

Appendix G

Traffic Impact Assessment by Varga Traffic Planning Pty Ltd

Planning Proposal for
Proposed School Expansion and Increase in Student Numbers

**Wollondilly Anglican College
3000 Remembrance Driveway, Tahmoor**

TRAFFIC AND PARKING ASSESSMENT REPORT

7 February 2019

Ref 18261

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1. INTRODUCTION

This report has been prepared to accompany a rezoning proposal to Wollondilly Shire Council to facilitate the expansion of the existing Wollondilly Anglican College located at 3000 Remembrance Driveway, Tahmoor (Figures 1 and 2).

This proposal seeks approval to rezone the adjacent site immediately to the north of the school from *RUI Primary Production* to *SP2 Infrastructure* to permit the school to expand to the north, towards Olive Lane.

A new site access driveway is proposed off Olive Lane, whilst the nearby intersection of Remembrance Driveway/Olive Lane is to be upgraded to provide a Type AUL left-turn treatment and Type CHR right-turn bay approximately 80m in length in accordance with *Austroads* requirements, similar to the existing intersection treatment provided some 420m further to the south at the existing site access driveway to the school.

The planning proposal will also involve minor alterations and refurbishment of existing educational facilities to improve school facilities.

The purpose of this report is to assess the traffic and parking implications of the planning proposal and to that end this report:

- describes the site and provides details of the development proposal
- reviews the road network in the vicinity of the site
- reviews the public transport services in the vicinity of the site
- estimates the traffic generation potential of the development proposal
- assesses the traffic implications of the development proposal in terms of road network capacity
- reviews the geometric design features of the proposed new road network

- assesses the off-street parking implications of the development proposal.





2. PROPOSED DEVELOPMENT

Site

The Wollondilly Anglican College is located some 4 kilometres north of Bargo, on the western side of Remembrance Driveway. The site has street frontages approximately 465 metres in length to Remembrance Driveway, approximately 288 metres to Olive Lane and occupies an area of approximately 39 hectares.

The existing school campus is located on the southern part of the site and comprises education buildings, sporting grounds and associated off-street parking facilities. Vehicular access to the school campus is currently provided via an entry / exit driveway located towards the southern end of the Remembrance Driveway site frontage.

The northern part of the site which is the subject of the rezoning proposal comprises Numbers 1 & 5 Olive Lane, and are currently occupied by a farm and farmhouse. Vehicular access to these sites is provided via site access driveways off Olive Lane.

Wollondilly Anglican College

The Wollondilly Anglican College comprises a Pre-Kindergarten to Year 12 co-educational college and offers education facilities catering for all core subjects along with a variety of academic electives. It serves the needs of facilities living in the Wollondilly Shire and surrounding districts, and currently has an enrolment of 911 students.

Off-street car parking is currently provided for a total of 297 cars in open, at-grade car parking areas throughout the school campus.

An existing school bus bay facility approximately 90 metres in length is provided on the northern side of the main site access driveway, and a separate car pick-up / drop-off zone is provided in front of the administration building.

Planning Proposal

The planning proposal seeks approval to rezone the northern part of the Wollondilly Anglican College site (Numbers 1 & 5 Olive Lane) to facilitate the expansion of the existing college campus.

A *Masterplan* which has been prepared for the purposes of this planning proposal comprises the following components:

- new school buildings and education facilities, allowing for an increase in student numbers from 911 to 1185 students
- a corresponding increase in staff from 94 to 122 staff
- new sporting grounds
- an increase in the number of parking spaces provided on the site from 297 spaces to 447 spaces, an increase of 150 spaces, with a new access driveway proposed off Olive Lane.
- new indented pick-up / drop-off zones for school buses and cars along the new vehicular driveway off Olive Lane.

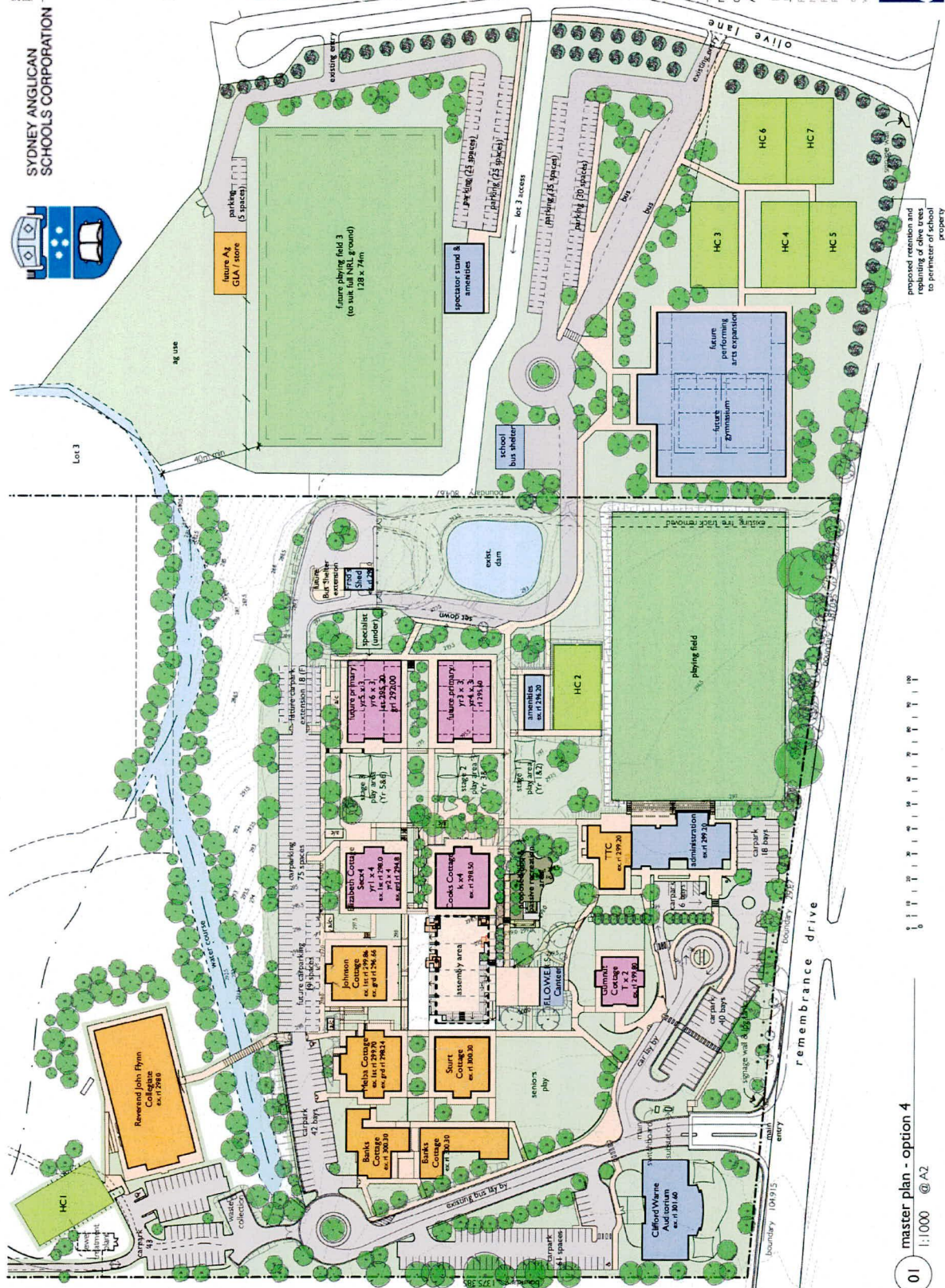
The rezoning proposal is sought to allow the school to progressively increase its enrolment capacity from 911 students to 1,185 students (with a corresponding increase in staff from 94 to 122 staff) to accommodate the population growth in the Wollondilly Shire and surrounding districts.

It is anticipated that the increase in student enrolment and staff numbers will be undertaken progressively over a period of many years, with the maximum enrolment envisaged to be achieved by year 2025.

As noted in the foregoing, it is proposed to upgrade the Remembrance Driveway/Olive Lane intersection to provide a *Type AUL* left-turn treatment and a *Type CHR* right-turn bay approximately 80m in length, in accordance with *Austroads* requirements, similar to the

existing intersection treatment provided some 420m further to the south at the existing site access driveway to the school.

A *Masterplan* has been prepared by *stanton dahl architects* for the purposes of the rezoning proposal, and is reproduced in the following pages.



3. TRAFFIC ASSESSMENT

Road Hierarchy

The road hierarchy allocated to the road network in the vicinity of the site by the Roads and Maritime Services comprises the following.

Remembrance Driveway is classified by the RMS as a *Regional Road* and forms part of the Old Hume Highway. It typically carries one traffic lane in each direction in the vicinity of the site and is configured with a left and right turn bay into the Wollondilly Anglican College.

Olive Lane is a local, unclassified road that is primarily used to provide vehicular access to adjacent properties.

Existing Traffic Controls

The existing traffic controls which apply to the road network in the vicinity of the site are:

- an 80 km/h SPEED LIMIT in Remembrance Driveway
- a 40 km/h SCHOOL ZONE SPEED LIMIT which applies to Remembrance Driveway in the immediate vicinity of the Wollondilly Anglican College
- a RIGHT-TURN BAY approximately 80m in length (plus taper) in Remembrance Driveway at the Wollondilly Anglican College site entrance.

Existing Traffic Conditions

An indication of the existing traffic conditions in the vicinity of the site is provided by peak period traffic surveys undertaken as part of this traffic study.

The traffic surveys were undertaken in Remembrance Driveway where it intersects with Olive Lane, and the Wollondilly Anglican College site access driveway during the morning and afternoon school peak periods on Tuesday 5th June 2018.

The results of the traffic surveys are reproduced in full in Appendix A, revealing that:

- two-way traffic flows in Remembrance Driveway are typically in the order of 700 to 900 vehicle trips per hour (vph) during the AM and PM peak hour
- two-way traffic flows in Olive Lane is negligible, with only 1 vehicle movement recorded during both the AM and PM peak hour
- two-way traffic flows in the Wollondilly Anglican College site access driveway are typically in the order of 650 vph in the AM peak hour, decreasing to some 330 vph in the PM peak hour (IN and OUT combined).

Projected Future Traffic Generation Potential

The traffic implications of a development proposal primarily concern the effects of the *additional* traffic flows generated as a result of a development and its impact on the operational performance of the adjacent road network.

An indication of the traffic generation potential of most types of developments is usually is provided by reference to the Roads and Maritime Services' publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002)* and its *Technical Direction (TDT 2013/04a)* document.

However, neither the RMS *Guidelines* nor its *Technical Direction* nominate a traffic generation rate for schools.

