TRAFFIC AND PARKING IMPACT ASSESSMENT

Proposed Distillery, Showroom and Tasting Area

39 Sydenham Road in Brookvale

Prepared for: Noble Craft

N221857A (version 1a)

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Contents

1. INTRODUCTION

Motion Traffic Engineers was commissioned by Noble Craft to prepare a traffic and parking impact assessment for a proposed distillery, showroom and tasting area at 39 Sydenham Road in Brookvale. Currently, Showroom and tasting area trades as Noble Craft. On-site parking is provided. Currently the site is a metal fabrication business

This traffic report focuses on the proposed increase of patron number and changes in car usage and car park utilisation and additional trips from the proposed application.

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

The Scope of Works is as follows for preparing a traffic and parking impact based on qualitative assessment:

- Assess the traffic impacts usage of the proposed alteration on the local road network upon the external road network including nearby intersections
- Assess the parking demand and the parking requirements of the proposed alteration
- Provide a parking certification for the car area (all infrastructure are existing) according to Australian Standards

2. BACKGROUND AND EXISTING CONDITIONS

2.1 Location and Land Use

The site is located in the industrial area of Brookvale with Winbourne Industrial Estate 50 metres to the east . This site is located within a *General Residential, IN1 Zone*

Figures 1 and 2 shows the location of the existing site from the aerial and street map perspective respectively.

Figures 3 shows a photograph of the site.

Figure 1: Location of the Subject Site on Aerial

Figure 2: Street Map of the Location of the Proposed Distillery, Showroom and Tasting Area

Figure 3: Photograph of the Site from Sydenham Road

2.2 Road Network

This section discusses the near roads that are assessed.

Sydenham Road is a local road with one lane each and on street parking on both sides of the road. The default speed limit is 50km/hr. On street parking is time restricted for short term parking during business hours between Pittwater Road and Mitchell Road. Long term on-street parking during business hours is located east of Mitchell Road. Figure 4 presents a photograph of Sydenham

Pittwater Road is an arterial road with three lanes each way overall at the midblock. The kerbside lane is Bus Ways apply on weekdays for the AM and PM commuter peak period for a bus lane. At other times, the kerbside lane is for on-street parking near Sydenham Road.

Figure 3a: Sydenham Road looking east from Mitchell Road

2.3 Intersection Description

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

- Signalised intersection of Pittwater Road with Sydenham Road
- Roundabout of Sydenham Road with Mitchell Road

External travel to and from the proposed Showroom and tasting area are most likely to travel through one of the above intersections. The intersections are assessed for the weekday PM hour (5pm to 6pm for Pittwater Road) and Saturday PM peak hour (6pm to 7pm) when the proposed

Showroom and tasting area is at its busiest on the weekday and on a weekend for the highest traffic volume.

The signalised intersection of Pittwater Road with Sydenham Road is a three-leg intersection with all turn movements permitted. The sign posted speed limit is 60km/hr. Pedestrian crossings are provided on Sydenham Road and Pittwater Road south. Figure 4a and bb present layout of this intersection using SIDRA (9) aerial perspective respectively. SIDRA is an industry standard intersection software. The number on the lane is a short lane in metres.

The Roundabout of Sydenham Road with Mitchell Road is a four-legged intersection with one circulating lane. The default speed limit is 50km/hr. Figure 5a and 5b present photographs of the intersection on Aerial and the layout of this intersection using SIDRA (9), respectively. SIDRA is an industry standard intersection software.

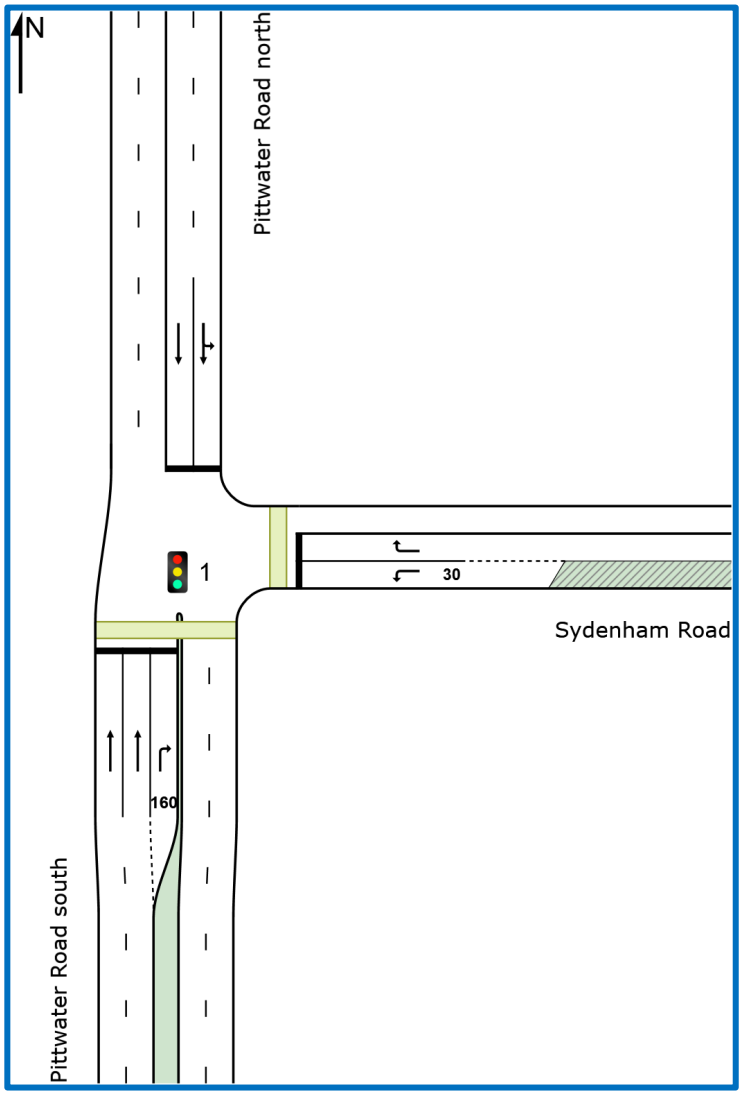

Figure 4A: Signalised intersection of Pittwater Road with Sydenham Road (SIDRA)

Figure 4a Signalised intersection of Pittwater Road with Sydenham Road (aerial)

