

# Proposed Rezoning for Residential Subdivision 137 Brisbane Grove Road, Brisbane Grove

## **Traffic and Access Assessment Report**

Prepared for: Euchie Pty Ltd

November 2021

Report No: PT21035r01\_Final\_V2

# TABLE OF CONTENTS

<b>1. Introduction .....</b>	<b>3</b>
<b>2. Existing Development / Conditions .....</b>	<b>4</b>
2.1 Site Location .....	4
2.2 Existing Site Traffic Generation .....	4
2.3 Classification Criteria .....	4
2.4 Existing Road Network .....	5
2.5 Existing Traffic Flows .....	5
2.6 Existing Intersection Operating Conditions .....	7
2.7 Goulburn Mulwaree Council Urban Fringe Strategy .....	8
2.8 Journey to Work Census Assessment .....	10
<b>3. The Proposed Development.....</b>	<b>16</b>
<b>4. Potential Traffic Impacts .....</b>	<b>17</b>
4.1 Introduction .....	17
4.2 Development Traffic Generation .....	17
4.3 Trip Distribution .....	17
4.4 Other Known Developments .....	17
4.5 Future Mid-Block Capacity Conditions .....	17
4.6 Future Intersection Operating Conditions .....	18
4.7 Access Arrangements - Bushfire.....	18
<b>5. Conclusions .....</b>	<b>20</b>
<b>6. Appendix A – Intersection Counts.....</b>	<b>21</b>
<b>7. Appendix B – SIDRA Outputs.....</b>	<b>22</b>
<b>8. Appendix C - Plans of Proposed Development.....</b>	<b>23</b>

## List of Figures

Figure 1 - Site Location

Figure 2 – AM / PM Peak Period Count Locations

Figure 3 – Site Location within Goulburn Mulwaree Council Urban Fringe Strategy Precincts

Figure 4 – Proposed site and SA1 1154025

Figure 5 – Proposed site within context of Goulburn

Figure 6 – Statistical area level 2 (SA2) around Goulburn

## List of Tables

Table 1 – Existing Weekday Peak Period Volumes in vicinity of site (veh/hr)

Table 2 – Austroads 2020 Lane Mid Block Capacities

Table 3 – Volume / Capacity Analysis of Roads Surrounding Development Site

Table 4 – Level of Service Criteria

Table 5 – Existing Weekday AM / PM Intersection Operating Conditions

Table 6 – Dwelling types, SA2-Goulburn and SA2-Goulburn Region, 2016 Census

Table 7 – Distribution of dwelling structures, SA2-Goulburn and SA2-Goulburn Region, 2016 Census

Table 8 – Mode share for JTW from SA2-Goulburn and SA2-Goulburn Region, 2016 Census

Table 9 – Commuter travel patterns from usual residence at SA2 to place of work LGA, car driver and car passenger, 2016 Census

Table 10 – Proposed Development Inbound / Outbound Peak Net Traffic Generation Estimate

Table 11 – Future Volume / Capacity Analysis of Roads Surrounding Development Site

Table 12 – Future Weekday AM / PM Intersection Operating Conditions

## 1. Introduction

This report has been prepared on behalf of Euchie Pty Ltd to present findings of a traffic and access assessment of the proposed residential subdivision of the site known as 137 Brisbane Grove Road, Brisbane Grove.

The study has assessed existing traffic conditions, access arrangements, future traffic conditions and design compliance with applicable standards and policies.

The remainder of the report is set out as follows:

- Section 2 describes the existing traffic and parking conditions;
- Section 3 summarises the proposed development;
- Section 4 reviews the potential traffic impacts of the proposal; and
- Section 5 presents the conclusions



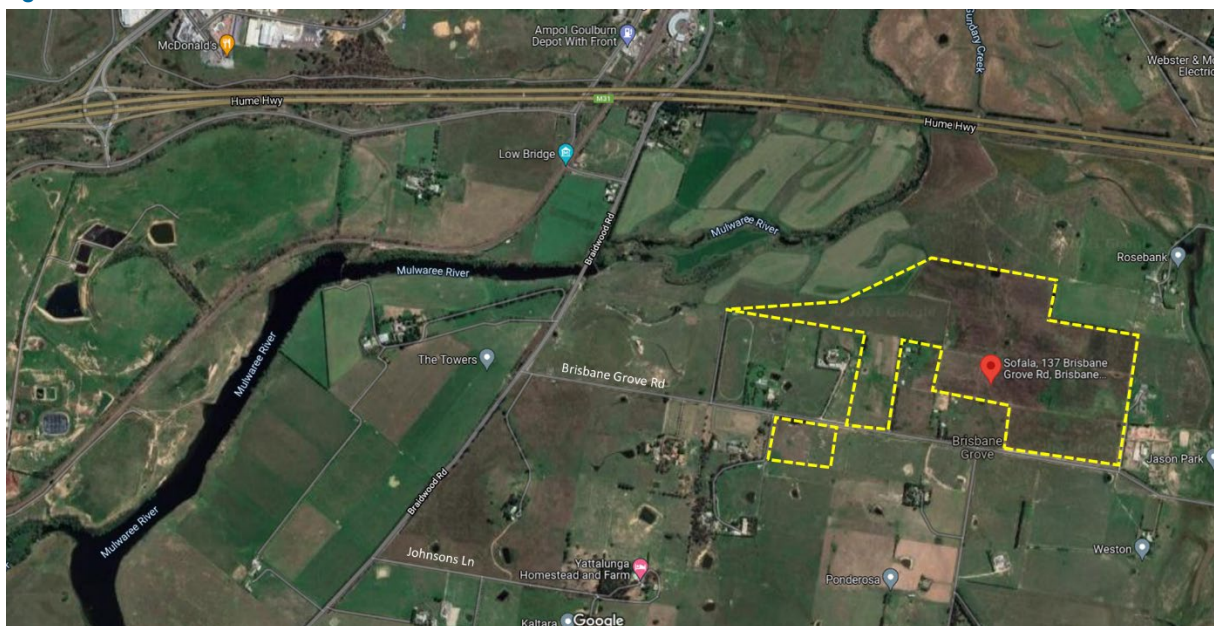
## 2. Existing Development / Conditions

The following presents a summary of existing site and traffic conditions.

### 2.1 Site Location

The proposed site for subdivision is located south of the Goulburn City Centre and south of the Hume Highway. All land parcels within the subject site currently do not include any residential dwellings. The location of the development site is shown in **Figure 1**.

**Figure 1 - Site Location**



Source: Nearmap

### 2.2 Existing Site Traffic Generation

As stated above the existing site does not include any residential dwellings and thus does not currently generate any traffic.

### 2.3 Classification Criteria

It is usual to classify roads according to a road hierarchy in order to determine their functional role within the road network. Changes to traffic flows on the roads can then be assessed within the context of the road hierarchy. Roads are classified according to the role they fulfil and the volume of traffic they should appropriately carry. The RTA has set down the following guidelines for the functional classification of roads.

- Arterial Road – typically a main road carrying over 15,000 vehicles per day and fulfilling a role as a major inter-regional link (over 1,500 vehicles per hour)
- Sub-arterial Road – defined as secondary inter-regional links, typically carrying volumes between 5,000 and 20,000 vehicles per day (500 to 2,000 vehicles per hour)

- Collector Road – provides a link between local roads and regional roads, typically carrying between 2,000 and 10,000 vehicles per day (250 to 1,000 vehicles per hour). At volumes greater than 5,000 vehicles per day, residential amenity begins to decline noticeably.
- Local Road – provides access to individual allotments, carrying low volumes, typically less than 2,000 vehicles per day (250 vehicles per hour).

## 2.4 Existing Road Network

Braidwood Road – is a key collector road through the local area linking the Goulburn City Centre in the north (via an underpass under the Hume Highway) to regional suburbs in the south including Springfield and Tarago. At its intersection with Brisbane Grove Road, the road includes a single lane of travel in each direction with 1.0-1.5m wide asphalt shoulders and a posted speed limit of 100km/hr.

Brisbane Grove Road – is a local east-west street linking Braidwood Road in the west with Windellama Road in the east. The intersection of Braidwood Road / Brisbane Grove Road includes a priority-controlled intersection. Brisbane Grove Road includes a pavement width of 5.5m – 6.0m and unformed shoulders on either side. The road includes a posted speed limit of 80km/hr.

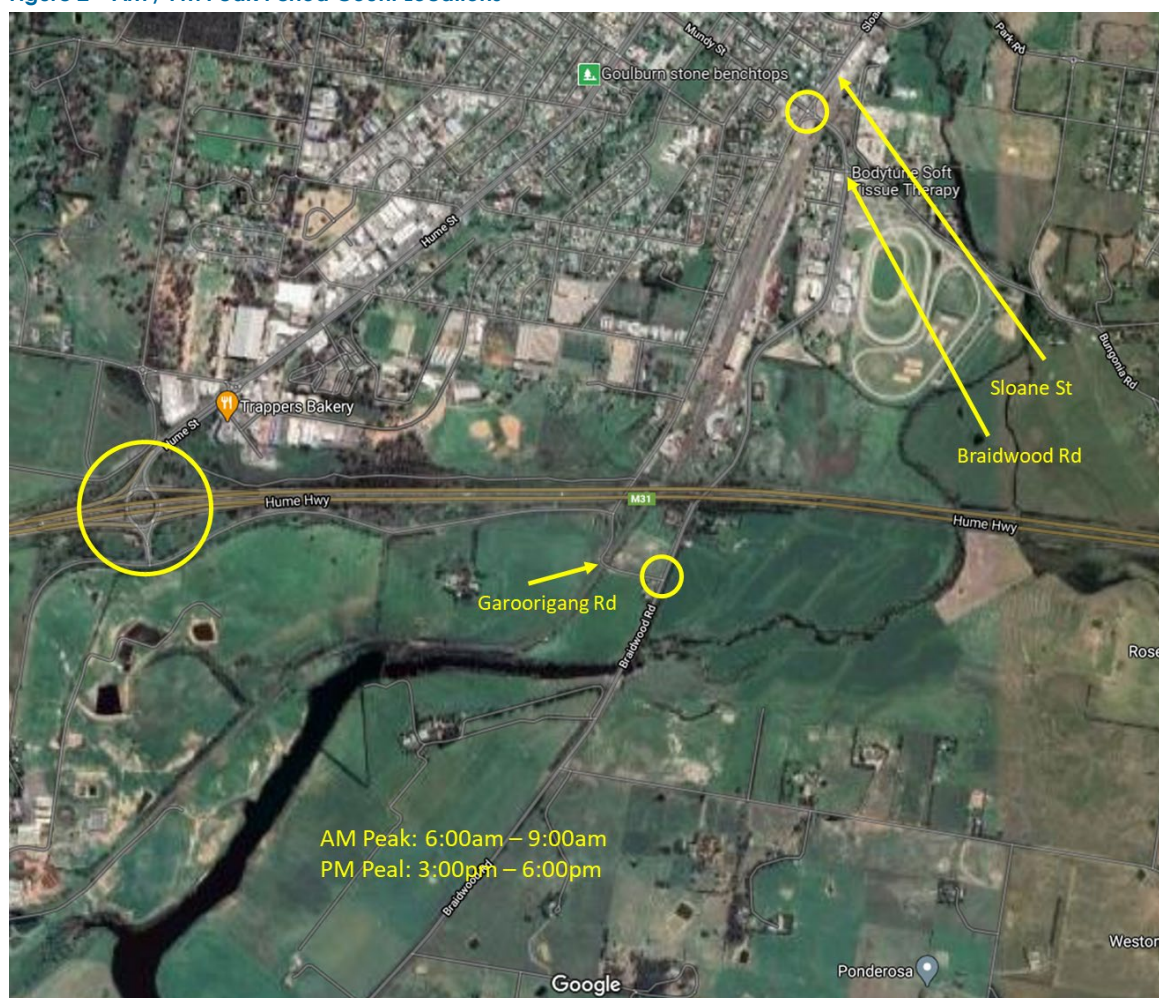
Garoorigang Street – is a local street linking Braidwood Road to the Hume Street grade separated interchange roundabout. The street provides an underpass (2.7m height clearance) and includes a priority-controlled intersection with Braidwood Road. The street includes a pavement width of approximately 6.5m with unformed shoulders and a posted speed limit of 80km/hr.

## 2.5 Existing Traffic Flows

To gauge existing traffic flows on the surrounding road network an intersection counts were undertaken at a number of locations around the development site. The identified locations for weekday AM / PM peak period counts are shown below in **Figure 2** and include:

1. Hume Highway / Hume Street Grade Separated Interchange
2. Sloane Street / Braidwood Road / Mundy Street; and
3. Braidwood Road / Garoorigang Street

Figure 2 – AM / PM Peak Period Count Locations



Copies of all intersection counts can be found in [Appendix A](#) of this report. The peak flows by direction in each street at each intersection are summarised below.

Table 1 – Existing Weekday Peak Period Volumes in vicinity of site (veh/hr)

Road	Location	Weekday AM		Weekday PM	
		NB/EB	SB/WB	NB/EB	SB/WB
Hume Street	North of Hume Highway	370	392	529	444
	South of Hume Highway	68	41	161	50
Garoorigang Street	West of Braidwood Road	21	74	55	80
Braidwood Road	East of Sloane Street	175	127	308	250
	North of Garoorigang Street	63	89	83	94
	South of Garoorigang Street	128	101	149	135

From [Table 1](#) it can be seen that existing flows on surrounding roads are in generally in line with their classification. Further, peak hour traffic volumes in Braidwood Road south of Garoorigang Street are quite low in the vicinity of the development site.



On the matter of mid-block capacity of roads surveyed versus demands, the following mid-block capacities are typical by road type.

**Table 2 – Austroads 2020 Lane Mid Block Capacities**

Type of lane	One-way mid-block capacity (pc/h)
<b>Median or inner lane</b>	
Divided road	1000
Undivided road	900
<b>Middle lane (of a 3 lane carriageway)</b>	
Divided road	900
Undivided road	1000
<b>Kerb lane</b>	
Adjacent to parking lane	900
Occasional parked vehicles	600
Clearway conditions	900

Source: Austroads (2020)

Therefore, the existing volume capacity ratios of each road surveyed around the development site is shown below in **Table 3**.

**Table 3 – Volume / Capacity Analysis of Roads Surrounding Development Site**

Road	Two Way Mid Block Capacity	AM Peak Hour Two Way Flow	AM Peak V/C	PM Peak Hour Two Way Flow	PM Peak V/C
Braidwood Road – South of Garoorigang Street	1,800	229	0.128	284	0.158
Garoorigang Street – West of Braidwood Road	1,800	95	0.052	135	0.075
Hume Street – South of Hume Highway	1,800	109	0.061	211	0.117

From **Table 3** it is evident that roads immediately in the vicinity of the development site have significant spare mid block capacity.

## 2.6 Existing Intersection Operating Conditions

All intersections surveyed have been analysed using the Sidra Intersection analysis program. Sidra Intersection determines the average delay that vehicles encounter, the degree of saturation of the intersection, and the level of service. The degree of saturation is the ratio of the arrival rate of vehicles to the capacity of the approach. Sidra Intersection provides analysis of the operating conditions which can be compared to the performance criteria set out in **Table 4**.

**Table 4 – Level of Service Criteria**

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

Adapted from RTA Guide to Traffic Generating Developments, 2002.

For roundabouts and priority intersections, the reported average delay is for the individual movement with the highest average delay per vehicle. At signalised intersections, the reported average delay is over all movements. The two intersections surveyed have been modelled as a network given their close proximity to each other. The existing weekday and weekend day intersection operating conditions are presented in **Table 5**. Average delay is expressed in seconds per vehicle. It should be noted that given their close proximity the intersections have been modelled as a network within SIDRA.

**Table 5 – Existing Weekday AM / PM Intersection Operating Conditions**

Intersection	Control	Weekday AM Peak		Weekday PM Peak	
		Av Delay	LOS	Av Delay	LOS
Braidwood Rd / Sloane St	Priority	8.6	A	12.4	A
Braidwood Rd / Garoorigang St	Priority	6.1	A	6.3	A
Hume St / Garoorigang St	Roundabout	10.3	A	10.3	A

Avg Delay (sec/veh) is over all movements at signals, and for worst movement at priority and roundabouts

From **Table 5** it is noted that all intersections in the vicinity of the development site currently operate at a satisfactory level of service with spare capacity.

Copies of the SIDRA outputs are provided in **Appendix B** of this report.

## 2.7 Goulburn Mulwaree Council Urban Fringe Strategy

It is noted that the subject site is located within the land confines identified in the Goulburn Mulwaree Council Urban Fringe Strategy which is described below:

*This Urban and Fringe Housing Strategy (Strategy) investigates and identifies areas suitable for the provision of additional housing to assist Goulburn Mulwaree Council (Council) meet the housing demands generated by expected continued population growth. The Strategy has been prepared in response to both the limited supply of residential land available to meet the short and medium term needs of the community and the directions of the South East and Tablelands Regional Plan 2036.*

*The scope of the Strategy includes looking at the urban areas of Goulburn and Marulan and identifying opportunities for an additional recommended 3,500 dwellings over the next 18 years to 2036.*

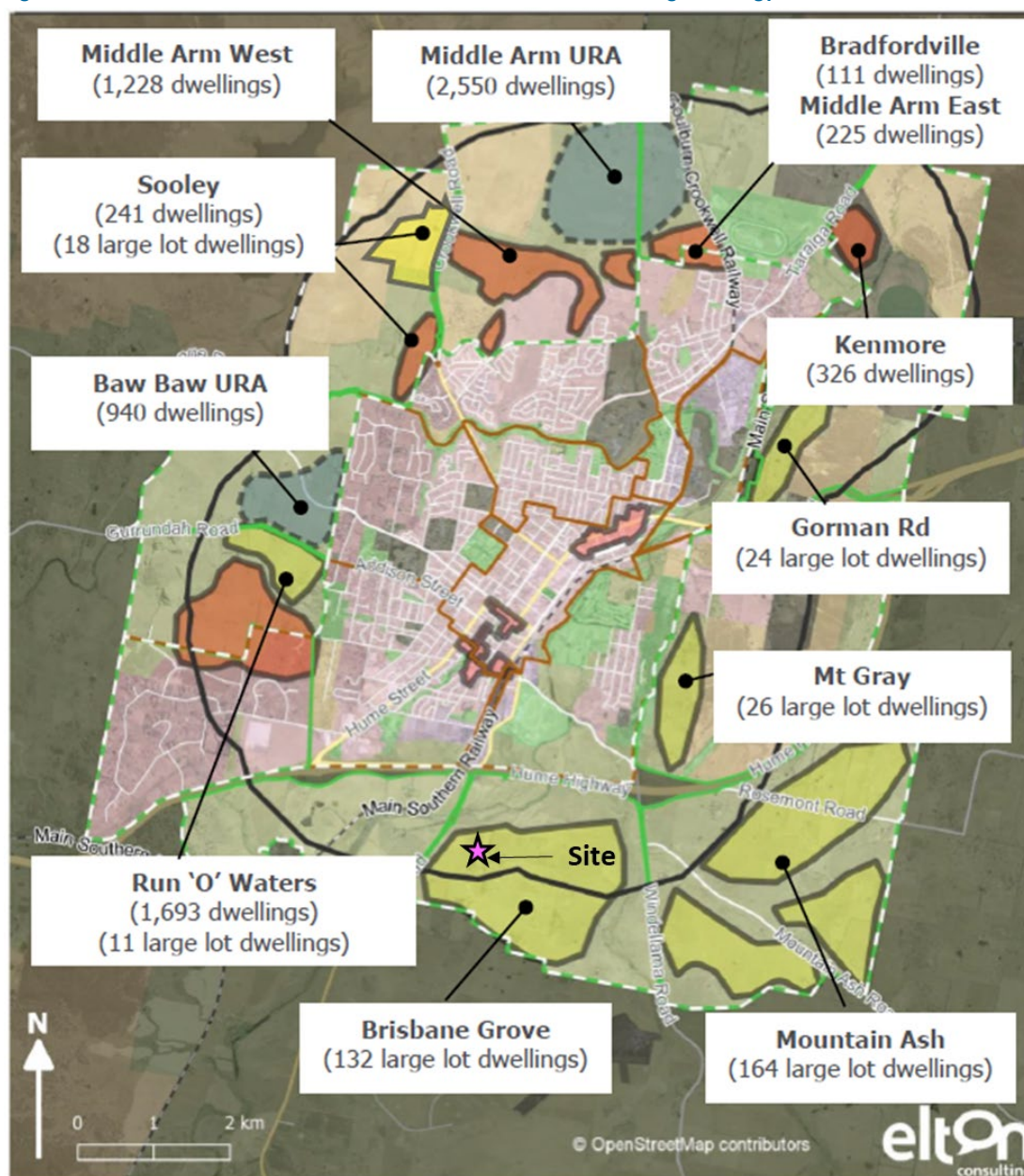
*The Strategy also considers land for large lot residential development (typically greater than 2ha and often referred to as rural residential development) particularly on the urban fringe of Goulburn.<sup>1</sup>*

The location of the development site in the context of the overall areas identified for increased housing is shown below in **Figure 3**.