Reference is therefore made to the peak hour traffic surveys undertaken as part of this traffic study at the school's access driveway which identified a total of 647 vph in the AM peak hour and 328 vph in the PM peak hour, corresponding to the following site-specific traffic generation rates:

EXISTING SCHOOL TRAFFIC GENERATION RATES

	IN	OUT	TOTAL
AM School Peak Period:	0.41 vph per student	0.30 vph per student	0.71 vph per student
PM School Peak Period:	0.15 vph per student	0.21 vph per student	0.36 vph per student

Application of the above traffic generation rates to the proposed increase in enrolment capacity of 274 students yields a *nett* increase in the traffic generation potential of the site of 195 vph during the AM peak hour and 99 vph during the PM peak hour as set out in the table below:

PROJECTED ADDITIONAL TRAFFIC FLOWS			
	IN	OUT	TOTAL
AM School Peak:	113 vph	82 vph	195 vph
PM School Peak:	42 vph	57 vph	99 vph

Traffic Implications – Road Network Capacity

The traffic implications of development proposals primarily concern the effects that the *additional* traffic flows may have on the operational performance of the nearby road network during school peak periods. Those effects can be assessed using the SIDRA capacity analysis program as is widely used by the RMS and many LGA's for this purpose. Criteria for evaluating the results of SIDRA capacity analysis are reproduced in the following pages.

It is pertinent to note that this capacity analysis assumes that the maximum increase in student numbers will occur *immediately*, however in practice the increase in student numbers is expected to occur *progressively* over a period of many years up to the Year 2025.

Remembrance Driveway & Existing Wollondilly Anglican College Intersection

The results of the SIDRA analysis of the subject intersection is summarised in Tables 1, revealing that:

- the intersection currently operates at *Level of Service "A"* under the existing traffic demands during both the AM and PM peak hour with total average vehicle delays in the order of 0.9-2.5 seconds/vehicle
- under the projected future traffic demands expected to be generated by the planning proposal, the intersection is expected to continue to operate at *Level of Service "A"*

during both the AM and PM peak hour, with increases in total average vehicle delays of *less than* 2 seconds/vehicle

Remembrance Driveway & Olive Lane Intersection

The results of the SIDRA analysis of the subject intersection is summarised in Tables 2, revealing that:

- the intersection currently operates at *Level of Service "A"* under the existing traffic demands during both the AM and PM peak hour with total average vehicle delays in the order of 0.1 seconds/vehicle
- under the projected future traffic demands expected to be generated by the planning proposal **with** the implementation of the required CHR treatment on Remembrance Driveway in accordance with the *AustRoads Guidelines*, the intersection is expected to continue to operate at *Levels of Service "A"* during both the AM and PM peak hour, with total average vehicle delays in the order of 2 to 3 seconds/vehicle.

The detailed SIDRA *movements summaries* are reproduced in full in Appendix B.

In summary, the SIDRA capacity analysis demonstrates that the planning proposal will not have any unacceptable traffic implications, subject to the implementation of the required CHR treatment on Remembrance Driveway on approach to Olive Lane in accordance with the *AustRoads Guidelines*.

TABLE 1 - RESULTS OF SIDRA ANALYSIS OF REMEMBRANCE DRIVEWAY & EXISTING SITE ACCESS DRIVEWAY				
Key Indicators	Existing Traffic Demand		Projected Development Traffic Demand	
	AM	PM	AM	PM
Level of Service	A	A	A	A
Degree of Saturation	0.299	0.158	0.537	0.255
Average Vehicle Delay (secs/veh)				
Remembrance Driveway (S)	L T	4.9 0.0	4.9 0.0	4.9 0.0
Remembrance Driveway (N)	T R	0.0 7.4	0.0 11.1	0.0 7.3
Site Access Driveway (W)	L R	1.2 3.2	1.9 5.2	1.9 3.2
TOTAL AVERAGE VEHICLE DELAY	2.5	0.9	3.9	1.5

REM_ACCX

REM_ACCP

TABLE 2 - RESULTS OF SIDRA ANALYSIS OF REMEMBRANCE DRIVEWAY & OLIVE LANE				
Key Indicators	Existing Traffic Demand		Projected Development Traffic Demand	
	AM	PM	AM	PM
Level of Service	A	A	A	A
Degree of Saturation	0.222	0.225	0.344	0.277
Average Vehicle Delay (secs/veh)				
Remembrance Driveway (S) L	6.9	6.9	6.9	6.9
T	0.0	0.0	0.0	0.0
Remembrance Driveway (N) T	0.0	0.0	0.0	0.0
R	10.0	10.0	13.3	10.7
Olive Lane (W) L	6.0	6.0	8.4	7.6
R	6.8	6.6	13.5	9.8
TOTAL AVERAGE VEHICLE DELAY	0.1	0.1	2.9	1.6

REM_OLIX

REM_OLIP

Criteria for Interpreting Results of Sidra Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'B'	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
'C'	Satisfactory.	Satisfactory but accident study required.
'D'	Operating near capacity.	Near capacity and accident study required.
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.
'F'	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
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	Operating near capacity.	Near capacity and accident study required.
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by traffic signals¹ both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a roundabout or GIVE WAY or STOP signs, satisfactory intersection operation is indicated by a DS of 0.8 or less.

¹ The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.

4. PARKING IMPLICATIONS

Off-Street Parking Requirements

The off-street car parking requirements applicable to the development proposal are specified in *Wollondilly Development Control Plan (DCP) 2016, Volume 5, Section 2.1* in the following terms:

Education Establishments

- 1 car parking space per full time equivalent staff member; and
- 1 car parking space per 100 students (under 16 years of age); and
- 1 car parking space per 100 students (over 16 years of age); and

Application of the above parking requirements to the projected future student and staff numbers outlined in the planning proposal yields an off-street car parking requirement of 136 spaces as set out below:

Staff (122):	122.0 spaces
Students (1081 students under 16 years):	10.8 spaces
Students (104 students over 16 years):	3.5 spaces

Car Parking: **136.3 spaces**

The *Masterplan* prepared for the purposes of this planning proposal makes provision for a total of 447 car spaces, thereby satisfying Council's car parking code requirements.

Parking Accumulation Surveys

As part of the detailed traffic surveys undertaken at the school, surveys of on-site car parking accumulations were also undertaken to identify the parking demands currently generated by the existing school.

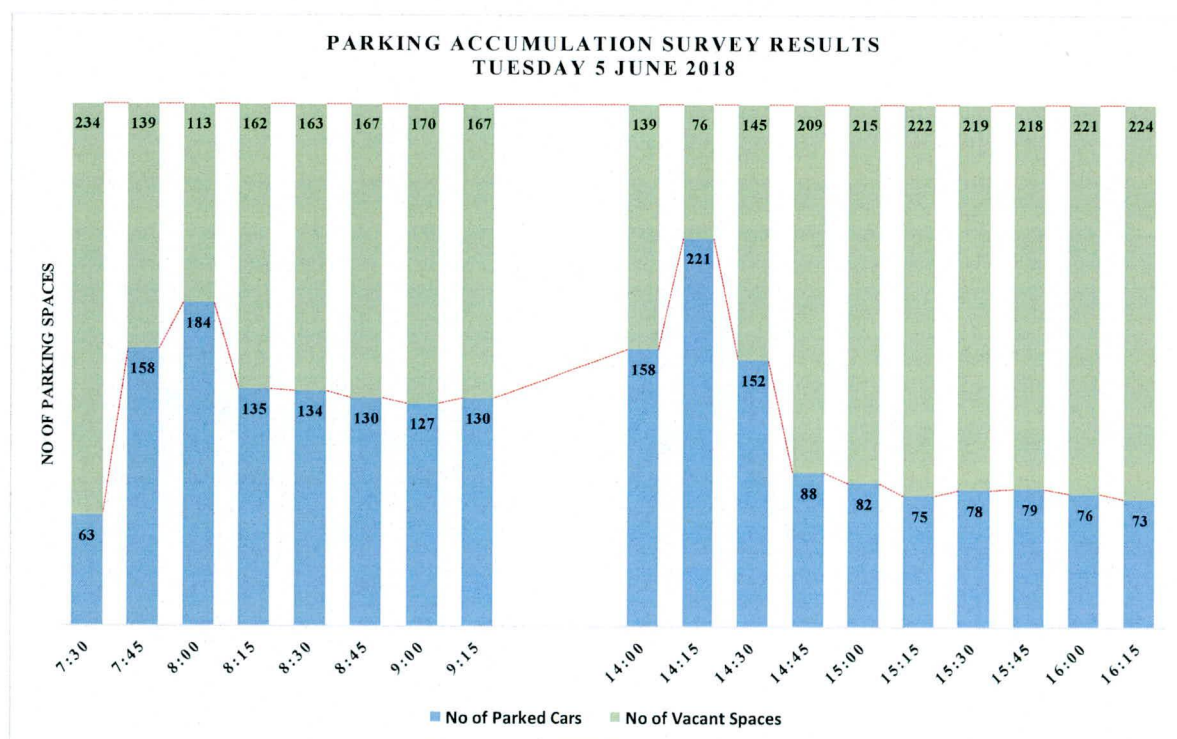
The results of the parking accumulation surveys are reproduced in full in Appendix A.

The results of the parking accumulation surveys are summarised in the graph below, and identify the following peak parking demands:

EXISTING PEAK PARKING DEMAND

AM School Peak - 8:00am-8:15am: 184 parked cars **0.20 spaces per student**

PM School Peak - 2:15pm-2:30pm: 221 parked cars **0.24 spaces per student**



Application of the above survey-based parking rates to the proposed increase in student and staff numbers yields the following projected future parking requirements:

- 237 parking spaces during the morning school peak period
- 285 parking spaces during the afternoon school peak period.

The above parking requirements are satisfied by the proposed provision of 447 parking spaces as envisaged by the *Masterplan* which has been prepared as part of this Application.

It is pertinent to note in this regard that the *Masterplan* parking provisions include a total of 120 new car parking spaces plus a new bus set-down/pick-up area on the northern part of the site, adjacent to the proposed playing fields, hard courts and gymnasium/performing arts centre.

Thus, there will be a total of 327 parking spaces provided on the southern part of the school site, adjacent to the school buildings, to meet the projected future day-to-day needs of the school as set out above, plus a further 120 parking spaces on the northern part of the site which will be used during sporting and cultural events.

School Bus

Surveys were undertaken to record the number of school bus currently dropping off and picking up students in the morning and afternoon peak school periods.

A total of 497 students were recorded using the school bus to school in the morning and 614 students were recorded using the school bus to return home. This corresponds to some 53%-55% students utilising the school bus service.

A breakdown of the number of school bus and number of students on board is summarised below:

	No of School Buses	Average Bus Occupancy
AM Drop-off	10	50 students per bus
PM Pick-up	19	45 students per bus

Accordingly, if it is conservatively estimated that 55% of the 274 additional students, i.e. 150 students use the school buses, there would be an increased demand of approximately 15 students per bus in the morning, and an increased demand of approximately 8 students per bus in the afternoon. That additional demand for school bus travel can be comfortably accommodated on the existing school bus services.

In any event, the existing on-site school bus bay has the capacity to accommodate up to 5 buses simultaneously, however under the current demands there is a maximum of only 2-3 buses on-site simultaneously. Spare capacity therefore exists in the existing on-site school bus bay to accommodate additional services, should the need ever arise.

