APPENDIX E

TRANSPORT IMPACT ASSESSMENT

PROPOSED BUSINESS PARK DEVELOPMENT
2 REDDALL STREET, YASS

Transport Impact Assessment

24 April 2025

Proposed Business Park Development
2 Reddall Street, Yass

Genium Civil Engineering Pty Ltd – Transport Impact Assessment

Client: WFE Unit Trust

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1. Introduction

1.1 Background

The subject site known as Lot 4 DP255064 (2 Reddall Street, Yass) is located on the northern extremity of Yass township and has frontage to Reddall Street, adjacent to Laidlaw Street as shown in Figure 1 below:

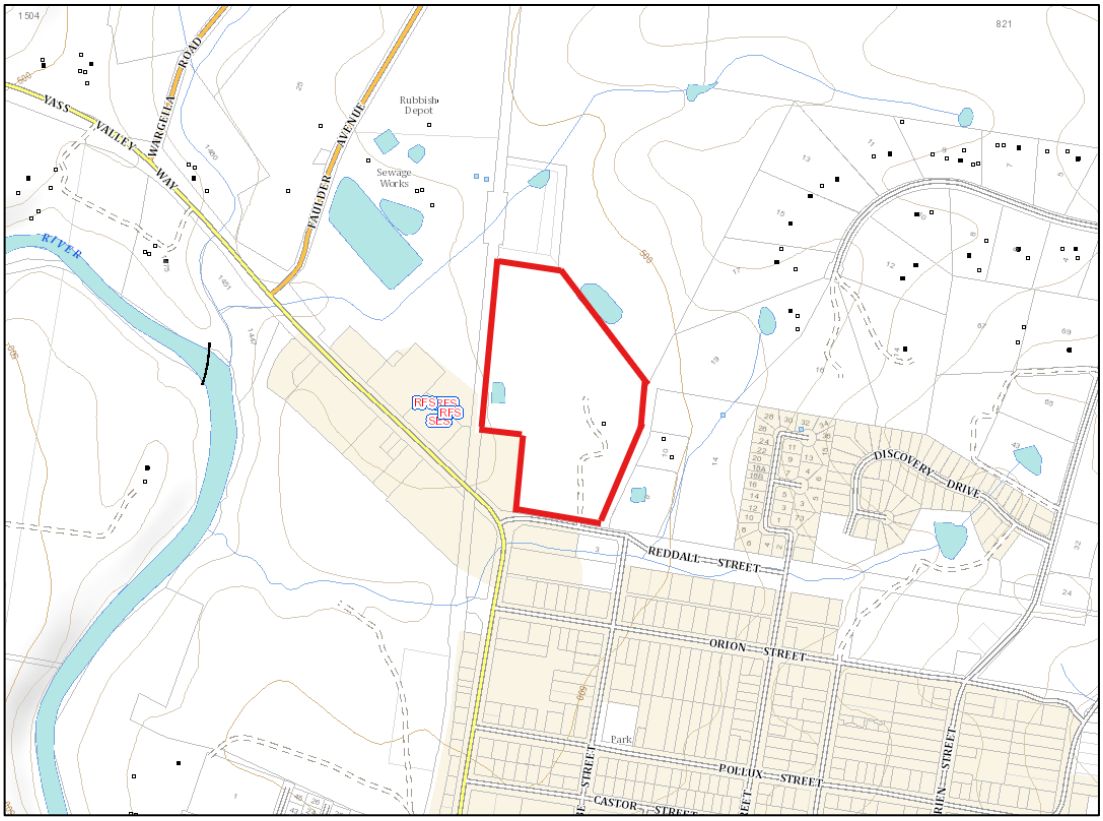


Figure 1 – Site Locality Plan

The site is zoned E3 – Productivity Support within the Yass Valley Local Environmental Plan 2013 (LEP) and is predominantly surrounded by land zoned E3 – Productivity Support, SP2 – Infrastructure (sewerage system and the disused railway line), and E4 - General Industrial. Residential land zoned R1 – General Residential, and R5 – Large Lot Residential, exist in proximity to the site to the east and south.

The land has a total area of 10.92ha and is undulating with an elevated section in the central part of the block. From this elevated area the block falls in all directions toward the site boundaries.

The proponent intends to lodge a development application to subdivide the land into nine large lots varying in size from 6,351m2 to 21,499m2. Exact uses for each lot are not yet known but it is expected that it will include a range of facilities and services, light industry, warehouses and offices that align with the objectives of the LEP.

Operation of the development is expected to require access by heavy vehicles for deliveries to/from the site. This will be predominantly rigid trucks and semi trailers but is also expected to involve access to some sites by B-Double vehicles.

The development is expected to occur over approximately a five year period and is expected to be completed by 2030.

1.2 Scope and Objectives

The purpose of this Transport Impact Assessment (TIA) is to assess the impacts of the proposed development on the transport network and identify appropriate mitigation measures to address these impacts.

This report has been prepared to provide supporting evidence to accompany a Development Application for the site. Specifically the objectives of this report are to:

- Identify existing transport operation and facilities around the site;
- Estimate trip generation as a result of the development and mode share for these trips;
- Analyse the impact of trip generation on safety and operational efficiency of the transport network;
- Provide recommendations to address issues and manage impacts of trips generated by the proposed development on the surrounding transport network.

The assessment focuses on immediate access and egress to/from the site onto Reddall and Laidlaw Streets and does not consider broader impacts on the overall road network.

The assessment has been undertaken in accordance with the general principles provided in the TfNSW publication, *Guide to Transport Impact Assessment – Technical Guidance for Transport Practitioners, Version 1.1 (TfNSW Guide).*

1.3 Traffic Engineering Definitions

The following measures are used to assess the operating efficiency of roads and intersections and are used within this report:

Level of Service (LoS)

LoS is a basic performance parameter used to describe the operation of an intersection. Levels of service range from 'A' (indicating good intersection operation) to 'F' (indicating over saturated conditions with long delays and queues). At signalised intersections, the LoS criteria are related to average intersection delay (seconds per vehicle). At roundabouts and priority controlled intersections (those with give-way and stop signage), the LoS is based on the modelled delay (seconds per vehicle) for the most delayed movement. Transport for New South Wales (TfNSW) typically consider a LoS D or better acceptable on most urban roads.

Level of service	Average delay (seconds per vehicle)	Traffic signals, Roundabout	Priority Intersection ('Stop' and 'Give Way')
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity. At signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity; requires other control mode
F	Greater than 71	Unsatisfactory with excessive queuing	Unsatisfactory with excessive queuing; requires other control mode

Table 1 - Levels of Service Definitions (RMS Guide to Traffic Generating Developments)

Degree of Saturation (DoS)

DoS is the ratio of demand flow to capacity and therefore has no unit. It ranges from close to 0 for very low traffic volume roads, to 1.0 for extremely congested roads. As it approaches 1.0, extensive queues and delays could be expected. For satisfactory situations, the DoS should be less than the nominated practical degree of saturation, usually 0.9. The intersection DoS is based on the movement with the highest value ie. The worst case intersection movement.

Delay

Delay is the difference between interrupted and uninterrupted travel times through the intersection and is measured in seconds per vehicle. At signalised intersections and roundabouts, the average intersection delay is usually reported. At priority controlled intersections, the average delay for the most delayed movement is usually reported.

Queue length

Queue length is directly related to the number of vehicles waiting at the stop or give way line. It is usually quoted as the 95th percentile back of queue length, which is the value below which 95% of all observed queue lengths fall. It is measured as the length occupied by the vehicles per traffic lane at the start of the green period, when traffic starts moving again after a red signal or delay. The intersection queue length is usually taken from the movement with the longest queue length.

2. Existing Conditions

2.1 Active Transport

2.1.1 Pedestrian

Reddall and Laidlaw Streets in the vicinity of the development are characterised by commercial developments with essentially no formal pedestrian access paths. The nearest pedestrian footpath network is located some 350m from the site commencing at Irvines square and running from there back to the Yass CBD.

Yass Council does have a plan to upgrade footpath links along Laidlaw Street and to provide a link out to the Yass Valley Mens Shed on Laidlaw Street to the west of the subject site. This footpath once constructed would provide a link between the Yass CBD and the Laidlaw/Reddall Street intersection. It is understood that no funding for construction of this path has been secured by Council and construction could be some years away.

A pedestrian count was undertaken at the Reddall/Laidlaw Street intersection on Thursday 21 November 2024 between the hours of 6:30am – 9:30am and 3:00pm – 6:00pm. A further count was undertaken on Saturday 23 November 2024 between 8:00am – 12:00pm. These counts were undertaken by specialist traffic survey company Matrix Traffic and Transport Data.

Results of the survey are included in Appendix B and are summarised in Table 2 below:

Period	Count Hrs	Total Ped. Movements	Peak Hr Movements
Weekday AM	3	7	5
Weekday PM	3	2	2
Saturday AM	4	1	1

Table 2 – Reddall/Laidlaw Street Pedestrian Count

The above counts show very low pedestrian usage of the existing intersection with a maximum of five pedestrian movements over any one hour period during the survey and an average of only one pedestrian movement per hour.

2.1.2 Cycling

Cycling in the vicinity of the subdivision is limited to on road cycling with the nearest shared cycle path being located some 1.5km away on Grampian Street near Yass High School.

Yass Valley Council is currently working on high level planning for a rail trail along the old railway line that runs parallel to Laidlaw Street. This would provide a link back to existing cycle networks around the Yass River and in South Yass, however it is understood that no funding for construction of this path has been secured by Council and construction could be some years away.

A count of cyclists using the Reddall/Laidlaw Street intersection was undertaken at the same date and time as the pedestrian counts on both a weekday and weekend. The count did not identify any cyclists using the intersection over the ten hour survey period.

2.2 Public Transport

Public transport is almost non-existent in country towns like Yass. There are no public buses, or trains and the only form of public transport that currently utilises the road network around the site is the Yass Taxi Service.

2.3 Private Transport

2.3.1 Road Characteristics

Reddall Street

Reddall Street is classified as a local road and is sealed with kerb & gutter. The road is 9m wide and primarily services three commercial sites which exist on the road. The road is in good condition having been reconstructed within the last 10 years. The speed limit on Reddall Street is 50km/h.

Laidlaw Street/Yass Valley Way

Laidlaw Street/Yass Valley Way is a regional road but is not a classified road under the Roads Act 1993. The road changes name at the Reddall Street intersection with the section to the south being known as Laidlaw Street and the section to the north-west being part of Yass Valley Way.

The road in the vicinity of Reddall Street varies in width from 10.6m to approximately 14m and has 2 x 3.5m wide travel lanes with sealed shoulders. Widening is provided in various locations along its length to provide for turning lanes and parking on shoulders.

Along the length of Laidlaw Street, right turn lanes have been provided at intersections and into major commercial centres utilising either concrete medians or line marking to provide for delineation and management of traffic movements.

The intersection of Laidlaw/Reddall Streets is a standard T-intersection with no dedicated left or right turn lanes off Laidlaw Street. The intersection is quite wide and adequately catyers for heavy vehicles that access adjacent commercial developments.

The intersection is located mid way around a sharp bend which has a radius of approximately 100m. This curve radius equates to a design speed of 60km/h for urban roads with 5% superelevation *(Austroads Guide to Road Design Part 3:Goemetric Design, Table 7.6).*

Laidlaw Street/Yass Valley Way is generally in a satisfactory condition in the vicinity of the proposed development with some signs of cracking and minor deformation of the pavement.

The speed limit along Laidlaw Street/Yass Valley Way is 50km/h.

2.3.2 Traffic Volumes and Conditions

Limited traffic count information was available from Yass Valley Council with the only count in the vicinity of the proposed development being on Yass Valley Way in September 2016. This count showed an AADT of 4,000 vehicles per day with 19.2% being commercial vehicles. Utilising

an annual growth rate of 1.54% (see Table 5 below), the projected daily traffic in 2024 would be 4,450.

A targeted intersection count was undertaken at the Reddall/Laidlaw Street intersection on Thursday 21 November 2024 between the hours of 6:30am – 9:30am and 3:00pm – 6:00pm. A further count was undertaken on Saturday 23 November 2024 between 8:00am – 12:00pm. These counts were undertaken by specialist traffic survey company Matrix Traffic and Transport Data.

These intersection counts targeted peak periods rather than undertaking daily counts. The peak hour was identified as 3:00pm to 4:00pm where a total of 462 vehicles were observed using Laidlaw Street with 9.3% of these being commercial vehicles. Peak hourly vehicle trips generally equate to around 10% of daily vehicle trips and using this rule of thumb the estimated daily traffic on Laidlaw Street at the time of the traffic survey is 4,620 vehicles. This aligns reasonably well with Council's 2016 traffic count which equates to 4,450 vehicles per day when adjusted for growth.

No historic traffic count information was available for Reddall Street, however the intersection counts undertaken in November 2024 indicate peak hour traffic volumes in Reddall Street of 20 vehicles of which 25% are commercial vehicles. This would equate to an AADT of some 200 vehicle movements per day.

No speed statistics were available for either Laidlaw or Reddall Streets.

2.3.3 Existing Network/Intersection Performance

Table 4.4 of the RTA Guide to Traffic Generating Developments 2002 (RTA Guide), identifies urban road mid block capacities and Levels of Service (LoS). The Guide recommends the adoption of Level of Service (LoS) C as an acceptable performance standard. Table 4.4 of the RTA Guide is reproduced below:

Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

Figure 2 – Urban road mid block levels of service

Current peak hour two way traffic volumes for Laidlaw Street at the site are 462 veh/hr. Of these 261 vehicles were travelling in a southerly direction and 201 in a northerly direction. The peak one lane flow of 261 veh/hr equates to a current **LoS B** when compared with values shown in Figure 2.

Current peak hour two way traffic volumes for Reddall Street are 20 veh/hr. This equates to a current **LoS A** when compared with values shown in Figure 2.

SIDRA intersection modelling was undertaken for the 2024 PM peak (worst case) traffic currently using the Laidlaw/Reddall Street intersection. SIDRA is a traffic modelling tool that uses a micro-analytical approach to accurately simulate the performance of intersections.

Figure 3 below shows the vehicle movements utilised to model the existing intersection performance. Figure 4 shows the tabulated results of the SIDRA modelling for the current intersection. Detailed results are included in Appendix C:

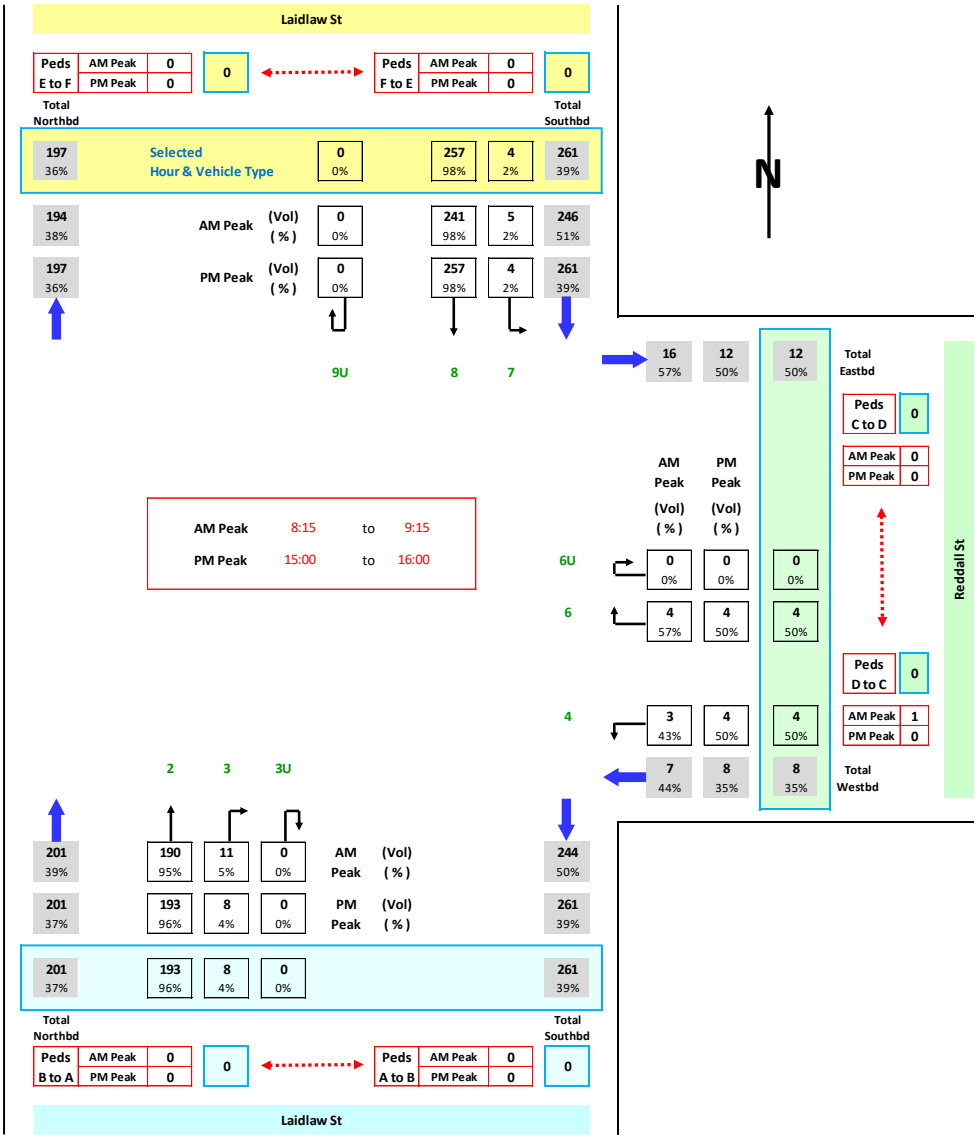


Figure 3 – Laidlaw/Reddall Street intersection, 2024 Peak Hour (PM) movements

Approach and direction		Degree of Saturation (v/c)	Average Delay (sec/veh)	Level of Service (LOS)	95% Back of Queue (m)
Yass Valley Way	L	0.141	5.6	A	0
	T	0.141	4.2	A	0
Reddall Street	R	0.010	7.6	A	0
	L	0.010	6.3	A	0
Laidlaw Street	T	0.109	0.0	A	0
	R	0.109	5.7	A	0

Figure 4 – 2024 Peak Hour (PM) – SIDRA intersection performance results

The results of the SIDRA modelling show that the current intersection operates at an excellent level of service of A. The intersection is functioning well within its designed capacity and has spare capacity to accommodate for future traffic growth without impacting overall intersection performance.

