



**CRONULLA SHARKS LEAGUES CLUB
FEBRUARY 2013**



**TRAFFIC & PARKING IMPACT ASSESSMENT
RETAIL DEVELOPMENT
WOOLOOWARE BAY TOWN CENTRE**

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TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007 REQUIREMENTS	2
2	EXISTING CONDITIONS.....	3
2.1	SITE LOCATION	3
2.2	SURROUNDING ROADS.....	3
2.3	TRAFFIC MANAGEMENT	4
2.4	EXISTING INTERSECTION PERFORMANCE	4
2.5	PUBLIC TRANSPORT	5
3	PROPOSED DEVELOPMENT	6
3.1	DESCRIPTION	6
3.2	SITE ACCESS	6
4	PARKING ASSESSMENT	7
4.1	CAR PARKING	7
4.2	MOTORCYCLE PARKING	9
4.3	BICYCLE PARKING	9
4.4	CAR PARKING DESIGN COMPLIANCE	9
4.5	CAR PARK GUIDANCE SYSTEM	9
4.6	SERVICING PROVISION.....	10
5	TRAFFIC ASSESSMENT	11
5.1	TRAFFIC GENERATION	11
5.2	TRAFFIC IMPACT	13
5.3	RESIDENTIAL AMENITY	16
6	TRANSPORT ACCESSIBILITY	17
6.1	SHUTTLE BUS	17
6.2	PEAK EVENT MANAGEMENT	17
7	WORK TRAVEL PLAN	19
8	CONCLUSIONS	20



1 INTRODUCTION

M^CLaren Traffic Engineering was commissioned by Bluestone on behalf of the Cronulla Sharks Leagues Club to undertake a traffic and parking assessment for what was previously known as the Sharks Redevelopment and was approved in 2012 by the Department of Planning & Infrastructure. This report will assess the DA submission for the retail development of what is now known as the Woollooware Bay Town Centre to coincide with the nature and operation of the site.

A summary of the proposed scale of the development is outlined in **Table 1** below.

TABLE 1: WOOLLOOWARE BAY TOWN CENTRE RETAIL DA SUMMARY

Component	Assessed Scale	WBTC Proposed Scale	Difference
Major Retail 1	4,000m ²	4,013m ²	+13m ²
Major Retail 2	1,414m ²	1,287m ²	-127m ²
Major Retail 3	971m ²	705m ²	-266m ²
Restaurant	512m ²	0m ²	-512m ²
Medical Centre Lvl 1	1,745m ²	1,324m ²	-421m ²
Medical Centre Lvl 2	1,045m ²	1,748m ²	+703m ²
Leisure	3,062m ²	2,801m ²	-261m ²
Specialty	4,312m ²	5,367m ²	+1,055m ²
Club	3,035m ²	3,450m ²	+415m ²
Outdoor Club (Club Deck)	943m ²	941m ²	-2m ²
Outdoor Retail (Retail Deck)	853m ²	820m ²	-33m ²
Parking	770	770	+0

Generally, changes in the above floor areas have come about consent conditions imposed by the DoPI. Notably, due to generous riparian setbacks, an additional parking level has been added to accommodate the constrained site layout.



1.1 State Environmental Planning Policy (Infrastructure) 2007 Requirements

The proposed development does qualify as a development with relevant size or capacity under Clause 104 of State Environmental Planning Policy (Infrastructure) 2007 and has received support from the Road and Maritime Services (RMS). The issue of TWIN versus SINGLE retail traffic signals has been resolved by the RMS with “in principal” support given to TWIN retail traffic signals. A copy of RMS correspondence is shown in **Annexure C**.



2 EXISTING CONDITIONS

2.1 Site Location

The site is located on Captain Cook Drive, Woollooware and includes the Solander playing fields, Cronulla Sharks Leagues Club, existing car park areas associated with the club, Sharks Stadium and associated grandstands. The location of the site is shown in **Figure 1 & 2**.

Opposite the site is Woollooware Golf Course and Captain Cook Oval, which is primarily used for softball and baseball. To the east of the site, on the south eastern corner of the new roundabout at Woollooware Road North is Woollooware High School. To the east of the sharks car park is Fitness First and a petrol station. West of the site is Toyota Motor Corporation.

2.2 Surrounding Roads

Nearby roads are described in this section.

Captain Cook Drive:

- ❑ Regional road east of Gannons Road, operating as a 4 lane divided carriageway immediately adjacent to the site.
- ❑ State Road west of Gannons Road, operating as a 6 lane divided carriageway.
- ❑ Operates as a 2 lane undivided carriageway east of the site.
- ❑ Kerbside parking is generally not permitted along either side of the road adjacent to the site.
- ❑ Bicycle lanes are located on both sides of the road adjacent to the site.
- ❑ 70km/h speed limit outside of school zone times, 40km/h School Zones apply around Woollooware High School during school zone times.

Woollooware Road North:

- ❑ Local Road classification
- ❑ 2 lane undivided carriageway
- ❑ Unrestricted kerbside parking generally permitted along both sides of the road
- ❑ 50km/h speed limit, except during school zone times leading up to Captain Cook Drive intersection 40km/h

Gannons Road:

- ❑ Regional Road classification
- ❑ 2 lane undivided carriageway
- ❑ Unrestricted kerbside parking generally permitted along both sides
- ❑ 60km/h speed limit



2.3 Traffic Management

The following prevailing traffic management facilities exist within the immediate vicinity of the site:

- ❑ Roundabout at the intersection of Captain Cook Drive / Woollooware Road North / Car Park Access for Cronulla Sharks Club Building. This roundabout operates as a two lane circulating roundabout.
- ❑ Wombat crossing in Woollooware Road North immediately south of the new roundabout at the junction of Captain Cook Drive / Woollooware Road North.
- ❑ Bicycle lanes on both sides of Captain Cook Drive along the front of the property.
- ❑ 40km/h School Zones operate near Woollooware High School.
- ❑ Pedestrian actuated traffic signals across Captain Cook Drive, at the driveways serving Solander Field and Captain Cook Oval.
- ❑ Roundabout control at the junction of Captain Cook Drive with Gannons Rd.
- ❑ Modified vehicle entry and exit arrangements for the car park serving Captain Cook Oval.
- ❑ Indented bus bay on Captain Cook Drive out the front of Sharks Stadium.
- ❑ During peak events at Sharks Stadium, such as 1st Grade Rugby League matches, a special event traffic management plan is used to manage the peak traffic & pedestrian activity. This plan was developed in 1998 by M^CLaren Traffic Engineering in consultation with Council's traffic committee and the Sharks.

2.4 Existing Intersection Performance

The following is an extract from the 2012 PPR for the Sharks Redevelopment:

"During peak crowd conditions at Toyota Stadium (to be referred to as Sharks Stadium) difficulties were often experienced by vehicles leaving the driveways serving overflow parking areas as well from the accessway to the Club car park immediately east of Sharks Stadium. However, these difficulties have been addressed by the Peak Event Traffic Management Plan developed in 1998 by M^CLaren Traffic Engineering in consultation with Sutherland Shire Council, the Cronulla Sharks, and local traffic committee (Refer to Figures 1 & 2 of that 1998 document). Council have also installed supplementary measures to assist pedestrian safety since that time.

In addition, the roundabout constructed at the junction of Captain Cook Drive / Woollooware Road North / Club car park around 2002 has dramatically improved traffic conditions during typical demand periods and during peak game periods. The existing performance of the key intersections were analysed with the aid of SIDRA intersection Version 5.1 for the Friday evening and Saturday peak periods.

**TABLE 1: EXISTING INTERSECTION PERFORMANCES (SIDRA)**

Intersection	Peak Hour	Degree of Saturation⁽¹⁾	Average Delay⁽²⁾ (sec/vehicle)	Level of Service⁽³⁾	Control Type
Captain Cook Drive / Gannons Road	Friday PM	1.49	>70 (>70)	F Worst: F	Roundabout
	Saturday NOON	0.75	12.0 (17.7)	A Worst: B	
Captain Cook Drive / Woollooware Road North	Friday PM	0.77	8.3 (22.2)	A Worst: B	Roundabout
	Saturday NOON	0.53	8.2 (15.2)	A Worst: B	
Captain Cook Drive / Elouera Road	Friday PM	0.71	10.9 (13.6)	A Worst: A	Roundabout
	Saturday NOON	0.29	7.5 (11.1)	A Worst: A	
Gannons Road / Kingsway	Friday PM	1.00	54.4	D	Signals
	Saturday NOON	1.19	64.8	E	
Gannons Road / Denman Avenue	Friday PM	0.86	19.9	B	Signals
	Saturday NOON	1.05	32.9	C	
Captain Cook Dr / Boulevard / Taren Pt Rd	Friday PM	1.08	>70	F	Signals
	Saturday NOON	1.00	>70	F	

NOTES :

- (1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.
- (2) Average delay is the average delay experience by all movements. The average delay for the worst movement is shown in brackets for Stop, Giveaway and roundabout intersections.
- (3) Level of Service is a qualitative measure of performance describing operational conditions. The overall Level of Service is shown in bold, with the Level of Service for the most disadvantaged movement shown in brackets.

*It is evident from **Table 1** that the intersections that currently operate poorly are the Gannons Road / Kingsway signalised intersection and the Captain Cook Drive / Gannons Road roundabout on the Friday evening peak."*

2.5 Public Transport

Public transport services will be provided in accordance with the approval received from Department of Planning & Infrastructure as detailed in the previous reports submitted including an interim shuttle bus service.



3 PROPOSED DEVELOPMENT

3.1 *Description*

The proposed development consists of the following characteristics:

- ❑ Major Retail 1 of 4,013m²
- ❑ Major Retail 2 of 1,287m²
- ❑ Major Retail 3 of 705m²
- ❑ Medical Centre Level 1 of 1,324m²
- ❑ Medical Centre Level 2 of 1,748m²
- ❑ Leisure of 2,801m²
- ❑ Specialty of 5,367m²
- ❑ Club of 3,450m²
- ❑ Club Deck of 941m²
- ❑ Retail Deck of 820m²
- ❑ Parking of 770

To coincide with the WBTC retail development layout, two signalised intersections will be provided for direct vehicular and pedestrian access to the development. One signalised intersection will be provided at the existing roundabout junction of Captain Cook Drive/Woollooware Road with realignment of the roadway. The second retail signalised intersection is near the main pedestrian access to the development on Captain Cook Drive. A site layout plan is presented in **Annexure A** for reference.

3.2 *Site Access*

Ongoing discussions with the RMS beyond the PPR and PAC approval have finalised. Refer to **Annexure C** for RMS letter in relation to the two retail signals.



4 PARKING ASSESSMENT

4.1 Car Parking

Table 2 below outlines the parking assessment for the WBTC retail development in comparison to the assessment undertaken for the Preferred Project Report (PPR) for the approved Sharks Redevelopment.

TABLE 2: WBTC PARKING COMPARISON SUMMARY

COMPONENT	SHARKS ASSESSED SCALE	PARKING RATE	PEAK SHARKS PARKING DEMAND	WBTC RETAIL ASSESSMENT	PARKING RATE	PEAK WBTC PARKING DEMAND
Existing Club	8,500m ²	-	Average Max Demand 180	8,500m ²	-	Average Max Demand 180
REDUCED Club	5,465m ² SMALLER	pro rata (i.e. 180/8,500)	LESS 116	5,050m ² SMALLER	pro rata (i.e. 180/8,500)	LESS 107
Supermarket	6,404m ² GFA	1 space / 23.8 m ²	269	5,300	1 space / 23.8 m ²	223
Mini / Major Retail	1,096m ² GFA	1 space / 25 m ²	44	705	1 space / 25 m ²	28
Specialty Retail	5,572m ² GFA	1 space / 22.2 m ²	251	5,367	1 space / 22.2 m ²	242
Medical	2,817m ² GFA	1 space / 111.1 m ²	25	3,072	1 space / 111.1 m ²	28
Leisure**	2,968m ² GFA	Ancillary**	Nil**	2,801	Ancillary**	Nil**
SUBTOTAL			653			594
Allowance for dual use of supermarket / retail area by club patrons and residents (say about 10%)	-	-	LESS 56	Allowance for dual use of supermarket / retail area by club patrons and residents (say about 10%)		LESS 49
PPR TOTAL	-	-	597	WBTC TOTAL		545

Note:

** Leisure uses within large shopping centres do not generate separate parking demand as they tend to trade off shoppers already within the centre. They typically exhibit low staff levels and attract children of adult shoppers.