Conclusion

The foregoing assessment has found that:

- the planning proposal seeks to allow the school to progressively increase its enrolment capacity from 911 students to 1,185 students (i.e. increase of 274 students) to accommodate the population growth in the Wollondilly Shire and surrounding districts
- based on surveys of traffic activity generated by the existing student numbers the proposed increase in student numbers is expected to generate an additional 113 vph travelling TO the school during the morning school peak hour and an additional 57 vph travelling FROM the school during the afternoon school peak hour
- those projected additional traffic flows can be accommodated on the adjacent road network and will not have any unacceptable traffic implications in terms of road network capacity
- a new CHR and AUL treatment is proposed on Remembrance Drive at the Olive Lane intersection in accordance with *Austroads* requirements
- the proposed increase in car parking numbers from 297 spaces to 447 spaces will more than adequately accommodate the day-to-day needs of the school as well as sporting and cultural events
- the projected increase in student numbers can be accommodated on the existing school bus services, although the existing on-site school bus bay has the capacity to accommodate additional bus services, should the need ever arise.

In summary, it is concluded that the proposed increase in student numbers will not have any unacceptable traffic and parking implications, and is therefore recommended for approval.

APPENDIX A

TRAFFIC SURVEY DATA



Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6804 WOLLONDILLY Anglican College
Day/Date	: Tuesday 5th June 2018

AM

<u>Mini</u>	NORTH		WEST		SOUTH		
	<i>Remembrance Dr</i>		<i>Olive L</i>		<i>Remembrance Dr</i>		
<u>Bus</u>							
Time Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
0730 - 0745	0	0	0	0	0	0	0
0745 - 0800	0	0	0	0	0	0	0
0800 - 0815	0	0	0	0	0	0	0
0815 - 0830	0	0	0	0	0	0	0
0830 - 0845	0	0	0	0	0	0	0
0845 - 0900	0	0	0	0	0	1	1
0900 - 0915	2	0	0	0	0	0	2
0915 - 0930	0	0	0	0	0	0	0
Per End	2	0	0	0	0	1	3

<u>Mini</u>	NORTH		WEST		SOUTH		
	<i>Remembrance Dr</i>		<i>Olive L</i>		<i>Remembrance Dr</i>		
<u>Bus</u>							
Peak Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
0730 - 0830	0	0	0	0	0	0	0
0745 - 0845	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	1	1
0815 - 0915	2	0	0	0	0	1	3
0830 - 0930	2	0	0	0	0	1	3

PEAK HR	0	0	0	0	0	0	0
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R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning
 Job No/Name : 6804 WOLLONDILLY Anglican College
 Day/Date : Tuesday 5th June 2018

AM

<u>Buses</u>	NORTH		WEST		SOUTH		
	<i>Remembra nce Dr</i>		<i>Olive L</i>		<i>Remembra nce Dr</i>		
Time Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
0730 - 0745	1	0	0	0	0	0	1
0745 - 0800	4	0	0	0	0	1	5
0800 - 0815	2	0	0	0	0	3	5
0815 - 0830	0	0	0	0	0	1	1
0830 - 0845	0	0	0	0	0	1	1
0845 - 0900	0	0	0	0	0	1	1
0900 - 0915	0	0	0	0	0	0	0
0915 - 0930	0	0	0	0	0	1	1
Per End	7	0	0	0	0	8	15

<u>Combined</u>	NORTH		WEST		SOUTH		
	<i>Remembrance Dr</i>		<i>Olive L</i>		<i>Remembrance Dr</i>		
Time Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
0730 - 0745	93	0	0	0	0	50	143
0745 - 0800	164	0	0	0	0	89	253
0800 - 0815	131	0	0	0	0	134	265
0815 - 0830	64	0	0	0	0	101	165
0830 - 0845	62	0	1	0	0	95	158
0845 - 0900	85	0	0	0	0	85	170
0900 - 0915	76	0	0	0	0	58	134
0915 - 0930	73	1	1	0	1	92	168
Per End	748	1	2	0	1	704	1456

<u>Buses</u>	NORTH		WEST		SOUTH		
	Remembra nce Dr		Olive L		Remembra nce Dr		
Peak Per	T	R	L	R	L	T	TOT
0730 - 0830	7	0	0	0	0	5	12
0745 - 0845	6	0	0	0	0	6	12
0800 - 0900	2	0	0	0	0	6	8
0815 - 0915	0	0	0	0	0	3	3
0830 - 0930	0	0	0	0	0	3	3
PEAK HR	6	0	0	0	0	6	12

<u>Combined</u>	NORTH		WEST		SOUTH		
	<i>Remembrance Dr</i>		<i>Olive L</i>		<i>Remembrance Dr</i>		
Peak Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
0730 - 0830	452	0	0	0	0	374	826
0745 - 0845	421	0	1	0	0	419	841
0800 - 0900	342	0	1	0	0	415	758
0815 - 0915	287	0	1	0	0	339	627
0830 - 0930	296	1	2	0	1	330	630
PEAK HR	421	0	1	0	0	419	841



R.O.A.R. DATA

Reliable, Original & Authentic Results

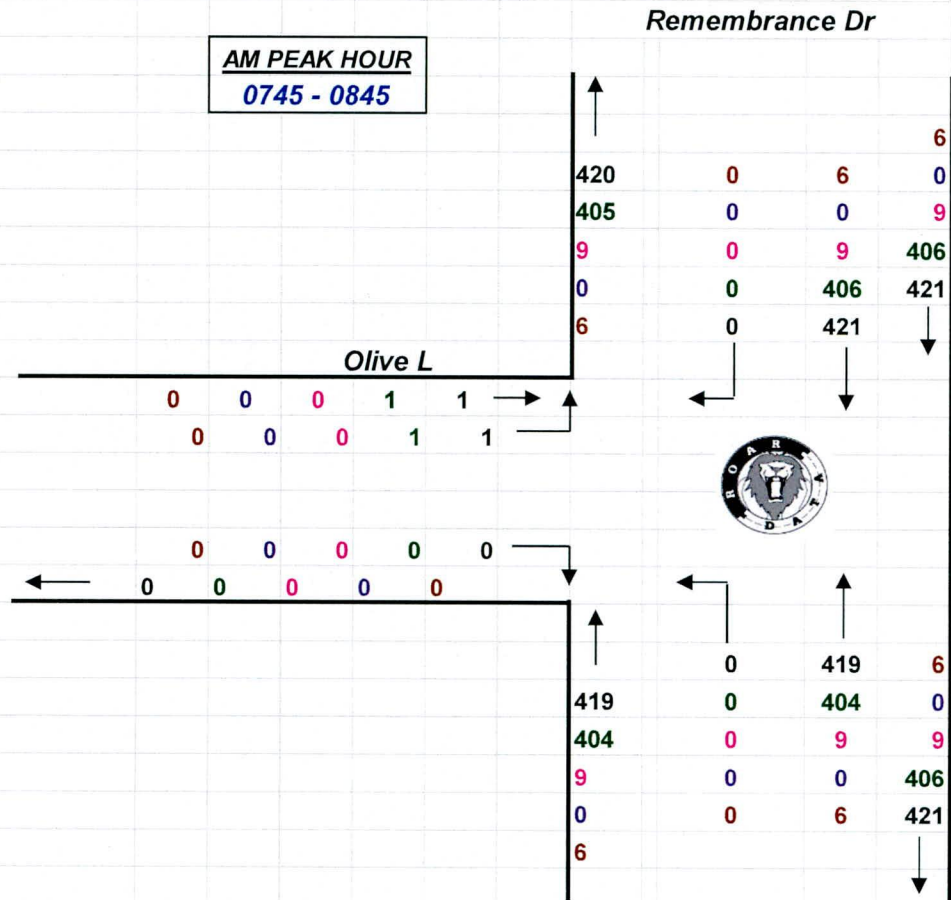
Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning

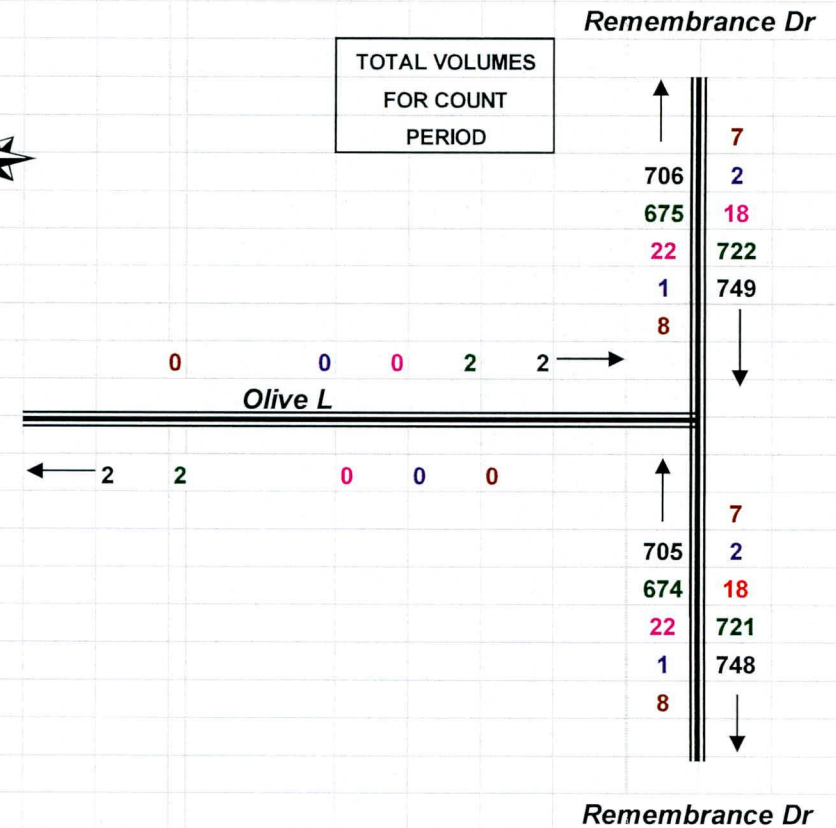
Job No/Name : 6804 WOLLONDILLY Anglican College

Day/Date : Tuesday 5th June 2018

AM PEAK HOUR
0745 - 0845



TOTAL VOLUMES
FOR COUNT
PERIOD



Remembrance Dr

Remembrance Dr



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 6804 WOLLONDILLY Anglican College
Day/Date : Tuesday 5th June 2018

PM

<u>Lights</u>	NORTH		WEST		SOUTH		
	<i>Remembra nce Dr</i>		<i>Olive L</i>		<i>Remembra nce Dr</i>		
Time Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
1400 - 1415	68	0	0	0	0	74	142
1415 - 1430	95	0	0	0	0	93	188
1430 - 1445	87	0	0	0	0	89	176
1445 - 1500	90	0	0	0	0	126	216
1500 - 1515	98	0	0	0	0	88	186
1515 - 1530	81	0	0	0	0	99	180
1530 - 1545	94	1	0	0	0	94	189
1545 - 1600	87	0	0	0	0	87	174
1600 - 1615	98	0	1	0	0	103	202
1615 - 1630	79	0	0	0	0	105	184
Per End	877	1	1	0	0	958	1837