There are no long delays or queues and the maximum 95th percentile queue length of 0m indicates that there is no queueing at the intersection for the vast majority of the time. The maximum average delay of 7.6s is considered insignificant.

2.3.4 Traffic Growth to 2023

Regardless of whether the development proceeds, traffic growth will continue to occur and it is prudent to consider this in the context of assessing the impacts of the proposed development.

Table 12 identifies an average growth rate in Yass of 1.54% over the last 17 years. This value has been adopted for the purposes of projecting traffic growth between 2024 when the site specific traffic counts were undertaken, and 2030 when it is expected that all of the lots within the development will be fully developed and operational.

1.54% compounded for a period of 6 years (2024-2030) equates to a projected 10% increase in traffic volumes by the year 2023.

The 2024 weekday PM peak traffic counts for the Laidlaw/Reddall Streets intersection were increased by 10% to project the 2030 peak traffic volumes at this intersection without any impact from the proposed development. This was modelled using SIDRA to determine the likely intersection performance in 2030 without the proposed development.

Figure 5 below shows the vehicle movements utilised to model the existing intersection performance. Figure 6 shows the tabulated results of the SIDRA modelling for the current intersection. Detailed results are included in Appendix C:

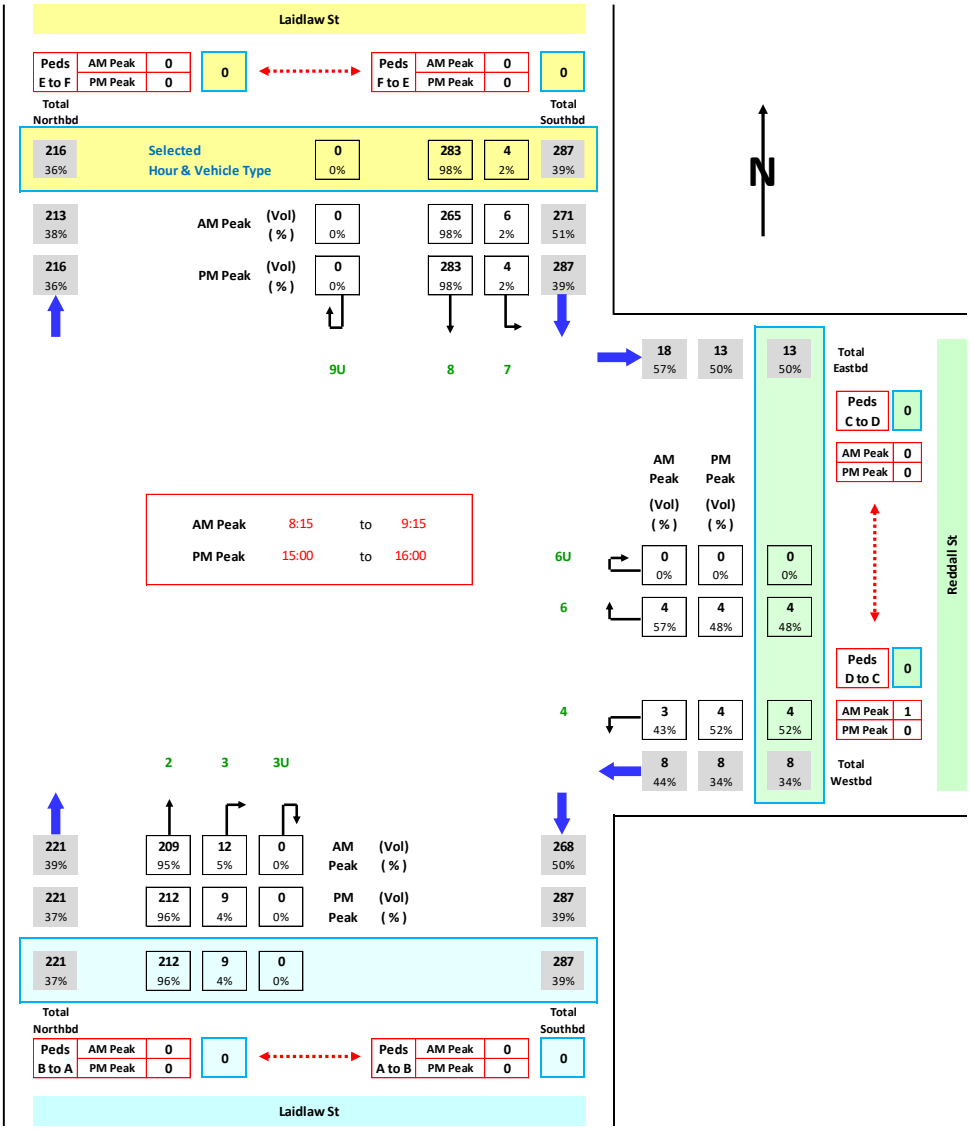


Figure 5 – Laidlaw/Reddall St intersection, 2030 Peak Hour (PM) movements without development

Approach and direction		Degree of Saturation (v/c)	Average Delay (sec/veh)	Level of Service (LOS)	95% Back of Queue (m)
Yass Valley Way	L	0.156	5.6	A	0
	T	0.156	4.2	A	0
Reddall Street	R	0.010	7.9	A	0
	L	0.010	6.5	A	0
Laidlaw Street	T	0.109	0.0	A	0
	R	0.109	5.7	A	0

Figure 6 – 2030 Peak Hour (PM) without development – SIDRA intersection performance results

The results of the SIDRA modelling show that the intersection will continue to operate at an excellent level of service of A in 2030 without the proposed development. The intersection will continue to function well within its designed capacity and have spare capacity to accommodate for future traffic growth without impacting overall intersection performance.

There are no long delays or queues and the maximum 95th percentile queue length of 0m indicates that there is no queueing at the intersection for the vast majority of the time. The maximum average delay of 7.9s is considered insignificant.

2.3.5 Traffic Safety

A review of the Transport for NSW Interactive Crash Statistics website was undertaken to identify any crash history at the site. Identified crashes for the five year period 2019-2023 are shown in Figure 7 below:

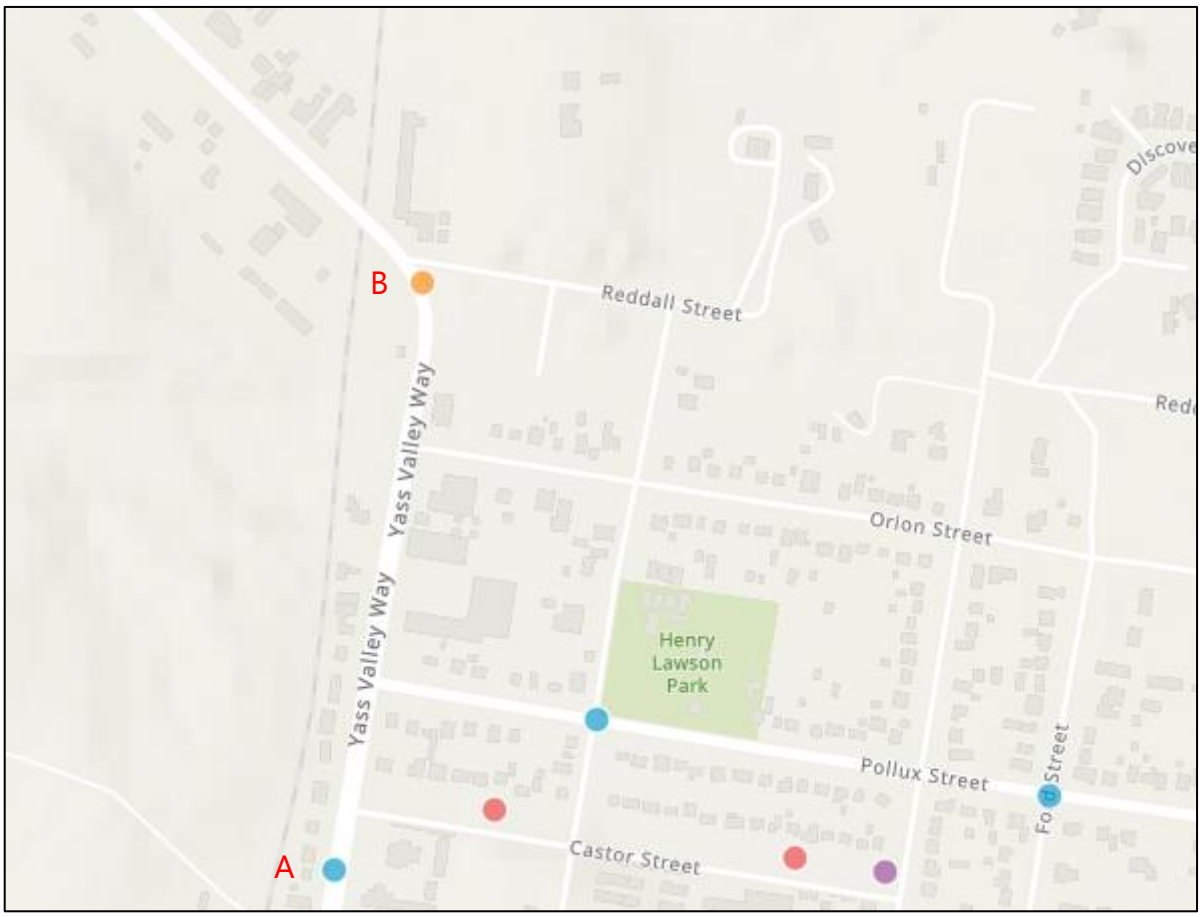


Figure 7 – Recorded Crashes 2019-2023 (Transport for NSW Centre for Road Safety)

The identified crashes do not present any crash clusters or patterns. Crashes on Pollux and Castor Streets were generally minor in nature and it is not likely that the proposed development will exacerbate the potential for further crashes in these locations. As such these crashes have not been considered further.

There are two crashes on Laidlaw Street in the vicinity of the proposed development which are labelled on Figure 2. Details of these crashes are provided below:

Crash A – This crash occurred in 2021 and involved two vehicles who collided head on. One moderate injury was recorded. The crash occurred at night and was on a straight section of road mid block.

Crash B – This was a single car crash that occurred in 2020 and resulted in a fatality. TfNSW crash statistics indicate that the vehicle went off the carriageway to the right on a left hand bend and struck an object. The crash occurred at night.

Crash A occurred where there is an existing concrete median and street lighting. These existing controls would appear adequate to mitigate the potential for further head on crashes in this location and the development is not considered likely to result in an increase of this crash type.

Crash B was likely the result of excessive speed whilst trying to negotiate the bend in Laidlaw Street. Although this is an isolated crash, consideration will need to be given to safety during the design of the intersection to ensure appropriate geometric design, signage, delineation, and lighting are provided in accordance with current standards.

Overall the crash statistics for the site identify a low crash rate and do not present any clusters or patterns that are likely to be further impacted by the proposed development.

2.3.6 Parking Facilities and Demand

There are approximately 30 on street parking spaces provided in Redall Street as part of previous commercial development activities. Parking for all other adjacent developments is provided on each individual site.

There are no current identified parking demand issues in the vicinity of the proposed development.

3. Assessment of Proposed Development

3.1 Travel Forecasts

3.1.1 Gross Leasable Floor Area

Trip generation rates for business park developments are based on the Gross Leasable Floor Area (GLFA) of the site. Tenants for each lot at the site are currently unknown, and no information identifying future development and use of the lots is available at this time. As such it is difficult to calculate the GLFA for the development.

To determine the GLFA for the site, a study of similar business park developments in the region was undertaken using Google Maps as the reference to determine site v's building area at each site to determine floor space ratio. Table 3 below shows the results of this analysis:

Site	Site Area (m2)	GLFA (m2)	Floor Space Ratio
Goulburn			
BCF Complex	11340	4500	40%
Toyota	6850	1840	27%
Hume Lifestyle precinct	10630	3900	37%
Elders	5930	1680	28%
Nutrien	5510	1050	19%
Lokyer Street site 1	3560	1790	50%
Lokyer Street site 2	3860	1300	34%
Lokyer Street site 3	3550	1670	47%
Tait Cres site 1	4956	1875	38%
Tait Cres site 2	5720	1800	31%
Yass			
Nutrien	4130	1250	30%
Complete Fleet	2730	700	26%
Young			
Bunnings Complex	18800	9900	53%
Supercheap Auto	6250	2350	38%
Powderly's	3070	1000	33%
		Average	**35%**

Table 3 – Floor Space Ratio of Comparable Business Park Developments

From the above analysis the average floor space ratio is 35% and this figure was adopted in order to calculate GLFA for the proposed development as shown below in Table 4:

GLFA Calculation	
Total Lot Area (m2) =	94,348
Gross Leasable Floor Area Ratio =	0.35
Adopted Gross Leasable Floor Area (m2) =	33,022

Table 4 – GLFA Calculation

The above calculated GLFA of 33,022m2 has been utilised in trip generation calculations for the proposed development.

3.1.2 Trip Generation

Trip generation has been calculated based on guidance provided in the TfNSW Guide with reference to *Roads and Maritime Services, Trip Generation Surveys, Business Parks and Industrial Estates, 2012*.

Trip generation rates are provided in the TfNSW Guide. Table 5.24 of this guide is reproduced below in Figure 8:

Weekend rates	Sydney	Regional
Person trips (person trips/100m² GFA)		
AM site peak	1.57	0.82
PM site peak	1.37	0.98
Vehicle trips (vehicle trips/100m² GFA)		
AM site peak	1.11	0.69
PM site peak	1.00	0.78

Figure 8 – TfNSW Guide Table 5.24 – Business parks sample summary (2012 & 1994)

Utilising the calculated GLFA of 33,022m2 and trip generation rates from the TfNSW Guide, peak hour person trip and vehicle trip generation for the proposed development have been calculated as follows:

Person trip generation	
AM Peak Person Trips/100m2 =	0.82
Calculated AM Peak Person Trips =	**271**
PM Peak Person Trips/100m2 =	0.98
Calculated PM Peak Person Trips =	**324**

Table 5 – Calculation of person trip generation for the proposed development

From Table 5 above, a peak person trip generation of 324 person trips is expected in the PM peak hour.

3.1.3 Trip Distribution

Guidance on trip distribution to and from the development is provided in *Roads and Maritime Services, Trip Generation Surveys, Business Parks and Industrial Estates, Analysis Report, 2012*. Table 3.7 of this document is reproduced below:

	Sydney Sites		Non Sydney Sites		All Sites	
Location	**Arrivals**	**Departures**	**Arrivals**	**Departures**	**Arrivals**	**Departures**
Person Trips						
AM Peak	78%	22%	63%	37%	68%	32%
PM Peak	30%	70%	36%	64%	34%	66%
Vehicle Based Trips						
AM Peak	76%	24%	65%	35%	69%	31%
PM Peak	32%	68%	35%	65%	34%	66%

Figure 9 – Overall average directional trip distribution for business park developments

The above has been adopted for trip distribution to and from the development. In order to estimate distribution of traffic at each intersection, the following assessment and assumptions have been made:

- It has been assumed that all heavy vehicles will approach the site via Laidlaw Street/Yass Valley Way and not utilise residential Streets such as Orion and Glebe Streets.
- For the intersection of the new development road (Road 1) and Reddall Street, a high level catchment analysis was undertaken to determine the proportion of residential properties in North Yass that would likely access Reddall Street from the Glebe Street end. This analysis indicated that approximately 10% of traffic would arrive and leave via Glebe Street with the remaining 90% arriving and leaving via Laidlaw Street.
- Of the 90% of passenger vehicles that utilise the Laidlaw/Reddall Street intersection it has been assumed that 80% of these will arrive and leave via Laidlaw Street in a southerly direction toward the Yass CBD, and 20% will arrive and leave via Yass Valley Way in a north-westerly direction toward the Hume Highway.
- Of the 100% of heavy vehicles that utilise the Laidlaw/Reddall Street intersection it has been assumed that 70% of these will arrive and leave via Yass Valley Way in a north-westerly direction toward the Hume Highway, and 30% will arrive and leave in a southerly direction toward the Yass CBD.

3.1.4 Forecast Mode Split

Mode split is identified in the TfNSW Guide and table 5.25 of this publication is reproduced below:

Mode	**Sydney** Average and range	**Average** Average and range
Car	86% (81% to 90%)	86% (77% to 94%)
Commercial vehicle	8% (14% to 13%)	11% (4% to 22%)
Walk/cycle	6% (6% to 6%)	1% (0% to 1%)
Public transport	0.3% (81% to 90%)	1% (0% to 3%)
Cycle	0.1% (0% to 0%)	1% (0% to 1%)

Figure 10 – TfNSW Guide Table 5.25 – Mode share summary for business parks (2012)

In the absence of any other data, the above highlighted values have been adopted. The resulting person trip rates for the proposed development are shown in Table 6 below:

Person Trips - Mode Share	%	AM	PM
Car	87%	236	282
Commercial Vehicle	11%	30	36
Walk	1%	3	3
Cycle	1%	3	3
Totals	**100%**	**271**	**324**

Table 6 – Peak hour person trips generation - mode share

Values from Figure 2 were used to determine overall vehicle trip generation for the AM & PM peak hours as shown below:

Vehicle Trip generation	
AM Peak Vehicle Trip Generation/100m2 =	0.69
Calculated AM Peak Vehicle Trips =	**228**
PM Peak Vehicle Trip Generation/100m2 =	0.78
Calculated PM Peak Vehicle Trips =	**258**
Calculated vehicle occupancy	**1.09**

Table 7 – Calculation of vehicle trip generation for the proposed development

From Table 7 above, a peak vehicle trip generation of 258 vehicle trips is expected in the PM peak hour.