The PPR was approved with the requirement of 770 parking spaces. The proposal provides a total of 770 parking spaces with 770 spaces contained in the retail building footprint. This exceeds the above assessment of 545 parking spaces by 225 parking spaces which is far superior to the requirement and allows for non design



peak events and potential growth of the retail development which is a necessary and supportable outcome for town centres.

In relation to the Club decking, the following is an extract from our letter dated 13 August 2012 (Ref 2010/166.L05 CM/sm) which was provided to the PAC during their assessment:

“The TMAP assessment did not include a parking allocation for the external club deck as this type of facility generates peak usage on a Friday or Saturday evening when the retail specialty shops will be closed and the supermarket / larger retail tenancies exhibit lower patronage levels at these times. During game days this area is likely to be fully used however these events are subject to a game day management plan (increased public transport and satellite parking).

The only time when patronage of the external club deck may coincide with a peak trade time for the retail centre would be during a fine Saturday lunchtime period. Applying Council's car parking rate of 1 space per 3 seats to an indicative seating area of 100 to 150 seats equates to some 34 to 50 car parking spaces which is more than compensated by the additional 75 spaces discussed above such that this concern is overcome. Patrons to licensed premises are more inclined to make travel arrangements by public transport or car pooling which is typical for this type of use. Additionally, it should be noted that the patrons that use these external areas are largely attracted by other enclosed (GFA) areas of the licensed premises such that their parking requirements have already been included. Thus this underlines the usual dual use / ancilliary outcome for these external areas.”

The required parking for the Club decking will be adequately catered for within the provided 770 parking spaces should the peak usage, as described above, occur although it is not expected to eventuate to require 34-50 car parking spaces due to travel arrangements and dual use between other enclosed areas however would require a total of 595 car parking spaces (545+50=581).

Of the 770 on-site parking spaces, the following amount of parking will be available for Club members and guests and others authorised by the club exclusively and free of charge:

- ❑ Monday to Sunday 9am-5pm, 143 car parking spaces
- ❑ Monday to Thursday 5pm to close of Club trading, 256 car parking spaces
- ❑ Friday, Saturday and Sunday 5pm to close of Club trading, 300 car parking spaces



The above parking allocation aims to provide the club an adequate quantum of parking for the peak Club trading hours i.e. Friday and weekend nights when retail trade is outside of peak operation (typically Thursday evenings and Saturday midday).

The parking allocation outlined above is generally in line with the 1995 average maximum parking study, contained in "*Proposed Conversion of Gymnasium to Bar Are for Cronulla Sutherland Leagues Club*" Planning Workshop Australia, October 1995. This study identified a peak of 478 parking spaces at 10:30pm on a Saturday. Given the significant reduction in Club floor space, the allocation of over 250 parking spaces during evenings satisfies the Clubs likely demand and maintains the required parking for the retail uses.

4.2 Motorcycle Parking

Council's DCP suggests that one motorcycle space be provided per 25 non-residential car spaces. Council requires 545 non-residential car parking spaces, and hence 22 motorcycle parking spaces are required within the retail precinct.

4.3 Bicycle Parking

Council's DCP gives the following bicycle parking rates in relation to this proposed development:

- 1 per 10 car parking spaces for first 200 car spaces, then 1 space per 20 parking spaces thereafter and 1 unisex shower per 10 employees. (commercial)

The proposal requires 533 retail car parking spaces within the retail precinct. As such bicycle storage facilities are required as follows:

- 37 for the retail precinct

4.4 Car Parking Design Compliance

Referring to **Annexure A**, the parking layout has been assessed in accordance with AS2890.1:2004, AS2890.2:2002 and AS2890.6:2009 where applicable. In summary, the following notable design details have been achieved:

- Standard car spaces are 2.6m in width and 5.4m in length which is compliant
- Disabled parking spaces are 2.4m in width and 5.4m in length. Adjacent shared zone/s have been provided measuring 2.4m in width and 5.4m in length
- Aisle widths are generally 6.7m which exceeds minimum requirements

4.5 Car Park Guidance System

It is recommended that an electronic dynamic parking guidance system be installed to direct entering traffic within the retail / club car park to available parking spaces,



which could be utilised on game days to assist directing cars to specially assigned internal game day parking spaces.

4.6 Servicing Provision

For the proposed retail component an adequate supply of loading docks are proposed for the scale of retail / retained club areas.

Access from the western retail signals will be 19m Semi-trailers which will arrive and depart in a forward direction.

The main loading dock access from the Captain Cook/Woollooware Road intersection will accommodate 19m Semi-trailers. As a result of the Planning Assessment Commission, a riparian setback of 35m is required at the loading dock. This differs to the PPR which had a 30m setback. As such, the loading dock has been constrained further in its current location.

As shown in **Annexure B**, the 19m Semi-trailer will be required, under a loading dock management plan, enter via reverse into the loading dock from Woollooware Road North and exit in a forward direction. The delivery vehicles will be required to arrive and depart outside of peak commuter periods.

Woollooware Road North acts as a service road for the main car parking area and loading dock. The concrete median in Woollooware Road North allows right turn exit from the car park which minimises the need for cars to pass the loading dock area upon exit. Additionally, conflict between the loading dock area and Fitness First opposite is low due to low volumes of service vehicles required to enter and exit the dock area.



5 TRAFFIC ASSESSMENT

5.1 Traffic Generation

Table 3 below is a comparison between the PPR and the subject DA for WBTC retail development.

TABLE 3: FRIDAY WBTC TRAFFIC GENERATION COMPARISON SUMMARY

COMPONENT	SHARKS ASSESSED SCALE	RATE	PEAK SHARKS TRAFFIC DEMAND	WBTC RETAIL ASSESSMENT	RATE	PEAK WBTC TRAFFIC DEMAND
Existing Club	8,500m ²	(survey)	168	8,500m ²	(survey)	168
REDUCED Club	5,465m ² SMALLER	pro rata (i.e. 168/8,500)	LESS 108, but say 60	5,050m ² SMALLER	pro rata (i.e. 168/8,500)	LESS 99, but say 52
Supermarket	6,404m ² GFA	14.1 / 100m ² GLFA *	903	5,300	14.1 / 100m ² GLFA *	747
Mini / Major Retail	1,096m ² GFA	2.4 / 100m ² GLFA *	26	705	2.4 / 100m ² GLFA *	17
Specialty Retail	5,572m ² GFA	5.7 / 100m ² GLFA *	318	5,367	5.7 / 100m ² GLFA *	306
Medical	2,817m ² GFA	0.5 / 100m ² GLFA *	14	3,072	0.5 / 100m ² GLFA *	15
Leisure*	2,968m ² GFA	Ancillary	-	2,801	Ancillary	-
SUBTOTAL			1369			1201
Allowance for dual use of supermarket / retail area by club patrons and residents (say about 10%)	-	-	LESS 125	Allowance for dual use of supermarket / retail area by club patrons and residents (say about 10%)		LESS 107
PPR TOTAL	-	-	1244	WBTC TOTAL		1094

* Generation rates are based upon RTA's "Guide to Traffic Generating Developments" (Oct 2002) and increased by 2.5% to take into account the higher car ownership levels in Sutherland LGA compared to the Sydney average..

As outlined in the above table, the proposal for DA submission results in 150 vehicle trips per hour **LESS** than what has been assessed in the 2012 PPR. This is a positive result for the proposed development with the PPR outlining a worse case result.



**TABLE 4: SATURDAY WBTC TRAFFIC GENERATION COMPARISON
SUMMARY**

COMPONENT	SHARKS ASSESSED SCALE	RATE	PEAK SHARKS TRAFFIC DEMAND	WBTC RETAIL ASSESSMENT	RATE	PEAK WBTC TRAFFIC DEMAND
Existing Club	8,500m ²	(survey) ₁	100	8,500m ²	(survey) ¹	100
REDUCED Club	5,465m ² SMALLER	pro rata (i.e. 100/8,500)	LESS 64, but say 30	5,050m ² SMALLER	pro rata (i.e. 100/8,500)	LESS 59, but say 28
Supermarket	6,404m ²	14.8 / 100m ² GLFA ²	948	5,300	14.8 / 100m ² GLFA ²	784
Mini / Major Retail	1,096m ²	2.5 / 100m ² GLFA ²	27	705	2.5 / 100m ² GLFA ²	18
Specialty Retail	5,572m ²	6 / 100m ² GLFA ²	334	5,367	6 / 100m ² GLFA ²	322
Medical	2,817m ²	0.5 / 100m ² GLFA ²	14	3,072	0.5 / 100m ² GLFA ²	15
Leisure	2,968m ² GFA	Ancillary	-	2,801	Ancillary	-
SUBTOTAL	-	-	1,393			1,211
Allowance for dual use of supermarket / retail area by club patrons and residents (say 10%)	-	-	LESS 131	Allowance for dual use of supermarket / retail area by club patrons and residents (say about 10%)		LESS 112
PPR TOTAL	-	-	1,262	WBTC TOTAL		1,099

Notes:

1. Total Saturday noon two-way peak hour traffic based on count conducted on Saturday 1st April 2011.
 2. Surveys conducted by the RTA indicate that the Saturday peak at shopping centres is 105% of the Friday PM peak traffic generation. Includes 2.5% factor to take into account the higher car ownership levels in Sutherland LGA compared to the Sydney average
- * Omitted from the PPR by error.

As outlined in the above table, the Saturday traffic generation results in 163 vehicle trips per hour **LESS** than what has been assessed in the 2012 PPR.

Both the Friday and Saturday assessments in the PPR represent a worse case scenario. The subject DA for the retail development for WBTC is significantly less than what was presented in the PPR.



5.2 Traffic Impact

The following is an extract from the 2012 PPR for the Sharks Redevelopment and based on a higher traffic generation compared to the WBTC proposal:

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (s/veh)	Level of Service ⁽³⁾	Control Type
EXISTING PERFORMANCE					
Captain Cook Drive / Gannons Road	FRI PM	1.49	>70 (>70)	F Worst: F	Roundabout
	SAT NOON	0.75	12.0 (17.7)	A Worst: B	
Captain Cook Drive / Woollooware Road North	FRI PM	0.77	8.3 (22.2)	A Worst: B	Roundabout
	SAT NOON	0.53	8.2 (15.2)	A Worst: B	
Captain Cook Drive / Elouera Road	FRI PM	0.71	10.9 (13.6)	A Worst: A	Roundabout
	SAT NOON	0.29	7.5 (11.1)	A Worst: A	
Gannons Road / Kingsway	FRI PM	1.00	54.4	D	Signals
	SAT NOON	1.19	64.8	E	
Gannons Road / Denman Avenue	FRI PM	0.86	19.9	B	Signals
	SAT NOON	1.05	32.9	C	
Captain Cook Dr / Boulevard / Taren Pt Rd	FRI PM	1.08	>70	F	Signals
	SAT NOON	1.00	>70	F	
FUTURE PERFORMANCE					
Captain Cook Drive / Gannons Road	FRI PM	1.88	>70 (>70)	F Worst: F	Roundabout
	SAT NOON	0.94	21.5 (38.8)	B Worst: C	
Captain Cook Drive / Woollooware Road North	FRI PM	0.78	16.1	B	Proposed Upgrade to Signals
	SAT NOON	0.51	16.2	B	
Captain Cook Drive / Elouera Road	FRI PM	0.81	11.7 (17.3)	A Worst: B	Roundabout
	SAT NOON	0.42	7.7 (11.5)	A Worst: A	
Gannons Road / Kingsway	FRI PM	1.00	57.8	E	Signals
	SAT NOON	1.23	>70	F	
Gannons Road / Denman Avenue	FRI PM	0.87	20.5	B	Signals
	SAT NOON	1.11	55.8	D	
Captain Cook Dr / Boulevard / Taren Pt Rd	FRI PM	1.23	>70	F	Signals
	SAT NOON	1.02	>70	F	
Captain Cook Drive / New Residential Access	FRI PM	0.75	2.5	A	Proposed New Signals
	SAT NOON	0.74	1.8	A	
Captain Cook Dr / New Retail Access	FRI PM	0.84	9.4	A	Proposed New Signals
	SAT NOON	0.84	11.2	A	



Notes :

1. Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.
2. Average delay is the average delay experience by all movements. The average delay for the worst movement is shown in brackets for stop, give way and roundabout intersections.
3. Level of Service is a qualitative measure of performance describing operational conditions. The overall Level of Service is shown in bold, with the Level of Service for the most disadvantaged movement shown in brackets.

