



Horns Gas Service

Traffic and Parking Impact Assessment

Light Industrial
202 Caniaba Road, Caniaba

3 April 2025

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SYDNEY

P (02) 9659 0005
E sydney@brs.com.au

CENTRAL COAST

P (02) 4325 5255
E coast@brs.com.au

HUNTER

P (02) 4966 8388
E hunter@brs.com.au

COFFS HARBOUR

P (02) 5642 4222
E coffs@brs.com.au

NORTHERN RIVERS

P (02) 6681 6696
E northernrivers@brs.com.au

SOUTH EAST QLD

P (07) 5582 6555
E seqld@brs.com.au

Table of Contents

1	Introduction	4
2	Existing Conditions	5
2.1	Site Location	5
2.2	Existing Site Context	5
2.3	Existing Road Network	6
2.4	Public Transport	7
2.5	Pedestrian and Bicycle Network	7
2.6	Accident Statistics	9
3	Planning Proposed	10
3.1	Development Description	10
3.2	Proposed Vehicle Access	11
4	Car Parking Assessment	12
4.1	Parking requirements	12
4.2	Parking provision	12
5	Traffic Impact Assessment	14
5.1	Traffic Generation	14
5.2	Trip Distribution	15
5.3	Mid-block Impact of Generated Traffic	19
6	Access Warrant Assessment	21
6.1	Projected trip generation	21
6.2	Summary Geometry Requirements	23
6.3	Proposed Access Configuration	23
6.4	Sight Distance	24
7	Heavy Vehicle Access	25
8	Conclusion/Recommendations	25
9	References	26

Appendix A – Swept Paths

SYDNEY

P (02) 9659 0005
E sydney@brs.com.au

CENTRAL COAST

P (02) 4325 5255
E coast@brs.com.au

HUNTER

P (02) 4966 8388
E hunter@brs.com.au

COFFS HARBOUR

P (02) 5642 4222
E coffs@brs.com.au

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P (02) 6681 6696
E northernrivers@brs.com.au

SOUTH EAST QLD

P (07) 5582 6555
E seqld@brs.com.au

1 Introduction

Barker Ryan Stewart have been engaged by Hayley Brown and Horns Gas Service to prepare a Traffic and Parking Impact Assessment in accordance with the requirements of Lismore City Council Development Control Plan and Transport for New South Wales (TfNSW) '*Guide to Traffic Generating Developments*' to accompany a Planning Proposal Application for additional uses onsite to enable operation of the Horns Gas and Plumbing business on the subject property at 202 Caniaba Road, Caniaba.

The purpose of this report is to assess and address traffic, access, car parking impacts generated by the proposed additional uses on site. This can be briefly outlined as follows:

- The expected traffic generation to/from the proposed development site.
- The impact of the proposed development on the road network.
- Vehicle parking provisions.
- Access design requirements.
- Assessment of the vehicular movements and internal circulation pattern.
- Assessment of the parking layouts and dimension requirements.
- Availability of public transport.

The Impact assessment concludes that the subject site is suitable for the proposed additional uses of the site as a gas-fitting and plumbing business in relation to traffic impact and parking demand and considered to have negligible effect on the operating outcomes of the surrounding transport network.

2 Existing Conditions

2.1 Site Location

The site is located at 202 Caniaba Road, Caniaba. The site is bordered by Caniaba Road to the south and rural properties to the north, east and west. The site location in the context of the surrounding road network is shown in Figure 2.1 below:



Figure 2.1 – Locality Plan (Source: NearMap, 2023)

2.2 Existing Site Context

The site is legally described as Lot 22 DP 628242, 202 Caniaba Road, Caniaba. The site has an area of 33.54ha and zoned RU1 Primary Production.

The Site is in Caniaba, southwest of Lismore City and within the Lismore Local Government Area. The surrounding area is generally rural in character including –

- To the north – Smaller size rural properties mainly cleared of vegetation and used for grazing.
- To the south – Properties on the southern side of the Caniaba Road are generally rural residential properties with dwellings and outbuilding structures. These properties are predominantly cleared grazing land with some vegetated areas associated with elevated areas and ridgelines.
- To the east – The eastern neighbouring properties are generally rural residential properties with dwellings and outbuilding structures. These properties are a combination of cleared grazing land and vegetated areas associated with elevated areas and ridgelines. The

Lismore Airport and South Lismore industrial precinct are located approximately 600m and 1.5km to the east/northeast of the site respectively. The Road Runner Caravan Park is located approximately 800m to the east/southeast of the subject site.

- To the west – The western neighbouring properties are generally rural residential properties with dwellings and outbuilding structures. These properties are a mix of cleared and vegetated land associated with elevated areas and ridgelines.

Currently The site has a dwelling, a small shed/stable associated with the cattle yards and four (4) large sheds. The driveway access is from Caniaba Road.

2.3 Existing Road Network

The site is accessed off Caniaba Road. Caniaba Road runs in an east-west direction in the vicinity of the site and connects with Bruxner Highway to the east. Bruxner Highway runs in the north-south direction connecting Lismore to the north and Casino to the south-west.

Caniaba Road

Caniaba Road is a two-lane two-way rural road. It has a carriageway width is approximately 8.5m with localised widening at the intersections with two traffic lanes. The posted speed limit in Caniaba Road is 80 Km/h.

Bruxner Highway

Bruxner Highway is a two-lane two-way undivided regional road that runs in a north-south direction. It has a carriageway width of approximately 9.0m. Bruxner Highway has two traffic lanes with sealed shoulders on both sides. The default speed limit in Bruxner Highway is 100 Km/h.

2.4 Public Transport

The nearest bus stops are located on Bruxner Highway and are shown in Figure 2.2 below.



Figure 2.2 - Bus Stop Location Map near the site (Source: Google Maps 2024)

2.5 Pedestrian and Bicycle Network

There are no existing pedestrian paths or cycleways in the vicinity of the site. We have utilised the 'WalkScore' website tool to ascertain the likelihood of Active Travel to the development site from surrounding areas. The WalkScore website provides a 'walkability' assessment of a locality taking various factors which promote walking, specifically pedestrian generating developments and associated infrastructure, into account when providing that score.