Heavies	NORTH		WEST		SOUTH		
	Remembra nce Dr		Olive L		Remembra nce Dr		
Time Per	T	R	L	R	L	T	TOT
1400 - 1415	4	0	0	0	0	2	6
1415 - 1430	2	0	0	0	0	0	2
1430 - 1445	1	0	0	0	0	0	1
1445 - 1500	2	0	0	0	0	3	5
1500 - 1515	2	0	0	0	0	0	2
1515 - 1530	0	0	0	0	0	3	3
1530 - 1545	4	0	0	0	0	3	7
1545 - 1600	1	0	0	0	0	0	1
1600 - 1615	1	0	0	0	0	1	2
1615 - 1630	0	0	0	0	0	2	2
Per End	17	0	0	0	0	14	31

Mini Bus	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		Olive L		Remembra nce Dr		
Time Per	T	R	L	R	L	T	
1400 - 1415	0	0	0	0	0	0	0
1415 - 1430	1	0	0	0	0	0	1
1430 - 1445	1	0	0	0	0	1	2
1445 - 1500	0	0	0	0	0	0	0
1500 - 1515	0	0	0	0	0	0	0
1515 - 1530	0	0	0	0	0	0	0
1530 - 1545	0	0	0	0	0	0	0
1545 - 1600	0	0	0	0	0	0	0
1600 - 1615	0	0	0	0	0	0	0
1615 - 1630	1	0	0	0	0	0	1
Per End	3	0	0	0	0	1	4

<u>Lights</u>	NORTH		WEST		SOUTH		
	<i>Remembra nce Dr</i>		<i>Olive L</i>		<i>Remembra nce Dr</i>		
Peak Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
1400 - 1500	340	0	0	0	0	382	722
1415 - 1515	370	0	0	0	0	396	766
1430 - 1530	356	0	0	0	0	402	758
1445 - 1545	363	1	0	0	0	407	771
1500 - 1600	360	1	0	0	0	368	729
1515 - 1615	360	1	1	0	0	383	745
1530 - 1630	358	1	1	0	0	389	749
PEAK HR	363	1	0	0	0	407	771

Heavies	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		Olive L		Remembra nce Dr		
Peak Per	T	R	L	R	L	T	TOT
1400 - 1500	9	0	0	0	0	5	14
1415 - 1515	7	0	0	0	0	3	10
1430 - 1530	5	0	0	0	0	6	11
1445 - 1545	8	0	0	0	0	9	17
1500 - 1600	7	0	0	0	0	6	13
1515 - 1615	6	0	0	0	0	7	13
1530 - 1630	6	0	0	0	0	6	12
PEAK HR	8	0	0	0	0	9	17

Mini Bus	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		Olive L		Remembra nce Dr		
Peak Per	T	R	L	R	L	T	
1400 - 1500	2	0	0	0	0	1	3
1415 - 1515	2	0	0	0	0	1	3
1430 - 1530	1	0	0	0	0	1	2
1445 - 1545	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0
1515 - 1615	0	0	0	0	0	0	0
1530 - 1630	1	0	0	0	0	0	1
PEAK HR	0	0	0	0	0	0	0



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 6804 WOLLONDILLY Anglican College
Day/Date : Tuesday 5th June 2018

PM

<u>Buses</u>	NORTH		WEST		SOUTH		
	<i>Remembra nce Dr</i>		<i>Olive L</i>		<i>Remembra nce Dr</i>		
Time Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
1400 - 1415	0	0	0	0	0	0	0
1415 - 1430	4	0	0	0	0	0	4
1430 - 1445	7	0	0	0	0	0	7
1445 - 1500	1	0	0	0	0	1	2
1500 - 1515	0	0	0	0	0	0	0
1515 - 1530	0	0	0	0	0	9	9
1530 - 1545	0	0	0	0	0	0	0
1545 - 1600	0	0	0	0	0	0	0
1600 - 1615	1	0	0	0	0	1	2
1615 - 1630	3	0	0	0	0	2	5
Per End	16	0	0	0	0	13	29

<u>Combined</u>	NORTH		WEST		SOUTH		
	<i>Remembra nce Dr</i>		<i>Olive L</i>		<i>Remembra nce Dr</i>		
Time Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
1400 - 1415	72	0	0	0	0	76	148
1415 - 1430	102	0	0	0	0	93	195
1430 - 1445	96	0	0	0	0	90	186
1445 - 1500	93	0	0	0	0	130	223
1500 - 1515	100	0	0	0	0	88	188
1515 - 1530	81	0	0	0	0	111	192
1530 - 1545	98	1	0	0	0	97	196
1545 - 1600	88	0	0	0	0	87	175
1600 - 1615	100	0	1	0	0	105	206
1615 - 1630	83	0	0	0	0	109	192
Per End	913	1	1	0	0	986	1558

<u>Buses</u>	NORTH		WEST		SOUTH		
	Remembra nce Dr		Olive L		Remembra nce Dr		
Peak Per	T	R	L	R	L	T	TOT
1400 - 1500	12	0	0	0	0	1	13
1415 - 1515	12	0	0	0	0	1	13
1430 - 1530	8	0	0	0	0	10	18
1445 - 1545	1	0	0	0	0	10	11
1500 - 1600	0	0	0	0	0	9	9
1515 - 1615	1	0	0	0	0	10	11
1530 - 1630	4	0	0	0	0	3	7
PEAK HR	1	0	0	0	0	10	11

<u>Combined</u>	NORTH		WEST		SOUTH		
	<i>Remembra nce Dr</i>		<i>Olive L</i>		<i>Remembra nce Dr</i>		
Peak Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
1400 - 1500	363	0	0	0	0	389	752
1415 - 1515	391	0	0	0	0	401	792
1430 - 1530	370	0	0	0	0	419	789
1445 - 1545	372	1	0	0	0	426	799
1500 - 1600	367	1	0	0	0	383	751
1515 - 1615	367	1	1	0	0	400	769
1530 - 1630	369	1	1	0	0	398	769
PEAK HR	372	1	0	0	0	426	799



R.O.A.R. DATA

Reliable, Original & Authentic Results

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Client : Varga Traffic Planning

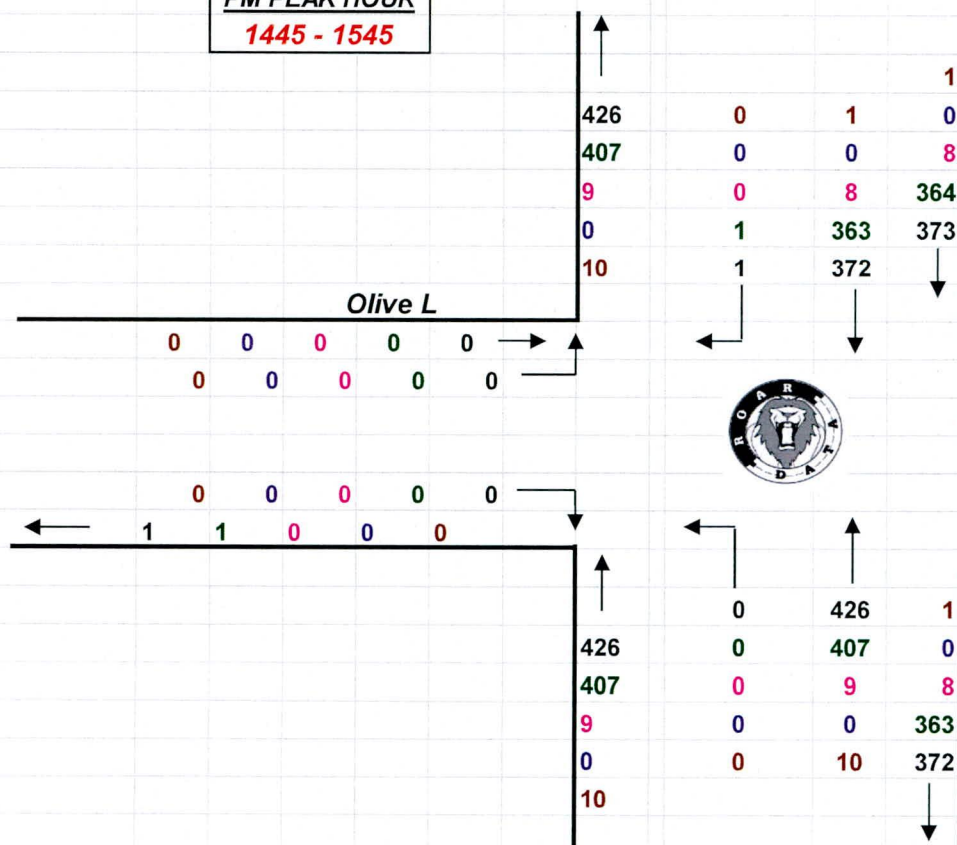
Job No/Name : 6804 WOLLONDILLY Anglican College

Day/Date : Tuesday 5th June 2018

PM PEAK HOUR

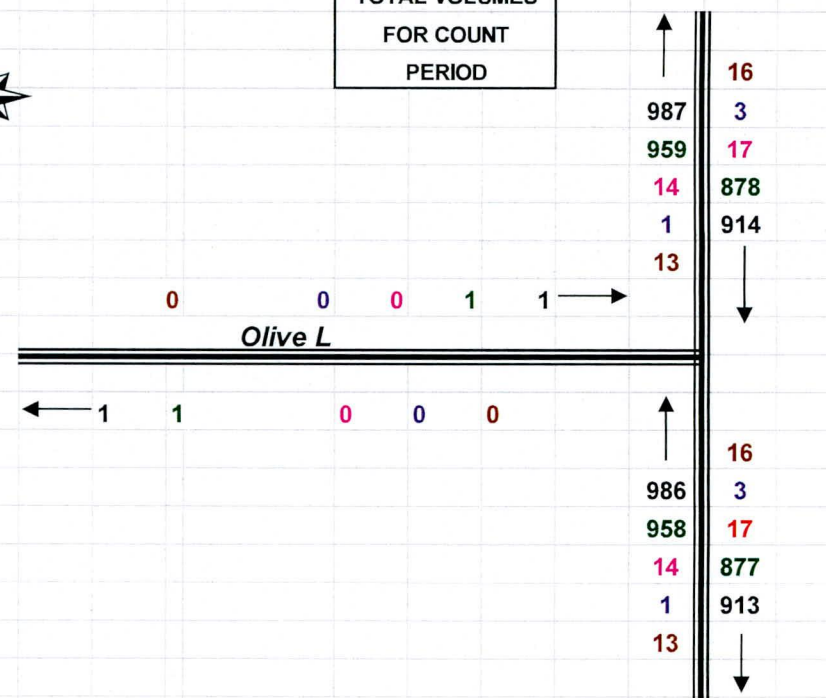
1445 - 1545

Remembrance Dr



Remembrance Dr

TOTAL VOLUMES
FOR COUNT
PERIOD



Remembrance Dr



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 6804 WOLLONDILLY Anglican College
Day/Date : Tuesday 5th June 2018

Intersection Layout

Obtained via satellite

May be incorrect

AM PEAK HOUR
0745 - 0845

Combined figures only

Olive Lane

Remembrance Dr



R	T	
0	421	AM
1	372	PM

1	0	L
0	0	R
AM	PM	

PM	0	426
AM	0	419
L	T	

PM PEAK HOUR
1445 - 1545

Weather >>>



Remembrance Dr



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 6804 WOLLONDILLY Anglican College

