

TRAFFIC AND PARKING IMPACT ASSESSMENT OF A PROPOSED EXPANSION OF A LIQUID WASTE PROCESSING BUSINESS

14-16 Kiora Crescent in Yennora

Traffic and Parking Impact Report

Prepared for: Enviro Waste Services Group

N1915887A (July 2020)

Suite 195, 79-83 Longueville Road, Lane Cove North NSW 2066

Telephone: 0418 256 674
sydney@mltraffic.com.au

Facsimile: 1300 739 523
www.mltraffic.com.au

1. INTRODUCTION

ML Traffic Engineers was commissioned by Enviro Waste Services Group to undertake a traffic and parking impact assessment of a proposed expansion of a liquid waste processing business at 14-16 Kiora Crescent in Yennora.

The vehicle access and egress to the car park is via Kiora Crescent. Kiora Crescent ends in cul-de-sac.

This traffic report focuses on the proposed expansion of a liquid waste processing business and changes in car usage and car park utilisation and additional trips from the proposed expansion of a liquid waste processing business.

In the course of preparing this assessment, the subject site and its environs have been inspected, plans of the development examined, and all relevant traffic and parking data collected and analysed.

2. BACKGROUND AND EXISTING CONDITIONS OF THE PROPOSED LOCATION

2.1 Location and Land Use

The proposed expansion of a liquid waste processing business is located to the North-West of Yennora Train Station and Yennora Public School respectively. Yennora Distribution Centre is located north of the site. The liquid waste processing business lies in the area which is a primarily industrial. Residential buildings are primarily located north and west to the site.

Figure 1 shows the location of the liquid waste processing business from the aerial map perspective.

Figures 2 shows the location of the liquid waste processing business from the street map perspective and assessed intersections respectively.

Figures 3 shows the existing site.



Figure 1: Location of the Subject Site on Aerial



Figure 2a: Street Map of the Location of the Liquid waste processing business and Assessed Intersections

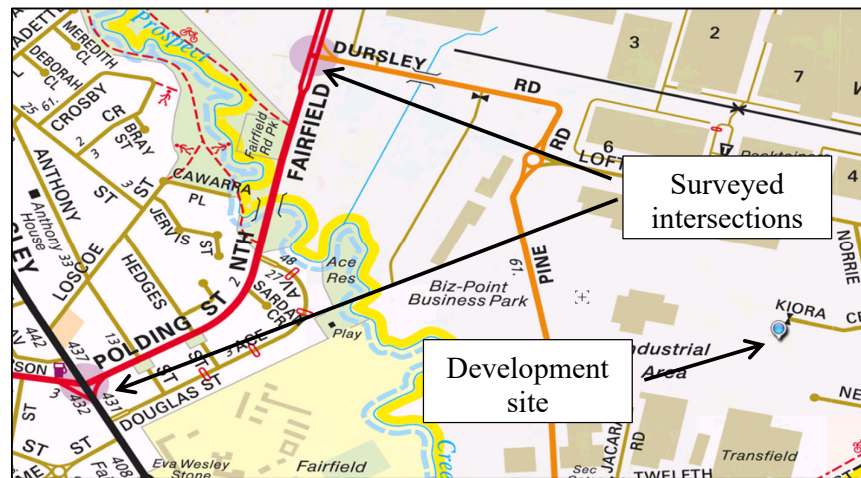


Figure 2b: surveyed signalised intersections in relation to development site



Figure 3: Liquid waste processing business (14 Kiora Crescent, Yennora)



Figure 4: Liquid waste processing business (16 Kiora Crescent, Yennora)

2.2 Road Network

This section describes the roads near the proposed expansion of a liquid waste processing business. The entrance to the liquid waste processing business is from Kiora Crescent.

Kiora Crescent is a local road with one lane each way. The default speed limit is 50km/hr. Unlimited on-street parking is permitted on both sides of the road. Kiora Crescent ends in cul de sac. Figure 4a shows the photograph of Kiora Crescent.

Norrie Street is a local road with one lane each way. The default speed limit is 50km/hr. Unlimited on-street parking is permitted on both sides of the road. Figure 4b shows the photograph of Norrie Street.

Loftus Road is a local road with one lane each way. The default speed limit is 50km/hr. Unlimited on-street parking is permitted on both sides of the road. Figure 4c shows the photograph of Loftus Road.

Dursley Road is a local road with one lane each way. The sign posted speed limit is 50km/hr. Unlimited on-street parking is permitted on both sides of the road except near the intersection of Dursley Road with Fairfield Road. Figure 4d shows the photograph of Dursley Road.

Fairfield Road is a local collector road with one lane each way. The sign posted speed limit is 60km/hr. On-street parking is not permitted on either side of the road. Figure 4e shows the photograph of Fairfield Road.

Polding Street is a local collector road with one lane each way. The sign posted speed limit is 60km/hr. On-street parking is not permitted on either side of the road. Figure 4f shows the photograph of Polding Street.

The Horsley Drive is a sub arterial road with two lane each way. The sign posted speed limit is 60km/hr. On-street parking is not permitted on either side of the road. School zone restrictions apply in the south east. Figure 4g shows the photograph of Polding Street.



Figure 4a: Kiara Crescent Facing East from liquid waste processing business



Figure 4b: Norrie Street facing North from Kiora Crescent



Figure 4c: Loftus Road facing West



Figure 4d: Dursley Road facing East



Figure 4e: Fairfield Road facing North



Figure 4f: Polding Street facing North East



Figure 4g: The Horsley Drive facing North West

2.3 Public Parking Opportunities

The liquid waste processing business is located in an industrial zone. Unlimited on-street parking is available on both sides of the Kiora Crescent and Norrie Street.

Site visits show that there are vacant car spaces on Kiora Crescent and Norrie Street.

2.4 Intersection Description

As part of this traffic impact assessment two intersections is assessed:

- Priority intersection of Norrie Street with Kiora Crescent
- Priority intersection of Loftus Road with Norrie Street
- Priority intersection of Loftus Road with Yennora Avenue
- Signalised intersection of Fairfield Road with Dursley Road
- Signalised intersection of The Horsley Drive with Polding Street

External traffic travelling to and from the site will most likely need to travel through the above intersection.

The priority intersection of Norrie Street with Kiora Crescent is a three-leg intersection with all turn movements permitted. Traffic on Kiora Crescent must give way to traffic on Norrie Street. Figure 5a shows a layout of the intersection using SIDRA (8) – an industry standard intersection assessment software.

The priority intersection of Loftus Road with Norrie Street is a three-leg intersection with all turn movements permitted. Traffic on Norrie Street must give way to traffic on Loftus Road. Figure 5b shows a layout of the intersection using SIDRA.

The priority intersection of Loftus Road with Yennora Avenue is a three-leg intersection with all turn movements permitted. Traffic on Yennora Avenue must give way to traffic on Loftus Road. Figure 5c shows a layout of the intersection using SIDRA.

The signalised intersection of Fairfield Road with Dursley Road is a three-leg intersection. All turn movements are permitted. Pedestrian crossings are provided on all approaches. Figure 5d presents the layout of the intersection using SIDRA.

The signalised intersection of The Horsley Drive with Polding Street is a four-leg intersection. All turn movements are permitted except right turn movement from north east approach of Polding Street into The Horsley Drive. Pedestrian crossings are provided on all approaches except south east approach. Figure 5e presents the layout of the intersection using SIDRA.

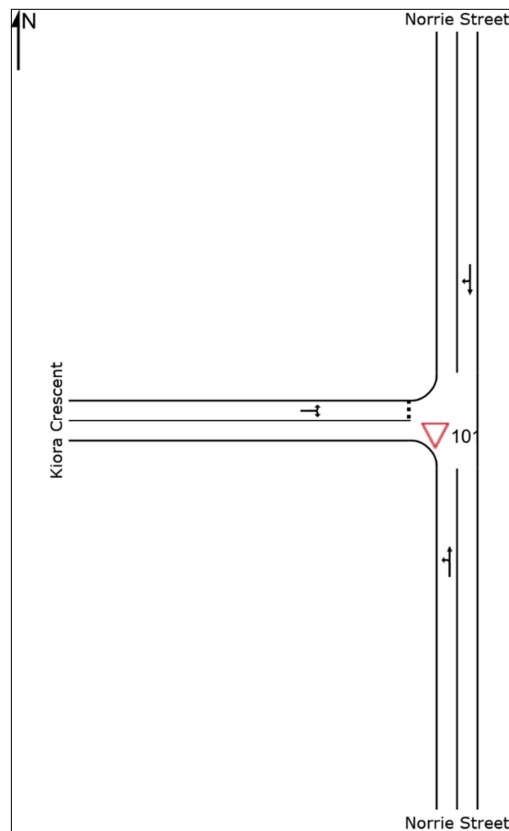


Figure 5a: Priority Intersection of Norrie Street with Kiora Crescent (SIDRA)