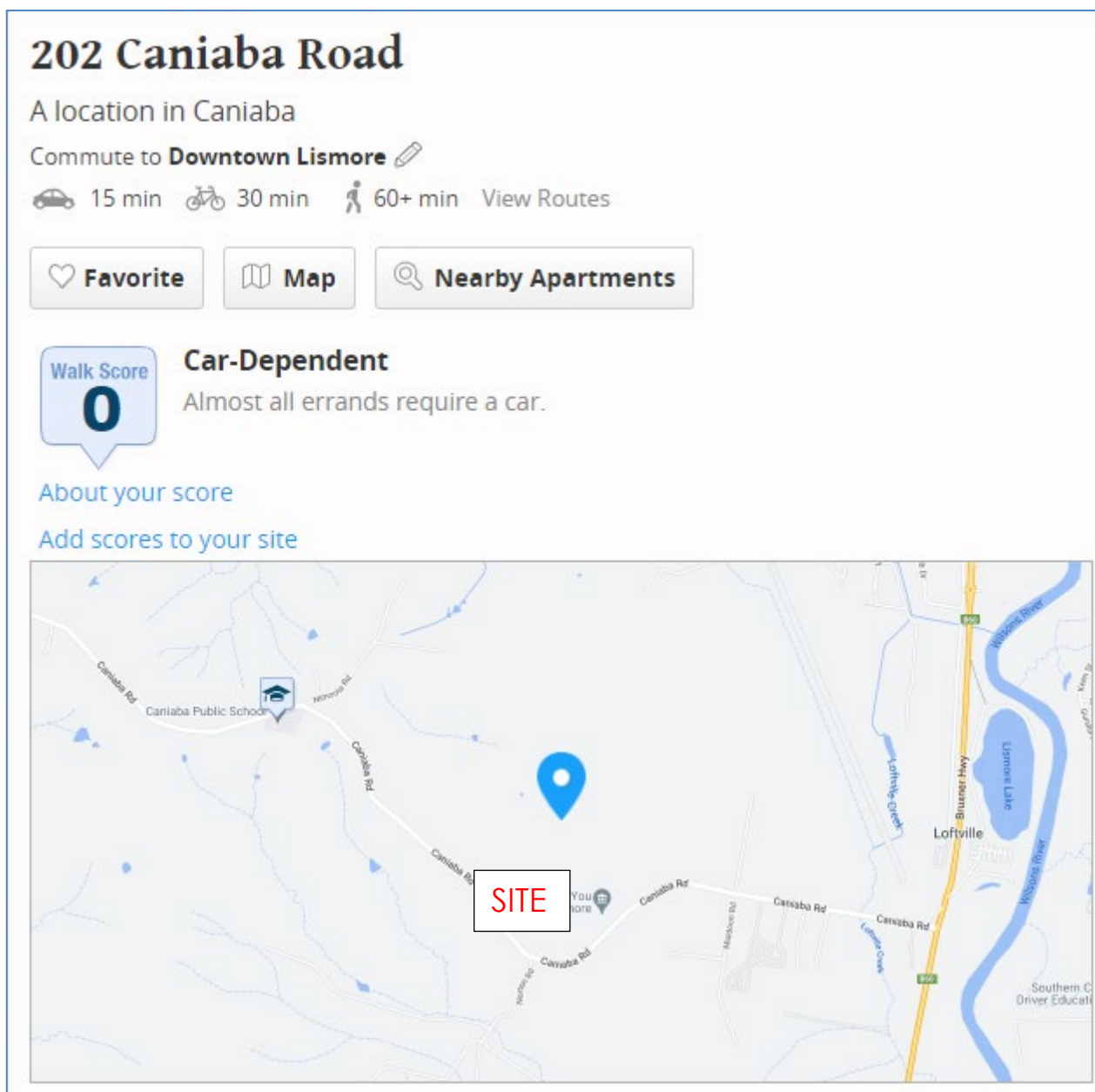


Figure 2.3 – Walkability Rating (Source: WalkScore, 2024)

202 Caniaba Road has a Walk Score of 0 out of 100. This location is a Car-Dependent neighbourhood so almost all errands require a car. The WalkScore website also provides the following travel time maps for pedestrians from the proposed development site.

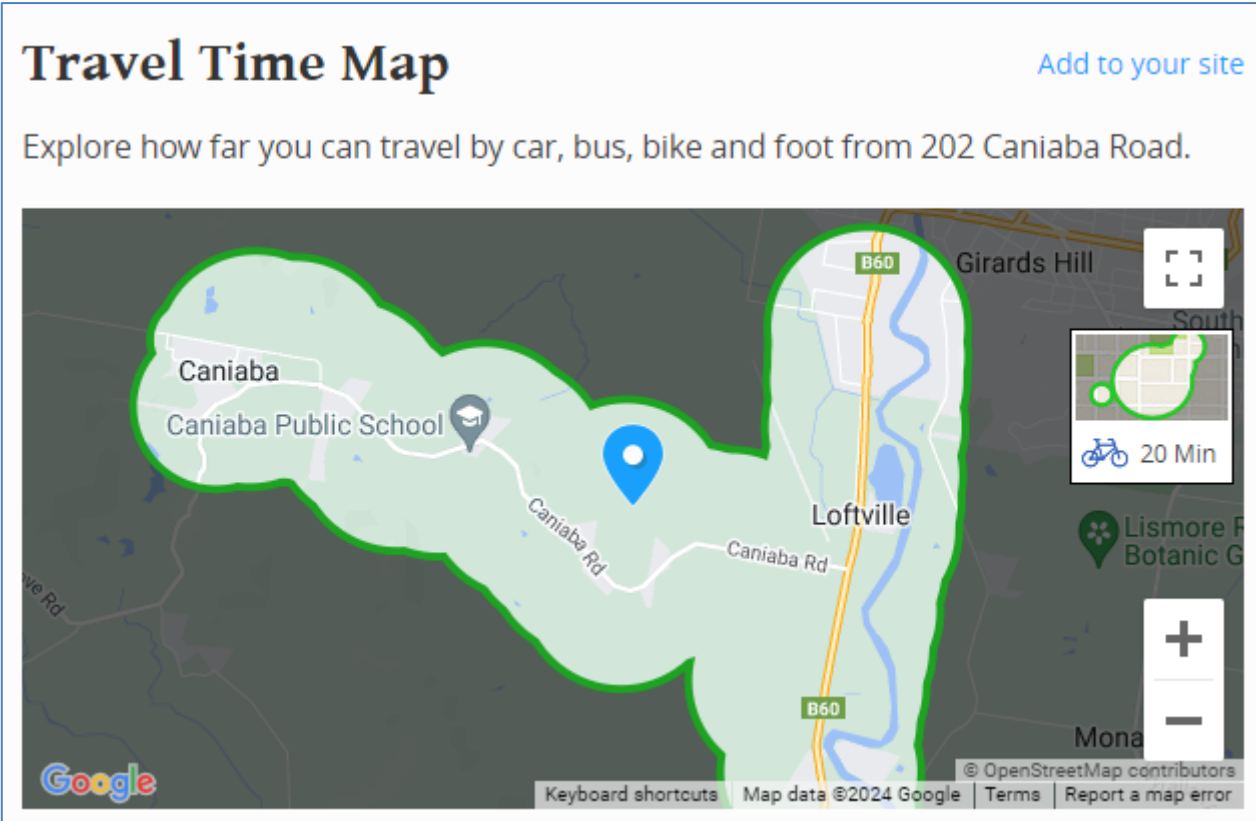


Figure 2.4 – Cycling Map (20 minutes radius) (Source: WalkScore, 2024)

2.6 Accident Statistics

There are two off-carriage on a bend type crashes recorded in Caniaba Road between the year 2018 to 2022 near the site as shown in the crash statistics provided by TfNSW Centre for Road Safety (Figure 2.5).

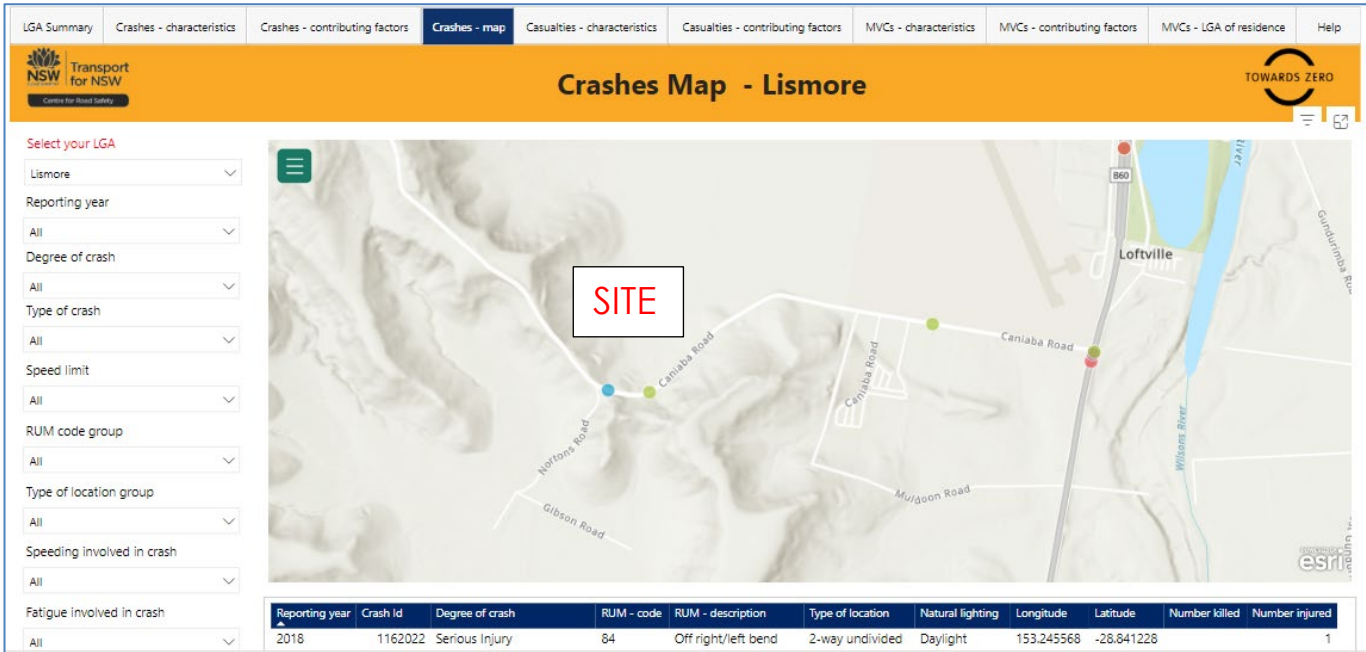


Figure 2.5 – Crash statistics Lismore LGA (Source: TfNSW Centre for Road Safety)

3 Planning Proposed

3.1 Development Description

The proposed development scheme involves seeking approval from Lismore City Council for the continuing operation of gas-fitting and plumbing business from the property.