To determine mode share for vehicle trips, public transport trips have been included under car trips as the only form of public transport available is via taxi. Mode share and peak car/commercial vehicle trips are shown in table 8 below:

Vehicle Trips - Mode Share	%	AM	PM
Car	89%	202	229
Commercial Vehicle	11%	26	29
Totals	**100%**	**228**	**258**

Table 8 – Peak hour vehicle trip generation - mode share

3.1.5 Trip Assignment

Utilising trip distribution splits from Figure 9, vehicle trips have been split into site arrival and site departure trips as shown on the table below:

Arrival/Departure Totals	AM	PM
Site Arrivals	65%	35%
Car	131	80
Commercial Vehicle	17	10
Total Arrivals	**148**	**90**
Site Departures	35%	65%
Car	71	149
Commercial Vehicle	9	19
Total Departures	**80**	**168**
Total Vehicles	**228**	**258**

Table 9 – Vehicle Trip Assignment - Directional Distribution

Focussing on the PM (worst case) peak period, vehicle trips generated by the development were further broken down to individual movements at each of the two intersections as follows.

Reddall Street/Road 1 Intersection

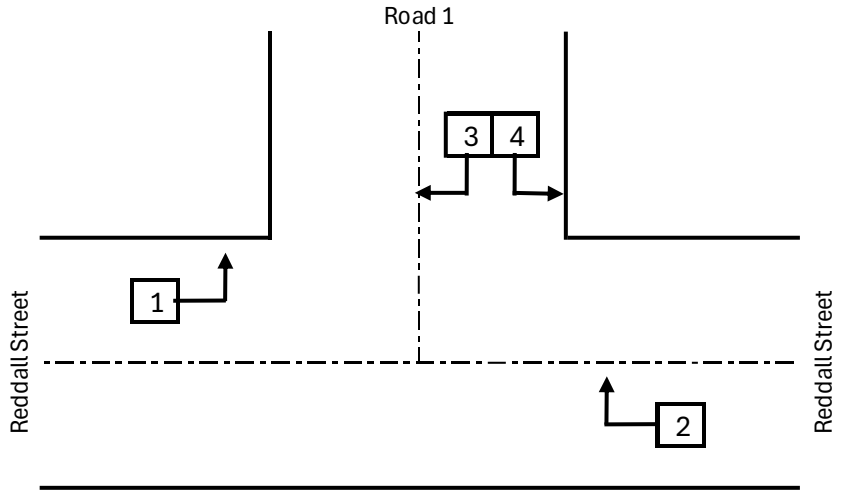


Figure 11– Reddall Street/Road 1 intersection – Potential vehicle movement directions

Based on the distributions and assumptions provided in Section 3.1.3, projected vehicle movements at the Redall Street/Road 1 intersection are as follows:

Reddall Street/Road 1 Intersection (PM Peak)					
Site Arrivals	**Totals**	**Direction 1**		**Direction 2**	
		%	**No.**	**%**	**No.**
Car	80	90%	72	10%	8
Commercial Vehicle	10	100%	10	0%	0
	90		**82**		**8**
Site Departures	**Totals**	**Direction 3**		**Direction 4**	
		%	**No.**	**%**	**No.**
Car	149	90%	134	10%	15
Commercial Vehicle	19	100%	19	0%	0
	168		**153**		**15**

Table 10 – Vehicle Trip Assignment - Intersection Distribution (Reddall St/Road 1)

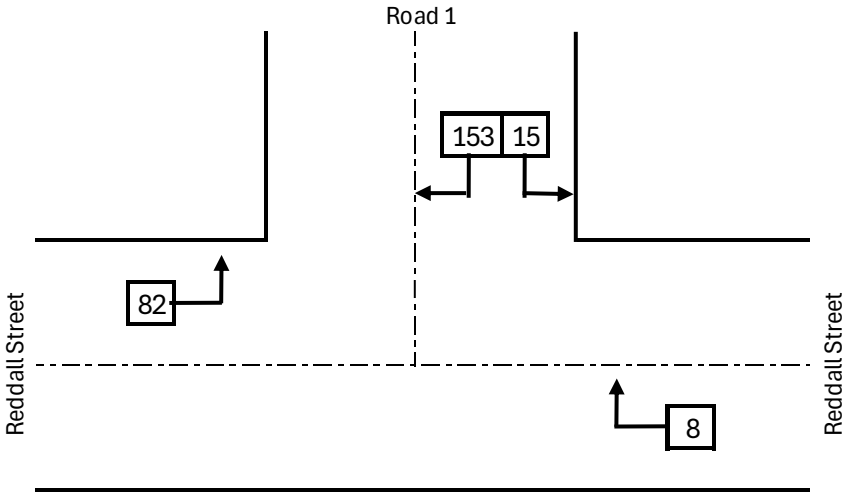


Figure 12 – Reddall St/Road 1 intersection – Development generated traffic movements - PM peak hour

Laidlaw/Reddall Street Intersection

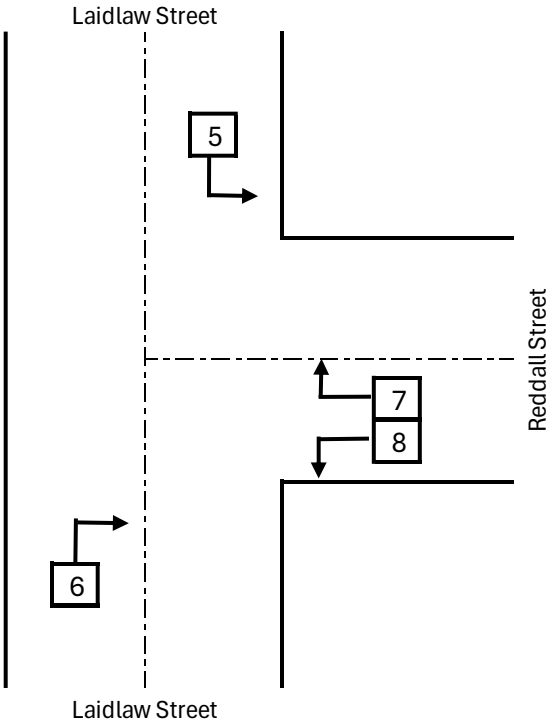


Figure 13 – Laidlaw/Reddall Street Intersection – Potential Vehicle Movements

Based on the distributions and assumptions provided in Section 3.1.3, projected vehicle movement to and from the Redall Street/New Subdivision Road the following

Laidlaw/Reddall Street Intersection (PM Peak)					
Site Arrivals	**Totals**	**Direction 5**		**Direction 6**	
		%	**No.**	**%**	**No.**
Car	72	20%	14	80%	58
Commercial Vehicle	10	70%	7	30%	3
	82		**21**		**61**
Site Departures	**Totals**	**Direction 7**		**Direction 8**	
		%	**No.**	**%**	**No.**
Car	134	20%	27	80%	107
Commercial Vehicle	19	70%	13	30%	6
	153		**40**		**113**

Table 11 – Vehicle Trip Assignment - Intersection Distribution (Laidlaw/Reddall St

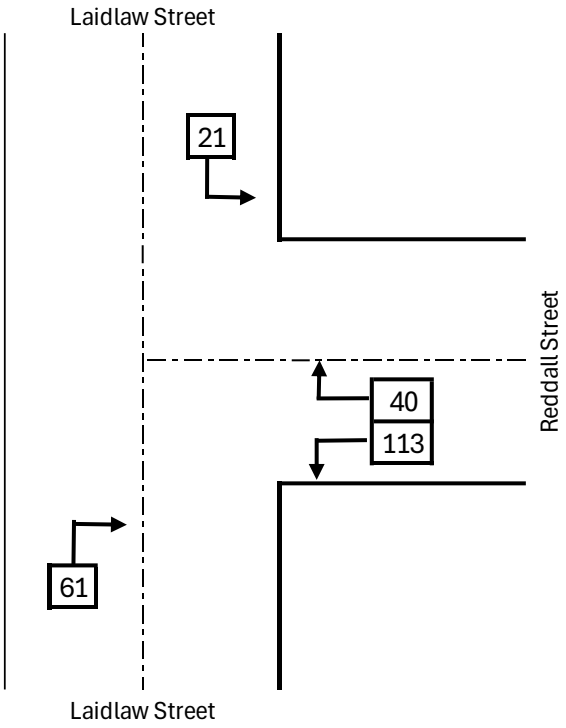


Figure 14 – Laidlaw/Reddall St intersection – Development generated traffic movements - PM peak hour

3.1.6 Traffic Growth

Census data relating to population growth in Yass is available via Council's profile.id website (profile.id.com.au/yass-valley). Data from 2007 to 2023 was obtained from this site and is presented in Table 12 below:

Year	Population Growth (%)
2007	3.08%
2008	2.83%
2009	2.82%
2010	3.49%
2011	2.55%
2012	1.24%
2013	1.28%
2014	1.11%
2015	1.04%
2016	1.30%
2017	0.61%
2018	0.76%
2019	0.86%
2020	0.89%
2021	0.87%
2022	0.81%
2023	0.56%
AVG=	**1.54%**

Table 12 – Yass Population Growth 2007-2023 (profile.id.com.au/yass-valley)

Based on the data presented in Table 12, the average population growth for Yass for the period 2007-2023 was 1.54%. This figure has been adopted as the annual traffic growth rate for the purposes of projecting future traffic increases on the road network not associated with the proposed development.

3.2 Active Transport Facilities

3.2.1 Pedestrian

As shown in Table 6, it is expected that approximately 3 pedestrian trips to and/or from the site will be generated by the development for each of the AM and PM peak hours. There is some minor potential for internal pedestrian movement between the various lots, however the E3 zoning of the land does limit the potential for retail facilities and the site is more likely to house facilities such as light industry, warehouses and offices which would limit the likelihood of pedestrian movements within the development.

Given there are no existing footpath networks in the vicinity of the development it is difficult provide any pedestrian to/from the site that would be utilised. Council should consider the development in the context of their Pedestrian Access and Mobility Plan (PAMP) and decide whether footpath facilities are warranted in light of the strategic objectives of the PAMP.

3.2.2 Cycling

It is estimated that around 3 cyclist movement to and/or from the site will be generated during both the AM and PM peak hours. The traffic counts undertaken at the Laidlaw/Reddall Street intersection did not identify any cyclists using this intersection over the ten hour period of the survey which covered both weekday AM and PM peak periods and a Saturday morning period.

Given the small number of projected cyclists and the lack of any existing cycle infrastructure within proximity of the development, dedicated cycle paths are not considered warranted. Cyclists should be considered in design activities to maximise cyclist ability to safely use the road network in order to access the site.

3.3 Public Transport

Taxi services are the only form of public transport available to Yass residents. Projected Taxi numbers in the PM peak are 2-3 vehicle movements which is insignificant. It is expected that on site car parking will be provided on each of the proposed lots when each is developed at a later date. On site parking areas will allow for the pick up and drop off of taxi passengers without the need for any specific taxi facilities.

It is not expected that there will be any significant change to public transport availability in Yass and as such no further consideration of public transport facilities is warranted.

3.4 Private Transport

3.4.1 Traffic Volume Forecasts and Levels of Service

Projected traffic generation for the Reddall St/Road 1 and Laidlaw/Reddall Street intersections are provided in Section 3.1.5. This additional traffic is expected to add an additional 228 vehicle trips in the AM peak hour and 258 vehicle trips in the PM peak hour. Of these 11% are expected to be commercial vehicles.

Traffic volumes using Redall Street in the PM peak hour are expected to increase to a total of 270 vehicles with peak one way movements of 161 vehicles heading in a westerly direction toward Laidlaw Street. When compared to the level of service criteria in Figure 2 this would result in the road operating at a **LoS A** which indicates good operation with spare capacity for future growth.

Traffic volumes on Laidlaw Street in the vicinity of the development during the PM peak are expected to increase to around 686 total vehicles to the south of the Laidlaw/Reddall Street intersection by 2030, with peak one way traffic volumes of 400 vehicles per hour. When

compared to the level of service criteria in Figure 2 this would result in the road operating at a **LoS C** which is considered satisfactory.

3.4.2 Intersections

It is expected that the majority (90%+) of vehicle movements to and from the proposed development will be from Laidlaw Street. This indicates that the majority of turn movements at the Reddall Street/Road 1 will be the left turn into, and right turn out of the development. This combination of movements will have minimal impact on traffic flows on Reddall Street as the left turn in does not require vehicles to stop or give way on Redall Street.

By contrast the projected traffic turning into Reddall Street from Laidlaw Street will involve significant number of both left and right turn movements. As a result a BAL/CHR type intersection is proposed to facilitate these turning movements with minimal impact to through traffic. A conceptual intersection layout is provided below in Figure 15.

It is expected that the intersection will be utilised by heavy vehicles approaching from both directions on Laidlaw Street/Yass Valley Way with all B-Double movements occurring to/from the north-west in the direction of the Hume Highway. Existing B-Double routes terminate at Orion Street and as such B-Double access form the south (Yass CBD) is not expected to occur.

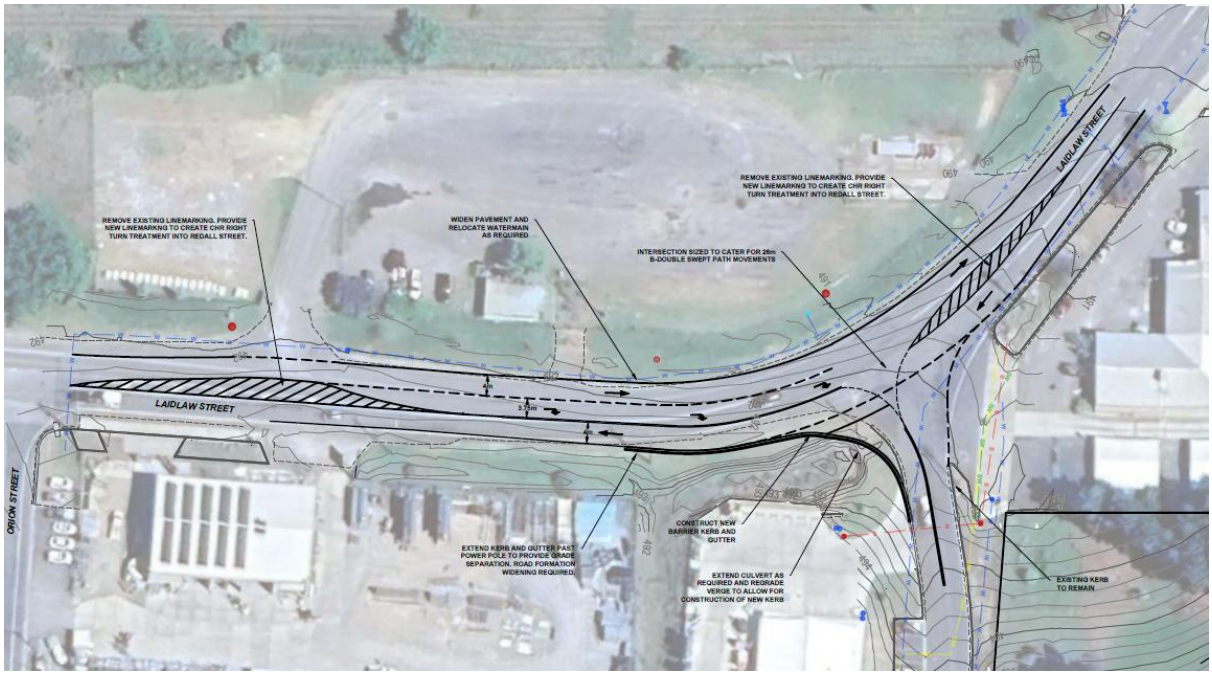


Figure 15 – Proposed Laidlaw/Reddall Street intersection layout

To determine the impact of the development on intersection performance, SIDRA modelling was undertaken utilising projected 2030 Pm peak traffic volumes on the existing road network in addition to the estimated traffic generated by the development.

Figure 16 below shows the vehicle movements utilised to model the existing intersection performance. Figure 17 shows the tabulated results of the SIDRA modelling for the current intersection. Detailed results are included in Appendix C:

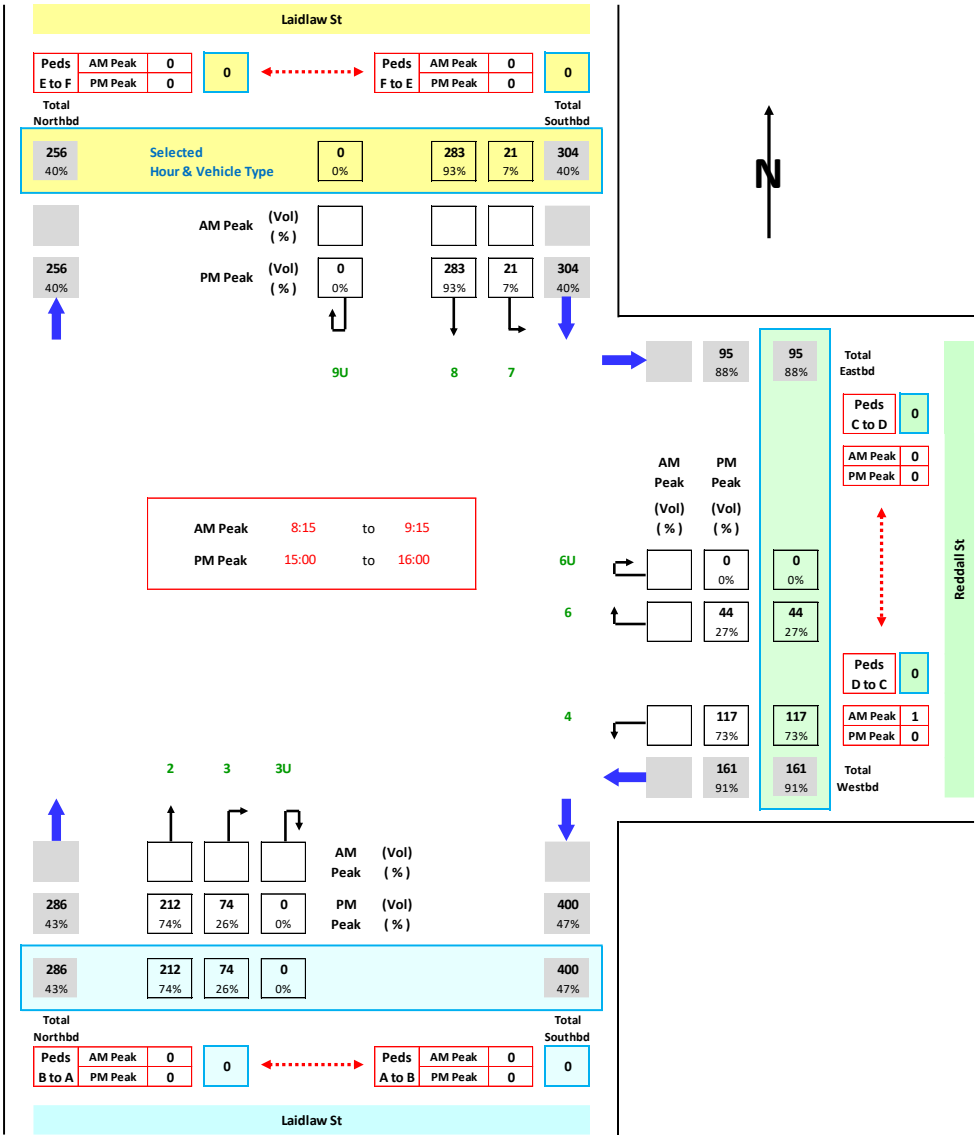


Figure 16 – Laidlaw/Reddall St intersection, 2030 Peak Hour (PM) movements including development traffic

Approach and direction		Degree of Saturation (v/c)	Average Delay (sec/veh)	Level of Service (LOS)	95% Back of Queue (m)
Yass Valley Way	L	0.165	5.6	A	0
	T	0.165	4.2	A	0
Reddall Street	R	0.200	9.0	A	7
	L	0.200	6.8	A	7
Laidlaw Street	T	0.114	0.0	A	0
	R	0.048	4.8	A	0

Figure 17 – 2030 Peak Hour (PM) including development – SIDRA intersection performance results

The results of the SIDRA modelling show that the intersection will continue to operate at an excellent level of service of A in 2030 with the development fully operational and the projected development traffic at its peak.