"It can be seen that the two proposed "T" junction signalised access points to the site will both operate at a level of service A during both peak periods.

The proposed upgrade from roundabout to signals at the intersection of Captain Cook Drive and Woollooware Road North will operate at a level of service A and B during the Friday PM and Saturday Noon peak periods respectively. This is an acceptable level of service.

All other intersections will retain satisfactory LoS with the proposed development impacts, or are already currently operating at a poor LoS with existing traffic volumes. In particular:

- Captain Cook Drive / Gannons Road roundabout will drop from a LoS A to B during the Saturday peak, however a LoS B is acceptable operation during a peak traffic hour. LoS F will be maintained during the Friday PM peak hour.*
- Gannons Road / Kingsway signals will drop from a LoS E to F during the Saturday peak. This intersection's current performance is already at an unacceptable level, and the proposed development will only add a very small additional number of vehicles to it as it is 1.5km away from the proposed development site and the traffic assignment along Gannons Road attributed to this development (based upon the retail assessment) is 10% of the residential and 16% of the retail. During the Friday PM peak period this intersection operates at a LoS D and will marginally drop to LoS E.*
- Captain Cook Drive / Taren Point Road signals currently performs at a poor LoS F condition during both the Friday PM commuter peak hour and during the Saturday noon peak and will continue to operate poorly with the effects of the proposed development.*

It is noted that this assessment recommends the upgrade of the Woollooware Road North roundabout to signals. This will result in a significant improvement in performance. SIDRA shows that, even with the new development plus the new Kurnell subdivision, this intersection will actually IMPROVE in performance if it is upgraded to a signalised intersection. In addition, further improvement in performance may be seen along this part of Captain Cook Drive, as the proposed closely spaced signalised intersections will have their phasings linked, resulting



in a performance benefit. To this end, a separate co-ordinated or linked SCATES analysis was conducted for the two proposed traffic lights serving the retail side of the club with the resulting analysis identifying Level of Service "A" condition for a 105 second cycle time."

A more recent submission to the RMS provided the following information in support of the proposed TWIN retail traffic signals:

"The twin retail signals is a NECESSITY given due regard to the following justification:

1. *During peak events such as Christmas trade, traffic generation from the site, according to the RMS guide, can be some 30% greater than the average trade. This significant increase in traffic will lengthen queue distances which have the potential to follow on into the parking areas of the site, thereby creating INTOLERABLE / CONGESTED CONDITIONS*

Sharks Stadium (Sports Events-low to high patronage) will also see increase in traffic generation & PEDESTRIAN activity. The pedestrian access across Captain Cook Drive is VITAL given the extensive provision of bus zones (including newly created INDENTED BUS BAYS for the new regular bus services that will operate in both directions along Captain Cook Drive), retail main entrance and accessibility for Woollooware Bay town centre. This goes beyond the issue of vehicular access, traffic generation/circulation and involves the safe and convenient access for pedestrians utilising public transport during regular and peak events.

2. *As outlined in discussions with the State Government, the centre needs to have potential growth. Providing twin retail signals allows this possibility and are in line with the State Governments policy. The provision of twin retail signals will perform better than the single retail signals, and has additional capacity to allow for such growth which is expected in a town centre and further, an entertainment precinct. The Woollooware Bay Town Centre will incorporate a medical centre, to which safe and convenient pedestrian access must be achieved and is located in a school environment due to the precinct of the Town Centre.*
3. *Providing the single retail signal will see the likelihood of adverse intrusion/infiltration impact on the residents south of the town centre. This view is commonly shared by Sutherland Shire Council.*

Further to our meeting earlier this week (12 December 2012) we attach our response plus revised SCATES analysis, SCATES file / output and revised traffic lane / signal phase adjustments together with associated swept path plans as agreed to at our meeting.

The revised lane adjustments include the following:

1. *Removal of the left turn SLIP lane at the NW corner of Capt Cook Dr / Woollooware Rd North extension and replace with an extension to the proposed separate left lane. The kerb radii suitable for a left turning 19m long semi-trailer.*
2. *Removal of the left turn SLIP lane at the SW corner of Capt Cook Dr / Woollooware Rd North extension and replace with a kerb radii suitable for left turning B99 car.*
3. *Right turn exit lanes from the car park at the western signals REDUCED from 3 lanes to 2 lanes, although on further consideration MTE recommend that the inner right turn lane be retained for use during PEAK EVENTS and that the lane be closed at other times by removable bollards or similar control at other GENERAL USE times.*



4. Western signal phase arrangements *REDUCED* from 3 phase to 2 phase operation to improve overall operation.

Please note that the 250+ metre queue length raised at the meeting related to the SINGLE RETAIL SIGNAL system. This queue length REDUCES to a more manageable 102m for the TWIN RETAIL SIGNAL system."

Further analysis has been conducted at the two new retail access points in line with the reduced scale and apparent traffic generation. **Annexure E** summarises the SCATES results based on the lower traffic generation outlined in **Table 3 & 4**.

The revised linked intersection performance is LoS A for Captain Cook Drive. This represents a good performance with minimal delays and added capacity. The output recommends the right turn bay on Captain Cook Drive, western approach, to be some 80m in length while the right turn bay on the eastern approach should be some 70m in length.

5.3 Residential Amenity

In terms of residential amenity consideration, it is evident that Woollooware Road North currently accommodates peak hour volumes in excess of the maximum level set by the RMS. However, it must be stressed that these limiting values (developed by the RMS) are for roads purely within residential precincts, typical of the new estates being planned in new urban release areas.

Woollooware Road North provides access to a nearby rail station and abuts a recreational area. Thus RMS limiting values should not be strictly applied in this instance, but gives a guide as to when existing roads may require some form of treatment (either directly or indirectly).



6 TRANSPORT ACCESSIBILITY

6.1 Shuttle Bus

As part of the consent conditions imposed by the PAC, a shuttle bus service provided by the Cronulla Sharks Leagues Club will operate immediately when the retail development is open.

The shuttle bus will link WBTC to the public transport nodes of Caringbah Railway Station & Woollooware Railway Station and Cronulla up until such time when Transport for New South Wales (TfNSW) implements its own services (expected to be operated by Veolia) which was given support during PPR discussions.

Two viable bus routes have been identified with Woollooware Railway Station and Cronulla Beach to be the designated routes for the interim shuttle bus while a link to Caringbah Station can be provided depending on demand. Refer to **Annexure D** for the concept bus routes.

Reference is made to our letter dated 10th May 2012, as shown in **Annexure F**. This letter was prepared during discussions with relevant transport authorities and details the likely bus patron usage and bus timetable.

TABLE 5: PROPOSED BUS TIMETABLE

Scale of Use	Monday to Friday								Saturday		Sunday	
	Bus	Frequency 6-9am	Bus	Frequency 9am-4pm ⁽¹⁾	Bus	Frequency 4-7pm	Bus	Frequency 7-9pm	Bus	Frequency 8am-9pm	Bus	Frequency 9am-2pm
<400 units	1	30min	1	30min	1	30min	1	60min	1	60min	1	60min
600 units	2	30min	1	30min	2	30min	1	60min	1	60min	1	60min

Notes:

⁽¹⁾ To align with train timetable

The return trip to Woollooware Station is some 6-7 minutes while the trip to Cronulla is some 16-20 minutes. Monitoring of the above timetable format is recommended so that flexibility can be achieved to suit demand of the shuttle bus service given the staging of both the residential and retail centres.

Indented bus bays will be provided on both sides of Captain Cook Drive with the two signalised intersections providing pedestrian access to the site.

6.2 Peak Event Management

The Game Day/Satellite Parking management plan remains in open discussion with Sutherland Shire Council with initial drafting shown in **Annexure H**. With discussions ongoing between the proponent and Sutherland Shire Council, once a new Game Day/Satellite Parking Plan is finalised, it will be implemented prior to issue of a Construction Certificate. The Game Day procedure as developed by *M^CLaren Traffic*



Engineering since 1998 is presented in **Annexure G**. These procedures serve as briefing notes for staff and police personnel and will be modified to reflect the current 2013 Game Day/Satellite Parking plan in consultation with Sutherland Shire Council.

Safety concerns have been raised regarding the appropriate management of vehicular entrance off Captain Cook Drive to the club and the two loading docks after each NRL game day or major event at Sharks Stadium. As per the Game Day procedure, Police control will be located at separate locations along Captain Cook Drive as well as Captain Cook Drive being closed at the end of peak events to allow rapid discharge of spectators. It will be readily enforced that no truck deliveries occur during such times.



7 WORK TRAVEL PLAN

In order to facilitate reduced dependence upon private car travel and to encourage other transport / travel modes, the following measures / initiatives will be introduced as part of the development proposal:

❑ Travel Access Guide.

The new retail / commercial centre will be proactive in providing up to date public transport information for tenants / staff and patrons / customers. A Travel Access Guide (TAG) will be prepared in accordance with RMS Guidelines for both employees and customers. In particular the following measures will be introduced:

- The Centre will provide public transport access information in the form of tenant information kits in order to encourage staff to use public transport / cycling / walking transport options.
- Tenants will be encouraged to display travel information in staff lunch / rest / amenity areas.
- Centre management will provide transport options and public transport timetable information on its website.
- An information desk will be provided within the Centre that will provide directions to bus stops, bus routes, nearest train stations, taxi ranks, bicycle paths / links and pedestrian paths / crossing points.
- Notice boards will be displayed within the centre to provide information on transport options (bus stops / bus routes & timetables / taxi rank / bicycle paths / pedestrian paths).

❑ Home Delivery

Supermarkets will be encouraged to provide a home delivery service.

❑ Restricted Car Parking Supply

Parking provision will be kept to a restricted level to encourage other travel modes. Nearby existing public parking areas may include appropriate restrictions.

❑ Bicycle Parking & Shower Provision.

On-site bicycle parking will be provided with shower / amenities for employees to utilise.



8 CONCLUSIONS

In view of the foregoing, the subject proposal is fully supportable in terms of its traffic and parking impacts.

- As shown previously, the proposed development requires 545 (595 when club decking included) car parking spaces based on the same approved methodology undertaken in the PPR. The retail development provides a total of 770 car parking spaces which is far superior to the above assessment and allows for non design peak events and potential growth of the retail development which is a necessary and supportable outcome for town centres.
- The level of traffic generation is some 150 & 163 vehicle trips less than the PPR assessment during the Friday evening and Saturday midday respectively. The PPR represents a worse case scenario, to which the road network has handled with the necessary road upgrades.
- The development will provide superior pedestrian and cycle networks around the site with sufficient public transport accessibility with the provision of a club managed shuttle bus connecting to the nearby train stations of Woollooware and Caringbah until such time when TfNSW introduce a permanent bus route.



