



Oakburn Poultry Processing Plant Road Transport Assessment

Prepared for:

Baiada Poultry Pty Limited

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The Transport Planning Partnership

E: info@tpp.net.au

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1 Introduction

This report has been prepared on behalf of Baiada Poultry Pty Limited to present the findings of an assessment of the road transport implications of a new processing plant on the site of its Oakburn rendering plant near Tamworth.

The proposed processing plant would have capacity to process three million birds per week, and the existing rendering plant would increase its production from 120 tonnes per day to 240 tonnes per day of finished product. A new vehicular access would be constructed for the use of staff and deliveries, and the existing access on Oxley Highway retained for visitors and emergency access only.

2 Existing Road Environment

2.1 Site Location

The subject site is located at 1154 Gunnedah Road, approximately 9 km west of Tamworth.

2.2 Road Network

Oxley Highway forms part of the HW11 State road link between Port Macquarie in the east and Nevertire in the west, via Tamworth, Gunnedah and Coonabarabran. In the vicinity of the site, Oxley Highway is known as **Gunnedah Road**, and has a single travel lane in each direction and sealed shoulders. The posted speed limit is 100 km/h.

The subject site has direct access to Gunnedah Road via a T-intersection. At the intersection, Gunnedah Road is locally widened to provide an auxiliary right turn deceleration and storage lane for vehicles entering the site. The intersection treatment is generally consistent with an Austroads Channelised Right Turn (CHR) treatment in Gunnedah Road, which moves the slower turning vehicles from the through traffic stream.

Through Tamworth, Oxley Highway is also known as Duri Road, Bridge Street, Brisbane Street, and Marius Street. Gunnedah Road crosses the Main Northern Railway just to the west of its intersection with Duri Road, at a road over rail crossing. The intersection of Gunnedah Road and Duri Road is controlled with a roundabout, with bypass lanes for the left turns to and from Gunnedah Road, and for southbound traffic along Duri Road.

Wallamore Road provides a connection between Gunnedah Road west of Tamworth and Manilla Road via **Appleby Lane**, following the alignment of the West Tamworth Barraba Railway. Wallamore Road has a single travel lane in each direction, typically with dashed centre linemarking or no centre linemarking, and localised widening at major intersections and accesses. Wallamore Road has a posted speed limit of 80 km/h west of Kingsford Smith Street.

Goddard Lane is a local road which links Gunnedah Road and Wallamore Road, and has a single travel lane in each direction, with dashed centre linemarking and a wide sealed carriageway. At the intersection of Goddard Lane with Gunnedah Road, an auxiliary right turn (AUR) and auxiliary left turn treatment (AUL) are provided in Gunnedah Road. An acceleration lane is also provided for vehicles exiting Goddard Lane towards Tamworth. RMS is planning improvements to the intersection including a westbound acceleration lane for heavy vehicles (RMS, 2017). The intersection of Goddard Lane with Wallamore Road is a basic rural road intersection.

The state government has provided funding to commence repair and reinstatement of the West Tamworth Barraba Railway from West Tamworth to Westdale, as the first stage of a

larger project to deliver a multi-user Rail Freight Intermodal Terminal, expected to be located near the intersection of Goddard Lane and Wallamore Road.

Goddard Lane provides access to the West Tamworth Glen Artny Industrial Estate, which includes **Armstrong Street**, **Ponda Rosa Road**, and **Phoenix Street**. These roads are each constructed with a wide carriageway and single travel lane in each direction, suitable for use by heavy vehicles.

Bowlers Lane provides a link between Gunnedah Road and Wallamore Road, extending southeast of Gunnedah Road where it is known as Old Winton Road. RMS has recently widened Oxley Highway and improved the intersection between Bowlers Lane and Oxley Highway (RMS, 2017). The intersection of Bowlers Lane with Wallamore Road is a basic rural T-intersection. Bowlers Lane provides access to the Baiada Bowlers Lane Poultry Facilities.

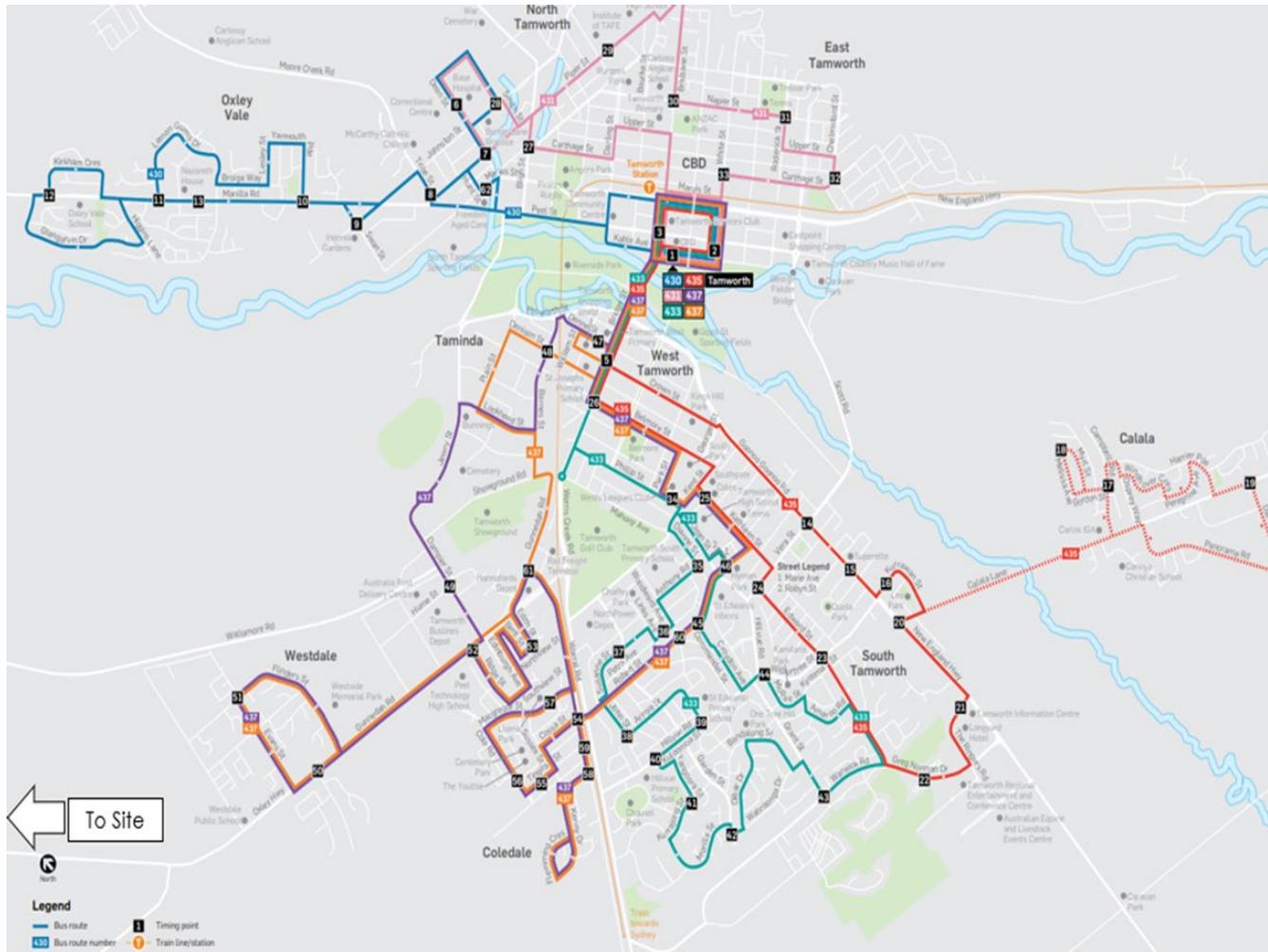
2.3 Public Transport

The existing public transport services in the region have been reviewed with regard to the site's accessibility by public transport. Table 2.1 summarises the existing bus and rail services and frequencies in the region, Figure 2.1 presents the bus routes.

Table 2.1: Public Transport Facilities

Service	Route	Route Description	Site Proximity	Frequency	
				Weekday AM	Weekday PM
Rail	North Western NSW	Sydney to Armidale	11.5km	No service	1 service
		Armidale to Sydney		1 service	No service
Bus	428	Quirindi to Tamworth	9.2km	3 services	3 services
	430	Oxley Vale via Hospital	10.8km	6 services	9 services
	431	North & East via Hospital	10.7km	2 services	3 services
	433	South 2 Dibar Drive	9.2km	5 services	7 services
	435	South 1	9.2km	6 services	6 services
	437A	Westdale & Coledale via Taminda	5.4km	4 services	No service
	437B	Coledale & Westdale via Taminda	5.4km	No service	6 services
	443	Manilla to Tamworth	11.5km	1 service	1 service
	444	Bendemeer to Tamworth	11.5km	Up to 2 services	Up to 2 services

Figure 2.1: Tamworth Bus Guide Map



The site is not well located to existing public transport services. Bus Route 437 is the closest service to the site, traveling from Tamworth along Gunnedah Road as far as Evans Street at Westdale, over 5 km from the site. Staff or visitors would not rely on existing public transport services to access the site.

2.4 Historic Traffic Data

Historic survey data on roads of relevance to the site operations has been collated from surveys conducted during July 2015. Key results for average weekday conditions are summarised in Table 2.2.

Table 2.2: Surveyed Weekday Average Traffic Volumes 2015

Road and Location	AM Peak Hour		PM Peak Hour		Vehicles per Day
	Hour Start	Vehicles per Hour	Hour Start	Vehicles per Hour	
Jewry Street West of Wirraway Street	8:00	961	15:00	1,027	11,399
Bridge Street At Peel River Bridge	8:00	1,916	15:00	2,172	24,464
Oxley Highway East of Edith Street	8:00	961	15:00	1,152	12,837
Oxley Highway East of Evans Street	9:00	618	15:00	815	8,115
Oxley Highway North of Goddard Lane	8:00	337	15:00	377	4,256
Oxley Highway South of Byamee Lane	8:00	278	16:00	305	3,469
Oxley Highway North of Joshua Street	8:00	247	16:00	293	3,141

The results in Table 2.2 demonstrate the extent to which traffic volumes decline to the west along Oxley Highway, with some 9,368 fewer vehicles per day on Oxley Highway near Byamee Lane (approximately 12 km west of Duri Road) than near Duri Road.

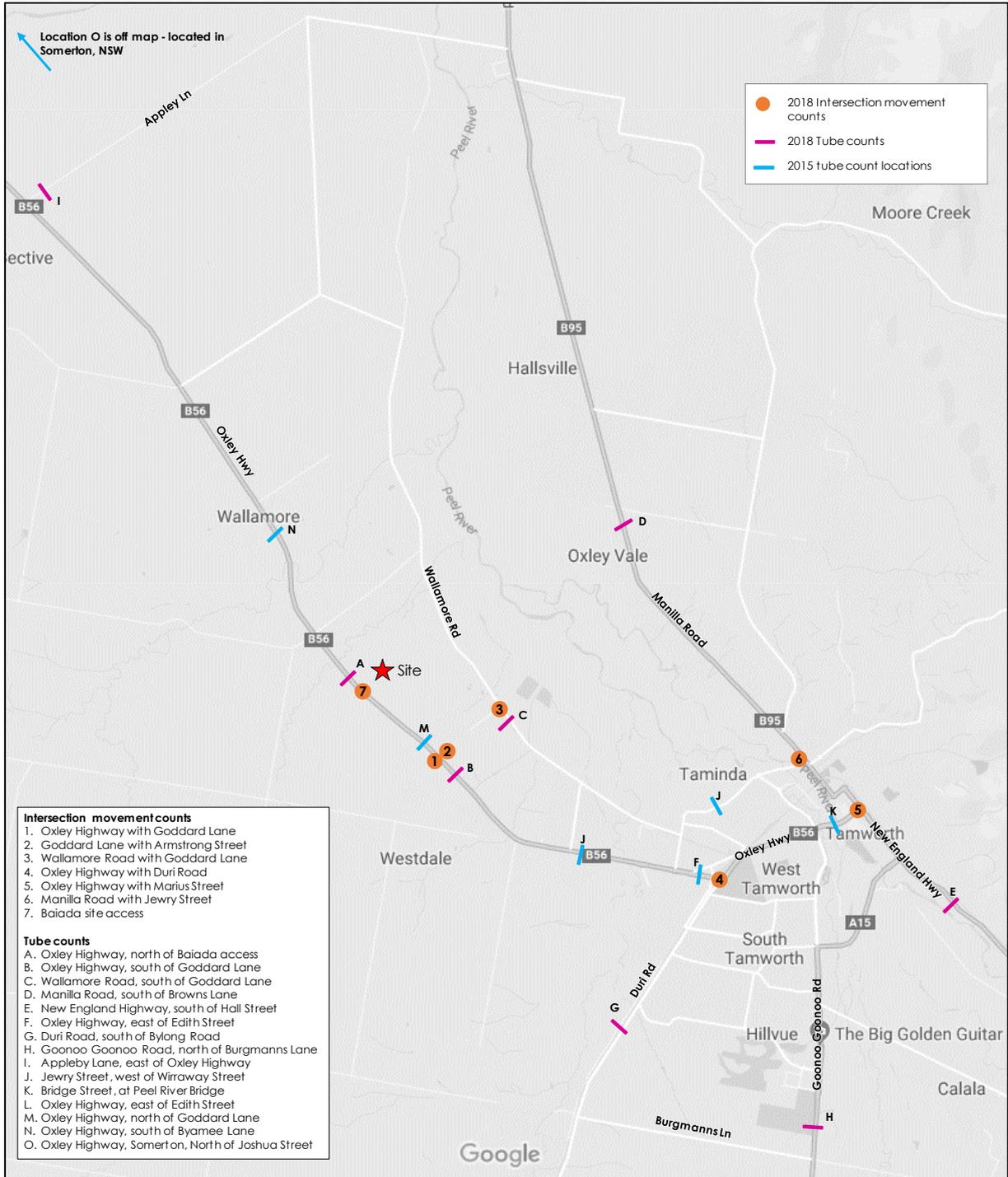
2.5 Traffic Volume Surveys

To quantify existing traffic conditions on roads of relevance to the proposed development, automatic tube count surveys were commissioned at the following locations, which are presented on Figure 2.2, which includes the aforementioned 2015 survey locations:

- Oxley Highway, north of the site access;
- Oxley Highway, south of Goddard Lane;
- Wallamore Road, south of Goddard Lane;
- Manilla Road, south of Browns Lane;

- New England Highway, south of Hall Street;
- Gunnedah Road, east of Edith Street;
- Duri Road, south of Bylong Road; and
- Goonoo Goonoo Road, north of Burgmanns Lane.

Figure 2.2: Survey Data Locations



The surveys were conducted between Wednesday 27 June and Tuesday 3 July 2018. Key results for average weekday conditions are summarised in Table 2.3.

Table 2.3: Surveyed Weekday Average Traffic Volumes 2018

Road and Location	AM Peak Hour		PM Peak Hour		Vehicles per Day	Percent Heavy (%)
	Hour Start	Vehicles per Hour	Hour Start	Vehicles per Hour		
Oxley Highway North of Baiada Access	8:00	304	16:00	341	3,963	18.3
Oxley Highway South of Goddard Lane	8:00	305	15:00	483	5,040	17.3
Wallamore Road South of Goddard Lane	8:00	270	15:00	438	4,033	16.0
Manilla Road South of Browns Lane	8:00	390	16:00	400	4,443	9.4
New England Highway South of Hall Street	8:00	1,057	16:00	1,098	12,106	9.8
Duri Road South of Bylong Road	8:00	366	16:00	358	4,102	17.8
Goonoo Goonoo Road North of Burgmanns Lane	8:00	548	17:00	570	6,793	15.3
Appleby Lane East of Oxley Highway	7:00	48	16:00	51	535	21.2

The survey results demonstrate that the morning peak hour typically occurs between 8:00 am and 9:00 am, while the afternoon peak hour occurs at different times at the various locations. Close to the industrial area, the afternoon peak hour occurs between 3:00 pm and 4:00 pm, and on the outskirts of Tamworth, the peak hour tends to occur from 4:00 pm to 5:00 pm.

2.6 Intersection Surveys

Intersections are typically the critical locations in the road network, due to the need for opposing movements to occupy the same space. To quantify existing intersection conditions, a program of peak period intersection turning movement surveys was commissioned by TTPP at the intersections of:

- Oxley Highway and site access;
- Oxley Highway and Goddard Lane;
- Goddard Lane and Armstrong Street;
- Goddard Lane and Wallamore Road;
- Oxley Highway and Duri Road;
- Oxley Highway, Marius Street and Brisbane Street; and
- Peel Street and Jewry Street.

The survey locations are presented in Figure 2.2. The surveys were conducted between 6am and 10am, and between 3pm and 7pm on Wednesday 27 June, 2018. The time of the busiest hour at each intersection varied across the surveyed intersections, with the morning peak hour typically starting between 7.45 am and 8.15 am, and the evening peak hour starting between 3.00 pm and 3.45 pm. The peak hours identified below are the hour during which the highest number of vehicles passed through each intersection.

Table 2.4: Surveyed Peak Hour Vehicle Movements at Intersections (vehicles per hour)

Intersection	AM Peak Hour				PM Peak Hour			
	Hour Start	Light	Heavy	Total	Hour Start	Light	Heavy	Total
Oxley Highway and Baiada Access	7:45	278	53	331	15:15	313	57	370
Oxley Highway and Goddard Lane	7:45	356	87	443	15:15	550	75	625
Goddard Lane and Armstrong Street	7:45	201	53	254	15:15	355	44	399
Goddard Lane and Wallamore Road	8:00	240	58	298	15:30	444	42	486
Oxley Highway and Duri Road	8:00	1,442	109	1,551	15:15	1,638	111	1,749
Oxley Highway and Marius Street	8:15	1,785	128	1,913	15:00	1,982	114	2,096
Peel Street and Jewry Street	8:15	2,509	169	2,678	15:45	2,773	123	2,896

The intersection surveys demonstrate that the evening peak hourly traffic volumes are typically higher than the morning peak hourly volumes.

2.7 Road Network Performance

The Austroads (2017) *Guide to Traffic Management Part 3: Traffic Studies and Analysis* provides guidelines for the capacity and performance of two lane, two-way rural roads, which in turn, refers to the *Highway Capacity Manual (HCM)* (Transportation Research Board, 2016).

The capacity of a road is defined as the maximum hourly rate at which vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under the prevailing roadway, traffic and control conditions. The capacity of a single traffic lane will be affected by factors such as the pavement width and restricted lateral clearances, the presence of heavy vehicles and grades.

Level of Service (LOS) is defined as a qualitative measure describing the operational conditions within a traffic stream as perceived by drivers and/or passengers. A LOS definition generally describes these conditions in terms of factors such as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort, convenience and safety. LOS A provides the best traffic conditions, with no restriction on desired travel speed or overtaking.

LOS B to D describes progressively worse traffic conditions. LOS E occurs when traffic conditions are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre in the traffic stream. The service flow rate for LOS E is taken as the capacity of a lane or roadway. In rural situations, LOS C is generally considered to be acceptable. At LOS C, most vehicles are travelling in platoons, and travel speeds are curtailed. At LOS D, platooning increases significantly, and the demand for passing is high, but the capacity to do so is low.

The LOS experienced by drivers on two-way rural roads is dependent on the drivers' expectations regarding the road, and three classes of road are defined in the HCM. Class I roads are those on which motorists expect to travel at relatively high speeds. They most often serve long-distance trips or provide connecting links between facilities that serve long-distance trips. Class II roads are those on which motorists do not necessarily expect to travel at high speeds, and may function as access routes to Class I facilities, serve as scenic or recreational routes or pass through rugged terrain. Class III roads serve moderately developed areas, and may be portions of a Class I or Class II highway that pass through small towns or developed recreational areas, where local traffic mixes with through traffic, and the density of unsignalled roadside access points increases.

On Class I roads, LOS is defined in terms of Percent Time Spent Following (PTSF) and Average Travel Speed (ATS). On Class II roads, LOS is defined only in terms of PTSF. The PTSF is a measure of the level of opportunities to overtake, and is estimated from the demand traffic volumes, the directional distribution of that traffic, and the percentage of no-passing zones.

On Class III roads, LOS is defined in terms of Percent of Free-Flow Speed (PFFS), which is the ratio of ATS to the free-flow speed, representing the ability of vehicles to travel at or near the posted speed limit. The LOS criteria for two lane roads are as shown in Table 2.5, noting that the HCM defines ATS in miles per hour (mi/h).

Table 2.5: LOS Criteria for Class I and Class II Two Lane Roads

LOS	Class I		Class II	Class III
	PTSF (percent)	ATS (mi/h) ^A	PTSF (percent)	PFFS (percent)
A	≤ 35	≥ 55	≤ 40	> 91.7
B	> 35 – 50	> 50 – 55	> 40 – 55	> 83.3 – 91.7
C	> 50 – 65	> 45 – 50	> 55 – 70	> 75.0 – 83.3
D	> 65 – 80	> 40 – 45	> 70 – 85	> 66.7 – 75.0
E	≥ 80	≤ 40	≥ 85	≤ 66.7
F	Demand exceeds capacity			

^A note that 1 mi/h is equivalent to approximately 1.6 km/h

The primary determinant of a road's classification for operational analysis is the drivers' expectations, which may not necessarily agree with the functional classification. The surveyed location on Oxley Highway north of the rendering plant access would typically be considered as a Class II road under the HCM descriptions, as drivers would expect some level

of restriction to their freedom of movement along the routes as a result of characteristics of the route such as limits on the opportunities for overtaking (e.g. centre line marking, sight distances, lack of overtaking lanes) and proximity to Tamworth and the industrial areas. The other surveyed locations are within built up areas, where the performance of intersections is likely to be the main constraint on vehicle movements, and so have not been considered using this methodology. Intersection operating conditions are discussed in Section 2.8. The surveyed location south of Goddard Lane has been assessed using the HCM method, although the operation of intersections are considered the more likely constraint.

Table 2.6 summarises the Levels of Service on Oxley Highway based on the surveyed average weekday peak hour conditions. The results demonstrate that the existing levels of service experienced by drivers on Oxley Highway are satisfactory, with low levels of interference to travel. It is noted that should the surveyed locations on Oxley Highway be considered as Class I roads, the resulting levels of service would also be satisfactory.

Table 2.6: Surveyed Weekday Peak Hour Midblock Performance

Road and Location	Class	Inbound to Rendering Plant		Outbound from Rendering Plant	
		PTSF	LOS	PTSF	LOS
Oxley Highway North of Site Access					
AM Peak Hour	II	45.1	B	32.8	A
PM Peak Hour	II	45.7	B	43.8	B
Oxley Highway South of Goddard Lane					
AM Peak Hour	II	26.5	A	26.7	A
PM Peak Hour	II	33.8	A	41.5	B

2.8 Intersection Operation

The operating characteristics of the surveyed intersections have been assessed using SIDRA INTERSECTION 8, an analysis program which determines characteristics of intersection operating conditions including the degree of saturation, average delays, and levels of service. The degree of saturation, or x-value, is the ratio of the arrival rate of vehicles to the capacity. The average delay, expressed in seconds per vehicle, is measured over all movements at signalised intersections, and over the movement with the highest average delay at roundabout and priority intersections. Average vehicle delay is the commonly used measure of intersection performance defined by RMS. Table 2.7 shows the criteria adopted by RMS for assessing the level of service.

Table 2.7: Intersection Level of Service Criteria

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Table 2.8 presents a summary of the existing peak hour operating characteristics of the surveyed intersections. These peak hours represent the hour during which the highest number of vehicles passed through each intersection (refer to Table 2.4).

Table 2.8: Existing Peak Hour Intersection Operating Conditions (2018)

Intersection	AM Peak Hour			PM Peak Hour		
	X-Value	Average Delay	LoS	X-Value	Average Delay	LoS
Oxley Highway and Site Access	0.10	8.1	A	0.11	9.6	A
Oxley Highway and Goddard Lane	0.13	10.8	A	0.22	11.7	A
Goddard Lane and Armstrong Street	0.11	8.2	A	0.10	8.4	A
Goddard Lane and Wallamore Road	0.14	8.6	A	0.28	9.5	A
Oxley Highway and Duri Road	0.35	11.5	A	0.30	10.5	A
Oxley Highway and Marius Street	0.69	29.4	C	0.72	34.3	C
Peel Street and Jewry Street	0.77	16.5	A	0.87	18.5	B

On the basis of the above assessment results and observations of operating conditions during the peak hour periods, it is evident that the intersections currently operate at good levels of service, with spare capacity and short average delays.

It is noted that at the roundabout at the intersection of Peel Street and Jewry Street, the geometry of the roundabout allows vehicles to turn left from Jewry Street to Peel Street and from Peel Street to Jewry Street without being in conflict with circulating or exiting traffic in the roundabout, as there is only a single circulating lane past those approaches.

The circulating vehicles would generally travel from the circulating lane to the right hand of the two exiting lanes, allowing vehicles to turn into the left hand exiting lane unopposed. The line marking of the roundabout is however unclear and observations suggest that drivers tend to wait to give way to those vehicles exiting the roundabout, although this is not always the case. The results in Table 2.8 reflect the assumption that the left turning drivers give way to all circulating and exiting traffic, and tend to overestimate the delays and queues which result. With minor amendments to line marking, the capacity of the roundabout would be increased, particularly with regard to the capacity for the left turn movements.

2.9 Road Safety

Validated crash data was obtained from the RMS for the most recent five year period available, being from 1 July 2012 to 30 June 2017. The data includes those crashes which conform to the national guidelines for reporting and classifying road vehicles crashes based on the following criteria:

- The crash was reported to the police.
- The crash occurred on a road open to the public.
- The crash involved at least one moving vehicle.
- The crash involved at least one person being killed or injured or at least one motor vehicle being towed away.

Crash data was reviewed for primary access routes for the site, including:

- Appleby Lane;
- Oxley Highway, from west of Appleby Lane to Duri Road;
- Oxley Highway, between Duri Road and Marius Street;
- Wallamore Road, between Appleby Lane and Jewry Street/Dampier Street;
- Goddard Lane;
- Duri Road, between Oxley Highway and Burgmanns Lane;
- Burgmanns Lane;
- Dampier Street – Jewry Street;
- Ebsworth Street;
- Manilla Road – Peel Street – Darling Street – Marius Street, between Bridge Street and Oxley Vale; and
- Marius Street, between Bridge Street and Crawford Street.

Table 2.9 presents a summary of the general crash types reported on the access routes described above.

Table 2.9: General Crash Types on Site Access Routes (1 July 2012 to 30 June 2017)

Access Route	Pedestrian	Multiple Vehicles					Single Vehicle			Miscellaneous	Total
		Adjacent Approaches	Opposing Directions	Same Direction	U-turn/Parking	Overtaking	On Path	Off Path on Straight	Off Path on Curve		
Appleby Lane	-	-	-	-	-	-	-	1	-	-	1
Oxley Highway Appleby Lane to Duri Road	-	7	3	12	-	-	2	11	2	-	37
Oxley Highway Duri Road to Marius Street	-	12	11	16	4	-	-	5	2	-	50
Wallamore Road	-	1	3	1	-	-	1	3	2	-	11
Goddard Lane	-	1	-	-	-	-	-	-	-	-	1
Duri Road	2	5	-	3	1	-	-	8	4	-	23
Burgmanns Lane	-	-	-	-	-	-	-	-	-	-	-
Dampier Street-Jewry Street	-	-	1	9	-	-	-	2	-	-	12
Ebsworth Street	-	1	-	3	-	-	-	1	1	-	6
Manilla Road	-	12	-	9	1	-	1	4	1	-	28
Marius Street	-	2	4	10	1	-	-	2	2	-	22

Detailed assessments of crash types and characteristics on each route are presented in Appendix B. Some key findings for each route are summarised below.