The intersection is expected to continue to function well within its designed capacity and have spare capacity to accommodate for future traffic growth without impacting overall intersection performance.

There are no long delays or queues and the maximum 95th percentile queue length of 7m on the Reddall Street leg of the intersection indicates that there is minimal queueing at the intersection (less than 7m queue length 95% of the time).

The maximum average delay of 9.0 seconds on Redall Street represents a small and insignificant increase of only 1.1 seconds compared to the 2030 scenario without development.

No specific modelling of the Reddall St/Road 1 intersection has been undertaken. Redall Street carries only a fraction (4.3%) of the traffic that uses Laidlaw Street. The modelling for the Laidlaw Street intersection confirms that it will continue to operate at LoS A even after the development and hence the Redall Street/Road 1 intersection is also likely to operate at a good level of service.

3.4.3 Parking Facilities

All parking for the proposed development is expected to be provided on site as each lot is individually developed. This will allow for parking facilities to be tailored to meet the demands of the development that occurs on each site.

4. Impact Mitigation and Recommendations

The following mitigation measures are recommended to manage potential impacts of the proposed development:

- All internal roads should be designed in accordance with Austroads and Yass Valley Council standards to cater for vehicles up to and including B-Doubles.
- The intersection of Laidlaw Street/Reddall Street is to be upgraded to provide for a CHR/BAL type intersection in accordance with Austroads standards. Design vehicles should be a semi-trailer to/from the south (right turn into Reddall Street), and a B-Double to/from the north-west (left turn into Redall Street).
- That Council consider the need for footpaths in the context of the adopted Pedestrian Access and Mobility Plan (PAMP) noting that the development is not expected to generate significant numbers of pedestrians.

5. Conclusion

It is proposed to subdivide Lot 4 DP255064 (2 Reddall Street, Yass) into nine large commercial lots varying in size from 6,351m2 to 21,499m2. The proposed lots will provide for a range of facilities and services, including light industry, warehouses and offices that align with the objectives of the Yass Valley LEP. The development is expected to occur over approximately a five year period and is expected to be completed by 2030.

A targeted intersection count was undertaken in November 2024 to identify existing vehicle movements at the Laidlaw/Reddall Street intersection which will be the main access point for the development. The study was done for AM & PM peaks on a Thursday as well as for the AM peak on a Saturday. This study shoed that the weekday PM peak period is the overall peak period at this intersection.

SIDRA modelling of the Laidlaw/Redall Street intersection indicates that the intersection currently operates at a LoS A and will continue to operate at this LoS without the proposed development, allowing for traffic growth through to 2030.

The proposed development is expected to generate an additional 258 vehicle trips in the PM peak hour. Of these 11% are expected to be commercial vehicles. Traffic volumes using Redall Street in the PM

peak hour are expected to increase to a total of 270 vehicles, and traffic volumes on Laidlaw Street in the vicinity of the development during the PM peak are expected to increase to around 686 total vehicles to the south of the Laidlaw/Reddall Street intersection. This includes projected traffic growth of 1.54% p/a to 2030. These roads are expected to continue to operate well within their design capacity.

SIDRA modelling for the intersection in 2030 including the fully developed site, indicates that the intersection will continue to operate at a LoS A even with the additional traffic from the development. and the intersection is expected to continue to function well within its designed capacity and have spare capacity to accommodate for future traffic growth without impacting overall intersection performance.

Subject to implementation of the proposed mitigation measures, the proposed development is not expected to have a significant impact on road safety or road network efficiency and the road network is expected to continue to operate effectively and within its design capacity.

Appendix A – Site Plans

EACH LOT TO BE PROVIDED WITH ON-SITE DETENTION SYSTEM (OSD) (TYPICAL). OSD TO BE DESIGNED AND CONSTRUCTED AS PART OF SUBSEQUENT DEVELOPMENTS ON EACH LOT. UNLESS OTHERWISE NOTED THE OSD SHALL DISCHARGE TO GROUND VIA A 'LEVEL SPREADER' ARRANGEMENT.

NEW Ø150mm SEWER MAIN. CONNECT TO EXISTING MANHOLE TW/9 AT DOWNSTREAM END.

SITE REGRADING TO BE KEPT CLEAR OF EXISTING EASEMENT FOR ACCESS

LAIDLAW STREET

UPGRADE INTERSECTION TO CHR ARRANGEMENT. SEE SHEET 23020-300 FOR DETAILS.

SP47506

LOT 2
9,329m²

LOT 3
6,953m²

CONSTRUCT NEW MANHOLE INTO TRUNK MAIN TO CONNECT NEW SEWER

STORMWATER DRAINAGE EASEMENT INCLUDING PROVISION FOR MAJOR OVERLAND FLOW PATH

LOT 4
14,156m²

CONNECT SEWER TIE FROM LOT 1 TO EXISTING SEWER MANHOLE ON REDALL STREET

REDALL STREET

OSD FROM LOT 1 TO BE CONNECTED TO EXISTING STORMWATER SYSTEM IN REDALL STREET

LOT 1
21,499m²

NEW Ø150mm SEWER MAIN

NEW Ø150mm SEWER MAIN (TYPICAL). CONNECT TO EXISTING MANHOLE TW/10 AT DOWNSTREAM END.

LOT 5
9,236m²

CONSTRUCT NEW 11m ROAD. REFER TO TYPICAL SECTION ON SHEET 23020-200. PROVIDE CURVE WIDENING TO SUIT 26m B-DOUBLE VEHICLES.

CONSTRUCT NEW WATERMAIN. PROVIDE INDIVIDUAL WATER SERVICES TO EACH ALLOTMENT.

ROAD 1

LOT 6
6,351m²

OSD FROM LOT 9 TO BE CONNECTED TO EXISTING STORMWATER SYSTEM IN REDALL STREET

LOT 9
8,410m²

NEW Ø150mm SEWER MAIN

LOT 8
7,985m²

LOT 7
10,425m²

STORMWATER DRAINAGE EASEMENT INCLUDING PROVISION FOR MAJOR OVERLAND FLOW PATH

OSD FROM LOT 6 TO BE CONNECTED TO NEW INTERALLOTMENT DRAINAGE SYSTEM

LOT 2
DP623848

OUTLET OF STORMWATER SYSTEM TO BE DISCHARGED TO NATURAL GROUND VIA LEVEL SPREADER ARRANGEMENT

CONNECT NEW SEWER MAIN TO EXISTING MANHOLE ON REDALL STREET

OSD FROM LOT 8 TO BE CONNECTED TO NEW INTERALLOTMENT DRAINAGE SYSTEM

OSD FROM LOT 8 TO BE CONNECTED TO NEW INTERALLOTMENT DRAINAGE SYSTEM

LOT 10
DP1080171

CONSTRUCT INTERALLOTMENT STORMWATER DRAINAGE LINE

PLAN VIEW
SCALE 1:1300

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

Rev	Date	Description
A	28/03/2025	Inital Issue

Warwick Farm Business Park
Proposed Subdivision

Genium CIVIL ENGINEERING
ABN: 36 169 355 122
7 Adele Street Yass NSW
Ph: 0418 484 138
PO Box 15 Yass NSW 2582
email: admin@genium.com.au

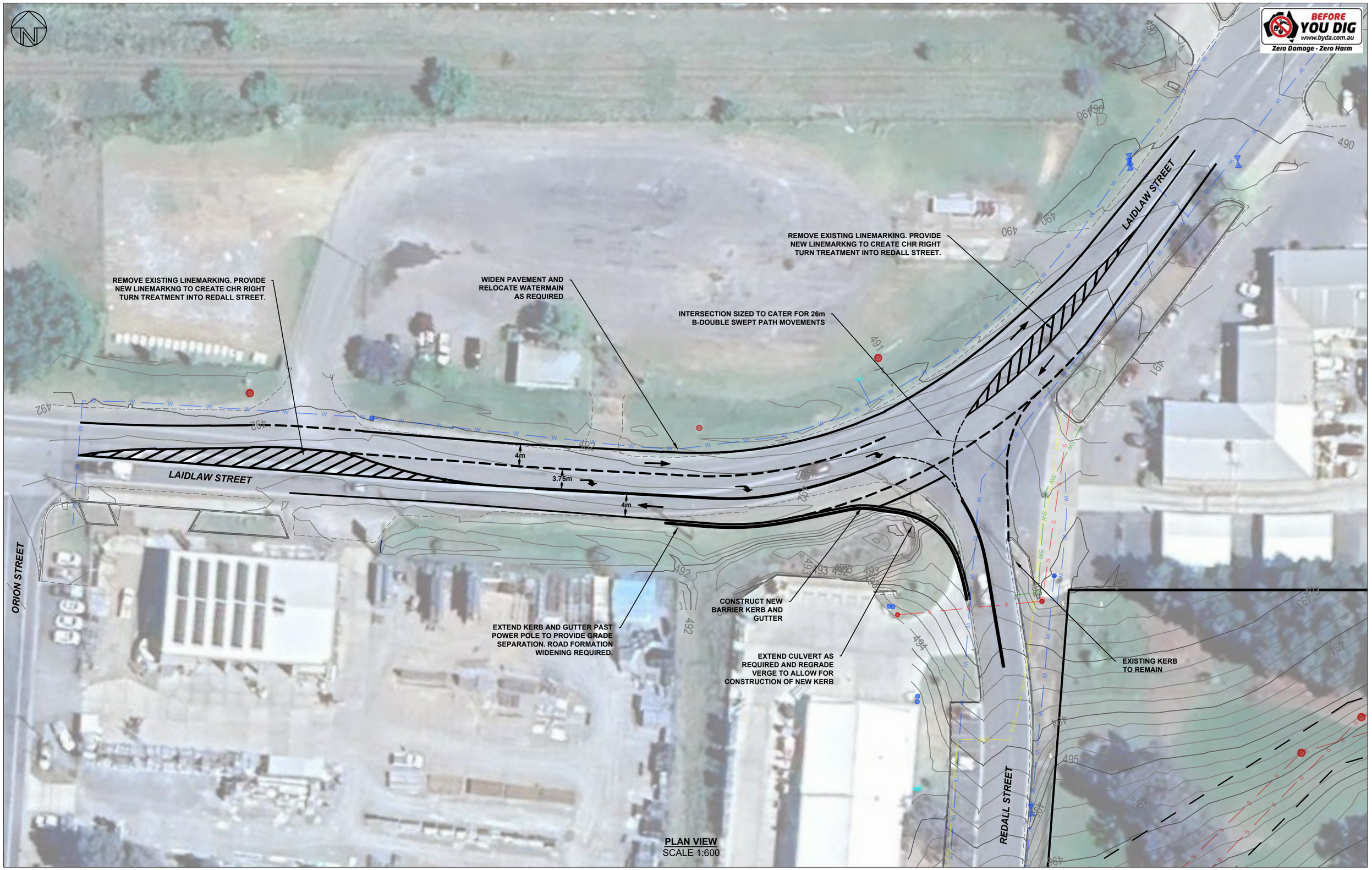
Client: WFE Unit Trust

General Arrangement

Status: For Approval

Datum	Scale	Size
GDA2020/AHD	1:1300	A3

Drawing Number	Sheet	Revision
23020 -100	3 of 8	A



PLAN VIEW
SCALE 1:600

Rev	Date	Description
A	28/03/2025	Inital Issue

Warwick Farm Business Park
Proposed Subdivision

Genium CIVIL ENGINEERING
ABN: 36 169 355 122
7 Adele Street Yass NSW
Ph: 0418 484 138
PO Box 15 Yass NSW 2582
email: admin@genium.com.au

Client: WFE Unit Trust

Laidlaw Street Intersection
Concept Arrangement

Status: For Approval

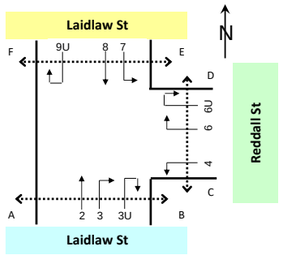
Datum	Scale	Size
GDA2020/AHD	1:600	A3

Drawing Number	Sheet	Revision
23020 -400	7 of 8	A

Appendix B – Transport Data and Surveys

Laidlaw/Reddall Street Intersection - Raw Survey Data

Job No.	: AUNSW11141
Client	: Genium Civil Engineering Pty Ltd
Suburb	: Yass
Location	: 1. Laidlaw St / Reddall St
Day/Date	: Thursday, 21 November 2024
Weather	: Fine
Description	: Classified Intersection Count
	: 15 mins Data



MATRIX Traffic and Transport Data

Classifications	**Class 1**	**Class 2**	**Class 3**	**Ped Class 1**	**Ped Class 2**
	Lights	Heavies	Cyclists	Peds	Cyclists

Approach	**Laidlaw St**												**Reddall St**											
Direction	**Direction 2 (Through)**				**Direction 3 (Right Turn)**				**Direction 3U (U Turn)**				**Direction 4 (Left Turn)**				**Direction 6 (Right Turn)**				**Direction 6U (U Turn)**			
Time Period	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**
6:30 to 6:45	18	6	0	**24**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**
6:45 to 7:00	28	4	0	**32**	0	0	0	**0**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**
7:00 to 7:15	32	4	0	**36**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
7:15 to 7:30	38	5	1	**43**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
7:30 to 7:45	39	2	0	**41**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**
7:45 to 8:00	30	5	0	**35**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**
8:00 to 8:15	32	2	0	**34**	1	1	0	**2**	0	0	0	**0**	0	1	0	**1**	1	0	0	**1**	0	0	0	**0**
8:15 to 8:30	40	4	0	**44**	4	0	0	**4**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**
8:30 to 8:45	39	7	0	**46**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**	1	0	0	**1**	0	0	0	**0**
8:45 to 9:00	46	3	0	**49**	3	2	0	**5**	0	0	0	**0**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**
9:00 to 9:15	48	3	0	**51**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**	1	0	0	**1**	0	0	0	**0**
9:15 to 9:30	56	7	0	**63**	1	0	0	**1**	1	0	0	**1**	2	0	0	**2**	1	0	0	**1**	0	0	0	**0**
AM Totals	**446**	**52**	**1**	**498**	**14**	**3**	**0**	**17**	**1**	**0**	**0**	**1**	**8**	**2**	**0**	**10**	**5**	**1**	**0**	**6**	**0**	**0**	**0**	**0**
15:00 to 15:15	38	1	0	**39**	1	1	0	**2**	0	0	0	**0**	3	0	0	**3**	1	0	0	**1**	0	0	0	**0**
15:15 to 15:30	39	2	0	**41**	2	0	0	**2**	0	0	0	**0**	1	0	0	**1**	1	0	0	**1**	0	0	0	**0**
15:30 to 15:45	37	14	0	**51**	1	1	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
15:45 to 16:00	58	4	0	**62**	2	0	0	**2**	0	0	0	**0**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**
16:00 to 16:15	44	3	0	**47**	0	0	0	**0**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**	0	0	0	**0**
16:15 to 16:30	42	4	0	**46**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**
16:30 to 16:45	39	2	0	**41**	2	1	0	**3**	0	0	0	**0**	1	0	0	**1**	1	0	0	**1**	0	0	0	**0**
16:45 to 17:00	38	1	0	**39**	0	0	0	**0**	0	0	0	**0**	3	0	0	**3**	0	0	0	**0**	0	0	0	**0**
17:00 to 17:15	48	0	0	**48**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
17:15 to 17:30	42	2	0	**44**	1	0	0	**1**	1	0	0	**1**	2	0	0	**2**	1	0	0	**1**	0	0	0	**0**
17:30 to 17:45	40	0	0	**40**	0	0	0	**0**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**
17:45 to 18:00	34	1	0	**35**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**	3	0	0	**3**	0	0	0	**0**
PM Totals	**499**	**34**	**0**	**533**	**12**	**3**	**0**	**15**	**1**	**0**	**0**	**1**	**14**	**0**	**0**	**14**	**8**	**1**	**0**	**9**	**0**	**0**	**0**	**0**

