

Proposed Expansion of Bottle Shop

Prince of Wales Hotel, Muswellbrook

Traffic Impact Assessment

Prepared by



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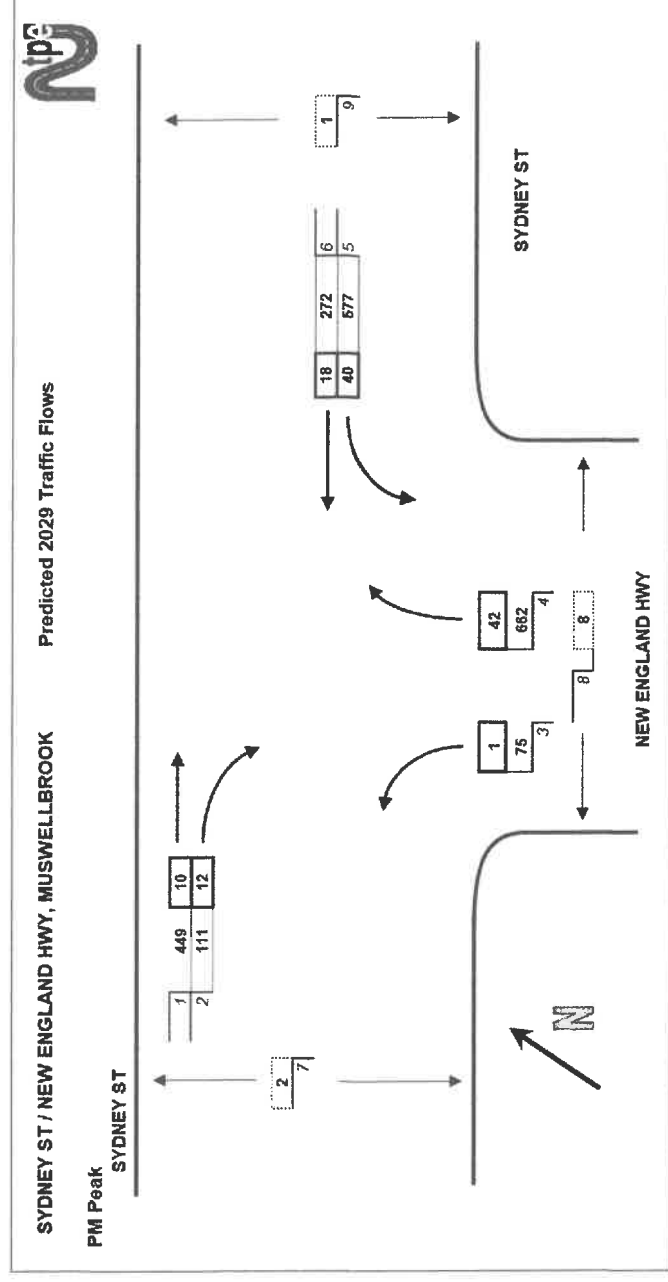
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The parking layout detailed in Figure 2-1 shows that a total of 20 vehicles can be accommodated on the site.

3. EXISTING TRAFFIC

In order to establish existing traffic conditions a survey was carried out at the intersection of Sydney Road and Maitland Street.

The results of this survey are presented in Figure 3-1 below:



A full report is attached as Appendix A

Figure 3-1: Existing Traffic Flows – Sydney Street / Maitland Street PM Peak Hour

4. BOTTLE SHOP FLOOR PLAN

The floor plan for the proposed expanded Bottle Shop is presented in Figure 3-1 below:

