approximately 100m walking distance south of Leppington Railway Station. Leppington Railway Station operates on the T2 Inner West & Leppington Line operating between Leppington to City, and the T5 Cumberland Line operating between Leppington to Richmond.

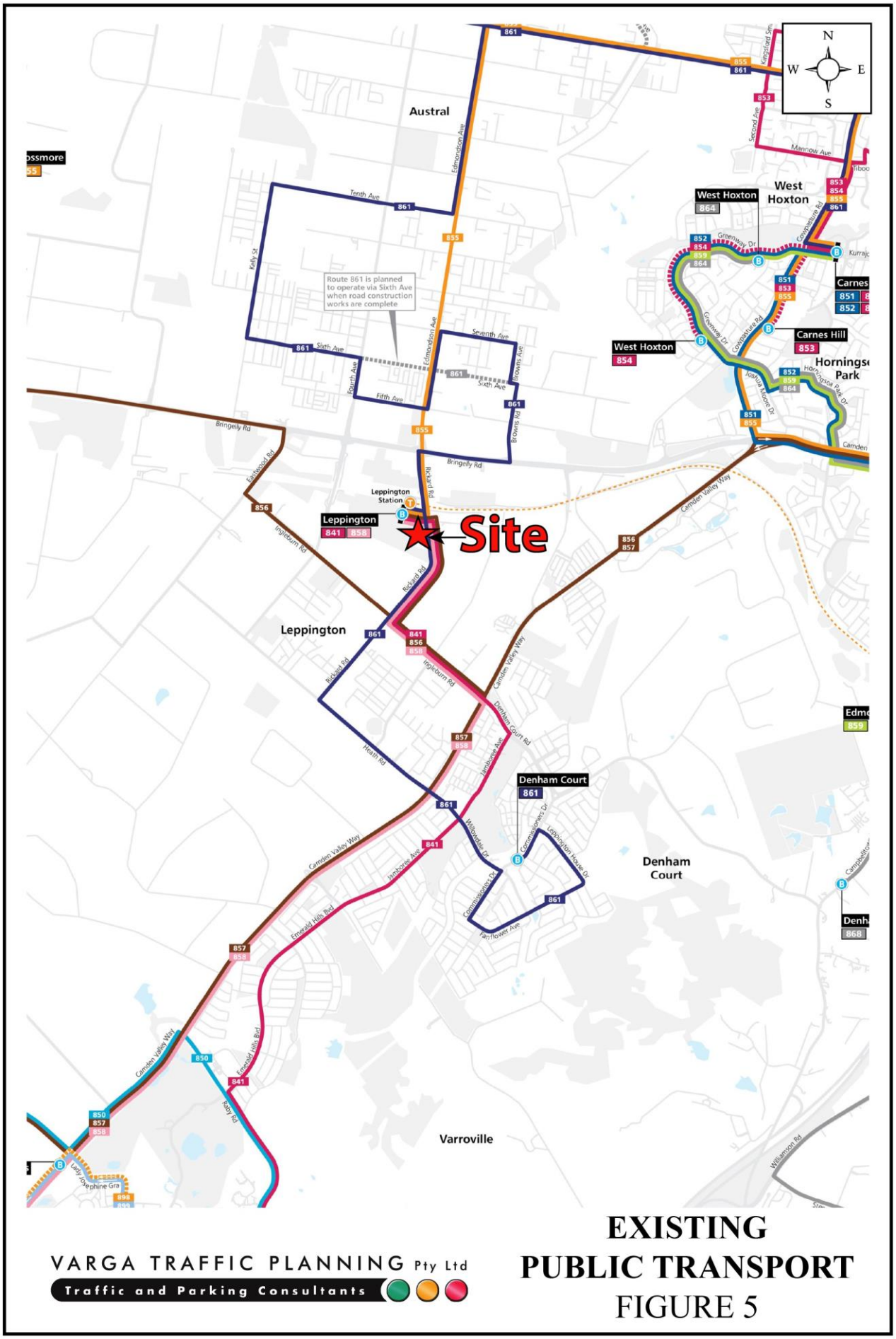
The typical journey time to/from Central Station is approximately 76 minutes, with a frequency of approximately 5 minutes during peak hours, reducing to 10-15 minutes at all other times.

In addition to the rail services, Leppington Station also services the 841, 855, 856, 858, 861, and N31 bus routes.

A summary of those bus services is provided in the table below, revealing that there are approximately 243 bus services per day traversing within the vicinity of the site on weekdays, reducing to approximately 145 bus services per day on Saturdays and approximately 145 bus services per day on Sundays and Public Holidays.

Bus Routes and Frequencies							
Route No.	**Route**	**Weekdays**		**Saturday**		**Sunday**	
		IN	**OUT**	**IN**	**OUT**	**IN**	**OUT**
841	Leppington to Narellan via Gregory Hills	47	47	30	30	30	30
855	Rutleigh Park to Liverpool via Austral & Leppington Station	5	7	2	3	3	4
856	Bringelly to Liverpool	5	7	4	4	4	4
858	Oran Park to Leppington	32	33	16	16	16	16
861	Denham Court to Carnes Hill via Austral	25	25	15	15	14	14
N31	Leppington to Liverpool (Night Service)	5	5	5	5	5	5
TOTAL		**119**	**124**	**72**	**73**	**72**	**73**

The site is therefore considered to be readily accessible to public transport options.

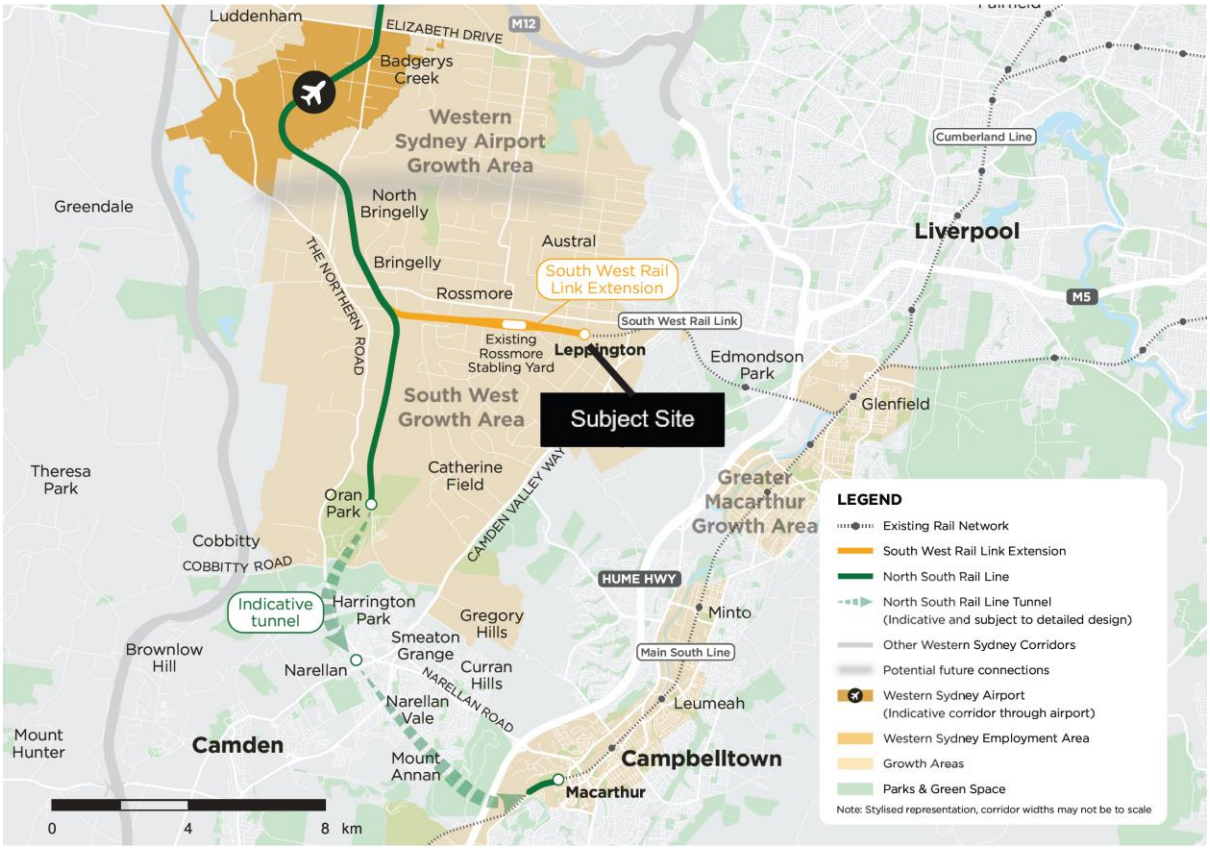

N
W
E
S
Austral
West Hoxton
West Hoxton
864
West Hoxton
854
Carnes Hill
853
Leppington
Leppington Station
841 858
Site
Leppington
Denham Court
861
Denham Court
Varroville
Route 861 is planned to operate via Sixth Ave when road construction works are complete
Tenth Ave
Edmondson Ave
Kelly Cct
Seventh Ave
Sixth Ave
Fifth Ave
Fourth Ave
Browns Rd
Bringelly Rd
Eastwood Rd
Ingleburn Rd
Richard Rd
Heath Rd
Camden Valley Way
Denham Court Rd
Jamboree Ave
Willoughby Dr
Commissioners Dr
Leppington House Dr
Fan Flower Ave
Emerald Hills Blvd
Barry Rd
Second Ave
Manrow Ave
Greenway Dr
Coonanbarra Rd
Joshua Moore Dr
Hornings Park Dr
Campbelltown
Williamson Rd
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING
PUBLIC TRANSPORT
FIGURE 5

3.6 South West Rail Link Extension

In June 2020, the NSW State Government confirmed the corridor for the South West Rail Line. The South West Rail Link extension will extend from Leppington Station to the Western Sydney Aerotropolis, to connect with the North South Rail Link corridor (now Western Sydney Airport line).

The future North South Rail Line and South West Rail Link Extension infrastructure would connect residents in the emerging suburbs of the South West Growth Areas with jobs and services in the new Western Economic Corridor, Western Sydney Airport, Western Sydney Aerotropolis, Liverpool, Greater Penrith, Campbelltown-Macarthur and Western Sydney Employment Area.

A plan showing the recommended corridor for the South West Rail Link Extension is reproduced below:



The corridor land has been protected and rezoned for future use, however, there are currently no immediate plans for the construction of the transport infrastructure.

3.7 Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak period traffic surveys undertaken as part of this traffic study.

The traffic surveys were undertaken on Wednesday 21st May 2025 at the following intersections:

- Rickard Road and Northern Park & Ride Egress
- Rickard Road and Northern Park & Ride Access Road
- Rickard Road and Existing Bus Interchange Access Road
- Rickard Road and Southern Commuter Car Park
- Rickard Road and Byron Road

The results of the traffic surveys are reproduced in full in **Appendix C** and are summarised on Figure 6, revealing that:

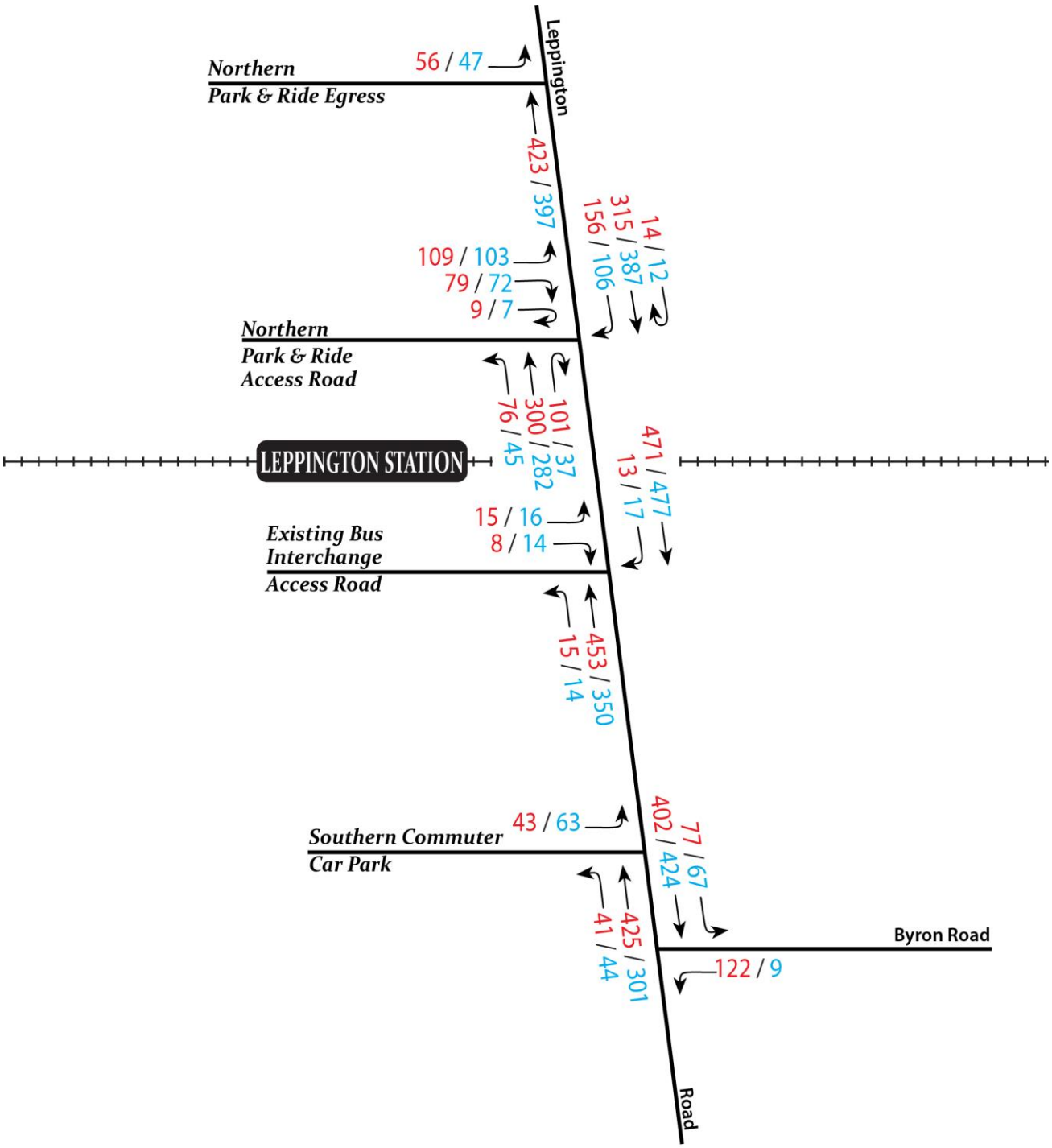
- the weekday AM *"*network" peak period occurred between 8:00am and 9:00am whilst the weekday PM "network" peak period occurred between 3:30pm and 4:30pm

- northbound traffic flows in Rickard Road past the site frontage are typically in the order of 466 vph during the AM peak period, *decreasing* to 345 vph during the PM peak period

- southbound traffic flows in Rickard Road past the site frontage are typically in the order of 524 vph during the AM peak period, *decreasing* to 433 vph during the PM peak period

- eastbound traffic flows in Byron Road are typically in the order of 77 vph in the AM peak period, *decreasing* to 67 vph during the PM peak period

- westbound traffic flows in Byron Road are typically in the order of 122 vph during the AM peak period, *decreasing* to 9 vph during the PM peak period



LEGEND: AM/PM Vehicles Per Hour
AM Peak: 8:00am - 9:00am
PM Peak: 3:30pm - 4:30pm

EXISTING PEAK HOUR TRAFFIC FLOWS
FIGURE 6

3.8 Projected Traffic Generation

As mentioned in the foregoing, we have undertaken a traffic review of the future traffic activity that could reasonably be expected to occur as a result of the proposed development *as well as* traffic likely to be generated by the neighbouring Site "B" development at 156-166 Rickard Road, Leppington.

An indication of the traffic generation potential of the development proposal is provided by reference to the Transport for NSW's publication *Guide to Transport Impact Assessment Version 1.1, Chapter 5 – Land Use Trip Generation (September 2024)* document.

The TfNSW *Guide to Transport Impact Assessment (GTIA)* document notes that it replaces the *Guide to Traffic Generating Developments v2.2 (October 2002)* and the updated traffic generation rates in the *Technical Direction TDT 2013/04a (August 2013)* document.

The TfNSW *GTIA* document is based on extensive surveys of a wide range of land uses and nominates the following traffic generation rates which are applicable to the development proposal:

High Density Residential Dwellings (High Public Transport Accessibility)

AM: 0.19 peak hour vehicle trips per unit

PM: 0.15 peak hour vehicle trips per unit

Shopping Centres (Sydney)

AM: 1.78 network peak hour vehicle trips per 100m^2 GLFA

PM: 3.71 network peak hour vehicle trips per 100m^2 GLFA

The TfNSW *GTIA* also makes the following observation in respect of high density residential flat buildings:

Definition

High density residential is a building containing more than 20 dwellings, 3 or more storeys (not including levels below ground level (existing) or levels that are less than 1.2 metres above ground level (existing) that provide for car parking) and applies to residential components of residential flat building, shop top housing and mixed use developments.

The TfNSW *GTIA* nominates various traffic generation rates for a wide range of land uses which are based on extensive surveys, however it does not nominate a traffic generation rate for traditional hotels, referring only to "motels".

It is readily acknowledged however, that "motels" primarily cater for the needs of car travellers who usually only require overnight accommodation before continuing their journey. Motels are usually located near highways, remote from public transport.

By contrast, "hotels" cater for the needs of business travellers and visitors who may require accommodation for several days or several weeks, and often travel in groups using taxis, buses, or trains.

However, for the purposes of this assessment, the relatively high traffic generation rate nominated in the TfNSW *GTIA* for "motels" has been adopted in respect of the proposed new hotel component as follows:

Motels

PM: 0.4 peak hour vehicle trips per unit

It is pertinent to note that the TfNSW *Guide to Transport Impact Assessment* does not provide a rate for the peak hour vehicle trips during the AM commuter peak period for motels. Hence, by way of a more rigorous assessment, it has been assumed that the traffic generation rate of the hotel is the same during both the AM and PM commuter peak periods.

Application of the above traffic generation rates to the Site "A" development proposal yields a traffic generation potential of approximately 874 vph during the weekday AM peak period, and approximately 1,394 vph during the weekday PM Peak period.

The cumulative traffic generation potential of both Site "A" and Site "B" is set out in the table below:

Cumulative Peak Hour Traffic Generation Potential					
Site	**Unit/floor space**	**Traffic Generation Rate**		**Projected Future Traffic Generation Potential**	
		AM	**PM**	**AM**	**PM**
Site "A" Subject Site 173-183 Rickard Rd SSD-99319962	Residential (1,493 units)	0.19/unit	0.15/unit	278.0 vph	219.5 vph
	Retail (29,977m^2 GLFA):	1.78/100m^2	3.71/100m^2	533.5 vph	1112.1 vph
	Hotel (156 units):	0.4/unit	0.4/unit	62.4 vph	62.4 vph
	Sub-Total:			**873.9 vph**	**1394.0 vph**
Site "B" 156-166 Rickard Road SSD-84430209	Residential (1,206 units)	0.19/unit	0.15/unit	229.1 vph	180.9 vph
	Serviced Apartment (112 units)	0.4/unit	0.4/unit	44.8 vph	44.8 vph
	Sub-Total:			**273.9 vph**	**225.7 vph**
TOTAL TRAFFIC GENERATION POTENTIAL:				**1147.8 vph**	**1619.7vph**

In practice however, the traffic generation potential of the site is likely to be *substantially less* than is suggested by the traffic generation rates suggested above because:

- the subject site is readily accessible with an extensive range of public transport services located within easy walking distance of the site

- the TfNSW *Guide to Transport Impact Assessment* traffic generation rate for "motels" is based on suburban motels which are traditionally "car based" with a car parking space for each room

- the proposed hotel will cater primarily for the needs of business travellers and other visitors who require short-term accommodation and often travel in groups using taxis, Uber or public transport (bus/rail)

- the proposed shops/supermarket are expected to cater primarily for people who will live and work within the future high-density residential/commercial area envisaged on the site, as well as those living in the surrounding area. It is therefore anticipated that the retail component will likely attract a higher proportion of "walk-up" trips

- visitation to the site may be in the form of *"linked trips"* when a person visits the site but also visits another premises on the same trip whilst not moving their car, thereby not incurring an additional vehicle trip. This would effectively reduce the site's traffic activity compared to other mixed-use developments

- visitation to the site may also be in the form of *"passing trade"*, where a person might visit the supermarket/retail tenancies on the site on their way home from work. That person is already travelling on the nearby road network, thereby not incurring an additional vehicle trip.

In any event, the projected *nett increase* in the traffic generation potential of the site as a consequence of the development proposal will not have any unacceptable traffic implications in terms of road network capacity, as is demonstrated in the following section of this report.

3.9 Traffic Implications – Road Network Capacity

The traffic implications of development proposals primarily concern the effects that any *additional* traffic flows may have on the operational performance of the nearby road network. Those effects can be assessed using the SIDRA INTERSECTION 10 program which is widely used by TfNSW and many LGA's for this purpose.

An indication of the future traffic conditions on the road network in the vicinity of the site is provided by STFM data obtained from TfNSW. STFM data was obtained for the years 2026, 2031, and 2036 and is reproduced in full in **Appendix D**.

Three scenarios have been assessed as follows:

- **The Proposed Access:** Proposed development with a foreshadowed new *roundabout* in Rickard Road at its intersection with the southern access road as per the architectural plans. This foreshadowed *roundabout* intersection will be delivered by the development which first triggers the need for the roundabout, i.e. either this application or a concurrent development application for Site "B" located at 156-166 Rickard Road, subject to Section 138 consent

- **Alternative Scenario 1:** The Proposed Access, plus the potential traffic signals in Rickard Road at its intersection with Byron Road, as per *Figure 11 – Intersection Crossing Types* of the draft *LTC DCP*

- **Alternative Scenario 2:** The Proposed Access, plus the installation of traffic signals in Rickard Road at the existing bus interchange as proposed by TfNSW

The projected *additional* peak hour traffic flows expected to be generated by the proposed Site "A" development as well as the neighbouring Site "B" development have been assigned to the adjacent road network as illustrated on Figure 7a (for Alternative Scenario 1) and Figure 7b (for the Proposed Access and for Alternative Scenario 2).

Figure 7a also shows the traffic flows generated by the existing bus interchange and southern commuter car park which have been redirected to Byron Road in the Alternative Scenario 1 models.

Each of the 3 scenarios assessed both the *before* and *after* scenarios - i.e. *without* and *with* the proposed development.

Each of the traffic models assumed that *all vehicular access* will be provided via the foreshadowed roundabout and/or the Byron Road West extension *only*, as proposed by the *interim scenario roads* to provide two-way traffic around the perimeter of the site.

In practice however, the development of the proposed *future scenario roads* will provide multiple options for other approach/departure routes (other than just Rickard Road), and traffic generated by the proposed development will therefore be much more widely dispersed via other roads than is indicated in Figures 7a & 7b.

As such, the traffic impact on individual intersections in Rickard Road will be *less than* is set out in the SIDRA capacity analysis results below.

The results of the SIDRA capacity analysis of the surrounding intersections are summarised on the tables on the following pages, confirming that:

- the foreshadowed roundabout at the southern access road would operate at *Level of Service "A"* or *Level of Service "B"* and with minimal delays in 2026, 2031, and 2036

- the traffic signals proposed by the DCP at the Rickard Road/Byron Road intersection would operate at *Level of Service "B"* or *"C"*

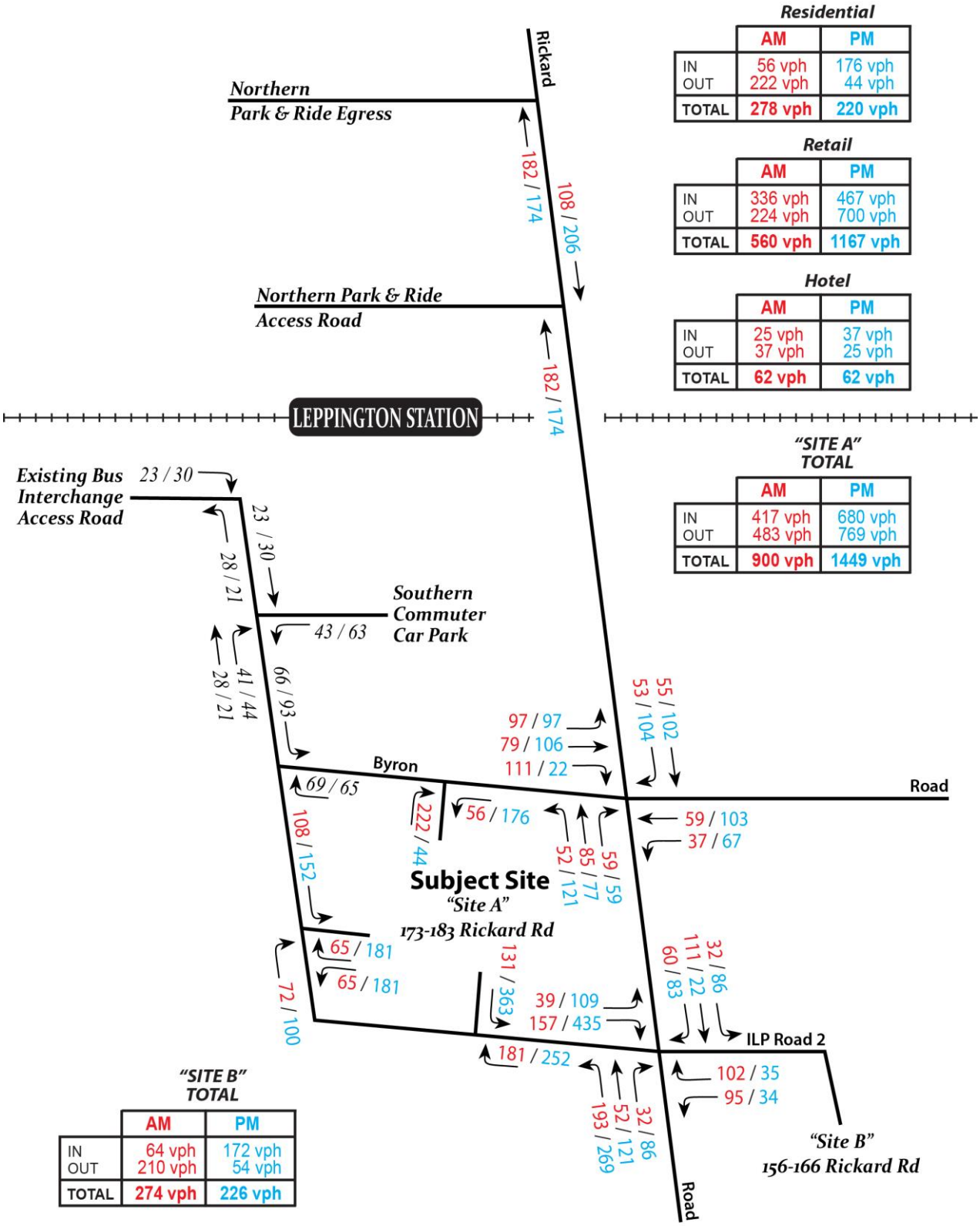
The detailed SIDRA *movements summaries* are reproduced in full in **Appendix E**, with criteria for evaluating the results of the analysis reproduced in the following pages.

In summary, the SIDRA capacity analysis of the development proposal demonstrates that:

- the Site "A" and Site "B" development proposals will not have any unacceptable traffic implications in terms of road network capacity

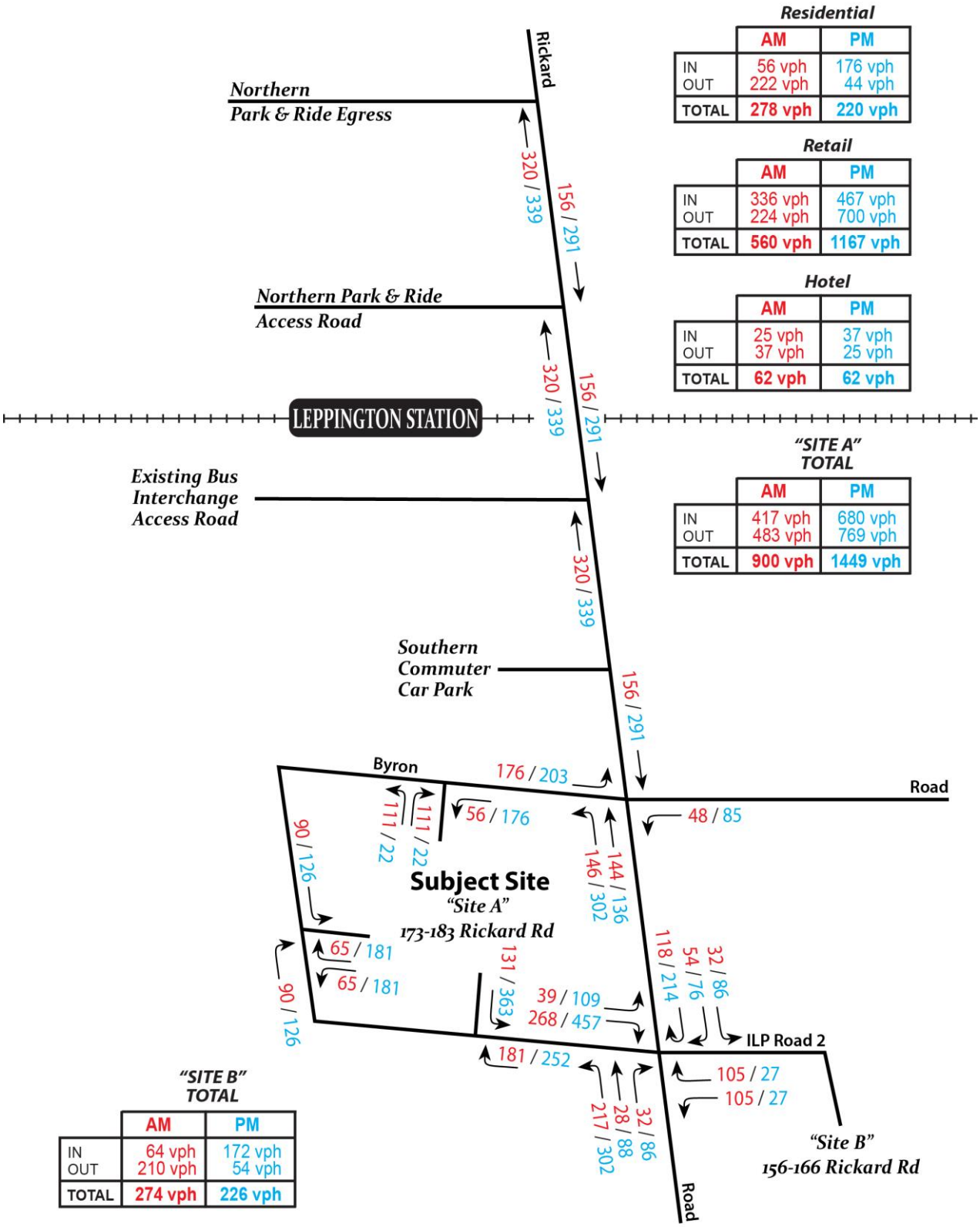
- all scenarios would operate satisfactorily in 2026, 2031, and 2036

- the proposed access arrangements are sufficient, and is not dependent on any signalisation or any other road upgrades



ALTERNATIVE SCENARIO 1 PROJECTED ADDITIONAL PEAK HOUR TRAFFIC FLOWS

FIGURE 7A



PROPOSED ACCESS & ALTERNATIVE SCENARIO 2
PROJECTED ADDITIONAL PEAK HOUR TRAFFIC FLOWS
FIGURE 7B

SIDRA Modelling Results with 2026 TfNSW STFM Data													
Intersection (with Rickard Road)	**Key Indicators**	**Proposed Access** *Including Foreshadowed Roundabout at Site Access Southern Road*				**Alternate Scenario 1** *Foreshadowed Roundabout plus Signalised Byron Road as per DCP*				**Alternate Scenario 2** *Foreshadowed Roundabout plus Signalised Bus Interchange*			
		Projected 2026 Traffic Volumes		**Plus Proposed Development**		**Projected 2026 Traffic Volumes**		**Plus Proposed Development**		**Projected 2026 Traffic Volumes**		**Plus Proposed Development**	
		AM	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Northern Park and Ride Egress	LOS	A	A	A	A	A	A	A	A	A	A	A	A
	DS	0.206	0.121	0.379	0.304	0.216	0.164	0.315	0.258	0.206	0.121	0.379	0.304
	AVD	0.6	0.7	0.5	0.5	0.6	0.6	0.6	0.5	0.6	0.7	0.5	0.5
Northern Park and Ride Access Road	LOS	A	A	A	A	A	A	A	A	A	A	A	A
	DS	0.356	0.234	0.630	0.460	0.337	0.234	0.494	0.392	0.356	0.234	0.630	0.460
	AVD	5.9	5.1	6.2	5.1	5.6	5.2	5.8	5.1	5.9	5.1	6.2	5.1
Existing Bus Interchange Access Road	LOS	A	A	A	A	-	-	-	-	A	A	A	A
	DS	0.209	0.122	0.382	0.281	-	-	-	-	0.307	0.180	0.562	0.413
	AVD	0.6	0.8	0.9	0.9	-	-	-	-	5.1	5.9	5.6	5.5
Southern Commuter Car Park	LOS	A	A	A	A	-	-	-	-	A	A	A	A
	DS	0.208	0.088	0.381	0.271	-	-	-	-	0.208	0.088	0.703	0.283
	AVD	1.3	2.8	0.7	1.2	-	-	-	-	1.3	2.8	0.7	1.1
Byron Road West	LOS	-	-	A	A	-	-	-	-	-	-	A	A
	DS	-	-	0.367	0.331	-	-	-	-	-	-	0.367	0.331
	AVD	-	-	2.7	3.8	-	-	-	-	-	-	2.7	3.8
Byron Road East	LOS	A	A	A	A	-	-	-	-	A	A	A	A
	DS	0.165	0.135	0.249	0.321	-	-	-	-	0.165	0.135	0.249	0.321
	AVD	2.1	2.5	2.1	2.4	-	-	-	-	2.1	2.5	2.1	2.4
Byron Road	LOS	-	-	-	-	B	B	B	B	-	-	-	-
	DS	-	-	-	-	0.290	0.211	0.424	0.301	-	-	-	-
	AVD	-	-	-	-	19.6	24.4	24.8	24.3	-	-	-	-
Foreshadowed Roundabout	LOS	-	-	A	B	-	-	A	A	-	-	A	B
	DS	-	-	0.666	0.913	-	-	0.567	0.655	-	-	0.666	0.913
	AVD	-	-	10.1	20.7	-	-	7.4	9.9	-	-	10.1	20.7

LOS – Level of Service; DS – Degree of Saturation; AVD – Average Vehicle Delays (secs/veh)

SIDRA Modelling Results with 2031 TfNSW STFM Data													
Intersection (with Rickard Road)	**Key Indicators**	**Proposed Access** *Including Foreshadowed Roundabout at Site Access Southern Road*				**Alternate Scenario 1** *Foreshadowed Roundabout plus Signalised Byron Road as per DCP*				**Alternate Scenario 2** *Foreshadowed Roundabout plus Signalised Bus Interchange*			
		Projected 2031 Traffic Volumes		**Plus Proposed Development**		**Projected 2031 Traffic Volumes**		**Plus Proposed Development**		**Projected 2031 Traffic Volumes**		**Plus Proposed Development**	
		AM	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Northern Park and Ride Egress	LOS	A	A	A	A	A	A	A	A	A	A	A	A
	DS	0.161	0.075	0.248	0.166	0.166	0.116	0.215	0.163	0.161	0.075	0.248	0.166
	AVD	0.4	0.6	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.6	0.3	0.3
Northern Park and Ride Access Road	LOS	A	A	A	A	A	A	A	A	A	A	A	A
	DS	0.264	0.190	0.398	0.283	0.254	0.201	0.330	0.249	0.264	0.188	0.398	0.283
	AVD	5.4	4.8	5.4	4.7	5.3	4.9	5.3	4.8	5.4	4.8	5.4	4.7
Existing Bus Interchange Access Road	LOS	A	A	A	A	-	-	-	-	A	A	A	A
	DS	0.163	0.098	0.866	0.451	-	-	-	-	0.245	0.147	0.375	0.265
	AVD	0.9	0.8	3.1	1.8	-	-	-	-	4.9	5.4	5.1	5.0
Southern Commuter Car Park	LOS	A	A	A	A	-	-	-	-	A	A	A	A
	DS	0.163	0.055	0.249	0.147	-	-	-	-	0.163	0.055	0.249	0.147
	AVD	0.8	2.3	0.4	0.9	-	-	-	-	0.8	2.3	0.4	0.9
Byron Road West	LOS	-	-	A	A	-	-	-	-	-	-	A	A
	DS	-	-	0.242	0.177	-	-	-	-	-	-	0.242	0.177
	AVD	-	-	1.9	3.4	-	-	-	-	-	-	1.9	3.4
Byron Road East	LOS	A	A	A	A	-	-	-	-	A	A	A	A
	DS	0.118	0.105	0.160	0.184	-	-	-	-	0.118	0.105	0.160	0.184
	AVD	2.5	2.8	2.3	2.3	-	-	-	-	2.5	2.8	2.3	2.3
Byron Road	LOS	-	-	-	-	B	B	B	C	-	-	-	-
	DS	-	-	-	-	0.312	0.308	0.417	0.377	-	-	-	-
	AVD	-	-	-	-	19.8	28.1	24.7	29.9	-	-	-	-
Foreshadowed Roundabout	LOS	-	-	A	A	-	-	A	A	-	-	A	A
	DS	-	-	0.502	0.802	-	-	0.364	0.657	-	-	0.502	0.802
	AVD	-	-	8.0	11.4	-	-	6.4	8.4	-	-	8.0	11.4

LOS – Level of Service; DS – Degree of Saturation; AVD – Average Vehicle Delays (secs/veh)

SIDRA Modelling Results with 2036 TfNSW STFM Data													
Intersection (with Rickard Road)	**Key Indicators**	**Proposed Access** *Including Foreshadowed Roundabout at Site Access Southern Road*				**Alternate Scenario 1** *Foreshadowed Roundabout plus Signalised Byron Road as per DCP*				**Alternate Scenario 2** *Foreshadowed Roundabout plus Signalised Bus Interchange*			
		Projected 2036 Traffic Volumes		**Plus Proposed Development**		**Projected 2036 Traffic Volumes**		**Plus Proposed Development**		**Projected 2036 Traffic Volumes**		**Plus Proposed Development**	
		AM	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Northern Park and Ride Egress	LOS	A	A	A	A	A	A	A	A	A	A	A	A
	DS	0.177	0.079	0.263	0.171	0.192	0.127	0.236	0.174	0.177	0.079	0.263	0.171
	AVD	0.4	0.5	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.5	0.3	0.3
Northern Park and Ride Access Road	LOS	A	A	A	A	A	A	A	A	A	A	A	A
	DS	0.288	0.192	0.422	0.303	0.295	0.206	0.371	0.270	0.288	0.190	0.422	0.303
	AVD	5.4	4.8	5.4	4.7	5.3	4.9	5.3	4.8	5.4	4.7	5.4	4.7
Existing Bus Interchange Access Road	LOS	A	A	A	A	-	-	-	-	A	A	A	A
	DS	0.211	0.112	1.191	0.567	-	-	-	-	0.267	0.168	0.397	0.286
	AVD	1.0	0.8	3.2	2.2	-	-	-	-	4.9	5.3	5.1	5.1
Southern Commuter Car Park	LOS	A	A	A	A	-	-	-	-	A	A	A	A
	DS	0.177	0.059	0.264	0.151	-	-	-	-	0.177	0.059	0.268	0.151
	AVD	0.8	2.2	0.4	0.8	-	-	-	-	0.8	2.2	0.4	0.8
Byron Road West	LOS	-	-	A	A	-	-	-	-	-	-	A	A
	DS	-	-	0.257	0.181	-	-	-	-	-	-	0.257	0.181
	AVD	-	-	1.8	3.3	-	-	-	-	-	-	1.8	3.3
Byron Road East	LOS	A	A	A	A	-	-	-	-	A	A	A	A
	DS	0.154	0.121	0.169	0.199	-	-	-	-	0.154	0.121	0.170	0.199
	AVD	3.8	3.6	3.3	2.9	-	-	-	-	3.8	3.6	3.3	2.9
Byron Road	LOS	-	-	-	-	B	C	B	C	-	-	-	-
	DS	-	-	-	-	0.357	0.353	0.469	0.443	-	-	-	-
	AVD	-	-	-	-	19.7	28.7	24.7	30.4	-	-	-	-
Foreshadowed Roundabout	LOS	-	-	A	A	-	-	A	A	-	-	A	A
	DS	-	-	0.520	0.811	-	-	0.407	0.674	-	-	0.522	0.811
	AVD	-	-	8.0	11.6	-	-	6.4	8.5	-	-	8.1	11.6

LOS – Level of Service; DS – Degree of Saturation; AVD – Average Vehicle Delays (secs/veh)

Criteria for Interpreting Results of SIDRA Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'B'	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
'C'	Satisfactory.	Satisfactory but accident study required.
'D'	Operating near capacity.	Near capacity and accident study required.
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.
'F'	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (i.e., inner city conditions) and on some roads (i.e., minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/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 and spare capacity.	Acceptable delays and spare capacity.
C	29 to 42	Satisfactory.	Satisfactory but accident study required.
D	43 to 56	Operating near capacity.	Near capacity and accident study required.
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by traffic signals[1] both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a roundabout or GIVE WAY or STOP signs, satisfactory intersection operation is indicated by a DS of 0.8 or less.

1 *The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.*

4.0 CONSTRUCTION TRAFFIC MANAGEMENT PLAN

A preliminary Construction Traffic Management Plan (CTMP) is provided below, noting that a detailed CTMP incorporating a Traffic Control Plan as well as the consent authority's site-specific requirements will need to be prepared in response to development consent conditions *prior* to the issue of the Construction Certificate.

4.1 Construction Schedule

The construction activities are expected to be undertaken over a duration of approximately 40 months as set out below.

CONSTRUCTION PROGRAM – APPROXIMATE DURATIONS		
Stage	**Work**	**Duration**
1	Demolition & Site Establishment	1 month
2	Earthworks	5 months
3	Construction	34 months

Demolition, excavation, construction work and deliveries of building material and equipment will not take place outside the hours of 7:00am to 5:00pm Monday to Friday and 8:00am to 12:00pm on Saturday, as per Council's standard working hours. No work is to be carried out on Sundays or Public Holidays.

Where it is necessary for works to occur outside of the above hours, approval for an "outside of hours works permit" will be obtained by Council prior to the activity commencing.

4.2 Loading and Unloading

All demolition and excavated spoil material will be loaded wholly within the site where possible, using a variety of truck sizes and types.

Prior to the proposed new local roads being constructed, trucks will enter and exit the site via the existing driveways located off the Rickard Road site frontage whilst travelling in a forward direction *at all times*.

Once the construction of the new local roads is complete, trucks will enter and exit the site via the future driveways located off these new internal roads, in a forward direction *at all times*.

Safe-Work accredited traffic controllers will be present at all times during truck movements to assist with vehicle manoeuvring and pedestrian safety.

All construction material deliveries, including concrete pumping, will also be unloaded wholly within the site where possible.

A tower crane will be installed to transfer materials throughout site. As the construction progress, and the ground floor slab is completed, trucks can also unload within the future loading dock areas.

4.3 Works Zone

As mentioned above, loading/unloading activities will occur *entirely* within the site, therefore a Works Zone is not considered necessary.

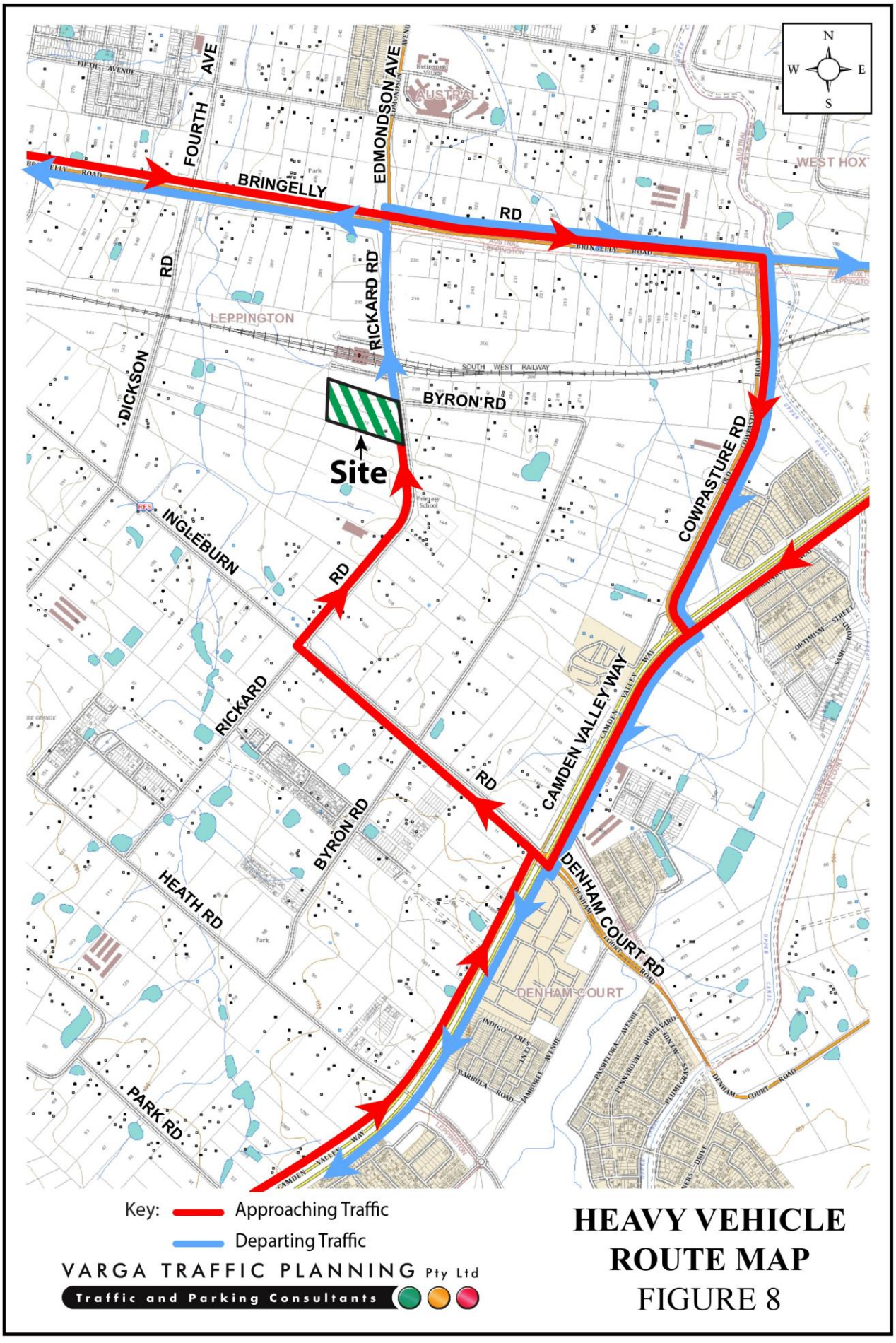
If the situation changes in the future for whatever reason, a Works Zone application must be submitted to and approved by the Camden Local Traffic Committee.

4.4 Construction Truck Routes

All heavy vehicles involved in the demolition, excavation and construction of the proposed development would approach and depart the site from Rickard Road, as illustrated on Figure 8. All heavy vehicles would be restricted to a *left-in/left-out* access arrangement only.

The site manager will ensure that the route map is prominently displayed on the site and that all contractors and employees are given a copy of the route map and understand their obligations as part of their site induction procedure.

Light traffic roads and those subject to load or height limits will be avoided as well as minimising heavy vehicle movements during school peak periods.


N
W
E
S
FOURTH AVE
EDMONDSON AVE
AUSTRAL
WEST HOX
BRINGELLY RD
RICKARD RD
LEPPINGTON
SOUTH WEST RAILWAY
DICKSON RD
BYRON RD
Site
COWPASTURE RD
INGLEBURN RD
CAMDEN VALLEY WAY
RICKARD RD
BYRON RD
HEATH RD
DENHAM COURT RD
DENHAM COURT
PARK RD
Key:
Approaching Traffic
Departing Traffic
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
HEAVY VEHICLE ROUTE MAP
FIGURE 8

4.5 Truck Movements

Based on similar developments in the past, the construction of the proposed development is expected to generate the following truck movements during excavation and construction:

- Demolition - approximately 2-3 trucks carrying out approximately 3 loads per day – i.e. approximately 9 truck movements per day. This would not be every day as they would not be loading out every day of the demolition period.

- Excavation - approximately 5-8 trucks carrying out approximately 5 trips per day – i.e., approximately 40 truck movements per day. This would not occur every day as they would not be loading out every day of the construction period.

- Large Concrete Pours - typically there are approximately 40 major concrete pours and a similar number of minor pours. Major pours would take approximately 6 hours to pour with 8 trucks per hour or 40 to 50 truck movements per day. Smaller pours would have a similar amount of truck movements per hour however the duration would be a lot shorter say 3 to 4 hours maximum.

- General Deliveries - these would occur intermittently throughout the project with the major deliveries being reinforcing steel, plasterboard and bricks. The remainder would generally comprise smaller truck deliveries.

The above is subject to confirmation upon appointment of a construction company, whom are engaged subsequent to development approval.

4.6 Traffic Control Plans

A Traffic Control Plan (TCP) is defined in the TfNSW's *Traffic Control at Work Sites* Manual as a diagram showing signs and traffic control devices arranged to warn traffic and guide it around, past or, if necessary, through a work site or temporary hazard.

Accordingly, TCPs are to be ultimately prepared for the various stages of construction and enable the appointed construction company to fulfil its obligations and the requirements of

the relevant authorities. In this regard, the TCPs are typically designed to address the following matters during construction where applicable:

- use of traffic control devices to warn and inform drivers of changes to the usual road conditions
- use of traffic controllers to control the movement of construction vehicle movements in or out of the site
- use of traffic controllers to ensure the safety of pedestrians walking past the work site
- provision for all road users and their safety
- provision for construction vehicle and plant movements
- parking restrictions and parking facilities.

4.7 Pedestrian and Cyclists

All construction activity will take into consideration of pedestrians and cyclists. Advanced warning signage will be in place to warn pedestrians/cyclists that they are approaching a construction work site, and detour signs will be in place when required. In this regard, a suitable pedestrian/cycle route will be provided throughout the entire construction period.

In particular, TfNSW accredited Traffic Controllers will be on site at all times during construction to direct/guide any pedestrian/cyclist movements in the immediate vicinity of the construction site.

Only authorised personnel will be permitted within the work site, whilst within the confines of the work site, all personnel will be attired in correct PPE and strictly adhere to all rules and regulations within the construction site.

4.8 Trades and Contractor Car Parking

The site manager will ensure that adequate on-site parking is available for employee, tradesperson and construction vehicles, whenever practical. Parking shall be provided in the basement car parking area as soon as practicable.

Staff will be encouraged to carpool and utilise public transport which will minimise traffic and parking impacts as a consequence of the construction process.

In this regard, it should be noted that Leppington Railway Station is located approximately 100m walking distance north of the site. Furthermore, the 841, 856, 858 and 861 bus services operate along the Rickard Road, with the closest bus stops located approximately 150m walking distance from the site.

5.0 PARKING IMPLICATIONS

5.1 Existing Kerbside Parking Restrictions

The existing kerbside parking restrictions which apply to the road network in the vicinity of the site are illustrated on Figure 9 and comprise:

- NO STOPPING restrictions along both sides of Rickard Road north of the subject site, including along the site frontage

- BUS ZONES located along both sides of the bus interchange access road and at regular intervals on both sides of Rickard Road

- generally UNRESTRICTED PARKING elsewhere on the local road network

- COMMUTER PUBLIC CAR PARKS located in the vicinity of Leppington Railway Station

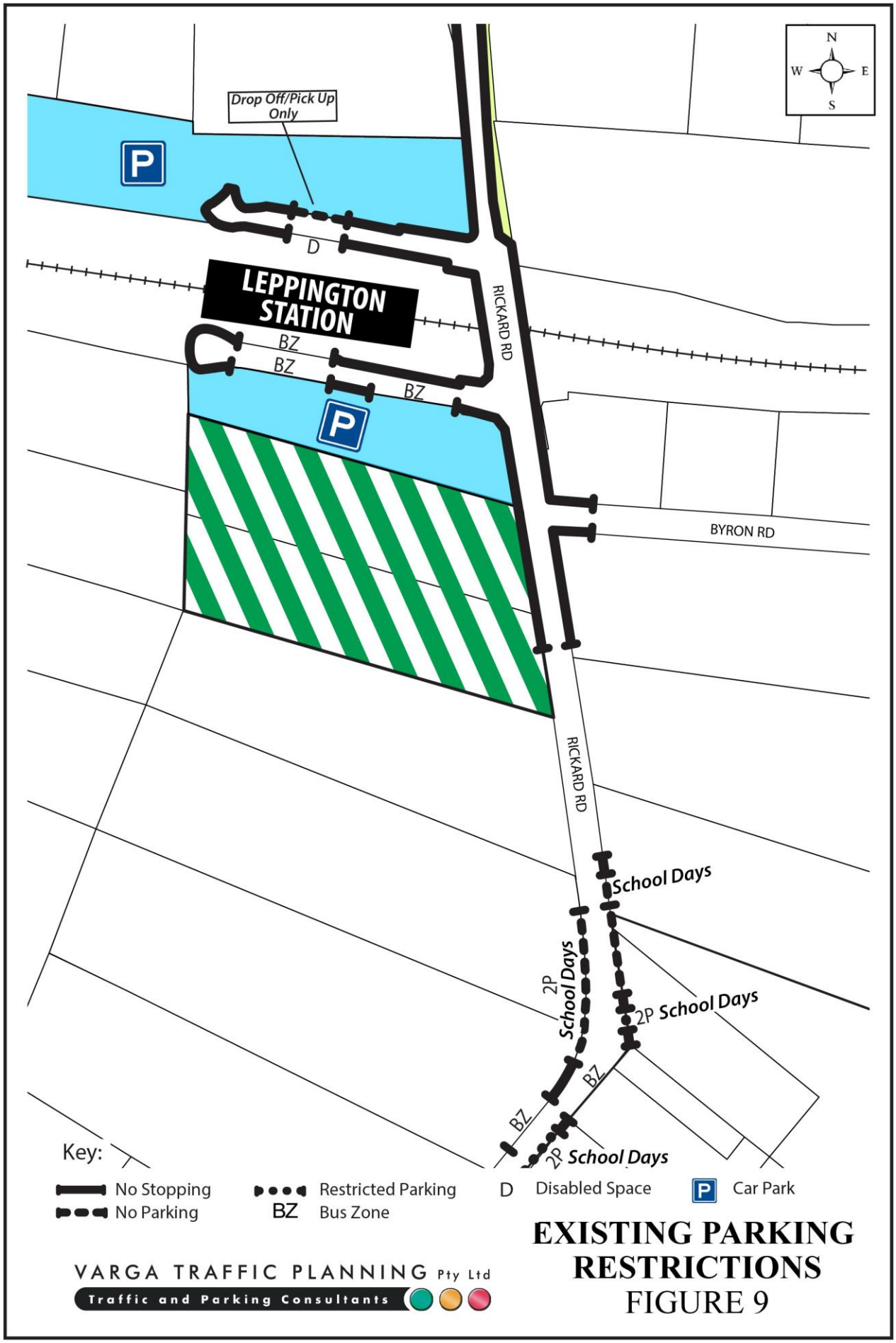
5.2 Off-Street Car Parking Provisions

Residential Parking Provision

Reference is made to Council's *Camden Growth Centres DCP – Section 4.3.5 Controls for residential flat buildings, manor homes and shop top housing* document in the following terms:

> **Table 4-10: Car parking spaces (B1, B2, B3 and B4 zones)**
> 1 space per dwelling, plus 0.5 spaces per 3 or more bedroom dwelling
> 1 visitor space per 5 apartments

Notwithstanding, as noted in the foregoing, DPHI is currently working towards finalising the *LTC SARP*. As such, reference is also made to the previous submitted draft *Leppington Town Centre DCP, Chapter 4.18 – Car Parking Design and Access* document, which nominates the following *maximum* off-street car parking rates for residential flat buildings:


N
W
E
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Drop Off/Pick Up Only
P
D
LEPPINGTON STATION
BZ
BZ
BZ
P
RICKARD RD
BYRON RD
RICKARD RD
School Days
2P
School Days
2P School Days
BZ
BZ
2P School Days
Key:
No Stopping
No Parking
Restricted Parking
BZ Bus Zone
D Disabled Space
P Car Park
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING PARKING RESTRICTIONS
FIGURE 9

Residential Flat Building (Within 800m walking distance of Leppington Station)

Studio or 1 bedroom – 0.5 spaces / dwelling

2 bedrooms – 1 space / dwelling

3 or more bedrooms – 1 space / dwelling

Reference is also made to the parking rates nominated in *SEPP (Housing) 2021* for the residential component, which are reproduced below:

Chapter 2 Affordable Housing

Part 2 Development for affordable housing

Division 1 In-fill affordable housing

22A Requirement to provide car parking

Development consent must not be granted to development under this division unless–

(a) the consent authority is satisfied the development will result in–

(i) the following number of parking spaces for dwellings used for affordable housing–

(A) for each dwelling containing 1 bedroom–at least 0.4 parking spaces,

(B) for each dwelling containing 2 bedrooms–at least 0.5 parking spaces,

(C) for each dwelling containing at least 3 bedrooms–at least 1 parking space, and

(ii) the following number of parking spaces for dwellings not used for affordable housing–

(A) for each dwelling containing 1 bedroom–at least 0.5 parking spaces,

(B) for each dwelling containing 2 bedrooms–at least 1 parking space,

(C) for each dwelling containing at least 3 bedrooms–at least 1.5 parking spaces, or

(b) the consent authority has considered the *Guide to Transport Impact Assessment* published by Transport for NSW on 4 November 2024

Chapter 3 Diverse housing

Part 4 Build-to-rent housing

74 Non-discretionary development standards–the Act, s 4.15

(1) The object of this section is to identify development standards for particular matters relating to development for the purposes of build-to-rent housing that, if complied with, prevent the consent authority from requiring more onerous standards for the matters.

