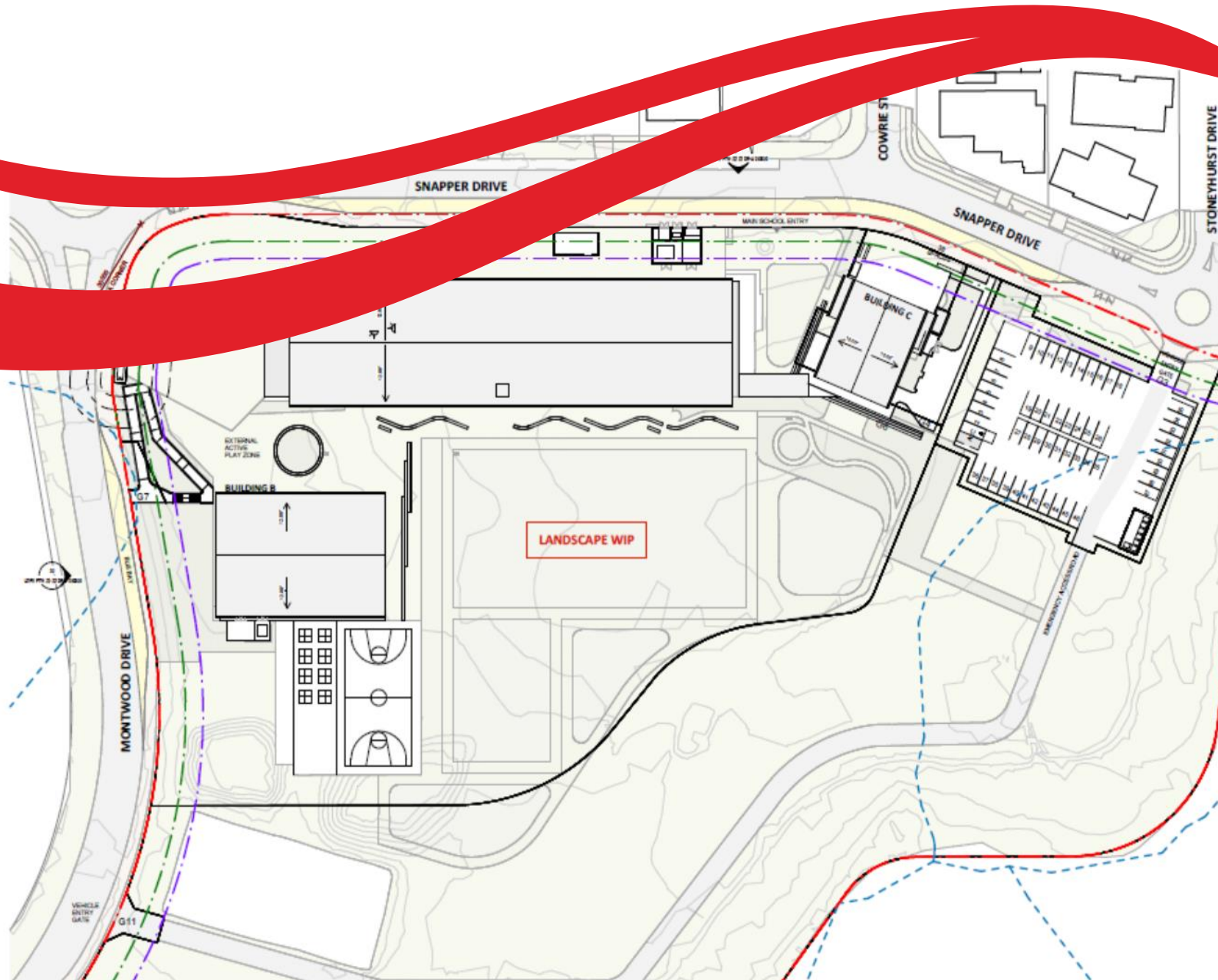
Lennox Head Public School

Transport and Access Impact Assessment

NSW Department of Education

15th May 2025



Gold Coast
Suite 26, 58 Riverwalk Avenue
Robina QLD 4226
P: (07) 5562 5377

Brisbane
Level 2, 428 Upper Edward Street
Spring Hill QLD 4000
P: (07) 3831 4442

Sydney
Studio 203, 3 Gladstone Street
Newtown NSW 2042
P: (02) 9557 6202

W: www.bitziosconsulting.com.au

E: admin@bitziosconsulting.com.au

Document Issue History

Report File Name	Version	Document Control		Date	Issued to
P5939.001R Lennox Head Public School TTIA	001	Prepared: Reviewed: Issued	A. Soltan / T. Rasmussen A. Eke T. Rasmussen	20/12/2024	Nat McPherson <natalie.mcpherson5@det.nsw.edu.au>
P5939.002R Lennox Head Public School TAIA	002	Prepared: Reviewed: Issued	A. Soltan A. Eke A. Eke	04/04/2025	Sam Watkins <sam.watkins@johnstaff.com.au>
P5939.003R Lennox Head Public School TAIA	003	Prepared: Reviewed: Issued	A. Soltan A. Eke A. Eke	10/04/2025	Sam Watkins <sam.watkins@johnstaff.com.au>
P5939.004R Lennox Head Public School TAIA	004	Prepared: Reviewed: Issued	A. Soltan / T. Rasmussen A. Eke T. Rasmussen	15/05/2025	Sam Watkins <sam.watkins@johnstaff.com.au>

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1. INTRODUCTION

1.1 Background

This Transport and Access Impact Assessment (TAIA) has been prepared by Bitzios Consulting (Bitzios) on behalf of Department of Education NSW (DoE) to assess the potential environmental impacts that could arise from the new school development at Montwood Drive, Lennox Head; Lot 5 DP1239938 (subject site).

This report has been prepared to assess the internal and external traffic and transport impacts of the proposed Lennox Head Primary School's (LHPS) new campus location.

This report accompanies a Review of Environmental Factors (REF) that seeks approve for the construction and operation of a new primary school at the site, which involves the following works:

- Construction of a new school building, including learning hubs and an administration and library building
- Construction of a multi-purpose hall
- Construction and operation of a preschool
- Construction of car parking, waste storage and loading area
- Associated site landscaping and open space improvements

For a detailed project description, refer to the Review of Environmental Factors (REF) prepared by EPM Projects.

1.2 Report Scope

As part of the project plans, the current school is proposed to be relocated to a new location in response to the increased catchment area, whilst accommodating for the growing community within and around Lennox Head.

The subject site is located within the Ballina Local Government Area (LGA) and is zoned RU2 Rural Landscape and R1 General Residential under the provisions of the Ballina Local Environment Plan 2012 (BLEP2013).

The relocation and construction of the new Lennox Head Public School comprises the following works:

- Site preparation works
- Construction of:
  - 24 general learning spaces and 6 learning common rooms
  - One (1) preschool (standalone building for 40 places)
  - One (1) multipurpose communal hall
  - Outdoor play areas, including games courts
  - Two (2) indented bus bays fronting Montwood Drive
  - One (1) at-grade internal parking module, containing 55 car parking spaces
  - A kiss'n'drop (KnD) facility fronting Snapper Drive, containing four (4) indented bays for standing vehicles, along with additional queuing space. Note the kiss'n'drop facility is not median separated
  - A 'fried-egg' roundabout treatment at the Snapper Drive / Stoneyhurst Drive intersection, which provides access to the at-grade internal parking module

Other items regarding pedestrian and road upgrade works will need to be investigated by DoE, Council and relevant stakeholders following approval. These are discussed as part of the mitigation measures at the rear of this report.

The new campus location has capacity to accommodate 552 students across seven (7) year levels (Kindergarten to Year 6). While the proposed works will facilitate this number of students, student forecasting is not expected to exceed 480 by 2041.

Development plans prepared by PTW Architects are provided in **Appendix A**.

Existing attributes of the subject site are noted as follows:

- The subject site exhibits an area of approximately 37,950m^2 and is located within the suburb of Lennox Head in the Ballina Shire Council Local Government Area
- The subject site has a frontage to Montwood Drive to the west and Snapper Drive to the north
- The subject site is centrally located proximal to existing and proposed residential developments and maintains adequate connectivity through multiple transport provisions
- The subject site has relatively uniform terrain with no prominent undulations or peaks.

The existing site context is shown in Figure 1.1.

Source: Adapted from Nearmap

Figure 1.1: Subject Site Location

1.3 Scope

This TAIA includes the following components:

- A review of the existing transport conditions including pedestrian and cycling facilities, public transport facilities and connectivity surrounding the subject site
- A review of the existing transport planning documents
- A transport assessment of the development's student enrolment catchment and travel modes
- A review of historical crash data
- Assessment of the proposed access arrangements for vehicles, servicing and refuse collection
- Estimation of the development's trip generation and distribution on the local road network
- Assessment of the development's impacts on the surrounding road network
- Assessment of the development's car and bicycle parking provision.

Based on the identification of potential impacts and an assessment of the nature and extent of the impacts of the proposed development, it is determined that all potential impacts can be appropriately mitigated to ensure that there is minimal impact on the locality, community and/or the environment.

The assessment of the transport impacts of this school puts into context the following:

- The subject site is within a greenfield location, which is presently undergoing a significant urban / residential transformation
- The surrounding land parcels are currently being developed / redeveloped for residential housing following the Strategic Urban Growth Area Review conducted by Ballina Shire Council in 2022.
- The school is therefore considered a necessary piece of infrastructure for this new community and essentially a trip-end for education-based trips for these emerging residential areas in the school's catchment.

1.4 Stakeholder Engagement

In preparation of this Transport and Access Impact Assessment (TAIA), key transport stakeholders were consulted including representatives from Ballina Shire Council (Council) and Transport for New South Wales (TfNSW). This was undertaken directly with Council as well as collectively with Council and TfNSW as part of a Transport Working Group process.

Consultation regarding the existing transport operations of the school was also undertaken with the school principal, as well as with relevant project stakeholders. Key items from the stakeholder engagement are as follows:

- Consultation meeting occurred with Council on 26 September 2024 which discussed the proposed school relocation and surrounding road environment and development consideration
  - Council raised concern that the immediate area was not designed to support a school development and the local road network was insufficient. This was addressed through a quantitative traffic analysis using SIDRA on key intersections
  - Council generally agreed in principle to indented bus bays along Montwood Drive
  - Council requested that the driveway access from Montwood Drive be restricted to left-in / left-out movements only. This was addressed by removing parking access from Montwood Drive entirely
  - Council raised concern over the proposed on-street indented kiss'n'drop (KnD) facility accessible via Snapper Drive as it restricted traffic movements to one-way during peak times. This was addressed by relocating the KnD to be within the internal parking module
- Transport Working Group (TWG) Meeting on 2 December 2024 with SINSW, Council and TfNSW to provide a project update and discuss key impacts and considerations.
  - The school principal requested amending school bell times to 9:00am and 3:00pm. TfNSW and SINSW noted bell times are flexible pending school requirements and bus planning needs
  - Bitzios discussed the proposed undersupply of car parking spaces provided in the internal parking module. Council was acceptive of this shortfall provided a KnD is accommodated
  - Council proposed that a "small fried egg" roundabout could be provided at the Snapper Drive / Stoneyhurst Drive intersection to primarily reduce u-turn movements elsewhere. Despite Bitzios suggesting an option to circulate via Stoneyhurst Drive, Council suggests the roundabout will better facilitate dominant traffic movements
  - Council suggested relocating the pedestrian crossing locations though noted the desire lines respective to the primary pedestrian access to the primary school and the likely origins and destinations of trips
  - TfNSW agreed in principle to indented bus bays along Montwood Drive; however, wished to investigate if the number of bus bays is sufficient.
- TWG Meeting on 18 March 2025 with Johnstaff, SINSW, Council and TfNSW to provide a project update and discuss key impacts and considerations, particularly for the proposed kiss'n'drop facility
  - SINSW noted the new LHPS campus anticipated to be opened for Day 1 Term 1 2027

- SINSW queried the timeframe for coordinating bus route changes for the school. TfNSW advised the review typically takes approximately three (3) months and coordination should commence at least six (6) months prior to the opening of the school
- Direct discussions were held with Council to resolve initial concerns around the proposed KnD facility. This results in a proposed KnD facility being developed in collaboration with Council along Snapper Drive frontage, which could also be utilised as unrestricted carparking outside school operating hours. In addition, the KnD facility was proposed to be supplemented with a site access driveway and small roundabout at Stoneyhurst Drive to provide a u-turn facility for KnD operations and manage external impacts to surrounding residential streets.
- The need for crossing facilities at Montwood Drive / Snapper Drive was investigated and discussed. It was agreed at the TWG that while crossing improvements are needed at this location, detailed investigations on the precise location and facility were to occur between DoE and Council as part of the S138 (Works on Road) application process. Therefore, for the purpose of the REF a specific agree design of the crossing facility is required at this stage, but future investigations and designs will be recommended to be conditioned, specifically in relation to the pedestrian crossing type / location, new street parking signage and pavement / kerb installations.

2. TRANSPORT PLANNING CONTEXT

2.1 Overview

A review of State and Local planning documents was undertaken to gain an understanding of the current policies and programs within the Ballina Council region. This also allows this assessment to align with other related plans. A range of documents were reviewed, and the subsequent sections detail the documents that have outcomes relevant to this assessment.

2.2 State Documents

State documents were reviewed including the NSW Government's Future Transport Strategy, Long-Term Strategic Master Plan, NSW Active Transport Strategy, Regional NSW Services and Infrastructure Plan and NSW Planning Guidelines for Walking and Cycling. The following details the outcomes from the relevant state government plans:

- NSW Future Transport Strategy – This plan outlines the overarching strategy, supported by a suite of plans to achieve a long-term vision for the NSW transport system, particularly future planning, investment, delivery and operations
- NSW Long Term Transport Master Plan – this plan identifies that bus service contracts in the region are to be renewed which is an opportunity to improve routes and outcomes for customers. This includes cross-border routes and infrastructure
- NSW Active Transport Strategy – this plan outlines key focus areas for 15-minute cities and walking and cycling including:
  - an ambition to double the number of children walking or riding to school with supporting programs and trials to support active travel to school and behaviour change initiatives to shift modes by 2028
  - partnering with the Department of Education and key stakeholders to improve safe walking, cycling and public transport access to schools.
- Regional NSW Services and Infrastructure Plan – this plan identifies additional cross-border public transport options including short-term bus priority and long-term heavy/light rail.
- NSW Planning Guidelines for Walking and Cycling – this plan identifies the value of walking and cycling as tools to reduce congestion, freeing up capacity on public transport and encouraging active transport for short local trips
- Design of Roads and Streets (DORAS) which is a TfNSW manual that provides practical design guidance for roads and streets, aligning with the NSW Movement and Place Framework.

2.3 Local Documents

Council documents were reviewed including the Pedestrian Access and Mobility Plan (PAMP) 2018, and Lennox Head Strategic Plan 2023-2043. The following details the outcomes from the relevant local documents that directly benefit LHPS:

- Ballina PAMP:
  - Construct 73m footpath through walkway on Castle Drive
  - Construct 840m footpath on Henderson Lane and Meadows Drive
  - Reconstruct two footpaths on Montwood Drive
  - Construct 315m cycleway on Hutley Drive.
- Lennox Head Strategic Plan 2023-2043:
  - Improve legibility, amenity and safety of crossing The Coast Road.

At the timing of this report, the above infrastructure improvement were yet to receive defined timing or funding for implementation.

2.4 Relevance to School Redevelopment and Transport Impacts

The relocation of the LHPS is in response to the increased student catchment area. Amongst other key factors in the school selection process, the Montwood Drive site was selected due to the proximity to Lennox Head urban release areas and residential development surrounding the site.

It is acknowledged; however, that the site and adjacent road network and area were not designed or envisioned to accommodate a school. Successful delivery of this project is reliant on mitigation and management of any risks that arise from relocating the school to this location.

Growth will occur over a period of time and will be subject to a combination of factors. This will influence how the school's population will expand over time and also what transport infrastructure is available. As mentioned above, the identified capacity for the redeveloped school site is expected to be 552 students.

Notably, a significant proportion of the student growth is expected to be within the surrounding walk and cycle catchment of the school, supporting local and state government goals of reduced car dependence.

Without this proposed school relocation, traffic growth in this area would still occur as a direct result of the Lennox Head urban release area. Furthermore, if the LHPS was not relocated, school-related trips would still be generated across the urban release area in this vicinity and travel to other locations further afield from Lennox Head.

It is therefore considered that the main traffic consideration associated with relocating the school is the immediate local road network proximal to the subject site.

The proposed school's transport needs need to be assessed and reviewed in the context of the surrounding growth and development of the area by others. The development proposal and proposed transport facility improvements responds to needs of the development and mitigations for traffic impacts of the development.

3. EXISTING CONDITIONS

3.1 Subject Site

The site is located on the corner of Montwood Drive and Snapper Drive with a 170m road frontage to Montwood Drive (western boundary) and 260m road frontage to Snapper Drive (northern boundary). The site comprises a single allotment, legally described as Lot 5 in deposited plan (DP) 1239938 with an approximate site area of 4.17ha. The site is approximately 2.5km north of Ballina Airport and 4.5km north of Ballina town centre.

Source: NSW Planning Portal Spatial Viewer

Figure 3.1: Aerial Capture of the Project Site

3.2 Road Network

The surrounding road network consists exclusively of council controlled local roads each with two lanes and a posted speed limit of 50km/h. They have unrestricted parking and currently have no bus zones or other notable features.

The surrounding key roads in proximity to the subject site are summarised in Table 3.1.

Table 3.1: Surrounding Key Street Details

No.	Road Name	Jurisdiction	Hierarchy	Cross Section	Posted Speed
1	Snapper Drive	Council	Local Road	2 lanes, undivided	50 km/h
2	Montwood Drive	Council	Collector	2 lanes, undivided	50 km/h
3	Hutley Drive	Council	Collector	2 lanes, undivided	50 km/h
4	Stoneyhurst Drive	Council	Local Road	2 lanes, undivided	50 km/h
5	North Creek Road	Council	Distributor	2 lanes, undivided	60 km/h

During site visits, Snapper Drive and Montwood Drive were observed to have limited traffic. A large number of traffic movements were observed entering and exiting the nearby shopping centre, primarily via the Hutley Drive frontage.

The surrounding key intersections in proximity to the subject site are summarised in Table 3.2.

Table 3.2: Surrounding Key Intersection Details

No.	Major Road	Minor Road	Jurisdiction	Control
1	Snapper Drive	Montwood Drive	Council	Roundabout
2	Hutley Drive	Snapper Drive	Council	Priority

The location of the key intersections with respect to the LHPS is shown in Figure 3.2

Source: Adapted from Nearmap

Figure 3.2: Key Intersections

3.3 Alternate Transport

3.3.1 Active Transport

The current active transport facilities surrounding the school are shown in Figure 3.3. The site is well serviced by existing footpath infrastructure, inclusive of 1.5m wide pathways along the site's frontage that presently encapsulates the site. The immediate network connects externally to Byron Bay Road and Skennars Head Road, providing connectivity to the greater intake area. Pedestrian crossings near the site contain pram ramps and refuge islands.

There are some sections of steep terrain surrounding LHPS as the area has an undulating terrain. Particularly, eastern residential catchments via Karalauren Court have noticeable slope and typography changes, reducing the attractiveness of walking or cycling mode share in these areas.

Source: Adapted from Nearmap

Figure 3.3: Key Active Transport Facilities

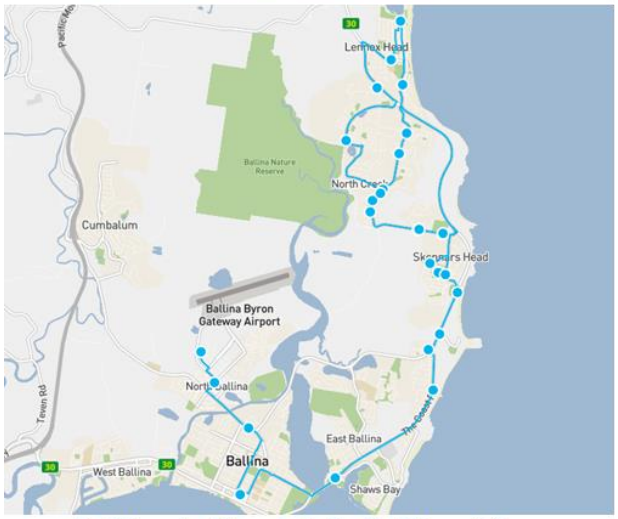
3.3.2 School Bus and Public Transport

Existing school and public bus services are provided by CDC (formerly Blanch's Bus Company) under contractual agreements with TfNSW. These services provide a 'regional' bus route catchment, which presently facilitates the existing school site.

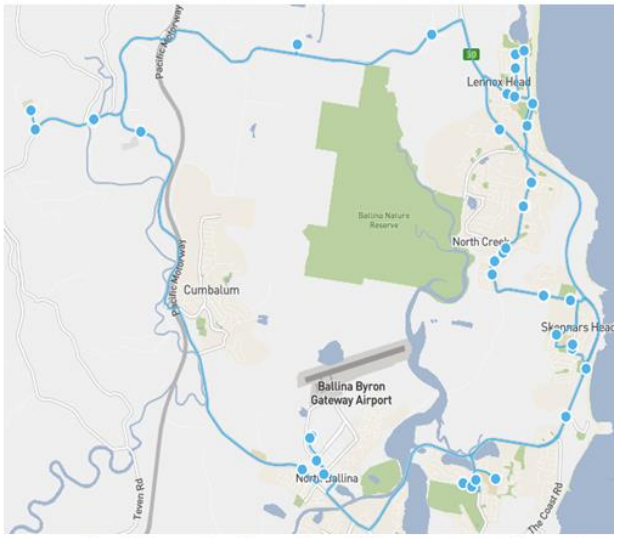
There are no bus stops within an immediate vicinity of the subject site but bust stops exists nearby on North Creek Road (approximately 500m east of the subject site). Bus routes, 640, 640X and 662, presently service these bus stops, providing connections to Ballina Byron Gateway Airport, Lismore, Southern Cross University (Northern Rivers Campus) and Byron Bay.

There are ten (10) school bus services that service the current LHPS site either directly, or as part of a larger route connecting multiple schools to residential areas. Details of these services are provided in Table 3.3 and illustrated in Figure 3.4.

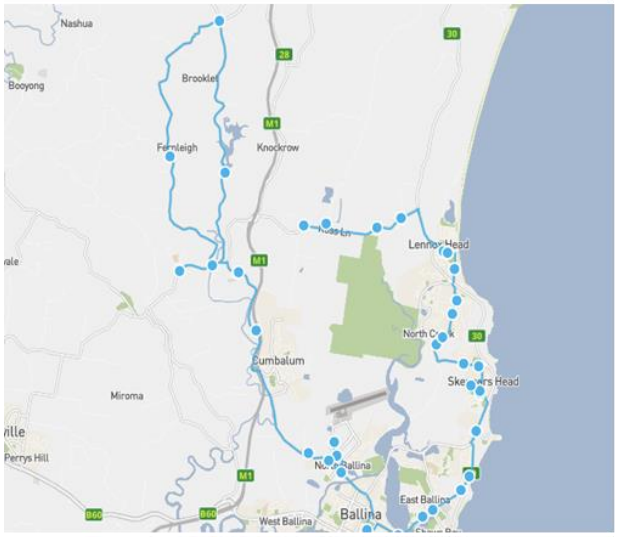
S401 Holy Family Catholic Primary to Ballina via Lennox Head



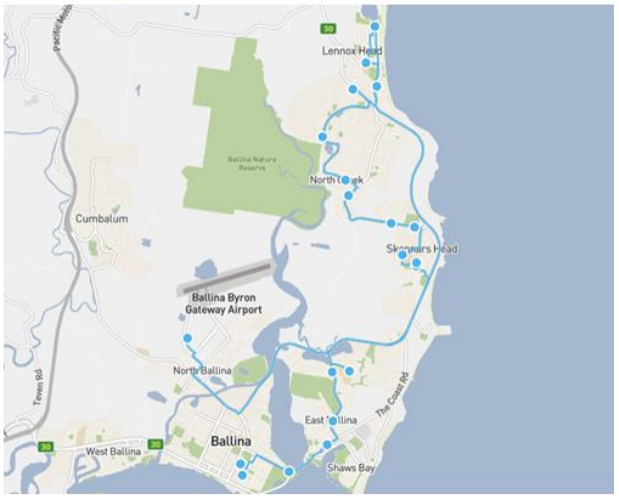
S407 Ballina to S Cross, Skennars Hd, Lennox Hd, & Teven-Tintenbar Schools



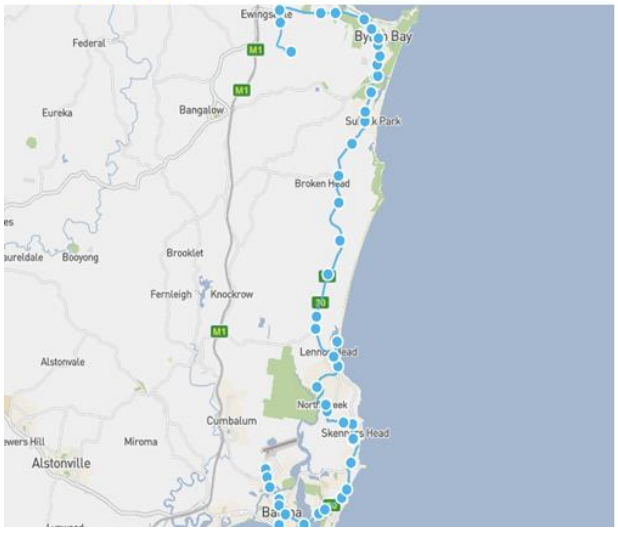
S410 Ballina to Fernleigh, Ballina, Skennars Head & Lennox Head Schools



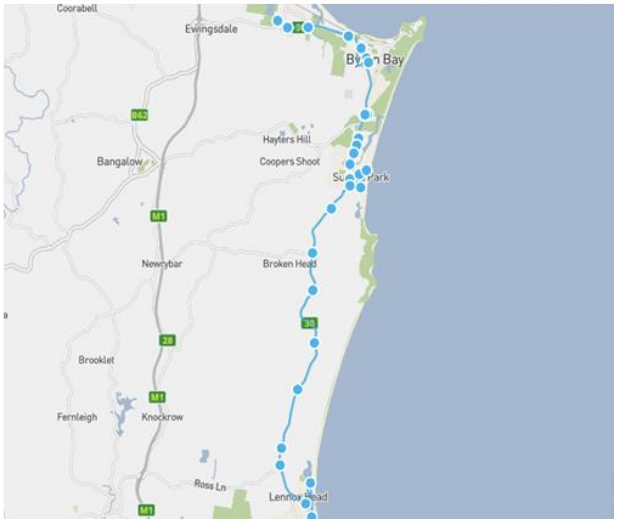
S415 Ballina Schools, Skennars Head Schools & Lennox Head Public to Ballina

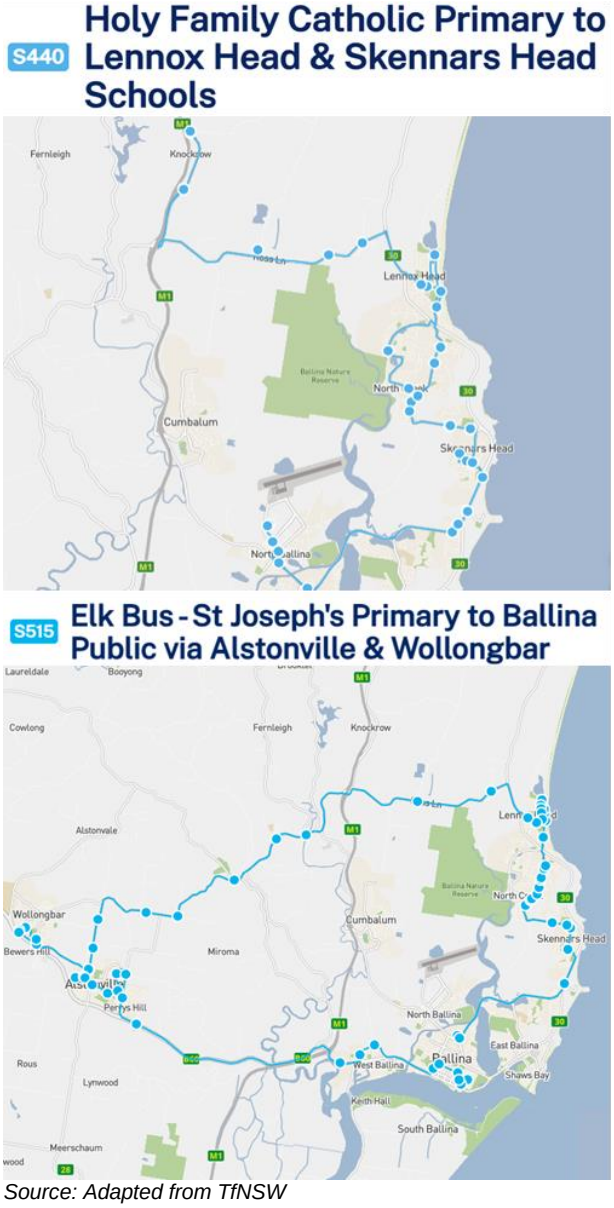


S417 North Ballina to Cape Byron Steiner School



S423 Lennox Head to Byron Bay Schools via Broken Head & Suffolk Park





Source: Adapted from TfNSW

Figure 3.4: School Bus Services

Table 3.3: School Bus Route Information

Route Number	Route	Start	Servicing LHPS	Finish
	AM			
S407	Ballina to Southern Cross, Skennars Head, Lennox Head & Teven-Tintenbar Schools	7:40AM	9:00AM	9:30AM
S410	Ballina to Fernleigh, Ballina, Skennars Head & Lennox Head Schools	7:25AM	9:20AM	
S415	Ballina, Skennars Head & Lennox Head Schools to Ballina	8:30AM	9:18AM	9:35AM
S417	North Ballina to Cape Byron Steiner School	7:25AM	8:07AM	8:55AM
S423	Lennox Head to Byron Bay Schools via Broken Head & Suffolk Park	8:00AM	8:04AM	9:10AM
S507	Ballina to St John's College via Lennox Head	7:30AM	7:42AM	8:45AM
S515	St Joseph's Primary to Ballina Public via Alstonville & Wollongbar	7:20AM	7:45AM	9:00AM
	PM			
S401	Holy Family Catholic Primary to Ballina via Lennox Head	3:05PM	3:40PM	4:30PM
S440	Holy Family Catholic Primary to Lennox Head & Skennars Head Schools	3:00PM	3:55PM	4:55PM
S456	Southern Cross Public to Skennars Head Schools via Kinvara	3:05PM	3:35PM	4:25PM

Furthermore, two public bus routes presently service the existing LHPS site. These services connect Lennox Head to key local destinations, such as Ballina, Byron Bay and Lismore. Details of these services are provided in Table 3.4.

Table 3.4: Public Bus Route Information

Route Number	Route	Start	Servicing LHPS	Finish
	AM			
640	Ballina to Mullumbimby via Byron Bay	9:05AM	9:33AM	10:30AM
662	Lennox Head to Lismore via Wollongbar	7:20AM	7:35AM	8:30AM
	PM			
662	Lennox Head to Lismore via Wollongbar	3:25PM	4:35PM	4:45PM

3.4 Transport Mode Share

A student travel mode share survey was undertaken in December 2022 across 330 students and 21 staff to determine the existing travel behaviours for the current school. The mode share split of students is provided in Figure 3.5 and the mode share split of staff is provided in Figure 3.6. Note this mode share comprises of students and staff attending and working within the current school site.

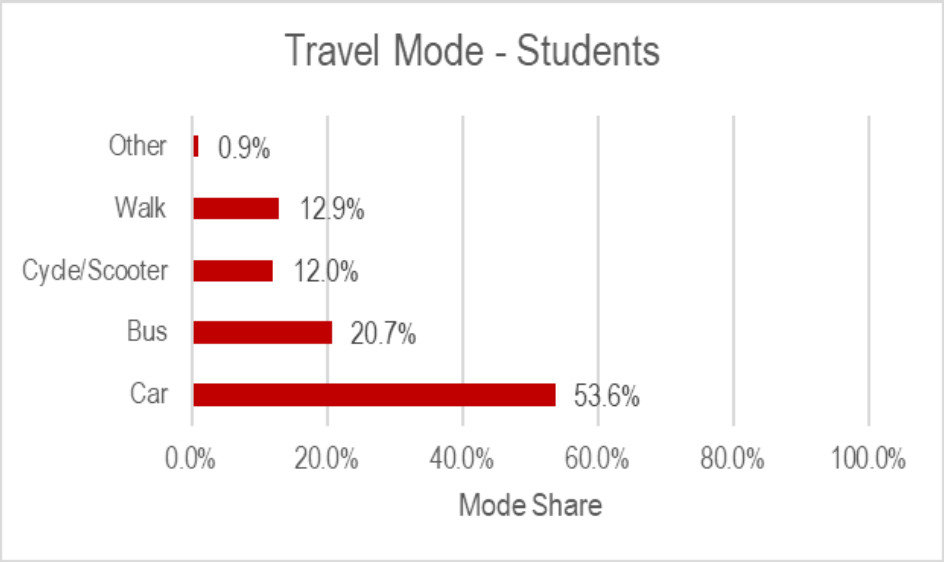


Figure 3.5: Mode Share Split of Students

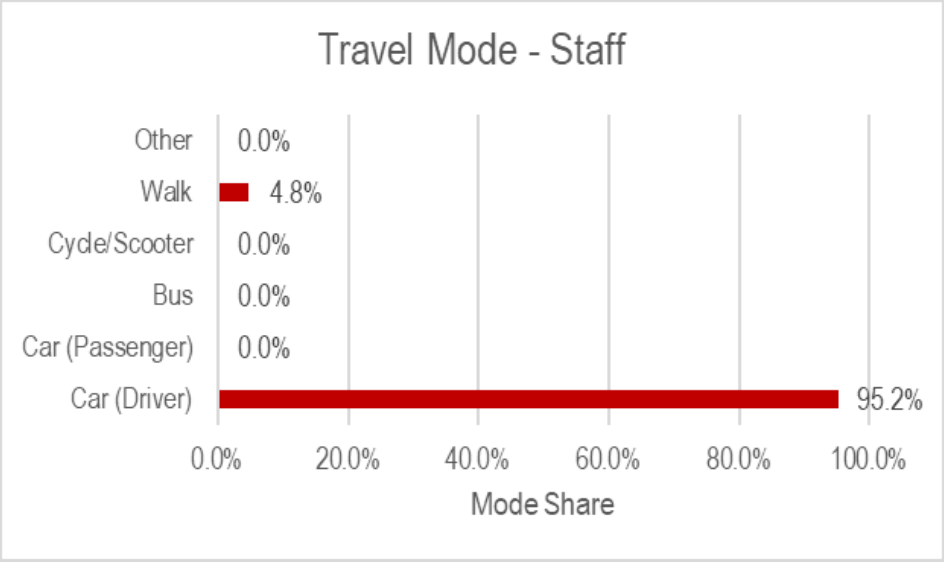


Figure 3.6: Mode Share Split of Staff

The percentage of existing students living within defined walk and cycle catchments to the proposed school are detailed in Table 3.5.

Table 3.5: Student Population within Walk and Bicycle Catchments

Catchment	Distance	Student Population	Proportion
400m	5min walk	7	1.4%
800m	10min walk	66	13.3%
1200m	15min walk / 5min bicycle	109	22%
2400m	10min bicycle	235	47%
Bus stops	400m	132	26%

While car based travel is currently the highest mode of travel, of car based trips 48% are carpooling (i.e. dropped-off/picked up in a car with another siblings or other students).

As shown, buses account for 20.7% of student travel. At the time of the travel survey 26% students lived within 400m of a bus stop.

It is acknowledged that the mode shares will likely change in response to the increased school catchment area and the school relocation. With the current bus mode share and the areas serviced by existing school bus services, there is opportunity to push for higher bus mode share. This will be important in offsetting potential reductions to active transport mode share percentages, that may reduce noting the steeper terrain of the surrounding residential area.

Staff travel mode shares are almost entirely by car, with responses and experience on other school sites suggesting little capacity for change.

As discussed herein, the staff car parking provided is compliant with the staff component of Council's DCP car parking requirement.

3.5 Historic Crash Analysis

The TfNSW Centre for Road Safety's interactive crash statistics were used to source crash data for the area surrounding LHPS. A review of reported crashes that occurred between 2018 and 2023 were analysed and identified a total of zero (0) crashes occurring within 500m proximity of the subject site.

Based on this information, the existing road network shows no historical evidence of a safety risk that would require further investigation or mitigation as part of the proposed school relocation. That said, the introduction of the school at this location does necessitate the need to review road speeds and potential conflict locations surrounding the site. These aspects will be considered with respect to any external infrastructure recommendations.

4. PROPOSED DEVELOPMENT

4.1 Development Details

The redevelopment of LHPS comprises the following works:

- Site preparation works
- Construction of:
  - 24 general learning spaces and six (6) learning common rooms
  - One (1) preschool (standalone building for 40 places)
  - One (1) multipurpose communal hall
  - Outdoor play areas, including games courts
  - Two (2) indented bus bays fronting Montwood Drive
  - One (1) at-grade internal parking module, containing 55 car parking spaces
  - A kiss'n'drop facility fronting Snapper Drive, containing four (4) indented bays for standing vehicles, along with additional queuing space. Note the kiss'n'drop facility is not median separated
  - Three (3) pedestrian accesses fronting Snapper Drive
  - One (1) pedestrian access fronting Montwood Drive, directly opposite the abovementioned bus bays

Other items regarding pedestrian and road upgrade works will need to be investigated by DoE, Council and relevant stakeholders following approval. These are discussed as part of the mitigation measures at the rear of this report.

The proposed school is designed to support 552 student enrolments and 40 preschool enrolments.

Enrolments are not anticipated to reach these capacities immediately upon year of opening (2027), with estimated expectations of a cohort size of 478 students by 2031. Table 4.1 tabulates the estimated enrolment projections for the LHPS cohort.

Table 4.1: Estimated Enrolment Projections

School	Enrolment Numbers			
	2026	2031	2036	2041
Lennox Head Primary School	418	478	464*	464*

Source: School Utilisation (September 2023)
**: Local housing forecasts are limited to 2031 projections. It is anticipated demand may be comparable to 2026 forecasts by 2041.*

4.2 Proposed Transport Facilities

Additional transport facility upgrades are included in the proposal to accommodate the increase in enrolments and changes to the transport strategy associated with the LHPS. The development plans prepared by PTW Architects are provided in **Appendix A**.

Infrastructure improvements will be supported by a School Transport Plan (STP), with a preliminary STP and Draft Travel Access Guide contained in **Appendix G**.

The transport related components are discussed in Table 4.2.

Table 4.2: Proposed Transport Facility Upgrades

Infrastructure Description	Benefit
1. Widening of existing footpath on Montwood Drive and Snapper Drive	Provides shared paths fronting the school site, accommodating alternate transport activity, such as cycling, whilst improving the safety and attractiveness of the footpath network during peak pick-up and drop-off periods. The current architectural and civil plans do not show the required widening of the footpath on Montwood Drive. This should be maintained as per the existing width (~2.5m) at a minimum, with land dedication requirements to be investigated with Council following approval.
2. Bus stop on Montwood Drive	Provides a new school bus stop facility on Montwood Drive in the form of an indented bus bay suitable for two buses. Footpath connections in vicinity of the bus bay to the school's primary pedestrian entry fronting Snapper Drive will also be investigated, connecting to the existing footpath network further south and west.
3. Kiss'n'drop facility on Snapper Drive	Provide a new Kiss 'n' Drop (KnD) facility on Snapper Drive with an overall length of approximately 162m, which includes four (4) bays allocated for student loading/ unloading, plus indented storage areas for an additional 23 vehicles. The four (4) bays will have signposted restrictions, limiting vehicles parking to a maximum of two minutes during the school zone times. The remaining KnD is provided as queueing space. The inclusion of this facility is to provide an efficient and managed pick-up and drop-off facility for private vehicle mode share and reduce conventional parking demands for the school. Further, the KnD facility can also be used as unrestricted car parking space outside of school peak times, formalising parking provision fronting the site.
4. Roundabout intersection upgrade on the Snapper Drive / Stoneyhurst Drive intersection	Formalises the Snapper Drive / Stoneyhurst Drive intersection to provide both a new vehicle site access driveway to the school as well as accommodate u-turn movements for vehicles using the KnD facility.
5. 40km/hr School Zone	Sections or Snapper Drive. Montwood Drive, Stonyhurst Drive and Cowrie Street will be updated to include 40km/hr School Zone speed signage.

In addition to the above, it is recognised that a formal pedestrian crossing facility is required at / in the vicinity of the Montwood Drive / Snapper Drive roundabout to support students walking and cycling to school. It was agreed with Council through TWG discussions that this would be further investigated as part of the S138 application due to the range of factors affecting design and alignment.

Figure 4.1 illustrates the proposed site plan with relevant details to this TAIA highlighted.

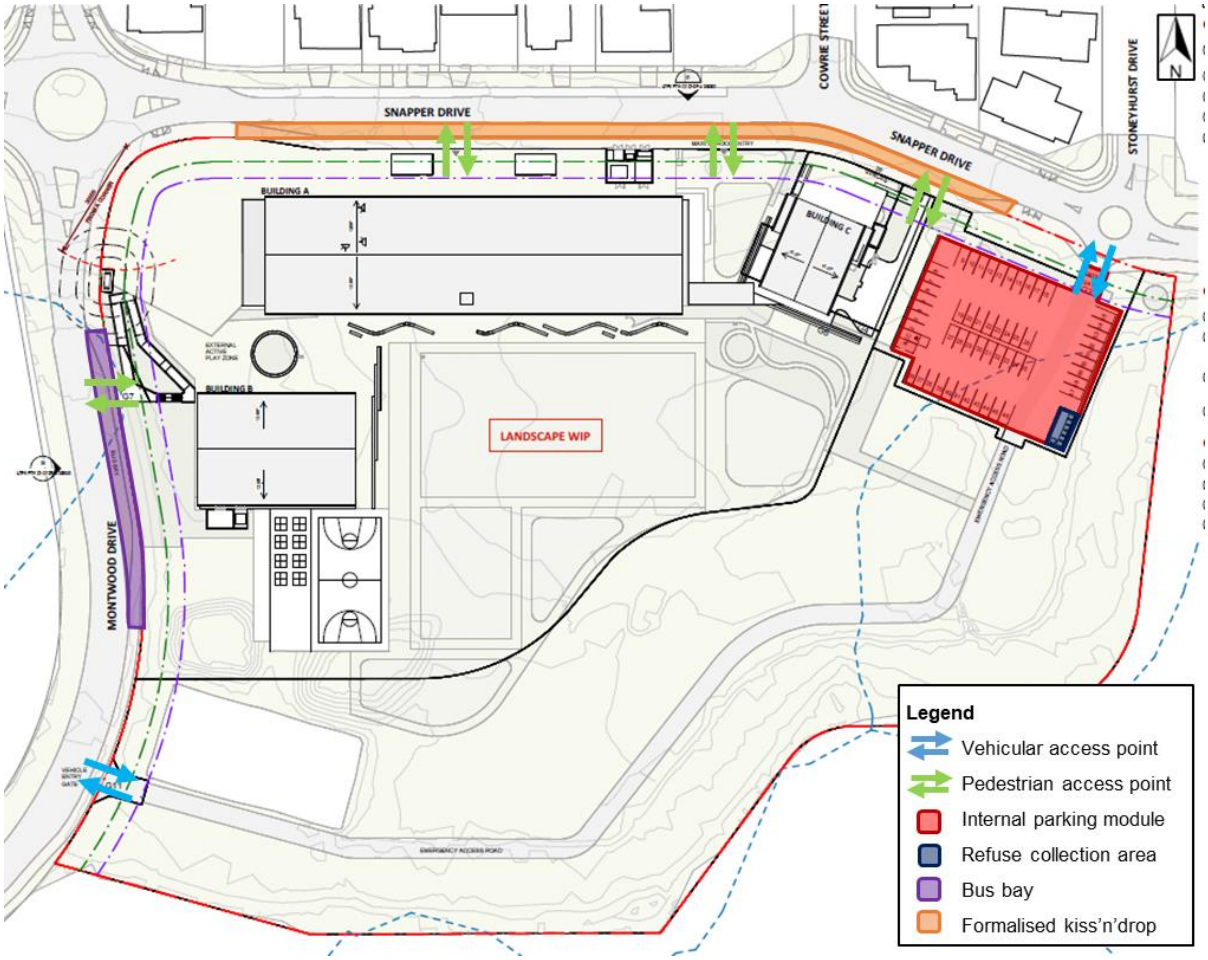


Figure 4.1: Proposed Transport Facilities

5. ACCESS ASSESSMENT

5.1 Overview

One primary vehicular access is proposed on Snapper Drive, facilitating ingress and egress movements into and out of the proposed internal parking module. This vehicular access will also provide servicing and refuse collection access. This vehicular access will be supported by the inclusion of a roundabout at the Snapper Drive / Stoneyhurst Drive intersection through an intersection upgrade, primarily facilitating u-turn movements for vehicles exiting the kiss'n'drop facility fronting Snapper Drive.

A secondary minor access is proposed on Montwood Drive for emergency access; however, this access will be gate-restricted.

These accesses have been proposed resulting from continued consultation with Council and TfNSW, along with technical stakeholders to assist in forming the design.

5.2 Pedestrian Access

Four (4) pedestrian access into the subject site fronting Snapper Drive and Montwood Drive are proposed. These accesses will connect the proposed school to the bus bay fronting Montwood Drive, the kiss'n'drop facility fronting Snapper Drive, as well as the proximal area. Separate pedestrian accesses from the carpark to the preschool and the primary school will also be provided.

The proposal includes widening the existing footpaths fronting the subject site to 2.5m, effectively providing shared paths. These shared paths will connect to the existing footpath network provide facilities to support walking and cycling trips. The architectural plans and civil plans do not currently show the 2.5m footpath on Montwood Drive. This should be maintained as per the existing width at a minimum, with land dedication requirements to be investigated with Council following approval.

Despite the abovementioned widening of footpaths fronting the subject site, no additional public domain works are proposed as part of the proposal. Notwithstanding, additional public domain works are expected to occur in consultation with Council at the Snapper Drive / Montwood Drive intersection. As per the outcomes from the TWGs, additional improved, formalised pedestrian crossing(s) will be required near the proposed school, subject to further detailed investigations to determine the type and location, and discussed in greater detail in the mitigation measures outlined at the rear of this report.

Notwithstanding, such infrastructure will improve safety for pedestrians and also facilitate a greater uptake in active transportation, further promoting differences in travel behaviour and ultimately encouraging a modal shift towards more sustainable transportation. It is recommended that pedestrian crossing infrastructure is further investigated by DoE to be delivered as part of the frontage works on Snapper Drive. DoE are recommended to work with Council on the detailed crossing form and any associated pathway connections.

5.3 Car Parking

Vehicular access to the subject site is provided via an all-movements driveway fronting Snapper Drive, catering for staff and student pick-ups/ drop-offs for the preschool. The driveway will be installed opposite the Stoneyhurst Drive access.

As part of the proposal, intersection upgrades to the Snapper Drive / Stoneyhurst Drive are proposed and will include a small-scale local road roundabout to accommodate the new driveway access crossover. Whilst the roundabout will formalise priorities at the driveway crossover, it will also facilitate u-turn movements for vehicles accessing the KnD facility.

To maintain two-way passing during school times, it is recommended to install kerbside signage for time limit and Drop-off / Pick-up Zone restrictions on the southern side of Snapper Drive to algin with the schools morning and afternoon peak periods. Draft Public Domain works related to the KnD facility were coordinated with Council. Preliminary Plans were prepared by Council (as presented in

Appendix B) outline the expected extent of works. This is however subject to a S138 works applications with Council.

An assessment of the proposed access in accordance with Council's and Australian Standards AS2890.1 requirements was undertaken with the outcomes summarised in Table 5.1.

Table 5.1: Driveway Compliance

Design Element	Details
Driveway to access Primary School & Preschool	
Access Facility Category	Category 2 (i.e. User Classes 1A, 2, 25-100 car parking spaces and local road frontage)
Driveway Form	IPWEAQ Standard Drawings RS-051: Modified Type A (6.0m wide at the property boundary)
Pedestrian Sight Line Triangle	A pedestrian sight line triangle should be provided on the egress side of the driveway as per Figure 3.3 in AS2890.1.

5.4 Kiss'n'Drop Facility

As part of the proposal, an indented KnD facility is provisioned along the southern side of Snapper Drive. This facility will contain four (4) bays allocated for student loading/ unloading, facilitating pick-up/ drop-off movements. The four bays will have signposted restrictions, limiting vehicles parking to a maximum of two minutes during the school zone times. The remaining KnD is provided as queuing space.

Outside school zone times, unrestricted car parking will be permitted along the KnD facility, providing additional car parking spaces directly adjacent to the subject site. Consistent with other similar school configurations, these kerbside spaces will commonly be used by visitors to the school outside designated pick-up/drop-off periods. Preliminary Plans were prepared by Council as part of the design and consultation process as presented in **Appendix B.**

5.5 Servicing Access

Service vehicle access to the site is proposed to be provided via the all-movements driveway fronting Snapper Drive at the new roundabout intersection with Stoneyhurst Drive. The semi-mountable design as depicted in Council's concept sketch provided as part of the TWG will allow service vehicles to enter and exit the site in a forward gear via Snapper Drive. This has been verified using swept paths presented in **Appendix C**, using a 10.2m front-loading refuse collection vehicle.

A secondary access is to be provided fronting Montwood Drive, for maintenance and emergency services vehicles.

An assessment of the proposed accesses in accordance with Council's and Australian Standards AS2890.2 requirements was undertaken with the outcomes summarised in Table 5.2

Table 5.2: Driveway Compliance

Design Element	Details
Snapper Drive Access	
Driveway Form	IPWEAQ Standard Drawings RS-051: Modified Type A (6.0m wide at the property boundary) – **to be adjusted to suit swept paths**
Pedestrian Sight Line Triangle	A pedestrian sight line triangle should be provided on both sides of the driveway as per Figure 3.3 in AS2890.1.
Montwood Drive Access	
Driveway Form	IPWEAQ Standard Drawings RS-051: Modified Type A (6.0m wide at the property boundary) – **to be adjusted to suit swept paths**
Pedestrian Sight Line Triangle	A pedestrian sight line triangle should be provided on both sides of the driveway as per Figure 3.3 in AS2890.1.

Swept paths have been provided in **Appendix C**. The access should be widened to at least the width of the swept paths.

6. BUS FACILITY AND OPERATIONS

6.1 School Bus Operations

With over 20% of school students presently using buses to the current school site, maintaining a high level of connectivity from the subject site to the greater public transportation network is crucial, as doing so will ensure that bus utilisation and public transportation mode share is maintained and further improved. There does exists an opportunity to capture the current student enrolments, particularly those located outside of walking / cycling distance to the proposed school, through efficiently planned school bus services. Further detailed bus route planning will be undertaken by TfNSW's bus planning team in collaboration with local operators as they work through required contract updates for the school.

Existing school bus services will be required to be amended to service the new school location. Given the range of the current routes which service multiple schools and extend large distances, many routes are expected to largely remain consistent but vary this start, end or interim destinations when accessing LHPS. Given the residential growth planned for several areas across the school catchment, paired with further anticipated growth in this region, rerouting the existing school bus services may be attractive in encouraging additional students to utilise public transportation and increase modal share beyond the current level of 20%.

Another consideration to be made regarding the existing school bus services is the anticipated amendments to the bell times proposed for the new school site. Bell times are proposed to be updated from 9:30am start to 9:00am start, and from 3:20pm end to 3:00pm end. Therefore, in addition to re-routing existing school bus services, updates to bus planning should also consider timetabling impacts associated with this change to servicing LHPS. It is recommended that existing school bus routes and timetables are investigated and subsequently revised in collaboration with TfNSW's Bus Planning Team.

