



# TRAFFIC IMPACT ASSESSMENT

## Proposed Narrabri Car Wash Development

84 Fraser Street  
Narrabri

for:  
Rowan McClung

March 2024

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## 1. Introduction

Ardill Payne & Partners (APP) has been engaged by Mr Rowan McClung to prepare a Traffic Impact Assessment (TIA) for a proposed car wash development at 84 Fraser Street, Narrabri, to accompany the lodgement of a Statement of Environmental Effects (SEE) / Development Application (DA) with Narrabri Shire Council (Council).

Consent is being sought for the construction of a 4-bay car wash with associated vacuum bays (2), dog wash (1), plant room and office. Entry will be from the Newell Highway (also known as Cooma Road) and exit will be to Fraser Street.

This report provides details regarding the current traffic and parking situation, the level of service provided by the local roads, and the impact the proposed development will have on these roads.

### 1.1 Consultation

The developer's representative approached Transport for NSW (TfNSW) for comment on access and egress arrangements. The following advice was received from TfNSW:

*I refer to your email enquiry seeking Transport for NSW (TfNSW) advice about the access locations for the prospective development of a carwash business in Narrabri.*

*A new access or variation to an existing driveway constitutes 'road works' and requires approval from the roads authority in accordance with s.138 of the Roads Act 1993 (the Roads Act). The Newell Highway (HW17) is classified (State) road and Council is the roads authority for this road and all other roads in Narrabri by virtue of s.7 of the Roads Act. Despite this, s.138(2) of the Roads Act requires that Council seek concurrence from Transport for NSW (TfNSW) prior to issuing consent for road works.*

*It is understood Narrabri Shire Council may require that a development application (DA) be submitted to assess the environmental impact of the carwash and new accesses at the subject site. Council will consider the traffic impacts associated with the development and, following the submission of a DA, is likely to forward a referral to TfNSW seeking advice due to the proposed accesses or traffic generation. Accordingly, in the first instance I would recommend you engage with Narrabri Shire Council to ask about the process for lodging a DA and requirements for a subsequent s.138 application.*

*Note, when the application is referred by Council, TfNSW's considerations will include (inter alia):*

- *The purpose of the driveway and traffic generated by the use of the site,*
- *The Austroads Guides as they pertain to the proposed access including matters concerning:*
  - *Maintaining the efficient and safe operation of the existing road environment,*

- *Safe Intersection Sight Distance (refer to Section 3.2.2 of Austroads 'Guide to Road Design Part 4A: Unsignalised and Signalised Intersections'),*
- *Suitability of the design of the driveway (e.g. provision of sufficient on-site manoeuvring to promote forward entry and exit for vehicles, suitability of width to provide for the anticipated traffic generated by the development).*
- *Turn treatment warrants, as applicable (refer to Section 3.3.6 of Austroads 'Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management').*
- *That the driveway will be sealed in accordance with Council's specifications/policies (typically for a minimum of 10m from edge of road pavement) to protect the integrity of the highway pavement,*
- *That stormwater will be managed in accordance with Council's specifications/policies.*
- *That all traffic generated by the development can be accommodated on-site and will not result in queues that affect the operations on the highway.*

*Please note that the above comments are preliminary advice and are based on the information available to TfNSW at the time of review. They are not to be interpreted as binding upon TfNSW and may change following formal assessment of a referral from the consent authority.*

## 2. Proposed Development

### 2.1 Background Development

The site is currently vacant. A previously existing dwelling house has been removed.

### 2.2 Description of Proposed Development

The proposal involves the construction of a 4-bay car wash (1 x auto and 3 x self-serve bays) with associated vacuum bays (2), dog wash (1), plant room and office. The proposed development is all single storey. Entry will be from the Newell Highway (Cooma Road) and exit will be to Fraser Street. Opening hours are likely to be 7:00am to 7:00pm (to be confirmed at completion of Acoustic Report).

Plans of the proposed development are provided in **Attachment 1**.

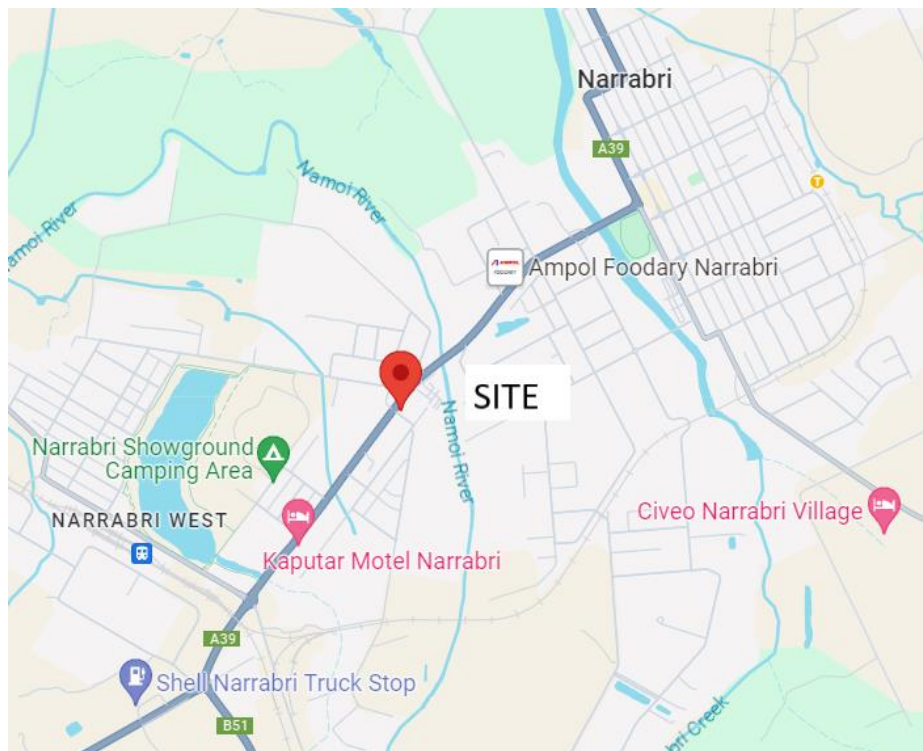
#### 2.2.1 Phasing and Timing

It is planned to undertake the development in one stage.

#### 2.2.2 Location and Site Plan

The land is situated within the Narrabri Shire Council Local Government Area. The land is described in real property terms as Lot 5 in DP 9167, 84 Fraser Street, Narrabri. The total site area is approx. 1,001m<sup>2</sup> in size. The site has frontage to the Newell Highway (Cooma Road) and Fraser Street.

The site location is shown in **Figure 1**. An aerial photo of the site is shown in **Figure 2**.



**Figure 1: Site Location**





**Figure 2: Aerial Photo of Site** (Courtesy SIX Maps)  
(Note: house has been removed)



### 3. Existing Area Conditions

#### 3.1 Study Area

##### 3.1.1 Area of Influence

The area of influence is limited to the Newell Highway and Fraser Street in the site frontage.

#### 3.2 Study Area Land Use

##### 3.2.1 Existing Land Uses

The site is currently vacant.

##### 3.2.2 Adjoining Land Use

The adjoining properties to the north and east are residential. Opposite the site (to the west) is a BP Service Station. Opposite the site (to the south) is a truck spare parts business.

##### 3.2.3 Existing Zoning

The subject site is zoned B4 Mixed Use under the Narrabri Shire Council Local Environmental Plan 2012.

##### 3.2.4 Anticipated Future Development

There are no known other planned developments in the area.

#### 3.3 Site Accessibility

The site has frontage to the Newell Highway (Cooma Road) and Fraser Street. Access will be from the Newell Highway only, with exit to Fraser Street.

##### 3.3.1 Existing Roads and Intersections

A description of the roads fronting the site is provided below:

##### **Newell Highway (Cooma Road)**

Cooma Road is part of the Newell Highway (HW 17; Route Number A39). The Newell Highway is a state classified road providing the major road link between Goondiwindi in south-eastern Queensland and the NSW/Victoria state border via central NSW and as such carries large amounts of freight.

At the site, the road is generally level and has a single 3.5m wide travel lane in each direction with a parking lane each side. The through lanes are separated by a 4.0m wide median turning lane. This median lane incorporates turn lanes at intersections (two-way right turns in some locations). The total sealed width is approx. 20m. The site has upright kerb and gutter for its full

frontage and is fully line marked. There is a concrete footpath on the western side of the Newell Highway. The speed limit past the site is 50 km/h.



