



# TRAFFIC IMPACT ASSESSMENT (TIA)

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Concept Service Station, Take-away Restaurant and Light-industrial Units  
1411 The Northern Road, Bringelly

Reference: 21.471r01v03  
Date: July 2022

Suite 2.08, 50 Holt St  
Surry Hills, NSW 2010

t: (02) 8324 8700  
w: [www.traffix.com.au](http://www.traffix.com.au)

## DOCUMENT VERIFICATION

Job Number	21.471			
Project	1411 The Northern Road, Bringelly			
Client	EG Property Group			
Revision	Date	Prepared By	Checked By	Signed
v03	07/07/2022	Hasnat Khan	Ben Liddell	

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# 1. INTRODUCTION

TRAFFIX has been commissioned by EG Property Advisory Group to undertake a traffic impact assessment (TIA) in support of a Planning Proposal for a proposed development for a service station, take-away restaurant and light-industrial units at 1411 The Northern Road, Bringelly. Approval is sought for site specific amendments to the Liverpool Local Environmental Plan 2008 in order to develop the site for the abovementioned land uses. The development is located within the Liverpool City Council Local Government Area (LGA) and has been assessed under that Council's controls.

This report documents the findings of our investigations. The proposed development requires referral to Transport for NSW under the provisions of the State Environmental Planning Policy (Transport and Infrastructure) 2021.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the proposed concept development
- Section 5: Assesses the parking requirements
- Section 6: Assesses traffic impacts
- Section 7: Discusses access and internal design aspects
- Section 8: Presents the overall study conclusions

## 2. LOCATION AND SITE

The subject site at 1411 The Northern Road, Bringelly is located approximately 18 kilometres west of Liverpool CBD and is legally identified as Lot 6 in DP1217784. More specifically, it is located on the western side of The Northern Road, approximately 550 metres northwest of Badgerys Creek Road and approximately 4.7 kilometres south of the new Western Sydney Airport.

The site has a total site area of approximately 2.1 hectares. It has a northern frontage of 180 metres to The Northern Road, while the remaining boundaries are shared with neighbouring residential developments and farmland measuring 165 metres in the south, 85 metres in the east and 170 metres in the west.

The site currently accommodates an existing residential dwelling and provides a single vehicular access onto The Northern Road, situated on the northwest corner of the site.

A Location Plan is presented in Figure 1, with an Aerial View Plan presented in Figure 2.





Figure 1: Location Plan



Figure 2: Aerial View Plan

## 3. EXISTING TRAFFIC CONDITIONS

### 3.1 Road Network

The road hierarchy in the vicinity of the site is shown in Figure 3 with the following roads of particular interest:

- The Northern Road: a TfNSW Main Road (MR 154) that traverses north-south between Richmond Road in the north and Narellan Road in the south. Within the vicinity of the site, The Northern Road is subject to 80km/h speed zoning and accommodates two (2) lanes of traffic in each direction along a divided carriageway.
- Badgerys Creek Road: an Unclassified Regional Road (RR 7260) that traverses north-south between Elizabeth Drive in the north and The Northern Road in the south. Within the vicinity of the site, The Northern Road is subject to 80km/h speed zoning and accommodates a single lane of traffic in each direction.