(2) The following are non-discretionary development standards in relation to carrying out of the development to which this Part applies–

(d) for development carried out wholly or partly on land in the Eastern Harbour City, Central River City or Western Parkland City–

(i) for land within an accessible area-at least 0.2 parking spaces for each dwelling, or

(ii) otherwise-at least 0.5 parking spaces for each dwelling, or

(iii) if a relevant planning instrument specifies a requirement for a lower number of parking spaces-the lower number specified in the relevant planning instrument,

(e) if paragraph (d) does not apply–at least the number of parking spaces required under the relevant development control plan or local environmental plan for a residential flat building.

Lastly, reference is made to the TfNSW *Guide to Transport Impact Assessment (GTIA)*, which is based on *surveys* of similar developments.

The subject site is defined as a "Category 2" area, typical of outer urban areas or regional centres with more variability in alternative transport options and medium car mode share. In this instance, the relevant residential car parking rates outlined in the TfNSW *Guide to Transport Impact Assessment* are reproduced below:

High Density Residential Dwellings – TfNSW reference rates per dwelling (Category 2)

0.7 spaces per studio/1 bedroom dwellings

0.9 spaces per 2 bedroom dwellings

1.4 spaces per 3+ bedroom dwellings

1 space per 5 dwellings (visitor parking)

Application of the above car parking rates to the residential component of the development proposal yields an off-street parking requirement as set out below:

Comparison of Residential Car Parking Requirements

	Growth Centres DCP	**Draft LTC DCP**	**SEPP 2021**	**TfNSW GTIA**
	(min)	**(max)**	**(min)**	**(min)**
1 bedroom unit (469 dwellings):	469 spaces	235 spaces	164 spaces	281 spaces
2 bedroom unit (750 dwellings):	750 spaces	750 spaces	552 spaces	675 spaces
3 bedroom unit (274 dwellings):	411 spaces	274 spaces	373 spaces	384 spaces
Visitor (1493 dwellings):	299 spaces	0.0 spaces	0.0 spaces	299 spaces
TOTAL:	**1929 spaces**	**1259 spaces**	**1090 spaces**	**1639 spaces**

The proposed development makes provision for a total of 1,765 spaces for the residential component, thereby complying with the *minimum* parking requirements nominated in the *SEPP (Housing) 2021* and the *survey-based* TfNSW *GTIA*, but exceeding the draft *LTC DCP* maximum parking rates.

It is understood that the parking rates specified in the draft *LTC DCP* are constrained to discourage car use and to reduce congestion during commuter peak periods, particularly given that the subject site is located near a public transport hub where alternative public transport is available and there is also a greater mix of land use densities that encourage active transport for short trips.

However, recent surveys undertaken by TfNSW for high density residential developments across Sydney demonstrate a weak correlation between number of parking spaces provided and the rate of peak-hour traffic generation. Peak-period travel behaviour in well-connected locations is driven primarily by the quality and convenience of public transport, not by the number of on-site parking.

In this instance, it is anticipated that future residents will use the public transport during the weekday AM and PM peak periods to commute to and from work and other essential destinations.

However, residents will still require adequate car parking for trips to destinations not well-served by public transport. These trips will typically occur on a discretionary basis, outside of peak periods and will not contribute to peak-hour congestion.

As such, Council's new parking rates as nominated in the draft *LTC DCP* are considered to be too low and impractical, and are likely to result in excessive on-street car parking demands in the surrounding streets.

The proposed provision of 1,765 residential spaces is therefore considered acceptable as it satisfies the *minimum* parking requirements nominated in the *SEPP (Housing) 2021* and the *survey-based* TfNSW *GTIA*.

Importantly, the parking rates nominated in the TfNSW *GTIA* are based on *surveys* of similar developments with good access to public transport and are therefore most representative of actual parking demands likely to be generated by the development proposal.

The proposed parking provision is similar to the parking rates identified by the TfNSW *GTIA* surveys of similar high density residential developments with good access to public transport.

Reference to the source documents[2] for the TfNSW *GTIA* indicates that the additional 126 spaces in excess of the *minimum* parking rates nominated in the TfNSW *GTIA* could be expected to generate an additional 19 vph in the AM peak period and an additional 15 vph in

[2] *Report for High Density Residential Trip Generation Surveys – Survey Data Analysis Report* for Roads and Maritime Services prepare by *GHD Pty Ltd* on 28 September 2012

the PM peak period based on the *"per parking space"* traffic generation rates of 0.15/0.12 vph *"per parking space"* for high density residential developments.

That potential additional traffic activity is *statistically insignificant* and will clearly not have any unacceptable traffic implications in terms of road network capacity.

Non-Residential Parking Provisions

The off-street parking requirements applicable to the retail components of the development proposal are specified in Council's *Camden Growth Centres DCP – Section 5.3.8 Traffic circulation, parking and access* document in the following terms:

Table 5-1: Car parking requirements in centres (Growth Centres DCP)
Retail premises (greater than 200m^2 GFA) 1 space per 22m^2 GFA

Control 2 of Section 5.3.8 of the *Camden Growth Centres DCP* notes that parking is to be provided in accordance with Table 5.1 above, "or standards that apply elsewhere in the LGA for land uses not listed" (in Table 5.1 above). Reference is therefore made to the *Camden DCP 2019, Section 2.18.2 – Off-Street Car Parking Rates/Requirements* as set out below:

Hotel or Motel Accommodation (Camden DCP)
1 car parking space for each unit, and
1 car parking space per 2 employees

Reference is also made to the draft *Leppington Town Centre DCP, Chapter 4.18 – Car Parking Design and Access* document, which nominates the following *maximum* off-street car parking rates for the non-residential components of the development proposal:

Shopping Centre
Within 800m Walking Distance of Leppington Station (Maximum Parking Rate)
1 space / 400m^2 GFA

Tourist and Visitor Accommodation (Hotel, motel, or serviced apartments)
Within 800m Walking Distance of Leppington Station (Maximum Parking Rate)
1 space / 5 apartments or rooms, plus
1 space per 5 employees

By way of comparison, the TfNSW *GTIA* nominates the following off-street car parking rate for shopping centres and hotels (using the motels rate as TfNSW does not nominate a parking rate for hotels):

Shopping Centres

>30,000m^2: 4.1 spaces per 100m^2 GLFA

Hotel or Motel Accommodation

1 car parking space for each unit, and

1 car parking space per 2 employees

Application of the above car parking rates to the hotel and retail component of the development proposal yields the off-street parking requirements as set out below:

Comparison of Retail/Hotel Car Parking Requirements

	Growth Centres DCP (min)	Draft LTC DCP (max)	TfNSW GTIA (min)
Retail (29,977m^2):	1363 spaces	75 spaces	1229 spaces
Hotel (156 keys):	156 spaces	31 spaces	156 spaces
Hotel (25 employees):	13 spaces	5 spaces	13 spaces
TOTAL:	**1532 spaces**	**111 spaces**	**1398 spaces**

The proposed development makes provision for a total of 1,283 non-residential parking spaces comprising 101 hotel and 1,182 retail spaces, thereby resulting in a nominal shortfall of 115 & 249 spaces under the TfNSW *GTIA* and *Growth Centres DCP* respectively, and an excess of 1,172 spaces under the draft *LTC DCP* maximum parking rates.

In this instance, the parking rates nominated in the draft *LTC DCP* are considered to be too low and impractical, particularly given that customers of the proposed development who do not live on-site will likely need to drive to/from the proposed development to carry their shopping.

The proposed provision of 1,283 spaces for the non-residential component is most closely aligned with the TfNSW *GTIA* parking rates, and is considered acceptable in circumstances where:

- a relatively high proportion of hotel guests could be expected to travel by public transport or car share such as Uber, and

- the shortfall of retail car parking is offset by the residential component proposed on-site, whereby residents can simply "walk upstairs" and will therefore not require any additional car parking.

The geometric design layout of the proposed car parking facilities has been designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1* and *Parking Facilities Part 6 - Off-Street Parking for People with Disabilities AS2890.6* in respect of parking bay dimensions, ramp grades, aisle widths, and overhead clearances.

In addition, a number of *swept turning path* diagrams have been prepared which are reproduced in **Appendix F**, demonstrating that B85 and B99 design vehicles are able to pass each other, as specified in *AS2890.1*, whilst travelling in a forward direction at all times.

5.3 Off-Street Bicycle & Motorcycle Parking Provisions

The off-street bicycle parking requirements applicable to the development proposal are also specified in Council's *Camden Growth Centres DCP – Section 4.3.5 Controls for residential flat buildings, manor homes and shop top housing* document in the following terms:

Table 4-10: Bicycle parking spaces (B1, B2, B3 and B4 zones)

1 per 3 dwellings

Application of the above requirements to the development proposal yields an off-street bicycle parking requirement of 498 spaces.

By way of comparison, reference is also made to the off-street bicycle parking rates in the draft *Leppington Town Centre DCP, Chapter 4.17 – Bicycle Parking Rates* document in the following terms:

Residential Accommodation

Residents:	1 space / dwelling
Visitors:	1 space / 10 dwellings

Shopping Centre

Employees:	1 space / 200m^2 GFA
Customers:	1 space / 300m^2 sales GFA

Tourist and Visitor Accommodation (Hotel, motel, or serviced apartments)

Visitors:	1 space / 20 rooms

Application of the above bicycle parking requirements to the proposed development yields an off-street bicycle parking requirement of 1,912 spaces as set out below:

Draft DCP Bicycle Parking Requirements

Residents (1,493 dwellings):	1493.0 spaces
Visitors (1,493 dwellings):	149.3 spaces
Retail Employees (31,462m^2 NLA):	157.3 spaces
Retail Visitors (31,462m^2 NLA):	104.9 spaces
Hotel (156 keys):	7.8 spaces
TOTAL PARKING REQUIREMENT:	**1912.3 spaces**

The proposed development makes provision for a total of 1988 off-street bicycle parking spaces, comprising 1686 residential spaces, 294 retail spaces, and 8 hotel spaces, thereby satisfying draft *LTC DCP* bicycle parking rates.

It is noted also that each of the ILP roads proposed around the perimeter of the site includes provision for cyclists, as follows:

- the width of the DCP's 16m "Local Street" does not allow for dedicated cycleways however the DCP street section allows for 2.2m wide shared pedestrian/cycle paths on both sides of the "Local Street"

- the 25m wide DCP Town Centre street includes provision for a dedicated 2.8m bi-directional cycle lane

- the DCP 37.6m wide Rickard Road street section and plan allows for 2m wide dedicated cycle path on both sides of the road.

Reference is also made to the off-street motorcycle parking rates nominated in the *Draft Leppington Town Centre DCP, Chapter 4.18 – Car Parking Rates* which nominates the following motorcycle parking rates:

Residential Flat Buildings

Motorcycle parking space – 1 space/10 car spaces

Non-Residential Development

Motorcycle parking space – 1 space/10 car spaces

Application of the above motorcycle parking rates to the proposed development yields an off-street motorcycle parking requirement of 164 residential motorcycle spaces and 128 non-residential motorcycle parking spaces.

Those motorcycle parking requirements are satisfied by the proposed provision of 166 residential motorcycle parking spaces and 116 non-residential motorcycle parking spaces, thereby satisfying the draft *LTDDCP* motorcycle parking rates.

5.4 Loading/Servicing Provisions

Loading/servicing for the proposed development is expected to be undertaken by a variety of light commercial vehicles such as the *Hyundai iLoad* and similar "white vans", up to and including 12.5m long HRV trucks and 19m long AV trucks.

A dedicated loading area is proposed on the eastern portion of the site at ground floor level, at the rear of the retail tenancies. This loading area has been designed to accommodate all commercial vehicle types up to and including 19m long AV trucks. Vehicular access to this loading area is provided via a new entry/exit driveway off the Byron Road West extension. The loading area has been designed to ensure that all vehicles including 19m long AV trucks can enter and exit the site whilst travelling in a forward direction.

A second loading area is proposed on the western portion of the site on the lower ground floor level. This loading dock has been designed to accommodate all commercial vehicle types up to and including 12.5m long HRV rigid trucks and is configured with a turntable to ensure that all vehicles can enter and exit the loading dock in a forward direction. Vehicular

access to this loading area is proposed via a new driveway off the western end of the Byron Road West extension.

The geometric design layout of the proposed loading facilities has been designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 2 - Off-Street Commercial Vehicle Facilities AS2890.2* in respect of loading dock dimensions, overhead clearances and service area requirements.

The manoeuvring areas have been designed to accommodate the swept turning path requirements of these 12.5m long HRV trucks and 19m long AV trucks, allowing them to enter and exit the loading docks satisfactorily, as shown in the attached *swept turning path* diagrams which are reproduced in **Appendix F**. Importantly, all vehicles, including trucks, can enter and exit the site in a forward direction at all times.

In addition, the foreshadowed roundabout at the Rickard Road and Proposed Local Road intersection has been designed to accommodate the swept turning path requirements of trucks up to and including 19m long AV trucks as shown on the civil plans in the attached *swept turning path* diagrams reproduced in **Appendix F**.

6.0 CONCLUSION

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

- the proposed development involves the demolition of the existing buildings on the site to facilitate the construction of a new mixed-use development, comprising 1,493 residential apartments (including 217 *in-fill affordable* & 412 *BTR* units), 156 hotel units, and approximately 31,462m^2 GLFA of supermarket/retail floor space

- the proposed development is supported by a concurrent rezoning application seeking amendments to the *SEPP (Precincts – Western Parkland City) 2021, Appendix 5 Camden Growth Centres Precinct Plan*

- the cumulative traffic generation potential of the proposed Site "A" development as well as the neighbouring Site "B" development will result in approximately 1,174 vph and 1,675 vph during the AM and PM peak periods respectively based on the TfNSW *Guide to Transport Impact Assessment*

- the SIDRA capacity analysis of the nearby intersections located around the perimeter of the site indicates that all intersections will continue to operate satisfactorily under the projected additional traffic demands

- the proposed future internal/local road layout is consistent with the requirements of the draft *Leppington Town Centre DCP (September 2023)* and will adequately cater for the traffic expected to be generated by the development proposal

- an interim road layout is proposed to provide two-way traffic flows around the perimeter of the site, within the site boundaries, pending the construction of the other "half-roads" by others outside the boundaries of the site

- the proposed new roads will all accommodate two-way traffic and satisfactorily allow service vehicles, up to and including 19m long AV trucks, to enter/exit the site in a forward direction at all times, as demonstrated by the *swept turning path* diagrams

- the development provides 3,048 parking spaces, comprising 1765 residential spaces, 101 hotel spaces, and 1,182 retail spaces, thereby satisfying the *SEPP (Housing) 2021* and TfNSW *GTIA* car parking requirements

- the proposed access and internal design arrangements comply with the relevant requirements specified in the Standards Australia *AS2890* series

- in addition, the proposed loading and manoeuvring areas will satisfactorily allow 12.5m long HRV and 19m long AV trucks to enter and exit the site whilst travelling in a forward direction at all times, as demonstrated by the *swept turning path* diagrams

- construction traffic impact will be managed with no issues, subject to the mitigation measures identified in the Preliminary CTMP in *Chapter 4* of this report.

It is therefore reasonable to conclude that the proposed development will not have any unacceptable implications in terms of road network capacity, vehicular access or off-street parking/loading requirements.

APPENDIX A

ARCHITECTURAL PLANS

- All works to be in accordance with authority & statutory approvals.
- Refer to site survey for all information relating to existing site conditions.
- All Boundary information to be confirmed by registered surveyor before commencing works on site.
- Refer to Arborist Report and Landscape Documentation for all information relating to trees and their retention/removal, and all landscape works.
- Drawings to be read in conjunction with all Specifications and Schedules; all specialist consultant documentation; BASIX, NatHERS, Section J Certificates.
- Minor changes to building form & configuration may be required after Development Consent.
- Do not scale from drawing; figured dimensions only to be used.
- Building Contractor to verify all dimensions before commencing work.

Rev	Date	By	Chk	Description
P1	1/05/2026			Coordination Pack

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Project Number	13053
Project Address	173-183 Rickard Road Leppington NSW 2179
Country	Dharug

PRELIMINARY

Drawing Name
Site & Location Plan

Drawing Scale 1:500 @ A1

Drawing No. DA101

Revision P1

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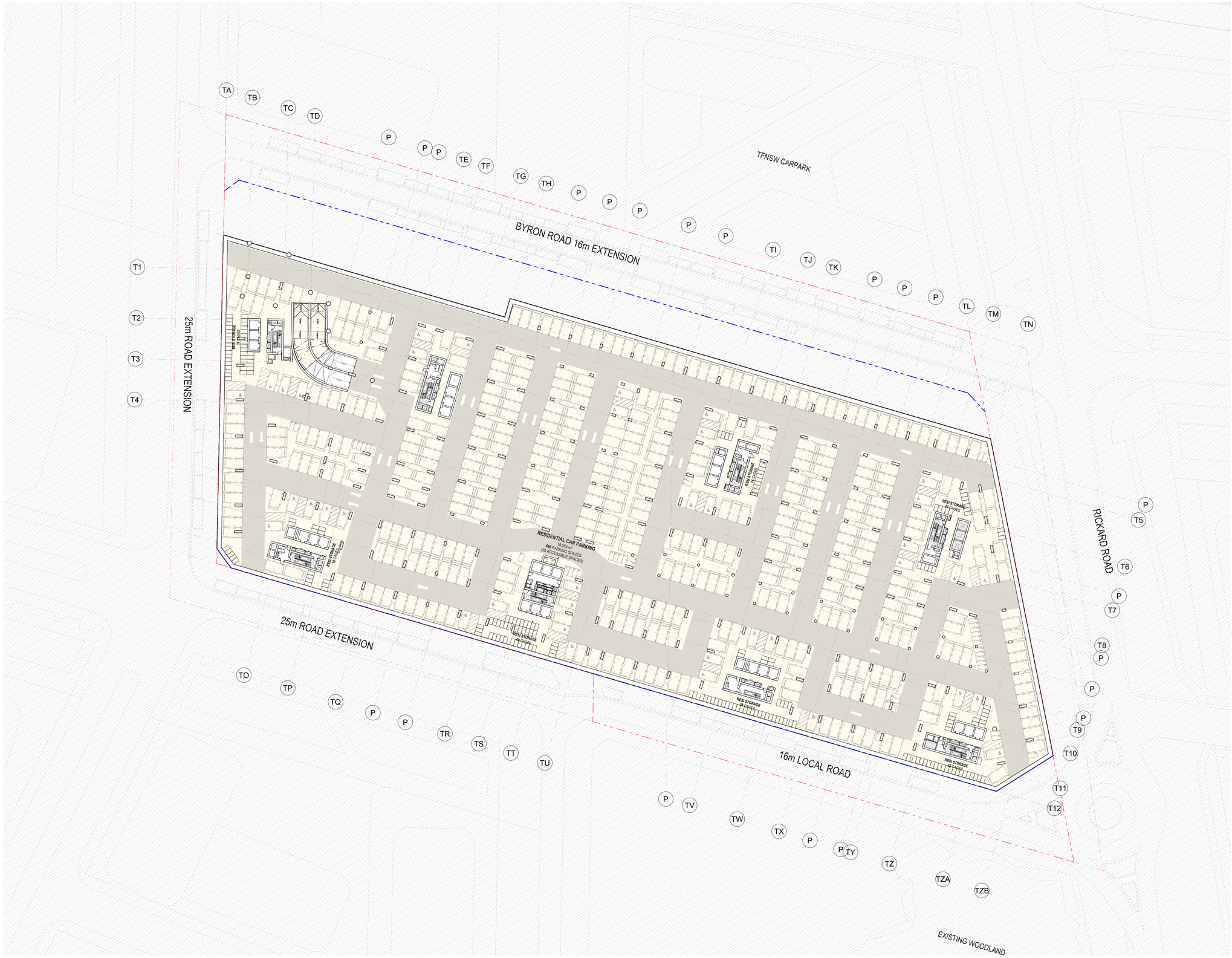
P2	16/05/2026			Updated Coordination Pack
P3	22/05/2026			Updated Coordination Pack



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BASEMENT 07
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Project Name	Leppington Site A
Project Number	13053
Project Address	173-183 Rickard Road Leppington NSW 2179
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Drawing Name
Basement 07

Drawing Scale 1:500 @ A1

Drawing No. DA200

Revision P3

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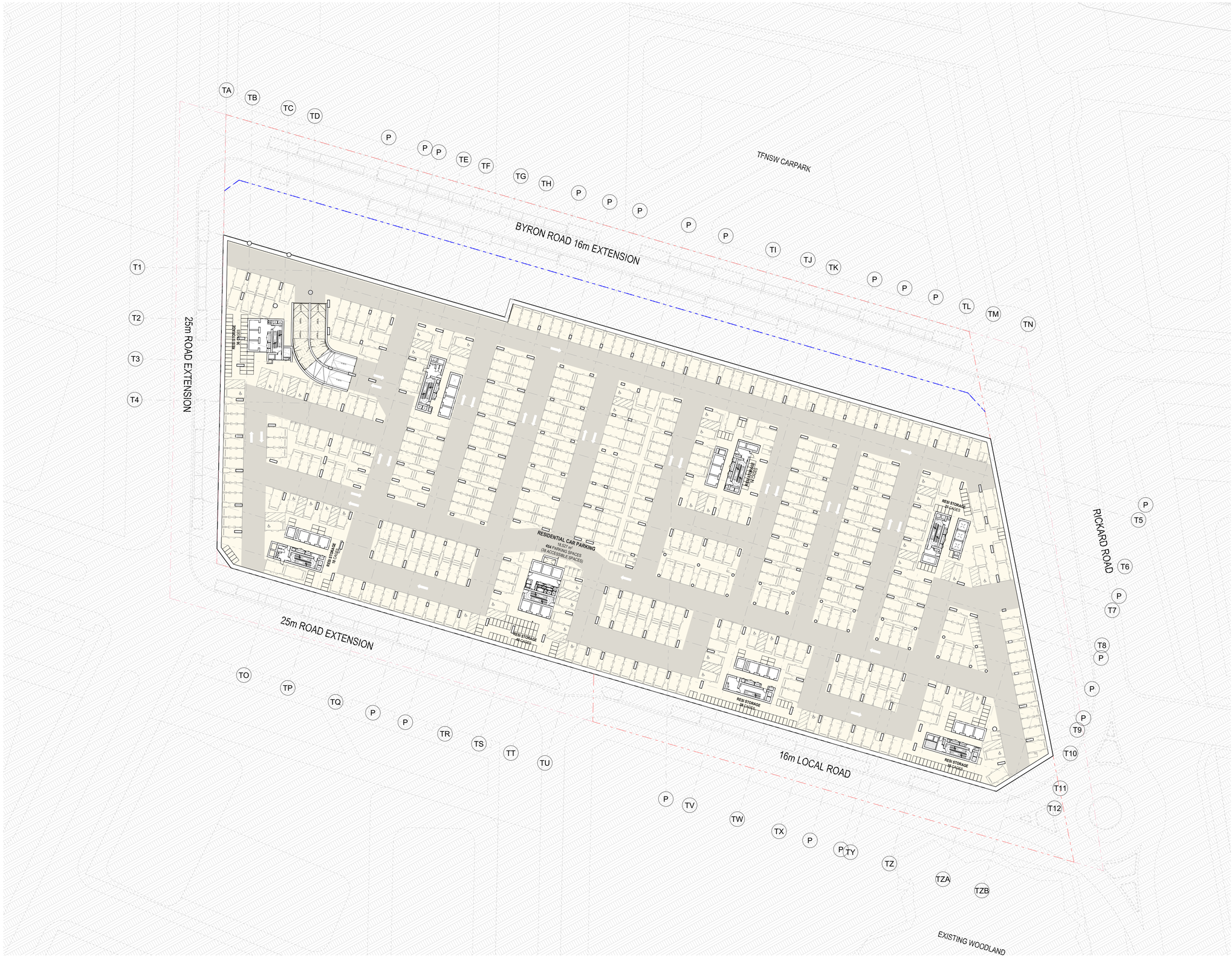
P3	22/05/2026			Updated Coordination Pack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TFNSW CARPARK
BYRON ROAD 16m EXTENSION
T1
T2
T3
T4
25m ROAD EXTENSION
RESIDENTIAL CAR PARKING
18,527 m²
484 PARKING SPACES
(INCLUDES 11 ACCESSIBLE SPACES)
RESI STORAGE
18 CAGES
RESI STORAGE
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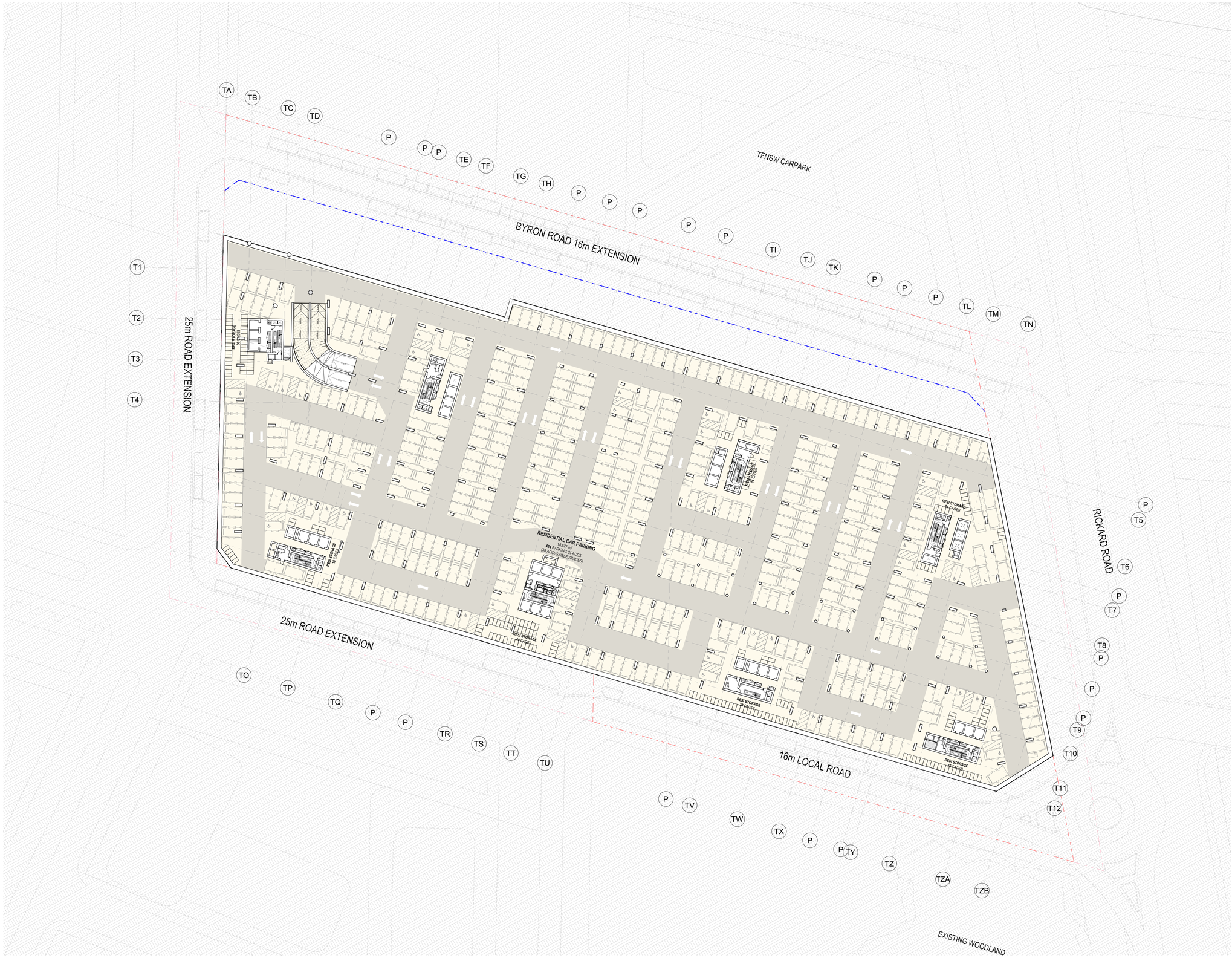
P3	22/05/2026			Updated Coordination Pack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TFNSW CARPARK
25m ROAD EXTENSION
RICKARD ROAD
16m LOCAL ROAD
EXISTING WOODLAND
RESIDENTIAL CAR PARKING
16,527 m²
484 PARKING SPACES
(36 ACCESSIBLE SPACES)
RESI STORAGE
11 CAGES
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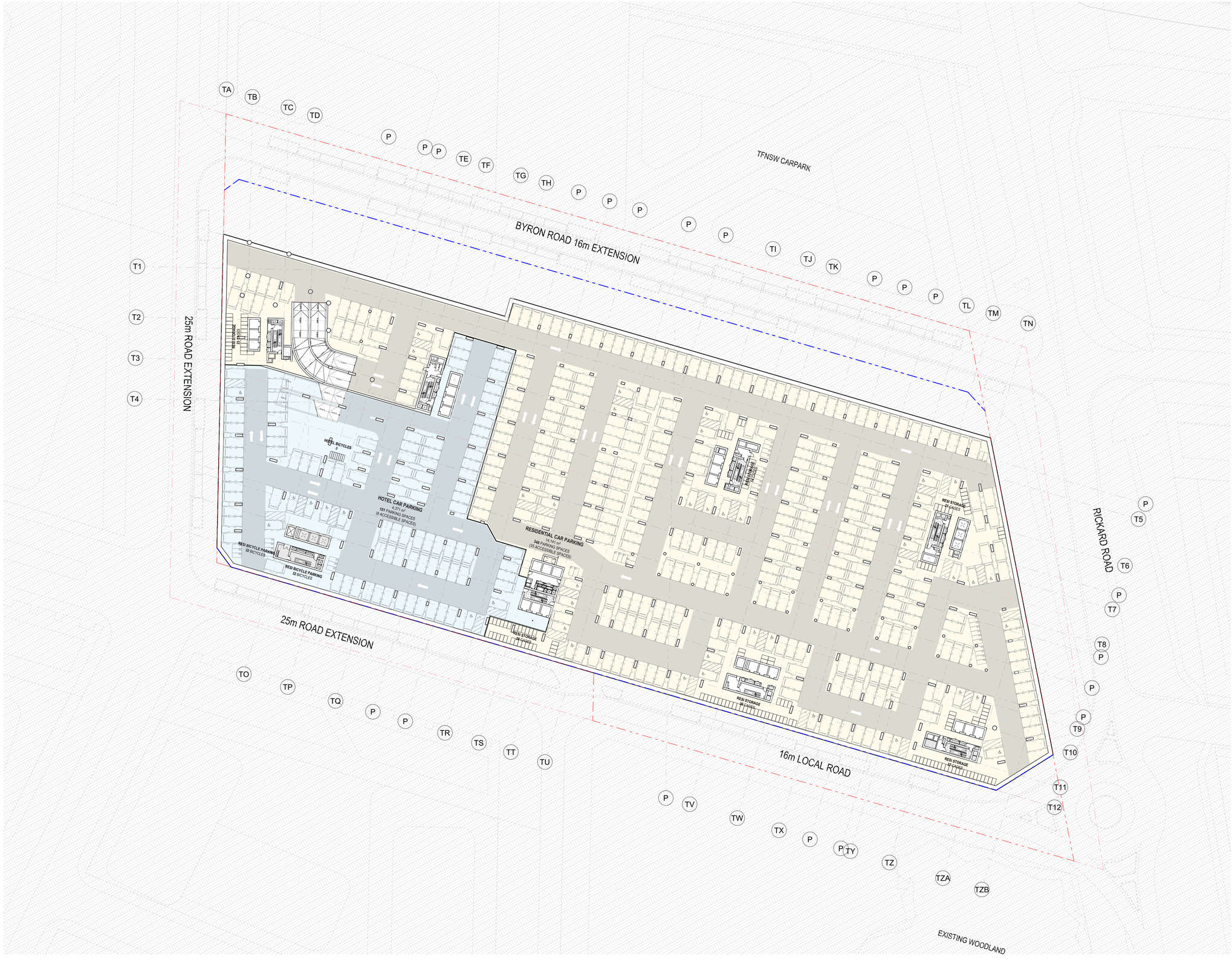
P3	22/05/2026			Updated Coordination Pack



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Drawing Name
Basement 04

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P2	16/05/2026			Updated Coordination Pack
P3	22/05/2026			Updated Coordination Pack

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TFNSW CARPARK
BYRON ROAD 16m EXTENSION
T1
T2
T3
T4
25m ROAD EXTENSION
RESIDENTIAL CAR PARKING
1,614 m²
25 PARKING SPACES
127 BICYCLES
RESIDENTIAL LOADING
RETAIL BICYCLES
RETAIL BICYCLES
RETAIL CAR PARKING
16,360 m²
411 PARKING SPACES
(4 ACCESSIBLE SPACES)
RETAIL LOADING
RESIDENTIAL PARKING
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RESIDENTIAL PARK

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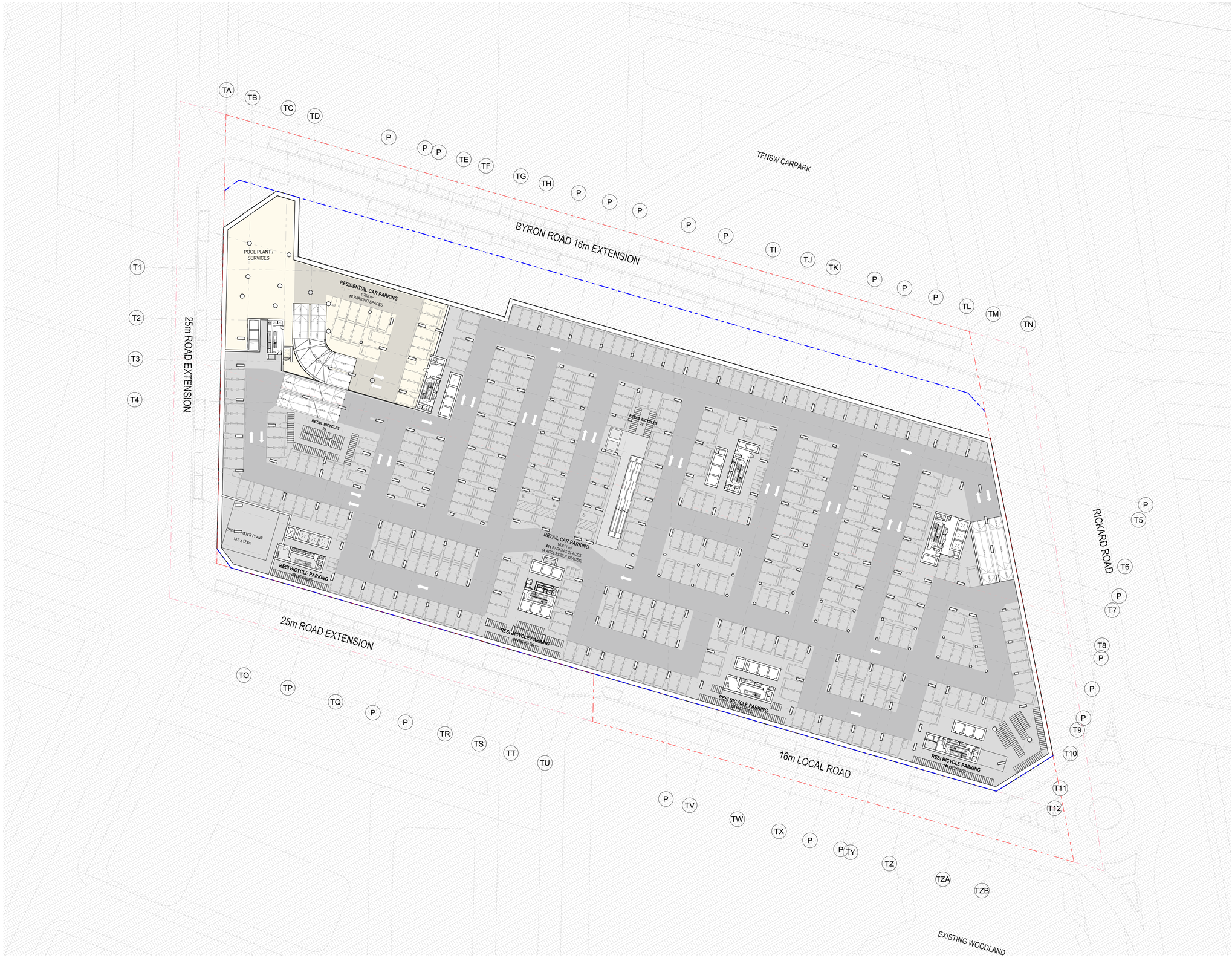
P3	22/05/2026			Updated Coordination Pack



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BASEMENT 02
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Drawing Name
Basement 02

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Drawing No. DA205

Revision P3

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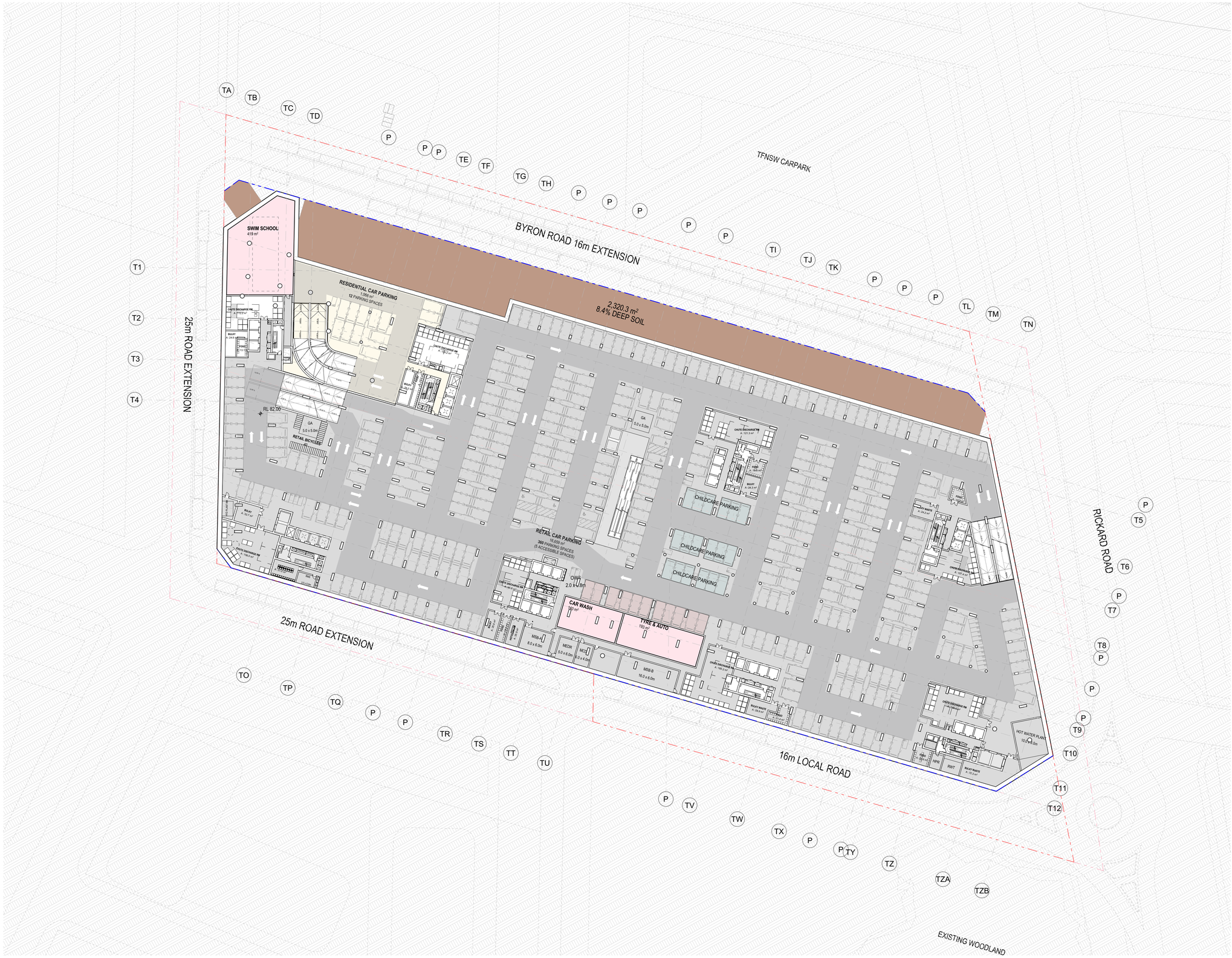
P2	16/05/2026			Updated Coordination Pack
P3	22/05/2026			Updated Coordination Pack



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Project Number	13053
Project Address	173-183 Rickard Road Leppington NSW 2179
Country	Dharug

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Drawing Name
Basement 01

Drawing Scale 1:500 @ A1

Drawing No. DA206

Revision P3

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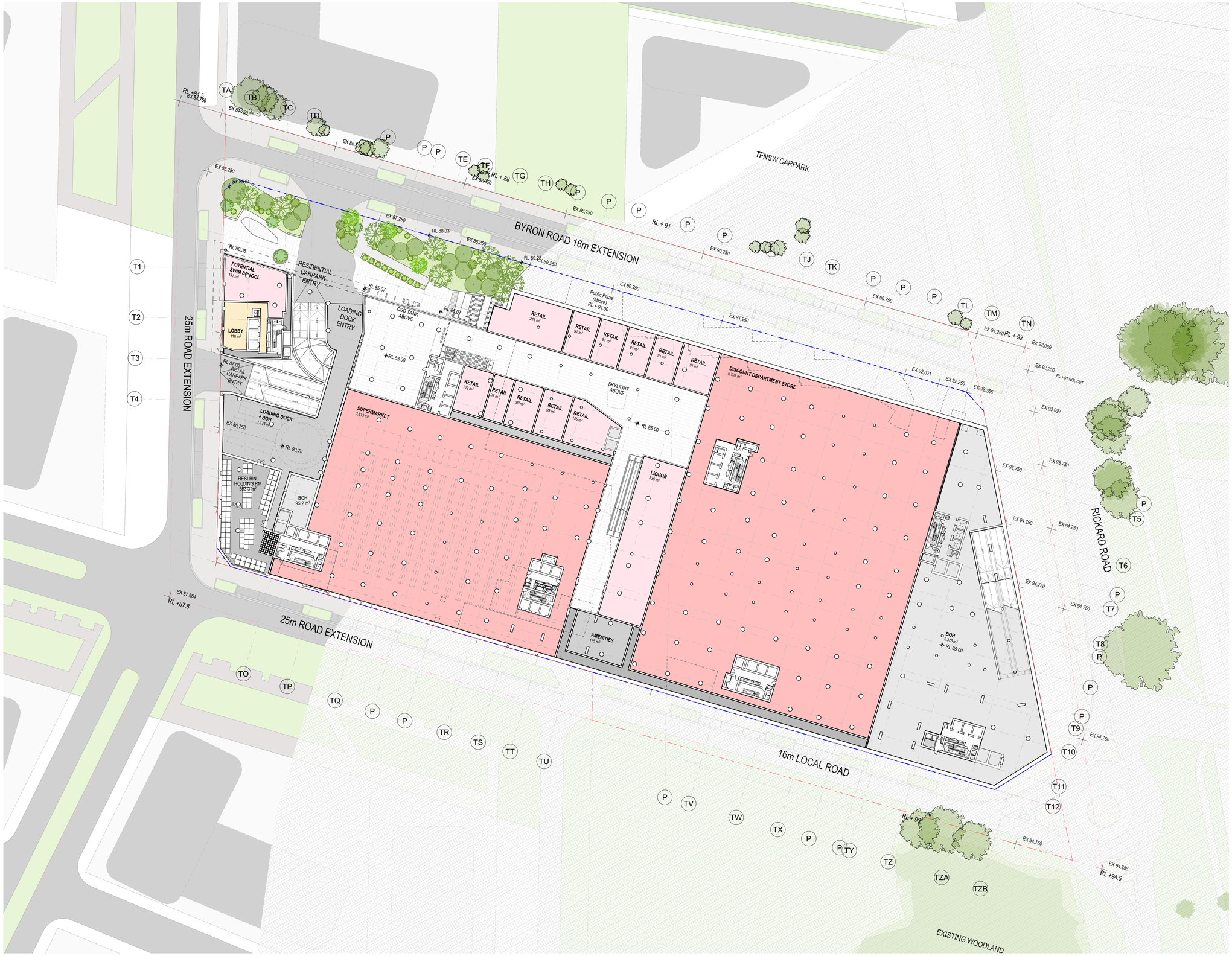
- All Boundary information to be confirmed by registered surveyor before commencing works on site.
- Refer to Arborist Report and Landscape Documentation for all information relating to trees and their retention/removal, and all landscape works.
- Drawings to be read in conjunction with all Specifications and Schedules; all specialist consultant documentation; BASIX, NatHERS, Section J Certificates.
- Minor changes to building form & configuration may be required after Development Consent.
- Do not scale from drawing; figured dimensions only to be used.
- Building Contractor to verify all dimensions before commencing work.

Rev	Date	By	Chk	Description
P1	1/05/2026			Coordination Pack
P2	16/05/2026			Updated Coordination Pack
P3	22/05/2026			Updated Coordination Pack



0 2 4 8 20.00m
Scale 1:500 @ A1

0.
-
LOWER GROUND
1:500

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DKO

Project Name	Leppington Site A
Project Number	13053
Project Address	173-183 Rickard Road Leppington NSW 2179
Country	Dharug

FOR COORDINATION

Drawing Name
Lower Ground

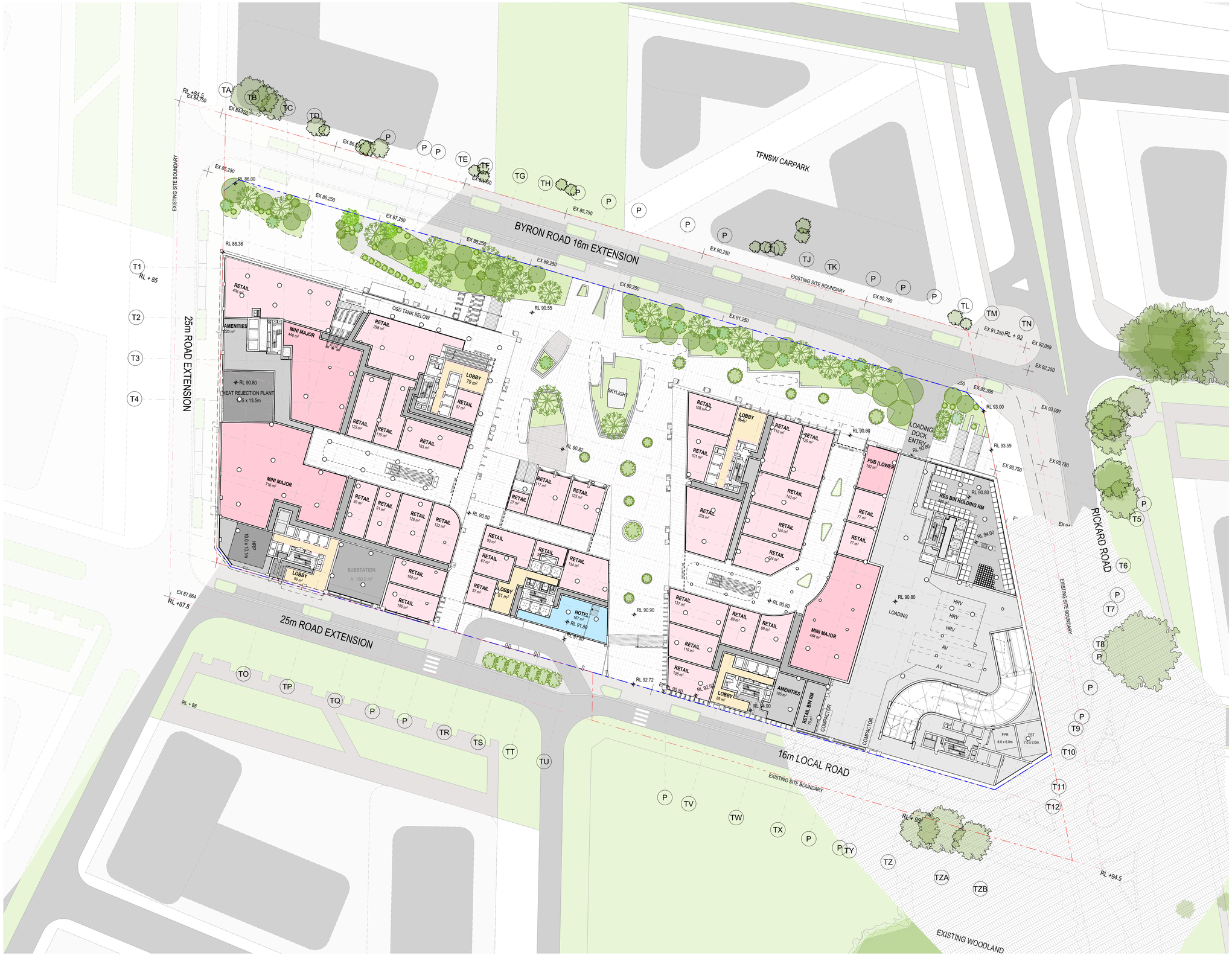
Drawing Scale 1:500 @ A1

Drawing No. DA207

Revision P3

- All works to be in accordance with authority & statutory approvals.
- Refer to site survey for all information relating to existing site conditions.
- All Boundary information to be confirmed by registered surveyor before commencing works on site.
- Refer to Arborist Report and Landscape Documentation for all information relating to trees and their retention/removal, and all landscape works.
- Drawings to be read in conjunction with all Specifications and Schedules; all specialist consultant documentation; BASIX, NatHERS, Section J Certificates.
- Minor changes to building form & configuration may be required after Development Consent.
- Do not scale from drawing; figured dimensions only to be used.
- Building Contractor to verify all dimensions before commencing work.

Rev	Date	By	Chk	Description
P1	1/05/2026			Coordination Pack
P2	16/05/2026			Updated Coordination Pack
P3	22/05/2026			Updated Coordination Pack


BYRON ROAD 16m EXTENSION
TFNSW CARPARK
EXISTING SITE BOUNDARY
25m ROAD EXTENSION
25m ROAD EXTENSION
16m LOCAL ROAD
RICKARD ROAD
EXISTING WOODLAND
OSD TANK BELOW
SKYLIGHT
LOADING DOCK ENTRY
LOADING
RES BIN HOLDING RM
HEAT REJECTION PLANT 5 x 13.5m
SUBSTATION A: 180.0 m²
HOTEL 167 m²
PUB (LOWER 102 m²
MINI MAJOR 716 m²
MINI MAJOR 446 m²
MINI MAJOR 484 m²
AMENITIES 220 m²
AMENITIES 105 m²
LOBBY 79 m²
LOBBY 86 m²
LOBBY 51 m²
LOBBY 99 m²
RETAIL 456 m²
RETAIL 286 m²
RETAIL 57 m²
RETAIL 423 m²
RETAIL 119 m²
RETAIL 163 m²
RETAIL 69 m²
RETAIL 91 m²
RETAIL 126 m²
RETAIL 122 m²
RETAIL 109 m²
RETAIL 67 m²
RETAIL 134 m²
RETAIL 57 m²
RETAIL 108 m²
RETAIL 101 m²
RETAIL 225 m²
RETAIL 143 m²
RETAIL 124 m²
RETAIL 124 m²
RETAIL 77 m²
RETAIL 77 m²
RETAIL 137 m²
RETAIL 88 m²
RETAIL 99 m²
RETAIL 116 m²
RETAIL 108 m²
RETAIL 83 m²
RETAIL 77 m²
RETAIL 123 m²
RETAIL 67 m²
RETAIL 129 m²
RETAIL 119 m²
RETAIL 103 m²
RETAIL 105 m²
RETAIL 105 m²
RETAIL 109 m²
RETAIL 101 m²
RETAIL 119 m²
RETAIL 129

- All works to be in accordance with authority & statutory approvals.
- Refer to site survey for all information relating to existing site conditions.
- All Boundary information to be confirmed by registered surveyor before commencing works on site.
- Refer to Arborist Report and Landscape Documentation for all information relating to trees and their retention/removal, and all landscape works.
- Drawings to be read in conjunction with all Specifications and Schedules; all specialist consultant documentation; BASIX, NatHERS, Section J Certificates.
- Minor changes to building form & configuration may be required after Development Consent.
- Do not scale from drawing; figured dimensions only to be used.
- Building Contractor to verify all dimensions before commencing work.