The proposal is to amend the LEP Additional Permitted Uses Map and Schedule 1 Additional Permitted Uses to include the subject site and allow 'general industry', 'industrial retail outlet' and 'goods repair and reuse premises'.

Allowing these additional uses to be permitted will enable development consent to be sought for the operation of the Horns Gas and Plumbing business on the Site.

Following the February and March 2022 flood, Horns Gas and Plumbing temporarily relocated to the site and has continued to operate the business from this location. The Horns Gas and Plumbing business at the site currently comprises:

- A workshop – generally operated one (1) day per week with two (2) staff.
- An office with three (3) employees
- Repair, installation and sale of caravan and recreational vehicles (RVs) fridges on-site - generally operated four (4) days per week including delivery and dispatch of caravans, RVs and fridges, and
- Direct customer visits – estimated to be up to ten (10) per day.

The proposed land use activity is a gas fitting and plumbing business which will operate in the existing four large sheds located near the southern boundary of the site. The business has been operating in this location following forced relocation from the previous premises due to extensive damage from the February and March 2022 flooding. The current layout of the site is shown in Figure 3.1 below.

The gas fitting and plumbing business contributes to the local economy through the provision of employment and creation of jobs as well as providing essential services for the community. Services provided by Horns Gas and Plumbing include:

- Commercial gas-fitting including for commercial kitchens, mobile kitchens, hospitality venues, distilleries
- Domestic gas-fitting including hot water systems, cooking appliances, heating and BBQs.
- Caravan and RV gas-fitting including hot water systems, fridges, heating and cooking appliances.
- Maintenance plumbing including guttering/roofing, hot water, drains and sewer and water pumps.

The gas fitting and plumbing business likely to generate the following traffic movements through a normal work week (5 days) between 8:30am and 3:30pm:

- 19 cars
- 5 delivery vans
- 3 trucks
- 10 caravans

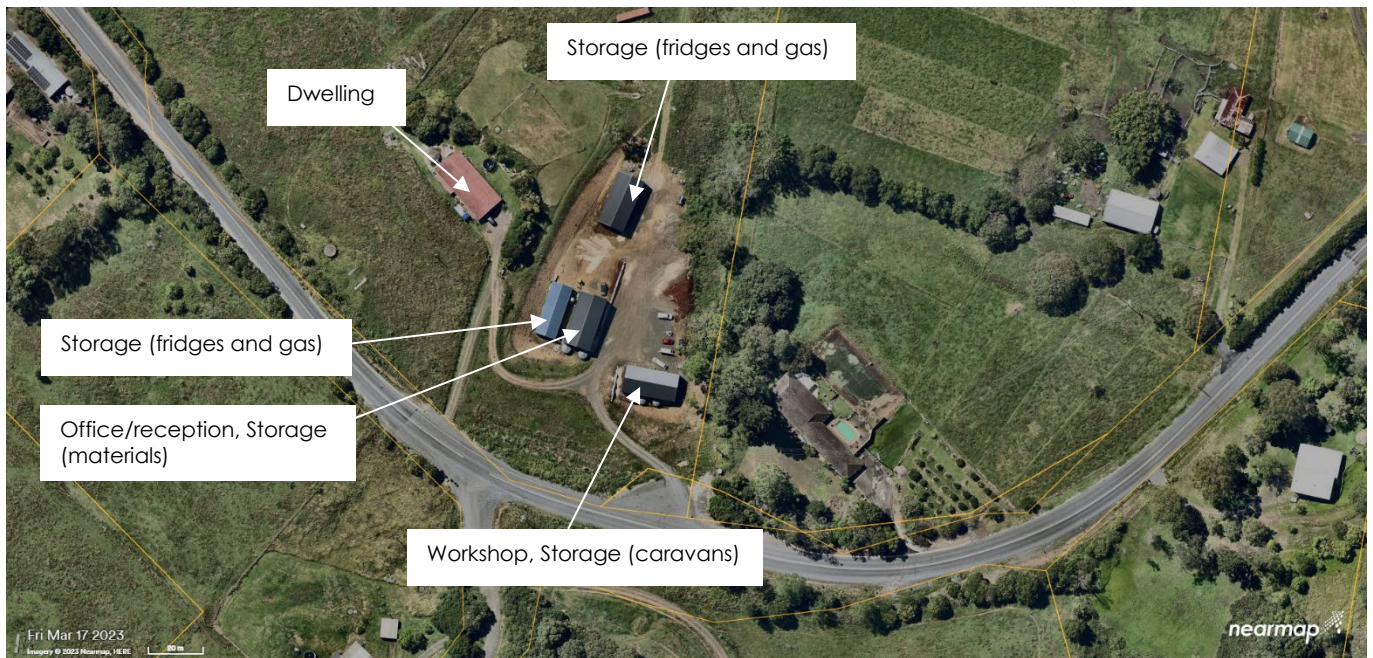


Figure 3.1 - Aerial Photo of Site (Source: Nearmap; 2023)

3.2 Proposed Vehicle Access

Vehicle access will involve the continued use of the existing entry and exit driveway off Caniaba Road. The following Figure 3.2 shows the available sightlines (105m to the east and 107m to the west) at the entry/exit from and to Caniaba Road.



Figure 3.2 – Available sightline at the exit on Caniaba Road

4 Car Parking Assessment

4.1 Parking requirements

The following parking provision requirements have been extracted from the Lismore Development Control Plan 2012:

LAND USE	CARPARKING REQUIREMENTS	LOADING BAYS AND MANOEUVRING AREAS
Industry (heavy, general and light)	1 per 100m ² GFA or part thereof. Minimum of 2 spaces per unit or separate leased area	Loading bays and manoeuvring area for large rigid vehicles
Industry (house/car recycling yard)	1 per 2 employees, plus 1 per 200m ² site area	Loading bays and manoeuvring area for large rigid vehicles

Figure 4.1 – Lismore DCP 2012 parking requirements

The minimum onsite parking numbers for general industry is 1.0 car space per 100m² of Gross Floor Area.

The parking provision requirements for the existing sheds (Total gross floor area of 800m²), in accordance with Council's Development Control Plan are shown in Figure 4.2 below.

Land Use	Gross Floor Area	DCP Rate	Required Parking
General Industry	800 m ²	1.0 space per 100m ²	$(800/100) \times 1 = 8$ 8 spaces
	Total		8 spaces

Figure 4.2 – DCP off-street parking requirements for the proposed use

4.2 Parking provision

As can be seen from Figure 4.3 below, there is ample space available onsite to provide more than 8 car parking spaces to satisfy Council's DCP parking provision requirements.



Figure 4.3 – View of existing access and available parking areas

5 Traffic Impact Assessment

5.1 Traffic Generation

Existing Traffic Generation

The development site is comprised of a single dwelling house and ancillary structures and buildings.

The TfNSW 'Technical Direction TDT2013/04a has been used to calculate the trip generation of the existing developments at the site as shown in Table-5.1 and 5.2 below.

Table-5.1: Trip Generation Rate

Use	Rates		
	Daily	AM Peak Hour	PM Peak Hour
Dwelling Houses	7.4/dwelling	0.85/dwelling	0.9/dwelling

Table-5.2: Existing Site Trip Generation

Use	Number	Trip Generation		
		Daily	Peak hour	
			AM	PM
Dwelling houses	1	7.4x1= 7.4 trips	0.85x1=0.85 trips	0.9x1=0.9 trips
Total		8 trips	1 trip	1 trip

Business Operations estimated traffic generation

The proposed additional use of the site can be classified as a factory land use for the purpose of estimating potential traffic generation from the site.