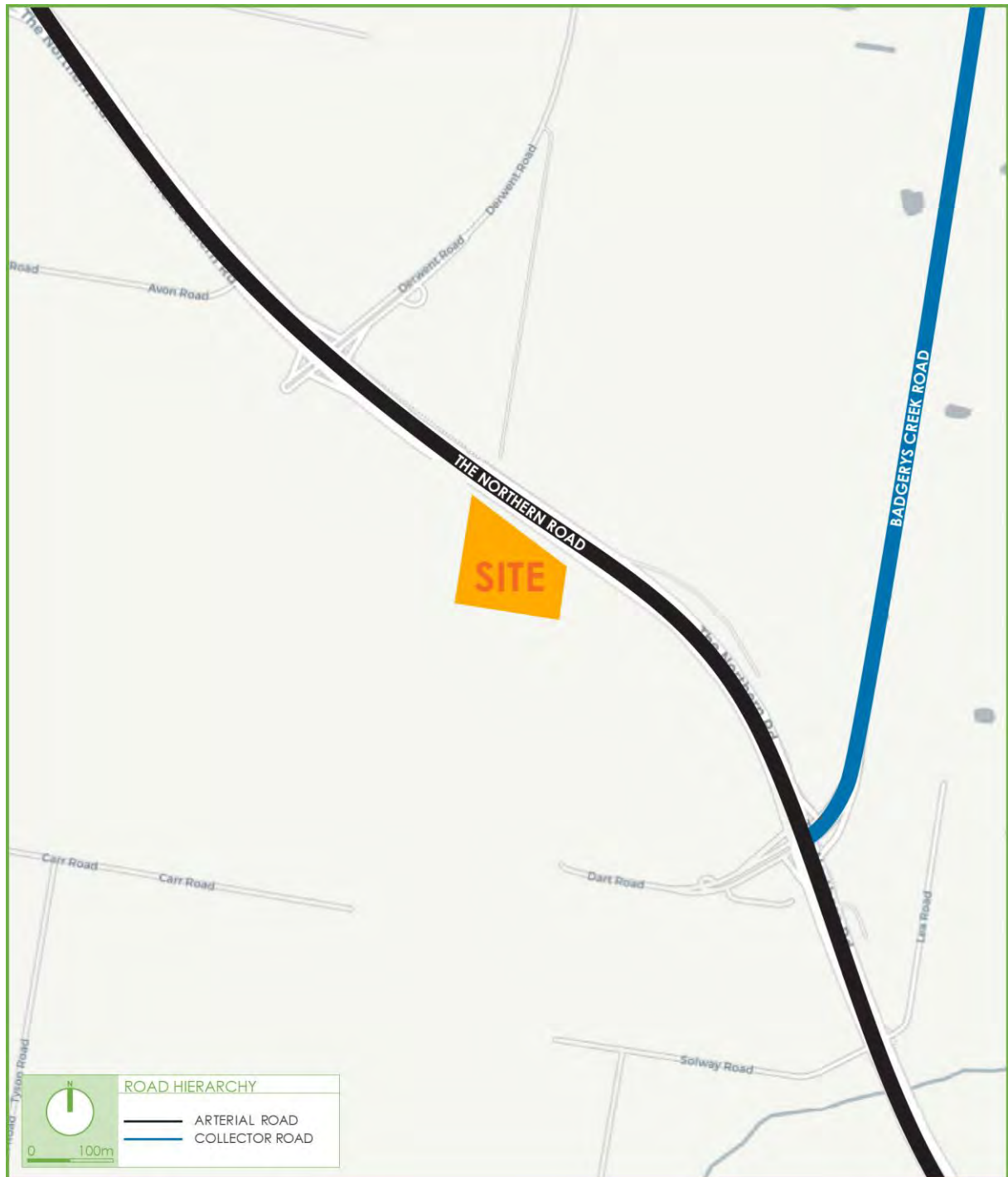


Figure 3: Road Hierarchy

### 3.2 Existing Traffic Volumes

TRAFFIX has conducted 7-day tube counts immediately adjacent to the subject site in March of 2022 to gain an understanding of the existing light and heavy vehicle movements along The Northern Road (northbound only). The following traffic volumes, speeds and vehicle types were recorded.

- Weekly 50<sup>th</sup> Percentile Speed      80km/h
- Weekly 85<sup>th</sup> Percentile Speed      88km/h
- 7-day AADT      7628 vehicles
- Short Vehicles (Class 1-2)      75.5%
- Medium Vehicles (Class 3-5)      21.1%
- Long Vehicles (Class 6+)      3.3%

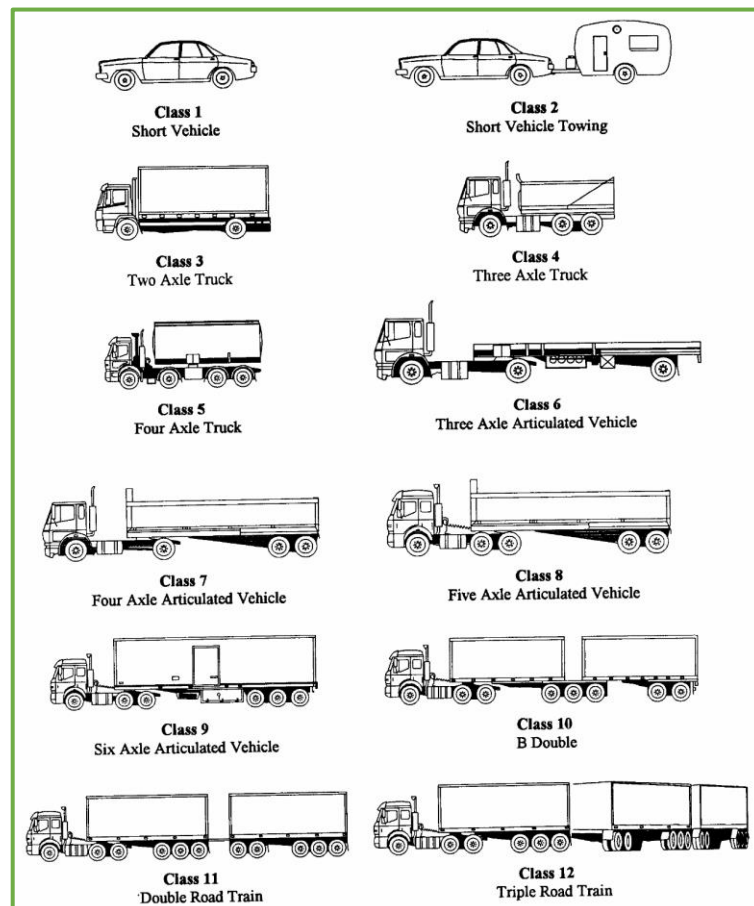


Figure 4: Vehicle Classifications (Source: Austroads)

## 4. DESCRIPTION OF PROPOSED DEVELOPMENT

For the purpose of assessment, a concept development scheme for a proposed service station, take-away restaurant and light-industrial units development has been envisaged, which is representative of the full development potential of the site under a Planning Proposal. The proposed development comprises the following:

- 7,473m<sup>2</sup> service station including pumps, canopy, shops, hardstand area;
- 254m<sup>2</sup> service station shop(s);
- 243m<sup>2</sup> fast food shop;
- 9,288m<sup>2</sup> of industrial units; and
- 4,373m<sup>2</sup> of common roads.