Appleby Lane

One crash occurred on Appleby Lane over the five years investigated. A westbound station wagon left the carriageway to the right and struck a tree or bush. This occurred at 5:30 am on 3 March 2013, in fine weather on a wet road surface.

Oxley Highway – Appleby Lane to Duri Road

- One fatal crash occurred on 31 March 2017, in which a northbound car travelled on the wrong side of the road and struck a southbound 4WD head on in a 100 km/h speed limit zone. The crash occurred mid-afternoon in fine weather and on a dry road surface. Fatigue was nominated as a contributing factor to the crash.
- Approximately 80 percent of the crashes occurred in fine weather and/or on a dry road surface.
- Approximately half of the crashes occurred at intersections.
- Ten of the 37 crashes involved a heavy vehicle as the key vehicle, with half of those being single vehicle crashes.

- Approximately one-third of crashes occurred in 100 km/h speed limit areas, which make up around three-quarters of the route investigated.
- No crashes occurred at or near the intersection of Oxley Highway (Gunnedah Road) with the existing Baiada rendering plant site access.
- One crash occurred at the intersection of Oxley Highway and Goddard Lane, in which a station wagon turning right from Goddard Lane struck an eastbound car in Oxley Highway. This occurred at 7:05 am on 12 August 2016 in fine weather on a dry road surface.
- Speed was nominated as a contributing factor in two crashes, and fatigue was nominated as a contributing factor in five crashes. With one exception (being the fatal crash referred to earlier) all these were single vehicle crashes.

It is noted that significant upgrading of Oxley Highway between Duri Road and Cole Road occurred during the period under review, including construction of roundabouts and median turning treatments during 2014-15. The frequency of crashes on this route has declined over that period, from 16 crashes in the first 18 months of the period reviewed to 10 crashes in the most recent 18 months of the period reviewed.

Oxley Highway – Duri Road to Marius Street

- Approximately 90 percent of the crashes occurred in fine weather and/or on a dry road surface.
- Nearly 90 percent of the reported crashes occurred at intersections (under priority or roundabout control), with approximately half of those occurring at cross intersections and one third at roundabouts.

Wallamore Road

One crash occurred at the intersection of Goddard Lane and Wallamore Road, in which a northbound car left the wet carriageway and struck a drain/culvert at 5:03 am. No contributing factors were nominated. The carriageway where this crash occurred has since been upgraded.

Goddard Lane

One crash occurred on Goddard Lane over the five year period investigated. It occurred at 1:15 am on 4 July 2012 at the intersection with Armstrong Street, in fine weather on a dry road surface. A car turning right out of Armstrong Street struck a northeast-bound utility in Goddard Lane.

Duri Road – Burgmanns Lane

- Nearly 90 percent of the reported crashes occurred in fine weather or on a dry road surface.

- Two crashes involved pedestrians, one at the intersection of Duri Road with Roberts Street (roundabout), and one on Burgmanns Lane.
- Approximately two-thirds of the crashes occurred at intersections, under either roundabout or priority control.
- Four of the 23 crashes involved a heavy vehicle as the key vehicle, with half of those being single vehicle crashes.

Dampier Street – Jewry Street

- Three-quarters of the 12 reported crashes were multiple vehicle crashes involving vehicles travelling in the same direction, such as rear end, side swipe or lane changing crashes.
- One crash involved vehicles travelling in opposing directions, at the intersection of Dampier Street with Wallamore Road.

Ebsworth Street

- Half of the six reported crashes were multiple vehicle crashes involving vehicles travelling in the same direction, such as rear end, side swipe or lane changing crashes.
- One crash involved vehicles travelling in adjacent directions, at the intersection of Ebsworth Street with Plain Street.

Manilla Road

- Nearly 80 percent of the 28 reported crashes were multiple vehicle crashes, of which more than half involved vehicles travelling in adjacent directions at intersections.
- Six crashes were single vehicle crashes, all of which involved light vehicles.
- Approximately 80 percent of the reported crashes occurred in fine weather and/or on a dry road surface.

Marius Street

- Approximately three-quarters of the 22 reported crashes were multiple vehicle crashes, of which 60 percent involved vehicles travelling in the same directions, such as rear-end, side swipe or lane change crashes.
- Four crashes were single vehicle crashes, including one motorcycle, one car, one articulated vehicle and one unknown vehicle type.
- Approximately 90 percent of the reported crashes occurred in fine weather and/or on a dry road surface.

3 Site Operations

3.1 Existing Rendering Plant Operations

The existing rendering plant produces 120 tonnes of finished product per day. It employs 21 workers, who work across three shifts. The morning shift employs nine people working from 7:00 am to 3:00 pm, the afternoon shift employs six people between 3:00 pm and 11:00 pm, and the night shift employs six people between 11:00 pm and 7:00 am.

The site has its vehicular access via a T-intersection on Oxley Highway. This access is used by all vehicles accessing the site, including deliveries, staff and visitors. Car parking is currently provided on site for 14 cars.

3.2 Existing Traffic Generation and Distribution

3.2.1 Deliveries and Dispatch Heavy Vehicles

Rendering Raw Material

Baiada has confirmed that the rendering plant receives up to 29 trucks per day carrying between 3 tonnes and 40 tonnes, generating 58 trips per day. The delivery trips occur throughout the day and night. Based on the sources of these trips, the likely approach and departure routes of the delivery trucks have been estimated. Of the 58 trucks trips per day, it would be expected that on average:

- 6 trips are on Oxley Highway west, of which;
 - 2 trips are via Manilla Road, Wallamore Road and Appleby Lane; and
 - 4 trips are via Gunnedah.
- 56 trips are on Oxley Highway east, of which;
 - 2 trips are to/from Country Road hatchery south of Oxley Highway;
 - 32 trips are to/from Out Street processing plant at West Tamworth;
 - 4 trips are through Tamworth via New England Highway north; and
 - 18 trips are through Tamworth via New England Highway south.

Finished Rendered Material

The rendering plant output generates four trucks per day, generating eight trips per day, primarily using B-doubles. These trucks travel to Sydney, Newcastle, Brisbane and Bathurst. Transport of finished materials occurs throughout the day and night. While a small number would travel to and from the east to Tamworth, of the eight trucks trips per day, it would be expected that on average, all trips are on Oxley Highway west of the rendering plant.

General Deliveries and Waste Collection

General deliveries of consumables such as LPG gas and collection of waste generates two trucks per day, generating four vehicle trips per day. Delivery and waste collection vehicles which vary between small rigid trucks, large rigid trucks and semitrailers, and are typically limited to daytime business hours. All of these trips are made between the rendering plant and Tamworth, and so would approach on Oxley Highway east of the site.

3.2.2 Staff Light Vehicles

Given that the site's accessibility to public transport is poor, it is expected that existing staff all travel by private vehicle. Some car pooling between staff would occur, and Baiada has advised that typically the staff travel in 15 cars. On this basis the existing staff generate 30 light vehicle trips per day. The majority of staff reside in Tamworth, thus of the 30 existing staff vehicle trips per day, it would be expected that:

- 2 trips are on Oxley Highway west; and
- 28 trips are on Oxley Highway east.

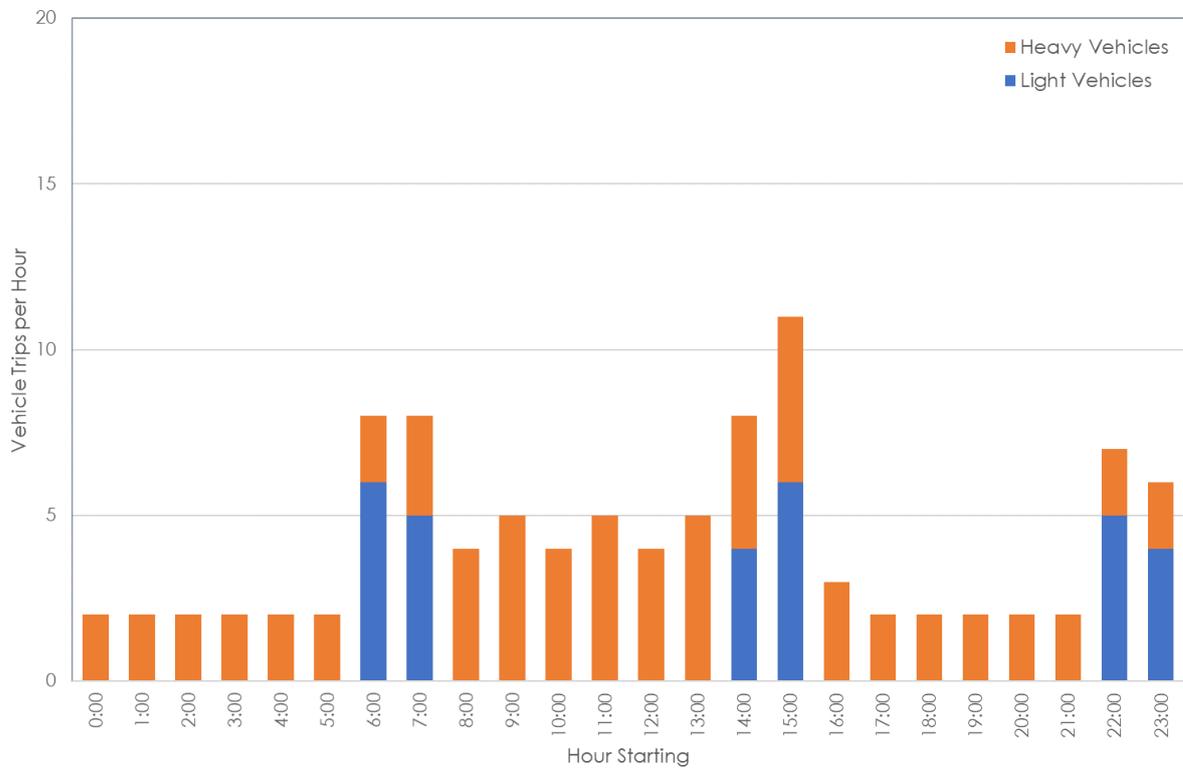
It is assumed that some staff travelling to and from North Tamworth travel via Jewry Street and Dampier Street, while the rest travel on Gunnedah Road to Duri Road/Bridge Street and spread throughout Tamworth.

The distribution of staff trips through the day is related to the shift times operating at the rendering plant, with staff arriving prior to commencement of their shift and departing after completion of their shift.

3.2.3 Total Existing Rendering Plant Vehicle Trips

The number of vehicle trips generated by the existing rendering plant has been estimated from the information presented above, and is summarised in Figure 3.1, noting that a trip is a one way movement, a vehicle arriving then departing generates two vehicle trips.

Figure 3.1: Existing Rendering Plant Hourly Traffic Generation (vehicles per hour)



The peak hourly vehicle trip generation of the existing rendering plant is therefore estimated at approximately 11 vehicles per hour in the mid-afternoon, with a lower peak in the morning of approximately eight vehicles per hour.

The estimated average daily distribution of the vehicle trips generated by the existing rendering plant are summarised in Table 3.1.

Table 3.1: Existing Daily Rendering Plant Traffic Distribution Summary (vehicles per day)

Location	Light Vehicle Trips	Heavy Vehicle Trips	Total Vehicle Trips
Rendering Plant Access Road	30	70	100
Oxley Highway West of Rendering Plant	2	10	12
Appleby Lane North of Oxley Highway	0	2	2
Oxley Highway East of Rendering Plant	28	60	88
Country Road South of Oxley Highway	0	2	2
Jewry Street North of Wallamore Road	6	0	6
Duri Road South of Gunnedah Road	12	20	32
Bridge Street North of Gunnedah Road	10	38	40
Bridge Street North of Out Street	10	6	16

A trip is a one way movement, a vehicle arriving then departing generates two vehicle trips on the road network

3.3 The Proposed Development

Baiada Poultry Pty Limited proposes to build a new processing plant on the subject site. The processing plant would have capacity to process up to three million birds per week, which represents an increase from the approved facility which would have capacity for one million birds per week. The existing rendering plant located within the site would also increase its production level from 120 tonnes of finished product per day to 240 tonnes of finished product per day.

A new vehicular access is proposed to be constructed, with a new driveway connecting to Armstrong Street via Workshop Lane. The new access would be used by all staff and heavy vehicles. The existing access to Gunnedah Road would be retained for the use of visitors only and for emergency access.

3.4 Future Operational Traffic Generation and Distribution

3.4.1 Deliveries and Dispatch Heavy Vehicles

The number and types of heavy vehicles expected to be generated by the proposed processing plant has been estimated by Baiada as shown in Table 3.2.

Table 3.2: Proposed Processing Plant Daily Heavy Vehicle Trip Generation

Movement Type	Type of Vehicle	Trucks per Day	Trips per Day
Live Birds Delivery	B-double	84	168
Finished Product Dispatch	Large rigid or semitrailer	70	140
Rendering Raw Material	Semitrailer or B-double	20	40
Finished Rendered Material	Large rigid	10	20
General deliveries and waste collection	Small rigid, large rigid or semitrailer	20	40
Total		204	408

A trip is a one way movement, a truck arriving then departing generates two vehicle trips

Live Birds Deliveries

The delivery of live birds to the processing plant would occur between 2:00 am and 6:00 pm. Trucks delivering live birds would be drawn from all directions, thus it is assumed the 168 truck trips per day would be distributed with:

- 84 trips to/from west on Oxley Highway; and
- 84 trips to/from east on Oxley Highway.

Finished Product Dispatch

Approximately 90 per cent of finished product dispatch vehicles would travel to the west to Gunnedah, then south to other destinations. Dispatch of finished product would occur throughout the day and night. The 140 truck trips generated by dispatch of finished product would be distributed with:

- 14 trips to/from west on Oxley Highway; and
- 126 trips to/from east on Oxley Highway.

Rendering Raw Material

With the processing plant, the number and distribution of trucks delivering raw material for the rendering plant would alter. The Out Street processing plant at West Tamworth which currently delivers to the rendering plant would be closed, and the proposed on-site processing plant would replace the need for those deliveries. The rendering plant would receive some 20 trucks per day, generating 40 trips per day. Based on the sources of these trips, the likely approach and departure routes of the 40 delivery truck trips per day have been estimated as:

- 10 trips to/from west on Oxley Highway; and
- 30 trips to/from east on Oxley Highway, of which:
 - 4 trips are to/from Country Road hatchery south of Oxley Highway;

- 26 trips are through Tamworth via New England Highway south.

Finished Rendered Material

The rendering plant output is expected to generate eight to ten trucks per day, generating up to 20 trips per day, primarily using B-doubles. The finished rendered material delivery trips would occur throughout the day and night. These trucks would travel to destinations destinations as the existing rendering plant dispatch trips, with 90 per cent travelling to and from the site via Gunnedah. Of the 20 truck trips per day, it would be expected that all trips would be to/from the east site, with:

- 18 trips to/from the west on Oxley Highway; and
- 2 trips to/from the east on Oxley Highway.

General Deliveries and Waste Collection

General deliveries of consumables and collection of waste would typically be limited to daytime business hours. The significant majority of the forecast 40 truck trips per day would be made between the site and Tamworth, and so would be expected to approach and depart on Oxley Highway east of the site.

3.4.2 Staff Light Vehicles

The proposed processing facility would operate for 24 hours a day, seven days a week. Shift start and end times would however vary for workers in different parts of the facility. Based on attendance data at its Hanwood Processing Plant, Baiada has estimated the number of staff expected to be present at the site throughout a typical day/night. This is considered an overestimate of total staff numbers, as some efficiencies would result with the new facility compared with current operations at Hanwood. This data is presented in Table 3.3. The nominal start and end times presented in Table 3.3 generally represent the earliest start time that employees would start working that shift, and the latest end time that employees would conclude that shift. Operationally, staff working hours are typically spread over the time ranges given, with actual numbers on site at any one time being dependent upon current production.

Table 3.3: Proposed Processing Plant Staff Attendance

Shift	Number of Staff	Nominal Start Time	Nominal End Time
Line 1 Live Birds	100	0:00	12:00
Line 2 Live Birds	100	6:00	19:00
Line 1 Processing (Day)	165	4:00	15:00
Line 2 Processing (Day)	165	4:00	15:00
Line 1 Processing (Afternoon)	165	14:00	1:00
Line 2 Processing (Afternoon)	165	14:00	1:00
Tray Pack (Day)	100	4:00	15:00
Tray Pack (Afternoon)	100	13:00	1:00
Rendering (Morning)	9	6:00	15:00
Rendering (Afternoon)	6	14:00	23:00
Rendering (Night)	6	22:00	7:00
Administration	65	7:00	18:00
Loading Dock (Day)	15	6:00	15:00
Loading Dock (Night)	15	15:00	6:00

Staff would be drawn primarily from the local Tamworth area, with an estimated 95 percent of staff travelling to and from the east of the processing facility. Car pooling would be expected to occur, noting that the existing rendering plant staff travel with an average of 1.4 people per vehicle. For the purpose of this assessment, a lower average car occupancy of 1.2 people per vehicle has been applied, based on TPP's experience of similar developments which operate 24 hours per day in regional locations.

On this basis, the staff would be expected to generate up to 1,966 vehicle trips per day on the road network (being 983 inbound and 983 outbound trips). With the majority of staff expected to reside in Tamworth, of the total staff trips, it would be expected that:

- 98 trips (5 per cent) would be to and from the west and north-west; and
- 1,868 trips (95 per cent) would be to and from the east.

It is assumed that some staff travelling to and from North Tamworth travel via Jewry Street while the rest travel on Oxley Highway to Duri Road/Bridge Street and spread throughout Tamworth.

The distribution of staff trips through the day is related to the proposed shift times operating at the rendering plant, with staff arriving prior to commencement of their shift and departing after completion of their shift, including an allowance for the spread of shift start times within the nominal shift times presented in Table 3.3.

3.4.3 Total Processing Plant Traffic Generation

Figure 3.2 presents the estimated spread of vehicle trips expected to be generated by the proposed processing plant, noting that a trip is a one way movement, a vehicle arriving then departing generates two vehicle trips.

Figure 3.2: Processing Plant Hourly Traffic Generation (vehicles per hour)

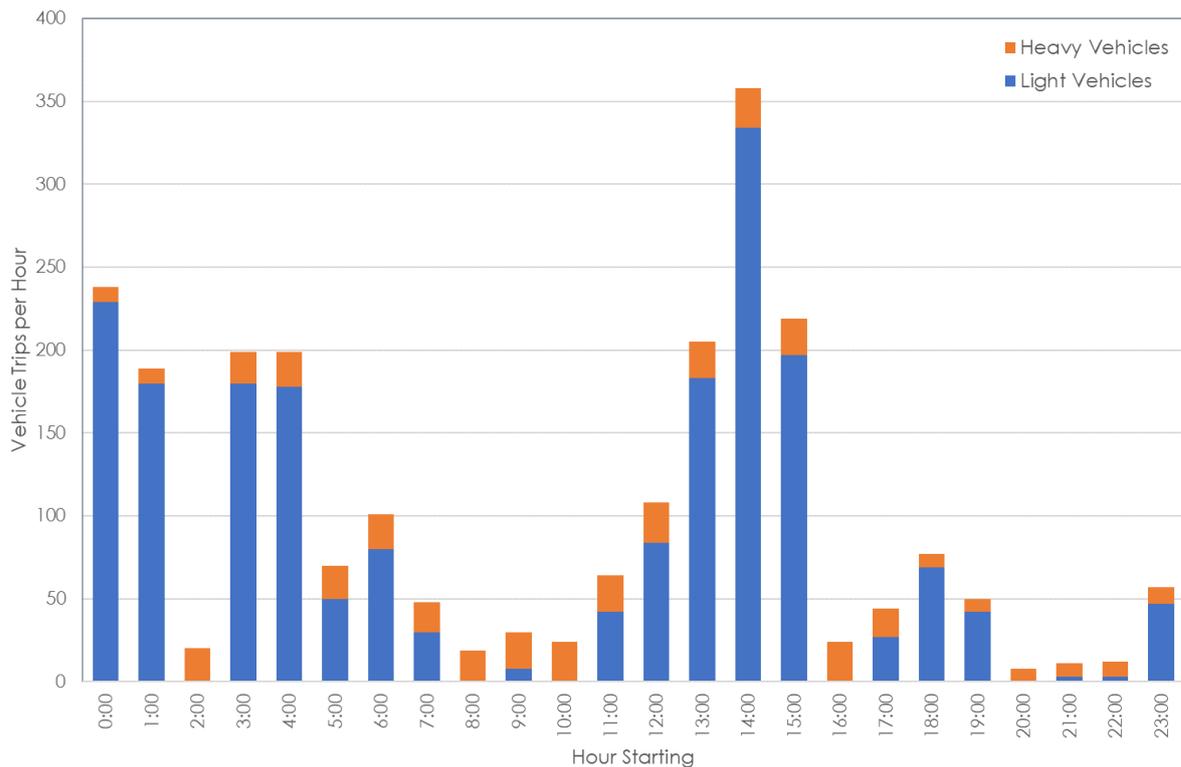


Figure 3.2 suggests that the busiest periods for traffic generation of the proposed processing plant would occur in the early afternoon, with up to 358 vehicle trips per hour between 2:00 pm and 3:00 pm, and in the middle of the night, with up to 238 vehicle trips per hour between midnight and 1:00 am.

The typical on-street peak hours on road serving the site occur between 8:00 am and 9:00 am, and between 4:00 pm and 5:00 pm (refer to Table 2.3 and Table 2.4). At these times, the expected traffic generation of the processing plant is low, at 19 and 24 heavy vehicle trips per hour respectively, as staff would not be arriving or departing at those times.

3.5 New Vehicle Access via Armstrong Street

The processing plant is proposed to have its access via Armstrong Street and Goddard Lane. Vehicles travelling to and from the site would therefore be able to travel via either Oxley Highway or Wallamore Road to access Goddard Lane. Table 3.4 summarises the estimated distribution of traffic generated by the proposed processing plant on the road network over

the average day. This conservatively assumes that all heavy vehicles to and from the west and north-west would continue to use Appleby Lane and/or Oxley Highway to access the site rather than Wallamore Road.

Table 3.4: Proposed Processing Plant Traffic Distribution Summary (vehicles per day)

Location	Light Vehicle Trips	Heavy Vehicle Trips	Total Vehicle Trips
Processing Plant Access Road	1,966	408	2,374
Armstrong Street West of Goddard Lane	1,966	408	2,374
Goddard Lane North of Oxley Highway	1,178	408	1,586
Goddard Lane South of Wallamore Road	788	0	788
Oxley Highway West of Goddard Lane	58	124	182
Appleby Lane North of Oxley Highway	0	64	64
Oxley Highway West of Appleby Lane	58	60	118
Oxley Highway East of Goddard Lane	1,120	284	1,404
Country Road South of Oxley Highway	0	4	4
Duri Road South of Gunnedah Road	560	164	724
Bridge Street North of Gunnedah Road	560	116	676
Wallamore Road West of Goddard Lane	40	0	40
Wallamore Road East of Goddard Lane	748	0	748
Jewry Street North of Wallamore Road	748	0	748

A trip is a one way movement, a vehicle arriving then departing generates two vehicle trips on the road network

3.6 Construction Traffic Generation and Distribution

Details of the construction programming and vehicle requirements are not yet known. It is however expected that construction activity is likely to occur during daytime hours, six days per week, and that the initial construction activity would involve construction of the new vehicle access. This would be followed by construction of the processing plant infrastructure within the site.

Construction activity would generate vehicle trips on the surrounding road network due to the construction workforce travelling to and from the site each day, and due to deliveries of materials and equipment. Peak vehicle trips each day would typically occur at the start of

the day when the majority of the construction workforce arrive on site, and at the end of the day when the workforce leave the site. Assuming that the typical work hours would be between 7:00 am and 6:00 pm, the morning peak would occur before 7:00 am, and the evening peak would occur after 6:00 pm. Heavy vehicle deliveries would be spread throughout the day, and would not tend to coincide with the peak movement of the workforce to and from the site.

The construction workforce would be significantly fewer people than the forecast operational workforce at the processing plant, and the number of heavy vehicle deliveries during construction would be significantly lower than the heavy vehicle trips expected to be generated by the processing plant when operational. The number of light and heavy vehicle trips generated by the construction activity is therefore anticipated to be significantly lower than that of the operational processing plant as presented in Section 3.4. The peak times for vehicle trip generation during construction would be earlier than the on-street morning peak hour and later than the on-street afternoon peak hour (Table 2.3).

Construction vehicles accessing the site for the initial construction of the new access would travel directly to and from the new access location via Armstrong Street and Goddard Lane and would not use the existing access from Oxley Highway. Once the new access is commissioned, all vehicles generated by the construction activity for the processing plant would access the site via the new access. Adequate space would be available on-site to park all construction workforce and delivery vehicles, so construction traffic would not impact on local on-street parking conditions.

Considering that the number of trips generated during the construction stage would be significantly lower than during the operational stage, and that construction vehicles would use the same access routes as the operational traffic, separate assessment of the impacts of construction traffic on the operation of the road network is not warranted. The traffic impacts of the construction stage will be less than that of the operational stage, which are assessed in Section 5.

4 Future Baseline Traffic Conditions

This section assesses the future traffic conditions without the proposed processing plant, to form a baseline against which the impacts of the processing plant can be assessed. These future conditions are described in this section.

4.1 Background Traffic Growth

It is generally expected that growth in traffic will occur on the road network over time. Such growth may be related to the impacts of a particular development or to non-specific growth as population changes and people's travel behaviour changes. For the purpose of this assessment, a background growth rate of 2.0 percent per year is assumed to occur on all the public roads serving the site.

4.2 Future Baseline Traffic Volumes

Table 4.1 summarises the peak hourly and daily traffic volumes expected to occur with continuation of the existing rendering plant, and with an indicative 10 years of growth in background traffic (i.e. traffic not associated with the site) as described above.