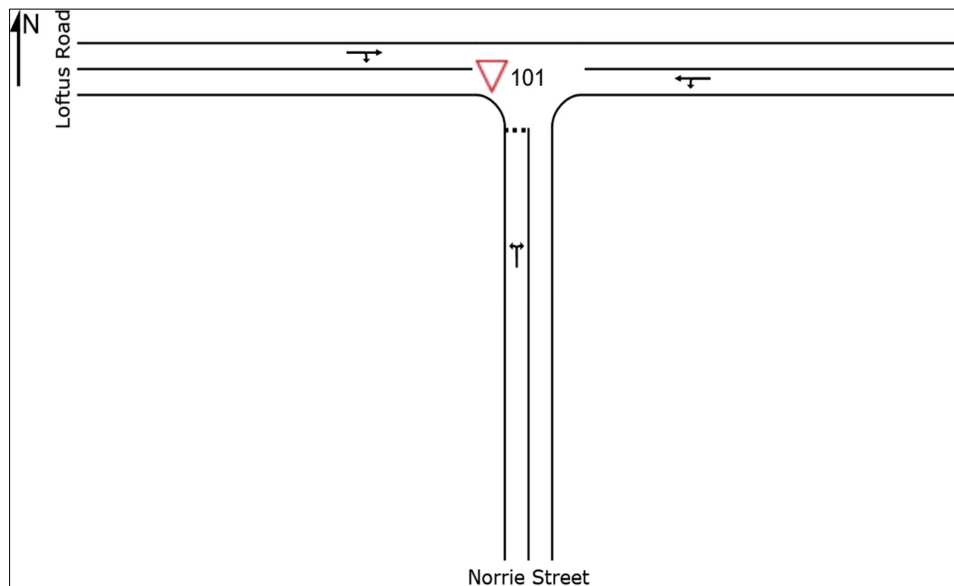


Figure 5b: Priority Intersection of Loftus Road with Norrie Street (SIDRA)

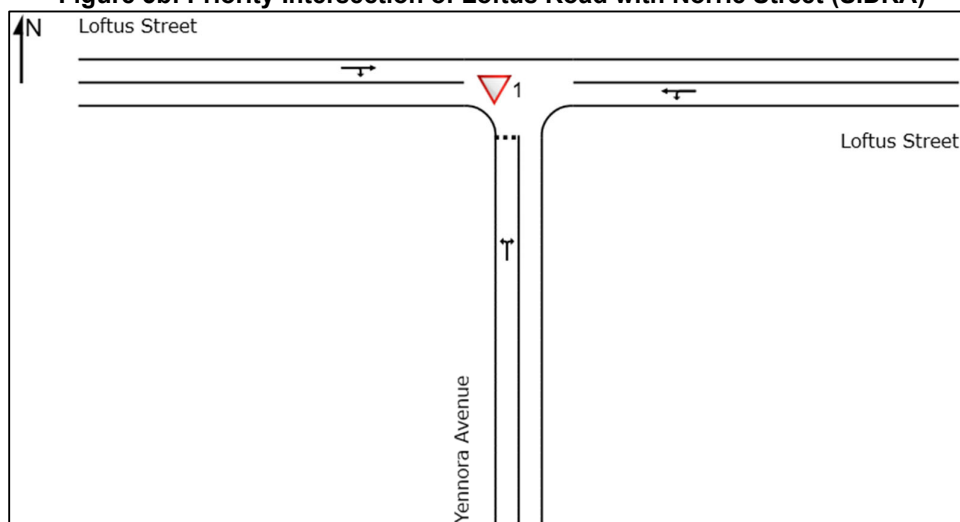


Figure 5c: Priority Intersection of Loftus Road with Norrie Street (SIDRA)

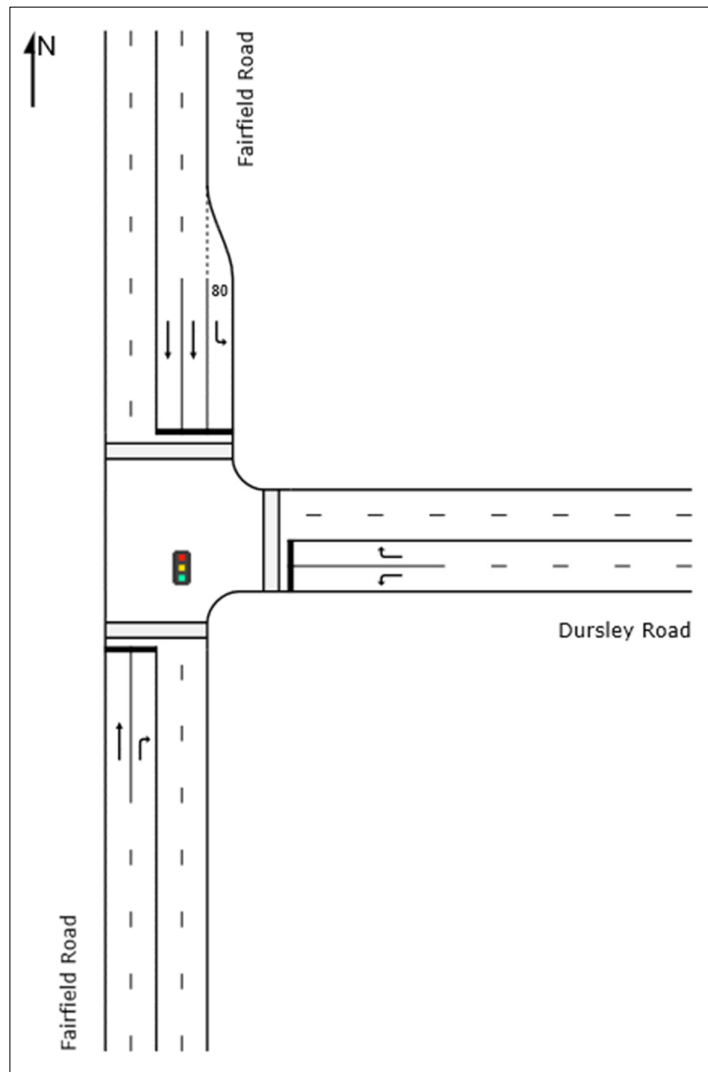


Figure 5d: Signalised Intersection of Fairfield Road with Dursley Road (SIDRA)

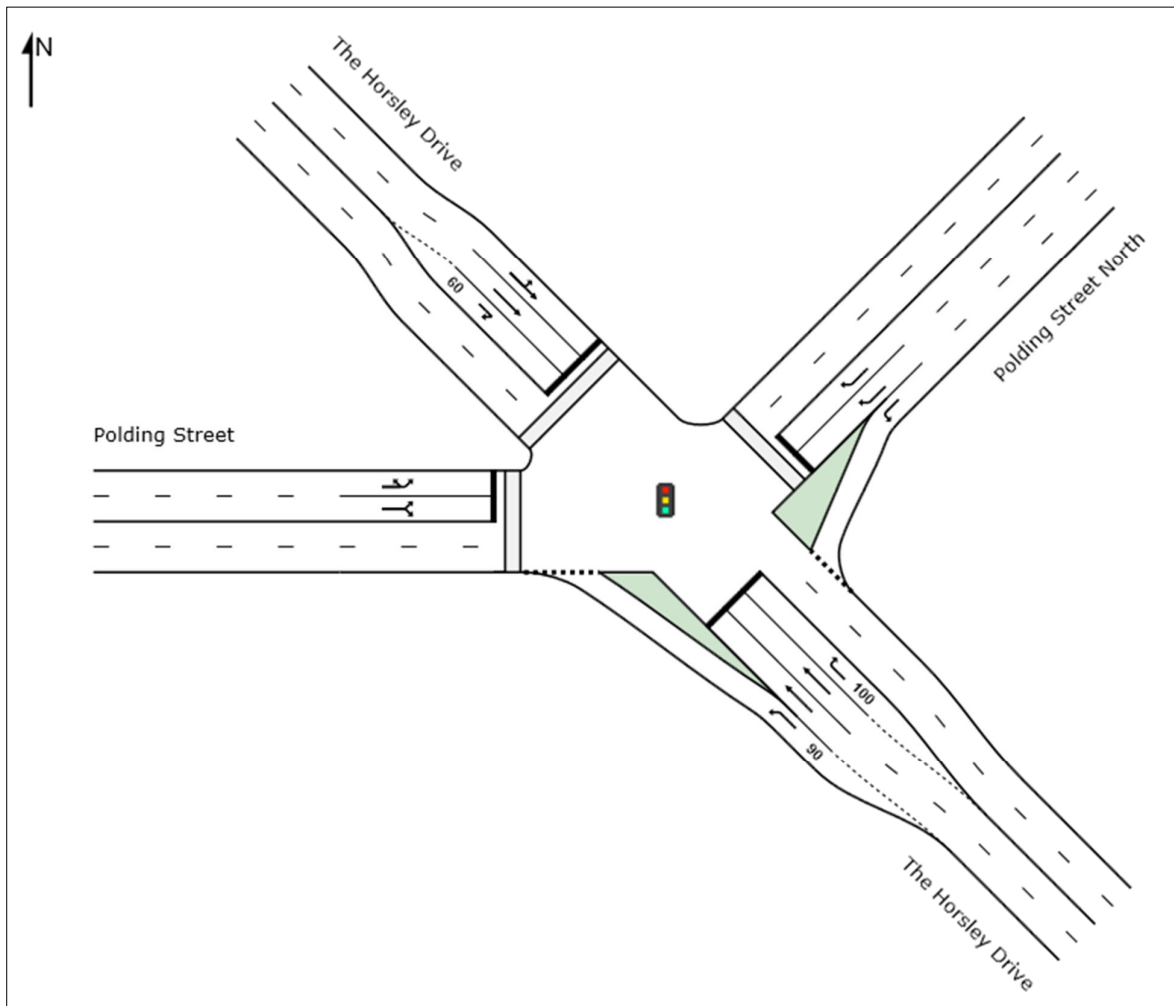


Figure 5e: Signalised Intersection of The Horsley Drive with Polding Street (SIDRA)

2.5 Existing Traffic Volumes

As part of the traffic assessment, traffic counts have been undertaken at the intersection for the weekday AM and PM peak hour periods. The peak hours are 8:00am to 9:00am and 5:00pm to 6:00pm for the weekday AM and PM peak hours respectively.

Figures 6a and 6b presents in vehicle numbers the existing weekday AM and PM peak hour traffic volumes respectively.

