

Ref: 22/073

4th July 2023

Allam Property Group
PO Box 7385
BAULKHAM HILLS BC NSW 2153

Attention: - Mark Cerone,

Dear Mark,

RE: Traffic Addendum 1 – Manufactured Home Estate – Lot 1 DP 304132 – 40 – 80 Chapman’s Road, Tuncurry.

Following the recent on-line meeting with Mid-Coast Council regarding issues of concern regarding this development and as agreed by you Intersect Traffic has undertaken additional work on this project to address the major issues raised by Council in the meeting being.

1. The type of development and traffic generation rates for this type of development.
2. The failure of the original Traffic Impact Assessment (TIA) to address the use of Grandis Drive as an alternate route to The Lakes Way to avoid the Chapman’s Road intersection with The Lakes Way.
3. The standard of the Chapmans Road construction from Grandis Drive to the site access; and
4. Lack of visitor car parking outside secure boom gates of the lifestyle village.

This additional work includes.

1. Presentation of the results of previous traffic generation surveys undertaken by Intersect Traffic on similar developments in the Port Stephens area to justify the traffic generation rates used in the TIA.
2. AM and PM peak traffic counts at the Chapmans Road / Grandis Drive intersection to determine what percentage of development traffic would be likely to use the Grandis Drive route to The Lakes Way to avoid using the Chapmans Road intersection with The Lakes Way and the impact of this traffic on Grandis Drive; and
3. Plan amendments to provide a visitor car parking area within the site but outside the secure boom gate entrance to the lifestyle village.

Traffic Generation rates.

In undertaking the traffic impact assessment and noting the instructions from the client as the development being a Lifestyle Village targeting the over 55 years market it was considered that the best comparable rate to use within the rates provided by Transport for NSW (TfNSW) was the seniors living rates provided in TfNSW’s Technical Direction TDT 13/04. These are the latest rates provided by TfNSW and include seniors

housing. The rates for the seniors housing are based on 10 surveys undertaken in 2009 with five surveys in Sydney and five surveys in Regional NSW.

The reason these rates are considered comparable for an over 55's lifestyle resort are as follows.

- Car ownership rates for residents would be similar i.e., 1 per dwelling.
- Many of the over 55's residents would be retired therefore there are no trips to and from work and no trips to and from schools; and
- As such it is unlikely the morning peak for the lifestyle resort would coincide with the road network AM peak.

As such the TIA adopted the housing for senior's rates in the TDT13/04 which were.

Daily Trips = 2.1 trips per dwelling; and
Weekday peak hour = 0.4 trips per dwelling.

Note: - As traffic impact assessment is based on peak hourly rates the daily trip rate is not relevant for the traffic impact assessment.

Intersect Traffic has previously undertaken traffic impact assessments for two similar Lifestyle Village developments in the Port Stephens area which, like Forster / Tuncurry, is a popular tourist and retirement location. Both developments involved extensions to the existing villages. As there were existing villages, Intersect Traffic was able to undertake traffic surveys at these village entrances and exits to determine the traffic generation for these villages. The two villages surveyed in early 2022 were.

1. Latitude One Lifestyle Resort – Nelson Bay Road, Anna Bay – Ingenia Communities – 223 sites; and
2. Sunrise Lifestyle Village – Nelson Bay Road, Bobs Farm – Hometown (Australia) Pty Ltd – 110 sites.

The results of the traffic generation surveys for these two Lifestyle Villages are shown below in **Table 1**.

Table 1 – Traffic Generation Rates Lifestyle Villages -

Lifestyle Village	Location	Traffic Generation	
		AM peak (m/s)	PM peak (m/s)
Sunrise	Nelson Bay Road, Bobs Farm	0.18	0.31
Latitude One	Nelson Bay Road, Anna Bay	0.23	0.26

As can be seen, the traffic generation rates for the AM and PM peak hour periods for both these Lifestyle Villages is less than the 0.4 vtpd adopted in this assessment for Allam's proposed Lifestyle Village at Tuncurry. Therefore, the adoption of the 0.4 vtpd rate in the TIA ensures a robust worst case traffic assessment is undertaken on the impacts of the development on the local and state road network.

Alternate Travel Route via Grandis Drive.

To determine the impact of the development traffic on Grandis Drive, traffic counts were undertaken at the Chapmans Road / Grandis Drive intersection during likely AM and PM peak hour periods. The count results are shown in **Attachment 1** and the relevant data extracted from these counts is as follows.