---

<sup>1</sup> Goulburn Mulwaree Council Urban Fringe Strategy – Elton Consulting 2020

Figure 3 – Site Location within Goulburn Mulwaree Council Urban Fringe Strategy Precincts



## 2.8 Journey to Work Census Assessment

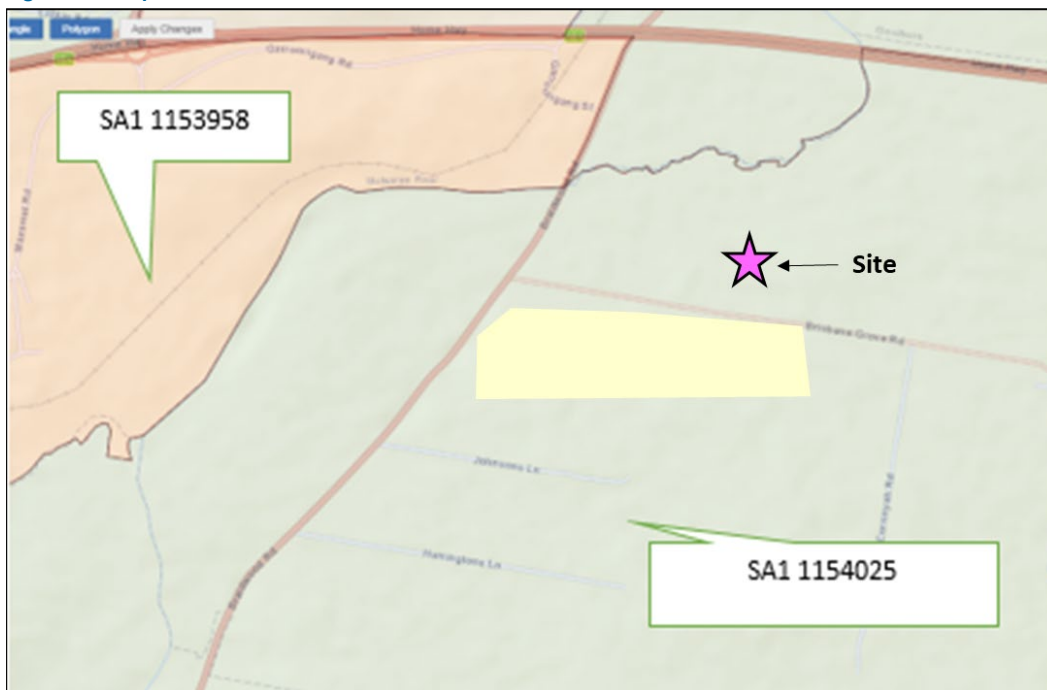
The following presents an assessment of the existing travel to work characteristics of the Goulburn area including the subject site. This provides an indication of the potential travel patterns of the residents of the proposed subdivision.

The 2016 Census of Population and Housing collected information about how people travelled to work on Census day. In combination with information about where the person worked, it is possible to use the census data to provide an indication of how people travelled to work and where they travelled to.

Census data is reported at different levels of spatial resolution, from the small scale mesh blocks and statistical area level one (SA1) of around 150 to 200 dwellings, up the aggregated SA4, comprising many tens of thousands of dwellings.

For this analysis the proposed site is located in SA1 1154025, as shown in [Figure 4](#).

**Figure 4 – Proposed site and SA1 1154025**



Site is shown within the context of Goulburn and other SA1s in the immediate surrounds in [Figure 5](#).





This indicates that the main urban centre of Goulburn is contained within SA2 Goulburn, and this in turn is surrounded by SA2 Goulburn Region. The number and type of dwellings in these two SA2s are summarised in [Table 6](#).

**Table 6 – Dwelling types, SA2-Goulburn and SA2-Goulburn Region, 2016 Census**

Dwelling type	SA2 - Goulburn		SA2 - Goulburn Region	
	No.	%	No.	%
Occupied private dwellings	9,059	89%	5,036	74%
Unoccupied private dwellings	1,036	10%	1,777	26%
Non-private dwellings	71	1%	17	0%
Migratory	0	0%	0	0%
Off-shore	0	0%	0	0%
Shipping	0	0%	0	0%
<b>Total</b>	<b>10,166</b>	<b>100%</b>	<b>6,830</b>	<b>100%</b>

Source: ABS TableBuilder Pro

This summary indicates that almost all dwellings in each SA2 are private dwellings, with SA2 – Goulburn having a lower proportion (10% versus 26%) of unoccupied private dwellings than SA2 – Goulburn Region. This is likely due to a smaller proportion of holiday homes in Goulburn than in Goulburn Region. Also, it should be noted that despite SA2 - Goulburn being much smaller in area than SA2 - Goulburn Region, it has substantially more dwellings.

The distribution of dwelling structures in these two SA2s is shown in [Table 7](#).

**Table 7 – Distribution of dwelling structures, SA2-Goulburn and SA2-Goulburn Region, 2016 Census**

Dwelling structure	SA2 - Goulburn		SA2 - Goulburn Region	
	No.	%	No.	%
Separate house	8,335	82%	6,419	94%
Semi-detached, row or terrace house, townhouse etc. 1 storey	912	9%	72	1%
Semi-detached, row or terrace house, townhouse etc. 2+ storeys	153	2%	9	0%
House or flat attached to a shop, office, etc.	48	0%	27	0%
Flat or apartment attached to a house	5	0%	0	0%
Flat or apartment in a one or two storey block	407	4%	8	0%
Flat or apartment in a three storey block	92	1%	0	0%
Flat or apartment in a four or more storey block	0	0%	0	0%
Caravan	39	0%	63	1%
Cabin, houseboat	31	0%	87	1%
Improvised home, tent, sleepers out	11	0%	79	1%
Not applicable	71	1%	17	0%
Not stated	65	1%	50	1%
<b>Total</b>	<b>10,169</b>	<b>100%</b>	<b>6,831</b>	<b>100%</b>

Source: ABS TableBuilder Pro

This analysis indicates that in the more urban SA2-Goulburn, separate dwelling structures are still dominate, although there are appreciably more town houses and apartments than in SA2-Goulburn Region. The mode shares for the journey to work for these two SA2s are summarised in [Table 8](#).

**Table 8 – Mode share for JTW from SA2-Goulburn and SA2-Goulburn Region, 2016 Census**

Mode	SA2-Goulburn		SA2-Goulburn Region	
	No.	% of those who commuted	No.	% of those who commuted
Train	25	0.3%	24	0.6%
Bus	80	0.9%	23	0.6%
Ferry	0	0.0%	4	0.1%
Tram	0	0.0%	0	0.0%
Car Dr	7,116	82.2%	3,442	82.4%
Car px	704	8.1%	228	5.5%
Motorbike/scooter	44	0.5%	43	1.0%
Bicycle	25	0.3%	5	0.1%
Walked	422	4.9%	197	4.7%
Other	241	2.8%	213	5.1%
DNGTW	978		595	
Worked at home	256		746	
NS	112		86	
<b>Total</b>	<b>10,003</b>	<b>100.0%</b>	<b>5,606</b>	<b>100.0%</b>
<i>Travelled</i>	<i>8,657</i>		<i>4,179</i>	

DNGTW – did not go to work; NS – not stated

Source: ABS TableBuilder Pro

The above mode shares indicate that car as driver is the most common JTW mode, in combination with car passenger, it accounted for some 90% of commuter trips. The distribution of JTW trips was examined using SA2 to local government area (LGA) geography. The LGA's have been coded in Greater Sydney to an area termed 'Gt Sydney' for each of reference of the analysis.

**Table 9 – Commuter travel patterns from usual residence at SA2 to place of work LGA, car driver and car passenger, 2016 Census**

Place of work LGA	From SA2 Goulburn		From SA2 Goulburn Region	
	No.	%	No.	%
Goulburn Mulwaree (A)	6,200	82%	1,748	48%
ACT	504	7%	283	8%
No Fixed Address (NSW)	309	4%	265	7%
Wingecarribee (A)	135	2%	205	6%
Gt Sydney	121	2%	150	4%
Queanbeyan-Palerang Regional (A)	118	2%	57	2%
Upper Lachlan Shire (A)	109	1%	900	25%
Yass Valley (A)	26	0%	20	1%
Wollongong (C)	11	0%	17	0%
Griffith (C)	7	0%	0	0%
Shellharbour (C)	5	0%	5	0%
Bathurst Regional (A)	5	0%	0	0%
Cabonne (A)	5	0%	0	0%
Hilltops (A)	4	0%	12	0%
Shoalhaven (C)	4	0%	10	0%
Albury (C)	3	0%	0	0%
Wagga Wagga (C)	3	0%	0	0%
<b>Total</b>	<b>7,569</b>	<b>100%</b>	<b>3,672</b>	<b>100%</b>

Note: 'No fixed address' includes contractors using home as their work base, including transport workers, trades, sales reps

Source: ABS TableBuilder Pro

As mentioned previously the site is situated in SA2 Goulburn Region, but at the southern edge of SA2 Goulburn and close to the urban location of Goulburn. The travel characteristics by occupants of the proposed housing at the site are more likely to *mirror* the existing residents of SA2 Goulburn as opposed to existing residents of SA2 Goulburn Region.

The above analysis indicates that a very *large proportion* of commute trips by car from SA2 Goulburn are to LGA of Goulburn at **82%**. This is somewhat expected given that, in approximate terms, the urban centre of Goulburn is relatively isolated from surrounding employment concentrations, being some 80 to 90km from the ACT and a similar distance from the Southern Highlands (which is a small employment centre). The ACT is the second highest destination at 7%, 'no fixed address' for place of work is the third highest at 4%, with Wingecaribee and Gt Sydney accounting for a combined 4%.

In terms of traffic assignment from the proposed site, the above analysis suggests the following approximate aggregations of demand along desire lines, with 'no fixed address' distributed across places:

- **Braidwood Road north, 80%**
  - into Goulburn and further north into SA2 Goulburn Region 80%
- **Braidwood Road south, 5%**
  - South into SA2 Goulburn Region: 5%
- **Hume Highway south/west, 9%**
  - ACT: 7%
  - Queanbeyan-Palerang: 2%
  - Yass: 0.3%
- **Hume Highway north/east, 6%**
  - Wingecaribee: 2%
  - Gt Sydney: 2%
  - Wollongong: 0.1%

The above distribution will be utilised in the future traffic conditions assessment.

### 3. The Proposed Development

The key components of the proposed development are summarised below

- A total of twenty seven (27) rural residential lots (> 2.0Ha in size).
- New internal local road loop connection with Brisbane Grove Road in two locations.

Plans of the proposed development can be found in [Appendix C](#) of this report.

## 4. Potential Traffic Impacts

### 4.1 Introduction

The following presents an assessment of the potential traffic impacts of the proposal using the Roads and Traffic Authority Guide to Traffic Generating Developments standard approach.

### 4.2 Development Traffic Generation

Applying the Transport for NSW Technical Direction TDT2013/04a rate to suggests a regional area trip per dwelling rate of 0.78 trips per dwelling in the AM peak hour and 0.71 trips per dwelling in the PM peak.

Therefore, the proposed development of 26 rural residential lots would have the potential to generate **21** trips in the AM peak hour and **19** trips in the PM peak hour.

Overall, the potential traffic generation of the development would be low.

### 4.3 Trip Distribution

The adopted distribution of trips has been in line with the findings of the Census JTW assessment presented above in Section 2.8 above. To reflect residential living, AM outbound trips are expected to be 80% of the total AM peak generated with 20% inbound trips. The reverse would occur in the PM peak.

The resultant inbound / outbound trips in each peak period are presented below in **Table 10**.

**Table 10 – Proposed Development Inbound / Outbound Peak Net Traffic Generation Estimate**

Type	AM Peak Hour		PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
<b>Total Generation</b>	<b>4</b>	<b>17</b>	<b>15</b>	<b>4</b>

### 4.4 Other Known Developments

Positive Traffic Pty Ltd prepared a traffic impact assessment report for the proposed subdivision of 2 Brisbane Grove Road, Brisbane Grove located immediately west of the subject site. At the time of preparing this report the application for the subdivision was being considered by Council.

The proposal included sixteen (16) rural residential lots with access via Brisbane Grove Road. For the future conditions assessment below, the traffic generation from the development of No.2 Brisbane Grove Road, Brisbane Grove has been included in the assessment.

### 4.5 Future Mid-Block Capacity Conditions

The additional traffic generated by the proposed subdivision has been added to the immediate surrounding network in accordance with the adopted distribution of trips presented in Section 2.8 resulting in the following future mid-block capacity conditions.

**Table 11 – Future Volume / Capacity Analysis of Roads Surrounding Development Site**

Road	Two Way Mid Block Capacity	AM Peak Hour Two Way Flow	AM Peak V/C	PM Peak Hour Two Way Flow	PM Peak V/C
Braidwood Road – South of Garoorigang Street	1,800	263	0.146	315	0.175
Garoorigang Street – West of Braidwood Road	1,800	100	0.056	139	0.077
Hume Street – South of Hume Highway	1,800	114	0.063	216	0.12

From **Table 11** it is noted that upon full development of the proposed subdivision (including the subdivision of 2 Brisbane Grove Road, Brisbane Grove) there would be negligible change in the volume capacity ratios on roads immediately surrounding the proposed development.

#### 4.6 Future Intersection Operating Conditions

The additional traffic generated by the proposal (and the site at No.2 Brisbane Grove Road, Brisbane Grove) has been added to the surrounding road network in accordance with the adopted distribution of trips presented above. The resulting future intersection operating conditions is presented below in **Table 12**.

**Table 12 – Future Weekday AM / PM Intersection Operating Conditions**

Intersection	Control	Weekday AM Peak		Weekday PM Peak	
		Av Delay	LOS	Av Delay	LOS
Braidwood Rd / Sloane St	Priority	8.7	A	12.7	A
Braidwood Rd / Garoorigang St	Priority	6.3	A	6.4	A
Hume St / Garoorigang St	Roundabout	10.3	A	10.3	A

Avg Delay (sec/veh) is over all movements at signals, and for worst movement at priority and roundabouts

From **Table 12** it is noted that the intersection surveyed in the vicinity of the proposed development would all continue to operate at a satisfactory level of service in the future upon full development of the subject site and the full development of the site at No.2 Brisbane Grove Road, Brisbane Grove. Further, there would be no requirement for upgrades at the intersection to accommodate the traffic demands of the proposal.

Overall, the traffic impacts of the proposal are considered acceptable.

SIDRA outputs of all models are provided in **Appendix B** of this report.

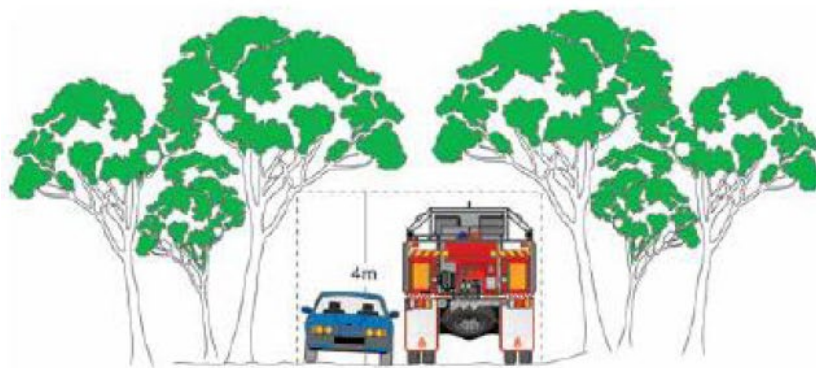
#### 4.7 Access Arrangements - Bushfire

It is noted from the Strategic Bushfire Study report<sup>2</sup> the following is noted on the matter of bushfire evacuation for the subject development:

<sup>2</sup> Land Rezoning Proposal 137 Brisbane Grove Road, Brisbane Grove Strategy Bushfire Study – Sowdes November 2021



Table 7.4a 'Access' of "Planning for Bush Fire Protection" (2019) requires that an alternate escape route be made available if the distance from the nearest arterial road to the dwelling site is greater than 200 metres, and that the minimum width for internal access roads be four metres plus one metre either side which is maintained to provide a clear opening of four metres between ground level and any overhanging vegetation in accordance with the below Figure. There must also be a turning provision of not less than 12 metres near to the dwelling site which will allow emergency services vehicles clear access to the dwelling.



General construction requirements for internal property access roads in rural areas as prescribed by the NSW Rural Fire Service

Further, the proposed design would ensure access to all dwellings for fire vehicles would fully comply with the minimum requirements of the NSW Rural Fire Service Guidelines for Single Residential Development would be achieved within the design. These include:

*The following identifies the requirements from PBP 2019 that are required for property access.*

*Not all access requirements will be applicable to a particular development due to site specific conditions (e.g. some dwelling sites may be located physically close enough to a public road to avoid the need for passing bays). However where compliance with the following requirements is not possible, a performance based solution may be needed.*

*There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.*



## 5. Conclusions

This report has reviewed the potential traffic impacts of the proposed twenty-six (26) lot rural residential subdivision at the known as 137 Brisbane Grove Road, Brisbane Grove. The findings of this assessment are presented below:

1. The potential traffic generation of the development would not impact on the surrounding road network to a point of detriment.
2. Intersections in the immediate vicinity of the development would operate at a satisfactory level of service in the future at full development without any need for capacity improvements.
3. The proposed design would ensure fire vehicle access to properties fully complies with the requirements of the NSW Rural Fire Service Single Dwelling Guidelines.

Overall the traffic impacts of the proposal are considered acceptable.



## 6. Appendix A – Intersection Counts

Job No.

: AUNSW379

Client

: Dean Brodie

Suburb

: Goulburn Traffic Surveys

Location

: 1. Hume St / Hume Fwy On and Off ramps

Day/Date

: Thu, 25th Mar 2021

Weather

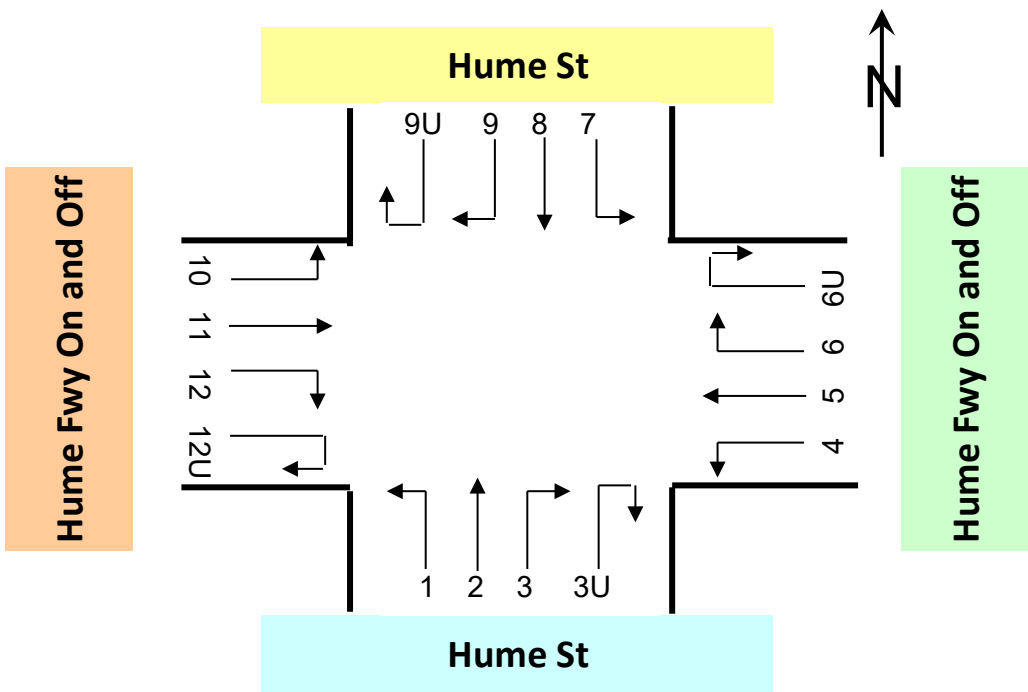
: Fine

Description

: Classified Intersection Count

: 15 mins Data

	Class 1	Class 2
Classifications	Lights	Heavies

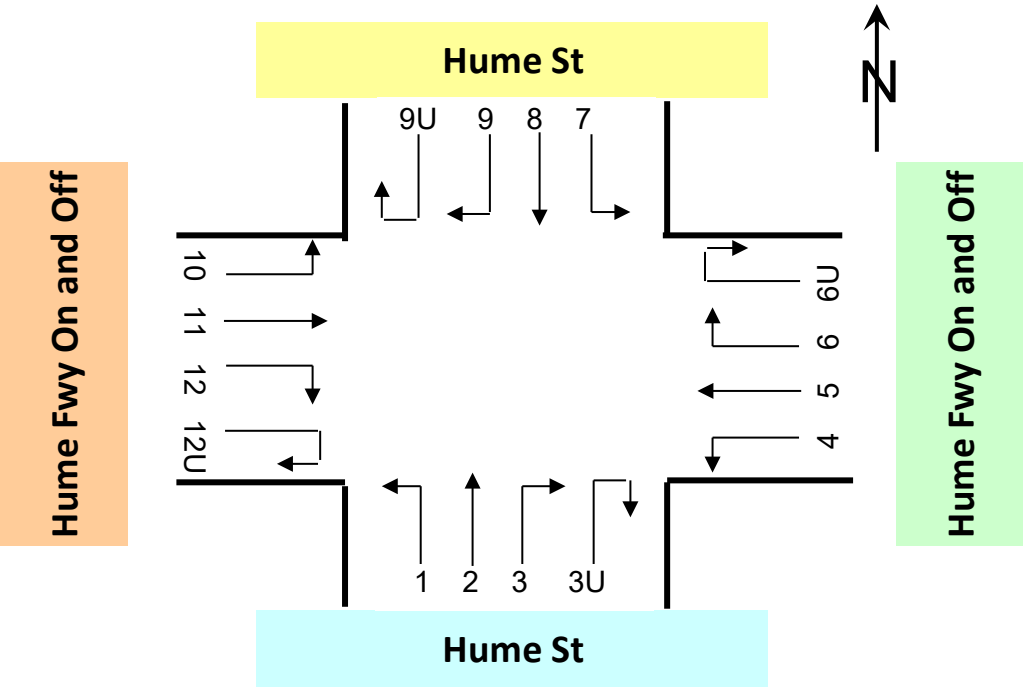


Approach	Hume St												Hume Fwy On and Off ramps											
Direction	Direction 1 (Left Turn)			Direction 2 (Through)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
6:00 to 6:15	12	1	13	2	0	2	2	0	2	0	0	0	2	0	2	0	0	0	6	2	8	0	0	0
6:15 to 6:30	7	0	7	3	0	3	1	0	1	0	0	0	1	0	1	0	0	0	8	0	8	0	0	0
6:30 to 6:45	4	0	4	5	1	6	4	0	4	0	0	0	1	0	1	0	0	0	10	5	15	0	0	0
6:45 to 7:00	4	0	4	2	0	2	2	0	2	0	0	0	0	1	1	0	0	0	19	5	24	0	0	0
7:00 to 7:15	6	4	10	7	1	8	0	0	0	0	0	0	1	1	2	0	0	0	11	0	11	0	0	0
7:15 to 7:30	11	2	13	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0	17	4	21	0	0	0
7:30 to 7:45	4	0	4	6	1	7	0	1	1	0	0	0	1	0	1	0	0	0	20	4	24	0	0	0
7:45 to 8:00	11	1	12	7	0	7	2	0	2	0	0	0	2	1	3	0	0	0	19	4	23	0	0	0
8:00 to 8:15	5	3	8	3	0	3	1	0	1	0	0	0	1	2	3	0	0	0	17	6	23	0	0	0
8:15 to 8:30	13	0	13	6	0	6	1	0	1	0	0	0	0	1	1	0	0	0	15	2	17	0	0	0
8:30 to 8:45	6	4	10	5	0	5	0	0	0	0	0	0	0	1	1	0	0	0	18	6	24	0	0	0
8:45 to 9:00	9	1	10	9	0	9	2	0	2	0	0	0	1	2	3	0	0	0	11	6	17	0	0	0
AM Totals	92	16	108	56	3	59	15	1	16	0	0	0	11	9	20	0	0	0	171	44	215	0	0	0
15:00 to 15:15	10	3	13	12	0	12	0	1	1	0	0	0	1	0	1	0	0	0	14	4	18	0	0	0
15:15 to 15:30	9	5	14	39	0	39	2	0	2	0	0	0	2	0	2	0	0	0	18	4	22	0	0	0
15:30 to 15:45	5	0	5	41	1	42	4	0	4	0	0	0	1	0	1	0	0	0	15	4	19	0	0	0
15:45 to 16:00	12	2	14	12	0	12	2	1	3	0	0	0	2	0	2	0	0	0	18	4	22	0	0	0
16:00 to 16:15	8	4	12	8	0	8	3	0	3	0	0	0	2	0	2	0	0	0	9	3	12	0	0	0
16:15 to 16:30	8	1	9	4	2	6	2	0	2	0	0	0	3	0	3	0	0	0	11	1	12	0	0	0
16:30 to 16:45	6	0	6	9	0	9	3	0	3	0	0	0	3	0	3	0	0	0	7	2	9	0	0	0
16:45 to 17:00	6	2	8	3	0	3	1	1	2	0	0	0	1	1	2	0	0	0	11	1	12	0	0	0
17:00 to 17:15	3	0	3	0	0	0	2	0	2	0	0	0	3	0	3	0	0	0	13	2	15	0	0	0
17:15 to 17:30	12	1	13	5	0	5	2	0	2	0	0	0	4	1	5	0	0	0	16	0	16	0	0	0
17:30 to 17:45	5	1	6	6	0	6	3	0	3	0	0	0	3	1	4	0	0	0	14	2	16	0	0	0
17:45 to 18:00	7	2	9	2	0	2	1	0	1	0	0	0	1	0	1	0	0	0	5	4	9	0	0	0
PM Totals	91	21	112	141	3	144	25	3	28	0	0	0	26	3	29	0	0	0	151	31	182	0	0	0

