Doltone House Deepwater

Deepwater Motor Boat Club, Milperra

Traffic and Parking Report

transportation planning, design and delivery

1451303000 14/03/14

GTAconsultants

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1. Introduction

This report has been prepared on behalf of Doltone House to present the findings of a traffic and parking study of the proposed redevelopment of the Deepwater Motor Boat Club site at 30 Webster Street, Milperra.

The proposal involves alterations and additions to the existing clubhouse to develop a function centre as well as a restaurant to be built over the existing pool and out buildings, a new boat shed, car parking, internal service roads, landscaping and an emergency evacuation route. The existing Deepwater Motor Boat Club will continue to occupy and operate out of the ground floor of the main building.

It is noted that a previous development application for a function centre was lodged with Bankstown city Council in December 2010 and subsequently withdrawn in April 2012. The development application was supported by a Traffic and Parking Report[1]. The findings of the report both in terms of the existing conditions and associated traffic impacts of development have been reviewed and where appropriate utilised in this assessment of the current development application.

The remainder of the report is set out as follows:

- Chapter 2 discusses the existing traffic and parking conditions at and in the vicinity of the site
- Chapter 3 describes the proposed redevelopment
- Chapter 4 examines the traffic and parking impacts
- Chapter 5 presents the summary and conclusions of the investigation.

[1] Deepwater Park Traffic and Parking Report (prepared by Halcrow, December 2010)

2. Existing Conditions

2.1 Site Location and Use

The locality plan of the subject site is shown in Figure 2.1.

The existing Deepwater Motor Boat Club site is located on the western end of Webster Street, west of Henry Lawson Drive at Milperra. It has frontages to the Georges River. The site is private land located adjacent to the Deepwater Regional Park.

The site incorporates boat landing ramps which includes a boat trailer manoeuvring and staging area. This facility has a driveway off Webster Street.

The ground floor of the main clubhouse is used by the Deepwater Motor Boat Club for boat storage plus the boat ramp is used for power boat racing. The site also has race days approximately every 2 months where in excess of 500 spectators visit the site.

2.2 Road Network

A description of the road network in the vicinity of the site is presented below.

Webster Street is a two lane access road. It provides access to activities within the Deepwater Regional Park and the Deepwater Motor Boat Club. Webster Street forms a T intersection with Henry Lawson Drive.

Henry Lawson Drive is a state road. In the vicinity of the site, Henry Lawson Drive has one lane in each direction. It has a posted speed limit of 60 km/hr and on-street parking is generally prohibited on either side.