6.2 Bus Bay Facility

To cater for the school bus routes services the LHPS, two (2) indented bus bays are proposed on the eastern side of Montwood Drive. The bus bays will allow for dependent movement (i.e. the second bus to arrive waits for the first bus to depart before they can depart). Further, ancillary infrastructure works are proposed to support the bus bay and facilitate its operation. Such infrastructure includes:

- Two bus boarding points to allow for simultaneous onboarding / offboarding
- A 2.5m wide footpath
- Bus waiting location internal to the site.

The proposed arrangements are anticipated to be sufficient to accommodate for the demands associated with the school. Student bus demands and bus operations can be reviewed over time in collaboration between TfNSW's Bus Planning Team, bus operators and the school as part of yearly school travel pass application processes.

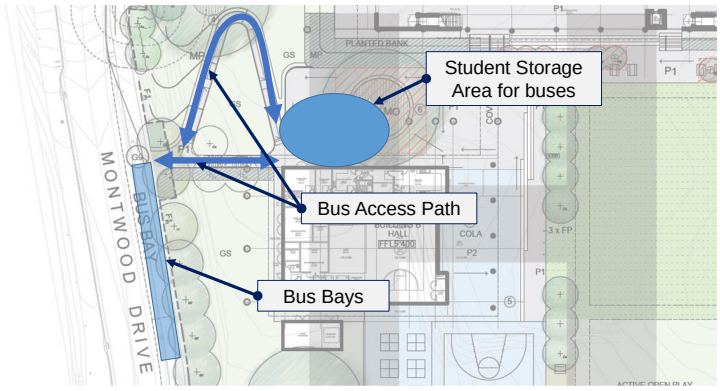


Figure 6.1: Bus Facility

7. TRAFFIC ASSESSMENT

7.1 Overview and Methodology

The purpose of this traffic assessment is to determine the impacts of the proposed school on the external network. As discussed above, the proposed year of opening is 2027; however, the school enrolments will not reach capacity immediately.

For the sake of this assessment, however, full enrolments (i.e. 552 primary school students, 40 preschool students), with no discount for mode shares or carpooling has been used.

7.2 Background Traffic

Background traffic volumes were obtained from traffic surveys undertaken by Traffic Data and Control on 19 June 2024 at the following intersections:

- Snapper Drive / Montwood Drive
- Montwood Drive / North Creek Road
- Hutley Drive / Snapper Drive.

Surveys found that the AM peak hour occurred between 8:00-9:00AM and PM peak hour 3:00-4:00PM.

For traffic analysis purposes, a network peak was considered as it provides a better representation of the traffic demand imposed across the existing network, as well as aligning better with the anticipated peak hours of the school.

The traffic survey data is provided in **Appendix D**.

7.3 Forecast Background Traffic

Traffic survey data was then extrapolated to infer year of opening (estimated at 2027) and 10-year design horizon (2037) road network conditions for SIDRA analyses, adopting a 1.37% growth rate compounding p.a. (based on population information pertaining to the Lennox Head area obtained profile.id.com.au).

7.4 Design Traffic

7.4.1 Traffic Generation

The traffic generated by the proposed school reviewed against several criteria including traffic generation rates from the TfNSW's *Guide to Transport Impact Assessment* (2024) as well as considering the first principles generation rates based on various aspects of the school. The following inputs to traffic generation were applied:

- The preschool land is expected to have a typical traffic generation rate in line with TfNSW's GTIA of 0.83 trips per student in the AM peak. However, for the PM peak it is considered appropriate to also apply this higher rate in lieu of a conventional lower rate. The reason for this is the planned operating hours more closely aligning with the school peak. These rates are considered to account to preschool pick-up/drop-off and also staff movements
- The school traffic generation has been assessed based on the various peak period traffic access and parking areas as follows:
  - Staff traffic generation is estimated at a 1 space per staff turn-over of the parking area during peak periods, resulting in 40 trips into the site in the morning peak and 40 trips out of the site in the PM peak.
  - Student drop-off/pick-up trips will use the KnD facility on Snapper Drive, with traffic generation rates based on the following assumptions:
    - KnD mode share of 54%
    - Vehicle occupancy of 2.2 students per car
    - Note; these are consistent with mode share / carpooling statistics obtained from travel mode surveys completed by Bitzios

This results in a peak traffic demand of 135 vehicles which would enter and leave the KnD facility in both the AM and PM peak periods

The resultant net traffic generation associated with the school is outlined in Table 7.1

Table 7.1: Development Traffic Generation

Component	Quantity	Traffic Generation Rates		Trips (vph)	
		AM	PM	AM	PM
Preschool (staff and students)	40	0.83 trips per student	0.83 trips per student	34	34
Primary School (staff)	40	40 in	40 out	40	40
Visitors (KnD)	135*	135in, 135out	135in, 135out	270	270
			Total Net Increase in Trips	**344**	**344**

The proposed development is estimated to generate 344 additional vehicle trips in the AM peak and PM peak periods.

Estimated traffic generation is included in **Appendix E**.

7.5 Intersection Assessment

7.5.1 Overview

The key intersections were assessed using SIDRA Intersection (Version 9.1) to determine development traffic impacts by comparing 'without development' (background traffic) and 'with development' (background + design traffic) for the proposed year of opening (2027) and 10-year design horizon (2037). The impacts were assessed during the morning and afternoon peak hours. In addition to the existing intersections, the new site access intersection has been assessed to determine its suitability.

Each intersection is assessed in the following sections with a full copy of the SIDRA Intersection 9.1 outputs are provided in **Appendix F**.

SIDRA assessments are typically assessed based on four (4) key metrics:

- Degree of Saturation (number of vehicles relative to intersection capacity)
- Average Delay
- 95th Percentile Queue Length
- Level of Service

Level of Service (LoS) describes the operational performance at an intersection and is directly related to the delay in seconds experienced at each approach. Table 14.3 of the *TfNSW Traffic Modelling Guidelines (2013)* outlines the LoS criteria adopted for the intersection assessment and is reproduced in Table 7.2 below.

Table 7.2: Intersection Level of Service Thresholds

LOS	Criteria
A	d ≤ 14
B	14 < d ≤ 28
C	28 < d ≤ 42
D	42 < d ≤ 56
E	56 < d ≤ 70
F	d > 70

Source: TfNSW Traffic Modelling Guidelines (2013) Table 14.3

7.5.2 Snapper Drive / Stoneyhurst Drive / School Access Driveway

As part of the public domain works associated with the proposed development, the existing priority-controlled intersection at Snapper Drive / Stoneyhurst Drive will be upgraded to a roundabout intersection to accommodate the primary site access as shown in Figure 7.1.

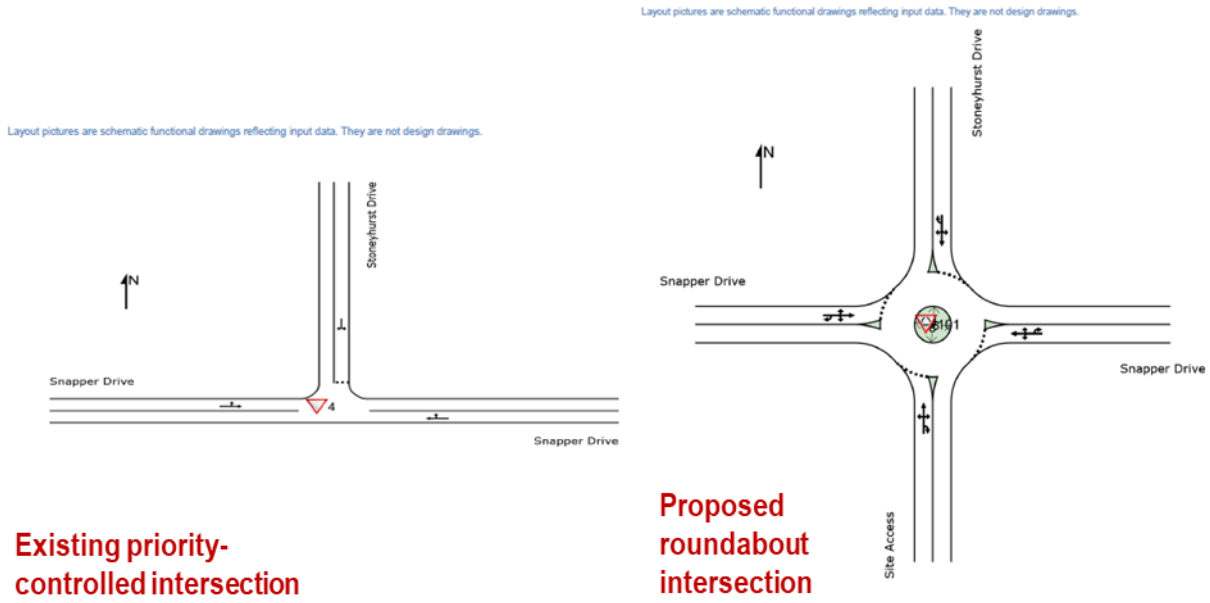


Figure 7.1: SIDRA Layout Snapper Drive / Stoneyhurst Drive / School Access intersection

Table 7.3 summarises the SIDRA output for the Snapper Drive / Stoneyhurst Drive intersection. A 2037 Background model has not been developed due to the change in intersection form that precedes this.

Table 7.3: Stoneyhurst Drive / Snapper Drive / School Access Driveway SIDRA Results

Scenario	AM Peak				PM Peak			
	Level of Service	Degree of Saturation	Avg Delay (s)	95%ile Queue (m)	Level of Service	Degree of Saturation	Avg Delay (s)	95%ile Queue (m)
2027 Background Traffic Volumes								
2027 BG	A	0.035	0.6	0.1	A	0.024	0.5	0.1
2027 Design Traffic Volumes								
2027 Design	A	0.359	6.3	18.0	A	0.342	6.3	17.2
2037 Design Traffic Volumes								
2037 Design	A	0.363	6.3	18.6	A	0.346	6.3	17.4

The results show that the intersection is expected to operate well within acceptable performance limits (degree of saturation <0.85) for a roundabout intersection for the expected 10-year design horizon (2037) with the proposed development. Furthermore, the introduction of development trips is expected to have a negligible impact on intersection performance overall.

The 95%ile Queueing outputs are a result of school related u-turn movements (3 vehicles), and vehicles exiting the school access driveway.

7.5.3 Hutley Drive / Snapper Drive

The layout adopted for the Hutley Drive / Snapper Drive intersection is shown in Figure 7.2.

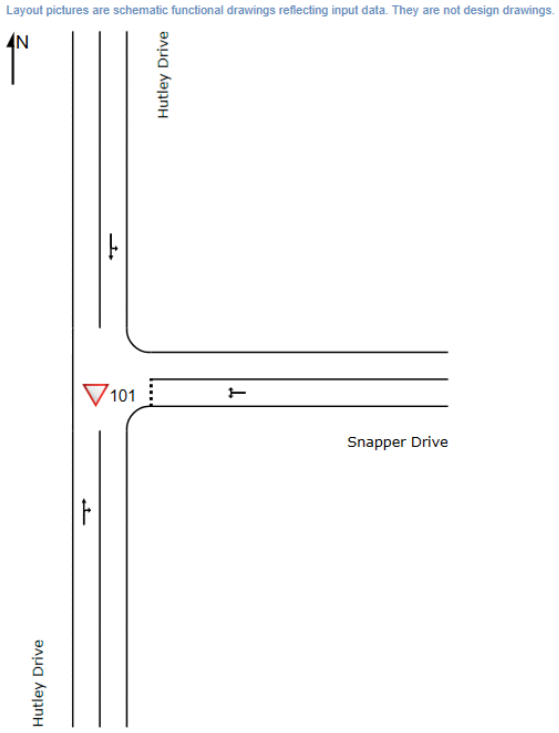


Figure 7.2: SIDRA Layout Hutley Drive / Snapper Drive intersection

Table 7.4 summarises the SIDRA output for the Hutley Drive / Snapper Drive intersection.

Table 7.4: Hutley Drive / Snapper Drive SIDRA Results

Scenario	AM Peak				PM Peak			
	Level of Service	Degree of Saturation	Avg Delay (s)	95%ile Queue (m)	Level of Service	Degree of Saturation	Avg Delay (s)	95%ile Queue (m)
2027 Background Traffic Volumes								
2027 BG	A	0.081	4.6	2.0	A	0.081	4.7	2.0
2037 Background Traffic Volumes								
2037 BG	A	0.092	4.6	2.3	A	0.093	4.7	2.3
2027 Design Traffic Volumes								
2027 Design	A	0.165	4.8	4.3	A	0.195	4.8	5.4
2037 Design Traffic Volumes								
2037 Design	A	0.177	4.8	4.7	A	0.208	4.9	5.8

The results show that the intersection is expected to operate well within acceptable performance limits (degree of saturation <0.85) for a priority-controlled intersection for the expected 10-year design horizon (2037) with the proposed development. Furthermore, the introduction of development trips is expected to have a negligible impact on intersection performance.

7.5.4 Snapper Drive / Montwood Drive

The layout adopted for the Snapper Drive / Montwood Drive intersection is shown in Figure 7.5.

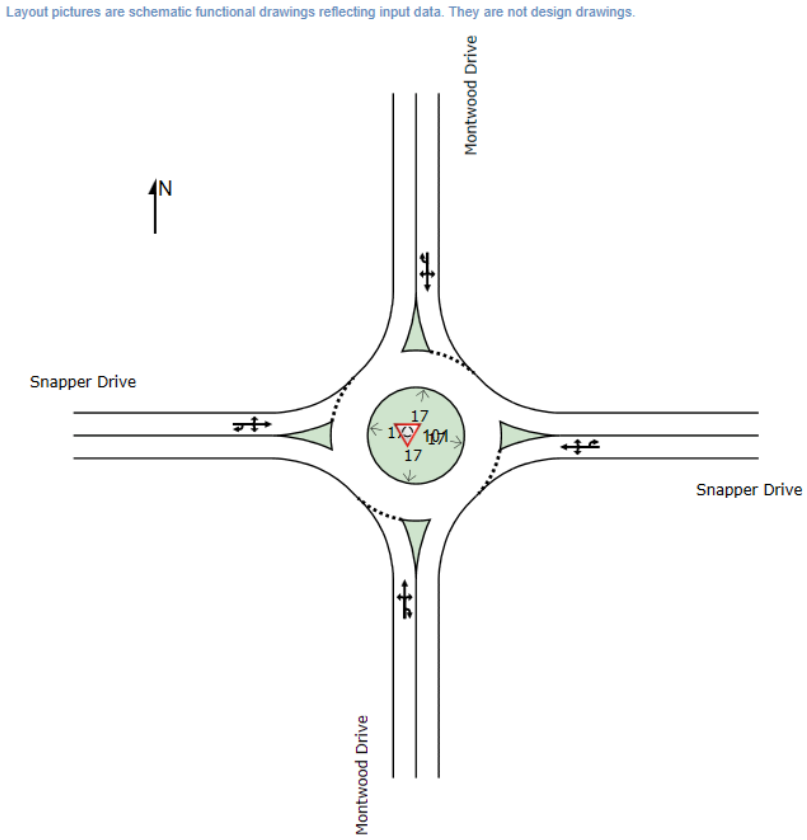


Figure 7.3: SIDRA Layout Snapper Drive / Montwood Drive intersection

Table 7.5 summarises the SIDRA output for the intersection.

Table 7.5: SIDRA Results Snapper Drive / Montwood Drive intersection

Scenario	AM Peak				PM Peak			
	Level of Service	Degree of Saturation	Avg Delay (s)	95%ile Queue (m)	Level of Service	Degree of Saturation	Avg Delay (s)	95%ile Queue (m)
2027 Background Traffic Volumes								
2027 BG	A	0.102	4.3	3.8	A	0.107	4.9	4.0
2037 Background Traffic Volumes								
2037 BG	A	0.119	4.4	4.5	A	0.124	4.9	4.7
2027 Design Traffic Volumes								
2027 Design	A	0.177	4.4	6.8	A	0.207	5.0	8.6
2037 Design Traffic Volumes								
2037 Design	A	0.188	4.5	7.3	A	0.218	5.2	9.2

The results show that the intersection is expected to operate well within acceptable performance limits (degree of saturation <0.85) for a roundabout for the expected 10-year design horizon (2037) with and without the proposed development. Furthermore, the introduction of development trips is expected to have a negligible impact on intersection performance.

7.5.5 Montwood Drive / North Creek Road

The layout adopted for the Montwood Drive / North Creek Road intersection is shown in Figure 7.4.

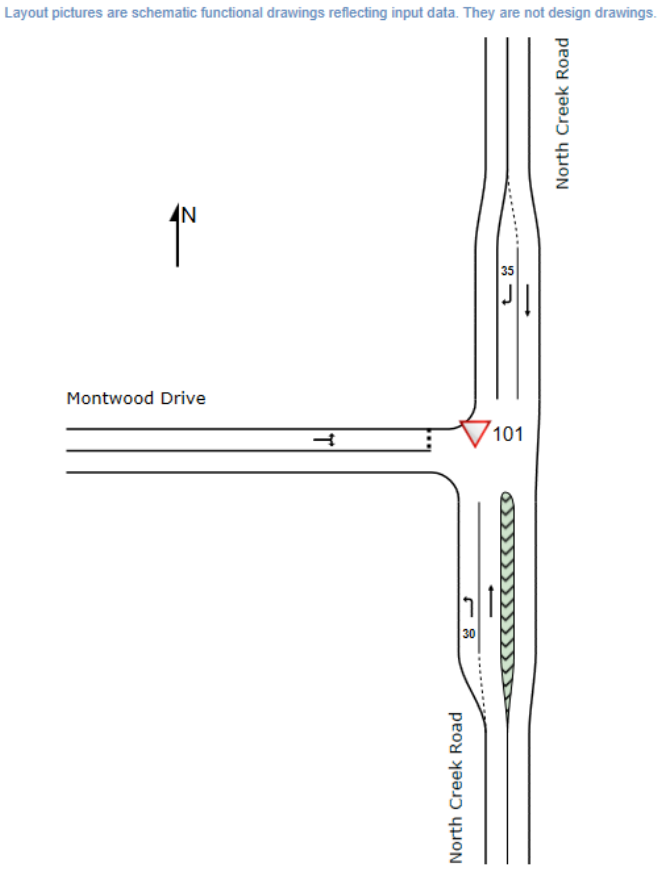


Figure 7.4: SIDRA Layout Montwood Drive / North Creek Road intersection

Table 7.6 summarises the SIDRA output for the intersection.

Table 7.6: Montwood Drive / North Creek Road SIDRA Results

Scenario	AM Peak				PM Peak			
	Level of Service	Degree of Saturation	Avg Delay (s)	95%ile Queue (m)	Level of Service	Degree of Saturation	Avg Delay (s)	95%ile Queue (m)
2027 Background Traffic Volumes								
2027 BG	A	0.298	4.0	9.5	A	0.182	3.7	5.3
2037 Background Traffic Volumes								
2037 BG	A	0.365	4.4	14.2	A	0.222	3.9	6.6
2027 Design Traffic Volumes								
2027 Design	A	0.373	4.6	14.8	A	0.231	4.1	7.0
2037 Design Traffic Volumes								
2037 Design	A	0.446	5.2	21.0	A	0.275	4.2	8.5

The addition of the development traffic is shown to have a negligible impact on the intersection performance. Therefore, the results do not warrant the need for any mitigation measures to be imposed on the proposed school redevelopment.

7.6 Daily Traffic and Road Capacity/Cross Sections

While traffic is concentrated during peak periods, it is important to note schools generate limited trips outside of peak times and therefore minimal contributors to daily traffic volumes. In our experience with numerous other school projects, approximately 80% of daily trips occur during peak periods. Considering the school's catchment, travel patterns, mode share targets and specific location in an emerging urban release area, daily traffic volumes using the surrounding road network would not be impacted to a level that would require road capacity or cross section updates.

It is understood that Council is currently undertaking a strategic network model review of forecast traffic needs across the Ballina Shire. This school site is therefore expected be included in this shire-wide model for the purpose of informing wider network performance.

7.7 Traffic Assessment Summary

The key details of the traffic assessment are as follows:

- The traffic generated by the LHPS is expected to increase proportionally with the enrolments, which equates to an estimated 345 trips during both the AM and PM peak periods.
- The primary site access has been designed to include a new roundabout intersection, which is demonstrated to accommodate the various trips types associated with the school including pick-up/drop-off, staff movements and preschool vehicle movements. While traffic volumes are expected to be concentrated to the morning and afternoon peak periods, the operations of this intersection and associated facilities will be supported by the STP and support policies and procedures. This may include parent messaging for pick-up/drop-off times as well as scheduling for staff entry and exit to the site. These aspects are recommended to be further refined as part of the STP implementation plan.
- Traffic impacts have been assessed at Hutley Drive / Snapper Drive, Snapper Drive / Montwood Drive and Montwood Drive / North Creek Road. The development of the school was found to have a negligible impact on intersection performance, which ultimately does not warrant the need for any additional mitigation measures to be imposed.

8. PARKING ASSESSMENT

8.1 Car Parking Requirements and Provision

Standard car parking rates were sourced from Council's *Development Control Plan (DCP) - Part C Design Guidelines.* The relevant car parking rates and requirements are outlined in Table 8.1. While these rates were considered for the preschool, the application of these rates do not represent the specific operations or travel mode shares associated with the current for future school operations.

With respect to the school and staffing, the standard rate of 1 per 2 employees does not align with the current mode share for regional schools such as Lennox Head and higher private vehicle reliance. Similarly, the application of 1 space per 12 students does not align with the operational needs of the school as well as state policies for facilitating on-site parking for parents. Therefore, the parking provision and facilities have been assessed and designed to accommodate the specific needs of LHPS. This includes:

- On-site parking to meet the demands of school staff projections as well as considering a level of additional staffing needs. This also does consider future mode share targets for the school reduce private vehicle reliance as the school becomes more established over time
- Parking on-site to accommodate staffing and also pick-up/drop-off needs for the preschool component of the site. Specifically, dedicated bays fronting the preschool to allow parents to sign-in and sign-out preschool students
- Installation of a KnD facility fronting the site and associated operational procedures. While not outlined in Council's DCP, these facilities are recognised and proven to provide efficient private vehicle turn-over without the need for dedicated parking spaces on the site. Outside pick-up/drop-off periods, this facility will provide additional formalised kerbside parking directly adjacent to the school for visitor and associated usage.

With consideration to the above, Table 1 outlines the resultant parking facilities to support the school, both onsite and immediately adjacent as part of the KnD parking facility.

Table 8.1: Development Parking Requirements and Compliance

Land Use	Parking Rate	Quantity	DCP Requirement	Spaces Provided
Primary School (Education Establishment)	1 space per 12 students plus 1 space per 2 employees	552 students 40 staff	67	41 staff bays on-site + KnD Facility 27 bays (*4 KnD bays + 23 storage bays. All bays available for parking outside peak periods)*
Pre-school (Child Care Centre)	1 space per 4 children plus drop off/ pick up area	40 children	10	14 (10 + 4 staff bays)
		Total	**77**	**55 + 27 = 82**

The proposed parking provision and facilities are deemed to meet the needs of Council's DCP requirements and the specific school operations.

All parking facilities are recommended to be supplements with appropriate parking controlled including signage, line marking and operational procedures to ensure efficient and safe usage in line with the school's STP. Parking allocation and management procedures are recommended to be further investigated as par to of the STP refinement in consultation with the school and Council.

8.2 Kiss n Drop Facility

The proposed KnD facility is a dedicated facility designed as part of the parking module accessible via Snapper Drive and will provide four (4) dedicated collection bays. The operations of the KnD facility are to include clear policies and procedures outlined in the STP. In addition, the design shall

incorporate appropriate traffic control, speed and pedestrian control devices to ensure safe operations as all times. Internally to the site, the landscape design includes a separate pathway and access gate in proximity to the front of the KnD facility. This will allow students to corral at the KnD vehicle boarding point for pick-up periods.

To manage demands and the operational efficiency of the KnD, the infrastructure provisions will be supported by the School Transport Plan, Travel Access Guide and supporting operational guidance on the correct and appropriate use of the KnD zone i.e:

- *This kiss and drop is a 'No Parking' zone, meaning you may stop for a maximum of 2 minutes.*
- *Do not arrive before the school bell time and park in the kiss and drop*
- *If you wish to park, there are other alternate locations nearby within unrestricted parking where you can park and walk to the school gate*
- *Drive as far towards the front of the kiss and drop as possible so people can pull in behind you.*

It is recommended that further design aspects relating to the KnD facilities are considered through detailed design as well as the STP. This may include dedicated student waiting area and call-up procedures.

8.3 Bicycle Parking Requirements

Standard bike parking rates were sourced from Austroads Guide to Traffic Management, Part 11. The relevant bike parking rates and requirements are outlined in Table 8.2.

Table 8.2: Bicycle Parking Rates

Land Use	Anticipated Quantity	Parking Rate	Spaces Required	Spaces Provided
School	552 at 2026 of which ~184 Students over year 4	1 space per 5 pupils over year 4	37	37

Note: – Number of students has been assumed to be equivalent to a third (based on uniform distribution of students across year levels)

Bicycle parking spaces have been provided on campus to meet the above requirements along the frontage to Snapper Drive. This facility include two gate and recommended to be partitioned to provide a separate section for staff cycle parking for up to 4 spaces.

Students travelling by bicycle is linked to:

- The age of the student and therefore competence and confidence
- The quality infrastructure to provide a high level of service
- The quantity and quality of end of trips facilities provided at the destination.

Bicycle participation should be monitored in the future to ensure the bicycle parking provision is meeting the demand, help achieve the STP targets and ensure there is sufficient space for bicycle parking facilities to be expanded over time.

To further encourage a modal shift, it is recommended that up to four staff bicycle parking spaces could be allocated to promote active travel and les car-dependent mode share. Similar to the student bicycle parking spaces, this should also be monitored and increased based on the demand in the future. Additionally, staff bicycle parking spaces should be secure, weather protected and located near the main staff areas separate to student bicycle parking. The staff bicycle parking is supplemented with end of trip facilities (e.g. showers, lockers, change areas, etc) which are located in the administration building as shown in Figure 8.1

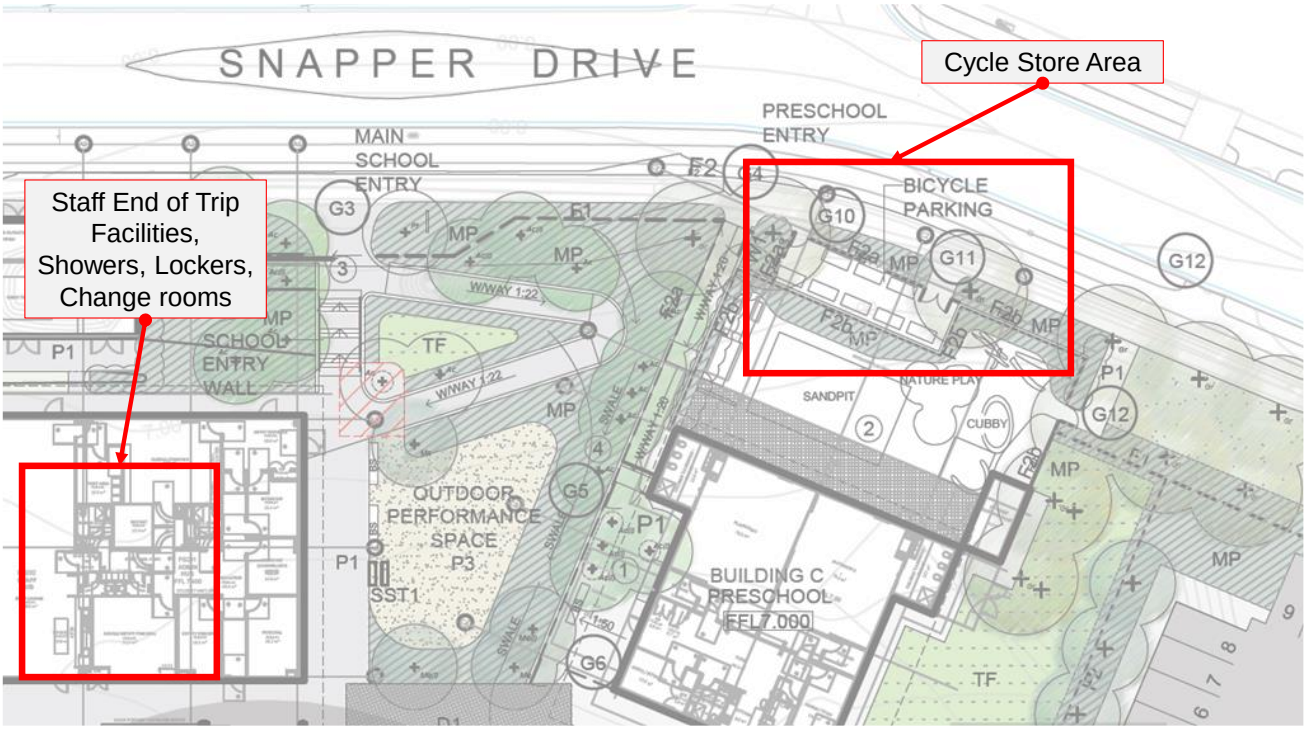


Figure 8.1: Cycle Facilities

8.4 Car Parking Layout Review

On-site car parking facilities provided have been assessed against the relevant requirements of Council's DCP and Australian Standards AS2890.1 and AS2890.6. The assessment is documented in Table 8.4. and represented in Figure 8.2.

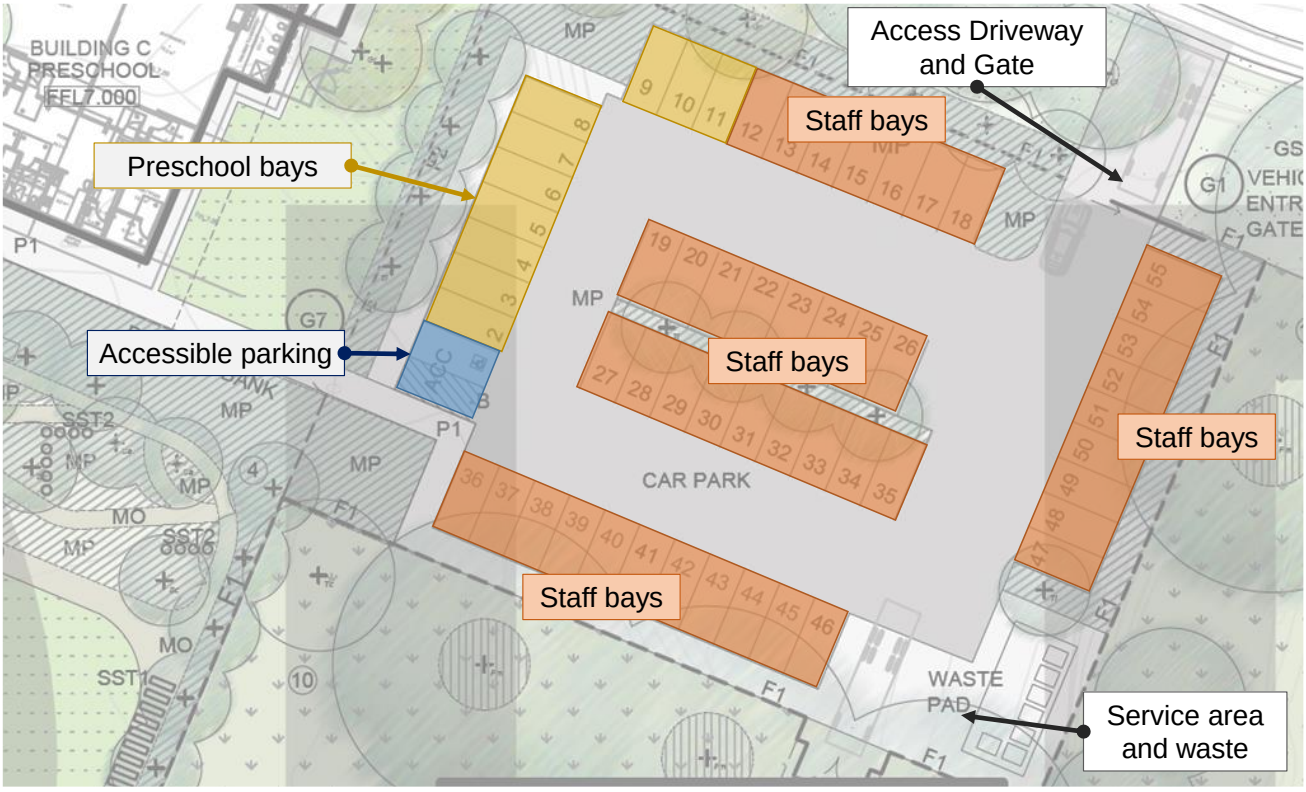


Figure 8.2: Parking Area Components

Table 8.3: Car Parking Geometrical Assessment

Design Element	Requirement	Proposed	Compliant
90° Staff Parking Bays (User Class 1A)	2.4m x 5.4m (min.)	2.5m x 6.0m	Yes
90° Visitor Parking Bays (User Class 2)	2.5m x 5.4m (min.)	2.5m x 6.0m	Yes
PWD Bay (User Class 4)	2.4m x 5.4m with shared area of the same dimension	2.4m x 6.0m with shared area of the same dimension	Yes
90° Parking Aisle Width	5.8m (min.) + 0.3m clearance where bounded by solid wall	5.8m (min.)	Yes
Circulating Aisle	5.5m (min.) + 0.3m clearance where bounded by solid wall	5.9m (min.)	Yes
Clearance adjacent to vertical obstructions	0.3m (min.)	0.3m (min.)	Yes
Bicycle Parking (Horizontal)	0.5m x 1.8m (min.) with 1.5m aisle	Shall Comply	**Shall Comply**

9. SERVICE VEHICLE ASSESSMENT

9.1 Servicing and Refuse Collection

Service vehicle access is provided via the driveway crossover to Snapper Drive, with the parking module design to accommodate a service area and refuse collection zone in the south-eastern corner.

Swept paths provided in **Appendix C** show that a 10.2m front loading Refuse Collection Vehicle (RCV) is able to ingress the site, service the refuse collection zone and turn around to exit in a forward gear onto the public roadway. The local area "semi mountable" roundabout provide the ability for service vehicles to pass over the roundabout. This design consideration was workshopped with Council as part of the frontage works.

In addition to RCV, other occasional service vehicle access is expected for deliveries and operational needs, up to a 8.8m long Medium Rigid Vehicle (MRV) which can follow the same paths as the RCV and stand within the service area.

A service / maintenance gate is provide off the service area and can provide access for maintenance vehicle as well as accommodate the circulation route requirements outline by NSW Rural Fire Services (RFS).

9.2 Construction Stage Considerations

The Construction Stage of the project will require a series of operational management procedures to be employed in regards to traffic management. It is expected that a Construction Traffic and Pedestrian Management Plan (CTPMP) be prepared by the lead contractor to the satisfaction of Council. In regards to this particular site and project, the following aspect should be investigated as part of the CTPMP:

- Heavy vehicle movements should minimise disruptions to local streets and be limited to Snapper Drive and Montwood Drive where possible
- Worker parking should impacts should be managed and mitigated along local streets to ensure no adverse impacts to surrounding residents
- Traffic control plans (TCPs) will need to be prepared to ensure safe construction access to the site and maintain adequate pedestrian movement in and around construction zones.

Overall, the site location and surrounding traffic network is considered appropriate to accommodate construction traffic impacts proving all necessary measures are employee in line with an approved CTMP.

10. SUMMARY

The key findings of the Lennox Head Primary School (LHPS) Traffic and Transport Impact Assessment (TTIA) are as follows:

- The project proposes to relocate the current school to a new location in response to the increased catchment area and to accommodate for the growing community within and around Lennox Head
- The site is well serviced by existing active transport infrastructure, inclusive adequate pathway connections to the surrounding residential catchment as well as shared pathway facilities along Montwood Drive and Snapper Drive (west)
- The surrounding road network supports a relatively new residential community and does not exhibit any adverse road safety or historical crash issues.
- A single primary vehicular access is proposed from Snapper Drive that provides access to parking for school and preschool staff movements. Preschool parent pick-up/drop-off facilities are also provided directly adjacent to the preschool facility.
- In addition to the primary site access, a dedicated Kiss 'n' Drop (KnD facility is proposed along the school frontage to Snapper Drive. This facility will accommodate the school's pick-up/drop-off demands and directly reduce the on-site parking demands for the school. Note the kiss'n'drop facility is not median separated
- Service vehicle access is proposed via the site's primary access from Snapper Drive. This will include refuse collection, service vehicles as all as fire and emergency service vehicle access to the site. The parking module and service area provide a gate access to the fire access trail which circulates the site and connects to an additional emergency vehicle gate onto Montwood Drive.
- Pedestrian access into the school is provided along Snapper Drive and numerous locations including the main building entry, KnD facility and Preschool facility. In addition, an access pathway is provided to Montwood Drive to connect the bus facility with the designated internal waiting area.
- The traffic generated by the LHPS is expected to increase proportionally with the enrolments, which equates to an additional 345 trips per peak periods. Traffic impacts have been assessed at the new site access to Stoneyhurst Drive as well as Hutley Drive / Snapper Drive, Snapper Drive / Montwood Drive and Montwood Drive / North Creek Road. The school was found to have a negligible impact on intersection performance, which ultimately does not warrant the need for any additional mitigation measures to be imposed on the proposed school. With the proposed upgrades including the new roundabout at Stoneyhurst Drive and the KnD facility on Snapper Drive, the surrounding road network can adequately cater for the school's forecast traffic demands
- The parking provision is proposed to directly address the daily parking demands attributed to the school. This includes parent and staff parking associate with the preschool component, parking provision for 1 space for staff member, as well as a new dedicated KnD facility which will provide both managed pick-up/drop-off facility as well as visitor parking outside peak periods.
- External traffic and transport works have been discussed with key transport stakeholders including Council. This collaboration has resulted in a draft concept plan developed by Council which will be used reference for the purpose of future S138 (Works on Roads) applications with Council. Specifically, the plan includes the site access fronting Snapper Drive, a new roundabout intersection at the site access, the KnD facility fronting Snapper Drive, footpath widening and possible land dedication at the Montwood Drive site frontage adjacent to the indented bus bays, as well as other pram ramp and footpath infrastructure
- A public domain works completed by Bitzios has been completed which shows the location of the indented bus bays fronting Montwood Drive
- DoE and Council have agreed that improved pedestrian crossings are required at Snapper Drive / Montwood Drive intersection to assist with safe pedestrian movements near the school. Given

the range of options in regards to crossing location and form, it is agreed that as part of the mitigation measures, that DoE consult and agree with Council on the appropriate pedestrian crossing facility to be installed. Pursuant to this, it is recommended that DoE collaborate with Council and TfNSW on applicable funding through Get Active grant avenues to implement supporting active transport infrastructure. If these or other funding mechanisms are not feasible for Year of Opening, pedestrian crossing facilities will need to be funded by the project.

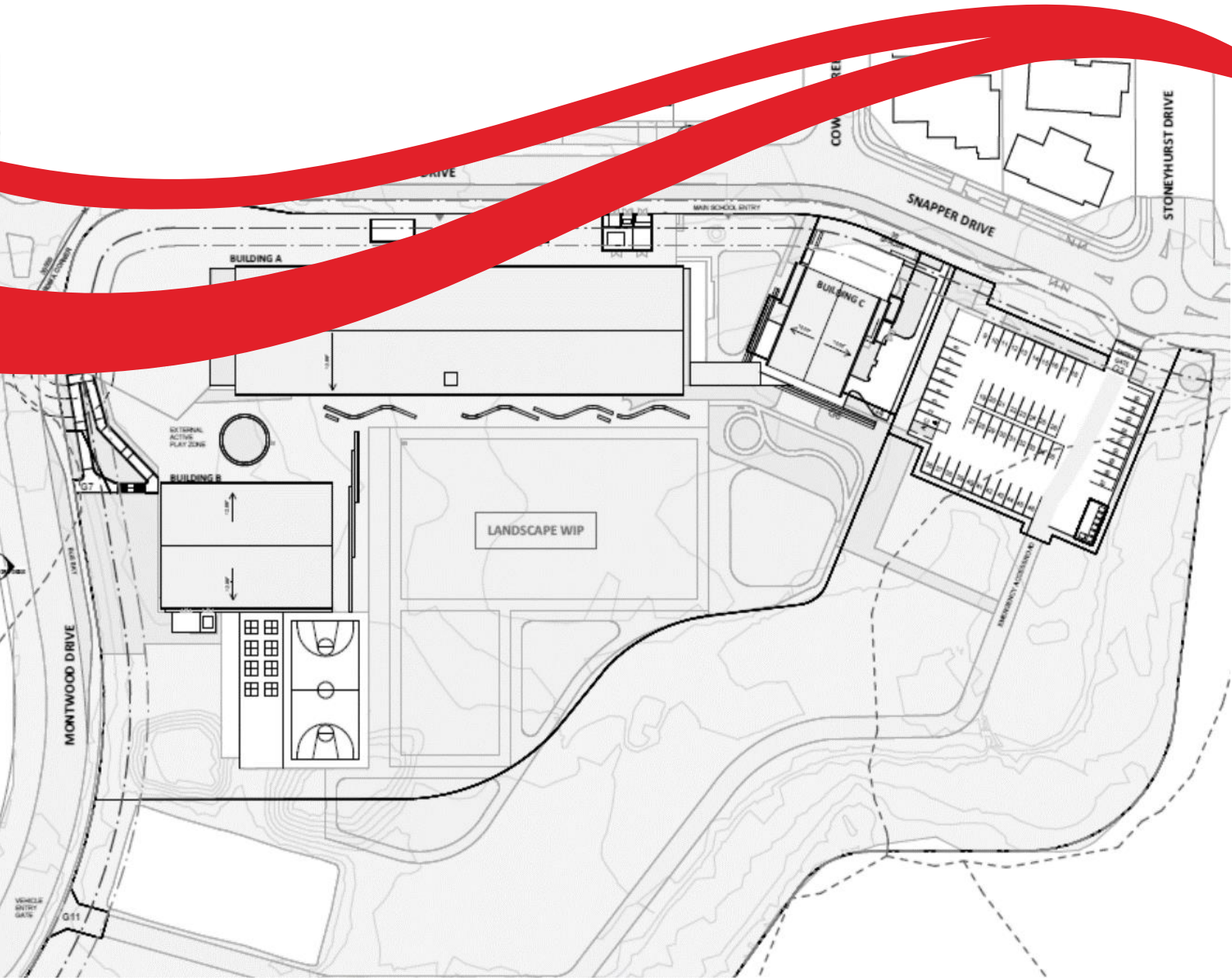
Table 10.1: Proposed Mitigation Measures

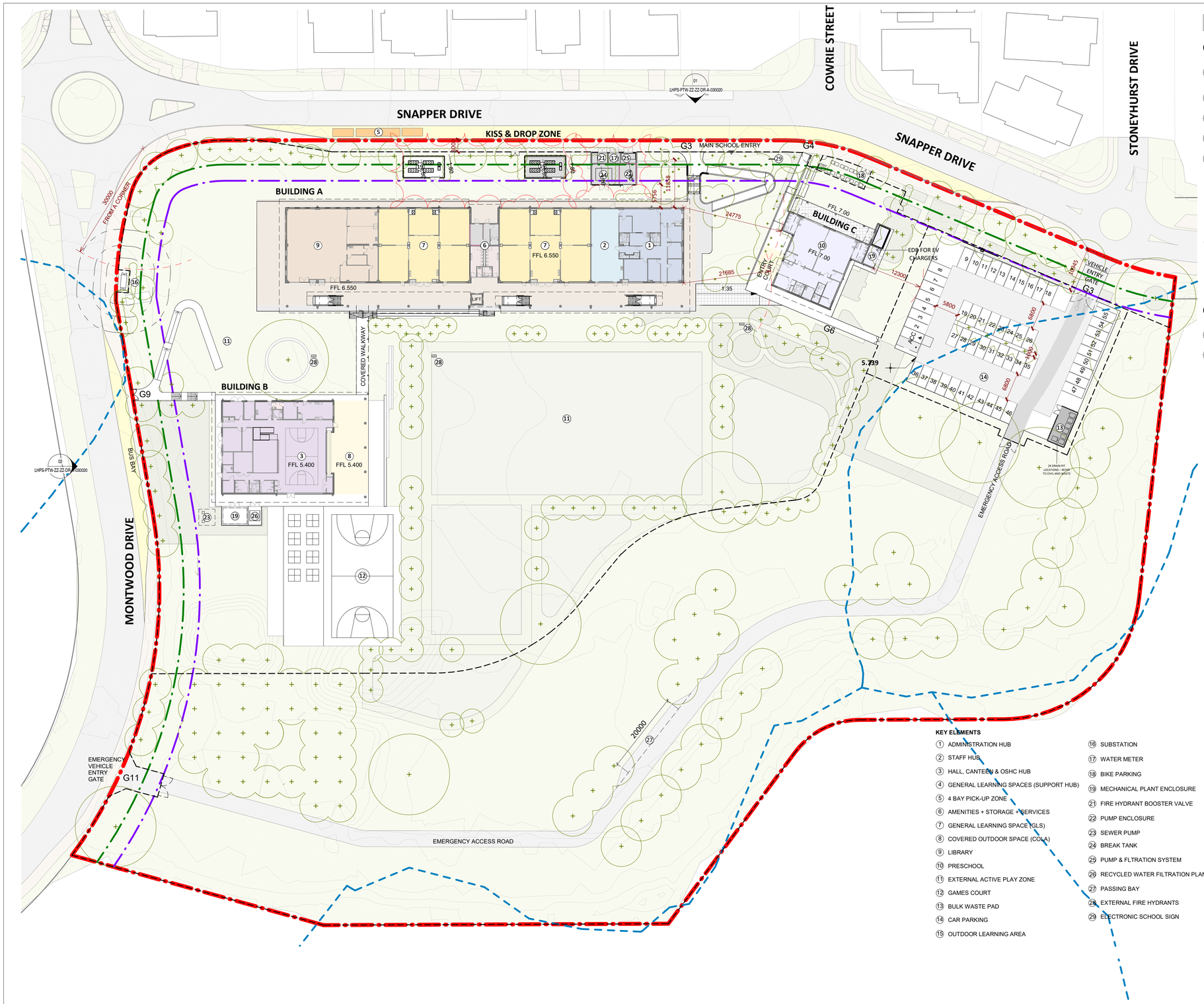
Project Stage *Design (D) Construction (C) Operation (O)*	Mitigation Measures	Relevant Section of Report
D/C	To address deficiencies in the crossing facilities surrounding the site and provide safe crossings for increased pedestrian demands to / from the school, consult and agree with Council on the appropriate pedestrian crossing facility to be installed at Montwood Drive / Snapper Drive intersection. Pursuant to this, it is recommended that DoE collaborate with Council and TfNSW on applicable funding through Get Active grant avenues to implement supporting active transport infrastructure. If these or other funding mechanisms are not feasible for Year of Opening, pedestrian crossing facilities will need to be funded by the project.	Section 5
D/C	Construct an indented bus bay facility on the eastern side of Montwood Drive suitable for storage of two buses, and associated stop / shelter requirements	Section 6
D/C/O	Construct kerbside parking facility generally in accordance with Council's concept plans for Snapper Drive. Install appropriate kerbside signage and line marking to manage KnD operations and provide kerbside parking outside peak school periods.	Section 8
O	To assist in managing demands and the operational efficiency of the KnD, bus bay and pedestrian access areas, the infrastructure provisions should be supported by the School Transport Plan, Travel Access Guide and supporting operational guidance on the correct and appropriate use of the transport facilities surrounding the site.	Section 5, 6, 7, 8
D/C	Associated off-site infrastructure works to support the school, including (but not limited to) services, driveways and pedestrian crossings: ▪ Realigning the pedestrian footpath to facilitate road widening works along Snapper Drive for a Kiss and Drop zone during drop off and pick up times. Outside drop off and pick up times, the Kiss and Drop zone will be available for parking ▪ Boundary realignment on Snapper Drive (to benefit Council) to accommodate public domain works ▪ Realignment of pedestrian footpath to enable road widening for the indented bus bays along Montwood Drive ▪ Boundary reliagnment along Montwood Drive (to benefit Council) to accommodate public domain works ▪ Associated pedestrian and road upgrade works on the external network.	Section 5, 6, 7, 8

Separate to the project, additional transport improvements should be investigated in response to development of the Lennox Head Urban Release Area (in conjunction with Council).

It is therefore recommended that DoE continue to work with Council and TfNSW to facilitate targeted transport infrastructure across the precinct through funding initiatives such as GetActive NSW grants, Council's development contributions for the areas and TfNSW's infrastructure planning. Should alternate funding mechanisms be unavailable prior to opening year, pedestrian crossing facility works will need to be funded by the project.

