TRAFFIC IMPACT ASSESSMENT

RESOURCE RECOVERY FACILITY EXPANSION

LOT 16 DP 717203
16 KERR ROAD, INGLEBURN

PREPARED FOR: BULK RECOVERY SOLUTIONS

AMENDED MARCH 2021

REF: 17/164

TRAFFIC IMPACT ASSESSMENT

RESOURCE RECOVERY FACILITY
LOT 16 DP 717203
16 KERR ROAD, INGLEBURN
BULK RECOVERY SOLUTIONS

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QUALITY ASSURANCE

This document has been prepared, checked and released in accordance with the Quality Control Standards established by Intersect Traffic Pty Ltd.

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H	10/10/20	Council comments / Approved	JG
I	16/10/20	Client amendments / Approved	JG
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J

This document has been authorised by

Date: - 18th March 2021

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1. INTRODUCTION

Intersect Traffic Pty Ltd has been engaged by KDC Pty Ltd to undertake a traffic impact assessment for an expansion of an existing resource recovery facility on Lot 16 DP 717203, 16 Kerr Road, Ingleburn. The existing resource recovery facility includes a concrete batching plant and is located within the existing Ingleburn Industrial area. Development Plans are provided in ***Attachment A***.

Intersect Traffic has been engaged in March 2021 by the proponent Bulk Recovery Solutions (BRS) to review and revise this Traffic Impact Assessment following the request made to the Department of Planning, Industry and Environment (DPIE) to amend the original Development Application (DA) by excluding the Solid Wastes and Asbestos Containing Liquids from the original DA.

This traffic assessment is required to support a development application to the NSW Department of Planning and Environment and allow the Department, Campbelltown City Council and NSW Roads and Maritime Services (NSW RMS) officers to assess the traffic related impacts associated with the development. It is noted that the development does not propose the parking of heavy vehicles on any public roads in the area prior to or after being processed through the facility.

This report presents the findings of the traffic impact assessment and includes the following:

- An outline of the existing situation near the site.
- An assessment of the traffic impacts of the proposed development including the predicted traffic generation and its impact on existing road and intersection capacities.
- Reviews the on-site parking provided within the proposed development and assesses it against Council and Australian Standards requirements.
- Presentation of conclusions and recommendations.

This assessment has been undertaken with reference to the *RTA's Guide to Traffic Generating Developments (2002),* Austroads *Guide to Road Design – Part 4A Unsignalised and signalised intersections (2010)*, latest Australian Standards *AS2890.1 & 2 – Parking Facilities – Part 1 – Off streetcar parking and Part 2 – Commercial vehicle facilities* and Campbelltown City Council requirements.

In respect of the SEARS issued for this project dated 27th September 2017 the following traffic and transport measures are addressed as follows;

1. Traffic generated by the development – ***Section 2.5***;
2. Traffic Impacts including Sidra Intersection modelling – ***Section 3***;
3. Road Upgrades / New Infrastructure – ***Section 3*** – none required;
4. Road Pavement Impacts – Visual Inspection / Assessment only – ***Section 2.3***; and
5. Public Transport Accessibility – ***Section 3.5***.

2. DEVELOPMENT PROPOSAL

2.1 Site Location

Kerr Road is an industrial standard cul-de-sac within the Ingleburn Industrial area located approximately 1.2 km's east of the Hume Motorway and 9 km's north-east of the Campbelltown CBD area. Access to and from the Hume Highway for origin / destinations to the north is via Brooks Road, Williamson Road, Henderson Road, Lancaster Street and Aero Road to Kerr Road while access for origins to the south would be via Campbelltown Road, Williamson Road, Henderson Road, Lancaster Street and Aero Road to Kerr Road. ***Figure 1*** below shows the site location while ***Photograph 1*** shows the existing development on the site.

The surrounding area is made up of industrial standard roads with kerb and gutter and longitudinal drainage constructed to a suitable standard for heavy vehicle use. High standard intersection control in the form of roundabout controls all the existing intersections on the likely haulage routes to the site except at the Aero Road / Kerr Road intersection which is a give way-controlled priority T-intersection. ***Photograph 2*** below shows the roundabout at the Henderson Road / Lancaster Road intersection which provides the main connection to the local collector road network from the site.

Figure 1 – Site Location

The site is titled Lot 16 in DP 717203 and addressed as 16 Kerr Road, Ingleburn. It has a total area of approximately 12,849 m^2 and is zoned IN1 – General Industrial pursuant to the requirements of the Campbelltown LEP (2015).

Photograph 1 – Existing site development and vehicular access.

Photograph 2 – Henderson Road / Lancaster Road roundabout.

2.2 Development Proposal

The proposed development concept involves the following;

- Expansion of the existing Waste Management Facility / Resource Recovery Facility on the site with a capacity to cater for 125,000 tonnes per year liquid waste and potentially provide for7,000 tonnes (3,500 tonnes solid waste and 3,500 tonnes of liquid waste on the site at any time.
- An upgraded concrete batching plant with an annual capacity of 50,000 tonnes per annum.

It is understood no additional site infrastructure is proposed and the development seeks approval for additional liquid waste to be processed and recycled on site only. It should also be noted that only 20 % of the liquid waste is removed from site with the remaining liquid waste being recycled in on-site operations e.g. concrete blocks, concrete batching plant, wheel washes and landscaping or disposed of through the sewerage system under licence.

The current site operator has advised that the existing production from the Waste Management Facility on the site involves the processing of approximately 30,000 (19,000 solid and 11,000 liquid) tonnes of solid and 'muddy' waste per year (with storage of 5,000 tonnes being 1,900 tonnes of solid waste and 3,100 tonnes of liquid waste) which generally results in the generation of between a maximum two (2) truck and dog (28 tonne capacity) solid waste loads and five (5) liquid vacuum trucks (7 tonne trucks) or two (2) (16 tonne tankers. Daily processing usually involves a combination of solid and liquid waste vehicles. A detailed breakdown of traffic and trip generation is provided within ***Sections 2.5 and 2.6*** below.

Advice from the operator is that the peak hours for truck movements from the site are 7 am – 9 am and 4 pm to 6 pm with a total of up to 4 trucks arriving in these peaks which averaged out would be 1 delivery per hour. It is noted however that as part of this proposal the number of vehicles delivering waste during non-peak periods will increase markedly and there will be little difference between the peak hour and off-peak hour deliveries.

2.3 Existing Road Network

2.3.1 Campbelltown Road

Campbelltown Road under a functional road hierarchy is a sub-arterial road that not only connects the Campbelltown area to the Liverpool area but also connects the Ingleburn Industrial area to the arterial road network (Hume Motorway) for traffic with an origin / destination to the south. Near the site it is a high standard two-lane two-way sealed rural road with 3 to 3.5 metre lane widths and variable width sealed shoulders (up to 4.5 metres) wide which are also line marked as on-road cycleways. It is under the care and control of NSW RMS and a 70 km/h speed zone exists through the area. At the time of inspection, Campbelltown Road was found to be in good condition.

2.3.2 Brooks Road

Brooks Road under a functional road hierarchy is a local collector road that connects the Ingleburn Industrial area to the arterial road network (Hume Motorway) for traffic with an origin / destination to the north. Brooks Road operates as the on and off-ramp for the Hume Motorway and near the site it is generally a four-lane two-way sealed urban road with kerb and gutter and additional turning lanes near intersections. Lane widths are in the order of 3.5 metres and on inspection Brooks Road was found to be in good condition as evidenced in ***Photograph 3*** below. It is under the care and control of Campbelltown City Council and a 60 km/h speed zone exists through the area.

2.3.3 Williamson Road

Williamson Road under a functional road hierarchy performs the function of a local collector road and the main collector road through the Ingleburn Industrial area. It is a dual carriageway sealed urban road with kerb and gutter and a raised and vegetated wide central median and two travel lanes in each direction. Indented parking areas are provided within the central median with no parking evidenced in the outer lanes allowing two travel lanes per direction. Lane widths were found to be in the order of 3.1 to 3.5 metres wide and a 50 km/hr speed zoning would apply to the road. The road would also be under the care and control of Campbelltown City Council and at the time of inspection Williamson Road was found to be in good condition as evidenced in ***Photograph 4*** below. Williamson Road connects to Brooks Road via a 2-lane roundabout.

2.3.4 Henderson Road

Henderson Road under a functional road hierarchy performs the function of a local collector road in the Ingleburn Industrial area. It is a four lane two way sealed urban road with kerb and gutter and a raised concrete central median. With no parking evidenced in the outer lanes the road contained two travel lanes per direction. Lane widths were found to be in the order of 3.1 to 3.5 metres wide and a 50 km/hr speed zoning would apply to the road. The road would be under the care and control of Campbelltown City Council and at the time of inspection Henderson Road was found to be in good condition as evidenced in ***Photograph 5*** below. Henderson Road connects to Williamson Road via a two-lane roundabout.

Photograph 3 – Brooks Road near Williamson Road

2.3.5 Lancaster Street

Lancaster Street under a functional road hierarchy is a local industrial road within the Ingleburn Industrial area primarily providing vehicular access to properties along its length. Near the site it is a two-lane two-way sealed urban road (12.5 metre carriageway width) with kerb and gutter. On inspection Lancaster Street was found to be in good condition as evidenced in ***Photograph 6*** below. It is under the care and control of Campbelltown City Council and a 50 km/h speed zone exists through the area. Lancaster Street connects to Henderson Road via a two-lane roundabout.

2.3.3 Aero Road

Aero Road under a functional road hierarchy is a local industrial road within the Ingleburn Industrial area providing vehicular access to properties along its length. Near the site it is a two-lane two-way sealed urban road (12 metre carriageway width) with kerb and gutter. On inspection Aero Road was found to be in fair condition as evidenced in ***Photograph 7*** below. It is under the care and control of Campbelltown City Council and a 50 km/h speed zone exists through the area. Aero Road connects to Lancaster Street via a single lane roundabout.

Photograph 4 – Williamson Road.

2.3.4 Kerr Road

Kerr Road under a functional road hierarchy is a local industrial cul-de-sac road within the Ingleburn Industrial area providing vehicular access to properties along its length. Near the site it is a two-lane two-way sealed urban road (11 metre carriageway width) with kerb and gutter with a 25-metre radius turning area which includes a central vegetated island. This turning area is suitably for convenient use by all sizes of heavy vehicles. On inspection Kerr Road was found to be in good condition as evidenced in ***Photograph 8*** below. It is under the care and control of Campbelltown City Council and a 50 km/h speed zone exists through the area. Kerr Road connects to Aero Road via a give way-controlled T-intersection.

Photograph 5 – Henderson Road.

Photograph 6 – Lancaster Street near site.

Photograph 7 – Aero Road near site.

Photograph 8 – Kerr Road near site.

2.4 Alternative Transport Modes

Public transport (buses) in the area are provided by Interline Bus Services with service route 869 Ingleburn to Liverpool via Edmondson Park running past the site along Henderson Street. This route connects Ingleburn Railway Station to Edmondson Park Railway Station and Liverpool Railway Station. Other bus and rail connections at these locations provides access to all the major residential, commercial, retail, health and educational areas near the site. The nearest bus stops to the site are located on Henderson Road near the Lancaster Road roundabout about 200 to 350 metres north west of the site. A bus route extract for Route 869 is provided below in ***Figure 2***.

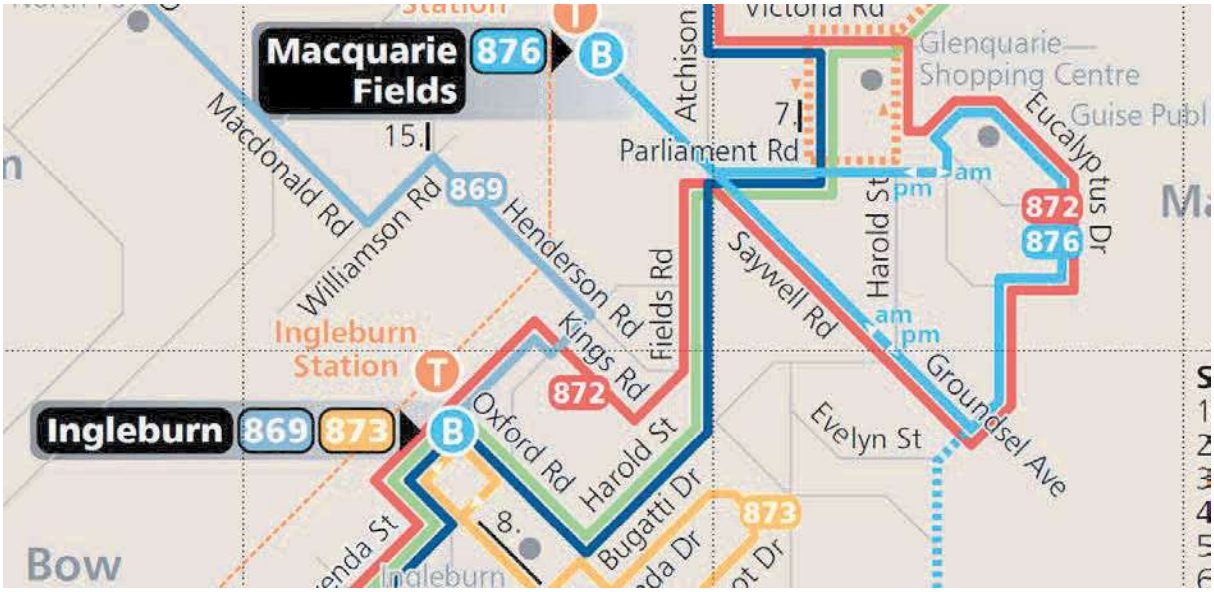


Figure 2 – Interline Bus Services Route 869 – Route Extract

The site is within 900 metres of Ingleburn Railway Station which lies on Sydney Trains Airport and South Line (T8). This is approximately a 20-minute walk from the site and provides access to the Sydney Trains and Regional rail networks.

A suitable concrete pedestrian footpath network exists along the major roads in the area connecting to Ingleburn Railway Station and local bus stops. Near the site a shared pathway exists along Henderson Road while pedestrian footpaths are provided along Lancaster Road to Aero Road and Aero Road from Kerr Road to Ingleburn Railway Station. The only gap in the pedestrian footpath network near the site is along Kerr Road itself where pedestrians are required to use the grass verges or parking lanes for trip making purposes. ***Photograph 9*** below shows the existing concrete footpath in Henderson Road near the site.

The only observed cycle way near the site is in the form of an off-road shared pathway on Henderson Road from Lancaster Road to Williamson Road as shown below in ***Photograph 10***.

This provides only a short section of benefit for cyclists in the area though does provide safe passage through a difficult and dangerous section of the road network for cyclists. In all other area's cyclists are required to share the outside travel lanes with other vehicles. This situation is only suitable for experienced cyclists.

Photograph 9 – Lancaster Road footpath near site.

Photograph 10 – Henderson Road off-road shared pathway near site

2.5 Traffic Generation

Traffic generation data for this assessment report has been determined from the operational details provided by BRS and assumptions made in relation to operating hours of the facility and truck sizes as described in ***Section 2.2*** and is based on the existing operations on the site. The key data used for the traffic generation calculations are;

- Waste delivery is 125,000 tonnes per annum of liquid waste and 19,000 tonnes per annum of solid waste;
- Waste removal based on 7,000 tonnes of storage on site (3,500 tonnes solid waste and 3,500 tonnes liquid waste) i.e. 15,500 tonnes of solid waste and 24,300 tonnes of liquid waste per annum.
- Each vehicle load (delivery and removal) represents an inbound and outbound trip that will occur in the same hour.
- The majority of liquid waste is removed either through the local sewer under licence or recycled on-site through the wheel washes, concrete blocks, concrete batching plant and landscaping, or (only 20% is removed off site)
- For solid waste delivery and pick-up, the Operating Hours are 15 hours per day – weekdays and 11 hours on Saturdays and Sundays. The Operating Hours for liquid waste processing are 24 hours / 7 days a week. Between 10.00 pm - 7.00 am a maximum 1 vacuum truck per hour will occur.
- Concrete batching plant operates 3.00am - 10.00pm (19 hours) weekdays and 7.00am - 6.00pm (11 hours) weekends.
- Facility is open 50 weeks (350 days) of the year (Closed Christmas, New Year & Easter)
- Waste delivery provided in different sized trucks nominated in the calculations below.
- Solid waste removal undertaken using truck and dog combinations or semi-trailers with an average haulage load of 28 tonnes operated by contractors.
- Staff numbers assumed to be 15 staff including drivers.
- Concrete Agi-trucks carry 15 tonnes of concrete per load (6 m^3 capacity).

Therefore, the traffic generation calculations are;

1. Solid Waste delivery – 19,000 tonnes per annum / 350 working days / 13.86 average hours per day / 28 tonnes per vehicle x 2 trips per vehicle = approximately 1 (0.28) vehicle trips per hour . 1 truck load per hour or 2 movements per peak hour
2. Liquid Waste and Muddy Waste Delivery – 125,000 tonnes per annum / 350 working days per annum / 24 average hours per day / average 12 tonne per vehicle x 2 trips per vehicle = approximately average 2.48 vehicle trips per hour with 3 truck loads per hour between 7.00am – 10.00pm and 1 truck load per hour between 10.00pm - 7.00am
3. Solid waste removal – 15,500 tonnes per annum / 350 working days per annum / 13.86 average hours per day / 28 tonnes per vehicle x 2 trips per vehicle = approximately 1 (0.23) vehicle trips per hour.
4. Liquid waste removal - 24,300 tonnes per annum / 350 working days per annum / 13.86 average hours per day / 12 tonnes per vehicle x 2 trips per vehicle = approximately 1 (0.83) vehicle trip per hour or 6 truck loads per day
5. Staff trips – Peak Hour considered to be arrival at work (AM) all inbound trips – 15 vtph and departure from work (PM) all outbound trips – 15 vtph.
6. Concrete trucks – Peak hour – 50,000 tonnes/year/ 350 working days per annum / 19 hrs per day / 15 tonne per load = 0.49 deliveries per hour maximum i.e. 1 inbound and 1 outbound trip. Assume maximum material delivery of 1 per day maximum in non-peak periods. 9.5 truck loads per day (assume 10)

Therefore, Peak Hour and Daily Trips can be calculated as follows;

Weekday Daily Vehicle Trips = (1 + 3 + 1 + 1) x 13.86 + (1 + 1) x 19 + 15 x 2 = **152vtpd**.