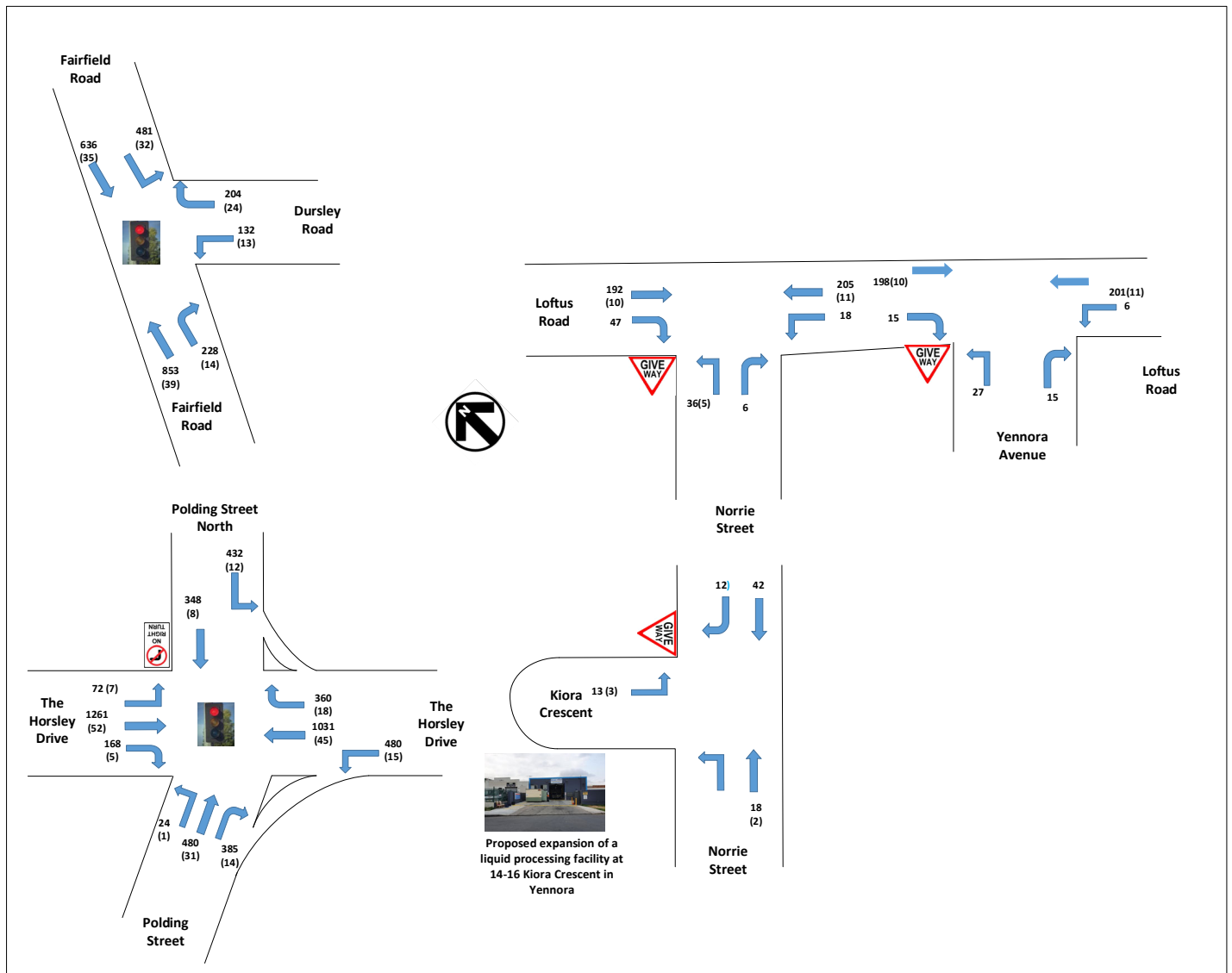


Figure 6a: Existing Weekday Traffic Volumes AM Peak Hour

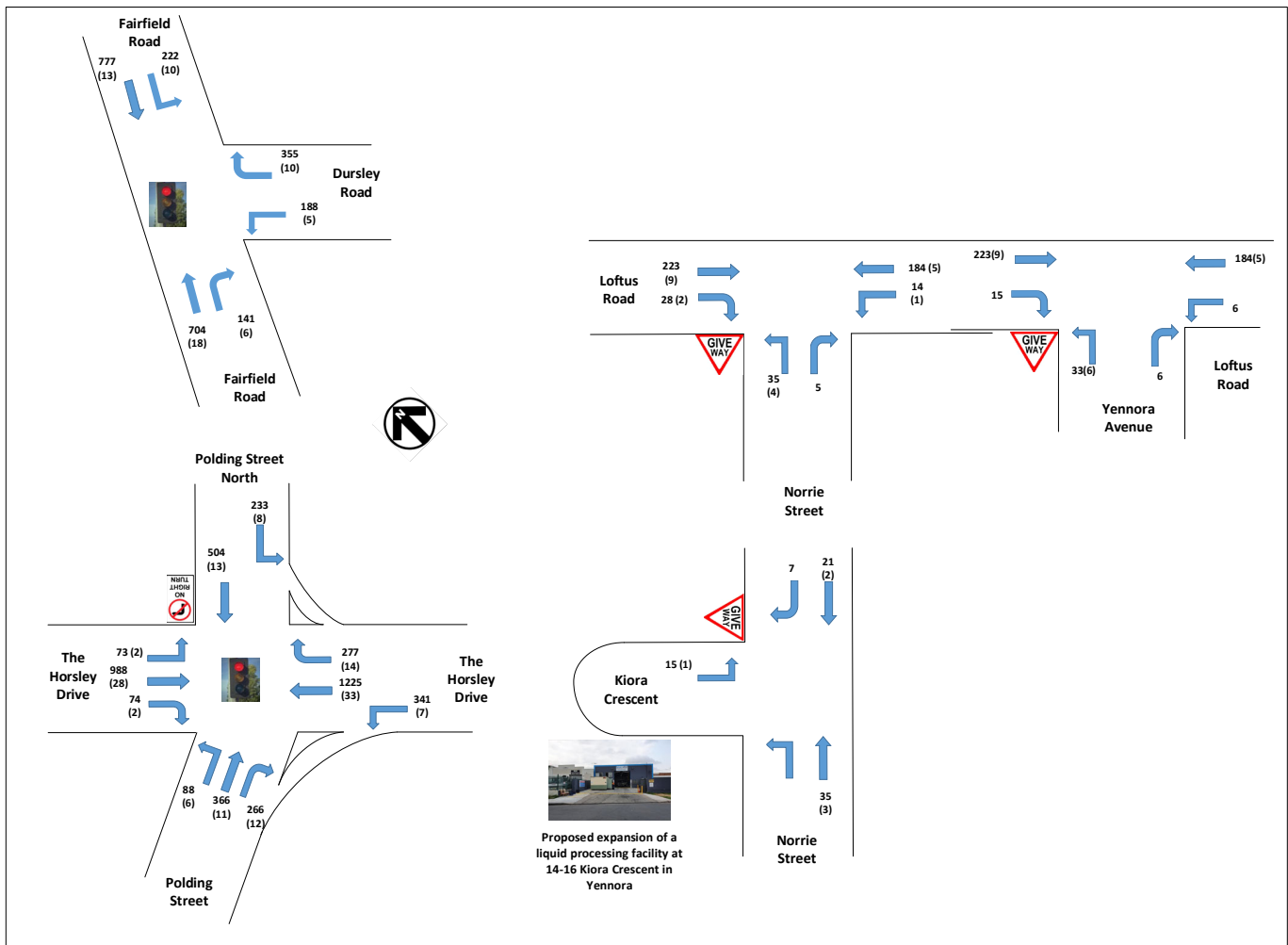


Figure7: Existing Weekday Traffic Volumes PM Peak Hour

2.6 Intersection Assessment

An intersection assessment has been undertaken for:

- Priority Intersection of Norrie Street with Kiora Crescent
- Priority Intersection of Loftus Road with Norrie Street
- Priority intersection of Loftus Road with Yennora Avenue
- Signalised intersection of Fairfield Road with Dursley Road
- Signalised intersection of The Horsley Drive with Polding Street

The existing intersection operating performance was assessed using the SIDRA software package (version 9) to determine the Degree of Saturation (DS), Average Delay (AVD in seconds) and Level of Service (LoS) at each intersection. The SIDRA program provides Level of Service Criteria Tables for various intersection types. The key indicator of intersection performance is Level of Service, where results are placed on a continuum from 'A' to 'F', as shown in Table 1.

LoS	Traffic Signal / Roundabout	Give Way / Stop Sign / T-Junction control
A	Good operation	Good operation
B	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	Satisfactory	Satisfactory, but accident study required
D	Operating near capacity	Near capacity & accident study required
E	At capacity, at signals incidents will cause excessive delays.	At capacity, requires other control mode
F	Unsatisfactory and requires additional capacity, Roundabouts require other control mode	At capacity, requires other control mode

Table 1: Intersection Level of Service

The Average Vehicle Delay (AVD) provides a measure of the operational performance of an intersection as indicated below, which relates AVD to LOS. The AVD's should be taken as a guide only as longer delays could be tolerated in some locations (i.e. inner-city conditions) and on some roads (i.e. minor side street intersecting with a major arterial route). For traffic signals, the average delay over all movements should be taken. For roundabouts and priority control intersections

(sign control) the critical movement for level of service assessment should be that movement with the highest average delay.