The parking and traffic impacts arising from the development are discussed in Section 6 and Section 7. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in Appendix A.

## 5. PARKING REQUIREMENTS

### 5.1 Car Parking

The Liverpool Development Control Plan 2008 (DCP), Part 1, Table 11 provides car parking rates for service station, food outlet and industrial developments at the following recommended rates shown in Table 1:

Table 1: Council Parking Rates

Type	No.	Minimum Parking Rate	Minimum Spaces Required
Service Station			
Service Station	6	2 spaces per fuel outlet	12
	0	3 spaces per service bay	0
	5 <sup>[1]</sup>	1 space per employee	5
	254m <sup>2</sup> GFA or 190m <sup>2</sup> LFA	1 space per 20m <sup>2</sup> LFA of any convenience store	10
Drive-in Food Outlets			
Food Outlet <sup>[2]</sup>	243m <sup>2</sup>	Type 1 – 1 space per 8m <sup>2</sup> LFA; Type 2 – 1 space per 8m <sup>2</sup> LFA plus 1 space per 5 seats; Type 3 – 1 space per 6 seats plus queuing area for 10 cars.	30 plus 10 queuing spaces
Industrial			
Industry <sup>[3]</sup>	9,288m <sup>2</sup>	1 space per 35m <sup>2</sup> of office LFA	40
		1 space per 75m <sup>2</sup> factory/warehouse LFA or 1 space per 2 employees, whichever is the greater	32
		Warehouse developments of GFA >1000m <sup>2</sup> : 1 space per 250sqm in GFA	
TOTAL			129

[1] Estimate staff numbers

[2] Type 1 - Customers park on-site and walk to the food outlet, with no on-site seating for food consumption;

Type 2 - Similar to a Type 1 facility, however, provides on-site seating for food consumption; and

Type 3 - Contains the characteristics of Type 1 and Type 2 facilities, and also includes a drive-through service for customers not wishing to consume food on the premises.

[3] Assumption of 15% office space



It is evident from Table 1 that the proposed concept development requires a minimum of 129 parking spaces under Council's DCP, including 27 for the service station component, 30 spaces for the food outlet component and 72 spaces for the industrial component. In addition, the food outlet is required to provide sufficient space for 10 cars queuing.

Noting that the site has a total area of 21,134m<sup>2</sup>, it is considered that the site is sufficiently large enough to accommodate the parking demands of a future development of this scale.

## 5.2 Servicing Requirements

The Liverpool Development Control Plan 2008 (DCP), Part 1, Table 11 provides servicing and loading rates for service station, food outlet and industrial developments at the following recommended rates shown in Table 2:

Table 2: Council Servicing and Loading Rates

Type		Servicing and Loading Requirements
Service Station		
Service Station	Fuel Component	Service access for an articulated vehicle
	Convenience Store Component	Service facilities for a heavy rigid vehicle
Drive-in Food Outlets		
Food Outlet		Waste collection vehicle service access Service facilities for a heavy rigid vehicle
Industrial		
Industry		Developments of LFA > 1,000m <sup>2</sup> require occasional access for an articulated vehicle

It is evident from Table 2 that the proposed concept development requires access for heavy rigid vehicles for the convenience store and food outlet components and articulated vehicle access for the fuel and industrial components.

It is considered that the site is sufficiently large enough to accommodate 12.5m heavy rigid vehicles and 20m articulated vehicles as defined under AS2890.2 (2018), with detailed swept path analysis to be undertaken at a later development application stage.

### 5.3 Other Parking Requirements

Subsequent development application(s) would need to consider the following additional parking requirements below:

- Accessible parking;
- Motorcycle parking; and
- Bicycle parking.

It is expected the subject development would fully comply with the above parking requirements, as required.

## 6. TRAFFIC AND TRANSPORT IMPACTS

### 6.1 Existing Site Generation

The subject site accommodates a single dwelling house, and as such, would currently generate in the order of one (1) vehicle in the AM and PM peak hour periods.

### 6.2 Development Trip Generation

The impacts of the proposed development on the external road network have been assessed having regard for the indicative yield scenarios as summarised in Section 4 above. This assessment has been undertaken in accordance with the requirements of the TfNSW Guideline to Traffic Generating Developments (2002) and as such, the traffic generation rates published in the guide have been adopted for each individual land use. The result of this assessment is summarised below.

#### 6.2.1 Service Station

The TfNSW Guide 2002 provides the evening peak period traffic generation rate for service stations and convenience stores based on the following formulas:

$$\text{Evening peak hour vehicle trips} = 0.04 A(S) + 0.3 A(F) \text{ or } 0.66 A(F)$$

Where  $A(S)$  = Area of the site ( $m^2$ ); and  
 $A(F)$  = GFA of convenience store ( $m^2$ ).

