WOOLOOWARE BAY TOWN CENTRE

RESIDENTIAL PRECINCT PARKING RATES

PARKING IMPACT ASSESSMENT

Captain Cook Drive, Woolooware

Report 01 - Final Issue: B – 11th June 2015

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

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WOOLOOWARE BAY TOWN CENTRE

CAPTAIN COOK DRIVE, WOOLOOWARE

NSW 2230

Prepared for: Bluestone Property Solutions

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1 INTRODUCTION

This report supports a Section 75W Modification Application to the concept plan approval issued by the Planning Assessment Committee for the Woolooware Bay Town Centre (WBTC). The approval is sought for the revised development of the Western Precinct at WBTC in regards to parking, as described in the **Section 4** of this report.

A separate S75W application has been lodged to modify the maximum GFA for the residential precinct. A separate Traffic Impact Assessment has been lodged in support of the GFA increase which is complementary to this Parking Impact assessment and is consistent with its findings.

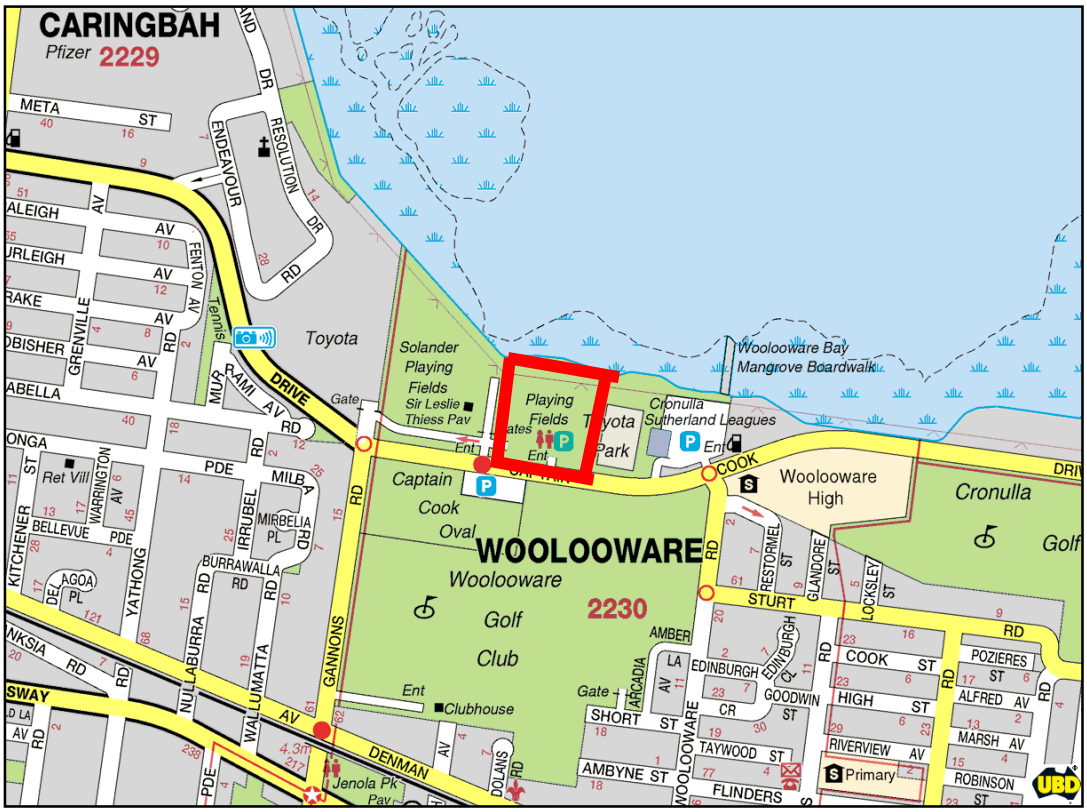
The concept approval proceeded a preferred project report including analysis in regards to traffic and parking from the "*Cronulla Sharks Redevelopment – Mixed Used Masterplan - Traffic Management and Accessibility Plan*" prepared by *McLaren Traffic Engineering* and dated May 2012.

1.1 Site Location

The subject site is known as 455 Captain Cook Drive, Woolooware as shown in the context of the overall WBTC site in **Figures 1 and 2**. The site is formally described as part **Lot1 DP1180482**.