Rev	Date	By	Chk	Description
P1	1/05/2026			Coordination Pack
P2	16/05/2026			Updated Coordination Pack
P3	22/05/2026			Updated Coordination Pack

2. UPPER GROUND
1:500

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0 2 4 8 20.00m
Scale 1:500 @ A1

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DKO

Project Name	Leppington Site A
Project Number	13053
Project Address	173-183 Rickard Road Leppington NSW 2179
Country	Dharug

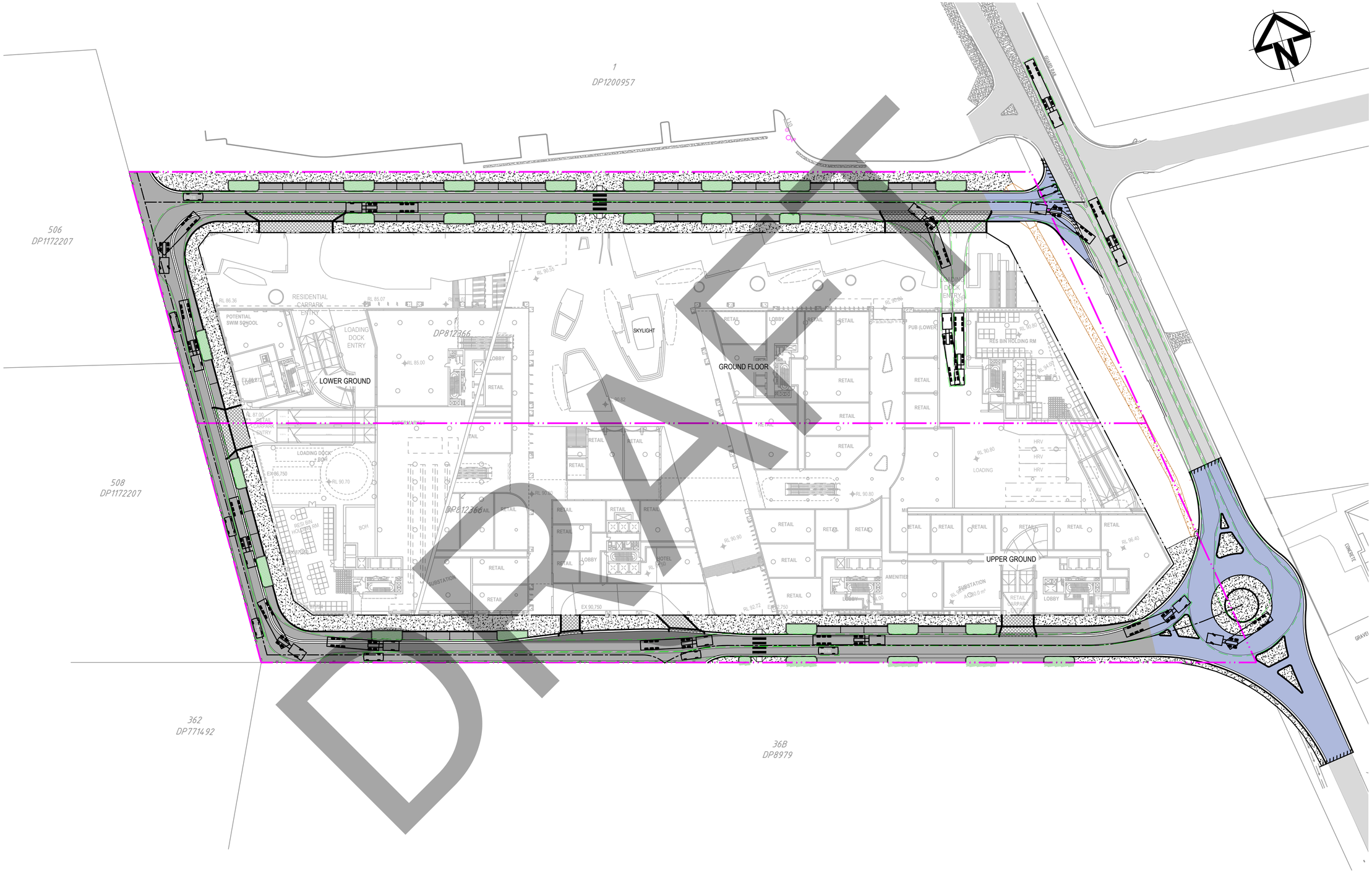
FOR COORDINATION

Drawing Name
Upper Ground

Drawing Scale 1:500 @ A1
Drawing No. DA209
Revision P3

APPENDIX B

CIVIL ENGINEERING PLANS



DRAFT

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
A	ISSUE FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION	28/05/2026	S.A.F.	J.A.B.

1cm at full size

Signature

Client
LEPPINGTON (1)
88 DEVELOPMENT
PTY LTD

Council
camden council

Scale
0 10 20 30 m
SCALE 1:500 @ A1

TELFORD CIVIL
CONSULTING CIVIL & STORMWATER ENGINEERS
Level 14, 32 Smith Street,
Parramatta NSW 2150
PO BOX 3579 Parramatta 2124
Email : info@telfordcivil.com.au
Phone : 02 7809 4931
Trading As : Telford Consulting Pty Ltd

Project
173 -183 RICKARD ROAD, LEPPINGTON
PROPOSED COMMERCIAL MIXED USE DEVELOPMENT
CIVIL ENGINEERING PLANS
STATE SIGNIFICANT DEVELOPMENT APPLICATION

Drawing Title
SWEPT PATH - INTERIM SCENARIO
SHEET 1

Scale	Project No.	Dwg. No.	Issue
A1 1:500	23629	SK01	A

DRAFT

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
A	ISSUE FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION	28/05/2026	S.A.F.	J.A.B.

0 1cm at full size 10cm 20cm

Signature

Client
LEPPINGTON (1) 88 DEVELOPMENT PTY LTD

Council
camden council

Scale
0 10 20 30 m
SCALE 1:500 @ A1

TELFORD CIVIL
CONSULTING CIVIL & STORMWATER ENGINEERS
Level 14, 32 Smith Street, Parramatta NSW 2150
PO BOX 3579 Parramatta 2124
Email : info@telfordcivil.com.au
Phone : 02 7809 4931
Trading As : Telford Consulting Pty Ltd

Project
173 -183 RICKARD ROAD, LEPPINGTON
PROPOSED COMMERCIAL MIXED USE DEVELOPMENT
CIVIL ENGINEERING PLANS
STATE SIGNIFICANT DEVELOPMENT APPLICATION

Drawing Title
SWEPT PATH - INTERIM SCENARIO SHEET 2

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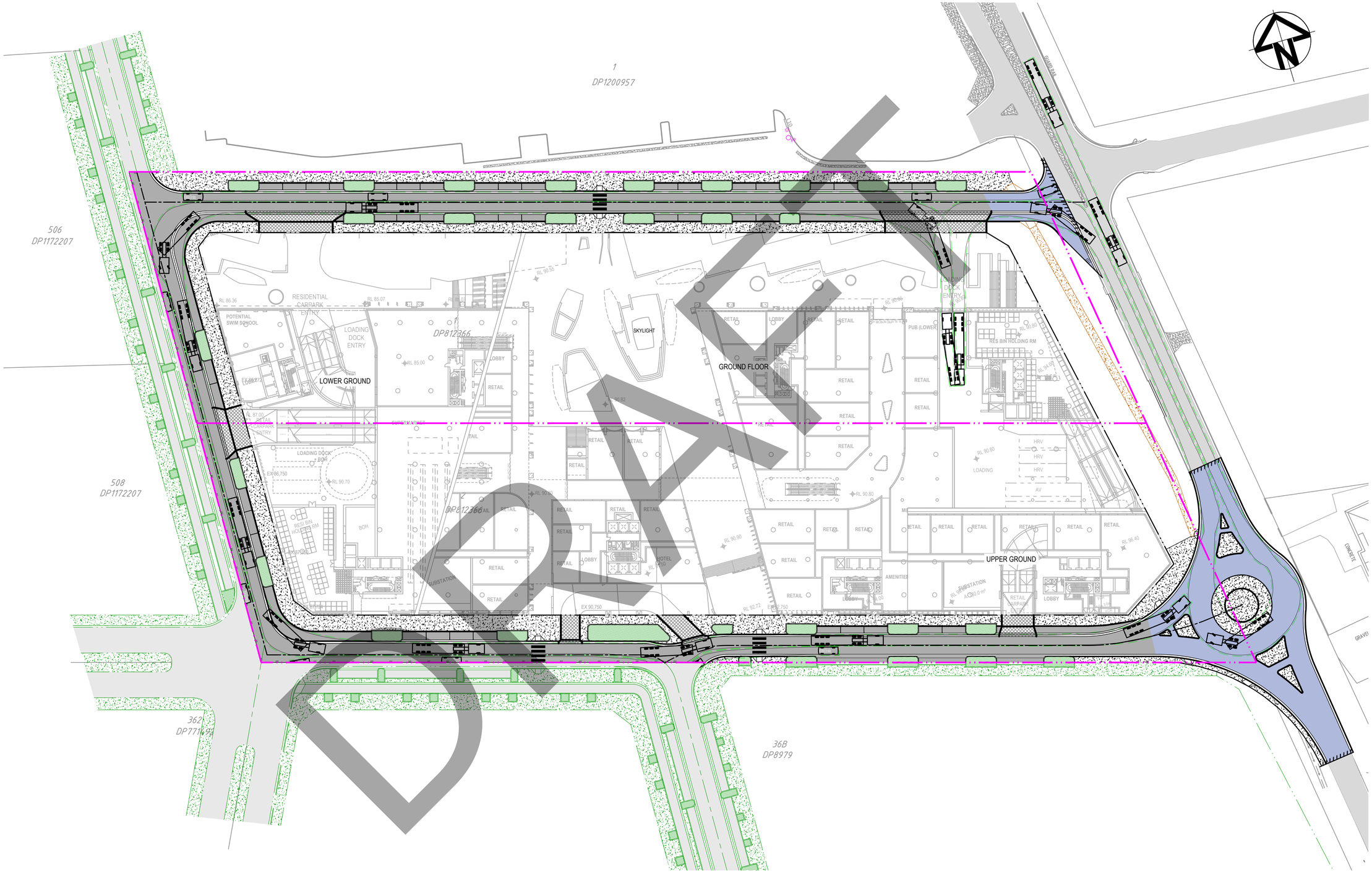

DRAFT

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
A	ISSUE FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION	28/05/2026	S.A.F.	J.A.B.

1cm at full size 10cm 20cm

Signature

Client
LEPPINGTON (1) 88 DEVELOPMENT PTY LTD

Council
camden council

Scale
0 10 20 30 m
SCALE 1:500 @ A1

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CONSULTING CIVIL & STORMWATER ENGINEERS
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PO BOX 3579 Parramatta 2124
Email : info@telfordcivil.com.au
Phone : 02 7809 4931
Trading As : Telford Consulting Pty Ltd

Project
173 -183 RICKARD ROAD, LEPPINGTON
PROPOSED COMMERCIAL MIXED USE DEVELOPMENT
CIVIL ENGINEERING PLANS
STATE SIGNIFICANT DEVELOPMENT APPLICATION

Drawing Title
SWEPT PATH - FUTURE SCENARIO SHEET 1

Scale	A1	Project No.	Dwg. No.	Issue
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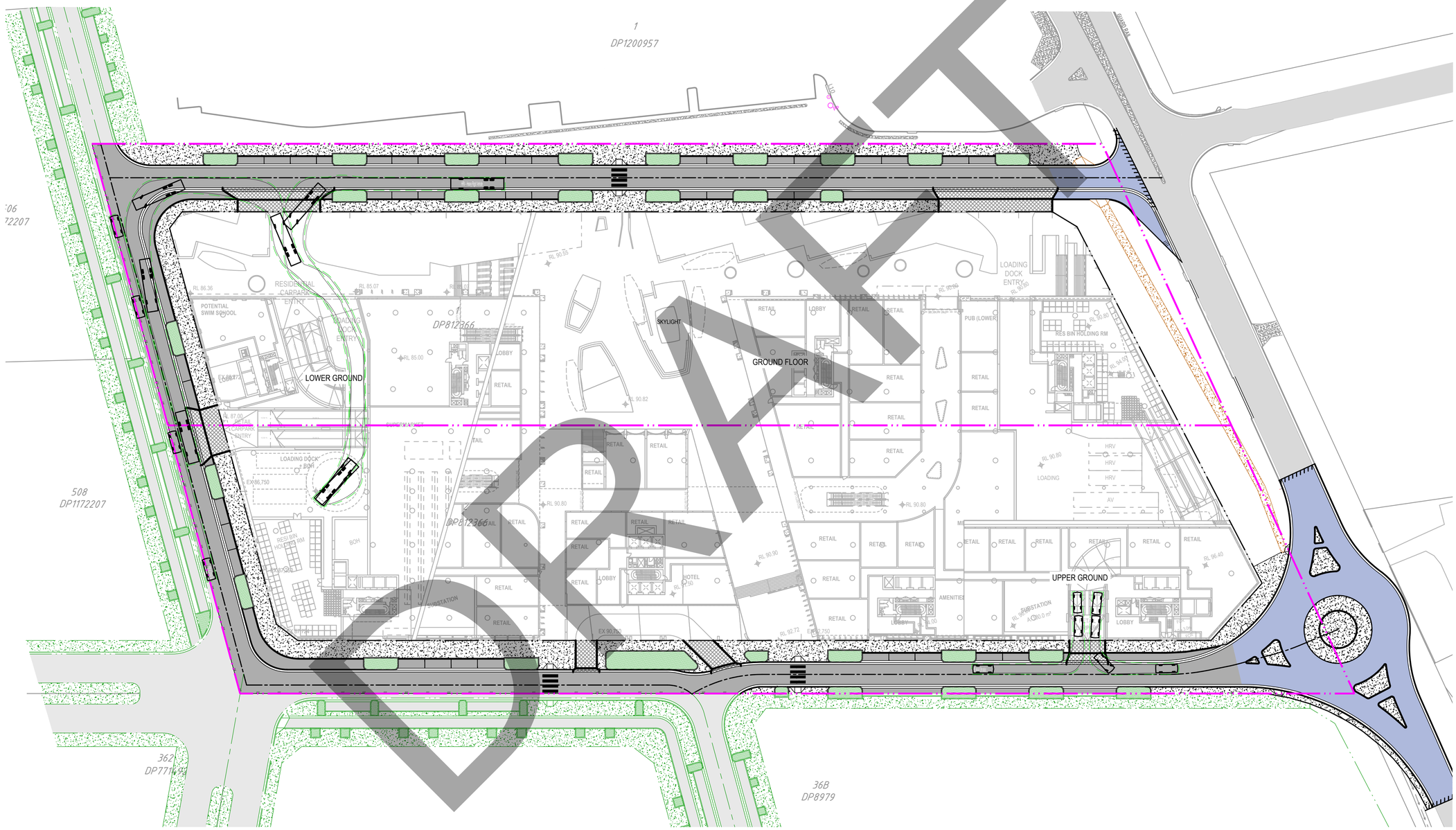

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
A	ISSUE FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION	28/05/2026	S.A.F.	J.A.B.

1cm at full size 10cm 20cm

Signature

Client
LEPPINGTON (1)
88 DEVELOPMENT
PTY LTD

Council
camden council

Scale
0 10 20 30 m
SCALE 1:500 @ A1

TELFORD CIVIL
CONSULTING CIVIL & STORMWATER ENGINEERS
Level 14, 32 Smith Street,
Parramatta NSW 2150
PO BOX 3579 Parramatta 2124
Email : info@telfordcivil.com.au
Phone : 02 7809 4931
Trading As : Telford Consulting Pty Ltd

Project
173 -183 RICKARD ROAD, LEPPINGTON
PROPOSED COMMERCIAL MIXED USE DEVELOPMENT
CIVIL ENGINEERING PLANS
STATE SIGNIFICANT DEVELOPMENT APPLICATION

Drawing Title
SWEPT PATH - IFUTURE SCENARIO
SHEET 2

Scale	Project No.	Dwg. No.	Issue
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APPENDIX C

TRAFFIC SURVEY DATA

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Byron Rd and Rickard Rd, Leppington

GPS *-33.955696, 150.809504*

Date:	Wed 21/05/25
Weather:	Overcast
Suburban:	Leppington
Customer:	Varga

North:	Rickard Rd
East:	Byron Rd
South:	Rickard Rd
West:	Leppington Station Parking 2

All Vehicles

Time		North	East	South	West	Hourly Total	
Period Start	Period End	L	L	L	L	Hour	Peak
5:30	5:45	3	0	5	11	87	
5:45	6:00	3	2	10	1	101	
6:00	6:15	4	4	10	6	138	
6:15	6:30	5	1	11	11	161	
6:30	6:45	4	8	12	9	200	
6:45	7:00	5	5	28	15	226	
7:00	7:15	1	9	20	17	222	
7:15	7:30	5	19	25	18	219	
7:30	7:45	10	21	13	15	211	
7:45	8:00	6	15	13	15	226	
8:00	8:15	5	11	17	11	283	
8:15	8:30	19	11	13	16	294	Peak
8:30	8:45	19	42	5	8	252	
8:45	9:00	34	58	6	8	196	
9:00	9:15	19	21	6	9	103	
9:15	9:30	3	1	10	3		
9:30	9:45	5	2	6	5		
9:45	10:00	5	0	5	3		
14:30	14:45	3	9	6	4	149	
14:45	15:00	1	10	3	4	167	
15:00	15:15	22	44	5	15	185	Peak
15:15	15:30	10	7	2	4	163	
15:30	15:45	21	0	8	11	183	
15:45	16:00	19	2	12	3	173	
16:00	16:15	16	5	11	32	180	
16:15	16:30	11	2	13	17	136	
16:30	16:45	3	9	9	9	111	
16:45	17:00	11	10	8	14	115	
17:00	17:15	6	4	3	7	115	
17:15	17:30	1	5	7	5	105	
17:30	17:45	11	2	12	9	107	
17:45	18:00	6	5	7	25	92	
18:00	18:15	4	0	5	1	116	
18:15	18:30	1	3	5	11		
18:30	18:45	4	3	12	0		
18:45	19:00	7	8	17	35		

Peak Time		North	East	South	West	Peak
Period Start	Period End	L	L	L	L	total
8:15	9:15	91	132	30	41	294
15:00	16:00	72	53	27	33	185

Light Vehicles

Time		North	East	South	West
Period Start	Period End	L	L	L	L
5:30	5:45	3	0	5	11
5:45	6:00	2	2	10	1
6:00	6:15	4	4	10	6
6:15	6:30	5	1	11	11
6:30	6:45	4	7	12	9
6:45	7:00	5	5	28	15
7:00	7:15	1	9	20	17
7:15	7:30	4	19	25	18
7:30	7:45	10	20	13	15
7:45	8:00	6	15	13	15
8:00	8:15	5	11	17	11
8:15	8:30	19	11	13	16
8:30	8:45	19	42	5	8
8:45	9:00	34	57	6	8
9:00	9:15	19	21	6	9
9:15	9:30	3	1	10	3
9:30	9:45	5	2	6	5
9:45	10:00	5	0	5	3
14:30	14:45	3	9	6	4
14:45	15:00	0	10	3	4
15:00	15:15	20	44	5	15
15:15	15:30	10	5	2	4
15:30	15:45	21	0	8	11
15:45	16:00	17	2	12	3
16:00	16:15	16	5	11	32
16:15	16:30	11	2	13	17
16:30	16:45	3	9	9	9
16:45	17:00	11	10	8	14
17:00	17:15	5	4	3	7
17:15	17:30	1	5	7	5
17:30	17:45	11	2	12	9
17:45	18:00	6	5	7	25
18:00	18:15	4	0	5	1
18:15	18:30	1	3	5	11
18:30	18:45	4	3	12	0
18:45	19:00	7	8	17	35

Peak Time		North	East	South	West	Peak
Period Start	Period End	L	L	L	L	total
8:15	9:15	91	131	30	41	293
15:00	16:00	68	51	27	33	179

Heavy Vehicles

Time		North	East	South	West
Period Start	Period End	L	L	L	L
5:30	5:45	0	0	0	0
5:45	6:00	1	0	0	0
6:00	6:15	0	0	0	0
6:15	6:30	0	0	0	0
6:30	6:45	0	1	0	0
6:45	7:00	0	0	0	0
7:00	7:15	0	0	0	0
7:15	7:30	1	0	0	0
7:30	7:45	0	1	0	0
7:45	8:00	0	0	0	0
8:00	8:15	0	0	0	0
8:15	8:30	0	0	0	0
8:30	8:45	0	0	0	0
8:45	9:00	0	1	0	0
9:00	9:15	0	0	0	0
9:15	9:30	0	0	0	0
9:30	9:45	0	0	0	0
9:45	10:00	0	0	0	0
14:30	14:45	0	0	0	0
14:45	15:00	1	0	0	0
15:00	15:15	2	0	0	0
15:15	15:30	0	2	0	0
15:30	15:45	0	0	0	0
15:45	16:00	2	0	0	0
16:00	16:15	0	0	0	0
16:15	16:30	0	0	0	0
16:30	16:45	0	0	0	0
16:45	17:00	0	0	0	0
17:00	17:15	1	0	0	0
17:15	17:30	0	0	0	0
17:30	17:45	0	0	0	0
17:45	18:00	0	0	0	0
18:00	18:15	0	0	0	0
18:15	18:30	0	0	0	0
18:30	18:45	0	0	0	0
18:45	19:00	0	0	0	0

Peak Time		North	East	South	West	Peak
Period Start	Period End	L	L	L	L	total
8:15	9:15	0	1	0	0	1
15:00	16:00	4	2	0	0	6

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Carpark Access and Rickard Rd, Leppingt

GPS *-33.955014, 150.809333*

Date:	Wed 21/05/25
Weather:	Overcast
Suburban:	Leppington
Customer:	Varga

North:	Rickard Rd
East:	N/A
South:	Rickard Rd
West:	Carpark Access

Survey Period	AM:	5:30 AM-10:00 AM
	PM:	2:30 PM-7:00 PM
Traffic Peak	AM:	6:45 AM-7:45 AM
	PM:	3:30 PM-4:30 PM

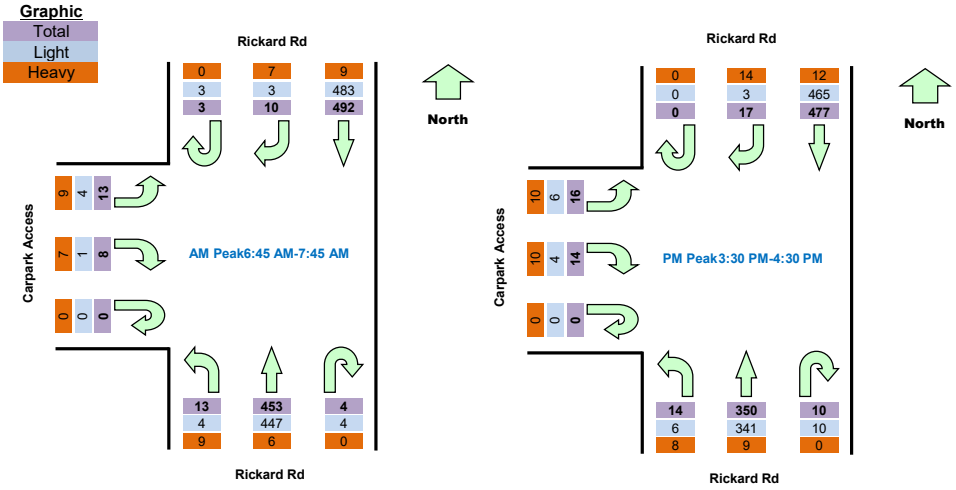
All Vehicles

Time		North Approach Rickard Rd			South Approach Rickard Rd			est Approach Carpark Acce			Hourly Total	
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
5:30	5:45	0	2	34	0	46	2	0	2	2	442	
5:45	6:00	1	1	30	0	42	5	0	2	0	551	
6:00	6:15	1	1	44	0	69	4	0	1	3	641	
6:15	6:30	1	2	53	1	86	1	0	3	3	741	
6:30	6:45	0	1	82	0	94	11	0	4	5	764	
6:45	7:00	0	2	68	4	87	3	0	3	4	734	
7:00	7:15	0	4	90	4	110	5	0	4	6	709	
7:15	7:30	0	4	61	5	90	4	0	4	5	681	
7:30	7:45	1	1	63	11	71	10	0	7	3	728	
7:45	8:00	0	2	60	8	69	2	0	4	1	855	
8:00	8:15	0	4	72	5	103	5	0	1	5	984	
8:15	8:30	1	3	110	1	96	3	0	2	4	996	Peak
8:30	8:45	0	4	141	0	135	5	0	4	5	911	
8:45	9:00	2	2	148	0	119	2	0	1	1	764	
9:00	9:15	0	1	93	3	103	3	0	1	3	608	
9:15	9:30	0	3	62	0	60	4	0	5	1		
9:30	9:45	0	1	58	1	83	1	0	2	1		
9:45	10:00	0	2	50	0	60	4	0	2	1		
14:30	14:45	0	4	83	0	80	2	0	1	2	696	
14:45	15:00	4	1	39	4	88	5	0	3	2	753	
15:00	15:15	0	3	87	1	110	2	0	2	4	805	
15:15	15:30	0	2	73	0	85	3	0	2	4	862	
15:30	15:45	0	6	123	1	89	2	0	2	6	898	Peak
15:45	16:00	0	4	112	0	73	3	0	3	3	849	
16:00	16:15	0	3	142	7	101	6	0	4	3	884	
16:15	16:30	0	4	100	2	87	3	0	5	4	809	
16:30	16:45	0	1	95	0	75	4	0	3	2	804	
16:45	17:00	0	2	125	0	95	5	0	3	3	868	
17:00	17:15	0	1	101	0	81	3	0	2	3	878	
17:15	17:30	0	1	85	0	107	3	0	3	1	852	
17:30	17:45	0	3	126	1	104	4	0	4	2	815	
17:45	18:00	0	0	133	0	107	2	0	1	0	733	
18:00	18:15	0	4	74	0	75	4	0	4	4	720	
18:15	18:30	0	1	73	0	83	3	0	2	1		
18:30	18:45	0	1	73	0	74	6	0	5	3		
18:45	19:00	0	3	108	7	105	2	0	4	1		

Peak Time		North Approach Rickard Rd			South Approach Rickard Rd			est Approach Carpark Acce			Peak
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	total
8:15	9:15	3	10	492	4	453	13	0	8	13	996
15:30	16:30	0	17	477	10	350	14	0	14	16	898

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic



Light Vehicles

Time		North Approach Rickard Rd			South Approach Rickard Rd			est Approach Carpark Acce		
Period Start	Period End	U	R	SB	U	NB	L	U	R	L
5:30	5:45	0	1	32	0	46	1	0	2	0
5:45	6:00	1	0	27	0	40	1	0	0	0
6:00	6:15	1	0	43	0	69	1	0	0	1
6:15	6:30	1	0	51	1	84	0	0	2	1
6:30	6:45	0	0	76	0	91	6	0	3	2
6:45	7:00	0	0	63	4	85	2	0	0	2
7:00	7:15	0	1	83	4	109	2	0	2	3
7:15	7:30	0	2	57	5	88	2	0	1	1
7:30	7:45	1	0	60	11	68	7	0	5	2
7:45	8:00	0	1	57	8	68	1	0	2	0
8:00	8:15	0	1	72	5	99	1	0	0	0
8:15	8:30	1	1	109	1	94	1	0	1	1
8:30	8:45	0	1	139	0	132	2	0	0	2
8:45	9:00	2	1	145	0	118	1	0	0	1
9:00	9:15	0	0	90	3	103	0	0	0	0
9:15	9:30	0	1	59	0	58	3	0	2	0
9:30	9:45	0	0	56	1	80	0	0	1	1
9:45	10:00	0	0	50	0	58	3	0	1	0
14:30	14:45	0	2	81	0	77	0	0	1	0
14:45	15:00	4	1	36	4	85	2	0	0	2
15:00	15:15	0	1	85	1	106	2	0	0	2
15:15	15:30	0	0	69	0	83	0	0	0	1
15:30	15:45	0	0	117	1	86	2	0	0	3
15:45	16:00	0	0	110	0	70	0	0	0	0
16:00	16:15	0	1	142	7	99	3	0	2	1
16:15	16:30	0	2	96	2	86	1	0	2	2
16:30	16:45	0	0	94	0	73	1	0	1	0
16:45	17:00	0	0	123	0	91	4	0	1	3
17:00	17:15	0	0	99	0	80	0	0	0	0
17:15	17:30	0	0	85	0	106	2	0	1	0
17:30	17:45	0	1	124	1	104	1	0	1	0
17:45	18:00	0	0	133	0	107	0	0	0	0
18:00	18:15	0	1	73	0	74	1	0	1	1
18:15	18:30	0	1	72	0	83	1	0	0	1
18:30	18:45	0	0	72	0	73	3	0	2	2
18:45	19:00	0	2	108	7	105	0	0	1	1

Peak Time		North Approach Rickard Rd			South Approach Rickard Rd			est Approach Carpark Acce			Peak
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	total
8:15	9:15	3	3	483	4	447	4	0	1	4	949
15:30	16:30	0	3	465	10	341	6	0	4	6	835

Heavy Vehicles

Time		North Approach Rickard Rd			South Approach Rickard Rd			West Approach Carpark Acces		
Period Start	Period End	U	R	SB	U	NB	L	U	R	L
5:30	5:45	0	1	2	0	0	1	0	0	2
5:45	6:00	0	1	3	0	2	4	0	2	0
6:00	6:15	0	1	1	0	0	3	0	1	2
6:15	6:30	0	2	2	0	2	1	0	1	2
6:30	6:45	0	1	6	0	3	5	0	1	3
6:45	7:00	0	2	5	0	2	1	0	3	2
7:00	7:15	0	3	7	0	1	3	0	2	3
7:15	7:30	0	2	4	0	2	2	0	3	4
7:30	7:45	0	1	3	0	3	3	0	2	1
7:45	8:00	0	1	3	0	1	1	0	2	1
8:00	8:15	0	3	0	0	4	4	0	1	5
8:15	8:30	0	2	1	0	2	2	0	1	3
8:30	8:45	0	3	2	0	3	3	0	4	3
8:45	9:00	0	1	3	0	1	1	0	1	0
9:00	9:15	0	1	3	0	0	3	0	1	3
9:15	9:30	0	2	3	0	2	1	0	3	1
9:30	9:45	0	1	2	0	3	1	0	1	0
9:45	10:00	0	2	0	0	2	1	0	1	1
14:30	14:45	0	2	2	0	3	2	0	0	2
14:45	15:00	0	0	3	0	3	3	0	3	0
15:00	15:15	0	2	2	0	4	0	0	2	2
15:15	15:30	0	2	4	0	2	3	0	2	3
15:30	15:45	0	6	6	0	3	0	0	2	3
15:45	16:00	0	4	2	0	3	3	0	3	3
16:00	16:15	0	2	0	0	2	3	0	2	2
16:15	16:30	0	2	4	0	1	2	0	3	2
16:30	16:45	0	1	1	0	2	3	0	2	2
16:45	17:00	0	2	2	0	4	1	0	2	0
17:00	17:15	0	1	2	0	1	3	0	2	3
17:15	17:30	0	1	0	0	1	1	0	2	1
17:30	17:45	0	2	2	0	0	3	0	3	2
17:45	18:00	0	0	0	0	0	2	0	1	0
18:00	18:15	0	3	1	0	1	3	0	3	3
18:15	18:30	0	0	1	0	0	2	0	2	0
18:30	18:45	0	1	1	0	1	3	0	3	1
18:45	19:00	0	1	0	0	0	2	0	3	0

Peak Time		North Approach Rickard Rd			South Approach Rickard Rd			West Approach Carpark Acces			Peak
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	total
8:15	9:15	0	7	9	0	6	9	0	7	9	47
15:30	16:30	0	14	12	0	9	8	0	10	10	63

TRANS TRAFFIC SURVEY

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TURNING MOVEMENT SURVEY

Intersection of Carpark Access and Rickard Rd, Lepping

GPS *-33.954161, 150.809202*

Date:	Wed 21/05/25
Weather:	Overcast
Suburban:	Leppington
Customer:	Varga

North:	Rickard Rd
East:	N/A
South:	Rickard Rd
West:	Carpark Access

Survey Period	AM:	5:30 AM-10:00 AM
	PM:	2:30 PM-7:00 PM
Traffic Peak	AM:	5:30 AM-6:30 AM
	PM:	3:30 PM-4:30 PM

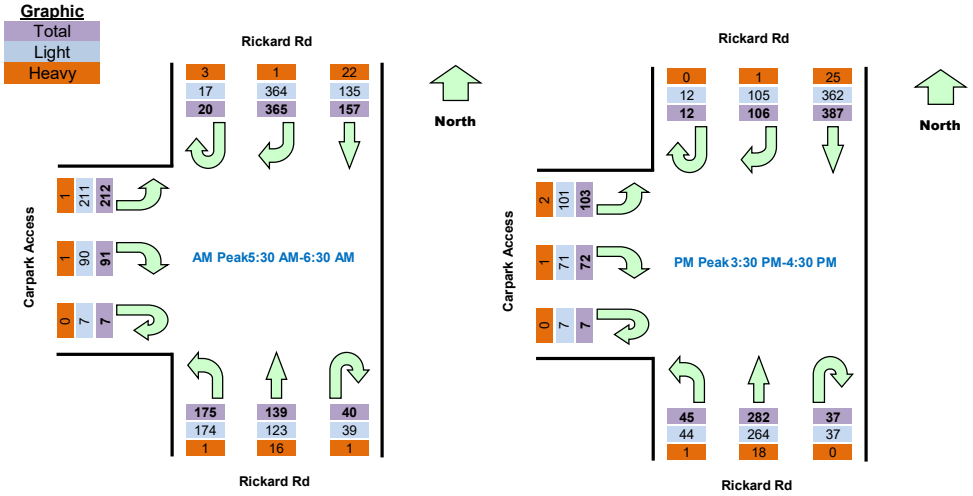
All Vehicles

Time		North Approach Rickard Rd			South Approach Rickard Rd			West Approach Carpark Acce			Hourly Total	
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
5:30	5:45	1	29	24	4	24	20	1	8	12	645	
5:45	6:00	1	24	19	6	16	19	0	7	15	802	
6:00	6:15	4	45	28	6	29	40	1	12	19	955	
6:15	6:30	1	54	31	7	38	45	3	18	34	1115	
6:30	6:45	0	75	52	8	42	49	2	23	29	1188	
6:45	7:00	3	83	40	10	33	44	0	20	27	1197	
7:00	7:15	8	90	51	18	35	63	3	28	48	1206	Peak
7:15	7:30	5	105	30	13	42	38	2	19	50	1154	
7:30	7:45	3	88	33	7	25	42	1	26	64	1131	
7:45	8:00	4	82	43	2	37	32	1	18	50	1155	
8:00	8:15	9	54	35	16	68	29	8	26	47	1159	
8:15	8:30	4	48	70	15	70	17	1	26	30	1077	
8:30	8:45	1	32	105	25	99	15	0	16	20	953	
8:45	9:00	0	22	105	45	63	15	0	11	12	812	
9:00	9:15	5	21	54	22	70	13	0	8	17	664	
9:15	9:30	0	20	59	3	47	11	0	4	13		
9:30	9:45	4	11	45	3	62	19	1	11	16		
9:45	10:00	1	8	42	1	56	5	0	8	4		
14:30	14:45	1	11	69	9	68	4	4	7	7	751	
14:45	15:00	9	6	40	14	73	4	3	2	9	836	
15:00	15:15	13	17	49	23	86	9	2	7	22	900	
15:15	15:30	3	10	62	5	76	8	0	7	12	987	
15:30	15:45	1	22	109	8	74	13	3	14	21	1051	Peak
15:45	16:00	2	15	106	2	66	8	2	8	15	974	
16:00	16:15	4	43	90	19	67	16	2	34	40	987	
16:15	16:30	5	26	82	8	75	8	0	16	27	882	
16:30	16:45	4	7	83	6	57	14	0	5	12	860	
16:45	17:00	2	16	88	16	70	10	1	23	11	940	
17:00	17:15	2	14	71	8	66	14	0	23	12	981	
17:15	17:30	1	17	73	3	87	16	8	11	9	949	
17:30	17:45	4	15	78	13	80	15	1	37	25	905	
17:45	18:00	1	27	71	21	69	17	1	42	29	820	
18:00	18:15	3	11	61	5	61	13	4	11	9	790	
18:15	18:30	6	11	50	11	66	7	4	13	13		
18:30	18:45	3	13	60	1	61	15	10	13	7		
18:45	19:00	2	17	42	21	60	25	6	48	27		

Peak Time		North Approach Rickard Rd			South Approach Rickard Rd			West Approach Carpark Acce			Peak
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	total
7:00	8:00	20	365	157	40	139	175	7	91	212	1206
15:30	16:30	12	106	387	37	282	45	7	72	103	1051

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic



Light Vehicles

Time		North Approach Rickard Rd			South Approach Rickard Rd			West Approach Carpark Acce		
Period Start	Period End	U	R	SB	U	NB	L	U	R	L
5:30	5:45	0	29	21	4	22	20	1	8	12
5:45	6:00	1	23	15	6	15	19	0	7	14
6:00	6:15	1	45	26	6	26	40	1	12	19
6:15	6:30	1	54	28	7	35	44	3	17	34
6:30	6:45	0	74	45	8	37	48	2	23	29
6:45	7:00	2	83	34	10	31	44	0	19	25
7:00	7:15	6	89	41	18	30	63	3	28	48
7:15	7:30	5	105	25	12	36	38	2	19	50
7:30	7:45	2	88	30	7	22	41	1	25	63
7:45	8:00	4	82	39	2	35	32	1	18	50
8:00	8:15	8	54	32	16	59	29	8	26	47
8:15	8:30	4	48	67	15	65	17	1	26	30
8:30	8:45	1	32	101	24	94	15	0	16	20
8:45	9:00	0	22	100	45	62	15	0	11	12
9:00	9:15	5	21	51	22	67	13	0	8	17
9:15	9:30	0	19	55	2	45	11	0	4	13
9:30	9:45	4	11	41	3	59	19	1	11	16
9:45	10:00	0	7	41	1	53	5	0	8	4
14:30	14:45	1	11	65	9	63	4	0	7	7
14:45	15:00	8	6	37	14	70	4	0	2	8
15:00	15:15	11	15	45	23	80	9	2	7	22
15:15	15:30	3	9	56	5	71	8	0	7	12
15:30	15:45	1	21	97	8	68	13	3	14	19
15:45	16:00	2	15	100	2	60	8	2	8	15
16:00	16:15	4	43	88	19	64	15	2	34	40
16:15	16:30	5	26	77	8	72	8	0	15	27
16:30	16:45	3	7	81	6	53	14	0	5	12
16:45	17:00	2	16	84	16	66	10	0	23	11
17:00	17:15	1	14	68	8	62	14	0	23	11
17:15	17:30	1	17	72	3	85	16	8	11	9
17:30	17:45	4	15	74	13	78	15	1	37	25
17:45	18:00	0	27	71	21	69	17	1	42	29
18:00	18:15	3	11	57	5	57	13	4	11	9
18:15	18:30	6	10	49	11	66	7	4	13	12
18:30	18:45	2	13	58	1	59	15	10	13	7
18:45	19:00	2	17	41	21	60	25	6	48	27

Peak Time		North Approach Rickard Rd			South Approach Rickard Rd			West Approach Carpark Acce			Peak
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	total
7:00	8:00	17	364	135	39	123	174	7	90	211	1160
15:30	16:30	12	105	362	37	264	44	7	71	101	1003

Heavy Vehicles

Time		North Approach Rickard Rd			South Approach Rickard Rd			West Approach Carpark Acces		
Period Start	Period End	U	R	SB	U	NB	L	U	R	L
5:30	5:45	1	0	3	0	2	0	0	0	0
5:45	6:00	0	1	4	0	1	0	0	0	1
6:00	6:15	3	0	2	0	3	0	0	0	0
6:15	6:30	0	0	3	0	3	1	0	1	0
6:30	6:45	0	1	7	0	5	1	0	0	0
6:45	7:00	1	0	6	0	2	0	0	1	2
7:00	7:15	2	1	10	0	5	0	0	0	0
7:15	7:30	0	0	5	1	6	0	0	0	0
7:30	7:45	1	0	3	0	3	1	0	1	1
7:45	8:00	0	0	4	0	2	0	0	0	0
8:00	8:15	1	0	3	0	9	0	0	0	0
8:15	8:30	0	0	3	0	5	0	0	0	0
8:30	8:45	0	0	4	1	5	0	0	0	0
8:45	9:00	0	0	5	0	1	0	0	0	0
9:00	9:15	0	0	3	0	3	0	0	0	0
9:15	9:30	0	1	4	1	2	0	0	0	0
9:30	9:45	0	0	4	0	3	0	0	0	0
9:45	10:00	1	1	1	0	3	0	0	0	0
14:30	14:45	0	0	4	0	5	0	4	0	0
14:45	15:00	1	0	3	0	3	0	3	0	1
15:00	15:15	2	2	4	0	6	0	0	0	0
15:15	15:30	0	1	6	0	5	0	0	0	0
15:30	15:45	0	1	12	0	6	0	0	0	2
15:45	16:00	0	0	6	0	6	0	0	0	0
16:00	16:15	0	0	2	0	3	1	0	0	0
16:15	16:30	0	0	5	0	3	0	0	1	0
16:30	16:45	1	0	2	0	4	0	0	0	0
16:45	17:00	0	0	4	0	4	0	1	0	0
17:00	17:15	1	0	3	0	4	0	0	0	1
17:15	17:30	0	0	1	0	2	0	0	0	0
17:30	17:45	0	0	4	0	2	0	0	0	0
17:45	18:00	1	0	0	0	0	0	0	0	0
18:00	18:15	0	0	4	0	4	0	0	0	0
18:15	18:30	0	1	1	0	0	0	0	0	1
18:30	18:45	1	0	2	0	2	0	0	0	0
18:45	19:00	0	0	1	0	0	0	0	0	0

Peak Time		North Approach Rickard Rd			South Approach Rickard Rd			West Approach Carpark Acces			Peak
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	total
7:00	8:00	3	1	22	1	16	1	0	1	1	46
15:30	16:30	0	1	25	0	18	1	0	1	2	48

TRANS TRAFFIC SURVEY

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TURNING MOVEMENT SURVEY

Intersection of Carpark Access and Rickard Rd, Le

GPS *-33.953493, 150.809106*

Date:	Wed 21/05/25
Weather:	Overcast
Suburban:	Leppington
Customer:	Varga

North:	Rickard Rd
East:	N/A
South:	Rickard Rd
West:	Carpark Access

All Vehicles

Time		South	West	Hourly Total	
Period Start	Period End	L	L	Hour	Peak
5:30	5:45	0	8	43	
5:45	6:00	0	0	56	
6:00	6:15	0	9	66	
6:15	6:30	0	26	66	
6:30	6:45	0	21	58	
6:45	7:00	0	10	56	
7:00	7:15	0	9	69	
7:15	7:30	0	18	88	Peak
7:30	7:45	0	19	85	
7:45	8:00	0	23	74	
8:00	8:15	0	28	56	
8:15	8:30	0	15	32	
8:30	8:45	0	8	21	
8:45	9:00	0	5	16	
9:00	9:15	0	4	12	
9:15	9:30	0	4		
9:30	9:45	0	3		
9:45	10:00	0	1		
14:30	14:45	0	1	19	
14:45	15:00	0	1	23	
15:00	15:15	0	15	25	
15:15	15:30	0	2	34	
15:30	15:45	0	5	47	
15:45	16:00	0	3	45	
16:00	16:15	0	24	67	Peak
16:15	16:30	0	15	52	
16:30	16:45	0	3	37	
16:45	17:00	0	25	64	
17:00	17:15	0	9	67	Peak
17:15	17:30	0	0	60	
17:30	17:45	0	30	65	
17:45	18:00	0	28	39	
18:00	18:15	0	2	53	
18:15	18:30	0	5		
18:30	18:45	0	4		
18:45	19:00	0	42		

Peak Time		South	West	Peak
Period Start	Period End	L	L	total
7:15	8:15	0	88	88
16:00	17:00	0	67	67

Light Vehicles

Time		South	West
Period Start	Period End	L	L
5:30	5:45	0	8
5:45	6:00	0	0
6:00	6:15	0	9
6:15	6:30	0	26
6:30	6:45	0	21
6:45	7:00	0	10
7:00	7:15	0	9
7:15	7:30	0	18
7:30	7:45	0	19
7:45	8:00	0	23
8:00	8:15	0	28
8:15	8:30	0	15
8:30	8:45	0	8
8:45	9:00	0	5
9:00	9:15	0	4
9:15	9:30	0	4
9:30	9:45	0	3
9:45	10:00	0	1
14:30	14:45	0	1
14:45	15:00	0	1
15:00	15:15	0	15
15:15	15:30	0	1
15:30	15:45	0	5
15:45	16:00	0	3
16:00	16:15	0	24
16:15	16:30	0	15
16:30	16:45	0	3
16:45	17:00	0	25
17:00	17:15	0	9
17:15	17:30	0	0
17:30	17:45	0	30
17:45	18:00	0	28
18:00	18:15	0	2
18:15	18:30	0	5
18:30	18:45	0	4
18:45	19:00	0	42

Peak Time		South	West	Peak
Period Start	Period End	L	L	total
7:15	8:15	0	88	88
16:00	17:00	0	67	67

Heavy Vehicles

Time		South	West
Period Start	Period End	L	L
5:30	5:45	0	0
5:45	6:00	0	0
6:00	6:15	0	0
6:15	6:30	0	0
6:30	6:45	0	0
6:45	7:00	0	0
7:00	7:15	0	0
7:15	7:30	0	0
7:30	7:45	0	0
7:45	8:00	0	0
8:00	8:15	0	0
8:15	8:30	0	0
8:30	8:45	0	0
8:45	9:00	0	0
9:00	9:15	0	0
9:15	9:30	0	0
9:30	9:45	0	0
9:45	10:00	0	0
14:30	14:45	0	0
14:45	15:00	0	0
15:00	15:15	0	0
15:15	15:30	0	1
15:30	15:45	0	0
15:45	16:00	0	0
16:00	16:15	0	0
16:15	16:30	0	0
16:30	16:45	0	0
16:45	17:00	0	0
17:00	17:15	0	0
17:15	17:30	0	0
17:30	17:45	0	0
17:45	18:00	0	0
18:00	18:15	0	0
18:15	18:30	0	0
18:30	18:45	0	0
18:45	19:00	0	0

Peak Time		South	West	Peak
Period Start	Period End	L	L	total
7:15	8:15	0	0	0
16:00	17:00	0	0	0

APPENDIX D

TfNSW STFM DATA

Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Camden Valley Way
Camden Valley Way
Camden Valley Way
Camden Valley Way
LEPPINGTON
STFM39301
Scenario 2126: 2026_STFM_STD(TZP24STMV3.93)-7-9AM(mf4206)
Link Volumes in Vehicles
2025-06-23 08:48
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Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Camden Valley Way
Camden Valley Way
Camden Valley Way
Camden Valley Way
LEPPINGTON
STFM39301
Scenario 21260: 2026_STFM_STD(TZP24STMV3.93)-4-6PM(mf4216)
Link Volumes in Vehicles
2025-06-23 08:48
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Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Camden Valley Way
Camden Valley Way
Camden Valley Way
Camden Valley Way
LEPPINGTON
STFM39301
Scenario 2131: 2031_STFM_STD(TZP24STMV3.93)-7-9AM(mf4306)
Link Volumes in Vehicles
2025-06-23 08:48
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Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Camden Valley Way
Camden Valley Way
Camden Valley Way
Camden Valley Way
LEPPINGTON
STFM39301
Scenario 2136: 2036_STFM_STD(TZP24STMV3.93)-7-9AM(mf4406)
Link Volumes in Vehicles
2026-05-07 14:27
Made with Emme. Map tiles ©MapTiler ©OpenStreetMap contributors

Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Bringelly Road
Camden Valley Way
Camden Valley Way
Camden Valley Way
Camden Valley Way
LEPPINGTON
STFM39301
Scenario 21360: 2036_STFM_STD(TZP24STMV3.93)-4-6PM(mf4416)
Link Volumes in Vehicles
2026-05-07 14:27
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APPENDIX E

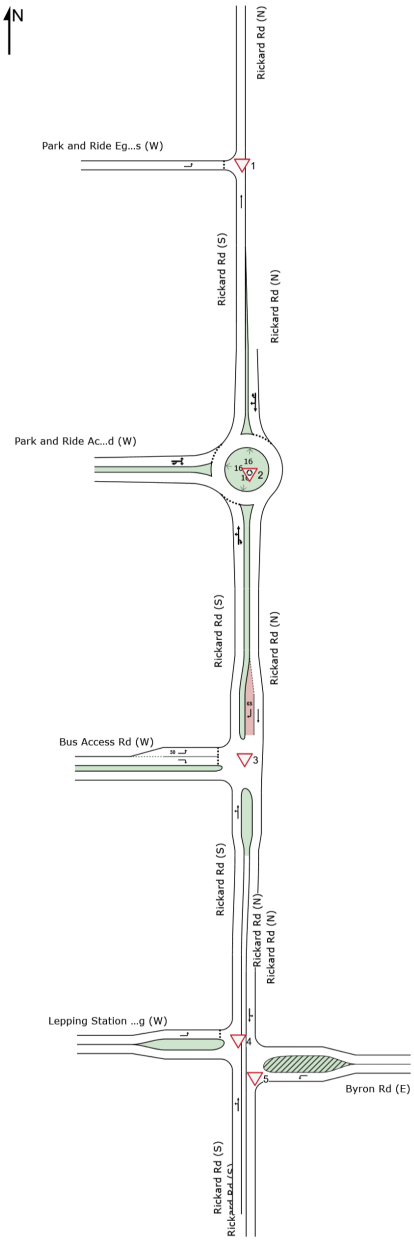
SIDRA MOVEMENT SUMMARIES

NETWORK LAYOUT

Network: [1] Network AM (Projected 2026)

Projected 2026
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
▽3	NA	Rickard Road and Existing Bus Interchange Access Road AM
▽4	NA	Rickard Road and Southern Commuter Car Park AM
▽5	NA	Rickard Road and Byron Road AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2026)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	391	4.6	391	4.6	0.206	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			391	4.6	391	4.6	0.206	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.053	4.8	LOS A	0.2	1.4	0.42	0.56	0.42	41.4
Approach			59	0.0	59	0.0	0.053	4.8	LOS A	0.2	1.4	0.42	0.56	0.42	41.4
All Vehicles			449	4.0	449	4.0	0.206	0.6	NA	0.2	1.4	0.06	0.07	0.06	56.2

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2026)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.356	4.9	LOS A	2.3	17.0	0.47	0.54	0.47	34.3
2	T1	All MCs	261	6.5	261	6.5	0.356	5.0	LOS A	2.3	17.0	0.47	0.54	0.47	29.6
3u	U	All MCs	54	2.0	54	2.0	0.356	11.0	LOS A	2.3	17.0	0.47	0.54	0.47	29.6
Approach			395	4.5	395	4.5	0.356	5.8	LOS A	2.3	17.0	0.47	0.54	0.47	31.3
North: Rickard Rd (N)															
8	T1	All MCs	181	4.7	181	4.7	0.306	4.1	LOS A	1.9	13.8	0.39	0.56	0.39	27.6
9	R2	All MCs	164	0.0	164	0.0	0.306	8.0	LOS A	1.9	13.8	0.39	0.56	0.39	33.0
9u	U	All MCs	15	7.1	15	7.1	0.306	9.9	LOS A	1.9	13.8	0.39	0.56	0.39	27.6
Approach			360	2.6	360	2.6	0.306	6.1	LOS A	1.9	13.8	0.39	0.56	0.39	31.1
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.216	4.0	LOS A	1.3	8.8	0.54	0.58	0.54	29.8
12	R2	All MCs	83	0.0	83	0.0	0.216	7.5	LOS A	1.3	8.8	0.54	0.58	0.54	29.8
12u	U	All MCs	9	0.0	9	0.0	0.216	8.9	LOS A	1.3	8.8	0.54	0.58	0.54	32.8
Approach			207	0.0	207	0.0	0.216	5.7	LOS A	1.3	8.8	0.54	0.58	0.54	30.0
All Vehicles			962	2.8	962	2.8	0.356	5.9	LOS A	2.3	17.0	0.46	0.55	0.46	30.9

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2026)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.209	3.9	LOS A	0.0	0.0	0.00	0.02	0.00	35.9
2	T1	All MCs	379	1.7	379	1.7	0.209	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.1
Approach			395	4.3	395	4.3	0.209	0.2	NA	0.0	0.0	0.00	0.02	0.00	54.0
North: Rickard Rd (N)															
8	T1	All MCs	304	0.0	304	0.0	0.156	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	14	69.2	14	69.2	0.018	7.9	LOS A	0.1	0.8	0.51	0.62	0.51	32.0
Approach			318	3.0	318	3.0	0.156	0.3	NA	0.1	0.8	0.02	0.03	0.02	54.1
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	0.022	6.5	LOS A	0.1	0.9	0.47	0.57	0.47	30.4
12	R2	All MCs	8	87.5	8	87.5	0.039	18.9	LOS B	0.1	1.6	0.74	0.86	0.74	20.5
Approach			24	78.3	24	78.3	0.039	10.8	LOS A	0.1	1.6	0.57	0.67	0.57	26.1
All Vehicles			737	6.1	737	6.1	0.209	0.6	NA	0.1	1.6	0.03	0.04	0.03	49.9

Site Level of Service (LOS) Method: Delay (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: [4] Rickard Road and Southern Commuter Car Park AM

(Proposed AM)

Network: [1] Network AM (Projected 2026)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.208	5.5	LOS A	0.0	0.0	0.00	0.07	0.00	55.3
2	T1	All MCs	349	4.8	349	4.8	0.208	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	56.0
Approach			393	4.3	393	4.3	0.208	0.6	NA	0.0	0.0	0.00	0.07	0.00	55.8
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.039	6.8	LOS A	0.1	1.0	0.39	0.61	0.39	48.7
Approach			45	0.0	45	0.0	0.039	6.8	LOS A	0.1	1.0	0.39	0.61	0.39	48.7
All Vehicles			438	3.8	438	3.8	0.208	1.3	NA	0.1	1.0	0.04	0.12	0.04	54.1

Site Level of Service (LOS) Method: Delay (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: [5] Rickard Road and Byron Road AM (Proposed AM)
Network: [1] Network AM (Projected 2026)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	66	1.6	66	1.6	0.051	7.2	LOS A	0.2	1.4	0.32	0.60	0.32	51.8
Approach			66	1.6	66	1.6	0.051	7.2	LOS A	0.2	1.4	0.32	0.60	0.32	51.8
North: Rickard Rd (N)															
7	L2	All MCs	68	0.0	68	0.0	0.165	4.7	LOS A	0.0	0.0	0.00	0.13	0.00	54.2
8	T1	All MCs	244	3.0	244	3.0	0.165	0.0	LOS A	0.0	0.0	0.00	0.13	0.00	55.2
Approach			313	2.4	313	2.4	0.165	1.0	NA	0.0	0.0	0.00	0.13	0.00	54.8
All Vehicles			379	2.2	379	2.2	0.165	2.1	NA	0.2	1.4	0.06	0.21	0.06	53.8

Site Level of Service (LOS) Method: Delay (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.