AM Peak hour = 1 inbound trip and 1 outbond trip (Solid waste delivery)1bound trip (waste delivery and removal) + 15 inbound (staff)+ 1 inbound and 1 outbound (concrete batching plant) = 20 vtph (17 inbound and 3 outbound).

PM Peak hour = 1outbound and 1 inbound trips (Solid waste delivery) + 1 outbound trips (waste delivery and removal) + 15 outbound trips (staff) + 1 inbound + 1 outbound (concrete batching plant) = 20 vtph (3 inbound and 17 outbound).

Existing Traffic

The current site has a production output of 30,000 tonnes per annum with the concrete batching plant output remaining the same at 50,000 tonnes per year and storage capacity for only 5,000 tonnes (1,900 tonne solid waste and 3,100 tonnes liquid waste). Staff numbers for the existing operation is 7. Therefore the current traffic generation is as follows;

1. Solid Waste delivery – 19,000 tonnes per annum / 350 working days / 13.86 average hours per day / 28 tonnes per vehicle x 2 trips per vehicle = approximately 1 (0.28) vehicle trips per hour .
2. Liquid Waste and Muddy Waste Delivery – 11,000 tonnes per annum / 350 working days per annum / 13.86 average hours per day / average 12 tonne per vehicle x 2 trips per vehicle = approximately 1 (0.16) vehicle trips per hour
3. Solid waste removal – 17,100 tonnes per annum / 350 working days per annum / 13.86 average hours per day / 28 tonnes per vehicle x 2 trips per vehicle = approximately 1 (0.16) vehicle trips per hour.
4. Liquid waste removal – 1,580 tonnes per annum / 350 working days per annum / 13.86 average hours per day / 12 tonnes per vehicle x 2 trips per vehicle = approximately 1 (0.05) vehicle trip per hour.
5. Staff trips – Peak Hour considered to be arrival at work (AM) all inbound trips – 7 vtph and departure from work (PM) all outbound trips – 7 vtph.
6. Concrete trucks – Peak hour – 50,000 tonnes/year/ 350 working days per annum / 19 hrs per day / 15 tonne per load = 1 deliveries per hour maximum i.e. 1 inbound and 1 outbound trip. Assume maximum material delivery of 1 per day maximum in non-peak periods.

Therefore, existing Peak Hour and Daily Trips can be calculated as follows;

Weekday Daily Vehicle Trips = (1 + 1 + 1 + 1) x 13.86 + (1 + 1) x 19 + 7 x 2 = **108 (107.44) vtpd**.

AM Peak hour = 2 inbound trips + 2 outbound trips (waste delivery and removal) + 7 inbound (staff)+ 1 inbound and 1 outbound (concrete batching plant) = 13 vtph (10 inbound and 3 outbound).

PM Peak hour = 2 inbound trips + 2 outbound trips (waste delivery and removal) + 7 outbound trips (staff) + 1 inbound + 1 outbound (concrete batching plant) = 13 vtph (3 inbound and 10 outbound).

Therefore the additional traffic generated by this development is calculated as;

Weekday Daily Vehicle Trips = 152 -108 = **44 vtpd**

AM Peak hour trips = 20 – 13 = **7 vtph** (7 inbound and 0 outbound); and

PM Peak hour trips = 27 – 13 = **7 vtph** (0 inbound and 7 outbound).

These values have been adopted in this assessment. The above assumed values are based on the rounding up (rather than down) of all calculated values,

2.6 Trip Distribution

In determining the trip distribution for the site, it has been assumed that during the AM and PM peak traffic periods in terms of origin / destination approximately 50 % of trips will have an origin / destination to the north via the Hume Motorway, 40 % of trips will have an origin / destination to the south via Campbelltown Road and 10% of trips will have an origin destination to the east via Henderson Road. The resultant trip distribution on the local road network is therefore as shown in ***Figure 3*** below.

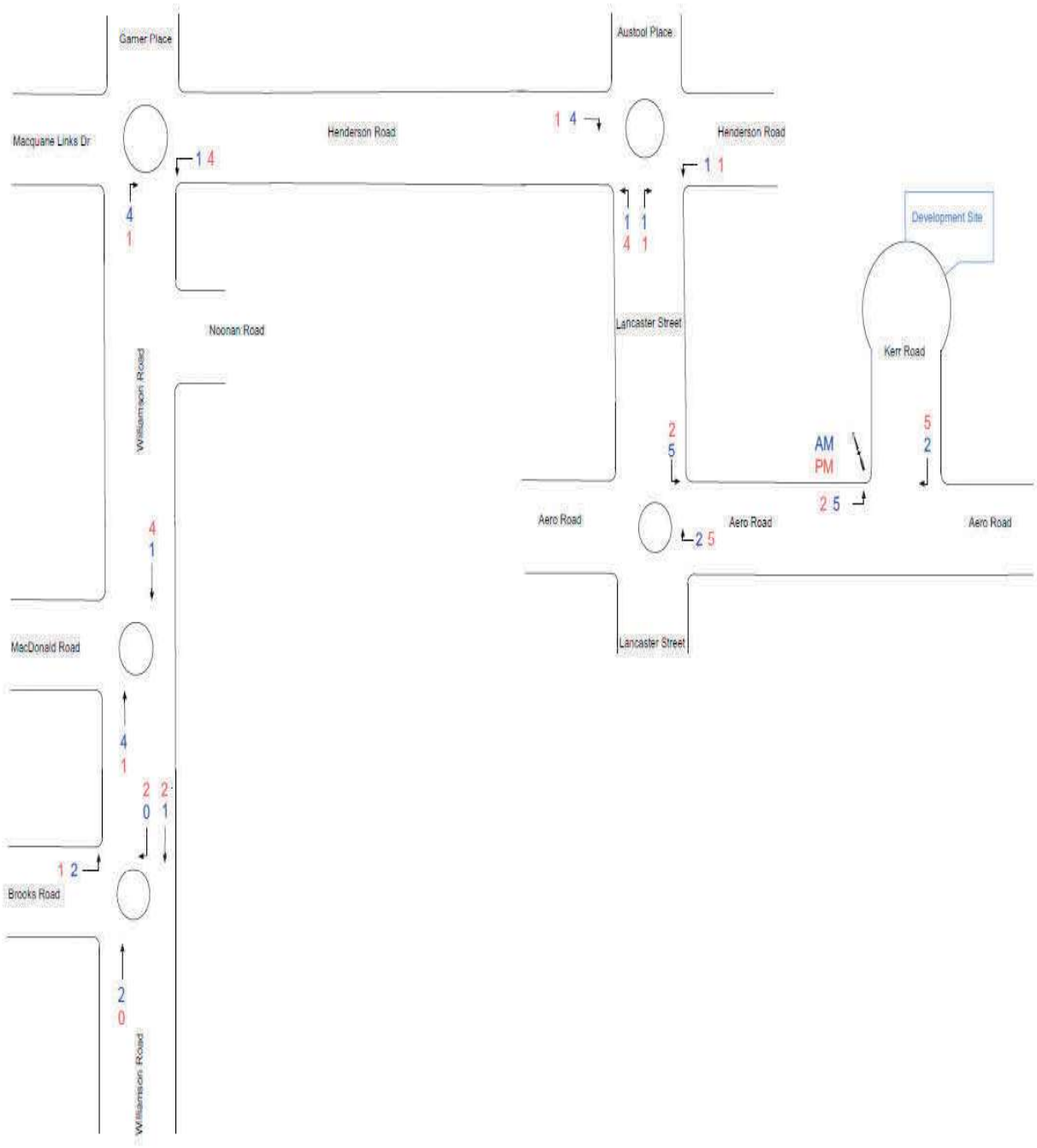


Figure 3 – Additional Development Traffic Trip Distribution

3. TRAFFIC IMPACTS AND CONSIDERATIONS

3.1 Mid-block Road Network Capacity

Table 4.3 of the Transport for NSW (TfNSW) publication "*RTA's Guide to Traffic Generating Developments"* provides some guidance on the capacity of urban roads for a LoS C though the capacity of urban roads is generally determined by intersection capacity. This table is reproduced below.

Table 4.3
Typical mid-block capacities for urban roads with interrupted flow

Type of Road	One-Way Mid-block Lane Capacity (pcu/hr)	
Median or inner lane:	Divided Road	1,000
	Undivided Road	900
Outer or kerb lane:	With Adjacent Parking Lane	900
	Clearway Conditions	900
	Occasional Parked Cars	600
4 lane undivided:	Occasional Parked Cars	1,500
	Clearway Conditions	1,800
4 lane divided:	Clearway Conditions	1,900

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

In determining the capacity of the road network from this table the following has been considered;

- All roads are two-lane two-way roads except Williamson Road and Henderson Road which effectively operate as four lane two-way roads;
- No marked parking lanes exist on the network however, where two lane two way road widths exceed 12 metres and on-street car parking can be accommodated without impacting on road capacity clearway like conditions can be assumed.
- It is considered satisfactory for higher order collector roads (Brooks Road, Williamson Road and Henderson Road to operate with a LoS D with one way lane capacities of up to 1,100 vtph.

On this basis the likely mid-block two-way road capacity for Brooks Road, Williamson Road and Henderson Road being 4 lane undivided roads is 3,000 vtph (i.e. 2 x 1,500 vtph),for Lancaster Street 1,800 vtph (2 x 900 vtph (12 m wide))and Aero Road is 1,200 vtph (i.e. 2 x 600 vtph).

Roar Data on behalf of Intersect Traffic undertook traffic counts at the following intersections during the AM and PM peak periods during November 2017. This data is provided in ***Attachment B***;

- Brooks Road / Williamson Road roundabout;
- Williamson Road / MacDonald Road roundabout;
- Williamson Road / Henderson Road roundabout;
- Henderson Road / Lancaster Street roundabout; and
- Lancaster Street / Aero Road roundabout.

This data indicates the peak hour traffic volumes on the local road network affected by the development are currently as follows;

- Brooks Road – 2,052 vtph in the AM peak and 2,188 vtph in the PM peak.
- Williamson Road – 2,045 vtph in the AM peak and 2,183 vtph in the PM peak.
- Henderson Road – 2,486 vtph in the AM peak and 2,604 vtph in the PM peak
- Lancaster Street – 1,097 vtph in the AM peak and 1,188 vtph in the PM peak; and

Aero Road – 328 vtph in the AM peak and 339 vtph in the PM peak.

The additional traffic from the proposed development would increase these traffic volumes (see ***Figure 2***) as follows;

- Brooks Road – 6 vtph in both the AM and PM peak hour;
- Williamson Road – 11 vtph in both the AM and PM peak hour;
- Henderson Road – 11 vtph in both the AM and PM peak hour
- Lancaster Street – 14 vtph in both the AM and PM peak hour; and
- Aero Road – 14 vtph in both the AM and PM peak hour.

Therefore, in terms of mid-block road network capacity the following assessment as shown in ***Table 1*** below has been determined by adopting a background traffic growth of 2 % per annum for the next 10 years.

Table 1 – Two-way mid-block capacity assessment

Road	Section	2018		2028		Road Capacity	Development Traffic	
		AM (vtph)	PM (vtph)	AM (vtph)	PM (vtph)		AM	PM
Brooks Road	West of Williamson Road	2054	2191	2503	2670	3000	2	3
Williamson Road	North of Brooks Road	2050	2188	2498	2666	3000	5	5
Henderson Road	east of Williamson Road	2491	2609	3035	3179	3000	5	5
Lancaster Street	south of Henderson Road	1104	1195	1344	1455	1800	7	7
Aero Road	west of Kerr Road	335	346	407	420	1200	7	7

It is noted from a review of the above table that post development the mid-block traffic volumes on the local road network will remain at a LoS C or D therefore the proposal does not adversely impact on the local road network. However with background traffic growth only Henderson Road will just exceed the capacity threshold of a LoS C and therefore will be operating mid-block with LoS D. In recent times road authorities have accepted that for major sub-arterial, collector and local roads a LoS D is still an acceptable level of service on the road network. Therefore it is concluded that the proposed development does not adversely impact on the mid-block traffic volumes on the local road network. Subject to continued satisfactory intersection performance the development can therefore be supported from a traffic impact perspective.

3.2 Intersection Capacity

To determine the impact of the development on intersection capacity all the roundabout intersections for which traffic volume data was collected have been modelled for the AM and PM peak traffic periods using the Sidra Intersection modelling program. This software package predicts likely delays, queue lengths and thus levels of service that will occur at intersections. Assessment is then based on the level of service requirements of the RMS shown below:

Table 4.2
Level of service criteria for intersections

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

Source: - RTA's Guide to Traffic Generating Developments (2002).

Assumptions made in this modelling are:

- The intersection layout will remain as per current conditions.
- Traffic volumes used in the modelling are as collected by Roar Data on Wednesday 1st November 2017.
- Traffic generated by the development is distributed as per ***Figure 3***.
- Future 2028 traffic growth predicted using a 2.0 % per annum background traffic growth rate.

The results of the modelling are summarised in ***Tables 2 - 6*** below for 'all vehicles'. The Sidra Movement Summary Tables are provided in ***Attachment C.***

Table 2 – Brooks Road / Williamson Road roundabout - Sidra Modelling Results Summary

Model	Deg. Satn (v/c)	Average Delay (s)	Worst Level of Service	95 % back of queue length (cars)
2018 AM + development	0.815	10.2	A	10.7
2018 PM + development	0.693	12.0	A	8.8
2028 AM + development	0.934	13.8	A	19.9
2028 PM + development	0.825	16.4	B	14.5

Table 3 – Williamson Road / MacDonald Road roundabout - Sidra Modelling Results Summary

Model	Deg. Satn (v/c)	Average Delay (s)	Worst Level of Service	95 % back of queue length (cars)
2018 AM + development	0.558	7.5	A	5.9
2018 PM + development	0.558	7.5	A	4.9
2028 AM + development	0.804	9.6	A	8.2
2028 PM + development	0.679	8.5	A	6.8

Table 4 – Williamson Road / Henderson Road roundabout - Sidra Modelling Results Summary

Model	Deg. Satn (v/c)	Average Delay (s)	Worst Level of Service	95 % back of queue length (cars)
2018 AM + development	0.666	7.7	A	7.4
2018 PM + development	0.761	7.0	A	10.6
2028 AM + development	0.745	8.0	A	9.4
2028 PM + development	0.845	7.2	A	15.3

Table 5 – Henderson Road / Lancaster Street roundabout - Sidra Modelling Results Summary

Model	Deg. Satn (v/c)	Average Delay (s)	Worst Level of Service	95 % back of queue length (cars)
2018 AM + development	0.560	6.8	A	4.5
2018 PM + development	0.616	8.3	A	5.6
2028 AM + development	0.624	7.4	A	5.6
2028 PM + development	0.705	9.4	A	7.9

Table 6 – Lancaster Street / Aero Road roundabout - Sidra Modelling Results Summary

Model	Deg. Satn (v/c)	Average Delay (s)	Worst Level of Service	95 % back of queue length (cars)
2018AM + development	0.406	6.0	A	3.0
2018 PM + development	0.429	7.3	A	3.0
2028 AM + development	0.447	6.1	A	3.5
2028 PM + development	0.484	7.6	A	3.6

This modelling shows the development has little impact on the operation of the major intersections in the adjoining road network with all intersections continuing to operate satisfactorily post development through to at least 2028. Average delays, LoS and queue lengths remain within the acceptable criteria set by NSW RMS. Therefore, the development does not adversely impact on the efficiency and effectiveness of the local road network.

It should also be noted this assessment is likely to be very conservative as it has not allowed for existing traffic generated by the development. It would be appropriate to discount the additional traffic generated by the new development by the existing traffic generated by the site however ignoring existing traffic results in a robust traffic impact assessment.

3.3 Site Access / Road Upgrading

Post development the site access will service more than 25 car spaces but less than 100 car parks. Under Table 3.1 of Australian Standard *AS2890.1-2004 Parking facilities – Part 1 - Off-street car parking* a car park with between 25 to 100 car parking spaces accessed via a local road providing long term employee parking (Class 1) is required to have a Category 2 access facility. A Category 2 access facility is combined entry / exit access 6 m to 9 metres wide. It is noted the existing access is approximately 10 metres wide therefore compliant with AS2890.1-2004. However, for the type of vehicle using the site the access width will be determined by the swept path analysis for entry and exit to and from the site by Truck & Dog vehicles. Having observed the existing site access, it is considered suitable for the proposed development and will not require upgrading even if a Truck & Trailer type vehicle is used.

Part 6.3 of the Campbelltown (Sustainable City) Development Control Plan (2015) which details car parking and access requirements for Industrial development in the Campbelltown LGA identifies that each industrial site can have only one heavy vehicle entry / exit and may have a second light vehicle entry / exit and must be designed in accordance with Australian Standard *AS2890.1-2004 Parking facilities – Part 1 - Off-street car parking* and Australian Standard *AS2890.2-2002 Parking facilities – Part 2 - Off-street commercial vehicle facilities*. The proposed development complies with these requirements.

It is noted from TfNSW restricted vehicle access maps that Campbelltown Road, Williamson Road, Brooks Road, Henderson Road and Lancaster Street are already B-Double approved routes while Aero Road and Kerr Road are approved routes with travel conditions while the Lancaster Street / Aero Road roundabout is a restricted intersection with conditional approval for B-Doubles. It is likely that these conditional approvals already apply to the existing site operations and similar conditions are likely to be placed on the expanded development. Therefore, no nexus would exist for any additional road upgrading conditions to be required by Council for the proposed development.

It is noted that all vehicle movements to and from the site will be contained within the site and no queuing out onto Kerr Road will result from the operation of this development.

3.4 On-site parking and driveway

On-site parking requirements for development in the Campbelltown City Council LGA are contained within the Campbelltown (Sustainable City) Development Control Plan (2015). Part 6 deals with Industrial Development and Section 6.3 details the requirements for car parking and access.

Relevant to the site the requirements for car parking are;

For offices / lunch rooms / storage – 1 space per 35 m^2;
For other areas - minimum of 2 spaces per unit;
1 space per 100 m^2 GFA up to 2,000 m^2;
1 space per 250 m^2 GFA above 2,000 m^2; plus
1 space per 300 m^2 outdoor storage area.

It is argued however that the site car parking requirement based on the operational details for the site would be as follows;

Car Parking

- Staff car parking – 15 spaces
- Visitor car parking – 2 spaces

The site plan shows provision of 22 on-site car parks including 14 stacked spaces. Being mainly staff parking stacked parking is supportably as it can managed on site without impeding any motorists. Therefore there is sufficient on-site car parking to meet the DCP requirements of Campbelltown City Council but more importantly the operational requirements of the development. Note this parking will need to be set out in accordance with the requirements of Australian Standard *AS2890.1-2004 – Parking facilities – Part 1 – Off-street car parking* which will need to be conditioned on any consent issued for the development.