Western Precinct

FIGURE 1 - SITE CONTEXT (AERIAL PHOTO)



Western Precinct

FIGURE 2 - SITE CONTEXT (MAP)

Woolooware Bay Town Centre (WBTC) is located on Captain Cook Drive, Woolooware and includes Cronulla Sharks Leagues Club, existing car park areas associated with the club, Sharks Stadium and associated grandstands, and training fields.

Opposite the site are Woolooware 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 Woolooware Road North is Woolooware High School. To the east of the sharks car park is Fitness First and a petrol station. West of the site are the solander Fields and Toyota Motor Corporation.

1.2 State Environmental Planning Policy (Infrastructure) 2007 Requirements

The proposed development qualifies as a traffic generating 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). A set of signals, bus stops and a bus service are the agreed approach to traffic management between the RMS, Sutherland Shire Council and the applicant.

2 EXISTING TRAFFIC AND PARKING CONDITIONS

2.1 Surrounding Road Network

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 during construction of an additional 2 lanes
- 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 Woolooware High School during school zone times.

Woolooware 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

2.2 Traffic Management

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

- Roundabout at the intersection of Captain Cook Drive / Woolooware Road North / Car Park Access for Cronulla Sharks Club Building. This roundabout operates as a two lane circulating roundabout.
- Wombat crossing in Woolooware Road North immediately south of the new roundabout at the junction of Captain Cook Drive / Woolooware Road North.
- Bicycle lanes on both sides of Captain Cook Drive along the front of the property.
- 40km/h School Zones operate near Woolooware 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 NRL Rugby League matches, a special event traffic management plan is used to manage the peak traffic &pedestrian activity. This plan was development in 1998 by *M^CLaren Traffic Engineering* in consultation with Council's traffic committee and the Sharks. Trial implementation of satellite parking and extended bus services for game day is ongoing.

2.3 Existing Intersection Performance

The following is an extract from the 2012 PPR for the Sharks Redevelopment which should be read in conjunction with the traffic analysis section of this report:

> *"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 / Woolooware 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 5.1)

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 / Woolooware 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, Giveway 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."*

SIDRA INTERSECTION 6.1 analysis software has been utilised to examine the traffic impact on the two co-ordinated retail signals agreed to by the RMS during previous approval processes. The previous results, found using *SIDRA INTERSECTION 5.1*, have been re-tested for comparison purposes using *SIDRA 6.1*.

During the process of conversion between the software versions, a previous error was observed and corrected. The lane disciplines for the roundabout at Gannons Road/Captain Cook Drive have been incorrectly assigned. On the eastern approach

to the intersection the right hand lane was previously modelled as RIGHT though is supposed to be RIGHT & THRU, which correctly increases capacity on this leg by approximately 70%. The existing, approved and future performances of this roundabout will include this correction.

TABLE 2: EXISTING INTERSECTION PERFORMANCE AT SITE FRONTAGE

Intersection	Peak Hour	Degree of Saturation	Average Delay (s/veh)	Level of Service
Existing (SIDRA 5.1/6.1)				
Captain Cook Drive/Woolooware Road	FRI PM	0.77/0.78	8.3/6.6	A/A
	SAT MID	0.53/0.53	8.2/6.4	A/A
Western Retail Signals	FRI PM	-	-	-
	SAT MID	-	-	-
Residential Signals	FRI PM	-	-	-
	SAT MID	-	-	-
Captain Cook Drive/Gannons Road	FRI PM	/0.70	/8.2	/A
	SAT MID	/0.67	/8.8	/A

2.4 Existing Public Transport

At present the site is not served by public transport with the nearest connection being Woolooware Railway Station which is 1.4km walking distance from the site. This represents an existing poor level of service.

3 HISTORICAL PARKING ANALYSIS LEADING TO APPROVAL

McLaren Traffic Engineering completed many analyses throughout the approval process of the Part3A application. In regards to parking for the residential precinct, three extensive Traffic and Parking Studies were submitted, each analysing moderately different scales and reporting consistent outcomes which incorporated the requirements and comments of the various stakeholders. These reports are dated 5th August 2011, 20th March 2012 and 18th May 2012 with the latter being submitted as part of the Preferred Project Report to Planning Assessment committee.

In August 2011 it was proposed to provide parking at a rate of 1 space per one/two bed unit, 2 spaces per three bed unit, 1 visitor space per 8 units and 1 space per 30sqm of commercial GFA in the residential precinct. The scale analysed was 700 units and 740sqm commercial GFA. This rate equated to 858 residential spaces and 25 commercial spaces or a total demand of 883 spaces. 883 spaces were proposed to be provided by the site. Traffic generation projected to 218 trips in the PM peak hour out of 1628 for the whole site.