Table 4.1: Future Weekday Traffic Volumes with Background Growth

Road and Location	AM Peak Hour		PM Peak Hour		Vehicles per Day	Percent Heavy (%)
	Hour Start	Vehicles per Hour	Hour Start	Vehicles per Hour		
Oxley Highway North of Joshua Street	8:00	311	16:00	369	3,955	18.8
Oxley Highway South of Byamee Lane	8:00	350	16:00	385	4,367	19.9
Oxley Highway North of Baiada Access	8:00	364	15:00	409	4,753	18.3
Oxley Highway North of Goddard Lane	8:00	424	15:00	472	5,339	17.5
Oxley Highway South of Goddard Lane	8:00	365	15:00	578	6,030	17.1
Oxley Highway East of Evans Street	9:00	778	15:00	1,025	10,204	10.6
Oxley Highway East of Edith Street	8:00	1,210	15:00	1,449	16,154	14.5
Wallamore Road South of Goddard Lane	8:00	324	15:00	526	4,839	16.0
Manilla Road South of Browns Lane	8:00	468	16:00	480	5,331	9.3
New England Highway South of Hall Street	8:00	1,268	16:00	1,317	14,525	9.8
Duri Road South of Bylong Road	8:00	439	16:00	429	4,918	17.7
Goonoo Goonoo Road North of Burgmanns Lane	8:00	657	17:00	684	8,147	15.3
Appleby Lane East of Oxley Highway	7:00	58	16:00	61	641	21.2
Bridge Street at Peel River Bridge	8:00	2,414	15:00	2,736	30,820	7.9
Jewry Street West of Wirraway Street	8:00	1,211	15:00	1,294	14,361	15.7

Assumes growth of non-site generated traffic at 2 percent per annum from survey year to 2028

4.3 Future Baseline Road Network Performance

Table 4.2 summarises the resulting peak hour midblock levels of service expected with continuance of the existing rendering plant and an increase in background traffic at 2 percent per year over 10 years. The background traffic is the surveyed traffic not generated by the existing rendering plant. As noted previously, while the location south of Goddard Lane has been assessed for its midblock performance, the operation of the intersections in the vicinity are expected to be the primary determinant of network performance. The intersection performance is discussed in Section 4.4.

Table 4.2: Future Weekday Peak Hour Midblock Performance with Background Growth

Road and Location	Class	Inbound to Processing Plant		Outbound from Processing Plant	
		PTSF	LOS	PTSF	LOS
Oxley Highway North of Existing Site Access					
AM Peak Hour	II	45.1	B	32.8	A
PM Peak Hour	II	45.7	B	43.8	B
Oxley Highway South of Goddard Lane					
AM Peak Hour	II	26.5	A	26.7	A
PM Peak Hour	II	33.8	A	41.5	B

The results indicate that the level of service experienced by drivers on Oxley Highway near the site would remain satisfactory if the rendering plant were to continue operating with background traffic growth.

4.4 Future Baseline Intersection Operation

Table 5.3 summarises the resulting peak hour operating conditions with the assumed coincidence of peak activity as above, and an increase in background traffic at 2 percent per year over 10 years. The background traffic is the surveyed traffic not generated by the existing rendering plant.

Table 4.3: Peak Hour Intersection Operation with Background Growth

Intersection	AM Peak Hour			PM Peak Hour		
	X-Value	Average Delay	Level of Service	X-Value	Average Delay	Level of Service
Oxley Highway and Goddard Lane	0.17	11.9	A	0.32	13.5	A
Goddard Lane and Armstrong Street	0.09	8.2	A	0.13	8.7	A
Goddard Lane and Wallamore Road	0.18	8.7	A	0.35	9.9	A
Oxley Highway and Duri Road	0.45	12.2	A	0.39	10.8	A
Oxley Highway and Marius Street	0.86	32.4	C	0.87	34.6	C
Peel Street and Jewry Street	>1.0	54.6	D	>1.0	>70	F

These results assume that the existing signal timing would remain unchanged at the intersection of Oxley Highway with Marius Street from that observed during the surveys in 2018. The results demonstrate that the intersections are forecast to operate with satisfactory levels of service and spare capacity, with the exception of the roundabout at Peel Street and Jewry Street, at which demand is forecast to exceed capacity with the increase in

background traffic. As noted previously, adjustments to line marking at the roundabout would provide for additional capacity by allowing drivers to safely turn left from Jewry Street to Peel Street and from Peel Street to Jewry Street unopposed by circulating or exiting traffic. The results of the analysis suggest that this additional capacity will be required in the future even without the proposed processing plant.

5 Impacts of the Processing Plant

5.1 Future Traffic Volumes

Table 5.1 summarises the peak hourly and daily traffic volumes expected to occur with the processing plant at surveyed locations on the road network. These represent conditions if the processing plant were operating with an indicative 10 years of growth in background traffic (i.e. traffic not associated with the site).

Table 5.1: Weekday Traffic Volumes with Background Growth and Processing Plant

Road and Location	AM Peak Hour		PM Peak Hour		Vehicles per Day	Percent Heavy (%)
	Hour Start	Vehicles per Hour	Hour Start	Vehicles per Hour		
Oxley Highway North of Joshua Street	8:00	314	16:00	373	4,063	19.6
Oxley Highway South of Byamee Lane	8:00	357	16:00	393	4,537	21.6
Oxley Highway North of Baiada Access	8:00	371	15:00	420	4,963	19.8
Oxley Highway North of Goddard Lane	8:00	429	15:00	478	5,545	18.4
Oxley Highway South of Goddard Lane	8:00	374	15:00	698	7,346	17.1
Oxley Highway East of Evans Street	9:00	796	15:00	1,146	11,524	11.3
Oxley Highway East of Edith Street	8:00	1,220	15:00	1,570	17,474	14.7
Wallamore Road South of Goddard Lane	8:00	324	15:00	601	5,587	13.8
Manilla Road South of Browns Lane	8:00	472	16:00	484	5,397	10.4
New England Highway South of Hall Street	8:00	1,272	16:00	1,323	14,690	10.5
Duri Road South of Bylong Road	8:00	447	16:00	438	5,117	19.9
Goonoo Goonoo Road North of Burgmanns Lane	8:00	665	17:00	690	8,346	16.6
Appleby Lane East of Oxley Highway	7:00	61	16:00	65	703	28.1
Bridge Street at Peel River Bridge	8:00	2,418	15:00	2,778	31,312	8.1
Jewry Street West of Wirraway Street	8:00	1,211	15:00	1,368	15,103	14.9

Assumes growth of non-site generated traffic at 2 percent per annum from survey year to 2018 and 2028

5.2 Future Road Network Performance

Table 5.2 summarises the resulting peak hour midblock levels of service expected with the proposed processing plant operating, together with an increase in background traffic at 2 percent per year over 10 years. As noted previously, while the location south of Goddard Lane has been assessed for its midblock performance, the operation of the intersections in the vicinity are expected to be the primary determinant of network performance. The forecast intersection performance with the processing plant is discussed in Section 5.3.

Table 5.2: Weekday Peak Hour Midblock Performance with Growth and Processing Plant

Road and Location	Class	Inbound to Processing Plant		Outbound from Processing Plant	
		PTSF	LOS	PTSF	LOS
Oxley Highway North of Existing Site Access					
AM Peak Hour	II	49.4	B	37.5	A
PM Peak Hour	II	48.2	B	50.8	B
Oxley Highway South of Goddard Lane					
AM Peak Hour	II	31.6	A	32.0	A
PM Peak Hour	II	40.1	B	56.1	C

The results demonstrate that the midblock level of service experienced by drivers is expected to remain satisfactory with the combined effects of background traffic growth and the processing plant traffic.

5.3 Future Intersection Operation

The impact of the processing plant traffic on the operation of intersections has been assessed using SIDRA INTERSECTION. As noted (Section 3.4.3) the expected traffic generation of the processing plant is low during the on-street peak hours, with site-generated peaks occurring outside of the on-street peaks. The processing plant traffic would therefore make only a minor contribution to the on-street peak hour operating conditions of the key intersections, noting that intersections are typically the critical locations with respect to the capacity of the road network, due to the need for conflicting vehicles to occupy the same road space.

As a robust assessment of the future operating conditions, the analysis has assumed that the peak volume of additional traffic resulting from the processing plant during the surveyed morning and afternoon periods (6am to 9am and 3pm to 7pm) would coincide with the surveyed peak volumes over those same periods. This will result in an overestimate of the future peak hour conditions, as those peaks are unlikely to coincide.

Table 5.3 summarises the resulting peak hour operating conditions with the assumed coincidence of peak activity as above based on surveyed traffic conditions in 2018. These

results assume that the existing signal timing would remain unchanged at the intersection of Oxley Highway with Marius Street from that observed during the surveys in 2018.

Table 5.3: Peak Hour Intersection Operation with Processing Plant (2018)

Intersection	AM Peak Hour			PM Peak Hour		
	X-Value	Average Delay	Level of Service	X-Value	Average Delay	Level of Service
Oxley Highway and Goddard Lane	0.16	11.9	A	0.38	13.1	A
Goddard Lane and Armstrong Street	0.11	7.7	A	0.30	8.5	A
Goddard Lane and Wallamore Road	0.15	8.6	A	0.37	9.5	A
Oxley Highway and Duri Road	0.36	11.6	A	0.33	10.5	A
Oxley Highway and Marius Street	0.69	29.4	C	0.77	33.0	C
Peel Street and Jewry Street	0.77	16.9	B	0.89	19.6	B

The SIDRA results demonstrate that with the traffic changes forecast to result from the processing plant, the key intersections would continue to operate at good levels of service. As noted, the forecasts assume a “worst case” in which the peak traffic generated by the processing plant would coincide with the on-street peak conditions, which is unlikely to occur. Nevertheless, the results indicate that sufficient capacity is available at the intersections under such conditions.

Table 5.4 summarises the longer term peak hour operating conditions with the assumed coincidence of peak activity as above, and an increase in background traffic at 2 percent per year over 10 years. As above, these results assume that the existing signal timing would remain unchanged at the intersection of Oxley Highway with Marius Street from that observed during the surveys in 2018.

Table 5.4: Peak Hour Intersection Operation with Processing Plant and Growth to 2028

Intersection	AM Peak Hour			PM Peak Hour		
	X-Value	Average Delay	Level of Service	X-Value	Average Delay	Level of Service
Oxley Highway and Goddard Lane	0.20	13.2	A	0.47	15.9	B
Goddard Lane and Armstrong Street	0.13	7.9	A	0.34	8.8	A
Goddard Lane and Wallamore Road	0.19	8.8	A	0.45	10.0	A
Oxley Highway and Duri Road	0.46	12.3	A	0.41	10.9	A
Oxley Highway and Marius Street	0.86	32.4	C	0.92	36.0	C
Peel Street and Jewry Street	>1.0	57.3	E	>1.0	>70	F

The results demonstrate that with the combined effects of background traffic growth and the processing plant traffic, the intersections are forecast to operate with satisfactory levels of service and spare capacity. As discussed in Section 4.4, the exception is the roundabout at Peel Street and Jewry Street, at which the baseline traffic demand is forecast to exceed capacity with the increase in background traffic. As noted, adjustments to line marking at the roundabout would provide for additional capacity by allowing drivers to safely turn left from Jewry Street to Peel Street and from Peel Street to Jewry Street unopposed by circulating or exiting traffic. The results of the analysis suggest that this additional capacity will be required in the future without the proposed processing plant.

5.4 Road Safety Implications

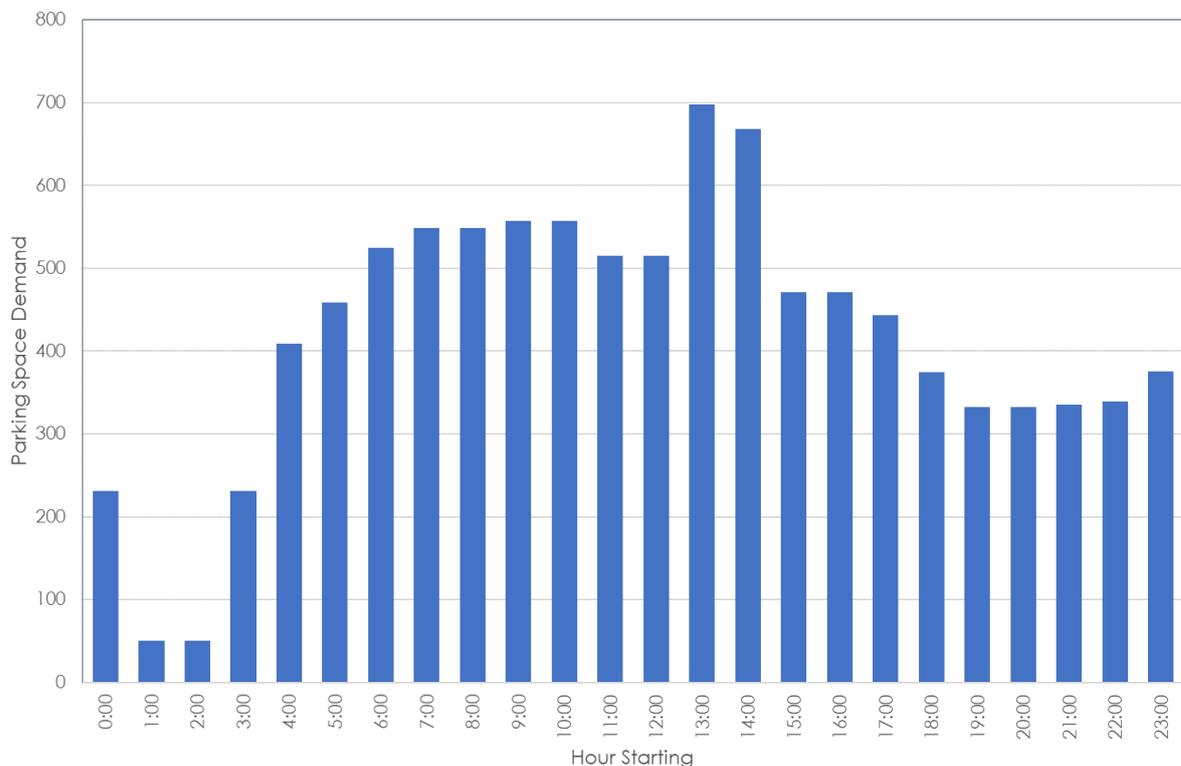
The review of the road safety history of the key access routes has not highlighted any particular causal factors which may be exacerbated by the processing plant traffic. The intersections of Oxley Highway with Goddard Lane, and Wallamore Road with Goddard Lane have been recently upgraded and are suitably designed for use by the heavy vehicles associated with the existing industrial area and the proposed processing plant. The forecast operating conditions at the intersections would not result in excess delays to vehicles that may encourage drivers to take unnecessary risks.

5.5 Car Parking Provision

Tamworth Regional Development Control Plan 2010 requires that car parking at light or heavy industry developments be provided at the greater of one space per 75m² GFA or one space per two employees. On this basis, the processing plant requires a minimum of 632 spaces based on the proposed 47,348m² GFA or 588 spaces based on the total of 1,176 employees. The proposed provision of 820 car parking spaces therefore exceeds the requirements of the DCP and is satisfactory.

By way of comparison, on the basis of the expected staff attendance pattern (refer to Section 3.4.2) and average car occupancy, the demand for staff car parking throughout the day has been estimated, as shown in Figure 5.1.

Figure 5.1: Processing Plant Staff Parking Demand



The peak demand for staff car parking would occur in the early afternoon, at 698 spaces, based on the travel patterns of staff described in Section 3.4.2. The proposed provision of 820 car parking spaces on the site would therefore accommodate the expected peak parking demand within the site, and is satisfactory.

The DCP does not specify a particular rate for the provision of car parking spaces for people with a disability. The proposed provision of eight spaces is equivalent to one per cent of the total number of spaces, which is consistent with the Building Code of Australia's requirement and is therefore considered satisfactory.

5.6 Access and Internal Layout

The design of the staff car parking area has been reviewed with regard to Australian Standard 2890.1 (2004). The design meets or exceeds the minimum requirements of that Standard with regard to the dimensions of the parking bays, aisles and driveway access road. "Type 1" speed humps are provided in the long aisles and driveway in accordance with AS2890.1 to provide positive speed control.

The spaces allocated to people with a disability are proposed to be designed and marked in accordance with the Australian Standard AS2890.6 (2009).

The internal layout of the processing plant roadways has been assessed for suitability by considering the swept paths of the heavy vehicles expected to use the site. The proposed road layouts are satisfactory for manoeuvring of those vehicles, and will allow for fire truck access through the car park from Oxley Highway if required.

It is noted that the internal roundabout at the entry to the staff car park is not required on capacity grounds, as the approaches of the existing site driveway would be used only infrequently for emergency access. The intersection may instead be appropriately constructed as a simple cross intersection, with priority being along the road into and out of the staff car park. If constructed, the central island of the roundabout would be required to be fully mountable to ensure emergency vehicle access (including fire trucks) remains available.

The proposed layout of internal roads has been assessed for use by B-doubles, and is satisfactory.

5.7 Mitigation Measures

This assessment has found that the traffic generated by the processing plant can generally be accommodated by the existing road network, without requiring any specific measures to address safety or capacity concerns.

The exception to this is the roundabout at the intersection of Peel Street and Jewry Street, which is expected to reach capacity with future traffic growth, regardless of traffic generated by the processing plant. As discussed, minor amendments to linemarking of the roundabout would provide additional capacity by providing better guidance and lane discipline for the circulating and exiting traffic. Such amendments would permit vehicles to turn left from Jewry Street to Peel Street without needing to give way to circulating traffic in the inner lane of the roundabout, being predominantly the westbound through vehicles on Peel Street. Improved lane marking would require those westbound vehicles to remain in the right hand lane when exiting the roundabout. The left turning vehicles from Jewry Street would turn into the left hand lane when exiting the roundabout.

Similarly amendments to the linemarking would permit vehicles to turn left from Peel Street to Jewry Street without needing to give way to circulating traffic in the inner lane of the roundabout, being predominantly those vehicles turning right from Peel Street to Jewry Street. Improved lane marking would require those right turning vehicles to remain in the right hand lane when exiting the roundabout, while the left turning vehicles from Peel Street would turn into the left hand lane when exiting the roundabout.

These amendments are not the result of the processing plant, rather will provide additional capacity at the roundabout to meet the forecast increase in demand resulting from general background traffic growth in the region.

6 Conclusions

This assessment of the road transport implications of a proposed processing plant on the site of the Oakburn rendering plant near Tamworth has found that the existing road network has sufficient capacity to accommodate the traffic generated by the processing plant with acceptable impacts on the operation of the key intersections.

The proposed provision of staff car parking is expected to meet the requirements of the processing plant staff and visitors.

The proposed layout of the staff car park complies with the relevant Australian Standards. The layout of the internal road network and car parking is satisfactory for the vehicles expected to use it.

The roundabout at Peel Street and Jewry Street is expected to reach capacity with background growth in traffic which is unrelated to the proposed processing plant. Additional capacity may be gained by improvements to the linemarking of the roundabout.

Appendix A

Traffic Surveys

Job No Q2118 - Tamworth
Client TTPP
Site Oxley Highway (North of Baiada Site Access)
Location Tamworth
Site No 1
Start Date 27-Jun-18
Description Volume Summary
Direction Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	2-Jul	3-Jul	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul		
AM Peak	284	292	322	333	303	327	243		
PM Peak	296	336	351	376	402	279	289	3963	3704
0:00	6	12	11	9	10	13	26	10	12
1:00	2	5	9	7	4	8	5	5	6
2:00	8	4	4	4	4	4	9	5	5
3:00	13	19	15	14	28	12	9	18	16
4:00	42	45	37	34	44	26	10	40	34
5:00	84	94	75	77	92	41	22	84	69
6:00	164	171	162	163	178	77	43	168	137
7:00	260	247	256	241	226	102	73	246	201
8:00	269	292	322	333	303	214	131	304	266
9:00	284	229	275	294	299	299	198	276	268
10:00	282	249	250	276	271	285	196	266	258
11:00	260	230	258	285	274	327	243	261	268
12:00	250	266	254	248	312	275	259	266	266
13:00	262	249	257	313	336	279	247	283	278
14:00	296	288	319	349	366	274	289	324	312
15:00	281	281	351	376	402	268	263	338	317
16:00	286	336	345	359	377	254	251	341	315
17:00	273	297	290	290	308	226	176	292	266
18:00	172	159	145	197	211	143	105	177	162
19:00	77	78	74	100	97	69	61	85	79
20:00	66	63	50	90	73	55	45	68	63
21:00	47	46	37	56	56	44	41	48	47
22:00	33	35	40	32	55	54	16	39	38
23:00	12	14	19	19	29	38	7	19	20
Total	3729	3709	3855	4166	4355	3387	2725	3963	3704

7-19	3175	3123	3322	3561	3685	2946	2431	3373	3178
6-22	3529	3481	3645	3970	4089	3191	2621	3743	3504
6-24	3574	3530	3704	4021	4173	3283	2644	3800	3561
0-24	3729	3709	3855	4166	4355	3387	2725	3963	3704

Job No Q2118 - Tamworth
Client TTPP
Site Oxley Highway (South of Goddard Lane)
Location Tamworth
Site No 2
Start Date 27-Jun-18
Description Volume Summary
Direction Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	2-Jul	3-Jul	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul		
AM Peak	319	304	306	306	325	313	245		
PM Peak	452	474	485	525	616	310	269	5040	4512
0:00	16	36	47	74	44	35	25	43	40
1:00	8	49	66	46	61	43	11	46	41
2:00	20	61	50	68	52	65	13	50	47
3:00	56	60	62	60	77	32	7	63	51
4:00	168	176	164	153	171	45	12	166	127
5:00	182	218	195	205	214	154	27	203	171
6:00	245	247	239	232	252	108	52	243	196
7:00	317	275	302	265	264	137	70	285	233
8:00	282	304	306	306	325	205	135	305	266
9:00	311	258	278	271	314	249	189	286	267
10:00	306	252	231	275	306	252	176	274	257
11:00	319	232	252	267	308	313	245	276	277
12:00	291	275	260	296	395	299	254	303	296
13:00	306	310	294	361	390	267	239	332	310
14:00	376	364	367	426	488	248	269	404	363
15:00	384	405	485	525	616	260	250	483	418
16:00	452	474	437	517	490	252	245	474	410
17:00	289	293	307	289	309	310	188	297	284
18:00	170	169	138	177	210	145	110	173	160
19:00	97	86	91	101	108	58	71	97	87
20:00	64	72	61	97	94	52	54	78	71
21:00	52	57	41	66	65	43	38	56	52
22:00	46	50	44	36	65	59	20	48	46
23:00	54	62	30	55	69	43	9	54	46
Total	4811	4785	4747	5168	5687	3674	2709	5040	4512

7-19	3803	3611	3657	3975	4415	2937	2370	3892	3538
6-22	4261	4073	4089	4471	4934	3198	2585	4366	3944
6-24	4361	4185	4163	4562	5068	3300	2614	4468	4036
0-24	4811	4785	4747	5168	5687	3674	2709	5040	4512

Job No Q2118 - Tamworth
Client TTPP
Site Wallamore Rd (South of Goddard Lane)
Location Tamworth
Site No 3
Start Date 27-Jun-18
Description Volume Summary
Direction Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	2-Jul	3-Jul	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul		
AM Peak	267	259	283	283	271	216	154		
PM Peak	400	409	440	441	501	171	137	4033	3385
0:00	7	26	51	58	29	19	6	34	28
1:00	5	43	52	40	50	30	3	38	32
2:00	15	72	58	72	60	74	3	55	51
3:00	29	39	40	27	38	19	8	35	29
4:00	139	138	124	130	142	24	4	135	100
5:00	137	141	158	164	142	125	11	148	125
6:00	200	203	171	179	175	93	29	186	150
7:00	226	209	222	212	205	64	47	215	169
8:00	253	259	283	283	270	103	48	270	214
9:00	263	191	241	258	248	177	86	240	209
10:00	259	204	197	224	263	216	102	229	209
11:00	267	205	235	232	271	196	154	242	223
12:00	275	216	236	204	295	171	137	245	219
13:00	254	237	252	272	343	137	109	272	229
14:00	364	334	355	371	359	148	133	357	295
15:00	400	409	440	441	501	128	113	438	347
16:00	382	393	394	383	372	130	117	385	310
17:00	208	244	227	216	226	156	97	224	196
18:00	118	76	91	101	101	63	62	97	87
19:00	39	52	48	55	46	31	29	48	43
20:00	47	30	19	40	39	20	17	35	30
21:00	44	27	44	32	30	19	15	35	30
22:00	23	13	17	19	24	20	10	19	18
23:00	65	64	24	51	48	15	11	50	40
Total	4019	3825	3979	4064	4277	2178	1351	4033	3385

7-19	3269	2977	3173	3197	3454	1689	1205	3214	2709
6-22	3599	3289	3455	3503	3744	1852	1295	3518	2962
6-24	3687	3366	3496	3573	3816	1887	1316	3588	3020
0-24	4019	3825	3979	4064	4277	2178	1351	4033	3385

Job No Q2118 - Tamworth
Client TTPP
Site Manilla Rd (South of Browns Lane)
Location Tamworth
Site No 4
Start Date 27-Jun-18
Description Volume Summary
Direction Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	2-Jul	3-Jul	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul		
AM Peak	347	374	403	435	393	371	273		
PM Peak	363	384	397	414	443	340	280	4443	4152
0:00	6	13	11	10	9	12	27	10	13
1:00	7	8	4	6	7	8	17	6	8
2:00	4	11	9	4	7	10	12	7	8
3:00	11	13	19	13	16	12	3	14	12
4:00	40	47	40	42	54	23	15	45	37
5:00	93	80	96	80	78	39	25	85	70
6:00	178	170	177	178	157	73	40	172	139
7:00	288	298	305	277	262	144	81	286	236
8:00	347	374	403	435	393	291	108	390	336
9:00	335	341	343	361	352	322	188	346	320
10:00	279	249	292	293	297	371	239	282	289
11:00	259	253	285	255	329	338	273	276	285
12:00	232	234	258	257	302	340	274	257	271
13:00	277	288	284	275	334	313	243	292	288
14:00	278	288	316	335	352	279	258	314	301
15:00	356	352	330	372	422	284	280	366	342
16:00	363	383	397	414	443	269	219	400	355
17:00	356	384	361	372	423	292	212	379	343
18:00	177	202	224	217	228	197	137	210	197
19:00	103	113	113	120	117	102	72	113	106
20:00	81	77	85	83	82	67	69	82	78
21:00	48	49	55	58	77	82	43	57	59
22:00	29	32	26	28	61	62	23	35	37
23:00	16	15	12	16	30	43	17	18	21
Total	4163	4274	4445	4501	4832	3973	2875	4443	4152

7-19	3547	3646	3798	3863	4137	3440	2512	3798	3563
6-22	3957	4055	4228	4302	4570	3764	2736	4222	3945
6-24	4002	4102	4266	4346	4661	3869	2776	4275	4003
0-24	4163	4274	4445	4501	4832	3973	2875	4443	4152