2.3 Local Road Arrangements

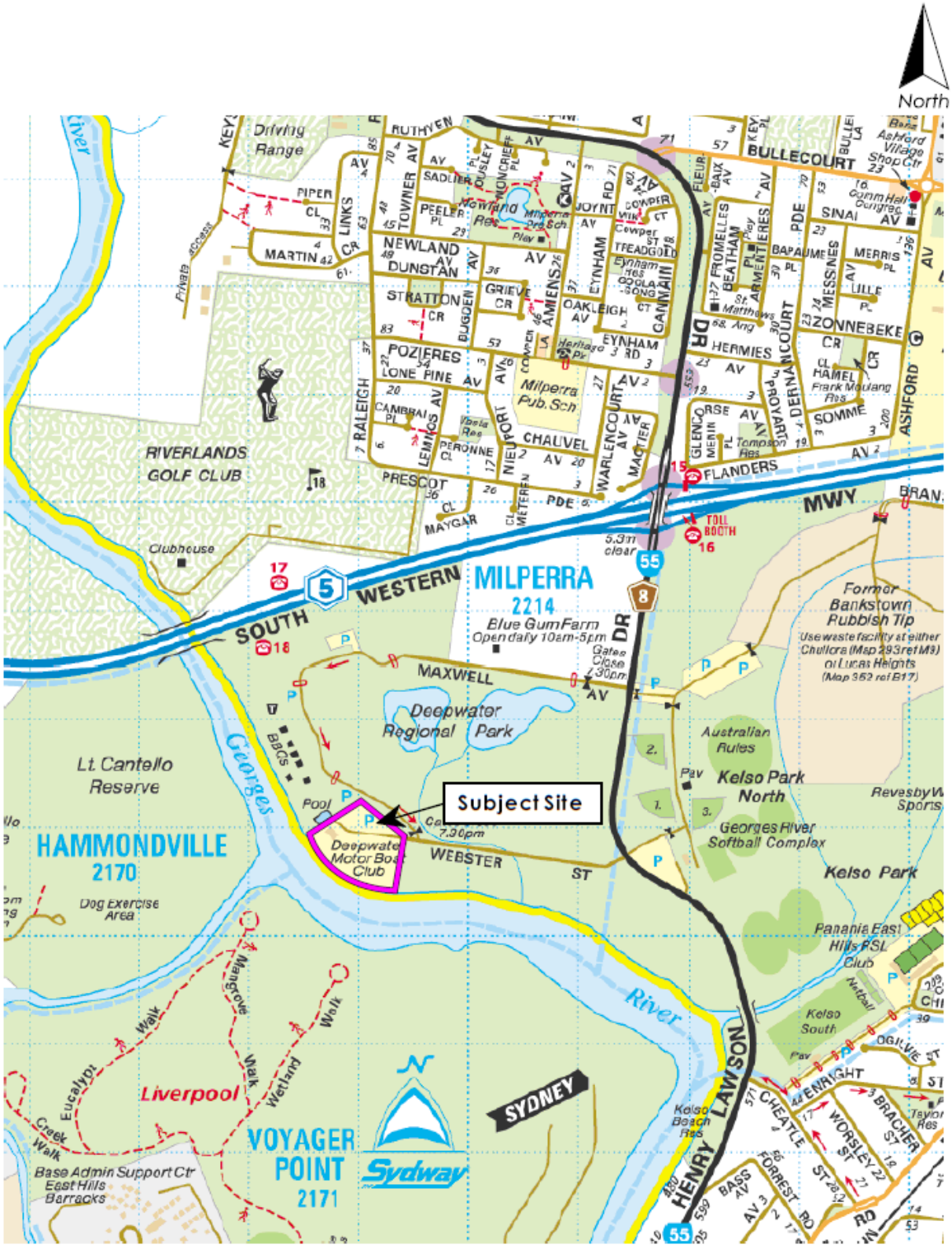
The following observations were made during the site visit:

- Webster Street forms a T intersection on the outside of a bend in Henry Lawson Drive.
- Opposite to Henry Lawson Drive-Webster Street intersection, there is a driveway to softball complex and a disused service station.
- Henry Lawson Drive-Webster Street intersection is slightly flared to allow generous turns in and out of Webster Street. This intersection does not provide a sheltered right turn lane into the site.
- Henry Lawson Drive has double white centre lines around the bend except for a gap at the Webster Street intersection. The shoulders are delineated with white lines and are formed as a combination of seal and gravel. There are also street lights in Henry Lawson Drive at the intersection.
- Webster Street has log railing on each side to prohibit vehicles driving into the adjacent bush land. Visibility in each direction along Henry Lawson Drive from Webster Street is satisfactory.

2.4 Traffic Flows

Peak hour intersection turning movement flow surveys were conducted at Henry Lawson Drive-Webster Street intersection. The surveys were conducted in December 2009.

Figure 2.1: Site Location



As part of the Traffic and Parking assessment for the previous DA, traffic surveys were conducted during a Friday and a Saturday between 4:30pm and 7:30pm. The surveys indicated that the peak hours were 5pm-6pm for the Friday and 5:30-6:30pm for the Saturday.

The mid block two-way peak hour flows are summarised in Table 2.1 and intersection turning movement flows are represented in Appendix A.

Table 2.1: Two-way Peak Hour Flows (December 2009)

Locations	Friday PM Peak Hour	Saturday PM Peak Hour
Henry Lawson Dr, south of Webster St	1,374	927
Henry Lawson Dr, north of Webster St	1,381	928
Webster St, west of Henry Lawson Dr	25	37

The surveys indicated that Henry Lawson Drive in the vicinity of the site currently carries peak hour flows in order of 1,400 vehicles per hour (vph) during the Friday evening peak period and about 900 during the Saturday evening peak period.

Webster Street carries less than 50 vph during the evening peak hour.

Observations where undertaken in February 2014 at the surveyed peak periods in order to determine if the count data was still representative of existing (2014) conditions. The observations indicated current traffic flows were similar for the Friday PM and slightly lower for the Saturday peak. As such the 2009 surveyed flows are considered to be representative of current conditions and have been used in this assessment.

