Minarah College, Catherine Field Campus

Transport and Accessibility Impact Assessment

268 & 278 Catherine Fields Road, Catherine Field

14/04/2022

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01	21/12/2021	Draft	M. Tangonan Eric Ye M. Kong	W. Zheng
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contents

contents continued

Figures

Tables

APPENDICES

1 Introduction

1.1 Overview

Ason Group have been commissioned by Minarah College to prepare a Transport and Accessibility Impact Assessment (TAIA) in support of the State Significant Development Application (SSDA) of the proposed Minarah College – Catherine Field Campus, located at 268 & 278 Catherine Fields Road, Catherine Field.

This TAIA outlines assessments of multi-modal transport travel patterns and demands associated with the school development. These have accordingly been undertaken within this TAIA and the Preliminary School Transport Plan (PSTP) included in **Appendix A**.

1.2 The School

Minarah College will be a co-educational K-12 school accommodating 1,580 students, 840 in primary school and 660 in high school. There will also be an Early Learning Centre (ELC) for 60 students and a School for Specific Purpose (SSP) for 20 students. The new school will be constructed in stages, growing in line with growth in the local population.

The proposal seeks consent for:

- Demolition of the existing dwellings and ancillary structures on-site;
- The construction of the following:
- One-storey early learning centre with attached two-storey administration building to service the high school and early learning centre;
- Two-storey primary school building comprising of primary school classrooms, SPP classrooms, primary school hall which attached outside school hours care (OSHC);
- Two-storey high school building comprising high school classrooms;
- Two-storey high school hall;
- Shared one-storey canteen adjoining the high school building; and
- Shared library located on the second storey above administration building below.
- Site access from Catherine Fields Road at two points with a bus zone, 30 kiss and drop car parking spaces, and car parking;
- Consolidation of the allotments;
- Associated site landscaping and public domain improvements;
- An on-site car park for 138 parking spaces; and
- Construction of ancillary infrastructure and utilities as required.

The development is envisioned over a 20-year period, during which school infrastructure development and student enrolment capacity would increase over 5 distinct stages. For reference, the site plan of the ultimate Campus is provided in **Figure 1** below. Development staging plans are provided in further detail in **Section 5**.

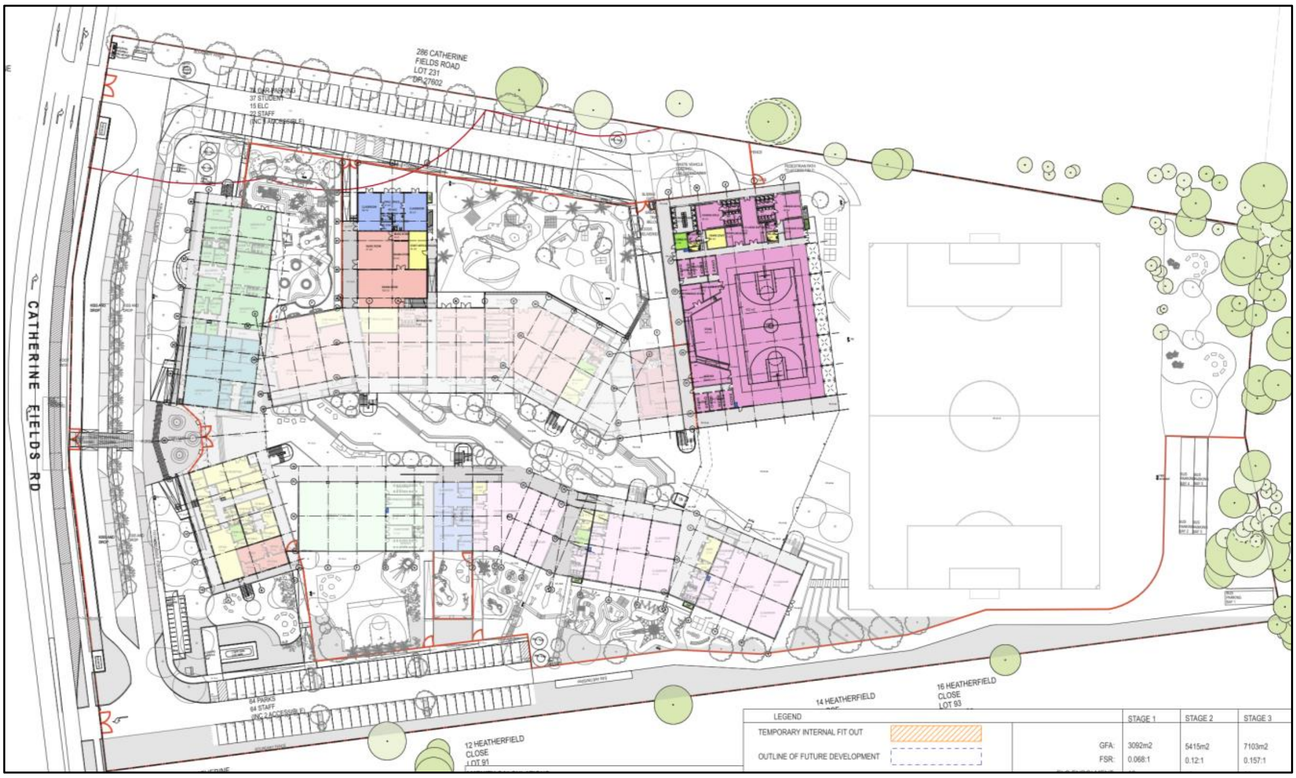

Figure 1: Site Plan

1.3 Key References

The TAIA makes reference to a series of key strategic, design and planning documents in the assessment of traffic and transport related elements of the project. These documents include:

- Camden Council Development Control Plan (2019)
- Camden Council Local Environment Plan (2010)
- Transport for NSW, NSW Movement and Place Framework (March 2020)
- NSW Government, Practitioner's Guide to Movement and Place (March 2020)
- NSW Planning Guidelines for Walking and Cycling (December 2004)
- NSW Government, Department of Planning, Industry and Environment - Cumulative Impact Assessment Guidelines for State Significant Projects (November 2021)

This TAIA also references general access, traffic and parking guidelines, including:

- Roads and Maritime Services, Guide to Traffic Generating Developments, v2.02, 2002 (RMS Guide)
- Roads and Maritime Services, Trip Generation Surveys Schools Analysis Report (Prepared by GTA for RMS, Issue A dated 25/08/2014);
- Australian Standard 2890.1:2004 Parking Facilities – Off-Street Car Parking (AS 2890.1: 2004)
- Australian Standard 2890.2:2018 Parking Facilities – Off Street Commercial Vehicle Facilities (AS 2890.2:2018)
- Australian Standard 2890.3:2015 Parking Facilities – Bicycle Parking (AS 2890.3:2015)
- Australian Standard 2890.5:2018 Parking Facilities – On-Street Parking (AS 2890.5:2018)
- Australian Standard 2890.6:2009 Parking Facilities – Off-Street Parking for People with Disabilities (AS 2890.6:2009)

- Transport for NSW, Supplement to Australian Standard AS 1742.10-2009, Manual of Uniform Traffic Control Devices – Part 10: Pedestrian Control and Protection Version 3.1 March 2021
- EIS Guidelines – Road and Related Facilities (Department of Urban Affairs and Planning (DUAP), 1996)
- Cycling Aspects of Austroads Guides 2017
- Guide to Traffic Management Part 12: Integrated Transport Assessments for Development (Austroads, 2020)

1.4 SEARs

A formal SEARs for the SSDA has been received by the project team on the 29th October 2021. Accordingly, a summary of the requirements relating to Traffic, Transport & Accessibility is highlighted in the below table.

TABLE 1: TRAFFIC, TRANSPORT AND ACCESSIBILITY SEARS

No.	SEARS Requirement	Ason Group Response
1	Provide a transport and accessibility impact assessment, which includes:	Noted
1-a	an analysis of the existing transport network, including the road hierarchy and any pedestrian, bicycle or public transport infrastructure, current daily and peak hour vehicle movements, and existing performance levels of nearby intersections.	Analysis of existing conditions is covered in Sections 3, 4, 5 and 6 of this report.
1-b	details of the proposed development, including pedestrian and vehicular access arrangements (including swept path analysis of the largest vehicle and height clearances), parking arrangements and rates (including bicycle and end-of-trip facilities), drop-off/pick-up-zone(s) and bus bays (if applicable), and provisions for servicing and loading/unloading.	Details of the Proposal are covered in Section 7 of this report.
1-c	analysis of the impacts of the proposed development (including justification for the methodology used), including predicted modal split, a forecast of additional daily and peak hour multimodal network flows as a result of the development (using industry standard modelling), potential queuing in drop-off/pick-up zones and bus bays during peak periods, identification of potential traffic impacts on road capacity, intersection performance and road safety (including pedestrian and cyclist conflict), and any cumulative impact from surrounding approved developments.	Traffic assessment for the Proposal and details of involved methodology is covered in Section 8 of this report.
1-d	measures to mitigate any traffic impacts, including details of any new or upgraded infrastructure to achieve acceptable performance and safety, and the timing, viability and mechanisms (including proposed arrangements with local councils or government agencies) of delivery of any infrastructure improvements in accordance with relevant standards.	Traffic mitigation measures are covered in Section 8 of this report.
1-e	measures to promote sustainable travel choices for employees, students and visitors, such as connections into existing walking and cycling networks, minimising car parking provision, encouraging car share and public transport, providing adequate bicycle parking and high-quality end-of-trip facilities, and implementing a Green Travel Plan.	Reference should be made to the preliminary School Transport Plan (PSTP) in **Appendix A**.
1-f	a preliminary operational traffic and access management plan for the development, including drop-off/pick-up zones, bus bays and their operations.	

2	Provide a Construction Traffic Management Plan detailing predicted construction vehicle movements, routes, access and parking arrangements, coordination with other construction occurring in the area, and how impacts on existing traffic, pedestrian and bicycle networks would be managed and mitigated.	Reference should be made to the preliminary Construction Traffic Management Plan (CTMP) covered in Section 9 of this report.

1.5 Detailed Stakeholder Engagement

TABLE 2: PRE-APPROVAL CONSULTATION RECORD 01

Identified Party to Consult:	TfNSW
Consultation type:	Teleconference (Teams)
When is consultation required?	Prior to application for SSDA
Why	TfNSW is the state road authority – they are in charge of coordinating activities on the local and state road networks.
When was consultation scheduled/held	28th October 2021
When was consultation held	28th October 2021
Identify persons and positions who were involved	**TfNSW** - Zhaleh Najari Alamouti (Senior Land Use Assessment Coordinator), Zeliha Cansiz, Louise Moran, Robert Rutledge, Sophie Grieve **Minarah College** – Jay Halai (Principal) **Midson Group** – Toby James (Project Manager) **Ason Group** – Dora Choi (Principal Lead), Wendy Zheng (Senior Traffic Design Engineer)
Provide the details of the consultation	Preliminary discussion to raise concerns regarding the background growth factor and share project progress
What specific matters were discussed?	• Presentation of proposed Minarah College secondary campus at Catherine Field • Ason presented data collected for the modelling of proposed Minarah College Catherine Field Campus and posed questions on the background growth and development of the area based on STFM data collected

	• TfNSW confirmed that Catherine Field will not be rezoned near future and it is not part of a growth precinct • There are no further upgrades planned for either Bringelly Road nor Camden Valley Way • Assume that no collector roads in the network are being upgraded for future in our traffic impact assessment • TfNSW has answered that we can assume a minimum 3% growth in background traffic – to be reviewed internally by TfNSW • TfNSW does want to see cycling infrastructure and shared paths as part of the work but neither Council nor TfNSW has any plans for cycling or pedestrian infrastructure upgrades in the area and Catherine Field Road is not part of the bicycle network for Camden • TfNSW expressed enthusiasm for shuttle buses to and from train stations and this proposal was compared to the shuttle bus system at nearby Broughton Anglican College • The speed zone on Catherine Field Road transitions from 60km/hr from the intersection of Camden Valley Way to 80km/hr in front of the proposed school site. TfNSW has indicated that the project can apply to the Road Network Safety Officer for an extension of the 60km/hr speed zone
What matters were resolved?	• TfNSW informed the project team that the growth factors presented in the 2036 STFM model for the road network surrounding the Site does not need to be adhered to • No future road upgrades or pedestrian/cycle path extensions need to be accounted for by the project team • The project team sent through follow up questions to TfNSW: - Background growth to be applied including the growth rate on Camden Valley Way and Catherine Field Road? - How can the changing road network be accommodated? - Standard practice to adopt a specific percentage of growth?
What matters are unresolved?	n/a
Any remaining points of disagreement?	n/a
How will the project team address matters not resolved?	n/a

TABLE 3: PRE-APPROVAL CONSULTATION RECORD 02

Identified Party to Consult:	Camden Council
Consultation type:	Teleconference (Teams)

When is consultation required?	Prior to application for SSDA
Why	Council is the local road authority.
When was consultation scheduled/held	9th December 2021
When was consultation held	9th December 2021
Identify persons and positions who were involved	**Camden Council** – Matthew Rawson (Planner), Tom Allen (Team Leader Traffic and Road Safety), Roy El Kazzi (Traffic Engineer), Fiona Stalgis (Waterways) **Minarah College** – Jay Halai (Principal), Imam Ali (Director) **Midson Group** – Toby James (Project Manager) **Urbis** – Naomi Ryan (Planner) **TZG** – Peter Tonkin (Director), Julian Dolk (Architect) **Martens** – Terry Harvey (Project Manager / Senior Engineer) **Ason Group** – Dora Choi (Principal Lead), Wendy Zheng (Senior Traffic Design Engineer)
Provide the details of the consultation	Pre-DA submission discussion to brief Council on the project and to clarify project team issues
What specific matters were discussed?	The project team presented to Council regarding the project at its current stage. Traffic presented the following issues to Council for clarification: • Confirmation of the growth rate for traffic modelling • Number of bicycle parking required on site given that there is no existing or proposed cycling connection to the School • Extent and dimension of footpath required on site frontage given that there is no existing or proposed footpath connection to the School • Timing of the implementation of the channelised right turn at the School entry
What matters were resolved?	• Council has confirmed that the provision of bicycle parking on site does not have to compliant with the staging and may be conditioned later once the cycle path connection is planned • Footpath provision extent and dimensions are limited to the School frontage • The growth rate to be modelled

What matters are unresolved?	• Council has expressed their preference for delivery of the channelised right turn entry in Stage 01 but modelling shows it is not necessary until Stage 04 which is dependent on the growth rate
Any remaining points of disagreement?	n/a
How will the project team address matters not resolved?	n/a

TABLE 4: PRE-APPROVAL CONSULTATION RECORD 03

Identified Party to Consult:	Camden Council
Consultation type:	Pre-DA letter
When is consultation required?	Prior to application for SSDA
Why	Council is the local road authority.
When was consultation scheduled/held	Pre-DA letter dated 21st December 2021
When was consultation held	9th December 2021 (see details in Record 02)
Identify persons and positions who were involved	See details in Record 02
Provide the details of the consultation	See details in Record 02
What specific matters were discussed?	• A Traffic Impact Assessment undertaken by a suitably qualified practitioner must be submitted detailing, but not limited to, the following: • Traffic generation and impact; • Queuing at kiss and ride –measures to prevent queuing from extending onto Catherine Fields Drive; • Compliance of the design with relevant design guides and standards; • Pedestrian safety; and • The capacity for the narrow rural road (Catherine Fields Road) to handle the traffic volumes associated with the development and likely maintenance burden.

	• Car parking rates shall comply with DCP requirements for off-street parking. Although the number of proposed parking spaces is provided in the documents, the detail required for their calculation is not (i.e., number of year 12 students, number of staff, etc). • The proposal states 36 Kiss and ride spaces internally. Additional detail of the Kiss and ride area would be required, and it must be designed in a manner that ensures queuing does not extend onto Catherine Field Drive (impacting on traffic flow). The school proposes 1500 students, and it is envisaged that the majority of students would travel by private vehicle or bus. The efficacy of the proposed provision shall be justified by assessment of similar sites. • Plans depicting dimensions (aisle width, indent width, length), signage and line marking must be submitted with any future application. • Parking/ loading areas shall be designed to comply with relevant Australian Standards. • Relevant swept paths to be depicted include (but are not limited to) the following: – Vehicles entering and exiting driveways and parking aisles simultaneously; and – Largest design vehicle entering, manoeuvring with the site and egress the site. – A bus shelter must be provided as part of the proposed development. All indented bus bays must be designed in accordance with the relevant standards and design guides. • Answers to specific queries: • What growth rate should be applied in our traffic model? Note that TfNSW has directed us to use the standard growth rate which is 2.5%. 2.5% would be satisfactory at this stage considering the area is not yet rezoned. • Do we need to provide any bicycle parking within the school as it is currently not accessible via bicycles? Although bicycle accessibility is not yet achieved it may be difficult to enforce provision after the school is approved and operational. We may condition that prior to completion of the final stage that all parking must be provided. However, a small amount should still be provided at Stage 1 to accommodate any teachers or students that may live local and choose to cycle to the school. • Footpath connecting the indented bus bay on Catherine Field Road to the school has been designed for 1.8m in width in accordance with Austroads Guide to Road Design Part 3, does it need to be widened? 3m is to be provided to accommodate students waiting to board etc. This is what we strive for around all schools. • Our initial modelling shows that the CHR on Catherine Field Road does not need to be provided before Stage 4. Does Council have any comment on the timing? Right turn bay shall be provided at stage 1.
What matters were resolved?	• A queuing analysis of the kiss and ride area has been undertaken to demonstrate that the design can accommodate all traffic required without queuing onto Catherine Fields Road

	• SIDRA network modelling has been undertaken to demonstrate that development traffic can be accommodated by the surrounding road network
What matters are unresolved?	• Council requires the provision of a bus shelter. However, a bus shelter should be provided by Council as part of the Council's Road & Transport Infrastructure Asset Management Plan if required • Council has expressed their preference for a 3m wide footpath adjacent to the bus bays. However, the proposed 1.8m footpath is in accordance with Austroads requirements and the School has proposed a covered waiting area for students adjacent to the pedestrian access. • Council has expressed their preference for delivery of the channelised right turn entry in Stage 01, but modelling shows it is not necessary until Stage 04 which is dependent on the growth rate
Any remaining points of disagreement?	n/a
How will the project team address matters not resolved?	n/a

2 Strategic Context

2.1 Camden Local Strategic Planning Statement

The Camden Local Strategic Planning Statement aligns with key outcomes of the *Western City District Plan*[1], a 20-year growth management plan envisioned by the Greater Sydney Commission which sets priorities and actions for achieving strategic direction for the areas including Camden, Wollondilly, Campbelltown, Liverpool, Fairfield, Penrith and the Blue Mountains. As a key part of the District Plan, key outcomes relating to the Camden LGA include:

- Promoting north-south and east-west transport connections and matching population growth with infrastructure; and
- Setting a housing supply target for Camden of 11,800 new dwellings over the next 0-5 years.

The plan highlights Camden as the largest growing Metropolitan Sydney Council area by housing growth, indicating substantial residential and urban developments to accompany population growth for the region. To this effect, the LSPS supports the provision of infrastructure to provide and cater for this growth.

2.2 Community Profile

2.2.1 Population

As the proposal relates to the future delivery of an educational precinct, strategic demographic assessment has been undertaken based on the informed decisions census profiles[2] of the Camden LGA and subsequent sub-areas, it should be considered that the data includes wider extents outside of the Catherine Field area, where interpretation should account for a minor variance to available statistical information.

2.2.2 Historical Growth Patterns

Between 2007 and 2020, the Camden Council LGA has consistently demonstrated substantial growth in comparison to growth rate averages across the Greater Sydney region, historically peaking at 8.6% in 2017 as observed in **Figure 2**. This has been characterized by rapid expansion associated with land releases, urban development and infrastructure upgrades in the region.

This high growth rate has specifically been driven by the Leppington-Rossmore-Catherine Field sub-area, which has exhibited substantial historical growth in comparison with Greater Sydney as demonstrated in **Figure 3**. Between 2012 and 2020, the resident population of the sub-area has almost tripled in size, peaking in 2017 with an estimated percentage change from the previous year of 27.2%.

This level of growth is anticipated to continue into the future, as referred to in Section 2.2.3.

[1] Western City District Plan, Greater Sydney Commission
[2] Leppington – Rossmore – Catherine Field Profile Area, Informed Decision (.id)

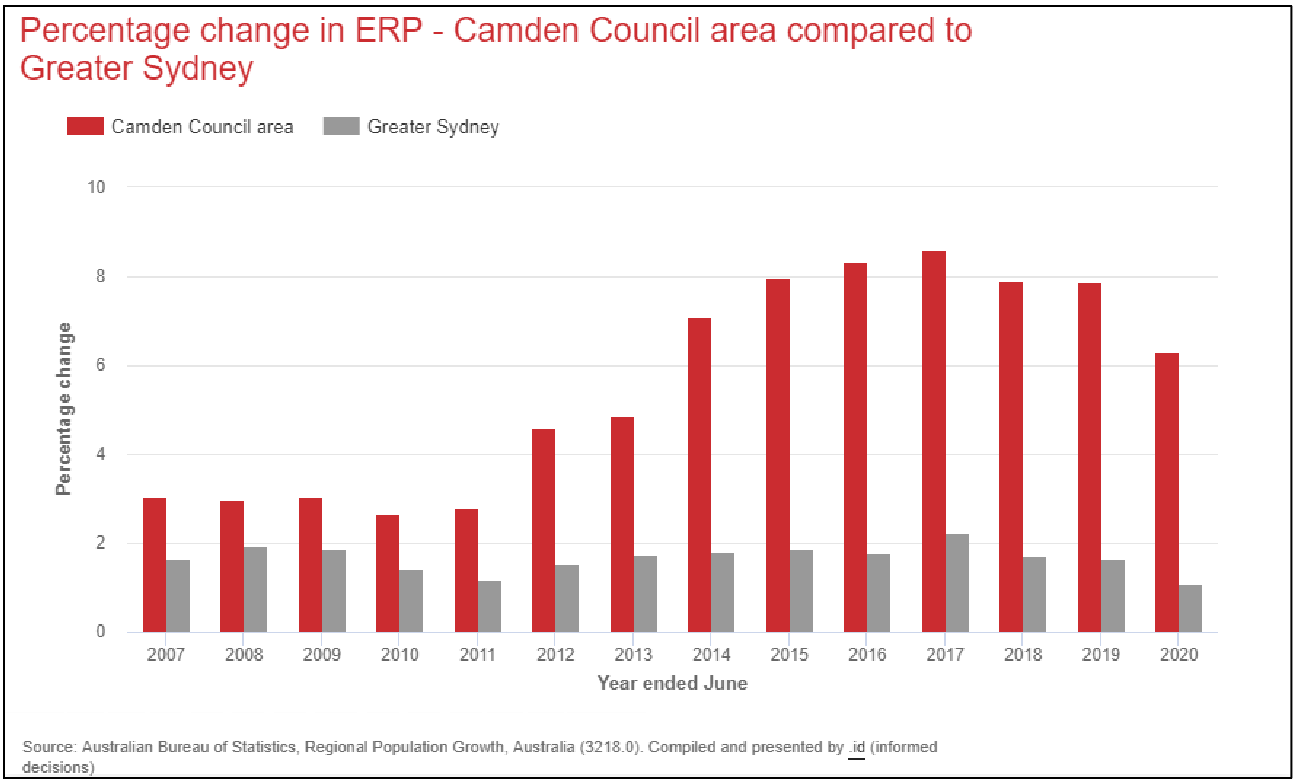

Figure 2: Estimated Resident Population (ERP) & Growth – Camden Council LGA

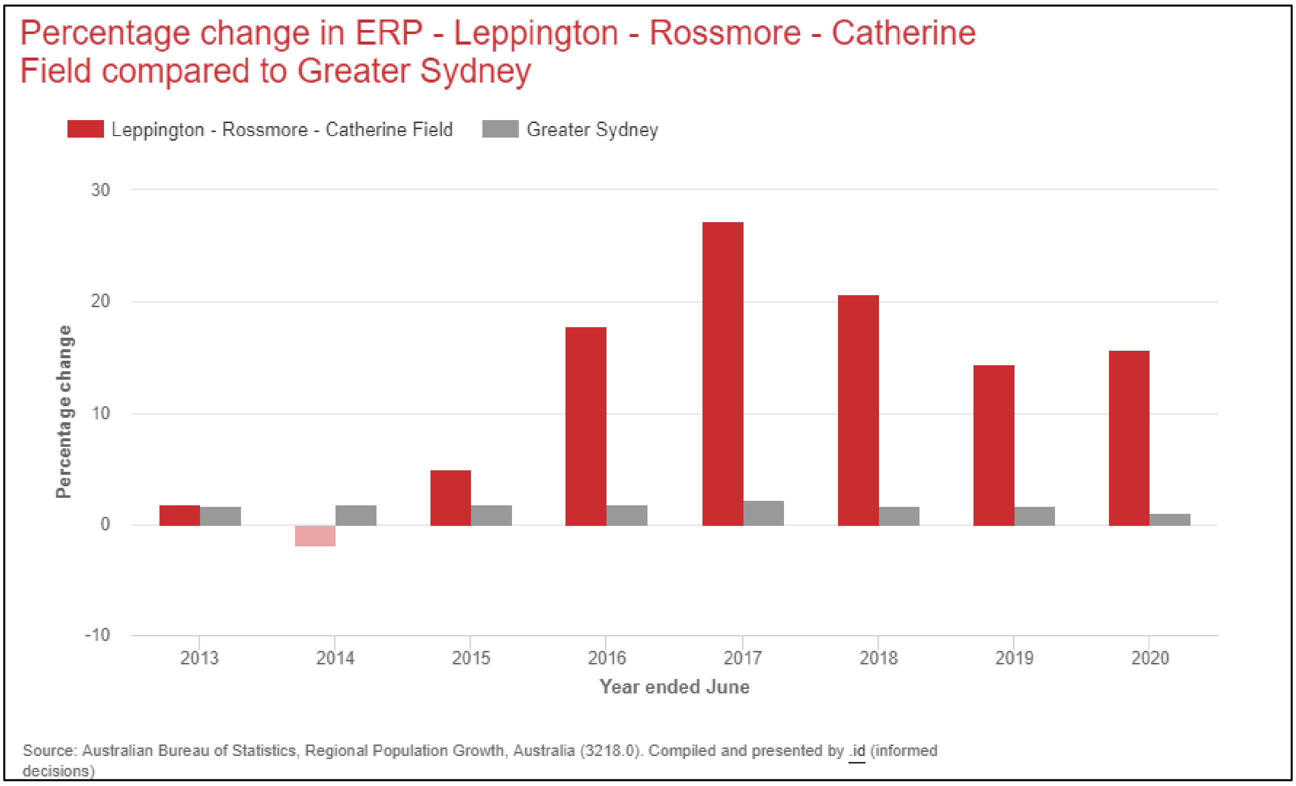

Figure 3: ERP & Growth - Leppington-Rossmore-Catherine Field

2.2.3 Future Growth Projections

Historically high growth for both the Camden LGA and Leppington-Rossmore-Catherine Field sub-area is anticipated to continue forward, in line with proposed residential development and goals outlined as part of the Western City District Plan and Council LSPS, as existing rural and greenfield areas transition to residential land uses. The maps below capture anticipated future dwelling developments as part of the Camden Council and demonstrate projected growth.

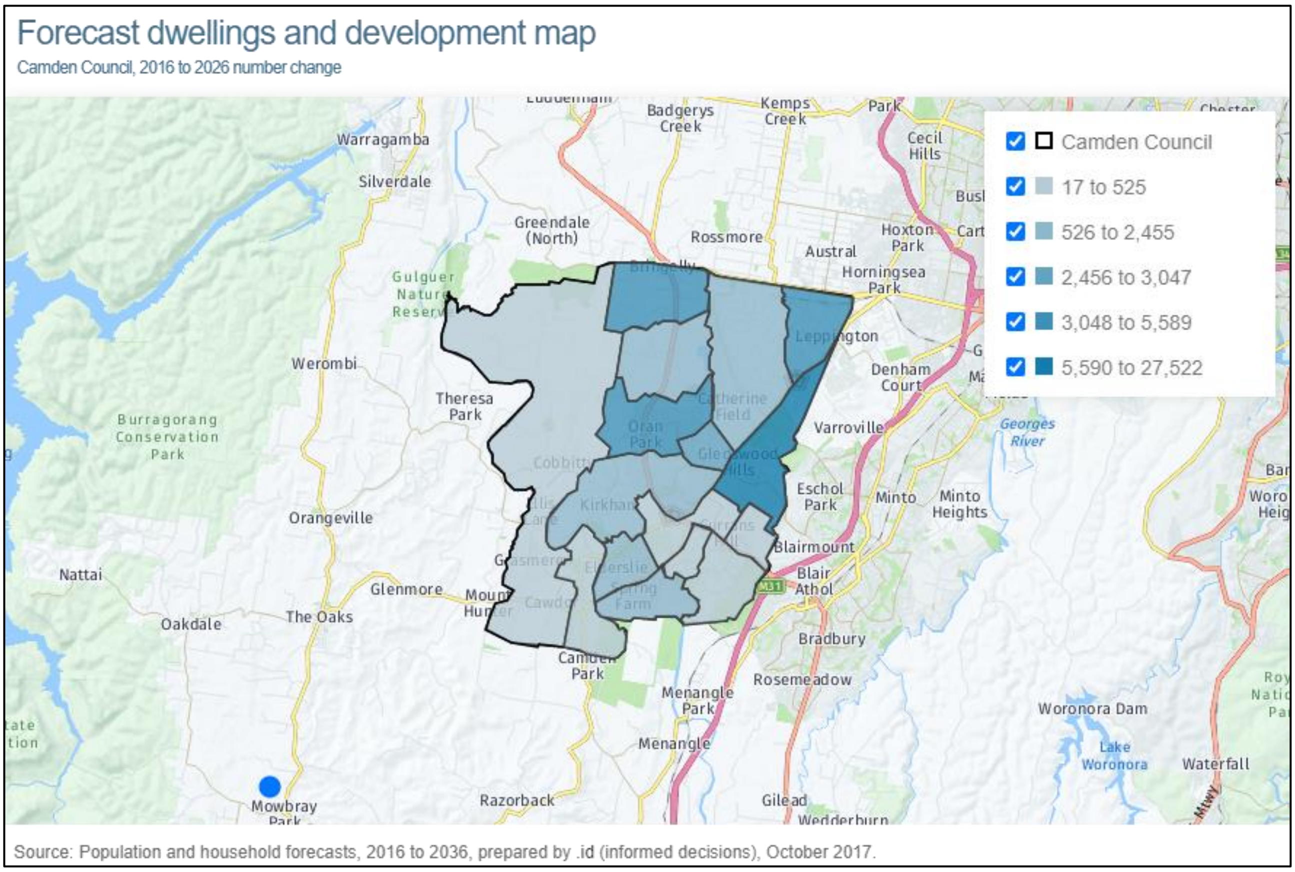

Figure 4: Forecast Dwellings for Camden LGA between 2016 and 2026

The figure above demonstrates substantial growth in the Turner Road Precinct & central Hills sub-area, south of the proposed school site. Residential dwellings are anticipated to grow over the 10-year period to approximately 5,748 dwellings Additionally, further growth is observed in the Oran Par, Leppington and Bringelly areas. At present, this has been observed in the form of ongoing residential developments and has been supported by on-road upgrades associated with Camden Valley Way.

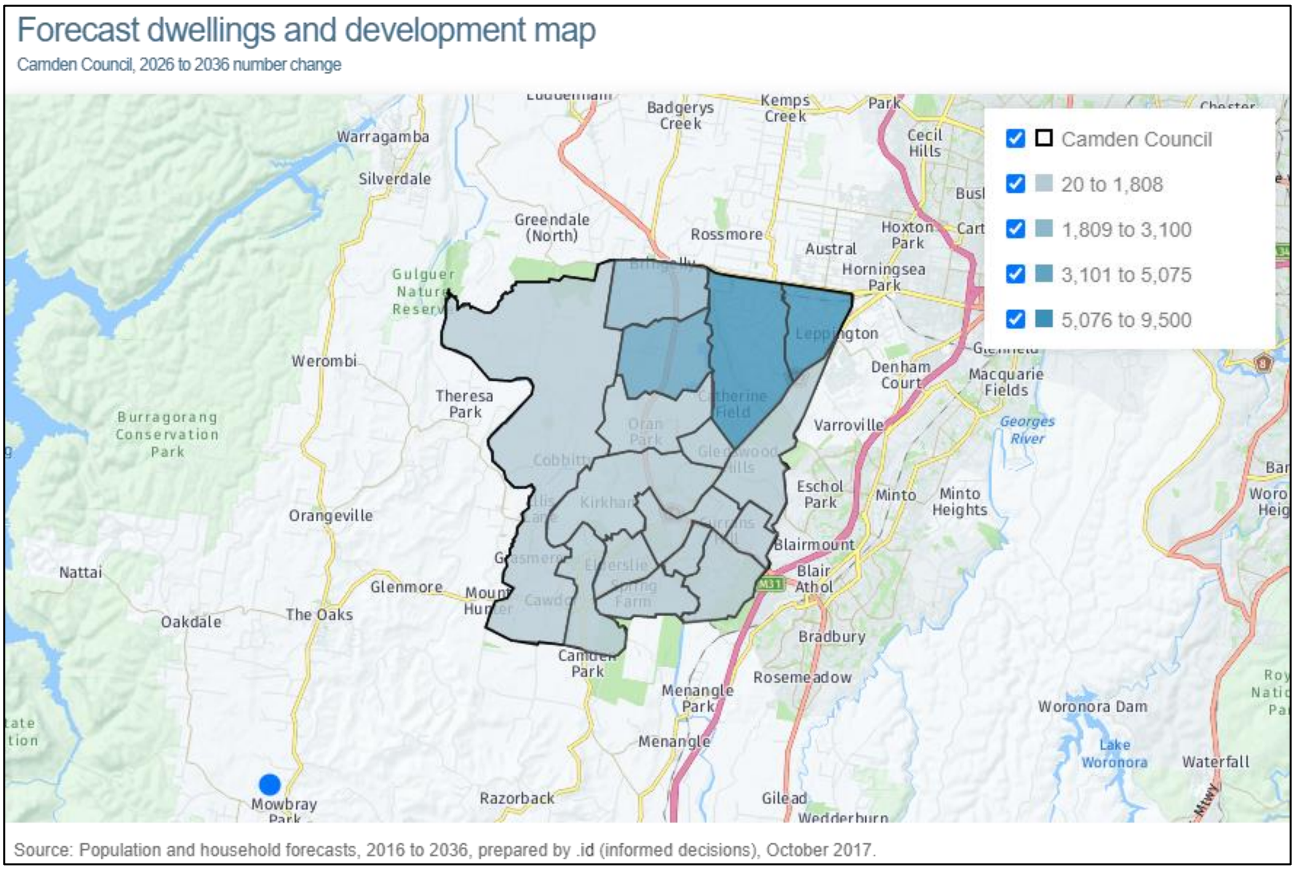

Figure 5: Forecast Dwellings for Camden LGA between 2026 and 2036

Between 2026 and 2036, the Catherine Field North Precinct exhibits the most substantial growth of the Camden LGA, indicating an increase of approximately 9,500 dwellings, followed by the Marylands and Leppington precincts.

With regard to specific persons growth associated with the Catherine Field North precinct, service age projections demonstrate that the majority of the population migrating to the area consists of *Parents and Homebuilders (35 to 49)* and younger as demonstrated in **Figure 6**.

Pre-school, primary and secondary education service age groups are anticipated to make up approximately 33.7% of persons by 2036, indicating that there will be high demand for education infrastructure and school-related transport serviceability in future years.

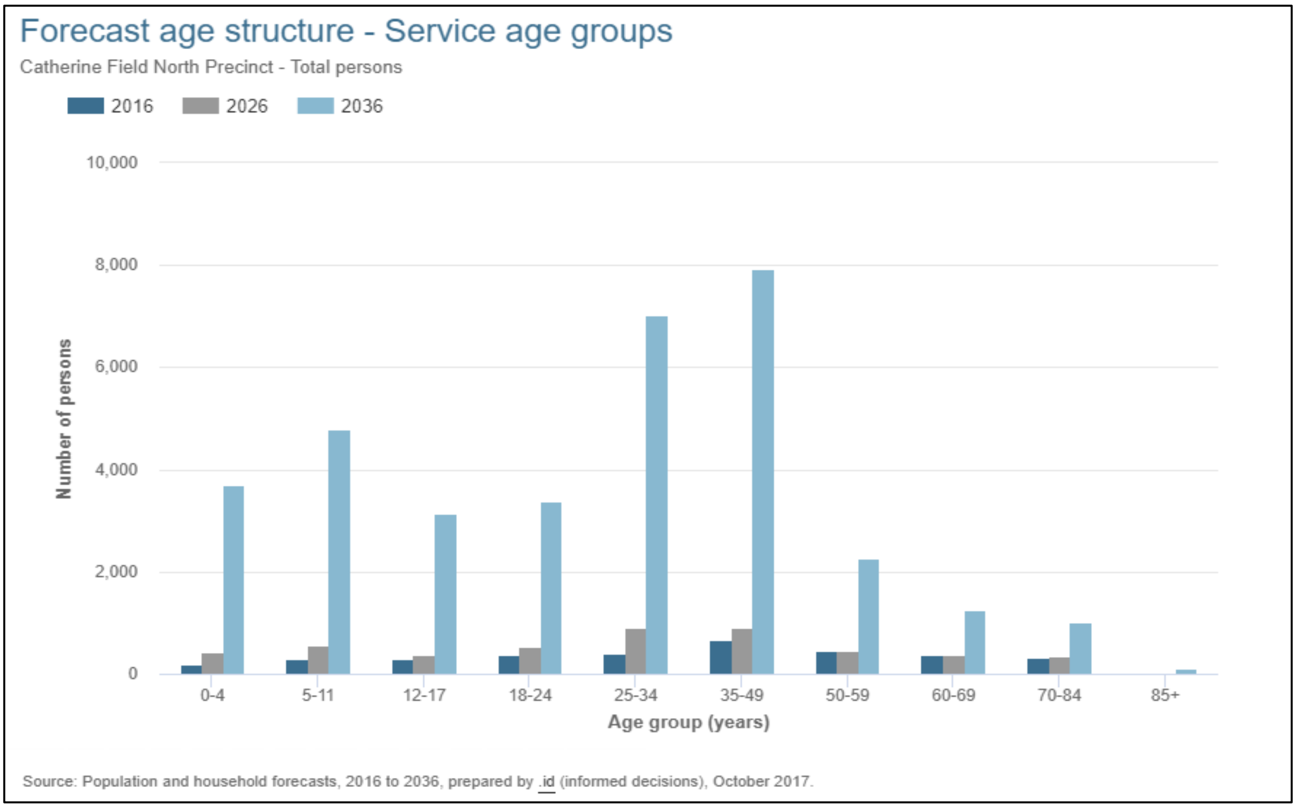

Figure 6: Catherine Field North Precinct - Service Age Groups

2.3 Travel Behaviour

Travel behaviour has been assessed with reference to the Household Travel Survey (HTS), undertaken by TfNSW. The table below provides a breakdown of modal dependency exhibited by the Camden LGA during the 2019/20 collection year.

TABLE 5: EXISTING MODE SHARE

Travel Mode Share	% of total trips
Vehicle Driver	54.8%
Vehicle Passenger	31.2%
Train	1.4%
Bus	0.4%
Walk Only	7.6%
Walk Linked	4.3%
Other	0.3%

Source: TfNSW, Household Travel Survey (HTS), 2019/20 Collection Year
https://www.transport.nsw.gov.au/data-and-research/passenger-travel/surveys/household-travel-survey-hts

The above table demonstrates a predominant modal dependency on private vehicle usage (86%), with a lower dependency on public transport modes accounting for approximately 1.8%. A sizeable proportion of trips are accounted for by walking, at 7.6%.

Walk-linked trips are defined as multi-segment trips that involve an ancillary travel mode. Typically, this constitutes a form of public transport (I.e., train, bus or ferry) and to a lesser extent, private vehicles.

Accordingly, while the above captures an existing and historical dependence on private vehicle usage, future development associated with public transport in the form of new bus services and train routes would effectively facilitate a modal shift towards public travel modes if accompanied by adequate connectivity.

2.4 Road Safety Education Program

The Road Safety Education Program is a long-term integrated education initiative funded by the Centre for Road Safety in government and non-government schools. The aim of the program is to increase road safety knowledge, understanding and skills.

Road safety education specialists in the government and independent school sectors provide professional learning and advice to teachers and schools about teaching road safety and how to address road safety issues through the curriculum.

The teaching and learning focus are on pedestrian, passenger and wheels safety, as well as on future drivers. The Centre for Road Safety leads the development of quality teaching and learning resources for teachers to use in schools.

The education sectors provide professional learning to teachers to equip them with the knowledge and skills to teach quality road safety education. Teachers are also shown how to use the resources in the classroom to create effective teaching and learning programs.

2.5 Safety Around Schools Program

TfNSW continues to have a strong focus on improving the visibility of school zones to increase driver awareness and compliance. Schools aim to address road safety issues around their school to create a safer environment for the whole school community by:

- Teaching students about the local road safety conditions contribute significantly to improving their own safety.
- Reminding parents and carers about safe road user behaviours outside the school also contributes significantly to the safety of our students
- Working with agencies to improve local safety issues in the school zone through planning, enforcement, engineering or environmental changes.

It is noted that the speed zone on Catherine Field Road transitions from 60km/hr from the intersection of Camden Valley Way to 80km/hr in front of the proposed School. Based on the consultations with TfNSW, the School can apply to the Road Network Safety Officer for an extension of the 60km/hr speed zone to provide a safer road environment for all users close to the School.

This program also aims to reduce the number and severity of child casualties in 40 km/h school zones. The installation of school zone flashing lights to alert drivers that they are entering a 40 km/h school zone and to adjust their speed accordingly will be reviewed by TfNSW.

2.6 Movement and Place Framework

The Movement and Place is a cross-government framework for planning and managing roads and streets across NSW. The framework delivers on NSW policy and strategy directions to create successful streets and roads by balancing the movement of people and goods with the amenity and quality of places.

The below provides a brief summary of how Movement and Place are relevant for school development.

2.6.1 Place Analysis

The place analysis makes reference to the importance of the location in its physical form, the activity and generates and how its meaning is characterised by the community.

With reference to the movement impacts on place, the framework recognises the need to provide safe, direct, and comfortable walking and cycling routes as the backbone of active travel, including to schools and linking local activities to local recreation, giving priority to car-free arrival points and providing minimal parking. Of relevance to the Proposal, built environment indicators for Primary Schools extracted from the Practitioner's Guide to Movement and Place are presented in **Figure 7.**

USER OUTCOME	INDICATOR	MEASURE	DESIRED OUTCOME	DATA SOURCE
Amenity and Uses				
Convenient facilities	Primary schools	Walkable access to primary schools	Positive indicates increase in catchment	GIS network analysis

Figure 7: Built Environment Indicators

The locations/alignments of footpaths, pedestrian crossings, site accesses (for vehicles, pedestrians and cyclists) and traffic calming measures, have been determined based on the place analysis.

2.6.2 Movement Analysis

The concept of movement as characterized by the Framework describes the demand to, from and through the activity centres, and describes the series of modal networks interlinking them. With reference to the school's location, it is interlinked by the road network, which is of adequate width to provide for bus services, as well as pedestrian footpaths and dedicated cycling routes.

Movement analysis for the School has been completed for buses, private vehicles, walking and cycling in their current and future configurations to understand the expected patterns and number of patrons/people for each travel mode. Details of the traffic movement analysis are provided in **Sections 4 and 6**.

3 Existing Conditions

3.1 Site & Location

The Site is located at 268 & 278 Catherine Fields Road, Catherine Field and consists of Lot 11 of DP833983 and Lot 12 of DP833984. The site is largely surrounded by rural and low-density land uses, characterized in the LEP as:

- RU4 Primary production Small Lots (to the north, east and west)
- R5 Large Lot Residential (to the south)

The following land-uses adjoins the site:

- to the north: a single residential dwelling house adjoins to the north
- to the south: 3 single residential dwelling houses and ancillary buildings, some of them with on-site business activities
- to the east: 2 single residential dwelling houses and ancillary buildings with business activities
- opposite of the site - to the west: 4 single residential dwelling houses and ancillary buildings, some of them with on-site business activities

Currently, the Site consists of two residential properties with a combined 4.55-hectare footprint. The land area and surrounding context are demonstrated in **Figure 8** below.

Figure 8: Site Location

3.2 Road Network

3.2.1 Road Hierarchy

The key roads in the proximity of the site are summarised in **Figure 9** with reference to the site plan and road hierarchy in **Table 6**.

Figure 9: Site Context and Road Hierarchy

TABLE 6: ROAD NETWORK

Road Name	Road Classification	Typical Traffic (during peak periods)[1]	Speed Limit[2]
Camden Valley Way	Arterial	~ 3,000 veh	80 km/h
Bringelly Road	Collector	~ 600 veh	80 km/h
Deepfields Road	Collector	~ 300 veh	60 km/h - 80 km/h
Catherine Fields Road	Local	~ 300 veh	60 km/h - 80 km/h

Notes) 1. Typical traffic adopted from historical peak hour surveys.
2. Signposted speed limit.

3.2.2 Surveyed Traffic Volumes

At the time of writing, the greater metropolitan area is undergoing a pandemic event, which in turn has impacted the level of background traffic in the road network. This has a potential impact on the integrity and consistency of any traffic surveys undertaken during this period. Accordingly, existing baseline traffic volumes adopted for the traffic assessment have been derived from a variety of sources, including TfNSW SCATS detector counts, as well as historical surveys sourced prior to 2020. Reference should be made to the assumptions and considerations made in Section 8.1.1.

Notwithstanding, traffic count data has been assessed to define natural traffic peak periods that coincide with typical school bell times in the AM and PM Peaks. Accordingly, background peaks formed during the following hours and thus form the basis of assessment:

- AM School Peak: 7:30 am to 8:30 am
- PM School Peak: 3:00 pm to 4:00 pm

The figures below capture background movements for the traffic network in the proximity of the Site.

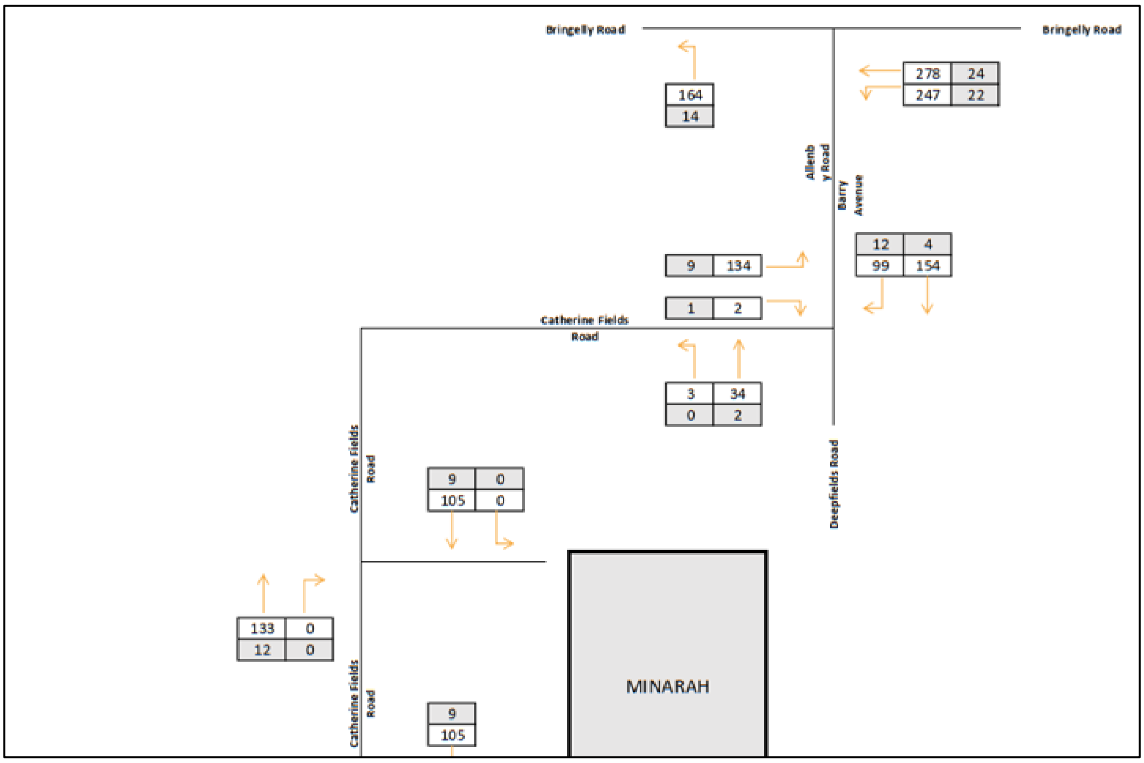

Figure 10: Existing (Background) Traffic Volumes (North)

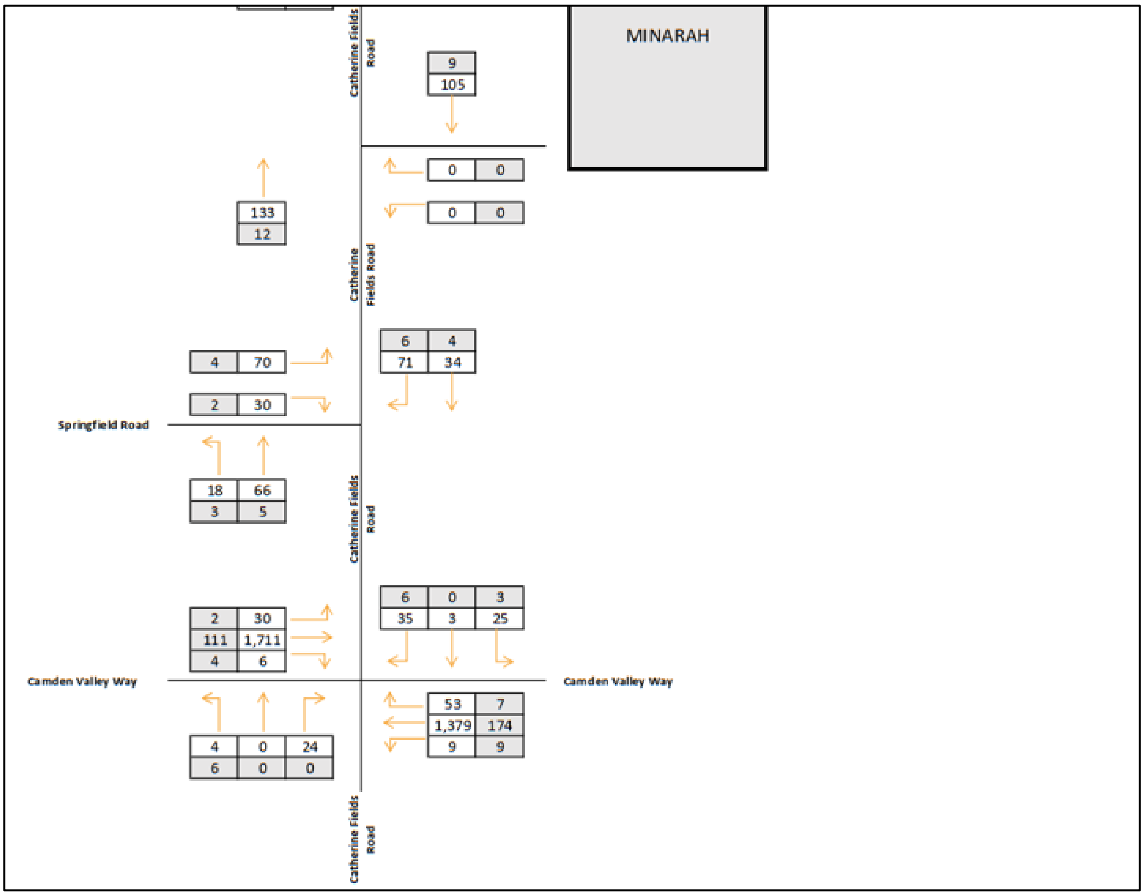

Figure 11: Existing (Background) Traffic Volumes (South)

3.2.3 Baseline SIDRA Performance Testing

The performance of the existing road network is largely dependent on the operating performance of key intersections, which are critical capacity control points on the road network. SIDRA Intersection 9 modelling software was used to assess the proposed peak-hour operating performance of intersections on the surrounding road network at key intersections within proximity of the site. In accordance with RMS (now Transport for NSW) *Guide to Traffic Generating Developments V2.2* (2002) (RMS Guide), the Levels of Service (LOS) relevant to local roads are used to evaluate the operational performance of intersections. According to the RMS guidelines, roads operating at LOS D or better are generally considered to have acceptable flow conditions because they are below capacity. Roads operating at LOS E or worse are generally considered to have unacceptable flow conditions because they are at or above capacity.

In this regard, the operating performance of the key intersections has been analysed using the SIDRA Intersection 9 software. SIDRA modelling outputs a range of performance measures, in particular:

- **Level of Service (LOS)** – The LOS is a qualitative measure used to relate the quality of motor vehicle traffic service. LOS is used to analyse roadways and intersections by categorizing traffic flow and assigning quality levels of traffic based on performance measures like vehicle speed, density, and congestion.
- **Average Vehicle Delay (AVD)** – The AVD (or average delay per vehicle in seconds) for intersections also provides a measure of the operational performance of an intersection and is used to determine an intersection's Level of Service (see below). For signalised intersections, the AVD reported relates to the average of all vehicle movements through the intersection. For priority (Give Way, Stop & Roundabout controlled) intersections, the AVD reported is that for the movement with the highest AVD.

– **Degree of Saturation (DOS)** – The DOS of an intersection (typically under traffic signal control) or a link measures the demand relative to the total capacity. A DoS value of 100% means that demand and capacity are equal and no further traffic is able to progress through the junction.

The SIDRA recommended criteria for the assessment of intersections as references by the RMS Guide are outlined in **Table 7**.

Table 7: RMS Level of Service Guidelines

TABLE 8: LEVEL OF SERVICE

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

3.2.4 SIDRA Layout

Figure 12 captures the layout geometry of the existing intersection configurations as interpreted in the SIDRA modelling software.

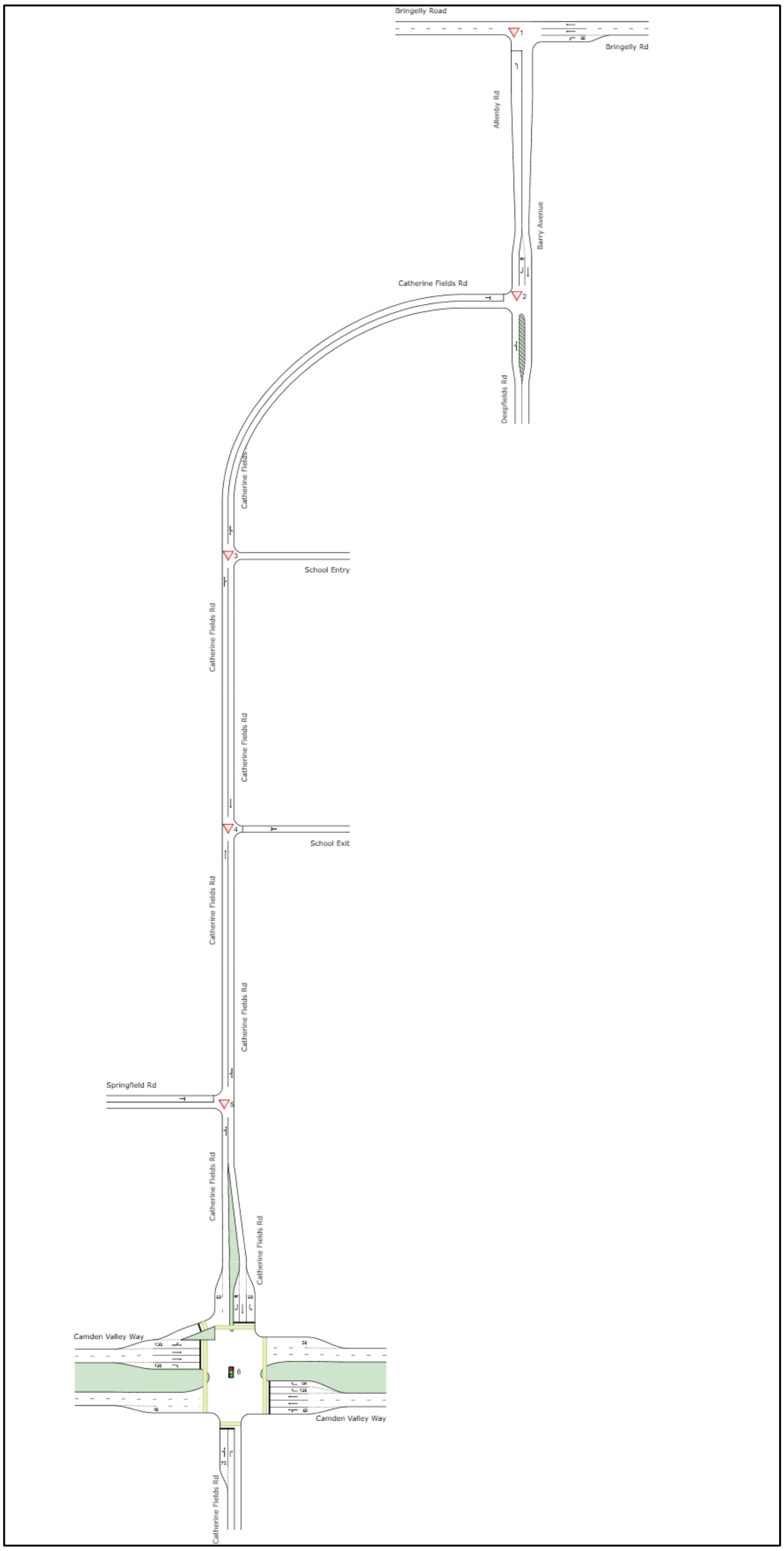

Figure 12: Existing intersection layout as modelled in SIDRA Intersection 9

3.2.5 Existing Intersection Performance

The Site is located in an area where it is expected that no pedestrian movements would be typical. As such, the existing baseline SIDRA model does not incorporate pedestrian movements. The results of the baseline SIDRA Intersection assessment are provided below in **Section 6.3.2.**

3.2.6 Road Safety

A review of the TfNSW *Centre for Road Safety* database has been undertaken to establish the crash history within the immediate vicinity of the Site. The results are based on crashes over a five-year period between 2015 and 2019. Locations of recorded crashes are shown in **Figure 13** and details summarised in **Table 9**.

A review of the crashes indicates that the majority of crashes have occurred at the Camden Valley Way / Catherine with several other crash occurrences at the Catherine Fields / Deepfields Road intersection.

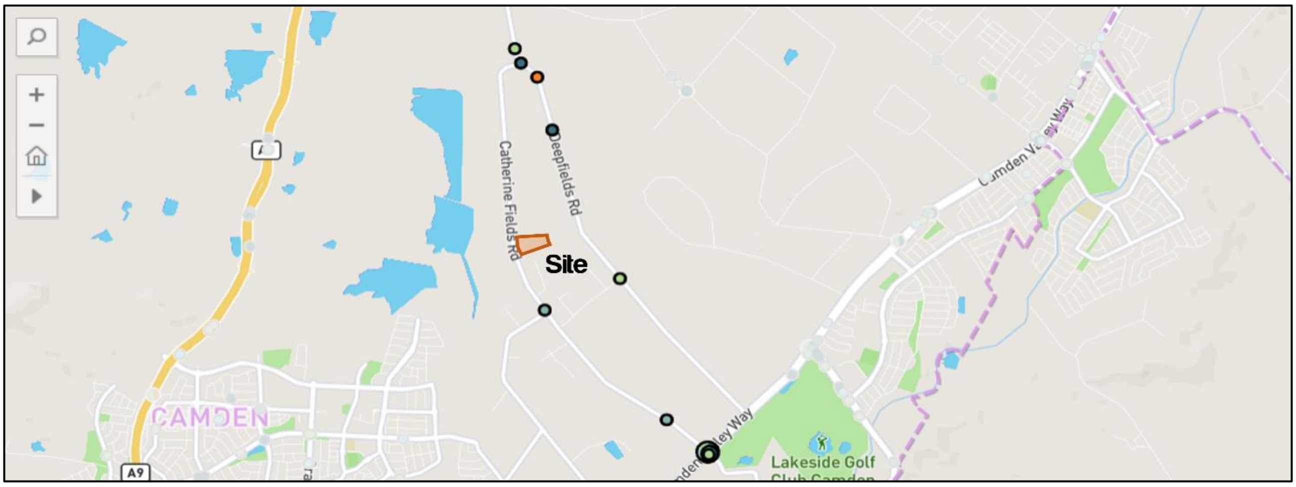

Figure 13: Crash Locations

TABLE 9: CRASH DATA

Year	Lighting	Description	Degree of Crash	Location
2019	Daylight	Right through	Moderate Injury	Camden Valley Way / Catherine Fields Rd
2018	Darkness	U-turn	Moderate Injury	Catherine Fields Rd / Springfield Rd
	Daylight	Overtake turning	Serious Injury	Deepfields Rd
2017	Daylight	Out of cont on bend	Serious Injury	Catherine Fields Rd / Deepfields Rd
	Daylight	Right through	Serious Injury	Camden Valley Way / Catherine Fields Rd
2016	Daylight	Rear-end	Serious Injury	Camden Valley Way / Catherine Fields Rd

	Daylight	Rear-end	Non-casualty	Camden Valley Way / Catherine Fields Rd
	Daylight	Rear-end	Minor/Other	Camden Valley Way / Catherine Fields Rd
	Darkness	Off rt/left bnd=>obj*	Fatal	Deepfields Rd
	Daylight	off left/right bend	Moderate Injury	Camden Valley Way / Catherine Fields Rd
	Daylight	Overtake turning	Non-casualty	Deepfields Rd
	Daylight	Rear end	Non-casualty	Camden Valley Way / Catherine Fields Rd
2015	Daylight	Off rd rght => obj*	Non-casualty	Barry Ave
	Dawn	Other opposing	Moderate Injury	Catherine Fields Rd
	Darkness	Off rd left => obj*	Non-casualty	Camden Valley Way / Catherine Fields Rd
	Daylight	Rear-end	Serious Injury	Camden Valley Way / Catherine Fields Rd
	Daylight	Off rd left => obj*	Minor/Other	Camden Valley Way / Catherine Fields Rd

** The vehicle ran off the road on a bend or turning a corner and hitting another object (either on the left or right side)*

3.3 Public Transport

3.3.1 Train Connectivity

With regard to accessibility to the existing and proposed rail network, the proposed school location is not situated within walking distance of a train station. Notwithstanding, the is a potential opportunity for ancillary serviceability (via shuttle or chartered services) from Leppington Station 5km to the northeast or Minto Station approximately 8km to the south-east.

Serviceability details are provided in **Table 10**, with reference to **Figure 14** below.

TABLE 10: TRAIN SERVICES

Line	Connection	Name	Frequency
T2	Leppington Stn.	Parramatta or Leppington to City	~ 4 services per hour
T5		Richmond to Leppington	~ 2 services per hour
T8	Minto Stn.	Macarthur to City via Airport or Sydenham	~ 4 services per hour
		City to Macarthur via Airport or Sydenham	~ 2 services per hour
T5		Leppington to Richmond	~ 2 services per hour

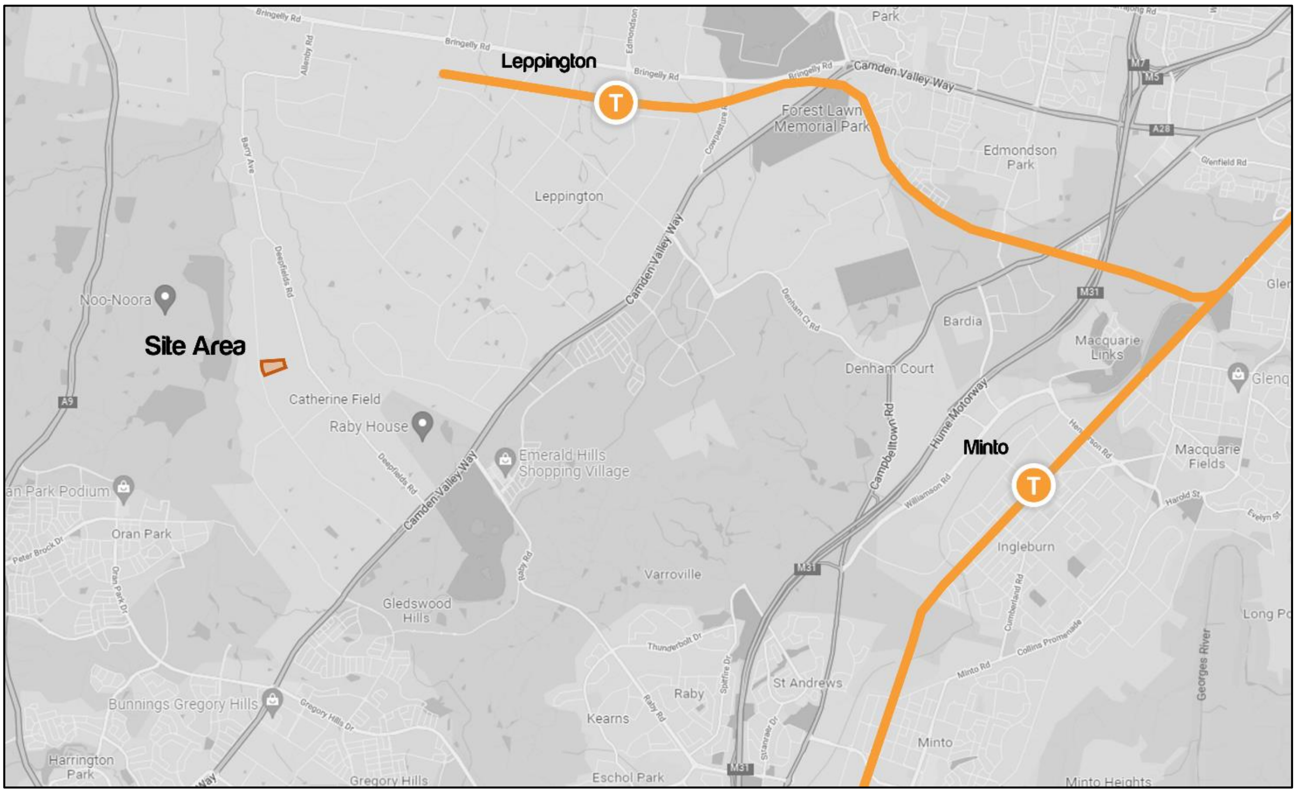

Figure 14: Train Stations

3.3.2 Public Bus Connectivity

With reference to existing public bus service connectivity for the area, a single bus stop location exists south of the Site along Catherine Fields Road and provides serviceability to two routes, summarised in **Table 11**.

TABLE 11: BUS SERVICES

Route	Description	Provider	Frequency
850	Narellan Town Centre to Minto	Interline Bus Services	~ 2 per hour during the day
857	Narellan to Liverpool	Interline Bus Services	~1 every 2-3 hours during the day.

Both routes listed above access Catherine Fields Road via Camden Valley Way, and typically loop via the adjacent Springfield Road as demonstrated in **Figure 15** rather than travelling the full extents of Catherine Fields Road northwards.

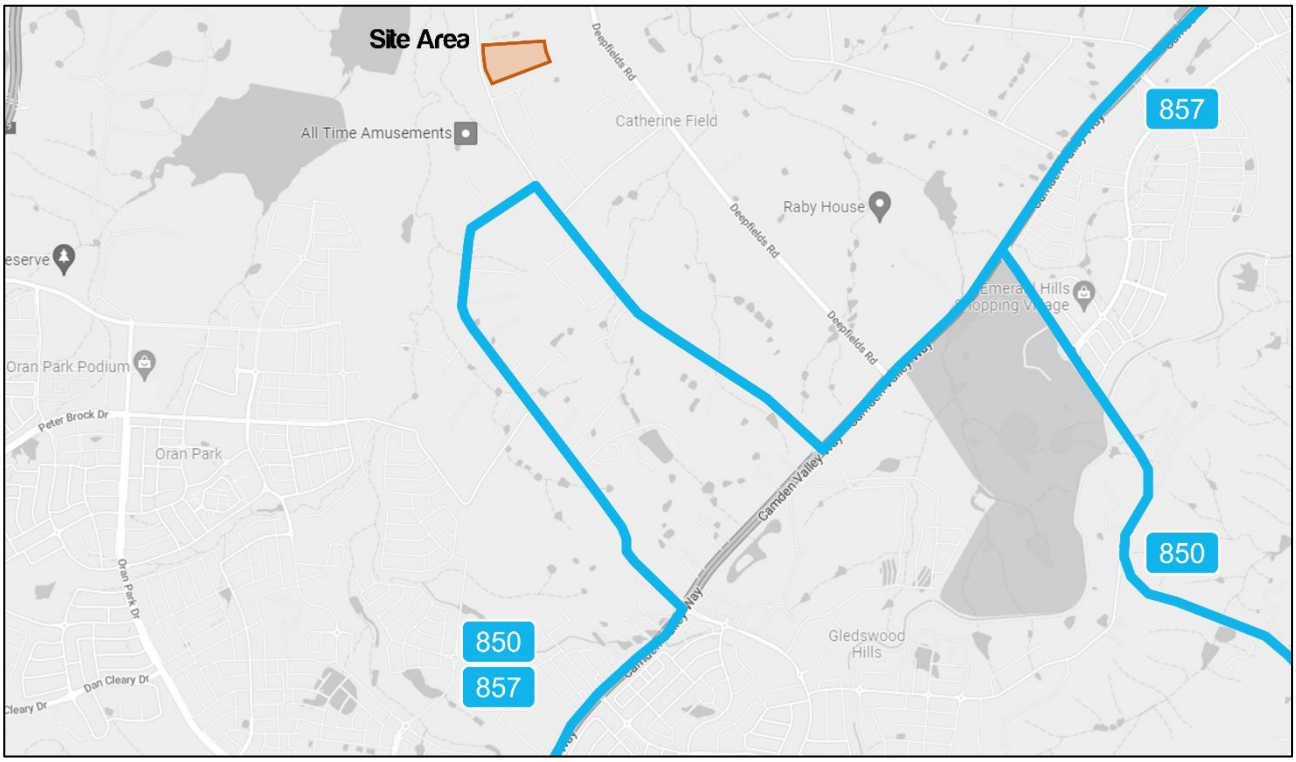

Figure 15: Catherine Fields Bus Routing

3.3.3 Future Opportunities for Services

Having regard to the above, it is demonstrated that part of Catherine Fields Road is adequately dimensioned to provide bus serviceability. As part of the school development, potential school bus routes should be explored in consideration of servicing the future student population.

3.4 Active Transport

3.4.1 Pedestrian Network

Currently, there are no provisions for footpaths along the Catherine Fields Road frontage in the northern or southern directions. As part of Councils' Pedestrian Access and Mobility Plan (2014), there is no anticipated footpath works planned for the Catherine Field area.

In the longer term, it is anticipated that future provisions relating to the residential development potential of the Catherine Field North Precinct will facilitate the growth and expansion of the footpath network and provide adequate connectivity through the locality.

3.4.2 Cycling Network

At present, there is limited cycling connectivity through the Catherine Field area, having regard for provisions immediate to the Site along Catherine Field Road, nor are there any plans of future provision for cycling

4 Preliminary School Travel Characteristics

4.1 Catchment Analysis

A preliminary catchment analysis has been undertaken by Lawrence Consulting.

The catchment analysis has nominated a 10km radius around the school and captures the following suburbs:

- Cobbity – Leppington
- Camden – Ellis Lane
- Elderslie – Harrington Park
- Mount Annan – Currans Hill
- Claymore – Eagle Vale – Raby
- Ingleburn – Denham Court
- Austral – Greendale
- Hoxton Park – Carnes hill – Horningsea Park
- West Hoxton – Middleton Grange, and
- Prestons – Edmondson Park.

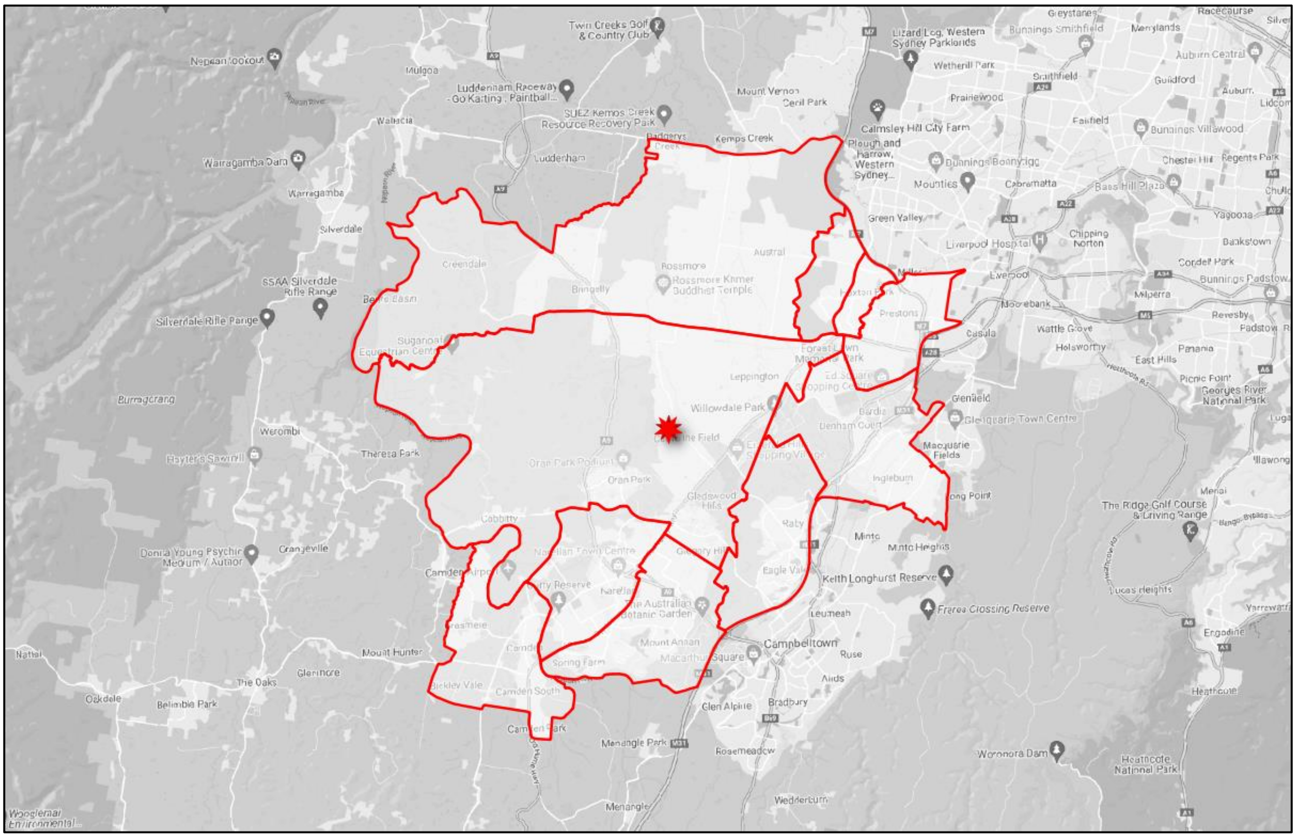

Figure 16: Catchment Map

It is considered that at this stage, the nominated catchment is indicatively provided until further consultation is undertaken with Department of Education to define specific catchment bounds. Noting that the GVC is observed to have a similarly large catchment area, the above can be denoted as acceptable.

4.2 Public Transport Catchment

In line with guidelines outlined by the NSW Government and TfNSW, the School Student Transport Scheme (SSTS) provides catchment guidelines to provide eligibility for school public transport.

For grades K-2, the following eligibility criteria apply:

- They are a resident of NSW, or an overseas student eligible for free government education.
- Aged 4 years 6 months, or older.
- No minimum walking distance criteria apply to these students.

For grades 3 – 6, the following eligibility criteria apply:

- They are a resident of NSW, or an overseas student eligible for free government education.
- The straight-line distance from their home address to school is more than 1.6 km.
- The walking distance from home to school is 2.3 km or further.

For grades 7 – 12, the following eligibility criteria apply:

- They are a resident of NSW, or an overseas student eligible for free government education.
- The straight-line distance from their home address to school is more than 2 km.
- The walking distance from home to school is 2.9 km or further.

As defined below, **Figure 17** below demonstrates the catchment exclusion zones for Grades 7-12 with reference to the proposed schools' location. The exclusion zones above demonstrate that both the 2km radius and 2.9km distance capture the more immediate Catherine Field area, indicating suitability for the school in terms of public transport eligibility.

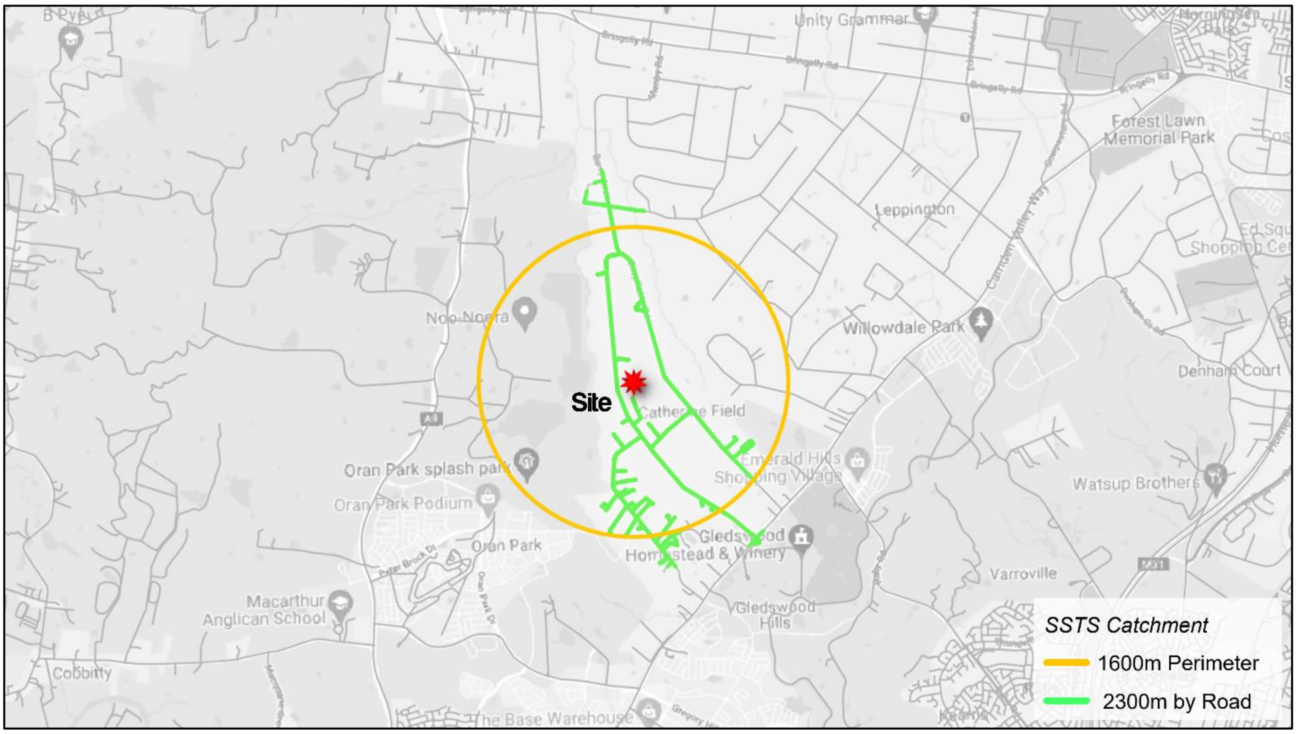

Figure 17: SSTS Exclusion Zones

The exclusion zones above demonstrate that both the 2km radius and 2.9km distance capture the more immediate Catherine Field area.

4.3 Active Transport Catchment

4.3.1 Pedestrian Catchment

SINSW have characterised the walking catchment of a school within 5, 10 and 15-minute walking distance increments (approximately 400m increments) of the school, representing desirability for the catchment area. **Figure 18** demonstrates the maximum catchment extents (1,200m) relative to the Site.

Given the nature of surrounding developments, the catchment perimeter demonstrates limited catchment effectivity as a result of the low-density / large lot nature of the surrounding residential area. In addition, the catchment lacks any meaningful pedestrian pathway provision to facilitate walking catchment, and no existing safe crossing opportunities to facilitate movements east-west across Catherine Field Road.

Figure 18: Pedestrian Catchment Zone

4.3.2 Cycling Catchment

In addition to the pedestrian catchment guidelines described by SINSW, the catchment areas for cycling are defined in a similar format based on 5-minute increments (approximately 1.2km increments). **Figure 19** illustrates the maximum extent of the cycling catchment zone (3.6km).

While the catchment map exhibits further-reaching extents, particularly towards the north and south, it should be noted that certain elements of cycling infrastructure – specifically relating to on-road cycling lanes, or lack thereof - may not be applicable, particularly for younger students as safe provisioning.

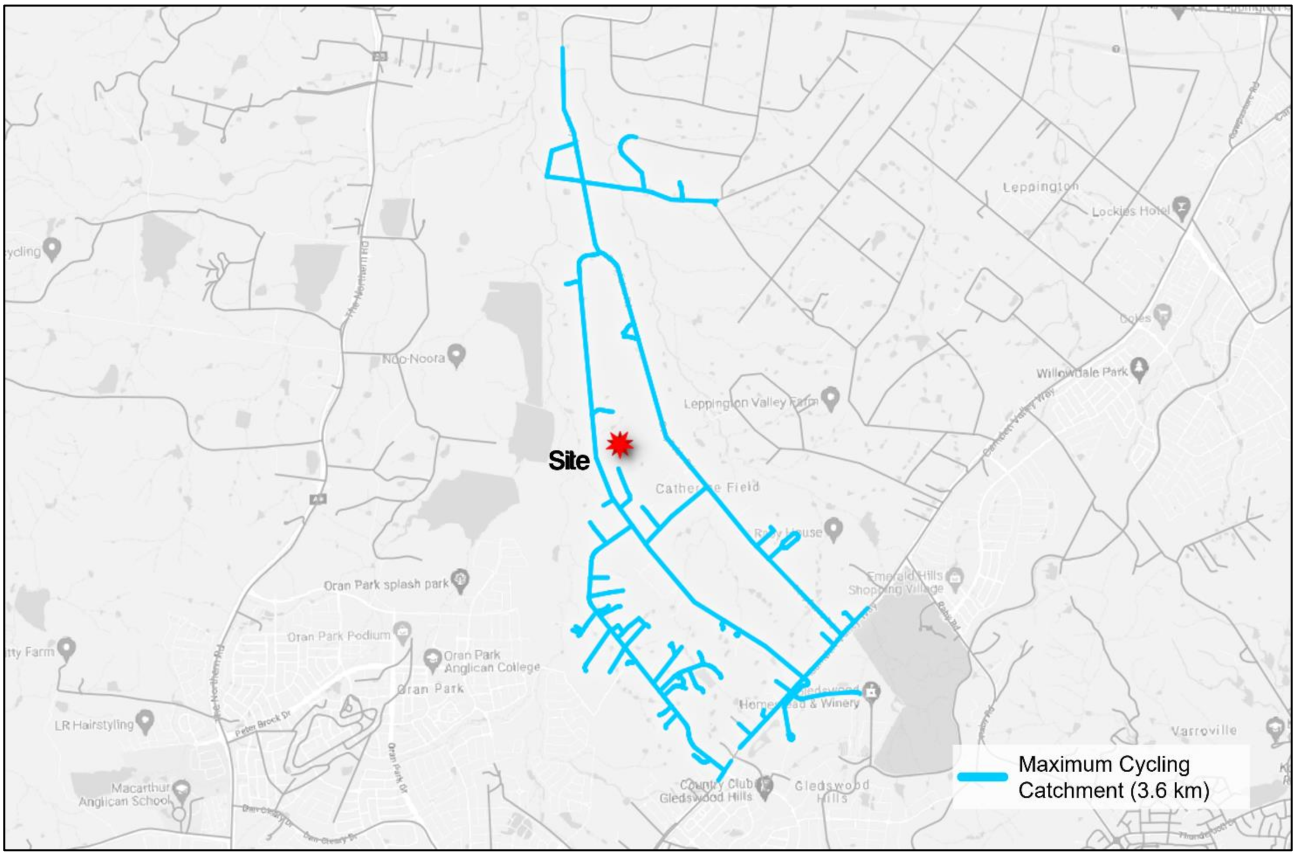

Figure 19: Cycling Catchment Zones

4.4 Travel Mode Surveys

As Minarah College will be a new school, there is no existing school or staff cohort. Comparison is instead drawn to the Green Valley Campus, which is run by the organisation.