In March 2012 it was proposed to provide parking at a rate of 1 space per one/two bed unit, 2 spaces per three bed unit, 1 visitor space per 8 units and 1 space per 30sqm of commercial GFA in the residential precinct. The scale analysed was 597 units and 740sqm commercial GFA. This rate equated to 740 residential spaces and 25 commercial spaces or a total of 765 spaces. 883 spaces were proposed to be provided by the site. Commercial spaces were proposed to be shared with residential visitors outside of business hours. Traffic generation projected to 188 trips in the PM peak hour out of 1432 for the whole site.

In May 2012 it was proposed to provide parking at a rate of 1 space per one/two bed unit, 2 spaces per three bed unit, 1 visitor space per 6 units and 1 space per 30sqm of commercial GFA in the residential precinct. The scale analysed was 597 units and 740sqm commercial GFA. This rate equated to 765 residential spaces and 25 commercial spaces or a total of 790 spaces. 928 spaces were proposed to be provided by the site. Traffic generation projected to 188 trips in the PM peak hour out of 1432 for the whole site.

The maximum scale of the residential precinct analysed for parking and traffic impacts was 700 units and 740sqm commercial.

4 APPROVED PART 3A MASTERPLAN

The Planning Assessment Commission approved a Part 3A Concept Plan for the Woolooware Bay Town Centre site in late-2012 comprising a master plan for the redevelopment of the site. This involved the construction of approximately 600 new apartments, upgrades to the Leagues Club, construction of a new retail precinct with supermarkets, specialty retail, leisure uses and a medical centre. The master plan also includes the creation of a new foreshore parkland and upgrades to Remondis Stadium. The following section describes the western precinct comprising predominantly residential flat buildings with some portion of commercial/retail at the lower building levels.

4.1 Scale

The approved masterplan had the following development scale for the western precinct:

Gross Building Area
Residential Precinct - 104,419sqm

Gross Floor Area
Residential Precinct - 58,420sqm

4.2 Parking Volume and Allocation

The approved masterplan had the following parking volume and allocation:

1 Bedroom Apartment	- 1 space per apartment
2 Bedroom Apartment	- 1 space per apartment
3 Bedroom Apartment	- 2 spaces per apartment
Visitors	- 1 space per 5 dwellings
Commercial	- 1 space per 30sqm
Parking	- 883 spaces (maximum) excluding any on-street spaces within the newly created on-site streets

4.3 Traffic Volume and Impact

The concept approval was preceded by a traffic report which projected peak traffic volumes for the masterplan development of :

Western Precinct			
Residential	597 Units	0.29 trips per unit	173 trips
Commercial	740sqm	2 trips per 100sqm	15 trips
Total			188 trips
Entire Precinct			
Weekday PM			1432 trips
Weekend Noon			1305 trips

4.4 Public Transport

As part of the consent conditions imposed by the PAC, a shuttle bus service provided by the Cronulla Sharks Leagues Club will operate prior to issuing of an occupation certificate for the retail or residential components of the precinct.

5 PROPOSED DEVELOPMENT MODIFICATIONS

The proposed modification to the concept approval refinement of the parking rates for visitors, and introduction of a parking rate for land uses not previously referred to by the concept approval. The proposed parking rates are:

- *1 Bedroom Unit* *1 space per unit*
- *2 Bedroom Unit* *1 space per unit*
- *3 Bedroom Unit* *2 spaces per unit*
- *Residential Visitors* *1 space per 4 units including dual uses spaces*
- *Commercial* *1 space per 30sqm*
  including 50% available for dual use by residential visitors
- *Child Care Centre* *1 space per 4 children*
  including 50% available for dual use by residential visitors
- *Ancillary Facilities* *No parking required*

Reference is made to Sutherland Shire DCP 2006, Chapter7, Section 1.b.1, Clause 6 which states:

> *Where a development proposal contains two or more land uses with different peak parking demands, the total requirement may be reduced such that the peak demand is met at any one time.*

Generally this involves assessment of the changing demand for parking through the peak day/s of the week and ensuring the maximum combined demand for parking is provided on-site. The maximum combined visitor demand would then be pooled together to allow mixing of residential visitors and commercial visitors in the same spaces as an ongoing operation. The maximum number of spaces provided on the site will remain unchanged at 883 plus any spaces provided along the new on-site street.