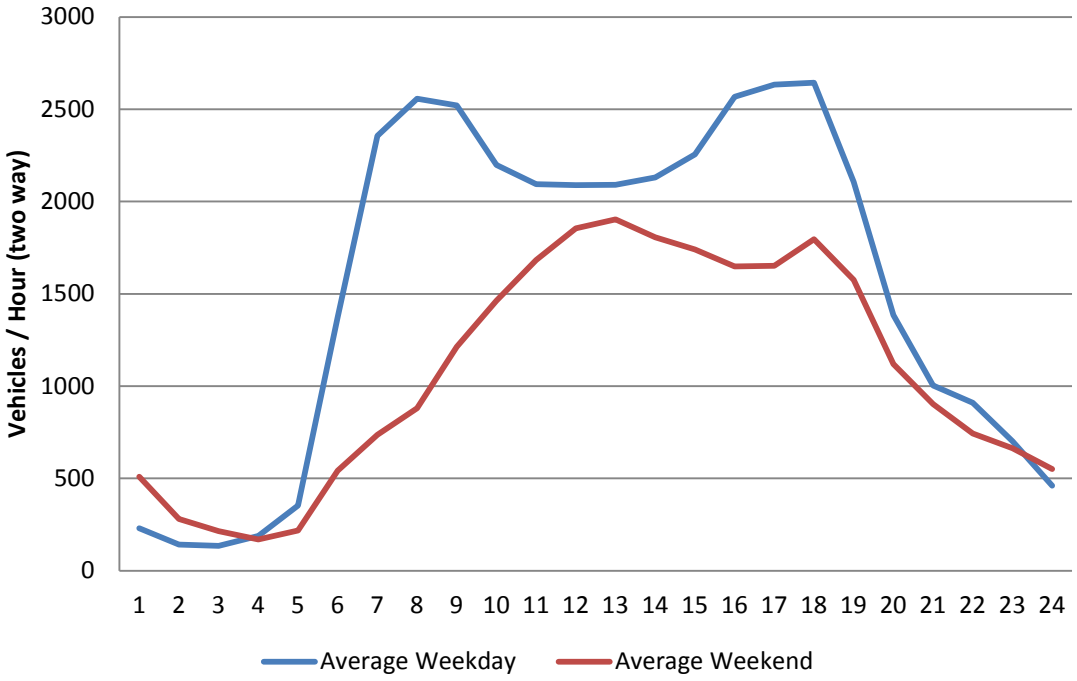
An indication of traffic flows on Henry Lawson Drive at other times of the week is given by typical weekly data for RTA count station V44.042 which is located on Henry Lawson Drive, Georges Hall, south of Rabaul Road. Average weekday and weekend traffic flows over a 24 hour period are provided in Figure 2.2 below.

It is noted that the volumes indicated are for 2005, this being the last year which this type of data has been publicly available. In view of its age, it is suitable as an indication of temporal relativity rather than of absolute flow volumes.

This indicates that traffic flows drop significantly after 7:00pm. The implication of this is that there would only be relatively light traffic flows on Henry Lawson Drive when a large event / function commences (typically after 7pm) and finishes in the period 10:00pm to midnight (in the order of 25 to 30% of weekday evening peak weekday flows).

With regard to background traffic flows along Henry Lawson Drive, the above surveyed traffic flows indicated that the proposed development will have the greatest potential traffic impact if an event / function was to commence or finish in the weekday evening peak period between about 4:00pm and 6:00pm.

Figure 2.2: Henry Lawson Drive Hourly Traffic Flows (Station V44.042 - 2005)



2.5 Intersection Operation

The existing operation of the surveyed intersections were analysed using the SIDRA intersection analysis programme.

SIDRA determines the average delay that vehicles encounter, the degree of saturation of the intersection, and the level of service. For roundabouts and sign posted intersections, the intersection delay is the delay for the worst movement at the intersection.

SIDRA provides analysis of the operating conditions which can be compared to the performance criteria set out in Table 2.2.

Table 2.2: Level of Service Criteria

Level of Service	Average Delay per Vehicle (secs/veh)	Signals & Roundabouts	Give Way & Stop Signs
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & Spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode
F	> 70	Extra capacity required	Extreme delay, traffic signals or other major treatment required

Adapted from RTA Guide to Traffic Generating Developments, 2002

The results of the existing intersection performances are presented in Table 2.3.