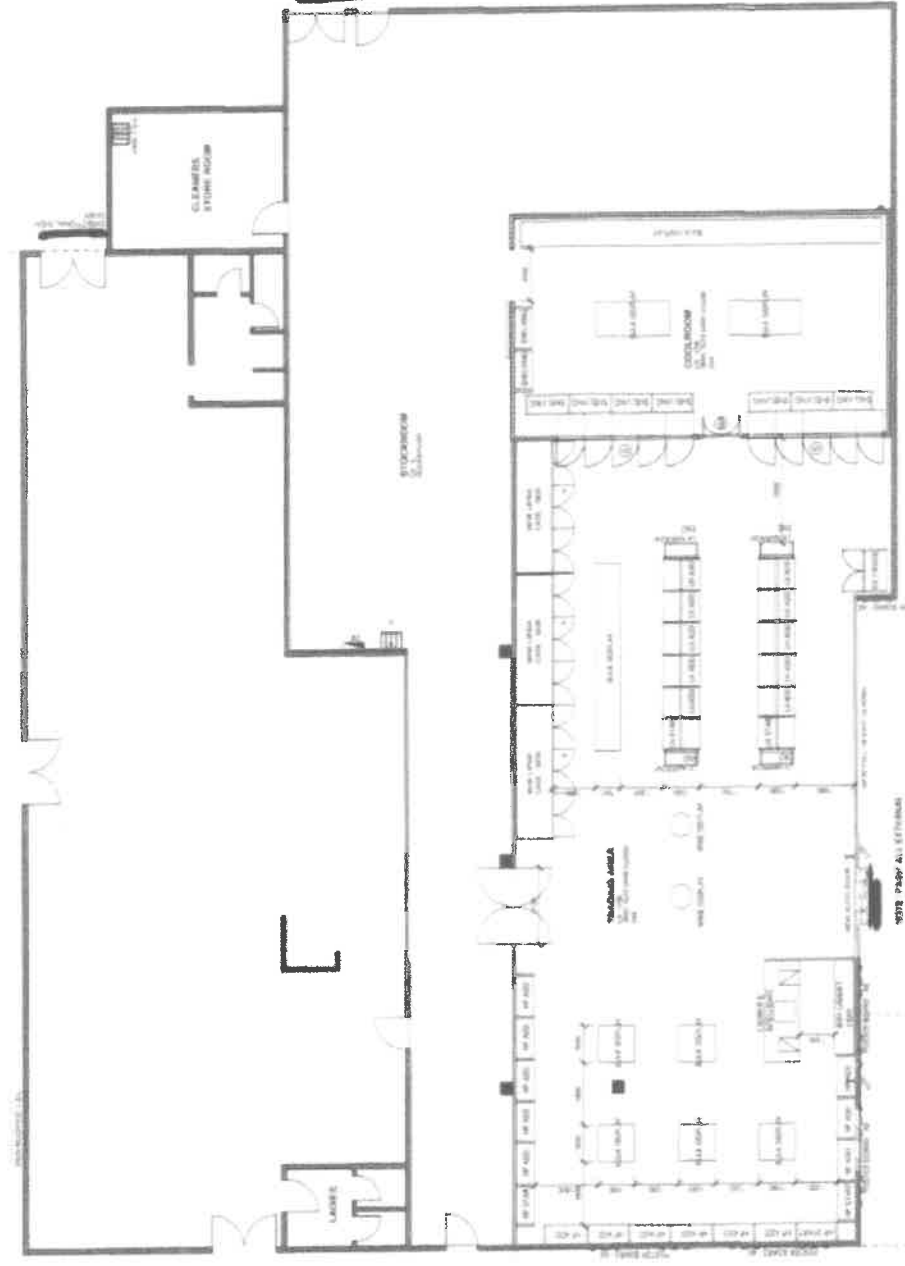


Figure 4-1: Expanded Bottle Shop – Floor Plan and Shop Layout.

Discussion

The trading area of the Bottle Shop is accessed directly from the car park.

The Bottle Shop will occupy an area of approximately 350m². The remaining floor space will be used for storing stock and Staff Amenities.

5. PARKING REQUIREMENT

The Bottle Shop under Muswellbrook City Council's DCP is regarded as "Retail Premises" under 1000m² with a parking ratio requirement of 1 space per 20m².

According to the parking requirements for the 350m² Bottle Shop would be 18 parking spaces. As shown in Figure 2-1 above the car park is able to accommodate 20 vehicles leaving a surplus of 2 parking spaces.

