
F.1 Traffic impact assessment

Gunlake Quarry Continuation Project (SSD-12469087)

Traffic impact assessment

Prepared for Gunlake Quarries Pty Ltd
September 2021





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Gunlake Quarry Continuation Project

Traffic Impact Assessment

Report Number

J190263 RP7

Client

Gunlake Quarries Pty Ltd

Date

16 September 2021

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16 September 2021

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Executive Summary

ES1 Introduction

Gunlake Quarries Pty Ltd (Gunlake) operates a hard rock quarry (the 'Quarry') located at 715 Brayton Road, Marulan NSW. The Quarry is approximately 7 kilometres (km) north-west of the centre of Marulan in the Goulburn Mulwaree local government area. The land surrounding the Quarry is rural land with a low population density. Gunlake commenced operations in 2009 under project approval 07-0074 granted in September 2008.

Since the Quarry received approval for the Extension Project in 2017 (SSD 7090, NSW Land and Environmental Court Approval 20017/108663), the tonnage of saleable product dispatched by the Quarry has steadily increased and, with an infrastructure boom across the State, Gunlake forecast that demand for products from the Quarry will continue to increase. In response to the increased demand for products from the Quarry, it is proposed to transport more saleable product along the Primary Transport Route. This will require an increase in truck movements than what is currently approved. The additional truck movements will all occur on the recently upgraded Primary Transport Route that has been designed to accommodate comfortably the additional truck movements. The Project is known as the Gunlake Quarry Continuation Project (the 'Continuation Project'). The ignimbrite hard-rock resource will continue to be extracted and processed using the methods currently employed at the Quarry.

The Continuation Project is classified as a State Significant Development (SSD) under Schedule 1, Clause 7 of the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). This report accompanies a new SSD application and environmental impact statement (EIS) for the Continuation Project.

ES2 Gunlake Quarry Continuation Project

Gunlake seeks a new development approval for the Continuation Project that allows:

- ongoing Quarry operations;
- a maximum of 375 inbound and 375 outbound daily truck movements with up to 4.2 million tonnes per annum (Mtpa) of Quarry products transported from the site in any calendar year;
- 24-hours Quarry operations Monday to Saturday, except 6 pm Saturday to 2 am Monday;
- an extraction depth of 546 metres Australian High Datum (mAHD); and
- a 30-year Quarry life (from the date of Continuation Project approval).

ES3 Evaluation of the project

The associated traffic impacts for the proposed continuation project traffic and potential cumulative traffic have been assessed as follows:

- the future cumulative traffic volumes (ie Gunlake Quarry traffic plus the approved/proposed traffic from approved local quarries and residential subdivision) at the end of the proposed Quarry life (2051) was calculated by adding: combined non-Gunlake project development traffic; future background traffic; and Continuation Project traffic;
- based on SIDRA analysis of the existing background traffic volumes, the five key intersections currently operate with a Level of Service (LOS) A;

- based on SIDRA analysis of future (2051) cumulative traffic volumes, the five key intersections will continue to operate with a LOS A; and
- the sight distance at the site access complies with Austroads guidelines.

Road safety is addressed in in the Road Safety Assessment Report (ARRB 2021, EIS Appendix F.2).

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Abbreviations

AM	morning
AS	Australian Standard
CBD	central business district
CTMP	construction traffic and management plan
TCP	traffic control plan
DA	development application
DEL	average delay
DOS	Degree of Saturation
DP	Deposited Plan
DPIE	NSW Department of Planning, Industry and Environment
EIS	environmental impact statement
ha	hectares
HV	heavy vehicles
km	kilometre
LEC	Land & Environment Court
LGA	local government area
LOS	Level of Service
LV	light vehicles
m	metres
NHVR	National Heavy Vehicle Regulator
PM	Afternoon
Q95	95% queue lengths
TfNSW	Transport for New South Wales
RMS	NSW Roads and Maritime Services, now TfNSW
SEARs	Secretary's environmental assessment requirements
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State significant development
TIA	traffic impact assessment

1 Introduction

1.1 Overview

Gunlake Quarries Pty Ltd (Gunlake) operates a hard rock quarry (the 'Quarry') located at 715 Brayton Road, Marulan NSW. The Quarry is approximately 7 kilometres (km) north-west of the centre of Marulan in the Goulburn Mulwaree local government area (Figure 1.1). The land surrounding the Quarry is rural land with a low population density. Gunlake commenced operations in 2009 under project approval 07-0074 granted in September 2008.

Since the Quarry received approval for the Extension Project in 2017 (SSD 7090, NSW Land and Environmental Court Approval 20017/108663), the tonnage of saleable product dispatched by the Quarry has steadily increased and, with an infrastructure boom across the State, Gunlake forecast that demand for products from the Quarry will continue to increase. In response to the increased demand for products from the Quarry, it is proposed to transport more saleable product along the Primary Transport Route. This will require an increase in truck movements than what is currently approved. The additional truck movements will all occur on the recently upgraded Primary Transport Route that has been designed to accommodate comfortably the additional truck movements. The Project is known as the Gunlake Quarry Continuation Project (the 'Continuation Project'). The ignimbrite hard-rock resource will continue to be extracted and processed using the methods currently employed at the Quarry.

The Continuation Project is classified as a State Significant Development (SSD) under Schedule 1, Clause 7 of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). This report accompanies a new SSD application and environmental impact statement (EIS) for the Continuation Project.

1.2 Assessment approach and requirements

This Traffic Impact Assessment (TIA) has been prepared generally in accordance with the requirements of the NSW Government's Guide to Traffic Generating Developments (RTA 2002) and incorporated the following investigations and analysis:

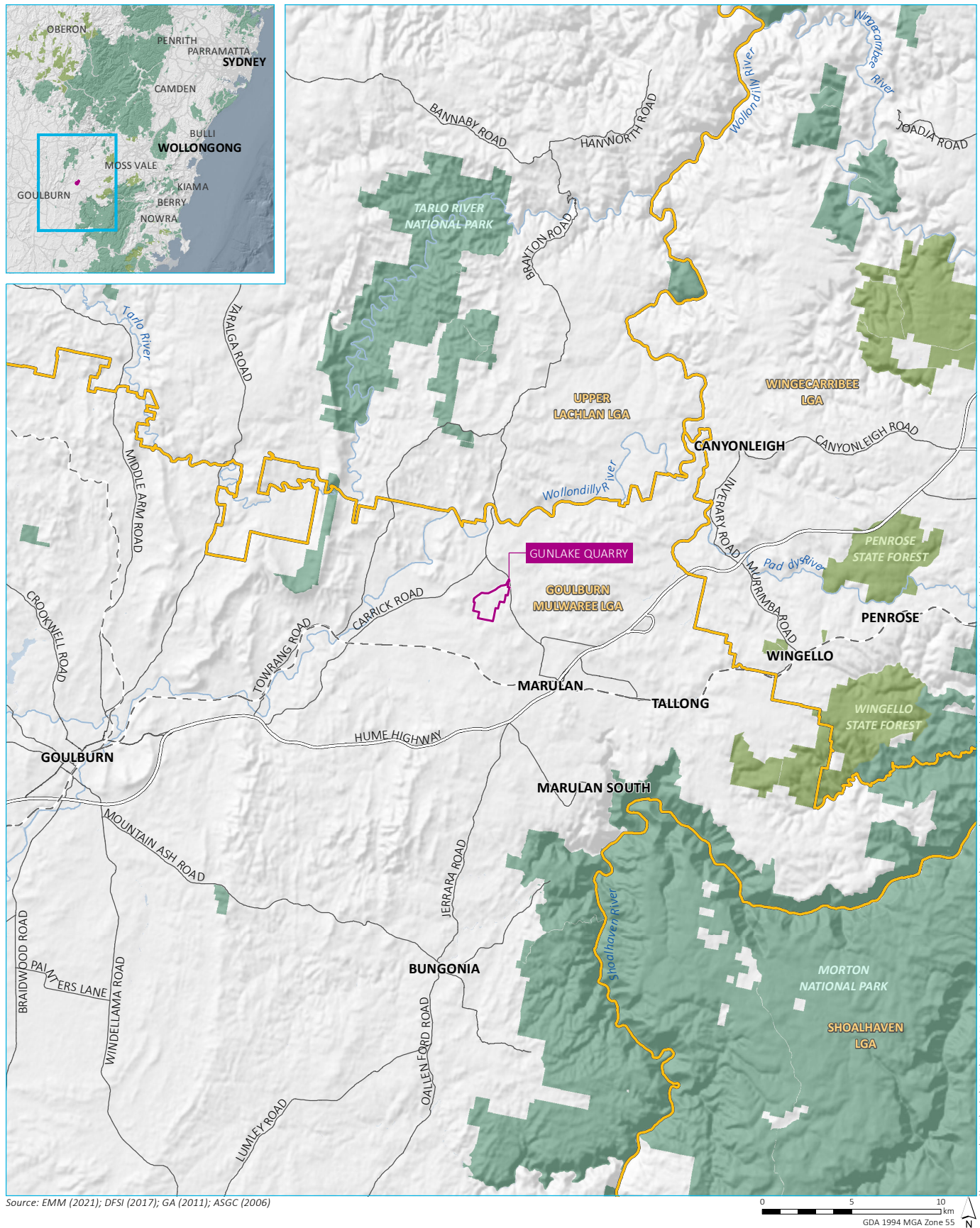
- background traffic data review;
- site inspection and current traffic surveys;
- SIDRA intersection analysis;
- mid-block analysis;
- future road upgrade requirements and maintenance impacts; and
- reporting.

A visual inspection of the primary affected roads, including Hume Highway, Marulan South Road, Brayton Road, Ambrose Road and Red Hills Road, was undertaken on 23 September 2020 to confirm the current general road widths and traffic conditions for these routes and photographs have been taken at the key project access intersections.

The TIA was prepared in accordance with the requirements of the Planning Secretary's Environmental Assessment Requirements (SEARs) for the proposed development, issued on 6 May 2021. The SEARs identify matters which must be addressed in the EIS. The individual requirements relevant to this TIA and where they are addressed in this report are provided in Table 1.1.

Table 1.1 **SEARs relating to traffic and transport**

Item no.	Assessment requirement from SEARs	EMM responses/information location
1.	accurate predictions of the road traffic generated by the development, including a description of the types of vehicles likely to be used for transportation of quarry products;	Sections 3.4, 4.3, 4.5, 5.1 and 5.2
2.	a detailed assessment of potential traffic impacts on the capacity, condition, safety and efficiency of the local and State Road network (as identified above), including undertaking a road safety audit; and	Sections 6.1, 6.3 and 6.4 Separate Road Safety Impact Report (including a road safety audit) provided in EIS Appendix F.2 (ARRB 2021)
3.	a description of the measures that would be implemented to mitigate any impacts.	Section 6.4 Separate Road Safety Impact Report provided in EIS Appendix F.2 (ARRB 2021)



KEY

- Site boundary
- Local government area
- Rail line
- Highway
- Major road
- River
- Waterbody
- NPWS reserve
- State forest

Regional context

Gunlake Quarry Continuation Project
Traffic impact assessment
Figure 1.1

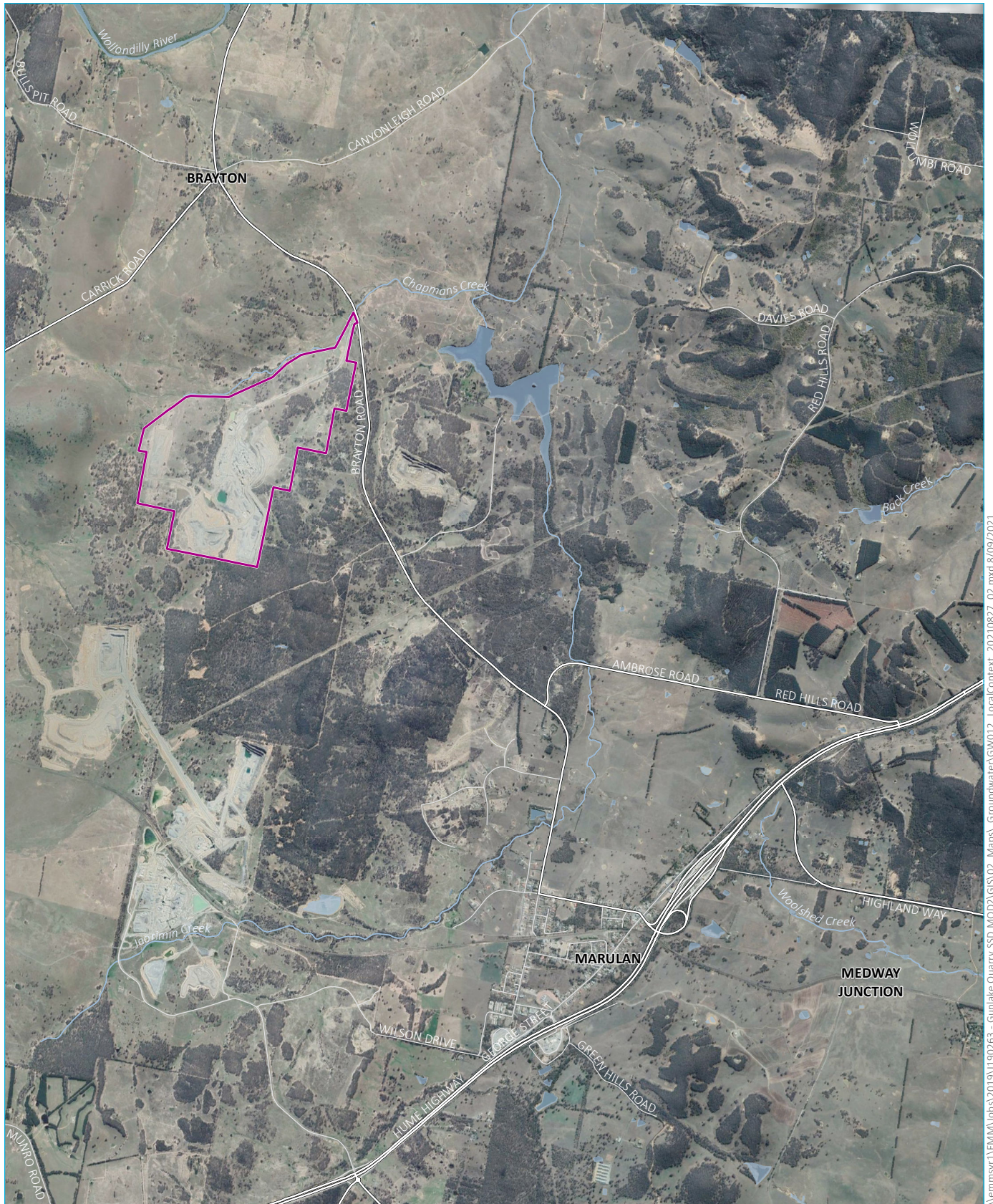
2 Project description and setting

2.1 The site

The Quarry is located wholly on Lot 13 DP 1123374 (the 'Quarry site'). There are biodiversity management areas in Lot 13 DP1123374, Lot 12 DP1123374, Lot 271 DP750053 and Lot 1 DP841147. These lots are owned by Gunlake Quarries Pty Ltd.

The land surrounding the Quarry is rural with low population density, predominately used for agriculture, generally grazing. Built features immediately surrounding the Quarry include dams, access tracks and fences. There are a small number of residences around the Quarry (Figure 2.1). The nearest town is Marulan, about 7 km south-east of the site boundary.

There are four local operational quarries within approximately 15 km of the Quarry site: Lynwood Quarry; Peppertree Quarry; Marulan South Limestone Mine; and Johnniefelds Quarry.



Source: EMM (2021); Google Earth (2019); DFSI (2017); GA (2011); ASGC (2006)



- KEY**
- Site boundary
 - Major road
 - Minor road
 - Named watercourse
 - Waterbody

Local context

Gunlake Quarry Continuation Project
Traffic impact assessment
Figure 2.1

2.2 Continuation Project description

Gunlake seeks a new development approval for the Continuation Project that allows:

- ongoing Quarry operations;
- a maximum of 375 inbound and 375 outbound daily truck movements with up to 4.2 million tonnes per annum (Mtpa) of Quarry products transported from the site in any calendar year;
- 24-hours Quarry operations Monday to Saturday, except 6 pm Saturday to 2 am Monday;
- an extraction depth of 546 metres Australian High Datum (mAHD); and
- a 30-year Quarry life (from the date of Continuation Project approval).

A summary of the key elements of the approved Extension Project compared to the Continuation Project is provided in Table 2.1.

Table 2.1 Extension Project compared to the Continuation Project

Project element	Approved Extension Project	Proposed Continuation Project
Extraction method	Blasting and excavation.	Blasting and excavation.
Resource	Ignimbrite hard-rock.	Ignimbrite hard-rock.
Extraction	Quarry pit - pit depth of 572 mAHD.	Quarry pit - pit depth of 546 mAHD (ie 26 m deeper than the Extension Project). No change to pit disturbance area.
Operations	Onsite rock processing, including crushing and screening.	Onsite rock processing, including crushing and screening.
Product transport	Transport of up to 2.6 million tonnes per annum (Mtpa) of Quarry products. Truck movements limited to: <ul style="list-style-type: none"> • a maximum of 295 inbound movements and 295 outbound movements, including no more than 38 outbound truck movements on the Secondary Transport Route, per working day; and • an average of 220 inbound movements and 220 outbound movements, including no more than 25 outbound movements on the Secondary Transport Route, per working day (averaged over the working days in each quarter). 	Transport of up to 4.2 Mtpa of quarry products. Total truck movements limited to: <ul style="list-style-type: none"> • a maximum of 375 inbound movements and 375 outbound movements, including no more than 38 outbound laden movements on the Secondary Transport Route, per working day; • an average of no more than 25 outbound movements on the Secondary Transport Route, per working day (averaged over the working days in each quarter).
General infrastructure	Offices, amenity buildings, processing plant and other minor infrastructure.	Offices, amenity buildings, processing plant and other minor infrastructure.

Table 2.1 **Extension Project compared to the Continuation Project**

Project element	Approved Extension Project	Proposed Continuation Project
Management of wastes	Overburden ¹ is emplaced in designated emplacement areas. Receipt of up to 30,000 tonnes of cured concrete per calendar year for beneficial reuse/recycling. No other classified waste materials to be received on site.	Overburden is emplaced in designated emplacement areas. Receipt of up to 50,000 tonnes of cured concrete per calendar year for beneficial reuse/recycling. No other classified waste materials to be received on site.
Hours of operation	24-hours Quarry operations Monday to Saturday, except 6 pm Saturday to 2 am Monday.	24-hours Quarry operations Monday to Saturday, except 6 pm Saturday to 2 am Monday.
Blasting	Up to twice weekly, 9 am to 5 pm Monday to Friday.	Up to twice weekly, 9 am to 5 pm Monday to Friday.
Quarry life	To 30 June 2042.	Extension of the Quarry life to 30 years from the date of approval.

Further information on the project is available in the Continuation Project EIS.

2.3 Product transport

2.3.1 Transport routes

All saleable products are transported from the Quarry to markets by truck. The Continuation Project will continue to use the currently approved Primary and Secondary Transport Routes.

Trucks delivering Quarry products to markets to the north and returning from these destinations use the Primary Transport Route (Figure 2.2). The Primary Transport Route consists of the following roads:

- Brayton Road (classified as a collector road) between Ambrose Road and the Gunlake Quarry access road;
- Ambrose Road between Brayton Road and Red Hills Road; and
- Red Hills Road between Ambrose Road and the Hume Highway.

The eastern end of Red Hills Road can only be accessed from the northbound side of the Hume Highway. Inbound Quarry trucks, returning from the north, are required to pass the Red Hills Road intersection and use the South Marulan Road interchange, approximately 3.5 km south-west of Marulan, to leave the southbound highway, cross the interchange bridge and join the northbound highway before travelling north to exit the highway at Red Hills Road (Figure 2.2).

The Primary Transport Route between the Quarry and the Hume Highway is about 7.8-km long.

The Secondary Transport Route is only used by outbound trucks travelling to markets south of the Quarry. The Secondary Transport Route consists of Brayton Road between the Quarry access road and the Hume Highway's southbound access ramp at Marulan.

¹ 'Overburden': any extracted unsalable material.

2.3.2 Vehicle movements

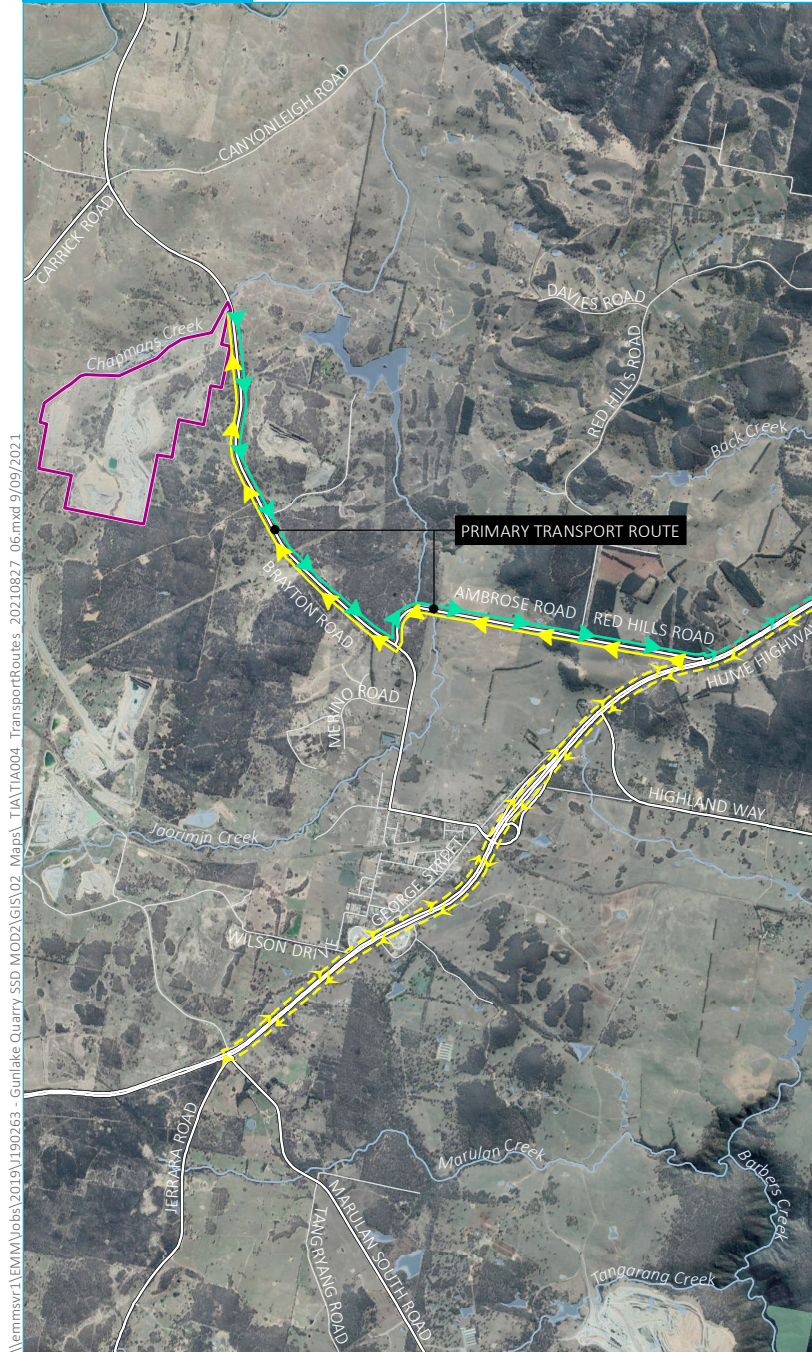
The Continuation Project will transport no more than 4.2 Mtpa of Quarry products transported from the site in any calendar year.

Under the Continuation Project it is proposed to limit daily Quarry product truck movements to a maximum of 375 inbound and 375 outbound movements.

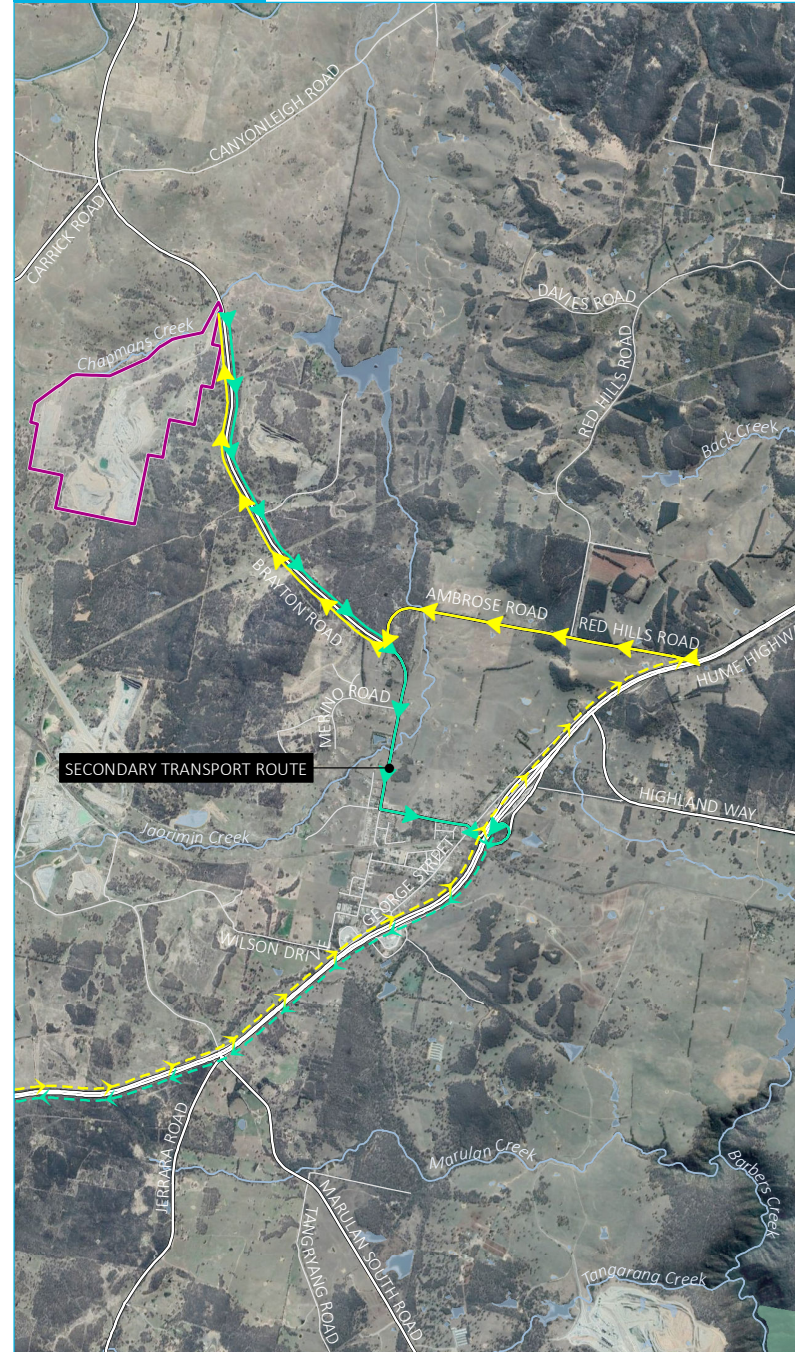
Gunlake currently has approval for a daily average of 25 outbound Quarry product truck movements, and a daily maximum of 38 outbound Quarry product trucks movements on the Secondary Transport Route. It is not proposed to change the number of trucks that are allowed to use the Secondary Transport Route.

There are also a small number of transport movements associated with employee travel, fuel deliveries and service vehicles.

PRIMARY TRANSPORT ROUTE

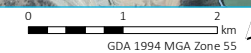


SECONDARY TRANSPORT ROUTE



- KEY**
- Site boundary
 - Inbound transport route
 - Inbound transport route (highway)
 - Outbound transport route
 - Outbound transport route (highway)
 - Major road
 - Minor road
 - Named watercourse
 - Waterbody
 - NPWS reserve

Source: EMM (2021); Google Earth (2019); DFSI (2017); GA (2011)



Transport routes

Gunlake Quarry Continuation Project
Traffic impact assessment
Figure 2.2

3 Existing conditions

3.1 Site location and access

Gunlake Quarry is located at 715 Brayton Road in Marulan, NSW, legally described as Lot 13 of DP1123374 within the Goulburn Mulwaree local government area (LGA). The Marulan township is located to the south-east of the Quarry with residential land uses generally to the west of the town centre and industrial land uses further west. The Quarry is accessed via Brayton Road.

3.2 Road network

The NSW administrative road hierarchy comprises the following road classifications, which align with the generic road hierarchy as follows:

- state roads – freeways and primary arterials (managed by Transport for NSW (TfNSW));
- regional roads – secondary or sub arterials (council managed and part funded by the NSW Government); and
- local roads – collector and local access roads (council managed).

Each of the key roads along the Primary Transport Route are shown in Figure 2.1 and Figure 2.2 above.

A summary of each road on the Primary and Secondary Transport Routes and the Hume Highway in the region is provided in Table 3.1 to Table 3.5.