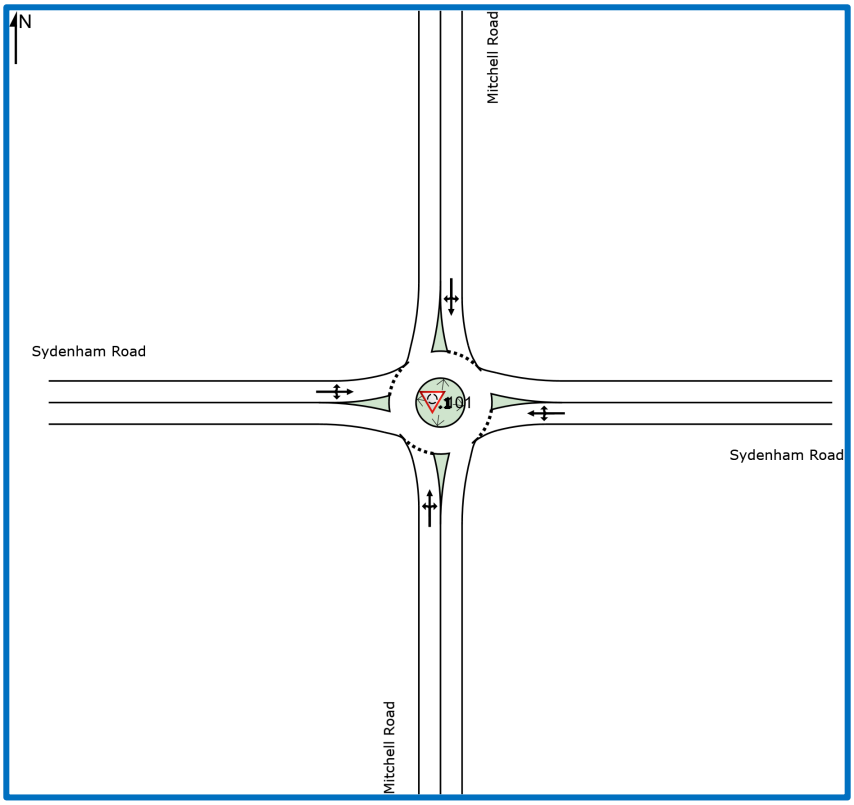

Figure 6A: Roundabout of Sydenham Road with Mitchell Road SIDRA)

Figure 6B: Roundabout of Sydenham Road with Mitchell Road (aerial)

2.4 Traffic Volumes

As part of the traffic assessment, traffic counts have been undertaken at the adjacent intersections for the weekday and Saturday PM peak hour. The weekday PM peak hour is the arrival hour for the evening activity and is 5pm to 6pm. The Saturday peak hour is 6pm to 7pm is the arrival hour with the highest background traffic volumes.

The traffic volumes are presented in the following Figures in vehicle numbers. Trucks or buses are in brackets and un-bracketed are cars.

