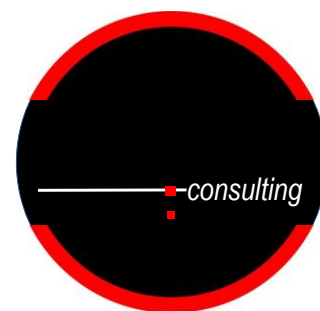


# Gillieston Public School Redevelopment and New Public Preschool



## Traffic and Transport Impact Assessment

**NSW Department of Education**

28 May 2025



**Gold Coast**

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

**Brisbane**

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

**Sydney**

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

**W:** [www.bitziosconsulting.com.au](http://www.bitziosconsulting.com.au)

**E:** [admin@bitziosconsulting.com.au](mailto:admin@bitziosconsulting.com.au)

*Copyright in the information and data in this document is the property of Bitzios Consulting. This document and its information and data is for the use of the authorised recipient and this document may not be used, copied or reproduced in whole or in part for any purpose other than for which it was supplied by Bitzios Consulting. Bitzios Consulting makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or its information and data.*

**Document Issue History**

Report File Name	Version	Document Control		Date	Issued to
P5924.001R Gillieston PS TTIA (Draft)	001	Prepared:	H. Yesudas/ J. Imai	19/09/2024	Priya Mekala, on behalf of SINSW <a href="mailto:priya.mekala@johnstaff.com.au">priya.mekala@johnstaff.com.au</a>
		Reviewed:	J. Brook/A.Eke		
		Issued	J. Imai		
P5924.002R Gillieston PS TTIA	002	Prepared:	H. Yesudas/ J. Imai	29/09/2024	Tristan Xu, on behalf of SINSW <a href="mailto:priya.mekala@johnstaff.com.au">priya.mekala@johnstaff.com.au</a> <a href="mailto:tristan.xu@johnstaff.com.au">tristan.xu@johnstaff.com.au</a> <a href="mailto:zac.casimatis@johnstaff.com.au">zac.casimatis@johnstaff.com.au</a>
		Reviewed:	A.Eke		
		Issued	A.Eke		
P5924.003R Gillieston PS TTIA	003	Prepared:	J. Imai / J. Brook	18/11/2024	Tristan Xu, on behalf of SINSW <a href="mailto:priya.mekala@johnstaff.com.au">priya.mekala@johnstaff.com.au</a> <a href="mailto:tristan.xu@johnstaff.com.au">tristan.xu@johnstaff.com.au</a> <a href="mailto:zac.casimatis@johnstaff.com.au">zac.casimatis@johnstaff.com.au</a>
		Reviewed:	A.Eke		
		Issued	J. Brook		
P5924.004R Gillieston PS TTIA	004	Prepared:	J. Brook	25/11/2024	Tristan Xu, on behalf of SINSW <a href="mailto:priya.mekala@johnstaff.com.au">priya.mekala@johnstaff.com.au</a> <a href="mailto:tristan.xu@johnstaff.com.au">tristan.xu@johnstaff.com.au</a> <a href="mailto:zac.casimatis@johnstaff.com.au">zac.casimatis@johnstaff.com.au</a>
		Reviewed:	A.Eke		
		Issued	J. Brook		
P5924.005R Gillieston Public School Redevelopment and New Public Preschool TTIA	005	Prepared:	J. Brook	17/01/2025	Tristan Xu, on behalf of SINSW <a href="mailto:priya.mekala@johnstaff.com.au">priya.mekala@johnstaff.com.au</a> <a href="mailto:tristan.xu@johnstaff.com.au">tristan.xu@johnstaff.com.au</a> <a href="mailto:zac.casimatis@johnstaff.com.au">zac.casimatis@johnstaff.com.au</a>
		Reviewed:	A.Eke		
		Issued	J. Brook		
P5924.006R Gillieston Public School Redevelopment and New Public Preschool TTIA	006	Prepared:	J. Brook	09/05/2025	Jason Ayoub, on behalf of SINSW <a href="mailto:jason.ayoub@johnstaff.com.au">jason.ayoub@johnstaff.com.au</a> <a href="mailto:zac.casimatis@johnstaff.com.au">zac.casimatis@johnstaff.com.au</a>
		Reviewed:	A.Eke		
		Issued	J. Brook		
P5924.007R Gillieston Public School Redevelopment and New Public Preschool TTIA	007	Prepared:	J. Brook	14/05/2025	Jason Ayoub, on behalf of SINSW <a href="mailto:jason.ayoub@johnstaff.com.au">jason.ayoub@johnstaff.com.au</a> <a href="mailto:zac.casimatis@johnstaff.com.au">zac.casimatis@johnstaff.com.au</a>
		Reviewed:	A.Eke		
		Issued	J. Brook		
P5924.008R Gillieston Public School Redevelopment and New Public Preschool TTIA	008	Prepared:	J. Brook	28/05/2025	Zac Casimatis, on behalf of SINSW <a href="mailto:jason.ayoub@johnstaff.com.au">jason.ayoub@johnstaff.com.au</a> <a href="mailto:zac.casimatis@johnstaff.com.au">zac.casimatis@johnstaff.com.au</a>
		Reviewed:	A.Eke		
		Issued	J. Brook		

# POST-LODGE MENT AND RESPONSE TO SUBMISSION TTIA UPDATE

This version of the Traffic and Transport Impact Assessment (TTIA) Report is updated version which has been prepared post Review of Environmental Factors (REF) exhibition and in Response to Submissions (RtS).

The following key updates and items are of note:

- Since the original TTIA was prepared, updated and additional information on student enrolment projections versus student catchment population projections has been made available. Notably, the real enrolment projections particularly for the initial years of operation are lower than figures previously provided by Department of Education in 2024 which were found to be population/capacity based projections. For the purposes of the TTIA:
  - Table 4.1 has been updated to reflect the latest numbers received in May 2025 and informed the revised transport assessment
  - Table 7.3 to Table 7.8 have been updated to reflect these latest student numbers, however revised SIDRA intersection modelling has not been prepared given demands will be lower than analysed for intersection analysis and the activity (school redevelopment) was found to have a negligible impact based on earlier SIDRA intersection modelling so there is no material change to justify the time-cost to prepare updated SIDRA intersection modelling. The Sidra modelling and results provide a highly conservative assessment and representation of traffic intersection analysis. The outcomes of these modelling assessments to not differ the recommended transport related inclusions to the project, particularly for year-of-opening impacts. Sidra results should therefore be interpreted in this context.
  - Section 8.2.1 related to the Kiss n Drop facility has been updated to reflect the latest student numbers to present a realistic and practical assessment of demands and queuing at time and opening in 2026 and a 2036 horizon, and provide additional detail based on items raised during the REF and RtS process. Importantly, the queueing assessment incorporates the latest plan details accommodating an increased queueing area than previously assessed in the TTIA.
  - Appendix G has been added to the TTIA which provides Response to Submissions Traffic Letter that responds to items raised by various parties through the REF exhibition process.
- In conducting a further detailed review of the Kiss n Drop Facility and associated queuing analysis it is noted that the length of the KnD queuing area quoted in Section 8.2.1 was referring to a shorter length dating back to prior to plan refinements and extensions of the KnD. The length of queuing area behind the 4 KnD collection bays was previously assessed for 8 vehicles but the length providing in the relevant latest plan set can accommodate queuing for up to 14 vehicles.

# RESPONSE TO ENVIRONMENTAL ASSESSMENT REQUIREMENTS

The Planning Secretary's environmental assessment requirements are provided below for the Gillieston Public School redevelopment and new public preschool. Table E.1 below summarises Bitzios' response to the Department of Planning, Housing and Infrastructure's general assessment considerations Item 10 dated 26 July 2024.

**Table E.1.1: General Assessment Considerations Item Responses**

Item 10	Response
Provide a transport and accessibility impact assessment, which includes: an analysis of the existing and future transport network, including the road hierarchy and any pedestrian, bicycle or public transport infrastructure, future duplication of Cessnock Road (including possible impacts of construction and operation and associated mitigation measures), current daily and peak hour vehicle movements, and existing performance levels of nearby intersections, including (but not limited to): <ul style="list-style-type: none"> <li>Ryans Road,</li> <li>Gillieston Road,</li> <li>Northview Street,</li> <li>Cessnock Road,</li> <li>Vintage Drive,</li> <li>Fanning Street,</li> <li>future roads post greenfield subdivision, and</li> <li>any internal access road</li> </ul>	<p>The transport context is discussed in Section 2, and existing conditions are noted in Section 3.</p> <p>The redevelopment of the GPS is in response to the need for facilities upgrades of the existing school as well as the new Gillieston Heights urban release and residential development surrounding the site. This is evident in the student enrolment projection for the initial years the school will be operational, which represents a minor increase when compared to current enrolment levels.</p> <p>Without the school upgrade, traffic growth in this area would still occur as a direct result of the residential development, and school-related trips would still be generated to other locations further afield from Gillieston Heights.</p> <p>The proposed school upgrades transport needs therefore need to be assessed and reviewed in the context of the surrounding growth and development of the area.</p> <p>It is also important to note that while school related traffic occurs during morning and afternoon periods, the school generates limited traffic movements to contributed to daily traffic volumes utilising the surrounding road network. Therefore, it is expected that the daily traffic volumes and Council's planned road hierarchy and environmental capacities surrounding the existing school site remains largely unchanged as a result of the school upgrade. This is particularly evident in the early years of the project once completed (i.e. 2026 to 2029) while enrolments are not projected to increase and surrounding road linkages are yet to be constructed (by others)</p> <p>Please refer to Section 7 for the traffic assessment. The traffic assessment is focused on key intersections where the increase school enrolments and staff over time will generate higher traffic movements than currently experienced.</p>
Details of the delivery (including status and timing) of the surrounding road and active transport network the school is to rely upon, including timing for completion in relation to the proposed pedestrian and vehicular access arrangements.	<p>Proposed transport facility improvements are discussed in Sections 4.2 and further herein.</p> <p>The improvements will include provision of:</p> <ul style="list-style-type: none"> <li>two new pedestrian crossing facilities on Northview Street and across Ryans Road directly adjacent to the school to improve</li> </ul>



Item 10	Response
	<p>existing pedestrian crossing facilities and support the future uptake in walking and cycling attributed to the future residential catchment surrounding the school that is planned for development</p> <ul style="list-style-type: none"> <li>▪ a new indented bus bay facility on Gillieston Road with associated pathway infrastructure connecting the school and student waiting areas. This facility is to be relocated in response to Council's planned widening works along Ryans Road along the frontage of the school as well as recently constructed intersections on the western side of Ryans Road</li> <li>▪ roadworks along the frontage to Northview Street kerbside parking area to provide a dedicated Kiss n Drop facility and vehicle queuing area. This facility will include widening along Northview Street and new kerbside parking and driveways to allow Kiss n Drop vehicles to turn around until such time that new local road connections between Northview Street and Gillieston Road are constructed (by others).</li> </ul> <p>These new facilities directly meet the needs of the school based on the project activity and the available transport network that will be present in 2026 at year-of-opening.</p> <p>It is likely that other transport improvements (i.e. pathways, crossings) as well as the construction of new local road links will be undertaken in response to future residential growth as it occurs in the area and coordinated with other activities. DoE should therefore work with Council and TfNSW (through GetActive NSW grants) to help review and facilitate further improvements as they are required across Gillieston Heights.</p>
<p>an outline of the proposed activity, including likely existing and future pedestrian, cycling 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.</p>	<p>Sections 4 to 9 of this TTIA respond to these considerations</p>
<p>an analysis of the impacts of the proposed activity (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 activity (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 activity.</p>	<p>Please refer to Section 7 for the traffic assessment.</p>

Item 10	Response
<p>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 relevant local councils or government agencies) of delivery of any infrastructure improvements in accordance with relevant standards.</p>	<p>Proposed transport facility improvements are discussed in Sections 4.2 and further herein.</p> <p>The increase in school trips (particularly in the shorter term) is expected to have a negligible impact on intersection performance across the network when considering the overall development growth in the region.</p> <p>The proposed school facilities upgrade includes the transport infrastructure improvements in response to activity and works recently completed or planned others surrounding the site. This includes recent upgrades to Ryans Road and new priority controlled intersections. Given these recent works, focus is on improving existing pedestrian pedestrian crossings and connect to recently constructed pathways.</p> <p>To improve existing student drop-off / pick-up operations and safety, significant improvement is proposed along Northview Street to formalise a new KnD facility.</p>
<p>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.</p>	<p>Mode shares are discussed in Section 3.4 and 7.1. A preliminary School Travel Plan is provided in <b>Appendix F</b>. The travel mode share targets consider the existing context and location of the site and expected changes planned by the surrounding urban development. This provides a clear opportunity to promote walking and cycling travel modes geared towards the local residential catchments that will increase over time. The supporting transport infrastructure recommendations do not 'over capitalise' on private vehicle capacity or works, but rather support the current school operations and align with future road network infrastructure planning for the region.</p>
<p>a preliminary operational traffic and access management plan for the activity, including drop-off/pick-up zones, number of bus movements, bus bays and their operations.</p>	<p>Plans for transport access and movement is contained in this report.</p> <p>Section 4.2 notes transport facility improvements Section 5 discusses access arrangements and Section 6 discusses bus facilities and operations.</p>

# CONTENTS

	<b>Page</b>
<b>POST-LODGEMENT AND RESPONSE TO SUBMISSION TTIA UPDATE</b>	<b>I</b>
<b>RESPONSE TO ENVIRONMENTAL ASSESSMENT REQUIREMENTS</b>	<b>II</b>
<b>1. INTRODUCTION</b>	<b>8</b>
1.1 Background	8
1.2 Scope and Significance of Environmental Impacts	10
1.3 Stakeholder Engagement	10
<b>2. TRANSPORT PLANNING CONTEXT</b>	<b>12</b>
2.1 Overview	12
2.2 State Documents	12
2.3 Local Documents	12
2.4 Relevance to School Redevelopment and Transport Impacts	14
<b>3. EXISTING CONDITIONS</b>	<b>15</b>
3.1 Subject Site	15
3.2 Road Network	16
3.3 Alternate Transport	17
3.3.1 Active Transport	17
3.3.2 School Bus and Public Transport	18
3.4 Transport Mode Share	21
3.5 Historic Crash Analysis	21
<b>4. PROPOSED ACTIVITY</b>	<b>23</b>
4.1 Activity Details	23
4.2 Proposed Transport Facilities	24
<b>5. ACCESS ASSESSMENT</b>	<b>26</b>
5.1 Overview	26
5.2 Pedestrian Access	26
5.3 Car Parking and Service Access	27
<b>6. BUS FACILITY AND OPERATIONS</b>	<b>28</b>
6.1 Bus Facility Upgrades	28
<b>7. TRAFFIC ASSESSMENT</b>	<b>29</b>
7.1 Overview and Methodology	29
7.2 Background Traffic	30
7.3 Existing School Traffic	31
7.4 Forecast Background Traffic	31
7.5 Design Traffic	33
7.5.1 Traffic Generation	33
7.5.2 Activity Splits	34
7.6 Intersection Assessment	35
7.6.1 Overview	35
7.6.2 Cessnock Road / Gillieston Road	36
7.6.3 Ryans Road / Vintage Drive	38
7.6.4 Cessnock Road / Vintage Drive	39
7.7 Daily Traffic and Road Capacity/Cross Sections	40
7.8 Traffic Assessment Summary	40

<b>8. PARKING ASSESSMENT</b>	<b>41</b>
8.1 Overview and Methodology	41
8.2 Council Car Parking Requirements	41
8.2.1 Kiss n Drop Facility	41
8.3 Bicycle Parking Requirements	46
8.4 Car Parking Layout Review	47
<b>9. HEAVY VEHICLE ASSESSMENT</b>	<b>48</b>
9.1 Servicing and Refuse Collection	48
<b>10. STAGING</b>	<b>49</b>
10.1 Overview	49
10.2 Transport Staging Considerations	49
<b>11. SUMMARY</b>	<b>50</b>

## Tables

Table E.8.1: General Assessment Considerations Item Responses
Table 3.1: Surrounding Road Network
Table 3.2: Surrounding Key Intersection Details
Table 3.3: Route Information
Table 4.1: Projected Student Enrolment Increases
Table 4.2: Proposed Transport Facility Upgrades
Table 5.1: Driveway Compliance
Table 7.1: Other Roads and Intersections
Table 7.2: Subdivisions Summary and Traffic Generation
Table 7.3: GPS 2026 Activity Traffic
Table 7.4: GPS 2036 Activity Traffic
Table 7.5: 2026 AM Trips
Table 7.6: 2026 PM Peak Trips
Table 7.7: 2036 AM Peak Trips
Table 7.8: 2036 PM Peak Trips
Table 7.9: Cessnock Road / Gillieston Road SIDRA Results
Table 7.10: SIDRA Results Ryans Road/ Vintage Drive intersection
Table 7.11: SIDRA Results
Table 8.1: Activity Parking Requirements and Compliance
Table 8.2: 2026 KnD Queuing Assessment (50% Mode Share)
Table 8.3: 2036 KnD Queuing Assessment
Table 8.4: Bicycle Parking Rates
Table 8.5: Car Parking Geometrical Assessment
Table 11.1 Proposed Mitigation Measures

## Figures

Figure 1.1: Cadastral Map (Source: NSW Spatial Viewer, 2024)
Figure 1.2: Site Aerial Map (Source: Near Map, 2024)
Figure 2.1: Gillieston Heights Urban Release Area – Staging Plan
Figure 2.2: Gillieston Heights Western Precinct Plan
Figure 2.3: School Catchment and Walk/Cycle Catchments
Figure 3.1: Existing Site Conditions
Figure 3.2: Key Intersections



Figure 3.3: Pedestrian Connectivity  
Figure 3.4: Cycling Connectivity  
Figure 3.5: School Bus Routes  
Figure 3.6: Public Transport Facilities  
Figure 3.7: Student Travel Mode Share  
Figure 3.8: Crash Analysis  
Figure 4.1: Transport Facility Upgrades  
Figure 5.1: Proposed Crossing Facilities  
Figure 6.1: Proposed School Bus Facility  
Figure 7.1: Mode Share Targets  
Figure 7.2: Estimated Existing School Peak Traffic Generation  
Figure 7.3: Activity Areas Map  
Figure 7.4: SIDRA Layout Cessnock Road / Gillieston Road intersection  
Figure 7.5: SIDRA Layout Ryans Road/ Vintage Drive intersection  
Figure 7.6: SIDRA Layout Cessnock Road / Vintage Drive intersection  
Figure 8.1: Proposed KnD Facility  
Figure 8.3: Approved Subdivision Roads in vicinity of Northview Street  
Figure 8.5: Temporary Turning Facility  
Figure 9.1: Refuse Collection Location

## **Appendices**

Appendix A: Architectural Plans and Staging  
Appendix B: Traffic Surveys  
Appendix C: Traffic Network Diagrams  
Appendix D: SIDRA Analysis  
Appendix E: Swept Paths  
Appendix F: School Travel Plan  
Appendix G: Response to Submissions Traffic Letter

# 1. INTRODUCTION

## 1.1 Background

The Gillieston Public School have been identified by the NSW Department of Education (DoE) as requiring redevelopment. The proposed Gillieston Public School redevelopment and new public preschool is driven by service need including increase in expected student enrolments and the and removing demountable structure and replacement with permanent teaching spaces.

The Gillieston Public School redevelopment and new public preschool comprises the following activities:

- Demolition and removal of existing temporary structures.
- Site preparation activities, including demolition, earthworks, tree removal.
- Construction of new:
  - 32 permanent general learning spaces and 3 support teaching spaces
  - Administration and staff hubs
  - Hall, canteen and library
  - Out of school hours care
  - Public preschool (standalone building for 60 places)
  - Covered Outdoor Learning Areas (COLAs)
  - Outdoor play areas, including games courts and yarning circle
  - New at-grade car parking
  - Extension of the existing drop-off / pick-up area and new bus bay
  - Realignment of the existing fencing
  - Associated stormwater infrastructure upgrades
  - Associated landscaping
  - Associated pedestrian and road upgrade activities

Bitzios Consulting has been engaged by NSW Department of Education's, School Infrastructure (SINSW), to undertake a Traffic and Transport Impact Assessment (TTIA) for the proposed Gillieston Public School (GPS) redevelopment and new public preschool. This TTIA supports a Review of Environment Factors (REF) for proposed redevelopment of GPS is driven by service need including increase in expected student enrolments and the removing demountable structure and replacement with permanent teaching spaces. Activity plans prepared by SHAC Architects are provided in **Appendix A**.

The Site is identified as 100 Ryans Road and 19 Northview Street, Gillieston Heights, legally described as Lot 51 DP 1162489 and Lot 2 DP1308605.

The Site is located within the Maitland Local Government Area (LGA) and is zoned RU2 Rural Landscape and R1 General Residential zone under the provisions of the Maitland Local Environmental Plan 2011 (MLEP2011).

Existing attributes of the subject site are noted as follows:

- The subject site exhibits an area of approximately 23,385m<sup>2</sup> and is located in the suburb of Gillieston Heights
- The subject site has a frontage to Ryans Road to the east, Gillieston Road to the north, and Northview Street to the south
- In its existing state, the subject site comprises the existing Gillieston Public School. Existing school buildings are primarily located in the west portion of the subject site with a large area of open space situated in the eastern portion. There are limited permanent structures located on the subject site with thirteen (13) existing demountable classrooms currently occupying the subject site. Permanent buildings consist of the Main Administration Building, Original Brick Cottage, Library and GLS building located in the centre of the subject site

- Carparking is provided from Gillieston Road for staff. Pedestrian access is available via this main entrance from Gillieston Road and via a separate pedestrian-only access gates on Northview Street and Ryans Road

The existing site context is shown in Figure 1.1 and Figure 1.2 below.



Figure 1.1: Cadastral Map (Source: NSW Spatial Viewer, 2024)

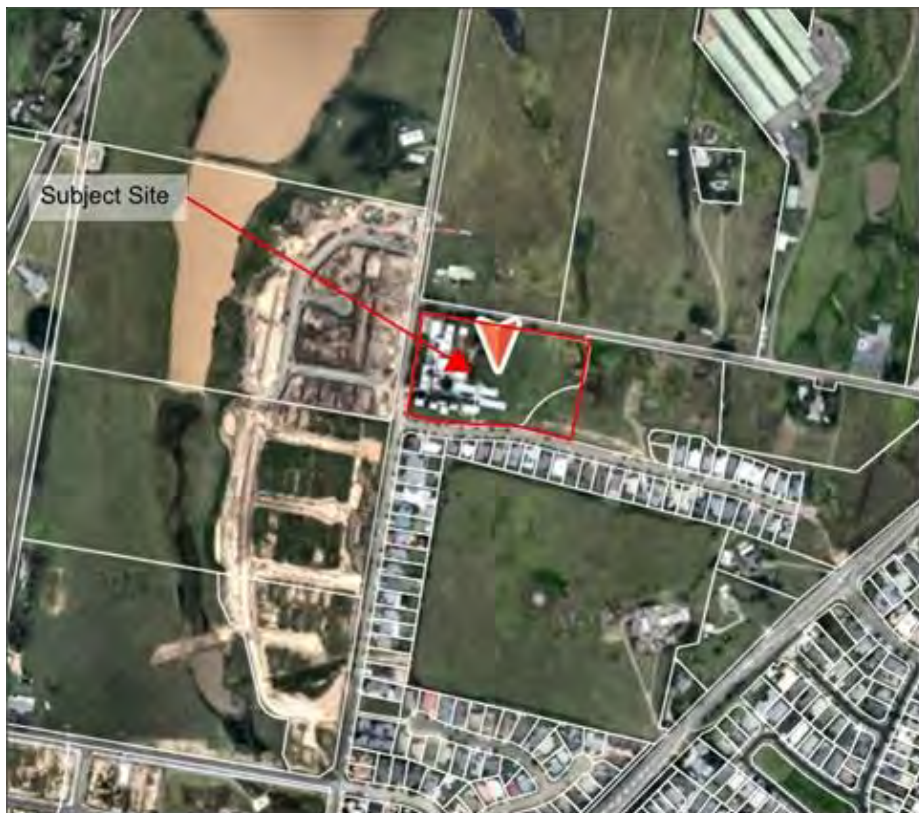


Figure 1.2: Site Aerial Map (Source: Near Map, 2024)

## 1.2 Scope and Significance of Environmental Impacts

This TTIA includes the following components:

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

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

Important, the assessment of the transport impacts of this school need to be put into context, including:

- The school is an existing school facility located in a rural setting, which is undergoing a significant urban / residential transformation
- The school project's immediate focus is to upgrade existing facilities on the site to improve learning and education conditions for existing students
- The surrounding land parcels are currently being redeveloped for residential housing as part of the Gillieston Heights Urban Release Area (URA). This includes a series of road upgrades as well as contributions towards transport infrastructure to facilitate this growth
- The school is therefore considered a necessary piece of infrastructure for this new community and essentially a trip-end for education based trips for these emerging residential areas in the school's catchment
- Focus is therefore geared towards improvements to active transport facilities fronting the school site to integrate with the surrounding growth and transport infrastructure provides by Council and the greater URA.

## 1.3 Stakeholder Engagement

In preparation of this Transport and Traffic Impact Assessment (TTIA), key transport stakeholders were consulted including representatives from, Maitland City Council (Council) and Transport for New South Wales (TfNSW) as required by the Planning Secretary's general assessment requirements. This was undertaken through a number of meetings as part of a Transport Working Group process.

Consultation regarding the existing transport operations of the school was also undertaken with the current principal. Key items from the stakeholder engagement are as follows:

- Transport Design discussions occurring with Council on 19 April 2023 to discuss the proposed school upgrade and surrounding road environment and activity consideration
- A site meeting occurred involving Council, SINSW, School and Rover Coaches representatives (TfNSW contracted school bus service provider) on 10 May 2023 to understand the current on-the-ground situation, upcoming activity works and limitations of locations suitable for bus facilities and Kiss n Drop. During this meeting Rover Coaches indicated their support for the propose for a bus facility to be located on Gillieston Road



- Consultation meeting with Council (8 August 2024) to discuss updated with the activity and items raised by Council through receipt of earlier advice. At this meeting Council flagged concerns with potential u-turns with the Kiss n Drop (KnD) and any alternate options.
- Transport Working Group (TWG) Meeting on 3 September 2024 with SINSW, Council and TfNSW to provide further project update, discuss context of school growth with future activity and proposed transport facility improvements. Updates to the KnD including the temporary turn around facility were presented for Council review/comment to overcome previous concerns raised with u-turns and noting limitation on viable alternate options for KnD.
- Transport Working Group (TWG) Meeting on 9 October 2024 with SINSW, Council and TfNSW. The discussion again related to the proposed frontage activity details as well as external infrastructure timing and responsibilities. Specifically:
  - SINSW outlined the reasoning for the KnD facility design including the improvements compared to the existing situation and limitations with respect to land ownership, future road links by others and Council's pre-planned frontage activity on Ryan Road and Gillieston Road.
  - Council re-iterated their request for infrastructure activity including Ryans Road and Gillieston Road widening
  - Pedestrian crossing locations were discussed with regarding to connecting to pathways under construction by others and detailed design to be investigated as part of Works Applications and Local Traffic Committee.
  - SINSW re-iterated their position with respect to the facilities upgrade needs first and foremost on and fronting the site. The proposed transport facilities have been design to consider and align with Council's planning for the greater activity as part of the Gillieston Heights development area. The proposed works do not preclude the additional civil road activity from occurring in the future.

## 2. TRANSPORT PLANNING CONTEXT

### 2.1 Overview

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

### 2.2 State Documents

State documents were reviewed including the NSW Government's Future Transport Strategy 2056, Long-Term Strategic Master Plan, NSW Active Transport Strategy, Regional NSW Services, Hunter Regional Transport Plan, Road Safety Plan and the NSW Planning Guidelines for Walking and Cycling. The following details the outcomes from the relevant state government plans:

- NSW Future Transport Strategy 2056 – This plan outlines the overarching strategy, supported by a suite of plans to achieve a 40-year vision for the NSW transport system
- NSW Long Term Transport Master Plan – this plan identifies that bus service contracts in the region are to be renewed which is an opportunity to improve routes and outcomes for customers. This includes cross-border routes and infrastructure.
- NSW Active Transport Strategy – this plan outlines key focus areas for 15-minute cities and walking and cycling including:
  - an ambition to double the number of children walking or riding to school with supporting programs and trials to support active travel to school and behaviour change initiatives to shift modes by 2028
  - partnering with the Department of Education and key stakeholders to improve safe walking, cycling and public transport access to schools.
- NSW Planning Guidelines for Walking and Cycling – this plan identifies the value of walking and cycling as tools to reduce congestion, freeing up capacity on public transport and encouraging active transport for short local trips.

Transport for NSW is also currently corridor investigations and modelling for the MR195 (Cessnock Road) corridor to contribute to optioneering of corridor and intersection upgrades to accommodate for the residential growth in the area coupled safety history of MR195 corridor.

### 2.3 Local Documents

Council documents were reviewed including the Local Environment Plan, Development Control Plan, Section 7.11 Developer Contributions, Pedestrian Access and Mobility Plan (PAMP) and Maitland Bicycle Plan and Strategy (2014).

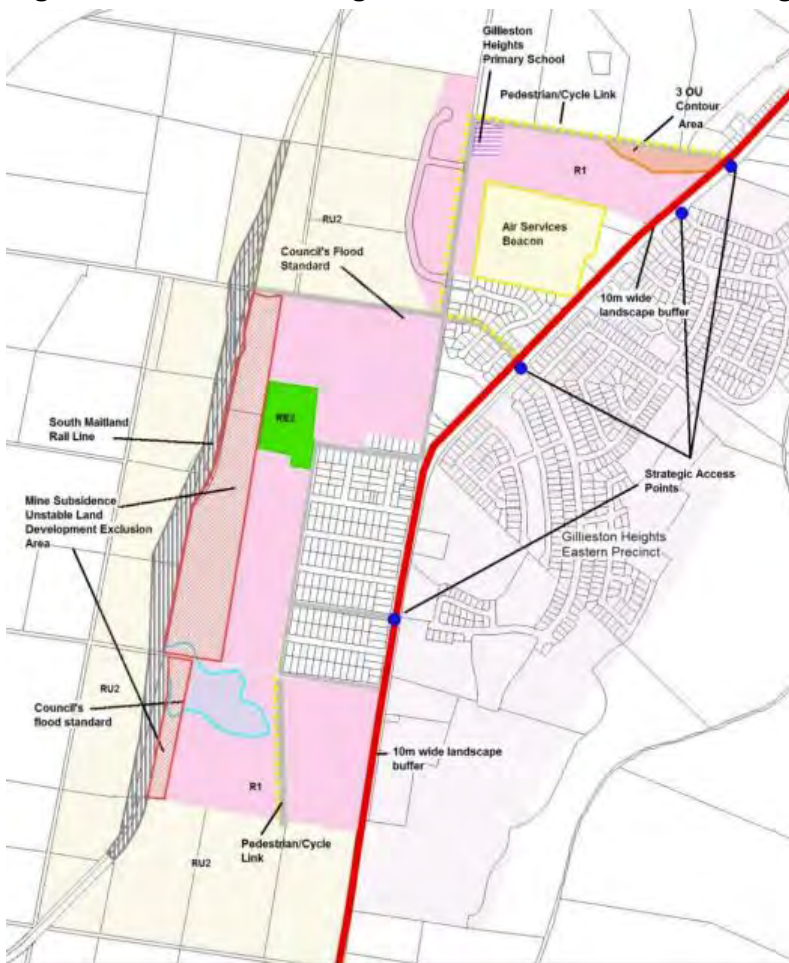
Under the DCP there is specific guidance on urban release areas including Gillieston Heights. Of particular note for Gillieston Heights:

- Activity will be staged to provide for the timely and efficient realise of urban land making provision for necessary infrastructure and sequencing
- The focus of the activity area's transport and movement objectives is to provide walkable neighbourhoods with convenient access to facilities and services, with less dependence on cars for travel
- Off-road shared path infrastructure shall be provided on the lower side of the perimeter roads to crease a continuous pathway



Source: Maitland DCP

**Figure 2.1: Gillieston Heights Urban Release Area – Staging Plan**



Source: Maitland DCP

**Figure 2.2: Gillieston Heights Western Precinct Plan**



## 2.4 Relevance to School Redevelopment and Transport Impacts

The redevelopment of the GPS and new public preschool is in response to the Gillieston Heights urban release area and residential development surrounding the site. Activity and supporting transport infrastructure upgrades are being constructed progressively over time by adjacent land owners, the Council and the NSW State Government. Growth will occur over a period of time and will be subject to a combination of factors. This will influence how the school's population will expand over time and also what transport infrastructure is available.

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

Without this proposed school upgrade, traffic growth in this area would still occur as a direct result of the Gillieston Heights URA, and if the GPS were not upgraded or expended in its enrolments, school-related trips would still be generated by the Gillieston Heights URA in this vicinity and travel to other locations further afield from Gillieston Heights.

The proposed school upgrades transport needs, therefore, need to be assessed and reviewed in the context of the surrounding growth and activity of the area by others. The activity and proposed transport facility improvements responds to needs of the activity and mitigations for traffic impacts of the activity.

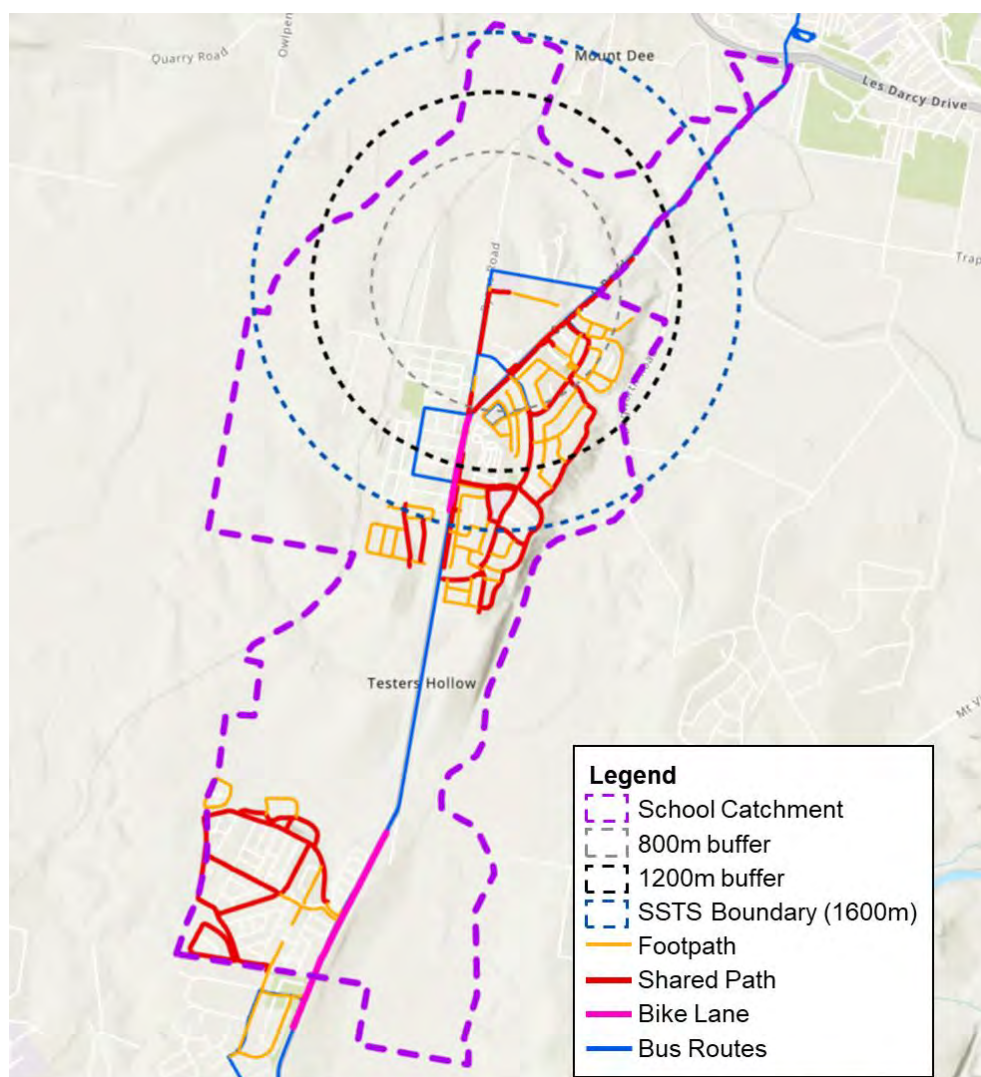


Figure 2.3: School Catchment and Walk/Cycle Catchments



## 3. EXISTING CONDITIONS

### 3.1 Subject Site

As of May 2025, the school currently operates with around 411 students and 23 full time equivalent (FTE) staff. The school starts at 8:45am and finishes at 3:05pm. Existing attributes of the subject site are noted as follows:

- The subject site exhibits an area of approximately 23,385m<sup>2</sup> and is located in the suburb of Gillieston Heights
- The subject site has a frontage to Ryans Road to the east, Gillieston Road to the north, and Northview Street to the south
- In its existing state, the subject site comprises the existing Gillieston Public School. Existing school buildings are primarily located in the west portion of the subject site with a large area of open space situated in the eastern portion. There are limited permanent structures located on the subject site with thirteen (13) existing demountable classrooms currently occupying the subject site. Permanent buildings consist of the Main Administration Building, Original Brick Cottage, Library and GLS building located in the centre of the subject site
- Carparking is provided from Gillieston Road for staff. Pedestrian access is available via this main entrance from Gillieston Road and via a separate pedestrian-only access gates on Northview Street and Ryans Road.

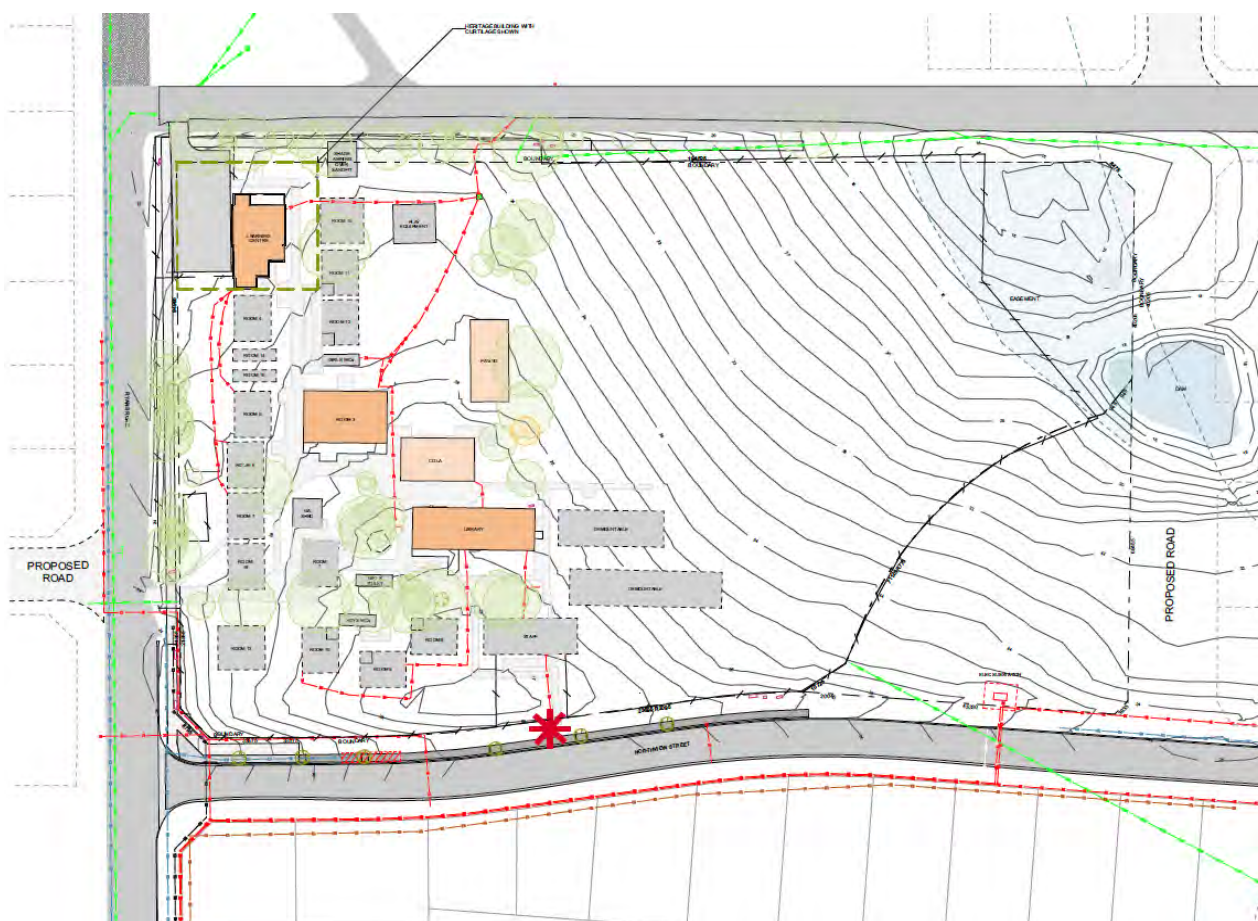


Figure 3.1: Existing Site Conditions

## 3.2 Road Network

Details of the surrounding road network are provided in Table 3.1

**Table 3.1: Surrounding Road Network**

Road Name	Jurisdiction	Hierarchy	Lanes	Divided	Posted Speed
Northview Street	Council	Local	2	No	50km/h
Ryans Road	Council	Local	2	No	50km/h 40km/h (school peaks)
Gillieston Road	Council	Local	2	No	50km/h 40km/h (school peaks)
Vintage Drive	Council	Local	2	No	50km/h
Cessnock Road	TfNSW	State Road	2	No	60km/h

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

**Table 3.2: Surrounding Key Intersection Details**

No.	Major Road	Minor Road	Jurisdiction	Control
1	Gillieston Road	Cessnock Road	Council	Priority
2	Ryans Road	Vintage Drive	Council	Priority
3	Vintage Drive	Cessnock Road	TfNSW	Signalised

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



Source: NSW Road Network Classification

**Figure 3.2: Key Intersections**



### 3.3 Alternate Transport

#### 3.3.1 Active Transport

There are numerous gaps in the active transport network, including narrow paths and insufficient crossing points. There are no continuous formal pedestrian pathways or cycling networks around the subject site that connect the school with the nearest public transportation or major roads.

The existing footpath network surrounding the subject site is shown in Figure 3.3. The current cycling network surrounding the subject site is shown in Figure 3.4. A shared path is to be provided on the western side of Ryans Road as part of the residential subdivision currently being constructed.