Table 3.1 Brayton Road (between Gunlake site access and Ambrose Road intersection)

Aspect	Description
Transport Route	Primary and Secondary (inbound and outbound)
Road classification and connectivity	Local road (collector road)
Alignment	North-west/south-east
Number of lanes	One lane each way
Carriageway type	Sealed road
Carriageway width	Typically 11 m with 3.25 travel lane each way, plus 1.25 m sealed shoulder and 0.5 m unsealed shoulder on either side as well as a 1-m wide centreline
Default speed limit	100 km/h
Heavy vehicle access	26 m B-double approved
Traffic function	Carries local traffic, including Quarry trucks



Plate 3.1 **Brayton Road (looking north-east on Brayton Road)**

Table 3.2 **Brayton Road (between Ambrose Road intersection and the Georges Road/Hume Highway interchange)**

Aspect	Description
Transport Route	Secondary (outbound only)
Road classification and connectivity	Local road
Alignment	East-west
Number of lanes	One lane each way
Carriageway type	Sealed road
Carriageway width	Approximately 11 m wide carriageway with 0.5 m centreline
Default speed limit	50 km/h
Heavy vehicle access	26 m B-double approved
Traffic function	Carries local traffic, including limited Gunlake Quarry trucks



Plate 3.2 **Brayton Road (looking east from near Station Street)**

Table 3.3 Ambrose Road

Aspect	Description
Transport Route	Primary (inbound and outbound)
Road classification and connectivity	Local road
Alignment	East/west
Number of lanes	One lane each way
Carriageway type	Sealed road
Carriageway width	Typically 11 m with 3.25 m travel lane each way, plus 1.25 m sealed shoulder and 0.5 m unsealed shoulder on either side as well as a 1 m wide centreline
Default speed limit	100 km/h
Heavy vehicle access	26 m B-double approved
Traffic function	Carries local traffic, including Quarry trucks



Plate 3.3 Ambrose Road (looking west on Ambrose Road)

Table 3.4 **Red Hills Road**

Aspect	Description
Transport Route	Primary (inbound and outbound)
Road classification and connectivity	Local road
Alignment	East/west
Number of lanes	One lane each way
Carriageway type	Sealed road
Carriageway width	Typically 11 m with 3.25 m travel lane each way, plus 1.25 m sealed shoulder and 0.5 m unsealed shoulder on either side as well as a 1 m wide centreline
Default speed limit	100 km/h
Heavy vehicle access	26 m B-double approved
Traffic function	Carries local traffic, including Quarry trucks



Plate 3.4 **Red Hills Road (looking west from close to the Hume Highway)**

Table 3.5 **Hume Highway**

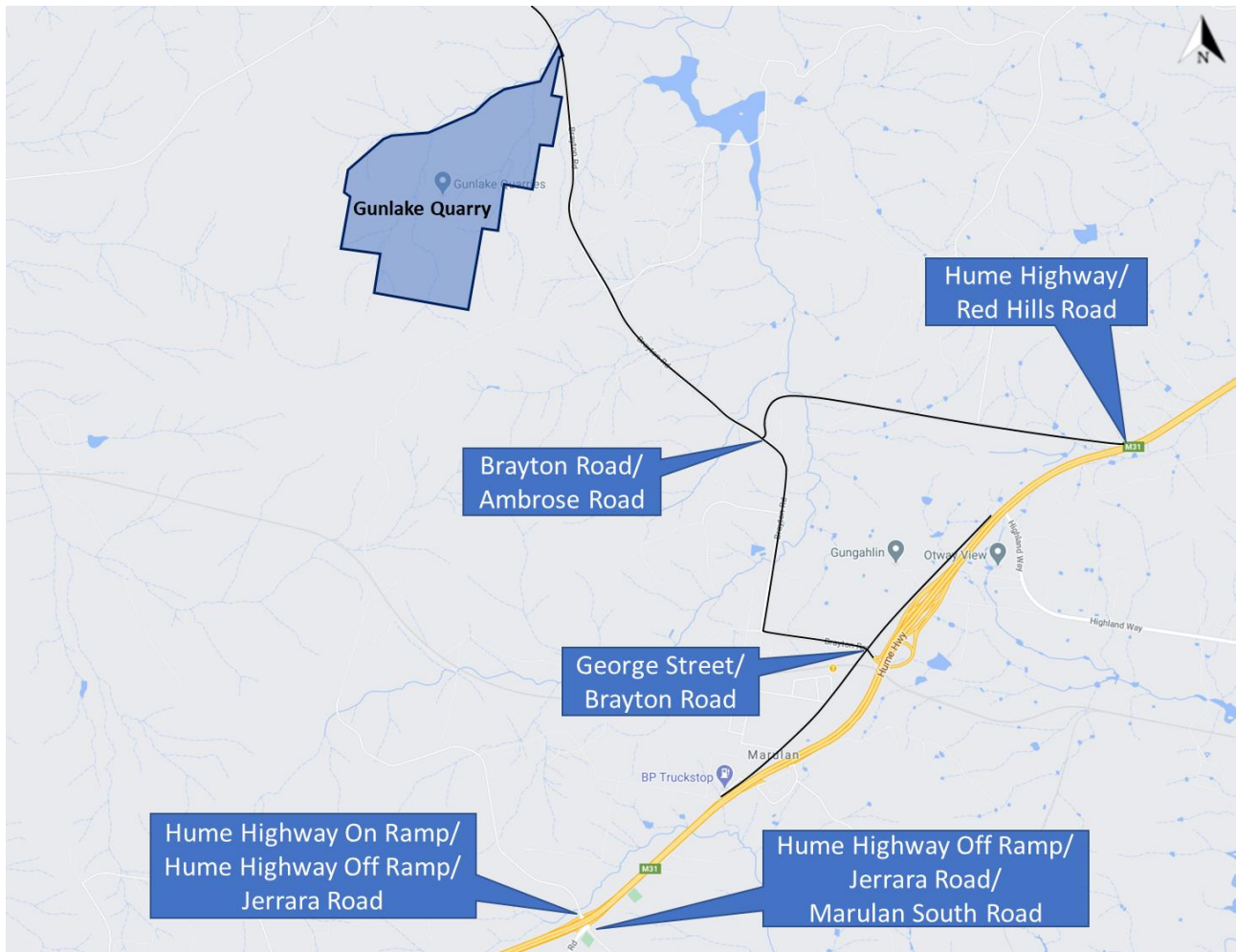
Aspect	Description
Road classification and connectivity	State road
Alignment	North-east/south-west
Number of lanes	Two lanes each way at the vicinity of the site
Carriageway type	Dual carriageway with central median island
Carriageway width	Approximately 32 m with 3.5 m travel lanes each way and 18 m wide median island
Posted speed limit	110 km/h in the vicinity of the site
Heavy vehicle access	26 m B-double approved
Traffic function	Provides arterial connection between townships



Plate 3.5 **Hume Highway (looking north-east towards Red Hills Road)**

3.3 Key intersections

The key intersections along the Primary and Secondary Transport Routes for which Quarry-related traffic impacts have been assessed are shown in Figure 3.1 and are described in Table 3.6 to Table 3.10.



Source: Google Maps

Figure 3.1 Key intersections

Table 3.6 **Brayton Road/Ambrose Road**

Aspect	Description
Location	4.3 km south-east of the site
Intersection control	Give Way controlled
Major road	Brayton Road
North-western approach	One lane on approach and departure
South-eastern approach	One lane on approach and departure
North-eastern approach	One lane on approach and departure
Traffic function	Predominantly carries local traffic, including Quarry trucks



Plate 3.6 **Brayton Road/Ambrose Road intersection**

Table 3.7 **Hume Highway/Red Hills Road**

Aspect	Description
Location	7.8 km south-east of the site
Intersection control	Priority
Major road	Hume Highway
North approach	One lane on approach and departure
East approach	Two eastbound travel lanes, plus approximately 580 m long eastbound acceleration lane
West approach	Two eastbound travel lanes, plus approximately 130 m long eastbound deceleration lane
Traffic function	Predominantly carries arterial traffic, including Quarry trucks



Plate 3.7 **Hume Highway/Red Hills Road intersection**

Table 3.8 **George Street/Brayton Road**

Aspect	Description
Location	7 km south-east of the site
Intersection control	Priority
Major road	George Street
North-east approach	One lane on approach and departure
North-west approach	One lane on approach and departure
South-east approach	One lane on approach and departure
South-west approach	One lane on approach and departure
Traffic function	Predominantly carries local traffic, including secondary route Quarry trucks



Plate 3.8 **George Street/Brayton Road intersection**

Table 3.9 Hume Highway Off Ramp/Jerrara Road/Marulan South Road

Aspect	Description
Location	Approx. 3.3km south-west from Marulan
Intersection control	Roundabout
North-western approach	One lane on approach and departure
South-eastern approach	One lane on approach and departure
North-eastern approach	One lane on approach
South-western approach	One lane on approach and departure
Traffic function	Predominantly carries local traffic, including Quarry trucks

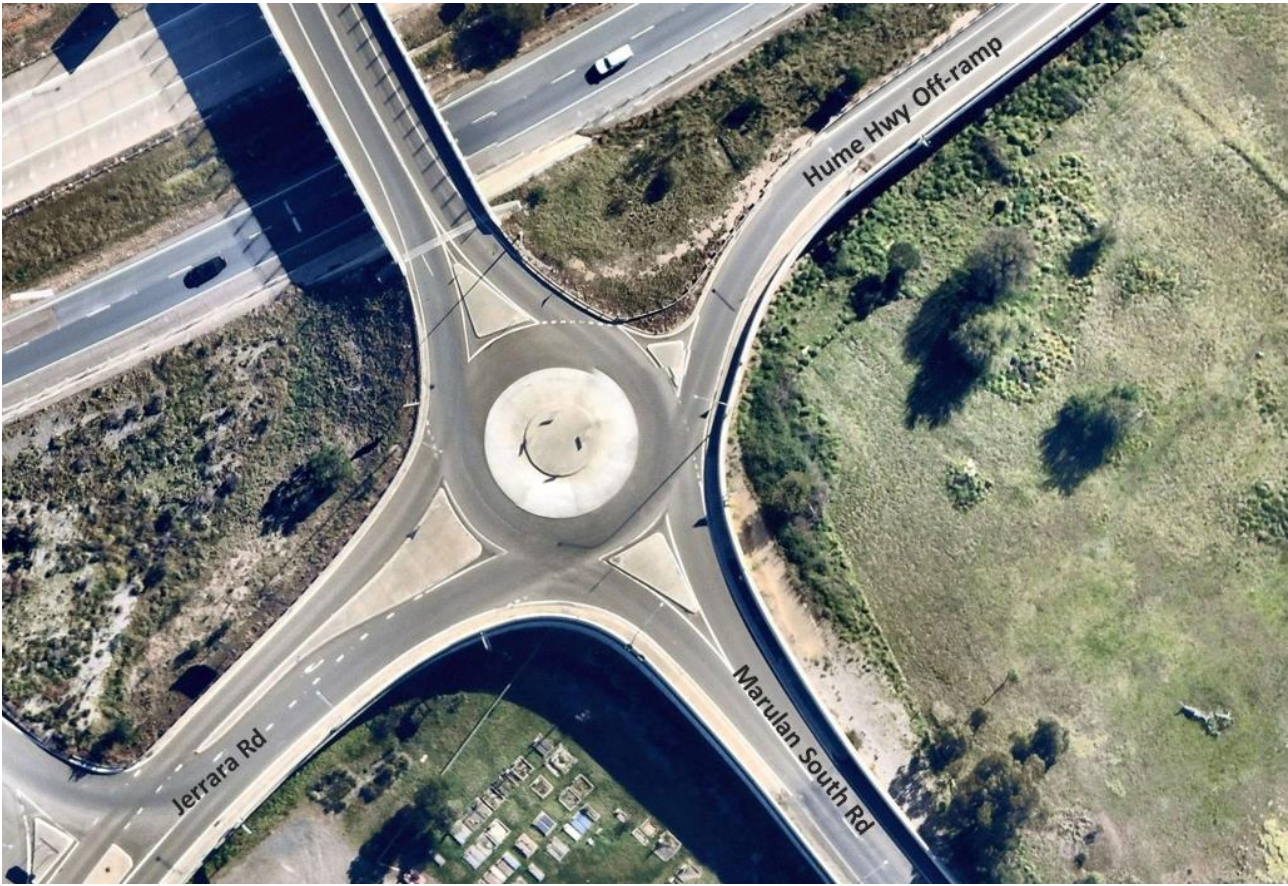


Plate 3.9 Hume Highway Off Ramp/Jerrara Road/Marulan South Road intersection

Table 3.10 **Hume Highway On Ramp/Hume Highway Off Ramp/Jerrara Road**

Aspect	Description
Location	Approx. 3.3km south-west from Marulan
Intersection control	Priority controlled
North-western approach	One lane on approach and departure
South-eastern approach	One lane on approach and departure
North-eastern approach	One lane on departure
South-western approach	One lane on approach
Traffic function	Predominantly carries local traffic, including Quarry trucks

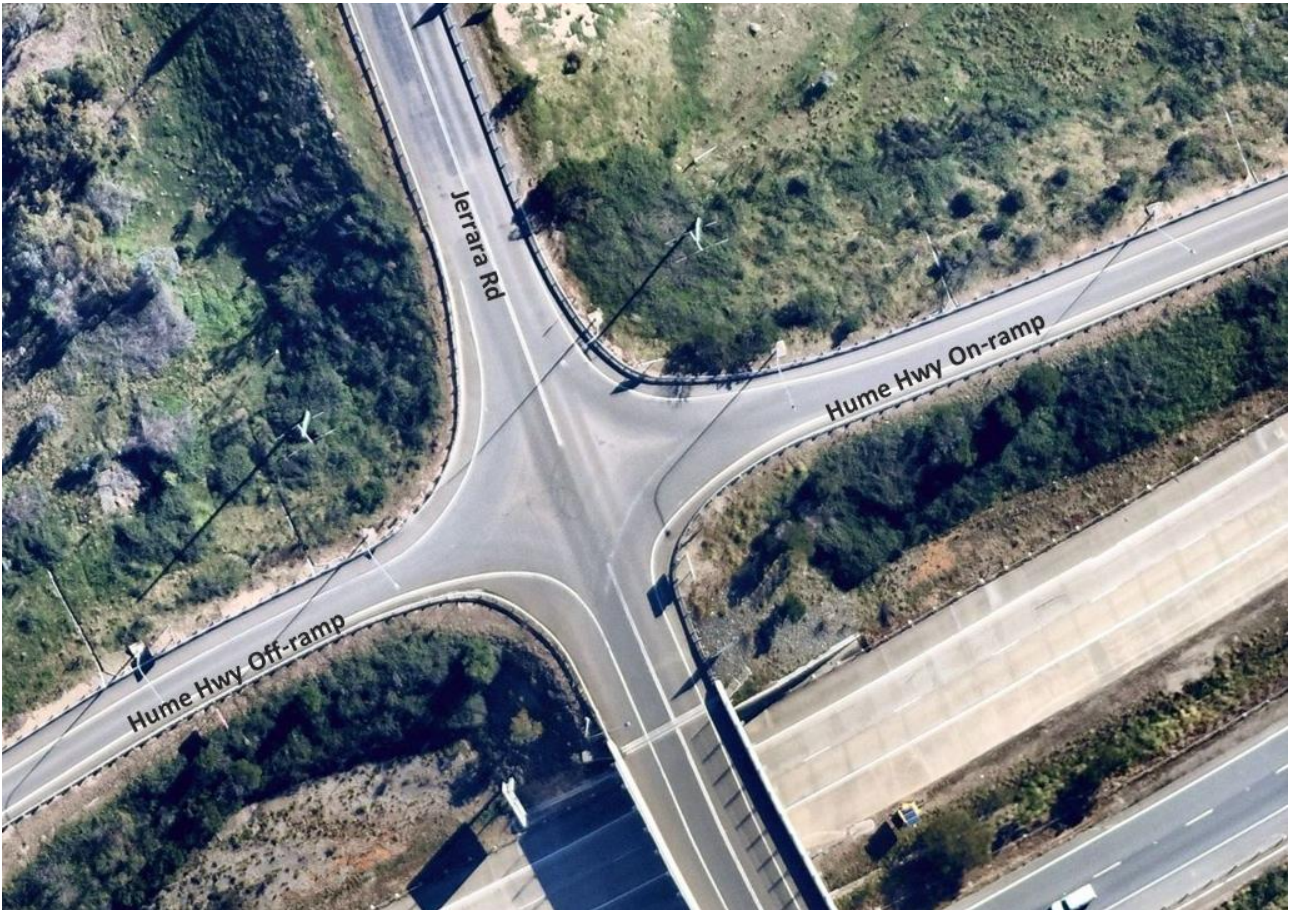


Plate 3.10 **Hume Highway On Ramp/Hume Highway Off Ramp/Jerrara Road intersection**

3.4 Baseline traffic volumes

3.4.1 Existing traffic volumes

i Intersection counts

The intersections were surveyed for 24-hour periods on Thursday, 10 September 2020 and Wednesday, 16 September 2020. Therefore, the traffic volumes from traffic surveys are less than a year old.

The traffic count data is provided in Annexure A.

The peak hour traffic varied between intersections. The survey results indicate the following peak hours:

- Brayton Road/Ambrose Road:
 - AM peak hour: 8.15 am–9.15 am
 - PM peak hour: 3.30 pm–4.30 pm
- Hume Highway/Red Hills Road:
 - AM peak hour: 11.00 am–12.00 pm
 - PM peak hour: 3.45 pm–4.45 pm
- George Street/Brayton Road
 - AM peak hour: 8.30 am–9.30 am
 - PM peak hour: 3.00 pm–4.00 pm
- Hume Highway Off Ramp/ Jerrara Road/ Marulan South Road:
 - AM peak hour: 6.45 am–7.45 am
 - PM peak hour: 3.15 pm–4.15 pm
- Hume Highway On Ramp/ Hume Highway Off Ramp/ Jerrara Road:
 - AM peak hour: 5.15 am–6.15 am
 - PM peak hour: 3.30 pm–4.30 pm

Due to the proximity of the Hume Highway Off Ramp/Jerrara Road/Marulan South Road and Hume Highway On Ramp/Hume Highway Off Ramp/Jerrara Road intersections, the network peak hours² are adopted for these two intersections for the purpose of intersection analysis, as follows:

- AM peak hour: 6.45 am–7.45 am; and
- PM peak hour: 3.15 pm–4.15 pm.

The surveyed traffic volumes during the AM and PM peak hours are summarised in Figure 3.2 for light vehicles (LV) and heavy vehicles (HV).

The traffic volume data show that with the exception of the Hume Highway, the other intersections are generally not heavily trafficked.

The Brayton Road/George Street intersection has relatively higher traffic volumes along the north-west and south-west approaches. This is mainly because there is residential development along these sections of the road, hence contributing to higher traffic volumes.

² Network peak refers to the peak across all intersections. For example, if four intersections are surveyed between 6 am and 9 am and the peak hours are between 6.45 am to 7.45 am for three of the intersections, the network peak is considered to be 6.45 am to 7.45 am. This is the peak hour for the road network as a whole, not necessarily for the site.

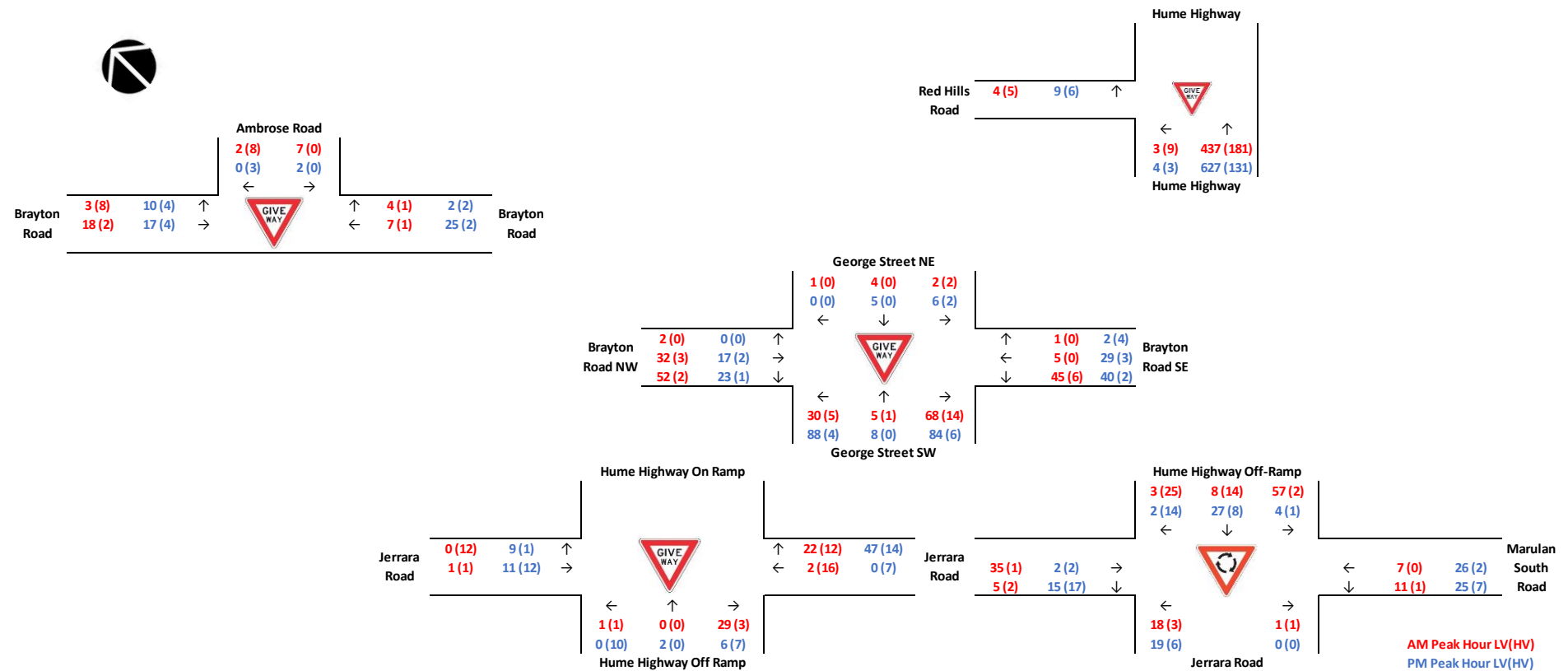


Figure 3.2 Existing AM and PM peak surveyed baseline intersection traffic volume

ii Tube counts

Tube counts were undertaken at three locations over a seven-day period from 10 June 2020. The tube count data are presented in Figure 3.3. While the traffic volumes from the tube are approximately 14 months old, the baseline traffic volumes are not anticipated to have changed over this period. The impact assessment in Chapter 6 allows for long-term annual background traffic growth.

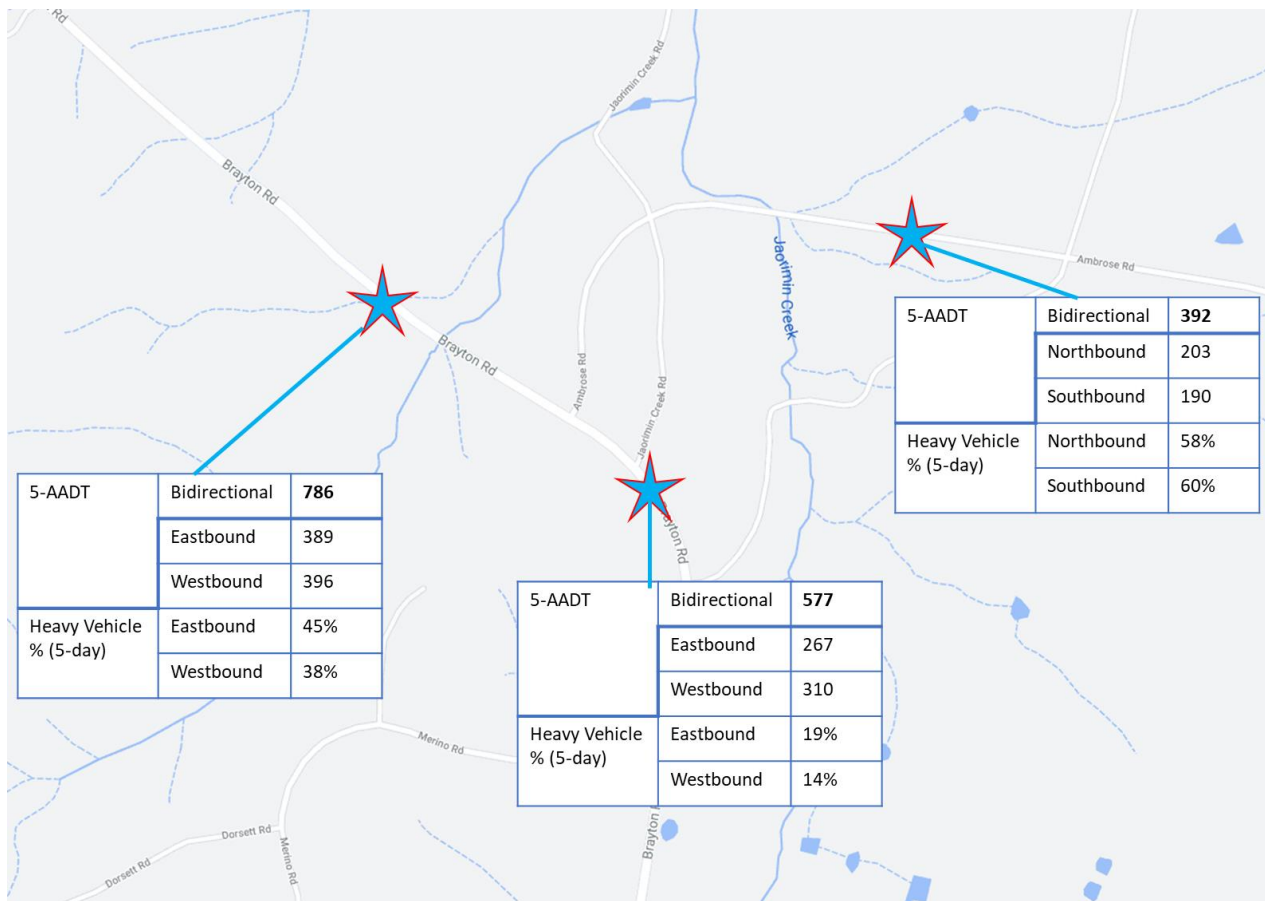


Figure 3.3 Tube count data

The traffic data shows that Ambrose Road carried just below 400 vehicles per day with 60% heavy vehicles.

Brayton Road, west of Ambrose Road, carried close to 800 vehicles per day with an average 42% heavy vehicles. Both the volumes and heavy vehicle proportion is lower for the count undertaken east of Ambrose Road, with below 600 vehicles per day with an average 15% heavy vehicles. This is expected given that the Primary Transport Route bypasses Marulan township.

Intersection and tube count data are attached in Annexure A.

3.4.2 Existing site related traffic volumes

The Gunlake Quarry weighbridge data for outgoing heavy vehicle movements on 10 September and 16 September 2020 (traffic survey dates) are provided in Table 3.11.

Table 3.11 Peak hour outgoing heavy vehicle movements from Gunlake Quarry

Survey date	Relevant road network peak hours*	Outgoing heavy vehicle movements
10 September 2020	8.15 am–9.15 am	7
	8.30 am–9.30 am	7
	11.00 am–12.00 pm	6
	3.00 pm–4.00 pm	9
	3.30 pm–4.30 pm	10
	3.45 pm–4.45 pm	10
16 September 2020	6.45 am–7.45 am	9
	3.15 pm–4.15 pm	12

* As the respective peak hours for each key intersection vary (Section 3.4.1i), the weighbridge data for the relevant peak hours are presented, noting that some of the peak hour intervals overlap.

Trucks use the approved routes and it has been assumed that the inbound and outbound trips are equal within each hour. Based on this assumption, the site related heavy vehicles at each of the key intersections are presented in Figure 3.4.

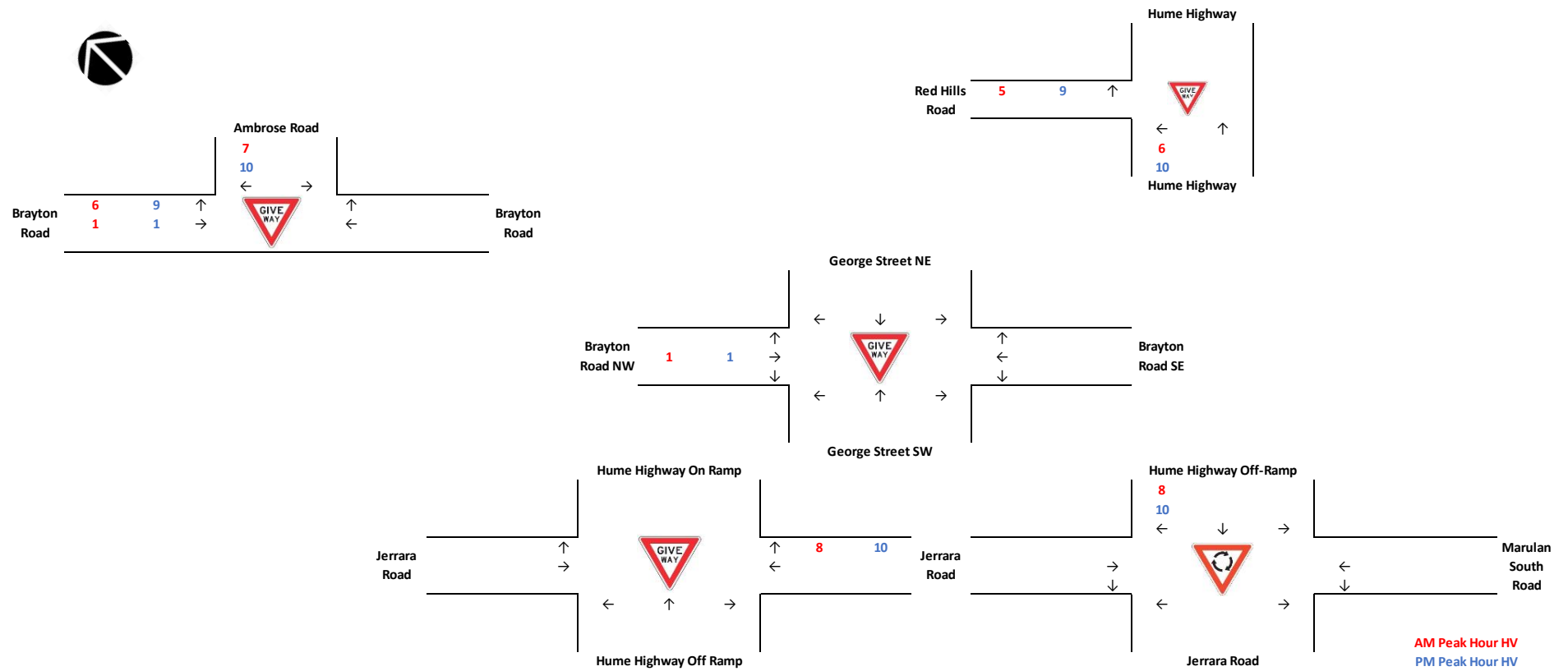


Figure 3.4 Existing AM and PM peak site related traffic volume

3.4.3 Existing background traffic volumes

The intersection and tube surveys include existing traffic from Gunlake Quarry. The 'background traffic volume' (ie the traffic volume if Gunlake Quarry was not operating) has been calculated by subtracting Quarry traffic from the surveyed baseline traffic volume.

3.5 Crash analysis

Crash data from the TfNSW Centre for Road Safety is presented in the Road Safety Impact Assessment report (ARRB 2021, EIS Appendix F.2).

3.6 Public transport

Due to the remote location of the site, there are no public bus services near the Quarry which could be used by Quarry staff or visitors.

School buses travel along Brayton Road in the vicinity of the site in both directions each school day. The school buses drop off and collect school children along this route. As part of the recent road upgrades of Brayton Road financed by Gunlake, safe school bus collection/drop off points have been built along Brayton Road.

4 Proposal

4.1 Description

The proposal will result in an increase in Quarry product truck movements via the Primary Transport Route from a maximum of 295 outbound and 295 inbound truck movements per day to a maximum of 375 outbound and 375 inbound truck movements per day. A comparison of the currently approved and proposed vehicular activity is provided in Table 4.1.

Table 4.1 A comparison of currently approved and proposed vehicular activity

Description	Currently approved	Proposed
Maximum daily Quarry product truck movements	295 outbound and 295 inbound movements	375 outbound and 375 inbound movements
Maximum daily Quarry product truck movements on Primary Transport Route	As above	As above
Maximum daily Quarry product truck movements on Secondary Transport Route	No more than 25 outbound trucks movements with a maximum of 38 per day	No change
Quarry life	25 years to 30 June 2042	30 years (nominally to 2051)
Hours of operation	Truck loading and dispatching, and transportation on the Primary Transport Route is approved to occur 24 hours a day, except from 6 pm Saturday evenings to 2 am Monday morning or on public holidays. Transportation on the Secondary Transport Route is approved to occur 6 am to 7 pm Monday to Saturday but not on Sundays or public holidays	No change

4.2 Hours of operation

As stated in Table 4.1, it is not proposed to alter the currently approved hours of operation, which permits truck loading and dispatching, and transportation as follows:

- Primary Transport Route: 24 hours a day, except from 6 pm Saturday evenings to 2 am Monday morning or on public holidays; and
- Secondary Transport Route: 6 am to 7 pm Monday to Saturday but not on Sundays or public holidays.

4.3 Workforce

The Quarry currently employs about 52 staff. In addition, about 20 contractors work on the Quarry site. The workforce may increase to 70 full-time positions for the Continuation Project and with ongoing opportunities for the contractors.

In addition, around 200 contract truck drivers deliver products from the Quarry. The proposed project will provide further work for these drivers and opportunities for more drivers.

4.4 Operational traffic

4.4.1 Vehicle types

The transport routes are currently permitted for all vehicles up to 26 m in length (including rigid vehicles, truck and dogs, B-doubles and A-doubles). The types of vehicles used currently and in the future are as dictated by TfNSW road restrictions.

4.4.2 Peak hour traffic generation

A maximum of 40 trucks will be loaded per hour at the Quarry as part of the Continuation Project, which translates to a maximum of 40 outbound trucks dispatched during a peak hour.

The employee, fuel deliveries and service vehicles generally arrive and depart outside the commuter peak hours. Therefore, these limited trips are not included in the traffic assessment.

4.4.3 Traffic generation and distribution

As stated in Table 4.1, it is proposed that there will be a daily maximum of 375 outbound and 375 inbound Quarry product truck movements.

There will be no change in the number of approved Quarry product truck movements along the Secondary Transport Route (an average of 25 outbound movements per day). As such, the traffic surveys completed for this assessment would include these movements.

For a conservative assessment of peak hour traffic impacts, this TIA assumes that all peak hour Quarry product truck movements (a maximum 40 trucks) would be dispatched along the Primary Transport Route.

The Continuation Project traffic volumes are presented in Figure 4.1.