Surveys of GVC staff and students were conducted to provide an understanding of travel characteristics, including:

- Travel mode for both the arrival and departure trips;
- Vehicle occupancy;
- Out of Hours School Care;
- Car Pooling, and
- Interest in different green travel strategies and initiatives.

Out of 1100 students, there were 386 responses, representing a 35% response rate. Out of 90 staff, there were 31 responses, representing a 34% response rate. Generally, a response rate of 20% or higher is considered an acceptable representation of the cohort, hence the resulting travel mode surveys are considered an accurate depiction of the travel patterns of GVC. It is envisioned as part of the maintenance of the future School Transport Plan as a live document, similar travel mode surveys are conducted for Minarah College to inform the travel patterns of the school.

4.4.1 Students

Student Arrival/ Departure Time

In an operating capacity, the school period and bell times occur between 08:55 and 14:55 during weekdays, with student arrival typically occurring between 7:30 am and 8:30 am, peaking in the 8:00 am-8:15 am window. Student departure typically occurs between 3:00 pm and 4:00 pm, peaking in the 3:15 pm-3:30 pm window. The exact school hours are to be confirmed for Minarah, however, are expected to be similar to GVC at this stage. Figure 20 and Figure 21 present the typical student arrival/ departure times for GVC.

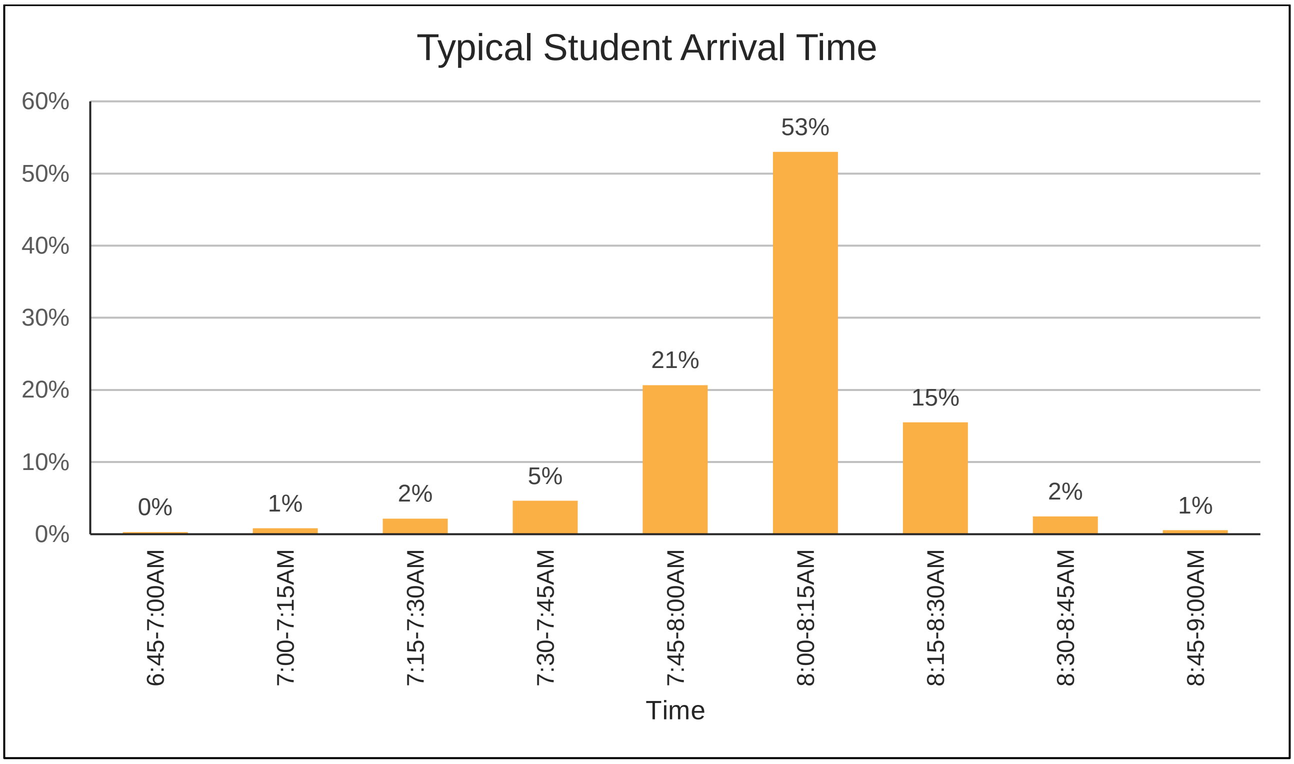

Figure 20: Typical Student Arrival Time (GVC)

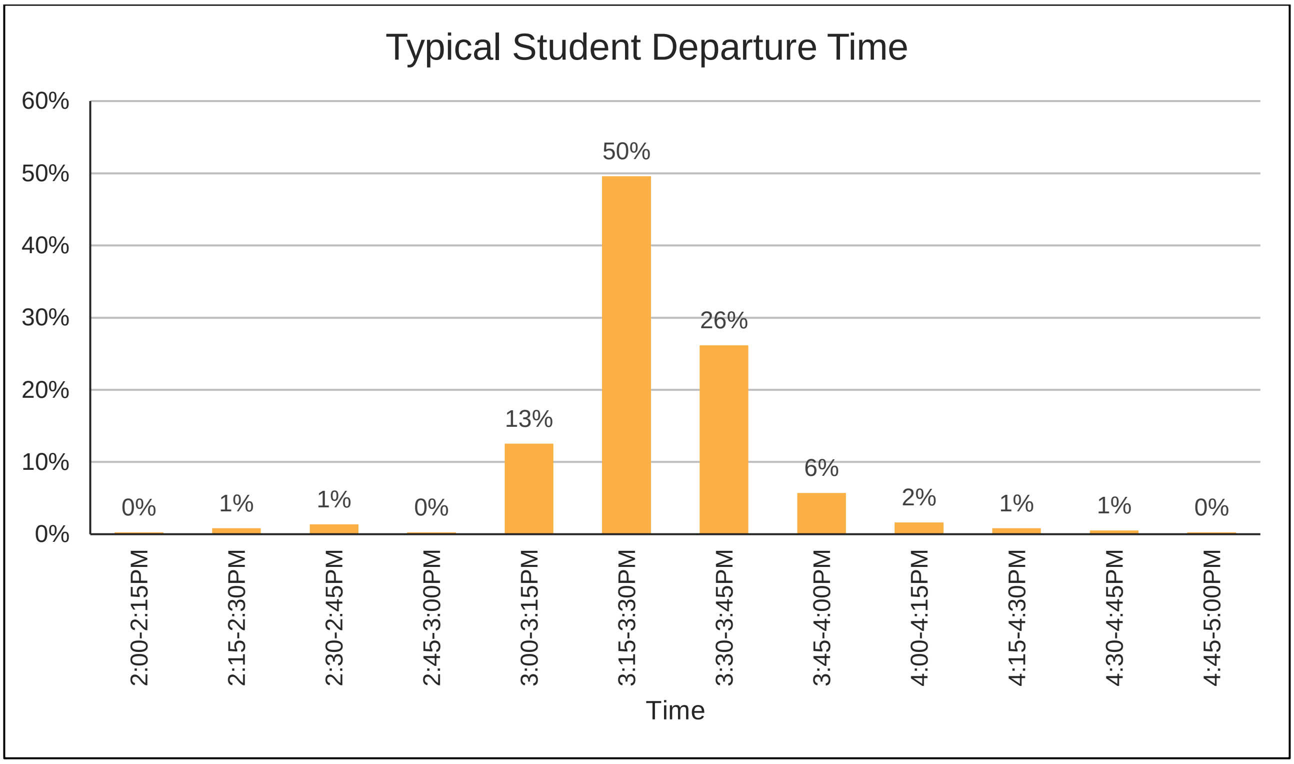

Figure 21: Typical Student Departure Time (GVC)

Student Travel Mode Share

As part of the undertaken student surveys, an appreciation for modal travel has been obtained to provide indicators for travel behaviour and interactions with the School. Accordingly, Figure 22 demonstrates the modal breakdown of student trips to GVC.

As seen in the graph, GVC demonstrates a high dependency on private vehicle travel with car mode share representing almost 90% of the modal split. Small numbers of the GVC student cohort catch the bus (around 4%) and walk (around 6-7%). The “other” trips represent survey responses where the mode share was not able to be determined due to a lack of clarity in the response.

It is anticipated that the nature of the GVC is expected to be similar to the proposed Minarah Campus, due to the nature of the surrounding area and school catchment.

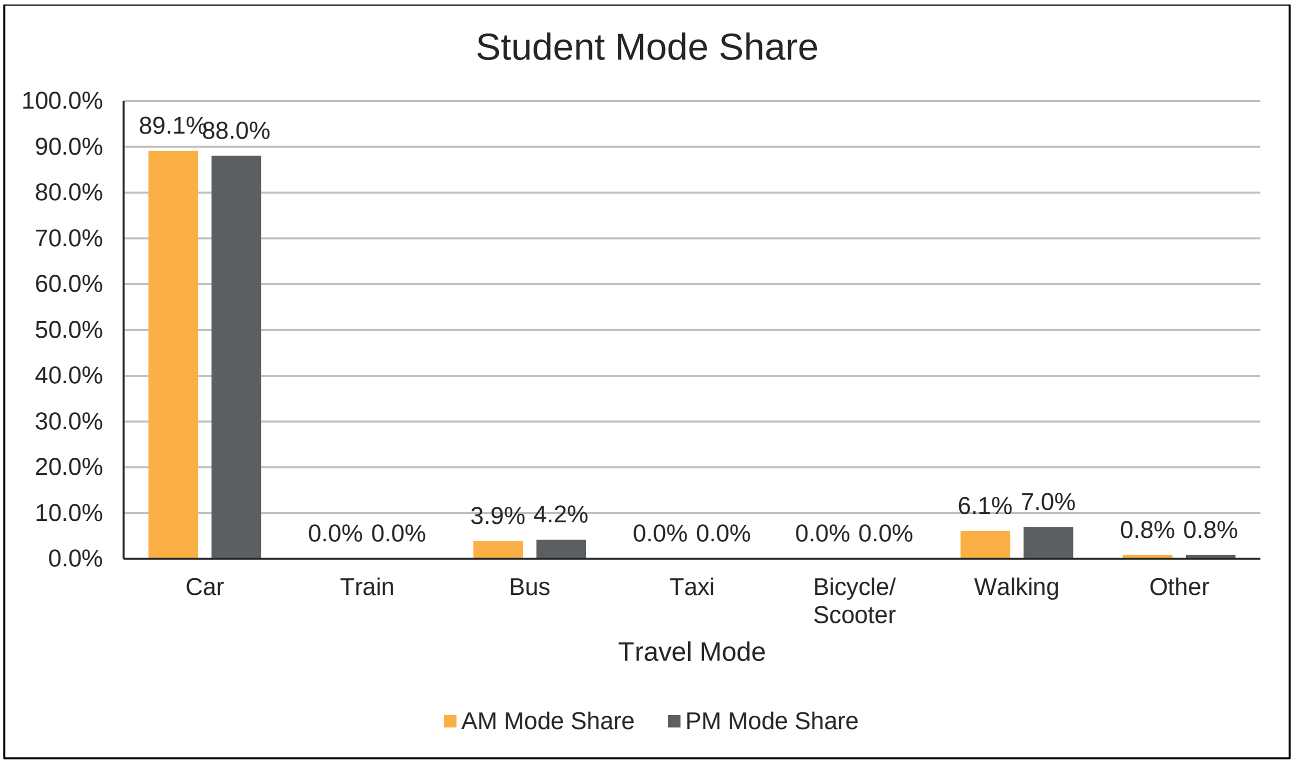

Figure 22: Student Mode Share (GVC)

Car Pooling

The GVC surveys found a moderate level of car pooling. 75% of students that travelled via car did not have another student in the vehicle, however, some students travelled with large numbers of other GVC students as indicated in Figure 23. Based on the survey data, an average occupancy rate of 1.61 students per car was determined.

As the student population of Minarah is expected to present similar family structure characteristics, this occupancy rate is also adopted for the traffic assessment.

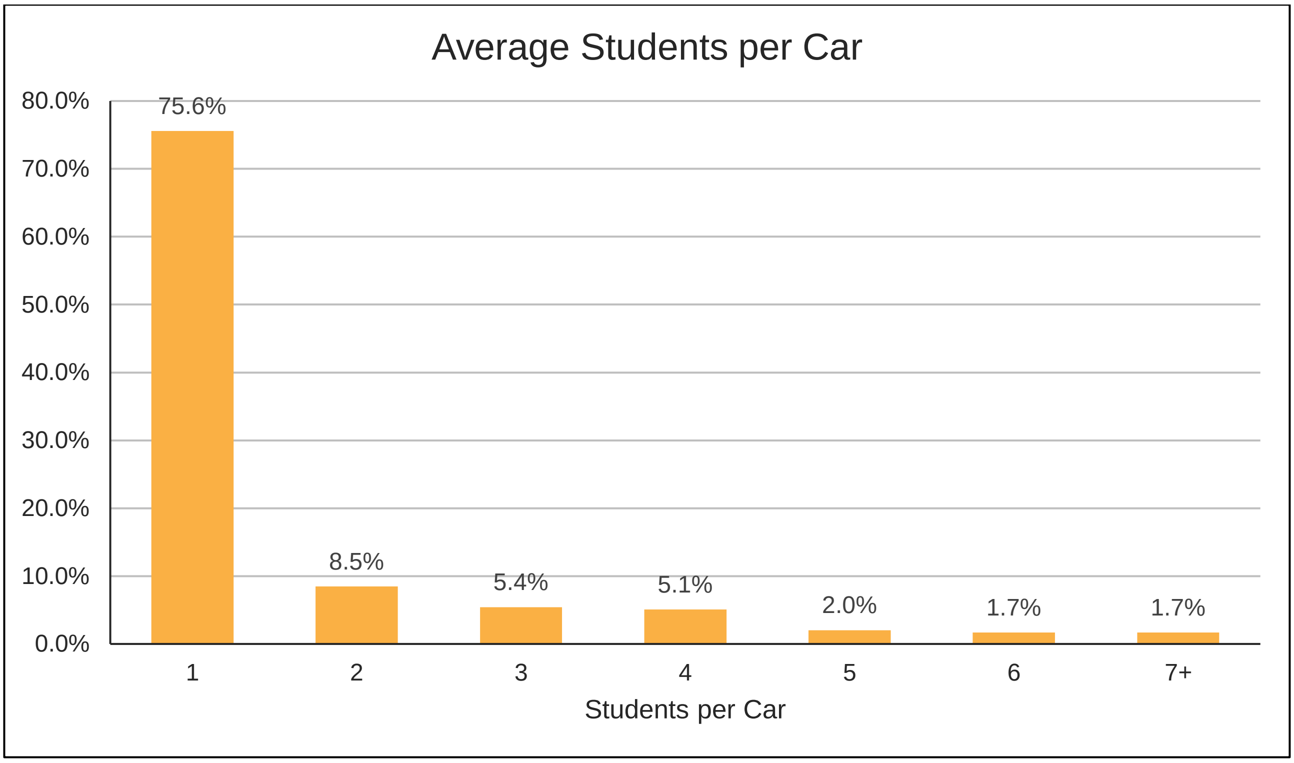

Figure 23: Average Students per Car (GVC)

4.4.2 Staff

Staff Arrival/ Departure Time

As outlined in Section 4.4.1, the student peak periods based on the travel mode surveys were 7:30 am-8:30 am and 3:00 pm-4:00 pm. Based on the surveys, the staff peak periods are noted to be slightly earlier than the morning student peak and substantially later than the evening student peak, as illustrated in Figure 24 and Figure 25. Around 70% of staff arrivals coincide with the morning peak and around 27% of staff departures coincide with the evening peak. This is typical in our experience for school developments due to marking and other administrative tasks that occur after students depart. It is expected that similar patterns will hold for Minarah.

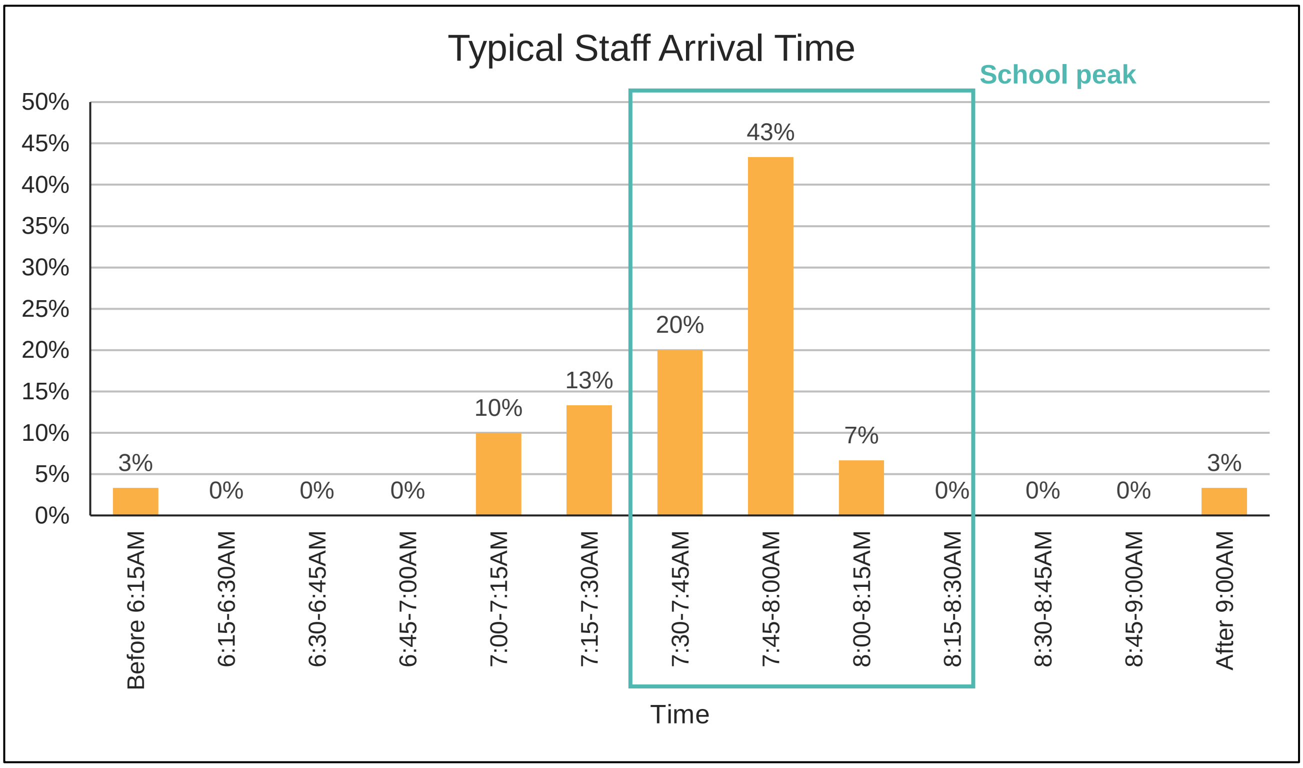

Figure 24: Typical Staff Arrival Time (GVC)

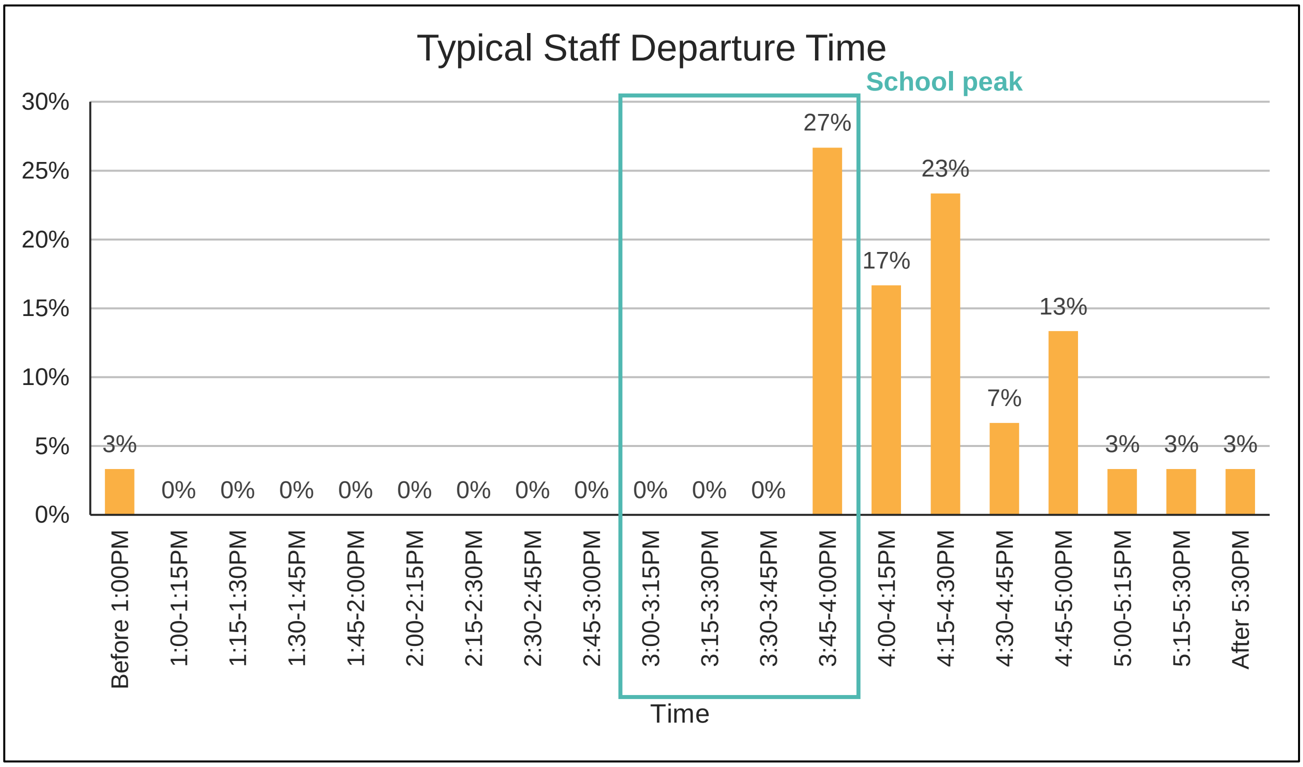

Figure 25: Typical Staff Departure Time (GVC)

Staff Travel Mode Share

The staff surveys found that almost all staff drive. Of the 30 responses, 29 travel to and from school via car, representing a 97% mode share. One respondent travelled to and from school by walking. For the purposes of the Minarah assessment, it is assumed all staff will drive to school.

Students Traveling with Staff

Based on the GVC surveys, it was found that a third of the surveyed staff had children (GVC students) that travelled with them to/ from school (see **Figure 26**). As a result, these students effectively do not generate any additional trips as their travel to school would be captured within the staff trips. Each staff member had an average of 0.67 students that also travelled with them to/ from school.

As the student/ staff population of Minarah is expected to present similar family structure characteristics, this consideration is also adopted for the traffic assessment.

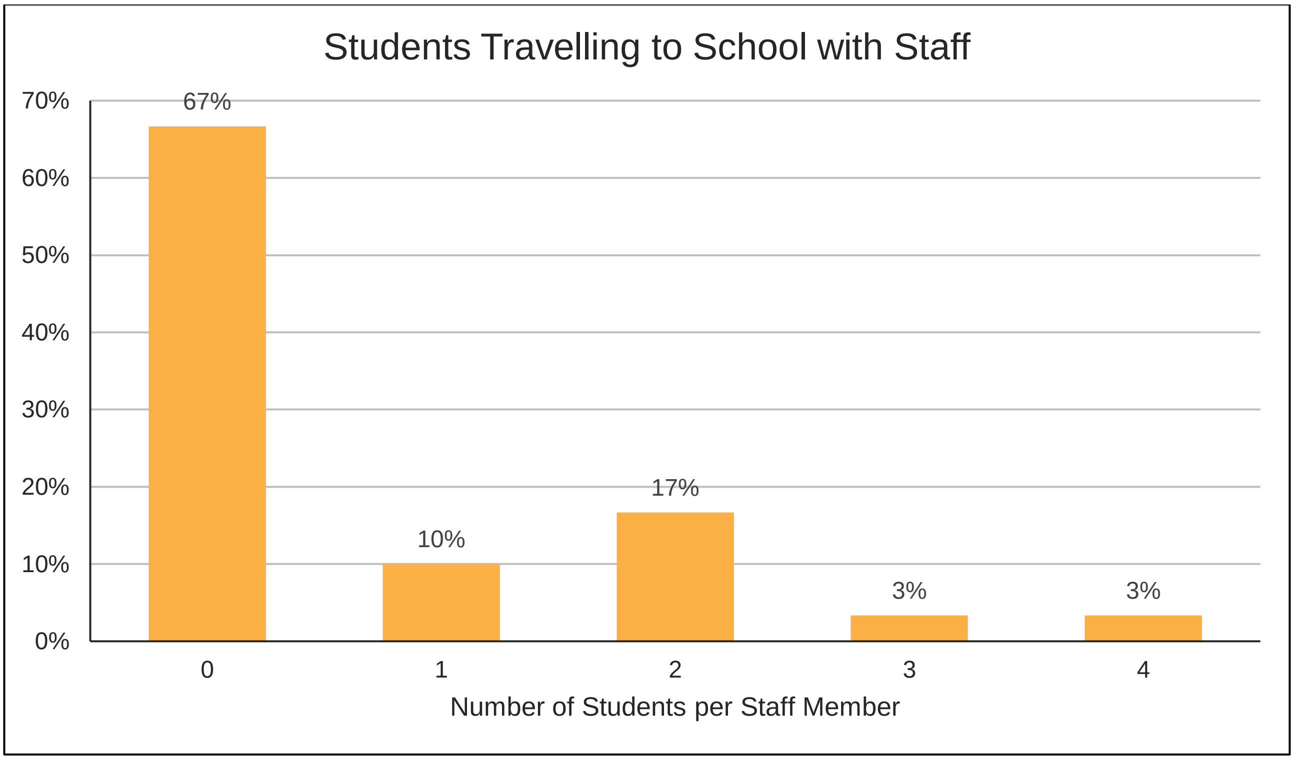

Figure 26; Students Travelling to School with Staff

Staff Attendance

From the GVC surveys, it was found that not all staff attend the school full-time. Some staff worked part-time (around 7%) and one surveyed staff member only attended the school once a fortnight. A review of the data found that each staff member, on average, attends the school 4.7 days per week, or 94% of an equivalent full-time attendance. This rate is also adopted for the Minarah staff traffic generation.

5 The Proposal

5.1 Ultimate Yield

The College Campus has been proposed over a 19-year planning horizon, with full development (Stage 5) anticipated to commence in 2040. At this time, the ultimate development yield is anticipated as follows:

- A total gross floor area of 13,901 m^2,
- An ultimate student capacity of 1,580 students between K-12 and will also include dedicated classrooms for preschool and specialist support students.
- A dual-lane 30-vehicle Kiss & Ride capacity,
- 86 Staff Parking spaces
- Ancillary structures include an Early Learning Centre (ELC), basketball court, football field and play areas.

5.2 Development Staging

Development of the campus has been nominally divided into 5 stages, with each stage anticipating to increase in student capacity as additional buildings come online. Development staging is summarised below.

TABLE 12: STAGED STUDENT AND STAFF NUMBERS

	Stage 1 2025	Stage 2 2031	Stage 3 2035	Stage 4 2038	Stage 5 2040
ELC (pre-school)	18	42	60	60	60
Schools for Specific Purposes (SSPs)	0	10	20	20	20
Primary (K-6)	300	600	840	840	840
Secondary (7-12)	0	0	60	360	660
Total Student Capacity	**318**	**652**	**980**	**1,280**	**1,580**
Projected Full Time Equivalent Staff	**15**	**33**	**51**	**66**	**86**

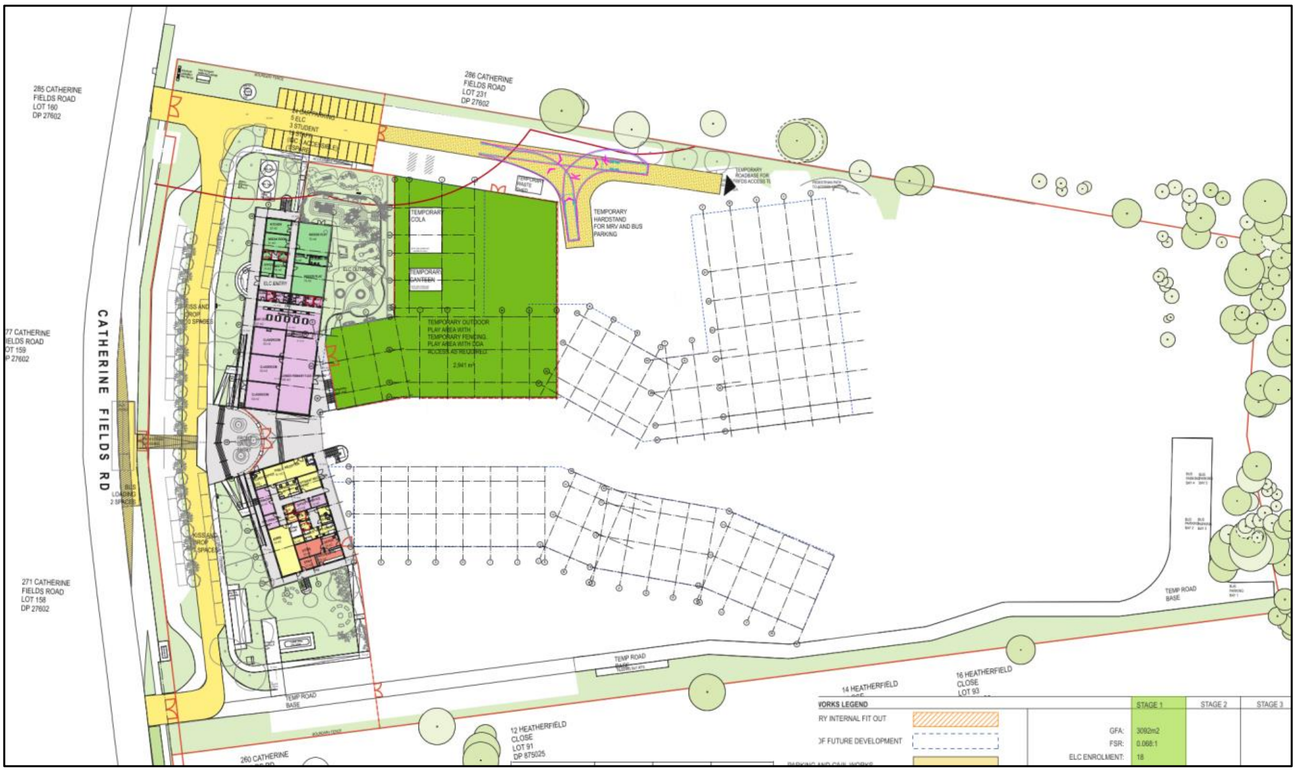

Figure 27: Stage 1

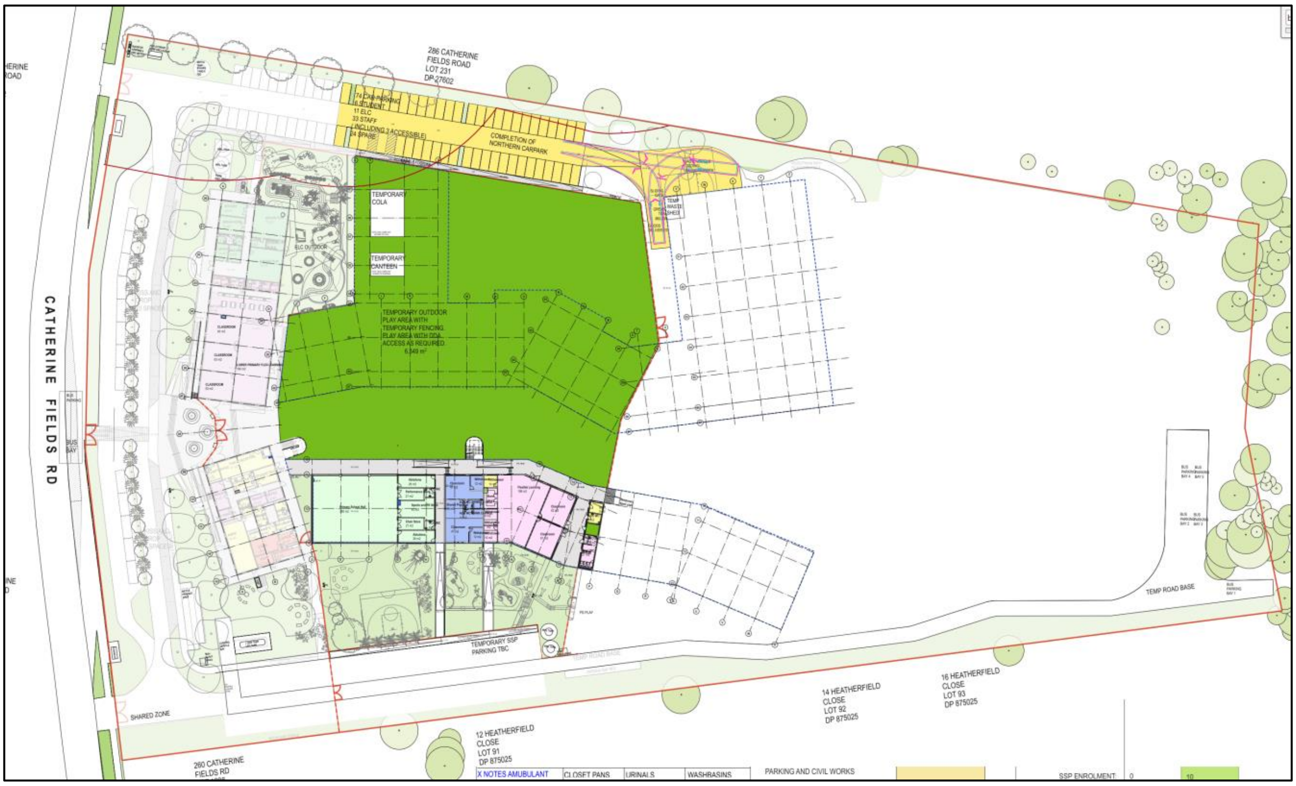

Figure 28: Stage 2

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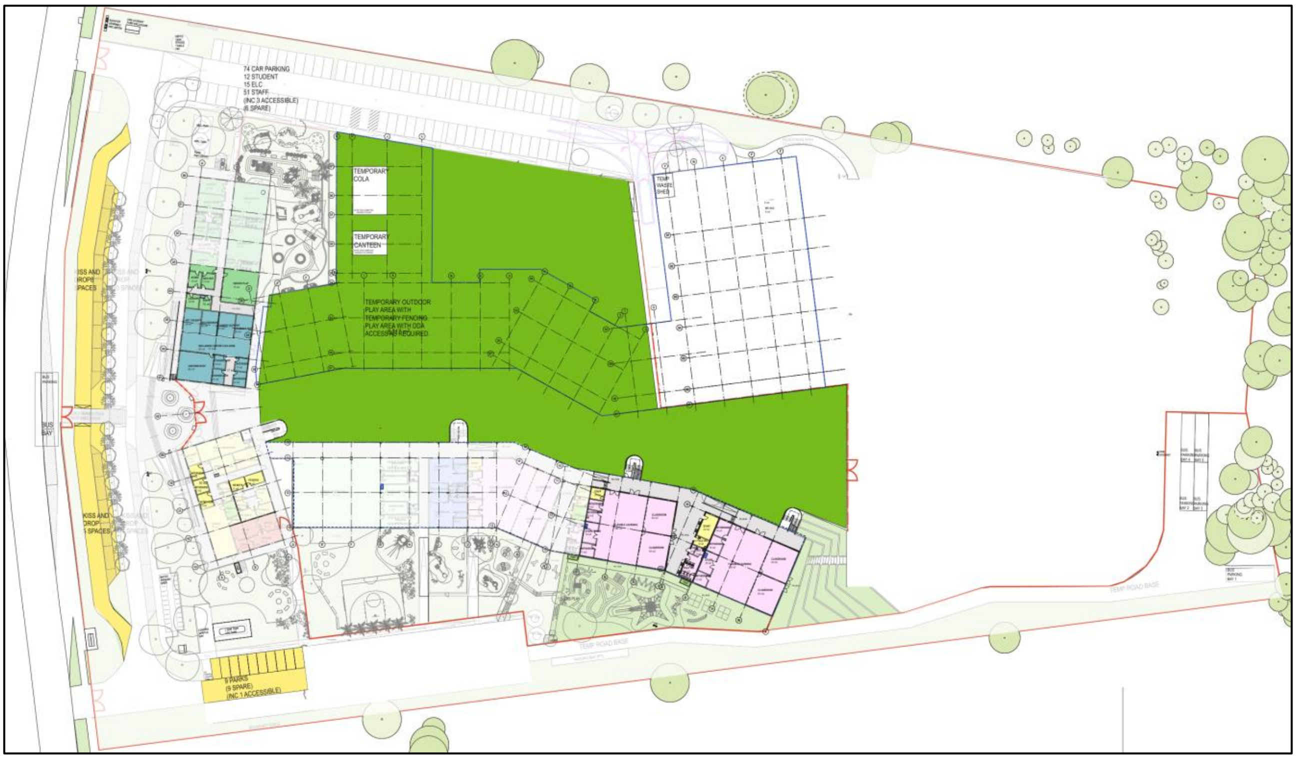

Figure 29: Stage 3

Figure 30: Stage 4

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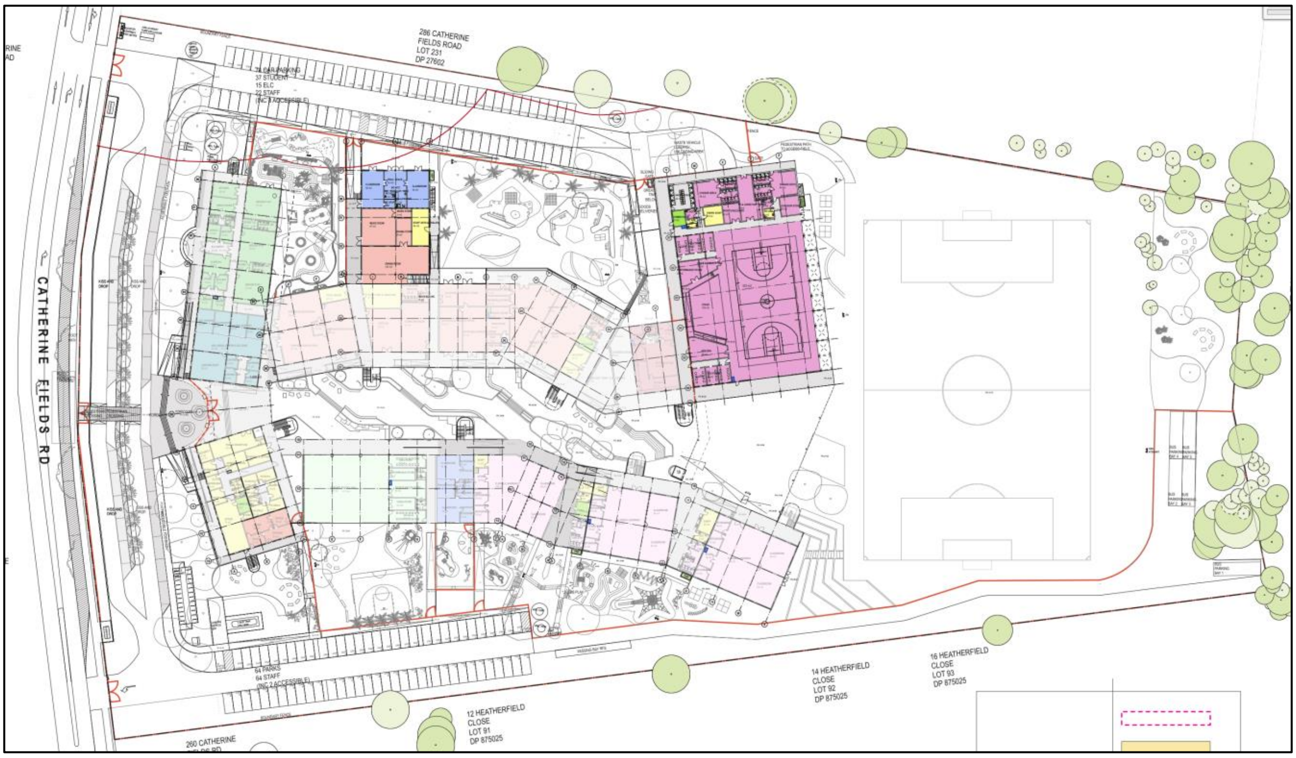

Figure 31: Stage 5

5.2.1 ELC Operations

The Early Learning Centre is proposed at the north-west of the Site towards the Catherine Field frontage. Enrolment for ELC is anticipated to start on commencement of Stage 1 (2025), with full capacity of the centre expected during Stage 3 (2035).

5.2.2 SSP Operations

Two areas of the constructed buildings are proposed for SSP classrooms to provide facilities for Primary School-aged and high-school-aged special needs children:

- The high school SSP classrooms are located to the north of the performing arts and tactile arts building; and
- The primary school SSP classrooms are located on the western side of the Kindergarten building.

Intake for SSP operations is expected to commence in Stage 2 (2031) before full capacity enrolment opens in Stage 3 (2035).

5.3 Vehicle Access

Vehicular access into the School is discussed below. It should be noted that all parking arrangements are for the completion of Stage 5 of the School.

5.3.1 Staff Car Park

The staff car park is located on the northern and southern sides of the School's compound with the following parking provisions:

- Northern Carpark: 22 spaces (1 accessible space)
- Southern Carpark: 64 spaces (2 accessible spaces)

Total: 86 spaces (3 accessible spaces)

Access to the staff parking areas will occur via the northern crossover on Catherine Field Road. Staff accessing the southern car park will proceed through the Kiss & Ride area, as demonstrated in **Figure 32** below.

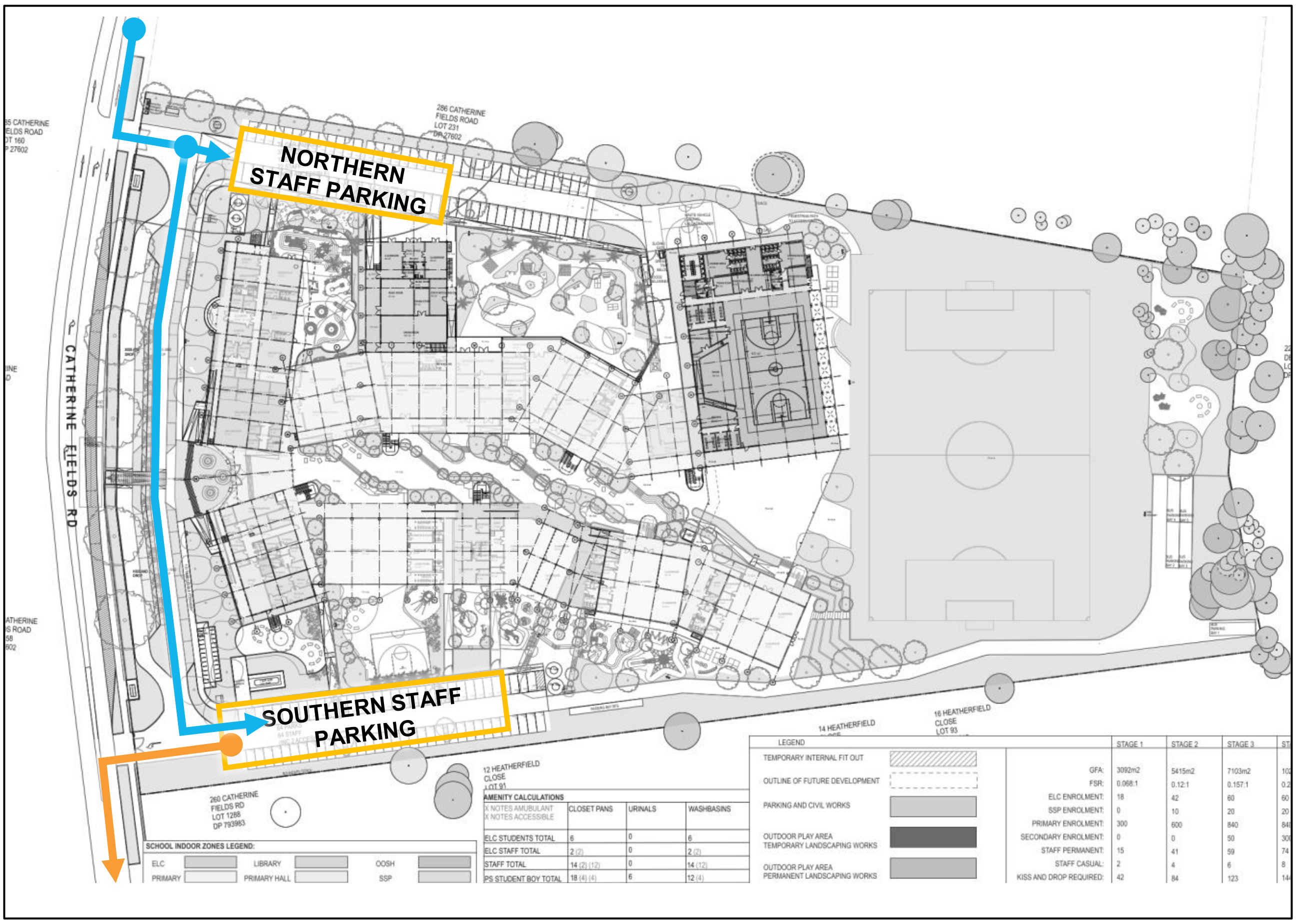

Figure 32: Staff Car Park Location

5.3.2 Student & ELC Car Park

Student and ELC parking is proposed in the northern car park with the following parking provision:

- Student: 37 spaces (for primary and secondary students per Camden Council DCP)
- ELC: 15 spaces (per Camden Council DCP)

Access and egress to the area are demonstrated in **Figure 33**.

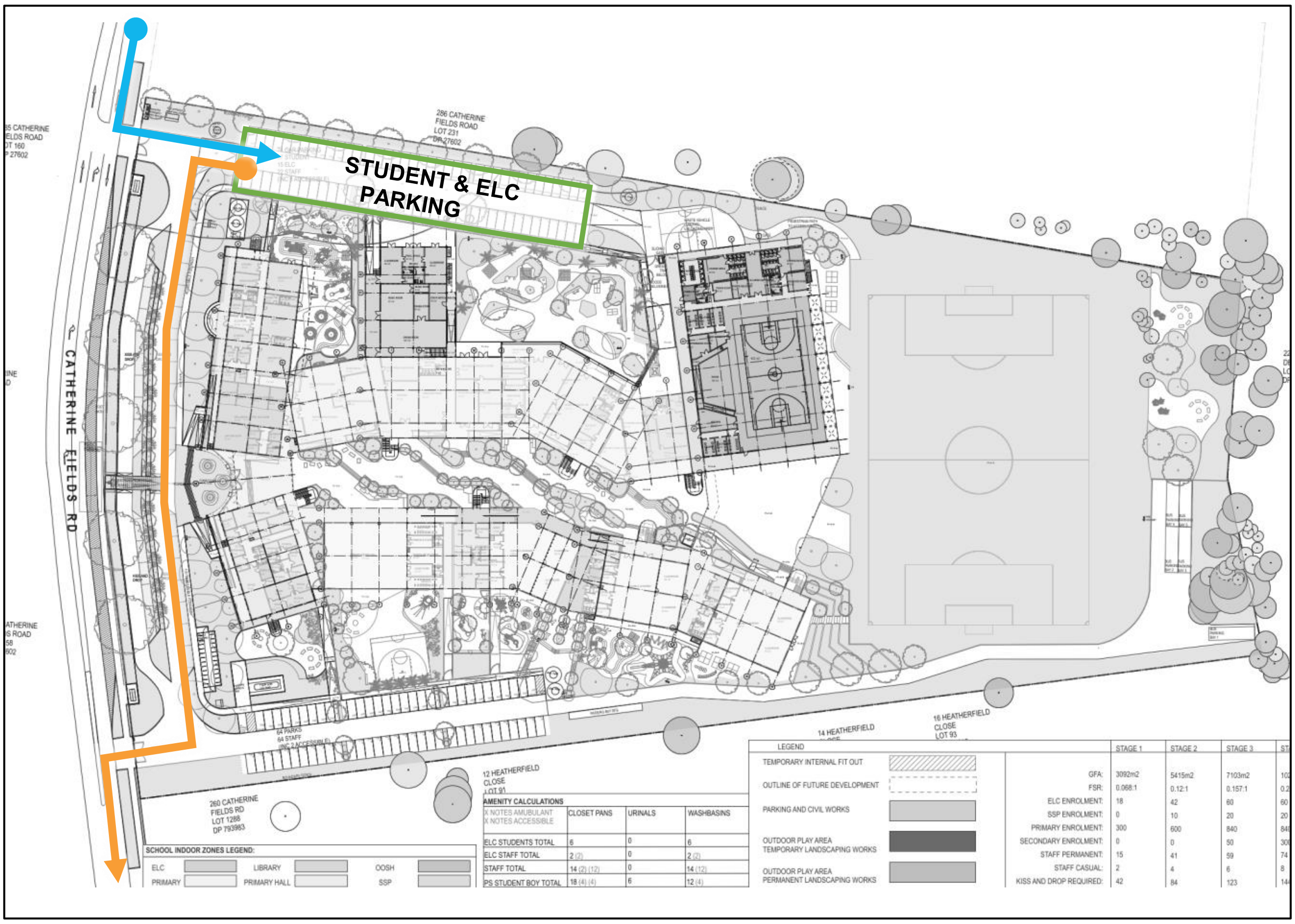

Figure 33: Student & ELC Car Park Location

5.3.3 Kiss & Ride

A total of 30 spaces are provided for Kiss & Ride access, divided between two lanes. These spaces are accessed via the northern crossover, and exit via the southern crossover as demonstrated in **Figure 34**.

Figure 34: Kiss & Ride Location

5.3.4 Public Bus

To facilitate the safety of students, it is proposed to provide indented bus bays on the eastern side of Catherine Fields Road at the western frontage to the School, as detailed in **Figure 35**. The bus bays will be sign-posted as a bus zone and will be utilised for public buses during the School's am and pm peak operating periods. After these hours, the bays will have no restrictions and can be utilised as regular on-street parking. Signage and line-marking plans associated with the bus zone will be submitted to Council's Local Traffic Committee for approval prior to the issue of a Construction Certificate**.**

A 1.8m wide footpath will be provided adjacent to the indented bus bays with a direct pedestrian crossing to/from the main front gate. The proposed width is in accordance with the Austroads Guide to Road Design Part 6A: Paths for Walking and Cycling – (Table 5.1 Width requirements for pedestrian paths) for pedestrian paths with high volumes where a minimum width of 1.8 m is required to allow two wheelchairs to comfortably pass each other.

Figure 35: Bus Stop Location

5.3.5 Private Chartered Bus

The School has proposed to arrange for the services of five private chartered buses for exclusive school use with the buses parked on school grounds when not in use. The buses will utilize the eastern lane in the school kiss and ride area to drop off / pick up students then proceed to the back of the school to be parked until required as shown in **Figure 36**.

Note that the chartered bus drop off / pick up time will be staggered away from the main kiss and ride utilization times to ensure kiss and ride traffic is not impacted by bus access.

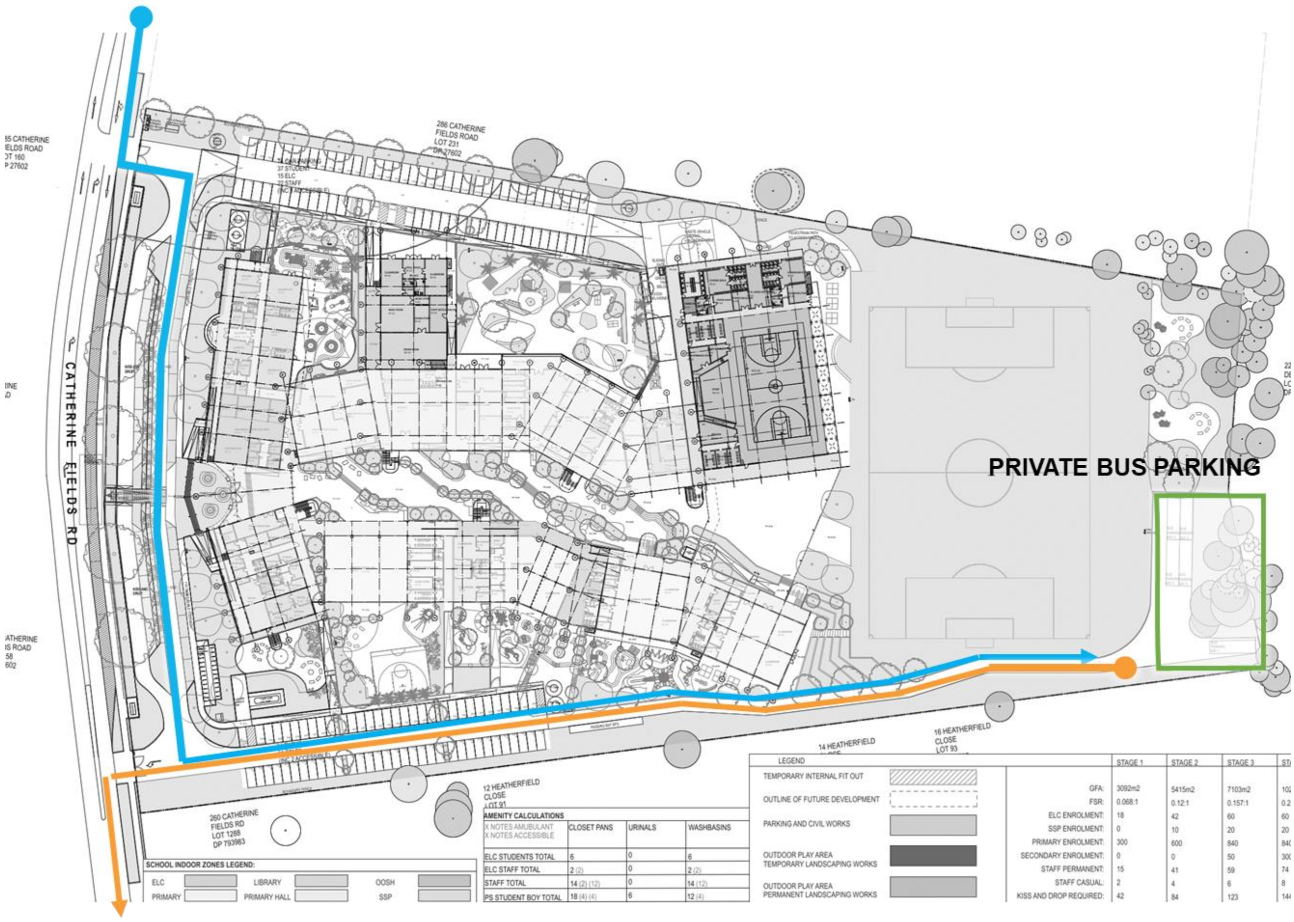

Figure 36: Private Chartered Bus Access

5.3.6 Servicing Vehicles

All major deliveries and waste collection will occur in the designated loading area north of the hall through the northern carpark, as shown in **Figure 37**.

The loading area has been designed in accordance with AS 2890.2:2018 and can accommodate up to one 12.5m heavy rigid vehicle (HRV). The truck will enter and exit the School in a forward direction via a 3-point turn.

Delivery times will be strictly managed, whereby regular services are subject to strict timelines to ensure the minimum movements possible and these occur outside of the school peak periods. Deliveries will be managed by the School's administration and management staff and will ensure that drivers are familiar with the details of the Plan, as well as the Code of Conduct (refer to the School Transport Plan).

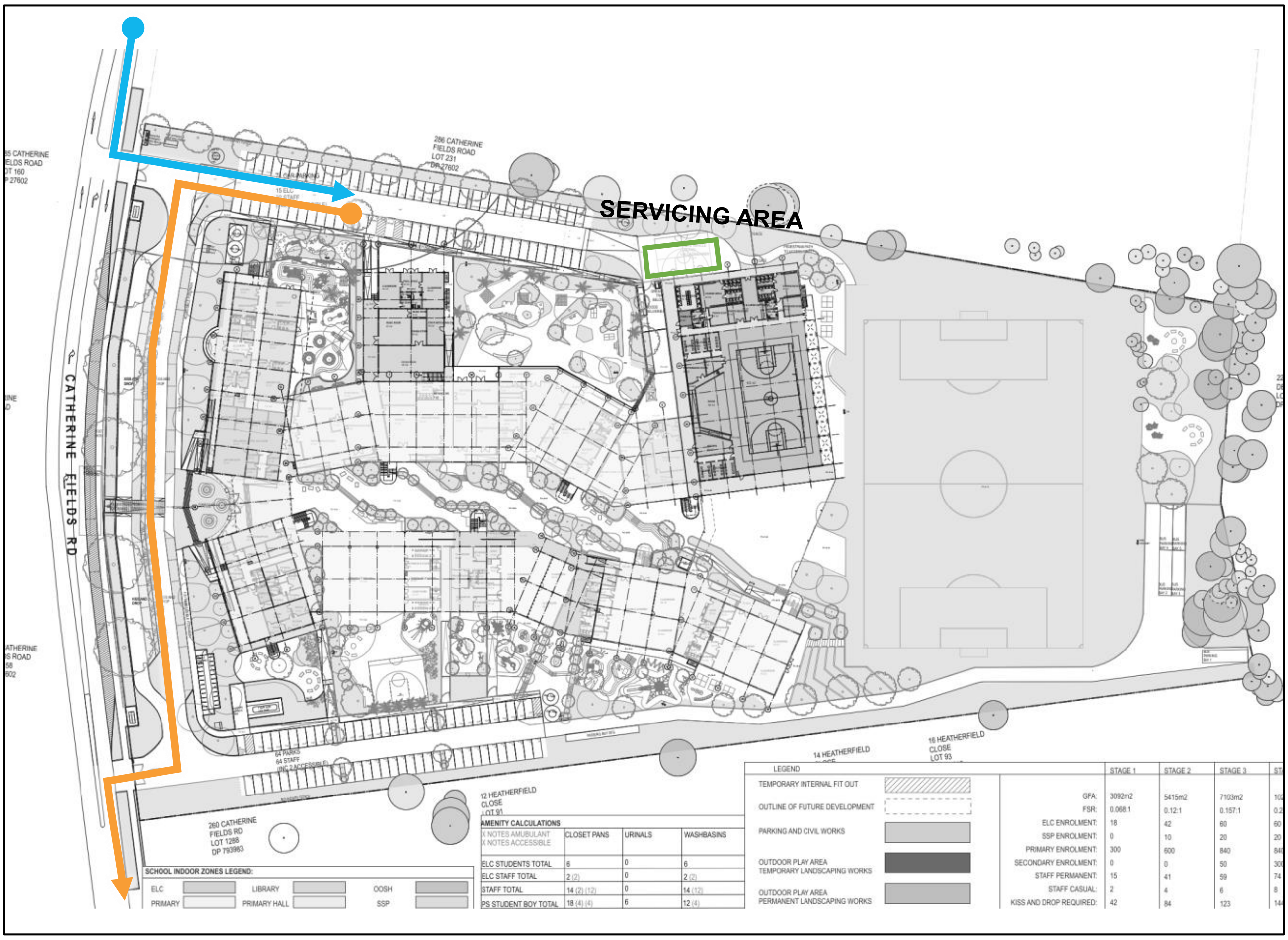

Figure 37: Servicing Location

6 Traffic Assessment

6.1 Trip Generation

6.1.1 Trip Rates

The trip generation rate assessment has been conducted in consideration of guided trip generation surveys prepared by GTA Consultants on behalf of TfNSW, as well as independent travel data surveys undertaken by the Schools' administration for their adjacent Campuses in Green Valley.

GTA report states the following average vehicle trip generation per student from Table 6.2 of the GTA report are, as follows:

- AM School Peak 0.62 Trips / Student
- PM School Peak: 0.43 Trips / Student

Notwithstanding the above, the proposed School presents its unique characteristics in comparison to other educational facilities across the state based on the following key characteristics:

- Typically, the Green Valley Campus has demonstrated a substantially larger student catchment area, as the school readily provides for Islamic families.
- High private vehicle ridership has been observed, with a substantially lesser reliance (close to zero) on public transport options for the Green Valley Campus.
- The school intends to provide for both primary, secondary and special education students, whereas typical surveyed schools have predominantly provided for a single education level.

Based on the above, an assessment of travel survey results from the Green Valley Campus (GVC) has been undertaken to determine an appropriate trip rate to form the basis of assessment for the Catherine Field Campus. The trip rate accounts for the number of students in OOSH, as well as typical car occupancy for students. The assessment yields the following trip rate:

- 0.496 trips per student during AM and PM School Peak.

When compared with the results of the GTA Report analysis, the GVC trip rate is demonstrated to be consistent with the average of the AM and PM peak rates established in the GTA report and is considered appropriate to use for traffic generation assessment.

6.1.2 Net Traffic Generation

Application of the GVC trip rate to the development stages of the proposal is provided in the following table and considers the impacts of the staged enrolment process over the 20-year period.

TABLE 13: STAGED TRIP GENERATION

Development Stage	Year	Total Student Capacity	ELC	Anticipated Staff	AM School Peak Movements	PM School Peak Movements
Stage 1	2025	318	18	15	157	157
Stage 2	2031	652	42	33	320	320

Stage 3	2035	980	60	51	482	482
Stage 4	2038	1,280	60	66	632	632
Stage 5	2040	1,580	60	86	783	783

6.1.3 Queuing Analysis

With consideration for the trip generation detailed in Table 13, a queuing analysis has been undertaken to assess the operation for the kiss-and-ride area and determine the 95th%ile queue is influenced by the following key factors:

- Managed kiss-and-ride bays.
- Service time.
- Vehicle trips.

It is noted that while a total of 30 kiss-and-ride bays are provided across 4 separate areas, all will be managed by a member of staff thereby allowing students to enter/exit the vehicle. This management will also influence the service time which is the amount of time it takes for students to enter/exit the vehicle. These two factors determine the number of vehicles that can be serviced per hour, and therefore consideration for the total number of trips is necessary to determine the potential queues that form behind the managed bays.

This analysis will assist in the development of a suitable on-site traffic management plan to ensure the smooth operation of the kiss-and-ride area, as well as inform when School Buses are necessary to reduce private vehicle trips. The stage-by-stage analysis is detailed below.

TABLE 14: STAGED QUEUING ANALYSIS

Queuing Factor	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Managed Bays (vehicle bays)	8	12	14	16	20
Service Time (veh/min)	2	1.5	1.5	1.25	1.25
Vehicle Trips (veh/hr)	157	320	482	632	783
95th%ile Queue (excluding managed bays)	**3 vehicles**	**2 vehicles**	**15 vehicles**	**10 vehicles**	**8 vehicles**
Total Vehicles in System	**11 vehicles**	**14 vehicles**	**29 vehicles**	**26 vehicles**	**28 vehicles**

The detailed analysis is provided in **Appendix B**.

Table 14 indicates that the School is able to accommodate future demand for the kiss-and-ride area within the 30 dedicated bays provided that additional bays are utilised for entering/exiting vehicles and that the service time steadily improves over time. It is expected that the service time will improve as the students, staff, and parents become more familiar with the operation of the kiss-and-ride area. Similarly, the number of managed bays will increase as staff become more familiar with the responsibilities necessary to manage the kiss-and-ride bays. Operational management items are included within the PSTP.

6.1.4 Bus Trips

The School has committed to arrange for private chartered school buses as part of this development and it is recommended that the bus services are implemented as part of Stage 3 onwards. The provision of buses for school student travel purposes will reduce the vehicle trips, thereby reducing the queue length. It is recommended that a single bus be provided in Stage 3, and this increased by 1 bus each successive stage, 2 buses at Stage 4, and 3 buses at Stage 5. With a typical bus capacity of 60 persons, however, it is anticipated that each bus will have a typical capacity of 85%. The following table provides a breakdown of the trips following the provision of bus services

TABLE 15: BUS TRIPS

Queuing Factor	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Private Vehicle Trips (veh/hr)	157	320	482	632	783
# of Buses	0	0	1	2	3
Total Capacity	-	-	60	120	180
Anticipated Capacity (85%)	-	-	51	102	153
Vehicle Trips	157	320	431	530	630

With consideration of the above trip reduction, the queuing analysis has been reassessed in **Table 14**.

TABLE 16: STAGED QUEUING ANALYSIS INCLUDING BUS TRIPS

Queuing Factor	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Managed Bays (vehicle bays)	8	12	14	16	18
Service Time (veh/min)	2	1.5	1.5	1.25	1.25
Vehicle Trips (veh/hr)	157	320	431	530	630
95th%ile Queue (excluding managed bays)	**3 vehicles**	**2 vehicles**	**6 vehicles**	**2 vehicles**	**3 vehicles**
Total Vehicles in System	**11 vehicles**	**14 vehicles**	**20 vehicles**	**18 vehicles**	**21 vehicles**

The provision of the school bus improves the operation of the kiss-and-ride area and ensures that all queuing would occur on-site and note that the School intends to provide a total of 5 private chartered buses at the completion of Stage 5.

6.2 Trip Assignment

6.2.1 Student Trip Distribution

The trip distribution assessment is based on several sources, including:

- Assessment of population growth projections for the area; and
- The existing GVC catchment area.

Based on the population and demographic assessment undertaken in section 2.2 it is evident that the Camden LGA and broader extents of the south-western area will undergo substantial growth as a result of urban developments associated with the Aerotropolis as well as other state-significant developments in the vicinity. In similar regard, longer-term projections – particularly to do with the state of the future road network – are envisioned to transform the Catherine Field area as residential density increases.

In turn, this has implications for the broader scope of trip distribution analysis until such a time that the envisioned growth areas and road network can be confirmed in consultation with Council, NSW Government and TfNSW. Notwithstanding, the assumed trip distribution has been made on sound assumptions for future growth and is provided below for the immediate road network associated with the proposal.

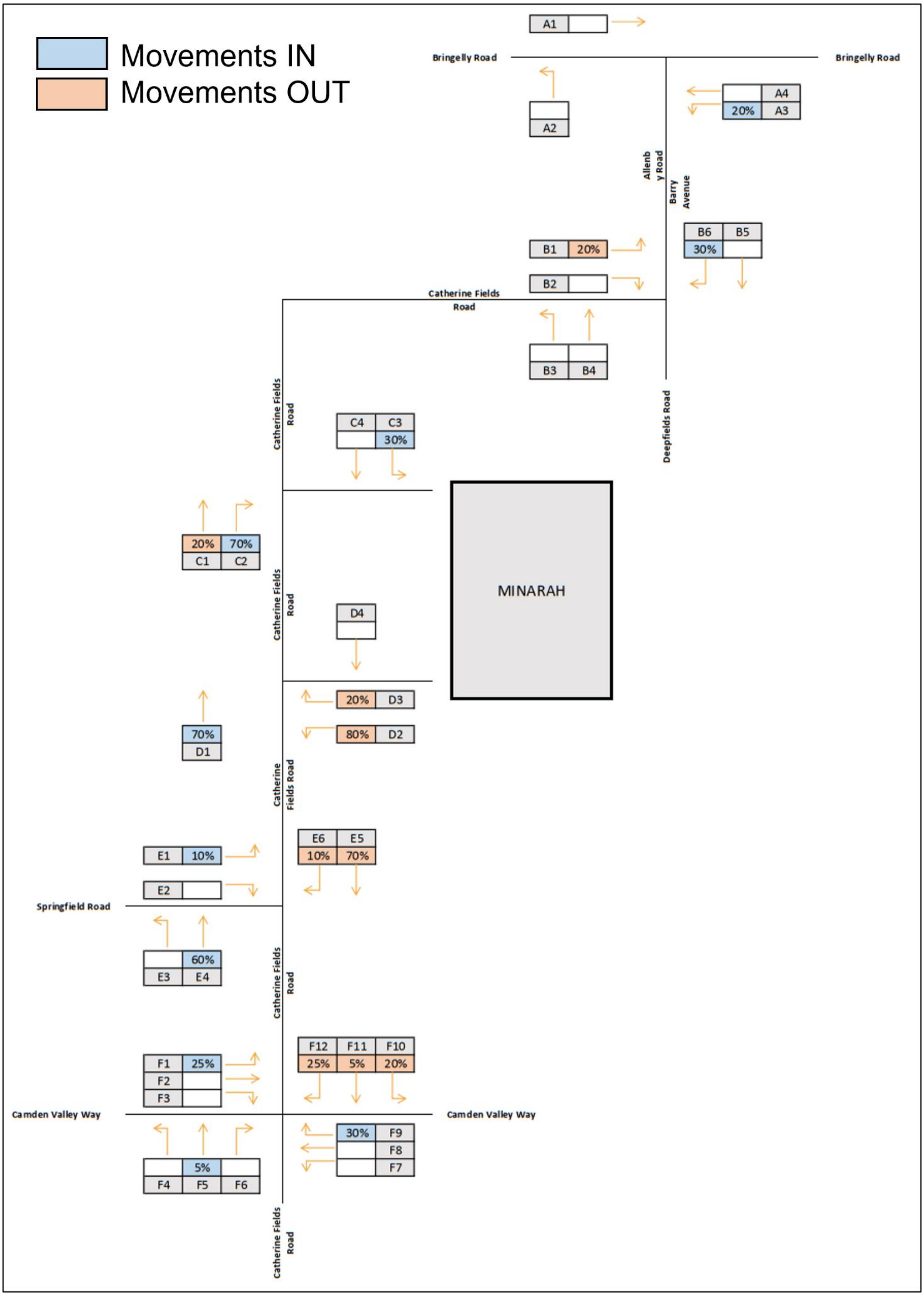

Figure 38: Traffic Distribution

6.3 Intersection Performance

6.3.1 Scenarios

The modelling scenarios undertaken are provided in the following table with the intersection turning volumes for each scenario detailed in **Appendix C**.

TABLE 17 MODELLING SCENARIOS

Scenario	Year	Name	Description
1	2021	2021 Base	2021 SCATS volumes at Camden Valley Way/ Catherine Fields intersection extrapolated to intersections further north based on the 2018 intersection survey turning proportions
2	2025	2025 Base	2021 Base scaled up based on a 2.5% p.a. growth rate
3	2025	2025 Base + Stage 1	2025 Base with 320 student school development
4	2031	2031 Base* + Stage 2	2031 Base with 650 student school development
5	2035	2035 Base* + Stage 3	2035 Base with 980 student school development
6	2038	2038 Base* + Stage 4	2038 Base with 1280 student school development
7	2040	2040 Base* + Stage 5	2040 Base with 1580 student school development

*Note: * - Nominated Base Year traffic volumes are projected based on the application of an annual growth rate of 2.5% p.a. on the 2021 Base volumes*

6.3.2 Modelling Results

TABLE 18 SCENARIO 1: 2021 BASE MODEL RESULTS

Intersection	Control Type	Period	Average Delay (sec)	Degree of Saturation	Level of Service
Bringelly Road/ Allenby Road	**Priority**	AM Peak	7.7	0.160	A
		PM Peak	7.6	0.189	A
Barry Avenue/ Deepfields Road/ Catherine Fields Road	**Priority**	AM Peak	9.2	0.109	A
		PM Peak	10.0	0.145	A
Catherine Fields Road/ School Entry	**Priority**	AM Peak	6.3	0.089	A
		PM Peak	6.5	0.112	A
Catherine Fields Road/ School Exit	**Priority**	AM Peak	6.9	0.088	A
		PM Peak	7.4	0.111	A
Catherine Fields Road/ Springfield Road	**Priority**	AM Peak	7.7	0.090	A
		PM Peak	8.2	0.113	A
Camden Valley Way/ Catherine Fields Road	**Signalised**	AM Peak	24.5	0.882	B
		PM Peak	24.0	0.828	B

The Year 2021 detailed SIDRA results are presented in **Appendix D**.

TABLE 19 SCENARIO 2: 2025 BASE MODEL RESULTS

Intersection	Control Type	Period	Average Delay (sec)	Degree of Saturation	Level of Service
Bringelly Road/ Allenby Road	Priority	AM Peak	7.8	0.176	A
		PM Peak	7.7	0.211	A
Barry Avenue/ Deepfields Road/ Catherine Fields Road	Priority	AM Peak	9.6	0.120	A
		PM Peak	10.4	0.162	A
Catherine Fields Road/ School Entry	Priority	AM Peak	6.3	0.098	A
		PM Peak	6.6	0.123	A
Catherine Fields Road/ School Exit	Priority	AM Peak	7.0	0.098	A
		PM Peak	7.6	0.122	A
Catherine Fields Road/ Springfield Road	Priority	AM Peak	7.8	0.100	A
		PM Peak	8.4	0.126	A
Camden Valley Way/ Catherine Fields Road	Signalised	AM Peak	41.9	0.975	C
		PM Peak	31.5	0.912	C

TABLE 20 SCENARIO 3: 2025 MODEL + STAGE 1 RESULTS

Intersection	Control Type	Period	Average Delay (sec)	Degree of Saturation	Level of Service
Bringelly Road/ Allenby Road	Priority	AM Peak	7.8	0.193	A
		PM Peak	7.7	0.213	A
Barry Avenue/ Deepfields Road/ Catherine Fields Road	Priority	AM Peak	9.7	0.140	A
		PM Peak	11.3	0.185	A
Catherine Fields Road/ School Entry	Priority	AM Peak	4.6	0.191	A
		PM Peak	4.9	0.221	A
Catherine Fields Road/ School Exit	Priority	AM Peak	5.9	0.158	A
		PM Peak	6.7	0.183	A
Catherine Fields Road/ Springfield Road	Priority	AM Peak	9.2	0.161	A
		PM Peak	10.1	0.211	A
Camden Valley Way/ Catherine Fields Road	Signalised	AM Peak	45.2	1.000	D
		PM Peak	34.7	1.054	C

TABLE 21 SCENARIO 4: 2031 MODEL + STAGE 2 RESULTS

Intersection	Control Type	Period	Average Delay (sec)	Degree of Saturation	Level of Service
Bringelly Road/ Allenby Road	Priority	AM Peak	7.9	0.235	A
		PM Peak	7.8	0.259	A
Barry Avenue/ Deepfields Road/ Catherine Fields Road	Priority	AM Peak	11.0	0.179	A
		PM Peak	13.2	0.234	A
Catherine Fields Road/ School Entry	Priority	AM Peak	5.1	0.313	A
		PM Peak	5.6	0.354	A
Catherine Fields Road/ School Exit	Priority	AM Peak	10.1	0.370	A
		PM Peak	8.9	0.313	A
Catherine Fields Road/ Springfield Road	Priority	AM Peak	11.6	0.261	A
		PM Peak	13.3	0.326	A
Camden Valley Way/ Catherine Fields Road	Signalised	AM Peak	107.9	1.541	F
		PM Peak	103.2	1.555	F

As is evident from Table 21, the signalised intersection of Camden Valley Way and Catherine Fields Road will operate at LoS F.

To determine the impact of the Stage 2 traffic on the road network, an analysis using SIDRA intersection modelling of the 2031 growth has been undertaken and is detailed in the following table.

TABLE 22: 2031 BASELINE RESULTS

Intersection	Control Type	Period	Average Delay (sec)	Degree of Saturation	Level of Service
Bringelly Road/ Allenby Road	Priority	AM Peak	7.9	0.199	A
		PM Peak	7.8	0.244	A
Barry Avenue/ Deepfields Road/ Catherine Fields Road	Priority	AM Peak	10.2	0.136	A
		PM Peak	11.3	0.186	A
Catherine Fields Road/ School Entry	Priority	AM Peak	6.4	0.112	A
		PM Peak	6.7	0.140	A
Catherine Fields Road/ School Exit	Priority	AM Peak	7.2	0.111	A
		PM Peak	7.9	0.139	A
Catherine Fields	Priority	AM Peak	8.0	0.117	A

Road/ Springfield Road		PM Peak	8.8	0.146	A
Camden Valley Way/ Catherine Fields Road	**Signalised**	AM Peak	91.1	1.108	F
		PM Peak	83.8	1.037	F

In comparison to Table 21, all intersections would continue to operate with the same LoS. It is apparent that the projected growth traffic would exceed the capacity of the signalised intersection of Camden Valley Way and Catherine Fields Road, with or without the Proposal. Following consultation with TfNSW, it is understood that there is little capacity for additional improvements for signalised intersections along Camden Valley Way.

Notwithstanding the above, the SIDRA modelling presents a conservative assessment based on the following reasons:

- a 2.5% growth rate has been applied up to the Year 2040, noting that the traffic growth rates generally reduce over the years

- the higher uptake of public transport usage with the implementation of the South West Growth Sector Bus Servicing Strategy. The Strategy proposes a long-term bus network for the Catherine Field Precinct which comprise a mixture of regional routes and district routes to maximise the speed and efficiency of high-frequency peak hour services as well as a number of local bus routes to ensure maximum coverage throughout the precincts, facilitating public transport access and travel choice. The closest proposed routes would be Route R1 – Liverpool to Campbelltown and D4 – Oran Park to Ingleburn.

TABLE 23 SCENARIO 5: 2035 MODEL + STAGE 3 RESULTS

Intersection	Control Type	Period	Average Delay (sec)	Degree of Saturation	Level of Service
Bringelly Road/ Allenby Road	**Priority**	AM Peak	8.0	0.269	A
		PM Peak	7.9	0.294	A
Barry Avenue/ Deepfields Road/ Catherine Fields Road	**Priority**	AM Peak	14.8	0.217	B
		PM Peak	15.1	0.278	B
Catherine Fields Road/ School Entry	**Priority**	AM Peak	6.0	0.440	A
		PM Peak	7.0	0.496	A
Catherine Fields Road/ School Exit	**Priority**	AM Peak	10.8	0.460	A
		PM Peak	13.6	0.518	B
Catherine Fields Road/ Springfield Road	**Priority**	AM Peak	15.5	0.363	B
		PM Peak	18.6	0.448	B
Camden Valley Way/ Catherine Fields Road	**Signalised**	AM Peak	164.4	2.048	F
		PM Peak	174.5	2.018	F

TABLE 24 SCENARIO 6: 2038 MODEL + STAGE 4 RESULTS

Intersection	Control Type	Period	Average Delay (sec)	Degree of Saturation	Level of Service
	Priority	AM Peak	8.1	0.298	A

Bringelly Road/ Allenby Road		PM Peak	8.0	0.325	A
Barry Avenue/ Deepfields Road/ Catherine Fields Road	**Priority**	AM Peak	16.7	0.244	B
		PM Peak	17.2	0.312	B
Catherine Fields Road/ School Entry	**Priority**	AM Peak	7.4	0.563	A
		PM Peak	8.9	0.632	A
Catherine Fields Road/ School Exit	**Priority**	AM Peak	16.3	0.653	B
		PM Peak	22.0	0.750	B
Catherine Fields Road/ Springfield Road	**Priority**	AM Peak	22.4	0.464	B
		PM Peak	27.4	0.566	B
Camden Valley Way/ Catherine Fields Road	**Signalised**	AM Peak	220.2	2.528	F
		PM Peak	238.6	2.448	F

TABLE 25 SCENARIO 7: 2040 MODEL + STAGE 5 RESULTS

Intersection	Control Type	Period	Average Delay (sec)	Degree of Saturation	Level of Service
Bringelly Road/ Allenby Road	**Priority**	AM Peak	8.1	0.323	A
		PM Peak	8.0	0.351	A
Barry Avenue/ Deepfields Road/ Catherine Fields Road	**Priority**	AM Peak	15.2	0.260	B
		PM Peak	19.4	0.333	B
Catherine Fields Road/ School Entry	**Priority**	AM Peak	9.2	0.678	A
		PM Peak	11.8	0.762	A
Catherine Fields Road/ School Exit	**Priority**	AM Peak	28.3	0.868	C
		PM Peak	82.7	1.016	F
Catherine Fields Road/ Springfield Road	**Priority**	AM Peak	32.8	0.562	C
		PM Peak	41.0	0.673	C
Camden Valley Way/ Catherine Fields Road	**Signalised**	AM Peak	274.1	2.989	F
		PM Peak	291.5	2.813	F

The Future Year 2025, 2031, 2035, 2038 and 2040 detailed SIDRA results are presented in **Appendix E** noting that the intersection of Camden Valley Way/ Catherine Fields Road will continue to operate at LoS F with and without the School.

6.4 Mitigation Measures

As per Table 25, the priority control intersection of Catherine Fields Road and the School exit operates at LoS F with a 82.7-second average vehicle delay during the PM peak in Scenario 7 only (2040 Model + Stage 5 development). This delay is associated with vehicles turning right out of the School on Catherine Fields Road. To ameliorate this, an investigation was completed to understand the expected intersection operation of the School exit intersection with the restricting right-turn movement out of the School (**Figure 39**) in conjunction with a channelised right-turn bay from Catherine Fields Road into the School (**Figure 40**).

To assess the above mitigation measures, updated trip distribution – detailed in **Figure 41** – has been used for additional SIDRA intersection modelling.