Site Location

WOOLLOOWARE BAY TOWN CENTRE
RETAIL DEVELOPMENT



**FIGURE 1:
AERIAL SITE LOCATION**

PREPARED FOR: CRONULLA SHARKS
LEAGUES CLUB

BY: M^CLAREN TRAFFIC ENGINEERING



— Site Location

WOOLLOOWARE BAY TOWN CENTRE RETAIL DEVELOPMENT



FIGURE 2: UBD SITE LOCATION

PREPARED FOR: CRONULLA SHARKS
LEAGUES CLUB

BY: M^CLAREN TRAFFIC ENGINEERING

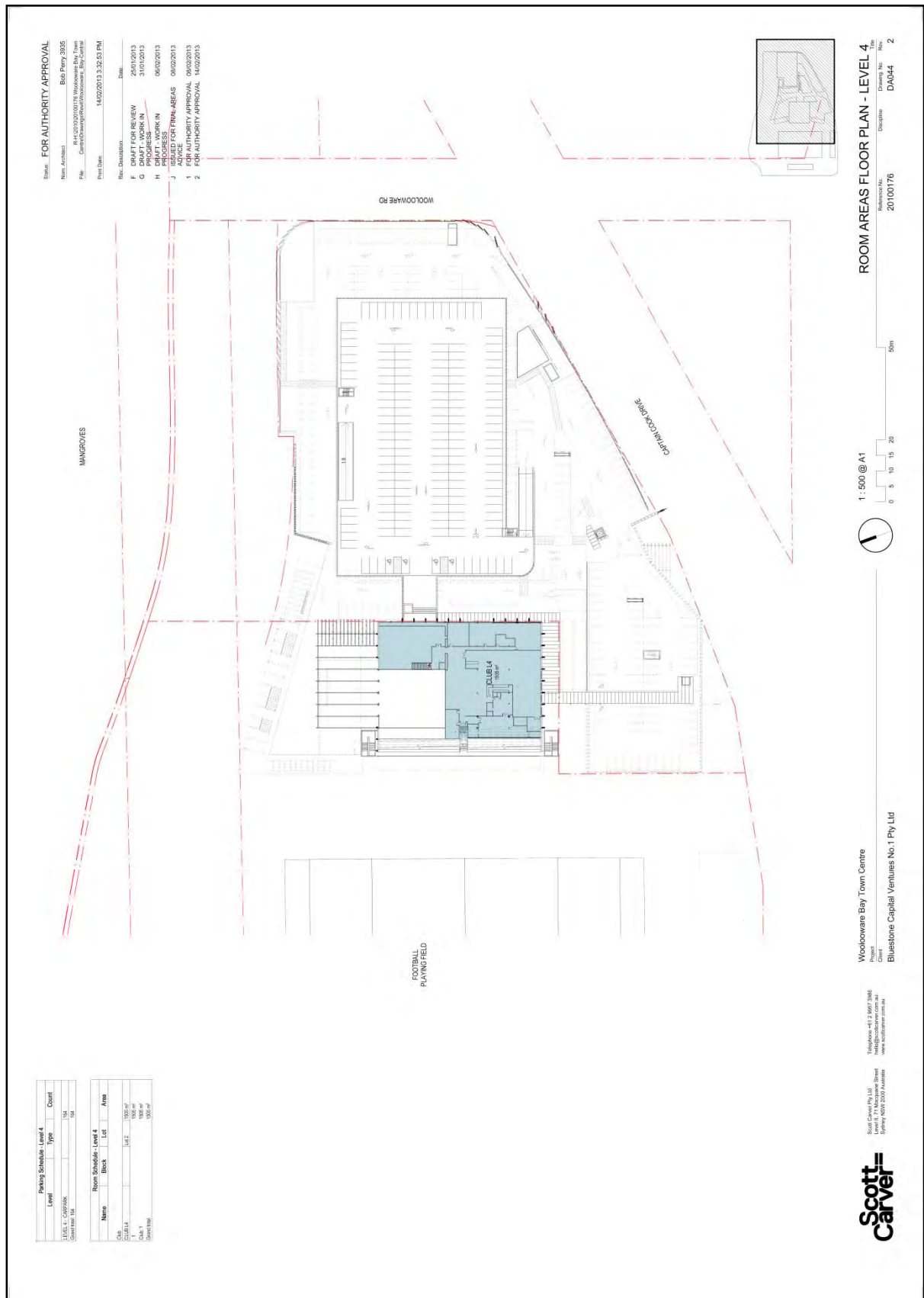
ANNEXURE A: CAR PARKIGN LAYOUT (Sheet 1 of 3)



ANNEXURE A: CAR PARKIGN LAYOUT (Sheet 2 of 3)

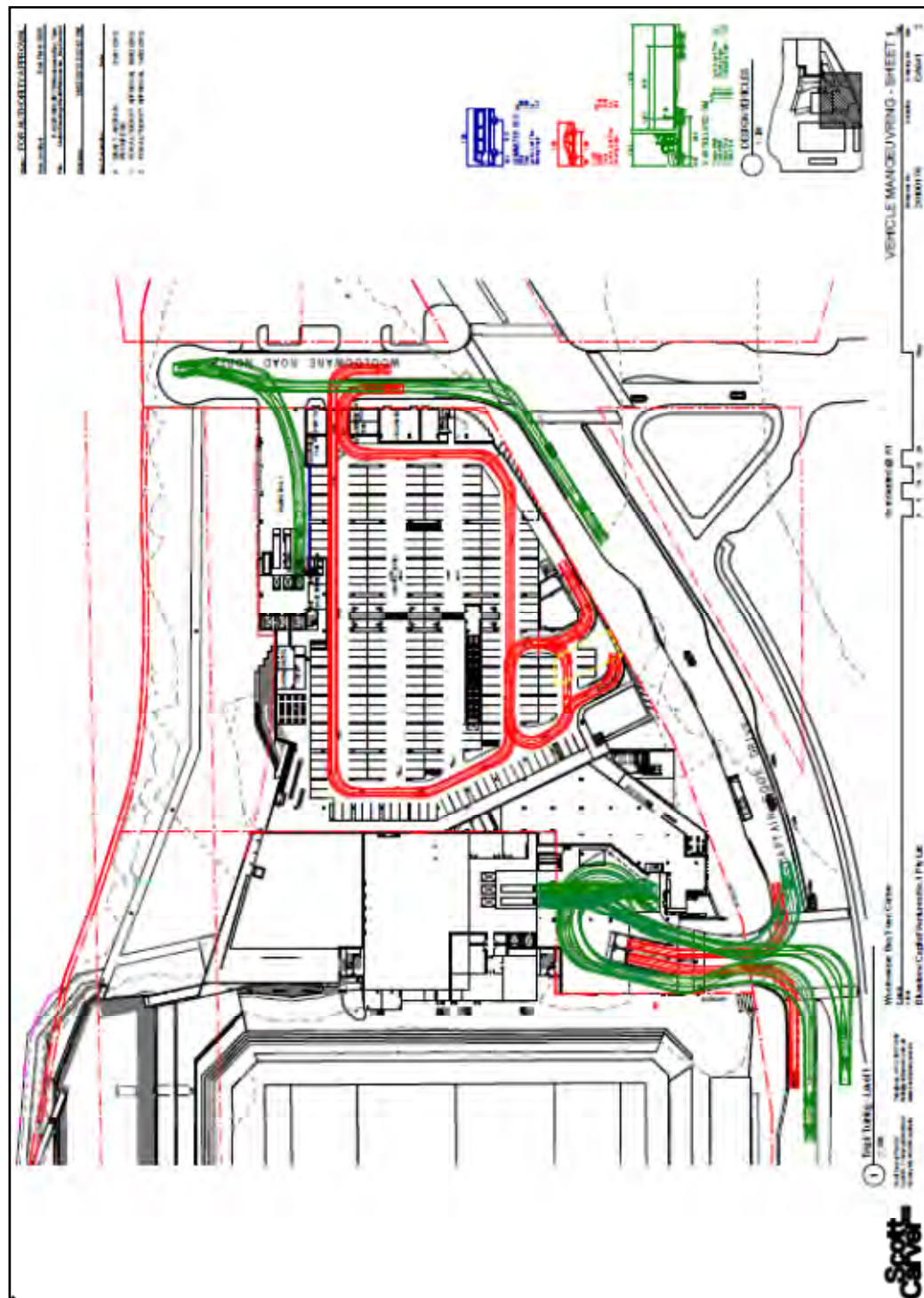


ANNEXURE A: CAR PARKIGN LAYOUT (Sheet 3 of 3)





ANNEXURE B: LOADING DOCK DESIGN





ANNEXURE C: RMS CORRESPONDENCE

Our Reference: SYD12/00430
Contact: James Hall
Telephone: 8849-2047



Transport
Roads & Maritime
Services

General Manager Development
Bluestone Property Solutions Pty Ltd
Suite 1, Level 6
71 Macquarie Street
Sydney NSW 2000

Attention: Matt Crews

WOOLLOOWARE BAY TOWN CENTRE

Dear Matt,

I refer to your email dated 7 February 2012 seeking "approval in principle" from Roads and Maritime Services (RMS) to the two proposed signalised intersections on Captain Cook Drive and associated road works that form part of the abovementioned planning proposal.

As you would already be aware, RMS met with your traffic consultant McLaren Traffic Engineering on 12 December 2012 to discuss the twin retail traffic signals on Captain Cook Drive and associated works to service the proposed new Woollooware Bay Town Centre retail precinct.

Based on the outcome from the meeting on 12 December 2012 and subsequent review of the SCATES analysis submitted by McLaren Traffic Engineering, RMS grants "approval in principle" to the two proposed signalised intersections on Captain Cook Drive and associated works, which is subject to these signalised intersections being fully designed and constructed to RMS standards.

Further to the above, while RMS endorses the general layout of the two proposed signalised intersections on Captain Cook Drive as depicted in the submitted SCATES modelling, the eastbound right turn storage bay on Captain Cook Drive associated with the right turn movement into Woollooware Road will need to be 80 metres in length to reduce the incidence of traffic queuing out into the adjacent through lane.

Further modifications may be required to the geometric layout of the two signalised intersections as the designs are further refined and developed in detail to comply with RMS requirements.

Please refer further enquiries to the undersigned on telephone 8849 2047 or via email at James.Hall@rms.nsw.gov.au.

Yours sincerely

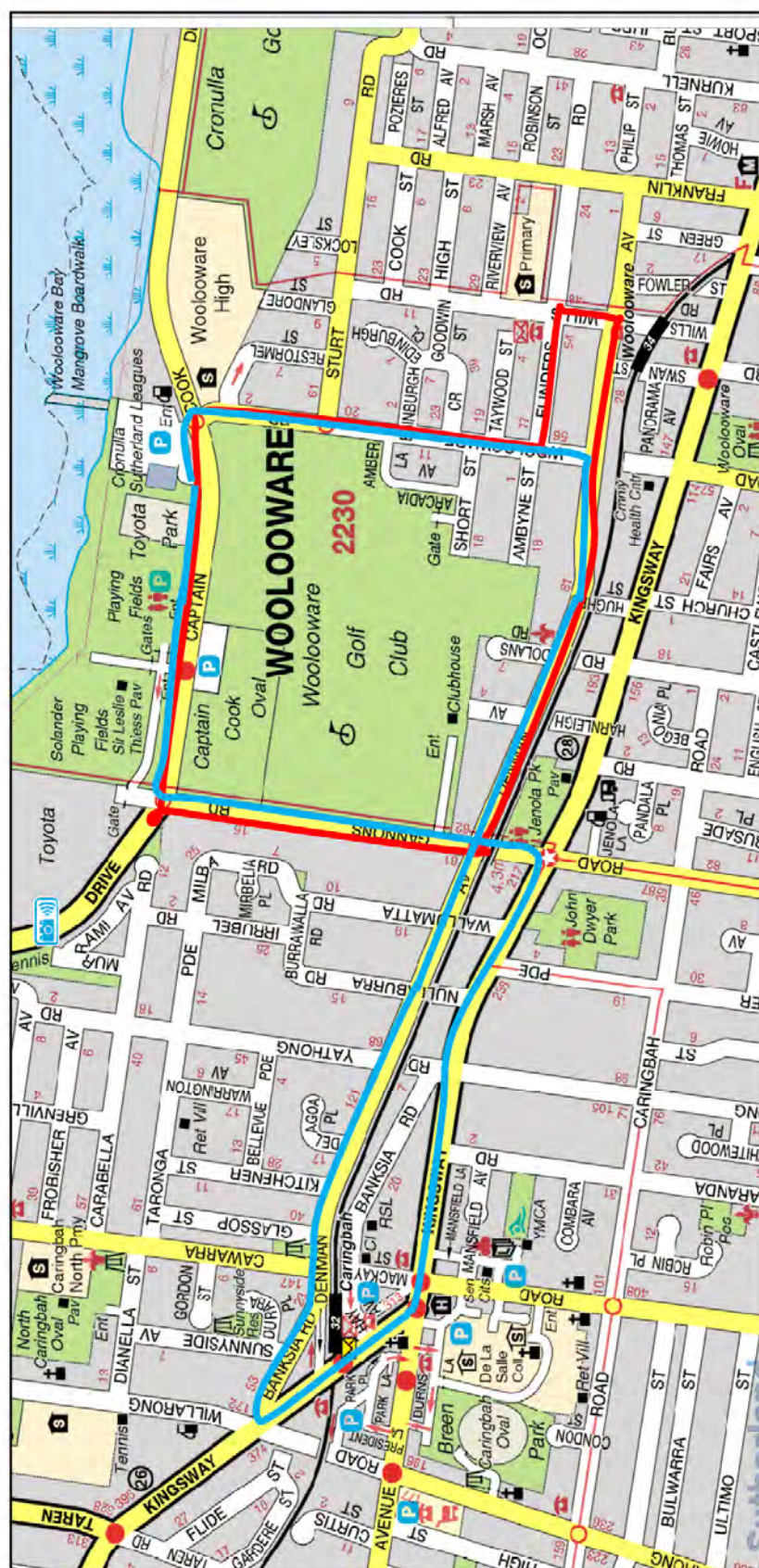
James Hall
Senior Land Use Planner

Roads and Maritime Services

LEVEL 11, 27-31 ARGYLE STREET PARRAMATTA NSW 2150
PO BOX 973 PARRAMATTA CBD NSW 2150 DX 28555
www.rms.nsw.gov.au | 13 22 13