Trip generation for the proposed use of the site has been calculated using the trip generation rate in Table -5.3 extracted from former RTA's "Guide to Traffic Generating Developments -2002" a recognised reference documents for this purpose.

Table-5.3: Trip Generation Rate (GTGD)

Use	Rate/per 100 sqm GLFA	
	Daily	Peak hour
Factory	5 trips	1 trip

Table-5.4: Proposed business use trip generation

Use	Range in total floor area (GLFA-sqm)	Trip Generation	
		Daily	Peak hour
4 sheds as workshops (factories)	800	$(800/100) * 5 = 40$ trips	$(800/100) * 1 = 8$ trips
Total		40 Trips	8 trips

Net Traffic Generation

The proposed additional use of the site has an estimated maximum net increase of trips of 8 vehicular movements combined in and out in the peak hour in Caniaba Road and surrounding associated road network.

With respect to daily traffic generation there is potential for an estimated increase of 40 daily movements within Caniaba Road and the surrounding associated road network.

5.2 Trip Distribution

The following Figure 5.1 shows the adopted traffic distribution of the additional traffic at the site access

Directional Split		AM Split		PM Split	
West	East	In	OUT	IN	OUT
5%	95%	50%	50%	50%	50%

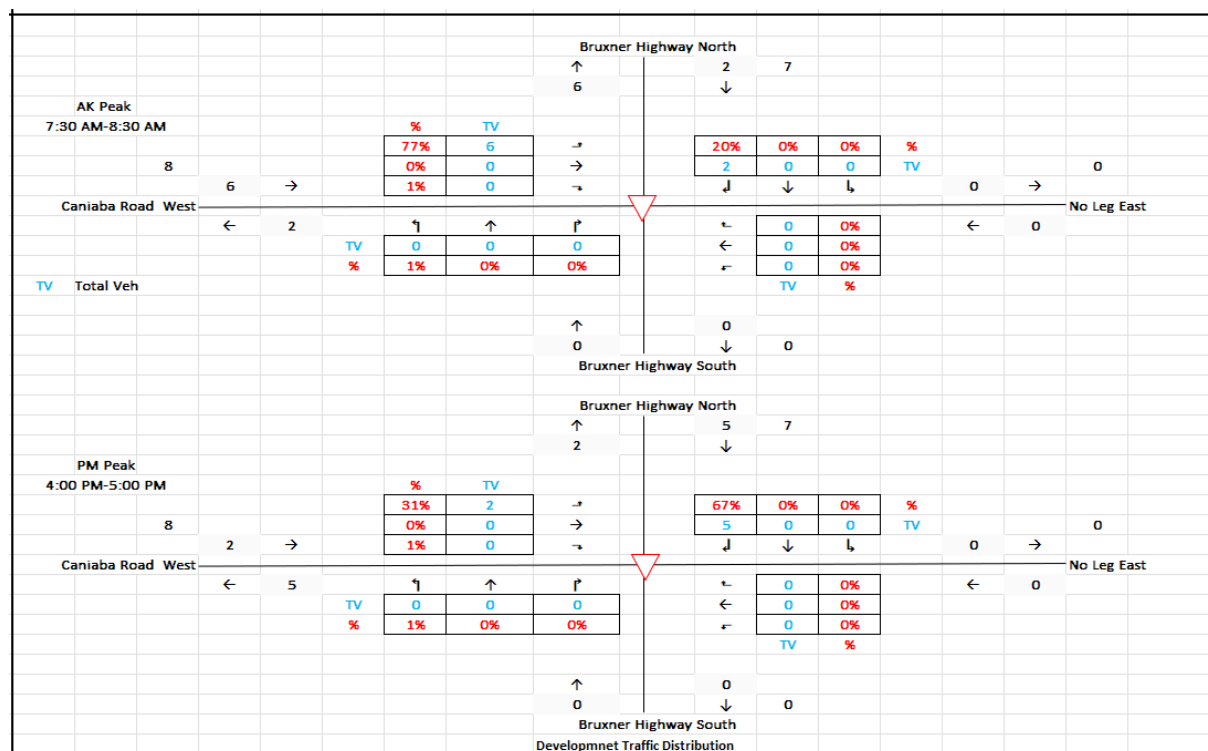
Figure 5.1 – Traffic distribution at access

The following Figure 5.2 represents recorded existing traffic counts/ distribution of traffic at the intersection of Bruxner Highway and Caniaba Road both in the morning and afternoon peak.

Intersecction:		Peak Hour Turning Movement Summary										Date:		2/5/2024	
Bruxner Highway @ Caniaba Road		Bruxner Highway North													
		HV		9%	↑		818	↓		530	1348				
AK Peak		HV		LV	TV	→		10		53	0	HV			
7:30 AM-8:30 AM		10		255	265	→		59		408	0	LV			
343		0		0	0	→		69		461	0	TV			
269		0		4	4	→		↓		↓	↓	0			
Caniaba Road West		←		74	↑		↓		0		0	0	No Leg East		
		TV		5	553	0	←		0		0	0			
		LV		1	520	0	←		0		0	0			
		HV		4	33	0	←		TV		LV	HV			
TV		Total Veh													
LV		Light Veh													
HV		Heavy Veh													
						↑		↓		465	1023				
						Bruxner Highway South									
						Bruxner Highway North									
		HV		6%	↑		562	↓		892	1454				
PM Peak		HV		LV	TV	→		5		33	0	HV			
4:00 PM-5:00 PM		4		107	111	→		239		615	0	LV			
362		0		0	0	→		244		648	0	TV			
113		0		2	2	→		↓		↓	↓	0			
Caniaba Road West		←		249	↑		↓		0		0	0	No Leg East		
		TV		5	451	0	←		0		0	0			
		LV		5	407	0	←		0		0	0			
		HV		0	44	0	←		TV		LV	HV			
						↑		↓		650	1106				
						456									
						Bruxner Highway South									
						Existing Traffic									

[illegible]

The following Figure 5.4 shows the proposed business use traffic distribution at the intersections of Caniaba Road/ Bruxner Highway.



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Figure 5.5, shows the existing and the business use development traffic distribution at the intersections of Caniaba Road/Bruxner Highway at full development year (2024).