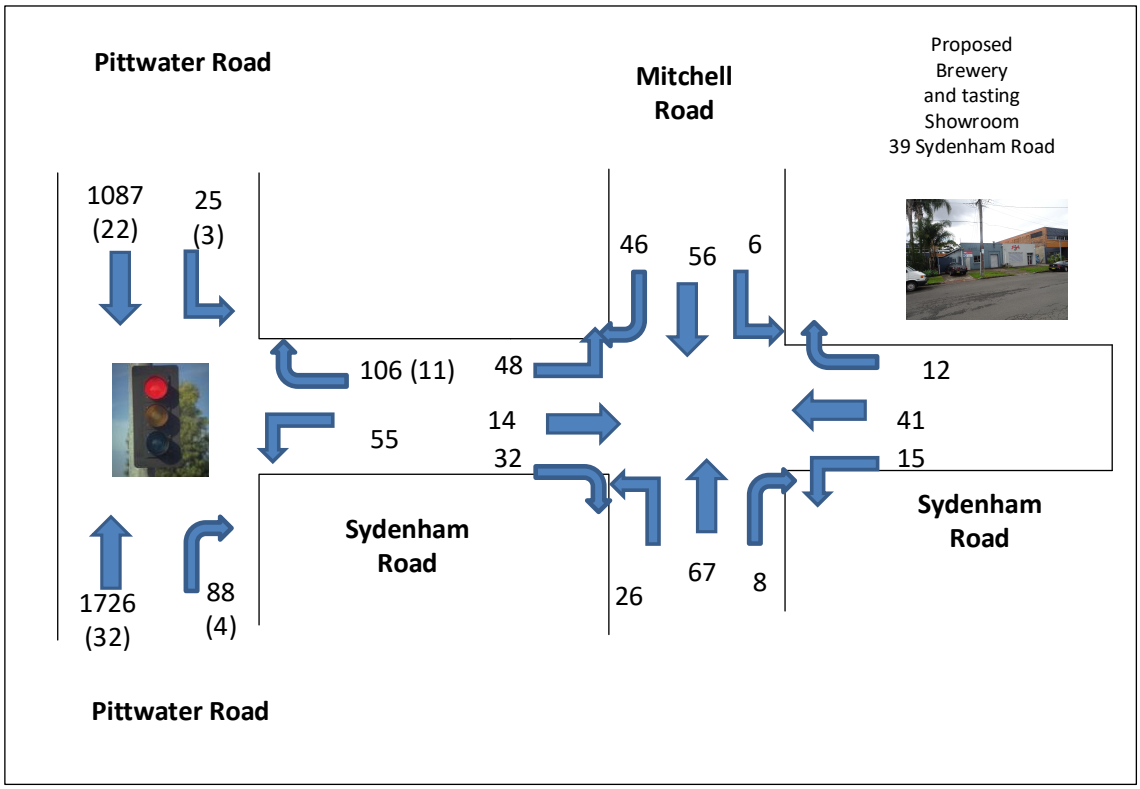

Figure 7: Existing Weekday PM Peak Hour Traffic Volumes

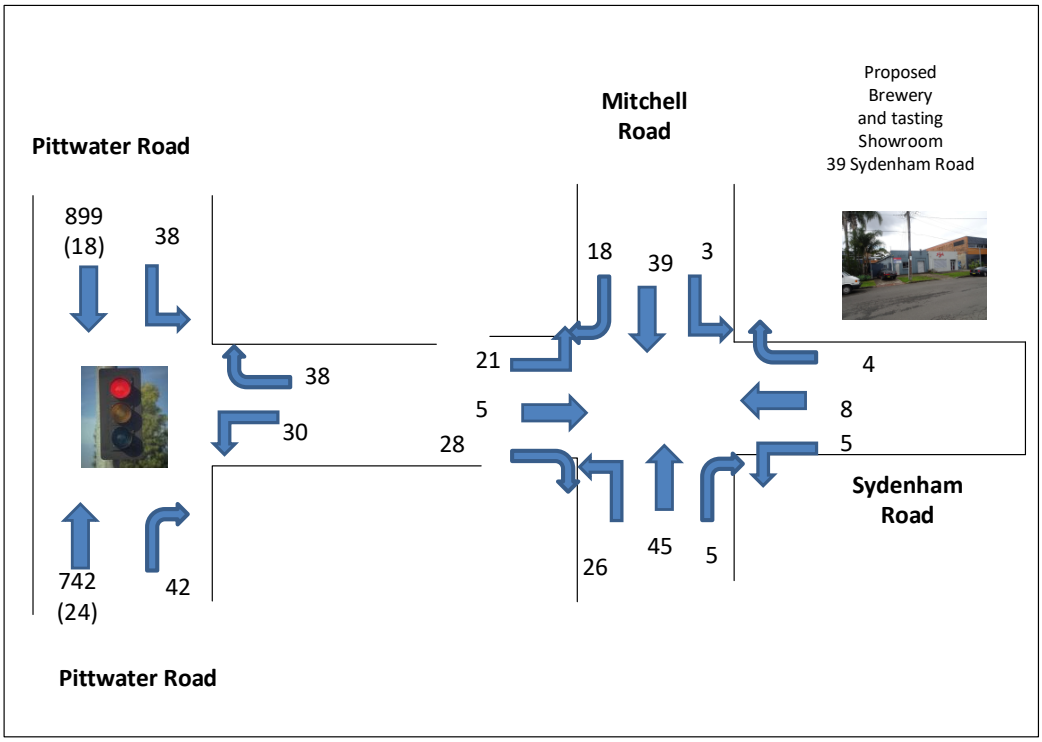

Figure 8: Existing Saturday PM Peak Hour Traffic Volumes

2.5 Intersection Assessment

This section assesses the two surveyed intersections:

- Signalised intersection of Pittwater Road with Sydenham Road
- Roundabout of Sydenham Road with Mitchell Road

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

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

Table 1: Intersection Level of Service

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

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

Table 2: Intersection Average Delay (AVD)

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

The results of the intersection analysis are as follows:

Intersection/ Performance criteria	Weekday PM Existing	PM Peak Hour Existing
Pittwater Road/Sydenham Road		
LoS	A	A
AVD(s)	11.6	8.2
DS	0.52	0.37
Mitchell Road/Sydenham Road		
LoS	A	A
AVD(s)	5	4.7
DS	0.09	0.09\6

Table 3: Existing intersection performances

The full Sidra results are presented in Appendix A.

2.6 Public Transport

The nearest bus stop to the proposed showroom and tasting area is 400 metres away on Pittwater Road. This stop is serviced by Bus Route 193. This public transport service provides access to a range of suburbs including Austlink, Warringah Mall, Frenchs Forest, Belrose, Narraweena, and Beacon Hills.

The proposed distillery, showroom and tasting area development has access to public bus services. Figure 9 shows the proximity of the site to public transport services

Figure 9: Nearby Public Bus Services

2.7 Public Parking

On street parking is permitted on Sydenham Road and Mitchell Road and surrounding roads near the site. A parking survey was undertaken on the weekday and Saturday in July 2022. The extent of the parking survey is shown in Figure 10.

The results of the parking survey are presented in Tables 4 and 5 for the weekday and Saturday respectively. The Saturday has a moderate number of vacant car spaces available during the business hours (between 10am to 5pm). There is a larger number of vacant car spaces after 5pm for both weekdays and on the weekend.