Base Image Source: Google Maps

**Figure 3.3: Pedestrian Connectivity**



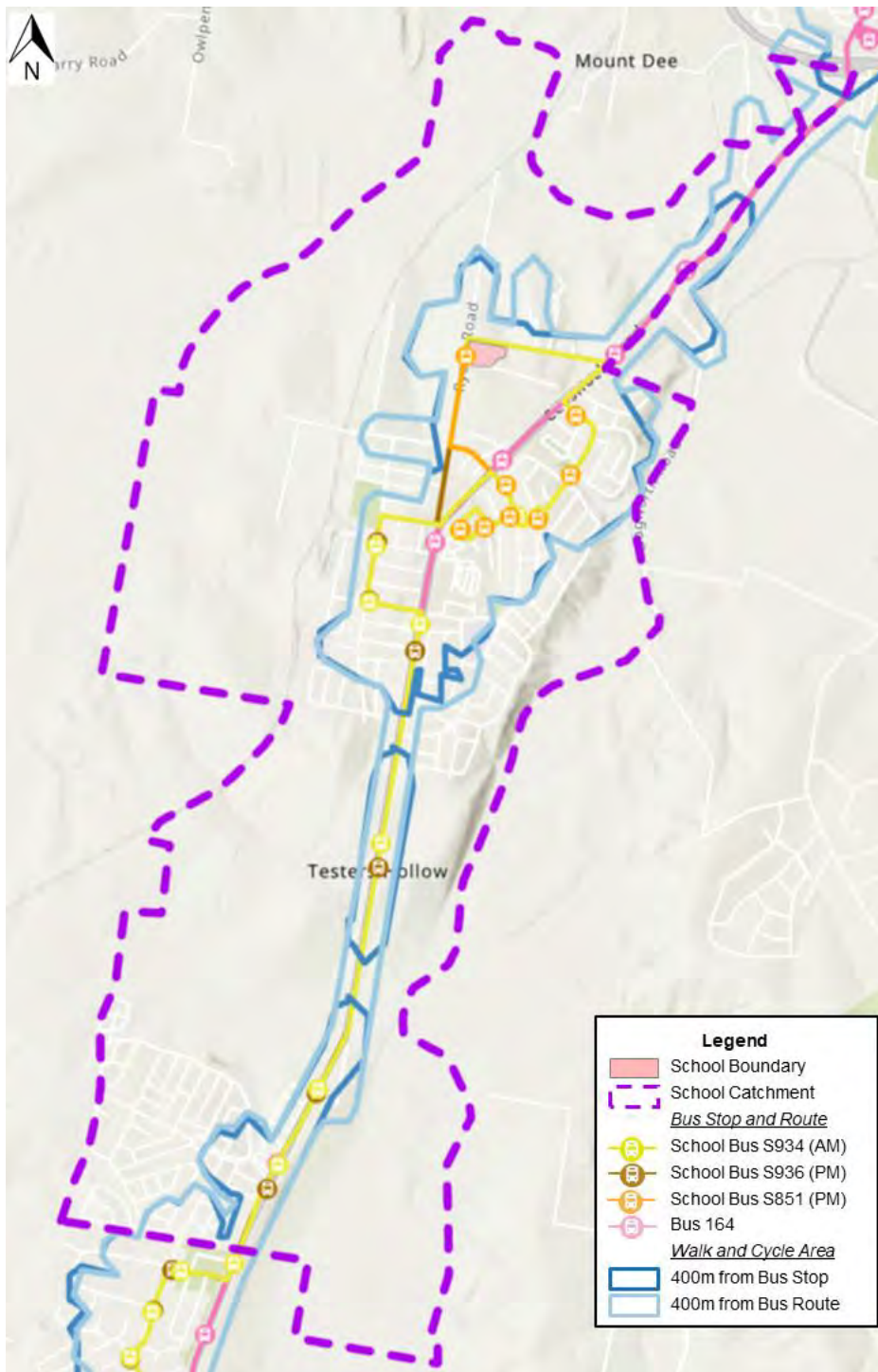
Source: NSW Cycleway Finder

**Figure 3.4: Cycling Connectivity**

### 3.3.2 School Bus and Public Transport

Existing school bus services are provided by Rover Coaches and public bus service area provided by Hunter Valley Buses under contracts with TfNSW. There are three school bus services – S934 operates in the morning, S851 and S936 operate in the afternoon that service the school and currently stop in front the school on its Ryans Road frontage.





**Figure 3.5: School Bus Routes**

The public transport facilities surrounding the school are shown in Figure 3.6.



Base Map Source: Google maps

### Figure 3.6: Public Transport Facilities

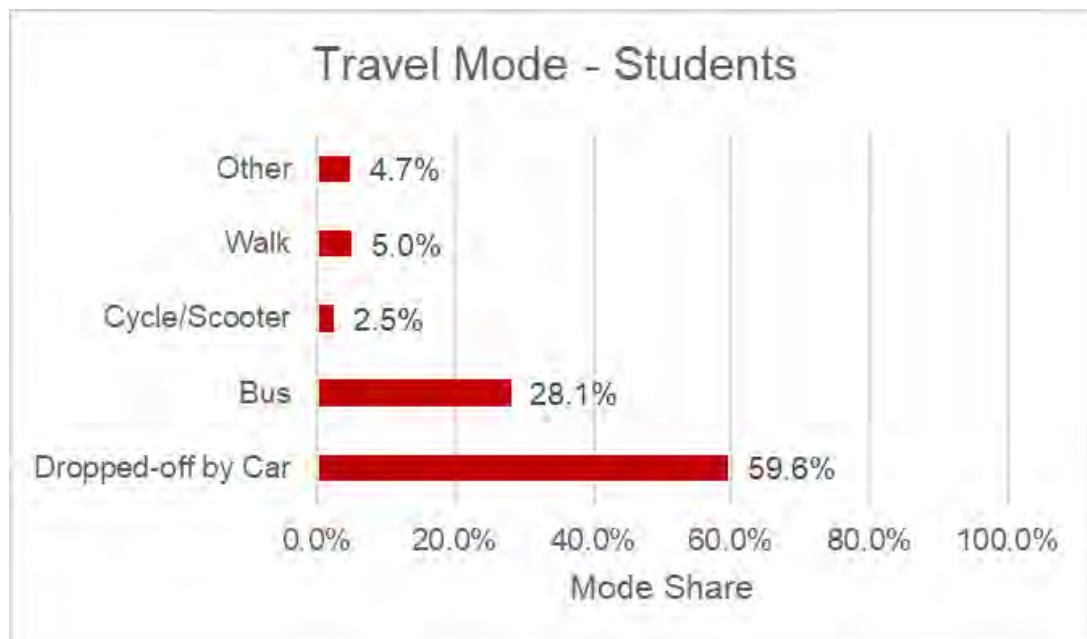
Details of the public transport services are provided in Table 3.3.

**Table 3.3: Route Information**

Route Number	Route	Start	Finish
<b>AM</b>			
S934	From Kurri Kurri, Heddon Greta & Gillieston Heights	7:20	9:00
<b>PM</b>			
S851	To Gillieston Heights	15:10	15:50
S936	To Kurri Kurri	14:35	16:00

### 3.4 Transport Mode Share

A student travel mode share survey was undertaken in February 2023 to determine the existing travel behaviours. The survey accounted for 87% of students with the remaining students being absence on the day of the survey. The estimated mode share split of students is provided in Figure 3.5.



**Figure 3.7: Student Travel Mode Share**

While car based travel is currently the highest mode of travel, of car based trips 60% are carpooling (i.e. dropped-off/picked up in a car with another siblings or other students).

As shown, buses account for 28.1% of student travel. At the time of the travel survey 56% students lived within 400m of a bus stop. Importantly, any changes to the bus network are the responsibility of TfNSW. The 4.7% other mode is predominately based on an outside of school hours car services operated by Tilly's which have a mini-bus/van that drop off/pick up students.

Active transport participation is limited but this reflects the historically rural environment that is still in transition with surrounding residential development. At the time of the survey only 6% of students lived in a walk up catchment and 22% within a cycle catchment. Use of active modes will however only increase with new residents moving into the surrounding residential developments and the delivery of improved active transport infrastructure including a shared path on the western side of Ryans Road with residential developments current being constructed.

A staff travel mode survey was not undertaken but existing staff mode shares are understood to entirely be by car and there is little alternate transport participation.

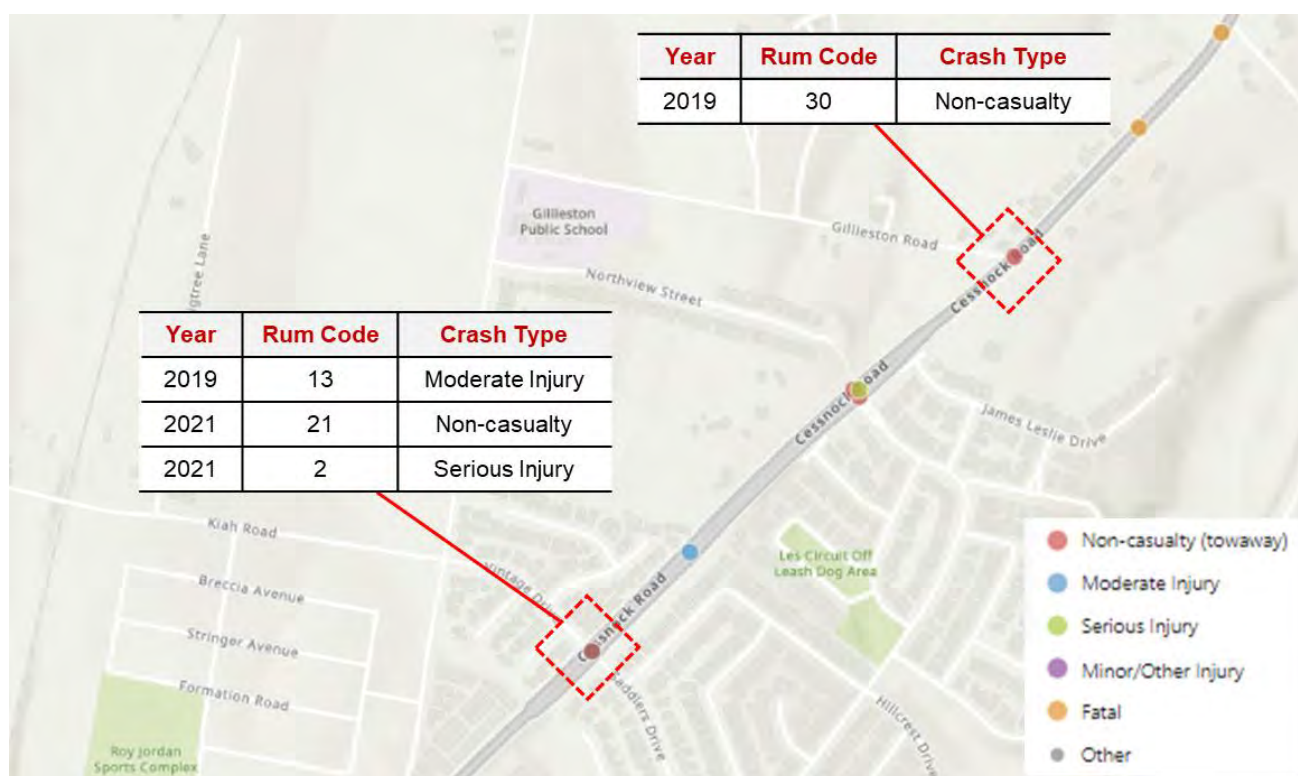
As discussed herein, the staff car parking provided is compliant with the staff component of Council's DCP car parking requirement. Additional encouragement to shift staff to other modes is discussed in more detail through the implementation of a School Travel Plan (STP) provided in **Appendix B**.

### 3.5 Historic Crash Analysis

The TfNSW Centre for Road Safety's interactive crash statistics were used to source crash data for the area surrounding Gillieston Public School. A review of reported crashes that occurred between 2018 and 2022 were analysed and identified a total of four crashes occurring within 100m proximity to the key intersections along Cessnock Road.

Figure 3.6 shows the location and Road User Movement (RUM) code of each crash.





SOURCE: TFNSW Crash Map

### Figure 3.8: Crash Analysis

Based on crash information, reported vehicular incidents do not appear to involve vehicle traffic associated with the school.



## 4. PROPOSED ACTIVITY

### 4.1 Activity Details

The Gillieston Public School have been identified by the NSW Department of Education (DoE) as requiring redevelopment. The proposed Gillieston Public School redevelopment and new public preschool is driven by service need including increase in expected student enrolments and the and removing demountable structure and replacement with permanent teaching spaces.

The Gillieston Public School redevelopment and new public preschool comprises the following activity:

- Demolition and removal of existing temporary structures.
- Site preparation activities, including demolition, earthworks, tree removal.
- Construction of new:
  - 32 permanent general learning spaces and 3 support teaching spaces
  - Administration and staff hubs
  - Hall, canteen and library
  - Out of school hours care
  - Public preschool (standalone building for 60 places)
  - Covered Outdoor Learning Areas (COLAs)
  - Outdoor play areas, including games courts and yarning circle
  - New at-grade car parking
  - Extension of the existing drop-off / pick-up area and new bus bay
  - Realignment of the existing fencing
  - Associated stormwater infrastructure upgrades
  - Associated landscaping
  - Associated pedestrian and road upgrade activity.

The growth of the school enrolments will be due to surrounding residential activity in the area. In this regard, the upgrades and timing by 2026 are geared primarily towards facilities upgrades, then providing capacity upgrades to support the future residential catchment as it is developed in future years.

The general assessment requirements necessitate that traffic generation to be based on projected growth from commencement of the approved activity over a 10 year design horizon. Projected student enrolment increases over the 10-year period from the anticipated year of opening (year 2026) to the 10-year design horizon (year 2036) is detailed in Table 4.1. Staff numbers of expected to be 50 staff by 2036. It is noted that full development projects are not projected to occur by 2026.

**Table 4.1: Projected Student Enrolment Increases**

Year	2022	2024	2025	2026	2031	2036
Student Enrolments / Forecast	339	351	411	424	665	682

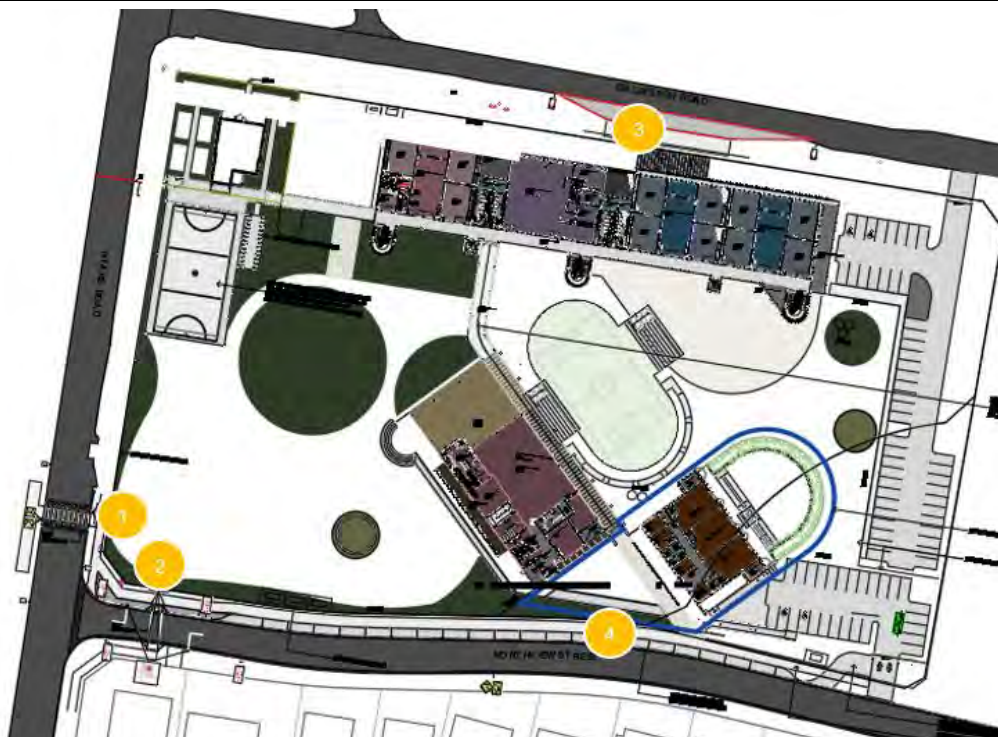
The site will also accommodate universal pre-school (UPS) with capacity for 60 children and <10 staff.

## 4.2 Proposed Transport Facilities

Additional transport facility upgrades are included in the activity to accommodate the increase in enrolments and changes to the transport strategy associated with the GPS. The activity plans prepared by Shac Architects are provided in **Appendix A**. The transport related components are discussed in Table 4.2.

**Table 4.2: Proposed Transport Facility Upgrades**

Infrastructure Description	Benefit
1. New pedestrian crossing on Ryans Road	Provides a raised crossing facility for pedestrians travelling to/from the school entrance to the western side of Ryans Road. The new crossing will connect to the shared path infrastructure currently under constructed along Ryans Road. The location of this facility is proposed to be immediately north of Northview Street between recently constructed local access road intersections.
2. Crossing on Northview Street	Provides an improved crossing facility for pedestrians travelling from the school to south of the school consisting of a children's crossing. This facility improves on the current kerb ramp provisions at the intersection and is proposed to be set-back on Northview Street to accommodate vehicle storage and separation from the intersection.
3. Bus Stop on Gillieston Road	Provide a new school bus stop facility on Gillieston Road as an indented bus bay for two buses and footpath connections in vicinity of the bus bay and the schools driveway to the east.
4. Kiss'n'drop (KnD) facility	KnD facility proposed to be provided as an indented area off Northview Street. The KnD facility includes 4 KnD bays positioned at the eastern end and can accommodate a total of 130m of queueing including the bays and storage lane on Northview Street. The KnD bays will also allow for visitor parking use between 9:30am – 2:30pm.  In the interim a temporary turnaround facility will be provided to connect the KnD with the site's access driveway to provide a turning facility until a future subdivision road is created that will connect vehicles from Northview Street to Gillieston Road.



**Figure 4.1: Transport Facility Upgrades**

It is noted that other transport related infrastructure is planned to occur across the surrounding Gillieston Heights area as part of future residential development or as part of larger corridor related traffic upgrades along Cessnock Road. While the school will benefit from improved transport capacity and facilities across the region, the delivery of this additional infrastructure and subsequent use by school related trips is reliant on other sites to develop. This is particularly relevant for planned pathway facilities north of the site on Gillieston Road which are located on private land (controlled by others) and reliant on development of that land to occur.

## 5. ACCESS ASSESSMENT

### 5.1 Overview

The proposed site access arrangements for vehicles (car and bus), pedestrians and cyclists responds to the changes surrounding the site including road upgrades and intersections.

Based on the existing and changing road environment around the site and locations that provide convenient, safe and DDA compliant access are limited to two locations, being the eastern end of the site's frontage to Gillieston Road and Northview Street.

Based on current and future road activity on Ryans Road equitable access is not able to be provided without extensive ramping. Additionally an intersection has been approved and is being currently constructed directly opposite the existing bus pick-up/drop off area on Ryans Road meaning a bus stop cannot be safely retained in this location, notwithstanding the challenges for providing DDA compliant access into the site. Accordingly bus facilities are proposed to be located to Gillieston Road as there is not ability for a bus to turn around in Northview Street.

Separating peak buses and cars movements is important, while providing equitable access, meaning that the Kiss and Drop (KnD) facility must be located on Northview Street. The upgrades and queuing for the KnD facility, coupled with the operational improvements during peak times will significantly improve the existing operations and align with future road link planning for the area.

Pedestrian 'front door' access will be retained on Northview Street but be relocated based on new building locations further to the west and away from the KnD bays. New and upgraded pedestrian crossing facilities are proposed to improve crossing safety and connect to shared path infrastructure (currently being delivered by others).

Vehicle access into the site is provided from Gillieston Road and Northview Street and will provide separation of movement between the public school staff and service vehicles, and those associated with the preschool.

### 5.2 Pedestrian Access

Pedestrian access to the subject site is provided at two locations on Northview Street, and Gillieston Road (in vicinity of the proposed bus stop.) The activity includes:

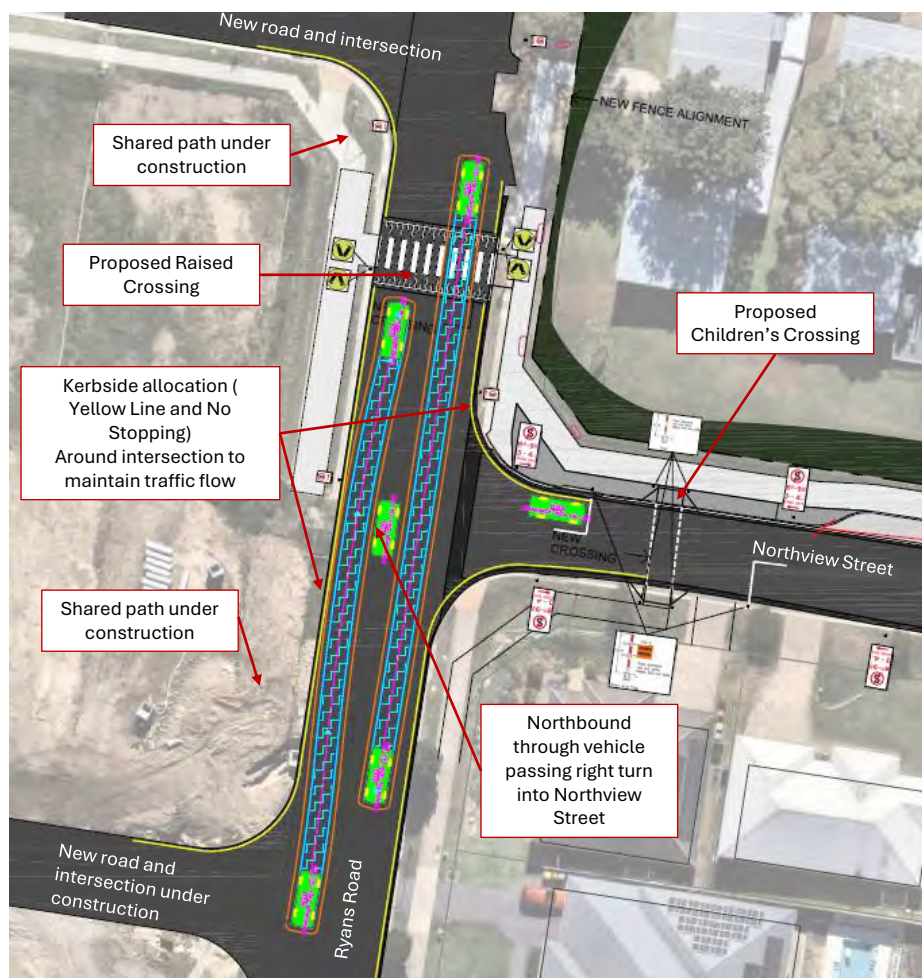
- Provision of a wombat crossing on Ryan Road
- Provision of a children's crossing on Northview Street
- Footpath along the school site's frontage on Gillieston Road in vicinity of the school bus stop and staff car park driveway.

The location and type of crossing facility on both Northview Street and Ryans Road are limited due to their road reserve width as well as the recently constructed intersections. The proposed raised crossing on Ryans Road provides an opportunity to slow travel speeds in front of the school and through closely spaced intersections.

A children's crossing was proposed on Northview Street to address the concentrated peak pedestrian demand during school AM and PM periods, when the majority of students are arriving or departing. Outside these times, pedestrian activity and traffic volumes are low and comparable to typical residential conditions. An option of a raised crossing on Northview Street was not supported by the Transport Working Group, as unmanaged priority crossing movements could increase the risk of vehicle queues extending onto back along Ryans Road.

Figure 5.1 details the proposed pedestrian crossing facilities fronting the school. The residential development opposite the school site that currently being constructed will deliver the shared path along the western side of Ryans Road.





**Figure 5.1: Proposed Crossing Facilities**

### 5.3 Car Parking and Service Access

Vehicular access to GPS is provided at two locations:

- A new vehicular crossover on Gillieston Road to provide access to parking and servicing for the Public School
- A new vehicular crossover on Northview Street to provide access to parking for the pre-school with a temporary KnD exit connection (before future adjoining subdivision roads occur)

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

**Table 5.1: Driveway Compliance**

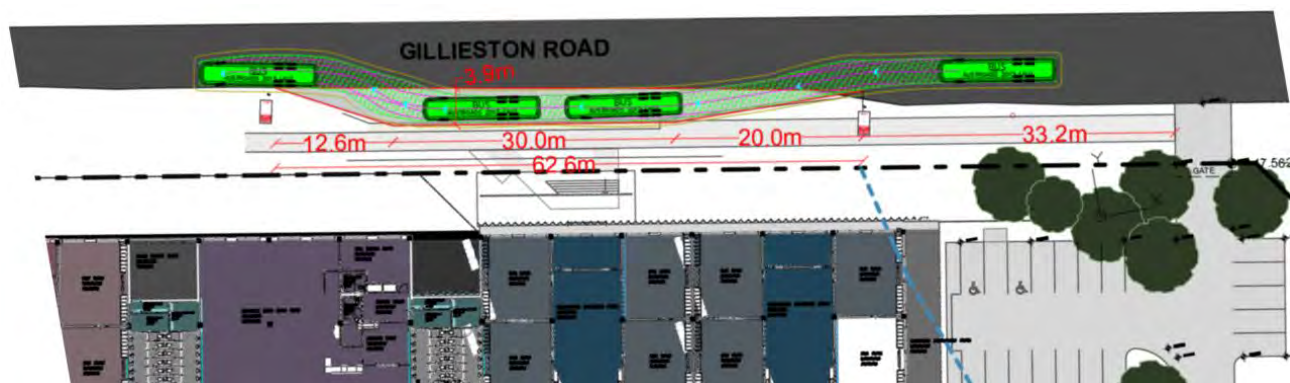
Design Element	Details
<b>Northern Crossover</b>	
Access Facility Category	Category 1 (i.e. User Class 1, 25-100 car parking spaces and local road frontage)
Crossover Form	Council Standard Drawing S.D.017 (6.0m wide at the property boundary)
Pedestrian Sight Line Triangle	A pedestrian sight line triangle is provided on the egress side of the driveway as per Figure 3.3 in AS2890.1.
<b>Southern Crossover</b>	
Access Facility Category	Category 1 (i.e. User Class 1, 25-100 car parking spaces and local road frontage)
Crossover Form	Council Standard Drawing S.D.017 (6.0m wide at the property boundary)
Pedestrian Sight Line Triangle	A pedestrian sight line triangle is provided on both sides of the driveway as per Figure 3.3 in AS2890.1.

## 6. BUS FACILITY AND OPERATIONS

### 6.1 Bus Facility Upgrades

With over 28% of school students currently using buses, maintaining bus utilisation and public transport mode share for students is critical to the success of the GPS.

As noted earlier, based on approved subdivision roads on the western side of Ryans Road and level difference between the road and site there is the need for the existing school bus stop to be relocated to Gillieston Road for safety and DDA compliance. Therefore, the relocation of the bus stop facility to Gillieston Road is necessary in response to the surrounding road upgrades, but maintains a single kerbside bus facility fronting the school.



**Figure 6.1: Proposed School Bus Facility**

The new location will allow for buses to travel on their existing routes and provides a stop able to accommodate up to two (2) buses at any one time. The stop will have convenient and direct access into the school and its Building C which will provide for undercover waiting areas close to the stop.

The revised bus stop location and facility does not require any changes to the route planning to access the site during morning or afternoon periods, with bus operators accepting the proposal through the TWG consultation workshops. Given the low initial projections of enrolments, the proposed facility upgrade is conserved a substantial improvement to the existing facility on Ryans Road and more than adequate to meet the needs of the school.

The design of the stop includes a 3.2m wide indented bus bay initially which will ultimately form part of kerbside shoulder/lane once wider upgrades to Gillieston Road occur in the future. The future road widening works on Gillieston Road will provide opportunities for bus zone lengthening or layover facilities further to the east in the future if the need arises based on future bus demands.

The proposed arrangements are anticipated to be sufficient to accommodate for the demands associated with the school in the immediate years of operation. Student bus passenger demands and bus operations are reviewed annually in collaboration between TfNSW, bus operators and the school as part of yearly school travel pass application processes. This review phase provides opportunities to refine timetabling and bus planning in line with current school operations.

## 7. TRAFFIC ASSESSMENT

### 7.1 Overview and Methodology

The purpose of this traffic assessment is to review the impacts of the proposed school upgrade on the external network due to the increase in student enrolments and school activity. The forecast traffic assessment has been undertaken on the ultimate enrolment projections. However, it is important to note that the following the opening of the new facilities, the enrolments are not projected to increase rapidly until such time that residential development occurs surrounding the site. The Sidra modelling and results therefore provide a highly conservative assessment and representation of traffic intersection analysis. The outcomes of these modelling assessments to not vary the recommended transport related inclusions to the project, particularly for year-of-opening impacts. Sidra results should therefore be interpreted in this context.

Traffic impacts have been assessed at the following key surrounding intersections:

- Gillieston Road / Cessnock Road
- Ryans Road / Vintage Drive
- Vintage Drive / Cessnock Road

It is noted within the other intersections were identified by Maitland Council but have not been modelling specifically based on the following considerations:

**Table 7.1: Other Roads and Intersections**

Road / Intersection	Commentary
Northview Street / Ryans Road	Northview Street is the only location where the Kiss n Drop facility can be provided as discussed further in Section 8.2.1. It is important to note this intersection form and ability to consider any mitigations have been limited by Council previously approving closely spaced intersections nearby on the western side of Ryans Road. At the time of this assessment, construction was underway for widening of Ryans Road and installation of two new local access streets on either side of Northview Street. Given these currently changes to the road network, focus of this intersection assessment revolves physical treatments including line marking and signage coordinated with the proposed pedestrian crossing treatments as outlines in Figure 5.1.
Ryans Road / Gillieston Road	Increases in school traffic at this intersection will be limited given much of the student catchment is to the south, existing and future bus movements will continue to turn left at this intersection out of Gillieston Road onto Ryans Road with minimal impedance. The future development on the northern leg of the intersection is also likely limited. Any future longer-term improvements at this intersection would be subject to widening on the northern side of Gillieston Road.
Fanning Street / Cessnock Road	Fanning Street is a significant distance away from the school and is unlikely a route to generate school related traffic to a level that would warrant any upgrades to be imposed. Therefore, this intersection is not considered relevant to this assessment, rather subject to the greater Gillieston Heights URA growth.

The additional traffic associated with the upgrade of GPS has been determined based on the proportionate increase in enrolments and staff as detailed in Section 4.1.

The additional traffic associated with the GPS upgrade has been determined based on the existing schools and the proposed increase to capacity for the redevelopment year of opening (2026) and ultimate design year (2036).

As part of the traffic assessment, travel mode surveys were undertaken. The mode shares have been developed based on a catchment analysis of students forecasted to be located within relevant active

transport and public transport service catchments. Accordingly, practical targets have been developed based on the local context and catchments.

For staff, the mode share targets are based on TfNSW's Regional Transport Strategy and are considered as more ambition targets from GTP rather than to inform traffic and parking assessment. The adopted mode shares are illustrated in Figure 7.1 below.

Public School (2026)			
Travel Mode	Existing	Mode Share Targets*	% Change
<b>Staff</b>			
Private Vehicle	99%	92%	-7%
Walking	0%	2%	2%
Cycling	0%	2%	2%
Bus	0%	3%	3%
<b>Student (2026)</b>			
Private Vehicle	60%	50%	10%
Walking	5%	7%	2%
Cycling	3%	6%	4%
Bus	28%	32%	4%
Other	5%	5%	0%
Public School (2036)			
Travel Mode	Existing	Mode Share Targets	% Change
<b>Staff</b>			
Private Vehicle	99%	82%	17%
Walking	1%	8%	7%
Cycling	0%	5%	5%
Bus	0%	5%	5%
<b>Student</b>			
Private Vehicle	60%	45%	15%
Walking	5%	8%	3%
Cycling	3%	8%	6%
Bus	28%	35%	7%
Other	5%	5%	0%

Figure 7.1: Mode Share Targets

## 7.2 Background Traffic

Background traffic volumes were obtained from traffic surveys undertaken by Traffic Data and Control on 6 December 2022 at the following intersections:

- Cessnock Road / Gillieston Road
- Cessnock Road / Vintage Drive
- Vintage Drive / Ryans Road

Surveys found that the AM peak hour occurred between 7:45-8:45am and PM peak hour 2:30-3:30pm.

The traffic survey data is provided in **Appendix B** and the traffic network diagrams provided in **Appendix C**.



## 7.3 Existing School Traffic

As the school has limited on-site parking and no formalised Kiss n Drop facility traffic generated by the existing school has been estimated based the existing school population and site observations. The following assumptions have been made:

- Current staff drive mode shares is 100%, though typically only 50% of staff PM trips occur during the peak
- Current student drive mode share is 59%
- An average car share factor of 1.75 students per car has been applied non-staff trips to represent families with more than one child attending the GPS or students carpooling with each other and is reflective of car pooling numbers captured through the school student travel survey.

Table 7.2 summarises the estimated school trips based on the existing school based on student numbers and staff numbers at 2022-23 when traffic surveys were undertaken.

**Figure 7.2: Estimated Existing School Peak Traffic Generation**

Component	AM			PM		
	IN	OUT	Total	IN	OUT	Total
Staff	23	0	23	0	12	12
Non-staff (student drop off/pick up)	114	114	228	114	114	228
<b>TOTAL</b>	<b>137</b>	<b>114</b>	<b>251</b>	<b>114</b>	<b>126</b>	<b>240</b>

In terms of trip distribution the majority of the school catchment is located toward the south of the site so would be contributing to predominately surveyed traffic around Cessnock Road / Vintage Drive and Vintage Drive / Ryans Road intersections.

For staff, these trips are estimated to be closer to a 50/50 split between vehicles traveling north and south on Cessnock Road so trips would be split between Cessnock Road / Gillieston Road and Cessnock Road / Vintage Drive intersections.

## 7.4 Forecast Background Traffic

To inform background traffic growth rates the permission was given by TfNSW to utilise information from the MR195 corridor project and its transport model to develop traffic growth rates on Cessnock Road and assumed activity projections with state and Council on nearby activity approvals and forecast residential dwellings.

For Cessnock Road between 2021 to 2026 trips are forecast to increase by 3.73% northbound and 3% southbound. Between 2026 to 2036 trips are forecast to increase by 2.88% and 3%.

Based on recent subdivisions approvals (see Figure 7.3 for locations) there is approximately 396 new residential lots expected to be developed and occupied between 2021 and 2026 immediate surrounding the school site. There is a further 180 lots have active development application but not likely to be occupied by residents by 2026.



**Figure 7.3: Activity Areas Map**

Table 7.1 summarised the expected daily and peak hour traffic estimated to be generated by these developments.

**Table 7.2: Subdivisions Summary and Traffic Generation**

Subdivision	Lots	Traffic Generation Rate			Daily Volume	AM Trips	PM Trips	AM Trips		PM Trips	
		Daily Rate	AM Rate	PM Rate				IN	OUT	IN	OUT
Lots estimate to be occupied by 2026											
Kiah Road – Lots 1-3, DP 113652	281	7.4	0.71	0.78	2,079	200	219	60	140	153	66
109- Ryans Road	115				851	82	90	24	57	63	27
Future Lots (between 2026-2036)											
Northview Street / Gillieston Road	43	As above			318	31	34	9	21	23	10
Gillieston Road - Lot 1 DP 986279 – DA 2019/278	137				1,014	97	107	29	68	75	32

Traffic distribution have been applied to each of these activities based on their main access locations and expected travel route along Ryans Road, Gillieston Road and Vintage Drive to reach Cessnock Road. In addition to the activity noted in Table 7.1 there is further residential development approved to the south east of the school. Traffic associated with these activity areas has been assumed to be accommodated within Cessnock Road's traffic growth forecasts.

Traffic distributions showing forecast background traffic volumes through the network at the anticipated year of opening 2026 and the 10-year design horizon are provided in **Appendix C**.

## 7.5 Design Traffic

### 7.5.1 Traffic Generation

Traffic generation associated with the school upgrade has been estimated based on the anticipated GPS enrolments and full-time staff. The student travel mode surveys were used to provide a baseline of existing peak hour student related operations and was compared to the *target mode share*. The target mode share was based on the number of forecast students expected to be within the walking and cycling catchments.

Each student dropped off at school will generate two trips, being one IN and one OUT trip. In addition, an average carpool factor (1.75 student per car) has been applied to the proposed GPS enrolments to represent families with more than one child attending the GPS or students carpooling with each other.

The number of trips generated by GPS associated with the above considerations is summarised in Table 7.3 and Table 7.3.

**Table 7.3: GPS 2026 Activity Traffic**

Component	Quantity	Type	Driving Mode Share	Resultant Trips
Primary School Students Trips	424	KnD	50%	424
Pre-school trips	60	Pick up / drop-off	100%	120
Total students' trips				544
Total students' trips with carpool correction factor				311
School Staff Trips'	50	staff	100%	50
Pre-school Staff Trips	10	staff	100%	10
Existing Trips				251
Additional Trips				+120

**Table 7.4: GPS 2036 Activity Traffic**

Component	Quantity	Type	Driving Mode Share	Resultant Trips
Primary School Students Trips	682	KnD	40%	546 <sup>a</sup>
Pre-school trips	60	Pick up / drop-off	100%	120
Total students' trips				666
Total students' trips with carpool correction factor				381 <sup>b</sup>
School Staff Trips'	50	staff	100%	50
Pre-school Staff Trips	10	staff	100%	10
Existing Trips				251
Additional Trips				+190



Based on the school enrolments and staff increases to 2026 and 2036 the school is expected to generate 120 trips in 2026, primarily attributed to the new pre-school trips. By 2036, the forecast increase in enrolments and staff is projected to result in 190 additional trips per peak period.

### 7.5.2 Activity Splits

To determine the overall number of peak hour trips generated by the GPS redevelopment and new public preschool, the following assumptions were made:

- Each student related dropped off at school will generate two trips, being one IN and one OUT trip
- Staff will generate one IN trip during the AM peak, and one OUT trip during the PM peak
  - Based on observations and experience with other school projects 50% of staff trips are assumed to occur after the PM peak

**Table 7.5: 2026 AM Trips**

Component	IN	OUT	IN Trips	OUT Trips
Primary School (Drop-off)	100%	100%	212	212
Pre-School (Drop-off)	100%	100%	60	60
School Staff	100%	0%	50	0
Pre-School Staff	100%	0%	10	0
<b>Total students' trips with carpool correction factor</b>			<b>156</b>	<b>156</b>
Staff trips			60	0
<b>Total GPS Trips</b>			<b>216</b>	<b>156</b>
<i>Existing Trips</i>			<i>137</i>	<i>114</i>
<b>Net GPS Trips</b>			<b>+79</b>	<b>+42</b>

**Table 7.6: 2026 PM Peak Trips**

Component	IN	OUT	IN Trips	OUT Trips
Primary School (KnD)	100%	100%	212	212
Pre-School (Pick-up)	100%	100%	60	60
School Staff	0%	50%	0	25
Pre-School Staff	0%	50%	0	5
<b>Total students' trips with carpool correction factor</b>			<b>156</b>	<b>156</b>
Staff trips			0	30
<b>Total GPS Trips</b>			<b>156</b>	<b>186</b>
<i>Existing Trips</i>			<i>114</i>	<i>126</i>
<b>Net GPS Trips</b>			<b>+42</b>	<b>+60</b>

**Table 7.7: 2036 AM Peak Trips**

Component	IN	OUT	IN Trips	OUT Trips
Primary School (Drop-off)	100%	100%	273	273
Pre-School (Drop-off)	100%	100%	60	60
School Staff	100%	0%	50	0
Pre-School Staff	100%	0%	10	0
<b>Total students' trips with carpool correction factor</b>			<b>191</b>	<b>191</b>
Staff trips			60	0

Component	IN	OUT	IN Trips	OUT Trips
Total GPS Trips			251	191
Existing Trips			114	126
Net GPS Trips			+137	+65

**Table 7.8: 2036 PM Peak Trips**

Component	IN	OUT	IN Trips	OUT Trips
Primary School (KnD)	100%	100%	273	273
Pre-School (Pick-up)	100%	100%	60	60
School Staff	0%	50%	0	25
Pre-School Staff	0%	50%	0	5
Student trips (w trips w/ car share correction factor)			191	191
Staff trips			0	30
Total GPS Trips			191	221
Existing Trips			114	126
Net GPS Trips			+77	+95

It is important to note a large portion of KnD trips are stop-by trips for parents or guardians who continue on their journey to work and beyond after dropping students off in the morning and similar in the afternoon picking up students on the way home.

Accordingly, the majority of these student related trips is likely traffic already on the road network as part of background traffic assumptions and there would be only minor trip diversions (i.e. vehicles pulling into Northview Street to use drop-off/pick up students then continuing their onward journey towards Cessnock Road and further afield). This travel behaviour pattern relates to the net increase in trips across the network.

## 7.6 Intersection Assessment

### 7.6.1 Overview

The key intersections were assessed using SIDRA Intersection (Version 9.1) to determine the activity traffic impacts by comparing 'without activity' (background traffic) and 'with activity' (design traffic) for the anticipated year of opening (2026) and 10-year design horizon (2036). The impacts were assessed during the morning and afternoon peak hours.

With regard to activity traffic, as noted earlier much of the school student related traffic would already be accommodated within background traffic growth (i.e. majority of trips would still occur at key intersections). As such activity related trips above these background scenario have been considered based on the following:

- Net staff trips as staff who would travel from further afield as they do not need to live 'within catchment'
- Minor diversion of car-based trips from those residing in the new activity off Kiah Road (Lots 1-3, DP 113652) who would first travel up Ryans Road to drop-off rather than travelling directly towards Cessnock Road and similar divert their trip in the afternoon
  - 47 trips has been estimated based on 0.45 trips per dwelling which has been assumed considered ABS Census data indicated 0.9 children per household of in Gillieston Heights of which half are of pre/public school age and car based mode share assumption of 40% for student travel
- Car-based trips for new students who would reside within the Gillieston Heights South (East Precinct) in which there is a 257 dwelling activity being proposed by Walker Gillieston Heights Pt Ltd and 67 dwellings by others at 457 and 463 Cessnock Road. As activities have not started at these site it would be expected this would only contribute to 2036 traffic assumption. This area has been assumed as accounting for 58 trips in peaks that would be trip diverted to turn in/out of

Vintage Drive rather than be a through trip on Cessnock Road in background traffic growth scenarios.

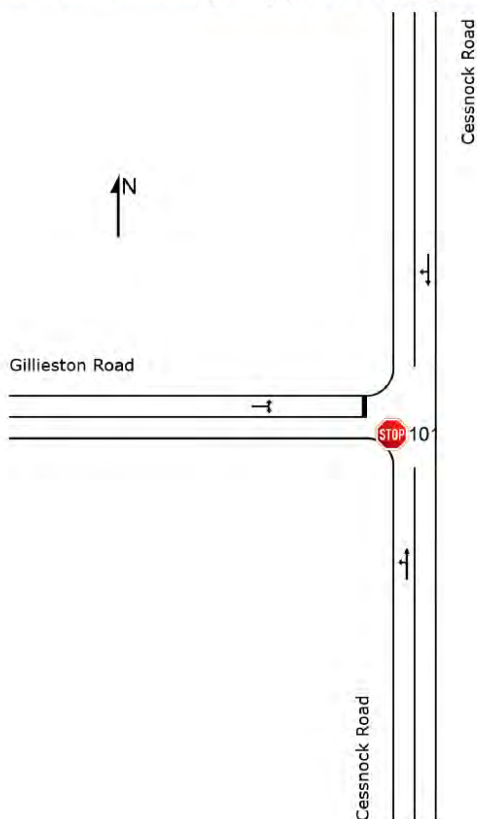
- 58 trips based same earlier noted assumptions students per household and mode share assumptions of 40% car travel in 2036

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

## 7.6.2 Cessnock Road / Gillieston Road

The layout adopted for the Cessnock Road / Gillieston Road intersection is shown in Figure 7.4.