- ◆ By observation, the majority of vehicles turning right out of Grandis Drive would turn left at The Lakes Way and is therefore considered local traffic.
- ◆ The majority of vehicles turning left into Grandis Drive had an origin from The Lakes Way and thus is also considered local traffic.
- ◆ Vehicles turning left out of Grandis Drive was a small number indicating this is not through traffic but also local traffic.
- ◆ Vehicles turning right into Grandis Drive are considered potential through traffic using Grandis Drive to avoid the Chapmans Road intersection with The Lakes Way although some may still be local traffic though this number is likely to be quite small and for the sake of a robust traffic assessment have been ignored.
- ◆ Two-way mid-block traffic volumes on the approaches to the intersection were.
 - Chapman Road east of Grandis Drive – 145 vtp/h (AM) & 125 vtp/h (PM).
 - Chapman Road west of Grandis Drive – 144 vtp/h (AM) & 114 vtp/h (PM); and
 - Grandis Drive – south of Chapmans Road – 65 vtp/h (AM) & 53 vtp/h (PM).

TfNSW provided data from its road detectors at the signalised intersection of The Lakes Way and Grandis Street which showed that the two-way peak flows on Grandis Drive at this intersection are.

- ◆ AM peak = 84 vtp/h; and
- ◆ PM peak = 124 vtp/h.

These values are all below the Environmental Capacity of these roads (all collector streets) as determined from *Table 4.6* of the *RTA's Guide to Traffic Generating Developments* reproduced below.

Table 4.6
Environmental capacity performance standards on residential streets

Road class	Road type	Maximum Speed (km/hr)	Maximum peak hour volume (veh/hr)
Local	Access way	25	100
	Street	40	200 environmental goal
			300 maximum
Collector	Street	50	300 environmental goal
			500 maximum

Note: Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

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

The maximum traffic volumes for each road and street class identified in this table is considered the volume of traffic that could operate on the street before residents would experience an unacceptable level of residential amenity in the street.

Therefore, the local road network is currently operating within its environmental capacity.

In terms of likely through traffic on Grandis Drive in the AM peak, 30 of 85 vehicles turned right into Grandis Drive (35%) and in the PM peak 18 of 54 vehicles (33%) turned right into Grandis Drive.

Therefore, adopting these percentages to the trip distribution for the development the revised development traffic trip distribution for the development is as shown in **Figure 1** below.