**Photo 1: Newell Highway looking south– site on the left**

(photo courtesy of Google Street View)

### **Fraser Street**

Fraser Street is mostly level and has a total sealed width of approx. 17.0m between upright kerb and gutter. The speed limit past the site is 50 km/h.



**Photo 2: Fraser Street looking west– site on the right**

(photo courtesy of Google Street View)

### **Newell Highway/Fraser Street Intersection**

The Newell Highway/Fraser Street intersection is an urban T-intersection. In the Newell Highway there are channelised right turn and left turn in lanes. Directly opposite the intersection is the heavy vehicle entry to the BP service station.



**Photo 3: Newell Highway/Fraser Street intersection looking north – Fraser St on the right**

(photo courtesy of Google Street View)

#### **3.3.2 Future Roadway Systems**

There are no known current plans to upgrade roadways in this area. Council may, in the future, undertake some local road upgrades.

#### **3.3.3 Existing Traffic Volumes and Conditions**

Traffic volumes were sourced from TfNSW and Council.

TfNSW advised (via Council) that current traffic volumes on the Newell Highway near the site were approx. 3223 vpd with 42% HV. Council had no current data but advised that their traffic volume estimates for the Newell Highway would be approx. 4000 vpd and approx. 150 vpd for Fraser Street. For this assessment we will adopt Council's figures.

Annual growth rates for the Newell Highway in the area are in the order of 2.5% (*'Draft Newell Highway Corridor Strategy'*, NSW Government, April 2014).

#### **3.3.4 Parking**

There is existing on-street parking currently available in both street frontages in accordance with existing signage and local parking regulations. Parking in the Newell Highway frontage is limited by the left turn lane.

### 3.3.5 Public Transport Systems

Local and school bus services operate along the Newell Highway.

### 3.3.6 Pedestrians and Cyclists

Pedestrian and cyclist volumes past the site in the Newell Highway would be low to moderate. There are no concrete footpaths in the road frontages (there is a concrete footpath on the western side of the Newell Highway). There is a large public recreation area (sports fields) approx. 100m north-west of the site, with access off Ugoa Street, which attracts large numbers of participants and spectators at times. Narrabri West Public School is on the Newell Highway approx. 1.2km south-west of the site.

### 3.3.7 Accident History

Crash data sourced from the NSW Government 'Centre for Road Safety' website shows that in the 5-year period 2018-2022, there have been no recorded crashes at or near the site. The nearest recorded crash on the Newell Highway was approx. 400m to the north (near Bridge Street).

## 4. Projected Traffic

### 4.1 Site Traffic

#### 4.1.1 Trip Generation

The RTA *'Guide to Traffic Generating Developments, Version 2.2'* does not have any data for car wash developments. For office developments:

- Office – daily trips 10/100m<sup>2</sup> GFA; evening peak hour trips 2/100m<sup>2</sup> GFA.

A 2019 RMS report (*'Roads and Maritime Services Trip Generation Surveys – Car Wash and Cafes Data Report'*) provided the following data:

- Friday – AM peak hour trips 4.95 per wash bay; PM peak hour trips 5.22 per wash bay
- Saturday – peak hour trips 5.5 per wash bay
- Sunday – peak hour trips 5.71 per wash bay.

The Institute of Transportation Engineers (ITE) is an internationally renowned and often referenced association of transportation professionals. The ITE *'Trip Generation Manual (9<sup>th</sup> Edition)'* specifies the following for car wash developments:

- Automated Car Wash – PM peak hour trips 14.12 per 1000 sq.ft (equivalent to 15.2 per 100m<sup>2</sup>)
- Self Service Car Wash – daily trips 108 per stall; AM peak hour trips 8 per stall; PM peak hour trips 5.54 per stall.

None of the guideline provides rates for a dog wash – we have adopted 50% of the car wash rate for this assessment. Further, it is expected that some car wash customers will also utilise the dog wash – we have reduced rates a further 20% for this assessment.

The site proposes 1 automated and 3 self-service car wash bays, and 1 dog wash bay, along with a small office (GFA approx. 15m<sup>2</sup>). The vacuum bays are considered to be an incidental land use and are not expected to generate any additional traffic.

Adopting the RMS report rates, the traffic generation calculations are summarised in **Table 1**.

**Table 1: Traffic Generation**

Land Use	Unit	Peak Hourly Traffic Generation Rate	Peak Hourly Traffic (vph)
Auto Car Wash	1	5.7/bay	5.7
Self Service Car Wash	3	5.7/bay	17.1
Dog Wash	1	2.3/bay *	2.3
Office	15m <sup>2</sup>	2/100m <sup>2</sup>	0.3
<b>TOTAL</b>			<b>25.4</b>

\* Reductions applied as discussed in Section 4.1.1

However, a proportion of traffic using this facility would be existing passing traffic (traffic already travelling on the road). The ITE quote pass-by trip rates of approx. 60% for car wash facilities. The car wash may generate some additional traffic for staff and customer trips, however, based on the ITE pass-by rates, this is unlikely to be any more than 40 % of the additional traffic estimated in Table 1.

Therefore, the additional traffic on the road network resulting from this development would be in the order of  $25.4 \times 0.4 = \mathbf{10.2vph}$  during the peak hour (equates to approx. 5.1vph/lane). This value has been adopted for this assessment.

#### 4.1.2 Deliveries

Between 1 and 3 deliveries each week. These will be organised to occur during off-peak hours of operation. No deliveries on weekends (possible rare exceptions). Vehicles used will be up to a medium rigid vehicle (8.8m length) as defined in AS 2890.2.

#### 4.1.3 Waste Removal

Bin store is located in the north-east corner of the site. Generally, 1-2 waste pick-ups per month. This will be organised to occur during off-peak hours of operation. Vehicles used will generally be a medium rigid vehicle (8.8m length) as defined in AS 2890.2.

#### 4.1.4 Trip Distribution

Customers could arrive from either direction; however, it is expected that the bulk (approx. 75%) would arrive from the north.

The bulk of deliveries would be from Narrabri businesses.

#### 4.1.5 Modal Split

Most patrons will travel by car. Deliveries will mostly be by small or medium rigid truck.

### 4.2 Through Traffic

The peak hour traffic volume on the Newell Highway at the site is approx. 400 vph, and on Fraser Street approx. 15 vph. Based on a growth rate of 2.5%, these volumes would be expected to reach approx. 512 vph and 19 vph respectively by 2034.

### 4.3 Total Estimated Traffic

Combining the existing and projected through traffic with the additional site traffic for both the current year and 10-year development horizon allows for the determination of traffic flows in the following four cases:

- Case 1 - Undeveloped traffic flow 2024
- Case 2 - Developed traffic flow 2024
- Case 3 - Undeveloped traffic flow 2034
- Case 4 - Developed traffic flow 2034

Summaries of peak hour traffic are provided in **Table 2**.

**Table 2: Peak Hour Total Traffic Volumes – 2024 and 2034**

Road	Case 1	Case 2	Case 3	Case 4
Newell Highway	400	410	512	522
Fraser Street	15	25	19	29



## 5. Parking

### 5.1 Statutory Parking Requirements

The *'Narrabri Development Control Plan -Parking Code'* (DCP) does not specify parking rates for car wash developments. The RTA *'Guide to Traffic Generating Developments, Version 2.2'* also does not specify relevant parking rates. A first principles assessment will be required.

All visiting vehicles for the car wash will be held either in the car wash bays, the vacuum bay, or in a holding queue. Other than 1 parking space for staff, there will be no need to provide formal parking spaces. One (1) dog wash bay is proposed, and 1 dedicated parking space is provided.

### 5.2 Queuing Area

The proposal includes a 4-bay car wash (1 x auto and 3 x self-serve bays) with associated vacuum bays (2), dog wash (1), plant room and office.

The RTA Guide provides holding area data from metropolitan service station sites with single wash bays. These metropolitan sites are located on main roads with much higher volumes of passing traffic when compared to the subject site. Considering the regional context of the site and the multiple car wash bays and lanes, the RTA Guide queueing requirements are considered excessive as the site will have a lower traffic demand than a metropolitan area and can facilitate multiple vehicles being washed at a time.

The required queuing area will be calculated from first principles. The calculated peak hour traffic generation for this site (based on RTA surveys) is 25 vehicles per hour. Assuming queue/wash/dry cycles of approx. 10 minutes, during peak periods there could be 1 vehicle in each wash bay and 1 in the queue for each bay. The site provides a total holding capacity of 11 vehicles (4 in the wash bays plus 7 in the queue). This is therefore considered adequate for the predicted site traffic generation. In addition, there are 2 vacuum bays and 1 dog wash parking space, plus 1 staff parking space.