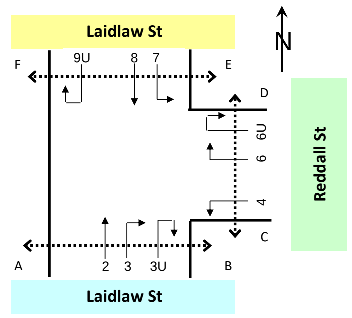
Approach	**Laidlaw St**											
Direction	**Direction 7 (Left Turn)**				**Direction 8 (Through)**				**Direction 9U (U Turn)**			
Time Period	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**
6:30 to 6:45	0	0	0	**0**	17	1	0	**18**	0	0	0	**0**
6:45 to 7:00	0	0	0	**0**	23	5	0	**28**	0	0	0	**0**
7:00 to 7:15	1	0	0	**1**	13	2	0	**15**	0	0	0	**0**
7:15 to 7:30	0	0	0	**0**	22	4	0	**26**	0	0	0	**0**
7:30 to 7:45	2	0	0	**2**	26	2	0	**28**	0	0	0	**0**
7:45 to 8:00	0	1	0	**1**	36	2	0	**38**	0	0	0	**0**
8:00 to 8:15	2	0	0	**2**	34	7	0	**41**	0	0	0	**0**
8:15 to 8:30	2	0	0	**2**	55	4	0	**59**	0	0	0	**0**
8:30 to 8:45	2	0	0	**2**	54	7	0	**61**	0	0	0	**0**
8:45 to 9:00	0	0	0	**0**	54	7	0	**61**	0	0	0	**0**
9:00 to 9:15	1	0	0	**1**	57	3	0	**60**	0	0	0	**0**
9:15 to 9:30	0	0	0	**0**	38	3	0	**41**	0	0	0	**0**

Crossing Pedestrians																		
B to A			**A to B**			**D to C**			**C to D**			**F to E**			**E to F**		
Peds	**Cyclists**	**Total**	**Peds**	**Cyclists**	**Total**	**Peds**	**Cyclists**	**Total**	**Peds**	**Cyclists**	**Total**	**Peds**	**Cyclists**	**Total**	**Peds**	**Cyclists**	**Total**
0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	1	0	**1**
0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
0	0	**0**	0	0	**0**	2	0	**2**	0	0	**0**	1	0	**1**	0	0	**0**
0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**

AM Totals	**10**	**1**	**0**	**11**	**429**	**47**	**0**	**476**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**4**	**1**	**0**	**1**	**1**	**0**	**1**	**1**	**0**	**1**
15:00 to 15:15	0	0	0	**0**	75	5	1	**80**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
15:15 to 15:30	1	1	0	**2**	52	7	0	**59**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
15:30 to 15:45	0	0	0	**0**	59	3	0	**62**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
15:45 to 16:00	1	1	0	**2**	53	3	0	**56**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
16:00 to 16:15	0	0	0	**0**	47	3	0	**50**	0	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
16:15 to 16:30	1	0	0	**1**	67	2	0	**69**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**
16:30 to 16:45	1	0	0	**1**	60	7	0	**67**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
16:45 to 17:00	2	0	0	**2**	51	3	0	**54**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
17:00 to 17:15	0	0	0	**0**	45	3	0	**48**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
17:15 to 17:30	0	0	0	**0**	40	5	0	**45**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
17:30 to 17:45	0	1	0	**1**	28	2	0	**30**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
17:45 to 18:00	0	0	0	**0**	34	4	0	**38**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
PM Totals	**6**	**3**	**0**	**9**	**611**	**47**	**1**	**658**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**

Job No. : AUNSW11141
Client : Genium Civil Engineering Pty Ltd
Suburb : Yass
Location : 1. Laidlaw St / Reddall St

Day/Date : Thursday, 21 November 2024
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



MATRIX Traffic and Transport Data

Approach	Laidlaw St												Reddall St											
Direction	Direction 2 (Through)				Direction 3 (Right Turn)				Direction 3U (U Turn)				Direction 4 (Left Turn)				Direction 6 (Right Turn)				Direction 6U (U Turn)			
Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total
6:30 to 7:30	116	19	1	**135**	1	0	0	**1**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**	0	0	0	**0**
6:45 to 7:45	137	15	1	**152**	1	0	0	**1**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**	0	0	0	**0**
7:00 to 8:00	139	16	1	**155**	2	0	0	**2**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**	0	0	0	**0**
7:15 to 8:15	139	14	1	**153**	3	1	0	**4**	0	0	0	**0**	2	1	0	**3**	1	0	0	**1**	0	0	0	**0**
7:30 to 8:30	141	13	0	**154**	7	1	0	**8**	0	0	0	**0**	2	2	0	**4**	1	0	0	**1**	0	0	0	**0**
7:45 to 8:45	141	18	0	**159**	7	1	0	**8**	0	0	0	**0**	2	2	0	**4**	2	0	0	**2**	0	0	0	**0**
8:00 to 9:00	157	16	0	**173**	9	3	0	**12**	0	0	0	**0**	1	2	0	**3**	3	1	0	**4**	0	0	0	**0**
8:15 to 9:15	173	17	0	**190**	9	2	0	**11**	0	0	0	**0**	2	1	0	**3**	3	1	0	**4**	0	0	0	**0**
8:30 to 9:30	189	20	0	**209**	6	2	0	**8**	1	0	0	**1**	4	0	0	**4**	4	1	0	**5**	0	0	0	**0**
AM Totals	**446**	**52**	**1**	**498**	**14**	**3**	**0**	**17**	**1**	**0**	**0**	**1**	**8**	**2**	**0**	**10**	**5**	**1**	**0**	**6**	**0**	**0**	**0**	**0**
15:00 to 16:00	172	21	0	**193**	6	2	0	**8**	0	0	0	**0**	4	0	0	**4**	3	1	0	**4**	0	0	0	**0**
15:15 to 16:15	178	23	0	**201**	5	1	0	**6**	0	0	0	**0**	3	0	0	**3**	2	1	0	**3**	0	0	0	**0**
15:30 to 16:30	181	25	0	**206**	4	1	0	**5**	0	0	0	**0**	3	0	0	**3**	1	1	0	**2**	0	0	0	**0**
15:45 to 16:45	183	13	0	**196**	5	1	0	**6**	0	0	0	**0**	4	0	0	**4**	2	1	0	**3**	0	0	0	**0**
16:00 to 17:00	163	10	0	**173**	3	1	0	**4**	0	0	0	**0**	7	0	0	**7**	1	0	0	**1**	0	0	0	**0**
16:15 to 17:15	167	7	0	**174**	4	1	0	**5**	0	0	0	**0**	5	0	0	**5**	1	0	0	**1**	0	0	0	**0**
16:30 to 17:30	167	5	0	**172**	4	1	0	**5**	1	0	0	**1**	6	0	0	**6**	2	0	0	**2**	0	0	0	**0**
16:45 to 17:45	168	3	0	**171**	2	0	0	**2**	1	0	0	**1**	6	0	0	**6**	1	0	0	**1**	0	0	0	**0**
17:00 to 18:00	164	3	0	**167**	3	0	0	**3**	1	0	0	**1**	3	0	0	**3**	4	0	0	**4**	0	0	0	**0**
PM Totals	**499**	**34**	**0**	**533**	**12**	**3**	**0**	**15**	**1**	**0**	**0**	**1**	**14**	**0**	**0**	**14**	**8**	**1**	**0**	**9**	**0**	**0**	**0**	**0**

Approach	Laidlaw St											
Direction	Direction 7 (Left Turn)				Direction 8 (Through)				Direction 9U (U Turn)			
Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total
6:30 to 7:30	1	0	0	**1**	75	12	0	**87**	0	0	0	**0**
6:45 to 7:45	3	0	0	**3**	84	13	0	**97**	0	0	0	**0**
7:00 to 8:00	3	1	0	**4**	97	10	0	**107**	0	0	0	**0**
7:15 to 8:15	4	1	0	**5**	118	15	0	**133**	0	0	0	**0**
7:30 to 8:30	6	1	0	**7**	151	15	0	**166**	0	0	0	**0**

Crossing Pedestrians																	
B to A			A to B			D to C			C to D			F to E			E to F		
Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total
0	0	**0**	0	0	**0**	2	0	**2**	1	0	**1**	1	0	**1**	1	0	**1**
0	0	**0**	0	0	**0**	2	0	**2**	0	0	**0**	1	0	**1**	0	0	**0**
0	0	**0**	0	0	**0**	2	0	**2**	0	0	**0**	1	0	**1**	0	0	**0**
0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**

7:45 to 8:45	6	1	0	**7**	179	20	0	**199**
8:00 to 9:00	6	0	0	**6**	197	25	0	**222**
8:15 to 9:15	5	0	0	**5**	220	21	0	**241**
8:30 to 9:30	3	0	0	**3**	203	20	0	**223**
AM Totals	**10**	**1**	**0**	**11**	**429**	**47**	**0**	**476**
15:00 to 16:00	2	2	0	**4**	239	18	1	**257**
15:15 to 16:15	2	2	0	**4**	211	16	0	**227**
15:30 to 16:30	2	1	0	**3**	226	11	0	**237**
15:45 to 16:45	3	1	0	**4**	227	15	0	**242**
16:00 to 17:00	4	0	0	**4**	225	15	0	**240**
16:15 to 17:15	4	0	0	**4**	223	15	0	**238**
16:30 to 17:30	3	0	0	**3**	196	18	0	**214**
16:45 to 17:45	2	1	0	**3**	164	13	0	**177**
17:00 to 18:00	0	1	0	**1**	147	14	0	**161**
PM Totals	**6**	**3**	**0**	**9**	**611**	**47**	**1**	**658**

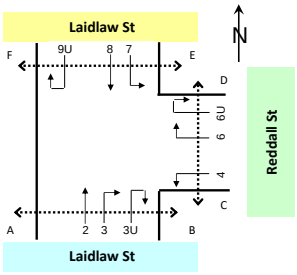
7:45 to 8:45	0	0	0	**0**
8:00 to 9:00	0	0	0	**0**
8:15 to 9:15	0	0	0	**0**
8:30 to 9:30	0	0	0	**0**
AM Totals	**0**	**0**	**0**	**0**
15:00 to 16:00	0	0	0	**0**
15:15 to 16:15	0	0	0	**0**
15:30 to 16:30	0	0	0	**0**
15:45 to 16:45	0	0	0	**0**
16:00 to 17:00	0	0	0	**0**
16:15 to 17:15	0	0	0	**0**
16:30 to 17:30	0	0	0	**0**
16:45 to 17:45	0	0	0	**0**
17:00 to 18:00	0	0	0	**0**
PM Totals	**0**	**0**	**0**	**0**

7:45 to 8:45	0	0	**0**	0	0	**0**	2	0	**2**	0	0	**0**	0	0	**0**	0	0	**0**
8:00 to 9:00	0	0	**0**	0	0	**0**	2	0	**2**	0	0	**0**	0	0	**0**	0	0	**0**
8:15 to 9:15	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
8:30 to 9:30	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
AM Totals	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**4**	**1**	**0**	**1**	**1**	**0**	**1**	**1**	**0**	**1**
15:00 to 16:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
15:15 to 16:15	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
15:30 to 16:30	0	0	**0**	1	0	**1**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**
15:45 to 16:45	0	0	**0**	1	0	**1**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**
16:00 to 17:00	0	0	**0**	1	0	**1**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**
16:15 to 17:15	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**
16:30 to 17:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
16:45 to 17:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
17:00 to 18:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
PM Totals	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**

Laidlaw/Reddall Street Intersection - Peak Hour Summary

Job No. : AUNSW11141
Client : Genium Civil Engineering Pty Ltd
Suburb : Yass
Location : 1. Laidlaw St / Reddall St

Day/Date : Thursday, 21 November 2024
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



MATRIX Traffic and Transport Data

	Approach	Laidlaw St				Reddall St				Laidlaw St				Grand Total
	Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	
AM	8:15 to 9:15	182	19	0	**201**	5	2	0	**7**	225	21	0	**246**	**454**
PM	15:00 to 16:00	178	23	0	**201**	7	1	0	**8**	241	20	1	**261**	**470**

Approach	Laidlaw St				Reddall St				Laidlaw St				Grand Total
Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	
6:30 to 7:30	117	19	1	**136**	2	0	0	**2**	76	12	0	**88**	**226**
6:45 to 7:45	138	15	1	**153**	2	0	0	**2**	87	13	0	**100**	**255**
7:00 to 8:00	141	16	1	**157**	2	0	0	**2**	100	11	0	**111**	**270**
7:15 to 8:15	142	15	1	**157**	3	1	0	**4**	122	16	0	**138**	**299**
7:30 to 8:30	148	14	0	**162**	3	2	0	**5**	157	16	0	**173**	**340**
7:45 to 8:45	148	19	0	**167**	4	2	0	**6**	185	21	0	**206**	**379**
8:00 to 9:00	166	19	0	**185**	4	3	0	**7**	203	25	0	**228**	**420**
8:15 to 9:15	182	19	0	**201**	5	2	0	**7**	225	21	0	**246**	**454**
8:30 to 9:30	196	22	0	**218**	8	1	0	**9**	206	20	0	**226**	**453**
AM Totals	**461**	**55**	**1**	**516**	**13**	**3**	**0**	**16**	**439**	**48**	**0**	**487**	**1,019**
15:00 to 16:00	178	23	0	**201**	7	1	0	**8**	241	20	1	**261**	**470**
15:15 to 16:15	183	24	0	**207**	5	1	0	**6**	213	18	0	**231**	**444**
15:30 to 16:30	185	26	0	**211**	4	1	0	**5**	228	12	0	**240**	**456**
15:45 to 16:45	188	14	0	**202**	6	1	0	**7**	230	16	0	**246**	**455**
16:00 to 17:00	166	11	0	**177**	8	0	0	**8**	229	15	0	**244**	**429**
16:15 to 17:15	171	8	0	**179**	6	0	0	**6**	227	15	0	**242**	**427**
16:30 to 17:30	172	6	0	**178**	8	0	0	**8**	199	18	0	**217**	**403**
16:45 to 17:45	171	3	0	**174**	7	0	0	**7**	166	14	0	**180**	**361**
17:00 to 18:00	168	3	0	**171**	7	0	0	**7**	147	15	0	**162**	**340**
PM Totals	**512**	**37**	**0**	**549**	**22**	**1**	**0**	**23**	**617**	**50**	**1**	**667**	**1,239**

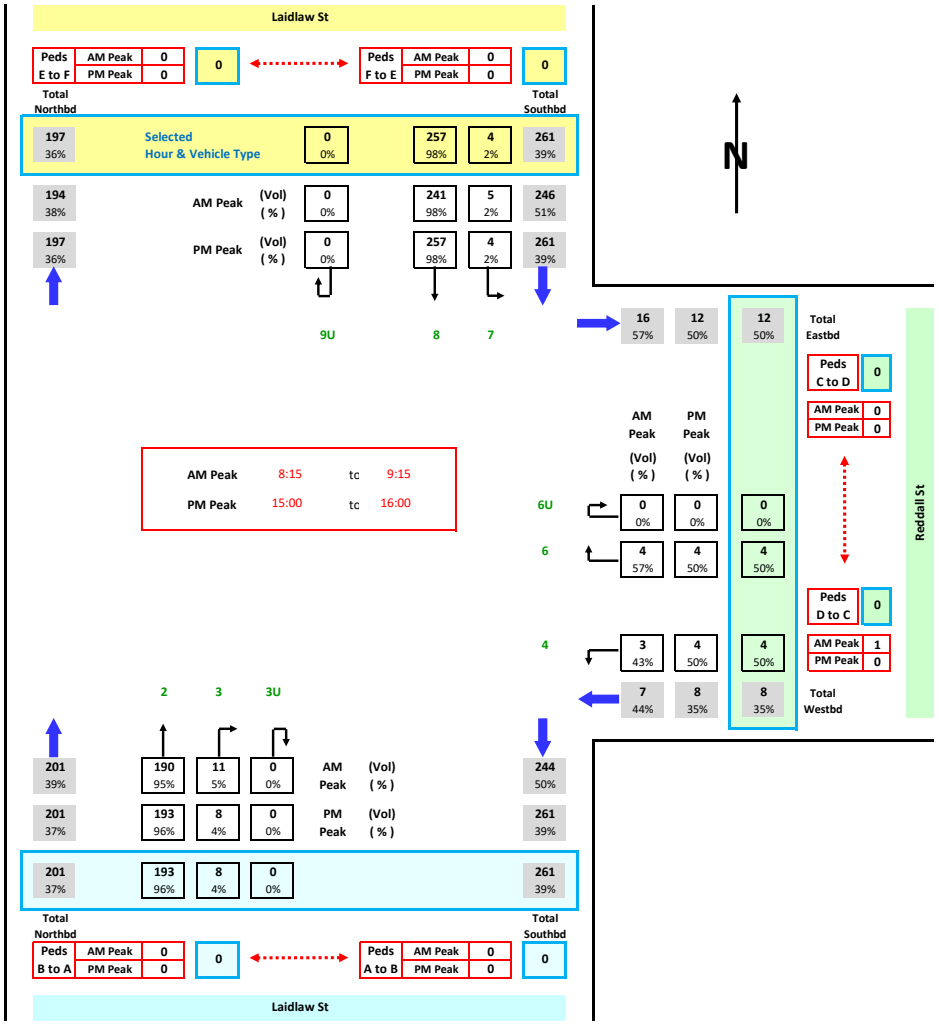
2024 Peak Hour (PM)

Job No. : AUNSW11141
Client : Genium Civil Engineering Pty Ltd
Suburb : Yass
Location : 1. Laidlaw St / Reddall St

Day/Date : Thursday, 21 November 2024
Weather : Fine
Description : Classified Intersection Count
: Intersection Diagram

Hour Starting: 15:00 | Vehicle Type: All Vehicles

MATRIX Traffic and Transport Data



Appendix C – Transport Modelling

April 2025

Genium Civil Engineering

Traffic Engineering Centre
Our clients are our partners

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Revision	Details	Date	Amended by

Distribution: Genium Civil Engineering, Traffic Engineering Centre (file)

Contents

1. Introduction

Traffic Engineering Centre was commissioned by 'Genium Civil Engineering' to undertake a Traffic Impact Assessment using the SIDRA intersection modelling software package to assess the following three scenarios for the Yass Valley Way / CHR intersection in Yass, NSW:

1. 2024 Peak Hour (PM) movements
2. 2030 Peak hour (PM) movement – based on traffic growth and no development
3. 2030 Peak hour (PM) movements – including traffic generation from a fully developed site

Figure 1.1: Current intersection layout - Locality map
(Source: nearmap)

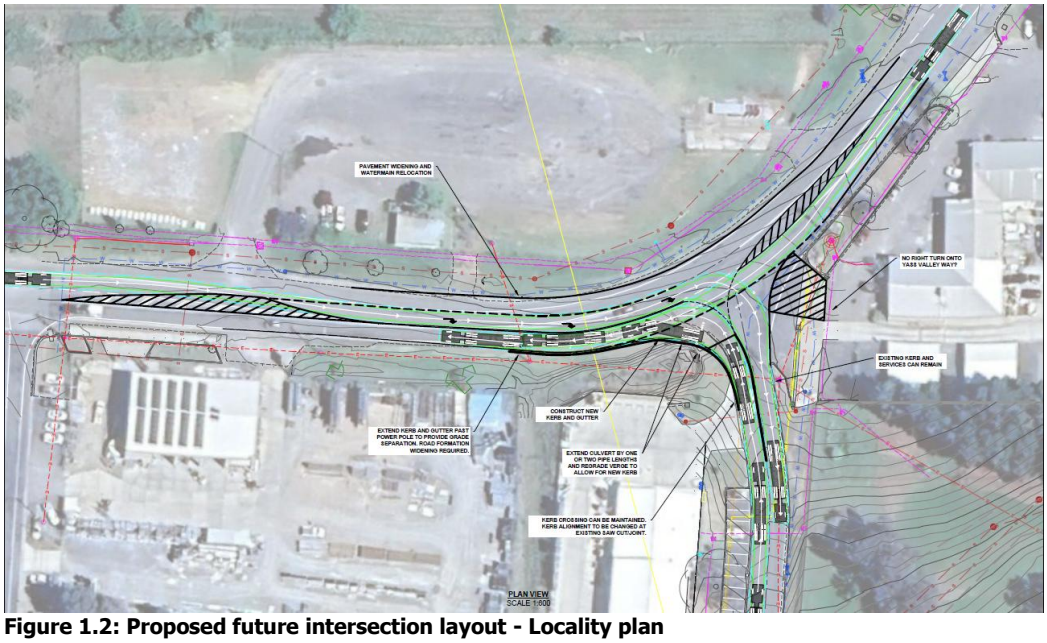


Figure 1.2: Proposed future intersection layout - Locality plan
(Source: Genium Civil Engineering)

2. Intersection performance

2.1 SIDRA model and its performance indicators

The SIDRA package provides several useful indicators that describe intersection performance. This report has used four typical performance indicators as listed and described below:

- level of service (LoS)
- degree of saturation (DoS)
- average intersection delay, and
- queue length.