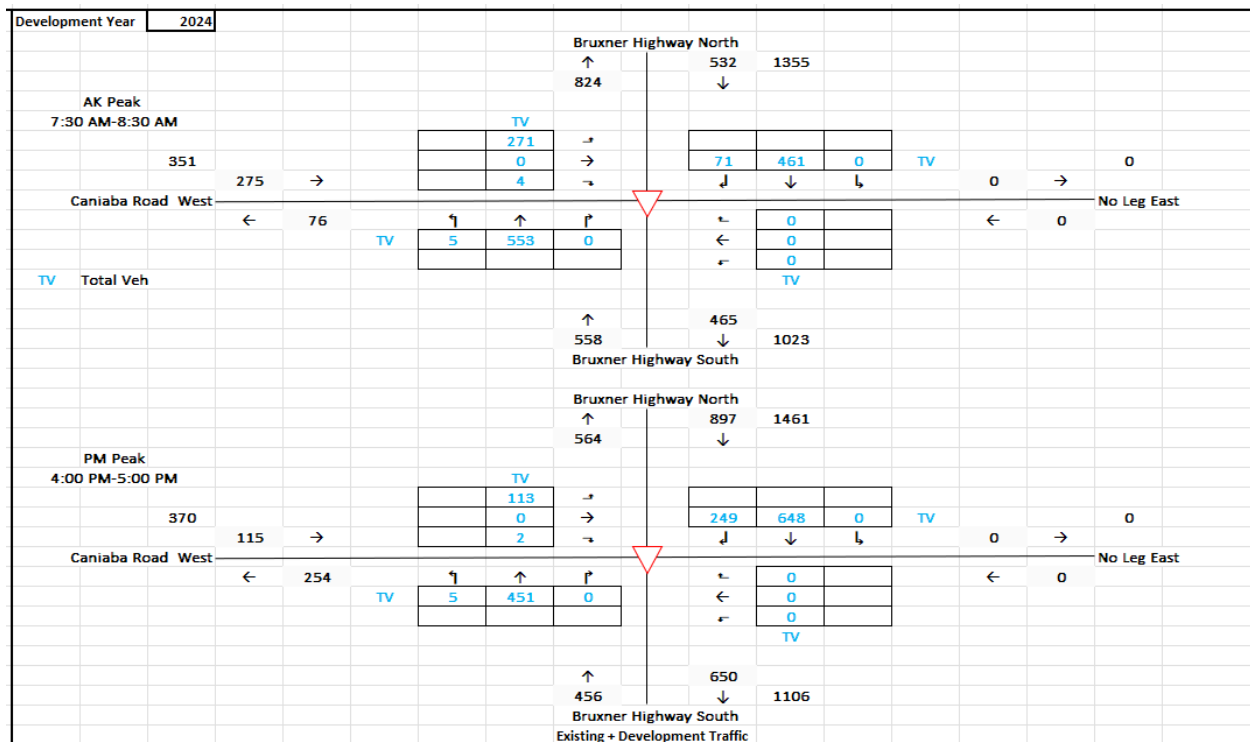


Figure 5.5 – Existing + Development Traffic at the intersection of Caniaba Rd/ Bruxner Hwy AM and PM Peak (Year 2024)

A growth rate of 1.7% per annum has been applied to the surveyed traffic to obtain the 10-year background growth volume as a worst-case scenario. The resultant intersection turning movements for the 10-year growth scenario is shown in the following Figure 5.6.

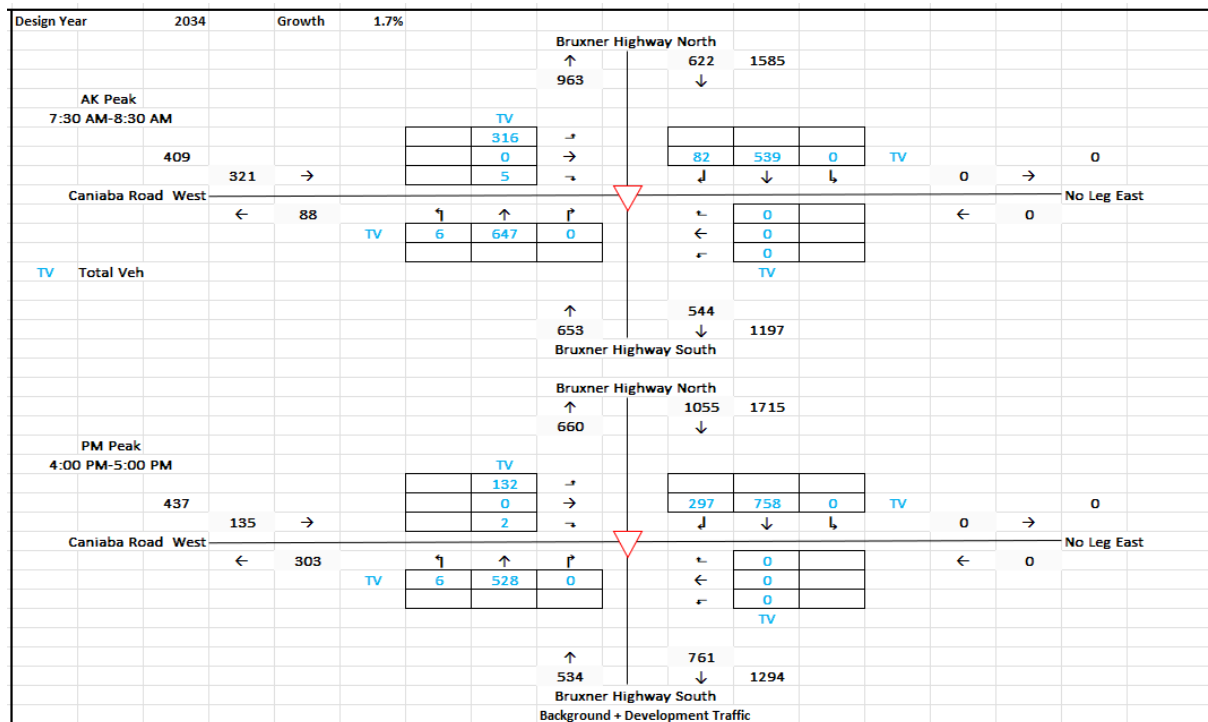


Figure 5.6 – Background + Development Traffic at the intersection of Caniaba Rd/ Bruxner Hwy AM and PM Peak (Year 2034)

5.3 Mid-block Impact of Generated Traffic

The midblock capacity of an urban road and its relationship with the level of service has been identified in Table 4.4 of former RTA's "Guide to Traffic Generating Developments -2002" and stipulated below:

Table-5.5: Urban Road peak hour flows per direction

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

Source: Table 4.4: RTA's "Guide to Traffic Generating Developments -2002"

The proposed additional use of the site has been projected to generate 8 additional peak hour vehicle trips to and from the site within Caniaba Road.

This level of additional traffic is not expected to have any significant impacts on the overall operation of the surrounding road network. The abovementioned extent of traffic can readily be accommodated within the surrounding road network and it is unlikely to have an adverse impact on the capacity of Caniaba Road and the surrounding road network. As such, no road upgrades to the existing road network are warranted resulting from the proposed additional use at the site.

The daily increase in traffic within Caniaba Road and the surrounding road network due to the proposed additional use of the site is unlikely to exceed the environmental capacity of these streets.

With respect to the risk associated with the increase in peak hour movements, the projected increase in peak hour traffic from the proposed additional uses is minimal. Caniaba Road is a two-lane two-way undivided road with a carriageway width of approximately 9.5m. The posted speed limit of 80 km/hr applies to Caniaba Road. As outlined in Figure 3.2 the proposed access has sufficient sightlines available in both directions. Therefore, given the existing road infrastructure and the increase in traffic is negligible, the associated risk is considered to be low.

The following road characteristics has been extracted from *NSW Road Classification Review (2004)* information paper prepared by Transport for NSW.

Function/ Criteria	STATE	REGIONAL	LOCAL
Goods and Services			
	Between ports & terminals	From State Roads to ports & terminals	N/A
	Serving Primary CBD and Secondary (Regional) industrial & commercial centres	Serving Regional, Industrial and commercial centres	Serving local or neighbourhood facilities
Indicative Heavy vehicle Volume	> 1,500 hvpd	500-1,500 hvpd	< 500 hvpd
Mobility			
General			
Indicative AADT (vpd)	> 25,000	15,000– 25,000	< 15,000
	Essential, External connections to communities >10,000	Essential, External connections to communities >2,000	Other roads
Network Connectivity	Principal Links	Secondary Links	Other
Indicative Journey to work Trip km (2hr) (trip km)	> 100,000	10,000-100,000	< 10,000
Indicative AM Peak (2hr) (veh/hr)	> 1,000	500-1,000	< 500
	Major or Essential Route	Supports State Road	Access to State or Regional Rd

Figure 5.7 – TfNSW, Road Classification Review (2004)

Caniaba Road generally aligns with a Local Road as per the Transport for NSW (formerly Roads and Maritime Services') *NSW Road Classification Review* (2004). As such, it is expected the environmental capacity for Caniaba Road is in the order of less than 15,000vpd.

The Street Network Characteristic assessment summary of the most relevant streets surrounding the site has been shown in **Table 5.6** below. For the purpose of road characteristics assessment, a daily traffic volume is assumed to be 10 times of peak hourly volumes.

Table 5.6: Assessment of Road Characteristics with the Proposed Development

Street	Functional Classification (TfNSW)	Peak Period	Existing Peak Hour Traffic (Peak-direction)	Existing Level of Service (LoS)	Proposed Peak Hour Traffic with development. (Peak-direction)	Proposed Level of Service (LoS)	Proposed Peak Hour Traffic with development. (Both-direction)	Estimated Daily Traffic (10 times of Peak hour)	Allowable Daily Traffic (TfNSW)	Comment
Caniaba Road	Local Road	PM	269 veh/h	B	275 veh/h	B	370 veh/h	3,700 vpd	15,000 vpd	Within limit

It is estimated the proposed use of the site could generate approximately 8 veh/hr which is a nominal increase to the existing 269 vehicles on Caniaba Road at peak locations. As such, the environmental capacity of Caniaba Road is considered to be within acceptable limits including the proposed business use generated traffic.