If the site is at capacity (wash bays and queue area are full), cars entering the site have a dedicated bypass lane in which they can bypass the queued vehicles and move through to vacuum bays or the dog wash bay, or exit the site). This will improve efficiency and reduce queue lengths and wait times.

The proposed layout is provided in **Attachment 1**.

### 5.3 Changes to On-Street Parking

There is existing on-street parking currently available in both street frontages. Parking in the Newell Highway frontage is limited by the existing left turn lane.

It is recommended that parking restrictions ('No Stopping') in the Newell Highway be extended to north of the driveway to adjoining #78. This may require additional or relocated signage, and the provision of an unbroken yellow edge line.

In Fraser Street, NSW road rules prohibit parking within 10m of an intersection. This should prevent legal parking between the exit driveway and the intersection. Signage may be required.

Any of these changes may need the approval of the Local Traffic Committee.

## 5.4 Parking for People with Disabilities

As all parking on site (except for the staff parking space) is in the wash bays or queue areas, the provision of dedicated parking spaces for people with disabilities will not be required.

## 5.5 Bicycle and Motorcycle Parking

As the facility will mostly attract cars, cycling to the facility is highly unlikely. Bicycle parking will not be required.

## 5.6 Deliveries and Service Vehicles

There will be no need for a dedicated service or delivery space. Deliveries and waste collection will be organised to occur during off-peak hours of operation. Access around the wash bays will be possible.

## 5.7 Site Access and Circulation

The site access and circulation requirements have been assessed in accordance with Section 6 of the RTA *'Guide to Traffic Generating Developments'*, (2002), AS 2890.1 *'Parking facilities Part 1: Off-street car parking'*, and AS 2890.2 *'Parking facilities Part 2: Off-street commercial vehicle facilities'*.

### 5.7.1 Site Access

All vehicular access to the site will be from the Newell Highway. All traffic will exit to Fraser Street.

From the RTA Guide, Table 6.2, and from AS 2890.1, Table 3.1, driveway type 2 applies for the entry and type 1 for the exit (parking user class 3; fronting arterial road and/or local road; < 25 spaces). Driveway widths shall be a minimum of 3m (one lane) or 6m (combined). Council's DCP advises that it has adopted the standards set out in the RTA Guide.

In response, the development proposes a 10m wide entry only off the Newell Highway, and a 4.4m wide exit only to Fraser Street. This arrangement complies with RTA and AS requirements. A turning path analysis for the site entry has been undertaken and is provided in **Attachment 2**.

### 5.7.2 Sight Distance at Driveways

Compliance has been assessed against AS 2890.1 *'Parking facilities Part 1: Off-street car parking'*. From AS 2890.1 (Figure 3.2), the desirable sight distance is 69m (for a 50km/h frontage road speed). This is available looking left from the driveway.

The available sight distance looking right from the exit driveway to the hold line at the intersection is approx. 20m. This distance is less than required. However, vehicles turning left into Fraser Street would be travelling less than 50km/h and should be alert to the fact that there will be residential and commercial driveways in the area. The exit driveway is located as far from the intersection as is possible.

Parked cars may reduce the available sight distance.

### 5.7.3 Circulation

Circulation within the site shall be compliant with AS 2890.1 and AS 2890.2. All vehicles will enter and leave the site in a forward direction. A dedicated lane shall be provided on site so that entering vehicles can bypass other vehicles queued to use the wash bays.

## 6. Traffic Analysis

### 6.1 Road Capacities and Level of Service

To aid interpretation of the impacts of the proposed development on traffic flows, the RTA *'Guide to Traffic Generating Developments'*, Version 2.2 (2002), provides acceptable ranges of peak vehicle flows for various Levels of Service (LOS) experienced on urban roads. The intention is to at least maintain the existing LOS for the streets adjacent to the site.

Road capacity Levels of Service are defined by the RTS Guide for urban roads as shown in **Table 3**, with the highest LOS being Level A (free flow), with service deteriorating to Level F (forced flow).

**Table 3: Urban Road Peak Hour Flows per Direction**

Level of Service	One Lane (vph)
A	200
B	380
C	600
D	900
E	1400

The following performance standards are recommended:

#### **Weekday Peak Hour Flows**

Major Roads: Level of service C

Minor Roads: Level of service C (desirable)

#### **Recreational Peak Hours (weekends)**

Major Roads: Level of service D

Minor Roads: Level of service D (desirable)

The LOS on the Newell Highway and Fraser Street is currently Level A (< or = 200 vph per lane).

The LOS on the Newell Highway will reduce to Level B with the additional development traffic. The LOS on Fraser Street will remain unchanged.

### 6.2 Intersections

The Newell Highway/Fraser Street intersection will be slightly impacted by the increase in traffic from the development. Vehicles can safely turn in from the Newell Highway shoulder, but most traffic leaving the site will enter the intersection to return to the Newell Highway.

#### 6.2.1 Intersection Capacity and Level of Service

**Table 4** sets out average delays for different levels of service for the intersection.

**Table 4: Level of Service Criteria for Give Way and Stop Signs**

Level of Service	Average Delay per Vehicle (sec/v)	Roundabout
A	<14	Good operation
B	15 to 28	Acceptable delays and spare capacity
C	29 to 42	Satisfactory, but accident study required
D	43 to 56	Near capacity and accident study required
E	57 to 70	At capacity, requires other control mode

The intersection has been modelled in SIDRA using AM peak hour traffic counts for the 4 Cases listed in Section 4.3 to obtain the LOS and average delay outputs listed in **Table 5** (worst case LOS and delay shown).

**Table 5: Summary of SIDRA Outputs**

	Case 1		Case 2		Case 3		Case 4	
	LOS	Av. Delay (sec)	LOS	Av. Delay (sec)	LOS	Av. Delay (sec)	LOS	Av. Delay (sec)
Newell Highway (north)	A	5.9	A	5.9	A	6.9	A	6.9
Newell Highway (south)	A	6.5	A	6.6	A	7.1	A	7.2
Fraser Street	A	12.6	A	13.1	B	17.3	B	18.0

SIDRA model flow diagrams for the modelled intersection are provided in **Attachment 3** along with movement summaries for Cases 1 - 4. Movement summaries contain degree of saturation, average delay, LOS, and queue lengths for each modelled Case.

Based on the results of **Table 5** the organic increase in traffic to 2034 (from Case 1 to Case 3) has only a slight impact on the function of the existing intersection – slight increases in average delays (right turns from Fraser Street) and therefore a small change in LOS in Fraser Street. The addition of development traffic (Case 2 and Case 4) has little impact on intersection function.

The intersection has the capacity to safely and efficiently service the additional traffic that will be generated by the proposed development.

### 6.2.2 Intersection Sight Distances

Observed and required Safe Intersection Sight Distances (SISD) and Approach Sight Distances (ASD) are as shown in **Table 6**. Compliance has been assessed against Austroads *'Guide to Road Design Part 4A 'Unsignalised and Signalised Intersections'* (2021).

**Table 6: Intersection Sight Distances**

Intersection	Sight Distance Actual (Left)	Sight Distance Actual (Right)	SISD Required (1)	ASD Required (1)	Intersection Suitability
Newell/Fraser	> 100m	> 100m	97m	55m	Compliant

1. For a design speed of 50km/h, reaction time 2.0sec.

The required sight distances at the Newell Highway/Fraser Street intersection are achieved. Note that parked vehicles may obstruct sight distances.

### 6.3 Amenity

Amenity is primarily the concern of minor roads. The amenity of an area can be impacted by increase in traffic volume, proportion of heavy vehicles, increases in speed, road widths and surface condition:

- there will be an increase in traffic on the local roads (Fraser Street)
- there will be a negligible increase in the proportion of heavy vehicles (deliveries and waste)
- vehicle speeds will not change
- road width is compliant and surface condition is good.

The impact on residents living along the Newell Highway will be minimal. The amenity of residents adjacent to the site may be slightly affected by vehicles turning in and out of the site.

Otherwise, in relation to traffic, the impact on the amenity of the area will be minimal.

### 6.4 Traffic Safety

Movements to and from the site will be limited to one 'Entry Only' driveway from the Newell Highway and one 'Exit Only' driveway to Fraser Street. There will be an increase in vehicular activity at the entry and exit driveways, and at the Newell Highway/Fraser Street intersection. On-street parking restrictions in the Newell Highway frontage will need to be extended beyond the entry driveway.