The residential precinct is concurrently being submitted for modification to total GFA as an S75W application. It is assumed for the purpose of parking assessment that the GFA increase S75W application is approved.

Table 3 below shows the parking implications of the modified scale and uses of the site, in conjunction with the proposed parking rate modification of this submission.

TABLE 3: WOOLOOWARE BAY TOWN CENTRE - PARKING RATES

Land Use	Approved Parking Rate	Modified Parking Rate
1 Bedroom Unit	1 / unit	1 / unit
2 Bedroom Unit	1 / unit	1 / unit
3 Bedroom Unit	2 / unit	2 / unit
Residential Visitors	1 / 5 dwellings	1 / 5 dwellings including dual use spaces
Commercial GFA	1 / 30sqm GFA	1 / 30sqm GFA (50% available for dual use by all visitors)
Child Care Centre	Not included *Use 1 / 4 children from RMS guide*	1 / 4 children (50% available for dual use by all visitors)
Menshed	Ancillary or Nil	1 loading space
Community Leisure Area	Ancillary or Nil	Ancillary or Nil
Approved/Required Parking Supply for Modified Scale and Uses	**878 including loading bay**	**862 including loading bay**
Allowable Parking Supply	**883 + on-street parking**	

6 PARKING DEMAND

The total parking provision in the residential precinct is a combination of long term allocated spaces, for tenants and staff of the residential dwellings and commercial areas, and short term unallocated spaces, for the visitors to the residential dwellings and commercial areas. The following sub sections analyse the approved and proposed supply of parking for each user type.

6.1 Residential Tenants

The approved parking rates are 1 space per 1 bedroom unit, 1 space per 2 bedroom unit and 2 spaces per 3 bedroom units. These parking rates are not proposed to be modified as part of this submission.

6.2 Residential Visitors

The approved parking rate is 1 space per 5 dwellings. The development Applications submitted thus far have provided separate visitor parking at the approved parking rate.

The residential visitor parking rate was analysed in great detail prior to the approval and achieves a balance between the high rate of Sutherland Shire Council DCP of 1 per 4 dwellings and the RMS rate for regional centres of 1 per 7 dwellings. It is important to note that the Preferred Project Report recommended visitor parking at a rate of 1 space per 6 dwellings.

While it is not necessarily agreed that visitor parking demand for the residential units will be 1 space per 5 units, it is recommended to ensure this level of parking remain freely available for residential visitors at the peak times of Friday and Saturday evenings. The Sutherland Shire Council DCP (SSDCP) provides the following concession for all developments:

SSDCP 2006, Chpater7, Section 1.b.1

> *Clause 6 - Where a development proposal contains two or more land uses with different peak parking demands, the total requirement me be reduced such that the peak demand is met at any one time.*

Therefore, utilising the Concept Approval parking demand for residential visitors, the development should provide a minimum of 1 space per 5 dwellings during the times that the development would generate this demand. The accepted rule of thumb is for residential visitor parking to achieve 100% demand only on Friday and Saturday evenings, and at these times the development should hence supply a minimum of 1 space per 5 dwellings for residential visitors. Residential Visitors are not expected to have greater than 50% demand prior to 5:30pm on weekdays.

6.3 Commercial Tenants And Visitors

The approved parking rate is 1 space per 30sqm of commercial GFA. No differentiation is provided for staff and visitors to the commercial tenancies. In trying to ascertain the nature of users it is necessary to assess the actual land use within the 'Commercial' umbrella term such as retail with numerous visitors, office with predominantly staff or a café serving only the immediate community and hence only generating staff to the site.

The SSDCP provides the following parking rates for 'Business and Office premises' and 'Shops' within the same LGA as the subject site:

> Business/office
>
> *Business and office premises shall provide 1 space per 30sqm of gross floor area except where the land use I provided with specific rates within this DCP*
>
> *The business/office component of mixed use developments must also satisfy this control.*
>
> Shops
>
> *A Shop shall provide 1 space per 30sqm of gross floor area.*
>
> *This control applies to a standalone shop or where a development includes a shop in conjunction with other uses.*

Therefore the peak demand of the 'commercial' area within the residential precinct can be reasonably assessed to be 1 space per 30sqm. It is important to note that according to AS2890.1 a staff member can utilise a staff space or visitor space though a visitor can generally not utilise a staff space due to smaller dimensions causing some inconvenience. Due to this issue it is recommended that even though all of the commercial spaces could be designed as adequate as staff spaces only, there should be some portion of spaces designed to be adequate for visitors and staff alike.