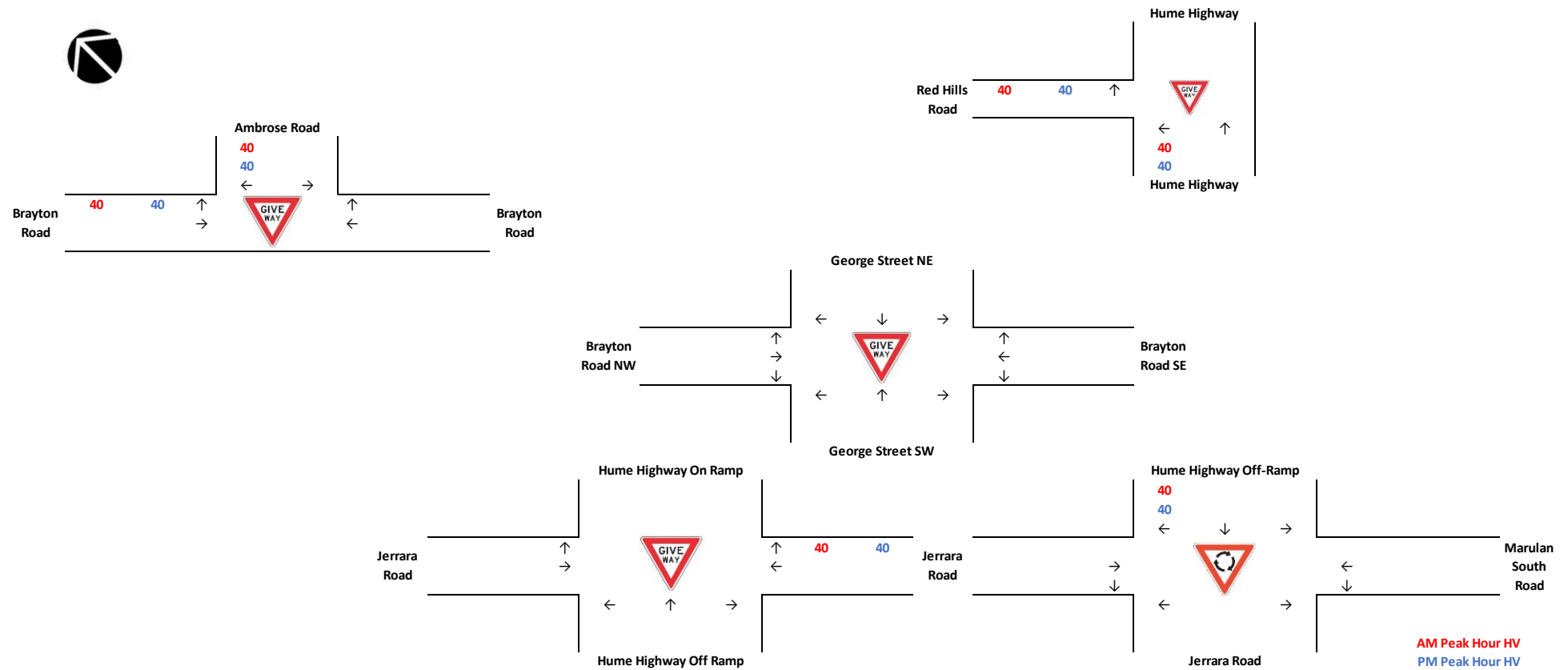


Figure 4.1 AM and PM peak Continuation Project traffic volume

4.5 Construction traffic

Construction of a new weighbridge and road resurfacing activities will occur within the next few years as part of ongoing quarry operations. These activities will be relatively short-term duration and will generate negligible construction traffic. Given the preceding, a detailed assessment of construction traffic impacts has not been included within this report.

4.6 Road upgrade work

The Primary Transport Route has been substantially upgraded in accordance with the Austroads Guidelines (Geometric Design Table 4.5) for rural roads with 1,000 to 3,000 average vehicle movements per day (Austroads 2020) since the Land and Environment Court Approval was granted in 2017. Gunlake and Goulburn Mulwaree Council have implemented a road maintenance work plan and budget to ensure that the Transport Routes are properly maintained by Council using Gunlake Section 94 Contributions. Gunlake and Council will continue to work together on road maintenance Section 7.11 contributions and any road upgrades that may be required as part of the Continuation Project

The Primary Transport Route road design has been independently reviewed by the Australian Road Research Board, the findings of which are provided in Appendix F.2 of the EIS.

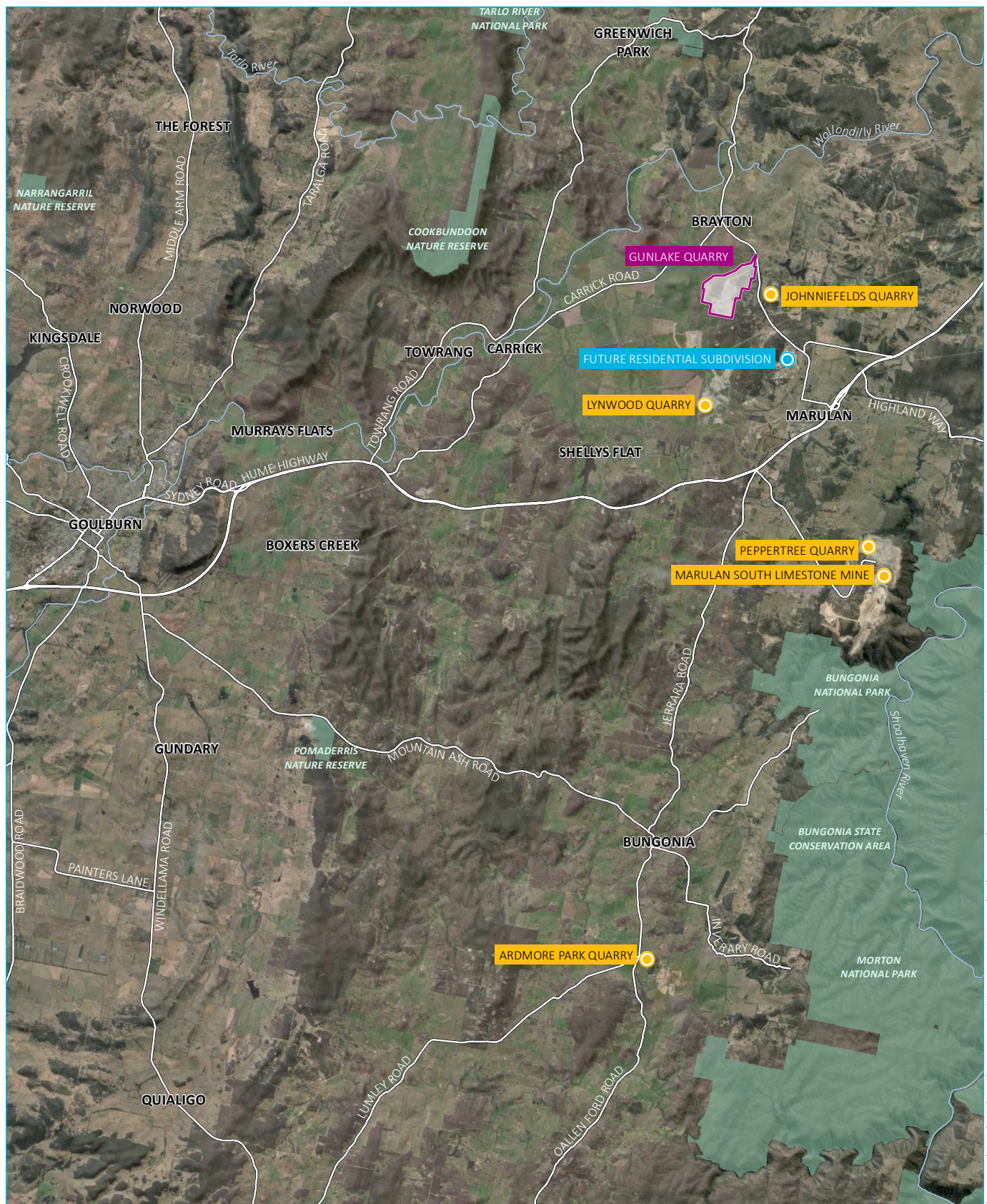
5 Future traffic volumes

5.1 Future traffic volumes components

The traffic impacts of the Continuation Project are assessed in Chapter 6 based on the following future traffic volumes components:

- combined non-Gunlake project development traffic;
- the linear growth in background traffic; and
- Continuation Project traffic (see Chapter 4).

Future traffic volumes, excluding Gunlake Quarry traffic, are described below.



Source: EMM (2021); ESRI (2021); DFSI (2017); GA (2011); ASGC (2006)

KEY

- Site boundary
- Quarry
- Future residential subdivision
- Major road
- River
- NPWS reserve

Cumulative developments in the locality

Gunlake Quarry Continuation Project
Traffic impact assessment
Figure 5.1

5.2 Non-Gunlake project development traffic

5.2.1 Local quarries

There are five local operational quarries:

- Lynwood Quarry;
- Peppertree Quarry;
- Marulan South Limestone Mine (limestone quarries are officially defined as a mine in NSW);
- Ardmore Park Quarry; and
- Johnniefields Quarry.

These quarries currently use the following intersections as part of their transport routes:

- Hume Highway Off Ramp/Jerrara Road/ Marulan South Road; and
- Hume Highway On Ramp/Hume Highway Off Ramp/Jerrara Road.

Johnniefields Quarry is the only operation, other than Gunlake Quarry, that uses the Brayton Road/Ambrose Road/Red Hills Road section of the Primary Transport Route.

The approved traffic generation for these quarries have been extracted from publicly traffic reports and approvals. It has been assumed that any current development applications, such as for the Marulan South Limestone Mine Continuation Project, will be approved.

The traffic generation for each of the five quarries at full capacity is presented in Table 5.1 and shown in Figure 5.2 to Figure 5.6.

Table 5.1 Traffic generation from the nearby quarries (including proposals)

Quarry	Annual truck movements	Daily truck movements	Peak hourly truck movements	Source
Marulan South Limestone Mine	16,718	218	18	Proposed Marulan South Limestone Mine Continued Operations Project <i>Traffic Impact Assessment</i> (Transport & Urban Planning 2019)
Peppertree Quarry	1,460	4	4*	Modification 6 <i>Statement of Environmental Effects</i> (Boral 2020)
Ardmore Park Quarry	36,608	124	8 (5 am–8 am and 4 pm–6 pm) 14 (8 am–4 pm)	Modification 3 <i>Conditions of Approval</i> (DPIE 2020)
Lynwood Quarry	90,908	330	33*	Approved Modification 4 <i>Preliminary Environmental Assessment</i> (Umwelt 2015)
Johnniefields Quarry	30,800	112	11*	<i>Gunlake Quarry Extension Project, Transport Assessment</i> (EMM 2016b)

*Assuming peak hour traffic being 10% of daily traffic.

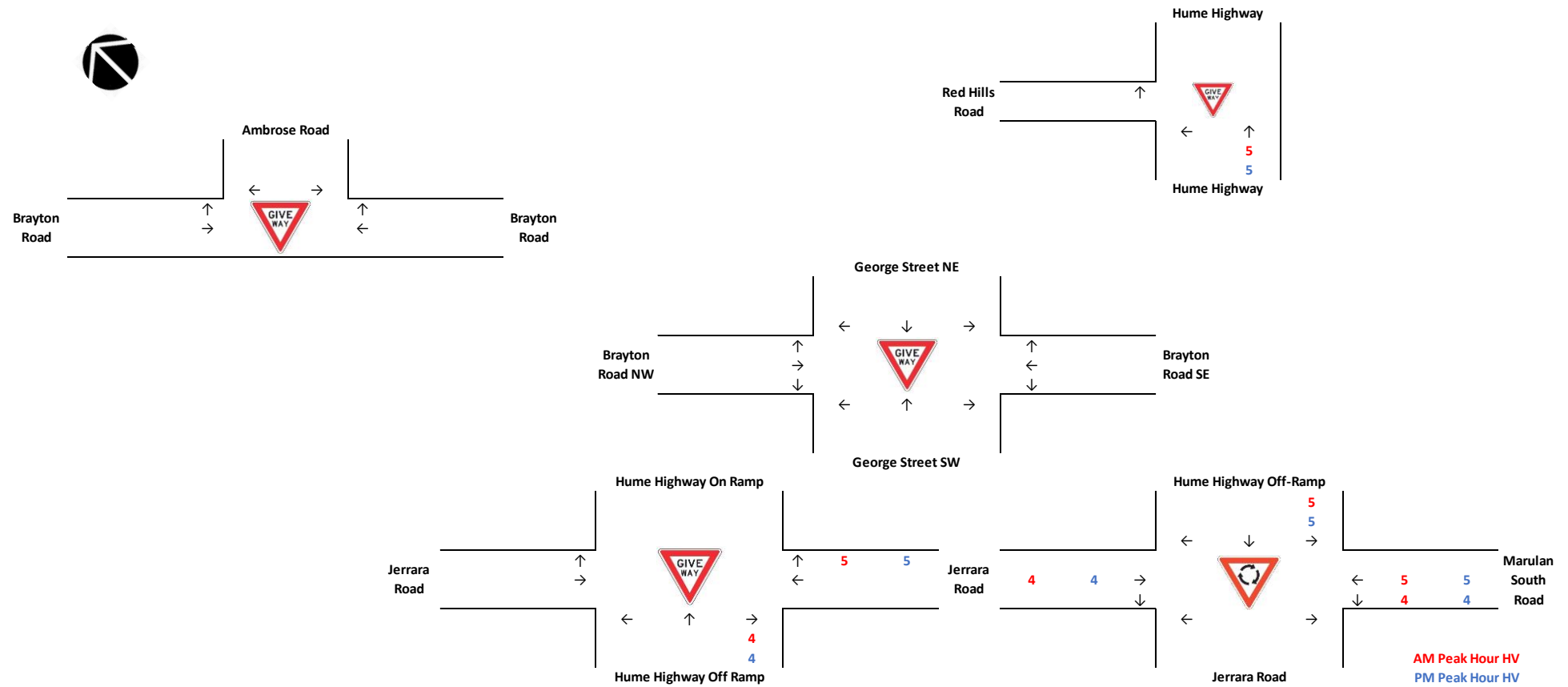


Figure 5.2 Marulan South Limestone Mine peak hour traffic

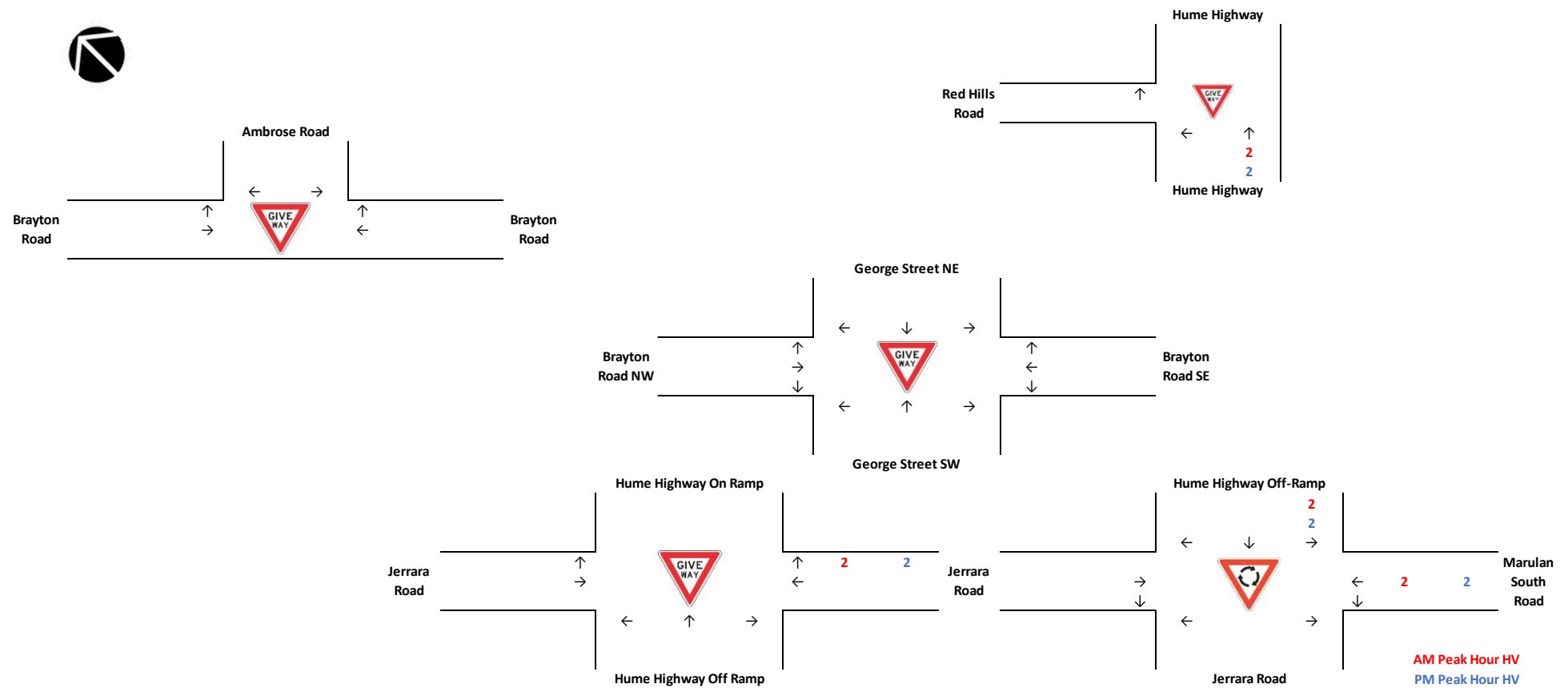


Figure 5.3 Peppertree peak hour traffic

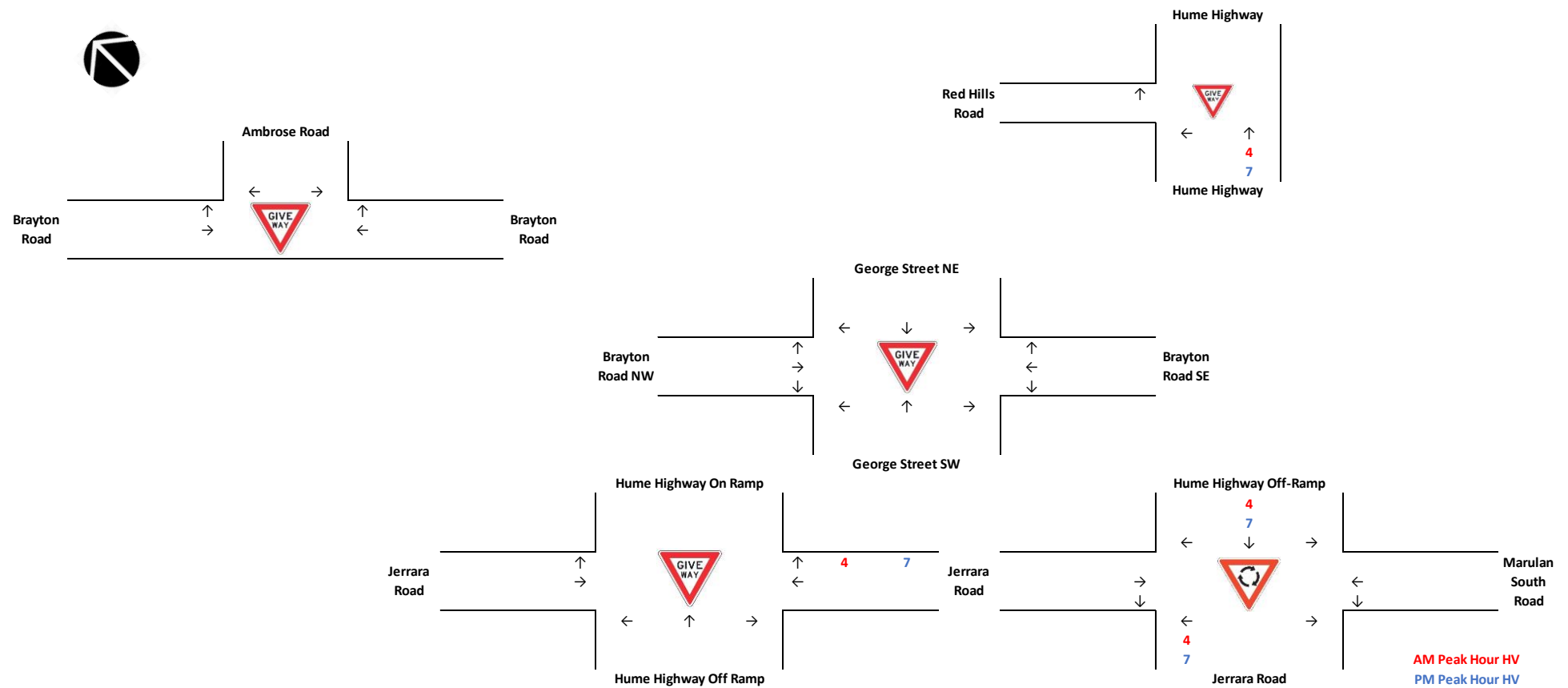


Figure 5.4 Ardmore Park Quarry peak hour traffic

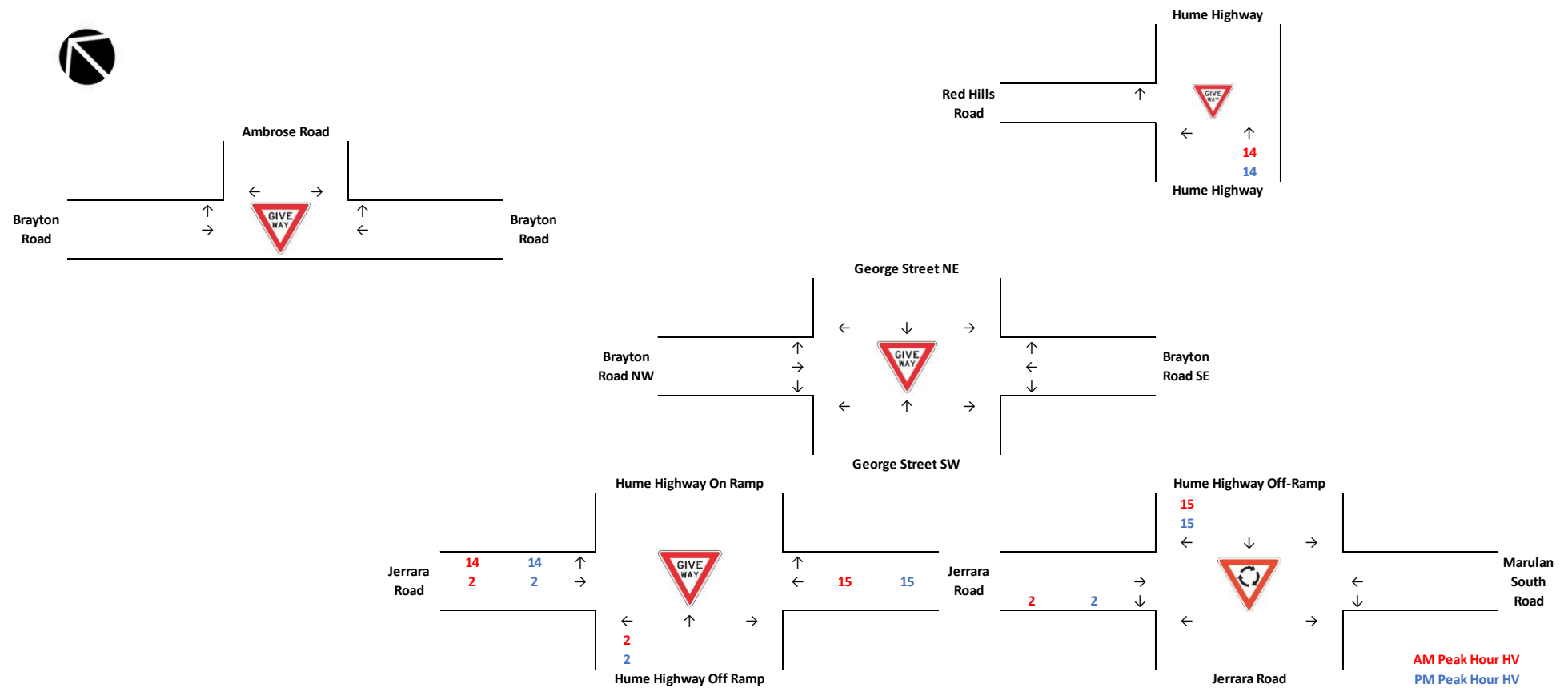


Figure 5.5 Lynwood Quarry peak hour traffic

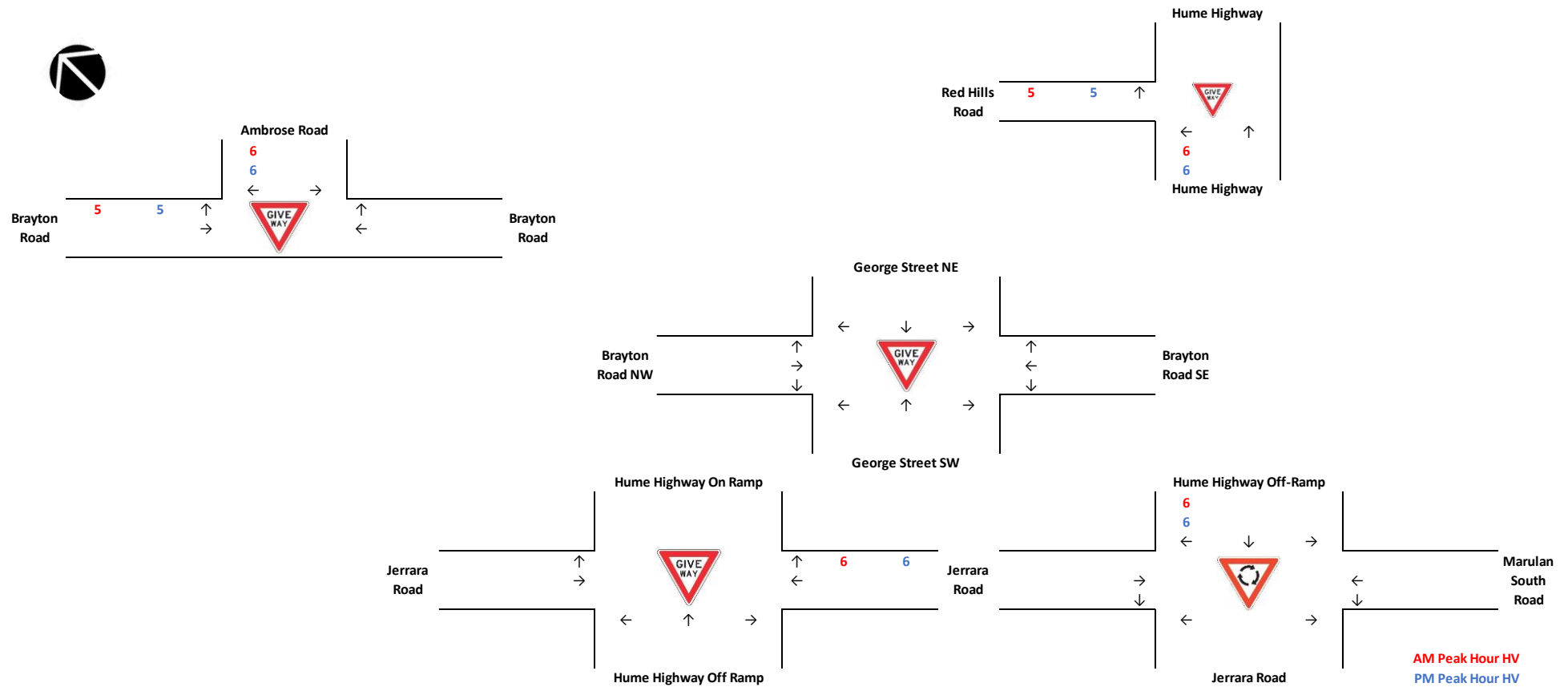


Figure 5.6 Johnniefelds peak hour traffic

5.2.2 Recent residential subdivision

There is a residential subdivision currently under construction, located off Corriedale Drive west of Brayton Road and near the Merino Road/Brayton Road intersection (Figure 5.1). The subdivision can only be accessed from Merino Road south of the Brayton Road/Ambrose Road intersection, with no access from Brayton Road north of this intersection (ie there is no access to the subdivision from the Primary Transport Route and no change to quarry truck movements is proposed on the Secondary Transport Route).

The RMS Guide to Traffic Generating Developments Updated traffic surveys (RMS 2013) provides trip generation rates for low-density residential dwellings. The trip generation rates are provided in Table 5.2.

Table 5.2 Trip generation rate low density residential dwellings

	Sydney		Regional areas	
	Regular rate	Maximum rate	Regular rate	Maximum rate
Daily vehicle trips	10.7	-	7.4	-
Weekday average evening peak hour vehicle trips	0.99	1.39	0.78	0.90
Weekday average morning peak hour vehicle trips	0.95	1.32	0.71	0.85

A conservative trip generation rate of one trip per lot for morning and evening peak hours has been adopted for this study, which is up to 53 trips during the morning and evening peak hours. The following trip assumptions have been made:

- 20% and 80% split has been used for morning in and out movements respectively;
- 70% and 30% split has been used for evening in and out movements respectively;
- 90% of the trips would be to travel south (towards Goulburn) and 10% north (towards Sydney) from the Brayton Road/Merino Road intersection; and
- the traffic distribution at Brayton Road/George Street intersection is as per ratios of existing traffic distribution from the traffic surveys.

The traffic generation for the residential subdivision off Corriedale Drive is shown in Figure 5.7.

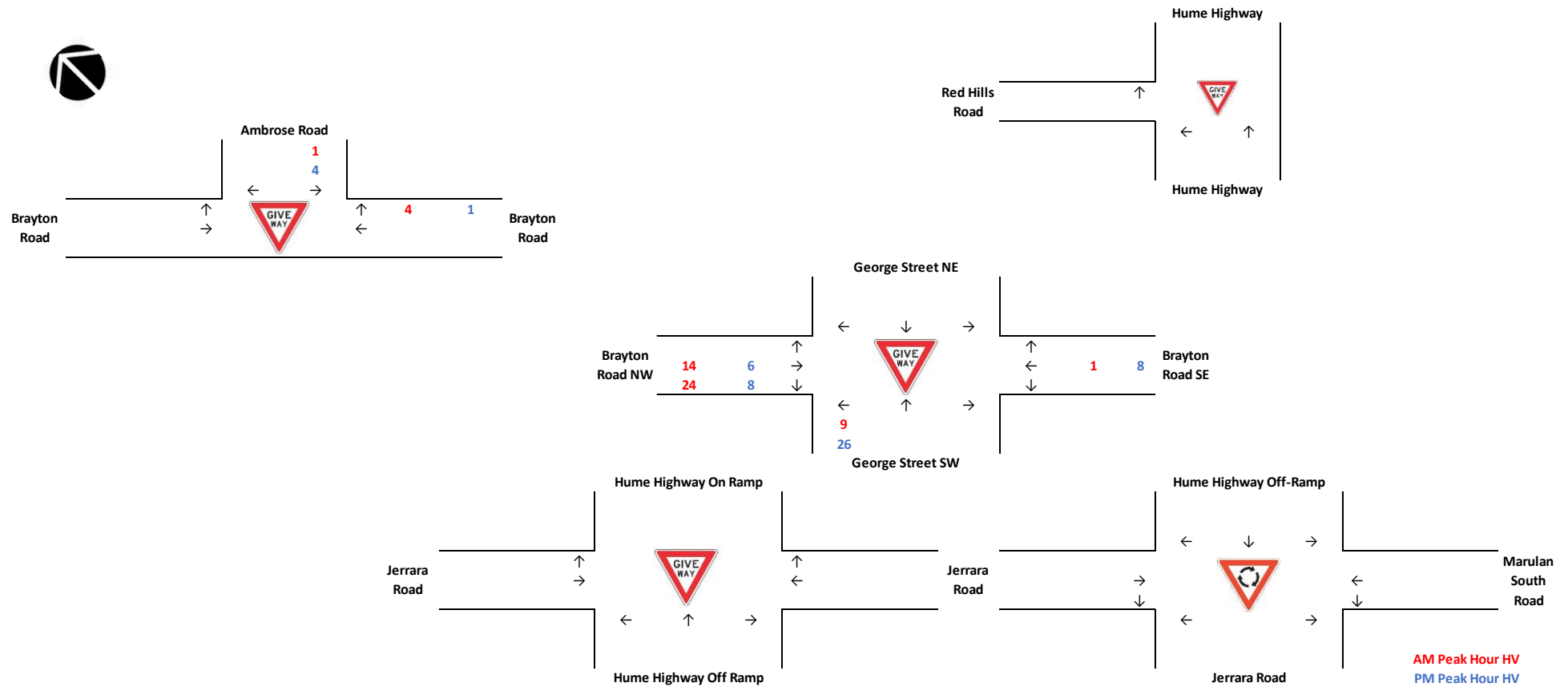


Figure 5.7 Residential subdivision of Corriedale Drive peak hour traffic

5.2.3 Combined non-Gunlake project development traffic

The total combined potential traffic generation from the surrounding projects – five local quarries (at full capacity) and residential subdivision (when fully developed) – is presented in Figure 5.8.