There is adequate sight distance to the entry driveway. The minimum Austroads requirement is 69m which is available in both approaches. The exit driveway has adequate sight distance to the left, but limited sight distance to the right (towards the intersection). However, as discussed in Section 5.7.2, the sight distance is considered adequate.

There is sufficient spare capacity on the Newell Highway to absorb the additional peak hour traffic generated by the proposed development.

There have been no recorded traffic accidents near the site in the last five years.

It is not expected that the additional traffic generated by the proposal will have any significant impact on safety in surrounding streets and intersections.

## 6.5 Impacts on Public Transport

The proposal raises no demand for public transport services.

## 6.6 Impacts on Pedestrians and Cyclists

Pedestrian and cyclist volumes past the site in the Newell Highway would be low to moderate. There are no sealed paths in the site frontage.

There will be increased vehicular activity at the driveway locations and at the Newell Highway/Fraser Street intersection. Sight distances to pedestrians are considered adequate as discussed in Section 5.7.2. Vehicles entering and leaving the site will be expected to exercise their usual caution when crossing footpaths and verges. It is recommended that a 'Do Not Queue Across Footpath' sign be erected at the site entry.

The proposed development itself will not generate any increase in pedestrian or cyclist activity.

## 6.7 Cumulative Impact of Other Proposed Developments in the Vicinity

There are no known other proposed developments in the vicinity of the site.



## 7. Findings

The key findings of this Traffic Impact Assessment are summarized below:

### 7.1 Roads and Intersections

The traffic generation arising from the proposed development has been assessed as a **net** increase over and above existing traffic conditions. The increase is approx. 10 veh/hr during the peak period. The additional trips can be readily accommodated, with minimal impacts on the surrounding road system:

- **Traffic Efficiency** – there will be an increase in traffic as a result of the development. The ‘level of service’ of the Newell Highway and Fraser Street and the intersection will remain within TfNSW recommended performance standards.
- **Intersections** – the Newell Highway/Fraser Street intersection has the capacity to safely and efficiently service the traffic that will be generated by the proposed development.
- **Traffic Amenity** – there will be an increase in traffic movements near the site as vehicles turn in and out of the site. Generally, this will occur during business hours against a backdrop of highway traffic noise. In relation to traffic, the impact on the amenity of the area will be minimal.
- **Traffic Safety** – movements to and from the site will be limited to the driveway locations. The sight distances at the driveways are considered adequate. There have only been no recorded traffic accidents near the site in the last five years. It is not expected that the additional traffic generated by the proposal will have any significant impact on safety in surrounding streets and intersections.

### 7.2 Public Transport

The proposal raises no demand for public transport services.

### 7.3 Pedestrians and Cyclists

There will be increased vehicular activity at the driveway locations and at the Newell Highway/Fraser Street intersection. Vehicles entering and leaving the site will be expected to exercise their usual caution when crossing footpaths and verges. It is recommended that a ‘Do Not Queue Across Footpath’ sign be erected at the site entry.

The proposed development itself will not generate any increase in pedestrian or cyclist activity.

### 7.4 Parking

All visiting vehicles for the car wash will be held either in the car wash bays, the vacuum bay, or in a holding queue. Other than 1 parking space for staff, there will be no need to provide formal parking spaces. One (1) dog wash bay is proposed, and 1 dedicated parking space is provided.

### 7.5 Site Access and Circulation

All vehicular access to the site will be from the Newell Highway. All traffic will exit to Fraser Street.

The development proposes a 10m wide entry only off the Newell Highway, and a 4.4m wide exit only to Fraser Street. This arrangement complies with RTA and AS requirements.

All vehicles will enter and leave the site in a forward direction. A dedicated lane shall be provided on site so that entering vehicles can bypass other vehicles queued to use the wash bays.

## 8. Recommendations

It is recommended that the proponent implement the following as their contribution to improve amenity and safety in relation to the traffic impacts of the application.

1. Construct separate entry (from Newell Highway) and exit (to Fraser Street) driveways as shown on the development plans.
2. Adjust on-street parking to suit proposed driveway locations. It is noted that this may require the approval of the Local Traffic Committee.
3. Provide a bypass route through the site to allow for customers to pass stationary vehicles queued for the wash bays.
4. Install a 'Do Not Queue Across Footpath' sign at the site entry.

### 8.1 Compliance with Local Codes

All planned and recommended works shall be constructed in accordance with the relevant Austroads guides, Australian Standards, Narrabri Shire Council standards, and any other relevant local codes and regulations.

## 9. Conclusion

This Traffic Impact Assessment has investigated the traffic and parking impacts of a proposed car wash development at 84 Fraser Street, Narrabri.

After development of the site, there will be an increase in traffic movements in the vicinity of the site. However, the traffic efficiency will not be reduced to unacceptable levels; the impact on the amenity of nearby residents due to road traffic noise will be minimal; and the traffic generated by the proposal will not have any significant impact on safety in surrounding streets and intersections.

All visiting vehicles for the car wash will be held either in the car wash bays, the vacuum bay, or in a holding queue on site. On-site parking will be provided for staff and the dog wash bay.

It is therefore concluded that the proposed development is supportable on traffic planning grounds and will operate satisfactorily.

## 10. Scope of Engagement

This report has been prepared by Ardill Payne & Partners (APP) at the request of Mr. Rowan McClung for the purpose of a Traffic Impact Assessment for the proposed Narrabri Car Wash development at 84 Fraser Street, Narrabri, and is not to be used for any other purpose or by any other person or corporation.

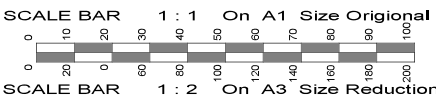
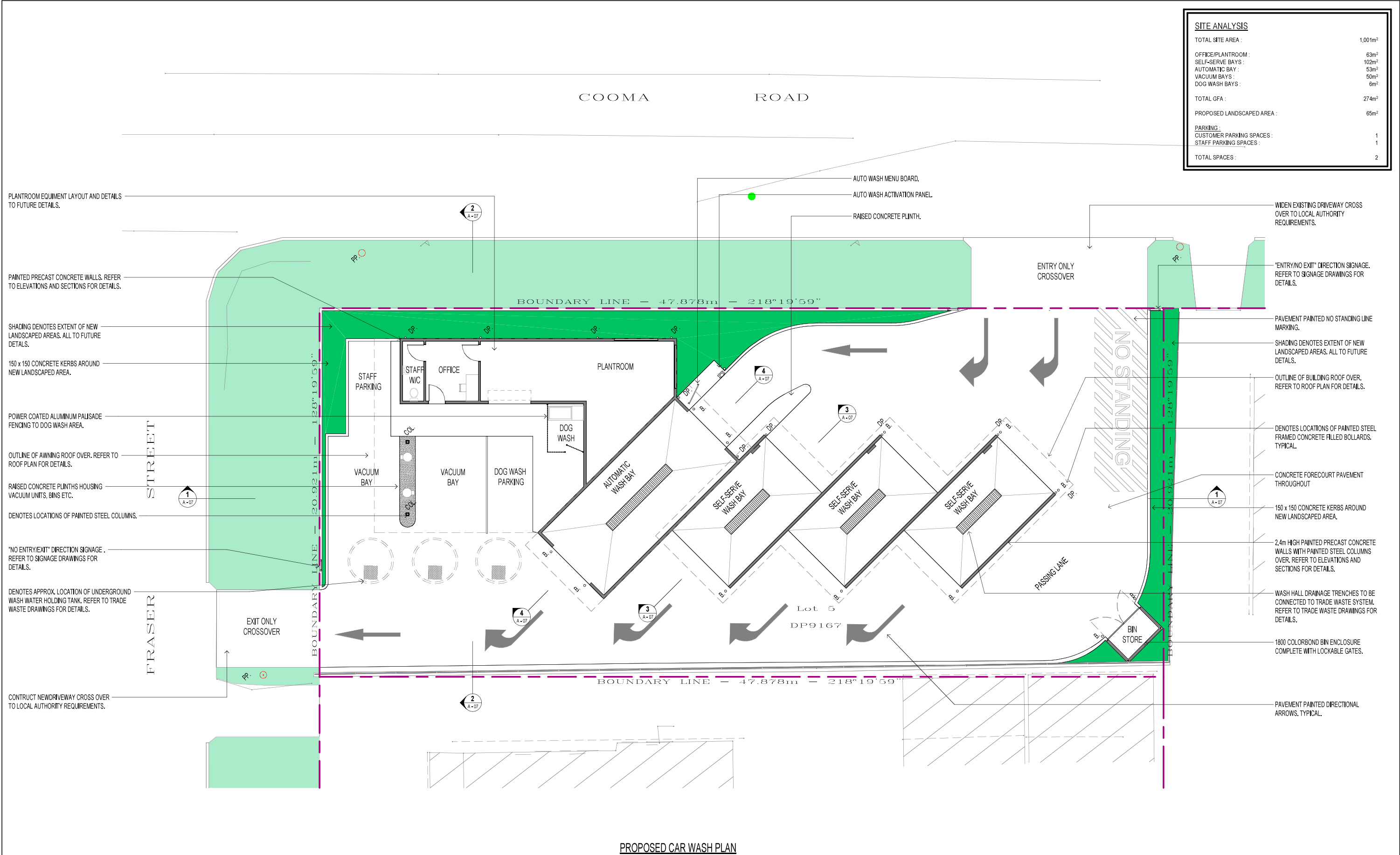
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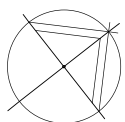
To avoid this advice being used inappropriately it is recommended that you consult with APP before conveying the information to another who may not fully understand the objectives of the report. This report is meant only for the subject site/project and should not be applied to any other.