Job No Q2118 - Tamworth
Client TTPP
Site New England Highway (South of Hall St)
Location Tamworth
Site No 5
Start Date 27-Jun-18
Description Volume Summary
Direction Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	2-Jul	3-Jul	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul		
AM Peak	1116	1003	1022	1068	1074	952	792		
PM Peak	1079	1063	1104	1163	1145	830	787	12106	11151
0:00	20	39	32	46	54	39	60	38	41
1:00	20	40	25	20	44	51	25	30	32
2:00	15	22	21	29	25	27	24	22	23
3:00	23	38	39	40	29	30	14	34	30
4:00	72	70	70	73	80	48	26	73	63
5:00	182	183	185	190	193	112	55	187	157
6:00	375	367	436	399	409	133	130	397	321
7:00	725	637	659	665	690	296	221	675	556
8:00	1116	1003	1022	1068	1074	508	364	1057	879
9:00	872	817	804	871	885	799	591	850	806
10:00	808	770	716	801	838	952	684	787	796
11:00	730	811	744	786	951	910	792	804	818
12:00	740	760	728	798	859	830	787	777	786
13:00	819	733	788	715	904	735	755	792	778
14:00	842	801	864	868	949	760	762	865	835
15:00	1035	1063	1104	1131	1125	677	679	1092	973
16:00	1079	1058	1043	1163	1145	659	613	1098	966
17:00	987	942	1037	1044	1006	560	545	1003	874
18:00	540	532	595	642	590	476	360	580	534
19:00	312	354	343	365	329	222	256	341	312
20:00	248	243	261	278	224	199	142	251	228
21:00	198	124	195	177	217	147	121	182	168
22:00	93	84	117	109	158	146	73	112	111
23:00	73	51	52	49	77	96	38	60	62
Total	11924	11542	11880	12327	12855	9412	8117	12106	11151

7-19	10293	9927	10104	10552	11016	8162	7153	10378	9601
6-22	11426	11015	11339	11771	12195	8863	7802	11549	10630
6-24	11592	11150	11508	11929	12430	9105	7913	11722	10804
0-24	11924	11542	11880	12327	12855	9412	8117	12106	11151

Job No	Q2118 - Tamworth
Client	TTPP
Site	Duri Road (South of Bylong St)
Location	Tamworth
Site No	7
Start Date	27-Jun-18
Description	Volume Summary
Direction	Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	2-Jul	3-Jul	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul		
AM Peak	364	347	393	383	343	289	227		
PM Peak	342	334	356	383	390	251	247	4102	3716
0:00	9	11	16	16	15	15	25	13	15
1:00	9	8	10	9	7	14	15	9	10
2:00	11	19	14	16	14	13	8	15	14
3:00	14	17	22	21	25	16	8	20	18
4:00	33	27	37	47	41	15	15	37	31
5:00	99	84	111	77	86	38	27	91	75
6:00	179	204	216	175	167	59	45	188	149
7:00	289	287	281	304	274	88	51	287	225
8:00	364	347	393	383	343	178	131	366	306
9:00	298	240	288	301	274	281	155	280	262
10:00	269	249	256	290	285	289	194	270	262
11:00	242	246	260	238	299	279	227	257	256
12:00	242	228	228	213	289	238	191	240	233
13:00	265	243	250	257	308	237	241	265	257
14:00	247	272	303	324	388	251	247	307	290
15:00	301	304	321	323	390	246	228	328	302
16:00	342	334	352	383	378	218	214	358	317
17:00	331	315	356	324	340	168	175	333	287
18:00	163	159	178	174	186	126	94	172	154
19:00	86	69	80	98	112	83	75	89	86
20:00	68	75	52	70	77	42	58	68	63
21:00	39	43	45	43	70	42	33	48	45
22:00	33	23	35	24	61	52	24	35	36
23:00	21	25	24	22	39	22	12	26	24
Total	3954	3829	4128	4132	4468	3010	2493	4102	3716

7-19	3353	3224	3466	3514	3754	2599	2148	3462	3151
6-22	3725	3615	3859	3900	4180	2825	2359	3856	3495
6-24	3779	3663	3918	3946	4280	2899	2395	3917	3554
0-24	3954	3829	4128	4132	4468	3010	2493	4102	3716

Job No Q2118 - Tamworth
Client TTPP
Site Goonoo Goonoo Rd (North of Burgmans Lane)
Location Tamworth
Site No 8
Start Date 27-Jun-18
Description Volume Summary
Direction Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	2-Jul	3-Jul	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul		
AM Peak	544	544	532	564	554	573	505		
PM Peak	543	546	556	584	662	608	546	6793	6619
0:00	14	24	36	36	35	45	40	29	33
1:00	15	21	18	18	21	26	17	19	19
2:00	17	27	11	9	23	18	22	17	18
3:00	22	29	26	33	29	20	11	28	24
4:00	46	39	60	48	65	28	22	52	44
5:00	123	115	100	108	118	77	38	113	97
6:00	208	224	220	214	219	107	81	217	182
7:00	359	367	341	348	355	215	146	354	304
8:00	544	544	532	564	554	420	329	548	498
9:00	531	406	446	460	477	517	385	464	460
10:00	424	374	429	444	494	511	492	433	453
11:00	453	404	416	433	448	573	505	431	462
12:00	473	409	398	417	504	608	542	440	479
13:00	383	415	384	468	549	495	511	440	458
14:00	418	436	436	487	586	519	541	473	489
15:00	502	537	540	558	662	480	546	560	546
16:00	518	531	541	584	662	447	427	567	530
17:00	543	546	556	581	626	455	379	570	527
18:00	357	320	328	400	454	323	283	372	352
19:00	211	214	202	241	258	201	208	225	219
20:00	161	161	171	165	225	136	128	177	164
21:00	88	136	128	130	180	145	79	132	127
22:00	66	63	87	72	144	105	59	86	85
23:00	42	51	35	44	61	70	41	47	49
Total	6518	6393	6441	6862	7749	6541	5832	6793	6619

7-19	5505	5289	5347	5744	6371	5563	5086	5651	5558
6-22	6173	6024	6068	6494	7253	6152	5582	6402	6249
6-24	6281	6138	6190	6610	7458	6327	5682	6535	6384
0-24	6518	6393	6441	6862	7749	6541	5832	6793	6619

Job No Q2118 - Tamworth
Client TTPP
Site Appleby Lane (East of Oxley Highway)
Location Tamworth
Site No 9
Start Date 27-Jun-18
Description Volume Summary
Direction Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	2-Jul	3-Jul	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul		
AM Peak	48	46	51	48	49	32	40		
PM Peak	48	52	55	52	51	41	64	535	509
0:00	1	0	0	1	0	3	3	0	1
1:00	0	2	0	0	1	1	0	1	1
2:00	0	0	2	0	1	1	1	1	1
3:00	6	1	3	3	4	1	0	3	3
4:00	13	16	10	9	9	5	3	11	9
5:00	24	15	18	10	13	10	3	16	13
6:00	18	25	26	29	23	9	10	24	20
7:00	48	46	51	48	49	21	13	48	39
8:00	40	45	47	36	38	32	40	41	40
9:00	37	36	38	32	27	26	38	34	33
10:00	26	28	38	26	27	30	29	29	29
11:00	23	30	38	38	23	24	29	30	29
12:00	28	34	30	28	31	32	43	30	32
13:00	22	30	27	23	31	26	64	27	32
14:00	40	43	41	32	34	34	48	38	39
15:00	40	47	36	52	43	38	43	44	43
16:00	48	52	55	50	51	41	42	51	48
17:00	43	42	41	43	50	28	22	44	38
18:00	31	28	23	30	35	12	27	29	27
19:00	13	11	8	17	7	11	9	11	11
20:00	12	10	8	13	11	7	1	11	9
21:00	3	5	2	4	8	9	10	4	6
22:00	4	4	2	5	11	2	4	5	5
23:00	0	1	1	1	0	6	0	1	1
Total	520	551	545	530	527	409	482	535	509

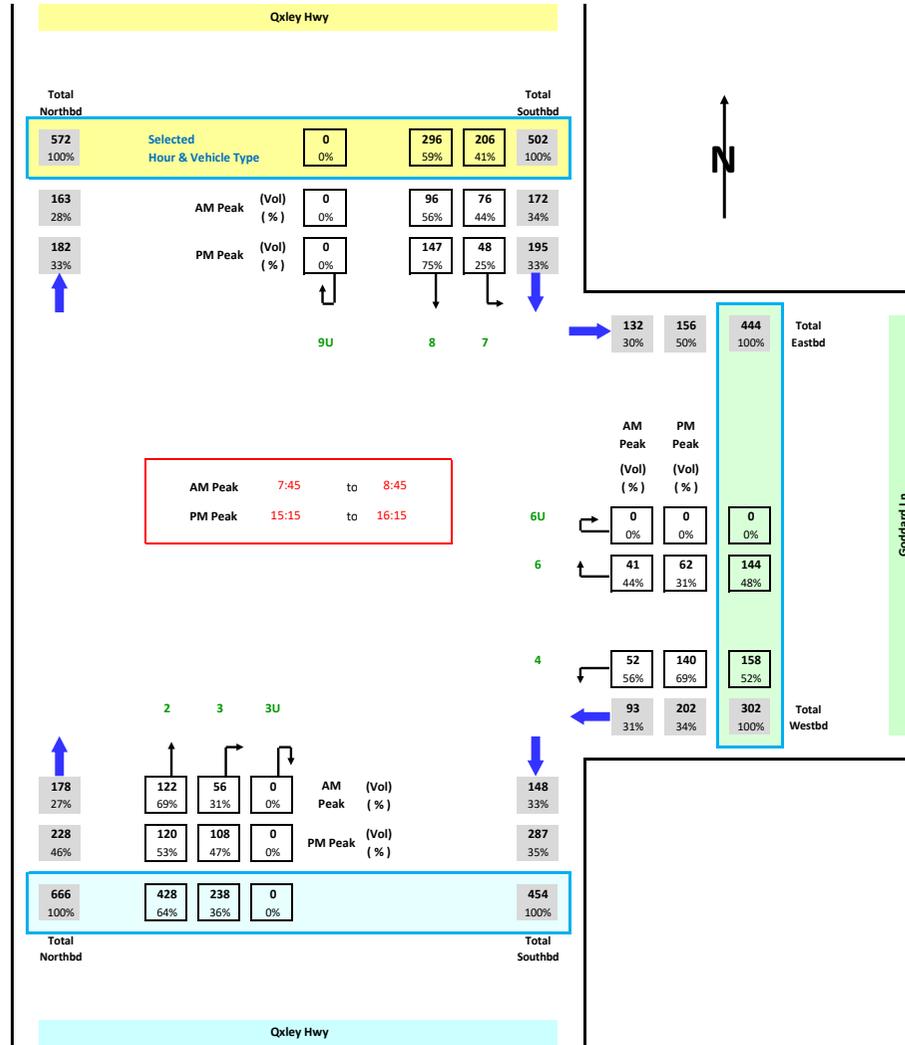
7-19	426	461	465	438	439	344	438	446	430
6-22	472	512	509	501	488	380	468	496	476
6-24	476	517	512	507	499	388	472	502	482
0-24	520	551	545	530	527	409	482	535	509

Job No. : Q2118
Client : TTPP
Suburb : Tamworth
Location : 1. Qxley Hwy / Goddard Ln

Day/Date : Wed, 27th Jun 2018
Weather : Fine
Description : Classified Intersection Count
: Intersection Diagram



Hour Starting **Vehicle Type**
 AM Totals ▼ All Vehicles ▼



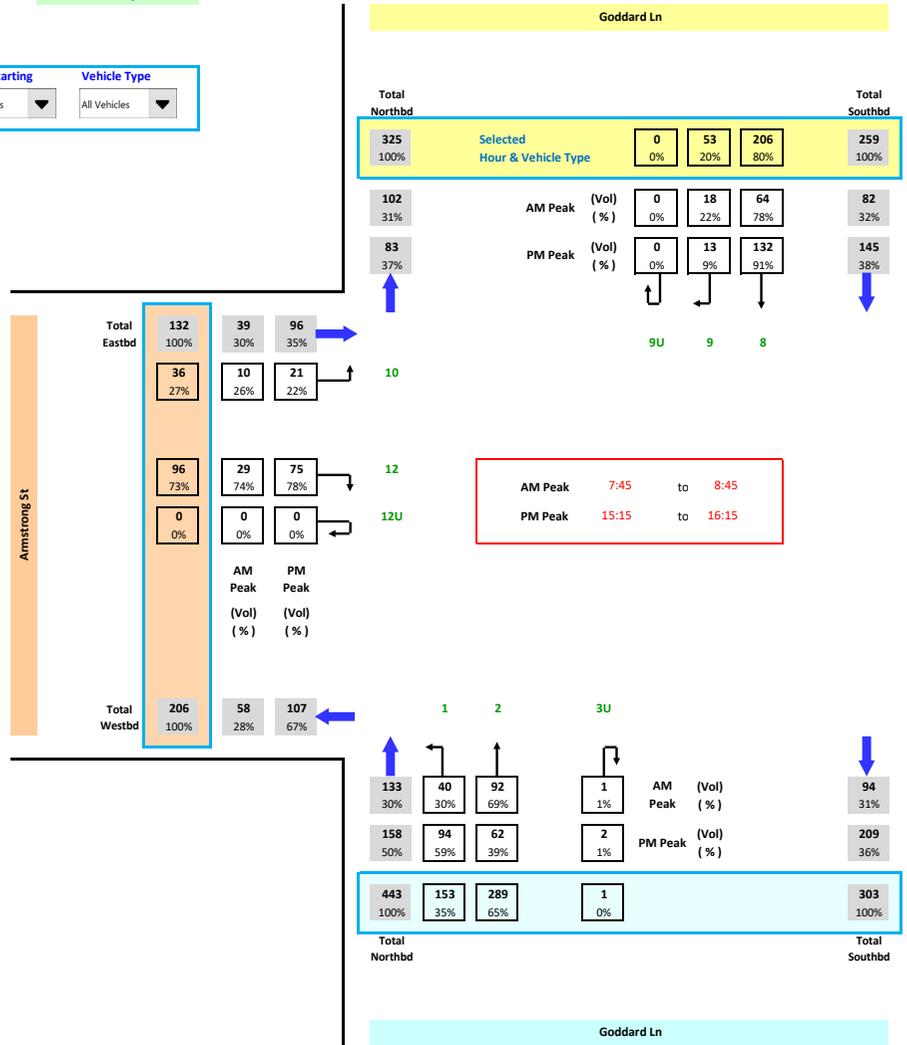
AM Peak 7:45 to 8:45
 PM Peak 15:15 to 16:15

Job No. : Q2118
 Client : TTPP
 Suburb : Tamworth
 Location : 2. Armstrong St / Goddard Ln

 Day/Date : Wed, 27th Jun 2018
 Weather : Fine
 Description : Classified Intersection Count
 : Intersection Diagram



Hour Starting: AM Totals
 Vehicle Type: All Vehicles

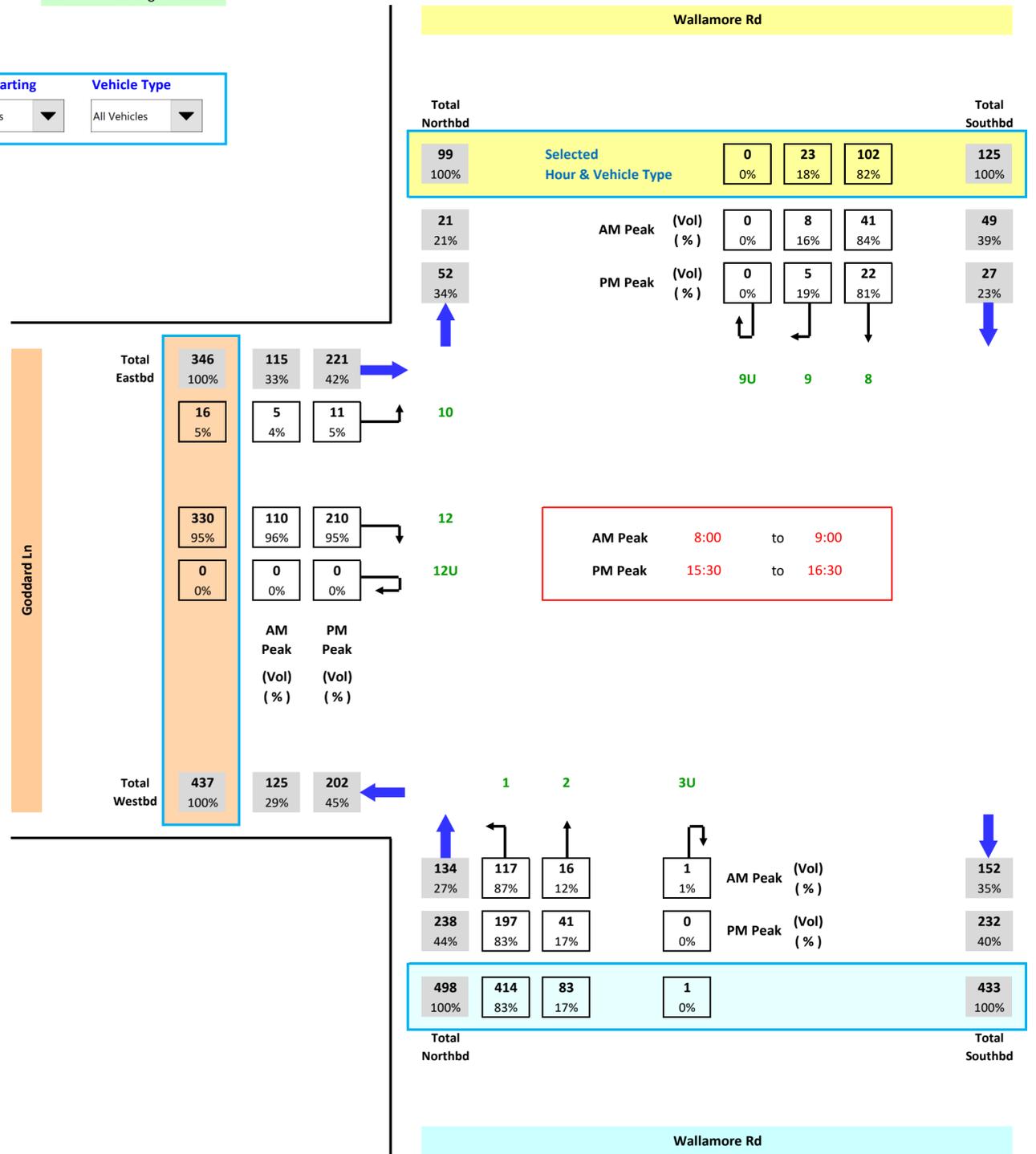


Job No. : Q2118
Client : TTPP
Suburb : Tamworth
Location : 3. Wallamore Rd / Goddard Ln

Day/Date : Wed, 27th Jun 2018
Weather : Fine
Description : Classified Intersection Count
 : Intersection Diagram



Hour Starting : AM Totals
Vehicle Type : All Vehicles

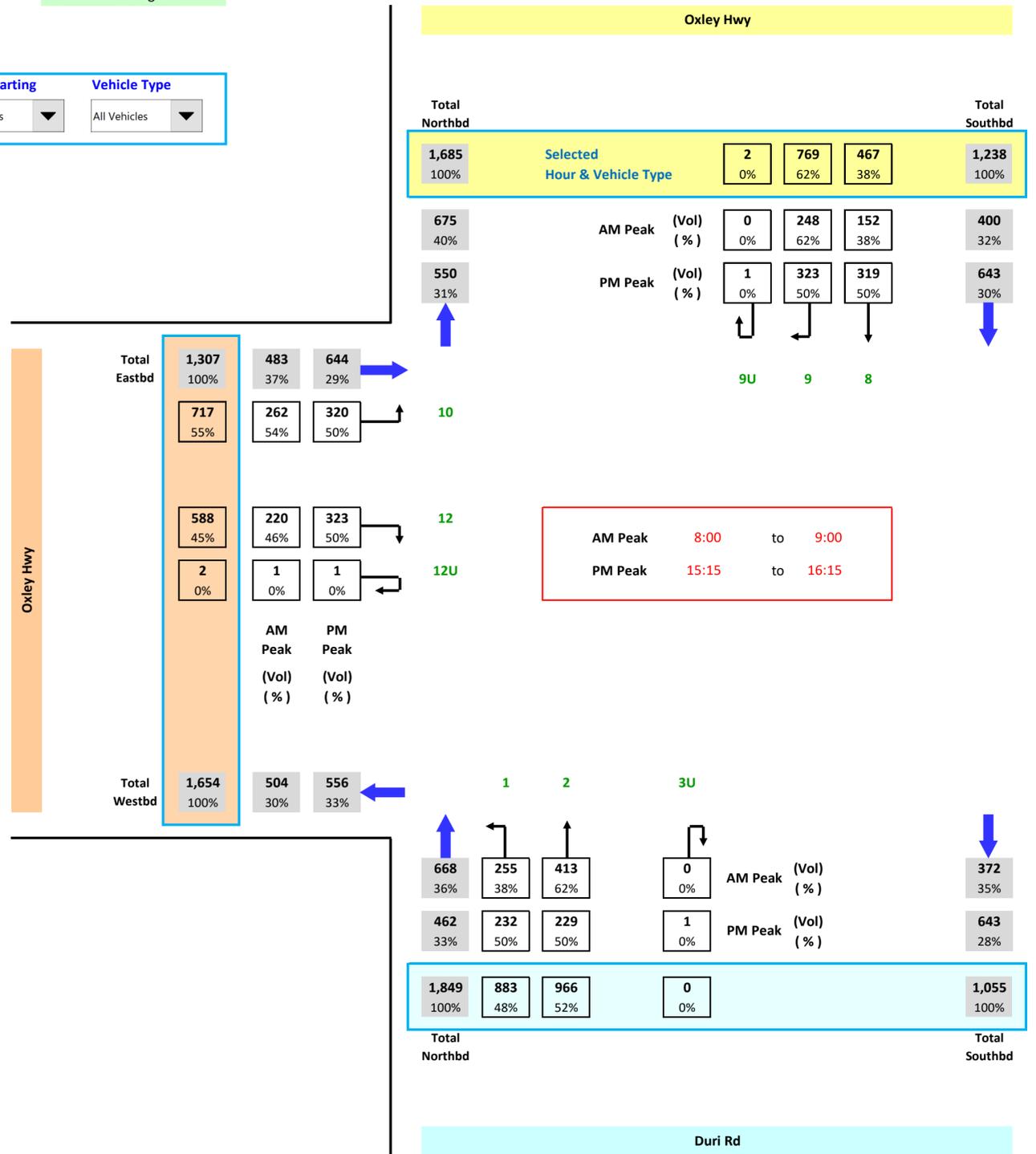


Job No. : Q2118
 Client : TTPP
 Suburb : Tamworth
 Location : 4. Oxley Hwy / Duri Rd

Day/Date : Wed, 27th Jun 2018
 Weather : Fine
 Description : Classified Intersection Count
 : Intersection Diagram



Hour Starting: AM Totals
 Vehicle Type: All Vehicles

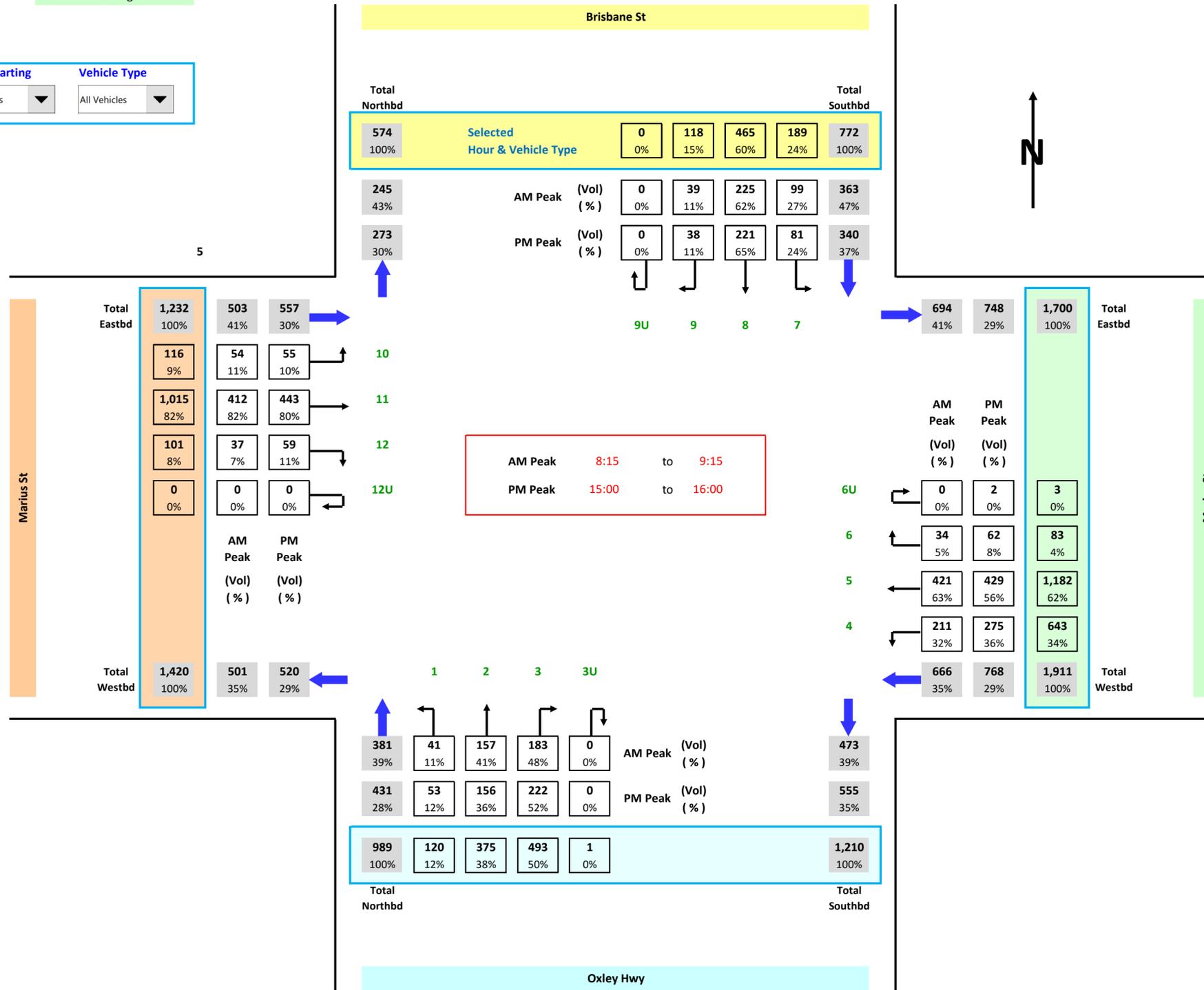


Job No. : Q2118
 Client : TTPP
 Suburb : Tamworth
 Location : 5. Oxley Hwy / Marius St / Brisbane St

Day/Date : Wed, 27th Jun 2018
 Weather : Fine
 Description : Classified Intersection Count
 : Intersection Diagram