Appendix A: Development Plans





2 SITE PLAN - L00 - PROPOSED

1 : 500 @A1

KEY ELEMENTS

1. ADMINISTRATION HUB
2. STAFF HUB
3. HALL, CANTEEN & OSHC HUB
4. GENERAL LEARNING SPACES (SUPPORT HUB)
5. 4 BAY PICK-UP ZONE
6. AMENITIES + STORAGE + SERVICES
7. GENERAL LEARNING SPACE (GLS)
8. COVERED OUTDOOR SPACE (COLA)
9. LIBRARY
10. PRESCHOOL
11. EXTERNAL ACTIVE PLAY ZONE
12. GAMES COURT
13. BULK WASTE PAD
14. CAR PARKING
15. OUTDOOR LEARNING AREA
16. SUBSTATION
17. WATER METER
18. BIKE PARKING
19. MECHANICAL PLANT ENCLOSURE
21. FIRE HYDRANT BOOSTER VALVE
22. PUMP ENCLOSURE
23. SEWER PUMP
24. BREAK TANK
25. PUMP & FLTRATION SYSTEM
26. RECYCLED WATER FILTRATION PLANT
27. PASSING BAY
28. EXTERNAL FIRE HYDRANTS
29. ELECTRONIC SCHOOL SIGN

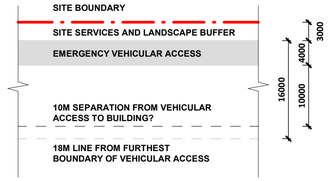
LEGEND

ADMIN · GLS · SERVICES · WET AREAS
COLA · HALL · STAFF
EXTERNAL WALKWAY · LIBRARY · UPS

FOR CONSIDERATION

(A) BUSHFIRE

A1	S43C14	VEHICULAR ACCESS - 4M WIDE ROAD AROUND BUILDINGS - FARTHEST BOUNDARY TO BE WITHIN 18M OF BUILDING
A2	S43C4	SEPARATION FROM ALLOTMENT BOUNDARIES AND CARPARKING AREAS/SPACES - 10M
A3	S43C5	SEPARATION FROM HAZARDS (WASTE PAD, PLANTS, SERVICE ENCLOSURES) - 10M
A4	S43C6	NON-COMBUSTIBLE PATH AROUND BUILDING - MIN 1.5M WIDE
A5	S43C3	SEPARATION BETWEEN BUILDINGS - 12M



(B) PLANNING DUE DILIGENCE ADVICE

B1	LEP	HEIGHT OF BUILDING (MAX) 8.5M FROM FFL 1.9M AHD - **FFL 10.4M**
B2	DCP	BUILDING LINE MAP - MIN. STREET SETBACK - 6M

LEGEND

- SITE BOUNDARY
- 6M DCP STREET SETBACK
- 10M SETBACK FROM ALLOTMENT BOUNDARY (NCC-S43C4)
- WATERCOURSE (NOT SURVEYED LOCATION)
- 10M CLEARANCE LINES TO BUILDINGS (NCC-S43C4/C5)
- 18M LINE FROM VEHICULAR ACCESS (NCC-S43C14)
- 4M EMERGENCY VEHICULAR ACCESS (NCC-S43C14)
- FENCE

NOTES

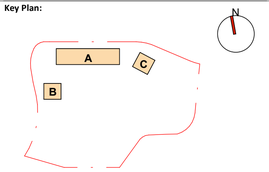
1. TOPOGRAPHIC AND SITE LINE INFORMATION SOURCED FROM STANTEC "CONTOUR AND DETAIL SURVEY PLAN" (DRAWING NUMBER 304100997-DET-01 - DATED 31 JULY 2023)
2. WATERCOURSE LINES FROM GEOLINK "BUSHFIRE OPPORTUNITIES AND CONSTRAINTS ASSESSMENT FOR LENNOX HEAD PUBLIC SCHOOL" - DATED 28 FEBRUARY 2023
3. 1% AEP FLOOD WATER EXTENTS SOURCED FROM BMT "FLOOD IMPACT AND RISK ASSESSMENT - LENNOX HEAD PUBLIC SCHOOL" DATED MARCH 2025
4. REFER TO BITZIOS TRAFFIC CONSULTING TRANSPORT AND ACCESSIBILITY IMPACT ASSESSMENT REPORT FOR TRAFFIC AND TRANSPORT COMPONENTS
5. BUS BAY INDENT SHOWN INDICATIVE ONLY. BUS BAY TO ACCOMMODATE 2 X BUSES - DESIGNED IN ACCORDANCE WITH NSW PUBLIC TRANSPORT INFRASTRUCTURE MANUAL (PTIM). TO BE COORDINATED WITH CIVIL ENGINEER & TRAFFIC CONSULTANT.
6. ALL WORKS DEPICTED EXTERNAL TO THE SITE BOUNDARY ARE INDICATIVE ONLY. SUBJECT TO CONFIRMATION WITH LOCAL ROAD AUTHORITY.
7. EXTENT OF FLOOD LEVELS NOT SHOWN WITHIN THE SITE BOUNDARY - AWAITING CURRENT FLOOD MODELLING INFORMATION FROM BMT/CIVIL.
8. NEW SUBSTATION INDICATIVE ONLY. FINAL DESIGN TO BE PROVIDED BY ELECTRICAL ENGINEER
9. PROPOSED KISS AND DROP TO SNAPPER DRIVE AND BUS BAY INDENT TO MONTWOOD DRIVE:

NOTE THE FOLLOWING ARE SUBJECT TO CONFIRMATION BY LOCAL GOVT. AUTHORITY:

- DEMOLITION TO EXISTING KERB, VERGE, ROAD SURFACE, SERVICES AND UTILITIES
- MODIFICATIONS TO ALL EXISTING SERVICES, PITS, UTILITIES (IN GROUND AND ABOVE GROUND) TO ACCOMMODATED THE PROPOSED KISS AND DROP ALONG SNAPPER DRIVE
- DRIVEWAY ACCESS AT STONEYHURST AND SNAPPER DRIVE
- LOCATION AND EXTENT OF THE PROPOSED KISS AND DROP ALONG SNAPPER DRIVE
- BUS BAY INDENT ASSOCIATED WORKS ON MONTWOOD DRIVE
- PEDESTRIAN CROSSING AT MONTWOOD AND SNAPPER DRIVE (LOCATION OF THIS CROSSING TO BE AGREED BY COUNCIL)
- ASSOCIATED LINE MARKINGS
- EXISTING LANDSCAPING (WHERE IT OCCURS)
- EXISTING SIGNAGE (WHERE IT OCCURS)

REFER TO BITZIOS TRAFFIC CONSULTANT REPORTS FOR MORE INFORMATION

Key Plan:



Drawing Disclaimer:

Do not scale from drawings.
Verify all dimensions on site before commencing work.
Copying or reproduction of this drawing is strictly prohibited without the consent of PTW Architects

Note:

PTW's responsibility for any external building element is strictly limited to that provided for by our relevant scope of Services. Others, including suitably qualified experts as may be required or as is appropriate, carry responsibility for any checking of or other work associated with any design, materials selection, construction or installation of any cladding, facade or external building element.

NOTES:
THE DETAIL RESOLUTION SHOWN ON THE LANDSCAPE PLANS HAS NOT GET BEEN INCORPORATED INTO THE ARCHITECTURAL FLOOR PLANS AND OTHER CONSULTANTS' DOCUMENTATION.

REFER TO THE LANDSCAPE DRAWINGS FOR DETAILS OF RETAINING WALLS, OUTDOOR STEPS, TERRACES AND PATHS.

Rev	Amendment	By	Chk*	Date
06	PRELIM TENDER ISSUE	FJ	DJ	28/03/25
05	VM REF INTERIM	FJ	DJ	14/03/25
04	100% SD ISSUE	FJ	DJ	23/01/25
03	DRAFT REF PACKAGE	PC	DJ	16/01/25
02	FOR INFORMATION	PC	DJ	04/12/24
01	FOR INFORMATION	PC	DJ	22/11/24

*Chk - Registered Architect

Consultant

Client
SINSW

Architect
PTW Architects
Gadigal Country
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
T +61 2 9232 5877
ptw.com.au
Peddle Thorp & Walker P/L ABN 23 000 454 624 Trading as PTW Architects
Nominated Architects
Simon Parsons NSW ARB 6098
Diane Jones NSW ARB 4778
Nela Marojević NSW ARB 11274

Project PA030574

Lennox Head Public School

Property 9, Montwood Drive
Lennox Head, NSW 2478
Bundjalung Country

Title

02 - SITE PLANS
SITE PLAN - PROPOSED - GF

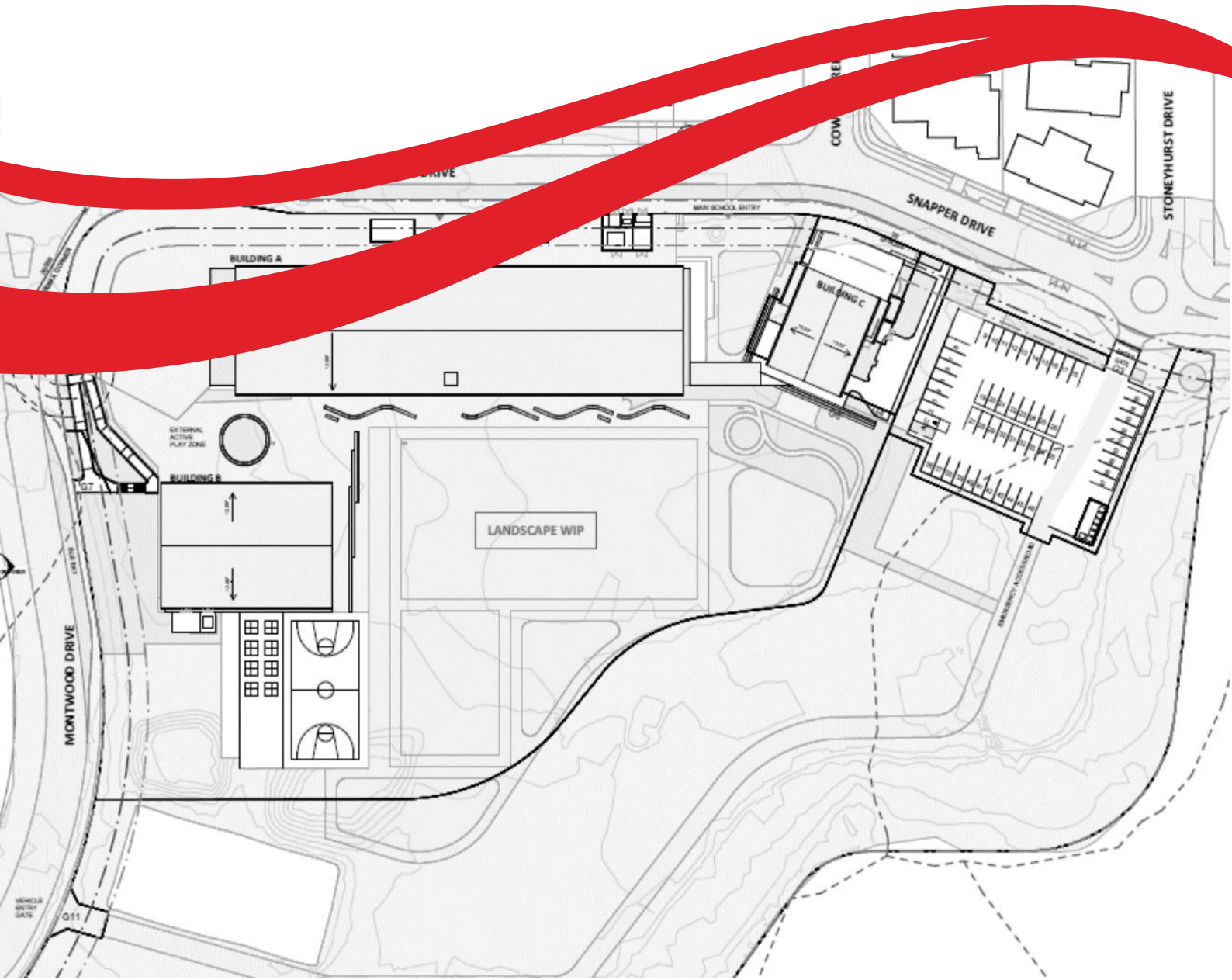
0 m | 5 m | 10 m | 25 m | 37.5 m
1:500 @A1

Drawing Number LHPS-PTW-ZZ-GF-DR-A-020001 **Revision** 06

Status
PRELIM TENDER

A1

Appendix B: Preliminary Public Domain Works for Site Access and KnD Facility on Snapper Drive



A1

REFER TO LANDSCAPE ARCHITECT DRAWINGS FOR GRADING BETWEEN BUILDING AND THE BOUNDARY. GRADING TO BE ADDED TO TENDER ADDENDUM SET

SNAPPER DRIVE

COWRIE STREET

STONETHURST DRIVE

MONTWOOD DRIVE

FIRE ACCESS TRAIL

EXISTING SEDIMENT POND

PROPOSED 375mm CULVERT WITH HEADWALLS AND RIPRAP AT OUTLET.

SITEWORKS LEGEND

- Property Boundary
- × 22.20 — Finished surface level
- 10.00 — Finished surface contour
- -1.0% — Design slope
- K&C — Kerb and channel
- KO — Kerb only
- DD — Dish drain
- RW — Retaining wall
- Batter
- 225Ø — Proposed Stormwater Line
- Swale
- Grated and solid lid pits
- Endwall

SCALE 1:500

0 10 20 30 m

TO BE PRINTED IN FULL COLOUR

NOT FOR CONSTRUCTION

Date generated 31/03/2025 4:42:26 PM \\CORP.PBWAN.NET\ANZ\TRANSITION\ENISTRUCT\CAD\J-7000\7044\CIVIL\DRAWINGS\7044-CV-2500

rev	date	description	drn	ch'k
B	04/04/25	UPDATED TENDER ISSUE	MD	HN
A	28/03/25	ISSUED FOR TENDER	MD	HN

enstruct group pty ltd

Level 4, 2 Glen Street
Milsons Point NSW 2061
Australia

Telephone (02) 8904 1444
Facsimile (02) 8904 1555
www.enstruct.com.au

project: LENNOX HEAD PRIMARY SCHOOL

SNAPPER DRIVE 2478, NSW

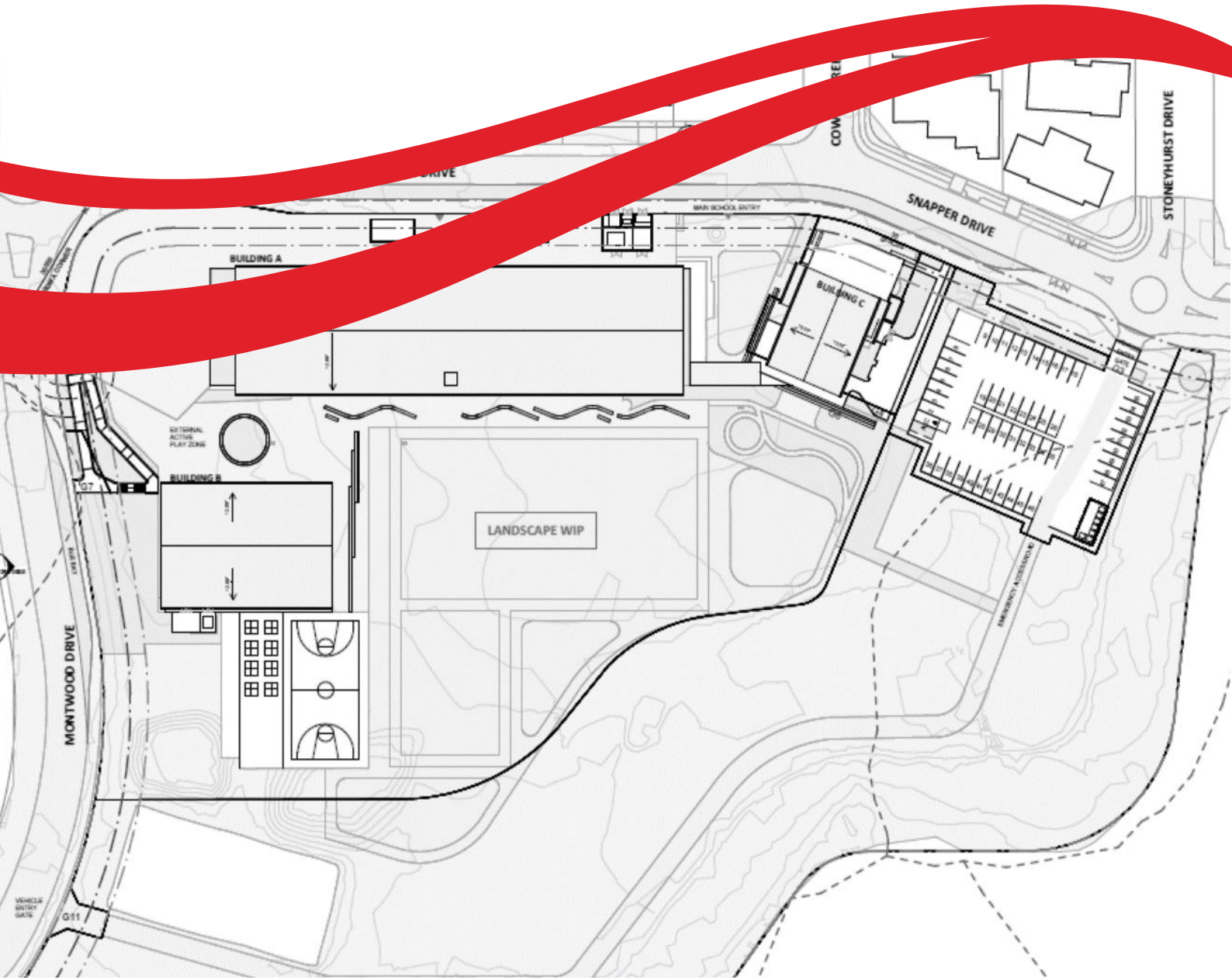
drawing title: SITEWORKS PLAN OVERALL

status: FOR TENDER

scale at A1	drawn	checked	approved
1:500	MD	AG	MARCH-25

project no.	sheet	rev.
7044	7044-CV-2500	B

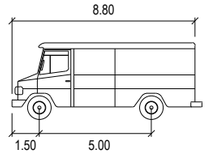
Appendix C: Service Vehicle Swept Paths



Notes:

Vehicle Clearance (600mm)

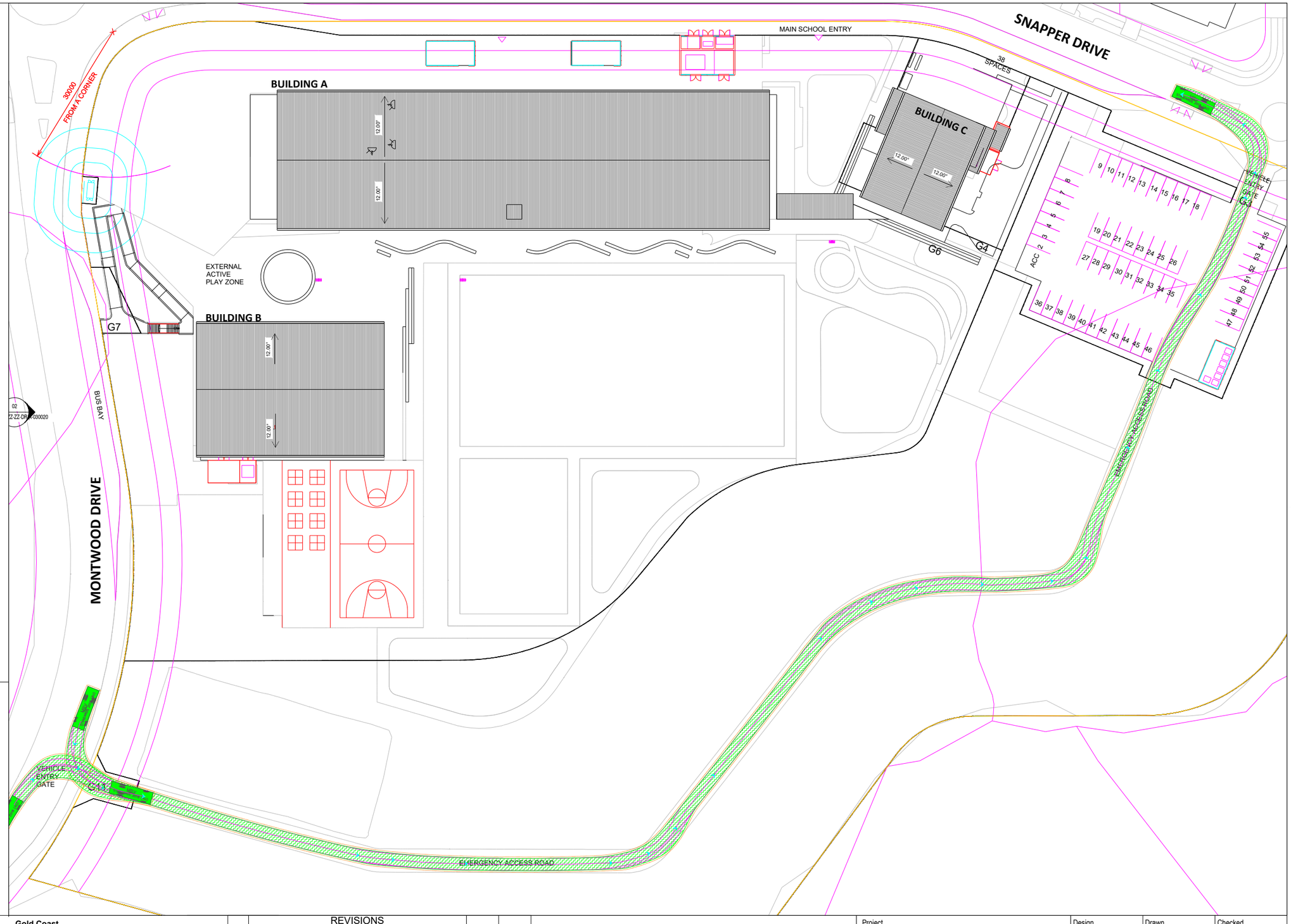
Vehicle Clearance (300mm)



MRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

DESIGN VEHICLE



Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	Swept Path Diagrams	A.S	08.04.2025

Scale @ A3 0 8 16 24 32 40 1:800

Project: Lennox Head Schools RTAs

Title: RFS Appliance Circulating Eastbound

Design	Drawn	Checked
A.S	A.S	A.E

CONCEPT ONLY

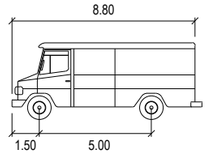
Date: 08.04.2025

Project Number	Sheet Number	Issue
P5939	1	001

Notes:

Vehicle Clearance (600mm)

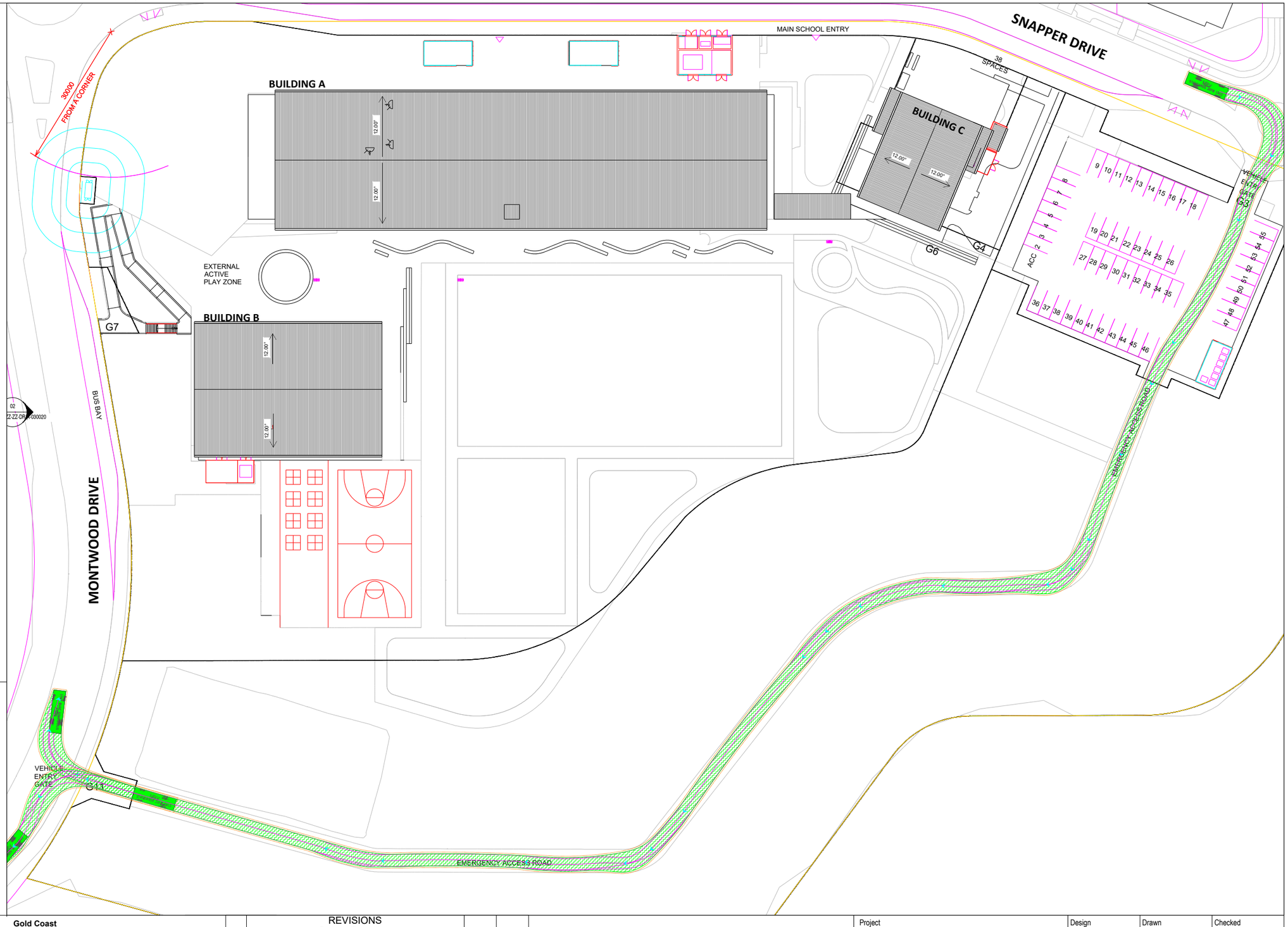
Vehicle Clearance (300mm)



MRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

DESIGN VEHICLE



Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

REVISIONS

Issue	Revisions/Descriptions	Drawn	Date
001	Swept Path Diagrams	A.S	08.04.2025

Scale @ A3 0 8 16 24 32 40 1:800

Project: Lennox Head Schools RTAs

Title: RFS Appliance Circulating Westbound

Design	Drawn	Checked
A.S	A.S	A.E

CONCEPT ONLY

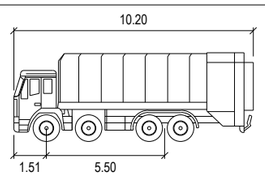
Date: 08.04.2025

Project Number	Sheet Number	Issue
P5939	2	001

Notes:

Vehicle Clearance (600mm)

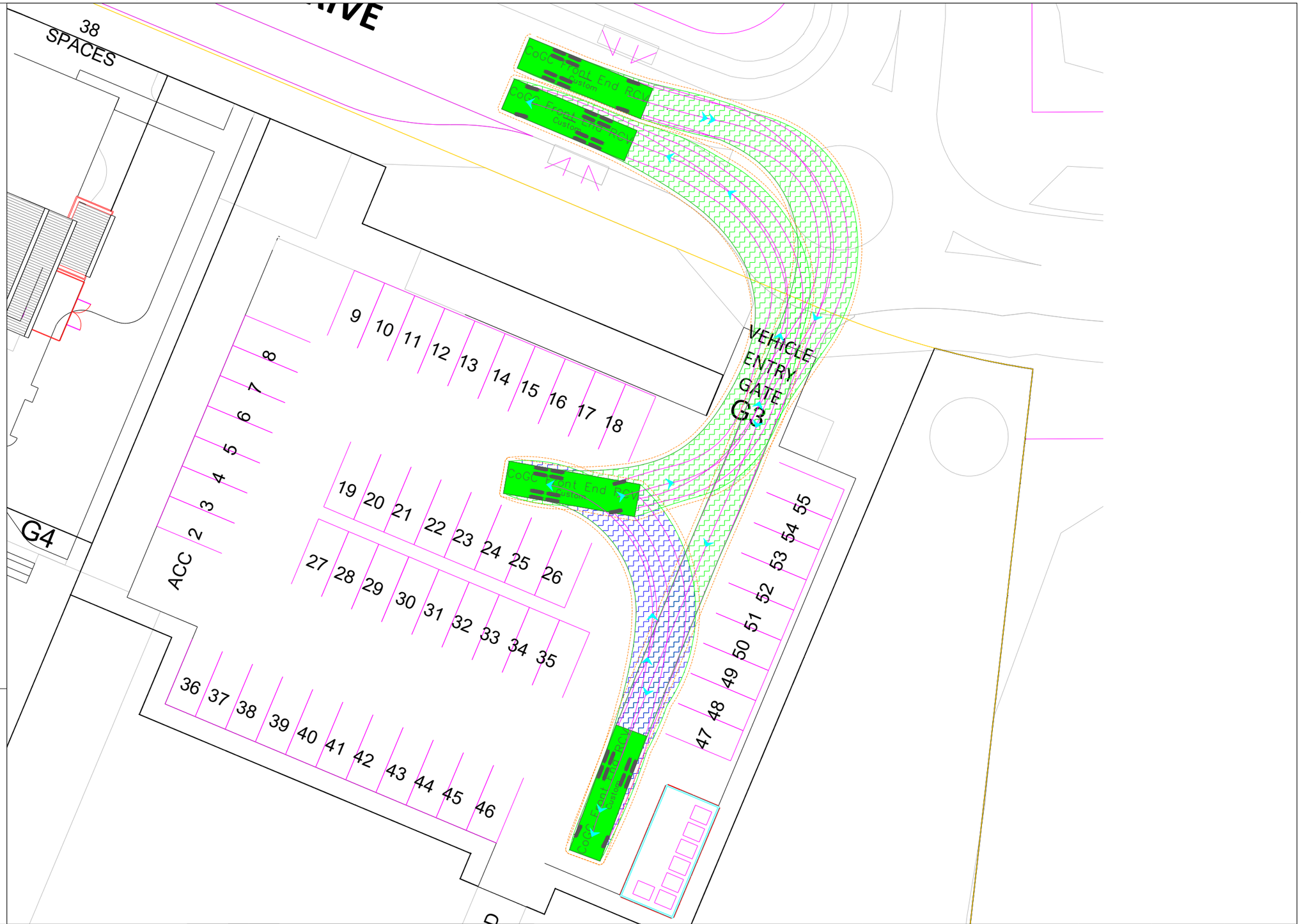
Vehicle Clearance (300mm)



CoGC RCV Front Loading meters

Width	:	2.50
Track	:	2.50
Lock to Lock Time	:	6.0
Steering Angle	:	31.9

DESIGN VEHICLE



Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

REVISIONS

Issue	Revisions/Descriptions	Drawn	Date
001	Swept Path Diagrams	A.S	08.04.2025

Scale @ A3 0 2 4 6 8 10 12 14 1:300

Project: Lennox Head Schools RTAs

Title: RCV Servicing

Design	Drawn	Checked
A.S	A.S	A.E

CONCEPT ONLY

Date: 08.04.2025

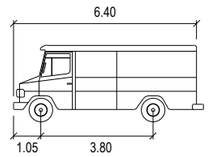
Project Number	Sheet Number	Issue
P5939	3	001

N

Notes:

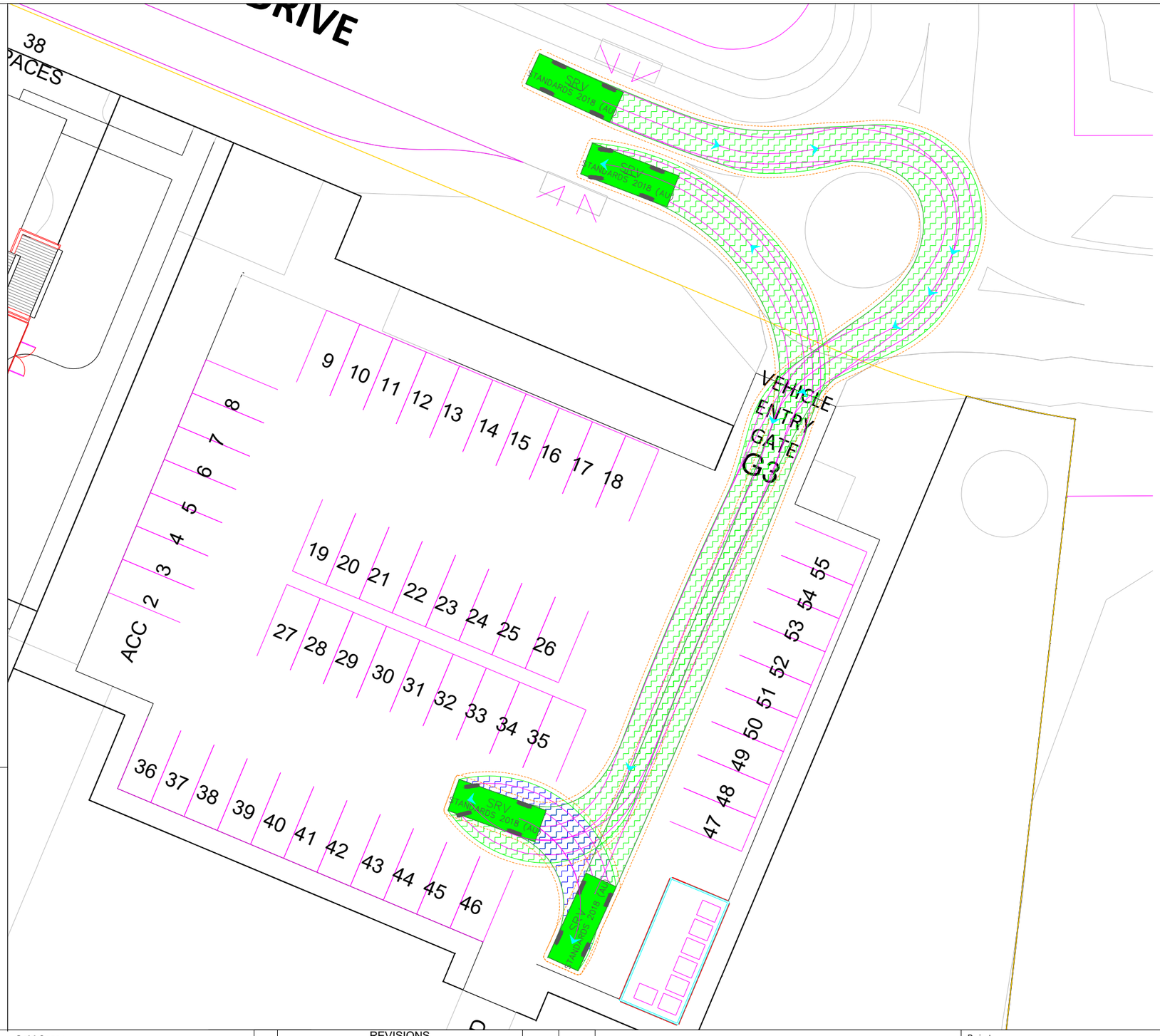
Vehicle Clearance (600mm)

Vehicle Clearance (300mm)



SRV	meters
Width	: 2.3
Track	: 2.3
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

DESIGN VEHICLE



Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
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Level 2, 428 Upper Edward Street, Spring Hill 4000
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P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	Swept Path Diagrams	A.S	08.04.2025

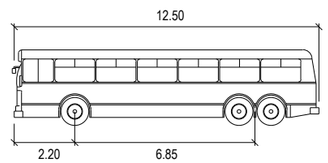
Scale @ A3 0 2 4 6 8 10 12 14 1:300

Project	Design	Drawn	Checked
Lennox Head Schools RTAs	A.S	A.S	A.E
Title: SRV Servicing	CONCEPT ONLY	Date: 08.04.2025	
	Project Number: P5939	Sheet Number: 4	Issue: 001

Notes:

Vehicle Clearance (600mm)

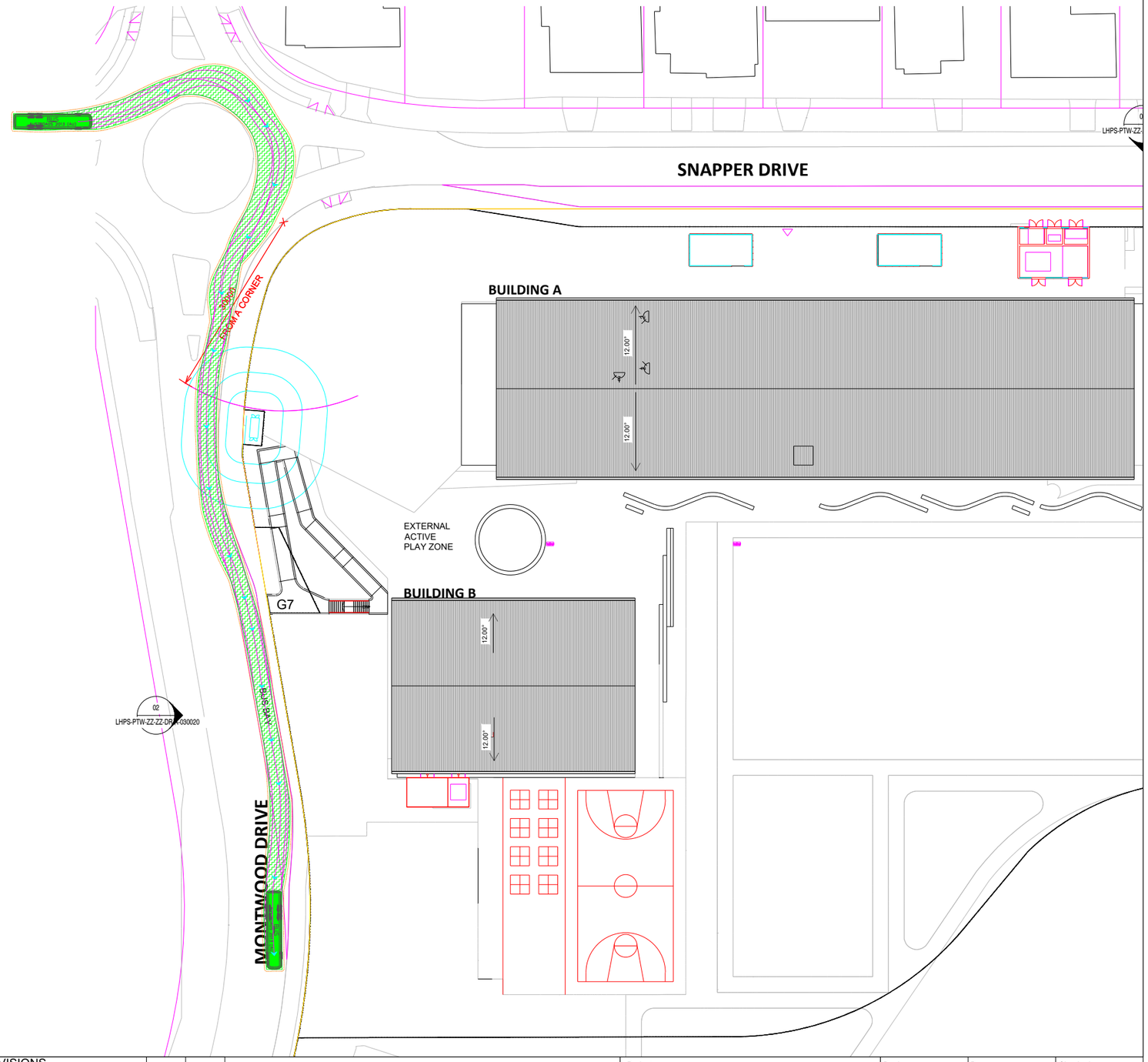
Vehicle Clearance (300mm)



Bus (12.5m) meters

Width	:	2.50
Track	:	2.50
Lock to Lock Time	:	6.0
Steering Angle	:	36.6

DESIGN VEHICLE



Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	Swept Path Diagrams	A.S	08.04.2025

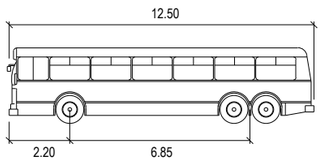
Scale @ A3 0 5 10 15 20 25 30 35 1:750

Project: Lennox Head Schools RTAs	Design: A.S	Drawn: A.S	Checked: A.E
Title: Bus Servicing Southbound	CONCEPT ONLY	Date: 08.04.2025	
	Project Number: P5939	Sheet Number: 5	Issue: 001

Notes:

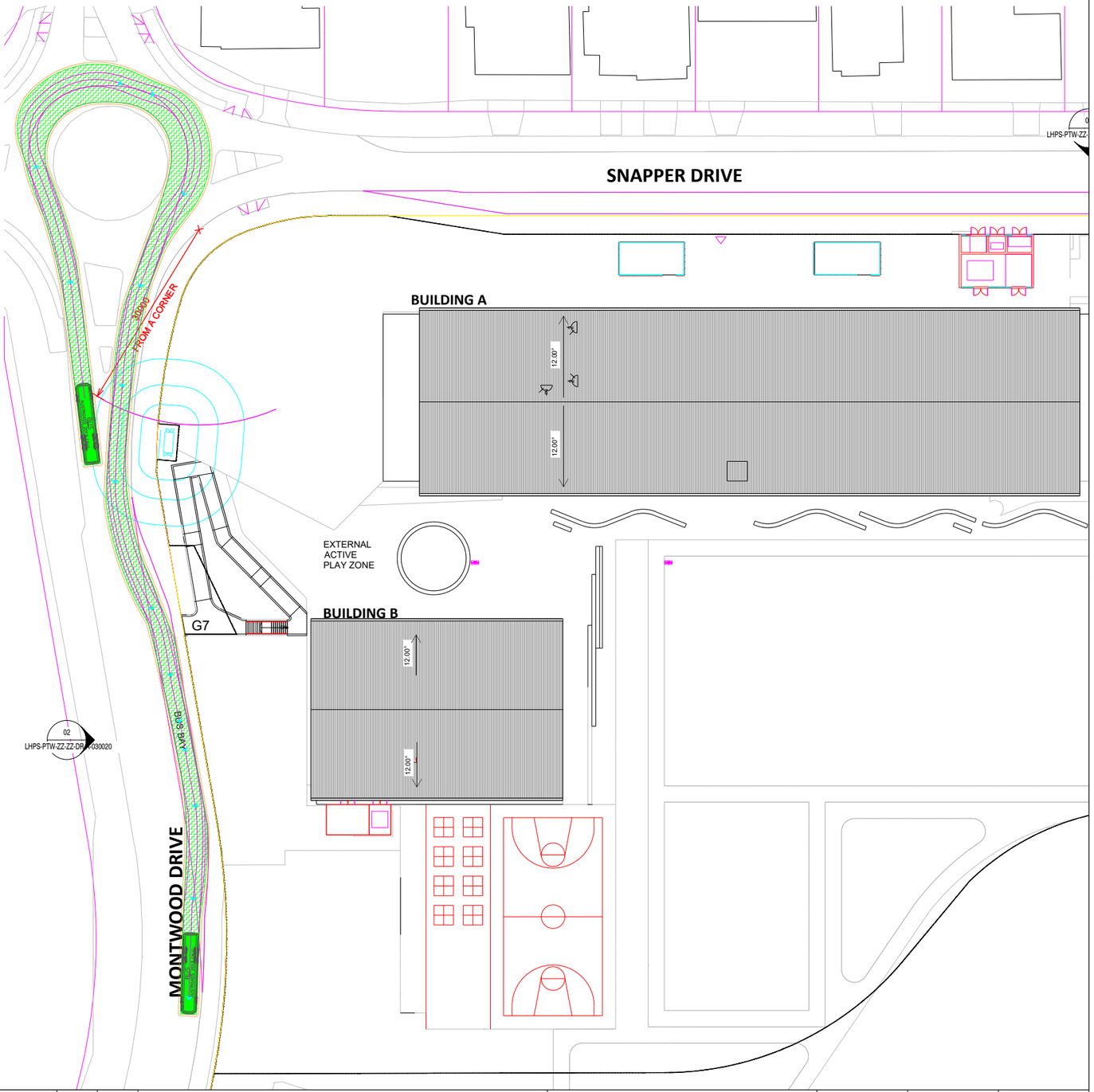
Vehicle Clearance (600mm)

Vehicle Clearance (300mm)



Bus (12.5m)	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE



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W: www.bitziosconsulting.com.au
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P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	Swept Path Diagrams	A.S	08.04.2025

Scale @ A3 0 5 10 15 20 25 30 35 1:750

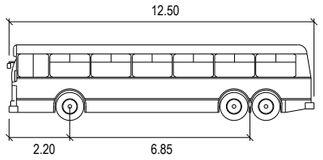
Project: Lennox Head Schools RTAs	Design: A.S	Drawn: A.S	Checked: A.E
Title: Bus Servicing Northbound	CONCEPT ONLY	Date: 08.04.2025
	Project Number: P5939	Sheet Number: 6	Issue: 001

N

Notes:

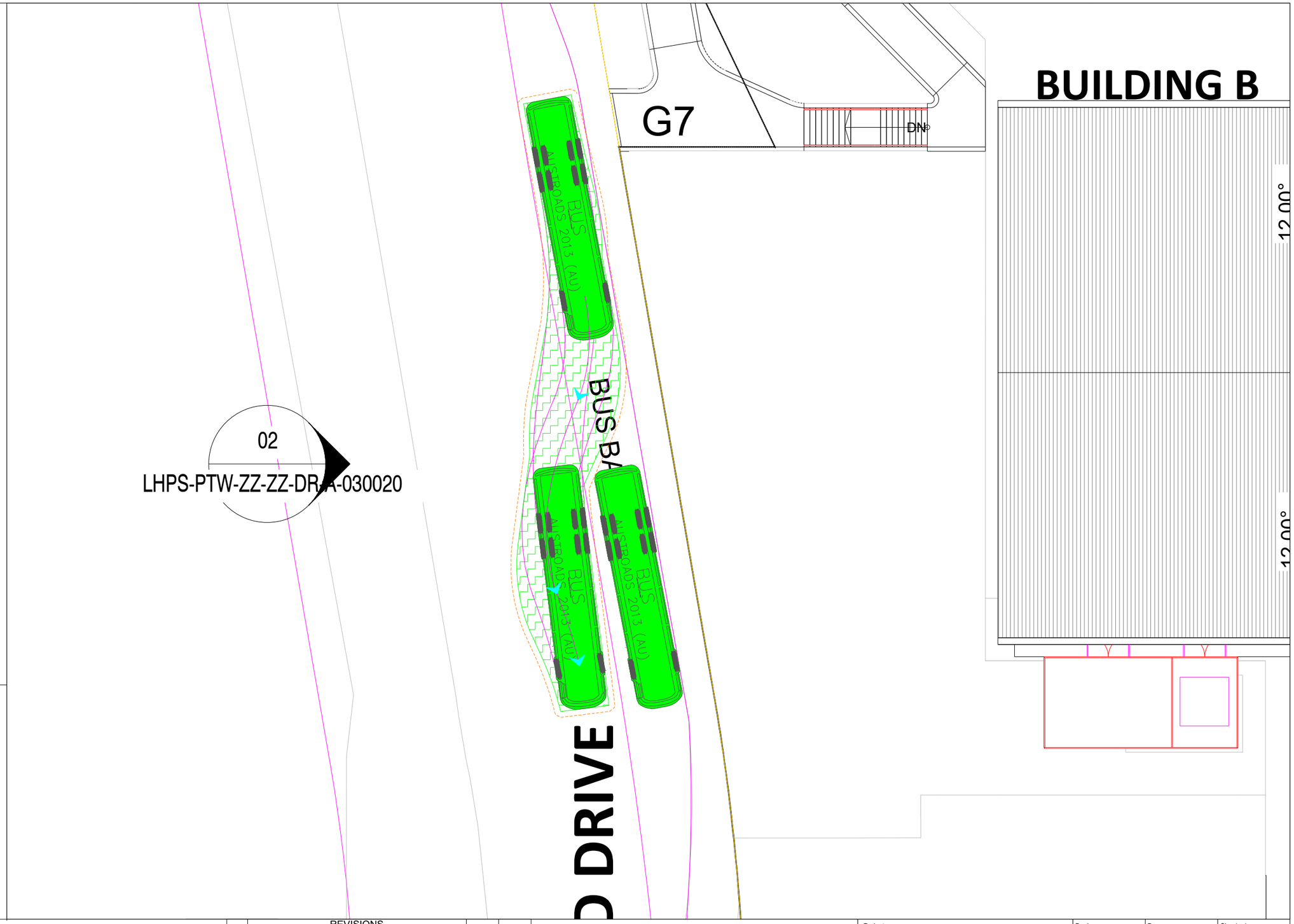
Vehicle Clearance (600mm)

Vehicle Clearance (300mm)



Bus (12.5m)	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE



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W: www.bitziosconsulting.com.au
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Level 2, 428 Upper Edward Street, Spring Hill 4000
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Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	Swept Path Diagrams	A.S	08.04.2025

Scale @ A3 0 2 4 6 8 10 1:200

Project	Lennox Head Schools RTAs
Title	Bus Storing

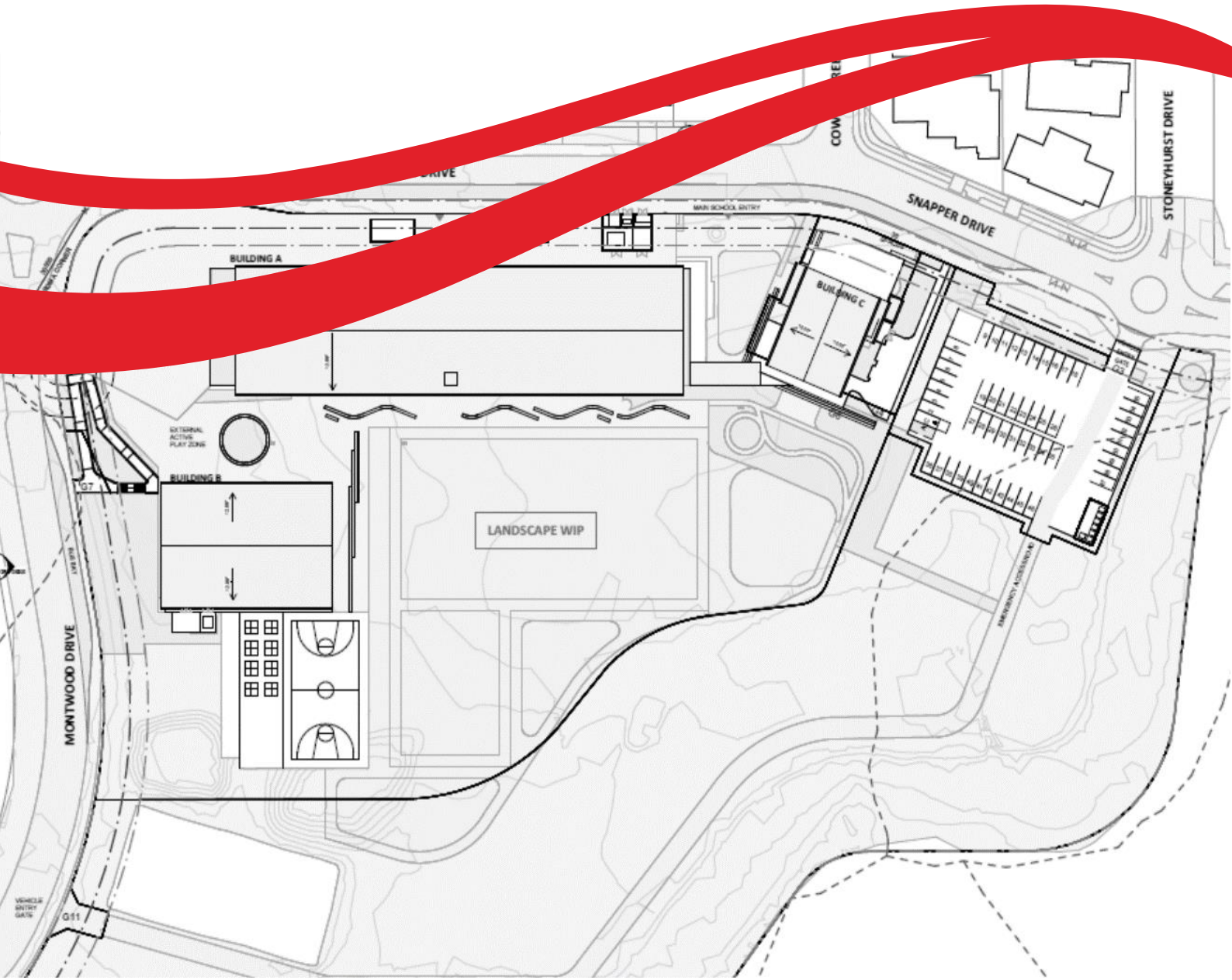
Design	Drawn	Checked
A.S	A.S	A.E

CONCEPT ONLY

Date 08.04.2025

Project Number	Sheet Number	Issue
P5939	7	001

Appendix D: Traffic Survey Data



TDC
Traffic Data & Control

SURVEY INFORMATION

Site ID:	1			
Location:	Hutley Dr & Snapper Dr, Lennox Head			
Date:	19 Jun 2024			
AM Peak Hours:	07:30	to	09:30	(2 hours)
PM Peak Hours:	14:00	to	16:00	(2 hours)

	Primary Classes:	Inc in HV%		Secondary Classes:
1	Light Vehicles (1-2)	☐	1	Pedestrians
2	Heavy Vehicles (3-12)	☑	2	None
3	Bicycles on Road	☐		
4	None	☐		
5	None	☐		

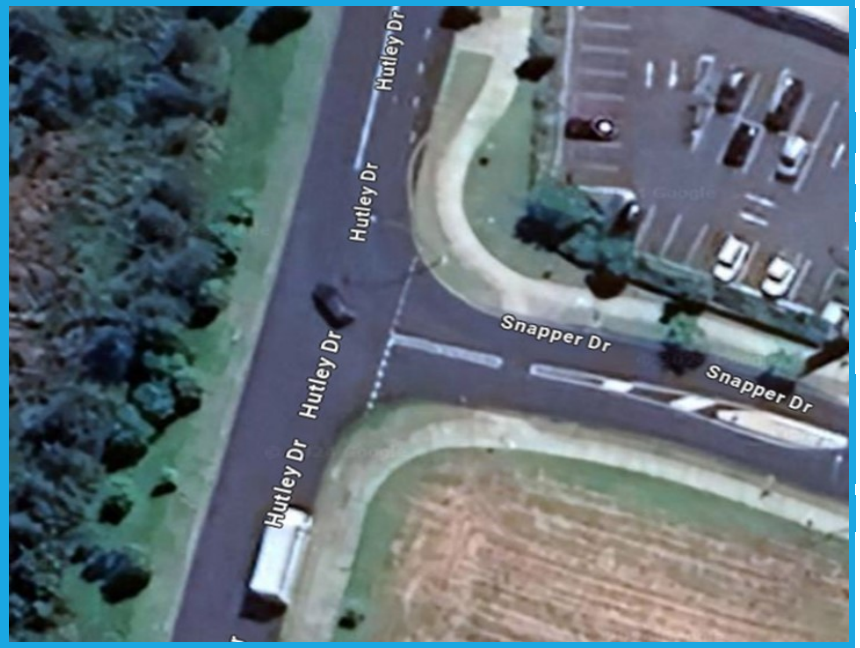
Weather Conditions: Fine

	Show/Hide Leg	
Intersection Legs:	**North** ☑	Hutley Dr SB
	East ☑	Snapper Dr WB
	South ☑	Hutley Dr NB
	West ☐	