Application of the above equation to the 7,473 $m^2$  of service station area and 254 $m^2$  of convenience shop results in the following traffic generation:

- 375 vehicles per hour during the PM peak period (187 in, 188 out).

Noting the nature and location of the proposed service station, it is expected that approximately 50% of traffic will be passing traffic along The Northern Road. The adjusted external traffic impacts equate to the following:

- 188 vehicles per hour during the PM peak period (94 in, 94 out).

### 6.2.2 Drive-in Take Away Food Outlet

The TfNSW Guide 2002 provides assumptions for the evening peak period traffic generation rate for drive-in take away food outlets, being:

- 180 vehicles per hour for a McDonalds type development (90 in, 90 out); or
- 100 vehicles per hour for a KFC type development (50 in, 50 out).

It is noted that many fast-food chains (McDonalds) are also open for breakfast, thus it is assumed that the morning peak will experience 50% of the evening peak. This results in the following:

- 90 vehicles per hour for a McDonalds type development (45 in, 45 out).

The guide also states that passing trade is typically 35% for McDonalds type developments and 50% for KFC type developments. The adjusted external traffic impacts (taking into consideration passing trade) equate to the following:

- 117 (180x65%) vehicles per hour for a McDonalds type development (58 in, 59 out); or
- 50 (100x50%) vehicles per hour for a KFC type development (25 in, 25 out).

### 6.2.3 Industrial Units

The proposed development comprises a total of 9,288m<sup>2</sup> gross floor area and noting the multiple tenancies on-site, would be best described as an industrial estate for the purposes of estimating traffic generation. The TfNSW *Technical Direction TDT 2013/04a* provides trip generation rates for industrial estates based on surveys conducted in 2012 which are also applicable for business parks and would thus also be considered suitable for estimating the traffic generation of any ancillary office space. It recommends an average Sydney based trip generation rate of 0.52 vehicle trips per 100m<sup>2</sup> gross floor area during the AM peak period and 0.56 vehicle trips per 100m<sup>2</sup> gross floor area during the PM peak period. When applying this rate to the total gross floor area, the proposed development is estimated to generate the following traffic:

- 48 vehicles per hour during the AM peak period (39 in, 9 out); and
- 52 vehicles per hour during the PM peak period (10 in, 42 out).



#### 6.2.4 Combined Network Traffic Generation (with McDonalds type development)

Taking into consideration all land uses, the proposed development will generate the following vehicle trips on the surrounding road network.

- 107 vehicles per hour during the AM peak period (69 in, 38 out); and
- 357 vehicles per hour during the PM peak period (162 in, 195 out).

#### 6.2.5 Combined Driveway Traffic Generation (with McDonalds type development)

Taking into consideration all land uses, the proposed development will generate the following vehicle trips at the driveway access to The Northern Road:

- 138 vehicles per hour during the AM peak period (84 in, 54 out); and
- 607 vehicles per hour during the PM peak period (287 in, 320 out).

### 6.3 Network Performance

It is highly noteworthy that The Northern Road and key intersections along its length have been upgraded as part of the Western Sydney Infrastructure Plan, which was a \$4.1 Billion road investment program funded by federal and state governments. The subject site is located along the “Peter Brock Drive to Mersey Road” section of upgrade roadway which opened to traffic in 2020. The remaining sections of road were completed in 2020 and 2021, including a section of Bringelly Road. Key features in the “Peter Brock Drive to Mersey Road” section of upgrade included:

- Two (2) lanes in each direction with a shoulder and wide central median (allowing for widening to six (6) lanes, when required);
- A grade separated interchange (underpass) at Bringelly Road to the east of Bringelly Village and the existing intersection with Bringelly Road/ Greendale Road;
- A three metre wide off-road shared pedestrian and cyclist path;
- Temporary U-turn facilities at some future precinct link roads to cater for development;
- Nine (9) intersection upgrades with traffic lights;

- Existing bridge over Thompson Creek replaced for southbound traffic and a new bridge for northbound traffic; and
- Bus priority lanes at traffic lights and indented bus bays.

A diagram showing the extent of each upgrade section is presented in Figure 5 below.



Figure 5: The Northern Road Upgrades (Source: Transport for NSW 2022)

Noting the above improvements, TRAFFIX has reviewed the Traffic and Transport Assessment Report prepared by Sinclair Knight Merz (SKM), titled *“MR154 The Northern Road Upgrade Between The Old Northern Rd & Mersey Rd”*. SKM was appointed by Transport for NSW (former RMS) to undertake a Concept Design and a Review of Environmental Factors for the MR154 The Northern Road upgrade.

The subject traffic and transport study included micro-simulation and SIDRA modelling of key existing and future (2016, 2026, 2036) intersections along The Northern Road. As stated in the report, *“the model methodology was to draw heavily on the RMS EMME model for traffic demands and to use SATURN to refine the local traffic patterns and provide a tool to calculate turning flows for detailed analysis.”*

With regards to the subject proposed development, two (2) key intersections are of interest, including:

- The Northern Road / Badgerys Creek Road; and
- The Northern Road / Derwent Road.