Approach	Hume St												Hume Fwy On and Off ramps											
Direction	Direction 7 (Left Turn)			Direction 8 (Through)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
6:00 to 6:15	12	4	16	1	0	1	58	6	64	0	0	0	16	5	21	0	0	0	0	1	1	0	0	0
6:15 to 6:30	6	4	10	3	2	5	60	2	62	0	0	0	20	2	22	0	0	0	0	0	0	0	0	0
6:30 to 6:45	11	2	13	3	0	3	63	4	67	0	0	0	39	5	44	0	0	0	2	0	2	0	0	0
6:45 to 7:00	10	9	19	4	0	4	88	9	97	0	0	0	31	6	37	0	0	0	2	1	3	0	0	0
7:00 to 7:15	14	8	22	2	1	3	86	8	94	0	0	0	23	4	27	0	0	0	1	0	1	0	0	0
7:15 to 7:30	18	6	24	3	1	4	73	2	75	0	0	0	32	6	38	0	0	0	0	0	0	0	0	0
7:30 to 7:45	11	8	19	7	1	8	78	1	79	0	0	0	30	3	33	0	0	0	2	1	3	0	0	0
7:45 to 8:00	12	3	15	1	2	3	68	2	70	0	0	0	56	8	64	0	0	0	6	0	6	0	0	0
8:00 to 8:15	20	11	31	2	0	2	69	7	76	0	0	0	56	8	64	0	0	0	2	0	2	0	0	0
8:15 to 8:30	14	9	23	6	1	7	66	13	79	0	0	0	69	6	75	0	0	0	2	1	3	0	0	0
8:30 to 8:45	23	4	27	2	1	3	52	4	56	0	0	0	56	3	59	0	0	0	6	1	7	0	0	0
8:45 to 9:00	18	4	22	5	1	6	58	2	60	0	0	0	59	8	67	0	0	0	1	2	3	0	0	0
AM Totals	169	72	241	39	10	49	819	60	879	0	0	0	487	64	551	0	0	0	24	7	31	0	0	0
15:00 to 15:15	29	6	35	2	0	2	62	5	67	0	0	0	87	8	95	0	0	0	1	2	3	0	0	0
15:15 to 15:30	38	7	45	4	2	6	49	5	54	0	0	0	63	8	71	0	0	0	4	1	5	0	0	0
15:30 to 15:45	33	2	35	9	0	9	59	6	65	0	0	0	70	8	78	0	0	0	5	1	6	0	0	0
15:45 to 16:00	34	3	37	9	0	9	74	6	80	0	0	0	88	11	99	0	0	0	3	1	4	0	0	0
16:00 to 16:15	24	1	25	2	1	3	44	7	51	0	0	0	71	6	77	0	0	0	2	4	6	0	0	0
16:15 to 16:30	36	6	42	5	0	5	60	4	64	0	0	0	91	9	100	0	0	0	9	3	12	0	0	0
16:30 to 16:45	26	7	33	6	0	6	69	3	72	0	0	0	100	4	104	0	0	0	6	0	6	0	0	0
16:45 to 17:00	27	2	29	7	0	7	49	3	52	0	0	0	101	6	107	0	0	0	3	1	4	0	0	0
17:00 to 17:15	23	5	28	4	0	4	53	4	57	0	0	0	96	7	103	0	0	0	4	2	6	0	0	0
17:15 to 17:30	25	1	26	6	0	6	47	7	54	0	0	0	94	3	97	0	0	0	4	0	4	0	0	0
17:30 to 17:45	24	3	27	4	0	4	50	1	51	0	0	0	104	3	107	0	0	0	1	3	4	0	0	0
17:45 to 18:00	29	0	29	2	0	2	39	1	40	0	0	0	104	5	109	0	0	0	12	1	13	0	0	0
PM Totals	348	43	391	60	3	63	655	52	707	0	0	0	1,069	78	1,147	0	0	0	54	19	73	0	0	0

Job No. : AUNSW379  
Client : Dean Brodie  
Suburb : Goulburn Traffic Surveys  
Location : 1. Hume St / Hume Fwy On and Off ramps

Day/Date : Thu, 25th Mar 2021  
Weather : Fine  
Description : Classified Intersection Count  
: Hourly Summary

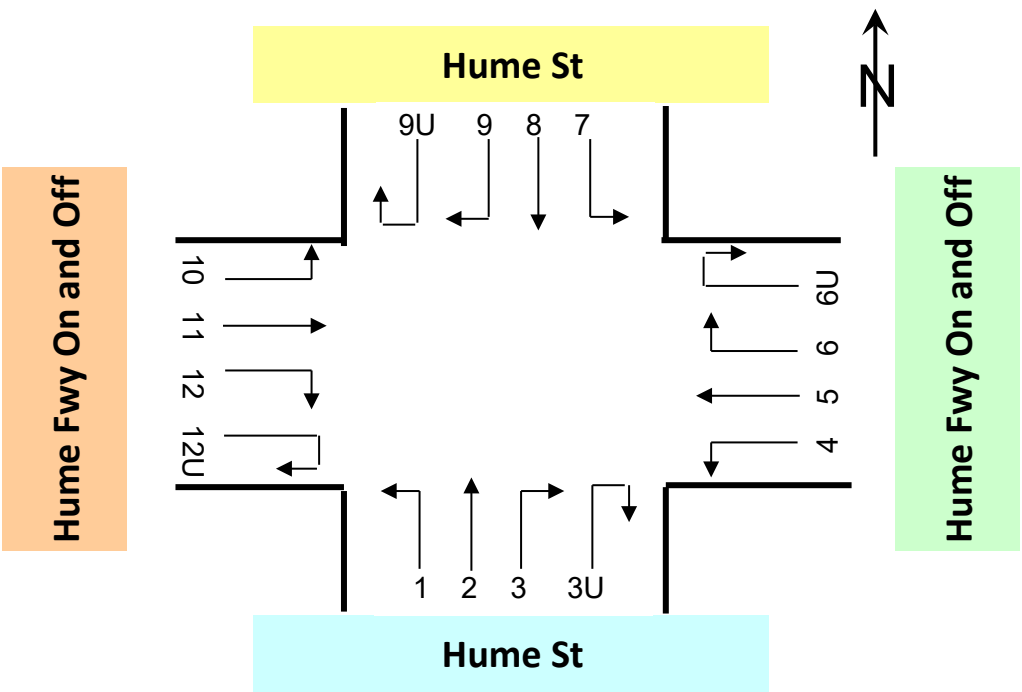


Approach	Hume St												Hume Fwy On and Off ramps											
Direction	Direction 1 (Left Turn)			Direction 2 (Through)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
6:00 to 7:00	27	1	28	12	1	13	9	0	9	0	0	0	4	1	5	0	0	0	43	12	55	0	0	0
6:15 to 7:15	21	4	25	17	2	19	7	0	7	0	0	0	3	2	5	0	0	0	48	10	58	0	0	0
6:30 to 7:30	25	6	31	15	2	17	6	0	6	0	0	0	3	2	5	0	0	0	57	14	71	0	0	0
6:45 to 7:45	25	6	31	16	2	18	2	1	3	0	0	0	3	2	5	0	0	0	67	13	80	0	0	0
7:00 to 8:00	32	7	39	21	2	23	2	1	3	0	0	0	5	2	7	0	0	0	67	12	79	0	0	0
7:15 to 8:15	31	6	37	17	1	18	3	1	4	0	0	0	5	3	8	0	0	0	73	18	91	0	0	0
7:30 to 8:30	33	4	37	22	1	23	4	1	5	0	0	0	4	4	8	0	0	0	71	16	87	0	0	0
7:45 to 8:45	35	8	43	21	0	21	4	0	4	0	0	0	3	5	8	0	0	0	69	18	87	0	0	0
8:00 to 9:00	33	8	41	23	0	23	4	0	4	0	0	0	2	6	8	0	0	0	61	20	81	0	0	0
AM Totals	92	16	108	56	3	59	15	1	16	0	0	0	11	9	20	0	0	0	171	44	215	0	0	0
15:00 to 16:00	36	10	46	104	1	105	8	2	10	0	0	0	6	0	6	0	0	0	65	16	81	0	0	0
15:15 to 16:15	34	11	45	100	1	101	11	1	12	0	0	0	7	0	7	0	0	0	60	15	75	0	0	0
15:30 to 16:30	33	7	40	65	3	68	11	1	12	0	0	0	8	0	8	0	0	0	53	12	65	0	0	0
15:45 to 16:45	34	7	41	33	2	35	10	1	11	0	0	0	10	0	10	0	0	0	45	10	55	0	0	0
16:00 to 17:00	28	7	35	24	2	26	9	1	10	0	0	0	9	1	10	0	0	0	38	7	45	0	0	0
16:15 to 17:15	23	3	26	16	2	18	8	1	9	0	0	0	10	1	11	0	0	0	42	6	48	0	0	0
16:30 to 17:30	27	3	30	17	0	17	8	1	9	0	0	0	11	2	13	0	0	0	47	5	52	0	0	0
16:45 to 17:45	26	4	30	14	0	14	8	1	9	0	0	0	11	3	14	0	0	0	54	5	59	0	0	0
17:00 to 18:00	27	4	31	13	0	13	8	0	8	0	0	0	11	2	13	0	0	0	48	8	56	0	0	0
PM Totals	91	21	112	141	3	144	25	3	28	0	0	0	26	3	29	0	0	0	151	31	182	0	0	0

Approach	Hume St												Hume Fwy On and Off ramps											
Direction	Direction 7 (Left Turn)			Direction 8 (Through)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
6:00 to 7:00	39	19	58	11	2	13	269	21	290	0	0	0	106	18	124	0	0	0	4	2	6	0	0	0
6:15 to 7:15	41	23	64	12	3	15	297	23	320	0	0	0	113	17	130	0	0	0	5	1	6	0	0	0
6:30 to 7:30	53	25	78	12	2	14	310	23	333	0	0	0	125	21	146	0	0	0	5	1	6	0	0	0
6:45 to 7:45	53	31	84	16	3	19	325	20	345	0	0	0	116	19	135	0	0	0	5	2	7	0	0	0
7:00 to 8:00	55	25	80	13	5	18	305	13	318	0	0	0	141	21	162	0	0	0	9	1	10	0	0	0
7:15 to 8:15	61	28	89	13	4	17	288	12	300	0	0	0	174	25	199	0	0	0	10	1	11	0	0	0
7:30 to 8:30	57	31	88	16	4	20	281	23	304	0	0	0	211	25	236	0	0	0	12	2	14	0	0	0
7:45 to 8:45	69	27	96	11	4	15	255	26	281	0	0	0	237	25	262	0	0	0	16	2	18	0	0	0
8:00 to 9:00	75	28	103	15	3	18	245	26	271	0	0	0	240	25	265	0	0	0	11	4	15	0	0	0
AM Totals	169	72	241	39	10	49	819	60	879	0	0	0	487	64	551	0	0	0	24	7	31	0	0	0
15:00 to 16:00	134	18	152	24	2	26	244	22	266	0	0	0	308	35	343	0	0	0	13	5	18	0	0	0
15:15 to 16:15	129	13	142	24	3	27	226	24	250	0	0	0	292	33	325	0	0	0	14	7	21	0	0	0
15:30 to 16:30	127	12	139	25	1	26	237	23	260	0	0	0	320	34	354	0	0	0	19	9	28	0	0	0
15:45 to 16:45	120	17	137	22	1	23	247	20	267	0	0	0	350	30	380	0	0	0	20	8	28	0	0	0
16:00 to 17:00	113	16	129	20	1	21	222	17	239	0	0	0	363	25	388	0	0	0	20	8	28	0	0	0
16:15 to 17:15	112	20	132	22	0	22	231	14	245	0	0	0	388	26	414	0	0	0	22	6	28	0	0	0
16:30 to 17:30	101	15	116	23	0	23	218	17	235	0	0	0	391	20	411	0	0	0	17	3	20	0	0	0
16:45 to 17:45	99	11	110	21	0	21	199	15	214	0	0	0	395	19	414	0	0	0	12	6	18	0	0	0
17:00 to 18:00	101	9	110	16	0	16	189	13	202	0	0	0	398	18	416	0	0	0	21	6	27	0	0	0
PM Totals	348	43	391	60	3	63	655	52	707	0	0	0	1,069	78	1,147	0	0	0	54	19	73	0	0	0

Job No. : AUNSW379  
Client : Dean Brodie  
Suburb : Goulburn Traffic Surveys  
Location : 1. Hume St / Hume Fwy On and Off ramps

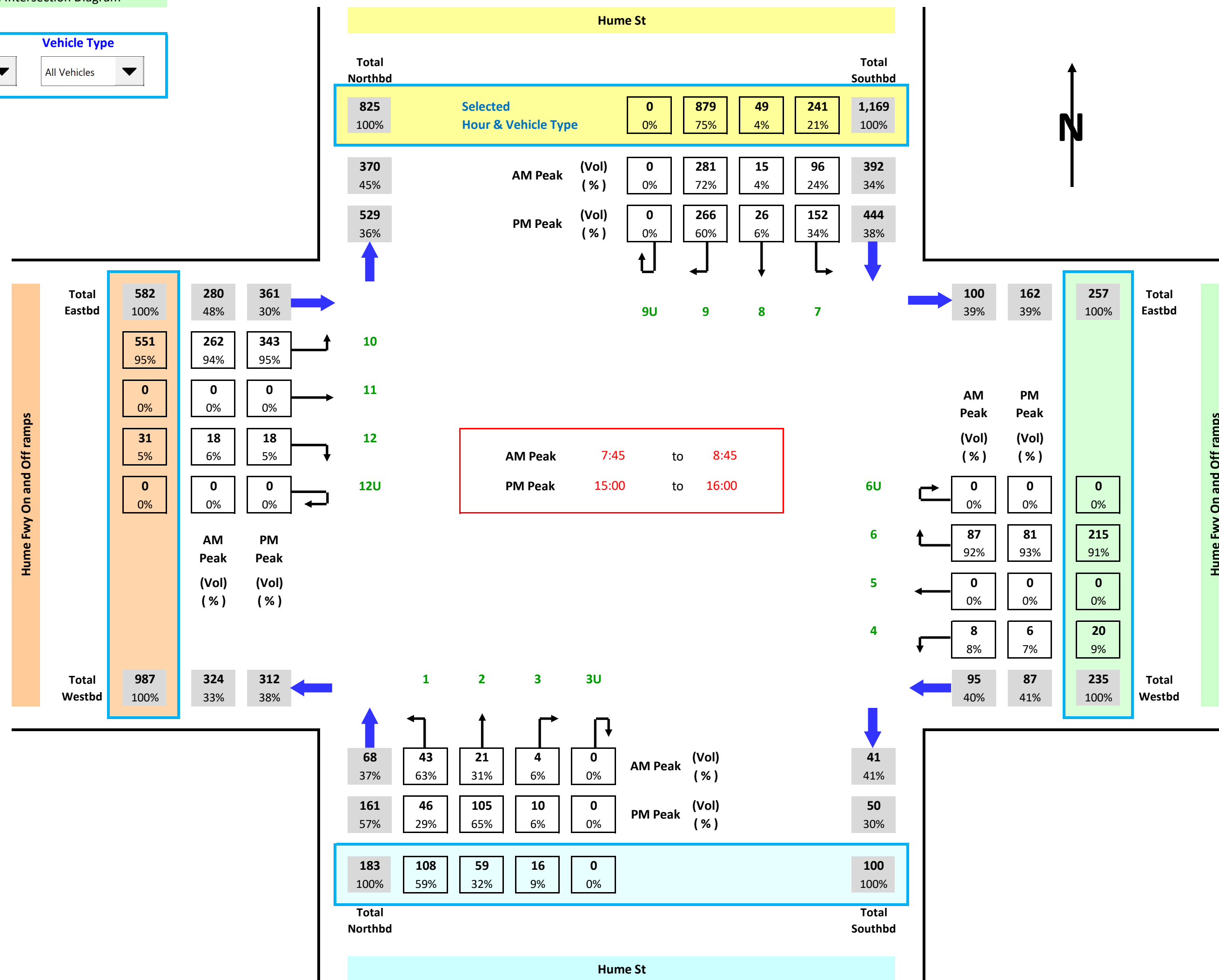
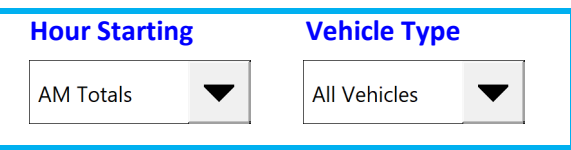
Day/Date : Thu, 25th Mar 2021  
Weather : Fine  
Description : Classified Intersection Count  
: Peak Hour Summary



Approach		Hume St			Hume Fwy On and Off ramps			Hume St			Hume Fwy On and Off ramps			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
AM	7:45 to 8:45	60	8	68	72	23	95	335	57	392	253	27	280	835
PM	15:00 to 16:00	148	13	161	71	16	87	402	42	444	321	40	361	1,053

Approach		Hume St			Hume Fwy On and Off ramps			Hume St			Hume Fwy On and Off ramps			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
6:00	to 7:00	48	2	50	47	13	60	319	42	361	110	20	130	601
6:15	to 7:15	45	6	51	51	12	63	350	49	399	118	18	136	649
6:30	to 7:30	46	8	54	60	16	76	375	50	425	130	22	152	707
6:45	to 7:45	43	9	52	70	15	85	394	54	448	121	21	142	727
7:00	to 8:00	55	10	65	72	14	86	373	43	416	150	22	172	739
7:15	to 8:15	51	8	59	78	21	99	362	44	406	184	26	210	774
7:30	to 8:30	59	6	65	75	20	95	354	58	412	223	27	250	822
7:45	to 8:45	60	8	68	72	23	95	335	57	392	253	27	280	835
8:00	to 9:00	60	8	68	63	26	89	335	57	392	251	29	280	829
AM Totals		163	20	183	182	53	235	1,027	142	1,169	511	71	582	2,169
15:00	to 16:00	148	13	161	71	16	87	402	42	444	321	40	361	1,053
15:15	to 16:15	145	13	158	67	15	82	379	40	419	306	40	346	1,005
15:30	to 16:30	109	11	120	61	12	73	389	36	425	339	43	382	1,000
15:45	to 16:45	77	10	87	55	10	65	389	38	427	370	38	408	987
16:00	to 17:00	61	10	71	47	8	55	355	34	389	383	33	416	931
16:15	to 17:15	47	6	53	52	7	59	365	34	399	410	32	442	953
16:30	to 17:30	52	4	56	58	7	65	342	32	374	408	23	431	926
16:45	to 17:45	48	5	53	65	8	73	319	26	345	407	25	432	903
17:00	to 18:00	48	4	52	59	10	69	306	22	328	419	24	443	892
PM Totals		257	27	284	177	34	211	1,063	98	1,161	1,123	97	1,220	2,876