6. TRIP GENERATION AND DISTRIBUTION

The existing Bottle Shop was surveyed in order to establish the Peak Hour Trip Rate and Trip Distribution for the site.

These surveys were carried out over five days from Monday 12th August to Friday 16th August. A full report on the results of these surveys is attached as Appendix B.

Typical PM Peak Hour traffic flows to and from the site derived from these surveys are presented in Figure 5-1 below:

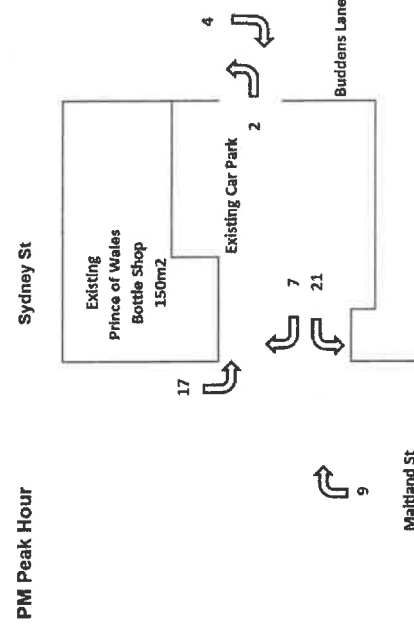


Figure 6-1: PM Peak Hour Trip Generation and Distribution - Existing 150m² Bottle Shop

7. PREDICTED TRAFFIC FLOWS WITH EXPANDED BOTTLE SHOP

Based on the increase in the floor area of the Bottle Shop from 150m² to 350m² it is expected that trips to and from the site will increase by up to 130%.

The PM Peak Hour traffic flows on Maitland Street adjacent to the access to the Bottle Shop have been combined with the predicted PM Trip Generation from proposed expanded Bottle Shop to derive the predicted 2029 traffic flows shown in Figure 6-1 below:

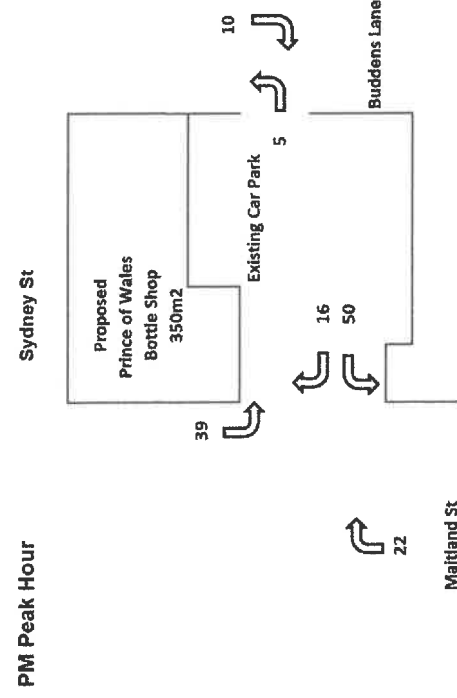


Figure 7-1: PM Peak Hour Trips with the Proposed New 350m² Bottle Shop

Discussion

Observations during the survey of existing traffic flows to and from the existing Bottle Shop indicate that vehicles were able to enter and leave the site experienced only minor delays.

The majority of vehicles leaving the site turn left to avoid delays that are experienced due to the flow of traffic on Maitland Street. It is considered that vehicles leaving the Bottle Shop should be encouraged to turn left. However, at Off Peak times vehicles are able to turn right out of the site with little difficulty.

Predicted 2029 traffic flows based on 2% annual linear growth in background traffic flows with the proposed expanded Bottle Shop are presented in Figure 7-2 below:

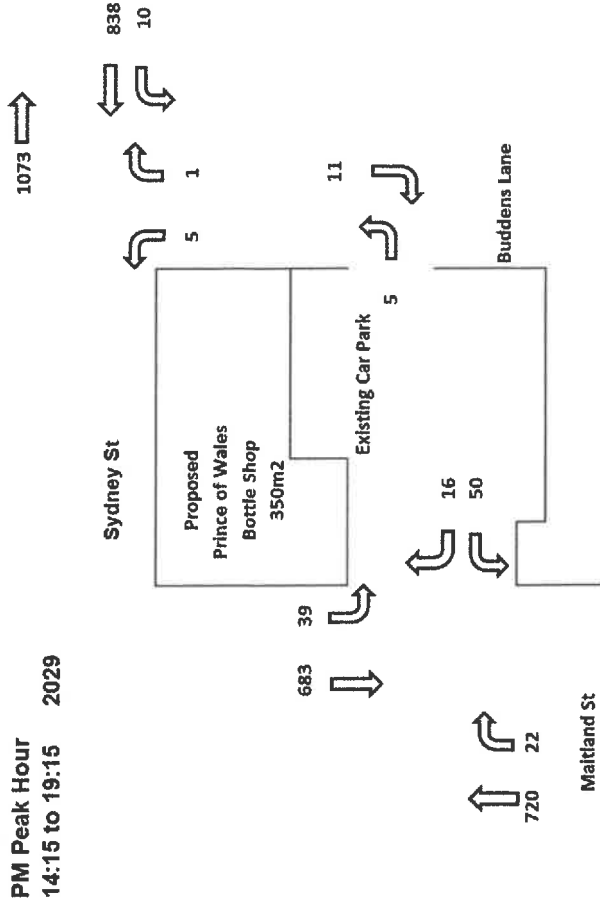


Figure 7-2: PM Peak Hour 2029 Trips – with Expanded Bottle Shop

8. SIDRA ANALYSIS MAITLAND ST / BOTTLE SHOP ACCESS 2029

SIDRA Analysis using the predicted of trips shown on Figure 7-2 is presented in Table 8-1 below:

MOVEMENT SUMMARY

▽ Site: 101 [Bottle Shop Access to Maitland St PM]

Exit to Maitland St 2019 PM - Nov 2019 Report

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		Prop Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total	HV				Vehicles	Distance				km/h
		veh/h	%	v/c	sec		veh	m				
South: Maitland St												
2	T1	758	5.0	0.439	0.6	LOS A	0.8	6.1	0.09	0.02	0.13	59.0
3	R2	23	0.0	0.439	13.5	LOS A	0.8	6.1	0.09	0.02	0.13	57.2
Approach		781	4.9	0.439	1.0	NA	0.8	6.1	0.09	0.02	0.13	59.0
East: Bottle Shop												
4	L2	53	0.0	0.193	6.7	LOS A	0.6	4.4	0.63	0.72	0.63	47.3
6	R2	17	0.0	0.193	39.2	LOS C	0.6	4.4	0.63	0.72	0.63	47.2
Approach		69	0.0	0.193	14.6	LOS B	0.6	4.4	0.63	0.72	0.63	47.3
North: Maitland St												
7	L2	41	0.0	0.195	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	57.8
8	T1	719	0.0	0.195	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.7
Approach		760	0.0	0.195	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles		1611	2.4	0.439	1.3	NA	0.8	6.1	0.07	0.06	0.09	58.6

Discussion

This analysis shows that the access to Maitland Street will perform well at LOS C or better for all movements.

It is considered that predicted traffic flows at the intersection of Sydney St / Buddens Lane will remain relatively low and will not have any real impact on the performance of this intersection.

9. SIGHT DISTANCE

The access to the Bottle Shop is located 45m east of Sydney Street with clear sight lines to both the west and the east.

Vehicles turning left out of Sydney Street are travelling at less than 40kph leaving ample time for drivers to make a safe decision to turn out of the site.

10. RECOMMENDATION

The proposed Bottle Shop development has good direct access to both Maitland Road and Sydney St.

The proposed car park will be able to accommodate 20 vehicles, which complies with the parking requirements set out in Muswellbrook City Council's Development Control Plan.

It is therefore recommended based on this assessment of access and parking issues that the proposed expansion of the existing Bottle Shop development be approved.