Level of Service (LOS)

LoS is a basic performance parameter used to describe the operation of an intersection. Levels of service range from A (indicating good intersection operation) to F (indicating over saturated conditions with long delays and queues). At signalised intersections, the LoS criteria are related to average intersection delay (seconds per vehicle). At priority controlled (give-way and stop controlled) and roundabout intersections, the LoS is based on the modelled delay (seconds per vehicle) for the most delayed movement (refer to Table 2.1). The Roads and Maritime Service typically consider a LoS D or better acceptable on most urban roads.

Table 2.1: Levels of Service

Level of service	Average delay (seconds per vehicle)	Traffic signals, Roundabout	Priority Intersection ('Stop' and 'Give Way')
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity. At signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity; requires other control mode
F	Greater than 71	Unsatisfactory with excessive queuing	Unsatisfactory with excessive queuing; requires other control mode

Source: RMS Guide to Traffic Generating Developments

Degree of Saturation (DoS)

DoS is the ratio of demand flow to capacity, and therefore has no unit. As it approaches 1.0, extensive queues and delays could be expected. For a satisfactory situation, DoS should be less than the nominated practical degree of saturation, usually 0.9. The intersection DoS is based on the movement with the highest value.

Delay

Delay is the difference between interrupted and uninterrupted travel times through the intersection and is measured in seconds per vehicle. At signalised intersections and roundabouts, the average intersection delay is usually reported. At priority-controlled intersections, the average delay for the most delayed movement is usually reported.

Queue length

Queue length is directly related to the number of vehicles waiting at the stop line and is usually quoted as the 95th percentile back of queue, which is the value below which 95% of all observed queue lengths fall. It is measured as the length occupied by the vehicles per traffic lane at the start of the green period, when traffic starts moving again after a red signal. The intersection queue length is usually taken from the movement with the longest queue length.

3. Summary of SIDRA Assessment Results

3.1.1 'Do nothing' Scenario - 2024 Peak Hour (PM)

Figure 3.1 shows the PM Peak traffic volume at the Yass Valley Way / Laidlaw Street / Reddall Street intersection.

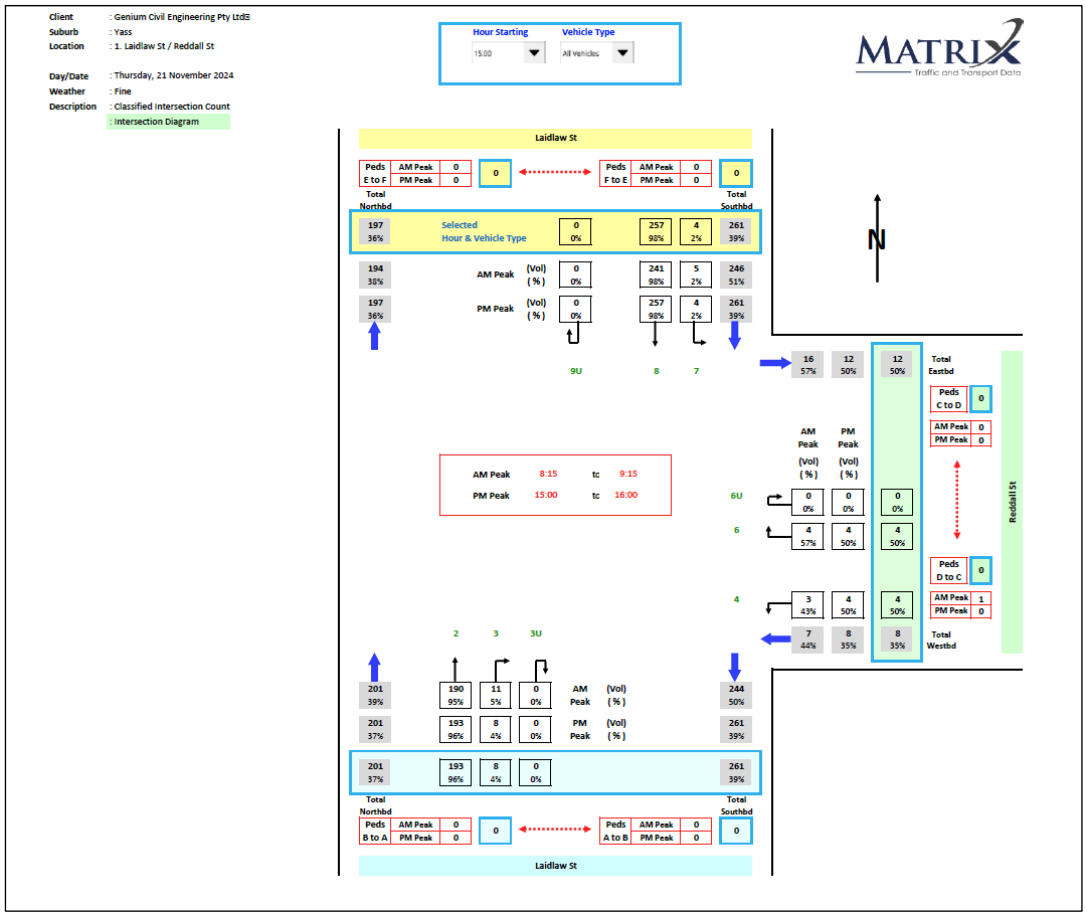


Figure 3.1: 2024 Peak Hour (PM) movements

Figure 3.2 shows the intersection layout for the modelling purposes.

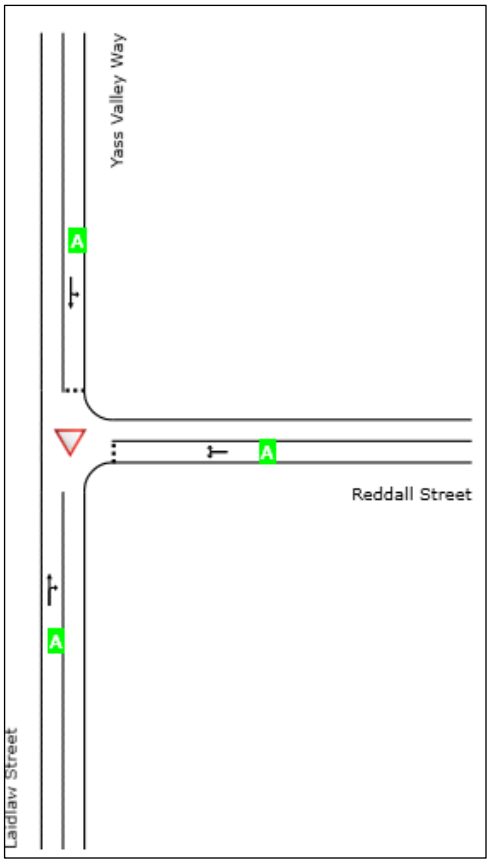


Figure 3.2: Intersection layout for the SIDRA modelling purposes

The results clearly indicate that currently, the intersection operates at an excellent overall **Level of Service** of **A**.

The intersection is functioning well within its designed capacity, indicating sufficient spare capacity during the peak hour to accommodate any increase in future traffic without affecting overall intersection performance.

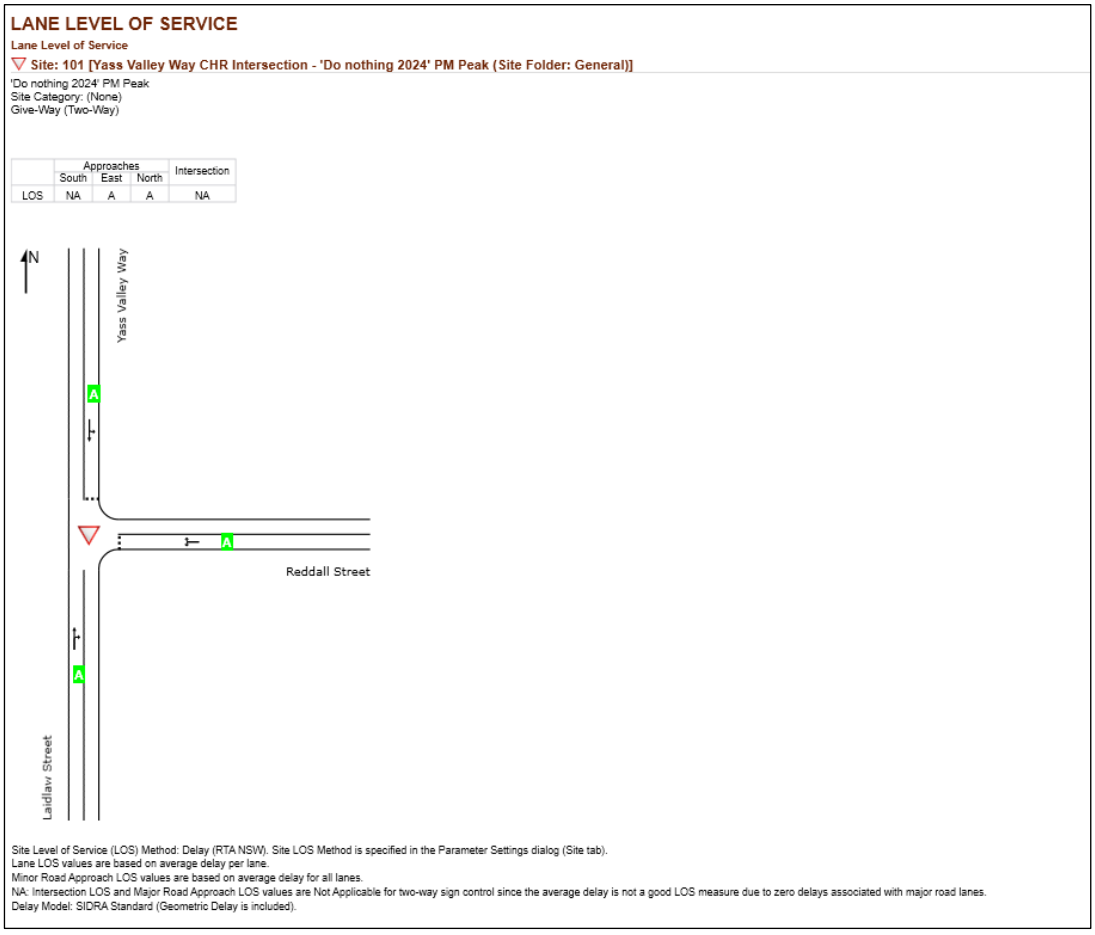
The intersection also seems to be very well balanced, with no long **delays** and no **queues**.

The **maximum 95th percentile queue length** is only 0.0m on all three approaches. In other words, most of the time, there would be no queuing at the intersection.

The SIDRA modelling results suggest that the maximum average delay of 7.6s, which drivers would experience on either of the three approaches, is insignificant.

'Do nothing' Scenario - 2024 Peak Hour (PM) - intersection performance results

Approach and direction		Degree of Saturation (v/c)	Average Delay (sec/veh)	Level of Service (LOS)	95% Back of Queue (m)
Yass Valley Way	**L**	0.141	5.6	A	0
	T	0.141	4.2	A	0
Reddall Street	**R**	0.010	7.6	A	0
	L	0.010	6.3	A	0
Laidlaw Street	**T**	0.109	0.0	A	0
	R	0.109	5.7	A	0



DELAY (CONTROL)

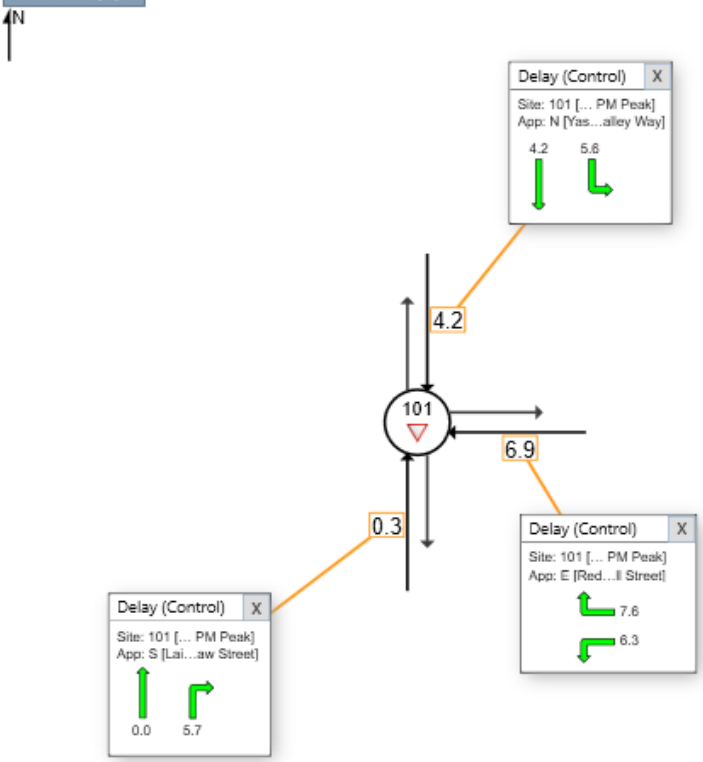
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Yass Valley Way CHR Intersection - 'Do nothing 2024' PM Peak (Site Folder: General)]

'Do nothing 2024' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
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).
Delay Model: SIDRA Standard (Geometric Delay is included).

QUEUE DISTANCE (PERCENTILE)

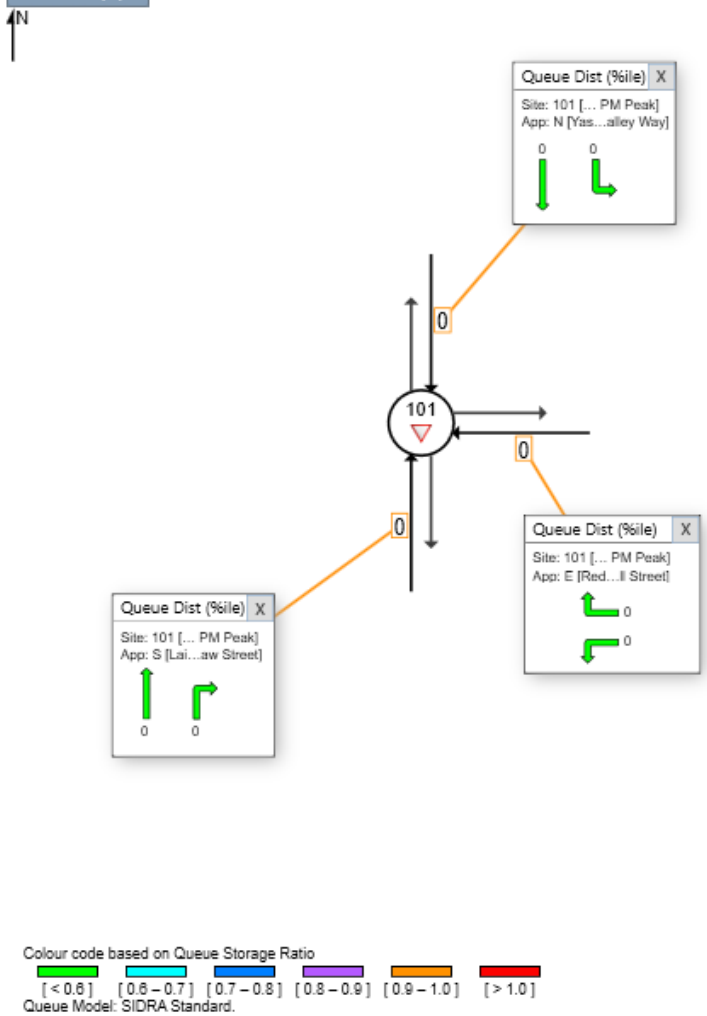
Largest 95% Back of Queue Distance for any lane used by the vehicle movement (metres)

Site: 101 [Yass Valley Way CHR Intersection - 'Do nothing 2024' PM Peak (Site Folder: General)]

'Do nothing 2024' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA Standard.