It should be noted that the SKM report modelled the intersection of The Northern Road / Derwent Road as a priority-controlled intersection, however, the intersection was ultimately designed and constructed as a four-legged signalised intersection. Nevertheless, it is assumed that the intersection would operate at an acceptable level of service in the future traffic volume scenarios, in line with adjacent intersections. To provide context, the signalised intersection of The Northern Road and Badgerys Creek Road was demonstrated to operate at the following:

- 4-Lane 2026 Scenario      LoS ‘C’ and ‘B’ in the AM and PM periods respectively; and
- 6-Lane 2036 Scenario      Los ‘D’ in the AM and PM periods.

Noting the above, it is not considered necessary to conduct any further traffic assessment (SIDRA modelling etc.) at public intersections, noting the following:

- i. The SKM analysis had taken into consideration a level of growth within the study area, including the site at 1411 The Northern Road;
- ii. The SIDRA analysis undertaken by SKM suggests that nearby intersections will operate with a sufficient level of service with spare capacity in 2036;

- iii. The nature of the development suggests that a large proportion of traffic will be passing trade.

Therefore, the traffic impacts associated with the subject planning proposal are already accounted for in the recently upgraded road and intersections.

## 6.4 Driveway Performance

In order to determine the performance of the access driveway to The Northern Road, the traffic volume surveys, and driveway traffic volumes were analysed using the SIDRA Intersection 9 computer program to determine its performance characteristics under post construction traffic conditions. The SIDRA model produces a range of outputs, the most useful of which are the Degree of Saturation (DoS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LoS) criteria. These performance measures can be interpreted using the following explanations:

DoS - the DoS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DoS approaches 1, it is usual to attempt to keep DoS to less than 0.9. When DoS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. In this regard, a practical limit at 1.1 can be assumed. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DoS of 0.8 or less.

AVD - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LoS - this is a comparative measure which provides an indication of the operating performance of an intersection.



Table 3: TfNSW Level of Service Criteria for Intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	<14	Good Operation	Good Operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity, at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

A summary of the modelled results is provided below in Table 4 and the SIDRA Outputs are presented in Appendix B.

Table 4: Intersection Performance

Intersection	Control Type	Period	Degree of Saturation (DoS)	Intersection Delay	Level of Service
The Northern Road and Access Driveway	Priority Control	AM	0.276	7.6	A
		PM	0.324	8.0	A

It can be seen from Table 4 that the driveway to The Northern Road operates at a Level of Service 'A' during the AM or PM peak periods with significant spare capacity. Specifically, the worse performing manoeuvre is the left-turn from the site onto the Northern Road with an average delay of 7.6 and 8.0 seconds in the AM and PM peaks, respectively.

## 7. ACCESS AND INTERNAL DESIGN ASPECTS

### 7.1 Site Vehicular Access

A future DA would propose approximately 129 car parking spaces with access to The Northern Road, a TfNSW Main Road. The access will also need to accommodate 20m articulated vehicles to service the service station and industrial units.

As such, the driveway will be designed in accordance with AS2890.1 (2004), AS2890.2 (2018) and Austroad Guidelines, noting that a deceleration lane is likely required to enter the site.

Any deceleration lane would be designed in accordance with Austroads Guide to Road Design Part 04A Unsignalised and Signalised Intersections. Table 5.2 of this guide provides deceleration lane lengths of a variety of design speeds. Assuming a design speed of 90km/h (10km/h above posted speed limit) requires a 120m deceleration lane, including a 30m taper. This deceleration lane would likely be located south of the newly constructed shoulder to accommodate a future expansion (3-lanes in each direction) of The Northern Road.

### 7.2 Internal Design

The internal car parks and circulation roads will be required to comply with the requirements of AS2890.1 (2004), AS2890.2 (2018) and AS2890.6 (2009), and the following characteristics are noteworthy:

#### 7.2.1 Parking Modules

- All employee car parking spaces are to be designed in accordance with User Class 1A. These spaces will be provided with a minimum space length of 5.4m, a minimum width of 2.4m and a minimum aisle width of 5.8m.
- All service station car parking spaces are to be designed in accordance with User Class 3A. These spaces will be provided with a minimum space length of 5.4m, a minimum width of 2.6/2.7m and a minimum aisle width of 6.6/6.2m.
- All food outlet car parking spaces are to be designed in accordance with User Class 3A. These spaces will be provided with a minimum space length of 5.4m, a minimum width of 2.6/2.7m and a minimum aisle width of 6.6/6.2m.

- All accessible parking spaces are to be designed in accordance with AS2890.6 (2009), being 2.4m wide, 5.4m long and located adjacent to a dedicated shared area of the same dimensions.
- All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.

#### 7.2.2 Clear Head Heights

- A minimum clear head height of 2.2m is to be provided for all areas within the car park as required by AS2890.1 (2004).
- A minimum clear head height of 2.5m is to be provided above all accessible spaces in accordance with AS2890.6 (2009).

#### 7.2.3 Commercial Vehicles

- All circulation roads and truck parking/loading areas are to be designed in accordance with AS2890.2 (2018).

### 7.3 Summary

In summary, the internal configuration of the car park, circulating roadways and loading areas should be designed in accordance with AS2890.1 (2004), AS2890.2 (2018) and AS2890.6 (2009). The car parking and service bay arrangements can be further optimised during future DA stage/s.