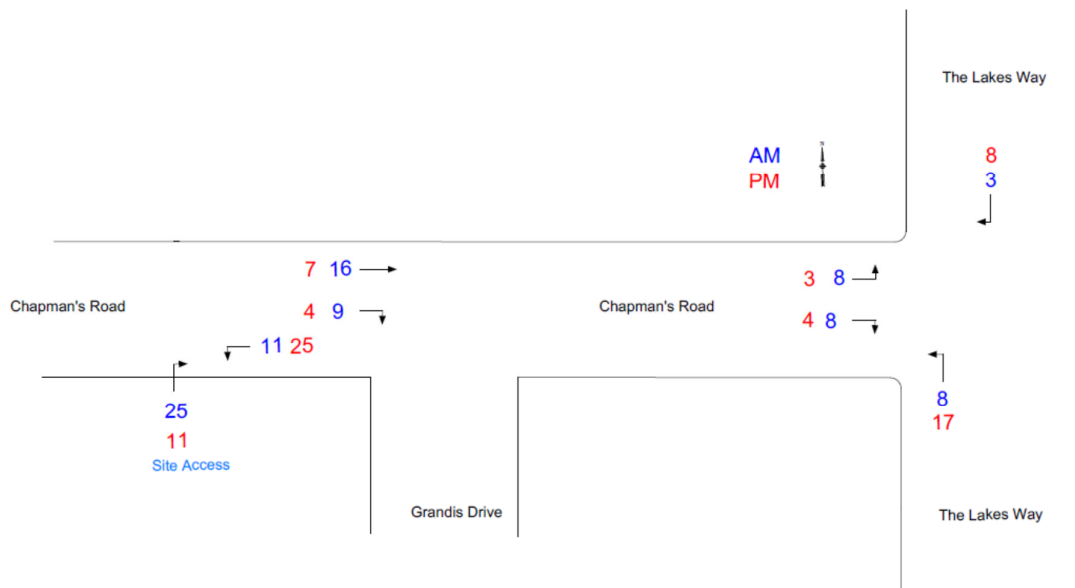


Figure 1 – Development Traffic Trip Distribution

Therefore, the development is likely to result in an additional 9 vph on Grandis Drive in the AM peak and 4 vph on Grandis Drive in the PM peak. This will increase traffic flow on Grandis Drive to a maximum 93 vph in the AM peak and 128 vph in the PM peak which is still well below the environmental capacity of Grandis Drive (300 vph) therefore the development will not adversely impact on Grandis Drive nor on the amenity of residents living on Grandis Drive through the adjoining residential development.

Table 2 - Road Capacity Assessment

Road	Section	Capacity vtph	2022		2032 @ 1.5% p.a.		Development traffic	
			AM (vtph)	PM (vtph)	AM (vtph)	PM (vtph)	AM	PM
The Lakes Way	north of Chapmans Road	1800	1336	1432	1549	1659	11	16
The Lakes Way	south of Chapmans Road	1800	1391	1501	1612	1739	16	21
Chapmans Road	west of The Lakes Way	500	154	143	176	165	16	7
Grandis Drive	south of Chapmans Road	300	93	128	106	148	9	4

The road network capacity table provided as Table 3 in the original TIA is now amended as shown in **Table 2** above, showing that mid-block traffic flows on the local and state road network is not adversely impacted by the proposed development.

Further it is generally accepted by traffic engineering experts that a traffic volume increase of less than 10 vtph on an intersection will not adversely impact on the operation of the intersection and result in any serious loss of level of service for motorists using these intersections. Therefore, it is reasonable to conclude the development will not adversely impact on either the Chapmans Road / Grandis Drive intersection or any local intersection on Grandis Drive through to and including the signalised intersection of The Lakes Way and Grandis Drive.

The give way-controlled intersection of The Lakes Way and Chapmans Road has also been remodelled with the amended trip distribution with the results of the Sidra modelling provided in **Table 3** below and the Sidra Movement Summary Sheets provided in **Attachment 2**.

Table 4 – The Lakes Way / Chapmans Road – Sidra Modelling – Results Summary

Modelled Peak	Degree of Saturation (v/c)	Worst Average Delay (s)	Average Level of Service	95% back of queue length (cars)
2022 AM	0.423	27.8	B	0.7
2022 PM	0.395	22.7	B	0.6
2022 AM plus development	0.423	28.7	C	0.9
2022 PM plus development	0.395	23.8	B	0.7
2032 AM plus development	0.491	51.7	D	1.7
2032 PM plus development	0.458	38.6	C	1.3

With less right turning traffic out of Chapmans Road the intersection models slightly better although there is little change in the modelling as would be expected with a minor drop in one of the turning movements.

Overall, it is still concluded that the proposed development would not adversely impact on the operation of the local and state road network nor the residential amenity of nearby residents due to increased traffic on the road network.

Construction Standard Chapmans Road west of Grandis Drive.

The TIA prepared by Intersect Traffic in 2022 correctly states that the existing road construction of Chapmans Road south of Grandis Drive is suitable to convey existing traffic and the additional development traffic because it is sealed and wider than 7 metres wide therefore under Austroads requirements it is suitable for traffic volumes over 1,000 vtpd. However, this ignores the right of the road authority (Mid-Coast Council) to apply a higher standard of road construction to Austroads requirements for other reasons such as for the provision of kerb and gutter and longitudinal drainage to improve drainage in the area and protect the road pavement. From a site inspection it would appear Mid-Coastal Council has applied a standard of a 12-metre-wide pavement between kerb and gutter for the function of Chapmans Road.

Therefore, it would be expected and accepted by the proponent that Council would apply at least half road construction of Chapmans Road conditions to any consent issued for the development with connection of the site access to the existing kerb and gutter on Chapmans Road which ends approximately 230 metres east of the development site. This work would have benefit to the development in terms of road safety to the site entrance.

Similarly, the extension of the shared pathway from the site to the existing shared pathway on the southern side of Chapmans Road would provide benefit to the residents of the proposed development and the applicant would accept a condition of consent that required the existing shared pathway to be extended to the site.

Visitor Car Parking.