MOVEMENT SUMMARY

Site: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2026)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	228	5.1	228	5.1	0.121	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			228	5.1	228	5.1	0.121	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.037	4.1	LOS A	0.1	1.0	0.31	0.48	0.31	41.9
Approach			49	0.0	49	0.0	0.037	4.1	LOS A	0.1	1.0	0.31	0.48	0.31	41.9
All Vehicles			278	4.2	278	4.2	0.121	0.7	NA	0.1	1.0	0.06	0.09	0.06	55.3

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2026)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.163	4.4	LOS A	0.9	6.5	0.33	0.50	0.33	35.3
2	T1	All MCs	120	7.9	120	7.9	0.163	4.5	LOS A	0.9	6.5	0.33	0.50	0.33	31.4
3u	U	All MCs	18	0.0	18	0.0	0.163	10.5	LOS A	0.9	6.5	0.33	0.50	0.33	31.4
Approach			185	5.7	185	5.7	0.163	5.0	LOS A	0.9	6.5	0.33	0.50	0.33	33.1
North: Rickard Rd (N)															
8	T1	All MCs	162	8.4	162	8.4	0.234	3.7	LOS A	1.4	10.0	0.30	0.54	0.30	28.6
9	R2	All MCs	112	0.9	112	0.9	0.234	7.7	LOS A	1.4	10.0	0.30	0.54	0.30	33.5
9u	U	All MCs	13	0.0	13	0.0	0.234	9.5	LOS A	1.4	10.0	0.30	0.54	0.30	28.6
Approach			286	5.1	286	5.1	0.234	5.5	LOS A	1.4	10.0	0.30	0.54	0.30	31.6
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.170	2.9	LOS A	0.9	6.6	0.36	0.49	0.36	30.9
12	R2	All MCs	76	1.4	76	1.4	0.170	6.4	LOS A	0.9	6.6	0.36	0.49	0.36	30.9
12u	U	All MCs	7	0.0	7	0.0	0.170	7.7	LOS A	0.9	6.6	0.36	0.49	0.36	33.5
Approach			192	1.6	192	1.6	0.170	4.5	LOS A	0.9	6.6	0.36	0.49	0.36	31.1
All Vehicles			663	4.3	663	4.3	0.234	5.1	LOS A	1.4	10.0	0.33	0.51	0.33	31.8

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3 (2)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2026)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.098	3.9	LOS A	0.0	0.0	0.00	0.04	0.00	37.4
2	T1	All MCs	168	0.0	168	0.0	0.098	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	57.9
Approach			183	4.6	183	4.6	0.098	0.3	NA	0.0	0.0	0.00	0.04	0.00	50.6
North: Rickard Rd (N)															
8	T1	All MCs	238	0.0	238	0.0	0.122	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	18	82.4	18	82.4	0.018	6.2	LOS A	0.1	0.9	0.35	0.53	0.35	33.4
Approach			256	5.8	256	5.8	0.122	0.4	NA	0.1	0.9	0.02	0.04	0.02	52.1
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	0.016	4.7	LOS A	0.1	0.7	0.29	0.46	0.29	32.3
12	R2	All MCs	15	71.4	15	71.4	0.035	9.7	LOS A	0.1	1.4	0.55	0.66	0.55	27.1
Approach			32	66.7	32	66.7	0.035	7.0	LOS A	0.1	1.4	0.41	0.55	0.41	29.6
All Vehicles			471	9.4	471	9.4	0.122	0.8	NA	0.1	1.4	0.04	0.07	0.04	46.8

Site Level of Service (LOS) Method: Delay (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: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected 2026)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.088	5.5	LOS A	0.0	0.0	0.00	0.17	0.00	54.0
2	T1	All MCs	117	7.2	117	7.2	0.088	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	50.9
Approach			163	5.2	163	5.2	0.088	1.6	NA	0.0	0.0	0.00	0.17	0.00	52.8
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.045	5.9	LOS A	0.2	1.3	0.21	0.54	0.21	49.7
Approach			66	0.0	66	0.0	0.045	5.9	LOS A	0.2	1.3	0.21	0.54	0.21	49.7
All Vehicles			229	3.7	229	3.7	0.088	2.8	NA	0.2	1.3	0.06	0.28	0.06	51.5

Site Level of Service (LOS) Method: Delay (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: [5 (2)] Rickard Road and Byron Road PM (Proposed PM)
Network: [2] Network PM (Projected 2026)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	75	1.4	75	1.4	0.054	7.0	LOS A	0.2	1.5	0.28	0.59	0.28	52.1
Approach			75	1.4	75	1.4	0.054	7.0	LOS A	0.2	1.5	0.28	0.59	0.28	52.1
North: Rickard Rd (N)															
7	L2	All MCs	65	3.2	65	3.2	0.135	4.7	LOS A	0.0	0.0	0.00	0.15	0.00	53.8
8	T1	All MCs	187	4.5	187	4.5	0.135	0.0	LOS A	0.0	0.0	0.00	0.15	0.00	54.5
Approach			253	4.2	253	4.2	0.135	1.2	NA	0.0	0.0	0.00	0.15	0.00	54.1
All Vehicles			327	3.5	327	3.5	0.135	2.5	NA	0.2	1.5	0.06	0.25	0.06	53.3

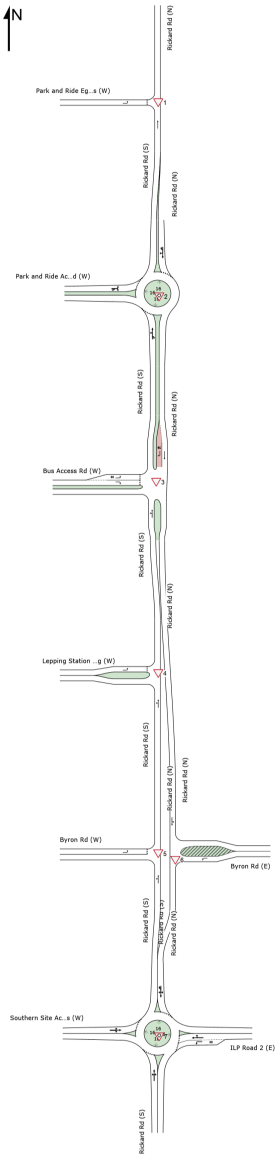
Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level 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.

NETWORK LAYOUT

Network: [1] Network AM (Projected 2026 + Proposed Development)

Projected 2026 + Proposed Development w.Roundabout
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
▽3	NA	Rickard Road and Existing Bus Interchange Access Road AM
▽4	NA	Rickard Road and Southern Commuter Car Park AM
▽5	NA	Rickard Road and Byron Road W AM
▽6	NA	Rickard Road and Byron Road E AM
▽7	NA	Rickard Road and Foreshadowed Roundabout AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	727	2.5	727	2.5	0.379	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			727	2.5	727	2.5	0.379	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.082	7.1	LOS A	0.3	2.0	0.58	0.75	0.58	39.2
Approach			59	0.0	59	0.0	0.082	7.1	LOS A	0.3	2.0	0.58	0.75	0.58	39.2
All Vehicles			786	2.3	786	2.3	0.379	0.5	NA	0.3	2.0	0.04	0.06	0.04	57.3

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.630	5.4	LOS A	5.9	42.1	0.64	0.55	0.64	33.7
2	T1	All MCs	598	2.8	598	2.8	0.630	5.5	LOS A	5.9	42.1	0.64	0.55	0.64	28.4
3u	U	All MCs	54	2.0	54	2.0	0.630	11.6	LOS A	5.9	42.1	0.64	0.55	0.64	28.4
Approach			732	2.4	732	2.4	0.630	5.9	LOS A	5.9	42.1	0.64	0.55	0.64	29.5
North: Rickard Rd (N)															
8	T1	All MCs	345	2.4	345	2.4	0.436	4.2	LOS A	3.3	23.4	0.46	0.54	0.46	27.9
9	R2	All MCs	164	0.0	164	0.0	0.436	8.1	LOS A	3.3	23.4	0.46	0.54	0.46	33.2
9u	U	All MCs	15	7.1	15	7.1	0.436	10.1	LOS A	3.3	23.4	0.46	0.54	0.46	27.9
Approach			524	1.8	524	1.8	0.436	5.6	LOS A	3.3	23.4	0.46	0.54	0.46	30.7
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.305	6.8	LOS A	2.0	14.2	0.80	0.72	0.80	26.5
12	R2	All MCs	83	0.0	83	0.0	0.305	10.3	LOS A	2.0	14.2	0.80	0.72	0.80	26.5
12u	U	All MCs	9	0.0	9	0.0	0.305	11.6	LOS A	2.0	14.2	0.80	0.72	0.80	30.6
Approach			207	0.0	207	0.0	0.305	8.4	LOS A	2.0	14.2	0.80	0.72	0.80	26.8
All Vehicles			1463	1.9	1463	1.9	0.630	6.2	LOS A	5.9	42.1	0.60	0.57	0.60	29.3

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected 2026 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.382	3.9	LOS A	0.0	0.0	0.00	0.01	0.00	35.9
2	T1	All MCs	716	0.9	716	0.9	0.382	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
Approach			732	2.3	732	2.3	0.382	0.1	NA	0.0	0.0	0.00	0.01	0.00	56.3
North: Rickard Rd (N)															
8	T1	All MCs	469	0.0	469	0.0	0.241	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	14	69.2	14	69.2	0.035	13.4	LOS A	0.1	1.4	0.70	0.82	0.70	27.4
Approach			483	2.0	483	2.0	0.241	0.4	NA	0.1	1.4	0.02	0.02	0.02	54.5
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	0.042	12.0	LOS A	0.1	1.6	0.68	0.81	0.68	25.0
12	R2	All MCs	8	87.5	8	87.5	0.158	71.5	LOS F	0.4	5.2	0.94	0.97	0.96	8.6
Approach			24	78.3	24	78.3	0.158	32.7	LOS C	0.4	5.2	0.77	0.86	0.78	15.0
All Vehicles			1239	3.7	1239	3.7	0.382	0.9	NA	0.4	5.2	0.02	0.03	0.02	48.9

Site Level of Service (LOS) Method: Delay (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: [4] Rickard Road and Southern Commuter Car Park AM (Proposed AM)

Network: [1] Network AM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.381	2.7	LOS A	0.0	0.0	0.00	0.03	0.00	55.0
2	T1	All MCs	686	2.5	686	2.5	0.381	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	55.4
Approach			729	2.3	729	2.3	0.381	0.2	NA	0.0	0.0	0.00	0.03	0.00	55.2
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.059	8.8	LOS A	0.2	1.5	0.56	0.76	0.56	46.7
Approach			45	0.0	45	0.0	0.059	8.8	LOS A	0.2	1.5	0.56	0.76	0.56	46.7
All Vehicles			775	2.2	775	2.2	0.381	0.7	NA	0.2	1.5	0.03	0.08	0.03	52.0

Site Level of Service (LOS) Method: Delay (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: [5] Rickard Road and Byron Road W AM (Proposed AM)
Network: [1] Network AM (Projected 2026 + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	154	0.0	154	0.0	0.367	5.5	LOS A	0.0	0.0	0.00	0.13	0.00	54.1
2	T1	All MCs	544	3.1	544	3.1	0.367	0.0	LOS A	0.0	0.0	0.00	0.13	0.00	50.4
Approach			698	2.4	698	2.4	0.367	1.2	NA	0.0	0.0	0.00	0.13	0.00	52.6
West: Byron Rd (W)															
10	L2	All MCs	185	0.0	185	0.0	0.198	8.1	LOS A	0.8	5.5	0.54	0.76	0.54	47.6
Approach			185	0.0	185	0.0	0.198	8.1	LOS A	0.8	5.5	0.54	0.76	0.54	47.6
All Vehicles			883	1.9	883	1.9	0.367	2.7	NA	0.8	5.5	0.11	0.26	0.11	50.5

Site Level of Service (LOS) Method: Delay (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: [6] Rickard Road and Byron Road E AM (Proposed AM)
Network: [1] Network AM (Projected 2026 + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	117	0.9	117	0.9	0.106	8.0	LOS A	0.4	3.0	0.44	0.68	0.44	53.5
Approach			117	0.9	117	0.9	0.106	8.0	LOS A	0.4	3.0	0.44	0.68	0.44	53.5
North: Rickard Rd (N)															
7	L2	All MCs	68	0.0	68	0.0	0.249	4.8	LOS A	0.0	0.0	0.00	0.08	0.00	54.7
8	T1	All MCs	408	1.8	408	1.8	0.249	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	52.8
Approach			477	1.5	477	1.5	0.249	0.7	NA	0.0	0.0	0.00	0.08	0.00	53.8
All Vehicles			594	1.4	594	1.4	0.249	2.1	NA	0.4	3.0	0.09	0.20	0.09	53.7

Site Level of Service (LOS) Method: Delay (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: [7] Rickard Road and Foreshadowed Roundabout AM

(Proposed AM)

Network: [1] Network AM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Site Access with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	228	0.0	228	0.0	0.666	8.0	LOS A	7.1	50.9	0.77	0.68	0.86	47.0
2	T1	All MCs	422	4.0	422	4.0	0.666	8.2	LOS A	7.1	50.9	0.77	0.68	0.86	46.5
3	R2	All MCs	34	0.0	34	0.0	0.666	12.2	LOS A	7.1	50.9	0.77	0.68	0.86	47.9
Approach			684	2.5	684	2.5	0.666	8.4	LOS A	7.1	50.9	0.77	0.68	0.86	46.8
East: ILP Road 2 (E)															
4	L2	All MCs	111	0.0	111	0.0	0.173	10.1	LOS A	1.1	8.0	0.81	0.74	0.81	47.2
5	T1	All MCs	1	0.0	1	0.0	0.146	9.0	LOS A	1.0	7.2	0.80	0.74	0.80	38.6
6	R2	All MCs	111	0.0	111	0.0	0.146	13.1	LOS A	1.0	7.2	0.80	0.74	0.80	34.1
Approach			222	0.0	222	0.0	0.173	11.6	LOS A	1.1	8.0	0.80	0.74	0.80	42.7
North: Rickard Rd (N)															
7	L2	All MCs	34	0.0	34	0.0	0.545	6.9	LOS A	4.6	32.6	0.73	0.66	0.75	40.5
8	T1	All MCs	311	2.7	311	2.7	0.545	7.0	LOS A	4.6	32.6	0.73	0.66	0.75	46.7
9	R2	All MCs	57	0.0	57	0.0	0.545	11.1	LOS A	4.6	32.6	0.73	0.66	0.75	35.8
9u	U	All MCs	124	0.0	124	0.0	0.545	12.9	LOS A	4.6	32.6	0.73	0.66	0.75	29.3
Approach			525	1.6	525	1.6	0.545	8.9	LOS A	4.6	32.6	0.73	0.66	0.75	43.5
West: Southern Site Access (W)															
10	L2	All MCs	41	0.0	41	0.0	0.477	10.8	LOS A	3.8	26.3	0.86	0.83	0.97	26.0
11	T1	All MCs	1	0.0	1	0.0	0.477	10.9	LOS A	3.8	26.3	0.86	0.83	0.97	37.2
12	R2	All MCs	282	0.0	282	0.0	0.477	15.0	LOS B	3.8	26.3	0.86	0.83	0.97	42.3
Approach			324	0.0	324	0.0	0.477	14.5	LOS A	3.8	26.3	0.86	0.83	0.97	41.3
All Vehicles			1756	1.4	1756	1.4	0.666	10.1	LOS A	7.1	50.9	0.78	0.71	0.84	44.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	585	2.0	585	2.0	0.304	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			585	2.0	585	2.0	0.304	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.056	5.9	LOS A	0.2	1.4	0.52	0.65	0.52	40.5
Approach			49	0.0	49	0.0	0.056	5.9	LOS A	0.2	1.4	0.52	0.65	0.52	40.5
All Vehicles			635	1.8	635	1.8	0.304	0.5	NA	0.2	1.4	0.04	0.05	0.04	57.4

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.439	4.6	LOS A	3.3	23.3	0.43	0.48	0.43	35.1
2	T1	All MCs	477	2.0	477	2.0	0.439	4.6	LOS A	3.3	23.3	0.43	0.48	0.43	31.0
3u	U	All MCs	18	0.0	18	0.0	0.439	10.7	LOS A	3.3	23.3	0.43	0.48	0.43	31.0
Approach			542	1.9	542	1.9	0.439	4.8	LOS A	3.3	23.3	0.43	0.48	0.43	31.7
North: Rickard Rd (N)															
8	T1	All MCs	468	2.9	468	2.9	0.460	3.9	LOS A	3.7	26.7	0.40	0.49	0.40	29.3
9	R2	All MCs	112	0.9	112	0.9	0.460	7.8	LOS A	3.7	26.7	0.40	0.49	0.40	34.0
9u	U	All MCs	13	0.0	13	0.0	0.460	9.7	LOS A	3.7	26.7	0.40	0.49	0.40	29.3
Approach			593	2.5	593	2.5	0.460	4.7	LOS A	3.7	26.7	0.40	0.49	0.40	31.0
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.234	5.3	LOS A	1.4	9.9	0.66	0.65	0.66	28.2
12	R2	All MCs	76	1.4	76	1.4	0.234	8.8	LOS A	1.4	9.9	0.66	0.65	0.66	28.2
12u	U	All MCs	7	0.0	7	0.0	0.234	10.1	LOS A	1.4	9.9	0.66	0.65	0.66	31.8
Approach			192	1.6	192	1.6	0.234	6.9	LOS A	1.4	9.9	0.66	0.65	0.66	28.5
All Vehicles			1326	2.1	1326	2.1	0.460	5.1	LOS A	3.7	26.7	0.45	0.51	0.45	30.7

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3 (2)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.281	3.9	LOS A	0.0	0.0	0.00	0.01	0.00	37.5
2	T1	All MCs	525	0.0	525	0.0	0.281	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.1
Approach			540	1.6	540	1.6	0.281	0.1	NA	0.0	0.0	0.00	0.01	0.00	55.8
North: Rickard Rd (N)															
8	T1	All MCs	544	0.0	544	0.0	0.279	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	All MCs	18	82.4	18	82.4	0.033	10.1	LOS A	0.1	1.5	0.60	0.72	0.60	29.9
Approach			562	2.6	562	2.6	0.279	0.3	NA	0.1	1.5	0.02	0.02	0.02	54.8
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	0.028	7.9	LOS A	0.1	1.1	0.54	0.65	0.54	28.9
12	R2	All MCs	15	71.4	15	71.4	0.157	42.4	LOS C	0.4	4.9	0.90	0.95	0.91	12.6
Approach			32	66.7	32	66.7	0.157	24.0	LOS B	0.4	4.9	0.71	0.79	0.72	18.0
All Vehicles			1134	3.9	1134	3.9	0.281	0.9	NA	0.4	4.9	0.03	0.04	0.03	48.5

Site Level of Service (LOS) Method: Delay (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: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.271	2.7	LOS A	0.0	0.0	0.00	0.05	0.00	54.9
2	T1	All MCs	474	1.8	474	1.8	0.271	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	53.5
Approach			520	1.6	520	1.6	0.271	0.2	NA	0.0	0.0	0.00	0.05	0.00	54.4
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.065	7.4	LOS A	0.2	1.7	0.47	0.67	0.47	48.4
Approach			66	0.0	66	0.0	0.065	7.4	LOS A	0.2	1.7	0.47	0.67	0.47	48.4
All Vehicles			586	1.4	586	1.4	0.271	1.1	NA	0.2	1.7	0.05	0.12	0.05	51.5

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected 2026 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [5 (2)] Rickard Road and Byron Road W PM (Proposed PM)

Network: [2] Network PM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.331	5.5	LOS A	0.0	0.0	0.00	0.31	0.00	52.1
2	T1	All MCs	306	2.7	306	2.7	0.331	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	42.1
Approach			624	1.3	624	1.3	0.331	2.8	NA	0.0	0.0	0.00	0.31	0.00	50.3
West: Byron Rd (W)															
10	L2	All MCs	214	0.0	214	0.0	0.173	6.7	LOS A	0.7	5.1	0.40	0.65	0.40	48.9
Approach			214	0.0	214	0.0	0.173	6.7	LOS A	0.7	5.1	0.40	0.65	0.40	48.9
All Vehicles			838	1.0	838	1.0	0.331	3.8	NA	0.7	5.1	0.10	0.39	0.10	49.8

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected 2026 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [6 (2)] Rickard Road and Byron Road E PM (Proposed PM)

Network: [2] Network PM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	164	0.6	164	0.6	0.184	8.6	LOS A	0.7	4.7	0.51	0.74	0.51	52.9
Approach			164	0.6	164	0.6	0.184	8.6	LOS A	0.7	4.7	0.51	0.74	0.51	52.9
North: Rickard Rd (N)															
7	L2	All MCs	65	3.2	65	3.2	0.321	4.8	LOS A	0.0	0.0	0.00	0.07	0.00	54.6
8	T1	All MCs	494	1.7	494	1.7	0.321	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	54.1
Approach			559	1.9	559	1.9	0.321	0.6	NA	0.0	0.0	0.00	0.07	0.00	54.3
All Vehicles			723	1.6	723	1.6	0.321	2.4	NA	0.7	4.7	0.12	0.22	0.12	53.6

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected 2026 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [7 (2)] Rickard Road and Foreshadowed Roundabout PM (Proposed PM)

Network: [2] Network PM (Projected 2026 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Site Access with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.702	9.3	LOS A	8.5	60.4	0.88	0.76	1.03	45.8
2	T1	All MCs	256	3.3	256	3.3	0.702	9.5	LOS A	8.5	60.4	0.88	0.76	1.03	44.9
3	R2	All MCs	91	0.0	91	0.0	0.702	13.5	LOS A	8.5	60.4	0.88	0.76	1.03	46.7
Approach			664	1.3	664	1.3	0.702	10.0	LOS A	8.5	60.4	0.88	0.76	1.03	45.6
East: ILP Road 2 (E)															
4	L2	All MCs	28	0.0	28	0.0	0.068	14.1	LOS A	0.5	3.2	0.91	0.80	0.91	44.2
5	T1	All MCs	1	0.0	1	0.0	0.056	12.3	LOS A	0.4	2.9	0.93	0.77	0.93	35.7
6	R2	All MCs	28	0.0	28	0.0	0.056	16.5	LOS B	0.4	2.9	0.93	0.77	0.93	30.8
Approach			58	0.0	58	0.0	0.068	15.3	LOS B	0.5	3.2	0.92	0.79	0.92	39.4
North: Rickard Rd (N)															
7	L2	All MCs	91	0.0	91	0.0	0.913	28.6	LOS C	19.9	141.1	1.00	1.40	2.17	25.2
8	T1	All MCs	262	3.6	262	3.6	0.913	28.9	LOS C	19.9	141.1	1.00	1.40	2.17	32.6
9	R2	All MCs	80	0.0	80	0.0	0.913	32.8	LOS C	19.9	141.1	1.00	1.40	2.17	21.0
9u	U	All MCs	225	0.0	225	0.0	0.913	34.7	LOS C	19.9	141.1	1.00	1.40	2.17	13.7
Approach			658	1.4	658	1.4	0.913	31.3	LOS C	19.9	141.1	1.00	1.40	2.17	25.7
West: Southern Site Access (W)															
10	L2	All MCs	115	0.0	115	0.0	0.794	18.1	LOS B	11.6	80.9	1.00	1.06	1.60	20.3
11	T1	All MCs	1	0.0	1	0.0	0.794	18.1	LOS B	11.6	80.9	1.00	1.06	1.60	31.8
12	R2	All MCs	481	0.0	481	0.0	0.794	22.3	LOS B	11.6	80.9	1.00	1.06	1.60	37.8
Approach			597	0.0	597	0.0	0.794	21.5	LOS B	11.6	80.9	1.00	1.06	1.60	35.9
All Vehicles			1977	0.9	1977	0.9	0.913	20.7	LOS B	19.9	141.1	0.96	1.06	1.58	35.4

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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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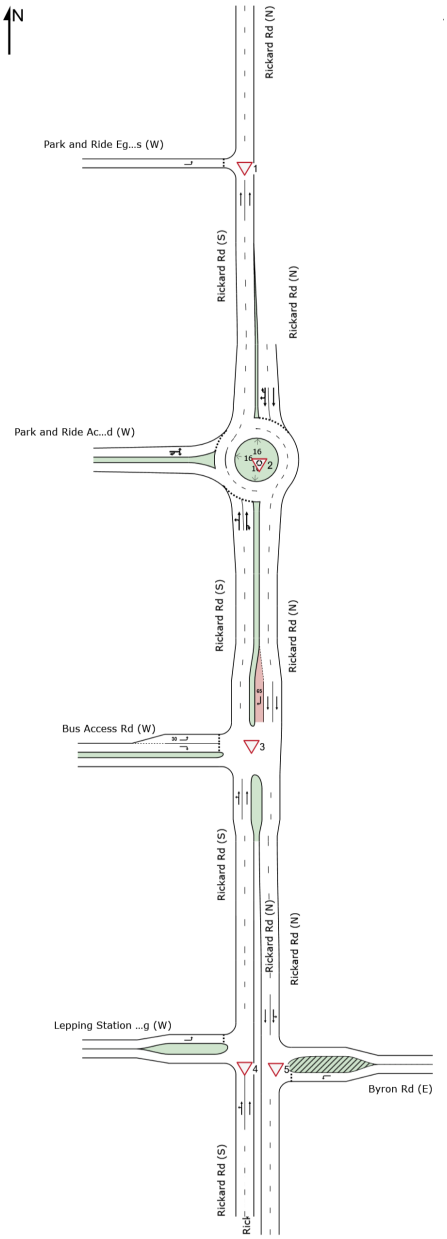
NETWORK LAYOUT

Network: [1] Network AM (Projected 2031)

Projected Upgraded 2031
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Park and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
▽3	NA	Rickard Road and Existing Bus Interchange Access Road AM
▽4	NA	Rickard Road and Southern Commuter Car Park AM
▽5	NA	Rickard Road and Byron Road AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Park and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2031)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	612	4.5	612	4.5	0.161	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			612	4.5	612	4.5	0.161	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.048	4.4	LOS A	0.2	1.3	0.37	0.52	0.37	41.6
Approach			59	0.0	59	0.0	0.048	4.4	LOS A	0.2	1.3	0.37	0.52	0.37	41.6
All Vehicles			671	4.1	671	4.1	0.161	0.4	NA	0.2	1.3	0.03	0.05	0.03	57.5

Site Level of Service (LOS) Method: Delay (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.

MOVEMENT SUMMARY

Site: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2031)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.264	4.8	LOS A	1.3	9.7	0.36	0.49	0.36	35.3
2	T1	All MCs	482	5.5	482	5.5	0.264	4.8	LOS A	1.3	9.7	0.36	0.51	0.36	30.9
3u	U	All MCs	54	2.0	54	2.0	0.264	10.8	LOS A	1.3	9.7	0.36	0.53	0.36	30.4
Approach			616	4.4	616	4.4	0.264	5.3	LOS A	1.3	9.7	0.36	0.51	0.36	31.9
North: Rickard Rd (N)															
8	T1	All MCs	318	2.6	318	2.6	0.204	3.9	LOS A	1.0	7.1	0.30	0.48	0.30	30.6
9	R2	All MCs	164	0.0	164	0.0	0.204	7.8	LOS A	1.0	7.0	0.30	0.60	0.30	32.6
9u	U	All MCs	15	7.1	15	7.1	0.204	9.8	LOS A	1.0	7.0	0.30	0.60	0.30	27.0
Approach			497	1.9	497	1.9	0.204	5.4	LOS A	1.0	7.1	0.30	0.52	0.30	31.6
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.257	4.4	LOS A	1.1	7.7	0.55	0.66	0.55	29.4
12	R2	All MCs	83	0.0	83	0.0	0.257	7.9	LOS A	1.1	7.7	0.55	0.66	0.55	29.4
12u	U	All MCs	9	0.0	9	0.0	0.257	9.3	LOS A	1.1	7.7	0.55	0.66	0.55	32.6
Approach			207	0.0	207	0.0	0.257	6.0	LOS A	1.1	7.7	0.55	0.66	0.55	29.7
All Vehicles			1320	2.8	1320	2.8	0.264	5.4	LOS A	1.3	9.7	0.37	0.54	0.37	31.3

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2031)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.163	3.9	LOS A	0.0	0.0	0.00	0.03	0.00	35.8
2	T1	All MCs	601	2.8	601	2.8	0.163	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.4
Approach			617	4.4	617	4.4	0.163	0.1	NA	0.0	0.0	0.00	0.01	0.00	55.8
North: Rickard Rd (N)															
8	T1	All MCs	441	0.0	441	0.0	0.113	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	14	69.2	14	69.2	0.033	11.9	LOS A	0.1	1.3	0.61	0.75	0.61	28.8
Approach			455	2.1	455	2.1	0.113	0.4	NA	0.1	1.3	0.02	0.02	0.02	54.7
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	0.024	6.3	LOS A	0.1	1.0	0.41	0.54	0.41	30.7
12	R2	All MCs	8	87.5	8	87.5	0.163	72.1	LOS F	0.4	5.4	0.93	0.97	0.95	8.6
Approach			24	78.3	24	78.3	0.163	29.2	LOS C	0.4	5.4	0.59	0.69	0.60	16.2
All Vehicles			1096	5.1	1096	5.1	0.163	0.9	NA	0.4	5.4	0.02	0.03	0.02	48.7

Site Level of Service (LOS) Method: Delay (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: [4] Rickard Road and Southern Commuter Car Park AM

(Proposed AM)

Network: [1] Network AM (Projected 2031)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.163	5.5	LOS A	0.0	0.0	0.00	0.08	0.00	55.1
2	T1	All MCs	572	4.8	572	4.8	0.163	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	57.6
Approach			615	4.5	615	4.5	0.163	0.4	NA	0.0	0.0	0.00	0.04	0.00	57.0
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.035	6.4	LOS A	0.1	1.0	0.34	0.58	0.34	49.0
Approach			45	0.0	45	0.0	0.035	6.4	LOS A	0.1	1.0	0.34	0.58	0.34	49.0
All Vehicles			660	4.1	660	4.1	0.163	0.8	NA	0.1	1.0	0.02	0.08	0.02	55.5

Site Level of Service (LOS) Method: Delay (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: [5] Rickard Road and Byron Road AM (Proposed AM)
Network: [1] Network AM (Projected 2031)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	115	0.9	115	0.9	0.076	6.6	LOS A	0.3	2.2	0.18	0.57	0.18	52.6
Approach			115	0.9	115	0.9	0.076	6.6	LOS A	0.3	2.2	0.18	0.57	0.18	52.6
North: Rickard Rd (N)															
7	L2	All MCs	140	0.0	140	0.0	0.118	4.7	LOS A	0.0	0.0	0.00	0.36	0.00	51.7
8	T1	All MCs	309	2.4	309	2.4	0.118	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	56.3
Approach			449	1.6	449	1.6	0.118	1.5	NA	0.0	0.0	0.00	0.18	0.00	53.6
All Vehicles			564	1.5	564	1.5	0.118	2.5	NA	0.3	2.2	0.04	0.26	0.04	53.3

Site Level of Service (LOS) Method: Delay (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.

MOVEMENT SUMMARY

Site: [1 (2)] Rickard Road and Park and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2031)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	284	4.4	284	4.4	0.075	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			284	4.4	284	4.4	0.075	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.034	3.8	LOS A	0.1	0.9	0.23	0.45	0.23	42.3
Approach			49	0.0	49	0.0	0.034	3.8	LOS A	0.1	0.9	0.23	0.45	0.23	42.3
All Vehicles			334	3.8	334	3.8	0.075	0.6	NA	0.1	0.9	0.03	0.07	0.03	56.1

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2031)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.095	4.5	LOS A	0.4	2.9	0.25	0.47	0.25	35.8
2	T1	All MCs	163	6.5	163	6.5	0.095	4.4	LOS A	0.4	3.0	0.25	0.49	0.25	32.1
3u	U	All MCs	18	0.0	18	0.0	0.095	10.4	LOS A	0.4	3.0	0.25	0.49	0.25	31.7
Approach			228	5.1	228	5.1	0.095	4.9	LOS A	0.4	3.0	0.25	0.48	0.25	33.4
North: Rickard Rd (N)															
8	T1	All MCs	302	6.3	302	6.3	0.169	3.7	LOS A	0.8	5.8	0.24	0.47	0.24	31.2
9	R2	All MCs	112	0.9	112	0.9	0.169	7.6	LOS A	0.8	5.6	0.24	0.57	0.24	33.3
9u	U	All MCs	13	0.0	13	0.0	0.169	9.5	LOS A	0.8	5.6	0.24	0.57	0.24	28.3
Approach			426	4.7	426	4.7	0.169	4.9	LOS A	0.8	5.8	0.24	0.50	0.24	32.2
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.190	2.9	LOS A	0.8	5.8	0.34	0.50	0.34	31.0
12	R2	All MCs	76	1.4	76	1.4	0.190	6.5	LOS A	0.8	5.8	0.34	0.50	0.34	31.0
12u	U	All MCs	7	0.0	7	0.0	0.190	7.9	LOS A	0.8	5.8	0.34	0.50	0.34	33.7
Approach			192	1.6	192	1.6	0.190	4.5	LOS A	0.8	5.8	0.34	0.50	0.34	31.2
All Vehicles			846	4.1	846	4.1	0.190	4.8	LOS A	0.8	5.8	0.27	0.49	0.27	32.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3 (2)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2031)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.060	3.9	LOS A	0.0	0.0	0.00	0.07	0.00	37.2
2	T1	All MCs	212	0.5	212	0.5	0.060	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	58.3
Approach			226	4.2	226	4.2	0.060	0.3	NA	0.0	0.0	0.00	0.04	0.00	51.8
North: Rickard Rd (N)															
8	T1	All MCs	378	1.4	378	1.4	0.098	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
9	R2	All MCs	18	82.4	18	82.4	0.024	6.9	LOS A	0.1	1.1	0.38	0.56	0.38	33.1
Approach			396	5.1	396	5.1	0.098	0.3	NA	0.1	1.1	0.02	0.03	0.02	54.3
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	0.019	4.4	LOS A	0.1	0.7	0.21	0.44	0.21	32.8
12	R2	All MCs	15	71.4	15	71.4	0.076	19.8	LOS B	0.2	2.6	0.72	0.84	0.72	20.1
Approach			32	66.7	32	66.7	0.076	11.5	LOS A	0.2	2.6	0.45	0.62	0.45	25.3
All Vehicles			654	7.7	654	7.7	0.098	0.8	NA	0.2	2.6	0.03	0.06	0.03	48.0

Site Level of Service (LOS) Method: Delay (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: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected 2031)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.055	5.5	LOS A	0.0	0.0	0.00	0.27	0.00	52.9
2	T1	All MCs	160	5.9	160	5.9	0.055	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	54.6
Approach			206	4.6	206	4.6	0.055	1.2	NA	0.0	0.0	0.00	0.13	0.00	53.7
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.043	5.7	LOS A	0.2	1.2	0.14	0.54	0.14	50.1
Approach			66	0.0	66	0.0	0.043	5.7	LOS A	0.2	1.2	0.14	0.54	0.14	50.1
All Vehicles			273	3.5	273	3.5	0.055	2.3	NA	0.2	1.2	0.03	0.23	0.03	52.3

Site Level of Service (LOS) Method: Delay (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: [5 (2)] Rickard Road and Byron Road PM (Proposed PM)
Network: [2] Network PM (Projected 2031)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	115	0.9	115	0.9	0.074	6.5	LOS A	0.3	2.2	0.14	0.57	0.14	52.8
Approach			115	0.9	115	0.9	0.074	6.5	LOS A	0.3	2.2	0.14	0.57	0.14	52.8
North: Rickard Rd (N)															
7	L2	All MCs	137	3.1	137	3.1	0.105	4.7	LOS A	0.0	0.0	0.00	0.41	0.00	51.0
8	T1	All MCs	256	4.5	256	4.5	0.105	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	56.5
Approach			393	4.0	393	4.0	0.105	1.7	NA	0.0	0.0	0.00	0.20	0.00	53.1
All Vehicles			507	3.3	507	3.3	0.105	2.8	NA	0.3	2.2	0.03	0.28	0.03	53.0

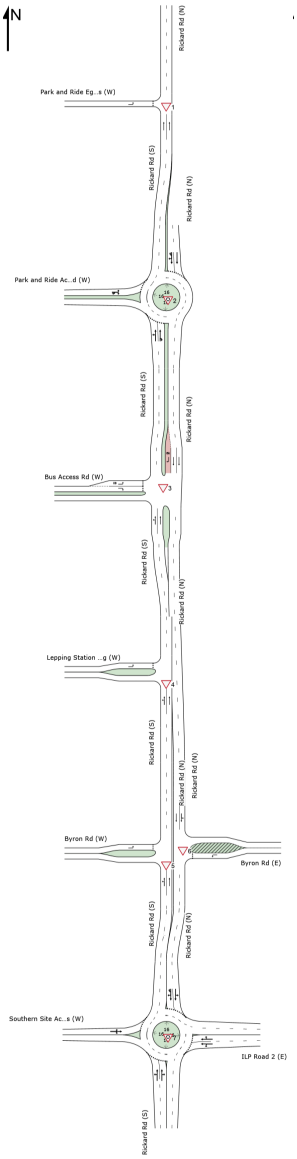
Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level 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.

NETWORK LAYOUT

Network: [1] Network AM (Projected 2031 + Proposed Development)

Projected Upgraded 2031 + Proposed Development w.Roundabout
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
▽3	NA	Rickard Road and Existing Bus Interchange Access Road AM
▽4	NA	Rickard Road and Southern Commuter Car Park AM
▽5	NA	Rickard Road and Byron Road W AM
▽6	NA	Rickard Road and Byron Road E AM
▽7	NA	Rickard Road and Foreshadowed Roundabout AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	948	2.9	948	2.9	0.248	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			948	2.9	948	2.9	0.248	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.058	5.2	LOS A	0.2	1.5	0.47	0.60	0.47	41.2
Approach			59	0.0	59	0.0	0.058	5.2	LOS A	0.2	1.5	0.47	0.60	0.47	41.2
All Vehicles			1007	2.7	1007	2.7	0.248	0.3	NA	0.2	1.5	0.03	0.04	0.03	58.1

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.398	4.9	LOS A	2.3	16.8	0.41	0.49	0.41	35.0
2	T1	All MCs	819	3.2	819	3.2	0.398	4.9	LOS A	2.3	16.8	0.41	0.50	0.41	30.7
3u	U	All MCs	54	2.0	54	2.0	0.398	11.0	LOS A	2.3	16.7	0.41	0.52	0.41	30.3
Approach			953	2.9	953	2.9	0.398	5.2	LOS A	2.3	16.8	0.41	0.50	0.41	31.4
North: Rickard Rd (N)															
8	T1	All MCs	482	1.7	482	1.7	0.268	3.9	LOS A	1.4	10.1	0.32	0.48	0.32	30.3
9	R2	All MCs	164	0.0	164	0.0	0.268	7.9	LOS A	1.4	10.0	0.33	0.57	0.33	33.1
9u	U	All MCs	15	7.1	15	7.1	0.268	9.9	LOS A	1.4	10.0	0.33	0.57	0.33	27.9
Approach			661	1.4	661	1.4	0.268	5.0	LOS A	1.4	10.1	0.32	0.51	0.32	31.5
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.307	5.5	LOS A	1.3	9.3	0.65	0.75	0.65	28.0
12	R2	All MCs	83	0.0	83	0.0	0.307	9.1	LOS A	1.3	9.3	0.65	0.75	0.65	28.0
12u	U	All MCs	9	0.0	9	0.0	0.307	10.5	LOS A	1.3	9.3	0.65	0.75	0.65	31.7
Approach			207	0.0	207	0.0	0.307	7.2	LOS A	1.3	9.3	0.65	0.75	0.65	28.3
All Vehicles			1821	2.0	1821	2.0	0.398	5.4	LOS A	2.3	16.8	0.41	0.53	0.41	30.9

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected Upgraded 2031 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.250	3.9	LOS A	0.0	0.0	0.00	0.02	0.00	35.9
2	T1	All MCs	938	1.8	938	1.8	0.250	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.5
Approach			954	2.9	954	2.9	0.250	0.1	NA	0.0	0.0	0.00	0.01	0.00	57.1
North: Rickard Rd (N)															
8	T1	All MCs	605	0.0	605	0.0	0.155	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	14	69.2	14	69.2	0.065	21.4	LOS B	0.2	2.2	0.80	0.91	0.80	23.0
Approach			619	1.5	619	1.5	0.155	0.5	NA	0.2	2.2	0.02	0.02	0.02	54.2
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	0.033	8.6	LOS A	0.1	1.2	0.52	0.65	0.52	28.2
12	R2	All MCs	8	87.5	8	87.5	0.866	526.0	LOS F	2.2	27.1	1.00	1.12	1.32	1.4
Approach			24	78.3	24	78.3	0.866	188.5	LOS F	2.2	27.1	0.69	0.81	0.80	3.8
All Vehicles			1597	3.5	1597	3.5	0.866	3.1	NA	2.2	27.1	0.02	0.03	0.02	36.0

Site Level of Service (LOS) Method: Delay (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: [4] Rickard Road and Southern Commuter Car Park AM (Proposed AM)

Network: [1] Network AM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.249	2.7	LOS A	0.0	0.0	0.00	0.05	0.00	54.9
2	T1	All MCs	908	3.0	908	3.0	0.249	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	56.6
Approach			952	2.9	952	2.9	0.249	0.1	NA	0.0	0.0	0.00	0.03	0.00	55.9
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.042	7.1	LOS A	0.2	1.1	0.44	0.64	0.44	48.5
Approach			45	0.0	45	0.0	0.042	7.1	LOS A	0.2	1.1	0.44	0.64	0.44	48.5
All Vehicles			997	2.7	997	2.7	0.249	0.4	NA	0.2	1.1	0.02	0.05	0.02	53.4

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected Upgraded 2031 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [5] Rickard Road and Byron Road W AM (Proposed AM)
Network: [1] Network AM (Projected 2031 + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	154	0.0	154	0.0	0.242	5.5	LOS A	0.0	0.0	0.00	0.20	0.00	53.3
2	T1	All MCs	766	3.6	766	3.6	0.242	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	53.9
Approach			920	3.0	920	3.0	0.242	0.9	NA	0.0	0.0	0.00	0.10	0.00	53.6
West: Byron Rd (W)															
10	L2	All MCs	185	0.0	185	0.0	0.150	6.7	LOS A	0.6	4.4	0.39	0.63	0.39	48.8
Approach			185	0.0	185	0.0	0.150	6.7	LOS A	0.6	4.4	0.39	0.63	0.39	48.8
All Vehicles			1105	2.5	1105	2.5	0.242	1.9	NA	0.6	4.4	0.07	0.19	0.07	51.8

Site Level of Service (LOS) Method: Delay (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: [6] Rickard Road and Byron Road E AM (Proposed AM)
Network: [1] Network AM (Projected 2031 + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	165	0.6	165	0.6	0.117	6.9	LOS A	0.5	3.5	0.27	0.59	0.27	54.6
Approach			165	0.6	165	0.6	0.117	6.9	LOS A	0.5	3.5	0.27	0.59	0.27	54.6
North: Rickard Rd (N)															
7	L2	All MCs	140	0.0	140	0.0	0.160	4.7	LOS A	0.0	0.0	0.00	0.27	0.00	52.7
8	T1	All MCs	474	1.6	474	1.6	0.160	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	52.2
Approach			614	1.2	614	1.2	0.160	1.1	NA	0.0	0.0	0.00	0.13	0.00	52.5
All Vehicles			779	1.1	779	1.1	0.160	2.3	NA	0.5	3.5	0.06	0.23	0.06	53.4

Site Level of Service (LOS) Method: Delay (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: [7] Rickard Road and Foreshadowed Roundabout AM

(Proposed AM)

Network: [1] Network AM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	228	0.0	228	0.0	0.413	5.7	LOS A	2.2	15.8	0.47	0.57	0.47	49.2
2	T1	All MCs	644	4.2	644	4.2	0.413	5.8	LOS A	2.2	15.9	0.48	0.57	0.48	49.1
3	R2	All MCs	34	0.0	34	0.0	0.413	9.8	LOS A	2.2	15.9	0.48	0.56	0.48	49.6
Approach			906	3.0	906	3.0	0.413	5.9	LOS A	2.2	15.9	0.48	0.57	0.48	49.1
East: ILP Road 2 (E)															
4	L2	All MCs	111	0.0	111	0.0	0.147	7.4	LOS A	0.6	4.4	0.61	0.73	0.61	49.6
5	T1	All MCs	1	0.0	1	0.0	0.135	7.0	LOS A	0.6	4.1	0.60	0.78	0.60	40.7
6	R2	All MCs	111	0.0	111	0.0	0.135	11.1	LOS A	0.6	4.1	0.60	0.78	0.60	36.8
Approach			222	0.0	222	0.0	0.147	9.2	LOS A	0.6	4.4	0.61	0.76	0.61	45.2
North: Rickard Rd (N)															
7	L2	All MCs	34	0.0	34	0.0	0.310	5.9	LOS A	1.8	12.8	0.52	0.55	0.52	43.1
8	T1	All MCs	426	2.0	426	2.0	0.310	5.9	LOS A	1.8	12.8	0.52	0.58	0.52	48.3
9	R2	All MCs	57	0.0	57	0.0	0.310	10.0	LOS A	1.8	12.7	0.52	0.64	0.52	36.4
9u	U	All MCs	124	0.0	124	0.0	0.310	11.9	LOS A	1.8	12.7	0.52	0.64	0.52	30.2
Approach			641	1.3	641	1.3	0.310	7.4	LOS A	1.8	12.8	0.52	0.60	0.52	45.6
West: Southern Site Access (W)															
10	L2	All MCs	41	0.0	41	0.0	0.502	10.2	LOS A	3.0	20.9	0.75	0.91	0.93	26.8
11	T1	All MCs	1	0.0	1	0.0	0.502	10.4	LOS A	3.0	20.9	0.75	0.91	0.93	37.8
12	R2	All MCs	282	0.0	282	0.0	0.502	14.5	LOS B	3.0	20.9	0.75	0.91	0.93	42.8
Approach			324	0.0	324	0.0	0.502	14.0	LOS A	3.0	20.9	0.75	0.91	0.93	41.9
All Vehicles			2094	1.7	2094	1.7	0.502	8.0	LOS A	3.0	20.9	0.55	0.65	0.57	46.3

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	641	2.0	641	2.0	0.166	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			641	2.0	641	2.0	0.166	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.041	4.5	LOS A	0.2	1.1	0.37	0.52	0.37	41.6
Approach			49	0.0	49	0.0	0.041	4.5	LOS A	0.2	1.1	0.37	0.52	0.37	41.6
All Vehicles			691	1.8	691	1.8	0.166	0.3	NA	0.2	1.1	0.03	0.04	0.03	57.9

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.234	4.5	LOS A	1.1	8.2	0.28	0.46	0.28	35.8
2	T1	All MCs	520	2.0	520	2.0	0.234	4.4	LOS A	1.1	8.2	0.29	0.46	0.29	32.5
3u	U	All MCs	18	0.0	18	0.0	0.234	10.5	LOS A	1.1	8.1	0.29	0.47	0.29	32.3
Approach			585	2.0	585	2.0	0.234	4.6	LOS A	1.1	8.2	0.29	0.46	0.29	33.0
North: Rickard Rd (N)															
8	T1	All MCs	608	3.1	608	3.1	0.283	3.7	LOS A	1.5	11.1	0.27	0.46	0.27	31.1
9	R2	All MCs	112	0.9	112	0.9	0.283	7.7	LOS A	1.5	11.0	0.28	0.52	0.28	34.1
9u	U	All MCs	13	0.0	13	0.0	0.283	9.6	LOS A	1.5	11.0	0.28	0.52	0.28	29.6
Approach			733	2.7	733	2.7	0.283	4.4	LOS A	1.5	11.1	0.27	0.47	0.27	32.0
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.237	4.4	LOS A	1.0	6.9	0.53	0.65	0.53	29.5
12	R2	All MCs	76	1.4	76	1.4	0.237	7.9	LOS A	1.0	6.9	0.53	0.65	0.53	29.5
12u	U	All MCs	7	0.0	7	0.0	0.237	9.2	LOS A	1.0	6.9	0.53	0.65	0.53	32.7
Approach			192	1.6	192	1.6	0.237	5.9	LOS A	1.0	6.9	0.53	0.65	0.53	29.7
All Vehicles			1509	2.3	1509	2.3	0.283	4.7	LOS A	1.5	11.1	0.31	0.49	0.31	31.9

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3 (2)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.152	3.9	LOS A	0.0	0.0	0.00	0.03	0.00	37.4
2	T1	All MCs	568	0.2	568	0.2	0.152	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
Approach			583	1.6	583	1.6	0.152	0.1	NA	0.0	0.0	0.00	0.01	0.00	56.2
North: Rickard Rd (N)															
8	T1	All MCs	684	0.8	684	0.8	0.176	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	18	82.4	18	82.4	0.044	11.9	LOS A	0.2	1.8	0.60	0.75	0.60	28.8
Approach			702	2.8	702	2.8	0.176	0.3	NA	0.2	1.8	0.02	0.02	0.02	55.4
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	0.024	5.8	LOS A	0.1	0.9	0.39	0.53	0.39	31.2
12	R2	All MCs	15	71.4	15	71.4	0.451	136.3	LOS F	1.1	12.7	0.97	1.05	1.15	5.0
Approach			32	66.7	32	66.7	0.451	66.7	LOS E	1.1	12.7	0.66	0.77	0.74	9.1
All Vehicles			1317	3.8	1317	3.8	0.451	1.8	NA	1.1	12.7	0.02	0.03	0.03	42.9

Site Level of Service (LOS) Method: Delay (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: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.147	2.7	LOS A	0.0	0.0	0.00	0.09	0.00	54.7
2	T1	All MCs	517	1.8	517	1.8	0.147	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	54.5
Approach			563	1.7	563	1.7	0.147	0.2	NA	0.0	0.0	0.00	0.05	0.00	54.6
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.050	6.3	LOS A	0.2	1.4	0.31	0.57	0.31	49.2
Approach			66	0.0	66	0.0	0.050	6.3	LOS A	0.2	1.4	0.31	0.57	0.31	49.2
All Vehicles			629	1.5	629	1.5	0.147	0.9	NA	0.2	1.4	0.03	0.10	0.03	52.0

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected Upgraded 2031 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [5 (2)] Rickard Road and Byron Road W PM (Proposed PM)

Network: [2] Network PM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.177	5.5	LOS A	0.0	0.0	0.00	0.56	0.00	49.3
2	T1	All MCs	349	2.7	349	2.7	0.177	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	58.5
Approach			667	1.4	667	1.4	0.177	2.6	NA	0.0	0.0	0.00	0.27	0.00	50.6
West: Byron Rd (W)															
10	L2	All MCs	214	0.0	214	0.0	0.132	5.6	LOS A	0.6	4.1	0.05	0.55	0.05	50.6
Approach			214	0.0	214	0.0	0.132	5.6	LOS A	0.6	4.1	0.05	0.55	0.05	50.6
All Vehicles			881	1.1	881	1.1	0.177	3.4	NA	0.6	4.1	0.01	0.34	0.01	50.6

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected Upgraded 2031 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [6 (2)] Rickard Road and Byron Road E PM (Proposed PM)

Network: [2] Network PM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	204	0.5	204	0.5	0.150	7.1	LOS A	0.6	4.6	0.32	0.61	0.32	54.3
Approach			204	0.5	204	0.5	0.150	7.1	LOS A	0.6	4.6	0.32	0.61	0.32	54.3
North: Rickard Rd (N)															
7	L2	All MCs	137	3.1	137	3.1	0.184	4.7	LOS A	0.0	0.0	0.00	0.23	0.00	52.9
8	T1	All MCs	562	2.1	562	2.1	0.184	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	52.8
Approach			699	2.3	699	2.3	0.184	0.9	NA	0.0	0.0	0.00	0.11	0.00	52.9
All Vehicles			903	1.9	903	1.9	0.184	2.3	NA	0.6	4.6	0.07	0.23	0.07	53.5

Site Level of Service (LOS) Method: Delay (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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Organisation: VARGA TRAFFIC PLANNING | Licence: NETWORK / 1PC | Processed: Monday, 25 May 2026 2:29:06 PM
Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected Upgraded 2031 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [7 (2)] Rickard Road and Foreshadowed Roundabout PM (Proposed PM)

Network: [2] Network PM (Projected 2031 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.345	5.9	LOS A	2.0	13.9	0.53	0.60	0.53	49.2
2	T1	All MCs	299	3.2	299	3.2	0.345	5.9	LOS A	2.0	13.9	0.54	0.61	0.54	48.1
3	R2	All MCs	91	0.0	91	0.0	0.345	10.0	LOS A	2.0	13.9	0.54	0.61	0.54	48.9
Approach			707	1.3	707	1.3	0.345	6.4	LOS A	2.0	13.9	0.53	0.60	0.53	48.7
East: ILP Road 2 (E)															
4	L2	All MCs	28	0.0	28	0.0	0.048	8.6	LOS A	0.2	1.6	0.69	0.78	0.69	48.6
5	T1	All MCs	1	0.0	1	0.0	0.044	7.9	LOS A	0.2	1.5	0.69	0.80	0.69	39.8
6	R2	All MCs	28	0.0	28	0.0	0.044	12.1	LOS A	0.2	1.5	0.69	0.80	0.69	35.7
Approach			58	0.0	58	0.0	0.048	10.3	LOS A	0.2	1.6	0.69	0.79	0.69	44.1
North: Rickard Rd (N)															
7	L2	All MCs	91	0.0	91	0.0	0.476	8.2	LOS A	3.5	25.1	0.78	0.72	0.83	40.8
8	T1	All MCs	371	3.4	371	3.4	0.476	8.2	LOS A	3.5	25.1	0.78	0.73	0.83	46.5
9	R2	All MCs	80	0.0	80	0.0	0.476	12.5	LOS A	3.5	24.4	0.78	0.78	0.84	33.1
9u	U	All MCs	225	0.0	225	0.0	0.476	14.4	LOS A	3.5	24.4	0.78	0.78	0.84	26.3
Approach			766	1.6	766	1.6	0.476	10.5	LOS A	3.5	25.1	0.78	0.75	0.83	41.1
West: Southern Site Access (W)															
10	L2	All MCs	115	0.0	115	0.0	0.802	15.2	LOS B	9.2	64.7	0.91	1.06	1.46	22.4
11	T1	All MCs	1	0.0	1	0.0	0.802	15.5	LOS B	9.2	64.7	0.91	1.06	1.46	33.9
12	R2	All MCs	481	0.0	481	0.0	0.802	19.6	LOS B	9.2	64.7	0.91	1.06	1.46	39.5
Approach			597	0.0	597	0.0	0.802	18.7	LOS B	9.2	64.7	0.91	1.06	1.46	37.8
All Vehicles			2128	1.0	2128	1.0	0.802	11.4	LOS A	9.2	64.7	0.73	0.79	0.91	42.6

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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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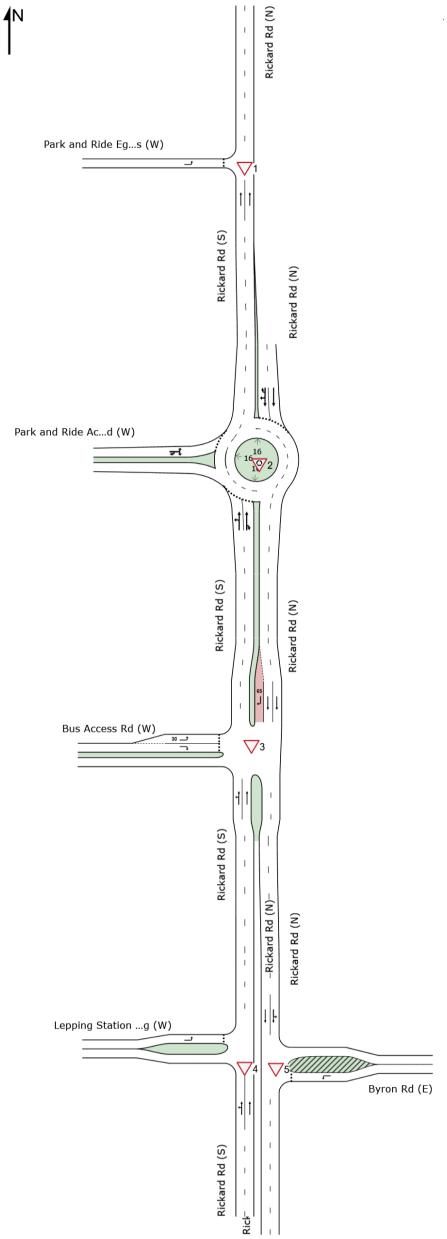
NETWORK LAYOUT

Network: [1] Network AM (Projected 2036)

Projected Upgraded 2036
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Park and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
▽3	NA	Rickard Road and Existing Bus Interchange Access Road AM
▽4	NA	Rickard Road and Southern Commuter Car Park AM
▽5	NA	Rickard Road and Byron Road AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Park and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2036)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	665	5.4	665	5.4	0.177	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			665	5.4	665	5.4	0.177	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.049	4.6	LOS A	0.2	1.3	0.39	0.53	0.39	41.5
Approach			59	0.0	59	0.0	0.049	4.6	LOS A	0.2	1.3	0.39	0.53	0.39	41.5
All Vehicles			724	4.9	724	4.9	0.177	0.4	NA	0.2	1.3	0.03	0.04	0.03	57.6

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2036)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.288	4.8	LOS A	1.5	10.9	0.36	0.49	0.36	35.2
2	T1	All MCs	536	6.5	536	6.5	0.288	4.8	LOS A	1.5	10.9	0.37	0.51	0.37	30.9
3u	U	All MCs	54	2.0	54	2.0	0.288	10.9	LOS A	1.5	10.9	0.37	0.52	0.37	30.4
Approach			669	5.3	669	5.3	0.288	5.3	LOS A	1.5	10.9	0.37	0.51	0.37	31.8
North: Rickard Rd (N)															
8	T1	All MCs	346	2.4	346	2.4	0.215	3.9	LOS A	1.1	7.6	0.30	0.48	0.30	30.5
9	R2	All MCs	164	0.0	164	0.0	0.215	7.8	LOS A	1.1	7.5	0.31	0.59	0.31	32.7
9u	U	All MCs	15	7.1	15	7.1	0.215	9.8	LOS A	1.1	7.5	0.31	0.59	0.31	27.2
Approach			525	1.8	525	1.8	0.215	5.3	LOS A	1.1	7.6	0.31	0.52	0.31	31.6
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.265	4.6	LOS A	1.1	7.9	0.57	0.67	0.57	29.2
12	R2	All MCs	83	0.0	83	0.0	0.265	8.1	LOS A	1.1	7.9	0.57	0.67	0.57	29.2
12u	U	All MCs	9	0.0	9	0.0	0.265	9.5	LOS A	1.1	7.9	0.57	0.67	0.57	32.5
Approach			207	0.0	207	0.0	0.265	6.2	LOS A	1.1	7.9	0.57	0.67	0.57	29.4
All Vehicles			1402	3.2	1402	3.2	0.288	5.4	LOS A	1.5	10.9	0.37	0.54	0.37	31.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2036)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.178	3.9	LOS A	0.0	0.0	0.00	0.03	0.00	35.8
2	T1	All MCs	654	3.7	654	3.7	0.178	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.4
Approach			669	5.2	669	5.2	0.178	0.1	NA	0.0	0.0	0.00	0.01	0.00	56.1
North: Rickard Rd (N)															
8	T1	All MCs	469	0.0	469	0.0	0.120	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	14	69.2	14	69.2	0.037	13.1	LOS A	0.1	1.4	0.65	0.79	0.65	28.0
Approach			483	2.0	483	2.0	0.120	0.4	NA	0.1	1.4	0.02	0.02	0.02	54.7
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	0.026	6.6	LOS A	0.1	1.0	0.43	0.56	0.43	30.4
12	R2	All MCs	8	87.5	8	87.5	0.211	95.5	LOS F	0.6	6.8	0.95	0.99	1.00	6.8
Approach			24	78.3	24	78.3	0.211	37.5	LOS C	0.6	6.8	0.61	0.71	0.63	13.8
All Vehicles			1177	5.4	1177	5.4	0.211	1.0	NA	0.6	6.8	0.02	0.03	0.02	47.9

Site Level of Service (LOS) Method: Delay (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: [4] Rickard Road and Southern Commuter Car Park AM
(Proposed AM)

Network: [1] Network AM (Projected 2036)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.177	5.5	LOS A	0.0	0.0	0.00	0.08	0.00	55.2
2	T1	All MCs	624	5.6	624	5.6	0.177	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	57.7
Approach			667	5.2	667	5.2	0.177	0.4	NA	0.0	0.0	0.00	0.04	0.00	57.1
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.036	6.5	LOS A	0.1	1.0	0.35	0.59	0.35	48.9
Approach			45	0.0	45	0.0	0.036	6.5	LOS A	0.1	1.0	0.35	0.59	0.35	48.9
All Vehicles			713	4.9	713	4.9	0.177	0.8	NA	0.1	1.0	0.02	0.07	0.02	55.7

Site Level of Service (LOS) Method: Delay (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: [5] Rickard Road and Byron Road AM (Proposed AM)
Network: [1] Network AM (Projected 2036)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	184	0.6	184	0.6	0.113	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	53.5
Approach			184	0.6	184	0.6	0.113	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	53.5
North: Rickard Rd (N)															
7	L2	All MCs	285	0.0	285	0.0	0.154	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	49.5
8	T1	All MCs	193	3.8	193	3.8	0.101	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			478	1.5	478	1.5	0.154	2.8	NA	0.0	0.0	0.00	0.34	0.00	51.2
All Vehicles			662	1.3	662	1.3	0.154	3.8	NA	0.0	0.0	0.00	0.41	0.00	52.0

Site Level of Service (LOS) Method: Delay (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.