Table 2.3: Operating Conditions at Henry Lawson Drive-Webster Street Intersection

Peak Periods	Control Type	Level of Service	Average Delay (sec)
Friday PM	Priority	B	16
Saturday PM	Priority	A	12

Average Delay is for the worst movement at priority intersection (ie. give way / stop sign)

From Table 2.3 it can be seen that the Henry Lawson Drive-Webster Street intersection currently operates at a good Level of Service (LoS) B, or better during the evening peak periods with acceptable delays.

3. The Proposal

3.1 Overview of Development Proposal

The proposal involves alterations and additions to the existing clubhouse to develop a function centre, called Doltone House Deepwater which would be capable of holding events such as wedding receptions, private celebrations, conferences and corporate functions as well as a new restaurant to be built over the existing pool and outbuilding, a new boat shed, car parking and landscaping.

The proposal includes three separate on site buildings comprising:

- Function Centre (1,911m^2 GFA) and Deepwater Motor Boat Club (387m^2 GFA)
  - Ground floor office, back of house and pre function space = 412m^2 GFA
  - First Floor function centre = 1,499m^2 GFA
  - Population capacity = 800 people seated event or 900 stand up cocktail event
  - Motor Club - ground floor club room, boat storage areas and amenities.
- Restaurant / Cafe = 272m^2 GFA of dining area
  - Indoor and outdoor seating areas for 112 seats.
- New Boat Shed
  - Storage for approx. 30 small craft e.g. canoes, kayaks, row boats.

The proponent also proposes to hold up to 12 special outdoor events per year on the site, a number of which would be open to the public.

3.2 Hours of Operation

It is proposed that the following hours of operation would apply to the various uses on the site:

- Motor Boat Club - Unrestricted use by Motor Boat Club members only
- Function Centre - 7am-12 midnight, 7 days a week
- New Restaurant Cafe - 7am-12 midnight, 7 days a week
- New Boat Shed- Unrestricted for authorised groups only (such as boat club and schools).

3.3 Car Parking Arrangements

The combined uses of the site would have access to 272 formal parking spaces in the main car park including six VIP parking spaces on the porte-cochere and four dedicated accessible parking spaces.

An additional 8 car spaces and 4 bus / coach parking spaces are to be provided adjacent to the new boat shed and existing boat ramps.

The total number of formal car parking spaces onsite is therefore 280 spaces. Informal spill over parking for approximately 60 car spaces is proposed in the north east area adjoining the car park.

A plan of the proposed redevelopment is shown in Appendix B.

It is noted that the function spaces will be able to be divided to allow four separate functions to take place simultaneously. Separate break out/ conference rooms are proposed for bridal preparations or smaller meetings. These smaller meetings would either occur as part of a larger function or occur at times that did not overlap with full use of the main function space.

3.4 Boat Ramps

The Deepwater Motor Boat Club will continue to use the existing boat ramps. No works to the ramp are proposed.

The existing boat ramps will continue to be used under license to members of the club. As is the present situation, the boat ramps will not be open to the general public. Access will be controlled via a new gate.

3.5 Servicing and Coaches

Deliveries to the function centre and motor boat club will be received in and waste collected from the existing load dock facility accessed via the existing driveway. These operations will typically take place either during the day or at night after all functions have finished.

Deliveries to the new restaurant will be via the new internal service road to the restaurant/cafe. Waste will also be collected via this service road.

Minor deliveries such as couriers will use car parking spaces provided in the formal car park.

Mini buses will be able to use the porte-cochere for the drop off / pick up of passengers and then park in the specially designated bus parking area.

Full size coach will be received by prior arrangement. Depending on the time of day, they will either park in a cordoned off area in the car park or in the boat ramp area.

4. Impacts of Proposal Redevelopment

4.1 Site Usage Patterns

4.1.1 Overview

The proposed alterations and additions to existing development onsite will include a number of different uses which will have different traffic generation patterns and different parking demands. In particular the various land uses are likely to have their peak activity level at different times of the day.

For example, peak function and restaurant activity occurring on Friday and Saturday nights with the motor boat club activity and restaurant / café occurring during the day on weekends. Weekday activity is expected to be lower on average than weekend activity.

The different site usage patterns will result in a spread of both traffic generation and parking demand rather than peaks occurring all at the same time.