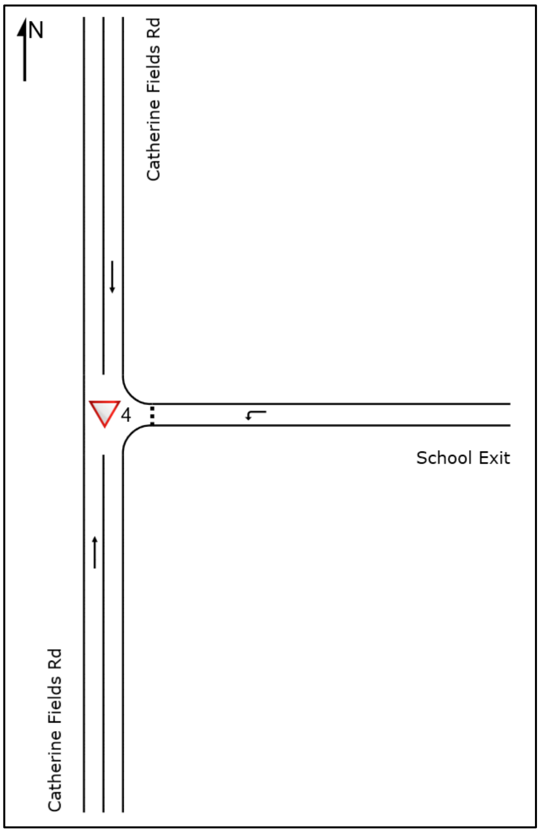

Figure 39: Catherine Fields Road / School Exit

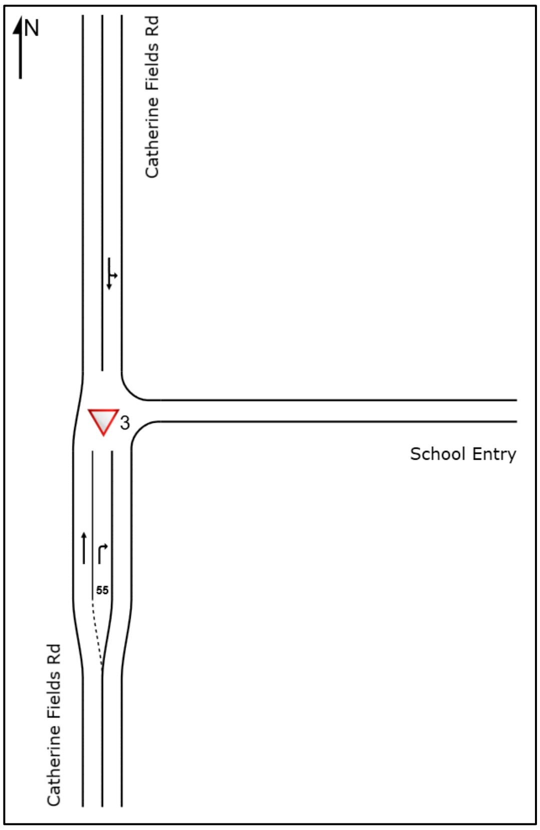

Figure 40: Catherine Fields Road / School Entry

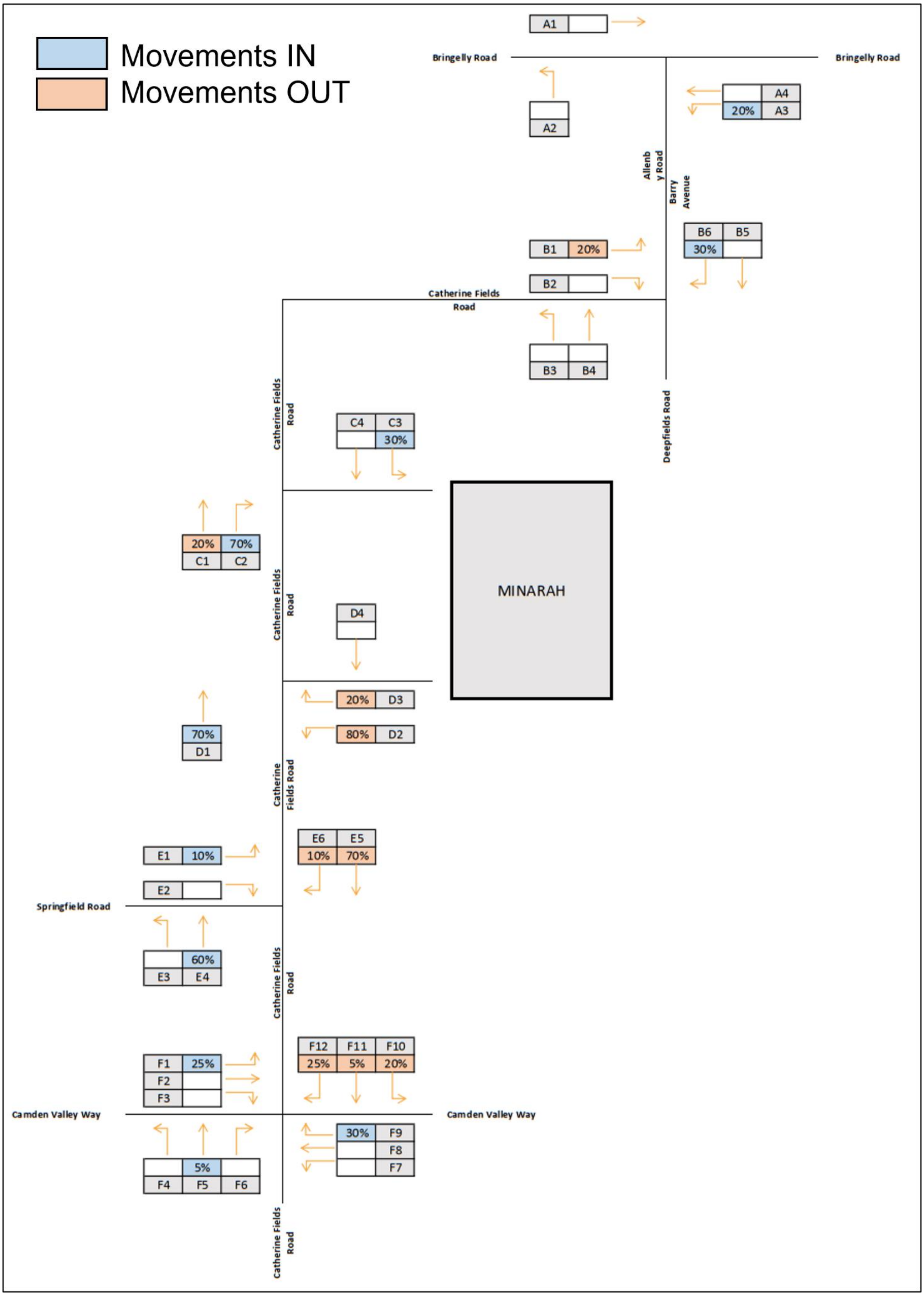

Figure 41: Traffic Distribution – Right Turn Ban

TABLE 26 SCENARIO 7A: 2040 MODEL + STAGE 5 + INTERSECTION TREATMENT RESULTS

Intersection	Control Type	Period	Average Delay (sec)	Degree of Saturation	Level of Service
Bringelly Road/ Allenby Road	**Priority**	AM Peak	8.1	0.323	A
		PM Peak	8.0	0.351	A
Barry Avenue/ Deepfields Road/ Catherine Fields Road	**Priority**	AM Peak	15.2	0.260	B
		PM Peak	19.4	0.334	B
Catherine Fields Road/ School Entry	**Priority**	AM Peak	**7.0**	**0.469**	**A**
		PM Peak	**8.2**	**0.523**	**A**
Catherine Fields Road/ School Exit	**Priority**	AM Peak	**5.2**	**0.591**	**A**
		PM Peak	**6.6**	**0.643**	**A**
Catherine Fields Road/ Springfield Road	**Priority**	AM Peak	51.6	0.682	D
		PM Peak	69.4	0.766	E
Camden Valley Way/ Catherine Fields Road	**Signalised**	AM Peak	274.1	2.989	F
		PM Peak	290.8	2.800	F

The detailed SIDRA results for Scenario 7A are presented in **Appendix E**.

In summary, the above assessments concluded that:

- all key intersections (except for Camden Valley Way/ Catherine Fields Road intersection) will operate acceptably with the School
- the Camden Valley Way/ Catherine Fields Road intersection will operate at LoS F in Year 2031 without the proposed School
- a right-turn restriction will be proposed at the School exit in Year 2040 as part of the Stage 5 development to ensure that the intersection will operate acceptably.

7 Parking Assessment

7.1 Car Parking Assessment

The Camden Council DCP, within Section 2.18.2 – Off Street Car parking rates/requirements for specific non-residential uses specifies minimum car parking rates for a range of uses. With respect to Educational establishments, in particular Schools, Table 2-5 provides the following parking rates:

- *1 car parking space per full-time equivalent (FTE) staff member, plus*
- *1 car parking space per 100 students, plus*
- *1 car parking space per 5 students in Year 12 where appropriate.*
- *1 car parking space per 4 children for ELC*
- *Adequate space is also required for delivery vehicles, a drop-off / pick up area and buses as appropriate.*

With consideration for the staging of the School as detailed in **Table 12**, **Table 27** details the minimum parking requirements for each stage, with a detailed breakdown provided in **Table 28**-**Table 32**.

TABLE 27: PARKING NUMBERS – ALL STAGES

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
ELC (pre-school)	5	11	15	15	15
Staff	15	33	51	66	86
All Students (K-12)	3	6	10	12	15
Year 12	0	0	2	12	22
Total	23 spaces	50 spaces	78 spaces	105 spaces	138 spaces
Accessible (Inclusive)	3	3	3	3	3

TABLE 28 PARKING REQUIREMENTS – STAGE 1

Parking	Headcount / Spaces	Parking Rate	Parking Requirement
School Full-Time Staff Members	15	1 space per FTE staff member	15
All Students (K-12)	300	1 space per 100 students	3
Year 12 Students	0	1 space per 5 Year 12 students	0
ELC	18	1 space per 4 children	5
Total			23 parking spaces
Accessible	23	1 space per 100 spaces	3 (one for K-12 students, early learning and staff each)

TABLE 29 PARKING REQUIREMENTS – STAGE 2

Parking	Headcount / Spaces	Parking Rate	Parking Requirement
School Full-Time Staff Members	33	1 space per FTE staff member	33
All Students (K-12)	600	1 space per 100 students	6
Year 12 Students	0	1 space per 5 Year 12 students	0
ELC	42	1 space per 4 children	11
Total			50 parking spaces
Accessible	50	1 space per 100 spaces	3 (one for K-12 students, early learning and staff each)

TABLE 30 PARKING REQUIREMENTS – STAGE 3

Parking	Headcount / Spaces	Parking Rate	Parking Requirement
School Full-Time Staff Members	51	1 space per FTE staff member	51
All Students (K-12)	890	1 space per 100 students	10 (9 for primary school and 1 for secondary students)
Year 12 Students	10[1]	1 space per 5 Year 12 students	2
ELC	60	1 space per 4 children	15
Total			78 parking spaces
Accessible	78	1 space per 100 spaces	3 (one for K-12 students, early learning and staff each)

1) Assumed that the number of students per year group for Year 7-12 is consistent.

TABLE 31 PARKING REQUIREMENTS – STAGE 4

Parking	Headcount / Spaces	Parking Rate	Parking Requirement
School Full-Time Staff Members	66	1 space per FTE staff member	66
All Students (K-12)	1140	1 space per 100 students	12
Year 12 Students	60[1]	1 space per 5 Year 12 students	12
ELC	60	1 space per 4 children	15
Total			105 parking spaces

Accessible	**105**	1 space per 100 spaces	3 (one for K-12 students, early learning and staff each)

1) Assumed that the number of students per year group for Year 7-12 is consistent.

TABLE 32 PARKING REQUIREMENTS – STAGE 5

Parking	Headcount / Spaces	Parking Rate	Parking Requirement
School Full-Time Staff Members	**86**	1 space per FTE staff member	86
All Students (K-12)	**1580**	1 space per 100 students	15
Year 12 Students	**110[1]**	1 space per 5 Year 12 students	22
ELC	**60**	1 space per 4 children	15
Total			138 parking spaces
Accessible	**138**	1 space per 100 spaces	3 (one for K-12 students, early learning and staff each)

1) Assumed that the number of students per year group for Year 7-12 is consistent.

The School proposes a total of 138 on-site car parking spaces which accommodates 86 spaces for staff members, 15 spaces for ELC, and 37 spaces for students thus fulfilling the DCP requirement for car parking provision.

7.1.1 Accessible Car Parking

Camden Council's DCP requires accessible parking to be provided in accordance with the Building Code of Australia. As such, schools are categorised as building classification 9b, thereby requiring 1 accessible space per 100 parking spaces. Application of this rate to the requirement of 37 spaces for K-12 students, 15 spaces for early learning and 86 spaces for staff results in a requirement of 3 spaces. The School proposes a total of 5 accessible spaces in excess of Council's DCP requirements with the following breakdown:

- K-12 students: 1 space
- Early learning: 1 space
- Staff: 3 spaces

7.1.2 Service Vehicle and Bus Parking

Camden Council's DCP requires adequate space to be provided for delivery vehicles, a drop-off / pick up area and buses. As such, the School proposes that all deliveries will occur within the designated loading area on the northern side of the School with deliveries restricted to outside of school peak hours.

7.1.3 Car Parking Summary

The overall provision of car parking for the site meets the minimum car parking requirements under Camden Council's DCP.

7.2 Bicycle Parking

7.2.1 Camden Council DCP

The Camden Council DCP does not provide a specific rate for bicycle parking for educational establishments (schools), instead referring to a merit assessment, making reference to the Planning Guidelines for Walking and Cycling 2004 (PGFW&C). The PGFW&C provides the following bicycle parking rates for primary and secondary schools:

- Long Term Spaces – 3% to 5% of staff members
- Short Term Spaces – 5% to 10% of staff members

Application of the above rates to the overall staffing numbers (86) results in a bicycle parking requirement of five long term spaces and nine short term spaces.

7.2.2 Austroads

Reference is made to the Austroads *Guide to Traffic Management Part 11: Parking Management Techniques* (2020) to establish bicycle parking requirements. In this regard, Clause 2.3, Table 2 6 provides the following rate for School Land Uses:

- 1 per 5 pupils over Year 4

According to the data for the School provided by the Client, student numbers over year 4 at full development is approximately 1080. Application of the above rate would result in a requirement of 216 bicycle spaces.

7.2.3 Bicycle Parking Summary

Based on the bicycle parking requirements above and actively encouraging cycling as a primary mode of transport for students and staff travelling to and from the school, it is considered that the Austroads bicycle parking rates would provide the most appropriate bicycle parking requirements. In this regard, in accordance with the Austroads guidelines, the development is required to provide a minimum of 216 bicycle parking spaces.

However as no cycleway connections exist to / from the School and none are planned to be built by TfNSW or Council, no one can safely cycle to / from the school. Council has requested a provision of some bicycle parking to be provided as part of this masterplan and 48 bicycle spaces in the form of 24 double racks have been proposed, as shown in **Figure 42**.

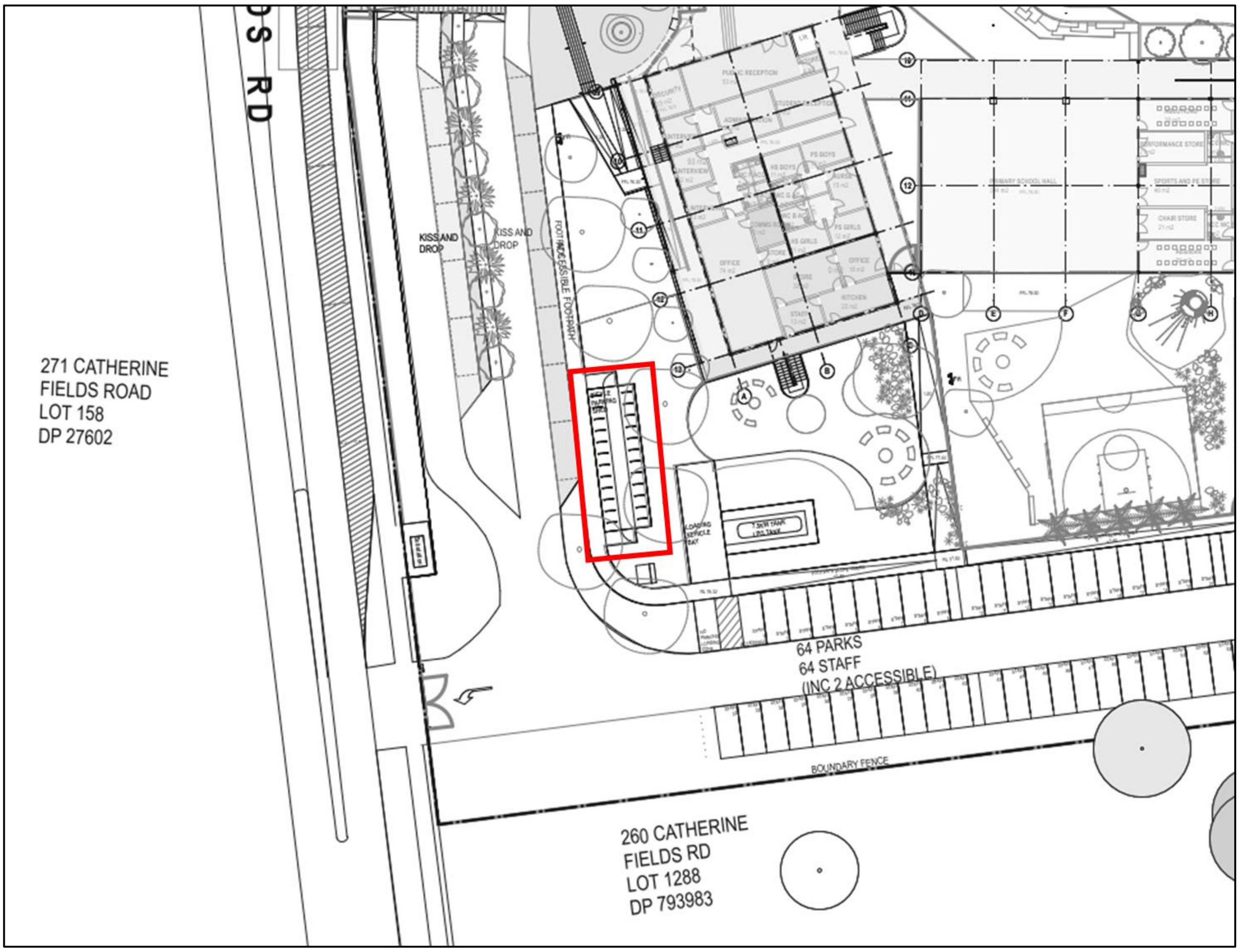

Figure 42: Proposed Bicycle Parking Location

8 Design

8.1 Design Standard

The site access, car park and loading arrangements for the preliminary site plan will be designed to comply with the following relevant Australian Standards:

- Australian Standard 2890.1:2004 Parking Facilities – Off Street Car Parking (AS 2890.1: 2004)
- Australian Standard 2890.2:2018 Parking Facilities – Off Street Commercial Vehicle Facilities (AS 2890.2:2018)
- Australian Standard 2890.3:2015 Parking Facilities – Bicycle Parking (AS 2890.3:2015)
- Australian Standard 2890.5:2020 Parking Facilities – On-Street Parking (AS 2890.5:2020)
- Australian Standard 2890.6:2020 Parking Facilities – Off-Street Parking for People with Disabilities (AS 2890.6:2009)
- Camden Council Development Control Plan (2019)

Reference should be made to design review and associated swept path assessments included in **Appendix F**.

8.2 Design Commentary

8.2.1 Access Design

The Proposal includes a separated vehicular entry and exit and one pedestrian access shown in **Figure 43**.

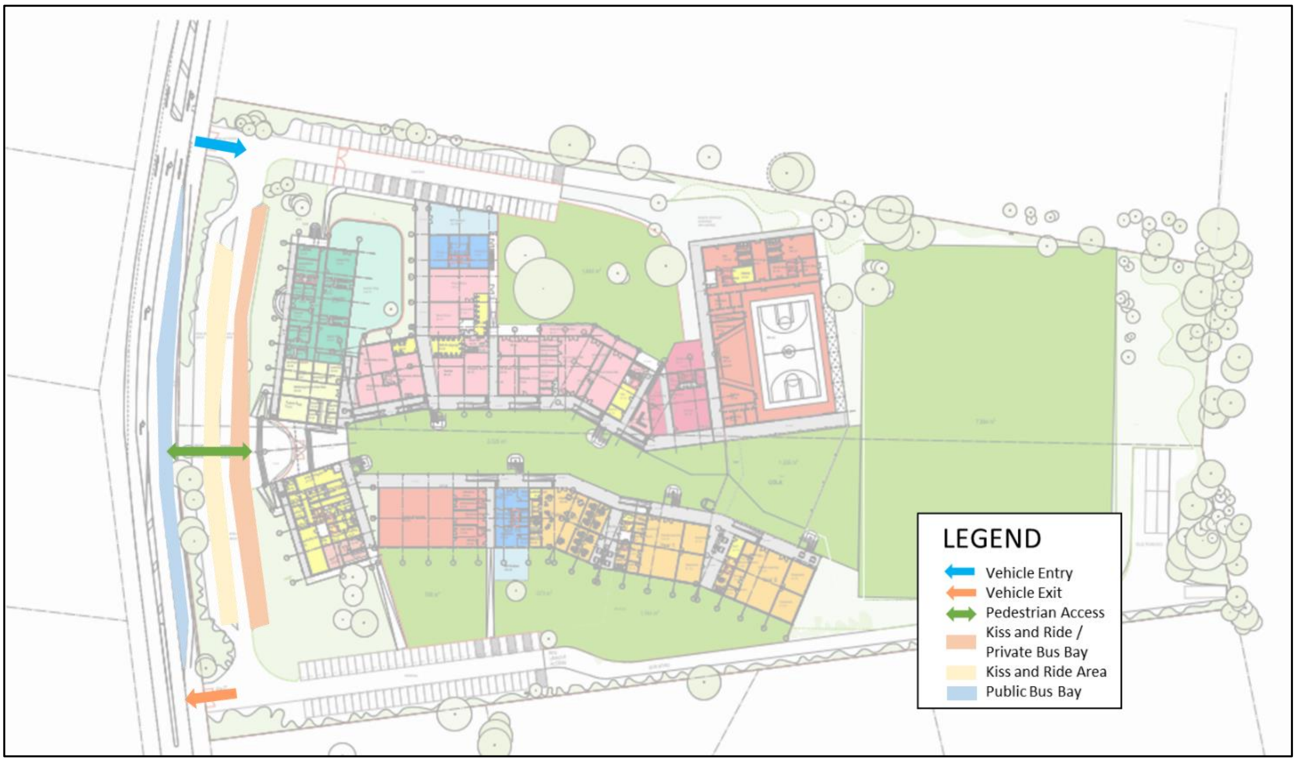

Figure 43: Access Diagram

The vehicular entry is located in the northern corner and vehicular exit is located on the southern corner of the Catherine Fields Road frontage.

The pedestrian access is located in the centre of the Catherine Fields Road frontage.

8.2.2 Internal Kiss and Ride

The proposed kiss and ride area has been designed in excess to AS2890.5:2020 requirements with 2.5m wide and 6m long kiss and ride bays to allow for safe dropping off / picking up of students.

Access to the internal kiss and ride area is from the northern entry with one-way southbound only movement permitted and exiting to the southern exit.

Noting that the private chartered bus drop off / pick up will be via the eastern half of the kiss and ride area has been designed with the wider circulation aisle to accommodate 12.5m bus access.

8.2.3 Internal Car Park

The plan issued by TZG Architects on 25 March 2022 were reviewed and was found to be compliant to AS2890.1:2004, AS2890.2:2018 and AS2890.6:2009. Noting the following:

- The ELC car parking spaces has been designed to AS2890.1:2004 Class 3
- All other car parking spaces has been designed to AS2890.1:2004 Class 1
- The waste / delivery / loading area has been designed to accommodate up to 12.5m HRV access noting that access will be managed to occur outside of carpark / kiss and ride area usage times
- The private chartered bus parking area has been designed to accommodate 12.5m long coaches with stacked parking to allow for RFS access and will be managed to allow for stacked parking.

For details, see the design review and associated swept path assessment in Appendix B.

9 Preliminary Construction Traffic Management Plan

This section provides a preliminary holistic construction traffic management plan for the construction activities. It should also be noted that the traffic management plan associated with the Stage 1 would be different as compared to Stages 2 – 5 given that the School will be operational in the latter stages.

As such, a detailed Construction Traffic Management Plan (CTMP) will be provided as part of the detailed construction management plan (which is expected to form a standard Condition of Consent) for each stage.

For the purposes of this TA report, the following general principles for managing construction traffic have been assumed and provide an understanding of the likely traffic impacts during the construction period. It should be noted that the construction details and programme for the development have not yet been finalised.

9.1 Overview

The proposed works forming part of this SSDA include the following:

- Demolition works to accommodate new works;
- Construction of new buildings to accommodate up to 1,580 students between K-12 in 5 stages (including dedicated classrooms for preschool and specialist support students);
- Construction of ancillary structures include an Early Learning Centre (ELC), basketball court, football field and play areas;
- Construction of pedestrian infrastructure, Kiss & Ride and staff, visitor and student parking facilities;
- Associated roadworks, earthworks, landscaping, stormwater works, service upgrades, etc.

This Preliminary Construction Traffic Management Plan (Preliminary CTMP) outlines principles that shall be adopted by the appointed contractors for the project and are subject to a detailed Construction Traffic Management Plan (CTMP) that forms part of a Construction Management Plan (CMP) to be prepared and commissioned by the incumbent contractor.

This report has been prepared by a consultant who holds a SafeWork NSW Work Health & Safety Traffic Control Work card, accredited for the ‘Prepare a Work Zone Traffic Management Plan’. Details of the accredited consultant are provided below:

- Dora Choi Ticket No. TCT0021456
- Wendy Zheng Ticket No. TCT1015144

9.2 Overall Principles of Construction Traffic Management

The principles of traffic management during construction activities for Stage 1 include:

- Minimising the impact on cyclist safety and movements
- Minimising the impact on public bus movements
- Minimising the impact on existing traffic on adjacent roads and intersections

- Maintaining access to/from adjacent properties
- Restricting construction heavy vehicle movements to designated routes to/from the site
- Managing and controlling construction vehicle activity near the site
- Ensuring construction activity is carried out in accordance with the SSDA's approved hours of work.

When the School is operational, the principles of traffic management during construction activities for the remaining Stages 2 through 5 include:

- Minimising the impact on pedestrian and cyclist safety and movements
- Maintaining appropriate public transport and school bus access
- Minimising the impact on existing traffic on adjacent roads and intersections
- Minimising the loss of on-street and off-street parking
- Maintaining access to/from the School and adjacent properties
- Restricting construction vehicle movements to designated routes to/from the site
- Managing and controlling construction vehicle activity near the site
- Ensuring construction activity is carried out in accordance with the SSDA's approved hours of work.

9.3 Proposed Work Hours

The construction work will vary depending on the phase of construction and associated activities. Construction works however will be undertaken during standard construction-working hours, with no deliveries allowed prior to the AM and PM school bell time as follows:

- Monday to Friday: 8.00 am to 6:00 pm.
- Saturday: 8.00 am to 1.00 pm
- Sunday and Public holidays: No planned work.

It may (on occasions) be necessary to undertake night works to minimise disruption to traffic however any works undertaken outside of these times will only occur with prior approval from Council.

9.4 Staging and Duration of Works

The construction program would generally consist of the following construction stages with duration to be determined once a contractor has been appointed:

- Stage 1: Site Preparation,
- Stage 2: Demolition
- Stage 3: Bulk Excavation
- Stage 4: Main Works (Construction)

Note that the duration for each stage would be confirmed by the contractor once appointed.

It is noted that during all stages, all vehicle entry and exit movements are to be in a forward direction only, with spoil to be loaded within the site and under the careful supervision of an authorised traffic controller. Accordingly, supervision by an authorised traffic controller would also be required for the movements of vehicles that would cross the footpath during deliveries.

9.5 Worker Induction

All workers and subcontractors engaged on-site would be required to complete a site induction. The induction should include permitted access routes to and from the construction site for all vehicles, as well as standard environmental, work, health and safety (WHS), driver protocols and emergency procedures.

Any workers required to undertake works or traffic control within the public domain would be suitably trained and covered by adequate and appropriate insurance.

9.6 Authorised Traffic Controller

If there is a requirement for authorised traffic controllers to be present throughout the demolition, and construction stages of the project, their responsibilities include:

- Pedestrian and cyclist management, to ensure that adverse conflicts between vehicle movements and pedestrians do not occur.
- Supervision of all vehicle movements across pedestrian footpaths at all times, and
- Supervision of all loading and unloading of construction materials during the deliveries in the construction phase of the project.
- Monitoring of traffic conditions whilst Traffic Guidance Schemes is implemented to ensure no conflict with existing Traffic Control Devices along the public roadway.

9.7 Contractor Parking

A small amount of on-site parking for key contractors and staff is expected to be provided throughout the construction works. The number and location of this temporary on-site car parking are expected to change throughout the various construction phases, depending on the surplus area available not required for truck loading and turning areas.

Should parking be not available for specific stages of work, it is the incumbent contractor's responsibility to prepare relevant plans and documentation to ensure contractor parking demand and associated management measures are documented, implemented, continually monitored and managed.

9.8 Public Transport Services

Construction works are not expected to impact existing public transport services as the construction works are expected to be largely contained on-site. No bus stops are present along the frontages of the site.

9.9 Pedestrian and Cyclist Management

Given that there are no existing footpaths along Catherine Fields Road, no pedestrians will be affected by the proposed Stage 1 construction activities.

During Stages 2 through 5 (when the School is operational), the proposed works consist of road works, potential civil works and intersection works that are likely to result in some footpath closures due to the nature of works required.

The following principles provide guidance to the incumbent contractors to assist with the planning and staging of construction activities to minimise the impact on pedestrian movements and shall form part of the detailed CTPMP for Stages 2 through 5. Key considerations being:

- Pedestrian access to/from the School shall be maintained at all times.
- Pedestrian pathways adjacent to the works area shall be protected by hoarding. If the pedestrian pathway is adjacent to areas where deep excavation works are being undertaken, additional no-go areas shall be allowed within the works area to improve pedestrian safety.
- Temporary pedestrian pathways may be required as part of the pedestrian diversion strategy. Temporary pedestrian pathways shall be constructed to suitable standards in accordance with Council requirements. Temporary lighting may be required and subject to review by a lighting engineer to ensure compliance with relevant Australian Standards.
- Should pedestrian diversion be required, detailed TGS outlining the relevant pedestrian diversion signage, temporary kerb ramps (where required), and whether Authorised Traffic Controllers will be in place to support the temporary diversion shall be prepared and submitted to TfNSW / Council for approvals.
- Traffic controller(s) shall be present at the site accesses to manage pedestrian and vehicular traffic to ensure public safety while construction vehicles enter and exit the site. Pedestrians will not be directed to use the other footpath by use of signage alone. Also, traffic controls would need to be in accordance with AS1742.3 and RMS 'Traffic Control at Worksites' manual at all times.
- Should any unforeseen activities require the temporary closure of any existing pedestrian access, a TGS should be developed and implemented by the contractor to ensure a safe alternative for pedestrians traversing these routes in the vicinity of the site.

While there are no formal cycling routes along Catherine Fields Road, the cyclists will be warned of the presence of trucks entering and exiting the site via the provision of temporary truck signage along the road approaching the site access. Truck drivers/construction workers will be inducted to observe for and give way to cyclists on the road at all times.

9.10 Construction Traffic Volumes

Construction traffic will generally incorporate:

- Vehicles up to the dimensions of a Truck + Dog Trailers and 19m long Articulated Vehicles for removal of spoil and transportation of material.
- Concrete mixer trucks up to 12m in length.
- Vehicles up to the dimension of a 19m long Articulated Vehicle for delivery of material such as steel / façade panels, roof panels.

Any oversize vehicles using local roads to access the site would require additional Council and/or Transport for NSW approval.

The maximum number of trucks accessing the site is subject to the development of a detailed construction staging plan upon the appointment of the contractor.

9.11 Potential Haulage Routes

It is proposed that construction vehicles enter and exit the Site via the routes shown in **Figure 44.** A copy of the truck route maps shall be provided to all drivers prior to attending the Site.

The access and egress routes are to be utilised by all construction vehicles associated with the Site and represent the shortest route between the local and regional road network – hence minimising the impacts of the construction process. No trucks are to be queued on local roads. Mobile phones and two-way radios will be used to coordinate truck arrivals.

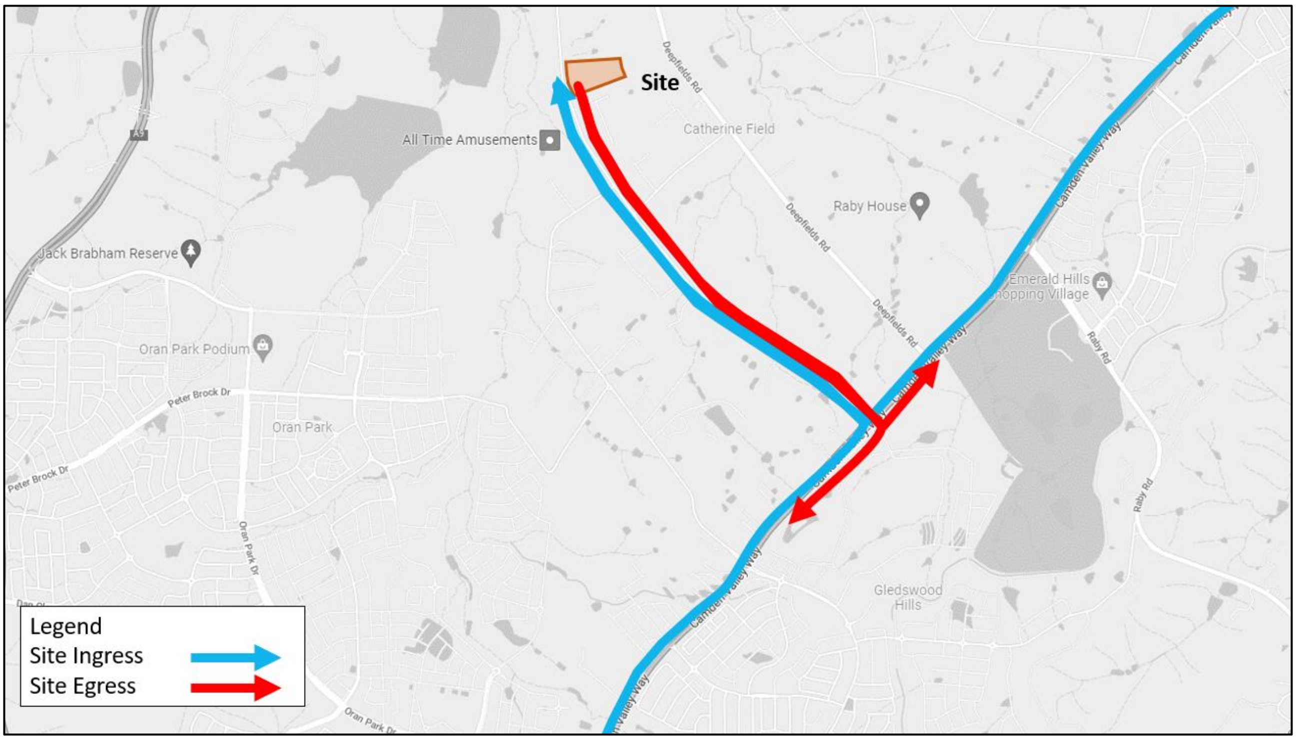

Figure 44: Construction Vehicle Haulage Routes

9.12 Construction Mitigation Measures

Construction of the above development would generate a moderate increase in traffic on the surrounding road network. In this regard, the following measures should be undertaken to minimise the impacts of the construction activities of the development:

- A construction fence and suitably classed Hoarding shall be provided along site boundaries/works area boundaries to provide safe pedestrian access. The fencing/hoardings should be maintained for the duration of the construction program associated with the stage of works being undertaken.
- Traffic control would be required to manage and regulate traffic movements into and out of the site during construction, with pedestrian priority provided during peak hour periods and to maintain access to public transport facilities.
- Disruption to road users should be kept to a minimum by scheduling intensive delivery activities outside of road network peak hours.
- Supervised traffic control will be required where two-way flow is restricted over any length of the roadway, depending on the number of truck movements required and would be managed outside of peak hour vehicle and pedestrian activity.

10 Summary and Conclusions

10.1 Summary

Ason Group has been commissioned by Minarah College to prepare a TA to accompany the SSDA to the NSW DPIE for the proposed Minarah College, Catherine Field Campus, to meet the educational needs of the area.

10.2 Key Findings

Further to a detailed assessment of the proposed development of the Minarah College, Catherine Field Campus, we provide the following conclusions:

- The Development relates to the development of a co-educational school (servicing Kindergarten to Year 12) with a maximum capacity of 1,580 students inclusive of a 60-space early learning centre (ELC) over a 20-year period and 5 distinct stages.
- The site is located within the Camden Council area and is subject to that Council's controls.
- The proposed two main access gates along Catherine Fields Road will provide access to / from the on-site kiss and ride facility, loading area and car/bicycle parking facility. The northern driveway will be restricted to ingressing vehicles only while the southern driveway will be restricted to left-turning egressing vehicles.
- Formal SEARs have been issued by DPIE relating to the SSDA for the Site. The Transport Assessment, inclusive of the Preliminary Construction Plan and Preliminary School Transport Plan (refer to Appendix A) are documents intended to address the Requirements relating to traffic and transport elements of the proposed works.
- Due to the current Covid-19 restrictions, Ason Group has relied on 2021 SCATS volumes at the Camden Valley Way/ Catherine Fields intersection extrapolated to intersections further north based on the 2018 intersection survey turning proportions to establish the existing baseline performance of the surrounding road network. An assessment of the school peak periods (AM peak - 7:30 am-8:30 am and PM peak - 3:00 pm-4:00 pm) demonstrates that generally, traffic performance is satisfactory, demonstrating LoS B at worst for each assessed period.
- The Minarah College student surveys demonstrate that a high proportion of students travel to and from school via private vehicles (80-90%).
- The Minarah College staff surveys also demonstrate a very high dependency on private vehicle (as driver) usage of 97%.
- Adopted traffic generation rates have been determined based on the surveyed rates of GVC.

  Based on these rates, the School would generate the following AM and PM trips during the school peak hours:

  - Stage 1: 157
  - Stage 2: 320
  - Stage 4: 482
  - Stage 4: 632
  - Stage 5: 783
- As part of the traffic assessment, a conservative flat 2.5% growth rate per Council advice has been adopted to forecast the Future Years 2025, 2031, 2035, 2038 and 2040 base case background traffic.
- The network modelling demonstrates that the surrounding key intersections will continue to operate at Los D or better for the 2025 future year assessment, demonstrating that these intersections have sufficient capacity for the increase to Stage 1 development traffic of the locale.

- For the scenario for the Year 2031, it is expected that the Camden Valley Way/ Catherine Fields intersection will operate at LoS F during the peak hours with or without the proposed School.
- Therefore, it can be determined that the increase of traffic associated with the surrounding developments will cause extenuating impacts to the performance of the Camden Valley Way/ Catherine Fields intersection, with the approaching volumes exceeding the capacity at this intersection.
- It is noted that the assessments are conservative in nature due to the adopted flat annual growth rate of 2.5% and there is a potential reduction in traffic growth due to the implementation of the Southwest Growth Sector Bus Servicing Strategy.
- The priority control intersection of Catherine Fields Road and the School exit operates at LoS F during the PM peak in the Year 2040 with the Stage 5 development. To ensure the egress will operate satisfactorily, it is proposed to restrict the right-turn out movement out of the School. With the right-turn restriction, the site exit intersection will operate at acceptable LoS.
- With left-out only from the School's egress driveway, this and all other intersections will have ample spare capacity to accommodate the additional future traffic generated by the proposed School without adversely impacting the surrounding road network and will continue to operate satisfactorily in the Future Year scenarios.
- Analysis of the capacity of the kiss and ride area with consideration of the expected School arrival and departure profile shows that it is capable of accommodating the trips generated without impacting the adjoining Catherine Fields Road.
- All access, parking and servicing areas have been designed in general accordance with the relevant Australian Standards.

In summary, the Proposal is supportable on traffic planning grounds and is not anticipated to result in any adverse impacts on the surrounding road network.

Appendix A. Preliminary School Transport Plan

Minarah College, Catherine Field Campus

Preliminary School Transport Plan

268 & 278 Catherine Fields Road, Catherine Fields
14/04/2022
Ref: P1769

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Document Control

Project No	P1769
Project	Minarah College, Catherine Field Campus
Client	Minarah College
File Reference	P1769r01v02 SSDA PSTP Minarah College Catherine Field Campus

Revision History

Revision No.	Date	Details	Author	Approved by
-	21/12/2021	Draft	M. Tangonan W. Zheng	W. Zheng
01	04/04/2022	-	M. Kong W. Zheng	W. Zheng
02	14/04/2022	Final	M. Kong W. Zheng	W. Zheng

contents

contents continued

Figures

Tables

APPENDICES

Glossary

Acronym	Description
AGRD	Austroads Guide to Road Design
AGTM	Austroads Guide to Traffic Management
CC	Construction Certificate
CCP	Camden Contributions Plan
Council	Camden Council
DCP	Development Control Plan
DoS	Degree of Saturation
DPIE	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EP&A	Environmental Planning and Assessment
EPPDM	Education Precinct Public Domain Masterplan
FSR	Floor space ratio
GFA	Gross Floor Area
HRV	Heavy Rigid Vehicle (as defined by AS2890.2:2018)
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
MRV	Medium Rigid Vehicle (as defined by AS2890.2:2018)
NHVR	National Heavy Vehicle Regulator
OC	Occupation Certificate
OSHC	Out of School Hours Care
OTAMP	Operational Transport and Access Management Plan
RMS Guide	Transport for NSW (formerly Roads and Traffic Authority), Guide to Traffic Generating Developments, 2002
SEAR	Secretary's Environmental Assessment Requirements
SINSW	School Infrastructure New South Wales
SRV	Small Rigid Vehicle (as defined by AS2890.2:2018)
SSDA	State Significant Development Application
STP	School Transport Plan
TDT 2013/04a	TfNSW Technical Direction, Guide to Traffic Generating Developments – Updated traffic surveys, August 2013
TfNSW	Transport for New South Wales
TA	Transport Assessment
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)

1 Introduction

1.1 Introduction

This Preliminary School Transport Plan accompanies an Environmental Impact Statement (EIS) pursuant to Part 9 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in support of an application for a State Significant Development (SSD - 30759158).

The development is for a new school proposed at the Catherine Fields Site, which is planned as a new Campus to the Green Valley Campus. The Site is situated at 268 & 278 Catherine Field Rd, Catherine Field.

This report addresses the relevant Secretary's Environmental Assessment Requirements (SEARs), namely the school travel and operational transport and access management arrangement aspects relating to the School development. These items include site transport amenities, existing conditions of the site, provision of measures to improve and encourage sustainable travel modes, and the operational traffic and access management for the site, pedestrian entries, drop-off/ pick-up zones(s) and bus bay(s).

1.2 The School

Minarah College – Catherine Field Campus will be a co-educational K-12 school accommodating 1,580 students, 840 in primary school and 660 in high school. There will also be an Early Learning Centre (ELC) for 60 students and a School for Specific Purpose (SSP) for 20 students. The new school will be constructed in stages, growing in line with growth in the local population.

The proposal seeks consent for:

- Demolition of the existing dwellings and ancillary structures on-site;
- The construction of the following:
- One-storey early learning centre with attached two-storey administration building to service the high school and early learning centre;
- Two-storey primary school building comprising of primary school classrooms, SPP classrooms, primary school hall which attached outside school hours care (OSHC);
- Two-storey high school building comprising high school classrooms;
- Two-storey high school hall;
- Shared one-storey canteen adjoining the high school building; and
- Shared library located on the second storey above administration building below.
- Site access from Catherine Fields Road at two points with a bus zone, 30 kiss and drop car parking spaces, and car parking;
- Consolidation of the allotments;
- Associated site landscaping and public domain improvements;
- An on-site car park for 138 parking spaces; and
- Construction of ancillary infrastructure and utilities as required.

The development is envisioned over a 20-year period, during which school infrastructure development and student enrolment capacity would increase over 5 distinct stages. For reference, the site plan of the ultimate

Campus is provided in **Figure 1** below. Development staging plans are provided in further detail in the accompanying Transport Assessment (ref: P1769r02 SSDA TA Minarah College Campus).

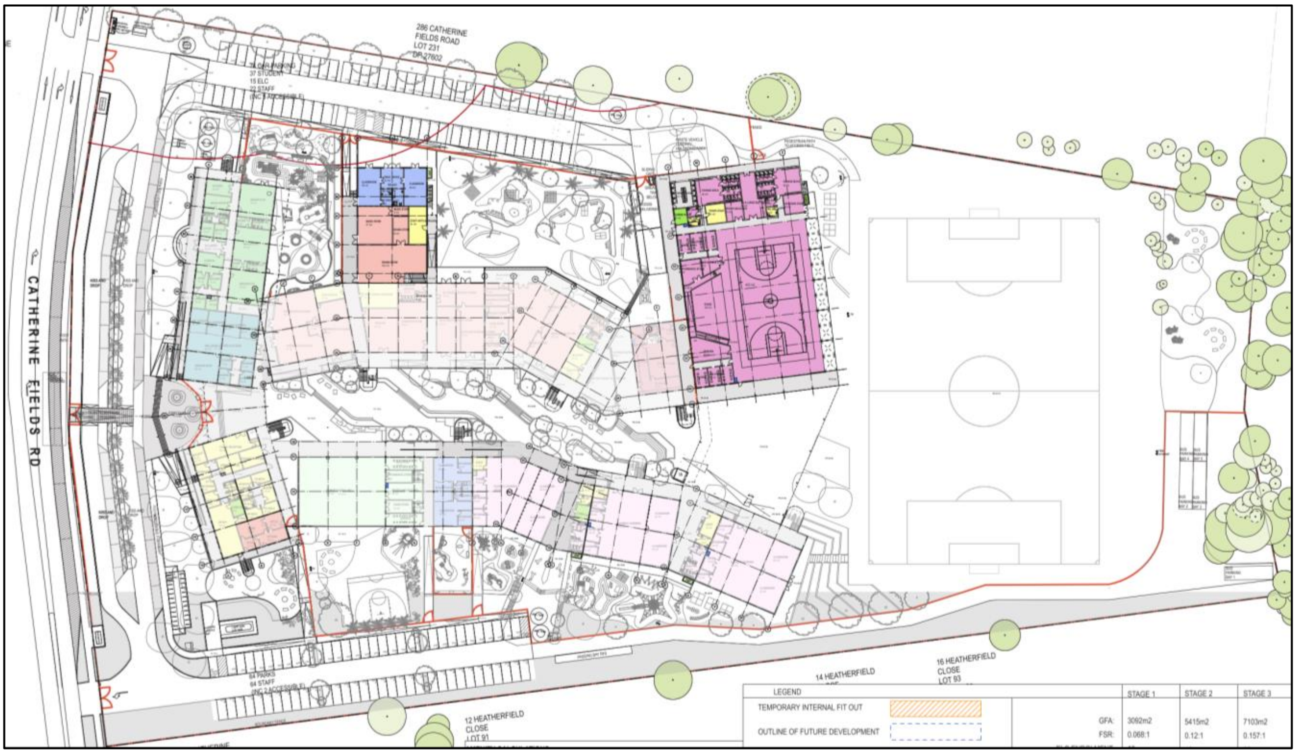


Figure 1: Site Plan

1.3 Background

Ason Group has been commissioned by Midson Group on behalf of Minarah College to prepare a Preliminary School Transport Plan (PSTP) to accompany a State Significant Development Application (SSDA) to the NSW Department of Planning and Environment (DPE) for the development of a new K-12 college in Catherine Fields, situated on Catherine Field Road.

The works subject to the proposal involve the construction of a K-12 college facility located at 268 & 278 Catherine Field Rd, Catherine Field (the Site). The site is situated within a rural residential neighbourhood.

On 29th October 2021, the Planning Secretary issued Secretary's Environmental Assessment Requirements (SEARs) for the SSD Application No. SSD-30759158. This report has been prepared to address the SEARs requirements, as outlined above in Section 1.1.

1.3.1 Site Amenities and Existing Conditions

Section 2 of this Plan details the location and transport related amenities of the proposed school, i.e., bicycle parking, school bus stop, car parking, pedestrian access locations, and drop-off / pick-up facilities. Analysis is also provided on the anticipated mode share of the school for students and staff when the school becomes operational. Details regarding the public transport within the area and pedestrian connectivity are also provided.

In addition, detailed catchment analysis has been undertaken for potential students in the region to be considered to assist with the planning of likely travel mode share and the planning of correlating transport services and infrastructure requirements to support future school operations.

1.3.2 Preliminary School Transport Plan

Section 3 of this Plan, describes the preliminary School Transport Plan (PSTP) and is intended to develop a package of site-specific measures to promote and maximise the use of sustainable travel modes, including walking, cycling, public transport, and carpooling. These strategies will assist in less reliance on the use of private vehicles for travel to and from the school, supporting sustainability initiatives for growth into the future, providing sustainable travel modes that support independent travel of children attending the school and potential health benefits associated with walking, scooter riding and cycling.

The PSTP sets out objectives and strategies to assist the School in achieving green travel goals to improve sustainability.

It also includes a review of the existing transport choices and sets targets so that the effective implementation of the Plan can be assessed. These targets are intended to be realistic but ambitious enough to initiate substantiative behavioural change to achieve the desired outcomes, given existing and future multi-modal transport networks. This is expected to be coordinated with the School or its representatives. It shall be reviewed regularly to ensure it remains relevant and reflective of current conditions.

1.3.3 School Transport Operations and Access Management Plan

Section 4 of this Plan, herein referred to as the School Transport Operations and Access Management Plan (OTAMP) is to provide guidance in relation to the traffic management arrangements for the site. The overall objective is to ensure the safe and efficient movement of vehicles, students, visitors, and staff. In particular, this Plan details the following:

- A pedestrian access plan;
- Kiss and Ride area management plan;
- Car parking plan;
- Servicing plan; and
- Details on the governance and administration of the plans.

1.4 Detailed Stakeholder Engagement

Over the course of the development of this Plan, Ason Group has consulted with key stakeholders including Transport for NSW (TfNSW) and Camden Council. This report provides details of consultation undertaken by the Project Team in its preparation of this STP.

TABLE 1: PRE-APPROVAL CONSULTATION RECORD 01

Identified Party to Consult:	TfNSW

Consultation type:	Teleconference (Teams)
When is consultation required?	Prior to application for SSD
Why	TfNSW is the state road authority – they are in charge of coordinating activities on the local and state road networks.
When was consultation scheduled/held	28th October 2021
When was consultation held	28th October 2021
Identify persons and positions who were involved	**TfNSW** - Zhaleh Najari Alamouti (Senior Land Use Assessment Coordinator), Zeliha Cansiz, Louise Moran, Robert Rutledge, Sophie Grieve **Minarah College** – Jay Halai (Principal) **Midson Group** – Toby James (Project Manager) **Ason Group** – Dora Choi (Principal Lead), Wendy Zheng (Senior Traffic Design Engineer)
Provide the details of the consultation	Preliminary discussion to raise concerns regarding the background growth factor and share project progress
What specific matters were discussed?	• Presentation of proposed Minarah College secondary campus at Catherine Field • Ason presented data collected for the modelling of the proposed Minarah College Catherine Field Campus and posed questions on the background growth and development of the area based on STFM data collected • TfNSW confirmed that Catherine Field will not be rezoned near future and it is not part of a growth precinct • There are no further upgrades planned for either Bringelly Road nor Camden Valley Way • Assume that no collector roads in the network are being upgraded for future in our traffic impact assessment • TfNSW has answered that we can assume a minimum 3% growth in background traffic – to be reviewed internally by TfNSW • TfNSW does want to see cycling infrastructure and shared paths as part of the work but neither Council nor TfNSW has any plans for cycling or pedestrian infrastructure upgrades in the area and Catherine Field Road is not part of the bicycle network for Camden

	- TfNSW expressed enthusiasm for shuttle buses to and from train stations and this proposal was compared to the shuttle bus system at nearby Broughton Anglican College - The speed zone on Catherine Field Road transitions from 60km/hr from the intersection of Camden Valley Way to 80km/hr in front of the proposed school site. TfNSW has indicated that the project can apply to the Road Network Safety Officer for an extension of the 60km/hr speed zone

What matters were resolved?	- TfNSW informed the project team that the growth factors presented in the 2036 STFM model for the road network surrounding the Site does not need to be adhered to
	- No future road upgrades or pedestrian/cycle path extensions need to be accounted for by the project team
	- The project team sent through follow up questions to TfNSW:
	  - Background growth to be applied including the growth rate on Camden Valley Way and Catherine Field Road?
	  - How can the changing road network be accommodated?
	- Standard practice to adopt a specific percentage of growth?

What matters are unresolved?	n/a
Any remaining points of disagreement?	n/a
How will the project team address matters not resolved?	n/a

TABLE 2: PRE-APPROVAL CONSULTATION RECORD 02

Identified Party to Consult:	Camden Council
Consultation type:	Teleconference (Teams)
When is consultation required?	Prior to application for SSDA
Why	Council is the local road authority.
When was consultation scheduled/held	9th December 2021
When was consultation held	9th December 2021

Identify persons and positions who were involved	**Camden Council** – Matthew Rawson (Planner), Tom Allen (Team Leader Traffic and Road Safety), Roy El Kazzi (Traffic Engineer), Fiona Stalgis (Waterways) **Minarah College** – Jay Halai (Principal), Imam Ali (Director) **Midson Group** – Toby James (Project Manager) **Urbis** – Naomi Ryan (Planner) **TZG** – Peter Tonkin (Director), Julian Dolk (Architect) **Martens** – Terry Harvey (Project Manager / Senior Engineer) **Ason Group** – Dora Choi (Principal Lead), Wendy Zheng (Senior Traffic Design Engineer)
Provide the details of the consultation	Pre-DA submission discussion to brief Council on the project and to clarify project team issues
What specific matters were discussed?	The project team presented to Council regarding the project at its current stage. Traffic presented the following issues to Council for clarification: • Confirmation of the growth rate for traffic modelling • Number of bicycle parking required on site given that there is no existing or proposed cycling connection to the School • Extent and dimension of footpath required on site frontage given that there is no existing or proposed footpath connection to the School • Timing of the implementation of the channelised right turn at the School entry
What matters were resolved?	• Council has confirmed that the provision of bicycle parking on site does not have to be compliant with the staging and may be conditioned later once the cycle path connection is planned • Footpath provision extent and dimensions are limited to the School frontage
What matters are unresolved?	• Council has informed the project team that they will confirm the growth rate to be modelled • Council has expressed their preference for delivery of the channelised right turn entry in Stage 01, but modelling shows it is not necessary until Stage 04 which is dependent on the growth rate
Any remaining points of disagreement?	n/a
How will the project team address matters not resolved?	n/a

TABLE 3: PRE-APPROVAL CONSULTATION RECORD 03

Identified Party to Consult:	Camden Council
Consultation type:	Pre-DA letter
When is consultation required?	Prior to application for SSDA
Why	Council is the local road authority.
When was consultation scheduled/held	Pre-DA letter dated 21st December 2021
When was consultation held	9th December 2021 (see details in Record 02)
Identify persons and positions who were involved	See details in Record 02
Provide the details of the consultation	See details in Record 02
What specific matters were discussed?	• A Traffic Impact Assessment undertaken by a suitably qualified practitioner must be submitted detailing, but not limited to, the following: • Traffic generation and impact; • Queuing at kiss and ride –measures to prevent queuing from extending onto Catherine Fields Drive; • Compliance of the design with relevant design guides and standards; • Pedestrian safety; and • The capacity for the narrow rural road (Catherine Fields Road) to handle the traffic volumes associated with the development and likely maintenance burden. • Car parking rates shall comply with DCP requirements for off-street parking. Although the number of proposed parking spaces is provided in the documents, the detail required for their calculation is not (i.e., number of year 12 students, number of staff, etc). • The proposal states 36 Kiss and ride spaces internally. Additional detail of the Kiss and ride area would be required, and it must be designed in a manner that ensures queuing does not extend onto Catherine Field Drive (impacting on traffic flow). The school proposes 1500 students, and it is envisaged that the majority of students would travel by private vehicle or bus. The efficacy of the proposed provision shall be justified by assessment of similar sites.

	• Plans depicting dimensions (aisle width, indent width, length), signage and line marking must be submitted with any future application. • Parking/ loading areas shall be designed to comply with relevant Australian Standards. • Relevant swept paths to be depicted include (but are not limited to) the following: – Vehicles entering and exiting driveways and parking aisles simultaneously; and – Largest design vehicle entering, manoeuvring with the site and egress the site. – A bus shelter must be provided as part of the proposed development. All indented bus bays must be designed in accordance with the relevant standards and design guides. • Answers to specific queries: • What growth rate should be applied in our traffic model? Note that TfNSW has directed us to use the standard growth rate which is 2.5%. 2.5% would be satisfactory at this stage considering the area is not yet rezoned. • Do we need to provide any bicycle parking within the school as it is currently not accessible via bicycles? Although bicycle accessibility is not yet achieved it may be difficult to enforce provision after the school is approved and operational. We may condition that prior to completion of the final stage that all parking must be provided. However, a small amount should still be provided at Stage 1 to accommodate any teachers or students that may live local and choose to cycle to the school. • Footpath connecting the indented bus bay on Catherine Field Road to the school has been designed for 1.8m in width in accordance with Austroads Guide to Road Design Part 3, does it need to be widened? 3m is to be provided to accommodate students waiting to board etc. This is what we strive for around all schools. • Our initial modelling shows that the CHR on Catherine Field Road does not need to be provided before Stage 4. Does Council have any comment on the timing? Right turn bay shall be provided at stage 1.
What matters were resolved?	• A queuing analysis of the kiss and ride area has been undertaken to demonstrate that the design can accommodate all traffic required without queuing onto Catherine Fields Road • SIDRA network modelling has been undertaken to demonstrate that development traffic can be accommodated by the surrounding road network
What matters are unresolved?	• Council requires the provision of a bus shelter. However, a bus shelter should be provided by Council as part of the Council's Road & Transport Infrastructure Asset Management Plan if required • Council has expressed their preference for a 3m wide footpath adjacent to the bus bays. However, the proposed 1.8m footpath is in accordance with Austroads requirements and the School has proposed a covered waiting area for students adjacent to the pedestrian access. • Council has expressed their preference for delivery of the channelised right turn entry in Stage 01, but modelling shows

	it is not necessary until Stage 04 which is dependent on the growth rate
Any remaining points of disagreement?	• n/a
How will the project team address matters not have resolved?	n/a

1.5 Key References

The TA makes reference to a series of key strategic, design and planning documents in the assessment of the traffic and transport-related elements of the project. These documents include:

- Camden Council Development Control Plan (2019)
- Camden Council Local Environment Plan (2010)
- Transport for NSW, NSW Movement and Place Framework (March 2020)
- NSW Government, Practitioner's Guide to Movement and Place (March 2020)
- NSW Planning Guidelines for Walking and Cycling (December 2004);

This TAIA also references general access, traffic and parking guidelines, including:

- Roads and Maritime Services, Guide to Traffic Generating Developments, v2.02, 2002 (RMS Guide)
- Roads and Maritime Services, Trip Generation Surveys Schools Analysis Report (Prepared by GTA for RMS, Issue A dated 25/08/2014);
- Australian Standard 2890.1:2004 Parking Facilities – Off-Streetcar Parking (AS 2890.1: 2004)
- Australian Standard 2890.2:2018 Parking Facilities – Off Street Commercial Vehicle Facilities (AS 2890.2:2018)
- Australian Standard 2890.3:2015 Parking Facilities – Bicycle Parking (AS 2890.3:2015)
- Australian Standard 2890.5:2018 Parking Facilities – On-Street Parking (AS 2890.5:2018)
- Australian Standard 2890.6:2009 Parking Facilities – Off-Street Parking for People with Disabilities (AS 2890.6:2009)
- Transport for NSW, Supplement to Australian Standard AS 1742.10-2009, Manual of Uniform Traffic Control Devices – Part 10: Pedestrian Control and Protection Version 3.1 March 2021
- EIS Guidelines – Road and Related Facilities (Department of Urban Affairs and Planning (DUAP), 1996)
- Cycling Aspects of Austroads Guides
- Guide to Traffic Management Part 12: Integrated Transport Assessments for Development (Austroads, 2020)

2 Existing Conditions

2.1 Site Location

The Site is located at 268 & 278 Catherine Fields Road, Catherine Field and consists of Lot 11 of DP833983 and Lot 12 of DP833984. The site is largely surrounded by rural and low-density land uses, characterized in the LEP as:

- RU4 Primary production Small Lots (to the north, east and west)
- R5 Large Lot Residential (to the south)

The following land-uses adjoins the site:

- to the north: a single residential dwelling house adjoins to the north
- to the south: 3 single residential dwelling houses and ancillary buildings, some of them with on-site business activities
- to the east: 2 single residential dwelling houses and ancillary buildings with business activities
- opposite of the site - to the west: 4 single residential dwelling houses and ancillary buildings, some of them with on-site business activities

Currently, the Site consists of two residential properties with a combined 4.55-hectare footprint.

The land area and surrounding context are demonstrated in **Figure 2** and **Figure 3** below.

Figure 2: Site Location

Figure 3: Site Context and Road Hierarchy

2.2 Site Transport Facilities

The architectural plans for the School development indicate locations of frontages, crossovers and access locations relevant to transport facilities associated with the school. This includes, but is not limited to:

- Bicycle parking locations
- Kiss & ride locations
- Bus stop locations
- Concrete pedestrian footpaths and access points
- Existing and Proposed crossing locations.

Figure 4: Site Access Diagram below demonstrates the configuration of existing and proposed transport facilities.

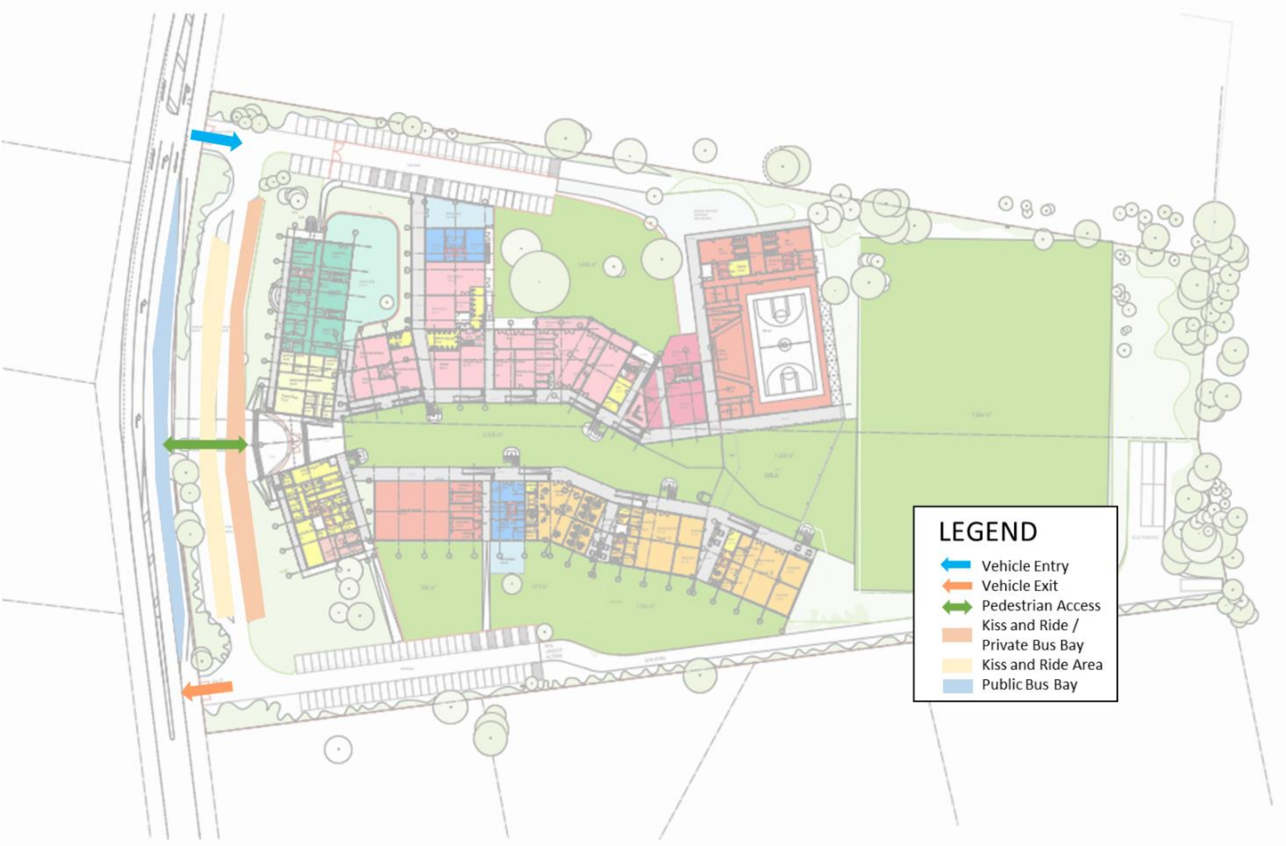


Figure 4: Site Access Diagram

As defined above, the Site has one frontage to Catherine Field Road and provides connectivity to the limited pedestrian network in the area.

2.3 Public Transport

2.3.1 Train Connectivity

With regard to accessibility to the existing and proposed rail network, the proposed school location is not situated within walking distance of a train station. Notwithstanding, the is a potential opportunity for ancillary serviceability (via shuttle or chartered services) from Leppington Station 5km to the north-east or Minto Station approximately 8km to the south-east.

Serviceability details are provided in **Table 3**, with reference to **Figure 5** below.

TABLE 4: TRAIN SERVICES

Line	Connection	Name	Frequency
T2	Leppington Stn.	Parramatta or Leppington to City	~ 4 services per hour
T5		Richmond to Leppington	~ 2 services per hour
T8	Minto Stn.	Macarthur to City via Airport or Sydenham	~ 4 services per hour
		City to Macarthur via Airport or Sydenham	~ 2 services per hour
T5		Leppington to Richmond	~ 2 services per hour

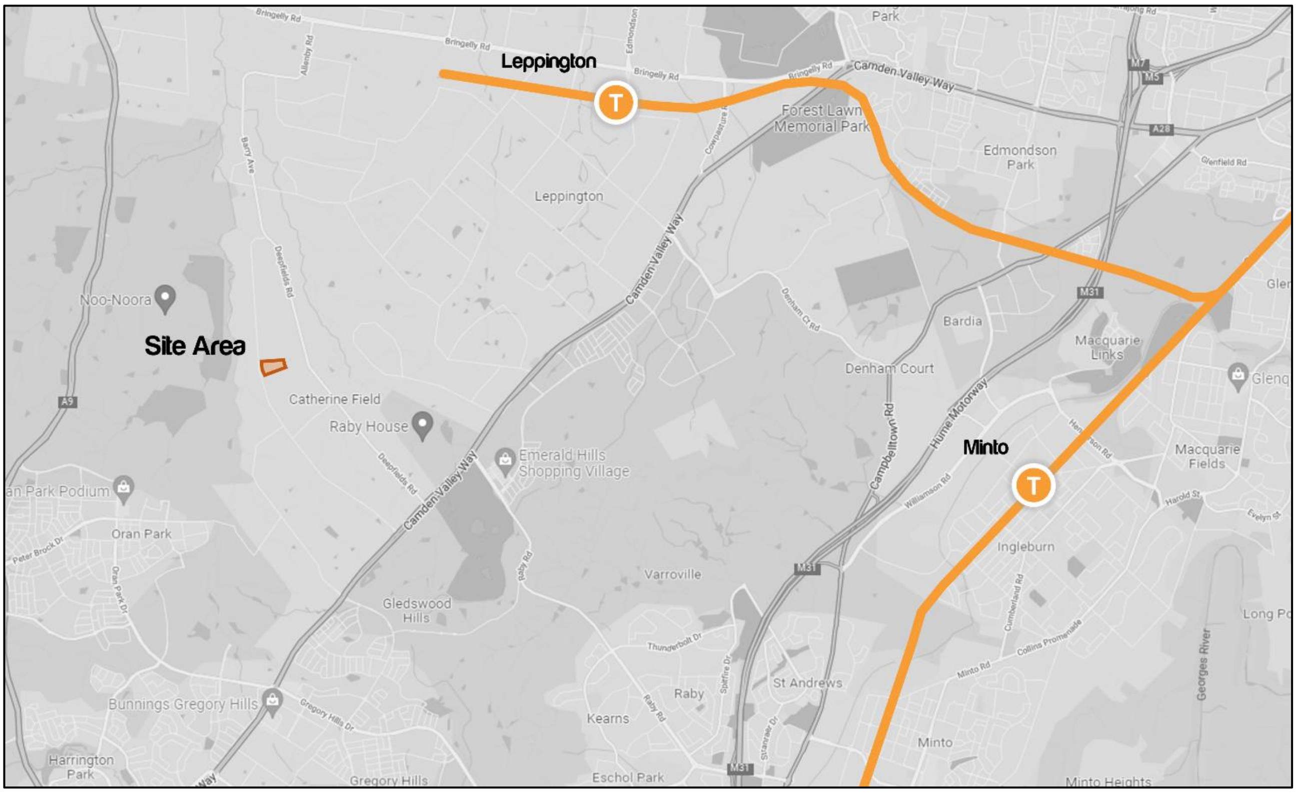


Figure 5: Train Stations

2.3.2 Public Bus Connectivity

With reference to existing public bus service connectivity for the area, a single bus stop location exists south of the Site along Catherine Fields Road and provides serviceability to two routes, summarised in the table below.

TABLE 5: BUS SERVICES

Route	Description	Provider	Frequency
850	Narellan Town Centre to Minto	Interline Bus Services	~ 2 per hour during the day
857	Narellan to Liverpool	Interline Bus Services	~1 every 2-3 hours during the day.

Both routes listed above access Catherine Fields Road via Camden Valley Way, and typically loop via the adjacent Springfield Road as demonstrated below rather than travelling the full extents of Catherine Fields Road northwards.

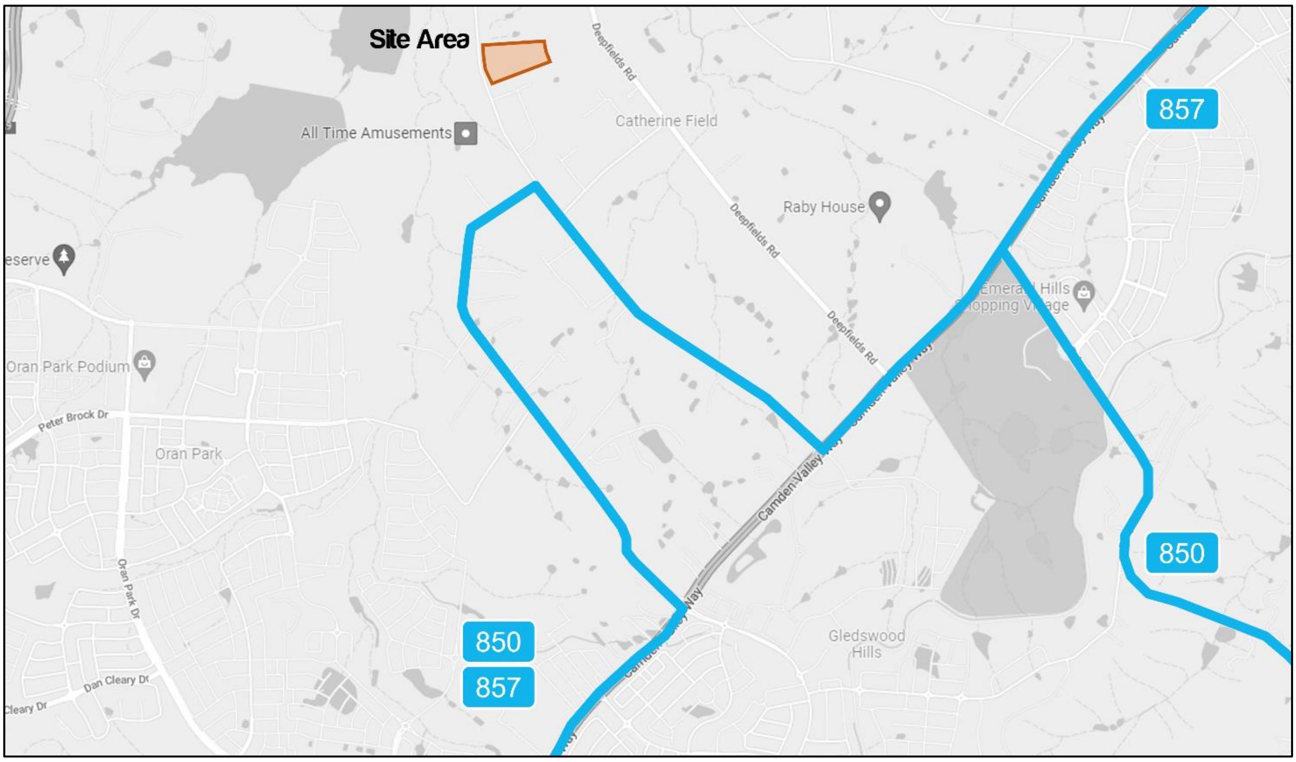


Figure 6: Catherine Fields Bus Routing

2.3.3 Future Opportunities for Services

Having regard to the above, it is demonstrated that part of Catherine Fields Road is adequately dimensioned to provide bus serviceability. As part of the school development, potential school bus routes should be explored in consideration of servicing the future student population.

2.4 Active Transport

2.4.1 Pedestrian Network

Currently, there are no provisions for footpaths along the Catherine Fields Road frontage in the northern or southern directions. As part of the Councils' Pedestrian Access and Mobility Plan (2014), there is no anticipated footpath works planned for the Catherine Field area.

In the longer term, it is anticipated that future provisions relating to the residential development potential of the Catherine Field North Precinct will facilitate the growth and expansion of the footpath network and provide adequate connectivity through the locality.

2.4.2 Cycling Network

At present, there is limited cycling connectivity through the Catherine Field area, with no planned provisions immediate to the Site along Catherine Field Road, nor are there any plans of future provision for cycling connections through this area.

2.5 Catchment Analysis

A preliminary catchment analysis has been undertaken by Lawrence Consulting as part of the project team submission. Reference should be made to this document that accompanies the EIS.

The catchment analysis has nominated a 10km radius around the school and captures the following suburbs:

- Cobbity – Leppington
- Camden – Ellis Lane
- Elderslie – Harrington Park
- Mount Annan – Currans Hill
- Claymore – Eagle Vale – Raby
- Ingleburn – Denham Court
- Austral – Greendale
- Hoxton Park – Carne's hill – Horningsea Park
- West Hoxton – Middleton Grange, and
- Prestons – Edmondson Park.

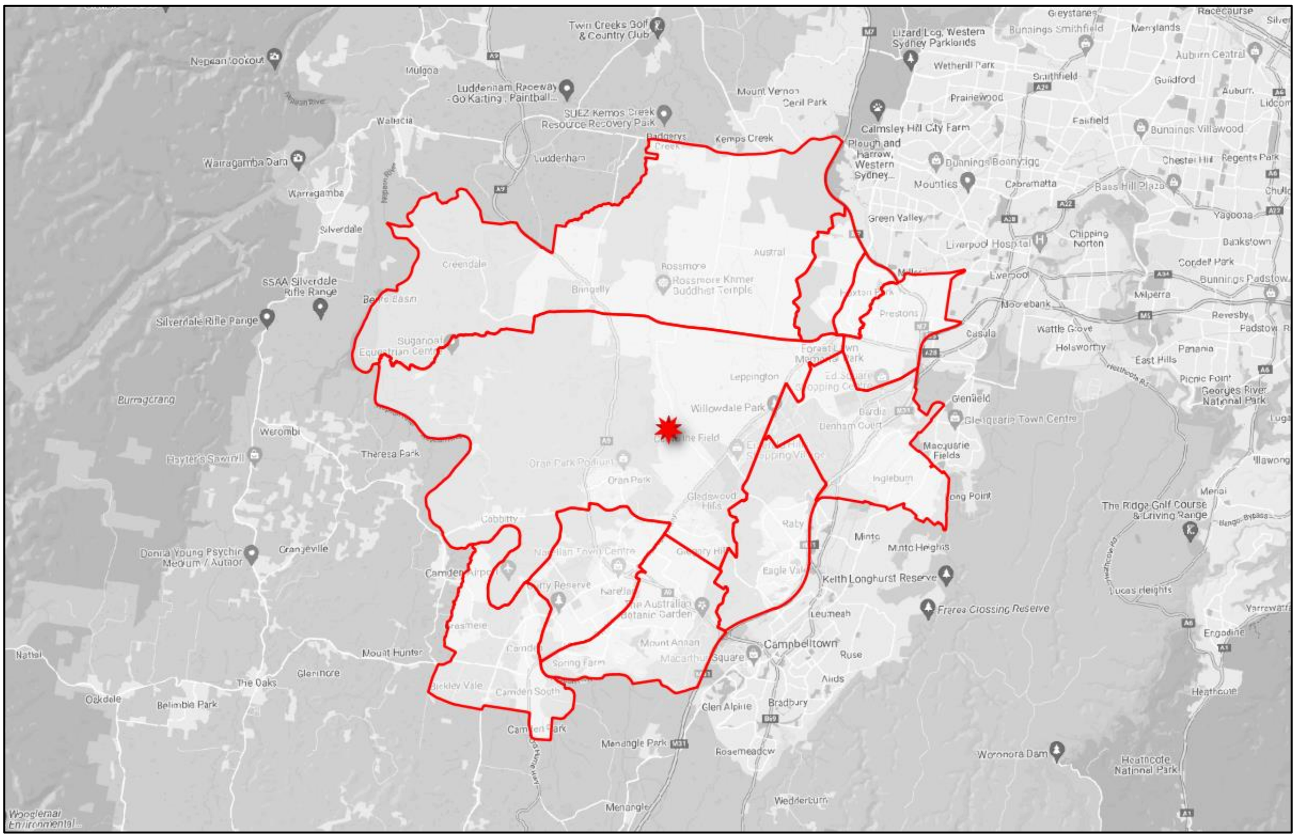


Figure 7: Catchment Map

It is considered that at this stage, the nominated catchment is indicatively provided until further consultation is undertaken with Department of Education, to define specific catchment bounds. Noting that the GVC is observed to have a similarly large catchment area, the above can be denoted as acceptable.

2.5.1 Public Transport Catchment

In line with guidelines outlined by the NSW Government and TfNSW, the School Student Transport Scheme (SSTS) provides catchment guidelines to provide eligibility for school public transport.

For grades K-2, the following eligibility criteria apply:

- They are a resident of NSW, or an overseas student eligible for free government education.
- Aged 4 years 6 months, or older.
- No minimum walking distance criteria apply to these students.

For grades 3 – 6, the following eligibility criteria apply:

- They are a resident of NSW, or an overseas student eligible for free government education.
- The straight-line distance from their home address to school is more than 1.6 km.
- The walking distance from home to school is 2.3 km or further.

For grades 7 – 12, the following eligibility criteria apply:

- They are a resident of NSW, or an overseas student eligible for free government education.
- The straight-line distance from their home address to school is more than 2 km.
- The walking distance from home to school is 2.9 km or further.

As defined below, **Figure 8** below demonstrates the catchment exclusion zones for Grades 7-12 with reference to the proposed schools' location. The exclusion zones above demonstrate that both the 2km radius and 2.9km distance capture the more immediate Catherine Field area, indicating suitability for the school in terms of public transport eligibility.

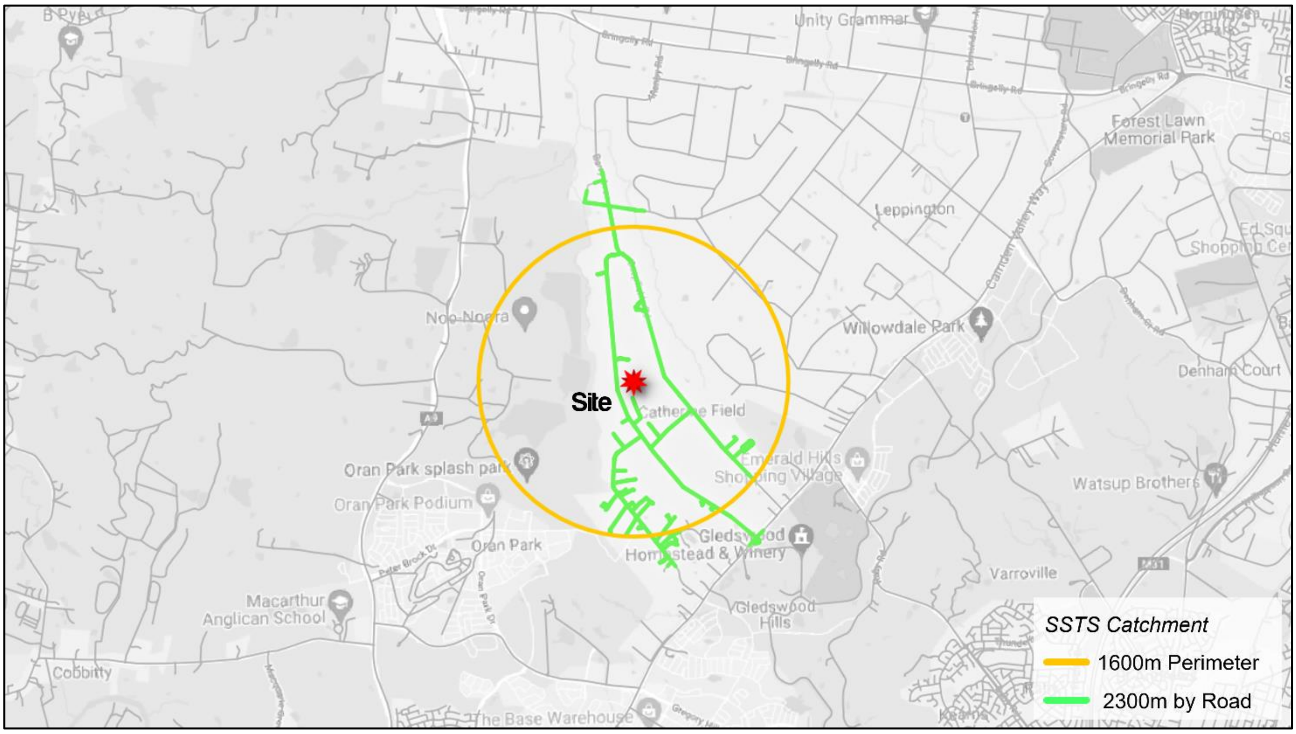


Figure 8: SSTS Exclusion Zones

The exclusion zones above demonstrate that both the 2km radius and 2.9km distance capture the more immediate Catherine Field area.