LoS	Average Delay per Vehicles (seconds/vehicle)
A	Less than 14
B	15 to 28
C	29 to 42
D	43 to 56
E	57 to 70
F	>70

Table 2: Intersection Average Delay (AVD)

The degree of saturation (DS) is another measure of the operational performance of individual intersections. For intersections controlled by traffic signals both queue length and delay increase rapidly as DS approaches 1. It is usual to attempt to keep DS to less than 0.9. Degrees of Saturation in the order of 0.7 generally represent satisfactory intersection operation. When DS exceed 0.9 queues can be anticipated.

The result of the intersection analysis is as follows:

Priority Intersection of Norrie Street with Kiora Crescent

- The turn movements have a LoS A for the AM and PM peak hours
- There is a spare capacity at this intersection

Priority Intersection of Loftus Road with Norrie Street

- The turn movements have a LoS A or B for the AM and PM peak hours
- There is spare capacity at this intersection.

Priority Intersection of Loftus Road with Yennora Avenue

- The turn movements have a LoS A for the AM and PM peak hours
- There is spare capacity at this intersection.

Signalised Intersection of Fairfield Road with Dursley Road

- Overall intersection has a LoS C and B for AM and PM peak hours respectively
- There is spare capacity at this intersection

Signalised Intersection of The Horsley Drive with Polding Street

- Overall intersection has a LoS D and C for the AM and PM peak hours respectively
- There is spare capacity at this intersection

The full Sidra results are presented in Appendix A.

2.7 Public Transport

The nearest bus stop to the liquid waste processing business is 550 metres away on Railway Street. This stop is serviced by Bus Route N60. This public transport service provides access to a range of suburbs including Fairfield, Merrylands, Parramatta, Lidcombe, Strathfield and City.

Yennora Train Station is within 500 metres from the liquid waste processing business. Yennora Train Station is frequently serviced by Sydney Trains T2 Inner West & Leppington and T5 Cumberland line services during both AM and PM peak hours.

Figure 11 shows public transport network map.

Overall, the site has excellent access to public transport.

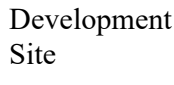


Figure 11: Public Transport Network Map

2.8 Conclusions on the Existing Conditions

The proposed expansion of a liquid waste processing business is in an area where there are vacant car spaces on Kiora Crescent and Norrie Street.

The nearby intersection performs well to accommodate additional traffic of the liquid waste processing business.

The local area is serviced by both train and bus.

3. PROPOSED EXPANSION OF A LIQUID PROCESSING FACILITY

The details of the proposed expansion of a liquid processing facility are as follows:

Infrastructure

A total of 3 car parking spaces are provided at the rear 16 Kiora Crescent. The remaining external hardstand area is proposed to be unoccupied to allow for greater vehicle manoeuvrability.

The parking is provided on the ground floor level.

The site has frontage to Kiora Crescent. The vehicle access and egress to the car park area is from Kiora Crescent.

Truck exit is via the existing driveway 16 Kiora Crescent and the exit is via the driveway on 14 Kiora Crescent.

A truck queuing area is provided on the south west area of 16 Kiora Crescent.

Operational

Currently the liquid processing facility processes 900 tonnes of liquid waste per annum.

Enviro Waste proposes to increase the processing quantity to 110,000 tonnes per annum and increase the maximum quantity to be stored at any one time to 477 tonnes. Waste processing streams and proposed quantities per location are listed below:

14 Kiora Crescent (existing facility – industrial waste treatment/disposal, liquid waste material, sewage sludge, grease trap waste etc)

Processing capacity per annum: 100,000 tonnes.

Maximum storage at any one time: 377 tonnes.

16 Kiora Crescent (additional facility - out-of-date liquid product/food waste destruction)

Processing capacity per annum: 10,000 tonnes.

Maximum storage at any one time: 100 tonnes

The liquid processing facility is proposed to operate 24 hours seven days a week.

Currently a truck arrives and departs per hour (typically). The number of staff will increase by three. The truck sizes are rigid trucks up to 10 metre.

Staff arrivals and departures are outside of the weekday peak hours.

A full scaled plan of the proposed expansion of a liquid processing facility is provided as part of the Development Application.

4. CAR AND TRUCK PARKING CONSIDERATIONS

4.1 Holroyd Council Development Control Plan 2013

The car parking requirements for the proposed expansion of a liquid processing facility is presented in the *Holroyd Council Development Control Plan August 2013* with the parking rates as follows as it applies to this development:

Factory

- 1 car parking space per 300m² of GFA

Office Units (ancillary)

- 1 car parking space per 40m² of GFA

Table 3 summarises the car parking requirements of the proposed development.

Use	Number	GFAm ²	Parking Rate	Required Car Spaces	Provided Car Spaces
Warehouse	14 Kiora	324	0.003	1	7
Office		106	0.025	3	
Warehouse	16 Kiora	318	0.003	1	
Office		78	0.025	2	
Total				7	7

Table 3: Summary of Car Parking Requirements

The proposed Liquid processing facility is provided 7 car spaces versus 7 car spaces required by Council's requirement. Therefore, it complies with car parking requirements by Council.

The liquid processing facility is an uncommon (or unique). The provision of seven on site will accommodate the expected car requirements for staff. Visitors arriving by car is a rare event. Business is generated by staff visiting the customers premises, discussions over the phone, and email etc.

The expected truck parking demand is four per hour. There is overall no peak hour for truck arrival and departures.

5. VEHICLE TRAFFIC IMPACT CONSIDERATIONS

5.1 Truck Traffic Generation

The NSW RTA Guide to Traffic Generating Development Documents does not publish truck trip generation rates for landscaping material supplies premises.

Traffic generation for the proposed development has been determined based on the annual tonnage of 110,000,000 litres per year and operation of the site 7 days per week. Material would be transported in trucks ranging from 2000 to 22000 litres in size. The average truck capacity is 10000L.

The following calculations are provided:

10000 litres trucks capacity

Average loads and truck movements using 22000L trucks for all loads.

Incoming Materials:	$110,000,000/10000=$	11000	Trucks p/a
Outgoing Materials:	$110,000,000/10000=$	11000	Trucks p/a
Totals		22000	Trucks p/a

Average annual truck trips

Using 10000 litres trucks $22000 \text{ trucks per year} / 365 =$ 60 trucks per day

Based on the use of 10000 litres trucks, the number of truck movements expected would be between 60 truck trips per day, which will produce 30 movements in and 30 movements out per day over a 24-hour period. which equates to 3 trucks per

hour. It is most likely to have 2 arrival and 1 departure truck for the AM peak hour and 1 arrival and 2 departure truck for PM peak hour.

5.2 Car Traffic Generation

The NSW RTA Guide to Traffic Generating Development 2002 publishes car trip generation rates for warehouse and office as follows

warehouse

- 0.5 trips per 100m² gross floor area for AM peak hour
 - It is assumed that generated trips for PM peak hour is as same as AM peak hour

Office

- 2 trips per 100 m² of Gross Floor Area in the PM peak hours
 - It is assumed that generated trips for AM peak hour is as same as PM peak hour

Table 4 summarises the trip generations for the respective land uses during the peak hours.

14 Kiora				
Peak Hour	Use	GFA(m ²)	Trip Generation Rate per 100m ²	Trips Generated
AM	Warehouse Unit	324	0.5	1.62
PM			0.5	1.62
AM	Office Unit	106	2	2.12
PM			2	2.12
AM	Total trip Generation			3.74
PM				3.74

16 Kiora				
Peak Hour	Use	GFA(m ²)	Trip Generation Rate per 100m ²	Trips Generated
AM	Warehouse Unit	318	0.5	1.59
PM			0.5	1.59
AM	Office Unit	78	2	1.56
PM			2	1.56
AM	Total trip Generation			3.15
PM				3.15

Table 4: Trip Generations in the Weekday Peak Hours

The total car trips can be obtained as the sum of the 14 and 16 Kiora Crescent. Table 5 presents the net trip generations and distributions. The generated trips in the peak hours are modest.

Peak Hour	Origin	Destination	Total
AM	0	7	6.9
PM	7	0	6.9

Table 5: Net Trip Generations and Distributions in the Weekday Peak Hours

5.3 Traffic Volumes

The additional development trips are assigned onto the local traffic network. The following figures present the existing with the development trips (in red for origin and blue for destination trips) for the respective peak hours.

The additional development trips represent a low proportion of the existing traffic volumes.