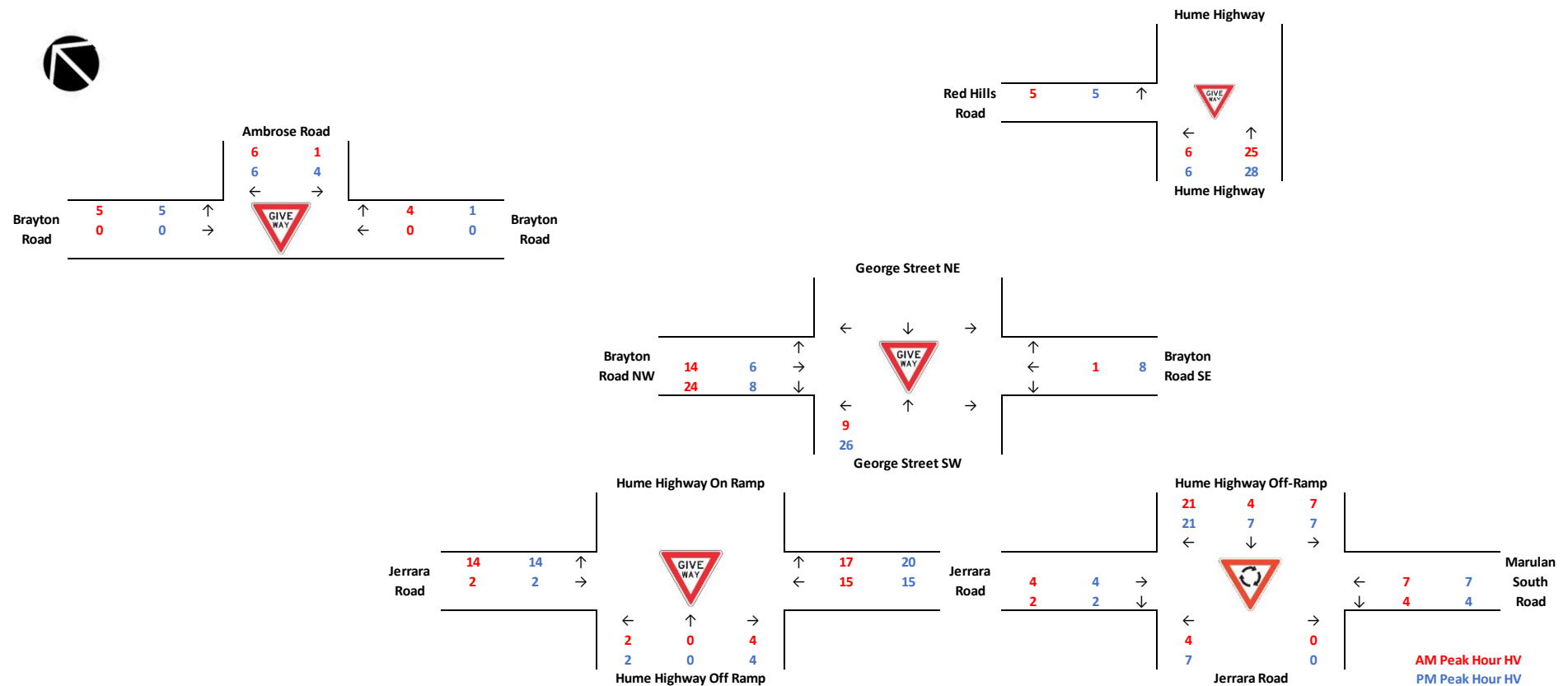


Figure 5.8 Combined traffic of the five nearby quarries (at full capacity) and residential subdivision (when fully developed)

5.3 Future background traffic

The Quarry life is proposed to be extended by 30 years to 2051. Future background traffic volumes have been calculated for 2051 future scenario by applying the following growth rates to the existing background traffic volume (ie, excluding Gunlake Quarry traffic) (see Section 3.4.3):

- 0.5% per annum (pa) linear growth on arterial roads; and
- 1% pa linear growth on local roads.

This growth allows for potential residential developments in the local area over the next 30 years, such as development of the Marulan North and Marulan West areas as included in the *Urban and Fringe Housing Strategy, Goulburn and Marulan* (Elton 2020).

These growth projections are consistent with the Department of Planning, Industry and Environment population projections (DPIE 2019) that estimate the population of the regional area will increase from 79,259 in 2016 to 84,971 in 2041 – a total increase of 7.2% and an average annual increase of 0.3%.

5.4 Future cumulative traffic

The future (2051) cumulative traffic volumes (ie Gunlake Quarry traffic plus all non-Gunlake Quarry traffic) at the end of the proposed Quarry life (2051) was calculated by adding:

- combined non-Gunlake project development traffic (Section 5.2.3);
- future background traffic (Section 5.3); and
- Continuation Project traffic (Section 4.4.3).

The future cumulative traffic volumes are presented in Figure 5.9. These volumes have been used for SIDRA modelling of the potential impact of the Continuation Project on intersection performance.

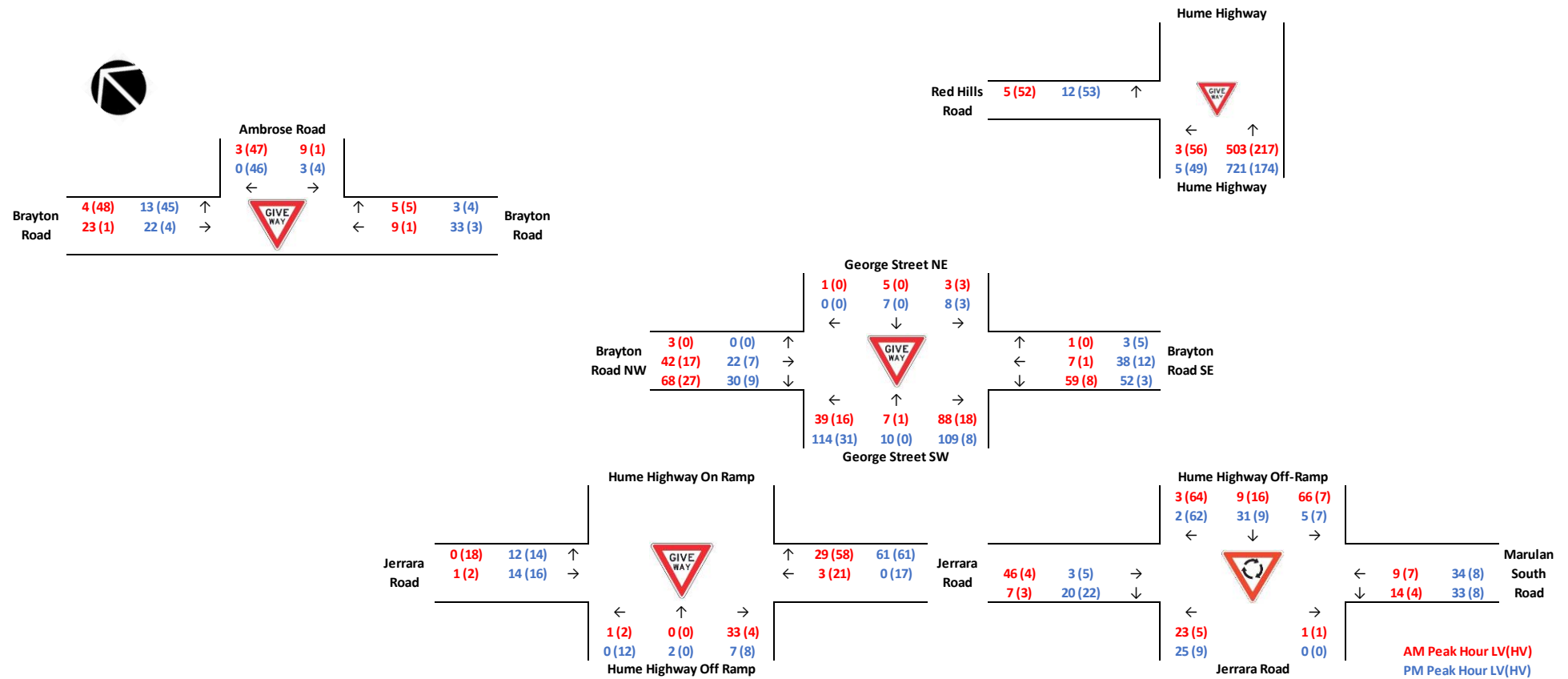


Figure 5.9 Future (2051) cumulative traffic volumes (ie Gunlake Quarry traffic plus all non-Gunlake Quarry traffic)

6 Impact assessment

6.1 Intersection performance

The key intersections have been modelled with the SIDRA Intersection 9.0 software; a micro-analytical tool for individual intersections and linked intersection-network modelling. The modelling is based on the traffic survey data detailed in Section 3.4.1 and the continuation project traffic with net cumulative traffic, as detailed in Section 5.4. SIDRA provides the following performance indicators:

- Degree of saturation (DOS) – the total usage of the intersection expressed as a factor of 1 with 1 representing 100% use/saturation (eg 0.8 = 80% saturation);
- Average delay (DEL) – the average delay in seconds encountered by all vehicles passing through the intersection. It is often important to review the average delay of each approach as a side road could have a long delay time, while the large free flowing major traffic will provide an overall low average delay;
- Level of service (LOS) – this is a categorisation of average delay, intended for simple reference; and
- 95% queue lengths (Q95) – is defined to be the queue length in metres that has only a 5% probability of being exceeded during the analysed time period. It transforms the average delay into measurable distance units.

The LOS is a good indicator of overall performance for individual intersections, with each level summarised in Table 6.1.

Table 6.1 Intersection LOS standards

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

Source: RTA Guide to Traffic Generating Development (RTA 2002).

Two scenarios have been modelled in SIDRA and they are as follows:

1. Existing: this scenario assesses the surveyed baseline traffic volumes.
2. Future 2051: this scenario assesses cumulative traffic volumes for 2051 (ie all non- Gunlake Quarry traffic with Gunlake Quarry traffic).

The SIDRA results for the key intersections are presented in the following tables. The details of the SIDRA results are attached in Annexure B.

Table 6.2 SIDRA modelling result for Brayton Road/Ambrose Road intersection

Control/scenarios		AM Peak				PM Peak				
Priority controlled (Give Way)	Intersection volume	DEL(s)	LOS	DOS	Max Q in m (approach)	Intersection volume	DEL(s)	LOS	DOS	Max Q in m (approach)
1. Existing	61	9.1	A	0.021	0.8 (north-east)	71	10.0	A	0.022	0.3 (north-east)
2. Future 2051	156	10.6	A	00.14	5.3 (north-east)	180	11.5	A	0.105	5.4 (north-east)

The key findings for the Brayton Road/Ambrose Road intersection are:

- with the existing scenario, the intersection currently operates LOS A on all approaches; and
- with the future 2051 scenario, the intersection will continue to operate LOS A.

Table 6.3 SIDRA modelling result for Hume Highway/Red Hills Road intersection

Control/scenarios		AM Peak				PM Peak				
Priority controlled (Give Way)	Intersection volume	DEL(s)	LOS	DOS	Max Q in m (approach)	Intersection volume	DEL(s)	LOS	DOS	Max Q in m (approach)
1. Existing	639	9.8	A	0.199	0.0	780	9.0	A	0.228	0.0
2. Future 2051	836	10.3	A	0.232	0.0	1014	10.2	A	0.272	0.0

The key findings for the Hume Highway/Red Hills Road intersection are:

- with the existing scenario, the intersection currently operates LOS A on all approaches; and
- with the future 2051 scenario, the intersection will continue to operate LOS A.

Table 6.4 SIDRA modelling result for George Street/Brayton Road intersection

Control/Scenarios		AM Peak				PM Peak				
Roundabout	Intersection volume	DEL(s)	LOS	DOS	Max Q in m (approach)	Intersection volume	DEL(s)	LOS	DOS	Max Q in m (approach)
1. Existing	280	6.1	A	0.106	3.2 (north-west)	328	6.9	A	0.128	4.0 (south-west)
2. Future 2051	414	7.8	A	0.230	9.0 (north-west)	473	8.5	A	0.187	6.1 (north-west)

The key findings for the George Street/Brayton Road intersection are:

- with the existing scenario, the intersection currently operates LOS A on all approaches;

- with the future 2051 scenario, the intersection will continue to operate LOS A; and
- the intersection is currently operating around 10% capacity which will marginally increase with the development and cumulative traffic.

Table 6.5 **SIDRA modelling result for Hume Highway Off Ramp/Jerrara Road/Marulan South Road intersection**

Control/Scenarios		AM Peak				PM Peak				
Roundabout	Intersection volume	DEL(s)	LOS	DOS	Max Q in m (approach)	Intersection volume	DEL(s)	LOS	DOS	Max Q in m (approach)
1. Existing	204	5.2	A	0.100	4.5 (north-east)	187	5.6	A	0.055	2.4 (north-east)
2. Future 2051	304	5.9	A	0.164	8.5 (north-east)	299	6.6	A	0.124	6.7 (north-east)

The key findings for the Hume Highway Off Ramp/ Jerrara Road/ Marulan South Road intersection are:

- with the existing scenario, the intersection currently operates LOS A on all approaches; and
- with the future 2051 scenario, the intersection will continue to operate LOS A.

Table 6.6 **SIDRA modelling result for Hume Highway On Ramp/Hume Highway Off Ramp/Jerrara Road**

Control/Scenarios		AM Peak				PM Peak				
Priority controlled (Give Way)	Intersection volume	DEL(s)	LOS	DOS	Max Q in m (approach)	Intersection volume	DEL(s)	LOS	DOS	Max Q in m (approach)
1. Existing	106	6.7	A	0.047	1.8 (south-east)	133	8.1	A	0.057	2.1 (south-east)
2. Future 2051	182	7.6	A	0.108	5.4 (south-east)	236	10.3	A	0.135	6.2 (south-east)

The key findings for the Hume Highway On Ramp/ Hume Highway Off Ramp/Jerrara Road intersection are:

- with the existing scenario, the intersection currently operates LOS A on all approaches;
- with the future 2051 scenario, the intersection will continue to operate LOS A; and
- with the future 2051 scenario, the intersection will operate under 15% capacity.

The continuation project with net cumulative traffic would not reduce the LOS of any key intersections.

6.2 Sight distances

The Quarry access on Brayton Road has good sight distance to the left and right (Plate 6.1). The sight distance is estimated to be 456 m to the left and 296 m to the right. In accordance with Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (Austroads 2017), for a road with a design speed of 110 km/h (generally 10 km/h higher than the speed limit), the minimum safe intersection sight distance (SISD) required for a general minimum 2 second driver reaction time is 285 m, therefore the existing site access has adequate sight distance.



Sight distance to the left (456 m)



Sight distance to the right (296 m)

Plate 6.1 Sight distance from the Quarry access

6.3 Road safety

Potential impacts of the Continuation Project are addressed in the Road Safety Impact Assessment report (ARRB 2021, EIS Appendix F.2).

6.4 Mitigation measures

Quarry traffic will continue to be managed in accordance with the Gunlake Quarry Traffic Management Plan (Gunlake 2020), including the Driver Code of Conduct, as updated in accordance with the development approval.

As all intersections are predicted to continue to operate with a LOS A to 2051, including with the operation of the Continuation Project, and sightlines are adequate at the site access intersection, no additional mitigation measures are proposed as a result of the findings of this TIA.

7 Conclusion

The associated traffic impacts for the proposed continuation project traffic and potential cumulative traffic have been assessed as follows:

- the future (2051) cumulative traffic volumes (ie Gunlake Quarry traffic plus the approved/proposed traffic from the five other local quarries and the future residential subdivision off Corriedale Drive) at the end of the proposed Quarry life (2051) was calculated by adding: combined non-Gunlake project development traffic (Section 5.2.3); future background traffic (Section 5.3); and Continuation Project traffic (Section 4.4.3);
- based on SIDRA analysis of the existing background traffic volumes, the five key intersections currently operate with a LOS A;
- based on SIDRA analysis of future (2051) cumulative traffic volumes, the five key intersections will continue to operate with a LOS A; and
- the sight distance at the site access complies with Austroads guidelines.

Road safety is addressed in in the Road Safety Impact Assessment report (ARRB 2021, EIS Appendix F.2).

References

ARRB 2021, *Continuation Project Road Safety Assessment*, prepared for Gunlake Quarries Pty Ltd by Australian Road Research Board.

Austroads 2017, *Guide to Road Design Part 4A: Unsignalised & Signalised Intersections*.

Austroads 2016, *Guide to Traffic Management Part 3: Traffic Studies and Analysis*.

Austroads 2020, *Guide to Road Design Part 3 Geometric Design*, AGRD03-20, Austroads. Boral 2020, *Modification 6 Statement of Environmental Effects*.

Boral 2020, *Peppertree Quarry Statement of Environmental Effects*.

Christopher Hallam & Associates 2013, *Approved Modification 2 Traffic Impact Assessment*.

DPIE 2019, *Population Projections*, Department of Planning, Industry and Environment, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections>.

DPIE 2020, *Ardmore Park Quarry Modification 3, Conditions of Approval*. Department of Planning, Industry and Environment.

Elton 2020, *Urban and Fringe Housing Strategy, Goulburn and Marulan*, prepared by Elton Consulting for Goulbourn Mulwaree Council.

EMM 2016a, *Gunlake Quarry Extension Project, Environmental Impact Statement*, prepared for Gunlake Quarries Pty Ltd by EMM Consulting Pty Limited.

EMM 2016b, *Gunlake Quarry Extension Project, Transport Assessment*, prepared for Gunlake Quarries Pty Ltd by EMM Consulting Pty Limited.

Gunlake 2020, *Gunlake Quarry Traffic Management Plan*. Prepared by Gunlake Quarries Pty Ltd.

National Academics of Science Transportation Research Board 2016, *US Highway Capacity Manual*.

RMS 2013, *Guide to Traffic Generating Developments Updated traffic surveys*. Roads and Maritime Services.

RMS 2018, *Traffic Control at Work Sites*. Roads and Maritime Services.

RTA 2002, *Guide to Traffic Generating Developments*. Road Transport Authority.

Transport & Urban Planning 2019; *Proposed Marulan South Limestone Mine Continued Operations Project*.

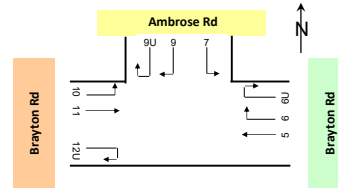
Umwelt 2015, *Lynwood Quarry Approved Modification 4 Preliminary Environmental Assessment*.

Annexure A

Traffic survey data (intersection and tube counts)

Job No. : N5936
 Client : EMM Consulting
 Suburb : Marulan
 Location : 1. Brayton Rd / Ambrose Rd

Day/Date : Thu, 10th Sept 2020
 Weather : Fine
 Description : Classified Intersection Count
 : Hourly Summary



Approach	Direction	Brayton Rd								
		Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
Time Period										
0:00 to 1:00		0	0	0	0	1	1	0	0	0
0:15 to 1:15		0	0	0	0	1	1	0	0	0
0:30 to 1:30		0	0	0	0	1	1	0	0	0
0:45 to 1:45		0	0	0	0	1	1	0	0	0
1:00 to 2:00		0	0	0	0	0	0	0	0	0
1:15 to 2:15		0	0	0	0	0	0	0	0	0
1:30 to 2:30		0	0	0	0	0	0	0	0	0
1:45 to 2:45		0	0	0	0	0	0	0	0	0
2:00 to 3:00		0	0	0	0	0	0	0	0	0
2:15 to 3:15		0	0	0	0	0	0	0	0	0
2:30 to 3:30		1	0	1	0	0	0	0	0	0
2:45 to 3:45		4	0	4	0	0	0	0	0	0
3:00 to 4:00		4	0	4	0	0	0	0	0	0
3:15 to 4:15		5	0	5	0	0	0	0	0	0
3:30 to 4:30		6	0	6	0	0	0	0	0	0
3:45 to 4:45		4	0	4	0	0	0	0	0	0
4:00 to 5:00		6	0	6	0	0	0	0	0	0
4:15 to 5:15		8	0	8	0	0	0	0	0	0
4:30 to 5:30		12	0	12	1	0	1	0	0	0
4:45 to 5:45		11	0	11	1	0	1	0	0	0
5:00 to 6:00		11	0	11	1	0	1	0	0	0
5:15 to 6:15		11	0	11	1	0	1	0	0	0
5:30 to 6:30		9	0	9	0	0	0	0	0	0
5:45 to 6:45		12	0	12	0	0	0	0	0	0
6:00 to 7:00		15	1	16	2	0	2	0	0	0
6:15 to 7:15		16	1	17	2	0	2	0	0	0
6:30 to 7:30		13	1	14	2	0	2	0	0	0
6:45 to 7:45		14	1	15	4	0	4	0	0	0
7:00 to 8:00		11	3	14	3	0	3	0	0	0
7:15 to 8:15		7	4	11	3	0	3	0	0	0
7:30 to 8:30		6	4	10	5	1	6	0	0	0
7:45 to 8:45		2	4	6	3	1	4	0	0	0
8:00 to 9:00		2	1	3	3	1	4	0	0	0
8:15 to 9:15		7	1	8	4	1	5	0	0	0
8:30 to 9:30		7	1	8	3	0	3	0	0	0
8:45 to 9:45		10	2	12	3	0	3	0	0	0
9:00 to 10:00		11	2	13	2	0	2	0	0	0
9:15 to 10:15		9	1	10	1	0	1	0	0	0
9:30 to 10:30		13	1	14	1	0	1	0	0	0
9:45 to 10:45		13	0	13	1	0	1	0	0	0
10:00 to 11:00		13	1	14	1	0	1	0	0	0
10:15 to 11:15		15	1	16	1	0	1	0	0	0
10:30 to 11:30		12	1	13	0	0	0	0	0	0
10:45 to 11:45		12	1	13	1	0	1	0	0	0
11:00 to 12:00		10	0	10	1	1	2	0	0	0
11:15 to 12:15		6	0	6	1	1	2	0	0	0
11:30 to 12:30		6	1	7	1	1	2	0	0	0
11:45 to 12:45		8	1	9	0	1	1	0	0	0
12:00 to 13:00		9	1	10	0	0	0	0	0	0
12:15 to 13:15		9	1	10	0	1	1	0	0	0
12:30 to 13:30		13	0	13	1	1	2	0	0	0
12:45 to 13:45		14	0	14	1	1	2	0	0	0
13:00 to 14:00		14	0	14	2	1	3	0	0	0
13:15 to 14:15		16	2	18	2	0	2	0	0	0
13:30 to 14:30		15	2	17	1	0	1	0	0	0
13:45 to 14:45		10	2	12	2	0	2	0	0	0
14:00 to 15:00		12	2	14	1	0	1	0	0	0
14:15 to 15:15		14	0	14	1	1	2	0	0	0
14:30 to 15:30		15	2	17	2	1	3	0	0	0
14:45 to 15:45		27	4	31	1	1	2	0	0	0
15:00 to 16:00		27	4	31	1	1	2	0	0	0
15:15 to 16:15		25	4	29	3	1	4	0	0	0

15:30	to	16:30
15:45	to	16:45
16:00	to	17:00
16:15	to	17:15
16:30	to	17:30
16:45	to	17:45
17:00	to	18:00
17:15	to	18:15
17:30	to	18:30
17:45	to	18:45
18:00	to	19:00
18:15	to	19:15
18:30	to	19:30
18:45	to	19:45
19:00	to	20:00
19:15	to	20:15
19:30	to	20:30
19:45	to	20:45
20:00	to	21:00
20:15	to	21:15
20:30	to	21:30
20:45	to	21:45
21:00	to	22:00
21:15	to	22:15
21:30	to	22:30
21:45	to	22:45
22:00	to	23:00
22:15	to	23:15
22:30	to	23:30
22:45	to	23:45
23:00	to	0:00
24hr Totals		

25	2	27	2	2	4	0	0	0
14	0	14	3	2	5	0	0	0
12	0	12	3	2	5	0	0	0
16	0	16	1	1	2	0	0	0
14	0	14	1	0	1	0	0	0
17	0	17	1	0	1	0	0	0
21	0	21	1	1	2	0	0	0
16	0	16	2	1	3	0	0	0
16	0	16	2	1	3	0	0	0
14	0	14	3	1	4	0	0	0
10	0	10	4	0	4	0	0	0
8	0	8	3	0	3	0	0	0
5	0	5	3	0	3	0	0	0
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3	0	3	2	0	2	0	0	0
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6	0	6	0	0	0	0	0	0
4	0	4	0	0	0	0	0	0
3	0	3	0	0	0	0	0	0
3	0	3	0	0	0	0	0	0
1	0	1	0	0	0	0	0	0
205	15	220	29	8	37	0	0	0

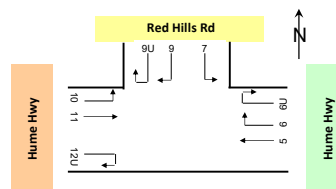
Approach	Ambrose Rd									Brayton Rd								
Direction	Direction 7 (Left Turn)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12U (U Turn)		
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
0:00 to 1:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
0:15 to 1:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:30 to 1:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:45 to 1:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 to 2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 to 2:15	0	0	0	0	0	0	0	0	0	1	0	1	2	0	2	0	0	0
1:30 to 2:30	0	0	0	0	0	0	0	0	0	1	0	1	2	0	2	0	0	0
1:45 to 2:45	0	0	0	0	0	0	0	0	0	1	0	1	2	0	2	0	0	0
2:00 to 3:00	0	0	0	0	0	0	0	0	0	1	0	1	2	0	2	0	0	0
2:15 to 3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 to 3:30	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
2:45 to 3:45	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0
3:00 to 4:00	0	0	0	1	6	7	0	0	0	0	0	0	0	0	0	0	0	0
3:15 to 4:15	0	0	0	1	5	6	0	0	0	0	2	2	3	0	3	0	0	0
3:30 to 4:30	0	0	0	1	7	8	0	0	0	0	7	7	3	0	3	0	0	0
3:45 to 4:45	0	0	0	1	10	11	0	0	0	0	9	9	3	0	3	0	0	0
4:00 to 5:00	0	0	0	1	8	9	0	0	0	2	12	14	3	0	3	0	0	0
4:15 to 5:15	0	0	0	1	10	11	0	0	0	2	13	15	0	0	0	0	0	0
4:30 to 5:30	0	0	0	2	11	13	0	0	0	3	9	12	0	0	0	0	0	0
4:45 to 5:45	0	0	0	2	14	16	0	0	0	3	7	10	2	1	3	0	0	0
5:00 to 6:00	1	0	1	1	15	16	0	0	0	3	6	9	4	1	5	0	0	0
5:15 to 6:15	2	0	2	1	15	16	0	0	0	4	10	14	6	4	10	0	0	0
5:30 to 6:30	3	0	3	0	13	13	0	0	0	4	12	16	7	4	11	0	0	0
5:45 to 6:45	4	0	4	0	8	8	0	0	0	4	13	17	6	3	9	0	0	0
6:00 to 7:00	4	0	4	0	10	10	0	0	0	5	13	18	8	3	11	0	0	0
6:15 to 7:15	4	0	4	0	9	9	0	0	0	5	9	14	8	0	8	0	0	0
6:30 to 7:30	3	0	3	0	8	8	0	0	0	6	10	16	10	0	10	0	0	0
6:45 to 7:45	3	0	3	0	10	10	0	0	0	7	9	16	11	0	11	0	0	0
7:00 to 8:00	2	0	2	0	8	8	0	0	0	5	8	13	7	0	7	0	0	0
7:15 to 8:15	1	0	1	0	9	9	0	0	0	7	8	15	8	1	9	0	0	0
7:30 to 8:30	2	0	2	1	10	11	0	0	0	6	8	14	13	1	14	0	0	0
7:45 to 8:45	2	0	2	1	7	8	0	0	0	5	11	16	14	2	16	0	0	0
8:00 to 9:00	4	0	4	2	7	9	0	0	0	6	10	16	20	2	22	0	0	0
8:15 to 9:15	7	0	7	2	8	10	0	0	0	3	8	11	18	2	20	0	0	0
8:30 to 9:30	6	0	6	1	6	7	0	0	0	2	5	7	10	2	12	0	0	0
8:45 to 9:45	5	0	5	1	5	6	0	0	0	3	5	8	9	2	11	0	0	0
9:00 to 10:00	4	0	4	0	5	5	0	0	0	1	5	6	6	2	8	0	0	0
9:15 to 10:15	2	0	2	0	4	4	0	0	0	1	4	5	7	2	9	0	0	0
9:30 to 10:30	2	0	2	0	5	5	0	0	0	3	6	9	9	3	12	0	0	0
9:45 to 10:45	2	0	2	0	8	8	0	0	0	2	4	6	8	3	11	0	0	0
10:00 to 11:00	1	0	1	0	6	6	0	0	0	3	6	9	7	3	10	0	0	0

2	4	6	0	0	0	4	8	12	10	2	12
2	4	6	0	0	0	2	5	7	9	1	10
2	4	6	0	0	0	5	4	9	9	0	9
2	8	10	0	0	0	4	4	8	14	1	15
1	9	10	0	0	0	3	4	7	12	1	13
1	10	11	0	0	0	3	6	9	15	1	16
1	8	9	0	0	0	0	7	7	15	2	17
1	4	5	0	0	0	0	7	7	9	3	12
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0	4	4	0	0	0	4	1	5	7	5	12
0	3	3	0	0	0	3	2	5	9	5	14
0	3	3	0	0	0	3	2	5	8	5	13
1	3	4	0	0	0	3	1	4	7	3	10
1	4	5	0	0	0	6	1	7	6	0	6
1	4	5	0	0	0	6	2	8	5	2	7
1	4	5	0	0	0	9	3	12	12	2	14
0	3	3	0	0	0	10	4	14	17	4	21
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0	3	3	0	0	0	4	4	8	17	2	24
0	3	3	0	0	0	3	3	6	15	0	15
0	2	2	0	0	0	3	5	8	13	0	13
0	2	2	0	0	0	5	4	9	14	0	14
0	0	0	0	0	0	5	3	8	11	0	11
0	0	0	0	0	0	4	3	7	13	0	13
0	0	0	0	0	0	3	1	4	16	0	16
2	0	2	0	0	0	2	0	2	11	0	11
3	0	3	0	0	0	1	0	1	10	0	10
3	0	3	0	0	0	1	0	1	5	0	5
3	0	3	0	0	0	1	0	1	1	0	1
1	1	2	0	0	0	0	0	0	0	0	0
0	1	1	0	0	0	1	0	1	0	0	0
0	1	1	0	0	0	1	1	2	1	0	1
0	1	1	0	0	0	2	1	3	2	0	2
1	1	2	0	0	0	2	1	3	2	0	2
1	2	3	0	0	0	1	1	2	2	0	2
1	4	5	0	0	0	1	1	2	2	0	2
1	4	5	0	0	0	0	2	2	2	0	2
0	4	4	0	0	0	0	4	4	2	0	2
0	3	3	0	0	0	0	4	4	3	0	3
0	1	1	0	0	0	0	4	4	3	0	3
0	1	1	0	0	0	0	3	3	4	0	4
0	0	0	0	0	0	0	1	1	4	0	4
0	0	0	0	0	0	0	1	1	3	0	3
0	0	0	0	0	0	0	0	0	2	0	2
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	1	1	0	1
13	96	109	0	0	0	58	92	150	161	24	18