ANNEXURE D: BUS ROUTES (WOOLLOOWARE & CARINGBAH)

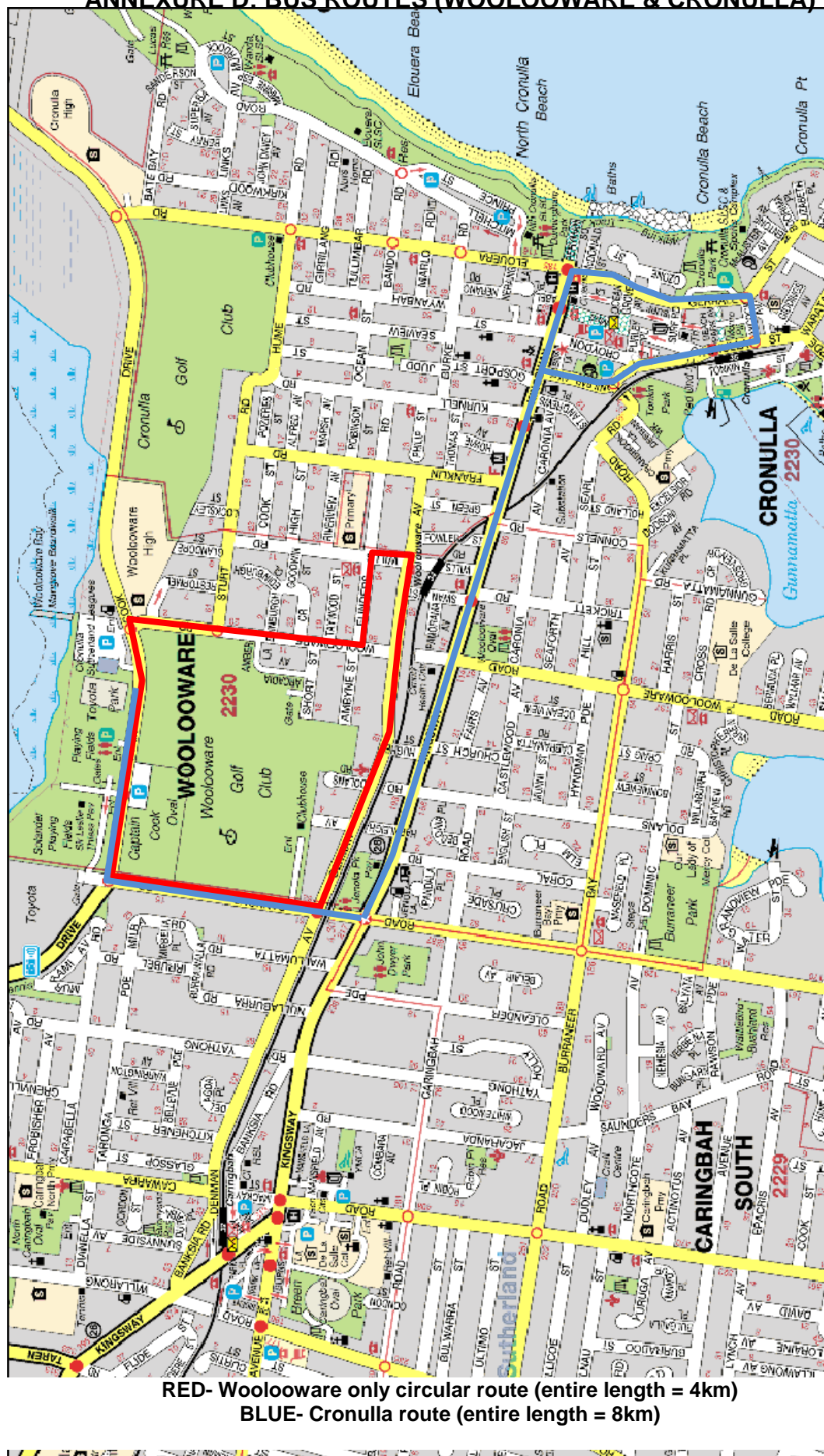


RED- Woollooware only circular route (entire length = 4km)

BLUE- Caringbah only route (entire length = 6km)



ANNEXURE D: BUS ROUTES (WOOLOOWARE & CRONULLA)





ANNEXURE E: REVISED SCATES ASSESSMENT

SCATES Program Version: 2008 Date: 23-JAN-13 Time:

Registered User Name. - Freeware

Registered User No. - 0

Data File: C:\NETANAL\10166\10166MTE

CAPTAIN COOK DRIVE

PROPOSED TWO RETAIL SIGNALS

The coordinated delays shown here are the calculated delays to be expected under SCATS control. The coordinated delays in the Splits Screen will normally be higher as they are calculated there for isolated operation and do not reflect the benefits of coordination.

The isolated delay rate shown here for the main road is calculated to reflect the interaction of adjacent intersections.
The isolated main road and total delay rates will therefore differ to those shown in the Splits and Movement DS Screens which are calculated with no interaction. The Level of Service (L/S) is for co-ordinated operation for all movements.

INTERSECTION DELAY PERFORMANCE for BUSINESS PEAK for FILE 10166MTE															
	Main Road					Side Road					Total				
TCS	Isol	Cord	Cord	Pcu	Cord	Isol	Cord	Cord	Pcu	Cord	Isol	Cord	Cord	Pcu	Cord
No.	dlay	dlay	Sec	per	DS	dlay	dlay	Sec	per	DS	dlay	dlay	Sec	per	DS
&	Rate	Rate	per	Hour		Rate	Rate	per	Hour		Rate	Rate	per	Hour	
L/S	Pc/h	Pc/h	Pcu			Pc/h	Pc/h	Pcu			Pc/h	Pc/h	Pcu		
3333A	1	0	0	1582	0.46	1	1	23	107	0.20	2	1	1	1689	0.46
4444A	17	2	4	1589	0.60	2	3	18	545	0.24	19	5	8	2134	0.60
TOT	18	2	2			3	3	19			21	5	5		L/S = A
HIGHEST DS					0.60					0.24					0.60

INTERSECTION DELAY PERFORMANCE for PM PEAK for FILE 10166MTE															
	Main Road					Side Road					Total				
TCS	Isol	Cord	Cord	Pcu	Cord	Isol	Cord	Cord	Pcu	Cord	Isol	Cord	Cord	Pcu	Cord
No.	dlay	dlay	Sec	per	DS	dlay	dlay	Sec	per	DS	dlay	dlay	Sec	per	DS
&	Rate	Rate	per	Hour		Rate	Rate	per	Hour		Rate	Rate	per	Hour	
L/S	Pc/h	Pc/h	Pcu			Pc/h	Pc/h	Pcu			Pc/h	Pc/h	Pcu		
3333A	7	0	0	2498	0.66	2	2	44	151	0.41	9	2	2	2649	0.66
4444A	33	3	5	2620	0.74	7	8	36	799	0.54	40	12	12	3419	0.74
TOT	40	3	2			9	10	37			48	13	8		L/S = A
HIGHEST DS					0.74					0.54					0.74

INTERSECTION DELAY PERFORMANCE for AM PEAK for FILE 10166MTE															
	Main Road					Side Road					Total				
TCS	Isol	Cord	Cord	Pcu	Cord	Isol	Cord	Cord	Pcu	Cord	Isol	Cord	Cord	Pcu	Cord
No.	dlay	dlay	Sec	per	DS	dlay	dlay	Sec	per	DS	dlay	dlay	Sec	per	DS
&	Rate	Rate	per	Hour		Rate	Rate	per	Hour		Rate	Rate	per	Hour	
L/S	Pc/h	Pc/h	Pcu			Pc/h	Pc/h	Pcu			Pc/h	Pc/h	Pcu		
3333A	3	1	2	2020	0.66	1	1	30	149	0.33	5	2	4	2169	0.66
4444A	23	1	2	1919	0.65	4	5	22	756	0.35	27	6	8	2675	0.65
TOT	27	2	2			5	6	24			32	8	6		L/S = A
HIGHEST DS					0.66					0.35					0.66

END OF FILE



ANNEXURE F: MTE LETTER DATED 10th MAY 2012 SHARKS MASTERPLAN INTERIM SHUTTLE BUS (Sheet 1 of 6)

M^CLAREN TRAFFIC ENGINEERING

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

Head Office:

Level 1
29 Kiora Road
MIRANDA NSW 2228
Ph 61-2-8543-3811
Fax 61-2-8543-3801

Email: mclarenc@ozemail.com.au

Mobile (0412) 949-578



Accounts Office:

5 Jabiru Place
Woronora Heights
NSW 2233
Ph 61-2-9545-5161
Fax 61-2-9545-1227

10 May 2012

2010/166.L01 CM/sm

Bluestone Property Solutions Pty Ltd
Suite 1, Level 6
71 Macquarie Street
SYDNEY NSW 2000

Attention: Mr Ben Fairfax

Dear Ben,

PROPOSED INTERIM SHUTTLE BUS FOR SHARKS MASTERPLAN

The likely patronage and bus usage by proposed land use scale is as follows:

1. Residential only (refer to **Annexure A** for bus patronage usage). This is based on the assumption of 2 people per unit with a 10% bus travel mode implemented. While the graphs show even distribution, it is likely that a peak will be experienced. The final amount of 600 units will most likely require 2 shuttle buses.
2. Retail only (Refer to **Annexure B** for required number of buses). Refer to the Traffic Management and Accessibility Plan dated March 2012 for the retail bus usage. The graph shown is based on 22 seat bus however the bus patronage validates the usage of a 50 seat (standard) bus in the near future.

The shuttle bus route options for Woollooware & Caringbah Railway Stations are presented in **Annexure C**. The minimum frequency of service for the return trips to each station based on an average travel speed of 40km/h or 30km/h is shown in **Table 1** below.

TABLE 1 : MINIMUM BUS FREQUENCY

Return Route	Return Time
Woollooware	6-7 minutes ⁽¹⁾
Caringbah	12-15 minutes ⁽²⁾

Notes:

⁽¹⁾40km/h is a low speed to include the time taken to set down/ pick up patrons

⁽²⁾30km/h is a low speed to include the time taken to set down/ pick up patrons plus delays at signals

Annexure D shows the shuttle bus timetable by day of the week. Based on this time table and the possible land use phases of the development, the Masterplan will require the following:

1. For residential only, one to two shuttle buses will be required
2. If the land use includes the development of residential and retail components at the same time then 4 or more shuttle buses will be required (note Sharks have an existing courtesy bus that can be utilized). In initial years when the retail component is



A DIVISION OF RAMTRANS (AUSTRALIA) PTY LIMITED A.B.N. 45 067 491 678

**ANNEXURE F: MTE LETTER DATED 10th MAY 2012 SHARKS MASTERPLAN INTERIM
SHUTTLE BUS (Sheet 2 of 6)****M^CLAREN TRAFFIC ENGINEERING**

operational, it is plausible to run a minimum of 2 shuttle buses (plus the Sharks club courtesy bus during weekdays and Saturday mornings).

The frequency during peak and off peak is shown in **Annexure D** and will be effective to align with train timetables, dependent on which route outlined in **Annexure C**.

We trust this information suits your needs at present and we ask that you contact the undersigned should you require further assistance or information.

Yours faithfully,

M^CLAREN TRAFFIC ENGINEERING

A handwritten signature in black ink, appearing to read 'Craig McLaren'.