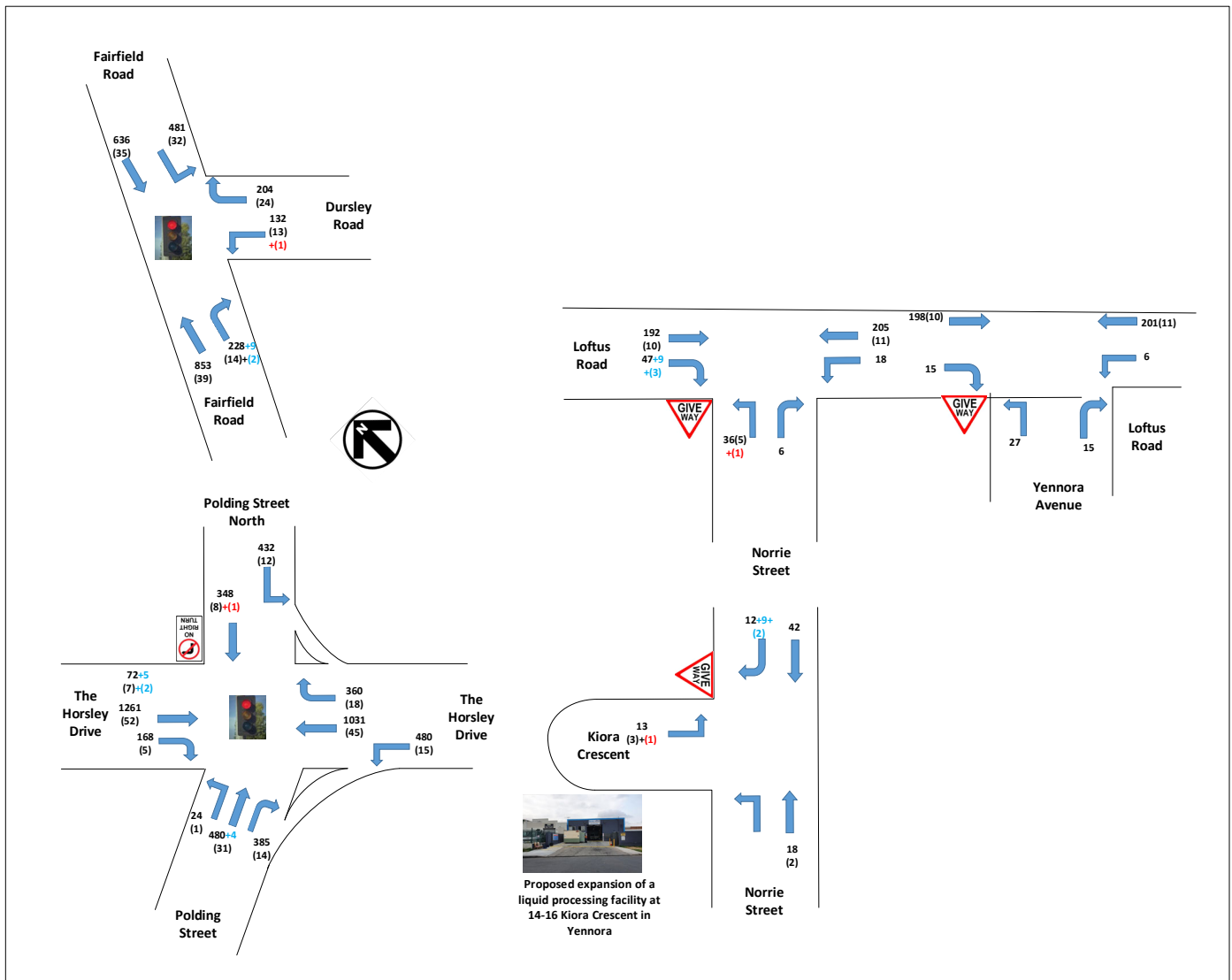


Figure 12: Weekday AM Peak Hour Traffic Volumes with Proposed Expansion Traffic

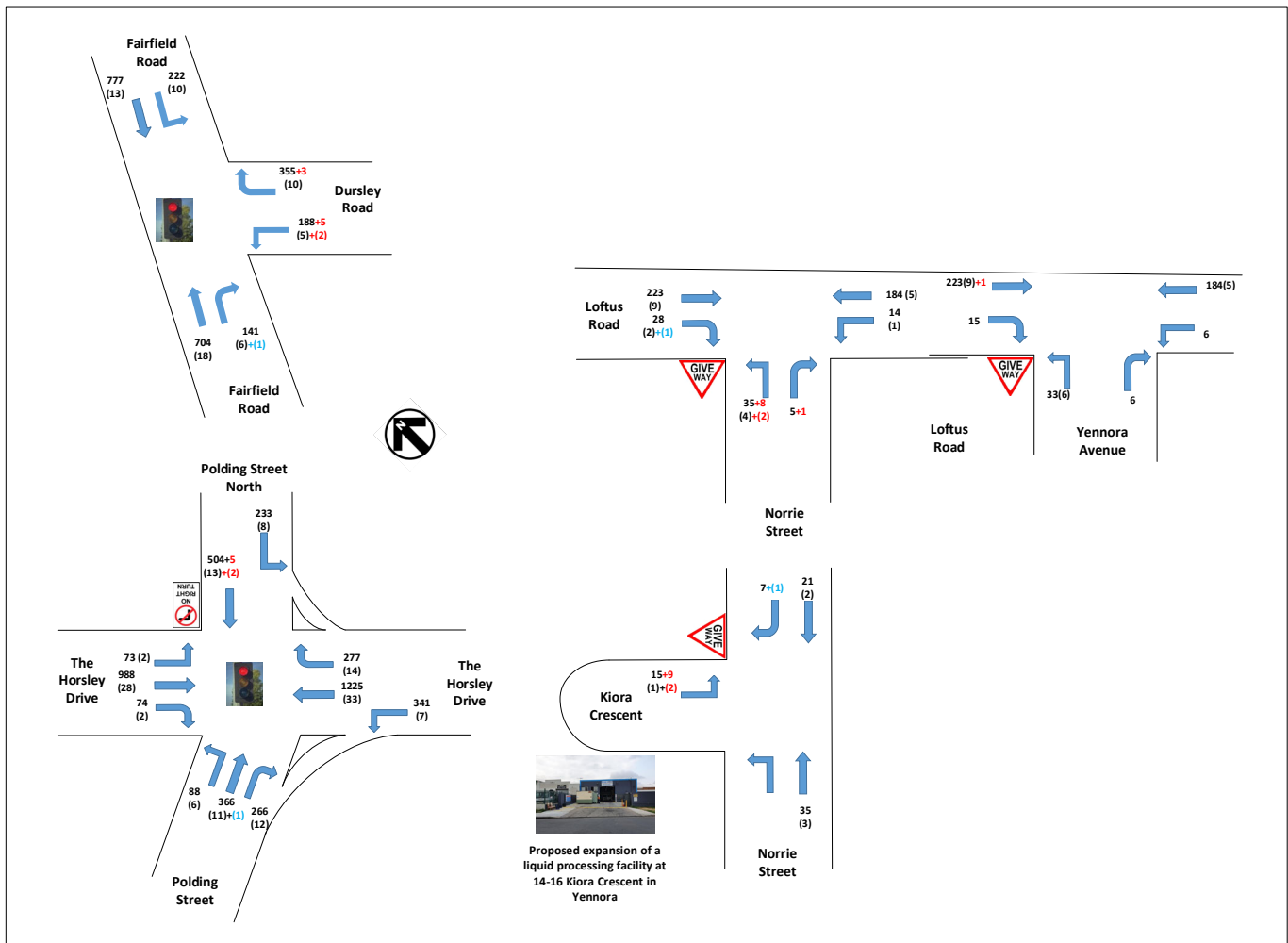


Figure 13: Weekday PM Peak Hour Traffic Volumes with Proposed Expansion Traffic

5.4 Intersection Assessment

An intersection assessment has been undertaken for the surveyed intersection.

The results of the intersection analysis are as follows:

Priority Intersection of Norrie Street with Kiora Crescent

- All turn movements have a LoS A for both the AM and PM peak hours
- The additional trips do not change the LoS for any turn movement or the overall intersection.

Priority Intersection of Loftus Road with Norrie Street

- All turn movements have a LoS A for both AM and PM peak hours
- The additional trips do not change the LoS for any turn movement or the overall intersection.

Priority Intersection of Loftus Road with Yennora Avenue

- All turn movements have a LoS A for AM and PM peak hours
- The additional trips do not change the LoS for any turn movement or the overall intersection.

Signalised intersection of Fairfield Road with Dursley Road

- The overall intersection has a LoS C and B for the AM and PM peak hours respectively
- The additional trips do not change the LoS for any turn movement or the overall intersection.

Signalised intersection of The Horsley Drive with Polding Street

- The overall intersection has a LoS D and C for the AM and PM peak hours respectively
- The additional trips do not change the LoS for any turn movement or the overall intersection.

The full SIDRA results with the development traffic are presented in Appendix B.

6. CONCLUSIONS

Based on the considerations presented in this report, it is considered that:

Parking

- The proposed expansion of the liquid processing facility provides sufficient car spaces on site

Traffic

- The proposed development is a low trip generator for the weekday AM and PM peak hours.
- The additional trips from the proposed development can be accommodated at the nearby intersection without significantly affecting intersection performance, delays or queues.
- There are no traffic engineering reasons why a development consent for the proposed expansion of a liquid processing facility at 14-16 Kiora Crescent Yennora should be refused.

APPENDIX A

SIDRA Intersection Results for Existing Traffic Conditions

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Norrie Street														
1	L2	1	0	1	0.0	0.012	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	49.3
2	T1	20	2	21	10.0	0.012	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.8
Approach		21	2	22	9.5	0.012	0.2	NA	0.0	0.0	0.00	0.03	0.00	49.8
North: Norrie Street														
8	T1	42	0	44	0.0	0.030	0.0	LOS A	0.1	0.5	0.04	0.12	0.04	49.2
9	R2	12	0	13	0.0	0.030	4.6	LOS A	0.1	0.5	0.04	0.12	0.04	48.3
Approach		54	0	57	0.0	0.030	1.0	NA	0.1	0.5	0.04	0.12	0.04	49.0
West: Kiora Crescent														
10	L2	16	3	17	18.8	0.012	4.8	LOS A	0.0	0.4	0.08	0.50	0.08	46.2
12	R2	1	0	1	0.0	0.012	4.8	LOS A	0.0	0.4	0.08	0.50	0.08	46.0
Approach		17	3	18	17.6	0.012	4.8	LOS A	0.0	0.4	0.08	0.50	0.08	46.2
All Vehicles		92	5	97	5.4	0.030	1.5	NA	0.1	0.5	0.04	0.17	0.04	48.6