Day/Date : Tuesday 5th June 2018

AM

Lights	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Time Per	T	R	L	R	L	T	
0730 - 0745	61	31	8	10	22	51	183
0745 - 0800	58	98	47	10	55	46	314
0800 - 0815	75	86	102	21	63	49	396
0815 - 0830	50	4	31	25	3	64	177
0830 - 0845	56	1	4	1	3	83	148
0845 - 0900	84	1	3	0	0	80	168
0900 - 0915	70	1	2	2	0	55	130
0915 - 0930	87	0	0	0	1	71	159
Per End	541	222	197	69	147	499	1675

Heavies	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Time Per	T	R	L	R	L	T	
0730 - 0745	1	1	0	0	0	2	4
0745 - 0800	1	0	3	0	0	1	5
0800 - 0815	0	1	0	0	0	3	4
0815 - 0830	2	2	1	0	0	1	6
0830 - 0845	2	1	1	0	0	1	5
0845 - 0900	2	1	2	0	0	3	8
0900 - 0915	1	0	1	0	0	1	3
0915 - 0930	3	2	0	0	0	5	10
Per End	12	8	8	0	0	17	45

Mini Bus	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Time Per	T	R	L	R	L	T	
0730 - 0745	0	0	0	0	0	0	0
0745 - 0800	0	1	0	0	1	0	2
0800 - 0815	0	0	1	0	0	0	1
0815 - 0830	0	0	0	0	0	0	0
0830 - 0845	0	0	0	0	0	0	0
0845 - 0900	0	0	1	0	0	0	1
0900 - 0915	1	1	0	0	0	0	2
0915 - 0930	0	0	0	0	0	0	0
Per End	1	2	2	0	1	0	6

Lights	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Peak Per	T	R	L	R	L	T	
0730 - 0830	244	219	188	66	143	210	1070
0745 - 0845	239	189	184	57	124	242	1035
0800 - 0900	265	92	140	47	69	276	889
0815 - 0915	260	7	40	28	6	282	623
0830 - 0930	297	3	9	3	4	289	605

Heavies	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Peak Per	T	R	L	R	L	T	
0730 - 0830	4	4	4	0	0	7	19
0745 - 0845	5	4	5	0	0	6	20
0800 - 0900	6	5	4	0	0	8	23
0815 - 0915	7	4	5	0	0	6	22
0830 - 0930	8	4	4	0	0	10	26

Mini Bus	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Peak Per	T	R	L	R	L	T	
0730 - 0830	0	1	1	0	1	0	3
0745 - 0845	0	1	1	0	1	0	3
0800 - 0900	0	0	2	0	0	0	2
0815 - 0915	1	1	1	0	0	0	3
0830 - 0930	1	1	1	0	0	0	3

PEAK HR	244	219	188	66	143	210	1070
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PEAK HR	4	4	4	0	0	7	19
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PEAK HR	0	1	1	0	1	0	3
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R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning
 Job No/Name : 6804 WOLLONDILLY Anglican College
 Day/Date : Tuesday 5th June 2018

AM

Buses

Time Per	NORTH Remembra nce Dr		WEST School Access		SOUTH Remembra nce Dr		TOT
	T	R	L	R	L	T	
0730 - 0745	0	1	0	0	0	0	1
0745 - 0800	1	4	2	3	1	0	11
0800 - 0815	0	2	3	1	2	0	8
0815 - 0830	0	0	0	1	0	2	3
0830 - 0845	1	0	0	0	0	0	1
0845 - 0900	1	0	0	0	0	1	2
0900 - 0915	1	0	0	0	0	1	2
0915 - 0930	1	0	0	0	0	0	1
Per End	0	7	5	5	3	4	24

Combined

Time Per	NORTH Remembra nce Dr		WEST School Access		SOUTH Remembra nce Dr		TOT
	T	R	L	R	L	T	
0730 - 0745	62	33	8	10	22	53	188
0745 - 0800	60	103	52	13	57	47	332
0800 - 0815	75	89	106	22	65	52	409
0815 - 0830	52	6	32	26	3	67	186
0830 - 0845	59	2	5	1	3	84	154
0845 - 0900	87	2	6	0	0	84	179
0900 - 0915	73	2	3	2	0	57	137
0915 - 0930	91	2	0	0	1	76	170
Per End	559	239	212	74	151	520	1755

Buses

Peak Per	NORTH Remembra nce Dr		WEST School Access		SOUTH Remembra nce Dr		TOT
	T	R	L	R	L	T	
0730 - 0830	1	7	5	5	3	2	23
0745 - 0845	2	6	5	5	3	2	23
0800 - 0900	2	2	3	2	2	3	14
0815 - 0915	3	0	0	1	0	4	8
0830 - 0930	4	0	0	0	0	2	6
PEAK HR	1	7	5	5	3	2	23

Combined

Peak Per	NORTH Remembra nce Dr		WEST School Access		SOUTH Remembra nce Dr		TOT
	T	R	L	R	L	T	
0730 - 0830	249	231	198	71	147	219	1115
0745 - 0845	246	200	195	62	128	250	1081
0800 - 0900	273	99	149	49	71	287	928
0815 - 0915	271	12	46	29	6	292	656
0830 - 0930	310	8	14	3	4	301	640
PEAK HR	249	231	198	71	147	219	1115



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

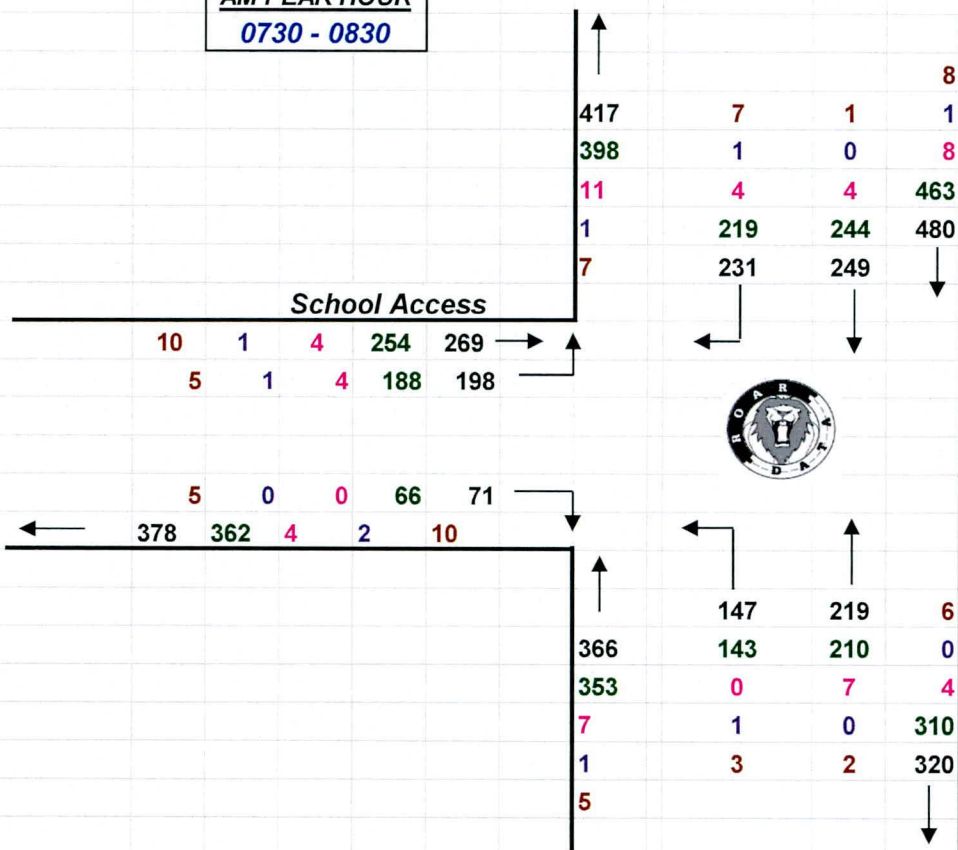
Client : Varga Traffic Planning

Job No/Name : 6804 WOLLONDILLY Anglican College

Day/Date : Tuesday 5th June 2018

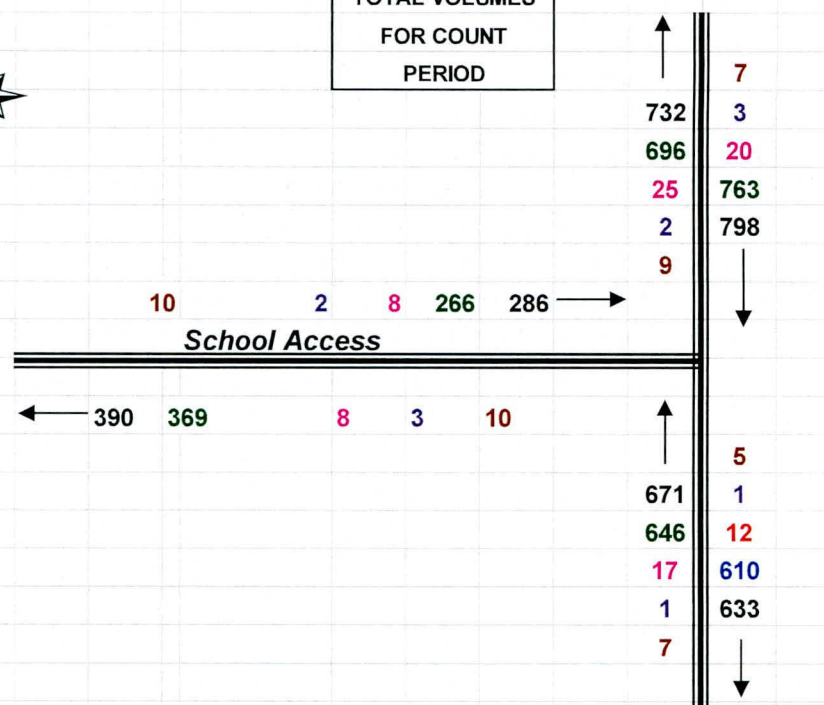
AM PEAK HOUR
0730 - 0830

Remembrance Dr



TOTAL VOLUMES
FOR COUNT
PERIOD

Remembrance Dr



Remembrance Dr

Remembrance Dr



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 6804 WOLLONDILLY Anglican College

Day/Date : Tuesday 5th June 2018

TOTAL SCHOOL VEHICLE ACCUMULATION

Car Park

Eastern	12	
Middle	14	
Western	0	
Church	0	
Total	26	At Start

Capacities

Car Park

Eastern	64
Middle	131
Western	43
Church	59
Total	297

Time Per	Acc
0730 - 0745	63
0745 - 0800	158
0800 - 0815	184
0815 - 0830	135
0830 - 0845	134
0845 - 0900	130
0900 - 0915	127
0915 - 0930	130

Car Park

Eastern	25	
Middle	57	
Western	36	
Church	10	
Total	128	At Finish



R.O.A.R. DATA

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Client : Varga Traffic Planning
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Day/Date : Tuesday 5th June 2018