Heavy vehicle parking.

Based on the operational advice from the client the average number of trucks on site at any one time during the peak operating periods will be a maximum of 4 vehicles however, if there are any unexpected delaysduring infrequent times this may increase to 6 vehicles. The site has the ability to cater for at least 4 vehicles within the recycling and concrete batching areas as well as queuing space from the shed to and including the weighbridge of at least 3 heavy vehicles including truck and trailer combinations. Therefore, there is sufficient space on the site to cater for the expected heavy vehicle arrival rate with turnover times much less than 1 hour. As such no queuing from the site onto Kerr Road will occur and the operations will not result in operational impediments to the local road network.

It is therefore concluded that sufficient and suitable car and heavy vehicle parking is provided on the site to meet the expected peak parking demand generated by the development and comply with the requirements of Campbelltown City Council's DCP and Australian Standards.

3.5 Alternative Transport Modes

The proposed development will not increase use of the existing public transport service significantly therefore there would be no nexus from this development for the provision of additional infrastructure or changes to the existing service resulting from this development.

Similarly, the development is unlikely to significantly increase pedestrian and cycle traffic on the local road network therefore no nexus exists for the provision of additional external pedestrian or cycle way infrastructure.

4. CONCLUSIONS

This traffic impact assessment for the expansion of an existing resource recovery facility on Lot 16 DP 717203, 16 Kerr Road, Ingleburn has concluded;

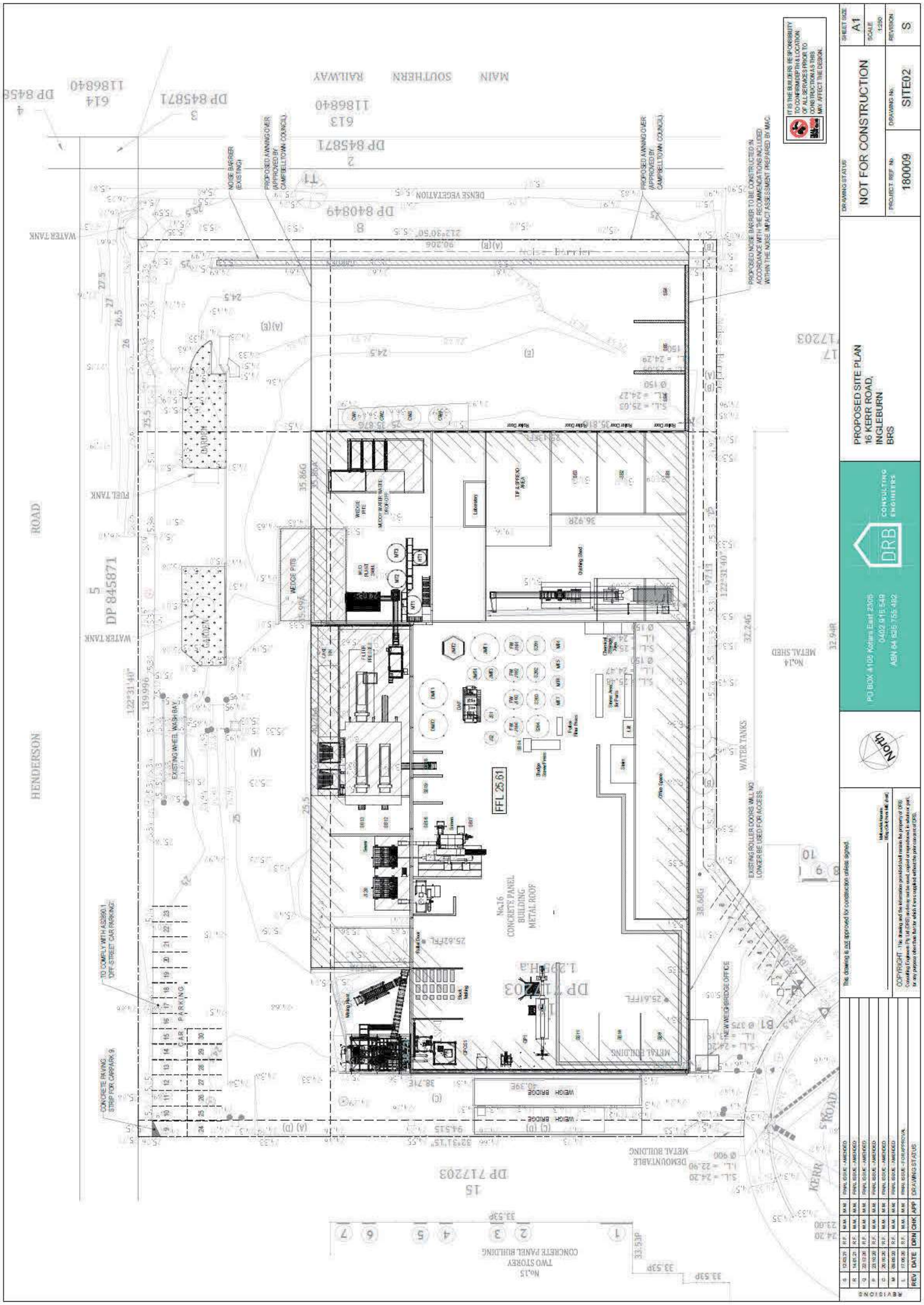
- The proposed development is likely to generate in the order of an additional 7 vtph (including staff trips) during the AM and PM peak hour traffic periods.
- There is sufficient two-way mid-block capacity within the local road network to cater for the additional traffic generated by this development.
- SIDRA INTERSECTION modelling has shown that all the major intersections along the likely haulage routes to the Hume Motorway and local areas have sufficient spare capacity to cater for the proposal noting they will continue to operate satisfactorily post development through to at least 2028. Therefore, the development will not adversely impact on the local road network and no road upgrading is considered warranted.
- The existing vehicular access is satisfactory for the proposed development and would be compliant with Australian Standard *AS2890.1-2004 Parking facilities – Part 1 - Off-street car parking* and Australian Standard *AS2890.2-2002 Parking facilities – Part 2 - Off-street commercial vehicle facilities*. The access would also comply with the Campbelltown (Sustainable City) Development Control Plan (2015)
- It is noted from the TfNSW restricted vehicle access maps that the haulage routes to the site are already approved for 25/B26 metre B-Double heavy vehicles though Aero Road and Kerr Road are approved routes with travel conditions while the Lancaster Street / Aero Road roundabout is a restricted intersection with conditional approval for B-Doubles. If the site were to generate B-Double vehicle movements, future consultation with Campbelltown City Council's Traffic Committee will be required.
- Overall it is concluded that the local road network has sufficient spare capacity to cater for the development and the proposal will not adversely impact on the local and state road network.
- Sufficient and suitable on-site car parking can be provided on-site to meet the operational requirements of the development as well as Campbelltown (Sustainable City) Development Control Plan (2015) and Australian Standards.
- Suitable loading arrangements and queuing areas for heavy vehicles exist within the site to cater for the expected arrival rate of heavy vehicles during peak operational periods (4 heavy vehicles on site at any one time plus a maximum 2 vehicles queuing in dedicated strategic locations, if required). Therefore no queuing of heavy vehicles onto the local road network will occur due to the increased production on site.
- The proposed development will not increase use of the existing public transport service significantly therefore there would be no nexus from this development for the provision of additional infrastructure or changes to the existing service resulting from this development.
- The development is unlikely to significantly increase pedestrian and cycle traffic on the local road network therefore no nexus exists for the provision of additional external pedestrian or cycle way infrastructure.

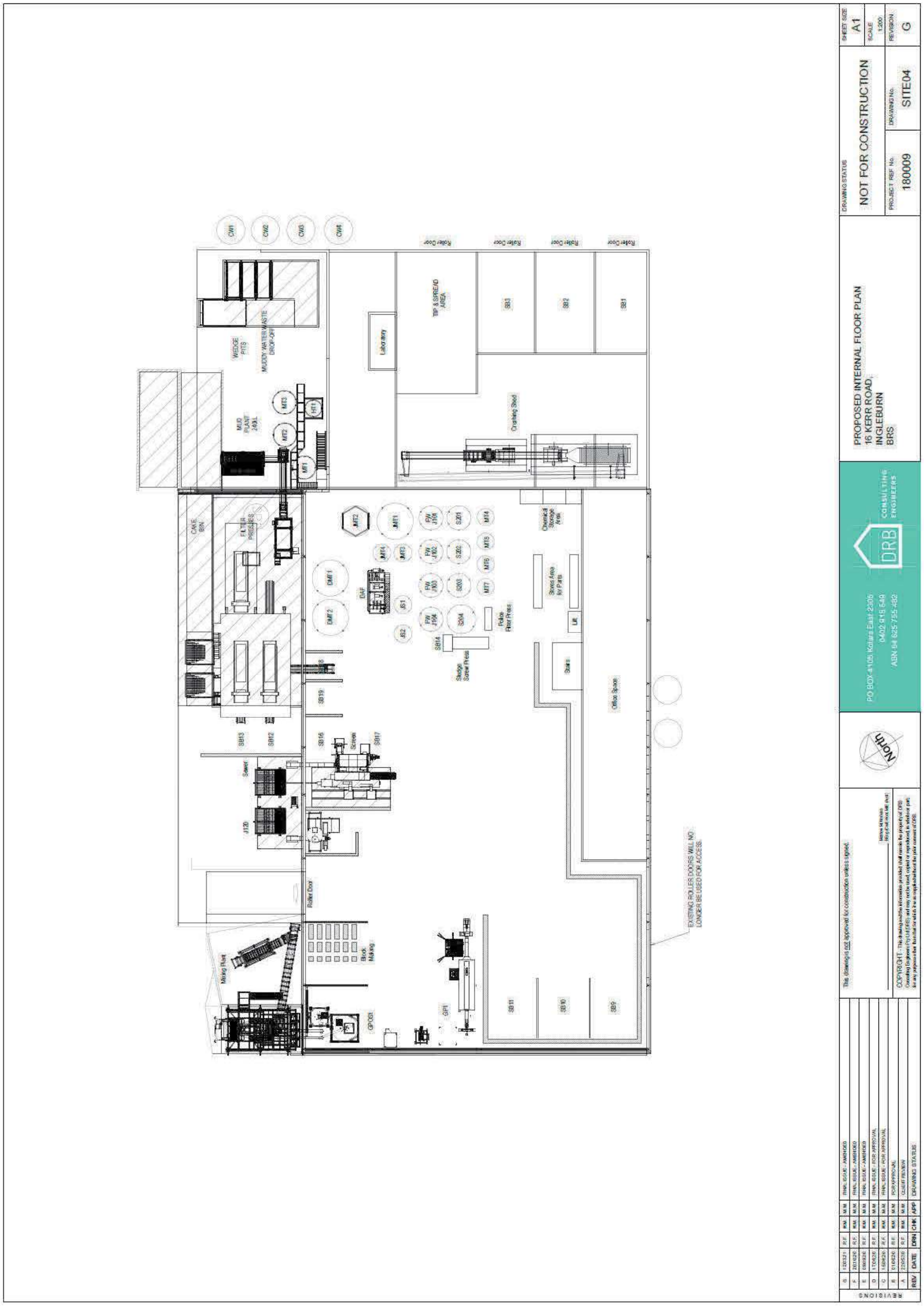
5. RECOMMENDATION

Having carried out this traffic impact assessment for the proposed expansion of an existing resource recovery facility on Lot 16 DP 717203, 16 Kerr Road, Ingleburn it is recommended that the proposal can be supported from a traffic perspective as it will not adversely impact on the local and state road network and generally complies with the requirements of Campbelltown City Council, Australian Standards and NSW Roads and Maritime Services.

JR Garry BE (Civil), Masters of Traffic
Director
Intersect Traffic Pty Ltd

ATTACHMENT A
DEVELOPMENT PLANS


PROPOSED SITE PLAN
16 KERR ROAD,
INGLEBURN
BRS
NOT FOR CONSTRUCTION
180009
SITE02
A1
S
PO BOX 4109 Kotara East 2305
HENDERSON
ROAD
MAIN SOUTHERN RAILWAY
No.16
CONCRETE PANEL
BUILDING
METAL ROOF
FFL 25.61
WEIGH BRIDGE
WATER TANKS
METAL SHED
No.14
TWO STOREY
CONCRETE PANEL BUILDING
No.15
DP 717203
DP 845871
KERR ROAD


NOT FOR CONSTRUCTION
180009
SITE04
A1
G
PROPOSED INTERNAL FLOOR PLAN
16 KERR ROAD,
INGLEBURN
BRS
DRB
CONSULTING ENGINEERS

ATTACHMENT B
TRAFFIC COUNT DATA

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : InTersect Traffic

Job No/Name : 6543 INGLEBURN Traffic Counts

Day/Date : Wednesday 29th November 2017

Lights

	NORTH		WEST		SOUTH		
	Williamson		Brooks Rd		Williamson		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	65	87	137	74	89	2	454
0715 - 0730	60	77	126	88	67	62	480
0730 - 0745	93	113	187	111	93	88	685
0745 - 0800	70	96	195	121	70	100	652
0800 - 0815	100	104	197	91	73	122	687
0815 - 0830	101	81	167	106	55	127	639
0830 - 0845	102	76	216	95	62	102	653
0845 - 0900	124	127	169	109	68	128	725
Per End	715	761	1394	797	577	731	4975

Heavies

	NORTH		WEST		SOUTH		
	Williamson		Brooks Rd		Williamson		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	4	8	11	12	20	5	60
0715 - 0730	8	9	9	13	21	4	64
0730 - 0745	6	8	5	9	17	3	48
0745 - 0800	3	7	12	10	19	6	57
0800 - 0815	2	6	10	18	20	7	63
0815 - 0830	6	10	7	15	17	6	61
0830 - 0845	4	6	7	9	14	5	45
0845 - 0900	3	14	7	24	13	8	69
Per End	36	68	68	110	141	44	467

Combined

	NORTH		WEST		SOUTH		
	Williamson		Brooks Rd		Williamson		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	69	95	148	86	109	7	514
0715 - 0730	68	86	135	101	88	66	544
0730 - 0745	99	121	192	120	110	91	733
0745 - 0800	73	103	207	131	89	106	709
0800 - 0815	102	110	207	109	93	129	750
0815 - 0830	107	91	174	123	72	133	700
0830 - 0845	105	82	223	104	76	107	698
0845 - 0900	127	141	176	133	81	136	794
Per End	751	829	1462	907	718	775	5442

Lights

	NORTH		WEST		SOUTH		
	Williamson		Brooks Rd		Williamson		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	288	373	645	394	319	252	2271
0715 - 0815	323	390	705	411	303	372	2504
0730 - 0830	364	394	746	431	291	437	2663
0745 - 0845	373	357	775	415	280	451	2631
0800 - 0900	427	388	749	403	258	479	2704
PEAK HR	364	394	746	431	291	437	2663

Heavies

	NORTH		WEST		SOUTH		
	Williamson		Brooks Rd		Williamson		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	21	32	37	44	77	18	229
0715 - 0815	19	30	36	50	77	20	232
0730 - 0830	17	31	34	52	73	22	229
0745 - 0845	15	29	36	52	70	24	226
0800 - 0900	15	36	31	66	64	26	238
PEAK HR	17	31	34	52	73	22	229

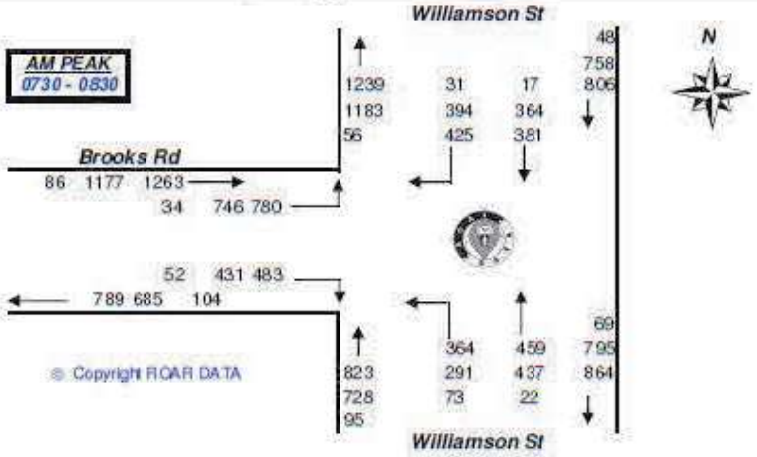
Combined

	NORTH		WEST		SOUTH		
	Williamson		Brooks Rd		Williamson		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	309	405	682	438	396	270	2500
0715 - 0815	342	420	741	461	380	392	2736
0730 - 0830	381	425	780	483	364	459	2892
0745 - 0845	388	386	811	467	330	475	2857
0800 - 0900	442	424	780	469	322	505	2942
PEAK HR	381	425	780	483	364	459	2892

Peds

	NORTH	WEST	SOUTH	
Time Per	Williamson	Brooks Rd	Williamson	TOT
0700 - 0715				0
0715 - 0730		NOT		0
0730 - 0745		REQUIRED		0
0745 - 0800				0
0800 - 0815				0
0815 - 0830				0
0830 - 0845				0
0845 - 0900				0
Per End	0	0	0	0

	NORTH	WEST	SOUTH	
Peak Per	Williamson	Brooks Rd	Williamson	TOT
0700 - 0800	0	0	0	0
0715 - 0815	0	0	0	0
0730 - 0830	0	0	0	0
0745 - 0845	0	0	0	0
0800 - 0900	0	0	0	0
PEAK HR	0	0	0	0



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : InTersect Traffic

Job No/Name : 6643 INGLEBURN Traffic Counts

Day/Date : Wednesday 29th November 2017

Lights

Time Per	NORTH Williamson T	NORTH Williamson R	WEST Brooks Rd L	WEST Brooks Rd R	SOUTH Williamson L	SOUTH Williamson T	TOT
1500 - 1515	141	146	128	91	74	91	671
1515 - 1530	118	143	146	91	90	92	680
1530 - 1545	135	173	168	103	112	130	821
1545 - 1600	104	150	150	108	78	76	666
1600 - 1615	119	135	125	95	75	94	643
1615 - 1630	120	133	164	141	99	98	755
1630 - 1645	126	162	153	104	117	76	738
1645 - 1700	104	139	140	119	96	81	679
Per End	967	1181	1174	852	741	738	5653