2.5.2 Active Transport Catchment

Pedestrian Catchment

SINSW has characterised the walking catchment of a school within 5, 10 and 15-minute walking distance increments (approximately 400m increments) of the school, representing desirability for the catchment area. **Figure 9** demonstrates the maximum catchment extents (1,200m) relative to the Site.

Given the nature of surrounding developments, the catchment perimeter demonstrates limited catchment effectivity as a result of the low-density / large lot nature of the surrounding residential area. In addition, the catchment lacks any meaningful pedestrian pathway provision to facilitate walking catchment, and no existing safe crossing opportunities to facilitate movements east-west across Catherine Field Road.

Figure 9: Pedestrian Catchment Zone

Cycling Catchment

In addition to the pedestrian catchment guidelines described by SINSW, the catchment areas for cycling are defined in a similar format based on 5-minute increments (approximately 1.2km increments). **Figure 10** illustrates the maximum extent of the cycling catchment zone (3.6km).

While the catchment map exhibits further-reaching extents, particularly towards the north and south, it should be noted that certain elements of cycling infrastructure – specifically relating to on-road cycling lanes, or lack thereof - may not be applicable, particularly for younger students as safe provisioning.

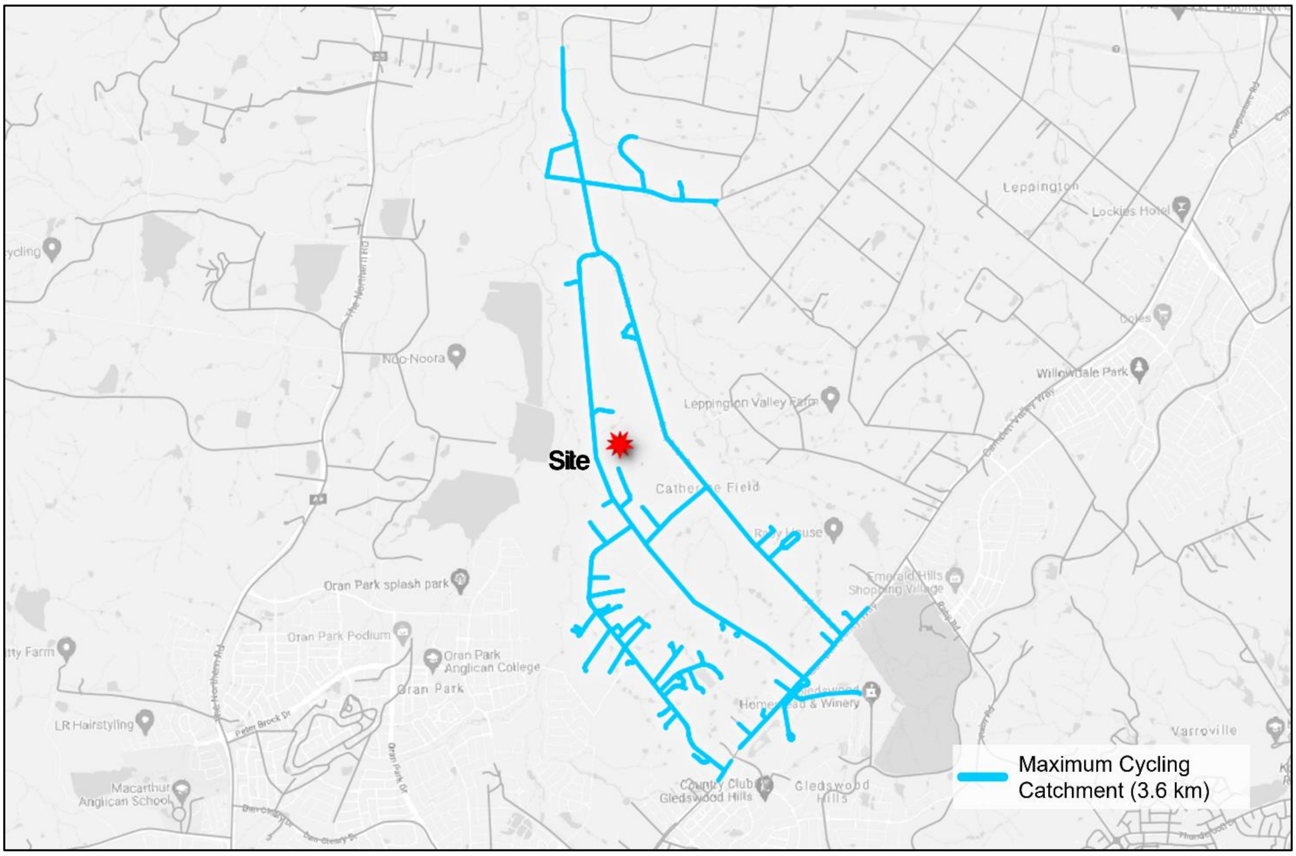


Figure 10: Cycling Catchment Zones

2.6 Travel Mode Surveys

As Minarah College – Catherine Field Campus will be a new school, there is no existing school or staff cohort. Comparison is instead drawn to the Green Valley Campus, which is run by the organisation.

Surveys of GVC staff and students were conducted to provide an understanding of travel characteristics, including:

- Travel mode for both the arrival and departure trips;
- Vehicle occupancy;
- Out of Hours School Care;
- Car Pooling, and
- Interest in different green travel strategies and initiatives.

Out of 1100 students, there were 386 responses, representing a 35% response rate. Out of 90 staff, there were 31 responses, representing a 34% response rate. Generally, a response rate of 20% or higher is considered an acceptable representation of the cohort, hence the resulting travel mode surveys are considered an accurate depiction of the travel patterns of GVC. It is envisioned as part of the maintenance of the future School Transport Plan as a live document, similar travel mode surveys are conducted for Minarah College – Catherine Field Campus to inform the travel patterns of the school.

2.6.1 Students

Student Arrival/ Departure Time

In an operating capacity, the school period and bell times occur between 08:55 and 14:55 during weekdays, with student arrival typically occurring between 7:30 am and 8:30 am, peaking in the 8:00 am-8:15 am window. Student departure typically occurs between 3:00 pm and 4:00 pm, peaking in the 3:15 pm-3:30 pm window. The exact school hours are to be confirmed for the Catherine Field Campus, however, are expected to be similar to GVC at this stage. Figure 11 and Figure 12 present the typical student arrival/ departure times for GVC.

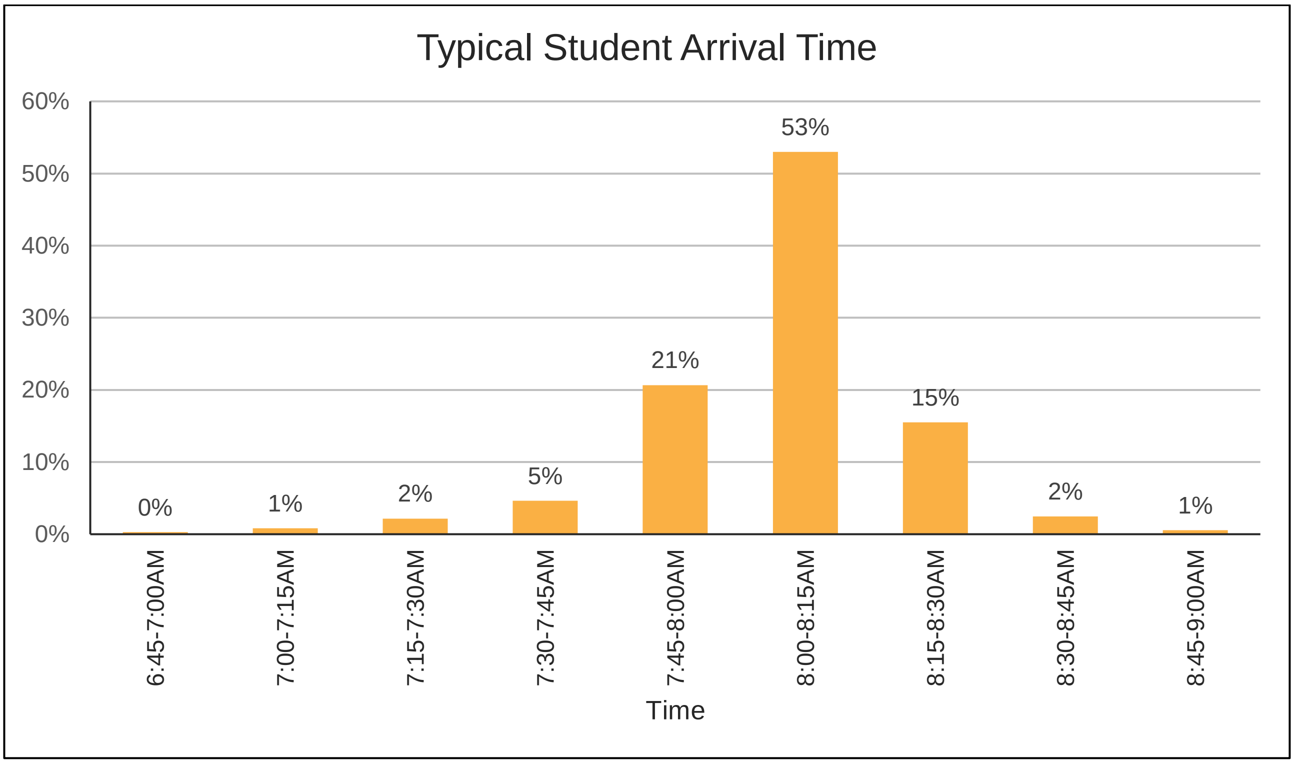


Figure 11: Typical Student Arrival Time (GVC)

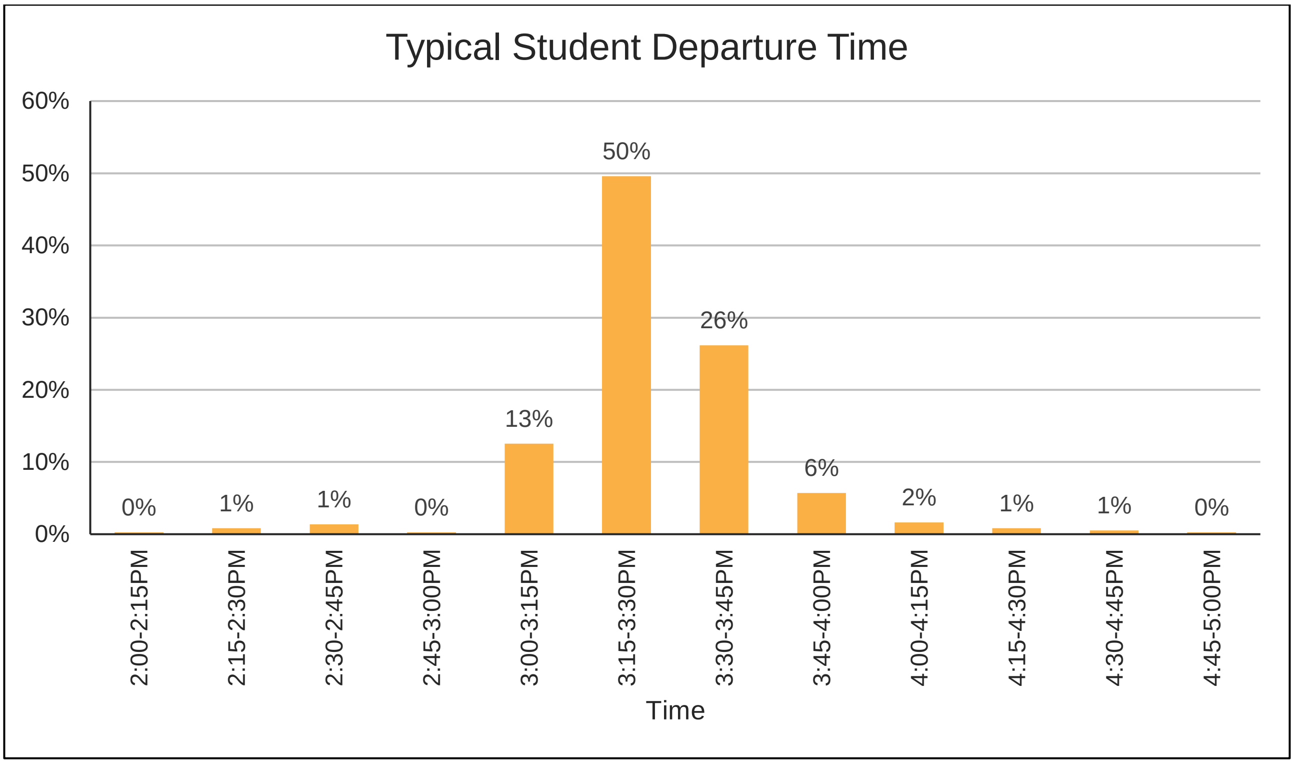


Figure 12: Typical Student Departure Time (GVC)

Student Travel Mode Share

As part of the undertaken student surveys, an appreciation for modal travel has been obtained to provide indicators for travel behaviour and interactions with the School. Accordingly, Figure 13 demonstrates the modal breakdown of student trips to GVC.

As seen in the graph, GVC demonstrates a high dependency on private vehicle travel with car mode share representing almost 90% of the modal split. Small numbers of the GVC student cohort catch the bus (around 4%) and walk (around 6-7%). The “other” trips represent survey responses where the mode share was not able to be determined due to a lack of clarity in the response.

It is anticipated that the nature of the GVC is expected to be similar to the proposed Catherine Field Campus, due to the nature of the surrounding area and school catchment.

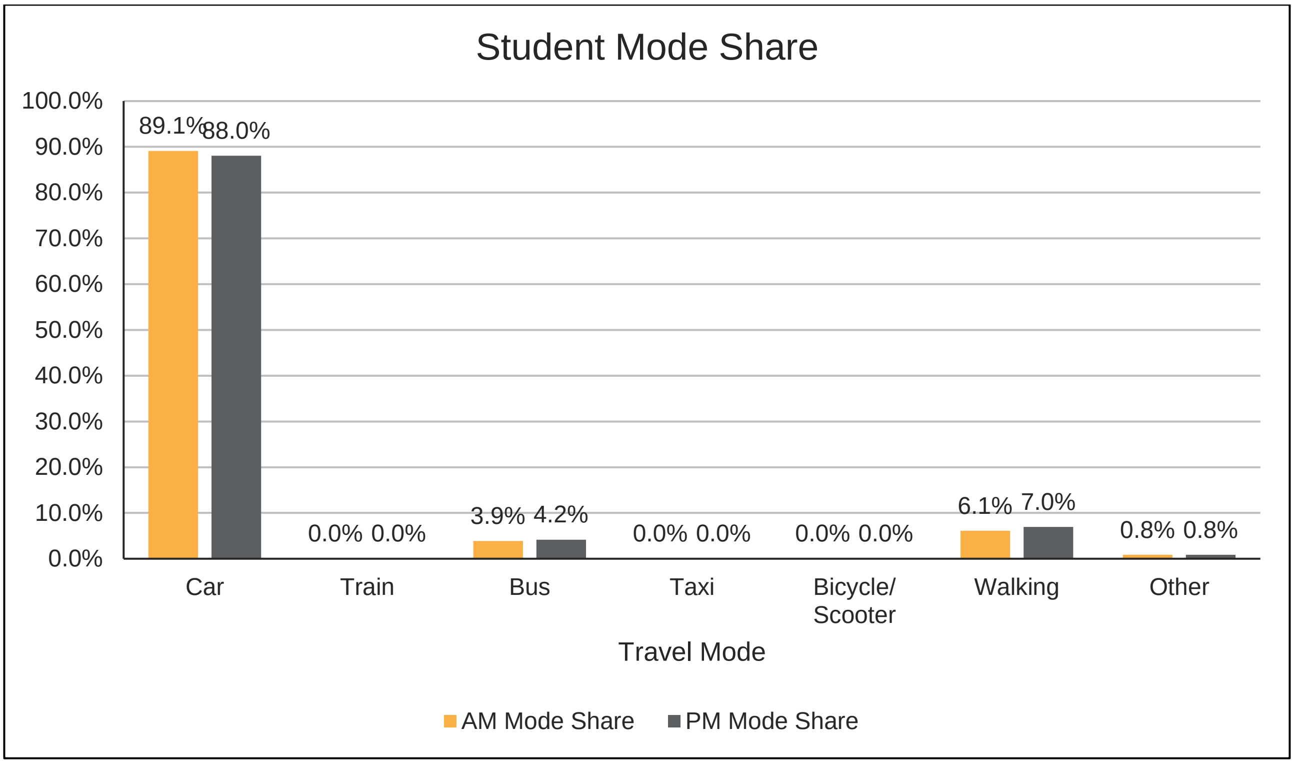


Figure 13: Student Mode Share (GVC)

Car Pooling

The GVC surveys found a moderate level of car pooling. 75% of students that travelled via car did not have another student in the vehicle, however, some students travelled with large numbers of other GVC students as indicated in **Figure 14**. Based on the survey data, an average occupancy rate of 1.61 students per car was determined.

As the student population of Minarah is expected to present similar family structure characteristics, this occupancy rate is also adopted for the traffic assessment.

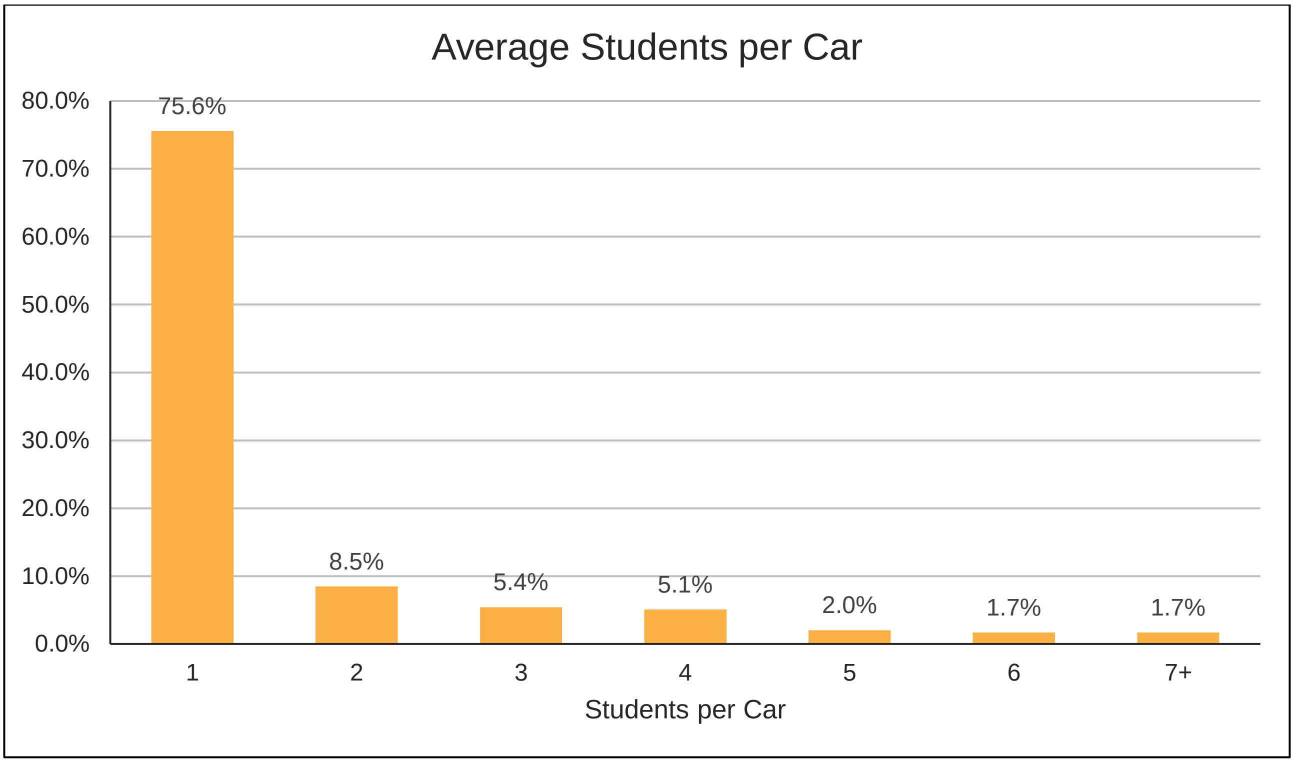


Figure 14: Average Students per Car (GVC)

2.6.2 Staff

Staff Arrival/ Departure Time

As outlined in Section 2.6.1, the student peak periods based on the travel mode surveys were 7:30 am-8:30 am and 3:00 pm-4:00 pm. Based on the surveys, the staff peak periods are noted to be slightly earlier than the morning student peak and substantially later than the evening student peak, as illustrated in **Figure 15** and **Figure 16**. Around 70% of staff arrivals coincide with the morning peak and around 27% of staff departures coincide with the evening peak. This is typical in our experience for school developments due to marking and other administrative tasks that occur after students depart. It is expected that similar patterns will hold for Minarah.

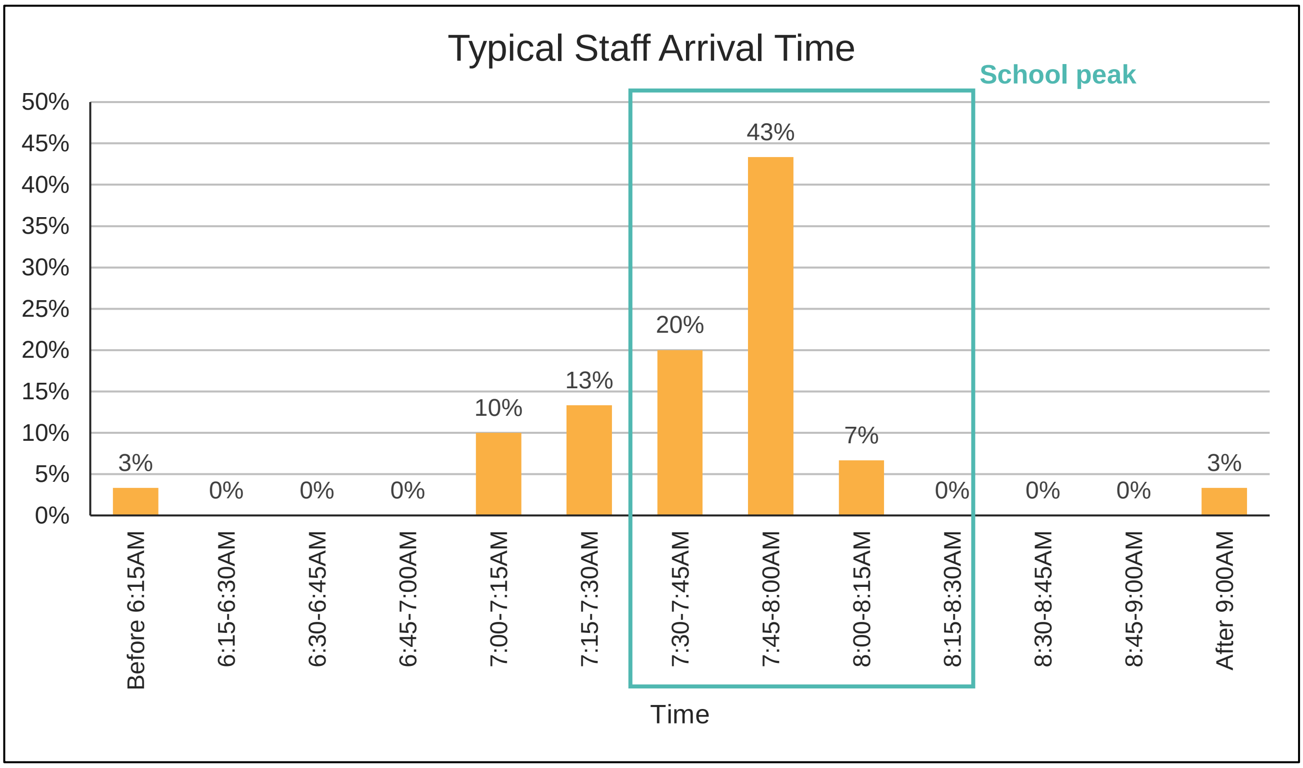


Figure 15: Typical Staff Arrival Time (GVC)

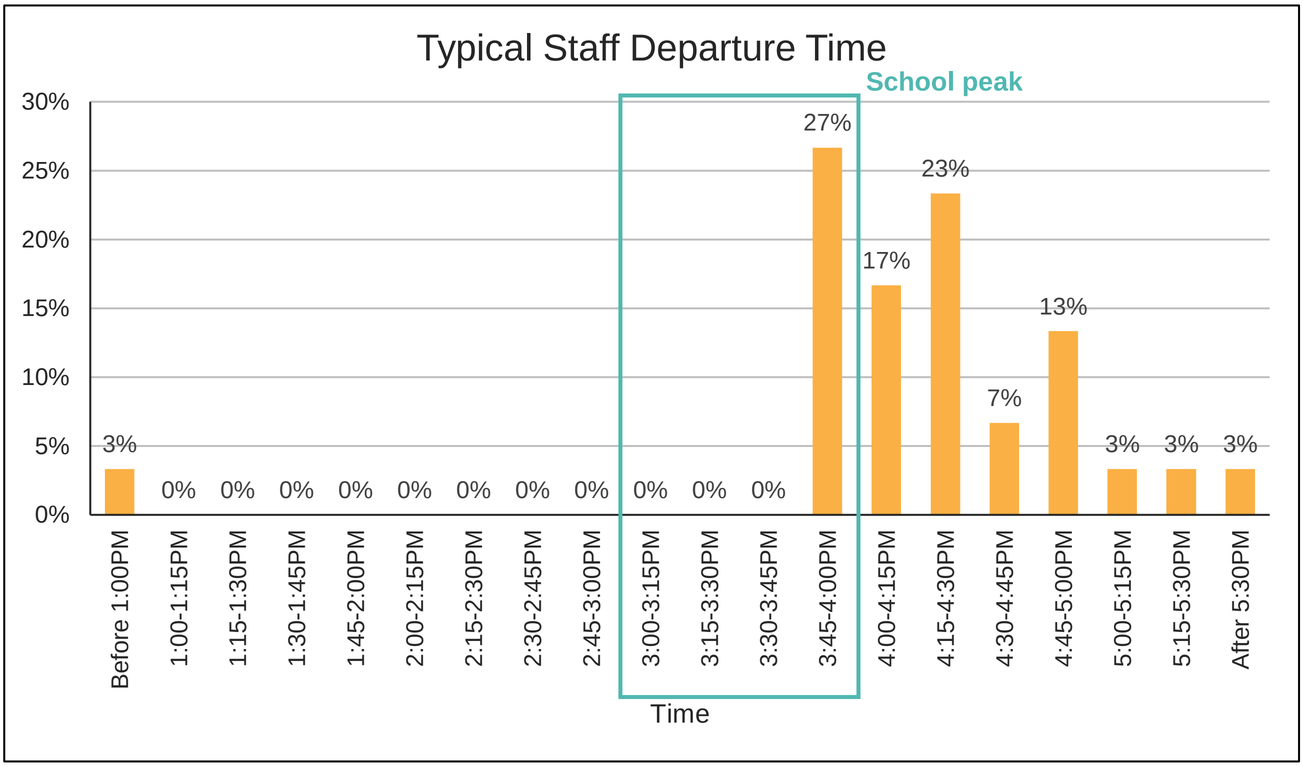


Figure 16: Typical Staff Departure Time (GVC)

Staff Travel Mode Share

The staff surveys found that almost all staff drive. Of the 30 responses, 29 travel to and from school via car, representing a 97% mode share. One respondent travelled to and from school by walking.

Students Traveling with Staff

Based on the GVC surveys, it was found that a third of the surveyed staff had children (GVC students) that travelled with them to/ from school (see **Figure 20**). As a result, these students effectively do not generate any additional trips as their travel to school would be captured within the staff trips. Each staff member had an average of 0.67 students that also travelled with them to/ from school.

As the student/ staff population of Minarah is expected to present similar family structure characteristics, this consideration is also adopted for the traffic assessment.

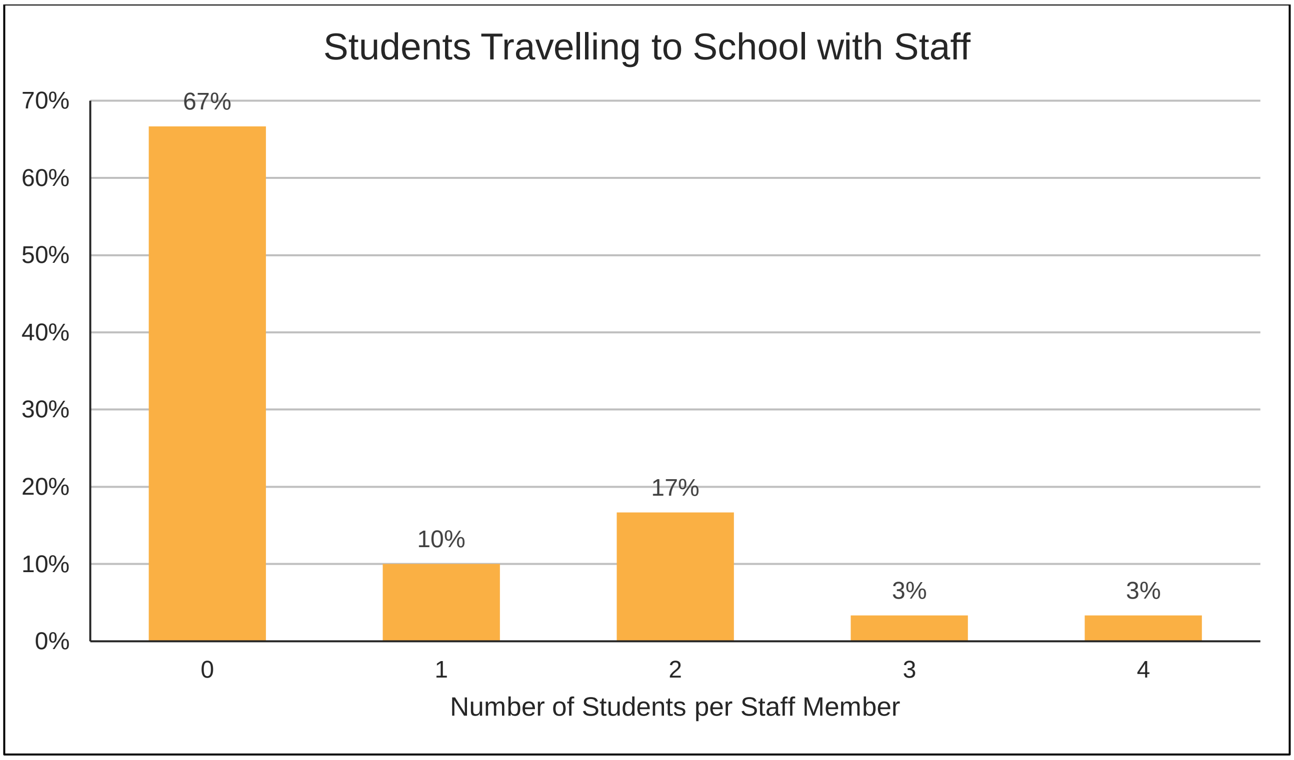


Figure 17; Students Travelling to School with Staff

Staff Attendance

From the GVC surveys, it was found that not all staff attend the school full-time. Some staff worked part-time (around 7%) and one surveyed staff member only attended the school once a fortnight. A review of the data found that each staff member, on average, attends the school 4.7 days per week, or 94% of an equivalent full-time attendance. This rate is also adopted for the Minarah staff traffic generation.

3 School Transport Plan Framework

3.1 Transport Objectives

The primary objectives of this Plan are to:

- Reduce the environmental footprint of the school,
- Promote the use of 'active transport' modes such as walking and cycling, particularly for short-medium distance journeys,
- Promote the use of 'public transport' modes including a bus network with full coverage of the catchment area,
- Reduce reliance on the use of private vehicles for travel to/from the School, and
- Encourage a healthier, happier, and more active social culture.

Having regard for the above, this Plan adopts the following movement hierarchy with priority given to 'active transport' followed by mass public transport and lastly the use of cars and other private vehicles. This hierarchy is reflected in the recently released Road User Space Allocation Policy, January 2021 prepared by TfNSW.

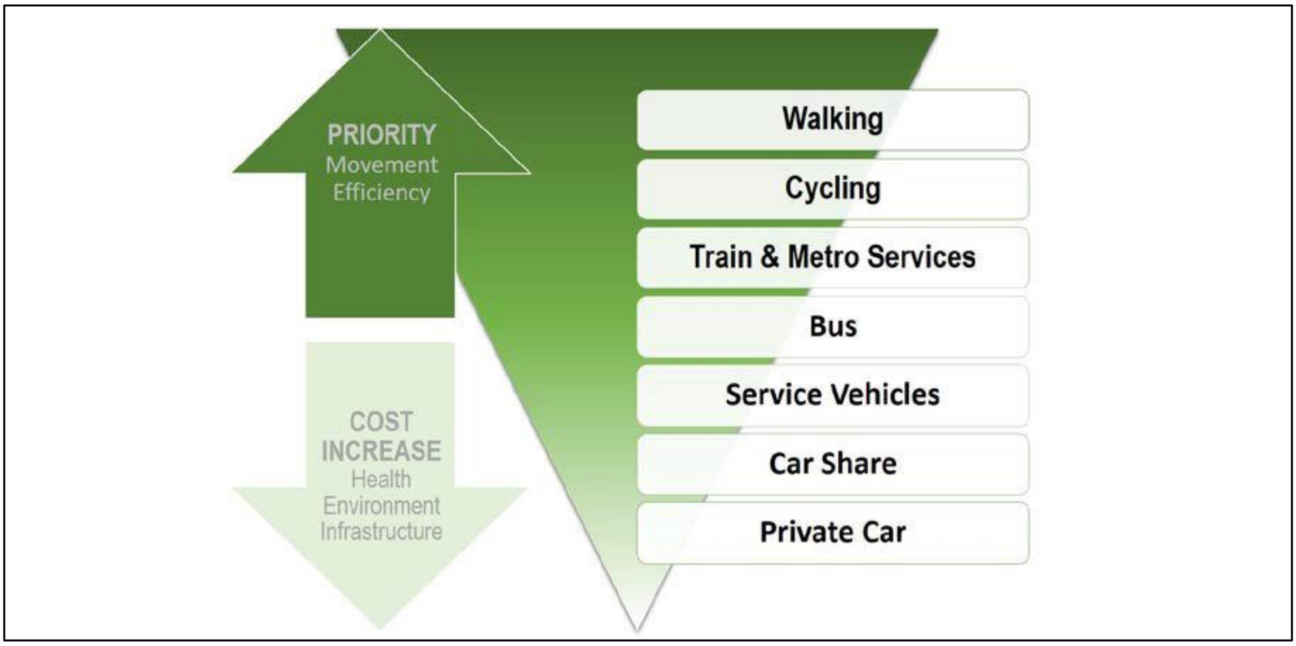


Figure 18: Movement Hierarchy

In a broad sense, this Plan is intended to encourage the use of active transport thereby reducing the overall distance travelled by private vehicles.

3.2 Action Plan

3.2.1 Action Plan Measures

The following specific actions have been identified to aid the achievement of the STP targets. These identified strategies include the promotion of some event or day-specific activities. In isolation, these may not dramatically alter the day-to-day travel of staff. However, there are benefits of such activities whereby participation can increase awareness of alternative modes of travel that can then form the basis of future travel patterns.

Table 6: Action Plan Measures

ITEM NO.	ACTION / DESCRIPTION	TARGET	TIMEFRAME	RESPONSIBILITY
1. General				
1.1	Establish a centralised Travel Plan Coordinator (TPC) who is to take responsibility for the ongoing review and monitoring of this Plan. This person(s) shall also provide direction to staff/parents in relation to specific requirements arising from the Plan. Estimated annual budget for a TPC assuming 10 weeks per term, 4 terms, and 4 hours per week is $50,000 excl. GST	School Administration	Prior to the occupation of the School	School Administration
1.2	Provide 'Travel Welcome Pack' for staff, highlighting alternate modes of transport other than the use of a private vehicle.	Staff	Prior to the occupation of the School and ongoing	TPC
1.3	Review of Plan as a regular item on the agenda of staff/management meetings.	Staff	Annually	TPC
1.4	Preparation of a Transport Access Guide (TAG) and review following changes stipulated by the TPC.	Staff, Students, and Parents	Prior to the occupation of the School and ongoing	TPC
2. Walking & Cycling				
2.1	Promote National Ride2Work Day and coincide with participation in Ride-To-School Day. This provides an opportunity for students, parents, and staff to try riding to school as well as celebrate those that currently utilise bicycles.	Staff, Students, and Parents	Annual	TPC
2.2	Promote Walk to Work Day and coincide with participation in "Walk Safely to School" Day. Similar to the above, it would encourage alternative modes of transport. Older students can be paired with younger students who live close together to walk to school as a pair or group	Staff, Students, and Parents	Annual	TPC
2.3	Develop further school-specific activities designed to get people moving with reward participation. For example, a competition to see which staff and/or student in each year can get the most 'steps' in a given time period; similar to Steptember activities or the introduction of the 'Make your Move' campaign, which provided students with a 'Travel Passport' which can be stamped every time they walk, ride, skate or scoot to school.	Staff, Students, and Parents	Annual	TPC
2.4	Encourage volunteers to organise a 'walking school bus'. This allows for students to travel to school in an organised group guided by two adults. This would require liaising with the TPC.	Students and Parents	Weekly, Monthly, Annually	TPC / Parents
2.5	Advocate, provide and maintain safe pedestrian and bicycle facilities to and from the school.	Staff and Students	On-going	TPC / Council

2.6	In accordance with the cycling mode share targets identified, sufficient secure parking spaces and 'EoJ' facilities shall be provided and maintained.	Staff and Students	On-going	TPC
2.7	Refresh the pavement marking surrounding the school. Estimated budget of $20,000 excl. GST	Students and Parents	As required	School Administration
3. Education Initiatives				
3.1	For Year K-2 students include education programs teaching road awareness using play-based learning	Students	On-going	TPC
3.2	For Year 3 students include education programs teaching road safety with a focus on walking independently to school.	Students	On-going	TPC
3.3	For Year 4 students include education programs to teach road safety with a focus on cycling independently to school. This may include an experience or an excursion.	Students	On-going	TPC
3.4	For Year 5-6 students include education programs to teach how to travel independently on the public bus system in preparation for travelling to high school and other destinations.	Students	On-going	TPC
4. Public Transport				
4.1	Display route maps and timetables (for services within 10 minutes walking distance) in high trafficable areas within the school.	Staff and Students	On-going	TPC
4.2	Update this Plan and TAG to reflect changes to any bus routes and service times.	Staff and Students	On-going	TPC
4.3	Undertake a review to promote initiatives for staff using public transport. This may include a review of potential tax incentives for Government employees that use public transport.	Staff	On-going	TPC
4.4	Promote the use of public transport for students with a rewards scheme. i.e., students are provided incentives to travel to and from the school.	Students	On-going	TPC
5. Reducing Car Travel				
5.1	Review initiatives for staff and parents to promote car-pooling. This may include (but is not limited to) the provision of online services or forums to facilitate ease of finding carpooling scheme participants.	Staff and Parents	To be undertaken prior to the occupation of the School	TPC
5.2	If required, introduce and enforcement of parking restrictions around the school. This is to be discussed and implemented in collaboration with Council's Road Safety Officer	Staff and Parents	To be undertaken prior to the occupation of the School	TPC
5.3	Liaise with staff to discuss the feasibility of a parking management scheme which would discourage the use of single-occupant car travel to the site while incentivising employees to travel by alternative modes of transport.	Staff	To be undertaken prior to the occupation of the School	TPC

3.3 Communications Strategy

With consideration of the above measures, a communication strategy has been developed that can be adopted by the future school administration and TPC to communicate the measures detailed above. It should be noted that this communication strategy is subject to review following further discussions with the School administration.

Table 7: Communications Strategy

WHAT	WHEN	METHOD	TARGET	RESPONSIBILITY
Share objectives and goals with the student body and staff	Prior to the commencement of every term during operation	- Welcome packs to new staff and families. - Social media. - Website.	Staff, Students, Parents	TPC
Provide information regarding transport options to and from the school, and on-site end-of-trip facilities.	Prior to the commencement of the term. This information is to be available always and presented every term	- Welcome packs to new staff and families. - Website. - Information boards within school grounds.	Staff, Students, Parents	TPC
Provide details regarding school-promoted initiatives that encourage alternative modes of transport, such as Ride-To-School Day, Walk-To-School Day, Steptember, etc.	Annually prior to the event	- Social Media. - Website. - Skool Bag App - E-newsletters.	Staff, Students, Parents	TCP
Provide details regarding the safety and volunteer process to manage a walking school bus	This information is to be available always and presented every term	- Welcome packs to new families. - Website. - Skool Bag App - E-newsletters.	Students and Parents	TCP
Provide details regarding the availability of student bus passes	Prior to, and at term commencement. This information is to be available always and presented every term	- Welcome packs to new families. - Website.	Students and Parents	TCP
Liaise with parents regarding the education programs provided by the school that encourage alternative transport modes	Prior to term commencement. This information is to be available always and presented every term	- Welcome packs to new families. - Website.	Students and Parents	TCP
Link key resources regarding the operation of school zones, road safety, and parking restrictions within the local area.	Prior to, and at term commencement. This information is to be available always and presented every term.	- Welcome packs to new families. - Social Media - Website. - Skool Bag App - E-newsletters.	Parents	TPC
Detailed information regarding the operation of the drop-off/pick-up area	Prior to, and at term commencement. This information is to be available always and presented every term.	- Welcome packs to new families. - Social Media - Website.	Parents	TPC

		- Skool Bag App - E-newsletters.		

3.3.1 Welcome Packs

As detailed above, new staff and families shall be provided with a 'welcome pack' as part of the on-site induction process which includes the Transport Access Guide and other information in relation to sustainable transport choices. This pack shall include a copy of the Transport Access Guide as well as general information regarding the health and social benefits of active transport. Advice on where to find further information should also be included.

3.3.2 Accurate Transport Information

In addition to these 'welcome packs', a Transport Access Guide (TAG) shall be provided to all staff.

A copy of the TAG should also be displayed prominently in staff areas, such as lunchrooms and foyer areas, and information boards throughout the school for parents and students. The TAG shall be presented in a form that is reflective of the commitment to achieving positive transport objectives.

The TAG is currently being completed and will be provided as part of the School Transport Plan.

3.4 Mode Share Targets

With consideration of the existing site and surrounds, the current travel modes and the proposed Action Plan and the communication strategy, the following target mode shares at completion of Stage 5 have been identified.

TABLE 8: MODE SHARE TARGETS – STUDENTS

TRAVEL MODE	BASE		MODERATE		REACH	
	#	%	#	%	#	%
Walking incl. pedestrian scooter	-	-	-	-	32/1580	2%
Bicycle	-	-	-	-	32/1580	2%
Public transport bus	-	-	30/1580	2%	80/1580	5%
School bus	80/1580	5%	160/1580	10%	315/1580	20%
Kiss and drop	1390/1580	88%	1230/1580	82%	1010/1580	64%
Single Occupancy Vehicle (SOV)	80/1580	5%	50/1580	3%	31/1580	2%

Carpool	30/1580	2%	50/1580	3%	80/1580	5%

TABLE 9: MODE SHARE TARGETS – STAFF						
TRAVEL MODE	**BASE**		**MODERATE**		**REACH**	
	#	**%**	**#**	**%**	**#**	**%**
Walking incl. pedestrian scooter	-	-	-	-	2/86	2%
Bicycle	-	-	-	-	2/86	2%
Public transport bus	-	-	2/86	2%	5/86	4%
Kiss and drop	-	-	-	-	-	-
Single Occupancy Vehicle (SOV)	78/86	90%	74/86	85%	58/86	68%
Carpool	8/86	10%	10/86	13%	12/86	14%

Travel mode surveys would be undertaken once the School is operational to establish baseline figures from which progress can be measured.

4 School Transport Operations and Access Management Plan

4.1 Operational management Measures

4.1.1 Plan of Management

The School can and will coordinate pedestrians and vehicles on-site and within the local road network to meet operational requirements and ensure the safety of students with maintaining efficiency on street. The following management measures are proposed.

4.1.2 Key Responsibilities of management

Management shall:

- Ensure all staff is provided with sufficient training to undertake the required tasks. This includes responsibility for measures to ensure that all staff, parents/carers, visitors, and students are familiar with site-specific rules through appropriate site induction procedures.
- Be familiar with and address their respective duty of care requirements in accordance with the applicable state Work Health and Safety legislation.
- Ensure WHS Incident logbooks are maintained and undertake necessary action(s) in relation to any reported issues.

4.1.3 Hours of Operations

The School is accessible from 6:30 am – 6:30 pm on weekdays with restricted access outside of these hours. The bell times are as follows:

- Start Time: 9:00 AM
- Finish Time: 3:00 PM

The school also offers on and off-site Out of School Hours Care (OSHC) services between the following times:

- Before School: 7:00 am to 9:00 AM
- After School: 3:00 pm to 6:00 PM

The proposed ELC facilities operate as follows:

- 60-place ELC pre-K (on-site)

It is noted that the aforementioned hours will vary during the days when weekend sports and after-hours activities, etc will occur.

4.1.4 Pedestrian Access

The main entrance to the School is to be provided along Catherine Fields Road, which shall be designed to accommodate accessible access.

No pedestrian surveys were commissioned along the proposed site access given there is currently no pedestrian pathway along Catherine Fields Road.

If deemed appropriate, traffic counts can be commissioned approximately 6 months following Day 1 operations of the School to review and validate whether the level of pedestrian/traffic activities is sufficient, to meet the latest pedestrian crossing warrants.

4.1.5 Visitor Access

Visitor access to the school will be via the northern access gate on Catherine Fields Road. During the nominated set-down and pick-up hours (before 9.00 am) and after 3.00 pm, visitors to the school can be reliant on the primary school parking spaces or the kiss and ride area.

All gates to / from the school shall be generally locked before 6:30 am, between 8.30 am and 3.30 pm, and after 6:30 pm on weekdays as well as throughout the weekends and public holidays (with the exception of during community uses and after hours sports activities, etc.), with all visitors required to park within the indented bus bay along Catherine Fields Road and enter via the front gate and proceed directly to the school office to sign in.

4.1.6 Out of Hours Access

The on-site OSHC hours are expected to be operating between 6:30 am and 6:30 PM. Regarding the general site as a whole; access will be generally restricted to between the times:

- weekdays: before 6:30 am and after 6:30 pm
- weekends and public holidays: No access

4.1.7 Staff Car Park Access

Access to the staff parking areas will occur via the northern crossover on Catherine Field Road. Staff accessing the southern car park will proceed through the Kiss & Ride area, as demonstrated in . The parking area provides 86 parking spaces.

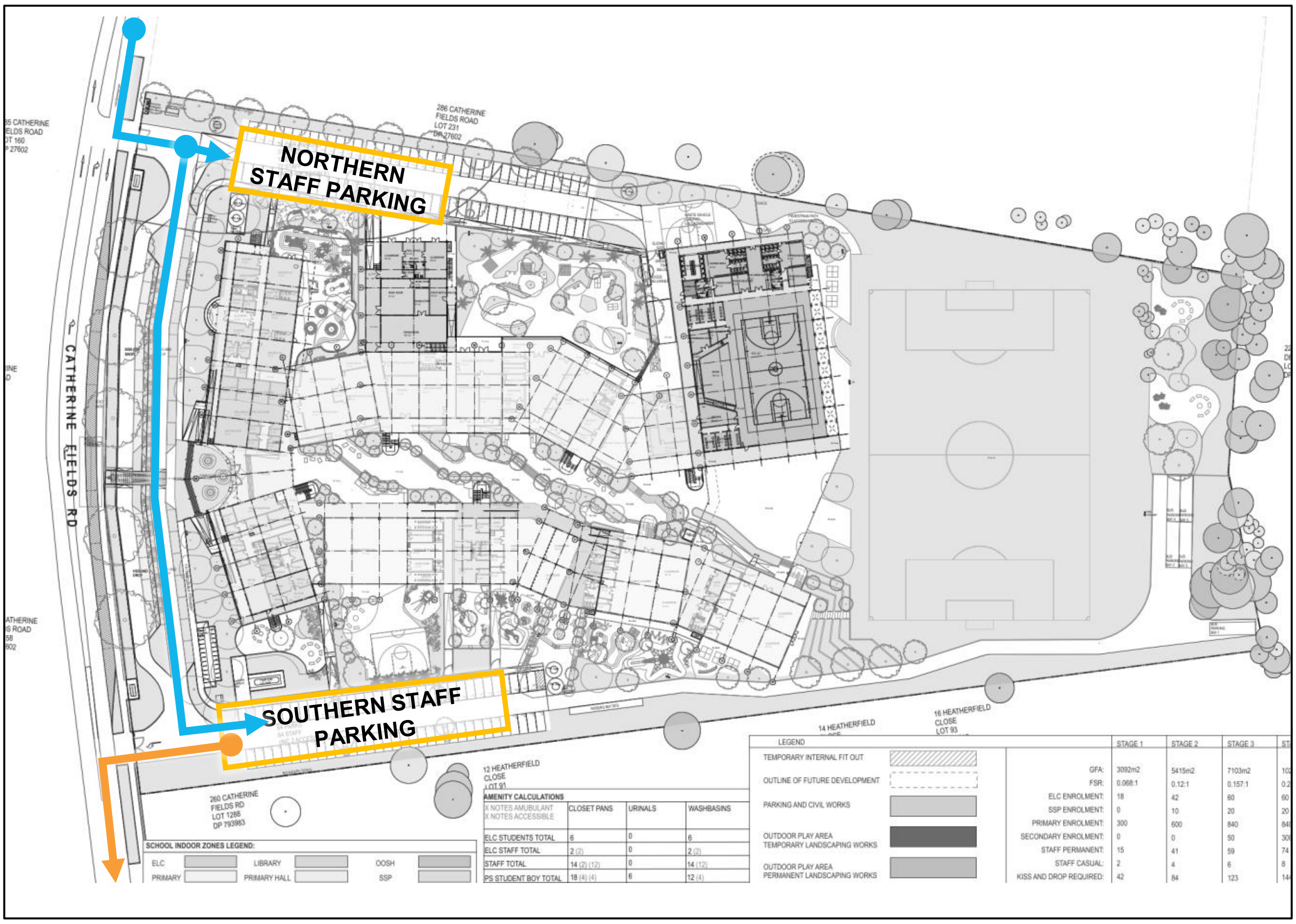


Figure 19: Staff Car Park Location

4.1.8 Student & ELC Car Park Access

Student and ELC parking are proposed in the northern car park with the following parking provision:

- Student: 37 spaces (for primary and secondary students per Camden Council DCP)
- ELC: 15 spaces (per Camden Council DCP)

Access and egress to the area are demonstrated in **Figure 5**.

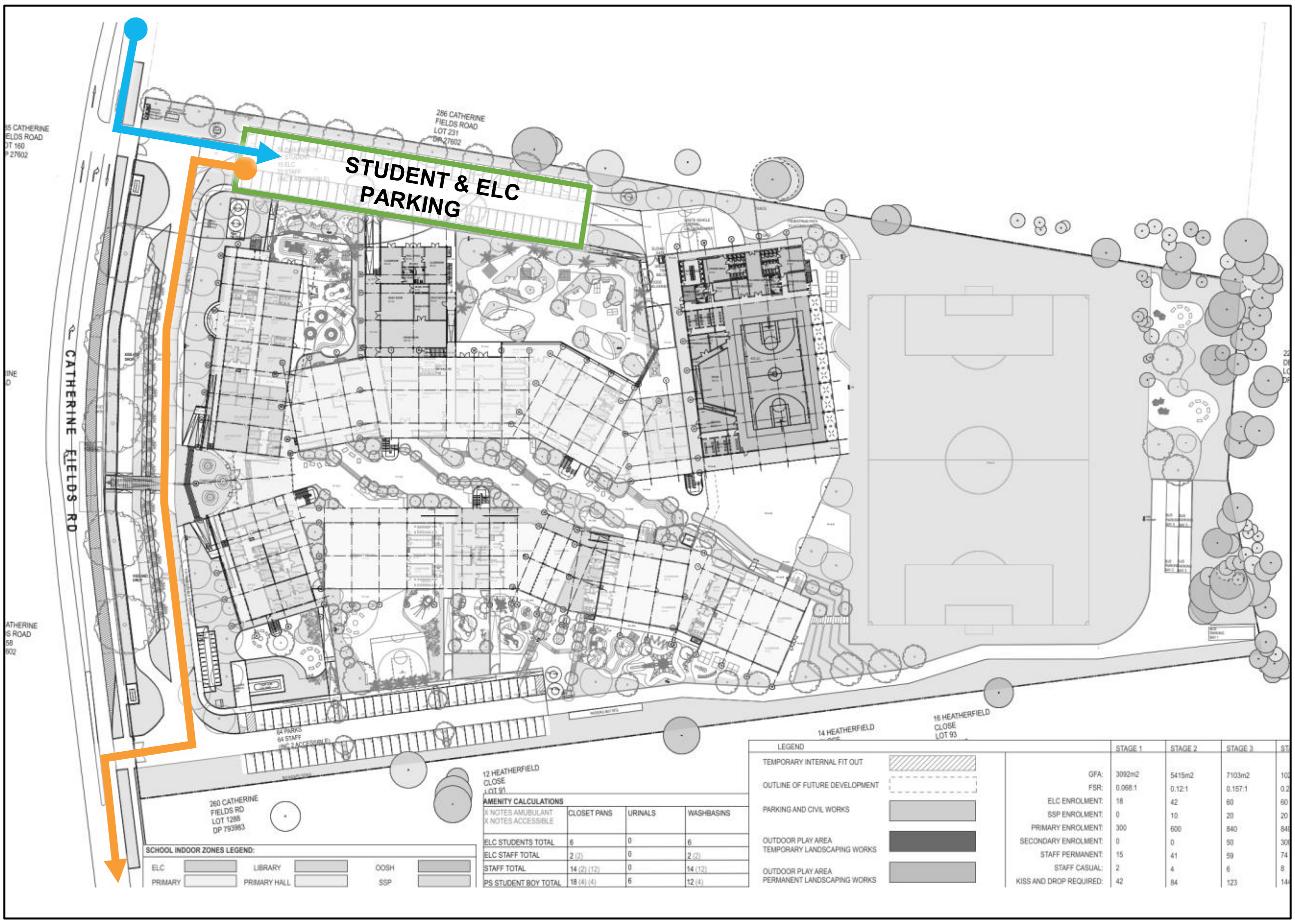


Figure 20: Student & ELC Car Park Location

4.1.9 Kiss & Ride Area Access

A total of 30 spaces are provided for Kiss & Ride access, divided between two lanes. These spaces are accessed via the northern crossover and exit via the southern crossover as demonstrated in **Figure 6**.

Figure 21: Kiss & Ride Location

4.1.10 Public Bus Access

To facilitate the safety of students, it is proposed to provide an indented bus bays on the eastern side of Catherine Fields Road at the western frontage to the School, as detailed in . The bus bays will be sign-posted as a bus zone and will be utilised for public buses during the School's am and pm peak operating periods. After these hours, the bays will have no restrictions and can be utilised as regular on-street parking. Signage and line-marking plans associated with the bus zone will be submitted to Council's Local Traffic Committee for approval prior to the issue of a Construction Certificate**.**

Figure 22: Bus Stop Location

4.1.11 Private Chartered Bus Access

The School has proposed to arrange for the services of five private chartered buses for exclusive school use with the buses parked on school grounds when not in use. The buses will utilize the eastern lane in the school kiss and ride area to drop off / pick up students then proceed to the back of the school to be parked until required as shown below.

Note that the chartered bus drop off / pick up time will be staggered away from the main kiss and ride utilization times to ensure kiss and ride traffic is not impacted by bus access.

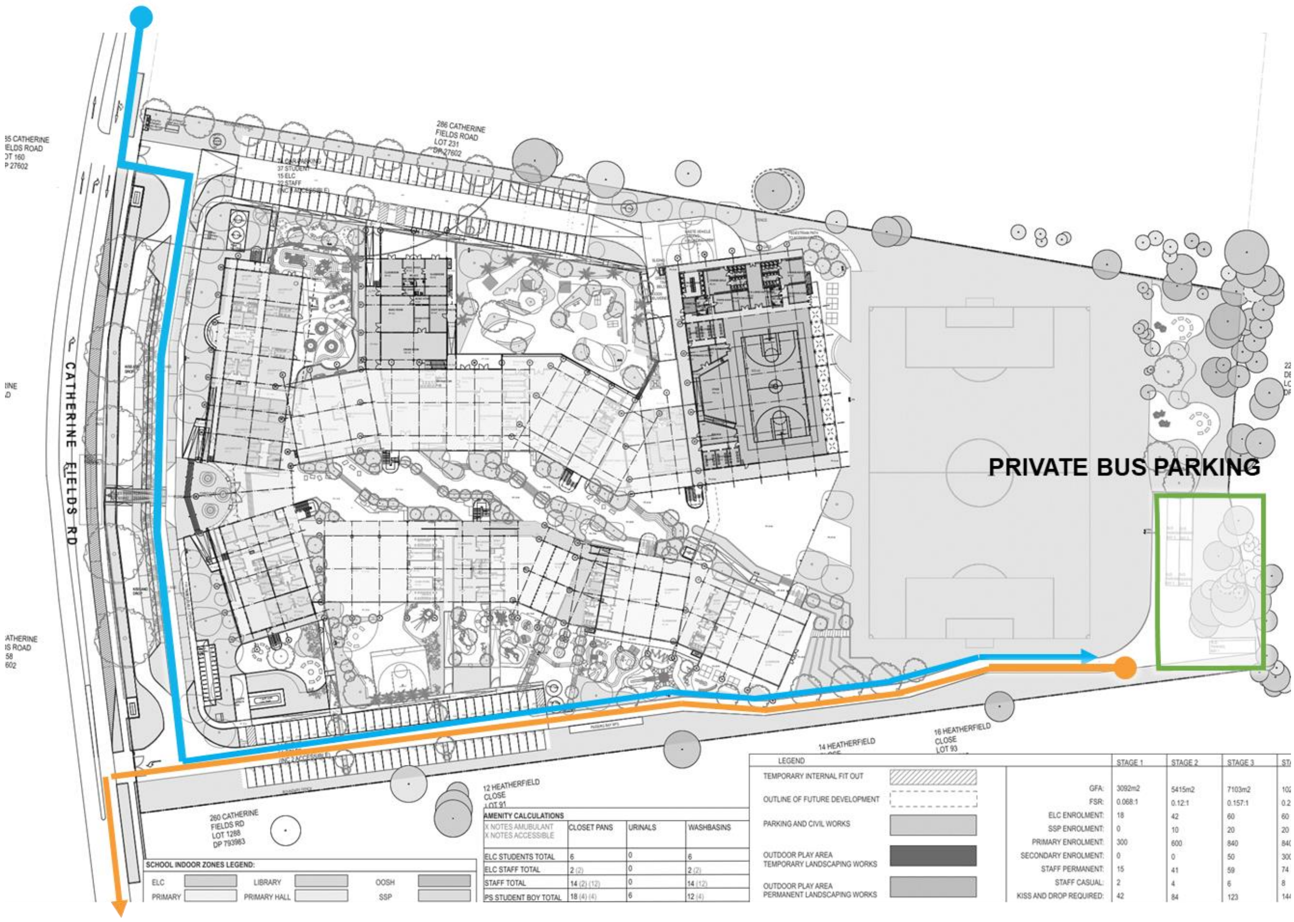


Figure 23: Private Chartered Bus Access

4.1.12 Service Vehicles Access

All major deliveries and waste collection will occur in the designated loading area north of the hall through the northern carpark.

The loading area has been designed in accordance with AS 2890.2:2018 and can accommodate up to one 12.5m heavy rigid vehicle (HRV). The truck will enter and exit the School in a forward direction via a 3-point turn.

Delivery times will be strictly managed, whereby regular services are subject to strict timelines to ensure the minimum movements possible and these occur outside of the school peak periods. Deliveries will be managed by the School's administration and management staff and will ensure that drivers are familiar with the details of the Plan, as well as the Code of Conduct (refer to the School Transport Plan).

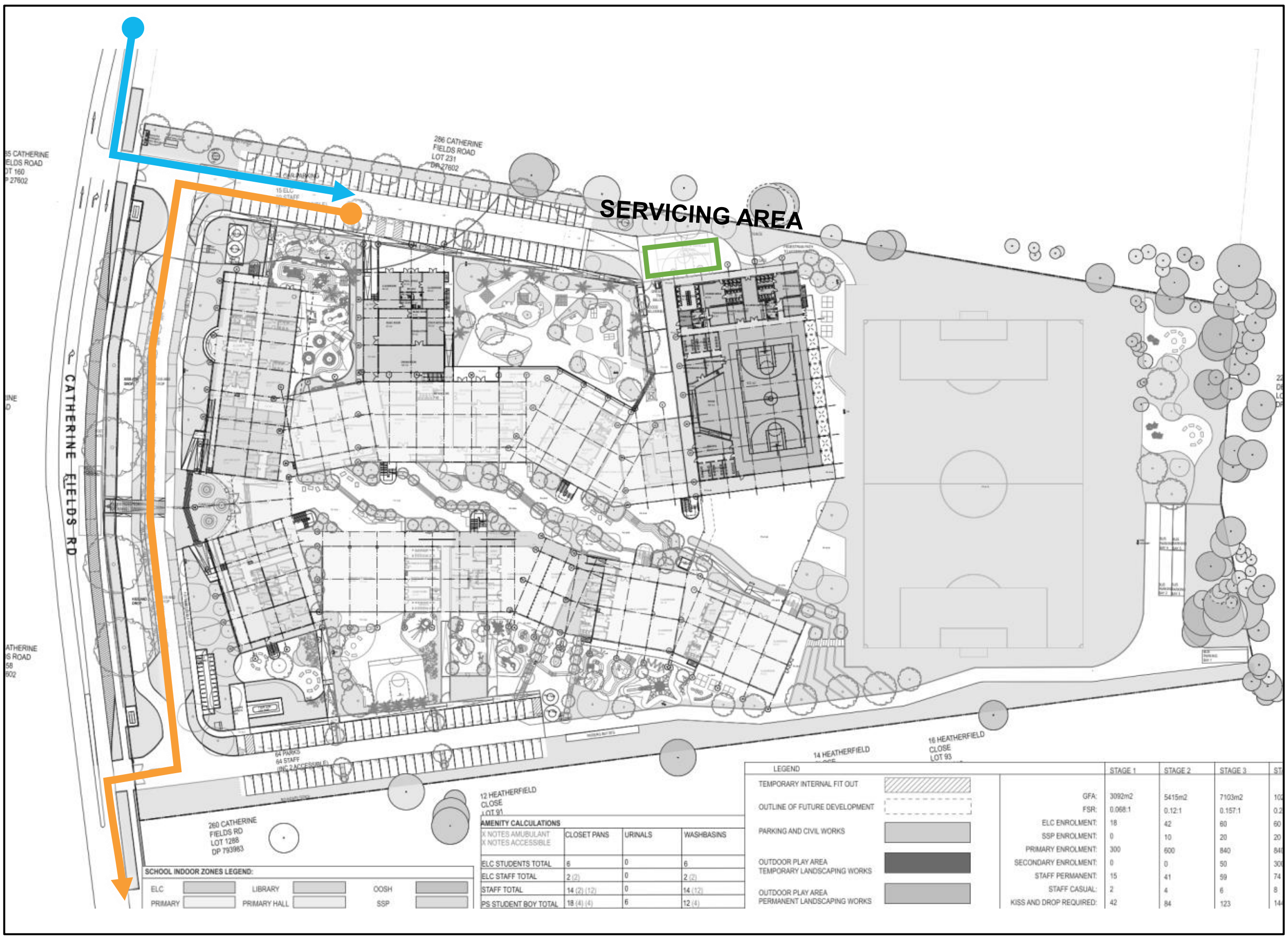


Figure 24: Servicing Location

4.1.13 Driver Code of Conduct

All drivers are to operate in a manner consistent with the requirements of applicable Work Health and Safety (WHS) legislation and other business-specific policies.

All commercial vehicle drivers are to be familiar with the Driver Code of Conduct before attending the Site. A copy of the Code is included in **Appendix B.**

5 Governance and Support

5.1 Travel Plan Coordinator

To assist with the management of the School Transport Plan, a person(s) shall be nominated as the Travel Plan Coordinator (TPC) and be responsible for:

- Engagement with the staff and parent bodies,
- Implementation and promotion of the School Transport Plan actions,
- Monitoring the effectiveness of the Plan (refer to monitoring requirements outlined in **Section 6**) and ongoing maintenance of the School Transport Plan,
- Provide advice in relation to transport-related subjects to staff, management, and visitors, as required, and
- Liaise with external parties (i.e., Council, public transport, and car share operators) in relation to Travel Plan matters.

This role does not necessarily require a full-time position; however, it should be clearly designated among the key responsibilities of the building management group.

This may include financial incentives for staff to use active transport and public transport to travel to work. However, this is not a mandatory requirement and would be subject to the management's discretion.

5.2 Resourcing

It is not anticipated that the maintenance of this Plan will have significant ongoing cost implications and shall be reviewed on an annual basis by the TPC in order for the best outcome. To fund the monitoring of the PSTP, it is recommended that $50k per year be allocated by to the School beyond the initial 13 months of implementation of the School Transport Plan.

6 Monitoring and Review Process

6.1 Plan Maintenance

This Plan shall be subject to ongoing review, ideally biennially, and will be updated accordingly. Regular reviews will be undertaken by the TPC, as required.

Key considerations regarding the review of the Plan shall be:

- Updating baseline conditions to reflect any changes to the transport environment in the vicinity of the Site such as changes to bus services, new cycle routes, new roads, etc. In this regard, a review of the Plan – and associated TAG in particular – may be undertaken on a more frequent basis,
- Tracking progress against proposed travel mode targets,
- To identify any shortfalls and develop an updated action plan to address issues, and
- To ensure travel mode targets are updated (if necessary) to ensure they remain realistic but also ambitious.

6.2 Monitoring and Review Actions

To assess the efficacy of the Plan strategies, the following actions are to be undertaken by the TPC:

- Review updated de-personalised data from the School Administration with GIS analysis.
- Travel mode surveys to determine the proportion of persons travelling to/from the site by each transport mode. This will be in the form of annual travel mode questionnaire surveys to be completed by all persons attending the Site, as far as practicable. This survey may be undertaken online or in-person at the discretion of the TPC.
- Review information regarding participation in active travel programs.
- Undertake community consultation to gauge feedback regarding implemented strategies and areas for improvement to further encourage the use of alternative modes of transport.
- Periodic on-site review of facilities such as the drop-off/pick-up area and bicycle racks.

It is recommended that an initial audit be undertaken within 6-months of the occupation of the School to establish baseline mode share as early as possible.

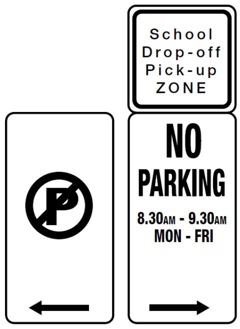
6.3 Feedback Framework

Following the actions undertaken as part of the review process, feedback is to be provided to key stakeholders including the community, TfNSW, Council, and the School, detailing the efficacy of the strategies. The strategies and Plan will be adapted accordingly

Appendix A. TfNSW School Drop-off and Pick-up: Organising the Initiative

School Drop-off and Pick-up
Organising the initiative

What is a school Drop-off and Pick-up zone?



Some schools and councils use No Parking areas, signed as Drop-off and Pick-up, Kiss and Ride, or Kiss and Drop zones.

These areas are always on the school side of the road and are designated by “No Parking” signs.

They provide a safe spot for parents and carers to drop off and collect their children from school by car.

Drivers may drop off and pick up passengers legally within a two-minute timeframe.

What is a school Drop-off and Pick-up initiative?

Kids and Traffic Safety Door sticker RTA45091021K

This strategy allows the efficient use of the Drop-off and Pick-up area during busy times at the beginning and end of the school day.

A driver pulls into the kerb and remains in control of the vehicle while an identified supervising adult from the school community assists students to exit or enter the vehicle.

What must be planned?

The school community needs to:

- Consult with the local council to consider whether the traffic environment outside the school would support the initiative without disrupting traffic flow.
- Consider existing school access points and school entry and exit procedures.
- Confirm school community support for the initiative.
- Fully understand all legal issues regarding liability in respect of students and volunteers.

How to implement the initiative

The school community needs to:

- Consider relevant insurance policies and child protection guidelines.
- Determine the operating times of the initiative.
- Develop a system for matching the child to the correct vehicle at pick-up times.
- Develop a roster of those adults approved by the school community to supervise students as they exit or enter a vehicle.
- Communicate details of the initiative’s operation and safety procedures to drivers, students, supervising adults and the general school community.
- Keeping our kids safe around schools has information for principals, parents and members of the school community. Order Safety Door stickers from our online catalogue.

roadsafety.transport.nsw.gov.au

NSW GOVERNMENT | Transport for NSW
Centre for Road Safety

Appendix B. Drivers Code of Conduct

- Driver Code of Conduct -

Drivers Code of Conduct

Safe Driving Policy for the Minarah College Catherine Field Campus

Objectives of the Drivers Code of conduct

- Minimise conflict with other road users;
- Minimise road traffic noise; and
- Ensure minibus and bus drivers use specified routes.

Code of Conduct

All vehicle operators accessing the site must:

- Take reasonable care for his or her own personal health and safety.
- Not adversely, by way of actions or otherwise, impact on the health and safety of other persons.
- Notify their employer if they are not fit for duty prior to commencing their shift.
- Obey all applicable road rules and laws at all times.
- In the event of an emergency vehicle behind your vehicle, pull over and allow the emergency vehicle to pass immediately.
- Obey the applicable driving hours in accordance with legislation and take all reasonable steps to manage their fatigue and not drive with high levels of drowsiness.
- Obey all on-site signposted speed limits and comply with directions of traffic control supervisors in relation to movements in and around temporary or fixed work areas.
- Ensure all loads are safely restrained, as necessary.
- Operate their vehicles in a safe and professional manner, with consideration for all other road users.
- Hold a current Australian State or Territory issued driver's licence.
- Notify their employer or operator immediately should the status or conditions of their driver's license change in any way.
- Comply with other applicable workplace policies, including a zero-tolerance of driving while under the influence of alcohol and/or illicit drugs.
- Do not use mobile phones when driving a vehicle or operating equipment. If the use of a mobile device is required, the driver shall pull over in a safe and legal location prior to the use of any mobile device.
- Advise management of any situations in which you know, or think may present a threat to workplace health and safety.
- Drive according to prevailing conditions (such as during inclement weather) and reduce speed, if necessary.
- Have necessary identification documentation at hand and be ready to present to security staff on entry and departure from the site, as necessary, to avoid unnecessary delays to other vehicles.

Crash or incident Procedure

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately if required.

- Ensure the following information is noted:
- Details of the other vehicles and registration numbers
- Names and addresses of the other vehicle drivers
- Names and addresses of witnesses
- Insurers details
- Give the following information to the involved parties:
- Name, address, and company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
- If there is a disagreement over the cause of the crash.
- If there are injuries.
- If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to your manager.

- Driver Code of Conduct -

Drivers Code of Conduct

Safe Driving Policy for the Minarah College Catherine Field Campus

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- In the event of an emergency vehicle behind your vehicle, pull over and allow the emergency vehicle to pass immediately.
- Obey the applicable driving hours in accordance with legislation and take all reasonable steps to manage their fatigue and not drive with high levels of drowsiness.
- Obey all on-site signposted speed limits and comply with directions of traffic control supervisors in relation to movements in and around temporary or fixed work areas.
- Ensure all loads are safely restrained, as necessary.
- Operate their vehicles in a safe and professional manner, with consideration for all other road users.
- Hold a current Australian State or Territory issued driver's licence.
- Notify their employer or operator immediately should the status or conditions of their driver's license change in any way.
- Comply with other applicable workplace policies, including a zero-tolerance of driving while under the influence of alcohol and/or illicit drugs.
- Do not use mobile phones when driving a vehicle or operating equipment. If the use of a mobile device is required, the driver shall pull over in a safe and legal location prior to the use of any mobile device.
- Advise management of any situations in which you know, or think may present a threat to workplace health and safety.
- Drive according to prevailing conditions (such as during inclement weather) and reduce speed, if necessary.
- Have necessary identification documentation at hand and be ready to present to security staff on entry and departure from the site, as necessary, to avoid unnecessary delays to other vehicles.

Crash or incident Procedure

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately if required.

- Ensure the following information is noted:
- Details of the other vehicles and registration numbers
- Names and addresses of the other vehicle drivers
- Names and addresses of witnesses
- Insurers details
- Give the following information to the involved parties:
- Name, address, and company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
- If there is a disagreement over the cause of the crash.
- If there are injuries.
- If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to your manager.

Appendix C. TfNSW Consultation Record

Wendy Zheng

From: Wendy Zheng
Sent: Thursday, 4 November 2021 2:28 PM
To: Zhaleh Najari alamouti; Zeliha Cansiz; Louise Moran; Majed Marzouk; Robert Rutledge; Pahee Rathan; Bikram Singh; sophia.grieve@transport.nsw.gov.au
Cc: Dora Choi; Eric Ye; Toby James
Subject: RE: Request for meeting to discuss proposal for Islamic College at Catherine Fields Road, Catherine Field
Attachments: P1769_Minarah TfNSW Presentation 211028.pptx

Hi Zhaleh

Thank you for organising the meeting last week.

As discussed, please see attached for the presentation from that meeting for review.

Please find below our meeting notes for your review and confirmation:

Attendees: Zhaleh Najari Alamouti (TfNSW), Zeliha Cansiz (TfNSW), Louise Moran (TfNSW), Robert Rutledge (TfNSW), Sophie Grieve (TfNSW), Toby James (Midson), Jay Halai(Principal, GVIC), Dora Choi (Ason), Wendy Zheng (Ason)

- Presentation of proposed Minarah College secondary campus at Catherine Field
- Ason presented data collected for the modelling of proposed Minarah College Catherine Field Campus and posed questions on the background growth and development of the area based on STFM data collected
- TfNSW confirmed that Catherine Field will not be rezoned near future and it is not part of a growth precinct
- There are no further upgrades planned for either Bringelly Road nor Camden Valley Way
- Assume that no collector roads in the network are being upgraded for future in our traffic impact assessment
- TfNSW has answered that we can assume a minimum 3% growth in background traffic – to be reviewed internally by TfNSW
- TfNSW does want to see cycling infrastructure and shared paths as part of the wok but neither Council nor TfNSW have any plans for cycling or pedestrian infrastructure upgrades in the area and Catherine Field Road is not part of the bicycle network for Camden
- TfNSW expressed enthusiasm for shuttle buses to and from train stations and this proposal was compared to the shuttle bus system at nearby Broughton Anglican College
- The speed zone on Catherine Field Road transitions from 60km/hr from the intersection of Camden Valley Way to 80km/hr in front of the proposed school site. TfNSW has indicated that the project can apply to the Road Network Safety Officer for an extension of the 60km/hr speed zone

One of our reasons for this meeting is that following a review of the STFM data provided, we have the following questions before we can complete the modelling:

- How would background growth be applied?
- How can the changing road network be accommodated?
- Is the same growth rate to be applied on Camden Valley Way and Catherine Field Road
- Is there a standard practice to adopt a specific percentage of growth?

We look forward to receiving your responses at your earliest convenience.

Regards,
Wendy Zheng
Senior Traffic Design Engineer | Ason Group

T: +61 2 9083 6601 | M: +61 401 969 768 | E: wendy.zheng@asongroup.com.au
A: Suite 17.02, Level 17, 1 Castlereagh Street, Sydney NSW 2000

From: Zhaleh Najari alamouti <Zhaleh.ALAMOUTI@transport.nsw.gov.au>
Sent: Friday, 22 October 2021 10:07 AM
To: Eric Ye <eric.ye@asongroup.com.au>
Cc: Wendy Zheng <wendy.zheng@asongroup.com.au>; Dora Choi <dora.choi@asongroup.com.au>
Subject: RE: Request for meeting to discuss proposal for Islamic College at Catherine Fields Road, Catherine Field

Hi Eric,

I sent an outlook invite for the proposed time below.

Please accept and feel free to forward to other attendees.

Regards

Zhaleh

From: Eric Ye <eric.ye@asongroup.com.au>
Sent: Friday, 22 October 2021 8:41 AM
To: Zhaleh Najari alamouti <Zhaleh.ALAMOUTI@transport.nsw.gov.au>
Cc: Wendy Zheng <wendy.zheng@asongroup.com.au>; Dora Choi <dora.choi@asongroup.com.au>
Subject: RE: Request for meeting to discuss proposal for Islamic College at Catherine Fields Road, Catherine Field

CAUTION: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

Hi Zhaleh,

Could we please lock in the Thursday 28 October for 3:30pm?

In terms of the STFM growth plots, we've received this earlier (see attached emails), which I understand is the standard TZP19.

Regards,
Eric Ye
Traffic Engineer / Analyst | Ason Group

T: +61 2 9083 6601 | M: +61 466 620 261 | E: eric.ye@asongroup.com.au
A: Suite 17.02, Level 17, 1 Castlereagh Street, Sydney NSW 2000

From: Zhaleh Najari alamouti <Zhaleh.ALAMOUTI@transport.nsw.gov.au>
Sent: Thursday, 21 October 2021 2:14 PM
To: Eric Ye <eric.ye@asongroup.com.au>
Cc: Wendy Zheng <wendy.zheng@asongroup.com.au>; Dora Choi <dora.choi@asongroup.com.au>
Subject: RE: Request for meeting to discuss proposal for Islamic College at Catherine Fields Road, Catherine Field

Hi Eric,

I'm still waiting for some internal advise before I can set up a meeting, however please find below our free times for meeting:

Thursday 28 October 3:30pm
Tuesday 2 November 3:30pm
Thursday 4 November 1:30pm

Please let me know your preferred time.

In the meantime, we can provide STFM growth on the links surrounding the proposal. Could you please advise if the standard TZP19 sufficient to capture the growth in the area, or are you expecting an alternative land use scenario?

Regards

Zhaleh Alamouti
A/Senior Land Use Assessment Coordinator
Planning and Programs
Greater Sydney
Transport for NSW
transport.nsw.gov.au

T 02 8849 2331
Level 5, 27 Argyle Street Parramatta NSW 2150

From: Eric Ye <eric.ye@asongroup.com.au>
Sent: Wednesday, 20 October 2021 5:28 PM
To: Zhaleh Najari alamouti <Zhaleh.ALAMOUTI@transport.nsw.gov.au>
Cc: Wendy Zheng <wendy.zheng@asongroup.com.au>; Dora Choi <dora.choi@asongroup.com.au>
Subject: RE: Request for meeting to discuss proposal for Islamic College at Catherine Fields Road, Catherine Field

Hi Zhaleh,

Just touching base on this again. Could you please provide some times/ dates suitable for a meeting?

Thanks,
Eric Ye
Traffic Engineer / Analyst | Ason Group

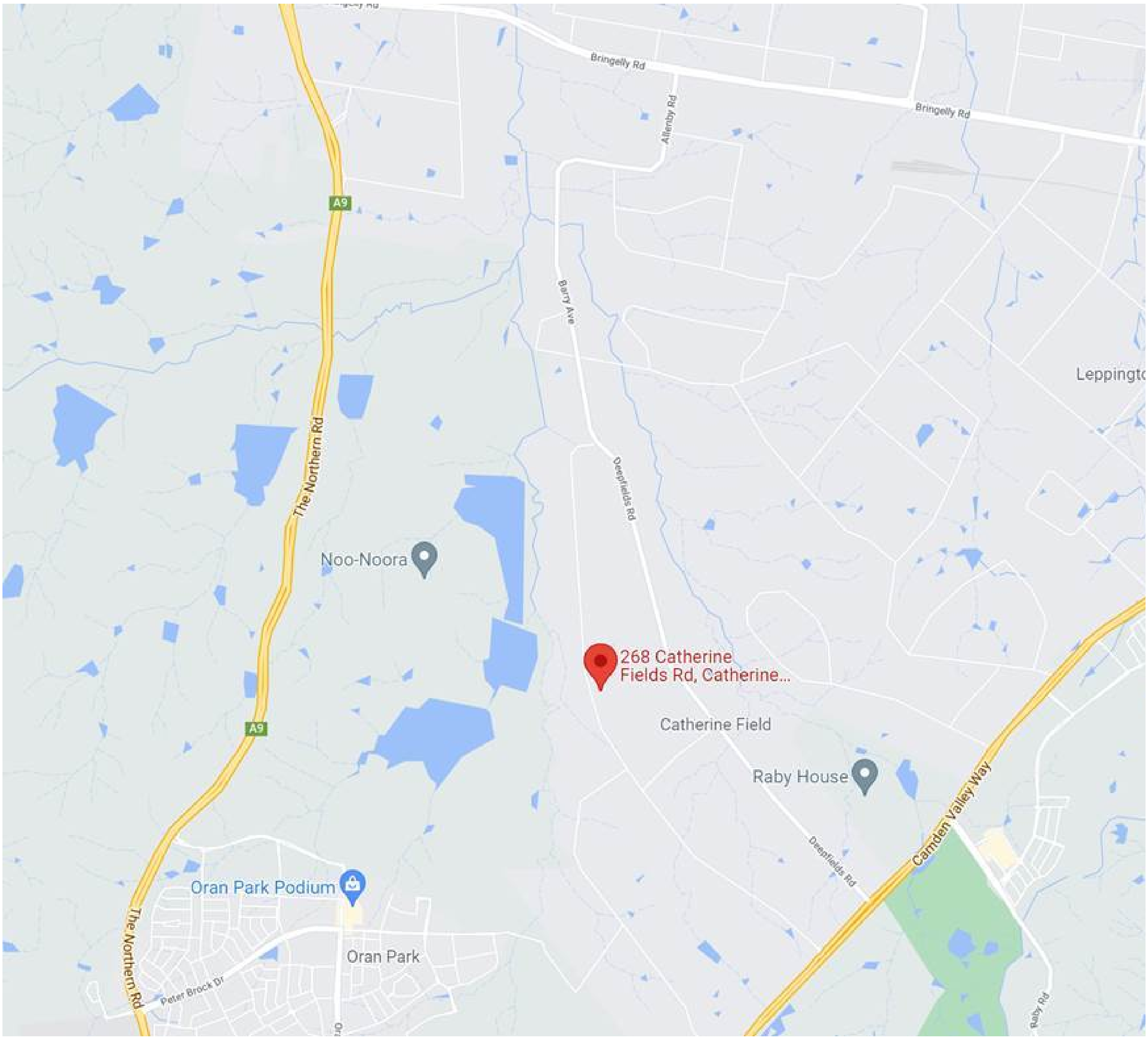
T: +61 2 9083 6601 | M: +61 466 620 261 | E: eric.ye@asongroup.com.au
A: Suite 17.02, Level 17, 1 Castlereagh Street, Sydney NSW 2000

From: Eric Ye
Sent: Thursday, 14 October 2021 6:13 PM
To: Zhaleh Najari alamouti <Zhaleh.ALAMOUTI@transport.nsw.gov.au>
Cc: Wendy Zheng <wendy.zheng@asongroup.com.au>; Dora Choi <dora.choi@asongroup.com.au>
Subject: RE: Request for meeting to discuss proposal for Islamic College at Catherine Fields Road, Catherine Field

Hi Zhaleh,

Please find attached architectural plans from the team to assist. I've also taken a screenshot from google maps to indicate the location of the site as well.