MOVEMENT SUMMARY

Site: [1 (2)] Rickard Road and Park and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2036)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	300	4.6	300	4.6	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			300	4.6	300	4.6	0.079	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.034	3.9	LOS A	0.1	1.0	0.24	0.46	0.24	42.2
Approach			49	0.0	49	0.0	0.034	3.9	LOS A	0.1	1.0	0.24	0.46	0.24	42.2
All Vehicles			349	3.9	349	3.9	0.079	0.5	NA	0.1	1.0	0.03	0.06	0.03	56.3

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2036)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.102	4.5	LOS A	0.4	3.2	0.25	0.47	0.25	35.8
2	T1	All MCs	179	6.5	179	6.5	0.102	4.4	LOS A	0.4	3.2	0.26	0.48	0.26	32.2
3u	U	All MCs	18	0.0	18	0.0	0.102	10.5	LOS A	0.4	3.2	0.26	0.49	0.26	31.8
Approach			244	5.2	244	5.2	0.102	4.8	LOS A	0.4	3.2	0.26	0.48	0.26	33.4
North: Rickard Rd (N)															
8	T1	All MCs	354	6.3	354	6.3	0.189	3.7	LOS A	0.9	6.6	0.24	0.47	0.24	31.2
9	R2	All MCs	112	0.9	112	0.9	0.189	7.6	LOS A	0.9	6.4	0.24	0.56	0.24	33.5
9u	U	All MCs	13	0.0	13	0.0	0.189	9.6	LOS A	0.9	6.4	0.24	0.56	0.24	28.7
Approach			478	4.8	478	4.8	0.189	4.8	LOS A	0.9	6.6	0.24	0.49	0.24	32.2
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.192	3.0	LOS A	0.8	5.8	0.36	0.51	0.36	31.0
12	R2	All MCs	76	1.4	76	1.4	0.192	6.5	LOS A	0.8	5.8	0.36	0.51	0.36	31.0
12u	U	All MCs	7	0.0	7	0.0	0.192	7.9	LOS A	0.8	5.8	0.36	0.51	0.36	33.6
Approach			192	1.6	192	1.6	0.192	4.6	LOS A	0.8	5.8	0.36	0.51	0.36	31.1
All Vehicles			914	4.3	914	4.3	0.192	4.8	LOS A	0.9	6.6	0.27	0.49	0.27	32.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3 (2)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2036)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.064	3.9	LOS A	0.0	0.0	0.00	0.07	0.00	37.2
2	T1	All MCs	227	0.9	227	0.9	0.064	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	58.4
Approach			242	4.3	242	4.3	0.064	0.2	NA	0.0	0.0	0.00	0.03	0.00	52.2
North: Rickard Rd (N)															
8	T1	All MCs	429	2.0	429	2.0	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	18	82.4	18	82.4	0.025	7.1	LOS A	0.1	1.1	0.40	0.57	0.40	33.0
Approach			447	5.2	447	5.2	0.112	0.3	NA	0.1	1.1	0.02	0.02	0.02	54.8
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	0.019	4.4	LOS A	0.1	0.7	0.22	0.44	0.22	32.7
12	R2	All MCs	15	71.4	15	71.4	0.090	23.5	LOS B	0.3	3.1	0.77	0.86	0.77	18.4
Approach			32	66.7	32	66.7	0.090	13.3	LOS A	0.3	3.1	0.48	0.64	0.48	23.9
All Vehicles			721	7.6	721	7.6	0.112	0.8	NA	0.3	3.1	0.03	0.05	0.03	48.2

Site Level of Service (LOS) Method: Delay (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: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected 2036)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.059	5.5	LOS A	0.0	0.0	0.00	0.25	0.00	53.2
2	T1	All MCs	176	6.0	176	6.0	0.059	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	54.8
Approach			222	4.7	222	4.7	0.059	1.2	NA	0.0	0.0	0.00	0.12	0.00	53.9
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.043	5.7	LOS A	0.2	1.2	0.15	0.54	0.15	50.1
Approach			66	0.0	66	0.0	0.043	5.7	LOS A	0.2	1.2	0.15	0.54	0.15	50.1
All Vehicles			288	3.6	288	3.6	0.059	2.2	NA	0.2	1.2	0.03	0.22	0.03	52.4

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260521\1. Proposed Access - Roundabout at Southern Road\Projected Upgraded 2036.sipx

MOVEMENT SUMMARY

Site: [5 (2)] Rickard Road and Byron Road PM (Proposed PM)
Network: [2] Network PM (Projected 2036)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	197	0.5	197	0.5	0.121	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	53.5
Approach			197	0.5	197	0.5	0.121	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	53.5
North: Rickard Rd (N)															
7	L2	All MCs	221	2.9	221	2.9	0.121	4.7	LOS A	0.0	0.0	0.00	0.56	0.00	49.4
8	T1	All MCs	223	5.7	223	5.7	0.119	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			444	4.3	444	4.3	0.121	2.4	NA	0.0	0.0	0.00	0.28	0.00	51.8
All Vehicles			641	3.1	641	3.1	0.121	3.6	NA	0.0	0.0	0.00	0.38	0.00	52.5

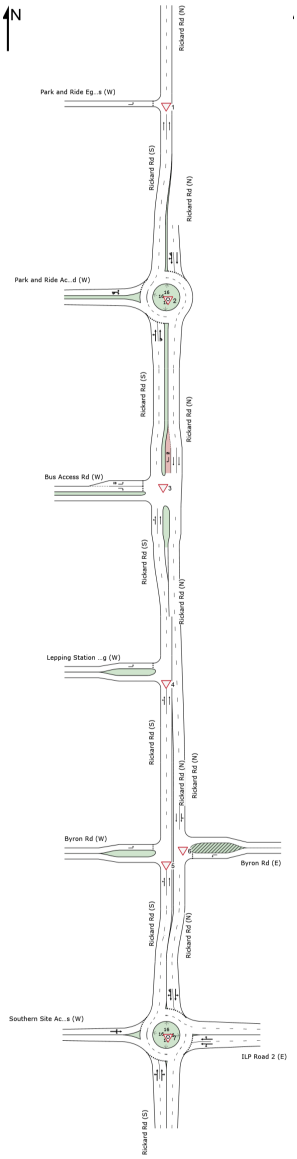
Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level 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.

NETWORK LAYOUT

Network: [1] Network AM (Projected 2036 + Proposed Development)

Projected Upgraded 2036 + Proposed Development w.Roundabout
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
▽3	NA	Rickard Road and Existing Bus Interchange Access Road AM
▽4	NA	Rickard Road and Southern Commuter Car Park AM
▽5	NA	Rickard Road and Byron Road W AM
▽6	NA	Rickard Road and Byron Road E AM
▽7	NA	Rickard Road and Foreshadowed Roundabout AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	1002	3.6	1002	3.6	0.263	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			1002	3.6	1002	3.6	0.263	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.060	5.4	LOS A	0.2	1.6	0.48	0.62	0.48	41.0
Approach			59	0.0	59	0.0	0.060	5.4	LOS A	0.2	1.6	0.48	0.62	0.48	41.0
All Vehicles			1061	3.4	1061	3.4	0.263	0.3	NA	0.2	1.6	0.03	0.03	0.03	58.2

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.422	4.9	LOS A	2.6	18.4	0.42	0.49	0.42	34.9
2	T1	All MCs	873	4.0	873	4.0	0.422	4.9	LOS A	2.6	18.4	0.42	0.51	0.42	30.6
3u	U	All MCs	54	2.0	54	2.0	0.422	11.0	LOS A	2.5	18.3	0.42	0.52	0.42	30.2
Approach			1006	3.6	1006	3.6	0.422	5.2	LOS A	2.6	18.4	0.42	0.51	0.42	31.2
North: Rickard Rd (N)															
8	T1	All MCs	511	1.6	511	1.6	0.279	3.9	LOS A	1.5	10.6	0.33	0.48	0.33	30.2
9	R2	All MCs	164	0.0	164	0.0	0.279	7.9	LOS A	1.5	10.5	0.33	0.57	0.33	33.2
9u	U	All MCs	15	7.1	15	7.1	0.279	9.9	LOS A	1.5	10.5	0.33	0.57	0.33	28.0
Approach			689	1.4	689	1.4	0.279	5.0	LOS A	1.5	10.6	0.33	0.51	0.33	31.5
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.317	5.8	LOS A	1.4	9.7	0.66	0.77	0.68	27.7
12	R2	All MCs	83	0.0	83	0.0	0.317	9.3	LOS A	1.4	9.7	0.66	0.77	0.68	27.7
12u	U	All MCs	9	0.0	9	0.0	0.317	10.7	LOS A	1.4	9.7	0.66	0.77	0.68	31.5
Approach			207	0.0	207	0.0	0.317	7.4	LOS A	1.4	9.7	0.66	0.77	0.68	28.0
All Vehicles			1903	2.4	1903	2.4	0.422	5.4	LOS A	2.6	18.4	0.41	0.53	0.41	30.8

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.264	3.9	LOS A	0.0	0.0	0.00	0.02	0.00	35.9
2	T1	All MCs	991	2.4	991	2.4	0.264	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.5
Approach			1006	3.5	1006	3.5	0.264	0.1	NA	0.0	0.0	0.00	0.01	0.00	57.2
North: Rickard Rd (N)															
8	T1	All MCs	634	0.0	634	0.0	0.162	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	14	69.2	14	69.2	0.074	23.9	LOS B	0.2	2.5	0.82	0.92	0.82	21.8
Approach			647	1.5	647	1.5	0.162	0.5	NA	0.2	2.5	0.02	0.02	0.02	53.9
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	0.034	9.0	LOS A	0.1	1.3	0.54	0.67	0.54	27.7
12	R2	All MCs	8	87.5	8	87.5	1.191	580.8	LOS F	3.1	38.0	1.00	1.20	1.53	1.5
Approach			24	78.3	24	78.3	1.191	207.9	LOS F	3.1	38.0	0.70	0.85	0.88	3.8
All Vehicles			1678	3.8	1678	3.8	1.191	3.2	NA	3.1	38.0	0.02	0.02	0.02	36.6

Site Level of Service (LOS) Method: Delay (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: [4] Rickard Road and Southern Commuter Car Park AM (Proposed AM)

Network: [1] Network AM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.264	2.7	LOS A	0.0	0.0	0.00	0.05	0.00	54.9
2	T1	All MCs	961	3.6	961	3.6	0.264	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	56.7
Approach			1004	3.5	1004	3.5	0.264	0.1	NA	0.0	0.0	0.00	0.02	0.00	56.0
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.043	7.3	LOS A	0.2	1.2	0.46	0.65	0.46	48.4
Approach			45	0.0	45	0.0	0.043	7.3	LOS A	0.2	1.2	0.46	0.65	0.46	48.4
All Vehicles			1049	3.3	1049	3.3	0.264	0.4	NA	0.2	1.2	0.02	0.05	0.02	53.5

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected Upgraded 2036 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [5] Rickard Road and Byron Road W AM (Proposed AM)
Network: [1] Network AM (Projected 2036 + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	154	0.0	154	0.0	0.257	5.5	LOS A	0.0	0.0	0.00	0.19	0.00	53.4
2	T1	All MCs	819	4.2	819	4.2	0.257	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	54.1
Approach			973	3.6	973	3.6	0.257	0.9	NA	0.0	0.0	0.00	0.09	0.00	53.8
West: Byron Rd (W)															
10	L2	All MCs	185	0.0	185	0.0	0.154	6.8	LOS A	0.6	4.5	0.41	0.64	0.41	48.6
Approach			185	0.0	185	0.0	0.154	6.8	LOS A	0.6	4.5	0.41	0.64	0.41	48.6
All Vehicles			1158	3.0	1158	3.0	0.257	1.8	NA	0.6	4.5	0.07	0.18	0.07	51.9

Site Level of Service (LOS) Method: Delay (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: [6] Rickard Road and Byron Road E AM (Proposed AM)
Network: [1] Network AM (Projected 2036 + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	235	0.4	235	0.4	0.147	6.5	LOS A	0.7	4.6	0.10	0.58	0.10	55.8
Approach			235	0.4	235	0.4	0.147	6.5	LOS A	0.7	4.6	0.10	0.58	0.10	55.8
North: Rickard Rd (N)															
7	L2	All MCs	285	0.0	285	0.0	0.169	4.7	LOS A	0.0	0.0	0.00	0.52	0.00	50.1
8	T1	All MCs	357	2.1	**356**	1.7	0.169	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	56.0
Approach			642	1.1	**641**	1.0	0.169	2.1	NA	0.0	0.0	0.00	0.25	0.00	50.9
All Vehicles			877	1.0	**875**	1.0	0.169	3.3	NA	0.7	4.6	0.03	0.34	0.03	52.6

Site Level of Service (LOS) Method: Delay (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: [7] Rickard Road and Foreshadowed Roundabout AM

(Proposed AM)

Network: [1] Network AM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	228	0.0	228	0.0	0.438	5.7	LOS A	2.4	17.2	0.49	0.57	0.49	49.1
2	T1	All MCs	697	5.0	697	5.0	0.438	5.8	LOS A	2.4	17.3	0.49	0.57	0.49	49.0
3	R2	All MCs	34	0.0	34	0.0	0.438	9.9	LOS A	2.4	17.3	0.49	0.57	0.49	49.5
Approach			959	3.6	959	3.6	0.438	5.9	LOS A	2.4	17.3	0.49	0.57	0.49	49.1
East: ILP Road 2 (E)															
4	L2	All MCs	111	0.0	111	0.0	0.142	7.2	LOS A	0.6	4.3	0.59	0.72	0.59	49.8
5	T1	All MCs	1	0.0	1	0.0	0.131	6.8	LOS A	0.6	4.0	0.59	0.77	0.59	40.9
6	R2	All MCs	111	0.0	111	0.0	0.131	11.0	LOS A	0.6	4.0	0.59	0.77	0.59	37.0
Approach			222	0.0	222	0.0	0.142	9.1	LOS A	0.6	4.3	0.59	0.74	0.59	45.4
North: Rickard Rd (N)															
7	L2	All MCs	34	0.0	34	0.0	0.285	5.8	LOS A	1.6	11.6	0.51	0.55	0.51	43.1
8	T1	All MCs	377	2.2	**376**	1.9	0.285	5.8	LOS A	1.6	11.6	0.51	0.58	0.51	48.3
9	R2	All MCs	57	0.0	57	0.0	0.285	9.9	LOS A	1.6	11.5	0.51	0.65	0.51	36.2
9u	U	All MCs	124	0.0	124	0.0	0.285	11.9	LOS A	1.6	11.5	0.51	0.65	0.51	30.1
Approach			592	1.4	**590**	1.2	0.285	7.5	LOS A	1.6	11.6	0.51	0.60	0.51	45.3
West: Southern Site Access (W)															
10	L2	All MCs	41	0.0	41	0.0	0.520	10.7	LOS A	3.1	22.0	0.77	0.93	0.97	26.3
11	T1	All MCs	1	0.0	1	0.0	0.520	10.9	LOS A	3.1	22.0	0.77	0.93	0.97	37.4
12	R2	All MCs	282	0.0	282	0.0	0.520	15.0	LOS B	3.1	22.0	0.77	0.93	0.97	42.5
Approach			324	0.0	324	0.0	0.520	14.5	LOS A	3.1	22.0	0.77	0.93	0.97	41.5
All Vehicles			2097	2.1	**2096**	2.1	0.520	8.0	LOS A	3.1	22.0	0.55	0.65	0.58	46.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	657	2.1	657	2.1	0.171	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			657	2.1	657	2.1	0.171	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.041	4.5	LOS A	0.2	1.1	0.38	0.53	0.38	41.6
Approach			49	0.0	49	0.0	0.041	4.5	LOS A	0.2	1.1	0.38	0.53	0.38	41.6
All Vehicles			706	1.9	706	1.9	0.171	0.3	NA	0.2	1.1	0.03	0.04	0.03	57.9

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.240	4.5	LOS A	1.2	8.5	0.29	0.46	0.29	35.7
2	T1	All MCs	536	2.2	536	2.2	0.240	4.4	LOS A	1.2	8.5	0.29	0.46	0.29	32.5
3u	U	All MCs	18	0.0	18	0.0	0.240	10.5	LOS A	1.2	8.4	0.29	0.47	0.29	32.2
Approach			601	2.1	601	2.1	0.240	4.6	LOS A	1.2	8.5	0.29	0.46	0.29	33.0
North: Rickard Rd (N)															
8	T1	All MCs	660	3.3	660	3.3	0.303	3.7	LOS A	1.7	12.2	0.28	0.46	0.28	31.1
9	R2	All MCs	112	0.9	112	0.9	0.303	7.7	LOS A	1.7	12.0	0.28	0.51	0.28	34.1
9u	U	All MCs	13	0.0	13	0.0	0.303	9.6	LOS A	1.7	12.0	0.28	0.51	0.28	29.7
Approach			784	3.0	784	3.0	0.303	4.4	LOS A	1.7	12.2	0.28	0.47	0.28	32.0
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.239	4.4	LOS A	1.0	7.0	0.53	0.65	0.53	29.4
12	R2	All MCs	76	1.4	76	1.4	0.239	7.9	LOS A	1.0	7.0	0.53	0.65	0.53	29.4
12u	U	All MCs	7	0.0	7	0.0	0.239	9.3	LOS A	1.0	7.0	0.53	0.65	0.53	32.6
Approach			192	1.6	192	1.6	0.239	6.0	LOS A	1.0	7.0	0.53	0.65	0.53	29.6
All Vehicles			1577	2.5	1577	2.5	0.303	4.7	LOS A	1.7	12.2	0.31	0.49	0.31	31.9

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3 (2)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.156	3.9	LOS A	0.0	0.0	0.00	0.03	0.00	37.4
2	T1	All MCs	584	0.4	584	0.4	0.156	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
Approach			599	1.8	599	1.8	0.156	0.1	NA	0.0	0.0	0.00	0.01	0.00	56.2
North: Rickard Rd (N)															
8	T1	All MCs	736	1.1	736	1.1	0.190	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	18	82.4	18	82.4	0.045	12.2	LOS A	0.2	1.9	0.61	0.77	0.61	28.5
Approach			754	3.1	754	3.1	0.190	0.3	NA	0.2	1.9	0.01	0.02	0.01	55.6
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	0.024	5.9	LOS A	0.1	0.9	0.40	0.53	0.40	31.1
12	R2	All MCs	15	71.4	15	71.4	0.567	183.4	LOS F	1.4	15.8	0.98	1.08	1.22	3.9
Approach			32	66.7	32	66.7	0.567	88.7	LOS F	1.4	15.8	0.67	0.79	0.78	7.2
All Vehicles			1384	4.0	1384	4.0	0.567	2.2	NA	1.4	15.8	0.02	0.03	0.03	40.7

Site Level of Service (LOS) Method: Delay (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: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.151	2.7	LOS A	0.0	0.0	0.00	0.09	0.00	54.7
2	T1	All MCs	533	2.0	533	2.0	0.151	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	54.6
Approach			579	1.8	579	1.8	0.151	0.2	NA	0.0	0.0	0.00	0.04	0.00	54.7
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.050	6.3	LOS A	0.2	1.4	0.32	0.58	0.32	49.1
Approach			66	0.0	66	0.0	0.050	6.3	LOS A	0.2	1.4	0.32	0.58	0.32	49.1
All Vehicles			645	1.6	645	1.6	0.151	0.8	NA	0.2	1.4	0.03	0.10	0.03	52.1

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected Upgraded 2036 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [5 (2)] Rickard Road and Byron Road W PM (Proposed PM)

Network: [2] Network PM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.181	5.5	LOS A	0.0	0.0	0.00	0.55	0.00	49.4
2	T1	All MCs	365	2.9	365	2.9	0.181	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	57.6
Approach			683	1.5	683	1.5	0.181	2.6	NA	0.0	0.0	0.00	0.27	0.00	50.7
West: Byron Rd (W)															
10	L2	All MCs	214	0.0	214	0.0	0.133	5.6	LOS A	0.6	4.1	0.08	0.55	0.08	50.5
Approach			214	0.0	214	0.0	0.133	5.6	LOS A	0.6	4.1	0.08	0.55	0.08	50.5
All Vehicles			897	1.2	897	1.2	0.181	3.3	NA	0.6	4.1	0.02	0.34	0.02	50.6

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected Upgraded 2036 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [6 (2)] Rickard Road and Byron Road E PM (Proposed PM)

Network: [2] Network PM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	286	0.4	286	0.4	0.199	6.9	LOS A	0.9	6.4	0.27	0.59	0.27	54.6
Approach			286	0.4	286	0.4	0.199	6.9	LOS A	0.9	6.4	0.27	0.59	0.27	54.6
North: Rickard Rd (N)															
7	L2	All MCs	221	2.9	221	2.9	0.199	4.7	LOS A	0.0	0.0	0.00	0.35	0.00	51.6
8	T1	All MCs	529	2.4	529	2.4	0.199	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	51.9
Approach			751	2.5	751	2.5	0.199	1.4	NA	0.0	0.0	0.00	0.17	0.00	51.7
All Vehicles			1037	1.9	1037	1.9	0.199	2.9	NA	0.9	6.4	0.08	0.29	0.08	53.0

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\1. Proposed Access - Roundabout at Southern Road\Projected Upgraded 2036 + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [7 (2)] Rickard Road and Foreshadowed Roundabout PM (Proposed PM)

Network: [2] Network PM (Projected 2036 + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.354	5.9	LOS A	2.1	14.4	0.54	0.60	0.54	49.1
2	T1	All MCs	315	3.3	315	3.3	0.354	5.9	LOS A	2.1	14.5	0.54	0.61	0.54	48.1
3	R2	All MCs	91	0.0	91	0.0	0.354	10.0	LOS A	2.0	14.5	0.54	0.61	0.54	48.9
Approach			723	1.5	723	1.5	0.354	6.4	LOS A	2.1	14.5	0.54	0.60	0.54	48.7
East: ILP Road 2 (E)															
4	L2	All MCs	28	0.0	28	0.0	0.051	8.8	LOS A	0.2	1.6	0.71	0.79	0.71	48.4
5	T1	All MCs	1	0.0	1	0.0	0.046	8.1	LOS A	0.2	1.5	0.71	0.81	0.71	39.7
6	R2	All MCs	28	0.0	28	0.0	0.046	12.3	LOS A	0.2	1.5	0.71	0.81	0.71	35.5
Approach			58	0.0	58	0.0	0.051	10.5	LOS A	0.2	1.6	0.71	0.80	0.71	43.9
North: Rickard Rd (N)															
7	L2	All MCs	91	0.0	91	0.0	0.510	8.5	LOS A	4.0	28.5	0.80	0.74	0.88	40.4
8	T1	All MCs	423	3.2	423	3.2	0.510	8.6	LOS A	4.0	28.5	0.80	0.75	0.88	46.1
9	R2	All MCs	80	0.0	80	0.0	0.510	12.9	LOS A	3.9	27.7	0.80	0.79	0.88	32.9
9u	U	All MCs	225	0.0	225	0.0	0.510	14.8	LOS B	3.9	27.7	0.80	0.79	0.88	26.0
Approach			819	1.7	819	1.7	0.510	10.7	LOS A	4.0	28.5	0.80	0.77	0.88	41.2
West: Southern Site Access (W)															
10	L2	All MCs	115	0.0	115	0.0	0.811	15.7	LOS B	9.5	66.4	0.92	1.08	1.51	22.1
11	T1	All MCs	1	0.0	1	0.0	0.811	16.0	LOS B	9.5	66.4	0.92	1.08	1.51	33.5
12	R2	All MCs	481	0.0	481	0.0	0.811	20.1	LOS B	9.5	66.4	0.92	1.08	1.51	39.2
Approach			597	0.0	597	0.0	0.811	19.2	LOS B	9.5	66.4	0.92	1.08	1.51	37.5
All Vehicles			2197	1.1	2197	1.1	0.811	11.6	LOS A	9.5	66.4	0.74	0.80	0.93	42.5

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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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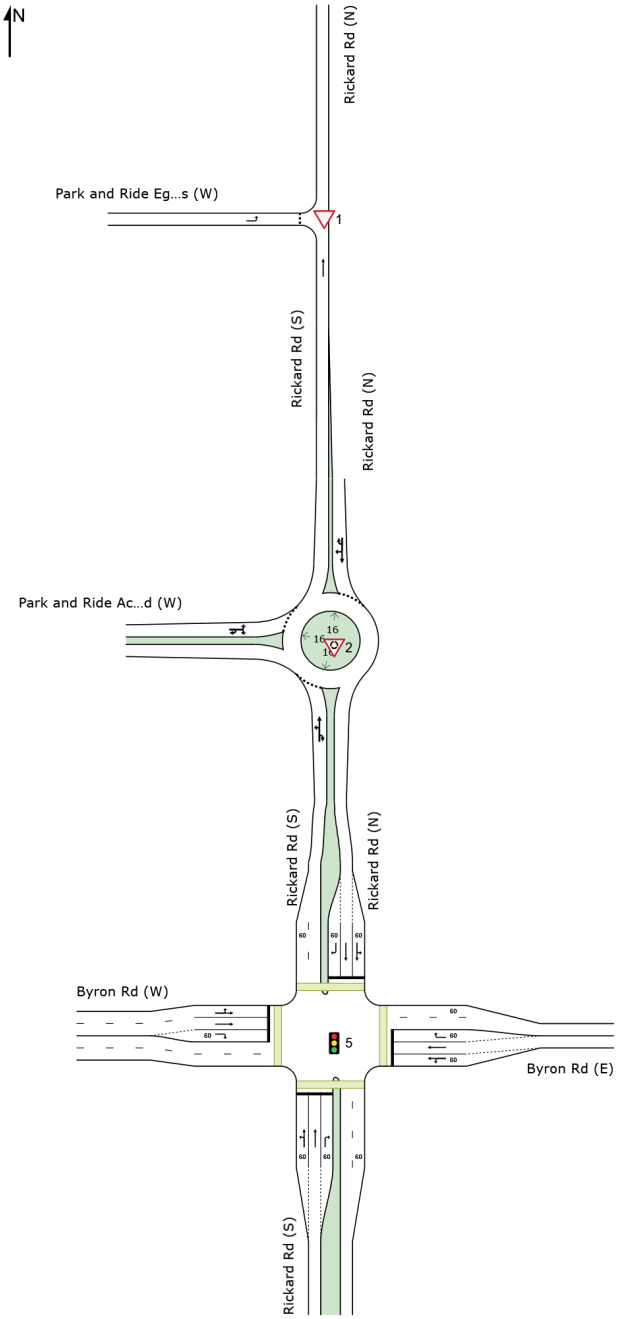
NETWORK LAYOUT

Network: [1] Network AM (Projected 2026 w.Signalised Byron Road)

Projected 2026 w.Signalised Byron Road
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
5	NA	Rickard Road and Byron Road AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	411	4.4	411	4.4	0.216	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			411	4.4	411	4.4	0.216	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.054	4.9	LOS A	0.2	1.4	0.43	0.57	0.43	41.3
Approach			59	0.0	59	0.0	0.054	4.9	LOS A	0.2	1.4	0.43	0.57	0.43	41.3
All Vehicles			469	3.8	469	3.8	0.216	0.6	NA	0.2	1.4	0.05	0.07	0.05	56.4

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.337	5.3	LOS A	1.9	13.6	0.36	0.54	0.36	38.5
2	T1	All MCs	281	6.0	281	6.0	0.337	5.5	LOS A	1.9	13.6	0.36	0.54	0.36	38.6
3u	U	All MCs	12	9.1	12	9.1	0.337	11.6	LOS A	1.9	13.6	0.36	0.54	0.36	38.6
Approach			373	4.8	373	4.8	0.337	5.7	LOS A	1.9	13.6	0.36	0.54	0.36	38.5
North: Rickard Rd (N)															
8	T1	All MCs	218	7.2	218	7.2	0.319	3.8	LOS A	2.2	15.7	0.35	0.53	0.35	28.2
9	R2	All MCs	164	0.0	164	0.0	0.319	7.7	LOS A	2.2	15.7	0.35	0.53	0.35	33.3
9u	U	All MCs	15	7.1	15	7.1	0.319	9.6	LOS A	2.2	15.7	0.35	0.53	0.35	28.2
Approach			397	4.2	397	4.2	0.319	5.6	LOS A	2.2	15.7	0.35	0.53	0.35	31.4
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.206	3.9	LOS A	1.3	9.3	0.53	0.54	0.53	29.9
12	R2	All MCs	83	0.0	83	0.0	0.206	7.4	LOS A	1.3	9.3	0.53	0.54	0.53	29.9
12u	U	All MCs	9	0.0	9	0.0	0.206	8.8	LOS A	1.3	9.3	0.53	0.54	0.53	32.9
Approach			207	0.0	207	0.0	0.206	5.6	LOS A	1.3	9.3	0.53	0.54	0.53	30.1
All Vehicles			977	3.6	977	3.6	0.337	5.6	LOS A	2.2	15.7	0.39	0.54	0.39	33.9

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5] Rickard Road and Byron Road AM (Proposed AM)
Network: [1] Network AM (Projected 2026 w.Signalised Byron Road)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	38	27.8	38	27.8	0.111	8.5	LOS A	2.5	19.1	0.57	0.56	0.57	42.6
2	T1	All MCs	322	2.0	322	2.0	* 0.290	18.1	LOS B	7.8	55.5	0.63	0.55	0.63	38.9
3	R2	All MCs	17	0.0	17	0.0	0.029	15.3	LOS B	0.3	2.3	0.56	1.06	0.56	34.5
Approach			377	4.5	377	4.5	0.290	17.0	LOS B	7.8	55.5	0.62	0.58	0.62	39.1
East: Byron Rd (E)															
4	L2	All MCs	42	2.5	42	2.5	0.081	32.6	LOS C	1.5	10.7	0.76	0.70	0.76	35.7
5	T1	All MCs	11	0.0	11	0.0	* 0.033	37.8	LOS C	0.4	3.0	0.86	0.59	0.86	33.0
6	R2	All MCs	14	0.0	14	0.0	0.039	32.6	LOS C	0.5	3.4	0.82	0.97	0.82	20.3
Approach			66	1.6	66	1.6	0.081	33.4	LOS C	1.5	10.7	0.79	0.74	0.79	32.4
North: Rickard Rd (N)															
7	L2	All MCs	52	0.0	52	0.0	0.087	9.1	LOS A	2.0	14.5	0.54	0.60	0.54	37.2
8	T1	All MCs	237	3.1	237	3.1	0.227	18.3	LOS B	5.8	42.0	0.61	0.54	0.61	42.7
9	R2	All MCs	24	39.1	24	39.1	* 0.057	16.2	LOS B	0.5	4.6	0.58	1.11	0.58	32.4
Approach			313	5.4	313	5.4	0.227	16.6	LOS B	5.8	42.0	0.60	0.59	0.60	40.7
West: Byron Rd (W)															
10	L2	All MCs	37	31.4	37	31.4	0.085	33.1	LOS C	1.3	11.7	0.76	0.70	0.76	26.6
11	T1	All MCs	8	0.0	8	0.0	0.026	37.7	LOS C	0.3	2.4	0.86	0.59	0.86	33.1
12	R2	All MCs	24	30.4	24	30.4	* 0.081	33.4	LOS C	0.9	7.7	0.83	1.00	0.83	29.0
Approach			69	27.3	69	27.3	0.085	33.8	LOS C	1.3	11.7	0.80	0.79	0.80	28.6
All Vehicles			825	6.5	825	6.5	0.290	19.6	LOS B	7.8	55.5	0.64	0.61	0.64	37.5

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	313	3.7	313	3.7	0.164	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			313	3.7	313	3.7	0.164	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.040	4.5	LOS A	0.2	1.1	0.37	0.52	0.37	41.6
Approach			49	0.0	49	0.0	0.040	4.5	LOS A	0.2	1.1	0.37	0.52	0.37	41.6
All Vehicles			362	3.2	362	3.2	0.164	0.6	NA	0.2	1.1	0.05	0.07	0.05	56.2

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.212	4.9	LOS A	1.0	7.4	0.26	0.49	0.26	39.0
2	T1	All MCs	192	4.9	192	4.9	0.212	5.0	LOS A	1.0	7.4	0.26	0.49	0.26	39.7
3u	U	All MCs	8	0.0	8	0.0	0.212	10.9	LOS A	1.0	7.4	0.26	0.49	0.26	39.7
Approach			247	4.3	247	4.3	0.212	5.2	LOS A	1.0	7.4	0.26	0.49	0.26	39.5
North: Rickard Rd (N)															
8	T1	All MCs	168	6.2	168	6.2	0.234	3.7	LOS A	1.4	10.3	0.29	0.53	0.29	28.8
9	R2	All MCs	112	0.9	112	0.9	0.234	7.6	LOS A	1.4	10.3	0.29	0.53	0.29	33.6
9u	U	All MCs	13	0.0	13	0.0	0.234	9.4	LOS A	1.4	10.3	0.29	0.53	0.29	28.8
Approach			293	4.0	293	4.0	0.234	5.4	LOS A	1.4	10.3	0.29	0.53	0.29	31.7
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.177	3.3	LOS A	1.1	7.8	0.42	0.50	0.42	30.6
12	R2	All MCs	76	1.4	76	1.4	0.177	6.8	LOS A	1.1	7.8	0.42	0.50	0.42	30.6
12u	U	All MCs	7	0.0	7	0.0	0.177	8.1	LOS A	1.1	7.8	0.42	0.50	0.42	33.3
Approach			192	1.6	192	1.6	0.177	4.9	LOS A	1.1	7.8	0.42	0.50	0.42	30.7
All Vehicles			732	3.5	732	3.5	0.234	5.2	LOS A	1.4	10.3	0.32	0.51	0.32	34.1

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5 (2)] Rickard Road and Byron Road PM (Proposed PM)
Network: [2] Network PM (Projected 2026 w.Signalised Byron Road)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	38	22.2	38	22.2	0.045	10.7	LOS A	0.9	7.3	0.46	0.63	0.46	43.5
2	T1	All MCs	98	0.0	98	0.0	0.118	21.3	LOS B	2.8	19.7	0.65	0.53	0.65	36.9
3	R2	All MCs	11	0.0	11	0.0	0.019	18.4	LOS B	0.2	1.7	0.62	1.02	0.62	33.8
Approach			146	5.8	146	5.8	0.118	18.3	LOS B	2.8	19.7	0.60	0.59	0.60	38.8
East: Byron Rd (E)															
4	L2	All MCs	75	1.4	75	1.4	0.142	33.2	LOS C	2.7	19.2	0.78	0.73	0.78	35.5
5	T1	All MCs	12	0.0	12	0.0	* 0.036	37.8	LOS C	0.5	3.3	0.87	0.60	0.87	33.0
6	R2	All MCs	98	0.0	98	0.0	* 0.210	28.7	LOS C	3.3	22.9	0.81	1.08	0.81	20.8
Approach			184	0.6	184	0.6	0.210	31.1	LOS C	3.3	22.9	0.80	0.90	0.80	28.1
North: Rickard Rd (N)															
7	L2	All MCs	55	3.8	55	3.8	0.081	10.4	LOS A	1.8	13.3	0.57	0.65	0.57	35.8
8	T1	All MCs	179	2.9	179	2.9	* 0.211	23.4	LOS B	5.1	36.9	0.68	0.58	0.68	39.9
9	R2	All MCs	19	22.2	19	22.2	* 0.035	18.5	LOS B	0.4	3.7	0.59	1.03	0.59	32.0
Approach			253	4.6	253	4.6	0.211	20.2	LOS B	5.1	36.9	0.65	0.62	0.65	38.2
West: Byron Rd (W)															
10	L2	All MCs	52	20.4	52	20.4	0.111	33.2	LOS C	1.9	15.3	0.77	0.71	0.77	26.5
11	T1	All MCs	11	0.0	11	0.0	0.033	37.8	LOS C	0.4	3.0	0.86	0.59	0.86	33.0
12	R2	All MCs	36	29.4	36	29.4	0.092	28.3	LOS B	1.2	10.2	0.78	1.04	0.78	29.8
Approach			98	21.5	98	21.5	0.111	31.9	LOS C	1.9	15.3	0.79	0.82	0.79	28.9
All Vehicles			681	6.2	681	6.2	0.211	24.4	LOS B	5.1	36.9	0.70	0.72	0.70	33.2

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

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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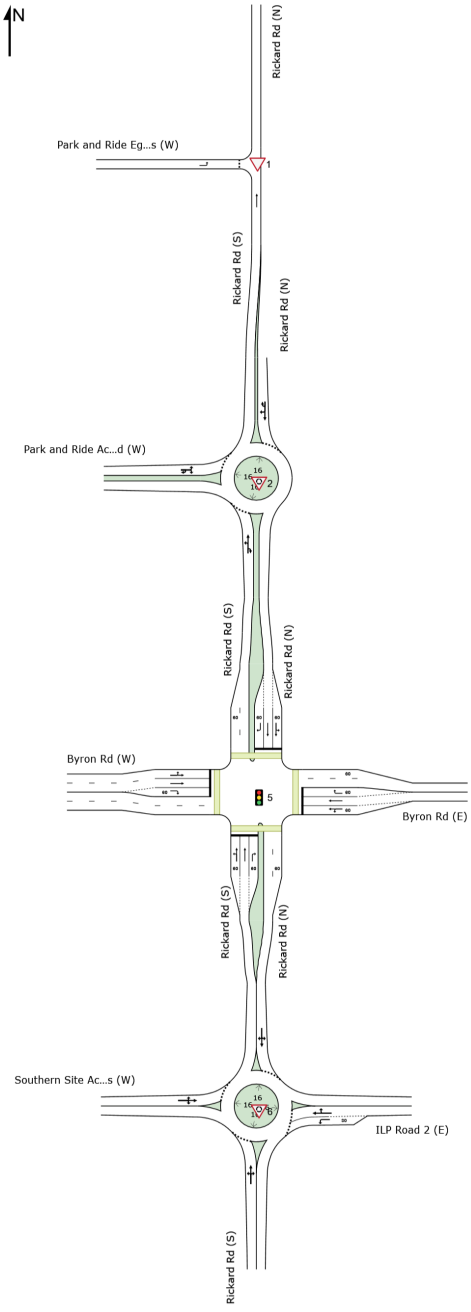
NETWORK LAYOUT

Network: [1] Network AM (Projected 2026 w.Signalised Byron Road + Proposed Development)

Projected 2026 w.Signalised Byron Road + Proposed Development
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
1	NA	Rickard Road and Northern Park and Ride Egress AM
2	NA	Rickard Road and Northern Park and Ride Access Road AM
5	NA	Rickard Road and Byron Road AM
6	NA	Rickard Road and Foreshadowed Roundabout AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	602	3.0	602	3.0	0.315	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			602	3.0	602	3.0	0.315	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.068	6.1	LOS A	0.2	1.7	0.53	0.67	0.53	40.3
Approach			59	0.0	59	0.0	0.068	6.1	LOS A	0.2	1.7	0.53	0.67	0.53	40.3
All Vehicles			661	2.7	661	2.7	0.315	0.6	NA	0.2	1.7	0.05	0.06	0.05	57.1

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.494	5.5	LOS A	3.4	24.2	0.41	0.55	0.41	38.3
2	T1	All MCs	473	3.6	473	3.6	0.494	5.7	LOS A	3.4	24.2	0.41	0.55	0.41	38.2
3u	U	All MCs	12	9.1	12	9.1	0.494	11.9	LOS A	3.4	24.2	0.41	0.55	0.41	38.2
Approach			564	3.2	564	3.2	0.494	5.8	LOS A	3.4	24.2	0.41	0.55	0.41	38.2
North: Rickard Rd (N)															
8	T1	All MCs	332	4.8	332	4.8	0.404	3.8	LOS A	3.1	22.5	0.39	0.51	0.39	28.5
9	R2	All MCs	164	0.0	164	0.0	0.404	7.8	LOS A	3.1	22.5	0.39	0.51	0.39	33.5
9u	U	All MCs	15	7.1	15	7.1	0.404	9.7	LOS A	3.1	22.5	0.39	0.51	0.39	28.5
Approach			511	3.3	511	3.3	0.404	5.3	LOS A	3.1	22.5	0.39	0.51	0.39	31.2
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.240	5.5	LOS A	1.7	12.2	0.69	0.61	0.69	27.9
12	R2	All MCs	83	0.0	83	0.0	0.240	9.0	LOS A	1.7	12.2	0.69	0.61	0.69	27.9
12u	U	All MCs	9	0.0	9	0.0	0.240	10.4	LOS A	1.7	12.2	0.69	0.61	0.69	31.6
Approach			207	0.0	207	0.0	0.240	7.1	LOS A	1.7	12.2	0.69	0.61	0.69	28.2
All Vehicles			1282	2.7	1282	2.7	0.494	5.8	LOS A	3.4	24.2	0.45	0.54	0.45	33.7

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5] Rickard Road and Byron Road AM (Proposed AM)
Network: [1] Network AM (Projected 2026 w.Signalised Byron Road + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	93	11.4	93	11.4	0.159	9.5	LOS A	3.7	27.6	0.58	0.64	0.58	35.1
2	T1	All MCs	412	1.5	412	1.5	* 0.414	21.5	LOS B	11.8	84.0	0.70	0.63	0.70	16.2
3	R2	All MCs	79	0.0	79	0.0	0.150	16.9	LOS B	1.7	12.0	0.63	1.19	0.63	31.8
Approach			583	2.9	583	2.9	0.414	19.0	LOS B	11.8	84.0	0.67	0.70	0.67	25.0
East: Byron Rd (E)															
4	L2	All MCs	81	1.3	81	1.3	0.196	35.6	LOS C	3.5	24.7	0.83	0.74	0.83	25.3
5	T1	All MCs	73	0.0	73	0.0	0.196	39.7	LOS C	3.5	24.7	0.89	0.70	0.89	32.7
6	R2	All MCs	14	0.0	14	0.0	0.044	31.8	LOS C	0.5	3.3	0.85	1.08	0.85	19.1
Approach			167	0.6	167	0.6	0.196	37.1	LOS C	3.5	24.7	0.86	0.75	0.86	28.7
North: Rickard Rd (N)															
7	L2	All MCs	52	0.0	52	0.0	0.109	8.7	LOS A	2.6	18.4	0.58	0.60	0.58	36.5
8	T1	All MCs	295	2.5	295	2.5	0.285	19.9	LOS B	7.5	53.7	0.65	0.57	0.65	22.3
9	R2	All MCs	80	11.8	80	11.8	* 0.200	18.2	LOS B	1.8	13.6	0.69	1.18	0.69	31.3
Approach			426	4.0	426	4.0	0.285	18.2	LOS B	7.5	53.7	0.65	0.69	0.65	28.1
West: Byron Rd (W)															
10	L2	All MCs	139	8.3	139	8.3	0.277	34.8	LOS C	5.3	39.7	0.82	0.76	0.82	25.9
11	T1	All MCs	92	0.0	92	0.0	* 0.283	40.1	LOS C	4.0	27.9	0.92	0.72	0.92	32.4
12	R2	All MCs	141	5.2	141	5.2	* 0.424	34.1	LOS C	5.3	38.9	0.91	1.05	0.91	19.1
Approach			372	5.1	372	5.1	0.424	35.8	LOS C	5.3	39.7	0.88	0.86	0.88	25.1
All Vehicles			1548	3.5	1548	3.5	0.424	24.8	LOS B	11.8	84.0	0.74	0.74	0.74	26.3

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

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: [6] Rickard Road and Foreshadowed Roundabout AM

(Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	203	0.0	203	0.0	0.567	5.6	LOS A	5.2	37.0	0.58	0.53	0.58	49.0
2	T1	All MCs	432	3.9	432	3.9	0.567	5.7	LOS A	5.2	37.0	0.58	0.53	0.58	49.0
3	R2	All MCs	34	0.0	34	0.0	0.567	9.8	LOS A	5.2	37.0	0.58	0.53	0.58	49.6
Approach			668	2.5	668	2.5	0.567	5.9	LOS A	5.2	37.0	0.58	0.53	0.58	49.0
East: ILP Road 2 (E)															
4	L2	All MCs	111	0.0	111	0.0	0.139	9.1	LOS A	1.0	7.3	0.75	0.65	0.75	48.0
5	T1	All MCs	1	0.0	1	0.0	0.121	8.3	LOS A	1.0	6.7	0.75	0.66	0.75	39.2
6	R2	All MCs	111	0.0	111	0.0	0.121	12.5	LOS A	1.0	6.7	0.75	0.66	0.75	34.9
Approach			222	0.0	222	0.0	0.139	10.8	LOS A	1.0	7.3	0.75	0.66	0.75	43.5
North: Rickard Rd (N)															
7	L2	All MCs	34	0.0	34	0.0	0.466	5.6	LOS A	3.2	22.7	0.41	0.57	0.41	43.2
8	T1	All MCs	420	3.8	420	3.8	0.466	5.7	LOS A	3.2	22.7	0.41	0.57	0.41	49.1
9	R2	All MCs	63	0.0	63	0.0	0.466	9.8	LOS A	3.2	22.7	0.41	0.57	0.41	38.3
Approach			517	3.1	517	3.1	0.466	6.2	LOS A	3.2	22.7	0.41	0.57	0.41	48.0
West: Southern Site Access (W)															
10	L2	All MCs	41	0.0	41	0.0	0.269	8.0	LOS A	1.7	11.8	0.71	0.73	0.71	29.5
11	T1	All MCs	1	0.0	1	0.0	0.269	8.0	LOS A	1.7	11.8	0.71	0.73	0.71	40.1
12	R2	All MCs	165	0.0	165	0.0	0.269	12.2	LOS A	1.7	11.8	0.71	0.73	0.71	44.7
Approach			207	0.0	207	0.0	0.269	11.3	LOS A	1.7	11.8	0.71	0.73	0.71	43.3
All Vehicles			1615	2.0	1615	2.0	0.567	7.4	LOS A	5.2	37.0	0.57	0.58	0.57	47.1

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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.

MOVEMENT SUMMARY

Site: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	496	2.3	496	2.3	0.258	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			496	2.3	496	2.3	0.258	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.050	5.3	LOS A	0.2	1.3	0.47	0.61	0.47	41.1
Approach			49	0.0	49	0.0	0.050	5.3	LOS A	0.2	1.3	0.47	0.61	0.47	41.1
All Vehicles			545	2.1	545	2.1	0.258	0.5	NA	0.2	1.3	0.04	0.06	0.04	57.2

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.354	5.0	LOS A	2.1	14.7	0.30	0.49	0.30	38.9
2	T1	All MCs	375	2.5	375	2.5	0.354	5.0	LOS A	2.1	14.7	0.30	0.49	0.30	39.4
3u	U	All MCs	8	0.0	8	0.0	0.354	11.0	LOS A	2.1	14.7	0.30	0.49	0.30	39.4
Approach			431	2.4	431	2.4	0.354	5.1	LOS A	2.1	14.7	0.30	0.49	0.30	39.3
North: Rickard Rd (N)															
8	T1	All MCs	385	2.7	385	2.7	0.392	3.7	LOS A	3.0	21.2	0.35	0.49	0.35	29.6
9	R2	All MCs	112	0.9	112	0.9	0.392	7.7	LOS A	3.0	21.2	0.35	0.49	0.35	34.1
9u	U	All MCs	13	0.0	13	0.0	0.392	9.5	LOS A	3.0	21.2	0.35	0.49	0.35	29.6
Approach			509	2.3	509	2.3	0.392	4.7	LOS A	3.0	21.2	0.35	0.49	0.35	31.4
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.202	4.6	LOS A	1.4	9.8	0.59	0.56	0.59	29.1
12	R2	All MCs	76	1.4	76	1.4	0.202	8.1	LOS A	1.4	9.8	0.59	0.56	0.59	29.1
12u	U	All MCs	7	0.0	7	0.0	0.202	9.5	LOS A	1.4	9.8	0.59	0.56	0.59	32.4
Approach			192	1.6	192	1.6	0.202	6.2	LOS A	1.4	9.8	0.59	0.56	0.59	29.3
All Vehicles			1132	2.2	1132	2.2	0.392	5.1	LOS A	3.0	21.2	0.37	0.50	0.37	34.1

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5 (2)] Rickard Road and Byron Road PM (Proposed PM)
Network: [2] Network PM (Projected 2026 w.Signalised Byron Road + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	165	5.1	165	5.1	0.112	7.4	LOS A	1.6	11.4	0.21	0.63	0.21	42.4
2	T1	All MCs	179	0.0	179	0.0	0.216	19.5	LOS B	5.5	38.4	0.67	0.56	0.67	16.2
3	R2	All MCs	73	0.0	73	0.0	0.146	18.5	LOS B	1.7	11.8	0.66	1.19	0.66	31.1
Approach			417	2.0	417	2.0	0.216	14.5	LOS B	5.5	38.4	0.49	0.70	0.49	32.5
East: Byron Rd (E)															
4	L2	All MCs	145	0.7	145	0.7	0.272	32.3	LOS C	5.7	40.2	0.80	0.75	0.80	26.6
5	T1	All MCs	120	0.0	120	0.0	0.272	36.3	LOS C	5.7	40.2	0.87	0.70	0.87	33.6
6	R2	All MCs	98	0.0	98	0.0	* 0.301	31.1	LOS C	3.4	24.0	0.88	1.06	0.88	19.3
Approach			363	0.3	363	0.3	0.301	33.3	LOS C	5.7	40.2	0.85	0.82	0.85	27.3
North: Rickard Rd (N)															
7	L2	All MCs	55	3.8	55	3.8	0.115	9.0	LOS A	2.7	19.2	0.61	0.62	0.61	35.5
8	T1	All MCs	286	1.8	286	1.8	* 0.300	22.4	LOS B	7.8	55.7	0.69	0.60	0.69	20.8
9	R2	All MCs	128	3.3	128	3.3	* 0.251	18.6	LOS B	3.1	22.3	0.66	1.19	0.66	31.4
Approach			469	2.5	469	2.5	0.300	19.8	LOS B	7.8	55.7	0.67	0.76	0.67	28.0
West: Byron Rd (W)															
10	L2	All MCs	154	6.8	154	6.8	0.264	31.3	LOS C	5.5	40.9	0.78	0.76	0.78	27.2
11	T1	All MCs	122	0.0	122	0.0	* 0.300	36.4	LOS C	5.1	35.6	0.89	0.71	0.89	33.5
12	R2	All MCs	59	17.9	59	17.9	0.199	30.8	LOS C	2.0	16.4	0.86	1.07	0.86	19.5
Approach			335	6.3	335	6.3	0.300	33.1	LOS C	5.5	40.9	0.83	0.79	0.83	28.6
All Vehicles			1584	2.7	1584	2.7	0.301	24.3	LOS B	7.8	55.7	0.70	0.77	0.70	28.7

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

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: [6 (2)] Rickard Road and Foreshadowed Roundabout PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	283	0.0	283	0.0	0.507	5.0	LOS A	4.5	31.9	0.46	0.50	0.46	49.4
2	T1	All MCs	274	3.1	274	3.1	0.507	5.1	LOS A	4.5	31.9	0.46	0.50	0.46	49.5
3	R2	All MCs	91	0.0	91	0.0	0.507	9.2	LOS A	4.5	31.9	0.46	0.50	0.46	50.0
Approach			647	1.3	647	1.3	0.507	5.6	LOS A	4.5	31.9	0.46	0.50	0.46	49.5
East: ILP Road 2 (E)															
4	L2	All MCs	28	0.0	28	0.0	0.048	11.0	LOS A	0.3	2.3	0.82	0.72	0.82	46.5
5	T1	All MCs	1	0.0	1	0.0	0.041	9.8	LOS A	0.3	2.2	0.83	0.71	0.83	37.9
6	R2	All MCs	28	0.0	28	0.0	0.041	14.0	LOS A	0.3	2.2	0.83	0.71	0.83	33.3
Approach			58	0.0	58	0.0	0.048	12.5	LOS A	0.3	2.3	0.83	0.71	0.83	41.9
North: Rickard Rd (N)															
7	L2	All MCs	91	0.0	91	0.0	0.655	11.3	LOS A	5.8	42.1	0.72	0.91	0.92	36.6
8	T1	All MCs	313	5.4	313	5.4	0.655	11.6	LOS A	5.8	42.1	0.72	0.91	0.92	43.7
9	R2	All MCs	87	0.0	87	0.0	0.655	15.5	LOS B	5.8	42.1	0.72	0.91	0.92	31.4
Approach			491	3.4	491	3.4	0.655	12.3	LOS A	5.8	42.1	0.72	0.91	0.92	41.1
West: Southern Site Access (W)															
10	L2	All MCs	115	0.0	115	0.0	0.619	9.0	LOS A	6.0	42.0	0.79	0.77	0.92	28.2
11	T1	All MCs	1	0.0	1	0.0	0.619	9.1	LOS A	6.0	42.0	0.79	0.77	0.92	39.1
12	R2	All MCs	458	0.0	458	0.0	0.619	13.2	LOS A	6.0	42.0	0.79	0.77	0.92	43.9
Approach			574	0.0	574	0.0	0.619	12.4	LOS A	6.0	42.0	0.79	0.77	0.92	42.4
All Vehicles			1769	1.4	1769	1.4	0.655	9.9	LOS A	6.0	42.1	0.65	0.71	0.74	44.6

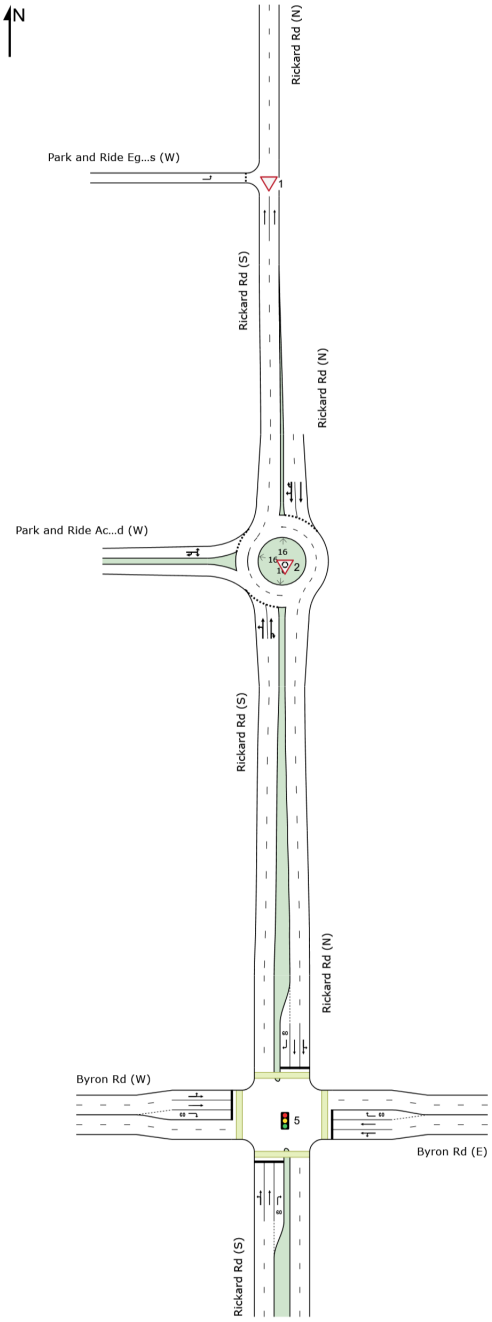
Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout 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.