Output time interval: 15 mins

Intersection type: Giveway

MAP



Co-ordinates: -28.807694, 153.581639

Site ID: 1

Location: Hutley Dr & Snapper Dr, Lennox Head

Date: 19/06/2024

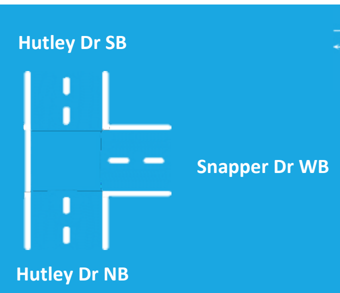
Surveyed Time (AM): 7:30 AM to 9:30 AM (2 hours)

Surveyed Time (PM): 2:00 PM to 4:00 PM (2 hours)

Weather: Fine

Observed AM Peak Hour: 8:00 AM to 9:00 AM

Observered PM Peak Hour: 3:00 PM to 4:00 PM



TDC Traffic Data & Control

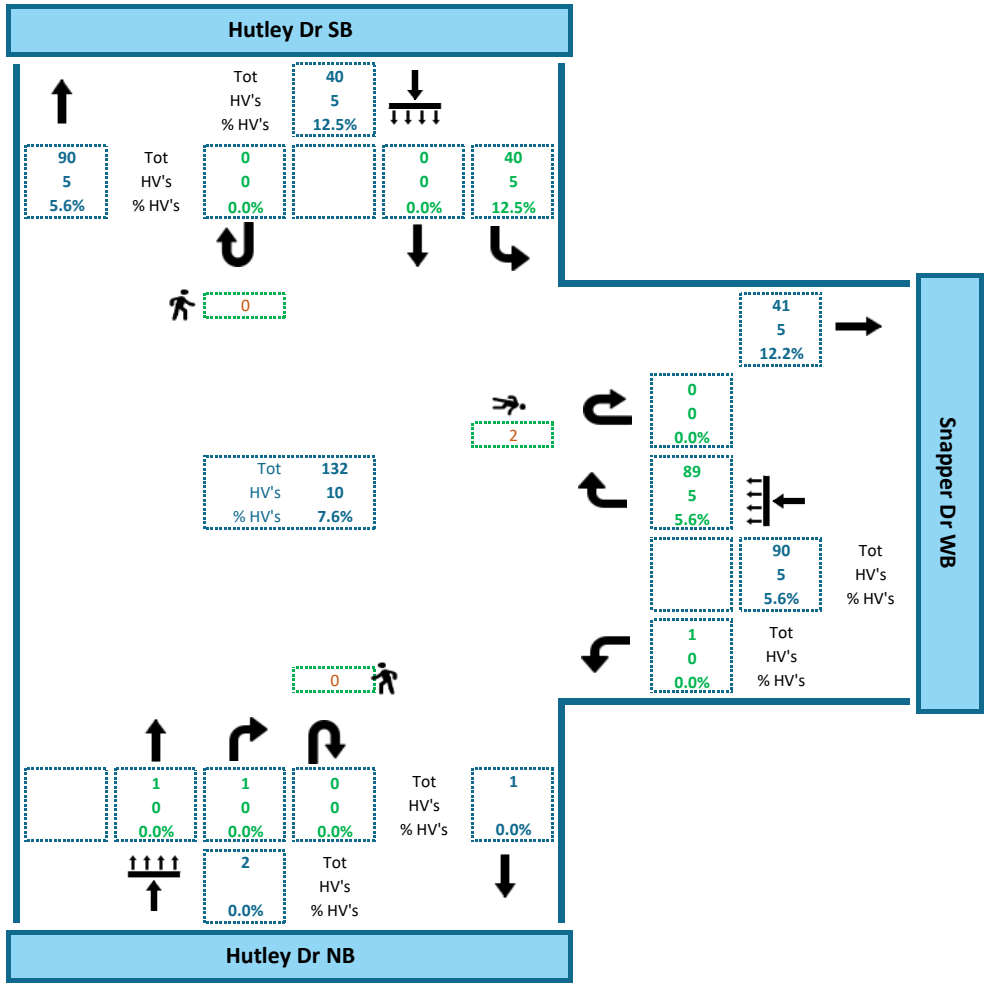
TOTALS AND PEAKS

Time Starting	Hutley Dr SB Left Light Vehicles (1-2)	Hutley Dr SB Left Heavy Vehicles (3-12)	Hutley Dr SB Left Bicycles on Road	Hutley Dr SB Through Light Vehicles (1-2)	Hutley Dr SB Through Heavy Vehicles (3-12)	Hutley Dr SB Through Bicycles on Road	Hutley Dr SB U-turn Light Vehicles (1-2)	Hutley Dr SB U-turn Heavy Vehicles (3-12)	Hutley Dr SB U-turn Bicycles on Road	Hutley Dr SB Cross 1 Pedestrians	Snapper Dr WB Left Light Vehicles (1-2)	Snapper Dr WB Left Heavy Vehicles (3-12)	Snapper Dr WB Left Bicycles on Road	Snapper Dr WB Right Light Vehicles (1-2)	Snapper Dr WB Right Heavy Vehicles (3-12)	Snapper Dr WB Right Bicycles on Road	Snapper Dr WB U-turn Light Vehicles (1-2)	Snapper Dr WB U-turn Heavy Vehicles (3-12)	Snapper Dr WB U-turn Bicycles on Road	Snapper Dr WB Cross 1 Pedestrians	Hutley Dr NB Through Light Vehicles (1-2)	Hutley Dr NB Through Heavy Vehicles (3-12)	Hutley Dr NB Through Bicycles on Road	Hutley Dr NB Right Light Vehicles (1-2)	Hutley Dr NB Right Heavy Vehicles (3-12)	Hutley Dr NB Right Bicycles on Road	Hutley Dr NB U-turn Light Vehicles (1-2)	Hutley Dr NB U-turn Heavy Vehicles (3-12)	Hutley Dr NB U-turn Bicycles on Road	Hutley Dr NB Cross 1 Pedestrians	GRAND TOTAL TOTALS	Hutley Dr SB TOTAL All Classes	Snapper Dr WB TOTAL All Classes	Hutley Dr NB TOTAL All Classes
AM + PM Totals	192	12	2	2	1	0	0	0	0	0	2	0	0	284	18	3	0	0	0	11	2	1	0	1	0	0	0	0	0	0	520	209	307	4
AM Total	72	8	2	1	1	0	0	0	0	0	2	0	0	151	8	0	0	0	0	6	2	1	0	1	0	0	0	0	0	0	249	84	161	4
PM Total	120	4	0	1	0	0	0	0	0	0	0	0	0	133	10	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	271	125	146	0
AM Peak 1 hr	34	5	1	0	0	0	0	0	0	0	1	0	0	84	5	0	0	0	0	2	1	0	0	1	0	0	0	0	0	0	132	40	90	2
PM Peak 1 hr	85	4	0	1	0	0	0	0	0	0	0	0	0	76	7	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	176	90	86	0
07:30	12	0	1	0	0	0	0	0	0	0	0	0	0	15	1	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	**30**	13	16	1
07:45	8	1	0	1	0	0	0	0	0	0	0	0	0	17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**28**	10	18	0
08:00	4	3	0	0	0	0	0	0	0	0	1	0	0	21	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	**31**	7	22	2
08:15	8	1	0	0	0	0	0	0	0	0	0	0	0	21	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	**32**	9	23	0
08:30	8	0	1	0	0	0	0	0	0	0	0	0	0	18	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**29**	9	20	0
08:45	14	1	0	0	0	0	0	0	0	0	0	0	0	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**40**	15	25	0
09:00	8	1	0	0	0	0	0	0	0	0	1	0	0	19	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**31**	9	21	1
09:15	10	1	0	0	1	0	0	0	0	0	0	0	0	16	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	**28**	12	16	0
14:00	10	0	0	0	0	0	0	0	0	0	0	0	0	15	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	**26**	10	16	0
14:15	2	0	0	0	0	0	0	0	0	0	0	0	0	15	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	**18**	2	16	0
14:30	11	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**21**	11	10	0
14:45	12	0	0	0	0	0	0	0	0	0	0	0	0	17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**30**	12	18	0
15:00	15	1	0	0	0	0	0	0	0	0	0	0	0	19	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	**36**	16	20	0
15:15	29	1	0	1	0	0	0	0	0	0	0	0	0	23	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**59**	31	28	0
15:30	19	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**37**	19	18	0
15:45	22	2	0	0	0	0	0	0	0	0	0	0	0	16	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**44**	24	20	0

TDC
Traffic Data & Control

One Hour Turning Movement Count Summary

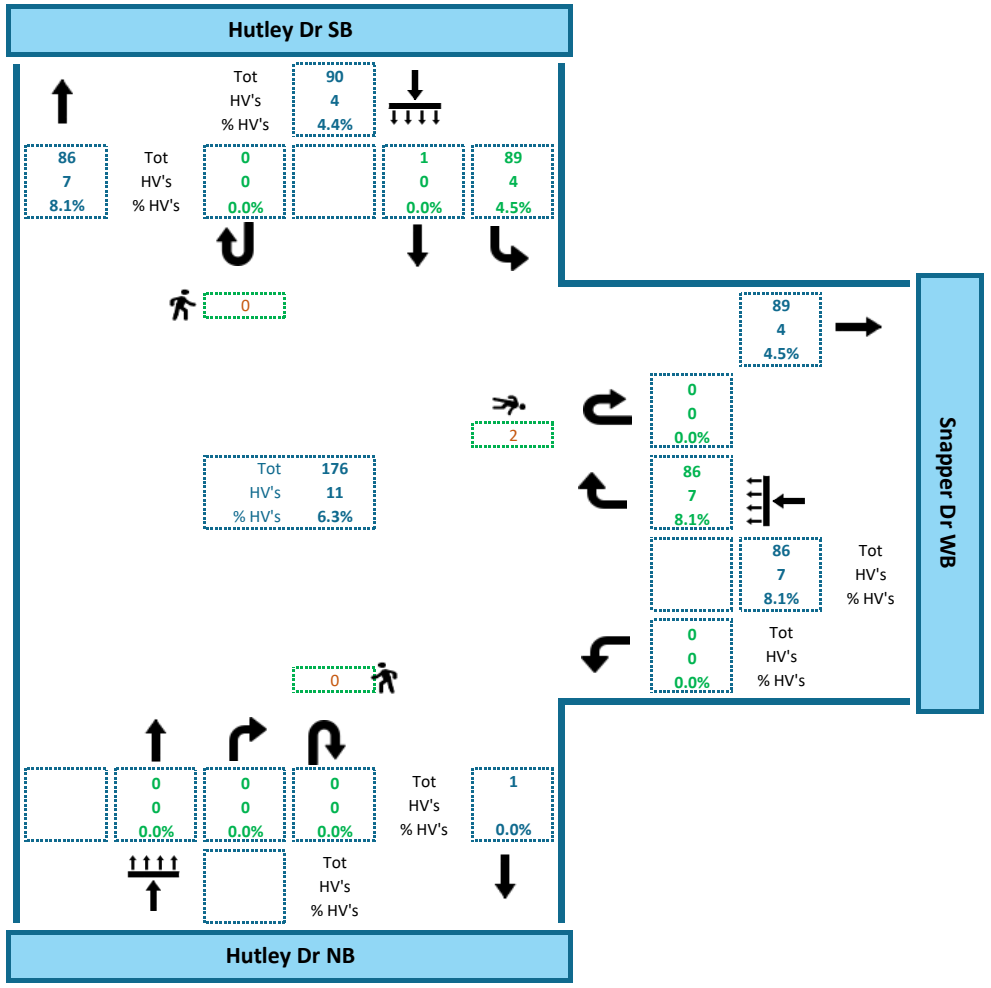
Site ID:	1	*AM Peak:*	*8:00 AM*	*to*	*9:00 AM*
Location:	Hutley Dr & Snapper Dr, Lennox Head	*PM Peak:*	*3:00 PM*	*to*	*4:00 PM*
Date:	19/06/2024	**Duration:**	07:30 AM to 09:30 AM (2 hours) and 02:00 PM to 04:00 PM (2 hours)		
Data Period:	8:00 AM	**to**	9:00 AM	*<=== Select start of one hour to be presented*	
Weather:	Fine				
Vehicle Class:	ALL VEHICLES	*<=== Vehicle Class data can be changed to any vehicle class by selecting it here.*			



TDC
Traffic Data & Control

One Hour Turning Movement Count Summary

Site ID:	1	*AM Peak:*	*8:00 AM*	*to*	*9:00 AM*
Location:	Hutley Dr & Snapper Dr, Lennox Head	*PM Peak:*	*3:00 PM*	*to*	*4:00 PM*
Date:	19/06/2024	**Duration:**	07:30 AM to 09:30 AM (2 hours) and 02:00 PM to 04:00 PM (2 hours)		
Data Period:	3:00 PM	**to**	4:00 PM	*<=== Select start of one hour to be presented*	
Weather:	Fine				
Vehicle Class:	ALL VEHICLES	*<=== Vehicle Class data can be changed to any vehicle class by selecting it here.*			



TDC
Traffic Data & Control

SURVEY INFORMATION

Site ID:	2			
Location:	Snapper Dr & Montwood Dr, Lennox Head			
Date:	19 Jun 2024			
AM Peak Hours:	07:30	to	09:30	(2 hours)
PM Peak Hours:	14:00	to	16:00	(2 hours)

	Primary Classes:	Inc in HV%		Secondary Classes:
1	Light Vehicles (1-2)	☐	1	Pedestrians
2	Heavy Vehicles (3-12)	☑	2	None
3	Bicycles on Road	☐		
4	None	☐		
5	None	☐		

Weather Conditions: Fine

Intersection Legs:	*Show/Hide Leg*	
North	☑	Montwood Dr SB
East	☑	Snapper Dr WB
South	☑	Montwood Dr NB NB
West	☑	Snapper Dr EB

Output time interval: 15 mins

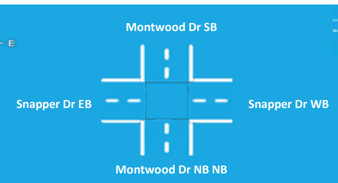
Intersection type: Roundabout

MAP

Co-ordinates: -28.808417, 153.584861

Site ID: 2
Location: Snapper Dr & Montwood Dr, Lennox Head
Date: 19/06/2024
Surveyed Time (AM): 7:30 AM to 9:30 AM (2 hours)
Surveyed Time (PM): 2:00 PM to 4:00 PM (2 hours)

Weather: Fine
Observed AM Peak Hour: 8:00 AM to 9:00 AM
Observered PM Peak Hour: 3:00 PM to 4:00 PM



TDC
Traffic Data & Control

TOTALS AND PEAKS

Montwood Dr SB

	Left Light Vehicles (1-2)	Left Heavy Vehicles (3-12)	Left Bicycles on Road	Through Light Vehicles (1-2)	Through Heavy Vehicles (3-12)	Through Bicycles on Road	Right Light Vehicles (1-2)	Right Heavy Vehicles (3-12)	Right Bicycles on Road	U-turn Light Vehicles (1-2)	U-turn Heavy Vehicles (3-12)	U-turn Bicycles on Road	Cross 1 Pedestrians
AM + PM Totals	14	0	0	64	1	0	14	0	1	1	0	0	3
AM Total	7	0	0	40	0	0	8	0	0	1	0	0	3
PM Total	7	0	0	24	1	0	6	0	1	0	0	0	0
AM Peak 1 hr	4	0	0	28	0	0	3	0	0	0	0	0	3
PM Peak 1 hr	3	0	0	15	1	0	4	0	1	0	0	0	0
Time Starting													
07:30	0	0	0	3	0	0	0	0	0	0	0	0	0
07:45	0	0	0	6	0	0	3	0	0	0	0	0	0
08:00	0	0	0	6	0	0	1	0	0	0	0	0	3
08:15	3	0	0	9	0	0	0	0	0	0	0	0	0
08:30	1	0	0	10	0	0	0	0	0	0	0	0	0
08:45	0	0	0	3	0	0	2	0	0	0	0	0	0
09:00	1	0	0	1	0	0	2	0	0	0	0	0	0
09:15	2	0	0	2	0	0	0	0	0	1	0	0	0
14:00	1	0	0	2	0	0	0	0	0	0	0	0	0
14:15	1	0	0	0	0	0	1	0	0	0	0	0	0
14:30	1	0	0	2	0	0	0	0	0	0	0	0	0
14:45	1	0	0	5	0	0	1	0	0	0	0	0	0
15:00	1	0	0	4	0	0	0	0	0	0	0	0	0
15:15	1	0	0	4	0	0	2	0	1	0	0	0	0
15:30	1	0	0	1	1	0	0	0	0	0	0	0	0
15:45	0	0	0	6	0	0	2	0	0	0	0	0	0

Snapper Dr WB

	Left Light Vehicles (1-2)	Left Heavy Vehicles (3-12)	Left Bicycles on Road	Through Light Vehicles (1-2)	Through Heavy Vehicles (3-12)	Through Bicycles on Road	Right Light Vehicles (1-2)	Right Heavy Vehicles (3-12)	Right Bicycles on Road	U-turn Light Vehicles (1-2)	U-turn Heavy Vehicles (3-12)	U-turn Bicycles on Road	Cross 1 Pedestrians
AM + PM Totals	41	3	0	107	6	0	19	0	0	0	0	0	1
AM Total	27	3	0	61	2	0	7	0	0	0	0	0	0
PM Total	14	0	0	46	4	0	12	0	0	0	0	0	1
AM Peak 1 hr	19	1	0	36	1	0	5	0	0	0	0	0	0
PM Peak 1 hr	7	0	0	23	3	0	8	0	0	0	0	0	1
Time Starting													
07:30	4	0	0	6	0	0	2	0	0	0	0	0	0
07:45	2	0	0	4	0	0	0	0	0	0	0	0	0
08:00	6	1	0	11	0	0	2	0	0	0	0	0	0
08:15	5	0	0	12	0	0	0	0	0	0	0	0	0
08:30	4	0	0	8	0	0	3	0	0	0	0	0	0
08:45	4	0	0	5	1	0	0	0	0	0	0	0	0
09:00	1	0	0	7	1	0	0	0	0	0	0	0	0
09:15	1	2	0	8	0	0	0	0	0	0	0	0	0
14:00	0	0	0	7	0	0	1	0	0	0	0	0	0
14:15	3	0	0	3	1	0	1	0	0	0	0	0	0
14:30	2	0	0	4	0	0	1	0	0	0	0	0	0
14:45	2	0	0	9	0	0	1	0	0	0	0	0	0
15:00	1	0	0	5	1	0	5	0	0	0	0	0	1
15:15	3	0	0	7	1	0	0	0	0	0	0	0	0
15:30	1	0	0	7	0	0	1	0	0	0	0	0	0
15:45	2	0	0	4	1	0	2	0	0	0	0	0	0

Montwood Dr NB NB

	Left Light Vehicles (1-2)	Left Heavy Vehicles (3-12)	Left Bicycles on Road	Through Light Vehicles (1-2)	Through Heavy Vehicles (3-12)	Through Bicycles on Road	Right Light Vehicles (1-2)	Right Heavy Vehicles (3-12)	Right Bicycles on Road	U-turn Light Vehicles (1-2)	U-turn Heavy Vehicles (3-12)	U-turn Bicycles on Road	Cross 1 Pedestrians
AM + PM Totals	322	8	3	57	1	0	33	4	0	2	0	0	28
AM Total	167	5	0	25	0	0	15	4	0	1	0	0	19
PM Total	155	3	3	32	1	0	18	0	0	1	0	0	9
AM Peak 1 hr	99	4	0	12	0	0	8	0	0	1	0	0	12
PM Peak 1 hr	91	3	3	23	1	0	9	0	0	1	0	0	4
Time Starting													
07:30	15	1	0	2	0	0	2	2	0	0	0	0	2
07:45	16	0	0	1	0	0	0	1	0	0	0	0	1
08:00	24	1	0	1	0	0	2	0	0	0	0	0	0
08:15	22	1	0	3	0	0	1	0	0	0	0	0	8
08:30	18	1	0	2	0	0	1	0	0	1	0	0	2
08:45	35	1	0	6	0	0	4	0	0	0	0	0	2
09:00	21	0	0	5	0	0	2	1	0	0	0	0	2
09:15	16	0	0	5	0	0	3	0	0	0	0	0	2
14:00	12	0	0	2	0	0	3	0	0	0	0	0	0
14:15	17	0	0	2	0	0	1	0	0	0	0	0	0
14:30	14	0	0	4	0	0	1	0	0	0	0	0	5
14:45	21	0	0	1	0	0	4	0	0	0	0	0	0
15:00	22	0	0	3	1	0	2	0	0	0	0	0	2
15:15	21	1	2	8	0	0	5	0	0	0	0	0	0
15:30	20	0	1	5	0	0	2	0	0	0	0	0	0
15:45	28	2	0	7	0	0	0	0	0	1	0	0	2

Snapper Dr EB

	Left Light Vehicles (1-2)	Left Heavy Vehicles (3-12)	Left Bicycles on Road	Through Light Vehicles (1-2)	Through Heavy Vehicles (3-12)	Through Bicycles on Road	Right Light Vehicles (1-2)	Right Heavy Vehicles (3-12)	Right Bicycles on Road	U-turn Light Vehicles (1-2)	U-turn Heavy Vehicles (3-12)	U-turn Bicycles on Road	Cross 1 Pedestrians
AM + PM Totals	12	0	2	76	5	2	245	6	0	2	0	0	24
AM Total	6	0	0	32	4	1	97	4	0	0	0	0	13
PM Total	6	0	2	44	1	1	148	2	0	2	0	0	11
AM Peak 1 hr	4	0	0	17	2	1	52	2	0	0	0	0	8
PM Peak 1 hr	4	0	2	27	1	1	92	2	0	2	0	0	6
Time Starting													
07:30	0	0	0	4	0	0	13	0	0	0	0	0	0
07:45	1	0	0	7	0	0	6	1	0	0	0	0	1
08:00	1	0	0	4	1	0	8	1	0	0	0	0	0
08:15	0	0	0	4	0	0	20	1	0	0	0	0	4
08:30	2	0	0	4	0	1	12	0	0	0	0	0	3
08:45	1	0	0	5	1	0	12	0	0	0	0	0	1
09:00	0	0	0	2	2	0	16	0	0	0	0	0	2
09:15	1	0	0	2	0	0	10	1	0	0	0	0	2
14:00	0	0	0	4	0	0	13	0	0	0	0	0	0
14:15	0	0	0	2	0	0	7	0	0	0	0	0	0
14:30	1	0	0	4	0	0	13	0	0	0	0	0	5
14:45	1	0	0	7	0	0	23	0	0	0	0	0	0
15:00	1	0	0	3	1	0	24	0	0	0	0	0	2
15:15	1	0	2	5	0	0	23	0	0	1	0	0	0
15:30	1	0	0	8	0	1	19	0	0	1	0	0	4
15:45	1	0	0	11	0	0	26	2	0	0	0	0	0

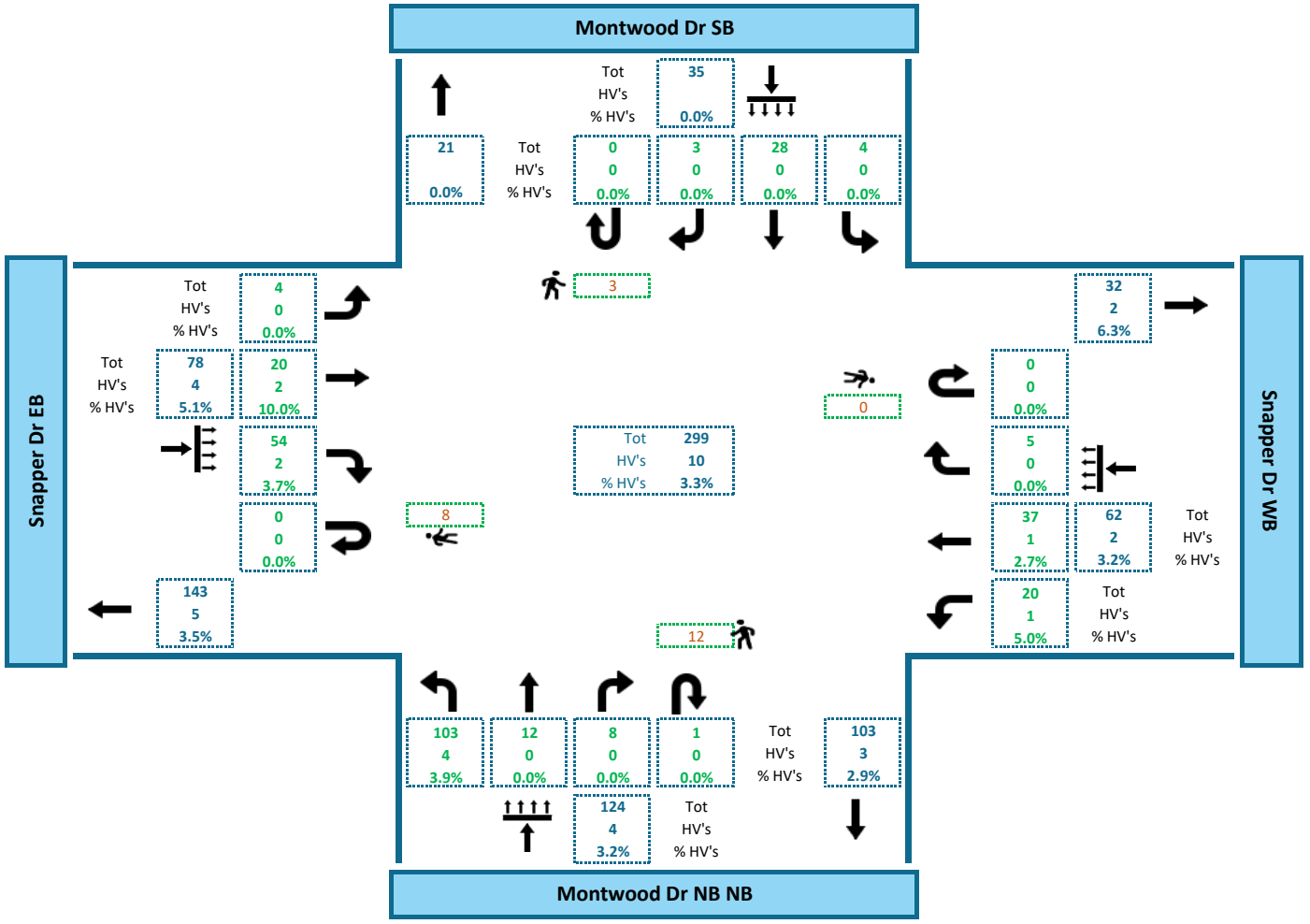
Totals

	GRAND TOTAL TOTALS	Montwood Dr SB TOTAL All Classes	Snapper Dr WB TOTAL All Classes	Montwood Dr NB NB TOTAL All Classes	Snapper Dr EB TOTAL All Classes
AM + PM Totals	1051	95	176	430	350
AM Total	517	56	100	217	144
PM Total	534	39	76	213	206
AM Peak 1 hr	299	35	62	124	78
PM Peak 1 hr	327	24	41	131	131
Time Starting					
07:30	**54**	3	12	22	17
07:45	**48**	9	6	18	15
08:00	**70**	7	20	28	15
08:15	**81**	12	17	27	25
08:30	**68**	11	15	23	19
08:45	**80**	5	10	46	19
09:00	**62**	4	9	29	20
09:15	**54**	5	11	24	14
14:00	**45**	3	8	17	17
14:15	**39**	2	8	20	9
14:30	**47**	3	7	19	18
14:45	**76**	7	12	26	31
15:00	**74**	5	12	28	29
15:15	**88**	8	11	37	32
15:30	**70**	3	9	28	30
15:45	**95**	8	9	38	40

TDC
Traffic Data & Control

One Hour Turning Movement Count Summary

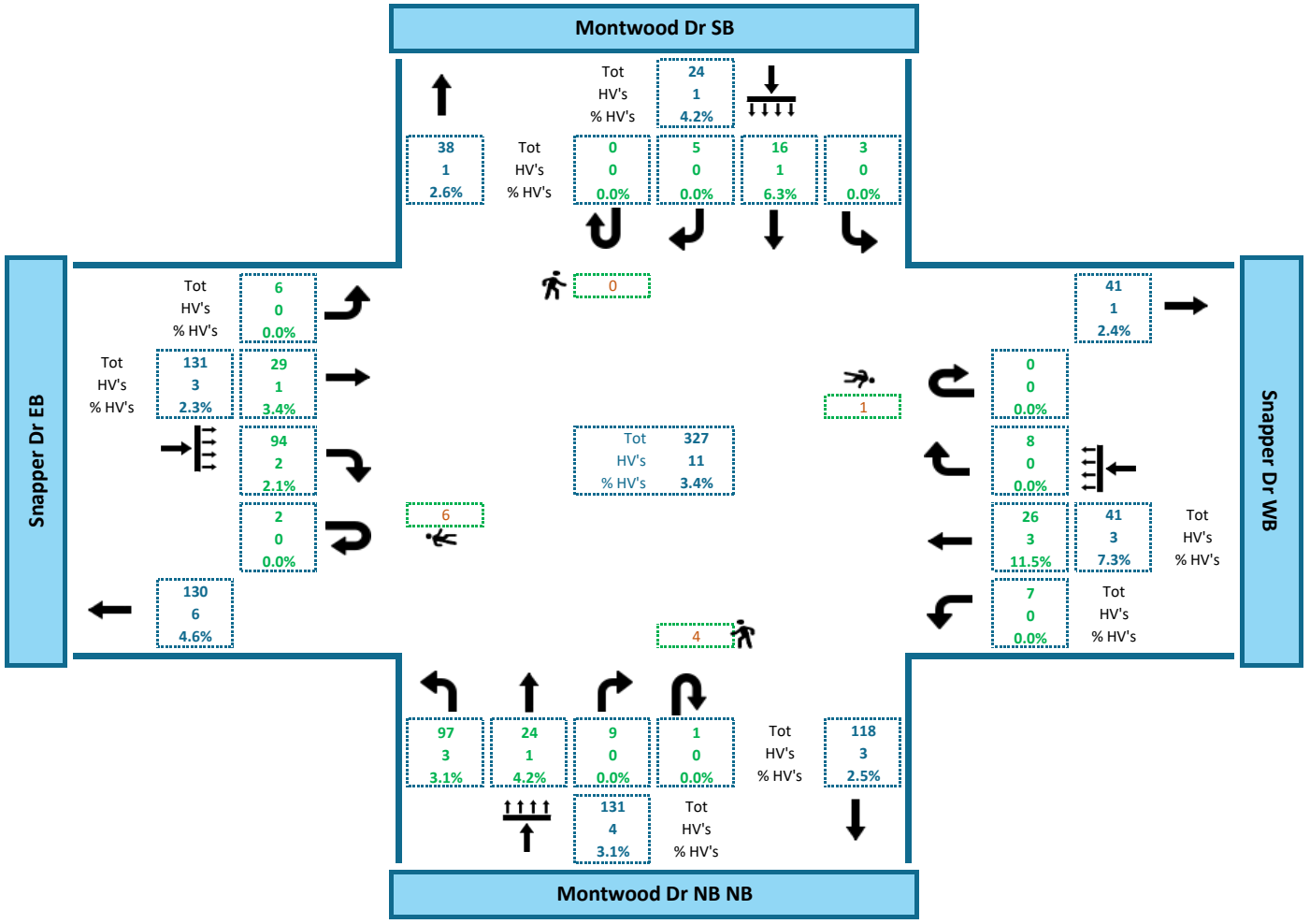
Site ID:	2	*AM Peak:*	*8:00 AM*	*to*	*9:00 AM*
Location:	Snapper Dr & Montwood Dr, Lennox Head	*PM Peak:*	*3:00 PM*	*to*	*4:00 PM*
Date:	19/06/2024	**Duration:**	07:30 AM to 09:30 AM (2 hours) and 02:00 PM to 04:00 PM (2 hours)		
Data Period:	8:00 AM	**to**	9:00 AM	*<=== Select start of one hour to be presented*	
Weather:	Fine				
Vehicle Class:	ALL VEHICLES	*<=== Vehicle Class data can be changed to any vehicle class by selecting it here.*			



TDC
Traffic Data & Control

One Hour Turning Movement Count Summary

Site ID:	2	*AM Peak:*	*8:00 AM*	*to*	*9:00 AM*
Location:	Snapper Dr & Montwood Dr, Lennox Head	*PM Peak:*	*3:00 PM*	*to*	*4:00 PM*
Date:	19/06/2024	**Duration:**	07:30 AM to 09:30 AM (2 hours) and 02:00 PM to 04:00 PM (2 hours)		
Data Period:	3:00 PM	**to**	4:00 PM	<=== Select start of one hour to be presented	
Weather:	Fine				
Vehicle Class:	ALL VEHICLES	<=== Vehicle Class data can be changed to any vehicle class by selecting it here.			



TDC
Traffic Data & Control

SURVEY INFORMATION

Site ID:	3			
Location:	Montwood Dr & North Creek Rd, Lennox Head			
Date:	19 Jun 2024			
AM Peak Hours:	07:30	to	09:30	(2 hours)
PM Peak Hours:	14:00	to	16:00	(2 hours)

	Primary Classes:	Inc in HV%		Secondary Classes:
1	Light Vehicles (1-2)	☐	1	Pedestrians
2	Heavy Vehicles (3-12)	☑	2	None
3	Bicycles on Road	☐		
4	None	☐		
5	None	☐		

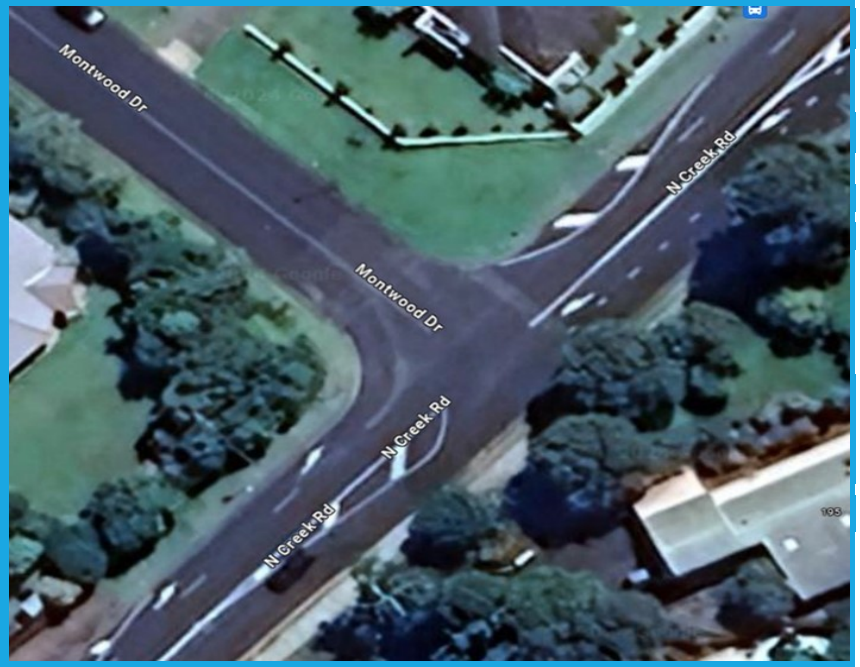
Weather Conditions: Fine

	Show/Hide Leg	
Intersection Legs:	**North** ☑	North Creek Rd SB
	East ☐	
	South ☑	North Creek Rd NB
	West ☑	Montwood Dr EB

Output time interval: 15 mins

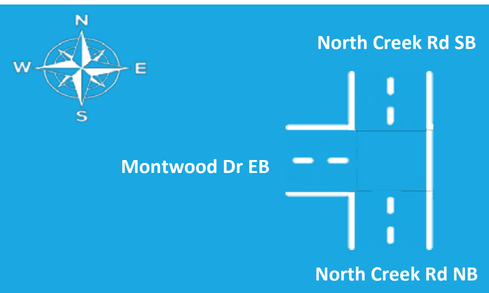
Intersection type: Giveway

MAP



Co-ordinates: -28.816278, 153.588833

Site ID:	3
Location:	Montwood Dr & North Creek Rd, Lennox Head
Date:	19/06/2024
Surveyed Time (AM):	7:30 AM to 9:30 AM (2 hours)
Surveyed Time (PM):	2:00 PM to 4:00 PM (2 hours)
Weather:	Fine
Observed AM Peak Hour:	7:45 AM to 8:45 AM
Observered PM Peak Hour:	3:00 PM to 4:00 PM



TOTALS AND PEAKS

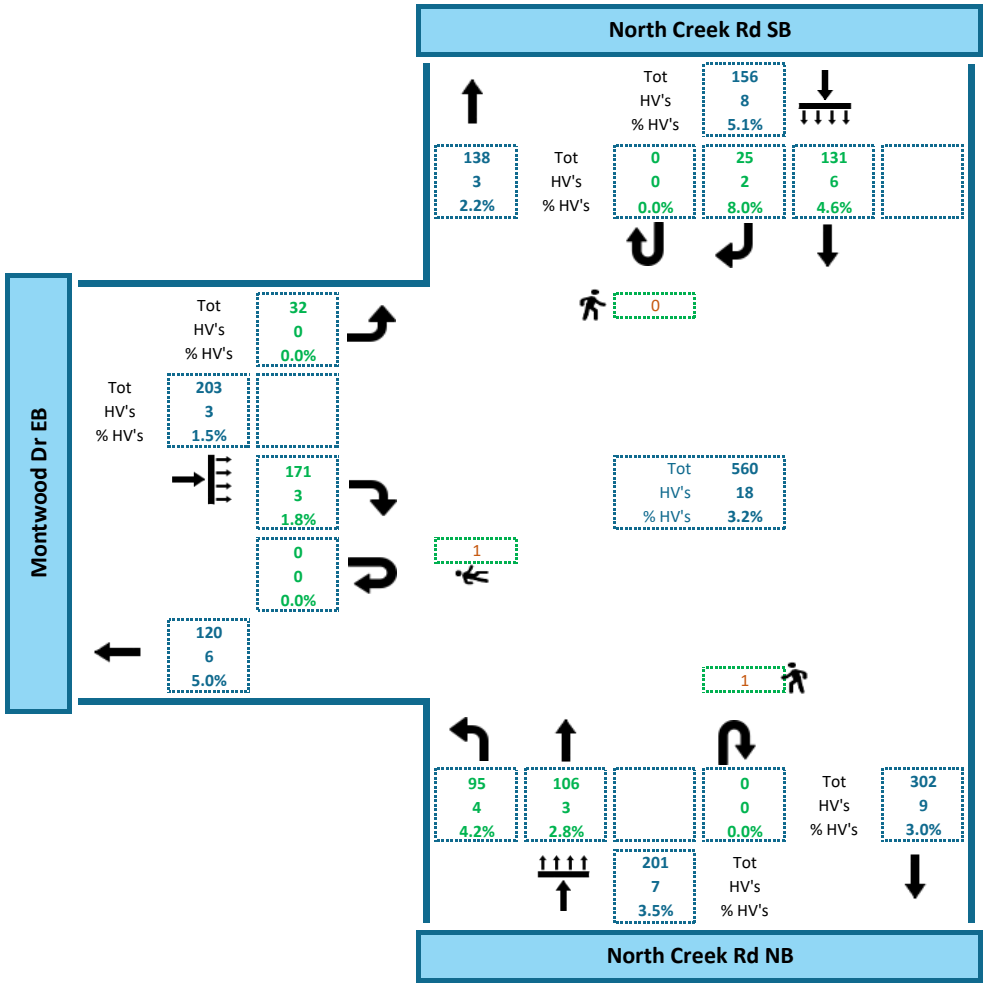
	North Creek Rd SB Through Light Vehicles (1-2)	North Creek Rd SB Through Heavy Vehicles (3-12)	North Creek Rd SB Through Bicycles on Road	North Creek Rd SB Right Light Vehicles (1-2)	North Creek Rd SB Right Heavy Vehicles (3-12)	North Creek Rd SB Right Bicycles on Road	North Creek Rd SB U-turn Light Vehicles (1-2)	North Creek Rd SB U-turn Heavy Vehicles (3-12)	North Creek Rd SB U-turn Bicycles on Road	North Creek Rd SB Cross 1 Pedestrians	North Creek Rd NB Left Light Vehicles (1-2)	North Creek Rd NB Left Heavy Vehicles (3-12)	North Creek Rd NB Left Bicycles on Road	North Creek Rd NB Through Light Vehicles (1-2)	North Creek Rd NB Through Heavy Vehicles (3-12)	North Creek Rd NB Through Bicycles on Road	North Creek Rd NB U-turn Light Vehicles (1-2)	North Creek Rd NB U-turn Heavy Vehicles (3-12)	North Creek Rd NB U-turn Bicycles on Road	North Creek Rd NB Cross 1 Pedestrians	Montwood Dr EB Left Light Vehicles (1-2)	Montwood Dr EB Left Heavy Vehicles (3-12)	Montwood Dr EB Left Bicycles on Road	Montwood Dr EB Right Light Vehicles (1-2)	Montwood Dr EB Right Heavy Vehicles (3-12)	Montwood Dr EB Right Bicycles on Road	Montwood Dr EB U-turn Light Vehicles (1-2)	Montwood Dr EB U-turn Heavy Vehicles (3-12)	Montwood Dr EB U-turn Bicycles on Road	Montwood Dr EB Cross 1 Pedestrians	GRAND TOTAL TOTALS	North Creek Rd SB TOTAL All Classes	North Creek Rd NB TOTAL All Classes	Montwood Dr EB TOTAL All Classes
AM + PM Totals	395	16	1	101	3	1	0	0	0	2	360	13	0	325	16	2	0	0	0	3	111	2	2	426	9	1	0	0	0	3	1784	517	716	551
AM Total	223	11	1	43	2	1	0	0	0	1	162	8	0	181	8	0	0	0	0	3	66	1	0	254	6	1	0	0	0	1	968	281	359	328
PM Total	172	5	0	58	1	0	0	0	0	1	198	5	0	144	8	2	0	0	0	0	45	1	2	172	3	0	0	0	0	2	816	236	357	223
AM Peak 1 hr	136	8	0	25	1	1	0	0	0	1	73	5	0	101	2	0	0	0	0	2	35	0	0	169	4	1	0	0	0	1	561	171	181	209
PM Peak 1 hr	112	0	0	39	0	0	0	0	0	0	133	4	0	96	6	2	0	0	0	0	22	1	0	98	2	0	0	0	0	1	515	151	241	123

Time Starting	North Creek Rd SB Through Light Vehicles (1-2)	North Creek Rd SB Through Heavy Vehicles (3-12)	North Creek Rd SB Through Bicycles on Road	North Creek Rd SB Right Light Vehicles (1-2)	North Creek Rd SB Right Heavy Vehicles (3-12)	North Creek Rd SB Right Bicycles on Road	North Creek Rd SB U-turn Light Vehicles (1-2)	North Creek Rd SB U-turn Heavy Vehicles (3-12)	North Creek Rd SB U-turn Bicycles on Road	North Creek Rd SB Cross 1 Pedestrians	North Creek Rd NB Left Light Vehicles (1-2)	North Creek Rd NB Left Heavy Vehicles (3-12)	North Creek Rd NB Left Bicycles on Road	North Creek Rd NB Through Light Vehicles (1-2)	North Creek Rd NB Through Heavy Vehicles (3-12)	North Creek Rd NB Through Bicycles on Road	North Creek Rd NB U-turn Light Vehicles (1-2)	North Creek Rd NB U-turn Heavy Vehicles (3-12)	North Creek Rd NB U-turn Bicycles on Road	North Creek Rd NB Cross 1 Pedestrians	Montwood Dr EB Left Light Vehicles (1-2)	Montwood Dr EB Left Heavy Vehicles (3-12)	Montwood Dr EB Left Bicycles on Road	Montwood Dr EB Right Light Vehicles (1-2)	Montwood Dr EB Right Heavy Vehicles (3-12)	Montwood Dr EB Right Bicycles on Road	Montwood Dr EB U-turn Light Vehicles (1-2)	Montwood Dr EB U-turn Heavy Vehicles (3-12)	Montwood Dr EB U-turn Bicycles on Road	Montwood Dr EB Cross 1 Pedestrians	GRAND TOTAL TOTALS	North Creek Rd SB TOTAL All Classes	North Creek Rd NB TOTAL All Classes	Montwood Dr EB TOTAL All Classes
07:30	18	1	1	2	0	0	0	0	0	0	9	2	0	16	3	0	0	0	0	0	8	0	0	31	0	0	0	0	0	0	**91**	22	30	39
07:45	38	2	0	7	0	0	0	0	0	1	16	2	0	23	1	0	0	0	0	1	12	0	0	30	1	0	0	0	0	0	**132**	47	42	43
08:00	30	1	0	7	1	1	0	0	0	0	21	0	0	22	0	0	0	0	0	1	11	0	0	35	2	0	0	0	0	0	**131**	40	43	48
08:15	26	3	0	5	0	0	0	0	0	0	18	3	0	22	1	0	0	0	0	0	6	0	0	49	1	0	0	0	0	1	**134**	34	44	56
08:30	42	2	0	6	0	0	0	0	0	0	18	0	0	34	0	0	0	0	0	0	6	0	0	55	0	1	0	0	0	0	**164**	50	52	62
08:45	27	0	0	4	1	0	0	0	0	0	34	1	0	25	2	0	0	0	0	0	9	0	0	28	0	0	0	0	0	0	**131**	32	62	37
09:00	23	0	0	8	0	0	0	0	0	0	25	0	0	22	0	0	0	0	0	0	8	0	0	14	1	0	0	0	0	0	**101**	31	47	23
09:15	19	2	0	4	0	0	0	0	0	0	21	0	0	17	1	0	0	0	0	1	6	1	0	12	1	0	0	0	0	0	**84**	25	39	20
14:00	14	0	0	5	0	0	0	0	0	0	15	0	0	14	2	0	0	0	0	0	6	0	1	13	0	0	0	0	0	1	**70**	19	31	20
14:15	9	3	0	7	1	0	0	0	0	0	19	0	0	9	0	0	0	0	0	0	6	0	1	13	1	0	0	0	0	0	**69**	20	28	21
14:30	17	1	0	3	0	0	0	0	0	1	11	0	0	15	0	0	0	0	0	0	7	0	0	26	0	0	0	0	0	0	**80**	21	26	33
14:45	20	1	0	4	0	0	0	0	0	0	20	1	0	10	0	0	0	0	0	0	4	0	0	22	0	0	0	0	0	0	**82**	25	31	26
15:00	28	0	0	8	0	0	0	0	0	0	30	0	0	19	1	0	0	0	0	0	8	1	0	26	0	0	0	0	0	0	**121**	36	50	35
15:15	19	0	0	6	0	0	0	0	0	0	39	1	0	31	1	2	0	0	0	0	3	0	0	24	0	0	0	0	0	0	**126**	25	74	27
15:30	25	0	0	13	0	0	0	0	0	0	25	0	0	25	2	0	0	0	0	0	6	0	0	18	1	0	0	0	0	1	**115**	38	52	25
15:45	40	0	0	12	0	0	0	0	0	0	39	3	0	21	2	0	0	0	0	0	5	0	0	30	1	0	0	0	0	0	**153**	52	65	36

TDC
Traffic Data & Control

One Hour Turning Movement Count Summary

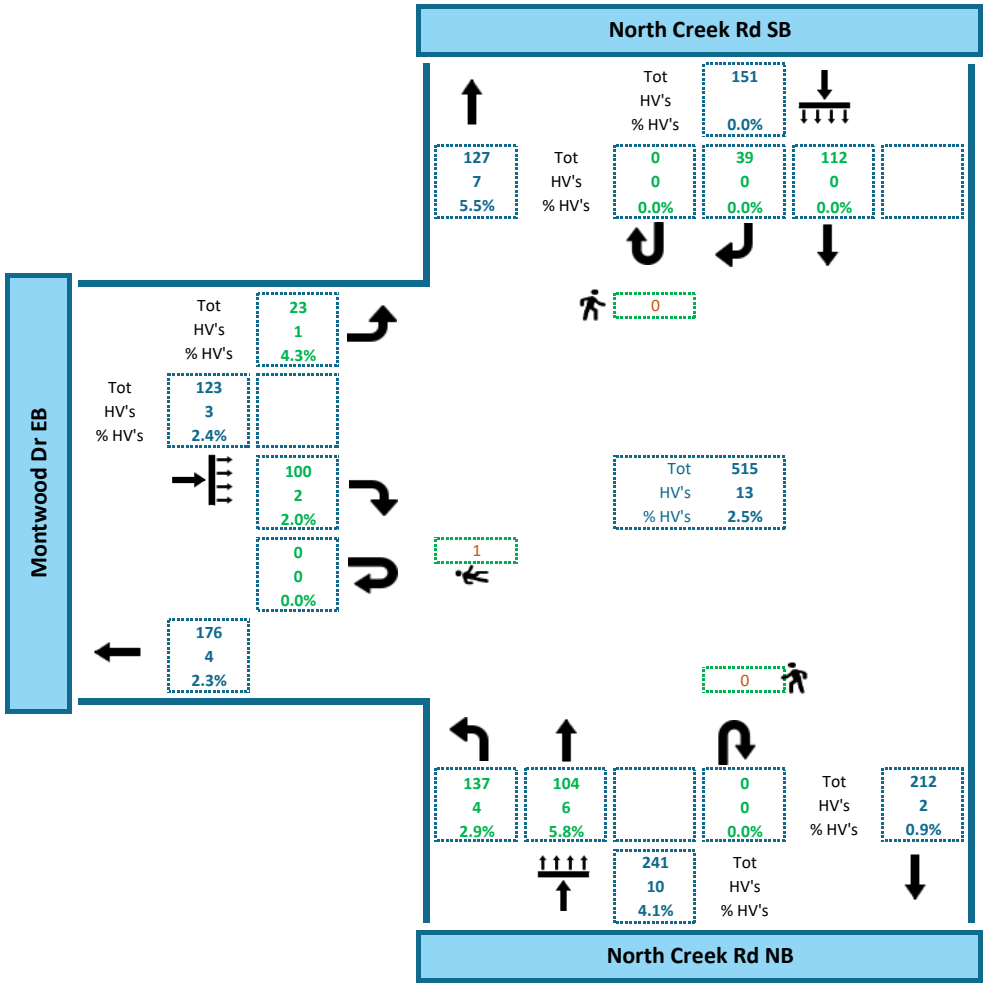
Site ID:	3	*AM Peak:*	*7:45 AM*	*to*	*8:45 AM*
Location:	Montwood Dr & North Creek Rd, Lennox Head	*PM Peak:*	*3:00 PM*	*to*	*4:00 PM*
Date:	19/06/2024	**Duration:**	07:30 AM to 09:30 AM (2 hours) and 02:00 PM to 04:00 PM (2 hours)		
Data Period:	8:00 AM	**to**	9:00 AM	*<=== Select start of one hour to be presented*	
Weather:	Fine				
Vehicle Class:	ALL VEHICLES	*<=== Vehicle Class data can be changed to any vehicle class by selecting it here.*			