DEGREE OF SATURATION

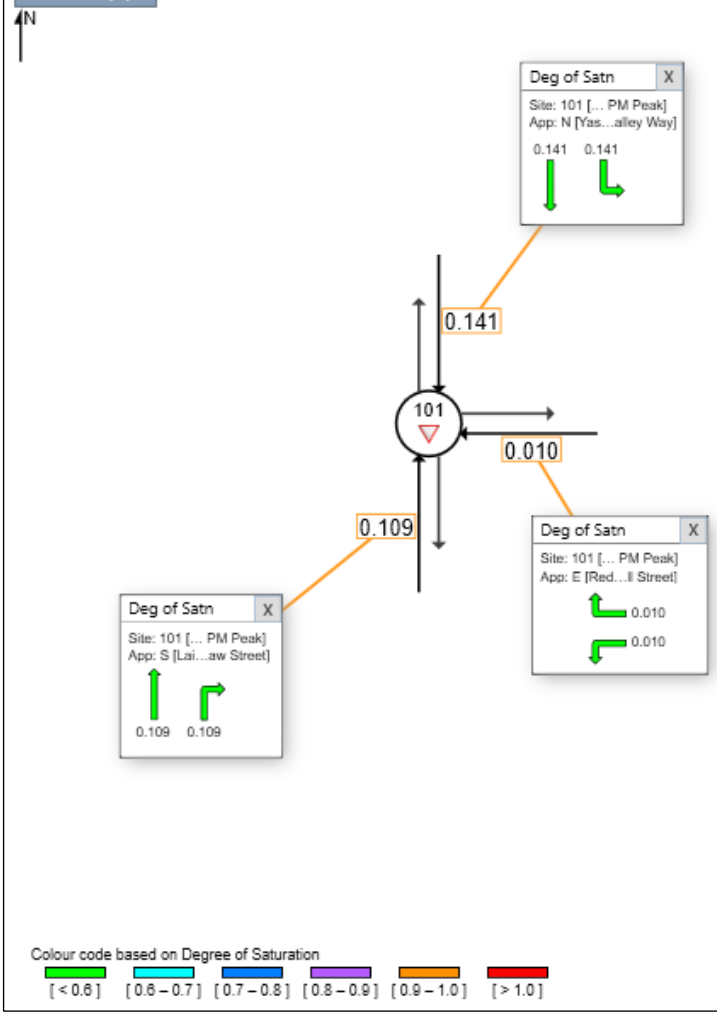
Ratio of Demand Volume to Capacity, v/c ratio per movement

▽ Site: 101 [Yass Valley Way CHR Intersection - 'Do nothing 2024' PM Peak (Site Folder: General)]

'Do nothing 2024' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

MOVEMENT SUMMARY

▽ Site: 101 [Yass Valley Way CHR Intersection - 'Do nothing 2024' PM Peak (Site Folder: General)]

'Do nothing 2024' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Laidlaw Street														
2	T1	193	0.0	203	0.0	0.109	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.3
3	R2	8	20.0	8	20.0	0.109	5.7	LOS A	0.0	0.0	0.00	0.02	0.00	56.1
Approach		201	0.8	212	0.8	0.109	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.2
East: Reddall Street														
4	L2	4	50.0	4	50.0	0.010	6.3	LOS A	0.0	0.3	0.39	0.59	0.39	46.9
6	R2	4	0.0	4	0.0	0.010	7.6	LOS A	0.0	0.3	0.39	0.59	0.39	50.6
Approach		8	25.0	8	25.0	0.010	6.9	LOS A	0.0	0.3	0.39	0.59	0.39	48.7
North: Yass Valley Way														
7	L2	4	0.0	4	0.0	0.141	5.6	LOS A	0.0	0.0	0.00	0.53	0.00	54.7
8	T1	257	0.0	271	0.0	0.141	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.9
Approach		261	0.0	275	0.0	0.141	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.9
All Vehicles		470	0.8	495	0.8	0.141	2.6	NA	0.0	0.3	0.01	0.31	0.01	56.5

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

3.1.2 'No development' Scenario - 2030 Peak hour (PM) based on traffic growth and no development

Figure 3.3 shows the PM Peak traffic volume at the Yass Valley Way / Laidlaw Street / Reddall Street intersection.

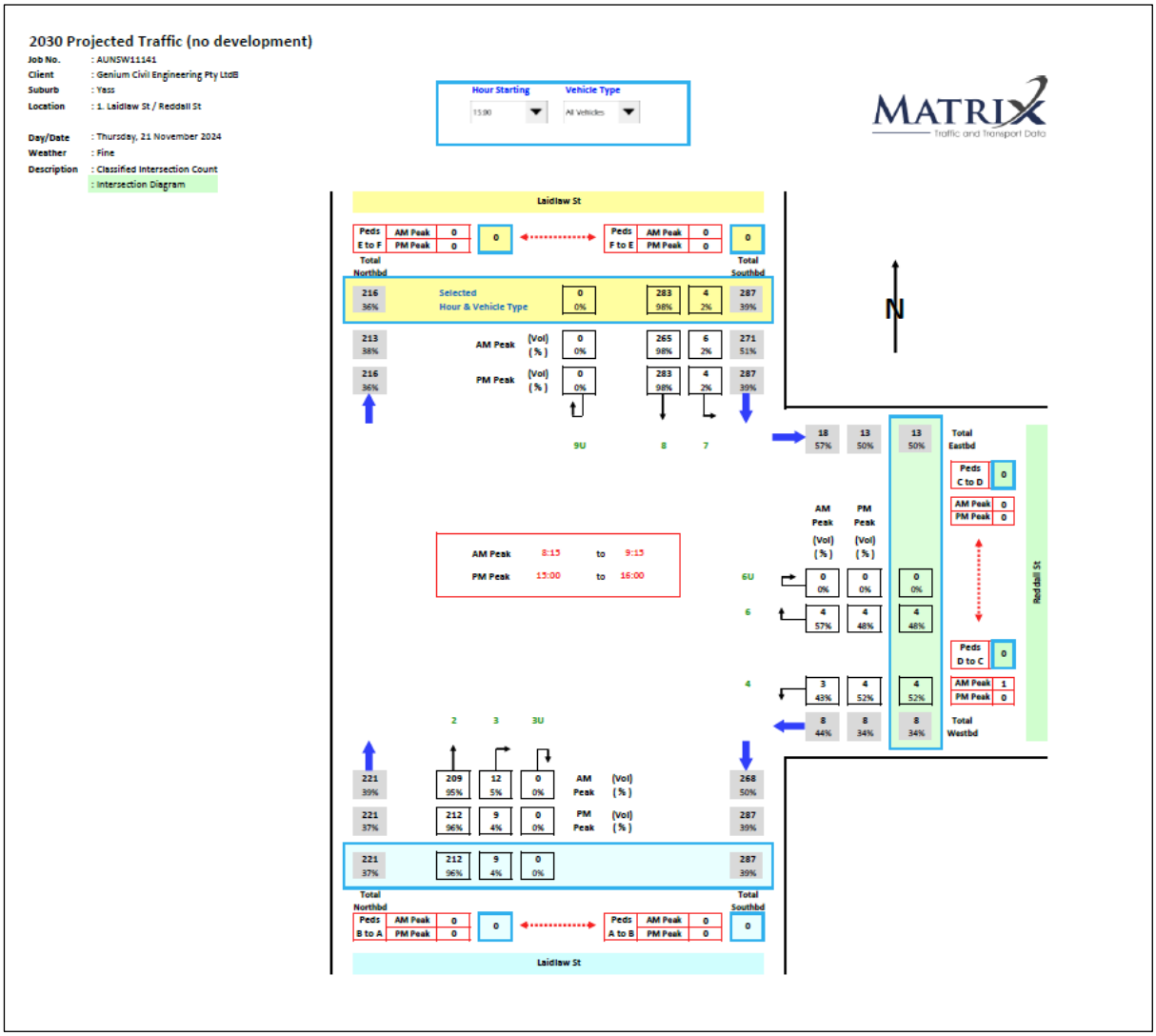


Figure 3.3: 2030 Peak Hour (PM) movements – no development in place

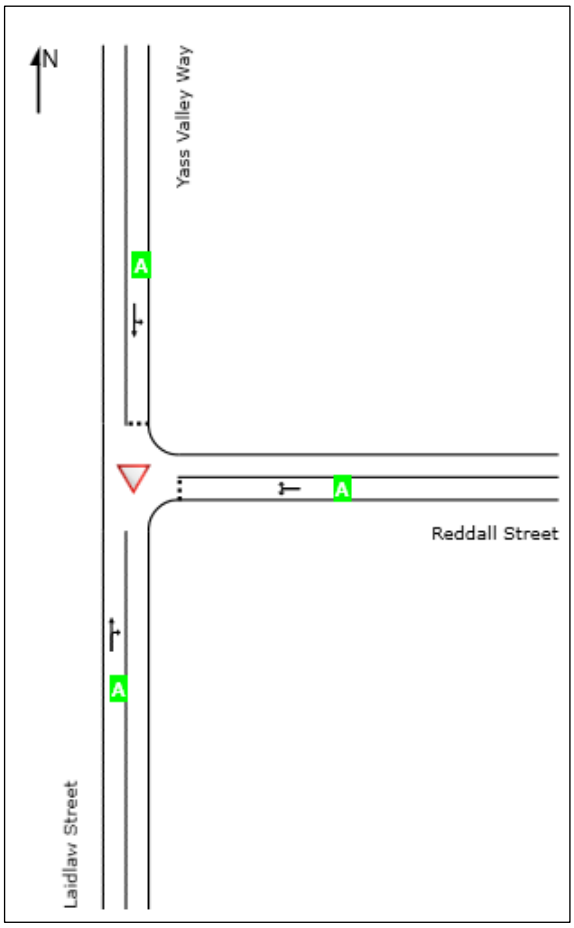


Figure 3.4: Intersection layout for the SIDRA modelling purposes

The results clearly indicate that, in 2030, with traffic growth but without development, the intersection will continue to operate at an excellent overall **Level of Service** of **A**.

The intersection will operate well within its designed capacity, indicating sufficient spare capacity during the peak hour to accommodate any increase in future traffic without affecting overall intersection performance.

The intersection also seems to be very well balanced, with no long **delays** and no **queues**.

The **maximum 95th percentile queue length** is only 0.0m on all three approaches. In other words, most of the time, there would be no queuing at the intersection.

The SIDRA modelling results suggest that the maximum **average delay** of 7.9s, which drivers would experience on either of the three approaches, is insignificant.

'Do nothing' Scenario - 2030 Peak Hour (PM) - intersection performance results

Approach and direction		Degree of Saturation (v/c)	Average Delay (sec/veh)	Level of Service (LOS)	95% Back of Queue (m)
Yass Valley Way	**L**	0.156	5.6	A	0
	T	0.156	4.2	A	0
Reddall Street	**R**	0.010	7.9	A	0
	L	0.010	6.5	A	0
Laidlaw Street	**T**	0.109	0.0	A	0
	R	0.109	5.7	A	0

QUEUE DISTANCE (PERCENTILE)

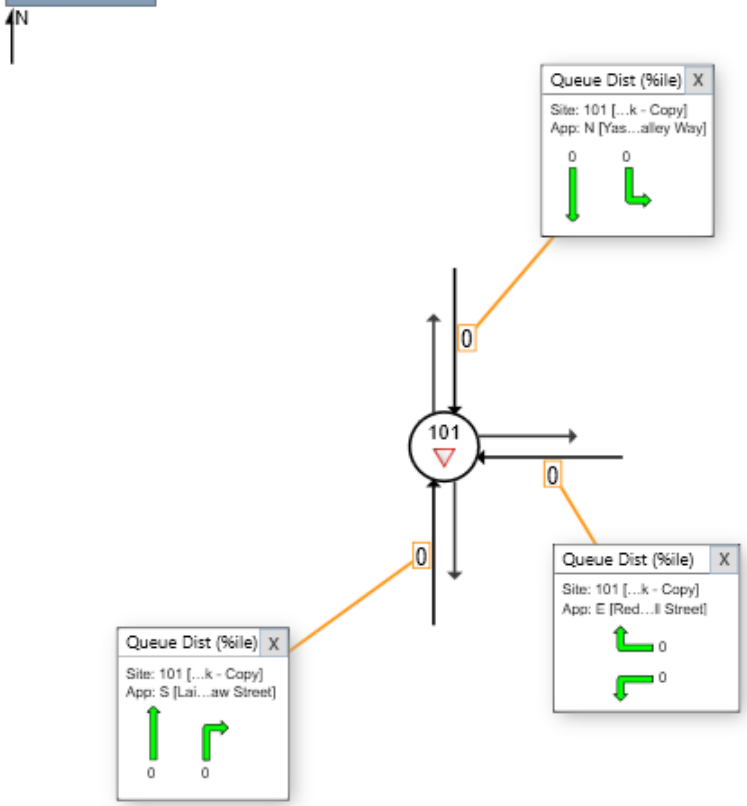
Largest 95% Back of Queue Distance for any lane used by the vehicle movement (metres)

Site: 101 [Yass Valley Way CHR Intersection - 'Do nothing 2030' PM Peak - Copy (Site Folder: General)]

'Do nothing 2030' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA Standard.

DELAY (CONTROL)

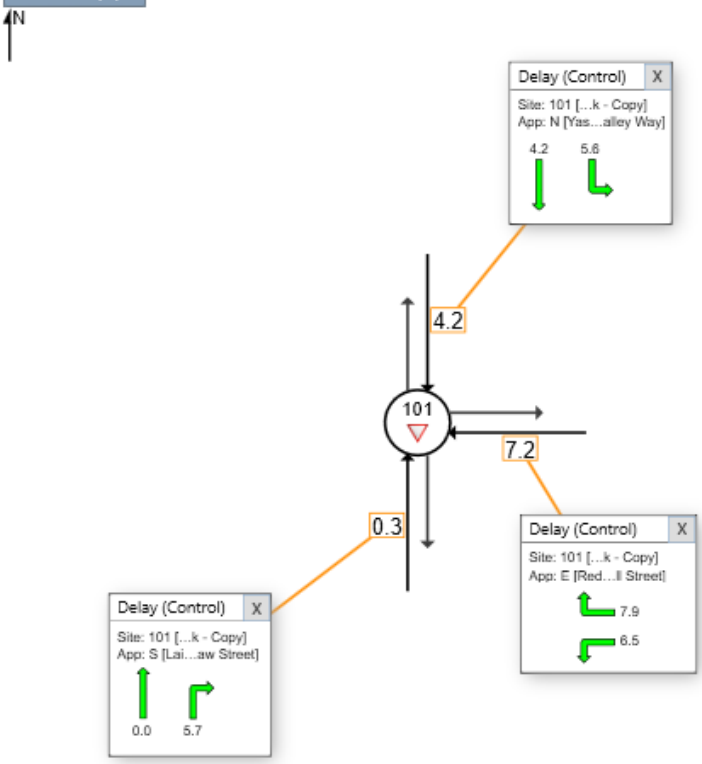
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Yass Valley Way CHR Intersection - 'Do nothing 2030' PM Peak - Copy (Site Folder: General)]

'Do nothing 2030' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
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).
Delay Model: SIDRA Standard (Geometric Delay is included).

DEGREE OF SATURATION

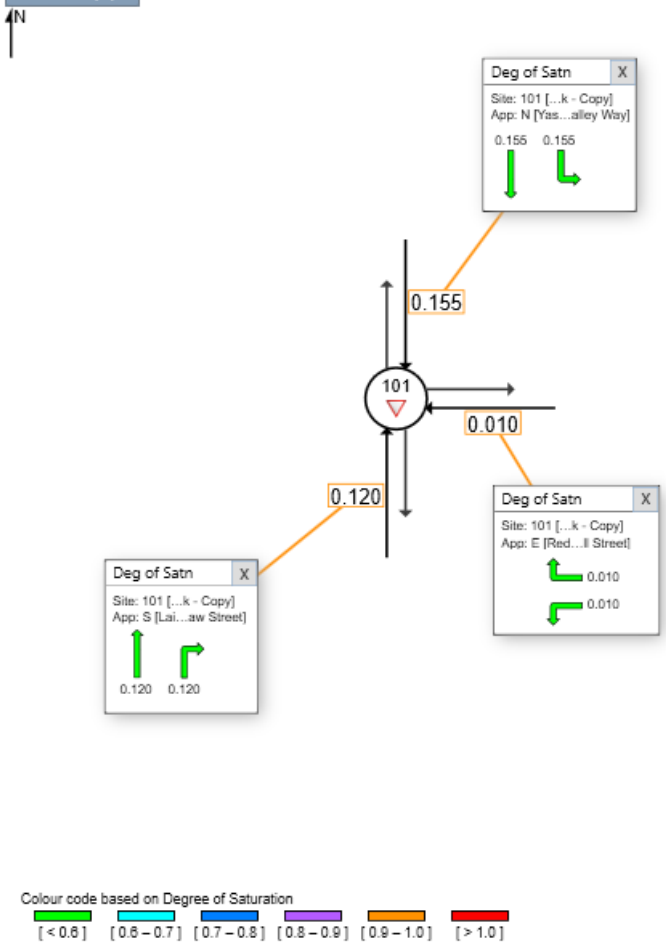
Ratio of Demand Volume to Capacity, v/c ratio per movement

▽ Site: 101 [Yass Valley Way CHR Intersection - 'Do nothing 2030' PM Peak - Copy (Site Folder: General)]

'Do nothing 2030' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

MOVEMENT SUMMARY

▽ Site: 101 [Yass Valley Way CHR Intersection - 'Do nothing 2030' PM Peak - Copy (Site Folder: General)]

'Do nothing 2030' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h]	INPUT VOLUMES HV] %	DEMAND FLOWS [Total veh/h]	DEMAND FLOWS HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh]	95% BACK OF QUEUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Laidlaw Street														
2	T1	212	0.0	223	0.0	0.120	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.3
3	R2	9	20.0	9	20.0	0.120	5.7	LOS A	0.0	0.0	0.00	0.02	0.00	56.1
Approach		221	0.8	233	0.8	0.120	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.2
East: Reddall Street														
4	L2	4	50.0	4	50.0	0.010	6.5	LOS A	0.0	0.3	0.41	0.61	0.41	46.8
6	R2	4	0.0	4	0.0	0.010	7.9	LOS A	0.0	0.3	0.41	0.61	0.41	50.4
Approach		8	25.0	8	25.0	0.010	7.2	LOS A	0.0	0.3	0.41	0.61	0.41	48.5
North: Yass Valley Way														
7	L2	4	0.0	4	0.0	0.155	5.6	LOS A	0.0	0.0	0.00	0.53	0.00	54.7
8	T1	283	0.0	298	0.0	0.155	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.9
Approach		287	0.0	302	0.0	0.155	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.9
All Vehicles		516	0.7	543	0.7	0.155	2.6	NA	0.0	0.3	0.01	0.31	0.01	56.5

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

3.1.3 'Development' Scenario - 2030 Peak hour (PM) – including traffic generation from a fully developed site

Figure 3.5 shows the PM Peak traffic volume at the Yass Valley Way / Laidlaw Street / Reddall Street intersection.