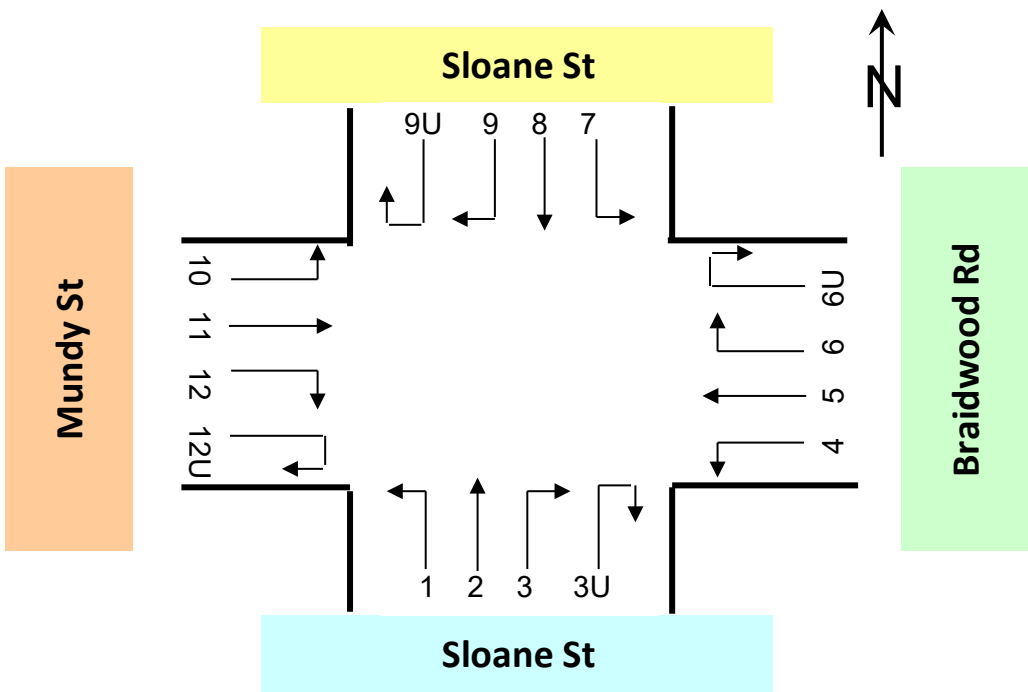
**Day/Date** : Thu, 25th Mar 2021  
**Weather** : Fine  
**Description** : Classified Intersection Count  
: Intersection Diagram





Job No. : AUNSW379  
Client : Dean Brodie  
Suburb : Goulburn Traffic Surveys  
Location : 2. Sloane St / Braidwood Rd / Mundy St  
  
Day/Date : Thu, 25th Mar 2021  
Weather : Fine  
Description : Classified Intersection Count  
: 15 mins Data

	Class 1	Class 2
Classifications	Lights	Heavies

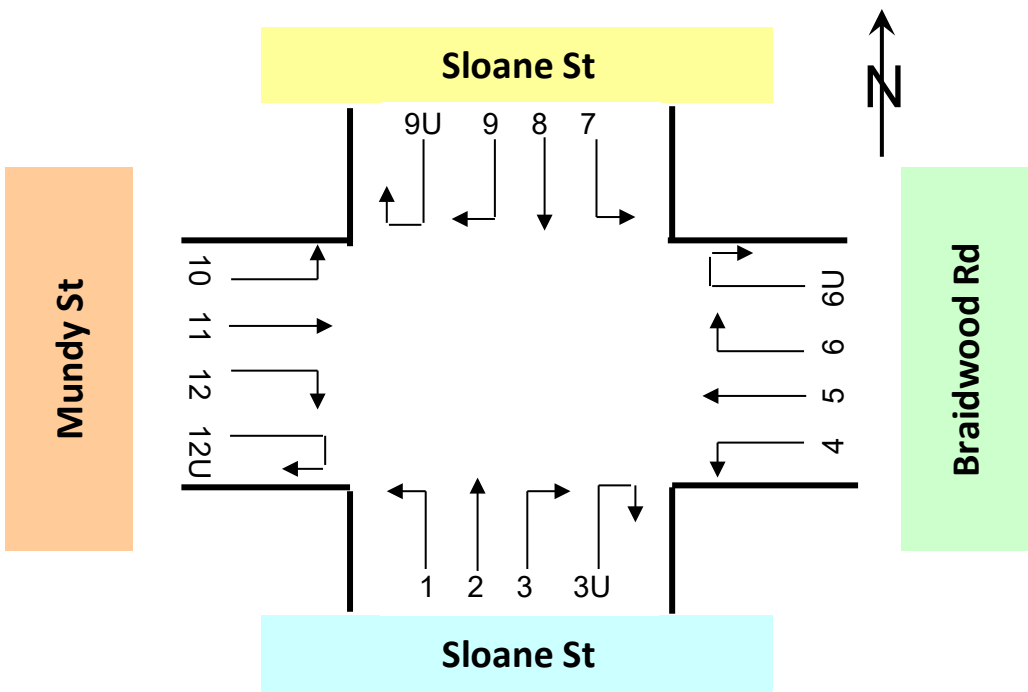


Approach	Sloane St												Braidwood Rd											
Direction	Direction 1 (Left Turn)			Direction 2 (Through)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
6:00 to 6:15	0	0	0	6	0	6	1	2	3	0	0	0	1	0	1	0	0	0	8	1	9	0	0	0
6:15 to 6:30	1	0	1	8	2	10	0	1	1	0	0	0	1	1	2	1	0	1	13	1	14	0	0	0
6:30 to 6:45	1	0	1	11	0	11	3	1	4	0	0	0	6	1	7	0	1	1	12	3	15	0	0	0
6:45 to 7:00	1	0	1	14	0	14	2	0	2	0	0	0	2	1	3	2	0	2	17	1	18	0	0	0
7:00 to 7:15	0	0	0	10	0	10	1	0	1	0	0	0	5	4	9	1	0	1	11	3	14	0	0	0
7:15 to 7:30	0	0	0	15	1	16	1	2	3	0	0	0	2	3	5	1	0	1	17	1	18	0	0	0
7:30 to 7:45	2	0	2	19	0	19	0	4	4	0	0	0	1	2	3	2	0	2	18	7	25	0	0	0
7:45 to 8:00	0	0	0	40	3	43	2	0	2	0	0	0	1	1	2	3	1	4	22	2	24	0	0	0
8:00 to 8:15	1	0	1	32	3	35	6	2	8	0	0	0	2	1	3	4	1	5	19	6	25	0	0	0
8:15 to 8:30	4	0	4	51	2	53	3	3	6	0	0	0	0	3	3	4	1	5	24	2	26	0	0	0
8:30 to 8:45	3	0	3	39	4	43	3	0	3	0	0	0	1	0	1	3	1	4	16	1	17	0	0	0
8:45 to 9:00	2	0	2	35	3	38	5	4	9	0	0	0	4	0	4	4	0	4	28	2	30	0	0	0
AM Totals	15	0	15	280	18	298	27	19	46	0	0	0	26	17	43	25	5	30	205	30	235	0	0	0
15:00 to 15:15	6	0	6	36	5	41	9	1	10	0	0	0	4	4	8	7	0	7	26	4	30	0	0	0
15:15 to 15:30	2	0	2	45	3	48	6	2	8	0	0	0	4	3	7	10	1	11	27	4	31	0	0	0
15:30 to 15:45	2	0	2	63	7	70	5	0	5	0	0	0	9	3	12	9	2	11	31	4	35	0	0	0
15:45 to 16:00	2	0	2	57	3	60	8	3	11	0	0	0	9	2	11	11	2	13	39	4	43	0	0	0
16:00 to 16:15	1	0	1	45	0	45	6	2	8	0	0	0	5	2	7	16	0	16	53	4	57	0	0	0
16:15 to 16:30	2	0	2	27	4	31	10	5	15	0	0	0	7	1	8	10	1	11	25	1	26	0	0	0
16:30 to 16:45	3	1	4	36	1	37	6	0	6	0	0	0	6	2	8	12	1	13	32	5	37	0	0	0
16:45 to 17:00	3	0	3	50	3	53	5	2	7	0	0	0	4	2	6	10	0	10	36	3	39	0	0	0
17:00 to 17:15	1	0	1	30	2	32	8	0	8	0	0	0	12	0	12	7	0	7	32	3	35	0	0	0
17:15 to 17:30	1	0	1	31	1	32	11	0	11	0	0	0	8	0	8	15	0	15	38	1	39	0	0	0
17:30 to 17:45	1	0	1	36	3	39	9	2	11	0	0	0	6	0	6	2	0	2	46	0	46	0	0	0
17:45 to 18:00	1	0	1	39	0	39	8	0	8	0	0	0	5	0	5	5	0	5	29	0	29	0	0	0
PM Totals	25	1	26	495	32	527	91	17	108	0	0	0	79	19	98	114	7	121	414	33	447	0	0	0

Approach	Sloane St												Mundy St											
Direction	Direction 7 (Left Turn)			Direction 8 (Through)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
6:00 to 6:15	26	2	28	19	2	21	0	0	0	0	0	0	1	0	1	12	0	12	0	0	0	0	0	0
6:15 to 6:30	11	3	14	16	3	19	3	0	3	0	0	0	1	0	1	2	0	2	0	0	0	0	0	0
6:30 to 6:45	16	3	19	18	3	21	1	0	1	0	0	0	2	0	2	4	0	4	1	0	1	0	0	0
6:45 to 7:00	18	14	32	19	5	24	0	0	0	0	0	0	1	0	1	6	0	6	0	0	0	0	0	0
7:00 to 7:15	11	2	13	20	1	21	3	0	3	0	0	0	3	0	3	10	1	11	1	0	1	0	0	0
7:15 to 7:30	18	2	20	19	1	20	5	1	6	0	0	0	4	0	4	7	0	7	1	0	1	0	0	0
7:30 to 7:45	24	7	31	27	3	30	0	0	0	0	0	0	4	1	5	4	0	4	0	0	0	0	0	0
7:45 to 8:00	15	2	17	19	4	23	4	0	4	0	0	0	1	0	1	7	0	7	1	0	1	0	0	0
8:00 to 8:15	21	7	28	14	5	19	3	0	3	0	0	0	3	0	3	5	5	10	0	0	0	0	0	0
8:15 to 8:30	20	4	24	37	0	37	3	1	4	0	0	0	4	0	4	9	0	9	0	0	0	0	0	0
8:30 to 8:45	27	3	30	19	2	21	5	3	8	0	0	0	5	0	5	6	1	7	0	0	0	0	0	0
8:45 to 9:00	25	2	27	33	3	36	10	1	11	0	0	0	3	0	3	13	1	14	0	0	0	0	0	0
AM Totals	232	51	283	260	32	292	37	6	43	0	0	0	32	1	33	85	8	93	4	0	4	0	0	0
15:00 to 15:15	28	6	34	28	4	32	8	0	8	0	0	0	8	0	8	13	2	15	0	0	0	0	0	0
15:15 to 15:30	29	1	30	41	4	45	14	0	14	0	0	0	3	0	3	11	0	11	3	0	3	0	0	0
15:30 to 15:45	45	3	48	35	2	37	9	0	9	0	0	0	8	0	8	19	0	19	4	0	4	0	0	0
15:45 to 16:00	48	3	51	43	2	45	10	1	11	0	0	0	2	0	2	15	2	17	0	0	0	0	0	0
16:00 to 16:15	35	2	37	44	4	48	8	0	8	0	0	0	3	0	3	20	1	21	0	0	0	0	0	0
16:15 to 16:30	51	3	54	32	0	32	9	0	9	0	0	0	5	0	5	22	0	22	0	1	1	0	0	0
16:30 to 16:45	41	3	44	39	1	40	6	0	6	0	0	0	0	0	0	16	0	16	0	0	0	0	0	0
16:45 to 17:00	39	5	44	32	4	36	3	0	3	0	0	0	12	0	12	12	0	12	4	0	4	0	0	0
17:00 to 17:15	57	3	60	35	2	37	2	0	2	0	0	0	4	0	4	14	0	14	0	0	0	0	0	0
17:15 to 17:30	32	1	33	36	2	38	8	0	8	0	0	0	5	0	5	14	0	14	2	0	2	0	0	0
17:30 to 17:45	43	2	45	40	2	42	6	0	6	0	0	0	3	0	3	14	0	14	1	0	1	0	0	0
17:45 to 18:00	35	2	37	20	0	20	10	0	10	0	0	0	3	0	3	14	0	14	0	0	0	0	0	0
PM Totals	483	34	517	425	27	452	93	1	94	0	0	0	56	0	56	184	5	189	14	1	15	0	0	0

Job No. : AUNSW379  
Client : Dean Brodie  
Suburb : Goulburn Traffic Surveys  
Location : 2. Sloane St / Braidwood Rd / Mundy St

Day/Date : Thu, 25th Mar 2021  
Weather : Fine  
Description : Classified Intersection Count  
: Hourly Summary

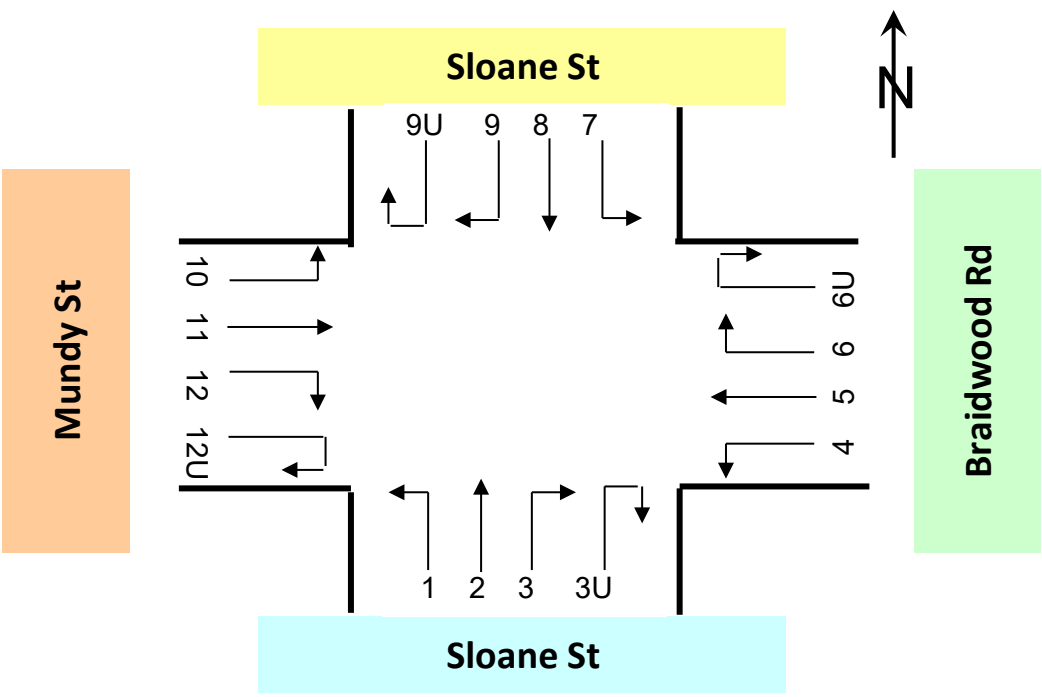


Approach	Sloane St												Braidwood Rd											
Direction	Direction 1 (Left Turn)			Direction 2 (Through)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
6:00 to 7:00	3	0	3	39	2	41	6	4	10	0	0	0	10	3	13	3	1	4	50	6	56	0	0	0
6:15 to 7:15	3	0	3	43	2	45	6	2	8	0	0	0	14	7	21	4	1	5	53	8	61	0	0	0
6:30 to 7:30	2	0	2	50	1	51	7	3	10	0	0	0	15	9	24	4	1	5	57	8	65	0	0	0
6:45 to 7:45	3	0	3	58	1	59	4	6	10	0	0	0	10	10	20	6	0	6	63	12	75	0	0	0
7:00 to 8:00	2	0	2	84	4	88	4	6	10	0	0	0	9	10	19	7	1	8	68	13	81	0	0	0
7:15 to 8:15	3	0	3	106	7	113	9	8	17	0	0	0	6	7	13	10	2	12	76	16	92	0	0	0
7:30 to 8:30	7	0	7	142	8	150	11	9	20	0	0	0	4	7	11	13	3	16	83	17	100	0	0	0
7:45 to 8:45	8	0	8	162	12	174	14	5	19	0	0	0	4	5	9	14	4	18	81	11	92	0	0	0
8:00 to 9:00	10	0	10	157	12	169	17	9	26	0	0	0	7	4	11	15	3	18	87	11	98	0	0	0
AM Totals	15	0	15	280	18	298	27	19	46	0	0	0	26	17	43	25	5	30	205	30	235	0	0	0
15:00 to 16:00	12	0	12	201	18	219	28	6	34	0	0	0	26	12	38	37	5	42	123	16	139	0	0	0
15:15 to 16:15	7	0	7	210	13	223	25	7	32	0	0	0	27	10	37	46	5	51	150	16	166	0	0	0
15:30 to 16:30	7	0	7	192	14	206	29	10	39	0	0	0	30	8	38	46	5	51	148	13	161	0	0	0
15:45 to 16:45	8	1	9	165	8	173	30	10	40	0	0	0	27	7	34	49	4	53	149	14	163	0	0	0
16:00 to 17:00	9	1	10	158	8	166	27	9	36	0	0	0	22	7	29	48	2	50	146	13	159	0	0	0
16:15 to 17:15	9	1	10	143	10	153	29	7	36	0	0	0	29	5	34	39	2	41	125	12	137	0	0	0
16:30 to 17:30	8	1	9	147	7	154	30	2	32	0	0	0	30	4	34	44	1	45	138	12	150	0	0	0
16:45 to 17:45	6	0	6	147	9	156	33	4	37	0	0	0	30	2	32	34	0	34	152	7	159	0	0	0
17:00 to 18:00	4	0	4	136	6	142	36	2	38	0	0	0	31	0	31	29	0	29	145	4	149	0	0	0
PM Totals	25	1	26	495	32	527	91	17	108	0	0	0	79	19	98	114	7	121	414	33	447	0	0	0

Approach	Sloane St												Mundy St											
Direction	Direction 7 (Left Turn)			Direction 8 (Through)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
6:00 to 7:00	71	22	93	72	13	85	4	0	4	0	0	0	5	0	5	24	0	24	1	0	1	0	0	0
6:15 to 7:15	56	22	78	73	12	85	7	0	7	0	0	0	7	0	7	22	1	23	2	0	2	0	0	0
6:30 to 7:30	63	21	84	76	10	86	9	1	10	0	0	0	10	0	10	27	1	28	3	0	3	0	0	0
6:45 to 7:45	71	25	96	85	10	95	8	1	9	0	0	0	12	1	13	27	1	28	2	0	2	0	0	0
7:00 to 8:00	68	13	81	85	9	94	12	1	13	0	0	0	12	1	13	28	1	29	3	0	3	0	0	0
7:15 to 8:15	78	18	96	79	13	92	12	1	13	0	0	0	12	1	13	23	5	28	2	0	2	0	0	0
7:30 to 8:30	80	20	100	97	12	109	10	1	11	0	0	0	12	1	13	25	5	30	1	0	1	0	0	0
7:45 to 8:45	83	16	99	89	11	100	15	4	19	0	0	0	13	0	13	27	6	33	1	0	1	0	0	0
8:00 to 9:00	93	16	109	103	10	113	21	5	26	0	0	0	15	0	15	33	7	40	0	0	0	0	0	0
AM Totals	232	51	283	260	32	292	37	6	43	0	0	0	32	1	33	85	8	93	4	0	4	0	0	0
15:00 to 16:00	150	13	163	147	12	159	41	1	42	0	0	0	21	0	21	58	4	62	7	0	7	0	0	0
15:15 to 16:15	157	9	166	163	12	175	41	1	42	0	0	0	16	0	16	65	3	68	7	0	7	0	0	0
15:30 to 16:30	179	11	190	154	8	162	36	1	37	0	0	0	18	0	18	76	3	79	4	1	5	0	0	0
15:45 to 16:45	175	11	186	158	7	165	33	1	34	0	0	0	10	0	10	73	3	76	0	1	1	0	0	0
16:00 to 17:00	166	13	179	147	9	156	26	0	26	0	0	0	20	0	20	70	1	71	4	1	5	0	0	0
16:15 to 17:15	188	14	202	138	7	145	20	0	20	0	0	0	21	0	21	64	0	64	4	1	5	0	0	0
16:30 to 17:30	169	12	181	142	9	151	19	0	19	0	0	0	21	0	21	56	0	56	6	0	6	0	0	0
16:45 to 17:45	171	11	182	143	10	153	19	0	19	0	0	0	24	0	24	54	0	54	7	0	7	0	0	0
17:00 to 18:00	167	8	175	131	6	137	26	0	26	0	0	0	15	0	15	56	0	56	3	0	3	0	0	0
PM Totals	483	34	517	425	27	452	93	1	94	0	0	0	56	0	56	184	5	189	14	1	15	0	0	0

Job No. : AUNSW379  
Client : Dean Brodie  
Suburb : Goulburn Traffic Surveys  
Location : 2. Sloane St / Braidwood Rd / Mundy St

Day/Date : Thu, 25th Mar 2021  
Weather : Fine  
Description : Classified Intersection Count  
: Peak Hour Summary



Approach		Sloane St			Braidwood Rd			Sloane St			Mundy St			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
AM	8:00 to 9:00	184	21	205	109	18	127	217	31	248	48	7	55	635
PM	15:30 to 16:30	228	24	252	224	26	250	369	20	389	98	4	102	993