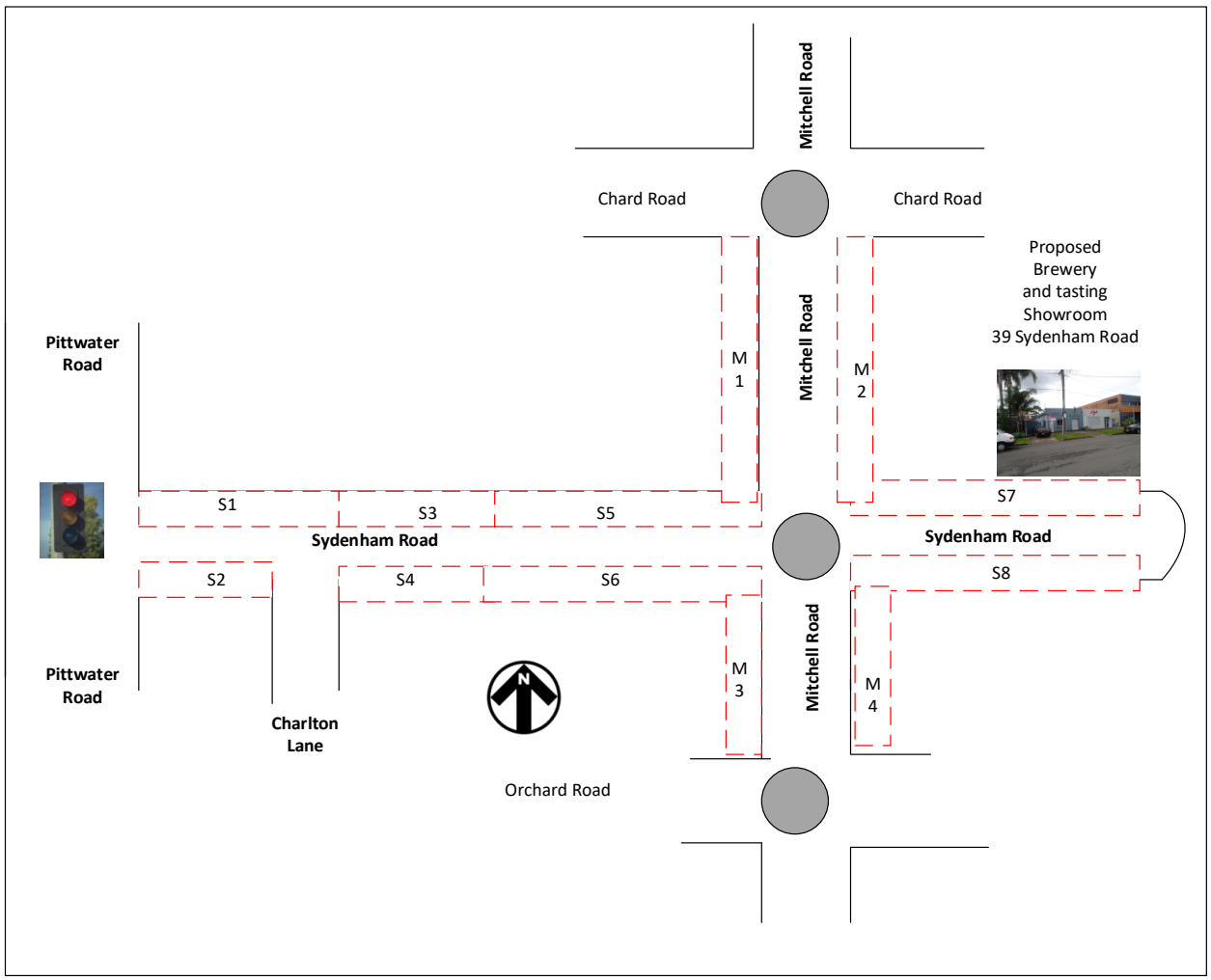

Figure 10: Public Parking Survey Area

				Occupancy							
	Section	**Restrictions**	**Car Spaces**	Midday	2pm	4pm	6pm	7pm	8pm	9pm	10pm
Sydenham Road	S1	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	1	1	1	1	1	1	1	0	0
	s2		3	3	3	2	2	3	3	3	0
	S3		4	4	4	3	2	3	4	4	4
	S4		3	3	3	3	2	3	3	3	3
	S5		14	13	12	12	5	9	12	12	10
	S6		15	9	10	7	5	6	10	10	9
	S7	Un-restricted	17	15	16	14	13	4	5	6	6
	S8	8P 8am-6pm	12	11	12	11	6	3	3	4	4
Mitchell Road	M1	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	1	1	1	1	1	1	1	1	1
		Un-restricted	10	10	10	10	6	4	5	5	6
	M2		11	11	9	9	5	4	6	6	7
	M3		12	12	12	12	4	4	7	11	12
	M4		10	9	9	8	4	3	10	10	10
		Total	113	102	102	93	56	48	70	75	72
		Vacant car spaces		11	11	20	57	65	43	38	41

Table 3: Results of the Parking Survey on a Weekday

			Saturday Occupancy									
	Section	**Restrictions**	**Car Spaces**	10am	Midday	2pm	4pm	6pm	7pm	8pm	9pm	10pm
Sydenham Road	S1	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	1	1	1	1	1	0	1	1	1	1
	s2		3	1	3	2	2	3	3	3	3	3
	S3		4	3	4	4	2	1	3	4	4	4
	S4		3	1	3	3	3	2	3	3	2	3
	S5		11	8	8	9	4	2	8	10	11	11
		1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	3	2	2	2	1	1	3	3	3	3
	S6		15	8	11	12	8	4	15	15	15	15
	S7	Un-restricted	17	8	8	6	4	4	5	6	6	6
	S8	8P 8am-6pm	12	7	9	9	5	3	3	4	4	4
Mitchell Road	M1	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	1	1	1	1	1	1	1	1	1	1
		Un-restricted	10	7	7	8	6	4	5	5	6	7
	M2		11	6	8	8	5	4	6	6	7	6
	M3		12	8	10	10	4	4	8	11	12	12
	M4		10	5	5	5	4	3	10	10	10	10
		Total	113	66	80	80	50	36	74	82	85	86
		Vacant car spaces		47	33	33	63	77	39	31	28	27

Table 4: Results of the Parking Survey on a Saturday

2.8 Conclusions

The two surveyed intersections have sufficient spare capacity to accommodate additional traffic.

The parking survey conducted show that there are low number of vacant car spaces during business hours with a larger number in the event.

The site has access to public transport.

3. PROPOSED DISTILLERY, SHOWROOM AND TASTING AREA

Details of the proposed distillery the showroom and tasting area are as follows

- The ground floor will be used for production and distillery (to the rear of the property) and as a showroom and tasting area for the alcohol (front of the property) produced by the Noble Craft Distillery
- The tasting will present information of the production of the whisky for potential customers
- Trade and public customers will be able to taste the alcohol
- Public customers will be restricted to selective time periods
- Trade customers will be able to sample the whisky and discuss commercial arrangements for purchasing whisky in a confidential manner
- Public customers will be able to purchase packaged alcohol
- The hours of operation for customers are 4pm to 12am Monday-Sunday
- Distillery hours (alcohol production) are 6am to 4pm on weekdays
- Hospitality hours are 5pm to 12am weekday, 12pm to 12am Saturday, 12pm to 10pm on Sundays
- A maximum of five staff during hospitality, and two staff during distillery hours
- The number of distillery staff will be three for production and bottling and handling deliveries

The total Gross Floor Areas are as follows;

	Area (m2)
Kitchen and Bar	30
Tasting area	98
Storage and Toilets	36
Distillery area	180

3.1 Parking

Five on-site car spaces for staff and a loading area for a small rigid truck. A plan of management is provided for the loading area, truck usage and the two adjacent car spaces.

The car spaces are used during factory hours. Outside of the factory hours, the parking area will have tables and chairs as part for the customers of the tasting area.

A full scaled plan of the proposed distillery, showroom and tasting area is provided as part of the Development Application

4. PARKING REQUIREMENT

The requirements for car parking for the development are presented in *Warringah Council's Development Control Plan (2011)*

The parking requirements are as follows as it applies to this development is as follows:

Shop (showroom and tasting area)

- 6.1 car space per GFA 100m^2

Industrial (Distillery area))

The floor space to be used for tasting area and showroom is approximately 128 m^2. The distillery area is 180m2.

Based on the above then the car space requirement is tabulated as follows:

Use	Area (m²)	Car Parking Rate	Car Spaces Required	Car Spaces Provided
Shop (bar and tasting area)	164	6.1 per 100m²	10	3
Industrial (distillery)	180	1.3 per 100m2	2	2
		Total	12	5

Table 5: Parking Requirement and Provision (rounding upwards)

The proposed distillery, showroom and tasting is seven car spaces short of meeting Council's car parking requirements.

However, the distillery operates at a different time than the shop (bar and tasing area). There are sufficient number of car spaces when the distillery is operating.

There will be a reliance on public parking when the showroom and tasting area is operating with no on-site car spaces.

The public parking survey (see Section 2.7) on the nearby streets (Sydenham Road and Mitchell Road) showed there are sufficient vacant car spaces when the showroom and tasting area is at the peak attendance after 5pm. A driver will need to circulate to find a vacant car space.

4.1 Car Park Compliance with Australian Standard

This section assesses the car spaces against the compliance with Australian Standards AS2890.1. The details are as follows:

- Parking aisle width of 6 metres for all car spaces
- Car spaces are 2.5 metres wide and 6.1 metres long
- Vehicle and pedestrian sight distances are met as per Figure 3.2 and Figure 3.3 of AS2890.1.

The car spaces are compliant with Australian Standards.

5. TRAFFIC GENERATION AND IMPACT

5.1 Traffic Generation

The RTA *Guide to Traffic Generating Developments Version 2.2* publishes trip rates for showroom and tasting areas as follows for the evening peak hour:

Specialised Retail (bar and tasting area)

- 5.6 car trip per 100m^2 GFA for weekdays PM peak hour
- 10.2 trips per 100m^2 GFA for Saturday PM peak hour

It is assumed that the staff arrive outside of the peak hours.

Table 6 shows the trip generation for the proposed showroom and tasting areas. The site is a modest trip generator.