Based on previous experience with similar developments in numerous areas of Sydney and NSW, the provision rate is recommended to be 50% provided as suitable (and allocated) for staff use only, with the remaining 50% provided as suitable for both staff and visitors. According to the previous SSDCP extract in **Section 5.2.2** of this report, these spaces shall be made to be freely available during the demand of the commercial tenancies which is reasonably assumed to be on weekdays 8:30am to 5:30pm allowing for some tolerance on the traditional operating hours of 9am to 5pm. Beyond the operating hours of the commercial areas there is not expected to be any demand for parking though those spaces provided as staff only spaces would not be freely available based on the smaller dimension or signposted allocation to tenants, similar to residential tenants. It is noted that the 604sqm commercial/estate office in Stage 1 was approved by council with 2 spaces.

6.4 Cafe

The concept approval did not include a cafe or any comment related to the parking requirement of a cafe. Theoretically a cafe land use could be construed as commercial and parking be provided at a rate of 1 space per 30 sqm, however the operation of such a facility on the site is intended only to serve the new town centre. The café is hence not proposed to generate visitor parking demand as all residents, or nearby employees would have their long-stay parking demand accounted for elsewhere. Since only staff parking is required, the recommended rate is 50% of the commercial parking rate of 1 space per 30sqm, to be in line with the previous recommendation of parking supply. It is noted that the 76sqm café in Stage 2 was approved by council with 2 spaces.

6.5 Child Care Centre Parking

The concept approval did not include a child care centre (CCC) or any comment related to the parking requirement of a CCC. Theoretically a CCC land use could be construed as commercial and parking be provided at a rate of 1 space per 30 sqm, however it is known from extensive experience with child care centres within Sutherland Shire LGA, Sydney wide and in other cities in NSW that the parking demand is related to the scale of both staff and children.

The SSDCP provides the following parking rates for child care centres:

Childcare centres shall provide 1 space for every 4 children in attendance.

The draft SSDCP2015 provides the following parking rates for childcare centres within the parking DCP:

1 space per 4 children in attendance.

Provision for flexibility if:
- *Centre is near a public reserve*
- *Centre is located on a corner block*
- *Centre provides a safe drop off zone on the street*
- *Centre has a street frontage greater than 15m*
- *Centre operates as a long day care*

There is also a section in the draft SSDCP2015 for child care centres as a specific land use and that section provides a higher rate requirement though acceptance of variations to the parking rate based on grounds such as pedestrian and vehicular safety, heritage, urban design and the acceptability of alternate arrangements for parking.

Parking surveys of child care centres were completed by the RMS prior to preparation of the reference document “Guide to Traffic Generating Developments” which specifies a general provision of 1 space per 4 children is considered adequate. The generally accepted rule of thumb is that CCC parking is 50% for parents and 50% for staff. The rule of thumb has been confirmed by surveys of larger child care centres

than those surveyed by RMS which show peak staff parking at a rate of 1 per 9.6 children (43% of 1 per 4 children) and peak parent parking at a rate of 1 space per 7.2 children (57% of 1 per 4 children), each occurring at different times of the day with the combined peak parking of only 1 space per 5.1 children.

The surveys further show that parent parking is maximum during 7-9am and 4-6pm and there is negligible parking demand prior to 7am and after 6pm (approximately 1 space per 30 children or 10% of peak). It is recommended to project parking demand for the subject site and scale based on the higher parking demand for child care centres of 1 space per 4 children. This provides a conservative demand estimate and is based on the combination of RMS surveys and SSDCP. Within this parking rate, a minimum of 50% are to be designed for compliant use by visitors (2.5m space width), and hence also allowing use by CCC staff outside of peak pickup/drop off periods.

6.6 Menshed Community Facility

The concept approval did not include a menshed facility for the residential precinct though did include ancillary leisure for the retail and club precinct. The menshed would operate similar to that area described as ancillary leisure where the use compliments the new town centre as amenities are desired nearby to residents. The menshed would generally be a workshop area for retirees and would be limited to residents of Woolooware Bay and their guests. As such, no additional parking generation is likely to occur as all residents would have their own allocated parking space. However, given the workshop nature of the facility, a single loading bay near the menshed entrance is required for small deliveries of tools, materials and alike. The facility manager/operator would have this loading space allocated for sole use by the menshed.