Approach		Sloane St			Braidwood Rd			Sloane St			Mundy St			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
6:00 to 7:00		48	6	54	63	10	73	147	35	182	30	0	30	339
6:15 to 7:15		52	4	56	71	16	87	136	34	170	31	1	32	345
6:30 to 7:30		59	4	63	76	18	94	148	32	180	40	1	41	378
6:45 to 7:45		65	7	72	79	22	101	164	36	200	41	2	43	416
7:00 to 8:00		90	10	100	84	24	108	165	23	188	43	2	45	441
7:15 to 8:15		118	15	133	92	25	117	169	32	201	37	6	43	494
7:30 to 8:30		160	17	177	100	27	127	187	33	220	38	6	44	568
7:45 to 8:45		184	17	201	99	20	119	187	31	218	41	6	47	585
8:00 to 9:00		184	21	205	109	18	127	217	31	248	48	7	55	635
AM Totals		322	37	359	256	52	308	529	89	618	121	9	130	1,415
15:00 to 16:00		241	24	265	186	33	219	338	26	364	86	4	90	938
15:15 to 16:15		242	20	262	223	31	254	361	22	383	88	3	91	990
15:30 to 16:30		228	24	252	224	26	250	369	20	389	98	4	102	993
15:45 to 16:45		203	19	222	225	25	250	366	19	385	83	4	87	944
16:00 to 17:00		194	18	212	216	22	238	339	22	361	94	2	96	907
16:15 to 17:15		181	18	199	193	19	212	346	21	367	89	1	90	868
16:30 to 17:30		185	10	195	212	17	229	330	21	351	83	0	83	858
16:45 to 17:45		186	13	199	216	9	225	333	21	354	85	0	85	863
17:00 to 18:00		176	8	184	205	4	209	324	14	338	74	0	74	805
PM Totals		611	50	661	607	59	666	1,001	62	1,063	254	6	260	2,650

Job No. : AUNSW379  
Client : Dean Brodie  
Suburb : Goulburn Traffic Surveys  
Location : 2. Sloane St / Braidwood Rd / Mundy St

Day/Date : Thu, 25th Mar 2021  
Weather : Fine  
Description : Classified Intersection Count  
: Intersection Diagram

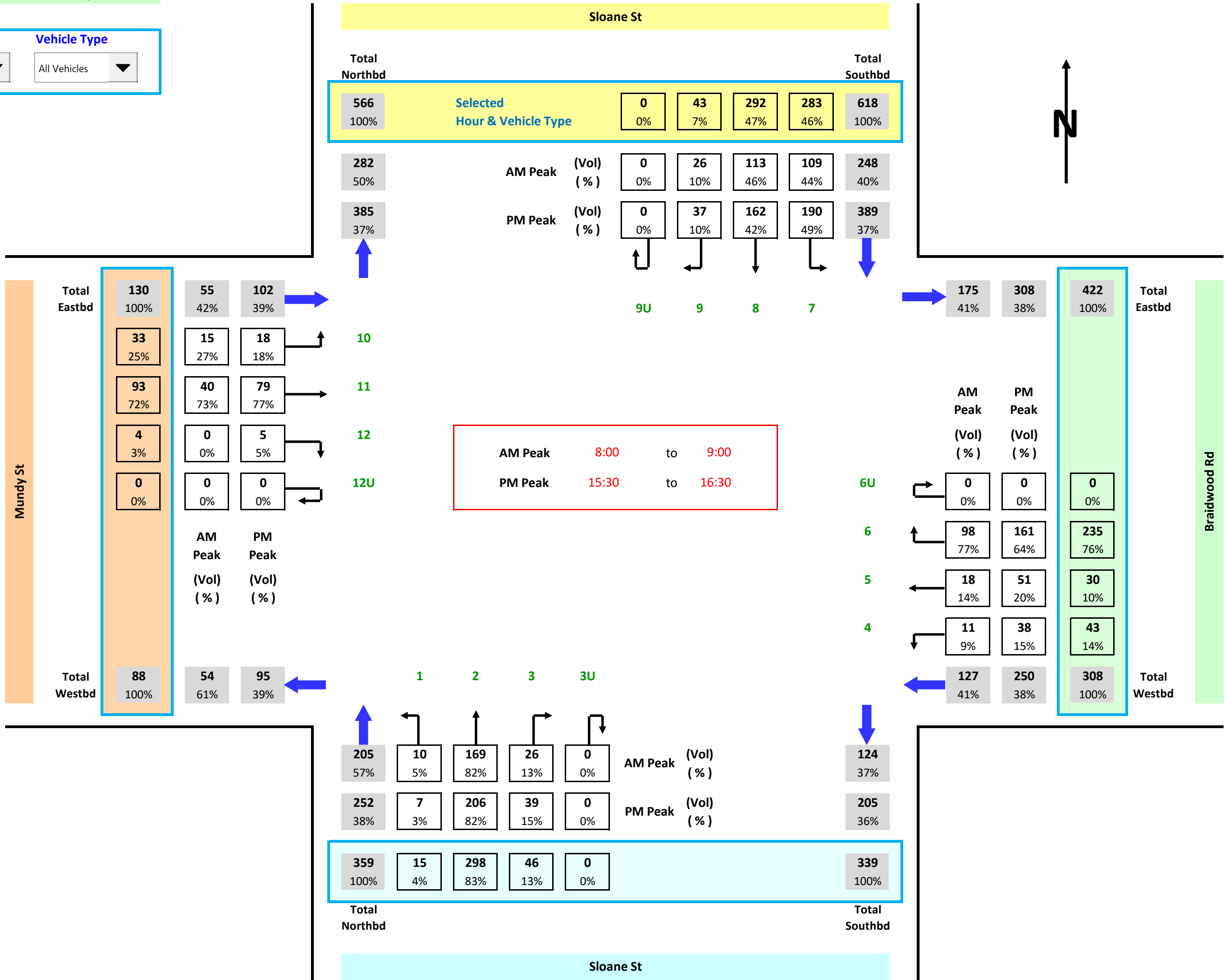


Hour Starting

Vehicle Type

AM Totals

All Vehicles



Job No.

: AUNSW379

Client

: Dean Brodie

Suburb

: Goulburn Traffic Surveys

Location

: 3. Braidwood Rd / Garoorigang St

Day/Date

: Thu, 25th Mar 2021

Weather

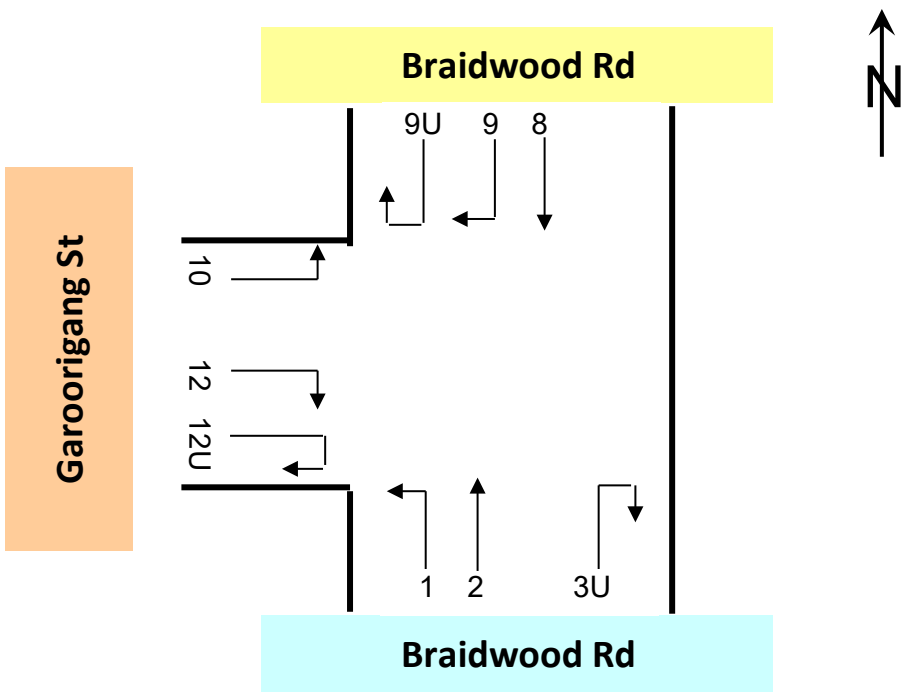
: Fine

Description

: Classified Intersection Count

: 15 mins Data

	Class 1	Class 2
Classifications	Lights	Heavies



Approach	Braidwood Rd									
Direction	Direction 1 (Left Turn)			Direction 2 (Through)			Direction 3U (U Turn)			
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
6:00 to 6:15	5	1	6	4	0	4	0	0	0	
6:15 to 6:30	9	0	9	8	0	8	0	0	0	
6:30 to 6:45	9	0	9	9	1	10	0	0	0	
6:45 to 7:00	8	0	8	10	0	10	0	0	0	
7:00 to 7:15	7	0	7	6	1	7	0	0	0	
7:15 to 7:30	5	0	5	6	1	7	0	0	0	
7:30 to 7:45	14	0	14	13	3	16	0	0	0	
7:45 to 8:00	18	0	18	15	3	18	0	0	0	
8:00 to 8:15	13	0	13	10	1	11	0	0	0	
8:15 to 8:30	22	0	22	14	4	18	0	0	0	
8:30 to 8:45	17	0	17	15	2	17	0	0	0	
8:45 to 9:00	14	2	16	12	2	14	0	0	0	
AM Totals	141	3	144	122	18	140	0	0	0	
15:00 to 15:15	15	1	16	11	2	13	0	0	0	
15:15 to 15:30	7	0	7	13	7	20	0	0	0	
15:30 to 15:45	17	0	17	18	4	22	0	0	0	
15:45 to 16:00	21	0	21	10	4	14	0	0	0	
16:00 to 16:15	18	0	18	21	1	22	0	0	0	
16:15 to 16:30	15	1	16	16	3	19	0	0	0	
16:30 to 16:45	17	0	17	16	4	20	0	0	0	
16:45 to 17:00	19	0	19	13	2	15	0	0	0	
17:00 to 17:15	2	0	2	11	1	12	0	0	0	
17:15 to 17:30	10	0	10	13	0	13	0	0	0	
17:30 to 17:45	9	0	9	16	0	16	0	0	0	
17:45 to 18:00	8	0	8	12	0	12	0	0	0	
PM Totals	158	2	160	170	28	198	0	0	0	

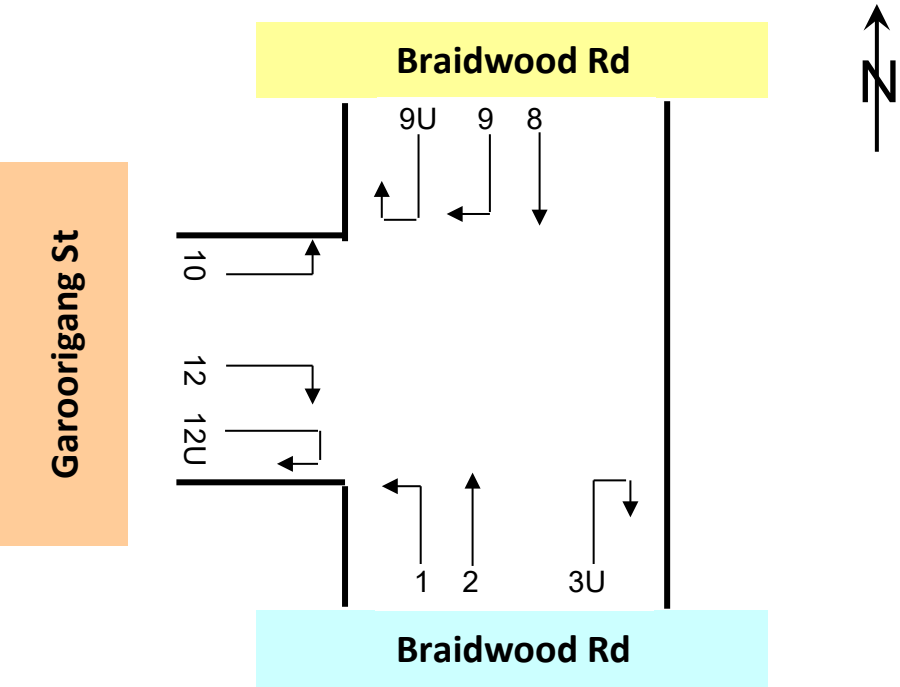


Approach	Braidwood Rd									Garoorigang St											
Direction		Direction 8 (Through)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)				Direction 12 (Right Turn)			Direction 12U (U Turn)			
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
6:00 to 6:15		15	2	17	1	0	1	0	0	0	0	0	0		0	5	1	6	0	0	0
6:15 to 6:30		12	3	15	1	0	1	0	0	0	0	0	0		0	5	2	7	0	0	0
6:30 to 6:45		12	4	16	0	0	0	0	0	0	1	0	1		2	0	2	0	0	0	
6:45 to 7:00		6	8	14	2	0	2	0	0	0	0	0	0		1	0	1	0	0	0	
7:00 to 7:15		2	5	7	0	0	0	0	0	0	0	0	0		5	1	6	0	0	0	
7:15 to 7:30		18	2	20	0	0	0	0	0	0	0	0	0		7	0	7	0	0	0	
7:30 to 7:45		15	4	19	0	0	0	0	0	0	0	0	0		6	0	6	0	0	0	
7:45 to 8:00		12	1	13	0	0	0	0	0	0	0	0	0		6	0	6	0	0	0	
8:00 to 8:15		14	7	21	3	0	3	0	0	0	0	0	0		4	0	4	0	0	0	
8:15 to 8:30		18	6	24	0	0	0	0	0	0	0	0	0		3	1	4	0	0	0	
8:30 to 8:45		18	5	23	0	0	0	0	0	0	0	0	0		4	0	4	0	0	0	
8:45 to 9:00		11	4	15	2	1	3	0	0	0	3	0	3		6	0	6	0	0	0	
AM Totals		153	51	204	9	1	10	0	0	0	4	0	4		54	5	59	0	0	0	
15:00 to 15:15	9	1	10	3	0	3	0	0	0	1	0	1	7	0	7	0	0	0			
15:15 to 15:30	15	3	18	2	0	2	0	0	0	0	0	0	13	1	14	0	0	0			
15:30 to 15:45	20	1	21	1	0	1	0	0	0	0	0	0	12	0	12	0	0	0			
15:45 to 16:00	25	2	27	2	0	2	0	0	0	1	0	1	17	0	17	0	0	0			
16:00 to 16:15	16	1	17	4	0	4	0	0	0	2	0	2	11	0	11	0	0	0			
16:15 to 16:30	20	1	21	1	0	1	0	0	0	3	0	3	9	0	9	0	0	0			
16:30 to 16:45	14	2	16	2	0	2	0	0	0	2	0	2	16	0	16	0	0	0			
16:45 to 17:00	20	6	26	0	0	0	0	0	0	3	0	3	8	0	8	0	0	0			
17:00 to 17:15	15	3	18	0	0	0	0	0	0	0	0	0	10	0	10	0	0	0			
17:15 to 17:30	20	1	21	3	0	3	0	0	0	2	0	2	14	0	14	0	0	0			
17:30 to 17:45	15	1	16	2	0	2	0	0	0	2	0	2	14	0	14	0	0	0			
17:45 to 18:00	23	0	23	0	0	0	0	0	0	1	0	1	12	0	12	0	0	0			
PM Totals	212	22	234	20	0	20	0	0	0	17	0	17	143	1	144	0	0	0			



Job No. : AUNSW379  
Client : Dean Brodie  
Suburb : Goulburn Traffic Surveys  
Location : 3. Braidwood Rd / Garoorigang St

Day/Date : Thu, 25th Mar 2021  
Weather : Fine  
Description : Classified Intersection Count  
: Hourly Summary

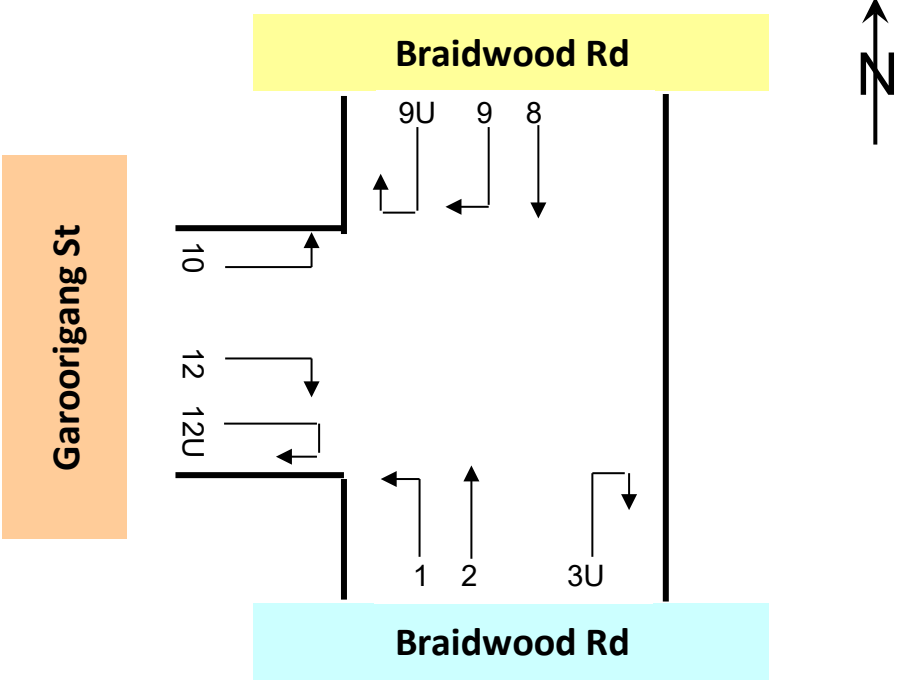


Approach	Braidwood Rd									
Direction	Direction 1 (Left Turn)			Direction 2 (Through)			Direction 3U (U Turn)			
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
6:00 to 7:00	31	1	32	31	1	32	0	0	0	
6:15 to 7:15	33	0	33	33	2	35	0	0	0	
6:30 to 7:30	29	0	29	31	3	34	0	0	0	
6:45 to 7:45	34	0	34	35	5	40	0	0	0	
7:00 to 8:00	44	0	44	40	8	48	0	0	0	
7:15 to 8:15	50	0	50	44	8	52	0	0	0	
7:30 to 8:30	67	0	67	52	11	63	0	0	0	
7:45 to 8:45	70	0	70	54	10	64	0	0	0	
8:00 to 9:00	66	2	68	51	9	60	0	0	0	
AM Totals	141	3	144	122	18	140	0	0	0	
15:00 to 16:00	60	1	61	52	17	69	0	0	0	
15:15 to 16:15	63	0	63	62	16	78	0	0	0	
15:30 to 16:30	71	1	72	65	12	77	0	0	0	
15:45 to 16:45	71	1	72	63	12	75	0	0	0	
16:00 to 17:00	69	1	70	66	10	76	0	0	0	
16:15 to 17:15	53	1	54	56	10	66	0	0	0	
16:30 to 17:30	48	0	48	53	7	60	0	0	0	
16:45 to 17:45	40	0	40	53	3	56	0	0	0	
17:00 to 18:00	29	0	29	52	1	53	0	0	0	
PM Totals	158	2	160	170	28	198	0	0	0	

Approach	Braidwood Rd									Garoorigang St										
Direction		Direction 8 (Through)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)				Direction 12 (Right Turn)			Direction 12U (U Turn)		
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total
6:00 to 7:00		45	17	62	4	0	4	0	0	0	1	0	1		13	3	16	0	0	0
6:15 to 7:15		32	20	52	3	0	3	0	0	0	1	0	1		13	3	16	0	0	0
6:30 to 7:30		38	19	57	2	0	2	0	0	0	1	0	1		15	1	16	0	0	0
6:45 to 7:45		41	19	60	2	0	2	0	0	0	0	0	0		19	1	20	0	0	0
7:00 to 8:00		47	12	59	0	0	0	0	0	0	0	0	0		24	1	25	0	0	0
7:15 to 8:15		59	14	73	3	0	3	0	0	0	0	0	0		23	0	23	0	0	0
7:30 to 8:30		59	18	77	3	0	3	0	0	0	0	0	0		19	1	20	0	0	0
7:45 to 8:45		62	19	81	3	0	3	0	0	0	0	0	0		17	1	18	0	0	0
8:00 to 9:00		61	22	83	5	1	6	0	0	0	3	0	3		17	1	18	0	0	0
AM Totals		153	51	204	9	1	10	0	0	0	4	0	4		54	5	59	0	0	0
15:00 to 16:00	69	7	76	8	0	8	0	0	0	2	0	2	49	1	50	0	0	0		
15:15 to 16:15	76	7	83	9	0	9	0	0	0	3	0	3	53	1	54	0	0	0		
15:30 to 16:30	81	5	86	8	0	8	0	0	0	6	0	6	49	0	49	0	0	0		
15:45 to 16:45	75	6	81	9	0	9	0	0	0	8	0	8	53	0	53	0	0	0		
16:00 to 17:00	70	10	80	7	0	7	0	0	0	10	0	10	44	0	44	0	0	0		
16:15 to 17:15	69	12	81	3	0	3	0	0	0	8	0	8	43	0	43	0	0	0		
16:30 to 17:30	69	12	81	5	0	5	0	0	0	7	0	7	48	0	48	0	0	0		
16:45 to 17:45	70	11	81	5	0	5	0	0	0	7	0	7	46	0	46	0	0	0		
17:00 to 18:00	73	5	78	5	0	5	0	0	0	5	0	5	50	0	50	0	0	0		
PM Totals	212	22	234	20	0	20	0	0	0	17	0	17	143	1	144	0	0	0		

Job No. : AUNSW379  
Client : Dean Brodie  
Suburb : Goulburn Traffic Surveys  
Location : 3. Braidwood Rd / Garoorigang St

Day/Date : Thu, 25th Mar 2021  
Weather : Fine  
Description : Classified Intersection Count  
: Peak Hour Summary



Approach		Braidwood Rd						Braidwood Rd			Garoorigang St			Grand Total
		Lights	Heavies	Total				Lights	Heavies	Total	Lights	Heavies	Total	
Time Period														
AM	8:00 to 9:00	117	11	128				66	23	89	20	1	21	238
PM	15:30 to 16:30	136	13	149				89	5	94	55	0	55	298