Heavies

Time Per	NORTH Williamson T	NORTH Williamson R	WEST Brooks Rd L	WEST Brooks Rd R	SOUTH Williamson L	SOUTH Williamson T	TOT
1500 - 1515	4	7	18	21	8	4	62
1515 - 1530	4	5	10	18	12	3	52
1530 - 1545	6	5	15	17	9	1	53
1545 - 1600	6	10	10	16	10	3	55
1600 - 1615	3	11	7	16	11	6	54
1615 - 1630	4	9	11	16	6	2	48
1630 - 1645	2	9	6	12	10	0	39
1645 - 1700	0	4	7	11	8	2	32
Per End	29	60	84	127	74	21	395

Combined

Time Per	NORTH Williamson T	NORTH Williamson R	WEST Brooks Rd L	WEST Brooks Rd R	SOUTH Williamson L	SOUTH Williamson T	TOT
1500 - 1515	145	153	146	112	82	95	733
1515 - 1530	122	148	156	109	102	96	732
1530 - 1545	141	178	183	120	121	131	874
1545 - 1600	110	160	160	124	88	79	721
1600 - 1615	122	146	132	111	86	100	697
1615 - 1630	124	142	175	157	105	100	803
1630 - 1645	128	171	159	116	127	76	777
1645 - 1700	104	143	147	130	104	83	711
Per End	996	1241	1258	979	815	759	6048

Lights

Peak Per	NORTH Williamson T	NORTH Williamson R	WEST Brooks Rd L	WEST Brooks Rd R	SOUTH Williamson L	SOUTH Williamson T	TOT
1500 - 1600	498	612	592	393	354	389	2838
1515 - 1615	476	601	589	397	355	392	2810
1530 - 1630	478	591	607	447	364	398	2885
1545 - 1645	469	580	592	448	369	344	2802
1600 - 1700	469	569	582	459	387	349	2815
PEAK HR	478	591	607	447	364	398	2885

Heavies

Peak Per	NORTH Williamson T	NORTH Williamson R	WEST Brooks Rd L	WEST Brooks Rd R	SOUTH Williamson L	SOUTH Williamson T	TOT
1500 - 1600	20	27	53	72	39	11	222
1515 - 1615	19	31	42	67	42	13	214
1530 - 1630	19	35	43	65	36	12	210
1545 - 1645	15	39	34	60	37	11	196
1600 - 1700	9	33	31	55	35	10	173
PEAK HR	19	35	43	65	36	12	210

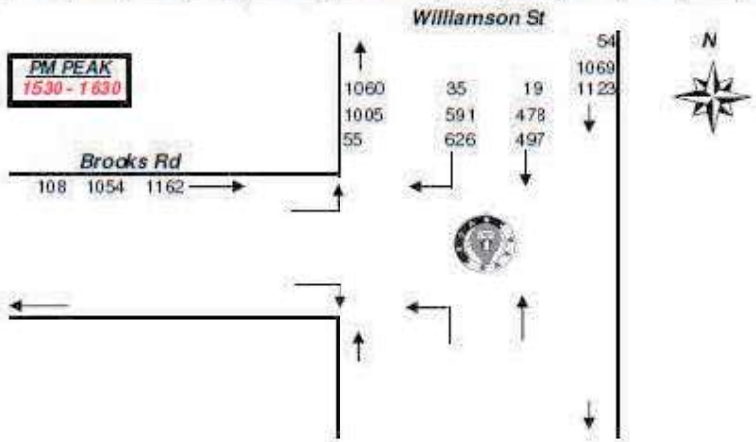
Combined

Peak Per	NORTH Williamson T	NORTH Williamson R	WEST Brooks Rd L	WEST Brooks Rd R	SOUTH Williamson L	SOUTH Williamson T	TOT
1500 - 1600	518	639	645	465	393	400	3060
1515 - 1615	495	632	631	464	397	405	3024
1530 - 1630	497	626	650	512	400	410	3095
1545 - 1645	484	619	626	508	406	355	2998
1600 - 1700	478	602	613	514	422	359	2968
PEAK HR	497	626	650	512	400	410	3095

Peds

Time Per	NORTH Williamson	WEST Brooks Rd	SOUTH Williamson	TOT
1500 - 1515				0
1515 - 1530		NOT		0
1530 - 1545		REQUIRED		0
1545 - 1600				0
1600 - 1615				0
1615 - 1630				0
	0	0	0	

	Williamson	Brooks Rd	Williamson	
	0	0	0	
	0	0	0	
	0	0	0	
	0	0	0	
	0	0	0	
	0	0	0	



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847. Mob.0418-239019

Client : InTersect Traffic
Job No/Name : 6643 INGLEBURN Traffic Counts
Day/Date : Wednesday 29th November 2017

	NORTH			WEST			SOUTH			EAST			
	Williamson Rd			*Macdonald Rd*			*Williamson Rd*			*Access*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	0	107	109	50	1	24	21	131	4	1	0	0	448
0715 - 0730	4	117	88	84	3	9	9	194	2	0	0	0	510
0730 - 0745	0	166	131	73	1	28	22	218	2	0	0	1	642
0745 - 0800	0	135	110	75	2	15	17	239	9	0	0	0	602
0800 - 0815	2	208	91	98	1	21	25	329	7	0	0	0	782
0815 - 0830	0	151	88	82	1	19	29	243	4	1	0	0	618
0830 - 0845	2	196	79	105	1	31	26	265	5	1	0	1	712
0845 - 0900	2	139	89	97	2	33	16	237	2	3	0	1	621
Period End	10	1219	785	664	12	180	165	1856	35	6	0	3	4935

Heavies

	NORTH			WEST			SOUTH			EAST			
	Williamson Rd			*Macdonald Rd*			*Williamson Rd*			*Access*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	0	10	2	2	0	2	0	13	1	0	0	0	30
0715 - 0730	0	13	2	3	0	2	1	11	0	0	0	0	32
0730 - 0745	0	9	4	2	0	1	1	4	1	1	0	0	23
0745 - 0800	0	6	4	4	0	2	3	9	2	0	0	0	30
0800 - 0815	0	10	1	6	0	3	5	13	2	4	0	0	44
0815 - 0830	0	6	1	2	0	2	5	8	0	1	0	0	25
0830 - 0845	0	10	4	3	0	5	2	13	0	0	0	0	37
0845 - 0900	0	9	5	1	0	2	2	9	0	0	0	0	28
Period End	0	73	23	23	0	19	19	80	6	6	0	0	249

Lights

	NORTH			WEST			SOUTH			EAST			
	Williamson Rd			*Macdonald Rd*			*Williamson Rd*			*Access*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	4	525	438	282	7	76	69	782	17	1	0	1	2202
0715 - 0815	6	626	420	330	7	73	73	980	20	0	0	1	2536
0730 - 0830	2	660	420	328	5	83	93	1029	22	1	0	1	2644
0745 - 0845	4	690	368	360	5	86	97	1076	25	2	0	1	2714
0800 - 0900	6	694	347	382	5	104	96	1074	18	5	0	2	2733
PEAK HOUR	6	694	347	382	5	104	96	1074	18	5	0	2	2733

Heavies

	NORTH			WEST			SOUTH			EAST			
	Williamson Rd			*Macdonald Rd*			*Williamson Rd*			*Access*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	0	38	12	11	0	7	5	37	4	1	0	0	115
0715 - 0815	0	38	11	15	0	8	10	37	5	5	0	0	129
0730 - 0830	0	31	10	14	0	8	14	34	5	6	0	0	122
0745 - 0845	0	32	10	15	0	12	15	43	4	5	0	0	136
0800 - 0900	0	35	11	12	0	12	14	43	2	5	0	0	134
PEAK HOUR	0	35	11	12	0	12	14	43	2	5	0	0	134

Combined

	NORTH			WEST			SOUTH			EAST			
	Williamson Rd			*Macdonald Rd*			*Williamson Rd*			*Access*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	0	117	111	52	1	26	21	144	5	1	0	0	478
0715 - 0730	4	130	90	87	3	11	10	205	2	0	0	0	542
0730 - 0745	0	175	135	75	1	29	23	222	3	1	0	1	665
0745 - 0800	0	141	114	79	2	17	20	248	11	0	0	0	632
0800 - 0815	2	218	92	104	1	24	30	342	9	4	0	0	826
0815 - 0830	0	157	89	84	1	21	34	251	4	2	0	0	643

Peds

	NORTH	WEST	SOUTH	EAST	
	Williamson Rd	*Macdonald Rd*	*Williamson Rd*	*Access*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0700 - 0715					0
0715 - 0730					0
0730 - 0745	*Not*	*Not*	*Not*	*Not*	0
0745 - 0800	*Required*	*Required*	*Required*	*Required*	0
0800 - 0815					0
0815 - 0830					0
	0	0	0	0	

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : InTersect Traffic
Job No/Name : 6643 INGLEBURN Traffic Counts
Day/Date : Wednesday 29th November 2017

	NORTH			WEST			SOUTH			EAST			
	Williamson Rd			*Macdonald Rd*			*Williamson Rd*			*Access*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1515	0	233	93	90	2	30	34	235	0	1	0	0	718
1515 - 1530	2	217	101	111	0	19	28	238	0	4	0	0	720
1530 - 1545	0	248	95	103	1	31	21	248	1	0	0	0	748
1545 - 1600	4	215	88	89	0	16	11	209	2	0	0	0	634
1600 - 1615	0	258	136	95	1	18	20	221	1	5	1	0	756
1615 - 1630	0	200	93	94	0	22	24	233	1	4	1	0	672
1630 - 1645	0	251	128	87	0	24	24	199	0	2	0	0	715
1645 - 1700	1	190	108	75	0	22	11	203	0	1	0	1	612
Period End	**7**	**1812**	**842**	**744**	**4**	**182**	**173**	**1786**	**5**	**17**	**2**	**1**	**5575**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Williamson Rd			*Macdonald Rd*			*Williamson Rd*			*Access*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1515	0	7	3	3	0	1	1	21	0	0	0	0	36
1515 - 1530	0	8	6	1	0	1	1	13	0	0	0	0	30
1530 - 1545	0	7	3	3	0	1	0	14	0	0	0	0	28
1545 - 1600	0	7	2	1	0	2	1	9	1	0	0	0	23
1600 - 1615	0	10	2	4	0	5	0	13	0	0	0	0	34
1615 - 1630	0	10	1	5	0	1	0	11	0	0	0	0	28
1630 - 1645	0	6	3	1	0	1	0	8	0	0	0	0	19
1645 - 1700	0	3	1	2	1	2	2	12		0	0	0	23
Period End	**0**	**58**	**21**	**20**	**1**	**14**	**5**	**101**	**1**	**0**	**0**	**0**	**221**

Lights

	NORTH			WEST			SOUTH			EAST			
	Williamson Rd			*Macdonald Rd*			*Williamson Rd*			*Access*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1600	6	913	377	393	3	96	94	930	3	5	0	0	2820
1515 - 1615	6	938	420	398	2	84	80	916	4	9	1	0	2858
1530 - 1630	4	921	412	381	2	87	76	911	5	9	2	0	2810
1545 - 1645	4	924	445	365	1	80	79	862	4	11	2	0	2777
1600 - 1700	1	899	465	351	1	86	79	856	2	12	2	1	2755
PEAK HOUR	**6**	**938**	**420**	**398**	**2**	**84**	**80**	**916**	**4**	**9**	**1**	**0**	**2858**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Williamson Rd			*Macdonald Rd*			*Williamson Rd*			*Access*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1600	0	29	14	8	0	5	3	57	1	0	0	0	117
1515 - 1615	0	32	13	9	0	9	2	49	1	0	0	0	115
1530 - 1630	0	34	8	13	0	9	1	47	1	0	0	0	113
1545 - 1645	0	33	8	11	0	9	1	41	1	0	0	0	104
1600 - 1700	0	29	7	12	1	9	2	44	0	0	0	0	104
PEAK HOUR	**0**	**32**	**13**	**9**	**0**	**9**	**2**	**49**	**1**	**0**	**0**	**0**	**115**

Combined

	NORTH			WEST			SOUTH			EAST			
	Williamson Rd			*Macdonald Rd*			*Williamson Rd*			*Access*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1515	0	240	96	93	2	31	35	256	0	1	0	0	754
1515 - 1530	2	225	107	112	0	20	29	251	0	4	0	0	750
1530 - 1545	0	255	98	106	1	32	21	282	1	0	0	0	776
1545 - 1600	4	222	90	90	0	18	12	218	3	0	0	0	657
1600 - 1615	0	268	138	99	1	23	20	234	1	5	1	0	790
1615 - 1630	0	210	94	99	0	23	24	244	1	4	1	0	700

Peds

	NORTH	WEST	SOUTH	EAST	
	Williamson Rd	*Macdonald Rd*	*Williamson Rd*	*Access*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1500 - 1515					0
1515 - 1530					0
1530 - 1545	*Not*	*Not*	*Not*	*Not*	0
1545 - 1600	*Required*	*Required*	*Required*	*Required*	0
1600 - 1615					0
1615 - 1630					0
	0	0	0	0	

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847. Mob.0418-239019

Client : InTersect Traffic
Job No/Name : 6643 INGLEBURN Traffic Counts
Day/Date : Wednesday 29th November 2017

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	2	1	0	0	25	24	9	8	204	207	2	0	482
0715 - 0730	1	1	1	0	26	26	11	27	213	199	6	5	516
0730 - 0745	2	1	0	0	32	32	6	6	239	244	6	2	570
0745 - 0800	0	3	0	1	25	31	9	2	279	235	10	4	599
0800 - 0815	2	6	0	1	26	39	11	2	306	251	10	3	657
0815 - 0830	2	2	0	0	26	43	5	1	367	214	6	2	668
0830 - 0845	2	0	1	0	31	28	14	1	342	257	11	1	688
0845 - 0900	1	2	0	0	11	19	14	0	300	227	12	2	588
Period End	12	16	2	2	202	242	79	47	2250	1834	63	19	4768

Heavies

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	0	0	0	0	0	0	0	0	5	10	0	0	15
0715 - 0730	0	0	0	0	0	1	0	0	11	9	0	0	21
0730 - 0745	0	0	0	0	0	2	1	2	3	7	1	0	16
0745 - 0800	1	0	0	0	0	0	1	0	5	8	0	0	15
0800 - 0815	0	0	0	0	1	0	0	0	12	7	0	0	20
0815 - 0830	1	0	0	0	0	0	0	0	10	9	0	0	20
0830 - 0845	0	1	0	0	1	1	1	0	12	6	1	0	23
0845 - 0900	0	0	0	0	0	0	0	0	5	9	0	0	14
Period End	2	1	0	0	2	4	3	2	63	65	2	0	144

Lights

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	5	6	1	1	108	113	35	43	935	885	24	11	2167
0715 - 0815	5	11	1	2	109	128	37	37	1037	929	32	14	2342
0730 - 0830	6	12	0	2	109	145	31	11	1191	944	32	11	2494
0745 - 0845	6	11	1	2	108	141	39	6	1294	957	37	10	2612
0800 - 0900	7	10	1	1	94	129	44	4	1315	949	39	8	2601
PEAK HOUR	6	11	1	2	108	141	39	6	1294	957	37	10	2612

Heavies

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	1	0	0	0	0	3	2	2	24	34	1	0	67
0715 - 0815	1	0	0	0	1	3	2	2	31	31	1	0	72
0730 - 0830	2	0	0	0	1	2	2	2	30	31	1	0	71
0745 - 0845	2	1	0	0	2	1	2	0	39	30	1	0	78
0800 - 0900	1	1	0	0	2	1	1	0	39	31	1	0	77
PEAK HOUR	2	1	0	0	2	1	2	0	39	30	1	0	78

Combined

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	2	1	0	0	25	24	9	8	209	217	2	0	497
0715 - 0730	1	1	1	0	26	27	11	27	224	208	6	5	537
0730 - 0745	2	1	0	0	32	34	7	8	242	251	7	2	586
0745 - 0800	1	3	0	1	25	31	10	2	284	243	10	4	614
0800 - 0815	2	6	0	1	27	39	11	2	318	258	10	3	677
0815 - 0830	3	2	0	0	26	43	5	1	377	223	6	2	688

Peds

	NORTH	WEST	SOUTH	EAST	
	Garner Pl	*Macquarie Links*	*Williamson St*	*Henderson Rd*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0700 - 0715					0
0715 - 0730					0
0730 - 0745	*Not*	*Not*	*Not*	*Not*	0
0745 - 0800	*Required*	*Required*	*Required*	*Required*	0
0800 - 0815					0
0815 - 0830					0
	0	0	0	0	

R.O.A.R. DATA

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	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	2	1	0	0	25	24	9	8	204	207	2	0	482
0715 - 0730	1	1	1	0	26	26	11	27	213	199	6	5	516
0730 - 0745	2	1	0	0	32	32	6	6	239	244	6	2	570
0745 - 0800	0	3	0	1	25	31	9	2	279	235	10	4	599
0800 - 0815	2	6	0	1	26	39	11	2	306	251	10	3	657
0815 - 0830	2	2	0	0	26	43	5	1	367	214	6	2	668
0830 - 0845	2	0	1	0	31	28	14	1	342	257	11	1	688
0845 - 0900	1	2	0	0	11	19	14	0	300	227	12	2	588
Period End	12	16	2	2	202	242	79	47	2250	1834	63	19	4768

Heavies

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	0	0	0	0	0	0	0	0	5	10	0	0	15
0715 - 0730	0	0	0	0	0	1	0	0	11	9	0	0	21
0730 - 0745	0	0	0	0	0	2	1	2	3	7	1	0	16
0745 - 0800	1	0	0	0	0	0	1	0	5	8	0	0	15
0800 - 0815	0	0	0	0	1	0	0	0	12	7	0	0	20
0815 - 0830	1	0	0	0	0	0	0	0	10	9	0	0	20
0830 - 0845	0	1	0	0	1	1	1	0	12	6	1	0	23
0845 - 0900	0	0	0	0	0	0	0	0	5	9	0	0	14
Period End	2	1	0	0	2	4	3	2	63	65	2	0	144

Lights

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	5	6	1	1	108	113	35	43	935	885	24	11	2167
0715 - 0815	5	11	1	2	109	128	37	37	1037	929	32	14	2342
0730 - 0830	6	12	0	2	109	145	31	11	1191	944	32	11	2494
0745 - 0845	6	11	1	2	108	141	39	6	1294	957	37	10	2612
0800 - 0900	7	10	1	1	94	129	44	4	1315	949	39	8	2601
PEAK HOUR	6	11	1	2	108	141	39	6	1294	957	37	10	2612