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



**Figure 7.4: SIDRA Layout Cessnock Road / Gillieston Road intersection**

Table 7.8 summarises the SIDRA output for the Cessnock Road / Gillieston Road

**Table 7.9: Cessnock Road / Gillieston Road SIDRA Results**

Scenario	AM Peak				PM Peak			
	LOS	DOS	Avg Delay (s)	95%ile Queue (m)	LOS	DOS	Avg Delay (s)	95%ile Queue (m)
<b>2026 Background Traffic Volumes</b>								
2026 BG <sup>1</sup>	F	2.25	82.9	334.9	F	0.96	5.3	27.0
<b>2026 With Activity Traffic Volumes</b>								
2026 Design <sup>1</sup>	F	2.49	129.4	392.4	F	1.87	32.3	171.4
<b>2036 Background Traffic Volumes</b>								
2036 BG <sup>2</sup>	F	27.18	3013.1	4143.3	F	5.16	259.1	1802.6
<b>2036 With Activity Traffic Volumes</b>								
2036 Design <sup>2</sup>	F	29.16	4358.1	4394.7	F	7.23	411.3	2078.7

Note 1: While SIDRA Intersection is a widely used tool for assessing intersection performance, it presents notable challenges when analysing intersections that are already operating at or above capacity. In such scenarios, SIDRA's underlying models tend to predict

exponentially increasing delays and queue lengths as demand exceeds capacity. This outcome is not always reflective of actual traffic behavior, as it does not account for the adaptive responses of road users, such as trip diversion or the selection of alternate routes within the broader road network. Furthermore, because SIDRA evaluates intersections in isolation, it is unable to consider network-wide effects, including the redistribution of traffic flows that typically occurs when congestion reaches critical levels. As a result, the outputs for oversaturated intersections may overstate operational issues and do not fully represent the dynamic nature of real-world traffic conditions.

Note 2: It is unlikely the existing intersection form is still to be present at 2036 but scenario has been tested based on industry requirements to prepare a 10-year design horizon scenario and given a future intersection form is not confirmed (and future intersection form therefore unable to be tested)

The results show that intersection will be operating at capacity in 2026 regardless of the school redevelopment. The reasoning for this result relates to the stop-controlled approach of Gillieston Road and high through traffic during peak periods which restricts the ability for vehicles to turn out of Gillieston Road. These peak periods delays for the side street significantly constrain the use of this intersection during peak periods.

The existing intersection exhibits deficiencies with its geometry (both alignment, lane widths for Gillieston Road and driver approach sight lines) and has been identified as needing to be reconfigured and upgraded to signals based on TfNSW investigations (as part of a MR195 – Cessnock Road Corridor Study) and related to residential development approvals in the area. Furthermore, it is noted that any upgrade is contingent on acquiring land on the south-western corner of the intersection to provide sufficient space to upgrade the intersection.

In reality, the forecast level of peak period congestion shown in the SIDRA results is unlikely to be realised due to factors such as:

- Peak spreading (i.e. predominately background traffic or school staff re-timing their trip to avoid road peaks or school PM peak 15 minute period); and
- Alternative route choice for which there are alternate routes in the catchment which would allow traffic to access the area via the Cessnock Road / Vintage Drive intersection and in turn Ryans Road (for which intersections on these routes have projected spare capacity to accommodate for these 'alternate route' trips).

For context it is also important to note that activity trips only contributing approximately 53 net trips (2% of overall intersection peak hour traffic) to the intersection. When considering school related traffic trying to exit out of Gillieston Road onto Cessnock Road the school is only contributing 13 vehicles in the AM peak and 33 vehicles in the PM peak to this leg of the intersection which is experience the main delays in SIDRA analysis and would be mainly related to staff trips. In practice this might translate to 1 vehicle every 4 minutes in the AM where vehicles would be spread more evenly across the peak hour. In the PM trips may be more compressed to occur predominately in 30 minute period so may translate to 1 vehicle per minute.

In practical terms, such a small proportion of traffic is unlikely to have a significant impact and while these trips may contribute incremental to queue formation and wait times as theoretically outlined in Table 7.9. This level of net impacts is considered negligible for the purpose of imposing specific mitigation measures as a result of the school redevelopment in its own right.

Notwithstanding, TfNSW are in the process of developing their action plan for upgrades along Cessnock Road, including this particular intersection. Any upgrades to this intersection are therefore subject to a third party and require coordination between TfNSW, Council and the subject land owner. DoE are therefore recommended to work with TfNSW, Council in progressing these future upgrades to support the greater Gillieston Heights URA, inclusive of GPS.

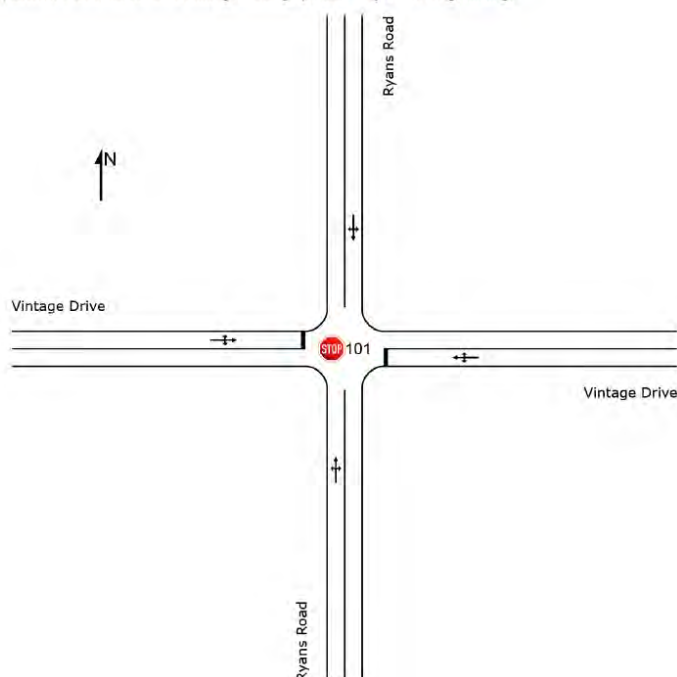
In the interim (for time of opening) the GPS' School Travel Plan, Operational Transport Management Plan and associated communication materials should recommend staff and the school community not use Gillieston Road to access Cessnock Road travelling south.



### 7.6.3 Ryans Road / Vintage Drive

The layout adopted for the Ryans Road / Vintage Drive intersection is shown in Figure 7.5.

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



**Figure 7.5: SIDRA Layout Ryans Road/ Vintage Drive intersection**

Table 7.9 summarises the SIDRA output for the intersection.

**Table 7.10: SIDRA Results Ryans Road/ Vintage Drive intersection**

Scenario	AM Peak				PM Peak			
	LOS	DOS	Ave Delay (s)	95%ile Queue (m)	LOS	DOS	Ave Delay (s)	95%ile Queue (m)
<b>2026 Background Traffic Volumes</b>								
2026 BG	B	0.16	6.2	4.4	B	0.14	6.3	3.9
<b>2036 Background Traffic Volumes</b>								
2036 BG	B	0.21	6.3	6.1	B	0.17	6.4	5.0
<b>2026 Design Traffic Volumes</b>								
2026 Design	B	0.18	5.9	5.1	B	0.14	5.8	3.8
<b>2036 Design Traffic Volumes</b>								
2036 Design	B	0.23	6.1	7	B	0.17	6.0	4.9

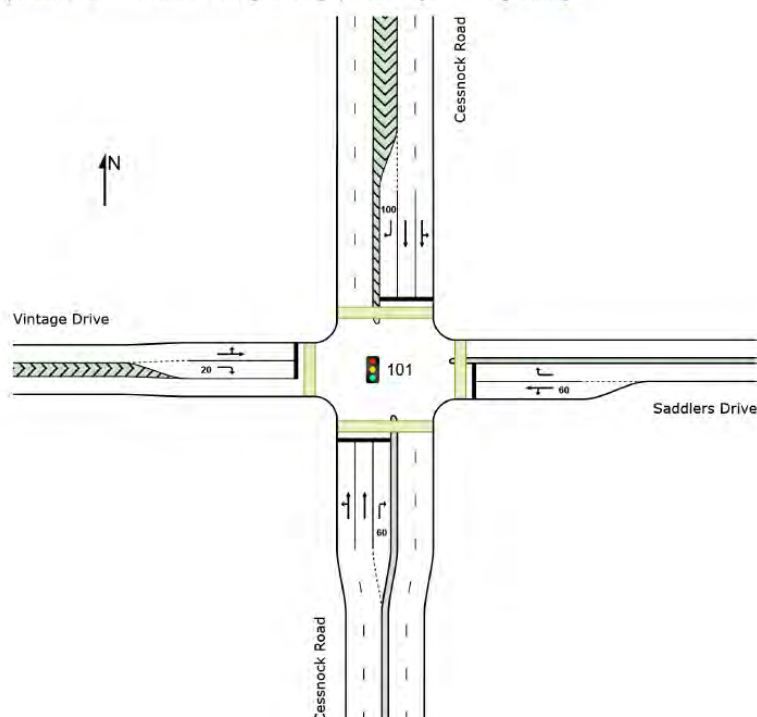
As shown, the intersection is expected to operate well within acceptable performance limits (DOS < 0.8) for a priority-controlled intersection for the expected 10-year design horizon (2036) with and without the proposed activity. Furthermore, the introduction of activity trips is expected to have a negligible impact on intersection performance and may result in a reduction in delays by the event of diverted trips travelling straight along Ryans Road rather than turning immediately right at the intersection to head towards Cessnock Road.

As this intersection operates at a Level of Service B, it has spare capacity and is well positioned to accommodate additional diverted trips should drivers choose alternate routes to avoid the existing constraints at the Cessnock Road / Gillieston Road intersection. The presence of this spare capacity mean this intersection can absorb increased traffic volumes with minimal impacts on queuing and delay.

## 7.6.4 Cessnock Road / Vintage Drive

The layout adopted for the Cessnock Road / Vintage Drive intersection is shown in Figure

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



**Figure 7.6: SIDRA Layout Cessnock Road / Vintage Drive intersection**

Table 7.10 summarises the SIDRA output for the intersection.

**Table 7.11: SIDRA Results**

Scenario	AM Peak				PM Peak			
	LOS	DOS	Ave Delay (s)	95%ile Queue (m)	LOS	DOS	Ave Delay (s)	95%ile Queue (m)
<b>2026 Background Traffic Volumes</b>								
2026 BG	C	0.78	20.1	86.5	B	0.69	17.4	74.8
<b>2036 Background Traffic Volumes</b>								
2036 BG	C	0.84	26.9	164.4	B	0.74	18.2	118.2
<b>2026 Design Traffic Volumes</b>								
2026 Design	B	0.78	19.4	84.9	B	0.70	17.5	76.2
<b>2036 Design Traffic Volumes</b>								
2036 Design	C	0.87	27.9	174.9	B	0.74	18.2	118.2

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

As this intersection operates at a Level of Service C or better, it has spare capacity and is well positioned to accommodate additional diverted trips should drivers choose alternate routes to avoid the existing constraints at the Cessnock Road / Gillieston Road intersection. The presence of this spare capacity mean this intersection can absorb increased traffic volumes with minimal impacts on queuing and delay, ensuring overall network performance remains suitable even if some redistribution of traffic occurs in response to congestion and limitation at Cessnock Road / Gillieston Road in the short term.

## 7.7 Daily Traffic and Road Capacity/Cross Sections

While traffic is concentrated during peak periods, it is important to note schools generate limited trips outside of peak times and therefore minimal contributors to daily traffic volumes. In our experience with numerous other school projects approximately 80% of daily trips occur during peak periods so the school redevelopment would be estimated to generate in the order of 397 to 527 additional daily trips 2026 and 2036, respectively. Considering the schools catchment and location in an emerging urban release area, daily traffic volumes are therefore a matter that is in response to the urban release area as a whole. As noted in Table 7.2, residential developments surrounding the school are expected to progressively be developed between now and 2036 and are expected to generate in the order of 2,180 additional daily trips split across Gillieston Road and Ryans Road. This is in addition to an estimated 452 daily trips generated by existing residential properties in this immediate area surrounding the school that would be utilising Ryans Road and/or Gillieston Road.

Council has identified planned road forms for Gillieston Road and Ryans Road to be of a collector street standard. By 2026, Ryans Road will be generally of an urban road form with widening and upgrades occurring on the western side of the road. An urban road with a kerbside lane with occasional parked vehicles has a capacity of around 600 vehicle per hour per lane and environmental capacity of around 6,000 vehicles per day for a collector street.

Gillieston Road currently has a pavement which ranges from approximately 5.5m to 7.5m width which allows for two way movement (if on-street parking is restricted). Road cross section upgrades in vicinity of the school site will therefore need to be timed/coordinated to align activity to the north and east of the school.

## 7.8 Traffic Assessment Summary

The key details of the traffic assessment are as follows:

- The traffic generated by the GPS is expected to increase proportionally with the enrolments, which equates to an additional 120 and 190 trips in 2026 and 2036 respectively. In 2026, the traffic increase is primarily attributed to the introduction of the preschool facility on the site, with traffic projections largely remaining consistent with current demands. To account for this traffic increase, it is recommended that the preschool hours of operation are staggered from school hours to avoid additional traffic increases during this peak time during the afternoon period.
- Gillieston Road / Cessnock Road intersection is shown to exhibit long delays for exiting traffic seeking to turn out of Gillieston Road which is stop-controlled. The narrow road width combined with poor driver sight lines, approach alignment and high peak through traffic on Cessnock Road limits the ability for traffic to successfully use Gillieston Road in its current form. While not an attractive or highly used route for school based traffic to travel south onto Cessnock, it is recommended that until such time that this intersection is upgraded, the school traffic plan recommends alternate routes including Ryans Road and Vintage Drive to the south.
- Traffic impacts have been assessed at the Ryans Road / Vintage Drive and Cessnock Road / Vintage Drive and found the activity would have a negligible impact on intersection performance and do not warrant the need for any mitigation measures to be imposed on the proposed school redevelopment specifically.
- While Cessnock Road / Gillieston Road has some existing issues/constraints, other nearby intersections operate at a Level of Service C or better, some have spare capacity and are well positioned to accommodate additional diverted trips should drivers choose alternate routes. The presence of this spare capacity means this intersection can absorb increased traffic volumes with minimal impacts on queuing and delay, ensuring overall network performance remains suitable even if some redistribution of traffic occurs in response to congestion and limitation at Cessnock Road / Gillieston Road in the short term.
- As the Gillieston Height URA is developed, it is recommended that DoE along with Council and TfNSW work to deliver targeted transport infrastructure to support the growth surrounding the school.



## 8. PARKING ASSESSMENT

### 8.1 Overview and Methodology

The purpose of this parking assessment is to determine the impacts of the proposed upgrade on the off-street and on-street parking facilities. The following is noted:

- Limited parking is currently provided on-site, and parking provision are proposed to meet staff demands based on DCP rates
- Student pick-up/drop-off occurs in an informal arrangement on Northview Street so the propose seeks to formalise facilities, improve road infrastructure (i.e. width to accommodate KnD while still allowing for two-way through traffic movements)

### 8.2 Council Car Parking Requirements

Standard car parking rates were sourced from Council's *Development Control Plan (DCP) - Part C Design Guidelines*. The relevant car parking rates and requirements are outlined in Table 8.1.

**Table 8.1: Activity Parking Requirements and Compliance**

Land Use	Parking Rate	Quantity	Spaces Required	Spaces Provided
Primary School (Education Establishment)	1 space per staff plus provision for a drop off/pick up area	50 staff (FTE)	50	50
Pre School (Child Care)	1 space per 4 children in attendance or part thereof.	60 Students	15	15
Total			65	65

The proposed parking provision meets Council's DCP requirements.

#### 8.2.1 Kiss n Drop Facility

##### 8.2.1.1 Proposed Configuration, Queuing and Operational Management

A KnD facility is proposed to offset the need to provide dedicated parking spaces for student pick-up/drop-off purposes on site. The proposed KnD facility is located along the Northview Street frontage as part of an upgrade to the existing parallel parking spaces fronting the school which current operates informally for pick-up and drop-off of students. This facility is considered a significant improvement to the existing facilities and operations for the school.

The KnD facility provides four (4) collection bays and the indented lane widening on Northview Street will provide queuing capacity of further 100m (or 14 vehicles) to maintain two-way vehicle movements along Northview Street. The KnD collection bays and queuing will be signed as a No Parking zone during peak times and allow for parking outside of these times.



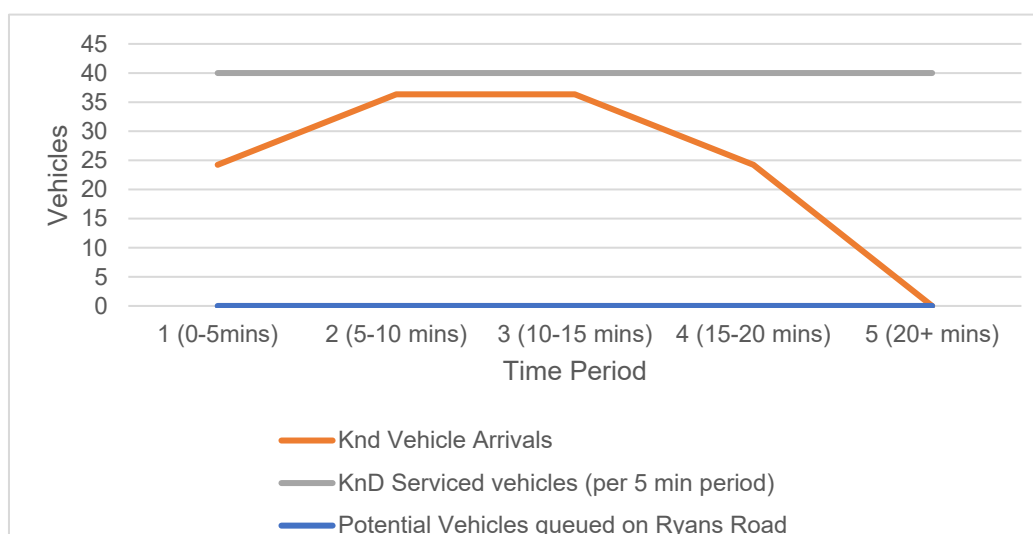
**Figure 8.1: Proposed KnD Facility**

The KnD facility estimated to be able to service 288 vehicles over a 30-minute period. The KnD demand for school based on mode share targets is approximately 121 to 146 vehicles in 2026 and 160 vehicles in 2036. Table 8.2 and Table 8.3 provide peak queueing assessment noting the following assumptions:

- A 50% KnD mode share in 2026 (121 vehicles) and 40% KnD (160 vehicles) mode share in 2036 has been assumed based on mode share targets and noting the environment and catchment around the school is rapidly changing since travel mode surveys were conducted in February 2023 from a rural area to a suburb environment with growth being attributed to families living within a walk and cycle catchment to the school
- A 1.75 students per car occupancy rate has been adopted which was based on average car-pool results obtained from the school travel model survey
- Industry guidance (i.e. Austroads Guide to Traffic Management Part 11, the NSW Guide to Traffic Generating Developments, Australia Road Research Board (ARRB) schools research, and local council school travel toolkits) recommend using a 20-30-30-20% arrival rate distribution over a 20-minute window for queue and bay calculations
- A 30-second dwell time per vehicle which aligns to a service rate of 2 vehicles per KnD bay per minute has been applied which also aligns with the above referred industry guidance where a facility is well-managed and supervised, and aligns with our experience on other school projects with similar design facilities (i.e. in-line KnD zone)

**Table 8.2: 2026 KnD Queuing Assessment (50% Mode Share)**

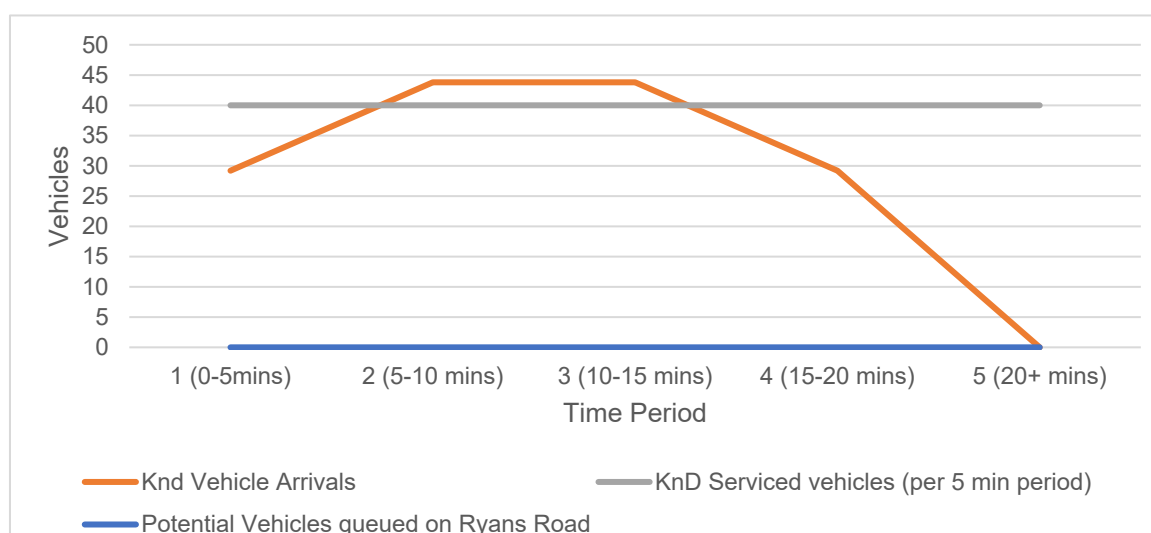
	<b>1 (0-5mins)</b>	<b>2 (5-10 mins)</b>	<b>3 (10-15 mins)</b>	<b>4 (15-20 mins)</b>	<b>5 (20+ mins)</b>
<b>Proportion of KnD Vehicle Arrivals</b>	20%	30%	30%	20%	0%
<b>KnD Vehicle Arrivals</b>	24	36	36	24	0
<b>Excess Vehicles from KnD</b>	0	0	0	0	0
<b>Total Vehicles for KnD</b>	24	36	36	24	0
<b>Pickup Period</b>	5	5	5	5	5
<b>KnD Service Rate (4 bays @ 2 veh/min)</b>	8	8	8	8	8
<b>KnD Serviced vehicles (per 5 min period)</b>	40	40	40	40	40
<b>External Queue in Meters (i.e. beyond queuing bays on Northview St)</b>	0	0	0	0	0



A sensitivity test have also been prepared for 60% KnD mode share scenario in 2026 (if travel behaviours is unchanged from 2023 survey results) which also found the KnD facility and indented queuing bays should be sufficient to accommodate for demands with the infrastructure provisions being supported by supervision, education and operational guidance on the correct and appropriate use of the KnD Zone.

**Table 8.3: 2036 KnD Queuing Assessment**

	<b>1 (0-5mins)</b>	<b>2 (5-10 mins)</b>	<b>3 (10-15 mins)</b>	<b>4 (15-20 mins)</b>	<b>5 (20+ mins)</b>
<b>Proportion of KnD Vehicle Arrivals</b>	20%	30%	30%	20%	0%
<b>KnD Vehicle Arrivals</b>	32	48	48	32	0
<b>Excess Vehicles from KnD</b>	0	0	8	16	8
<b>Total Vehicles for KnD</b>	32	48	56	48	8
<b>Pickup Period</b>	5	5	5	5	5
<b>KnD Service Rate (4 bays @ 2 veh/min)</b>	8	8	8	8	8
<b>KnD Serviced vehicles (per 5 min period)</b>	40	40	40	40	40
<b>External Queue in Meters (i.e. beyond queuing bays on Northview St)</b>	0	0	0	0	0



In that event that demand of 146 to 160 vehicles and average dwell times extended to 45 seconds there is a risk that queuing of vehicles onto Ryan Road waiting to turn into Northview Street for a short period of time (i.e. less than 10 minutes). The level of queuing and time period expected in this type of scenario is not uncommon around school precincts.

In practice, actual queuing extending back to this extent is less likely, as parent behaviour adapts with education (e.g. operational Travel Access Guide materials) and the availability of park-and-walk options, especially as new subdivision roads open to the west. New subdivision roads west of Ryans Road also mean alternate routes will be available for other traffic to avoid getting 'caught' in the school queue during any peak 'concentrated' time periods.

Normally our recommendation to mitigate against this type of risk would be for a turn lane to be created and kerbside parking restricted in vicinity of the intersection. However in this case closely spaced intersection previously approved by Council on the western side of Ryan Road (see Figure 8.2) which are both within 25m of Northview Street's intersection with Ryans Road which does not align with Council's DCP which requires a minimum intersection of at least 40m.





**Figure 8.2: Approved Subdivision Roads in vicinity of Northview Street**

This configuration creates the potential for a right turn conflict for southbound movements entering the new intersection to the south. At the timing of this assessment, it remains unclear as to Council's intersection line marking strategy related to these new intersections at Northview Street.

Given the spacing of intersections, an alternative treatment that may be considered by Council would be to restrict the opposing new street on the western side to left-in/left-out only. This would remove turning vehicle conflicts on Ryans Road in proximity to the school, Northview Street and new pedestrian crossings.

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

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

The implementation of an Operational Transport Management Plan (OTMP) is recommended to ensure the safe, efficient, and coordinated management of all school transport operations, particularly during peak drop-off and pick-up periods. The OTMP will outline clear procedures and responsibilities for the operation of the Kiss n Drop (KnD) facility, bus zones, staff and visitor parking, and pedestrian access points. Key measures in the OTMP relevant for the KnD include:

- Defined roles and responsibilities for school staff supervising transport operations, including the Kiss n Drop and pedestrian crossings.
- Procedures for the safe and efficient movement of vehicles through the KnD facility, including queue management, signage, and communication with parents and carers.

- Supervision protocols for student arrival and departure, ensuring students use designated access points and travel routes.
- Communication strategies to inform parents, carers, and staff of transport procedures, including maps and guidelines for safe use of the KnD and parking areas.
- Monitoring and review processes to assess the effectiveness of the OTMP, including review queue lengths and traffic flow during peak periods to identify any operational issues and measures for further improvement to mitigate any issues.

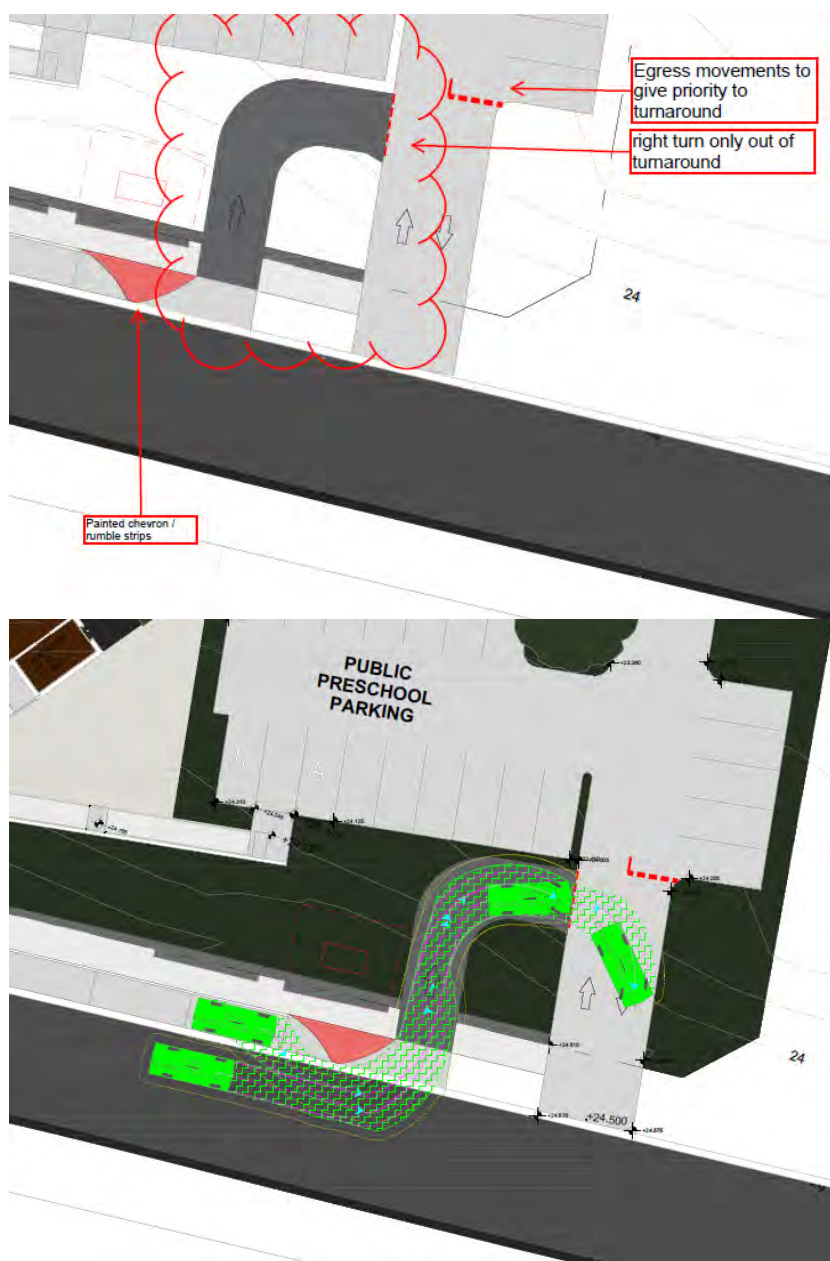
#### **8.2.1.2 Optional Temporary Turning Facility**

In response to Council concerns raised during TWG meetings related to potential vehicles trying to u-turn in vicinity of the KnD a design for a temporary driveway turnaround facility be prepared that links into the existing driveway for the pre-school car park (see Figure 8.5). This facility is intended to address these Council concerns but be removed once a future subdivision road is provided that connects Northview Street to Gillieston Road.

In the event that under the Section 138 application for road works a suitable alternate turnaround facility elsewhere (further east on Northview Street) were to become available as an option that is satisfactory to Council it is consider this temporary turning facility does not need to be delivered.

A 6-month post-opening review of the OTMP is recommended to be conducted and submitted to the satisfaction of DOE's Transport Planning Team to monitor and mitigate any identified operational issues associated with the Kiss n Drop and interface with the pre-school driveway.

In line with managing traffic volumes on Northview Street during pick-up times and also removing conflicts between preschool traffic at KnD traffic at the turn-around facility, a potential mitigation measures that may need to be considered post opening and as a result of a 6-month review of the OTMP is staggering of finish times for the school and pre-school This targeted measure should effectively reduce overlap at the driveway during the busiest period when the initial temporary arrangements may be in place prior to further road connection or turnaround facilities being available.



**Figure 8.3: Temporary Turning Facility**

### 8.3 Bicycle Parking Requirements

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

**Table 8.4: Bicycle Parking Rates**

Land Use	Anticipated Quantity	Parking Rate	Spaces Required	Spaces Provided
School	Up to 682 at 2036 of which ~227 Students over year 4	1 space per 5 pupils over year 4	46	52

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

The activity exceeds the required number of bicycle parking spaces based on the anticipated number of students over year 4. Importantly, the number of cycle racks far exceeds the requirements for the current student enrolment, providing an opportunity for early transport mode shift to cycling for existing students. This on-site provision complements the currently and progressive construction of shared



pathway facilities along Ryans Road and new pathways across the residential developments in the area. Students travelling by bicycle is linked to:

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

While bicycle participation is expected to increase as a result of the project and due to the infrastructure improvements being delivered in the surrounding, any increase is expected to occur gradually over time. Bicycle participation should be monitored in the future to ensure the bicycle parking provision is meeting the demand and there is space for bicycle parking facilities to be expanded over time.

To further encourage a modal shift, it is recommended that an initial four staff bicycle parking spaces be provided to meet the active travel mode target of the GTP. Similar to the student bicycle parking spaces, this should also be monitored and increased based on the demand in the future. Additionally, staff bicycle parking spaces should be secure, weather protected and located near the main staff areas separate to student bicycle parking. The staff bicycle parking is to be supplemented with end of trip facilities (e.g. showers, lockers, change areas, etc).

## 8.4 Car Parking Layout Review

On-site car parking facilities provided have been assessed against the relevant requirements of Council's DCP and Australian Standards AS2890.1, AS2890.2 and AS2890.6. The assessment is documented in Table 8.4.

**Table 8.5: Car Parking Geometrical Assessment**

Design Element	Requirement	Proposed	Compliant
90° Staff Parking Bays (User Class 1A)	2.4m x 5.4m (min.)	2.5m x 5.4m	Yes
90° Visitor Parking Bays (User Class 2)	2.5m x 5.4m (min.)	2.5m x 5.4m	Yes
PWD Bay (User Class 4)	2.4m x 5.4m with shared area of the same dimension	2.4m x 5.4m with shared area of the same dimension	Yes
Parallel Parking Bays (User Class 1A)	2.1m x 6.2m (min.)	2.1m x 6.6m	Yes
90° Parking Aisle Width	5.8m (min.) + 0.3m clearance where bounded by solid wall	5.8m (min.)	Yes
Circulating Aisle	5.5m (min.) + 0.3m clearance where bounded by solid wall	6.1m (min.)	Yes
Clearance adjacent to vertical obstructions	0.3m (min.)	0.3m (min.)	Yes
Bicycle Parking (Horizontal)	0.5m x 1.8m (min.) with 1.5m aisle	0.5m x 1.8m with 1.5m aisle	Yes

Swept paths of critical car parking and circulation manoeuvres have been undertaken and are provided in **Appendix E**.

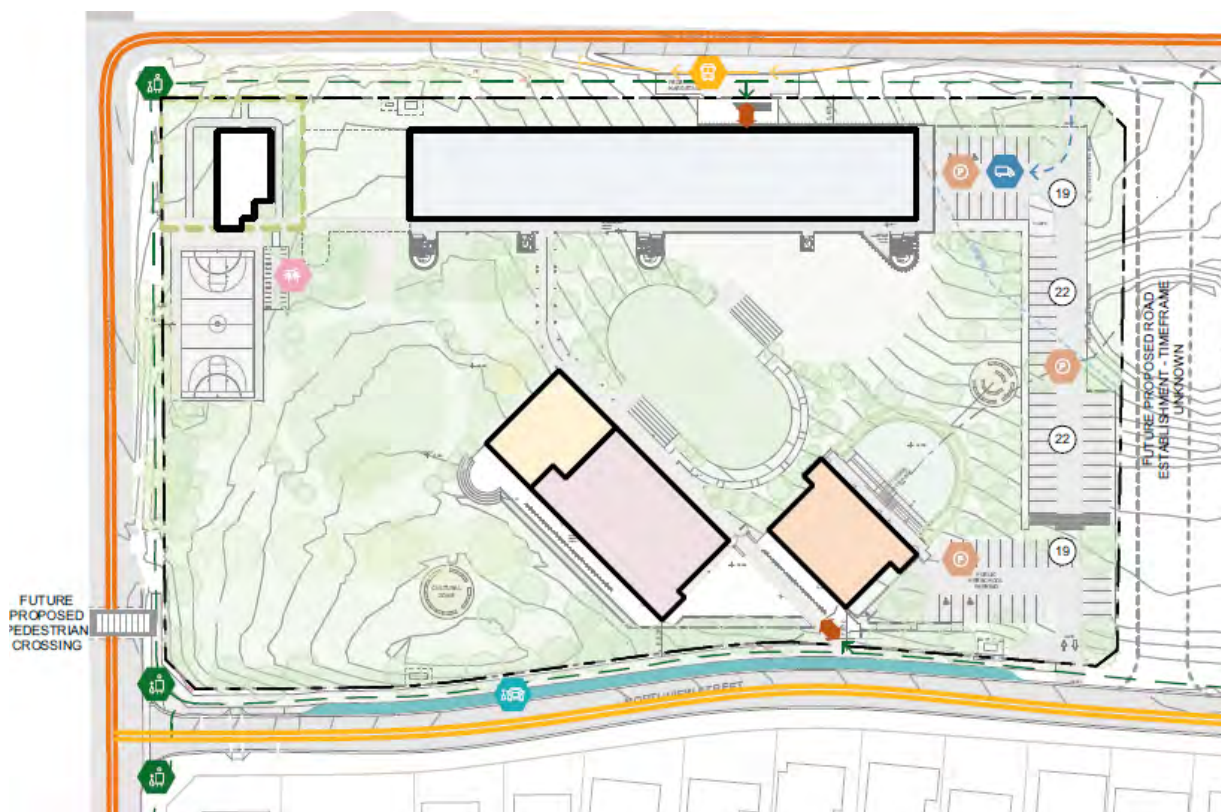
The architectural plans provided are considered preliminary and subject to further detailed design. It is therefore recommended that appropriate mitigations measures be imposed regarding design compliance to Australian Standards.

## 9. HEAVY VEHICLE ASSESSMENT

### 9.1 Servicing and Refuse Collection

The proposed upgrade is not expected to result in a significant change to the servicing or refuse collection demand.

The school has confirmed that the largest vehicle to enter the site is the refuse collection vehicle (RCV). During collection times, the bins will be moved from the storage location to a location where the RCV can collect the bins. Service and RCV will access the site via Gillieston Road. Swept paths provided in **Appendix H** show that a 12.3m front loading RCV is able to circulate through the site while maintaining adequate outer body clearances.



**Figure 9.1: Refuse Collection Location**

Servicing is typically undertaken with a much smaller vehicle than the RCV. Swept paths provided in **Appendix H** show that an 8.8m long medium rigid vehicle (MRV) is able to circulate through the site while maintaining adequate outer body clearances. This vehicle (MRV) is consistent with a large delivery truck and a typical emergency vehicle (i.e., ambulance or fire truck). Therefore, these vehicles are able to access and circulate through the site as needed.

As servicing and refuse collection occur outside of peak times it will not have an adverse impact on the safety and efficiency for other road users or pedestrians.

# 10. STAGING

## 10.1 Overview

The project will be delivered in two main stages generally consisting of:

- **Stage 1**, site establishment and building new facilities on the eastern side of the site while the existing occupied school continues to operate. Key elements will include:
  - Site Establishment
  - Neighbouring & Council storm water activities
  - All activities required for the completion of the new Learning Building & required decanting
  - All activities required for the completion of the new Pre-School
  - Bus Bay & Gillieston Road activities
  - Eastern sections of the public domain activities on Northview Street for the Kiss n Drop
- **Stage 2** consisting of the following elements and sub-stages:
  - Stage 2.1 – relocation of demountable, and site sheds to facility hall construction, construction of the hall building, completion and handover of carpark facilities
  - Stage 2.2 – Completion of the Hall building, and public domain activities on Northview to complete the western section of the KnD zone
  - Stage 2.3 – completion of landscaping including basketball court

## 10.2 Transport Staging Considerations

In terms of transport considerations during Stage 1, pedestrian access into the school will be maintained in its existing location along with bus facilities remaining on Ryans Road until the Gillieston Road activities are completed.

KnD operations would be maintained along Northview Avenue with site specific traffic management planning and traffic / pedestrian control devices employed in proximity to site activities zones.

Construction vehicle access during Stage 1 will be via Northview Avenue as access from Gillieston Road will be limited due to retaining and earthworks needing to be completed in the north-eastern corner of the site.

For Stage 2, the primary school access will be relocated to the new permanent site on Northview Ave, with bus bay operations relocated to Gillieston Road frontage.

Construction vehicle access during Stage 2 will be via the existing site's driveway on Ryans Road.

**Appendix A** contains more information of the proposed staging plan

# 11. SUMMARY

The key findings of the Gillieston Public School redevelopment and new public preschool traffic and transport impact assessment are as follows:

- The proposed redevelopment of GPS is driven by a facilities upgrade and to support the increase in expected student enrolments for the immediate catchment. Given that the enrolments are not expected to increase substantially in the short to medium term, transport impacts and recommended measures are targeted to those aspects involving the existing deficiencies surrounding the site.
- Residential growth is planned immediately adjacent to the existing school site as part of the Gillieston Heights URA. Notably, a significant proportion of the student growth will be within the surrounding walk and cycle catchment of the school, supporting local and state government goals of reduced car dependence and traffic movements associated with the school
- The proposed school upgrades transport needs were assessed and reviewed in the context of the low enrolments increases in the short to medium term as well as constraints attributed to the emerging transport infrastructure (roads and pathways) yet to be completed across Gillieston Heights. The activity and proposed transport facility improvements responds to needs of the current activity on the site and potential impacts namely:
  - Two new crossing facilities consisting of a raised pedestrian crossing on Ryan Road and children's crossing on Northview Street to cater for safe crossings and increased pedestrian demands to/from the school
  - Relocated and upgraded bus facilities consisting of a bus bay, catering for up to two buses, on Gillieston Road and associated infrastructure
  - Formalised Kiss n Drop zone consisting of an indented bays on Northview catering for 4 collection bays and queuing for a further 14 vehicles.
- Based on the school enrolments and staff increases to 2026 and 2036 the school is expected to generate 120 and 190 additional trips respectively above the existing school's traffic generation. In 2026, the traffic increase is primarily attributed to the introduction of the preschool facility on the site, with traffic projections largely remaining consistent with current demands. To account for this traffic increase, it is recommended that the preschool hours of operation are staggered from school hours to avoid additional traffic increases during this peak time during the afternoon period at the KnD facility on Northview Street
- Traffic impacts have been assessed at Cessnock Road / Gillieston Road, the Ryans Road / Vintage Drive and Cessnock Road / Vintage Drive and found the activity would have a negligible impact on intersection performance and does not warrant the need for any mitigation measures to be imposed on the proposed school redevelopment beyond that identified fronting the site.
- Gillieston Road / Cessnock Road intersection exhibits peak period delays, which are expected to worsen in future years associated with background growth. While future upgrades are planned for this intersection, it is recommended that alternate school related travel movements (staff and parents) are promoted to use other routes including Ryans Road and Vintage Drive when exiting the school as outlined in the School Travel Plan.
- Analysis has been prepared for a 50% and 60% KnD mode share scenario in 2026 (the latter being if travel behaviours is unchanged from 2023 survey results) which also found the KnD facility and indented queuing bays should be sufficient to accommodate for demands with the infrastructure provisions being supported by supervision, education and operational guidance on the correct and appropriate use of the KnD Zone.
- In that event that demand of 146 to 160 vehicles and average dwell times extended to 45 seconds there is a risk that queuing of vehicles onto Ryan Road waiting to turn into Northview Street for a short period of time (i.e. less than 10 minutes). The level of queuing and time period expected in this type of scenario is not uncommon around school precincts.
- In practice, actual queuing extending back to this extent is less likely, as parent behaviour adapts with education (e.g. operational Travel Access Guide materials) and the availability of park-and-walk options, especially as new subdivision roads open to the west. New subdivision



roads west of Ryans Road also mean alternate routes will be available for other traffic to avoid getting 'caught' in the school queue during any peak 'concentrated' time periods.

- To assist in manage demands and the operational efficiency of the KnD, the infrastructure provisions will be supported by the School Travel Plan, Travel Access Guide and supporting operational guidance on the correct and appropriate use of the KnD zone
- The proposed treatments in response to the activity are considered appropriate to meet the needs of the school at year of opening. Beyond this, additional transport improvements (i.e. pathways, crossings, road widening and intersections) are expected to be constructed over time as part of future residential development across the Gillieston Heights URA as they progress. It is therefore recommended that SI-NSW continue to work with Council and TfNSW to facilitate targeted transport infrastructure across the precinct through funding initiatives such as GetActive NSW grants, Council's development contributions for the areas and TfNSW's infrastructure planning for the MR195 corridor.