## 8. CONCLUSIONS

The following is noteworthy:

- Approval is sought for site specific amendments to the Liverpool Local Environmental Plan 2008 in order to develop the site for a service station, take-away restaurant and industrial-units.
- The subject site is well connected to the surrounding road network, having convenient connections to The Northern Road which is the main north-south connection through the Western Sydney region and future enterprise area.
- A future detailed development application would assess the parking requirements against Council's DCP. The concept development described within requires a total of 129 off-street parking spaces. The site is considered large enough to accommodate a parking provision of this order.
- The traffic generation arising from the development has been assessed as a net change over existing conditions and equates to an additional 107 vehicle trips per hour during the AM peak and an additional 357 vehicle trips the PM peak. Due to the significant infrastructure upgrades along The Northern Road, no further traffic analysis is considered necessary.
- SIDRA modelling was undertaken for the proposed vehicle access to The Northern Road. The modelling demonstrates that the driveway operates satisfactory with minimal queuing or delays within the site or along The Northern Road. The traffic impacts of the development are therefore considered acceptable.
- The car park, circulating roadways and loading areas will comply with the requirements of AS2890.1 (2004), AS2890.2 (2002) and AS2890.6 (2009) and the detailed operation can be dealt with during the DA Stage.

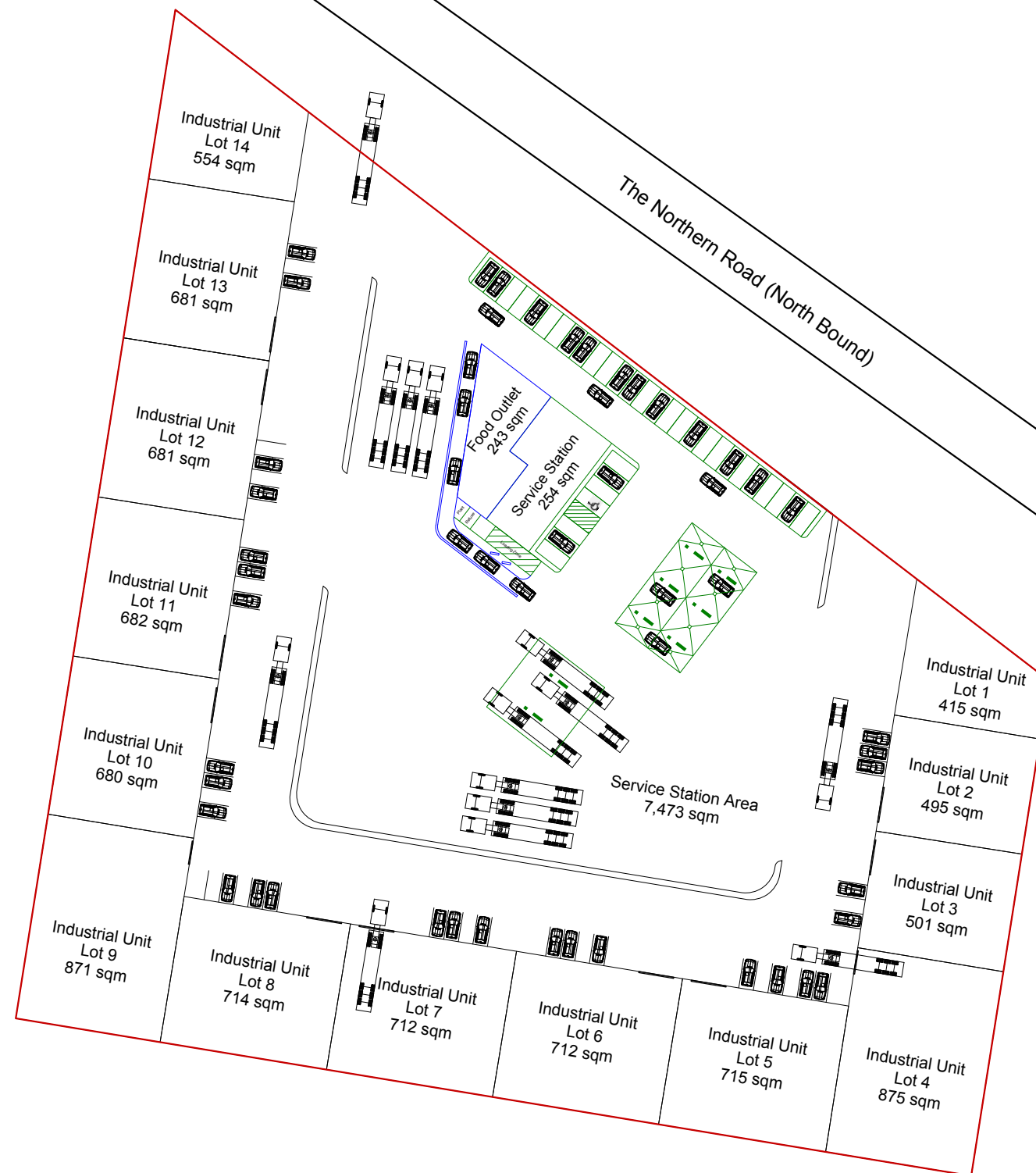
This traffic impact assessment therefore demonstrates that the Planning Proposal is supportable on traffic planning grounds. TRAFFIX anticipates an ongoing involvement during the approval process.