Please let me know if the attached along with my initial email is enough context for the proposal and could you let us know what times/ dates might be suitable for a meeting?



Kind regards,
Eric Ye
Traffic Engineer / Analyst | Ason Group

T: +61 2 9083 6601 | M: +61 466 620 261 | E: eric.ye@asongroup.com.au
A: Suite 17.02, Level 17, 1 Castlereagh Street, Sydney NSW 2000

From: Zhaleh Najari alamouti <Zhaleh.ALAMOUTI@transport.nsw.gov.au>
Sent: Friday, 8 October 2021 8:37 AM
To: Eric Ye <eric.ye@asongroup.com.au>
Cc: Wendy Zheng <wendy.zheng@asongroup.com.au>; Dora Choi <dora.choi@asongroup.com.au>
Subject: RE: Request for meeting to discuss proposal for Islamic College at Catherine Fields Road, Catherine Field

Hi Eric,

I'm reviewing your request, do you have any plan or preliminary report for the proposal?

Regards

Zhaleh

Zhaleh Alamouti
A/Senior Land Use Assessment Coordinator
Planning and Programs
Greater Sydney
Transport for NSW
transport.nsw.gov.au

T 02 8849 2331
Level 5, 27 Argyle Street Parramatta NSW 2150

From: Eric Ye [mailto:eric.ye@asongroup.com.au]
Sent: Thursday, 7 October 2021 3:37 PM
To: Development Sydney <Development.Sydney@transport.nsw.gov.au>
Cc: Wendy Zheng <wendy.zheng@asongroup.com.au>; Dora Choi <dora.choi@asongroup.com.au>
Subject: Request for meeting to discuss proposal for Islamic College at Catherine Fields Road, Catherine Field

Hi Development Team,

We'd like to organise a meeting with TfNSW to discuss the proposed development of a private Islamic college in Catherine Field.

This is to inform a masterplan assessment for the development which will cater for years K-12 with the ultimate targeted student number being around 1500. Stage 1 development will be around 300 students and given that the school is to developed in stages in a high growth area, we would like to seek direction on a number of factors based on data we have been able to source to date (we have obtained pre-lockdown traffic data for key intersections, SCATS data and STFM data for the area) and seek clarification on further aspects of the STFM model.

In particular:

- Growth factor for the road network, along the Catherine Fields Road and Barry Avenue/ Allenby Road corridor between Camden Valley Way and Bringelly Road, and also along Camden Valley Way and Bringelly Road
- Road network upgrade timeline and clarification on new road connections adjoining Catherine Fields Road (see attached)
- Seek some preliminary thoughts on potential future school buses to/ from the site.

Please let us know your availabilities for the meeting.

If you require any additional information, please do not hesitate to contact me.

Regards,

Eric Ye
Traffic Engineer / Analyst | Ason Group

T: +61 2 9083 6601 | M: +61 466 620 261 | E: eric.ye@asongroup.com.au
A: Suite 17.02, Level 17, 1 Castlereagh Street, Sydney NSW 2000

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Appendix D. Council Consultation Record

23 December 202121

Green Valley Islamic College Ltd
L 8 123 Pitt St
SYDNEY NSW 2000

Dear Sir/Madam,

RE: Pre-Development Application Meeting PDM/2021/133/1

PROPERTY: 268 Catherine Fields Road CATHERINE FIELD, 278 Catherine Fields Road CATHERINE FIELD LOT: 11 DP: 833983, LOT: 12 DP: 833784

I refer to the above pre-development application meeting which was held on 9 December 2021. I provide the following as advice for your assistance.

This advice is based on the development discussed at the meeting as described by you. Should the development or any relevant planning policy change in any way prior to the lodgement of a State Significant Development Application (SSDA) then this advice may no longer be fully accurate or complete.

Please note that this advice is preliminary in nature and that no detailed assessment of the site or development has been undertaken. Following lodgement of the SSDA and a detailed assessment, additional issues may arise that are not detailed in this letter and that may require the development to be modified or additional information to be provided. Council may also determine that the development cannot be supported on the site.

Development

New school, namely, Minarah College.

Minarah College will be a co-educational K-12 school accommodating 1,500 students; 840 in primary school and 660 in high school. In addition, there will also be an Early Learning Centre for 60 students and a Special Education School for 40 students.

SSDA No: SSD-30759158.

Estimated Cost of development $70 million.

Zoning/Permissibility

The site is zoned RU4 Primary Production Small Lots under the Camden Local Environmental Plan 2010.

Schools are permitted with consent in the zone under State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017.

Development for the purpose of a centre-based child care facility may be carried out by any person with development consent on land within the boundaries of an existing school under State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017.

Development Classification

The application is state significant development (SSD) if the development has a capital investment value of more than $20 million. A SSDA will be submitted to and assessed by the Department of Planning, Industry and Environment (DPIE).

The application is regional development if the development has a capital investment value of more than $5 million but less than $20 million.

The application is local development if the development has a capital investment value of less than $5 million.

Capital Investment Value

Any DA lodged with Council must clearly state the capital investment value (CIV) of the development. Please refer to the DPIE's Planning Circular PS 21-020 which describes what items must be included and excluded when calculating the CIV for development. Depending upon this value the DA may be determined by the Sydney Western City Planning Panel (SWCPP).

Town Planning Advice

Regardless of whether the development is local, regional or state significance development the submission requirements outlined in the SEARS should be provided. However the EIS will be titled Statement of Environmental Effects (SEE) if the development is regional or local development.

The EIS / SEE must fully describe the proposed development and assess it against all relevant environmental planning instruments and development control plans applicable to the site and development. These include (but may not be strictly limited to):

- State Environmental Planning Policy (State and Regional Development) 2011;
- State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017;
- State Environmental Planning Policy (Sydney Region Growth Centres) 2006;
- State Environmental Planning Policy No. 55 – Remediation of Land;
- State Environmental Panning Policy No. 64 – Advertising and Signage;
- State Environmental Panning Policy (Infrastructure) 2007;

- Deemed State Environmental Planning Policy No. 20 – Hawkesbury-Nepean River; and
- Camden Development Control Plan 2019.

The site is subject to a maximum building height development standard of 9.5m. The proposed development must be designed to comply with the maximum building height development standard.

Details of required operational deliveries to and from the site must be submitted with the DA. It must be demonstrated that suitable access, manoeuvring and parking facilities will exist within the site for all required delivery vehicles.

An appropriate landscape plan must be provided that includes details of all proposed landscaping including species, numbers, pot sizes and planting ratios. The landscaping must be designed to soften the proposed development and help integrate it into its surroundings. All side and rear setbacks should be heavily landscaped with dense plantings at low, medium and high heights.

Subject to Clause 2.18.2 of Camden DCP 2019, Educational establishments (schools) are to provide car parking based on the following rate:

1 car parking space per full time equivalent staff member, plus
1 car parking space per 100 students, plus
1 car parking space per 5 students in year 12 where appropriate.

An off-street drop off and pick up area must be provided for the proposed development. This area must incorporate sufficient area for vehicle queuing to ensure that vehicles will be contained within the site. The length of any on-street drop off area must be sufficient to accommodate a number of vehicles and avoid queuing and blocking two way traffic movement along the surrounding roads

The proposed development must demonstrate compliance with the relevant zone objectives of the RU4 zone:

- To enable sustainable primary industry and other compatible land uses.
- To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.

The development must avoid unacceptable impacts on adjoining residential development. Side boundary setbacks must be significant, and the high intensity uses sited internally. The car park and bushfire trail access along the southern side of the property will need to be carefully considered to reduce their impact. The fire trail should be clearly shown as such (possibly through the use of unsealed surface) to ensure it is not used for other inappropriate uses.

All mechanical plant and equipment must be suitably screened and integrated into the overall design of the proposed development.

The proposed development must incorporate a high degree of articulation and visual interest. This should include a variety of elements including horizontal and vertical building modulation; building breakdown and separation to minimise excessive bulk and improve massing; a range of colours, material and finishes; and meaningful architectural expression. The development will also need to be in keeping with the rural character of the area and the zone objectives.

Subject to Clause 35(6)(a) & (b) of the Education SEPP the development will need to demonstrate that it is consistent with the design quality principles as per Schedule 4. In addition, details of any proposal for the use of school facilities (including recreational facilities) to be shared with the community must be outlined as part of the DA.

Although the land is bio-certified by virtue of its location within the Growth Centre, much of the site's existing vegetation is identified as environmentally sensitive land. The proposed development must retain this vegetation wherever possible.

Turning template diagrams that demonstrate adequate manoeuvring areas, in accordance with AS 2890, for all vehicles utilising the site must be provided with the DA.

A construction and operational waste management plan must be submitted that describes how all construction and operational waste will be stored and disposed of. Plans must show storage for front lift bins (2 or 3) as well as access for a HRV to service the bins. The Plan must show bin storage and collection locations on plans and vehicle swept paths.

The design of the proposed development must be consistent with the Safer by Design principles. These principles, and the proposed development's compliance with them, must be assessed in the SEE / EIS lodged with the DA. The DA must also include a list of all safety features (e.g. lighting, alarms, etc.) proposed to be incorporated into the development.

The DA will be publicly exhibited in accordance with Camden Community Participation Plan 2021. The public exhibition period will be for a minimum of 14 days. You are encouraged to undertake your own community consultation ahead of the DA lodgement given the likely contentious nature of the proposal.

Environmental Health Advice

Acoustic Assessment

The acoustic assessment should also consider the advice and criteria relating to "Educational Establishments" contained within Council's Environmental Noise Policy 2018.

Contamination Assessment

Where contamination is identified on site that requires remediation the proposed remediation works will be considered "Category 1" remediation works that requires development consent under Council's Management of Contaminated Lands policy.

Salinity Assessment

A salinity management plan should be provided and conditioned for compliance for the construction phase where moderately saline or mildly aggressive soils to concrete and steel is identified on site.

Engineering Advice

A stormwater management strategy must be submitted together with the supporting DRAINS and MUSIC model files and engineering plans to demonstrate post-development discharged water quality and quantity is equal or less than pre-dev scenario. This includes details on the on-site detention system, water treatment trains and re-use of rainwater on-site. Pre and post internal and external catchments must be provided. The design must complement existing contours and have a discharge point on to Catherine Field Drive. It may require some works within Catherine Field Drive for the outlet point/s.

Deposited plans of Lots 11 & 12 show a small section of the land as "intended to dedicate for road widening". Confirmation that this has or will occur is required. Currently Catherine Fields Road is a rural road. Details of the on-street frontage works/upgrades that are proposed/required are to be detailed in the plans submitted as part of any DA.

It is understood that two vehicle access points and one main central access point have been proposed. It is not clear if the central access point is a vehicular access. Engineering plans should clearly include proposed works within road verge and area marked as "road widening" on the DPs.

Engineering plans showing existing and proposed levels and the location of all proposed stormwater pipes and pits, on-site stormwater detention and stormwater quality control devices must be submitted with the DA. The plans must also show the dimensions of all driveways, traffic aisles and car parking spaces, gradients, loading bays and swept paths (wherever applicable) compliant with the applicable Australian Standards

Flooding Advice

No. 268 lot is in a flood fringe area. The proposal must adhere with the Development Guidelines Matrix in Section 6.3 of the Flood Risk Management Policy.

The site is affected by an area of overland flow which is treated no differently to mainstream flooding and therefore is subject to the same Flood Risk Management development controls and guidelines detailed in the Policy. The Flood Planning Level is set by the 1% AEP level plus 600mm of freeboard.

All fencing on land below the 1% AEP flood level must be of a form that:

- does not result in the undesirable obstruction of the free flow of floodwaters; and
- does not become unsafe during floods and potentially become moving debris which threatens the integrity of structures or the safety of people.

No fencing will be allowed across, over or through watercourses, drainage easements and overland flowpaths.

Traffic Advice

A Traffic Impact Assessment undertaken by a suitably qualified practitioner must be submitted detailing, but not limited to, the following:

- Traffic generation and impact;
- Queuing at kiss and ride – measures to prevent queuing from extending onto Catherine Fields Drive;
- Compliance of the design with relevant deign guides and standards;
- Pedestrian safety; and
- The capacity for the narrow rural road (Catherine Fields Road) to handle the traffic volumes associated with the development and likely maintenance burden.

Car parking rates shall comply with DCP requirements for off-street parking. Although the number of proposed parking spaces is provided in the documents, the detail required for their calculation is not (i.e. number of year 12 students, number of staff etc).

The proposal states 36 Kiss and ride spaces internally. Additional detail of the Kiss and ride area would be required, and it must be designed in a manner that ensures queuing does not extend onto Catherine Field Drive (impacting on traffic flow). The school proposes 1500 students, and it is envisaged that the majority of students would travel by private vehicle or bus. The efficacy of the proposed provision shall be justified by assessment of similar sites.

Plans depicting dimensions (aisle width, indent width, length), signage and line marking must be submitted with any future application.

Parking / loading areas shall be designed to comply with relevant Australian Standards.

Relevant swept paths to be depicted include (but are not limited to) the following:

- Vehicles entering and exiting driveways and parking aisles simultaneously; and
- Largest design vehicle entering, manoeuvring with the site and egress the site.

A bus shelter must be provided as part of the proposed development. All indented bus bays must be designed in accordance with the relevant standards and design guides.

Answers to specific queries:

- *What growth rate should be applied in our traffic model? Note that TfNSW has directed us to use the standard growth rate which is 2.5%.* 2.5% would be satisfactory at this stage considering the area is not yet rezoned.
- *Do we need to provide any bicycle parking within the school as it is currently not accessible via bicycles?* Although bicycle accessibility is not yet achieved it may be difficult to enforce provision after the school is approved and operational. We may condition that prior to completion of the final stage that all parking must be provided. However, a small amount should still be provided at stage 1 to accommodate any teachers or students that may live local and choose to cycle to the school.
- *Footpath connecting the indented bus bay on Catherine Field Road to the school has been designed for 1.8m in width in accordance with Austroads Guide to Road Design Part 3, does it need to be widened?* 3m is to be provided to accommodate students waiting to board etc. This is what we strive for around all schools.

- *Our initial modelling shows that the CHR on Catherine Field Road does not need to be provided before Stage 4. Does Council have any comment on the timing?* Right turn bay shall be provided at stage 1.

Bush Fire Advice

Part of the site is mapped as bush fire prone land. A bush fire report, demonstrating compliance with the NSW Rural Fire Service (RFS) publication 'Planning for Bush Fire Protection 2006', must be submitted with the DA.

Building/Fire Safety Advice

As the proposed development will be a multi-storey construction, the services of an A1 accredited certifier must be engaged to provide a BCA design assessment with particular focus on the requirements of Part D3 Accessibility.

An access report, prepared by a suitably qualified access consultant, must be submitted with the DA.

Wastewater

Currently there is no Sydney Water sewer available for this site. The owner/applicant should contact Sydney Water to enquire as to when a sewer connection will be available. Council has concerns regarding the establishment of a new school without connection to reticulated sewer.

If the proposal is to incorporate on-site wastewater disposal a wastewater report would be required and a designated location on the site would be required for just wastewater disposal (ie. a fenced area that is not accessible to students or the public). The current proposal does not show any available space for the on-site disposal of wastewater.

If it is proposed that the development is to be staged, it may be possible to use a space for irrigation, such as the location of the proposed sports field. If this is the case, the area may require remediation before the area can be used as a sports field if the future.

If the proposal is to pump-out wastewater (to be taken off site) a wastewater report would be required to size the tanks. It is advised that the owner/applicant should undertake a cost analysis for pump-out services as this type of disposal is not sustainable in the long term.

Answers to specific queries:

• *If wastewater (pump out or onsite wastewater irrigation/tertiary treated) is required for one or more initial stages (i.e connection to Sydney Water sewer may not be immediately available), what is Council's requirements around a sub-surface irrigation system on the playing field location.*

Council may consider subsurface irrigation to playing fields if it is tertiary treated, further details of a proposed system is required prior to further advise being given. Secondary treatment would not be considered for irrigation of playing fields.

• *Please provide requirements on the separation of wastewater elements to the overland flows. Will earth bunds/low walls suffice to provide freeboard/separation to wastewater infrastructure that may be below the 1%AEP level?*

Camden Council's Sewage Management Strategy states in Section 17.6 Flood Potential

1. 1% AEP (1:100) Flood Contours All components of the onsite wastewater treatment facility (tanks) shall be located above the 1% AEP (1:100) flood contour (the tank shall be located on flood free land).

2. 5% AEP (1:20) Flood Contours No portion of the related effluent application area (irrigation area or absorption or evapo-transpriration area) is permitted to be located below the 5% AEP (1:20) flood contour.

Where there is potential for the related effluent application area (i.e. evapo-transpiration beds, irrigation areas etc.) to be inundated by surface water run-off from roads or other properties, swales or bunding shall be constructed upslope of the application area to direct the water around such areas and shall be installed when so directed by Council so as to reduce the potential for contaminated water to leave the site.

Public Health

Any areas proposed for the handling and storage of food intended for sale (including food tech room, canteen, OOSH, ELC – possibly bottle prep and kitchen) and any other ancillary areas used (toilets and garbage store) will need to comply with the Food Act 2003, Food Reg and AS 4674.

This includes, but is not limited to for each room separate room (i.e. canteen and food tech) and building (i.e. OOSH, ELC);

1. Solid Construction;
2. Pest proofing measures (including flyscreens to all doors/windows);
3. Hand wash basins (supplied with warm potable water through mixer tap) within 5m of any area where open food is handled;
4. Double bowl sink for equipment cleaning and sanitising;
5. Cleaner's sink for disposal of waste/mop water (to be in area away from open food);
6. Suitable finishes to wall/floor and ceilings (no drop in panel ceilings); and
7. Suitable mechanical ventilation to areas where steam/heat generated.

Detailed plans demonstrating compliance with Food Act 2003, Regs and AS 4674 should be provided as part of any DA.

External Referrals

1. The DA will be referred to the RFS for comment as part of the site is mapped as bush fire prone land.
2. The DA will be referred to Transport for NSW for comment as the proposed development will be classed as traffic generating development.
3. The DA will be referred to Sydney Water for comment in accordance with Sydney Water's DA referral guidelines.
4. The DA will be referred to the Camden Local Area Command (NSW Police Force) for comment.

Please refer to the Department of Planning, Industry and Environment's [Development Referrals Guide] which describes what information these agencies require to be submitted with the DA.

DA Fees

Prior to the lodgement of the DA (should the proposal be classified as local or regional development), please contact Council's Customer Relations Team on (02) 4654 7777 to obtain a fee quote. A copy of this fee quote is to be submitted with the DA.

Should you have any enquiries in relation to this matter, please do not hesitate to contact the undersigned on (02) 4654 7980.

Yours sincerely,

Mr M Rawson
Team Leader DA Assessments West
(Planning and Environment)

English

"This information is important. If you need help understanding this document please call the Translating and Interpreting Service (TIS) on 131 450 and ask them to contact Council on 02 4654-7777 on your behalf."

Arabic

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Croatian

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German

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Greek

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Italian

Queste informazioni sono importanti. Se vi serve aiuto per comprendere questo documento, chiamate il servizio traduzioni e interpreti (TIS) al numero 131 450 chiedendo che contatti il Comune per vostro conto al numero 02 4654-7777.

Maltese

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Serbian

Ове информације су важне. Ако вам треба помоћ да бисте разумели овај документ, молимо вас да назовете Службу преводилаца и тумача (TIS) на 131 450 и замолите их да у ваше име назову Општину на 02 4654 7777.

Spanish

Esta información es importante. Si necesita ayuda para entender este documento sírvase llamar al Servicio de Traducción e Interpretación (Translating and Interpreting Service / TIS) al 131 450 y pídales que se comuniquen por usted con el Municipio llamando al 02 4654-7777.

Tagalog

Ang impormasyong ito ay mahalaga. Kung kailangan mo ng tulong upang maintindihan ang dokumentong ito mangyari lamang na tawagan ang Serbisyo para sa Pagsasaling-wika at Pang-interpreter (TIS) sa 131 450 at hilingin sa kanila na kontakin para sa inyo ang Konseho sa 02 4654 7777.

Chinese

這是一份重要的資料。如果您在了解這份文件方面需要幫助，請致電 131 450聯絡翻譯及傳譯服務 (TIS)，然後要求代致電 02 4654 7777聯絡市議會。

Appendix B. Queuing Analysis

Inputs

Time period	60	min	**blue text are parameters that can be adjusted**
Total arrivals	157.00	veh	**black text generally shouldn't be adjusted**
Service time	2	min/ veh	*take care with the units! The default is x **mins per veh***
Number of servers	8		*e.g. boom gates, drop-off bays, etc.*
x-th percentile queue	95%		*adjust this for desired percentile*
Acceptable queue length	28	veh	*excludes vehicles being serviced*

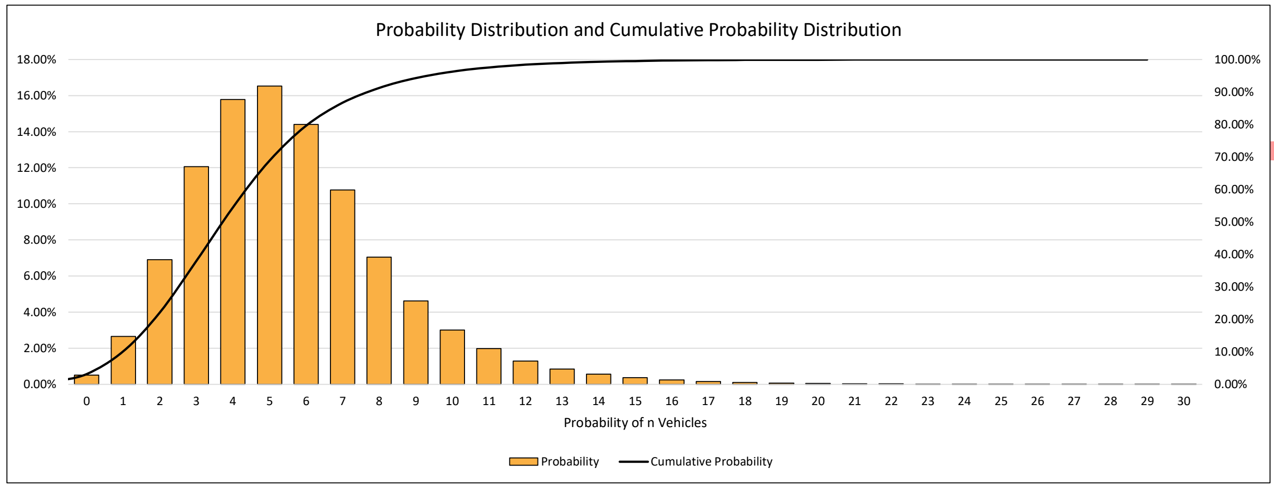
Model

Arrival Rate (λ)	2.62	veh/ min		
Service Rate (μ)	0.50	veh/ min		
Number of servers (N)	8			
Rho (ρ)	5.23		Eqn 1	
Utilisation (ρ/N)	65%		Eqn 1	*if utilisation exceeds 100%, the model cannot accommodate the demand*
Probability of no vehicles (P0)	0.51%		Eqn 2	

Outputs

95th Percentile Queue	3	veh	*excludes vehicles currently being serviced*
Probability of queuing	13.33%		
Average queue length	0.39	veh	Eqn 4
Average time in queue	0.15	min/ veh	Eqn 6
Average time in system	2.15	min/ veh	Eqn 5
Average vehicles in system	5.62	veh	Eqn 7
Probabilty of no vehicles	0.51%		

graph range may require manual adjustment



Probability Table Eqn 3

Probability of n vehicles (Pn)	Likelihood	Cumulative probability
0	0.51%	0.51%
1	2.64%	3.15%
2	6.92%	10.06%
3	12.07%	22.13%
4	15.79%	37.91%
5	16.52%	54.44%
6	14.41%	68.85%
7	10.77%	79.62%
8	7.05%	86.67%
9	4.61%	91.28%
10	3.02%	94.30%
11	1.97%	96.27%
12	1.29%	97.56%
13	0.84%	98.40%
14	0.55%	98.96%
15	0.36%	99.32%
16	0.24%	99.55%
17	0.15%	99.71%
18	0.10%	99.81%
19	0.07%	99.87%
20	0.04%	99.92%
21	0.03%	99.95%
22	0.02%	99.96%
23	0.01%	99.98%
24	0.01%	99.99%
25	0.01%	99.99%
26	0.00%	99.99%
27	0.00%	100.00%
28	0.00%	100.00%
29	0.00%	100.00%
30	0.00%	100.00%
31	0.00%	100.00%
32	0.00%	100.00%
33	0.00%	100.00%
34	0.00%	100.00%
35	0.00%	100.00%
36	0.00%	100.00%
37	0.00%	100.00%
38	0.00%	100.00%
39	0.00%	100.00%
40	0.00%	100.00%
41	0.00%	100.00%
42	0.00%	100.00%
43	0.00%	100.00%
44	0.00%	100.00%
45	0.00%	100.00%
46	0.00%	100.00%
47	0.00%	100.00%
48	0.00%	100.00%
49	0.00%	100.00%
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96	0.00%	100.00%
97	0.00%	100.00%
98	0.00%	100.00%
99	0.00%	100.00%
100	0.00%	100.00%

Formulae

Eqn 1 **Traffic Intensity**

$$\rho = \frac{\lambda}{\mu} \qquad Utilisation = \frac{\rho}{N} = \frac{\lambda}{N\mu}$$

Utilisation needs to be <1 for the service to accommodate the demand

Eqn 2 **Probability of no vehicles**

$$P_0 = \frac{1}{\sum_{n_c=0}^{N-1} \frac{\rho^{n_c}}{n_c!} + \frac{\rho^N}{N!\,(1-\rho/N)}}$$

Eqn 3 **Probability of n vehicles**

$$P_n = \frac{\rho^n P_0}{n!} \quad \text{for n} \le \text{N} \qquad P_n = \frac{\rho^n P_0}{N^{n-N} N!} \quad \text{for n} \ge \text{N}$$

Eqn 4 **Average Length of Queue**

$$\bar{Q} = \frac{P_0 \rho^{N+1}}{N!\,N}\left[\frac{1}{(1-\rho/N)^2}\right]$$

Eqn 5 **Average Time Spent in System**

$$\bar{t} = \frac{\rho + \bar{Q}}{\lambda}$$

Eqn 6 **Average Time Waiting in Queue**

$$\bar{w} = \frac{\rho + \bar{Q}}{\lambda} - \frac{1}{\mu}$$

Eqn 7 **Average Vehicles in System**

$$L = \bar{L_q} = \rho$$

P0 Calculation

nc	nc<=N-1?	denominator 1
0	1	1.00
1	1	5.23
2	1	13.69
3	1	23.89
4	1	31.25
5	1	32.71
6	1	28.53
7	1	21.33
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Inputs

Time period	60	min	**blue text are parameters that can be adjusted**
Total arrivals	320.00	veh	**black text generally shouldn't be adjusted**
Service time	1.5	min/ veh	*take care with the units! The default is x* ***mins per veh***
Number of servers	12		*e.g. boom gates, drop-off bays, etc.*
x-th percentile queue	95%		*adjust this for desired percentile*
Acceptable queue length	24	veh	*excludes vehicles being serviced*

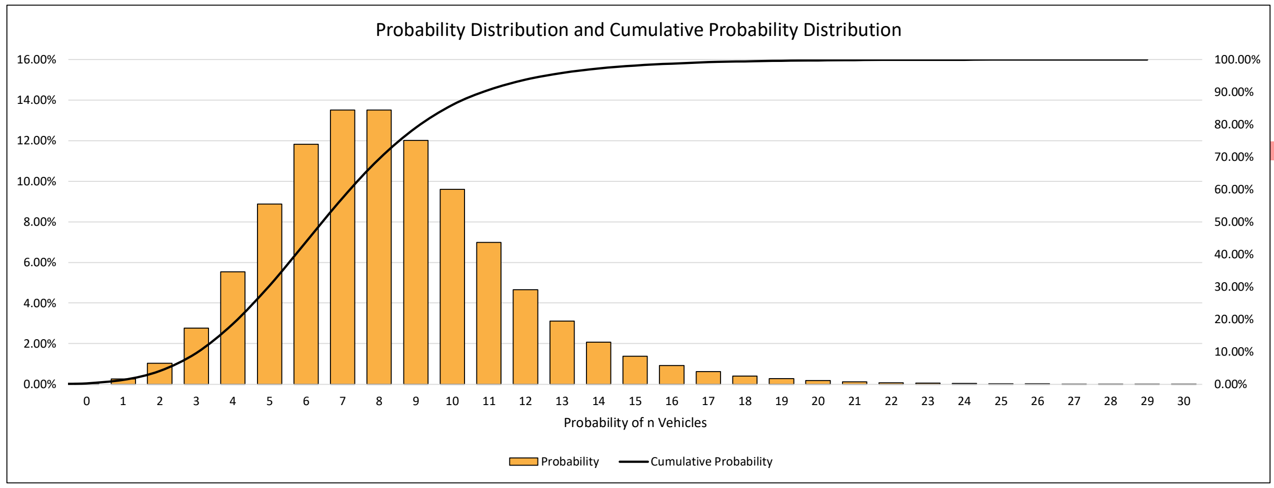
Model

Arrival Rate (λ)	5.33	veh/ min		
Service Rate (μ)	0.67	veh/ min		
Number of servers (N)	12			
Rho (ρ)	8.00		Eqn 1	
Utilisation (ρ/N)	67%		Eqn 1	*if utilisation exceeds 100%, the model cannot accommodate the demand*
Probability of no vehicles (P0)	0.03%		Eqn 2	

Outputs

95th Percentile Queue	2	veh	*excludes vehicles currently being serviced*
Probability of queuing	9.32%		
Average queue length	0.28	veh	Eqn 4
Average time in queue	0.05	min/ veh	Eqn 6
Average time in system	1.55	min/ veh	Eqn 5
Average vehicles in system	8.28	veh	Eqn 7
Probabilty of no vehicles	0.03%		

graph range may require manual adjustment



Probability Table Eqn 3

Probability of n vehicles (Pn)	Likelihood	Cumulative probability
0	0.03%	0.03%
1	0.26%	0.29%
2	1.04%	1.33%
3	2.77%	4.10%
4	5.55%	9.65%
5	8.87%	18.52%
6	11.83%	30.35%
7	13.52%	43.87%
8	13.52%	57.39%
9	12.02%	69.41%
10	9.61%	79.02%
11	6.99%	86.02%
12	4.66%	90.68%
13	3.11%	93.78%
14	2.07%	95.86%
15	1.38%	97.24%
16	0.92%	98.16%
17	0.61%	98.77%
18	0.41%	99.18%
19	0.27%	99.45%
20	0.18%	99.64%
21	0.12%	99.76%
22	0.08%	99.84%
23	0.05%	99.89%
24	0.04%	99.93%
25	0.02%	99.95%
26	0.02%	99.97%
27	0.01%	99.98%
28	0.01%	99.99%
29	0.00%	99.99%
30	0.00%	99.99%
31	0.00%	100.00%
32	0.00%	100.00%
33	0.00%	100.00%
34	0.00%	100.00%
35	0.00%	100.00%
36	0.00%	100.00%
37	0.00%	100.00%
38	0.00%	100.00%
39	0.00%	100.00%
40	0.00%	100.00%
41	0.00%	100.00%
42	0.00%	100.00%
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73	0.00%	100.00%
74	0.00%	100.00%
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81	0.00%	100.00%
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83	0.00%	100.00%
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85	0.00%	100.00%
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87	0.00%	100.00%
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95	0.00%	100.00%
96	0.00%	100.00%
97	0.00%	100.00%
98	0.00%	100.00%
99	0.00%	100.00%
100	0.00%	100.00%

Formulae

Eqn 1 **Traffic Intensity**

$$\rho = \frac{\lambda}{\mu} \qquad Utilisation = \frac{\rho}{N} = \frac{\lambda}{N\mu}$$

Utilisation needs to be <1 for the service to accommodate the demand

Eqn 2 **Probability of no vehicles**

$$P_0 = \frac{1}{\sum_{n_c=0}^{N-1} \frac{\rho^{n_c}}{n_c!} + \frac{\rho^N}{N!\,(1-\rho/N)}}$$

Eqn 3 **Probability of n vehicles**

$$P_n = \frac{\rho^n P_0}{n!} \quad \text{for n} \leq \text{N} \qquad P_n = \frac{\rho^n P_0}{N^{n-N} N!} \quad \text{for n} \geq \text{N}$$

Eqn 4 **Average Length of Queue**

$$\bar{Q} = \frac{P_0 \rho^{N+1}}{N!\,N}\left[\frac{1}{(1-\rho/N)^2}\right]$$

Eqn 5 **Average Time Spent in System**

$$\bar{t} = \frac{\rho + \bar{Q}}{\lambda}$$

Eqn 6 **Average Time Waiting in Queue**

$$\bar{w} = \frac{\rho + \bar{Q}}{\lambda} - \frac{1}{\mu}$$

Eqn 7 **Average Vehicles in System**

$$L = \bar{L_q} = \rho$$

P0 Calculation

nc	nc<=N-1?	denominator 1
0	1	1.00
1	1	8.00
2	1	32.00
3	1	85.33
4	1	170.67
5	1	273.07
6	1	364.09
7	1	416.10
8	1	416.10
9	1	369.87
10	1	295.89
11	1	215.20
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Inputs

Time period	60	min	blue text are parameters that can be adjusted
Total arrivals	482.00	veh	**black text generally shouldn't be adjusted**
Service time	1.5	min/ veh	*take care with the units! The default is x **mins per veh***
Number of servers	14		*e.g. boom gates, drop-off bays, etc.*
x-th percentile queue	95%		*adjust this for desired percentile*
Acceptable queue length	22	veh	*excludes vehicles being serviced*

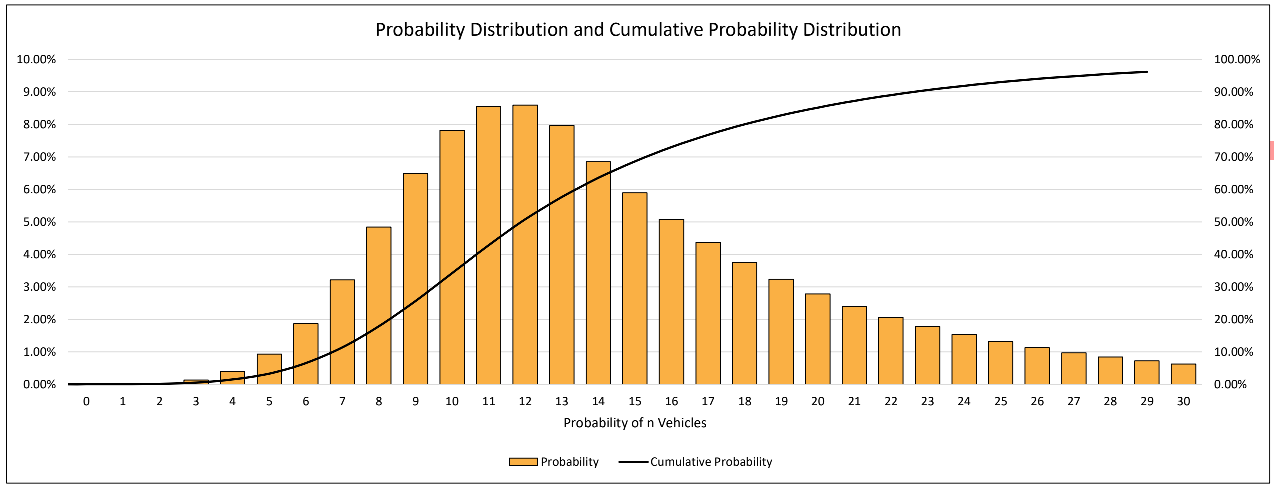
Model

Arrival Rate (λ)	8.03	veh/ min	
Service Rate (μ)	0.67	veh/ min	
Number of servers (N)	14		
Rho (ρ)	12.05		Eqn 1
Utilisation (ρ/N)	86%		Eqn 1 *if utilisation exceeds 100%, the model cannot accommodate the demand*
Probability of no vehicles (P0)	0.00%		Eqn 2

Outputs

95th Percentile Queue	15	veh	*excludes vehicles currently being serviced*
Probability of queuing	42.35%		
Average queue length	3.04	veh	Eqn 4
Average time in queue	0.38	min/ veh	Eqn 6
Average time in system	1.88	min/ veh	Eqn 5
Average vehicles in system	15.09	veh	Eqn 7
Probabilty of no vehicles	0.00%		

graph range may require manual adjustment



50% of all bays are operational

Probability Table

Probability of n vehicles (Pn)	Likelihood (Eqn 3)	Cumulative probability
0	0.00%	0.00%
1	0.01%	0.01%
2	0.03%	0.04%
3	0.13%	0.17%
4	0.39%	0.55%
5	0.93%	1.48%
6	1.87%	3.35%
7	3.21%	6.56%
8	4.84%	11.40%
9	6.48%	17.88%
10	7.81%	25.69%
11	8.55%	34.24%
12	8.59%	42.83%
13	7.96%	50.80%
14	6.85%	57.65%
15	5.90%	63.55%
16	5.08%	68.63%
17	4.37%	73.00%
18	3.76%	76.76%
19	3.24%	79.99%
20	2.79%	82.78%
21	2.40%	85.18%
22	2.06%	87.24%
23	1.78%	89.02%
24	1.53%	90.55%
25	1.32%	91.87%
26	1.13%	93.00%
27	0.98%	93.97%
28	0.84%	94.81%
29	0.72%	95.54%
30	0.62%	96.16%
31	0.54%	96.69%
32	0.46%	97.15%
33	0.40%	97.55%
34	0.34%	97.89%
35	0.29%	98.18%
36	0.25%	98.44%
37	0.22%	98.66%
38	0.19%	98.84%
39	0.16%	99.00%
40	0.14%	99.14%
41	0.12%	99.26%
42	0.10%	99.36%
43	0.09%	99.45%
44	0.08%	99.53%
45	0.07%	99.59%
46	0.06%	99.65%
47	0.05%	99.70%
48	0.04%	99.74%
49	0.04%	99.78%
50	0.03%	99.81%
51	0.03%	99.84%
52	0.02%	99.86%
53	0.02%	99.88%
54	0.02%	99.89%
55	0.01%	99.91%
56	0.01%	99.92%
57	0.01%	99.93%
58	0.01%	99.94%
59	0.01%	99.95%
60	0.01%	99.96%
61	0.01%	99.96%
62	0.01%	99.97%
63	0.00%	99.97%
64	0.00%	99.98%
65	0.00%	99.98%
66	0.00%	99.98%
67	0.00%	99.99%
68	0.00%	99.99%
69	0.00%	99.99%
70	0.00%	99.99%
71	0.00%	99.99%
72	0.00%	99.99%
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97	0.00%	100.00%
98	0.00%	100.00%
99	0.00%	100.00%
100	0.00%	100.00%

Formulae

Eqn 1 **Traffic Intensity**

$$\rho = \frac{\lambda}{\mu} \qquad Utilisation = \frac{\rho}{N} = \frac{\lambda}{N\mu}$$

Utilisation needs to be <1 for the service to accommodate the demand

Eqn 2 **Probability of no vehicles**

$$P_0 = \frac{1}{\sum_{n_c=0}^{N-1} \frac{\rho^{n_c}}{n_c!} + \frac{\rho^N}{N!\,(1-\rho/N)}}$$

Eqn 3 **Probability of n vehicles**

$$P_n = \frac{\rho^n P_0}{n!} \quad \text{for n} \leq \text{N} \qquad P_n = \frac{\rho^n P_0}{N^{n-N} N!} \quad \text{for n} \geq \text{N}$$

Eqn 4 **Average Length of Queue**

$$\bar{Q} = \frac{P_0 \rho^{N+1}}{N!\,N}\left[\frac{1}{(1-\rho/N)^2}\right]$$

Eqn 5 **Average Time Spent in System**

$$\bar{t} = \frac{\rho + \bar{Q}}{\lambda}$$

Eqn 6 **Average Time Waiting in Queue**

$$\bar{w} = \frac{\rho + \bar{Q}}{\lambda} - \frac{1}{\mu}$$

Eqn 7 **Average Vehicles in System**

$$L = \bar{L_q} = \rho$$

P0 Calculation

nc	nc<=N-1?	denominator 1
0	1	1.00
1	1	12.05
2	1	72.60
3	1	291.62
4	1	878.49
5	1	2117.16
6	1	4251.97
7	1	7319.46
8	1	11024.93
9	1	14761.16
10	1	17787.19
11	1	19485.06
12	1	19566.25
13	1	18136.41
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Inputs

Time period	60	min	**blue text are parameters that can be adjusted**
Total arrivals	432.00	veh	**black text generally shouldn't be adjusted**
Service time	1.5	min/ veh	*take care with the units! The default is x* ***mins per veh***
Number of servers	14		*e.g. boom gates, drop-off bays, etc.*
x-th percentile queue	95%		*adjust this for desired percentile*
Acceptable queue length	22	veh	*excludes vehicles being serviced*

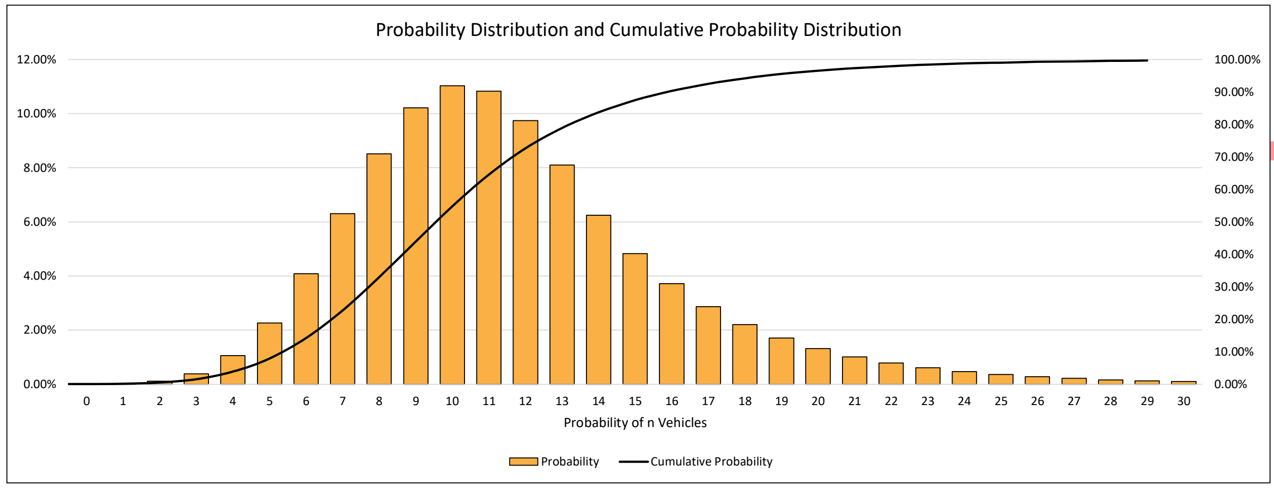
Model

Arrival Rate (λ)	7.20	veh/ min	
Service Rate (μ)	0.67	veh/ min	
Number of servers (N)	14		
Rho (ρ)	10.80		Eqn 1
Utilisation (ρ/N)	77%		Eqn 1 *if utilisation exceeds 100%, the model cannot accommodate the demand*
Probability of no vehicles (P0)	0.00%		Eqn 2

Outputs

95th Percentile Queue	6	veh	*excludes vehicles currently being serviced*
Probability of queuing	21.08%		
Average queue length	0.92	veh	Eqn 4
Average time in queue	0.13	min/ veh	Eqn 6
Average time in system	1.63	min/ veh	Eqn 5
Average vehicles in system	11.72	veh	Eqn 7
Probabilty of no vehicles	0.00%		

graph range may require manual adjustment



50% of all bays are operational

Probability Table

Probability of n vehicles (Pn)	Likelihood (Eqn 3)	Cumulative probability
0	0.00%	0.00%
1	0.02%	0.02%
2	0.11%	0.13%
3	0.39%	0.52%
4	1.05%	1.57%
5	2.27%	3.84%
6	4.09%	7.93%
7	6.31%	14.23%
8	8.51%	22.74%
9	10.21%	32.96%
10	11.03%	43.99%
11	10.83%	54.82%
12	9.75%	64.57%
13	8.10%	72.67%
14	6.25%	78.92%
15	4.82%	83.73%
16	3.72%	87.45%
17	2.87%	90.32%
18	2.21%	92.53%
19	1.71%	94.24%
20	1.32%	95.56%
21	1.02%	96.57%
22	0.78%	97.36%
23	0.60%	97.96%
24	0.47%	98.43%
25	0.36%	98.79%
26	0.28%	99.06%
27	0.21%	99.28%
28	0.17%	99.44%
29	0.13%	99.57%
30	0.10%	99.67%
31	0.08%	99.74%
32	0.06%	99.80%
33	0.05%	99.85%
34	0.03%	99.88%
35	0.03%	99.91%
36	0.02%	99.93%
37	0.02%	99.95%
38	0.01%	99.96%
39	0.01%	99.97%
40	0.01%	99.98%
41	0.01%	99.98%
42	0.00%	99.99%
43	0.00%	99.99%
44	0.00%	99.99%
45	0.00%	99.99%
46	0.00%	99.99%
47	0.00%	100.00%
48	0.00%	100.00%
49	0.00%	100.00%
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66	0.00%	100.00%
67	0.00%	100.00%
68	0.00%	100.00%
69	0.00%	100.00%
70	0.00%	100.00%
71	0.00%	100.00%
72	0.00%	100.00%
73	0.00%	100.00%
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90	0.00%	100.00%
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92	0.00%	100.00%
93	0.00%	100.00%
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95	0.00%	100.00%
96	0.00%	100.00%
97	0.00%	100.00%
98	0.00%	100.00%
99	0.00%	100.00%
100	0.00%	100.00%

Formulae

Eqn 1 **Traffic Intensity**

$$\rho = \frac{\lambda}{\mu} \qquad Utilisation = \frac{\rho}{N} = \frac{\lambda}{N\mu}$$

Utilisation needs to be <1 for the service to accommodate the demand

Eqn 2 **Probability of no vehicles**

$$P_0 = \frac{1}{\sum_{n_c=0}^{N-1} \frac{\rho^{n_c}}{n_c!} + \frac{\rho^N}{N!\,(1-\rho/N)}}$$

Eqn 3 **Probability of n vehicles**

$$P_n = \frac{\rho^n P_0}{n!} \quad \text{for n} \leq \text{N} \qquad P_n = \frac{\rho^n P_0}{N^{n-N} N!} \quad \text{for n} \geq \text{N}$$

Eqn 4 **Average Length of Queue**

$$\bar{Q} = \frac{P_0 \rho^{N+1}}{N!\,N} \left[\frac{1}{(1-\rho/N)^2}\right]$$

Eqn 5 **Average Time Spent in System**

$$\bar{t} = \frac{\rho + \bar{Q}}{\lambda}$$

Eqn 6 **Average Time Waiting in Queue**

$$\bar{w} = \frac{\rho + \bar{Q}}{\lambda} - \frac{1}{\mu}$$

Eqn 7 **Average Vehicles in System**

$$L = \bar{L_q} = \rho$$

P0 Calculation

nc	nc<=N-1?	denominator 1
0	1	1.00
1	1	10.80
2	1	58.32
3	1	209.95
4	1	566.87
5	1	1224.44
6	1	2203.99
7	1	3400.44
8	1	4590.60
9	1	5508.72
10	1	5949.42
11	1	5841.25
12	1	5257.12
13	1	4367.46
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Inputs

Time period	60	min	blue text are parameters that can be adjusted
Total arrivals	632.00	veh	**black text generally shouldn't be adjusted**
Service time	1.25	min/ veh	*take care with the units! The default is x* ***mins per veh***
Number of servers	16		*e.g. boom gates, drop-off bays, etc.*
x-th percentile queue	95%		*adjust this for desired percentile*
Acceptable queue length	20	veh	*excludes vehicles being serviced*

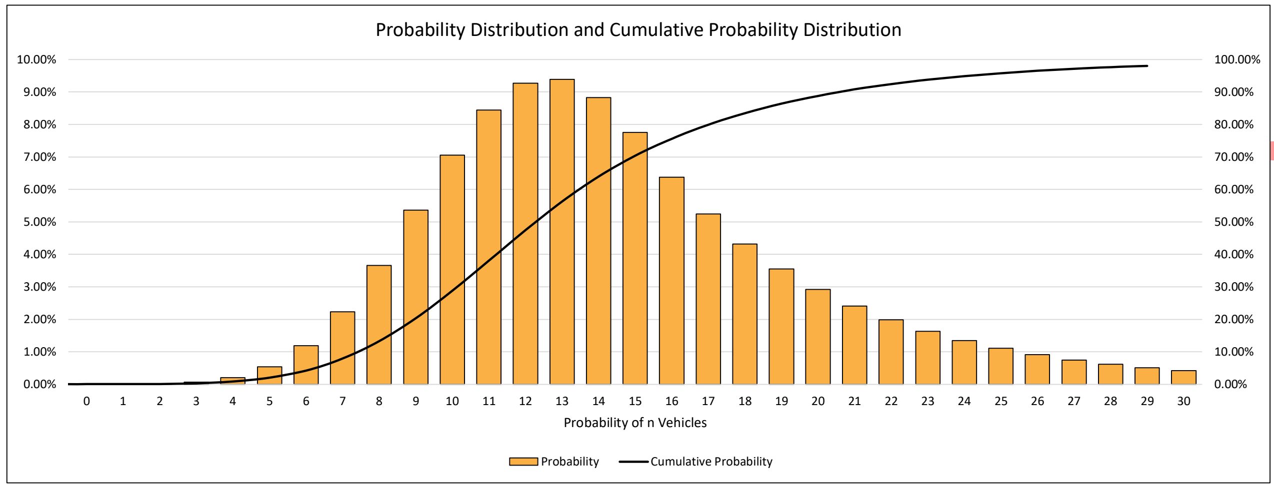
Model

Arrival Rate (λ)	10.53	veh/ min	
Service Rate (μ)	0.80	veh/ min	
Number of servers (N)	16		
Rho (ρ)	13.17		Eqn 1
Utilisation (ρ/N)	82%		Eqn 1 *if utilisation exceeds 100%, the model cannot accommodate the demand*
Probability of no vehicles (P0)	0.00%		Eqn 2

Outputs

95th Percentile Queue	10	veh	*excludes vehicles currently being serviced*
Probability of queuing	29.63%		
Average queue length	1.67	veh	Eqn 4
Average time in queue	0.16	min/ veh	Eqn 6
Average time in system	1.41	min/ veh	Eqn 5
Average vehicles in system	14.84	veh	Eqn 7
Probabilty of no vehicles	0.00%		

graph range may require manual adjustment



Probability Table

Eqn 3

Probability of n vehicles (Pn)	Likelihood	Cumulative probability
0	0.00%	0.00%
1	0.00%	0.00%
2	0.01%	0.02%
3	0.06%	0.08%
4	0.20%	0.28%
5	0.54%	0.82%
6	1.18%	2.01%
7	2.23%	4.23%
8	3.66%	7.90%
9	5.36%	13.26%
10	7.06%	20.31%
11	8.45%	28.76%
12	9.27%	38.03%
13	9.39%	47.41%
14	8.83%	56.24%
15	7.75%	63.99%
16	6.38%	70.37%
17	5.25%	75.61%
18	4.32%	79.93%
19	3.55%	83.49%
20	2.92%	86.41%
21	2.41%	88.82%
22	1.98%	90.80%
23	1.63%	92.43%
24	1.34%	93.77%
25	1.10%	94.87%
26	0.91%	95.78%
27	0.75%	96.53%
28	0.61%	97.14%
29	0.51%	97.65%
30	0.42%	98.06%
31	0.34%	98.41%
32	0.28%	98.69%
33	0.23%	98.92%
34	0.19%	99.11%
35	0.16%	99.27%
36	0.13%	99.40%
37	0.11%	99.51%
38	0.09%	99.59%
39	0.07%	99.67%
40	0.06%	99.72%
41	0.05%	99.77%
42	0.04%	99.81%
43	0.03%	99.85%
44	0.03%	99.87%
45	0.02%	99.90%
46	0.02%	99.91%
47	0.02%	99.93%
48	0.01%	99.94%
49	0.01%	99.95%
50	0.01%	99.96%
51	0.01%	99.97%
52	0.01%	99.97%
53	0.00%	99.98%
54	0.00%	99.98%
55	0.00%	99.99%
56	0.00%	99.99%
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65	0.00%	100.00%
66	0.00%	100.00%
67	0.00%	100.00%
68	0.00%	100.00%
69	0.00%	100.00%
70	0.00%	100.00%
71	0.00%	100.00%
72	0.00%	100.00%
73	0.00%	100.00%
74	0.00%	100.00%
75	0.00%	100.00%
76	0.00%	100.00%
77	0.00%	100.00%
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80	0.00%	100.00%
81	0.00%	100.00%
82	0.00%	100.00%
83	0.00%	100.00%
84	0.00%	100.00%
85	0.00%	100.00%
86	0.00%	100.00%
87	0.00%	100.00%
88	0.00%	100.00%
89	0.00%	100.00%
90	0.00%	100.00%
91	0.00%	100.00%
92	0.00%	100.00%
93	0.00%	100.00%
94	0.00%	100.00%
95	0.00%	100.00%
96	0.00%	100.00%
97	0.00%	100.00%
98	0.00%	100.00%
99	0.00%	100.00%
100	0.00%	100.00%

Formulae

Eqn 1 **Traffic Intensity**

$$\rho = \frac{\lambda}{\mu} \qquad Utilisation = \frac{\rho}{N} = \frac{\lambda}{N\mu}$$

Utilisation needs to be <1 for the service to accommodate the demand

Eqn 2 **Probability of no vehicles**

$$P_0 = \frac{1}{\sum_{n_c=0}^{N-1} \frac{\rho^{n_c}}{n_c!} + \frac{\rho^N}{N!\,(1-\rho/N)}}$$

Eqn 3 **Probability of n vehicles**

$$P_n = \frac{\rho^n P_0}{n!} \quad \text{for n} \leq \text{N} \qquad P_n = \frac{\rho^n P_0}{N^{n-N} N!} \quad \text{for n} \geq \text{N}$$

Eqn 4 **Average Length of Queue**

$$\bar{Q} = \frac{P_0 \rho^{N+1}}{N!\,N}\left[\frac{1}{(1-\rho/N)^2}\right]$$

Eqn 5 **Average Time Spent in System**

$$\bar{t} = \frac{\rho + \bar{Q}}{\lambda}$$

Eqn 6 **Average Time Waiting in Queue**

$$\bar{w} = \frac{\rho + \bar{Q}}{\lambda} - \frac{1}{\mu}$$

Eqn 7 **Average Vehicles in System**

$$L = \bar{L_q} = \rho$$

P0 Calculation

nc	nc<=N-1?	denominator 1
0	1	1.00
1	1	13.17
2	1	86.68
3	1	380.43
4	1	1252.25
5	1	3297.60
6	1	7236.40
7	1	13611.32
8	1	22401.97
9	1	32773.25
10	1	43151.45
11	1	51650.98
12	1	56672.60
13	1	57399.17
14	1	53982.55
15	1	47384.69
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Inputs

Time period	60	min	blue text are parameters that can be adjusted
Total arrivals	530.00	veh	black text generally shouldn't be adjusted
Service time	1.25	min/ veh	*take care with the units! The default is x* ***mins per veh***
Number of servers	16		*e.g. boom gates, drop-off bays, etc.*
x-th percentile queue	95%		*adjust this for desired percentile*
Acceptable queue length	20	veh	*excludes vehicles being serviced*

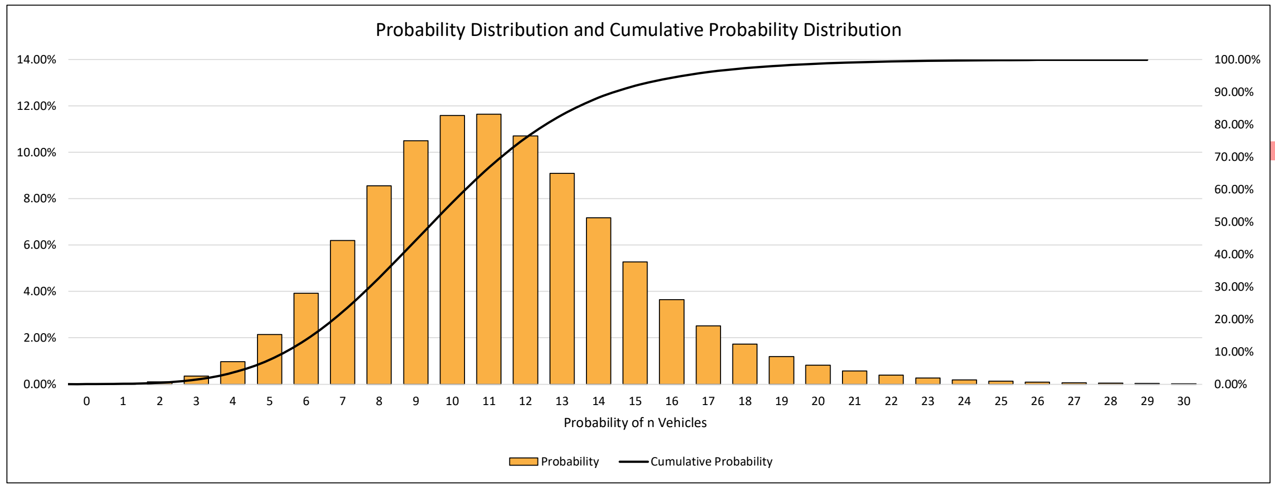
Model

Arrival Rate (λ)	8.83	veh/ min	
Service Rate (μ)	0.80	veh/ min	
Number of servers (N)	16		
Rho (ρ)	11.04		Eqn 1
Utilisation (ρ/N)	69%		Eqn 1 *if utilisation exceeds 100%, the model cannot accommodate the demand*
Probability of no vehicles (P0)	0.00%		Eqn 2

Outputs

95th Percentile Queue	2	veh	*excludes vehicles currently being serviced*
Probability of queuing	8.11%		
Average queue length	0.26	veh	Eqn 4
Average time in queue	0.03	min/ veh	Eqn 6
Average time in system	1.28	min/ veh	Eqn 5
Average vehicles in system	11.30	veh	Eqn 7
Probabilty of no vehicles	0.00%		

graph range may require manual adjustment



Probability Table Eqn 3

Probability of n vehicles (Pn)	Likelihood	Cumulative probability
0	0.00%	0.00%
1	0.02%	0.02%
2	0.10%	0.11%
3	0.35%	0.46%
4	0.97%	1.43%
5	2.14%	3.57%
6	3.93%	7.50%
7	6.20%	13.70%
8	8.56%	22.26%
9	10.50%	32.76%
10	11.59%	44.35%
11	11.64%	55.99%
12	10.71%	66.69%
13	9.09%	75.79%
14	7.17%	82.96%
15	5.28%	88.24%
16	3.64%	91.89%
17	2.51%	94.40%
18	1.74%	96.14%
19	1.20%	97.33%
20	0.83%	98.16%
21	0.57%	98.73%
22	0.39%	99.12%
23	0.27%	99.40%
24	0.19%	99.58%
25	0.13%	99.71%
26	0.09%	99.80%
27	0.06%	99.86%
28	0.04%	99.91%
29	0.03%	99.93%
30	0.02%	99.95%
31	0.01%	99.97%
32	0.01%	99.98%
33	0.01%	99.99%
34	0.00%	99.99%
35	0.00%	99.99%
36	0.00%	100.00%
37	0.00%	100.00%
38	0.00%	100.00%
39	0.00%	100.00%
40	0.00%	100.00%
41	0.00%	100.00%
42	0.00%	100.00%
43	0.00%	100.00%
44	0.00%	100.00%
45	0.00%	100.00%
46	0.00%	100.00%
47	0.00%	100.00%
48	0.00%	100.00%
49	0.00%	100.00%
50	0.00%	100.00%
51	0.00%	100.00%
52	0.00%	100.00%
53	0.00%	100.00%
54	0.00%	100.00%
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67	0.00%	100.00%
68	0.00%	100.00%
69	0.00%	100.00%
70	0.00%	100.00%
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95	0.00%	100.00%
96	0.00%	100.00%
97	0.00%	100.00%
98	0.00%	100.00%
99	0.00%	100.00%
100	0.00%	100.00%

Formulae

Eqn 1 **Traffic Intensity**

$$\rho = \frac{\lambda}{\mu} \qquad Utilisation = \frac{\rho}{N} = \frac{\lambda}{N\mu}$$

Utilisation needs to be <1 for the service to accommodate the demand

Eqn 2 **Probability of no vehicles**

$$P_0 = \frac{1}{\sum_{n_c=0}^{N-1} \frac{\rho^{n_c}}{n_c!} + \frac{\rho^N}{N!\,(1-\rho/N)}}$$

Eqn 3 **Probability of n vehicles**

$$P_n = \frac{\rho^n P_0}{n!} \quad \text{for n} \leq \text{N} \qquad P_n = \frac{\rho^n P_0}{N^{n-N} N!} \quad \text{for n} \geq \text{N}$$

Eqn 4 **Average Length of Queue**

$$\bar{Q} = \frac{P_0 \rho^{N+1}}{N!\,N}\left[\frac{1}{(1-\rho/N)^2}\right]$$

Eqn 5 **Average Time Spent in System**

$$\bar{t} = \frac{\rho + \bar{Q}}{\lambda}$$

Eqn 6 **Average Time Waiting in Queue**

$$\bar{w} = \frac{\rho + \bar{Q}}{\lambda} - \frac{1}{\mu}$$

Eqn 7 **Average Vehicles in System**

$$L = \bar{L_q} = \rho$$

P0 Calculation

nc	nc<=N-1?	denominator 1
0	1	1.00
1	1	11.04
2	1	60.96
3	1	224.36
4	1	619.34
5	1	1367.70
6	1	2516.95
7	1	3970.20
8	1	5479.70
9	1	6722.78
10	1	7423.07
11	1	7451.18
12	1	6856.12
13	1	5823.31
14	1	4592.79
15	1	3380.80
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Inputs

Time period	60	min	**blue text are parameters that can be adjusted**
Total arrivals	783.00	veh	**black text generally shouldn't be adjusted**
Service time	1.25	min/ veh	*take care with the units! The default is x* ***mins per veh***
Number of servers	20		*e.g. boom gates, drop-off bays, etc.*
x-th percentile queue	95%		*adjust this for desired percentile*
Acceptable queue length	16	veh	*excludes vehicles being serviced*

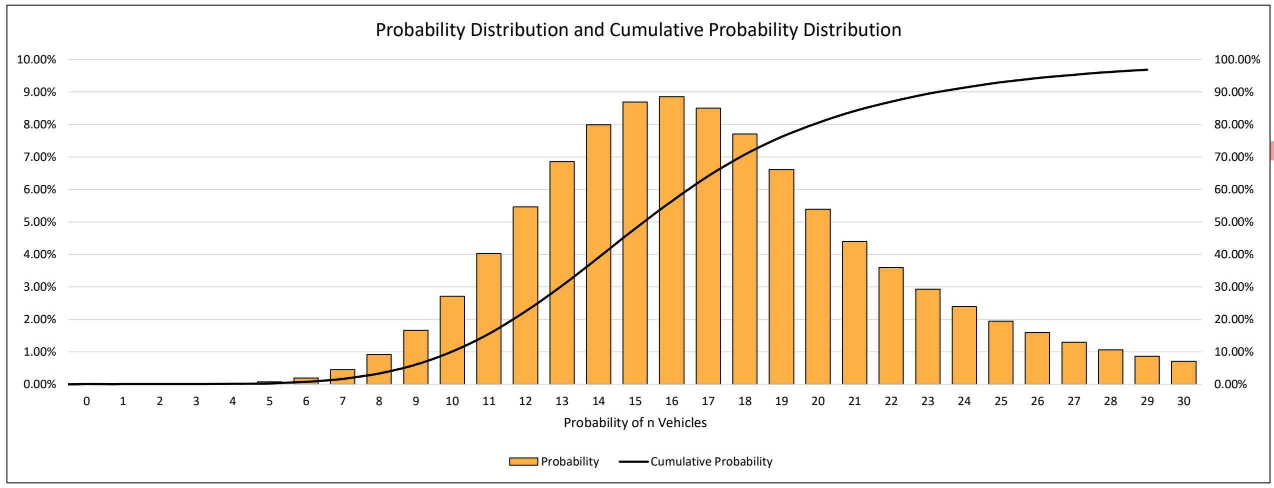
Model

Arrival Rate (λ)	13.05	veh/ min		
Service Rate (μ)	0.80	veh/ min		
Number of servers (N)	20			
Rho (ρ)	16.31		Eqn 1	
Utilisation (ρ/N)	82%		Eqn 1	*if utilisation exceeds 100%, the model cannot accommodate the demand*
Probability of no vehicles (P0)	0.00%		Eqn 2	

Outputs

95th Percentile Queue	8	veh	*excludes vehicles currently being serviced*
Probability of queuing	23.87%		
Average queue length	1.29	veh	Eqn 4
Average time in queue	0.10	min/ veh	Eqn 6
Average time in system	1.35	min/ veh	Eqn 5
Average vehicles in system	17.61	veh	Eqn 7
Probabilty of no vehicles	0.00%		

graph range may require manual adjustment



Probability Table Eqn 3

Probability of n vehicles (Pn)	Likelihood	Cumulative probability
0	0.00%	0.00%
1	0.00%	0.00%
2	0.00%	0.00%
3	0.01%	0.01%
4	0.02%	0.03%
5	0.07%	0.10%
6	0.19%	0.29%
7	0.45%	0.74%
8	0.92%	1.66%
9	1.66%	3.32%
10	2.71%	6.03%
11	4.02%	10.05%
12	5.47%	15.52%
13	6.86%	22.38%
14	7.99%	30.37%
15	8.69%	39.06%
16	8.86%	47.92%
17	8.50%	56.42%
18	7.70%	64.12%
19	6.61%	70.74%
20	5.40%	76.13%
21	4.40%	80.53%
22	3.59%	84.12%
23	2.93%	87.05%
24	2.39%	89.44%
25	1.95%	91.39%
26	1.59%	92.97%
27	1.30%	94.27%
28	1.06%	95.33%
29	0.86%	96.19%
30	0.70%	96.89%
31	0.57%	97.46%
32	0.47%	97.93%
33	0.38%	98.31%
34	0.31%	98.62%
35	0.25%	98.88%
36	0.21%	99.08%
37	0.17%	99.25%
38	0.14%	99.39%
39	0.11%	99.50%
40	0.09%	99.59%
41	0.07%	99.67%
42	0.06%	99.73%
43	0.05%	99.78%
44	0.04%	99.82%
45	0.03%	99.85%
46	0.03%	99.88%
47	0.02%	99.90%
48	0.02%	99.92%
49	0.01%	99.94%
50	0.01%	99.95%
51	0.01%	99.96%
52	0.01%	99.96%
53	0.01%	99.97%
54	0.01%	99.98%
55	0.00%	99.98%
56	0.00%	99.98%
57	0.00%	99.99%
58	0.00%	99.99%
59	0.00%	99.99%
60	0.00%	99.99%
61	0.00%	99.99%
62	0.00%	100.00%
63	0.00%	100.00%
64	0.00%	100.00%
65	0.00%	100.00%
66	0.00%	100.00%
67	0.00%	100.00%
68	0.00%	100.00%
69	0.00%	100.00%
70	0.00%	100.00%
71	0.00%	100.00%
72	0.00%	100.00%
73	0.00%	100.00%
74	0.00%	100.00%
75	0.00%	100.00%
76	0.00%	100.00%
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91	0.00%	100.00%
92	0.00%	100.00%
93	0.00%	100.00%
94	0.00%	100.00%
95	0.00%	100.00%
96	0.00%	100.00%
97	0.00%	100.00%
98	0.00%	100.00%
99	0.00%	100.00%
100	0.00%	100.00%

Formulae

Eqn 1 **Traffic Intensity**

$$\rho = \frac{\lambda}{\mu} \qquad Utilisation = \frac{\rho}{N} = \frac{\lambda}{N\mu}$$

Utilisation needs to be <1 for the service to accommodate the demand

Eqn 2 **Probability of no vehicles**

$$P_0 = \frac{1}{\sum_{n_c=0}^{N-1} \frac{\rho^{n_c}}{n_c!} + \frac{\rho^N}{N!\,(1-\rho/N)}}$$

Eqn 3 **Probability of n vehicles**

$$P_n = \frac{\rho^n P_0}{n!} \quad \text{for n} \leq \text{N} \qquad P_n = \frac{\rho^n P_0}{N^{n-N} N!} \quad \text{for n} \geq \text{N}$$

Eqn 4 **Average Length of Queue**

$$\bar{Q} = \frac{P_0 \rho^{N+1}}{N!\,N}\left[\frac{1}{(1-\rho/N)^2}\right]$$

Eqn 5 **Average Time Spent in System**

$$\bar{t} = \frac{\rho + \bar{Q}}{\lambda}$$

Eqn 6 **Average Time Waiting in Queue**

$$\bar{w} = \frac{\rho + \bar{Q}}{\lambda} - \frac{1}{\mu}$$

Eqn 7 **Average Vehicles in System**

$$L = \bar{L_q} = \rho$$

P0 Calculation

nc	nc<=N-1?	denominator 1
0	1	1.00
1	1	16.31
2	1	133.05
3	1	723.45
4	1	2950.33
5	1	9625.46
6	1	26169.21
7	1	60983.61
8	1	124349.39
9	1	225383.28
10	1	367656.47
11	1	545217.83
12	1	741155.49
13	1	930007.61
14	1	1083624.94
15	1	1178442.13
16	1	1201458.57
17	1	1152870.18
18	1	1044788.60
19	1	897006.00
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Inputs

Time period	60	min	**blue text are parameters that can be adjusted**
Total arrivals	630.00	veh	**black text generally shouldn't be adjusted**
Service time	1.25	min/ veh	*take care with the units! The default is x **mins per veh***
Number of servers	18		*e.g. boom gates, drop-off bays, etc.*
x-th percentile queue	95%		*adjust this for desired percentile*
Acceptable queue length	18	veh	*excludes vehicles being serviced*

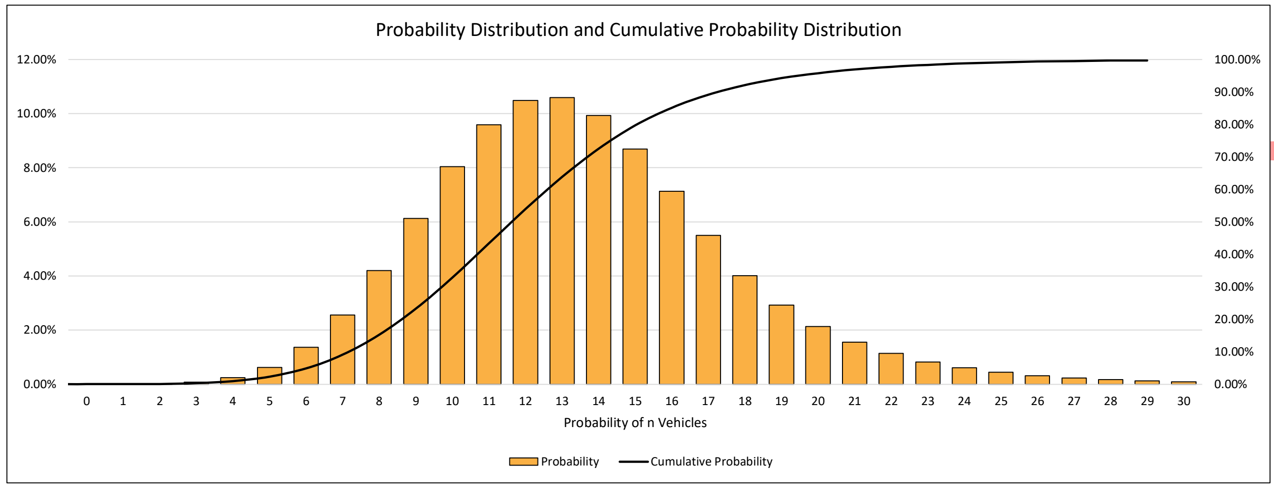
Model

Arrival Rate (λ)	10.50	veh/ min		
Service Rate (μ)	0.80	veh/ min		
Number of servers (N)	18			
Rho (ρ)	13.13		Eqn 1	
Utilisation (ρ/N)	73%		Eqn 1	*if utilisation exceeds 100%, the model cannot accommodate the demand*
Probability of no vehicles (P0)	0.00%		Eqn 2	

Outputs

95th Percentile Queue	3	veh	*excludes vehicles currently being serviced*
Probability of queuing	10.80%		
Average queue length	0.40	veh	Eqn 4
Average time in queue	0.04	min/ veh	Eqn 6
Average time in system	1.29	min/ veh	Eqn 5
Average vehicles in system	13.52	veh	Eqn 7
Probabilty of no vehicles	0.00%		

graph range may require manual adjustment



Probability Table Eqn 3

Probability of n vehicles (Pn)	Likelihood	Cumulative probability
0	0.00%	0.00%
1	0.00%	0.00%
2	0.02%	0.02%
3	0.07%	0.09%
4	0.24%	0.33%
5	0.62%	0.95%
6	1.37%	2.32%
7	2.56%	4.88%
8	4.20%	9.08%
9	6.13%	15.21%
10	8.04%	23.25%
11	9.59%	32.84%
12	10.49%	43.33%
13	10.59%	53.93%
14	9.93%	63.86%
15	8.69%	72.55%
16	7.13%	79.68%
17	5.50%	85.18%
18	4.01%	89.20%
19	2.93%	92.12%
20	2.13%	94.26%
21	1.56%	95.81%
22	1.13%	96.95%
23	0.83%	97.77%
24	0.60%	98.38%
25	0.44%	98.82%
26	0.32%	99.14%
27	0.23%	99.37%
28	0.17%	99.54%
29	0.12%	99.67%
30	0.09%	99.76%
31	0.07%	99.82%
32	0.05%	99.87%
33	0.04%	99.91%
34	0.03%	99.93%
35	0.02%	99.95%
36	0.01%	99.96%
37	0.01%	99.97%
38	0.01%	99.98%
39	0.01%	99.99%
40	0.00%	99.99%
41	0.00%	99.99%
42	0.00%	99.99%
43	0.00%	100.00%
44	0.00%	100.00%
45	0.00%	100.00%
46	0.00%	100.00%
47	0.00%	100.00%
48	0.00%	100.00%
49	0.00%	100.00%
50	0.00%	100.00%
51	0.00%	100.00%
52	0.00%	100.00%
53	0.00%	100.00%
54	0.00%	100.00%
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59	0.00%	100.00%
60	0.00%	100.00%
61	0.00%	100.00%
62	0.00%	100.00%
63	0.00%	100.00%
64	0.00%	100.00%
65	0.00%	100.00%
66	0.00%	100.00%
67	0.00%	100.00%
68	0.00%	100.00%
69	0.00%	100.00%
70	0.00%	100.00%
71	0.00%	100.00%
72	0.00%	100.00%
73	0.00%	100.00%
74	0.00%	100.00%
75	0.00%	100.00%
76	0.00%	100.00%
77	0.00%	100.00%
78	0.00%	100.00%
79	0.00%	100.00%
80	0.00%	100.00%
81	0.00%	100.00%
82	0.00%	100.00%
83	0.00%	100.00%
84	0.00%	100.00%
85	0.00%	100.00%
86	0.00%	100.00%
87	0.00%	100.00%
88	0.00%	100.00%
89	0.00%	100.00%
90	0.00%	100.00%
91	0.00%	100.00%
92	0.00%	100.00%
93	0.00%	100.00%
94	0.00%	100.00%
95	0.00%	100.00%
96	0.00%	100.00%
97	0.00%	100.00%
98	0.00%	100.00%
99	0.00%	100.00%
100	0.00%	100.00%

Formulae

Eqn 1 **Traffic Intensity**

$$\rho = \frac{\lambda}{\mu} \qquad Utilisation = \frac{\rho}{N} = \frac{\lambda}{N\mu}$$

Utilisation needs to be <1 for the service to accommodate the demand

Eqn 2 **Probability of no vehicles**

$$P_0 = \frac{1}{\sum_{n_c=0}^{N-1} \frac{\rho^{n_c}}{n_c!} + \frac{\rho^N}{N!\,(1-\rho/N)}}$$

Eqn 3 **Probability of n vehicles**

$$P_n = \frac{\rho^n P_0}{n!} \quad \text{for n} \leq \text{N} \qquad P_n = \frac{\rho^n P_0}{N^{n-N} N!} \quad \text{for n} \geq \text{N}$$

Eqn 4 **Average Length of Queue**

$$\bar{Q} = \frac{P_0 \rho^{N+1}}{N!\,N}\left[\frac{1}{(1-\rho/N)^2}\right]$$

Eqn 5 **Average Time Spent in System**

$$\bar{t} = \frac{\rho + \bar{Q}}{\lambda}$$

Eqn 6 **Average Time Waiting in Queue**

$$\bar{w} = \frac{\rho + \bar{Q}}{\lambda} - \frac{1}{\mu}$$

Eqn 7 **Average Vehicles in System**

$$L = \bar{L_q} = \rho$$

P0 Calculation

nc	nc<=N-1?	denominator 1
0	1	1.00
1	1	13.13
2	1	86.13
3	1	376.83
4	1	1236.48
5	1	3245.75
6	1	7100.08
7	1	13312.65
8	1	21841.07
9	1	31851.56
10	1	41805.18
11	1	49881.18
12	1	54557.54
13	1	55082.13
14	1	51639.50
15	1	45184.56
16	1	37065.46
17	1	28616.72
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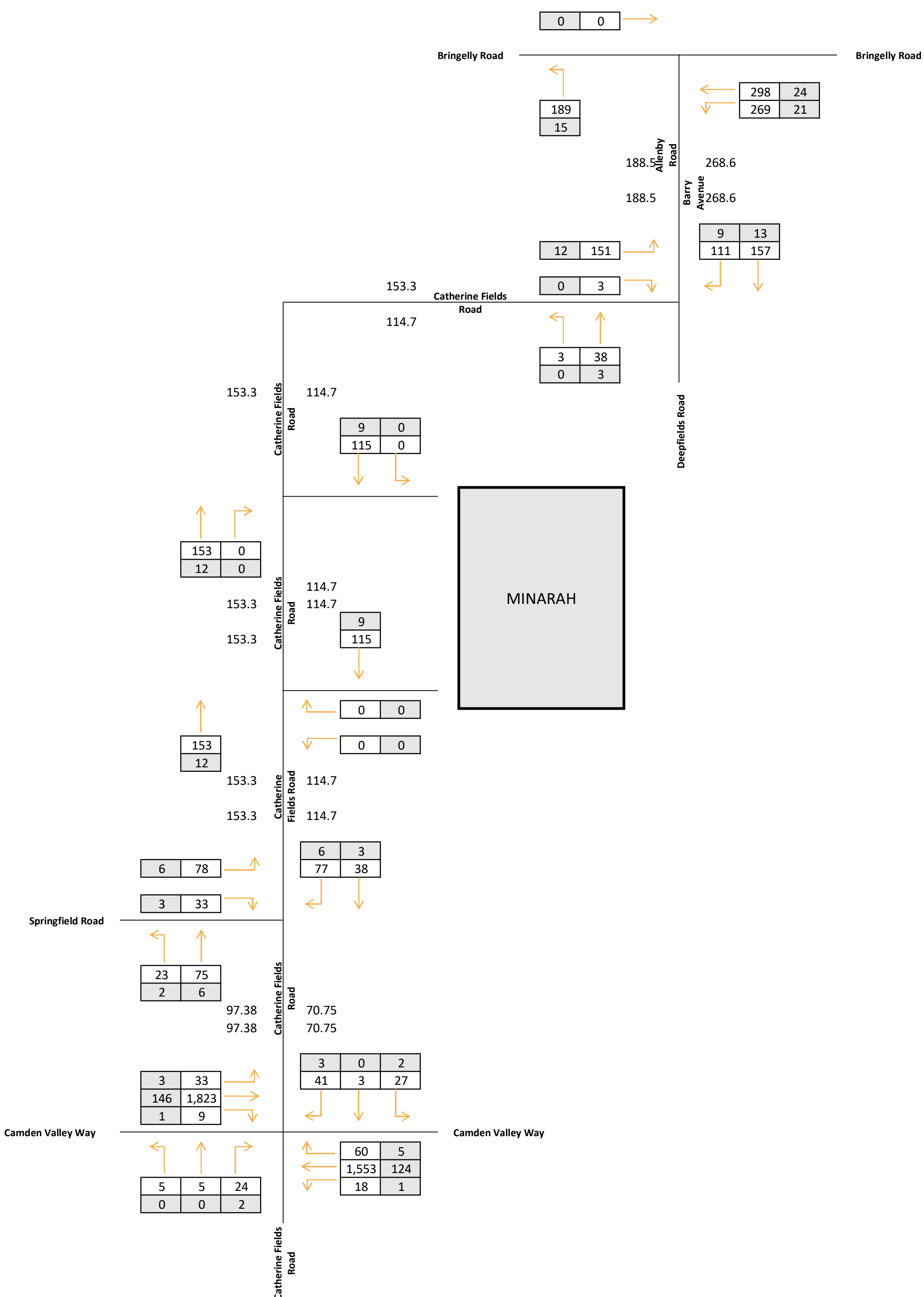
Appendix C. Network Diagrams