Craig M^CLaren
Director

BE Civil. Graduate Diploma (Transport Eng) MAITPM MITE

RTA Accredited Level 3 Road Safety Auditor

RTA Accredited Traffic Control Planner (Orange Card)

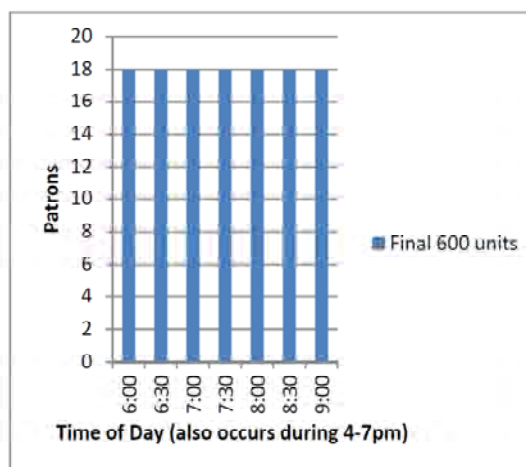
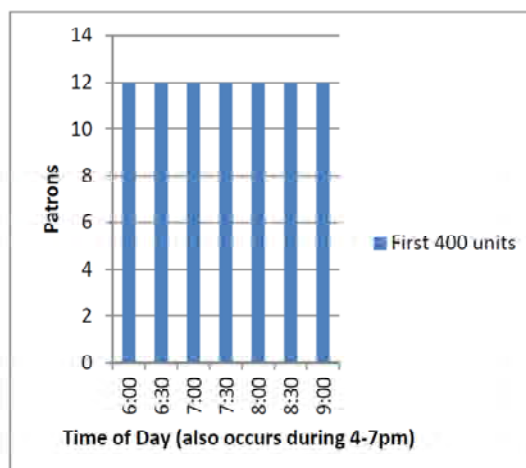
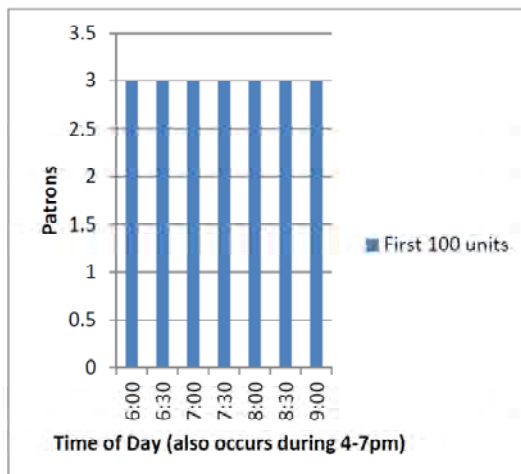
Website: www.mclarentraffic.com.au



**ANNEXURE F: MTE LETTER DATED 10th MAY 2012 SHARKS MASTERPLAN INTERIM
SHUTTLE BUS (Sheet 3 of 6)**

M^CLAREN TRAFFIC ENGINEERING

ANNEXURE A: RESIDENTIAL BUS* USEAGE



*Based on a 22 seat bus

2010/166.L01

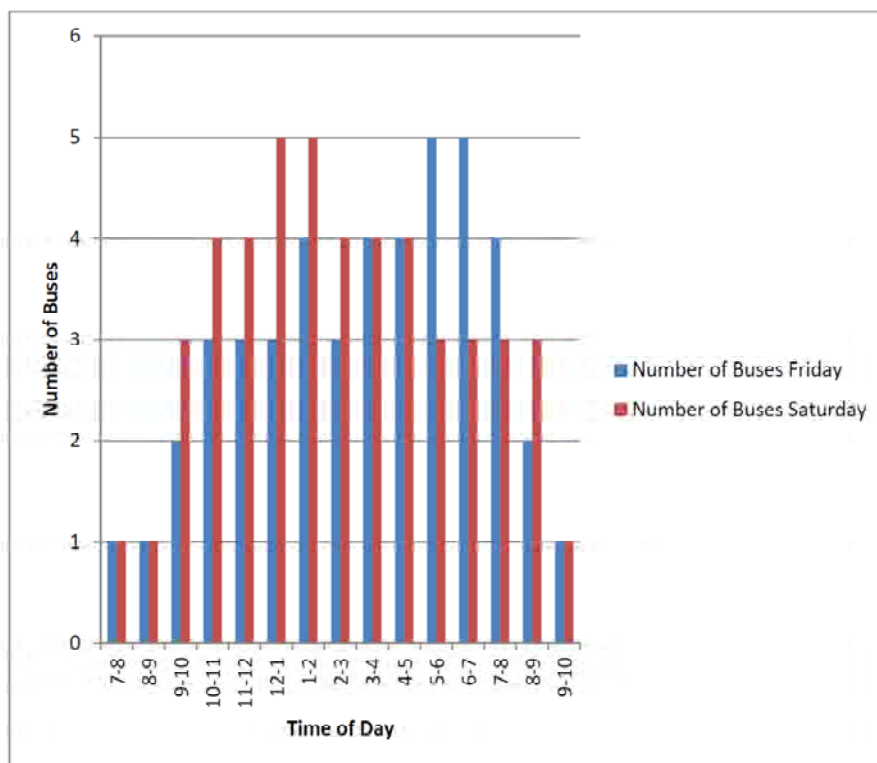
PAGE 3 OF 6



**ANNEXURE F: MTE LETTER DATED 10th MAY 2012 SHARKS MASTERPLAN INTERIM
SHUTTLE BUS (Sheet 4 of 6)**

M^CLAREN TRAFFIC ENGINEERING

ANNEXURE B: RETAIL BUSES*

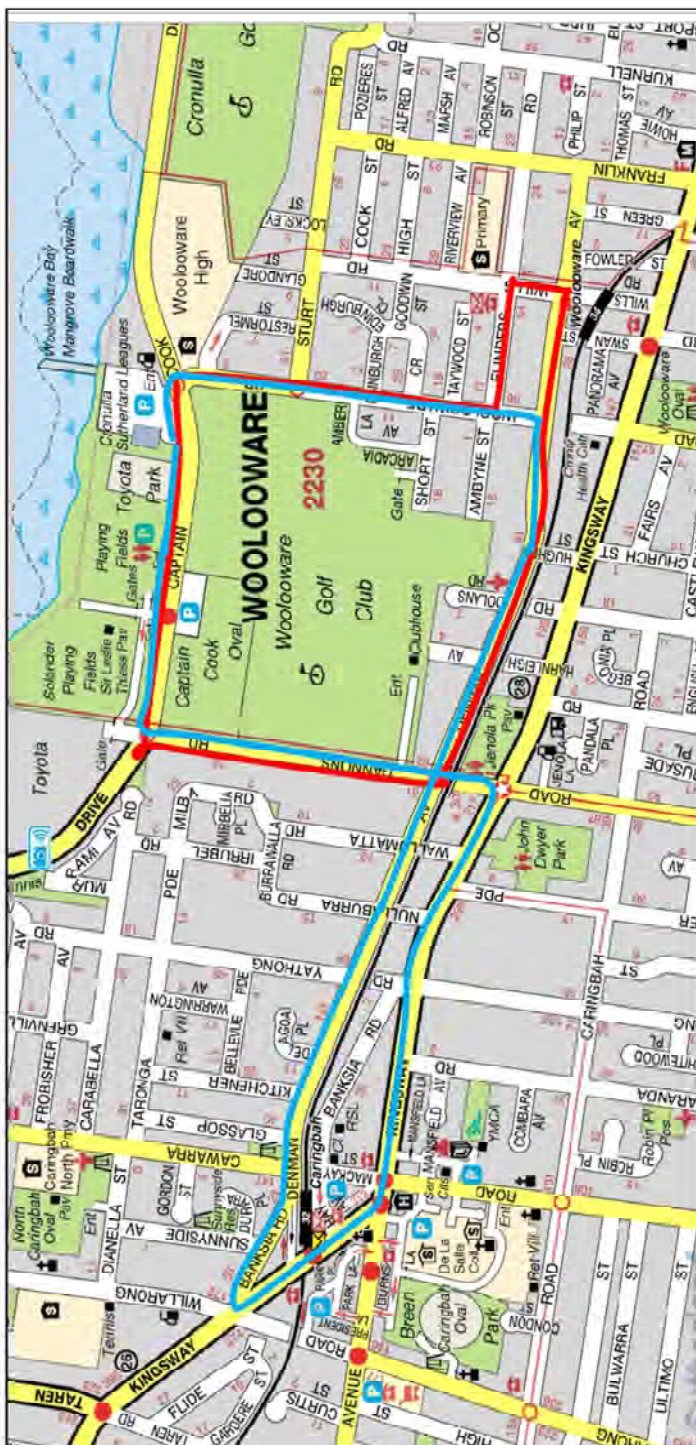


*Based on a 22 seat bus (the Sharks Club bus could be one of these)

Note if a standard 50 seat bus is used, similar to those used by Veolia, then the number of buses in the above chart would reduce by 56%

ANNEXURE F: MTE LETTER DATED 10th MAY 2012 SHARKS MASTERPLAN INTERIM
SHUTTLE BUS (Sheet 5 of 6)M^CLAREN TRAFFIC ENGINEERING

ANNEXURE C: BUS ROUTES



RED- Woollooware only circular route (entire length = 4km)

BLUE- Caringbah only route (entire length = 6km)

2010/166.L01

PAGE 5 OF 6



**ANNEXURE F: MTE LETTER DATED 10th MAY 2012 SHARKS MASTERPLAN INTERIM
SHUTTLE BUS (Sheet 6 of 6)**

M^CLAREN TRAFFIC ENGINEERING

ANNEXURE D: BUS TIMETABLE

Scale of Use	Monday to Friday								Saturday		Sunday	
	Bus	Frequency 6-9am	Bus	Frequency 9am- 4pm ⁽¹⁾	Bus	Frequency 4-7pm	Bus	Frequency 7-9pm	Bus	Frequency 8am- 9pm	Bus	Frequency 9am-2pm
<400 units	1	30min	1	30min	1	30min	1	60min	1	60min	1	60min
600 units	2	30min	1	30min	2	30min	1	60min	1	60min	1	60min

Notes:

⁽¹⁾ To align with train timetable



**ANNEXURE G: GAME DAY MANAGEMENT PLAN INCORPORATING TRAFFIC, PEDESTRIAN
AND PARKING MANAGEMENT ONSE RETAIL CENTRE HAS OCCUPATION CERTIFICATE
(Sheet 1 of 6)**

3.11 Management Procedures for Games Days

The effective control of vehicles and cars during peak events (games days) has been the subject of extensive trials and discussions with Council and the Police over the past two seasons. During this time, a series of required procedures have emerged for such control measures and have been further refined following field observations.

These measures have been continually used during the current season and have now been finalised as Guidelines as part of this Application. The Guidelines cover three basic areas as follows:

1. Games Days Timing and Procedures Guidelines (**Appendix A**):

These guidelines set out the required actions including briefings and maintenance etc in the week leading up to a major game - as detailed in Appendix A.

2. Staff Guidelines (**Appendix B**):

The Guidelines in Appendix B set out the requirements for arrivals and departures during games days at the five locations previously identified as critical. This document is to be used to brief all required staff members on duty during games days.

3. Police Briefing Guidelines (**Appendix C**):

Appendix C is to be used in briefing traffic officers for games days. It will provide a consistent and efficient briefing document to allow for a quick appreciation of the roles and functions of officers on point duties.

During any trial period of the traffic management plan, it is relevant to note that the only major modification to the plan involved the redirection of eastbound vehicles (other than buses) to use Captain Cook Drive rather than Woollooware Road North. The objective behind this modification is to reduce delay experienced by bus shuttle services and to reduce impact of the volume of traffic upon residences along Woollooware Road North.



**ANNEXURE G: GAME DAY MANAGEMENT PLAN INCORPORATING TRAFFIC, PEDESTRIAN
AND PARKING MANAGEMENT ONSITE RETAIL CENTRE HAS OCCUPATION CERTIFICATE
(Sheet 2 of 6)**

APPENDIX A - GAMES DAY TIMING AND PROCEDURES

Timing Action

6 months Prior but no later than 3 months Prior

Confirm with Council the Game Day Satellite Parking & Shuttle Bus Strategy

7 days Prior Book necessary Police traffic control officers to control, as required, the following areas:

- Captain Cook pedestrians.
- Gannons Road roundabout.
- Supervisor/contingency

Update Police Briefing Paper as required.

3 days Prior Check signage and test lighting - repair as necessary.
Check gates - repair as necessary.
Notify groundsman re requirements - mark parking Field 3.
Book necessary Club staff to control, as required, car entry and parking control in the following areas:

- RETAIL CAR PARK
- Western entry to Field 3. Progressively diminishing as residential expands.
- Eastern entry to Field 3. Progressively diminishing as residential expands.
- Parking within Field 3.
- No STOPPING areas along Captain Cook Drive.
- Supervisor, 1 contingency.

Approx 12 staff may be necessary.
Check surface of grounds and parking areas.
Update Club staff Briefing Paper as required.

2 days Prior Continue maintenance of lighting, gates, parking areas and signage as required.