	Peak Hour	Use	Area (m²)	Trip Generation Rate per 100m²	Trips Generated
Weekday	PM	Bar and tasting area	164	5.6	9
Saturday				10.2	17

Table 6: Trip Generation for the Proposed Showroom and Tasting Area for the Weekday Peak Hours

5.2 Trip distribution

The predicted trips are distributed to the road network assuming 90 percent outbound trips 10 percent inbound trips for the Weekday peak hour and 0 percent outbound trips 10 percent inbound trips for the weekends peak hour, which results the following:

	Peak Hour	Origin	Destination	Total Trips
Weekday	PM	1	8	9
Saturday		3	14	17

Table 7: Trip Distribution for the Proposed Showroom and Tasting Area

5.3 Existing with Showroom and Tasting Area Traffic

The additional development trips are assigned onto the local traffic network. The following figures present the future traffic volume with the development trips (in red for origin trips and blue for destination trips) for the weekday AM and PM peak hours.

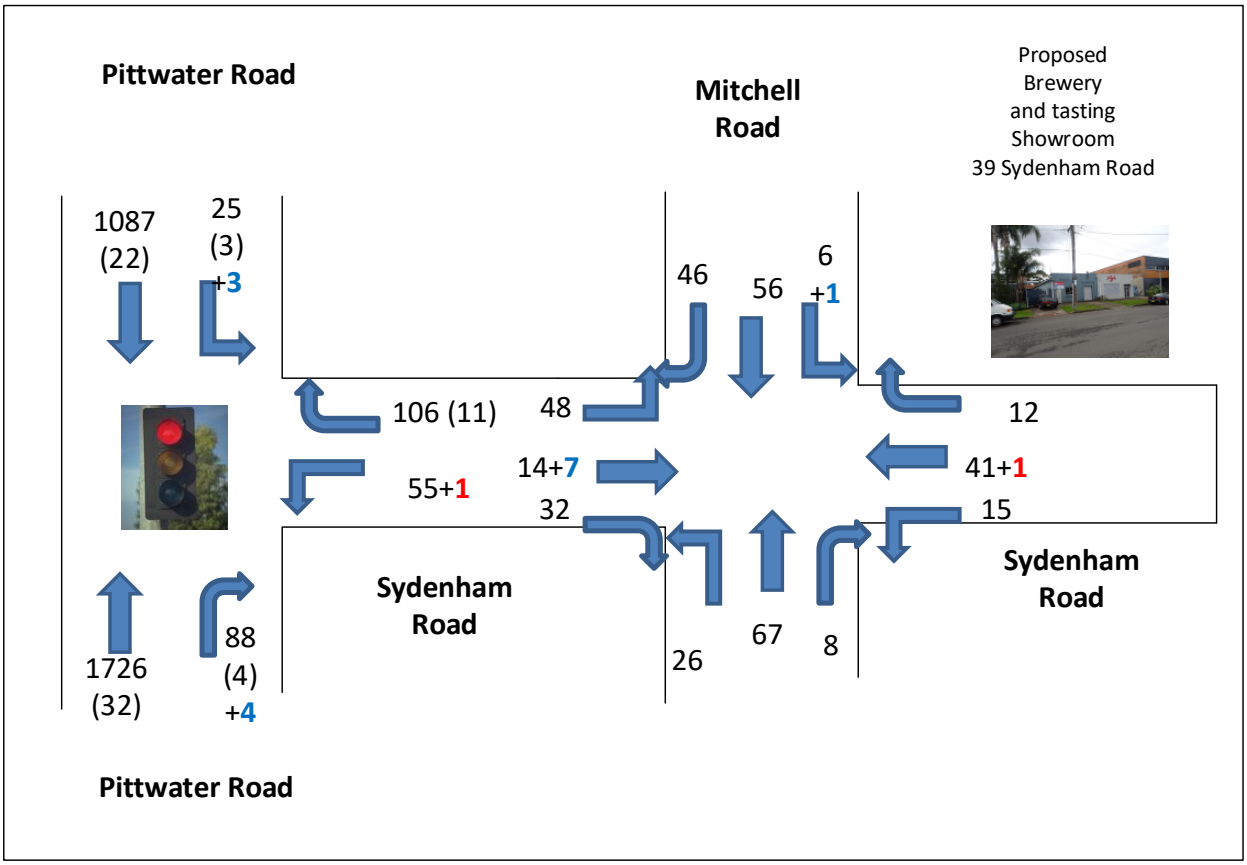

Figure 11: Weekday PM Peak Hour Car Trip Distribution (origin trips in red and destination trips in blue)