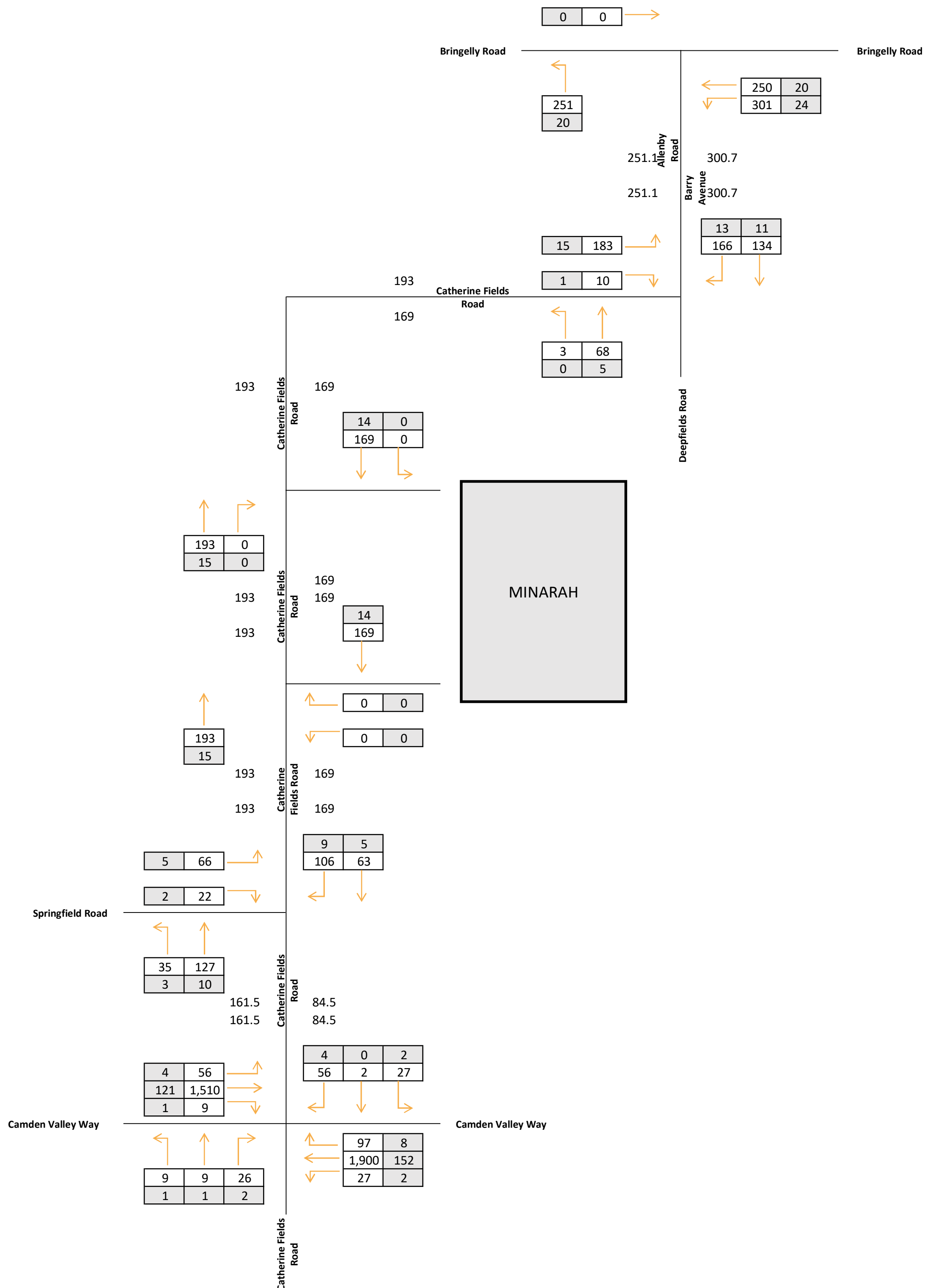
Display-A:	7	AM -	2021 Base TOT
Display-B:	6	AM -	2021 Base HV

AM -2021 Base TOT



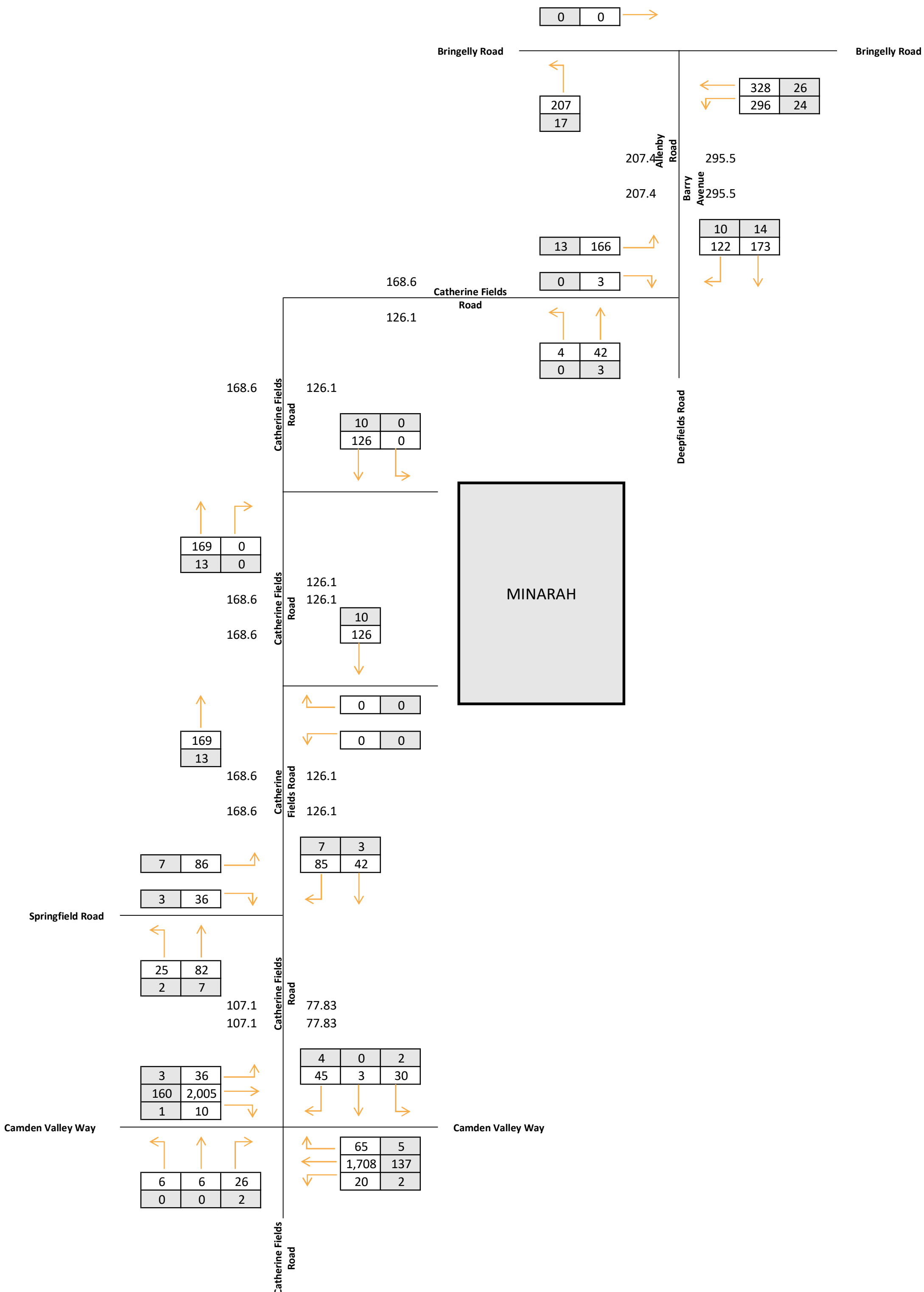
Display-A:	20	PM -	2021 Base TOT
Display-B:	19	PM -	2021 Base HV

PM -2021 Base TOT



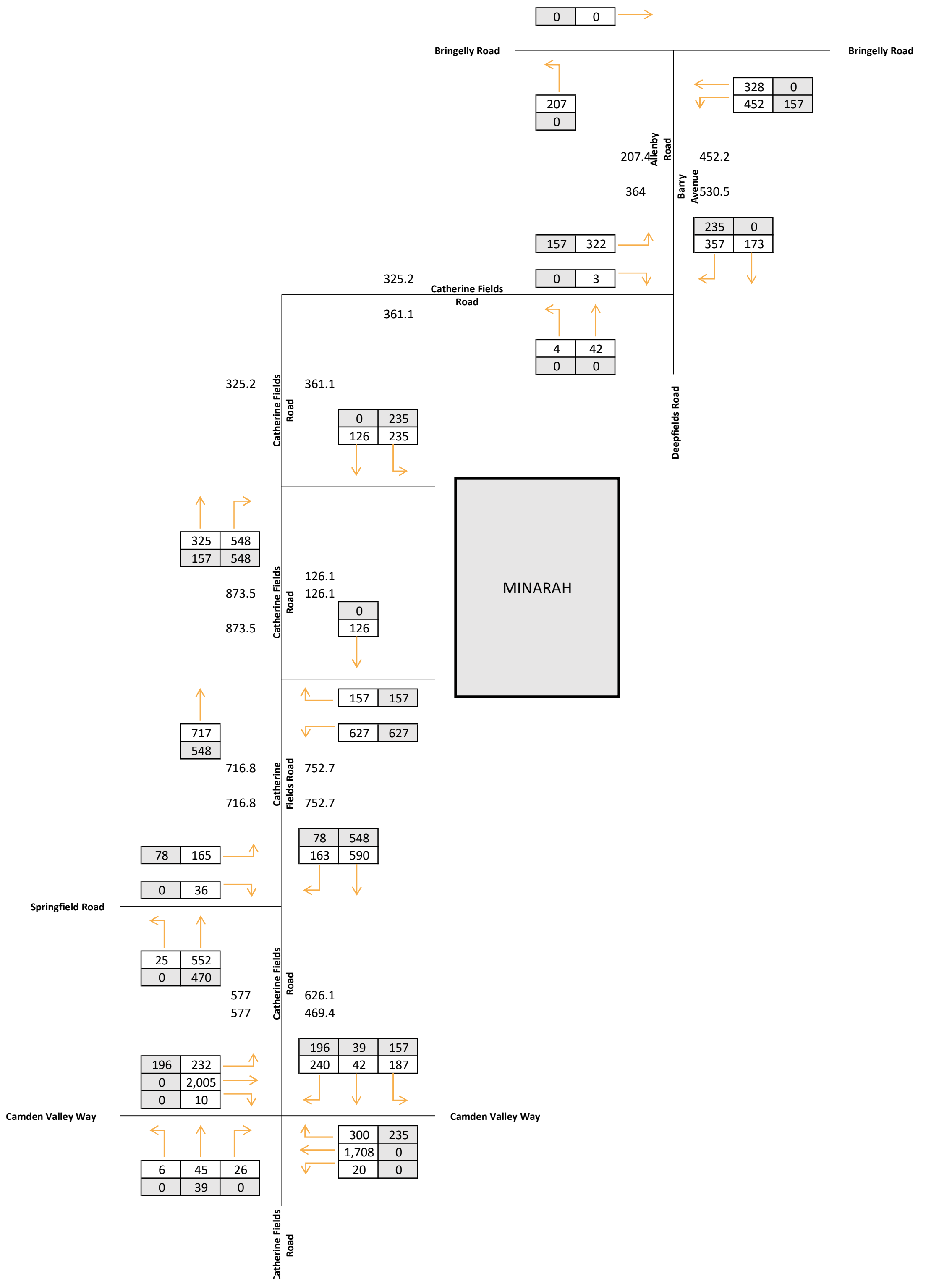
Display-A:	10	AM - 2025 Base TOT
Display-B:	9	AM - 2025 Base HV

AM -2025 Base TOT



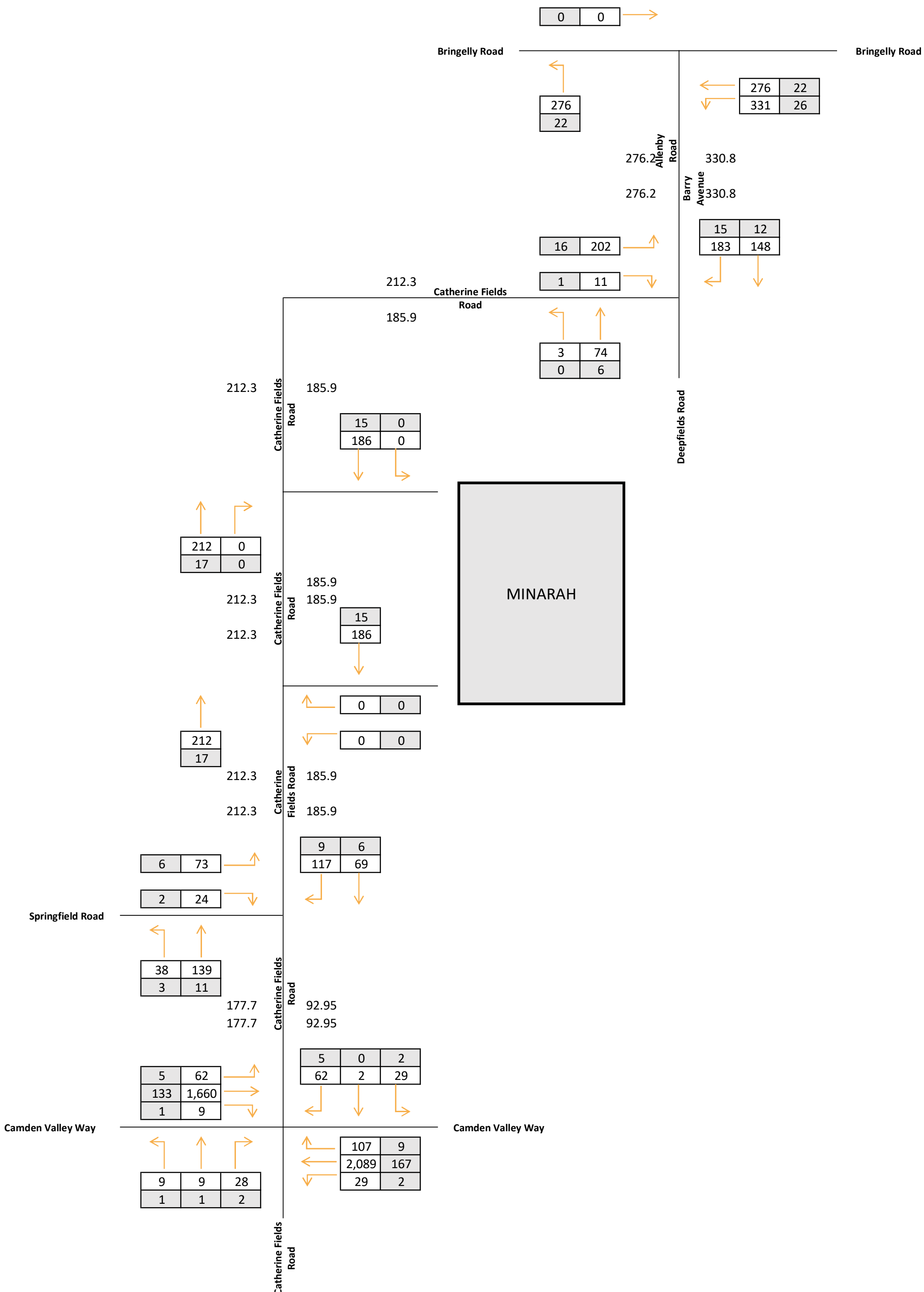
Display-A:	13	AM -	2025 Base+Dev TOT
Display-B:	11	AM -	Development LV

AM -2025 Base+Dev TOT



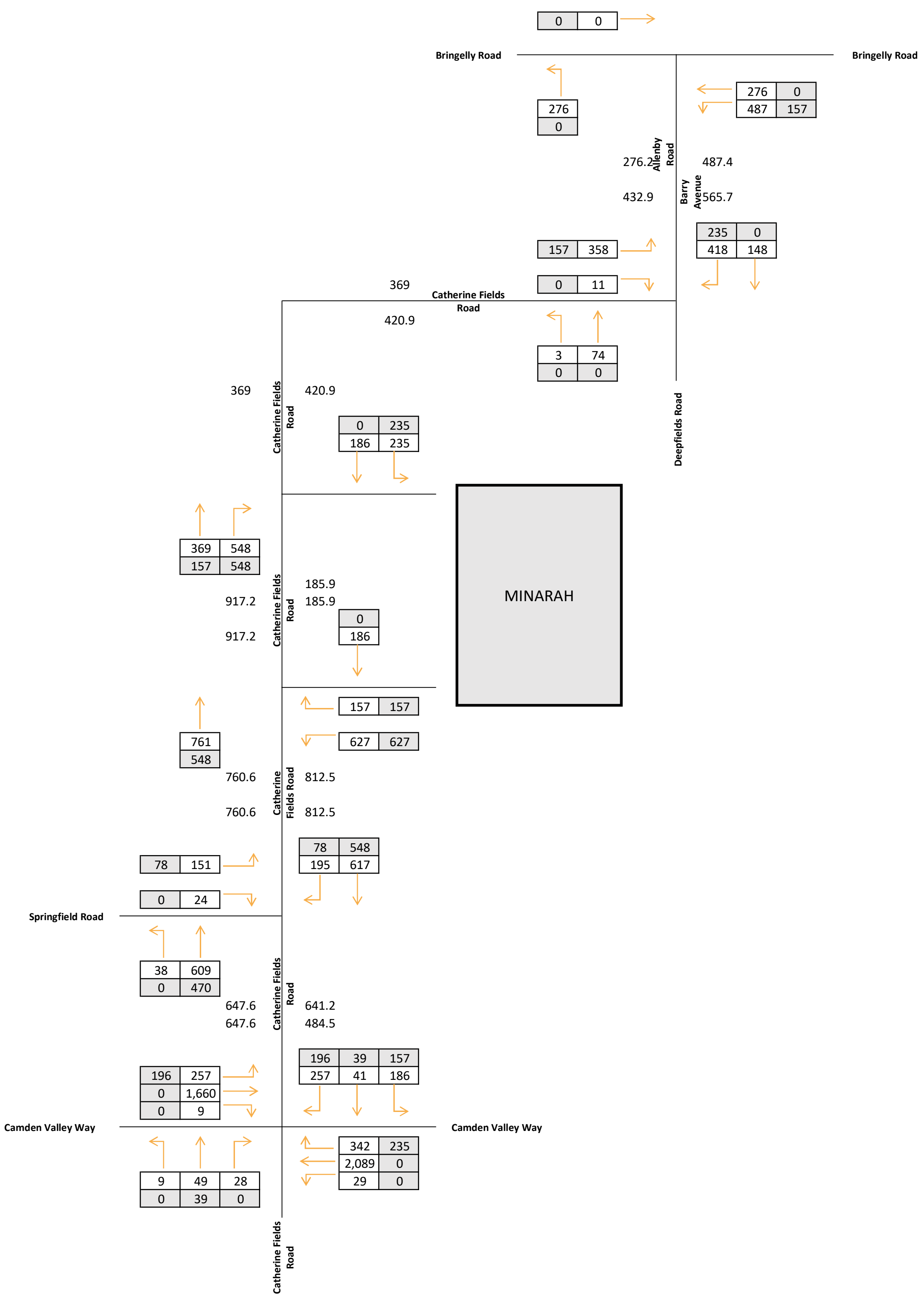
Display-A:	23	PM - 2025 Base TOT
Display-B:	22	PM - 2025 Base HV

PM -2025 Base TOT



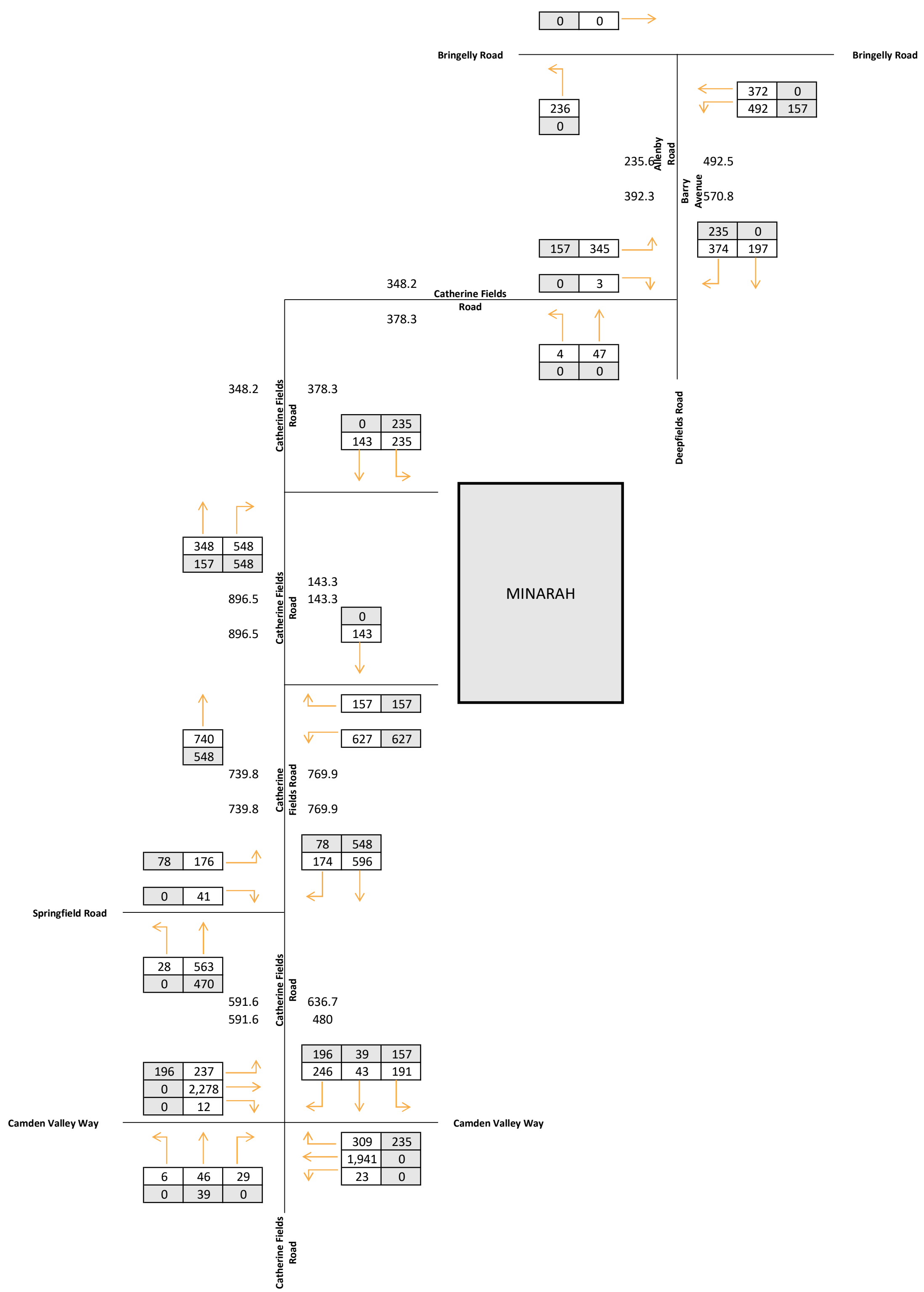
Display-A:	26	PM -	2025 Base+Dev TOT
Display-B:	24	PM -	Development LV

PM -2025 Base+Dev TOT



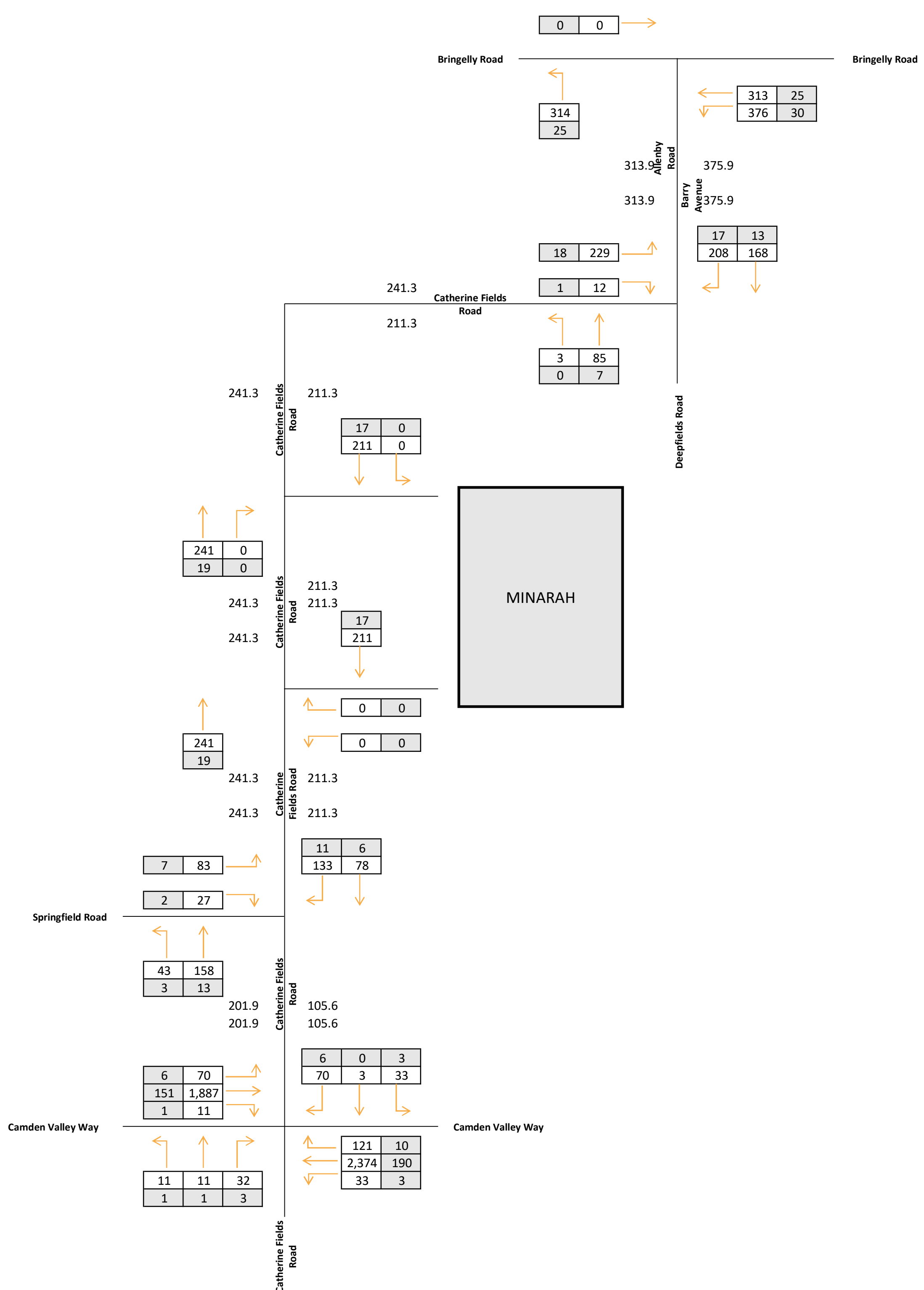
Display-A:	13	AM -	2031 Base+Dev TOT
Display-B:	11	AM -	Development LV

AM -2031 Base+Dev TOT



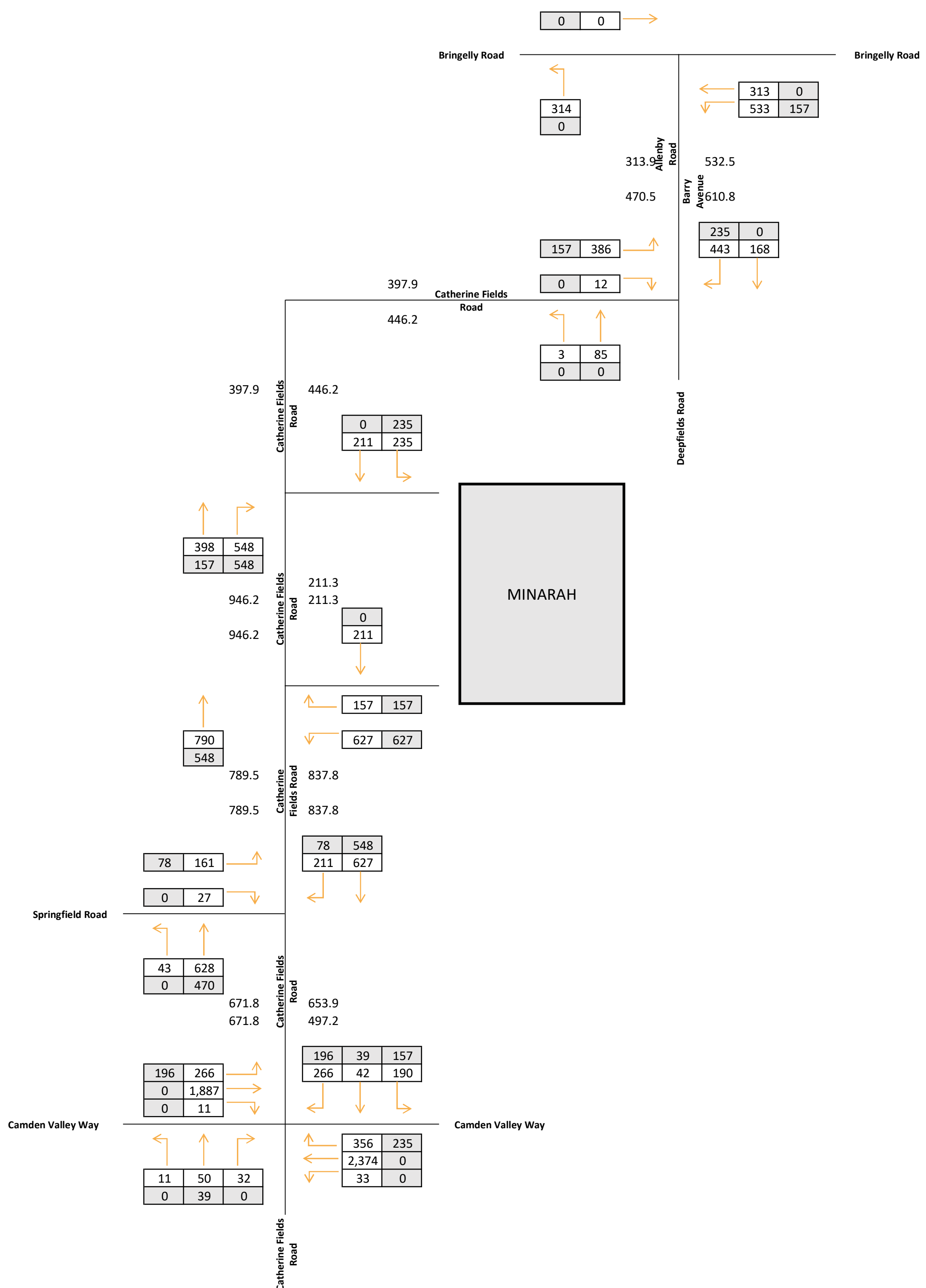
Display-A:	23	PM - 2031 Base TOT
Display-B:	22	PM - 2031 Base HV

PM -2031 Base TOT



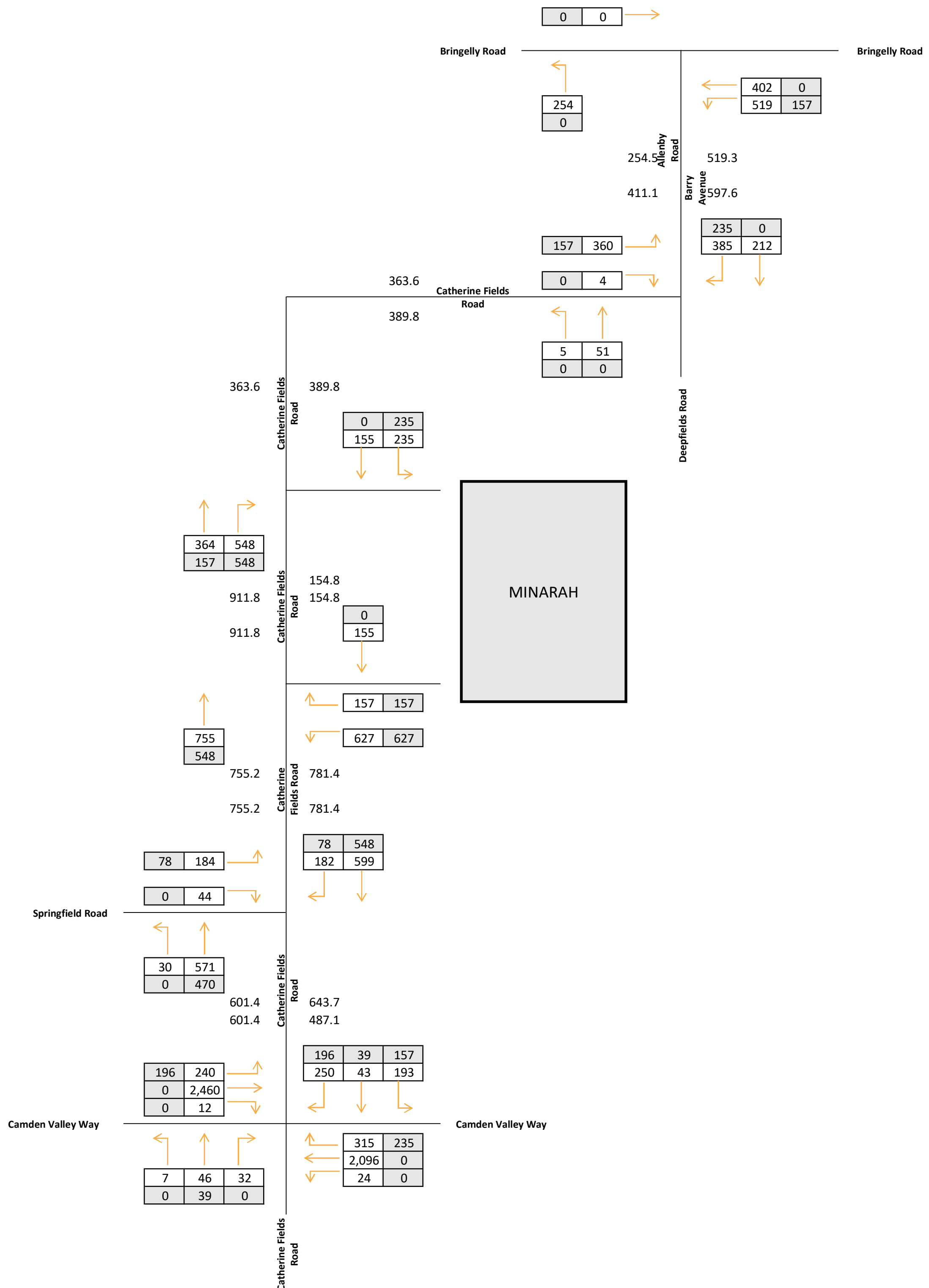
Display-A:	26	PM - 2031 Base+Dev TOT
Display-B:	24	PM - Development LV

PM -2031 Base+Dev TOT



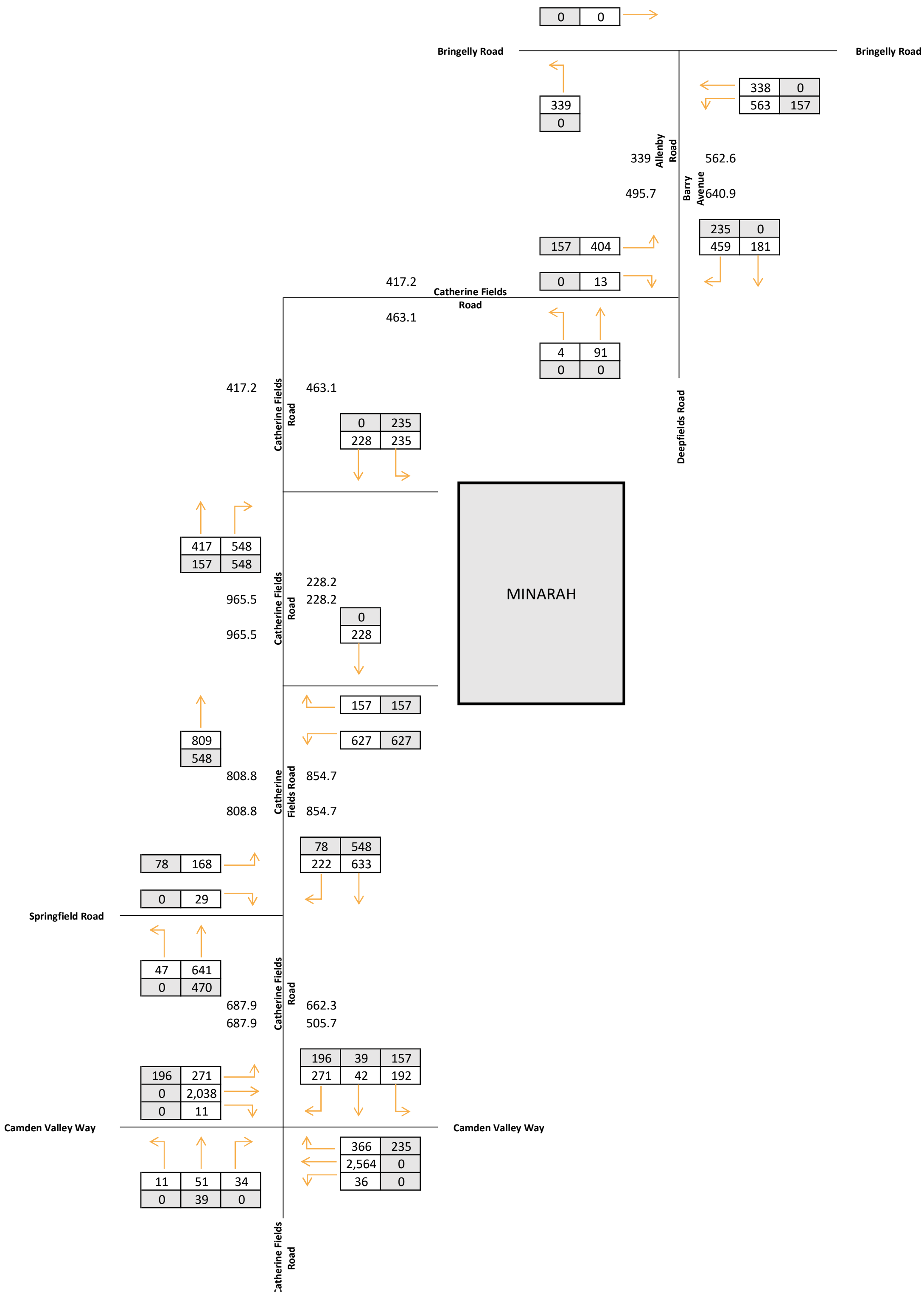
Display-A:	13	AM -	2035 Base+Dev TOT
Display-B:	11	AM -	Development LV

AM -2035 Base+Dev TOT



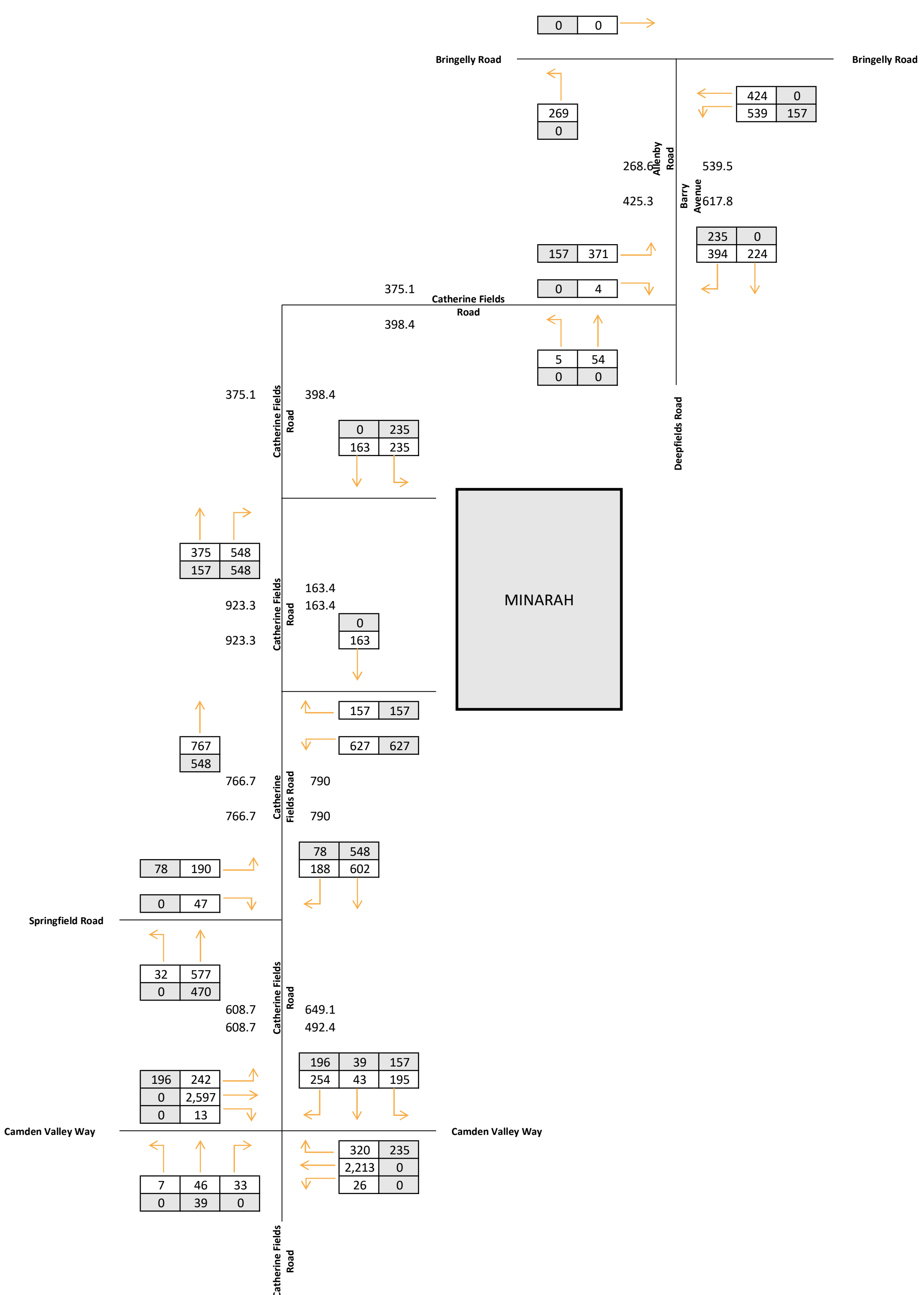
Display-A:	26	PM -	2035 Base+Dev TOT
Display-B:	24	PM -	Development LV

PM -2035 Base+Dev TOT



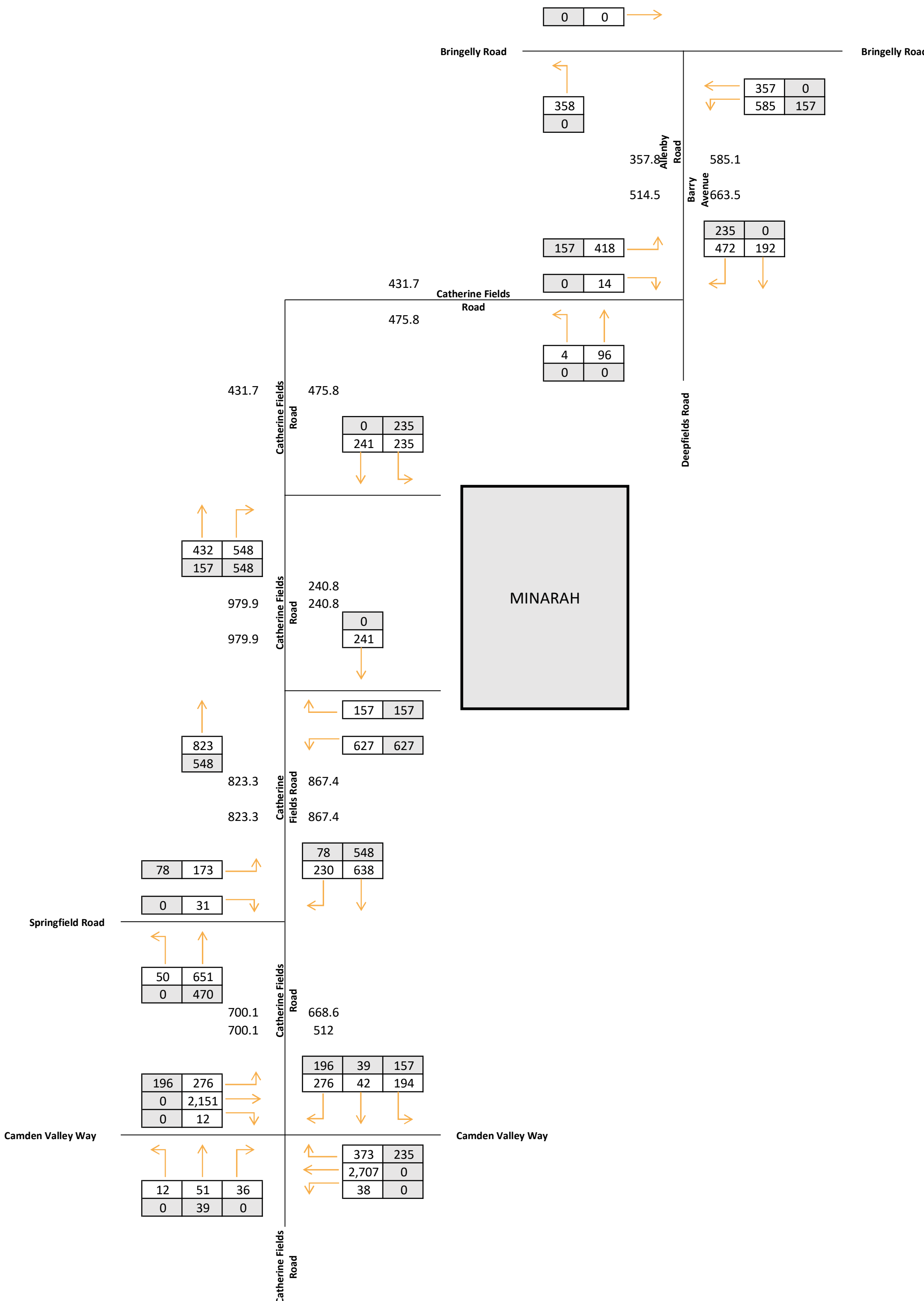
Display-A: 13 AM - 2038 Base+Dev TOT
Display-B: 11 AM - Development LV

AM -2038 Base+Dev TOT



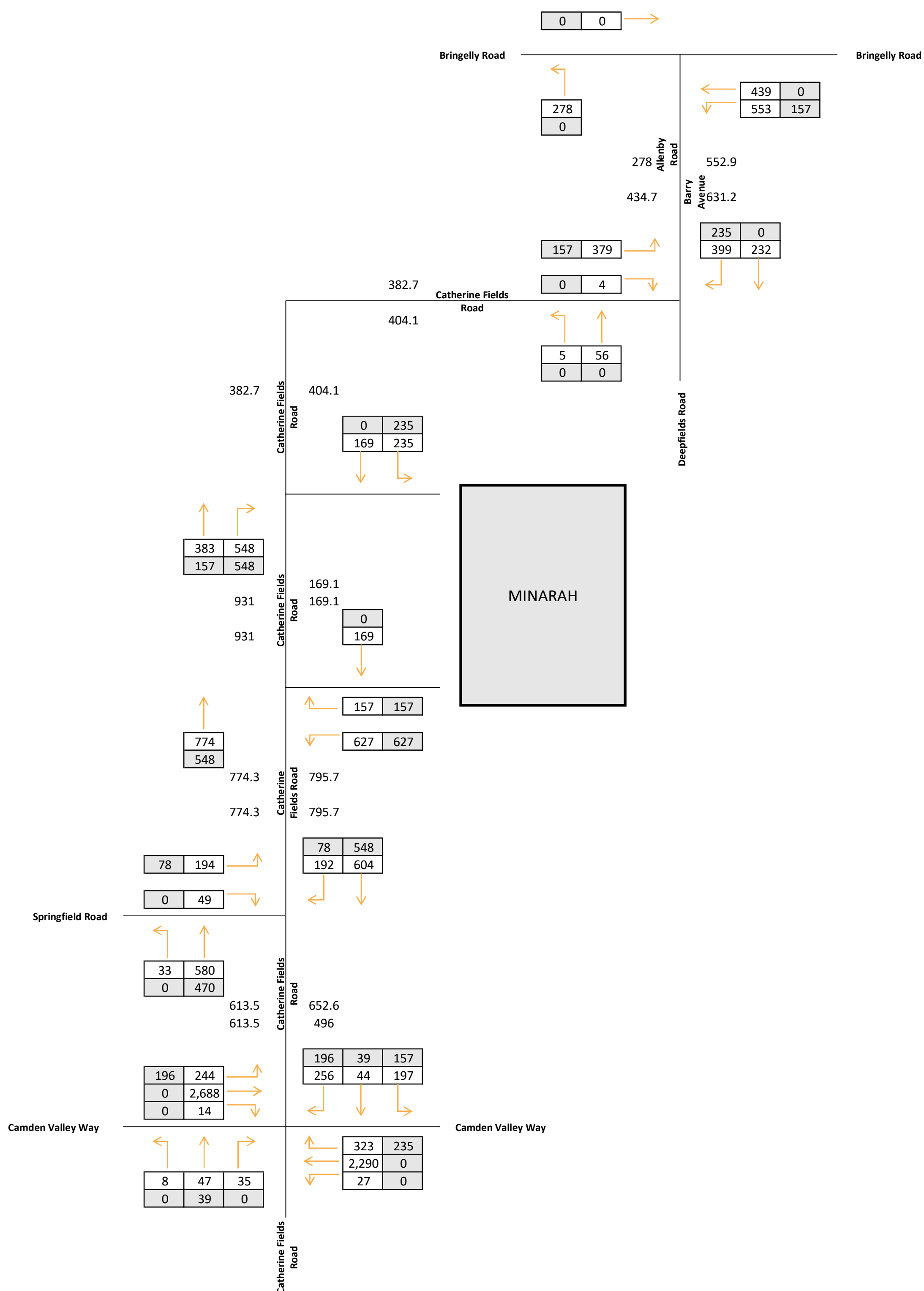
Display-A:	26	PM -	2038 Base+Dev TOT
Display-B:	24	PM -	Development LV

PM -2038 Base+Dev TOT



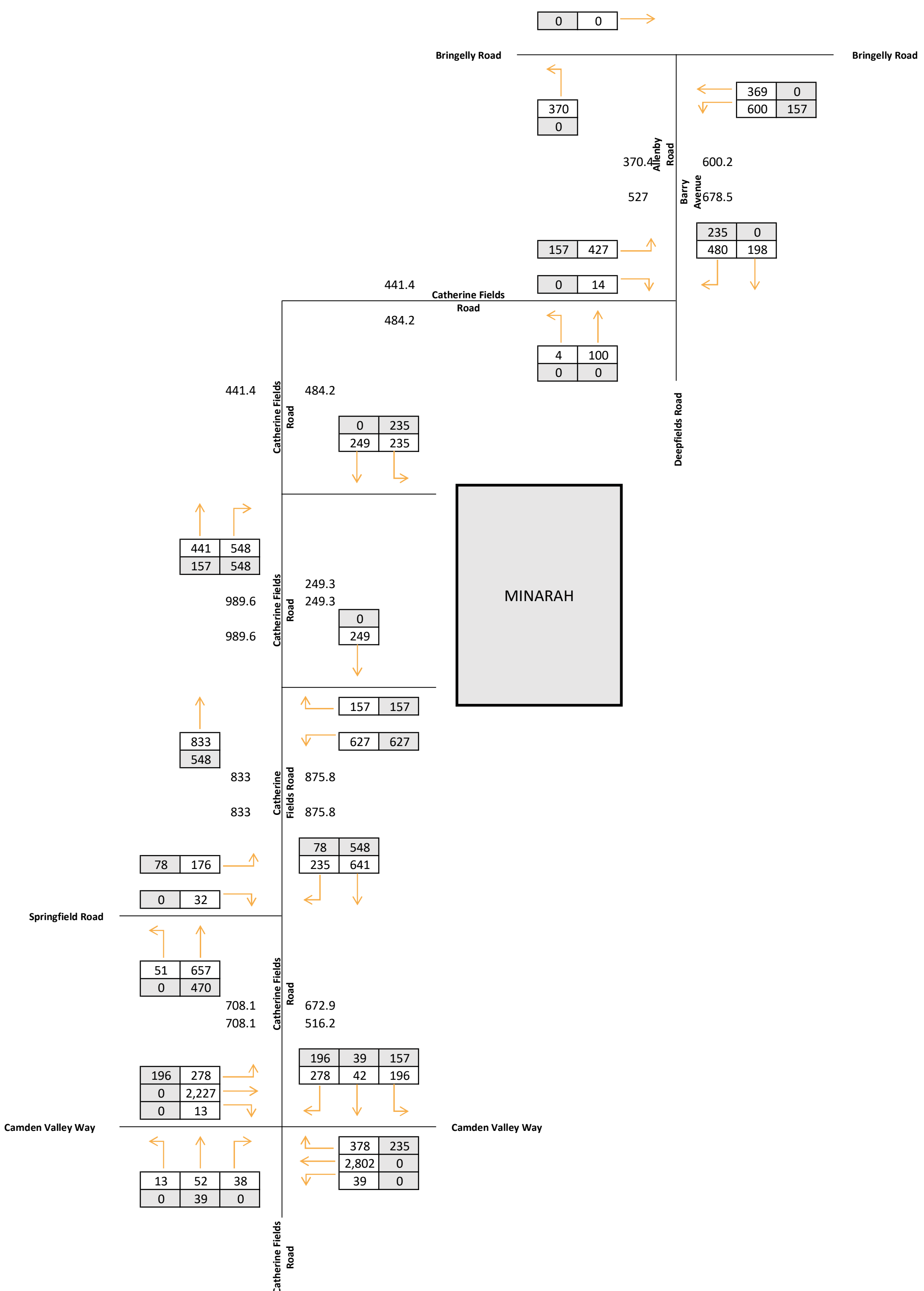
Display-A:	13	AM -	2040 Base+Dev TOT
Display-B:	11	AM -	Development LV

AM -2040 Base+Dev TOT



Display-A:	26	PM - 2040 Base+Dev TOT
Display-B:	24	PM - Development LV

PM -2040 Base+Dev TOT



Appendix D. Existing SIDRA Results

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - AM (Site Folder: 2021 Base)]

Network: N101 [Base AM 2021 (Network Folder: BASE 2021)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	199	8.0	199	8.0	0.146	7.7	LOS A	0.3	1.9	0.28	0.61	0.28	74.3
Approach		199	8.0	199	8.0	0.146	7.7	LOS A	0.3	1.9	0.28	0.61	0.28	74.3
East: Bringelly Rd														
4	L2	283	8.0	283	8.0	0.160	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	314	8.0	314	8.0	0.084	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		597	8.0	597	8.0	0.160	3.4	NA	0.0	0.0	0.00	0.30	0.00	73.1
All Vehicles		796	8.0	796	8.0	0.160	4.5	NA	0.3	1.9	0.07	0.38	0.07	73.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - AM (Site Folder: 2021 Base)]

Network: N101 [Base AM 2021 (Network Folder: BASE 2021)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	3	8.0	3	8.0	0.023	7.1	LOS A	0.0	0.0	0.00	0.05	0.00	78.3
2	T1	40	8.0	40	8.0	0.023	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	78.3
Approach		43	8.0	43	8.0	0.023	0.5	NA	0.0	0.0	0.00	0.05	0.00	78.3
North: Barry Avenue														
8	T1	165	8.0	165	8.0	0.089	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
9	R2	117	8.0	117	8.0	0.070	7.0	LOS A	0.1	1.0	0.13	0.60	0.13	76.5
Approach		282	8.0	282	8.0	0.089	2.9	NA	0.1	1.0	0.05	0.25	0.05	78.6
West: Catherine Fields Rd														
10	L2	159	8.0	159	8.0	0.109	7.2	LOS A	0.2	1.4	0.12	0.59	0.12	73.6
12	R2	3	8.0	3	8.0	0.109	9.2	LOS A	0.2	1.4	0.12	0.59	0.12	71.1
Approach		162	8.0	162	8.0	0.109	7.3	LOS A	0.2	1.4	0.12	0.59	0.12	73.5
All Vehicles		487	8.0	487	8.0	0.109	4.2	NA	0.2	1.4	0.07	0.35	0.07	77.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - AM (Site Folder: 2021 Base)]

Network: N101 [Base AM 2021 (Network Folder: BASE 2021)]

Catherine Fields Road Entry
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	161	8.0	161	8.0	0.089	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
3	R2	1	8.0	1	8.0	0.089	6.3	LOS A	0.0	0.0	0.00	0.00	0.00	55.6
Approach		162	8.0	162	8.0	0.089	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.6
North: Catherine Fields Rd														
7	L2	1	8.0	1	8.0	0.067	5.7	LOS A	0.0	0.0	0.00	0.01	0.00	59.1
8	T1	121	8.0	121	8.0	0.067	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach		122	8.0	122	8.0	0.067	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles		284	8.0	284	8.0	0.089	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: ASON GROUP PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 2 April 2022 12:54:18 AM
Project: C:\Users\Meg Kong\Ason Group\Ason Group Team Site - Ason SL3 (Engineer)\Projects\1700-1799\1769\Projects\5. Modelling \1769m01v01 Minarah_2021 Base - TL Version.sip9

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - AM (Site Folder: 2021 Base)]

Network: N101 [Base AM 2021 (Network Folder: BASE 2021)]

Catherine Fields Road Exit
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	161	8.0	161	8.0	0.088	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		161	8.0	161	8.0	0.088	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
East: School Exit														
4	L2	1	8.0	1	8.0	0.002	6.0	LOS A	0.0	0.0	0.24	0.56	0.24	49.5
6	R2	1	8.0	1	8.0	0.002	6.9	LOS A	0.0	0.0	0.24	0.56	0.24	49.5
Approach		2	8.0	2	8.0	0.002	6.4	LOS A	0.0	0.0	0.24	0.56	0.24	49.5
North: Catherine Fields Rd														
8	T1	121	8.0	121	8.0	0.066	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		121	8.0	121	8.0	0.066	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
All Vehicles		284	8.0	284	8.0	0.088	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - AM (Site Folder: 2021 Base)]

Network: N101 [Base AM 2021 (Network Folder: BASE 2021)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	24	8.0	24	8.0	0.057	5.7	LOS A	0.0	0.0	0.00	0.14	0.00	58.6
2	T1	79	8.0	79	8.0	0.057	0.1	LOS A	0.0	0.0	0.00	0.14	0.00	59.3
Approach		103	8.0	103	8.0	0.057	1.4	NA	0.0	0.0	0.00	0.14	0.00	59.1
North: Catherine Fields Rd														
8	T1	40	8.0	40	8.0	0.074	0.3	LOS A	0.1	1.0	0.22	0.38	0.22	52.4
9	R2	81	8.0	81	8.0	0.074	5.9	LOS A	0.1	1.0	0.22	0.38	0.22	53.5
Approach		121	8.0	121	8.0	0.074	4.1	NA	0.1	1.0	0.22	0.38	0.22	53.3
West: Springfield Rd														
10	L2	82	8.0	82	8.0	0.090	7.4	LOS A	0.1	1.1	0.18	0.61	0.18	60.3
12	R2	35	8.0	35	8.0	0.090	7.7	LOS A	0.1	1.1	0.18	0.61	0.18	60.3
Approach		117	8.0	117	8.0	0.090	7.4	LOS A	0.1	1.1	0.18	0.61	0.18	60.3
All Vehicles		341	8.0	341	8.0	0.090	4.4	NA	0.1	1.1	0.14	0.39	0.14	57.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - AM (Site Folder: 2021 Base)]

Network: N101 [Base AM 2021 (Network Folder: BASE 2021)]

Camden Valley Way/ Catherine Fields Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	5	8.0	5	8.0	0.078	75.2	LOS F	0.4	3.1	0.95	0.67	0.95	30.4
2	T1	5	8.0	5	8.0	* 0.078	66.1	LOS E	0.4	3.1	0.95	0.67	0.95	20.3
3	R2	25	8.0	25	8.0	0.285	80.6	LOS F	1.1	8.1	1.00	0.71	1.00	28.1
Approach		36	8.0	36	8.0	0.285	77.7	LOS F	1.1	8.1	0.98	0.70	0.98	27.6
East: Camden Valley Way														
4	L2	19	8.0	19	8.0	0.027	13.8	LOS A	0.4	3.3	0.32	0.54	0.32	60.5
5	T1	1635	8.0	1635	8.0	0.650	13.4	LOS A	19.0	141.3	0.61	0.57	0.61	62.0
6	R2	63	8.0	63	8.0	* 0.240	48.5	LOS D	1.4	10.2	0.95	0.72	0.95	26.3
Approach		1717	8.0	1717	8.0	0.650	14.7	LOS B	19.0	141.3	0.62	0.57	0.62	60.4
North: Catherine Fields Rd														
7	L2	28	8.0	28	8.0	0.089	48.4	LOS D	0.9	6.4	0.87	0.71	0.87	54.9
8	T1	3	8.0	3	8.0	0.024	66.1	LOS E	0.1	0.9	0.95	0.60	0.95	50.3
9	R2	43	8.0	43	8.0	* 0.499	82.0	LOS F	1.9	14.1	1.00	0.74	1.00	45.0
Approach		75	8.0	75	8.0	0.499	68.6	LOS E	1.9	14.1	0.95	0.72	0.95	48.6
West: Camden Valley Way														
10	L2	35	8.0	35	8.0	0.035	12.7	LOS A	0.4	3.0	0.38	0.62	0.38	53.9
11	T1	1919	8.0	1919	8.0	* 0.882	30.6	LOS C	36.1	269.5	0.92	0.89	0.96	48.1
12	R2	9	8.0	9	8.0	0.093	77.3	LOS F	0.4	2.9	0.97	0.67	0.97	28.6
Approach		1963	8.0	1963	8.0	0.882	30.5	LOS C	36.1	269.5	0.91	0.88	0.95	47.9
All Vehicles		3791	8.0	3791	8.0	0.882	24.5	LOS B	36.1	269.5	0.78	0.74	0.80	52.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way										
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B	Slip/ Bypass	53	31.6	LOS D	0.1	0.1	0.92	0.92	189.7	205.5	1.08
All Pedestrians		263	57.7	LOS E	0.2	0.2	0.95	0.95	230.4	224.4	0.97

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

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - PM (Site Folder: 2021 Base)]

Network: N101 [Base PM 2021 (Network Folder: BASE 2021)]

Camden Valley Way/ Catherine Fields Road
Site Category: 2021 Base
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	9	8.0	9	8.0	0.127	75.7	LOS F	0.8	5.6	0.96	0.69	0.96	30.6
2	T1	9	8.0	9	8.0	* 0.127	65.5	LOS E	0.8	5.6	0.96	0.69	0.96	20.4
3	R2	27	8.0	27	8.0	0.270	79.1	LOS F	1.2	8.6	0.99	0.72	0.99	28.4
Approach		46	8.0	46	8.0	0.270	75.6	LOS F	1.2	8.6	0.98	0.71	0.98	27.6
East: Camden Valley Way														
4	L2	28	8.0	28	8.0	0.032	14.1	LOS A	0.5	3.9	0.33	0.59	0.33	59.1
5	T1	2000	8.0	2000	8.0	* 0.828	18.5	LOS B	30.2	225.1	0.80	0.75	0.80	57.1
6	R2	102	8.0	102	8.0	* 0.323	45.4	LOS D	2.1	15.8	0.94	0.75	0.94	27.5
Approach		2131	8.0	2131	8.0	0.828	19.7	LOS B	30.2	225.1	0.80	0.74	0.80	55.6
North: Catherine Fields Rd														
7	L2	28	8.0	28	8.0	0.076	43.4	LOS D	0.8	6.0	0.84	0.71	0.84	56.3
8	T1	2	8.0	2	8.0	0.014	64.5	LOS E	0.1	0.6	0.94	0.58	0.94	50.8
9	R2	59	8.0	59	8.0	* 0.596	81.6	LOS F	2.6	19.3	1.00	0.77	1.05	45.1
Approach		89	8.0	89	8.0	0.596	69.1	LOS E	2.6	19.3	0.95	0.75	0.98	48.3
West: Camden Valley Way														
10	L2	59	8.0	59	8.0	0.066	13.6	LOS A	0.7	5.9	0.42	0.63	0.42	52.8
11	T1	1589	8.0	1589	8.0	0.775	25.7	LOS B	25.6	190.2	0.84	0.77	0.84	51.3
12	R2	9	8.0	9	8.0	0.083	75.8	LOS F	0.4	2.9	0.97	0.68	0.97	28.9
Approach		1658	8.0	1658	8.0	0.775	25.6	LOS B	25.6	190.2	0.82	0.77	0.82	51.1
All Vehicles		3924	8.0	3924	8.0	0.828	24.0	LOS B	30.2	225.1	0.81	0.75	0.81	52.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B	Slip/ Bypass	53	30.5	LOS D	0.1	0.1	0.92	0.92	188.6	205.5	1.09
All Pedestrians		263	57.5	LOS E	0.2	0.2	0.95	0.95	230.1	224.4	0.98

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - PM (Site Folder: 2021 Base)]

Network: N101 [Base PM 2021 (Network Folder: BASE 2021)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	264	8.0	264	8.0	0.189	7.6	LOS A	0.3	2.6	0.26	0.60	0.26	74.3
Approach		264	8.0	264	8.0	0.189	7.6	LOS A	0.3	2.6	0.26	0.60	0.26	74.3
East: Bringelly Rd														
4	L2	317	8.0	317	8.0	0.178	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	263	8.0	263	8.0	0.070	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		580	8.0	580	8.0	0.178	3.9	NA	0.0	0.0	0.00	0.34	0.00	71.8
All Vehicles		844	8.0	844	8.0	0.189	5.1	NA	0.3	2.6	0.08	0.42	0.08	73.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - PM (Site Folder: 2021 Base)]

Network: N101 [Base PM 2021 (Network Folder: BASE 2021)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	3	8.0	3	8.0	0.040	7.1	LOS A	0.0	0.0	0.00	0.03	0.00	79.0
2	T1	72	8.0	72	8.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	79.0
Approach		75	8.0	75	8.0	0.040	0.3	NA	0.0	0.0	0.00	0.03	0.00	79.0
North: Barry Avenue														
8	T1	141	8.0	141	8.0	0.076	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
9	R2	175	8.0	175	8.0	0.108	7.1	LOS A	0.2	1.6	0.19	0.60	0.19	76.4
Approach		316	8.0	316	8.0	0.108	3.9	NA	0.2	1.6	0.10	0.33	0.10	78.1
West: Catherine Fields Rd														
10	L2	193	8.0	193	8.0	0.145	7.4	LOS A	0.3	1.9	0.17	0.59	0.17	73.4
12	R2	11	8.0	11	8.0	0.145	10.0	LOS A	0.3	1.9	0.17	0.59	0.17	70.9
Approach		203	8.0	203	8.0	0.145	7.5	LOS A	0.3	1.9	0.17	0.59	0.17	73.2
All Vehicles		594	8.0	594	8.0	0.145	4.7	NA	0.3	1.9	0.12	0.38	0.12	76.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - PM (Site Folder: 2021 Base)]

Network: N101 [Base PM 2021 (Network Folder: BASE 2021)]

Catherine Fields Road Entry
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	203	8.0	203	8.0	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
3	R2	1	8.0	1	8.0	0.112	6.5	LOS A	0.0	0.0	0.00	0.00	0.00	55.6
Approach		204	8.0	204	8.0	0.112	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.6
North: Catherine Fields Rd														
7	L2	1	8.0	1	8.0	0.098	5.7	LOS A	0.0	0.0	0.00	0.00	0.00	59.1
8	T1	178	8.0	178	8.0	0.098	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		179	8.0	179	8.0	0.098	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		383	8.0	383	8.0	0.112	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - PM (Site Folder: 2021 Base)]

Network: N101 [Base PM 2021 (Network Folder: BASE 2021)]

Catherine Fields Road Exit
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	203	8.0	203	8.0	0.111	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		203	8.0	203	8.0	0.111	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
East: School Exit														
4	L2	1	8.0	1	8.0	0.002	6.2	LOS A	0.0	0.0	0.30	0.56	0.30	49.2
6	R2	1	8.0	1	8.0	0.002	7.4	LOS A	0.0	0.0	0.30	0.56	0.30	49.2
Approach		2	8.0	2	8.0	0.002	6.8	LOS A	0.0	0.0	0.30	0.56	0.30	49.2
North: Catherine Fields Rd														
8	T1	178	8.0	178	8.0	0.097	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		178	8.0	178	8.0	0.097	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
All Vehicles		383	8.0	383	8.0	0.111	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - PM (Site Folder: 2021 Base)]

Network: N101 [Base PM 2021 (Network Folder: BASE 2021)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	37	8.0	37	8.0	0.095	5.7	LOS A	0.0	0.0	0.00	0.13	0.00	58.6
2	T1	134	8.0	134	8.0	0.095	0.1	LOS A	0.0	0.0	0.00	0.13	0.00	59.4
Approach		171	8.0	171	8.0	0.095	1.3	NA	0.0	0.0	0.00	0.13	0.00	59.2
North: Catherine Fields Rd														
8	T1	66	8.0	66	8.0	0.114	0.6	LOS A	0.2	1.6	0.29	0.37	0.29	52.3
9	R2	112	8.0	112	8.0	0.114	6.2	LOS A	0.2	1.6	0.29	0.37	0.29	53.4
Approach		178	8.0	178	8.0	0.114	4.1	NA	0.2	1.6	0.29	0.37	0.29	53.2
West: Springfield Rd														
10	L2	69	8.0	69	8.0	0.076	7.6	LOS A	0.1	0.9	0.25	0.61	0.25	59.8
12	R2	23	8.0	23	8.0	0.076	8.2	LOS A	0.1	0.9	0.25	0.61	0.25	59.8
Approach		93	8.0	93	8.0	0.076	7.7	LOS A	0.1	0.9	0.25	0.61	0.25	59.8
All Vehicles		441	8.0	441	8.0	0.114	3.8	NA	0.2	1.6	0.17	0.33	0.17	57.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix E. Future SIDRA Results

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - AM (Site Folder: 2025 Base)]

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

Camden Valley Way/ Catherine Fields Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	6	8.1	6	8.1	0.093	75.9	LOS F	0.5	3.8	0.96	0.68	0.96	30.4
2	T1	6	8.1	6	8.1	* 0.093	66.3	LOS E	0.5	3.8	0.96	0.68	0.96	20.2
3	R2	27	8.1	27	8.1	0.309	80.8	LOS F	1.2	8.8	1.00	0.72	1.00	28.1
Approach		40	8.1	40	8.1	0.309	77.7	LOS F	1.2	8.8	0.99	0.71	0.99	27.5
East: Camden Valley Way														
4	L2	21	8.1	21	8.1	0.030	14.1	LOS A	0.4	3.7	0.33	0.54	0.33	60.1
5	T1	1798	8.7	1798	8.7	0.719	14.5	LOS B	22.8	170.5	0.67	0.62	0.67	60.8
6	R2	68	8.1	68	8.1	* 0.260	48.6	LOS D	1.5	11.1	0.95	0.73	0.95	26.2
Approach		1887	8.7	1887	8.7	0.719	15.8	LOS B	22.8	170.5	0.67	0.63	0.67	59.3
North: Catherine Fields Rd														
7	L2	32	8.1	32	8.1	0.099	49.3	LOS D	1.0	7.2	0.87	0.71	0.87	54.8
8	T1	3	8.1	3	8.1	0.024	66.1	LOS E	0.1	0.9	0.95	0.60	0.95	50.3
9	R2	47	8.1	47	8.1	* 0.548	82.4	LOS F	2.1	15.5	1.00	0.75	1.03	44.9
Approach		82	8.1	82	8.1	0.548	69.1	LOS E	2.1	15.5	0.95	0.73	0.97	48.5
West: Camden Valley Way														
10	L2	38	8.1	38	8.1	0.039	12.7	LOS A	0.4	3.3	0.38	0.62	0.38	53.9
11	T1	2111	8.4	2111	8.4	* 0.975	63.9	LOS E	56.6	423.9	1.00	1.14	1.25	33.5
12	R2	11	8.1	11	8.1	0.104	77.4	LOS F	0.4	3.3	0.98	0.68	0.98	28.6
Approach		2159	8.4	2159	8.4	0.975	63.0	LOS E	56.6	423.9	0.99	1.13	1.23	33.6
All Vehicles		4168	8.5	4168	8.5	0.975	41.9	LOS C	56.6	423.9	0.84	0.89	0.97	42.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95
West: Camden Valley Way											

P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B	Slip/ Bypass	53	31.6	LOS D	0.1	0.1	0.92	0.92	189.7	205.5	1.08
All Pedestrians		263	57.7	LOS E	0.2	0.2	0.95	0.95	230.4	224.4	0.97

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

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - AM (Site Folder: 2025 Base)]

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

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	26	8.1	26	8.1	0.063	5.7	LOS A	0.0	0.0	0.00	0.14	0.00	58.6
2	T1	86	8.1	86	8.1	0.063	0.1	LOS A	0.0	0.0	0.00	0.14	0.00	59.3
Approach		113	8.1	113	8.1	0.063	1.4	NA	0.0	0.0	0.00	0.14	0.00	59.1
North: Catherine Fields Rd														
8	T1	44	8.1	44	8.1	0.083	0.4	LOS A	0.2	1.2	0.23	0.38	0.23	52.3
9	R2	89	8.1	89	8.1	0.083	5.9	LOS A	0.2	1.2	0.23	0.38	0.23	53.4
Approach		134	8.1	134	8.1	0.083	4.1	NA	0.2	1.2	0.23	0.38	0.23	53.2
West: Springfield Rd														
10	L2	91	8.1	91	8.1	0.100	7.4	LOS A	0.2	1.2	0.19	0.61	0.19	60.2
12	R2	38	8.1	38	8.1	0.100	7.8	LOS A	0.2	1.2	0.19	0.61	0.19	60.2
Approach		128	8.1	128	8.1	0.100	7.5	LOS A	0.2	1.2	0.19	0.61	0.19	60.2
All Vehicles		375	8.1	375	8.1	0.100	4.4	NA	0.2	1.2	0.15	0.39	0.15	57.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - AM (Site Folder: 2025 Base)]

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

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	218	8.1	218	8.1	0.163	7.8	LOS A	0.3	2.1	0.30	0.61	0.30	74.2
Approach		218	8.1	218	8.1	0.163	7.8	LOS A	0.3	2.1	0.30	0.61	0.30	74.2
East: Bringelly Rd														
4	L2	312	8.1	312	8.1	0.176	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	345	8.1	345	8.1	0.092	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		657	8.1	657	8.1	0.176	3.4	NA	0.0	0.0	0.00	0.30	0.00	73.1
All Vehicles		875	8.1	875	8.1	0.176	4.5	NA	0.3	2.1	0.07	0.38	0.07	73.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - AM (Site Folder: 2025 Base)]

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

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	4	8.1	4	8.1	0.026	7.1	LOS A	0.0	0.0	0.00	0.06	0.00	77.9
2	T1	44	8.1	44	8.1	0.026	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	77.9
Approach		48	8.1	48	8.1	0.026	0.6	NA	0.0	0.0	0.00	0.06	0.00	77.9
North: Barry Avenue														
8	T1	182	8.1	182	8.1	0.098	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	128	8.1	128	8.1	0.078	7.0	LOS A	0.1	1.1	0.14	0.60	0.14	76.4
Approach		311	8.1	311	8.1	0.098	2.9	NA	0.1	1.1	0.06	0.25	0.06	78.6
West: Catherine Fields Rd														
10	L2	175	8.1	175	8.1	0.120	7.2	LOS A	0.2	1.6	0.13	0.59	0.13	73.5
12	R2	3	8.1	3	8.1	0.120	9.6	LOS A	0.2	1.6	0.13	0.59	0.13	71.0
Approach		178	8.1	178	8.1	0.120	7.3	LOS A	0.2	1.6	0.13	0.59	0.13	73.5
All Vehicles		537	8.1	537	8.1	0.120	4.2	NA	0.2	1.6	0.08	0.34	0.08	77.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - AM (Site Folder: 2025 Base)]

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

Catherine Fields Road Entry
Site Category: 2025 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	178	8.1	178	8.1	0.098	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
3	R2	1	8.1	1	8.1	0.098	6.3	LOS A	0.0	0.0	0.00	0.00	0.00	55.6
Approach		179	8.1	179	8.1	0.098	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.6
North: Catherine Fields Rd														
7	L2	1	8.1	1	8.1	0.073	5.7	LOS A	0.0	0.0	0.00	0.00	0.00	59.1
8	T1	133	8.1	133	8.1	0.073	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		134	8.1	134	8.1	0.073	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		313	8.1	313	8.1	0.098	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - AM (Site Folder: 2025 Base)]

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

Catherine Fields Road Exit
Site Category: 2025 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	178	8.1	178	8.1	0.098	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		178	8.1	178	8.1	0.098	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
East: School Exit														
4	L2	1	8.1	1	8.1	0.002	6.0	LOS A	0.0	0.0	0.25	0.56	0.25	49.4
6	R2	1	8.1	1	8.1	0.002	7.0	LOS A	0.0	0.0	0.25	0.56	0.25	49.4
Approach		2	8.1	2	8.1	0.002	6.5	LOS A	0.0	0.0	0.25	0.56	0.25	49.4
North: Catherine Fields Rd														
8	T1	133	8.1	133	8.1	0.073	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		133	8.1	133	8.1	0.073	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
All Vehicles		313	8.1	313	8.1	0.098	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - PM (Site Folder: 2025 Base)]

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

Camden Valley Way/ Catherine Fields Road
Site Category: 2021 Base
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	9	7.7	9	7.7	0.127	76.5	LOS F	0.8	5.6	0.96	0.69	0.96	30.6
2	T1	9	7.7	9	7.7	* 0.127	65.5	LOS E	0.8	5.6	0.96	0.69	0.96	20.4
3	R2	29	7.7	29	7.7	0.290	79.2	LOS F	1.2	9.3	0.99	0.72	0.99	28.4
Approach		48	7.7	48	7.7	0.290	76.0	LOS F	1.2	9.3	0.98	0.71	0.98	27.7
East: Camden Valley Way														
4	L2	31	7.7	31	7.7	0.035	14.1	LOS A	0.5	4.2	0.33	0.59	0.33	59.2
5	T1	2199	8.1	2199	8.1	* 0.912	29.6	LOS C	42.4	316.5	0.90	0.90	0.96	48.7
6	R2	113	7.7	113	7.7	* 0.355	45.6	LOS D	2.3	17.5	0.94	0.75	0.94	27.4
Approach		2342	8.0	2342	8.0	0.912	30.2	LOS C	42.4	316.5	0.89	0.89	0.95	47.8
North: Catherine Fields Rd														
7	L2	31	7.7	31	7.7	0.082	43.9	LOS D	0.9	6.4	0.84	0.71	0.84	56.3
8	T1	2	7.7	2	7.7	0.014	64.5	LOS E	0.1	0.6	0.94	0.58	0.94	50.8
9	R2	65	7.7	65	7.7	* 0.659	82.4	LOS F	2.9	21.5	1.00	0.79	1.11	45.0
Approach		98	7.7	98	7.7	0.659	70.0	LOS E	2.9	21.5	0.95	0.76	1.02	48.1
West: Camden Valley Way														
10	L2	65	7.7	65	7.7	0.073	13.7	LOS A	0.8	6.6	0.42	0.63	0.42	52.7
11	T1	1747	8.4	1747	8.4	0.859	30.4	LOS C	31.9	238.2	0.91	0.86	0.93	48.2
12	R2	9	7.7	9	7.7	0.083	75.8	LOS F	0.4	2.9	0.97	0.68	0.97	29.0
Approach		1822	8.4	1822	8.4	0.859	30.0	LOS C	31.9	238.2	0.89	0.85	0.91	48.1
All Vehicles		4311	8.2	4311	8.2	0.912	31.5	LOS C	42.4	316.5	0.89	0.87	0.94	47.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95
West: Camden Valley Way											

P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B	Slip/ Bypass	53	30.5	LOS D	0.1	0.1	0.92	0.92	188.6	205.5	1.09
All Pedestrians		263	57.5	LOS E	0.2	0.2	0.95	0.95	230.1	224.4	0.98

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - PM (Site Folder: 2025 Base)]

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

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	291	7.7	291	7.7	0.211	7.7	LOS A	0.4	2.9	0.28	0.61	0.28	74.3
Approach		291	7.7	291	7.7	0.211	7.7	LOS A	0.4	2.9	0.28	0.61	0.28	74.3
East: Bringelly Rd														
4	L2	348	7.7	348	7.7	0.196	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	291	7.7	291	7.7	0.077	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		639	7.7	639	7.7	0.196	3.9	NA	0.0	0.0	0.00	0.34	0.00	71.8
All Vehicles		929	7.7	929	7.7	0.211	5.1	NA	0.4	2.9	0.09	0.43	0.09	73.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - PM (Site Folder: 2025 Base)] Network: N101 [PM (Network Folder: 2025 Base)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	3	7.7	3	7.7	0.043	7.1	LOS A	0.0	0.0	0.00	0.03	0.00	79.0
2	T1	78	7.7	78	7.7	0.043	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	79.0
Approach		81	7.7	81	7.7	0.043	0.3	NA	0.0	0.0	0.00	0.03	0.00	79.0
North: Barry Avenue														
8	T1	156	7.7	156	7.7	0.084	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
9	R2	193	7.7	193	7.7	0.120	7.1	LOS A	0.2	1.8	0.20	0.60	0.20	76.3
Approach		348	7.7	348	7.7	0.120	4.0	NA	0.2	1.8	0.11	0.33	0.11	78.0
West: Catherine Fields Rd														
10	L2	213	7.7	213	7.7	0.162	7.4	LOS A	0.3	2.2	0.19	0.60	0.19	73.4
12	R2	12	7.7	12	7.7	0.162	10.4	LOS A	0.3	2.2	0.19	0.60	0.19	71.0
Approach		224	7.7	224	7.7	0.162	7.5	LOS A	0.3	2.2	0.19	0.60	0.19	73.2
All Vehicles		654	7.7	654	7.7	0.162	4.7	NA	0.3	2.2	0.12	0.38	0.12	76.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - PM (Site Folder: 2025 Base)]

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

Catherine Fields Road Entry
Site Category: 2025 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	223	7.7	223	7.7	0.123	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
3	R2	1	7.7	1	7.7	0.123	6.6	LOS A	0.0	0.0	0.00	0.00	0.00	55.7
Approach		224	7.7	224	7.7	0.123	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.7
North: Catherine Fields Rd														
7	L2	1	7.7	1	7.7	0.108	5.7	LOS A	0.0	0.0	0.00	0.00	0.00	59.1
8	T1	196	7.7	196	7.7	0.108	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		197	7.7	197	7.7	0.108	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		421	7.7	421	7.7	0.123	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - PM (Site Folder: 2025 Base)]

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

Catherine Fields Road Exit
Site Category: 2025 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	223	7.7	223	7.7	0.122	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		223	7.7	223	7.7	0.122	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
East: School Exit														
4	L2	1	7.7	1	7.7	0.002	6.2	LOS A	0.0	0.0	0.32	0.57	0.32	49.0
6	R2	1	7.7	1	7.7	0.002	7.6	LOS A	0.0	0.0	0.32	0.57	0.32	49.0
Approach		2	7.7	2	7.7	0.002	6.9	LOS A	0.0	0.0	0.32	0.57	0.32	49.0
North: Catherine Fields Rd														
8	T1	196	7.7	196	7.7	0.107	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		196	7.7	196	7.7	0.107	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		421	7.7	421	7.7	0.122	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

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

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

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - PM (Site Folder: 2025 Base)]