Approach		Braidwood Rd						Braidwood Rd			Garoorigang St			Grand Total
		Lights	Heavies	Total				Lights	Heavies	Total	Lights	Heavies	Total	
Time Period														
6:00	to 7:00	62	2	64				49	17	66	14	3	17	147
6:15	to 7:15	66	2	68				35	20	55	14	3	17	140
6:30	to 7:30	60	3	63				40	19	59	16	1	17	139
6:45	to 7:45	69	5	74				43	19	62	19	1	20	156
7:00	to 8:00	84	8	92				47	12	59	24	1	25	176
7:15	to 8:15	94	8	102				62	14	76	23	0	23	201
7:30	to 8:30	119	11	130				62	18	80	19	1	20	230
7:45	to 8:45	124	10	134				65	19	84	17	1	18	236
8:00	to 9:00	117	11	128				66	23	89	20	1	21	238
AM Totals		263	21	284				162	52	214	58	5	63	561
15:00	to 16:00	112	18	130				77	7	84	51	1	52	266
15:15	to 16:15	125	16	141				85	7	92	56	1	57	290
15:30	to 16:30	136	13	149				89	5	94	55	0	55	298
15:45	to 16:45	134	13	147				84	6	90	61	0	61	298
16:00	to 17:00	135	11	146				77	10	87	54	0	54	287
16:15	to 17:15	109	11	120				72	12	84	51	0	51	255
16:30	to 17:30	101	7	108				74	12	86	55	0	55	249
16:45	to 17:45	93	3	96				75	11	86	53	0	53	235
17:00	to 18:00	81	1	82				78	5	83	55	0	55	220
PM Totals		328	30	358				232	22	254	160	1	161	773

Job No. : AUNSW379  
Client : Dean Brodie  
Suburb : Goulburn Traffic Surveys  
Location : 3. Braidwood Rd / Garoorigang St

Day/Date : Thu, 25th Mar 2021  
Weather : Fine  
Description : Classified Intersection Count  
: Intersection Diagram

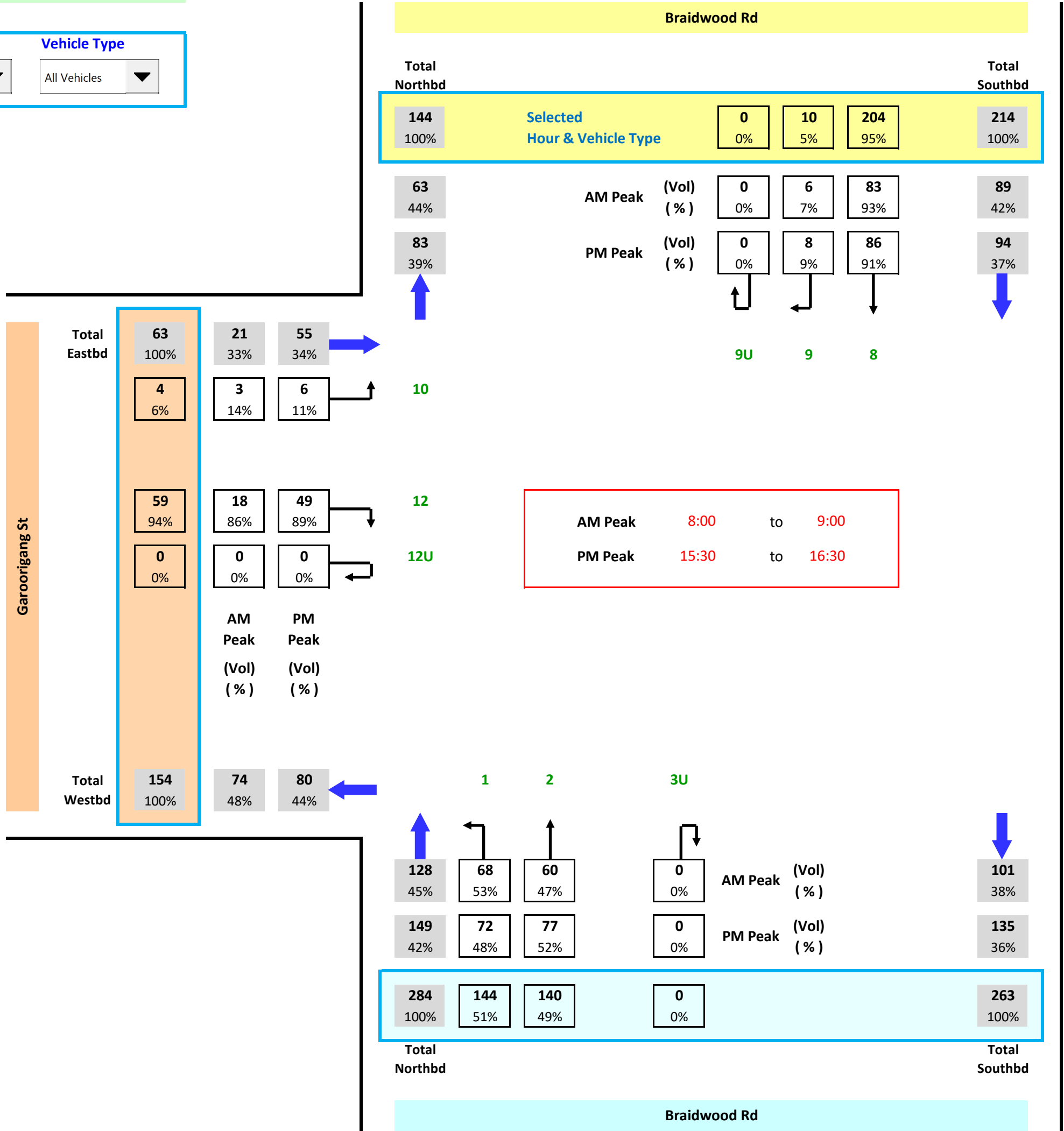


Hour Starting

Vehicle Type

AM Totals

All Vehicles



## 7. Appendix B – SIDRA Outputs

# MOVEMENT SUMMARY

 Site: 101 [Hume St\_Hume Hwy\_PM\_Fut\_2 (Site Folder: General)]

New Site  
Site Category: (None)  
Roundabout

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: Hume St														
1	L2	47	2.0	49	2.0	0.123	3.2	LOS A	0.7	4.9	0.46	0.38	0.46	57.5
2	T1	105	2.0	111	2.0	0.123	3.4	LOS A	0.7	4.9	0.46	0.38	0.46	58.3
3	R2	13	2.0	14	2.0	0.123	10.3	LOS A	0.7	4.9	0.46	0.38	0.46	68.8
Approach		165	2.0	174	2.0	0.123	3.9	LOS A	0.7	4.9	0.46	0.38	0.46	58.7
East: Hume Hwy														
4	L2	9	2.0	9	2.0	0.065	2.7	LOS A	0.3	2.5	0.41	0.56	0.41	53.6
5	T1	1	2.0	1	2.0	0.065	3.1	LOS A	0.3	2.5	0.41	0.56	0.41	54.7
6	R2	81	2.0	85	2.0	0.065	10.2	LOS A	0.3	2.5	0.41	0.56	0.41	61.5
Approach		91	2.0	96	2.0	0.065	9.4	LOS A	0.3	2.5	0.41	0.56	0.41	60.6
North: Hume St														
7	L2	152	2.0	160	2.0	0.262	2.1	LOS A	1.6	11.5	0.14	0.44	0.14	56.8
8	T1	26	2.0	27	2.0	0.262	2.3	LOS A	1.6	11.5	0.14	0.44	0.14	57.4
9	R2	266	2.0	280	2.0	0.262	9.1	LOS A	1.6	11.5	0.14	0.44	0.14	66.7
Approach		444	2.0	467	2.0	0.262	6.3	LOS A	1.6	11.5	0.14	0.44	0.14	62.4
West: Hume Hwy														
10	L2	343	2.0	361	2.0	0.241	2.5	LOS A	1.5	10.6	0.39	0.33	0.39	58.0
11	T1	1	2.0	1	2.0	0.241	2.9	LOS A	1.5	10.6	0.39	0.33	0.39	59.5
12	R2	18	2.0	19	2.0	0.241	10.0	LOS A	1.5	10.6	0.39	0.33	0.39	69.1
Approach		362	2.0	381	2.0	0.241	2.9	LOS A	1.5	10.6	0.39	0.33	0.39	58.5
All Vehicles		1062	2.0	1118	2.0	0.262	5.0	LOS A	1.6	11.5	0.30	0.40	0.30	60.4

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.

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

Roundabout Capacity Model: SIDRA Standard.

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.

**SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com**

Organisation: POSITIVE TRAFFIC PTY LTD | Licence: PLUS / 1PC | Processed: Tuesday, 30 November 2021 1:48:38 PM

Project: Z:\2021 Projects\PT21035 - 137 Brisbane Grove Road, Brisbane Grove\SIDRA\PT21035\_V2.sip9



# INTERSECTION SUMMARY

Site: 101 [Braidwood\_Garoorigang\_AM\_Ex (Site Folder: General)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	57.0 km/h	57.0 km/h
Travel Distance (Total)	253.5 veh-km/h	304.2 pers-km/h
Travel Time (Total)	4.4 veh-h/h	5.3 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	0.95	
Travel Time Index	9.45	
Congestion Coefficient	1.05	
Demand Flows (Total)	251 veh/h	301 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.072	
Practical Spare Capacity	1263.0 %	
Effective Intersection Capacity	3484 veh/h	
Control Delay (Total)	0.16 veh-h/h	0.19 pers-h/h
Control Delay (Average)	2.3 sec	2.3 sec
Control Delay (Worst Lane)	6.1 sec	
Control Delay (Worst Movement)	6.1 sec	6.1 sec
Geometric Delay (Average)	2.2 sec	
Stop-Line Delay (Average)	0.1 sec	
Idling Time (Average)	0.0 sec	
Intersection Level of Service (LOS)	NA	
95% Back of Queue - Vehicles (Worst Lane)	0.1 veh	
95% Back of Queue - Distance (Worst Lane)	0.5 m	
Ave. Queue Storage Ratio (Worst Lane)	0.00	
Total Effective Stops	59 veh/h	71 pers/h
Effective Stop Rate	0.23	0.23
Proportion Queued	0.03	0.03
Performance Index	4.9	4.9
Cost (Total)	188.45 \$/h	188.45 \$/h
Fuel Consumption (Total)	18.4 L/h	
Carbon Dioxide (Total)	43.4 kg/h	
Hydrocarbons (Total)	0.003 kg/h	
Carbon Monoxide (Total)	0.052 kg/h	
NOx (Total)	0.043 kg/h	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection 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.  
 Site Model Variability Index (Iterations 3 to N): 0.0 %  
 Number of Iterations: 3 (Maximum: 10)  
 Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 38.6% 1.4% 0.0%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	120,253 veh/y	144,303 pers/y
Delay	77 veh-h/y	92 pers-h/y
Effective Stops	28,210 veh/y	33,852 pers/y
Travel Distance	121,664 veh-km/y	145,997 pers-km/y
Travel Time	2,133 veh-h/y	2,559 pers-h/y
Cost	90,455 \$/y	90,455 \$/y
Fuel Consumption	8,809 L/y	
Carbon Dioxide	20,828 kg/y	
Hydrocarbons	2 kg/y	
Carbon Monoxide	25 kg/y	

# MOVEMENT SUMMARY

Site: 101 [Braidwood\_Garoorigang\_AM\_Ex (Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Braidwood Rd														
1	L2	68	2.0	72	2.0	0.072	5.6	LOS A	0.0	0.0	0.00	0.31	0.00	55.6
2	T1	60	2.0	63	2.0	0.072	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	57.2
Approach		128	2.0	135	2.0	0.072	3.0	NA	0.0	0.0	0.00	0.31	0.00	56.4
North: Braidwood Rd														
8	T1	83	2.0	87	2.0	0.050	0.0	LOS A	0.0	0.3	0.04	0.04	0.04	59.5
9	R2	6	2.0	6	2.0	0.050	5.9	LOS A	0.0	0.3	0.04	0.04	0.04	57.1
Approach		89	2.0	94	2.0	0.050	0.4	NA	0.0	0.3	0.04	0.04	0.04	59.3
West: Garoorigang St														
10	L2	3	2.0	3	2.0	0.020	5.7	LOS A	0.1	0.5	0.21	0.57	0.21	53.0
12	R2	18	2.0	19	2.0	0.020	6.1	LOS A	0.1	0.5	0.21	0.57	0.21	52.5
Approach		21	2.0	22	2.0	0.020	6.1	LOS A	0.1	0.5	0.21	0.57	0.21	52.5
All Vehicles		238	2.0	251	2.0	0.072	2.3	NA	0.1	0.5	0.03	0.23	0.03	57.0

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.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: POSITIVE TRAFFIC PTY LTD | Licence: PLUS / 1PC | Processed: Tuesday, 30 November 2021 1:48:26 PM

Project: Z:\2021 Projects\PT21035 - 137 Brisbane Grove Road, Brisbane Grove\SIDRA\PT21035\_V2.sip9

# INTERSECTION SUMMARY

Site: 101 [Braidwood\_Garoorigang\_AM\_Fut\_2 (Site Folder: General)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	57.2 km/h	57.2 km/h
Travel Distance (Total)	289.6 veh-km/h	347.6 pers-km/h
Travel Time (Total)	5.1 veh-h/h	6.1 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	0.95	
Travel Time Index	9.49	
Congestion Coefficient	1.05	
Demand Flows (Total)	286 veh/h	344 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.087	
Practical Spare Capacity	1029.3 %	
Effective Intersection Capacity	3299 veh/h	
Control Delay (Total)	0.17 veh-h/h	0.21 pers-h/h
Control Delay (Average)	2.2 sec	2.2 sec
Control Delay (Worst Lane)	6.2 sec	
Control Delay (Worst Movement)	6.3 sec	6.3 sec
Geometric Delay (Average)	2.1 sec	
Stop-Line Delay (Average)	0.1 sec	
Idling Time (Average)	0.0 sec	
Intersection Level of Service (LOS)	NA	
95% Back of Queue - Vehicles (Worst Lane)	0.1 veh	
95% Back of Queue - Distance (Worst Lane)	0.5 m	
Ave. Queue Storage Ratio (Worst Lane)	0.00	
Total Effective Stops	63 veh/h	75 pers/h
Effective Stop Rate	0.22	0.22
Proportion Queued	0.03	0.03
Performance Index	5.5	5.5
Cost (Total)	214.34 \$/h	214.34 \$/h
Fuel Consumption (Total)	20.8 L/h	
Carbon Dioxide (Total)	49.1 kg/h	
Hydrocarbons (Total)	0.004 kg/h	
Carbon Monoxide (Total)	0.059 kg/h	
NOx (Total)	0.048 kg/h	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection 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.  
 Site Model Variability Index (Iterations 3 to N): 0.0 %  
 Number of Iterations: 3 (Maximum: 10)  
 Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 40.5% 1.6% 0.0%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	137,432 veh/y	164,918 pers/y
Delay	82 veh-h/y	99 pers-h/y
Effective Stops	30,111 veh/y	36,134 pers/y
Travel Distance	139,027 veh-km/y	166,833 pers-km/y
Travel Time	2,430 veh-h/y	2,916 pers-h/y
Cost	102,883 \$/y	102,883 \$/y
Fuel Consumption	9,962 L/y	
Carbon Dioxide	23,556 kg/y	
Hydrocarbons	2 kg/y	
Carbon Monoxide	28 kg/y	

# MOVEMENT SUMMARY

Site: 101 [Braidwood\_Garoorigang\_AM\_Fut\_2 (Site Folder: General)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Braidwood Rd														
1	L2	72	2.0	76	2.0	0.087	5.6	LOS A	0.0	0.0	0.00	0.27	0.00	55.9
2	T1	83	2.0	87	2.0	0.087	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	57.5
Approach		155	2.0	163	2.0	0.087	2.6	NA	0.0	0.0	0.00	0.27	0.00	56.8
North: Braidwood Rd														
8	T1	88	2.0	93	2.0	0.052	0.0	LOS A	0.0	0.3	0.04	0.04	0.04	59.5
9	R2	6	2.0	6	2.0	0.052	6.0	LOS A	0.0	0.3	0.04	0.04	0.04	57.1
Approach		94	2.0	99	2.0	0.052	0.4	NA	0.0	0.3	0.04	0.04	0.04	59.3
West: Garoorigang St														
10	L2	3	2.0	3	2.0	0.022	5.8	LOS A	0.1	0.5	0.24	0.58	0.24	52.9
12	R2	20	2.0	21	2.0	0.022	6.3	LOS A	0.1	0.5	0.24	0.58	0.24	52.4
Approach		23	2.0	24	2.0	0.022	6.2	LOS A	0.1	0.5	0.24	0.58	0.24	52.4
All Vehicles		272	2.0	286	2.0	0.087	2.2	NA	0.1	0.5	0.03	0.22	0.03	57.2

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.

# INTERSECTION SUMMARY

Site: 101 [Braidwood\_Garoorigang\_PM\_Ex (Site Folder: General)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	56.6 km/h	56.6 km/h
Travel Distance (Total)	317.3 veh-km/h	380.8 pers-km/h
Travel Time (Total)	5.6 veh-h/h	6.7 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	0.94	
Travel Time Index	9.36	
Congestion Coefficient	1.06	
Demand Flows (Total)	314 veh/h	376 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.083	
Practical Spare Capacity	1073.7 %	
Effective Intersection Capacity	3757 veh/h	
Control Delay (Total)	0.23 veh-h/h	0.28 pers-h/h
Control Delay (Average)	2.7 sec	2.7 sec
Control Delay (Worst Lane)	6.2 sec	
Control Delay (Worst Movement)	6.3 sec	6.3 sec
Geometric Delay (Average)	2.5 sec	
Stop-Line Delay (Average)	0.2 sec	
Idling Time (Average)	0.0 sec	
Intersection Level of Service (LOS)	NA	
95% Back of Queue - Vehicles (Worst Lane)	0.2 veh	
95% Back of Queue - Distance (Worst Lane)	1.3 m	
Ave. Queue Storage Ratio (Worst Lane)	0.00	
Total Effective Stops	84 veh/h	101 pers/h
Effective Stop Rate	0.27	0.27
Proportion Queued	0.06	0.06
Performance Index	6.4	6.4
Cost (Total)	238.73 \$/h	238.73 \$/h
Fuel Consumption (Total)	23.5 L/h	
Carbon Dioxide (Total)	55.6 kg/h	
Hydrocarbons (Total)	0.004 kg/h	
Carbon Monoxide (Total)	0.066 kg/h	
NOx (Total)	0.056 kg/h	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection 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.  
 Site Model Variability Index (Iterations 3 to N): 0.0 %  
 Number of Iterations: 3 (Maximum: 10)  
 Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 40.6% 2.0% 0.0%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	150,568 veh/y	180,682 pers/y
Delay	112 veh-h/y	134 pers-h/y
Effective Stops	40,431 veh/y	48,518 pers/y
Travel Distance	152,310 veh-km/y	182,772 pers-km/y
Travel Time	2,693 veh-h/y	3,232 pers-h/y
Cost	114,590 \$/y	114,590 \$/y
Fuel Consumption	11,283 L/y	
Carbon Dioxide	26,676 kg/y	
Hydrocarbons	2 kg/y	
Carbon Monoxide	32 kg/y	

# MOVEMENT SUMMARY

Site: 101 [Braidwood\_Garoorigang\_PM\_Ex (Site Folder: General)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec	[ Veh. veh	Dist ] m					
South: Braidwood Rd														
1	L2	72	2.0	76	2.0	0.083	5.6	LOS A	0.0	0.0	0.00	0.29	0.00	55.8
2	T1	77	2.0	81	2.0	0.083	0.0	LOS A	0.0	0.0	0.00	0.29	0.00	57.4
Approach		149	2.0	157	2.0	0.083	2.7	NA	0.0	0.0	0.00	0.29	0.00	56.7
North: Braidwood Rd														
8	T1	86	2.0	91	2.0	0.053	0.1	LOS A	0.1	0.4	0.05	0.05	0.05	59.3
9	R2	8	2.0	8	2.0	0.053	6.0	LOS A	0.1	0.4	0.05	0.05	0.05	57.0
Approach		94	2.0	99	2.0	0.053	0.6	NA	0.1	0.4	0.05	0.05	0.05	59.1
West: Garoorigang St														
10	L2	6	2.0	6	2.0	0.053	5.8	LOS A	0.2	1.3	0.25	0.59	0.25	52.9
12	R2	49	2.0	52	2.0	0.053	6.3	LOS A	0.2	1.3	0.25	0.59	0.25	52.4
Approach		55	2.0	58	2.0	0.053	6.2	LOS A	0.2	1.3	0.25	0.59	0.25	52.4
All Vehicles		298	2.0	314	2.0	0.083	2.7	NA	0.2	1.3	0.06	0.27	0.06	56.6

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.