6.7 Parking demand summary

In accordance with the SSDCP clause relating to variety of land uses on the same site, the parking demand for the site is hence estimated based on the previous individual user analysis in **Table 4** and **Figure 3**.

Table 4: Parking Demand Summary

Land Use	100% Parking Demand	Demand (% / Number)			
		Weekday 9am-5pm	Weekday 5pm-6pm	Weekday After 6pm	Saturday Midday
1 Bed Unit	1 / unit 221 spaces	100% 221	100% 221	100% 221	100% 221
2 Bed Unit	1 / unit 351 spaces	100% 351	100% 351	100% 351	100% 351
3 Bed Unit	2 / unit 142 spaces	100% 142	100% 142	100% 142	100% 142
Residential Visitor	1 / 5 units 129 spaces	50% 65	75% 97	100% 129	50% 65
Commercial tenant	0.5 / 30sqm 10 spaces	100% (staff only) 10	100% (staff only) 10	100% (staff only) 10	100% (staff only) 10
Commercial Visitor	0.5 / 30sqm 10 spaces	100% 10	50% 5	0% 0	100% 10
Café tenant	0.5 / 30sqm 2 spaces	100% (staff only) 2	100% (staff only) 2	100% (staff only) 2	100% (staff only) 2
CCC Staff	0.5 / 4 children 5 spaces	100% (staff only) 5	100% (staff only) 5	100% (staff only) 5	100% (staff only) 5
CCC Visitor	0.5 / 4 children 6 spaces	100% (4pm-5pm) 6	100% 6	0% 0	0% 0
Menshed Facility	1 loading space	100% (menshed only) 1	100% (menshed only) 1	100% (menshed only) 1	100% (menshed only) 1
Total Demand	**878**	**811**	**840**	**862**	**807**
Total Proposed	**830 off-street + 38 on-street + 1 loading bay = 868 spaces + loading bay**				
Total Allowed	**883 off-street + on-street spaces (assume maximum 38 on street) = 921 spaces**				