Table A1: Weekday Priority Intersection Performance of Norrie Street with Kiora Crescent AM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Norrie Street														
1	L2	41	5	43	12.2	0.043	5.5	LOS A	0.2	1.2	0.32	0.55	0.32	45.7
3	R2	6	0	6	0.0	0.043	6.7	LOS A	0.2	1.2	0.32	0.55	0.32	45.5
Approach		47	5	49	10.6	0.043	5.6	LOS A	0.2	1.2	0.32	0.55	0.32	45.7
East: Loftus Road														
4	L2	18	0	19	0.0	0.131	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	49.2
5	T1	216	11	227	5.1	0.131	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.7
Approach		234	11	246	4.7	0.131	0.4	NA	0.0	0.0	0.00	0.04	0.00	49.7
West: Loftus Road														
11	T1	202	10	213	5.0	0.148	0.3	LOS A	0.4	2.7	0.16	0.11	0.16	49.0
12	R2	47	0	49	0.0	0.148	5.5	LOS A	0.4	2.7	0.16	0.11	0.16	48.0
Approach		249	10	262	4.0	0.148	1.3	NA	0.4	2.7	0.16	0.11	0.16	48.8
All Vehicles		530	26	558	4.9	0.148	1.3	NA	0.4	2.7	0.10	0.12	0.10	48.9

Table A2: Weekday Priority Intersection Performance of Loftus Street with Norrie Street AM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Yennora Avenue														
1	L2	27	0	28	0.0	0.040	5.3	LOS A	0.1	1.0	0.33	0.57	0.33	45.9
3	R2	15	0	16	0.0	0.040	6.5	LOS A	0.1	1.0	0.33	0.57	0.33	45.5
Approach		42	0	44	0.0	0.040	5.7	LOS A	0.1	1.0	0.33	0.57	0.33	45.7
East: Loftus Street														
4	L2	6	0	6	0.0	0.122	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	49.4
5	T1	212	11	223	5.2	0.122	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.9
Approach		218	11	229	5.0	0.122	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.8
West: Loftus Street														
11	T1	208	10	219	4.8	0.127	0.1	LOS A	0.1	0.9	0.06	0.04	0.06	49.6
12	R2	15	0	16	0.0	0.127	5.4	LOS A	0.1	0.9	0.06	0.04	0.06	48.7
Approach		223	10	235	4.5	0.127	0.4	NA	0.1	0.9	0.06	0.04	0.06	49.6
All Vehicles		483	21	508	4.3	0.127	0.8	NA	0.1	1.0	0.05	0.07	0.05	49.3

Table A3: Weekday Priority Intersection Performance of Loftus Street with Yennora Avenue AM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Fairfield Road														
11	T1	891	39	938	4.4	*	47.5	LOS D	61.1	443.9	1.00	1.11	1.23	33.7
12	R2	242	14	255	5.8	0.683	50.1	LOS D	13.0	95.4	0.98	0.84	1.00	32.3
Approach		1133	53	1193	4.7	0.938	48.1	LOS D	61.1	443.9	1.00	1.05	1.18	33.4
East: Dursley Road														
1	L2	145	13	153	9.0	0.240	30.8	LOS C	5.7	42.9	0.74	0.75	0.74	34.9
3	R2	228	24	240	10.5	0.382	32.4	LOS C	9.5	72.6	0.79	0.78	0.79	34.5
Approach		373	37	393	9.9	0.382	31.8	LOS C	9.5	72.6	0.77	0.76	0.77	34.6
North: Fairfield Road														
4	L2	513	32	540	6.2	*	19.3	LOS B	13.7	101.0	0.85	0.83	0.85	44.5
5	T1	671	35	706	5.2	0.710	40.3	LOS C	17.5	127.8	0.97	0.84	0.98	36.1
Approach		1184	67	1246	5.7	0.710	31.2	LOS C	17.5	127.8	0.92	0.84	0.92	39.3
All Vehicles		2690	157	2832	5.8	0.938	38.4	LOS C	61.1	443.9	0.93	0.92	1.01	36.0

Table A4: Weekday Signalised Intersection Performance of Fairfield Road with Dursley Road AM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: The Horsley Drive														
21a	L1	495	15	521	3.0	0.393	8.9	LOS A	9.1	65.4	0.42	0.70	0.42	48.5
22	T1	1076	45	1133	4.2	0.759	29.8	LOS C	29.2	211.6	0.89	0.80	0.90	40.4
23	R2	378	18	398	4.8	<div>★ 0.963</div>	81.1	LOS F	28.4	206.7	1.00	1.08	1.51	25.1
Approach		1949	78	2052	4.0	0.963	34.4	LOS C	29.2	211.6	0.79	0.83	0.90	37.1
NorthEast: Polding Street North														
24	L2	444	12	467	2.7	0.827	41.8	LOS C	20.5	146.6	0.97	1.02	1.09	35.0
26a	R1	356	8	375	2.2	0.365	42.7	LOS D	8.5	60.6	0.89	0.78	0.89	31.2
Approach		800	20	842	2.5	0.827	42.2	LOS C	20.5	146.6	0.94	0.91	1.00	33.4
NorthWest: The Horsley Drive														
27	L2	79	7	83	8.9	0.960	68.4	LOS E	56.1	408.1	1.00	1.17	1.34	28.5
28	T1	1313	52	1382	4.0	<div>★ 0.960</div>	62.8	LOS E	56.1	408.1	0.98	1.16	1.34	29.5
29b	R3	173	5	182	2.9	0.496	48.4	LOS D	8.8	63.0	0.93	0.81	0.93	29.1
Approach		1565	64	1647	4.1	0.960	61.5	LOS E	56.1	408.1	0.97	1.12	1.30	29.5
West: Polding Street														
10b	L3	25	1	26	4.0	0.981	87.1	LOS F	36.2	266.0	1.00	1.15	1.53	21.4
10a	L1	511	31	538	6.1	0.981	84.9	LOS F	36.9	266.9	1.00	1.15	1.53	20.9
12a	R1	399	14	420	3.5	<div>★ 0.981</div>	84.7	LOS F	36.9	266.9	1.00	1.13	1.53	21.4
Approach		935	46	984	4.9	0.981	84.9	LOS F	36.9	266.9	1.00	1.14	1.53	21.1
All Vehicles		5249	208	5525	4.0	0.981	52.7	LOS D	56.1	408.1	0.91	0.98	1.15	30.6

Table A5: Weekday Signalised Intersection Performance of the Horsley Drive with Polding Street AM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Norrie Street														
1	L2	1	0	1	0.0	0.022	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	49.4
2	T1	38	3	40	7.9	0.022	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach		39	3	41	7.7	0.022	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
North: Norrie Street														
8	T1	23	2	24	8.7	0.017	0.0	LOS A	0.0	0.3	0.06	0.13	0.06	49.1
9	R2	7	0	7	0.0	0.017	4.7	LOS A	0.0	0.3	0.06	0.13	0.06	48.1
Approach		30	2	32	6.7	0.017	1.1	NA	0.0	0.3	0.06	0.13	0.06	48.8
West: Kiora Crescent														
10	L2	16	1	17	6.3	0.012	4.7	LOS A	0.0	0.3	0.11	0.50	0.11	46.3
12	R2	1	0	1	0.0	0.012	4.8	LOS A	0.0	0.3	0.11	0.50	0.11	45.9
Approach		17	1	18	5.9	0.012	4.7	LOS A	0.0	0.3	0.11	0.50	0.11	46.3
All Vehicles		86	6	91	7.0	0.022	1.4	NA	0.0	0.3	0.04	0.15	0.04	48.8

Table A6: Weekday Priority Intersection Performance of Norrie Street with Kiora Crescent PM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Norrie Street														
1	L2	39	4	41	10.3	0.038	5.3	LOS A	0.1	1.1	0.30	0.54	0.30	45.8
3	R2	5	0	5	0.0	0.038	6.6	LOS A	0.1	1.1	0.30	0.54	0.30	45.5
Approach		44	4	46	9.1	0.038	5.5	LOS A	0.1	1.1	0.30	0.54	0.30	45.8
East: Loftus Road														
4	L2	15	1	16	6.7	0.113	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	49.1
5	T1	189	5	199	2.6	0.113	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.7
Approach		204	6	215	2.9	0.113	0.4	NA	0.0	0.0	0.00	0.04	0.00	49.7
West: Loftus Road														
11	T1	232	9	244	3.9	0.152	0.1	LOS A	0.3	1.9	0.10	0.07	0.10	49.4
12	R2	30	2	32	6.7	0.152	5.5	LOS A	0.3	1.9	0.10	0.07	0.10	48.3
Approach		262	11	276	4.2	0.152	0.8	NA	0.3	1.9	0.10	0.07	0.10	49.3
All Vehicles		510	21	537	4.1	0.152	1.0	NA	0.3	1.9	0.07	0.10	0.07	49.1

Table A7: Weekday Priority Intersection Performance of Loftus Street with Norrie Street PM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Yennora Avenue														
1	L2	39	6	41	15.4	0.040	5.4	LOS A	0.2	1.2	0.30	0.54	0.30	45.7
3	R2	6	0	6	0.0	0.040	6.5	LOS A	0.2	1.2	0.30	0.54	0.30	45.5
Approach		45	6	47	13.3	0.040	5.6	LOS A	0.2	1.2	0.30	0.54	0.30	45.7
East: Loftus Street														
4	L2	6	0	6	0.0	0.107	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	49.4
5	T1	189	5	199	2.6	0.107	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.9
Approach		195	5	205	2.6	0.107	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.8
West: Loftus Street														
11	T1	232	9	244	3.9	0.139	0.1	LOS A	0.1	0.9	0.05	0.03	0.05	49.7
12	R2	15	0	16	0.0	0.139	5.3	LOS A	0.1	0.9	0.05	0.03	0.05	48.7
Approach		247	9	260	3.6	0.139	0.4	NA	0.1	0.9	0.05	0.03	0.05	49.6
All Vehicles		487	20	513	4.1	0.139	0.8	NA	0.2	1.2	0.05	0.07	0.05	49.3