Hour Starting: AM Totals
 Vehicle Type: All Vehicles

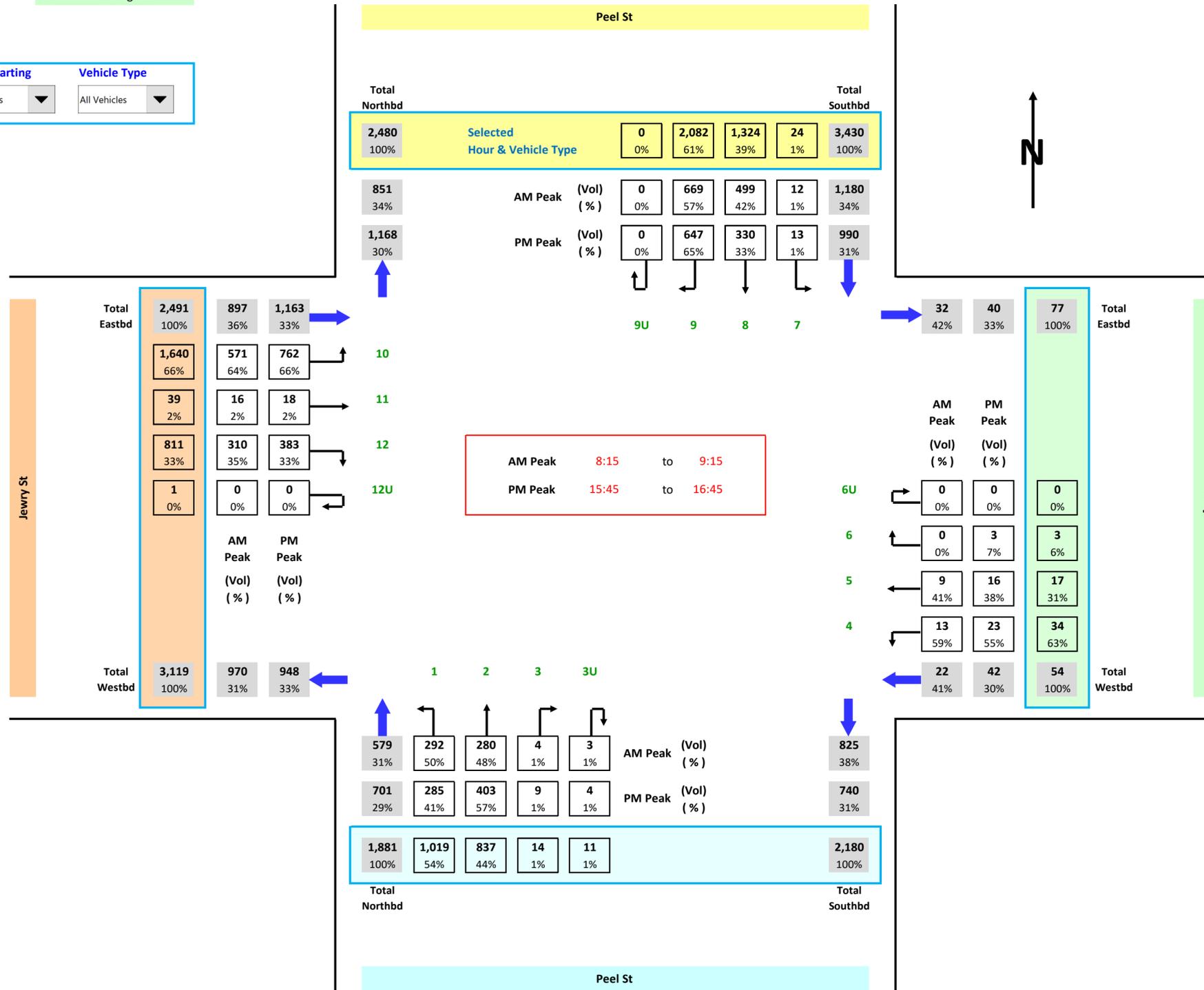


Job No. : Q2118
 Client : TTPP
 Suburb : Tamworth
 Location : 6. Peel St / Jewry St

Day/Date : Wed, 27th Jun 2018
 Weather : Fine
 Description : Classified Intersection Count
 : Intersection Diagram



Hour Starting: AM Totals
 Vehicle Type: All Vehicles

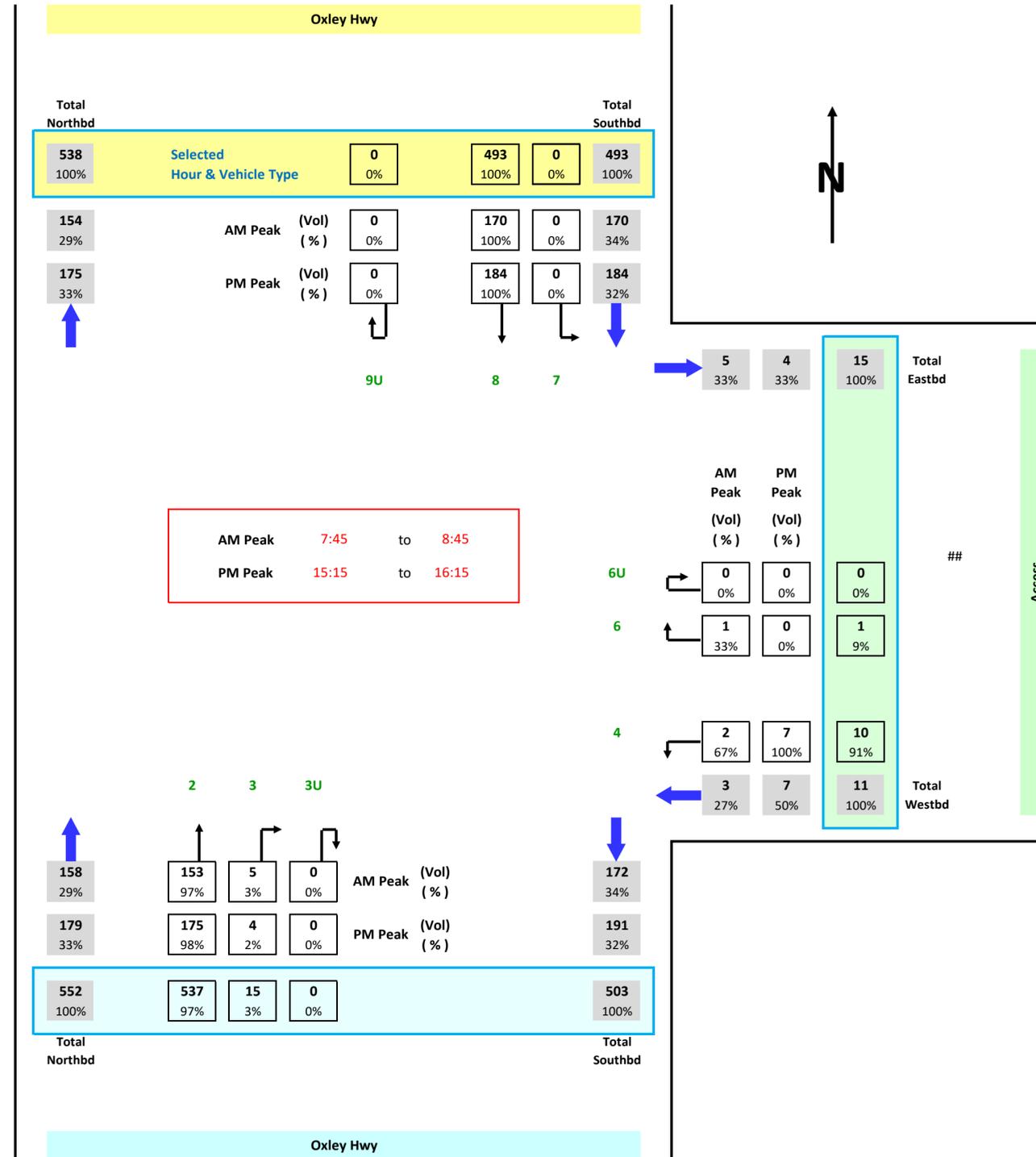


Job No. : Q2118
Client : TTPP
Suburb : Tamworth
Location : 7. Oxley Hwy

Day/Date : Wed, 27th Jun 2018
Weather : Fine
Description : Classified Intersection Count
 : Intersection Diagram



Hour Starting : AM Totals
Vehicle Type : All Vehicles



Appendix B

Road Crash Summary Analysis Tables

Oxley Highway Crash Summary (Appleby Lane to Duri Road) 1 July 2012 to 30 June 2017

	Pedestrian	Multiple Vehicles					Single Vehicle			Miscellaneous	Total
		Adjacent Approaches	Opposing Directions	Same Direction	U-turn/Parking	Overtaking	On Path	Off Path on Straight	Off Path on Curve		
Total Crashes	-	7	3	12	-	-	2	11	2	-	37
Crash Location Type											
2-way undivided road	-	-	2	4	-	-	2	8	2	-	18
Roundabout	-	1	-	-	-	-	-	2	-	-	3
Cross Intersection	-	1	-	-	-	-	-	-	-	-	1
T-intersection	-	5	1	8	-	-	-	1	-	-	15
Severity of Crash											
Fatal	-	-	1	-	-	-	-	-	-	-	1
Serious Injury	-	1	1	1	-	-	-	2	-	-	5
Moderate Injury	-	3	1	8	-	-	-	1	1	-	14
Non-injury	-	3	-	3	-	-	2	8	1	-	17
Weather Conditions											
Fine	-	7	1	11	-	-	1	8	2	-	30
Overcast	-	-	-	-	-	-	-	2	-	-	2
Raining	-	-	2	1	-	-	1	1	-	-	5
Road Surface Condition											
Dry	-	7	1	11	-	-	1	9	2	-	31
Wet	-	-	2	1	-	-	1	2	-	-	6
Speed Limit											
40 km/h	-	-	-	1	-	-	-	1	-	-	2
50 km/h	-	1	-	1	-	-	-	-	-	-	2
60 km/h	-	2	-	7	-	-	-	3	-	-	12
70 km/h	-	1	1	3	-	-	-	-	-	-	5
80 km/h	-	1	-	-	-	-	1	1	-	-	3
100 km/h	-	2	2	-	-	-	1	6	2	-	13
Key Vehicle Type^A											
Motorcycle	-	-	-	1	-	-	-	-	-	-	1
Car, 4WD, Station Wagon	-	4	3	9	-	-	2	7	1	-	26
Rigid Truck	-	2	-	2	-	-	-	3	1	-	8
Articulated	-	1	-	-	-	-	-	1	-	-	2

^A The first vehicle identified in multiple vehicle crashes.

Oxley Highway Crash Summary (Duri Road to Marius Street) 1 July 2012 to 30 June 2017

	Pedestrian	Multiple Vehicles					Single Vehicle			Miscellaneous	Total
		Adjacent Approaches	Opposing Directions	Same Direction	U-turn/Parking	Overtaking	On Path	Off Path on Straight	Off Path on Curve		
Total Crashes	-	12	11	16	4	-	-	5	2	-	50
Crash Location Type											
Divided road	-	-	-	3	1	-	-	1	1	-	6
2-way undivided road	-	-	-	-	-	-	-	-	1	-	1
T-intersection	-	-	1	2	0	-	-	1	-	-	4
Cross Intersection	-	8	9	5	2	-	-	-	-	-	24
Roundabout	-	4	1	6	1	-	-	3	-	-	15
Severity of Crash											
Serious Injury	-	1	-	-	-	-	-	-	-	-	1
Moderate Injury	-	4	5	6	3	-	-	3	-	-	21
Minor Injury	-	1	-	2	-	-	-	-	-	-	3
Non-injury	-	6	6	8	1	-	-	2	2	-	25
Weather Conditions											
Fine	-	12	10	14	4	-	-	5	-	-	45
Overcast	-	-	1	-	-	-	-	-	-	-	1
Raining	-	-	-	2	-	-	-	-	2	-	4
Road Surface Condition											
Dry	-	12	10	13	4	-	-	5	-	-	44
Wet	-	-	1	3	-	-	-	-	2	-	6
Speed Limit											
50 km/h	-	10	9	11	3	-	-	4	1	-	38
60 km/h	-	2	2	5	1	-	-	1	1	-	12
Key Vehicle Type^A											
Motorcycle/Pedal Cycle	-	-	-	-	2	-	-	1	-	-	3
Car, 4WD, Station Wagon	-	11	9	12	1	-	-	4	2	-	39
Rigid Truck	-	1	2	3	1	-	-	-	-	-	7
Articulated	-	-	-	1	-	-	-	-	-	-	1

^A The first vehicle identified in multiple vehicle crashes.

Wallamore Road Crash Summary 1 July 2012 to 30 June 2017

	Pedestrian	Multiple Vehicles					Single Vehicle			Miscellaneous	Total
		Adjacent Approaches	Opposing Directions	Same Direction	U-turn/Parking	Overtaking	On Path	Off Path on Straight	Off Path on Curve		
Total Crashes	-	-	1	3	1	-	1	3	2	-	11
Crash Location Type											
Divided road	-	-	-	-	-	-	-	1	-	-	1
2-way undivided road	-	-	1	2	1	-	1	1	2	-	8
T-intersection	-	-	-	1	-	-	-	1	-	-	2
Severity of Crash											
Serious Injury	-	-	1	1	-	-	-	-	1	-	3
Moderate Injury	-	-	-	1	-	-	-	1	-	-	2
Minor Injury	-	-	-	-	-	-	1	-	-	-	1
Non-injury	-	-	-	1	1	-	-	2	1	-	5
Weather Conditions											
Fine	-	-	1	2	1	-	1	1	2	-	8
Fog or Mist	-	-	-	-	-	-	-	1	-	-	1
Raining	-	-	-	1	-	-	-	1	-	-	2
Road Surface Condition											
Dry	-	-	1	2	1	-	1	-	2	-	7
Wet	-	-	-	1	-	-	-	3	-	-	4
Speed Limit											
60 km/h	-	-	-	1	-	-	-	-	-	-	1
70 km/h	-	-	-	-	-	-	-	1	-	-	1
80 km/h	-	-	1	2	-	-	-	1	-	-	4
100 km/h	-	-	-	-	1	-	1	1	2	-	5
Key Vehicle Type^A											
Motorcycle	-	-	-	-	-	-	1	-	-	-	1
Car, 4WD, Station Wagon	-	-	1	3	1	-	-	2	-	-	7
Rigid Truck	-	-	-	-	-	-	-	1	1	-	2
Articulated	-	-	-	-	-	-	-	-	1	-	1

^A The first vehicle identified in multiple vehicle crashes.

Duri Road (Oxley Highway to Burgmanns Lane) Crash Summary 1 July 2012 to 30 June 2017

	Pedestrian	Multiple Vehicles					Single Vehicle			Miscellaneous	Total
		Adjacent Approaches	Opposing Directions	Same Direction	U-turn/Parking	Overtaking	On Path	Off Path on Straight	Off Path on Curve		
Total Crashes	2	5	-	3	1	-	-	8	4	-	23
Crash Location Type											
Divided road	-	-	-	-	-	-	-	1	-	-	1
2-way undivided road	1	-	-	1	-	-	-	2	2	-	6
Roundabout	1	-	-	-	-	-	-	4	1	-	6
T-intersection	-	5	-	2	1	-	-	1	1	-	10
Severity of Crash											
Serious Injury	-	1	-	-	-	-	-	-	1	-	2
Moderate Injury	2	3	-	1	-	-	-	4	1	-	11
Minor Injury	-	-	-	-	-	-	-	1	-	-	1
Non-injury	-	1	-	2	1	-	-	3	2	-	9
Weather Conditions											
Fine	2	4	-	3	1	-	-	5	4	-	19
Overcast	-	-	-	-	-	-	-	2	-	-	2
Fog or Mist	-	-	-	-	-	-	-	1	-	-	1
Raining	-	1	-	-	-	-	-	-	-	-	1
Road Surface Condition											
Dry	2	4	-	3	1	-	-	6	4	-	20
Wet	-	1	-	-	-	-	-	2	-	-	3
Speed Limit											
40 km/h	-	1	-	-	-	-	-	-	-	-	1
50 km/h	-	-	-	-	-	-	-	-	1	-	1
60 km/h	1	2	-	2	-	-	-	6	1	-	12
100 km/h	1	2	-	1	1	-	-	2	2	-	9
Key Vehicle Type^A											
Motorcycle/moped	-	-	-	-	-	-	-	1	-	-	1
Car, 4WD, Station Wagon	2	4	-	2	-	-	-	6	3	-	17
Rigid Truck	-	1	-	-	-	-	-	-	1	-	2
Articulated	-	-	-	1	-	-	-	1	-	-	2
Unknown	-	-	-	-	1	-	-	-	-	-	1

^A The first vehicle identified in multiple vehicle crashes.

Dampier Street – Jewry Street Crash Summary 1 July 2012 to 30 June 2017

	Pedestrian	Multiple Vehicles					Single Vehicle			Miscellaneous	Total
		Adjacent Approaches	Opposing Directions	Same Direction	U-turn/Parking	Overtaking	On Path	Off Path on Straight	Off Path on Curve		
Total Crashes	-	-	1	9	-	-	-	2	-	-	12
Crash Location Type											
2-way undivided road	-	-	-	1	-	-	-	1	-	-	2
T-intersection	-	-	1	5	-	-	-	1	-	-	7
Cross intersection	-	-	-	1	-	-	-	-	-	-	1
Roundabout	-	-	-	2	-	-	-	-	-	-	2
Severity of Crash											
Serious Injury	-	-	1	1	-	-	-	1	-	-	3
Moderate Injury	-	-	-	5	-	-	-	1	-	-	6
Non-injury	-	-	-	3	-	-	-	-	-	-	3
Weather Conditions											
Fine	-	-	-	9	-	-	-	1	-	-	10
Overcast	-	-	1	-	-	-	-	-	-	-	1
Raining	-	-	-	-	-	-	-	1	-	-	1
Road Surface Condition											
Dry	-	-	1	9	-	-	-	1	-	-	11
Wet	-	-	-	-	-	-	-	1	-	-	1
Speed Limit											
50 km/h	-	-	-	1	-	-	-	-	-	-	1
60 km/h	-	-	1	8	-	-	-	2	-	-	11
Key Vehicle Type^A											
Motorcycle	-	-	-	-	-	-	-	1	-	-	1
Car, 4WD, Station Wagon	-	-	-	3	-	-	-	1	-	-	4
Rigid Truck	-	-	1	4	-	-	-	-	-	-	5
Articulated	-	-	-	2	-	-	-	-	-	-	2

^A The first vehicle identified in multiple vehicle crashes.

Ebsworth Street Crash Summary 1 July 2012 to 30 June 2017

	Pedestrian	Multiple Vehicles					Single Vehicle			Miscellaneous	Total
		Adjacent Approaches	Opposing Directions	Same Direction	U-turn/Parking	Overtaking	On Path	Off Path on Straight	Off Path on Curve		
Total Crashes	-	1	-	3	-	-	-	1	1	-	6
Crash Location Type											
Divided road	-	-	-	2	-	-	-	-	-	-	2
Roundabout	-	1	-	1	-	-	-	1	1	-	4
Severity of Crash											
Serious Injury	-	-	-	-	-	-	-	-	1	-	1
Moderate Injury	-	1	-	2	-	-	-	-	-	-	3
Non-injury	-	-	-	1	-	-	-	1	-	-	2
Weather Conditions											
Fine	-	1	-	3	-	-	-	1	1	-	6
Road Surface Condition											
Dry	-	1	-	3	-	-	-	1	1	-	6
Speed Limit											
50 km/h	-	1	-	1	-	-	-	1	1	-	4
60 km/h	-	-	-	2	-	-	-	-	-	-	2
Key Vehicle Type^A											
Motorcycle	-	-	-	-	-	-	-	-	1	-	1
Car, 4WD, Station Wagon	-	1	-	3	-	-	-	1	-	-	5

^A The first vehicle identified in multiple vehicle crashes.

Manilla Road Route Crash Summary 1 July 2012 to 30 June 2017

	Pedestrian	Multiple Vehicles					Single Vehicle			Miscellaneous	Total
		Adjacent Approaches	Opposing Directions	Same Direction	U-turn/Parking	Overtaking	On Path	Off Path on Straight	Off Path on Curve		
Total Crashes	-	12	-	9	1	-	1	4	1	-	28
Crash Location Type											
Divided road	-	-	-	2	-	-	-	-	-	-	2
2-way undivided road	-	-	-	4	1	-	1	1	-	-	7
T-intersection	-	5	-	2	-	-	-	3	-	-	10
Cross intersection	-	4	-	-	-	-	-	-	-	-	4
Roundabout	-	3	-	1	-	-	-	-	1	-	5
Severity of Crash											
Serious Injury	-	-	-	-	-	-	-	1	-	-	1
Moderate Injury	-	9	-	4	1	-	1	-	-	-	15
Minor injury	-	-	-	1	-	-	-	-	-	-	1
Non-injury	-	3	-	4	-	-	-	3	1	-	11
Weather Conditions											
Fine	-	10	-	6	1	-	1	3	1	-	22
Overcast	-	-	-	2	-	-	-	1	-	-	3
Raining	-	10	-	6	1	-	1	3	1	-	22
Road Surface Condition											
Dry	-	10	-	7	1	-	1	4	-	-	23
Wet	-	2	-	2	-	-	-	-	1	-	5
Speed Limit											
40 km/h	-	1	-	1	-	-	-	-	-	-	2
50 km/h	-	1	-	-	1	-	-	-	-	-	2
60 km/h	-	10	-	8	-	-	1	4	1	-	24
Key Vehicle Type^A											
Motorcycle/Pedal cycle	-	1	-	-	1	-	1	1	-	-	4
Car, 4WD, Station Wagon	-	9	-	6	-	-	-	3	1	-	19
Rigid Truck	-	2	-	3	-	-	-	-	-	-	5

^A The first vehicle identified in multiple vehicle crashes.

Marius Street Crash Summary 1 July 2012 to 30 June 2017

	Pedestrian	Multiple Vehicles					Single Vehicle			Miscellaneous	Total
		Adjacent Approaches	Opposing Directions	Same Direction	U-turn/Parking	Overtaking	On Path	Off Path on Straight	Off Path on Curve		
Total Crashes	-	2	4	10	1	-	-	2	2	1	22
Crash Location Type											
2-way undivided road	-	-	-	2	-	-	-	1	-	-	3
T-intersection	-	-	-	1	-	-	-	-	-	-	1
Cross intersection	-	1	1	5	-	-	-	-	-	-	7
Roundabout	-	1	3	1	-	-	-	1	1	1	8
Severity of Crash											
Serious Injury	-	1	-	-	-	-	-	-	-	-	1
Moderate Injury	-	1	2	3	1	-	-	2	1	1	11
Minor Injury	-	-	1	4	-	-	-	-	-	-	5
Non-injury	-	-	1	3	-	-	-	-	1	-	5
Weather Conditions											
Fine	-	2	3	9	1	-	-	2	2	1	20
Overcast	-	-	1	-	-	-	-	-	-	-	1
Raining	-	-	-	1	-	-	-	-	-	-	1
Road Surface Condition											
Dry	-	2	4	9	1	-	-	2	2	1	21
Wet	-	-	-	1	-	-	-	-	-	-	1
Speed Limit											
50 km/h	-	-	1	-	-	-	-	1	-	-	2
60 km/h	-	2	3	5	1	-	-	-	2	1	14
70 km/h	-	-	-	5	-	-	-	1	-	-	6
Key Vehicle Type^A											
Motorcycle/Pedal cycle	-	1	-	2	-	-	-	1	-	-	4
Car, 4WD, Station Wagon	-	1	4	5	1	-	-	1	-	-	12
Rigid Truck/Bus	-	-	-	3	-	-	-	-	-	1	4
Articulated	-	-	-	-	-	-	-	-	1	-	1
Unknown	-	-	-	-	-	-	-	-	1	-	1

^A The first vehicle identified in multiple vehicle crashes.

Appendix C

SIDRA Output Summaries

MOVEMENT SUMMARY

Site: 101 [AM Ex Goddard - Armstrong]

Goddard Lane and Armstrong Street
 Surveyed AM Peak
 7:45am to 8:45am
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Goddard Lane (north-east)												
25	T1	67	21.9	0.056	0.2	LOS A	0.1	1.3	0.14	0.14	0.14	75.1
26	R2	19	38.9	0.056	8.0	LOS A	0.1	1.3	0.14	0.14	0.14	57.4
Approach		86	25.6	0.056	1.9	NA	0.1	1.3	0.14	0.14	0.14	68.5
NorthWest: Armstrong Street												
27	L2	11	50.0	0.046	5.5	LOS A	0.2	1.5	0.26	0.56	0.26	43.9
29	R2	31	44.8	0.046	6.2	LOS A	0.2	1.5	0.26	0.56	0.26	32.5
Approach		41	46.2	0.046	6.0	LOS A	0.2	1.5	0.26	0.56	0.26	35.8
SouthWest: Goddard Lane (south-west)												
30	L2	42	22.5	0.078	5.7	LOS A	0.0	0.0	0.00	0.19	0.00	56.8
31	T1	97	5.4	0.078	0.0	LOS A	0.0	0.0	0.00	0.19	0.00	75.9
Approach		139	10.6	0.078	1.7	NA	0.0	0.0	0.00	0.19	0.00	68.9
All Vehicles		266	20.9	0.078	2.4	NA	0.2	1.5	0.09	0.23	0.09	59.6

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

Site: 101 [Site AM Ex Oxley - Baiada]

Surveyed AM Peak Hour for Site Traffic
 6.15am to 7.15am
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Oxley Highway (SE)												
22	T1	134	18.1	0.077	7.1	LOS A	0.0	0.0	0.00	0.65	0.00	70.0
23	R2	8	0.0	0.005	7.4	LOS A	0.0	0.0	0.00	0.67	0.00	75.4
Approach		142	17.0	0.077	7.1	NA	0.0	0.0	0.00	0.65	0.00	70.3
NorthEast: Baiada Site Access												
24	L2	4	0.0	0.004	4.7	LOS A	0.0	0.1	0.14	0.50	0.14	56.8
26	R2	1	0.0	0.004	5.5	LOS A	0.0	0.1	0.14	0.50	0.14	56.5
Approach		5	0.0	0.004	4.9	LOS A	0.0	0.1	0.14	0.50	0.14	56.7
NorthWest: Oxley Highway (NW)												
27	L2	1	0.0	0.035	7.8	LOS A	0.0	0.0	0.00	0.65	0.00	76.2
28	T1	64	8.2	0.035	6.8	LOS A	0.0	0.0	0.00	0.65	0.00	73.1
Approach		65	8.1	0.035	6.8	NA	0.0	0.0	0.00	0.65	0.00	73.2
All Vehicles		213	13.9	0.077	7.0	NA	0.0	0.1	0.00	0.65	0.00	70.7

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

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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.

MOVEMENT SUMMARY

 Site: 101 [AM Ex Oxley - Duri]

Oxley Highway and Duri Road
 Surveyed AM Peak
 8:00am to 9:00am
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
NorthEast: Oxley Highway (NE)												
25	T1	160	5.9	0.082	4.7	LOS A	0.0	0.0	0.00	0.46	0.00	55.5
26a	R1	261	4.4	0.211	8.5	LOS A	1.3	9.7	0.47	0.64	0.47	51.3
Approach		421	5.0	0.211	7.0	LOS A	1.3	9.7	0.29	0.57	0.29	52.8
West: Oxley Highway (W)												
10a	L1	276	4.6	0.144	4.3	LOS A	0.0	0.0	0.00	0.47	0.00	55.5
12b	R3	232	12.3	0.227	11.5	LOS A	1.4	11.2	0.61	0.74	0.61	50.1
Approach		507	8.1	0.227	7.6	LOS A	1.4	11.2	0.28	0.59	0.28	52.9
SouthWest: Duri Road												
30b	L3	268	13.7	0.174	4.2	LOS A	0.0	0.0	0.00	0.52	0.00	54.5
31	T1	435	3.6	0.354	6.1	LOS A	2.4	17.6	0.53	0.58	0.53	53.3
Approach		703	7.5	0.354	5.4	LOS A	2.4	17.6	0.33	0.56	0.33	53.7
All Vehicles		1632	7.0	0.354	6.5	LOS A	2.4	17.6	0.30	0.57	0.30	53.2

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.