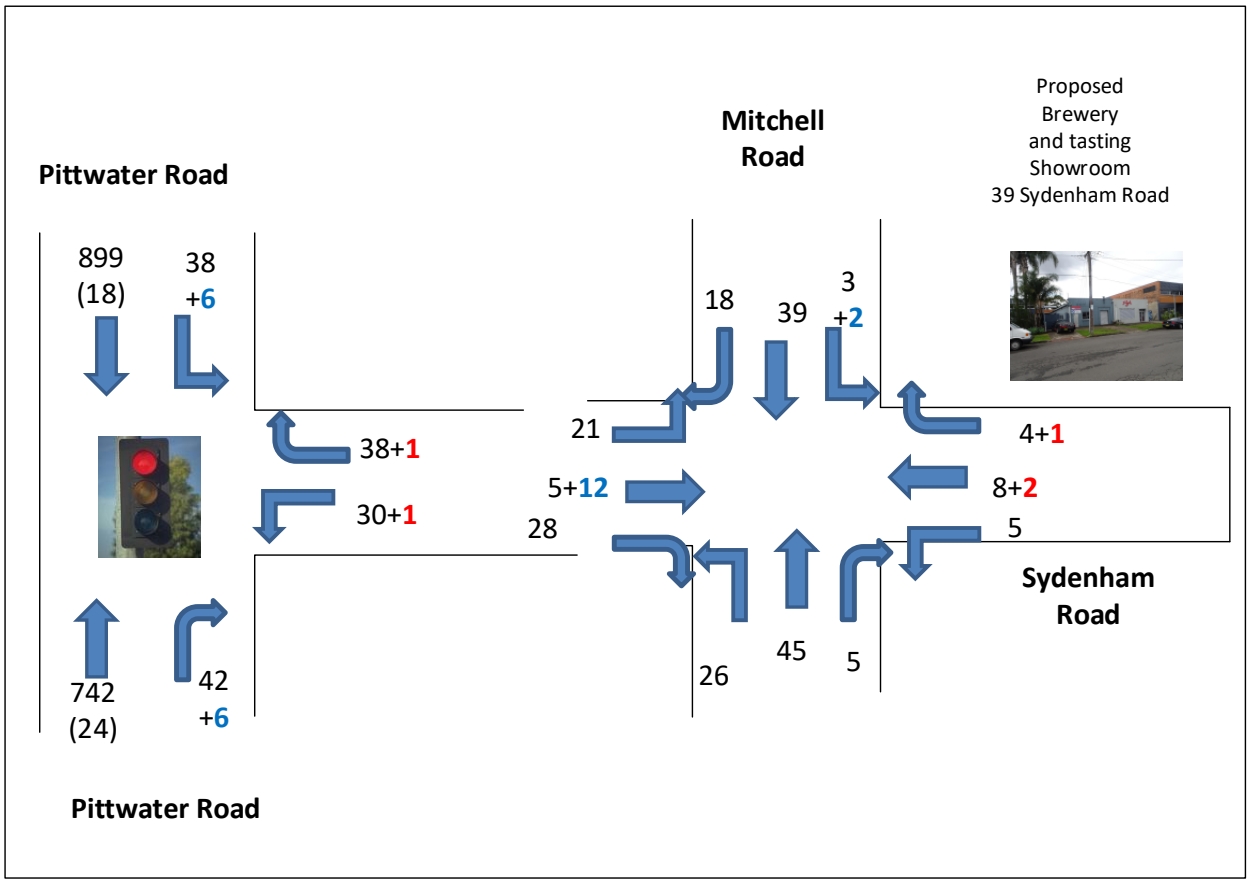

Figure 12: Saturday Peak Hour Car Trip Distribution (origin trips in red and destination trips in blue)

The trip distribution onto the local road and intersections shows a small increase in trip numbers and represents a low percentage of the estimated capacity of the intersections concerned. For most drivers the increase in trips will not be noticeable.

5.4. Traffic Impact

An intersection with the additional trips for the weekday PM and Saturday peak hours has been undertaken for the four surveyed intersections

.

The results of the intersection analysis are as presented below:

Intersection/ Performance criteria	Performance with Existing Traffic		Projected Performance with Showroom and Distillery Traffic	
	Weekday Peak Hour Existing	Saturday Peak Hour Existing	Weekday Peak Hour Projected	Saturday Peak Hour Projected
Pittwater Road/Sydenham Road				
LoS	A	A	A	A
AVD(s)	11.6	8.2	11.9	8.3
DS	0.52	0.37	0.63	0.37
Mitchell Road/Sydenham Road				
LoS	A	A	A	A
AVD(s)	5	4.7	5	4.7
DS	0.09	0.06	0.09	0.09

Table 7: Projected Intersection Performance with Showroom and Tasting Traffic

As presented in Table 9 above, the additional trips generated by the proposed Distillery, Showroom and Tasting Area have minimum impact on the intersection performances in both AM and PM peak hours. The LoS, AVD and DS of each intersection are not significantly affected by the addition of Proposed childcare centre Traffic. The traffic impact of the proposed childcare centre is therefore considered as acceptable.

The full SIDRA results are presented in Appendix B for the future conditions with the proposed childcare centre Traffic.

6. CONCLUSIONS

The traffic and parking assessment of the proposed distillery, showroom and tasting area development showed the following:

Car Parking

- The proposed distillery, showroom and tasting area development relies on public parking for customers when the bar and tasting area is operating
- There are sufficient on-site parking when the distillery is operating only.

Traffic

- The proposed distillery, showroom and tasting area development is a modest net trip generator
- The expected trips from the proposed showroom and tasting area during the weekday PM and Saturday peak hours are modest and can be accommodated within the local road network and intersections.
- There are no traffic engineering reasons why a development consent for the proposed showroom and tasting area development at 39 Sydenham Road in Brookvale should be refused.

APPENDIX A
INTERSECTION ASSESSMENT FOR EXISTING TRAFFIC

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mitchell Road														
1	L2	26	0.0	27	0.0	0.093	4.5	LOS A	0.5	3.2	0.27	0.48	0.27	46.1
2	T1	67	0.0	71	0.0	0.093	4.2	LOS A	0.5	3.2	0.27	0.48	0.27	46.7
3	R2	8	0.0	8	0.0	0.093	7.2	LOS A	0.5	3.2	0.27	0.48	0.27	46.5
Approach		101	0.0	106	0.0	0.093	4.5	LOS A	0.5	3.2	0.27	0.48	0.27	46.5
East: Sydenham Road														
4	L2	15	0.0	16	0.0	0.065	4.7	LOS A	0.3	2.2	0.31	0.51	0.31	45.9
5	T1	41	0.0	43	0.0	0.065	4.4	LOS A	0.3	2.2	0.31	0.51	0.31	46.5
6	R2	12	0.0	13	0.0	0.065	7.4	LOS A	0.3	2.2	0.31	0.51	0.31	46.3
Approach		68	0.0	72	0.0	0.065	5.0	LOS A	0.3	2.2	0.31	0.51	0.31	46.3
North: Mitchell Road														
7	L2	6	0.0	6	0.0	0.092	4.2	LOS A	0.5	3.2	0.19	0.52	0.19	45.8
8	T1	56	0.0	59	0.0	0.092	3.9	LOS A	0.5	3.2	0.19	0.52	0.19	46.4
9	R2	46	0.0	48	0.0	0.092	7.0	LOS A	0.5	3.2	0.19	0.52	0.19	46.2
Approach		108	0.0	114	0.0	0.092	5.2	LOS A	0.5	3.2	0.19	0.52	0.19	46.3
West: Sydenham Road														
10	L2	48	0.0	51	0.0	0.086	4.4	LOS A	0.4	3.0	0.25	0.53	0.25	45.7
11	T1	14	0.0	15	0.0	0.086	4.1	LOS A	0.4	3.0	0.25	0.53	0.25	46.3
12	R2	32	0.0	34	0.0	0.086	7.2	LOS A	0.4	3.0	0.25	0.53	0.25	46.1
Approach		94	0.0	99	0.0	0.086	5.3	LOS A	0.4	3.0	0.25	0.53	0.25	45.9
All Vehicles		371	0.0	391	0.0	0.093	5.0	LOS A	0.5	3.2	0.25	0.51	0.25	46.3