NETWORK LAYOUT

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Byron Road)

Projected Upgraded 2031 w.Signalised Byron Road
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
5	NA	Rickard Road and Byron Road AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	631	4.2	631	4.2	0.166	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			631	4.2	631	4.2	0.166	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.048	4.5	LOS A	0.2	1.3	0.37	0.53	0.37	41.6
Approach			59	0.0	59	0.0	0.048	4.5	LOS A	0.2	1.3	0.37	0.53	0.37	41.6
All Vehicles			689	3.8	689	3.8	0.166	0.4	NA	0.2	1.3	0.03	0.04	0.03	57.5

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.254	5.2	LOS A	1.1	7.8	0.28	0.51	0.28	38.8
2	T1	All MCs	501	5.0	501	5.0	0.254	5.2	LOS A	1.1	7.8	0.28	0.50	0.28	39.2
3u	U	All MCs	11	0.0	11	0.0	0.254	11.2	LOS A	1.1	7.8	0.28	0.50	0.28	39.0
Approach			592	4.3	592	4.3	0.254	5.3	LOS A	1.1	7.8	0.28	0.50	0.28	39.1
North: Rickard Rd (N)															
8	T1	All MCs	356	4.7	356	4.7	0.210	3.7	LOS A	1.1	7.9	0.26	0.46	0.26	31.0
9	R2	All MCs	164	0.0	164	0.0	0.210	7.7	LOS A	1.1	7.7	0.26	0.58	0.26	32.9
9u	U	All MCs	15	7.1	15	7.1	0.210	9.6	LOS A	1.1	7.7	0.26	0.58	0.26	27.6
Approach			535	3.3	535	3.3	0.210	5.1	LOS A	1.1	7.9	0.26	0.50	0.26	32.0
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.239	4.1	LOS A	1.1	7.8	0.52	0.61	0.52	29.8
12	R2	All MCs	83	0.0	83	0.0	0.239	7.7	LOS A	1.1	7.8	0.52	0.61	0.52	29.8
12u	U	All MCs	9	0.0	9	0.0	0.239	9.1	LOS A	1.1	7.8	0.52	0.61	0.52	32.8
Approach			207	0.0	207	0.0	0.239	5.8	LOS A	1.1	7.8	0.52	0.61	0.52	30.0
All Vehicles			1334	3.2	1334	3.2	0.254	5.3	LOS A	1.1	7.9	0.31	0.52	0.31	34.8

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5] Rickard Road and Byron Road AM (Proposed AM)
Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Byron Road)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	38	27.8	38	27.8	0.312	8.1	LOS A	8.2	60.5	0.65	0.59	0.65	42.0
2	T1	All MCs	523	2.6	523	2.6	* 0.312	18.3	LOS B	8.5	60.6	0.66	0.57	0.66	38.5
3	R2	All MCs	35	0.0	35	0.0	0.065	15.5	LOS B	0.7	4.9	0.57	1.11	0.57	34.3
Approach			596	4.1	596	4.1	0.312	17.5	LOS B	8.5	60.6	0.65	0.61	0.65	38.3
East: Byron Rd (E)															
4	L2	All MCs	73	1.4	73	1.4	0.138	33.1	LOS C	2.6	18.7	0.78	0.73	0.78	35.5
5	T1	All MCs	11	0.0	11	0.0	* 0.033	37.8	LOS C	0.4	3.0	0.86	0.59	0.86	33.0
6	R2	All MCs	32	0.0	32	0.0	* 0.091	33.1	LOS C	1.1	7.9	0.84	1.01	0.84	20.2
Approach			115	0.9	115	0.9	0.138	33.6	LOS C	2.6	18.7	0.80	0.79	0.80	31.4
North: Rickard Rd (N)															
7	L2	All MCs	105	0.0	105	0.0	0.231	8.7	LOS A	5.9	41.9	0.61	0.63	0.61	36.6
8	T1	All MCs	320	2.3	320	2.3	0.231	20.2	LOS B	6.0	42.8	0.62	0.56	0.62	42.3
9	R2	All MCs	24	39.1	24	39.1	* 0.068	16.4	LOS B	0.5	4.6	0.59	1.12	0.59	32.3
Approach			449	3.7	449	3.7	0.231	17.3	LOS B	6.0	42.8	0.62	0.61	0.62	40.1
West: Byron Rd (W)															
10	L2	All MCs	37	31.4	37	31.4	0.085	33.1	LOS C	1.3	11.7	0.76	0.70	0.76	26.6
11	T1	All MCs	8	0.0	8	0.0	0.026	37.7	LOS C	0.3	2.4	0.86	0.59	0.86	33.1
12	R2	All MCs	24	30.4	24	30.4	0.086	33.6	LOS C	0.9	7.7	0.85	1.03	0.85	28.5
Approach			69	27.3	69	27.3	0.086	33.8	LOS C	1.3	11.7	0.80	0.80	0.80	28.4
All Vehicles			1229	5.0	1229	5.0	0.312	19.8	LOS B	8.5	60.6	0.66	0.63	0.66	37.1

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	445	2.8	445	2.8	0.116	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			445	2.8	445	2.8	0.116	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.037	4.1	LOS A	0.1	1.0	0.30	0.48	0.30	41.9
Approach			49	0.0	49	0.0	0.037	4.1	LOS A	0.1	1.0	0.30	0.48	0.30	41.9
All Vehicles			495	2.6	495	2.6	0.116	0.4	NA	0.1	1.0	0.03	0.05	0.03	57.2

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.155	4.9	LOS A	0.6	4.2	0.20	0.47	0.20	39.2
2	T1	All MCs	324	3.2	324	3.2	0.155	4.9	LOS A	0.6	4.2	0.20	0.47	0.20	40.1
3u	U	All MCs	8	0.0	8	0.0	0.155	10.9	LOS A	0.6	4.2	0.20	0.47	0.20	39.9
Approach			380	3.0	380	3.0	0.155	5.0	LOS A	0.6	4.2	0.20	0.47	0.20	39.9
North: Rickard Rd (N)															
8	T1	All MCs	308	4.8	308	4.8	0.169	3.7	LOS A	0.8	6.0	0.23	0.46	0.23	31.3
9	R2	All MCs	112	0.9	112	0.9	0.169	7.6	LOS A	0.8	5.8	0.23	0.56	0.23	33.4
9u	U	All MCs	13	0.0	13	0.0	0.169	9.5	LOS A	0.8	5.8	0.23	0.56	0.23	28.4
Approach			433	3.6	433	3.6	0.169	4.8	LOS A	0.8	6.0	0.23	0.49	0.23	32.2
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.201	3.4	LOS A	0.9	6.5	0.42	0.54	0.42	30.6
12	R2	All MCs	76	1.4	76	1.4	0.201	7.0	LOS A	0.9	6.5	0.42	0.54	0.42	30.6
12u	U	All MCs	7	0.0	7	0.0	0.201	8.3	LOS A	0.9	6.5	0.42	0.54	0.42	33.4
Approach			192	1.6	192	1.6	0.201	5.0	LOS A	0.9	6.5	0.42	0.54	0.42	30.8
All Vehicles			1004	3.0	1004	3.0	0.201	4.9	LOS A	0.9	6.5	0.26	0.49	0.26	34.9

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5 (2)] Rickard Road and Byron Road PM (Proposed PM)
Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Byron Road)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	38	22.2	38	22.2	0.144	8.8	LOS A	2.8	21.7	0.74	0.66	0.74	37.7
2	T1	All MCs	131	0.8	131	0.8	0.144	32.9	LOS C	3.0	21.7	0.75	0.62	0.75	32.1
3	R2	All MCs	22	4.8	22	4.8	* 0.060	24.6	LOS B	0.6	4.6	0.75	1.11	0.75	31.6
Approach			191	5.5	191	5.5	0.144	27.2	LOS B	3.0	21.7	0.75	0.68	0.75	33.5
East: Byron Rd (E)															
4	L2	All MCs	114	0.0	114	0.0	0.214	33.9	LOS C	4.2	29.6	0.80	0.75	0.80	35.3
5	T1	All MCs	12	0.0	12	0.0	* 0.036	37.8	LOS C	0.5	3.3	0.87	0.60	0.87	33.0
6	R2	All MCs	198	0.0	198	0.0	* 0.306	23.0	LOS B	5.9	41.4	0.75	1.10	0.75	22.1
Approach			323	0.0	323	0.0	0.306	27.4	LOS B	5.9	41.4	0.77	0.96	0.77	27.8
North: Rickard Rd (N)															
7	L2	All MCs	115	2.8	115	2.8	0.308	9.6	LOS A	6.9	49.9	0.78	0.73	0.78	31.2
8	T1	All MCs	259	3.3	259	3.3	* 0.308	37.8	LOS C	6.9	49.9	0.80	0.69	0.80	35.1
9	R2	All MCs	19	22.2	19	22.2	0.045	24.1	LOS B	0.5	4.5	0.70	1.03	0.70	29.8
Approach			393	4.0	393	4.0	0.308	28.9	LOS C	6.9	49.9	0.79	0.71	0.79	33.6
West: Byron Rd (W)															
10	L2	All MCs	52	20.4	52	20.4	0.111	33.2	LOS C	1.9	15.3	0.77	0.71	0.77	26.5
11	T1	All MCs	11	0.0	11	0.0	0.033	37.8	LOS C	0.4	3.0	0.86	0.59	0.86	33.0
12	R2	All MCs	36	29.4	36	29.4	0.070	21.9	LOS B	1.0	8.6	0.70	1.04	0.70	31.1
Approach			98	21.5	98	21.5	0.111	29.5	LOS C	1.9	15.3	0.76	0.82	0.76	29.5
All Vehicles			1004	4.7	1004	4.7	0.308	28.1	LOS B	6.9	49.9	0.77	0.80	0.77	31.0

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

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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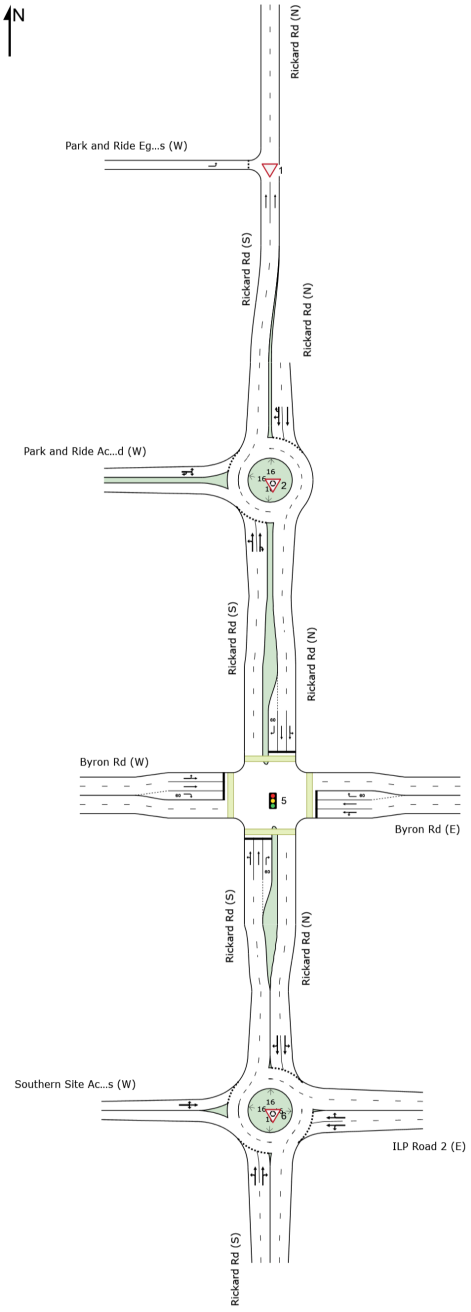
NETWORK LAYOUT

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Byron Road + Proposed Development)

Projected Upgraded 2031 w.Signalised Byron Road + Proposed Development
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
1	NA	Rickard Road and Northern Park and Ride Egress AM
2	NA	Rickard Road and Northern Park and Ride Access Road AM
5	NA	Rickard Road and Byron Road AM
6	NA	Rickard Road and Foreshadowed Roundabout AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	822	3.2	822	3.2	0.215	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			822	3.2	822	3.2	0.215	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.054	4.9	LOS A	0.2	1.4	0.43	0.57	0.43	41.3
Approach			59	0.0	59	0.0	0.054	4.9	LOS A	0.2	1.4	0.43	0.57	0.43	41.3
All Vehicles			881	3.0	881	3.0	0.215	0.3	NA	0.2	1.4	0.03	0.04	0.03	57.9

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.330	5.3	LOS A	1.5	11.1	0.29	0.51	0.29	38.7
2	T1	All MCs	693	3.6	693	3.6	0.330	5.3	LOS A	1.5	11.1	0.29	0.51	0.29	39.1
3u	U	All MCs	11	0.0	11	0.0	0.330	11.3	LOS A	1.5	11.0	0.29	0.51	0.29	39.0
Approach			783	3.2	783	3.2	0.330	5.4	LOS A	1.5	11.1	0.29	0.51	0.29	39.1
North: Rickard Rd (N)															
8	T1	All MCs	469	3.6	469	3.6	0.253	3.7	LOS A	1.4	10.0	0.28	0.46	0.28	30.8
9	R2	All MCs	164	0.0	164	0.0	0.253	7.7	LOS A	1.4	9.9	0.28	0.56	0.28	33.3
9u	U	All MCs	15	7.1	15	7.1	0.253	9.6	LOS A	1.4	9.9	0.28	0.56	0.28	28.2
Approach			648	2.8	648	2.8	0.253	4.9	LOS A	1.4	10.0	0.28	0.49	0.28	31.9
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.257	4.7	LOS A	1.2	8.7	0.59	0.65	0.59	29.0
12	R2	All MCs	83	0.0	83	0.0	0.257	8.3	LOS A	1.2	8.7	0.59	0.65	0.59	29.0
12u	U	All MCs	9	0.0	9	0.0	0.257	9.7	LOS A	1.2	8.7	0.59	0.65	0.59	32.3
Approach			207	0.0	207	0.0	0.257	6.4	LOS A	1.2	8.7	0.59	0.65	0.59	29.2
All Vehicles			1639	2.6	1639	2.6	0.330	5.3	LOS A	1.5	11.1	0.32	0.52	0.32	35.0

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5] Rickard Road and Byron Road AM (Proposed AM)
Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Byron Road + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	93	11.4	93	11.4	0.417	8.3	LOS A	11.5	83.6	0.72	0.67	0.72	33.5
2	T1	All MCs	613	2.2	613	2.2	* 0.417	22.7	LOS B	11.8	83.9	0.73	0.65	0.73	15.4
3	R2	All MCs	97	0.0	97	0.0	0.205	17.7	LOS B	2.2	15.4	0.65	1.20	0.65	31.4
Approach			802	3.0	802	3.0	0.417	20.5	LOS B	11.8	83.9	0.72	0.72	0.72	22.8
East: Byron Rd (E)															
4	L2	All MCs	112	0.9	112	0.9	0.220	34.3	LOS C	4.3	30.0	0.81	0.75	0.81	26.0
5	T1	All MCs	73	0.0	73	0.0	0.220	39.6	LOS C	4.3	30.0	0.90	0.70	0.90	32.5
6	R2	All MCs	32	0.0	32	0.0	0.096	31.2	LOS C	1.1	7.6	0.85	1.08	0.85	19.1
Approach			216	0.5	216	0.5	0.220	35.6	LOS C	4.3	30.0	0.85	0.78	0.85	27.7
North: Rickard Rd (N)															
7	L2	All MCs	105	0.0	105	0.0	0.281	8.6	LOS A	7.3	51.7	0.66	0.65	0.66	35.4
8	T1	All MCs	378	1.9	378	1.9	0.281	22.7	LOS B	7.4	52.4	0.67	0.60	0.67	21.4
9	R2	All MCs	80	11.8	80	11.8	* 0.233	18.9	LOS B	1.8	14.1	0.70	1.17	0.70	31.0
Approach			563	3.0	563	3.0	0.281	19.5	LOS B	7.4	52.4	0.67	0.69	0.67	27.9
West: Byron Rd (W)															
10	L2	All MCs	139	8.3	139	8.3	0.281	34.8	LOS C	5.3	40.1	0.82	0.76	0.82	25.8
11	T1	All MCs	92	0.0	92	0.0	* 0.281	40.1	LOS C	5.3	40.1	0.92	0.72	0.92	32.4
12	R2	All MCs	141	5.2	141	5.2	* 0.414	33.2	LOS C	5.2	38.2	0.91	1.05	0.91	18.8
Approach			372	5.1	372	5.1	0.414	35.5	LOS C	5.3	40.1	0.88	0.86	0.88	25.0
All Vehicles			1953	3.1	1953	3.1	0.417	24.7	LOS B	11.8	83.9	0.75	0.74	0.75	25.5

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

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: [6] Rickard Road and Foreshadowed Roundabout AM

(Proposed AM)

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	203	0.0	203	0.0	0.364	5.1	LOS A	2.0	14.5	0.36	0.50	0.36	49.7
2	T1	All MCs	651	3.7	651	3.7	0.364	5.2	LOS A	2.0	14.6	0.37	0.50	0.37	49.8
3	R2	All MCs	34	0.0	34	0.0	0.364	9.2	LOS A	2.0	14.6	0.37	0.49	0.37	50.1
Approach			887	2.7	887	2.7	0.364	5.3	LOS A	2.0	14.6	0.37	0.50	0.37	49.8
East: ILP Road 2 (E)															
4	L2	All MCs	111	0.0	111	0.0	0.125	6.8	LOS A	0.6	4.1	0.55	0.66	0.55	50.1
5	T1	All MCs	1	0.0	1	0.0	0.117	6.5	LOS A	0.6	3.9	0.55	0.72	0.55	41.2
6	R2	All MCs	111	0.0	111	0.0	0.117	10.6	LOS A	0.6	3.9	0.55	0.72	0.55	37.3
Approach			222	0.0	222	0.0	0.125	8.7	LOS A	0.6	4.1	0.55	0.69	0.55	45.7
North: Rickard Rd (N)															
7	L2	All MCs	34	0.0	34	0.0	0.273	5.3	LOS A	1.3	9.2	0.30	0.50	0.30	44.1
8	T1	All MCs	534	3.0	534	3.0	0.273	5.2	LOS A	1.3	9.2	0.30	0.52	0.30	49.6
9	R2	All MCs	63	0.0	63	0.0	0.273	9.3	LOS A	1.3	9.1	0.30	0.54	0.30	38.7
Approach			631	2.5	631	2.5	0.273	5.7	LOS A	1.3	9.2	0.30	0.52	0.30	48.8
West: Southern Site Access (W)															
10	L2	All MCs	41	0.0	41	0.0	0.293	7.6	LOS A	1.3	9.1	0.63	0.80	0.63	30.1
11	T1	All MCs	1	0.0	1	0.0	0.293	7.8	LOS A	1.3	9.1	0.63	0.80	0.63	40.5
12	R2	All MCs	165	0.0	165	0.0	0.293	12.0	LOS A	1.3	9.1	0.63	0.80	0.63	45.1
Approach			207	0.0	207	0.0	0.293	11.1	LOS A	1.3	9.1	0.63	0.80	0.63	43.7
All Vehicles			1947	2.1	1947	2.1	0.364	6.4	LOS A	2.0	14.6	0.39	0.56	0.39	48.3

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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.

MOVEMENT SUMMARY

Site: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	628	2.0	628	2.0	0.163	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			628	2.0	628	2.0	0.163	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.040	4.5	LOS A	0.2	1.1	0.37	0.52	0.37	41.6
Approach			49	0.0	49	0.0	0.040	4.5	LOS A	0.2	1.1	0.37	0.52	0.37	41.6
All Vehicles			678	1.9	678	1.9	0.163	0.3	NA	0.2	1.1	0.03	0.04	0.03	57.9

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.225	5.0	LOS A	0.9	6.6	0.21	0.47	0.21	39.2
2	T1	All MCs	507	2.1	507	2.1	0.225	4.9	LOS A	0.9	6.6	0.21	0.47	0.21	40.1
3u	U	All MCs	8	0.0	8	0.0	0.225	10.9	LOS A	0.9	6.6	0.21	0.47	0.21	40.0
Approach			563	2.1	563	2.1	0.225	5.0	LOS A	0.9	6.6	0.21	0.47	0.21	40.0
North: Rickard Rd (N)															
8	T1	All MCs	525	2.8	525	2.8	0.249	3.7	LOS A	1.3	9.6	0.25	0.46	0.25	31.3
9	R2	All MCs	112	0.9	112	0.9	0.249	7.6	LOS A	1.3	9.5	0.25	0.52	0.25	34.0
9u	U	All MCs	13	0.0	13	0.0	0.249	9.5	LOS A	1.3	9.5	0.25	0.52	0.25	29.5
Approach			649	2.4	649	2.4	0.249	4.5	LOS A	1.3	9.6	0.25	0.47	0.25	32.2
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.217	4.0	LOS A	1.0	7.2	0.50	0.59	0.50	29.9
12	R2	All MCs	76	1.4	76	1.4	0.217	7.6	LOS A	1.0	7.2	0.50	0.59	0.50	29.9
12u	U	All MCs	7	0.0	7	0.0	0.217	8.9	LOS A	1.0	7.2	0.50	0.59	0.50	33.0
Approach			192	1.6	192	1.6	0.217	5.6	LOS A	1.0	7.2	0.50	0.59	0.50	30.1
All Vehicles			1404	2.2	1404	2.2	0.249	4.8	LOS A	1.3	9.6	0.27	0.49	0.27	35.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5 (2)] Rickard Road and Byron Road PM (Proposed PM)
Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Byron Road + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	165	5.1	165	5.1	0.271	11.6	LOS A	6.5	47.2	0.70	0.73	0.70	31.7
2	T1	All MCs	212	0.5	212	0.5	0.271	36.9	LOS C	6.5	47.2	0.76	0.66	0.76	12.8
3	R2	All MCs	84	1.2	84	1.3	0.235	24.5	LOS B	2.4	17.1	0.79	1.12	0.79	28.4
Approach			461	2.3	461	2.3	0.271	25.5	LOS B	6.5	47.2	0.75	0.77	0.75	25.6
East: Byron Rd (E)															
4	L2	All MCs	184	0.0	184	0.0	0.362	35.7	LOS C	7.4	51.7	0.85	0.78	0.85	25.4
5	T1	All MCs	120	0.0	120	0.0	* 0.362	40.8	LOS C	7.4	51.7	0.93	0.74	0.93	32.2
6	R2	All MCs	198	0.0	198	0.0	* 0.377	25.3	LOS B	6.2	43.4	0.84	1.08	0.84	19.4
Approach			502	0.0	502	0.0	0.377	32.8	LOS C	7.4	51.7	0.86	0.89	0.86	25.0
North: Rickard Rd (N)															
7	L2	All MCs	115	2.8	115	2.8	0.375	9.0	LOS A	8.9	63.8	0.80	0.73	0.80	31.4
8	T1	All MCs	366	2.3	366	2.3	* 0.375	34.4	LOS C	8.9	63.8	0.81	0.70	0.81	16.6
9	R2	All MCs	128	3.3	128	3.3	* 0.324	24.6	LOS B	3.8	27.2	0.79	1.12	0.79	29.1
Approach			609	2.6	609	2.6	0.375	27.6	LOS B	8.9	63.8	0.80	0.79	0.80	24.5
West: Byron Rd (W)															
10	L2	All MCs	154	6.8	154	6.8	0.348	36.4	LOS C	6.5	48.2	0.86	0.77	0.86	25.1
11	T1	All MCs	122	0.0	122	0.0	0.348	40.9	LOS C	6.5	48.2	0.92	0.74	0.92	32.3
12	R2	All MCs	59	17.9	59	17.9	0.127	23.9	LOS B	1.7	13.8	0.77	1.11	0.77	20.2
Approach			335	6.3	335	6.3	0.348	35.8	LOS C	6.5	48.2	0.87	0.82	0.87	27.5
All Vehicles			1907	2.5	1907	2.5	0.377	29.9	LOS C	8.9	63.8	0.82	0.82	0.82	25.5

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

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: [6 (2)] Rickard Road and Foreshadowed Roundabout PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	283	0.0	283	0.0	0.269	4.9	LOS A	1.5	10.3	0.28	0.49	0.28	50.2
2	T1	All MCs	318	3.3	318	3.3	0.269	4.8	LOS A	1.5	10.4	0.28	0.50	0.28	49.7
3	R2	All MCs	91	0.0	91	0.0	0.269	8.9	LOS A	1.5	10.4	0.28	0.50	0.28	50.0
Approach			692	1.5	692	1.5	0.269	5.4	LOS A	1.5	10.4	0.28	0.50	0.28	50.0
East: ILP Road 2 (E)															
4	L2	All MCs	28	0.0	28	0.0	0.040	7.9	LOS A	0.2	1.4	0.65	0.70	0.65	49.1
5	T1	All MCs	1	0.0	1	0.0	0.037	7.5	LOS A	0.2	1.3	0.64	0.73	0.64	40.3
6	R2	All MCs	28	0.0	28	0.0	0.037	11.6	LOS A	0.2	1.3	0.64	0.73	0.64	36.2
Approach			58	0.0	58	0.0	0.040	9.7	LOS A	0.2	1.4	0.65	0.72	0.65	44.6
North: Rickard Rd (N)															
7	L2	All MCs	91	0.0	91	0.0	0.363	7.3	LOS A	1.9	13.9	0.52	0.68	0.52	42.1
8	T1	All MCs	432	4.4	432	4.4	0.363	7.4	LOS A	1.9	13.9	0.52	0.70	0.52	47.8
9	R2	All MCs	87	0.0	87	0.0	0.363	11.5	LOS A	1.9	13.6	0.53	0.72	0.53	36.0
Approach			609	3.1	609	3.1	0.363	8.0	LOS A	1.9	13.9	0.52	0.70	0.52	46.0
West: Southern Site Access (W)															
10	L2	All MCs	115	0.0	115	0.0	0.657	9.0	LOS A	5.4	37.8	0.72	0.82	0.89	28.4
11	T1	All MCs	1	0.0	1	0.0	0.657	9.2	LOS A	5.4	37.8	0.72	0.82	0.89	39.2
12	R2	All MCs	458	0.0	458	0.0	0.657	13.3	LOS A	5.4	37.8	0.72	0.82	0.89	44.0
Approach			574	0.0	574	0.0	0.657	12.4	LOS A	5.4	37.8	0.72	0.82	0.89	42.5
All Vehicles			1933	1.5	1933	1.5	0.657	8.4	LOS A	5.4	37.8	0.50	0.67	0.55	46.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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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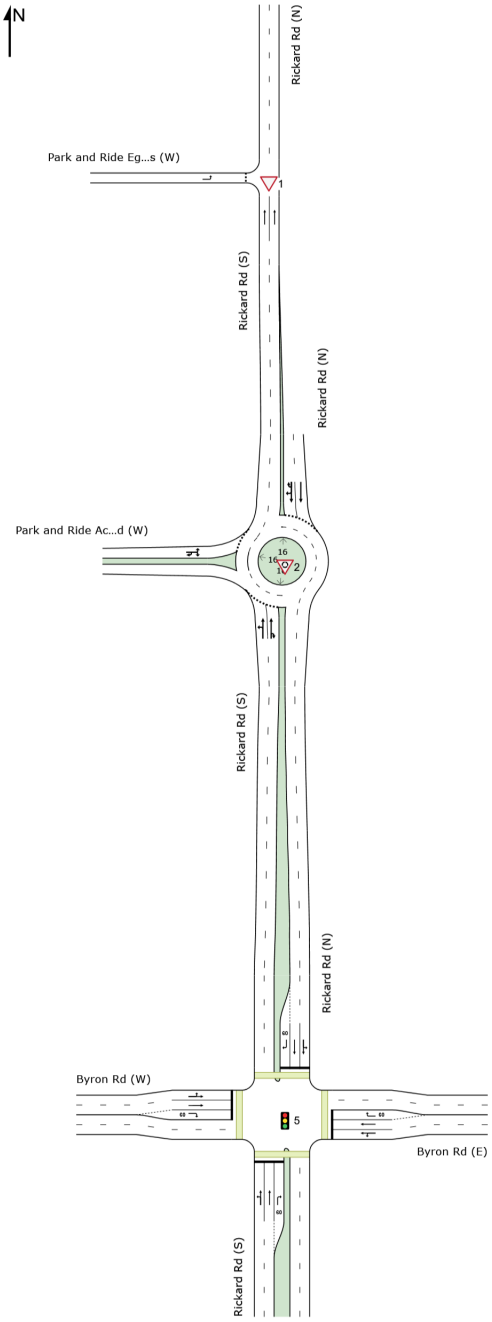
NETWORK LAYOUT

Network: [1] Network AM (Projected Upgraded 2036 w.Signalised Byron Road)

Projected Upgraded 2036 w.Signalised Byron Road
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
5	NA	Rickard Road and Byron Road AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected Upgraded 2036 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	724	5.5	724	5.5	0.192	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			724	5.5	724	5.5	0.192	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.051	4.7	LOS A	0.2	1.4	0.40	0.55	0.40	41.4
Approach			59	0.0	59	0.0	0.051	4.7	LOS A	0.2	1.4	0.40	0.55	0.40	41.4
All Vehicles			783	5.1	783	5.1	0.192	0.4	NA	0.2	1.4	0.03	0.04	0.03	57.7

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected Upgraded 2036 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.295	5.2	LOS A	1.3	9.6	0.29	0.51	0.29	38.7
2	T1	All MCs	595	6.5	595	6.5	0.295	5.3	LOS A	1.3	9.6	0.29	0.51	0.29	39.1
3u	U	All MCs	11	0.0	11	0.0	0.295	11.2	LOS A	1.3	9.6	0.29	0.51	0.29	38.9
Approach			685	5.7	685	5.7	0.295	5.4	LOS A	1.3	9.6	0.29	0.51	0.29	39.0
North: Rickard Rd (N)															
8	T1	All MCs	466	3.8	466	3.8	0.252	3.7	LOS A	1.4	9.9	0.27	0.46	0.27	30.8
9	R2	All MCs	164	0.0	164	0.0	0.252	7.7	LOS A	1.4	9.7	0.27	0.56	0.27	33.3
9u	U	All MCs	15	7.1	15	7.1	0.252	9.6	LOS A	1.4	9.7	0.27	0.56	0.27	28.2
Approach			645	2.9	645	2.9	0.252	4.9	LOS A	1.4	9.9	0.27	0.49	0.27	31.9
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.250	4.4	LOS A	1.2	8.2	0.56	0.64	0.56	29.3
12	R2	All MCs	83	0.0	83	0.0	0.250	8.0	LOS A	1.2	8.2	0.56	0.64	0.56	29.3
12u	U	All MCs	9	0.0	9	0.0	0.250	9.4	LOS A	1.2	8.2	0.56	0.64	0.56	32.6
Approach			207	0.0	207	0.0	0.250	6.1	LOS A	1.2	8.2	0.56	0.64	0.56	29.6
All Vehicles			1538	3.8	1538	3.8	0.295	5.3	LOS A	1.4	9.9	0.32	0.52	0.32	34.9

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5] Rickard Road and Byron Road AM (Proposed AM)
Network: [1] Network AM (Projected Upgraded 2036 w.Signalised Byron Road)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	38	27.8	38	27.8	0.357	8.2	LOS A	9.6	71.4	0.67	0.60	0.67	41.8
2	T1	All MCs	597	4.8	597	4.8	* 0.357	18.6	LOS B	9.8	71.5	0.67	0.59	0.67	38.1
3	R2	All MCs	53	0.0	53	0.0	* 0.101	15.6	LOS B	1.1	7.5	0.57	1.14	0.57	34.1
Approach			687	5.7	687	5.7	0.357	17.8	LOS B	9.8	71.5	0.67	0.64	0.67	37.8
East: Byron Rd (E)															
4	L2	All MCs	111	1.0	111	1.0	0.210	33.8	LOS C	4.1	29.0	0.80	0.75	0.80	35.3
5	T1	All MCs	11	0.0	11	0.0	* 0.033	37.8	LOS C	0.4	3.0	0.86	0.59	0.86	33.0
6	R2	All MCs	53	0.0	53	0.0	* 0.152	33.5	LOS C	1.9	13.4	0.85	1.04	0.85	20.0
Approach			174	0.6	174	0.6	0.210	34.0	LOS C	4.1	29.0	0.82	0.83	0.82	30.8
North: Rickard Rd (N)															
7	L2	All MCs	233	0.0	233	0.0	0.226	10.6	LOS A	5.5	38.9	0.47	0.68	0.47	39.0
8	T1	All MCs	231	4.1	231	4.1	0.226	19.6	LOS B	5.8	41.9	0.61	0.54	0.61	43.0
9	R2	All MCs	24	39.1	24	39.1	0.074	16.8	LOS B	0.5	4.6	0.61	1.14	0.61	32.1
Approach			487	3.9	487	3.9	0.226	15.1	LOS B	5.8	41.9	0.54	0.64	0.54	40.3
West: Byron Rd (W)															
10	L2	All MCs	37	31.4	37	31.4	0.085	33.1	LOS C	1.3	11.7	0.76	0.70	0.76	26.6
11	T1	All MCs	8	0.0	8	0.0	0.026	37.7	LOS C	0.3	2.4	0.86	0.59	0.86	33.1
12	R2	All MCs	24	30.4	24	30.4	0.094	33.9	LOS C	0.9	7.7	0.86	1.07	0.86	27.8
Approach			69	27.3	69	27.3	0.094	33.9	LOS C	1.3	11.7	0.81	0.81	0.81	28.1
All Vehicles			1418	5.5	1418	5.5	0.357	19.7	LOS B	9.8	71.5	0.65	0.67	0.65	36.6

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2036 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	480	4.4	480	4.4	0.127	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			480	4.4	480	4.4	0.127	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.038	4.2	LOS A	0.1	1.0	0.32	0.49	0.32	41.8
Approach			49	0.0	49	0.0	0.038	4.2	LOS A	0.1	1.0	0.32	0.49	0.32	41.8
All Vehicles			529	4.0	529	4.0	0.127	0.4	NA	0.1	1.0	0.03	0.05	0.03	57.4

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2036 w.Signalised Byron Road)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.175	5.0	LOS A	0.7	4.9	0.21	0.47	0.21	39.2
2	T1	All MCs	372	5.1	372	5.1	0.175	4.9	LOS A	0.7	5.0	0.21	0.47	0.21	40.1
3u	U	All MCs	8	0.0	8	0.0	0.175	10.9	LOS A	0.7	5.0	0.21	0.47	0.21	39.9
Approach			427	4.7	427	4.7	0.175	5.0	LOS A	0.7	5.0	0.21	0.47	0.21	39.9
North: Rickard Rd (N)															
8	T1	All MCs	363	5.2	363	5.2	0.190	3.7	LOS A	0.9	6.9	0.24	0.46	0.24	31.3
9	R2	All MCs	112	0.9	112	0.9	0.190	7.6	LOS A	0.9	6.8	0.24	0.55	0.24	33.6
9u	U	All MCs	13	0.0	13	0.0	0.190	9.5	LOS A	0.9	6.8	0.24	0.55	0.24	28.8
Approach			487	4.1	487	4.1	0.190	4.7	LOS A	0.9	6.9	0.24	0.48	0.24	32.2
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.206	3.6	LOS A	0.9	6.7	0.45	0.56	0.45	30.4
12	R2	All MCs	76	1.4	76	1.4	0.206	7.1	LOS A	0.9	6.7	0.45	0.56	0.45	30.4
12u	U	All MCs	7	0.0	7	0.0	0.206	8.5	LOS A	0.9	6.7	0.45	0.56	0.45	33.3
Approach			192	1.6	192	1.6	0.206	5.2	LOS A	0.9	6.7	0.45	0.56	0.45	30.6
All Vehicles			1106	3.9	1106	3.9	0.206	4.9	LOS A	0.9	6.9	0.26	0.49	0.26	35.0

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5 (2)] Rickard Road and Byron Road PM (Proposed PM)
Network: [2] Network PM (Projected Upgraded 2036 w.Signalised Byron Road)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	38	22.2	38	22.2	0.170	9.0	LOS A	3.2	25.3	0.77	0.67	0.77	37.1
2	T1	All MCs	146	6.5	146	6.5	0.170	34.1	LOS C	3.4	25.3	0.78	0.64	0.78	31.3
3	R2	All MCs	38	2.8	38	2.8	* 0.107	25.5	LOS B	1.1	7.9	0.78	1.12	0.78	31.0
Approach			222	8.5	222	8.5	0.170	28.3	LOS B	3.4	25.3	0.78	0.73	0.78	32.5
East: Byron Rd (E)															
4	L2	All MCs	197	0.5	197	0.5	0.348	33.7	LOS C	7.5	52.7	0.82	0.78	0.82	35.3
5	T1	All MCs	12	0.0	12	0.0	* 0.034	36.8	LOS C	0.5	3.3	0.86	0.59	0.86	33.3
6	R2	All MCs	229	0.0	229	0.0	* 0.353	23.1	LOS B	6.9	48.6	0.76	1.11	0.76	22.1
Approach			438	0.2	438	0.2	0.353	28.2	LOS B	7.5	52.7	0.79	0.95	0.79	29.0
North: Rickard Rd (N)															
7	L2	All MCs	184	2.9	184	2.9	0.349	12.2	LOS A	8.3	59.7	0.77	0.76	0.77	31.3
8	T1	All MCs	244	4.3	244	4.3	* 0.349	42.7	LOS D	8.3	59.7	0.82	0.70	0.82	34.6
9	R2	All MCs	19	22.2	19	22.2	0.046	24.5	LOS B	0.5	4.5	0.71	1.04	0.71	29.7
Approach			447	4.5	447	4.5	0.349	29.4	LOS C	8.3	59.7	0.80	0.74	0.80	33.0
West: Byron Rd (W)															
10	L2	All MCs	52	20.4	52	20.4	0.104	31.5	LOS C	1.8	14.8	0.75	0.71	0.75	27.1
11	T1	All MCs	11	0.0	11	0.0	0.031	36.8	LOS C	0.4	3.0	0.85	0.59	0.85	33.3
12	R2	All MCs	36	29.4	36	29.4	0.076	22.1	LOS B	1.0	8.5	0.73	1.13	0.73	29.8
Approach			98	21.5	98	21.5	0.104	28.7	LOS C	1.8	14.8	0.75	0.85	0.75	29.2
All Vehicles			1205	5.1	1205	5.1	0.353	28.7	LOS C	8.3	59.7	0.79	0.82	0.79	30.9

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

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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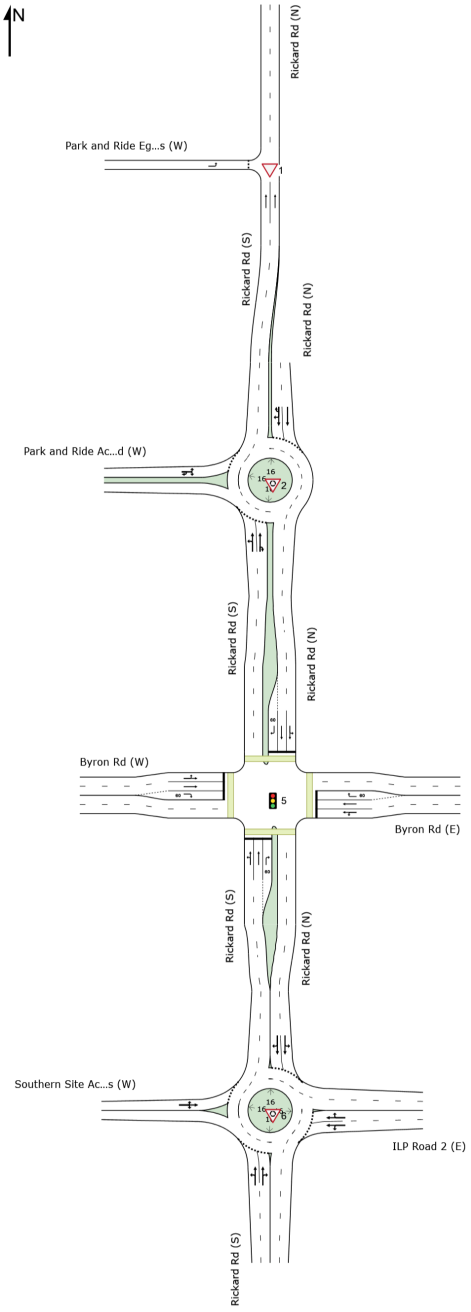
NETWORK LAYOUT

Network: [1] Network AM (Projected Upgraded 2036 w.Signalised Byron Road + Proposed Development)

Projected Upgraded 2036 w.Signalised Byron Road + Proposed Development
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
1	NA	Rickard Road and Northern Park and Ride Egress AM
2	NA	Rickard Road and Northern Park and Ride Access Road AM
5	NA	Rickard Road and Byron Road AM
6	NA	Rickard Road and Foreshadowed Roundabout AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected Upgraded 2036 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	895	4.5	895	4.5	0.236	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			895	4.5	895	4.5	0.236	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.056	5.1	LOS A	0.2	1.5	0.45	0.59	0.45	41.2
Approach			59	0.0	59	0.0	0.056	5.1	LOS A	0.2	1.5	0.45	0.59	0.45	41.2
All Vehicles			954	4.2	954	4.2	0.236	0.3	NA	0.2	1.5	0.03	0.04	0.03	58.1

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected Upgraded 2036 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.371	5.3	LOS A	1.8	13.2	0.30	0.51	0.30	38.7
2	T1	All MCs	786	5.0	786	5.0	0.371	5.3	LOS A	1.8	13.2	0.30	0.51	0.30	39.0
3u	U	All MCs	11	0.0	11	0.0	0.371	11.3	LOS A	1.8	13.2	0.30	0.51	0.30	38.9
Approach			877	4.4	877	4.4	0.371	5.4	LOS A	1.8	13.2	0.30	0.51	0.30	39.0
North: Rickard Rd (N)															
8	T1	All MCs	580	3.1	580	3.1	0.294	3.7	LOS A	1.7	12.3	0.29	0.46	0.29	30.7
9	R2	All MCs	164	0.0	164	0.0	0.294	7.7	LOS A	1.7	12.1	0.29	0.54	0.29	33.5
9u	U	All MCs	15	7.1	15	7.1	0.294	9.7	LOS A	1.7	12.1	0.29	0.54	0.29	28.6
Approach			759	2.5	759	2.5	0.294	4.7	LOS A	1.7	12.3	0.29	0.48	0.29	31.9
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.267	5.0	LOS A	1.3	9.2	0.62	0.67	0.62	28.6
12	R2	All MCs	83	0.0	83	0.0	0.267	8.6	LOS A	1.3	9.2	0.62	0.67	0.62	28.6
12u	U	All MCs	9	0.0	9	0.0	0.267	10.0	LOS A	1.3	9.2	0.62	0.67	0.62	32.1
Approach			207	0.0	207	0.0	0.267	6.7	LOS A	1.3	9.2	0.62	0.67	0.62	28.8
All Vehicles			1843	3.1	1843	3.1	0.371	5.3	LOS A	1.8	13.2	0.33	0.52	0.33	35.0

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5] Rickard Road and Byron Road AM (Proposed AM)
Network: [1] Network AM (Projected Upgraded 2036
w.Signalised Byron Road + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	93	11.4	93	11.4	0.462	8.3	LOS A	13.0	95.5	0.74	0.68	0.74	33.4
2	T1	All MCs	686	4.1	686	4.1	* 0.462	22.8	LOS B	13.2	96.0	0.74	0.66	0.74	15.3
3	R2	All MCs	115	0.0	115	0.0	0.249	17.7	LOS B	2.6	18.3	0.66	1.19	0.66	31.3
Approach			894	4.4	894	4.4	0.462	20.7	LOS B	13.2	96.0	0.73	0.73	0.73	22.5
East: Byron Rd (E)															
4	L2	All MCs	172	0.6	172	0.6	0.325	35.0	LOS C	6.6	46.6	0.83	0.77	0.83	25.7
5	T1	All MCs	73	0.0	73	0.0	0.225	39.6	LOS C	3.1	21.9	0.91	0.70	0.91	32.5
6	R2	All MCs	53	0.0	53	0.0	0.163	31.9	LOS C	1.8	12.9	0.87	1.07	0.87	18.9
Approach			297	0.4	297	0.4	0.325	35.6	LOS C	6.6	46.6	0.86	0.81	0.86	26.5
North: Rickard Rd (N)															
7	L2	All MCs	233	0.0	233	0.0	0.281	11.0	LOS A	7.4	52.0	0.58	0.70	0.58	36.6
8	T1	All MCs	288	3.3	288	3.3	0.281	24.2	LOS B	7.4	52.8	0.66	0.59	0.66	22.0
9	R2	All MCs	80	11.8	80	11.8	* 0.251	19.2	LOS B	1.8	14.1	0.72	1.16	0.72	30.7
Approach			601	3.2	601	3.2	0.281	18.4	LOS B	7.4	52.8	0.64	0.71	0.64	31.3
West: Byron Rd (W)															
10	L2	All MCs	139	8.3	139	8.3	0.281	34.8	LOS C	5.3	40.1	0.82	0.76	0.82	25.8
11	T1	All MCs	92	0.0	92	0.0	* 0.281	40.1	LOS C	5.3	40.1	0.92	0.72	0.92	32.4
12	R2	All MCs	141	5.2	141	5.2	* 0.469	34.0	LOS C	5.3	38.6	0.94	1.03	0.94	17.9
Approach			372	5.1	372	5.1	0.469	35.8	LOS C	5.3	40.1	0.89	0.85	0.89	24.4
All Vehicles			2163	3.6	2163	3.6	0.469	24.7	LOS B	13.2	96.0	0.75	0.76	0.75	26.0

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

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: [6] Rickard Road and Foreshadowed Roundabout AM

(Proposed AM)

Network: [1] Network AM (Projected Upgraded 2036 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	203	0.0	203	0.0	0.407	5.2	LOS A	2.4	17.1	0.38	0.50	0.38	49.6
2	T1	All MCs	742	5.2	742	5.2	0.407	5.2	LOS A	2.4	17.1	0.39	0.50	0.39	49.7
3	R2	All MCs	34	0.0	34	0.0	0.407	9.3	LOS A	2.3	17.1	0.39	0.50	0.39	50.1
Approach			979	4.0	979	4.0	0.407	5.4	LOS A	2.4	17.1	0.38	0.50	0.38	49.7
East: ILP Road 2 (E)															
4	L2	All MCs	111	0.0	111	0.0	0.122	6.7	LOS A	0.6	3.9	0.53	0.65	0.53	50.3
5	T1	All MCs	1	0.0	1	0.0	0.116	6.4	LOS A	0.5	3.8	0.53	0.71	0.53	41.2
6	R2	All MCs	111	0.0	111	0.0	0.116	10.5	LOS A	0.5	3.8	0.53	0.71	0.53	37.4
Approach			222	0.0	222	0.0	0.122	8.6	LOS A	0.6	3.9	0.53	0.68	0.53	45.9
North: Rickard Rd (N)															
7	L2	All MCs	34	0.0	34	0.0	0.253	5.3	LOS A	1.2	8.4	0.29	0.50	0.29	44.2
8	T1	All MCs	482	3.7	482	3.7	0.253	5.2	LOS A	1.2	8.4	0.29	0.52	0.29	49.6
9	R2	All MCs	63	0.0	63	0.0	0.253	9.3	LOS A	1.2	8.3	0.29	0.55	0.29	38.7
Approach			579	3.1	579	3.1	0.253	5.7	LOS A	1.2	8.4	0.29	0.52	0.29	48.7
West: Southern Site Access (W)															
10	L2	All MCs	41	0.0	41	0.0	0.310	8.0	LOS A	1.4	9.7	0.66	0.82	0.66	29.6
11	T1	All MCs	1	0.0	1	0.0	0.310	8.2	LOS A	1.4	9.7	0.66	0.82	0.66	40.2
12	R2	All MCs	165	0.0	165	0.0	0.310	12.3	LOS A	1.4	9.7	0.66	0.82	0.66	44.8
Approach			207	0.0	207	0.0	0.310	11.4	LOS A	1.4	9.7	0.66	0.82	0.66	43.4
All Vehicles			1987	2.9	1987	2.9	0.407	6.4	LOS A	2.4	17.1	0.40	0.56	0.40	48.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2036 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	663	3.2	663	3.2	0.174	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			663	3.2	663	3.2	0.174	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.041	4.5	LOS A	0.2	1.1	0.38	0.53	0.38	41.6
Approach			49	0.0	49	0.0	0.041	4.5	LOS A	0.2	1.1	0.38	0.53	0.38	41.6
All Vehicles			713	3.0	713	3.0	0.174	0.3	NA	0.2	1.1	0.03	0.04	0.03	57.9

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2036 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.245	5.0	LOS A	1.0	7.5	0.21	0.47	0.21	39.2
2	T1	All MCs	555	3.4	555	3.4	0.245	4.9	LOS A	1.0	7.5	0.21	0.47	0.21	40.1
3u	U	All MCs	8	0.0	8	0.0	0.245	10.9	LOS A	1.0	7.4	0.21	0.47	0.21	40.0
Approach			611	3.3	611	3.3	0.245	5.0	LOS A	1.0	7.5	0.21	0.47	0.21	40.0
North: Rickard Rd (N)															
8	T1	All MCs	580	3.3	580	3.3	0.270	3.7	LOS A	1.5	10.8	0.26	0.46	0.26	31.3
9	R2	All MCs	112	0.9	112	0.9	0.270	7.6	LOS A	1.5	10.6	0.26	0.51	0.26	34.1
9u	U	All MCs	13	0.0	13	0.0	0.270	9.6	LOS A	1.5	10.6	0.26	0.51	0.26	29.6
Approach			704	2.8	704	2.8	0.270	4.4	LOS A	1.5	10.8	0.26	0.47	0.26	32.2
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.222	4.2	LOS A	1.0	7.4	0.52	0.60	0.52	29.7
12	R2	All MCs	76	1.4	76	1.4	0.222	7.7	LOS A	1.0	7.4	0.52	0.60	0.52	29.7
12u	U	All MCs	7	0.0	7	0.0	0.222	9.1	LOS A	1.0	7.4	0.52	0.60	0.52	32.8
Approach			192	1.6	192	1.6	0.222	5.8	LOS A	1.0	7.4	0.52	0.60	0.52	29.9
All Vehicles			1506	2.9	1506	2.9	0.270	4.8	LOS A	1.5	10.8	0.27	0.49	0.27	35.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [5 (2)] Rickard Road and Byron Road PM (Proposed PM)
Network: [2] Network PM (Projected Upgraded 2036
w.Signalised Byron Road + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	165	5.1	165	5.1	0.313	12.4	LOS A	7.3	53.4	0.75	0.74	0.75	30.4
2	T1	All MCs	227	4.2	227	4.2	0.313	40.1	LOS C	7.3	53.4	0.80	0.69	0.80	12.0
3	R2	All MCs	100	1.1	100	1.1	0.286	25.5	LOS B	2.9	20.7	0.82	1.10	0.82	27.9
Approach			493	3.8	493	3.8	0.313	27.9	LOS B	7.3	53.4	0.79	0.79	0.79	24.3
East: Byron Rd (E)															
4	L2	All MCs	267	0.4	267	0.4	0.443	33.3	LOS C	10.3	72.5	0.84	0.80	0.84	26.4
5	T1	All MCs	120	0.0	120	0.0	* 0.331	38.7	LOS C	5.2	36.2	0.91	0.73	0.91	32.8
6	R2	All MCs	229	0.0	229	0.0	* 0.439	25.3	LOS B	7.3	50.9	0.85	1.08	0.85	19.7
Approach			617	0.2	617	0.2	0.443	31.4	LOS C	10.3	72.5	0.86	0.89	0.86	25.2
North: Rickard Rd (N)															
7	L2	All MCs	184	2.9	184	2.9	0.442	11.3	LOS A	10.6	75.9	0.82	0.77	0.82	30.6
8	T1	All MCs	352	3.0	352	3.0	* 0.442	40.9	LOS C	10.6	75.9	0.85	0.73	0.85	15.6
9	R2	All MCs	128	3.3	128	3.3	* 0.324	25.1	LOS B	3.8	27.5	0.80	1.11	0.80	28.7
Approach			664	3.0	664	3.0	0.442	29.7	LOS C	10.6	75.9	0.83	0.82	0.83	24.7
West: Byron Rd (W)															
10	L2	All MCs	154	6.8	154	6.8	0.310	33.4	LOS C	6.2	45.9	0.82	0.76	0.82	26.2
11	T1	All MCs	122	0.0	122	0.0	0.310	38.8	LOS C	6.2	45.9	0.90	0.72	0.90	32.9
12	R2	All MCs	59	17.9	59	17.9	0.139	24.3	LOS B	1.7	13.7	0.80	1.10	0.80	19.5
Approach			335	6.3	335	6.3	0.310	33.7	LOS C	6.2	45.9	0.85	0.81	0.85	28.0
All Vehicles			2108	2.9	2108	2.9	0.443	30.4	LOS C	10.6	75.9	0.83	0.83	0.83	25.5

Site Level of Service (LOS) Method: Delay (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 [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		ped	m			sec	m	m/sec
South: Rickard Rd (S)										
P1 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
East: Byron Rd (E)										
P2 Full	32	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Rickard Rd (N)										
P3 Full	26	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: Byron Rd (W)										
P4 Full	42	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians	126	44.2	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

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: [6 (2)] Rickard Road and Foreshadowed Roundabout

PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2036 w.Signalised Byron Road + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	283	0.0	283	0.0	0.283	4.9	LOS A	1.6	11.1	0.28	0.49	0.28	50.2
2	T1	All MCs	349	5.4	349	5.4	0.283	4.9	LOS A	1.6	11.2	0.29	0.50	0.29	49.8
3	R2	All MCs	91	0.0	91	0.0	0.283	8.9	LOS A	1.6	11.2	0.29	0.50	0.29	50.0
Approach			723	2.6	723	2.6	0.283	5.4	LOS A	1.6	11.2	0.29	0.50	0.29	50.0
East: ILP Road 2 (E)															
4	L2	All MCs	28	0.0	28	0.0	0.041	8.2	LOS A	0.2	1.4	0.66	0.71	0.66	48.9
5	T1	All MCs	1	0.0	1	0.0	0.038	7.7	LOS A	0.2	1.4	0.66	0.74	0.66	40.1
6	R2	All MCs	28	0.0	28	0.0	0.038	11.9	LOS A	0.2	1.4	0.66	0.74	0.66	35.9
Approach			58	0.0	58	0.0	0.041	10.0	LOS A	0.2	1.4	0.66	0.73	0.66	44.4
North: Rickard Rd (N)															
7	L2	All MCs	91	0.0	91	0.0	0.406	7.4	LOS A	2.2	16.1	0.54	0.69	0.54	42.0
8	T1	All MCs	500	4.4	500	4.4	0.406	7.5	LOS A	2.2	16.1	0.54	0.71	0.54	47.7
9	R2	All MCs	87	0.0	87	0.0	0.406	11.6	LOS A	2.2	15.7	0.55	0.73	0.55	36.0
Approach			678	3.3	678	3.3	0.406	8.0	LOS A	2.2	16.1	0.54	0.71	0.54	46.2
West: Southern Site Access (W)															
10	L2	All MCs	115	0.0	115	0.0	0.674	9.5	LOS A	5.7	39.6	0.75	0.85	0.95	27.8
11	T1	All MCs	1	0.0	1	0.0	0.674	9.7	LOS A	5.7	39.6	0.75	0.85	0.95	38.7
12	R2	All MCs	458	0.0	458	0.0	0.674	13.8	LOS A	5.7	39.6	0.75	0.85	0.95	43.6
Approach			574	0.0	574	0.0	0.674	13.0	LOS A	5.7	39.6	0.75	0.85	0.95	42.0
All Vehicles			2033	2.0	2033	2.0	0.674	8.5	LOS A	5.7	39.6	0.51	0.68	0.57	46.1

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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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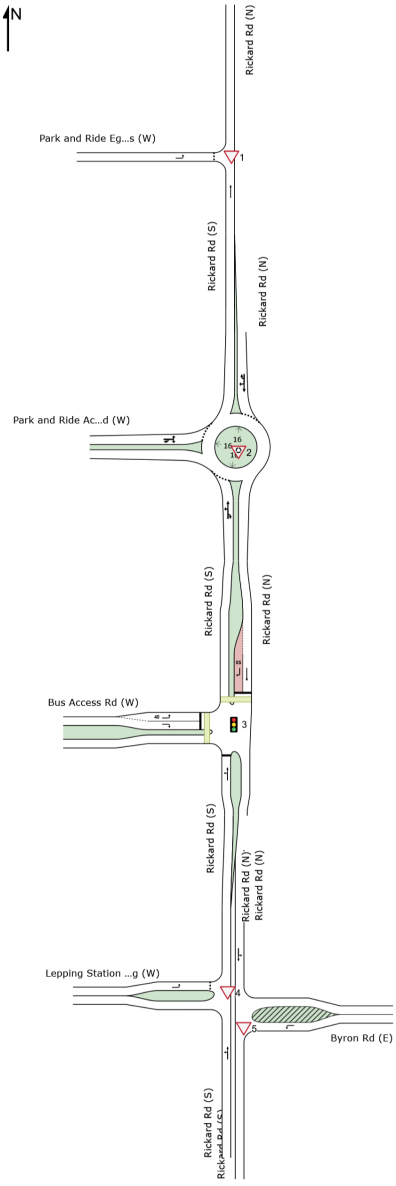
NETWORK LAYOUT

Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange)

Projected 2026 w.Signalised Bus Interchange
Network Category: (None)
Network Scenario: 1 | Local Volumes

This Network includes some unconnected Sites.