Whilst the development provides sufficient on-site car parking within the development to meet the NSW Government requirements for this type of development Mid-Coast Council has raised the practicality of having all the visitor car parking within the secured part of the site i.e., behind the security gates. Whilst visitors to the site would be able to be provided a pass code to raise the gates on request from the office or the residents they are visiting it is agreed there would be benefit to the development to have some visitor car parking within the site but in an area that does not require the visitor to enter through the security gates allowing casual visitors or potential future residents to park out of the way when enquiring at the village office / reception.

Therefore, Allam Property have amended the plans to provide five (5) visitor car parks within the site adjacent to the secure village entrance accessed directly off the new collector road stub that will be constructed as part of the development works for the access to the site (see **Attachment 3**).

Conclusion

It is concluded that this addendum has addressed the traffic impact concerns raised by Mid-Coast Council in the assessment of this application therefore Council can now support the application on traffic grounds as the development will not adversely impact on the local and state road network nor the residential amenity of adjoining residents.

It can also meet all the requirements of Mid-Coast Council, TfNSW and Australian Standards.

If you require further information or clarification, please do not hesitate to contact me on 0423 324 188.

Yours sincerely

A handwritten signature in black ink, appearing to read 'J. Garry', with a stylized flourish at the end.

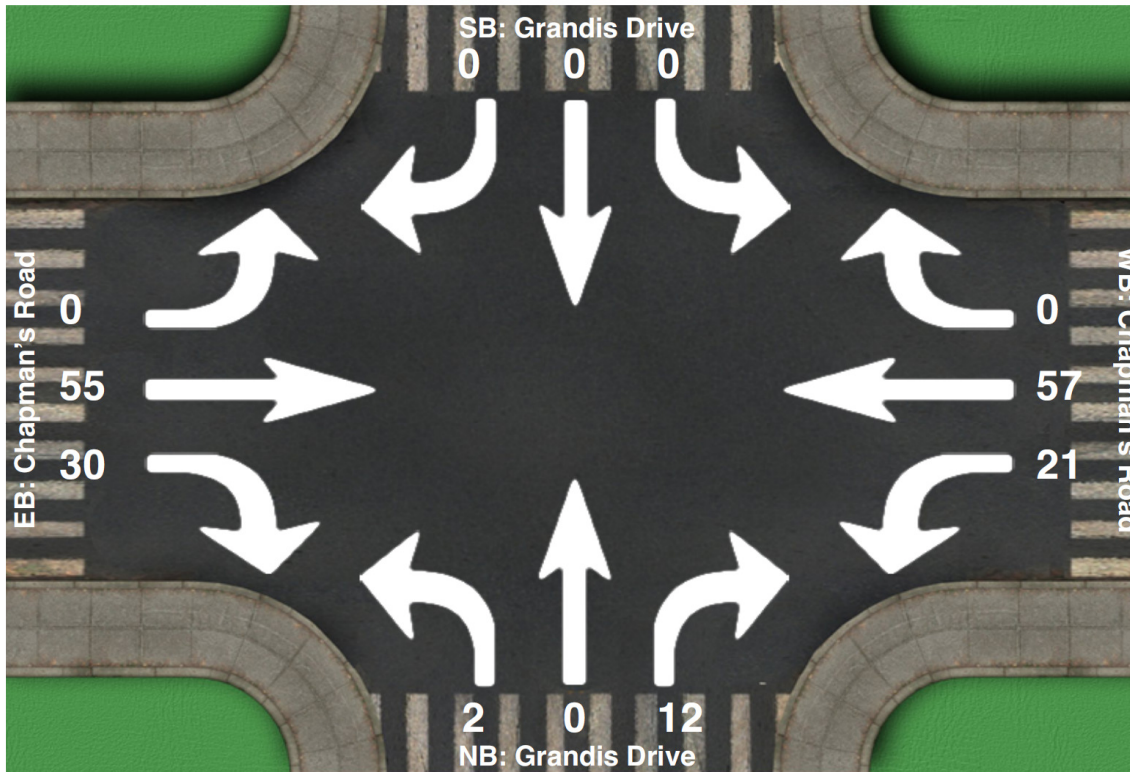
Jeff Garry
Director
Intersect Traffic

Encl.

