M^CLAREN TRAFFIC ENGINEERING

Address: Shop 7, 720 Old Princes Highway Sutherland NSW 2232
Postal: P.O Box 66 Sutherland NSW 1499

Telephone: +61 2 8355 2440
Fax: +61 2 9521 7199
Web: www.mclarentraffic.com.au
Email: admin@mclarentraffic.com.au

Division of RAMTRANS Australia ABN: 45067491678

Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

7 March 2017 Reference: 15367.04FB

Bluestone Capital
Level 8,
71 Macquarie Street,
Sydney NSW 2000
Attention: Tony Cusick

SUPPLEMENTARY TRAFFIC AND PARKING IMPACT ASSESSMENT OF WOOLOOWARE BAY TOWN CENTRE AT 561 CAPTAIN COOK DRIVE, WOOLOOWARE

Dear Tony,

Reference is made to your request to provide a supplementary traffic and parking impact assessment for the approved concept plan for the Woolooware Bay Town Centre Development on Captain Cook Drive, Woolooware, to accompany a Section 75W amendment application. This supplementary assessment should be read in conjunction with the previously submitted Traffic and Parking Impact Assessment by *M^CLaren Traffic Engineering* (MOD3 TPIA) dated 15th February 2016 as part of the approved Major Projects 10_0230 MOD 3 Section 75W Modification. The proposed amendments to the site, as shown on the proposed floor area plan reproduced in **Annexure A** for reference, are summarised in **Table 1**.

TABLE 1: PROPOSED MODIFICATIONS

Land Use	Approved MOD 3 Scale	Proposed Modified Scale	Change
Supermarket	8 548 m^2	8 357 m^2	-191
Specialty Shops	4 146 m^2	5166 m^2	+1020
Medical Centre	633 m^2	340 m^2	-293
Club (including new deck)	4 640 m^2	4 064 m^2	-576
Restaurant	1 065 m^2	1 713 m^2	+648
Childcare Centre	75 Places	75 Places	0
Parking (spaces)	770	770	0
Community Use	518 m^2	241 m^2	-277
Leisure	908 m^2	1 063 m^2	+155

1 Parking Assessment

The peak parking demand associated with each land use within the development is summarised in **Table 2**. Reference should be made to the MOD3 TPIA for further details regarding the source of each parking demand.

TABLE 2: PEAK PARKING DEMAND PER LAND USE

Land Use	Peak parking Rate	Derived From
Supermarket	4.2 spaces per 100m^2	Existing Town Centre Approval
Secondary Retail	4.5 spaces per 100m^2	Existing Town Centre Approval
Medical	0.9 spaces per 100m^2	Existing Town Centre Approval
Leisure	nil	Existing Town Centre Approval
Club	180 spaces per 8500 m^2	Site patronage Surveys
Restaurant / Cafe	3.3 spaces per 100m^2	DCP
Childcare Centre	1 space per 4 places	DCP
Community Facility	0.9 spaces per 100 m^2	RMS Guide to traffic generating Developments
Dual Use of Parking	10% retail discount	Existing Town Centre Approval

Three major parking periods are identified and analysed below regarding parking accumulation, being Friday before 5:30pm, Friday after 6:30pm and Saturday midday. These scenarios each have the greatest anticipated overlaps of Town Centre parking. An operating factor has been applied as a comparison to the peak parking accumulation to recognise the changing parking demand of each land use with time. A simple example is the club which has low parking demand during 9am to 5pm with progressively higher parking demand in the PM and a peak at approximately 9pm. The estimated parking demand for each of the three periods is shown in **Table 3**, **Table 4**, & **Table 5**.

TABLE 3: PARKING DEMAND - FRIDAY PRIOR TO 5:30PM

Land Use	Peak Parking Demand (spaces)	Operating Factor	Friday Prior to 5:30PM (spaces)
Supermarket	351	100%	351
Secondary Retail	233	100%	233
Medical Centre	4	100%	4
Club	87	30%	26
Restaurant	57	50%	29
Childcare Centre	0	100%	0
Leisure	0	100%	0
Community Facility	3	100%	3
Sub-Total			**646 spaces**
Dual Use	354 + 208 = 562	-10%	-58
Total Demand	**588**		
Total Supplied	**770**		

TABLE 4: PARKING DEMAND – FRIDAY AFTER 6:30PM

Land Use	Peak Parking Demand (spaces)	Operating Factor	Friday After 6:30PM (spaces)
Supermarket	351	100%	351
Secondary Retail	233	25%	58
Medical Centre	4	50%	2
Club	87	100%	87
Restaurant	57	100%	57
Childcare Centre	0	0%	0
Leisure	0	100%	0
Community Facility	3	50%	2
Sub-Total			**557 spaces**
Dual Use	351 + 58 = 409	-10%	-41
Total Demand	**516**		
Total Supplied	**770**		