PM

Lights	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Time Per	T	R	L	R	L	T	TOT
1400 - 1415	68	13	0	0	7	74	162
1415 - 1430	92	41	4	3	26	89	255
1430 - 1445	57	13	70	25	7	97	269
1445 - 1500	61	8	43	27	2	78	219
1500 - 1515	72	6	4	8	0	54	144
1515 - 1530	91	2	7	2	0	68	170
1530 - 1545	101	3	1	3	4	95	207
1545 - 1600	87	4	3	3	2	74	173
1600 - 1615	92	12	12	5	3	83	207
1615 - 1630	95	10	13	5	5	91	219
Per End	816	112	157	81	56	803	1608

Heavies	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Time Per	T	R	L	R	L	T	TOT
1400 - 1415	4	0	0	0	0	2	6
1415 - 1430	2	0	0	0	0	0	2
1430 - 1445	0	0	0	0	0	0	0
1445 - 1500	1	0	0	0	0	3	4
1500 - 1515	2	0	0	0	0	0	2
1515 - 1530	0	0	0	0	0	3	3
1530 - 1545	4	0	0	0	0	2	6
1545 - 1600	1	0	0	0	0	1	2
1600 - 1615	2	0	0	0	0	1	3
1615 - 1630	2	0	0	0	0	2	4
Per End	18	0	0	0	0	14	24

Mini Bus	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Time Per	T	R	L	R	L	T	TOT
1400 - 1415	0	2	0	0	0	0	2
1415 - 1430	1	1	0	0	1	0	3
1430 - 1445	0	1	1	0	0	0	2
1445 - 1500	0	0	0	0	0	0	0
1500 - 1515	0	0	0	0	0	0	0
1515 - 1530	0	0	0	0	0	0	0
1530 - 1545	0	0	0	0	0	0	0
1545 - 1600	0	0	0	0	0	0	0
1600 - 1615	1	0	0	0	0	0	1
1615 - 1630	0	0	0	0	0	0	0
Per End	2	4	1	0	1	0	3

Lights	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Peak Per	T	R	L	R	L	T	TOT
1400 - 1500	278	75	117	55	42	338	905
1415 - 1515	282	68	121	63	35	318	887
1430 - 1530	281	29	124	62	9	297	802
1445 - 1545	325	19	55	40	6	295	740
1500 - 1600	351	15	15	16	6	291	694
1515 - 1615	371	21	23	13	9	320	757
1530 - 1630	375	29	29	16	14	343	806

PEAK HR	278	75	117	55	42	338	905
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Heavies	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Peak Per	T	R	L	R	L	T	TOT
1400 - 1500	7	0	0	0	0	5	12
1415 - 1515	5	0	0	0	0	3	8
1430 - 1530	3	0	0	0	0	6	9
1445 - 1545	7	0	0	0	0	8	15
1500 - 1600	7	0	0	0	0	6	13
1515 - 1615	7	0	0	0	0	7	14
1530 - 1630	9	0	0	0	0	6	15

PEAK HR	7	0	0	0	0	5	12
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Mini Bus	NORTH		WEST		SOUTH		TOT
	Remembra nce Dr		School Access		Remembra nce Dr		
Peak Per	T	R	L	R	L	T	TOT
1400 - 1500	1	4	1	0	1	0	7
1415 - 1515	1	2	1	0	1	0	5
1430 - 1530	0	1	1	0	0	0	2
1445 - 1545	0	0	0	0	0	0	0
1500 - 1600	0	0	0	0	0	0	0
1515 - 1615	1	0	0	0	0	0	1
1530 - 1630	1	0	0	0	0	0	1

PEAK HR	1	4	1	0	1	0	7
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R.O.A.R. DATA

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Client : Varga Traffic Planning
Job No/Name : 6804 WOLLONDILLY Anglican College
Day/Date : Tuesday 5th June 2018

PM

<u>Buses</u>	NORTH		WEST		SOUTH		
	<i>Remembra nce Dr</i>		<i>School Access</i>		<i>Remembra nce Dr</i>		
Time Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
1400 - 1415	0	0	0	0	0	0	0
1415 - 1430	1	3	1	1	0	0	6
1430 - 1445	1	9	5	2	4	0	21
1445 - 1500	3	1	5	1	1	0	11
1500 - 1515	0	0	0	0	0	0	0
1515 - 1530	0	0	0	0	0	1	1
1530 - 1545	0	0	0	0	0	0	0
1545 - 1600	1	0	0	0	1	0	2
1600 - 1615	3	0	1	0	0	0	4
1615 - 1630	0	0	0	0	0	1	1
Per End	9	13	12	4	6	2	40

Combined	NORTH		WEST		SOUTH		
	Remembra nce Dr		School Access		Remembra nce Dr		
Time Per	T	R	L	R	L	T	TOT
1400 - 1415	72	15	0	0	7	76	170
1415 - 1430	96	45	5	4	27	89	266
1430 - 1445	58	23	76	27	11	97	292
1445 - 1500	65	9	48	28	3	81	234
1500 - 1515	74	6	4	8	0	54	146
1515 - 1530	91	2	7	2	0	72	174
1530 - 1545	105	3	1	3	4	97	213
1545 - 1600	89	4	3	3	3	75	177
1600 - 1615	98	12	13	5	3	84	215
1615 - 1630	97	10	13	5	5	94	224
Per End	845	129	170	85	63	819	1675

<u>Buses</u>	NORTH		WEST		SOUTH		
	<i>Remembra nce Dr</i>		<i>School Access</i>		<i>Remembra nce Dr</i>		
Peak Per	<u>T</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>T</u>	TOT
1400 - 1500	5	13	11	4	5	0	38
1415 - 1515	5	13	11	4	5	0	38
1430 - 1530	4	10	10	3	5	1	33
1445 - 1545	3	1	5	1	1	1	12
1500 - 1600	1	0	0	0	1	1	3
1515 - 1615	4	0	1	0	1	1	7
1530 - 1630	4	0	1	0	1	1	7

PEAK HR	5	13	11	4	5	0	38
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Combined	NORTH		WEST		SOUTH		
	Remembra nce Dr		School Access		Remembra nce Dr		
Peak Per	T	R	L	R	L	T	TOT
1400 - 1500	291	92	129	59	48	343	962
1415 - 1515	293	83	133	67	41	321	938
1430 - 1530	288	40	135	65	14	304	846
1445 - 1545	335	20	60	41	7	304	767
1500 - 1600	359	15	15	16	7	298	710
1515 - 1615	383	21	24	13	10	328	779
1530 - 1630	389	29	30	16	15	350	829

PEAK HR	291	92	129	59	48	343	962
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R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

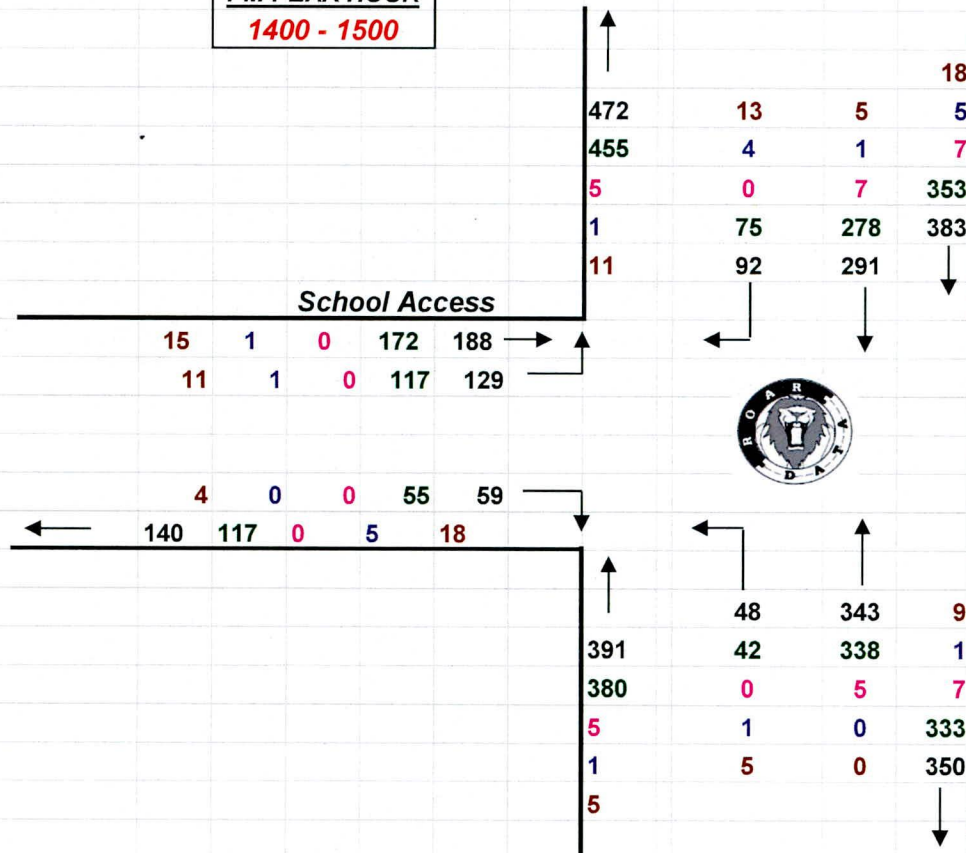
Client : Varga Traffic Planning

Job No/Name : 6804 WOLLONDILLY Anglican College

Day/Date : Tuesday 5th June 2018

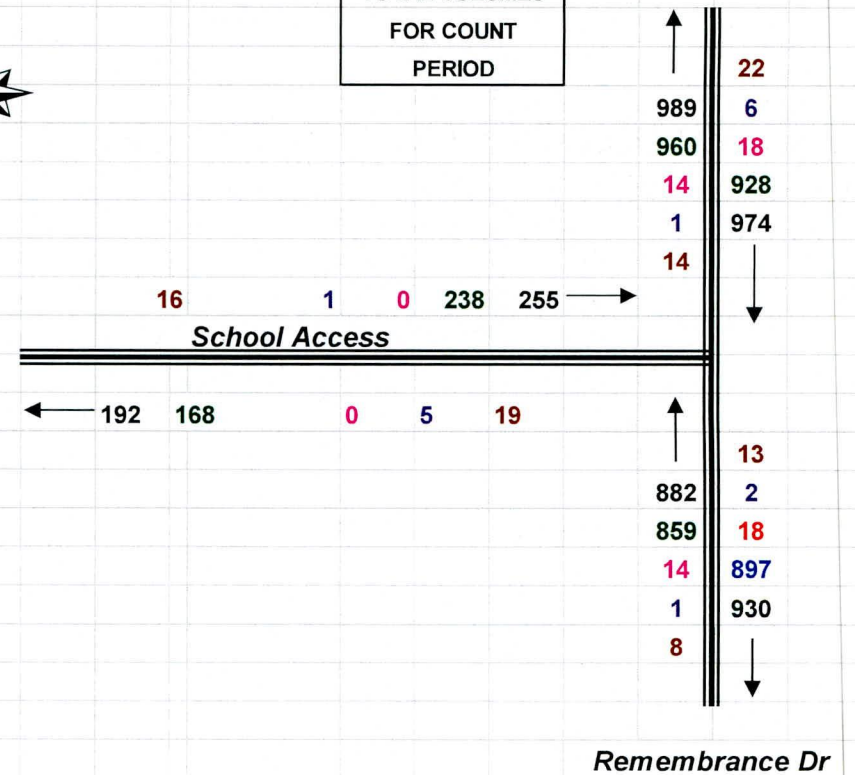
PM PEAK HOUR
1400 - 1500

Remembrance Dr



TOTAL VOLUMES
FOR COUNT
PERIOD

Remembrance Dr



Remembrance Dr

Remembrance Dr



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 6804 WOLLONDILLY Anglican College
Day/Date : Tuesday 5th June 2018