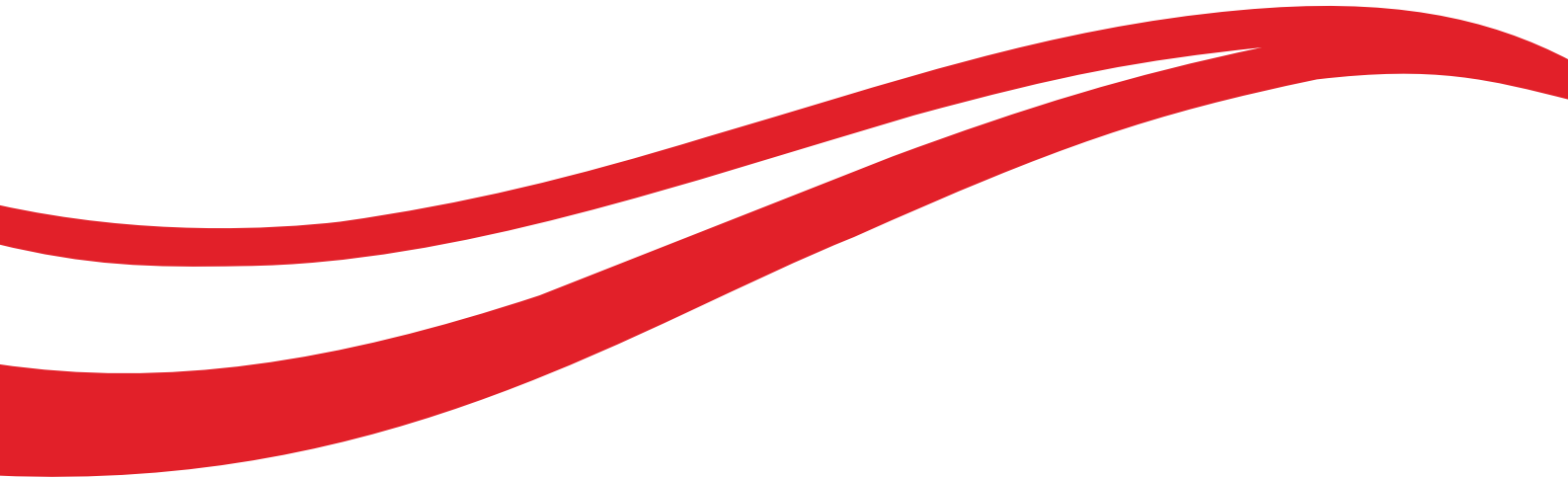
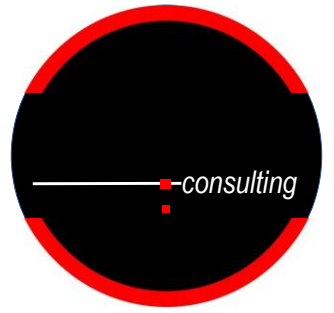
A summary of the proposed mitigation measure is provided in **Table 11.1**

**Table 11.1 Proposed Mitigation Measures**

<b>Project Stage</b> <i>Design (D)</i> <i>Construction (C)</i> <i>Operation (O)</i>	<b>Mitigation Measures</b>	<b>Relevant Section of Report</b>
D/C	To address deficiencies in the crossing facilities surrounding the site and provide safe crossings for increased pedestrian demands to/from the school, install Two crossing facilities consisting of: <ul style="list-style-type: none"> <li>▪ One raised zebra (wombat) crossing on Ryans Road and</li> <li>▪ One Children's crossing on Northview Street.</li> </ul>	Sections 4.2, 51
D/C	Relocate and upgrade bus stop facilities consisting of a new bus bay to accommodate two buses on Gillieston Road (southern frontage).	Section 6
D/C, O	Extend and upgrade the indented parking spaces on Northview Street to formalise the Kiss n Drop (KnD) zone. The KnD Zone is to consist of indented bays on Northview catering for 4 collection bays and queuing of 100m catering for a further 14 vehicles.  Prior to the commencement of operations of the new KnD facility on Northview Street, a Pre-Opening Stage Road Safety Audit is recommended to be undertaken by a qualified and independent Road Safety Auditor. A copy of the final Road Safety Audit Report, along with the Designer's Response addressing each audit finding, must be submitted to the satisfaction of DOE's Transport Planning Team.  The frontage activity on Northview Street shall include a driveway facility that allows vehicles to turn-around on the site, until such time that a future road or cul-de-sac facility is provide to the east on Northview Street.	Sections 8.2.1
O	To assist in manage demands and the operational efficiency of the KnD, bus bay and pedestrian access areas, the infrastructure provisions should be supported by the School Travel Plan, Travel Access Guide and supporting operational guidance (including an Operational Transport Management Plan) on the correct and appropriate use of the transport facilities surrounding the site.  A 6-month post-opening review of the Operational Transport Management Plan is to be conducted and submitted to the satisfaction of DOE's Transport Planning Team to monitor and mitigate any identified operational issues associated with the Kiss n Drop and interface with the pre-school driveway.	Sections 5,6,7,8

Separate to the project, additional transport improvements (i.e. pathways, crossings, road widening and intersections) are expected to be constructed over time as part of future residential development across the Gillieston Heights URA as they progress. It is therefore recommended that DoE continue to work with Council and TfNSW to facilitate targeted transport infrastructure across the precinct through funding initiatives such as GetActive NSW grants, Council's development contributions for the areas and TfNSW's infrastructure planning for the MR195 corridor.

## Appendix A: Architectural Plans and Staging



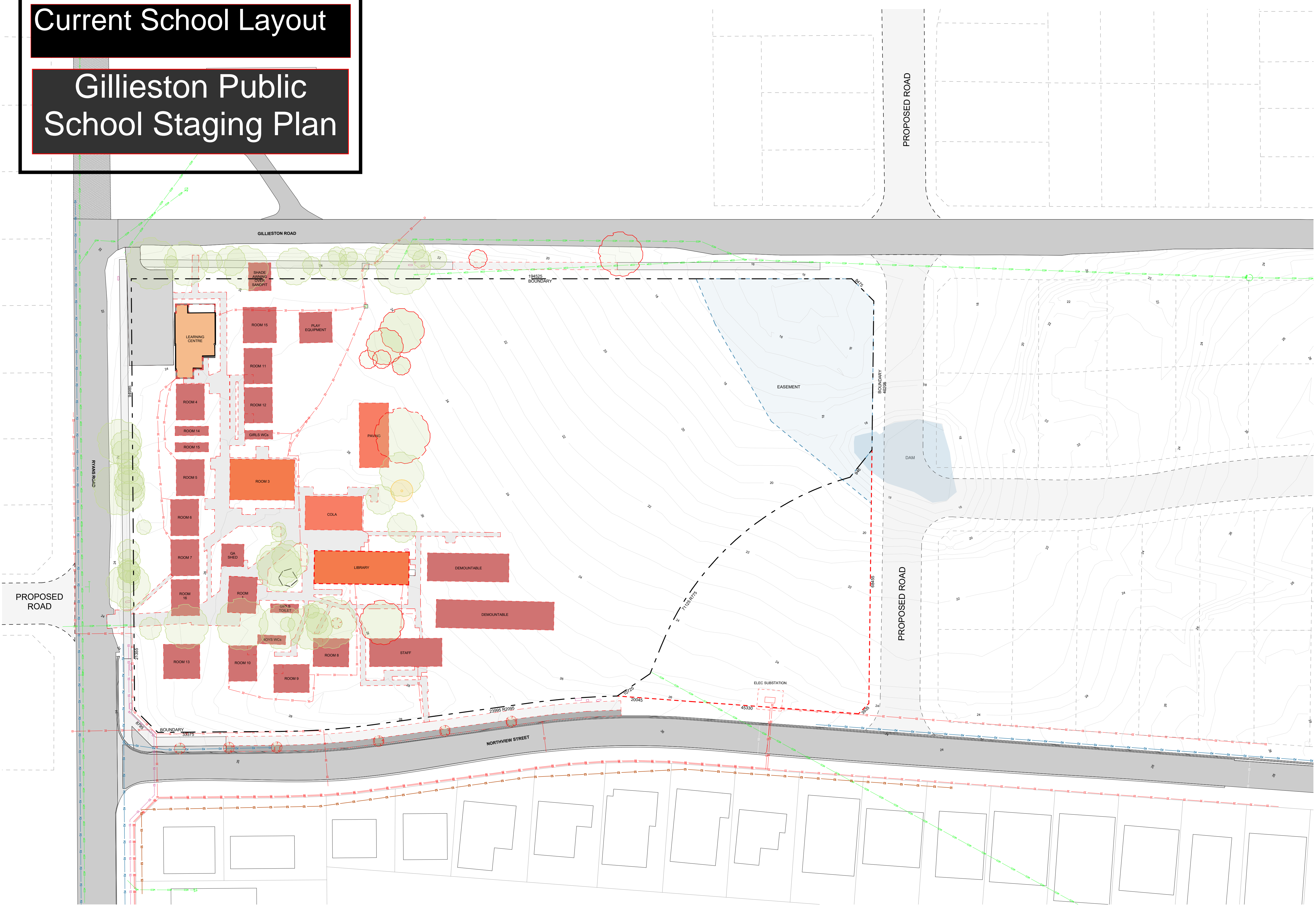






Current School Layout

Gillieston Public School Staging Plan





# Stage 1

Learning Building completion & hand over including bus bay and Public Domain Works

Retaining walls and footings to step around the easement. Slab above to be cantilevered to not impact the ground

New Learning building

Easement

STAGE 1

Occupied by the School

New Pre School

ACCESS RETAINED ACROSS STAGE 1 SERVICES CORRIDOR

Pre School completion & the eastern section of the Kiss and drop

## Stage 1

- Site Establishment
- Neighbouring & Council storm water works
- All works required for the Completion of the new Learning Building & required decanting
- All works required for the Completion of the new Pre-School
- Bus Bay & Gillieston Rd & Eastern sections of the North View St K&D public domain works

## Key

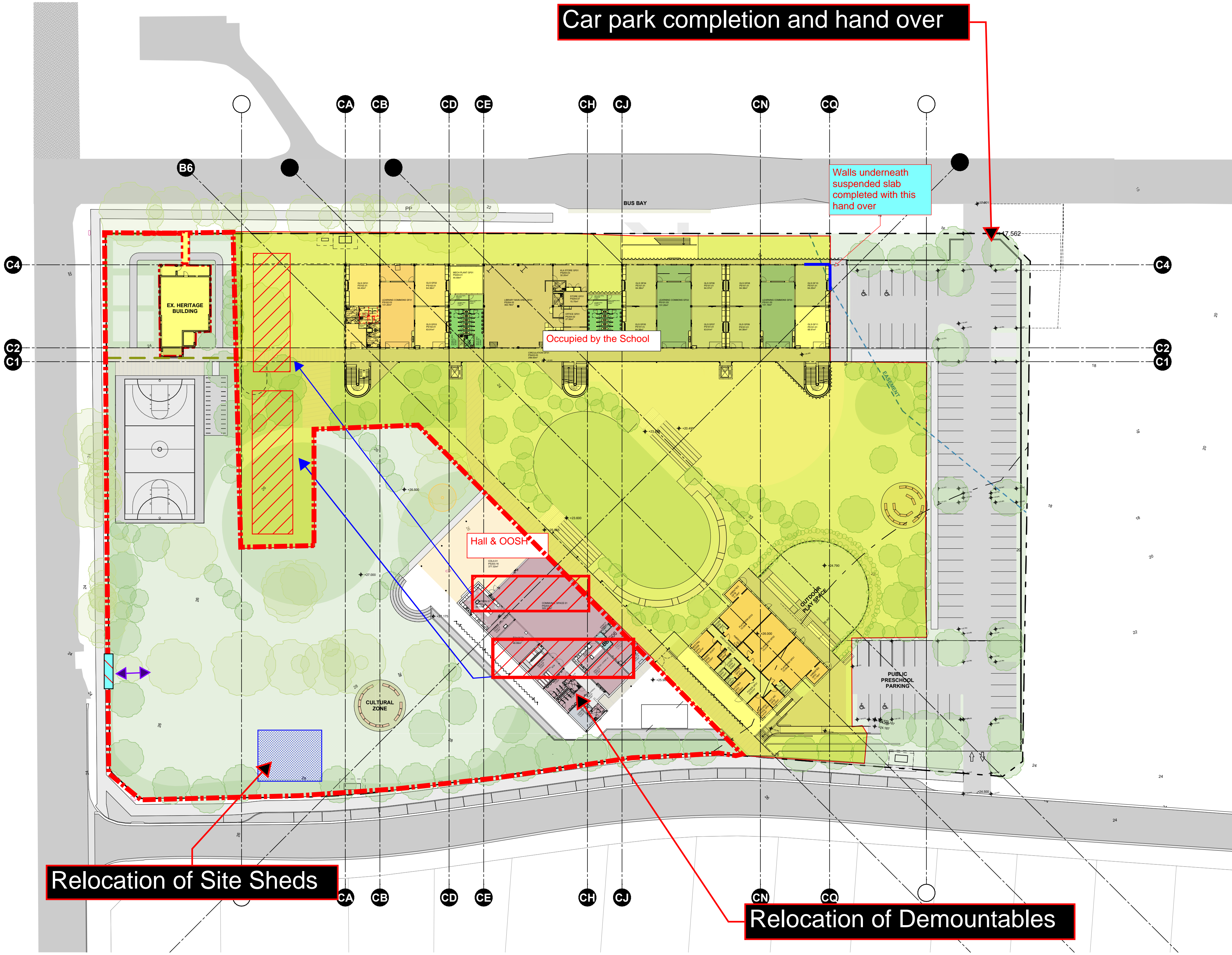
- - - - - = Site Fencing/hoarding
- [Blue hatched box] = Site Compound
- [Red hatched box] = Shaker Grid
- [Purple double arrow] = Construction Vehicle access

# Gillieston Public School Staging Plan

100 Ryans Road, Gillieston, SA 5062. The signed control copy of this drawing is held by SHAC Pty Ltd. | Ref: BIMcloud SHAC-BIMSVR01 - BIMcloud Basic for Archcad 27/4/14 Gillieston Heights PS-4814.515.12 Gillieston PS Concept Design date: 23/8/2024 time: 12:50 pm  
SR REF: GPS-SHAC - M2-A-DA3405-Project Staging





## Stage 2.1



## Stage 2.1

- Demountable relocation to facilitate new Hall & OOSH building
- Site Shed relocation
- Construction of New Hall & OOSH building
- Completion and hand over of the Carpark (Neighbours & Council Storm water works must be completed prior)

## Key

-  = Site Fencing/hoarding
-  = Site Compound
-  = Shaker Grid
-  = Construction Vehicle access

# Gillieston Public School Staging Plan




## Stage 2.2



## Stage 2.2

- Completion & hand Over of New Hall/OOSH building/landscaping & Public Domain works North View St western section K&D

## Key

-  = Site Fencing/hoarding
-  = Site Compound
-  = Shaker Grid
-  = Construction Vehicle access

# Gillieston Public School Staging Plan

[illegible]

## NOTES

1. Dimensions are in millimetres unless otherwise shown.
2. Work to given dimensions. Do not scale from drawing.
3. Check all dimensions on site prior to construction and fabrication.
4. Bring any discrepancies to the attention of the proprietor & architect.

SINSW INFORMATION CONTAINER REF:  
**GPS-SHAC-ZZ-G-M2-A-031102-Proposed Ground Site Plan**

CLIENT NAME

 Education  
School Infrastructure



SCALE

0m 5 10 15 20 25 1:500 @A1

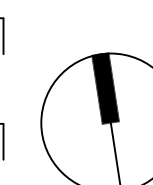
PROJECT NAME AND ADDRESS

**Gillieston Public School**  
**100 Ryans Road**

DRAWN APPROVED

**RB** **MA**

STATUS		
<b>FOR INFORMATION</b>		
DRAWING TITLE		
<b>Proposed Ground Site Plan</b>		
PROJECT NO.	DRAWING NO.	REV.
<b>4814</b>	<b>03 1102</b>	<b>A</b>

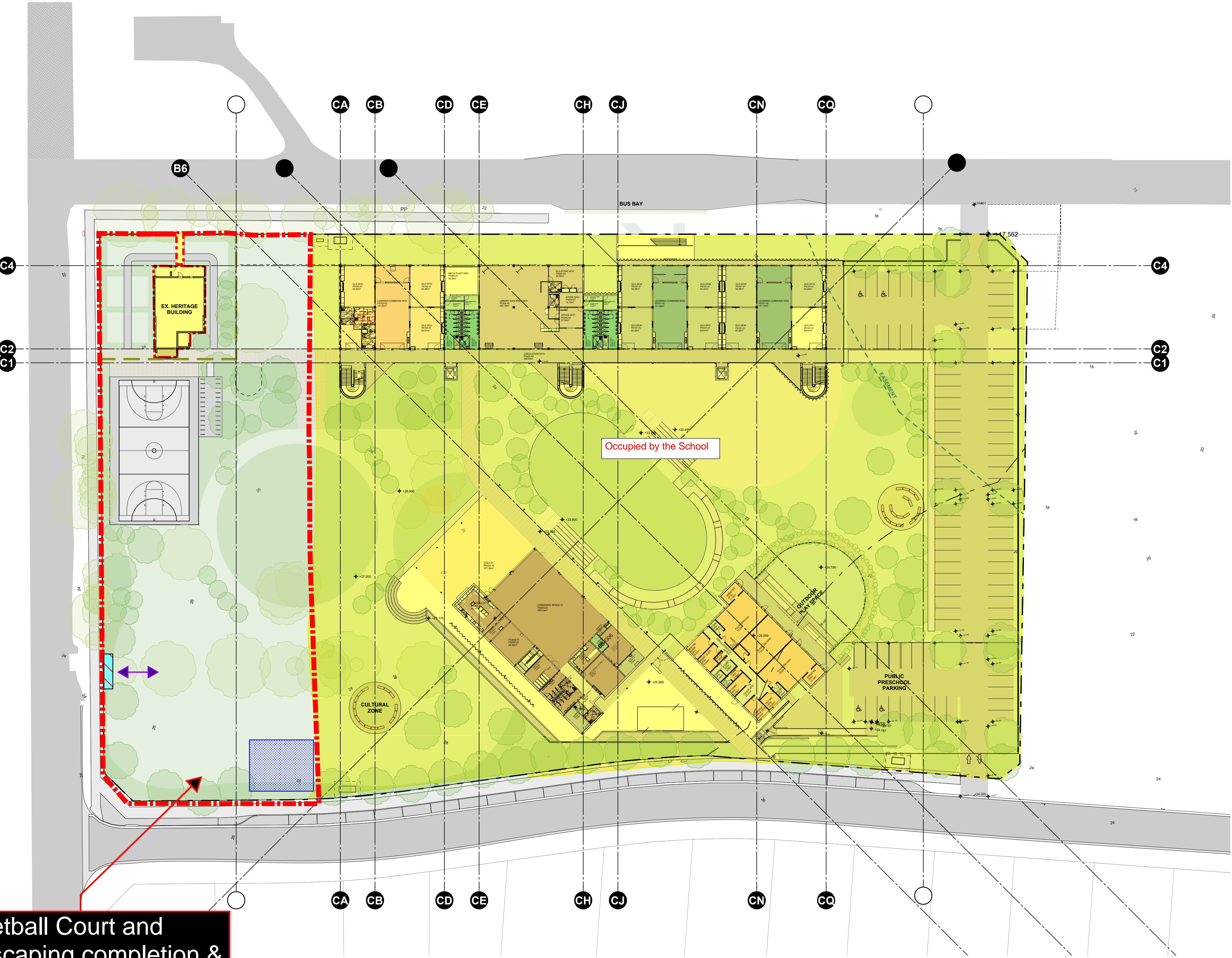


SHA-1

**T** +61 2 4961 5888      224 Maitland Road      Nominated Architect  
**F** +61 2 4962 2577      Islington NSW 2296      Justin Hamilton (6160)  
**E** info@shac.com.au      Australia      ABN 32 131 584 846



Stage 2.3



Basketball Court and Landscaping completion & hand over

**Stage 2.3**

- Completion of landscaping including Basketball Court

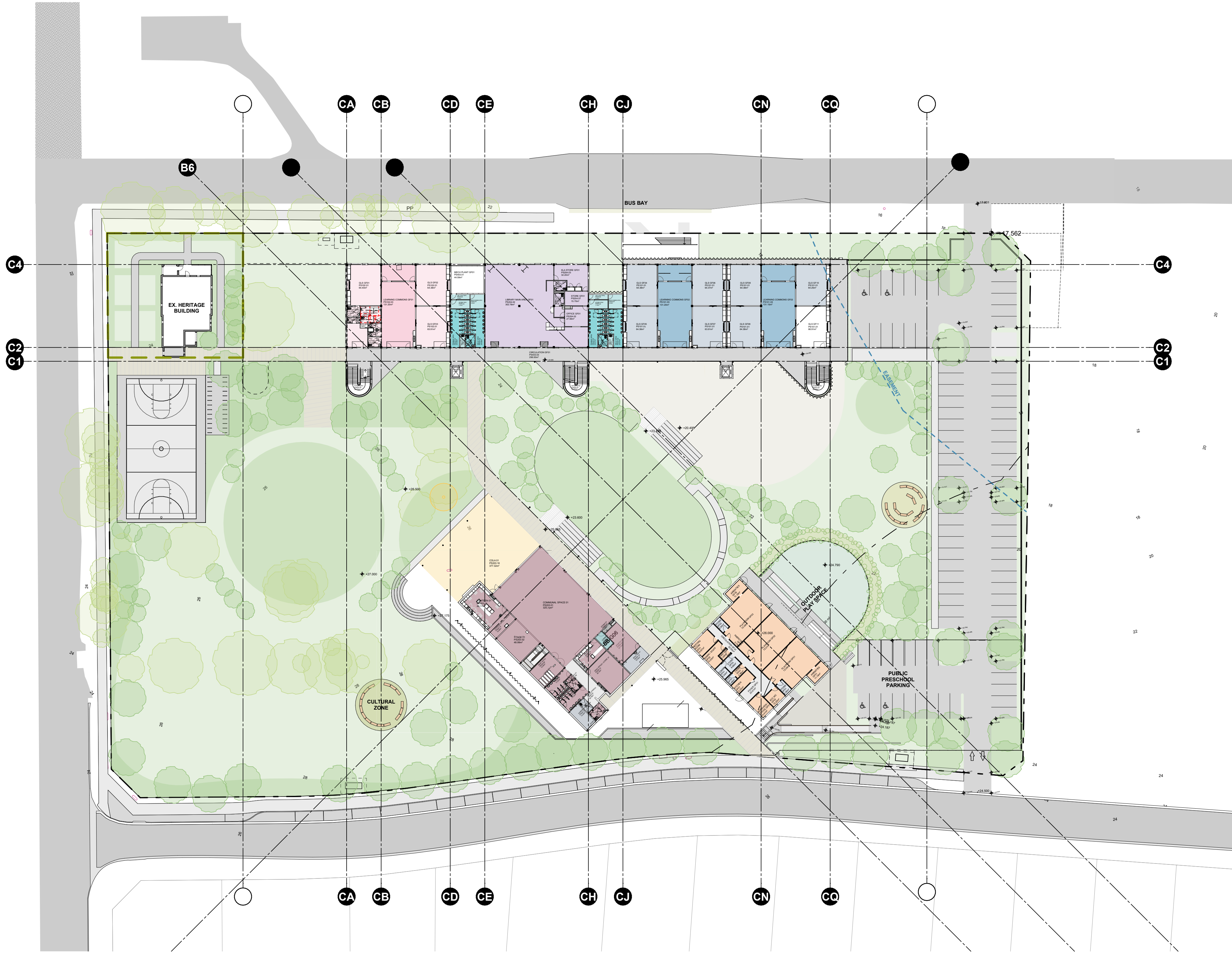
**Key**

- = Site Fencing/hoarding
- = Site Compound
- = Shaker
- = Construction Vehicle access

Gillieston Public School Staging Plan



# Completion

CONSULTANTS

**STRUCTURAL/CIVIL ENGINEER**  
ACOR Consultants  
T. 4926 4811



**SERVICES ENGINEER**  
**ARCADIS**  
T 02 8907 9000



**LANDSCAPE ARCHITECT**  
Terras Landscape Architects  
T. 4025 3089



**QUANTITY SURVEYOR**  
Muller Partnership  
T. 4865 4733



**PROJECT MANAGER**  
Johnstaff  
T. 825.6.0500



**PROJECT MANAGER**  
Johnstaff  
T. 825.6.0500

**CONSULTANT AREA**  
Company Name  
T. 40XX XXXX

## AMENDMENTS

[illegible][illegible][illegible]

NOTES

1. Dimensions are in millimetres unless otherwise shown.
2. Work to given dimensions. Do not scale from drawing
3. Check all dimensions on site prior to construction and fabrication.
4. Bring any discrepancies to the attention of the proprietor & architect.

SINSW INFORMATION CONTAINER REF:

GPS-SHAC-ZZ-G-M2-A-031102-Proposed Ground Site Plan

CLIENT NAME



NSW Education  
School Infrastructure



SCALE



PROJECT NAME AND ADDRESS  
**Gillieston Public School**  
**100 Ryans Road**

DRAWN	APPROVED
RB	MA

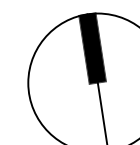
STATUS

FOR INFORMATION

DRAWING TITLE

**Proposed Ground Site Plan**

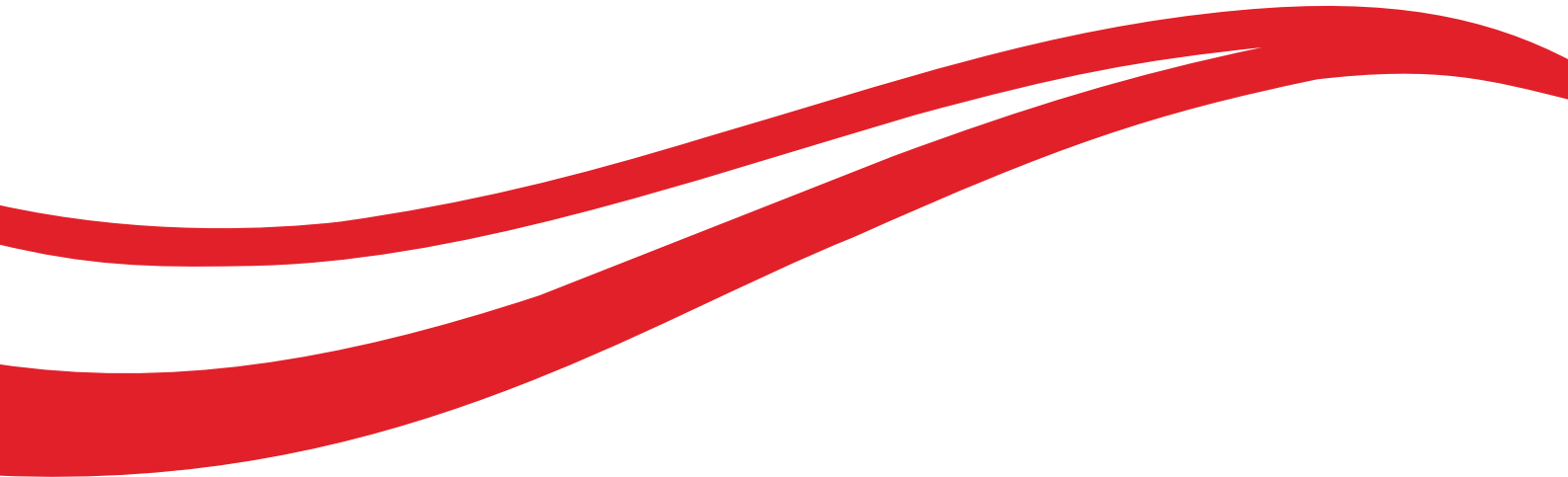
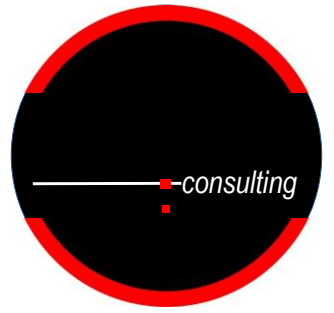
PROJECT NO.	DRAWING NO.	REV.
4814	03 1102	A



SHAC

<b>T</b> +61 2 4961 5888	224 Maitland Road	Nominated Architect
<b>F</b> +61 2 4962 2577	Islington NSW 2296	Justin Hamilton (6160)
<b>E</b> <a href="mailto:info@shac.com.au">info@shac.com.au</a>	Australia	ABN 32 131 584 846

## Appendix B: Traffic Survey Results



Site ID: 1

Location: Cessnock Rd & Gillieston Rd, Gillieston Heights

Date: 6-Dec-2022

Period 1 Time: 7:30 AM to 9:30 AM


Weather: Fine


Period 1 Peak Hour: 7:45 AM to 8:45 AM

Cessnock Rd SB

Gillieston Rd EB

Cessnock Rd NB





TOTALS AND PEAKS																																		
Period 1 Total	1057	84	0	37	2	0	0	0	0	0	14	1	0	1752	87	0	0	0	0	0	68	0	0	3	0	0	0	0	0	0	3105	1180	1854	71
Period 1 Peak Hr	536	55	0	18	2	0	0	0	0	0	8	0	0	1034	42	0	0	0	0	0	38	0	0	2	0	0	0	0	0	0	1735	611	1084	40
Time Starting	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	GRAND TOTAL	Cessnock Rd SB	Cessnock Rd NB	Gillieston Rd EB	
	Through	Through	Through	Right	Right	Right	U-turn	U-turn	U-turn	Cross 1	Left	Left	Left	Through	Through	Through	U-turn	U-turn	U-turn	Cross 1	Left	Left	Left	Right	Right	Right	U-turn	U-turn	U-turn	Cross 1		TOTAL	TOTAL	TOTAL
	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Pedestrians	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Pedestrians	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Pedestrians	TOTALS	All Classes	All Classes	All Classes
07:30	110	10	0	1	0	0	0	0	0	0	1	0	0	206	13	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	347	121	220	6
07:45	135	13	0	3	0	0	0	0	0	0	0	0	0	221	14	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	393	151	235	7
08:00	142	10	0	5	0	0	0	0	0	0	0	0	0	259	11	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	436	157	270	9
08:15	130	14	0	3	2	0	0	0	0	0	3	0	0	284	9	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	449	149	296	4
08:30	129	18	0	7	0	0	0	0	0	0	5	0	0	270	8	0	0	0	0	0	18	0	0	2	0	0	0	0	0	0	457	154	283	20
08:45	129	3	0	7	0	0	0	0	0	0	3	1	0	201	11	0	0	0	0	0	14	0	0	1	0	0	0	0	0	0	370	139	216	15
09:00	145	4	0	6	0	0	0	0	0	0	2	0	0	162	9	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	334	155	173	6
09:15	137	12	0	5	0	0	0	0	0	0	0	0	0	149	12	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	319	154	161	4



Site ID: 1

Location: Cessnock Rd & Gillieston Rd, Gillieston Heights

Date: 6-Dec-2022

Period 2 Time: 2:00 PM to 4:00 PM


Weather: Fine


Period 2 Peak Hour: 3:00 PM to 4:00 PM

Cessnock Rd SB

Gillieston Rd EB

Cessnock Rd NB





TOTALS AND PEAKS																																		
Period 2 Total	1647	79	0	32	2	0	0	0	0	0	10	1	0	1316	93	0	0	0	0	0	29	0	0	4	0	0	0	0	0	0	3213	1760	1420	33
Period 2 Peak Hr	981	36	0	15	1	0	0	0	0	0	2	1	0	677	42	0	0	0	0	0	20	0	0	2	0	0	0	0	0	0	1777	1033	722	22
Time Starting	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd SB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Cessnock Rd NB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	Gillieston Rd EB	GRAND TOTAL	Cessnock Rd SB	Cessnock Rd NB	Gillieston Rd EB		
	Through	Through	Through	Right	Right	Right	U-turn	U-turn	U-turn	Cross 1	Left	Left	Left	Through	Through	Through	U-turn	U-turn	U-turn	Cross 1	Left	Left	Left	Right	Right	Right	U-turn	U-turn	U-turn	Cross 1	TOTAL	TOTAL	TOTAL	
	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Pedestrians	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Pedestrians	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (3-12)	Bicycles on Road	Pedestrians	All Classes	All Classes	All Classes	
14:00	148	15	0	1	0	0	0	0	0	0	0	0	0	133	11	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	312	164	144	4
14:15	171	11	0	3	0	0	0	0	0	0	0	0	0	151	15	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	352	185	166	1
14:30	184	11	0	9	0	0	0	0	0	0	1	0	0	165	10	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	383	204	176	3
14:45	163	6	0	4	1	0	0	0	0	0	7	0	0	190	15	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	389	174	212	3
15:00	214	5	0	3	1	0	0	0	0	0	1	1	0	159	7	0	0	0	0	0	11	0	0	2	0	0	0	0	0	0	404	223	168	13
15:15	299	8	0	5	0	0	0	0	0	0	0	0	0	153	13	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	482	312	166	4
15:30	231	12	0	3	0	0	0	0	0	0	0	0	0	175	11	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	436	246	186	4
15:45	237	11	0	4	0	0	0	0	0	0	1	0	0	190	11	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	455	252	202	1

TOTALS AND PEAKS																																																										
Period 1 Total	109	1	0	866	74	0	31	5	0	0	0	17	25	0	0	30	0	0	276	2	0	0	0	0	0	4	92	6	0	1249	78	0	12	2	0	0	0	0	6	56	5	0	19	0	0	78	6	0	0	0	0	0	2	3022	1086	333	1439	164
Period 1 Peak Hr	49	1	0	438	42	0	15	2	0	0	0	10	14	0	0	27	0	0	172	1	0	0	0	0	0	0	72	1	0	686	35	0	8	1	0	0	0	0	3	30	3	0	10	0	0	51	2	0	0	0	0	0	0	1660	547	214	803	96

[illegible]

TOTALS AND PEAKS	

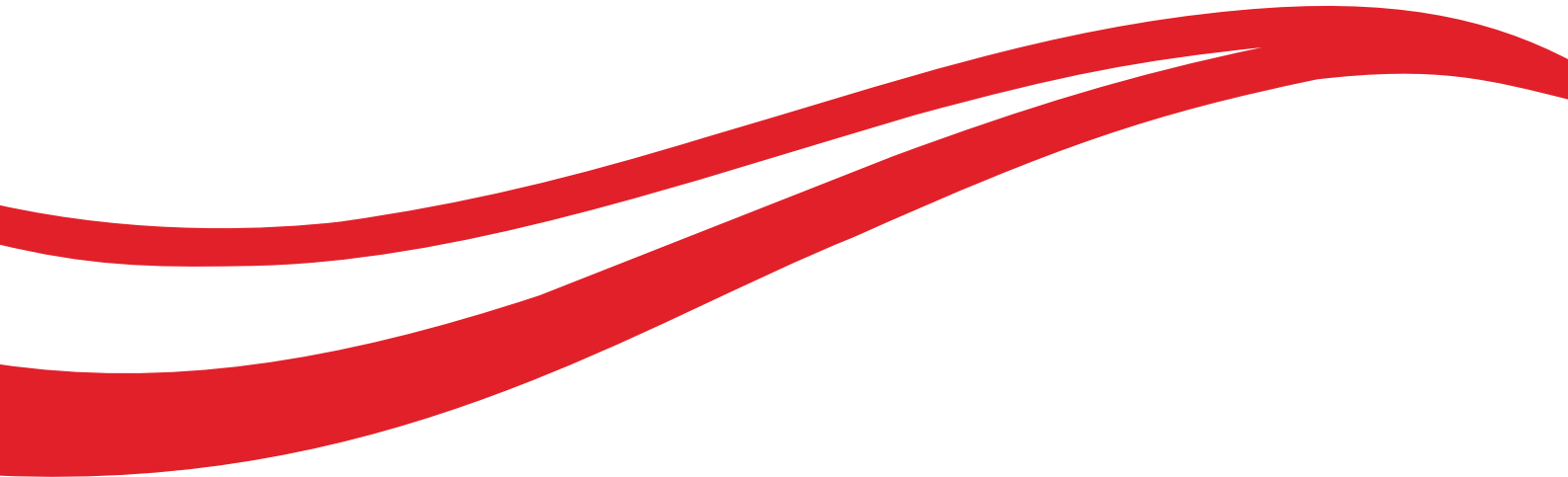
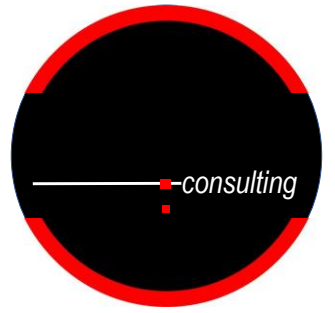
Period 2 Total	173	2	0	1178	71	0	52	3	0	0	0	0	10	19	2	0	19	0	0	140	0	0	0	0	0	1	61	7	0	1028	88	0	16	0	0	0	0	0	0	5	42	7	0	20	1	0	73	2	0	0	0	0	0	3	3004	1479	180	1200	145
Period 2 Peak Hr	121	1	0	648	29	0	33	2	0	0	0	4	13	2	0	7	0	0	64	0	0	0	0	0	1	21	1	0	541	39	0	12	0	0	0	0	0	0	4	18	3	0	17	1	0	55	0	0	0	0	0	0	1628	834	86	614	94		

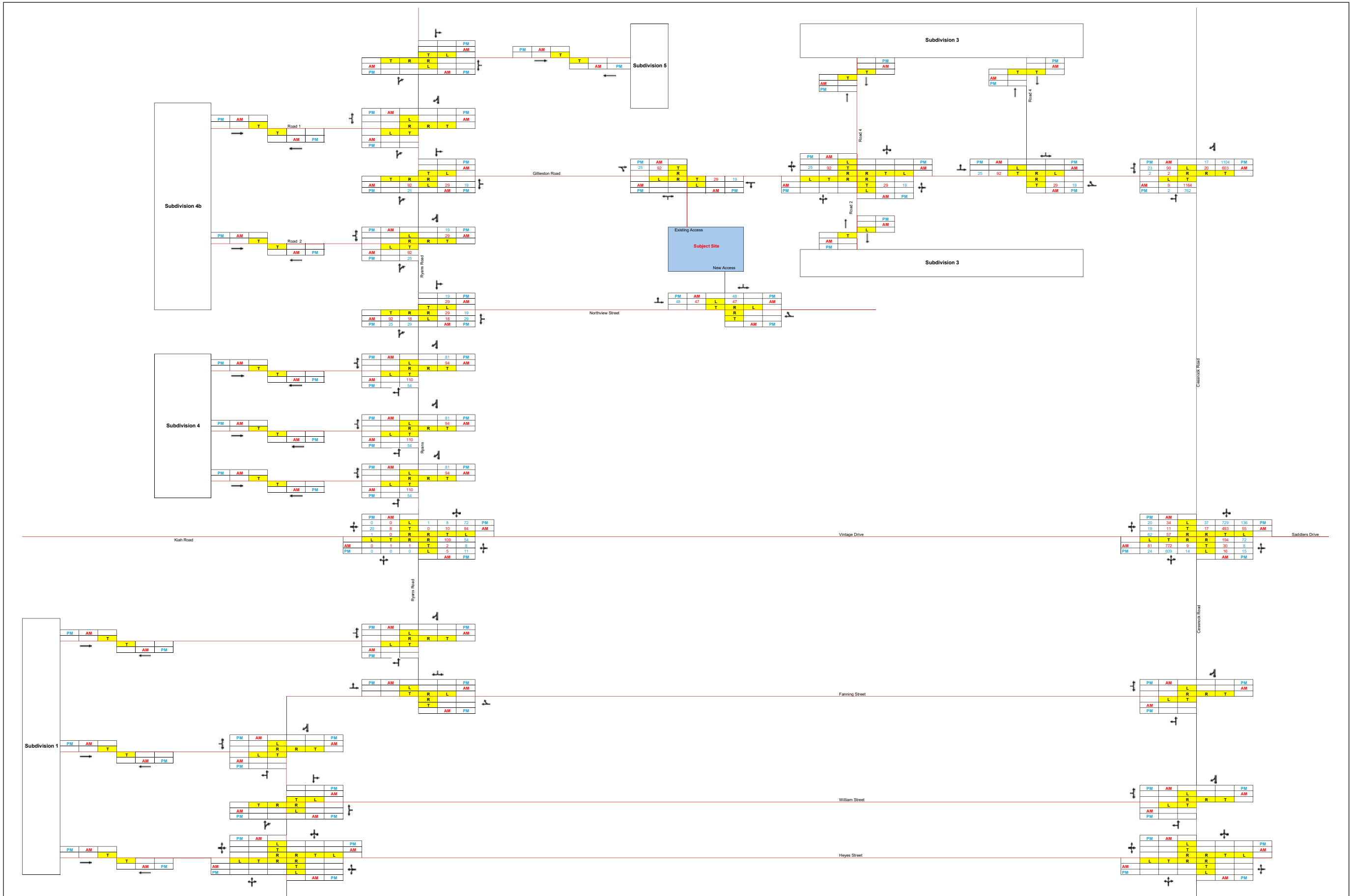
[illegible][illegible]

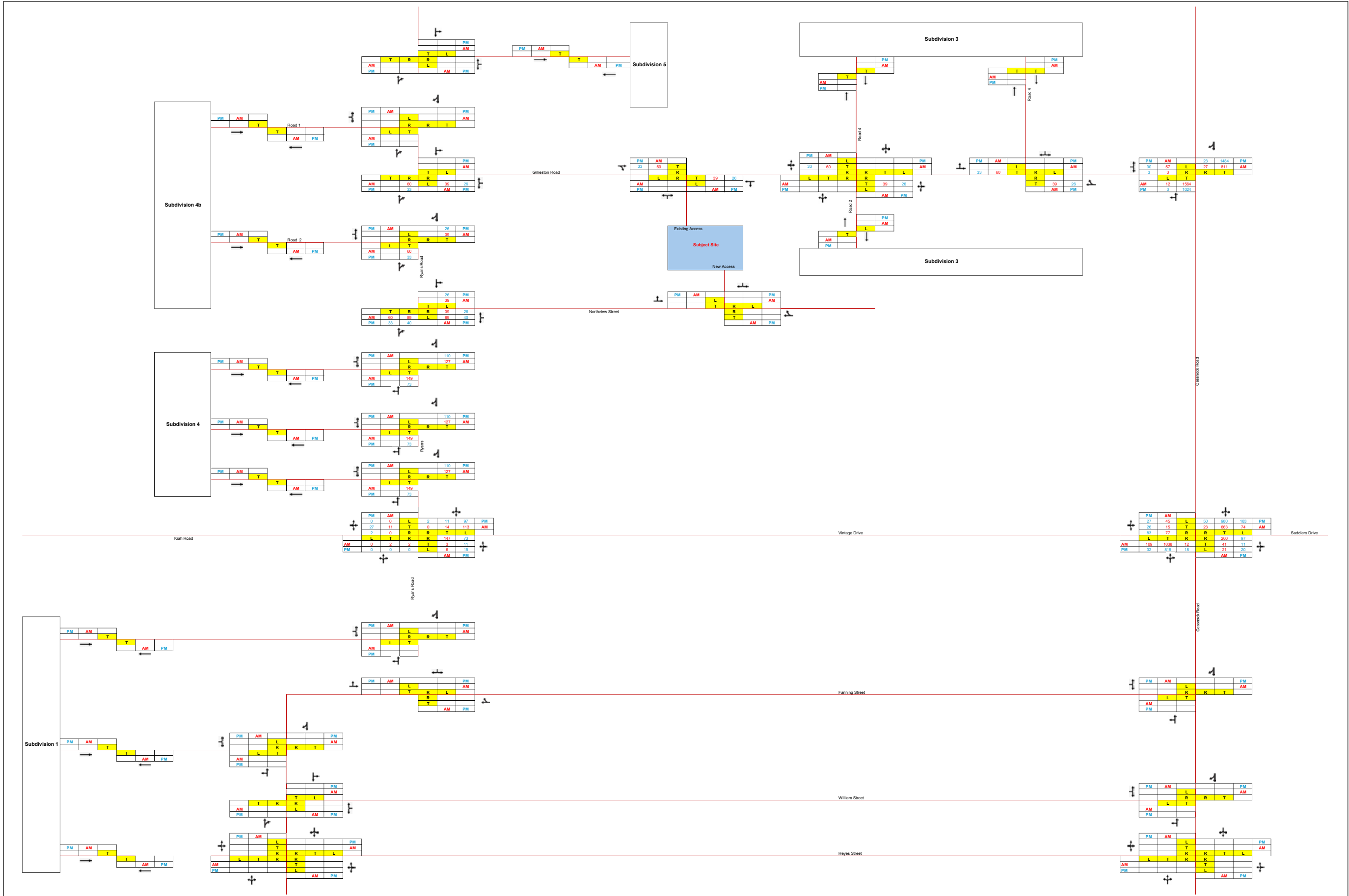


[illegible]