Heavies

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	1	0	0	0	0	3	2	2	24	34	1	0	67
0715 - 0815	1	0	0	0	1	3	2	2	31	31	1	0	72
0730 - 0830	2	0	0	0	1	2	2	2	30	31	1	0	71
0745 - 0845	2	1	0	0	2	1	2	0	39	30	1	0	78
0800 - 0900	1	1	0	0	2	1	1	0	39	31	1	0	77
PEAK HOUR	2	1	0	0	2	1	2	0	39	30	1	0	78

Combined

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	2	1	0	0	25	24	9	8	209	217	2	0	497
0715 - 0730	1	1	1	0	26	27	11	27	224	208	6	5	537
0730 - 0745	2	1	0	0	32	34	7	8	242	251	7	2	586
0745 - 0800	1	3	0	1	25	31	10	2	284	243	10	4	614
0800 - 0815	2	6	0	1	27	39	11	2	318	258	10	3	677
0815 - 0830	3	2	0	0	26	43	5	1	377	223	6	2	688

Peds

	NORTH	WEST	SOUTH	EAST	
	Garner Pl	*Macquarie Links*	*Williamson St*	*Henderson Rd*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0700 - 0715					0
0715 - 0730					0
0730 - 0745	*Not*	*Not*	*Not*	*Not*	0
0745 - 0800	*Required*	*Required*	*Required*	*Required*	0
0800 - 0815					0
0815 - 0830					0
	0	0	0	0	

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	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1515	4	5	0	0	6	8	25	1	253	261	11	5	579
1515 - 1530	1	6	0	0	11	11	24	2	319	302	18	1	695
1530 - 1545	4	7	0	0	11	14	21	2	315	296	10	6	686
1545 - 1600	1	9	0	0	9	17	31	1	279	258	15	1	621
1600 - 1615	6	5	0	0	9	12	23	1	325	290	13	2	686
1615 - 1630	7	10	0	0	7	14	12	0	321	245	19	4	639
1630 - 1645	9	14	0	0	15	12	25	8	282	370	22	4	761
1645 - 1700	6	12	0	0	5	11	20	1	238	266	19	3	581
Period End	38	68	0	0	73	99	181	16	2332	2288	127	26	5248

Heavies

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1515	0	1	0	0	0	0	1	0	12	6	0	0	20
1515 - 1530	0	0	0	0	0	1	2	0	13	5	2	0	23
1530 - 1545	0	0	0	0	2	1	1	0	12	5	0	0	21
1545 - 1600	1	0	0	0	1	0	0	1	5	15	0	1	24
1600 - 1615	0	1	0	0	0	1	0	0	12	5	1	0	20
1615 - 1630	0	1	0	0	0	0	0	0	16	6	0	0	23
1630 - 1645	0	0	0	0	0	0	0	0	11	8	0	0	19
1645 - 1700	0	0	0	0	0	0	0	1	10	3	0	0	14
Period End	1	3	0	0	3	3	4	2	91	53	3	1	164

Lights

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1600	10	27	0	0	37	50	101	6	1166	1117	54	13	2581
1515 - 1615	12	27	0	0	40	54	99	6	1238	1146	56	10	2688
1530 - 1630	18	31	0	0	36	57	87	4	1240	1089	57	13	2632
1545 - 1645	23	38	0	0	40	55	91	10	1207	1163	69	11	2707
1600 - 1700	28	41	0	0	36	49	80	10	1166	1171	73	13	2667
PEAK HOUR	23	38	0	0	40	55	91	10	1207	1163	69	11	2707

Heavies

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1600	1	1	0	0	3	2	4	1	42	31	2	1	88
1515 - 1615	1	1	0	0	3	3	3	1	42	30	3	1	88
1530 - 1630	1	2	0	0	3	2	1	1	45	31	1	1	88
1545 - 1645	1	2	0	0	1	1	0	1	44	34	1	1	86
1600 - 1700	0	2	0	0	0	1	0	1	49	22	1	0	76
PEAK HOUR	1	2	0	0	1	1	0	1	44	34	1	1	86

Combined

	NORTH			WEST			SOUTH			EAST			
	Garner Pl			*Macquarie Links*			*Williamson St*			*Henderson Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1515	4	6	0	0	6	8	26	1	265	267	11	5	599
1515 - 1530	1	6	0	0	11	12	26	2	332	307	20	1	718
1530 - 1545	4	7	0	0	13	15	22	2	327	301	10	6	707
1545 - 1600	2	9	0	0	10	17	31	2	284	273	15	2	645
1600 - 1615	6	6	0	0	9	13	23	1	337	295	14	2	706
1615 - 1630	7	11	0	0	7	14	12	0	337	251	19	4	662

Peds

	NORTH	WEST	SOUTH	EAST	
	Garner Pl	*Macquarie Links*	*Williamson St*	*Henderson Rd*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1500 - 1515					0
1515 - 1530					0
1530 - 1545	*Not*	*Not*	*Not*	*Not*	0
1545 - 1600	*Required*	*Required*	*Required*	*Required*	0
1600 - 1615					0
1615 - 1630					0
	0	0	0	0	

R.O.A.R. DATA

Reliable, Original & Authentic Results

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Client : InTersect Traffic
Job No/Name : 6643 INGLEBURN Traffic Counts
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Lights

Time Per	NORTH Austool Pl L	T	R	WEST Henderson Rd L	T	R	SOUTH Lancaster St L	T	R	EAST Henderson Rd L	T	R	TOT
0700 - 0715	2	2	1	18	103	101	36	8	23	52	152	3	501
0715 - 0730	0	2	3	14	118	111	33	5	19	70	180	3	558
0730 - 0745	1	1	5	24	135	85	43	1	16	48	207	2	568
0745 - 0800	0	2	3	32	176	104	49	3	12	67	206	4	658
0800 - 0815	1	1	11	18	207	72	58	4	28	52	200	1	653
0815 - 0830	0	2	5	23	280	81	41	3	34	44	186	4	703
0830 - 0845	3	4	4	21	262	68	32	1	29	57	215	0	696
0845 - 0900	0	8	2	12	208	76	43	3	33	72	180	1	638
Period End	7	22	34	162	1489	698	335	28	194	462	1526	18	4975

Heavies

Time Per	NORTH Austool Pl L	T	R	WEST Henderson Rd L	T	R	SOUTH Lancaster St L	T	R	EAST Henderson Rd L	T	R	TOT
0700 - 0715	0	1	0	1	3	1	7	0	0	0	3	0	16
0715 - 0730	0	0	0	1	1	8	7	0	0	0	3	0	20
0730 - 0745	0	0	1	1	1	4	4	0	0	1	5	0	17
0745 - 0800	0	0	0	0	3	2	4	2	2	2	3	0	18
0800 - 0815	0	1	1	1	4	6	5	0	3	1	1	0	23
0815 - 0830	0	1	1	2	4	4	6	0	0	0	1	0	19
0830 - 0845	0	0	1	0	5	6	5	0	1	0	2	0	20
0845 - 0900	0	1	1	0	1	4	6	0	1	0	1	0	15
Period End	0	4	5	6	22	35	44	2	7	4	19	0	148

Lights

Peak Time	NORTH Austool Pl L	T	R	WEST Henderson Rd L	T	R	SOUTH Lancaster St L	T	R	EAST Henderson Rd L	T	R	TOT
0700 - 0800	3	7	12	88	532	401	161	17	70	237	745	12	2285
0715 - 0815	2	6	22	88	636	372	183	13	75	237	793	10	2437
0730 - 0830	2	6	24	97	798	342	191	11	90	211	799	11	2582
0745 - 0845	4	9	23	94	925	325	180	11	103	220	807	9	2710
0800 - 0900	4	15	22	74	957	297	174	11	124	225	781	6	2690
PEAK HOUR	4	9	23	94	925	325	180	11	103	220	807	9	2710

Heavies

Peak Time	NORTH Austool Pl L	T	R	WEST Henderson Rd L	T	R	SOUTH Lancaster St L	T	R	EAST Henderson Rd L	T	R	TOT
0700 - 0800	0	1	1	3	8	15	22	2	2	3	14	0	71
0715 - 0815	0	1	2	3	9	20	20	2	5	4	12	0	78
0730 - 0830	0	2	3	4	12	16	19	2	5	4	10	0	77
0745 - 0845	0	2	3	3	16	18	20	2	6	3	7	0	80
0800 - 0900	0	3	4	3	14	20	22	0	5	1	5	0	77
PEAK HOUR	0	2	3	3	16	18	20	2	6	3	7	0	80

Combined

Time Per	NORTH Austool Pl L	T	R	WEST Henderson Rd L	T	R	SOUTH Lancaster St L	T	R	EAST Henderson Rd L	T	R	TOT
0700 - 0715	2	3	1	19	106	102	43	8	23	52	155	3	517
0715 - 0730	0	2	3	15	119	119	40	5	19	70	183	3	578
0730 - 0745	1	1	6	25	136	89	47	1	16	49	212	2	585
0745 - 0800	0	2	3	32	179	106	53	5	14	69	209	4	676
0800 - 0815	1	2	12	19	211	78	53	4	31	53	201	1	676
0815 - 0830	0	3	6	25	284	85	47	3	34	44	187	4	722

Peds

Time Per	NORTH Austool Pl UNCLASSIFIED	WEST Henderson Rd UNCLASSIFIED	SOUTH Lancaster St UNCLASSIFIED	EAST Henderson Rd UNCLASSIFIED	TOT
0700 - 0715					0
0715 - 0730					0
0730 - 0745	Not	Not	Not	Not	0
0745 - 0800	Required	Required	Required	Required	0
0800 - 0815					0
0815 - 0830					0
	0	0	0	0	

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : InTersed Traffic
Job No/Name : 6643 INGLEBURN Traffic Counts
Day/Date : Wednesday 29th November 2017

Lights

Time Per	NORTH Austool Pl L	T	R	WEST Henderson Rd L	T	R	SOUTH Lancaster St L	T	R	EAST Henderson Rd L	T	R	TOT
1500 - 1515	9	4	11	1	205	47	88	0	45	35	188	1	634
1515 - 1530	4	5	10	7	243	52	93	0	55	34	202	0	705
1530 - 1545	6	6	14	5	269	46	112	2	70	38	194	1	763
1545 - 1600	3	7	13	5	226	41	96	3	71	44	153	1	663
1600 - 1615	4	6	18	4	224	40	145	5	108	32	148	1	735
1615 - 1630	6	10	15	6	272	38	109	3	78	34	151	2	724
1630 - 1645	5	3	33	3	276	26	133	2	77	28	228	0	814
1645 - 1700	2	2	13	3	216	23	80	0	65	34	191	0	629
Period End	39	43	127	34	1931	313	856	15	569	279	1455	6	5667

Heavies

Time Per	NORTH Austool Pl L	T	R	WEST Henderson Rd L	T	R	SOUTH Lancaster St L	T	R	EAST Henderson Rd L	T	R	TOT
1500 - 1515	0	0	0	3	3	5	5	0	0	0	1	0	17
1515 - 1530	0	2	0	1	3	9	3	0	1	0	4	0	23
1530 - 1545	0	0	4	1	4	10	2	0	0	1	1	0	23
1545 - 1600	0	0	1	0	2	4	7	0	1	0	4	0	19
1600 - 1615	0	0	0	3	5	4	4	0	0	1	2	0	19
1615 - 1630	0	0	0	2	5	7	5	0	0	0	2	0	21
1630 - 1645	0	0	0	2	3	8	6	1	0	1	1	0	22
1645 - 1700	0	0	0	2	1	5	2	0	0	0	1	0	11
Period End	0	2	5	14	26	52	34	1	2	3	16	0	155

Lights

Peak Time	NORTH Austool Pl L	T	R	WEST Henderson Rd L	T	R	SOUTH Lancaster St L	T	R	EAST Henderson Rd L	T	R	TOT
1500 - 1600	22	22	48	18	943	186	389	5	241	151	737	3	2765
1515 - 1615	17	24	55	21	962	179	446	10	304	148	697	3	2866
1530 - 1630	19	29	60	20	991	165	462	13	327	148	646	5	2885
1545 - 1645	18	26	79	18	998	145	483	13	334	138	680	4	2936
1600 - 1700	17	21	79	16	968	127	467	10	328	128	718	3	2902
PEAK HOUR	18	26	79	18	998	145	483	13	334	138	680	4	2936

Heavies

Peak Time	NORTH Austool Pl L	T	R	WEST Henderson Rd L	T	R	SOUTH Lancaster St L	T	R	EAST Henderson Rd L	T	R	TOT
1500 - 1600	0	2	5	5	12	28	17	0	2	1	10	0	82
1515 - 1615	0	2	5	5	14	27	16	0	2	2	11	0	84
1530 - 1630	0	0	5	6	16	25	18	0	1	2	9	0	82
1545 - 1645	0	0	1	7	15	23	22	1	1	2	9	0	81
1600 - 1700	0	0	0	9	14	24	17	1	0	2	6	0	73
PEAK HOUR	0	0	1	7	15	23	22	1	1	2	9	0	81

Combined

Time Per	NORTH Austool Pl L	T	R	WEST Henderson Rd L	T	R	SOUTH Lancaster St L	T	R	EAST Henderson Rd L	T	R	TOT
1500 - 1515	9	4	11	4	208	52	93	0	45	35	189	1	651
1515 - 1530	4	7	10	8	246	61	96	0	56	34	206	0	728
1530 - 1545	6	6	18	6	273	56	114	2	70	39	195	1	786
1545 - 1600	3	7	14	5	228	45	103	3	72	44	157	1	682
1600 - 1615	4	6	18	7	229	44	149	5	108	33	150	1	754
1615 - 1630	6	10	15	8	277	45	114	3	78	34	153	2	745
1630 - 1645	5	3	33	5	279	34	139	3	77	29	229	0	836
1645 - 1700	2	2	13	5	217	28	82	0	65	34	192	0	640
Period End	39	45	132	48	1957	365	890	16	571	282	1471	6	5822

Peds

Time Per	NORTH Austool Pl UNCLASSIFIED	WEST Henderson Rd UNCLASSIFIED	SOUTH Lancaster St UNCLASSIFIED	EAST Henderson Rd UNCLASSIFIED	TOT
1500 - 1515					0
1515 - 1530					0
1530 - 1545	*Not*	*Not*	*Not*	*Not*	0
1545 - 1600	*Required*	*Required*	*Required*	*Required*	0
1600 - 1615					0
1615 - 1630					0
1630 - 1645					0
1645 - 1700					0
Period End	0	0	0	0	0

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : InTersect Traffic
Job No/Name : 6643 INGLEBURN Traffic Counts
Day/Date : Wednesday 29th November 2017

	NORTH			WEST			SOUTH			EAST			
	Lancaster St			*Aero Pl*			*Lancaster St*			*Aero Pl*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	50	72	20	19	1	1	3	23	3	6	3	6	**207**
0715 - 0730	65	79	17	11	0	1	5	27	2	1	1	14	**223**
0730 - 0745	59	75	21	5	0	2	4	39	4	5	1	25	**240**
0745 - 0800	39	49	21	10	1	0	13	34	0	4	2	25	**198**
0800 - 0815	34	74	30	10	1	5	7	41	3	3	2	24	**234**
0815 - 0830	29	61	27	7	3	2	5	35	4	2	1	18	**194**
0830 - 0845	19	83	23	6	0	5	4	31	1	0	2	14	**188**
0845 - 0900	26	85	32	15	2	6	11	47	2	5	4	18	**253**
Period End	**321**	**578**	**191**	**83**	**8**	**22**	**52**	**277**	**19**	**26**	**16**	**144**	**1737**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Lancaster St			*Aero Pl*			*Lancaster St*			*Aero Pl*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	1	4	0	0	0	0	0	5	0	2	0	3	**15**
0715 - 0730	1	3	1	0	0	1	0	4	0	1	0	2	**13**
0730 - 0745	0	2	0	0	0	2	0	6	0	0	0	1	**11**
0745 - 0800	1	2	1	1	0	0	1	4	1	0	0	2	**13**
0800 - 0815	1	3	1	1	0	1	2	5	1	1	0	1	**17**
0815 - 0830	1	4	2	1	0	1	0	4	2	0	0	0	**15**
0830 - 0845	1	6	1	1	0	0	0	5	1	1	0	2	**18**
0845 - 0900	2	1	0	1	0	0	2	5	1	0	1	2	**15**
Period End	**8**	**25**	**6**	**5**	**0**	**5**	**5**	**38**	**6**	**5**	**1**	**13**	**117**

Lights

	NORTH			WEST			SOUTH			EAST			
	Lancaster St			*Aero Pl*			*Lancaster St*			*Aero Pl*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	213	275	79	45	2	4	25	123	9	16	7	70	**868**
0715 - 0815	197	277	89	36	2	8	29	141	9	13	6	88	**895**
0730 - 0830	161	259	99	32	5	9	29	149	11	14	6	92	**866**
0745 - 0845	121	267	101	33	5	12	29	141	8	9	7	81	**814**
0800 - 0900	108	303	112	38	6	18	27	154	10	10	9	74	**869**
PEAK HOUR	**197**	**277**	**89**	**36**	**2**	**8**	**29**	**141**	**9**	**13**	**6**	**88**	**895**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Lancaster St			*Aero Pl*			*Lancaster St*			*Aero Pl*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	3	11	2	1	0	3	1	19	1	3	0	8	**52**
0715 - 0815	3	10	3	2	0	4	3	19	2	2	0	6	**54**
0730 - 0830	3	11	4	3	0	4	3	19	4	1	0	4	**56**
0745 - 0845	4	15	5	4	0	2	3	18	5	2	0	5	**63**
0800 - 0900	5	14	4	4	0	2	4	19	5	2	1	5	**65**
PEAK HOUR	**3**	**10**	**3**	**2**	**0**	**4**	**3**	**19**	**2**	**2**	**0**	**6**	**54**

Combined

	NORTH			WEST			SOUTH			EAST			
	Lancaster St			*Aero Pl*			*Lancaster St*			*Aero Pl*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	51	76	20	19	1	1	3	28	3	8	3	9	**222**
0715 - 0730	66	82	18	11	0	2	5	31	2	2	1	16	**236**
0730 - 0745	59	77	21	5	0	4	4	45	4	5	1	26	**251**
0745 - 0800	40	51	22	11	1	0	14	38	1	4	2	27	**211**
0800 - 0815	35	77	31	11	1	6	9	46	4	4	2	25	**251**
0815 - 0830	30	65	29	8	3	3	5	39	6	2	1	18	**209**