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
3	NA	Rickard Road and Existing Bus Interchange Access Road AM
▽4	NA	Rickard Road and Southern Commuter Car Park AM
▽5	NA	Rickard Road and Byron Road E AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	391	4.6	391	4.6	0.206	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			391	4.6	391	4.6	0.206	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.053	4.8	LOS A	0.2	1.4	0.42	0.56	0.42	41.4
Approach			59	0.0	59	0.0	0.053	4.8	LOS A	0.2	1.4	0.42	0.56	0.42	41.4
All Vehicles			449	4.0	449	4.0	0.206	0.6	NA	0.2	1.4	0.06	0.07	0.06	56.2

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.356	4.9	LOS A	2.1	15.0	0.40	0.57	0.40	34.7
2	T1	All MCs	261	6.5	261	6.5	0.356	5.0	LOS A	2.1	15.0	0.40	0.57	0.40	30.2
3u	U	All MCs	54	2.0	54	2.0	0.356	11.0	LOS A	2.1	15.0	0.40	0.57	0.40	30.2
Approach			395	4.5	395	4.5	0.356	5.8	LOS A	2.1	15.0	0.40	0.57	0.40	31.8
North: Rickard Rd (N)															
8	T1	All MCs	181	4.7	181	4.7	0.305	4.1	LOS A	2.0	14.1	0.39	0.56	0.39	27.6
9	R2	All MCs	164	0.0	164	0.0	0.305	8.0	LOS A	2.0	14.1	0.39	0.56	0.39	33.0
9u	U	All MCs	15	7.1	15	7.1	0.305	9.9	LOS A	2.0	14.1	0.39	0.56	0.39	27.6
Approach			360	2.6	360	2.6	0.305	6.1	LOS A	2.0	14.1	0.39	0.56	0.39	31.1
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.212	4.1	LOS A	1.3	9.3	0.54	0.56	0.54	29.7
12	R2	All MCs	83	0.0	83	0.0	0.212	7.6	LOS A	1.3	9.3	0.54	0.56	0.54	29.7
12u	U	All MCs	9	0.0	9	0.0	0.212	8.9	LOS A	1.3	9.3	0.54	0.56	0.54	32.8
Approach			207	0.0	207	0.0	0.212	5.7	LOS A	1.3	9.3	0.54	0.56	0.54	30.0
All Vehicles			962	2.8	962	2.8	0.356	5.9	LOS A	2.1	15.0	0.43	0.56	0.43	31.1

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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.

MOVEMENT SUMMARY

Site: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.307	4.4	LOS A	4.7	33.8	0.43	0.39	0.43	37.2
2	T1	All MCs	379	1.7	379	1.7	* 0.307	4.3	LOS A	4.7	33.8	0.43	0.39	0.43	28.9
Approach			395	4.3	395	4.3	0.307	4.3	LOS A	4.7	33.8	0.43	0.39	0.43	30.7
North: Rickard Rd (N)															
8	T1	All MCs	304	0.0	304	0.0	0.230	3.9	LOS A	3.4	23.6	0.41	0.35	0.41	43.0
9	R2	All MCs	14	69.2	14	69.2	0.032	10.6	LOS A	0.2	1.9	0.43	0.63	0.43	34.0
Approach			318	3.0	318	3.0	0.230	4.2	LOS A	3.4	23.6	0.41	0.36	0.41	41.5
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	* 0.107	31.2	LOS C	0.4	5.1	0.92	0.68	0.92	24.1
12	R2	All MCs	8	87.5	8	87.5	0.061	31.0	LOS C	0.2	2.9	0.91	0.66	0.91	24.5
Approach			24	78.3	24	78.3	0.107	31.1	LOS C	0.4	5.1	0.92	0.68	0.92	24.2
All Vehicles			737	6.1	737	6.1	0.307	5.1	LOS A	4.7	33.8	0.44	0.39	0.44	34.5

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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: [4] Rickard Road and Southern Commuter Car Park AM (Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.208	5.5	LOS A	0.0	0.0	0.00	0.07	0.00	55.3
2	T1	All MCs	349	4.8	349	4.8	0.208	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	56.0
Approach			393	4.3	393	4.3	0.208	0.6	NA	0.0	0.0	0.00	0.07	0.00	55.8
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.039	6.8	LOS A	0.1	1.0	0.39	0.61	0.39	48.7
Approach			45	0.0	45	0.0	0.039	6.8	LOS A	0.1	1.0	0.39	0.61	0.39	48.7
All Vehicles			438	3.8	438	3.8	0.208	1.3	NA	0.1	1.0	0.04	0.12	0.04	54.1

Site Level of Service (LOS) Method: Delay (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: [5] Rickard Road and Byron Road E AM (Proposed AM)
Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
This Site is not connected to the Network.
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	66	1.6	66	1.6	0.051	7.2	LOS A	0.2	1.4	0.32	0.60	0.32	51.8
Approach			66	1.6	66	1.6	0.051	7.2	LOS A	0.2	1.4	0.32	0.60	0.32	51.8
North: Rickard Rd (N)															
7	L2	All MCs	68	0.0	68	0.0	0.165	4.7	LOS A	0.0	0.0	0.00	0.13	0.00	54.2
8	T1	All MCs	244	3.0	244	3.0	0.165	0.0	LOS A	0.0	0.0	0.00	0.13	0.00	55.2
Approach			313	2.4	313	2.4	0.165	1.0	NA	0.0	0.0	0.00	0.13	0.00	54.8
All Vehicles			379	2.2	379	2.2	0.165	2.1	NA	0.2	1.4	0.06	0.21	0.06	53.8

Site Level of Service (LOS) Method: Delay (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: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	228	5.1	228	5.1	0.121	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			228	5.1	228	5.1	0.121	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.037	4.1	LOS A	0.1	1.0	0.31	0.48	0.31	41.9
Approach			49	0.0	49	0.0	0.037	4.1	LOS A	0.1	1.0	0.31	0.48	0.31	41.9
All Vehicles			278	4.2	278	4.2	0.121	0.7	NA	0.1	1.0	0.06	0.09	0.06	55.3

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.163	4.4	LOS A	0.8	5.8	0.29	0.51	0.29	35.5
2	T1	All MCs	120	7.9	120	7.9	0.163	4.5	LOS A	0.8	5.8	0.29	0.51	0.29	31.8
3u	U	All MCs	18	0.0	18	0.0	0.163	10.5	LOS A	0.8	5.8	0.29	0.51	0.29	31.8
Approach			185	5.7	185	5.7	0.163	5.0	LOS A	0.8	5.8	0.29	0.51	0.29	33.4
North: Rickard Rd (N)															
8	T1	All MCs	162	8.4	162	8.4	0.234	3.7	LOS A	1.4	10.1	0.30	0.53	0.30	28.6
9	R2	All MCs	112	0.9	112	0.9	0.234	7.7	LOS A	1.4	10.1	0.30	0.53	0.30	33.5
9u	U	All MCs	13	0.0	13	0.0	0.234	9.5	LOS A	1.4	10.1	0.30	0.53	0.30	28.6
Approach			286	5.1	286	5.1	0.234	5.5	LOS A	1.4	10.1	0.30	0.53	0.30	31.6
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.168	2.9	LOS A	1.0	6.9	0.35	0.48	0.35	30.9
12	R2	All MCs	76	1.4	76	1.4	0.168	6.4	LOS A	1.0	6.9	0.35	0.48	0.35	30.9
12u	U	All MCs	7	0.0	7	0.0	0.168	7.7	LOS A	1.0	6.9	0.35	0.48	0.35	33.6
Approach			192	1.6	192	1.6	0.168	4.5	LOS A	1.0	6.9	0.35	0.48	0.35	31.1
All Vehicles			663	4.3	663	4.3	0.234	5.1	LOS A	1.4	10.1	0.31	0.51	0.31	31.9

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3 (3)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.143	4.3	LOS A	1.9	13.6	0.37	0.34	0.37	37.6
2	T1	All MCs	168	0.0	168	0.0	0.143	3.8	LOS A	1.9	13.6	0.37	0.34	0.37	30.8
Approach			183	4.6	183	4.6	0.143	3.9	LOS A	1.9	13.6	0.37	0.34	0.37	33.4
North: Rickard Rd (N)															
8	T1	All MCs	238	0.0	238	0.0	* 0.180	3.8	LOS A	2.5	17.7	0.39	0.33	0.39	36.1
9	R2	All MCs	18	82.4	18	82.4	0.032	9.3	LOS A	0.2	2.3	0.38	0.62	0.38	34.7
Approach			256	5.8	256	5.8	0.180	4.2	LOS A	2.5	17.7	0.39	0.35	0.39	35.7
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	* 0.108	31.0	LOS C	0.5	5.1	0.92	0.69	0.92	24.1
12	R2	All MCs	15	71.4	15	71.4	0.099	31.1	LOS C	0.4	4.7	0.92	0.68	0.92	24.1
Approach			32	66.7	32	66.7	0.108	31.1	LOS C	0.5	5.1	0.92	0.68	0.92	24.1
All Vehicles			471	9.4	471	9.4	0.180	5.9	LOS A	2.5	17.7	0.42	0.37	0.42	31.5

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.088	5.5	LOS A	0.0	0.0	0.00	0.17	0.00	54.0
2	T1	All MCs	117	7.2	117	7.2	0.088	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	50.9
Approach			163	5.2	163	5.2	0.088	1.6	NA	0.0	0.0	0.00	0.17	0.00	52.8
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.045	5.9	LOS A	0.2	1.3	0.21	0.54	0.21	49.7
Approach			66	0.0	66	0.0	0.045	5.9	LOS A	0.2	1.3	0.21	0.54	0.21	49.7
All Vehicles			229	3.7	229	3.7	0.088	2.8	NA	0.2	1.3	0.06	0.28	0.06	51.5

Site Level of Service (LOS) Method: Delay (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: [5 (2)] Rickard Road and Byron Road E PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	75	1.4	75	1.4	0.054	7.0	LOS A	0.2	1.7	0.28	0.58	0.28	52.1
Approach			75	1.4	75	1.4	0.054	7.0	LOS A	0.2	1.7	0.28	0.58	0.28	52.1
North: Rickard Rd (N)															
7	L2	All MCs	65	3.2	65	3.2	0.135	4.7	LOS A	0.0	0.0	0.00	0.15	0.00	53.8
8	T1	All MCs	187	4.5	187	4.5	0.135	0.0	LOS A	0.0	0.0	0.00	0.15	0.00	54.5
Approach			253	4.2	253	4.2	0.135	1.2	NA	0.0	0.0	0.00	0.15	0.00	54.1
All Vehicles			327	3.5	327	3.5	0.135	2.5	NA	0.2	1.7	0.06	0.25	0.06	53.3

Site Level of Service (LOS) Method: Delay (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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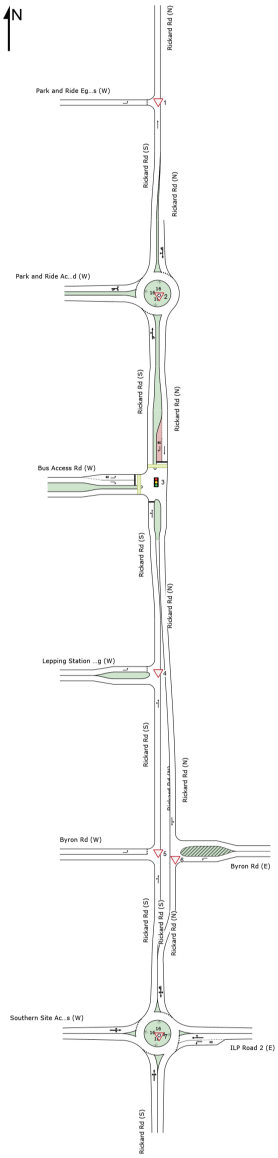
NETWORK LAYOUT

Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Projected 2026 w.Signalised Bus Interchange + Proposed Development
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
1	NA	Rickard Road and Northern Park and Ride Egress AM
2	NA	Rickard Road and Northern Park and Ride Access Road AM
3	NA	Rickard Road and Existing Bus Interchange Access Road AM
4	NA	Rickard Road and Southern Commuter Car Park AM
5	NA	Rickard Road and Byron Road W AM
6	NA	Rickard Road and Byron Road E AM
7	NA	Rickard Road and Foreshadowed Roundabout AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	727	2.5	727	2.5	0.379	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			727	2.5	727	2.5	0.379	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.082	7.1	LOS A	0.3	2.0	0.58	0.75	0.58	39.2
Approach			59	0.0	59	0.0	0.082	7.1	LOS A	0.3	2.0	0.58	0.75	0.58	39.2
All Vehicles			786	2.3	786	2.3	0.379	0.5	NA	0.3	2.0	0.04	0.06	0.04	57.3

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.630	5.4	LOS A	5.4	38.3	0.51	0.58	0.51	34.3
2	T1	All MCs	598	2.8	598	2.8	0.630	5.5	LOS A	5.4	38.3	0.51	0.58	0.51	29.6
3u	U	All MCs	54	2.0	54	2.0	0.630	11.6	LOS A	5.4	38.3	0.51	0.58	0.51	29.6
Approach			732	2.4	732	2.4	0.630	5.9	LOS A	5.4	38.3	0.51	0.58	0.51	30.6
North: Rickard Rd (N)															
8	T1	All MCs	345	2.4	345	2.4	0.435	4.2	LOS A	3.4	24.1	0.46	0.53	0.46	27.9
9	R2	All MCs	164	0.0	164	0.0	0.435	8.1	LOS A	3.4	24.1	0.46	0.53	0.46	33.2
9u	U	All MCs	15	7.1	15	7.1	0.435	10.1	LOS A	3.4	24.1	0.46	0.53	0.46	27.9
Approach			524	1.8	524	1.8	0.435	5.6	LOS A	3.4	24.1	0.46	0.53	0.46	30.7
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.287	7.2	LOS A	2.2	15.3	0.81	0.68	0.81	26.1
12	R2	All MCs	83	0.0	83	0.0	0.287	10.7	LOS A	2.2	15.3	0.81	0.68	0.81	26.1
12u	U	All MCs	9	0.0	9	0.0	0.287	12.1	LOS A	2.2	15.3	0.81	0.68	0.81	30.3
Approach			207	0.0	207	0.0	0.287	8.8	LOS A	2.2	15.3	0.81	0.68	0.81	26.4
All Vehicles			1463	1.9	1463	1.9	0.630	6.2	LOS A	5.4	38.3	0.54	0.58	0.54	29.7

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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.

MOVEMENT SUMMARY

Site: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.562	4.5	LOS A	11.1	79.3	0.56	0.51	0.56	36.4
2	T1	All MCs	716	0.9	716	0.9	* 0.562	5.5	LOS A	11.1	79.3	0.56	0.51	0.56	25.2
Approach			732	2.3	732	2.3	0.562	5.4	LOS A	11.1	79.3	0.56	0.51	0.56	26.5
North: Rickard Rd (N)															
8	T1	All MCs	468	0.0	468	0.0	0.354	4.4	LOS A	5.8	40.5	0.45	0.40	0.45	34.0
9	R2	All MCs	14	69.2	14	69.2	0.059	14.6	LOS B	0.2	2.5	0.56	0.66	0.56	32.0
Approach			482	2.0	482	2.0	0.354	4.7	LOS A	5.8	40.5	0.46	0.41	0.46	33.7
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	* 0.107	31.2	LOS C	0.4	5.1	0.92	0.68	0.92	24.1
12	R2	All MCs	8	87.5	8	87.5	0.061	31.0	LOS C	0.2	2.9	0.91	0.66	0.91	24.1
Approach			24	78.3	24	78.3	0.107	31.1	LOS C	0.4	5.1	0.92	0.68	0.92	24.1
All Vehicles			1238	3.7	1238	3.7	0.562	5.6	LOS A	11.1	79.3	0.53	0.47	0.53	28.9

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\3. Alternative Scenario 2 - Roundabout plus Signalised Bus Interchange\Projected 2026 w.Signalised Bus Interchange + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [4] Rickard Road and Southern Commuter Car Park AM
(Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.703	2.7	LOS A	0.0	0.0	0.00	0.03	0.00	53.9
2	T1	All MCs	686	2.5	686	2.5	0.703	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	54.1
Approach			729	2.3	729	2.3	0.703	0.2	NA	0.0	0.0	0.00	0.03	0.00	54.0
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.112	8.9	LOS A	0.2	1.5	0.57	0.80	0.57	46.6
Approach			45	0.0	45	0.0	0.112	8.9	LOS A	0.2	1.5	0.57	0.80	0.57	46.6
All Vehicles			775	2.2	775	2.2	0.703	0.7	NA	0.2	1.5	0.03	0.08	0.03	51.3

Site Level of Service (LOS) Method: Delay (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: [5] Rickard Road and Byron Road W AM (Proposed AM)
Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	154	0.0	154	0.0	0.367	5.5	LOS A	0.0	0.0	0.00	0.13	0.00	54.1
2	T1	All MCs	544	3.1	544	3.1	0.367	0.0	LOS A	0.0	0.0	0.00	0.13	0.00	50.4
Approach			698	2.4	698	2.4	0.367	1.2	NA	0.0	0.0	0.00	0.13	0.00	52.6
West: Byron Rd (W)															
10	L2	All MCs	185	0.0	185	0.0	0.198	8.1	LOS A	0.8	5.5	0.54	0.76	0.54	47.6
Approach			185	0.0	185	0.0	0.198	8.1	LOS A	0.8	5.5	0.54	0.76	0.54	47.6
All Vehicles			883	1.9	883	1.9	0.367	2.7	NA	0.8	5.5	0.11	0.26	0.11	50.5

Site Level of Service (LOS) Method: Delay (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: [6] Rickard Road and Byron Road E AM (Proposed AM)
Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	117	0.9	117	0.9	0.104	8.0	LOS A	0.4	3.1	0.44	0.66	0.44	53.5
Approach			117	0.9	117	0.9	0.104	8.0	LOS A	0.4	3.1	0.44	0.66	0.44	53.5
North: Rickard Rd (N)															
7	L2	All MCs	68	0.0	68	0.0	0.249	4.8	LOS A	0.0	0.0	0.00	0.08	0.00	54.7
8	T1	All MCs	408	1.8	408	1.8	0.249	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	52.8
Approach			477	1.5	477	1.5	0.249	0.7	NA	0.0	0.0	0.00	0.08	0.00	53.8
All Vehicles			594	1.4	594	1.4	0.249	2.1	NA	0.4	3.1	0.09	0.20	0.09	53.7

Site Level of Service (LOS) Method: Delay (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: [7] Rickard Road and Foreshadowed Roundabout AM

(Proposed AM)

Network: [1] Network AM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Site Access with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	228	0.0	228	0.0	0.666	8.0	LOS A	7.1	50.9	0.77	0.68	0.86	47.0
2	T1	All MCs	422	4.0	422	4.0	0.666	8.2	LOS A	7.1	50.9	0.77	0.68	0.86	46.5
3	R2	All MCs	34	0.0	34	0.0	0.666	12.2	LOS A	7.1	50.9	0.77	0.68	0.86	47.9
Approach			684	2.5	684	2.5	0.666	8.4	LOS A	7.1	50.9	0.77	0.68	0.86	46.8
East: ILP Road 2 (E)															
4	L2	All MCs	111	0.0	111	0.0	0.173	10.1	LOS A	1.1	8.0	0.81	0.74	0.81	47.2
5	T1	All MCs	1	0.0	1	0.0	0.146	9.0	LOS A	1.0	7.2	0.80	0.74	0.80	38.6
6	R2	All MCs	111	0.0	111	0.0	0.146	13.1	LOS A	1.0	7.2	0.80	0.74	0.80	34.1
Approach			222	0.0	222	0.0	0.173	11.6	LOS A	1.1	8.0	0.80	0.74	0.80	42.7
North: Rickard Rd (N)															
7	L2	All MCs	34	0.0	34	0.0	0.545	6.9	LOS A	4.6	32.6	0.73	0.66	0.75	40.5
8	T1	All MCs	311	2.7	311	2.7	0.545	7.0	LOS A	4.6	32.6	0.73	0.66	0.75	46.7
9	R2	All MCs	57	0.0	57	0.0	0.545	11.1	LOS A	4.6	32.6	0.73	0.66	0.75	35.8
9u	U	All MCs	124	0.0	124	0.0	0.545	12.9	LOS A	4.6	32.6	0.73	0.66	0.75	29.3
Approach			525	1.6	525	1.6	0.545	8.9	LOS A	4.6	32.6	0.73	0.66	0.75	43.5
West: Southern Site Access (W)															
10	L2	All MCs	41	0.0	41	0.0	0.477	10.8	LOS A	3.8	26.3	0.86	0.83	0.97	26.0
11	T1	All MCs	1	0.0	1	0.0	0.477	10.9	LOS A	3.8	26.3	0.86	0.83	0.97	37.2
12	R2	All MCs	282	0.0	282	0.0	0.477	15.0	LOS B	3.8	26.3	0.86	0.83	0.97	42.3
Approach			324	0.0	324	0.0	0.477	14.5	LOS A	3.8	26.3	0.86	0.83	0.97	41.3
All Vehicles			1756	1.4	1756	1.4	0.666	10.1	LOS A	7.1	50.9	0.78	0.71	0.84	44.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	585	2.0	585	2.0	0.304	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			585	2.0	585	2.0	0.304	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.056	5.9	LOS A	0.2	1.4	0.52	0.65	0.52	40.5
Approach			49	0.0	49	0.0	0.056	5.9	LOS A	0.2	1.4	0.52	0.65	0.52	40.5
All Vehicles			635	1.8	635	1.8	0.304	0.5	NA	0.2	1.4	0.04	0.05	0.04	57.4

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.439	4.6	LOS A	2.9	20.6	0.36	0.50	0.36	35.5
2	T1	All MCs	477	2.0	477	2.0	0.439	4.6	LOS A	2.9	20.6	0.36	0.50	0.36	31.8
3u	U	All MCs	18	0.0	18	0.0	0.439	10.7	LOS A	2.9	20.6	0.36	0.50	0.36	31.8
Approach			542	1.9	542	1.9	0.439	4.8	LOS A	2.9	20.6	0.36	0.50	0.36	32.5
North: Rickard Rd (N)															
8	T1	All MCs	468	2.9	468	2.9	0.460	3.9	LOS A	3.8	27.1	0.40	0.49	0.40	29.3
9	R2	All MCs	112	0.9	112	0.9	0.460	7.8	LOS A	3.8	27.1	0.40	0.49	0.40	34.0
9u	U	All MCs	13	0.0	13	0.0	0.460	9.7	LOS A	3.8	27.1	0.40	0.49	0.40	29.3
Approach			593	2.5	593	2.5	0.460	4.7	LOS A	3.8	27.1	0.40	0.49	0.40	31.0
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.225	5.5	LOS A	1.5	10.8	0.67	0.62	0.67	28.0
12	R2	All MCs	76	1.4	76	1.4	0.225	9.0	LOS A	1.5	10.8	0.67	0.62	0.67	28.0
12u	U	All MCs	7	0.0	7	0.0	0.225	10.3	LOS A	1.5	10.8	0.67	0.62	0.67	31.7
Approach			192	1.6	192	1.6	0.225	7.0	LOS A	1.5	10.8	0.67	0.62	0.67	28.2
All Vehicles			1326	2.1	1326	2.1	0.460	5.1	LOS A	3.8	27.1	0.42	0.51	0.42	30.9

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3 (3)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.413	4.4	LOS A	7.0	49.8	0.48	0.43	0.48	36.9
2	T1	All MCs	525	0.0	525	0.0	* 0.413	4.7	LOS A	7.0	49.8	0.48	0.43	0.48	27.5
Approach			540	1.6	540	1.6	0.413	4.7	LOS A	7.0	49.8	0.48	0.43	0.48	28.9
North: Rickard Rd (N)															
8	T1	All MCs	544	0.0	544	0.0	0.411	4.6	LOS A	7.1	49.6	0.48	0.42	0.48	33.2
9	R2	All MCs	18	82.4	18	82.4	0.058	12.0	LOS A	0.3	3.0	0.48	0.64	0.48	33.3
Approach			562	2.6	562	2.6	0.411	4.9	LOS A	7.1	49.6	0.48	0.43	0.48	33.2
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	* 0.108	31.0	LOS C	0.5	5.1	0.92	0.69	0.92	24.1
12	R2	All MCs	15	71.4	15	71.4	0.099	31.1	LOS C	0.4	4.7	0.92	0.68	0.92	24.1
Approach			32	66.7	32	66.7	0.108	31.1	LOS C	0.5	5.1	0.92	0.68	0.92	24.1
All Vehicles			1134	3.9	1134	3.9	0.413	5.5	LOS A	7.1	49.8	0.49	0.44	0.49	30.1

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.283	2.7	LOS A	0.0	0.0	0.00	0.05	0.00	54.9
2	T1	All MCs	474	1.8	474	1.8	0.283	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	53.5
Approach			520	1.6	520	1.6	0.283	0.2	NA	0.0	0.0	0.00	0.05	0.00	54.4
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.068	7.4	LOS A	0.2	1.7	0.47	0.67	0.47	48.4
Approach			66	0.0	66	0.0	0.068	7.4	LOS A	0.2	1.7	0.47	0.67	0.47	48.4
All Vehicles			586	1.4	586	1.4	0.283	1.1	NA	0.2	1.7	0.05	0.12	0.05	51.4

Site Level of Service (LOS) Method: Delay (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: [5 (2)] Rickard Road and Byron Road W PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.331	5.5	LOS A	0.0	0.0	0.00	0.31	0.00	52.1
2	T1	All MCs	306	2.7	306	2.7	0.331	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	42.1
Approach			624	1.3	624	1.3	0.331	2.8	NA	0.0	0.0	0.00	0.31	0.00	50.3
West: Byron Rd (W)															
10	L2	All MCs	214	0.0	214	0.0	0.173	6.7	LOS A	0.7	5.1	0.40	0.65	0.40	48.9
Approach			214	0.0	214	0.0	0.173	6.7	LOS A	0.7	5.1	0.40	0.65	0.40	48.9
All Vehicles			838	1.0	838	1.0	0.331	3.8	NA	0.7	5.1	0.10	0.39	0.10	49.8

Site Level of Service (LOS) Method: Delay (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: [6 (2)] Rickard Road and Byron Road E PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	164	0.6	164	0.6	0.177	8.5	LOS A	0.7	5.0	0.51	0.71	0.51	53.0
Approach			164	0.6	164	0.6	0.177	8.5	LOS A	0.7	5.0	0.51	0.71	0.51	53.0
North: Rickard Rd (N)															
7	L2	All MCs	65	3.2	65	3.2	0.321	4.8	LOS A	0.0	0.0	0.00	0.07	0.00	54.6
8	T1	All MCs	494	1.7	494	1.7	0.321	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	54.1
Approach			559	1.9	559	1.9	0.321	0.6	NA	0.0	0.0	0.00	0.07	0.00	54.3
All Vehicles			723	1.6	723	1.6	0.321	2.4	NA	0.7	5.0	0.12	0.21	0.12	53.6

Site Level of Service (LOS) Method: Delay (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: [7 (2)] Rickard Road and Foreshadowed Roundabout PM (Proposed PM)

Network: [2] Network PM (Projected 2026 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Site Access with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.702	9.3	LOS A	8.5	60.4	0.88	0.76	1.03	45.8
2	T1	All MCs	256	3.3	256	3.3	0.702	9.5	LOS A	8.5	60.4	0.88	0.76	1.03	44.9
3	R2	All MCs	91	0.0	91	0.0	0.702	13.5	LOS A	8.5	60.4	0.88	0.76	1.03	46.7
Approach			664	1.3	664	1.3	0.702	10.0	LOS A	8.5	60.4	0.88	0.76	1.03	45.6
East: ILP Road 2 (E)															
4	L2	All MCs	28	0.0	28	0.0	0.068	14.1	LOS A	0.5	3.2	0.91	0.80	0.91	44.2
5	T1	All MCs	1	0.0	1	0.0	0.056	12.3	LOS A	0.4	2.9	0.93	0.77	0.93	35.7
6	R2	All MCs	28	0.0	28	0.0	0.056	16.5	LOS B	0.4	2.9	0.93	0.77	0.93	30.8
Approach			58	0.0	58	0.0	0.068	15.3	LOS B	0.5	3.2	0.92	0.79	0.92	39.4
North: Rickard Rd (N)															
7	L2	All MCs	91	0.0	91	0.0	0.913	28.6	LOS C	19.9	141.1	1.00	1.40	2.17	25.2
8	T1	All MCs	262	3.6	262	3.6	0.913	28.9	LOS C	19.9	141.1	1.00	1.40	2.17	32.6
9	R2	All MCs	80	0.0	80	0.0	0.913	32.8	LOS C	19.9	141.1	1.00	1.40	2.17	21.0
9u	U	All MCs	225	0.0	225	0.0	0.913	34.7	LOS C	19.9	141.1	1.00	1.40	2.17	13.7
Approach			658	1.4	658	1.4	0.913	31.3	LOS C	19.9	141.1	1.00	1.40	2.17	25.7
West: Southern Site Access (W)															
10	L2	All MCs	115	0.0	115	0.0	0.794	18.1	LOS B	11.6	80.9	1.00	1.06	1.60	20.3
11	T1	All MCs	1	0.0	1	0.0	0.794	18.1	LOS B	11.6	80.9	1.00	1.06	1.60	31.8
12	R2	All MCs	481	0.0	481	0.0	0.794	22.3	LOS B	11.6	80.9	1.00	1.06	1.60	37.8
Approach			597	0.0	597	0.0	0.794	21.5	LOS B	11.6	80.9	1.00	1.06	1.60	35.9
All Vehicles			1977	0.9	1977	0.9	0.913	20.7	LOS B	19.9	141.1	0.96	1.06	1.58	35.4

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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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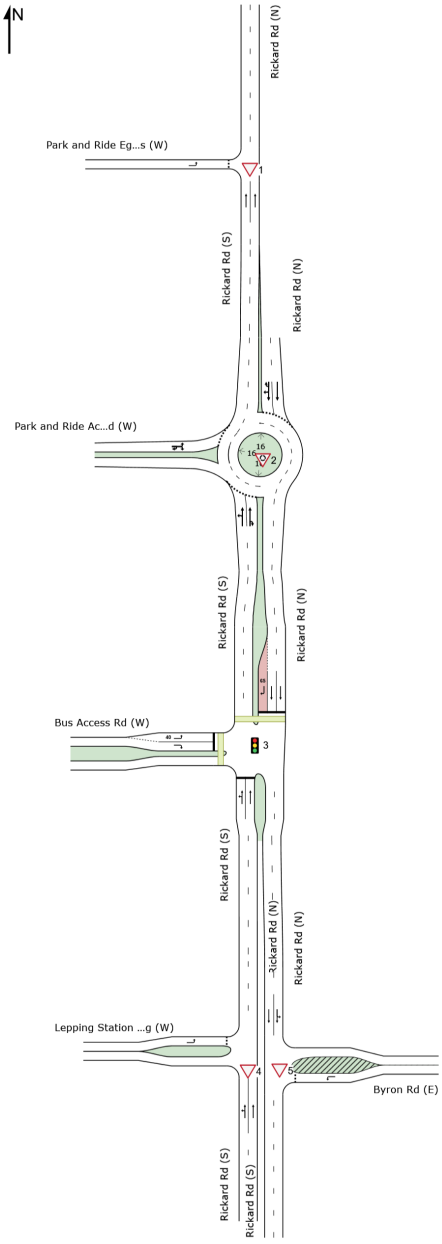
NETWORK LAYOUT

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Bus Interchange)

Projected Upgraded 2031 w.Signalised Bus Interchange
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
3	NA	Rickard Road and Existing Bus Interchange Access Road AM
▽4	NA	Rickard Road and Southern Commuter Car Park AM
▽5	NA	Rickard Road and Byron Road E AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	612	4.5	612	4.5	0.161	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			612	4.5	612	4.5	0.161	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.048	4.4	LOS A	0.2	1.3	0.37	0.52	0.37	41.6
Approach			59	0.0	59	0.0	0.048	4.4	LOS A	0.2	1.3	0.37	0.52	0.37	41.6
All Vehicles			671	4.1	671	4.1	0.161	0.4	NA	0.2	1.3	0.03	0.05	0.03	57.5

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.264	4.8	LOS A	1.2	8.6	0.31	0.51	0.31	35.6
2	T1	All MCs	482	5.5	482	5.5	0.264	4.8	LOS A	1.2	8.6	0.31	0.53	0.31	31.5
3u	U	All MCs	54	2.0	54	2.0	0.264	10.8	LOS A	1.2	8.6	0.31	0.55	0.31	30.8
Approach			616	4.4	616	4.4	0.264	5.3	LOS A	1.2	8.6	0.31	0.53	0.31	32.4
North: Rickard Rd (N)															
8	T1	All MCs	318	2.6	318	2.6	0.203	3.9	LOS A	1.0	7.3	0.30	0.47	0.30	30.6
9	R2	All MCs	164	0.0	164	0.0	0.203	7.8	LOS A	1.0	7.2	0.30	0.60	0.30	32.6
9u	U	All MCs	15	7.1	15	7.1	0.203	9.8	LOS A	1.0	7.2	0.30	0.60	0.30	27.0
Approach			497	1.9	497	1.9	0.203	5.4	LOS A	1.0	7.3	0.30	0.52	0.30	31.6
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.247	4.3	LOS A	1.1	7.8	0.54	0.63	0.54	29.6
12	R2	All MCs	83	0.0	83	0.0	0.247	7.8	LOS A	1.1	7.8	0.54	0.63	0.54	29.6
12u	U	All MCs	9	0.0	9	0.0	0.247	9.2	LOS A	1.1	7.8	0.54	0.63	0.54	32.7
Approach			207	0.0	207	0.0	0.247	5.9	LOS A	1.1	7.8	0.54	0.63	0.54	29.8
All Vehicles			1320	2.8	1320	2.8	0.264	5.4	LOS A	1.2	8.6	0.34	0.54	0.34	31.5

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.245	4.3	LOS A	3.5	26.0	0.42	0.38	0.42	37.1
2	T1	All MCs	601	2.8	601	2.8	* 0.245	4.4	LOS A	3.6	26.1	0.43	0.37	0.43	28.5
Approach			617	4.4	617	4.4	0.245	4.4	LOS A	3.6	26.1	0.43	0.37	0.43	29.8
North: Rickard Rd (N)															
8	T1	All MCs	441	0.0	441	0.0	0.170	4.1	LOS A	2.4	16.9	0.40	0.34	0.40	35.1
9	R2	All MCs	14	69.2	14	69.2	0.040	10.6	LOS A	0.2	1.9	0.43	0.62	0.43	34.2
Approach			455	2.1	455	2.1	0.170	4.3	LOS A	2.4	16.9	0.40	0.35	0.40	34.9
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	* 0.096	30.1	LOS C	0.4	5.0	0.90	0.68	0.90	24.4
12	R2	All MCs	8	87.5	8	87.5	0.055	29.9	LOS C	0.2	2.8	0.90	0.66	0.90	24.5
Approach			24	78.3	24	78.3	0.096	30.1	LOS C	0.4	5.0	0.90	0.67	0.90	24.4
All Vehicles			1096	5.1	1096	5.1	0.245	4.9	LOS A	3.6	26.1	0.43	0.37	0.43	31.1

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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: [4] Rickard Road and Southern Commuter Car Park AM
(Proposed AM)

Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.163	5.5	LOS A	0.0	0.0	0.00	0.08	0.00	55.1
2	T1	All MCs	572	4.8	572	4.8	0.163	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	57.6
Approach			615	4.5	615	4.5	0.163	0.4	NA	0.0	0.0	0.00	0.04	0.00	57.0
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.035	6.4	LOS A	0.1	1.0	0.34	0.58	0.34	49.0
Approach			45	0.0	45	0.0	0.035	6.4	LOS A	0.1	1.0	0.34	0.58	0.34	49.0
All Vehicles			660	4.1	660	4.1	0.163	0.8	NA	0.1	1.0	0.02	0.08	0.02	55.5

Site Level of Service (LOS) Method: Delay (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: [5] Rickard Road and Byron Road E AM (Proposed AM)
Network: [1] Network AM (Projected Upgraded 2031 w.Signalised Bus Interchange)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	115	0.9	115	0.9	0.075	6.6	LOS A	0.3	2.4	0.18	0.57	0.18	52.6
Approach			115	0.9	115	0.9	0.075	6.6	LOS A	0.3	2.4	0.18	0.57	0.18	52.6
North: Rickard Rd (N)															
7	L2	All MCs	140	0.0	140	0.0	0.118	4.7	LOS A	0.0	0.0	0.00	0.36	0.00	51.7
8	T1	All MCs	309	2.4	309	2.4	0.118	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	56.3
Approach			449	1.6	449	1.6	0.118	1.5	NA	0.0	0.0	0.00	0.18	0.00	53.6
All Vehicles			564	1.5	564	1.5	0.118	2.5	NA	0.3	2.4	0.04	0.26	0.04	53.3

Site Level of Service (LOS) Method: Delay (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: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	284	4.4	284	4.4	0.075	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			284	4.4	284	4.4	0.075	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.034	3.8	LOS A	0.1	0.9	0.23	0.45	0.23	42.3
Approach			49	0.0	49	0.0	0.034	3.8	LOS A	0.1	0.9	0.23	0.45	0.23	42.3
All Vehicles			334	3.8	334	3.8	0.075	0.6	NA	0.1	0.9	0.03	0.07	0.03	56.1

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.095	4.5	LOS A	0.4	2.6	0.22	0.48	0.22	36.0
2	T1	All MCs	163	6.5	163	6.5	0.095	4.4	LOS A	0.4	2.7	0.22	0.49	0.22	32.5
3u	U	All MCs	18	0.0	18	0.0	0.095	10.4	LOS A	0.4	2.7	0.22	0.50	0.22	32.1
Approach			228	5.1	228	5.1	0.095	4.9	LOS A	0.4	2.7	0.22	0.49	0.22	33.7
North: Rickard Rd (N)															
8	T1	All MCs	302	6.3	302	6.3	0.169	3.7	LOS A	0.8	5.8	0.24	0.46	0.24	31.2
9	R2	All MCs	112	0.9	112	0.9	0.169	7.6	LOS A	0.8	5.7	0.24	0.57	0.24	33.3
9u	U	All MCs	13	0.0	13	0.0	0.169	9.5	LOS A	0.8	5.7	0.24	0.57	0.24	28.3
Approach			426	4.7	426	4.7	0.169	4.9	LOS A	0.8	5.8	0.24	0.49	0.24	32.2
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.188	2.9	LOS A	0.8	5.9	0.34	0.49	0.34	31.1
12	R2	All MCs	76	1.4	76	1.4	0.188	6.4	LOS A	0.8	5.9	0.34	0.49	0.34	31.1
12u	U	All MCs	7	0.0	7	0.0	0.188	7.8	LOS A	0.8	5.9	0.34	0.49	0.34	33.7
Approach			192	1.6	192	1.6	0.188	4.5	LOS A	0.8	5.9	0.34	0.49	0.34	31.3
All Vehicles			846	4.1	846	4.1	0.188	4.8	LOS A	0.8	5.9	0.25	0.49	0.25	32.3

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3 (2)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)
Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Bus Interchange)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.090	4.3	LOS A	1.1	8.3	0.37	0.34	0.37	37.4
2	T1	All MCs	212	0.5	212	0.5	0.090	4.0	LOS A	1.2	8.4	0.37	0.32	0.37	30.2
Approach			226	4.2	226	4.2	0.090	4.0	LOS A	1.2	8.4	0.37	0.32	0.37	32.6
North: Rickard Rd (N)															
8	T1	All MCs	378	1.4	378	1.4	* 0.147	4.0	LOS A	2.0	14.4	0.39	0.33	0.39	35.3
9	R2	All MCs	18	82.4	18	82.4	0.034	9.3	LOS A	0.2	2.3	0.38	0.61	0.38	34.9
Approach			396	5.1	396	5.1	0.147	4.2	LOS A	2.0	14.4	0.39	0.34	0.39	35.2
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	* 0.097	30.0	LOS C	0.5	5.0	0.91	0.68	0.91	24.4
12	R2	All MCs	15	71.4	15	71.4	0.089	30.0	LOS C	0.4	4.6	0.90	0.68	0.90	24.5
Approach			32	66.7	32	66.7	0.097	30.0	LOS C	0.5	5.0	0.90	0.68	0.90	24.4
All Vehicles			654	7.7	654	7.7	0.147	5.4	LOS A	2.0	14.4	0.41	0.35	0.41	31.9

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.055	5.5	LOS A	0.0	0.0	0.00	0.27	0.00	52.9
2	T1	All MCs	160	5.9	160	5.9	0.055	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	54.6
Approach			206	4.6	206	4.6	0.055	1.2	NA	0.0	0.0	0.00	0.13	0.00	53.7
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.043	5.7	LOS A	0.2	1.2	0.14	0.54	0.14	50.1
Approach			66	0.0	66	0.0	0.043	5.7	LOS A	0.2	1.2	0.14	0.54	0.14	50.1
All Vehicles			273	3.5	273	3.5	0.055	2.3	NA	0.2	1.2	0.03	0.23	0.03	52.3

Site Level of Service (LOS) Method: Delay (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: [5 (2)] Rickard Road and Byron Road E PM (Proposed PM)

Network: [2] Network PM (Projected Upgraded 2031 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	115	0.9	115	0.9	0.074	6.5	LOS A	0.3	2.4	0.14	0.57	0.14	52.8
Approach			115	0.9	115	0.9	0.074	6.5	LOS A	0.3	2.4	0.14	0.57	0.14	52.8
North: Rickard Rd (N)															
7	L2	All MCs	137	3.1	137	3.1	0.105	4.7	LOS A	0.0	0.0	0.00	0.41	0.00	51.0
8	T1	All MCs	256	4.5	256	4.5	0.105	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	56.5
Approach			393	4.0	393	4.0	0.105	1.7	NA	0.0	0.0	0.00	0.20	0.00	53.1
All Vehicles			507	3.3	507	3.3	0.105	2.8	NA	0.3	2.4	0.03	0.28	0.03	53.0

Site Level of Service (LOS) Method: Delay (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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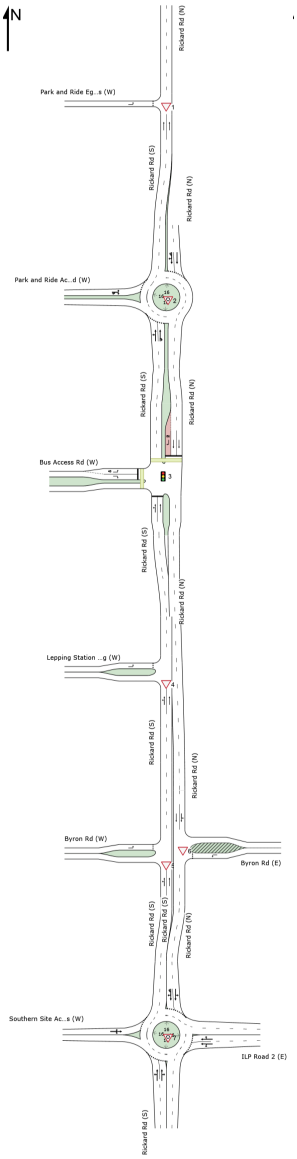
NETWORK LAYOUT

Network: [1] Network AM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Projected Upgraded 2031 w.Signalised Bus Interchange + Proposed Development
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
1	NA	Rickard Road and Northern Park and Ride Egress AM
2	NA	Rickard Road and Northern Park and Ride Access Road AM
3	NA	Rickard Road and Existing Bus Interchange Access Road AM
4	NA	Rickard Road and Southern Commuter Car Park AM
5	NA	Rickard Road and Byron Road W AM
6	NA	Rickard Road and Byron Road E AM
7	NA	Rickard Road and Foreshadowed Roundabout AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	948	2.9	948	2.9	0.248	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			948	2.9	948	2.9	0.248	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.058	5.2	LOS A	0.2	1.5	0.47	0.60	0.47	41.2
Approach			59	0.0	59	0.0	0.058	5.2	LOS A	0.2	1.5	0.47	0.60	0.47	41.2
All Vehicles			1007	2.7	1007	2.7	0.248	0.3	NA	0.2	1.5	0.03	0.04	0.03	58.1

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.398	4.9	LOS A	2.1	14.7	0.34	0.51	0.34	35.4
2	T1	All MCs	819	3.2	819	3.2	0.398	4.9	LOS A	2.1	14.7	0.34	0.53	0.34	31.4
3u	U	All MCs	54	2.0	54	2.0	0.398	11.0	LOS A	2.0	14.6	0.35	0.54	0.35	31.0
Approach			953	2.9	953	2.9	0.398	5.2	LOS A	2.1	14.7	0.34	0.53	0.34	32.1
North: Rickard Rd (N)															
8	T1	All MCs	482	1.7	482	1.7	0.267	3.9	LOS A	1.5	10.4	0.33	0.48	0.33	30.2
9	R2	All MCs	164	0.0	164	0.0	0.267	7.9	LOS A	1.5	10.3	0.33	0.57	0.33	33.1
9u	U	All MCs	15	7.1	15	7.1	0.267	9.9	LOS A	1.5	10.3	0.33	0.57	0.33	27.9
Approach			661	1.4	661	1.4	0.267	5.0	LOS A	1.5	10.4	0.33	0.50	0.33	31.5
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.286	5.3	LOS A	1.3	9.4	0.64	0.71	0.64	28.2
12	R2	All MCs	83	0.0	83	0.0	0.286	8.9	LOS A	1.3	9.4	0.64	0.71	0.64	28.2
12u	U	All MCs	9	0.0	9	0.0	0.286	10.3	LOS A	1.3	9.4	0.64	0.71	0.64	31.8
Approach			207	0.0	207	0.0	0.286	7.0	LOS A	1.3	9.4	0.64	0.71	0.64	28.5
All Vehicles			1821	2.0	1821	2.0	0.398	5.4	LOS A	2.1	14.7	0.37	0.54	0.37	31.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.375	4.4	LOS A	6.2	44.5	0.48	0.43	0.48	36.8
2	T1	All MCs	938	1.8	938	1.8	* 0.375	4.9	LOS A	6.3	44.6	0.48	0.42	0.48	26.9
Approach			954	2.9	954	2.9	0.375	4.9	LOS A	6.3	44.6	0.48	0.42	0.48	27.8
North: Rickard Rd (N)															
8	T1	All MCs	605	0.0	605	0.0	0.233	4.3	LOS A	3.5	24.5	0.42	0.36	0.42	34.3
9	R2	All MCs	14	69.2	14	69.2	0.062	12.2	LOS A	0.2	2.2	0.48	0.64	0.48	33.4
Approach			619	1.5	619	1.5	0.233	4.4	LOS A	3.5	24.5	0.42	0.37	0.42	34.2
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	* 0.096	30.1	LOS C	0.4	5.0	0.90	0.68	0.90	24.4
12	R2	All MCs	8	87.5	8	87.5	0.055	29.9	LOS C	0.2	2.8	0.90	0.66	0.90	24.5
Approach			24	78.3	24	78.3	0.096	30.1	LOS C	0.4	5.0	0.90	0.67	0.90	24.4
All Vehicles			1597	3.5	1597	3.5	0.375	5.1	LOS A	6.3	44.6	0.46	0.41	0.46	30.0

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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: [4] Rickard Road and Southern Commuter Car Park AM (Proposed AM)

Network: [1] Network AM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.249	2.7	LOS A	0.0	0.0	0.00	0.05	0.00	54.9
2	T1	All MCs	908	3.0	908	3.0	0.249	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	56.6
Approach			952	2.9	952	2.9	0.249	0.1	NA	0.0	0.0	0.00	0.03	0.00	55.9
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.042	7.1	LOS A	0.2	1.1	0.44	0.64	0.44	48.5
Approach			45	0.0	45	0.0	0.042	7.1	LOS A	0.2	1.1	0.44	0.64	0.44	48.5
All Vehicles			997	2.7	997	2.7	0.249	0.4	NA	0.2	1.1	0.02	0.05	0.02	53.4

Site Level of Service (LOS) Method: Delay (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: [5] Rickard Road and Byron Road W AM (Proposed AM)
Network: [1] Network AM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	154	0.0	154	0.0	0.242	5.5	LOS A	0.0	0.0	0.00	0.20	0.00	53.3
2	T1	All MCs	766	3.6	766	3.6	0.242	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	53.9
Approach			920	3.0	920	3.0	0.242	0.9	NA	0.0	0.0	0.00	0.10	0.00	53.6
West: Byron Rd (W)															
10	L2	All MCs	185	0.0	185	0.0	0.150	6.7	LOS A	0.6	4.4	0.39	0.63	0.39	48.8
Approach			185	0.0	185	0.0	0.150	6.7	LOS A	0.6	4.4	0.39	0.63	0.39	48.8
All Vehicles			1105	2.5	1105	2.5	0.242	1.9	NA	0.6	4.4	0.07	0.19	0.07	51.8

Site Level of Service (LOS) Method: Delay (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: [6] Rickard Road and Byron Road E AM (Proposed AM)
Network: [1] Network AM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	165	0.6	165	0.6	0.116	6.9	LOS A	0.5	3.8	0.27	0.58	0.27	54.6
Approach			165	0.6	165	0.6	0.116	6.9	LOS A	0.5	3.8	0.27	0.58	0.27	54.6
North: Rickard Rd (N)															
7	L2	All MCs	140	0.0	140	0.0	0.160	4.7	LOS A	0.0	0.0	0.00	0.27	0.00	52.7
8	T1	All MCs	474	1.6	474	1.6	0.160	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	52.2
Approach			614	1.2	614	1.2	0.160	1.1	NA	0.0	0.0	0.00	0.13	0.00	52.5
All Vehicles			779	1.1	779	1.1	0.160	2.3	NA	0.5	3.8	0.06	0.23	0.06	53.4

Site Level of Service (LOS) Method: Delay (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: [7] Rickard Road and Foreshadowed Roundabout AM (Proposed AM)

Network: [1] Network AM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	228	0.0	228	0.0	0.413	5.7	LOS A	2.2	15.8	0.47	0.57	0.47	49.2
2	T1	All MCs	644	4.2	644	4.2	0.413	5.8	LOS A	2.2	15.9	0.48	0.57	0.48	49.1
3	R2	All MCs	34	0.0	34	0.0	0.413	9.8	LOS A	2.2	15.9	0.48	0.56	0.48	49.6
Approach			906	3.0	906	3.0	0.413	5.9	LOS A	2.2	15.9	0.48	0.57	0.48	49.1
East: ILP Road 2 (E)															
4	L2	All MCs	111	0.0	111	0.0	0.147	7.4	LOS A	0.6	4.4	0.61	0.73	0.61	49.6
5	T1	All MCs	1	0.0	1	0.0	0.135	7.0	LOS A	0.6	4.1	0.60	0.78	0.60	40.7
6	R2	All MCs	111	0.0	111	0.0	0.135	11.1	LOS A	0.6	4.1	0.60	0.78	0.60	36.8
Approach			222	0.0	222	0.0	0.147	9.2	LOS A	0.6	4.4	0.61	0.76	0.61	45.2
North: Rickard Rd (N)															
7	L2	All MCs	34	0.0	34	0.0	0.310	5.9	LOS A	1.8	12.8	0.52	0.55	0.52	43.1
8	T1	All MCs	426	2.0	426	2.0	0.310	5.9	LOS A	1.8	12.8	0.52	0.58	0.52	48.3
9	R2	All MCs	57	0.0	57	0.0	0.310	10.0	LOS A	1.8	12.7	0.52	0.64	0.52	36.4
9u	U	All MCs	124	0.0	124	0.0	0.310	11.9	LOS A	1.8	12.7	0.52	0.64	0.52	30.2
Approach			641	1.3	641	1.3	0.310	7.4	LOS A	1.8	12.8	0.52	0.60	0.52	45.6
West: Southern Site Access (W)															
10	L2	All MCs	41	0.0	41	0.0	0.502	10.2	LOS A	3.0	20.9	0.75	0.91	0.93	26.8
11	T1	All MCs	1	0.0	1	0.0	0.502	10.4	LOS A	3.0	20.9	0.75	0.91	0.93	37.8
12	R2	All MCs	282	0.0	282	0.0	0.502	14.5	LOS B	3.0	20.9	0.75	0.91	0.93	42.8
Approach			324	0.0	324	0.0	0.502	14.0	LOS A	3.0	20.9	0.75	0.91	0.93	41.9
All Vehicles			2094	1.7	2094	1.7	0.502	8.0	LOS A	3.0	20.9	0.55	0.65	0.57	46.3