In reference to Table 5.6 above the daily traffic volumes in Caniaba Road with the proposed business use generated traffic have been projected to be well within the daily limit of a Local Road. The traffic impact of the proposed use of the site on the mid-block capacity of Caniaba Road is likely to be minimal and there will be spare capacity in Caniaba Road to accommodate other developments serviced by this road.

6 Access Warrant Assessment

6.1 Projected trip generation

The following Figures 6.1 and 6.2 show the projected trip (Existing + Development (proposed use)) distribution at the proposed intersection of site access and Caniaba Road both in the AM and PM peak in year in 2034.

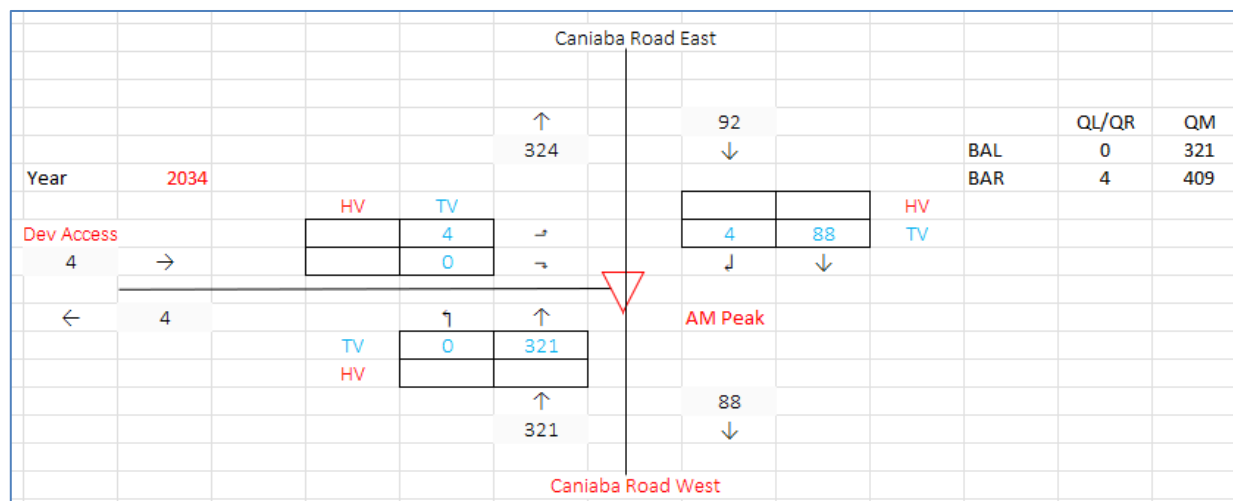


Figure 6.1 – Existing and development traffic distribution Site Access/Caniaba Rd (AM Peak, 2034)

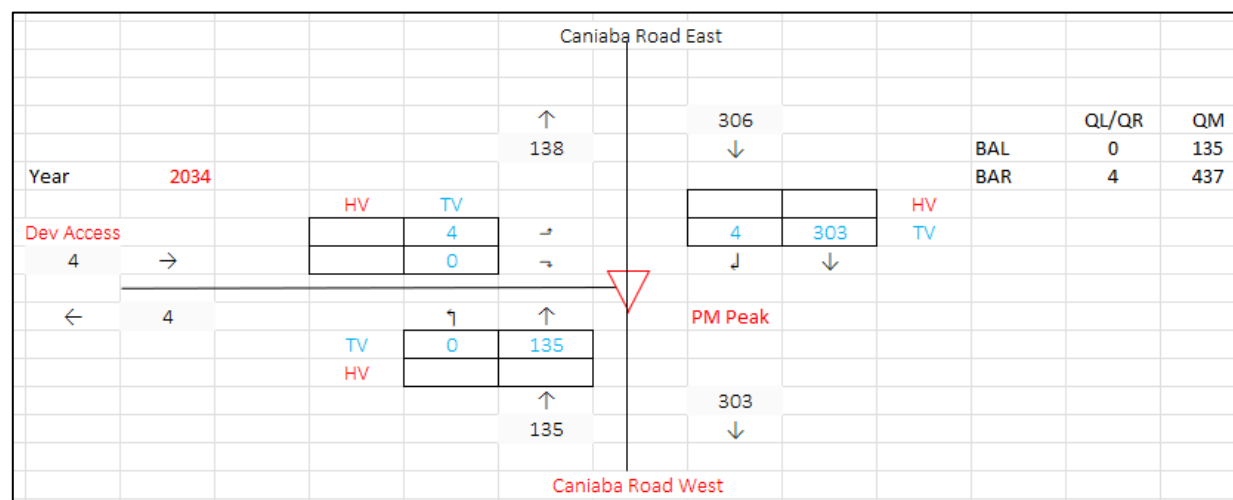


Figure 6.2 – Existing and development traffic distribution Site Access/Caniaba Rd (PM Peak, 2034)

Based on the above traffic distribution pattern the turn warrants have been assessed according to Austroads Guide to Road Design as shown in Figures 6.3 and 6.4. The intersection of site access with Caniaba Road will require a minimum of Basic Right Turn Treatment (BAR) during both AM and PM Peak. This treatment would be required in the year 2034.

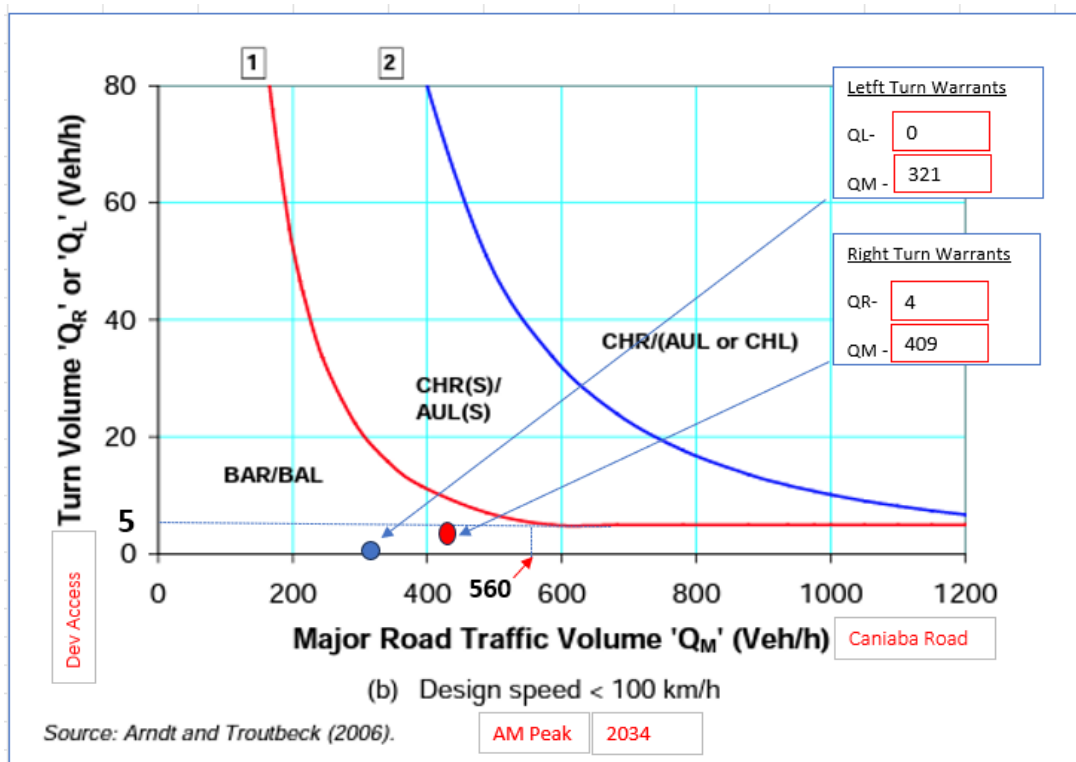


Figure 6.3 – Intersection warrants assessment Site Access/Caniaba Rd (AM Peak, 2034)