## Appendix C: Traffic Network Diagrams



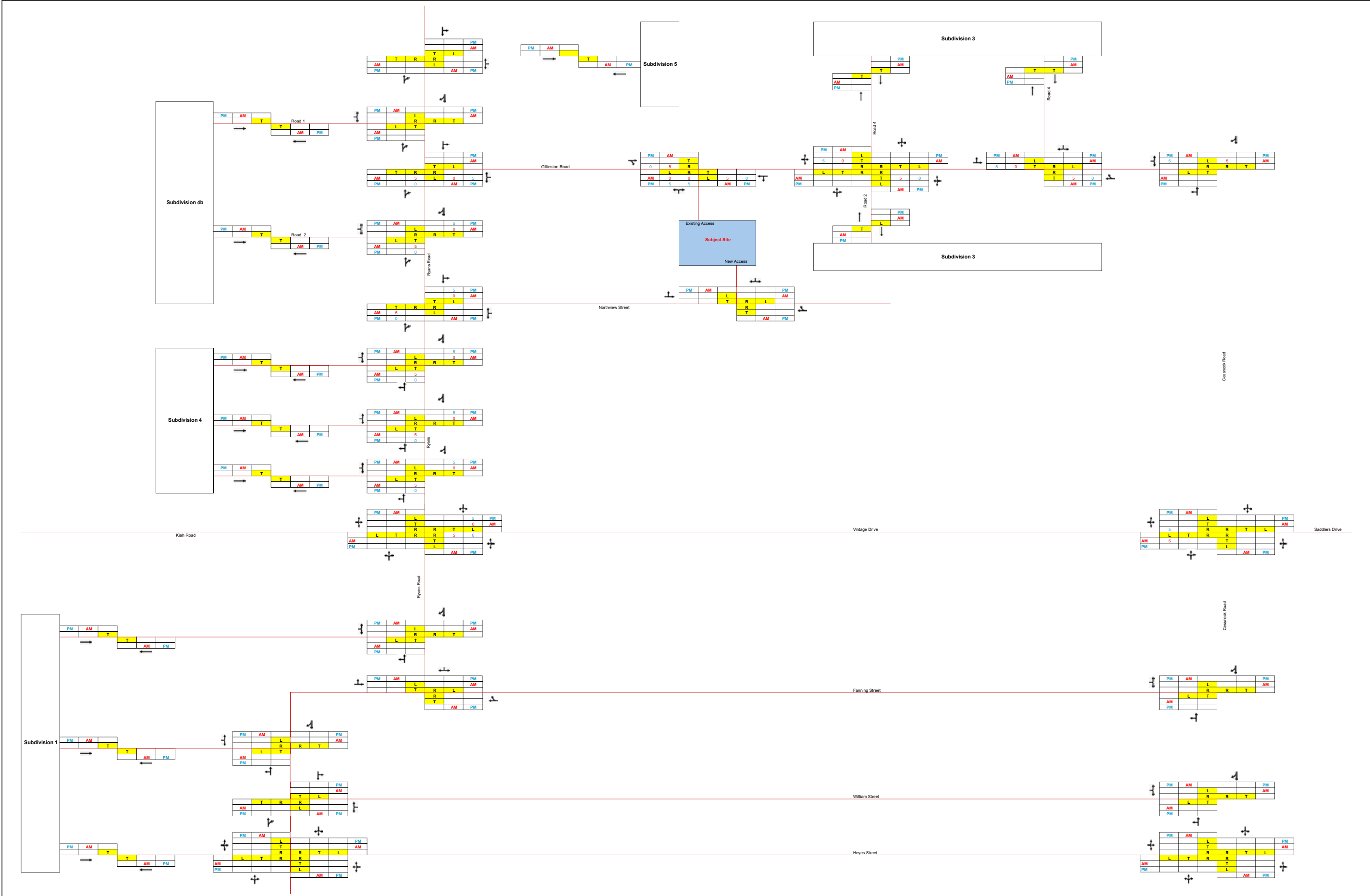






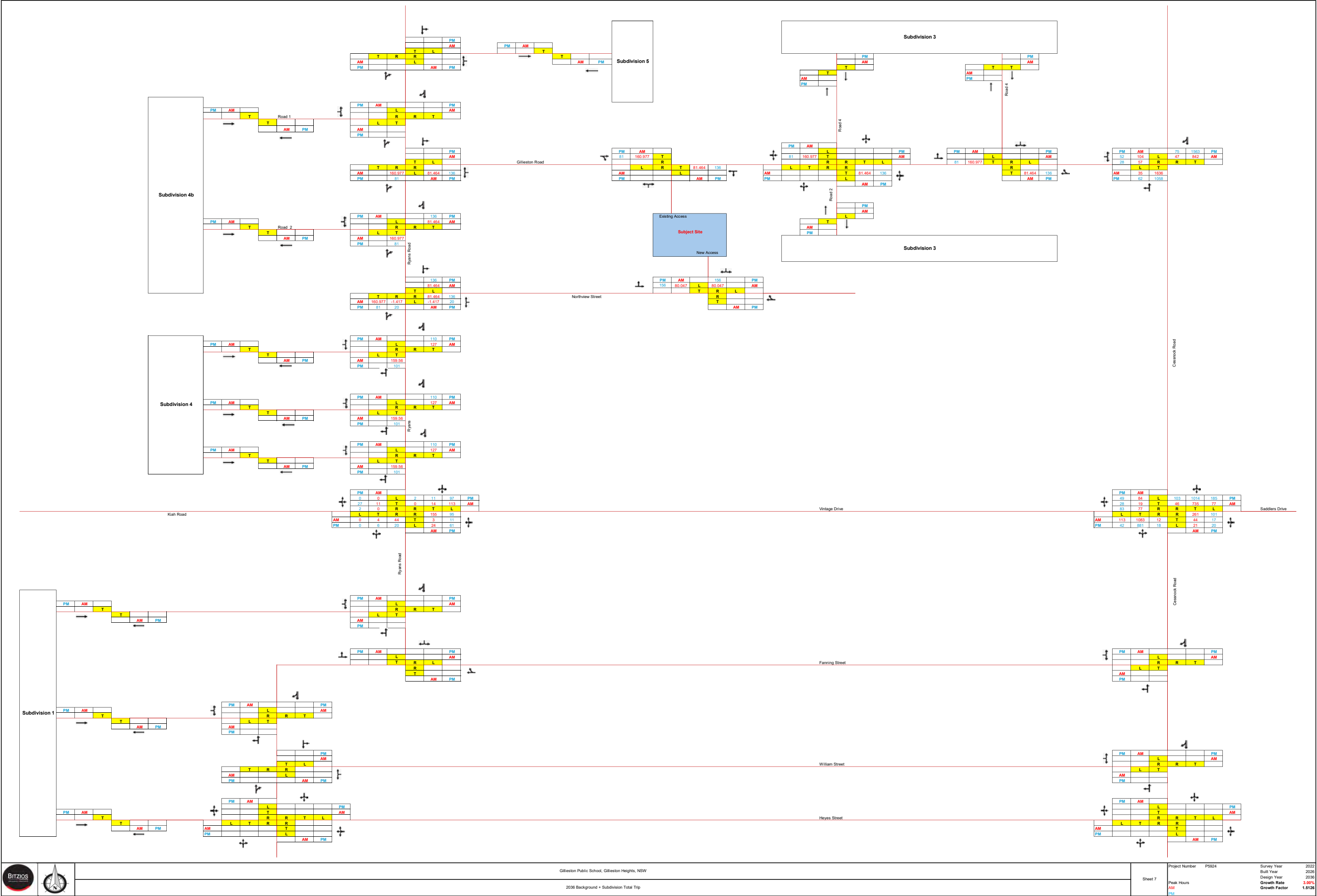












Gillieston Public School, Gillieston Heights, NSW

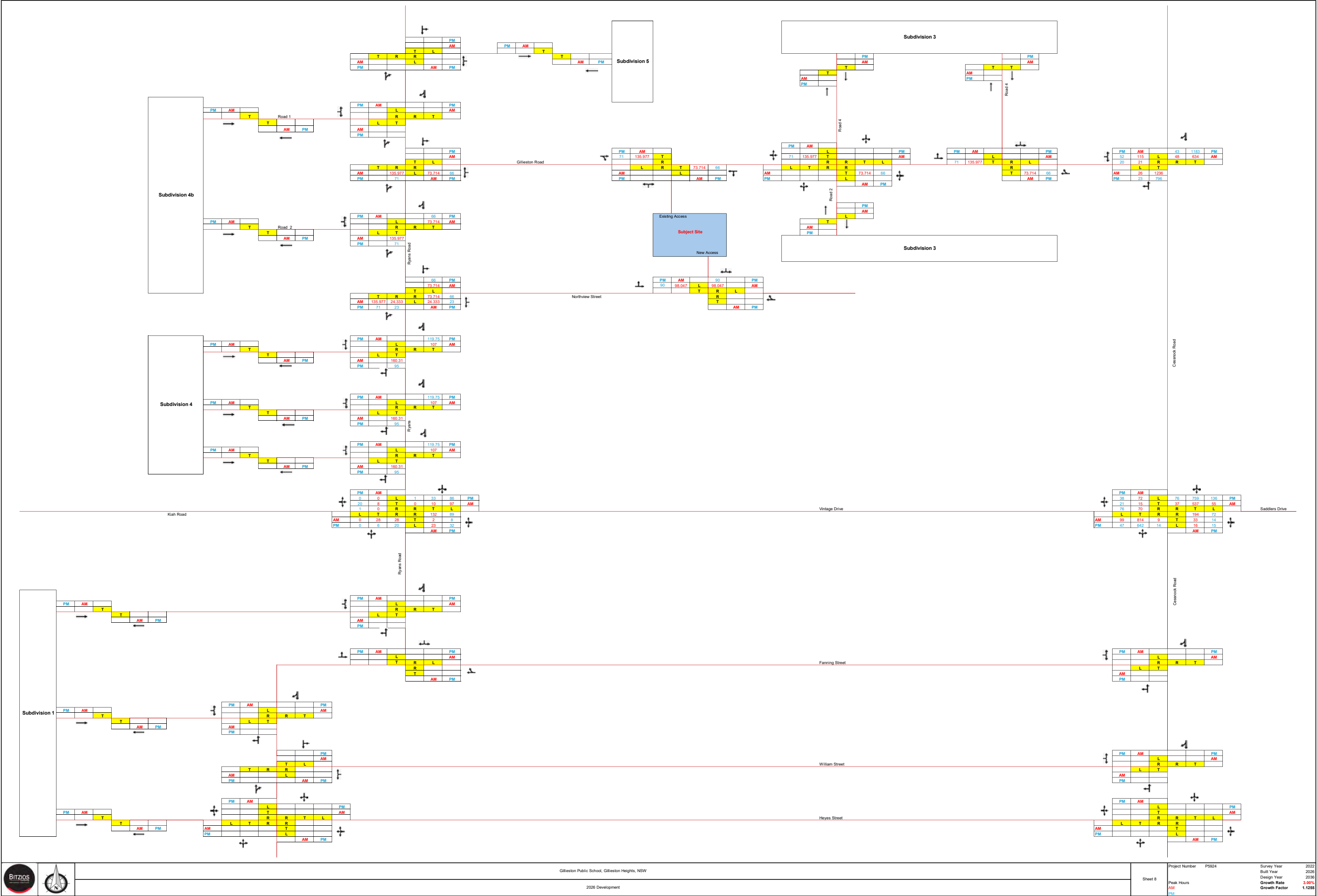
2036 Background + Subdivision Total Trip

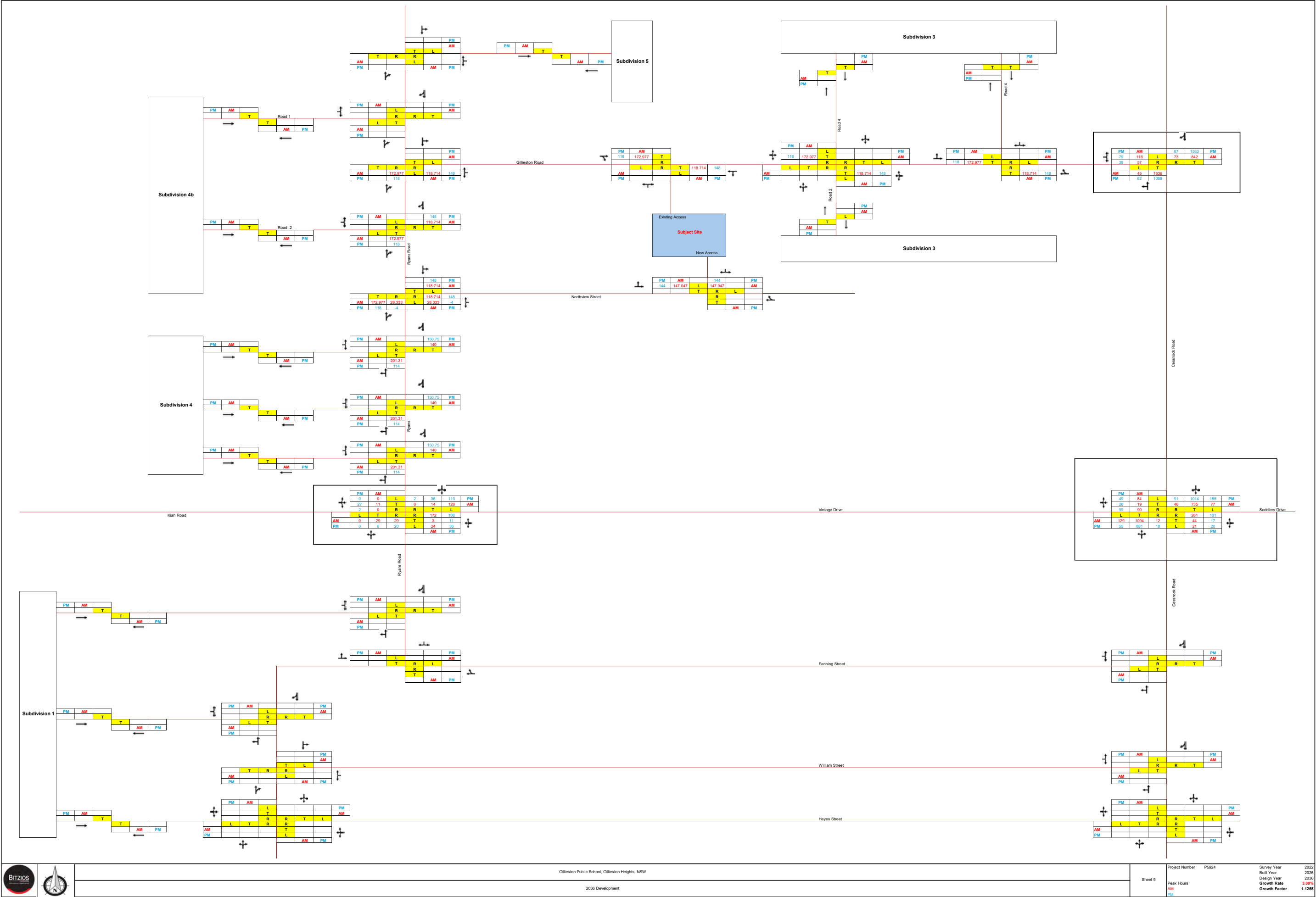
Sheet 7

Project Number P5924

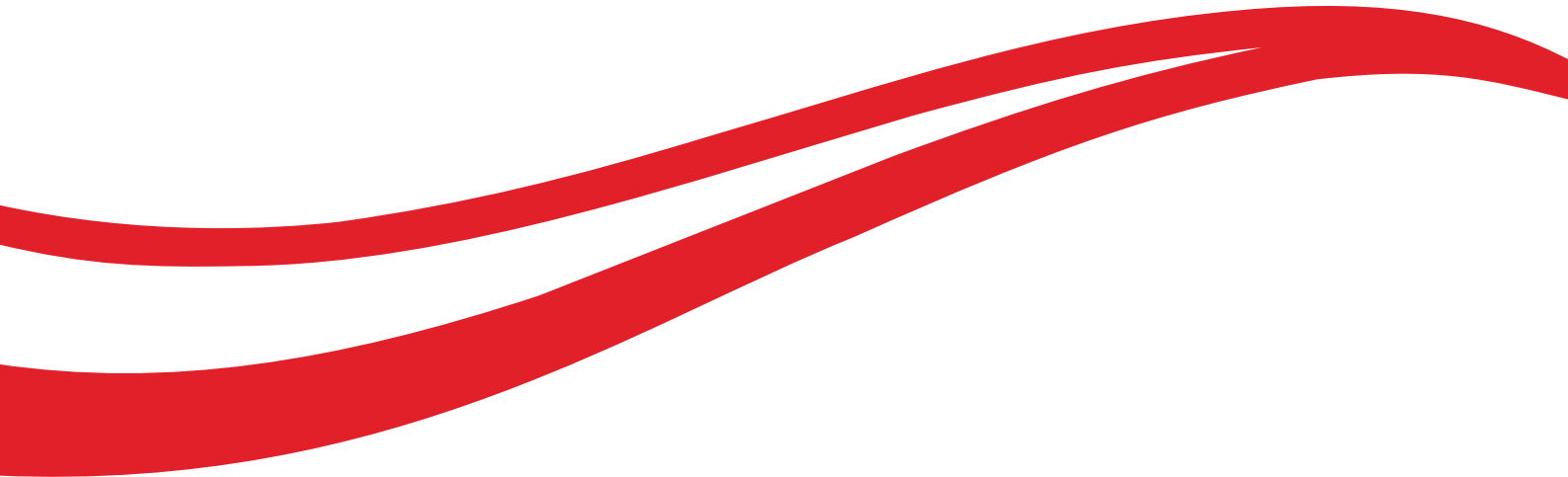
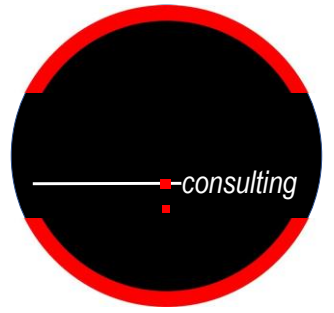
Peak Hours  
AM  
PM

Survey Year 2022  
Built Year 2036  
Design Year 2036  
Growth Rate 3.00%  
Growth Factor 1.5126






## Appendix D: SIDRA Analysis





## SITE LAYOUT

 **Site: 101 [2026 BG+SD AM (Site Folder: Cessnock Road / Gillieston Road)]**

---

P5924

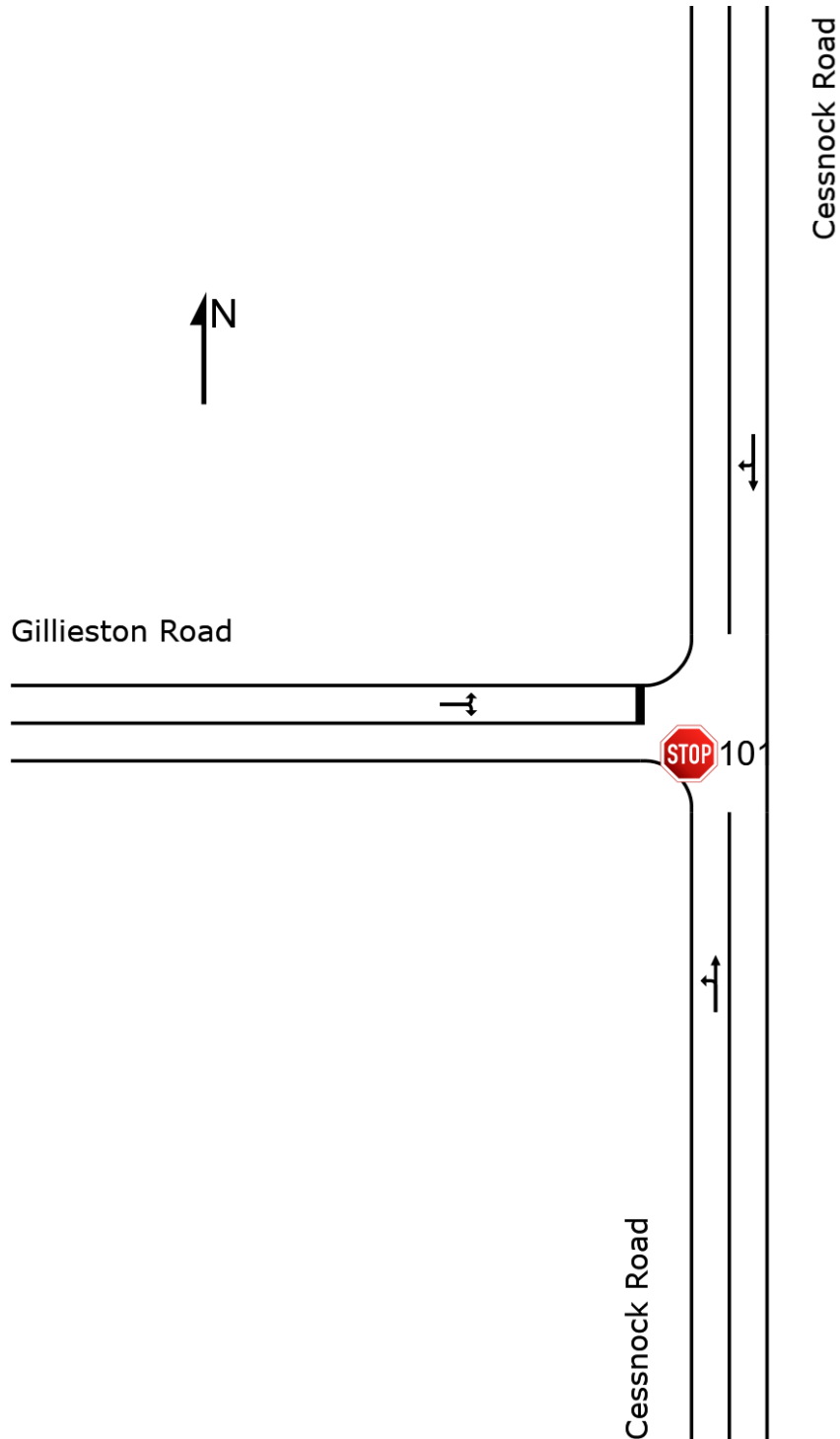
Gillieston Public School

Cessnock Road / Gillieston Road

Site Category: (None)


Stop (Two-Way)

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





# MOVEMENT SUMMARY

 **Site: 101 [2026 BG+SD AM (Site Folder: Cessnock Road / Gillieston Road)]**


**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Cessnock Road / Gillieston Road  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Cessnock Road															
1	L2	All MCs	18	0.0	18	0.0	0.694	4.0	LOS A	0.0	0.0	0.00	0.01	0.00	39.0
2	T1	All MCs	1301	4.0	1301	4.0	0.694	0.6	LOS A	0.0	0.0	0.00	0.01	0.00	39.4
Approach			1319	3.9	1319	3.9	0.694	0.7	NA	0.0	0.0	0.00	0.01	0.00	39.4
North: Cessnock Road															
8	T1	All MCs	667	10.0	667	10.0	0.595	27.6	LOS D	11.7	89.0	0.25	0.27	0.58	30.4
9	R2	All MCs	26	11.0	26	11.0	0.595	58.8	LOS F	11.7	89.0	0.25	0.27	0.58	30.0
Approach			694	10.0	694	10.0	0.595	28.8	NA	11.7	89.0	0.25	0.27	0.58	30.4
West: Gillieston Road															
10	L2	All MCs	108	0.0	108	0.0	2.249	1174.3	LOS F	47.8	334.9	1.00	3.88	10.28	2.8
12	R2	All MCs	22	0.0	22	0.0	2.249	1337.3	LOS F	47.8	334.9	1.00	3.88	10.28	2.8
Approach			131	0.0	131	0.0	2.249	1201.9	LOS F	47.8	334.9	1.00	3.88	10.28	2.8
All Vehicles			2143	5.7	2143	5.7	2.249	82.9	NA	47.8	334.9	0.14	0.33	0.82	20.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [2026 Design AM (Site Folder: Cessnock Road / Gillieston Road)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**


P5924  
Gillieston Public School  
Cessnock Road / Gillieston Road  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh	Dist ] m				
South: Cessnock Road															
1	L2	All MCs	27	0.0	27	0.0	0.699	4.0	LOS A	0.0	0.0	0.00	0.01	0.00	39.0
2	T1	All MCs	1301	4.0	1301	4.0	0.699	0.6	LOS A	0.0	0.0	0.00	0.01	0.00	39.4
Approach			1328	3.9	1328	3.9	0.699	0.7	NA	0.0	0.0	0.00	0.01	0.00	39.4
North: Cessnock Road															
8	T1	All MCs	667	10.0	667	10.0	0.827	107.9	LOS F	44.4	337.5	0.43	0.49	2.37	18.1
9	R2	All MCs	51	11.0	51	11.0	0.827	134.6	LOS F	44.4	337.5	0.43	0.49	2.37	18.0
Approach			718	10.1	718	10.1	0.827	109.7	NA	44.4	337.5	0.43	0.49	2.37	18.1
West: Gillieston Road															
10	L2	All MCs	121	0.0	121	0.0	2.495	1393.2	LOS F	56.1	392.4	1.00	4.08	10.91	2.4
12	R2	All MCs	22	0.0	22	0.0	2.495	1575.4	LOS F	56.1	392.4	1.00	4.08	10.91	2.4
Approach			143	0.0	143	0.0	2.495	1421.3	LOS F	56.1	392.4	1.00	4.08	10.91	2.4
All Vehicles			2189	5.7	2189	5.7	2.495	129.4	NA	56.1	392.4	0.21	0.43	1.49	16.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



# MOVEMENT SUMMARY

 **Site: 101 [2036 BG+SD AM (Site Folder: Cessnock Road / Gillieston Road)]**


**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Cessnock Road / Gillieston Road  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Cessnock Road															
1	L2	All MCs	37	0.0	37	0.0	0.926	6.3	LOS A	0.0	0.0	0.00	0.01	0.00	37.0
2	T1	All MCs	1722	4.0	1722	4.0	0.926	3.2	LOS A	0.0	0.0	0.00	0.01	0.00	37.4
Approach			1759	3.9	1759	3.9	0.926	3.3	NA	0.0	0.0	0.00	0.01	0.00	37.4
North: Cessnock Road															
8	T1	All MCs	886	10.0	886	10.0	5.916	4890.6	LOS F	544.9	4143.3	1.00	1.03	2.93	0.7
9	R2	All MCs	49	11.0	49	11.0	5.916	4920.7	LOS F	544.9	4143.3	1.00	1.03	2.93	0.7
Approach			936	10.1	936	10.1	5.916	4892.2	NA	544.9	4143.3	1.00	1.03	2.93	0.7
West: Gillieston Road															
10	L2	All MCs	109	0.0	109	0.0	27.182	24035.5	LOS F	103.5	724.7	1.00	1.57	3.13	0.2
12	R2	All MCs	60	0.0	60	0.0	27.182	23582.2	LOS F	103.5	724.7	1.00	1.57	3.13	0.2
Approach			169	0.0	169	0.0	27.182	23875.0	LOS F	103.5	724.7	1.00	1.57	3.13	0.2
All Vehicles			2864	5.7	2864	5.7	27.182	3013.1	NA	544.9	4143.3	0.39	0.44	1.14	1.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [2036 Design AM (Site Folder: Cessnock Road / Gillieston Road)]**


**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Cessnock Road / Gillieston Road  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%	v/c	sec		[ Veh. ]	Dist ]				km/h
South: Cessnock Road															
1	L2	All MCs	47	0.0	47	0.0	0.932	6.5	LOS A	0.0	0.0	0.00	0.01	0.00	36.9
2	T1	All MCs	1722	4.0	1722	4.0	0.932	3.4	LOS A	0.0	0.0	0.00	0.01	0.00	37.2
Approach			1769	3.9	1769	3.9	0.932	3.5	NA	0.0	0.0	0.00	0.01	0.00	37.2
North: Cessnock Road															
8	T1	All MCs	886	10.0	886	10.0	9.745	8327.3	LOS F	577.9	4394.7	1.00	1.04	2.84	0.4
9	R2	All MCs	77	11.0	77	11.0	9.745	8346.4	LOS F	577.9	4394.7	1.00	1.04	2.84	0.4
Approach			963	10.1	963	10.1	9.745	8328.8	NA	577.9	4394.7	1.00	1.04	2.84	0.4
West: Gillieston Road															
10	L2	All MCs	122	0.0	122	0.0	29.164	25819.6	LOS F	111.4	779.7	1.00	1.58	3.13	0.1
12	R2	All MCs	60	0.0	60	0.0	29.164	25363.5	LOS F	111.4	779.7	1.00	1.58	3.13	0.1
Approach			182	0.0	182	0.0	29.164	25669.3	LOS F	111.4	779.7	1.00	1.58	3.13	0.1
All Vehicles			2915	5.7	2915	5.7	29.164	4358.1	NA	577.9	4394.7	0.39	0.45	1.13	0.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [2026 BG+SD PM (Site Folder: Cessnock Road / Gillieston Road)]**


**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Cessnock Road / Gillieston Road  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh	Dist ] m				
South: Cessnock Road															
1	L2	All MCs	24	50.0	24	50.0	0.464	3.9	LOS A	0.0	0.0	0.00	0.01	0.00	39.1
2	T1	All MCs	838	6.0	838	6.0	0.464	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	39.8
Approach			862	7.2	862	7.2	0.464	0.4	NA	0.0	0.0	0.00	0.01	0.00	39.7
North: Cessnock Road															
8	T1	All MCs	1245	4.0	1245	4.0	0.719	2.1	LOS A	3.4	24.6	0.08	0.09	0.27	39.0
9	R2	All MCs	33	7.0	33	7.0	0.719	14.0	LOS B	3.4	24.6	0.08	0.09	0.27	38.4
Approach			1278	4.1	1278	4.1	0.719	2.4	NA	3.4	24.6	0.08	0.09	0.27	38.9
West: Gillieston Road															
10	L2	All MCs	31	0.0	31	0.0	0.961	127.0	LOS F	3.9	27.0	1.00	1.41	2.15	12.8
12	R2	All MCs	12	0.0	12	0.0	0.961	370.2	LOS F	3.9	27.0	1.00	1.41	2.15	12.8
Approach			42	0.0	42	0.0	0.961	193.9	LOS F	3.9	27.0	1.00	1.41	2.15	12.8
All Vehicles			2182	5.2	2182	5.2	0.961	5.3	NA	3.9	27.0	0.07	0.09	0.20	37.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [2026 Design PM (Site Folder: Cessnock Road / Gillieston Road)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**


P5924  
Gillieston Public School  
Cessnock Road / Gillieston Road  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh	Dist ] m				
			veh/h		veh/h		v/c	sec							km/h
South: Cessnock Road															
1	L2	All MCs	24	50.0	24	50.0	0.464	3.9	LOS A	0.0	0.0	0.00	0.01	0.00	39.1
2	T1	All MCs	838	6.0	838	6.0	0.464	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	39.8
Approach			862	7.2	862	7.2	0.464	0.4	NA	0.0	0.0	0.00	0.01	0.00	39.7
North: Cessnock Road															
8	T1	All MCs	1245	4.0	1245	4.0	0.743	3.2	LOS A	5.0	36.4	0.11	0.13	0.40	38.5
9	R2	All MCs	45	7.0	45	7.0	0.743	14.9	LOS B	5.0	36.4	0.11	0.13	0.40	37.9
Approach			1291	4.1	1291	4.1	0.743	3.6	NA	5.0	36.4	0.11	0.13	0.40	38.5
West: Gillieston Road															
10	L2	All MCs	55	0.0	55	0.0	1.865	813.1	LOS F	24.5	171.4	1.00	3.10	6.89	3.7
12	R2	All MCs	21	0.0	21	0.0	1.865	1073.2	LOS F	24.5	171.4	1.00	3.10	6.89	3.7
Approach			76	0.0	76	0.0	1.865	885.4	LOS F	24.5	171.4	1.00	3.10	6.89	3.7
All Vehicles			2228	5.2	2228	5.2	1.865	32.3	NA	24.5	171.4	0.10	0.18	0.46	29.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



# MOVEMENT SUMMARY

 **Site: 101 [2036 BG+SD PM (Site Folder: Cessnock Road / Gillieston Road)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Cessnock Road / Gillieston Road  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh	Dist ] m				
			veh/h		veh/h		v/c	sec							km/h
South: Cessnock Road															
1	L2	All MCs	65	50.0	65	50.0	0.641	4.1	LOS A	0.0	0.0	0.00	0.02	0.00	38.9
2	T1	All MCs	1114	6.0	1114	6.0	0.641	0.5	LOS A	0.0	0.0	0.00	0.02	0.00	39.5
Approach			1179	8.4	1179	8.4	0.641	0.7	NA	0.0	0.0	0.00	0.02	0.00	39.5
North: Cessnock Road															
8	T1	All MCs	1645	4.0	1645	4.0	1.245	257.9	LOS F	248.7	1802.6	1.00	1.16	11.13	10.3
9	R2	All MCs	79	7.0	79	7.0	1.245	336.1	LOS F	248.7	1802.6	1.00	1.16	11.13	10.3
Approach			1724	4.1	1724	4.1	1.245	261.5	NA	248.7	1802.6	1.00	1.16	11.13	10.3
West: Gillieston Road															
10	L2	All MCs	55	0.0	55	0.0	5.164	3861.2	LOS F	44.1	309.0	1.00	2.55	6.02	0.9
12	R2	All MCs	29	0.0	29	0.0	5.164	3759.4	LOS F	44.1	309.0	1.00	2.55	6.02	0.9
Approach			84	0.0	84	0.0	5.164	3825.6	LOS F	44.1	309.0	1.00	2.55	6.02	0.9
All Vehicles			2987	5.7	2987	5.7	5.164	259.1	NA	248.7	1802.6	0.61	0.75	6.60	10.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [2036 Design PM (Site Folder: Cessnock Road / Gillieston Road)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Cessnock Road / Gillieston Road  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh	Dist ] m				
			veh/h		veh/h		v/c	sec							km/h
South: Cessnock Road															
1	L2	All MCs	65	50.0	65	50.0	0.641	4.1	LOS A	0.0	0.0	0.00	0.02	0.00	38.9
2	T1	All MCs	1114	6.0	1114	6.0	0.641	0.5	LOS A	0.0	0.0	0.00	0.02	0.00	39.5
Approach			1179	8.4	1179	8.4	0.641	0.7	NA	0.0	0.0	0.00	0.02	0.00	39.5
North: Cessnock Road															
8	T1	All MCs	1645	4.0	1645	4.0	1.306	310.0	LOS F	286.7	2078.7	1.00	1.21	12.86	9.0
9	R2	All MCs	92	7.0	92	7.0	1.306	377.0	LOS F	286.7	2078.7	1.00	1.21	12.86	9.0
Approach			1737	4.2	1737	4.2	1.306	313.5	NA	286.7	2078.7	1.00	1.21	12.86	9.0
West: Gillieston Road															
10	L2	All MCs	83	0.0	83	0.0	7.225	5709.5	LOS F	68.4	479.1	1.00	2.76	6.66	0.6
12	R2	All MCs	41	0.0	41	0.0	7.225	5608.6	LOS F	68.4	479.1	1.00	2.76	6.66	0.6
Approach			124	0.0	124	0.0	7.225	5676.2	LOS F	68.4	479.1	1.00	2.76	6.66	0.6
All Vehicles			3040	5.6	3040	5.6	7.225	411.3	NA	286.7	2078.7	0.61	0.81	7.62	7.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# SITE LAYOUT

 Site: 101 [2026 BG+SD AM (Site Folder: Cessnock Road / Vintage Drive)]

P5924

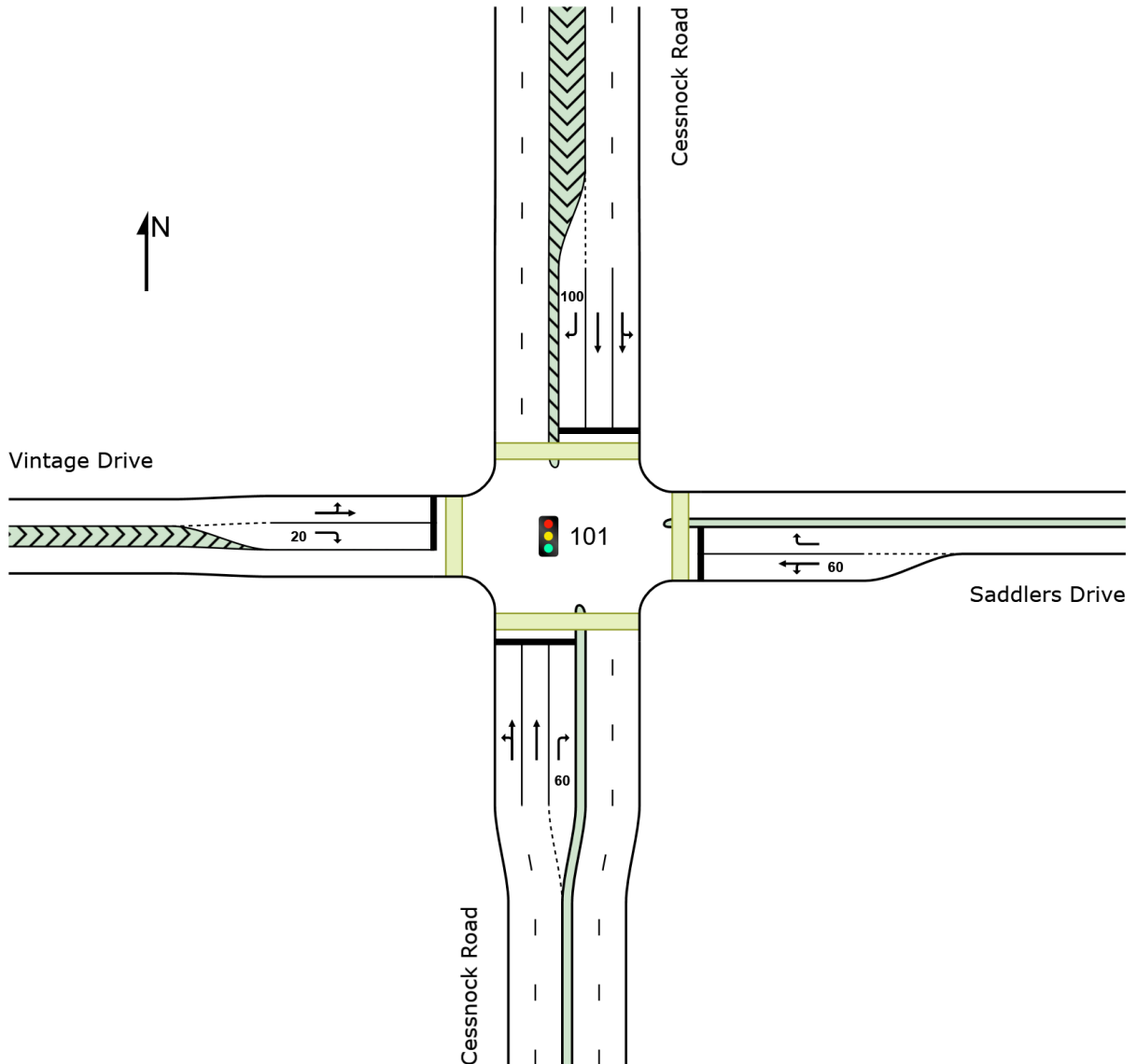
Gillieston Public School

Cessnock Rd/Vintage Dr

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



**SIDRA INTERSECTION 9.1 | Copyright © 2000-2024 Akcelik and Associates Pty Ltd | [sidrasolutions.com](http://sidrasolutions.com)**

Organisation: BITZIOS CONSULTING | Licence: PLUS / FLOATING | Created: Friday, 20 September 2024 2:33:12 PM

Project: P:\P5924 Gillieston Public School RTA and TPS\Technical\Models\P5924.001S Gillieston Public School RTA.sip9

**Site: 101 [2026 BG+SD AM (Site Folder: Cessnock Road / Vintage Drive)]**

P5924

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)  
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped	Dist ]					
						ped	m			sec	m	m/sec
South: Cessnock Road												



P1 Full	3	3	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
East: Saddlers Drive											
P2 Full	1	1	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
North: Cessnock Road											
P3 Full	11	12	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
West: Vintage Drive											
P4 Full	1	1	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
All Pedestrians	16	17	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15

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: 101 [2026 Design AM (Site Folder: Cessnock Road / Vintage Drive)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

P5924

Gillieston Public School  
Cessnock Rd/Vintage Dr

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated      Cycle Time = 50 seconds (Site Practical Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]		[ Total HV ]					[ Veh. veh	Dist ]				
			veh/h	%	veh/h	%	v/c	sec			m				km/h
South: Cessnock Road															
1	L2	All MCs	104	1.0	104	1.0	0.750	24.0	LOS C	11.6	83.9	0.94	0.90	1.07	39.0
2	T1	All MCs	857	5.0	857	5.0	* 0.750	18.4	LOS B	11.6	84.9	0.94	0.90	1.07	45.8
3	R2	All MCs	9	13.0	9	13.0	0.046	27.9	LOS C	0.2	1.7	0.91	0.66	0.91	37.8
Approach			971	4.6	971	4.6	0.750	19.1	LOS B	11.6	84.9	0.94	0.89	1.07	45.0
East: Saddlers Drive															
4	L2	All MCs	17	0.0	17	0.0	0.138	15.6	LOS B	1.1	7.7	0.86	0.67	0.86	40.8
5	T1	All MCs	35	4.0	35	4.0	0.138	22.1	LOS C	1.1	7.7	0.86	0.67	0.86	36.6
6	R2	All MCs	204	0.0	204	0.0	* 0.780	31.0	LOS C	5.6	39.3	1.00	0.97	1.32	36.3
Approach			256	0.5	256	0.5	0.780	28.8	LOS C	5.6	39.3	0.97	0.91	1.23	36.6
North: Cessnock Road															
7	L2	All MCs	58	2.0	58	2.0	0.500	20.2	LOS C	6.3	47.0	0.84	0.73	0.84	43.2
8	T1	All MCs	565	10.0	565	10.0	0.500	14.6	LOS B	6.3	47.6	0.84	0.72	0.84	48.1
9	R2	All MCs	39	13.0	39	13.0	* 0.191	28.7	LOS C	0.9	7.2	0.93	0.72	0.93	34.5
Approach			662	9.5	662	9.5	0.500	15.9	LOS B	6.3	47.6	0.85	0.72	0.85	46.8
West: Vintage Drive															
10	L2	All MCs	76	10.0	76	10.0	0.167	16.2	LOS B	1.7	12.4	0.75	0.70	0.75	39.5
11	T1	All MCs	16	0.0	16	0.0	0.167	23.1	LOS C	1.7	12.4	0.75	0.70	0.75	38.0
12	R2	All MCs	74	4.0	74	4.0	0.261	25.7	LOS C	1.7	12.2	0.91	0.74	0.91	35.4
Approach			165	6.4	165	6.4	0.261	21.1	LOS C	1.7	12.4	0.82	0.72	0.82	37.5
All Vehicles			2054	5.8	2054	5.8	0.780	19.4	LOS B	11.6	84.9	0.91	0.83	1.00	43.7