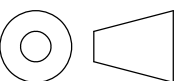
# APPENDIX A

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Concept Plan



Project Address: 1411 The Northern Road, Bringelly



EG

Drawing Name : Site Plan 3A

Drawn By: Jason Chen

Scale: 1:1000

Date: 31/3/22

## APPENDIX B

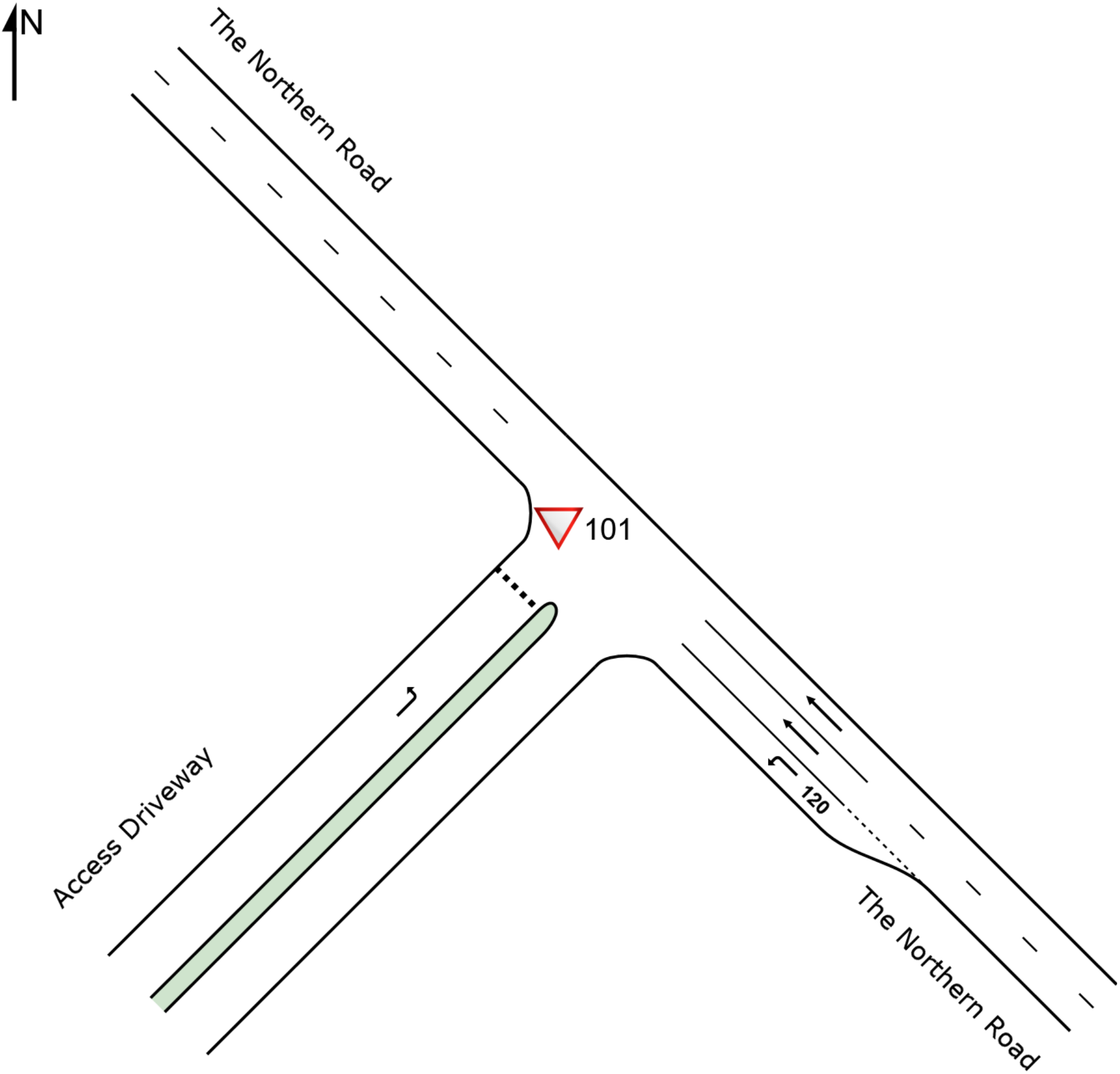
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SIDRA Outputs

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

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [ Total HV ] veh/h veh/h		DEMAND FLOWS [ Total HV ] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [ Veh. Dist ] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: The Northern Road														
4	L2	84	0	88	0.0	0.048	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	54.4
5	T1	871	233	917	26.8	0.276	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		955	233	1005	24.4	0.276	0.6	NA	0.0	0.0	0.00	0.05	0.00	76.4
SouthWest: Access Driveway														
1	L2	54	0	57	0.0	0.058	7.6	LOS A	0.2	1.5	0.49	0.69	0.49	51.3
Approach		54	0	57	0.0	0.058	7.6	LOS A	0.2	1.5	0.49	0.69	0.49	51.3
All Vehicles		1009	233	1062	23.1	0.276	0.9	NA	0.2	1.5	0.03	0.09	0.03	74.7

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.