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	641	2.0	641	2.0	0.166	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			641	2.0	641	2.0	0.166	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.041	4.5	LOS A	0.2	1.1	0.37	0.52	0.37	41.6
Approach			49	0.0	49	0.0	0.041	4.5	LOS A	0.2	1.1	0.37	0.52	0.37	41.6
All Vehicles			691	1.8	691	1.8	0.166	0.3	NA	0.2	1.1	0.03	0.04	0.03	57.9

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.234	4.5	LOS A	1.0	7.3	0.24	0.47	0.24	36.0
2	T1	All MCs	520	2.0	520	2.0	0.234	4.4	LOS A	1.0	7.3	0.25	0.47	0.25	33.0
3u	U	All MCs	18	0.0	18	0.0	0.234	10.5	LOS A	1.0	7.2	0.25	0.48	0.25	32.8
Approach			585	2.0	585	2.0	0.234	4.6	LOS A	1.0	7.3	0.25	0.47	0.25	33.5
North: Rickard Rd (N)															
8	T1	All MCs	608	3.1	608	3.1	0.283	3.7	LOS A	1.6	11.3	0.27	0.46	0.27	31.1
9	R2	All MCs	112	0.9	112	0.9	0.283	7.7	LOS A	1.6	11.1	0.28	0.51	0.28	34.1
9u	U	All MCs	13	0.0	13	0.0	0.283	9.6	LOS A	1.6	11.1	0.28	0.51	0.28	29.6
Approach			733	2.7	733	2.7	0.283	4.4	LOS A	1.6	11.3	0.27	0.47	0.27	32.0
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.228	4.2	LOS A	1.0	7.0	0.52	0.62	0.52	29.7
12	R2	All MCs	76	1.4	76	1.4	0.228	7.7	LOS A	1.0	7.0	0.52	0.62	0.52	29.7
12u	U	All MCs	7	0.0	7	0.0	0.228	9.1	LOS A	1.0	7.0	0.52	0.62	0.52	32.8
Approach			192	1.6	192	1.6	0.228	5.8	LOS A	1.0	7.0	0.52	0.62	0.52	29.9
All Vehicles			1509	2.3	1509	2.3	0.283	4.7	LOS A	1.6	11.3	0.29	0.49	0.29	32.1

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3 (2)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.227	4.3	LOS A	3.3	23.7	0.42	0.37	0.42	37.2
2	T1	All MCs	568	0.2	568	0.2	0.227	4.3	LOS A	3.4	23.8	0.42	0.37	0.42	28.7
Approach			583	1.6	583	1.6	0.227	4.3	LOS A	3.4	23.8	0.42	0.37	0.42	30.0
North: Rickard Rd (N)															
8	T1	All MCs	684	0.8	684	0.8	* 0.265	4.4	LOS A	4.1	28.6	0.43	0.37	0.43	34.0
9	R2	All MCs	18	82.4	18	82.4	0.054	10.5	LOS A	0.2	2.7	0.42	0.62	0.42	34.2
Approach			702	2.8	702	2.8	0.265	4.5	LOS A	4.1	28.6	0.43	0.38	0.43	34.0
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	* 0.097	30.0	LOS C	0.5	5.0	0.91	0.68	0.91	24.4
12	R2	All MCs	15	71.4	15	71.4	0.089	30.0	LOS C	0.4	4.6	0.90	0.68	0.90	24.5
Approach			32	66.7	32	66.7	0.097	30.0	LOS C	0.5	5.0	0.90	0.68	0.90	24.4
All Vehicles			1317	3.8	1317	3.8	0.265	5.0	LOS A	4.1	28.6	0.44	0.38	0.44	31.2

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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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Organisation: VARGA TRAFFIC PLANNING | Licence: NETWORK / 1PC | Processed: Monday, 25 May 2026 3:36:59 PM
Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\3. Alternative Scenario 2 - Roundabout plus Signalised Bus Interchange\Projected Upgraded 2031 w.Signalised Bus Interchange + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.147	2.7	LOS A	0.0	0.0	0.00	0.09	0.00	54.7
2	T1	All MCs	517	1.8	517	1.8	0.147	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	54.5
Approach			563	1.7	563	1.7	0.147	0.2	NA	0.0	0.0	0.00	0.05	0.00	54.6
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.050	6.3	LOS A	0.2	1.4	0.31	0.57	0.31	49.2
Approach			66	0.0	66	0.0	0.050	6.3	LOS A	0.2	1.4	0.31	0.57	0.31	49.2
All Vehicles			629	1.5	629	1.5	0.147	0.9	NA	0.2	1.4	0.03	0.10	0.03	52.0

Site Level of Service (LOS) Method: Delay (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: [5 (2)] Rickard Road and Byron Road W PM (Proposed PM)

Network: [2] Network PM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.177	5.5	LOS A	0.0	0.0	0.00	0.56	0.00	49.3
2	T1	All MCs	349	2.7	349	2.7	0.177	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	58.5
Approach			667	1.4	667	1.4	0.177	2.6	NA	0.0	0.0	0.00	0.27	0.00	50.6
West: Byron Rd (W)															
10	L2	All MCs	214	0.0	214	0.0	0.132	5.6	LOS A	0.6	4.1	0.05	0.55	0.05	50.6
Approach			214	0.0	214	0.0	0.132	5.6	LOS A	0.6	4.1	0.05	0.55	0.05	50.6
All Vehicles			881	1.1	881	1.1	0.177	3.4	NA	0.6	4.1	0.01	0.34	0.01	50.6

Site Level of Service (LOS) Method: Delay (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: [6 (2)] Rickard Road and Byron Road E PM (Proposed PM)

Network: [2] Network PM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	204	0.5	204	0.5	0.149	7.1	LOS A	0.7	4.9	0.32	0.60	0.32	54.3
Approach			204	0.5	204	0.5	0.149	7.1	LOS A	0.7	4.9	0.32	0.60	0.32	54.3
North: Rickard Rd (N)															
7	L2	All MCs	137	3.1	137	3.1	0.184	4.7	LOS A	0.0	0.0	0.00	0.23	0.00	52.9
8	T1	All MCs	562	2.1	562	2.1	0.184	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	52.8
Approach			699	2.3	699	2.3	0.184	0.9	NA	0.0	0.0	0.00	0.11	0.00	52.9
All Vehicles			903	1.9	903	1.9	0.184	2.3	NA	0.7	4.9	0.07	0.22	0.07	53.5

Site Level of Service (LOS) Method: Delay (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: [7 (2)] Rickard Road and Foreshadowed Roundabout PM (Proposed PM)

Network: [2] Network PM (Projected 2031 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.345	5.9	LOS A	2.0	13.9	0.53	0.60	0.53	49.2
2	T1	All MCs	299	3.2	299	3.2	0.345	5.9	LOS A	2.0	13.9	0.54	0.61	0.54	48.1
3	R2	All MCs	91	0.0	91	0.0	0.345	10.0	LOS A	2.0	13.9	0.54	0.61	0.54	48.9
Approach			707	1.3	707	1.3	0.345	6.4	LOS A	2.0	13.9	0.53	0.60	0.53	48.7
East: ILP Road 2 (E)															
4	L2	All MCs	28	0.0	28	0.0	0.048	8.6	LOS A	0.2	1.6	0.69	0.78	0.69	48.6
5	T1	All MCs	1	0.0	1	0.0	0.044	7.9	LOS A	0.2	1.5	0.69	0.80	0.69	39.8
6	R2	All MCs	28	0.0	28	0.0	0.044	12.1	LOS A	0.2	1.5	0.69	0.80	0.69	35.7
Approach			58	0.0	58	0.0	0.048	10.3	LOS A	0.2	1.6	0.69	0.79	0.69	44.1
North: Rickard Rd (N)															
7	L2	All MCs	91	0.0	91	0.0	0.476	8.2	LOS A	3.5	25.1	0.78	0.72	0.83	40.8
8	T1	All MCs	371	3.4	371	3.4	0.476	8.2	LOS A	3.5	25.1	0.78	0.73	0.83	46.5
9	R2	All MCs	80	0.0	80	0.0	0.476	12.5	LOS A	3.5	24.4	0.78	0.78	0.84	33.1
9u	U	All MCs	225	0.0	225	0.0	0.476	14.4	LOS A	3.5	24.4	0.78	0.78	0.84	26.3
Approach			766	1.6	766	1.6	0.476	10.5	LOS A	3.5	25.1	0.78	0.75	0.83	41.1
West: Southern Site Access (W)															
10	L2	All MCs	115	0.0	115	0.0	0.802	15.2	LOS B	9.2	64.7	0.91	1.06	1.46	22.4
11	T1	All MCs	1	0.0	1	0.0	0.802	15.5	LOS B	9.2	64.7	0.91	1.06	1.46	33.9
12	R2	All MCs	481	0.0	481	0.0	0.802	19.6	LOS B	9.2	64.7	0.91	1.06	1.46	39.5
Approach			597	0.0	597	0.0	0.802	18.7	LOS B	9.2	64.7	0.91	1.06	1.46	37.8
All Vehicles			2128	1.0	2128	1.0	0.802	11.4	LOS A	9.2	64.7	0.73	0.79	0.91	42.6

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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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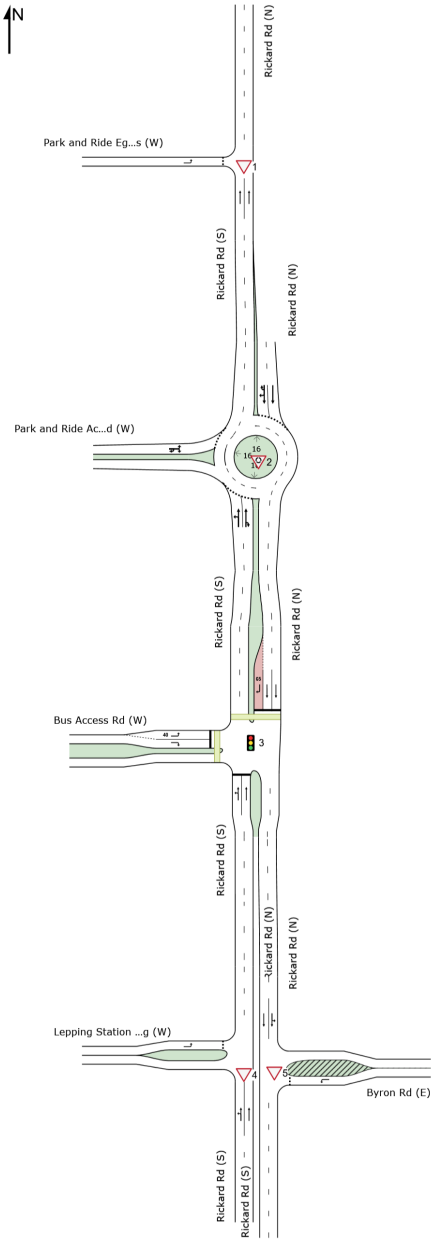
NETWORK LAYOUT

Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange)

Projected Upgraded 2036 w.Signalised Bus Interchange
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽1	NA	Rickard Road and Park and Northern Park and Ride Egress AM
▽2	NA	Rickard Road and Northern Park and Ride Access Road AM
3	NA	Rickard Road and Existing Bus Interchange Access Road AM
▽4	NA	Rickard Road and Southern Commuter Car Park AM
▽5	NA	Rickard Road and Byron Road E AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Park and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	665	5.4	665	5.4	0.177	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			665	5.4	665	5.4	0.177	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.049	4.6	LOS A	0.2	1.3	0.39	0.53	0.39	41.5
Approach			59	0.0	59	0.0	0.049	4.6	LOS A	0.2	1.3	0.39	0.53	0.39	41.5
All Vehicles			724	4.9	724	4.9	0.177	0.4	NA	0.2	1.3	0.03	0.04	0.03	57.6

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.288	4.8	LOS A	1.3	9.7	0.31	0.51	0.31	35.5
2	T1	All MCs	536	6.5	536	6.5	0.288	4.8	LOS A	1.3	9.7	0.32	0.53	0.32	31.5
3u	U	All MCs	54	2.0	54	2.0	0.288	10.9	LOS A	1.3	9.7	0.32	0.54	0.32	30.9
Approach			669	5.3	669	5.3	0.288	5.3	LOS A	1.3	9.7	0.31	0.53	0.31	32.3
North: Rickard Rd (N)															
8	T1	All MCs	346	2.4	346	2.4	0.214	3.9	LOS A	1.1	7.8	0.31	0.48	0.31	30.5
9	R2	All MCs	164	0.0	164	0.0	0.214	7.8	LOS A	1.1	7.7	0.31	0.59	0.31	32.7
9u	U	All MCs	15	7.1	15	7.1	0.214	9.8	LOS A	1.1	7.7	0.31	0.59	0.31	27.2
Approach			525	1.8	525	1.8	0.214	5.3	LOS A	1.1	7.8	0.31	0.52	0.31	31.6
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.254	4.4	LOS A	1.1	8.0	0.56	0.65	0.56	29.3
12	R2	All MCs	83	0.0	83	0.0	0.254	8.0	LOS A	1.1	8.0	0.56	0.65	0.56	29.3
12u	U	All MCs	9	0.0	9	0.0	0.254	9.4	LOS A	1.1	8.0	0.56	0.65	0.56	32.6
Approach			207	0.0	207	0.0	0.254	6.1	LOS A	1.1	8.0	0.56	0.65	0.56	29.6
All Vehicles			1402	3.2	1402	3.2	0.288	5.4	LOS A	1.3	9.7	0.35	0.54	0.35	31.5

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\3. Alternative Scenario 2 - Roundabout plus Signalised Bus Interchange\Projected Upgraded 2036 w.Signalised Bus Interchange.sipx

MOVEMENT SUMMARY

Site: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.267	4.4	LOS A	3.9	29.0	0.43	0.39	0.43	37.1
2	T1	All MCs	654	3.7	654	3.7	* 0.267	4.5	LOS A	4.0	29.1	0.43	0.38	0.43	28.3
Approach			669	5.2	669	5.2	0.267	4.5	LOS A	4.0	29.1	0.43	0.38	0.43	29.5
North: Rickard Rd (N)															
8	T1	All MCs	469	0.0	469	0.0	0.181	4.1	LOS A	2.6	18.2	0.40	0.34	0.40	35.0
9	R2	All MCs	14	69.2	14	69.2	0.044	10.8	LOS A	0.2	1.9	0.43	0.62	0.43	34.1
Approach			483	2.0	483	2.0	0.181	4.3	LOS A	2.6	18.2	0.41	0.35	0.41	34.8
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	* 0.096	30.1	LOS C	0.4	5.0	0.90	0.68	0.90	24.4
12	R2	All MCs	8	87.5	8	87.5	0.055	29.9	LOS C	0.2	2.8	0.90	0.66	0.90	24.5
Approach			24	78.3	24	78.3	0.096	30.1	LOS C	0.4	5.0	0.90	0.67	0.90	24.4
All Vehicles			1177	5.4	1177	5.4	0.267	4.9	LOS A	4.0	29.1	0.43	0.37	0.43	30.9

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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: [4] Rickard Road and Southern Commuter Car Park AM (Proposed AM)

Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.177	5.5	LOS A	0.0	0.0	0.00	0.08	0.00	55.2
2	T1	All MCs	624	5.6	624	5.6	0.177	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	57.7
Approach			667	5.2	667	5.2	0.177	0.4	NA	0.0	0.0	0.00	0.04	0.00	57.1
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.036	6.5	LOS A	0.1	1.0	0.35	0.59	0.35	48.9
Approach			45	0.0	45	0.0	0.036	6.5	LOS A	0.1	1.0	0.35	0.59	0.35	48.9
All Vehicles			713	4.9	713	4.9	0.177	0.8	NA	0.1	1.0	0.02	0.07	0.02	55.7

Site Level of Service (LOS) Method: Delay (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: [5] Rickard Road and Byron Road E AM (Proposed AM)
Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	184	0.6	184	0.6	0.113	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	53.5
Approach			184	0.6	184	0.6	0.113	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	53.5
North: Rickard Rd (N)															
7	L2	All MCs	285	0.0	285	0.0	0.154	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	49.5
8	T1	All MCs	193	3.8	193	3.8	0.101	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			478	1.5	478	1.5	0.154	2.8	NA	0.0	0.0	0.00	0.34	0.00	51.2
All Vehicles			662	1.3	662	1.3	0.154	3.8	NA	0.0	0.0	0.00	0.41	0.00	52.0

Site Level of Service (LOS) Method: Delay (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: [1 (2)] Rickard Road and Park and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	300	4.6	300	4.6	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			300	4.6	300	4.6	0.079	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.034	3.9	LOS A	0.1	1.0	0.24	0.46	0.24	42.2
Approach			49	0.0	49	0.0	0.034	3.9	LOS A	0.1	1.0	0.24	0.46	0.24	42.2
All Vehicles			349	3.9	349	3.9	0.079	0.5	NA	0.1	1.0	0.03	0.06	0.03	56.3

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.102	4.5	LOS A	0.4	2.8	0.22	0.47	0.22	36.0
2	T1	All MCs	179	6.5	179	6.5	0.102	4.4	LOS A	0.4	2.9	0.22	0.49	0.22	32.5
3u	U	All MCs	18	0.0	18	0.0	0.102	10.5	LOS A	0.4	2.9	0.22	0.50	0.22	32.1
Approach			244	5.2	244	5.2	0.102	4.8	LOS A	0.4	2.9	0.22	0.49	0.22	33.7
North: Rickard Rd (N)															
8	T1	All MCs	354	6.3	354	6.3	0.189	3.7	LOS A	0.9	6.7	0.24	0.47	0.24	31.2
9	R2	All MCs	112	0.9	112	0.9	0.189	7.6	LOS A	0.9	6.5	0.24	0.56	0.24	33.5
9u	U	All MCs	13	0.0	13	0.0	0.189	9.6	LOS A	0.9	6.5	0.24	0.56	0.24	28.7
Approach			478	4.8	478	4.8	0.189	4.8	LOS A	0.9	6.7	0.24	0.49	0.24	32.2
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.190	2.9	LOS A	0.8	6.0	0.35	0.50	0.35	31.0
12	R2	All MCs	76	1.4	76	1.4	0.190	6.5	LOS A	0.8	6.0	0.35	0.50	0.35	31.0
12u	U	All MCs	7	0.0	7	0.0	0.190	7.9	LOS A	0.8	6.0	0.35	0.50	0.35	33.7
Approach			192	1.6	192	1.6	0.190	4.5	LOS A	0.8	6.0	0.35	0.50	0.35	31.2
All Vehicles			914	4.3	914	4.3	0.190	4.7	LOS A	0.9	6.7	0.26	0.49	0.26	32.3

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\3. Alternative Scenario 2 - Roundabout plus Signalised Bus Interchange\Projected Upgraded 2036 w.Signalised Bus Interchange.sipx

MOVEMENT SUMMARY

Site: [3 (2)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.096	4.3	LOS A	1.2	9.0	0.37	0.34	0.37	37.4
2	T1	All MCs	227	0.9	227	0.9	0.096	4.0	LOS A	1.3	9.1	0.37	0.32	0.37	30.2
Approach			242	4.3	242	4.3	0.096	4.0	LOS A	1.3	9.1	0.37	0.32	0.37	32.4
North: Rickard Rd (N)															
8	T1	All MCs	429	2.0	429	2.0	* 0.168	4.0	LOS A	2.4	16.8	0.40	0.34	0.40	35.1
9	R2	All MCs	18	82.4	18	82.4	0.034	9.4	LOS A	0.2	2.3	0.38	0.61	0.38	34.8
Approach			447	5.2	447	5.2	0.168	4.3	LOS A	2.4	16.8	0.40	0.35	0.40	35.1
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	* 0.097	30.0	LOS C	0.5	5.0	0.91	0.68	0.91	24.4
12	R2	All MCs	15	71.4	15	71.4	0.089	30.0	LOS C	0.4	4.6	0.90	0.68	0.90	24.5
Approach			32	66.7	32	66.7	0.097	30.0	LOS C	0.5	5.0	0.90	0.68	0.90	24.4
All Vehicles			721	7.6	721	7.6	0.168	5.3	LOS A	2.4	16.8	0.41	0.35	0.41	31.9

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.059	5.5	LOS A	0.0	0.0	0.00	0.25	0.00	53.2
2	T1	All MCs	176	6.0	176	6.0	0.059	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	54.8
Approach			222	4.7	222	4.7	0.059	1.2	NA	0.0	0.0	0.00	0.12	0.00	53.9
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.043	5.7	LOS A	0.2	1.2	0.15	0.54	0.15	50.1
Approach			66	0.0	66	0.0	0.043	5.7	LOS A	0.2	1.2	0.15	0.54	0.15	50.1
All Vehicles			288	3.6	288	3.6	0.059	2.2	NA	0.2	1.2	0.03	0.22	0.03	52.4

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\3. Alternative Scenario 2 - Roundabout plus Signalised Bus Interchange\Projected Upgraded 2036 w.Signalised Bus Interchange.sipx

MOVEMENT SUMMARY

Site: [5 (2)] Rickard Road and Byron Road E PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	197	0.5	197	0.5	0.121	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	53.5
Approach			197	0.5	197	0.5	0.121	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	53.5
North: Rickard Rd (N)															
7	L2	All MCs	221	2.9	221	2.9	0.121	4.7	LOS A	0.0	0.0	0.00	0.56	0.00	49.4
8	T1	All MCs	223	5.7	223	5.7	0.119	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			444	4.3	444	4.3	0.121	2.4	NA	0.0	0.0	0.00	0.28	0.00	51.8
All Vehicles			641	3.1	641	3.1	0.121	3.6	NA	0.0	0.0	0.00	0.38	0.00	52.5

Site Level of Service (LOS) Method: Delay (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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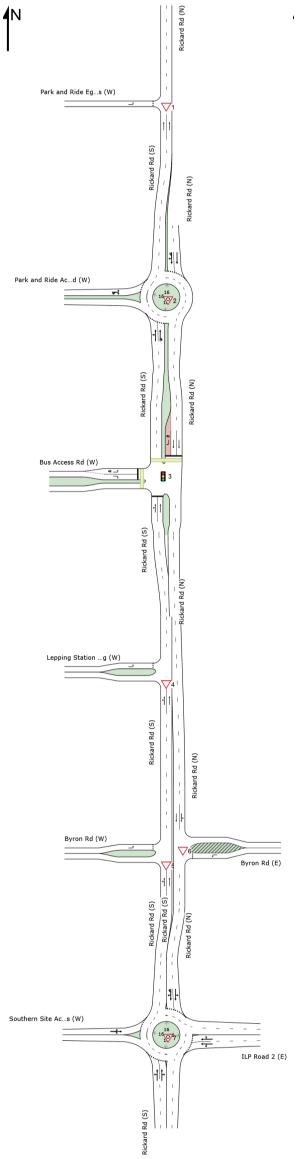
NETWORK LAYOUT

Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Projected Upgraded 2036 w.Signalised Bus Interchange + Proposed Development
Network Category: (None)
Network Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
1	NA	Rickard Road and Northern Park and Ride Egress AM
2	NA	Rickard Road and Northern Park and Ride Access Road AM
3	NA	Rickard Road and Existing Bus Interchange Access Road AM
4	NA	Rickard Road and Southern Commuter Car Park AM
5	NA	Rickard Road and Byron Road W AM
6	NA	Rickard Road and Byron Road E AM
7	NA	Rickard Road and Foreshadowed Roundabout AM

MOVEMENT SUMMARY

Site: [1] Rickard Road and Northern Park and Ride Egress AM (Proposed AM)

Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	1002	3.6	1002	3.6	0.263	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			1002	3.6	1002	3.6	0.263	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	59	0.0	59	0.0	0.060	5.4	LOS A	0.2	1.6	0.48	0.62	0.48	41.0
Approach			59	0.0	59	0.0	0.060	5.4	LOS A	0.2	1.6	0.48	0.62	0.48	41.0
All Vehicles			1061	3.4	1061	3.4	0.263	0.3	NA	0.2	1.6	0.03	0.03	0.03	58.2

Site Level of Service (LOS) Method: Delay (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: [2] Rickard Road and Northern Park and Ride Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	80	0.0	80	0.0	0.422	4.9	LOS A	2.2	16.2	0.35	0.52	0.35	35.4
2	T1	All MCs	873	4.0	873	4.0	0.422	4.9	LOS A	2.2	16.2	0.35	0.53	0.35	31.4
3u	U	All MCs	54	2.0	54	2.0	0.422	11.0	LOS A	2.2	16.1	0.35	0.54	0.35	30.9
Approach			1006	3.6	1006	3.6	0.422	5.2	LOS A	2.2	16.2	0.35	0.53	0.35	32.0
North: Rickard Rd (N)															
8	T1	All MCs	511	1.6	511	1.6	0.278	3.9	LOS A	1.5	11.0	0.33	0.48	0.33	30.2
9	R2	All MCs	164	0.0	164	0.0	0.278	7.9	LOS A	1.5	10.8	0.33	0.56	0.33	33.2
9u	U	All MCs	15	7.1	15	7.1	0.278	9.9	LOS A	1.5	10.8	0.33	0.56	0.33	28.0
Approach			689	1.4	689	1.4	0.278	5.0	LOS A	1.5	11.0	0.33	0.50	0.33	31.5
West: Park and Ride Access Rd (W)															
10	L2	All MCs	115	0.0	115	0.0	0.293	5.5	LOS A	1.4	9.7	0.66	0.73	0.66	28.0
12	R2	All MCs	83	0.0	83	0.0	0.293	9.1	LOS A	1.4	9.7	0.66	0.73	0.66	28.0
12u	U	All MCs	9	0.0	9	0.0	0.293	10.5	LOS A	1.4	9.7	0.66	0.73	0.66	31.7
Approach			207	0.0	207	0.0	0.293	7.2	LOS A	1.4	9.7	0.66	0.73	0.66	28.3
All Vehicles			1903	2.4	1903	2.4	0.422	5.4	LOS A	2.2	16.2	0.38	0.54	0.38	31.2

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3] Rickard Road and Existing Bus Interchange Access Road AM (Proposed AM)

Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	16	66.7	16	66.7	0.397	4.4	LOS A	6.6	48.2	0.49	0.44	0.49	36.7
2	T1	All MCs	991	2.4	991	2.4	* 0.397	5.0	LOS A	6.7	48.2	0.49	0.43	0.49	26.6
Approach			1006	3.5	1006	3.5	0.397	5.0	LOS A	6.7	48.2	0.49	0.43	0.49	27.5
North: Rickard Rd (N)															
8	T1	All MCs	634	0.0	634	0.0	0.244	4.3	LOS A	3.7	25.9	0.43	0.37	0.43	34.2
9	R2	All MCs	14	69.2	14	69.2	0.066	12.5	LOS A	0.2	2.3	0.49	0.64	0.49	33.2
Approach			647	1.5	647	1.5	0.244	4.5	LOS A	3.7	25.9	0.43	0.37	0.43	34.1
West: Bus Access Rd (W)															
10	L2	All MCs	16	73.3	16	73.3	* 0.096	30.1	LOS C	0.4	5.0	0.90	0.68	0.90	24.4
12	R2	All MCs	8	87.5	8	87.5	0.055	29.9	LOS C	0.2	2.8	0.90	0.66	0.90	24.5
Approach			24	78.3	24	78.3	0.096	30.1	LOS C	0.4	5.0	0.90	0.67	0.90	24.4
All Vehicles			1678	3.8	1678	3.8	0.397	5.1	LOS A	6.7	48.2	0.47	0.41	0.47	29.7

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\3. Alternative Scenario 2 - Roundabout plus Signalised Bus Interchange\Projected Upgraded 2036 w.Signalised Bus Interchange + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [4] Rickard Road and Southern Commuter Car Park AM (Proposed AM)

Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	43	0.0	43	0.0	0.268	2.7	LOS A	0.0	0.0	0.00	0.05	0.00	54.9
2	T1	All MCs	961	3.6	961	3.6	0.268	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	56.7
Approach			1004	3.5	1004	3.5	0.268	0.1	NA	0.0	0.0	0.00	0.02	0.00	56.0
West: Lepping Station Parking (W)															
10	L2	All MCs	45	0.0	45	0.0	0.044	7.3	LOS A	0.2	1.2	0.46	0.65	0.46	48.4
Approach			45	0.0	45	0.0	0.044	7.3	LOS A	0.2	1.2	0.46	0.65	0.46	48.4
All Vehicles			1049	3.3	1049	3.3	0.268	0.4	NA	0.2	1.2	0.02	0.05	0.02	53.5

Site Level of Service (LOS) Method: Delay (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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Project: Z:\DATA\Data\Jobs01\Jobs\26work\26067_173-183RickardRdLeppington\SIDRA\SIDRA260525\3. Alternative Scenario 2 - Roundabout plus Signalised Bus Interchange\Projected Upgraded 2036 w.Signalised Bus Interchange + Proposed Development.sipx

MOVEMENT SUMMARY

Site: [5] Rickard Road and Byron Road W AM (Proposed AM)
Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	154	0.0	154	0.0	0.257	5.5	LOS A	0.0	0.0	0.00	0.19	0.00	53.4
2	T1	All MCs	819	4.2	819	4.2	0.257	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	54.1
Approach			973	3.6	973	3.6	0.257	0.9	NA	0.0	0.0	0.00	0.09	0.00	53.8
West: Byron Rd (W)															
10	L2	All MCs	185	0.0	185	0.0	0.154	6.8	LOS A	0.6	4.5	0.41	0.64	0.41	48.6
Approach			185	0.0	185	0.0	0.154	6.8	LOS A	0.6	4.5	0.41	0.64	0.41	48.6
All Vehicles			1158	3.0	1158	3.0	0.257	1.8	NA	0.6	4.5	0.07	0.18	0.07	51.9

Site Level of Service (LOS) Method: Delay (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: [6] Rickard Road and Byron Road E AM (Proposed AM)
Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	235	0.4	235	0.4	0.147	6.5	LOS A	0.7	5.1	0.10	0.57	0.10	55.7
Approach			235	0.4	235	0.4	0.147	6.5	LOS A	0.7	5.1	0.10	0.57	0.10	55.7
North: Rickard Rd (N)															
7	L2	All MCs	285	0.0	285	0.0	0.170	4.7	LOS A	0.0	0.0	0.00	0.51	0.00	50.1
8	T1	All MCs	357	2.1	357	2.1	0.170	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	55.9
Approach			642	1.1	642	1.1	0.170	2.1	NA	0.0	0.0	0.00	0.25	0.00	50.9
All Vehicles			877	1.0	877	1.0	0.170	3.3	NA	0.7	5.1	0.03	0.34	0.03	52.6

Site Level of Service (LOS) Method: Delay (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: [7] Rickard Road and Foreshadowed Roundabout AM (Proposed AM)

Network: [1] Network AM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	228	0.0	228	0.0	0.447	5.8	LOS A	2.5	17.7	0.51	0.58	0.51	49.0
2	T1	All MCs	697	5.0	697	5.0	0.447	6.0	LOS A	2.5	17.8	0.51	0.58	0.51	48.9
3	R2	All MCs	34	0.0	34	0.0	0.447	10.0	LOS A	2.4	17.8	0.52	0.58	0.52	49.4
Approach			959	3.6	959	3.6	0.447	6.1	LOS A	2.5	17.8	0.51	0.58	0.51	48.9
East: ILP Road 2 (E)															
4	L2	All MCs	111	0.0	111	0.0	0.144	7.3	LOS A	0.6	4.3	0.60	0.73	0.60	49.7
5	T1	All MCs	1	0.0	1	0.0	0.133	6.9	LOS A	0.6	4.1	0.59	0.77	0.59	40.8
6	R2	All MCs	111	0.0	111	0.0	0.133	11.0	LOS A	0.6	4.1	0.59	0.77	0.59	36.9
Approach			222	0.0	222	0.0	0.144	9.2	LOS A	0.6	4.3	0.60	0.75	0.60	45.3
North: Rickard Rd (N)															
7	L2	All MCs	34	0.0	34	0.0	0.297	5.9	LOS A	1.7	12.3	0.52	0.55	0.52	43.1
8	T1	All MCs	377	2.2	377	2.2	0.297	5.8	LOS A	1.7	12.3	0.52	0.58	0.52	48.3
9	R2	All MCs	80	0.0	80	0.0	0.297	10.0	LOS A	1.7	12.1	0.52	0.65	0.52	36.1
9u	U	All MCs	124	0.0	124	0.0	0.297	11.9	LOS A	1.7	12.1	0.52	0.65	0.52	29.9
Approach			615	1.4	615	1.4	0.297	7.6	LOS A	1.7	12.3	0.52	0.60	0.52	45.0
West: Southern Site Access (W)															
10	L2	All MCs	41	0.0	41	0.0	0.522	10.7	LOS A	3.2	22.2	0.77	0.93	0.98	26.3
11	T1	All MCs	1	0.0	1	0.0	0.522	10.9	LOS A	3.2	22.2	0.77	0.93	0.98	37.3
12	R2	All MCs	282	0.0	282	0.0	0.522	15.1	LOS B	3.2	22.2	0.77	0.93	0.98	42.5
Approach			324	0.0	324	0.0	0.522	14.5	LOS A	3.2	22.2	0.77	0.93	0.98	41.5
All Vehicles			2120	2.0	2120	2.0	0.522	8.1	LOS A	3.2	22.2	0.56	0.66	0.59	46.1

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [1 (2)] Rickard Road and Northern Park and Ride Egress PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Northern Park and Ride Egress Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
2	T1	All MCs	657	2.1	657	2.1	0.171	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			657	2.1	657	2.1	0.171	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Park and Ride Egress (W)															
10	L2	All MCs	49	0.0	49	0.0	0.041	4.5	LOS A	0.2	1.1	0.38	0.53	0.38	41.6
Approach			49	0.0	49	0.0	0.041	4.5	LOS A	0.2	1.1	0.38	0.53	0.38	41.6
All Vehicles			706	1.9	706	1.9	0.171	0.3	NA	0.2	1.1	0.03	0.04	0.03	57.9

Site Level of Service (LOS) Method: Delay (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: [2 (2)] Rickard Road and Northern Park and Ride Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Park and Ride Access Road Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	47	2.2	47	2.2	0.240	4.5	LOS A	1.1	7.5	0.25	0.47	0.25	36.0
2	T1	All MCs	536	2.2	536	2.2	0.240	4.4	LOS A	1.1	7.5	0.25	0.47	0.25	33.0
3u	U	All MCs	18	0.0	18	0.0	0.240	10.5	LOS A	1.1	7.5	0.25	0.48	0.25	32.8
Approach			601	2.1	601	2.1	0.240	4.6	LOS A	1.1	7.5	0.25	0.47	0.25	33.5
North: Rickard Rd (N)															
8	T1	All MCs	660	3.3	660	3.3	0.303	3.7	LOS A	1.7	12.3	0.28	0.46	0.28	31.1
9	R2	All MCs	112	0.9	112	0.9	0.303	7.7	LOS A	1.7	12.2	0.28	0.51	0.28	34.1
9u	U	All MCs	13	0.0	13	0.0	0.303	9.6	LOS A	1.7	12.2	0.28	0.51	0.28	29.7
Approach			784	3.0	784	3.0	0.303	4.4	LOS A	1.7	12.3	0.28	0.47	0.28	32.0
West: Park and Ride Access Rd (W)															
10	L2	All MCs	108	1.9	108	1.9	0.229	4.3	LOS A	1.0	7.1	0.52	0.63	0.52	29.6
12	R2	All MCs	76	1.4	76	1.4	0.229	7.8	LOS A	1.0	7.1	0.52	0.63	0.52	29.6
12u	U	All MCs	7	0.0	7	0.0	0.229	9.2	LOS A	1.0	7.1	0.52	0.63	0.52	32.8
Approach			192	1.6	192	1.6	0.229	5.9	LOS A	1.0	7.1	0.52	0.63	0.52	29.8
All Vehicles			1577	2.5	1577	2.5	0.303	4.7	LOS A	1.7	12.3	0.30	0.49	0.30	32.1

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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: [3 (2)] Rickard Road and Existing Bus Interchange Access Road PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Existing Bus Interchange Access Road Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site User-Given Cycle Time)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	15	57.1	15	57.1	0.234	4.4	LOS A	3.4	24.5	0.42	0.37	0.42	37.2
2	T1	All MCs	584	0.4	584	0.4	0.234	4.3	LOS A	3.5	24.6	0.42	0.37	0.42	28.6
Approach			599	1.8	599	1.8	0.234	4.3	LOS A	3.5	24.6	0.42	0.37	0.42	29.9
North: Rickard Rd (N)															
8	T1	All MCs	736	1.1	736	1.1	* 0.286	4.5	LOS A	4.4	31.4	0.44	0.38	0.44	33.7
9	R2	All MCs	18	82.4	18	82.4	0.055	10.6	LOS A	0.2	2.7	0.43	0.63	0.43	34.2
Approach			754	3.1	754	3.1	0.286	4.6	LOS A	4.4	31.4	0.44	0.39	0.44	33.8
West: Bus Access Rd (W)															
10	L2	All MCs	17	62.5	17	62.5	* 0.097	30.0	LOS C	0.5	5.0	0.91	0.68	0.91	24.4
12	R2	All MCs	15	71.4	15	71.4	0.089	30.0	LOS C	0.4	4.6	0.90	0.68	0.90	24.5
Approach			32	66.7	32	66.7	0.097	30.0	LOS C	0.5	5.0	0.90	0.68	0.90	24.4
All Vehicles			1384	4.0	1384	4.0	0.286	5.1	LOS A	4.4	31.4	0.44	0.39	0.44	31.1

Site Level of Service (LOS) Method: Delay (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 ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Rickard Rd (N)											
P3	Full	11	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Bus Access Rd (W)											
P4	Full	21	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
All Pedestrians		32	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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: [4 (2)] Rickard Road and Southern Commuter Car Park PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Southern Commuter Car Park Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	46	0.0	46	0.0	0.151	2.7	LOS A	0.0	0.0	0.00	0.09	0.00	54.7
2	T1	All MCs	533	2.0	533	2.0	0.151	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	54.6
Approach			579	1.8	579	1.8	0.151	0.2	NA	0.0	0.0	0.00	0.04	0.00	54.7
West: Lepping Station Parking (W)															
10	L2	All MCs	66	0.0	66	0.0	0.050	6.3	LOS A	0.2	1.4	0.32	0.58	0.32	49.1
Approach			66	0.0	66	0.0	0.050	6.3	LOS A	0.2	1.4	0.32	0.58	0.32	49.1
All Vehicles			645	1.6	645	1.6	0.151	0.8	NA	0.2	1.4	0.03	0.10	0.03	52.1

Site Level of Service (LOS) Method: Delay (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: [5 (2)] Rickard Road and Byron Road W PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.181	5.5	LOS A	0.0	0.0	0.00	0.55	0.00	49.4
2	T1	All MCs	365	2.9	365	2.9	0.181	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	57.6
Approach			683	1.5	683	1.5	0.181	2.6	NA	0.0	0.0	0.00	0.27	0.00	50.7
West: Byron Rd (W)															
10	L2	All MCs	214	0.0	214	0.0	0.133	5.6	LOS A	0.6	4.1	0.08	0.55	0.08	50.5
Approach			214	0.0	214	0.0	0.133	5.6	LOS A	0.6	4.1	0.08	0.55	0.08	50.5
All Vehicles			897	1.2	897	1.2	0.181	3.3	NA	0.6	4.1	0.02	0.34	0.02	50.6

Site Level of Service (LOS) Method: Delay (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: [6 (2)] Rickard Road and Byron Road E PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and Byron Road Intersection
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Byron Rd (E)															
4	L2	All MCs	286	0.4	286	0.4	0.198	6.9	LOS A	1.0	7.0	0.27	0.58	0.27	54.6
Approach			286	0.4	286	0.4	0.198	6.9	LOS A	1.0	7.0	0.27	0.58	0.27	54.6
North: Rickard Rd (N)															
7	L2	All MCs	221	2.9	221	2.9	0.199	4.7	LOS A	0.0	0.0	0.00	0.35	0.00	51.6
8	T1	All MCs	529	2.4	529	2.4	0.199	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	51.9
Approach			751	2.5	751	2.5	0.199	1.4	NA	0.0	0.0	0.00	0.17	0.00	51.7
All Vehicles			1037	1.9	1037	1.9	0.199	2.9	NA	1.0	7.0	0.08	0.28	0.08	53.0

Site Level of Service (LOS) Method: Delay (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: [7 (2)] Rickard Road and Foreshadowed Roundabout PM (Proposed PM)

Network: [2] Network PM (Projected 2036 w.Signalised Bus Interchange + Proposed Development)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Rickard Road and ILP Road 2 with Foreshadowed Roundabout Intersection
Site Category: (None)
Roundabout
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Rickard Rd (S)															
1	L2	All MCs	318	0.0	318	0.0	0.354	5.9	LOS A	2.1	14.4	0.54	0.60	0.54	49.1
2	T1	All MCs	315	3.3	315	3.3	0.354	5.9	LOS A	2.1	14.5	0.54	0.61	0.54	48.1
3	R2	All MCs	91	0.0	91	0.0	0.354	10.0	LOS A	2.0	14.5	0.54	0.61	0.54	48.9
Approach			723	1.5	723	1.5	0.354	6.4	LOS A	2.1	14.5	0.54	0.60	0.54	48.7
East: ILP Road 2 (E)															
4	L2	All MCs	28	0.0	28	0.0	0.051	8.8	LOS A	0.2	1.6	0.71	0.79	0.71	48.4
5	T1	All MCs	1	0.0	1	0.0	0.046	8.1	LOS A	0.2	1.5	0.71	0.81	0.71	39.7
6	R2	All MCs	28	0.0	28	0.0	0.046	12.3	LOS A	0.2	1.5	0.71	0.81	0.71	35.5
Approach			58	0.0	58	0.0	0.051	10.5	LOS A	0.2	1.6	0.71	0.80	0.71	43.9
North: Rickard Rd (N)															
7	L2	All MCs	91	0.0	91	0.0	0.510	8.5	LOS A	4.0	28.5	0.80	0.74	0.88	40.4
8	T1	All MCs	423	3.2	423	3.2	0.510	8.6	LOS A	4.0	28.5	0.80	0.75	0.88	46.1
9	R2	All MCs	80	0.0	80	0.0	0.510	12.9	LOS A	3.9	27.7	0.80	0.79	0.88	32.9
9u	U	All MCs	225	0.0	225	0.0	0.510	14.8	LOS B	3.9	27.7	0.80	0.79	0.88	26.0
Approach			819	1.7	819	1.7	0.510	10.7	LOS A	4.0	28.5	0.80	0.77	0.88	41.2
West: Southern Site Access (W)															
10	L2	All MCs	115	0.0	115	0.0	0.811	15.7	LOS B	9.5	66.4	0.92	1.08	1.51	22.1
11	T1	All MCs	1	0.0	1	0.0	0.811	16.0	LOS B	9.5	66.4	0.92	1.08	1.51	33.5
12	R2	All MCs	481	0.0	481	0.0	0.811	20.1	LOS B	9.5	66.4	0.92	1.08	1.51	39.2
Approach			597	0.0	597	0.0	0.811	19.2	LOS B	9.5	66.4	0.92	1.08	1.51	37.5
All Vehicles			2197	1.1	2197	1.1	0.811	11.6	LOS A	9.5	66.4	0.74	0.80	0.93	42.5

Site Level of Service (LOS) Method: Delay (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.
Roundabout 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 F

SWEPT TURNING PATH DIAGRAMS

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PO Box 1868
Neutral Bay, NSW 2089
www.vargatraffic.com.au
Sydney, Australia

PROJECT
LEPPINGTON SITE A

N

DRAWING TITLE
19m AV_GF_Eastern Loading Area Entry

1:500 @ A3

ADDRESS
173-183 Rickard Road,
Leppington

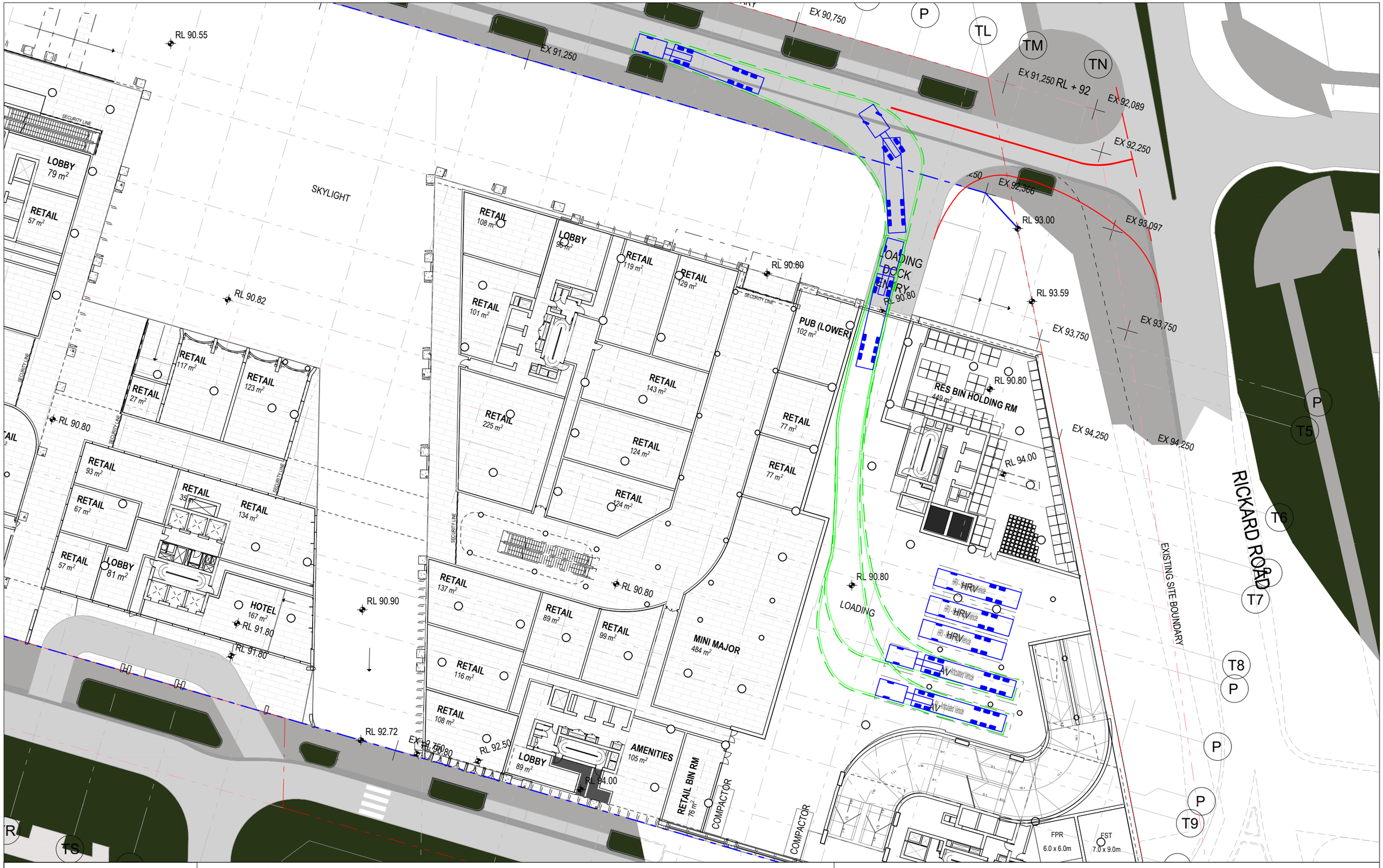
PROJECT NO.
26067

DATE DRAWN
2026-5-29

REVIEWED
RV

PREPARED
MN

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants



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Neutral Bay, NSW 2089
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Sydney, Australia

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DRAWING TITLE
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1:500 @ A3

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Neutral Bay, NSW 2089
www.vargatraffic.com.au
Sydney, Australia

PROJECT
LEPPINGTON SITE A

N

DRAWING TITLE
12.5m HRV_GF_Eastern Loading Area Entry

1:500 @ A3

ADDRESS
173-183 Rickard Road,
Leppington

PROJECT NO.
26067

DATE DRAWN
2026-5-29

REVIEWED
RV

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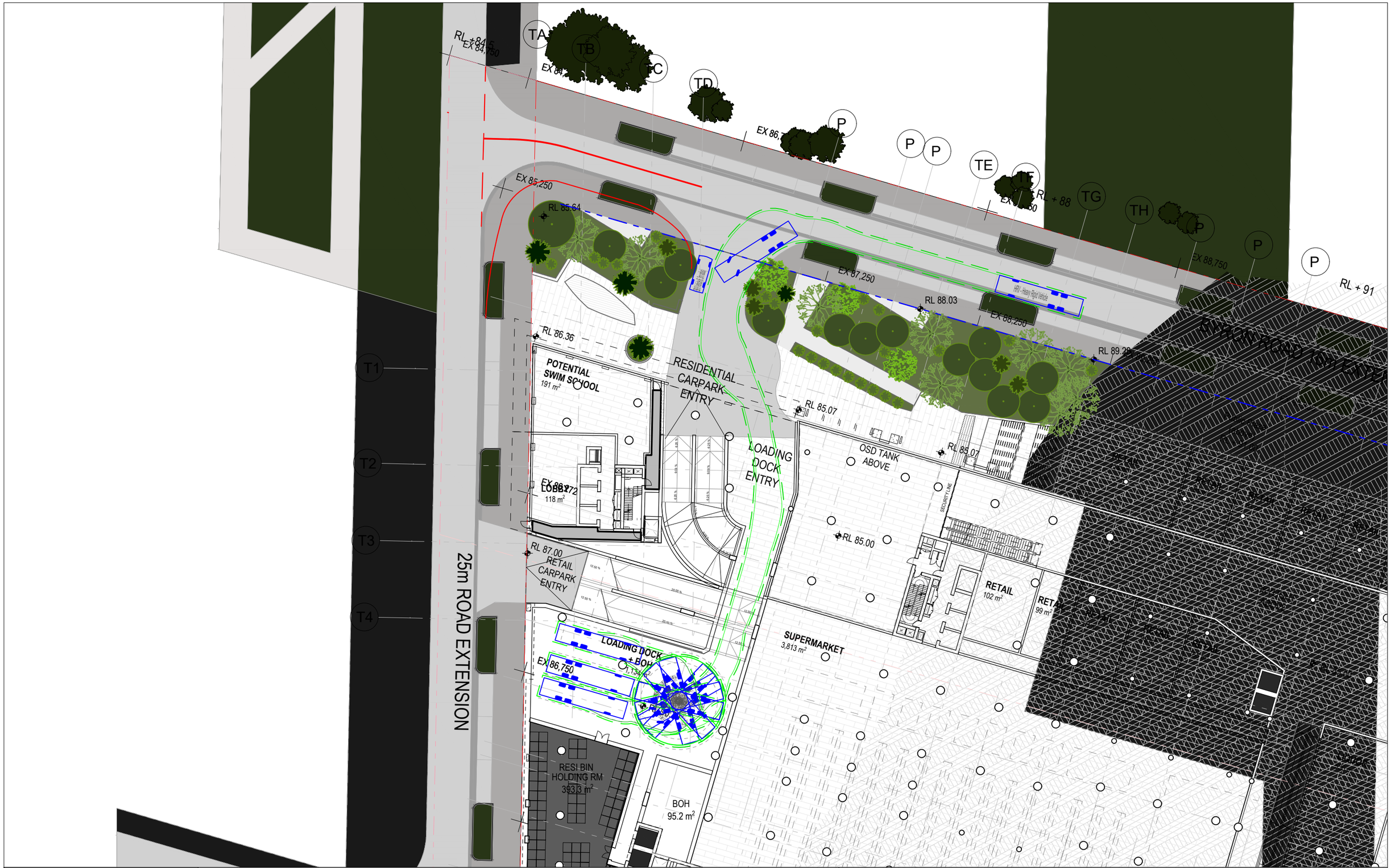

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Sydney, Australia

PROJECT
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N

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1:500 @ A3

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PROJECT NO.
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DATE DRAWN
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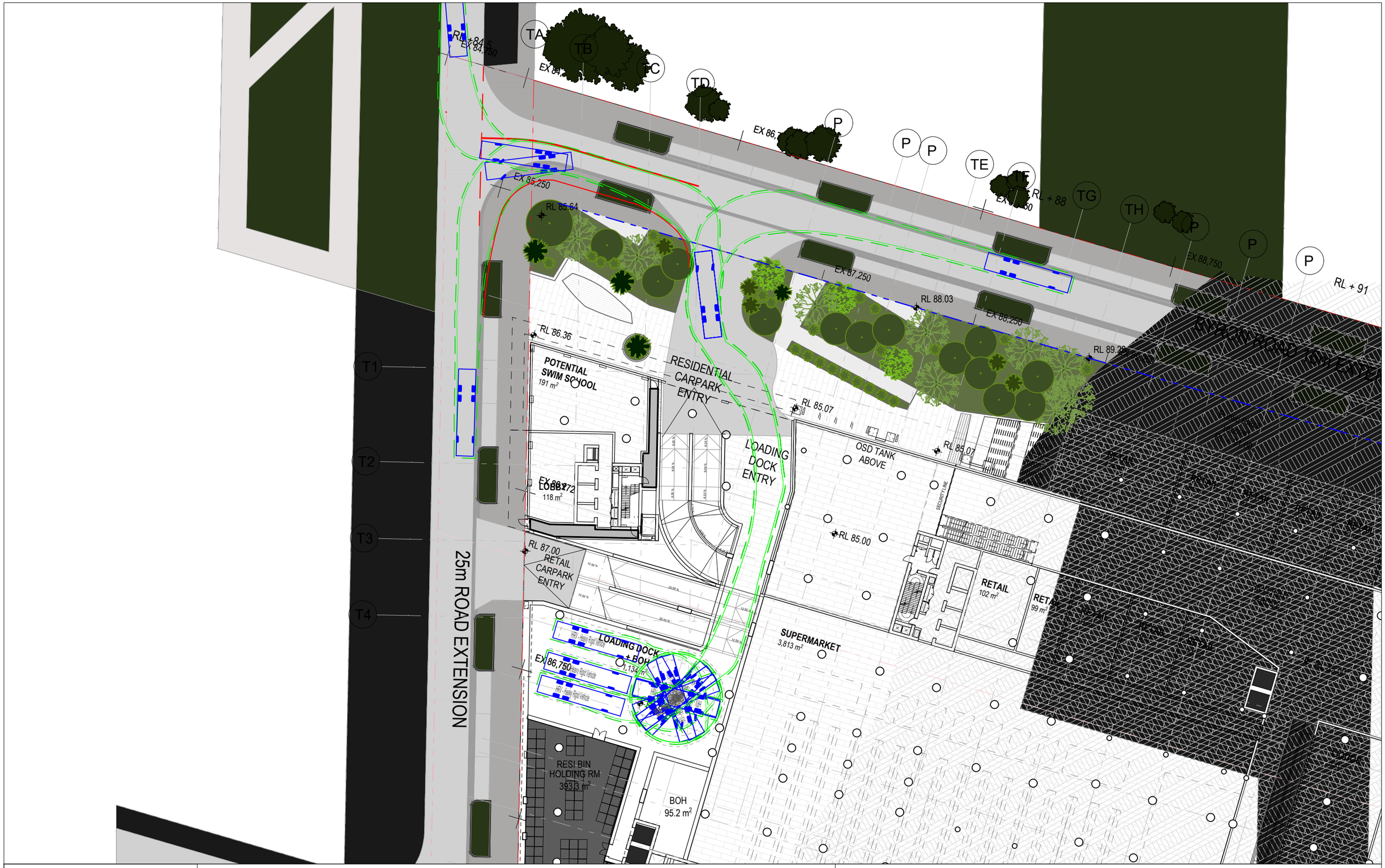

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