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

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

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

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

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

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

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

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

- \* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Input Crossing	Dem. Vol.	Aver. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped	Dist ]					
						ped	m			sec	m	m/sec
South: Cessnock Road												

P1 Full	3	3	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
East: Saddlers Drive											
P2 Full	1	1	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
North: Cessnock Road											
P3 Full	11	12	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
West: Vintage Drive											
P4 Full	1	1	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
All Pedestrians	16	17	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15

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: 101 [2036 BG+SD AM (Site Folder: Cessnock Road / Vintage Drive)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

P5924

Gillieston Public School  
Cessnock Rd/Vintage Dr

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated      Cycle Time = 70 seconds (Site Practical Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist m				km/h
South: Cessnock Road															
1	L2	All MCs	119	1.0	119	1.0	0.837	32.0	LOS C	22.5	163.6	0.97	0.98	1.13	35.0
2	T1	All MCs	1140	5.0	1140	5.0	* 0.837	29.1	LOS C	22.5	164.4	0.97	0.98	1.13	41.6
3	R2	All MCs	13	13.0	13	13.0	0.087	44.3	LOS D	0.4	3.3	0.95	0.68	0.95	33.8
Approach			1272	4.7	1272	4.7	0.837	29.5	LOS C	22.5	164.4	0.97	0.98	1.13	39.8
East: Saddlers Drive															
4	L2	All MCs	22	0.0	22	0.0	0.134	18.9	LOS B	1.8	12.8	0.79	0.65	0.79	39.6
5	T1	All MCs	46	4.0	46	4.0	0.134	24.2	LOS C	1.8	12.8	0.79	0.65	0.79	35.4
6	R2	All MCs	275	0.0	275	0.0	* 0.842	41.2	LOS D	10.8	75.4	1.00	1.02	1.33	33.0
Approach			343	0.5	343	0.5	0.842	37.5	LOS D	10.8	75.4	0.96	0.94	1.22	33.6
North: Cessnock Road															
7	L2	All MCs	81	2.0	81	2.0	0.584	23.5	LOS C	11.6	87.0	0.84	0.75	0.84	41.6
8	T1	All MCs	774	10.0	774	10.0	0.584	17.9	LOS B	11.6	88.1	0.84	0.74	0.84	46.0
9	R2	All MCs	48	13.0	48	13.0	* 0.332	40.8	LOS D	1.7	13.1	0.98	0.74	0.98	29.9
Approach			903	9.4	903	9.4	0.584	19.7	LOS B	11.6	88.1	0.84	0.74	0.84	44.6
West: Vintage Drive															
10	L2	All MCs	88	10.0	88	10.0	0.177	19.6	LOS B	2.6	19.2	0.72	0.70	0.72	37.8
11	T1	All MCs	20	0.0	20	0.0	0.177	25.2	LOS C	2.6	19.2	0.72	0.70	0.72	36.4
12	R2	All MCs	81	4.0	81	4.0	0.232	28.3	LOS C	2.3	16.7	0.84	0.74	0.84	34.3
Approach			189	6.4	189	6.4	0.232	23.9	LOS C	2.6	19.2	0.77	0.72	0.77	36.1
All Vehicles			2707	5.9	2707	5.9	0.842	26.9	LOS C	22.5	164.4	0.91	0.87	1.02	40.1

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

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

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

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

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

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

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

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

- \* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Input Crossing	Dem. Vol.	Aver. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped	Dist ]					
						ped	m			sec	m	m/sec
South: Cessnock Road												



P1 Full	5	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
East: Saddlers Drive											
P2 Full	1	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Cessnock Road											
P3 Full	15	16	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
West: Vintage Drive											
P4 Full	1	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians	22	23	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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: 101 [2036 Design AM (Site Folder: Cessnock Road / Vintage Drive)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

P5924

Gillieston Public School

Cessnock Rd/Vintage Dr

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated      Cycle Time = 70 seconds (Site Practical Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance																
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[ Total HV ]		[ Total HV ]					[ Veh.	Dist ]					
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h	
South: Cessnock Road																
1	L2	All MCs	136	1.0	136	1.0	0.857	33.9	LOS C	24.0	173.9	0.98	1.02	1.18	34.1	
2	T1	All MCs	1152	5.0	1152	5.0	* 0.857	31.3	LOS C	24.0	174.9	0.98	1.02	1.18	40.7	
3	R2	All MCs	13	13.0	13	13.0	0.087	44.8	LOS D	0.4	3.3	0.95	0.68	0.95	33.8	
Approach			1300	4.7	1300	4.7	0.857	31.7	LOS C	24.0	174.9	0.98	1.01	1.18	38.8	
East: Saddlers Drive																
4	L2	All MCs	22	0.0	22	0.0	0.134	18.9	LOS B	1.8	12.8	0.79	0.65	0.79	39.6	
5	T1	All MCs	46	4.0	46	4.0	0.134	24.2	LOS C	1.8	12.8	0.79	0.65	0.79	35.4	
6	R2	All MCs	275	0.0	275	0.0	* 0.842	41.2	LOS D	10.8	75.4	1.00	1.02	1.33	33.0	
Approach			343	0.5	343	0.5	0.842	37.5	LOS D	10.8	75.4	0.96	0.94	1.22	33.6	
North: Cessnock Road																
7	L2	All MCs	81	2.0	81	2.0	0.584	23.5	LOS C	11.6	87.0	0.84	0.75	0.84	41.6	
8	T1	All MCs	774	10.0	774	10.0	0.584	17.9	LOS B	11.6	88.1	0.84	0.74	0.84	46.0	
9	R2	All MCs	48	13.0	48	13.0	* 0.332	40.8	LOS D	1.7	13.1	0.98	0.74	0.98	29.9	
Approach			903	9.4	903	9.4	0.584	19.7	LOS B	11.6	88.1	0.84	0.74	0.84	44.6	
West: Vintage Drive																
10	L2	All MCs	88	10.0	88	10.0	0.177	19.6	LOS B	2.6	19.2	0.72	0.70	0.72	37.8	
11	T1	All MCs	20	0.0	20	0.0	0.177	25.2	LOS C	2.6	19.2	0.72	0.70	0.72	36.4	
12	R2	All MCs	95	4.0	95	4.0	0.271	28.6	LOS C	2.7	19.7	0.85	0.75	0.85	34.2	
Approach			203	6.2	203	6.2	0.271	24.3	LOS C	2.7	19.7	0.78	0.72	0.78	35.9	
All Vehicles			2749	5.8	2749	5.8	0.857	27.9	LOS C	24.0	174.9	0.92	0.89	1.04	39.6	

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

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

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

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

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

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

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

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

- \* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Input Crossing	Dem. Vol.	Aver. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped	Dist ]					
						ped	m			sec	m	m/sec
South: Cessnock Road												

P1 Full	5	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
East: Saddlers Drive											
P2 Full	1	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Cessnock Road											
P3 Full	15	16	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
West: Vintage Drive											
P4 Full	1	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians	22	23	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

**Site: 101 [2026 BG+SD PM (Site Folder: Cessnock Road / Vintage Drive)]**

P5924

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)  
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped ped	Dist ] m			sec	m	m/sec
South: Cessnock Road												



P1 Full	5	5	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
East: Saddlers Drive											
P2 Full	1	1	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
North: Cessnock Road											
P3 Full	5	5	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
West: Vintage Drive											
P4 Full	1	1	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
All Pedestrians	12	13	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15

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.

**Site: 101 [2026 Design PM (Site Folder: Cessnock Road / Vintage Drive)]**

P5924

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)  
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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

- \* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Input Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped	Dist ]			sec	m	m/sec
						ped	m					
South: Cessnock Road												

P1 Full	5	5	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
East: Saddlers Drive											
P2 Full	1	1	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
North: Cessnock Road											
P3 Full	5	5	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
West: Vintage Drive											
P4 Full	1	1	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15
All Pedestrians	12	13	19.4	LOS B	0.0	0.0	0.88	0.88	173.2	200.0	1.15

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.

**Site: 101 [2036 BG+SD PM (Site Folder: Cessnock Road / Vintage Drive)]**

P5924

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)  
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped	Dist ]			sec	m	m/sec
South: Cessnock Road												



P1 Full	6	6	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
East: Saddlers Drive											
P2 Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	178.1	200.0	1.12
North: Cessnock Road											
P3 Full	6	6	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Vintage Drive											
P4 Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	178.1	200.0	1.12
All Pedestrians	15	16	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12

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

**Site: 101 [2036 Design PM (Site Folder: Cessnock Road / Vintage Drive)]**

P5924

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)  
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped ped	Dist ] m			sec	m	m/sec
South: Cessnock Road												

P1	Full	6	6	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
East: Saddlers Drive												
P2	Full	2	2	24.3	LOS C	0.0	0.0	0.90	0.90	178.1	200.0	1.12
North: Cessnock Road												
P3	Full	6	6	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
West: Vintage Drive												
P4	Full	1	1	24.3	LOS C	0.0	0.0	0.90	0.90	178.1	200.0	1.12
All		15	16	24.3	LOS C	0.0	0.0	0.90	0.90	178.2	200.0	1.12
Pedestrians												

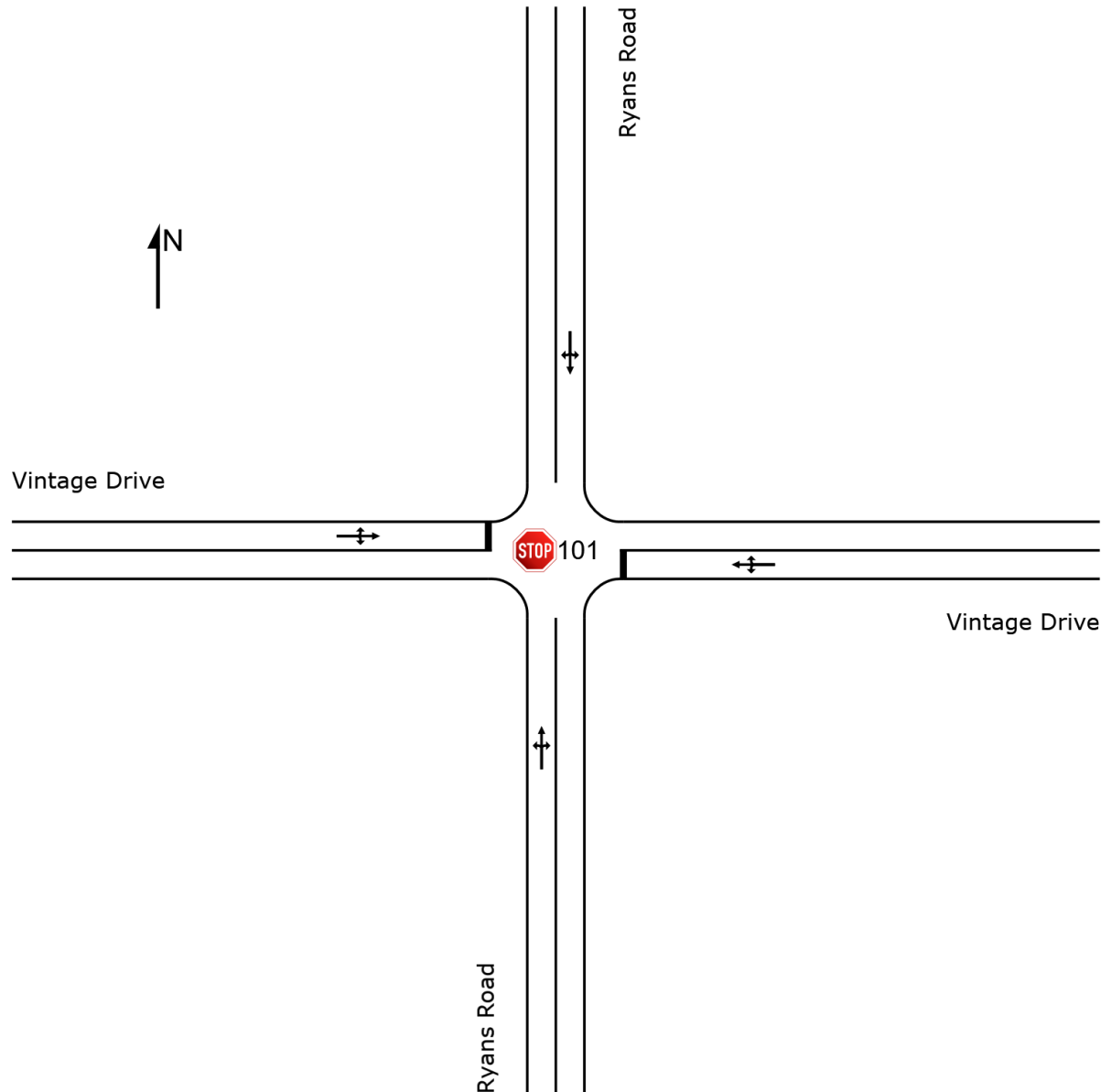
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)  
Pedestrian movement LOS values are based on average delay per pedestrian movement.  
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

## SITE LAYOUT

 Site: 101 [2026 BG+SD AM (Site Folder: Ryans Road / Vintage Drive)]

P5924  
Gillieston Public School  
Ryans Road / Vintage Drive  
Site Category: (None)  
Stop (Two-Way)

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



# MOVEMENT SUMMARY

 **Site: 101 [2026 BG+SD AM (Site Folder: Ryans Road / Vintage Drive)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Ryans Road / Vintage Drive  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh	Dist ] m				
South: Ryans Road															
1	L2	All MCs	1	0.0	1	0.0	0.030	4.8	LOS A	0.1	0.9	0.20	0.49	0.20	45.2
2	T1	All MCs	3	0.0	3	0.0	0.030	0.3	LOS A	0.1	0.9	0.20	0.49	0.20	46.1
3	R2	All MCs	45	0.0	45	0.0	0.030	4.8	LOS A	0.1	0.9	0.20	0.49	0.20	43.3
Approach			49	0.0	49	0.0	0.030	4.5	NA	0.1	0.9	0.20	0.49	0.20	43.5
East: Vintage Drive															
4	L2	All MCs	24	25.0	24	25.0	0.158	8.4	LOS A	0.6	4.4	0.15	0.92	0.15	41.2
5	T1	All MCs	2	100.0	2	100.0	0.158	12.9	LOS B	0.6	4.4	0.15	0.92	0.15	41.1
6	R2	All MCs	123	0.0	123	0.0	0.158	7.7	LOS A	0.6	4.4	0.15	0.92	0.15	41.7
Approach			149	5.5	149	5.5	0.158	7.9	LOS A	0.6	4.4	0.15	0.92	0.15	41.6
North: Ryans Road															
7	L2	All MCs	88	3.0	88	3.0	0.055	4.6	LOS A	0.0	0.1	0.00	0.47	0.00	44.5
8	T1	All MCs	11	0.0	11	0.0	0.055	0.0	LOS A	0.0	0.1	0.00	0.47	0.00	46.8
9	R2	All MCs	1	0.0	1	0.0	0.055	4.6	LOS A	0.0	0.1	0.00	0.47	0.00	45.7
Approach			100	2.7	100	2.7	0.055	4.1	NA	0.0	0.1	0.00	0.47	0.00	44.8
West: Vintage Drive															
10	L2	All MCs	1	0.0	1	0.0	0.012	7.4	LOS A	0.0	0.4	0.11	1.09	0.11	43.7
11	T1	All MCs	8	43.0	8	43.0	0.012	10.1	LOS B	0.0	0.4	0.11	1.09	0.11	41.7
12	R2	All MCs	1	0.0	1	0.0	0.012	7.4	LOS A	0.0	0.4	0.11	1.09	0.11	43.3
Approach			11	34.4	11	34.4	0.012	9.6	LOS A	0.0	0.4	0.11	1.09	0.11	42.1
All Vehicles			309	4.7	309	4.7	0.158	6.2	NA	0.6	4.4	0.11	0.71	0.11	42.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



# MOVEMENT SUMMARY

 **Site: 101 [2026 Design AM (Site Folder: Ryans Road / Vintage Drive)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Ryans Road / Vintage Drive  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh	Dist ] m				
South: Ryans Road															
1	L2	All MCs	1	0.0	1	0.0	0.034	4.9	LOS A	0.1	1.0	0.19	0.30	0.19	46.5
2	T1	All MCs	29	0.0	29	0.0	0.034	0.2	LOS A	0.1	1.0	0.19	0.30	0.19	47.5
3	R2	All MCs	29	0.0	29	0.0	0.034	4.9	LOS A	0.1	1.0	0.19	0.30	0.19	44.9
Approach			60	0.0	60	0.0	0.034	2.6	NA	0.1	1.0	0.19	0.30	0.19	46.3
East: Vintage Drive															
4	L2	All MCs	24	25.0	24	25.0	0.178	8.4	LOS A	0.7	5.1	0.17	0.91	0.17	41.1
5	T1	All MCs	2	100.0	2	100.0	0.178	13.2	LOS B	0.7	5.1	0.17	0.91	0.17	41.0
6	R2	All MCs	139	0.0	139	0.0	0.178	7.8	LOS A	0.7	5.1	0.17	0.91	0.17	41.6
Approach			165	4.9	165	4.9	0.178	8.0	LOS A	0.7	5.1	0.17	0.91	0.17	41.6
North: Ryans Road															
7	L2	All MCs	102	3.0	102	3.0	0.062	4.6	LOS A	0.0	0.1	0.00	0.48	0.00	44.5
8	T1	All MCs	11	0.0	11	0.0	0.062	0.0	LOS A	0.0	0.1	0.00	0.48	0.00	46.7
9	R2	All MCs	1	0.0	1	0.0	0.062	4.6	LOS A	0.0	0.1	0.00	0.48	0.00	45.7
Approach			114	2.7	114	2.7	0.062	4.2	NA	0.0	0.1	0.00	0.48	0.00	44.7
West: Vintage Drive															
10	L2	All MCs	1	0.0	1	0.0	0.013	7.5	LOS A	0.0	0.4	0.24	1.01	0.24	43.8
11	T1	All MCs	8	43.0	8	43.0	0.013	10.3	LOS B	0.0	0.4	0.24	1.01	0.24	41.8
12	R2	All MCs	1	0.0	1	0.0	0.013	7.4	LOS A	0.0	0.4	0.24	1.01	0.24	43.4
Approach			11	34.4	11	34.4	0.013	9.7	LOS A	0.0	0.4	0.24	1.01	0.24	42.2
All Vehicles			349	4.2	349	4.2	0.178	5.9	NA	0.7	5.1	0.12	0.67	0.12	43.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [2036 BG+SD AM (Site Folder: Ryans Road / Vintage Drive)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Ryans Road / Vintage Drive  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh	Dist ] m				
South: Ryans Road															
1	L2	All MCs	1	0.0	1	0.0	0.032	5.0	LOS A	0.1	1.0	0.24	0.49	0.24	45.2
2	T1	All MCs	4	0.0	4	0.0	0.032	0.4	LOS A	0.1	1.0	0.24	0.49	0.24	46.1
3	R2	All MCs	46	0.0	46	0.0	0.032	4.9	LOS A	0.1	1.0	0.24	0.49	0.24	43.2
Approach			52	0.0	52	0.0	0.032	4.6	NA	0.1	1.0	0.24	0.49	0.24	43.5
East: Vintage Drive															
4	L2	All MCs	25	25.0	25	25.0	0.210	8.5	LOS A	0.8	6.1	0.20	0.90	0.20	41.1
5	T1	All MCs	3	100.0	3	100.0	0.210	13.3	LOS B	0.8	6.1	0.20	0.90	0.20	41.0
6	R2	All MCs	163	0.0	163	0.0	0.210	7.9	LOS A	0.8	6.1	0.20	0.90	0.20	41.6
Approach			192	4.9	192	4.9	0.210	8.1	LOS A	0.8	6.1	0.20	0.90	0.20	41.5
North: Ryans Road															
7	L2	All MCs	119	3.0	119	3.0	0.074	4.6	LOS A	0.0	0.1	0.00	0.47	0.00	44.5
8	T1	All MCs	15	0.0	15	0.0	0.074	0.0	LOS A	0.0	0.1	0.00	0.47	0.00	46.8
9	R2	All MCs	1	0.0	1	0.0	0.074	4.6	LOS A	0.0	0.1	0.00	0.47	0.00	45.8
Approach			135	2.6	135	2.6	0.074	4.1	NA	0.0	0.1	0.00	0.47	0.00	44.8
West: Vintage Drive															
10	L2	All MCs	1	0.0	1	0.0	0.017	7.4	LOS A	0.1	0.5	0.15	1.07	0.15	43.6
11	T1	All MCs	12	43.0	12	43.0	0.017	10.4	LOS B	0.1	0.5	0.15	1.07	0.15	41.6
12	R2	All MCs	1	0.0	1	0.0	0.017	7.4	LOS A	0.1	0.5	0.15	1.07	0.15	43.2
Approach			14	36.4	14	36.4	0.017	10.0	LOS A	0.1	0.5	0.15	1.07	0.15	41.9
All Vehicles			392	4.6	392	4.6	0.210	6.3	NA	0.8	6.1	0.14	0.70	0.14	42.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [2036 Design AM (Site Folder: Ryans Road / Vintage Drive)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Ryans Road / Vintage Drive  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh	Dist ] m				
South: Ryans Road															
1	L2	All MCs	1	0.0	1	0.0	0.036	5.0	LOS A	0.2	1.1	0.22	0.32	0.22	46.4
2	T1	All MCs	31	0.0	31	0.0	0.036	0.3	LOS A	0.2	1.1	0.22	0.32	0.22	47.4
3	R2	All MCs	31	0.0	31	0.0	0.036	5.0	LOS A	0.2	1.1	0.22	0.32	0.22	44.8
Approach			62	0.0	62	0.0	0.036	2.7	NA	0.2	1.1	0.22	0.32	0.22	46.2
East: Vintage Drive															
4	L2	All MCs	25	25.0	25	25.0	0.234	8.5	LOS A	1.0	7.0	0.22	0.89	0.22	41.0
5	T1	All MCs	3	100.0	3	100.0	0.234	13.6	LOS B	1.0	7.0	0.22	0.89	0.22	40.9
6	R2	All MCs	181	0.0	181	0.0	0.234	8.1	LOS A	1.0	7.0	0.22	0.89	0.22	41.5
Approach			209	4.5	209	4.5	0.234	8.2	LOS A	1.0	7.0	0.22	0.89	0.22	41.4
North: Ryans Road															
7	L2	All MCs	133	3.0	133	3.0	0.081	4.6	LOS A	0.0	0.1	0.00	0.48	0.00	44.5
8	T1	All MCs	15	0.0	15	0.0	0.081	0.0	LOS A	0.0	0.1	0.00	0.48	0.00	46.8
9	R2	All MCs	1	0.0	1	0.0	0.081	4.6	LOS A	0.0	0.1	0.00	0.48	0.00	45.7
Approach			148	2.7	148	2.7	0.081	4.1	NA	0.0	0.1	0.00	0.48	0.00	44.8
West: Vintage Drive															
10	L2	All MCs	1	0.0	1	0.0	0.017	7.5	LOS A	0.1	0.6	0.28	1.01	0.28	43.7
11	T1	All MCs	12	43.0	12	43.0	0.017	10.6	LOS B	0.1	0.6	0.28	1.01	0.28	41.7
12	R2	All MCs	1	0.0	1	0.0	0.017	7.5	LOS A	0.1	0.6	0.28	1.01	0.28	43.3
Approach			14	36.4	14	36.4	0.017	10.1	LOS B	0.1	0.6	0.28	1.01	0.28	42.0
All Vehicles			434	4.3	434	4.3	0.234	6.1	NA	1.0	7.0	0.15	0.67	0.15	43.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [2026 BG+SD PM (Site Folder: Ryans Road / Vintage Drive)]**


**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Ryans Road / Vintage Drive  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh ]	Dist ] m				
South: Ryans Road															
1	L2	All MCs	1	0.0	1	0.0	0.017	4.8	LOS A	0.1	0.5	0.18	0.42	0.18	45.7
2	T1	All MCs	6	0.0	6	0.0	0.017	0.2	LOS A	0.1	0.5	0.18	0.42	0.18	46.7
3	R2	All MCs	21	0.0	21	0.0	0.017	4.8	LOS A	0.1	0.5	0.18	0.42	0.18	43.9
Approach			28	0.0	28	0.0	0.017	3.8	NA	0.1	0.5	0.18	0.42	0.18	44.7
East: Vintage Drive															
4	L2	All MCs	60	0.0	60	0.0	0.139	7.5	LOS A	0.5	3.9	0.09	0.95	0.09	41.7
5	T1	All MCs	8	57.0	8	57.0	0.139	10.4	LOS B	0.5	3.9	0.09	0.95	0.09	41.8
6	R2	All MCs	80	0.0	80	0.0	0.139	7.6	LOS A	0.5	3.9	0.09	0.95	0.09	41.8
Approach			148	3.2	148	3.2	0.139	7.7	LOS A	0.5	3.9	0.09	0.95	0.09	41.7
North: Ryans Road															
7	L2	All MCs	76	3.0	76	3.0	0.047	4.6	LOS A	0.0	0.1	0.00	0.48	0.00	44.4
8	T1	All MCs	8	14.0	8	14.0	0.047	0.0	LOS A	0.0	0.1	0.00	0.48	0.00	46.7
9	R2	All MCs	1	0.0	1	0.0	0.047	4.6	LOS A	0.0	0.1	0.00	0.48	0.00	45.7
Approach			85	4.0	85	4.0	0.047	4.1	NA	0.0	0.1	0.00	0.48	0.00	44.7
West: Vintage Drive															
10	L2	All MCs	1	0.0	1	0.0	0.025	7.5	LOS A	0.1	0.7	0.17	1.04	0.17	43.9
11	T1	All MCs	21	28.0	21	28.0	0.025	9.1	LOS A	0.1	0.7	0.17	1.04	0.17	42.2
12	R2	All MCs	1	0.0	1	0.0	0.025	7.5	LOS A	0.1	0.7	0.17	1.04	0.17	43.5
Approach			23	25.5	23	25.5	0.025	8.9	LOS A	0.1	0.7	0.17	1.04	0.17	42.4
All Vehicles			285	5.0	285	5.0	0.139	6.3	NA	0.5	3.9	0.08	0.76	0.08	42.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [2026 Design PM (Site Folder: Ryans Road / Vintage Drive)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Ryans Road / Vintage Drive  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh ]	Dist ] m				
South: Ryans Road															
1	L2	All MCs	1	0.0	1	0.0	0.017	4.9	LOS A	0.1	0.5	0.23	0.42	0.23	45.6
2	T1	All MCs	6	0.0	6	0.0	0.017	0.3	LOS A	0.1	0.5	0.23	0.42	0.23	46.5
3	R2	All MCs	21	0.0	21	0.0	0.017	4.9	LOS A	0.1	0.5	0.23	0.42	0.23	43.7
Approach			28	0.0	28	0.0	0.017	3.9	NA	0.1	0.5	0.23	0.42	0.23	44.5
East: Vintage Drive															
4	L2	All MCs	34	0.0	34	0.0	0.140	7.6	LOS A	0.5	3.8	0.21	0.91	0.21	41.7
5	T1	All MCs	8	57.0	8	57.0	0.140	10.7	LOS B	0.5	3.8	0.21	0.91	0.21	41.8
6	R2	All MCs	94	0.0	94	0.0	0.140	7.8	LOS A	0.5	3.8	0.21	0.91	0.21	41.7
Approach			136	3.5	136	3.5	0.140	7.9	LOS A	0.5	3.8	0.21	0.91	0.21	41.7
North: Ryans Road															
7	L2	All MCs	91	3.0	91	3.0	0.070	4.6	LOS A	0.0	0.1	0.00	0.39	0.00	45.0
8	T1	All MCs	35	14.0	35	14.0	0.070	0.0	LOS A	0.0	0.1	0.00	0.39	0.00	47.3
9	R2	All MCs	1	0.0	1	0.0	0.070	4.6	LOS A	0.0	0.1	0.00	0.39	0.00	46.1
Approach			126	6.0	126	6.0	0.070	3.3	NA	0.0	0.1	0.00	0.39	0.00	45.7
West: Vintage Drive															
10	L2	All MCs	1	0.0	1	0.0	0.026	7.5	LOS A	0.1	0.8	0.20	1.03	0.20	43.8
11	T1	All MCs	21	28.0	21	28.0	0.026	9.4	LOS A	0.1	0.8	0.20	1.03	0.20	42.1
12	R2	All MCs	1	0.0	1	0.0	0.026	7.5	LOS A	0.1	0.8	0.20	1.03	0.20	43.4
Approach			23	25.5	23	25.5	0.026	9.2	LOS A	0.1	0.8	0.20	1.03	0.20	42.2
All Vehicles			314	5.8	314	5.8	0.140	5.8	NA	0.5	3.8	0.12	0.66	0.12	43.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



# MOVEMENT SUMMARY

 **Site: 101 [2036 BG+SD PM (Site Folder: Ryans Road / Vintage Drive)]**


**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

P5924  
Gillieston Public School  
Ryans Road / Vintage Drive  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh ]	Dist ] m				
South: Ryans Road															
1	L2	All MCs	1	0.0	1	0.0	0.017	4.9	LOS A	0.1	0.5	0.22	0.42	0.22	45.6
2	T1	All MCs	6	0.0	6	0.0	0.017	0.3	LOS A	0.1	0.5	0.22	0.42	0.22	46.6
3	R2	All MCs	21	0.0	21	0.0	0.017	4.9	LOS A	0.1	0.5	0.22	0.42	0.22	43.8
Approach			28	0.0	28	0.0	0.017	3.9	NA	0.1	0.5	0.22	0.42	0.22	44.6
East: Vintage Drive															
4	L2	All MCs	64	0.0	64	0.0	0.171	7.5	LOS A	0.7	5.0	0.12	0.93	0.12	41.6
5	T1	All MCs	12	57.0	12	57.0	0.171	10.6	LOS B	0.7	5.0	0.12	0.93	0.12	41.7
6	R2	All MCs	100	0.0	100	0.0	0.171	7.8	LOS A	0.7	5.0	0.12	0.93	0.12	41.7
Approach			176	3.8	176	3.8	0.171	7.9	LOS A	0.7	5.0	0.12	0.93	0.12	41.7
North: Ryans Road															
7	L2	All MCs	102	3.0	102	3.0	0.064	4.6	LOS A	0.0	0.1	0.00	0.48	0.00	44.4
8	T1	All MCs	12	14.0	12	14.0	0.064	0.0	LOS A	0.0	0.1	0.00	0.48	0.00	46.7
9	R2	All MCs	2	0.0	2	0.0	0.064	4.6	LOS A	0.0	0.1	0.00	0.48	0.00	45.7
Approach			116	4.0	116	4.0	0.064	4.1	NA	0.0	0.1	0.00	0.48	0.00	44.7
West: Vintage Drive															
10	L2	All MCs	1	0.0	1	0.0	0.035	7.5	LOS A	0.1	1.1	0.21	1.02	0.21	43.9
11	T1	All MCs	28	28.0	28	28.0	0.035	9.3	LOS A	0.1	1.1	0.21	1.02	0.21	42.1
12	R2	All MCs	2	0.0	2	0.0	0.035	7.6	LOS A	0.1	1.1	0.21	1.02	0.21	43.5
Approach			32	25.2	32	25.2	0.035	9.1	LOS A	0.1	1.1	0.21	1.02	0.21	42.3
All Vehicles			352	5.5	352	5.5	0.171	6.4	NA	0.7	5.0	0.10	0.75	0.10	42.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [2036 Design PM (Site Folder: Ryans Road / Vintage Drive)]**

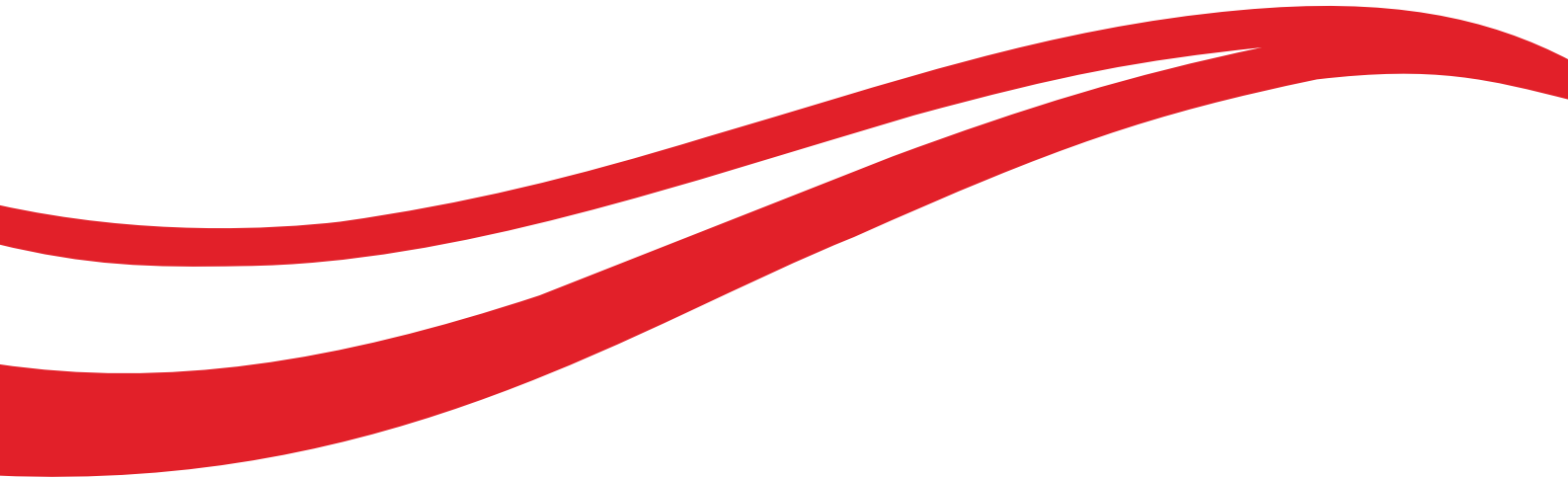
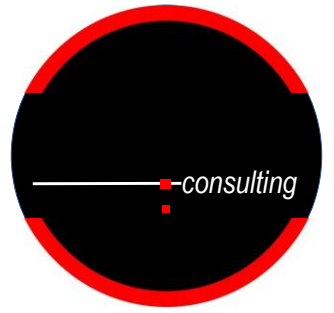
**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

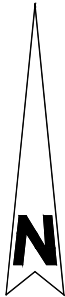
P5924  
Gillieston Public School  
Ryans Road / Vintage Drive  
Site Category: (None)  
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh ]	[ Dist ] m				
South: Ryans Road															
1	L2	All MCs	1	0.0	1	0.0	0.017	5.0	LOS A	0.1	0.6	0.26	0.43	0.26	45.5
2	T1	All MCs	6	0.0	6	0.0	0.017	0.4	LOS A	0.1	0.6	0.26	0.43	0.26	46.4
3	R2	All MCs	21	0.0	21	0.0	0.017	5.0	LOS A	0.1	0.6	0.26	0.43	0.26	43.6
Approach			28	0.0	28	0.0	0.017	4.0	NA	0.1	0.6	0.26	0.43	0.26	44.4
East: Vintage Drive															
4	L2	All MCs	38	0.0	38	0.0	0.174	7.6	LOS A	0.7	4.9	0.23	0.90	0.23	41.6
5	T1	All MCs	12	57.0	12	57.0	0.174	10.9	LOS B	0.7	4.9	0.23	0.90	0.23	41.7
6	R2	All MCs	114	0.0	114	0.0	0.174	8.0	LOS A	0.7	4.9	0.23	0.90	0.23	41.6
Approach			163	4.0	163	4.0	0.174	8.1	LOS A	0.7	4.9	0.23	0.90	0.23	41.6
North: Ryans Road															
7	L2	All MCs	119	3.0	119	3.0	0.088	4.6	LOS A	0.0	0.1	0.00	0.41	0.00	44.9
8	T1	All MCs	38	14.0	38	14.0	0.088	0.0	LOS A	0.0	0.1	0.00	0.41	0.00	47.2
9	R2	All MCs	2	0.0	2	0.0	0.088	4.6	LOS A	0.0	0.1	0.00	0.41	0.00	46.0
Approach			159	5.6	159	5.6	0.088	3.5	NA	0.0	0.1	0.00	0.41	0.00	45.5
West: Vintage Drive															
10	L2	All MCs	1	0.0	1	0.0	0.037	7.5	LOS A	0.1	1.1	0.23	1.01	0.23	43.7
11	T1	All MCs	28	28.0	28	28.0	0.037	9.7	LOS A	0.1	1.1	0.23	1.01	0.23	42.0
12	R2	All MCs	2	0.0	2	0.0	0.037	7.6	LOS A	0.1	1.1	0.23	1.01	0.23	43.3
Approach			32	25.2	32	25.2	0.037	9.4	LOS A	0.1	1.1	0.23	1.01	0.23	42.1
All Vehicles			382	6.1	382	6.1	0.174	6.0	NA	0.7	4.9	0.14	0.67	0.14	43.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Appendix E: Swept Paths



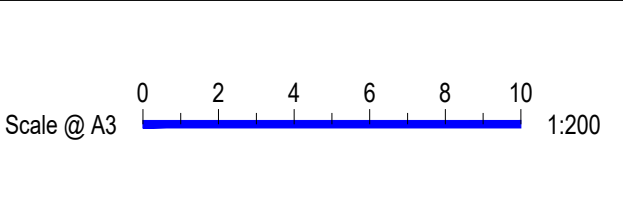


Notes:  
Traffic concept only, civil  
engineering design elements to be  
developed as part of wider  
engineering scope  
(i.e. stormwater, lighting, retaining  
wall)

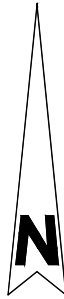


**Gold Coast**  
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226  
P: (07) 5562-5377  
W: www.bitziosconsulting.com.au  
**Brisbane**  
Level 2, 428 Upper Edward Street, Spring Hill 4000  
P: (07) 3831-4442  
E: admin@bitziosconsulting.com.au  
**Sydney**  
Studio 203, 3 Gladstone Street, Newtown NSW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

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	Gillieston Public School RTA External Works	J.I	16.09.2024
002	Gillieston Public School RTA External Works	J.I	02.10.2024



Project Gillieston Public School RTA and TPS	Design J.I	Drawn J.I	Checked J.BR
	CONCEPT ONLY		
Title Northview Street Turnaround	Project Number P5924	Sheet Number 1	Date 02.10.2024
	Issue 002		

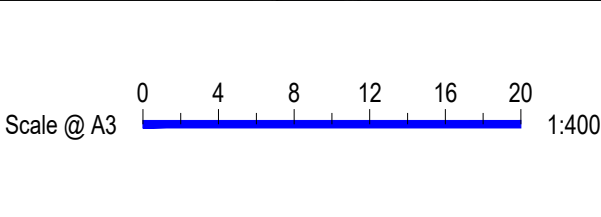


Notes:  
Traffic concept only, civil  
engineering design elements to be  
developed as part of wider  
engineering scope  
(i.e. stormwater, lighting, retaining  
wall)



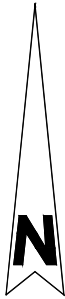
**Gold Coast**  
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226  
P: (07) 5562-5377  
W: [www.bitziosconsulting.com.au](http://www.bitziosconsulting.com.au)  
**Brisbane**  
Level 2, 428 Upper Edward Street, Spring Hill 4000  
P: (07) 3831-4442  
E: [admin@bitziosconsulting.com.au](mailto:admin@bitziosconsulting.com.au)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

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	Gillieston Public School RTA External Works	J.I	16.09.2024
002	Gillieston Public School RTA External Works	J.I	02.10.2024

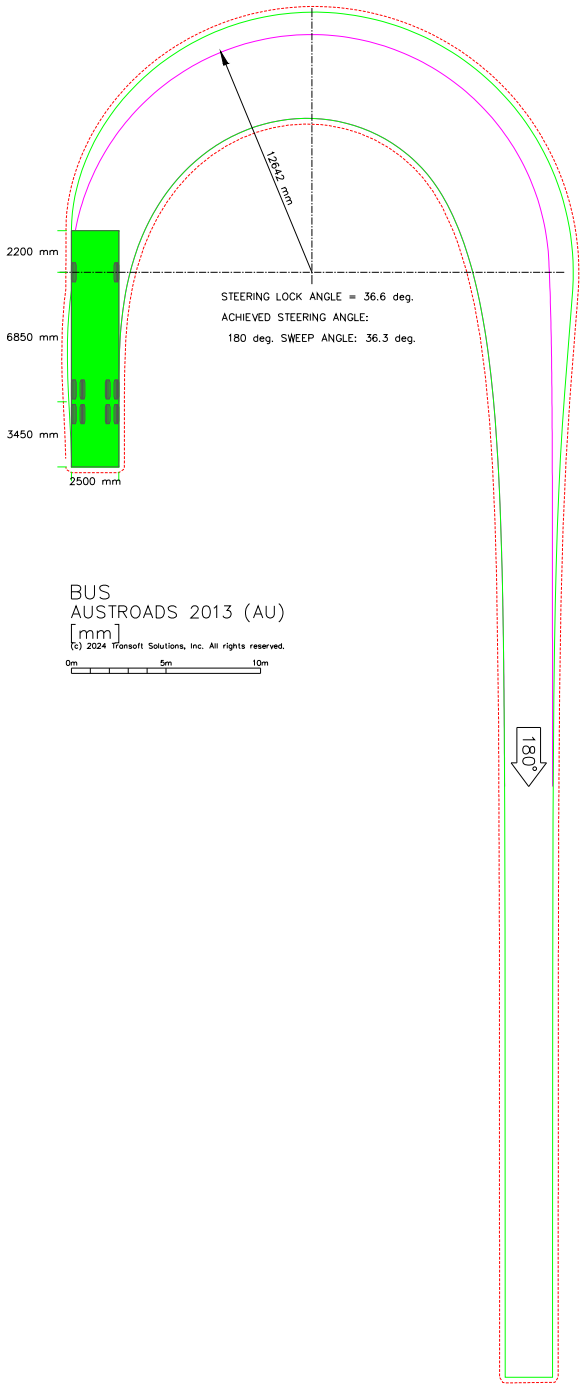
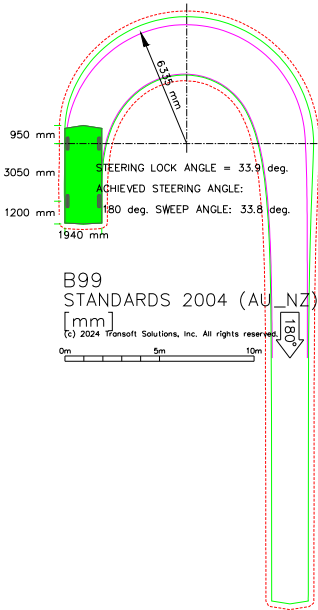