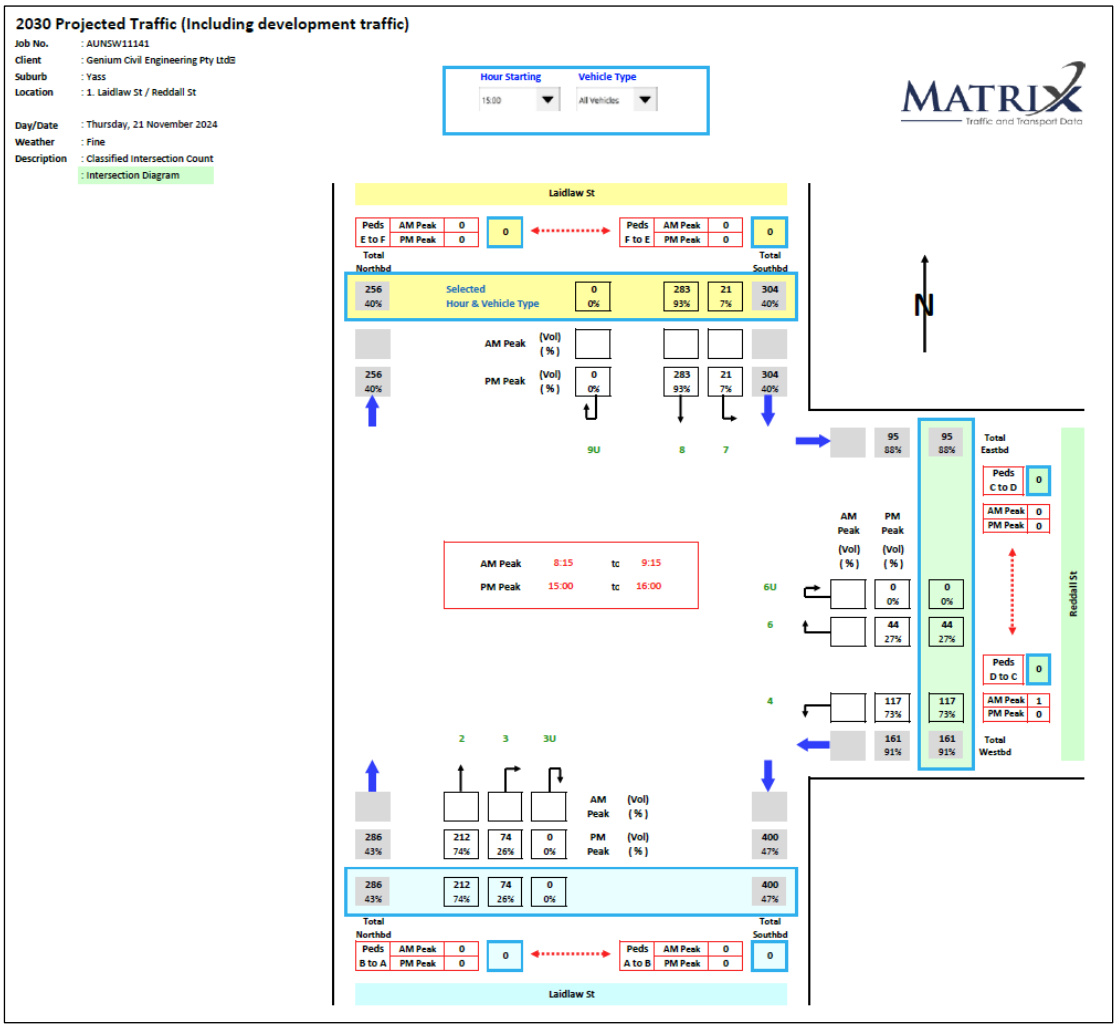


Figure 3.5: 2030 Peak Hour (PM) movements – development in place

Figure 3.6 shows the intersection layout for the modelling purposes, including the proposed ≈ 100m right turn lane on Laidlaw Lane.

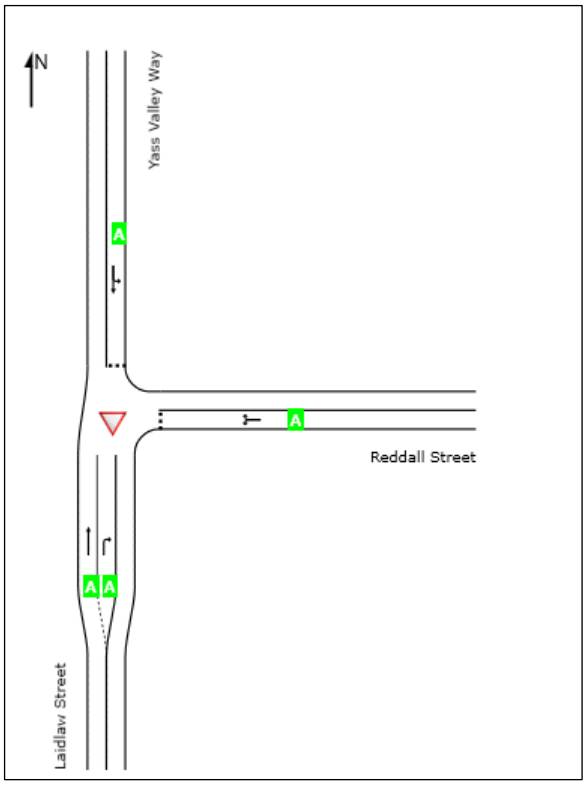
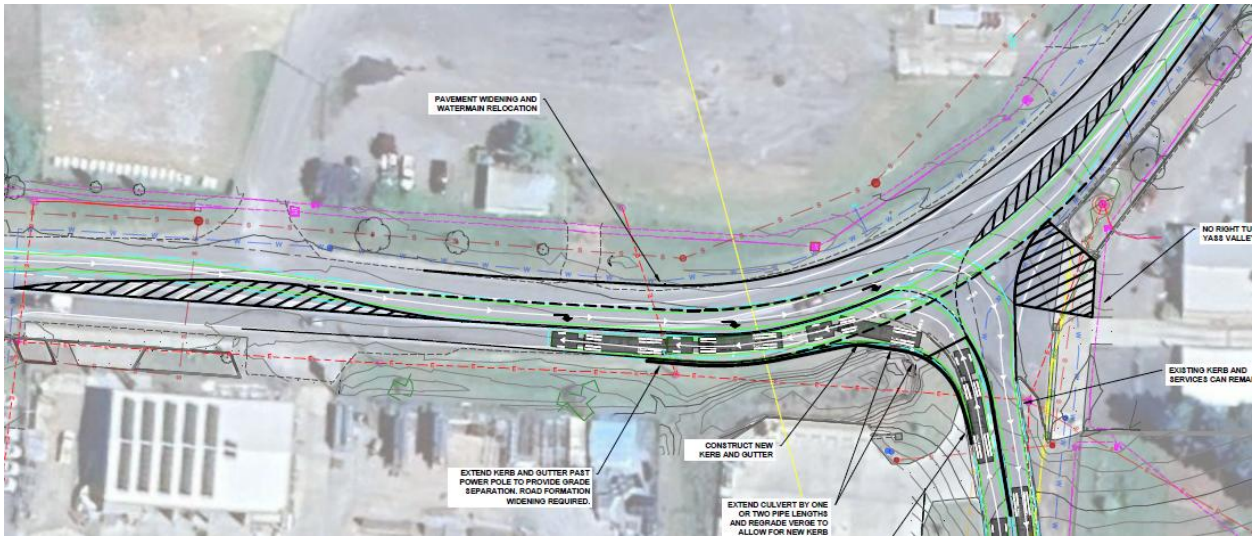


Figure 3.6: Intersection layout for the SIDRA modelling purposes



The results clearly indicate that, in 2030, with traffic growth with fully operational development, the intersection will continue to operate at an excellent overall **Level of Service** of **A**.

The intersection will operate well within its designed capacity, indicating sufficient spare capacity during the peak hour to accommodate any increase in future traffic without affecting overall intersection performance.

The intersection also seems to be very well balanced, with no long **delays** and **queues**.

The **maximum 95th percentile queue length** is only 7.0m [on Reddall Street]. In other words, there would be minimal queuing at the intersection most of the time.

The SIDRA modelling results indicate that the maximum average delay is 9.0 seconds. This represents a small and insignificant increase of only 1.1 seconds compared to the 'No development' Scenario - 2030'. Therefore, drivers are unlikely to experience longer delays on any of the three approaches.

'Development' Scenario - 2030 Peak Hour (PM) - intersection performance results

Approach and direction		Degree of Saturation (v/c)	Average Delay (sec/veh)	Level of Service (LOS)	95% Back of Queue (m)
Yass Valley Way	**L**	0.165	5.6	A	0
	T	0.165	4.2	A	0
Reddall Street	**R**	0.200	9.0	A	7
	L	0.200	6.8	A	7
Laidlaw Street	**T**	0.114	0.0	A	0
	R	0.048	4.8	A	0

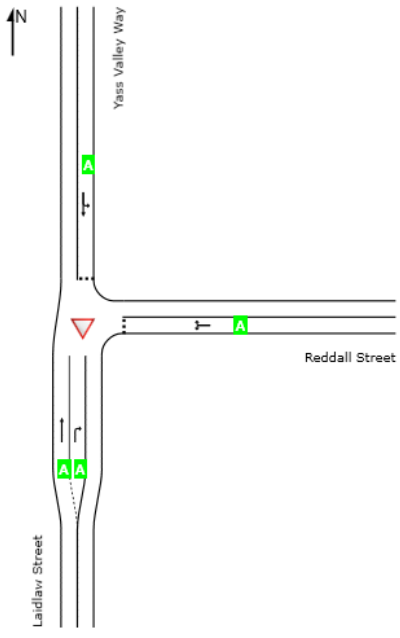
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [Yass Valley Way CHR Intersection - 'Development 2030' PM Peak - Copy - Copy (Site Folder: General)]

'Development 2030' PM Peak
Site Category: (None)
Give-Way (Two-Way)

	Approaches			Intersection
	South	East	North	
LOS	NA	A	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).

QUEUE DISTANCE (PERCENTILE)

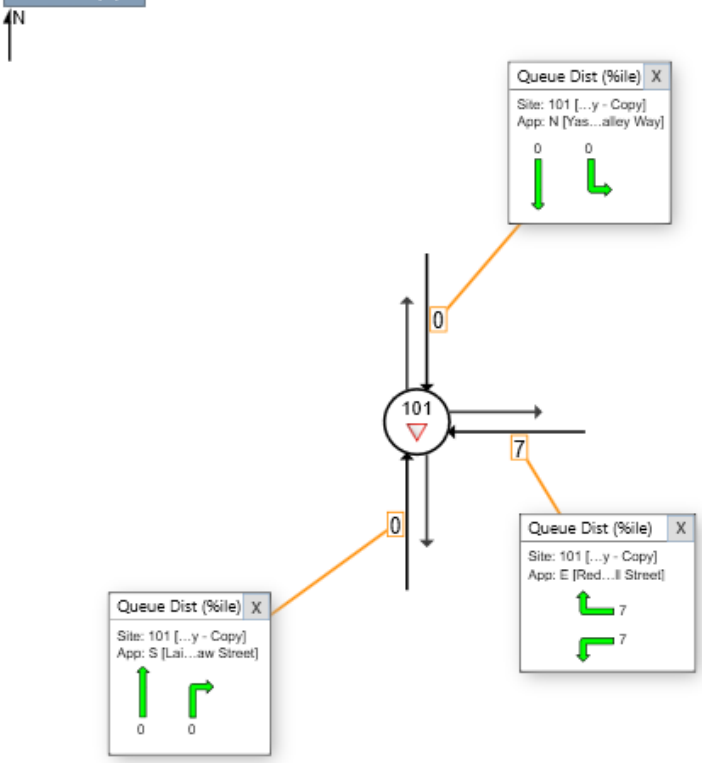
Largest 95% Back of Queue Distance for any lane used by the vehicle movement (metres)

Site: 101 [Yass Valley Way CHR Intersection - 'Development 2030' PM Peak - Copy - Copy (Site Folder: General)]

'Development 2030' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA Standard.

DELAY (CONTROL)

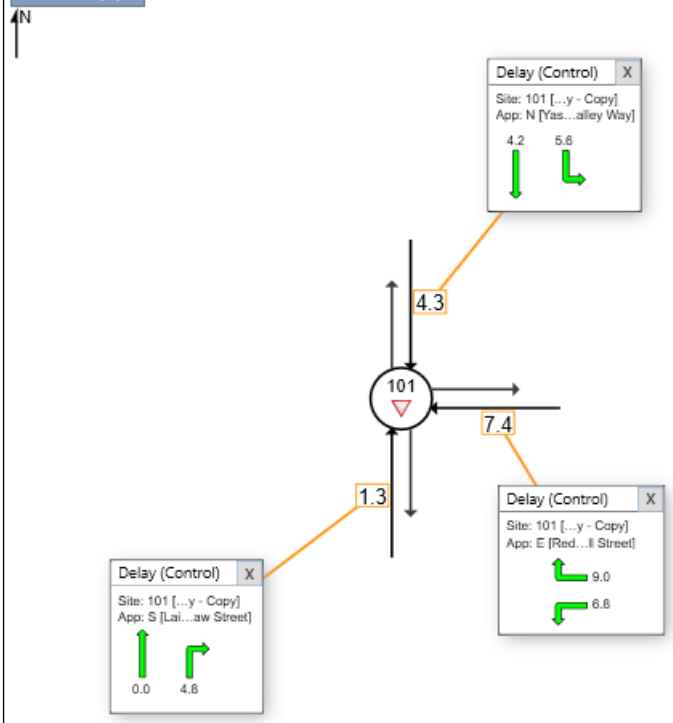
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Yass Valley Way CHR Intersection - 'Development 2030' PM Peak - Copy - Copy (Site Folder: General)]

'Development 2030' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
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).
Delay Model: SIDRA Standard (Geometric Delay is included).

DEGREE OF SATURATION

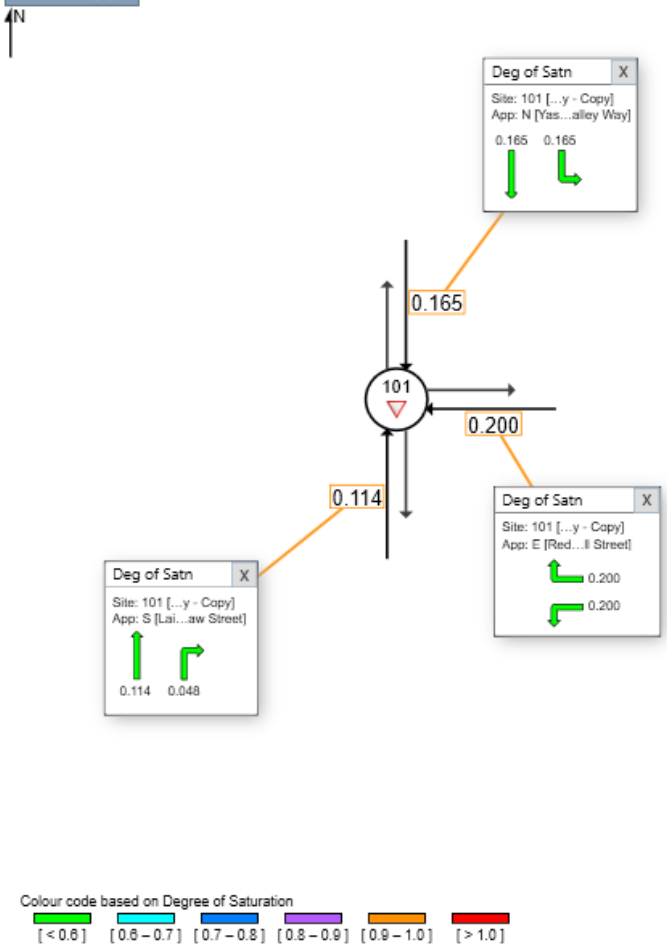
Ratio of Demand Volume to Capacity, v/c ratio per movement

Site: 101 [Yass Valley Way CHR Intersection - 'Development 2030' PM Peak - Copy - Copy (Site Folder: General)]

'Development 2030' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

MOVEMENT SUMMARY

Site: 101 [Yass Valley Way CHR Intersection - 'Development 2030' PM Peak - Copy - Copy (Site Folder: General)]

'Development 2030' PM Peak
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Laidlaw Street														
2	T1	212	0.0	223	0.0	0.114	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	74	20.0	78	20.0	0.048	4.8	LOS A	0.0	0.0	0.00	0.56	0.00	45.8
Approach		286	5.2	301	5.2	0.114	1.3	NA	0.0	0.0	0.00	0.14	0.00	55.5
East: Reddall Street														
4	L2	117	50.0	123	50.0	0.200	6.8	LOS A	0.8	7.4	0.45	0.69	0.45	45.9
6	R2	44	0.0	46	0.0	0.200	9.0	LOS A	0.8	7.4	0.45	0.69	0.45	49.3
Approach		161	36.3	169	36.3	0.200	7.4	LOS A	0.8	7.4	0.45	0.69	0.45	46.8
North: Yass Valley Way														
7	L2	21	0.0	22	0.0	0.165	5.6	LOS A	0.0	0.0	0.00	0.53	0.00	54.7
8	T1	283	0.0	298	0.0	0.165	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.8
Approach		304	0.0	320	0.0	0.165	4.3	LOS A	0.0	0.0	0.00	0.53	0.00	54.8
All Vehicles		751	9.8	791	9.8	0.200	3.8	NA	0.8	7.4	0.10	0.42	0.10	53.1

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