1 day Prior Ensure all maintenance completed.
Re-confirm availability of Police and Club staff.
Position all equipment ready for game day (barricades etc).
Double check with Council staff re Solander strip parking is open.
Test and maintain illuminated batons.

4 hours Before Position directional parking signage (temporary "No Standing Set-down Pick Up only" signs, etc).
Complete line marking Field 3 using witches hats.
Test lighting.

Operation Mode

2 hours Before Assemble and brief club staff
Position Club staff.
Assemble Police officers, brief and position.

1.5 hours Before Ensure Police and Club staff positioned.
Club supervisor confirms:

- * all final arrangements in place, including signage.
- * operation of entry signage, gates, signage, etc.
- * smooth filling of car parks.



**ANNEXURE G: GAME DAY MANAGEMENT PLAN INCORPORATING TRAFFIC, PEDESTRIAN
AND PARKING MANAGEMENT ONSE RETAIL CENTRE HAS OCCUPATION CERTIFICATE
(Sheet 3 of 6)**

During Game	<p>Club staff to patrol car parks for security. Car parking signage removed and stored. Witches hats removed. Test exit lighting.</p>
1/2 hour Before Final Whistle	<p>Police and Club staff positioned. Ensure all exit gates unlocked and open (pedestrians) Pedestrian direction barriers in place. Exit lighting turned on.</p>
Post Game	<p>Police on point duty as necessary in the following areas:</p> <ul style="list-style-type: none"> • Main Captain Cook crossings in front of Sharks Stadium at eastern and western turnstiles. • Gannons Road roundabout. • Captain Cook Dr / Woollooware Road signals <p>Club staff assist exiting cars as necessary in the following areas</p> <ul style="list-style-type: none"> • Western exit from Field 3. • Eastern exit from Field 3. • Exiting parking within Western car park. • Supervisor / contingency.
Final wrap up	<p>Club supervisor to contact Police. Signage and barriers stored and secured. Car parks - final check and secured. Gates locked as required. Club supervisor to release Club staff.</p>
Next week	<p>Club supervisor to prepare report on operations, including any suggested improvements.</p>



**ANNEXURE G: GAME DAY MANAGEMENT PLAN INCORPORATING TRAFFIC, PEDESTRIAN
AND PARKING MANAGEMENT ONSE RETAIL CENTRE HAS OCCUPATION CERTIFICATE
(Sheet 4 of 6)**

APPENDIX B - STAFF BRIEFING NOTES

Position A (Western Car Park - main entry area near Solander Field)
(Note: This area will progressively diminish as the residential expands).

Staff at Entry:

Before Game:

Direct cars into the entry area.

Collect parking fee and direct to correct location.

Direct cars to Field 3 area.

After Game:

Maintain control at entry.

Control merging traffic near exit.

Direct traffic down Captain Cook Drive (right turn) as well as down slip road. Ratio four to one.

Position B (Western Car Park - eastern entry near Sharks Stadium)
(Note: This area will progressively diminish as the residential expands).

Staff at Entry:

Before Game:

Direct cars into VIP area or to the western entry.

Collect parking fee and direct to correct locations.

After Game:

Control exiting cars outside exit point.

Control merging traffic nearing exit.

Position C (On Field 3)
(Note: This area will progressively diminish as the residential expands).

Staff on Field 3:

Before Game:

Direct cars into main parking area.

Direct cars into aisles.

Position cars within parking bays.

After Game:

Direct leaving cars to western exit.

During game, patrol car parking for security. Not needed after game. As above.

Position D (Along Captain Cook Drive Frontage)

Staff:

Before Game:

Erect "Car Park Full" signs at:
(a) Western Car park
(b) Fields 2 & 3

After Game:

Remove signs before end of game.



**ANNEXURE G: GAME DAY MANAGEMENT PLAN INCORPORATING TRAFFIC, PEDESTRIAN
AND PARKING MANAGEMENT ONSITE RETAIL CENTRE HAS OCCUPATION CERTIFICATE
(Sheet 5 of 6)**

APPENDIX C - POLICE BRIEFING NOTES

Captain Cook Drive is closed IMMEDIATELY IN FRONT OF SHARKS STADIUM during the Departure Mode for approximately 20 to 30 minutes to assist spectator departure with minimal conflict with vehicles.

Position 1 (Captain Cook Drive - Eastern Exit From Sharks Stadium to Woollooware Rd Signals)

Officer to control traffic in Captain Cook Drive to allow for pedestrians to cross into, and out of, the main (eastern) entry gates of Sharks Stadium.

This control should be coordinated with the officer in Woollooware Road and another to the west in Captain Cook Drive.

Before Game:

Assist pedestrians crossing Captain Cook Drive to enter Sharks Stadium. Use to be made of the twin retail traffic signals.

Cars will be entering the Retail parking area from Captain Cook.

After Game:

Cars will be leaving the Retail parking area turning left only into Captain Cook during peak departure period.

Position 2 (Captain Cook Drive - Western Exit From Sharks Stadium)

Officer to control traffic in Captain Cook Drive to allow for pedestrians to cross into, and out of, the western entry gates of Sharks Stadium.

This control should be coordinated with the other officer to the east in Captain Cook Drive.

Position 3 (Gannons Road Roundabout)

Officers to control traffic in the roundabout. Aside from Captain Cook Drive and Gannons Road, the slip road just to the north of this roundabout is heavily used before the game for cars entering the western parking area and after the game for cars leaving the parking area.

Past experience indicates the following:

Before Game:

After Game:

Most effective control is obtained by stopping traffic going east in Captain Cook Drive by redirecting via Gannons Road. This has been trialled over a number of games and is effective during the peak 20 to 30 minute exit period.



**ANNEXURE G: GAME DAY MANAGEMENT PLAN INCORPORATING TRAFFIC, PEDESTRIAN
AND PARKING MANAGEMENT ONSE RETAIL CENTRE HAS OCCUPATION CERTIFICATE
(Sheet 6 of 6)**

Before Game:

Many cars enter the slip road north of the roundabout to drop passengers off; these cars then seek access to the roundabout.

After Game:

Police on duty here should give twice as much time to Captain Cook Drive (westbound) traffic compared to slip road exit traffic. Both Captain Cook Drive and the slip road are useful in discharging the western carpark areas.

During the critical 20-30 minute departure period, Police should position a vehicle across the eastern leg of the roundabout to prevent eastbound movement along Captain Cook Drive past Sharks Stadium. This officer should control the exit from the slip road (north), the approach traffic from the west along Captain Cook Drive, as well as exit traffic along Captain Cook Drive from the east.

Police should direct all northbound traffic along Gannons Road to either turn left or to undertake a "U" turn through the roundabout to return down Gannons Road, unless authorised residents associated with the new residential flat buildings approved to the west of Sharks Stadium. A 5th police officer will be necessary at the future residential traffic signals on Captain Cook Drive once they are operational. Any westbound vehicle along Captain Cook Drive emanating from the Solander Field driveway should also be controlled when reaching the Gannons Road roundabout.

Position 4 (Woollooware Road North Intersection)

Police to redirect all westbound approaching traffic along Captain Cook Drive to turn left into Woollooware Road North during the critical 20-30 minute peak departure period. This control position is only required during this time. All eastbound exit traffic (other than buses) should be directed along Captain Cook Drive only. All shuttle buses should be encouraged or given priority to turn right into Woollooware Road North in order to access railway stations.



ANNEXURE H: DRAFT LETTER GAME DAY/SATELLITE PARKING MANAGEMENT PLAN (Sheet 1 of 7)

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4 February 2013

2010/166.L01 CM/hc

GAME DAY/SATELLITE PARKING MANAGEMENT PLAN CRONULLA SHARKS LEAGUES CLUB

We seek Sutherland Shire Council's endorsement for peak event transport arrangements as discussed at our meeting on Thursday 31st January 2013. The following letter details the possible transport arrangements for Cronulla Sharks home ground games.

For the Satellite Parking Management Plan to be effective, a minimum patronage equivalent to some 500 parked vehicles needs to be achieved for sustainability (500 vehicles approximately removed from western side of Shark Park as a result of residential development) which is equivalent to 1000 persons. The management plan can also be implemented during other peak events (future use of Toyota Stadium for other sport codes) to remove traffic and parking intensification during such times.

It is envisaged that possible pick up/drop off locations include, but not limited to, the following:

- ❑ Engadine Railway Station
- ❑ Waratah sports fields, Sutherland
- ❑ Council car park, Flora Street Sutherland
- ❑ Sutherland Railway Station
- ❑ Kirrawee Railway Station
- ❑ Waratah Street, Kirrawee (near Bunnings)
- ❑ Wanda beach car park
- ❑ Cronulla High School sports fields (including proposed Waterpolo complex which would be subject to future D.A)
- ❑ Taren Point industrial parking (Bay Street, Taren Point)
- ❑ Seymour Shaw park

Annexure B graphically shows possible bus drop off/pick up locations in context to the Sharks home ground.

Table 1 below depicts expected parking and patronage yields from the preferred locations.



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ANNEXURE H: DRAFT LETTER GAME DAY/SATELLITE PARKING MANAGEMENT PLAN (Sheet 2 of 7)

M^CLAREN TRAFFIC ENGINEERING

TABLE 1: BUS PATRONAGE YIELD

Location	Parked Cars	Patrons	Buses 90min	Buses 60min	Buses 45min
Engadine Train Station	100	200	2		2
Waratah Sports Fields	100-150	200-300	1	2	2
Sutherland Train Station	150-200	300-400	1	3	2
Seymour Shaw Park	100	200		2	
Wanda Beach	200	400		2	2
Taren Point industrial parking	200	400		3	3
Total	850-950	1700-1900			

Access to the above buses can be restricted by ticket sales and patrons can register their place and departure time on buses when buying online tickets. The above bus profile has been selected to adequately deliver patrons to the game and allow buses to make a return trip and delivery trip in time before kick-off which reduces the total number of buses required. The target areas for collection have been based on locations within the Sutherland Shire with the highest Cronulla Shark memberships, as depicted in **Annexure A**. It is noted that this is a sample of attending fans with non-locals and rival fans to come from within the Sutherland Shire area to also use the Satellite Parking Plan.

The table below is the Cronulla Sharks home ground draw, as of the date of this letter. Peak usage is typically Saturday night games which occurs at least twice. Sunday afternoon and Friday night games would attract lower patrons while Monday night games attracts the least amount of fans. As a result, **Table 1** above is based on the peak Saturday night usage while the scale of the Satellite Parking Management Plan can be reduced accordingly for Friday, Sunday and Monday games. It is recommended that the Satellite Parking be implemented on all home ground games as a trial with accurate observations to be taken to record usage.



ANNEXURE H: DRAFT LETTER GAME DAY/SATELLITE PARKING MANAGEMENT PLAN (Sheet 3 of 7)

M^CLAREN TRAFFIC ENGINEERING

TABLE 2: CRONULLA SHARKS HOME GROUND GAMES

ROUND	OPPONENT	DAY	DATE	KICK-OFF
Round 1	GOLD COAST TITANS	SUNDAY	10th of March	6:30pm
Round 3	NEW ZEALAND WARRIORS	SUNDAY	24th of March	2:00pm
Round 4	ST GEORGE ILLAWARRA DRAGONS	SATURDAY	30th of March	7:30pm
Round 10	CANBERRA RAIDERS	SUNDAY	19th of May	2:00pm
Round 11	SOUTH SYDNEY RABBITOHS	MONDAY	27th of May	7:00pm
Round 14	PARRAMATTA EELS	SATURDAY	15th of June	7:30pm
Round 17	WESTS TIGERS	FRIDAY	5th of July	7:35pm
Round 20	PENRITH PANTHERS	SUNDAY	28th of July	2:00pm
Round 22	NEWCASTLE KNIGHTS	TBC	TBC	TBC
Round 24	SYDNEY ROOSTERS	TBC	TBC	TBC
Round 25	NORTH QUEENSLAND COWBOYS	TBC	TBC	TBC

Concurrence has been sought from Councils Sport & Recreation Coordinator, Kirin Lindop for possible parking demand conflicts at Waratah Sports Fields and Seymour Shaw Park in **Annexure C**.

It is evident that Saturday night games, which attracts the largest attending fans, will not have major conflict with other community events at the proposed bus locations while Sunday afternoon games (2:00pm) will have greater conflict with local sports and community events at Waratah Sports fields and Seymour Shaw park.