[illegible]

Job No. : N5936
 Client : EMM Consulting
 Suburb : Marulan
 Location : 2. Hume Hwy / Red Hills Rd

Day/Date : Thu, 10th Sept 2020
 Weather : Fine
 Description : Classified Intersection Count
 : Hourly Summary



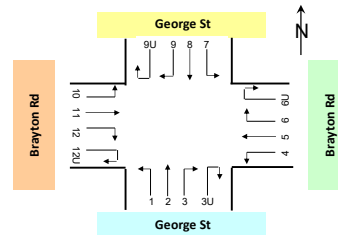
Approach	Direction	Time Period	Hume Hwy								
			Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
			Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
0:00 to 1:00			47	89	136	0	0	0	0	0	0
0:15 to 1:15			42	79	121	0	0	0	0	0	0
0:30 to 1:30			33	73	106	0	0	0	0	0	0
0:45 to 1:45			25	72	97	0	0	0	0	0	0
1:00 to 2:00			22	69	91	0	0	0	0	0	0
1:15 to 2:15			26	63	89	0	0	0	0	0	0
1:30 to 2:30			23	74	97	0	0	0	0	0	0
1:45 to 2:45			21	68	89	0	0	0	0	0	0
2:00 to 3:00			14	61	75	0	0	0	0	0	0
2:15 to 3:15			10	58	68	0	0	0	0	0	0
2:30 to 3:30			13	49	62	0	0	0	0	0	0
2:45 to 3:45			12	59	71	0	0	0	0	0	0
3:00 to 4:00			14	62	76	0	0	0	0	0	0
3:15 to 4:15			19	66	85	0	0	0	0	0	0
3:30 to 4:30			22	69	91	0	0	0	0	0	0
3:45 to 4:45			27	67	94	0	0	0	0	0	0
4:00 to 5:00			39	75	114	0	0	0	0	0	0
4:15 to 5:15			41	82	123	0	0	0	0	0	0
4:30 to 5:30			51	87	138	0	0	0	0	0	0
4:45 to 5:45			63	101	164	0	0	0	0	0	0
5:00 to 6:00			66	101	167	0	0	0	0	0	0
5:15 to 6:15			88	116	204	0	0	0	0	0	0
5:30 to 6:30			108	135	243	0	0	0	0	0	0
5:45 to 6:45			136	143	279	0	0	0	0	0	0
6:00 to 7:00			165	169	334	0	0	0	0	0	0
6:15 to 7:15			195	163	358	0	0	0	0	0	0
6:30 to 7:30			238	156	394	0	0	0	0	0	0
6:45 to 7:45			279	180	459	0	0	0	0	0	0
7:00 to 8:00			332	190	522	0	0	0	0	0	0
7:15 to 8:15			383	212	595	0	0	0	0	0	0
7:30 to 8:30			424	216	640	0	0	0	0	0	0
7:45 to 8:45			473	212	685	0	0	0	0	0	0
8:00 to 9:00			484	198	682	0	0	0	0	0	0
8:15 to 9:15			520	182	702	0	0	0	0	0	0
8:30 to 9:30			521	184	705	0	0	0	0	0	0
8:45 to 9:45			519	177	696	0	0	0	0	0	0
9:00 to 10:00			531	167	698	0	0	0	0	0	0
9:15 to 10:15			506	168	674	0	0	0	0	0	0
9:30 to 10:30			512	165	677	0	0	0	0	0	0
9:45 to 10:45			476	154	630	0	0	0	0	0	0
10:00 to 11:00			468	155	623	0	0	0	0	0	0
10:15 to 11:15			467	161	628	0	0	0	0	0	0
10:30 to 11:30			456	173	629	0	0	0	0	0	0
10:45 to 11:45			515	175	690	0	0	0	0	0	0
11:00 to 12:00			523	185	708	0	0	0	0	0	0
11:15 to 12:15			547	196	743	0	0	0	0	0	0
11:30 to 12:30			574	198	772	0	0	0	0	0	0
11:45 to 12:45			543	196	739	0	0	0	0	0	0
12:00 to 13:00			551	198	749	0	0	0	0	0	0
12:15 to 13:15			539	183	722	0	0	0	0	0	0
12:30 to 13:30			537	183	720	0	0	0	0	0	0
12:45 to 13:45			510	191	701	0	0	0	0	0	0
13:00 to 14:00			519	180	699	0	0	0	0	0	0
13:15 to 14:15			496	198	694	0	0	0	0	0	0
13:30 to 14:30			473	185	658	0	0	0	0	0	0
13:45 to 14:45			489	179	668	0	0	0	0	0	0
14:00 to 15:00			479	200	679	0	0	0	0	0	0
14:15 to 15:15			508	196	704	0	0	0	0	0	0
14:30 to 15:30			530	198	728	0	0	0	0	0	0
14:45 to 15:45			538	204	742	0	0	0	0	0	0
15:00 to 16:00			543	208	751	0	0	0	0	0	0
15:15 to 16:15			530	189	719	0	0	0	0	0	0

15:30 to 16:30		541	184	725	0	0	0	0	0	0
15:45 to 16:45		561	187	748	0	0	0	0	0	0
16:00 to 17:00		558	165	723	0	0	0	0	0	0
16:15 to 17:15		566	169	735	0	0	0	0	0	0
16:30 to 17:30		557	167	724	0	0	0	0	0	0
16:45 to 17:45		551	155	706	0	0	0	0	0	0
17:00 to 18:00		524	153	677	0	0	0	0	0	0
17:15 to 18:15		488	151	639	0	0	0	0	0	0
17:30 to 18:30		459	155	614	0	0	0	0	0	0
17:45 to 18:45		446	149	595	0	0	0	0	0	0
18:00 to 19:00		460	163	623	0	0	0	0	0	0
18:15 to 19:15		461	151	612	0	0	0	0	0	0
18:30 to 19:30		430	149	579	0	0	0	0	0	0
18:45 to 19:45		395	147	542	0	0	0	0	0	0
19:00 to 20:00		362	137	499	0	0	0	0	0	0
19:15 to 20:15		345	146	491	0	0	0	0	0	0
19:30 to 20:30		329	145	474	0	0	0	0	0	0
19:45 to 20:45		308	141	449	0	0	0	0	0	0
20:00 to 21:00		285	146	431	0	0	0	0	0	0
20:15 to 21:15		267	149	416	0	0	0	0	0	0
20:30 to 21:30		249	146	395	0	0	0	0	0	0
20:45 to 21:45		225	158	383	0	0	0	0	0	0
21:00 to 22:00		205	145	350	0	0	0	0	0	0
21:15 to 22:15		186	138	324	0	0	0	0	0	0
21:30 to 22:30		178	138	316	0	0	0	0	0	0
21:45 to 22:45		158	135	293	0	0	0	0	0	0
22:00 to 23:00		146	132	278	0	0	0	0	0	0
22:15 to 23:15		121	140	261	0	0	0	0	0	0
22:30 to 23:30		99	139	238	0	0	0	0	0	0
22:45 to 23:45		86	134	220	0	0	0	0	0	0
23:00 to 0:00		76	130	206	0	0	0	0	0	0
24hr Totals		7,413	3,478	10,891	0	0	0	0	0	0

Approach	Red Hills Rd									Hume Hwy								
Direction	Direction 7 (Left Turn)			Direction 9 (Right Turn)			Direction 9U (U Turn)			Direction 10 (Left Turn)			Direction 11 (Through)			Direction 12U (U Turn)		
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
0:00 to 1:00	0	1	1	0	0	0	0	0	0	0	0	0	26	91	117	0	0	0
0:15 to 1:15	0	1	1	0	0	0	0	0	0	0	0	0	23	102	125	0	0	0
0:30 to 1:30	0	1	1	0	0	0	0	0	0	0	0	0	19	99	118	0	0	0
0:45 to 1:45	0	1	1	0	0	0	0	0	0	0	0	0	15	100	115	0	0	0
1:00 to 2:00	0	0	0	0	0	0	0	0	0	0	0	0	16	104	120	0	0	0
1:15 to 2:15	0	0	0	0	0	0	0	0	0	0	0	0	13	95	108	0	0	0
1:30 to 2:30	0	0	0	0	0	0	0	0	0	0	0	0	12	104	116	0	0	0
1:45 to 2:45	0	0	0	0	0	0	0	0	0	0	0	0	9	93	102	0	0	0
2:00 to 3:00	0	0	0	0	0	0	0	0	0	0	0	0	6	103	109	0	0	0
2:15 to 3:15	0	0	0	0	0	0	0	0	0	1	1	4	110	114	109	0	0	0
2:30 to 3:30	0	0	0	0	0	0	0	0	0	2	2	6	115	121	102	0	0	0
2:45 to 3:45	0	0	0	0	0	0	0	0	0	3	3	6	103	109	109	0	0	0
3:00 to 4:00	0	0	0	0	0	0	0	0	1	6	7	9	105	114	105	0	0	0
3:15 to 4:15	0	1	1	0	0	0	0	0	1	5	6	9	102	111	111	0	0	0
3:30 to 4:30	0	6	6	0	0	0	0	0	1	7	8	9	100	109	109	0	0	0
3:45 to 4:45	0	8	8	0	0	0	0	0	1	11	12	14	126	140	140	0	0	0
4:00 to 5:00	2	11	13	0	0	0	0	0	1	8	9	17	128	145	145	0	0	0
4:15 to 5:15	2	13	15	0	0	0	0	0	1	10	11	28	144	172	172	0	0	0
4:30 to 5:30	4	10	14	0	0	0	0	0	2	13	15	34	154	188	188	0	0	0
4:45 to 5:45	4	8	12	0	0	0	0	0	2	13	15	46	147	193	193	0	0	0
5:00 to 6:00	4	5	9	0	0	0	0	0	1	16	17	58	141	199	199	0	0	0
5:15 to 6:15	5	10	15	0	0	0	0	0	1	16	17	63	139	202	202	0	0	0
5:30 to 6:30	4	12	16	0	0	0	0	0	0	11	11	75	129	204	204	0	0	0
5:45 to 6:45	4	13	17	0	0	0	0	0	0	11	11	90	141	231	231	0	0	0
6:00 to 7:00	5	15	20	0	0	0	0	0	0	10	10	116	155	271	271	0	0	0
6:15 to 7:15	6	9	15	0	0	0	0	0	0	8	8	141	142	283	283	0	0	0
6:30 to 7:30	6	10	16	0	0	0	0	0	0	9	9	185	161	346	346	0	0	0
6:45 to 7:45	9	9	18	0	0	0	0	0	0	9	9	213	155	368	368	0	0	0
7:00 to 8:00	7	8	15	0	0	0	0	0	0	9	9	223	146	369	369	0	0	0
7:15 to 8:15	7	8	15	0	0	0	0	0	2	10	12	231	162	393	393	0	0	0
7:30 to 8:30	7	7	14	0	0	0	0	0	3	10	13	221	152	373	373	0	0	0
7:45 to 8:45	7	10	17	0	0	0	0	0	3	6	9	220	166	386	386	0	0	0
8:00 to 9:00	8	10	18	0	0	0	0	0	4	6	10	232	171	403	403	0	0	0
8:15 to 9:15	7	9	16	0	0	0	0	0	2	7	9	248	173	421	421	0	0	0
8:30 to 9:30	7	5	12	0	0	0	0	0	1	5	6	253	167	420	420	0	0	0
8:45 to 9:45	5	6	11	0	0	0	0	0	1	4	5	261	159	420	420	0	0	0
9:00 to 10:00	3	5	8	0	0	0	0	0	2	5	7	286	160	446	446	0	0	0
9:15 to 10:15	2	4	6	0	0	0	0	0	2	4	6	305	157	462	462	0	0	0
9:30 to 10:30	2	5	7	0	0	0	0	0	4	6	10	331	160	491	491	0	0	0
9:45 to 10:45	3	4	7	0	0	0	0	0	4	8	12	373	162	535	535	0	0	0
10:00 to 11:00	5	5	10	0	0	0	0	0	3	5	8	366	170	536	536	0	0	0

Job No. : N5936
 Client : EMM Consulting
 Suburb : Marulan
 Location : 3. Brayton Rd / George St

Day/Date : Thu, 10th Sept 2020
 Weather : Fine
 Description : Classified Intersection Count
 : Hourly Summary



Approach	George St												Brayton 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
0:00 to 1:00	3	1	4	0	1	1	3	0	3	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0
0:15 to 1:15	3	1	4	0	1	1	1	1	2	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0
0:30 to 1:30	4	1	5	0	0	0	1	1	2	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0
0:45 to 1:45	3	1	4	0	0	0	1	1	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
1:00 to 2:00	2	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 to 2:15	2	0	2	0	0	0	1	3	4	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
1:30 to 2:30	1	0	1	0	0	0	1	3	4	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
1:45 to 2:45	0	0	0	0	0	0	0	1	3	4	0	0	0	0	1	1	0	1	0	0	0	0	0	0
2:00 to 3:00	0	0	0	0	0	0	3	3	6	0	0	0	0	2	2	1	0	1	0	0	0	0	0	0
2:15 to 3:15	0	0	0	0	0	0	4	2	6	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0
2:30 to 3:30	1	0	1	0	0	0	5	2	7	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0
2:45 to 3:45	4	0	4	0	0	0	7	2	9	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0
3:00 to 4:00	4	0	4	0	0	0	6	1	7	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
3:15 to 4:15	6	0	6	0	0	0	4	0	4	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
3:30 to 4:30	7	0	7	0	0	0	4	0	4	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
3:45 to 4:45	4	0	4	0	0	0	3	0	3	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0
4:00 to 5:00	5	0	5	0	0	0	2	0	2	0	0	0	0	1	1	2	0	2	0	0	0	0	0	0
4:15 to 5:15	6	0	6	0	0	0	5	0	5	0	0	0	0	1	1	2	0	2	0	0	0	0	0	0
4:30 to 5:30	8	0	8	0	0	0	9	1	10	0	1	1	2	2	4	4	0	4	0	0	0	0	0	0
4:45 to 5:45	9	0	9	0	0	0	16	2	18	0	1	1	3	2	5	4	0	4	0	0	0	0	0	0
5:00 to 6:00	9	0	9	0	0	0	26	4	30	0	1	1	5	3	8	3	0	3	0	1	1	0	0	0
5:15 to 6:15	14	1	15	0	0	0	30	6	36	0	1	1	7	4	11	3	0	3	0	1	1	0	0	0
5:30 to 6:30	14	1	15	1	0	1	37	6	43	0	0	0	10	3	13	1	0	1	0	1	1	0	0	0
5:45 to 6:45	19	2	21	1	0	1	36	6	42	0	0	0	9	3	12	1	0	1	0	1	1	0	0	0
6:00 to 7:00	22	2	24	1	0	1	34	6	40	0	0	0	8	4	12	4	0	4	0	0	0	0	0	0
6:15 to 7:15	21	1	22	1	0	1	35	4	39	0	0	0	9	4	13	5	1	6	0	0	0	0	0	0
6:30 to 7:30	18	2	20	0	0	0	31	4	35	0	0	0	10	4	14	8	1	9	0	0	0	0	0	0
6:45 to 7:45	16	2	18	0	0	0	34	4	38	0	0	0	18	7	25	8	1	9	0	2	2	0	0	0
7:00 to 8:00	16	4	20	0	0	0	40	2	42	0	0	0	21	6	27	6	2	8	0	2	2	0	0	0
7:15 to 8:15	11	5	16	0	1	1	48	6	54	0	0	0	24	5	29	6	1	7	0	2	2	0	0	0
7:30 to 8:30	12	4	16	0	1	1	49	7	56	0	0	0	27	5	32	3	1	4	0	2	2	0	0	0
7:45 to 8:45	18	5	23	2	1	3	53	6	59	0	0	0	32	4	36	3	1	4	0	0	0	0	0	0
8:00 to 9:00	22	4	26	3	1	4	65	12	77	0	0	0	36	5	41	4	0	4	1	0	1	0	0	0
8:15 to 9:15	30	4	34	4	1	5	64	13	77	0	0	0	39	5	44	4	0	4	1	0	1	0	0	0
8:30 to 9:30	30	5	35	5	1	6	68	14	82	0	0	0	45	6	51	5	0	5	1	0	1	0	0	0
8:45 to 9:45	25	4	29	3	1	4	71	15	86	0	0	0	39	4	43	8	0	8	2	0	2	0	0	0
9:00 to 10:00	27	4	31	2	1	3	61	10	71	0	0	0	38	2	40	9	1	10	1	0	1	0	0	0
9:15 to 10:15	23	3	26	2	0	2	59	6	65	0	0	0	41	3	44	13	1	14	1	1	2	0	0	0
9:30 to 10:30	27	3	30	2	0	2	56	3	59	0	0	0	33	3	36	13	1	14	1	1	2	0	0	0
9:45 to 10:45	34	2	36	4	0	4	53	6	59	0	0	0	32	3	35	11	1	12	2	1	3	1	0	1
10:00 to 11:00	31	1	32	4	0	4	50	7	57	0	0	0	34	5	39	8	1	9	2	1	3	1	0	1
10:15 to 11:15	32	2	34	3	0	3	52	7	59	0	0	0	27	6	33	7	1	8	2	0	2	1	0	1
10:30 to 11:30	35	1	36	2	1	3	53	13	66	0	0	0	30	7	37	7	1	8	2	0	2	1	0	1
10:45 to 11:45	28	1	29	1	1	2	50	10	60	1	0	1	31	6	37	6	1	7	0	1	1	0	0	0
11:00 to 12:00	27	1	28	3	1	4	57	12	69	1	0	1	26	5	31	8	0	8	0	2	2	1	0	1
11:15 to 12:15	28	0	28	5	2	7	64	12	76	1	0	1	31	5	36	5	0	5	1	2	3	1	0	1
11:30 to 12:30	29	1	30	5	1	6	67	6	73	1	0	1	34	4	38	5	0	5	2	3	5	1	0	1
11:45 to 12:45	35	1	36	4	1	5	78	8	86	0	0	0	38	4	42	6	0	6	3	3	6	1	0	1
12:00 to 13:00	38	2	40	4	1	5	80	6	86	0	0	0	39	3	42	7	0	7	3	3	6	0	0	0
12:15 to 13:15	39	3	42	2	0	2	74	7	81	0	0	0	42	2	44	6	0	6	2	3	5	0	0	0
12:30 to 13:30	38	2	40	2	0	2	73	8	81	0	0	0	36	2	38	9	0	9	1	2	3	0	0	0
12:45 to 13:45	40	3	43	4	1	5	61	7	68	0	0	0	33	2	35	9	0	9	1	1	2	0	0	0
13:00 to 14:00	35	2	37	2	2	4	58	6	64	0	0	0	43	2	45	8	0	8	2	0	2	0	0	0
13:15 to 14:15	35	4	39	4	2	6	61	5	66	0	0	0	32	1	33	10	0	10	2	1	3	0	0	0
13:30 to 14:30	34	4	38	5	2	7	66	5	71	0	0	0	33	0	33	7	0	7	2	2	4	0	0	0
13:45 to 14:45	28	4	32	4	1	5	75	3	78	0	0	0	37	0	37	10	1	11	1	3	4	0	0	0
14:00 to 15:00	35	4	39	7	1	8	74	2	76	0	0	0	32	2	34	11	2	13	0	3	3	0	0	0
14:15 to 15:15	54	2	56	5	1	6	75	4	79	0	0	0	40	3	43	12	3	15	1	3	4	0	0	0
14:30 to 15:30	64	3	67	6	1	7	77	3	80	0	0	0	42	3	45	14	3	17	1	3	4	0	0	0
14:45 to 15:45	85	2	87	10	1	11	79	4	83	0	0	0	42	4	46	24	4	28	1	2	3	0	0	0
15:00 to 16:00	88	4	92	8	0	8	84	6	90	0	0	0	40	2	42	29	3	32	2	4	6	0	0	0
15:15 to 16:15	77	4	81	9	0	9	75	3	78	0	0	0	37	1	38	31	2	33	1	3	4	0	0	0

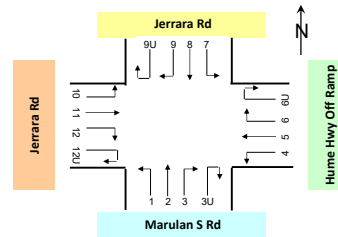
15:30 to 16:30	71	4	75	8	2	10	81	4	85	0	0	0	39	2	41	32	2	34	2	2	4	0	0	0
15:45 to 16:45	50	4	54	5	2	7	84	4	88	0	0	0	38	3	41	23	1	24	2	2	4	1	0	1
16:00 to 17:00	49	2	51	5	2	7	77	3	80	0	0	0	35	4	39	22	1	23	2	0	2	1	0	1
16:15 to 17:15	52	2	54	6	3	9	81	4	85	0	0	0	34	5	39	23	1	24	2	0	2	1	0	1
16:30 to 17:30	54	1	55	5	1	6	71	4	75	0	0	0	26	4	30	27	1	28	1	0	1	1	0	1
16:45 to 17:45	58	2	60	4	1	5	55	4	59	0	0	0	24	2	26	27	0	27	2	0	2	0	0	0
17:00 to 18:00	53	4	57	5	1	6	44	5	49	0	0	0	24	2	26	26	1	27	1	0	1	0	0	0
17:15 to 18:15	48	3	51	5	0	5	40	7	47	0	0	0	25	2	27	24	2	26	1	2	3	0	0	0
17:30 to 18:30	45	3	48	7	1	8	44	7	51	0	0	0	28	2	30	20	2	22	1	2	3	0	0	0
17:45 to 18:45	51	2	53	7	1	8	48	6	54	0	0	0	21	3	24	19	2	21	0	2	2	0	0	0
18:00 to 19:00	51	0	51	6	2	8	49	5	54	0	0	0	20	2	22	18	2	20	0	3	3	0	0	0
18:15 to 19:15	47	0	47	4	2	6	44	3	47	0	0	0	14	2	16	15	1	16	2	2	4	0	0	0
18:30 to 19:30	38	0	38	2	1	3	29	3	32	0	0	0	11	3	14	13	1	14	2	2	4	0	0	0
18:45 to 19:45	24	0	24	2	1	3	23	4	27	0	0	0	11	2	13	12	1	13	2	2	4	0	0	0
19:00 to 20:00	19	0	19	1	0	1	21	3	24	0	0	0	8	2	10	8	0	8	2	1	3	0	0	0
19:15 to 20:15	16	0	16	1	0	1	22	3	25	0	0	0	10	1	11	10	0	10	0	0	0	0	0	0
19:30 to 20:30	22	0	22	1	0	1	24	3	27	0	0	0	8	0	8	8	0	8	0	0	0	0	0	0
19:45 to 20:45	24	0	24	1	0	1	24	2	26	0	0	0	7	0	7	5	0	5	0	0	0	0	0	0
20:00 to 21:00	24	0	24	1	0	1	23	2	25	0	0	0	8	0	8	7	0	7	0	0	0	0	0	0
20:15 to 21:15	18	0	18	1	1	2	18	1	19	0	0	0	5	0	5	7	0	7	0	0	0	0	0	0
20:30 to 21:30	12	0	12	1	1	2	19	0	19	0	0	0	4	1	5	11	0	11	0	0	0	0	0	0
20:45 to 21:45	9	0	9	0	1	1	13	0	13	0	0	0	3	1	4	13	0	13	0	0	0	0	0	0
21:00 to 22:00	6	0	6	0	1	1	11	0	11	0	0	0	4	1	5	12	0	12	0	0	0	0	0	0
21:15 to 22:15	5	0	5	0	0	0	9	0	9	0	0	0	6	1	7	10	0	10	0	0	0	0	0	0
21:30 to 22:30	9	0	9	0	0	0	3	1	4	0	0	0	6	1	7	6	0	6	0	0	0	0	0	0
21:45 to 22:45	9	0	9	0	1	1	5	1	6	0	0	0	6	2	8	4	0	4	0	0	0	0	0	0
22:00 to 23:00	11	0	11	0	1	1	7	2	9	0	0	0	5	2	7	3	0	3	0	0	0	0	0	0
22:15 to 23:15	10	0	10	0	1	1	8	2	10	0	0	0	3	2	5	2	0	2	0	0	0	0	0	0
22:30 to 23:30	6	0	6	0	1	1	7	2	9	0	0	0	2	1	3	2	0	2	0	0	0	0	0	0
22:45 to 23:45	4	0	4	1	0	1	5	2	7	0	0	0	2	0	2	1	0	1	0	0	0	0	0	0
23:00 to 0:00	2	0	2	1	0	1	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24hr Totals	579	35	614	53	15	68	877	100	977	1	1	2	427	56	483	197	13	210	16	20	36	3	0	3

Approach	George St												Brayton Rd											
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
0:00 to 1:00	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
0:15 to 1:15	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:30 to 1:30	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
0:45 to 1:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0
1:00 to 2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0
1:15 to 2:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	1	0	1	0	0	0
1:30 to 2:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	1	0	1	0	0	0
1:45 to 2:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0
2:00 to 3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0
2:15 to 3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
2:30 to 3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
2:45 to 3:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
3:00 to 4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0
3:15 to 4:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	1	1	2	0	0	0
3:30 to 4:30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	10	0	10	2	1	3	0	0	0
3:45 to 4:45	0	0	0	1	1	2	0	0	0	0	0	0	0	1	1	16	0	16	2	1	3	0	0	0
4:00 to 5:00	0	0	0	1	1	2	0	0	0	0	0	0	0	1	1	20	0	20	3	1	4	0	0	0
4:15 to 5:15	0	0	0	1	1	2	0	0	0	0	0	0	0	1	1	17	0	17	2	0	2	0	0	0
4:30 to 5:30	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	18	0	18	1	0	1	0	0	0
4:45 to 5:45	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	24	1	25	4	0	4	0	0	0
5:00 to 6:00	2	0	2	0	0	0	0	0	0	0	0	0	2	0	2	31	2	33	5	0	5	0	0	0
5:15 to 6:15	2	1	3	0	0	0	0	0	0	0	0	0	2	0	2	36	6	42	7	0	7	0	0	0
5:30 to 6:30	2	1	3	0	0	0	0	0	0	0	0	0	2	0	2	37	7	44	8	0	8	0	0	0
5:45 to 6:45	1	1	2	0	0	0	0	0	0	0	0	0	1	0	1	37	7	44	9	0	9	0	0	0
6:00 to 7:00	0	1	1	0	1	1	0	0	0	0	0	0	3	0	3	31	6	37	14	0	14	0	0	0
6:15 to 7:15	2	0	2	0	1	1	0	0	0	0	0	0	3	0	3	38	3	41	17	2	19	0	0	0
6:30 to 7:30	2	0	2	0	1	1	0	0	0	0	0	0	3	0	3	42	2	44	19	2	21	0	0	0
6:45 to 7:45	2	0	2	1	1	2	0	0	0	0	0	0	4	0	4	39	1	40	19	2	21	0	0	0
7:00 to 8:00	2	0	2	1	0	1	0	0	0	0	0	0	1	0	1	41	1	42	17	2	19	0	0	0
7:15 to 8:15	2	1	3	1	0	1	0	1	1	0	0	0	2	0	2	42	1	43	15	2	17	0	0	0
7:30 to 8:30	2	1	3	1	1	2	0	1	1	0	0	0	2	0	2	41	1	42	22	2	24	0	0	0
7:45 to 8:45	3	1	4	0	1	1	0	1	1	0	0	0	1	0	1	47	2	49	36	3	39	0	0	0
8:00 to 9:00	3	1	4	1	1	2	0	1	1	0	0	0	2	0	2	50	3	53	50	4	54	0	0	0
8:15 to 9:15	2	1	3	2	1	3	1	0	1	0	0	0	1	0	1	39	3	42	60	2	62	1	0	1
8:30 to 9:30	2	2	4	4	0	4	1	0	1	0	0	0	2	0	2	32	3	35	52	2	54	1	0	1
8:45 to 9:45	3	2	5	5	0	5	2	0	2	0	0	0	4	0	4	25	3	28	36	1	37	1	0	1
9:00 to 10:00	4	2	6	5	1	6	2	0	2	0	0	0	3	0	3	18	3	21	23	0	23	1	0	1
9:15 to 10:15	3	2	5	5	1	6	1	0	1	0	0	0	4	0	4	20	3	23	11	0	11	0	0	0
9:30 to 10:30	4	1	5	4	2	6	1	0	1	0	0	0	3	0	3	21	4	25	11	1	12	0	0	0
9:45 to 10:45	5	2	7	5	2	7	2	0	2	0	0	0	2	0	2	20	4	24	15	1	16	0	0	0
10:00 to 11:00	4	2	6	4	1	5	2	0	2	0	0	0	2	0	2	22	3	25	13	1	14	0	0	0