Appendix A

Existing Traffic Flows

Sydney St / Maitland St

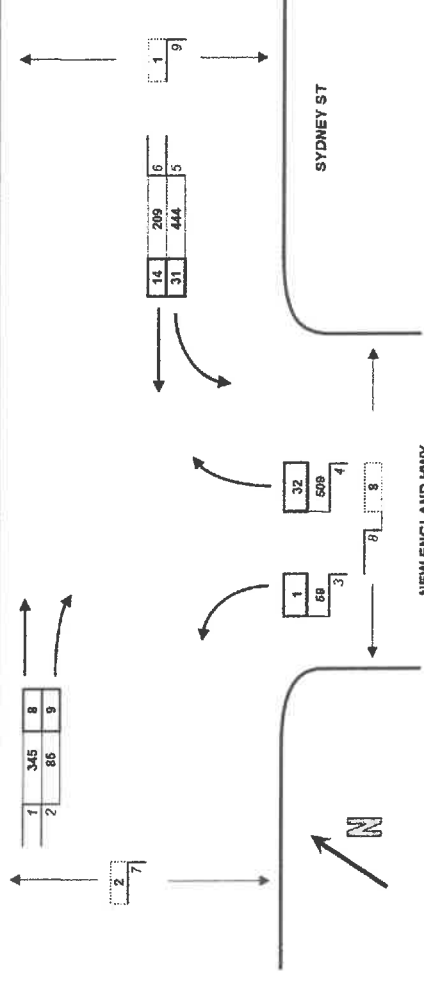
AM and PM Peak Hour

Summary: SYDNEY ST / NEW ENGLAND HWY

1650	Total Light Vehicles
95	Total Heavy Vehicles
11	Total Pedestrians

345	Light Vehicles
8	Heavy Vehicles
2	Pedestrians

SYDNEY ST



NEW ENGLAND HWY

7/11/2019 - SYDNEY ST / NEW ENGLAND HWY, MUSWELLBROOK

Light Vehicles		Total Vehicles						Pedestrians		
1	2	3	4	5	6	15 MIN HOUR		7	8	9
16:15	95	25	14	116	100	64	414	0	0	0
16:30	84	15	12	152	87	44	394	0	0	0
16:45	90	24	13	110	114	64	415	1	2	1
17:00	87	24	15	118	101	45	390	1	4	0
17:15	84	22	18	129	142	56	451	0	2	0
17:30	81	22	17	113	94	68	395	2	1	0
17:45	49	19	21	92	88	54	323	0	1	2
18:00	70	14	19	111	91	60	385	1	1	2
18:15	94	21	18	76	85	63	357	0	1	0
18:30	42	12	9	83	67	36	249	0	1	0
18:45	74	15	12	89	63	37	290	0	0	3
19:00	57	15	8	68	68	32	248	0	0	0

Heavy Vehicles

Total Vehicles

1	2	3	4	5	6	15 MIN HOUR	
16:15	2	1	2	8	11	5	29
16:30	4	4	0	6	11	2	27
16:45	1	0	0	10	6	4	21
17:00	3	2	1	7	9	6	28
17:15	0	3	0	9	5	2	19
17:30	3	1	0	5	4	3	16
17:45	5	0	0	8	6	7	26
18:00	2	0	1	13	4	2	22
18:15	2	2	0	4	5	3	16
18:30	0	0	1	3	6	3	13
18:45	3	0	0	4	6	3	16
19:00	2	0	0	8	11	2	23

All Vehicles

Total Vehicles

1	2	3	4	5	6	15 MIN HOUR	
16:15	97	26	16	124	111	69	443
16:30	88	19	12	158	98	46	421
16:45	91	24	13	120	120	68	436
17:00	90	26	16	125	110	51	418
17:15	84	25	18	138	147	58	470
17:30	84	23	17	118	98	71	411
17:45	54	19	21	100	94	61	349
18:00	72	14	20	124	95	62	387
18:15	96	23	18	80	90	66	373
18:30	42	12	10	86	73	39	262
18:45	77	15	12	93	69	40	306
19:00	59	15	8	76	79	34	271