Attachment 1 – Traffic Count Data – Chapmans Road / Grandis Drive Intersection

Intersection Peak Hour

Location: Grandis Drive at Chapman's Road, Tuncurry
GPS Coordinates: Lat=-32.156784, Lon=152.487741
Date: 2023-06-19
Day of week: Monday
Weather:
Analyst: Jeff



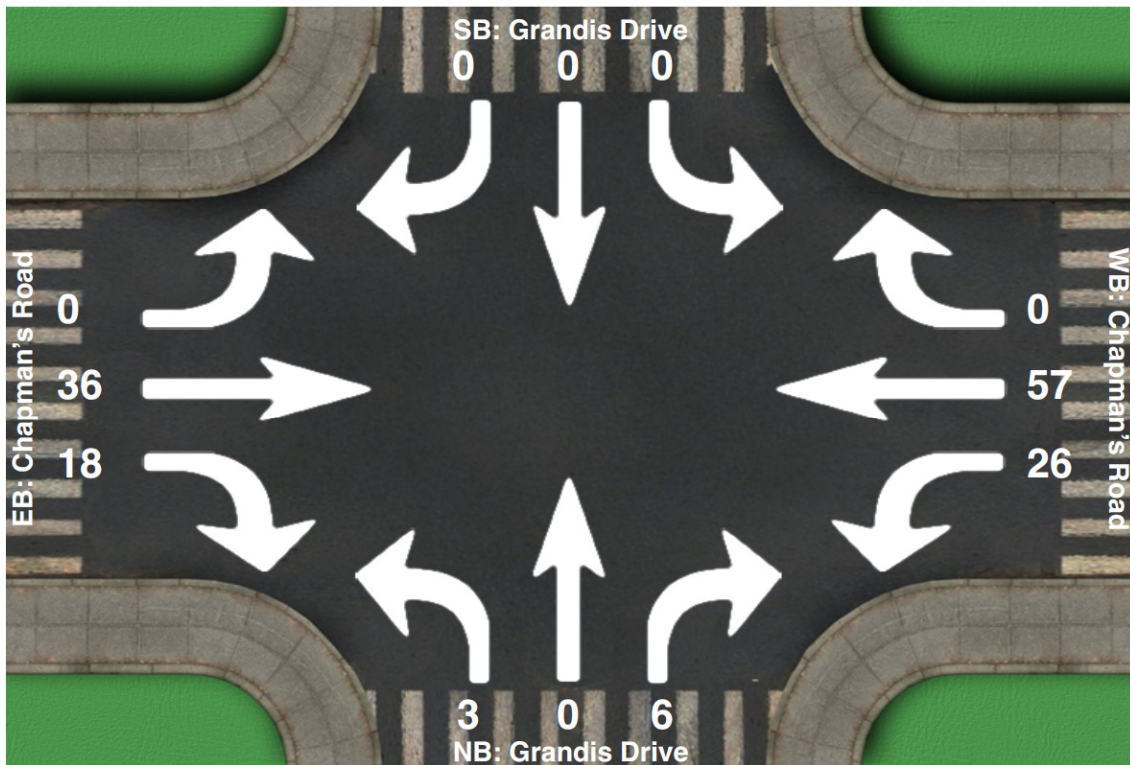
Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	0	21	57	0	2	0	12	0	55	30	177
Factor	0.00	0.00	0.00	0.66	0.65	0.00	0.50	0.00	0.60	0.00	0.72	0.75	0.79
Approach Factor	0.00			0.67			0.58			0.92			

Intersection Peak Hour

Location: Grandis Drive at Chapman's Road, Tuncurry
 GPS Coordinates: Lat=-32.156615, Lon=152.487024
 Date: 2023-06-19
 Day of week: Monday
 Weather:
 Analyst: Jeff



Intersection Peak Hour

15:15 - 16:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	0	26	57	0	3	0	6	0	36	18	146
Factor	0.00	0.00	0.00	0.81	0.89	0.00	0.38	0.00	0.50	0.00	0.75	0.45	0.73
Approach Factor	0.00			0.86			0.45			0.61			