Table A8: Weekday Priority Intersection Performance of Loftus Street with Yennora Avenue PM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Fairfield Road														
11	T1	722	18	760	2.5	*	16.4	LOS B	23.6	168.5	0.85	0.77	0.86	47.3
12	R2	147	6	155	4.1	0.754	44.8	LOS D	6.3	45.4	1.00	0.85	1.12	34.0
Approach		869	24	915	2.8	0.754	21.2	LOS B	23.6	168.5	0.87	0.79	0.90	44.3
East: Dursley Road														
1	L2	193	5	203	2.6	0.343	26.9	LOS B	6.1	43.6	0.80	0.77	0.80	36.3
3	R2	365	10	384	2.7	0.649	29.8	LOS C	13.0	93.5	0.91	0.83	0.91	35.4
Approach		558	15	587	2.7	0.649	28.8	LOS C	13.0	93.5	0.87	0.81	0.87	35.7
North: Fairfield Road														
4	L2	232	10	244	4.3	*	13.8	LOS A	3.3	23.6	0.69	0.75	0.69	47.7
5	T1	790	13	832	1.6	0.310	25.4	LOS B	14.2	100.6	0.92	0.79	0.92	42.4
Approach		1022	23	1076	2.3	0.663	22.7	LOS B	14.2	100.6	0.87	0.78	0.87	43.5
All Vehicles		2449	62	2578	2.5	0.754	23.6	LOS B	23.6	168.5	0.87	0.79	0.88	41.7

Table A9: Weekday Signalised Intersection Performance of Fairfield Road with Dursley Road PM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: The Horsley Drive														
21a	L1	348	7	366	2.0	0.284	7.5	LOS A	3.8	26.8	0.42	0.68	0.42	49.7
22	T1	1258	33	1324	2.6	<div>0.879</div>	32.2	LOS C	26.0	186.4	1.00	1.07	1.26	39.3
23	R2	291	14	306	4.8	<div>0.835</div>	41.7	LOS C	11.7	85.1	1.00	0.96	1.30	34.7
Approach		1897	54	1997	2.8	0.879	29.1	LOS C	26.0	186.4	0.89	0.98	1.11	39.7
NorthEast: Polding Street North														
24	L2	241	8	254	3.3	0.356	12.6	LOS A	3.8	27.1	0.67	0.74	0.67	48.9
26a	R1	517	13	544	2.5	0.603	32.4	LOS C	8.7	62.3	0.96	0.81	0.96	35.3
Approach		758	21	798	2.8	0.603	26.1	LOS B	8.7	62.3	0.87	0.79	0.87	39.4
NorthWest: The Horsley Drive														
27	L2	75	2	79	2.7	0.785	30.1	LOS C	19.5	139.5	0.96	0.91	1.05	41.2
28	T1	1016	28	1069	2.8	0.785	24.4	LOS B	19.5	139.5	0.95	0.90	1.04	42.7
29b	R3	76	2	80	2.6	0.245	33.5	LOS C	2.4	17.3	0.89	0.76	0.89	34.4
Approach		1167	32	1228	2.7	0.785	25.4	LOS B	19.5	139.5	0.94	0.89	1.03	42.1
West: Polding Street														
10b	L3	94	6	99	6.4	0.902	47.9	LOS D	16.1	116.5	1.00	1.07	1.45	30.1
10a	L1	377	11	397	2.9	0.902	45.6	LOS D	16.7	121.2	1.00	1.07	1.45	29.8
12a	R1	278	12	293	4.3	<div>0.902</div>	45.5	LOS D	16.7	121.2	1.00	1.07	1.44	30.3
Approach		749	29	788	3.9	0.902	45.8	LOS D	16.7	121.2	1.00	1.07	1.45	30.0
All Vehicles		4571	136	4812	3.0	0.902	30.4	LOS C	26.0	186.4	0.92	0.94	1.11	38.5

Table A10: Weekday Signalised Intersection Performance of the Horsley Drive with Polding Street PM Peak Hour

APPENDIX B

SIDRA Intersection Results for Existing Conditions with Expansion Traffic

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Norrie Street														
1	L2	1	0	1	0.0	0.012	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	49.3
2	T1	20	2	21	10.0	0.012	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.8
Approach		21	2	22	9.5	0.012	0.2	NA	0.0	0.0	0.00	0.03	0.00	49.8
North: Norrie Street														
8	T1	42	0	44	0.0	0.038	0.0	LOS A	0.1	0.9	0.06	0.19	0.06	48.8
9	R2	23	2	24	8.7	0.038	4.7	LOS A	0.1	0.9	0.06	0.19	0.06	47.7
Approach		65	2	68	3.1	0.038	1.7	NA	0.1	0.9	0.06	0.19	0.06	48.4
West: Kiora Crescent														
10	L2	17	4	18	23.5	0.013	4.8	LOS A	0.1	0.4	0.08	0.50	0.08	46.1
12	R2	1	0	1	0.0	0.013	4.8	LOS A	0.1	0.4	0.08	0.50	0.08	46.0
Approach		18	4	19	22.2	0.013	4.8	LOS A	0.1	0.4	0.08	0.50	0.08	46.1
All Vehicles		104	8	109	7.7	0.038	1.9	NA	0.1	0.9	0.05	0.21	0.05	48.3

Table B1: Weekday Priority Intersection Performance of Norrie Street with Kiora Crescent AM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Norrie Street														
1	L2	42	6	44	14.3	0.044	5.5	LOS A	0.2	1.3	0.33	0.55	0.33	45.7
3	R2	6	0	6	0.0	0.044	6.8	LOS A	0.2	1.3	0.33	0.55	0.33	45.4
Approach		48	6	51	12.5	0.044	5.7	LOS A	0.2	1.3	0.33	0.55	0.33	45.6
East: Loftus Road														
4	L2	18	0	19	0.0	0.131	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	49.2
5	T1	216	11	227	5.1	0.131	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.7
Approach		234	11	246	4.7	0.131	0.4	NA	0.0	0.0	0.00	0.04	0.00	49.7
West: Loftus Road														
11	T1	202	10	213	5.0	0.159	0.4	LOS A	0.5	3.5	0.19	0.13	0.19	48.8
12	R2	59	3	62	5.1	0.159	5.6	LOS A	0.5	3.5	0.19	0.13	0.19	47.8
Approach		261	13	275	5.0	0.159	1.5	NA	0.5	3.5	0.19	0.13	0.19	48.5
All Vehicles		543	30	572	5.5	0.159	1.4	NA	0.5	3.5	0.12	0.13	0.12	48.7

Table B2: Weekday Priority Intersection Performance of Loftus Street with Norrie Street AM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Yennora Avenue														
1	L2	27	0	28	0.0	0.040	5.3	LOS A	0.1	1.0	0.33	0.57	0.33	45.9
3	R2	15	0	16	0.0	0.040	6.5	LOS A	0.1	1.0	0.33	0.57	0.33	45.5
Approach		42	0	44	0.0	0.040	5.7	LOS A	0.1	1.0	0.33	0.57	0.33	45.7
East: Loftus Street														
4	L2	6	0	6	0.0	0.122	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	49.4
5	T1	212	11	223	5.2	0.122	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.9
Approach		218	11	229	5.0	0.122	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.8
West: Loftus Street														
11	T1	208	10	219	4.8	0.127	0.1	LOS A	0.1	0.9	0.06	0.04	0.06	49.6
12	R2	15	0	16	0.0	0.127	5.4	LOS A	0.1	0.9	0.06	0.04	0.06	48.7
Approach		223	10	235	4.5	0.127	0.4	NA	0.1	0.9	0.06	0.04	0.06	49.6
All Vehicles		483	21	508	4.3	0.127	0.8	NA	0.1	1.0	0.05	0.07	0.05	49.3

Table B3: Weekday Priority Intersection Performance of Loftus Street with Yennora Avenue AM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Fairfield Road														
11	T1	891	39	938	4.4	*	47.5	LOS D	61.1	443.9	1.00	1.11	1.23	33.7
12	R2	253	16	266	6.3	0.717	51.2	LOS D	13.8	102.2	0.99	0.86	1.04	32.0
Approach		1144	55	1204	4.8	0.938	48.4	LOS D	61.1	443.9	1.00	1.05	1.19	33.3
East: Dursley Road														
1	L2	146	14	154	9.6	0.243	30.8	LOS C	5.7	43.4	0.74	0.75	0.74	34.9
3	R2	228	24	240	10.5	0.382	32.4	LOS C	9.5	72.6	0.79	0.78	0.79	34.5
Approach		374	38	394	10.2	0.382	31.8	LOS C	9.5	72.6	0.77	0.76	0.77	34.6
North: Fairfield Road														
4	L2	513	32	540	6.2	*	19.3	LOS B	13.7	101.0	0.85	0.83	0.85	44.5
5	T1	671	35	706	5.2	0.710	40.3	LOS C	17.5	127.8	0.97	0.84	0.98	36.1
Approach		1184	67	1246	5.7	0.710	31.2	LOS C	17.5	127.8	0.92	0.84	0.92	39.3
All Vehicles		2702	160	2844	5.9	0.938	38.6	LOS C	61.1	443.9	0.93	0.92	1.02	35.9