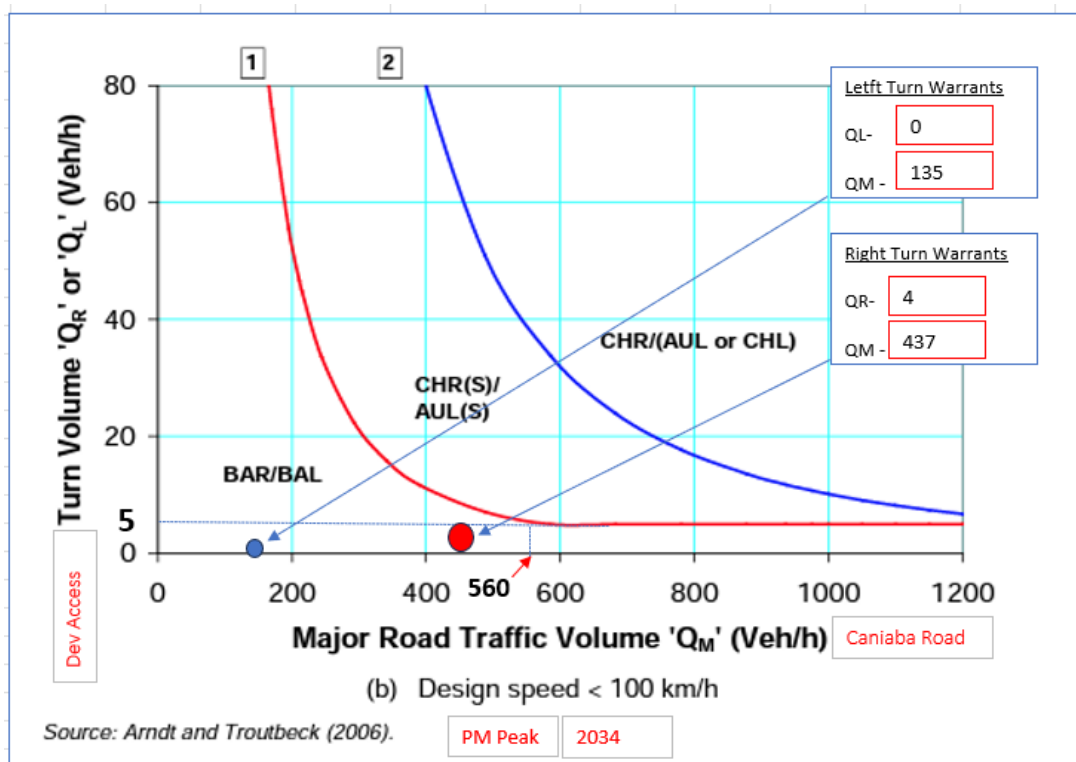


Figure 6.4 – Intersection warrants assessment Site Access/Caniaba Rd (PM Peak, 2034)

6.2 Summary Geometry Requirements

The summary of the geometry requirements for the intersection of site access with Caniaba Road, with the proposed use in the year 2034, have been shown the Table 6.1 below:

Table 6.1: Summary– Intersection Requirements (Full development in year 2034)

Year	Intersection	Peak	Intersection Geometry Requirements	
			Left Turn	Right Turn
2034	Site Access/Caniaba Rd	AM	Nil	BAR
2034	Site Access/Caniaba Rd	PM	Nil	BAR

6.3 Proposed Access Configuration

The following Figure 6.5 shows the existing width of Caniba Road at the proposed access point can accommodate a passing vehicle while a design vehicle is waiting to make a right turn into the site. Thus, can act a Basic Right Turn (BAR) facility.

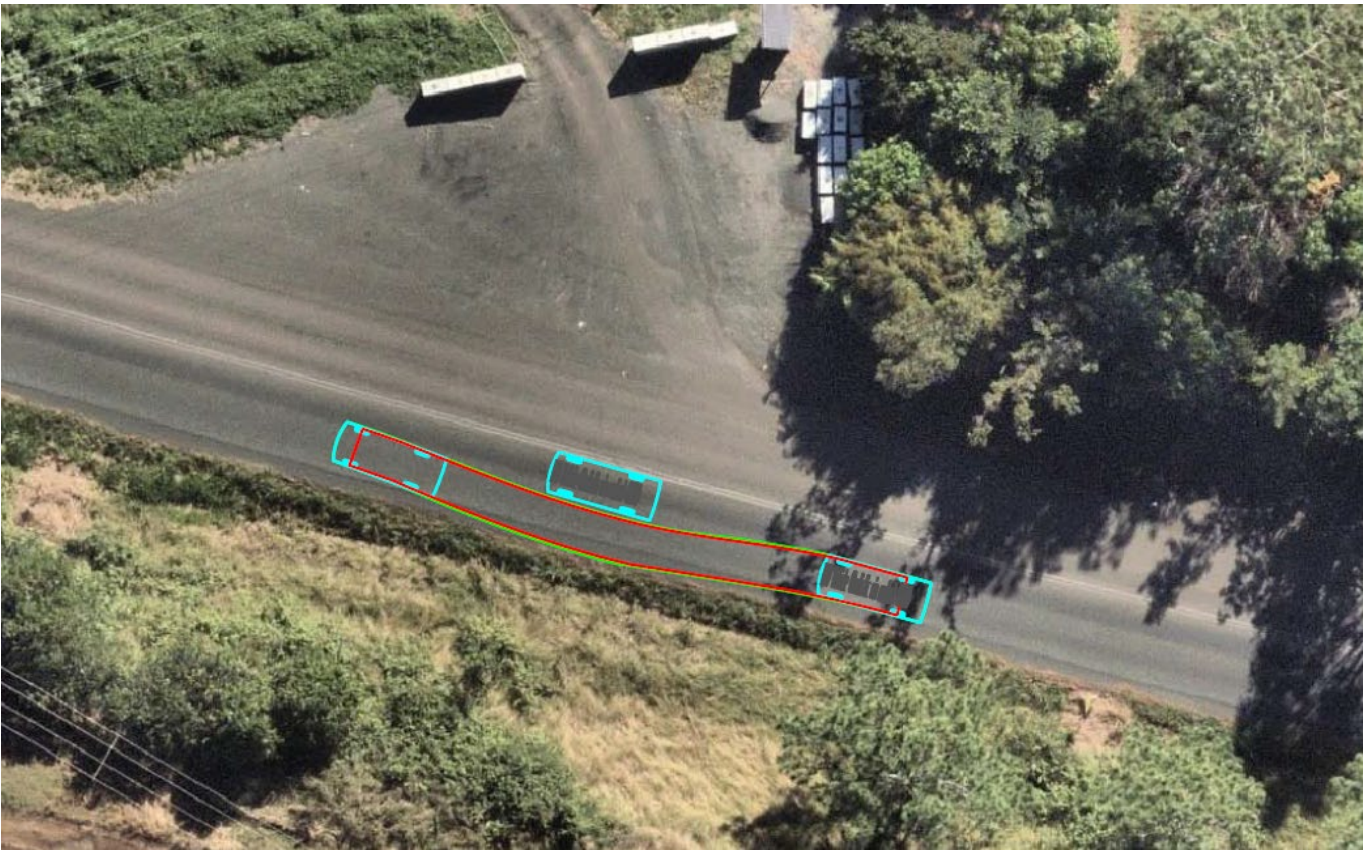


Figure 6.5 – Swept paths of passing vehicle at the proposed access

6.4 Sight Distance

Caniaba Roads is a local road and a posted speed limit of 80km/h apply at the frontage of the proposed development site. The minimum sight distance requirement at a driveway with a frontage road of 80km/h speed limit can be determined from Figure 3.2 of AS/NZS 2890.1.2004 (see extract below). From this figure, the sight distance requirement at the proposed combined entry/exit driveway is 105m minimum and 111m desirable.