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

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	40	7.7	40	7.7	0.103	5.7	LOS A	0.0	0.0	0.00	0.13	0.00	58.6
2	T1	146	7.7	146	7.7	0.103	0.1	LOS A	0.0	0.0	0.00	0.13	0.00	59.4
Approach		186	7.7	186	7.7	0.103	1.3	NA	0.0	0.0	0.00	0.13	0.00	59.2
North: Catherine Fields Rd														
8	T1	73	7.7	73	7.7	0.126	0.6	LOS A	0.2	1.9	0.31	0.38	0.31	52.1
9	R2	123	7.7	123	7.7	0.126	6.3	LOS A	0.2	1.9	0.31	0.38	0.31	53.4
Approach		196	7.7	196	7.7	0.126	4.2	NA	0.2	1.9	0.31	0.38	0.31	53.1
West: Springfield Rd														
10	L2	77	7.7	77	7.7	0.085	7.6	LOS A	0.1	1.0	0.26	0.62	0.26	59.6
12	R2	25	7.7	25	7.7	0.085	8.4	LOS A	0.1	1.0	0.26	0.62	0.26	59.6
Approach		102	7.7	102	7.7	0.085	7.8	LOS A	0.1	1.0	0.26	0.62	0.26	59.6
All Vehicles		484	7.7	484	7.7	0.126	3.8	NA	0.2	1.9	0.18	0.33	0.18	57.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - AM (Site Folder: 2025 Base + Stage 1 (320 Students))]

Network: N101 [AM (Network Folder: 2025 Base + Stage 1 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	6	16.7	6	16.7	0.088	75.1	LOS F	0.5	3.7	0.95	0.68	0.95	29.8
2	T1	5	20.0	5	20.0	* 0.088	65.5	LOS E	0.5	3.7	0.95	0.68	0.95	20.3
3	R2	27	7.7	27	7.7	0.308	80.8	LOS F	1.2	8.7	1.00	0.72	1.00	28.1
Approach		39	10.8	39	10.8	0.308	77.8	LOS F	1.2	8.7	0.98	0.71	0.98	27.6
East: Camden Valley Way														
4	L2	21	10.0	21	10.0	0.030	14.1	LOS A	0.4	3.8	0.33	0.54	0.33	60.0
5	T1	1798	8.0	1798	8.0	0.720	14.5	LOS A	22.5	167.3	0.67	0.62	0.67	60.8
6	R2	119	5.3	119	5.3	* 0.443	49.5	LOS D	2.7	19.5	0.97	0.75	0.97	25.9
Approach		1938	7.9	1938	7.9	0.720	16.6	LOS B	22.5	167.3	0.68	0.63	0.68	58.3
North: Catherine Fields Rd														
7	L2	64	3.3	64	3.3	0.194	50.1	LOS D	2.0	14.3	0.89	0.74	0.89	55.0
8	T1	12	0.0	12	0.0	0.082	66.9	LOS E	0.5	3.2	0.96	0.66	0.96	50.1
9	R2	88	4.8	88	4.8	* 1.000	119.8	LOS F	4.9	36.0	1.00	1.02	1.79	38.0
Approach		164	3.8	164	3.8	1.000	88.9	LOS F	4.9	36.0	0.96	0.89	1.38	44.0
West: Camden Valley Way														
10	L2	79	4.0	79	4.0	0.071	12.8	LOS A	0.8	6.1	0.39	0.66	0.39	52.9
11	T1	2111	8.0	2111	8.0	* 0.983	68.4	LOS E	59.0	440.8	1.00	1.16	1.28	32.2
12	R2	11	10.0	11	10.0	0.105	77.5	LOS F	0.4	3.3	0.98	0.68	0.98	28.4
Approach		2200	7.9	2200	7.9	0.983	66.5	LOS E	59.0	440.8	0.98	1.14	1.25	32.4
All Vehicles		4341	7.8	4341	7.8	1.000	45.2	LOS D	59.0	440.8	0.84	0.90	1.00	40.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B Slip/ Bypass	53	31.6	LOS D	0.1	0.1	0.92	0.92	189.7	205.5	1.08
All Pedestrians	263	57.7	LOS E	0.2	0.2	0.95	0.95	230.4	224.4	0.97

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - AM (Site Folder: 2025 Base + Stage 1 (320 Students))]

Network: N101 [AM (Network Folder: 2025 Base + Stage 1 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	218	8.2	218	8.2	0.163	7.8	LOS A	0.3	2.2	0.30	0.61	0.30	74.2
Approach		218	8.2	218	8.2	0.163	7.8	LOS A	0.3	2.2	0.30	0.61	0.30	74.2
East: Bringelly Rd														
4	L2	344	7.3	344	7.3	0.193	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	345	8.2	345	8.2	0.092	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		689	7.8	689	7.8	0.193	3.6	NA	0.0	0.0	0.00	0.31	0.00	72.6
All Vehicles		907	7.9	907	7.9	0.193	4.6	NA	0.3	2.2	0.07	0.39	0.07	73.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - AM (Site Folder: 2025 Base + Stage 1 (320 Students))]

Network: N101 [AM (Network Folder: 2025 Base + Stage 1 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	4	25.0	4	25.0	0.026	7.4	LOS A	0.0	0.0	0.00	0.06	0.00	78.3
2	T1	44	9.5	44	9.5	0.026	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	78.3
Approach		48	10.9	48	10.9	0.026	0.6	NA	0.0	0.0	0.00	0.06	0.00	78.3
North: Barry Avenue														
8	T1	182	8.1	182	8.1	0.098	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	179	5.9	179	5.9	0.107	6.9	LOS A	0.2	1.5	0.15	0.60	0.15	76.4
Approach		361	7.0	361	7.0	0.107	3.5	NA	0.2	1.5	0.07	0.30	0.07	78.3
West: Catherine Fields Rd														
10	L2	207	6.6	207	6.6	0.140	7.2	LOS A	0.2	1.8	0.13	0.59	0.13	73.5
12	R2	3	0.0	3	0.0	0.140	9.7	LOS A	0.2	1.8	0.13	0.59	0.13	72.5
Approach		211	6.5	211	6.5	0.140	7.3	LOS A	0.2	1.8	0.13	0.59	0.13	73.5
All Vehicles		620	7.1	620	7.1	0.140	4.5	NA	0.2	1.8	0.09	0.38	0.09	77.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - AM (Site Folder: 2025 Base + Stage 1 (320 Students))]

Network: N101 [AM (Network Folder: 2025 Base + Stage 1 Dev)]

Catherine Fields Road Entry
Site Category: 2025 Base + Stage 1 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh.	Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Catherine Fields Rd														
2	T1	211	6.5	211	6.5	0.191	0.4	LOS A	0.3	2.2	0.23	0.20	0.23	34.8
3	R2	116	0.0	116	0.0	0.191	4.6	LOS A	0.3	2.2	0.23	0.20	0.23	38.1
Approach		326	4.2	326	4.2	0.191	1.9	NA	0.3	2.2	0.23	0.20	0.23	37.0
North: Catherine Fields Rd														
7	L2	49	0.0	49	0.0	0.100	3.5	LOS A	0.0	0.0	0.00	0.13	0.00	39.9
8	T1	133	7.9	133	7.9	0.100	0.1	LOS A	0.0	0.0	0.00	0.13	0.00	39.7
Approach		182	5.8	182	5.8	0.100	1.0	NA	0.0	0.0	0.00	0.13	0.00	39.8
All Vehicles		508	4.8	508	4.8	0.191	1.6	NA	0.3	2.2	0.15	0.17	0.15	39.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: ASON GROUP PTY LTD | Licence: NETWORK / 1PC | Processed: Friday, 4 February 2022 3:58:45 PM
Project: C:\Users\Meg Kong\Ason Group\Ason Group Team Site - Ason SL3 (Engineer)\Projects\1700-1799\1769\Projects\5. Modelling \1769m01v01 Minarah_2021 Base - TL Version.sip9

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - AM (Site Folder: 2025 Base + Stage 1 (320 Students))]

Network: N101 [AM (Network Folder: 2025 Base + Stage 1 Dev)]

Catherine Fields Road Exit
Site Category: 2025 Base + Stage 1 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	294	5.0	294	5.0	0.158	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		294	5.0	294	5.0	0.158	0.1	NA	0.0	0.0	0.00	0.00	0.00	40.0
East: School Exit														
4	L2	133	0.0	133	0.0	0.129	3.9	LOS A	0.2	1.5	0.25	0.50	0.25	36.5
6	R2	33	0.0	33	0.0	0.129	5.9	LOS A	0.2	1.5	0.25	0.50	0.25	36.5
Approach		165	0.0	165	0.0	0.129	4.3	LOS A	0.2	1.5	0.25	0.50	0.25	36.5
North: Catherine Fields Rd														
8	T1	133	7.9	133	7.9	0.073	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		133	7.9	133	7.9	0.073	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		592	4.3	592	4.3	0.158	1.2	NA	0.2	1.5	0.07	0.14	0.07	38.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - AM (Site Folder: 2025 Base + Stage 1 (320 Students))]

Network: N101 [AM (Network Folder: 2025 Base + Stage 1 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	26	8.0	26	8.0	0.115	5.7	LOS A	0.0	0.0	0.00	0.07	0.00	58.8
2	T1	186	4.0	186	4.0	0.115	0.1	LOS A	0.0	0.0	0.00	0.07	0.00	59.6
Approach		213	4.5	213	4.5	0.115	0.8	NA	0.0	0.0	0.00	0.07	0.00	59.5
North: Catherine Fields Rd														
8	T1	160	2.6	160	2.6	0.161	0.5	LOS A	0.3	2.0	0.27	0.24	0.27	54.3
9	R2	105	6.0	105	6.0	0.161	6.4	LOS A	0.3	2.0	0.27	0.24	0.27	54.6
Approach		265	4.0	265	4.0	0.161	2.8	NA	0.3	2.0	0.27	0.24	0.27	54.4
West: Springfield Rd														
10	L2	107	6.9	107	6.9	0.129	7.7	LOS A	0.2	1.5	0.31	0.64	0.31	59.3
12	R2	38	8.3	38	8.3	0.129	9.2	LOS A	0.2	1.5	0.31	0.64	0.31	59.3
Approach		145	7.2	145	7.2	0.129	8.1	LOS A	0.2	1.5	0.31	0.64	0.31	59.3
All Vehicles		623	4.9	623	4.9	0.161	3.4	NA	0.3	2.0	0.19	0.28	0.19	58.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - PM (Site Folder: 2025 Base + Stage 1 (320 Students))]

Network: N101 [PM (Network Folder: 2025 Base + Stage 1 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: 2021 Base
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	9	0.0	9	0.0	0.125	76.3	LOS F	0.8	5.5	0.96	0.69	0.96	31.1
2	T1	9	11.1	9	11.1	* 0.125	65.6	LOS E	0.8	5.5	0.96	0.69	0.96	20.4
3	R2	29	7.1	29	7.1	0.289	79.2	LOS F	1.2	9.3	0.99	0.72	0.99	28.5
Approach		48	6.5	48	6.5	0.289	76.0	LOS F	1.2	9.3	0.98	0.71	0.98	27.8
East: Camden Valley Way														
4	L2	31	6.9	31	6.9	0.041	14.8	LOS B	0.6	5.3	0.35	0.57	0.35	59.2
5	T1	2199	8.2	2199	8.2	* 0.916	30.7	LOS C	42.7	318.4	0.89	0.90	0.97	48.0
6	R2	162	5.8	162	5.8	* 0.505	46.4	LOS D	3.5	25.4	0.96	0.77	0.96	27.1
Approach		2392	8.1	2392	8.1	0.916	31.6	LOS C	42.7	318.4	0.89	0.89	0.96	46.8
North: Catherine Fields Rd														
7	L2	64	4.9	64	4.9	0.168	44.7	LOS D	1.9	13.5	0.86	0.74	0.86	56.3
8	T1	11	0.0	11	0.0	0.068	65.5	LOS E	0.4	2.9	0.95	0.65	0.95	50.5
9	R2	106	5.0	106	5.0	* 1.054	150.0	LOS F	6.8	49.9	1.00	1.10	1.96	33.2
Approach		181	4.7	181	4.7	1.054	107.8	LOS F	6.8	49.9	0.95	0.95	1.51	39.7
West: Camden Valley Way														
10	L2	106	5.0	106	5.0	0.097	13.8	LOS A	1.1	8.5	0.43	0.68	0.43	51.2
11	T1	1747	7.6	1747	7.6	0.866	31.4	LOS C	32.8	244.2	0.91	0.87	0.94	47.5
12	R2	9	0.0	9	0.0	0.079	75.5	LOS F	0.4	2.7	0.97	0.67	0.97	29.5
Approach		1863	7.4	1863	7.4	0.866	30.6	LOS C	32.8	244.2	0.88	0.86	0.91	47.5
All Vehicles		4484	7.6	4484	7.6	1.054	34.7	LOS C	42.7	318.4	0.89	0.88	0.96	46.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B Slip/ Bypass	53	30.5	LOS D	0.1	0.1	0.92	0.92	188.6	205.5	1.09
All Pedestrians	263	57.5	LOS E	0.2	0.2	0.95	0.95	230.1	224.4	0.98

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

MOVEMENT SUMMARY

▽ **Site: 1 [1. Bringelly Rd/ Allenby Rd - PM (Site Folder: 2025 Base + Stage 1 (320 Students))]**

Network: N101 [PM (Network Folder: 2025 Base + Stage 1 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance													
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	291	8.0	291	8.0	0.211	7.7	LOS A	0.4	2.9	0.28	0.61	0.28	74.3
Approach		291	8.0	291	8.0	0.211	7.7	LOS A	0.4	2.9	0.28	0.61	0.28	74.3
East: Bringelly Rd														
4	L2	381	7.2	381	7.2	0.213	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	291	8.3	291	8.3	0.078	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		672	7.7	672	7.7	0.213	4.0	NA	0.0	0.0	0.00	0.36	0.00	71.4
All Vehicles		962	7.8	962	7.8	0.213	5.1	NA	0.4	2.9	0.09	0.43	0.09	73.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: C:\Users\Meg Kong\Ason Group\Ason Group Team Site - Ason SL3 (Engineer)\Projects\1700-1799\1769\Projects\5. Modelling \1769m01v01 Minarah_2021 Base - TL Version.sip9

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - PM (Site Folder: 2025 Base + Stage 1 (320 Students))] **Network: N101 [PM (Network Folder: 2025 Base + Stage 1 Dev)]**

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	3	0.0	3	0.0	0.043	7.0	LOS A	0.0	0.0	0.00	0.03	0.00	79.0
2	T1	78	8.1	78	8.1	0.043	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	79.0
Approach		81	7.8	81	7.8	0.043	0.3	NA	0.0	0.0	0.00	0.03	0.00	79.0
North: Barry Avenue														
8	T1	156	8.1	156	8.1	0.084	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
9	R2	242	6.5	242	6.5	0.150	7.1	LOS A	0.3	2.2	0.20	0.60	0.20	76.3
Approach		398	7.1	398	7.1	0.150	4.3	NA	0.3	2.2	0.12	0.36	0.12	77.8
West: Catherine Fields Rd														
10	L2	245	6.9	245	6.9	0.185	7.4	LOS A	0.3	2.5	0.19	0.60	0.19	73.3
12	R2	12	9.1	12	9.1	0.185	11.3	LOS A	0.3	2.5	0.19	0.60	0.19	70.7
Approach		257	7.0	257	7.0	0.185	7.5	LOS A	0.3	2.5	0.19	0.60	0.19	73.2
All Vehicles		736	7.2	736	7.2	0.185	5.0	NA	0.3	2.5	0.13	0.41	0.13	76.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - PM (Site Folder: 2025 Base + Stage 1 (320 Students))]

Network: N101 [PM (Network Folder: 2025 Base + Stage 1 Dev)]

Catherine Fields Road Entry
Site Category: 2025 Base + Stage 1 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	257	7.0	257	7.0	0.221	0.5	LOS A	0.3	2.5	0.26	0.18	0.26	34.9
3	R2	116	0.0	116	0.0	0.221	4.9	LOS A	0.3	2.5	0.26	0.18	0.26	38.2
Approach		373	4.8	373	4.8	0.221	1.9	NA	0.3	2.5	0.26	0.18	0.26	36.9
North: Catherine Fields Rd														
7	L2	49	0.0	49	0.0	0.134	3.6	LOS A	0.0	0.0	0.00	0.09	0.00	39.9
8	T1	196	8.1	196	8.1	0.134	0.2	LOS A	0.0	0.0	0.00	0.09	0.00	39.8
Approach		245	6.4	245	6.4	0.134	0.9	NA	0.0	0.0	0.00	0.09	0.00	39.8
All Vehicles		618	5.5	618	5.5	0.221	1.5	NA	0.3	2.5	0.16	0.15	0.16	39.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: ASON GROUP PTY LTD | Licence: NETWORK / 1PC | Processed: Friday, 4 February 2022 3:58:54 PM
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MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - PM (Site Folder: 2025 Base + Stage 1 (320 Students))]

Network: N101 [PM (Network Folder: 2025 Base + Stage 1 Dev)]

Catherine Fields Road Exit
Site Category: 2025 Base + Stage 1 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	339	5.3	339	5.3	0.183	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		339	5.3	339	5.3	0.183	0.1	NA	0.0	0.0	0.00	0.00	0.00	39.9
East: School Exit														
4	L2	133	0.0	133	0.0	0.140	4.1	LOS A	0.2	1.6	0.32	0.53	0.32	36.3
6	R2	33	0.0	33	0.0	0.140	6.7	LOS A	0.2	1.6	0.32	0.53	0.32	36.3
Approach		165	0.0	165	0.0	0.140	4.6	LOS A	0.2	1.6	0.32	0.53	0.32	36.3
North: Catherine Fields Rd														
8	T1	196	8.1	196	8.1	0.107	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		196	8.1	196	8.1	0.107	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		700	4.8	700	4.8	0.183	1.1	NA	0.2	1.6	0.07	0.13	0.07	38.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - PM (Site Folder: 2025 Base + Stage 1 (320 Students))]

Network: N101 [PM (Network Folder: 2025 Base + Stage 1 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	40	7.9	40	7.9	0.155	5.8	LOS A	0.0	0.0	0.00	0.08	0.00	58.8
2	T1	246	4.7	246	4.7	0.155	0.2	LOS A	0.0	0.0	0.00	0.08	0.00	59.5
Approach		286	5.1	286	5.1	0.155	0.9	NA	0.0	0.0	0.00	0.08	0.00	59.4
North: Catherine Fields Rd														
8	T1	188	2.8	188	2.8	0.211	0.9	LOS A	0.4	3.0	0.36	0.27	0.36	53.5
9	R2	140	7.5	140	7.5	0.211	6.8	LOS A	0.4	3.0	0.36	0.27	0.36	54.1
Approach		328	4.8	328	4.8	0.211	3.4	NA	0.4	3.0	0.36	0.27	0.36	53.9
West: Springfield Rd														
10	L2	94	6.7	94	6.7	0.112	8.0	LOS A	0.2	1.3	0.36	0.66	0.36	58.8
12	R2	25	8.3	25	8.3	0.112	10.1	LOS A	0.2	1.3	0.36	0.66	0.36	58.8
Approach		119	7.1	119	7.1	0.112	8.4	LOS A	0.2	1.3	0.36	0.66	0.36	58.8
All Vehicles		734	5.3	734	5.3	0.211	3.3	NA	0.4	3.0	0.22	0.26	0.22	57.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - AM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [AM (Network Folder: 2031 Base + Stage 2 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	6	0.0	6	0.0	0.213	77.7	LOS F	1.2	8.4	0.97	0.71	0.97	31.3
2	T1	23	0.0	23	0.0	* 0.213	67.6	LOS E	1.2	8.4	0.97	0.71	0.97	20.6
3	R2	31	6.9	31	6.9	0.341	81.0	LOS F	1.3	9.7	1.00	0.72	1.00	28.1
Approach		60	3.5	60	3.5	0.341	75.5	LOS F	1.3	9.7	0.99	0.72	0.99	26.1
East: Camden Valley Way														
4	L2	24	8.7	24	8.7	0.034	14.1	LOS A	0.5	4.3	0.33	0.54	0.33	60.0
5	T1	2043	8.0	2043	8.0	0.823	16.5	LOS B	29.2	217.4	0.76	0.71	0.76	58.8
6	R2	179	3.5	179	3.5	* 0.659	51.4	LOS D	4.2	30.0	0.99	0.79	1.02	25.3
Approach		2246	7.6	2246	7.6	0.823	19.3	LOS B	29.2	217.4	0.77	0.72	0.78	55.7
North: Catherine Fields Rd														
7	L2	103	3.1	103	3.1	0.312	51.4	LOS D	3.3	23.6	0.91	0.77	0.91	54.7
8	T1	21	5.0	21	5.0	0.154	67.8	LOS E	0.9	6.2	0.97	0.69	0.97	49.9
9	R2	138	3.1	138	3.1	* 1.541	552.7	LOS F	18.6	133.4	1.00	1.58	3.50	12.9
Approach		262	3.2	262	3.2	1.541	316.5	LOS F	18.6	133.4	0.96	1.19	2.28	20.1
West: Camden Valley Way														
10	L2	127	2.5	127	2.5	0.110	13.0	LOS A	1.3	9.7	0.41	0.68	0.41	52.4
11	T1	2398	8.0	2398	8.0	* 1.125	174.2	LOS F	100.8	752.1	1.00	1.67	1.91	16.5
12	R2	13	8.3	13	8.3	0.125	77.7	LOS F	0.5	3.9	0.98	0.69	0.98	28.5
Approach		2538	7.7	2538	7.7	1.125	165.6	LOS F	100.8	752.1	0.97	1.61	1.83	16.8
All Vehicles		5106	7.4	5106	7.4	1.541	107.9	LOS F	100.8	752.1	0.88	1.19	1.38	24.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B Slip/ Bypass	53	31.6	LOS D	0.1	0.1	0.92	0.92	189.7	205.5	1.08
All Pedestrians	263	57.7	LOS E	0.2	0.2	0.95	0.95	230.4	224.4	0.97

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

Organisation: ASON GROUP PTY LTD | Licence: NETWORK / 1PC | Processed: Friday, 4 February 2022 3:59:25 PM
Project: C:\Users\Meg Kong\Ason Group\Ason Group Team Site - Ason SL3 (Engineer)\Projects\1700-1799\1769\Projects\5. Modelling \1769m01v01 Minarah_2021 Base - TL Version.sip9

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - AM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [AM (Network Folder: 2031 Base + Stage 2 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	248	8.1	248	8.1	0.190	7.9	LOS A	0.3	2.5	0.33	0.63	0.33	74.2
Approach		248	8.1	248	8.1	0.190	7.9	LOS A	0.3	2.5	0.33	0.63	0.33	74.2
East: Bringelly Rd														
4	L2	421	6.8	421	6.8	0.235	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	392	8.1	392	8.1	0.105	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		813	7.4	813	7.4	0.235	3.7	NA	0.0	0.0	0.00	0.33	0.00	72.3
All Vehicles		1061	7.5	1061	7.5	0.235	4.7	NA	0.3	2.5	0.08	0.40	0.08	73.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - AM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [AM (Network Folder: 2031 Base + Stage 2 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	4	0.0	4	0.0	0.028	6.9	LOS A	0.0	0.0	0.00	0.05	0.00	78.0
2	T1	49	6.4	49	6.4	0.028	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	78.0
Approach		54	5.9	54	5.9	0.028	0.5	NA	0.0	0.0	0.00	0.05	0.00	78.0
North: Barry Avenue														
8	T1	207	8.1	207	8.1	0.112	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	247	4.7	247	4.7	0.148	6.9	LOS A	0.3	2.2	0.16	0.60	0.16	76.4
Approach		455	6.3	455	6.2	0.148	3.8	NA	0.3	2.2	0.09	0.33	0.09	78.1
West: Catherine Fields Rd														
10	L2	265	6.0	265	6.0	0.179	7.2	LOS A	0.3	2.4	0.14	0.59	0.14	73.5
12	R2	3	0.0	3	0.0	0.179	11.0	LOS A	0.3	2.4	0.14	0.59	0.14	72.5
Approach		268	5.9	268	5.9	0.179	7.3	LOS A	0.3	2.4	0.14	0.59	0.14	73.5
All Vehicles		777	6.1	777	6.1	0.179	4.8	NA	0.3	2.4	0.10	0.40	0.10	77.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: ASON GROUP PTY LTD | Licence: NETWORK / 1PC | Processed: Friday, 4 February 2022 3:59:25 PM
Project: C:\Users\Meg Kong\Ason Group\Ason Group Team Site - Ason SL3 (Engineer)\Projects\1700-1799\1769\Projects\5. Modelling \1769m01v01 Minarah_2021 Base - TL Version.sip9

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - AM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [AM (Network Folder: 2031 Base + Stage 2 Dev)]

Catherine Fields Road Entry
Site Category: 2025 Base + Stage 1 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	269	6.3	269	6.2	0.313	0.8	LOS A	0.7	4.9	0.37	0.29	0.37	33.1
3	R2	236	0.0	236	0.0	0.313	5.1	LOS A	0.7	4.9	0.37	0.29	0.37	37.6
Approach		505	3.3	505	3.3	0.313	2.8	NA	0.7	4.9	0.37	0.29	0.37	36.5
North: Catherine Fields Rd														
7	L2	101	0.0	101	0.0	0.138	3.6	LOS A	0.0	0.0	0.00	0.19	0.00	39.8
8	T1	151	7.7	151	7.7	0.138	0.2	LOS A	0.0	0.0	0.00	0.19	0.00	39.6
Approach		252	4.6	252	4.6	0.138	1.5	NA	0.0	0.0	0.00	0.19	0.00	39.7
All Vehicles		757	3.8	757	3.8	0.313	2.4	NA	0.7	4.9	0.25	0.25	0.25	38.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - AM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [AM (Network Folder: 2031 Base + Stage 2 Dev)]

Catherine Fields Road Exit
Site Category: 2025 Base + Stage 1 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	437	96.4	437	96.4	0.370	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
Approach		437	96.4	437	96.4	0.370	0.3	NA	0.0	0.0	0.00	0.00	0.00	39.8
East: School Exit														
4	L2	269	0.0	269	0.0	0.314	4.0	LOS A	0.5	3.8	0.30	0.53	0.30	35.9
6	R2	67	0.0	67	0.0	0.314	10.1	LOS A	0.5	3.8	0.30	0.53	0.30	35.9
Approach		337	0.0	337	0.0	0.314	5.2	LOS A	0.5	3.8	0.30	0.53	0.30	35.9
North: Catherine Fields Rd														
8	T1	151	7.7	151	7.7	0.082	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		151	7.7	151	7.7	0.082	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		924	46.8	924	46.8	0.370	2.0	NA	0.5	3.8	0.11	0.19	0.11	38.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - AM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [AM (Network Folder: 2031 Base + Stage 2 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	29	7.1	29	7.1	0.176	5.8	LOS A	0.0	0.0	0.00	0.05	0.00	58.9
2	T1	300	2.5	300	2.5	0.176	0.2	LOS A	0.0	0.0	0.00	0.05	0.00	59.7
Approach		329	2.9	329	2.9	0.176	0.7	NA	0.0	0.0	0.00	0.05	0.00	59.6
North: Catherine Fields Rd														
8	T1	285	1.5	285	1.5	0.261	0.8	LOS A	0.5	3.4	0.33	0.21	0.33	54.5
9	R2	135	6.3	135	6.2	0.261	7.1	LOS A	0.5	3.4	0.33	0.21	0.33	54.7
Approach		420	3.0	420	3.0	0.261	2.9	NA	0.5	3.4	0.33	0.21	0.33	54.6
West: Springfield Rd														
10	L2	137	6.2	137	6.2	0.191	8.3	LOS A	0.3	2.2	0.43	0.70	0.43	57.7
12	R2	43	7.3	43	7.3	0.191	11.6	LOS A	0.3	2.2	0.43	0.70	0.43	57.7
Approach		180	6.4	180	6.4	0.191	9.1	LOS A	0.3	2.2	0.43	0.70	0.43	57.7
All Vehicles		929	3.6	929	3.6	0.261	3.3	NA	0.5	3.4	0.23	0.25	0.23	58.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - PM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [PM (Network Folder: 2031 Base + Stage 2 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: 2021 Base
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	12	9.1	12	9.1	0.271	79.9	LOS F	1.6	11.9	0.98	0.73	0.98	30.4
2	T1	28	3.7	28	3.7	* 0.271	67.9	LOS E	1.6	11.9	0.98	0.73	0.98	20.4
3	R2	34	9.4	34	9.4	0.335	79.6	LOS F	1.4	10.8	1.00	0.73	1.00	28.2
Approach		74	7.1	74	7.1	0.335	75.2	LOS F	1.6	11.9	0.99	0.73	0.99	26.1
East: Camden Valley Way														
4	L2	35	9.1	35	9.1	0.047	14.9	LOS B	0.7	6.1	0.35	0.57	0.35	59.0
5	T1	2499	8.0	2499	8.0	* 1.044	104.3	LOS F	83.9	624.5	1.00	1.36	1.51	24.4
6	R2	228	4.1	228	4.1	* 0.704	48.2	LOS D	5.1	37.1	0.98	0.80	1.03	26.4
Approach		2762	7.7	2762	7.7	1.044	98.5	LOS F	83.9	624.5	0.99	1.30	1.46	24.6
North: Catherine Fields Rd														
7	L2	102	3.1	102	3.1	0.264	46.3	LOS D	3.0	21.8	0.88	0.76	0.88	56.2
8	T1	19	0.0	19	0.0	0.122	66.2	LOS E	0.8	5.3	0.96	0.68	0.96	50.3
9	R2	158	4.0	158	4.0	* 1.555	564.2	LOS F	21.5	155.3	1.00	1.64	3.52	12.7
Approach		279	3.4	279	3.4	1.555	340.8	LOS F	21.5	155.3	0.95	1.25	2.38	19.0
West: Camden Valley Way														
10	L2	158	4.0	158	4.0	0.148	14.1	LOS A	1.8	13.7	0.45	0.69	0.45	51.2
11	T1	1986	8.0	1986	8.0	1.001	84.5	LOS F	61.3	456.2	1.00	1.22	1.37	28.3
12	R2	12	9.1	12	9.1	0.102	76.1	LOS F	0.5	3.6	0.97	0.68	0.97	28.8
Approach		2156	7.7	2156	7.7	1.001	79.3	LOS F	61.3	456.2	0.96	1.18	1.30	28.7
All Vehicles		5271	7.5	5271	7.5	1.555	103.2	LOS F	83.9	624.5	0.97	1.24	1.43	25.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B	Slip/ Bypass	53	30.5	LOS D	0.1	0.1	0.92	0.92	188.6	205.5	1.09
All Pedestrians		263	57.5	LOS E	0.2	0.2	0.95	0.95	230.1	224.4	0.98

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

MOVEMENT SUMMARY

▽ Site: 1 [1. Bringelly Rd/ Allenby Rd - PM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [PM (Network Folder: 2031 Base + Stage 2 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	331	8.0	331	8.0	0.245	7.8	LOS A	0.5	3.5	0.31	0.62	0.31	74.2
Approach		331	8.0	331	8.0	0.245	7.8	LOS A	0.5	3.5	0.31	0.62	0.31	74.2
East: Bringelly Rd														
4	L2	463	6.8	463	6.8	0.259	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	329	8.0	329	8.0	0.088	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		793	7.3	793	7.3	0.259	4.2	NA	0.0	0.0	0.00	0.37	0.00	71.1
All Vehicles		1123	7.5	1123	7.5	0.259	5.2	NA	0.5	3.5	0.09	0.44	0.09	73.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - PM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [PM (Network Folder: 2031 Base + Stage 2 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	3	0.0	3	0.0	0.050	7.0	LOS A	0.0	0.0	0.00	0.02	0.00	79.1
2	T1	89	8.2	89	8.2	0.050	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	79.1
Approach		93	8.0	93	8.0	0.050	0.2	NA	0.0	0.0	0.00	0.02	0.00	79.1
North: Barry Avenue														
8	T1	177	7.7	177	7.7	0.095	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	320	5.6	320	5.6	0.199	7.1	LOS A	0.4	3.1	0.23	0.60	0.23	76.3
Approach		497	6.4	497	6.4	0.199	4.6	NA	0.4	3.1	0.15	0.39	0.15	77.7
West: Catherine Fields Rd														
10	L2	308	6.1	308	6.1	0.234	7.4	LOS A	0.4	3.3	0.21	0.60	0.21	73.3
12	R2	13	8.3	13	8.3	0.234	13.2	LOS A	0.4	3.3	0.21	0.60	0.21	70.8
Approach		321	6.2	321	6.2	0.234	7.6	LOS A	0.4	3.3	0.21	0.60	0.21	73.1
All Vehicles		911	6.5	911	6.5	0.234	5.2	NA	0.4	3.3	0.16	0.42	0.16	76.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - PM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [PM (Network Folder: 2031 Base + Stage 2 Dev)]

Catherine Fields Road Entry
Site Category: 2036 Base + Stage 2 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	321	6.2	321	6.2	0.354	1.1	LOS A	0.8	5.7	0.42	0.28	0.43	33.0
3	R2	236	0.0	236	0.0	0.354	5.6	LOS A	0.8	5.7	0.42	0.28	0.43	37.6
Approach		557	3.6	557	3.6	0.354	3.0	NA	0.8	5.7	0.42	0.28	0.43	36.3
North: Catherine Fields Rd														
7	L2	101	0.0	101	0.0	0.177	3.6	LOS A	0.0	0.0	0.00	0.15	0.00	39.8
8	T1	222	8.1	222	8.1	0.177	0.2	LOS A	0.0	0.0	0.00	0.15	0.00	39.7
Approach		323	5.5	323	5.5	0.177	1.3	NA	0.0	0.0	0.00	0.15	0.00	39.7
All Vehicles		880	4.3	880	4.3	0.354	2.4	NA	0.8	5.7	0.27	0.23	0.27	38.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - PM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [PM (Network Folder: 2031 Base + Stage 2 Dev)]

Catherine Fields Road Exit
Site Category: 2036 Base + Stage 2 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	489	4.1	489	4.1	0.262	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		489	4.1	489	4.1	0.262	0.1	NA	0.0	0.0	0.00	0.00	0.00	39.9
East: School Exit														
4	L2	269	0.0	269	0.0	0.313	4.3	LOS A	0.6	3.9	0.39	0.58	0.39	35.9
6	R2	67	0.0	67	0.0	0.313	8.9	LOS A	0.6	3.9	0.39	0.58	0.39	35.9
Approach		337	0.0	337	0.0	0.313	5.3	LOS A	0.6	3.9	0.39	0.58	0.39	35.9
North: Catherine Fields Rd														
8	T1	222	8.1	222	8.1	0.122	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		222	8.1	222	8.1	0.122	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1048	3.6	1048	3.6	0.313	1.7	NA	0.6	3.9	0.12	0.19	0.12	38.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - PM (Site Folder: 2031 Base + Stage 2 Dev (650 students))]

Network: N101 [PM (Network Folder: 2031 Base + Stage 2 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	45	7.0	45	7.0	0.222	5.8	LOS A	0.0	0.0	0.00	0.06	0.00	58.8
2	T1	368	3.4	368	3.4	0.222	0.2	LOS A	0.0	0.0	0.00	0.06	0.00	59.6
Approach		414	3.8	414	3.8	0.222	0.9	NA	0.0	0.0	0.00	0.06	0.00	59.5
North: Catherine Fields Rd														
8	T1	318	2.0	318	2.0	0.326	1.5	LOS A	0.7	5.3	0.43	0.25	0.46	53.4
9	R2	174	6.7	174	6.7	0.326	7.9	LOS A	0.7	5.3	0.43	0.25	0.46	54.1
Approach		492	3.6	492	3.6	0.326	3.8	NA	0.7	5.3	0.43	0.25	0.46	53.8
West: Springfield Rd														
10	L2	121	6.1	121	6.1	0.171	8.6	LOS A	0.3	1.9	0.47	0.72	0.47	57.0
12	R2	28	7.4	28	7.4	0.171	13.3	LOS A	0.3	1.9	0.47	0.72	0.47	57.0
Approach		149	6.3	149	6.3	0.171	9.5	LOS A	0.3	1.9	0.47	0.72	0.47	57.0
All Vehicles		1055	4.1	1055	4.1	0.326	3.4	NA	0.7	5.3	0.27	0.25	0.28	57.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - AM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM (Network Folder: 2035 Base + Stage 3 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	7	14.3	7	14.3	0.297	79.5	LOS F	1.6	12.0	0.98	0.73	0.98	30.1
2	T1	33	3.2	33	3.2	* 0.297	68.5	LOS E	1.6	12.0	0.98	0.73	0.98	20.5
3	R2	34	9.4	34	9.4	0.383	81.3	LOS F	1.5	11.0	1.00	0.73	1.00	27.9
Approach		74	7.1	74	7.1	0.383	75.5	LOS F	1.6	12.0	0.99	0.73	0.99	25.4
East: Camden Valley Way														
4	L2	25	8.3	25	8.3	0.036	13.8	LOS A	0.5	4.4	0.32	0.54	0.32	60.4
5	T1	2206	8.0	2206	8.0	0.892	22.2	LOS B	37.4	278.1	0.84	0.82	0.87	53.9
6	R2	237	3.1	237	3.1	* 0.869	62.7	LOS E	6.1	43.5	0.99	0.90	1.20	22.0
Approach		2468	7.5	2468	7.5	0.892	26.0	LOS B	37.4	278.1	0.85	0.82	0.90	50.2
North: Catherine Fields Rd														
7	L2	140	2.3	140	2.3	* 0.421	53.1	LOS D	4.5	32.5	0.94	0.79	0.94	54.2
8	T1	29	0.0	29	0.0	0.209	68.2	LOS E	1.2	8.4	0.98	0.71	0.98	49.8
9	R2	184	2.3	184	2.3	* 2.048	996.6	LOS F	32.1	229.2	1.00	1.89	4.45	7.8
Approach		354	2.1	354	2.1	2.048	545.8	LOS F	32.1	229.2	0.97	1.36	2.77	13.1
West: Camden Valley Way														
10	L2	174	2.4	174	2.4	0.148	13.3	LOS A	1.8	13.3	0.42	0.69	0.42	52.1
11	T1	2589	8.0	2589	8.0	* 1.223	257.3	LOS F	131.4	980.4	1.00	2.00	2.32	12.0
12	R2	13	8.3	13	8.3	0.125	77.7	LOS F	0.5	3.9	0.98	0.69	0.98	28.5
Approach		2776	7.6	2776	7.6	1.223	241.2	LOS F	131.4	980.4	0.96	1.92	2.20	12.3
All Vehicles		5672	7.2	5672	7.2	2.048	164.4	LOS F	131.4	980.4	0.91	1.39	1.65	17.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B Slip/ Bypass	53	31.6	LOS D	0.1	0.1	0.92	0.92	189.7	205.5	1.08
All Pedestrians	263	57.7	LOS E	0.2	0.2	0.95	0.95	230.4	224.4	0.97

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - AM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM (Network Folder: 2035 Base + Stage 3 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	267	7.9	267	7.9	0.207	8.0	LOS A	0.4	2.8	0.35	0.63	0.35	74.2
Approach		267	7.9	267	7.9	0.207	8.0	LOS A	0.4	2.8	0.35	0.63	0.35	74.2
East: Bringelly Rd														
4	L2	483	6.3	483	6.3	0.269	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	423	8.0	423	8.0	0.113	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		906	7.1	906	7.1	0.269	3.8	NA	0.0	0.0	0.00	0.34	0.00	72.0
All Vehicles		1174	7.3	1174	7.3	0.269	4.8	NA	0.4	2.8	0.08	0.40	0.08	73.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - AM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM (Network Folder: 2035 Base + Stage 3 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	5	20.0	5	20.0	0.032	7.3	LOS A	0.0	0.0	0.00	0.06	0.00	78.1
2	T1	54	7.8	54	7.8	0.032	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	78.1
Approach		59	8.9	59	8.9	0.032	0.7	NA	0.0	0.0	0.00	0.06	0.00	78.1
North: Barry Avenue														
8	T1	223	8.0	223	8.0	0.120	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	311	4.1	311	4.1	0.186	7.0	LOS A	0.4	2.8	0.17	0.60	0.17	76.4
Approach		534	5.7	534	5.7	0.186	4.1	NA	0.4	2.8	0.10	0.35	0.10	77.9
West: Catherine Fields Rd														
10	L2	316	5.7	316	5.7	0.217	7.3	LOS A	0.4	3.0	0.16	0.59	0.16	73.4
12	R2	4	25.0	4	25.0	0.217	14.8	LOS B	0.4	3.0	0.16	0.59	0.16	68.1
Approach		320	5.9	320	5.9	0.217	7.4	LOS A	0.4	3.0	0.16	0.59	0.16	73.3
All Vehicles		913	6.0	913	6.0	0.217	5.0	NA	0.4	3.0	0.11	0.41	0.11	76.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - AM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road Entry
Site Category: 2036 Base + Stage 3 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	319	5.3	319	5.3	0.440	1.7	LOS A	1.4	10.0	0.50	0.38	0.58	31.6
3	R2	355	0.0	355	0.0	0.440	6.0	LOS A	1.4	10.0	0.50	0.38	0.58	37.1
Approach		674	2.5	674	2.5	0.440	4.0	NA	1.4	10.0	0.50	0.38	0.58	35.9
North: Catherine Fields Rd														
7	L2	153	0.0	153	0.0	0.173	3.6	LOS A	0.0	0.0	0.00	0.22	0.00	39.7
8	T1	163	8.4	163	8.4	0.173	0.2	LOS A	0.0	0.0	0.00	0.22	0.00	39.5
Approach		316	4.3	316	4.3	0.173	1.9	NA	0.0	0.0	0.00	0.22	0.00	39.6
All Vehicles		989	3.1	989	3.1	0.440	3.3	NA	1.4	10.0	0.34	0.33	0.39	38.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - AM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road Exit
Site Category: 2036 Base + Stage 3 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh.	Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Catherine Fields Rd														
2	T1	573	2.9	573	2.9	0.304	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		573	2.9	573	2.9	0.304	0.1	NA	0.0	0.0	0.00	0.00	0.00	39.9
East: School Exit														
4	L2	405	0.0	405	0.0	0.460	4.7	LOS A	1.2	8.5	0.36	0.59	0.44	35.5
6	R2	101	0.0	101	0.0	0.460	10.8	LOS A	1.2	8.5	0.36	0.59	0.44	35.5
Approach		506	0.0	506	0.0	0.460	5.9	LOS A	1.2	8.5	0.36	0.59	0.44	35.5
North: Catherine Fields Rd														
8	T1	163	8.4	163	8.4	0.090	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		163	8.4	163	8.4	0.090	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1242	2.5	1242	2.5	0.460	2.5	NA	1.2	8.5	0.15	0.24	0.18	37.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - AM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	32	6.7	32	6.7	0.235	5.9	LOS A	0.0	0.0	0.00	0.04	0.00	58.9
2	T1	411	2.1	411	2.1	0.235	0.3	LOS A	0.0	0.0	0.00	0.04	0.00	59.7
Approach		442	2.4	442	2.4	0.235	0.7	NA	0.0	0.0	0.00	0.04	0.00	59.6
North: Catherine Fields Rd														
8	T1	408	1.0	408	1.0	0.363	1.5	LOS A	0.8	6.0	0.39	0.21	0.45	54.1
9	R2	160	5.3	160	5.3	0.363	8.3	LOS A	0.8	6.0	0.39	0.21	0.45	54.5
Approach		568	2.2	568	2.2	0.363	3.4	NA	0.8	6.0	0.39	0.21	0.45	54.3
West: Springfield Rd														
10	L2	162	5.2	162	5.2	0.270	9.0	LOS A	0.4	3.2	0.53	0.78	0.56	55.3
12	R2	46	6.8	46	6.8	0.270	15.5	LOS B	0.4	3.2	0.53	0.78	0.56	55.3
Approach		208	5.6	208	5.6	0.270	10.5	LOS A	0.4	3.2	0.53	0.78	0.56	55.3
All Vehicles		1219	2.8	1219	2.8	0.363	3.6	NA	0.8	6.0	0.27	0.24	0.31	57.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - PM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM (Network Folder: 2035 Base + Stage 3 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: 2021 Base
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	12	0.0	12	0.0	0.329	79.3	LOS F	2.0	14.4	0.98	0.74	0.98	31.3
2	T1	38	2.8	38	2.8	* 0.329	67.6	LOS E	2.0	14.4	0.98	0.74	0.98	20.5
3	R2	36	5.9	36	5.9	0.348	79.6	LOS F	1.5	11.2	1.00	0.73	1.00	28.5
Approach		85	3.7	85	3.7	0.348	74.2	LOS F	2.0	14.4	0.99	0.74	0.99	26.0
East: Camden Valley Way														
4	L2	38	16.7	38	16.7	0.045	14.3	LOS A	0.6	5.6	0.33	0.60	0.33	58.4
5	T1	2699	8.0	2699	8.0	* 1.132	175.2	LOS F	112.6	840.1	1.00	1.69	1.92	16.5
6	R2	289	3.6	289	3.6	* 0.888	60.4	LOS E	7.3	52.9	0.99	0.91	1.21	22.6
Approach		3026	7.7	3026	7.7	1.132	162.2	LOS F	112.6	840.1	0.99	1.60	1.83	16.8
North: Catherine Fields Rd														
7	L2	139	2.3	139	2.3	0.358	47.1	LOS D	4.2	30.1	0.90	0.78	0.90	56.0
8	T1	28	0.0	28	0.0	0.184	66.7	LOS E	1.1	8.0	0.97	0.70	0.97	50.2
9	R2	206	3.1	206	3.1	* 2.018	970.4	LOS F	35.6	255.5	1.00	1.94	4.40	8.0
Approach		374	2.5	374	2.5	2.018	558.4	LOS F	35.6	255.5	0.96	1.42	2.84	12.9
West: Camden Valley Way														
10	L2	206	3.1	206	3.1	0.193	14.5	LOS A	2.4	18.4	0.46	0.70	0.46	50.9
11	T1	2145	8.0	2145	8.0	1.087	144.9	LOS F	83.8	623.3	1.00	1.53	1.74	19.2
12	R2	12	0.0	12	0.0	0.096	75.7	LOS F	0.5	3.3	0.97	0.68	0.97	29.5
Approach		2363	7.5	2363	7.5	1.087	133.2	LOS F	83.8	623.3	0.95	1.45	1.62	19.6
All Vehicles		5848	7.2	5848	7.2	2.018	174.5	LOS F	112.6	840.1	0.97	1.52	1.80	17.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B	Slip/ Bypass	53	30.5	LOS D	0.1	0.1	0.92	0.92	188.6	205.5	1.09
All Pedestrians		263	57.5	LOS E	0.2	0.2	0.95	0.95	230.1	224.4	0.98

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - PM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM (Network Folder: 2035 Base + Stage 3 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	357	8.0	357	8.0	0.268	7.9	LOS A	0.5	3.9	0.33	0.63	0.33	74.2
Approach		357	8.0	357	8.0	0.268	7.9	LOS A	0.5	3.9	0.33	0.63	0.33	74.2
East: Bringelly Rd														
4	L2	528	6.4	528	6.4	0.294	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	356	8.0	356	8.0	0.095	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		884	7.0	884	7.0	0.294	4.3	NA	0.0	0.0	0.00	0.38	0.00	70.8
All Vehicles		1241	7.3	1241	7.3	0.294	5.3	NA	0.5	3.9	0.10	0.45	0.10	73.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - PM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM (Network Folder: 2035 Base + Stage 3 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	4	25.0	4	25.0	0.054	7.4	LOS A	0.0	0.0	0.00	0.03	0.00	79.1
2	T1	96	7.7	96	7.7	0.054	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	79.1
Approach		100	8.4	100	8.4	0.054	0.3	NA	0.0	0.0	0.00	0.03	0.00	79.1
North: Barry Avenue														
8	T1	191	7.7	191	7.7	0.102	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	388	4.9	388	4.9	0.242	7.2	LOS A	0.5	3.9	0.25	0.60	0.25	76.3
Approach		579	5.8	579	5.8	0.242	4.8	NA	0.5	3.9	0.17	0.40	0.17	77.5
West: Catherine Fields Rd														
10	L2	362	5.8	362	5.8	0.278	7.5	LOS A	0.5	4.0	0.23	0.60	0.23	73.2
12	R2	14	7.7	14	7.7	0.278	15.1	LOS B	0.5	4.0	0.23	0.60	0.23	70.9
Approach		376	5.9	376	5.9	0.278	7.7	LOS A	0.5	4.0	0.23	0.60	0.23	73.1
All Vehicles		1055	6.1	1055	6.1	0.278	5.4	NA	0.5	4.0	0.17	0.44	0.17	76.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: 3 [3. Catherine Fields Rd Entry - PM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road Entry
Site Category: 2036 Base + Stage 3 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	376	5.9	376	5.9	0.496	2.5	LOS A	1.9	13.3	0.57	0.42	0.76	30.5
3	R2	355	0.0	355	0.0	0.496	7.0	LOS A	1.9	13.3	0.57	0.42	0.76	36.7
Approach		731	3.0	731	3.0	0.496	4.7	NA	1.9	13.3	0.57	0.42	0.76	35.2
North: Catherine Fields Rd														
7	L2	153	0.0	153	0.0	0.215	3.7	LOS A	0.0	0.0	0.00	0.18	0.00	39.7
8	T1	240	7.9	240	7.9	0.215	0.3	LOS A	0.0	0.0	0.00	0.18	0.00	39.6
Approach		393	4.8	393	4.8	0.215	1.6	NA	0.0	0.0	0.00	0.18	0.00	39.7
All Vehicles		1123	3.7	1123	3.7	0.496	3.6	NA	1.9	13.3	0.37	0.34	0.49	38.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - PM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road Exit
Site Category: 2036 Base + Stage 3 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	629	3.5	629	3.5	0.335	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		629	3.5	629	3.5	0.335	0.1	NA	0.0	0.0	0.00	0.00	0.00	39.9
East: School Exit														
4	L2	405	0.0	405	0.0	0.518	5.8	LOS A	1.5	10.7	0.47	0.73	0.68	34.5
6	R2	101	0.0	101	0.0	0.518	13.6	LOS A	1.5	10.7	0.47	0.73	0.68	34.5
Approach		506	0.0	506	0.0	0.518	7.3	LOS A	1.5	10.7	0.47	0.73	0.68	34.5
North: Catherine Fields Rd														
8	T1	240	7.9	240	7.9	0.131	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		240	7.9	240	7.9	0.131	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1376	3.0	1376	3.0	0.518	2.8	NA	1.5	10.7	0.17	0.27	0.25	37.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - PM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	49	8.5	49	8.5	0.286	6.0	LOS A	0.0	0.0	0.00	0.05	0.00	58.8
2	T1	484	3.0	484	3.0	0.286	0.3	LOS A	0.0	0.0	0.00	0.05	0.00	59.6
Approach		534	3.6	534	3.6	0.286	0.9	NA	0.0	0.0	0.00	0.05	0.00	59.5
North: Catherine Fields Rd														
8	T1	444	1.7	444	1.7	0.448	2.7	LOS A	1.4	10.1	0.51	0.27	0.70	51.8
9	R2	202	6.3	202	6.3	0.448	9.9	LOS A	1.4	10.1	0.51	0.27	0.70	53.3
Approach		646	3.1	646	3.1	0.448	4.9	NA	1.4	10.1	0.51	0.27	0.70	52.5
West: Springfield Rd														
10	L2	145	5.8	145	5.8	0.252	9.5	LOS A	0.4	2.9	0.57	0.81	0.59	54.3
12	R2	31	6.9	31	6.9	0.252	18.6	LOS B	0.4	2.9	0.57	0.81	0.59	54.3
Approach		176	6.0	176	6.0	0.252	11.0	LOS A	0.4	2.9	0.57	0.81	0.59	54.3
All Vehicles		1356	3.6	1356	3.6	0.448	4.1	NA	1.4	10.1	0.32	0.25	0.41	57.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - AM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	7	14.3	7	14.3	0.297	79.5	LOS F	1.6	12.0	0.98	0.73	0.98	30.1
2	T1	33	3.2	33	3.2	* 0.297	68.5	LOS E	1.6	12.0	0.98	0.73	0.98	20.5
3	R2	34	9.4	34	9.4	0.383	81.3	LOS F	1.5	11.0	1.00	0.73	1.00	27.9
Approach		74	7.1	74	7.1	0.383	75.5	LOS F	1.6	12.0	0.99	0.73	0.99	25.4
East: Camden Valley Way														
4	L2	25	8.3	25	8.3	0.036	13.8	LOS A	0.5	4.4	0.32	0.54	0.32	60.4
5	T1	2206	8.0	2206	8.0	0.892	22.2	LOS B	37.4	278.1	0.84	0.82	0.87	53.9
6	R2	237	3.1	237	3.1	* 0.869	62.7	LOS E	6.1	43.5	0.99	0.90	1.20	22.0
Approach		2468	7.5	2468	7.5	0.892	26.0	LOS B	37.4	278.1	0.85	0.82	0.90	50.2
North: Catherine Fields Rd														
7	L2	140	2.3	140	2.3	* 0.421	53.1	LOS D	4.5	32.5	0.94	0.79	0.94	54.2
8	T1	29	0.0	29	0.0	0.209	68.2	LOS E	1.2	8.4	0.98	0.71	0.98	49.8
9	R2	184	2.3	184	2.3	* 2.048	996.6	LOS F	32.1	229.2	1.00	1.89	4.45	7.8
Approach		354	2.1	354	2.1	2.048	545.8	LOS F	32.1	229.2	0.97	1.36	2.77	13.1
West: Camden Valley Way														
10	L2	174	2.4	174	2.4	0.148	13.3	LOS A	1.8	13.3	0.42	0.69	0.42	52.1
11	T1	2589	8.0	2589	8.0	* 1.223	257.3	LOS F	131.4	980.4	1.00	2.00	2.32	12.0
12	R2	13	8.3	13	8.3	0.125	77.7	LOS F	0.5	3.9	0.98	0.69	0.98	28.5
Approach		2776	7.6	2776	7.6	1.223	241.2	LOS F	131.4	980.4	0.96	1.92	2.20	12.3
All Vehicles		5672	7.2	5672	7.2	2.048	164.4	LOS F	131.4	980.4	0.91	1.39	1.65	17.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B Slip/ Bypass	53	31.6	LOS D	0.1	0.1	0.92	0.92	189.7	205.5	1.08
All Pedestrians	263	57.7	LOS E	0.2	0.2	0.95	0.95	230.4	224.4	0.97

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

Organisation: ASON GROUP PTY LTD | Licence: NETWORK / 1PC | Processed: Friday, 4 February 2022 3:59:57 PM
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MOVEMENT SUMMARY

▽ Site: 1 [1. Bringelly Rd/ Allenby Rd - AM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	267	7.9	267	7.9	0.207	8.0	LOS A	0.4	2.8	0.35	0.63	0.35	74.2
Approach		267	7.9	267	7.9	0.207	8.0	LOS A	0.4	2.8	0.35	0.63	0.35	74.2
East: Bringelly Rd														
4	L2	483	6.3	483	6.3	0.269	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	423	8.0	423	8.0	0.113	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		906	7.1	906	7.1	0.269	3.8	NA	0.0	0.0	0.00	0.34	0.00	72.0
All Vehicles		1174	7.3	1174	7.3	0.269	4.8	NA	0.4	2.8	0.08	0.40	0.08	73.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: ASON GROUP PTY LTD | Licence: NETWORK / 1PC | Processed: Friday, 4 February 2022 3:59:57 PM
Project: C:\Users\Meg Kong\Ason Group\Ason Group Team Site - Ason SL3 (Engineer)\Projects\1700-1799\1769\Projects\5. Modelling \1769m01v01 Minarah_2021 Base - TL Version.sip9

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - AM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	5	20.0	5	20.0	0.032	7.3	LOS A	0.0	0.0	0.00	0.06	0.00	78.1
2	T1	54	7.8	54	7.8	0.032	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	78.1
Approach		59	8.9	59	8.9	0.032	0.7	NA	0.0	0.0	0.00	0.06	0.00	78.1
North: Barry Avenue														
8	T1	223	8.0	223	8.0	0.120	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	311	4.1	311	4.1	0.186	7.0	LOS A	0.4	2.8	0.17	0.60	0.17	76.4
Approach		534	5.7	534	5.7	0.186	4.1	NA	0.4	2.8	0.10	0.35	0.10	77.9
West: Catherine Fields Rd														
10	L2	316	5.7	316	5.7	0.217	7.3	LOS A	0.4	3.0	0.16	0.59	0.16	73.4
12	R2	4	25.0	4	25.0	0.217	14.8	LOS B	0.4	3.0	0.16	0.59	0.16	68.1
Approach		320	5.9	320	5.9	0.217	7.4	LOS A	0.4	3.0	0.16	0.59	0.16	73.3
All Vehicles		913	6.0	913	6.0	0.217	5.0	NA	0.4	3.0	0.11	0.41	0.11	76.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - AM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road Entry
Site Category: 2036 Base + Stage 3 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	319	5.3	319	5.3	0.440	1.7	LOS A	1.4	10.0	0.50	0.38	0.58	31.6
3	R2	355	0.0	355	0.0	0.440	6.0	LOS A	1.4	10.0	0.50	0.38	0.58	37.1
Approach		674	2.5	674	2.5	0.440	4.0	NA	1.4	10.0	0.50	0.38	0.58	35.9
North: Catherine Fields Rd														
7	L2	153	0.0	153	0.0	0.173	3.6	LOS A	0.0	0.0	0.00	0.22	0.00	39.7
8	T1	163	8.4	163	8.4	0.173	0.2	LOS A	0.0	0.0	0.00	0.22	0.00	39.5
Approach		316	4.3	316	4.3	0.173	1.9	NA	0.0	0.0	0.00	0.22	0.00	39.6
All Vehicles		989	3.1	989	3.1	0.440	3.3	NA	1.4	10.0	0.34	0.33	0.39	38.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - AM - RTB (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road Exit
Site Category: 2036 Base + Stage 3 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh.	Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Catherine Fields Rd														
2	T1	573	2.9	573	2.9	0.304	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		573	2.9	573	2.9	0.304	0.1	NA	0.0	0.0	0.00	0.00	0.00	39.9
East: School Exit														
4	L2	507	0.0	507	0.0	0.359	4.2	LOS A	0.8	5.3	0.34	0.51	0.34	36.3
Approach		507	0.0	507	0.0	0.359	4.2	LOS A	0.8	5.3	0.34	0.51	0.34	36.3
North: Catherine Fields Rd														
8	T1	163	8.4	163	8.4	0.090	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		163	8.4	163	8.4	0.090	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1243	2.5	1243	2.5	0.359	1.8	NA	0.8	5.3	0.14	0.21	0.14	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - AM - RTB (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [AM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	32	6.7	32	6.7	0.235	5.9	LOS A	0.0	0.0	0.00	0.04	0.00	58.9
2	T1	411	2.1	411	2.1	0.235	0.3	LOS A	0.0	0.0	0.00	0.04	0.00	59.7
Approach		442	2.4	442	2.4	0.235	0.7	NA	0.0	0.0	0.00	0.04	0.00	59.6
North: Catherine Fields Rd														
8	T1	511	1.0	511	1.0	0.417	1.4	LOS A	1.0	7.1	0.37	0.18	0.46	54.5
9	R2	160	5.3	160	5.3	0.417	8.7	LOS A	1.0	7.1	0.37	0.18	0.46	54.7
Approach		671	2.0	671	2.0	0.417	3.2	NA	1.0	7.1	0.37	0.18	0.46	54.6
West: Springfield Rd														
10	L2	162	5.2	162	5.2	0.293	9.2	LOS A	0.5	3.6	0.55	0.79	0.61	54.2
12	R2	46	6.8	46	6.8	0.293	18.0	LOS B	0.5	3.6	0.55	0.79	0.61	54.2
Approach		208	5.6	208	5.6	0.293	11.1	LOS A	0.5	3.6	0.55	0.79	0.61	54.2
All Vehicles		1321	2.7	1321	2.7	0.417	3.6	NA	1.0	7.1	0.27	0.23	0.33	57.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - PM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: 2021 Base
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh.	Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Catherine Fields Rd														
1	L2	12	0.0	12	0.0	0.329	79.3	LOS F	2.0	14.4	0.98	0.74	0.98	31.3
2	T1	38	2.8	38	2.8	* 0.329	67.6	LOS E	2.0	14.4	0.98	0.74	0.98	20.5
3	R2	36	5.9	36	5.9	0.348	79.6	LOS F	1.5	11.2	1.00	0.73	1.00	28.5
Approach		85	3.7	85	3.7	0.348	74.2	LOS F	2.0	14.4	0.99	0.74	0.99	26.0
East: Camden Valley Way														
4	L2	38	16.7	38	16.7	0.045	14.3	LOS A	0.6	5.6	0.33	0.60	0.33	58.4
5	T1	2699	8.0	2699	8.0	* 1.132	175.2	LOS F	112.6	840.1	1.00	1.69	1.92	16.5
6	R2	289	3.6	289	3.6	* 0.888	60.4	LOS E	7.3	52.9	0.99	0.91	1.21	22.6
Approach		3026	7.7	3026	7.7	1.132	162.2	LOS F	112.6	840.1	0.99	1.60	1.83	16.8
North: Catherine Fields Rd														
7	L2	139	2.3	139	2.3	0.358	47.1	LOS D	4.2	30.1	0.90	0.78	0.90	56.0
8	T1	28	0.0	28	0.0	0.184	66.7	LOS E	1.1	8.0	0.97	0.70	0.97	50.2
9	R2	206	3.1	206	3.1	* 2.018	970.4	LOS F	35.6	255.5	1.00	1.94	4.40	8.0
Approach		374	2.5	374	2.5	2.018	558.4	LOS F	35.6	255.5	0.96	1.42	2.84	12.9
West: Camden Valley Way														
10	L2	206	3.1	206	3.1	0.193	14.5	LOS A	2.4	18.4	0.46	0.70	0.46	50.9
11	T1	2145	8.0	2145	8.0	1.087	144.9	LOS F	83.8	623.3	1.00	1.53	1.74	19.2
12	R2	12	0.0	12	0.0	0.096	75.7	LOS F	0.5	3.3	0.97	0.68	0.97	29.5
Approach		2363	7.5	2363	7.5	1.087	133.2	LOS F	83.8	623.3	0.95	1.45	1.62	19.6
All Vehicles		5848	7.2	5848	7.2	2.018	174.5	LOS F	112.6	840.1	0.97	1.52	1.80	17.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		ped	m			sec	m	m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B Slip/ Bypass	53	30.5	LOS D	0.1	0.1	0.92	0.92	188.6	205.5	1.09
All Pedestrians	263	57.5	LOS E	0.2	0.2	0.95	0.95	230.1	224.4	0.98

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - PM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	357	8.0	357	8.0	0.268	7.9	LOS A	0.5	3.9	0.33	0.63	0.33	74.2
Approach		357	8.0	357	8.0	0.268	7.9	LOS A	0.5	3.9	0.33	0.63	0.33	74.2
East: Bringelly Rd														
4	L2	528	6.4	528	6.4	0.294	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	356	8.0	356	8.0	0.095	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		884	7.0	884	7.0	0.294	4.3	NA	0.0	0.0	0.00	0.38	0.00	70.8
All Vehicles		1241	7.3	1241	7.3	0.294	5.3	NA	0.5	3.9	0.10	0.45	0.10	73.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - PM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	4	25.0	4	25.0	0.054	7.4	LOS A	0.0	0.0	0.00	0.03	0.00	79.1
2	T1	96	7.7	96	7.7	0.054	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	79.1
Approach		100	8.4	100	8.4	0.054	0.3	NA	0.0	0.0	0.00	0.03	0.00	79.1
North: Barry Avenue														
8	T1	191	7.7	191	7.7	0.102	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	388	4.9	388	4.9	0.242	7.2	LOS A	0.5	3.9	0.25	0.60	0.25	76.3
Approach		579	5.8	579	5.8	0.242	4.8	NA	0.5	3.9	0.17	0.40	0.17	77.5
West: Catherine Fields Rd														
10	L2	362	5.8	362	5.8	0.278	7.5	LOS A	0.5	4.0	0.23	0.60	0.23	73.2
12	R2	14	7.7	14	7.7	0.278	15.1	LOS B	0.5	4.0	0.23	0.60	0.23	70.9
Approach		376	5.9	376	5.9	0.278	7.7	LOS A	0.5	4.0	0.23	0.60	0.23	73.1
All Vehicles		1055	6.1	1055	6.1	0.278	5.4	NA	0.5	4.0	0.17	0.44	0.17	76.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - PM (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road Entry
Site Category: 2036 Base + Stage 3 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	376	5.9	376	5.9	0.496	2.5	LOS A	1.9	13.3	0.57	0.42	0.76	30.5
3	R2	355	0.0	355	0.0	0.496	7.0	LOS A	1.9	13.3	0.57	0.42	0.76	36.7
Approach		731	3.0	731	3.0	0.496	4.7	NA	1.9	13.3	0.57	0.42	0.76	35.2
North: Catherine Fields Rd														
7	L2	153	0.0	153	0.0	0.215	3.7	LOS A	0.0	0.0	0.00	0.18	0.00	39.7
8	T1	240	7.9	240	7.9	0.215	0.3	LOS A	0.0	0.0	0.00	0.18	0.00	39.6
Approach		393	4.8	393	4.8	0.215	1.6	NA	0.0	0.0	0.00	0.18	0.00	39.7
All Vehicles		1123	3.7	1123	3.7	0.496	3.6	NA	1.9	13.3	0.37	0.34	0.49	38.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - PM - RTB (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road Exit
Site Category: 2036 Base + Stage 3 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	629	3.5	629	3.5	0.335	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		629	3.5	629	3.5	0.335	0.1	NA	0.0	0.0	0.00	0.00	0.00	39.9
East: School Exit														
4	L2	507	0.0	507	0.0	0.387	4.6	LOS A	0.8	5.7	0.42	0.56	0.42	36.0
Approach		507	0.0	507	0.0	0.387	4.6	LOS A	0.8	5.7	0.42	0.56	0.42	36.0
North: Catherine Fields Rd														
8	T1	240	7.9	240	7.9	0.131	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		240	7.9	240	7.9	0.131	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1377	3.0	1377	3.0	0.387	1.8	NA	0.8	5.7	0.16	0.21	0.16	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - PM - RTB (Site Folder: 2035 Base + Stage 3 Dev (980 students))]

Network: N101 [PM - RTB (Network Folder: 2035 Base + Stage 3 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	49	8.5	49	8.5	0.286	6.0	LOS A	0.0	0.0	0.00	0.05	0.00	58.8
2	T1	484	3.0	484	3.0	0.286	0.3	LOS A	0.0	0.0	0.00	0.05	0.00	59.6
Approach		534	3.6	534	3.6	0.286	0.9	NA	0.0	0.0	0.00	0.05	0.00	59.5
North: Catherine Fields Rd														
8	T1	444	1.7	444	1.7	0.448	2.7	LOS A	1.4	10.1	0.51	0.27	0.70	51.8
9	R2	202	6.3	202	6.3	0.448	9.9	LOS A	1.4	10.1	0.51	0.27	0.70	53.3
Approach		646	3.1	646	3.1	0.448	4.9	NA	1.4	10.1	0.51	0.27	0.70	52.5
West: Springfield Rd														
10	L2	145	5.8	145	5.8	0.252	9.5	LOS A	0.4	2.9	0.57	0.81	0.59	54.3
12	R2	31	6.9	31	6.9	0.252	18.6	LOS B	0.4	2.9	0.57	0.81	0.59	54.3
Approach		176	6.0	176	6.0	0.252	11.0	LOS A	0.4	2.9	0.57	0.81	0.59	54.3
All Vehicles		1356	3.6	1356	3.6	0.448	4.1	NA	1.4	10.1	0.32	0.25	0.41	57.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - AM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM (Network Folder: 2038 Base + Stage 4 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	7	0.0	7	0.0	0.351	80.3	LOS F	2.0	14.3	0.99	0.74	0.99	31.1
2	T1	41	2.6	41	2.6	* 0.351	68.9	LOS E	2.0	14.3	0.99	0.74	0.99	20.4
3	R2	35	6.1	35	6.1	0.386	81.2	LOS F	1.5	11.0	1.00	0.73	1.00	28.1
Approach		83	3.8	83	3.8	0.386	75.0	LOS F	2.0	14.3	0.99	0.74	0.99	25.2
East: Camden Valley Way														
4	L2	27	7.7	27	7.7	0.038	14.1	LOS A	0.5	4.9	0.33	0.55	0.33	60.1
5	T1	2329	8.0	2329	8.0	0.945	39.2	LOS C	50.6	377.1	0.91	0.97	1.04	43.2
6	R2	288	2.2	288	2.2	* 1.052	96.2	LOS F	11.0	78.3	0.99	0.99	1.59	12.9
Approach		2645	7.4	2645	7.4	1.052	45.2	LOS D	50.6	377.1	0.92	0.97	1.10	38.0
North: Catherine Fields Rd														
7	L2	174	1.8	174	1.8	0.520	57.7	LOS E	5.7	40.2	0.96	0.85	0.96	52.8
8	T1	38	0.0	38	0.0	0.269	68.6	LOS E	1.6	10.9	0.98	0.72	0.98	49.6
9	R2	227	2.3	227	2.3	* 2.528	1422.7	LOS F	44.9	320.4	1.00	2.08	5.01	5.6
Approach		439	1.9	439	1.9	2.528	765.7	LOS F	44.9	320.4	0.98	1.47	3.06	9.9
West: Camden Valley Way														
10	L2	216	2.0	216	2.0	0.181	13.5	LOS A	2.3	16.7	0.43	0.70	0.43	51.8
11	T1	2734	8.0	2734	8.0	* 1.299	323.4	LOS F	155.5	1160.3	1.00	2.24	2.61	9.9
12	R2	14	7.7	14	7.7	0.135	77.7	LOS F	0.6	4.2	0.98	0.69	0.98	28.5
Approach		2963	7.5	2963	7.5	1.299	299.7	LOS F	155.5	1160.3	0.96	2.12	2.45	10.1
All Vehicles		6131	7.0	6131	7.0	2.528	220.2	LOS F	155.5	1160.3	0.94	1.56	1.89	14.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B Slip/ Bypass	53	31.6	LOS D	0.1	0.1	0.92	0.92	189.7	205.5	1.08
All Pedestrians	263	57.7	LOS E	0.2	0.2	0.95	0.95	230.4	224.4	0.97

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - AM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM (Network Folder: 2038 Base + Stage 4 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	283	8.2	280	8.2	0.221	8.1	LOS A	0.4	3.0	0.36	0.64	0.36	74.1
Approach		283	8.2	280 N1	8.2	0.221	8.1	LOS A	0.4	3.0	0.36	0.64	0.36	74.1
East: Bringelly Rd														
4	L2	536	5.9	536	5.9	0.298	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	446	8.0	446	8.0	0.119	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		982	6.9	982	6.9	0.298	3.9	NA	0.0	0.0	0.00	0.34	0.00	71.8
All Vehicles		1265	7.2	1263 N1	7.2	0.298	4.8	NA	0.4	3.0	0.08	0.41	0.08	73.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - AM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM (Network Folder: 2038 Base + Stage 4 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	5	20.0	5	20.0	0.033	7.3	LOS A	0.0	0.0	0.00	0.05	0.00	78.2
2	T1	57	7.4	57	7.4	0.033	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	78.2
Approach		62	8.5	62	8.5	0.033	0.6	NA	0.0	0.0	0.00	0.05	0.00	78.2
North: Barry Avenue														
8	T1	236	8.0	236	8.0	0.127	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	366	3.4	366	3.4	0.219	7.0	LOS A	0.5	3.4	0.19	0.60	0.19	76.4
Approach		602	5.2	602	5.2	0.219	4.3	NA	0.5	3.4	0.11	0.36	0.11	77.8
West: Catherine Fields Rd														
10	L2	359	5.0	355	5.0	0.244	7.3	LOS A	0.5	3.5	0.16	0.59	0.16	73.4
12	R2	4	25.0	4	25.0	0.244	16.7	LOS B	0.5	3.5	0.16	0.59	0.16	68.0
Approach		363	5.2	359 N1	5.2	0.244	7.4	LOS A	0.5	3.5	0.16	0.59	0.16	73.3
All Vehicles		1027	5.4	1023 N1	5.5	0.244	5.1	NA	0.5	3.5	0.12	0.42	0.12	76.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - AM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road Entry
Site Category: 2041 Base + Stage 4 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	363	5.2	359	5.2	0.563	3.1	LOS A	2.5	18.0	0.62	0.51	0.89	29.4
3	R2	465	0.0	460	0.0	0.563	7.4	LOS A	2.5	18.0	0.62	0.51	0.89	36.3
Approach		828	2.3	819 N1	2.3	0.563	5.5	NA	2.5	18.0	0.62	0.51	0.89	34.9
North: Catherine Fields Rd														
7	L2	200	0.0	200	0.0	0.203	3.7	LOS A	0.0	0.0	0.00	0.25	0.00	39.6
8	T1	172	8.0	172	8.0	0.203	0.3	LOS A	0.0	0.0	0.00	0.25	0.00	39.5
Approach		372	3.7	372	3.7	0.203	2.1	NA	0.0	0.0	0.00	0.25	0.00	39.6
All Vehicles		1200	2.7	1191 N1	2.7	0.563	4.4	NA	2.5	18.0	0.43	0.43	0.61	38.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - AM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road Exit
Site Category: 2041 Base + Stage 4 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	696	2.7	686	2.7	0.364	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		696	2.7	686 N1	2.7	0.364	0.2	NA	0.0	0.0	0.00	0.00	0.00	39.9
East: School Exit														
4	L2	533	0.0	533	0.0	0.653	6.6	LOS A	2.8	19.8	0.44	0.74	0.75	33.8
6	R2	133	0.0	133	0.0	0.653	16.3	LOS B	2.8	19.8	0.44	0.74	0.75	33.8
Approach		665	0.0	665	0.0	0.653	8.6	LOS A	2.8	19.8	0.44	0.74	0.75	33.8
North: Catherine Fields Rd														
8	T1	172	8.0	172	8.0	0.094	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		172	8.0	172	8.0	0.094	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1533	2.1	1523 N1	2.1	0.653	3.8	NA	2.8	19.8	0.19	0.32	0.33	36.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - AM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	34	6.3	33	6.2	0.284	5.9	LOS A	0.0	0.0	0.00	0.04	0.00	58.9
2	T1	512	1.9	502	1.9	0.284	0.3	LOS A	0.0	0.0	0.00	0.04	0.00	59.7
Approach		545	2.1	535 N1	2.1	0.284	0.7	NA	0.0	0.0	0.00	0.04	0.00	59.6
North: Catherine Fields Rd														
8	T1	522	0.8	522	0.8	0.464	2.3	LOS A	1.4	9.8	0.45	0.22	0.64	52.7
9	R2	182	5.2	182	5.2	0.464	9.9	LOS A	1.4	9.8	0.45	0.22	0.64	53.8
Approach		704	1.9	704	1.9	0.464	4.3	NA	1.4	9.8	0.45	0.22	0.64	53.2
West: Springfield Rd														
10	L2	184	5.1	184	5.1	0.382	10.6	LOS A	0.7	5.2	0.62	0.90	0.82	51.3
12	R2	49	8.5	49	8.5	0.382	22.4	LOS B	0.7	5.2	0.62	0.90	0.82	51.3
Approach		234	5.9	234	5.9	0.382	13.1	LOS A	0.7	5.2	0.62	0.90	0.82	51.3
All Vehicles		1483	2.6	1473 N1	2.6	0.464	4.4	NA	1.4	9.8	0.32	0.26	0.44	57.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - PM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM (Network Folder: 2038 Base + Stage 4 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: 2021 Base
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh.	Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Catherine Fields Rd														
1	L2	13	8.3	13	8.3	0.394	80.1	LOS F	2.4	17.5	0.99	0.75	0.99	30.6
2	T1	46	2.3	46	2.3	* 0.394	68.2	LOS E	2.4	17.5	0.99	0.75	0.99	20.5
3	R2	38	8.3	38	8.3	0.374	79.9	LOS F	1.6	12.1	1.00	0.73	1.00	28.3
Approach		97	5.4	97	5.4	0.394	74.3	LOS F	2.4	17.5	0.99	0.75	0.99	25.5
East: Camden Valley Way														
4	L2	40	7.9	40	7.9	0.046	14.2	LOS A	0.6	5.6	0.33	0.60	0.33	59.1
5	T1	2849	8.0	2849	8.0	* 1.197	231.3	LOS F	135.2	1008.8	1.00	1.92	2.21	13.2
6	R2	345	3.4	345	3.4	* 1.058	99.5	LOS F	13.2	95.4	0.99	1.02	1.59	12.7
Approach		3235	7.5	3235	7.5	1.197	214.5	LOS F	135.2	1008.8	0.99	1.81	2.12	13.2
North: Catherine Fields Rd														
7	L2	173	1.8	173	1.8	0.443	48.0	LOS D	5.3	38.0	0.92	0.79	0.92	55.7
8	T1	36	0.0	36	0.0	0.231	67.1	LOS E	1.4	10.1	0.97	0.71	0.97	50.0
9	R2	251	2.9	251	2.9	* 2.448	1352.0	LOS F	48.6	348.9	1.00	2.13	4.93	5.9
Approach		459	2.3	459	2.3	2.448	761.3	LOS F	48.6	348.9	0.97	1.52	3.11	9.9
West: Camden Valley Way														
10	L2	251	2.9	251	2.9	0.232	14.7	LOS B	3.0	22.6	0.48	0.71	0.48	50.6
11	T1	2264	8.0	2264	8.0	1.154	199.9	LOS F	103.1	766.6	1.00	1.77	2.04	15.0
12	R2	13	8.3	13	8.3	0.111	76.2	LOS F	0.5	3.9	0.97	0.69	0.97	28.8
Approach		2527	7.5	2527	7.5	1.154	180.9	LOS F	103.1	766.6	0.94	1.66	1.88	15.3
All Vehicles		6318	7.1	6318	7.1	2.448	238.6	LOS F	135.2	1008.8	0.97	1.71	2.08	13.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		ped	m			sec	m	m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B	Slip/ Bypass	53	30.5	LOS D	0.1	0.1	0.92	0.92	188.6	205.5	1.09
All Pedestrians		263	57.5	LOS E	0.2	0.2	0.95	0.95	230.1	224.4	0.98

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - PM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM (Network Folder: 2038 Base + Stage 4 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	377	8.1	373	8.1	0.283	8.0	LOS A	0.6	4.1	0.35	0.63	0.35	74.1
Approach		377	8.1	373 N1	8.1	0.283	8.0	LOS A	0.6	4.1	0.35	0.63	0.35	74.1
East: Bringelly Rd														
4	L2	584	6.1	584	6.1	0.325	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	376	8.1	376	8.1	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		960	6.9	960	6.9	0.325	4.3	NA	0.0	0.0	0.00	0.38	0.00	70.6
All Vehicles		1337	7.2	1333 N1	7.3	0.325	5.3	NA	0.6	4.1	0.10	0.45	0.10	73.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

▽ Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - PM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM (Network Folder: 2038 Base + Stage 4 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh.	Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Deepfields Rd														
1	L2	4	0.0	4	0.0	0.056	7.0	LOS A	0.0	0.0	0.00	0.03	0.00	78.9
2	T1	101	7.3	101	7.3	0.056	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	78.9
Approach		105	7.0	105	7.0	0.056	0.3	NA	0.0	0.0	0.00	0.03	0.00	78.9
North: Barry Avenue														
8	T1	202	8.3	202	8.3	0.109	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	449	4.4	449	4.4	0.281	7.2	LOS A	0.6	4.6	0.27	0.60	0.27	76.2
Approach		652	5.7	652	5.7	0.281	5.0	NA	0.6	4.6	0.18	0.42	0.18	77.5
West: Catherine Fields Rd														
10	L2	408	5.4	403	5.4	0.312	7.5	LOS A	0.6	4.6	0.25	0.60	0.25	73.2
12	R2	15	7.1	15	7.1	0.312	17.2	LOS B	0.6	4.6	0.25	0.60	0.25	70.9
Approach		423	5.5	417 N1	5.5	0.312	7.8	LOS A	0.6	4.6	0.25	0.60	0.25	73.1
All Vehicles		1180	5.7	1174 N1	5.7	0.312	5.6	NA	0.6	4.6	0.19	0.45	0.19	76.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - PM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road Entry
Site Category: 2041 Base + Stage 4 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	422	5.5	416	5.5	0.632	4.4	LOS A	3.2	23.1	0.71	0.58	1.17	27.7
3	R2	465	0.0	459	0.0	0.632	8.9	LOS A	3.2	23.1	0.71	0.58	1.17	35.6
Approach		887	2.6	875 N1	2.6	0.632	6.8	NA	3.2	23.1	0.71	0.58	1.17	33.8
North: Catherine Fields Rd														
7	L2	200	0.0	200	0.0	0.248	3.8	LOS A	0.0	0.0	0.00	0.20	0.00	39.7
8	T1	254	7.9	254	7.9	0.248	0.4	LOS A	0.0	0.0	0.00	0.20	0.00	39.6
Approach		454	4.4	454	4.4	0.248	1.9	NA	0.0	0.0	0.00	0.20	0.00	39.6
All Vehicles		1341	3.2	1329 N1	3.2	0.632	5.1	NA	3.2	23.1	0.47	0.45	0.77	37.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - PM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road Exit
Site Category: 2041 Base + Stage 4 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	756	3.1	744	3.1	0.395	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
Approach		756	3.1	744 N1	3.1	0.395	0.2	NA	0.0	0.0	0.00	0.00	0.00	39.8
East: School Exit														
4	L2	533	0.0	533	0.0	0.750	9.4	LOS A	3.8	26.5	0.58	1.05	1.31	31.8
6	R2	133	0.0	133	0.0	0.750	22.0	LOS B	3.8	26.5	0.58	1.05	1.31	31.8
Approach		665	0.0	665	0.0	0.750	11.9	LOS A	3.8	26.5	0.58	1.05	1.31	31.8
North: Catherine Fields Rd														
8	T1	254	7.9	254	7.9	0.139	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		254	7.9	254	7.9	0.139	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1675	2.6	1663 N1	2.6	0.750	4.8	NA	3.8	26.5	0.23	0.42	0.52	35.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - PM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	53	8.0	52	8.0	0.336	6.0	LOS A	0.0	0.0	0.00	0.05	0.00	58.8
2	T1	589	2.7	577	2.7	0.336	0.4	LOS A	0.0	0.0	0.00	0.05	0.00	59.6
Approach		642	3.1	629 N1	3.1	0.336	0.9	NA	0.0	0.0	0.00	0.05	0.00	59.5
North: Catherine Fields Rd														
8	T1	560	1.3	560	1.3	0.566	4.1	LOS A	2.2	16.1	0.61	0.28	0.99	49.7
9	R2	226	5.6	226	5.6	0.566	12.2	LOS A	2.2	16.1	0.61	0.28	0.99	52.2
Approach		786	2.5	786	2.5	0.566	6.4	NA	2.2	16.1	0.61	0.28	0.99	50.8
West: Springfield Rd														
10	L2	166	5.1	166	5.1	0.360	11.1	LOS A	0.6	4.6	0.65	0.92	0.84	50.3
12	R2	33	6.5	33	6.5	0.360	27.4	LOS B	0.6	4.6	0.65	0.92	0.84	50.3
Approach		199	5.3	199	5.3	0.360	13.8	LOS A	0.6	4.6	0.65	0.92	0.84	50.3
All Vehicles		1627	3.1	1614 N1	3.1	0.566	5.2	NA	2.2	16.1	0.38	0.27	0.59	56.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Project: C:\Users\Meg Kong\Ason Group\Ason Group Team Site - Ason SL3 (Engineer)\Projects\1700-1799\1769\Projects\5. Modelling \1769m01v01 Minarah_2021 Base - TL Version.sip9