Attachment 2 – Sidra Movement Summary Sheets

MOVEMENT SUMMARY

▼ Site: 101 [2022 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

The Lakes Way / Chapmans Road T-intersection Tuncurry

June 2022 counts

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	[Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Lakes Way															
1	L2	All MCs	60	3.5	60	3.5	0.033	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.7
2	T1	All MCs	553	6.5	553	6.5	0.295	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			613	6.2	613	6.2	0.295	0.6	NA	0.0	0.0	0.00	0.06	0.00	59.0
North: The Lakes Way															
8	T1	All MCs	796	5.6	796	5.6	0.423	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
9	R2	All MCs	24	8.7	24	8.7	0.029	8.6	LOS A	0.1	1.1	0.53	0.62	0.53	47.1
Approach			820	5.6	820	5.6	0.423	0.4	NA	0.1	1.1	0.02	0.02	0.02	59.2
West: Chapmans Road															
10	L2	All MCs	22	4.8	22	4.8	0.028	7.7	LOS A	0.1	1.0	0.52	0.59	0.52	47.1
12	R2	All MCs	39	5.4	39	5.4	0.219	27.8	LOS B	0.7	5.5	0.88	0.96	0.94	37.3
Approach			61	5.2	61	5.2	0.219	20.5	LOS B	0.7	5.5	0.75	0.83	0.79	40.3
All Vehicles			1494	5.8	1494	5.8	0.423	1.3	NA	0.7	5.5	0.04	0.07	0.04	58.0

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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Project: D:\Work\2022\22.073 - MHE Tuncurry - Allam\Sidra\Lakes Way_Chapmansv2.sip9

MOVEMENT SUMMARY

▼ Site: 101 [2022 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

The Lakes Way / Chapmans Road T-intersection Tuncurry

June 2022 counts

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance																
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%				[Veh. veh]	[Dist] m					
veh/h																
v/c																
sec																
km/h																
South: The Lakes Way																
1	L2	All MCs	67	3.1	67	3.1	0.037	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8	
2	T1	All MCs	757	2.6	757	2.6	0.395	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.7	
Approach			824	2.7	824	2.7	0.395	0.6	NA	0.0	0.0	0.00	0.05	0.00	59.1	
North: The Lakes Way																
8	T1	All MCs	696	5.6	696	5.6	0.370	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8	
9	R2	All MCs	9	0.0	9	0.0	0.013	9.6	LOS A	0.1	0.4	0.60	0.63	0.60	46.5	
Approach			705	5.5	705	5.5	0.370	0.3	NA	0.1	0.4	0.01	0.01	0.01	59.5	
West: Chapmans Road																
10	L2	All MCs	28	0.0	28	0.0	0.042	9.2	LOS A	0.2	1.4	0.60	0.66	0.60	46.3	
12	R2	All MCs	38	0.0	38	0.0	0.175	22.7	LOS B	0.6	4.4	0.86	0.94	0.87	39.4	
Approach			66	0.0	66	0.0	0.175	16.9	LOS B	0.6	4.4	0.75	0.82	0.75	42.1	
All Vehicles			1596	3.8	1596	3.8	0.395	1.1	NA	0.6	4.4	0.03	0.06	0.03	58.3	

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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MOVEMENT SUMMARY

▼ Site: 101 [2022 AM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

The Lakes Way / Chapmans Road T-intersection Tuncurry
June 2022 counts
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance																
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%				[Veh. veh]	[Dist m]					
			veh/h	%	veh/h	%	v/c	sec								km/h
South: The Lakes Way																
1	L2	All MCs	68	3.1	68	3.1	0.038	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8	
2	T1	All MCs	553	6.5	553	6.5	0.295	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8	
Approach			621	6.1	621	6.1	0.295	0.7	NA	0.0	0.0	0.00	0.06	0.00	59.0	
North: The Lakes Way																
8	T1	All MCs	796	5.6	796	5.6	0.423	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7	
9	R2	All MCs	27	7.7	27	7.7	0.033	8.6	LOS A	0.2	1.2	0.53	0.63	0.53	47.1	
Approach			823	5.6	823	5.6	0.423	0.4	NA	0.2	1.2	0.02	0.02	0.02	59.2	
West: Chapmans Road																
10	L2	All MCs	31	3.4	31	3.4	0.038	7.7	LOS A	0.2	1.4	0.52	0.60	0.52	47.1	
12	R2	All MCs	47	4.4	47	4.4	0.263	28.7	LOS C	0.9	6.8	0.88	0.98	0.99	37.0	
Approach			78	4.1	78	4.1	0.263	20.4	LOS B	0.9	6.8	0.74	0.83	0.81	40.4	
All Vehicles			1522	5.7	1522	5.7	0.423	1.6	NA	0.9	6.8	0.05	0.08	0.05	57.7	

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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MOVEMENT SUMMARY