## 11. Attachments

Attachment 1	Layout Plans
Attachment 2	Swept Paths
Attachment 3	SIDRA Outputs



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No.	Amendment	By	Date
P1	PRELIMINARY ISSUE. FOR CLIENT REVIEW AND APPROVAL ONLY. NOT FOR CONSTRUCTION.	VP	15.03.2024



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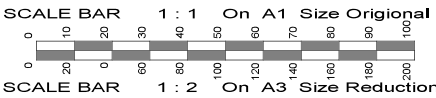
Project  
**PROPOSED CAR WASH FACILITY**  
LOT 5 DP9167 - No. 84 FRASER STREET  
**NARRABRI NSW 2390**  
FOR  
**MR ROWAN McCLUNG**  
Drawing Title  
PROPOSED CAR WASH PLAN

Approved	Designed
Date	VP
March 2024	VP
Scale	Checked
1 : 100 @ A1 & 1 : 200 @ A3	
Project No.	Amtd.
22 - 032	P1
Drawing No.	A - 02



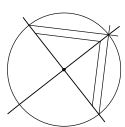


PROPOSED DIMENSIONED PLAN



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ACCREDITATION No. 6315



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ABN: 41626779235

Project  
**PROPOSED CAR WASH FACILITY**  
LOT 5 DP9167 - No. 84 FRASER STREET  
NARRABRI NSW 2390  
FOR  
**MR ROWAN McCLUNG**  
Drawing Title  
PROPOSED DIMENSIONED PLAN

Approved		Designed
Date <b>March 2024</b>		VP
Scale <b>1 : 100 @ A1 &amp; 1 : 100 @ A3</b>		VP
Project No. <b>22 - 032</b>	Drawing No. <b>A - 03</b>	Checked Amdt. <b>P1</b>

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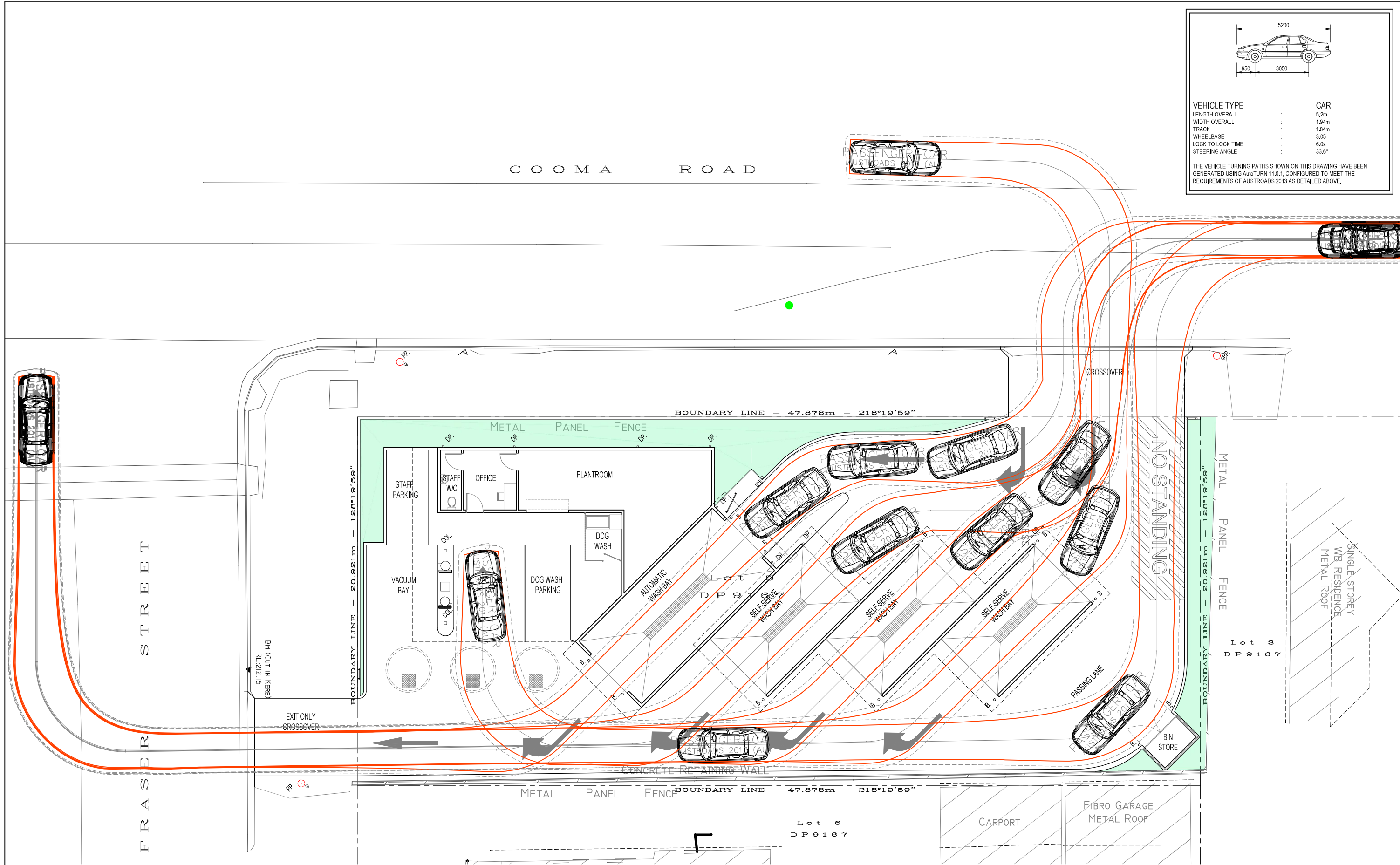
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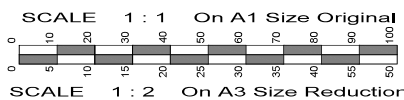
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## ATTACHMENT 2

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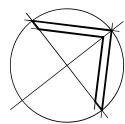
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WIDTH OVERALL	1.94m
TRACK	1.84m
WHEELBASE	3.05
LOCK TO LOCK TIME	6.0s
STEERING ANGLE	33.6°
THE VEHICLE TURNING PATHS SHOWN ON THIS DRAWING HAVE BEEN GENERATED USING AutoTURN 11.0.1, CONFIGURED TO MEET THE REQUIREMENTS OF AUSTRROADS 2013 AS DETAILED ABOVE.	