Table B4: Weekday Signalised Intersection Performance of Fairfield Road with Dursley Road AM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: The Horsley Drive														
21a	L1	495	15	521	3.0	0.397	8.9	LOS A	8.6	61.8	0.44	0.70	0.44	48.5
22	T1	1076	45	1133	4.2	0.743	27.6	LOS B	23.3	168.7	0.90	0.80	0.90	41.4
23	R2	378	18	398	4.8	1.007	97.1	LOS F	30.0	218.6	1.00	1.18	1.76	22.5
Approach		1949	78	2052	4.0	1.007	36.3	LOS C	30.0	218.6	0.80	0.85	0.95	36.3
NorthEast: Polding Street North														
24	L2	444	12	467	2.7	0.817	37.7	LOS C	18.2	130.6	0.96	1.00	1.08	36.4
26a	R1	357	9	376	2.5	0.362	39.1	LOS C	7.7	55.4	0.89	0.77	0.89	32.5
Approach		801	21	843	2.6	0.817	38.4	LOS C	18.2	130.6	0.93	0.90	1.00	34.8
NorthWest: The Horsley Drive														
27	L2	86	9	91	10.5	0.984	77.2	LOS F	56.9	414.6	1.00	1.28	1.49	26.6
28	T1	1313	52	1382	4.0	0.984	71.6	LOS F	56.9	414.6	0.99	1.29	1.50	27.6
29b	R3	173	5	182	2.9	0.519	45.7	LOS D	8.1	58.3	0.94	0.81	0.94	30.0
Approach		1572	66	1655	4.2	0.984	69.1	LOS E	56.9	414.6	0.98	1.23	1.44	27.7
West: Polding Street														
10b	L3	25	1	26	4.0	0.973	79.1	LOS F	33.0	242.6	1.00	1.15	1.55	22.7
10a	L1	515	31	542	6.0	0.973	76.9	LOS F	33.7	243.5	1.00	1.15	1.55	22.3
12a	R1	399	14	420	3.5	0.973	76.7	LOS F	33.7	243.5	1.00	1.14	1.54	22.8
Approach		939	46	988	4.9	0.973	76.8	LOS F	33.7	243.5	1.00	1.15	1.54	22.5
All Vehicles		5261	211	5538	4.0	1.007	53.6	LOS D	56.9	414.6	0.91	1.02	1.21	30.3

Table B5: Weekday Signalised Intersection Performance of the Horsley Drive with Polding Street AM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Norrie Street														
1	L2	1	0	1	0.0	0.022	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	49.4
2	T1	38	3	40	7.9	0.022	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach		39	3	41	7.7	0.022	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
North: Norrie Street														
8	T1	23	2	24	8.7	0.019	0.0	LOS A	0.0	0.4	0.07	0.14	0.07	49.0
9	R2	8	1	8	12.5	0.019	4.8	LOS A	0.0	0.4	0.07	0.14	0.07	47.9
Approach		31	3	33	9.7	0.019	1.3	NA	0.0	0.4	0.07	0.14	0.07	48.7
West: Kiara Crescent														
10	L2	27	3	28	11.1	0.020	4.8	LOS A	0.1	0.6	0.11	0.50	0.11	46.2
12	R2	1	0	1	0.0	0.020	4.8	LOS A	0.1	0.6	0.11	0.50	0.11	45.9
Approach		28	3	29	10.7	0.020	4.8	LOS A	0.1	0.6	0.11	0.50	0.11	46.2
All Vehicles		98	9	103	9.2	0.022	1.8	NA	0.1	0.6	0.05	0.19	0.05	48.4

Table B6: Weekday Priority Intersection Performance of Norrie Street with Kiara Crescent PM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Norrie Street														
1	L2	49	6	52	12.2	0.048	5.4	LOS A	0.2	1.4	0.30	0.54	0.30	45.8
3	R2	6	0	6	0.0	0.048	6.7	LOS A	0.2	1.4	0.30	0.54	0.30	45.5
Approach		55	6	58	10.9	0.048	5.5	LOS A	0.2	1.4	0.30	0.54	0.30	45.7
East: Loftus Road														
4	L2	15	1	16	6.7	0.113	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	49.1
5	T1	189	5	199	2.6	0.113	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.7
Approach		204	6	215	2.9	0.113	0.4	NA	0.0	0.0	0.00	0.04	0.00	49.7
West: Loftus Road														
11	T1	232	9	244	3.9	0.153	0.2	LOS A	0.3	2.0	0.10	0.07	0.10	49.4
12	R2	31	3	33	9.7	0.153	5.5	LOS A	0.3	2.0	0.10	0.07	0.10	48.2
Approach		263	12	277	4.6	0.153	0.8	NA	0.3	2.0	0.10	0.07	0.10	49.2
All Vehicles		522	24	549	4.6	0.153	1.1	NA	0.3	2.0	0.08	0.11	0.08	49.0

Table B7: Weekday Priority Intersection Performance of Loftus Street with Norrie Street PM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Yennora Avenue														
1	L2	39	6	41	15.4	0.040	5.4	LOS A	0.2	1.2	0.30	0.54	0.30	45.7
3	R2	6	0	6	0.0	0.040	6.5	LOS A	0.2	1.2	0.30	0.54	0.30	45.5
Approach		45	6	47	13.3	0.040	5.6	LOS A	0.2	1.2	0.30	0.54	0.30	45.7
East: Loftus Street														
4	L2	6	0	6	0.0	0.107	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	49.4
5	T1	189	5	199	2.6	0.107	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.9
Approach		195	5	205	2.6	0.107	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.8
West: Loftus Street														
11	T1	233	9	245	3.9	0.140	0.1	LOS A	0.1	0.9	0.05	0.03	0.05	49.7
12	R2	15	0	16	0.0	0.140	5.3	LOS A	0.1	0.9	0.05	0.03	0.05	48.7
Approach		248	9	261	3.6	0.140	0.4	NA	0.1	0.9	0.05	0.03	0.05	49.6
All Vehicles		488	20	514	4.1	0.140	0.8	NA	0.2	1.2	0.05	0.07	0.05	49.3

Table B8: Weekday Priority Intersection Performance of Loftus Street with Yennora Avenue PM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Fairfield Road														
11	T1	722	18	760	2.5	*	16.4	LOS B	23.6	168.5	0.85	0.77	0.86	47.3
12	R2	148	7	156	4.7	0.754	45.0	LOS D	6.3	46.1	1.00	0.85	1.13	33.9
Approach		870	25	916	2.9	0.694	21.3	LOS B	23.6	168.5	0.87	0.79	0.90	44.3
East: Dursley Road														
1	L2	200	7	211	3.5	0.754	27.1	LOS B	6.4	45.8	0.81	0.77	0.81	36.2
3	R2	368	10	387	2.7	0.358	29.9	LOS C	13.2	94.4	0.91	0.83	0.91	35.4
Approach		568	17	598	3.0	0.654	28.9	LOS C	13.2	94.4	0.88	0.81	0.88	35.7
North: Fairfield Road														
4	L2	232	10	244	4.3	*	13.8	LOS A	3.3	23.6	0.69	0.75	0.69	47.7
5	T1	790	13	832	1.6	0.310	25.4	LOS B	14.2	100.6	0.92	0.79	0.92	42.4
Approach		1022	23	1076	2.3	0.663	22.7	LOS B	14.2	100.6	0.87	0.78	0.87	43.5
All Vehicles		2460	65	2589	2.6	0.754	23.6	LOS B	23.6	168.5	0.87	0.79	0.88	41.6

Table B9: Weekday Signalised Intersection Performance of Fairfield Road with Dursley Road PM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: The Horsley Drive														
21a	L1	348	7	366	2.0	0.284	7.6	LOS A	3.8	26.8	0.42	0.68	0.42	49.7
22	T1	1258	33	1324	2.6	<div><div></div><div>0.879</div><div>*</div></div>	32.2	LOS C	26.0	186.4	1.00	1.07	1.26	39.3
23	R2	291	14	306	4.8	<div><div></div><div>0.835</div><div>*</div></div>	41.7	LOS C	11.7	85.1	1.00	0.96	1.30	34.7
Approach		1897	54	1997	2.8	0.879	29.1	LOS C	26.0	186.4	0.89	0.98	1.11	39.7
NorthEast: Polding Street North														
24	L2	241	8	254	3.3	0.356	12.6	LOS A	3.8	27.1	0.67	0.74	0.67	48.9
26a	R1	524	15	552	2.9	0.613	32.4	LOS C	8.9	63.5	0.96	0.81	0.96	35.2
Approach		765	23	805	3.0	0.613	26.2	LOS B	8.9	63.5	0.87	0.79	0.87	39.3
NorthWest: The Horsley Drive														
27	L2	75	2	79	2.7	0.785	30.1	LOS C	19.5	139.5	0.96	0.91	1.05	41.2
28	T1	1016	28	1069	2.8	0.785	24.4	LOS B	19.5	139.5	0.95	0.90	1.04	42.7
29b	R3	76	2	80	2.6	0.245	33.5	LOS C	2.4	17.3	0.89	0.76	0.89	34.4
Approach		1167	32	1228	2.7	0.785	25.4	LOS B	19.5	139.5	0.94	0.89	1.03	42.1
West: Polding Street														
10b	L3	94	6	99	6.4	0.904	48.2	LOS D	16.2	117.3	1.00	1.08	1.46	30.0
10a	L1	378	12	398	3.2	0.904	45.9	LOS D	16.8	121.9	1.00	1.08	1.46	29.7
12a	R1	278	12	293	4.3	<div><div></div><div>0.904</div><div>*</div></div>	45.7	LOS D	16.8	121.9	1.00	1.07	1.45	30.2
Approach		750	30	789	4.0	0.904	46.1	LOS D	16.8	121.9	1.00	1.08	1.45	29.9
All Vehicles		4579	139	4820	3.0	0.904	30.5	LOS C	26.0	186.4	0.92	0.94	1.11	38.5

Table B10: Weekday Signalised Intersection Performance of the Horsley Drive with Polding Street PM Peak Hour