TABLE 5: PARKING DEMAND – SATURDAY MIDDAY

Land Use	Peak Parking Demand (spaces)	Operating Factor	Saturday Midday (spaces)
Supermarket	351	100%	351
Secondary Retail	233	100%	233
Medical Centre	4	50%	2
Club	87	75%	65
Restaurant	57	75%	43
Childcare Centre	0	0%	0
Leisure	0	100%	0
Community Facility	3	100%	3
Sub-Total			**697 spaces**
Dual Use	351 + 233 = 584	-10%	-58
Total Demand	**639**		
Total Supplied	**770**		

Based on the proposed scale, the peak parking demand is estimated as a total 639 car parking spaces during the Saturday midday period. This parking demand is consistent with that identified in the MOD3 TPIA and it is considered that the provision of 770 car parking spaces is acceptable to meet the demands of the development.

2 Traffic Assessment

The traffic generation of the site has been assessed using the rates provided in the *Roads and Maritime Services* (RMS) Guide to Traffic Generating Developments and recent supplements, with the following assumptions as per the MOD3 TPIA:

- 2.5% loading applied to RMS rates;
- 10% dual-use trips assumed to apply to the retail component of the development;
- Saturday peak traffic assumed as 105% of the Friday peak traffic.

The assumed rates of traffic generation are summarised in **Table 6**, with the resulting traffic generation in **Table 7**.

TABLE 6: TRAFFIC GENERATION RATES PER LAND USE

Land Use	Traffic Generation Friday 5-6PM (per hour)	Traffic Generation Saturday Midday (per hour)	Derived From
Supermarket(or similar)	14.1 trips per 100m^2	14.8 trips per 100m^2	Approved Project Application
Secondary Retail	5.7 trips per 100m^2	6.0 trips per 100m^2	Approved Project Application
Office	0.5 trips per 100m^2	0.5 trips per 100m^2	Approved Project Application
Medical	0.5 trips per 100m^2	0.5 trips per 100m^2	Approved Project Application
Community Use	0.5 trips per 100m^2	0.5 trips per 100m^2	Office as in RMS Guide to Traffic Generating Developments
Club	168 trips per 8500m^2	100 trips per 8500m^2	Approved Project Application
Leisure	nil	nil	Approved Project Application
Restaurant	5.0 trips per 100m^2	5.0 trips per 100m^2	RMS Guide to Traffic Generating Developments
Child Care Centre	0.7 trips per place	Nil	RMS Guide to Traffic Generating Developments
Car ownership rates in Sutherland Shire	Included in above rates	Included in above rates	Approved Project Application
Dual Use	10% of Retail	10% of Retail	Approved Project Application

TABLE 7: TRAFFIC GENERATION TRIPS PER LAND USE

Land Use	Traffic Generation Friday 5-6PM (Trips per hour)	Traffic Generation Saturday Midday (Trips per hour)
Supermarket(or similar)	1179	1237
Secondary Retail	295	310
Office	1	1
Medical	2	1
Community Use	2	2
Club	25	36
Leisure	0	0
Restaurant	43	65
Child Care Centre	53	0
10% Retail Dual-Use	-147	-155
TOTAL (THIS APPLICATION)	1453	1497
TOTAL (APPROVED MOD3)	1500	1464
CHANGE	**-47**	**33**

As shown, the proposed scale will reduce the peak traffic generation of the site from 1500 peak hour trips (as per the previous MOD3 TPIA) to 1427 peak hour trips in the Friday peak hour period. The Saturday peak hour generation is estimated to increase by 33 vehicle trips, equivalent to approximately one vehicle every 1.8 minutes which is considered to of an insignificant scale when compared to the total traffic generation of the site represents a negligible increase on the approved MOD3 traffic volumes.

It is considered that the proposed scale is not a significant departure from the approved MOD3 volumes and that no change to the performance of the surrounding intersections, as modelled in the MOD3 TPIA, will occur.

Please contact the undersigned should you require further information or assistance.

Yours faithfully
M^{c}Laren Traffic Engineering

Craig M^{c}Laren
Director
BE Civil. Graduate Diploma (Transport Eng) MAITPM MITE [1985]
RMS Accredited Level 3 Road Safety Auditor
RMS Accredited Traffic Control Planner, Auditor & Certifier (Orange Card)

ANNEXURE A: PROPOSED GROSS FLOOR AREA PLAN