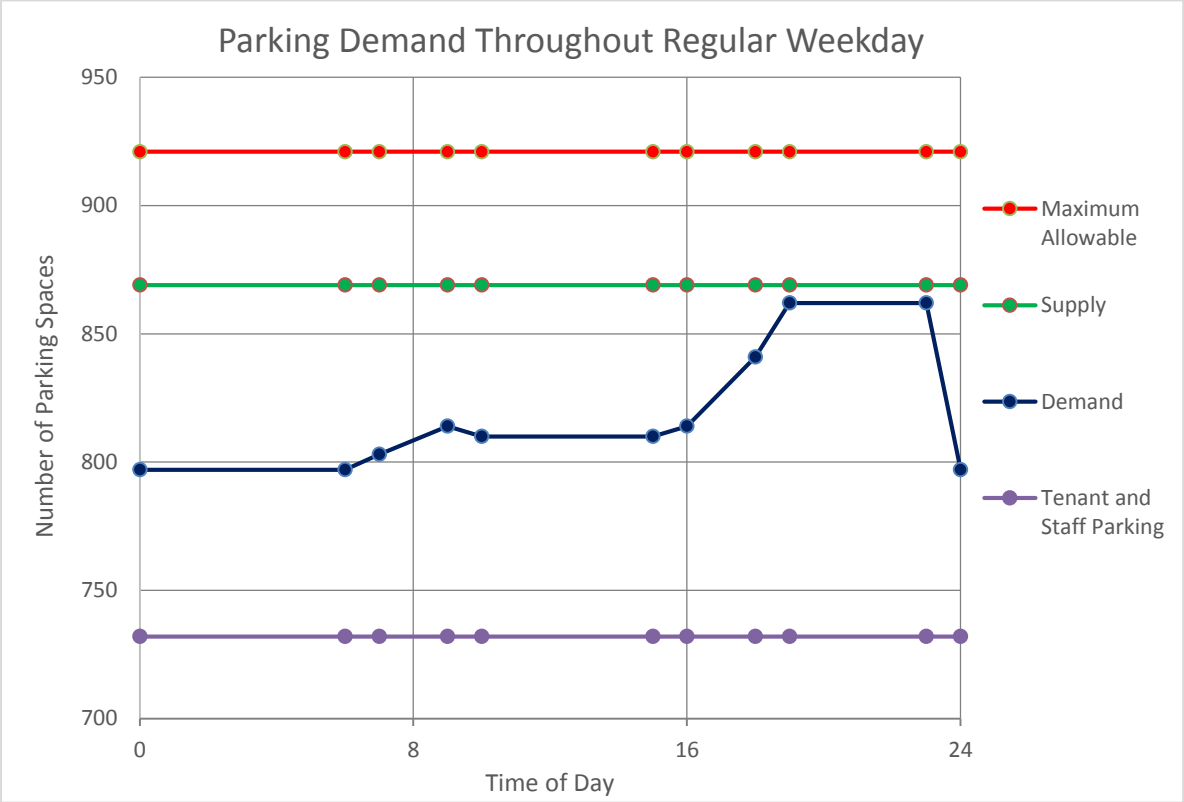


FIGURE 3: GRAPH OF PARKING DEMAND THROUGH REGULAR WEEKDAY

It is evident from the above table and graph that the total parking demand of the site varies throughout a regular weekday. The tenant/staff demand of 731 plus a loading bay remains constant and visitor parking peaks at an additional 130 spaces or a combined total of 863 spaces plus a loading bay. Therefore if 130 visitor spaces plus 731 tenant/staff spaces plus a loading bay (861 spaces plus the loading bay) are provided, then the maximum individual and maximum combined parking demands at any one time are met for the residential precinct.

The provision of 861 spaces plus a loading bay is hence the minimum parking required by the proposed scale and uses, and would further meet the minimum parking rates of the concept approval considering the mixed use development concession prescribed by the current and draft SSDCP. The proposed provision of 868 spaces plus a loading bay is higher than the resulting minimum rate of 861 spaces plus a loading bay and lower than the maximum of 883 + on-street spaces of the concept approval, hence complying with the range of parking required by the proposed modified controls.

The proposed modification to the concept approval is therefore supported by the parking demand analysis. Any spaces provided above the minimum individual parking rates should be provided as suitable for visitors to maximise safe, efficient and convenient vehicular access for all visiting drivers to the residential precinct.

7 PARKING REQUIRED FOR STAGE 3

As part of the staged development of the residential precinct, Stage 1 and Stage 2 have been granted development consent by Sutherland Shire Council. The parking supplied to date is described in **Table 5** below.

TABLE 5: RESIDENTIAL PRECINCT PARKING PROVIDED TO DATE

Land Use	Scale	Parking Provided
1 Bedroom Unit	135 units	135
2 Bedroom Unit	227 units	227
3 Bedroom Unit	44 units	88
Commercial Tenant	604sqm	8
Café Tenant	76sqm	2
Staff/Tenant Subtotal		**460**
Residential Visitor	405 units	74
Commercial Visitor	604sqm	9
Visitor Subtotal		**83**
Total Supplied		**543**

To achieve the peak demand found in **Section 6.7** of 731 tenant/staff spaces, 130 visitor spaces and a loading bay, a further 271 tenant/staff spaces, 47 visitor spaces and a loading bay are required according to **Table 5**. Of the 47 visitor spaces required of stage 3, a minimum of 6 of these spaces must designed to the higher standard of CCC visitors including proximal location to the CCC, an uninterrupted pedestrian path to the CCC entrance and signage designating these spaces for use by CCC parents only during 7am to 6pm on weekdays.

8 OTHER PARKING CONSIDERATIONS

8.1 Parking Design Compliance

The concept approval did not specify any requirements for parking design compliance contrary to the design principles of AS2890.1, AS2890.2, AS2890.6 and AS4299 where applicable. Deviation from these standards is not proposed.

Refinement of the user class allocation of spaces will impose minimum space widths being 2.4m for staff or residential tenant (Class 1A), 2.5m for any visitor space (Class 2) and 3.5m for any loading bay (Class 2 + 1.0m Loading Clearance).

A 'best practice' design principle is recommended for the CCC such that the minimum number of CCC parent spaces (50% or 0.5 per 4 children) will be provided proximal to the CCC pedestrian entrance and with a minimum 1.0m unobstructed pedestrian path to the entrance from every parent space. This design initiative is based on the objective specified for CCC parking in the 'Guide to traffic generating developments' where parking "*…must be provided in a convenient location, allowing safe movement of children to and from the centre.*"

The loading bay for the menshed should be designed according to Clause 4.10 (a) of AS2890.1 where a space for the purpose of loading/unloading parcels should be 0.5m wider than the relevant space for the user class and the additional space can be shared with a walkway. It is recommended to provide a 1.0m pedestrian path directly adjacent to a 2.5m wide loading bay for a combined width of 3.5m.