Table A1: Weekday Roundabout Intersection Performance of Sydenham Road with Mitchell Road PM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Pittwater Road south														
2	T1	1758	32	1758	1.8	* 0.625	6.1	LOS A	17.9	127.5	0.54	0.50	0.54	54.5
3	R2	92	4	92	4.3	0.543	47.9	LOS D	3.9	28.3	1.00	0.78	1.01	33.0
Approach		1850	36	1850	1.9	0.625	8.2	LOS A	17.9	127.5	0.56	0.51	0.56	52.8
East: Sydenham Road														
4	L2	55	0	55	0.0	0.229	41.7	LOS C	2.1	14.9	0.93	0.74	0.93	31.7
6	R2	117	11	117	9.4	* 0.519	43.8	LOS D	4.8	36.0	0.98	0.79	0.98	30.9
Approach		172	11	172	6.4	0.519	43.1	LOS D	4.8	36.0	0.96	0.77	0.96	31.2
North: Pittwater Road north														
7	L2	28	3	28	10.7	0.524	17.9	LOS B	14.5	103.3	0.67	0.60	0.67	48.3
8	T1	1109	22	1109	2.0	0.524	12.2	LOS A	14.5	103.5	0.67	0.60	0.67	49.9
Approach		1137	25	1137	2.2	0.524	12.4	LOS A	14.5	103.5	0.67	0.60	0.67	49.8
All Vehicles		3159	72	3159	2.3	0.625	11.6	LOS A	17.9	127.5	0.62	0.56	0.62	49.9

Table A2: Weekday Signalised Intersection Performance of Sydenham Road with Mitchell Road PM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mitchell Road														
1	L2	26	0.0	27	0.0	0.062	4.1	LOS A	0.3	2.1	0.13	0.46	0.13	46.5
2	T1	45	0.0	47	0.0	0.062	3.8	LOS A	0.3	2.1	0.13	0.46	0.13	47.1
3	R2	5	0.0	5	0.0	0.062	6.8	LOS A	0.3	2.1	0.13	0.46	0.13	46.9
Approach		76	0.0	80	0.0	0.062	4.1	LOS A	0.3	2.1	0.13	0.46	0.13	46.8
East: Sydenham Road														
4	L2	5	0.0	5	0.0	0.015	4.4	LOS A	0.1	0.5	0.23	0.49	0.23	46.0
5	T1	8	0.0	8	0.0	0.015	4.1	LOS A	0.1	0.5	0.23	0.49	0.23	46.6
6	R2	4	0.0	4	0.0	0.015	7.1	LOS A	0.1	0.5	0.23	0.49	0.23	46.4
Approach		17	0.0	18	0.0	0.015	4.9	LOS A	0.1	0.5	0.23	0.49	0.23	46.3
North: Mitchell Road														
7	L2	3	0.0	3	0.0	0.051	4.1	LOS A	0.2	1.7	0.15	0.49	0.15	46.1
8	T1	39	0.0	41	0.0	0.051	3.8	LOS A	0.2	1.7	0.15	0.49	0.15	46.7
9	R2	18	0.0	19	0.0	0.051	6.9	LOS A	0.2	1.7	0.15	0.49	0.15	46.5
Approach		60	0.0	63	0.0	0.051	4.8	LOS A	0.2	1.7	0.15	0.49	0.15	46.6
West: Sydenham Road														
10	L2	21	0.0	22	0.0	0.047	4.2	LOS A	0.2	1.6	0.18	0.55	0.18	45.6
11	T1	5	0.0	5	0.0	0.047	3.9	LOS A	0.2	1.6	0.18	0.55	0.18	46.2
12	R2	28	0.0	29	0.0	0.047	7.0	LOS A	0.2	1.6	0.18	0.55	0.18	46.0
Approach		54	0.0	57	0.0	0.047	5.6	LOS A	0.2	1.6	0.18	0.55	0.18	45.9
All Vehicles		207	0.0	218	0.0	0.062	4.7	LOS A	0.3	2.1	0.16	0.49	0.16	46.5

Table A3: Saturday Roundabout Intersection Performance of Sydenham Road with Mitchell Road PM Peak Hour

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Pittwater Road south														
2	T1	766	24	766	3.1	0.256	3.7	LOS A	5.9	42.5	0.29	0.26	0.29	56.6
3	R2	42	0	42	0.0	* 0.102	12.9	LOS A	0.9	6.0	0.41	0.67	0.41	48.4
Approach		808	24	808	3.0	0.256	4.2	LOS A	5.9	42.5	0.30	0.28	0.30	56.1
East: Sydenham Road														
4	L2	30	0	30	0.0	0.075	44.7	LOS D	1.4	9.8	0.83	0.70	0.83	30.8
6	R2	38	0	38	0.0	* 0.175	57.2	LOS E	2.1	14.4	0.94	0.73	0.94	27.8
Approach		68	0	68	0.0	0.175	51.7	LOS D	2.1	14.4	0.89	0.72	0.89	29.1
North: Pittwater Road north														
7	L2	38	0	38	0.0	0.363	13.9	LOS A	11.4	81.3	0.45	0.43	0.45	51.1
8	T1	917	18	917	2.0	* 0.363	8.4	LOS A	11.5	82.1	0.45	0.42	0.45	52.6
Approach		955	18	955	1.9	0.363	8.6	LOS A	11.5	82.1	0.45	0.42	0.45	52.5
All Vehicles		1831	42	1831	2.3	0.363	8.3	LOS A	11.5	82.1	0.40	0.37	0.40	52.4

Table A4: Saturday Signalised Intersection Performance of Sydenham Road with Mitchell Road PM Peak Hour

APPENDIX B

INTERSECTION ASSESSMENT FOR FUTURE CONDITION WITH DISTILLERY AND SHOWROOM AND TASTING AREA TRIPS

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mitchell Road														
1	L2	26	0.0	27	0.0	0.093	4.5	LOS A	0.5	3.2	0.27	0.48	0.27	46.1
2	T1	67	0.0	71	0.0	0.093	4.2	LOS A	0.5	3.2	0.27	0.48	0.27	46.7
3	R2	8	0.0	8	0.0	0.093	7.3	LOS A	0.5	3.2	0.27	0.48	0.27	46.5
Approach		101	0.0	106	0.0	0.093	4.5	LOS A	0.5	3.2	0.27	0.48	0.27	46.5
East: Sydenham Road														
4	L2	15	0.0	16	0.0	0.066	4.7	LOS A	0.3	2.2	0.31	0.51	0.31	45.9
5	T1	42	0.0	44	0.0	0.066	4.4	LOS A	0.3	2.2	0.31	0.51	0.31	46.5
6	R2	12	0.0	13	0.0	0.066	7.4	LOS A	0.3	2.2	0.31	0.51	0.31	46.3
Approach		69	0.0	73	0.0	0.066	5.0	LOS A	0.3	2.2	0.31	0.51	0.31	46.3
North: Mitchell Road														
7	L2	7	0.0	7	0.0	0.094	4.3	LOS A	0.5	3.3	0.21	0.52	0.21	45.7
8	T1	56	0.0	59	0.0	0.094	4.0	LOS A	0.5	3.3	0.21	0.52	0.21	46.3
9	R2	46	0.0	48	0.0	0.094	7.0	LOS A	0.5	3.3	0.21	0.52	0.21	46.2
Approach		109	0.0	115	0.0	0.094	5.3	LOS A	0.5	3.3	0.21	0.52	0.21	46.2
West: Sydenham Road														
10	L2	48	0.0	51	0.0	0.092	4.4	LOS A	0.5	3.2	0.25	0.53	0.25	45.8
11	T1	21	0.0	22	0.0	0.092	4.1	LOS A	0.5	3.2	0.25	0.53	0.25	46.4
12	R2	32	0.0	34	0.0	0.092	7.2	LOS A	0.5	3.2	0.25	0.53	0.25	46.2
Approach		101	0.0	106	0.0	0.092	5.2	LOS A	0.5	3.2	0.25	0.53	0.25	46.0
All Vehicles		380	0.0	400	0.0	0.094	5.0	LOS A	0.5	3.3	0.25	0.51	0.25	46.3