Peds

	NORTH	WEST	SOUTH	EAST	
	Lancaster St	*Aero Pl*	*Lancaster St*	*Aero Pl*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0700 - 0715					**0**
0715 - 0730					**0**
0730 - 0745	*Not*	*Not*	*Not*	*Not*	**0**
0745 - 0800	*Required*	*Required*	*Required*	*Required*	**0**
0800 - 0815					**0**
0815 - 0830					**0**
	0	0	0	0	

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : InTersect Traffic
Job No/Name : 6643 INGLEBURN Traffic Counts
Day/Date : Wednesday 29th November 2017

	NORTH			WEST			SOUTH			EAST			
	Lancaster St			*Aero Pl*			*Lancaster St*			*Aero Pl*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1515	23	54	8	23	2	7	2	66	3	11	2	35	**236**
1515 - 1530	25	58	19	15	0	7	3	83	7	6	1	29	**253**
1530 - 1545	19	54	8	21	0	9	2	90	2	17	2	57	**281**
1545 - 1600	12	55	20	16	2	5	1	83	1	4	2	39	**240**
1600 - 1615	22	57	11	38	0	4	3	113	6	4	0	58	**316**
1615 - 1630	16	46	11	32	0	0	3	86	2	7	1	47	**251**
1630 - 1645	15	36	12	24	1	4	2	89	1	5	1	52	**242**
1645 - 1700	17	37	10	28	2	5	1	74	1	9	2	32	**218**
Period End	**149**	**397**	**99**	**197**	**7**	**41**	**17**	**684**	**23**	**63**	**11**	**349**	**2037**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Lancaster St			*Aero Pl*			*Lancaster St*			*Aero Pl*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1515	2	4	2	1	0	0	0	6	2	2	0	2	**21**
1515 - 1530	0	5	0	1	0	2	0	5	0	0	1	1	**15**
1530 - 1545	3	5	1	0	0	0	0	5	1	1	0	1	**17**
1545 - 1600	2	5	1	0	0	0	0	5	0	2	0	2	**17**
1600 - 1615	3	6	1	1	0	0	0	3	2	1	0	4	**21**
1615 - 1630	3	3	0	0	0	1	0	5	0	1	0	1	**14**
1630 - 1645	4	3	0	0	0	0	1	2	0	0	0	2	**12**
1645 - 1700	1	2	1	0	0	0	0	1	0	0	0	1	**6**
Period End	**18**	**33**	**6**	**3**	**0**	**3**	**1**	**32**	**5**	**7**	**1**	**14**	**123**

Lights

	NORTH			WEST			SOUTH			EAST			
	Lancaster St			*Aero Pl*			*Lancaster St*			*Aero Pl*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1600	79	221	55	75	4	28	8	322	13	38	7	160	**1010**
1515 - 1615	78	224	58	90	2	25	9	369	16	31	5	183	**1090**
1530 - 1630	69	212	50	107	2	18	9	372	11	32	5	201	**1088**
1545 - 1645	65	194	54	110	3	13	9	371	10	20	4	196	**1049**
1600 - 1700	70	176	44	122	3	13	9	362	10	25	4	189	**1027**
PEAK HOUR	**78**	**224**	**58**	**90**	**2**	**25**	**9**	**369**	**16**	**31**	**5**	**183**	**1090**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Lancaster St			*Aero Pl*			*Lancaster St*			*Aero Pl*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1600	7	19	4	2	0	2	0	21	3	5	1	6	**70**
1515 - 1615	8	21	3	2	0	2	0	18	3	4	1	8	**70**
1530 - 1630	11	19	3	1	0	1	0	18	3	5	0	8	**69**
1545 - 1645	12	17	2	1	0	1	1	15	2	4	0	9	**64**
1600 - 1700	11	14	2	1	0	1	1	11	2	2	0	8	**53**
PEAK HOUR	**8**	**21**	**3**	**2**	**0**	**2**	**0**	**18**	**3**	**4**	**1**	**8**	**70**

Combined

	NORTH			WEST			SOUTH			EAST			
	Lancaster St			*Aero Pl*			*Lancaster St*			*Aero Pl*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1500 - 1515	25	58	10	24	2	7	2	72	5	13	2	37	**257**
1515 - 1530	25	63	19	16	0	9	3	88	7	6	2	30	**268**
1530 - 1545	22	59	9	21	0	9	2	95	3	18	2	58	**298**
1545 - 1600	14	60	21	16	2	5	1	88	1	6	2	41	**257**
1600 - 1615	25	63	12	39	0	4	3	116	8	5	0	62	**337**
1615 - 1630	19	49	11	32	0	1	3	91	2	8	1	48	**265**

Peds

	NORTH	WEST	SOUTH	EAST	
	Lancaster St	*Aero Pl*	*Lancaster St*	*Aero Pl*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1500 - 1515					**0**
1515 - 1530					**0**
1530 - 1545	*Not*	*Not*	*Not*	*Not*	**0**
1545 - 1600	*Required*	*Required*	*Required*	*Required*	**0**
1600 - 1615					**0**
1615 - 1630					**0**
	0	0	0	0	

ATTACHMENT C
SIDRA MOVEMENT SUMMARY TABLE

MOVEMENT SUMMARY

Site: 101 [2018AM + dev]

Brooks Road / Williamson Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson												
1	L2	383	20.1	0.463	7.2	LOS A	3.7	29.5	0.77	0.75	0.77	51.5
2	T1	483	6.3	0.463	7.3	LOS A	3.7	29.5	0.77	0.73	0.78	50.7
3u	U	1	0.0	0.463	13.9	LOS A	3.6	26.2	0.77	0.73	0.78	54.1
Approach		867	12.4	0.463	7.3	LOS A	3.7	29.5	0.77	0.74	0.77	51.1
North: Williamson												
8	T1	398	5.6	0.468	8.2	LOS A	3.8	28.6	0.82	0.82	0.85	50.8
9	R2	439	8.2	0.468	12.0	LOS A	3.8	28.6	0.81	0.81	0.82	47.5
9u	U	1	0.0	0.468	13.8	LOS A	3.8	28.6	0.81	0.81	0.82	46.0
Approach		838	6.9	0.468	10.2	LOS A	3.8	28.6	0.81	0.82	0.83	49.0
West: Brooks												
10	L2	817	5.4	0.815	11.1	LOS A	10.7	78.0	0.92	1.06	1.28	46.3
12	R2	508	10.8	0.638	13.9	LOS A	5.2	40.1	0.78	0.97	0.95	49.0
12u	U	1	0.0	0.638	15.5	LOS B	5.2	40.1	0.78	0.97	0.95	49.7
Approach		1326	7.5	0.815	12.2	LOS A	10.7	78.0	0.87	1.03	1.15	47.5
All Vehicles		3032	8.7	0.815	10.2	LOS A	10.7	78.0	0.82	0.89	0.96	48.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 3:49:46 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Brooks_Williamson\Brooks_Williamson.sip8

MOVEMENT SUMMARY

Site: 101 [2018PM + dev]

Brooks Road / Williamson Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson												
1	L2	417	9.1	0.581	10.7	LOS A	6.1	46.0	0.97	0.98	1.14	49.7
2	T1	432	3.7	0.581	11.8	LOS A	6.1	46.0	0.96	1.02	1.16	48.2
3u	U	1	0.0	0.581	18.5	LOS B	5.7	41.1	0.96	1.02	1.16	51.7
Approach		849	6.3	0.581	11.2	LOS A	6.1	46.0	0.97	1.00	1.15	49.0
North: Williamson												
8	T1	523	5.2	0.674	12.4	LOS A	7.6	55.8	0.95	1.04	1.24	47.9
9	R2	655	6.9	0.693	16.0	LOS B	8.8	64.9	0.96	1.01	1.24	44.5
9u	U	1	0.0	0.693	17.8	LOS B	8.8	64.9	0.96	1.01	1.24	42.2
Approach		1179	6.2	0.693	14.4	LOS A	8.8	64.9	0.96	1.02	1.24	46.0
West: Brooks												
10	L2	677	7.3	0.676	8.1	LOS A	6.5	48.7	0.80	0.88	0.94	48.7
12	R2	539	12.7	0.633	13.1	LOS A	5.4	42.0	0.78	0.92	0.91	49.5
12u	U	1	0.0	0.633	14.7	LOS B	5.4	42.0	0.78	0.92	0.91	50.3
Approach		1217	9.7	0.676	10.3	LOS A	6.5	48.7	0.79	0.90	0.93	49.1
All Vehicles		3245	7.5	0.693	12.0	LOS A	8.8	64.9	0.90	0.97	1.10	48.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 3:49:48 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Brooks_Williamson\Brooks_Williamson.sip8

MOVEMENT SUMMARY

Site: 101 [2028AM + dev]

Brooks Road / Williamson Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson												
1	L2	421	20.0	0.539	8.4	LOS A	5.0	40.2	0.85	0.84	0.92	50.9
2	T1	532	6.1	0.539	8.7	LOS A	5.0	40.2	0.85	0.86	0.94	50.3
3u	U	1	0.0	0.539	15.3	LOS B	4.9	35.8	0.85	0.86	0.94	53.7
Approach		954	12.3	0.539	8.6	LOS A	5.0	40.2	0.85	0.85	0.93	50.6
North: Williamson												
8	T1	438	5.5	0.554	10.1	LOS A	5.5	40.8	0.90	0.93	1.04	49.7
9	R2	482	8.1	0.554	13.6	LOS A	5.5	40.8	0.90	0.91	1.01	46.4
9u	U	1	0.0	0.554	15.4	LOS B	5.5	40.8	0.90	0.91	1.01	44.6
Approach		921	6.9	0.554	11.9	LOS A	5.5	40.8	0.90	0.92	1.02	48.0
West: Brooks												
10	L2	899	5.3	0.934	19.7	LOS B	19.9	145.7	1.00	1.40	2.01	40.1
12	R2	559	10.7	0.735	16.0	LOS B	7.2	55.1	0.87	1.08	1.18	47.6
12u	U	1	0.0	0.735	17.6	LOS B	7.2	55.1	0.87	1.08	1.18	48.3
Approach		1459	7.4	0.934	18.3	LOS B	19.9	145.7	0.95	1.28	1.69	43.3
All Vehicles		3334	8.6	0.934	13.8	LOS A	19.9	145.7	0.91	1.06	1.29	46.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 3:49:46 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Brooks_Williamson\Brooks_Williamson.sip8

MOVEMENT SUMMARY

Site: 101 [2028PM + dev]

Brooks Road / Williamson Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson												
1	L2	463	9.1	0.711	15.4	LOS B	9.4	70.3	1.00	1.12	1.40	46.5
2	T1	471	3.6	0.711	17.1	LOS B	9.4	70.3	1.00	1.17	1.43	44.2
3u	U	1	0.0	0.711	23.8	LOS B	8.5	61.3	1.00	1.17	1.43	48.1
Approach		935	6.3	0.711	16.3	LOS B	9.4	70.3	1.00	1.14	1.41	45.4
North: Williamson												
8	T1	576	5.1	0.809	19.1	LOS B	12.3	90.1	1.00	1.24	1.64	43.0
9	R2	721	6.9	0.825	22.4	LOS B	14.5	107.6	1.00	1.21	1.64	40.3
9u	U	1	0.0	0.825	24.2	LOS B	14.5	107.6	1.00	1.21	1.64	37.1
Approach		1298	6.1	0.825	21.0	LOS B	14.5	107.6	1.00	1.23	1.64	41.4
West: Brooks												
10	L2	744	7.2	0.767	10.0	LOS A	9.0	67.1	0.90	0.99	1.16	47.1
12	R2	593	12.8	0.723	14.9	LOS B	7.3	56.8	0.87	1.02	1.10	48.3
12u	U	1	0.0	0.723	16.4	LOS B	7.3	56.8	0.87	1.02	1.10	49.1
Approach		1338	9.7	0.767	12.1	LOS A	9.0	67.1	0.88	1.01	1.14	47.7
All Vehicles		3571	7.5	0.825	16.4	LOS B	14.5	107.6	0.96	1.12	1.39	44.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 3:49:47 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Brooks_Williamson\Brooks_Williamson.sip8

MOVEMENT SUMMARY

Site: 101 [2018AM + dev]

Williamson Road / MacDonald Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson												
1	L2	116	12.7	0.606	7.7	LOS A	5.9	43.5	0.76	0.74	0.82	49.3
2	T1	1172	5.2	0.606	7.9	LOS A	5.9	43.5	0.77	0.77	0.85	51.2
3	R2	21	10.0	0.606	13.2	LOS A	5.8	42.5	0.78	0.79	0.88	32.3
3u	U	1	0.0	0.606	14.9	LOS B	5.8	42.5	0.78	0.79	0.88	49.4
Approach		1309	5.9	0.606	7.9	LOS A	5.9	43.5	0.77	0.77	0.85	50.9
East: Private access												
4	L2	11	50.0	0.032	7.0	LOS A	0.1	1.1	0.66	0.78	0.66	31.9
5	T1	1	0.0	0.032	5.7	LOS A	0.1	1.1	0.66	0.78	0.66	49.0
6	R2	2	0.0	0.032	9.6	LOS A	0.1	1.1	0.66	0.78	0.66	49.1
6u	U	1	0.0	0.032	11.7	LOS A	0.1	1.1	0.66	0.78	0.66	11.3
Approach		15	35.7	0.032	7.6	LOS A	0.1	1.1	0.66	0.78	0.66	35.2
North: Williamson Road												
7	L2	6	0.0	0.429	4.9	LOS A	3.4	25.1	0.46	0.49	0.46	40.2
8	T1	756	5.7	0.429	5.1	LOS A	3.4	25.1	0.46	0.51	0.46	51.9
9	R2	377	3.1	0.429	9.8	LOS A	3.3	24.1	0.48	0.61	0.48	52.5
9u	U	1	0.0	0.429	11.8	LOS A	3.3	24.1	0.48	0.61	0.48	53.6
Approach		1140	4.8	0.429	6.6	LOS A	3.4	25.1	0.47	0.55	0.47	52.1
West: MacDonald Road												
10	L2	415	3.0	0.604	9.6	LOS A	4.1	29.2	0.85	1.00	1.08	51.1
11	T1	5	0.0	0.308	9.2	LOS A	1.4	10.4	0.75	0.93	0.79	37.0
12	R2	122	10.3	0.308	14.4	LOS A	1.4	10.4	0.75	0.93	0.79	45.9
12u	U	1	0.0	0.308	15.9	LOS B	1.4	10.4	0.75	0.93	0.79	50.4
Approach		543	4.7	0.604	10.7	LOS A	4.1	29.2	0.83	0.98	1.01	50.0
All Vehicles		3007	5.4	0.606	7.9	LOS A	5.9	43.5	0.67	0.72	0.73	51.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 4:02:52 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Williamson_MacDonald\Williamson_MacDonald.sip8

MOVEMENT SUMMARY

Site: 101 [2018PM + dev]

Williamson Road / MacDonald Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson												
1	L2	86	2.4	0.545	7.5	LOS A	4.8	35.0	0.77	0.76	0.82	49.7
2	T1	1005	5.9	0.545	8.1	LOS A	4.8	35.0	0.77	0.79	0.84	51.2
3	R2	5	20.0	0.545	13.8	LOS A	4.7	34.3	0.78	0.81	0.87	32.4
3u	U	1	0.0	0.545	15.1	LOS B	4.7	34.3	0.78	0.81	0.87	49.5
Approach		1098	5.7	0.545	8.0	LOS A	4.8	35.0	0.77	0.78	0.84	51.1
East: Private access												
4	L2	9	0.0	0.024	6.0	LOS A	0.1	0.7	0.69	0.77	0.69	41.8
5	T1	1	0.0	0.024	6.6	LOS A	0.1	0.7	0.69	0.77	0.69	50.5
6	R2	1	0.0	0.024	10.5	LOS A	0.1	0.7	0.69	0.77	0.69	50.5
6u	U	1	0.0	0.024	12.5	LOS A	0.1	0.7	0.69	0.77	0.69	10.9
Approach		13	0.0	0.024	7.0	LOS A	0.1	0.7	0.69	0.77	0.69	41.9
North: Williamson Road												
7	L2	6	0.0	0.526	4.8	LOS A	4.9	35.8	0.44	0.46	0.44	40.3
8	T1	1018	5.0	0.526	4.9	LOS A	4.9	35.8	0.45	0.49	0.45	52.1
9	R2	456	3.0	0.526	9.6	LOS A	4.8	34.7	0.47	0.58	0.47	52.7
9u	U	1	0.0	0.526	11.7	LOS A	4.8	34.7	0.47	0.58	0.47	53.8
Approach		1481	4.3	0.526	6.4	LOS A	4.9	35.8	0.45	0.52	0.45	52.3
West: MacDonald Road												
10	L2	428	2.2	0.558	8.5	LOS A	3.7	26.0	0.81	0.96	0.98	52.0
11	T1	2	0.0	0.238	8.8	LOS A	1.0	7.5	0.71	0.90	0.71	37.2
12	R2	98	9.7	0.238	14.0	LOS A	1.0	7.5	0.71	0.90	0.71	46.2
12u	U	1	0.0	0.238	15.5	LOS B	1.0	7.5	0.71	0.90	0.71	50.6
Approach		529	3.6	0.558	9.5	LOS A	3.7	26.0	0.79	0.95	0.92	50.9
All Vehicles		3121	4.7	0.558	7.5	LOS A	4.9	35.8	0.62	0.68	0.67	51.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 4:02:55 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Williamson_MacDonald\Williamson_MacDonald.sip8

MOVEMENT SUMMARY

Site: 101 [2028AM + dev]