TURNING STUDY - LARGE CAR

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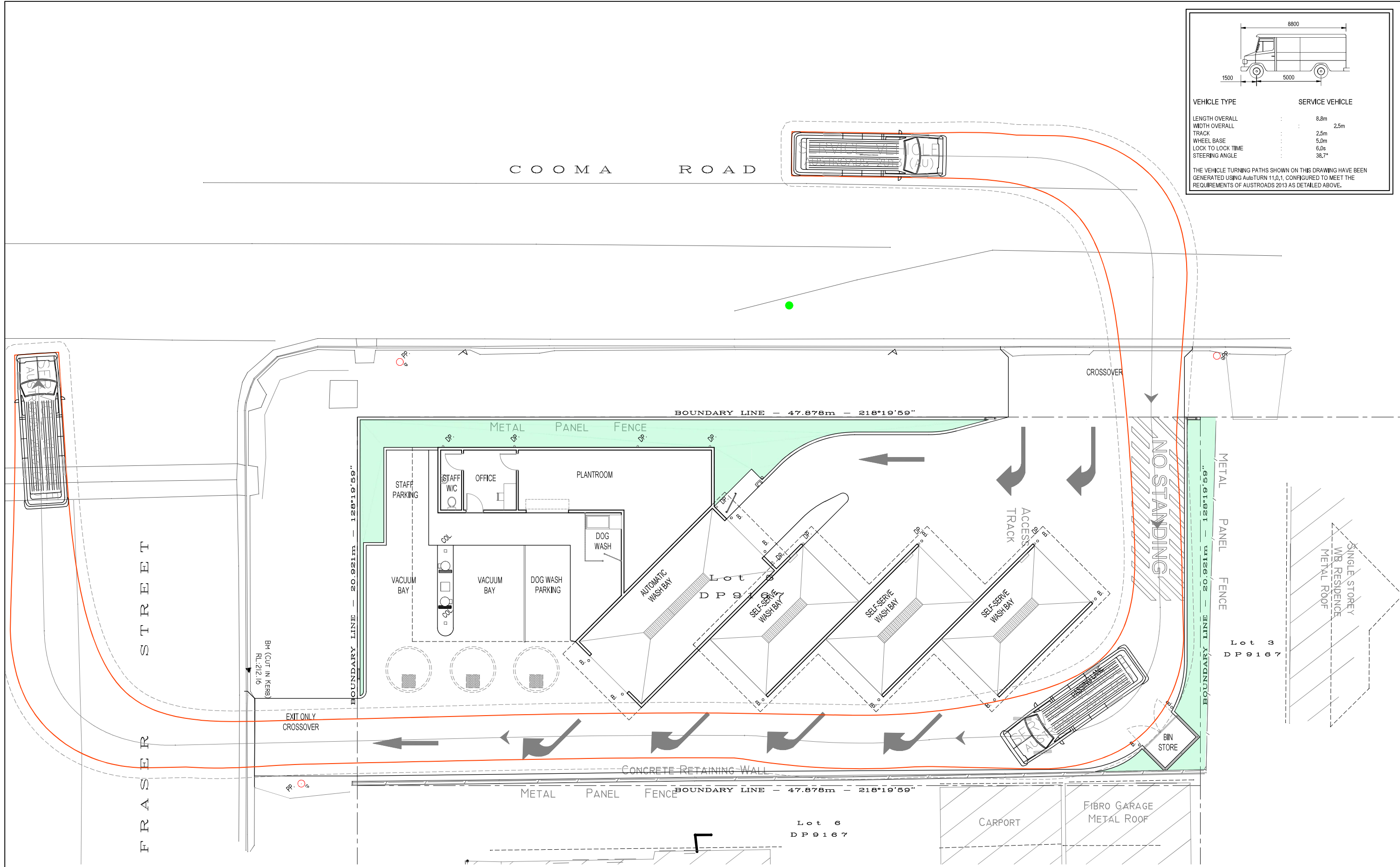
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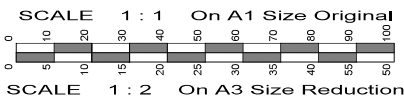
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ABN 41 626 779 235

Project <b>PROPOSED CAR WASH FACILITY</b> LOT 5 DP9167 - No. 84 FRASER STREET NARRABRI NSW 2390 FOR MR ROWAN McCLUNG		Approved	Designed
Drawing Title TURNING STUDY - LARGE CAR		Date March 2024	VP
Scale 1:100 @ A1 & 1:200 @ A3		Drawn	VP
Project No. 23 - 045		Checked	
Drawing No. TS - 01		Amdt.	P1



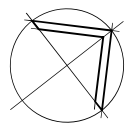
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LENGTH OVERALL	8.8m
WIDTH OVERALL	2.5m
TRACK	2.5m
WHEEL BASE	5.0m
LOCK TO LOCK TIME	6.0s
STEERING ANGLE	38.7°
THE VEHICLE TURNING PATHS SHOWN ON THIS DRAWING HAVE BEEN GENERATED USING AutoTURN 11.0.1, CONFIGURED TO MEET THE REQUIREMENTS OF AUSTRROADS 2013 AS DETAILED ABOVE.	



TURNING STUDY - SERVICE VEHICLE

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Project	PROPOSED CAR WASH FACILITY LOT 5 DP9167 - No. 84 FRASER STREET NARRABRI NSW 2390 FOR MR ROWAN McCLUNG
Drawing Title	TURNING STUDY - SERVICE VEHICLE

Approved		Designed	
Date		VP	
March 2024		Drawn	
Scale		VP	
1:100 @ A1 & 1:200 @ A3		Checked	
Project No.	23 - 045	Drawing No.	TS - 02
		Amdt.	P1

---

## ATTACHMENT 3

---

# MOVEMENT FLOWS FOR SITE (DEMAND)

Approach movement demand flow rates by movement class (veh/h)

▼ Site: 101 [Narrabri-ex case 1 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

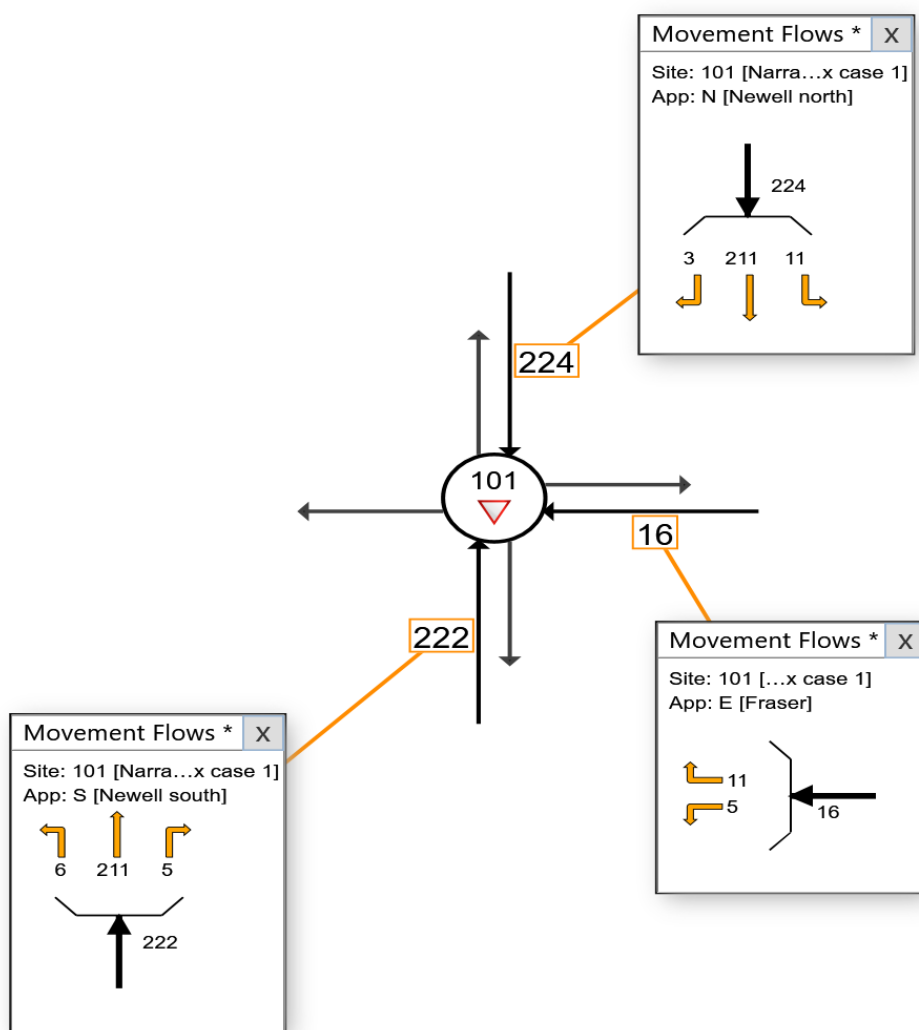
Site Category: Existing Design

Give-Way (Two-Way)

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

Close All Popups

## All Movement Classes (\*)





# MOVEMENT FLOWS FOR SITE (DEMAND)

Approach movement demand flow rates by movement class (veh/h)