Furthermore, the peak activities of the site will not necessarily coincide with peak conditions on the surrounding road network.

4.1.2 Worst Case Scenario for Assessment Purposes

Notwithstanding that the proposed land uses on the site are likely to have peak traffic and parking demands at different times to other site uses and the surrounding road network, the proposed operating hours and conditions means that it is possible (albeit very infrequently) for key site uses to peak at the same time as the surrounding road network peaks.

With regard to traffic generation, the worst case scenarios are considered to be as follows:

- Weekday afternoon (5-6pm)
  - Evening event in the function centre begins and guests arrive
  - Restaurant is operational
  - Weekday afternoon peak traffic flows along Henry Lawson Drive.
- Saturday evening (5-6pm)
  - Afternoon event in the function centre ends and guests depart
  - Restaurant is operational
  - Weekend evening traffic flows along Henry Lawson Drive.

These worst case scenarios have been used in the assessment of intersection capacity and safety. The following sections set out typical conditions for the site uses with regard to attendance and traffic generation characteristics.

4.1.3 Function Centre Attendance Pattern

In order to examine the range of events and attendance numbers likely to be achievable at the proposed function centre, bookings for Doltone House's Sylvania Waters function centre were analysed for November/December 2010. This is normally a very busy period for function centres and therefore provides a good basis for assessment of traffic and parking generation for the subject proposal. Appendix C summarises these bookings.

The Sylvania Waters function centre has a capacity for 770 persons in its two main rooms. Over the analysis period covered by Appendix B, the highest attendances were as follows:

Day	Time	Attendance	Percent Capacity
Weekday	Daytime	100	13%
Weekday	Evening	443	58%
Weekend	Daytime	200	26%
Weekend	Evening	574	75%

From this, it will be seen that daytime activities are low on weekdays and only moderate on weekends. The times of peak activity are generally on weekday and weekend evenings between 6pm and midnight.

As with most large gathering facilities, the nominal capacity is rarely reached.

Based on the Sylvania Waters data it is considered that the typical usage of the proposed Doltone House Deepwater function centre would be as follows for a 900 person event:

- Weekday daytime event with 13% attendance finishes in the evening peak hour
- Weekday evening event with 58% attendance commences in the evening peak hour
- Weekend daytime event with 26% attendance finishes in the evening peak hour
- Weekend evening event with 75% attendance commences in the evening peak hour.

It is anticipated that there would be about 50 staff for an evening function and 25 staff for a daytime function.

Thus typical staff and patron number would be as follows:

- Weekday daytime event – 117 patrons plus 25 staff
- Weekday evening event – 524 patrons plus 50 staff
- Weekend daytime event – 234 patrons plus 25 staff
- Weekend evening event – 675 patrons plus 50 staff.

The above description of typical operating conditions indicate that typical conditions will be significant less intense with regard to traffic and parking compared to the assessed worst case scenario.

4.1.4 Restaurant / Café

The restaurant is to have the same hours as the function centre, namely 7am-12 midnight, 7 days a week.

The proposed facility will have a total of 112 seats with 96 of these seats provided outdoors under cover.

It is noted that for the purpose of this (worst case) assessment, the restaurant is assumed to be fully operational during the same period as the function facility.

4.1.5 Other Site Uses

The motorboat club and boat shed activities are expected to occur outside of the peak function activity periods. Compared with the function centre the day to day traffic generation of the motorboat club and boat shed are negligible.

Doltone House proposes to hold up to12 special outdoor events per year on the site. These events would not coincide with the normal Deepwater Motor Boat Club racing events (held every 2 months). These would be community events and festivals and a percentage would be free of charge.

4.2 Function Centre Travel Modes

The peak amount of traffic and parking generated by the proposed redevelopment will depend upon how people travel to the site during function centre activity.

Due to the low availability of public transport service in the vicinity of the site, the vast majority of patrons would use private cars, taxis/hire cars or privately arranged buses to access the venue.

For analysis purposes, the following travel modes have been assumed for an event with an attendance of 900 guests:

- 80% of patrons would arrive by private cars
- 10% of patrons would use taxis and hire cars
- 10% would arrive in coaches or mini buses.

Previous studies by GTA have found that vehicle occupancy for people attending a large function varies significantly. Typically larger events have a higher car occupancy than smaller events. For example, weddings are typically larger events and have a number of family members arriving and departing together in the same vehicle. For large events it would not be unreasonable to expect a vehicle occupancy of 3 patrons per car.