Project Gillieston Public School RTA and TPS	Design J.I	Drawn J.I	Checked J.BR
	CONCEPT ONLY		
Title Option 1 Gillieston Road Bus Stop Road Widening	Project Number P5924	Sheet Number 2	Date 02.10.2024
	Issue 002		



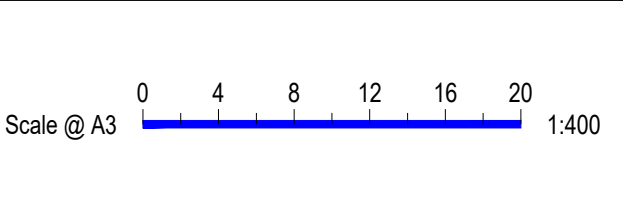


Notes:  
Traffic concept only, civil engineering design elements to be developed as part of wider engineering scope (i.e. stormwater, lighting, retaining wall)



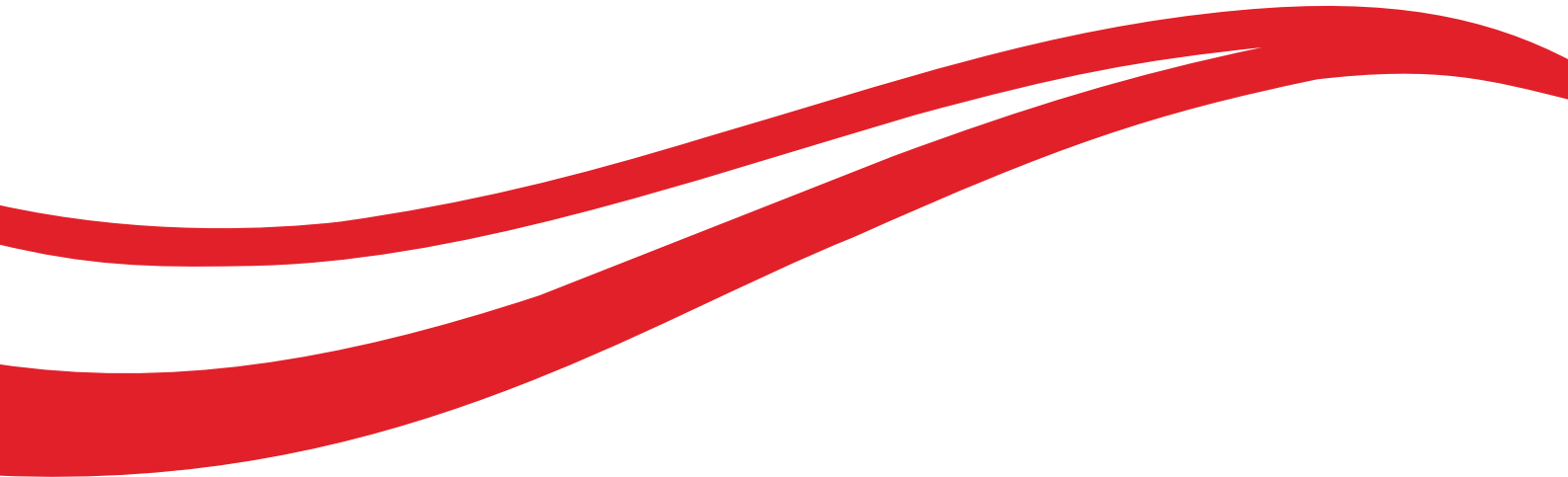
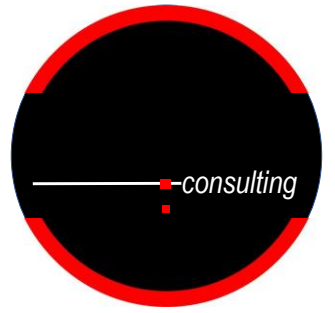
**Gold Coast**  
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226  
P: (07) 5562-5377  
W: [www.bitziosconsulting.com.au](http://www.bitziosconsulting.com.au)  
**Brisbane**  
Level 2, 428 Upper Edward Street, Spring Hill 4000  
P: (07) 3831-4442  
E: [admin@bitziosconsulting.com.au](mailto:admin@bitziosconsulting.com.au)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

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	Gillieston Public School RTA External Works	J.I	16.09.2024
002	Gillieston Public School RTA External Works	J.I	02.10.2024



Project Gillieston Public School RTA and TPS	Design J.I	Drawn J.I	Checked J.BR
	CONCEPT ONLY		
	Project Number P5924	Sheet Number 3	Date 02.10.2024
Title Turning Templates		Issue 002	

## Appendix F: School Travel Plan



# Gillieston Public School

## School Transport Plan



NSW Department of Education

28 May 2025



**Gold Coast**

Suite 26, 58 Riverwalk Avenue  
Robina QLD 4226

P: (07) 5562 5377

**Brisbane**

Level 2, 428 Upper Edward Street  
Spring Hill QLD 4000

P: (07) 3831 4442

**Sydney**

Studio 203, 3 Gladstone Street  
Newtown NSW 2042

P: (02) 9557 6202

**W:** [www.bitziosconsulting.com.au](http://www.bitziosconsulting.com.au)

**E:** [admin@bitziosconsulting.com.au](mailto:admin@bitziosconsulting.com.au)

*Copyright in the information and data in this document is the property of Bitzios Consulting. This document and its information and data is for the use of the authorised recipient and this document may not be used, copied or reproduced in whole or in part for any purpose other than for which it was supplied by Bitzios Consulting. Bitzios Consulting makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or its information and data.*

**Document Issue History**

Report File Name	Prepared	Reviewed	Issued	Date	Issued to
P5924.001 GPS School Transport Plan (DRAFT)	J. Brook /J.Imai	A. Eke	J. Imai	30/09/2024	Zac Casimatis via SharePoint
P5924.002 GPS School Transport Plan	J. Brook /J.Imai	A. Eke	J. Imai	31/10/2024	Zac Casimatis via SharePoint
P5924.003 GPS School Transport Plan	J. Brook /J.Imai	A. Eke	J. Brook	18/11/2024	Zac Casimatis via SharePoint
P5924.004 GPS School Transport Plan	J. Brook /J.Imai	A. Eke	J. Brook	17/01/2025	Zac Casimatis via SharePoint
P5924.005 GPS School Transport Plan	J. Brook /J.Imai	A. Eke	J. Brook	09/05/2025	Zac Casimatis via SharePoint
P5924.005 GPS School Transport Plan	J. Brook /J.Imai	A. Eke	J. Brook	28/05/2025	Zac Casimatis via email

# CONTENTS

	Page
<b>1. INTRODUCTION</b>	<b>1</b>
1.1 Background	1
1.2 About the School Transport Plan	3
<b>2. GPS TRANSPORT INCLUSIONS</b>	<b>4</b>
2.1 GPS Transport Facilities	4
2.2 Catchment Analysis	6
2.3 Transport Mode Share	7
<b>3. TRANSPORT POLICIES, OBJECTIVES AND ACTIONS</b>	<b>8</b>
3.1 Policy and Objectives	8
3.2 Targets	9
3.3 Actions	9
3.3.1 Overview	9
3.3.2 Active and Public Transport	10
3.3.3 Bus Facility Improvements and Bus Operational Plan	12
3.3.4 Operational Transport Management Plan	13
3.3.5 Private Vehicles	14
3.3.6 Communication Initiatives	15
<b>4. MONITOR AND MANAGE TRAVEL DEMAND</b>	<b>18</b>
4.1 Monitor School Travel Plan	18
<b>5. FUNDING ARRANGEMENTS</b>	<b>19</b>
5.1 Potential Funding Opportunities	19

## Tables

Table 3.1: Transport Objectives

Table 3.2: GPS Mode Share Targets

## Figures

Figure 1.1: Cadastral Map (Source: NSW Spatial Viewer, 2024)

Figure 1.2: Site Aerial Map (Source: Near Map, 2024)

Figure 1.3: STP Methodology

Figure 2.1: Existing School Bus Routes

Figure 2.2: Student Catchment Analysis

Figure 2.3: Student Travel Mode Share

Figure 3.1: Regional NSW Mode Share Targets

Figure 3.2: Example of Scooter/Skateboard Parking Facilities

Figure 3.3: Active Transport Infrastructure Upgrade

Figure 3.4: Transport Access Guide – Example





# 1. INTRODUCTION

## 1.1 Background

The Gillieston Public School have been identified by the NSW Department of Education (DoE) as requiring redevelopment. The proposed Gillieston Public School redevelopment and new public preschool is driven by service need including increase in expected student enrolments and removing demountable structure and replacement with permanent teaching spaces.

The Gillieston Public School redevelopment and new public preschool comprises the following activity:

- Demolition and removal of existing temporary structures.
- Site preparation activities, including demolition, earthworks, tree removal.
- Construction of new:
  - 32 permanent general learning spaces and 3 support teaching spaces
  - Administration and staff hubs
  - Hall, canteen and library
  - Out of school hours care
  - Public preschool (standalone building for 60 places)
  - Covered Outdoor Learning Areas (COLAs)
  - Outdoor play areas, including games courts and yarning circle
  - New at-grade car parking
  - Extension of the existing drop-off / pick-up area and new bus bay
  - Realignment of the existing fencing
  - Associated stormwater infrastructure upgrades
  - Associated landscaping
  - Associated pedestrian and road upgrade activities

The Site is identified as 100 Ryans Road and 19 Northview Street, Gillieston Heights, legally described as Lot 51 DP 1162489 and Lot 2 DP1308605.

The Site is located within the Maitland Local Government Area (LGA) and is zoned RU2 Rural Landscape and R1 General Residential zone under the provisions of the Maitland Local Environmental Plan 2011 (MLEP2011).

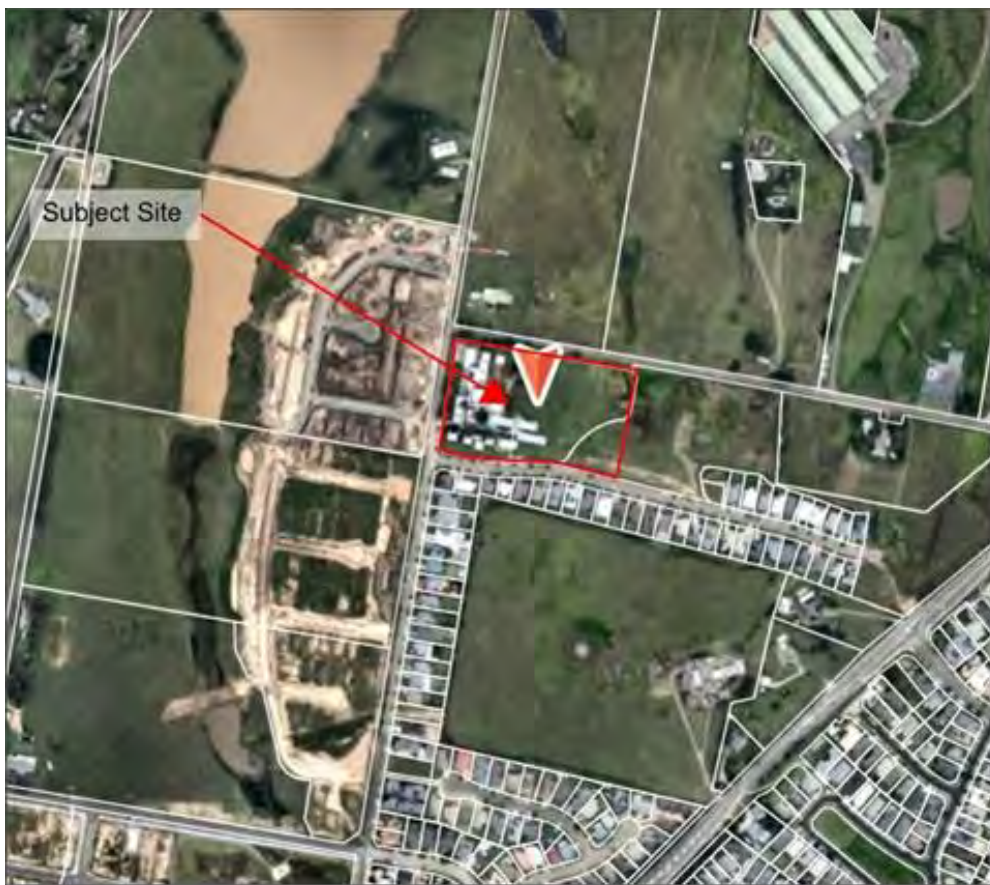
Existing attributes of the subject site are noted as follows:

- The subject site exhibits an area of approximately 23,385m<sup>2</sup> and is located in the suburb of Gillieston Heights
- The subject site has a frontage to Ryans Road to the east, Gillieston Road to the north, and Northview Street to the south
- In its existing state, the subject site comprises the existing Gillieston Public School. Existing school buildings are primarily located in the west portion of the subject site with a large area of open space situated in the eastern portion. There are limited permanent structures located on the subject site with thirteen (13) existing demountable classrooms currently occupying the subject site. Permanent buildings consist of the Main Administration Building, Original Brick Cottage, Library and GLS building located in the centre of the subject site
- Carparking is provided from Gillieston Road for staff. Pedestrian access is available via this main entrance from Gillieston Road and via a separate pedestrian-only access gates on Northview Street and Ryans Road

The existing site context is shown in Figure 1.1 and Figure 1.2 below.



**Figure 1.1: Cadastral Map (Source: NSW Spatial Viewer, 2024)**



**Figure 1.2: Site Aerial Map (Source: Near Map, 2024)**

Bitzios Consulting (Bitzios) has been engaged by the NSW Department of Education to assist with the delivery of an upgrade to the Gillieston Public School (GPS). As part of this upgrade, Bitzios has prepared a School Travel Plan to assess the existing conditions for the subject site and provide a series of measures to promote safe, convenient and sustainable travel to the school GPS.

### Purpose of a School Transport Plan

The School Transport Plan (STP) is a live document that is managed by a school travel coordinator which identifies strategies to increase safe travel to school. The aim being to deliver efficient, safe, and sustainable access to school during the planning, delivery, and operation of school assets.

## 1.2 About the School Transport Plan

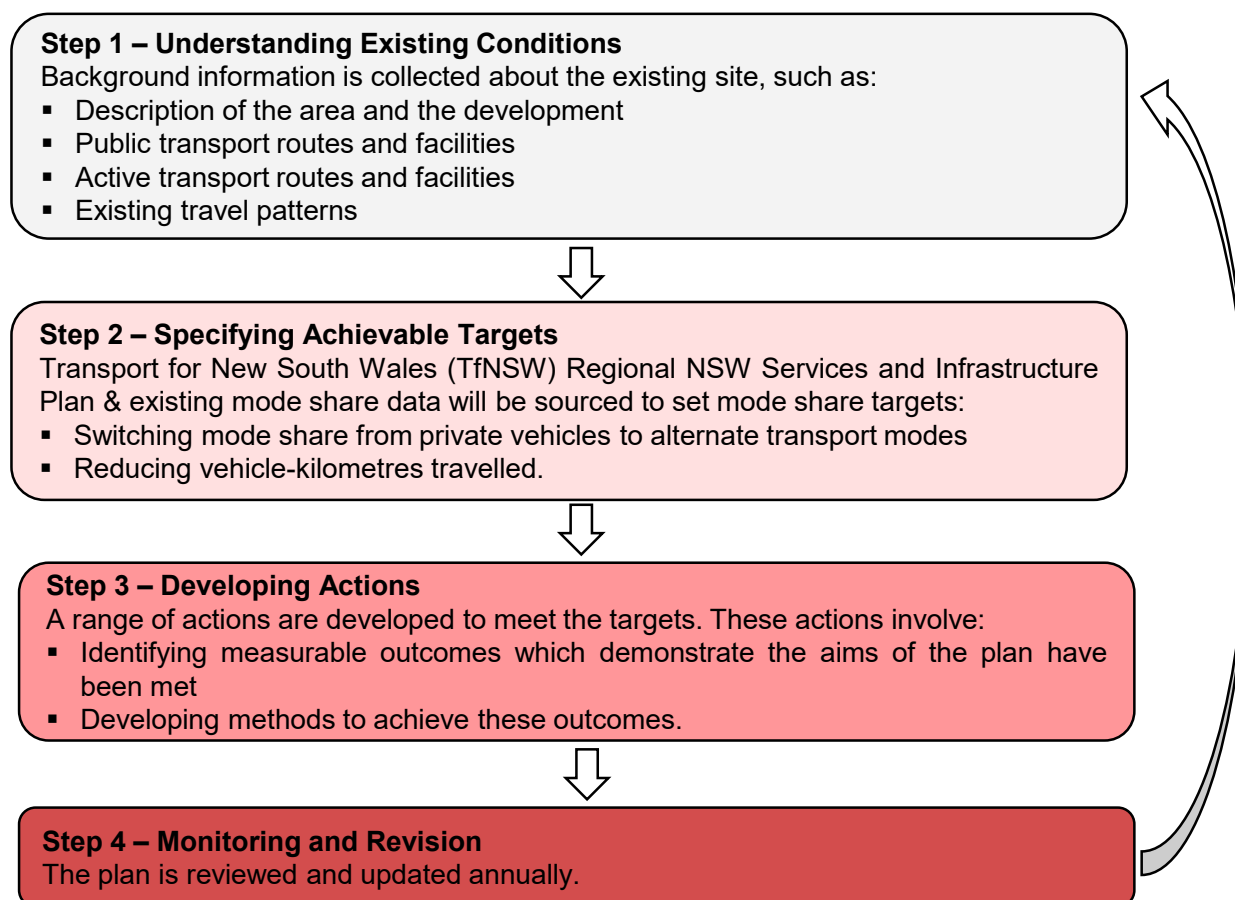
This STP is a document that focusses on details for sustainable travel options to and from the school and proposes strategies to encourage the wider use of alternative transport.

This plan covers:

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

This STP should be reviewed and updated annually to monitor progress towards targets and strategy successes.

The proposed methodology is outlined in Figure 1.3.



**Figure 1.3: STP Methodology**

## 2. GPS TRANSPORT INCLUSIONS

### 2.1 GPS Transport Facilities

The GPS redevelopment seeks to improve facilities and accommodate the growing requirements of the educational providers.

The GPS upgrade project will include facilities for:

- Demolishing select existing structures
- Site preparation works, including demolition, earthworks, tree clearing
- Increased capacity of the School from approximately 339 to 1,012 students and a maximum of 69 staff
- Construction of:
  - 32 general learning spaces and 3 support teaching spaces
  - administration and staff hubs
  - hall, canteen and out of school hours care
  - library
  - public preschool
  - covered Outdoor Learning Areas (COLAs)
  - outdoor play areas, including games courts and yarning circle
  - new at grade parking
  - extension of the existing drop-off / pick-up area and bus bay
  - realignment of the existing fencing
  - associated stormwater infrastructure
  - associated landscaping
  - pedestrian and associated road upgrade activities to adjoining roads.

The pedestrian and vehicle access and parking areas are summarised below:

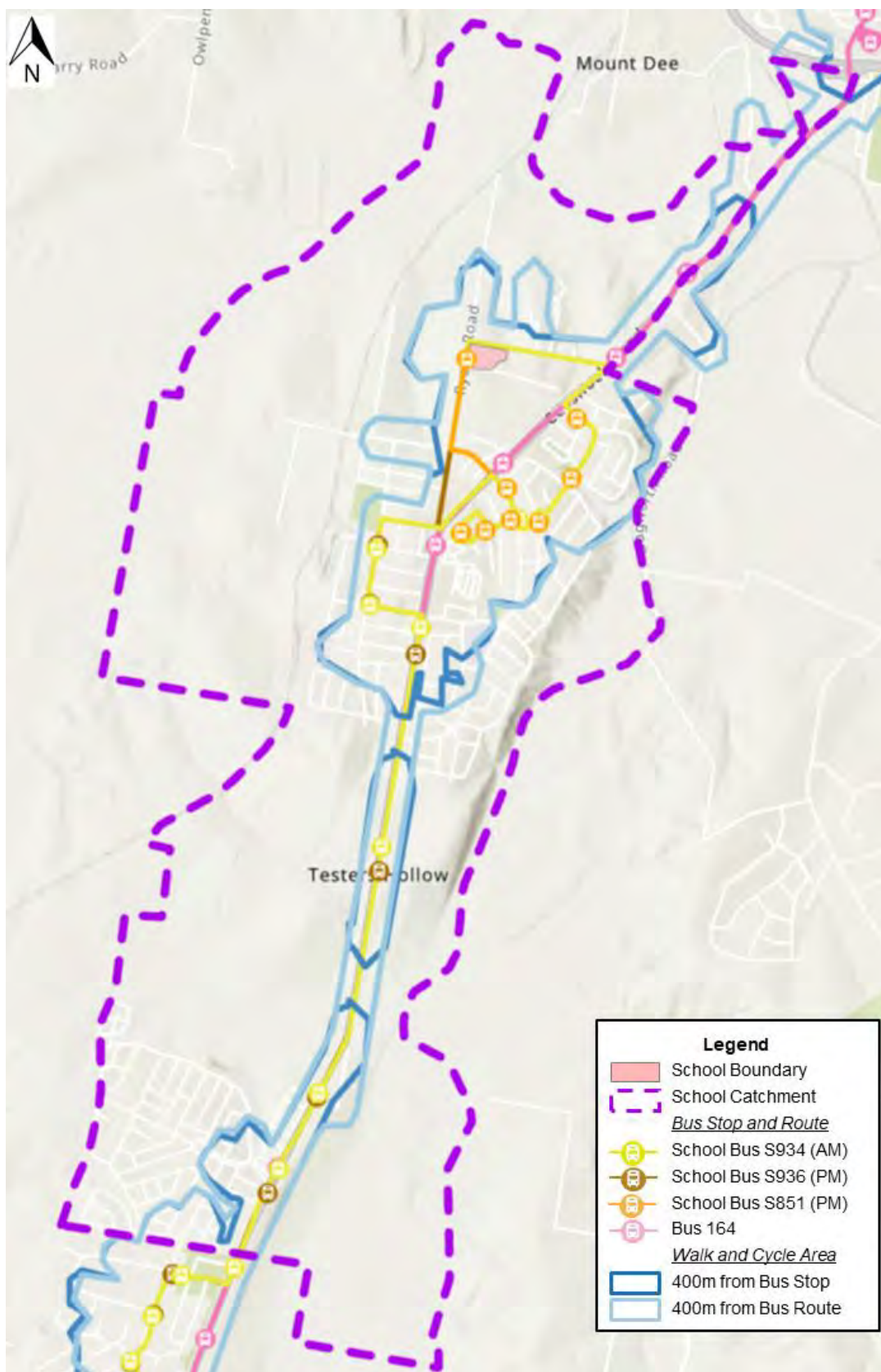
- Pedestrian 'front door' access will be retained on Northview Street but be relocated based on new building locations
- A new vehicular crossover on Gillieston Road to provide access to parking and servicing for the Public School
- A new vehicular crossover on Northview Street to provide access to parking for the pre-school with a temporary Kiss and Drop (KnD) exit connection (before future adjoining subdivision roads occur)
- A KnD facility is proposed to offset the need to provide dedicated parking spaces for student pick-up/drop-off purposes and is accessed via Northview Street. The KnD facility provides four (4) collection bays and queuing space for a further eight (8) vehicles.

The active and public transport considerations are summarised below:

- On-site bicycle parking is provided in a central location in the school
- A network of pathways and crossings provide connections to the surrounding residential areas. There are however some missing pathway links within the wider road network
- Eligible students can receive free or subsidised public transport travel to and from school through the School Student Transport Scheme (SSTS). The scheme is managed in the form of a paper bus pass and eligibility is dependent on the age and distance the student lives from school.

The site is serviced by both public and school bus services. These services are operated by Rover Coaches. Figure 2.1 shows the school bus routes for the GPS.



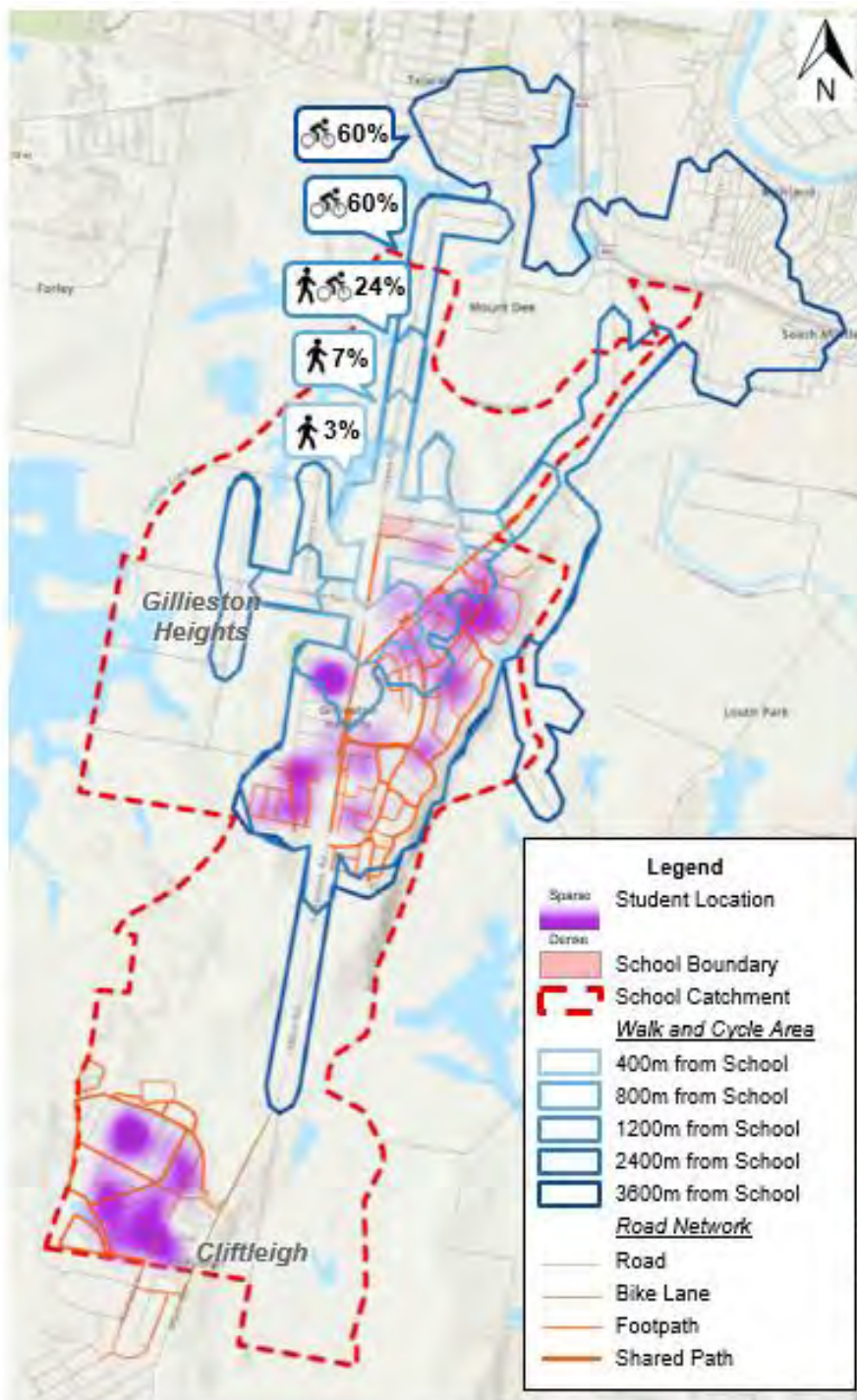


**Figure 2.1: Existing School Bus Routes**

The school bus services operate as hail 'n' ride, allowing students to get on the bus at any location along the route in lieu of bus stop infrastructure. Based on the information provided is noted regarding the bus services, 165 students (56%) live within 400m of an existing bus stop.

## 2.2 Catchment Analysis

Depersonalised student data provided by SINSW was used to determine the number of existing students within the school catchment and the number of existing students within key walk and ride catchments as shown in Figure 2.2.

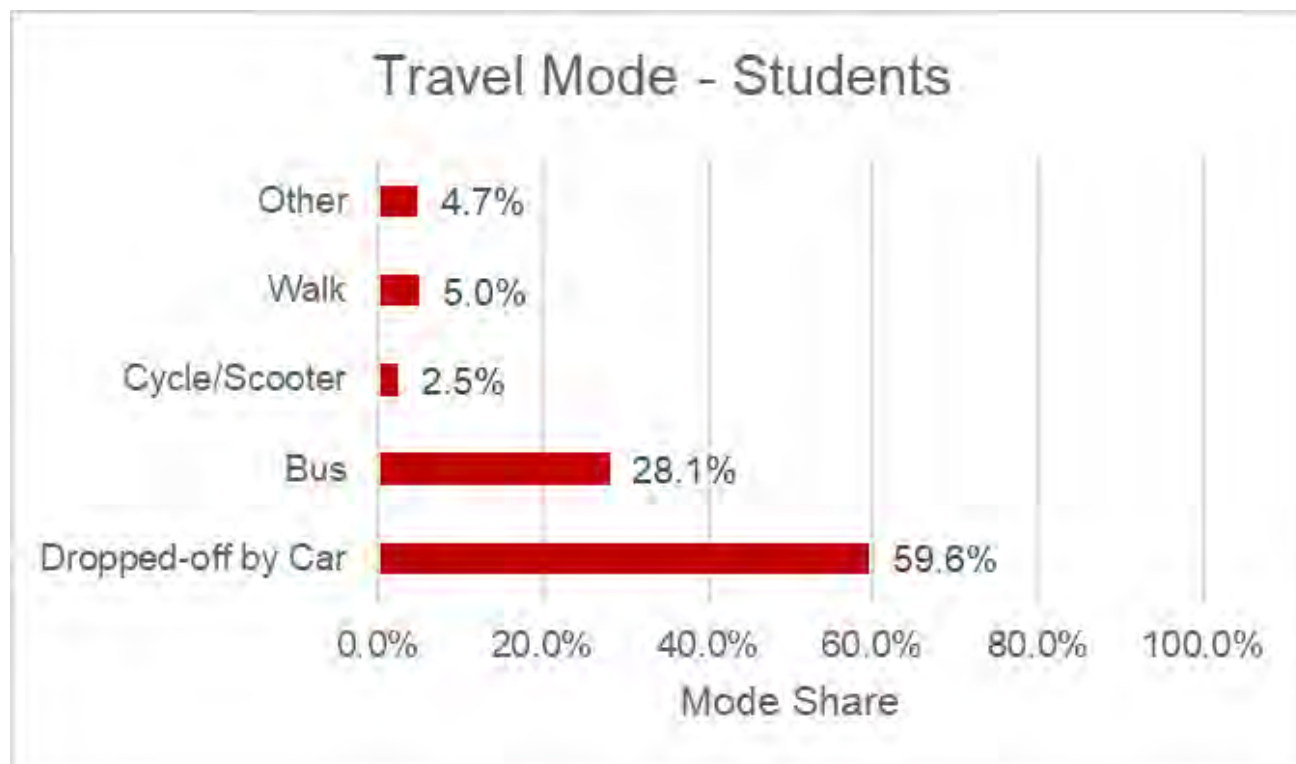


**Figure 2.2: Student Catchment Analysis**

Approximately 24% of students currently live within a 15-minute walking catchment and 60% live with a 15-minute ride catchment. It is noted the majority of student growth will be within the walk and cycle catchment, so the percentage of students able to walk/cycle will only increase over time.

## 2.3 Transport Mode Share

A student travel mode share survey was undertaken to determine the existing travel behaviours. The mode share split of students is provided in Figure 2.3.



**Figure 2.3: Student Travel Mode Share**

As shown, the bus mode share is generally well used by students and is anticipated to increase with the activity, which includes improvements to bus operations through providing a new covered waiting/marshalling area in close proximity to the school's bus stop. This may support further increases in bus travel by making accessing this mode of travel easier and more comfortable. New operational arrangements may need to be facilitated through a Bus Operational Plan.

Active transport participation, particularly walking cycling, are also likely to increase given the residential activity occurring within the surrounding area that are within the walk/cycle catchment.

Information received from the school staff indicated that all staff travel to the site by car and there is limited alternate transport participation. Unlike students, staff are not employed based on their place of residence and do not have to live within the school's enrolment catchment. In turn, there may be no other transport options available for the entire trip from home to work and alternate modes of transport are not convenient. Based on listed staff home suburbs there is the potential to reduce car travel/parking demands through promoting carpooling.



# 3. TRANSPORT POLICIES, OBJECTIVES AND ACTIONS

## 3.1 Policy and Objectives

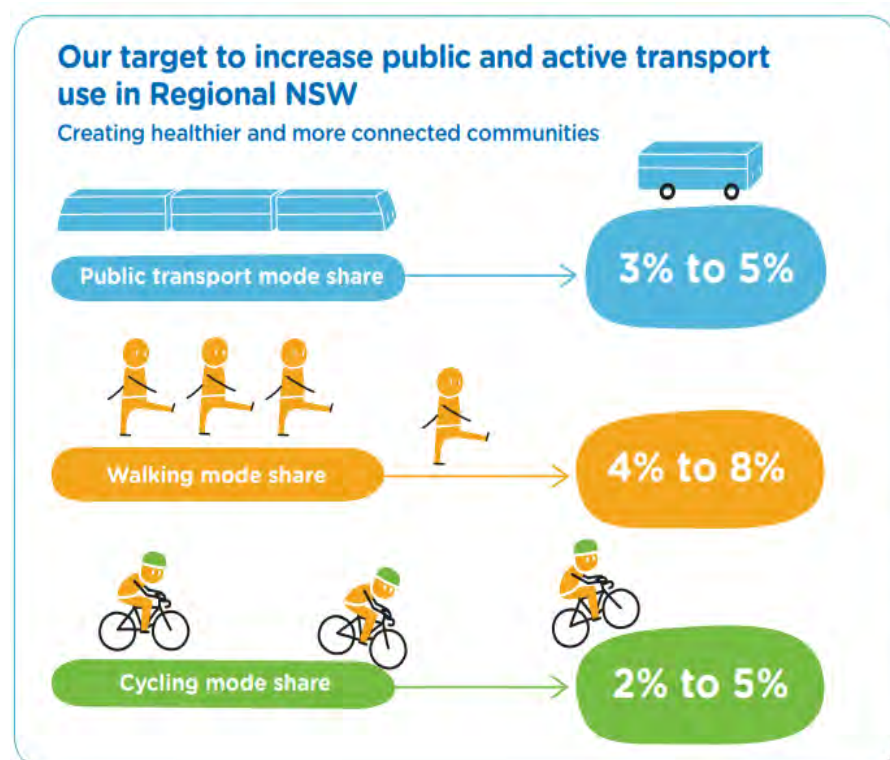
The overarching transport policy for the GPS is to “*improve pedestrian and student safety*”. This will seek to increase participation in alternate transport modes, namely public and active transport, and increase daily physical activity which has a strong correlation to improved education results.

The SINSW STP *Practice Note* was used to adopt objectives specifically relevant for BHS and will drive the direction of the STP.

The 4 key pillars and objectives for school travel is summarised in Table 3.1.

**Table 3.1: Transport Objectives**

Safe	Efficient	Sustainable	Collaborative
To minimise pedestrian and vehicle conflict	To reduce local traffic congestion and parking impacts	To increase sustainable transport mode share to school	To identify opportunities to work with state and local government transport agencies
To identify and implement new transport and safety measures as required	To ensure required infrastructure and operations are delivered prior to occupancy	To minimise car parking and kiss'n'drop provision on site To integrate the school transport facilities within the nearby community	To share identified travel demand and transport opportunities early in the process



Source: Regional NSW Services and Infrastructure Plan

**Figure 3.1: Regional NSW Mode Share Targets**

## 3.2 Targets

The mode share targets for GPS have been developed considering the transport targets from the *Regional NSW Services and Infrastructure Plan* (2018), existing staff and student travel mode surveys, and the school catchment analysis. It is noted the staff mode share targets more relate to the regional targets and the student mode share targets have been derived from the catchment analysis. That is, mode shares targets are derived from the number of students forecasted to live within a walking catchment and within the cycling and bus catchments.

Table 3.2 details the future mode share targets for GPS.

**Table 3.2: GPS Mode Share Targets**

Travel Mode	Existing Mode Share (2023)	STP Mode Share Targets (2026 + 2036)		Change	
Staff					
Private Vehicle	99%	92%	82%	-7%%	-17%
Car Pooling	1%	5%	10%	+4%	+9%
Walking	-	2%	8%	+2%	+8%
Cycling	-	2%	5%	+2%	+5%
Bus	-	3%	5%	+3%	+5%
Student					
Private Vehicle	59.6%	50%	45%	-10%	-15%
Walking	5%	7%	8%	+2%	+3%
Cycling/Scooter	2.5%	6%	8%	+3.5%	+6%
Bus	28.1%	32%	35%	+4%	+7%
Other*	5%	5%		-	

\*Other accounts for students travelling to/from school by outside of school car van/bus

## 3.3 Actions

### 3.3.1 Overview

Several actions proposed to achieve the transport objectives and mode share targets are provided below. There is likely to be other actions not mentioned in this document that could be implemented to achieve the transport objective.

As this document is intended to be 'live' and updated regularly, it is recommended that these actions be introduced at any time.



## 3.3.2 Active and Public Transport

### 3.3.2.1 Student and Staff Bicycle/Scooter Parking

Bicycle/scooter/skateboard parking infrastructure for students is required to further encourage a modal shift away from private vehicles. Existing bicycle parking is provided on-site within a central location, and scooters are stored in a dedicated room within the school. In aiming to achieve the mode share targets outlined in Section 3.2, it is recommended consideration be given to additional dedicated storage for active transport, especially for scooter/skateboards to provide a minimum of 5 cycle/scooter parking racks.

In addition to student bicycle parking, it is recommended that staff bicycle parking spaces and end of trip facilities be implemented to cater for the potential cycle demand. Cycling routes and information should also be provided to staff, students, and parents to promote the use of additional bicycle parking facilities. The staff and student bicycle parking facilities should be provided in separate locations.

#### Monitor and Review

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

Gain student and staff feedback on cycling/scooting and its facilities in an annual travel mode survey.



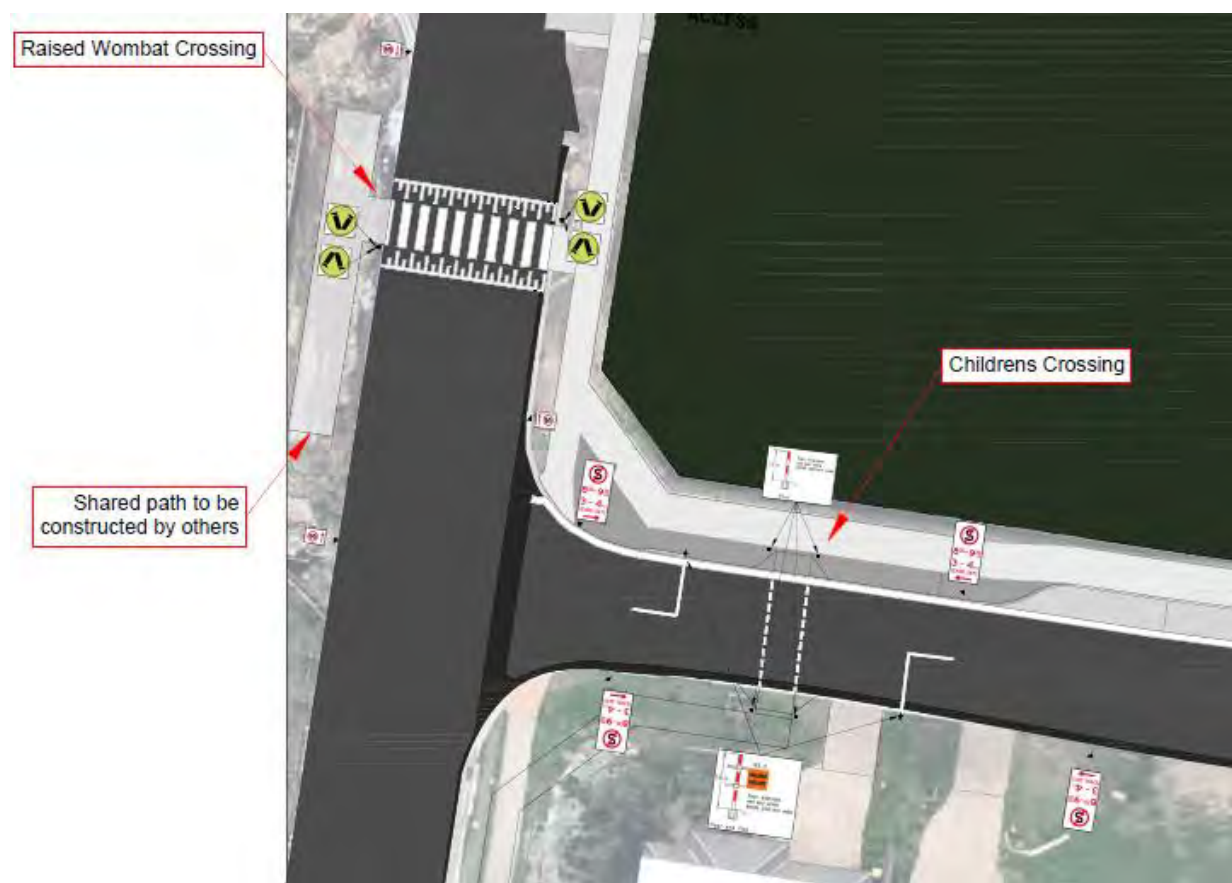
**Figure 3.2:** Example of Scooter/Skateboard Parking Facilities

### 3.3.2.2 Pathway and Crossing Facilities

The project proposes the following crossings upgrades:

- Provision of a wombat crossing on Ryan Road
- Provision of a children's crossing on Northview Street.

A footpath along the school site's frontage on Gillieston Road will also be provided in vicinity of the school bus stop and staff car park driveway.



**Figure 3.3: Active Transport Infrastructure Upgrade**

Activities are also being progressed (by others) to provide a shared path on the western side of Ryans Road and between Ryans Road and Cessnock Road.

In addition, there are potential other wider upgrades that would benefit both the school and wider community. Work is continuing in coordination with Maitland Council (Council) on pathways and crossing facilities surrounding the GPS to ensure connections meet the needs of the community and provide safe and convenient pathway connections for all type of users. This would include:

- A review of the post-opening state to record pedestrian and cycle/scooter movements surrounding GPS
- Identification of any new or unforeseen pedestrian desire lines as a result of the GPS upgrade and other nearby Council projects
- Identification of any barriers that inhibit safe travel by walking or cycling
- Recommend improvements to the active transport network to be incorporated into Council's active transport plan.

**Aim:**

- Encourage all users to engage in active travel by walking or cycling to/from the surrounding areas
- Reduce reliance on private vehicle usage, particularly for shorter local based trips.

**Development:**

- Review and record the condition and use of active transport network surrounding the site
- Identify treatments than can be incorporated into future activity plans or programs.

**Measure:**

- Outcomes from active transport review and travel surveys.

**Timing:**

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

**Monitor and Review**

It is recommended that the usage of these additional facilities and any other key desire line are monitored by supervising staff and in an annual mode share survey as discussed in Section 4.

**3.3.3 Bus Facility Improvements and Bus Operational Plan**

With the proposed school upgrades there is an opportunity to improve bus operations through reduced dwell times with the proposed new building providing a more convenient and direct student bus passenger marshalling area.