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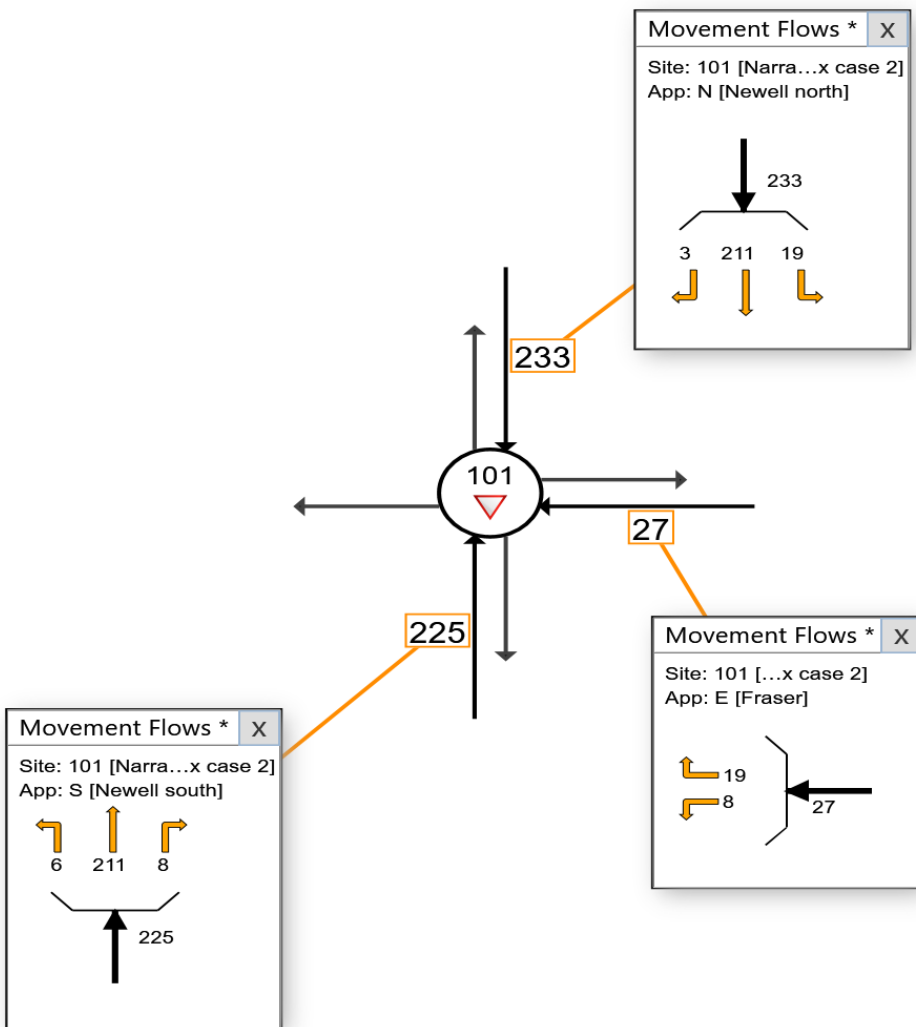
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site  
Site Category: Existing Design  
Give-Way (Two-Way)

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

Close All Popups

## All Movement Classes (\*)



# MOVEMENT FLOWS FOR SITE (DEMAND)

Approach movement demand flow rates by movement class (veh/h)

▼ Site: 101 [Narrabri-ex case 3 (Site Folder: General)]

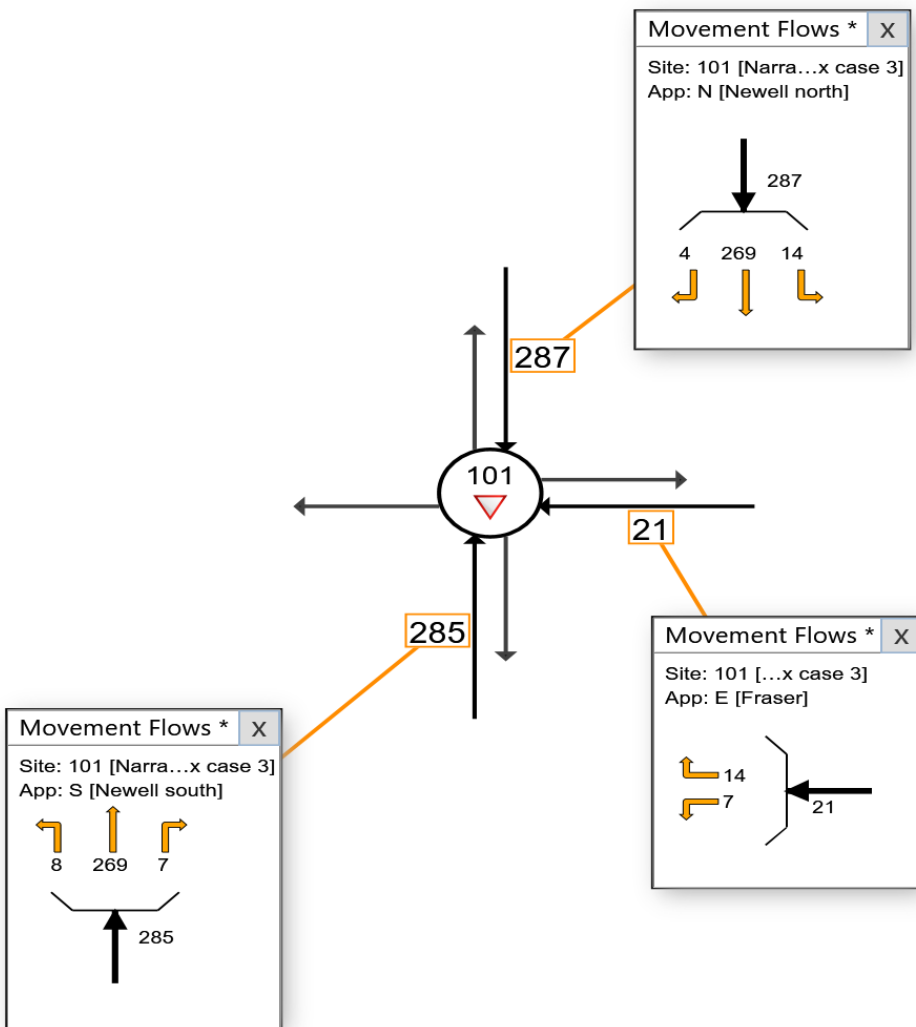
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site  
Site Category: Existing Design  
Give-Way (Two-Way)

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

Close All Popups

## All Movement Classes (\*)



# MOVEMENT FLOWS FOR SITE (DEMAND)

Approach movement demand flow rates by movement class (veh/h)

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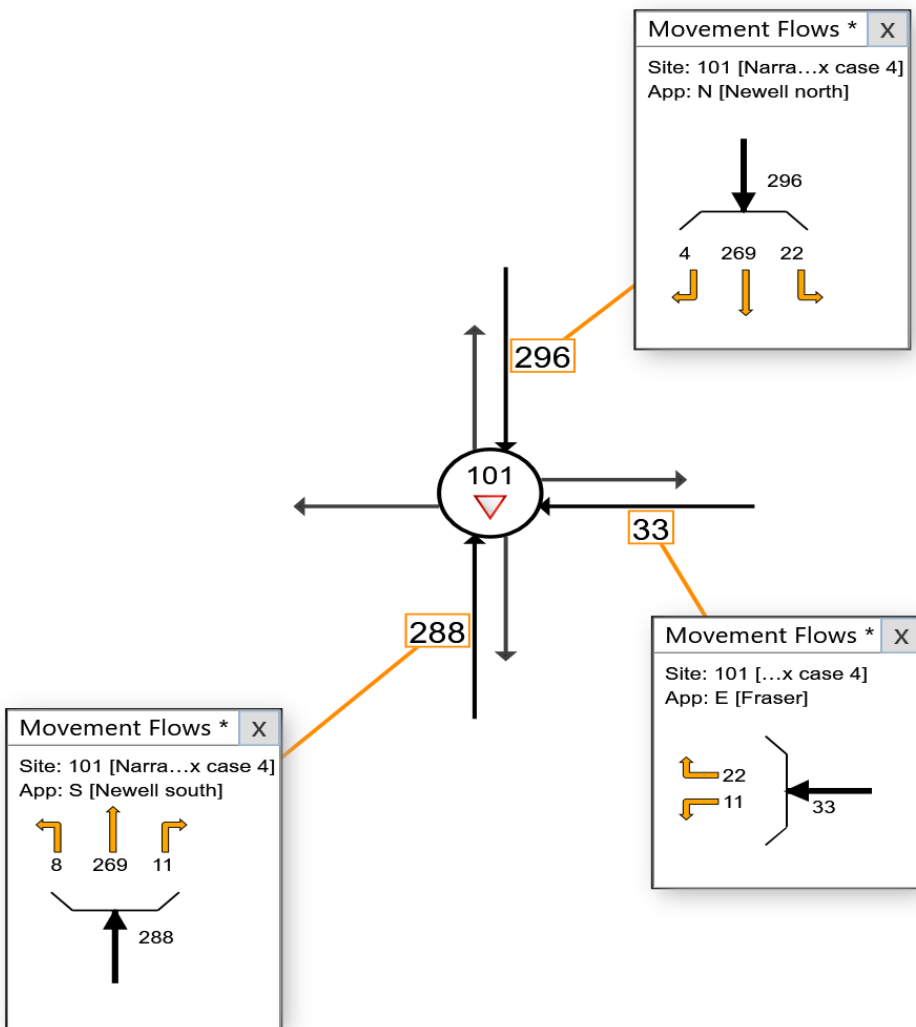
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site  
Site Category: Existing Design  
Give-Way (Two-Way)