# INTERSECTION SUMMARY

Site: 101 [Braidwood\_Garoorigang\_PM\_Fut\_2 (Site Folder: General)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	56.7 km/h	56.7 km/h
Travel Distance (Total)	354.5 veh-km/h	425.4 pers-km/h
Travel Time (Total)	6.2 veh-h/h	7.5 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	0.95	
Travel Time Index	9.40	
Congestion Coefficient	1.06	
Demand Flows (Total)	351 veh/h	421 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.088	
Practical Spare Capacity	1014.5 %	
Effective Intersection Capacity	3987 veh/h	
Control Delay (Total)	0.25 veh-h/h	0.30 pers-h/h
Control Delay (Average)	2.5 sec	2.5 sec
Control Delay (Worst Lane)	6.4 sec	
Control Delay (Worst Movement)	6.4 sec	6.4 sec
Geometric Delay (Average)	2.3 sec	
Stop-Line Delay (Average)	0.2 sec	
Idling Time (Average)	0.0 sec	
Intersection Level of Service (LOS)	NA	
95% Back of Queue - Vehicles (Worst Lane)	0.2 veh	
95% Back of Queue - Distance (Worst Lane)	1.4 m	
Ave. Queue Storage Ratio (Worst Lane)	0.00	
Total Effective Stops	89 veh/h	106 pers/h
Effective Stop Rate	0.25	0.25
Proportion Queued	0.06	0.06
Performance Index	7.1	7.1
Cost (Total)	265.38 \$/h	265.38 \$/h
Fuel Consumption (Total)	26.0 L/h	
Carbon Dioxide (Total)	61.4 kg/h	
Hydrocarbons (Total)	0.005 kg/h	
Carbon Monoxide (Total)	0.073 kg/h	
NOx (Total)	0.062 kg/h	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection 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.  
 Site Model Variability Index (Iterations 3 to N): 0.0 %  
 Number of Iterations: 3 (Maximum: 10)  
 Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 42.3% 1.7% 0.0%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	168,253 veh/y	201,903 pers/y
Delay	118 veh-h/y	142 pers-h/y
Effective Stops	42,531 veh/y	51,037 pers/y
Travel Distance	170,177 veh-km/y	204,213 pers-km/y
Travel Time	2,999 veh-h/y	3,599 pers-h/y
Cost	127,382 \$/y	127,382 \$/y
Fuel Consumption	12,468 L/y	
Carbon Dioxide	29,479 kg/y	
Hydrocarbons	2 kg/y	
Carbon Monoxide	35 kg/y	

# MOVEMENT SUMMARY

Site: 101 [Braidwood\_Garoorigang\_PM\_Fut\_2 (Site Folder: General)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Braidwood Rd														
1	L2	74	2.0	78	2.0	0.088	5.6	LOS A	0.0	0.0	0.00	0.28	0.00	55.9
2	T1	83	2.0	87	2.0	0.088	0.0	LOS A	0.0	0.0	0.00	0.28	0.00	57.5
Approach		157	2.0	165	2.0	0.088	2.6	NA	0.0	0.0	0.00	0.28	0.00	56.7
North: Braidwood Rd														
8	T1	109	2.0	115	2.0	0.065	0.1	LOS A	0.1	0.4	0.05	0.04	0.05	59.4
9	R2	8	2.0	8	2.0	0.065	6.0	LOS A	0.1	0.4	0.05	0.04	0.05	57.1
Approach		117	2.0	123	2.0	0.065	0.5	NA	0.1	0.4	0.05	0.04	0.05	59.3
West: Garoorigang St														
10	L2	6	2.0	6	2.0	0.059	5.8	LOS A	0.2	1.4	0.27	0.60	0.27	52.8
12	R2	53	2.0	56	2.0	0.059	6.4	LOS A	0.2	1.4	0.27	0.60	0.27	52.3
Approach		59	2.0	62	2.0	0.059	6.4	LOS A	0.2	1.4	0.27	0.60	0.27	52.3
All Vehicles		333	2.0	351	2.0	0.088	2.5	NA	0.2	1.4	0.06	0.25	0.06	56.7

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.

# INTERSECTION SUMMARY

Site: 101 [Braidwood\_Sloane\_AM\_Ex (Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	55.5 km/h	55.5 km/h
Travel Distance (Total)	679.6 veh-km/h	815.5 pers-km/h
Travel Time (Total)	12.2 veh-h/h	14.7 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	0.93	
Travel Time Index	9.17	
Congestion Coefficient	1.08	
Demand Flows (Total)	669 veh/h	803 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.176	
Practical Spare Capacity	355.6 %	
Effective Intersection Capacity	3813 veh/h	
Control Delay (Total)	0.70 veh-h/h	0.84 pers-h/h
Control Delay (Average)	3.8 sec	3.8 sec
Control Delay (Worst Lane)	8.3 sec	
Control Delay (Worst Movement)	8.6 sec	8.6 sec
Geometric Delay (Average)	3.0 sec	
Stop-Line Delay (Average)	0.8 sec	
Idling Time (Average)	0.2 sec	
Intersection Level of Service (LOS)	NA	
95% Back of Queue - Vehicles (Worst Lane)	0.6 veh	
95% Back of Queue - Distance (Worst Lane)	4.5 m	
Ave. Queue Storage Ratio (Worst Lane)	0.00	
Total Effective Stops	229 veh/h	275 pers/h
Effective Stop Rate	0.34	0.34
Proportion Queued	0.20	0.20
Performance Index	15.9	15.9
Cost (Total)	524.34 \$/h	524.34 \$/h
Fuel Consumption (Total)	52.9 L/h	
Carbon Dioxide (Total)	125.0 kg/h	
Hydrocarbons (Total)	0.010 kg/h	
Carbon Monoxide (Total)	0.147 kg/h	
NOx (Total)	0.131 kg/h	

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

NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection 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.

Site Model Variability Index (Iterations 3 to N): 0.0 %

Number of Iterations: 3 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 62.3% 4.8% 0.0%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	321,347 veh/y	385,617 pers/y
Delay	338 veh-h/y	406 pers-h/y
Effective Stops	110,006 veh/y	132,007 pers/y
Travel Distance	326,211 veh-km/y	391,454 pers-km/y
Travel Time	5,875 veh-h/y	7,050 pers-h/y
Cost	251,685 \$/y	251,685 \$/y
Fuel Consumption	25,374 L/y	
Carbon Dioxide	59,980 kg/y	
Hydrocarbons	5 kg/y	
Carbon Monoxide	71 kg/y	
NOx	63 kg/y	

# MOVEMENT SUMMARY

 Site: 101 [Braidwood\_Sloane\_AM\_Ex (Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [ Total HV ] veh/h %		DEMAND FLOWS [ Total HV ] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [ Veh. Dist ] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Sloane St														
1	L2	10	2.0	11	2.0	0.116	5.9	LOS A	0.2	1.5	0.08	0.10	0.08	57.1
2	T1	169	2.0	178	2.0	0.116	0.1	LOS A	0.2	1.5	0.08	0.10	0.08	58.7
3	R2	26	2.0	27	2.0	0.116	5.9	LOS A	0.2	1.5	0.08	0.10	0.08	56.8
Approach		205	2.0	216	2.0	0.116	1.1	NA	0.2	1.5	0.08	0.10	0.08	58.4
East: Braidwood Rd														
4	L2	11	2.0	12	2.0	0.008	6.0	LOS A	0.0	0.2	0.21	0.51	0.21	53.5
5	T1	18	2.0	19	2.0	0.176	6.5	LOS A	0.6	4.5	0.48	0.74	0.48	51.8
6	R2	98	2.0	103	2.0	0.176	8.6	LOS A	0.6	4.5	0.48	0.74	0.48	51.2
Approach		127	2.0	134	2.0	0.176	8.1	LOS A	0.6	4.5	0.46	0.72	0.46	51.5
North: Sloane St														
7	L2	109	2.0	115	2.0	0.075	5.8	LOS A	0.3	2.2	0.16	0.52	0.16	53.6
8	T1	113	2.0	119	2.0	0.081	0.2	LOS A	0.2	1.3	0.13	0.11	0.13	58.5
9	R2	26	2.0	27	2.0	0.081	6.1	LOS A	0.2	1.3	0.13	0.11	0.13	56.2
Approach		248	2.0	261	2.0	0.081	3.3	LOS A	0.3	2.2	0.14	0.29	0.14	56.0
West: Mundy St														
10	L2	15	2.0	16	2.0	0.058	6.1	LOS A	0.2	1.5	0.35	0.58	0.35	53.1
11	T1	40	2.0	42	2.0	0.058	6.0	LOS A	0.2	1.5	0.35	0.58	0.35	53.4
12	R2	1	2.0	1	2.0	0.058	7.6	LOS A	0.2	1.5	0.35	0.58	0.35	52.5
Approach		56	2.0	59	2.0	0.058	6.1	LOS A	0.2	1.5	0.35	0.58	0.35	53.3
All Vehicles		636	2.0	669	2.0	0.176	3.8	NA	0.6	4.5	0.20	0.34	0.20	55.5

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.

**SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com**

Organisation: POSITIVE TRAFFIC PTY LTD | Licence: PLUS / 1PC | Processed: Tuesday, 30 November 2021 1:48:30 PM

Project: Z:\2021 Projects\PT21035 - 137 Brisbane Grove Road, Brisbane Grove\SIDRA\PT21035\_V2.sip9

# INTERSECTION SUMMARY

▼ Site: 101 [Braidwood\_Sloane\_AM\_Fut\_2 (Site Folder: General)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	55.3 km/h	55.3 km/h
Travel Distance (Total)	710.6 veh-km/h	852.7 pers-km/h
Travel Time (Total)	12.8 veh-h/h	15.4 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	0.92	
Travel Time Index	9.13	
Congestion Coefficient	1.08	
Demand Flows (Total)	700 veh/h	840 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.214	
Practical Spare Capacity	274.0 %	
Effective Intersection Capacity	3273 veh/h	
Control Delay (Total)	0.78 veh-h/h	0.93 pers-h/h
Control Delay (Average)	4.0 sec	4.0 sec
Control Delay (Worst Lane)	8.5 sec	
Control Delay (Worst Movement)	8.7 sec	8.7 sec
Geometric Delay (Average)	3.1 sec	
Stop-Line Delay (Average)	0.9 sec	
Idling Time (Average)	0.2 sec	
Intersection Level of Service (LOS)	NA	
95% Back of Queue - Vehicles (Worst Lane)	0.8 veh	
95% Back of Queue - Distance (Worst Lane)	5.5 m	
Ave. Queue Storage Ratio (Worst Lane)	0.00	
Total Effective Stops	253 veh/h	304 pers/h
Effective Stop Rate	0.36	0.36
Proportion Queued	0.22	0.22
Performance Index	16.9	16.9
Cost (Total)	550.76 \$/h	550.76 \$/h
Fuel Consumption (Total)	55.7 L/h	
Carbon Dioxide (Total)	131.6 kg/h	
Hydrocarbons (Total)	0.011 kg/h	
Carbon Monoxide (Total)	0.155 kg/h	
NOx (Total)	0.139 kg/h	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection 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.  
 Site Model Variability Index (Iterations 3 to N): 0.0 %  
 Number of Iterations: 3 (Maximum: 10)  
 Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 62.6% 4.8% 0.0%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	336,000 veh/y	403,200 pers/y
Delay	373 veh-h/y	448 pers-h/y
Effective Stops	121,529 veh/y	145,835 pers/y
Travel Distance	341,084 veh-km/y	409,301 pers-km/y
Travel Time	6,167 veh-h/y	7,400 pers-h/y
Cost	264,364 \$/y	264,364 \$/y
Fuel Consumption	26,720 L/y	
Carbon Dioxide	63,158 kg/y	
Hydrocarbons	5 kg/y	
Carbon Monoxide	74 kg/y	

# MOVEMENT SUMMARY

Site: 101 [Braidwood\_Sloane\_AM\_Fut\_2 (Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [ Total HV ] veh/h %		DEMAND FLOWS [ Total HV ] veh/h %		Deg. Satn  v/c	Aver. Delay  sec	Level of Service	95% BACK OF QUEUE [ Veh. Dist ] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed  km/h
South: Sloane St														
1	L2	10	2.0	11	2.0	0.116	5.9	LOS A	0.2	1.5	0.08	0.10	0.08	57.1
2	T1	169	2.0	178	2.0	0.116	0.1	LOS A	0.2	1.5	0.08	0.10	0.08	58.7
3	R2	26	2.0	27	2.0	0.116	5.9	LOS A	0.2	1.5	0.08	0.10	0.08	56.8
Approach		205	2.0	216	2.0	0.116	1.1	NA	0.2	1.5	0.08	0.10	0.08	58.4
East: Braidwood Rd														
4	L2	11	2.0	12	2.0	0.008	6.0	LOS A	0.0	0.2	0.21	0.51	0.21	53.5
5	T1	18	2.0	19	2.0	0.214	6.6	LOS A	0.8	5.5	0.50	0.76	0.50	51.6
6	R2	122	2.0	128	2.0	0.214	8.7	LOS A	0.8	5.5	0.50	0.76	0.50	51.1
Approach		151	2.0	159	2.0	0.214	8.3	LOS A	0.8	5.5	0.48	0.74	0.48	51.3
North: Sloane St														
7	L2	114	2.0	120	2.0	0.079	5.8	LOS A	0.3	2.3	0.16	0.52	0.16	53.6
8	T1	113	2.0	119	2.0	0.081	0.2	LOS A	0.2	1.3	0.13	0.11	0.13	58.5
9	R2	26	2.0	27	2.0	0.081	6.1	LOS A	0.2	1.3	0.13	0.11	0.13	56.2
Approach		253	2.0	266	2.0	0.081	3.3	LOS A	0.3	2.3	0.14	0.30	0.14	56.0
West: Mundy St														
10	L2	15	2.0	16	2.0	0.058	6.1	LOS A	0.2	1.5	0.35	0.58	0.35	53.1
11	T1	40	2.0	42	2.0	0.058	6.0	LOS A	0.2	1.5	0.35	0.58	0.35	53.4
12	R2	1	2.0	1	2.0	0.058	7.6	LOS A	0.2	1.5	0.35	0.58	0.35	52.5
Approach		56	2.0	59	2.0	0.058	6.1	LOS A	0.2	1.5	0.35	0.58	0.35	53.3
All Vehicles		665	2.0	700	2.0	0.214	4.0	NA	0.8	5.5	0.22	0.36	0.22	55.3

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.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: POSITIVE TRAFFIC PTY LTD | Licence: PLUS / 1PC | Processed: Tuesday, 30 November 2021 1:48:32 PM

Project: Z:\2021 Projects\PT21035 - 137 Brisbane Grove Road, Brisbane Grove\SIDRA\PT21035\_V2.sip9

# INTERSECTION SUMMARY

Site: 101 [Braidwood\_Sloane\_PM\_Ex (Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	54.3 km/h	54.3 km/h
Travel Distance (Total)	1061.5 veh-km/h	1273.8 pers-km/h
Travel Time (Total)	19.5 veh-h/h	23.5 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	0.90	
Travel Time Index	8.94	
Congestion Coefficient	1.10	
Demand Flows (Total)	1045 veh/h	1254 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.398	
Practical Spare Capacity	100.8 %	
Effective Intersection Capacity	2623 veh/h	
Control Delay (Total)	1.50 veh-h/h	1.79 pers-h/h
Control Delay (Average)	5.2 sec	5.2 sec
Control Delay (Worst Lane)	11.6 sec	
Control Delay (Worst Movement)	12.4 sec	12.4 sec
Geometric Delay (Average)	3.4 sec	
Stop-Line Delay (Average)	1.8 sec	
Idling Time (Average)	0.6 sec	
Intersection Level of Service (LOS)	NA	
95% Back of Queue - Vehicles (Worst Lane)	1.9 veh	
95% Back of Queue - Distance (Worst Lane)	13.4 m	
Ave. Queue Storage Ratio (Worst Lane)	0.01	
Total Effective Stops	455 veh/h	546 pers/h
Effective Stop Rate	0.44	0.44
Proportion Queued	0.29	0.29
Performance Index	27.7	27.7
Cost (Total)	839.51 \$/h	839.51 \$/h
Fuel Consumption (Total)	85.4 L/h	
Carbon Dioxide (Total)	201.7 kg/h	
Hydrocarbons (Total)	0.016 kg/h	
Carbon Monoxide (Total)	0.236 kg/h	
NOx (Total)	0.216 kg/h	

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

NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection 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.

Site Model Variability Index (Iterations 3 to N): 0.0 %

Number of Iterations: 3 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 69.8% 5.6% 0.0%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	501,726 veh/y	602,072 pers/y
Delay	718 veh-h/y	861 pers-h/y
Effective Stops	218,283 veh/y	261,939 pers/y
Travel Distance	509,516 veh-km/y	611,419 pers-km/y
Travel Time	9,384 veh-h/y	11,260 pers-h/y
Cost	402,965 \$/y	402,965 \$/y
Fuel Consumption	40,969 L/y	
Carbon Dioxide	96,833 kg/y	
Hydrocarbons	8 kg/y	
Carbon Monoxide	113 kg/y	
NOx	104 kg/y	



# MOVEMENT SUMMARY

Site: 101 [Braidwood\_Sloane\_PM\_Ex (Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [ Total HV ] veh/h %		DEMAND FLOWS [ Total HV ] veh/h %		Deg. Satn  v/c	Aver. Delay  sec	Level of Service	95% BACK OF QUEUE [ Veh. Dist ] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed  km/h
South: Sloane St														
1	L2	7	2.0	7	2.0	0.144	6.1	LOSA	0.3	2.3	0.11	0.11	0.11	56.9
2	T1	206	2.0	217	2.0	0.144	0.1	LOSA	0.3	2.3	0.11	0.11	0.11	58.5
3	R2	39	2.0	41	2.0	0.144	6.1	LOSA	0.3	2.3	0.11	0.11	0.11	56.6
Approach		252	2.0	265	2.0	0.144	1.2	NA	0.3	2.3	0.11	0.11	0.11	58.2
East: Braidwood Rd														
4	L2	38	2.0	40	2.0	0.029	6.2	LOSA	0.1	0.8	0.26	0.53	0.26	53.3
5	T1	51	2.0	54	2.0	0.398	9.0	LOSA	1.9	13.4	0.63	0.91	0.85	49.5
6	R2	161	2.0	169	2.0	0.398	12.4	LOSA	1.9	13.4	0.63	0.91	0.85	49.0
Approach		250	2.0	263	2.0	0.398	10.7	LOSA	1.9	13.4	0.58	0.85	0.76	49.7
North: Sloane St														
7	L2	190	2.0	200	2.0	0.137	6.0	LOSA	0.6	4.2	0.24	0.53	0.24	53.4
8	T1	162	2.0	171	2.0	0.116	0.2	LOSA	0.3	2.0	0.15	0.11	0.15	58.4
9	R2	37	2.0	39	2.0	0.116	6.3	LOSA	0.3	2.0	0.15	0.11	0.15	56.2
Approach		389	2.0	409	2.0	0.137	3.6	LOSA	0.6	4.2	0.19	0.32	0.19	55.6
West: Mundy St														
10	L2	18	2.0	19	2.0	0.125	6.3	LOSA	0.5	3.3	0.43	0.66	0.43	52.5
11	T1	79	2.0	83	2.0	0.125	6.8	LOSA	0.5	3.3	0.43	0.66	0.43	52.8
12	R2	5	2.0	5	2.0	0.125	9.0	LOSA	0.5	3.3	0.43	0.66	0.43	52.0
Approach		102	2.0	107	2.0	0.125	6.9	LOSA	0.5	3.3	0.43	0.66	0.43	52.8
All Vehicles		993	2.0	1045	2.0	0.398	5.2	NA	1.9	13.4	0.29	0.44	0.34	54.3

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.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: POSITIVE TRAFFIC PTY LTD | Licence: PLUS / 1PC | Processed: Tuesday, 30 November 2021 1:48:32 PM

Project: Z:\2021 Projects\PT21035 - 137 Brisbane Grove Road, Brisbane Grove\SIDRA\PT21035\_V2.sip9

# INTERSECTION SUMMARY

Site: 101 [Braidwood\_Sloane\_PM\_Fut\_2 (Site Folder: General)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	54.2 km/h	54.2 km/h
Travel Distance (Total)	1089.5 veh-km/h	1307.3 pers-km/h
Travel Time (Total)	20.1 veh-h/h	24.1 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	0.90	
Travel Time Index	8.93	
Congestion Coefficient	1.11	
Demand Flows (Total)	1073 veh/h	1287 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.414	
Practical Spare Capacity	93.3 %	
Effective Intersection Capacity	2591 veh/h	
Control Delay (Total)	1.57 veh-h/h	1.88 pers-h/h
Control Delay (Average)	5.3 sec	5.3 sec
Control Delay (Worst Lane)	11.9 sec	
Control Delay (Worst Movement)	12.7 sec	12.7 sec
Geometric Delay (Average)	3.4 sec	
Stop-Line Delay (Average)	1.9 sec	
Idling Time (Average)	0.6 sec	
Intersection Level of Service (LOS)	NA	
95% Back of Queue - Vehicles (Worst Lane)	2.0 veh	
95% Back of Queue - Distance (Worst Lane)	14.2 m	
Ave. Queue Storage Ratio (Worst Lane)	0.01	
Total Effective Stops	474 veh/h	569 pers/h
Effective Stop Rate	0.44	0.44
Proportion Queued	0.30	0.30
Performance Index	28.5	28.5
Cost (Total)	863.49 \$/h	863.49 \$/h
Fuel Consumption (Total)	87.9 L/h	
Carbon Dioxide (Total)	207.7 kg/h	
Hydrocarbons (Total)	0.017 kg/h	
Carbon Monoxide (Total)	0.243 kg/h	
NOx (Total)	0.223 kg/h	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection 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.  
 Site Model Variability Index (Iterations 3 to N): 0.0 %  
 Number of Iterations: 3 (Maximum: 10)  
 Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 70.2% 5.6% 0.0%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	514,863 veh/y	617,836 pers/y
Delay	753 veh-h/y	904 pers-h/y
Effective Stops	227,675 veh/y	273,210 pers/y
Travel Distance	522,936 veh-km/y	627,524 pers-km/y
Travel Time	9,649 veh-h/y	11,579 pers-h/y
Cost	414,475 \$/y	414,475 \$/y
Fuel Consumption	42,181 L/y	
Carbon Dioxide	99,695 kg/y	
Hydrocarbons	8 kg/y	
Carbon Monoxide	116 kg/y	