It is recommended that Bus Operational Plan and working group be formed and should be responsible for the facilities and operational planning ready for day-of-opening of the upgrade.

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

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

- Develop a Bus Operations Plan as part of a wider Operational Transport Management Plan (OTMP) and Reference Guide
- Bus Service information to be included on TfNSW's Journey Planner for all service providers
- GPS as well as public interface improvements via the School's and TfNSW's website
- Investigations in consultations with TfNSW and Council.

**Monitor and Review**

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

### 3.3.4 Operational Transport Management Plan

The implementation of an Operational Transport Management Plan (OTMP) is recommended to ensure the safe, efficient, and coordinated management of all school transport operations, particularly during peak drop-off and pick-up periods. The OTMP will outline clear procedures and responsibilities for the operation of the Kiss n Drop (KnD) facility, bus zones, staff and visitor parking, and pedestrian access points.

Key elements of the OTMP should include:

- Defined roles and responsibilities for school staff supervising transport operations, including the Kiss n Drop and pedestrian crossings.
- Procedures for the safe and efficient movement of vehicles through the KnD facility, including queue management, signage, and communication with parents and carers.
- Supervision protocols for student arrival and departure, ensuring students use designated access points and travel routes.
- Coordination with bus operators to manage bus arrivals and departures, and to ensure safe student movement between the school and bus bay.
- Communication strategies to inform parents, carers, and staff of transport procedures, including maps and guidelines for safe use of the KnD and parking areas.
- Monitoring and review processes to assess the effectiveness of the OTMP, including regular feedback from staff, parents, and the school community, and updates as required.

#### **Aim:**

- To provide a safe and orderly environment for all school transport activities.
- To minimise congestion and queuing on surrounding roads during peak periods.
- To support the school's broader objectives for safe and sustainable travel.

#### **Measure:**

- Monitor the effectiveness of the OTMP through annual travel surveys, staff feedback, and incident reporting.
- Review queue lengths and traffic flow during peak periods to identify any operational issues. Consider implementing management/mitigation measures if issues occur such as:
  - Early releases for students to facilitate walking and cycling to school to promote active transportation, reduce potential for pedestrian-vehicle conflicts and reduce congestion/queuing around intersections associated with peak or staggered crossing demands coinciding with peak vehicle arrival times
  - Implement surname-based pick-up windows for the KnD to stage and stagger peak demands
  - Staggering of bell times between the school and pre-school to manage peak demands/conflicts at the driveway interface
  - Further targeted communication and education materials to parents/carers on use of the KnD and Park n Walk options nearby.

#### **Timing:**

- Develop and implement the OTMP prior to the opening of the redeveloped school facilities.
- Review and update the OTMP annually, or as required based on operational experience and feedback.



### 3.3.5 Private Vehicles

#### 3.3.5.1 Staff Carpooling Initiative

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

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

As part of the carpooling initiative the following is recommended to be incorporated:

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

#### **Aim:**

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

#### **Measure:**

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

#### **Timing:**

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



### 3.3.6 Communication Initiatives

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

#### 3.3.6.1 Transport Access Guide

Provide all staff and students (including parents and guardians) with a Transport Access Guide information map. The map should also be available for staff, visitors and students to the GPS. The map should display information on public transport routes, bus stops, timetable, active transport infrastructure, and community transport providers, as well as referral for further information and related websites and smartphone applications.

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

Transport Access Guide information is to be clearly available to staff, patients and visitors via a variety of means, including:

- Workforce handbook and induction
- Travel access guide online

#### Aim:

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

#### Measure:

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

#### Timing:

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



**Figure 3.4: Transport Access Guide – Example**

### 3.3.6.2 Travel Plan Actions

The alternate transport initiatives provided by STP shall be clearly available particularly for staff. This should include location of on-site bicycle parking and end-of-trip facilities, provision and location of bicycle repair stations, public transport routes that service the GPS site, carpooling initiatives, healthy habits initiatives and also any additional action, such as the potential for public transport concession card for staff. The active transport, public transport and private vehicle existing mode share and mode share goals should also be available.

Transport Access Guide information to be clearly available to staff, patients and visitors via a variety of means, including:

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

#### Measure:

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

#### Measure:

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

#### Timing:

- Commence upon opening and monitor annually.

### 3.3.6.3 Healthy Habits Initiatives

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

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

#### **Aim:**

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

#### **Measure:**

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

#### **Timing:**

- Commence upon opening and monitor annually.

## 4. MONITOR AND MANAGE TRAVEL DEMAND

### 4.1 Monitor School Travel Plan

An annual student and staff travel mode share survey undertaken by the School Travel Coordinator should be implemented to collect current data and assist in decision making. This data can be compared against the mode share targets identified in Section 3.2. The STP can be updated to align with the results of the mode share survey and potentially include additional actions. The annual student and staff travel mode share survey aims to gain feedback and provide realistic actions targeted specifically for GPS staff and students.

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

It is noted Council does not currently have a Bike Plan and could be beneficial in implementing strategies for the region and the school. The School Travel Coordinator will be required to submit progress reports to the Department of Planning, Infrastructure and Environment.

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

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

# 5. FUNDING ARRANGEMENTS

## 5.1 Potential Funding Opportunities

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

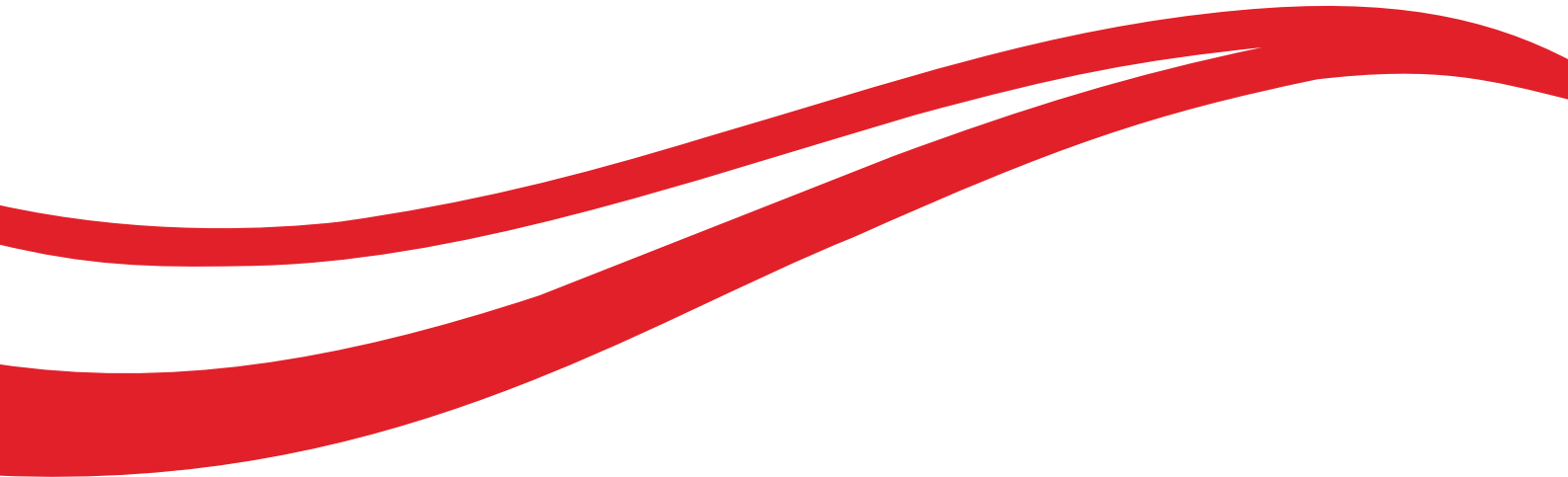
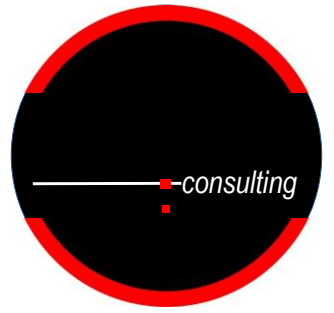
- SINSW Infrastructure Programs
- Collaborations with other State Government departments (e.g. TfNSW's Get Active grants and road safety improvements)
- Contributions and targeted infrastructure provided by other developments in the area
- Council's contributions retained from surrounding developments for transport and roads
- Planning Agreements
- Cycleway grants
- Commonwealth Government grants.

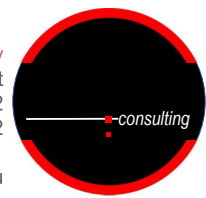
SI-NSW seeks to work proactively and collaboratively with both GPS and Council in promoting sustainable school travel outcomes. This includes the continued and ongoing implementation of improved transport infrastructure and operational policies and programs to meet the specific needs of the school.





## Appendix G: Response to Submissions Traffic Letter





Our reference: P5924.002L

**9 May 2025**

NSW School Infrastructure  
C/- Johnstaff  
Level 5, 9 Castlereagh Street  
Sydney NSW 2000

Attention: **Jason Ayoub**

Sent via email: [jason.ayoub@johnstaff.com.au](mailto:jason.ayoub@johnstaff.com.au)

Dear Jason

**RE: GILLIESTON PUBLIC SCHOOL REDEVELOPMENT - TRANSPORT RESPONSE TO SUBMISSION FORM MAITLAND CITY COUNCIL**

Bitzios Consulting has been engaged by NSW Department of Education's, School Infrastructure (SI), to undertake a Traffic and Transport Impact Assessment (TTIA) for the proposed Gillieston Public School (GPS) redevelopment and new public preschool.

Following submission of the Review of Environmental Factors (REF), stakeholder comments were received from Maitland City Council (Council) in regard to the external transport infrastructure needs in proximity to the school site. This Technical Memo has been prepared in response to submission received from Council regarding external transport infrastructure upgrades in proximity to the school site and relevance to the proposed school project.

Below provides a summary of the transport context of the project to the surrounding urban release area growth, Council's road planning and proposed infrastructure to support the project. Further responses to Council's items are provided in **Attachment 1**.

**1. Background Traffic Growth and Context to School Redevelopment**

The redevelopment of the GPS and new public preschool is in response to the Gillieston Heights urban release area (URA) and significant residential growth in the region. Traffic generation and analysis was undertaken considering the existing road network and future developments across the region. Based on advice from TfNSW as part of the current MR195 corridor study, traffic growth is projected to be around 3% out to 2036 based on development projects in the area. This will result in a range of transport upgrades across both the state and local road network in coming years.

The existing established primary school is located at the northern extent of the urban release area and school catchment as outlined in Figure 1.1 with a significant proportion of future school catchment located within the walking and cycling catchment to the school. In addition, bus routes adequately service the school catchment, with Cessnock Road projected to exhibit significant traffic growth associated with large scale urban growth in the region.

Without this proposed school upgrade, it is clear that traffic growth in this immediate area surrounding the school would still occur as a direct result of the Gillieston Heights URA. In addition, if the GPS were not upgraded or expanded in its enrolment capacity to service the area, school-related trips would still be generated by the Gillieston Heights URA in this vicinity and travel to other locations further afield from Gillieston Heights. On this basis, a significant proportion of the student growth will be within the surrounding walk and cycle catchment of the school, supporting local and state government goals of reduced car dependence.

## 2. Defining Appropriate Impacts and Upgrades

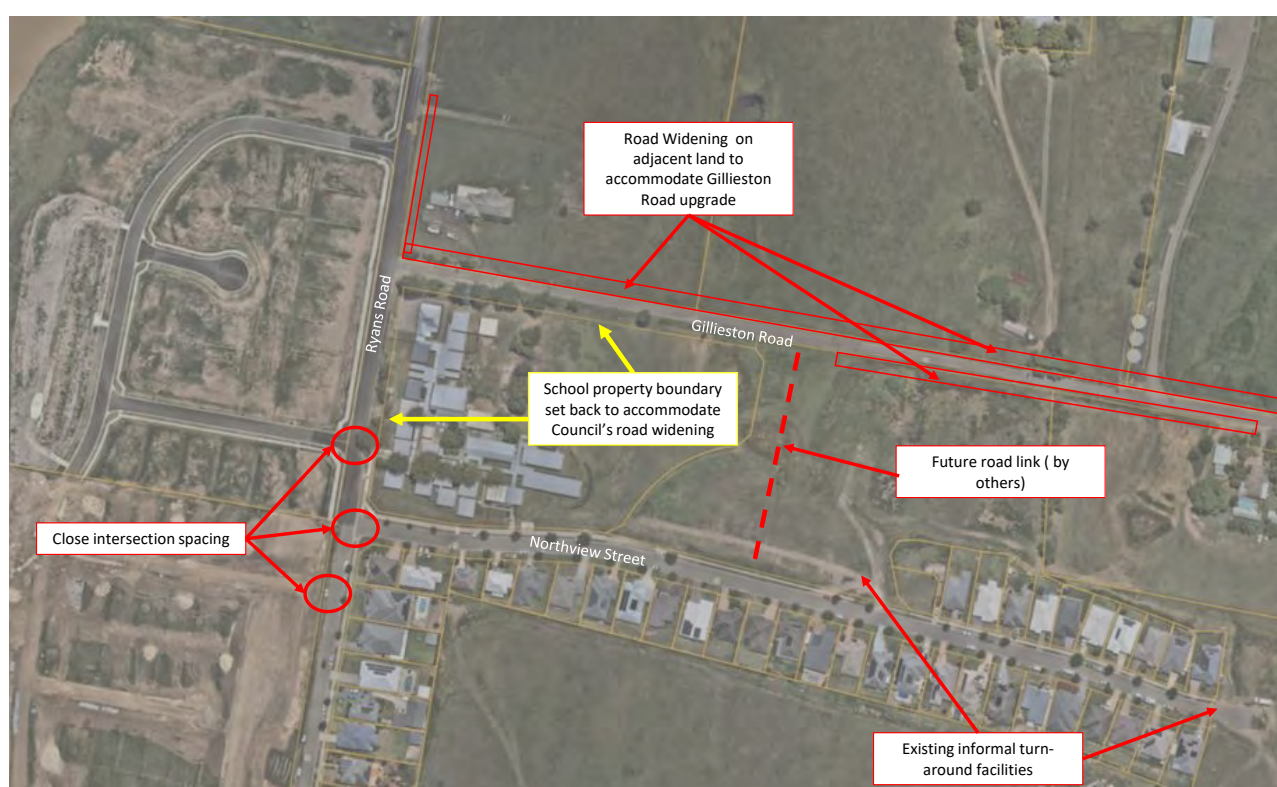
The residential developments surrounding the school are being progressively developed. In response to this growth, Council has identified planned road forms for Gillieston Road and Ryans Road to be of a Collector Street standard. Ryans Road has progressively been upgraded, with recent widening occurring on the western side of Ryan Road near the school.

Traffic impacts have been assessed at the surrounding intersections and found the proposed school redevelopment would have a negligible impact on intersection performance when compared to the overall impacts of background growth in the area. In determining the appropriate transport infrastructure upgrades that can be constructed now associated with the redevelopment, the assessment outlines a series of factors that were considered as outlined in below and in Figure 2.1, including a series of current deficiencies in recently constructed infrastructure that impacts the current school operations:

- **Ryans Road Form and Intersections:** Council's planning and recent approved intersections along Ryan Road impacts the school's existing transport solution. This includes closely spaced intersections on both side of Ryans Road including directly opposite the existing school bus stop. As a result, the recently constructed intersection forms do not provide adequate space or road reserve to construct turning lanes and are expected to result in "queue back" influencing adjacent intersections.
- **Northview Street / Ryans Road:** Northview Street intersection which accommodate the existing school entry Northview Street is the only location where the Kiss n Drop facility can be provided based on the surrounding road hierarchy and recent upgrades by others. As outlined above, it is important to note this intersection form and ability to consider any mitigations have

been limited by Council previously approving closely spaced intersections nearby on the western side of Ryans Road. Ultimately, Northview Street will be connected to Gillieston Road to the east of the school, which will provide a viable exit route from the KnD facility and remove the need for turn-around facilities to be provided.

- **Ryans Road / Gillieston Road:** Increased school traffic at this intersection will be limited given much of the student catchment is to the south, existing and future bus movements will continue to turn left at this intersection out of Gillieston Road onto Ryans Road with minimal impedance. The future development on the northern leg of the intersection is also likely limited. Any future longer-term improvements at this intersection would be subject to widening on the northern side of Gillieston Road on private land not affiliated to this application.
- **Gillieston Road / Cessnock Road:** As outlined above, TfNSW is currently undertaking a corridor study to define a series of upgrades for Cessnock Road. This particular intersection has previously been defined as requiring an upgrade and requires additional land acquisitions from the south-western parcel to deliver a compliant intersection form and alignment. This upgrade is therefore required irrespective of the school expansion and reliant on other parties to deliver.



**Figure 2.1: Recent Road Works and Widening Requirements surrounding the school site.**

### 3. Proposed Transport Facilities

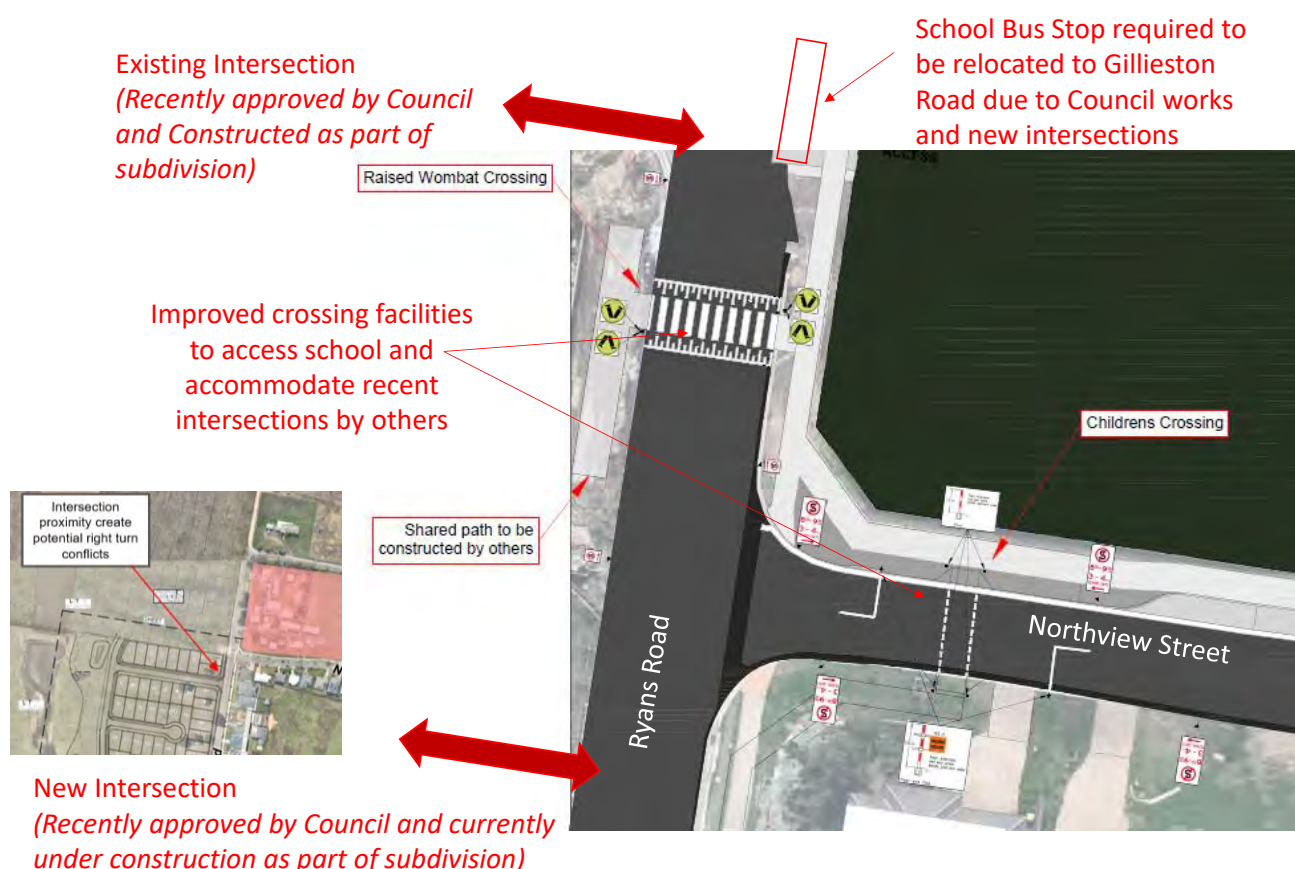
The proposed transport upgrades associated with the school facilities upgrade includes transport directly address the immediate transport needs of the school project to improve traffic, bus and active transport operations and safety for the site. This includes:

- A new pedestrian crossing facility on Ryans Road. This proposed crossing provides a new raised crossing facility for pedestrians travelling to/from the school entrance to the western side of Ryans Road where shared path infrastructure is planned and to be delivered by a residential development currently being constructed
- A new Children's Crossing on Northview Street. The proposed crossing provides an improved crossing facility for pedestrians travelling from the school to/from the south and relocates the existing pram ramps away from the intersection.

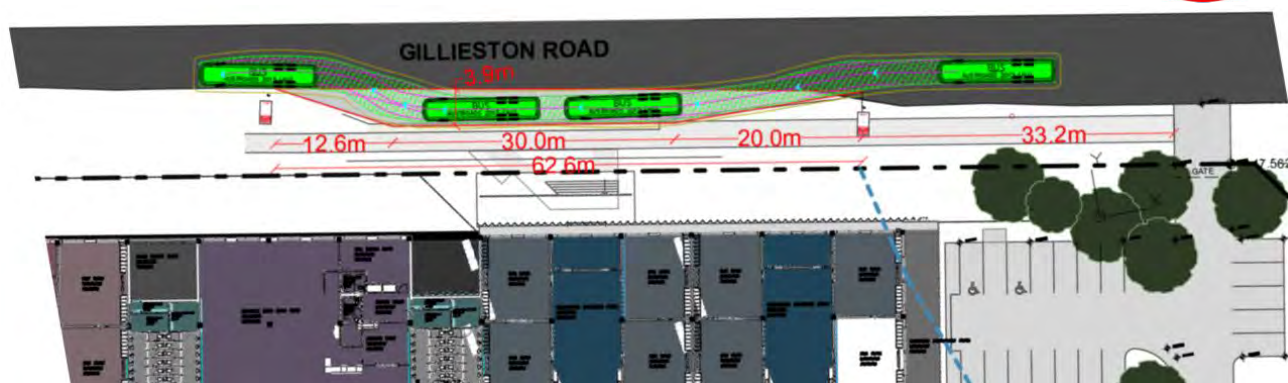


- A new bus bay facility on Gillieston Road with associated pathway infrastructure. The facility provides indented bus bays for two buses and footpath connections in vicinity of the bus bay and the schools driveway to the east. This bus stop location is in response to works recently undertaken on Ryans Road in proximity to the current bus stop location, including new intersections. Pathway connections are provided to the school entry on Gillieston Road and allow for future connections on Gillieston Road as they are constructed by neighbouring developments or as part of Council's road upgrades
- Updates to Northview kerbside parking fronting the site to provide a dedicated Kiss n Drop facility. The new KnD facility is provided as an indented area off Northview Street and improve the existing high-turnover parking arrangement that currently exists at this location. The KnD facility includes 4 KnD bays positioned at the eastern end and can accommodate a total of 130m of queueing including the bays and storage lane on Northview Street. The KnD bays will also allow for visitor parking use between 9:30am – 2:30pm. The KnD facility is to be supported the School Travel Plan (STP) and operational procedures to ensure students, parents/carers and staff utilise the facility safely and efficiently.

In the interim until such time that Northview Avenue is connected to Gillieston Road by a new local road connection ( as part of the neighbouring development), a temporary turnaround facility will be provided to connect the KnD with the site's access driveway to provide a turning facility and remove the need for school vehicles to continue east on Northview Street.



**Figure 3.1: Proposed Pedestrian Crossings**



**Figure 3.2: Proposed School Bus Facility on Gillieston Road**

The proposed new transport facilities meet the needs of the project and the surrounding transport network that will be present in 2026. Beyond the initial transport upgrades associated with the project it is expected that other transport improvements (i.e. pathways, crossings) will be undertaken in response to future residential growth as it occurs in the area and coordinated with other activities (i.e. shared path on the northern side of Gillieston Road). Many of the areas additional upgrades are reliant on development of adjacent land parcels.

It is noted that Council is seeking more substantial road upgrades as part of this project including road widening works along Ryans Road and Gillieston Road to align with their planning and delivery to service the Gillieston URA. As outlined in the TTIA and throughout the Transport Working Groups (TWGs) undertaken through the planning phase of the project, these road upgrades would be required irrespective of the school upgrade project given the existing established nature of the educational establishment on this site or reliant on other developments to deliver.

Yours faithfully



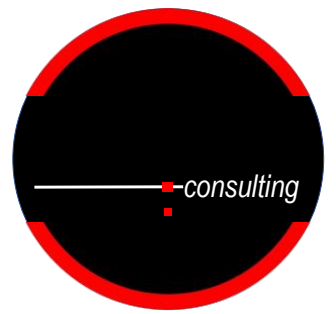
**Andrew Eke**  
**Principal Traffic Engineer / Transport Planner**  
**Manager – Major Projects**  
**BITZIOS CONSULTING**

Attachments:

A: Summary Responses

## Attachment A

### Response to Council Items



**Table 3.1: Traffic Responses to Council Items**

Maitland Council	<p><b>Traffic Report (Cell 1)</b></p> <p>11.1 Numerous supporting studies and the REF states that adjacent greenfield development will provide other road infrastructure improvements and that these improvements will have to consider forecast traffic as a result of the expected changes. It is Councils opinion that where the Department of Education is undertaking development including site intensification and contributing to changes in the area that appropriate improvements should be provided to cater for the forecast traffic associated with this proposal across the frontage of the development site.</p> <p>11.2 This belief is supported by Councils Development Control Plan (DCP) Chapter F.5 for Gillieston Heights Urban Release Area which provides objectives for transport and movement (page 59) that require an interconnected network of streets and paths. The proposal does not provide a simple and safe movement system for private vehicles, public transport, pedestrians and cyclists. The Development Controls for this area are outlined below.</p>	Bitzios	<p><b>Jason Brook (Bitzios):</b></p> <p>The Department of Education is delivering transport infrastructure specifically tailored to the school's operational needs at opening, as detailed in the TTIA (Sections 4.2 and 5.1). These include new pedestrian crossings, a Kiss and Drop zone, and a dedicated bus bay.</p> <p>Council's expectation for wider road upgrades across all frontages overlooks its own prior decisions that allowed subdivision roads (e.g. Northview Street) to be constructed at narrow residential standards immediately adjacent a long-established school site.</p> <p>The TTIA (Sections 2.4 and 7.4) makes clear that background traffic growth is primarily driven by the Gillieston Heights Urban Release Area—not the school. The school is responding to that growth with appropriately scaled upgrades that can be achieved at year-of opening considering the current constructed network and future road linkages and upgrades that are located on property not part of the school site.</p> <p>The school is located at the northern extent of the urban release area and its school catchment, therefore the traffic associated with the school is generally to/from the area south of the Ryans Road and Northview intersection. By 2026, Ryans Road will be generally of an urban road form with widening and upgrades occurring on the western side of the road. An urban road with a kerbside lane with occasional parked vehicles has a capacity of around 600 vehicle per hour per lane and environmental capacity of around 6,000 vehicles per day for a collector street.</p> <p>Increases in school traffic on the northern extent of Ryans Road, Gillieston Road and there roads intersection is therefore limited. Existing and future bus movements will continue to turn left at this intersection out of Gillieston Road onto Ryans Road with minimal impedance and therefore is not the trigger for any pavement widening works.</p> <p>Gillieston Road currently has a pavement which ranges from approximately 5.5m to 7.5m width which allows for two way movement (if on-street parking is restricted). Road cross section upgrades in vicinity of the school site will therefore need to be timed/coordinated to align activity to the north and east of the school. The need for road widening, beyond that for accommodate for a school bus zone, is needed in response future residential development traffic</p>
------------------	--	---------	---

			<p>which is expected to generate in the order of 2,180 additional daily trips split across Gillieston Road and Ryans Road.</p> <p>The proposed new bus zone is fit-for-purpose noting the design of the stop will be a 3.2m wide indented bus bay initially and then form part of kerbside shoulder/lane once wider upgrades to Gillieston Road occur in the future. It is also important to factor based on approved subdivision roads on the western side of Ryans Road and height (level) difference between the road and site there is the need for the existing school bus stop to be relocated to Gillieston Road for safety and DDA compliance.</p> <p>The safe movement of school community is provided for by providing new pedestrian crossings in vicinity of the school's main entry and connecting in which existing and planned shared path infrastructure.</p> <p>The KnD zone design with the indented zone allows for two-way vehicle movement to occur on the street which is not currently possible based on the existing narrow street form approved by Council when accommodating for existing school's pick-up times and any on-street parking demand for residents and their visitors.</p> <p>For year of opening, the proposed school expansion will not rely on frontage works along Ryans Road or Gillieston Road and will provide the necessary infrastructure to support the school and connect to the available road and pathway network at that time. DoE is unable to deliver external roadworks that are located on other properties and will rely on delivery by others.</p>
--	--	--	---



Maitland Council	<p><b>Traffic Report (Cell 2)</b></p> <p>11.3 The REF also refers to planning activity and/or Council undertaking upgrade road works. Road works are not identified within Councils current four-year Capital Works Program. These upgrades are being undertaken by developers as they subdivide and undertake road widening and road construction works adjacent to their own lands.</p> <p>11.4 Reference is also be made to the Maitland Development Control Plan (DCP) Chapter F.5 where it is noted that road widening of Ryans Road and Gillieston Road incorporating paths is identified and proposed as part of the urban release area requirements.</p> <p>Infrastructure Funding Agreements</p> <p>11.5 There are numerous references to required upgrade works being undertaken by others and the availability of funding arrangements to deliver such improvements.</p> <p>11.6 Whilst Council collects funds for the creation of new allotments under the Gillieston Heights Development Contribution Rates for Roads &amp; Traffic Facilities and Cycleways/Shared Paths these contributions are for works that have already been completed (such as the traffic control signals at key intersections to Cessnock Road). There are no remaining infrastructure works identified through the plan for application in proximity to the school.</p> <p>It should be noted that the school development is not contributing to Developer Contributions that other developments are charged. However, there would be no objection to the Department of Education entering into a Planning Agreement to enable delivery of necessary infrastructure to support the development of the school.</p>	Bitzios	<p><b>Jason Brook (Bitzios):</b></p> <p>The TTIA acknowledges current gaps in pedestrian and cycle infrastructure but provides a clear plan for how the school integrates with—and supports—the DCP’s broader movement goals (Sections 2.3 and 5.2).</p> <p>The school’s upgrades are not a standalone fix to area-wide connectivity issues. Rather, they are proportionate improvements that align with Council’s staged delivery approach for Gillieston Heights.</p> <p>Council’s suggestion that the proposal does not support safe or simple movement disregards the proposed design that separates car and bus movements, improves pedestrian safety by constructing new pedestrian crossing, and anticipates future connections that will align with the school’s access strategy and associated (Sections 5.1 and 6.1).</p> <p>Notably, the school is located at the northern end of the Urban Release Catchment and the school’s catchment. The areas requiring pedestrian and cycling access are therefore predominately to the south and west of the school site whereby the two proposed crossings integrates into current and future planned pathway infrastructure.</p> <p>The need and subsequent ability to construct pedestrian facilities and crossings to the north of the site is tied to when future development occurs for which in the short-term and for the school upgrade ‘opening’ there is not the demand to justify the need to construct these facilities.</p> <p>The TTIA notes that DoE should continue to work with Council and TfNSW in opportunities to fund and deliver additional transport infrastructure surrounding the school site to service the Gillieston URA and support sustainable transport options.</p>
------------------	--	---------	--

Maitland Council	<p><b>Traffic Report (Cell 3)</b></p> <p>11.7 Nominated funding arrangements rely heavily on Councils budget allocations, developer contributions and successful grant opportunities. It is recommended that School Infrastructure and Department of Education actively seek funding for delivery of these items rather than rely on others to nominate and/or otherwise fund infrastructure works that are directly attributable to the school.</p> <p>Report Review</p> <p>11.8 The report notes that traffic growth would continue to be generated without the school upgrade but fails to highlight that the school is a key destination hub that generates traffic in the area.</p> <p>11.9 As stated above, the report relies upon others to construct necessary road works. Importantly, the report notes that other transport improvements will be undertaken in response to future residential growth. The report fails to acknowledge the school as a contributor to generation, demand and need.</p> <p>11.10 The following comments relating to specific items are provided:</p> <p>a) 1.2 - Notes a “series of upgrades” and “contributions” towards transport infrastructure to facilitate that all necessary infrastructure fronting the school is to be provided. Please identify where Council has committed to funding and upgrading the road infrastructure requirements associated with Ryans Road and Gillieston Road.</p> <p>b) 2.4 – References Council as undertaking infrastructure upgrades. Road works are not identified within Councils current four-year Capital Works Program.</p> <p>c) 3.2 – Key intersections do not highlight the concerns that will result at Northview Street and Ryans Road and Gillieston Road intersections near the school.</p>	<p><b>Jason Brook (Bitzios):</b></p> <ul style="list-style-type: none"> <li>• 11.7: The TTIA acknowledges the role of Council, TfNSW, and developers in infrastructure delivery and highlights DoE’s planned contributions (bus bay, pedestrian crossings, kiss-n-drop) to be delivered for year-of-opening. The TTIA notes that DoE should continue to work with Council and TfNSW in opportunities to fund and deliver additional transport infrastructure surrounding the school site to service the Gillieston URA and support sustainable transport options.</li> <li>• 11.8-9: The TTIA clearly models school-generated trips and contextualises them against broader URA growth. While traffic is concentrated during peak periods, it is important to note school’s generate limited trips outside of peak times and therefore minimal contributors to daily traffic volumes. The school redevelopment would be estimated to generate in the order of 397 to 527 additional daily trips 2026 and 2036, respectively. Considering the schools catchment and location in an emerging urban release area, daily traffic volumes are therefore a matter that is in response to the urban release area as a whole. Residential developments surrounding the school are expected to progressively be developed between now and 2036 and are expected to generate in the order of 2,180 additional daily trips split across Gillieston Road and Ryans Road. This is in addition to an estimated 452 daily trips generated by existing residential properties in this immediate area surrounding the school that would utilise Ryans Road and/or Gillieston Road. Without the upgrade, trips would still be generated by students traveling elsewhere, often with longer vehicle journeys</li> <li>• 11.10a: The TTIA does not state Council has committed funding</li> <li>• 11.10b: Noted. Works in the area are being undertaken by various parties in response to the Gillieston Heights urban release area.</li> <li>• 11.10C. The TTIA identifies which assessment were and were not assessed and why i.e. Northview/Ryans Road was excluded due to its geometric constraints, limited ability to support turn treatments and minimum upgrade potential due to adjacent subdivision roads layouts approved by Council. The constraints at this intersection as a result of the most recent upgrades (by others and approved by Council) were outlined in the consultation phase.</li> </ul>
------------------	--	---

Maitland Council

#### **Traffic Report (Cell 4)**

- d) 3.3.1 – If the plan is to rely on active transport but suitable connections don't exist, how is this going to work?
- e) 3.3.2 – Three buses are outlined, but there are only two (2) spaces in the lay by. The report continues to avoid responsibility with regards to providing appropriate transport options, specifying that buses are the responsibility of TfNSW.
- f) 3.5 – This section infers that crashes are not attributable to the school. Further comment should be provided to validate this claim. The school directly creates demand for road users in the area.
- g) 4.1 – The assessment should consider the ultimate demand for the development, not just partial enrolment growth out to 10 years.
- h) 4.2 – Kiss and Drop – There is strong objection to the provision of any infrastructure within Northview Street because the road is a cul-de-sac which was never intended to serve as a primary entry to the school. The report then explains that this is due to "...activity occur(ing) in the area". Council notes that the school is the activity that is required to upgrade adjacent road infrastructure to serve its (and the wider community) needs for access.
- i) 5.1 – Notes DDA compliant access is not possible on Ryans Road. Concern is raised as this frontage is the main pedestrian network and access, with enter/exit proposed here. The requirements for ramps does not mean that DDA access cannot be provided, it means that infrastructure is required. Furthermore, the report notes that there is "No space for a bus turn around". It is therefore recommended to construct the road between Northview Street and Gillieston Road.
- j) 5.2 – Road widths can and should be adjusted to accommodate all development needs.
- k) Section 6 – Bus stops – The nominal bus stop

#### **Jason Brook (Bitzios):**

- Item 11.10d) The TTIA (Sections 3.3.1 and 5.2) acknowledges current limitations in active transport infrastructure; however, the school is addressing this through new pedestrian crossings, footpath connections, and travel planning (Appendix F).  
While full active transport connectivity will evolve as the surrounding subdivisions develop, there are clear opportunities for future collaboration between DoE, Council, developers, and TfNSW through shared funding models, Section 7.11 contributions, and state grants (e.g. GetActive NSW). The school's works represent a proportionate and catalytic investment toward broader connectivity goals.  
As highlighted earlier the school is located at the far northern end of the urban release area and its school catchment. Connections for the school community is therefore needed to the south and west of the school. Council planning and subdivisions in the area has designated that shared path infrastructure is to be provided on the western side of Ryans Road which is currently being constructed as part of residential subdivisions. The proposed crossings on Ryans Road and Northview are suitable active transport investments for the generated school community demands and its two peak travel demand times on weekdays. The need for wider active transport infrastructure is infrastructure and amenity is more directly correlated for existing and new local residents in the area.
- Item 11.10e) A two-bus bay layout is operationally appropriate given the staggered arrival times of school services. The operator has endorsed the solution, and TfNSW did not raise any objections to the proposed arrangement through the consultation process.
- Item 11.10f) Crash data indicates incidents did not align with school peak times and are not attributable to school operations. Additionally, broader safety issues—including at Cessnock Road intersections—are being considered by TfNSW through the MR195 corridor study, and are appropriately outside the scope of the school redevelopment.
- Item 11.10g) The TTIA applies standard year of opening and 10-year planning horizon (to 2036) in accordance with TfNSW guidelines.
- Item 11.10h) TTIA Section 8.2.1 explains that Northview Street, while suboptimal, is the only feasible frontage for Kiss and Drop due to surrounding grades, land constraints, and lack of alternate access. Council's own subdivision

configuration does not comply with the State Transit Bus Infrastructure Guide requirements. However, it is noted that the overall provided length of the facility is adequate. However, confirmation is required that the nominal width of 3.2m allows for the provision of a suitably wide travel lane (both sides of the road) for the passage of vehicles along Gillieston Road.

approvals have contributed to these constraints, and the school has responded by implementing a temporary turnaround and upgraded crossings to ensure safety and functionality.

- Item 11.10i) DDA access via Ryans Road is not practically feasible without extensive ramping due to the road grade and elevation change relative to the school site.

Delivering compliant access in this location would require significant spatial reconfiguration, impacting essential school functions such as play space and outdoor learning areas.

These areas are needed to support the student population generated by Council's Urban Release Area approvals. Furthermore, Council approved a new subdivision road directly opposite the existing bus zone, which compromises the ability to safely retain the existing bus infrastructure on Ryans Road. DDA-compliant access is instead prioritised via Gillieston Road, where a new bus bay and pedestrian infrastructure are being delivered.

- Item 11.10j) The school redevelopment does not trigger the need for full road widening. As confirmed in the TTIA (Section 1.3), as these works are not included in Council's capital works plan, the broader upgrades must be delivered in a coordinated manner rather than the current piece meal approach which has resulted in non-compliant intersection spacing on Ryans Road.

- Item 11.10k) The proposed 3.2m-wide bus bay meets relevant Austroads guidance and allows for safe operations to service the school. As noted in TTIA Section 6.1, it is designed to transition into Council's future cross-section and will ultimately function as part of the widened road shoulder once Gillieston Road is upgraded in the future.

Maitland Council

### **Traffic Report (Cell 8)**

11.14 The report suggests only two buses will be stopped at the bus bay at any one time. There is no further detail to suggest this is appropriate or sufficient. Where will any additional buses wait for pick up?

11.15 Any works within the road reserve require approval under Section 138 of the Roads Act, with the application to be submitted to Council for review and approval.

11.16 The location of the proposed Wombat Crossing and Children's Crossing shall be consulted with Council's Traffic department.

11.17 The proposed Kiss n drop facility with temporary U-turn facility is unsafe, as cars need to cross a pedestrian path twice in order to make a U-turn. This also interacts with the proposed southern carpark driveway entry/exit. During peak times the operation of this will impact traffic flow within Northview Street.

11.18 Northview Street is a cul-de-sac and aligns with the concept of a yield street with low value given to both movement and place considerations. The inclusion of Northview Street as part of the school development strategy will require widening of Northview Street in accordance with Councils Manual of Engineering Standards to provide for sufficient travel lanes and parking allowances to supplement the schools traffic demands. Furthermore, the use of Northview Street should not be considered unless sufficient attention is given to issues associated with vehicle circulation.

11.19 Any upgrades required to facilitate the expansion of the school at the Cessnock Road/Gillieston Road intersection and/or Cessnock Road/Vintage Drive intersection will be determined by TfNSW.

### **Jason Brook (Bitzios):**

- 11.14) A two-bus bay layout is operationally appropriate given the staggered arrival times of school services. Key operational considerations include timetabling of buses to avoid concreting arrival of multiple buses at the same time and that local buses drivers/operators typically coordinate arrival and departure sequences and using real time tracking. The operator has endorsed the solution, and TfNSW did not raise any objections to the proposed arrangement through the consultation process.
- 11.15) Yes and is noted public realm works is post REF and part of Section 138
- 11.16) Yes will be done as part of Section 138 process however as noted earlier the location of this crossing facility is limited by the closely spaces intersection that have been approved by Council as part of recent subdivisions on the western side of Ryans Road.
- 11.17) Council was party to the workshop discussions which reviewed several options for the KnD facility and discussed the operational requirements for KnD, parking and pedestrians during pick-up/drop-off periods. This also included detailed investigations of on-site KnD facilities and turn-around facilities which were not deemed viable. In lieu of the proposed KnD facility and interim turn-around facility. The conventional approached would be to retain the current operation of using Council's temporary cul-de-sac at the eastern extent of Northview Street until such time that Northview Street is extended or new road connections to Gillieston Road are provided (by others).
- 11.18) Refer to earlier responses and Council not considering the existing school operations when approving subdivision road and Northview Street in its original form. The DoE proposed works are an improvement to the current deficiencies on Northview Street including formalising parking and pathways along the school's frontage. The temporary turn-around facility was workshopped with Council
- 11.19) Noted. As per the TTIA traffic generated by the school and impact on state intersections is limited compared to the overall background traffic growth attributed to the greater Gillieston URA.



**Gold Coast**

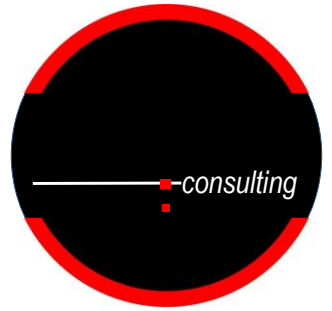
Suite 26, 58 Riverwalk Avenue  
Robina QLD 4226  
P: (07) 5562 5377

**Brisbane**

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

**Sydney**

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



**W:** [www.bitziosconsulting.com.au](http://www.bitziosconsulting.com.au)

**E:** [admin@bitziosconsulting.com.au](mailto:admin@bitziosconsulting.com.au)