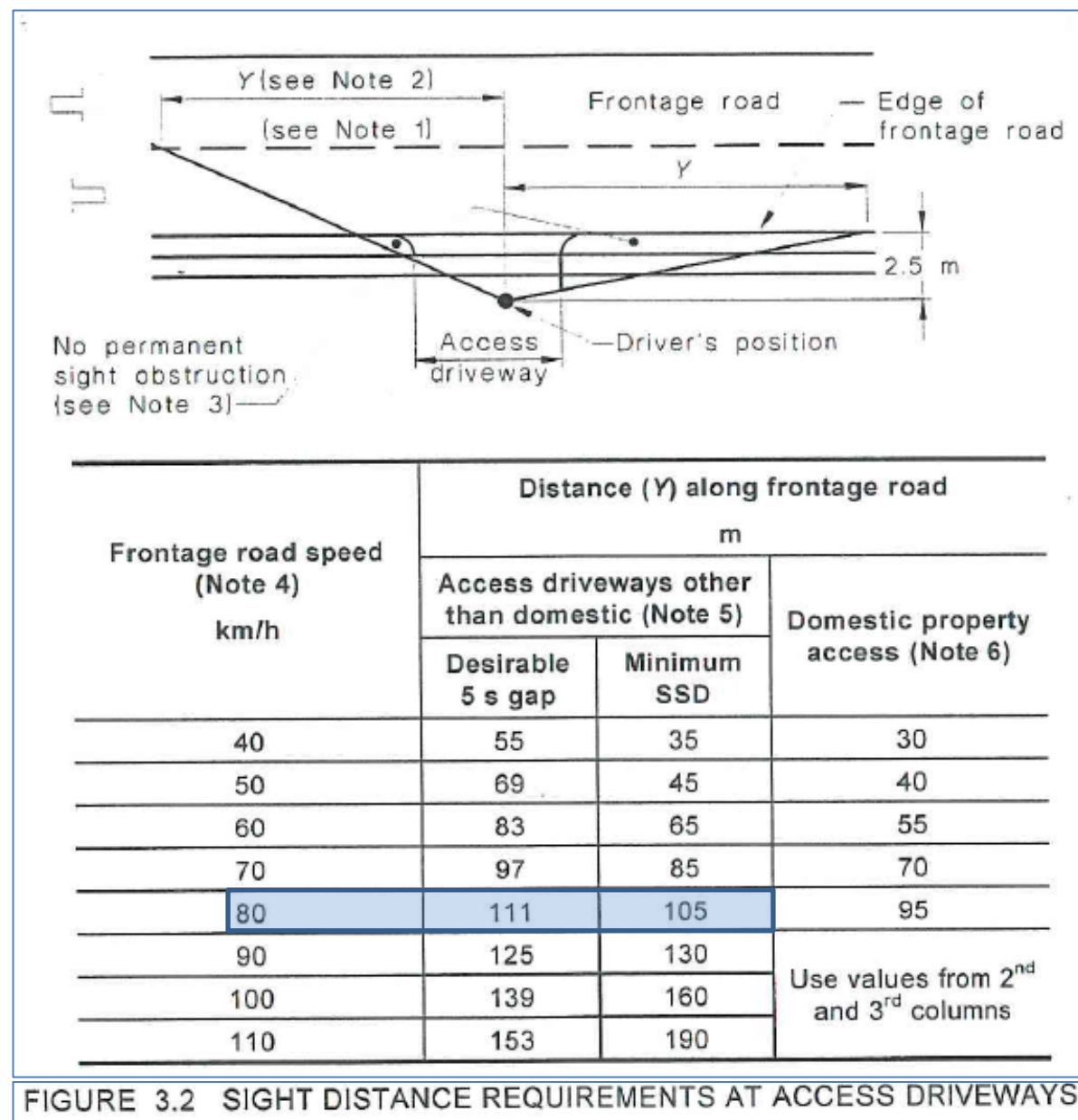


FIGURE 3.2 SIGHT DISTANCE REQUIREMENTS AT ACCESS DRIVEWAYS

The site is located at a relatively straight section of Caniaba Road. As can be seen from Figure 3.2 in section 3 of this report, a minimum 105m of sightlines are available in both directions at the proposed location of the driveway as no permanent structure blocking sightlines at this location. Therefore, the available sight distances at the existing driveway meet the minimum requirements of AS/NZS 2890.1.2004.

7 Heavy Vehicle Access

It is proposed the largest size of heavy vehicle that will access the site is a 12.5m Heavy Rigid Truck (HRV). The swept path plans shown in **Appendix A**, demonstrates that a Heavy Rigid Truck (HRV) can enter and exit the site in a forward direction. The width of the entry and exit driveway is sufficient to accommodate the turning paths of an HRV truck and comply with the requirements of Australian Standard AS 2890.2.

8 Conclusion/Recommendations

The following conclusions are made for the proposed additional use of the site at 202 Caniaba Road, Caniaba as a gas-fitting and plumbing business has been assessed in terms of trip generation and distribution, its impact on the public road network, off-street parking demand and supply, access and sightlines:

1. The proposed additional use of the site is estimated to generate 8 additional trips during the AM and PM peak. The daily increase of the traffic would be approximately 40 vehicles per day in Caniaba Road and the surrounding road network.
2. The proposed additional use of the site will have minimal impact on the traffic capacity of Caniaba Road and the surrounding road network. As such, no road upgrades are warranted because of the proposed additional uses of the site.
3. The provisions for car parking satisfy the requirements of Council's Development Control Plan.
4. The proposed site entry and exit comply with the requirements of Australian Standards AS/NZS 2890.1 and AS 2890.2.
5. The available sight distances at the entry and exit meet the requirements of Australian Standard AS/NZS 2890.1.
6. The existing width of Caniaba Road can accommodate a passing vehicle while a design vehicle is waiting to make a right turn into the site.
7. A Heavy Rigid Truck the largest size of vehicles accessing the site can enter and exit the site in a forward direction. Manoeuvring and circulation within the site can be accommodated with minimal safety concerns.
8. There is likely to be minimal traffic impact on the neighbouring properties and in the surrounding road network.

This Traffic and Parking Impact Assessment concludes that the subject site is suitable for the proposed additional use of the site as a gas-fitting and plumbing business with respect to traffic and parking. The proposed additional use are considered to have a negligible effect on the capacity and operation of the surrounding road network.

9 References

Australian Standards, 'AS/NZS 2890.1:2004 Off-Street Car Parking'.

TfNSW, 'Guide to Traffic Generating Developments' Version 2.2 dated October 2002.

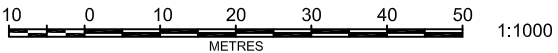
TfNSW, 'Technical Direction Guide to Traffic Generating Developments, Updated Traffic Surveys and Trip Rates, August 2013.'

Lismore Development Control Plan.

Appendix A - Swept Paths



PLAN
SCALE 1:500



REV	AMENDMENT	ISSUED	DATE
A	SWEPT PATH ANALYSIS	AN	19/06/24



SYDNEY
P: 02 9659 0005
CENTRAL COAST
P: 02 4325 5255

HUNTER
P: 02 4966 8388
S.E. QLD
P: 07 5582 6555

www.brs.com.au
mail@brs.com.au
ABN: 26 134 057 842

Client:

Horns Gas Service

202 Caniaba Road, Caniaba

Swept Path Diagram - Heavy Rigid Truck (HRV)
Site Access- Entry/Exit

Designed: Abdun Noor (Safework NSW Card No. TCT0000005)
Drawn: AN
Checked: GB

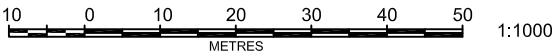
Plan No.
230331-TR-101

File Ref.
230331

REV
A



PLAN
SCALE 1:500



REV	AMENDMENT	ISSUED	DATE
A	SWEPT PATH ANALYSIS	AN	19/06/24



**BARKER
RYAN
STEWART**
TOTAL PROJECT SOLUTIONS
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ABN: 26 134 057 842

Client:

Horns Gas Service

202 Caniaba Road, Caniaba

Swept Path Diagram - B99 Design Vehicle AS2890.1
Site Access- Entry/Exit

Designed: Abdun Noor (Safework NSW Card No. TCT0000005)
Drawn: AN
Checked: GB

Plan No.
230331-TR-102
File Ref.
230331

REV
A