MOVEMENT SUMMARY

▽ Site: 101 [AM Ex Oxley - Goddard]

Oxley Hwy and Goddard Ln
 Surveyed AM Peak
 7:45am to 8:45am
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Oxley Highway (south-east)												
22	T1	128	22.1	0.076	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
23	R2	59	17.9	0.054	9.2	LOS A	0.2	1.7	0.31	0.63	0.31	62.3
Approach		187	20.8	0.076	2.9	NA	0.2	1.7	0.10	0.20	0.10	84.0
NorthEast: Goddard Lane												
24	L2	55	38.5	0.125	8.7	LOS A	0.5	4.3	0.30	0.63	0.30	58.0
26	R2	43	17.1	0.125	10.8	LOS A	0.5	4.3	0.30	0.63	0.30	61.9
Approach		98	29.0	0.125	9.6	LOS A	0.5	4.3	0.30	0.63	0.30	59.7
NorthWest: Oxley Highway (north-west)												
27	L2	80	5.3	0.045	8.8	LOS A	0.0	0.0	0.00	0.63	0.00	72.7
28	T1	101	19.8	0.058	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		181	13.4	0.058	3.9	NA	0.0	0.0	0.00	0.28	0.00	85.6
All Vehicles		466	19.6	0.125	4.7	NA	0.5	4.3	0.10	0.32	0.10	77.9

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 **Site: 101 [AM Ex Oxley - Marius - Brisbane]**

Oxley Highway, Marius Street and Brisbane Street

Surveyed AM Peak Hour

8:15am to 9:15am

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 93 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Marius Street (SE)												
21	L2	222	6.2	0.190	12.3	LOS A	3.9	28.7	0.42	0.69	0.42	41.6
22	T1	443	6.4	0.688	28.4	LOS B	17.4	128.6	0.92	0.80	0.92	38.5
23	R2	36	2.9	0.141	35.9	LOS C	1.3	9.4	0.81	0.73	0.81	34.4
Approach		701	6.2	0.688	23.7	LOS B	17.4	128.6	0.76	0.76	0.76	38.9
NorthEast: Brisbane Street												
24	L2	104	3.0	0.483	40.7	LOS C	7.7	56.6	0.93	0.79	0.93	33.5
25	T1	237	8.0	0.483	35.2	LOS C	7.8	57.7	0.93	0.78	0.93	32.4
26	R2	41	2.6	0.483	40.7	LOS C	7.8	57.7	0.93	0.77	0.93	36.9
Approach		382	6.1	0.483	37.3	LOS C	7.8	57.7	0.93	0.78	0.93	33.3
NorthWest: Marius Street (NW)												
27	L2	57	0.0	0.389	30.2	LOS C	8.4	62.5	0.80	0.70	0.80	41.3
28	T1	434	10.0	0.389	24.8	LOS B	8.5	64.2	0.80	0.69	0.80	40.0
29	R2	39	0.0	0.250	45.4	LOS D	1.7	11.6	0.92	0.75	0.92	28.7
Approach		529	8.2	0.389	26.9	LOS B	8.5	64.2	0.81	0.69	0.81	39.2
SouthWest: Oxley Highway												
30	L2	43	2.4	0.096	34.7	LOS C	1.5	10.8	0.80	0.72	0.80	32.5
31	T1	165	1.9	0.347	31.4	LOS C	6.2	44.5	0.87	0.71	0.87	34.8
32	R2	193	10.9	0.452	38.2	LOS C	7.5	57.8	0.90	0.80	0.90	27.2
Approach		401	6.3	0.452	35.0	LOS C	7.5	57.8	0.87	0.75	0.87	31.0
All Vehicles		2014	6.7	0.688	29.4	LOS C	17.4	128.6	0.83	0.75	0.83	36.2

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.

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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Project: E:\TTPP Projects Local Copy\Sidra\18089\18089_181003_Oakburn Processing Plant.sip8

MOVEMENT SUMMARY

 Site: 101 [AM Ex Peel - Jewry]

Peel Street and Jewry Street
 Surveyed AM Peak Hour
 8:15am to 9:15am
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
SouthEast: Peel Street (SE)												
21	L2	307	9.9	0.501	11.7	LOS A	4.4	33.1	0.94	0.99	1.07	48.9
22	T1	295	5.4	0.530	12.7	LOS A	4.6	33.9	0.95	1.03	1.12	49.5
23	R2	4	0.0	0.530	16.5	LOS B	4.6	33.9	0.95	1.03	1.12	28.9
Approach		606	7.6	0.530	12.2	LOS A	4.6	33.9	0.94	1.01	1.10	49.0
NorthEast: Car Park												
24	L2	14	0.0	0.084	9.2	LOS A	0.4	2.7	0.81	0.81	0.81	27.3
25	T1	9	0.0	0.084	9.2	LOS A	0.4	2.7	0.81	0.81	0.81	27.4
26	R2	1	0.0	0.084	9.2	LOS A	0.4	2.7	0.81	0.81	0.81	27.6
Approach		24	0.0	0.084	9.2	LOS A	0.4	2.7	0.81	0.81	0.81	27.3
NorthWest: Peel Street (NW)												
27	L2	13	8.3	0.536	9.1	LOS A	4.4	31.9	0.75	0.78	0.81	28.4
28	T1	525	3.8	0.768	9.0	LOS A	11.1	81.6	0.78	0.81	0.87	51.6
29	R2	704	5.7	0.768	15.0	LOS B	11.1	81.6	0.93	0.93	1.18	48.2
Approach		1242	4.9	0.768	12.4	LOS A	11.1	81.6	0.87	0.87	1.04	49.2
SouthWest: Jewry Street												
30	L2	601	6.0	0.574	7.1	LOS A	5.3	38.9	0.75	0.73	0.77	52.0
31	T1	17	6.3	0.415	9.3	LOS A	3.0	22.5	0.68	0.76	0.68	28.0
32	R2	326	10.3	0.415	11.0	LOS A	3.0	22.5	0.68	0.76	0.68	50.3
Approach		944	7.5	0.574	8.5	LOS A	5.3	38.9	0.73	0.74	0.74	50.6
All Vehicles		2817	6.3	0.768	11.0	LOS A	11.1	81.6	0.84	0.86	0.95	49.3

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.

MOVEMENT SUMMARY

▽ Site: 101 [AM Ex Wallamore - Goddard]

Wallamore Road and Goddard Lane
 Surveyed AM Peak
 8:00am to 9:00am
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Wallamore Road (SE)												
21	L2	123	20.5	0.076	7.9	LOS A	0.0	0.0	0.00	0.59	0.00	60.2
22	T1	17	31.3	0.010	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		140	21.8	0.076	6.9	NA	0.0	0.0	0.00	0.52	0.00	62.0
NorthWest: Wallamore Road (NW)												
28	T1	43	17.1	0.025	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
29	R2	8	12.5	0.007	7.5	LOS A	0.0	0.2	0.26	0.59	0.26	60.1
Approach		52	16.3	0.025	1.2	NA	0.0	0.2	0.04	0.10	0.04	75.9
SouthWest: Goddard Lane												
30	L2	5	60.0	0.143	8.6	LOS A	0.6	4.8	0.26	0.63	0.26	50.7
32	R2	116	16.4	0.143	8.3	LOS A	0.6	4.8	0.26	0.63	0.26	58.9
Approach		121	18.3	0.143	8.3	LOS A	0.6	4.8	0.26	0.63	0.26	58.5
All Vehicles		313	19.5	0.143	6.5	NA	0.6	4.8	0.11	0.49	0.11	62.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

▽ Site: 101 [PM Ex Goddard - Armstrong]

Goddard Lane and Armstrong Street
 Surveyed PM Peak
 3:15pm to 4:15pm
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Goddard Lane (north-east)												
25	T1	139	4.5	0.087	0.1	LOS A	0.1	1.0	0.07	0.06	0.07	78.0
26	R2	14	46.2	0.087	8.4	LOS A	0.1	1.0	0.07	0.06	0.07	58.3
Approach		153	8.3	0.087	0.9	NA	0.1	1.0	0.07	0.06	0.07	74.5
NorthWest: Armstrong Street												
27	L2	22	33.3	0.099	5.2	LOS A	0.3	2.7	0.24	0.58	0.24	46.7
29	R2	79	8.0	0.099	5.8	LOS A	0.3	2.7	0.24	0.58	0.24	33.5
Approach		101	13.5	0.099	5.7	LOS A	0.3	2.7	0.24	0.58	0.24	36.8
SouthWest: Goddard Lane (south-west)												
30	L2	99	7.4	0.094	5.7	LOS A	0.0	0.0	0.00	0.38	0.00	60.5
31	T1	65	19.4	0.094	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	70.9
Approach		164	12.2	0.094	3.4	NA	0.0	0.0	0.00	0.38	0.00	64.2
All Vehicles		418	11.1	0.099	3.0	NA	0.3	2.7	0.09	0.31	0.09	56.1

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

Site: 101 [PM Ex Oxley - Baiada]

Surveyed PM Peak Hour
3.15pm to 4.15pm

Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
SouthEast: Oxley Highway (SE)												
22	T1	184	11.4	0.101	6.9	LOS A	0.0	0.0	0.00	0.65	0.00	72.1
23	R2	4	100.0	0.004	8.8	LOS A	0.0	0.0	0.00	0.69	0.00	58.7
Approach		188	13.4	0.101	7.0	NA	0.0	0.0	0.00	0.65	0.00	71.7
NorthEast: Baiada Site Access												
24	L2	7	14.3	0.007	5.4	LOS A	0.0	0.2	0.30	0.52	0.30	52.9
26	R2	1	0.0	0.007	6.7	LOS A	0.0	0.2	0.30	0.52	0.30	55.6
Approach		8	12.5	0.007	5.5	LOS A	0.0	0.2	0.30	0.52	0.30	53.2
NorthWest: Oxley Highway (NW)												
27	L2	1	0.0	0.111	7.8	LOS A	0.0	0.0	0.00	0.65	0.00	76.3
28	T1	194	17.4	0.111	7.1	LOS A	0.0	0.0	0.00	0.65	0.00	70.2
Approach		195	17.3	0.111	7.1	NA	0.0	0.0	0.00	0.65	0.00	70.2
All Vehicles		392	15.3	0.111	7.0	NA	0.0	0.2	0.01	0.65	0.01	70.5

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.

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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.

MOVEMENT SUMMARY

 Site: 101 [PM Ex Oxley - Duri]

Oxley Highway and Duri Road
 Surveyed PM Peak
 3:15pm to 4:15pm
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
NorthEast: Oxley Highway (NE)												
25	T1	336	3.8	0.170	4.7	LOS A	0.0	0.0	0.00	0.46	0.00	55.5
26a	R1	340	6.8	0.300	9.2	LOS A	2.0	14.7	0.58	0.70	0.58	50.9
Approach		676	5.3	0.300	7.0	LOS A	2.0	14.7	0.29	0.58	0.29	53.1
West: Oxley Highway (W)												
10a	L1	337	4.4	0.175	4.3	LOS A	0.0	0.0	0.00	0.47	0.00	55.5
12b	R3	340	8.7	0.279	10.5	LOS A	1.8	13.7	0.49	0.68	0.49	50.6
Approach		677	6.5	0.279	7.4	LOS A	1.8	13.7	0.25	0.57	0.25	52.9
SouthWest: Duri Road												
30b	L3	244	11.2	0.156	4.2	LOS A	0.0	0.0	0.00	0.52	0.00	54.6
31	T1	241	3.9	0.214	6.3	LOS A	1.3	9.7	0.55	0.60	0.55	53.2
Approach		485	7.6	0.214	5.2	LOS A	1.3	9.7	0.27	0.56	0.27	53.9
All Vehicles		1838	6.4	0.300	6.7	LOS A	2.0	14.7	0.27	0.57	0.27	53.2

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.

MOVEMENT SUMMARY

▽ Site: 101 [PM Ex Oxley - Goddard]

Oxley Hwy and Goddard Ln
 Surveyed PM Peak
 3:15pm to 4:15pm
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Oxley Highway (south-east)												
22	T1	126	17.5	0.073	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
23	R2	114	9.3	0.103	9.1	LOS A	0.4	3.2	0.34	0.65	0.34	65.0
Approach		240	13.6	0.103	4.3	NA	0.4	3.2	0.16	0.31	0.16	79.6
NorthEast: Goddard Lane												
24	L2	147	5.7	0.244	8.4	LOS A	1.0	7.5	0.36	0.66	0.36	65.4
26	R2	65	4.8	0.244	11.7	LOS A	1.0	7.5	0.36	0.66	0.36	65.0
Approach		213	5.4	0.244	9.4	LOS A	1.0	7.5	0.36	0.66	0.36	65.3
NorthWest: Oxley Highway (north-west)												
27	L2	51	16.7	0.030	9.1	LOS A	0.0	0.0	0.00	0.63	0.00	69.3
28	T1	155	17.0	0.088	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		205	16.9	0.088	2.2	NA	0.0	0.0	0.00	0.15	0.00	90.0
All Vehicles		658	12.0	0.244	5.3	NA	1.0	7.5	0.18	0.37	0.18	76.9

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 **Site: 101 [PM Ex Oxley - Marius - Brisbane]**

Oxley Highway, Marius Street and Brisbane Street

Surveyed PM Peak Hour

3:00pm to 4:00pm

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 114 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Marius Street (SE)												
21	L2	80	34.2	0.080	13.0	LOS A	1.5	13.9	0.37	0.66	0.37	38.5
22	T1	472	4.2	0.585	26.3	LOS B	19.8	143.3	0.81	0.72	0.81	39.6
23	R2	66	6.3	0.217	34.9	LOS C	2.7	19.8	0.75	0.75	0.75	34.7
Approach		618	8.3	0.585	25.5	LOS B	19.8	143.3	0.75	0.71	0.75	38.9
NorthEast: Brisbane Street												
24	L2	85	1.2	0.421	46.4	LOS D	8.6	61.9	0.90	0.77	0.90	31.7
25	T1	233	5.9	0.421	40.8	LOS C	8.6	62.8	0.90	0.76	0.90	30.3
26	R2	40	2.6	0.421	46.4	LOS D	8.6	62.8	0.90	0.76	0.90	34.9
Approach		358	4.4	0.421	42.8	LOS D	8.6	62.8	0.90	0.76	0.90	31.2
NorthWest: Marius Street (NW)												
27	L2	58	9.1	0.323	28.4	LOS B	9.4	68.1	0.70	0.64	0.70	42.0
28	T1	466	3.2	0.323	22.8	LOS B	9.6	69.3	0.70	0.62	0.70	41.2
29	R2	62	0.0	0.272	44.3	LOS D	2.9	20.2	0.85	0.76	0.85	29.1
Approach		586	3.4	0.323	25.6	LOS B	9.6	69.3	0.72	0.63	0.72	39.8
SouthWest: Oxley Highway												
30	L2	56	0.0	0.163	48.0	LOS D	2.6	18.4	0.88	0.74	0.88	27.9
31	T1	164	8.3	0.506	45.6	LOS D	8.3	62.4	0.94	0.77	0.94	29.3
32	R2	234	8.1	0.723	55.3	LOS D	12.8	96.0	1.00	0.86	1.06	22.1
Approach		454	7.2	0.723	50.9	LOS D	12.8	96.0	0.96	0.81	1.00	25.4
All Vehicles		2016	6.0	0.723	34.3	LOS C	19.8	143.3	0.82	0.72	0.82	34.3

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.

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.

MOVEMENT SUMMARY

 Site: 101 [PM Ex Peel - Jewry]

Peel Street and Jewry Street
 Surveyed PM Peak Hour
 15:45am to 16:45am
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Peel Street (SE)												
21	L2	300	8.1	0.568	14.3	LOS A	5.1	37.8	0.95	1.07	1.18	47.3
22	T1	424	4.0	0.664	14.7	LOS B	7.5	54.0	1.00	1.11	1.33	48.3
23	R2	9	0.0	0.664	18.5	LOS B	7.5	54.0	1.00	1.11	1.33	28.5
Approach		734	5.6	0.664	14.6	LOS B	7.5	54.0	0.98	1.09	1.27	47.4
NorthEast: Car Park												
24	L2	24	0.0	0.137	8.5	LOS A	0.6	4.5	0.80	0.80	0.80	27.4
25	T1	17	0.0	0.137	8.5	LOS A	0.6	4.5	0.80	0.80	0.80	27.6
26	R2	3	0.0	0.137	8.5	LOS A	0.6	4.5	0.80	0.80	0.80	27.7
Approach		44	0.0	0.137	8.5	LOS A	0.6	4.5	0.80	0.80	0.80	27.5
NorthWest: Peel Street (NW)												
27	L2	14	0.0	0.485	9.2	LOS A	3.7	26.9	0.79	0.82	0.83	28.3
28	T1	347	3.3	0.485	8.9	LOS A	3.7	26.9	0.79	0.82	0.83	52.1
29	R2	681	5.4	0.732	15.4	LOS B	9.7	70.8	0.95	0.97	1.21	47.6
Approach		1042	4.6	0.732	13.2	LOS A	9.7	70.8	0.89	0.92	1.08	48.6
SouthWest: Jewry Street												
30	L2	802	2.6	0.869	17.6	LOS B	17.4	124.4	1.00	1.17	1.61	45.4
31	T1	19	5.6	0.591	12.8	LOS A	5.5	40.0	0.87	0.94	1.01	27.3
32	R2	403	4.2	0.591	14.4	LOS A	5.5	40.0	0.87	0.94	1.01	48.3
Approach		1224	3.2	0.869	16.5	LOS B	17.4	124.4	0.95	1.09	1.41	45.9
All Vehicles		3044	4.2	0.869	14.8	LOS B	17.4	124.4	0.94	1.03	1.25	46.7

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.

MOVEMENT SUMMARY

▽ Site: 101 [PM Ex Wallamore - Goddard]

Wallamore Road and Goddard Lane
 Surveyed PM Peak
 3:30pm to 4:30pm
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Wallamore Road (SE)												
21	L2	207	7.1	0.117	7.7	LOS A	0.0	0.0	0.00	0.60	0.00	64.0
22	T1	43	14.6	0.024	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		251	8.4	0.117	6.4	NA	0.0	0.0	0.00	0.50	0.00	66.3
NorthWest: Wallamore Road (NW)												
28	T1	23	13.6	0.013	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
29	R2	5	60.0	0.007	9.5	LOS A	0.0	0.3	0.39	0.62	0.39	47.9
Approach		28	22.2	0.013	1.8	NA	0.0	0.3	0.07	0.11	0.07	71.2
SouthWest: Goddard Lane												
30	L2	12	0.0	0.275	7.8	LOS A	1.3	9.5	0.36	0.66	0.36	65.0
32	R2	221	7.6	0.275	8.6	LOS A	1.3	9.5	0.36	0.66	0.36	61.0
Approach		233	7.2	0.275	8.6	LOS A	1.3	9.5	0.36	0.66	0.36	61.2
All Vehicles		512	8.6	0.275	7.1	NA	1.3	9.5	0.17	0.55	0.17	64.1

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

▽ Site: 101 [AM PP Goddard - Armstrong]

Goddard Lane and Armstrong Street
 AM Peak with Processing Plant
 7:45am to 8:45am background + 6-7am plant traffic
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Goddard Lane (north-east)												
25	T1	67	21.9	0.076	0.5	LOS A	0.3	2.5	0.26	0.27	0.26	69.8
26	R2	49	14.9	0.076	7.7	LOS A	0.3	2.5	0.26	0.27	0.26	56.0
Approach		117	18.9	0.076	3.6	NA	0.3	2.5	0.26	0.27	0.26	61.6
NorthWest: Armstrong Street												
27	L2	14	38.5	0.074	5.3	LOS A	0.3	2.5	0.30	0.58	0.30	45.5
29	R2	46	54.5	0.074	6.9	LOS A	0.3	2.5	0.30	0.58	0.30	32.0
Approach		60	50.9	0.074	6.5	LOS A	0.3	2.5	0.30	0.58	0.30	35.4
SouthWest: Goddard Lane (south-west)												
30	L2	100	21.1	0.113	5.7	LOS A	0.0	0.0	0.00	0.32	0.00	55.9
31	T1	97	5.4	0.113	0.0	LOS A	0.0	0.0	0.00	0.32	0.00	73.1
Approach		197	13.4	0.113	2.9	NA	0.0	0.0	0.00	0.32	0.00	63.2
All Vehicles		374	21.1	0.113	3.7	NA	0.3	2.5	0.13	0.35	0.13	55.5

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 Site: 101 [AM PP Oxley - Duri]

Oxley Highway and Duri Road
 AM Peak with Processing Plant
 8:00am to 9:00am background + 6-7am plant traffic
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Oxley Highway (NE)												
25	T1	160	5.9	0.082	4.7	LOS A	0.0	0.0	0.00	0.46	0.00	55.5
26a	R1	283	4.8	0.231	8.6	LOS A	1.5	10.8	0.48	0.65	0.48	51.3
Approach		443	5.2	0.231	7.2	LOS A	1.5	10.8	0.31	0.58	0.31	52.7
West: Oxley Highway (W)												
10a	L1	280	5.3	0.147	4.3	LOS A	0.0	0.0	0.00	0.47	0.00	55.5
12b	R3	238	13.7	0.236	11.6	LOS A	1.5	11.8	0.62	0.74	0.62	50.0
Approach		518	9.1	0.236	7.6	LOS A	1.5	11.8	0.29	0.60	0.29	52.8
SouthWest: Duri Road												
30b	L3	293	14.0	0.190	4.2	LOS A	0.0	0.0	0.00	0.52	0.00	54.5
31	T1	435	3.6	0.362	6.2	LOS A	2.5	18.1	0.55	0.60	0.55	53.2
Approach		727	7.8	0.362	5.4	LOS A	2.5	18.1	0.33	0.57	0.33	53.7
All Vehicles		1688	7.5	0.362	6.5	LOS A	2.5	18.1	0.31	0.58	0.31	53.2

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.

MOVEMENT SUMMARY

▽ Site: 101 [AM PP Oxley - Goddard]

Oxley Hwy and Goddard Ln
 AM Peak with Processing Plant
 7:45am to 8:45am background + 6-7am plant traffic
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Oxley Highway (south-east)												
22	T1	122	22.4	0.072	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
23	R2	109	16.3	0.101	9.2	LOS A	0.4	3.3	0.33	0.64	0.33	62.7
Approach		232	19.5	0.101	4.4	NA	0.4	3.3	0.15	0.30	0.15	78.0
NorthEast: Goddard Lane												
24	L2	65	43.5	0.156	8.8	LOS A	0.6	5.6	0.31	0.64	0.31	56.6
26	R2	48	23.9	0.156	11.9	LOS A	0.6	5.6	0.31	0.64	0.31	59.8
Approach		114	35.2	0.156	10.1	LOS A	0.6	5.6	0.31	0.64	0.31	57.9
NorthWest: Oxley Highway (north-west)												
27	L2	87	9.6	0.050	8.9	LOS A	0.0	0.0	0.00	0.63	0.00	71.3
28	T1	100	18.9	0.058	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		187	14.6	0.058	4.2	NA	0.0	0.0	0.00	0.29	0.00	84.1
All Vehicles		533	21.1	0.156	5.5	NA	0.6	5.6	0.13	0.37	0.13	74.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 **Site: 101 [AM PP Oxley - Marius - Brisbane]**

Oxley Highway, Marius Street and Brisbane Street

AM Peak Hour with Processing Plant

8:15am to 9:15am background + 6-7am plant traffic

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 93 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Marius Street (SE)												
21	L2	231	7.3	0.199	12.3	LOS A	4.1	30.3	0.42	0.69	0.42	41.4
22	T1	443	6.4	0.688	28.4	LOS B	17.4	128.6	0.92	0.80	0.92	38.5
23	R2	36	2.9	0.141	35.9	LOS C	1.3	9.4	0.81	0.73	0.81	34.4
Approach		709	6.5	0.688	23.6	LOS B	17.4	128.6	0.75	0.76	0.75	38.9
NorthEast: Brisbane Street												
24	L2	104	3.0	0.489	40.8	LOS C	7.8	57.4	0.93	0.79	0.93	33.5
25	T1	242	7.8	0.489	35.2	LOS C	7.9	58.5	0.93	0.78	0.93	32.3
26	R2	41	2.6	0.489	40.8	LOS C	7.9	58.5	0.93	0.77	0.93	36.9
Approach		387	6.0	0.489	37.3	LOS C	7.9	58.5	0.93	0.78	0.93	33.3
NorthWest: Marius Street (NW)												
27	L2	57	0.0	0.389	30.2	LOS C	8.4	62.5	0.80	0.70	0.80	41.3
28	T1	434	10.0	0.389	24.8	LOS B	8.5	64.2	0.80	0.69	0.80	40.0
29	R2	42	0.0	0.272	45.6	LOS D	1.8	12.6	0.92	0.75	0.92	28.7
Approach		533	8.1	0.389	27.1	LOS B	8.5	64.2	0.81	0.69	0.81	39.1
SouthWest: Oxley Highway												
30	L2	43	2.4	0.096	34.7	LOS C	1.5	10.8	0.80	0.72	0.80	32.5
31	T1	165	1.9	0.347	31.4	LOS C	6.2	44.5	0.87	0.71	0.87	34.8
32	R2	195	11.9	0.460	38.3	LOS C	7.7	59.0	0.90	0.80	0.90	27.1
Approach		403	6.8	0.460	35.1	LOS C	7.7	59.0	0.88	0.76	0.88	30.9
All Vehicles		2033	6.9	0.688	29.4	LOS C	17.4	128.6	0.83	0.75	0.83	36.2

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.

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.

MOVEMENT SUMMARY

 **Site: 101 [AM PP Peel - Jewry]**

Peel Street and Jewry Street
 AM Peak Hour with Processing Plant
 8:15am to 9:15am + 6-7am plant traffic
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
SouthEast: Peel Street (SE)												
21	L2	320	9.5	0.527	12.3	LOS A	4.8	36.0	0.96	1.02	1.12	48.5
22	T1	295	5.4	0.542	13.2	LOS A	4.8	35.1	0.96	1.05	1.15	49.2
23	R2	4	0.0	0.542	16.9	LOS B	4.8	35.1	0.96	1.05	1.15	28.8
Approach		619	7.5	0.542	12.8	LOS A	4.8	36.0	0.96	1.03	1.13	48.6
NorthEast: Car Park												
24	L2	14	0.0	0.085	9.3	LOS A	0.4	2.8	0.81	0.81	0.81	27.2
25	T1	9	0.0	0.085	9.3	LOS A	0.4	2.8	0.81	0.81	0.81	27.4
26	R2	1	0.0	0.085	9.3	LOS A	0.4	2.8	0.81	0.81	0.81	27.6
Approach		24	0.0	0.085	9.3	LOS A	0.4	2.8	0.81	0.81	0.81	27.3
NorthWest: Peel Street (NW)												
27	L2	13	8.3	0.540	9.2	LOS A	4.5	32.4	0.76	0.79	0.82	28.3
28	T1	525	3.8	0.774	9.1	LOS A	11.4	83.6	0.79	0.81	0.88	51.6
29	R2	713	5.6	0.774	15.2	LOS B	11.4	83.6	0.94	0.93	1.19	48.0
Approach		1251	4.9	0.774	12.5	LOS A	11.4	83.6	0.87	0.88	1.06	49.1
SouthWest: Jewry Street												
30	L2	602	5.9	0.576	7.1	LOS A	5.3	39.2	0.76	0.73	0.78	52.0
31	T1	17	6.3	0.417	9.3	LOS A	3.0	22.6	0.68	0.76	0.68	28.0
32	R2	327	10.3	0.417	11.0	LOS A	3.0	22.6	0.68	0.76	0.68	50.3
Approach		946	7.5	0.576	8.5	LOS A	5.3	39.2	0.73	0.74	0.74	50.6
All Vehicles		2840	6.3	0.774	11.2	LOS A	11.4	83.6	0.84	0.87	0.97	49.2

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.