Hence, the following travel mode split has been estimated for the proposed redevelopment:

- Car driver – 27%
- Car passenger – 53%
- Taxi/hire car / bus– 20%.

For staff, it is assumed that most would use private cars to access the site with vehicle occupancy of about 2 persons per car.

4.3 Traffic Generation Implications – Worst Case Scenario

4.3.1 Traffic Generation

The peak hour traffic generations for the worst case scenarios are shown in Table 4.1.

For function centre the traffic generation has been estimated based on the travel behaviour characteristics described above.

For restaurant operation, the RMS guidelines [2] rate of 5 vehicle trips / hour / 100m^2 GFA has been used.

[2] RMS (2002) Guide to Traffic Generating Developments

Table 4.1: Estimate of Function Traffic Generations during Worst Case Scenarios (vehicles / hour)

Scenarios	Mode %	No. of Guest	No. of Vehicles	Traffic Generated		
				Inbound	Outbound	Total
Weekday Evening						
Function Centre						
Car	80%	720	240	240	-	240
Taxi / Bus	20%	180	40	32	30	62
Restaurant						
Car			17	9	8	17
Total				281	38	319
Weekend Evening						
Function Centre						
Car	80%	720	240	-	240	240
Taxi / Bus	20%	180	40	30	32	62
Restaurant						
Car			17	8	9	17
Total				38	281	319

NOTE: Vehicle occupancy of 3 persons per vehicle was adopted
Restaurant generation = 5 trips / 100m2 GFA

As shown in Table 4.1, the peak hour traffic generation for the weekday and weekend evening peak hour would be 319vehicles with varying inbound and outbound distributions.

It is noted that this worst case scenario assumes the function centre is fully utilised and all vehicles would arrive and depart within one peak hour.

4.3.2 Intersection Improvements

Given the level of traffic turning from and to Henry Lawson Drive at Webster Street to be generated by the proposed development, an assessment of the warrants for auxiliary lanes has been undertaken using the Austroad (2009) Guide to Road Design.

The purpose of the review was to ensure that the relatively high level of turning movements could be safely accommodated at the intersection. The current intersection design does not provide a designated protected turning bay for south bound vehicles on Henry Lawson Drive. The concern is the potential for right turn stopped in Henry Lawson Drive to increase the potential for rear end accidents.

Austroad guidelines determine that for the existing conditions along Henry Lawson Drive, a channelised right turn lane is warranted when turning volumes exceed 30-50 vehicles per hour.

The worst case turning volumes for the proposed development exceed the guideline levels and thus a right turn bay is warranted.

The provision of a right turn bay would avoid delays to through traffic and allow turning movements to take place safely out of the way of following traffic. Figure 4.1 shows the recommended layout of Henry Lawson Drive / Webster Street intersection.

4.3.3 Future Intersection Operation

Based on observations of existing turning movements, it is assumed about 70% of the generated traffic would be from north of Webster Street and 30% would travel from south of Webster Street.

The development generated traffic as shown in Table 4.1 has been assigned to the existing network using the above trip distribution and reassessed using the Sidra analysis.

The future operation conditions at Henry Lawson Drive / Webster Street intersection for the Friday and Saturday afternoon peak hours are shown in Table 4.2 below.

Table 4.2: Future Operating Conditions at Henry Lawson Drive-Webster Street Intersection

Worst Case Scenario	Control Type	Level of Service (LoS)		Average Delay (sec)	
		Existing	With Development	Existing	With Development
Friday PM	Priority with right turn bay	B	D	16	50
Saturday PM	Priority with right turn bay	A	C	12	41

NOTE: - Future scenarios assumed that an auxiliary right turn lane on Henry Lawson Drive would be provided

Table 4.2 indicates that Henry Lawson Drive / Webster Street intersection would operate satisfactorily for each of the worst case scenarios.

It is noted that a Level of Service D is estimated for the "Friday PM with development" scenario. The Sidra analysis indicates that this LoS D is associated with 85th percentile vehicle queue lengths of only 1-2 vehicles for turns out of Webster Street (worst affected movement). Thus while the average delay may be in the order of 50 seconds the resultant queues would not affect other turning movements or through movements. Thus this delay is considered satisfactory.