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - AM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	7	0.0	7	0.0	0.351	80.3	LOS F	2.0	14.3	0.99	0.74	0.99	31.1
2	T1	41	2.6	41	2.6	* 0.351	68.9	LOS E	2.0	14.3	0.99	0.74	0.99	20.4
3	R2	35	6.1	35	6.1	0.386	81.2	LOS F	1.5	11.0	1.00	0.73	1.00	28.1
Approach		83	3.8	83	3.8	0.386	75.0	LOS F	2.0	14.3	0.99	0.74	0.99	25.2
East: Camden Valley Way														
4	L2	27	7.7	27	7.7	0.038	14.1	LOS A	0.5	4.9	0.33	0.55	0.33	60.1
5	T1	2329	8.0	2329	8.0	0.945	39.2	LOS C	50.6	377.1	0.91	0.97	1.04	43.2
6	R2	288	2.2	288	2.2	* 1.052	96.2	LOS F	11.0	78.3	0.99	0.99	1.59	12.9
Approach		2645	7.4	2645	7.4	1.052	45.2	LOS D	50.6	377.1	0.92	0.97	1.10	38.0
North: Catherine Fields Rd														
7	L2	174	1.8	174	1.8	0.520	57.7	LOS E	5.7	40.2	0.96	0.85	0.96	52.8
8	T1	38	0.0	38	0.0	0.269	68.6	LOS E	1.6	10.9	0.98	0.72	0.98	49.6
9	R2	227	2.3	227	2.3	* 2.528	1422.7	LOS F	44.9	320.4	1.00	2.08	5.01	5.6
Approach		439	1.9	439	1.9	2.528	765.7	LOS F	44.9	320.4	0.98	1.47	3.06	9.9
West: Camden Valley Way														
10	L2	216	2.0	216	2.0	0.181	13.5	LOS A	2.3	16.7	0.43	0.70	0.43	51.8
11	T1	2734	8.0	2734	8.0	* 1.299	323.4	LOS F	155.5	1160.3	1.00	2.24	2.61	9.9
12	R2	14	7.7	14	7.7	0.135	77.7	LOS F	0.6	4.2	0.98	0.69	0.98	28.5
Approach		2963	7.5	2963	7.5	1.299	299.7	LOS F	155.5	1160.3	0.96	2.12	2.45	10.1
All Vehicles		6131	7.0	6131	7.0	2.528	220.2	LOS F	155.5	1160.3	0.94	1.56	1.89	14.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B	Slip/ Bypass	53	31.6	LOS D	0.1	0.1	0.92	0.92	189.7	205.5	1.08
All Pedestrians		263	57.7	LOS E	0.2	0.2	0.95	0.95	230.4	224.4	0.97

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - AM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	283	8.2	280	8.2	0.221	8.1	LOS A	0.4	3.0	0.36	0.64	0.36	74.1
Approach		283	8.2	280 N1	8.2	0.221	8.1	LOS A	0.4	3.0	0.36	0.64	0.36	74.1
East: Bringelly Rd														
4	L2	536	5.9	536	5.9	0.298	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	446	8.0	446	8.0	0.119	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		982	6.9	982	6.9	0.298	3.9	NA	0.0	0.0	0.00	0.34	0.00	71.8
All Vehicles		1265	7.2	1263 N1	7.2	0.298	4.8	NA	0.4	3.0	0.08	0.41	0.08	73.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - AM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	5	20.0	5	20.0	0.033	7.3	LOS A	0.0	0.0	0.00	0.05	0.00	78.2
2	T1	57	7.4	57	7.4	0.033	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	78.2
Approach		62	8.5	62	8.5	0.033	0.6	NA	0.0	0.0	0.00	0.05	0.00	78.2
North: Barry Avenue														
8	T1	236	8.0	236	8.0	0.127	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	366	3.4	366	3.4	0.219	7.0	LOS A	0.5	3.4	0.19	0.60	0.19	76.4
Approach		602	5.2	602	5.2	0.219	4.3	NA	0.5	3.4	0.11	0.36	0.11	77.8
West: Catherine Fields Rd														
10	L2	359	5.0	355	5.0	0.244	7.3	LOS A	0.5	3.5	0.16	0.59	0.16	73.4
12	R2	4	25.0	4	25.0	0.244	16.7	LOS B	0.5	3.5	0.16	0.59	0.16	68.0
Approach		363	5.2	359 N1	5.2	0.244	7.4	LOS A	0.5	3.5	0.16	0.59	0.16	73.3
All Vehicles		1027	5.4	1023 N1	5.5	0.244	5.1	NA	0.5	3.5	0.12	0.42	0.12	76.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Organisation: ASON GROUP PTY LTD | Licence: NETWORK / 1PC | Processed: Friday, 4 February 2022 4:00:42 PM
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MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - AM - CHR (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road Entry
Site Category: 2041 Base + Stage 4 Dev
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd															
2	T1	363	5.2	359	5.2	0.195	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
3	R2	465	0.0	460	0.0	0.368	5.9	LOS A	0.9	6.1	0.53	0.71	0.58	36.1
Approach		828	2.3	819 N1	2.3	0.368	3.3	NA	0.9	6.1	0.30	0.40	0.33	36.6
North: Catherine Fields Rd															
7	L2	200	0.0	200	0.0	0.203	3.7	LOS A	0.0	0.0	0.00	0.25	0.00	39.6
8	T1	172	8.0	172	8.0	0.203	0.3	LOS A	0.0	0.0	0.00	0.25	0.00	39.5
Approach		372	3.7	372	3.7	0.203	2.1	NA	0.0	0.0	0.00	0.25	0.00	39.6
All Vehicles		1200	2.7	1191 N1	2.7	0.368	2.9	NA	0.9	6.1	0.21	0.35	0.22	38.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - AM - RTB (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road Exit
Site Category: 2041 Base + Stage 4 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	696	2.7	686	2.7	0.364	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		696	2.7	686 N1	2.7	0.364	0.2	NA	0.0	0.0	0.00	0.00	0.00	39.9
East: School Exit														
4	L2	665	0.0	665	0.0	0.474	4.4	LOS A	1.2	8.1	0.39	0.53	0.40	36.1
Approach		665	0.0	665	0.0	0.474	4.4	LOS A	1.2	8.1	0.39	0.53	0.40	36.1
North: Catherine Fields Rd														
8	T1	172	8.0	172	8.0	0.094	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		172	8.0	172	8.0	0.094	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1533	2.1	1523 N1	2.1	0.474	2.0	NA	1.2	8.1	0.17	0.23	0.17	38.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - AM - RTB (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	34	6.3	33	6.2	0.284	5.9	LOS A	0.0	0.0	0.00	0.04	0.00	58.9
2	T1	512	1.9	502	1.9	0.284	0.3	LOS A	0.0	0.0	0.00	0.04	0.00	59.7
Approach		545	2.1	535 N1	2.1	0.284	0.7	NA	0.0	0.0	0.00	0.04	0.00	59.6
North: Catherine Fields Rd														
8	T1	656	0.8	656	0.8	0.535	2.4	LOS A	1.7	11.9	0.43	0.18	0.66	52.9
9	R2	182	5.2	182	5.2	0.535	10.6	LOS A	1.7	11.9	0.43	0.18	0.66	53.9
Approach		838	1.8	838	1.8	0.535	4.1	NA	1.7	11.9	0.43	0.18	0.66	53.3
West: Springfield Rd														
10	L2	184	5.1	184	5.1	0.445	11.5	LOS A	0.9	6.4	0.65	0.95	0.96	48.5
12	R2	49	8.5	49	8.5	0.445	29.0	LOS C	0.9	6.4	0.65	0.95	0.96	48.5
Approach		234	5.9	234	5.9	0.445	15.2	LOS B	0.9	6.4	0.65	0.95	0.96	48.5
All Vehicles		1617	2.5	1607 N1	2.5	0.535	4.6	NA	1.7	11.9	0.32	0.25	0.48	56.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - PM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: 2021 Base
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	13	8.3	13	8.3	0.394	80.1	LOS F	2.4	17.5	0.99	0.75	0.99	30.6
2	T1	46	2.3	46	2.3	* 0.394	68.2	LOS E	2.4	17.5	0.99	0.75	0.99	20.5
3	R2	38	8.3	38	8.3	0.374	79.9	LOS F	1.6	12.1	1.00	0.73	1.00	28.3
Approach		97	5.4	97	5.4	0.394	74.3	LOS F	2.4	17.5	0.99	0.75	0.99	25.5
East: Camden Valley Way														
4	L2	40	7.9	40	7.9	0.046	14.2	LOS A	0.6	5.6	0.33	0.60	0.33	59.1
5	T1	2849	8.0	2849	8.0	* 1.197	231.3	LOS F	135.2	1008.8	1.00	1.92	2.21	13.2
6	R2	345	3.4	345	3.4	* 1.058	99.5	LOS F	13.2	95.4	0.99	1.02	1.59	12.7
Approach		3235	7.5	3235	7.5	1.197	214.5	LOS F	135.2	1008.8	0.99	1.81	2.12	13.2
North: Catherine Fields Rd														
7	L2	173	1.8	173	1.8	0.443	48.0	LOS D	5.3	38.0	0.92	0.79	0.92	55.7
8	T1	36	0.0	36	0.0	0.231	67.1	LOS E	1.4	10.1	0.97	0.71	0.97	50.0
9	R2	251	2.9	251	2.9	* 2.448	1352.0	LOS F	48.6	348.9	1.00	2.13	4.93	5.9
Approach		459	2.3	459	2.3	2.448	761.3	LOS F	48.6	348.9	0.97	1.52	3.11	9.9
West: Camden Valley Way														
10	L2	251	2.9	251	2.9	0.232	14.7	LOS B	3.0	22.6	0.48	0.71	0.48	50.6
11	T1	2264	8.0	2264	8.0	1.154	199.9	LOS F	103.1	766.6	1.00	1.77	2.04	15.0
12	R2	13	8.3	13	8.3	0.111	76.2	LOS F	0.5	3.9	0.97	0.69	0.97	28.8
Approach		2527	7.5	2527	7.5	1.154	180.9	LOS F	103.1	766.6	0.94	1.66	1.88	15.3
All Vehicles		6318	7.1	6318	7.1	2.448	238.6	LOS F	135.2	1008.8	0.97	1.71	2.08	13.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B Slip/ Bypass	53	30.5	LOS D	0.1	0.1	0.92	0.92	188.6	205.5	1.09
All Pedestrians	263	57.5	LOS E	0.2	0.2	0.95	0.95	230.1	224.4	0.98

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - PM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	377	8.1	373	8.1	0.283	8.0	LOS A	0.6	4.1	0.35	0.63	0.35	74.1
Approach		377	8.1	373 N1	8.1	0.283	8.0	LOS A	0.6	4.1	0.35	0.63	0.35	74.1
East: Bringelly Rd														
4	L2	584	6.1	584	6.1	0.325	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	376	8.1	376	8.1	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		960	6.9	960	6.9	0.325	4.3	NA	0.0	0.0	0.00	0.38	0.00	70.6
All Vehicles		1337	7.2	1333 N1	7.3	0.325	5.3	NA	0.6	4.1	0.10	0.45	0.10	73.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - PM (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	4	0.0	4	0.0	0.056	7.0	LOS A	0.0	0.0	0.00	0.03	0.00	78.9
2	T1	101	7.3	101	7.3	0.056	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	78.9
Approach		105	7.0	105	7.0	0.056	0.3	NA	0.0	0.0	0.00	0.03	0.00	78.9
North: Barry Avenue														
8	T1	202	8.3	202	8.3	0.109	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	449	4.4	449	4.4	0.281	7.2	LOS A	0.6	4.6	0.27	0.60	0.27	76.2
Approach		652	5.7	652	5.7	0.281	5.0	NA	0.6	4.6	0.18	0.42	0.18	77.5
West: Catherine Fields Rd														
10	L2	408	5.4	403	5.4	0.312	7.5	LOS A	0.6	4.6	0.25	0.60	0.25	73.2
12	R2	15	7.1	15	7.1	0.312	17.2	LOS B	0.6	4.6	0.25	0.60	0.25	70.9
Approach		423	5.5	417 N1	5.5	0.312	7.8	LOS A	0.6	4.6	0.25	0.60	0.25	73.1
All Vehicles		1180	5.7	1174 N1	5.7	0.312	5.6	NA	0.6	4.6	0.19	0.45	0.19	76.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - PM - CHR (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road Entry
Site Category: 2041 Base + Stage 4 Dev
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	422	5.5	416	5.5	0.226	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
3	R2	465	0.0	459	0.0	0.406	6.8	LOS A	1.1	7.4	0.59	0.81	0.73	35.6
Approach		887	2.6	875 N1	2.6	0.406	3.6	NA	1.1	7.4	0.31	0.43	0.38	36.3
North: Catherine Fields Rd														
7	L2	200	0.0	200	0.0	0.248	3.8	LOS A	0.0	0.0	0.00	0.20	0.00	39.7
8	T1	254	7.9	254	7.9	0.248	0.4	LOS A	0.0	0.0	0.00	0.20	0.00	39.6
Approach		454	4.4	454	4.4	0.248	1.9	NA	0.0	0.0	0.00	0.20	0.00	39.6
All Vehicles		1341	3.2	1329 N1	3.2	0.406	3.0	NA	1.1	7.4	0.20	0.35	0.25	38.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - PM - RTB (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road Exit
Site Category: 2041 Base + Stage 4 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	756	3.1	744	3.1	0.395	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
Approach		756	3.1	744 N1	3.1	0.395	0.2	NA	0.0	0.0	0.00	0.00	0.00	39.8
East: School Exit														
4	L2	665	0.0	665	0.0	0.514	5.4	LOS A	1.7	11.6	0.50	0.66	0.60	35.8
Approach		665	0.0	665	0.0	0.514	5.4	LOS A	1.7	11.6	0.50	0.66	0.60	35.8
North: Catherine Fields Rd														
8	T1	254	7.9	254	7.9	0.139	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		254	7.9	254	7.9	0.139	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1675	2.6	1663 N1	2.6	0.514	2.3	NA	1.7	11.6	0.20	0.26	0.24	37.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - PM - RTB (Site Folder: 2038 Base+Stage 4 Dev (1280 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2038 Base + Stage 4 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	53	8.0	52	8.0	0.336	6.0	LOS A	0.0	0.0	0.00	0.05	0.00	58.8
2	T1	589	2.7	577	2.7	0.336	0.4	LOS A	0.0	0.0	0.00	0.05	0.00	59.6
Approach		642	3.1	629 N1	3.1	0.336	0.9	NA	0.0	0.0	0.00	0.05	0.00	59.5
North: Catherine Fields Rd														
8	T1	693	1.1	693	1.1	0.635	4.2	LOS A	2.7	19.6	0.62	0.24	1.08	49.6
9	R2	226	5.6	226	5.6	0.635	13.2	LOS A	2.7	19.6	0.62	0.24	1.08	52.1
Approach		919	2.2	919	2.2	0.635	6.4	NA	2.7	19.6	0.62	0.24	1.08	50.6
West: Springfield Rd														
10	L2	166	5.1	166	5.1	0.424	12.1	LOS A	0.8	5.6	0.69	0.96	0.98	47.4
12	R2	33	6.5	33	6.5	0.424	36.5	LOS C	0.8	5.6	0.69	0.96	0.98	47.4
Approach		199	5.3	199	5.3	0.424	16.1	LOS B	0.8	5.6	0.69	0.96	0.98	47.4
All Vehicles		1760	2.9	1747 N1	2.9	0.635	5.5	NA	2.7	19.6	0.40	0.25	0.68	55.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - AM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM (Network Folder: 2040 Base + Stage 5 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	8	12.5	8	12.5	0.423	81.7	LOS F	2.4	17.4	0.99	0.75	0.99	30.1
2	T1	49	2.1	49	2.1	* 0.423	69.5	LOS E	2.4	17.4	0.99	0.75	0.99	20.4
3	R2	37	8.6	37	8.6	0.417	81.5	LOS F	1.6	12.0	1.00	0.73	1.00	27.9
Approach		95	5.6	95	5.6	0.423	75.2	LOS F	2.4	17.4	1.00	0.75	1.00	24.8
East: Camden Valley Way														
4	L2	28	11.1	28	11.1	0.040	14.2	LOS A	0.5	5.1	0.33	0.55	0.33	59.9
5	T1	2411	8.0	2411	8.0	0.982	58.7	LOS E	62.6	466.4	0.97	1.12	1.22	35.2
6	R2	340	2.2	340	2.2	* 1.240	202.5	LOS F	20.4	145.6	1.00	1.15	2.09	7.4
Approach		2779	7.3	2779	7.3	1.240	75.8	LOS F	62.6	466.4	0.96	1.11	1.31	28.2
North: Catherine Fields Rd														
7	L2	207	1.5	207	1.5	0.620	61.2	LOS E	6.8	48.0	0.98	0.89	0.98	51.8
8	T1	46	2.3	46	2.3	0.334	69.2	LOS E	1.9	13.7	0.99	0.74	0.99	49.5
9	R2	269	2.0	269	2.0	* 2.989	1833.7	LOS F	57.3	407.7	1.00	2.20	5.38	4.5
Approach		523	1.8	523	1.8	2.989	974.9	LOS F	57.3	407.7	0.99	1.55	3.25	8.0
West: Camden Valley Way														
10	L2	257	1.6	257	1.6	0.214	13.7	LOS A	2.8	20.2	0.44	0.71	0.44	51.6
11	T1	2829	8.0	2829	8.0	* 1.352	370.5	LOS F	172.5	1288.1	1.00	2.39	2.80	8.8
12	R2	15	7.1	15	7.1	0.144	77.8	LOS F	0.6	4.6	0.98	0.69	0.98	28.5
Approach		3101	7.5	3101	7.5	1.352	339.6	LOS F	172.5	1288.1	0.95	2.24	2.59	9.0
All Vehicles		6498	6.9	6498	6.9	2.989	274.1	LOS F	172.5	1288.1	0.96	1.68	2.08	11.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B	Slip/ Bypass	53	31.6	LOS D	0.1	0.1	0.92	0.92	189.7	205.5	1.08
All Pedestrians		263	57.7	LOS E	0.2	0.2	0.95	0.95	230.4	224.4	0.97

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - AM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM (Network Folder: 2040 Base + Stage 5 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh.	Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Allenby Rd														
1	L2	293	7.9	281	8.0	0.223	8.1	LOS A	0.4	3.0	0.37	0.65	0.37	74.1
Approach		293	7.9	281[N1]	8.0	0.223	8.1	LOS A	0.4	3.0	0.37	0.65	0.37	74.1
East: Bringelly Rd														
4	L2	582	5.8	582	5.8	0.323	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	462	8.0	462	8.0	0.123	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		1044	6.8	1044	6.8	0.323	4.0	NA	0.0	0.0	0.00	0.35	0.00	71.5
All Vehicles		1337	7.0	1326[N1]	7.1	0.323	4.8	NA	0.4	3.0	0.08	0.41	0.08	73.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - AM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM (Network Folder: 2040 Base + Stage 5 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	5	0.0	5	0.0	0.034	6.9	LOS A	0.0	0.0	0.00	0.05	0.00	77.9
2	T1	59	8.9	59	8.9	0.034	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	77.9
Approach		64	8.2	64	8.2	0.034	0.6	NA	0.0	0.0	0.00	0.05	0.00	77.9
North: Barry Avenue														
8	T1	244	7.8	244	7.8	0.131	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	420	3.3	420	3.3	0.251	7.0	LOS A	0.6	4.0	0.19	0.60	0.19	76.4
Approach		664	4.9	664	4.9	0.251	4.5	NA	0.6	4.0	0.12	0.38	0.12	77.7
West: Catherine Fields Rd														
10	L2	399	4.7	381	4.8	0.260	7.3	LOS A	0.5	3.8	0.17	0.59	0.17	73.4
12	R2	4	0.0	4	0.0	0.260	15.2	LOS B	0.5	3.8	0.17	0.59	0.17	72.4
Approach		403	4.7	385 N1	4.7	0.260	7.4	LOS A	0.5	3.8	0.17	0.59	0.17	73.4
All Vehicles		1132	5.0	1114 N1	5.1	0.260	5.2	NA	0.6	4.0	0.13	0.43	0.13	76.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - AM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road Entry
Site Category: 2041 Base + Stage 5 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	403	4.7	385	4.7	0.678	4.9	LOS A	3.9	28.0	0.75	0.68	1.29	26.9
3	R2	577	0.0	551	0.0	0.678	9.2	LOS A	3.9	28.0	0.75	0.68	1.29	35.2
Approach		980	1.9	936 N1	1.9	0.678	7.4	NA	3.9	28.0	0.75	0.68	1.29	33.6
North: Catherine Fields Rd														
7	L2	247	0.0	247	0.0	0.233	3.7	LOS A	0.0	0.0	0.00	0.27	0.00	39.6
8	T1	178	7.7	178	7.7	0.233	0.3	LOS A	0.0	0.0	0.00	0.27	0.00	39.4
Approach		425	3.2	425	3.2	0.233	2.3	NA	0.0	0.0	0.00	0.27	0.00	39.6
All Vehicles		1405	2.3	1362 N1	2.4	0.678	5.8	NA	3.9	28.0	0.52	0.55	0.89	37.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Organisation: ASON GROUP PTY LTD | Licence: NETWORK / 1PC | Processed: Friday, 4 February 2022 4:01:34 PM
Project: C:\Users\Meg Kong\Ason Group\Ason Group Team Site - Ason SL3 (Engineer)\Projects\1700-1799\1769\Projects\5. Modelling \1769m01v01 Minarah_2021 Base - TL Version.sip9

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - AM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road Exit
Site Category: 2041 Base + Stage 5 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	815	2.3	771	2.4	0.408	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
Approach		815	2.3	771 N1	2.4	0.408	0.2	NA	0.0	0.0	0.00	0.00	0.00	39.8
East: School Exit														
4	L2	660	0.0	660	0.0	0.868	13.6	LOS A	7.7	53.9	0.54	1.18	1.63	29.5
6	R2	165	0.0	165	0.0	0.868	28.3	LOS B	7.7	53.9	0.54	1.18	1.63	29.5
Approach		825	0.0	825	0.0	0.868	16.6	LOS B	7.7	53.9	0.54	1.18	1.63	29.5
North: Catherine Fields Rd														
8	T1	178	7.7	178	7.7	0.097	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		178	7.7	178	7.7	0.097	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1818	1.8	1774 N1	1.8	0.868	7.8	NA	7.7	53.9	0.25	0.55	0.76	34.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - AM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	35	6.1	32	6.0	0.317	6.0	LOS A	0.0	0.0	0.00	0.03	0.00	58.9
2	T1	611	1.6	567	1.5	0.317	0.4	LOS A	0.0	0.0	0.00	0.03	0.00	59.7
Approach		645	1.8	599 N1	1.8	0.317	0.7	NA	0.0	0.0	0.00	0.03	0.00	59.6
North: Catherine Fields Rd														
8	T1	636	0.7	636	0.7	0.562	3.2	LOS A	2.0	14.4	0.52	0.22	0.83	52.0
9	R2	202	4.7	202	4.7	0.562	11.6	LOS A	2.0	14.4	0.52	0.22	0.83	53.4
Approach		838	1.6	838	1.6	0.562	5.2	NA	2.0	14.4	0.52	0.22	0.83	52.5
West: Springfield Rd														
10	L2	204	4.6	204	4.6	0.523	13.0	LOS A	1.1	8.0	0.71	1.01	1.16	46.2
12	R2	52	8.2	52	8.2	0.523	32.8	LOS C	1.1	8.0	0.71	1.01	1.16	46.2
Approach		256	5.3	256	5.3	0.523	17.0	LOS B	1.1	8.0	0.71	1.01	1.16	46.2
All Vehicles		1739	2.2	1693 N1	2.3	0.562	5.4	NA	2.0	14.4	0.36	0.27	0.59	56.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - PM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM (Network Folder: 2040 Base + Stage 5 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: 2021 Base
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	14	7.7	14	7.7	0.455	80.5	LOS F	2.8	20.4	0.99	0.76	0.99	30.5
2	T1	55	1.9	55	1.9	* 0.455	68.7	LOS E	2.8	20.4	0.99	0.76	0.99	20.4
3	R2	40	7.9	40	7.9	0.394	80.0	LOS F	1.7	12.8	1.00	0.74	1.00	28.3
Approach		108	4.9	108	4.9	0.455	74.4	LOS F	2.8	20.4	1.00	0.75	1.00	25.2
East: Camden Valley Way														
4	L2	41	7.7	41	7.7	0.047	14.2	LOS A	0.7	5.8	0.33	0.60	0.33	59.1
5	T1	2949	8.0	2949	8.0	* 1.242	270.3	LOS F	150.8	1125.1	1.00	2.06	2.39	11.6
6	R2	398	2.9	398	2.9	* 1.215	188.0	LOS F	22.6	162.3	0.99	1.17	2.01	7.9
Approach		3388	7.4	3388	7.4	1.242	257.5	LOS F	150.8	1125.1	0.99	1.94	2.32	11.2
North: Catherine Fields Rd														
7	L2	206	1.5	204	1.5	0.523	51.2	LOS D	6.4	45.1	0.94	0.83	0.94	54.7
8	T1	44	0.0	44	0.0	0.282	67.6	LOS E	1.8	12.5	0.98	0.73	0.98	49.9
9	R2	293	2.2	289	2.2	* 2.813	1677.3	LOS F	60.0	427.6	1.00	2.24	5.25	4.9
Approach		543	1.7	537 [N1]	1.8	2.813	928.6	LOS F	60.0	427.6	0.98	1.58	3.26	8.4
West: Camden Valley Way														
10	L2	293	2.2	293	2.2	0.266	14.9	LOS B	3.6	26.6	0.49	0.72	0.49	50.2
11	T1	2344	8.0	2344	8.0	1.202	240.6	LOS F	117.1	871.7	1.00	1.93	2.24	12.9
12	R2	14	7.7	14	7.7	0.120	76.2	LOS F	0.6	4.2	0.97	0.69	0.97	28.9
Approach		2651	7.4	2651	7.4	1.202	214.8	LOS F	117.1	871.7	0.94	1.79	2.04	13.2
All Vehicles		6691	6.9	6684 [N1]	6.9	2.813	291.5	LOS F	150.8	1125.1	0.97	1.83	2.26	11.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											

P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95
West: Camden Valley Way											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B	Slip/ Bypass	53	30.5	LOS D	0.1	0.1	0.92	0.92	188.6	205.5	1.09
All Pedestrians		263	57.5	LOS E	0.2	0.2	0.95	0.95	230.1	224.4	0.98

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - PM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM (Network Folder: 2040 Base + Stage 5 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	389	7.8	375	7.9	0.286	8.0	LOS A	0.6	4.2	0.35	0.63	0.35	74.1
Approach		389	7.8	375 N1	7.9	0.286	8.0	LOS A	0.6	4.2	0.35	0.63	0.35	74.1
East: Bringelly Rd														
4	L2	632	5.8	632	5.8	0.351	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.4
5	T1	388	7.9	388	7.9	0.104	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		1020	6.6	1020	6.6	0.351	4.4	NA	0.0	0.0	0.00	0.39	0.00	70.4
All Vehicles		1409	6.9	1395 N1	7.0	0.351	5.4	NA	0.6	4.2	0.10	0.46	0.10	72.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Organisation: ASON GROUP PTY LTD | Licence: NETWORK / 1PC | Processed: Friday, 4 February 2022 4:01:54 PM
Project: C:\Users\Meg Kong\Ason Group\Ason Group Team Site - Ason SL3 (Engineer)\Projects\1700-1799\1769\Projects\5. Modelling \1769m01v01 Minarah_2021 Base - TL Version.sip9

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - PM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM (Network Folder: 2040 Base + Stage 5 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	4	0.0	4	0.0	0.058	7.0	LOS A	0.0	0.0	0.00	0.03	0.00	79.0
2	T1	105	8.0	105	8.0	0.058	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	79.0
Approach		109	7.7	109	7.7	0.058	0.3	NA	0.0	0.0	0.00	0.03	0.00	79.0
North: Barry Avenue														
8	T1	208	8.1	208	8.1	0.112	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	505	4.0	505	4.0	0.317	7.2	LOS A	0.7	5.4	0.28	0.60	0.28	76.2
Approach		714	5.2	714	5.2	0.317	5.1	NA	0.7	5.4	0.20	0.43	0.20	77.4
West: Catherine Fields Rd														
10	L2	449	4.9	429	4.9	0.333	7.5	LOS A	0.7	5.0	0.26	0.60	0.26	73.1
12	R2	15	7.1	14	7.1	0.333	19.4	LOS B	0.7	5.0	0.26	0.60	0.26	70.9
Approach		464	5.0	443 [N1]	5.0	0.333	7.9	LOS A	0.7	5.0	0.26	0.60	0.26	73.0
All Vehicles		1287	5.3	1266 [N1]	5.4	0.333	5.7	NA	0.7	5.4	0.20	0.45	0.20	76.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - PM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road Entry
Site Category: 2041 Base + Stage 5 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh.	Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Catherine Fields Rd														
2	T1	464	5.0	443	5.0	0.762	7.2	LOS A	5.2	37.4	0.85	0.81	1.80	24.4
3	R2	577	0.0	550	0.0	0.762	11.8	LOS A	5.2	37.4	0.85	0.81	1.80	34.1
Approach		1041	2.2	993 N1	2.2	0.762	9.7	NA	5.2	37.4	0.85	0.81	1.80	31.9
North: Catherine Fields Rd														
7	L2	247	0.0	247	0.0	0.279	3.8	LOS A	0.0	0.0	0.00	0.22	0.00	39.6
8	T1	262	8.0	262	8.0	0.279	0.4	LOS A	0.0	0.0	0.00	0.22	0.00	39.5
Approach		509	4.1	509	4.1	0.279	2.1	NA	0.0	0.0	0.00	0.22	0.00	39.6
All Vehicles		1551	2.9	1502 N1	2.9	0.762	7.1	NA	5.2	37.4	0.56	0.61	1.19	37.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - PM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road Exit
Site Category: 2041 Base + Stage 5 Dev
Give-Way (Two-Way)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Vehicle Movement Performance														
South: Catherine Fields Rd														
2	T1	877	2.8	831	2.8	0.441	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
Approach		877	2.8	831 N1	2.8	0.441	0.2	NA	0.0	0.0	0.00	0.00	0.00	39.8
East: School Exit														
4	L2	660	0.0	660	0.0	1.016	53.8	LOS D	19.2	134.7	1.00	3.04	5.34	17.5
6	R2	165	0.0	165	0.0	1.016	82.7	LOS F	19.2	134.7	1.00	3.04	5.34	17.5
Approach		825	0.0	825	0.0	1.016	59.6	LOS E	19.2	134.7	1.00	3.04	5.34	17.5
North: Catherine Fields Rd														
8	T1	262	8.0	262	8.0	0.144	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		262	8.0	262	8.0	0.144	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1964	2.3	1918 N1	2.4	1.016	25.7	NA	19.2	134.7	0.43	1.31	2.30	25.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

▽ Site: 5 [5. Catherine Fields Road/ Springfield Road - PM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	54	7.8	50	7.8	0.370	6.1	LOS A	0.0	0.0	0.00	0.04	0.00	58.8
2	T1	692	2.3	646	2.3	0.370	0.5	LOS A	0.0	0.0	0.00	0.04	0.00	59.6
Approach		745	2.7	696 N1	2.7	0.370	0.9	NA	0.0	0.0	0.00	0.04	0.00	59.5
North: Catherine Fields Rd														
8	T1	675	1.2	667	1.3	0.673	5.7	LOS A	3.3	23.5	0.73	0.29	1.36	48.4
9	R2	247	5.1	245	5.2	0.673	14.8	LOS B	3.3	23.5	0.73	0.29	1.36	51.3
Approach		922	2.3	911 N1	2.3	0.673	8.2	NA	3.3	23.5	0.73	0.29	1.36	49.5
West: Springfield Rd														
10	L2	185	4.5	185	4.5	0.498	13.7	LOS A	1.0	7.0	0.74	1.01	1.16	45.2
12	R2	34	6.3	34	6.3	0.498	41.0	LOS C	1.0	7.0	0.74	1.01	1.16	45.2
Approach		219	4.8	219	4.8	0.498	17.9	LOS B	1.0	7.0	0.74	1.01	1.16	45.2
All Vehicles		1886	2.7	1826 N1	2.8	0.673	6.6	NA	3.3	23.5	0.45	0.28	0.82	55.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - AM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	8	12.5	8	12.5	0.423	81.7	LOS F	2.4	17.4	0.99	0.75	0.99	30.1
2	T1	49	2.1	49	2.1	* 0.423	69.5	LOS E	2.4	17.4	0.99	0.75	0.99	20.4
3	R2	37	8.6	37	8.6	0.417	81.5	LOS F	1.6	12.0	1.00	0.73	1.00	27.9
Approach		95	5.6	95	5.6	0.423	75.2	LOS F	2.4	17.4	1.00	0.75	1.00	24.8
East: Camden Valley Way														
4	L2	28	11.1	28	11.1	0.040	14.2	LOS A	0.5	5.1	0.33	0.55	0.33	59.9
5	T1	2411	8.0	2411	8.0	0.982	58.7	LOS E	62.6	466.4	0.97	1.12	1.22	35.2
6	R2	340	2.2	340	2.2	* 1.240	202.5	LOS F	20.4	145.6	1.00	1.15	2.09	7.4
Approach		2779	7.3	2779	7.3	1.240	75.8	LOS F	62.6	466.4	0.96	1.11	1.31	28.2
North: Catherine Fields Rd														
7	L2	207	1.5	207	1.5	0.620	61.2	LOS E	6.8	48.0	0.98	0.89	0.98	51.8
8	T1	46	2.3	46	2.3	0.334	69.2	LOS E	1.9	13.7	0.99	0.74	0.99	49.5
9	R2	269	2.0	269	2.0	* 2.989	1833.7	LOS F	57.3	407.7	1.00	2.20	5.38	4.5
Approach		523	1.8	523	1.8	2.989	974.9	LOS F	57.3	407.7	0.99	1.55	3.25	8.0
West: Camden Valley Way														
10	L2	257	1.6	257	1.6	0.214	13.7	LOS A	2.8	20.2	0.44	0.71	0.44	51.6
11	T1	2829	8.0	2829	8.0	* 1.352	370.5	LOS F	172.5	1288.1	1.00	2.39	2.80	8.8
12	R2	15	7.1	15	7.1	0.144	77.8	LOS F	0.6	4.6	0.98	0.69	0.98	28.5
Approach		3101	7.5	3101	7.5	1.352	339.6	LOS F	172.5	1288.1	0.95	2.24	2.59	9.0
All Vehicles		6498	6.9	6498	6.9	2.989	274.1	LOS F	172.5	1288.1	0.96	1.68	2.08	11.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B Slip/ Bypass	53	31.6	LOS D	0.1	0.1	0.92	0.92	189.7	205.5	1.08
All Pedestrians	263	57.7	LOS E	0.2	0.2	0.95	0.95	230.4	224.4	0.97

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - AM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Allenby Rd														
1	L2	293	7.9	281	8.0	0.223	8.1	LOS A	0.4	3.0	0.37	0.65	0.37	74.1
Approach		293	7.9	281 N1	8.0	0.223	8.1	LOS A	0.4	3.0	0.37	0.65	0.37	74.1
East: Bringelly Rd														
4	L2	582	5.8	582	5.8	0.323	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.5
5	T1	462	8.0	462	8.0	0.123	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		1044	6.8	1044	6.8	0.323	4.0	NA	0.0	0.0	0.00	0.35	0.00	71.5
All Vehicles		1337	7.0	1326 N1	7.1	0.323	4.8	NA	0.4	3.0	0.08	0.41	0.08	73.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - AM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	5	0.0	5	0.0	0.034	6.9	LOS A	0.0	0.0	0.00	0.05	0.00	77.9
2	T1	59	8.9	59	8.9	0.034	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	77.9
Approach		64	8.2	64	8.2	0.034	0.6	NA	0.0	0.0	0.00	0.05	0.00	77.9
North: Barry Avenue														
8	T1	244	7.8	244	7.8	0.131	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	420	3.3	420	3.3	0.251	7.0	LOS A	0.6	4.0	0.19	0.60	0.19	76.4
Approach		664	4.9	664	4.9	0.251	4.5	NA	0.6	4.0	0.12	0.38	0.12	77.7
West: Catherine Fields Rd														
10	L2	399	4.7	381	4.8	0.260	7.3	LOS A	0.5	3.8	0.17	0.59	0.17	73.4
12	R2	4	0.0	4	0.0	0.260	15.2	LOS B	0.5	3.8	0.17	0.59	0.17	72.4
Approach		403	4.7	385 N1	4.7	0.260	7.4	LOS A	0.5	3.8	0.17	0.59	0.17	73.4
All Vehicles		1132	5.0	1114 N1	5.1	0.260	5.2	NA	0.6	4.0	0.13	0.43	0.13	76.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - AM - CHR (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road Entry
Site Category: 2041 Base + Stage 5 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	403	4.7	385	4.7	0.209	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
3	R2	577	0.0	551	0.0	0.469	7.0	LOS A	1.4	10.0	0.60	0.83	0.80	35.5
Approach		980	1.9	936 N1	1.9	0.469	4.1	NA	1.4	10.0	0.36	0.49	0.47	36.1
North: Catherine Fields Rd														
7	L2	247	0.0	247	0.0	0.233	3.7	LOS A	0.0	0.0	0.00	0.27	0.00	39.6
8	T1	178	7.7	178	7.7	0.233	0.3	LOS A	0.0	0.0	0.00	0.27	0.00	39.4
Approach		425	3.2	425	3.2	0.233	2.3	NA	0.0	0.0	0.00	0.27	0.00	39.6
All Vehicles		1405	2.3	1362 N1	2.4	0.469	3.6	NA	1.4	10.0	0.24	0.42	0.32	38.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - AM - RTB (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road Exit
Site Category: 2041 Base + Stage 5 Dev
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	815	2.3	771	2.4	0.408	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
Approach		815	2.3	771 N1	2.4	0.408	0.2	NA	0.0	0.0	0.00	0.00	0.00	39.8
East: School Exit														
4	L2	824	0.0	824	0.0	0.591	5.2	LOS A	2.3	16.3	0.46	0.60	0.55	35.9
Approach		824	0.0	824	0.0	0.591	5.2	LOS A	2.3	16.3	0.46	0.60	0.55	35.9
North: Catherine Fields Rd														
8	T1	178	7.7	178	7.7	0.097	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		178	7.7	178	7.7	0.097	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1817	1.8	1773 N1	1.8	0.591	2.5	NA	2.3	16.3	0.22	0.28	0.25	37.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - AM - RTB (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [AM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	35	6.1	32	6.0	0.317	6.0	LOS A	0.0	0.0	0.00	0.03	0.00	58.9
2	T1	611	1.6	567	1.5	0.317	0.4	LOS A	0.0	0.0	0.00	0.03	0.00	59.7
Approach		645	1.8	599 N1	1.8	0.317	0.7	NA	0.0	0.0	0.00	0.03	0.00	59.6
North: Catherine Fields Rd														
8	T1	801	0.7	801	0.7	0.649	3.4	LOS A	2.6	18.3	0.53	0.19	0.92	51.9
9	R2	202	4.7	202	4.7	0.649	12.9	LOS A	2.6	18.3	0.53	0.19	0.92	53.3
Approach		1003	1.5	1003	1.5	0.649	5.3	NA	2.6	18.3	0.53	0.19	0.92	52.3
West: Springfield Rd														
10	L2	204	4.6	204	4.6	0.682	18.6	LOS B	1.7	12.1	0.77	1.15	1.67	38.3
12	R2	52	8.2	52	8.2	0.682	51.6	LOS D	1.7	12.1	0.77	1.15	1.67	38.3
Approach		256	5.3	256	5.3	0.682	25.3	LOS B	1.7	12.1	0.77	1.15	1.67	38.3
All Vehicles		1904	2.1	1858 N1	2.2	0.682	6.6	NA	2.6	18.3	0.39	0.27	0.73	55.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Camden Valley Way/ Catherine Fields Rd - PM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Camden Valley Way/ Catherine Fields Road
Site Category: 2021 Base
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	14	7.7	14	7.7	0.455	80.5	LOS F	2.8	20.4	0.99	0.76	0.99	30.5
2	T1	55	1.9	55	1.9	* 0.455	68.7	LOS E	2.8	20.4	0.99	0.76	0.99	20.4
3	R2	40	7.9	40	7.9	0.394	80.0	LOS F	1.7	12.8	1.00	0.74	1.00	28.3
Approach		108	4.9	108	4.9	0.455	74.4	LOS F	2.8	20.4	1.00	0.75	1.00	25.2
East: Camden Valley Way														
4	L2	41	7.7	41	7.7	0.047	14.2	LOS A	0.7	5.8	0.33	0.60	0.33	59.1
5	T1	2949	8.0	2949	8.0	* 1.242	270.3	LOS F	150.8	1125.1	1.00	2.06	2.39	11.6
6	R2	398	2.9	398	2.9	* 1.215	188.0	LOS F	22.6	162.3	0.99	1.17	2.01	7.9
Approach		3388	7.4	3388	7.4	1.242	257.5	LOS F	150.8	1125.1	0.99	1.94	2.32	11.2
North: Catherine Fields Rd														
7	L2	206	1.5	206	1.5	0.529	51.5	LOS D	6.4	45.6	0.94	0.83	0.94	54.6
8	T1	44	0.0	44	0.0	0.286	67.6	LOS E	1.8	12.6	0.98	0.73	0.98	49.9
9	R2	293	2.2	293	2.2	* 2.844	1705.0	LOS F	60.9	434.3	1.00	2.25	5.27	4.8
Approach		543	1.7	543	1.7	2.844	943.6	LOS F	60.9	434.3	0.98	1.59	3.28	8.2
West: Camden Valley Way														
10	L2	293	2.2	293	2.2	0.266	14.9	LOS B	3.6	26.6	0.49	0.72	0.49	50.2
11	T1	2344	8.0	2344	8.0	1.202	240.6	LOS F	117.1	871.7	1.00	1.93	2.24	12.9
12	R2	14	7.7	14	7.7	0.120	76.2	LOS F	0.6	4.2	0.97	0.69	0.97	28.9
Approach		2651	7.4	2651	7.4	1.202	214.8	LOS F	117.1	871.7	0.94	1.79	2.04	13.2
All Vehicles		6691	6.9	6691	6.9	2.844	293.3	LOS F	150.8	1125.1	0.97	1.83	2.26	11.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Catherine Fields Rd											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.1	213.0	0.93
East: Camden Valley Way											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	250.0	241.5	0.97
North: Catherine Fields Rd											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.4	222.5	0.95

West: Camden Valley Way										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.5	239.5	0.96
P4B Slip/ Bypass	53	30.5	LOS D	0.1	0.1	0.92	0.92	188.6	205.5	1.09
All Pedestrians	263	57.5	LOS E	0.2	0.2	0.95	0.95	230.1	224.4	0.98

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

MOVEMENT SUMMARY

Site: 1 [1. Bringelly Rd/ Allenby Rd - PM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Bringelly Road/ Allenby Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total	HV]	ARRIVAL FLOWS [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Veh.	Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Allenby Rd														
1	L2	389	7.8	376	7.9	0.286	8.0	LOS A	0.6	4.2	0.36	0.63	0.36	74.2
Approach		389	7.8	376 [N1]	7.9	0.286	8.0	LOS A	0.6	4.2	0.36	0.63	0.36	74.2
East: Bringelly Rd														
4	L2	632	5.8	632	5.8	0.351	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	61.4
5	T1	388	7.9	388	7.9	0.104	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		1020	6.6	1020	6.6	0.351	4.4	NA	0.0	0.0	0.00	0.39	0.00	70.4
All Vehicles		1409	6.9	1396 [N1]	7.0	0.351	5.4	NA	0.6	4.2	0.10	0.46	0.10	72.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 2 [2. Barry Ave/ Deepfields Rd/ Catherine Fields Rd - PM (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Barry Avenue/ Deepfields Road/ Catherine Fields Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Deepfields Rd														
1	L2	4	0.0	4	0.0	0.058	7.0	LOS A	0.0	0.0	0.00	0.03	0.00	79.0
2	T1	105	8.0	105	8.0	0.058	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	79.0
Approach		109	7.7	109	7.7	0.058	0.3	NA	0.0	0.0	0.00	0.03	0.00	79.0
North: Barry Avenue														
8	T1	208	8.1	208	8.1	0.112	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	505	4.0	505	4.0	0.317	7.2	LOS A	0.7	5.4	0.28	0.60	0.28	76.2
Approach		714	5.2	714	5.2	0.317	5.1	NA	0.7	5.4	0.20	0.43	0.20	77.4
West: Catherine Fields Rd														
10	L2	449	4.9	430	4.9	0.334	7.5	LOS A	0.7	5.0	0.26	0.60	0.26	73.1
12	R2	15	7.1	14	7.1	0.334	19.4	LOS B	0.7	5.0	0.26	0.60	0.26	70.9
Approach		464	5.0	444 N1	5.0	0.334	7.9	LOS A	0.7	5.0	0.26	0.60	0.26	73.0
All Vehicles		1287	5.3	1267 N1	5.4	0.334	5.7	NA	0.7	5.4	0.20	0.45	0.20	76.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. Catherine Fields Rd Entry - PM - CHR (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road Entry
Site Category: 2041 Base + Stage 5 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	464	5.0	444	5.0	0.241	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
3	R2	577	0.0	551	0.0	0.523	8.2	LOS A	1.7	11.6	0.67	0.97	0.99	34.9
Approach		1041	2.2	995 N1	2.2	0.523	4.5	NA	1.7	11.6	0.37	0.54	0.55	35.6
North: Catherine Fields Rd														
7	L2	247	0.0	247	0.0	0.279	3.8	LOS A	0.0	0.0	0.00	0.22	0.00	39.6
8	T1	262	8.0	262	8.0	0.279	0.4	LOS A	0.0	0.0	0.00	0.22	0.00	39.5
Approach		509	4.1	509	4.1	0.279	2.1	NA	0.0	0.0	0.00	0.22	0.00	39.6
All Vehicles		1551	2.9	1505 N1	2.9	0.523	3.7	NA	1.7	11.6	0.24	0.43	0.36	38.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Organisation: ASON GROUP PTY LTD | Licence: NETWORK / 1PC | Processed: Friday, 4 February 2022 4:02:04 PM
Project: C:\Users\Meg Kong\Ason Group\Ason Group Team Site - Ason SL3 (Engineer)\Projects\1700-1799\1769\Projects\5. Modelling \1769m01v01 Minarah_2021 Base - TL Version.sip9

MOVEMENT SUMMARY

Site: 4 [4. Catherine Fields Rd Exit - PM - RTB (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road Exit
Site Category: 2041 Base + Stage 5 Dev
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
2	T1	877	2.8	831	2.8	0.441	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
Approach		877	2.8	831 N1	2.8	0.441	0.2	NA	0.0	0.0	0.00	0.00	0.00	39.8
East: School Exit														
4	L2	824	0.0	824	0.0	0.643	6.6	LOS A	3.0	20.7	0.58	0.79	0.83	35.0
Approach		824	0.0	824	0.0	0.643	6.6	LOS A	3.0	20.7	0.58	0.79	0.83	35.0
North: Catherine Fields Rd														
8	T1	262	8.0	262	8.0	0.144	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		262	8.0	262	8.0	0.144	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1963	2.3	1917 N1	2.4	0.643	2.9	NA	3.0	20.7	0.25	0.34	0.36	37.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 5 [5. Catherine Fields Road/ Springfield Road - PM - RTB (Site Folder: 2040 Base+Stage 5 Dev (1580 students))]

Network: N101 [PM - CHR & RTB (Network Folder: 2040 Base + Stage 5 Dev)]

Catherine Fields Road/ Springfield Road
Site Category: 2021 Base
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Catherine Fields Rd														
1	L2	54	7.8	50	7.8	0.370	6.1	LOS A	0.0	0.0	0.00	0.04	0.00	58.8
2	T1	692	2.3	646	2.3	0.370	0.5	LOS A	0.0	0.0	0.00	0.04	0.00	59.6
Approach		745	2.7	696 N1	2.7	0.370	0.9	NA	0.0	0.0	0.00	0.04	0.00	59.5
North: Catherine Fields Rd														
8	T1	839	0.9	839	0.9	0.766	6.5	LOS A	5.1	36.5	1.00	0.28	1.83	47.5
9	R2	247	5.1	247	5.1	0.766	17.1	LOS B	5.1	36.5	1.00	0.28	1.83	50.8
Approach		1086	1.8	1086	1.8	0.766	8.9	NA	5.1	36.5	1.00	0.28	1.83	48.6
West: Springfield Rd														
10	L2	185	4.5	185	4.5	0.679	20.7	LOS B	1.5	11.0	0.81	1.15	1.69	36.1
12	R2	34	6.3	34	6.3	0.679	69.4	LOS E	1.5	11.0	0.81	1.15	1.69	36.1
Approach		219	4.8	219	4.8	0.679	28.2	LOS B	1.5	11.0	0.81	1.15	1.69	36.1
All Vehicles		2051	2.5	2001 N1	2.5	0.766	8.2	NA	5.1	36.5	0.63	0.29	1.18	53.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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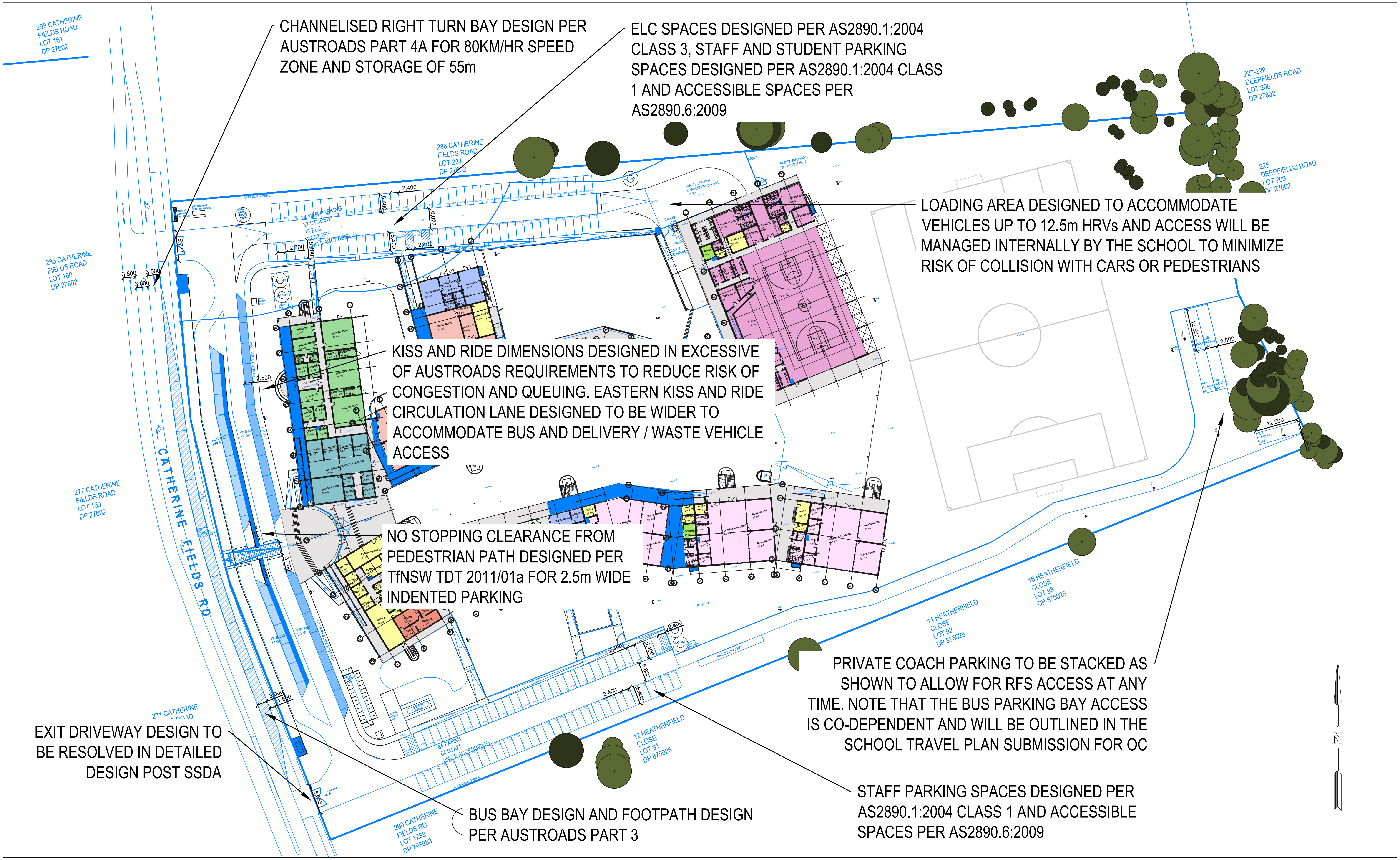
Project: C:\Users\Meg Kong\Ason Group\Ason Group Team Site - Ason SL3 (Engineer)\Projects\1700-1799\1769\Projects\5. Modelling \1769m01v01 Minarah_2021 Base - TL Version.sip9

Appendix F. Design Review



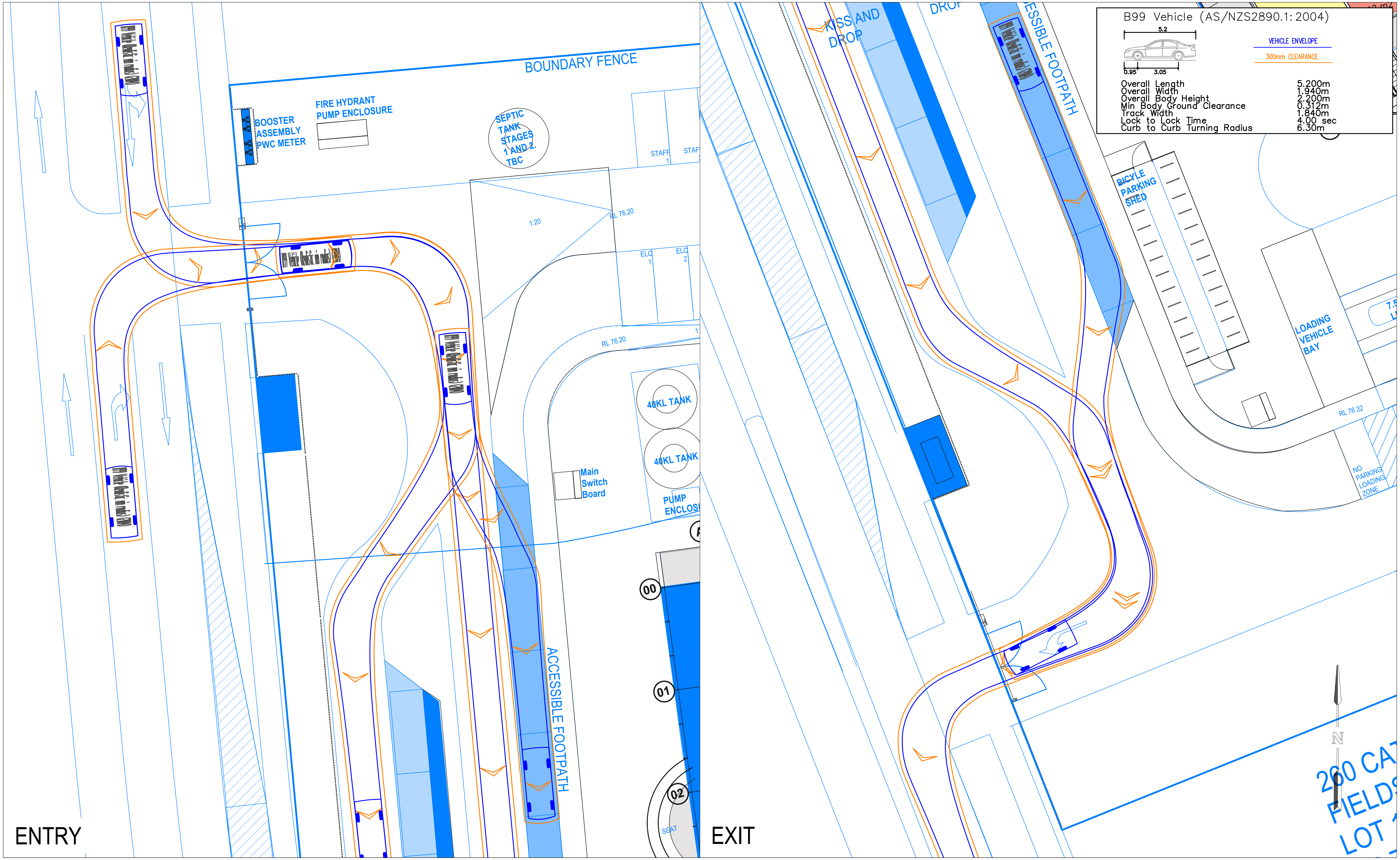
GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by TZG, received 25.03.22.
Catherine Field Road has a posted speed limit of 80km/hr at the project frontage.
Swept path assessments completed at 10 km/h and 300mm clearance.

DESIGNED: Wendy Zheng	PAPER SIZE: A3	CLIENT: MINARAH COLLEGE	DOCUMENT INFORMATION: DESIGN REVIEW
APPROVED BY: X.XXXX	DATE: 04.04.2022	PROJECT: 1769	SSD APPLICATION
SCALE: 1:1000	0 10 20	MINARAH COLLEGE, CATHERINE FIELD	FILE NAME: AG1769-02-v03.dwg — SHEET: AG01

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au

PLOT DATE: 4/04/2022 4:26:12 PM | CAD REFERENCE: C:\Users\Wendy Zheng\Documents\projects\1769 - Minarah College\AG1769-02-v03.dwg | Wendy Zheng |



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Swept path assessments completed at 10 km/h and 300mm clearance.

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Wendy Zheng	A3
APPROVED BY	DATE
X.XXXX	04.04.2022
SCALE	0 2.5 5
1:250	

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PROJECT
1769
MINARAH COLLEGE, CATHERINE FIELD

DOCUMENT INFORMATION
SWEPT PATH ASSESSMENT
KISS AND RIDE ACCESS

FILE NAME	SHEET
AG1769-02-v03.dwg	AG02

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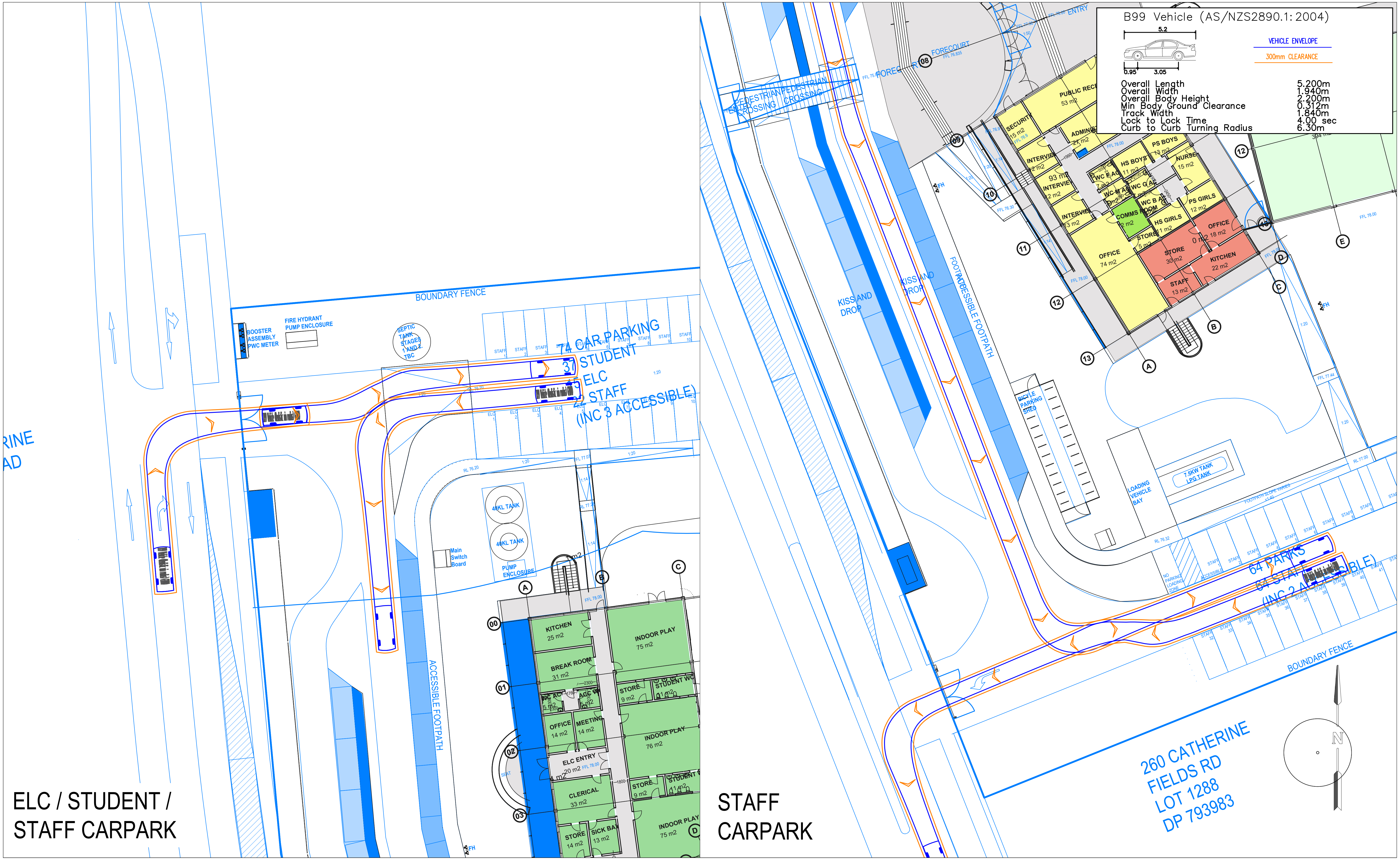

GENERAL NOTES

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Swept path assessments completed at 10 km/h and 300mm clearance.

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SCALE	0 2.5 5
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DOCUMENT INFORMATION
SWEPT PATH ASSESSMENT
CAR PARK ACCESS

FILE NAME	SHEET
AG1769-02-v03.dwg	AG03

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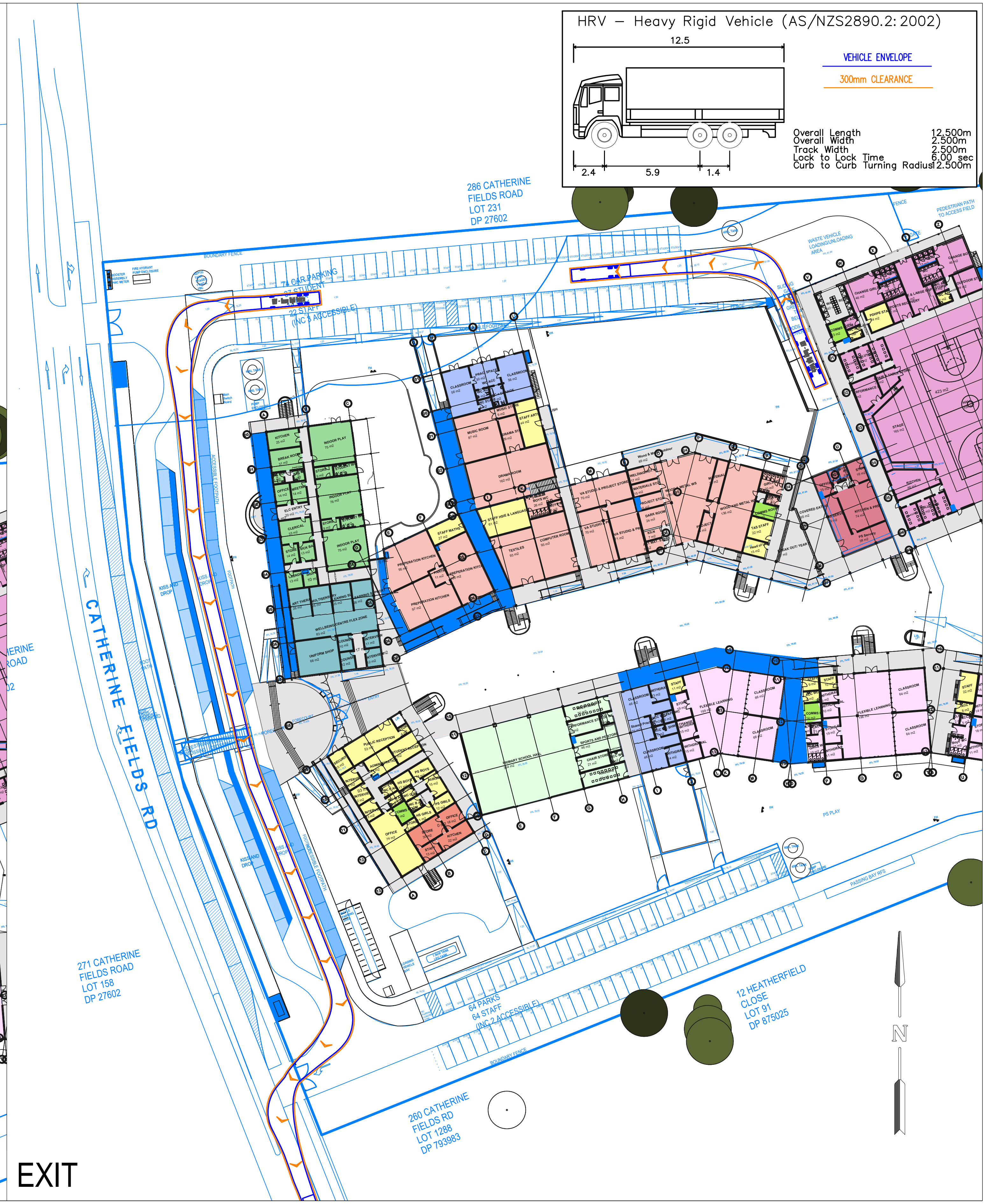

GENERAL NOTES

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Base Plan prepared by TZG, received 25.03.22.
Catherine Field Road has a posted speed limit of 80km/hr at the project frontage.
Swept path assessments completed at 10 km/h and 300mm clearance.

DESIGNED	PAPER SIZE
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APPROVED BY	DATE
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SCALE	0 10 20
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PROJECT
1769
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DOCUMENT INFORMATION
SWEPT PATH ASSESSMENT
WASTE / DELIVERY ACCESS

FILE NAME	SHEET
AG1769-02-v03.dwg	AG04

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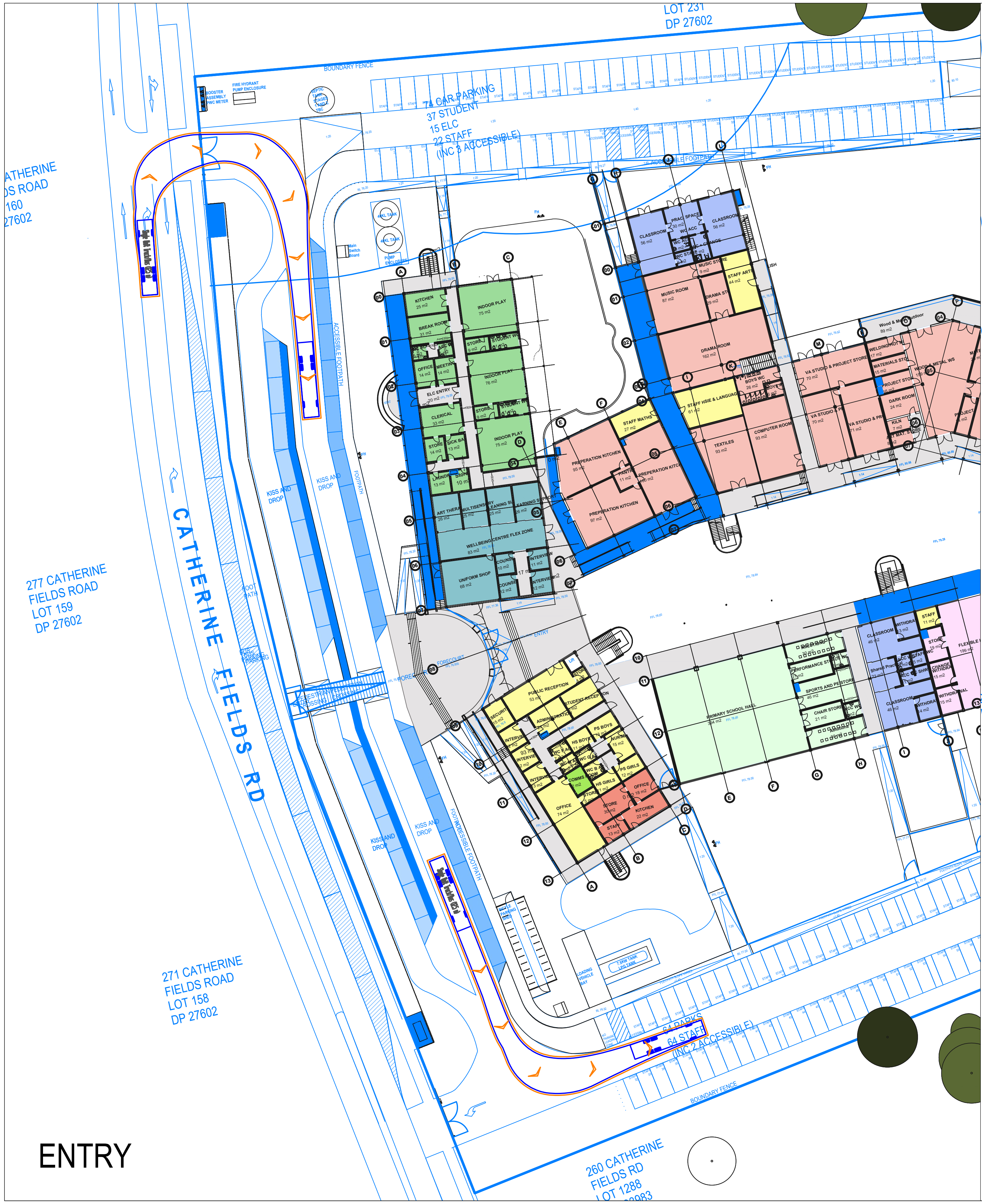

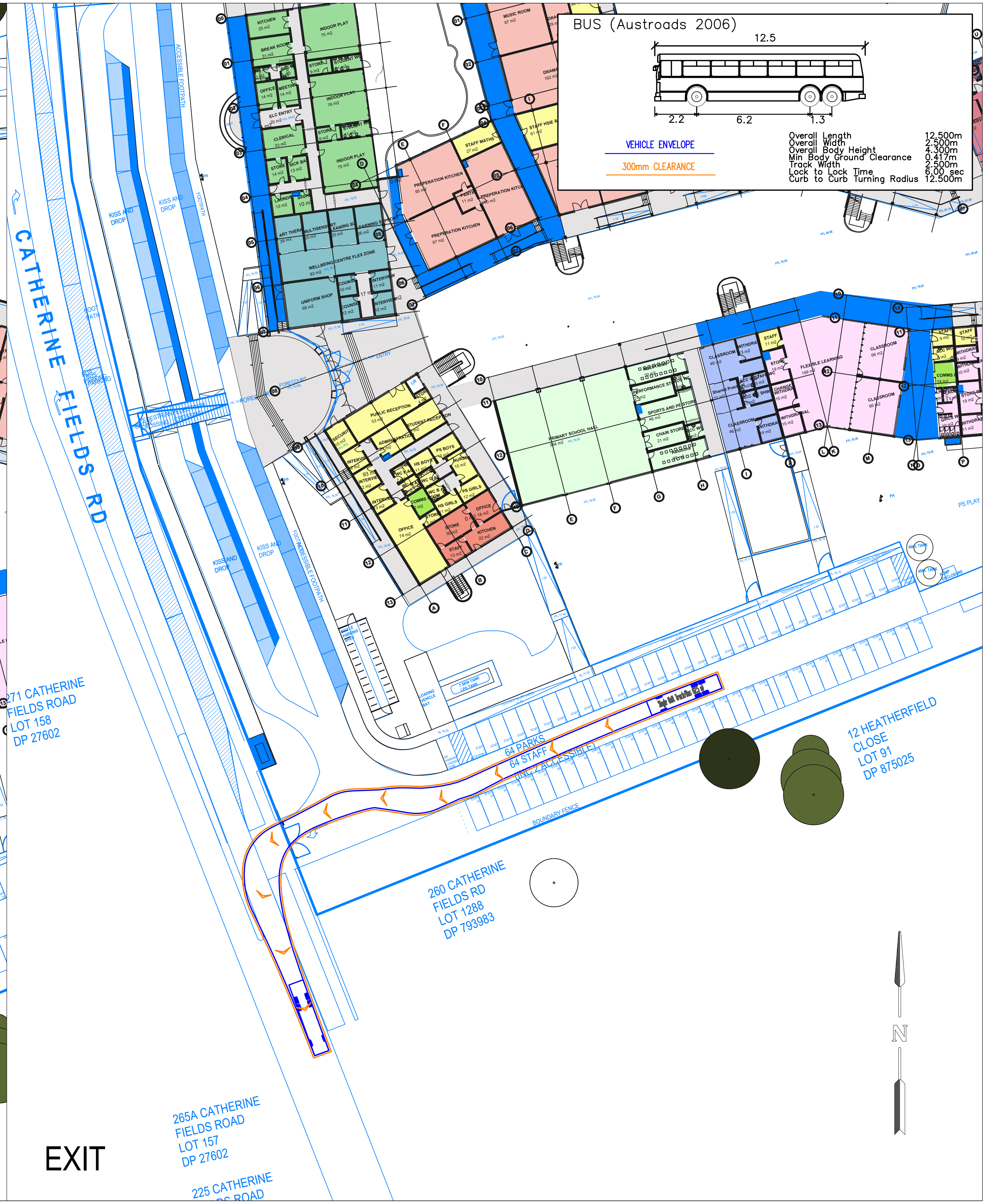

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Wendy Zheng	A3	MINARAH COLLEGE	SWEPT PATH ASSESSMENT
APPROVED BY	DATE	PROJECT	PRIVATE STUDENT BUS / RFS ACCESS
X.XXXX	04.04.2022	1769	FILE NAME: AG1769-02-v03.dwg
SCALE	0 10 20	MINARAH COLLEGE, CATHERINE FIELD	SHEET: AG05
1:800			

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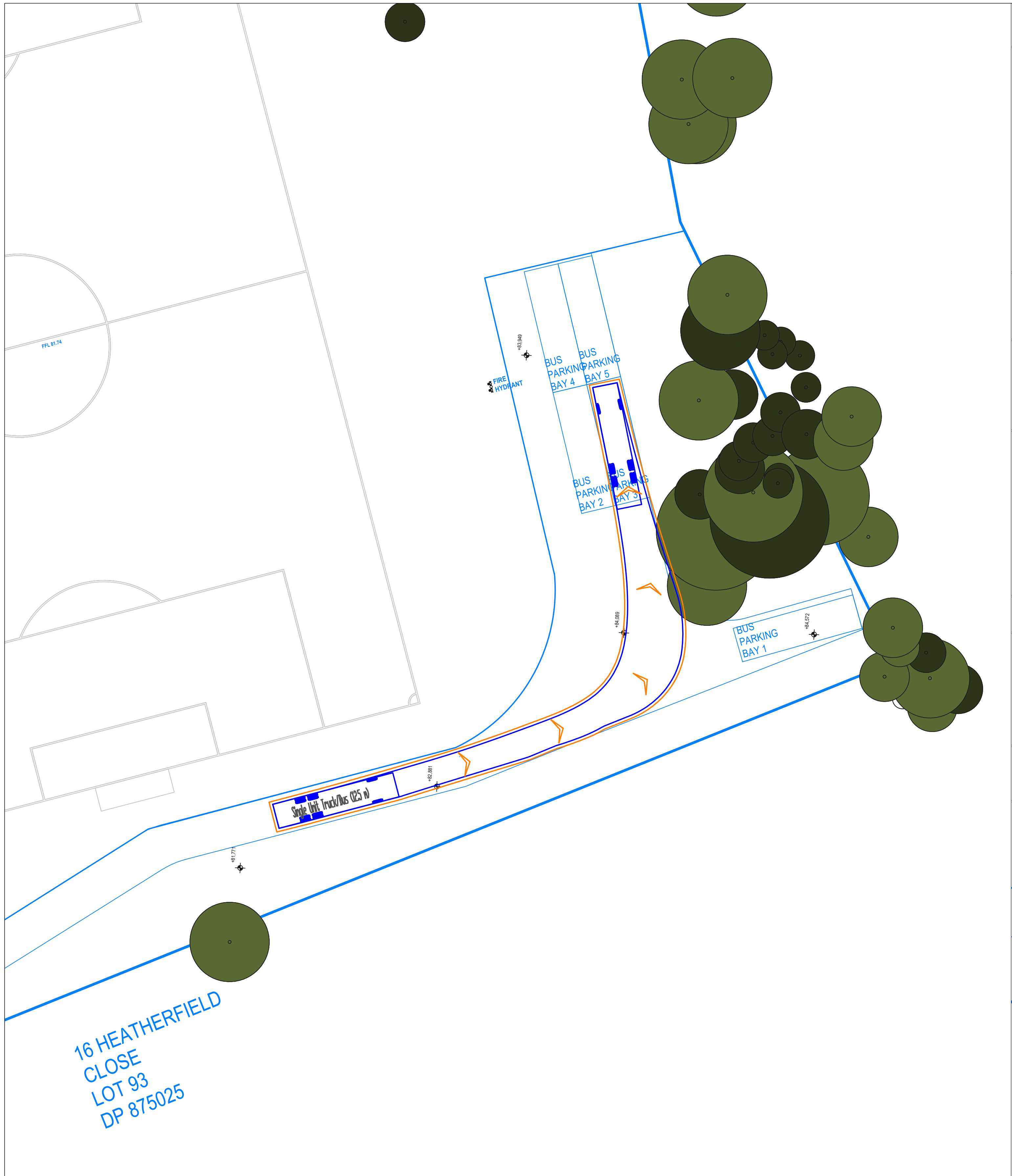
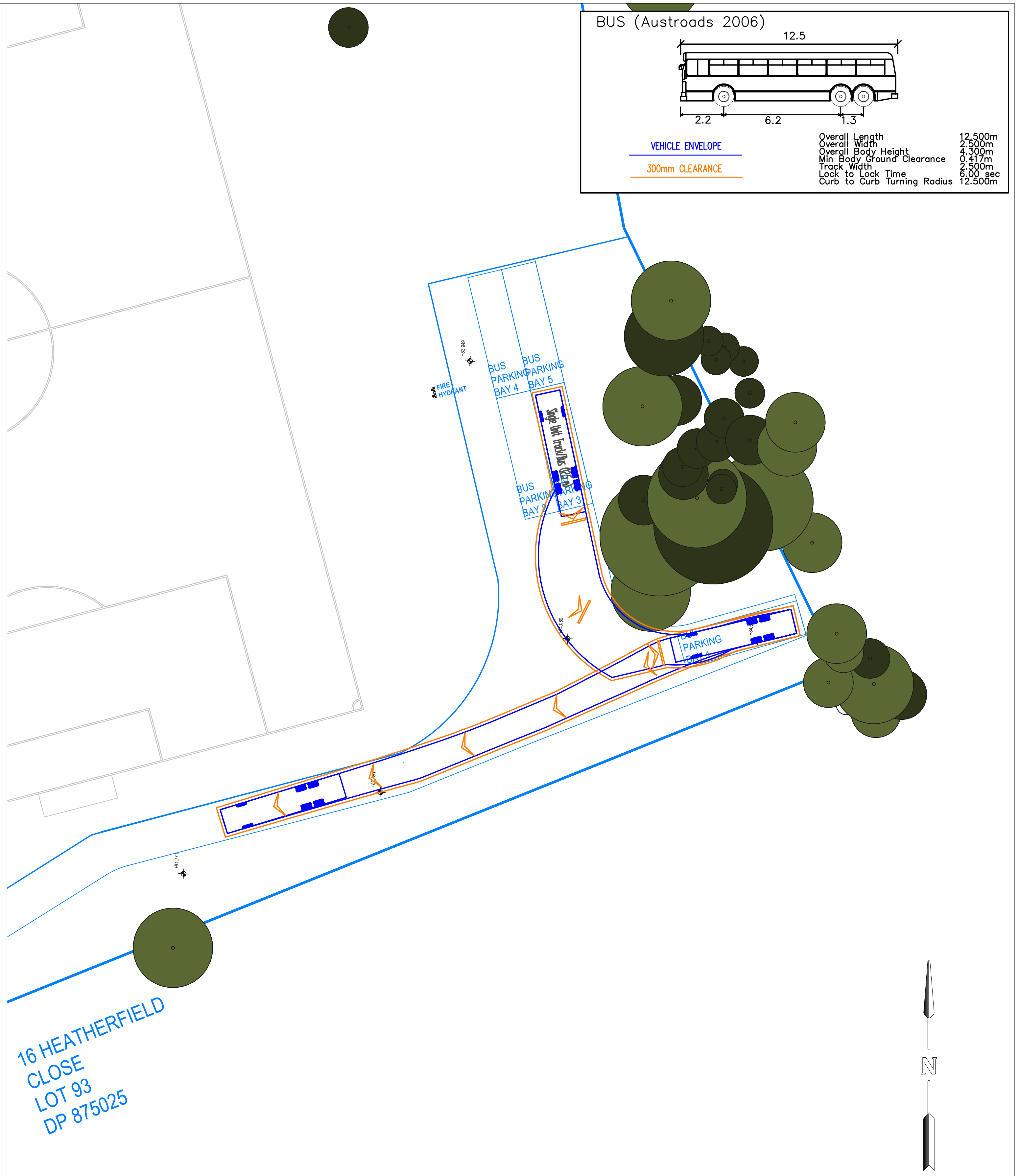


PARKING ENTRY



PARKING EXIT

GENERAL NOTES

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APPROVED BY: X.XXXX	DATE: 04.04.2022	PROJECT: 1769
SCALE: 1:500	0 5 10	MINARAH COLLEGE, CATHERINE FIELD

DOCUMENT INFORMATION

SWEPT PATH ASSESSMENT

PRIVATE STUDENT BUS ACCESS

FILE NAME	SHEET
AG1769-02-v03.dwg	AG06

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Swept path assessments completed at 10 km/h and 300mm clearance.

DESIGNED: Wendy Zheng	PAPER SIZE: A3	CLIENT: MINARAH COLLEGE	DOCUMENT INFORMATION: SWEPT PATH ASSESSMENT
APPROVED BY: X.XXXX	DATE: 04.04.2022	PROJECT: 1769	RFS / BUS BAY ACCESS
SCALE: #####	0 10 20	MINARAH COLLEGE, CATHERINE FIELD	FILE NAME: AG1769-02-v03.dwg — SHEET: AG07

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