TOTAL SCHOOL VEHICLE ACCUMULATION

Car Park

Eastern	38
Middle	47
Western	41
Church	10
Total	136 At Start

Capacities

Car Park

Eastern	64
Middle	131
Western	43
Church	59
Total	297

Time Per	Acc
1400 - 1415	158
1415 - 1430	221
1430 - 1445	152
1445 - 1500	88
1500 - 1515	82
1515 - 1530	75
1530 - 1545	78
1545 - 1600	79
1600 - 1615	76
1615 - 1630	73

Car Park

Eastern	33
Middle	21
Western	10
Church	9
Total	73 At Finish Old



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 6804 WOLLONDILLY Anglican College
Day/Date : Tuesday 5th June 2018

Intersection Layout

Obtained via satellite

May be incorrect

AM PEAK HOUR
0730 - 0830

Combined figures only

School Access



Remembrance Dr

R	T	
231	249	AM
92	291	PM

198	129	L
-----	-----	---

71	59	R
AM	PM	

PM	48	343
AM	147	219
	L	T

PM PEAK HOUR
1400 - 1500

Weather >>>



Remembrance Dr

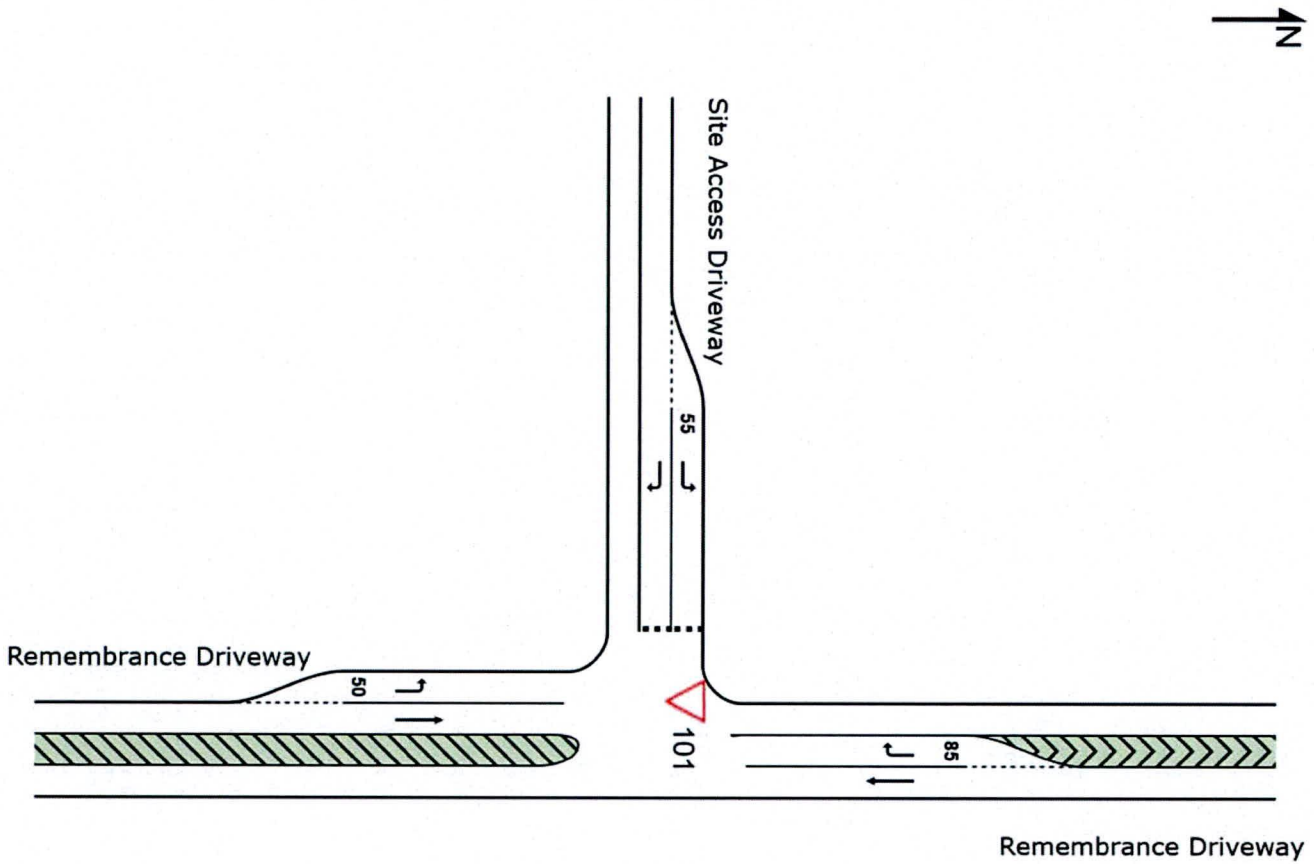
APPENDIX B

SIDRA MOVEMENT SUMMARIES

SITE LAYOUT

▽ Site: 101 [Existing AM]

Remembrance Driveway & Wolloondilly Anglican College Site Access Driveway Intersection
Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 101 [Existing AM]

Remembrance Driveway & Wolloondilly Anglican College Site Access Driveway Intersection

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Remembrance Driveway												
1	L2	147	2.7	0.081	4.9	LOS A	0.0	0.0	0.00	0.60	0.00	37.9
2	T1	219	4.1	0.115	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		366	3.6	0.115	2.0	NA	0.0	0.0	0.00	0.24	0.00	39.1
North: Remembrance Driveway												
8	T1	249	2.0	0.130	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
9	R2	231	5.2	0.299	7.4	LOS A	1.3	9.6	0.50	0.75	0.53	21.0
Approach		480	3.5	0.299	3.6	NA	1.3	9.6	0.24	0.36	0.26	27.9
West: Site Access Driveway												
10	L2	269	5.6	0.259	1.2	LOS A	1.1	8.0	0.37	0.26	0.37	21.5
12	R2	71	7.0	0.094	3.2	LOS A	0.3	2.4	0.54	0.51	0.54	21.2
Approach		340	5.9	0.259	1.6	LOS A	1.1	8.0	0.40	0.31	0.40	21.4
All Vehicles		1186	4.2	0.299	2.5	NA	1.3	9.6	0.21	0.31	0.22	27.9

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 [Existing PM]

Remembrance Driveway & Wolloondilly Anglican College Site Access Driveway Intersection

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	v/c	sec		veh	m				km/h
South: Remembrance Driveway												
1	L2	14	35.7	0.009	5.1	LOS A	0.0	0.0	0.00	0.58	0.00	37.7
2	T1	304	2.3	0.158	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		318	3.8	0.158	0.2	NA	0.0	0.0	0.00	0.03	0.00	39.9
North: Remembrance Driveway												
8	T1	288	2.4	0.151	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
9	R2	40	27.5	0.057	7.0	LOS A	0.2	1.7	0.43	0.65	0.43	21.1
Approach		328	5.5	0.151	0.9	NA	0.2	1.7	0.05	0.08	0.05	36.0
West: Site Access Driveway												
10	L2	135	8.1	0.145	1.6	LOS A	0.5	4.1	0.40	0.31	0.40	21.4
12	R2	65	4.6	0.075	2.4	LOS A	0.3	1.9	0.49	0.43	0.49	21.3
Approach		200	7.0	0.145	1.9	LOS A	0.5	4.1	0.43	0.35	0.43	21.4
All Vehicles		846	5.2	0.158	0.9	NA	0.5	4.1	0.12	0.12	0.12	32.0

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.

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 [Proposed AM]

Remembrance Driveway & Wolloondilly Anglican College Site Access Driveway Intersection

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	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Remembrance Driveway												
1	L2	262	1.5	0.143	4.9	LOS A	0.0	0.0	0.00	0.60	0.00	37.9
2	T1	247	4.5	0.130	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		509	2.9	0.143	2.5	NA	0.0	0.0	0.00	0.31	0.00	38.9
North: Remembrance Driveway												
8	T1	286	1.7	0.149	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
9	R2	351	3.4	0.537	11.1	LOS A	3.5	25.5	0.66	1.03	1.04	20.6
Approach		637	2.7	0.537	6.1	NA	3.5	25.5	0.37	0.57	0.57	26.3
West: Site Access Driveway												
10	L2	423	3.5	0.415	1.9	LOS A	2.3	16.8	0.45	0.40	0.50	21.4
12	R2	126	4.0	0.212	5.2	LOS A	0.8	5.5	0.67	0.69	0.69	21.0
Approach		549	3.6	0.415	2.6	LOS A	2.3	16.8	0.50	0.47	0.54	21.3
All Vehicles		1695	3.1	0.537	3.9	NA	3.5	25.5	0.30	0.46	0.39	26.9

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.

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Organisation: VARGA TRAFFIC PLANNING | Processed: Wednesday, 28 November, 2018 3:21:39 PM

Project: Z:\DATA\Data\Jobs01\Jobs\18work\18261Y_WolloondillyAnglicanCollege\SIDRA\181128\REM__ACCP.sip8

MOVEMENT SUMMARY

Site: 101 [Proposed PM]

Remembrance Driveway & Wolloondilly Anglican College Site Access Driveway Intersection

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	v/c	sec		veh	m				km/h
South: Remembrance Driveway												
1	L2	51	9.8	0.029	4.9	LOS A	0.0	0.0	0.00	0.60	0.00	37.8
2	T1	329	2.1	0.171	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		380	3.2	0.171	0.7	NA	0.0	0.0	0.00	0.08	0.00	39.7
North: Remembrance Driveway												
8	T1	319	2.2	0.167	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
9	R2	91	12.1	0.127	7.3	LOS A	0.5	3.6	0.47	0.71	0.47	21.0
Approach		410	4.4	0.167	1.6	NA	0.5	3.6	0.10	0.16	0.10	33.3
West: Site Access Driveway												
10	L2	236	4.7	0.255	1.9	LOS A	1.0	7.5	0.45	0.37	0.45	21.4
12	R2	111	2.7	0.143	3.2	LOS A	0.5	3.6	0.55	0.54	0.55	21.2
Approach		347	4.0	0.255	2.3	LOS A	1.0	7.5	0.48	0.43	0.48	21.3
All Vehicles		1137	3.9	0.255	1.5	NA	1.0	7.5	0.18	0.21	0.18	29.8

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.