10:15 to 11:15	5	1	6	3	1	4	2	0	2	0	0	0	1	0	1	20	2	22	17	1	18	0	0	0
10:30 to 11:30	5	2	7	2	0	2	2	0	2	0	0	0	2	0	2	24	1	25	18	0	18	0	0	0
10:45 to 11:45	3	1	4	1	0	1	0	0	0	0	0	0	1	0	1	22	1	23	14	0	14	0	0	0
11:00 to 12:00	4	2	6	2	0	2	0	0	0	0	0	0	1	0	1	20	1	21	14	0	14	0	0	0
11:15 to 12:15	4	2	6	2	0	2	0	0	0	0	0	0	1	0	1	23	2	25	13	1	14	0	0	0
11:30 to 12:30	4	4	8	5	0	5	0	0	0	0	0	0	0	0	0	19	3	22	18	1	19	0	0	0
11:45 to 12:45	3	5	8	5	0	5	0	0	0	0	0	0	0	0	0	17	2	19	20	2	22	0	0	0
12:00 to 13:00	3	5	8	4	1	5	1	0	1	0	0	0	0	0	0	20	4	24	22	2	24	0	0	0
12:15 to 13:15	3	5	8	4	1	5	1	0	1	0	0	0	1	0	1	15	3	18	23	2	25	0	0	0
12:30 to 13:30	4	2	6	2	1	3	1	0	1	0	0	0	2	0	2	15	2	17	22	2	24	0	0	0
12:45 to 13:45	5	1	6	2	1	3	2	0	2	0	0	0	2	0	2	15	3	18	23	1	24	0	0	0
13:00 to 14:00	5	1	6	3	1	4	1	0	1	0	0	0	3	0	3	12	2	14	21	1	22	0	0	0
13:15 to 14:15	7	1	8	3	1	4	1	0	1	0	0	0	2	0	2	18	2	20	19	0	19	0	0	0
13:30 to 14:30	7	2	9	2	1	3	1	0	1	0	0	0	1	0	1	17	4	21	14	0	14	0	0	0
13:45 to 14:45	8	3	11	2	1	3	0	0	0	0	0	0	1	0	1	20	6	26	15	0	15	0	0	0
14:00 to 15:00	8	3	11	2	0	2	0	0	0	0	0	0	0	0	0	20	6	26	21	0	21	0	0	0
14:15 to 15:15	6	4	10	3	0	3	0	0	0	0	0	0	0	0	0	14	7	21	26	0	26	0	0	0
14:30 to 15:30	5	3	8	5	0	5	0	0	0	0	0	0	0	0	0	19	5	24	29	0	29	0	0	0
14:45 to 15:45	5	3	8	5	0	5	0	0	0	0	0	0	0	0	0	19	2	21	28	0	28	0	0	0
15:00 to 16:00	6	2	8	5	0	5	0	0	0	0	0	0	0	0	0	17	2	19	23	1	24	0	0	0
15:15 to 16:15	6	2	8	6	0	6	0	0	0	0	0	0	2	0	2	28	1	29	20	1	21	0	0	0
15:30 to 16:30	5	2	7	4	0	4	1	0	1	0	0	0	2	0	2	27	1	28	25	3	28	0	0	0
15:45 to 16:45	4	1	5	4	2	6	1	0	1	0	0	0	2	0	2	24	1	25	27	4	31	0	0	0
16:00 to 17:00	2	1	3	4	2	6	1	0	1	0	0	0	2	0	2	28	0	28	30	3	33	0	0	0
16:15 to 17:15	2	0	2	2	3	5	3	0	3	0	0	0	2	0	2	22	0	22	28	3	31	0	0	0
16:30 to 17:30	2	0	2	2	3	5	2	0	2	0	0	0	2	0	2	25	1	26	21	1	22	0	0	0
16:45 to 17:45	1	0	1	2	2	4	4	0	4	0	0	0	3	0	3	25	1	26	15	0	15	0	0	0
17:00 to 18:00	1	0	1	2	2	4	5	0	5	0	0	0	4	0	4	27	1	28	21	0	21	0	0	0
17:15 to 18:15	1	0	1	2	1	3	3	0	3	0	0	0	2	0	2	23	1	24	22	2	24	0	0	0
17:30 to 18:30	3	0	3	3	1	4	3	0	3	1	0	1	3	0	3	19	0	19	28	2	30	0	0	0
17:45 to 18:45	5	1	6	2	1	3	1	0	1	1	0	1	2	0	2	18	0	18	34	2	36	0	0	0
18:00 to 19:00	6	1	7	4	1	5	0	0	0	1	0	1	1	0	1	12	0	12	22	2	24	0	0	0
18:15 to 19:15	5	3	8	6	1	7	0	0	0	1	0	1	1	0	1	9	0	9	18	0	18	0	0	0
18:30 to 19:30	4	4	8	5	1	6	0	0	0	0	0	0	0	0	0	7	0	7	9	0	9	0	0	0
18:45 to 19:45	2	3	5	6	0	6	0	0	0	0	0	0	0	0	0	5	0	5	3	0	3	0	0	0
19:00 to 20:00	1	3	4	3	0	3	0	0	0	0	0	0	0	0	0	3	0	3	4	0	4	0	0	0
19:15 to 20:15	1	1	2	1	0	1	0	0	0	0	0	0	0	0	0	3	0	3	4	0	4	0	0	0
19:30 to 20:30	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	2	7	0	7	0	0	0
19:45 to 20:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	9	0	9	0	0	0
20:00 to 21:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	8	0	8	0	0	0
20:15 to 21:15	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	9	0	9	0	0	0
20:30 to 21:30	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	8	0	8	7	0	7	0	0	0
20:45 to 21:45	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	5	0	5	5	0	5	0	0	0
21:00 to 22:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	5	0	5	3	0	3	0	0	0
21:15 to 22:15	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	6	0	6	2	0	2	0	0	0
21:30 to 22:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	1	0	1	0	0	0
21:45 to 22:45	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1	5	0	5	1	0	1	0	0	0
22:00 to 23:00	1	0	1	1	0	1	0	0	0	0	0	0	1	0	1	5	0	5	1	0	1	0	0	0
22:15 to 23:15	1	0	1	1	0	1	0	0	0	0	0	0	1	0	1	4	0	4	1	0	1	0	0	0
22:30 to 23:30	1	0	1	1	0	1	0	0	0	0	0	0	1	0	1	3	0	3	1	0	1	0	0	0
22:45 to 23:45	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0
23:00 to 0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0
24hr Totals	54	24	78	42	14	56	12	1	13	1	0	1	25	1	26	395	34	429	318	17	335	1	0	1

Job No. : N5936
 Client : EMM Consulting
 Suburb : Marulan
 Location : 4A. Hume Hwy Westbound / Jerrara Rd

Day/Date : Wed, 16th Sept 2020
 Weather : Fine
 Description : Classified Intersection Count
 : Hourly Summary



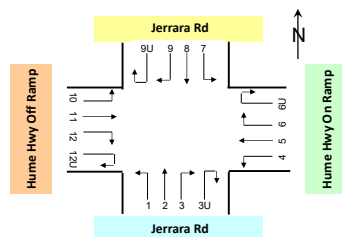
Approach	Marulan S Rd												Hume Hwy Off Ramp											
Direction	Direction 1 (Left Turn)			Direction 2 (Through)			Direction 3 (Right Turn)			Direction 3U (U Turn)			Direction 4 (Left Turn)			Direction 5 (Through)			Direction 6 (Right Turn)			Direction 6U (U Turn)		
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
0:00 to 1:00	1	0	1	1	0	1	0	0	0	0	0	0	2	2	4	5	0	5	0	1	1	0	0	0
0:15 to 1:15	1	0	1	1	0	1	0	0	0	0	0	0	2	2	4	2	0	2	0	1	1	0	0	0
0:30 to 1:30	1	0	1	1	1	2	0	0	0	0	0	0	0	2	2	2	0	2	0	1	1	0	0	0
0:45 to 1:45	1	0	1	1	2	3	0	0	0	0	0	0	0	2	2	1	0	1	0	0	0	0	0	0
1:00 to 2:00	0	0	0	0	2	2	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
1:15 to 2:15	1	0	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 to 2:30	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 to 2:45	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 to 3:00	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0
2:15 to 3:15	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0
2:30 to 3:30	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	4	4	0	0	0
2:45 to 3:45	0	0	0	2	0	2	0	0	0	0	0	0	0	1	1	0	1	1	0	7	7	0	0	0
3:00 to 4:00	0	0	0	3	0	3	0	0	0	0	0	0	1	1	2	0	1	1	0	6	6	0	0	0
3:15 to 4:15	0	0	0	3	0	3	0	0	0	0	0	0	1	2	3	0	1	1	1	7	8	0	0	0
3:30 to 4:30	0	0	0	3	0	3	0	0	0	0	0	0	1	2	3	0	0	0	3	11	14	0	0	0
3:45 to 4:45	1	0	1	1	1	2	0	0	0	0	0	0	4	3	7	1	0	1	4	15	19	0	0	0
4:00 to 5:00	2	0	2	0	2	2	0	0	0	0	0	0	4	4	8	2	1	3	5	20	25	0	0	0
4:15 to 5:15	2	1	3	1	2	3	0	0	0	0	0	0	5	5	10	2	2	4	5	22	27	0	0	0
4:30 to 5:30	2	1	3	1	3	4	0	0	0	0	0	0	7	6	13	2	2	4	5	32	37	0	0	0
4:45 to 5:45	1	1	2	3	3	6	0	0	0	0	0	0	9	5	14	2	3	5	9	28	37	0	0	0
5:00 to 6:00	0	2	2	3	4	7	0	0	0	0	0	0	18	5	23	3	3	6	9	25	34	0	0	0
5:15 to 6:15	0	1	1	2	5	7	0	0	0	0	0	0	21	3	24	7	3	10	10	24	34	0	0	0
5:30 to 6:30	0	2	2	2	4	6	0	0	0	0	0	0	21	2	23	8	3	11	9	11	20	0	0	0
5:45 to 6:45	4	3	7	0	5	5	0	0	0	0	0	0	22	2	24	11	5	16	6	14	20	0	0	0
6:00 to 7:00	5	2	7	1	3	4	0	0	0	0	0	0	20	1	21	10	12	22	6	15	21	0	0	0
6:15 to 7:15	7	2	9	3	2	5	0	0	0	0	0	0	31	1	32	6	13	19	4	17	21	0	0	0
6:30 to 7:30	12	1	13	6	2	8	0	0	0	0	0	0	51	3	54	8	16	24	3	24	27	0	0	0
6:45 to 7:45	11	1	12	7	0	7	0	0	0	0	0	0	57	2	59	8	14	22	3	25	28	0	0	0
7:00 to 8:00	10	2	12	8	1	9	0	0	0	0	0	0	50	5	55	7	6	13	2	25	27	0	0	0
7:15 to 8:15	10	2	12	7	2	9	0	0	0	0	0	0	35	6	41	10	6	16	2	24	26	0	0	0
7:30 to 8:30	7	2	9	5	2	7	0	0	0	0	0	0	13	6	19	9	3	12	3	22	25	0	0	0
7:45 to 8:45	4	3	7	4	3	7	0	0	0	0	0	0	3	6	9	6	3	9	1	16	17	0	0	0
8:00 to 9:00	4	2	6	2	4	6	0	0	0	0	0	0	3	5	8	9	3	12	3	18	21	0	0	0
8:15 to 9:15	2	3	5	2	5	7	0	0	0	0	0	0	7	5	12	10	2	12	3	18	21	0	0	0
8:30 to 9:30	1	5	6	3	5	8	0	0	0	0	0	0	8	4	12	10	2	12	2	18	20	0	0	0
8:45 to 9:45	2	5	7	6	5	11	0	0	0	0	0	0	8	5	13	13	2	15	2	22	24	0	0	0
9:00 to 10:00	2	6	8	7	3	10	0	0	0	0	0	0	12	4	16	12	4	16	1	21	22	0	0	0
9:15 to 10:15	3	5	8	10	3	13	0	0	0	0	0	0	13	4	17	15	3	18	4	18	22	0	0	0
9:30 to 10:30	2	3	5	12	4	16	0	0	0	0	0	0	16	4	20	20	4	24	5	15	20	0	0	0
9:45 to 10:45	3	1	4	11	4	15	0	0	0	0	0	0	16	3	19	24	4	28	6	17	23	0	0	0
10:00 to 11:00	4	1	5	13	4	17	0	0	0	0	0	0	13	3	16	25	3	28	6	14	20	0	0	0
10:15 to 11:15	4	1	5	10	3	13	0	0	0	0	0	0	8	2	10	24	3	27	4	17	21	0	0	0
10:30 to 11:30	4	2	6	9	2	11	0	0	0	0	0	0	6	2	8	23	3	26	3	20	23	0	0	0
10:45 to 11:45	3	2	5	8	4	12	0	0	0	0	0	0	5	5	10	23	2	25	3	16	19	0	0	0
11:00 to 12:00	2	2	4	8	4	12	0	0	0	0	0	0	5	5	10	25	4	29	3	23	26	0	0	0
11:15 to 12:15	4	2	6	11	4	15	0	0	0	0	0	0	8	5	13	23	7	30	3	21	24	0	0	0
11:30 to 12:30	5	2	7	11	6	17	0	0	0	0	0	0	8	5	13	26	7	33	3	18	21	0	0	0
11:45 to 12:45	8	4	12	12	5	17	0	0	0	0	0	0	7	2	9	22	7	29	3	18	21	0	0	0
12:00 to 13:00	10	5	15	10	5	15	0	0	0	0	0	0	9	5	14	19	6	25	4	15	19	0	0	0
12:15 to 13:15	8	5	13	8	4	12	0	0	0	0	0	0	8	7	15	20	3	23	3	16	19	0	0	0
12:30 to 13:30	8	4	12	9	4	13	0	0	0	0	0	0	6	8	14	15	4	19	7	13	20	0	0	0
12:45 to 13:45	4	4	8	10	2	12	0	0	0	0	0	0	7	8	15	16	7	23	8	12	20	0	0	0
13:00 to 14:00	5	2	7	13	4	17	0	0	0	0	0	0	5	5	10	18	7	25	6	8	14	0	0	0
13:15 to 14:15	6	4	10	15	4	19	0	0	0	0	0	0	4	4	8	16	7	23	6	9	15	0	0	0
13:30 to 14:30	9	5	14	22	4	26	0	0	0	0	0	0	6	2	8	19	5	24	6	13	19	0	0	0
13:45 to 14:45	10	4	14	19	5	24	0	0	0	0	0	0	7	4	11	19	4	23	6	14	20	0	0	0
14:00 to 15:00	9	5	14	17	4	21	0	0	0	0	0	0	6	4	10	21	4	25	6	13	19	0	0	0
14:15 to 15:15	9	3	12	16	5	21	0	0	0	0	0	0	5	4	9	22	5	27	6	14	20	0	0	0
14:30 to 15:30	7	5	12	10	3	13	0	0	0	0	0	0	5	5	10	22	8	30	3	10	13	0	0	0
14:45 to 15:45	21	5	26	22	3	25	0	0	0	0	0	0	3	3	6	25	8	33	1	10	11	0	0	0
15:00 to 16:00	22	6	28	26	2	28	0	0	0	0	0	0	3	2	5	25	8	33	1	15	16	0	0	0
15:15 to 16:15	25	7	32	26	2	28	0	0	0	0	0	0	4	1	5	27	8	35	2	14	16	0	0	0

15:30 to 16:30	25	4	29	23	3	26	0	0	0	0	0	0	2	0	2	26	6	32	1	13	14	0	0	0
15:45 to 16:45	12	3	15	12	3	15	0	0	0	0	0	0	2	0	2	27	6	33	3	12	15	0	0	0
16:00 to 17:00	13	1	14	14	4	18	0	0	0	0	0	0	2	0	2	25	5	30	4	8	12	0	0	0
16:15 to 17:15	9	0	9	15	3	18	0	0	0	0	0	0	3	0	3	25	5	30	5	6	11	0	0	0
16:30 to 17:30	9	1	10	16	3	19	0	0	0	0	0	0	5	1	6	26	4	30	8	7	15	0	0	0
16:45 to 17:45	12	1	13	18	2	20	0	0	0	0	0	0	5	1	6	21	3	24	8	5	13	0	0	0
17:00 to 18:00	8	1	9	12	1	13	0	0	0	0	0	0	6	1	7	21	3	24	8	4	12	0	0	0
17:15 to 18:15	10	1	11	12	1	13	0	0	0	0	0	0	4	1	5	19	2	21	7	2	9	0	0	0
17:30 to 18:30	8	0	8	12	1	13	0	0	0	0	0	0	5	0	5	17	2	19	5	2	7	0	0	0
17:45 to 18:45	3	0	3	10	1	11	0	0	0	0	0	0	7	0	7	18	1	19	3	3	6	0	0	0
18:00 to 19:00	3	1	4	9	1	10	0	0	0	0	0	0	6	0	6	20	0	20	2	3	5	0	0	0
18:15 to 19:15	0	1	1	5	1	6	0	0	0	0	0	0	7	1	8	22	0	22	2	5	7	0	0	0
18:30 to 19:30	0	1	1	4	0	4	0	0	0	0	0	0	5	1	6	18	0	18	1	5	6	0	0	0
18:45 to 19:45	7	1	8	4	0	4	0	0	0	0	0	0	5	1	6	17	0	17	1	4	5	0	0	0
19:00 to 20:00	7	0	7	6	0	6	0	0	0	0	0	0	5	1	6	12	0	12	1	3	4	0	0	0
19:15 to 20:15	10	0	10	8	0	8	0	0	0	0	0	0	4	0	4	6	1	7	1	4	5	0	0	0
19:30 to 20:30	11	0	11	6	0	6	0	0	0	0	0	0	3	0	3	5	2	7	1	3	4	0	0	0
19:45 to 20:45	4	1	5	5	0	5	0	0	0	0	0	0	1	0	1	4	3	7	4	4	8	0	0	0
20:00 to 21:00	4	1	5	3	0	3	0	0	0	0	0	0	1	0	1	4	3	7	4	5	9	0	0	0
20:15 to 21:15	1	1	2	1	0	1	0	0	0	0	0	0	1	0	1	4	2	6	4	3	7	0	0	0
20:30 to 21:30	0	1	1	1	0	1	0	0	0	0	0	0	2	0	2	4	2	6	4	3	7	0	0	0
20:45 to 21:45	0	0	0	1	0	1	0	0	0	0	0	0	3	1	4	1	1	2	1	2	3	0	0	0
21:00 to 22:00	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	1	2	3	1	2	3	0	0	0
21:15 to 22:15	0	0	0	1	1	2	0	0	0	0	0	0	2	1	3	1	2	3	0	3	3	0	0	0
21:30 to 22:30	0	0	0	1	1	2	0	0	0	0	0	0	1	2	3	2	1	3	0	3	3	0	0	0
21:45 to 22:45	0	0	0	1	1	2	0	0	0	0	0	0	1	1	2	3	1	4	0	3	3	0	0	0
22:00 to 23:00	0	0	0	1	1	2	0	0	0	0	0	0	1	1	2	2	0	2	0	2	2	0	0	0
22:15 to 23:15	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	1	4	1	0	1	0	0	0
22:30 to 23:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	1	3	1	0	1	0	0	0
22:45 to 23:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	0	1	0	0	0
23:00 to 0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	0	1	0	0	0
24hr Totals	112	39	151	157	50	207	0	0	0	0	0	0	174	56	230	267	76	343	73	248	321	0	0	0

Approach	Jerrara Rd												Jerrara Rd											
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
0:00 to 1:00	0	0	0	1	0	1	5	0	5	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0
0:15 to 1:15	0	0	0	1	0	1	6	0	6	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0
0:30 to 1:30	0	0	0	1	0	1	3	0	3	0	0	0	3	2	5	0	0	0	0	0	0	0	0	0
0:45 to 1:45	0	0	0	0	0	0	4	0	4	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0
1:00 to 2:00	0	0	0	0	0	0	3	0	3	0	0	0	2	3	5	0	0	0	0	0	0	0	0	0
1:15 to 2:15	0	0	0	0	0	0	2	0	2	0	0	0	1	3	4	0	0	0	0	0	0	0	0	0
1:30 to 2:30	0	0	0	0	0	0	2	0	2	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0
1:45 to 2:45	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
2:00 to 3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
2:15 to 3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
2:30 to 3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
2:45 to 3:45	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 to 4:00	0	0	0	0	0	0	2	0	2	0	0	0	2	2	4	0	0	0	0	0	0	0	0	0
3:15 to 4:15	0	0	0	0	0	0	3	0	3	0	0	0	2	2	4	0	0	0	0	0	0	0	0	0
3:30 to 4:30	0	0	0	0	0	0	4	0	4	0	0	0	2	2	4	0	0	0	0	0	0	0	0	0
3:45 to 4:45	0	0	0	3	0	3	3	0	3	0	0	0	2	2	4	0	0	0	1	1	2	0	0	0
4:00 to 5:00	0	0	0	3	0	3	2	0	2	0	0	0	1	1	2	0	0	0	1	2	3	0	0	0
4:15 to 5:15	0	0	0	3	0	3	1	0	1	0	0	0	1	3	4	0	0	0	1	2	3	0	0	0
4:30 to 5:30	0	0	0	6	0	6	1	0	1	0	0	0	3	3	6	0	0	0	1	2	3	0	0	0
4:45 to 5:45	0	0	0	8	0	8	2	1	3	0	0	0	7	4	11	0	0	0	2	1	3	0	0	0
5:00 to 6:00	0	0	0	14	0	14	2	3	5	0	0	0	8	3	11	0	0	0	2	0	2	0	0	0
5:15 to 6:15	0	0	0	18	1	19	6	4	10	0	0	0	13	1	14	0	0	0	3	0	3	0	0	0
5:30 to 6:30	0	0	0	15	1	16	9	6	15	0	0	0	13	1	14	0	0	0	4	1	5	0	0	0
5:45 to 6:45	0	0	0	16	2	18	8	6	14	0	0	0	11	0	11	0	0	0	2	1	3	0	0	0
6:00 to 7:00	0	0	0	20	2	22	9	5	14	0	0	0	12	2	14	0	0	0	2	1	3	0	0	0
6:15 to 7:15	0	0	0	25	2	27	7	4	11	0	0	0	9	2	11	0	0	0	1	1	2	0	0	0
6:30 to 7:30	0	0	0	37	2	39	5	3	8	0	0	0	11	3	14	0	0	0	0	1	1	0	0	0
6:45 to 7:45	0	0	0	35	1	36	5	2	7	0	0	0	18	3	21	0	0	0	1	1	2	0	0	0
7:00 to 8:00	0	0	0	25	1	26	5	2	7	0	1	1	23	1	24	0	0	0	1	1	2	0	0	0
7:15 to 8:15	0	0	0	17	1	18	5	4	9	0	1	1	29	2	31	0	0	0	1	1	2	0	0	0
7:30 to 8:30	0	0	0	6	3	9	3	3	6	0	1	1	27	2	29	0	0	0	1	0	1	0	0	0
7:45 to 8:45	0	0	0	3	3	6	3	4	7	0	1	1	24	6	30	0	0	0	0	1	1	0	0	0
8:00 to 9:00	0	0	0	3	4	7	3	5	8	0	0	0	23	9	32	0	0	0	0	1	1	0	0	0
8:15 to 9:15	0	0	0	2	4	6	3	4	7	0	0	0	20	11	31	0	0	0	0	1	1	0	0	0
8:30 to 9:30	0	0	0	1	2	3	4	4	8	0	0	0	22	11	33	0	0	0	0	1	1	0	0	0
8:45 to 9:45	0	0	0	1	2	3	4	4	8	0	0	0	21	9	30	0	0	0	0	1	1	0	0	0
9:00 to 10:00	0	0	0	1	1	2	3	5	8	0	0	0	19	8	27	0	0	0	0	1	1	0	0	0
9:15 to 10:15	0	0	0	3	0	3	3	4	7	0	0	0	19	6	25	0	0	0	0	1	1	0	0	0
9:30 to 10:30	0	0	0	3	0	3	6	6	12	1	0	1	18	7	25	0	0	0	0	1	1	0	0	0
9:45 to 10:45	0	0	0	2	2	4	6	5	11	2	0	2	17	6	23	0	0	0	1	0	1	0	0	0
10:00 to 11:00	0	0	0	3	3	6	7	2	9	2	0	2	18	4	22	0	0	0	1	0	1	0	0	0

10:15 to 11:15	0	0	0	2	3	5	7	3	10	2	0	2	18	5	23	0	0	0	1	0	1	0	0	0
10:30 to 11:30	0	0	0	4	4	8	4	2	6	1	0	1	22	3	25	0	0	0	1	0	1	0	0	0
10:45 to 11:45	0	0	0	5	3	8	6	2	8	0	0	0	24	3	27	0	0	0	0	0	0	0	0	0
11:00 to 12:00	0	0	0	5	3	8	7	3	10	0	0	0	24	3	27	0	0	0	0	0	0	0	0	0
11:15 to 12:15	0	0	0	6	3	9	8	3	11	0	0	0	28	3	31	0	0	0	0	0	0	0	0	0
11:30 to 12:30	0	0	0	7	3	10	10	3	13	1	0	1	26	4	30	0	0	0	0	0	0	0	0	0
11:45 to 12:45	0	0	0	6	2	8	10	4	14	1	0	1	25	4	29	0	0	0	0	0	0	0	0	0
12:00 to 13:00	0	0	0	5	1	6	10	5	15	1	0	1	21	5	26	0	0	0	0	0	0	0	0	0
12:15 to 13:15	0	0	0	3	1	4	7	5	12	1	0	1	14	5	19	0	0	0	0	0	0	0	0	0
12:30 to 13:30	0	0	0	0	0	0	5	4	9	0	0	0	17	9	26	0	0	0	0	0	0	0	0	0
12:45 to 13:45	0	0	0	1	1	2	3	6	9	0	0	0	20	8	28	0	0	0	0	0	0	0	0	0
13:00 to 14:00	0	0	0	2	2	4	5	4	9	0	0	0	29	7	36	0	0	0	0	0	0	0	0	0
13:15 to 14:15	0	0	0	5	2	7	7	4	11	0	0	0	36	6	42	0	0	0	0	0	0	0	0	0
13:30 to 14:30	0	0	0	6	4	10	6	6	12	0	0	0	40	3	43	0	0	0	0	0	0	0	0	0
13:45 to 14:45	0	0	0	5	4	9	9	4	13	0	0	0	40	6	46	0	0	0	1	0	1	0	0	0
14:00 to 15:00	0	0	0	6	4	10	6	7	13	0	0	0	37	6	43	0	0	0	1	0	1	0	0	0
14:15 to 15:15	0	0	0	4	4	8	10	9	19	0	0	0	33	6	39	0	0	0	1	0	1	0	0	0
14:30 to 15:30	0	0	0	3	2	5	13	7	20	0	0	0	23	6	29	0	0	0	1	0	1	0	0	0
14:45 to 15:45	0	0	0	5	1	6	11	13	24	0	0	0	24	5	29	0	0	0	0	0	0	0	0	0
15:00 to 16:00	0	0	0	3	0	3	12	14	26	0	0	0	19	5	24	0	0	0	0	0	0	0	0	0
15:15 to 16:15	0	0	0	2	2	4	15	17	32	0	0	0	19	6	25	0	0	0	0	0	0	0	0	0
15:30 to 16:30	0	0	0	3	2	5	17	19	36	0	0	0	24	5	29	0	0	0	0	0	0	0	0	0
15:45 to 16:45	0	0	0	1	2	3	22	14	36	0	0	0	16	8	24	0	0	0	0	0	0	0	0	0
16:00 to 17:00	0	0	0	2	2	4	24	12	36	0	0	0	22	11	33	0	0	0	0	0	0	0	0	0
16:15 to 17:15	0	0	0	3	0	3	18	8	26	0	0	0	21	10	31	0	0	0	1	0	1	0	0	0
16:30 to 17:30	0	0	0	3	1	4	16	6	22	0	0	0	20	10	30	0	0	0	1	0	1	0	0	0
16:45 to 17:45	0	0	0	4	1	5	11	4	15	0	0	0	23	7	30	0	0	0	1	0	1	0	0	0
17:00 to 18:00	0	0	0	4	1	5	12	2	14	0	0	0	17	4	21	0	0	0	1	0	1	0	0	0
17:15 to 18:15	0	0	0	4	1	5	12	0	12	0	0	0	17	3	20	0	0	0	0	0	0	0	0	0
17:30 to 18:30	0	0	0	3	0	3	11	0	11	0	0	0	12	2	14	0	0	0	0	0	0	0	0	0
17:45 to 18:45	0	0	0	3	0	3	11	2	13	0	0	0	9	0	9	0	0	0	0	0	0	0	0	0
18:00 to 19:00	0	0	0	4	0	4	6	2	8	0	0	0	8	0	8	0	0	0	0	0	0	0	0	0
18:15 to 19:15	0	0	0	7	1	8	3	2	5	0	0	0	5	0	5	0	0	0	1	0	1	0	0	0
18:30 to 19:30	0	0	0	9	1	10	2	2	4	0	0	0	5	1	6	0	0	0	1	0	1	0	0	0
18:45 to 19:45	0	0	0	11	1	12	1	1	2	0	0	0	4	1	5	0	0	0	2	0	2	0	0	0
19:00 to 20:00	0	0	0	9	1	10	2	1	3	0	0	0	2	1	3	0	0	0	2	0	2	0	0	0
19:15 to 20:15	0	0	0	5	0	5	2	1	3	0	0	0	1	1	2	0	0	0	1	0	1	0	0	0
19:30 to 20:30	0	0	0	3	0	3	2	1	3	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
19:45 to 20:45	0	0	0	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00 to 21:00	0	0	0	0	0	0	3	1	4	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
20:15 to 21:15	0	0	0	0	0	0	3	1	4	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
20:30 to 21:30	0	0	0	0	0	0	4	1	5	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
20:45 to 21:45	0	0	0	0	0	0	4	0	4	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
21:00 to 22:00	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:15 to 22:15	0	0	0	0	0	0	4	0	4	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
21:30 to 22:30	0	0	0	0	0	0	4	0	4	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
21:45 to 22:45	0	0	0	0	0	0	3	0	3	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0
22:00 to 23:00	0	0	0	0	0	0	3	0	3	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0
22:15 to 23:15	0	0	0	0	0	0	3	0	3	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0
22:30 to 23:30	0	0	0	0	0	0	2	0	2	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0
22:45 to 23:45	0	0	0	0	0	0	3	0	3	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
23:00 to 0:00	0	0	0	0	0	0	2	0	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
24hr Totals	0	0	0	110	25	135	137	73	210	3	1	4	292	79	371	0	0	0	11	6	17	0	0	0

Day/Date : Wed, 16th Sept 2020
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary

[illegible]

15:30 to 16:30	0	0	0	0	7	7	48	14	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45 to 16:45	0	0	0	1	6	7	30	17	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00 to 17:00	0	0	0	1	4	5	40	20	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15 to 17:15	0	0	0	1	2	3	39	19	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30 to 17:30	0	0	0	3	2	5	40	19	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 to 17:45	0	0	0	3	1	4	45	14	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00 to 18:00	0	0	0	3	2	5	32	9	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 to 18:15	0	0	0	3	1	4	33	5	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30 to 18:30	0	0	0	1	1	2	28	4	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 to 18:45	0	0	0	0	1	1	22	3	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00 to 19:00	0	0	0	0	0	0	20	4	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15 to 19:15	0	0	0	0	0	0	11	5	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30 to 19:30	0	0	0	0	0	0	10	6	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45 to 19:45	0	0	0	0	0	0	9	5	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00 to 20:00	0	0	0	0	0	0	9	4	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15 to 20:15	0	0	0	0	0	0	10	5	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:30 to 20:30	0	0	0	0	0	0	7	3	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:45 to 20:45	0	0	0	1	0	1	8	4	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00 to 21:00	0	0	0	1	0	1	7	5	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:15 to 21:15	0	0	0	2	0	2	5	4	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:30 to 21:30	0	0	0	2	0	2	4	3	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:45 to 21:45	0	0	0	1	0	1	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00 to 22:00	0	0	0	1	0	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:15 to 22:15	0	0	0	0	0	0	1	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:30 to 22:30	0	0	0	0	0	0	1	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:45 to 22:45	0	0	0	0	0	0	3	5	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00 to 23:00	0	0	0	0	0	0	3	4	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:15 to 23:15	0	0	0	1	0	1	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:30 to 23:30	0	0	0	1	0	1	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:45 to 23:45	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00 to 0:00	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24hr Totals	0	0	0	56	110	166	463	269	732	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Approach	Jerrara Rd												Hume Hwy Off Ramp											
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
0:00 to 1:00	3	0	3	5	0	5	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0
0:15 to 1:15	3	0	3	6	0	6	0	0	0	0	0	0	0	0	0	0	2	2	1	0	1	0	0	0
0:30 to 1:30	2	0	2	3	0	3	0	0	0	0	0	0	0	0	0	0	2	2	1	0	1	0	0	0
0:45 to 1:45	2	0	2	3	0	3	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0
1:00 to 2:00	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0
1:15 to 2:15	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
1:30 to 2:30	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
1:45 to 2:45	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 to 3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
2:15 to 3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
2:30 to 3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
2:45 to 3:45	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0
3:00 to 4:00	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0
3:15 to 4:15	1	0	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0
3:30 to 4:30	1	0	1	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	2	0	2	0	0	0
3:45 to 4:45	1	0	1	1	0	1	0	0	0	0	0	0	1	1	2	0	0	0	5	0	5	0	0	0
4:00 to 5:00	1	0	1	1	0	1	0	0	0	0	0	0	3	4	7	0	0	0	4	0	4	0	0	0
4:15 to 5:15	1	0	1	0	0	0	0	0	0	0	0	0	3	6	9	0	0	0	4	0	4	0	0	0
4:30 to 5:30	1	4	5	0	0	0	0	0	0	0	0	0	5	6	11	0	0	0	7	0	7	0	0	0
4:45 to 5:45	1	7	8	0	1	1	0	0	0	0	0	0	7	5	12	0	0	0	9	0	9	0	0	0
5:00 to 6:00	0	11	11	0	3	3	0	0	0	0	0	0	9	3	12	0	0	0	16	0	16	0	0	0
5:15 to 6:15	2	14	16	3	3	6	0	0	0	0	0	0	18	2	20	0	0	0	21	2	23	0	0	0
5:30 to 6:30	5	11	16	6	3	9	0	0	0	0	0	0	22	2	24	0	0	0	18	4	22	0	0	0
5:45 to 6:45	6	11	17	6	2	8	0	0	0	0	0	0	21	2	23	0	0	0	18	6	24	0	0	0
6:00 to 7:00	6	8	14	6	1	7	0	0	0	0	0	0	17	2	19	0	0	0	22	7	29	0	0	0
6:15 to 7:15	4	8	12	4	1	5	0	0	0	0	0	0	9	1	10	0	0	0	28	6	34	0	0	0
6:30 to 7:30	1	9	10	1	1	2	0	0	0	0	0	0	3	1	4	0	0	0	30	5	35	0	0	0
6:45 to 7:45	0	12	12	1	1	2	0	0	0	0	0	0	1	1	2	0	0	0	29	3	32	0	0	0
7:00 to 8:00	0	13	13	2	2	4	0	0	0	0	0	0	2	0	2	0	0	0	18	2	20	0	0	0
7:15 to 8:15	0	14	14	2	2	4	0	0	0	0	0	0	1	1	2	1	3	4	9	4	13	0	0	0
7:30 to 8:30	1	17	18	2	2	4	0	0	0	0	0	0	3	2	5	3	3	6	7	5	12	0	0	0
7:45 to 8:45	1	12	13	2	3	5	0	0	0	0	0	0	5	2	7	3	3	6	4	5	9	0	0	0
8:00 to 9:00	1	11	12	1	3	4	0	0	0	0	0	0	6	3	9	3	3	6	5	6	11	0	0	0
8:15 to 9:15	2	8	10	2	3	5	0	0	0	0	0	0	6	2	8	3	0	3	3	5	8	0	0	0
8:30 to 9:30	1	7	8	2	3	5	0	0	0	0	0	0	4	1	5	1	0	1	3	3	6	0	0	0
8:45 to 9:45	1	7	8	2	3	5	0	0	0	0	0	0	2	1	3	1	0	1	5	3	8	0	0	0
9:00 to 10:00	2	7	9	2	2	4	0	0	0	0	0	0	0	2	2	1	0	1	4	4	8	0	0	0
9:15 to 10:15	1	8	9	2	2	4	0	0	0	0	0	0	1	2	3	0	0	0	6	2	8	0	0	0
9:30 to 10:30	1	6	7	3	3	6	0	0	0	0	0	0	3	2	5	0	0	0	9	3	12	0	0	0
9:45 to 10:45	1	8	9	3	2	5	0	0	0	0	0	0	4	2	6	1	0	1	7	5	12	0	0	0
10:00 to 11:00	0	11	11	4	1	5	0	0	0	0	0	0	5	2	7	1	1	2	8	4	12	0	0	0