# MOVEMENT SUMMARY

Site: 101 [Braidwood\_Sloane\_PM\_Fut\_2 (Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [ Total HV ] veh/h %		DEMAND FLOWS [ Total HV ] veh/h %		Deg. Satn  v/c	Aver. Delay  sec	Level of Service	95% BACK OF QUEUE [ Veh. Dist ] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed  km/h
South: Sloane St														
1	L2	7	2.0	7	2.0	0.144	6.1	LOS A	0.3	2.3	0.11	0.11	0.11	56.9
2	T1	206	2.0	217	2.0	0.144	0.1	LOS A	0.3	2.3	0.11	0.11	0.11	58.5
3	R2	39	2.0	41	2.0	0.144	6.1	LOS A	0.3	2.3	0.11	0.11	0.11	56.6
Approach		252	2.0	265	2.0	0.144	1.2	NA	0.3	2.3	0.11	0.11	0.11	58.2
East: Braidwood Rd														
4	L2	38	2.0	40	2.0	0.029	6.2	LOS A	0.1	0.8	0.26	0.53	0.26	53.3
5	T1	51	2.0	54	2.0	0.414	9.3	LOS A	2.0	14.2	0.65	0.92	0.89	49.3
6	R2	166	2.0	175	2.0	0.414	12.7	LOS A	2.0	14.2	0.65	0.92	0.89	48.8
Approach		255	2.0	268	2.0	0.414	11.0	LOS A	2.0	14.2	0.59	0.87	0.79	49.5
North: Sloane St														
7	L2	211	2.0	222	2.0	0.153	6.1	LOS A	0.7	4.8	0.24	0.54	0.24	53.4
8	T1	162	2.0	171	2.0	0.116	0.2	LOS A	0.3	2.0	0.15	0.11	0.15	58.4
9	R2	37	2.0	39	2.0	0.116	6.3	LOS A	0.3	2.0	0.15	0.11	0.15	56.2
Approach		410	2.0	432	2.0	0.153	3.8	LOS A	0.7	4.8	0.19	0.33	0.19	55.5
West: Mundy St														
10	L2	18	2.0	19	2.0	0.125	6.3	LOS A	0.5	3.3	0.43	0.66	0.43	52.5
11	T1	79	2.0	83	2.0	0.125	6.8	LOS A	0.5	3.3	0.43	0.66	0.43	52.8
12	R2	5	2.0	5	2.0	0.125	9.0	LOS A	0.5	3.3	0.43	0.66	0.43	52.0
Approach		102	2.0	107	2.0	0.125	6.9	LOS A	0.5	3.3	0.43	0.66	0.43	52.8
All Vehicles		1019	2.0	1073	2.0	0.414	5.3	NA	2.0	14.2	0.30	0.44	0.35	54.2

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.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: POSITIVE TRAFFIC PTY LTD | Licence: PLUS / 1PC | Processed: Tuesday, 30 November 2021 1:48:34 PM

Project: Z:\2021 Projects\PT21035 - 137 Brisbane Grove Road, Brisbane Grove\SIDRA\PT21035\_V2.sip9

# INTERSECTION SUMMARY

 **Site: 101 [Hume St\_Hume Hwy\_AM\_Ex (Site Folder: General)]**

New Site  
Site Category: (None)  
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	61.1 km/h	61.1 km/h
Travel Distance (Total)	1003.7 veh-km/h	1204.4 pers-km/h
Travel Time (Total)	16.4 veh-h/h	19.7 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	1.00 <sup>1</sup>	
Travel Time Index	10.20	
Congestion Coefficient	0.98	
Demand Flows (Total)	881 veh/h	1057 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.228	
Practical Spare Capacity	272.1 %	
Effective Intersection Capacity	3857 veh/h	
Control Delay (Total)	1.37 veh-h/h	1.64 pers-h/h
Control Delay (Average)	5.6 sec	5.6 sec
Control Delay (Worst Lane)	9.5 sec	
Control Delay (Worst Movement)	10.3 sec	10.3 sec
Geometric Delay (Average)	5.2 sec	
Stop-Line Delay (Average)	0.4 sec	
Idling Time (Average)	0.0 sec	
Intersection Level of Service (LOS)	LOS A	
95% Back of Queue - Vehicles (Worst Lane)	1.4 veh	
95% Back of Queue - Distance (Worst Lane)	9.6 m	
Ave. Queue Storage Ratio (Worst Lane)	0.01	
Total Effective Stops	364 veh/h	437 pers/h
Effective Stop Rate	0.41	0.41
Proportion Queued	0.23	0.23
Performance Index	27.4	27.4
Cost (Total)	726.06 \$/h	726.06 \$/h
Fuel Consumption (Total)	80.8 L/h	
Carbon Dioxide (Total)	190.8 kg/h	
Hydrocarbons (Total)	0.015 kg/h	
Carbon Monoxide (Total)	0.209 kg/h	
NOx (Total)	0.201 kg/h	

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

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

Site Model Variability Index (Iterations 3 to N): 0.5 %

Number of Iterations: 3 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 100.0% 86.0% 0.5%

<sup>1</sup> Calculated Average Travel Speed exceeds the specified Desired Speed.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	422,905 veh/y	507,486 pers/y
Delay	657 veh-h/y	789 pers-h/y
Effective Stops	174,887 veh/y	209,864 pers/y
Travel Distance	481,757 veh-km/y	578,108 pers-km/y
Travel Time	7,889 veh-h/y	9,466 pers-h/y
Cost	348,507 \$/y	348,507 \$/y
Fuel Consumption	38,771 L/y	
Carbon Dioxide	91,604 kg/y	
Hydrocarbons	7 kg/y	
Carbon Monoxide	100 kg/y	

# MOVEMENT SUMMARY

 **Site: 101 [Hume St\_Hume Hwy\_AM\_Ex (Site Folder: General)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [ Total HV ] veh/h %		DEMAND FLOWS [ Total HV ] veh/h %		Deg. Satn  v/c	Aver. Delay  sec	Level of Service	95% BACK OF QUEUE [ Veh. Dist ] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed  km/h
South: Hume St														
1	L2	43	2.0	45	2.0	0.051	3.2	LOS A	0.3	2.0	0.45	0.37	0.45	57.8
2	T1	21	2.0	22	2.0	0.051	3.4	LOS A	0.3	2.0	0.45	0.37	0.45	58.5
3	R2	4	2.0	4	2.0	0.051	10.3	LOS A	0.3	2.0	0.45	0.37	0.45	69.3
Approach		68	2.0	72	2.0	0.051	3.7	LOS A	0.3	2.0	0.45	0.37	0.45	58.6
East: Hume Hwy														
4	L2	8	2.0	8	2.0	0.068	2.8	LOS A	0.4	2.6	0.41	0.57	0.41	53.5
5	T1	1	2.0	1	2.0	0.068	3.2	LOS A	0.4	2.6	0.41	0.57	0.41	54.6
6	R2	87	2.0	92	2.0	0.068	10.2	LOS A	0.4	2.6	0.41	0.57	0.41	61.4
Approach		96	2.0	101	2.0	0.068	9.5	LOS A	0.4	2.6	0.41	0.57	0.41	60.6
North: Hume St														
7	L2	96	2.0	101	2.0	0.228	2.0	LOS A	1.4	9.6	0.11	0.47	0.11	56.3
8	T1	15	2.0	16	2.0	0.228	2.2	LOS A	1.4	9.6	0.11	0.47	0.11	57.0
9	R2	281	2.0	296	2.0	0.228	9.1	LOS A	1.4	9.6	0.11	0.47	0.11	65.9
Approach		392	2.0	413	2.0	0.228	7.1	LOS A	1.4	9.6	0.11	0.47	0.11	62.9
West: Hume Hwy														
10	L2	262	2.0	276	2.0	0.177	2.1	LOS A	1.0	7.4	0.27	0.29	0.27	58.5
11	T1	1	2.0	1	2.0	0.177	2.5	LOS A	1.0	7.4	0.27	0.29	0.27	60.0
12	R2	18	2.0	19	2.0	0.177	9.6	LOS A	1.0	7.4	0.27	0.29	0.27	69.8
Approach		281	2.0	296	2.0	0.177	2.6	LOS A	1.0	7.4	0.27	0.29	0.27	59.2
All Vehicles		837	2.0	881	2.0	0.228	5.6	LOS A	1.4	9.6	0.23	0.41	0.23	61.1

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.

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

Roundabout Capacity Model: SIDRA Standard.

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.

**SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com**

Organisation: POSITIVE TRAFFIC PTY LTD | Licence: PLUS / 1PC | Processed: Tuesday, 30 November 2021 1:48:34 PM

Project: Z:\2021 Projects\PT21035 - 137 Brisbane Grove Road, Brisbane Grove\SIDRA\PT21035\_V2.sip9

# INTERSECTION SUMMARY

 Site: 101 [Hume St\_Hume Hwy\_AM\_Fut\_2 (Site Folder: General)]

New Site  
Site Category: (None)  
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	61.0 km/h	61.0 km/h
Travel Distance (Total)	1012.2 veh-km/h	1214.7 pers-km/h
Travel Time (Total)	16.6 veh-h/h	19.9 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	1.00 <sup>1</sup>	
Travel Time Index	10.19	
Congestion Coefficient	0.98	
Demand Flows (Total)	888 veh/h	1066 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.230	
Practical Spare Capacity	270.0 %	
Effective Intersection Capacity	3867 veh/h	
Control Delay (Total)	1.39 veh-h/h	1.66 pers-h/h
Control Delay (Average)	5.6 sec	5.6 sec
Control Delay (Worst Lane)	9.5 sec	
Control Delay (Worst Movement)	10.3 sec	10.3 sec
Geometric Delay (Average)	5.2 sec	
Stop-Line Delay (Average)	0.4 sec	
Idling Time (Average)	0.0 sec	
Intersection Level of Service (LOS)	LOS A	
95% Back of Queue - Vehicles (Worst Lane)	1.3 veh	
95% Back of Queue - Distance (Worst Lane)	9.6 m	
Ave. Queue Storage Ratio (Worst Lane)	0.01	
Total Effective Stops	369 veh/h	443 pers/h
Effective Stop Rate	0.42	0.42
Proportion Queued	0.24	0.24
Performance Index	27.7	27.7
Cost (Total)	733.36 \$/h	733.36 \$/h
Fuel Consumption (Total)	81.8 L/h	
Carbon Dioxide (Total)	193.3 kg/h	
Hydrocarbons (Total)	0.015 kg/h	
Carbon Monoxide (Total)	0.212 kg/h	
NOx (Total)	0.204 kg/h	

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

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

Site Model Variability Index (Iterations 3 to N): 0.5 %

Number of Iterations: 3 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 100.0% 86.0% 0.5%

<sup>1</sup> Calculated Average Travel Speed exceeds the specified Desired Speed.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	426,442 veh/y	511,731 pers/y
Delay	666 veh-h/y	799 pers-h/y
Effective Stops	177,009 veh/y	212,411 pers/y
Travel Distance	485,873 veh-km/y	583,047 pers-km/y
Travel Time	7,961 veh-h/y	9,553 pers-h/y
Cost	352,013 \$/y	352,013 \$/y
Fuel Consumption	39,268 L/y	
Carbon Dioxide	92,775 kg/y	
Hydrocarbons	7 kg/y	

# MOVEMENT SUMMARY

 Site: 101 [Hume St\_Hume Hwy\_AM\_Fut\_2 (Site Folder: General)]

New Site  
Site Category: (None)  
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [ Total HV ] veh/h %		DEMAND FLOWS [ Total HV ] veh/h %		Deg. Satn  v/c	Aver. Delay  sec	Level of Service	95% BACK OF QUEUE [ Veh. Dist ] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed  km/h
South: Hume St														
1	L2	45	2.0	47	2.0	0.056	3.2	LOSA	0.3	2.1	0.45	0.39	0.45	57.6
2	T1	21	2.0	22	2.0	0.056	3.4	LOSA	0.3	2.1	0.45	0.39	0.45	58.3
3	R2	8	2.0	8	2.0	0.056	10.3	LOSA	0.3	2.1	0.45	0.39	0.45	68.8
Approach		74	2.0	78	2.0	0.056	4.0	LOSA	0.3	2.1	0.45	0.39	0.45	58.8
East: Hume Hwy														
4	L2	9	2.0	9	2.0	0.069	2.8	LOSA	0.4	2.6	0.41	0.57	0.41	53.5
5	T1	1	2.0	1	2.0	0.069	3.2	LOSA	0.4	2.6	0.41	0.57	0.41	54.6
6	R2	87	2.0	92	2.0	0.069	10.2	LOSA	0.4	2.6	0.41	0.57	0.41	61.5
Approach		97	2.0	102	2.0	0.069	9.5	LOSA	0.4	2.6	0.41	0.57	0.41	60.6
North: Hume St														
7	L2	96	2.0	101	2.0	0.230	2.0	LOSA	1.3	9.6	0.12	0.47	0.12	56.3
8	T1	15	2.0	16	2.0	0.230	2.2	LOSA	1.3	9.6	0.12	0.47	0.12	56.9
9	R2	281	2.0	296	2.0	0.230	9.1	LOSA	1.3	9.6	0.12	0.47	0.12	65.8
Approach		392	2.0	413	2.0	0.230	7.1	LOSA	1.3	9.6	0.12	0.47	0.12	62.8
West: Hume Hwy														
10	L2	262	2.0	276	2.0	0.177	2.2	LOSA	1.0	7.4	0.28	0.30	0.28	58.5
11	T1	1	2.0	1	2.0	0.177	2.5	LOSA	1.0	7.4	0.28	0.30	0.28	60.0
12	R2	18	2.0	19	2.0	0.177	9.6	LOSA	1.0	7.4	0.28	0.30	0.28	69.8
Approach		281	2.0	296	2.0	0.177	2.6	LOSA	1.0	7.4	0.28	0.30	0.28	59.1
All Vehicles		844	2.0	888	2.0	0.230	5.6	LOSA	1.3	9.6	0.24	0.42	0.24	61.0

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.

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

Roundabout Capacity Model: SIDRA Standard.

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.

**SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com**

Organisation: POSITIVE TRAFFIC PTY LTD | Licence: PLUS / 1PC | Processed: Tuesday, 30 November 2021 1:48:36 PM

Project: Z:\2021 Projects\PT21035 - 137 Brisbane Grove Road, Brisbane Grove\SIDRA\PT21035\_V2.sip9



# INTERSECTION SUMMARY

 **Site: 101 [Hume St\_Hume Hwy\_PM\_Ex (Site Folder: General)]**

New Site

Site Category: (None)

Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	60.4 km/h	60.4 km/h
Travel Distance (Total)	1243.4 veh-km/h	1492.1 pers-km/h
Travel Time (Total)	20.6 veh-h/h	24.7 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	1.00 <sup>1</sup>	
Travel Time Index	10.07	
Congestion Coefficient	0.99	
Demand Flows (Total)	1111 veh/h	1333 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.260	
Practical Spare Capacity	226.3 %	
Effective Intersection Capacity	4264 veh/h	
Control Delay (Total)	1.55 veh-h/h	1.85 pers-h/h
Control Delay (Average)	5.0 sec	5.0 sec
Control Delay (Worst Lane)	9.6 sec	
Control Delay (Worst Movement)	10.3 sec	10.3 sec
Geometric Delay (Average)	4.4 sec	
Stop-Line Delay (Average)	0.6 sec	
Idling Time (Average)	0.0 sec	
Intersection Level of Service (LOS)	LOS A	
95% Back of Queue - Vehicles (Worst Lane)	1.6 veh	
95% Back of Queue - Distance (Worst Lane)	11.5 m	
Ave. Queue Storage Ratio (Worst Lane)	0.01	
Total Effective Stops	446 veh/h	535 pers/h
Effective Stop Rate	0.40	0.40
Proportion Queued	0.29	0.29
Performance Index	34.6	34.6
Cost (Total)	907.11 \$/h	907.11 \$/h
Fuel Consumption (Total)	100.1 L/h	
Carbon Dioxide (Total)	236.5 kg/h	
Hydrocarbons (Total)	0.019 kg/h	
Carbon Monoxide (Total)	0.262 kg/h	
NOx (Total)	0.251 kg/h	

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

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

Site Model Variability Index (Iterations 3 to N): 0.7 %

Number of Iterations: 3 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 100.0% 85.8% 0.7%

<sup>1</sup> Calculated Average Travel Speed exceeds the specified Desired Speed.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	533,053 veh/y	639,663 pers/y
Delay	742 veh-h/y	890 pers-h/y
Effective Stops	214,105 veh/y	256,926 pers/y
Travel Distance	596,846 veh-km/y	716,215 pers-km/y
Travel Time	9,883 veh-h/y	11,860 pers-h/y
Cost	435,412 \$/y	435,412 \$/y
Fuel Consumption	48,036 L/y	
Carbon Dioxide	113,499 kg/y	
Hydrocarbons	9 kg/y	
Carbon Monoxide	126 kg/y	

# MOVEMENT SUMMARY

 **Site: 101 [Hume St\_Hume Hwy\_PM\_Ex (Site Folder: General)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [ Total HV ] veh/h %		DEMAND FLOWS [ Total HV ] veh/h %		Deg. Satn  v/c	Aver. Delay  sec	Level of Service	95% BACK OF QUEUE [ Veh. Dist ] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed  km/h
South: Hume St														
1	L2	46	2.0	48	2.0	0.120	3.2	LOS A	0.7	4.7	0.45	0.37	0.45	57.6
2	T1	105	2.0	111	2.0	0.120	3.4	LOS A	0.7	4.7	0.45	0.37	0.45	58.3
3	R2	10	2.0	11	2.0	0.120	10.3	LOS A	0.7	4.7	0.45	0.37	0.45	68.9
Approach		161	2.0	169	2.0	0.120	3.8	LOS A	0.7	4.7	0.45	0.37	0.45	58.7
East: Hume Hwy														
4	L2	6	2.0	6	2.0	0.062	2.7	LOS A	0.3	2.4	0.41	0.57	0.41	53.4
5	T1	1	2.0	1	2.0	0.062	3.1	LOS A	0.3	2.4	0.41	0.57	0.41	54.5
6	R2	81	2.0	85	2.0	0.062	10.2	LOS A	0.3	2.4	0.41	0.57	0.41	61.3
Approach		88	2.0	93	2.0	0.062	9.6	LOS A	0.3	2.4	0.41	0.57	0.41	60.6
North: Hume St														
7	L2	152	2.0	160	2.0	0.260	2.1	LOS A	1.6	11.5	0.14	0.44	0.14	56.8
8	T1	26	2.0	27	2.0	0.260	2.3	LOS A	1.6	11.5	0.14	0.44	0.14	57.5
9	R2	266	2.0	280	2.0	0.260	9.1	LOS A	1.6	11.5	0.14	0.44	0.14	66.7
Approach		444	2.0	467	2.0	0.260	6.3	LOS A	1.6	11.5	0.14	0.44	0.14	62.4
West: Hume Hwy														
10	L2	343	2.0	361	2.0	0.241	2.5	LOS A	1.5	10.6	0.38	0.33	0.38	58.1
11	T1	1	2.0	1	2.0	0.241	2.9	LOS A	1.5	10.6	0.38	0.33	0.38	59.5
12	R2	18	2.0	19	2.0	0.241	10.0	LOS A	1.5	10.6	0.38	0.33	0.38	69.1
Approach		362	2.0	381	2.0	0.241	2.9	LOS A	1.5	10.6	0.38	0.33	0.38	58.5
All Vehicles		1055	2.0	1111	2.0	0.260	5.0	LOS A	1.6	11.5	0.29	0.40	0.29	60.4

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.

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

Roundabout Capacity Model: SIDRA Standard.

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.

**SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com**

Organisation: POSITIVE TRAFFIC PTY LTD | Licence: PLUS / 1PC | Processed: Tuesday, 30 November 2021 1:48:36 PM

Project: Z:\2021 Projects\PT21035 - 137 Brisbane Grove Road, Brisbane Grove\SIDRA\PT21035\_V2.sip9

# INTERSECTION SUMMARY

 Site: 101 [Hume St\_Hume Hwy\_PM\_Fut\_2 (Site Folder: General)]

New Site  
Site Category: (None)  
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	60.4 km/h	60.4 km/h
Travel Distance (Total)	1251.8 veh-km/h	1502.1 pers-km/h
Travel Time (Total)	20.7 veh-h/h	24.9 pers-h/h
Desired Speed (Program)	60.0 km/h	
Speed Efficiency	1.00 <sup>1</sup>	
Travel Time Index	10.07	
Congestion Coefficient	0.99	
Demand Flows (Total)	1118 veh/h	1341 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	
Degree of Saturation	0.262	
Practical Spare Capacity	225.0 %	
Effective Intersection Capacity	4275 veh/h	
Control Delay (Total)	1.56 veh-h/h	1.87 pers-h/h
Control Delay (Average)	5.0 sec	5.0 sec
Control Delay (Worst Lane)	9.4 sec	
Control Delay (Worst Movement)	10.3 sec	10.3 sec
Geometric Delay (Average)	4.4 sec	
Stop-Line Delay (Average)	0.6 sec	
Idling Time (Average)	0.0 sec	
Intersection Level of Service (LOS)	LOS A	
95% Back of Queue - Vehicles (Worst Lane)	1.6 veh	
95% Back of Queue - Distance (Worst Lane)	11.5 m	
Ave. Queue Storage Ratio (Worst Lane)	0.01	
Total Effective Stops	451 veh/h	541 pers/h
Effective Stop Rate	0.40	0.40
Proportion Queued	0.30	0.30
Performance Index	34.9	34.9
Cost (Total)	914.02 \$/h	914.02 \$/h
Fuel Consumption (Total)	101.0 L/h	
Carbon Dioxide (Total)	238.6 kg/h	
Hydrocarbons (Total)	0.019 kg/h	
Carbon Monoxide (Total)	0.265 kg/h	
NOx (Total)	0.253 kg/h	

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

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

Site Model Variability Index (Iterations 3 to N): 0.7 %

Number of Iterations: 3 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 100.0% 85.8% 0.7%

<sup>1</sup> Calculated Average Travel Speed exceeds the specified Desired Speed.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	536,590 veh/y	643,907 pers/y
Delay	749 veh-h/y	899 pers-h/y
Effective Stops	216,374 veh/y	259,649 pers/y
Travel Distance	600,852 veh-km/y	721,022 pers-km/y
Travel Time	9,953 veh-h/y	11,944 pers-h/y
Cost	438,728 \$/y	438,728 \$/y
Fuel Consumption	48,477 L/y	
Carbon Dioxide	114,542 kg/y	
Hydrocarbons	9 kg/y	

## 8. Appendix C - Plans of Proposed Development