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

Close All Popups

## All Movement Classes (\*)



# MOVEMENT SUMMARY

Site: 101 [Narrabri-ex case 1 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site  
Site Category: Existing Design  
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[ Total HV ]	[ Total HV ]					[ Veh. veh	[ Dist ] m					
			veh/h	%	veh/h	%	v/c	sec						km/h	
South: Newell south															
1	L2	All MCs	6 42.0		6 42.0		0.007	6.5	LOS A	0.0	0.3	0.37	0.53	0.37	44.5
2	T1	All MCs	211 42.0		211 42.0		0.136	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	All MCs	5 42.0		5 42.0		0.006	6.5	LOS A	0.0	0.2	0.38	0.51	0.38	44.7
Approach			222 42.0		222 42.0		0.136	0.4	NA	0.0	0.3	0.02	0.03	0.02	49.6
East: Fraser															
4	L2	All MCs	5 10.0		5 10.0		0.037	5.8	LOS A	0.1	0.9	0.53	0.66	0.53	42.8
6	R2	All MCs	11 10.0		11 10.0		0.037	12.6	LOS A	0.1	0.9	0.53	0.66	0.53	43.0
Approach			16 10.0		16 10.0		0.037	10.3	LOS A	0.1	0.9	0.53	0.66	0.53	43.0
North: Newell north															
7	L2	All MCs	11 42.0		11 42.0		0.007	4.9	LOS A	0.0	0.0	0.00	0.52	0.00	45.4
8	T1	All MCs	211 42.0		211 42.0		0.140	0.0	LOS A	0.0	0.4	0.02	0.02	0.02	49.9
9	R2	All MCs	3 42.0		3 42.0		0.140	5.9	LOS A	0.0	0.4	0.02	0.02	0.02	48.0
Approach			224 42.0		224 42.0		0.140	0.3	NA	0.0	0.4	0.02	0.04	0.02	49.6
All Vehicles			462 40.9		462 40.9		0.140	0.7	NA	0.1	0.9	0.04	0.05	0.04	49.4

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

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

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

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

# MOVEMENT SUMMARY

▼ Site: 101 [Narrabri-ex case 2 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site  
Site Category: Existing Design  
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Newell south															
1	L2	All MCs	6 42.0		6 42.0		0.007	6.5	LOS A	0.0	0.3	0.37	0.53	0.37	44.5
2	T1	All MCs	211 42.0		211 42.0		0.136	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	All MCs	8 42.0		8 42.0		0.010	6.6	LOS A	0.0	0.4	0.39	0.52	0.39	44.7
Approach			225 42.0		225 42.0		0.136	0.5	NA	0.0	0.4	0.03	0.03	0.03	49.5
East: Fraser															
4	L2	All MCs	8 10.0		8 10.0		0.067	5.8	LOS A	0.2	1.7	0.55	0.70	0.55	42.6
6	R2	All MCs	19 10.0		19 10.0		0.067	13.1	LOS A	0.2	1.7	0.55	0.70	0.55	42.8
Approach			27 10.0		27 10.0		0.067	10.8	LOS A	0.2	1.7	0.55	0.70	0.55	42.7
North: Newell north															
7	L2	All MCs	19 42.0		19 42.0		0.012	4.9	LOS A	0.0	0.0	0.00	0.52	0.00	45.4
8	T1	All MCs	211 42.0		211 42.0		0.140	0.0	LOS A	0.0	0.4	0.02	0.02	0.02	49.9
9	R2	All MCs	3 42.0		3 42.0		0.140	5.9	LOS A	0.0	0.4	0.02	0.02	0.02	48.0
Approach			233 42.0		233 42.0		0.140	0.5	NA	0.0	0.4	0.02	0.06	0.02	49.5
All Vehicles			485 40.2		485 40.2		0.140	1.1	NA	0.2	1.7	0.05	0.08	0.05	49.1

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

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

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

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

# MOVEMENT SUMMARY

Site: 101 [Narrabri-ex case 3 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site  
Site Category: Existing Design  
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Newell south															
1	L2	All MCs	8 42.0		8 42.0		0.011	7.1	LOS A	0.0	0.4	0.43	0.56	0.43	44.2
2	T1	All MCs	269 42.0		269 42.0		0.174	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	All MCs	7 42.0		7 42.0		0.010	7.1	LOS A	0.0	0.3	0.44	0.55	0.44	44.4
Approach			285 42.0		285 42.0		0.174	0.5	NA	0.0	0.4	0.02	0.03	0.02	49.6
East: Fraser															
4	L2	All MCs	7 10.0		7 10.0		0.065	6.2	LOS A	0.2	1.6	0.61	0.76	0.61	41.3
6	R2	All MCs	14 10.0		14 10.0		0.065	17.3	LOS B	0.2	1.6	0.61	0.76	0.61	41.5
Approach			21 10.0		21 10.0		0.065	13.5	LOS A	0.2	1.6	0.61	0.76	0.61	41.5
North: Newell north															
7	L2	All MCs	14 42.0		14 42.0		0.009	4.9	LOS A	0.0	0.0	0.00	0.52	0.00	45.4
8	T1	All MCs	269 42.0		269 42.0		0.180	0.1	LOS A	0.1	0.6	0.02	0.02	0.02	49.9
9	R2	All MCs	4 42.0		4 42.0		0.180	6.9	LOS A	0.1	0.6	0.02	0.02	0.02	48.0
Approach			287 42.0		287 42.0		0.180	0.4	NA	0.1	0.6	0.02	0.05	0.02	49.6
All Vehicles			594 40.9		594 40.9		0.180	0.9	NA	0.2	1.6	0.04	0.06	0.04	49.2

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

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

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

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

# MOVEMENT SUMMARY

▼ Site: 101 [Narrabri-ex case 4 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site  
Site Category: Existing Design  
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ] veh/h	%	[ Total HV ] veh/h	%				[ Veh. veh	Dist ] m				
South: Newell south															
1	L2	All MCs	8 42.0		8 42.0		0.011	7.1	LOS A	0.0	0.4	0.43	0.56	0.43	44.2
2	T1	All MCs	269 42.0		269 42.0		0.174	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	All MCs	11 42.0		11 42.0		0.014	7.2	LOS A	0.1	0.5	0.44	0.56	0.44	44.4
Approach			288 42.0		288 42.0		0.174	0.5	NA	0.1	0.5	0.03	0.04	0.03	49.5
East: Fraser															
4	L2	All MCs	11 10.0		11 10.0		0.105	6.3	LOS A	0.3	2.6	0.62	0.80	0.62	41.0
6	R2	All MCs	22 10.0		22 10.0		0.105	18.0	LOS B	0.3	2.6	0.62	0.80	0.62	41.2
Approach			33 10.0		33 10.0		0.105	14.2	LOS A	0.3	2.6	0.62	0.80	0.62	41.1
North: Newell north															
7	L2	All MCs	22 42.0		22 42.0		0.014	4.9	LOS A	0.0	0.0	0.00	0.52	0.00	45.4
8	T1	All MCs	269 42.0		269 42.0		0.180	0.1	LOS A	0.1	0.6	0.02	0.02	0.02	49.9
9	R2	All MCs	4 42.0		4 42.0		0.180	6.9	LOS A	0.1	0.6	0.02	0.02	0.02	48.0
Approach			296 42.0		296 42.0		0.180	0.5	NA	0.1	0.6	0.02	0.06	0.02	49.5
All Vehicles			617 40.3		617 40.3		0.180	1.2	NA	0.3	2.6	0.06	0.09	0.06	49.0

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

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

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