8.2 Bicycle Parking

Bicycle parking is not specified in the Concept Approval, however the development applications have provided bicycle parking at a rate of:

- 1 per 5 dwelling units plus 1 visitor space per 10 units (residential)
- 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)

These rates of provision are considered appropriate and will be unaltered as part of this submission.

8.3 Disabled Parking

Disabled parking is not specified in the Concept Approval, however the development applications thus far have provided disabled parking according to the accessibility report by *Morris* which recommended a rate of 1 space per adaptable dwelling plus 1 to 4% of non-residential spaces. This rate of provision is considered appropriate for residential tenants though non-residential provision is recommended by *McLaren Traffic Engineering* at a rate of 1 to 2%. In any case, the rates will be unaltered as part of this submission.

8.4 Car Wash Parking

Car wash bays are not specified in the Concept Approval, however the development applications have provided 1 car wash bay per 200 units. This rate of provision is considered appropriate and will be unaltered as part of this submission. Council has further recognised that dual use of residential visitor bays and residential car wash bays is acceptable in the following extract from the residential Stage 1 JRPP recommendations:

> Although 11 car wash bays are required based on Council's DCP generation rates, the car wash bays are not required under the concept approval. The proposal is capable of meeting the key objectives for Council's DCP controls for parking despite this non-compliance. Given the availability of commercial car wash facilities in the area and the trend of apartment residents using this service in favor of onsite car wash facilities, the omission of these facilities on site is considered acceptable.

8.5 Servicing and Garbage Collection

The concept approval does not specify servicing and garbage provision requirements though these are to be unchanged from previous development applications and consistent with Sutherland Shire Council waste management policies. A loading dock has been provided on site as part of the Stage 1 development application, including accommodating up to a 12.5m HRV design vehicle which is a contingent provision and supported.

8.6 Entry control devices

The concept approval did not specify a requirement of entry control devices such as boom gates or security shutters. No modification is proposed as part of this submission.

The development applications thus far have included security shutters to facilitate crime prevention objectives. All visitor spaces will be freely available during business hours and require use of an intercom system outside of business hours, besides those spaces located on the central roadway.

9 TRAFFIC ASSESSMENT

The proposed modification to the parking rates do not change the demand for vehicles on the site and as such will not alter the traffic generation of the site. The GFA increase has been analysed separately in regards to traffic impact and as such the parking rate modification is fully supported on traffic grounds, since any additional traffic from GFA change would be subject to the other S75W Application.

10 CONCLUSIONS

In summary, the proposed modifications to the Part3A concept approval of the Woolooware Bay Town Centre, to provide parking according to the peak site parking demand, has been assessed in regards to parking and traffic impacts.

The proposed parking rates are:

- *1 Bedroom Unit* *1 space per unit*
- *2 Bedroom Unit* *1 space per unit*
- *3 Bedroom Unit* *2 spaces per unit*
- *Residential Visitors* *1 space per 4 units including dual uses spaces*
- *Commercial* *1 space per 30sqm*
  including 50% available for dual use by residential visitors
- *Child Care Centre* *1 space per 4 children*
  including 50% available for dual use by residential visitors
- *Ancillary Facilities* *No parking required*

The residential precinct provides parking according to the demand described by the concept approval, however allows a concession contained within SSDCP 2006 and Draft SSDCP 2015 to be applied to the mixed use nature of the development. The parking supply of 868 spaces plus a loading bay exceeds peak demand of 861 plus a loading bay through the regular weekday and throughout the week, meeting the objectives of the concept approval scheme and proposed modified control. The parking provided is below the maximum limit in the concept approval of 883 plus on-street spaces.

Parking is to be designed according to AS2890.1, AS2890.2, AS2890.6 and AS4299 where applicable. Any parking proposed for the purpose of Child Care Centre pickup/drop-off and the menshed loading bay should designed according to the higher standard specified in **Section 8.1** of this report.

The approved residential precinct traffic generation is unchanged by the proposed parking rate modifications of this submission.

In view of the foregoing, the proposed modification to the parking rates in the concept approval are fully supported in terms of traffic and parking impacts.