▼ Site: 101 [2022 PM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

The Lakes Way / Chapmans Road T-intersection Tuncurry

June 2022 counts

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: The Lakes Way															
1	L2	All MCs	85	2.5	85	2.5	0.047	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
2	T1	All MCs	757	2.6	757	2.6	0.395	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			842	2.6	842	2.6	0.395	0.7	NA	0.0	0.0	0.00	0.06	0.00	58.9
North: The Lakes Way															
8	T1	All MCs	696	5.6	696	5.6	0.370	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	All MCs	18	0.0	18	0.0	0.025	9.7	LOS A	0.1	0.9	0.61	0.66	0.61	46.4
Approach			714	5.5	714	5.5	0.370	0.4	NA	0.1	0.9	0.02	0.02	0.02	59.3
West: Chapmans Road															
10	L2	All MCs	32	0.0	32	0.0	0.047	9.2	LOS A	0.2	1.6	0.61	0.67	0.61	46.3
12	R2	All MCs	42	0.0	42	0.0	0.199	23.8	LOS B	0.7	5.1	0.86	0.95	0.90	39.0
Approach			74	0.0	74	0.0	0.199	17.5	LOS B	0.7	5.1	0.75	0.83	0.77	41.8
All Vehicles			1629	3.7	1629	3.7	0.395	1.3	NA	0.7	5.1	0.04	0.07	0.04	58.0

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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MOVEMENT SUMMARY

▼ Site: 101 [2032 AM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

The Lakes Way / Chapmans Road T-intersection Tuncurry

June 2022 counts

Site Category: (None)

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: The Lakes Way															
1	L2	All MCs	79	3.1	79	3.1	0.044	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
2	T1	All MCs	641	6.5	641	6.5	0.343	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			721	6.1	721	6.1	0.343	0.7	NA	0.0	0.0	0.00	0.06	0.00	58.9
North: The Lakes Way															
8	T1	All MCs	924	5.6	924	5.6	0.491	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
9	R2	All MCs	32	7.7	32	7.7	0.042	9.4	LOS A	0.2	1.5	0.58	0.66	0.58	46.6
Approach			955	5.6	955	5.6	0.491	0.5	NA	0.2	1.5	0.02	0.02	0.02	59.1
West: Chapmans Road															
10	L2	All MCs	35	3.4	35	3.4	0.048	8.4	LOS A	0.2	1.7	0.57	0.64	0.57	46.7
12	R2	All MCs	55	4.4	55	4.4	0.483	51.7	LOS D ¹¹	1.7	12.4	0.95	1.06	1.24	30.0
Approach			90	4.1	90	4.1	0.483	34.7	LOS C	1.7	12.4	0.80	0.89	0.97	34.9
All Vehicles			1766	5.7	1766	5.7	0.491	2.3	NA	1.7	12.4	0.05	0.08	0.06	57.0

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

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MOVEMENT SUMMARY

Site: 101 [2032 PM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

The Lakes Way / Chapmans Road T-intersection Tuncurry

June 2022 counts

Site Category: (None)

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: The Lakes Way															
1	L2	All MCs	99	2.5	99	2.5	0.054	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
2	T1	All MCs	878	2.6	878	2.6	0.458	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			977	2.6	977	2.6	0.458	0.7	NA	0.0	0.0	0.00	0.06	0.00	58.9
North: The Lakes Way															
8	T1	All MCs	807	5.6	807	5.6	0.429	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
9	R2	All MCs	21	0.0	21	0.0	0.033	11.0	LOS A	0.2	1.1	0.65	0.71	0.65	45.7
Approach			828	5.5	828	5.5	0.429	0.4	NA	0.2	1.1	0.02	0.02	0.02	59.2
West: Chapmans Road															
10	L2	All MCs	37	0.0	37	0.0	0.063	10.7	LOS A	0.3	2.1	0.65	0.72	0.65	45.4
12	R2	All MCs	49	0.0	49	0.0	0.344	38.6	LOS C	1.3	9.0	0.92	1.01	1.09	33.7
Approach			86	0.0	86	0.0	0.344	26.6	LOS B	1.3	9.0	0.81	0.89	0.90	37.9
All Vehicles			1891	3.7	1891	3.7	0.458	1.8	NA	1.3	9.0	0.04	0.08	0.05	57.6

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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Attachment 3 – External Visitor car parking proposal.