MOVEMENT SUMMARY

▽ Site: 101 [AM PP Wallamore - Goddard]

Wallamore Road and Goddard Lane
 AM Peak with Processing Plant
 8:00am to 9:00am background + 6-7am plant traffic
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Wallamore Road (SE)												
21	L2	153	16.6	0.092	7.8	LOS A	0.0	0.0	0.00	0.59	0.00	61.3
22	T1	17	31.3	0.010	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		169	18.0	0.092	7.0	NA	0.0	0.0	0.00	0.53	0.00	62.7
NorthWest: Wallamore Road (NW)												
28	T1	43	17.1	0.025	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
29	R2	9	11.1	0.008	7.6	LOS A	0.0	0.2	0.29	0.59	0.29	60.4
Approach		53	16.0	0.025	1.4	NA	0.0	0.2	0.05	0.11	0.05	75.6
SouthWest: Goddard Lane												
30	L2	5	60.0	0.150	8.6	LOS A	0.6	5.1	0.27	0.63	0.27	50.6
32	R2	119	15.9	0.150	8.4	LOS A	0.6	5.1	0.27	0.63	0.27	58.9
Approach		124	17.8	0.150	8.4	LOS A	0.6	5.1	0.27	0.63	0.27	58.5
All Vehicles		346	17.6	0.150	6.7	NA	0.6	5.1	0.11	0.51	0.11	62.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

▽ Site: 101 [PM PP Goddard - Armstrong]

Goddard Lane and Armstrong Street
 PM Peak with Processing Plant
 3:15pm to 4:15pm background + 3-4pm plant traffic
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Goddard Lane (north-east)												
25	T1	139	4.5	0.087	0.1	LOS A	0.1	1.0	0.08	0.06	0.08	78.0
26	R2	14	46.2	0.087	8.5	LOS A	0.1	1.0	0.08	0.06	0.08	58.2
Approach		153	8.3	0.087	0.9	NA	0.1	1.0	0.08	0.06	0.08	74.5
NorthWest: Armstrong Street												
27	L2	105	7.0	0.300	4.9	LOS A	1.3	9.5	0.25	0.58	0.25	51.7
29	R2	216	8.8	0.300	6.2	LOS A	1.3	9.5	0.25	0.58	0.25	33.4
Approach		321	8.2	0.300	5.8	LOS A	1.3	9.5	0.25	0.58	0.25	39.6
SouthWest: Goddard Lane (south-west)												
30	L2	112	17.9	0.105	5.7	LOS A	0.0	0.0	0.00	0.39	0.00	55.8
31	T1	65	19.4	0.105	0.0	LOS A	0.0	0.0	0.00	0.39	0.00	70.9
Approach		177	18.5	0.105	3.6	NA	0.0	0.0	0.00	0.39	0.00	60.6
All Vehicles		651	11.0	0.300	4.0	NA	1.3	9.5	0.14	0.41	0.14	48.8

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 Site: 101 [PM PP Oxley - Duri]

Oxley Highway and Duri Road
 PM Peak with Processing Plant
 3:15pm to 4:15pm background + 3-4pm plant traffic
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
NorthEast: Oxley Highway (NE)												
25	T1	336	3.8	0.170	4.7	LOS A	0.0	0.0	0.00	0.46	0.00	55.5
26a	R1	342	7.4	0.319	9.6	LOS A	2.2	16.0	0.63	0.73	0.63	50.8
Approach		678	5.6	0.319	7.2	LOS A	2.2	16.0	0.32	0.60	0.32	53.0
West: Oxley Highway (W)												
10a	L1	395	4.0	0.205	4.3	LOS A	0.0	0.0	0.00	0.47	0.00	55.5
12b	R3	401	8.4	0.327	10.5	LOS A	2.2	16.8	0.51	0.68	0.51	50.5
Approach		796	6.2	0.327	7.4	LOS A	2.2	16.8	0.26	0.58	0.26	52.9
SouthWest: Duri Road												
30b	L3	249	13.1	0.161	4.2	LOS A	0.0	0.0	0.00	0.52	0.00	54.5
31	T1	241	3.9	0.215	6.3	LOS A	1.4	9.9	0.56	0.61	0.56	53.2
Approach		491	8.6	0.215	5.2	LOS A	1.4	9.9	0.27	0.56	0.27	53.8
All Vehicles		1964	6.6	0.327	6.8	LOS A	2.2	16.8	0.28	0.58	0.28	53.2

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.

MOVEMENT SUMMARY

▽ Site: 101 [PM PP Oxley - Goddard]

Oxley Hwy and Goddard Ln
 PM Peak with Processing Plant
 3:15pm to 4:15pm background + 3-4pm plant traffic
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Oxley Highway (south-east)												
22	T1	124	16.1	0.071	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
23	R2	122	15.5	0.115	9.3	LOS A	0.5	3.8	0.35	0.65	0.35	62.9
Approach		246	15.8	0.115	4.6	NA	0.5	3.8	0.17	0.32	0.17	77.3
NorthEast: Goddard Lane												
24	L2	274	6.2	0.381	8.6	LOS A	1.9	14.2	0.38	0.66	0.40	65.1
26	R2	76	9.7	0.381	13.1	LOS A	1.9	14.2	0.38	0.66	0.40	63.5
Approach		349	6.9	0.381	9.6	LOS A	1.9	14.2	0.38	0.66	0.40	64.8
NorthWest: Oxley Highway (north-west)												
27	L2	55	23.1	0.034	9.2	LOS A	0.0	0.0	0.00	0.63	0.00	67.5
28	T1	148	17.0	0.085	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		203	18.7	0.085	2.5	NA	0.0	0.0	0.00	0.17	0.00	88.4
All Vehicles		799	12.6	0.381	6.3	NA	1.9	14.2	0.22	0.43	0.23	73.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 **Site: 101 [PM PP Oxley - Marius - Brisbane]**

Oxley Highway, Marius Street and Brisbane Street

PM Peak Hour with Processing Plant

3:00pm to 4:00pm background + 3-4pm plant traffic

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 114 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Marius Street (SE)												
21	L2	293	10.4	0.254	13.7	LOS A	6.4	48.8	0.43	0.70	0.43	40.0
22	T1	452	4.4	0.554	26.0	LOS B	18.7	135.6	0.80	0.71	0.80	39.7
23	R2	65	6.5	0.213	34.9	LOS C	2.6	19.4	0.75	0.75	0.75	34.8
Approach		809	6.8	0.554	22.3	LOS B	18.7	135.6	0.66	0.71	0.66	39.3
NorthEast: Brisbane Street												
24	L2	85	1.2	0.421	46.4	LOS D	8.6	61.9	0.90	0.77	0.90	31.7
25	T1	233	5.9	0.421	40.8	LOS C	8.6	62.8	0.90	0.76	0.90	30.3
26	R2	40	2.6	0.421	46.4	LOS D	8.6	62.8	0.90	0.76	0.90	34.9
Approach		358	4.4	0.421	42.8	LOS D	8.6	62.8	0.90	0.76	0.90	31.2
NorthWest: Marius Street (NW)												
27	L2	58	9.1	0.323	28.4	LOS B	9.4	68.1	0.70	0.64	0.70	42.0
28	T1	466	3.2	0.323	22.8	LOS B	9.6	69.3	0.70	0.62	0.70	41.2
29	R2	62	0.0	0.308	44.2	LOS D	2.9	20.4	0.85	0.77	0.85	29.2
Approach		586	3.4	0.323	25.6	LOS B	9.6	69.3	0.72	0.63	0.72	39.8
SouthWest: Oxley Highway												
30	L2	64	0.0	0.188	48.2	LOS D	3.0	21.3	0.88	0.75	0.88	27.8
31	T1	180	7.6	0.568	46.0	LOS D	9.2	68.7	0.95	0.78	0.95	29.1
32	R2	251	8.0	0.774	57.4	LOS E	14.2	106.2	1.00	0.89	1.12	21.6
Approach		495	6.8	0.774	52.1	LOS D	14.2	106.2	0.97	0.83	1.03	25.1
All Vehicles		2248	5.5	0.774	33.0	LOS C	18.7	135.6	0.78	0.73	0.80	34.3

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.

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.

MOVEMENT SUMMARY

 **Site: 101 [PM PP Peel - Jewry]**

Peel Street and Jewry Street
 PM Peak Hour with Processing Plant
 15:45am to 16:45am background + 3-4pm plant traffic
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
SouthEast: Peel Street (SE)												
21	L2	300	8.1	0.574	14.4	LOS A	5.2	38.7	0.96	1.07	1.19	47.2
22	T1	424	4.0	0.672	15.0	LOS B	7.7	55.3	1.00	1.12	1.34	48.1
23	R2	9	0.0	0.672	18.8	LOS B	7.7	55.3	1.00	1.12	1.34	28.4
Approach		734	5.6	0.672	14.8	LOS B	7.7	55.3	0.98	1.10	1.28	47.3
NorthEast: Car Park												
24	L2	24	0.0	0.143	9.0	LOS A	0.7	4.7	0.81	0.81	0.81	27.3
25	T1	17	0.0	0.143	9.0	LOS A	0.7	4.7	0.81	0.81	0.81	27.5
26	R2	3	0.0	0.143	9.0	LOS A	0.7	4.7	0.81	0.81	0.81	27.6
Approach		44	0.0	0.143	9.0	LOS A	0.7	4.7	0.81	0.81	0.81	27.4
NorthWest: Peel Street (NW)												
27	L2	14	0.0	0.505	9.8	LOS A	4.1	29.2	0.82	0.87	0.89	28.1
28	T1	347	3.3	0.505	9.6	LOS A	4.1	29.2	0.82	0.87	0.89	51.6
29	R2	681	5.4	0.762	16.9	LOS B	10.8	79.1	0.99	1.03	1.33	46.7
Approach		1042	4.6	0.762	14.4	LOS A	10.8	79.1	0.93	0.98	1.18	47.8
SouthWest: Jewry Street												
30	L2	824	2.6	0.891	19.6	LOS B	19.6	140.2	1.00	1.23	1.73	44.4
31	T1	19	5.6	0.627	13.4	LOS A	6.3	45.5	0.89	0.96	1.07	27.2
32	R2	437	3.9	0.627	14.9	LOS B	6.3	45.5	0.89	0.96	1.07	48.0
Approach		1280	3.0	0.891	17.9	LOS B	19.6	140.2	0.96	1.13	1.49	45.1
All Vehicles		3100	4.1	0.891	15.9	LOS B	19.6	140.2	0.95	1.07	1.33	46.1

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.

MOVEMENT SUMMARY

▽ Site: 101 [PM PP Wallamore - Goddard]

Wallamore Road and Goddard Lane
 PM Peak with Processing Plant
 3:30pm to 4:30pm background + 3-4pm plant traffic
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Wallamore Road (SE)												
21	L2	207	7.1	0.117	7.7	LOS A	0.0	0.0	0.00	0.60	0.00	64.0
22	T1	43	14.6	0.024	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		251	8.4	0.117	6.4	NA	0.0	0.0	0.00	0.50	0.00	66.3
NorthWest: Wallamore Road (NW)												
28	T1	23	13.6	0.013	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
29	R2	5	60.0	0.007	9.5	LOS A	0.0	0.3	0.39	0.62	0.39	47.9
Approach		28	22.2	0.013	1.8	NA	0.0	0.3	0.07	0.11	0.07	71.2
SouthWest: Goddard Lane												
30	L2	16	0.0	0.368	7.8	LOS A	1.9	13.7	0.39	0.66	0.39	64.8
32	R2	300	5.6	0.368	8.8	LOS A	1.9	13.7	0.39	0.66	0.39	61.5
Approach		316	5.3	0.368	8.7	LOS A	1.9	13.7	0.39	0.66	0.39	61.6
All Vehicles		595	7.4	0.368	7.4	NA	1.9	13.7	0.21	0.57	0.21	63.9

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

Site: 101 [AM Growth Goddard - Armstrong]

Goddard Lane and Armstrong Street
 AM Peak with Growth
 7:45am to 8:45am background + growth
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Goddard Lane (north-east)												
25	T1	81	22.1	0.069	0.3	LOS A	0.2	1.7	0.16	0.14	0.16	74.6
26	R2	24	39.1	0.069	8.2	LOS A	0.2	1.7	0.16	0.14	0.16	57.3
Approach		105	26.0	0.069	2.1	NA	0.2	1.7	0.16	0.14	0.16	67.9
NorthWest: Armstrong Street												
27	L2	13	50.0	0.059	5.6	LOS A	0.2	2.0	0.30	0.58	0.30	43.8
29	R2	38	44.4	0.059	6.5	LOS A	0.2	2.0	0.30	0.58	0.30	32.4
Approach		51	45.8	0.059	6.3	LOS A	0.2	2.0	0.30	0.58	0.30	35.6
SouthWest: Goddard Lane (south-west)												
30	L2	52	22.4	0.094	5.7	LOS A	0.0	0.0	0.00	0.19	0.00	56.8
31	T1	117	5.4	0.094	0.0	LOS A	0.0	0.0	0.00	0.19	0.00	75.9
Approach		168	10.6	0.094	1.7	NA	0.0	0.0	0.00	0.19	0.00	68.8
All Vehicles		324	21.1	0.094	2.6	NA	0.2	2.0	0.10	0.24	0.10	59.2

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 Site: 101 [AM Growth Oxley - Duri]

Oxley Highway and Duri Road
 AM Peak with Growth
 8:00am to 9:00am background + growth
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
NorthEast: Oxley Highway (NE)												
25	T1	193	6.0	0.099	4.7	LOS A	0.0	0.0	0.00	0.46	0.00	55.5
26a	R1	313	4.4	0.266	8.8	LOS A	1.8	12.9	0.54	0.67	0.54	51.1
Approach		505	5.0	0.266	7.2	LOS A	1.8	12.9	0.33	0.59	0.33	52.7
West: Oxley Highway (W)												
10a	L1	332	4.8	0.173	4.3	LOS A	0.0	0.0	0.00	0.47	0.00	55.5
12b	R3	279	12.5	0.300	12.2	LOS A	2.1	16.0	0.71	0.79	0.71	49.8
Approach		611	8.3	0.300	7.9	LOS A	2.1	16.0	0.33	0.62	0.33	52.7
SouthWest: Duri Road												
30b	L3	322	13.7	0.208	4.2	LOS A	0.0	0.0	0.00	0.52	0.00	54.5
31	T1	522	3.6	0.446	6.5	LOS A	3.4	24.3	0.63	0.64	0.63	52.9
Approach		844	7.5	0.446	5.6	LOS A	3.4	24.3	0.39	0.60	0.39	53.5
All Vehicles		1960	7.1	0.446	6.8	LOS A	3.4	24.3	0.35	0.60	0.35	53.0

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.

MOVEMENT SUMMARY

▽ Site: 101 [AM Growth Oxley - Goddard]

Oxley Hwy and Goddard Ln
 AM Peak with Growth
 7:45am to 8:45am background + growth
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Oxley Highway (south-east)												
22	T1	154	22.6	0.091	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
23	R2	72	17.6	0.069	9.4	LOS A	0.3	2.2	0.35	0.65	0.35	62.2
Approach		225	21.0	0.091	3.0	NA	0.3	2.2	0.11	0.21	0.11	83.8
NorthEast: Goddard Lane												
24	L2	66	38.1	0.165	8.9	LOS A	0.6	5.7	0.35	0.66	0.35	57.5
26	R2	53	18.0	0.165	11.9	LOS A	0.6	5.7	0.35	0.66	0.35	61.1
Approach		119	29.2	0.165	10.2	LOS A	0.6	5.7	0.35	0.66	0.35	59.0
NorthWest: Oxley Highway (north-west)												
27	L2	97	5.4	0.054	8.8	LOS A	0.0	0.0	0.00	0.63	0.00	72.6
28	T1	122	19.8	0.071	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		219	13.5	0.071	3.9	NA	0.0	0.0	0.00	0.28	0.00	85.6
All Vehicles		563	19.8	0.165	4.9	NA	0.6	5.7	0.12	0.33	0.12	77.5

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 **Site: 101 [AM Growth Oxley - Marius - Brisbane]**

Oxley Highway, Marius Street and Brisbane Street

AM Peak Hour with Growth

8:15am to 9:15am background + growth

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 93 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Marius Street (SE)												
21	L2	267	6.3	0.229	12.5	LOS A	4.8	35.7	0.43	0.70	0.43	41.4
22	T1	533	6.5	0.862	38.9	LOS C	25.9	191.4	0.98	1.01	1.18	34.0
23	R2	44	4.8	0.206	38.5	LOS C	1.7	12.4	0.85	0.74	0.85	33.4
Approach		844	6.4	0.862	30.5	LOS C	25.9	191.4	0.80	0.90	0.92	35.4
NorthEast: Brisbane Street												
24	L2	126	3.3	0.585	41.7	LOS C	9.6	70.4	0.95	0.81	0.95	33.2
25	T1	285	8.1	0.585	36.1	LOS C	9.7	71.8	0.95	0.80	0.95	32.0
26	R2	51	4.2	0.585	41.7	LOS C	9.7	71.8	0.95	0.80	0.95	36.6
Approach		462	6.4	0.585	38.2	LOS C	9.7	71.8	0.95	0.80	0.95	32.9
NorthWest: Marius Street (NW)												
27	L2	68	0.0	0.489	31.2	LOS C	11.0	81.9	0.83	0.73	0.83	40.8
28	T1	522	10.1	0.489	25.6	LOS B	11.0	81.9	0.83	0.71	0.83	39.6
29	R2	47	0.0	0.422	52.7	LOS D	2.2	15.5	0.99	0.75	0.99	26.6
Approach		638	8.3	0.489	28.2	LOS B	11.0	81.9	0.84	0.72	0.84	38.6
SouthWest: Oxley Highway												
30	L2	53	4.0	0.118	35.0	LOS C	1.9	13.5	0.81	0.73	0.81	32.4
31	T1	199	2.1	0.421	32.1	LOS C	7.7	54.7	0.89	0.73	0.89	34.5
32	R2	232	10.9	0.543	39.1	LOS C	9.3	71.4	0.92	0.82	0.92	26.9
Approach		483	6.5	0.543	35.8	LOS C	9.3	71.4	0.90	0.77	0.90	30.7
All Vehicles		2427	6.9	0.862	32.4	LOS C	25.9	191.4	0.86	0.81	0.90	34.8

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.

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.

MOVEMENT SUMMARY

 Site: 101 [AM Growth Peel - Jewry]

Peel Street and Jewry Street
 AM Peak Hour with Growth
 8:15am to 9:15am + growth
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
SouthEast: Peel Street (SE)												
21	L2	369	10.0	0.768	25.5	LOS B	9.8	74.3	1.00	1.25	1.64	41.3
22	T1	354	5.4	0.828	32.8	LOS C	11.4	83.2	1.00	1.33	1.88	39.0
23	R2	5	0.0	0.828	36.5	LOS C	11.4	83.2	1.00	1.33	1.88	25.0
Approach		728	7.7	0.828	29.1	LOS C	11.4	83.2	1.00	1.29	1.76	40.0
NorthEast: Car Park												
24	L2	17	0.0	0.152	14.9	LOS B	0.7	5.2	0.88	0.88	0.88	26.2
25	T1	12	0.0	0.152	14.9	LOS B	0.7	5.2	0.88	0.88	0.88	26.3
26	R2	1	0.0	0.152	14.9	LOS B	0.7	5.2	0.88	0.88	0.88	26.5
Approach		29	0.0	0.152	14.9	LOS B	0.7	5.2	0.88	0.88	0.88	26.2
NorthWest: Peel Street (NW)												
27	L2	17	12.5	0.704	13.7	LOS A	8.2	59.3	0.92	1.01	1.20	27.5
28	T1	631	3.8	1.009	19.7	LOS B	46.4	340.2	0.94	1.17	1.59	44.9
29	R2	846	5.7	1.009	54.6	LOS D	46.4	340.2	1.00	1.90	3.39	31.8
Approach		1494	5.0	1.009	39.4	LOS C	46.4	340.2	0.97	1.58	2.61	36.2
SouthWest: Jewry Street												
30	L2	722	6.0	0.737	10.5	LOS A	9.9	73.2	0.94	0.91	1.14	49.8
31	T1	21	10.0	0.539	11.1	LOS A	4.6	35.0	0.79	0.85	0.86	27.7
32	R2	393	10.5	0.539	12.7	LOS A	4.6	35.0	0.79	0.85	0.86	49.3
Approach		1136	7.6	0.737	11.3	LOS A	9.9	73.2	0.88	0.89	1.04	48.9
All Vehicles		3387	6.4	1.009	27.5	LOS B	46.4	340.2	0.95	1.28	1.88	40.4

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.

MOVEMENT SUMMARY

▽ Site: 101 [AM Growth Wallamore - Goddard]

Wallamore Road and Goddard Lane
 AM Peak with Growth
 8:00am to 9:00am background + growth
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Wallamore Road (SE)												
21	L2	148	20.6	0.092	7.9	LOS A	0.0	0.0	0.00	0.59	0.00	60.2
22	T1	21	30.0	0.013	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		169	21.7	0.092	6.9	NA	0.0	0.0	0.00	0.52	0.00	62.1
NorthWest: Wallamore Road (NW)												
28	T1	53	18.0	0.030	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
29	R2	12	18.2	0.011	7.8	LOS A	0.0	0.3	0.30	0.60	0.30	58.3
Approach		64	18.0	0.030	1.4	NA	0.0	0.3	0.05	0.11	0.05	75.0
SouthWest: Goddard Lane												
30	L2	7	57.1	0.182	8.6	LOS A	0.8	6.3	0.30	0.64	0.30	51.0
32	R2	140	16.5	0.182	8.7	LOS A	0.8	6.3	0.30	0.64	0.30	58.5
Approach		147	18.6	0.182	8.7	LOS A	0.8	6.3	0.30	0.64	0.30	58.1
All Vehicles		381	19.9	0.182	6.7	NA	0.8	6.3	0.12	0.50	0.12	62.2

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

▽ Site: 101 [PM Growth Goddard - Armstrong]

Goddard Lane and Armstrong Street
 PM Peak with Growth
 3:15pm to 4:15pm background + growth
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Goddard Lane (north-east)												
25	T1	168	5.0	0.108	0.2	LOS A	0.2	1.4	0.09	0.06	0.09	77.7
26	R2	18	47.1	0.108	8.7	LOS A	0.2	1.4	0.09	0.06	0.09	58.1
Approach		186	9.0	0.108	1.0	NA	0.2	1.4	0.09	0.06	0.09	74.1
NorthWest: Armstrong Street												
27	L2	27	34.6	0.129	5.2	LOS A	0.5	3.6	0.28	0.60	0.28	46.3
29	R2	96	8.8	0.129	6.2	LOS A	0.5	3.6	0.28	0.60	0.28	33.3
Approach		123	14.5	0.129	6.0	LOS A	0.5	3.6	0.28	0.60	0.28	36.6
SouthWest: Goddard Lane (south-west)												
30	L2	120	7.9	0.114	5.7	LOS A	0.0	0.0	0.00	0.38	0.00	60.2
31	T1	79	20.0	0.114	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	70.8
Approach		199	12.7	0.114	3.4	NA	0.0	0.0	0.00	0.38	0.00	64.0
All Vehicles		508	11.8	0.129	3.2	NA	0.5	3.6	0.10	0.32	0.10	55.9

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 Site: 101 [PM Growth Oxley - Duri]

Oxley Highway and Duri Road
 PM Peak with Growth
 3:15pm to 4:15pm background + growth
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Oxley Highway (NE)												
25	T1	404	3.9	0.205	4.7	LOS A	0.0	0.0	0.00	0.46	0.00	55.5
26a	R1	409	6.9	0.387	9.8	LOS A	2.8	20.6	0.68	0.75	0.68	50.7
Approach		814	5.4	0.387	7.3	LOS A	2.8	20.6	0.34	0.61	0.34	53.0
West: Oxley Highway (W)												
10a	L1	404	4.4	0.210	4.3	LOS A	0.0	0.0	0.00	0.47	0.00	55.5
12b	R3	408	8.8	0.352	10.8	LOS A	2.5	18.6	0.57	0.71	0.57	50.4
Approach		813	6.6	0.352	7.6	LOS A	2.5	18.6	0.29	0.59	0.29	52.8
SouthWest: Duri Road												
30b	L3	295	11.4	0.188	4.2	LOS A	0.0	0.0	0.00	0.52	0.00	54.6
31	T1	289	4.0	0.276	6.8	LOS A	1.9	13.5	0.64	0.66	0.64	52.8
Approach		584	7.7	0.276	5.5	LOS A	1.9	13.5	0.32	0.59	0.32	53.7
All Vehicles		2211	6.5	0.387	6.9	LOS A	2.8	20.6	0.31	0.60	0.31	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.