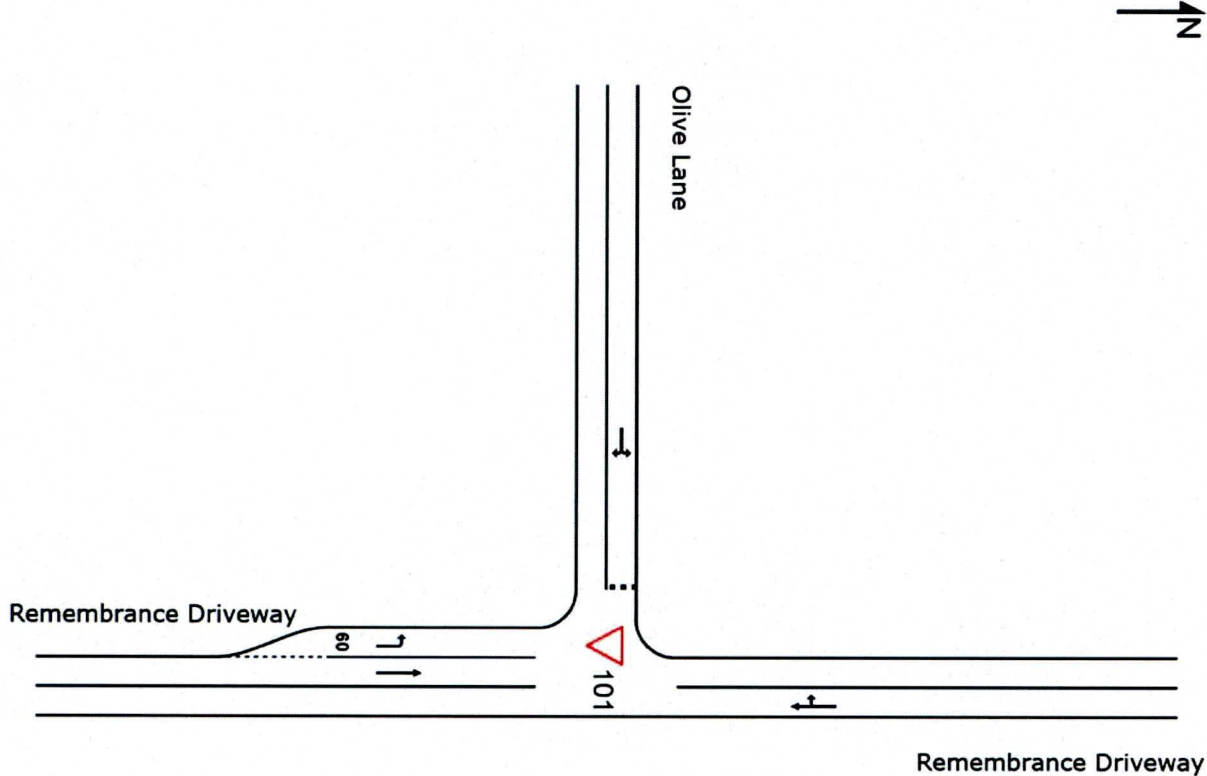
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

SITE LAYOUT

▽ Site: 101 [Existing AM]

Remembrance Driveway & Olive Lane Intersection
Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 101 [Existing AM]

Remembrance Driveway & Olive Lane Intersection

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	v/c	sec		veh	m				km/h
South: Remembrance Driveway												
1	L2	1	0.0	0.001	6.9	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
2	T1	419	3.6	0.220	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		420	3.6	0.220	0.0	NA	0.0	0.0	0.00	0.00	0.00	79.9
North: Remembrance Driveway												
8	T1	421	3.6	0.222	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	79.9
9	R2	1	0.0	0.222	10.0	LOS A	0.0	0.1	0.00	0.00	0.00	60.2
Approach		422	3.6	0.222	0.0	NA	0.0	0.1	0.00	0.00	0.00	79.9
West: Olive Lane												
10	L2	1	0.0	0.002	6.0	LOS A	0.0	0.0	0.45	0.56	0.45	52.8
12	R2	1	0.0	0.002	6.8	LOS A	0.0	0.0	0.45	0.56	0.45	52.6
Approach		2	0.0	0.002	6.4	LOS A	0.0	0.0	0.45	0.56	0.45	52.7
All Vehicles		844	3.6	0.222	0.1	NA	0.0	0.1	0.00	0.00	0.00	79.8

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 [Existing PM]

Remembrance Driveway & Olive Lane Intersection

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	v/c	sec		veh	m				km/h
South: Remembrance Driveway												
1	L2	1	0.0	0.001	6.9	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
2	T1	426	4.5	0.225	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		427	4.4	0.225	0.0	NA	0.0	0.0	0.00	0.00	0.00	79.9
North: Remembrance Driveway												
8	T1	372	2.4	0.195	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	79.9
9	R2	1	0.0	0.195	10.0	LOS A	0.0	0.1	0.00	0.00	0.00	60.2
Approach		373	2.4	0.195	0.0	NA	0.0	0.1	0.00	0.00	0.00	79.9
West: Olive Lane												
10	L2	1	0.0	0.002	6.0	LOS A	0.0	0.0	0.45	0.55	0.45	52.8
12	R2	1	0.0	0.002	6.6	LOS A	0.0	0.0	0.45	0.55	0.45	52.7
Approach		2	0.0	0.002	6.3	LOS A	0.0	0.0	0.45	0.55	0.45	52.7
All Vehicles		802	3.5	0.225	0.1	NA	0.0	0.1	0.00	0.00	0.00	79.8

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.

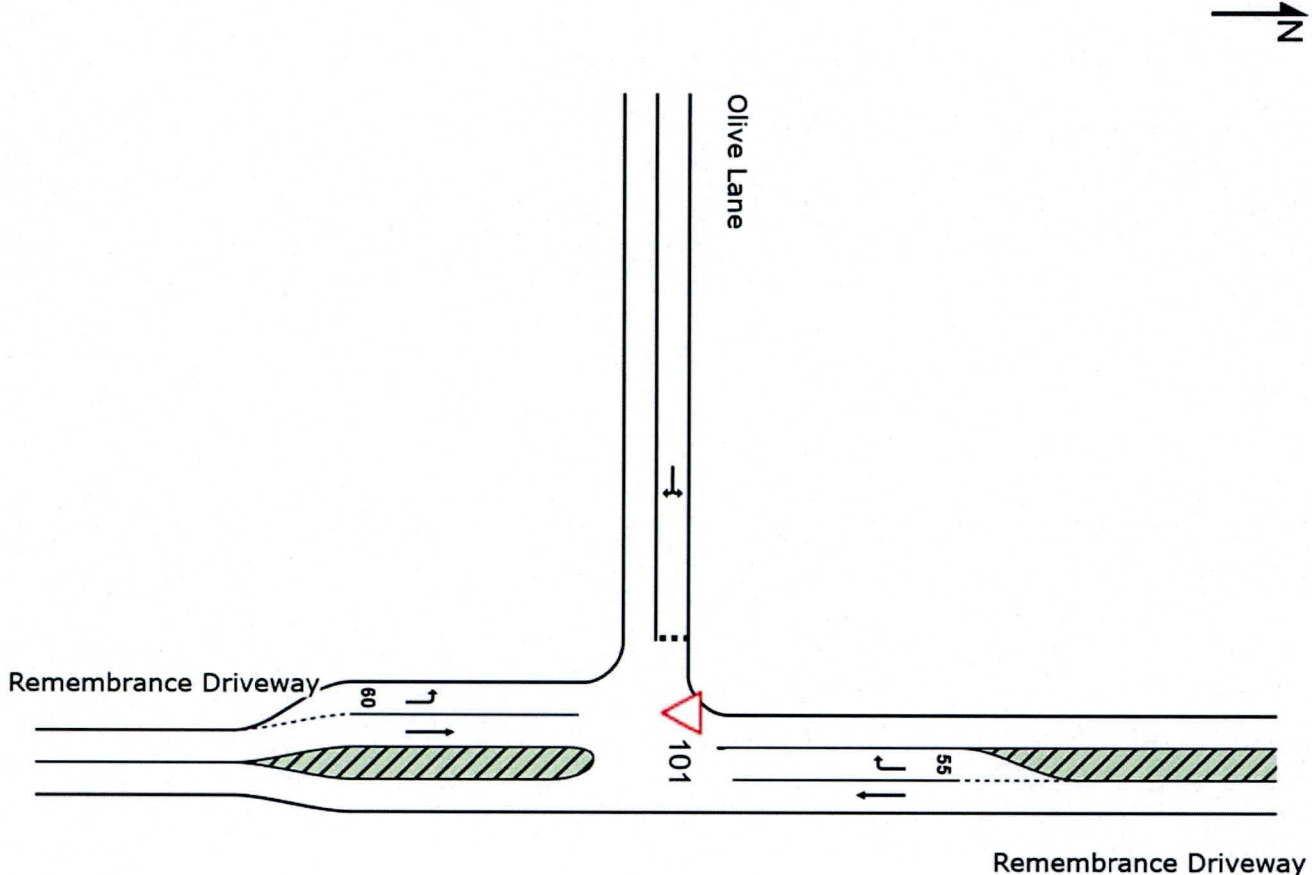
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

SITE LAYOUT

▽ Site: 101 [Proposed AM]

Remembrance Driveway & Olive Lane Intersection
Site Category: (None)
Giveaway / Yield (Two-Way)



MOVEMENT SUMMARY

▽ Site: 101 [Proposed AM]

Remembrance Driveway & Olive Lane Intersection

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
South: Remembrance Driveway												
1	L2	77	0.0	0.041	6.9	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
2	T1	573	2.6	0.299	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		650	2.3	0.299	0.9	NA	0.0	0.0	0.00	0.07	0.00	77.8
North: Remembrance Driveway												
8	T1	541	2.8	0.285	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	181	0.0	0.344	13.3	LOS A	1.5	10.6	0.66	0.92	0.83	49.4
Approach		722	2.1	0.344	3.4	NA	1.5	10.6	0.17	0.23	0.21	69.2
West: Olive Lane												
10	L2	104	0.0	0.243	8.4	LOS A	0.9	6.3	0.62	0.84	0.67	50.3
12	R2	38	0.0	0.243	13.5	LOS A	0.9	6.3	0.62	0.84	0.67	50.2
Approach		142	0.0	0.243	9.7	LOS A	0.9	6.3	0.62	0.84	0.67	50.3
All Vehicles		1514	2.0	0.344	2.9	NA	1.5	10.6	0.14	0.22	0.16	70.0

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.

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 [Proposed PM]

Remembrance Driveway & Olive Lane Intersection

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	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Remembrance Driveway												
1	L2	26	0.0	0.014	6.9	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
2	T1	527	3.6	0.277	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		553	3.4	0.277	0.4	NA	0.0	0.0	0.00	0.03	0.00	79.1
North: Remembrance Driveway												
8	T1	423	2.1	0.222	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	78	0.0	0.129	10.7	LOS A	0.5	3.2	0.55	0.83	0.55	51.2
Approach		501	1.8	0.222	1.7	NA	0.5	3.2	0.08	0.13	0.08	73.5
West: Olive Lane												
10	L2	68	0.0	0.148	7.6	LOS A	0.5	3.6	0.55	0.77	0.55	51.4
12	R2	32	0.0	0.148	9.8	LOS A	0.5	3.6	0.55	0.77	0.55	51.2
Approach		100	0.0	0.148	8.3	LOS A	0.5	3.6	0.55	0.77	0.55	51.3
All Vehicles		1154	2.4	0.277	1.6	NA	0.5	3.6	0.08	0.14	0.08	73.2

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.