Table B1: Weekday Roundabout Intersection Performance of Sydenham Road with Mitchell Road PM Peak Hour WITH Distillery, Showroom and Tasting Area Traffic

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Pittwater Road south														
2	T1	1758	32	1758	1.8	* 0.625	6.1	LOS A	17.9	127.5	0.54	0.50	0.54	54.5
3	R2	96	4	96	4.2	0.503	46.5	LOS D	4.0	28.9	0.99	0.78	0.99	33.4
Approach		1854	36	1854	1.9	0.625	8.2	LOS A	17.9	127.5	0.56	0.51	0.56	52.8
East: Sydenham Road														
4	L2	56	0	56	0.0	0.233	41.7	LOS C	2.2	15.2	0.93	0.74	0.93	31.6
6	R2	117	11	117	9.4	* 0.519	43.8	LOS D	4.8	36.0	0.98	0.79	0.98	30.9
Approach		173	11	173	6.4	0.519	43.1	LOS D	4.8	36.0	0.96	0.77	0.96	31.2
North: Pittwater Road north														
7	L2	31	3	31	9.7	0.537	18.6	LOS B	14.9	106.5	0.68	0.62	0.68	47.8
8	T1	1109	22	1109	2.0	0.537	12.9	LOS A	15.0	106.8	0.68	0.62	0.68	49.4
Approach		1140	25	1140	2.2	0.537	13.1	LOS A	15.0	106.8	0.68	0.62	0.68	49.3
All Vehicles		3167	72	3167	2.3	0.625	11.9	LOS A	17.9	127.5	0.63	0.56	0.63	49.7

Table B2: Weekday Signalised Intersection Performance of Sydenham Road with Mitchell Road PM Peak Hour WITH Distillery, Showroom and Tasting Area Traffic

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mitchell Road														
1	L2	26	0.0	27	0.0	0.063	4.1	LOS A	0.3	2.1	0.14	0.46	0.14	46.4
2	T1	45	0.0	47	0.0	0.063	3.8	LOS A	0.3	2.1	0.14	0.46	0.14	47.1
3	R2	5	0.0	5	0.0	0.063	6.8	LOS A	0.3	2.1	0.14	0.46	0.14	46.9
Approach		76	0.0	80	0.0	0.063	4.1	LOS A	0.3	2.1	0.14	0.46	0.14	46.8
East: Sydenham Road														
4	L2	5	0.0	5	0.0	0.018	4.4	LOS A	0.1	0.6	0.23	0.49	0.23	45.9
5	T1	10	0.0	11	0.0	0.018	4.1	LOS A	0.1	0.6	0.23	0.49	0.23	46.5
6	R2	5	0.0	5	0.0	0.018	7.1	LOS A	0.1	0.6	0.23	0.49	0.23	46.3
Approach		20	0.0	21	0.0	0.018	4.9	LOS A	0.1	0.6	0.23	0.49	0.23	46.3
North: Mitchell Road														
7	L2	5	0.0	5	0.0	0.054	4.2	LOS A	0.3	1.8	0.18	0.49	0.18	46.0
8	T1	39	0.0	41	0.0	0.054	3.9	LOS A	0.3	1.8	0.18	0.49	0.18	46.6
9	R2	18	0.0	19	0.0	0.054	6.9	LOS A	0.3	1.8	0.18	0.49	0.18	46.4
Approach		62	0.0	65	0.0	0.054	4.8	LOS A	0.3	1.8	0.18	0.49	0.18	46.5
West: Sydenham Road														
10	L2	21	0.0	22	0.0	0.058	4.2	LOS A	0.3	1.9	0.19	0.53	0.19	45.7
11	T1	17	0.0	18	0.0	0.058	3.9	LOS A	0.3	1.9	0.19	0.53	0.19	46.3
12	R2	28	0.0	29	0.0	0.058	7.0	LOS A	0.3	1.9	0.19	0.53	0.19	46.2
Approach		66	0.0	69	0.0	0.058	5.3	LOS A	0.3	1.9	0.19	0.53	0.19	46.1
All Vehicles		224	0.0	236	0.0	0.063	4.7	LOS A	0.3	2.1	0.17	0.49	0.17	46.5

Table B3: Saturday Roundabout Intersection Performance of Sydenham Road with Mitchell Road PM Peak Hour WITH Distillery, Showroom and Tasting Area Traffic

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Pittwater Road south														
2	T1	766	24	766	3.1	0.256	3.7	LOS A	5.9	42.5	0.29	0.26	0.29	56.6
3	R2	48	0	48	0.0	* 0.117	13.0	LOS A	1.0	7.0	0.42	0.67	0.42	48.3
Approach		814	24	814	2.9	0.256	4.2	LOS A	5.9	42.5	0.30	0.28	0.30	56.0
East: Sydenham Road														
4	L2	31	0	31	0.0	0.077	44.7	LOS D	1.4	10.1	0.83	0.70	0.83	30.8
6	R2	39	0	39	0.0	* 0.180	57.2	LOS E	2.1	14.8	0.94	0.73	0.94	27.8
Approach		70	0	70	0.0	0.180	51.7	LOS D	2.1	14.8	0.89	0.72	0.89	29.1
North: Pittwater Road north														
7	L2	44	0	44	0.0	0.366	13.9	LOS A	11.5	81.9	0.45	0.43	0.45	51.1
8	T1	917	18	917	2.0	* 0.366	8.4	LOS A	11.6	82.8	0.45	0.42	0.45	52.5
Approach		961	18	961	1.9	0.366	8.7	LOS A	11.6	82.8	0.45	0.42	0.45	52.4
All Vehicles		1845	42	1845	2.3	0.366	8.3	LOS A	11.6	82.8	0.40	0.37	0.40	52.3

Table B4: Saturday Signalised Intersection Performance of Sydenham Road with Mitchell Road PM Peak Hour WITH Distillery, Showroom and Tasting Area Traffic