MOVEMENT SUMMARY

▽ Site: 101 [PM Growth Oxley - Goddard]

Oxley Hwy and Goddard Ln
 PM Peak with Growth
 3:15pm to 4:15pm background + growth
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Oxley Highway (south-east)												
22	T1	152	17.4	0.087	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
23	R2	137	9.2	0.131	9.4	LOS A	0.5	4.1	0.38	0.67	0.38	64.8
Approach		288	13.5	0.131	4.4	NA	0.5	4.1	0.18	0.32	0.18	79.5
NorthEast: Goddard Lane												
24	L2	178	5.9	0.320	8.7	LOS A	1.4	10.5	0.43	0.69	0.44	64.5
26	R2	79	5.3	0.320	13.5	LOS A	1.4	10.5	0.43	0.69	0.44	64.0
Approach		257	5.7	0.320	10.2	LOS A	1.4	10.5	0.43	0.69	0.44	64.3
NorthWest: Oxley Highway (north-west)												
27	L2	61	17.2	0.037	9.1	LOS A	0.0	0.0	0.00	0.63	0.00	69.1
28	T1	185	17.0	0.106	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		246	17.1	0.106	2.3	NA	0.0	0.0	0.00	0.16	0.00	89.9
All Vehicles		792	12.1	0.320	5.6	NA	1.4	10.5	0.21	0.39	0.21	76.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 **Site: 101 [PM Growth Oxley - Marius - Brisbane]**

Oxley Highway, Marius Street and Brisbane Street

PM Peak Hour with Growth

3:00pm to 4:00pm background + growth

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 114 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Marius Street (SE)												
21	L2	348	9.7	0.301	14.0	LOS A	7.9	60.1	0.45	0.71	0.45	39.8
22	T1	542	4.5	0.737	27.8	LOS B	23.9	173.9	0.86	0.76	0.86	38.8
23	R2	79	6.7	0.308	38.5	LOS C	3.4	25.4	0.80	0.77	0.80	33.4
Approach		969	6.5	0.737	23.7	LOS B	23.9	173.9	0.71	0.74	0.71	38.5
NorthEast: Brisbane Street												
24	L2	103	2.0	0.559	47.4	LOS D	10.7	77.2	0.93	0.79	0.93	31.4
25	T1	280	6.0	0.559	41.8	LOS C	10.7	77.2	0.93	0.78	0.93	29.9
26	R2	49	4.3	0.559	47.4	LOS D	10.6	77.8	0.92	0.78	0.92	34.6
Approach		433	4.9	0.559	43.8	LOS D	10.7	77.8	0.93	0.79	0.93	30.9
NorthWest: Marius Street (NW)												
27	L2	69	9.1	0.418	29.5	LOS C	12.8	92.9	0.74	0.67	0.74	41.6
28	T1	560	3.2	0.418	23.6	LOS B	12.8	92.9	0.73	0.64	0.73	40.7
29	R2	75	0.0	0.492	51.7	LOS D	3.9	27.4	0.93	0.79	0.93	26.9
Approach		704	3.4	0.492	27.1	LOS B	12.8	92.9	0.75	0.66	0.75	39.0
SouthWest: Oxley Highway												
30	L2	67	0.0	0.197	48.3	LOS D	3.2	22.4	0.89	0.75	0.89	27.8
31	T1	198	8.5	0.643	46.8	LOS D	10.3	77.2	0.97	0.80	0.97	28.9
32	R2	281	8.2	0.870	64.8	LOS E	17.5	130.8	1.00	0.96	1.27	20.0
Approach		546	7.3	0.870	56.3	LOS D	17.5	130.8	0.97	0.88	1.12	24.0
All Vehicles		2653	5.6	0.870	34.6	LOS C	23.9	173.9	0.81	0.76	0.84	33.7

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.

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.

MOVEMENT SUMMARY

 **Site: 101 [PM Growth Peel - Jewry]**

Peel Street and Jewry Street
 PM Peak Hour with Growth
 15:45am to 16:45am background + growth
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
SouthEast: Peel Street (SE)												
21	L2	361	8.2	0.878	41.3	LOS C	13.5	100.8	1.00	1.44	2.17	35.0
22	T1	511	4.1	1.009	78.7	LOS F	32.5	235.5	1.00	2.10	3.81	26.3
23	R2	12	0.0	1.009	82.5	LOS F	32.5	235.5	1.00	2.10	3.81	19.1
Approach		883	5.7	1.009	63.5	LOS E	32.5	235.5	1.00	1.83	3.14	29.1
NorthEast: Car Park												
24	L2	29	0.0	0.237	13.2	LOS A	1.2	8.2	0.87	0.87	0.87	26.5
25	T1	21	0.0	0.237	13.2	LOS A	1.2	8.2	0.87	0.87	0.87	26.6
26	R2	4	0.0	0.237	13.2	LOS A	1.2	8.2	0.87	0.87	0.87	26.8
Approach		55	0.0	0.237	13.2	LOS A	1.2	8.2	0.87	0.87	0.87	26.6
NorthWest: Peel Street (NW)												
27	L2	17	0.0	0.663	13.7	LOS A	7.0	50.2	0.94	1.05	1.22	27.3
28	T1	418	3.5	0.663	13.5	LOS A	7.0	50.2	0.94	1.05	1.22	49.0
29	R2	818	5.4	0.989	50.1	LOS D	36.5	267.0	1.00	1.80	3.13	33.0
Approach		1253	4.7	0.989	37.4	LOS C	36.5	267.0	0.98	1.54	2.47	36.9
SouthWest: Jewry Street												
30	L2	963	2.6	1.154	160.7	LOS F	104.8	749.8	1.00	4.01	7.98	16.2
31	T1	24	8.7	0.796	21.2	LOS B	11.0	80.1	1.00	1.21	1.55	25.8
32	R2	485	4.3	0.796	22.5	LOS B	11.0	80.1	1.00	1.21	1.55	43.7
Approach		1473	3.3	1.154	112.9	LOS F	104.8	749.8	1.00	3.04	5.75	20.7
All Vehicles		3663	4.3	1.154	73.7	LOS F	104.8	749.8	0.99	2.20	3.93	26.7

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.

MOVEMENT SUMMARY

▽ Site: 101 [PM Growth Wallamore - Goddard]

Wallamore Road and Goddard Lane
 PM Peak with Growth
 3:30pm to 4:30pm background + growth
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Wallamore Road (SE)												
21	L2	249	7.2	0.141	7.7	LOS A	0.0	0.0	0.00	0.60	0.00	64.0
22	T1	53	16.0	0.030	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		302	8.7	0.141	6.3	NA	0.0	0.0	0.00	0.49	0.00	66.3
NorthWest: Wallamore Road (NW)												
28	T1	28	14.8	0.016	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
29	R2	7	57.1	0.010	9.9	LOS A	0.0	0.4	0.43	0.64	0.43	48.2
Approach		36	23.5	0.016	2.0	NA	0.0	0.4	0.09	0.13	0.09	70.4
SouthWest: Goddard Lane												
30	L2	15	0.0	0.350	7.9	LOS A	1.7	12.9	0.42	0.69	0.43	64.3
32	R2	266	7.9	0.350	9.3	LOS A	1.7	12.9	0.42	0.69	0.43	60.3
Approach		281	7.5	0.350	9.2	LOS A	1.7	12.9	0.42	0.69	0.43	60.5
All Vehicles		619	9.0	0.350	7.4	NA	1.7	12.9	0.20	0.56	0.20	63.8

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

▽ Site: 101 [AM PP Growth Goddard - Armstrong]

Goddard Lane and Armstrong Street
 AM Peak with Processing Plant and Growth
 7:45am to 8:45am background + 6-7am plant traffic + growth
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Goddard Lane (north-east)												
25	T1	81	22.1	0.090	0.6	LOS A	0.4	3.0	0.28	0.26	0.28	70.0
26	R2	55	17.3	0.090	7.9	LOS A	0.4	3.0	0.28	0.26	0.28	56.1
Approach		136	20.2	0.090	3.6	NA	0.4	3.0	0.28	0.26	0.28	61.9
NorthWest: Armstrong Street												
27	L2	16	40.0	0.090	5.4	LOS A	0.3	3.1	0.33	0.61	0.33	45.1
29	R2	54	52.9	0.090	7.2	LOS A	0.3	3.1	0.33	0.61	0.33	31.9
Approach		69	50.0	0.090	6.8	LOS A	0.3	3.1	0.33	0.61	0.33	35.3
SouthWest: Goddard Lane (south-west)												
30	L2	109	21.2	0.130	5.7	LOS A	0.0	0.0	0.00	0.30	0.00	56.0
31	T1	117	5.4	0.130	0.0	LOS A	0.0	0.0	0.00	0.30	0.00	73.4
Approach		226	13.0	0.130	2.7	NA	0.0	0.0	0.00	0.30	0.00	63.8
All Vehicles		432	21.2	0.130	3.7	NA	0.4	3.1	0.14	0.34	0.14	55.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 Site: 101 [AM PP Growth Oxley - Duri]

Oxley Highway and Duri Road
 AM Peak with Processing Plant and Growth
 8:00am to 9:00am background + 6-7am plant traffic + growth
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
NorthEast: Oxley Highway (NE)												
25	T1	193	6.0	0.099	4.7	LOS A	0.0	0.0	0.00	0.46	0.00	55.5
26a	R1	335	4.7	0.287	8.9	LOS A	2.0	14.3	0.56	0.68	0.56	51.1
Approach		527	5.2	0.287	7.3	LOS A	2.0	14.3	0.35	0.60	0.35	52.6
West: Oxley Highway (W)												
10a	L1	336	5.3	0.176	4.3	LOS A	0.0	0.0	0.00	0.47	0.00	55.5
12b	R3	285	13.7	0.311	12.3	LOS A	2.2	16.9	0.72	0.79	0.72	49.7
Approach		621	9.2	0.311	8.0	LOS A	2.2	16.9	0.33	0.62	0.33	52.6
SouthWest: Duri Road												
30b	L3	346	14.0	0.224	4.2	LOS A	0.0	0.0	0.00	0.52	0.00	54.5
31	T1	522	3.6	0.456	6.7	LOS A	3.5	25.0	0.65	0.66	0.65	52.8
Approach		868	7.8	0.456	5.7	LOS A	3.5	25.0	0.39	0.61	0.39	53.4
All Vehicles		2017	7.5	0.456	6.8	LOS A	3.5	25.0	0.36	0.61	0.36	53.0

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.

MOVEMENT SUMMARY

▽ Site: 101 [AM PP Growth Oxley - Goddard]

Oxley Hwy and Goddard Ln
 AM Peak with Processing Plant and Growth
 7:45am to 8:45am background + 6-7am plant traffic + growth
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Oxley Highway (south-east)												
22	T1	147	22.9	0.088	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
23	R2	122	16.4	0.118	9.5	LOS A	0.5	3.9	0.36	0.66	0.36	62.5
Approach		269	19.9	0.118	4.3	NA	0.5	3.9	0.17	0.30	0.17	78.6
NorthEast: Goddard Lane												
24	L2	77	42.5	0.200	9.0	LOS A	0.8	7.2	0.36	0.67	0.36	56.3
26	R2	58	23.6	0.200	13.2	LOS A	0.8	7.2	0.36	0.67	0.36	59.2
Approach		135	34.4	0.200	10.8	LOS A	0.8	7.2	0.36	0.67	0.36	57.5
NorthWest: Oxley Highway (north-west)												
27	L2	104	9.1	0.060	8.9	LOS A	0.0	0.0	0.00	0.63	0.00	71.5
28	T1	121	19.1	0.070	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		225	14.5	0.070	4.1	NA	0.0	0.0	0.00	0.29	0.00	84.3
All Vehicles		629	21.1	0.200	5.6	NA	0.8	7.2	0.15	0.38	0.15	74.5

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 **Site: 101 [AM PP Growth Oxley - Marius - Brisbane]**

Oxley Highway, Marius Street and Brisbane Street

AM Peak Hour with Processing Plant and Growth

8:15am to 9:15am background + 6-7am plant traffic + growth

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 93 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Marius Street (SE)												
21	L2	276	7.3	0.238	12.5	LOS A	5.0	37.4	0.44	0.70	0.44	41.2
22	T1	533	6.5	0.862	39.0	LOS C	25.9	191.4	0.98	1.01	1.18	34.0
23	R2	44	4.8	0.206	38.5	LOS C	1.7	12.4	0.85	0.74	0.85	33.4
Approach		853	6.7	0.862	30.4	LOS C	25.9	191.4	0.80	0.90	0.92	35.4
NorthEast: Brisbane Street												
24	L2	126	3.3	0.594	41.8	LOS C	9.8	71.7	0.95	0.81	0.95	33.2
25	T1	291	8.0	0.594	36.2	LOS C	9.8	71.7	0.95	0.80	0.95	32.0
26	R2	51	4.2	0.594	41.7	LOS C	9.7	72.4	0.95	0.80	0.95	36.5
Approach		467	6.3	0.594	38.3	LOS C	9.8	72.4	0.95	0.80	0.95	32.9
NorthWest: Marius Street (NW)												
27	L2	68	0.0	0.490	31.2	LOS C	11.0	82.1	0.83	0.73	0.83	40.8
28	T1	522	10.1	0.490	25.6	LOS B	11.0	82.1	0.83	0.71	0.83	39.6
29	R2	51	0.0	0.452	52.8	LOS D	2.4	16.6	0.99	0.75	0.99	26.6
Approach		641	8.2	0.490	28.4	LOS B	11.0	82.1	0.84	0.72	0.84	38.5
SouthWest: Oxley Highway												
30	L2	53	4.0	0.118	35.0	LOS C	1.9	13.5	0.81	0.73	0.81	32.4
31	T1	199	2.1	0.421	32.1	LOS C	7.7	54.7	0.89	0.73	0.89	34.5
32	R2	234	11.7	0.551	39.2	LOS C	9.4	72.7	0.92	0.82	0.92	26.8
Approach		485	6.9	0.551	35.8	LOS C	9.4	72.7	0.90	0.77	0.90	30.6
All Vehicles		2446	7.1	0.862	32.4	LOS C	25.9	191.4	0.86	0.81	0.90	34.8

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.

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.

MOVEMENT SUMMARY

 Site: 101 [AM PP Growth Peel - Jewry]

Peel Street and Jewry Street
 AM Peak Hour with Processing Plant and Growth
 8:15am to 9:15am + 6-7am plant traffic + growth
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
SouthEast: Peel Street (SE)												
21	L2	382	9.6	0.798	28.2	LOS B	10.8	82.2	1.00	1.30	1.75	40.0
22	T1	354	5.4	0.839	34.6	LOS C	11.8	86.5	1.00	1.36	1.94	38.3
23	R2	5	0.0	0.839	38.3	LOS C	11.8	86.5	1.00	1.36	1.94	24.7
Approach		741	7.5	0.839	31.3	LOS C	11.8	86.5	1.00	1.32	1.84	39.0
NorthEast: Car Park												
24	L2	17	0.0	0.152	15.0	LOS B	0.7	5.2	0.88	0.88	0.88	26.1
25	T1	12	0.0	0.152	15.0	LOS B	0.7	5.2	0.88	0.88	0.88	26.3
26	R2	1	0.0	0.152	15.0	LOS B	0.7	5.2	0.88	0.88	0.88	26.5
Approach		29	0.0	0.152	15.0	LOS B	0.7	5.2	0.88	0.88	0.88	26.2
NorthWest: Peel Street (NW)												
27	L2	17	12.5	0.708	13.8	LOS A	8.3	60.3	0.93	1.02	1.21	27.4
28	T1	631	3.8	1.014	20.0	LOS B	48.3	354.0	0.94	1.18	1.61	44.8
29	R2	855	5.7	1.014	57.3	LOS E	48.3	354.0	1.00	1.96	3.52	31.1
Approach		1502	5.0	1.014	41.1	LOS C	48.3	354.0	0.97	1.62	2.70	35.6
SouthWest: Jewry Street												
30	L2	723	6.0	0.737	10.5	LOS A	10.0	73.4	0.94	0.91	1.14	49.8
31	T1	21	10.0	0.540	11.1	LOS A	4.6	35.1	0.79	0.85	0.86	27.7
32	R2	394	10.4	0.540	12.7	LOS A	4.6	35.1	0.79	0.85	0.86	49.3
Approach		1138	7.6	0.737	11.3	LOS A	10.0	73.4	0.89	0.89	1.04	48.9
All Vehicles		3411	6.4	1.014	28.8	LOS C	48.3	354.0	0.95	1.31	1.94	39.8

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.

MOVEMENT SUMMARY

▽ Site: 101 [AM PP Growth Wallamore - Goddard]

Wallamore Road and Goddard Lane
 AM Peak with Processing Plant and Growth
 8:00am to 9:00am background + 6-7am plant traffic + growth
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Wallamore Road (SE)												
21	L2	178	17.2	0.108	7.8	LOS A	0.0	0.0	0.00	0.59	0.00	61.1
22	T1	21	30.0	0.013	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		199	18.5	0.108	7.0	NA	0.0	0.0	0.00	0.53	0.00	62.7
NorthWest: Wallamore Road (NW)												
28	T1	53	18.0	0.030	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
29	R2	13	16.7	0.012	7.9	LOS A	0.0	0.4	0.32	0.61	0.32	58.6
Approach		65	17.7	0.030	1.5	NA	0.0	0.4	0.06	0.12	0.06	74.7
SouthWest: Goddard Lane												
30	L2	7	57.1	0.190	8.6	LOS A	0.8	6.6	0.31	0.65	0.31	50.9
32	R2	143	16.2	0.190	8.8	LOS A	0.8	6.6	0.31	0.65	0.31	58.5
Approach		151	18.2	0.190	8.8	LOS A	0.8	6.6	0.31	0.65	0.31	58.1
All Vehicles		415	18.3	0.190	6.8	NA	0.8	6.6	0.12	0.51	0.12	62.5

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

Site: 101 [PM PP Growth Goddard - Armstrong]

Goddard Lane and Armstrong Street
 PM Peak with Processing Plant with Growth
 3:15pm to 4:15pm background + 3-4pm plant traffic + growth
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Goddard Lane (north-east)												
25	T1	168	5.0	0.108	0.2	LOS A	0.2	1.4	0.10	0.06	0.10	77.7
26	R2	18	47.1	0.108	8.8	LOS A	0.2	1.4	0.10	0.06	0.10	58.1
Approach		186	9.0	0.108	1.0	NA	0.2	1.4	0.10	0.06	0.10	74.0
NorthWest: Armstrong Street												
27	L2	111	8.6	0.339	5.0	LOS A	1.5	11.0	0.30	0.61	0.30	51.1
29	R2	233	9.0	0.339	6.7	LOS A	1.5	11.0	0.30	0.61	0.30	33.3
Approach		343	8.9	0.339	6.2	LOS A	1.5	11.0	0.30	0.61	0.30	39.2
SouthWest: Goddard Lane (south-west)												
30	L2	133	16.7	0.126	5.7	LOS A	0.0	0.0	0.00	0.39	0.00	56.3
31	T1	79	20.0	0.126	0.0	LOS A	0.0	0.0	0.00	0.39	0.00	70.8
Approach		212	17.9	0.126	3.6	NA	0.0	0.0	0.00	0.39	0.00	61.0
All Vehicles		741	11.5	0.339	4.1	NA	1.5	11.0	0.16	0.41	0.16	49.3

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 Site: 101 [PM PP Growth Oxley - Duri]

Oxley Highway and Duri Road
 PM Peak with Processing Plant and Growth
 3:15pm to 4:15pm background + 3-4pm plant traffic + growth
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Oxley Highway (NE)												
25	T1	404	3.9	0.205	4.7	LOS A	0.0	0.0	0.00	0.46	0.00	55.5
26a	R1	412	7.4	0.412	10.3	LOS A	3.0	22.7	0.73	0.78	0.73	50.5
Approach		816	5.7	0.412	7.5	LOS A	3.0	22.7	0.37	0.62	0.37	52.9
West: Oxley Highway (W)												
10a	L1	462	4.1	0.240	4.3	LOS A	0.0	0.0	0.00	0.47	0.00	55.5
12b	R3	469	8.5	0.402	10.9	LOS A	3.0	22.3	0.60	0.71	0.60	50.3
Approach		932	6.3	0.402	7.6	LOS A	3.0	22.3	0.30	0.59	0.30	52.7
SouthWest: Duri Road												
30b	L3	300	13.0	0.193	4.2	LOS A	0.0	0.0	0.00	0.52	0.00	54.5
31	T1	289	4.0	0.278	6.8	LOS A	1.9	13.8	0.65	0.66	0.65	52.8
Approach		589	8.6	0.278	5.5	LOS A	1.9	13.8	0.32	0.59	0.32	53.7
All Vehicles		2337	6.7	0.412	7.0	LOS A	3.0	22.7	0.33	0.60	0.33	53.0

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.

MOVEMENT SUMMARY

▽ Site: 101 [PM PP Growth Oxley - Goddard]

Oxley Hwy and Goddard Ln
 PM Peak with Processing Plant and Growth
 3:15pm to 4:15pm background + 3-4pm plant traffic + growth
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Oxley Highway (south-east)												
22	T1	149	16.2	0.086	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
23	R2	145	14.5	0.143	9.6	LOS A	0.6	4.7	0.39	0.68	0.39	63.0
Approach		295	15.4	0.143	4.7	NA	0.6	4.7	0.19	0.33	0.19	77.5
NorthEast: Goddard Lane												
24	L2	304	6.2	0.465	9.6	LOS A	3.1	23.2	0.46	0.73	0.59	63.4
26	R2	89	9.4	0.465	15.9	LOS B	3.1	23.2	0.46	0.73	0.59	62.0
Approach		394	7.0	0.465	11.1	LOS A	3.1	23.2	0.46	0.73	0.59	63.1
NorthWest: Oxley Highway (north-west)												
27	L2	65	22.6	0.041	9.2	LOS A	0.0	0.0	0.00	0.63	0.00	67.7
28	T1	179	17.1	0.102	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		244	18.5	0.102	2.5	NA	0.0	0.0	0.00	0.17	0.00	88.5
All Vehicles		933	12.6	0.465	6.8	NA	3.1	23.2	0.25	0.46	0.31	72.8

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

MOVEMENT SUMMARY

 **Site: 101 [PM PP Growth Oxley - Marius - Brisbane]**

Oxley Highway, Marius Street and Brisbane Street

PM Peak Hour with Processing Plant and Growth

3:00pm to 4:00pm background + 3-4pm plant traffic + growth

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 114 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Marius Street (SE)												
21	L2	352	10.5	0.305	14.1	LOS A	8.0	61.3	0.45	0.71	0.45	39.7
22	T1	542	4.5	0.737	27.8	LOS B	23.9	173.9	0.86	0.76	0.86	38.8
23	R2	79	6.7	0.308	38.5	LOS C	3.4	25.4	0.80	0.77	0.80	33.4
Approach		973	6.8	0.737	23.7	LOS B	23.9	173.9	0.71	0.74	0.71	38.5
NorthEast: Brisbane Street												
24	L2	103	2.0	0.559	47.4	LOS D	10.7	77.2	0.93	0.79	0.93	31.4
25	T1	280	6.0	0.559	41.8	LOS C	10.7	77.2	0.93	0.78	0.93	29.9
26	R2	49	4.3	0.559	47.4	LOS D	10.6	77.8	0.92	0.78	0.92	34.6
Approach		433	4.9	0.559	43.8	LOS D	10.7	77.8	0.93	0.79	0.93	30.9
NorthWest: Marius Street (NW)												
27	L2	69	9.1	0.418	29.5	LOS C	12.8	92.9	0.74	0.67	0.74	41.6
28	T1	560	3.2	0.418	23.6	LOS B	12.8	92.9	0.73	0.64	0.73	40.7
29	R2	75	0.0	0.494	51.7	LOS D	3.9	27.4	0.93	0.79	0.93	26.9
Approach		704	3.4	0.494	27.1	LOS B	12.8	92.9	0.75	0.66	0.75	39.0
SouthWest: Oxley Highway												
30	L2	76	0.0	0.222	48.6	LOS D	3.6	25.4	0.89	0.76	0.89	27.7
31	T1	214	7.9	0.707	48.3	LOS D	11.4	85.3	0.98	0.84	1.04	28.4
32	R2	298	8.1	0.921	73.4	LOS F	20.1	150.3	1.00	1.02	1.41	18.4
Approach		587	7.0	0.921	61.1	LOS E	20.1	150.3	0.98	0.92	1.20	22.9
All Vehicles		2697	5.7	0.921	36.0	LOS C	23.9	173.9	0.81	0.77	0.86	33.1

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.

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.

MOVEMENT SUMMARY

 Site: 101 [PM PP Growth Peel - Jewry]

Peel Street and Jewry Street
 PM Peak Hour with Processing Plant and Growth + growth
 15:45am to 16:45am background + 3-4pm plant traffic
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
SouthEast: Peel Street (SE)												
21	L2	361	8.2	0.857	36.7	LOS C	12.3	92.4	1.00	1.39	2.03	36.6
22	T1	511	4.1	0.986	66.4	LOS E	28.4	205.9	1.00	1.95	3.40	28.8
23	R2	12	0.0	0.986	70.2	LOS E	28.4	205.9	1.00	1.95	3.40	20.4
Approach		883	5.7	0.986	54.3	LOS D	28.4	205.9	1.00	1.72	2.84	31.3
NorthEast: Car Park												
24	L2	29	0.0	0.242	13.6	LOS A	1.2	8.4	0.87	0.87	0.87	26.4
25	T1	21	0.0	0.242	13.6	LOS A	1.2	8.4	0.87	0.87	0.87	26.5
26	R2	4	0.0	0.242	13.7	LOS A	1.2	8.4	0.87	0.87	0.87	26.7
Approach		55	0.0	0.242	13.6	LOS A	1.2	8.4	0.87	0.87	0.87	26.5
NorthWest: Peel Street (NW)												
27	L2	17	0.0	0.689	15.0	LOS B	7.6	54.6	0.97	1.10	1.30	27.0
28	T1	418	3.5	0.689	14.9	LOS B	7.6	54.6	0.97	1.10	1.30	48.1
29	R2	818	5.4	1.028	71.9	LOS F	47.7	349.4	1.00	2.22	4.14	27.7
Approach		1253	4.7	1.028	52.1	LOS D	47.7	349.4	0.99	1.83	3.15	32.2
SouthWest: Jewry Street												
30	L2	985	2.6	1.176	179.3	LOS F	116.1	830.2	1.00	4.31	8.66	15.0
31	T1	24	8.7	0.835	23.6	LOS B	13.0	94.6	1.00	1.26	1.68	25.4
32	R2	519	4.1	0.835	24.9	LOS B	13.0	94.6	1.00	1.26	1.68	42.5
Approach		1528	3.2	1.176	124.4	LOS F	116.1	830.2	1.00	3.23	6.18	19.5
All Vehicles		3719	4.2	1.176	81.8	LOS F	116.1	830.2	0.99	2.37	4.29	25.2

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.

MOVEMENT SUMMARY

▽ Site: 101 [PM PP Growth Wallamore - Goddard]

Wallamore Road and Goddard Lane
 PM Peak with Processing Plant and Growth
 3:30pm to 4:30pm background + 3-4pm plant traffic + growth
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Wallamore Road (SE)												
21	L2	249	7.2	0.141	7.7	LOS A	0.0	0.0	0.00	0.60	0.00	64.0
22	T1	53	16.0	0.030	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		302	8.7	0.141	6.3	NA	0.0	0.0	0.00	0.49	0.00	66.3
NorthWest: Wallamore Road (NW)												
28	T1	28	14.8	0.016	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
29	R2	7	57.1	0.010	9.9	LOS A	0.0	0.4	0.43	0.64	0.43	48.2
Approach		36	23.5	0.016	2.0	NA	0.0	0.4	0.09	0.13	0.09	70.4
SouthWest: Goddard Lane												
30	L2	19	0.0	0.449	8.5	LOS A	3.0	22.3	0.46	0.73	0.54	63.5
32	R2	345	6.1	0.449	10.0	LOS A	3.0	22.3	0.46	0.73	0.54	60.1
Approach		364	5.8	0.449	9.9	LOS A	3.0	22.3	0.46	0.73	0.54	60.3
All Vehicles		702	7.9	0.449	8.0	NA	3.0	22.3	0.25	0.60	0.29	63.2

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.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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.

The Transport Planning Partnership
Suite 402 Level 4, 22 Atchison Street
St Leonards NSW 2065

P.O. Box 237
St Leonards NSW 1590

02 8437 7800

info@tpp.net.au

www.tpp.net.au