While the usage of Waratah Sport Fields and Seymour Shaw park would be constrained from the Sunday 2:00pm games, additional areas such as Kirrawee industrial area could account for lost capacity at Waratah Sports Fields while greater usage at the train stations of Kirrawee, Miranda and Caringbah could take up the loss at Seymour Shaw park.

A review of existing bus services at the relevant train stations has been conducted to ascertain the current accumulation of buses that currently occur under Sydney Buses and Veolia Transport. It has been identified that the ideal pick up location at Sutherland Train Station is from Bays 1-6 while at Miranda Station bays 1-5 and 6-8 are appropriate.

The review of the existing bus services reveals the following (Note where medium conflict are identified, half of the bus bays are in use):

- Miranda Interchange
 - There is low conflict for pick up with medium conflict for drop off on for Sunday afternoon games
 - There is low conflict for pick up and drop off for Saturday night games
 - There is high conflict for pick up with no conflict for drop off for Friday and Monday night games
- Sutherland Interchange
 - There is medium conflict for pick up/drop off for Sunday afternoon games
 - There is low to no conflict for pick up/drop off for Saturday night games

2010/166.L01

PAGE 3 OF 8

**ANNEXURE H: DRAFT LETTER GAME DAY/SATELLITE PARKIGN MANAGEMENT PLAN
(Sheet 4 of 7)****M^CLAREN TRAFFIC ENGINEERING**

- There is high conflict for pick up with little to no conflict for drop off for Friday and Monday night games

Overall, the interchange of Sutherland and Miranda Train Stations can be adequately utilised for weekend games when sports fields (Waratah and Seymour Shaw) have high use, while weekday games will require lower usage at the interchanges due to the existing commuter services.

If you require further information or clarification please do not hesitate to contact the undersigned.

Yours faithfully,

M^CLAREN TRAFFIC ENGINEERING

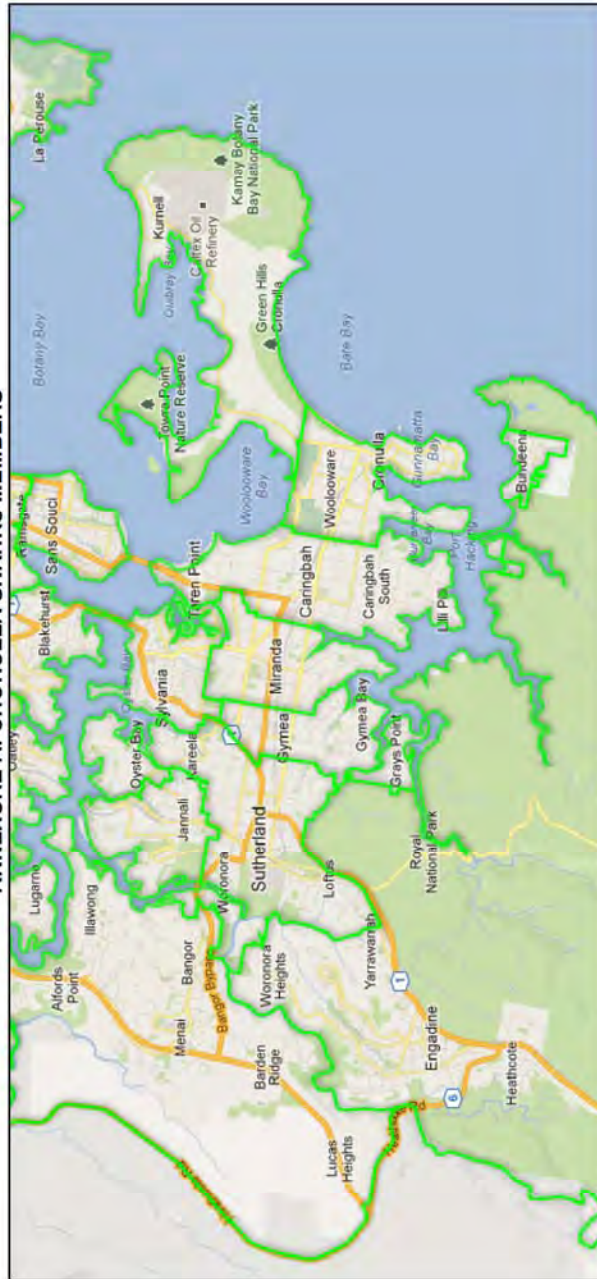
A handwritten signature in black ink, appearing to read 'CMH'.

Craig M^CLaren
Director



ANNEXURE H: DRAFT LETTER GAME DAY/SATELLITE PARKIGN MANAGEMENT PLAN (Sheet 5 of 7)

ANNEXURE A: CRONULLA SHARKS MEMBERS



Location	Members	Location	Members	Location	Members
2230-Cronulla	604	2233-Engadine	383	2227-Gymea	201
2229-Caringbah	527	2228-Miranda	248	2226-Jannali	129
2232-Sutherland	409	2234-Menai	231	2224-Sylvania	104

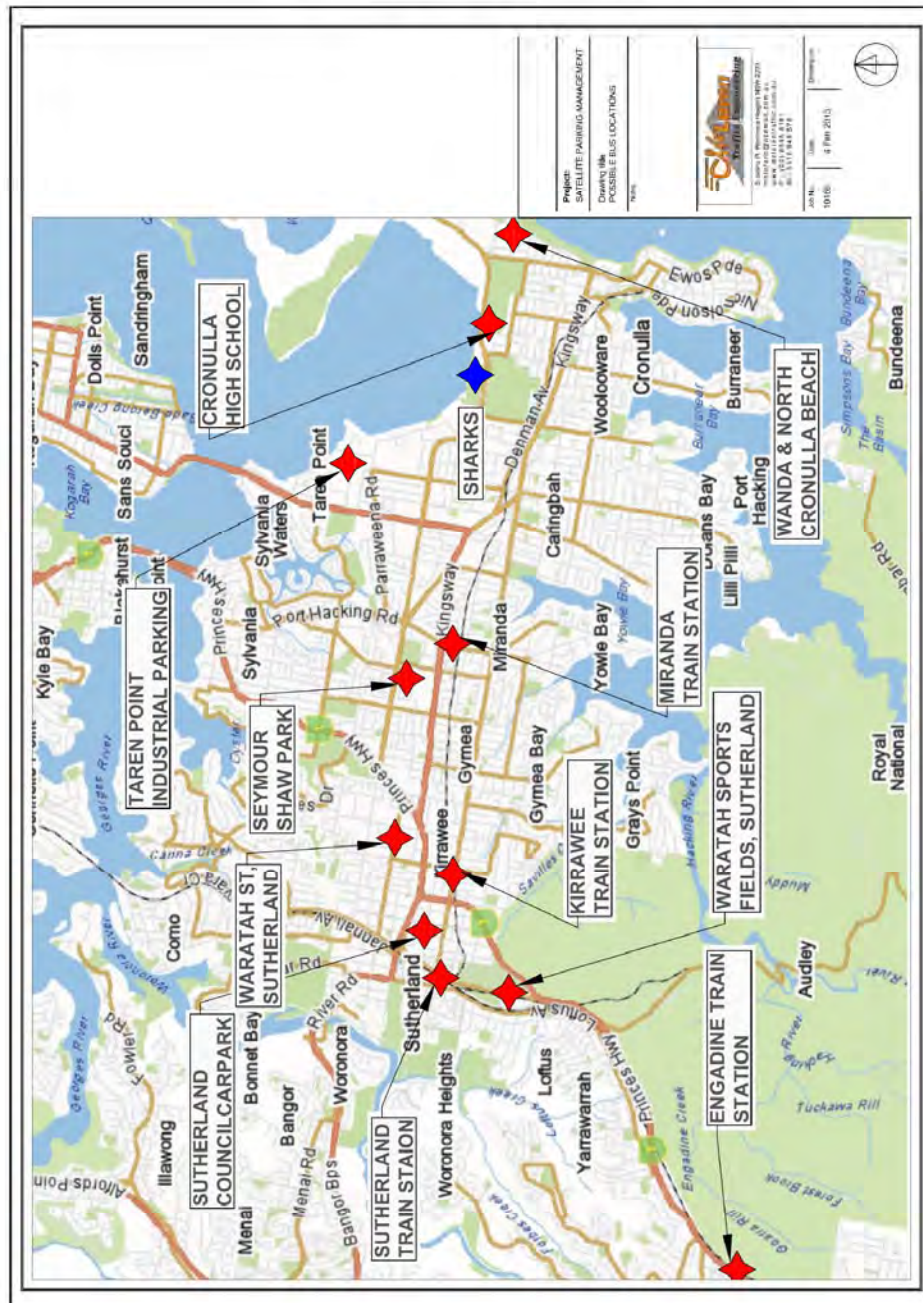
2010/166.L01

PAGE 5 OF 8



ANNEXURE H: DRAFT LETTER GAME DAY/SATELLITE PARKIGN MANAGEMENT PLAN (Sheet 6 of 7)

ANNEXURE B: BUS LOCATIONS



2010/166.L01

PAGE 6 OF 8

ANNEXURE H: DRAFT LETTER GAME DAY/SATELLITE PARKIGN MANAGEMENT PLAN
(Sheet 7 of 7)

SSC Sporting Season Dates									
Summer season	Finishes Sunday 17th March								
Change of season	Monday 18th March - Friday 29th March								
Winter season	Saturday 30th March - Sunday 1st September								
	Summer use (Round 1 - Sunday 10th March 2013 6.30pm game 5.00pm pick up)	Friday night game 7.35pm (pick up 6.00pm)	Saturday night game 7.30pm (pick up 6.00pm)	Potential clashes - winter season			Sunday 6.00pm game (pick up 4.30pm)	Monday 7.00pm game (pick up 5.30pm)	
Waratah athletics	Athletics training (minimal use)	Athletics training (4-7pm) and gridiron training (7-9pm)	No users - other than one off dog events	No users - other than one off dog events	No users - other than one off dog events		No users - other than one off dog events	Athletics training (4-8pm)	
Waratah rugby league field	No Sunday pm use	League training (4-9pm)	No use from 6pm	League games until 5.00pm	League games until 5.00pm		SS Dog training (7-9.45pm)	SS Dog training (7-9.45pm)	
Waratah lower soccer /baseball field	No Sunday pm use	Soccer Training (4-9pm)	No use from 6pm	Soccer games until 5pm	Soccer games until 5pm		Soccer Training (4-9pm)	Soccer Training (4-9pm)	
Waratah AFL	Sunday Cricket Semi finals 8am - 6pm	AFL Training (4-8pm)	No use from 6pm	AFL competition until 5pm	AFL competition until 5pm		AFL training (4-8pm)	AFL training (4-8pm)	
Waratah Cycling track	Cronulla triathlon club 2pm - 6pm	SS Cycling club comp until end of day light savings	SS Cycling club comp (8am - 4pm)	Cronulla Triathlon Club (2-5pm)	Cronulla Triathlon Club (2-5pm)		No use	No use	
Waratah tennis courts	Casual - consistent use								
Potential clashes									
	Summer use (Round 1 - Sunday 10th March 2013 6.30pm game 5.00pm pick up)	Friday night game 7.35pm (pick up 6.00pm)	Saturday night game 7.30pm (pick up 6.00pm)	Sunday 2.00pm game (pick up 12.30pm)	Sunday 6.00pm game (pick up 4.30pm)	Monday 7.00pm game (pick up 5.30pm)			
Seymour Shaw netball courts	No Sunday use (this may change with Soccer Sharks proposal to develop netball courts)*	No use *	No use *	No use *	No use *	No use *	No use *	No use *	
Seymour Shaw cricket fields	Sunday Cricket Semi finals 8am - 6pm								
Seymour Shaw soccer fields	TBC	Soccer Training (4-9pm)	TBC	Soccer Competition (8am - 5pm)	Soccer Competition (8am - 5pm)	Soccer Training (4-9pm)	Soccer Competition (8am - 5pm)	Soccer Training (4-9pm)	
Seymour Shaw Soccer Sharks no 1 field									
Special annual events	Association	Site							
Sunday 19th May 6.30am - 6.30pm	SS Dog Training Obedience Trial	Waratah site - ath/league /soccer							
Sunday 16th June 5.30am - 9.00pm	SS Dog Training Agility trial	Waratah site - ath/league /soccer							
Saturday in July (TBA - al day)	SS Dog Flyball Comp	Waratah site - ath/league /soccer							
Regular Fri/Sat/ Sundays	Soccer Sharks games	Seymour Shaw							

2010/166.L01

PAGE 7 OF 8