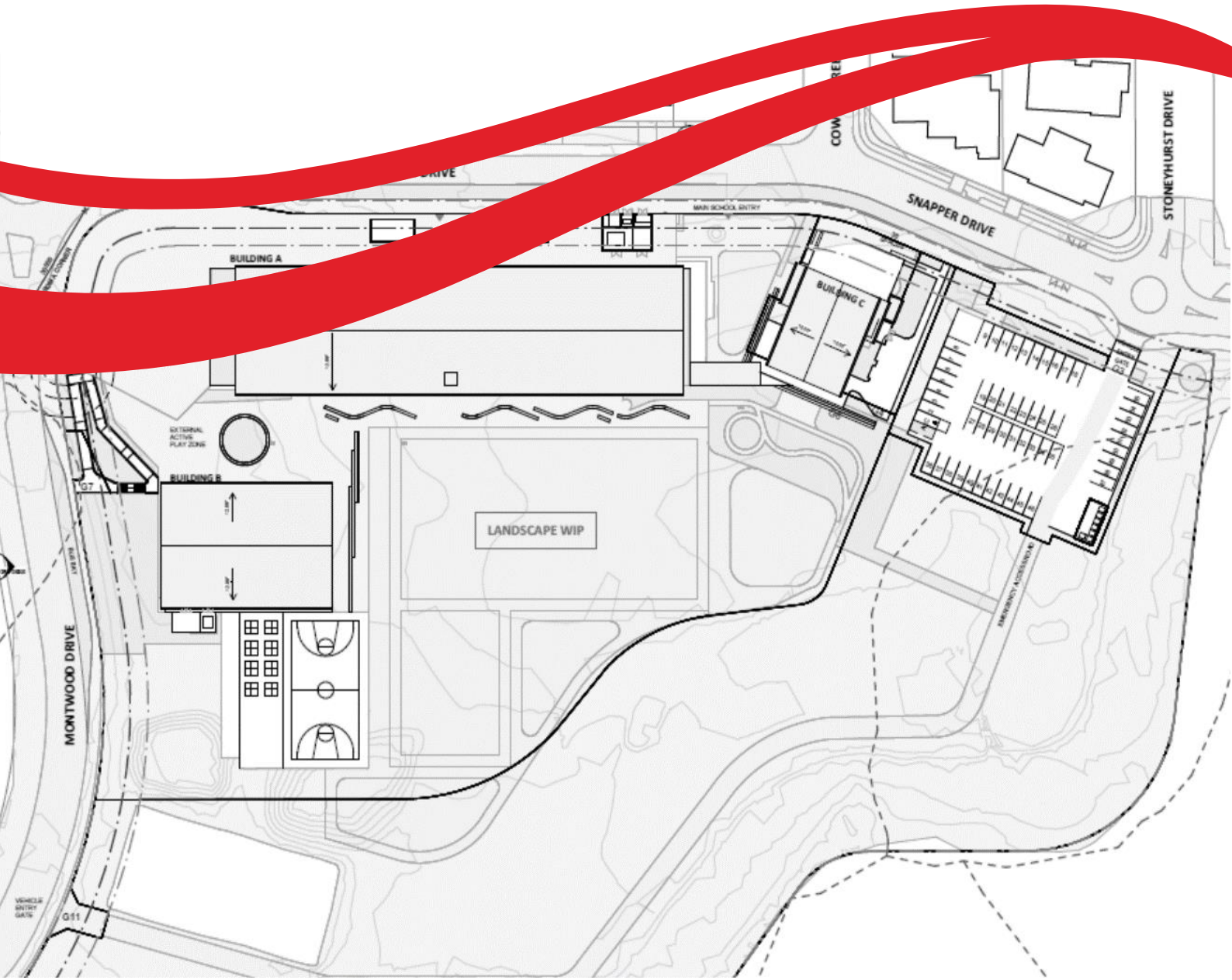
TDC
Traffic Data & Control

One Hour Turning Movement Count Summary

Site ID:	3	*AM Peak:*	*7:45 AM*	*to*	*8:45 AM*
Location:	Montwood Dr & North Creek Rd, Lennox Head	*PM Peak:*	*3:00 PM*	*to*	*4:00 PM*
Date:	19/06/2024	**Duration:**	07:30 AM to 09:30 AM (2 hours) and 02:00 PM to 04:00 PM (2 hours)		
Data Period:	3:00 PM	**to**	4:00 PM	*<=== Select start of one hour to be presented*	
Weather:	Fine				
Vehicle Class:	ALL VEHICLES	*<=== Vehicle Class data can be changed to any vehicle class by selecting it here.*			

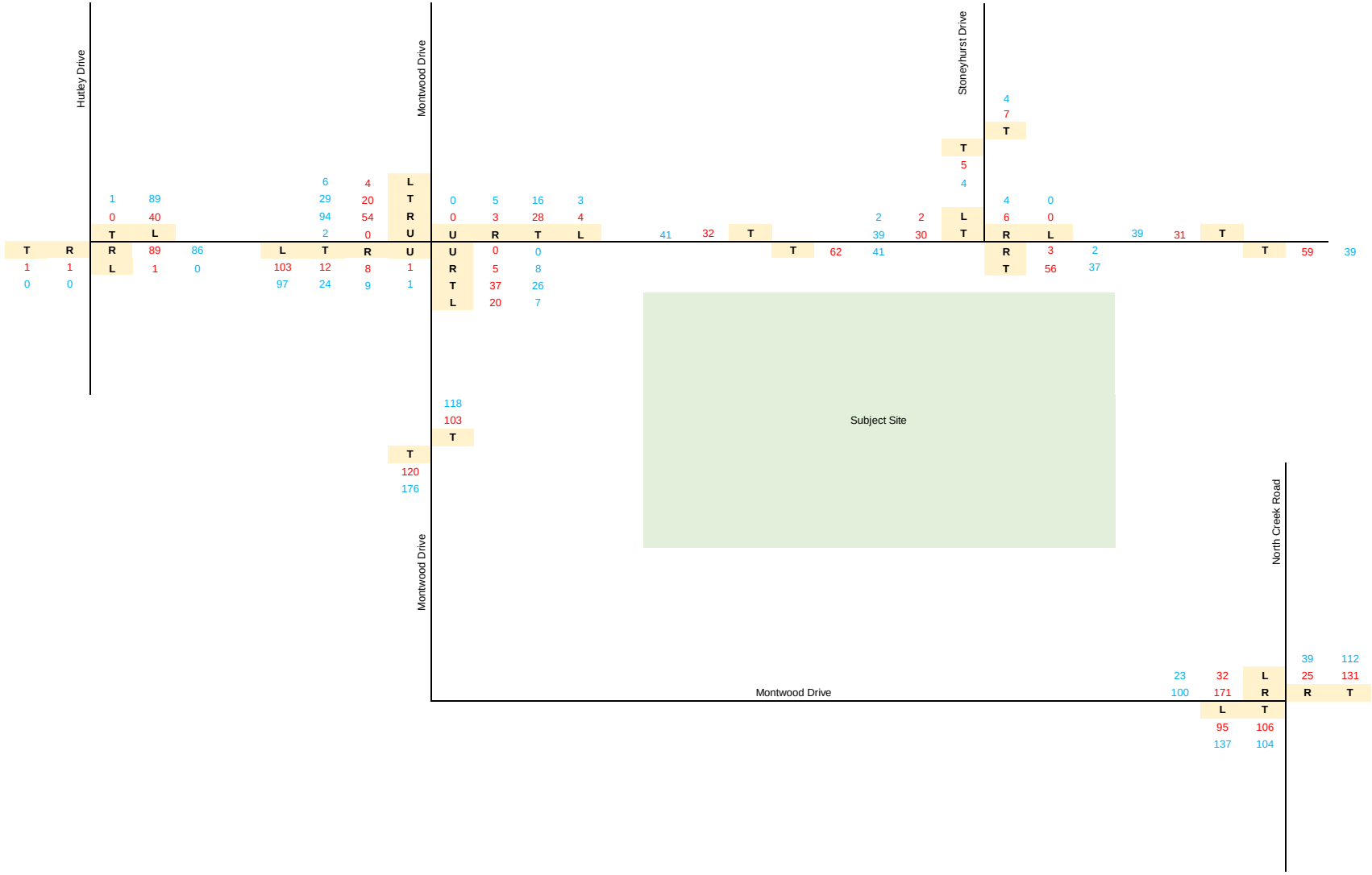


Appendix E: Traffic Generation

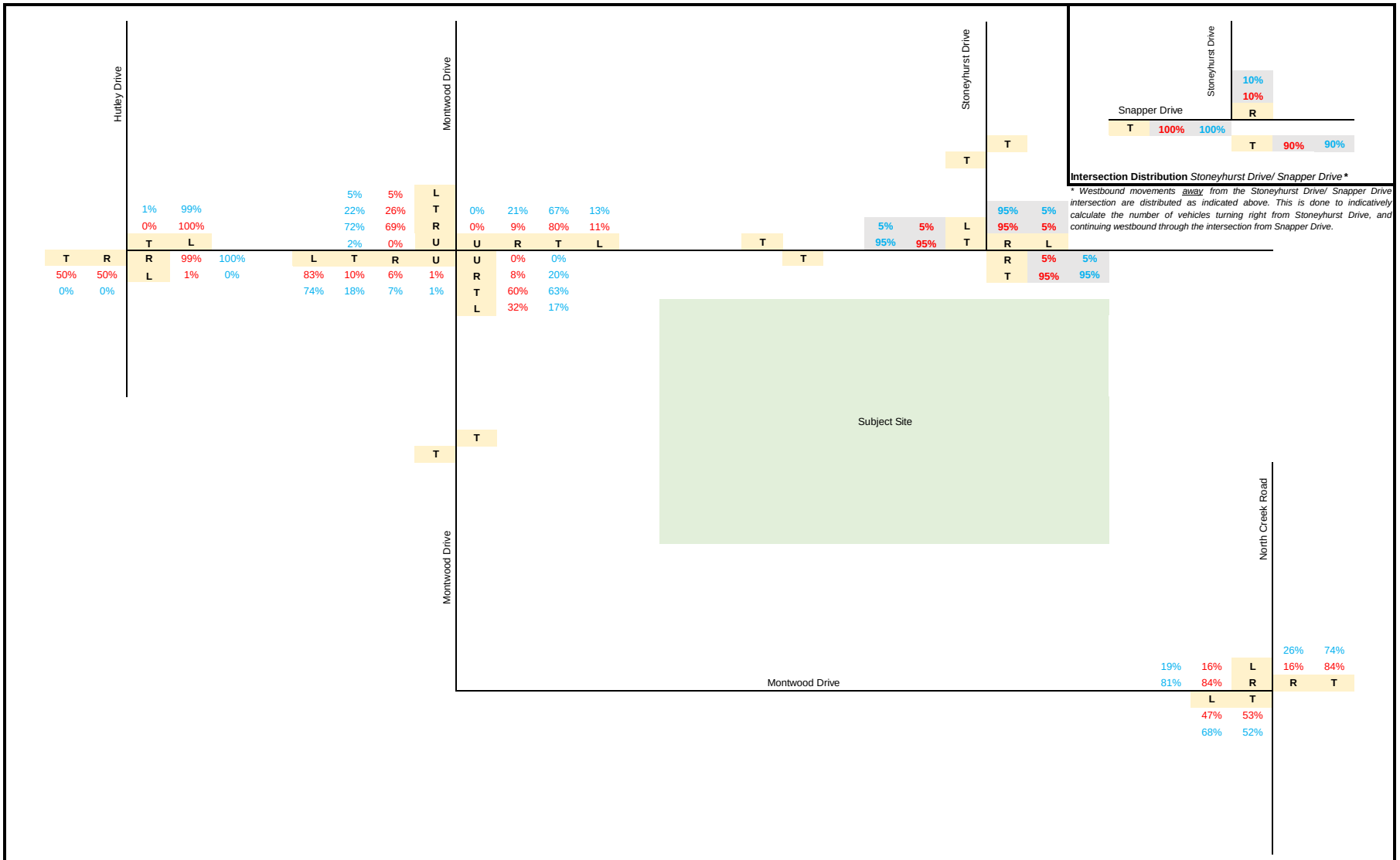


Proposed Development

Component	Quantity	Units	Internalization Factor	AM						PM					
				Traffic Generation Rate	Trips (vph)	IN	OUT	IN Trips	OUT Trips	Traffic Generation Rate	Trips (vph)	IN	OUT	IN Trips	OUT Trips
Site 1															
Staff	40	staff	0%	1.00	40.0	100%	0%	40	0	1.00	40.0	0%	100%	0	40
Preschool	40	students	0%	0.83	33.2	60%	40%	20	13	0.83	33.2	40%	60%	13	20
KnD	135	cars	0%	1	135.0	100%	100%	135	135	1	135.0	100%	100%	135	135
								195	**148**					**148**	**195**
Total															



P5939	Lennox Head Public School TTIA	Notes:	Sheet 01
	Survey Volumes - Background	Peak Hours AM 8:00 9:00 PM 15:00 16:00	Growth Rate: - Survey Year: 2024 Design Year: -

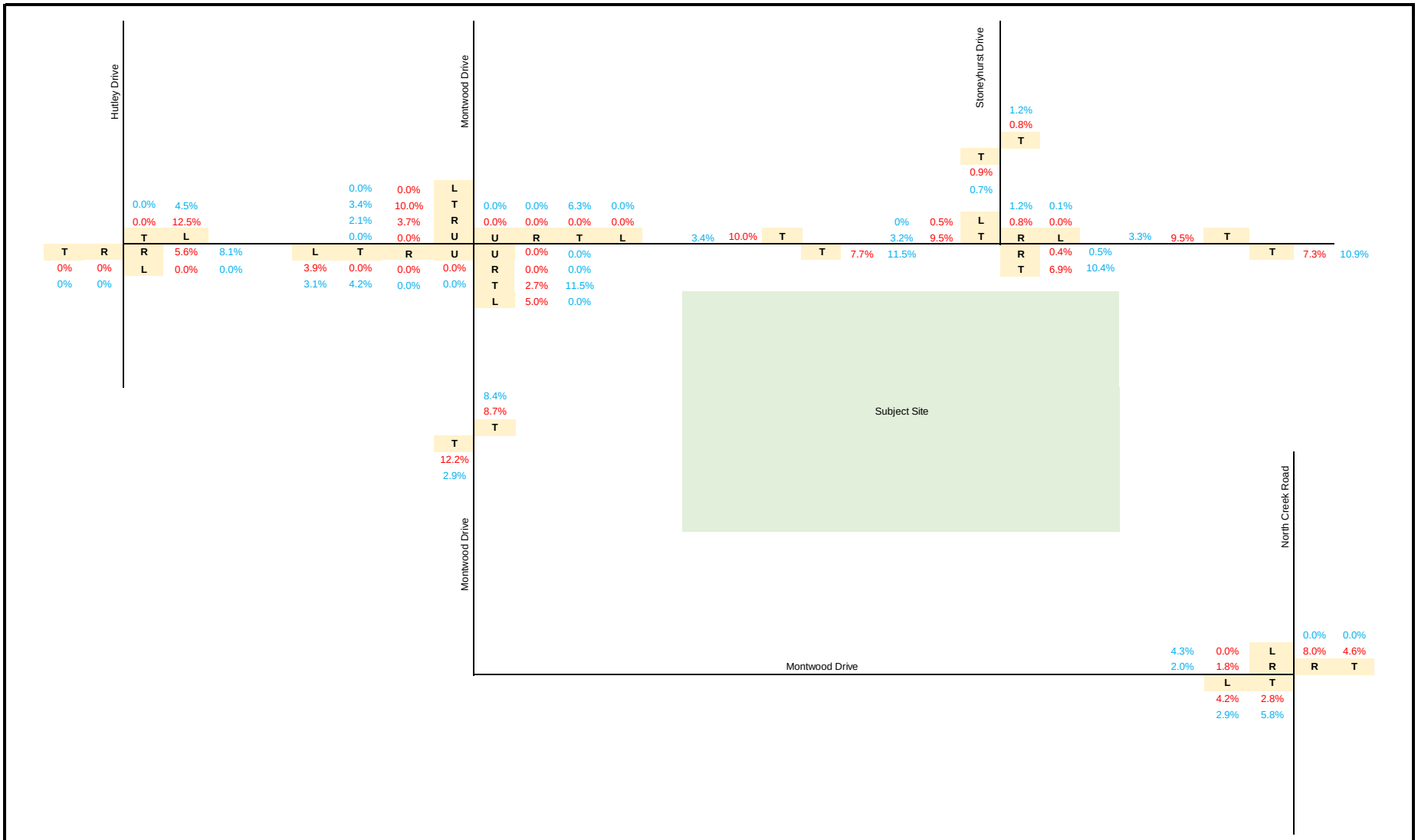


Intersection Distribution *Stoneyhurst Drive/ Snapper Drive* *

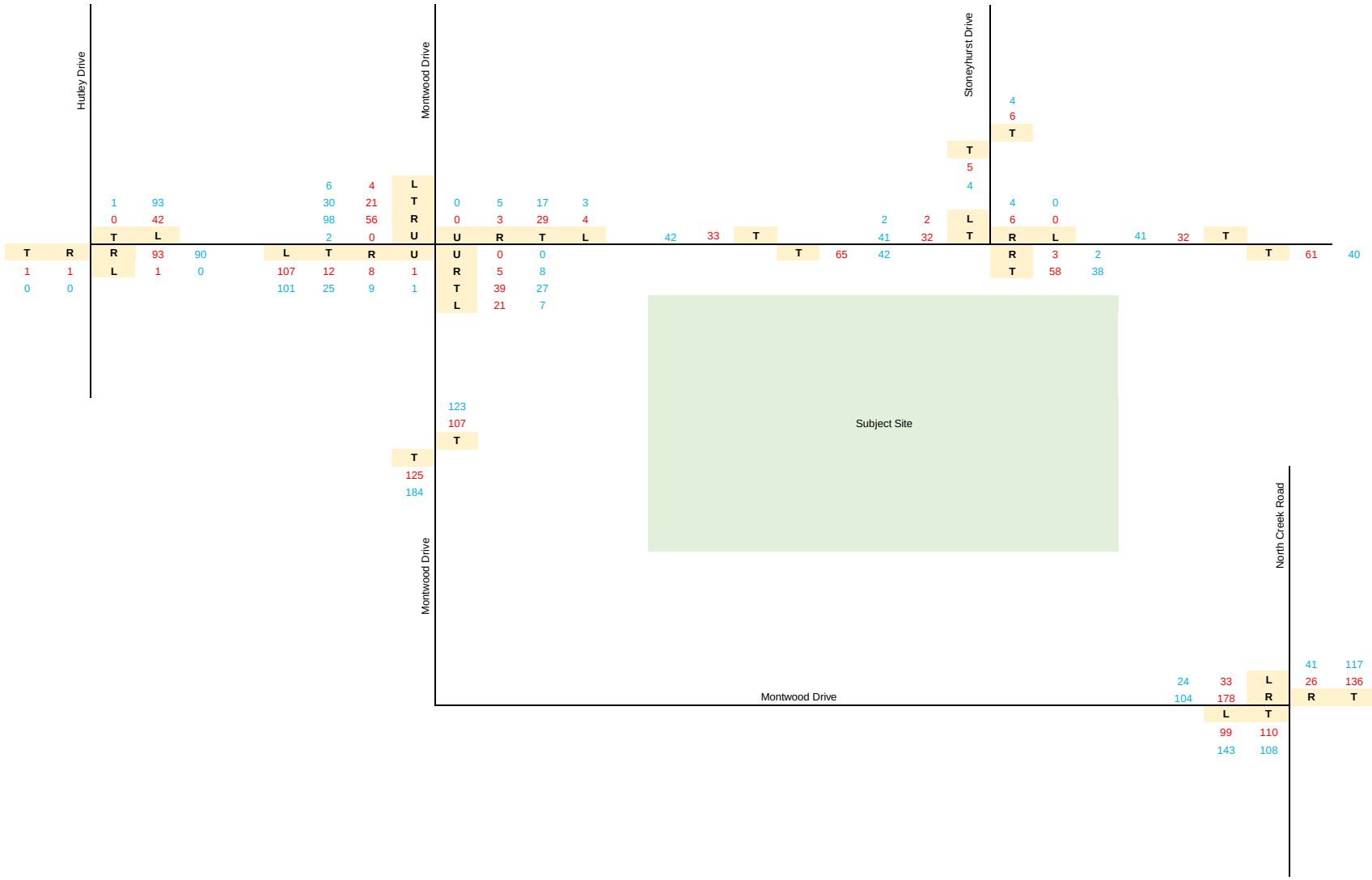
** Westbound movements away from the Stoneyhurst Drive/ Snapper Drive intersection are distributed as indicated above. This is done to indicatively calculate the number of vehicles turning right from Stoneyhurst Drive, and continuing westbound through the intersection from Snapper Drive.*

Note: ***All assumed distributions are bolded and highlighted in grey***

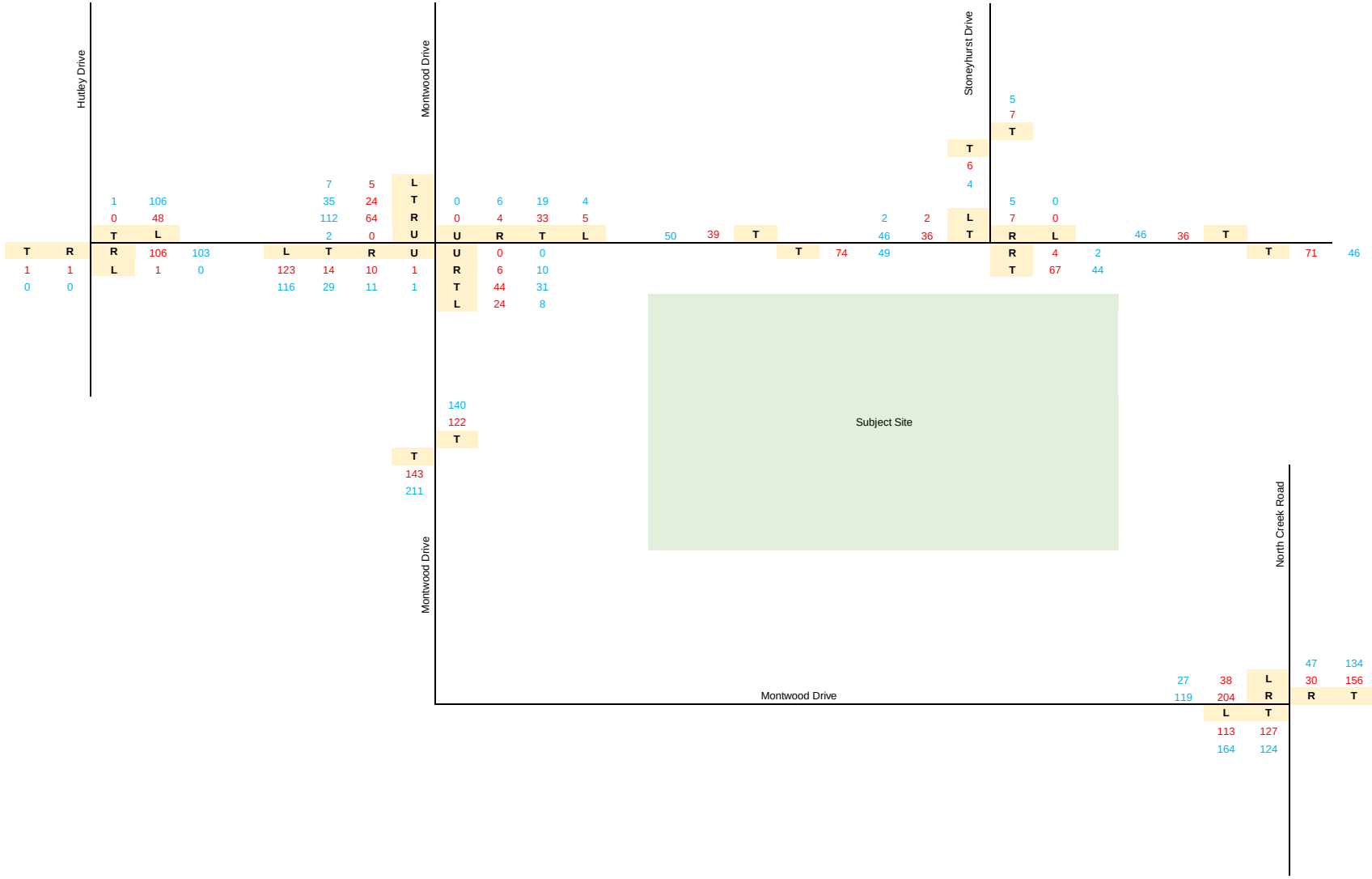
P5939	Lennox Head Public School TTIA	Notes:	Sheet 02
	Survey Volumes Distribution	Peak Hours AM 8:00 9:00 PM 15:00 16:00	Growth Rate: 1.37% Survey Year: 2024 Design Year: 2037



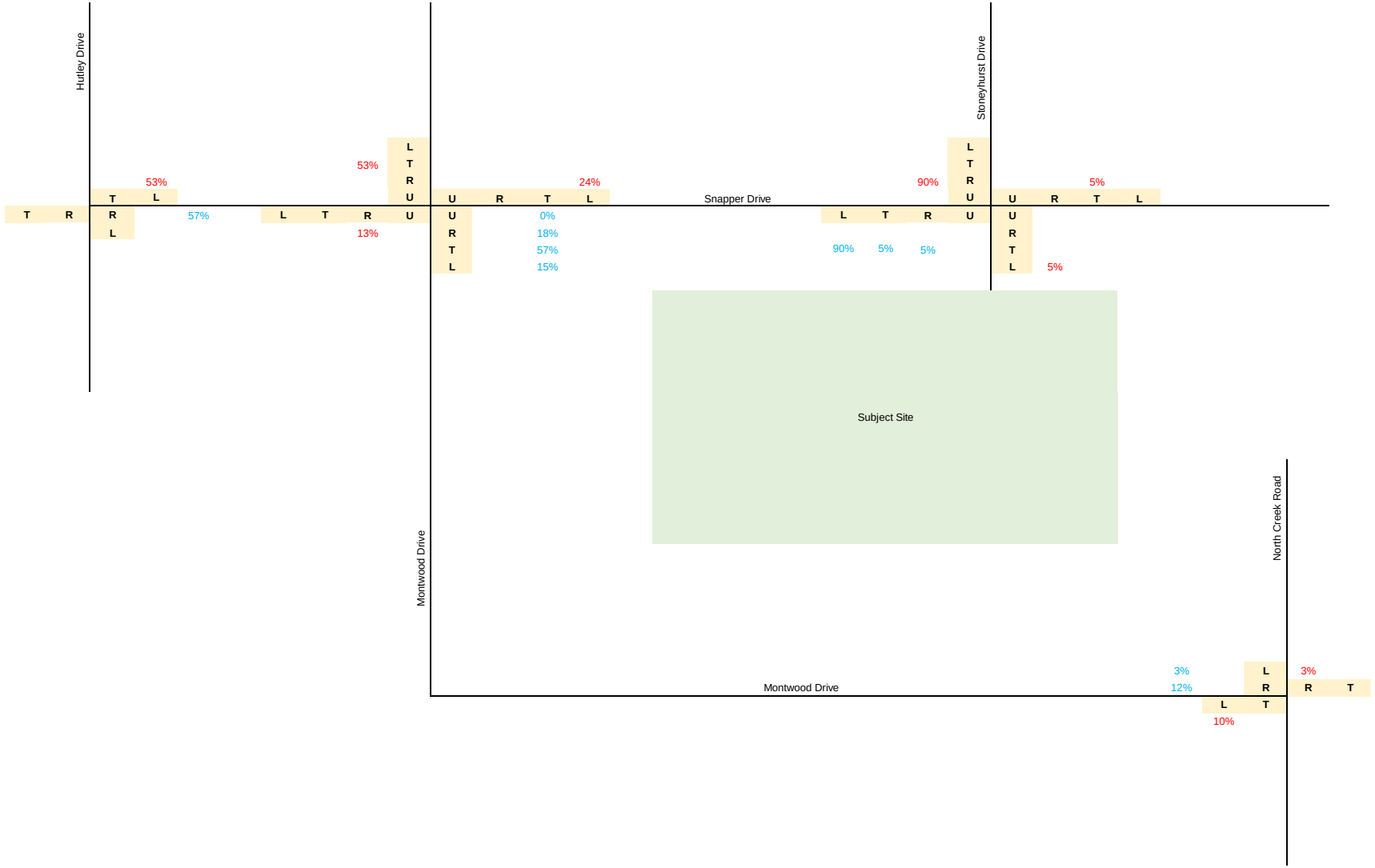
P5939	Lennox Head Public School TTIA **2024 Heavy Vehicle Percentage**	Notes: Peak Hours AM 8:00 9:00 PM 15:00 16:00 Growth Rate: - Survey Year: 2024 Design Year: -	Sheet 03



P5939	Lennox Head Public School TTIA	Notes:	Sheet 04
	2027 Background	Peak Hours AM 8:00 9:00 PM 15:00 16:00	Growth Rate: 1.37% Survey Year: 2024 Design Year: 2027

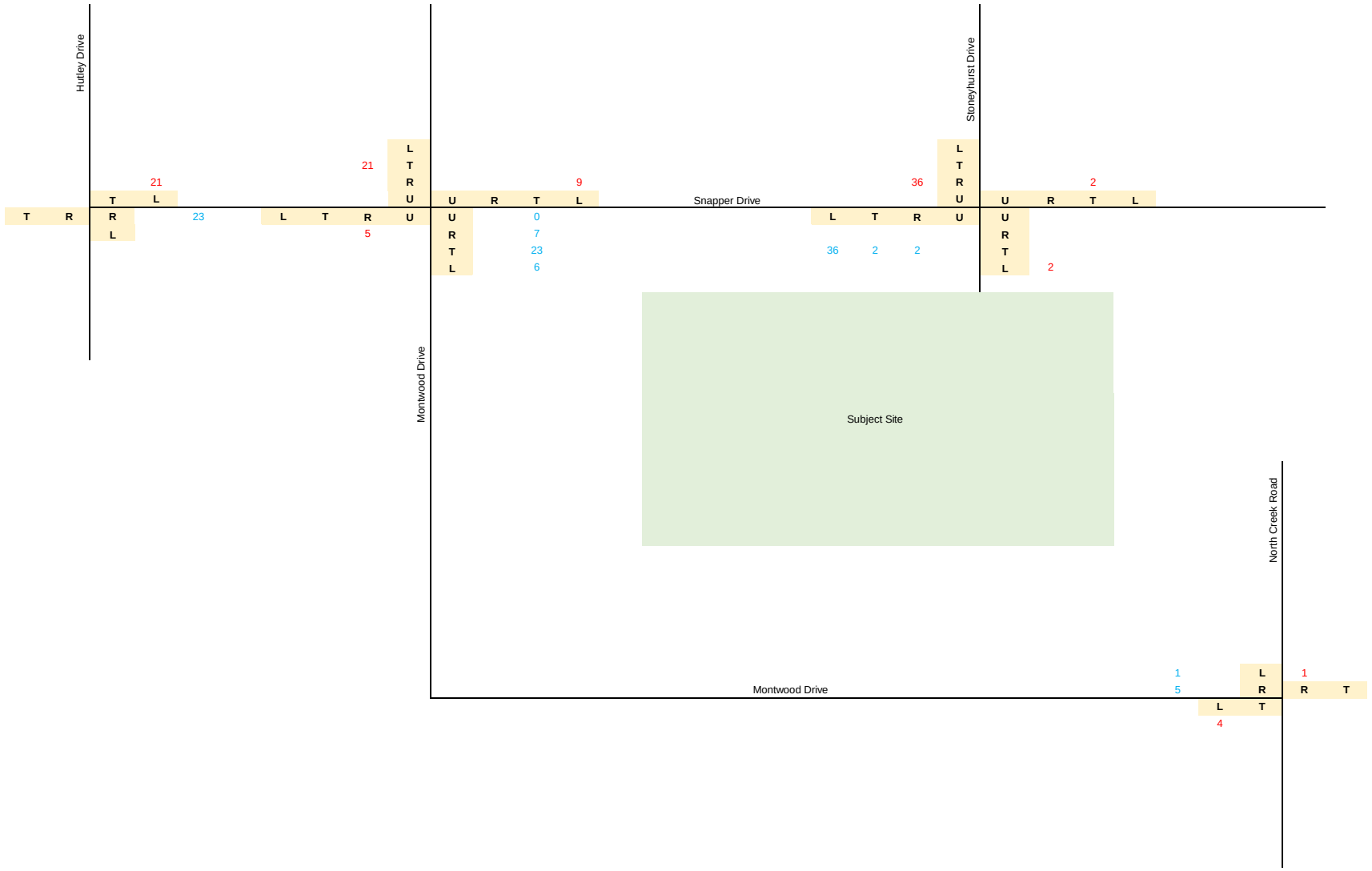


P5939	Lennox Head Public School TTIA	Notes:		
	2037 Background	Peak Hours	Growth Rate: 1.37%	Sheet 05
		AM 8:00 9:00	Survey Year: 2024	
		PM 15:00 16:00	Design Year: 2037	



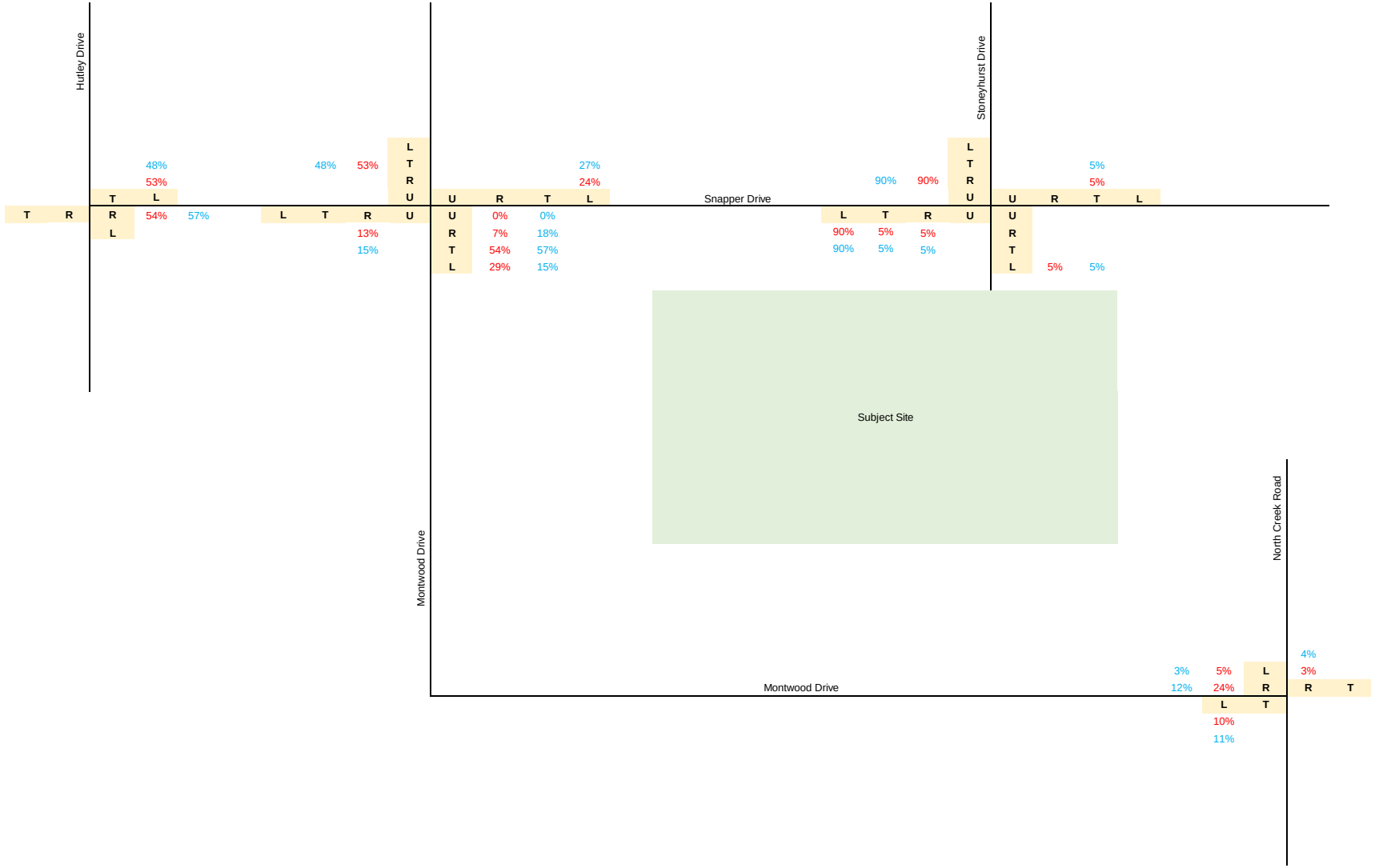
P5939	Lennox Head Public School TTIA **Distribution - Staff Component**	Notes: Peak Hours AM 8:00 9:00 PM 15:00 16:00	Growth Rate: Survey Year: 2024 Design Year:

Sheet 06



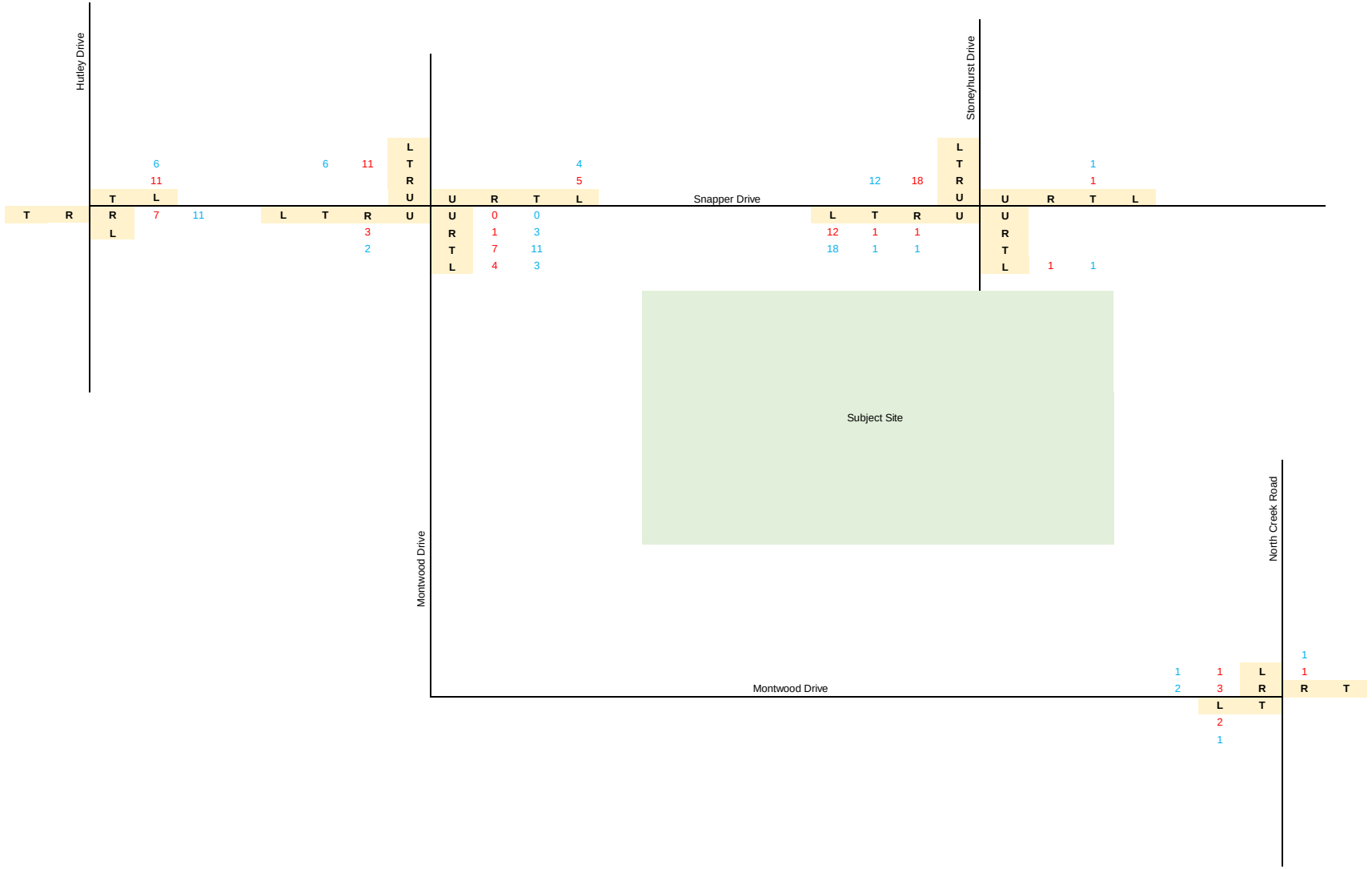
P5939	Lennox Head Public School TTIA **Development - Staff Component**	Notes: Peak Hours AM 8:00 9:00 PM 15:00 16:00	Growth Rate: Survey Year: 2024 Design Year:

Sheet 07



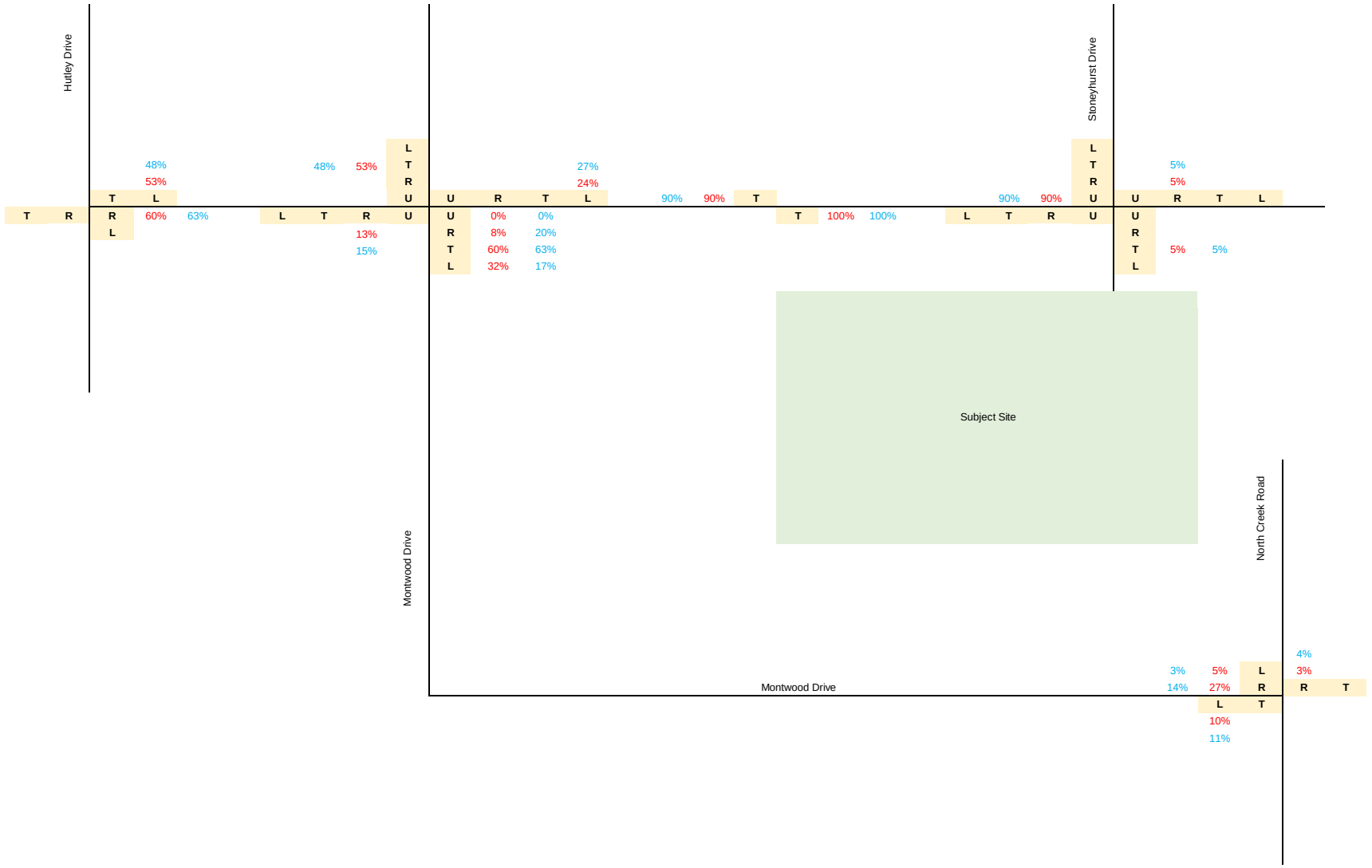
P5939	Lennox Head Public School TTIA **Distribution - Preschool Component**	Notes: Peak Hours AM 8:00 9:00 PM 15:00 16:00	Growth Rate: Survey Year: 2024 Design Year:

Sheet 08

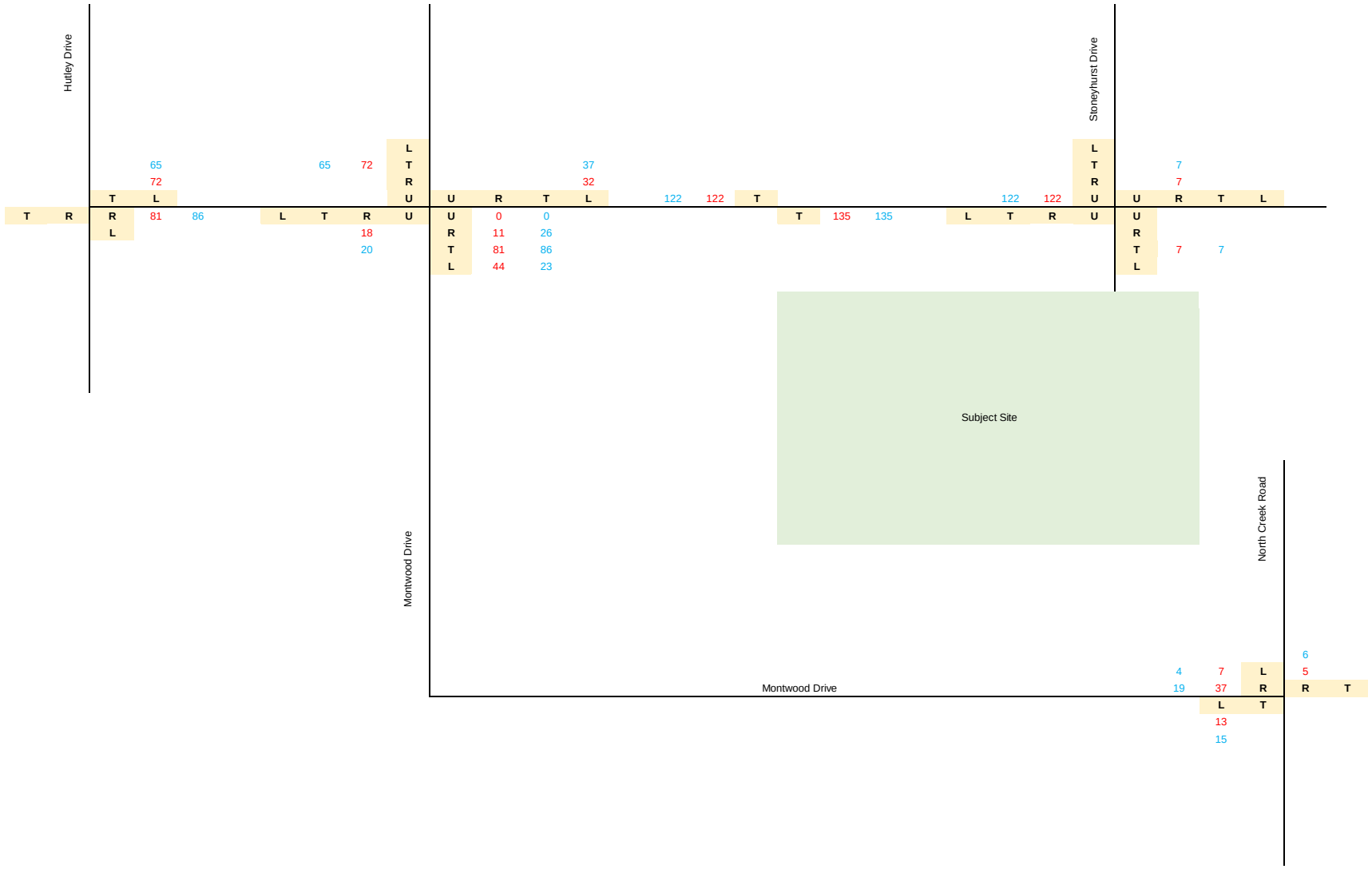


P5939	Lennox Head Public School TTIA **Development - Preschool Component**	Notes: Peak Hours AM 8:00 9:00 PM 15:00 16:00	Growth Rate: Survey Year: 2024 Design Year:

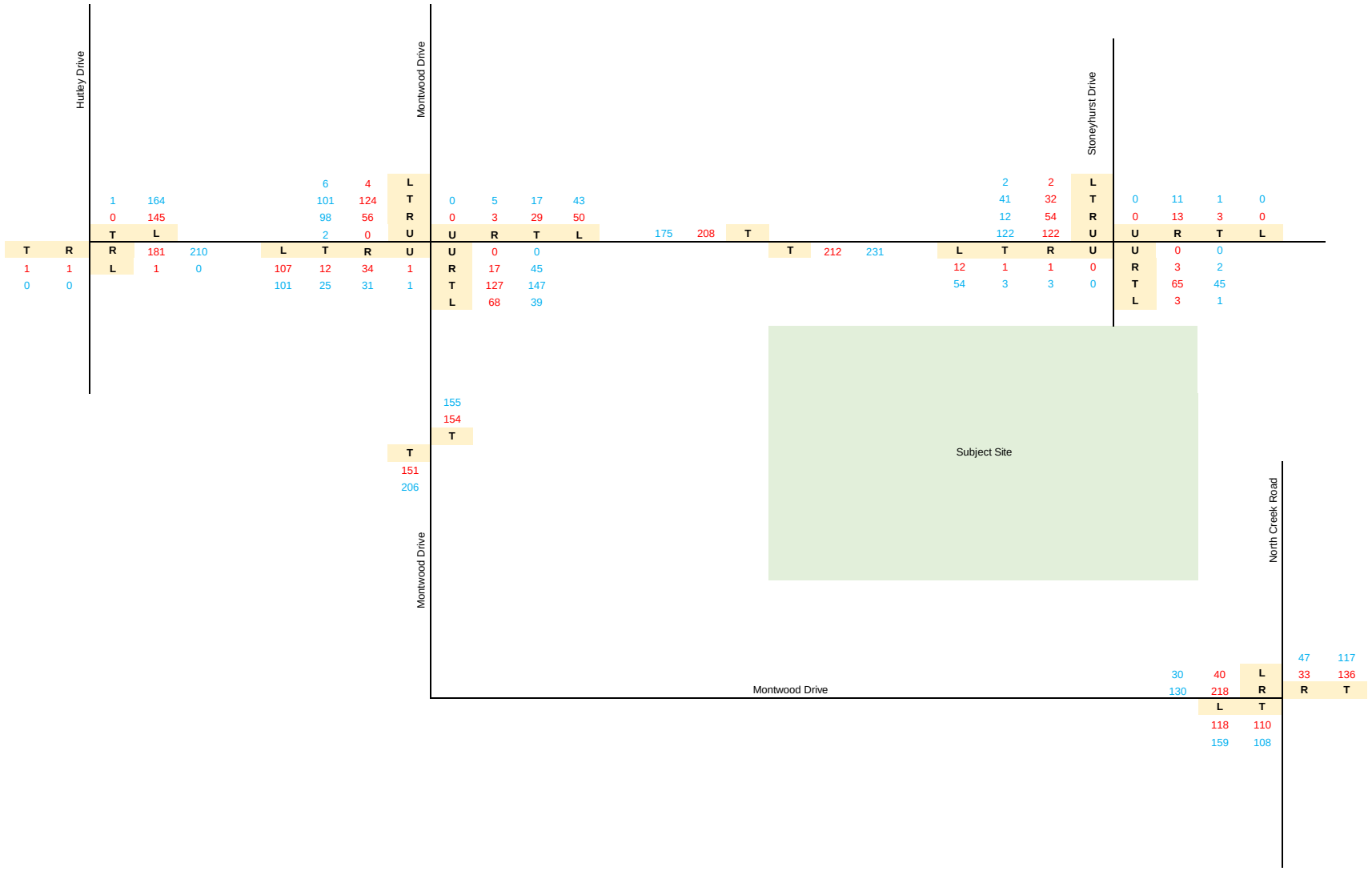
Sheet 09



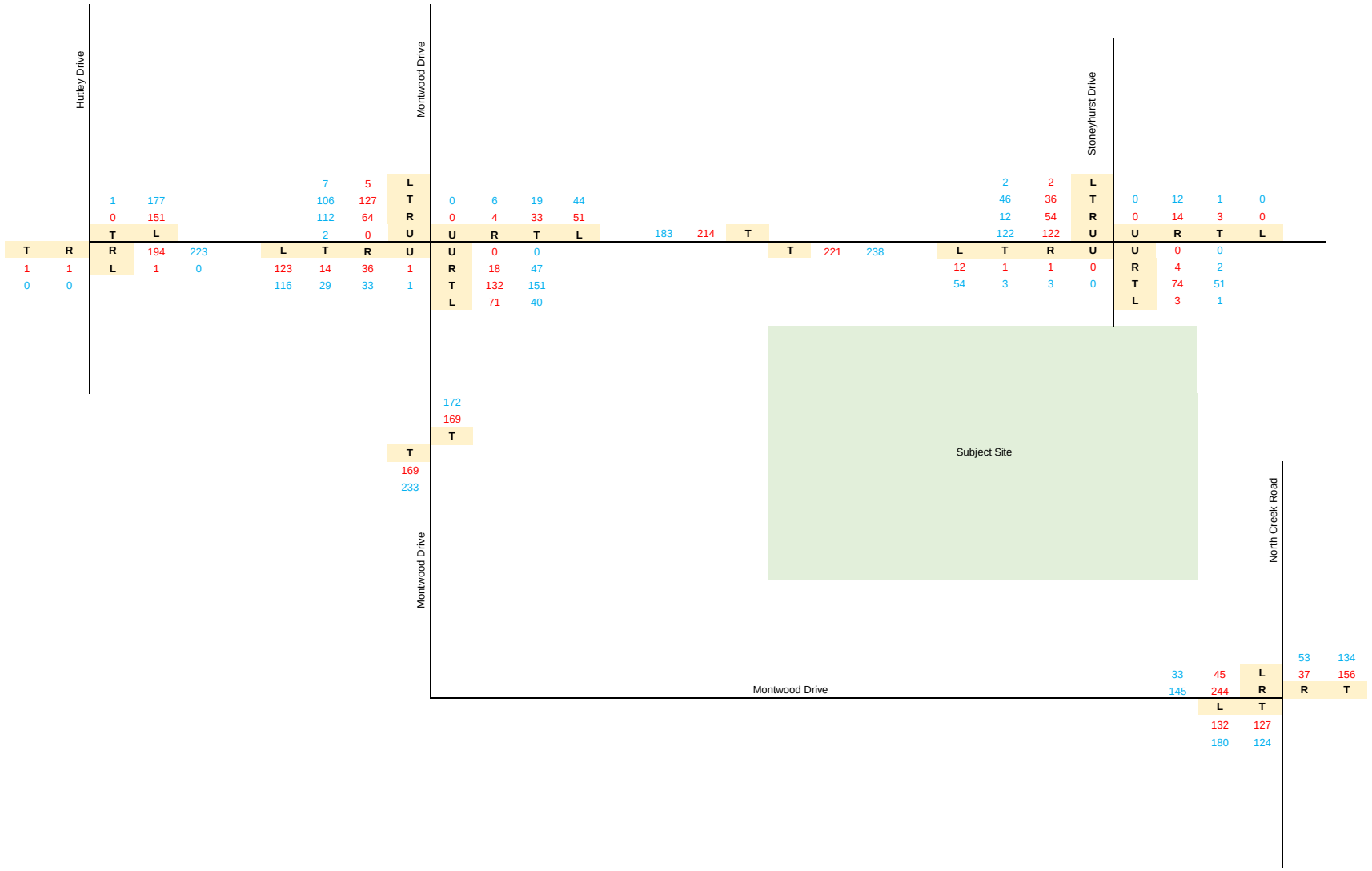
P5939	Lennox Head Public School TTIA **Distribution - KnD Component**	Notes: Peak Hours AM 8:00 9:00 PM 15:00 16:00	Growth Rate: Survey Year: 2024 Design Year:



P5939	Lennox Head Public School TTIA	Notes:		Sheet 11
	Development - KnD Component	Peak Hours	Growth Rate:	
		AM 8:00 9:00	Survey Year: 2024	
		PM 15:00 16:00	Design Year:	

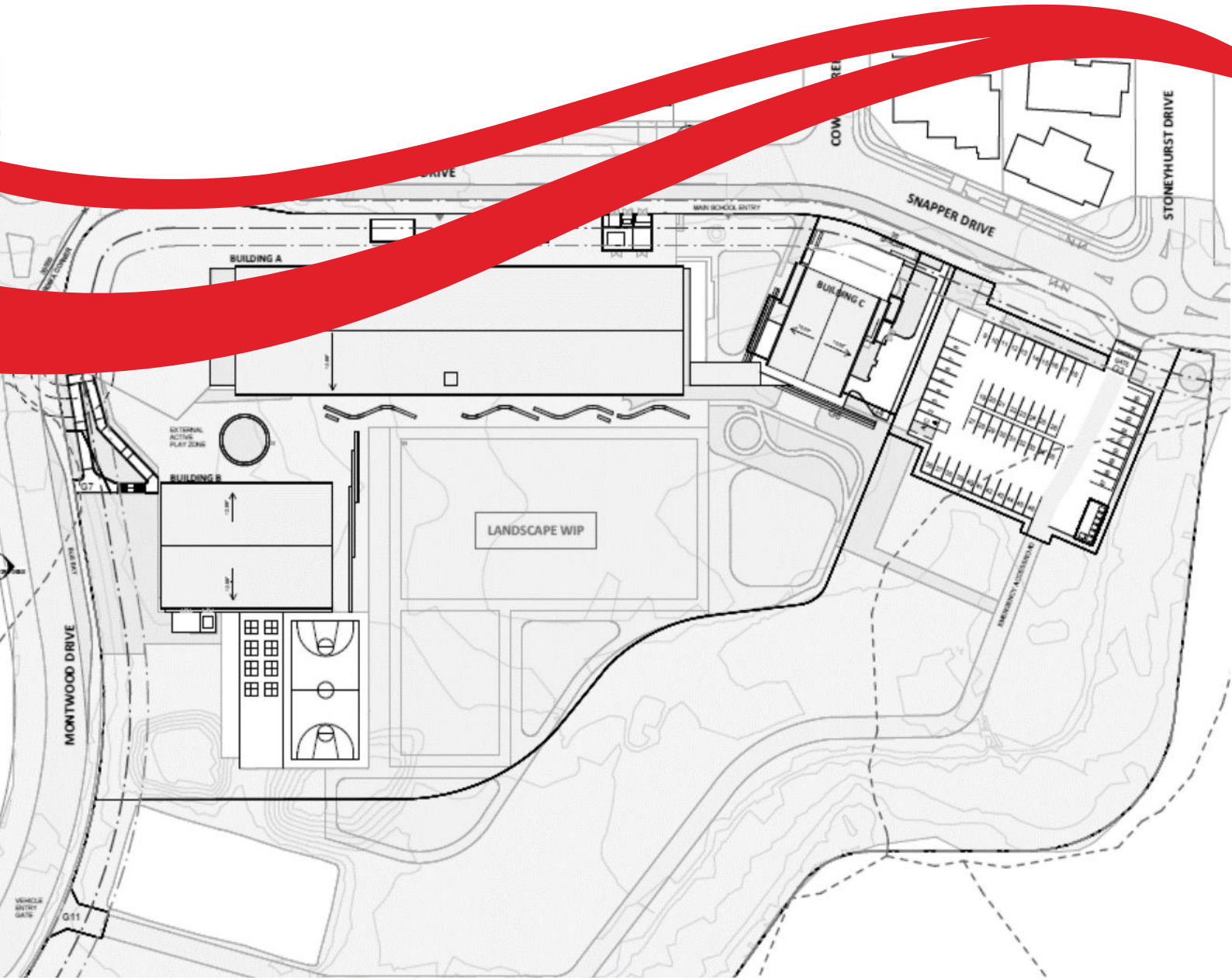


P5939	Lennox Head Public School TTIA	Notes:	Sheet 12
	2027 Design	Peak Hours AM 8:00 9:00 PM 15:00 16:00	Growth Rate: 1.37% Survey Year: 2024 Design Year: 2027



P5939	Lennox Head Public School TTIA	Notes:		
	2037 Design	Peak Hours	Growth Rate: 1.37%	Sheet 13
		AM 8:00 9:00	Survey Year: 2024	
		PM 15:00 16:00	Design Year: 2037	

Appendix F: SIDRA Analyses

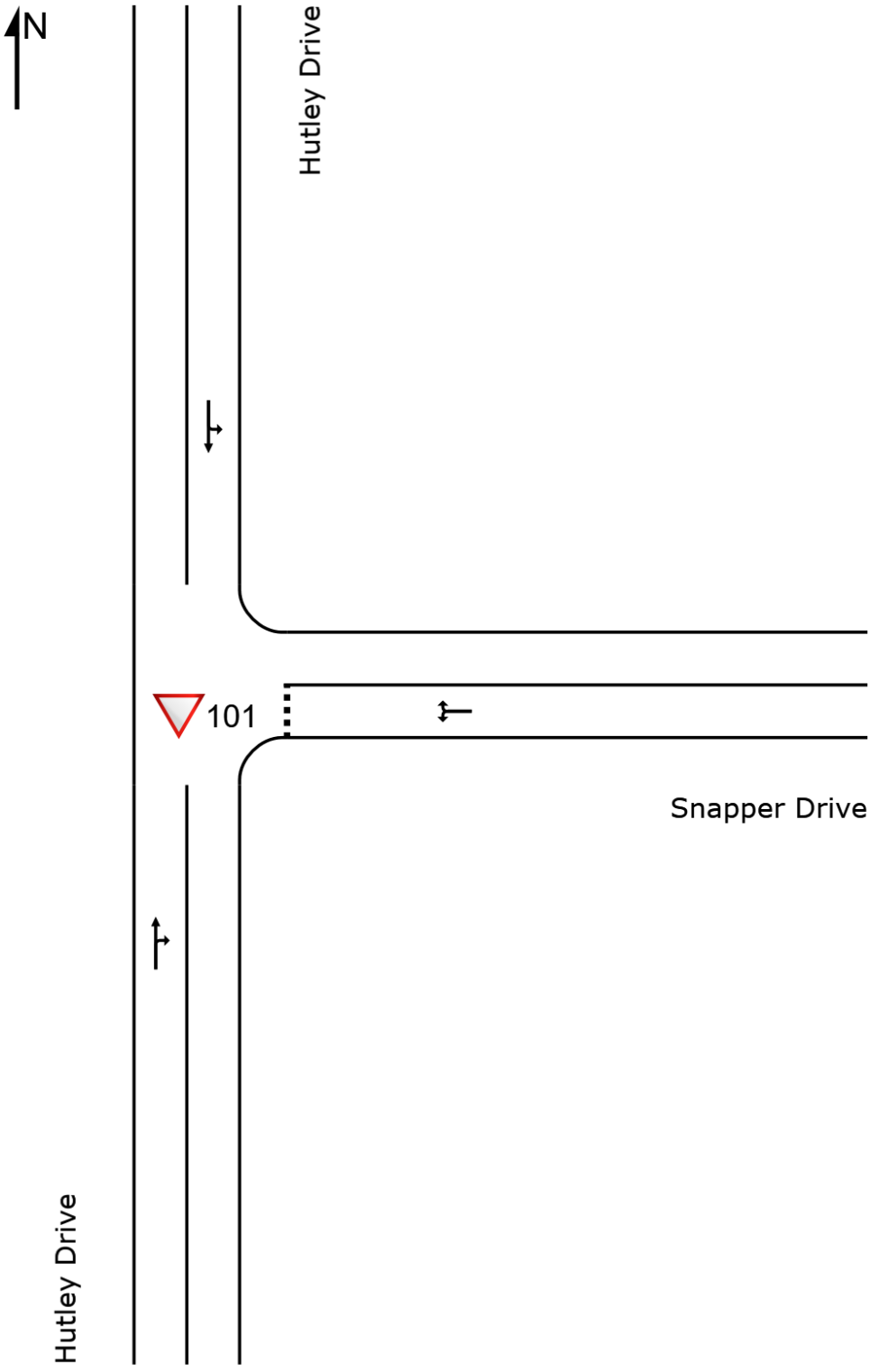


SITE LAYOUT

Site: 101 [2024 BG AM (Site Folder: General)]

Hutley Drive / Snapper Drive
Site Category: (None)
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: 101 [2024 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Hutley Drive / Snapper Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Hutley Drive															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.1	LOS A	0.0	0.0	0.11	0.26	0.11	44.4
3	R2	All MCs	1	0.0	1	0.0	0.001	4.7	LOS A	0.0	0.0	0.11	0.26	0.11	43.3
Approach			2	0.0	2	0.0	0.001	2.4	NA	0.0	0.0	0.11	0.26	0.11	43.7
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.077	4.6	LOS A	0.3	1.9	0.07	0.51	0.07	40.8
6	R2	All MCs	94	5.6	94	5.6	0.077	4.7	LOS A	0.3	1.9	0.07	0.51	0.07	42.3
Approach			95	5.5	95	5.5	0.077	4.7	LOS A	0.3	1.9	0.07	0.51	0.07	42.3
North: Hutley Drive															
7	L2	All MCs	42	12.5	42	12.5	0.023	4.7	LOS A	0.0	0.0	0.00	0.51	0.00	42.6
8	T1	All MCs	1	0.0	1	0.0	0.023	0.0	LOS A	0.0	0.0	0.00	0.51	0.00	41.5
Approach			43	12.2	43	12.2	0.023	4.6	NA	0.0	0.0	0.00	0.51	0.00	42.6
All Vehicles			140	7.5	140	7.5	0.077	4.6	NA	0.3	1.9	0.05	0.51	0.05	42.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2024 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Hutley Drive / Snapper Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Hutley Drive															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.2	LOS A	0.0	0.0	0.17	0.27	0.17	43.9
3	R2	All MCs	1	0.0	1	0.0	0.001	4.8	LOS A	0.0	0.0	0.17	0.27	0.17	42.9
Approach			2	0.0	2	0.0	0.001	2.5	NA	0.0	0.0	0.17	0.27	0.17	43.3
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.077	4.6	LOS A	0.3	1.9	0.10	0.50	0.10	40.6
6	R2	All MCs	91	8.1	91	8.1	0.077	4.8	LOS A	0.3	1.9	0.10	0.50	0.10	42.2
Approach			92	8.0	92	8.0	0.077	4.8	LOS A	0.3	1.9	0.10	0.50	0.10	42.2
North: Hutley Drive															
7	L2	All MCs	94	4.5	94	4.5	0.048	4.6	LOS A	0.0	0.0	0.00	0.52	0.00	42.7
8	T1	All MCs	1	0.0	1	0.0	0.048	0.0	LOS A	0.0	0.0	0.00	0.52	0.00	41.4
Approach			95	4.5	95	4.5	0.048	4.6	NA	0.0	0.0	0.00	0.52	0.00	42.7
All Vehicles			188	6.1	188	6.1	0.077	4.7	NA	0.3	1.9	0.05	0.51	0.05	42.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2027 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Hutley Drive / Snapper Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Hutley Drive															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.1	LOS A	0.0	0.0	0.11	0.26	0.11	44.3
3	R2	All MCs	1	0.0	1	0.0	0.001	4.7	LOS A	0.0	0.0	0.11	0.26	0.11	43.2
Approach			2	0.0	2	0.0	0.001	2.4	NA	0.0	0.0	0.11	0.26	0.11	43.7
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.081	4.6	LOS A	0.3	2.0	0.07	0.51	0.07	40.8
6	R2	All MCs	98	5.6	98	5.6	0.081	4.7	LOS A	0.3	2.0	0.07	0.51	0.07	42.3
Approach			99	5.5	99	5.5	0.081	4.7	LOS A	0.3	2.0	0.07	0.51	0.07	42.3
North: Hutley Drive															
7	L2	All MCs	44	12.5	44	12.5	0.024	4.7	LOS A	0.0	0.0	0.00	0.51	0.00	42.6
8	T1	All MCs	1	0.0	1	0.0	0.024	0.0	LOS A	0.0	0.0	0.00	0.51	0.00	41.5
Approach			45	12.2	45	12.2	0.024	4.6	NA	0.0	0.0	0.00	0.51	0.00	42.6
All Vehicles			146	7.5	146	7.5	0.081	4.6	NA	0.3	2.0	0.05	0.51	0.05	42.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2027 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Hutley Drive / Snapper Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Hutley Drive															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.2	LOS A	0.0	0.0	0.18	0.27	0.18	43.9
3	R2	All MCs	1	0.0	1	0.0	0.001	4.8	LOS A	0.0	0.0	0.18	0.27	0.18	42.9
Approach			2	0.0	2	0.0	0.001	2.5	NA	0.0	0.0	0.18	0.27	0.18	43.3
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.081	4.6	LOS A	0.3	2.0	0.10	0.50	0.10	40.6
6	R2	All MCs	95	8.1	95	8.1	0.081	4.8	LOS A	0.3	2.0	0.10	0.50	0.10	42.2
Approach			96	8.0	96	8.0	0.081	4.8	LOS A	0.3	2.0	0.10	0.50	0.10	42.2
North: Hutley Drive															
7	L2	All MCs	98	4.5	98	4.5	0.050	4.6	LOS A	0.0	0.0	0.00	0.52	0.00	42.7
8	T1	All MCs	1	0.0	1	0.0	0.050	0.0	LOS A	0.0	0.0	0.00	0.52	0.00	41.4
Approach			99	4.5	99	4.5	0.050	4.6	NA	0.0	0.0	0.00	0.52	0.00	42.7
All Vehicles			197	6.1	197	6.1	0.081	4.7	NA	0.3	2.0	0.05	0.51	0.05	42.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2027 DES AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Hutley Drive / Snapper Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Hutley Drive															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.3	LOS A	0.0	0.0	0.24	0.28	0.24	43.4
3	R2	All MCs	1	0.0	1	0.0	0.001	5.0	LOS A	0.0	0.0	0.24	0.28	0.24	42.6
Approach			2	0.0	2	0.0	0.001	2.7	NA	0.0	0.0	0.24	0.28	0.24	42.9
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.165	4.6	LOS A	0.6	4.3	0.15	0.51	0.15	40.4
6	R2	All MCs	191	5.6	191	5.6	0.165	5.0	LOS A	0.6	4.3	0.15	0.51	0.15	42.1
Approach			192	5.6	192	5.6	0.165	5.0	LOS A	0.6	4.3	0.15	0.51	0.15	42.0
North: Hutley Drive															
7	L2	All MCs	154	12.5	154	12.5	0.083	4.7	LOS A	0.0	0.0	0.00	0.52	0.00	42.5
8	T1	All MCs	1	0.0	1	0.0	0.083	0.0	LOS A	0.0	0.0	0.00	0.52	0.00	41.3
Approach			155	12.4	155	12.4	0.083	4.6	NA	0.0	0.0	0.00	0.52	0.00	42.5
All Vehicles			348	8.6	348	8.6	0.165	4.8	NA	0.6	4.3	0.08	0.51	0.08	42.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2027 DES PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Hutley Drive / Snapper Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Hutley Drive															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.4	LOS A	0.0	0.0	0.25	0.28	0.25	43.3
3	R2	All MCs	1	0.0	1	0.0	0.001	5.0	LOS A	0.0	0.0	0.25	0.28	0.25	42.5
Approach			2	0.0	2	0.0	0.001	2.7	NA	0.0	0.0	0.25	0.28	0.25	42.9
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.195	4.6	LOS A	0.7	5.4	0.16	0.51	0.16	40.3
6	R2	All MCs	221	8.1	221	8.1	0.195	5.0	LOS A	0.7	5.4	0.16	0.51	0.16	41.9
Approach			222	8.1	222	8.1	0.195	5.0	LOS A	0.7	5.4	0.16	0.51	0.16	41.9
North: Hutley Drive															
7	L2	All MCs	173	4.5	173	4.5	0.089	4.6	LOS A	0.0	0.0	0.00	0.52	0.00	42.7
8	T1	All MCs	1	0.0	1	0.0	0.089	0.0	LOS A	0.0	0.0	0.00	0.52	0.00	41.3
Approach			174	4.5	174	4.5	0.089	4.6	NA	0.0	0.0	0.00	0.52	0.00	42.7
All Vehicles			398	6.5	398	6.5	0.195	4.8	NA	0.7	5.4	0.09	0.51	0.09	42.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2037 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Hutley Drive / Snapper Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Hutley Drive															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.1	LOS A	0.0	0.0	0.12	0.26	0.12	44.3
3	R2	All MCs	1	0.0	1	0.0	0.001	4.7	LOS A	0.0	0.0	0.12	0.26	0.12	43.2
Approach			2	0.0	2	0.0	0.001	2.4	NA	0.0	0.0	0.12	0.26	0.12	43.6
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.092	4.6	LOS A	0.3	2.3	0.08	0.51	0.08	40.7
6	R2	All MCs	112	5.6	112	5.6	0.092	4.7	LOS A	0.3	2.3	0.08	0.51	0.08	42.3
Approach			113	5.5	113	5.5	0.092	4.7	LOS A	0.3	2.3	0.08	0.51	0.08	42.3
North: Hutley Drive															
7	L2	All MCs	51	12.5	51	12.5	0.028	4.7	LOS A	0.0	0.0	0.00	0.52	0.00	42.6
8	T1	All MCs	1	0.0	1	0.0	0.028	0.0	LOS A	0.0	0.0	0.00	0.52	0.00	41.5
Approach			52	12.2	52	12.2	0.028	4.6	NA	0.0	0.0	0.00	0.52	0.00	42.5
All Vehicles			166	7.6	166	7.6	0.092	4.6	NA	0.3	2.3	0.05	0.51	0.05	42.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2037 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Hutley Drive / Snapper Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Hutley Drive															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.2	LOS A	0.0	0.0	0.19	0.27	0.19	43.8
3	R2	All MCs	1	0.0	1	0.0	0.001	4.9	LOS A	0.0	0.0	0.19	0.27	0.19	42.8
Approach			2	0.0	2	0.0	0.001	2.5	NA	0.0	0.0	0.19	0.27	0.19	43.2
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.093	4.6	LOS A	0.3	2.3	0.11	0.50	0.11	40.6
6	R2	All MCs	108	8.1	108	8.1	0.093	4.9	LOS A	0.3	2.3	0.11	0.50	0.11	42.1
Approach			109	8.0	109	8.0	0.093	4.9	LOS A	0.3	2.3	0.11	0.50	0.11	42.1
North: Hutley Drive															
7	L2	All MCs	112	4.5	112	4.5	0.057	4.6	LOS A	0.0	0.0	0.00	0.52	0.00	42.7
8	T1	All MCs	1	0.0	1	0.0	0.057	0.0	LOS A	0.0	0.0	0.00	0.52	0.00	41.4
Approach			113	4.5	113	4.5	0.057	4.6	NA	0.0	0.0	0.00	0.52	0.00	42.7
All Vehicles			224	6.2	224	6.2	0.093	4.7	NA	0.3	2.3	0.05	0.51	0.05	42.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2037 DES AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Hutley Drive / Snapper Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Hutley Drive															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.4	LOS A	0.0	0.0	0.24	0.28	0.24	43.4
3	R2	All MCs	1	0.0	1	0.0	0.001	5.0	LOS A	0.0	0.0	0.24	0.28	0.24	42.6
Approach			2	0.0	2	0.0	0.001	2.7	NA	0.0	0.0	0.24	0.28	0.24	42.9
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.177	4.6	LOS A	0.6	4.7	0.15	0.51	0.15	40.4
6	R2	All MCs	204	5.6	204	5.6	0.177	5.0	LOS A	0.6	4.7	0.15	0.51	0.15	42.0
Approach			205	5.6	205	5.6	0.177	5.0	LOS A	0.6	4.7	0.15	0.51	0.15	42.0
North: Hutley Drive															
7	L2	All MCs	160	12.5	160	12.5	0.087	4.7	LOS A	0.0	0.0	0.00	0.52	0.00	42.5
8	T1	All MCs	1	0.0	1	0.0	0.087	0.0	LOS A	0.0	0.0	0.00	0.52	0.00	41.3
Approach			161	12.4	161	12.4	0.087	4.6	NA	0.0	0.0	0.00	0.52	0.00	42.5
All Vehicles			368	8.5	368	8.5	0.177	4.8	NA	0.6	4.7	0.09	0.51	0.09	42.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2037 DES PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Hutley Drive / Snapper Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Hutley Drive															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.4	LOS A	0.0	0.0	0.26	0.29	0.26	43.3
3	R2	All MCs	1	0.0	1	0.0	0.001	5.1	LOS A	0.0	0.0	0.26	0.29	0.26	42.5
Approach			2	0.0	2	0.0	0.001	2.7	NA	0.0	0.0	0.26	0.29	0.26	42.8
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.208	4.6	LOS A	0.8	5.8	0.17	0.51	0.17	40.3
6	R2	All MCs	235	8.1	235	8.1	0.208	5.1	LOS A	0.8	5.8	0.17	0.51	0.17	41.9
Approach			236	8.1	236	8.1	0.208	5.1	LOS A	0.8	5.8	0.17	0.51	0.17	41.9
North: Hutley Drive															
7	L2	All MCs	186	4.5	186	4.5	0.096	4.6	LOS A	0.0	0.0	0.00	0.52	0.00	42.7
8	T1	All MCs	1	0.0	1	0.0	0.096	0.0	LOS A	0.0	0.0	0.00	0.52	0.00	41.3
Approach			187	4.5	187	4.5	0.096	4.6	NA	0.0	0.0	0.00	0.52	0.00	42.7
All Vehicles			425	6.4	425	6.4	0.208	4.9	NA	0.8	5.8	0.10	0.52	0.10	42.2

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

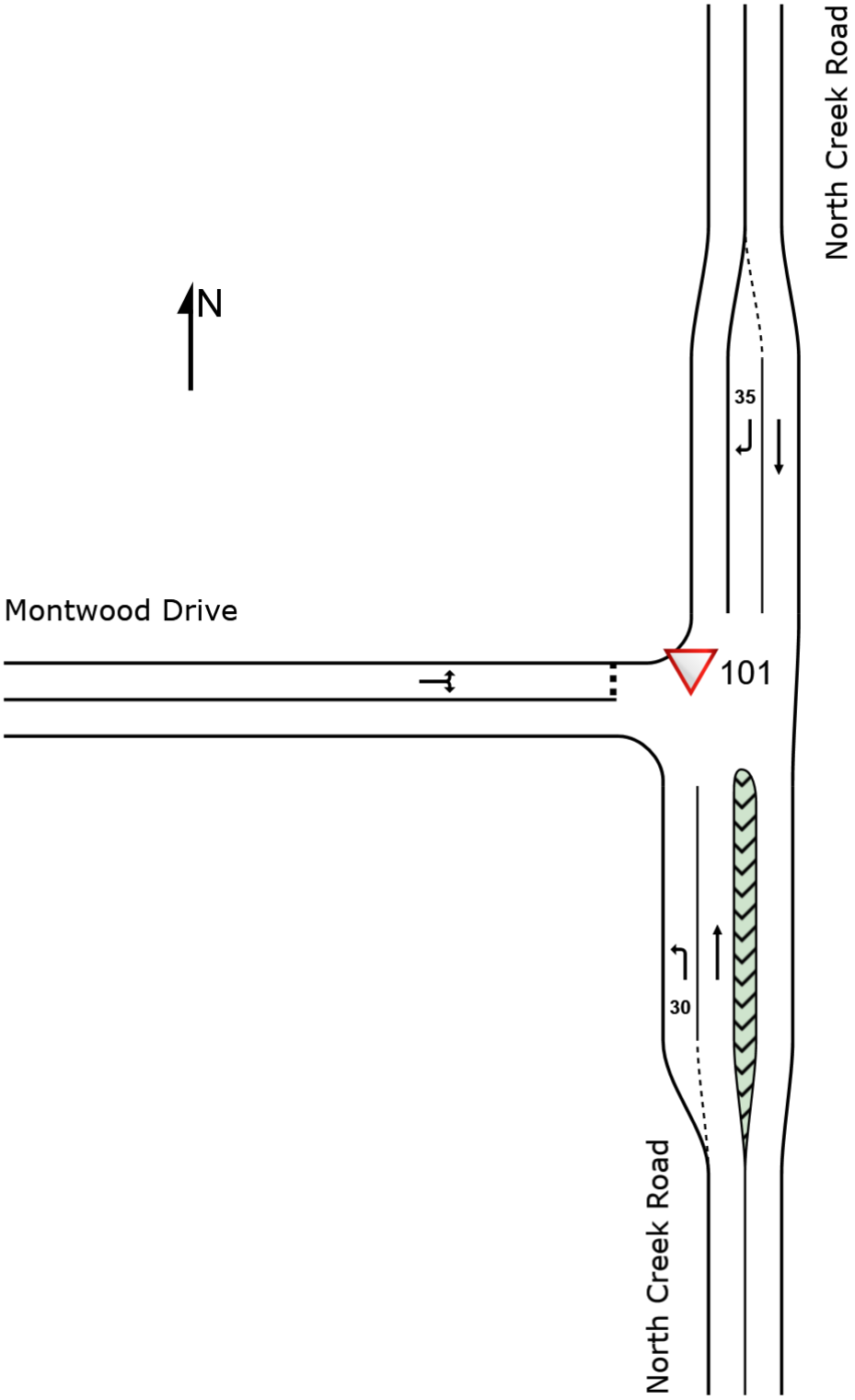
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 101 [2024 BG AM (Site Folder: General)]

North Creek Road / Montwood Drive
Site Category: (None)
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: 101 [2024 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

North Creek Road / Montwood Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: North Creek Road															
1	L2	All MCs	100	4.2	100	4.2	0.056	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.7
2	T1	All MCs	112	2.8	112	2.8	0.058	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			212	3.5	212	3.5	0.058	2.7	NA	0.0	0.0	0.00	0.27	0.00	56.3
North: North Creek Road															
8	T1	All MCs	138	4.6	138	4.6	0.073	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
9	R2	All MCs	26	8.0	26	8.0	0.024	6.4	LOS A	0.1	0.7	0.31	0.58	0.31	48.1
Approach			164	5.1	164	5.1	0.073	1.0	NA	0.1	0.7	0.05	0.09	0.05	57.7
West: Montwood Drive															
10	L2	All MCs	34	0.0	34	0.0	0.282	5.1	LOS A	1.3	8.9	0.47	0.63	0.47	47.5
12	R2	All MCs	180	1.8	180	1.8	0.282	7.7	LOS A	1.3	8.9	0.47	0.63	0.47	47.4
Approach			214	1.5	214	1.5	0.282	7.3	LOS A	1.3	8.9	0.47	0.63	0.47	47.4
All Vehicles			589	3.2	589	3.2	0.282	3.9	NA	1.3	8.9	0.18	0.35	0.18	53.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2024 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

North Creek Road / Montwood Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: North Creek Road															
1	L2	All MCs	144	2.9	144	2.9	0.080	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
2	T1	All MCs	109	5.8	109	5.8	0.058	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			254	4.2	254	4.2	0.080	3.2	NA	0.0	0.0	0.00	0.33	0.00	55.6
North: North Creek Road															
8	T1	All MCs	118	0.0	118	0.0	0.060	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
9	R2	All MCs	41	0.0	41	0.0	0.037	6.5	LOS A	0.1	1.0	0.34	0.60	0.34	48.2
Approach			159	0.0	159	0.0	0.060	1.7	NA	0.1	1.0	0.09	0.15	0.09	56.4
West: Montwood Drive															
10	L2	All MCs	24	4.3	24	4.3	0.171	5.1	LOS A	0.7	5.0	0.43	0.61	0.43	47.5
12	R2	All MCs	105	2.0	105	2.0	0.171	7.5	LOS A	0.7	5.0	0.43	0.61	0.43	47.5
Approach			129	2.4	129	2.4	0.171	7.0	LOS A	0.7	5.0	0.43	0.61	0.43	47.5
All Vehicles			542	2.5	542	2.5	0.171	3.7	NA	0.7	5.0	0.13	0.34	0.13	53.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2027 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

North Creek Road / Montwood Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: North Creek Road															
1	L2	All MCs	104	4.2	104	4.2	0.058	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.7
2	T1	All MCs	116	2.8	116	2.8	0.060	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			220	3.5	220	3.5	0.060	2.7	NA	0.0	0.0	0.00	0.27	0.00	56.3
North: North Creek Road															
8	T1	All MCs	143	4.6	143	4.6	0.076	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
9	R2	All MCs	27	8.0	27	8.0	0.025	6.5	LOS A	0.1	0.7	0.32	0.58	0.32	48.1
Approach			171	5.1	171	5.1	0.076	1.1	NA	0.1	0.7	0.05	0.09	0.05	57.7
West: Montwood Drive															
10	L2	All MCs	35	0.0	35	0.0	0.298	5.1	LOS A	1.3	9.5	0.49	0.64	0.49	47.4
12	R2	All MCs	187	1.8	187	1.8	0.298	7.9	LOS A	1.3	9.5	0.49	0.64	0.49	47.3
Approach			222	1.5	222	1.5	0.298	7.5	LOS A	1.3	9.5	0.49	0.64	0.49	47.3
All Vehicles			613	3.2	613	3.2	0.298	4.0	NA	1.3	9.5	0.19	0.35	0.19	53.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2027 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

North Creek Road / Montwood Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: North Creek Road															
1	L2	All MCs	151	2.9	151	2.9	0.084	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.7
2	T1	All MCs	114	5.8	114	5.8	0.060	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			264	4.1	264	4.1	0.084	3.2	NA	0.0	0.0	0.00	0.33	0.00	55.6
North: North Creek Road															
8	T1	All MCs	123	0.0	123	0.0	0.063	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
9	R2	All MCs	43	0.0	43	0.0	0.039	6.5	LOS A	0.2	1.1	0.35	0.60	0.35	48.2
Approach			166	0.0	166	0.0	0.063	1.7	NA	0.2	1.1	0.09	0.16	0.09	56.4
West: Montwood Drive															
10	L2	All MCs	25	4.3	25	4.3	0.182	5.1	LOS A	0.7	5.3	0.44	0.62	0.44	47.4
12	R2	All MCs	109	2.0	109	2.0	0.182	7.7	LOS A	0.7	5.3	0.44	0.62	0.44	47.4
Approach			135	2.4	135	2.4	0.182	7.2	LOS A	0.7	5.3	0.44	0.62	0.44	47.4
All Vehicles			565	2.5	565	2.5	0.182	3.7	NA	0.7	5.3	0.13	0.35	0.13	53.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2027 DES AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

North Creek Road / Montwood Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: North Creek Road															
1	L2	All MCs	125	4.2	125	4.2	0.070	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.7
2	T1	All MCs	116	2.8	116	2.8	0.060	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			241	3.5	241	3.5	0.070	2.9	NA	0.0	0.0	0.00	0.30	0.00	55.9
North: North Creek Road															
8	T1	All MCs	143	4.6	143	4.6	0.076	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
9	R2	All MCs	35	8.0	35	8.0	0.032	6.6	LOS A	0.1	0.9	0.34	0.59	0.34	48.0
Approach			178	5.3	178	5.3	0.076	1.3	NA	0.1	0.9	0.07	0.12	0.07	57.2
West: Montwood Drive															
10	L2	All MCs	42	0.0	42	0.0	0.373	5.6	LOS A	2.1	14.8	0.53	0.69	0.60	46.8
12	R2	All MCs	229	1.8	229	1.8	0.373	8.8	LOS A	2.1	14.8	0.53	0.69	0.60	46.7
Approach			272	1.5	272	1.5	0.373	8.3	LOS A	2.1	14.8	0.53	0.69	0.60	46.8
All Vehicles			691	3.2	691	3.2	0.373	4.6	NA	2.1	14.8	0.23	0.40	0.25	52.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2027 DES PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

North Creek Road / Montwood Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: North Creek Road															
1	L2	All MCs	167	2.9	167	2.9	0.093	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.7
2	T1	All MCs	114	5.8	114	5.8	0.060	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			281	4.1	281	4.1	0.093	3.3	NA	0.0	0.0	0.00	0.34	0.00	55.4
North: North Creek Road															
8	T1	All MCs	123	0.0	123	0.0	0.063	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
9	R2	All MCs	49	0.0	49	0.0	0.045	6.6	LOS A	0.2	1.2	0.36	0.61	0.36	48.1
Approach			173	0.0	173	0.0	0.063	1.9	NA	0.2	1.2	0.10	0.18	0.10	56.0
West: Montwood Drive															
10	L2	All MCs	32	4.3	32	4.3	0.231	5.1	LOS A	1.0	7.0	0.47	0.63	0.47	47.2
12	R2	All MCs	137	2.0	137	2.0	0.231	8.0	LOS A	1.0	7.0	0.47	0.63	0.47	47.3
Approach			168	2.4	168	2.4	0.231	7.5	LOS A	1.0	7.0	0.47	0.63	0.47	47.3
All Vehicles			622	2.5	622	2.5	0.231	4.1	NA	1.0	7.0	0.16	0.37	0.16	53.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2037 BG AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

North Creek Road / Montwood Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: North Creek Road															
1	L2	All MCs	119	4.2	119	4.2	0.067	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.7
2	T1	All MCs	134	2.8	134	2.8	0.070	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			253	3.5	253	3.5	0.070	2.6	NA	0.0	0.0	0.00	0.27	0.00	56.3
North: North Creek Road															
8	T1	All MCs	164	4.6	164	4.6	0.087	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
9	R2	All MCs	32	8.0	32	8.0	0.030	6.6	LOS A	0.1	0.9	0.35	0.60	0.35	48.0
Approach			196	5.1	196	5.1	0.087	1.1	NA	0.1	0.9	0.06	0.10	0.06	57.6
West: Montwood Drive															
10	L2	All MCs	40	0.0	40	0.0	0.365	5.7	LOS A	2.0	14.2	0.55	0.71	0.64	46.6
12	R2	All MCs	215	1.8	215	1.8	0.365	9.2	LOS A	2.0	14.2	0.55	0.71	0.64	46.5
Approach			255	1.5	255	1.5	0.365	8.7	LOS A	2.0	14.2	0.55	0.71	0.64	46.5
All Vehicles			703	3.2	703	3.2	0.365	4.4	NA	2.0	14.2	0.21	0.38	0.25	52.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2037 BG PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

North Creek Road / Montwood Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: North Creek Road															
1	L2	All MCs	173	2.9	173	2.9	0.096	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.7
2	T1	All MCs	131	5.8	131	5.8	0.069	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			303	4.1	303	4.1	0.096	3.2	NA	0.0	0.0	0.00	0.33	0.00	55.6
North: North Creek Road															
8	T1	All MCs	141	0.0	141	0.0	0.072	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
9	R2	All MCs	49	0.0	49	0.0	0.047	6.7	LOS A	0.2	1.3	0.38	0.62	0.38	48.1
Approach			191	0.0	191	0.0	0.072	1.8	NA	0.2	1.3	0.10	0.16	0.10	56.4
West: Montwood Drive															
10	L2	All MCs	28	4.3	28	4.3	0.222	5.2	LOS A	0.9	6.6	0.49	0.65	0.49	47.0
12	R2	All MCs	125	2.0	125	2.0	0.222	8.4	LOS A	0.9	6.6	0.49	0.65	0.49	47.1
Approach			154	2.4	154	2.4	0.222	7.8	LOS A	0.9	6.6	0.49	0.65	0.49	47.0
All Vehicles			647	2.5	647	2.5	0.222	3.9	NA	0.9	6.6	0.15	0.36	0.15	53.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2037 DES AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

North Creek Road / Montwood Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: North Creek Road															
1	L2	All MCs	140	4.2	140	4.2	0.078	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.7
2	T1	All MCs	134	2.8	134	2.8	0.070	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			274	3.5	274	3.5	0.078	2.9	NA	0.0	0.0	0.00	0.29	0.00	56.0
North: North Creek Road															
8	T1	All MCs	164	4.6	164	4.6	0.087	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
9	R2	All MCs	39	8.0	39	8.0	0.037	6.8	LOS A	0.1	1.1	0.36	0.61	0.36	48.0
Approach			203	5.3	203	5.3	0.087	1.3	NA	0.1	1.1	0.07	0.12	0.07	57.2
West: Montwood Drive															
10	L2	All MCs	47	0.0	47	0.0	0.446	6.4	LOS A	3.0	21.0	0.60	0.78	0.79	46.0
12	R2	All MCs	257	1.8	257	1.8	0.446	10.4	LOS A	3.0	21.0	0.60	0.78	0.79	45.9
Approach			304	1.5	304	1.5	0.446	9.8	LOS A	3.0	21.0	0.60	0.78	0.79	45.9
All Vehicles			781	3.2	781	3.2	0.446	5.2	NA	3.0	21.0	0.25	0.44	0.33	51.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 101 [2037 DES PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

North Creek Road / Montwood Drive
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: North Creek Road															
1	L2	All MCs	189	2.9	189	2.9	0.105	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.7
2	T1	All MCs	131	5.8	131	5.8	0.069	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			320	4.1	320	4.1	0.105	3.3	NA	0.0	0.0	0.00	0.34	0.00	55.5
North: North Creek Road															
8	T1	All MCs	141	0.0	141	0.0	0.072	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
9	R2	All MCs	56	0.0	56	0.0	0.053	6.8	LOS A	0.2	1.5	0.39	0.63	0.39	48.1
Approach			197	0.0	197	0.0	0.072	1.9	NA	0.2	1.5	0.11	0.18	0.11	56.0
West: Montwood Drive															
10	L2	All MCs	35	4.3	35	4.3	0.275	5.3	LOS A	1.2	8.5	0.52	0.66	0.52	46.8
12	R2	All MCs	153	2.0	153	2.0	0.275	8.8	LOS A	1.2	8.5	0.52	0.66	0.52	46.9
Approach			187	2.4	187	2.4	0.275	8.1	LOS A	1.2	8.5	0.52	0.66	0.52	46.9
All Vehicles			704	2.5	704	2.5	0.275	4.2	NA	1.2	8.5	0.17	0.38	0.17	53.0

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

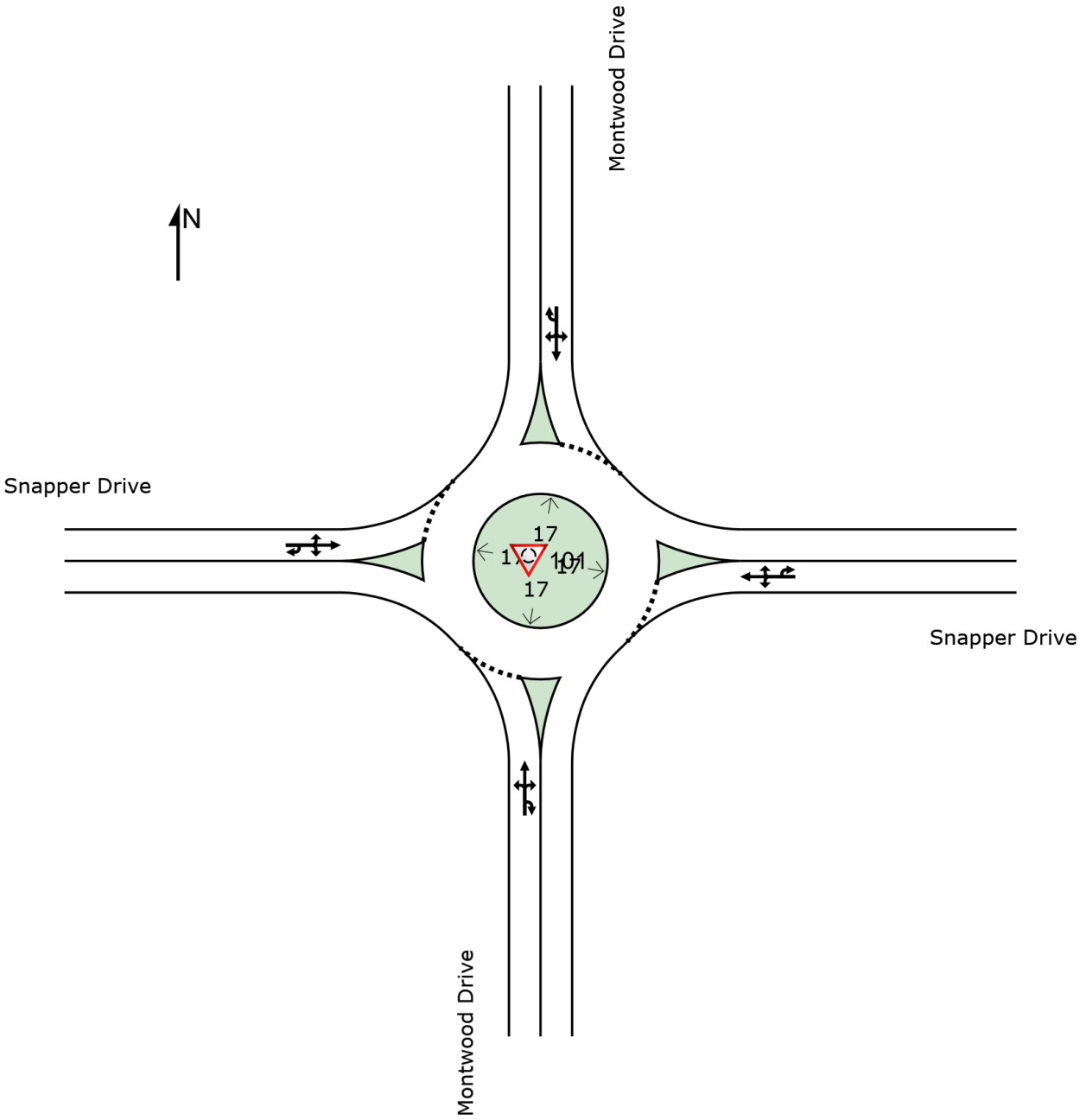
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 101 [2024 AM BG (Site Folder: General)]