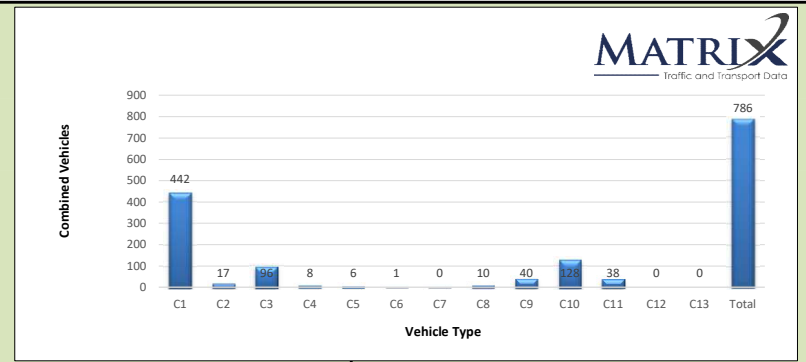
10:15 to 11:15	0	14	14	2	2	4	0	0	0	0	0	0	0	4	2	6	2	1	3	9	4	13	0	0	0
10:30 to 11:30	0	17	17	1	1	2	0	0	0	0	0	0	0	2	2	4	2	1	3	8	5	13	0	0	0
10:45 to 11:45	0	14	14	1	1	2	0	0	0	0	0	0	0	1	2	3	1	1	2	9	4	13	0	0	0
11:00 to 12:00	1	12	13	0	2	2	0	0	0	0	0	0	0	0	0	0	1	0	1	11	4	15	0	0	0
11:15 to 12:15	2	9	11	0	2	2	0	0	0	0	0	0	0	1	1	2	1	0	1	13	4	17	0	0	0
11:30 to 12:30	2	7	9	1	3	4	0	0	0	0	0	0	0	1	2	3	1	0	1	16	3	19	0	0	0
11:45 to 12:45	3	10	13	1	3	4	0	0	0	0	0	0	0	3	3	6	1	0	1	16	3	19	0	0	0
12:00 to 13:00	3	9	12	2	3	5	0	0	0	0	0	0	0	4	4	8	2	0	2	14	3	17	0	0	0
12:15 to 13:15	8	9	17	2	3	5	0	0	0	0	0	0	0	3	3	6	3	0	3	9	3	12	0	0	0
12:30 to 13:30	10	7	17	1	3	4	0	0	0	0	0	0	0	4	4	8	5	0	5	3	2	5	0	0	0
12:45 to 13:45	9	8	17	1	5	6	0	0	0	0	0	0	0	4	4	8	5	0	5	2	3	5	0	0	0
13:00 to 14:00	9	8	17	2	4	6	0	0	0	0	0	0	0	4	3	7	6	0	6	4	3	7	0	0	0
13:15 to 14:15	4	6	10	3	4	7	0	0	0	0	0	0	0	5	4	9	5	0	5	8	3	11	0	0	0
13:30 to 14:30	2	6	8	3	5	8	0	0	0	0	0	0	0	5	2	7	5	0	5	9	5	14	0	0	0
13:45 to 14:45	3	3	6	4	3	7	0	0	0	0	0	0	0	3	4	7	5	1	6	10	5	15	0	0	0
14:00 to 15:00	3	4	7	2	6	8	0	0	0	0	0	0	0	2	6	8	3	2	5	10	5	15	0	0	0
14:15 to 15:15	4	6	10	6	9	15	0	0	0	0	0	0	0	1	5	6	3	2	5	7	5	12	0	0	0
14:30 to 15:30	5	6	11	9	7	16	0	0	0	0	0	0	0	0	10	10	1	2	3	6	3	9	0	0	0
14:45 to 15:45	6	5	11	8	12	20	0	0	0	0	0	0	0	0	8	8	2	1	3	7	3	10	0	0	0
15:00 to 16:00	5	3	8	8	12	20	0	0	0	0	0	0	0	0	8	8	3	0	3	6	3	9	0	0	0
15:15 to 16:15	9	1	10	11	12	23	0	0	0	0	0	0	0	0	10	10	2	0	2	6	7	13	0	0	0
15:30 to 16:30	9	1	10	10	14	24	0	0	0	0	0	0	0	1	6	7	3	0	3	10	7	17	0	0	0
15:45 to 16:45	7	2	9	14	10	24	0	0	0	0	0	0	0	1	5	6	2	0	2	9	6	15	0	0	0
16:00 to 17:00	7	2	9	15	9	24	0	0	0	0	0	0	0	2	3	5	2	0	2	11	5	16	0	0	0
16:15 to 17:15	3	4	7	7	6	13	0	0	0	0	0	0	0	2	1	3	2	0	2	14	2	16	0	0	0
16:30 to 17:30	3	3	6	6	4	10	0	0	0	0	0	0	0	1	0	1	3	0	3	12	3	15	0	0	0
16:45 to 17:45	7	2	9	2	3	5	0	0	0	0	0	0	0	2	0	2	3	0	3	13	2	15	0	0	0
17:00 to 18:00	9	2	11	3	1	4	0	0	0	0	0	0	0	1	0	1	4	0	4	12	2	14	0	0	0
17:15 to 18:15	9	1	10	6	0	6	0	0	0	0	0	0	0	1	0	1	4	0	4	10	1	11	0	0	0
17:30 to 18:30	10	1	11	6	0	6	0	0	0	0	0	0	0	1	0	1	2	0	2	9	0	9	0	0	0
17:45 to 18:45	6	1	7	6	1	7	0	0	0	0	0	0	0	0	0	0	2	0	2	8	1	9	0	0	0
18:00 to 19:00	4	1	5	4	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1	8	0	0	0
18:15 to 19:15	2	0	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	9	2	11	0	0	0
18:30 to 19:30	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	11	2	13	0	0	0
18:45 to 19:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	2	14	0	0	0
19:00 to 20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	2	13	0	0	0
19:15 to 20:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1	8	0	0	0
19:30 to 20:30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	5	1	6	0	0	0
19:45 to 20:45	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	3	1	4	0	0	0
20:00 to 21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	3	1	4	0	0	0
20:15 to 21:15	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	3	1	4	0	0	0
20:30 to 21:30	1	0	1	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	4	1	5	0	0	0
20:45 to 21:45	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	0	4	0	0	0
21:00 to 22:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	0	4	0	0	0
21:15 to 22:15	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	0	4	0	0	0
21:30 to 22:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	4	0	0	0
21:45 to 22:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0
22:00 to 23:00	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0
22:15 to 23:15	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0
22:30 to 23:30	1	0	1	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:45 to 23:45	1	0	1	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00 to 0:00	1	0	1	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24hr Totals	57	102	159	63	50	113	0	0	0	0	0	0	0	59	41	100	26	10	36	173	54	227	0	0	0

Job No N5785
Client ARRB
Site Brayton Road north of the intersection with Ambrose Road
Location Marulan
Site No ATC 1
Start Date 10-Jun-20
Day Weekday Ave
Description Class Summary
Classification AustRoads94

Select Site
 ATC 1. Brayton Road north of the intersection with Ambrose Road

Select Day
 Weekday Ave

Class Summary		C	EB	WB
Light	C1	56%	53%	60%
	C2	2%	2%	2%
Medium	C3	12%	15%	9%
	C4	1%	1%	1%
	C5	1%	1%	1%
	C6	0%	0%	0%
Heavy	C7	0%	0%	0%
	C8	1%	1%	1%
	C9	5%	5%	5%
	C10	16%	16%	16%
	C11	5%	5%	5%
	C12	0%	0%	0%
	C13	0%	0%	0%
Unclassified		0%	0%	0%



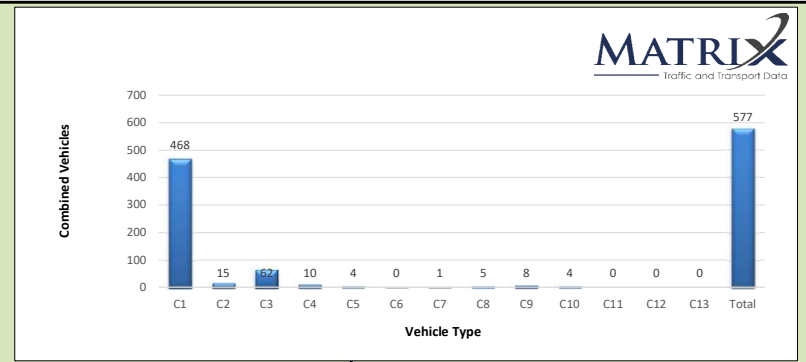
Hour Starting	EB														Total	WB														Total	COMBINED														Total
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C1		C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C1	C2		C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13				
	Short	Short Towing	2 axle Truck or bus	3 Axle Truck or Bus	4 or 5 Axle Truck	3 axle Articulated	4 Axle Articulated	5 Axle Articulated	6 Axle Articulated	B Double	Double Road Train	Triple Road Train	Undersizable	Short		Short Towing	2 axle Truck or bus	3 Axle Truck or Bus	4 or 5 Axle Truck	3 axle Articulated	4 Axle Articulated	5 Axle Articulated	6 Axle Articulated	B Double	Double Road Train	Triple Road Train	Undersizable	Short	Short Towing		2 axle Truck or bus	3 Axle Truck or Bus	4 or 5 Axle Truck	3 axle Articulated	4 Axle Articulated	5 Axle Articulated	6 Axle Articulated	B Double	Double Road Train	Triple Road Train	Undersizable				
0:00	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2				
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2				
2:00	1	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3				
3:00	1	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	1	1	0	8	6	0	0	0	0	0	0	0	1	1	0	0	9					
4:00	3	0	1	0	0	0	0	0	0	7	4	0	0	16	5	0	0	0	0	0	0	0	7	2	0	0	16	9	0	1	0	1	0	0	0	14	6	0	0	32					
5:00	6	0	1	0	0	0	0	0	1	8	2	0	0	18	12	0	1	0	0	0	0	2	9	2	0	0	26	18	0	2	0	0	0	0	2	17	4	0	0	44					
6:00	10	0	3	0	0	0	0	0	2	8	0	0	0	24	16	0	4	0	0	0	0	2	3	0	0	0	27	26	0	7	1	1	0	0	1	3	11	1	0	0	51				
7:00	15	0	2	0	0	0	0	1	0	3	0	0	0	22	12	1	3	0	0	0	0	2	4	0	0	0	23	27	1	5	1	0	0	0	1	2	8	0	0	0	45				
8:00	20	1	5	0	0	0	0	0	3	7	1	0	0	37	10	1	3	0	0	0	0	1	1	7	3	0	26	30	1	7	1	1	0	0	1	4	14	4	0	0	63				
9:00	13	0	4	0	0	0	0	1	1	6	2	0	0	28	12	1	2	1	0	0	0	1	2	4	2	0	25	26	1	6	1	1	0	0	1	3	10	4	0	0	53				
10:00	13	1	2	1	0	0	0	0	2	4	1	0	0	23	14	1	2	0	0	0	0	2	4	1	0	0	24	27	1	4	1	0	0	0	1	4	8	1	0	0	48				
11:00	14	1	2	0	0	0	0	1	1	4	1	0	0	24	10	0	3	0	0	0	0	1	2	5	1	0	23	24	1	6	1	1	0	0	2	3	9	1	0	0	48				
12:00	12	0	4	0	0	0	0	0	3	6	1	0	0	27	16	1	4	0	0	0	0	3	4	1	0	0	29	28	1	8	0	0	0	0	6	10	2	0	0	55					
13:00	10	1	6	1	0	0	0	1	2	4	1	0	0	26	15	1	2	0	0	0	0	0	1	3	1	0	23	25	2	8	1	0	0	0	1	4	7	2	0	0	49				
14:00	16	0	2	0	0	0	0	0	2	3	0	0	0	24	11	1	1	0	0	0	0	0	2	2	0	0	18	27	1	4	0	0	0	0	1	4	5	0	0	0	42				
15:00	15	1	5	0	0	0	0	0	1	2	0	0	0	24	23	0	4	0	0	0	0	0	1	1	0	0	31	38	1	9	0	0	0	0	1	2	3	0	0	0	55				
16:00	26	0	8	0	1	0	0	0	1	1	0	0	0	37	20	1	0	0	0	0	0	0	0	1	1	0	24	46	1	9	0	1	0	0	0	1	2	1	0	0	62				
17:00	17	1	8	1	0	0	0	0	1	1	1	0	0	29	25	1	2	0	0	0	0	0	0	2	1	0	31	42	1	10	1	0	0	0	0	1	3	2	0	0	59				
18:00	5	0	3	0	0	0	0	0	0	1	0	0	0	9	10	0	1	0	0	0	0	0	0	1	0	0	12	15	0	4	0	0	0	0	0	2	1	0	0	21					
19:00	3	0	1	0	0	0	0	0	0	1	1	0	0	6	8	0	1	0	0	0	0	0	0	1	0	0	10	11	0	2	0	0	0	0	0	1	2	0	0	0	16				
20:00	1	0	1	0	0	0	0	0	0	0	0	0	0	1	5	1	0	0	0	0	0	0	0	1	0	0	7	6	1	1	0	0	0	0	0	0	1	0	0	9					
21:00	2	0	1	0	0	0	0	0	0	0	0	1	0	4	3	0	0	0	0	0	0	0	0	1	0	0	5	4	0	1	0	0	0	0	0	0	1	2	0	0	9				
22:00	1	0	0	0	0	0	0	0	0	1	1	0	0	3	3	0	0	0	0	0	0	0	0	1	1	0	5	4	0	1	0	0	0	0	0	1	1	0	0	7					
23:00	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	3					
Total	206	8	60	5	3	0	0	4	19	64	19	0	0	389	236	9	36	3	3	0	0	5	21	64	19	0	0	396	442	17	96	8	6	1	0	10	40	128	38	0	0	786			

Job No N5785
 Client ARRB
 Site Brayton Road south of the intersection with Ambrose Road
 Location Marulan
 Site No ATC 2
 Start Date 10-Jun-20
 Day Weekday Ave
 Description Class Summary
 Classification AustRoads94

Select Site
 ATC 2, Brayton Road south of the intersection with Ambrose Road

Select Day
 Weekday Ave

Class Summary		C	EB	WB
Light	C1	81%	78%	83%
	C2	3%	2%	3%
	C3	11%	11%	11%
Medium	C4	2%	2%	1%
	C5	1%	1%	0%
	C6	0%	0%	0%
Heavy	C7	0%	0%	0%
	C8	1%	1%	1%
	C9	1%	2%	1%
	C10	1%	1%	0%
	C11	0%	0%	0%
	C12	0%	0%	0%
	C13	0%	0%	0%
Unclassified		0%	0%	0%



Hour Starting	EB														Total	WB														Total	COMBINED														Total
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C1		C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C1	C2		C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13				
	Short	Short Towing	2 axle Truck or bus	3 Axle Truck or Bus	4 or 5 Axle Truck	3 axle Articulated	4 Axle Articulated	5 Axle Articulated	6 Axle Articulated	B Double	Double Road Train	Triple Road Train	Undersizable	Short		Short Towing	2 axle Truck or bus	3 Axle Truck or Bus	4 or 5 Axle Truck	3 axle Articulated	4 Axle Articulated	5 Axle Articulated	6 Axle Articulated	B Double	Double Road Train	Triple Road Train	Undersizable	Short	Short Towing		2 axle Truck or bus	3 Axle Truck or Bus	4 or 5 Axle Truck	3 axle Articulated	4 Axle Articulated	5 Axle Articulated	6 Axle Articulated	B Double	Double Road Train	Triple Road Train	Undersizable				
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1				
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1					
2:00	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2					
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	5					
4:00	1	0	1	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	4	6	0	1	0	0	0	0	0	0	0	0	0	7					
5:00	5	0	1	0	0	0	0	0	0	0	0	0	0	6	10	0	1	0	0	0	0	0	0	0	0	0	12	14	0	2	0	0	0	1	0	0	0	0	0	18					
6:00	9	0	1	0	0	0	0	0	1	0	0	0	0	12	17	0	4	1	0	0	0	0	0	0	0	0	22	26	1	5	1	0	0	0	1	0	0	0	0	34					
7:00	12	1	1	0	0	0	0	0	0	0	0	0	0	15	13	0	3	1	0	0	0	0	0	0	0	0	17	25	1	4	1	0	0	0	0	0	0	0	0	32					
8:00	20	0	4	0	0	0	0	0	0	1	0	0	0	26	13	1	2	0	0	0	0	0	0	0	0	0	16	33	1	5	1	0	0	0	0	1	1	0	0	0	42				
9:00	13	0	1	0	0	0	0	0	0	0	0	0	0	16	14	1	2	1	0	0	0	0	0	0	0	0	19	27	1	4	1	1	0	1	1	0	0	0	0	36					
10:00	13	1	1	1	0	0	0	0	1	0	0	0	0	17	16	1	2	1	0	0	0	0	0	0	0	0	20	29	1	3	1	0	0	0	1	0	0	0	0	37					
11:00	17	1	1	0	0	0	0	1	1	0	0	0	0	21	13	0	2	0	0	0	0	0	0	0	0	0	16	29	2	3	0	0	0	1	1	0	0	0	0	38					
12:00	14	0	2	0	0	0	0	0	1	0	0	0	0	17	17	0	2	0	0	0	0	0	0	0	0	0	21	31	1	4	0	0	0	0	1	0	0	0	0	38					
13:00	12	0	2	0	0	0	0	0	1	0	0	0	0	16	15	1	2	1	0	0	0	0	0	0	0	0	19	27	1	4	1	0	0	0	1	0	0	0	0	35					
14:00	17	0	1	0	0	0	0	0	0	0	0	0	0	19	13	1	2	0	0	0	0	0	0	0	0	0	17	30	1	3	0	0	0	0	1	0	0	0	0	35					
15:00	16	0	3	1	0	0	0	0	1	0	0	0	0	21	27	1	4	0	0	0	0	0	0	0	0	0	32	42	1	6	1	0	0	0	1	1	0	0	0	53					
16:00	23	0	5	2	0	0	0	0	0	0	0	0	0	30	24	2	1	0	0	0	0	0	0	0	0	0	28	48	2	6	2	0	0	0	0	0	0	0	0	58					
17:00	20	0	3	1	0	0	0	0	0	0	0	0	0	25	28	0	2	0	0	0	0	0	0	0	0	0	30	47	0	6	1	0	0	0	0	0	0	0	0	55					
18:00	8	0	1	0	0	0	0	0	0	0	0	0	0	9	11	0	0	0	0	0	0	0	0	0	0	0	11	18	0	1	0	0	0	0	0	0	0	0	0	20					
19:00	2	0	1	0	0	0	0	0	0	0	0	0	0	3	6	0	1	0	0	0	0	0	0	0	0	0	7	8	0	2	0	0	0	0	0	0	0	0	0	11					
20:00	1	0	0	0	0	0	0	0	0	0	0	0	0	2	5	1	1	0	0	0	0	0	0	0	0	0	6	6	1	1	0	0	0	0	0	0	0	0	0	8					
21:00	2	0	0	0	0	0	0	0	0	0	0	0	0	3	4	0	1	0	0	0	0	0	0	0	0	0	4	6	0	1	0	0	0	0	0	0	0	0	0	7					
22:00	1	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	3	5	0	0	0	0	0	0	0	0	0	0	0	5					
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1					
Total	209	6	29	6	3	0	1	3	7	3	0	0	0	267	259	9	33	3	1	0	0	2	2	0	0	0	310	468	15	62	10	4	0	1	5	8	4	0	0	0	577				

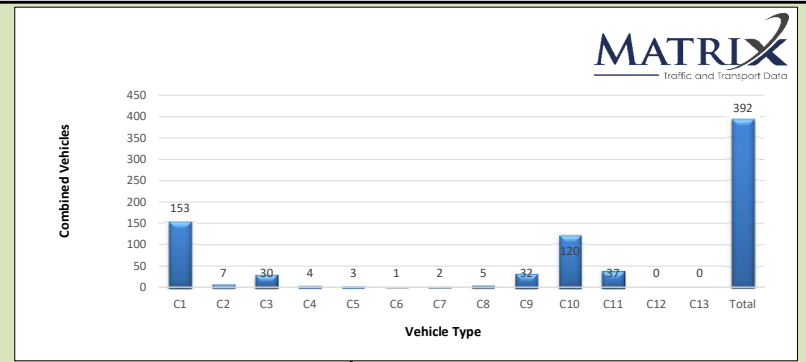
Job No N5785
 Client ARRB
 Site Ambrose Road between Brayton Road and Red Hill Road
 Location Marulan
 Site No ATC 3
 Start Date 10-Jun-20
 Day Weekday Ave
 Description Class Summary
 Classification AustRoads94

Select Site
 ATC 3. Ambrose Road between Brayton Road and Red Hill Road

Select Day

Weekday Ave

Class Summary		C	EB	WB
Light	C1	39%	40%	38%
	C2	2%	2%	2%
Medium	C3	8%	12%	3%
	C4	1%	1%	1%
	C5	1%	1%	1%
	C6	0%	0%	0%
Heavy	C7	0%	1%	0%
	C8	1%	0%	2%
	C9	8%	6%	10%
	C10	31%	29%	33%
	C11	9%	9%	10%
	C12	0%	0%	0%
	C13	0%	0%	0%
Unclassified		0%	0%	0%



Hour Starting	EB														Total	WB													Total	COMBINED													Total
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C1		C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C1		C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13		
	Short	Short Towing	2 axle Truck or bus	3 Axle Truck or Bus	4 or 5 Axle Truck	3 axle Articulated	4 Axle Articulated	5 Axle Articulated	6 Axle Articulated	B Double	Double Road Train	Triple Road Train	Undersizable	Short		Short Towing	2 axle Truck or bus	3 Axle Truck or Bus	4 or 5 Axle Truck	3 axle Articulated	4 Axle Articulated	5 Axle Articulated	6 Axle Articulated	B Double	Double Road Train	Triple Road Train	Undersizable	Short		Short Towing	2 axle Truck or bus	3 Axle Truck or Bus	4 or 5 Axle Truck	3 axle Articulated	4 Axle Articulated	5 Axle Articulated	6 Axle Articulated	B Double	Double Road Train	Triple Road Train	Undersizable		
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1			
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
3:00	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0	0	4	1	0	0	0	0	0	0	0	1	1	0	0	4			
4:00	4	0	0	0	0	0	0	0	0	6	3	0	0	13	3	0	0	0	0	0	0	0	7	3	0	0	14	7	0	0	0	0	0	0	0	13	6	0	0	27			
5:00	3	0	1	0	0	0	0	0	0	7	2	0	0	13	3	0	0	0	0	0	0	2	9	2	0	0	17	6	0	1	0	0	0	0	2	17	3	0	0	30			
6:00	6	0	1	0	0	0	0	0	2	7	1	0	0	15	5	0	0	0	0	0	0	1	3	0	0	0	10	10	0	1	0	0	0	0	3	10	1	0	0	25			
7:00	9	0	1	0	0	0	0	0	0	3	0	0	0	13	5	1	0	0	0	0	0	2	4	0	0	0	13	14	1	1	0	0	0	0	3	8	0	0	0	27			
8:00	7	1	1	0	0	0	0	0	2	5	1	0	0	16	7	0	0	0	0	0	1	1	7	3	0	0	20	13	1	1	1	0	0	0	1	3	12	4	0	0	36		
9:00	6	0	1	0	0	0	0	0	1	5	2	0	0	16	6	0	0	0	0	0	0	1	4	2	0	0	13	11	0	1	0	0	0	0	2	8	4	0	0	29			
10:00	5	0	1	0	0	0	0	0	1	4	1	0	0	12	5	0	0	0	0	0	0	2	4	1	0	0	12	10	0	2	0	0	0	0	3	8	2	0	0	24			
11:00	3	0	2	0	0	0	0	0	0	4	0	0	0	11	5	0	0	0	0	0	1	2	6	1	0	0	15	8	1	2	0	0	0	0	1	2	10	1	0	0	26		
12:00	4	0	1	0	0	0	0	0	2	6	1	0	0	14	5	0	0	0	0	0	0	2	4	1	0	0	13	9	0	1	0	0	0	0	4	10	2	0	0	27			
13:00	3	1	4	0	0	0	0	0	1	4	1	0	0	14	3	0	0	0	0	0	0	1	3	1	0	0	10	6	1	4	1	0	0	0	0	3	7	2	0	0	24		
14:00	5	1	2	0	0	0	0	0	2	2	0	0	0	12	5	0	0	0	0	0	0	2	2	0	0	0	11	11	1	3	0	0	0	0	4	4	0	0	0	23			
15:00	5	1	3	0	0	0	0	0	1	1	0	0	0	11	4	0	1	0	0	0	0	1	1	0	0	0	8	9	1	3	0	0	0	0	2	2	0	0	0	18			
16:00	11	1	4	0	1	0	0	0	0	1	0	0	0	17	5	0	1	0	0	0	0	0	1	1	0	0	10	16	1	5	0	1	0	0	1	2	1	0	0	27			
17:00	5	0	2	0	0	0	0	0	0	1	1	0	0	9	5	0	0	0	0	0	0	0	2	1	0	0	8	10	0	3	0	0	0	0	0	2	2	0	0	17			
18:00	2	0	1	0	0	0	0	0	0	1	0	0	0	5	2	0	0	0	0	0	0	0	1	0	0	0	3	4	0	1	0	0	0	0	0	2	1	0	0	8			
19:00	1	0	0	0	0	0	0	0	0	1	1	0	0	3	2	0	0	0	0	0	0	0	0	1	0	0	3	3	0	0	0	0	0	0	0	1	2	0	0	6			
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	2	1	0	0	0	0	0	0	0	0	1	0	0	2			
21:00	1	0	0	0	0	0	0	0	0	0	1	0	0	3	1	0	0	0	0	0	0	0	0	1	0	0	2	2	0	0	0	0	0	0	0	1	2	0	0	5			
22:00	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	1	1	0	0	3				
23:00	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	2				
Total	80	4	25	2	1	0	1	1	13	58	18	0	0	203	72	3	5	2	2	0	0	4	19	62	19	0	0	190	153	7	30	4	3	1	2	5	32	120	37	0	0	392	

Annexure B

SIDRA results

MOVEMENT SUMMARY

Site: 001A [Brayton Rd/Ambrose Rd Ex AM (Site Folder: Ex)]

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] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Brayton Road (SE)														
5	T1	8	1	8	12.5	0.009	0.1	LOS A	0.0	0.3	0.09	0.23	0.09	75.2
6	R2	5	1	5	20.0	0.009	7.5	LOS A	0.0	0.3	0.09	0.23	0.09	63.3
Approach		13	2	14	15.4	0.009	2.9	NA	0.0	0.3	0.09	0.23	0.09	70.1
NorthEast: Ambrose Road (NE)														
7	L2	7	0	7	0.0	0.006	7.1	LOS A	0.0	0.2	0.10	0.59	0.10	64.9
9	R2	10	8	11	80.0	0.018	9.1	LOS A	0.1	0.8	0.19	0.58	0.19	45.5
Approach		17	8	18	47.1	0.018	8.3	LOS A	0.1	0.8	0.15	0.59	0.15	51.9
NorthWest: Brayton Road (NW)														
10	L2	11	8	12	72.7	0.021	8.3	LOS A	0.0	0.0	0.00	0.22	0.00	51.2
11	T1	20	2	21	10.0	0.021	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	78.3
Approach		31	10	33	32.3	0.021	2.9	NA	0.0	0.0	0.00	0.22	0.00	65.9
All Vehicles		61	20	64	32.8	0.021	4.4	NA	0.1	0.8	0.06	0.33	0.06	62.0

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.

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MOVEMENT SUMMARY

Site: 001B [Brayton Rd/Ambrose Rd Ex PM (Site Folder: Ex)]

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] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Brayton Road (SE)														
5	T1	27	2	28	7.4	0.020	0.0	LOS A	0.0	0.3	0.04	0.08	0.04	78.8
6	R2	4	2	4	50.0	0.020	8.1	LOS A	0.0	0.3	0.04	0.08	0.04	56.8
Approach		31	4	33	12.9	0.020	1.1	NA	0.0	0.3	0.04	0.08	0.04	75.0
NorthEast: Ambrose Road (NE)														
7	L2	2	0	2	0.0	0.002	7.1	LOS A	0.0	0.0	0.10	0.59	0.10	64.9
9	R2	3	3	3	100.0	0.006	10.0	LOS A	0.0	0.3	0.25	0.58	0.25	49.4
Approach		5	3	5	60.0	0.006	8.8	LOS A	0.0	0.3	0.19	0.58	0.19	54.6
NorthWest: Brayton Road (NW)														
10	L2	14	4	15	28.6	0.022	7.5	LOS A	0.0	0.0	0.00	0.26	0.00	61.0
11	T1	21	4	22	19.0	0.022	0.0	LOS A	0.0	0.0	0.00	0.26	0.00	75.7
Approach		35	8	37	22.9	0.022	3.0	NA	0.0	0.0	0.00	0.26	0.00	69.0
All Vehicles		71	15	75	21.1	0.022	2.6	NA	0.0	0.3	0.03	0.20	0.03	70.2

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.

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MOVEMENT SUMMARY

▼ Site: 002A [Hume Hwy/Red Hills Rd Ex AM (Site Folder: Ex)]

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	HV]	[Total	HV]				[Veh.	Dist]				
		veh/h	veh/h	veh/h	%				veh	m				
		veh/h	veh/h	veh/h	%	v/c	sec							km/h
NorthWest: Red Hills Road (NW)														
10	L2	9	5	9	55.6	0.007	6.8	LOS A	0.0	0.0	0.00	0.50	0.00	53.0
Approach		9	5	9	55.6	0.007	6.8	NA	0.0	0.0	0.00	0.50	0.00	53.0
SouthWest: Hume Highway (SW)														
1	L2	12	9	13	75.0	0.010	9.8	LOS A	0.0	0.0	0.00	0.67	0.00	53.9
2	T1	618	181	651	29.3	0.199	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		630	190	663	30.2	0.199	0.2	NA	0.0	0.0	0.00	0.01	0.00	98.3
All Vehicles		639	195	673	30.5	0.199	0.3	NA	0.0	0.0	0.00	0.02	0.00	97.1

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

Site: 002B [Hume Hwy/Red Hills Rd Ex PM (Site Folder: Ex)]

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	HV]	[Total	HV]				[Veh.	Dist]				
		veh/h	veh/h	veh/h	%				v/c	sec				
NorthWest: Red Hills Road (NW)														
10	L2	15	6	16	40.0	0.011	6.8	LOS A	0.0	0.0	0.00	0.51	0.00	53.5
Approach		15	6	16	40.0	0.011	6.8	NA	0.0	0.0	0.00	0.51	0.00	53.5
SouthWest: Hume Highway (SW)														
1	L2	7	3	7	42.9	0.005	9.0	LOS A	0.0	0.0	0.00	0.66	0.00	61.1
2	T1	758	131	798	17.3	0.228	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		765	134	805	17.5	0.228	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.3
All Vehicles		780	140	821	17.9	0.228	0.2	NA	0.0	0.0	0.00	0.02	0.00	97.7

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.