Williamson Road / MacDonald Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson												
1	L2	127	12.4	0.687	9.3	LOS A	8.2	60.3	0.85	0.85	1.02	48.7
2	T1	1279	4.3	0.687	9.6	LOS A	8.2	60.3	0.86	0.88	1.04	50.3
3	R2	23	9.1	0.687	15.1	LOS B	8.0	57.9	0.87	0.91	1.07	31.0
3u	U	1	0.0	0.687	16.8	LOS B	8.0	57.9	0.87	0.91	1.07	47.6
Approach		1431	5.1	0.687	9.7	LOS A	8.2	60.3	0.86	0.88	1.04	49.9
East: Private access												
4	L2	12	45.5	0.037	7.4	LOS A	0.1	1.3	0.69	0.81	0.69	32.2
5	T1	1	0.0	0.037	6.2	LOS A	0.1	1.3	0.69	0.81	0.69	48.6
6	R2	2	0.0	0.037	10.1	LOS A	0.1	1.3	0.69	0.81	0.69	48.7
6u	U	1	0.0	0.037	12.1	LOS A	0.1	1.3	0.69	0.81	0.69	10.9
Approach		16	33.3	0.037	8.0	LOS A	0.1	1.3	0.69	0.81	0.69	35.1
North: Williamson Road												
7	L2	7	0.0	0.486	5.2	LOS A	4.1	30.3	0.53	0.51	0.53	39.9
8	T1	833	5.6	0.486	5.3	LOS A	4.1	30.3	0.53	0.54	0.53	51.6
9	R2	415	3.0	0.406	10.1	LOS A	4.0	29.0	0.55	0.63	0.55	52.3
9u	U	1	0.0	0.486	12.1	LOS A	4.0	29.0	0.55	0.63	0.55	53.4
Approach		1256	4.7	0.486	6.9	LOS A	4.1	30.3	0.54	0.57	0.54	51.8
West: MacDonald Road												
10	L2	498	2.7	0.804	14.3	LOS A	7.1	50.5	0.95	1.15	1.49	48.0
11	T1	6	0.0	0.405	10.4	LOS A	2.0	14.8	0.81	0.97	0.92	36.2
12	R2	146	9.4	0.405	15.7	LOS B	2.0	14.8	0.81	0.97	0.92	45.1
12u	U	1	0.0	0.405	17.2	LOS B	2.0	14.8	0.81	0.97	0.92	49.6
Approach		652	4.2	0.804	14.6	LOS B	7.1	50.5	0.91	1.11	1.35	47.3
All Vehicles		3354	4.9	0.804	9.6	LOS A	8.2	60.3	0.75	0.81	0.91	50.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 4:02:52 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Williamson_MacDonald\Williamson_MacDonald.sip8

MOVEMENT SUMMARY

Site: 101 [2028PM + dev]

Williamson Road / MacDonald Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson												
1	L2	95	2.2	0.631	9.2	LOS A	6.8	49.7	0.86	0.87	1.01	49.1
2	T1	1108	5.7	0.631	9.9	LOS A	6.8	49.7	0.86	0.90	1.04	50.1
3	R2	6	16.7	0.631	15.7	LOS B	6.5	47.7	0.87	0.93	1.07	30.8
3u	U	1	0.0	0.631	17.1	LOS B	6.5	47.7	0.87	0.93	1.07	47.4
Approach		1211	5.5	0.631	9.9	LOS A	6.8	49.7	0.86	0.90	1.04	50.0
East: Private access												
4	L2	11	0.0	0.029	6.6	LOS A	0.1	0.8	0.73	0.80	0.73	40.9
5	T1	1	0.0	0.029	7.2	LOS A	0.1	0.8	0.73	0.80	0.73	49.8
6	R2	1	0.0	0.029	11.1	LOS A	0.1	0.8	0.73	0.80	0.73	49.8
6u	U	1	0.0	0.029	13.2	LOS A	0.1	0.8	0.73	0.80	0.73	10.6
Approach		14	0.0	0.029	7.5	LOS A	0.1	0.8	0.73	0.80	0.73	41.0
North: Williamson Road												
7	L2	7	0.0	0.585	4.9	LOS A	5.9	43.2	0.50	0.48	0.50	40.0
8	T1	1119	4.7	0.585	5.0	LOS A	5.9	43.2	0.51	0.50	0.51	51.8
9	R2	501	2.9	0.585	9.8	LOS A	5.8	41.8	0.53	0.59	0.53	52.5
9u	U	1	0.0	0.585	11.9	LOS A	5.8	41.8	0.53	0.59	0.53	53.6
Approach		1628	4.1	0.585	6.5	LOS A	5.9	43.2	0.52	0.53	0.52	52.0
West: MacDonald Road												
10	L2	472	2.2	0.679	10.2	LOS A	5.1	36.3	0.89	1.04	1.17	50.7
11	T1	2	0.0	0.287	9.3	LOS A	1.2	9.4	0.75	0.92	0.77	36.8
12	R2	107	9.8	0.287	14.5	LOS B	1.2	9.4	0.75	0.92	0.77	45.8
12u	U	1	0.0	0.287	16.0	LOS B	1.2	9.4	0.75	0.92	0.77	50.2
Approach		582	3.6	0.679	11.0	LOS A	5.1	36.3	0.86	1.02	1.09	49.8
All Vehicles		3435	4.5	0.679	8.5	LOS A	6.8	49.7	0.70	0.74	0.80	50.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 4:02:54 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Williamson_MacDonald\Williamson_MacDonald.sip8

MOVEMENT SUMMARY

Site: 101 [2018AM + dev]

Williamson Road / Henderson Road / Macquarie Links Road / Garner Place
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson Road												
1	L2	43	4.9	0.457	3.7	LOS A	3.7	26.5	0.24	0.58	0.24	51.5
2	T1	6	0.0	0.457	3.7	LOS A	3.7	26.5	0.24	0.58	0.24	52.6
3	R2	1399	4.1	0.457	9.5	LOS A	3.7	26.5	0.26	0.58	0.26	53.2
3u	U	1	0.0	0.457	11.8	LOS A	3.6	26.4	0.27	0.59	0.27	54.5
Approach		1449	4.1	0.457	9.3	LOS A	3.7	26.5	0.26	0.58	0.26	53.1
East: Henderson Road												
4	L2	1027	3.7	0.666	4.4	LOS A	7.4	53.7	0.61	0.53	0.61	54.5
5	T1	40	2.6	0.034	3.5	LOS A	0.2	1.4	0.33	0.43	0.33	56.1
6	R2	11	0.0	0.034	9.6	LOS A	0.2	1.4	0.33	0.43	0.33	56.1
6u	U	1	0.0	0.034	12.0	LOS A	0.2	1.4	0.33	0.43	0.33	57.9
Approach		1079	3.6	0.666	4.4	LOS A	7.4	53.7	0.60	0.52	0.60	54.6
North: Garner Place												
7	L2	8	25.0	0.045	10.1	LOS A	0.2	1.4	0.70	0.79	0.70	50.0
8	T1	13	8.3	0.045	9.0	LOS A	0.2	1.4	0.70	0.79	0.70	52.2
9	R2	1	0.0	0.045	14.4	LOS A	0.2	1.4	0.70	0.79	0.70	52.6
9u	U	1	0.0	0.045	16.7	LOS B	0.2	1.4	0.70	0.79	0.70	53.5
Approach		23	13.6	0.045	10.0	LOS A	0.2	1.4	0.70	0.79	0.70	51.5
West: Macquarie Links Drive												
10	L2	2	0.0	0.419	9.4	LOS A	2.1	15.0	0.75	0.94	0.89	48.5
11	T1	116	1.8	0.419	9.7	LOS A	2.1	15.0	0.75	0.94	0.89	50.8
12	R2	149	0.7	0.419	15.0	LOS B	2.1	15.0	0.75	0.94	0.89	51.2
12u	U	1	0.0	0.419	17.3	LOS B	2.1	15.0	0.75	0.94	0.89	52.3
Approach		268	1.2	0.419	12.7	LOS A	2.1	15.0	0.75	0.94	0.89	51.0
All Vehicles		2820	3.7	0.666	7.7	LOS A	7.4	53.7	0.44	0.59	0.45	53.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [2018PM + dev]

Williamson Road / Henderson Road / Macquarie Links Road / Garner Place
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson Road												
1	L2	96	0.0	0.462	3.9	LOS A	3.6	25.8	0.31	0.58	0.31	51.7
2	T1	12	9.1	0.462	4.0	LOS A	3.6	25.8	0.31	0.58	0.31	52.6
3	R2	1305	4.0	0.462	9.7	LOS A	3.6	25.8	0.33	0.59	0.33	53.1
3u	U	1	0.0	0.462	12.1	LOS A	3.5	25.7	0.35	0.60	0.35	54.2
Approach		1414	3.8	0.462	9.2	LOS A	3.6	25.8	0.33	0.59	0.33	53.0
East: Henderson Road												
4	L2	1256	4.1	0.761	4.2	LOS A	10.6	76.9	0.56	0.47	0.56	54.7
5	T1	74	1.4	0.055	3.3	LOS A	0.3	2.1	0.24	0.39	0.24	56.9
6	R2	13	8.3	0.055	9.6	LOS A	0.3	2.1	0.24	0.39	0.24	56.6
6u	U	1	0.0	0.055	11.8	LOS A	0.3	2.1	0.24	0.39	0.24	58.7
Approach		1343	4.0	0.761	4.2	LOS A	10.6	76.9	0.54	0.46	0.54	54.8
North: Garner Place												
7	L2	25	4.2	0.114	7.9	LOS A	0.5	3.4	0.67	0.80	0.67	52.0
8	T1	42	5.0	0.114	7.8	LOS A	0.5	3.4	0.67	0.80	0.67	53.8
9	R2	1	0.0	0.114	13.3	LOS A	0.5	3.4	0.67	0.80	0.67	54.2
9u	U	1	0.0	0.114	15.6	LOS B	0.5	3.4	0.67	0.80	0.67	55.4
Approach		69	4.5	0.114	8.0	LOS A	0.5	3.4	0.67	0.80	0.67	53.2
West: Macquarie Links Drive												
10	L2	1	0.0	0.162	7.5	LOS A	0.7	4.8	0.67	0.84	0.67	49.8
11	T1	43	2.4	0.162	7.8	LOS A	0.7	4.8	0.67	0.84	0.67	52.0
12	R2	59	1.8	0.162	13.1	LOS A	0.7	4.8	0.67	0.84	0.67	52.4
12u	U	1	0.0	0.162	15.4	LOS B	0.7	4.8	0.67	0.84	0.67	53.7
Approach		104	2.0	0.162	10.9	LOS A	0.7	4.8	0.67	0.84	0.67	52.2
All Vehicles		2931	3.8	0.761	7.0	LOS A	10.6	76.9	0.44	0.55	0.44	53.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [2028AM + dev]

Williamson Road / Henderson Road / Macquarie Links Road / Garner Place
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson Road												
1	L2	47	4.4	0.505	3.8	LOS A	4.3	31.5	0.28	0.58	0.28	51.4
2	T1	7	0.0	0.505	3.7	LOS A	4.3	31.5	0.28	0.58	0.28	52.5
3	R2	1539	3.9	0.505	9.5	LOS A	4.3	31.5	0.29	0.58	0.29	53.1
3u	U	1	0.0	0.505	11.9	LOS A	4.3	31.3	0.30	0.58	0.30	54.4
Approach		1595	3.9	0.505	9.3	LOS A	4.3	31.5	0.29	0.58	0.29	53.0
East: Henderson Road												
4	L2	1132	3.6	0.745	4.7	LOS A	9.4	67.8	0.72	0.56	0.72	54.1
5	T1	44	2.4	0.038	3.5	LOS A	0.2	1.6	0.35	0.44	0.35	56.0
6	R2	12	0.0	0.038	9.7	LOS A	0.2	1.6	0.35	0.44	0.35	56.0
6u	U	1	0.0	0.038	12.0	LOS A	0.2	1.6	0.35	0.44	0.35	57.8
Approach		1188	3.5	0.745	4.7	LOS A	9.4	67.8	0.70	0.56	0.70	54.2
North: Garner Place												
7	L2	9	22.2	0.053	11.0	LOS A	0.2	1.7	0.73	0.83	0.73	49.4
8	T1	14	7.7	0.053	10.0	LOS A	0.2	1.7	0.73	0.83	0.73	51.5
9	R2	1	0.0	0.053	15.3	LOS B	0.2	1.7	0.73	0.83	0.73	51.8
9u	U	1	0.0	0.053	17.7	LOS B	0.2	1.7	0.73	0.83	0.73	52.6
Approach		25	12.5	0.053	10.9	LOS A	0.2	1.7	0.73	0.83	0.73	50.7
West: Macquarie Links Drive												
10	L2	2	0.0	0.498	11.1	LOS A	2.8	19.5	0.79	0.99	1.03	47.4
11	T1	127	1.7	0.498	11.4	LOS A	2.8	19.5	0.79	0.99	1.03	49.7
12	R2	164	0.6	0.498	16.6	LOS B	2.8	19.5	0.79	0.99	1.03	50.1
12u	U	1	0.0	0.498	19.0	LOS B	2.8	19.5	0.79	0.99	1.03	51.1
Approach		295	1.1	0.498	14.3	LOS A	2.8	19.5	0.79	0.99	1.03	49.9
All Vehicles		3103	3.6	0.745	8.0	LOS A	9.4	67.8	0.50	0.61	0.52	53.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [2028PM + dev]

Williamson Road / Henderson Road / Macquarie Links Road / Garner Place
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Williamson Road												
1	L2	105	0.0	0.512	4.0	LOS A	4.2	30.6	0.35	0.58	0.35	51.6
2	T1	13	8.3	0.512	4.0	LOS A	4.2	30.6	0.35	0.58	0.35	52.4
3	R2	1437	4.0	0.512	9.8	LOS A	4.2	30.6	0.37	0.59	0.37	53.0
3u	U	1	0.0	0.512	12.2	LOS A	4.2	30.5	0.39	0.60	0.39	54.1
Approach		1556	3.7	0.512	9.3	LOS A	4.2	30.6	0.37	0.59	0.37	52.9
East: Henderson Road												
4	L2	1382	4.0	0.845	4.6	LOS A	15.3	110.7	0.70	0.50	0.70	54.2
5	T1	81	1.3	0.061	3.3	LOS A	0.3	2.3	0.26	0.40	0.26	56.8
6	R2	14	7.7	0.061	9.6	LOS A	0.3	2.3	0.26	0.40	0.26	56.6
6u	U	1	0.0	0.061	11.8	LOS A	0.3	2.3	0.26	0.40	0.26	58.6
Approach		1478	3.8	0.845	4.6	LOS A	15.3	110.7	0.67	0.49	0.67	54.3
North: Garner Place												
7	L2	27	3.8	0.135	8.5	LOS A	0.6	4.1	0.71	0.82	0.71	51.7
8	T1	46	4.5	0.135	8.3	LOS A	0.6	4.1	0.71	0.82	0.71	53.4
9	R2	1	0.0	0.135	13.9	LOS A	0.6	4.1	0.71	0.82	0.71	53.8
9u	U	1	0.0	0.135	16.2	LOS B	0.6	4.1	0.71	0.82	0.71	54.9
Approach		76	4.2	0.135	8.6	LOS A	0.6	4.1	0.71	0.82	0.71	52.8
West: Macquarie Links Drive												
10	L2	1	0.0	0.193	8.0	LOS A	0.8	5.9	0.71	0.87	0.71	49.5
11	T1	47	2.2	0.193	8.3	LOS A	0.8	5.9	0.71	0.87	0.71	51.8
12	R2	65	1.6	0.193	13.6	LOS A	0.8	5.9	0.71	0.87	0.71	52.1
12u	U	1	0.0	0.193	15.9	LOS B	0.8	5.9	0.71	0.87	0.71	53.4
Approach		115	1.8	0.193	11.4	LOS A	0.8	5.9	0.71	0.87	0.71	51.9
All Vehicles		3224	3.7	0.845	7.2	LOS A	15.3	110.7	0.53	0.56	0.53	53.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [2018AM + dev]

Henderson Road / Lancaster Street / Austool Place, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lancaster Street												
1	L2	200	13.7	0.256	7.1	LOS A	1.2	9.7	0.67	0.82	0.67	48.2
2	T1	14	15.4	0.197	7.8	LOS A	0.9	6.5	0.66	0.87	0.66	48.9
3	R2	114	6.5	0.197	12.2	LOS A	0.9	6.5	0.66	0.87	0.66	50.2
3u	U	1	0.0	0.197	14.0	LOS A	0.9	6.5	0.66	0.87	0.66	50.6
Approach		328	11.2	0.256	8.9	LOS A	1.2	9.7	0.66	0.84	0.66	49.1
East: Henderson Road												
4	L2	235	2.2	0.527	6.6	LOS A	3.7	26.2	0.64	0.69	0.67	52.0
5	T1	857	0.9	0.527	6.8	LOS A	3.7	26.2	0.65	0.69	0.69	52.3
6	R2	9	0.0	0.527	11.5	LOS A	3.7	25.9	0.65	0.70	0.69	53.0
6u	U	1	0.0	0.527	13.7	LOS A	3.7	25.9	0.65	0.70	0.69	54.8
Approach		1102	1.1	0.527	6.8	LOS A	3.7	26.2	0.65	0.69	0.68	52.3
North: Austool Place												
7	L2	4	0.0	0.034	8.8	LOS A	0.1	1.1	0.70	0.78	0.70	50.5
8	T1	12	18.2	0.034	9.7	LOS A	0.1	1.1	0.70	0.78	0.70	50.7
9	R2	27	11.5	0.043	12.6	LOS A	0.2	1.5	0.70	0.83	0.70	45.4
9u	U	1	0.0	0.043	14.3	LOS A	0.2	1.5	0.70	0.83	0.70	49.4
Approach		44	11.9	0.043	11.5	LOS A	0.2	1.5	0.70	0.81	0.70	47.4
West: Henderson Road												
10	L2	102	3.1	0.560	5.0	LOS A	4.5	32.3	0.46	0.49	0.46	50.3
11	T1	991	1.7	0.560	5.0	LOS A	4.5	32.3	0.47	0.53	0.47	52.9
12	R2	357	9.7	0.560	9.9	LOS A	4.4	32.7	0.48	0.59	0.48	50.3
12u	U	1	0.0	0.560	11.9	LOS A	4.4	32.7	0.48	0.59	0.48	50.7
Approach		1451	3.8	0.560	6.2	LOS A	4.5	32.7	0.47	0.54	0.47	52.1
All Vehicles		2925	3.7	0.560	6.8	LOS A	4.5	32.7	0.56	0.63	0.57	51.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [2018PM + dev]