Snapper Drive / Montwood Drive
Site Category: (None)
Roundabout

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



MOVEMENT SUMMARY

Site: 101 [2024 AM BG (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Montwood Drive
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Montwood Drive															
1	L2	All MCs	108	3.9	108	3.9	0.099	3.3	LOS A	0.5	3.6	0.18	0.43	0.18	45.9
2	T1	All MCs	13	0.0	13	0.0	0.099	3.2	LOS A	0.5	3.6	0.18	0.43	0.18	45.3
3	R2	All MCs	8	0.0	8	0.0	0.099	7.4	LOS A	0.5	3.6	0.18	0.43	0.18	46.1
3u	U	All MCs	1	0.0	1	0.0	0.099	9.1	LOS A	0.5	3.6	0.18	0.43	0.18	46.3
Approach			131	3.2	131	3.2	0.099	3.6	LOS A	0.5	3.6	0.18	0.43	0.18	45.9
East: Snapper Drive															
4	L2	All MCs	21	5.0	21	5.0	0.055	3.5	LOS A	0.3	1.8	0.24	0.42	0.24	46.2
5	T1	All MCs	39	2.7	39	2.7	0.055	3.4	LOS A	0.3	1.8	0.24	0.42	0.24	45.7
6	R2	All MCs	5	0.0	5	0.0	0.055	7.6	LOS A	0.3	1.8	0.24	0.42	0.24	43.6
6u	U	All MCs	1	0.0	1	0.0	0.055	9.3	LOS A	0.3	1.8	0.24	0.42	0.24	45.6
Approach			66	3.2	66	3.2	0.055	3.9	LOS A	0.3	1.8	0.24	0.42	0.24	45.7
North: Montwood Drive															
7	L2	All MCs	4	0.0	4	0.0	0.031	3.4	LOS A	0.1	1.0	0.23	0.40	0.23	44.1
8	T1	All MCs	29	0.0	29	0.0	0.031	3.4	LOS A	0.1	1.0	0.23	0.40	0.23	44.9
9	R2	All MCs	3	0.0	3	0.0	0.031	7.6	LOS A	0.1	1.0	0.23	0.40	0.23	42.0
9u	U	All MCs	1	0.0	1	0.0	0.031	9.3	LOS A	0.1	1.0	0.23	0.40	0.23	38.2
Approach			38	0.0	38	0.0	0.031	3.9	LOS A	0.1	1.0	0.23	0.40	0.23	44.5
West: Snapper Drive															
10	L2	All MCs	4	0.0	4	0.0	0.062	3.1	LOS A	0.3	2.2	0.12	0.54	0.12	40.9
11	T1	All MCs	21	10.0	21	10.0	0.062	3.2	LOS A	0.3	2.2	0.12	0.54	0.12	44.3
12	R2	All MCs	57	3.7	57	3.7	0.062	7.3	LOS A	0.3	2.2	0.12	0.54	0.12	44.0
12u	U	All MCs	1	0.0	1	0.0	0.062	9.0	LOS A	0.3	2.2	0.12	0.54	0.12	42.6
Approach			83	5.1	83	5.1	0.062	6.1	LOS A	0.3	2.2	0.12	0.54	0.12	44.0
All Vehicles			318	3.3	318	3.3	0.099	4.3	LOS A	0.5	3.6	0.18	0.45	0.18	45.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2024 PM BG (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Montwood Drive
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Montwood Drive															
1	L2	All MCs	102	3.1	102	3.1	0.103	3.3	LOS A	0.5	3.8	0.17	0.42	0.17	45.9
2	T1	All MCs	25	4.2	25	4.2	0.103	3.2	LOS A	0.5	3.8	0.17	0.42	0.17	45.1
3	R2	All MCs	9	0.0	9	0.0	0.103	7.4	LOS A	0.5	3.8	0.17	0.42	0.17	46.1
3u	U	All MCs	1	0.0	1	0.0	0.103	9.1	LOS A	0.5	3.8	0.17	0.42	0.17	46.3
Approach			138	3.1	138	3.1	0.103	3.6	LOS A	0.5	3.8	0.17	0.42	0.17	45.8
East: Snapper Drive															
4	L2	All MCs	7	0.0	7	0.0	0.038	3.6	LOS A	0.2	1.3	0.28	0.45	0.28	45.8
5	T1	All MCs	27	11.5	27	11.5	0.038	3.7	LOS A	0.2	1.3	0.28	0.45	0.28	45.1
6	R2	All MCs	8	0.0	8	0.0	0.038	7.7	LOS A	0.2	1.3	0.28	0.45	0.28	43.0
6u	U	All MCs	1	0.0	1	0.0	0.038	9.4	LOS A	0.2	1.3	0.28	0.45	0.28	45.2
Approach			44	7.1	44	7.1	0.038	4.6	LOS A	0.2	1.3	0.28	0.45	0.28	44.9
North: Montwood Drive															
7	L2	All MCs	3	0.0	3	0.0	0.023	3.7	LOS A	0.1	0.8	0.29	0.45	0.29	43.4
8	T1	All MCs	17	6.3	17	6.3	0.023	3.7	LOS A	0.1	0.8	0.29	0.45	0.29	44.2
9	R2	All MCs	5	0.0	5	0.0	0.023	7.8	LOS A	0.1	0.8	0.29	0.45	0.29	41.2
9u	U	All MCs	1	0.0	1	0.0	0.023	9.5	LOS A	0.1	0.8	0.29	0.45	0.29	37.1
Approach			26	4.0	26	4.0	0.023	4.7	LOS A	0.1	0.8	0.29	0.45	0.29	43.4
West: Snapper Drive															
10	L2	All MCs	6	0.0	6	0.0	0.102	3.2	LOS A	0.5	3.7	0.16	0.54	0.16	40.7
11	T1	All MCs	31	3.4	31	3.4	0.102	3.2	LOS A	0.5	3.7	0.16	0.54	0.16	44.2
12	R2	All MCs	99	2.1	99	2.1	0.102	7.4	LOS A	0.5	3.7	0.16	0.54	0.16	43.9
12u	U	All MCs	2	0.0	2	0.0	0.102	9.1	LOS A	0.5	3.7	0.16	0.54	0.16	42.4
Approach			138	2.3	138	2.3	0.102	6.3	LOS A	0.5	3.7	0.16	0.54	0.16	43.8
All Vehicles			346	3.3	346	3.3	0.103	4.9	LOS A	0.5	3.8	0.19	0.48	0.19	44.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2027 AM BG (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Montwood Drive
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Montwood Drive															
1	L2	All MCs	113	3.9	113	3.9	0.102	3.3	LOS A	0.5	3.8	0.18	0.43	0.18	45.9
2	T1	All MCs	13	0.0	13	0.0	0.102	3.2	LOS A	0.5	3.8	0.18	0.43	0.18	45.3
3	R2	All MCs	8	0.0	8	0.0	0.102	7.4	LOS A	0.5	3.8	0.18	0.43	0.18	46.1
3u	U	All MCs	1	0.0	1	0.0	0.102	9.1	LOS A	0.5	3.8	0.18	0.43	0.18	46.3
Approach			135	3.3	135	3.3	0.102	3.6	LOS A	0.5	3.8	0.18	0.43	0.18	45.9
East: Snapper Drive															
4	L2	All MCs	22	5.0	22	5.0	0.057	3.5	LOS A	0.3	1.9	0.24	0.42	0.24	46.2
5	T1	All MCs	41	2.7	41	2.7	0.057	3.5	LOS A	0.3	1.9	0.24	0.42	0.24	45.7
6	R2	All MCs	5	0.0	5	0.0	0.057	7.6	LOS A	0.3	1.9	0.24	0.42	0.24	43.6
6u	U	All MCs	1	0.0	1	0.0	0.057	9.3	LOS A	0.3	1.9	0.24	0.42	0.24	45.6
Approach			69	3.2	69	3.2	0.057	3.9	LOS A	0.3	1.9	0.24	0.42	0.24	45.7
North: Montwood Drive															
7	L2	All MCs	4	0.0	4	0.0	0.031	3.5	LOS A	0.1	1.0	0.23	0.40	0.23	44.1
8	T1	All MCs	31	0.0	31	0.0	0.031	3.4	LOS A	0.1	1.0	0.23	0.40	0.23	44.9
9	R2	All MCs	3	0.0	3	0.0	0.031	7.6	LOS A	0.1	1.0	0.23	0.40	0.23	42.0
9u	U	All MCs	1	0.0	1	0.0	0.031	9.3	LOS A	0.1	1.0	0.23	0.40	0.23	38.2
Approach			39	0.0	39	0.0	0.031	3.9	LOS A	0.1	1.0	0.23	0.40	0.23	44.5
West: Snapper Drive															
10	L2	All MCs	4	0.0	4	0.0	0.064	3.1	LOS A	0.3	2.3	0.12	0.54	0.12	40.9
11	T1	All MCs	22	10.0	22	10.0	0.064	3.2	LOS A	0.3	2.3	0.12	0.54	0.12	44.3
12	R2	All MCs	59	3.7	59	3.7	0.064	7.3	LOS A	0.3	2.3	0.12	0.54	0.12	44.0
12u	U	All MCs	1	0.0	1	0.0	0.064	9.0	LOS A	0.3	2.3	0.12	0.54	0.12	42.6
Approach			86	5.1	86	5.1	0.064	6.1	LOS A	0.3	2.3	0.12	0.54	0.12	44.0
All Vehicles			329	3.3	329	3.3	0.102	4.3	LOS A	0.5	3.8	0.18	0.45	0.18	45.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2027 PM BG (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Montwood Drive
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Montwood Drive															
1	L2	All MCs	106	3.1	106	3.1	0.107	3.3	LOS A	0.6	4.0	0.17	0.42	0.17	45.9
2	T1	All MCs	26	4.2	26	4.2	0.107	3.2	LOS A	0.6	4.0	0.17	0.42	0.17	45.1
3	R2	All MCs	9	0.0	9	0.0	0.107	7.4	LOS A	0.6	4.0	0.17	0.42	0.17	46.1
3u	U	All MCs	1	0.0	1	0.0	0.107	9.1	LOS A	0.6	4.0	0.17	0.42	0.17	46.3
Approach			143	3.1	143	3.1	0.107	3.6	LOS A	0.6	4.0	0.17	0.42	0.17	45.8
East: Snapper Drive															
4	L2	All MCs	7	0.0	7	0.0	0.039	3.6	LOS A	0.2	1.4	0.29	0.45	0.29	45.8
5	T1	All MCs	28	11.5	28	11.5	0.039	3.7	LOS A	0.2	1.4	0.29	0.45	0.29	45.1
6	R2	All MCs	8	0.0	8	0.0	0.039	7.8	LOS A	0.2	1.4	0.29	0.45	0.29	43.0
6u	U	All MCs	1	0.0	1	0.0	0.039	9.5	LOS A	0.2	1.4	0.29	0.45	0.29	45.2
Approach			45	7.2	45	7.2	0.039	4.6	LOS A	0.2	1.4	0.29	0.45	0.29	44.9
North: Montwood Drive															
7	L2	All MCs	3	0.0	3	0.0	0.024	3.7	LOS A	0.1	0.8	0.30	0.45	0.30	43.4
8	T1	All MCs	18	6.3	18	6.3	0.024	3.7	LOS A	0.1	0.8	0.30	0.45	0.30	44.2
9	R2	All MCs	5	0.0	5	0.0	0.024	7.8	LOS A	0.1	0.8	0.30	0.45	0.30	41.2
9u	U	All MCs	1	0.0	1	0.0	0.024	9.5	LOS A	0.1	0.8	0.30	0.45	0.30	37.1
Approach			27	4.1	27	4.1	0.024	4.7	LOS A	0.1	0.8	0.30	0.45	0.30	43.5
West: Snapper Drive															
10	L2	All MCs	6	0.0	6	0.0	0.106	3.2	LOS A	0.5	3.8	0.17	0.54	0.17	40.6
11	T1	All MCs	32	3.4	32	3.4	0.106	3.2	LOS A	0.5	3.8	0.17	0.54	0.17	44.2
12	R2	All MCs	103	2.1	103	2.1	0.106	7.4	LOS A	0.5	3.8	0.17	0.54	0.17	43.8
12u	U	All MCs	2	0.0	2	0.0	0.106	9.1	LOS A	0.5	3.8	0.17	0.54	0.17	42.4
Approach			143	2.3	143	2.3	0.106	6.3	LOS A	0.5	3.8	0.17	0.54	0.17	43.8
All Vehicles			359	3.4	359	3.4	0.107	4.9	LOS A	0.6	4.0	0.19	0.48	0.19	44.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2027 AM DES (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Montwood Drive
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Montwood Drive															
1	L2	All MCs	113	3.9	113	3.9	0.141	3.9	LOS A	0.7	5.4	0.35	0.50	0.35	45.0
2	T1	All MCs	13	0.0	13	0.0	0.141	3.8	LOS A	0.7	5.4	0.35	0.50	0.35	44.2
3	R2	All MCs	36	0.0	36	0.0	0.141	8.0	LOS A	0.7	5.4	0.35	0.50	0.35	45.4
3u	U	All MCs	1	0.0	1	0.0	0.141	9.7	LOS A	0.7	5.4	0.35	0.50	0.35	45.6
Approach			162	2.7	162	2.7	0.141	4.9	LOS A	0.7	5.4	0.35	0.50	0.35	45.1
East: Snapper Drive															
4	L2	All MCs	72	5.0	72	5.0	0.177	3.6	LOS A	1.0	6.8	0.27	0.42	0.27	46.1
5	T1	All MCs	134	2.7	134	2.7	0.177	3.5	LOS A	1.0	6.8	0.27	0.42	0.27	45.6
6	R2	All MCs	18	0.0	18	0.0	0.177	7.6	LOS A	1.0	6.8	0.27	0.42	0.27	43.5
6u	U	All MCs	1	0.0	1	0.0	0.177	9.4	LOS A	1.0	6.8	0.27	0.42	0.27	45.6
Approach			224	3.2	224	3.2	0.177	3.9	LOS A	1.0	6.8	0.27	0.42	0.27	45.7
North: Montwood Drive															
7	L2	All MCs	53	0.0	53	0.0	0.079	4.2	LOS A	0.4	2.8	0.39	0.49	0.39	43.7
8	T1	All MCs	31	0.0	31	0.0	0.079	4.1	LOS A	0.4	2.8	0.39	0.49	0.39	44.5
9	R2	All MCs	3	0.0	3	0.0	0.079	8.3	LOS A	0.4	2.8	0.39	0.49	0.39	41.5
9u	U	All MCs	1	0.0	1	0.0	0.079	10.0	LOS A	0.4	2.8	0.39	0.49	0.39	37.4
Approach			87	0.0	87	0.0	0.079	4.4	LOS A	0.4	2.8	0.39	0.49	0.39	43.9
West: Snapper Drive															
10	L2	All MCs	4	0.0	4	0.0	0.153	3.4	LOS A	0.8	6.2	0.22	0.45	0.22	41.9
11	T1	All MCs	132	10.0	132	10.0	0.153	3.4	LOS A	0.8	6.2	0.22	0.45	0.22	45.1
12	R2	All MCs	59	3.7	59	3.7	0.153	7.5	LOS A	0.8	6.2	0.22	0.45	0.22	44.7
12u	U	All MCs	1	0.0	1	0.0	0.153	9.2	LOS A	0.8	6.2	0.22	0.45	0.22	43.4
Approach			196	7.8	196	7.8	0.153	4.7	LOS A	0.8	6.2	0.22	0.45	0.22	44.9
All Vehicles			669	4.0	669	4.0	0.177	4.4	LOS A	1.0	6.8	0.29	0.45	0.29	45.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2027 PM DES (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Montwood Drive
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Montwood Drive															
1	L2	All MCs	106	3.1	106	3.1	0.152	4.3	LOS A	0.8	5.9	0.41	0.52	0.41	44.9
2	T1	All MCs	26	4.2	26	4.2	0.152	4.2	LOS A	0.8	5.9	0.41	0.52	0.41	43.8
3	R2	All MCs	33	0.0	33	0.0	0.152	8.3	LOS A	0.8	5.9	0.41	0.52	0.41	45.2
3u	U	All MCs	1	0.0	1	0.0	0.152	10.0	LOS A	0.8	5.9	0.41	0.52	0.41	45.5
Approach			166	2.6	166	2.6	0.152	5.1	LOS A	0.8	5.9	0.41	0.52	0.41	44.9
East: Snapper Drive															
4	L2	All MCs	41	0.0	41	0.0	0.207	3.7	LOS A	1.2	8.6	0.33	0.46	0.33	45.7
5	T1	All MCs	155	11.5	155	11.5	0.207	3.8	LOS A	1.2	8.6	0.33	0.46	0.33	45.0
6	R2	All MCs	47	0.0	47	0.0	0.207	7.9	LOS A	1.2	8.6	0.33	0.46	0.33	42.9
6u	U	All MCs	1	0.0	1	0.0	0.207	9.6	LOS A	1.2	8.6	0.33	0.46	0.33	45.1
Approach			244	7.3	244	7.3	0.207	4.6	LOS A	1.2	8.6	0.33	0.46	0.33	44.8
North: Montwood Drive															
7	L2	All MCs	45	0.0	45	0.0	0.065	4.2	LOS A	0.3	2.3	0.41	0.50	0.41	43.6
8	T1	All MCs	18	6.3	18	6.3	0.065	4.3	LOS A	0.3	2.3	0.41	0.50	0.41	44.4
9	R2	All MCs	5	0.0	5	0.0	0.065	8.3	LOS A	0.3	2.3	0.41	0.50	0.41	41.4
9u	U	All MCs	1	0.0	1	0.0	0.065	10.1	LOS A	0.3	2.3	0.41	0.50	0.41	37.2
Approach			69	1.6	69	1.6	0.065	4.6	LOS A	0.3	2.3	0.41	0.50	0.41	43.6
West: Snapper Drive															
10	L2	All MCs	6	0.0	6	0.0	0.176	3.6	LOS A	1.0	6.9	0.29	0.50	0.29	41.0
11	T1	All MCs	106	3.4	106	3.4	0.176	3.6	LOS A	1.0	6.9	0.29	0.50	0.29	44.5
12	R2	All MCs	103	2.1	103	2.1	0.176	7.7	LOS A	1.0	6.9	0.29	0.50	0.29	44.1
12u	U	All MCs	2	0.0	2	0.0	0.176	9.4	LOS A	1.0	6.9	0.29	0.50	0.29	42.7
Approach			218	2.7	218	2.7	0.176	5.6	LOS A	1.0	6.9	0.29	0.50	0.29	44.2
All Vehicles			698	4.2	698	4.2	0.207	5.0	LOS A	1.2	8.6	0.35	0.49	0.35	44.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2037 AM BG (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Montwood Drive
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Montwood Drive															
1	L2	All MCs	129	3.9	129	3.9	0.119	3.3	LOS A	0.6	4.5	0.20	0.43	0.20	45.8
2	T1	All MCs	15	0.0	15	0.0	0.119	3.3	LOS A	0.6	4.5	0.20	0.43	0.20	45.2
3	R2	All MCs	11	0.0	11	0.0	0.119	7.4	LOS A	0.6	4.5	0.20	0.43	0.20	46.1
3u	U	All MCs	1	0.0	1	0.0	0.119	9.2	LOS A	0.6	4.5	0.20	0.43	0.20	46.3
Approach			156	3.2	156	3.2	0.119	3.7	LOS A	0.6	4.5	0.20	0.43	0.20	45.8
East: Snapper Drive															
4	L2	All MCs	25	5.0	25	5.0	0.066	3.6	LOS A	0.3	2.3	0.26	0.43	0.26	46.1
5	T1	All MCs	46	2.7	46	2.7	0.066	3.5	LOS A	0.3	2.3	0.26	0.43	0.26	45.6
6	R2	All MCs	6	0.0	6	0.0	0.066	7.7	LOS A	0.3	2.3	0.26	0.43	0.26	43.5
6u	U	All MCs	1	0.0	1	0.0	0.066	9.4	LOS A	0.3	2.3	0.26	0.43	0.26	45.6
Approach			79	3.2	79	3.2	0.066	4.0	LOS A	0.3	2.3	0.26	0.43	0.26	45.6
North: Montwood Drive															
7	L2	All MCs	5	0.0	5	0.0	0.037	3.5	LOS A	0.2	1.2	0.25	0.41	0.25	44.0
8	T1	All MCs	35	0.0	35	0.0	0.037	3.5	LOS A	0.2	1.2	0.25	0.41	0.25	44.8
9	R2	All MCs	4	0.0	4	0.0	0.037	7.6	LOS A	0.2	1.2	0.25	0.41	0.25	41.9
9u	U	All MCs	1	0.0	1	0.0	0.037	9.4	LOS A	0.2	1.2	0.25	0.41	0.25	38.0
Approach			45	0.0	45	0.0	0.037	4.0	LOS A	0.2	1.2	0.25	0.41	0.25	44.4
West: Snapper Drive															
10	L2	All MCs	5	0.0	5	0.0	0.074	3.2	LOS A	0.4	2.6	0.14	0.54	0.14	40.9
11	T1	All MCs	25	10.0	25	10.0	0.074	3.2	LOS A	0.4	2.6	0.14	0.54	0.14	44.3
12	R2	All MCs	67	3.7	67	3.7	0.074	7.3	LOS A	0.4	2.6	0.14	0.54	0.14	44.0
12u	U	All MCs	1	0.0	1	0.0	0.074	9.0	LOS A	0.4	2.6	0.14	0.54	0.14	42.6
Approach			99	5.1	99	5.1	0.074	6.1	LOS A	0.4	2.6	0.14	0.54	0.14	44.0
All Vehicles			379	3.3	379	3.3	0.119	4.4	LOS A	0.6	4.5	0.20	0.46	0.20	45.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2037 PM BG (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Montwood Drive
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Montwood Drive															
1	L2	All MCs	122	3.1	122	3.1	0.124	3.3	LOS A	0.7	4.7	0.19	0.43	0.19	45.9
2	T1	All MCs	31	4.2	31	4.2	0.124	3.3	LOS A	0.7	4.7	0.19	0.43	0.19	45.0
3	R2	All MCs	12	0.0	12	0.0	0.124	7.4	LOS A	0.7	4.7	0.19	0.43	0.19	46.1
3u	U	All MCs	1	0.0	1	0.0	0.124	9.1	LOS A	0.7	4.7	0.19	0.43	0.19	46.3
Approach			165	3.1	165	3.1	0.124	3.6	LOS A	0.7	4.7	0.19	0.43	0.19	45.7
East: Snapper Drive															
4	L2	All MCs	8	0.0	8	0.0	0.047	3.7	LOS A	0.2	1.6	0.31	0.46	0.31	45.7
5	T1	All MCs	33	11.5	33	11.5	0.047	3.8	LOS A	0.2	1.6	0.31	0.46	0.31	45.0
6	R2	All MCs	11	0.0	11	0.0	0.047	7.8	LOS A	0.2	1.6	0.31	0.46	0.31	42.9
6u	U	All MCs	1	0.0	1	0.0	0.047	9.6	LOS A	0.2	1.6	0.31	0.46	0.31	45.1
Approach			53	7.1	53	7.1	0.047	4.7	LOS A	0.2	1.6	0.31	0.46	0.31	44.8
North: Montwood Drive															
7	L2	All MCs	4	0.0	4	0.0	0.028	3.8	LOS A	0.1	1.0	0.33	0.47	0.33	43.3
8	T1	All MCs	20	6.3	20	6.3	0.028	3.8	LOS A	0.1	1.0	0.33	0.47	0.33	44.1
9	R2	All MCs	6	0.0	6	0.0	0.028	7.9	LOS A	0.1	1.0	0.33	0.47	0.33	41.1
9u	U	All MCs	1	0.0	1	0.0	0.028	9.6	LOS A	0.1	1.0	0.33	0.47	0.33	37.0
Approach			32	4.0	32	4.0	0.028	4.8	LOS A	0.1	1.0	0.33	0.47	0.33	43.3
West: Snapper Drive															
10	L2	All MCs	7	0.0	7	0.0	0.123	3.3	LOS A	0.6	4.5	0.19	0.54	0.19	40.6
11	T1	All MCs	37	3.4	37	3.4	0.123	3.3	LOS A	0.6	4.5	0.19	0.54	0.19	44.1
12	R2	All MCs	118	2.1	118	2.1	0.123	7.4	LOS A	0.6	4.5	0.19	0.54	0.19	43.8
12u	U	All MCs	2	0.0	2	0.0	0.123	9.1	LOS A	0.6	4.5	0.19	0.54	0.19	42.3
Approach			164	2.3	164	2.3	0.123	6.3	LOS A	0.6	4.5	0.19	0.54	0.19	43.8
All Vehicles			414	3.3	414	3.3	0.124	4.9	LOS A	0.7	4.7	0.21	0.48	0.21	44.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2037 AM DES (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Montwood Drive
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Montwood Drive															
1	L2	All MCs	129	3.9	129	3.9	0.160	4.0	LOS A	0.9	6.2	0.36	0.50	0.36	45.0
2	T1	All MCs	15	0.0	15	0.0	0.160	3.9	LOS A	0.9	6.2	0.36	0.50	0.36	44.2
3	R2	All MCs	38	0.0	38	0.0	0.160	8.0	LOS A	0.9	6.2	0.36	0.50	0.36	45.4
3u	U	All MCs	1	0.0	1	0.0	0.160	9.8	LOS A	0.9	6.2	0.36	0.50	0.36	45.6
Approach			183	2.8	183	2.8	0.160	4.8	LOS A	0.9	6.2	0.36	0.50	0.36	45.1
East: Snapper Drive															
4	L2	All MCs	75	5.0	75	5.0	0.188	3.7	LOS A	1.0	7.3	0.29	0.42	0.29	46.0
5	T1	All MCs	139	2.7	139	2.7	0.188	3.6	LOS A	1.0	7.3	0.29	0.42	0.29	45.5
6	R2	All MCs	19	0.0	19	0.0	0.188	7.7	LOS A	1.0	7.3	0.29	0.42	0.29	43.4
6u	U	All MCs	1	0.0	1	0.0	0.188	9.4	LOS A	1.0	7.3	0.29	0.42	0.29	45.5
Approach			234	3.2	234	3.2	0.188	4.0	LOS A	1.0	7.3	0.29	0.42	0.29	45.6
North: Montwood Drive															
7	L2	All MCs	54	0.0	54	0.0	0.086	4.3	LOS A	0.4	3.0	0.41	0.49	0.41	43.6
8	T1	All MCs	35	0.0	35	0.0	0.086	4.2	LOS A	0.4	3.0	0.41	0.49	0.41	44.5
9	R2	All MCs	4	0.0	4	0.0	0.086	8.4	LOS A	0.4	3.0	0.41	0.49	0.41	41.4
9u	U	All MCs	1	0.0	1	0.0	0.086	10.1	LOS A	0.4	3.0	0.41	0.49	0.41	37.3
Approach			94	0.0	94	0.0	0.086	4.5	LOS A	0.4	3.0	0.41	0.49	0.41	43.8
West: Snapper Drive															
10	L2	All MCs	5	0.0	5	0.0	0.164	3.4	LOS A	0.9	6.7	0.24	0.45	0.24	41.8
11	T1	All MCs	135	10.0	135	10.0	0.164	3.4	LOS A	0.9	6.7	0.24	0.45	0.24	45.0
12	R2	All MCs	67	3.7	67	3.7	0.164	7.6	LOS A	0.9	6.7	0.24	0.45	0.24	44.6
12u	U	All MCs	1	0.0	1	0.0	0.164	9.2	LOS A	0.9	6.7	0.24	0.45	0.24	43.3
Approach			208	7.7	208	7.7	0.164	4.8	LOS A	0.9	6.7	0.24	0.45	0.24	44.8
All Vehicles			719	4.0	719	4.0	0.188	4.5	LOS A	1.0	7.3	0.31	0.46	0.31	45.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2037 PM DES (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Montwood Drive
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Montwood Drive															
1	L2	All MCs	122	3.1	122	3.1	0.174	4.3	LOS A	1.0	6.9	0.43	0.52	0.43	44.9
2	T1	All MCs	31	4.2	31	4.2	0.174	4.3	LOS A	1.0	6.9	0.43	0.52	0.43	43.8
3	R2	All MCs	35	0.0	35	0.0	0.174	8.4	LOS A	1.0	6.9	0.43	0.52	0.43	45.2
3u	U	All MCs	1	0.0	1	0.0	0.174	10.1	LOS A	1.0	6.9	0.43	0.52	0.43	45.5
Approach			188	2.7	188	2.7	0.174	5.1	LOS A	1.0	6.9	0.43	0.52	0.43	44.8
East: Snapper Drive															
4	L2	All MCs	42	0.0	42	0.0	0.218	3.9	LOS A	1.2	9.2	0.36	0.47	0.36	45.6
5	T1	All MCs	159	11.5	159	11.5	0.218	4.0	LOS A	1.2	9.2	0.36	0.47	0.36	44.9
6	R2	All MCs	49	0.0	49	0.0	0.218	8.0	LOS A	1.2	9.2	0.36	0.47	0.36	42.8
6u	U	All MCs	1	0.0	1	0.0	0.218	9.7	LOS A	1.2	9.2	0.36	0.47	0.36	45.0
Approach			252	7.3	252	7.3	0.218	4.8	LOS A	1.2	9.2	0.36	0.47	0.36	44.7
North: Montwood Drive															
7	L2	All MCs	46	0.0	46	0.0	0.070	4.3	LOS A	0.4	2.5	0.43	0.51	0.43	43.5
8	T1	All MCs	20	6.3	20	6.3	0.070	4.4	LOS A	0.4	2.5	0.43	0.51	0.43	44.2
9	R2	All MCs	6	0.0	6	0.0	0.070	8.5	LOS A	0.4	2.5	0.43	0.51	0.43	41.2
9u	U	All MCs	1	0.0	1	0.0	0.070	10.2	LOS A	0.4	2.5	0.43	0.51	0.43	37.0
Approach			74	1.7	74	1.7	0.070	4.8	LOS A	0.4	2.5	0.43	0.51	0.43	43.5
West: Snapper Drive															
10	L2	All MCs	7	0.0	7	0.0	0.194	3.7	LOS A	1.1	7.7	0.31	0.51	0.31	40.9
11	T1	All MCs	112	3.4	112	3.4	0.194	3.6	LOS A	1.1	7.7	0.31	0.51	0.31	44.4
12	R2	All MCs	118	2.1	118	2.1	0.194	7.8	LOS A	1.1	7.7	0.31	0.51	0.31	44.0
12u	U	All MCs	2	0.0	2	0.0	0.194	9.5	LOS A	1.1	7.7	0.31	0.51	0.31	42.6
Approach			239	2.6	239	2.6	0.194	5.7	LOS A	1.1	7.7	0.31	0.51	0.31	44.1
All Vehicles			753	4.1	753	4.1	0.218	5.2	LOS A	1.2	9.2	0.37	0.50	0.37	44.5

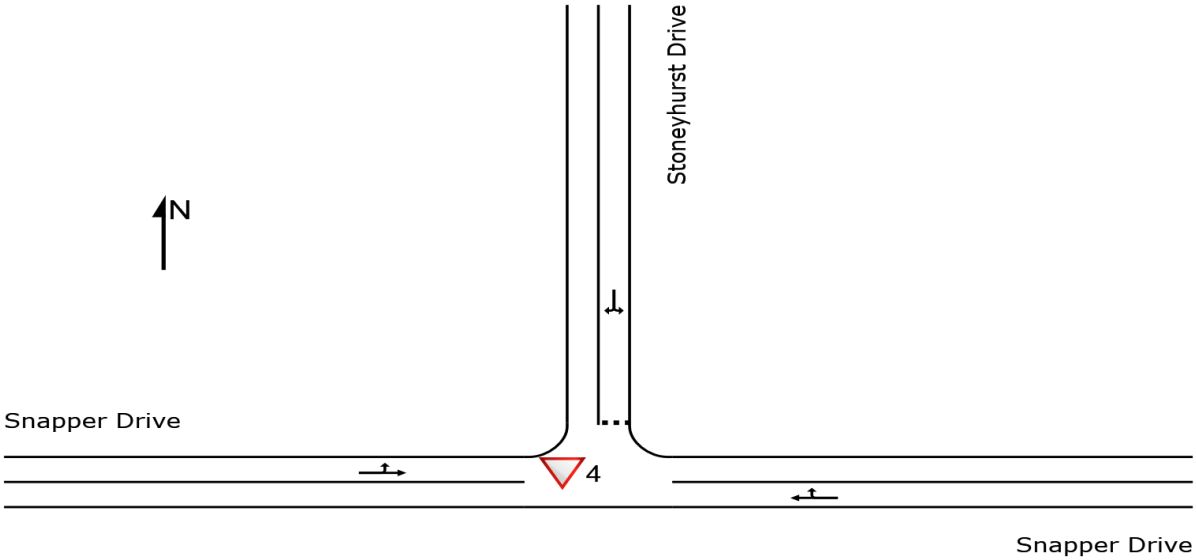
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout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

SITE LAYOUT

Site: 4 [2027AM Base (Site Folder: Base)]

Snapper Drive / Stoneyhurst Drive
2027AM
Site Category: (None)
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: 4 [2027AM Base (Site Folder: Base)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Stoneyhurst Drive
2027AM
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Snapper Drive															
5	T1	All MCs	61	6.9	61	6.9	0.035	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	49.6
6	R2	All MCs	3	0.4	3	0.4	0.035	4.6	LOS A	0.0	0.1	0.01	0.03	0.01	47.7
Approach			64	6.6	64	6.6	0.035	0.2	NA	0.0	0.1	0.01	0.03	0.01	49.4
North: Stoneyhurst Drive															
7	L2	All MCs	1	0.0	1	0.0	0.006	4.7	LOS A	0.0	0.1	0.15	0.52	0.15	44.1
9	R2	All MCs	6	0.8	6	0.8	0.006	4.9	LOS A	0.0	0.1	0.15	0.52	0.15	44.0
Approach			7	0.7	7	0.7	0.006	4.9	LOS A	0.0	0.1	0.15	0.52	0.15	44.0
West: Snapper Drive															
10	L2	All MCs	2	0.5	2	0.5	0.019	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	48.1
11	T1	All MCs	34	9.5	34	9.5	0.019	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.6
Approach			36	9.0	36	9.0	0.019	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.4
All Vehicles			107	7.0	107	7.0	0.035	0.6	NA	0.0	0.1	0.02	0.06	0.02	48.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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: 4 [2027PM Base (Site Folder: Base)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Stoneyhurst Drive
2027AM
Site Category: (None)
Give-Way (Two-Way)

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Snapper Drive															
5	T1	All MCs	40	10.4	40	10.4	0.023	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	49.5
6	R2	All MCs	2	0.5	2	0.5	0.023	4.6	LOS A	0.0	0.1	0.01	0.03	0.01	47.7
Approach			42	9.9	42	9.9	0.023	0.2	NA	0.0	0.1	0.01	0.03	0.01	49.4
North: Stoneyhurst Drive															
7	L2	All MCs	1	0.1	1	0.1	0.004	4.7	LOS A	0.0	0.1	0.14	0.52	0.14	44.1
9	R2	All MCs	4	1.2	4	1.2	0.004	4.8	LOS A	0.0	0.1	0.14	0.52	0.14	44.0
Approach			5	1.0	5	1.0	0.004	4.8	LOS A	0.0	0.1	0.14	0.52	0.14	44.1
West: Snapper Drive															
10	L2	All MCs	2	0.0	2	0.0	0.024	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	48.1
11	T1	All MCs	43	3.2	43	3.2	0.024	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.7
Approach			45	3.1	45	3.1	0.024	0.2	NA	0.0	0.0	0.00	0.03	0.00	49.5
All Vehicles			93	6.0	93	6.0	0.024	0.5	NA	0.0	0.1	0.01	0.05	0.01	48.9

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

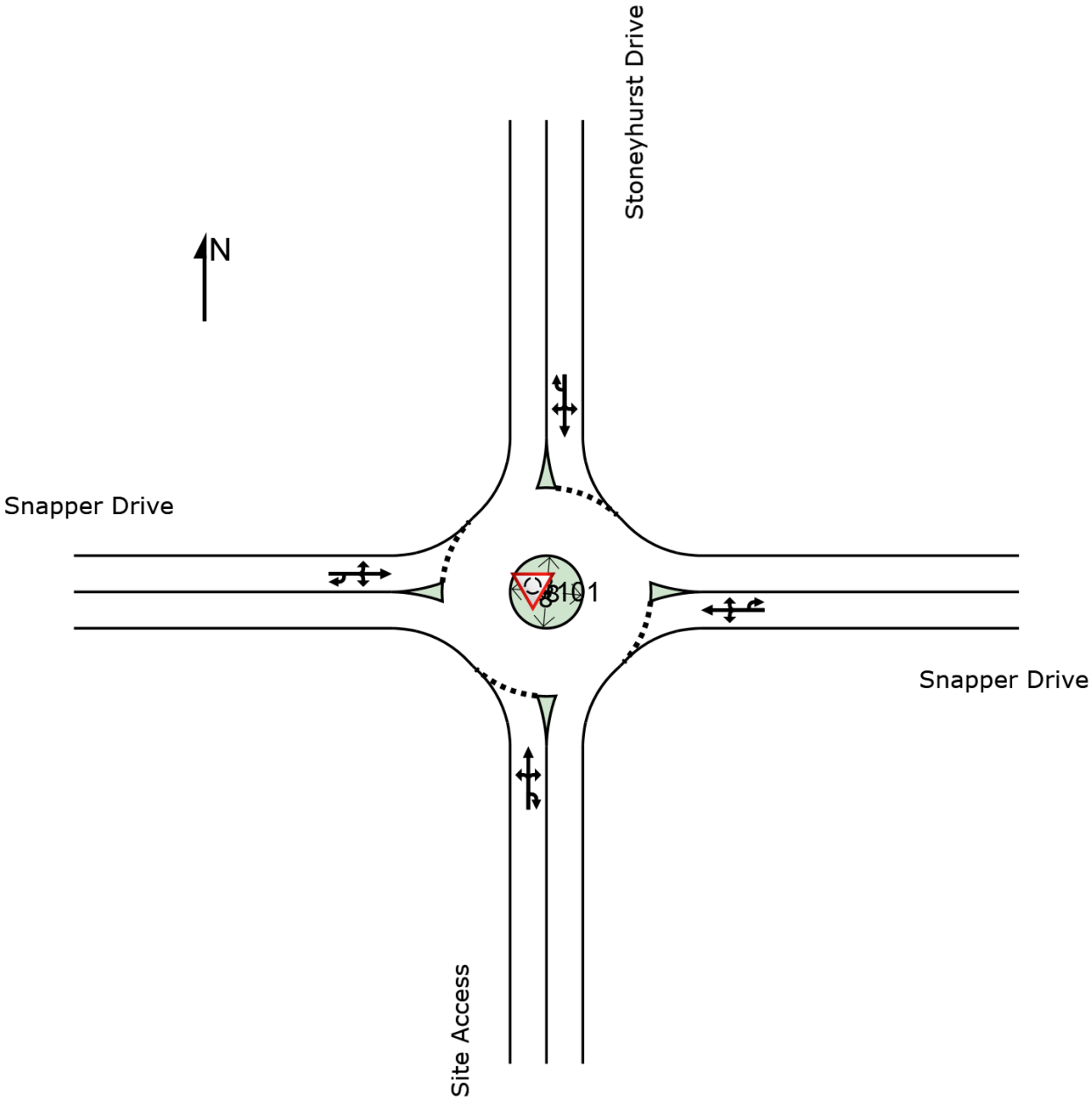
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 101 [2027AM Project (Site Folder: Project)]

Snapper Drive / Stoneyhurst Drive
2027AM Project
Site Category: (None)
Roundabout

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



Organisation: BITZIOS CONSULTING | Licence: PLUS / FLOATING | Created: Thursday, 15 May 2025 9:39:36 AM
Project: P:\P5939 Lennox Head Schools RTAs\Technical\Models\P5939.002M Snapper Drive Stoneyhurst Drive.sip9

MOVEMENT SUMMARY

Site: 101 [2027AM Project (Site Folder: Project)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Stoneyhurst Drive
2027AM Project
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	13	0.0	13	0.0	0.020	5.8	LOS A	0.1	0.7	0.58	0.58	0.58	31.4
2	T1	All MCs	1	0.0	1	0.0	0.020	5.4	LOS A	0.1	0.7	0.58	0.58	0.58	35.2
3	R2	All MCs	1	0.0	1	0.0	0.020	8.4	LOS A	0.1	0.7	0.58	0.58	0.58	30.3
3u	U	All MCs	1	0.0	1	0.0	0.020	9.6	LOS A	0.1	0.7	0.58	0.58	0.58	21.1
Approach			16	0.0	16	0.0	0.020	6.2	LOS A	0.1	0.7	0.58	0.58	0.58	31.4
East: Snapper Drive															
4	L2	All MCs	3	0.0	3	0.0	0.097	6.2	LOS A	0.5	3.7	0.60	0.60	0.60	30.8
5	T1	All MCs	68	6.9	68	6.9	0.097	6.1	LOS A	0.5	3.7	0.60	0.60	0.60	34.4
6	R2	All MCs	3	0.4	3	0.4	0.097	8.8	LOS A	0.5	3.7	0.60	0.60	0.60	35.8
6u	U	All MCs	1	0.0	1	0.0	0.097	10.0	LOS A	0.5	3.7	0.60	0.60	0.60	33.5
Approach			76	6.2	76	6.2	0.097	6.3	LOS A	0.5	3.7	0.60	0.60	0.60	34.4
North: Stoneyhurst Drive															
7	L2	All MCs	1	0.0	1	0.0	0.024	6.1	LOS A	0.1	0.8	0.58	0.64	0.58	35.1
8	T1	All MCs	3	0.0	3	0.0	0.024	5.7	LOS A	0.1	0.8	0.58	0.64	0.58	34.2
9	R2	All MCs	14	0.8	14	0.8	0.024	8.7	LOS A	0.1	0.8	0.58	0.64	0.58	35.2
9u	U	All MCs	1	0.0	1	0.0	0.024	9.9	LOS A	0.1	0.8	0.58	0.64	0.58	36.3
Approach			19	0.6	19	0.6	0.024	8.1	LOS A	0.1	0.8	0.58	0.64	0.58	35.1
West: Snapper Drive															
10	L2	All MCs	2	0.5	2	0.5	0.359	2.9	LOS A	2.6	18.0	0.08	0.60	0.08	36.1
11	T1	All MCs	34	9.5	34	9.5	0.359	2.5	LOS A	2.6	18.0	0.08	0.60	0.08	34.3
12	R2	All MCs	58	0.0	58	0.0	0.359	5.4	LOS A	2.6	18.0	0.08	0.60	0.08	31.3
12u	U	All MCs	488	0.0	488	0.0	0.359	6.7	LOS A	2.6	18.0	0.08	0.60	0.08	34.2
Approach			582	0.6	582	0.6	0.359	6.3	LOS A	2.6	18.0	0.08	0.60	0.08	34.0
All Vehicles			692	1.2	692	1.2	0.359	6.3	LOS A	2.6	18.0	0.16	0.60	0.16	34.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2027PM Project (Site Folder: Project)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Stoneyhurst Drive
2027PM Project
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	58	0.0	58	0.0	0.079	5.8	LOS A	0.4	2.8	0.58	0.62	0.58	31.5
2	T1	All MCs	3	0.0	3	0.0	0.079	5.5	LOS A	0.4	2.8	0.58	0.62	0.58	35.3
3	R2	All MCs	3	0.0	3	0.0	0.079	8.4	LOS A	0.4	2.8	0.58	0.62	0.58	30.5
3u	U	All MCs	1	0.0	1	0.0	0.079	9.6	LOS A	0.4	2.8	0.58	0.62	0.58	21.1
Approach			65	0.0	65	0.0	0.079	6.0	LOS A	0.4	2.8	0.58	0.62	0.58	31.7
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.066	5.8	LOS A	0.3	2.4	0.57	0.58	0.57	31.1
5	T1	All MCs	47	10.4	47	10.4	0.066	5.7	LOS A	0.3	2.4	0.57	0.58	0.57	34.7
6	R2	All MCs	2	0.5	2	0.5	0.066	8.3	LOS A	0.3	2.4	0.57	0.58	0.57	36.0
6u	U	All MCs	1	0.0	1	0.0	0.066	9.6	LOS A	0.3	2.4	0.57	0.58	0.57	33.8
Approach			52	9.6	52	9.6	0.066	5.9	LOS A	0.3	2.4	0.57	0.58	0.57	34.7
North: Stoneyhurst Drive															
7	L2	All MCs	1	0.1	1	0.1	0.018	5.8	LOS A	0.1	0.6	0.56	0.63	0.56	35.1
8	T1	All MCs	1	0.0	1	0.0	0.018	5.4	LOS A	0.1	0.6	0.56	0.63	0.56	34.2
9	R2	All MCs	12	1.2	12	1.2	0.018	8.4	LOS A	0.1	0.6	0.56	0.63	0.56	35.2
9u	U	All MCs	1	0.0	1	0.0	0.018	9.6	LOS A	0.1	0.6	0.56	0.63	0.56	36.3
Approach			15	0.9	15	0.9	0.018	8.1	LOS A	0.1	0.6	0.56	0.63	0.56	35.2
West: Snapper Drive															
10	L2	All MCs	2	0.0	2	0.0	0.342	2.9	LOS A	2.5	17.2	0.09	0.59	0.09	36.0
11	T1	All MCs	43	3.2	43	3.2	0.342	2.5	LOS A	2.5	17.2	0.09	0.59	0.09	34.3
12	R2	All MCs	13	0.0	13	0.0	0.342	5.4	LOS A	2.5	17.2	0.09	0.59	0.09	31.2
12u	U	All MCs	488	0.0	488	0.0	0.342	6.7	LOS A	2.5	17.2	0.09	0.59	0.09	34.1
Approach			546	0.3	546	0.3	0.342	6.3	LOS A	2.5	17.2	0.09	0.59	0.09	34.1
All Vehicles			677	1.0	677	1.0	0.342	6.3	LOS A	2.5	17.2	0.19	0.59	0.19	34.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2037AM Project (Site Folder: Project)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Snapper Drive / Stoneyhurst Drive
2027AM Project
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	13	0.0	13	0.0	0.020	5.9	LOS A	0.1	0.7	0.58	0.59	0.58	31.3
2	T1	All MCs	1	0.0	1	0.0	0.020	5.5	LOS A	0.1	0.7	0.58	0.59	0.58	35.2
3	R2	All MCs	1	0.0	1	0.0	0.020	8.4	LOS A	0.1	0.7	0.58	0.59	0.58	30.3
3u	U	All MCs	1	0.0	1	0.0	0.020	9.7	LOS A	0.1	0.7	0.58	0.59	0.58	21.0
Approach			16	0.0	16	0.0	0.020	6.3	LOS A	0.1	0.7	0.58	0.59	0.58	31.4
East: Snapper Drive															
4	L2	All MCs	3	0.0	3	0.0	0.111	6.3	LOS A	0.6	4.2	0.60	0.60	0.60	30.7
5	T1	All MCs	78	6.9	78	6.9	0.111	6.1	LOS A	0.6	4.2	0.60	0.60	0.60	34.4
6	R2	All MCs	4	0.4	4	0.4	0.111	8.8	LOS A	0.6	4.2	0.60	0.60	0.60	35.8
6u	U	All MCs	1	0.0	1	0.0	0.111	10.1	LOS A	0.6	4.2	0.60	0.60	0.60	33.5
Approach			86	6.2	86	6.2	0.111	6.3	LOS A	0.6	4.2	0.60	0.60	0.60	34.4
North: Stoneyhurst Drive															
7	L2	All MCs	1	0.0	1	0.0	0.025	6.1	LOS A	0.1	0.9	0.58	0.64	0.58	35.1
8	T1	All MCs	3	0.0	3	0.0	0.025	5.7	LOS A	0.1	0.9	0.58	0.64	0.58	34.1
9	R2	All MCs	15	0.8	15	0.8	0.025	8.7	LOS A	0.1	0.9	0.58	0.64	0.58	35.1
9u	U	All MCs	1	0.0	1	0.0	0.025	9.9	LOS A	0.1	0.9	0.58	0.64	0.58	36.3
Approach			20	0.6	20	0.6	0.025	8.2	LOS A	0.1	0.9	0.58	0.64	0.58	35.1
West: Snapper Drive															
10	L2	All MCs	2	0.5	2	0.5	0.363	2.9	LOS A	2.6	18.6	0.08	0.59	0.08	36.1
11	T1	All MCs	38	9.5	38	9.5	0.363	2.5	LOS A	2.6	18.6	0.08	0.59	0.08	34.3
12	R2	All MCs	58	0.0	58	0.0	0.363	5.4	LOS A	2.6	18.6	0.08	0.59	0.08	31.3
12u	U	All MCs	488	0.0	488	0.0	0.363	6.7	LOS A	2.6	18.6	0.08	0.59	0.08	34.2
Approach			586	0.6	586	0.6	0.363	6.3	LOS A	2.6	18.6	0.08	0.59	0.08	34.0
All Vehicles			708	1.3	708	1.3	0.363	6.3	LOS A	2.6	18.6	0.17	0.59	0.17	34.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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: 101 [2037PM Project (Site Folder: Project)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

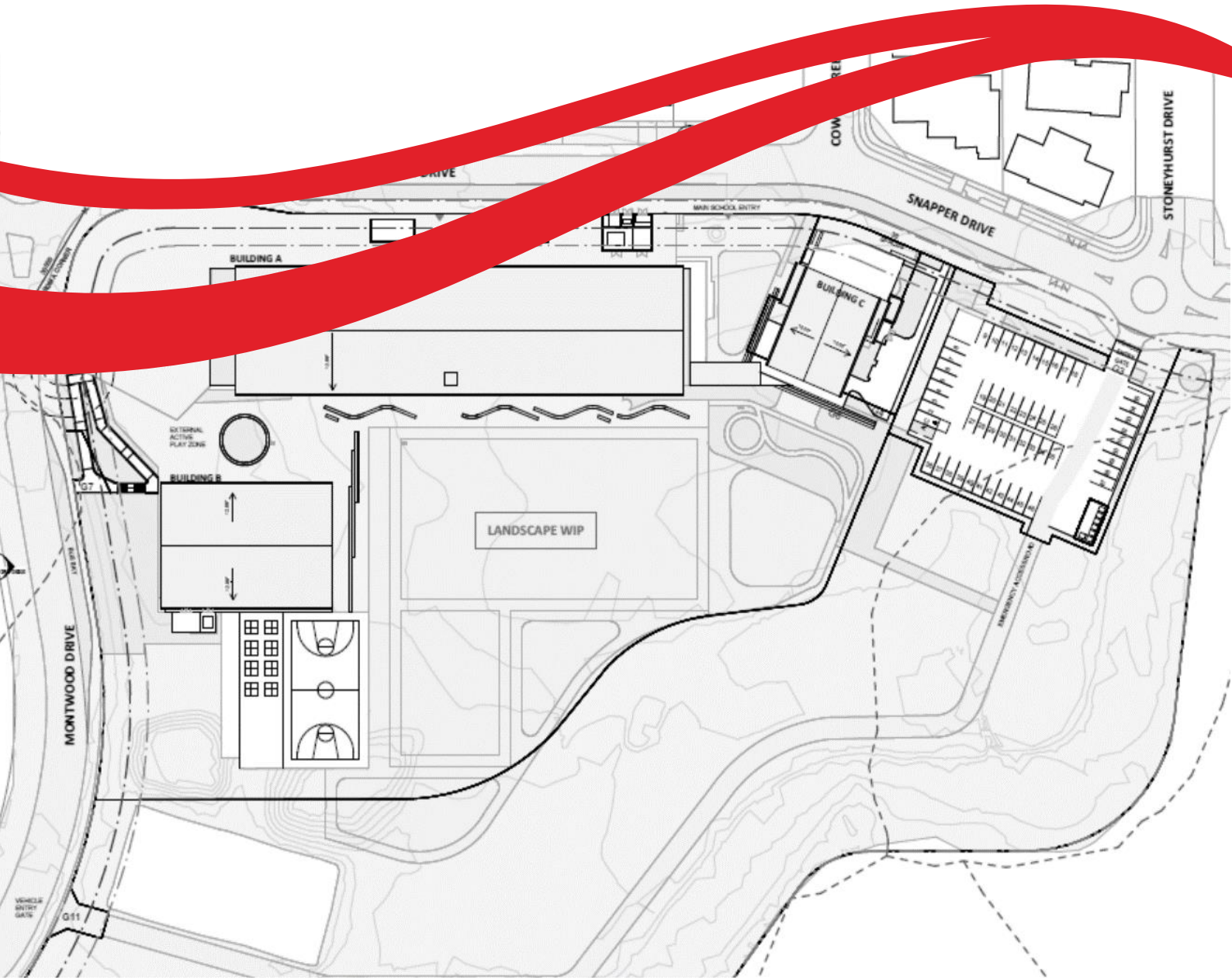
Snapper Drive / Stoneyhurst Drive
2027PM Project
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	58	0.0	58	0.0	0.080	5.9	LOS A	0.4	2.9	0.59	0.62	0.59	31.5
2	T1	All MCs	3	0.0	3	0.0	0.080	5.5	LOS A	0.4	2.9	0.59	0.62	0.59	35.3
3	R2	All MCs	3	0.0	3	0.0	0.080	8.5	LOS A	0.4	2.9	0.59	0.62	0.59	30.4
3u	U	All MCs	1	0.0	1	0.0	0.080	9.7	LOS A	0.4	2.9	0.59	0.62	0.59	21.1
Approach			65	0.0	65	0.0	0.080	6.1	LOS A	0.4	2.9	0.59	0.62	0.59	31.7
East: Snapper Drive															
4	L2	All MCs	1	0.0	1	0.0	0.074	5.8	LOS A	0.4	2.8	0.57	0.58	0.57	31.1
5	T1	All MCs	54	10.4	54	10.4	0.074	5.8	LOS A	0.4	2.8	0.57	0.58	0.57	34.6
6	R2	All MCs	2	0.5	2	0.5	0.074	8.4	LOS A	0.4	2.8	0.57	0.58	0.57	36.0
6u	U	All MCs	1	0.0	1	0.0	0.074	9.6	LOS A	0.4	2.8	0.57	0.58	0.57	33.8
Approach			58	9.7	58	9.7	0.074	5.9	LOS A	0.4	2.8	0.57	0.58	0.57	34.7
North: Stoneyhurst Drive															
7	L2	All MCs	1	0.1	1	0.1	0.019	5.9	LOS A	0.1	0.7	0.57	0.63	0.57	35.1
8	T1	All MCs	1	0.0	1	0.0	0.019	5.5	LOS A	0.1	0.7	0.57	0.63	0.57	34.2
9	R2	All MCs	13	1.2	13	1.2	0.019	8.5	LOS A	0.1	0.7	0.57	0.63	0.57	35.1
9u	U	All MCs	1	0.0	1	0.0	0.019	9.7	LOS A	0.1	0.7	0.57	0.63	0.57	36.3
Approach			16	1.0	16	1.0	0.019	8.2	LOS A	0.1	0.7	0.57	0.63	0.57	35.2
West: Snapper Drive															
10	L2	All MCs	2	0.0	2	0.0	0.346	2.9	LOS A	2.5	17.4	0.10	0.59	0.10	36.1
11	T1	All MCs	48	3.2	48	3.2	0.346	2.5	LOS A	2.5	17.4	0.10	0.59	0.10	34.4
12	R2	All MCs	13	0.0	13	0.0	0.346	5.4	LOS A	2.5	17.4	0.10	0.59	0.10	31.3
12u	U	All MCs	488	0.0	488	0.0	0.346	6.7	LOS A	2.5	17.4	0.10	0.59	0.10	34.2
Approach			551	0.3	551	0.3	0.346	6.3	LOS A	2.5	17.4	0.10	0.59	0.10	34.1
All Vehicles			690	1.1	690	1.1	0.346	6.3	LOS A	2.5	17.4	0.19	0.59	0.19	34.1

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

Appendix G: Draft School Transport Plan

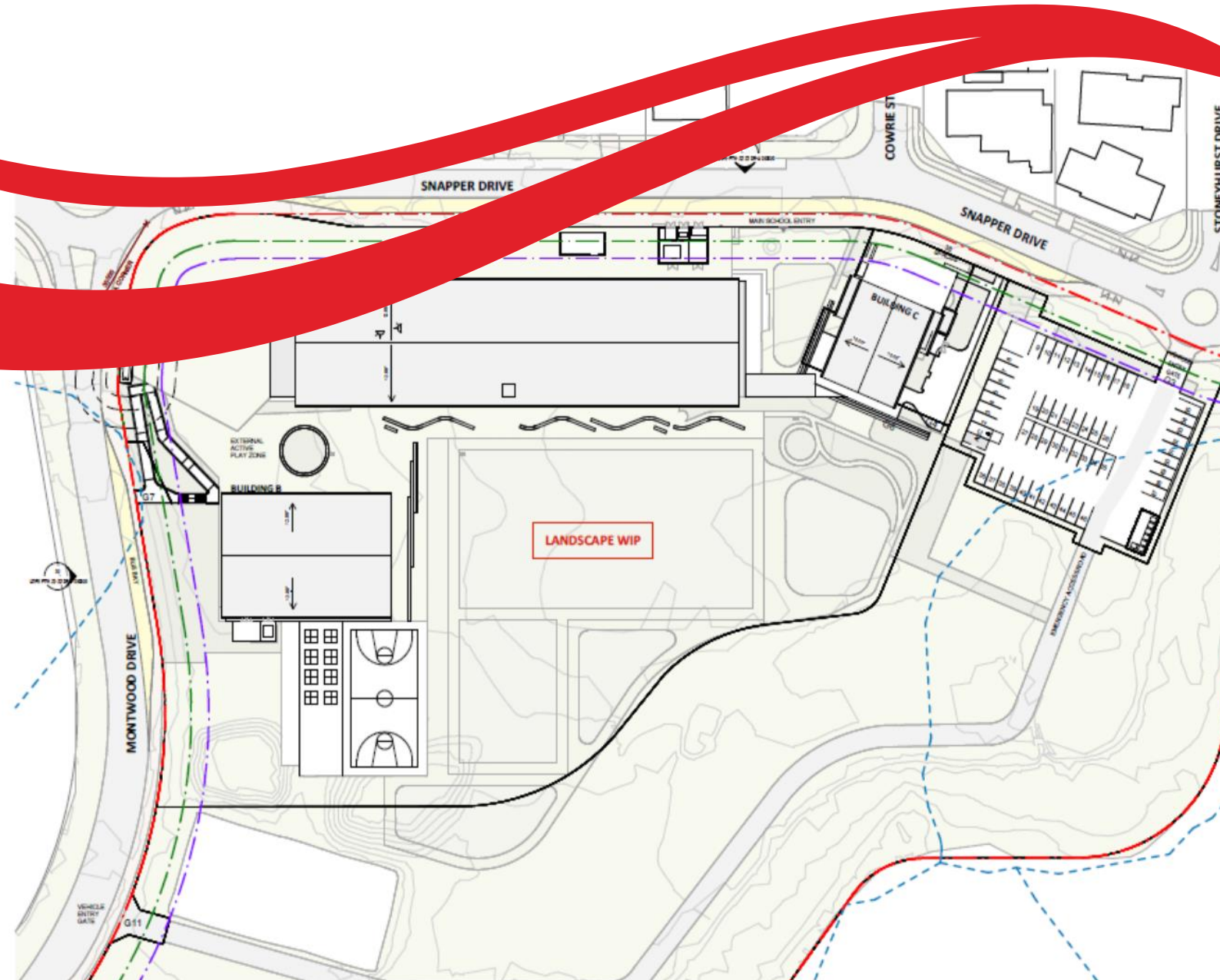


Lennox Head Public School

School Transport Plan

NSW Department of Education

10th April 2025



Gold Coast
Suite 26, 58 Riverwalk Avenue
Robina QLD 4226
P: (07) 5562 5377

Brisbane
Level 2, 428 Upper Edward Street
Spring Hill QLD 4000
P: (07) 3831 4442

Sydney
Studio 203, 3 Gladstone Street
Newtown NSW 2042
P: (02) 9557 6202

W: www.bitziosconsulting.com.au

E: admin@bitziosconsulting.com.au

Document Issue History

Report File Name	Version	Document Control		Date	Issued to
P5939.001P Lennox Head Public School STP	001	Prepared: Reviewed: Issued	A. Soltan J. Brook A. Eke	20/12/2024	Nat McPherson <natalie.mcpherson5@det.nsw.edu.au>
P5939.002P Lennox Head Public School STP	002	Prepared: Reviewed: Issued	A. Soltan J. Brook A. Eke	10/04/2025	Sam Watkins <sam.watkins@johnstaff.com.au>

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Tables

Figures

1. INTRODUCTION

1.1 Background

Bitzios Consulting has been commissioned by NSW Department of Education (DoE), to undertake a Traffic and Transport Impact Assessment (TTIA) for the proposed Lennox Heads Public School's (LHPS) new campus location. As part of the TTIA, a School Transport Plan (STP) is required.