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MOVEMENT SUMMARY

▼ Site: 005A [George St/Brayton Rd Ex AM (Site Folder: Ex)]

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	HV]	[Total	HV]				[Veh.	Dist]				
		veh/h	veh/h	veh/h	%				v/c	sec				
SouthEast: Brayton Rd														
21	L2	51	6	54	11.8	0.035	4.7	LOS A	0.1	1.1	0.03	0.51	0.03	46.4
22	T1	5	0	5	0.0	0.006	4.2	LOS A	0.0	0.2	0.28	0.46	0.28	46.7
23	R2	1	0	1	0.0	0.006	5.5	LOS A	0.0	0.2	0.28	0.46	0.28	46.3
Approach		57	6	60	10.5	0.035	4.6	LOS A	0.1	1.1	0.06	0.51	0.06	46.4
NorthEast: George Street														
24	L2	4	2	4	50.0	0.003	5.0	LOS A	0.0	0.0	0.00	0.52	0.00	45.9
25	T1	4	0	4	0.0	0.003	0.0	LOS A	0.0	0.0	0.05	0.11	0.05	49.2
26	R2	1	0	1	0.0	0.003	4.7	LOS A	0.0	0.0	0.05	0.11	0.05	48.5
Approach		9	2	9	22.2	0.003	2.8	NA	0.0	0.0	0.03	0.29	0.03	47.6
NorthWest: Brayton Rd														
27	L2	2	0	2	0.0	0.001	4.6	LOS A	0.0	0.0	0.04	0.51	0.04	46.5
28	T1	35	3	37	8.6	0.106	4.3	LOS A	0.4	3.2	0.32	0.55	0.32	46.2
29	R2	54	2	57	3.7	0.106	6.1	LOS A	0.4	3.2	0.32	0.55	0.32	45.7
Approach		91	5	96	5.5	0.106	5.4	LOS A	0.4	3.2	0.32	0.55	0.32	45.9
SouthWest: George Street														
30	L2	35	5	37	14.3	0.092	4.7	LOS A	0.4	3.2	0.05	0.49	0.05	46.4
31	T1	6	1	6	16.7	0.092	0.0	LOS A	0.4	3.2	0.05	0.49	0.05	47.1
32	R2	82	14	86	17.1	0.092	4.8	LOS A	0.4	3.2	0.05	0.49	0.05	46.2
Approach		123	20	129	16.3	0.092	4.5	NA	0.4	3.2	0.05	0.49	0.05	46.3
All Vehicles		280	33	295	11.8	0.106	4.8	NA	0.4	3.2	0.14	0.51	0.14	46.2

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.

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MOVEMENT SUMMARY

Site: 005A [George St/Brayton Rd Ex PM (Site Folder: Ex)]

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] veh/h	[Total veh/h]	[HV] %	v/c	sec		[Veh. veh]	[Dist m]				km/h
SouthEast: Brayton Rd														
21	L2	42	2	44	4.8	0.028	4.6	LOS A	0.1	0.8	0.03	0.51	0.03	46.5
22	T1	32	3	34	9.4	0.047	4.9	LOS A	0.2	1.6	0.36	0.52	0.36	46.5
23	R2	6	4	6	66.7	0.047	6.9	LOS A	0.2	1.6	0.36	0.52	0.36	45.2
Approach		80	9	84	11.3	0.047	4.9	LOS A	0.2	1.6	0.19	0.52	0.19	46.4
NorthEast: George Street														
24	L2	8	2	8	25.0	0.005	4.8	LOS A	0.0	0.0	0.00	0.52	0.00	46.3
25	T1	5	0	5	0.0	0.003	0.1	LOS A	0.0	0.0	0.08	0.09	0.08	49.3
26	R2	1	0	1	0.0	0.003	4.8	LOS A	0.0	0.0	0.08	0.09	0.08	48.6
Approach		14	2	15	14.3	0.005	3.1	NA	0.0	0.0	0.03	0.34	0.03	47.5
NorthWest: Brayton Rd														
27	L2	1	0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.04	0.51	0.04	46.5
28	T1	19	2	20	10.5	0.054	4.6	LOS A	0.2	1.6	0.36	0.55	0.36	46.1
29	R2	24	1	25	4.2	0.054	6.5	LOS A	0.2	1.6	0.36	0.55	0.36	45.5
Approach		44	3	46	6.8	0.054	5.6	LOS A	0.2	1.6	0.35	0.55	0.35	45.8
SouthWest: George Street														
30	L2	92	4	97	4.3	0.128	4.6	LOS A	0.5	4.0	0.06	0.49	0.06	46.5
31	T1	8	0	8	0.0	0.128	0.1	LOS A	0.5	4.0	0.06	0.49	0.06	47.0
32	R2	90	6	95	6.7	0.128	4.7	LOS A	0.5	4.0	0.06	0.49	0.06	46.3
Approach		190	10	200	5.3	0.128	4.5	NA	0.5	4.0	0.06	0.49	0.06	46.4
All Vehicles		328	24	345	7.3	0.128	4.7	NA	0.5	4.0	0.13	0.50	0.13	46.4

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.

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.

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MOVEMENT SUMMARY

 Site: 003A [Hume Hwy Off Ramp/Jerrara Rd/Marulan S Rd Ex AM (Site Folder: Ex)]

 Network: N101 [Ex AM (Network Folder: General)]

Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL 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
SouthEast: Marulan South Road (SE)														
4	L2	13	8.3	13	8.3	0.016	4.3	LOS A	0.1	0.6	0.22	0.44	0.22	54.4
5	T1	7	0.0	7	0.0	0.016	4.3	LOS A	0.1	0.6	0.22	0.44	0.22	51.8
Approach		20	5.3	20	5.3	0.016	4.3	LOS A	0.1	0.6	0.22	0.44	0.22	53.8
NorthEast: Hume Highway Off Ramp (NE)														
7	L2	62	3.4	62	3.4	0.100	4.1	LOS A	0.5	4.5	0.18	0.49	0.18	54.0
8	T1	23	63.6	23	63.6	0.100	4.9	LOS A	0.5	4.5	0.18	0.49	0.18	53.8
9	R2	29	89.3	29	89.3	0.100	10.1	LOS A	0.5	4.5	0.18	0.49	0.18	49.8
Approach		115	37.6	115	37.6	0.100	5.8	LOS A	0.5	4.5	0.18	0.49	0.18	53.3
NorthWest: Jerrara Road (NW)														
11	T1	38	2.8	38	2.8	0.030	3.4	LOS A	0.1	1.0	0.03	0.45	0.03	54.5
12	R2	7	28.6	7	28.6	0.030	8.0	LOS A	0.1	1.0	0.03	0.45	0.03	52.6
Approach		45	7.0	45	7.0	0.030	4.2	LOS A	0.1	1.0	0.03	0.45	0.03	54.2
SouthWest: Jerrara Road (SW)														
1	L2	22	14.3	22	14.3	0.020	4.2	LOS A	0.1	0.8	0.17	0.48	0.17	52.0
3	R2	2	50.0	2	50.0	0.020	9.5	LOS A	0.1	0.8	0.17	0.48	0.17	53.9
Approach		24	17.4	24	17.4	0.020	4.7	LOS A	0.1	0.8	0.17	0.48	0.17	52.3
All Vehicles		204	25.3	204	25.3	0.100	5.2	LOS A	0.5	4.5	0.15	0.47	0.15	53.5

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

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

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).

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

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

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MOVEMENT SUMMARY

Site: 004A [Hume Hwy On Ramp/Hume Hwy Off Ramp/Jerrara Road Ex AM (Site Folder: Ex)]

Network: N101 [Ex AM (Network Folder: General)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL 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 %				[Veh. veh	Dist m				
SouthEast: Jerrara Road														
5	T1	19	88.9	19	88.9	0.044	0.1	LOS A	0.2	1.8	0.09	0.39	0.09	52.6
6	R2	36	35.3	36	35.3	0.044	5.2	LOS A	0.2	1.8	0.09	0.39	0.09	47.0
Approach		55	53.8	55	53.8	0.044	3.4	NA	0.2	1.8	0.09	0.39	0.09	48.8
NorthWest: Jerrara Road														
10	L2	13	100.0	13	100.0	0.013	6.7	LOS A	0.0	0.0	0.00	0.48	0.00	49.2
11	T1	2	50.0	2	50.0	0.013	0.0	LOS A	0.0	0.0	0.00	0.48	0.00	50.0
Approach		15	92.9	15	92.9	0.013	5.7	NA	0.0	0.0	0.00	0.48	0.00	49.3
SouthWest: Hume Highway Off Ramp (SW)														
1	L2	2	50.0	2	50.0	0.047	6.3	LOS A	0.2	1.4	0.20	0.59	0.20	50.9
2	T1	1	0.0	1	0.0	0.047	4.8	LOS A	0.2	1.4	0.20	0.59	0.20	53.1
3	R2	34	9.4	34	9.4	0.047	6.5	LOS A	0.2	1.4	0.20	0.59	0.20	49.7
Approach		37	11.4	37	11.4	0.047	6.5	LOS A	0.2	1.4	0.20	0.59	0.20	50.0
All Vehicles		106	44.6	106	44.6	0.047	4.8	NA	0.2	1.8	0.11	0.47	0.11	49.3

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

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

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

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MOVEMENT SUMMARY

 Site: 003B [Hume Hwy Off Ramp/Jerrara Rd/Marulan S Rd Ex PM (Site Folder: Ex)]

 Network: N101 [Ex PM (Network Folder: General)]

Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL 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
SouthEast: Marulan South Road (SE)														
4	L2	34	21.9	34	21.9	0.055	4.7	LOS A	0.3	2.1	0.26	0.45	0.26	53.8
5	T1	29	7.1	29	7.1	0.055	4.6	LOS A	0.3	2.1	0.26	0.45	0.26	51.5
Approach		63	15.0	63	15.0	0.055	4.6	LOS A	0.3	2.1	0.26	0.45	0.26	53.0
NorthEast: Hume Highway Off Ramp (NE)														
7	L2	5	20.0	5	20.0	0.054	4.3	LOS A	0.2	2.4	0.17	0.46	0.17	53.2
8	T1	37	22.9	37	22.9	0.054	4.4	LOS A	0.2	2.4	0.17	0.46	0.17	54.7
9	R2	17	87.5	17	87.5	0.054	10.1	LOS A	0.2	2.4	0.17	0.46	0.17	49.5
Approach		59	41.1	59	41.1	0.054	6.0	LOS A	0.2	2.4	0.17	0.46	0.17	53.6
NorthWest: Jerrara Road (NW)														
11	T1	4	50.0	4	50.0	0.029	3.4	LOS A	0.1	1.4	0.02	0.61	0.02	48.9
12	R2	34	53.1	34	53.1	0.029	8.0	LOS A	0.1	1.4	0.02	0.61	0.02	47.5
Approach		38	52.8	38	52.8	0.029	7.5	LOS A	0.1	1.4	0.02	0.61	0.02	47.6
SouthWest: Jerrara Road (SW)														
1	L2	26	24.0	26	24.0	0.024	4.4	LOS A	0.1	0.9	0.18	0.47	0.18	51.9
3	R2	1	0.0	1	0.0	0.024	8.9	LOS A	0.1	0.9	0.18	0.47	0.18	56.0
Approach		27	23.1	27	23.1	0.024	4.6	LOS A	0.1	0.9	0.18	0.47	0.18	52.2
All Vehicles		187	32.0	187	32.0	0.055	5.6	LOS A	0.3	2.4	0.17	0.49	0.17	52.1

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

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

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

Roundabout Capacity Model: SIDRA Standard.

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

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

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

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MOVEMENT SUMMARY

Site: 004B [Hume Hwy On Ramp/Hume Hwy Off Ramp/Jerrara Road Ex PM (Site Folder: Ex)]

Network: N101 [Ex PM (Network Folder: General)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL 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
SouthEast: Jerrara Road														
5	T1	7	100.0	7	100.0	0.057	0.2	LOS A	0.2	2.1	0.13	0.52	0.13	52.7
6	R2	64	23.0	64	23.0	0.057	5.3	LOS A	0.2	2.1	0.13	0.52	0.13	47.9
Approach		72	30.9	72	30.9	0.057	4.7	NA	0.2	2.1	0.13	0.52	0.13	48.4
NorthWest: Jerrara Road														
10	L2	11	10.0	11	10.0	0.023	5.7	LOS A	0.0	0.0	0.00	0.18	0.00	55.6
11	T1	24	52.2	24	52.2	0.023	0.0	LOS A	0.0	0.0	0.00	0.18	0.00	55.5
Approach		35	39.4	35	39.4	0.023	1.7	NA	0.0	0.0	0.00	0.18	0.00	55.6
SouthWest: Hume Highway Off Ramp (SW)														
1	L2	11	100.0	11	100.0	0.040	6.8	LOS A	0.1	1.6	0.08	0.58	0.08	48.6
2	T1	2	0.0	2	0.0	0.040	5.1	LOS A	0.1	1.6	0.08	0.58	0.08	52.6
3	R2	14	53.8	14	53.8	0.040	8.1	LOS A	0.1	1.6	0.08	0.58	0.08	48.8
Approach		26	68.0	26	68.0	0.040	7.3	LOS A	0.1	1.6	0.08	0.58	0.08	49.1
All Vehicles		133	40.5	133	40.5	0.057	4.5	NA	0.2	2.1	0.09	0.44	0.09	50.3

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

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

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

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MOVEMENT SUMMARY

Site: 001C [Brayton Rd/Ambrose Rd Dev AM (Site Folder: Dev)]

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] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
SouthEast: Brayton Road (SE)														
5	T1	10	1	11	10.0	0.017	0.5	LOS A	0.1	0.6	0.21	0.28	0.21	74.4
6	R2	10	5	11	50.0	0.017	8.4	LOS A	0.1	0.6	0.21	0.28	0.21	54.5
Approach		20	6	21	30.0	0.017	4.5	NA	0.1	0.6	0.21	0.28	0.21	62.9
NorthEast: Ambrose Road (NE)														
7	L2	10	1	11	10.0	0.010	7.4	LOS A	0.0	0.3	0.16	0.58	0.16	61.4
9	R2	50	47	53	94.0	0.104	10.6	LOS A	0.4	5.3	0.31	0.62	0.31	42.7
Approach		60	48	63	80.0	0.104	10.0	LOS A	0.4	5.3	0.29	0.61	0.29	45.0
NorthWest: Brayton Road (NW)														
10	L2	52	48	55	92.3	0.062	8.6	LOS A	0.0	0.0	0.00	0.43	0.00	47.3
11	T1	24	1	25	4.2	0.062	0.0	LOS A	0.0	0.0	0.00	0.43	0.00	78.2
Approach		76	49	80	64.5	0.062	5.9	NA	0.0	0.0	0.00	0.43	0.00	54.1
All Vehicles		156	103	164	66.0	0.104	7.3	NA	0.4	5.3	0.14	0.48	0.14	51.0

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.

MOVEMENT SUMMARY

Site: 001D [Brayton Rd/Ambrose Rd Dev PM (Site Folder: Dev)]

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] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
SouthEast: Brayton Road (SE)														
5	T1	36	3	38	8.3	0.029	0.2	LOS A	0.1	0.6	0.10	0.10	0.10	78.2
6	R2	7	4	7	57.1	0.029	8.7	LOS A	0.1	0.6	0.10	0.10	0.10	54.7
Approach		43	7	45	16.3	0.029	1.6	NA	0.1	0.6	0.10	0.10	0.10	73.0
NorthEast: Ambrose Road (NE)														
7	L2	7	4	7	57.1	0.009	8.5	LOS A	0.0	0.3	0.19	0.58	0.19	49.7
9	R2	46	46	48	100.0	0.105	11.5	LOS A	0.4	5.4	0.37	0.65	0.37	48.4
Approach		53	50	56	94.3	0.105	11.1	LOS A	0.4	5.4	0.34	0.64	0.34	48.5
NorthWest: Brayton Road (NW)														
10	L2	58	45	61	77.6	0.066	8.4	LOS A	0.0	0.0	0.00	0.44	0.00	49.1
11	T1	26	4	27	15.4	0.066	0.0	LOS A	0.0	0.0	0.00	0.44	0.00	75.7
Approach		84	49	88	58.3	0.066	5.8	NA	0.0	0.0	0.00	0.44	0.00	55.1
All Vehicles		180	106	189	58.9	0.105	6.4	NA	0.4	5.4	0.13	0.41	0.13	56.2

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.

MOVEMENT SUMMARY

Site: 002C [Hume Hwy/Red Hills Rd Dev AM (Site Folder: Dev)]

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] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
NorthWest: Red Hills Road (NW)														
10	L2	57	52	60	91.2	0.053	7.4	LOS A	0.0	0.0	0.00	0.48	0.00	51.8
Approach		57	52	60	91.2	0.053	7.4	NA	0.0	0.0	0.00	0.48	0.00	51.8
SouthWest: Hume Highway (SW)														
1	L2	59	56	62	94.9	0.056	10.3	LOS A	0.0	0.0	0.00	0.67	0.00	50.2
2	T1	720	217	758	30.1	0.232	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		779	273	820	35.0	0.232	0.8	NA	0.0	0.0	0.00	0.05	0.00	92.9
All Vehicles		836	325	880	38.9	0.232	1.3	NA	0.0	0.0	0.00	0.08	0.00	88.0

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.

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MOVEMENT SUMMARY

Site: 002D [Hume Hwy/Red Hills Rd Dev PM (Site Folder: Dev)]

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] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
NorthWest: Red Hills Road (NW)														
10	L2	65	53	68	81.5	0.058	7.5	LOS A	0.0	0.0	0.00	0.49	0.00	52.1
Approach		65	53	68	81.5	0.058	7.5	NA	0.0	0.0	0.00	0.49	0.00	52.1
SouthWest: Hume Highway (SW)														
1	L2	54	49	57	90.7	0.050	10.2	LOS A	0.0	0.0	0.00	0.67	0.00	50.9
2	T1	895	174	942	19.4	0.272	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
Approach		949	223	999	23.5	0.272	0.6	NA	0.0	0.0	0.00	0.04	0.00	94.6
All Vehicles		1014	276	1067	27.2	0.272	1.1	NA	0.0	0.0	0.00	0.07	0.00	89.8

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.

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MOVEMENT SUMMARY

Site: 005A [George St/Brayton Rd Dev AM (Site Folder: Dev)]

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] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Brayton Rd														
21	L2	67	8	71	11.9	0.046	4.7	LOS A	0.2	1.4	0.03	0.51	0.03	46.4
22	T1	8	1	8	12.5	0.011	4.8	LOS A	0.0	0.3	0.36	0.48	0.36	46.4
23	R2	1	0	1	0.0	0.011	6.0	LOS A	0.0	0.3	0.36	0.48	0.36	46.2
Approach		76	9	80	11.8	0.046	4.7	LOS A	0.2	1.4	0.07	0.51	0.07	46.4
NorthEast: George Street														
24	L2	6	3	6	50.0	0.005	5.0	LOS A	0.0	0.0	0.00	0.52	0.00	45.9
25	T1	5	0	5	0.0	0.003	0.0	LOS A	0.0	0.0	0.06	0.09	0.06	49.3
26	R2	1	0	1	0.0	0.003	4.8	LOS A	0.0	0.0	0.06	0.09	0.06	48.6
Approach		12	3	13	25.0	0.005	2.9	NA	0.0	0.0	0.03	0.30	0.03	47.5
NorthWest: Brayton Rd														
27	L2	3	0	3	0.0	0.002	4.6	LOS A	0.0	0.1	0.04	0.51	0.04	46.5
28	T1	59	17	62	28.8	0.230	5.3	LOS A	1.0	9.0	0.44	0.63	0.44	45.3
29	R2	95	27	100	28.4	0.230	7.8	LOS A	1.0	9.0	0.44	0.63	0.44	44.6
Approach		157	44	165	28.0	0.230	6.8	LOS A	1.0	9.0	0.43	0.63	0.43	44.9
SouthWest: George Street														
30	L2	55	16	58	29.1	0.126	4.9	LOS A	0.6	4.7	0.07	0.49	0.07	46.2
31	T1	8	1	8	12.5	0.126	0.1	LOS A	0.6	4.7	0.07	0.49	0.07	47.0
32	R2	106	18	112	17.0	0.126	4.8	LOS A	0.6	4.7	0.07	0.49	0.07	46.2
Approach		169	35	178	20.7	0.126	4.6	NA	0.6	4.7	0.07	0.49	0.07	46.2
All Vehicles		414	91	436	22.0	0.230	5.4	NA	1.0	9.0	0.21	0.54	0.21	45.8

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.

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MOVEMENT SUMMARY

Site: 005A [George St/Brayton Rd Dev PM (Site Folder: Dev)]

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] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Brayton Rd														
21	L2	55	3	58	5.5	0.037	4.6	LOSA	0.1	1.1	0.04	0.51	0.04	46.5
22	T1	50	12	53	24.0	0.089	6.4	LOSA	0.4	3.2	0.46	0.61	0.46	45.6
23	R2	8	5	8	62.5	0.089	7.6	LOSA	0.4	3.2	0.46	0.61	0.46	44.5
Approach		113	20	119	17.7	0.089	5.6	LOSA	0.4	3.2	0.26	0.56	0.26	45.9
NorthEast: George Street														
24	L2	11	3	12	27.3	0.007	4.8	LOSA	0.0	0.0	0.00	0.52	0.00	46.2
25	T1	7	0	7	0.0	0.004	0.1	LOSA	0.0	0.0	0.08	0.07	0.08	49.4
26	R2	1	0	1	0.0	0.004	5.1	LOSA	0.0	0.0	0.08	0.07	0.08	48.7
Approach		19	3	20	15.8	0.007	3.1	NA	0.0	0.0	0.03	0.33	0.03	47.5
NorthWest: Brayton Rd														
27	L2	1	0	1	0.0	0.001	4.6	LOSA	0.0	0.0	0.05	0.51	0.05	46.5
28	T1	29	7	31	24.1	0.111	5.6	LOSA	0.4	3.8	0.47	0.64	0.47	45.1
29	R2	39	9	41	23.1	0.111	8.5	LOSA	0.4	3.8	0.47	0.64	0.47	44.4
Approach		69	16	73	23.2	0.111	7.2	LOSA	0.4	3.8	0.46	0.64	0.46	44.7
SouthWest: George Street														
30	L2	145	31	153	21.4	0.187	4.8	LOSA	0.8	6.1	0.07	0.48	0.07	46.3
31	T1	10	0	11	0.0	0.187	0.1	LOSA	0.8	6.1	0.07	0.48	0.07	47.0
32	R2	117	8	123	6.8	0.187	4.7	LOSA	0.8	6.1	0.07	0.48	0.07	46.3
Approach		272	39	286	14.3	0.187	4.6	NA	0.8	6.1	0.07	0.48	0.07	46.3
All Vehicles		473	78	498	16.5	0.187	5.2	NA	0.8	6.1	0.17	0.52	0.17	46.0

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.

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MOVEMENT SUMMARY

 Site: 003C [Hume Hwy Off Ramp/Jerrara Rd/Marulan S Rd
Dev AM (Site Folder: Dev)]

 Network: N101 [Dev AM
(Network Folder: General)]

Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL 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
SouthEast: Marulan South Road (SE)														
4	L2	19	22.2	19	22.2	0.035	4.9	LOS A	0.2	1.5	0.32	0.47	0.32	53.6
5	T1	17	43.8	17	43.8	0.035	5.3	LOS A	0.2	1.5	0.32	0.47	0.32	51.1
Approach		36	32.4	36	32.4	0.035	5.1	LOS A	0.2	1.5	0.32	0.47	0.32	52.8
NorthEast: Hume Highway Off Ramp (NE)														
7	L2	77	9.6	77	9.6	0.164	4.3	LOS A	0.8	8.5	0.24	0.51	0.24	53.6
8	T1	26	64.0	26	64.0	0.164	5.1	LOS A	0.8	8.5	0.24	0.51	0.24	53.6
9	R2	71	95.5	71	95.5	0.164	10.4	LOS A	0.8	8.5	0.24	0.51	0.24	49.4
Approach		174	52.7	174	52.7	0.164	6.9	LOS A	0.8	8.5	0.24	0.51	0.24	52.6
NorthWest: Jerrara Road (NW)														
11	T1	53	8.0	53	8.0	0.041	3.4	LOS A	0.2	1.6	0.03	0.45	0.03	54.3
12	R2	11	30.0	11	30.0	0.041	8.0	LOS A	0.2	1.6	0.03	0.45	0.03	52.5
Approach		63	11.7	63	11.7	0.041	4.2	LOS A	0.2	1.6	0.03	0.45	0.03	54.0
SouthWest: Jerrara Road (SW)														
1	L2	29	17.9	29	17.9	0.029	4.7	LOS A	0.1	1.1	0.28	0.49	0.28	51.4
3	R2	2	50.0	2	50.0	0.029	10.0	LOS A	0.1	1.1	0.28	0.49	0.28	53.6
Approach		32	20.0	32	20.0	0.029	5.0	LOS A	0.1	1.1	0.28	0.49	0.28	51.6
All Vehicles		304	38.4	304	38.4	0.164	5.9	LOS A	0.8	8.5	0.21	0.49	0.21	52.8

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

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

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

Roundabout Capacity Model: SIDRA Standard.

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

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

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

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MOVEMENT SUMMARY

Site: 004C [Hume Hwy On Ramp/Hume Hwy Off Ramp/Jerrara Road Dev AM (Site Folder: Dev)]

Network: N101 [Dev AM (Network Folder: General)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL 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 %				[Veh. veh	Dist] m				
SouthEast: Jerrara Road														
5	T1	25	87.5	25	87.5	0.108	0.2	LOS A	0.5	5.4	0.13	0.45	0.13	52.5
6	R2	92	66.7	92	66.7	0.108	5.2	LOS A	0.5	5.4	0.13	0.45	0.13	45.0
Approach		117	71.2	117	71.2	0.108	4.1	NA	0.5	5.4	0.13	0.45	0.13	46.4
NorthWest: Jerrara Road														
10	L2	19	100.0	19	100.0	0.020	6.7	LOS A	0.0	0.0	0.00	0.48	0.00	49.1
11	T1	3	66.7	3	66.7	0.020	0.0	LOS A	0.0	0.0	0.00	0.48	0.00	49.8
Approach		22	95.2	22	95.2	0.020	5.7	NA	0.0	0.0	0.00	0.48	0.00	49.1
SouthWest: Hume Highway Off Ramp (SW)														
1	L2	3	66.7	3	66.7	0.064	6.6	LOS A	0.2	1.9	0.30	0.63	0.30	49.6
2	T1	1	0.0	1	0.0	0.064	5.8	LOS A	0.2	1.9	0.30	0.63	0.30	52.4
3	R2	39	10.8	39	10.8	0.064	7.6	LOS A	0.2	1.9	0.30	0.63	0.30	48.4
Approach		43	14.6	43	14.6	0.064	7.5	LOS A	0.2	1.9	0.30	0.63	0.30	48.7
All Vehicles		182	60.7	182	60.7	0.108	5.1	NA	0.5	5.4	0.15	0.50	0.15	47.4

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

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

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

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MOVEMENT SUMMARY

 Site: 003D [Hume Hwy Off Ramp/Jerrara Rd/Marulan S Rd
Dev PM (Site Folder: Dev)]

 Network: N101 [Dev PM
(Network Folder: General)]

Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL 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 %	[Veh. veh			Dist] m					
SouthEast: Marulan South Road (SE)														
4	L2	43	19.5	43	19.5	0.085	5.2	LOS A	0.4	3.4	0.38	0.50	0.38	53.4
5	T1	44	19.0	44	19.0	0.085	5.3	LOS A	0.4	3.4	0.38	0.50	0.38	50.7
Approach		87	19.3	87	19.3	0.085	5.2	LOS A	0.4	3.4	0.38	0.50	0.38	52.4
NorthEast: Hume Highway Off Ramp (NE)														
7	L2	13	58.3	13	58.3	0.124	4.9	LOS A	0.6	6.7	0.23	0.52	0.23	51.6
8	T1	42	22.5	42	22.5	0.124	4.5	LOS A	0.6	6.7	0.23	0.52	0.23	54.4
9	R2	67	96.9	67	96.9	0.124	10.4	LOS A	0.6	6.7	0.23	0.52	0.23	49.0
Approach		122	67.2	122	67.2	0.124	7.8	LOS A	0.6	6.7	0.23	0.52	0.23	52.0
NorthWest: Jerrara Road (NW)														
11	T1	8	62.5	8	62.5	0.040	3.4	LOS A	0.2	2.0	0.02	0.60	0.02	48.5
12	R2	44	52.4	44	52.4	0.040	8.0	LOS A	0.2	2.0	0.02	0.60	0.02	47.6
Approach		53	54.0	53	54.0	0.040	7.3	LOS A	0.2	2.0	0.02	0.60	0.02	47.7
SouthWest: Jerrara Road (SW)														
1	L2	36	26.5	36	26.5	0.035	4.9	LOS A	0.2	1.4	0.31	0.50	0.31	51.2
3	R2	1	0.0	1	0.0	0.035	9.3	LOS A	0.2	1.4	0.31	0.50	0.31	55.6
Approach		37	25.7	37	25.7	0.035	5.1	LOS A	0.2	1.4	0.31	0.50	0.31	51.5
All Vehicles		299	45.8	299	45.8	0.124	6.6	LOS A	0.6	6.7	0.25	0.53	0.25	51.3

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

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

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).

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

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

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MOVEMENT SUMMARY

Site: 004D [Hume Hwy On Ramp/Hume Hwy Off Ramp/Jerrara Road Dev PM (Site Folder: Dev)]

Network: N101 [Dev PM (Network Folder: General)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL 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] %				[Veh. veh	Dist] m				
SouthEast: Jerrara Road														
5	T1	18	100.0	18	100.0	0.135	0.5	LOS A	0.6	6.2	0.21	0.50	0.21	52.9
6	R2	128	50.0	128	50.0	0.135	5.5	LOS A	0.6	6.2	0.21	0.50	0.21	46.3
Approach		146	56.1	146	56.1	0.135	4.9	NA	0.6	6.2	0.21	0.50	0.21	47.1
NorthWest: Jerrara Road														
10	L2	27	53.8	27	53.8	0.042	6.2	LOS A	0.0	0.0	0.00	0.27	0.00	53.6
11	T1	32	53.3	32	53.3	0.042	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	55.4
Approach		59	53.6	59	53.6	0.042	2.9	NA	0.0	0.0	0.00	0.27	0.00	54.3
SouthWest: Hume Highway Off Ramp (SW)														
1	L2	13	100.0	13	100.0	0.054	7.0	LOS A	0.2	2.2	0.16	0.58	0.16	47.7
2	T1	2	0.0	2	0.0	0.054	6.5	LOS A	0.2	2.2	0.16	0.58	0.16	51.6
3	R2	16	53.3	16	53.3	0.054	10.3	LOS A	0.2	2.2	0.16	0.58	0.16	47.1
Approach		31	69.0	31	69.0	0.054	8.7	LOS A	0.2	2.2	0.16	0.58	0.16	47.8
All Vehicles		236	57.1	236	57.1	0.135	4.9	NA	0.6	6.2	0.15	0.45	0.15	49.1

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

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

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

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