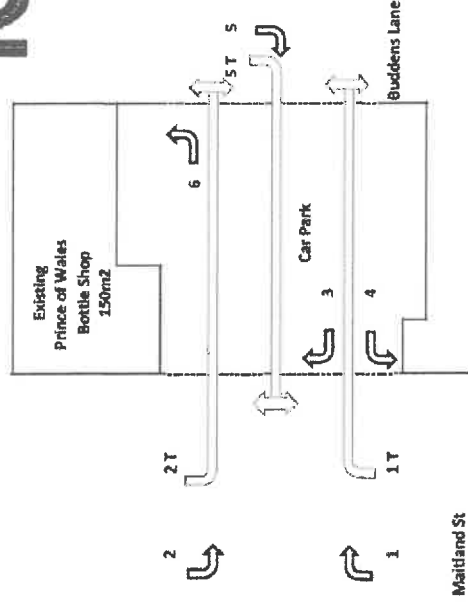
Note : Arrows "<" indicate the end time for the peak hour for each turning movement

Appendix B

Trip Generation Surveys

Existing Prince of Wales Bottle Shop

PRINCE OF WALES BOTTLE SHOP ACCESS
Observed Vehicle Movements



Hour	1 Customer		2 Customer		3 Customer		4 Customer		5 Customer		6 Customer	
	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right
12/06/19 MONDAY												
16:00	3	1	1	10	0	2	1	16	8	0	0	3
17:00	4	2	1	7	0	0	24	3	0	0	0	0
18:00	7	6	0	13	0	0	7	16	4	3	1	1
19:00	7	0	0	5	0	0	4	5	1	1	0	3
13/06/19 TUESDAY												
16:00	4	0	1	15	0	0	4	20	6	0	0	2
17:00	5	0	1	12	0	0	1	20	7	0	0	2
18:00	5	0	0	12	1	1	5	22	1	0	0	1
19:00	11	0	0	23	0	1	19	23	1	0	0	3
14/06/19 WEDNESDAY												
16:00	3	3	0	15	1	0	5	19	7	0	0	4
17:00	12	0	0	21	0	1	4	27	3	0	0	5
18:00	14	0	0	15	0	3	7	22	4	0	0	2
19:00	9	0	0	23	0	0	13	22	4	0	0	0
15/06/19 THURSDAY												
16:00	15	1	1	18	0	0	4	27	4	0	0	1
17:00	9	4	5	14	0	0	3	20	4	0	0	4
18:00	7	2	2	23	0	0	11	24	5	0	0	2
19:00	14	0	0	17	0	0	6	18	2	1	2	0
16/06/19 FRIDAY												
16:00	13	0	0	12	0	0	4	24	7	0	0	3
17:00	10	3	0	18	0	0	4	27	4	0	0	2
18:00	13	2	0	9	0	0	7	19	4	0	0	1
19:00	13	1	0	20	0	0	15	16	4	0	0	3
AVERAGE WEEKDAY												
16:00	7	1	1	15	0	0	4	21	6	0	0	3
17:00	8	2	1	14	0	0	2	22	4	0	0	3
18:00	9	2	0	14	0	1	7	21	4	1	0	1
19:00	11	0	0	17	0	0	12	16	2	0	0	2

Existing Bottle Shop (150 m2) - Average Weekday Customers Only												
Hour	1		2		3		4		5		6	
	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right
AVERAGE WEEKDAY												
16:00	7	1	1	15	0	0	4	21	6	0	0	3
17:00	8	2	1	14	0	0	2	22	4	0	0	3
18:00	9	2	0	14	0	1	7	21	4	1	0	1
19:00	11	0	0	17	0	0	12	16	2	0	0	2
Proposed Bottle Shop (350 m2) - Average Weekday Customers Only												
Hour	1		2		3		4		5		6	
	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right	Thru Left	Thru Right
AVERAGE WEEKDAY												
16:00	17	9	16	9	16	9	22	16	5	5	5	5
17:00	12	15	7	22	3	22	3	22	3	3	3	3
18:00	13	20	13	20	13	19	15	3	3	3	3	3
19:00	27	46	27	46	27	46	27	46	27	46	27	46