USER REPORT FOR SITE

All Movement Classes

Project: 21.471m01v01

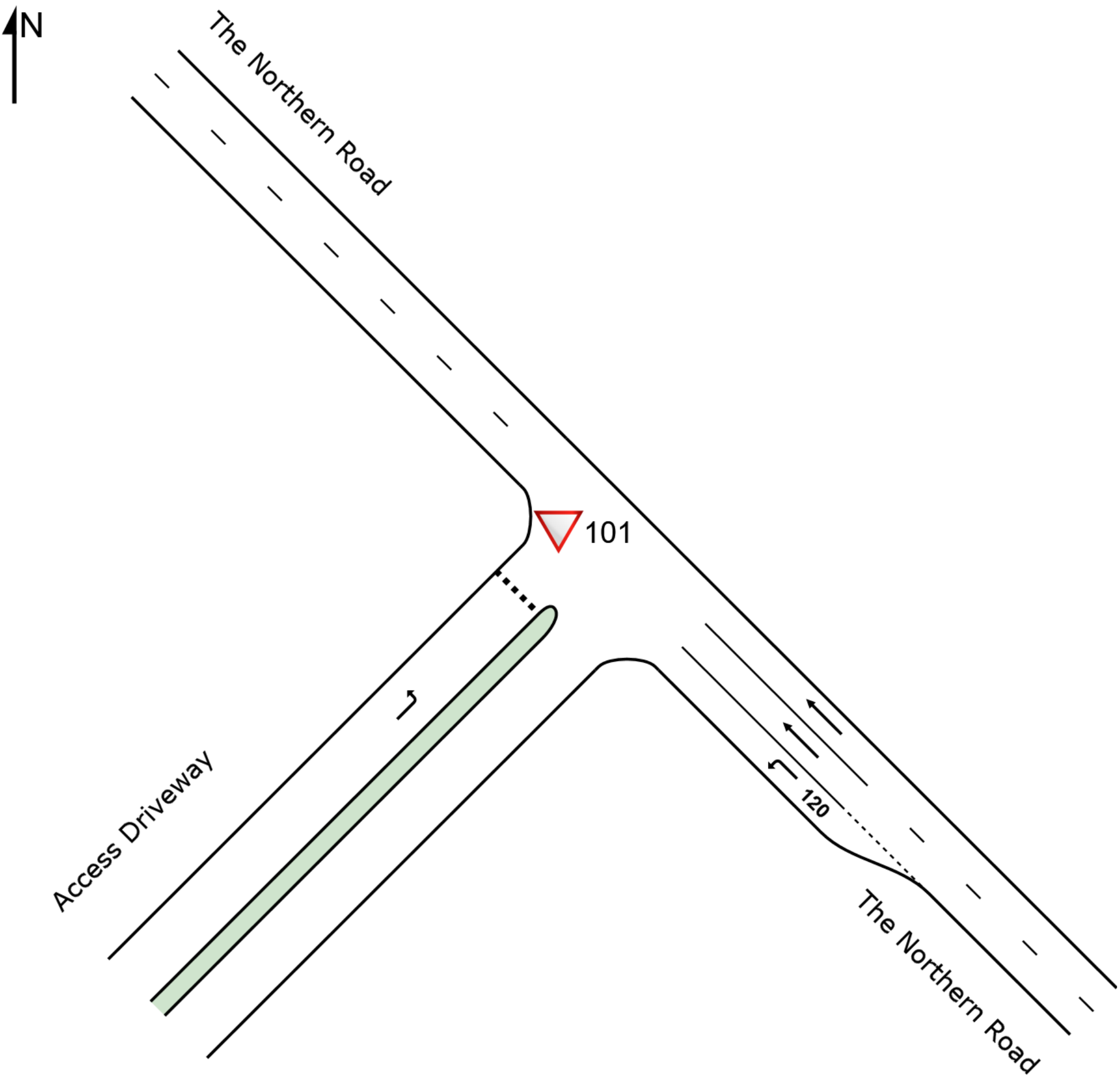
Template: Layouts

Site: 101 [Access Driveway PM (Site Folder: General)]

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

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.





USER REPORT FOR SITE

All Movement Classes

▼ Site: 101 [Access Driveway PM (Site Folder: General)]

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

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [ Total HV ] veh/h veh/h		DEMAND FLOWS [ Total HV ] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [ Veh. Dist ] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: The Northern Road														
4	L2	287	0	302	0.0	0.163	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	54.3
5	T1	790	212	832	26.8	0.250	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		1077	212	1134	19.7	0.250	1.5	NA	0.0	0.0	0.00	0.15	0.00	70.4
SouthWest: Access Driveway														
1	L2	320	0	337	0.0	0.324	8.0	LOS A	1.6	11.3	0.54	0.79	0.59	51.0
Approach		320	0	337	0.0	0.324	8.0	LOS A	1.6	11.3	0.54	0.79	0.59	51.0
All Vehicles		1397	212	1471	15.2	0.324	3.0	NA	1.6	11.3	0.12	0.30	0.14	65.4

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.