Henderson Road / Lancaster Street / Austool Place, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lancaster Street												
1	L2	526	7.4	0.597	8.8	LOS A	4.2	31.1	0.76	0.95	0.95	47.5
2	T1	15	7.1	0.487	8.7	LOS A	2.8	19.8	0.71	0.94	0.84	48.2
3	R2	354	0.9	0.487	13.1	LOS A	2.8	19.8	0.71	0.94	0.84	49.6
3u	U	1	0.0	0.487	15.2	LOS B	2.8	19.8	0.71	0.94	0.84	49.7
Approach		896	4.8	0.597	10.5	LOS A	4.2	31.1	0.74	0.95	0.90	48.5
East: Henderson Road												
4	L2	147	2.1	0.385	5.4	LOS A	2.2	15.6	0.48	0.56	0.48	52.6
5	T1	725	1.3	0.385	5.5	LOS A	2.2	15.6	0.49	0.55	0.49	53.2
6	R2	4	0.0	0.385	10.2	LOS A	2.2	15.3	0.49	0.55	0.49	53.9
6u	U	1	0.0	0.385	12.3	LOS A	2.2	15.3	0.49	0.55	0.49	55.6
Approach		878	1.4	0.385	5.5	LOS A	2.2	15.6	0.49	0.55	0.49	53.1
North: Austool Place												
7	L2	19	0.0	0.108	10.1	LOS A	0.5	3.5	0.77	0.87	0.77	49.8
8	T1	27	0.0	0.108	10.1	LOS A	0.5	3.5	0.77	0.87	0.77	50.4
9	R2	84	1.3	0.146	13.4	LOS A	0.8	5.4	0.80	0.93	0.80	46.1
9u	U	1	0.0	0.146	15.5	LOS B	0.8	5.4	0.80	0.93	0.80	48.7
Approach		132	0.8	0.146	12.3	LOS A	0.8	5.4	0.79	0.91	0.79	47.6
West: Henderson Road												
10	L2	26	28.0	0.616	8.0	LOS A	5.6	40.1	0.74	0.74	0.80	47.6
11	T1	1066	1.5	0.616	7.4	LOS A	5.6	40.1	0.74	0.77	0.82	51.5
12	R2	165	18.5	0.616	12.9	LOS A	5.5	40.6	0.75	0.80	0.83	49.0
12u	U	1	0.0	0.616	14.4	LOS A	5.5	40.6	0.75	0.80	0.83	49.6
Approach		1259	4.3	0.616	8.1	LOS A	5.6	40.6	0.74	0.77	0.82	51.1
All Vehicles		3164	3.5	0.616	8.3	LOS A	5.6	40.6	0.67	0.77	0.75	50.7

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [2028AM + dev]

Henderson Road / Lancaster Street / Austool Place, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lancaster Street												
1	L2	221	13.3	0.305	7.4	LOS A	1.5	12.1	0.72	0.85	0.72	48.0
2	T1	15	14.3	0.236	8.2	LOS A	1.1	8.1	0.70	0.89	0.70	48.6
3	R2	125	6.7	0.236	12.6	LOS A	1.1	8.1	0.70	0.89	0.70	50.0
3u	U	1	0.0	0.236	14.4	LOS A	1.1	8.1	0.70	0.89	0.70	50.3
Approach		362	11.0	0.305	9.2	LOS A	1.5	12.1	0.71	0.87	0.71	48.9
East: Henderson Road												
4	L2	258	2.0	0.602	7.6	LOS A	5.0	35.6	0.72	0.79	0.82	51.6
5	T1	942	0.9	0.602	7.8	LOS A	5.0	35.6	0.73	0.81	0.83	51.9
6	R2	11	0.0	0.602	12.6	LOS A	4.9	34.9	0.73	0.82	0.84	52.6
6u	U	1	0.0	0.602	14.7	LOS B	4.9	34.9	0.73	0.82	0.84	54.4
Approach		1212	1.1	0.602	7.8	LOS A	5.0	35.6	0.73	0.80	0.83	51.8
North: Austool Place												
7	L2	4	0.0	0.041	9.5	LOS A	0.2	1.3	0.73	0.82	0.73	49.9
8	T1	13	16.7	0.041	10.4	LOS A	0.2	1.3	0.73	0.82	0.73	50.0
9	R2	31	10.3	0.053	13.1	LOS A	0.2	1.9	0.74	0.86	0.74	45.1
9u	U	1	0.0	0.053	14.9	LOS B	0.2	1.9	0.74	0.86	0.74	48.9
Approach		48	10.9	0.053	12.2	LOS A	0.2	1.9	0.74	0.84	0.74	47.0
West: Henderson Road												
10	L2	113	2.8	0.624	5.2	LOS A	5.6	39.8	0.53	0.51	0.53	49.8
11	T1	1089	1.7	0.624	5.2	LOS A	5.6	39.8	0.54	0.54	0.54	52.5
12	R2	393	9.4	0.624	10.1	LOS A	5.5	40.1	0.55	0.60	0.55	50.0
12u	U	1	0.0	0.624	12.1	LOS A	5.5	40.1	0.55	0.60	0.55	50.3
Approach		1596	3.7	0.624	6.4	LOS A	5.6	40.1	0.54	0.56	0.54	51.8
All Vehicles		3218	3.7	0.624	7.4	LOS A	5.6	40.1	0.63	0.69	0.67	51.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 4:25:37 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Henderson_Lancaster\Henderson_Lancaster.sip8

MOVEMENT SUMMARY

Site: 101 [2028PM + dev]

Henderson Road / Lancaster Street / Austool Place, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lancaster Street												
1	L2	580	7.1	0.690	10.4	LOS A	5.6	41.6	0.83	1.03	1.14	46.2
2	T1	16	6.7	0.568	9.9	LOS A	3.6	25.7	0.77	0.99	0.97	47.3
3	R2	389	0.8	0.568	14.3	LOS A	3.6	25.7	0.77	0.99	0.97	48.8
3u	U	1	0.0	0.568	16.4	LOS B	3.6	25.7	0.77	0.99	0.97	48.7
Approach		986	4.6	0.690	11.9	LOS A	5.6	41.6	0.81	1.01	1.07	47.4
East: Henderson Road												
4	L2	162	1.9	0.434	5.6	LOS A	2.6	18.6	0.53	0.58	0.53	52.4
5	T1	798	1.3	0.434	5.7	LOS A	2.6	18.6	0.54	0.57	0.54	52.9
6	R2	4	0.0	0.434	10.4	LOS A	2.6	18.2	0.54	0.57	0.54	53.6
6u	U	1	0.0	0.434	12.5	LOS A	2.6	18.2	0.54	0.57	0.54	55.4
Approach		965	1.4	0.434	5.7	LOS A	2.6	18.6	0.54	0.57	0.54	52.8
North: Austool Place												
7	L2	21	0.0	0.141	11.3	LOS A	0.7	4.7	0.82	0.90	0.82	48.9
8	T1	31	0.0	0.141	11.3	LOS A	0.7	4.7	0.82	0.90	0.82	49.4
9	R2	93	1.1	0.185	14.3	LOS A	1.0	7.2	0.85	0.95	0.85	45.3
9u	U	1	0.0	0.185	16.4	LOS B	1.0	7.2	0.85	0.95	0.85	47.9
Approach		145	0.7	0.185	13.3	LOS A	1.0	7.2	0.84	0.93	0.84	46.8
West: Henderson Road												
10	L2	29	28.6	0.705	9.6	LOS A	7.9	56.8	0.84	0.86	1.00	47.0
11	T1	1173	1.5	0.705	9.0	LOS A	7.9	56.8	0.84	0.88	1.01	50.8
12	R2	183	17.8	0.705	14.7	LOS B	7.7	56.7	0.85	0.91	1.04	48.1
12u	U	1	0.0	0.705	16.1	LOS B	7.7	56.7	0.85	0.91	1.04	48.4
Approach		1386	4.3	0.705	9.8	LOS A	7.9	56.8	0.84	0.89	1.02	50.3
All Vehicles		3483	3.4	0.705	9.4	LOS A	7.9	56.8	0.75	0.84	0.89	50.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 4:25:40 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Henderson_Lancaster\Henderson_Lancaster.sip8

MOVEMENT SUMMARY

Site: 101 [2018AM + dev]

Lancaster Street / Aero Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lancaster Street												
1	L2	34	9.4	0.204	5.5	LOS A	1.1	8.8	0.42	0.54	0.42	49.4
2	T1	168	11.9	0.204	5.8	LOS A	1.1	8.8	0.42	0.54	0.42	53.2
3	R2	12	18.2	0.204	9.9	LOS A	1.1	8.8	0.42	0.54	0.42	52.5
3u	U	1	0.0	0.204	11.4	LOS A	1.1	8.8	0.42	0.54	0.42	54.7
Approach		215	11.8	0.204	6.0	LOS A	1.1	8.8	0.42	0.54	0.42	52.7
East: Aero Road												
4	L2	16	13.3	0.127	6.8	LOS A	0.7	5.2	0.54	0.71	0.54	49.4
5	T1	6	0.0	0.127	6.7	LOS A	0.7	5.2	0.54	0.71	0.54	47.0
6	R2	87	15.7	0.127	11.2	LOS A	0.7	5.2	0.54	0.71	0.54	49.1
6u	U	1	0.0	0.127	12.5	LOS A	0.7	5.2	0.54	0.71	0.54	50.6
Approach		111	14.3	0.127	10.3	LOS A	0.7	5.2	0.54	0.71	0.54	49.0
North: Lancaster Street												
7	L2	206	9.7	0.406	4.4	LOS A	3.0	21.9	0.18	0.48	0.18	52.0
8	T1	302	3.5	0.406	4.6	LOS A	3.0	21.9	0.18	0.48	0.18	54.3
9	R2	97	3.3	0.406	8.6	LOS A	3.0	21.9	0.18	0.48	0.18	51.0
9u	U	1	0.0	0.406	10.4	LOS A	3.0	21.9	0.18	0.48	0.18	54.5
Approach		606	5.6	0.406	5.2	LOS A	3.0	21.9	0.18	0.48	0.18	53.1
West: Aero Road												
10	L2	40	5.3	0.057	5.6	LOS A	0.3	2.2	0.44	0.59	0.44	48.6
11	T1	2	0.0	0.057	5.8	LOS A	0.3	2.2	0.44	0.59	0.44	50.5
12	R2	13	33.3	0.057	10.6	LOS A	0.3	2.2	0.44	0.59	0.44	49.5
12u	U	1	0.0	0.057	11.6	LOS A	0.3	2.2	0.44	0.59	0.44	47.0
Approach		56	11.3	0.057	6.9	LOS A	0.3	2.2	0.44	0.59	0.44	48.9
All Vehicles		987	8.2	0.406	6.0	LOS A	3.0	21.9	0.29	0.53	0.29	52.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 4:38:42 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Lancaster_Aero\Lancaster_Aero.sip8

MOVEMENT SUMMARY

Site: 101 [2018PM + dev]

Lancaster Street / Aero Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lancaster Street												
1	L2	9	0.0	0.429	6.1	LOS A	3.0	21.9	0.60	0.64	0.60	49.2
2	T1	407	4.7	0.429	6.5	LOS A	3.0	21.9	0.60	0.64	0.60	52.6
3	R2	20	15.8	0.429	10.9	LOS A	3.0	21.9	0.60	0.64	0.60	51.8
3u	U	1	0.0	0.429	12.3	LOS A	3.0	21.9	0.60	0.64	0.60	53.9
Approach		438	5.0	0.429	6.7	LOS A	3.0	21.9	0.60	0.64	0.60	52.5
East: Aero Road												
4	L2	37	11.4	0.265	6.7	LOS A	1.5	11.8	0.56	0.73	0.56	49.4
5	T1	6	16.7	0.265	7.1	LOS A	1.5	11.8	0.56	0.73	0.56	45.6
6	R2	197	12.8	0.265	11.0	LOS A	1.5	11.8	0.56	0.73	0.56	49.2
6u	U	1	0.0	0.265	12.5	LOS A	1.5	11.8	0.56	0.73	0.56	50.6
Approach		241	12.7	0.265	10.2	LOS A	1.5	11.8	0.56	0.73	0.56	49.2
North: Lancaster Street												
7	L2	79	20.0	0.299	4.7	LOS A	2.0	15.1	0.24	0.48	0.24	51.3
8	T1	258	8.6	0.299	4.8	LOS A	2.0	15.1	0.24	0.48	0.24	53.8
9	R2	64	4.9	0.299	8.7	LOS A	2.0	15.1	0.24	0.48	0.24	50.4
9u	U	1	0.0	0.299	10.6	LOS A	2.0	15.1	0.24	0.48	0.24	54.1
Approach		402	10.2	0.299	5.4	LOS A	2.0	15.1	0.24	0.48	0.24	52.9
West: Aero Road												
10	L2	97	2.2	0.173	8.3	LOS A	1.0	7.5	0.71	0.77	0.71	46.1
11	T1	2	0.0	0.173	8.4	LOS A	1.0	7.5	0.71	0.77	0.71	47.7
12	R2	28	7.4	0.173	12.7	LOS A	1.0	7.5	0.71	0.77	0.71	48.5
12u	U	1	0.0	0.173	14.3	LOS A	1.0	7.5	0.71	0.77	0.71	43.1
Approach		128	3.3	0.173	9.3	LOS A	1.0	7.5	0.71	0.77	0.71	46.7
All Vehicles		1209	8.1	0.429	7.3	LOS A	3.0	21.9	0.48	0.62	0.48	51.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 4:38:43 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Lancaster_Aero\Lancaster_Aero.sip8

MOVEMENT SUMMARY

Site: 101 [2028AM + dev]

Lancaster Street / Aero Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lancaster Street												
1	L2	37	8.6	0.228	5.6	LOS A	1.3	10.0	0.45	0.56	0.45	49.3
2	T1	185	11.9	0.228	5.9	LOS A	1.3	10.0	0.45	0.56	0.45	53.1
3	R2	13	16.7	0.228	10.1	LOS A	1.3	10.0	0.45	0.56	0.45	52.5
3u	U	1	0.0	0.228	11.5	LOS A	1.3	10.0	0.45	0.56	0.45	54.6
Approach		236	11.6	0.228	6.1	LOS A	1.3	10.0	0.45	0.56	0.45	52.6
East: Aero Road												
4	L2	18	11.8	0.146	7.1	LOS A	0.8	6.1	0.58	0.73	0.58	49.2
5	T1	7	0.0	0.146	7.0	LOS A	0.8	6.1	0.58	0.73	0.58	46.7
6	R2	97	15.2	0.146	11.5	LOS A	0.8	6.1	0.58	0.73	0.58	48.9
6u	U	1	0.0	0.146	12.8	LOS A	0.8	6.1	0.58	0.73	0.58	50.3
Approach		123	13.7	0.146	10.6	LOS A	0.8	6.1	0.58	0.73	0.58	48.8
North: Lancaster Street												
7	L2	227	8.8	0.447	4.5	LOS A	3.5	25.6	0.20	0.48	0.20	52.0
8	T1	333	3.5	0.447	4.6	LOS A	3.5	25.6	0.20	0.48	0.20	54.2
9	R2	106	3.0	0.447	8.6	LOS A	3.5	25.6	0.20	0.48	0.20	50.9
9u	U	1	0.0	0.447	10.5	LOS A	3.5	25.6	0.20	0.48	0.20	54.4
Approach		667	5.2	0.447	5.2	LOS A	3.5	25.6	0.20	0.48	0.20	53.1
West: Aero Road												
10	L2	44	4.8	0.064	5.8	LOS A	0.3	2.5	0.47	0.60	0.47	48.5
11	T1	2	0.0	0.064	5.9	LOS A	0.3	2.5	0.47	0.60	0.47	50.4
12	R2	14	30.8	0.064	10.7	LOS A	0.3	2.5	0.47	0.60	0.47	49.6
12u	U	1	0.0	0.064	11.8	LOS A	0.3	2.5	0.47	0.60	0.47	46.8
Approach		61	10.3	0.064	7.0	LOS A	0.3	2.5	0.47	0.60	0.47	48.8
All Vehicles		1087	7.8	0.447	6.1	LOS A	3.5	25.6	0.31	0.53	0.31	52.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Processed: Thursday, 18 March 2021 4:38:41 PM
Project: C:\Work Documents\Projects\17.164 - Kerr Road Ingleburn - Resource Recovery Expansion\Sidra\Lancaster_Aero\Lancaster_Aero.sip8

MOVEMENT SUMMARY

Site: 101 [2028PM + dev]

Lancaster Street / Aero Road, Ingleburn
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lancaster Street												
1	L2	11	0.0	0.484	6.5	LOS A	3.6	26.0	0.65	0.67	0.65	48.9
2	T1	448	4.7	0.484	6.9	LOS A	3.6	26.0	0.65	0.67	0.65	52.3
3	R2	22	14.3	0.484	11.2	LOS A	3.6	26.0	0.65	0.67	0.65	51.6
3u	U	1	0.0	0.484	12.6	LOS A	3.6	26.0	0.65	0.67	0.65	53.6
Approach		482	5.0	0.484	7.1	LOS A	3.6	26.0	0.65	0.67	0.65	52.2
East: Aero Road												
4	L2	41	10.3	0.300	7.0	LOS A	1.8	13.7	0.60	0.75	0.60	49.3
5	T1	7	14.3	0.300	7.4	LOS A	1.8	13.7	0.60	0.75	0.60	45.5
6	R2	217	12.1	0.300	11.3	LOS A	1.8	13.7	0.60	0.75	0.60	49.0
6u	U	1	0.0	0.300	12.8	LOS A	1.8	13.7	0.60	0.75	0.60	50.3
Approach		266	11.9	0.300	10.6	LOS A	1.8	13.7	0.60	0.75	0.60	49.0
North: Lancaster Street												
7	L2	78	21.6	0.325	4.8	LOS A	2.2	17.0	0.26	0.49	0.26	51.1
8	T1	284	8.5	0.325	4.8	LOS A	2.2	17.0	0.26	0.49	0.26	53.7
9	R2	71	4.5	0.325	8.8	LOS A	2.2	17.0	0.26	0.49	0.26	50.3
9u	U	1	0.0	0.325	10.6	LOS A	2.2	17.0	0.26	0.49	0.26	54.0
Approach		434	10.2	0.325	5.5	LOS A	2.2	17.0	0.26	0.49	0.26	52.8
West: Aero Road												
10	L2	107	2.0	0.205	8.9	LOS A	1.3	9.2	0.75	0.81	0.75	45.4
11	T1	2	0.0	0.205	9.1	LOS A	1.3	9.2	0.75	0.81	0.75	46.9
12	R2	32	6.7	0.205	13.4	LOS A	1.3	9.2	0.75	0.81	0.75	47.9
12u	U	1	0.0	0.205	15.0	LOS B	1.3	9.2	0.75	0.81	0.75	42.1
Approach		142	3.0	0.205	10.0	LOS A	1.3	9.2	0.75	0.81	0.75	46.0
All Vehicles		1324	7.9	0.484	7.6	LOS A	3.6	26.0	0.53	0.64	0.53	51.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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