The project is seeking to build a new primary school at the corner of Snapper Drive and Montwood Drive (formally described as Lot 5 on DP2139938). The site is depicted within the TTIA and reproduced for ease of reference in Figure 1.1.

Source: Nearmap

Figure 1.1: Subject Site Location

Purpose of a School Transport Plan

The School Transport Plan is a live document that is managed by a school travel coordinator which identifies strategies to increase safe travel to school. The aim being to deliver efficient, safe, and sustainable access to school during the planning, delivery, and operation of school assets. The school travel coordinator is to be appointed within a 12months of the opening of the new school campus.

1.2 About the School Transport Plan

This STP is a document that focusses on details for sustainable travel options to and from the school and proposes strategies to encourage the wider use of alternative transport. This plan covers:

- LHPS's transport facilities and conditions;
- Current student and staff travel patterns;
- Proposed green travel targets; and,
- Proposed actions to achieve travel mode share targets.

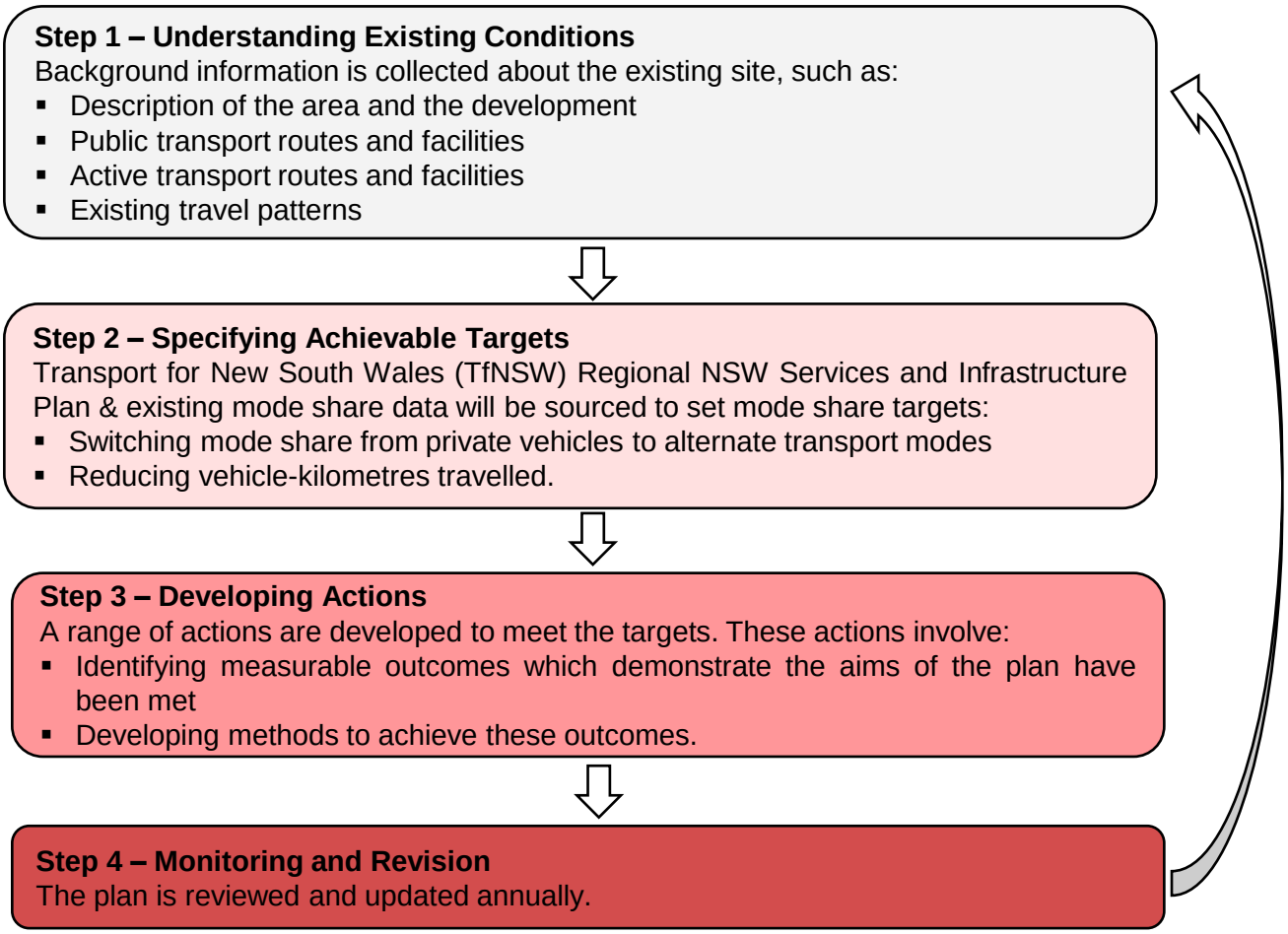


Figure 1.2: STP Methodology

2. LHPS TRANSPORT INCLUSIONS

2.1 Existing Conditions

Unrestricted on-street parking is presently available on roads surrounding the school site. As part of the TAIA, on-street parking on the northern side of Snapper Drive will remain as per existing. Along the southern side of Snapper Drive fronting the site, kerbside parking is available along the frontage of the site.

Kerb ramps are presently available at many road crossings for pedestrians. Additionally, refuge islands are provided at the southern and western approaches of the Montwood Drive / Snapper Drive roundabout. In combination with the extensive existing network of footpaths, these active transport provisions provide comfortable and convenient connections to the surrounding residential areas. The active transport facilities surrounding LHPS are shown in Figure 2.1.

Source: Adapted from Nearmap

Figure 2.1: Existing Active Transport Facilities

The subject site is presently not serviced by any public or school bus services, with the nearest stops exceeding a 400m vicinity. Existing school and public bus services in the greater area are provided by CDC (formerly Blanch's Bus Company) under contracts with TfNSW. These services provide a 'regional' bus route catchment, which presently facilitates the existing school site.

2.2 LHPS Transport Facilities

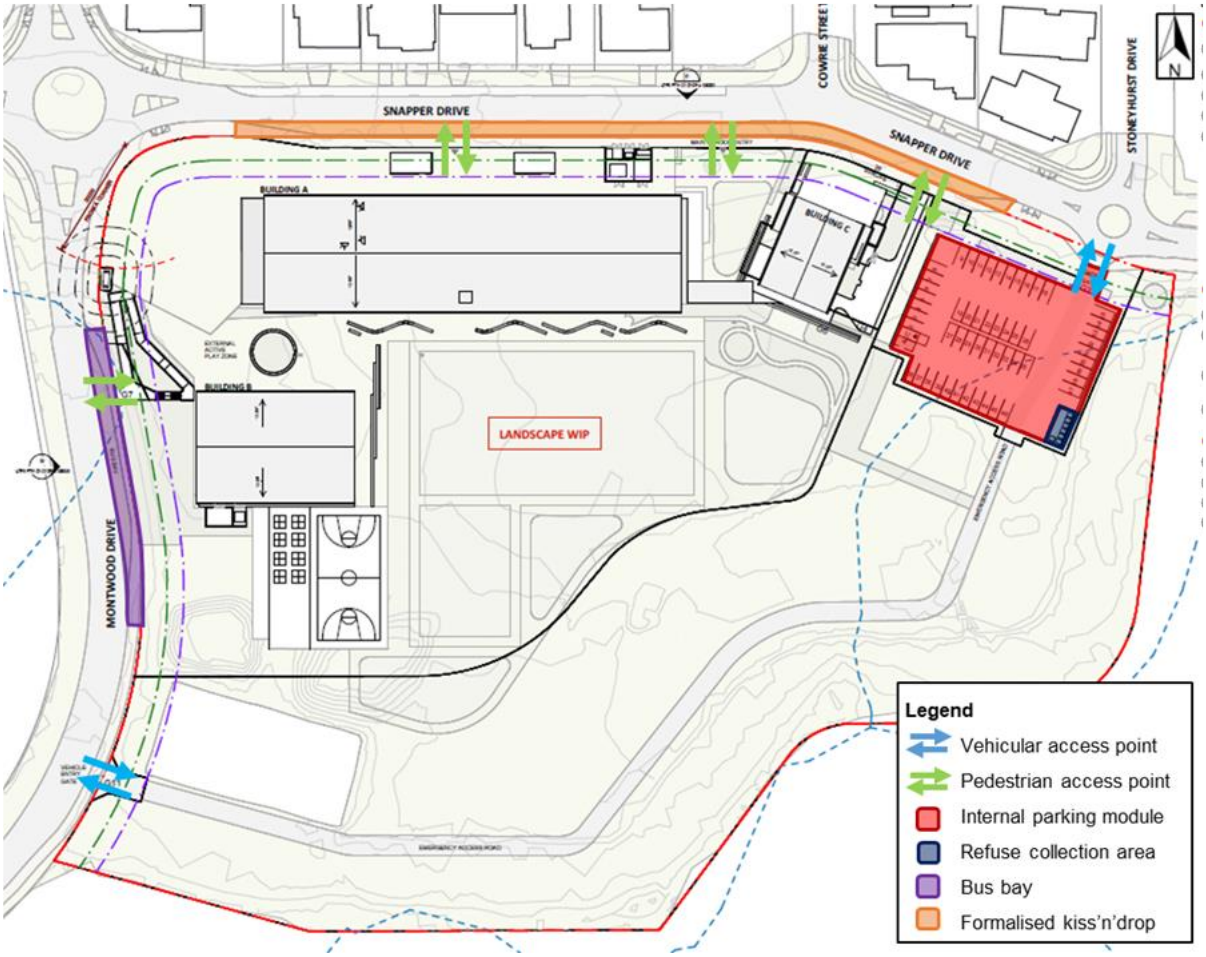
LHPS will be located at the corner of Snapper Drive and Montwood Drive. The pedestrian and vehicle access and parking areas are summarised below:

- One (1) internal parking module with a supply of 55 car parking spaces (11 spaces provided for the pre-school and 44 spaces for the primary school) accessible via an all-movements driveway access point on Snapper Drive. The driveway will be supported by a new semi-mountable roundabout at Stoneyhurst Drive. This facility will also facilitate u-turn movements associated with the KnD operations
- One accessible parking space provided directly adjacent to the access path linking the school / preschool and parking area.
- A primary pedestrian access point to the school (Main Entry) for students, staff, parents, and visitors which is centrally located on the northern side of the school site, accessible via Snapper Drive
- A separate pedestrian access and egress gate at the western extent on Snapper Drive to provide direct access to the front of the KnD pick-up/drop-off area.
- A separate pedestrian access gate fronting the preschool on Snapper Drive
- A separate pedestrian gate entry to Montwood Drive which serves the bus stop.
- A dedicated cycle storage facility located on Snapper Drive frontage and can accommodate up to 38 cycles.
- Staff end-off-journey facilities including lockers, showers and change rooms as part of the staff area.
- A dedicated Kiss'n'Drop (KnD) facility with a supply of four dedicated pick-up/drop-off bays at the western extent and 23 indented storage bays along the frontage to Snapper Drive.
- An indented bus bay facility along Montwood Drive frontage to accommodate two (2) buses
- A service vehicle and waste collection area at the south-western area of the parking module access off Snapper Drive
- Service and emergency vehicle access will be provided via a access trial linking Montwood Drive and Snapper Drive through the parking module / service area.

Localised updates to signage and line markings along the frontage of the school will be undertaken to preserve traffic flow and limit disruptions to on-street parking amenity for neighbouring residents.

As part of the public domain works, pedestrian crossings improvements will be provided at Snapper Drive / Montwood Drive as agreed by Council. The detailed design considerations for these crossing facilities will be determined inn collaboration with Council and TfNSW to ensure that pedestrian crossing facilities are appropriately located to maintain traffic flow, provide safe pedestrian connections and consider on-site aspects including driveways, services and pedestrian sight lines at crossings.

There are ten (10) school bus services that service the current LHPS site either directly, or as part of a larger route connecting multiple schools to residential areas. Existing school bus services will be amended to service the new school site in consultation with TfNSW's Bus Planning Team. The key transport facilities within and around the school are shown in Figure 2.2.



Source: Adapted from Nearmap

Figure 2.2: LHPS Transport Facilities

2.3 Catchment Analysis

A proportion of the student growth will be within the surrounding walk and cycle catchment of the school, supporting local and state government goals of reduced car dependence. The percentage of existing students living within defined walk and cycle catchments to the proposed school are detailed in Table 2.1.

Table 2.1: Student Population within Walk and Bicycle Catchments

Catchment	Distance	Student Population	Proportion
400m	5min walk	7	1.4%
800m	10min walk	66	13.3%
1200m	15min walk / 5min bicycle	109	22%
2400m	10min bicycle	235	47%
Bus stops	400m	132	26%

Figure 2.3 demonstrates the student distribution and the walk/cycle catchments in relation to the new location for the LHPS.

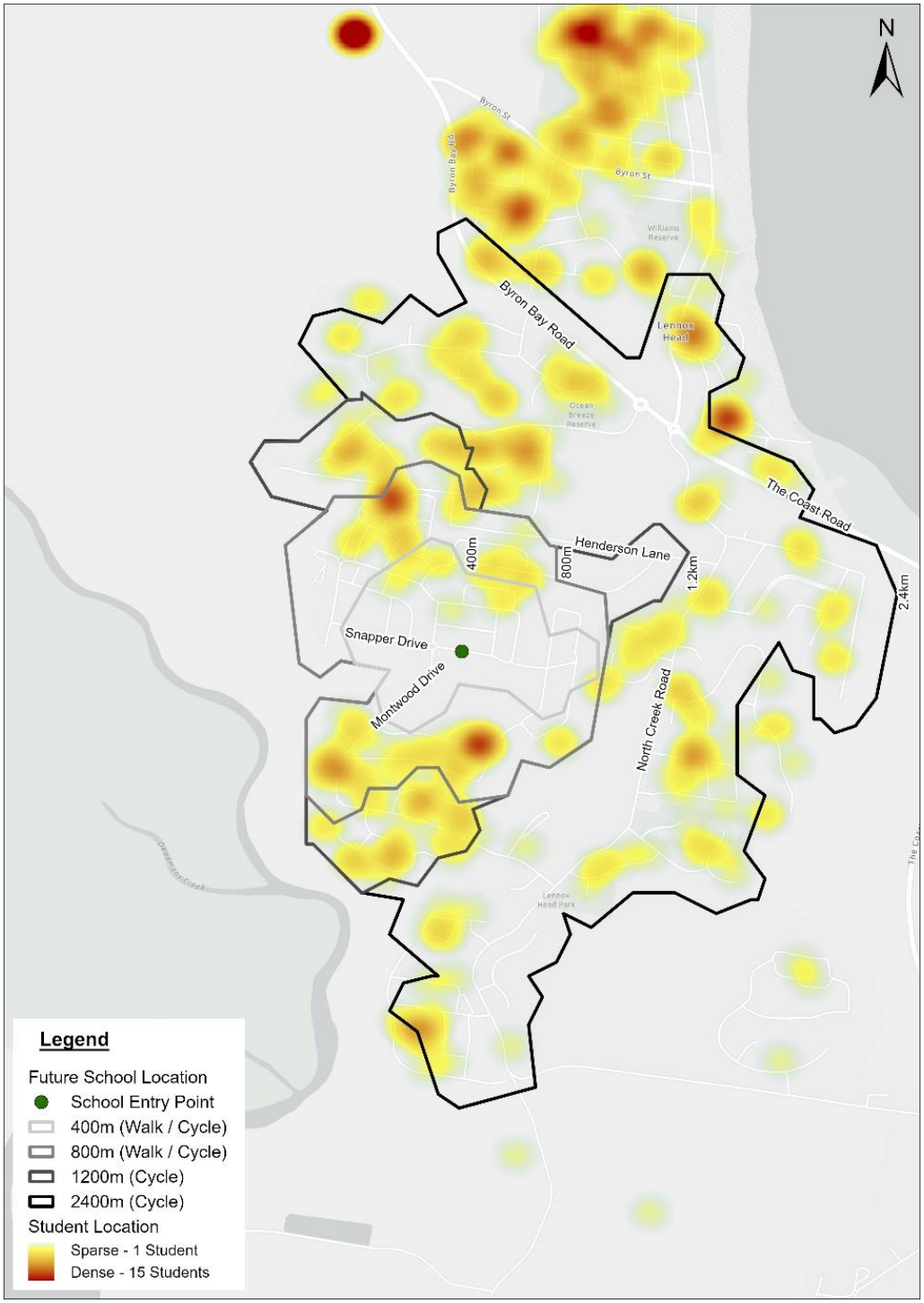
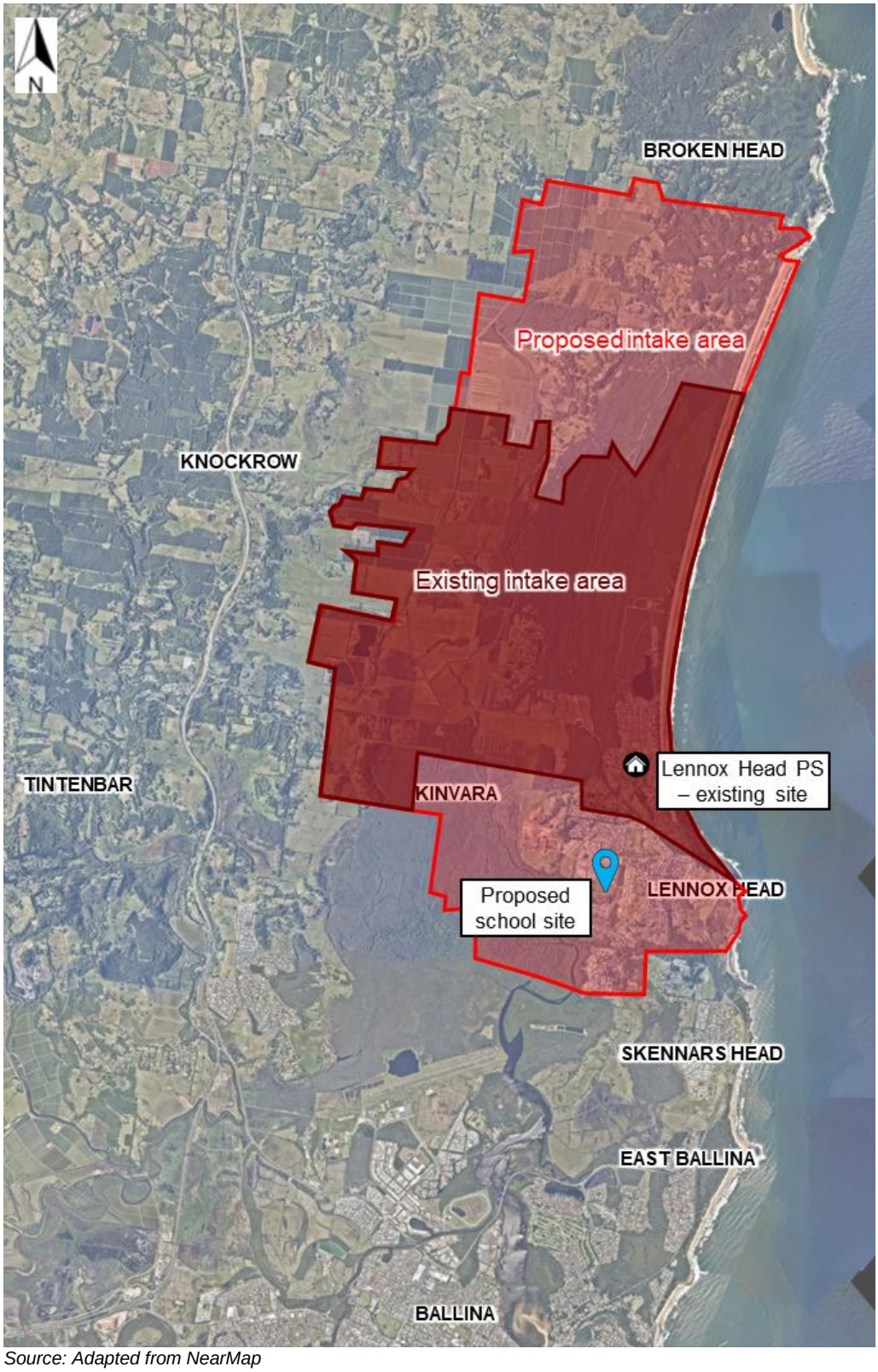


Figure 2.3: Student Catchment Analysis

It is notated that much of the current student catchment for LHPS is expectedly in immediate proximity to the existing school site within the historical centre of Lennox Head. However, as Lennox Head grows through the development to the south, which has occurred in recent years and expected to continue, it is expected that the walk-up catchment for the new school site will increase over time.

To accommodate this growth and align with the school site relocation to the subject site, the student intake area (herein referred to as student catchment) is proposed to expand to include urban development areas around Lennox Head. The current and proposed student catchment is illustrated in Figure 2.4.



Source: Adapted from NearMap

Figure 2.4: Proposed Student Intake Area

2.4 Transport Mode Share

A student travel mode share survey was undertaken in December 2022 across 330 students and 21 staff to determine the existing travel behaviours. The mode share split of students is provided in Figure 2.5 and the mode share split of staff is provided in Figure 2.6. Note this mode share comprises of students and staff attending and working within the current school site.

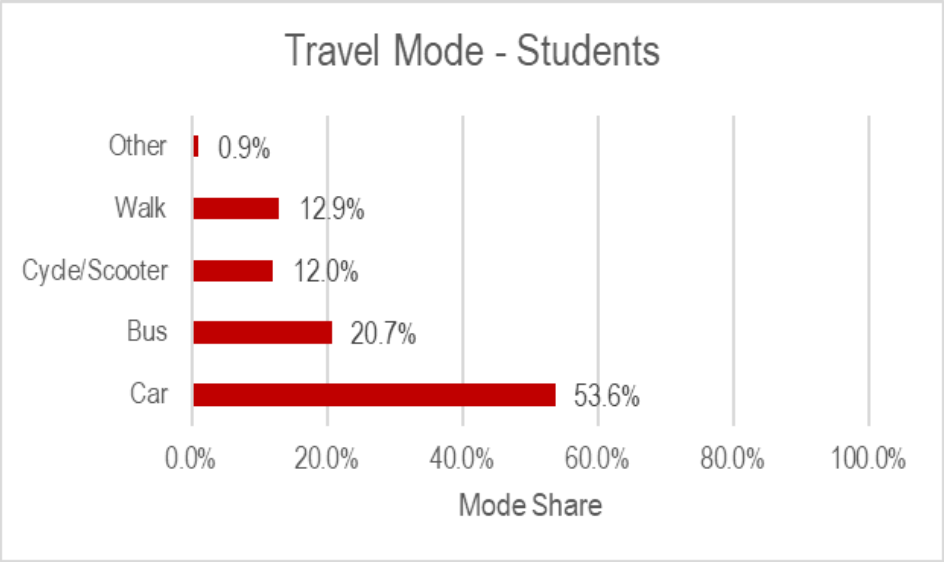


Figure 2.5: Mode Share Split of Students

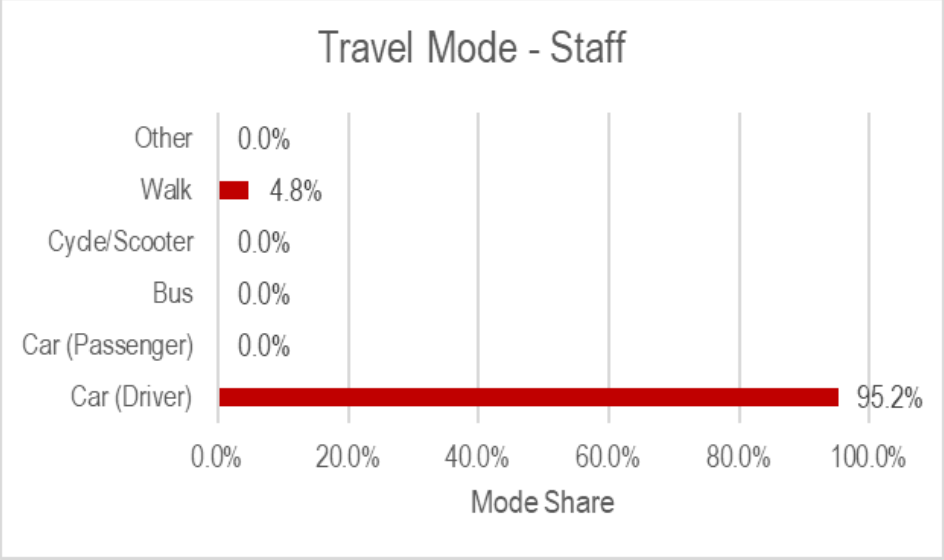


Figure 2.6: Mode Share Split of Staff

While car based travel is currently the highest mode of travel, of car based trips 48% are carpooling (i.e. dropped-off/picked up in a car with another siblings or other students).

As shown, buses account for 20.7% of student travel. At the time of the travel survey 26% students lived within 400m of a bus stop. Importantly, any changes to the bus network are the responsibility of TfNSW.

It is acknowledged that the mode shares will likely change in response to the increased school catchment area and the school relocation. With the current bus mode share and the areas serviced by existing school bus services, there is opportunity to push for higher bus mode share, particularly as part of the current bus routes which services the historical centre of Lennox Head that is attributed to existing walk-up mode share. This will be crucial in offsetting potential reductions to active transport

mode share percentages, that may reduce noting the steeper terrain linking between Lennox Head town centre and the new school site.

The travel survey of staff indicated most staff travel to the site by car and there is limited alternate transport participation. Walking represented approximately 5% of staff trips. Unlike students, staff are not employed based on their place of residence and are not required to live within the school's enrolment catchment. In turn, there may be no other transport options available for the entire trip from home to work and alternative modes of transport may not be convenient. Subsequently, staff travel mode shares are almost entirely by car, with responses and experience on other school sites suggesting little capacity for change. This survey finding is consistent with the regional nature of the area and limited public transport connections to the various residential centres. Further to this, unlike students who are defined by a catchment area, staff across the northern NSW coast and south-east QLD travel on average around 30mins to work. This local "journey to work" travel pattern provides an extremely large staffing catchment and subsequent limitations in attracting local based trips (via walking or cycling).

Active transport participation, particularly cycling, could be increased given there is approximately 22% of current students living within a 1.2km walking catchment (i.e. 15-minute walk) and 47% of students within a 2.4km cycling catchment (i.e. 10-minute ride) to the proposed site, as per the catchment analysis previously discussed.

Increasing the active transport mode share remains a challenge given the steeper terrain and the less walkable area compared to the existing school located in the town centre. The location of the school on the southern side of the hill and Byron Bay Road may provide a catalyst for Council and TfNSW to further investigate the installation of higher quality pedestrian and cycle connections and crossings linking between the southern urban release areas and the historical town centre of Lennox Head.

3. TRANSPORT POLICIES, OBJECTIVES AND ACTIONS

3.1 Policy and Objectives

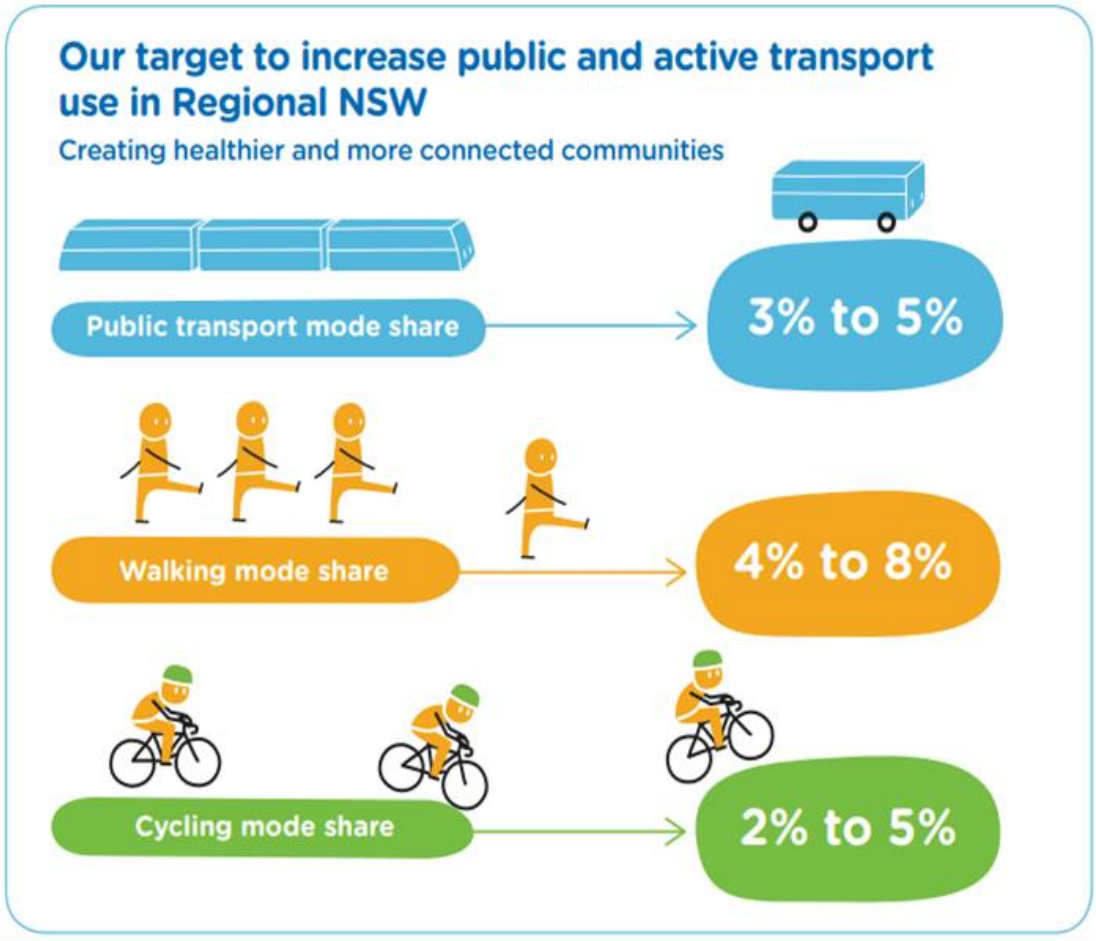
The overarching transport policy for LHPS is to *"improve pedestrian and student safety."* This will seek to increase participation in alternate transportation modes, namely public and active transportation, and increase daily physical activity which has a strong correlation to improved education results.

The SINSW STP *Practice Note* was used to adopt objectives specifically relevant for LHPS and will influence the direct ion of the STP.

The four (4) key pillars and objectives for school transport are summarised in Table 3.1.

Table 3.1: Transport Objectives

Safe	Efficient	Sustainable	Collaborative
To minimise pedestrian and vehicle conflict	To reduce local traffic congestion and parking impacts	To increase sustainable transport mode share to school	To identify opportunities to work with state and local government transport agencies
To identify and implement new transport and safety as required	To ensure required infrastructure and operations are delivered prior to occupancy.	To minimise short-stay car parking through KnD provision onsite	To share identified travel demand and transport opportunities early in the process



Source: Regional NSW Services and Infrastructure Plan

Figure 3.1: Regional NSW Mode Share Targets

3.2 Targets

The mode share targets for LHPS have been identified considering the transport targets included within the Regional NSW Services and Infrastructure Plan (2018), the existing staff and student travel mode surveys and the catchment analysis. It is noted the staff mode share targets more relate to the regional targets and the student mode share targets have been derived from the catchment analysis. That is, students live within a walking catchment and within the cycling and bus catchments.

As a result of the active transport provisions provided as part of the developments occurring with the Lennox Head URA, greater uptake of active transportation should be expected with the relocation of the school site. To further facilitate this uptake, public domain works, such as those mentioned above, should encourage more students and parents to walk or cycle to school. Further away form the school, network improvements as outlined in the Council's PAMP and crossing improvements connecting the urban release areas to the historical town centre will significantly aid in the future uptake of walking and cycling for both students and staffs.

The extension to the catchment coupled with the general high reliance on regional school bus services across this section of the north coast provides a great opportunity to design and promote an effective school bus service strategy for this school. TfNSW's northern bus planning team together with the operators and DoE are recommended to heavily promote bus usage through the school's Travel Access Guide (TAG) and promotion of travel options for students / families as the school is required.

These targets should continue to promote mode share changes to reduce car-dependence and to promote sustainable forms of transportation. Table 3.2 details the future mode share targets for LHPS.

Table 3.2: LHPS Mode Share Targets

Travel Mode	Existing Mode Share	STP Mode Share Targets Moderate (Reach)	Change	Timing Moderate (Reach)
Staff				
Private Vehicle	95.2%	90% (80%)	-5% (-10%)	2032 (2037)
Carpooling	0%	1% (3%)	12% (3%)	
Walking	4.8%	6% (9%)	+1.2% (4.2%)	
Cycling / Scooter	0%	2% (6%)	+2% (6%)	
Bus	0%	1% (2%)	+1% (+1%)	
Student				
Private Vehicle	54%	40% (26%)	-14% (28%)	2032 (2037)
Walking	13%	15% (17%)	+2% (4%)	
Cycling / Scooter	12%	15% (17%)	+3% (5%)	
Bus	21%	30% (40%)	+9% (19%)	

3.3 Actions

3.3.1 Overview

Several actions proposed to achieve the transport objectives and mode share targets are provided below. As this document is intended to be 'live' and updated regularly, it is intended that these actions be incorporated, where possible, into the new facility and all associated operational procedures and policies for school day-of-opening.

3.3.2 Active and Public Transport

3.3.2.1 Student and Staff Bicycle Parking

Bicycle participation should be monitored in the future to ensure the bicycle parking provision is meeting the demand, help achieve the STP targets and ensure there is sufficient space for bicycle parking facilities to be expanded over time.

To further encourage a modal shift, it is recommended that up to four staff bicycle parking spaces could be allocated to promote active travel and les car-dependent mode share. Similar to the student bicycle parking spaces, this should also be monitored and increased based on the demand in the future. Additionally, staff bicycle parking spaces should be secure, weather protected and located near the main staff areas separate to student bicycle parking. The staff bicycle parking is supplemented with end of trip facilities (e.g. showers, lockers, change areas, etc) which are located in the administration building as shown in Figure 3.2.

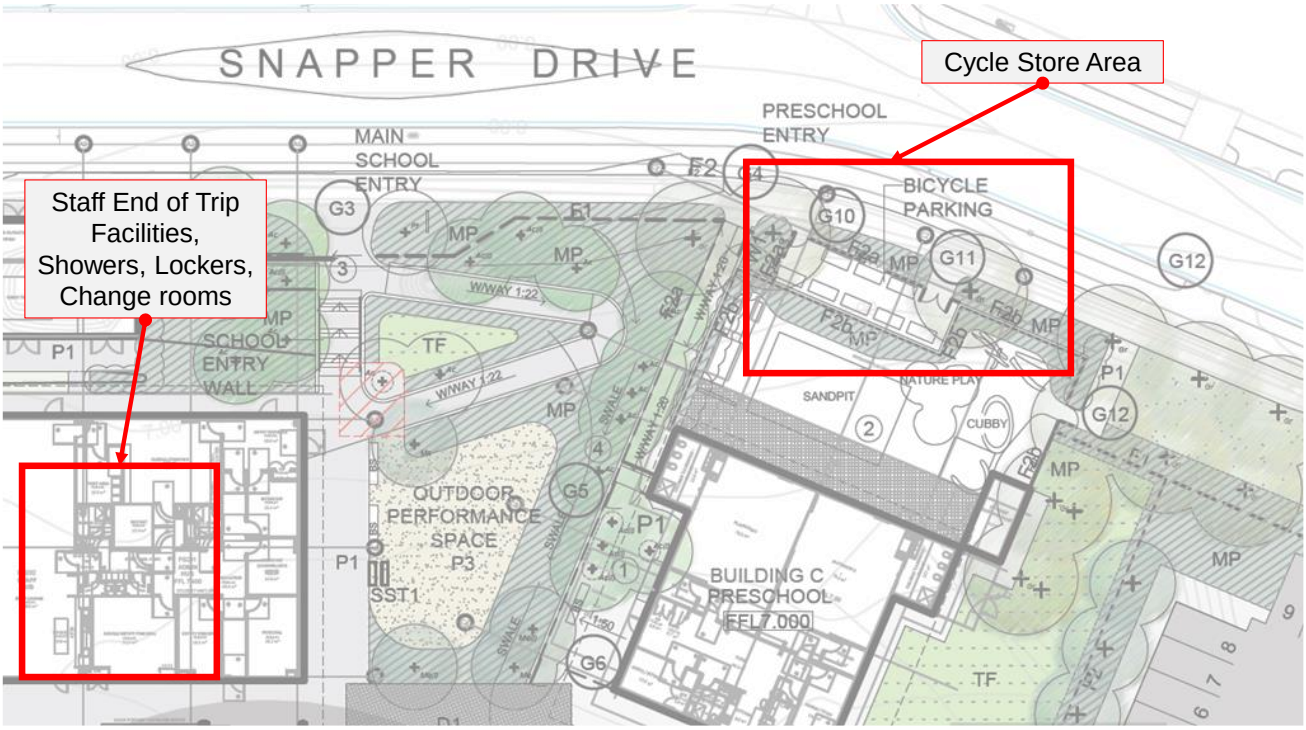


Figure 3.2: Cycle Facilities

To further encourage a modal shift, it is recommended that an initial four staff bicycle parking spaces be provided to promote active travel and less car-dependent mode share.

Monitor and Review

Monitor the usage of the existing bicycle/scooter parking facilities to understand the need for additional facilities to increase in cycling/scooting as a mode share.

Similar to the student bicycle parking spaces, this should also be monitored and increased based on the demand in the future. Additionally, staff bicycle parking spaces should be secure, weather protected and located near the main staff areas separate to student bicycle parking. The staff bicycle parking is to be supplemented with end of trip facilities (e.g. showers, lockers, change areas, etc).

Gain student and staff feedback on cycling/scooting and its facilities in an annual travel mode survey. To supplement the cycle parking and accommodate other modes, it is recommended to consider additional types of storage racks to accommodate scooters and skateboards as shown in Figure 3.3.

Figure 3.3: Example of Scooter/Skateboard Parking Facilities

3.3.2.2 Public Domain Works

In coordination with frontage road works and S128 Works on Road application with Council to construct the KnD facility, it is recommended to investigate the inclusion of a pedestrian crossing facility across Snapper Drive to the east of Montwood Drive. This location was identified by both Council and DoE's Transport Planning team as a logical location. However, considerations into driveway crossovers, roundabout queuing and pathway connections was raised and required further details investigations. An alternate options considered included a Wombat (Raised Pedestrian) Crossing across Montwood Drive to connect existing pathways. These options are recommended to be interrogated as part of detailed design phase of the project.

Figure 3.4: Pedestrian Crossing Improvements Location

Additional pedestrian infrastructure improvements should also be considered on the wider network and in particular connecting these new southern residential areas across Byron Bay Road and into the historical Lennox Head town centre as part of Council's PAMP and active transport network planning.

Aim:

- Encourage users to travel by walking or cycling from the surrounding areas and accommodate key desire lines associated with the school
- Reduce reliance on private vehicle usage, particularly for shorter local based trips.

Development:

- Review and record the condition and use of active transport network surrounding the site
- Identify treatments and assessed for implementation
- Investigate funding opportunities in collaboration with TfNSW's Get Active Grants Program.
- Incorporate into future works plans or programs.

Measure:

- Outcomes from active transport review and travel surveys.

Timing:

- Active transport facilities review within 3 months of LHPS opening
- Feedback on facilities 12 months from opening of LHPS via the travel survey
- Upgrades to facilities following outcomes of STP reviews and available funding sources.

Monitor and Review

It is recommended that the usage of these additional facilities and any other key desire line are monitored by supervising staff and in an annual mode share survey as discussed in Section 5.

3.3.3 Bus Facility Improvements and Bus Operational Plan

With the proposed school relocation, there is an opportunity to improve bus operations and overall travel mode share. Updates to existing school bus services will be required to be amended to service the new school site irrespective of whether a review should occur. Therefore, during these amendments, route paths and travel times could also be amended to deliver more catered public transportation solutions to students across the wider catchment and also coordinated with other schools across the Lennox, Byron, Ballina region. A key consideration for the school is the opportunity to amend bell times to 9:00am and 3:00pm. This aspect will be crucial to any changes tested across the various bus routes at this school and others.

Such modifications should be delivered through the joint collaboration of SINSW and TfNSW's Bus Planning Team to optimise the delivery of such service and increase bus travel utilisation.

It is recommended that a Bus Operational Plan and working group are formed and will be responsible for the indented bus stop (adjacent to the school site, accessible via Montwood Drive) and operational planning ready for day-of-opening.

While this process will be undertaken following REF approval, preliminary work by SINSW and TfNSW is beneficial to the bus planning process.

The bus operational plan is expected to include, but not be limited to the following:

- Develop a Bus Operations Plan and Reference Guide
- Bus Service information to be included on TfNSW's Journey Planner for all service providers
- LHPS as well as public interface improvements via the School's and TfNSW's website
- Investigations in consultations with TfNSW, DoE and DeT's school representatives for the region.

Monitor and Review

The working group should review the Bus Operational Plan to assess the current bus route capacity, efficiency and service times including access and availability of information.

3.3.4 Private Vehicles

3.3.4.1 Staff Carpooling Initiative

Staff carpooling can reduce the number of private vehicle trips by reducing the number of drivers and increasing the number of passengers. This could be undertaken informally (i.e. co-workers) or formally by online registers.

The School Travel Coordinator will monitor and assess the opportunity to introduce staff carpooling which will be implemented if feasible and if there is sufficient interest. A school-based carpooling register could assist in arranging staff carpooling initiatives. It is also recommended that dedicated car parking spaces for carpooling vehicles only are provided in a convenient location to further encourage staff to carpool. As part of the carpooling initiative the following is recommended to be incorporated:

- Line-marked / signed dedicated parking spaces within the car park for carpool vehicles
- Incentives to staff parking areas for staff involved in the carpool initiative
- Provide a "Guaranteed Ride Home" arrangement with Taxi or rideshare operators to provide the ability for carpool users to return home in an emergency.

Aim:

- Encourage staff to carpool and reduce the total number of private vehicle trips
- Reduce private vehicle trips by increasing vehicle mode share
- Reduce car parking demands and allows for cost sharing amongst staff.

Measure:

- Monitor staff level of awareness of carpooling initiative through the travel survey tool
- Monitor the staff carpooling usage to commute daily to LHPS
- Review as part of routine utilisation survey.

Timing:

- Trial during the first 12 months of opening
- Review utilisation, uptake and feedback on carpool initiatives as part of travel surveys.

3.3.5 Communication Initiatives

Communication initiatives should outline LHPS Green Travel actions. This includes marketing of active transport initiatives, such as the provision of cycle repair stations and location of bike parking, the surrounding active transport network, carpooling initiatives, surrounding public transport initiative and the potential trial for staff concession public transport cards.

3.3.5.1 Travel Access Guide

A Travel Access Guide (TAG) should be provided to students upon enrolment and before the start of the school year to inform the available transport modes. The TAG summarises the school's location, access locations, transport facilities and the most direct transport options. This document also provides links to other external information as required (i.e. bus route and timetable information).

Provide all staff and students (including parents and guardians) with a TAG information map. The map should also be available for staff, visitors and students to the LHPS. The map should display information on public transport routes, bus stops, timetable, active transport infrastructure, and community transport providers, as well as referral for further information and related websites and smartphone applications. A Draft Travel Access Guide (TAG) is presented in Figure 3.5. This Draft TAG will be refined in consultation with the school and transport stakeholders to included detailed updates including:

- School bell times
- Bus route and timetable information once defined
- Messages from Principal and P&C President
- Details on any new pathway and crossing facilities near the site still to be defined with Council

- Additional operations procedures required as part of bus boarding and alighting
- Additional operational procedures required as part of the KnD facilities operations
- Any parking restrictions imposed surrounding the site by Council

The TAG information is to be clearly available to staff, patients and visitors via a variety of means, including:

- Workforce handbook and induction
- Travel access guide online.

Aim:

- To provide easily accessible information on public and active transport modes to all staff, visitor and patients
- Encourage use of alternate modes of transport such as active transport and public transport
- Reduce reliance on private vehicle usage.

Measure:

- Confirm the distribution of the Transport Access Guide at staff induction
- Provide Access Guide Maps in common areas of the LHPS for visitors and students
- Provide Access Guide Maps on the LHPS website

Timing:

- Commence prior to 'opening' in preparation and monitor annually.

Figure 3.5: Draft Travel Access Guides for Active and Public Transport

3.3.5.2 Travel Plan Actions

The alternate transport initiatives provided by STP shall be clearly available particularly for staff. This should include location of on-site bicycle parking and end-of-trip facilities, provision and location of bicycle repair stations, carpooling initiatives, healthy habits initiatives. The active transport, public transport and private vehicle existing mode share and mode share goals should also be available. Transport Access Guide information to be clearly available to staff, patients and visitors via a variety of means, including:

- Workforce handbook and induction
- Monthly / semestral e-mails for all staff.

Measure:

- To provide easily accessible information on alternate transport initiatives for LHPS staff
- Encourage use of alternate modes of transport such as active transport and public transport
- Reduce reliance on private vehicle usage.

Measure:

- Confirm the provision of 'School Transport Plan Actions' at staff induction
- Confirm the delivery of semestral internal email with a link for the Travel Plan Actions at the LHPS
- Survey the usage of the provided actions, such as bicycle parking, carpooling and public transport

Timing:

- Commence upon opening and monitor annually.

3.3.5.3 Healthy Habits Initiatives

There are a number of 'healthy habits' initiatives that can promote the use of alternate transport modes. These initiatives have the potential to change staff and student travel behaviour in the medium / long term. A few examples of well-known healthy habit initiatives are:

- Car-Free Days (celebrated yearly on 22nd September encourages motorists to give up their cars for a day)
- StepTember, 10,000 Steps program or Pedometer Challenge (encourages participants to achieve 10,000 steps daily)
- Display motivational and informative posters / brochure about benefits of physical activity and tips on using active transport / public transport to commute daily.

Aim:

- Promote active transport as a practical mode of transport
- Increase the use of active transport and public transport for staff to commute to work
- Reduce the reliance in private vehicle usage

Measure:

- Monitor awareness of healthy habits initiatives through the travel survey tool
- Monitor active transport usage rates using travel survey tool.

Timing:

Commence upon opening and monitor annually.

4. MONITOR AND MANAGE TRAVEL DEMAND

4.1 Monitor School Transport Plan

A School Travel Coordinator is to be appointed within the first 12 months of the school opening and shall undertake an annual student and staff travel mode share survey. This data can be compared against the mode share targets identified in Section 3.2. The STP can be updated to align with the results of the mode share survey and potentially include additional actions. The annual student and staff travel mode share survey aims to gain feedback and provide realistic actions targeted specifically for LHPS staff and students.

Communication between state and local government agencies will be required to collaborate policies where possible. Ballina Shire Council (Council's) policies including the Pedestrian Access and Mobility Plan (PAMP) could include the STP's actions to better integrate LHPS transport facilities within the nearby community.

The School Travel Coordinator will be required to prepare progress reports to the satisfaction of DoE's Transport Planning Team.

The following template can be used to accurately monitor and review actions annually.

Action Name (i.e. Staff Carpooling)	
Target Date	
Current Status	
Updates Requested	
Revised Target	
Date for Review	

5. FUNDING ARRANGEMENTS

5.1 Potential Funding Opportunities

The available funding for active and public transport projects is reliant on Council's budget allocations and successful grant applications through State and Federal Government programs. Potential funding options include:

- Collaborations with other State Government departments (e.g. TfNSW active transport grants and road safety improvements)
- Contribution from other developments in the area
- Council Rates
- Planning Agreements
- Reallocation of existing funds within Council's budget
- Cycleway grants
- Commonwealth Government grants.

SINSW seeks to work proactively and collaboratively with both LHPS and Council in promoting sustainable school travel outcomes. This includes the continued and ongoing implementation of improved transport infrastructure and operational programs to meet the specific needs of the school.