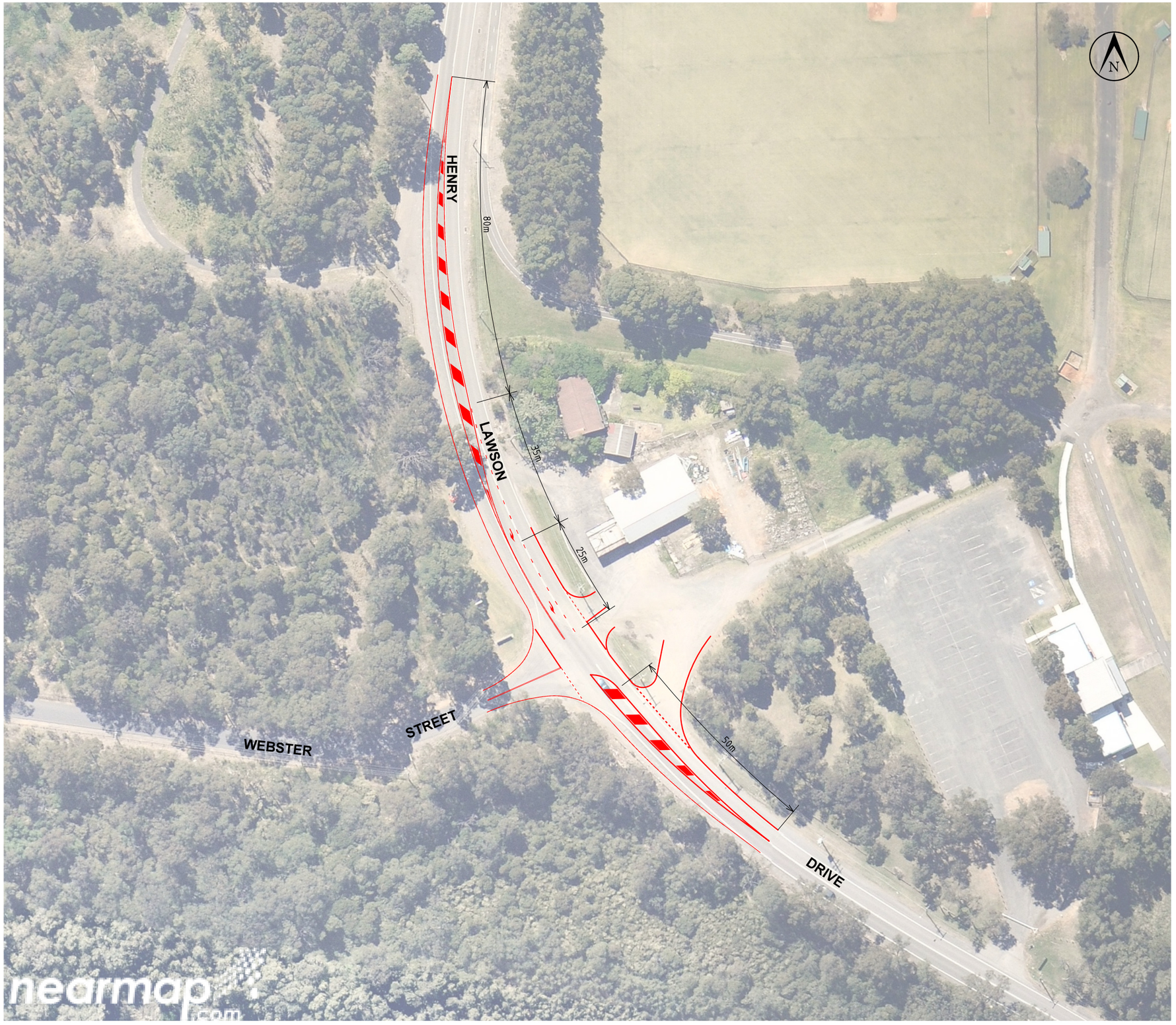
4.4 Assessment of Proposed Parking Provision

4.4.1 Bankstown DCP Parking Requirements

Where specific parking rates are available in the Bankstown City Council's DCP for Parking (Part D8) DCP these have been applied to the land uses in the proposed development as set out in Table 4.3.

Table 4.3: DCP Parking Requirements

Land Use	DCP Parking Rate	Proposed Use	Parking Requirement (No. of Spaces)
Function Centre	Not Specified		N/A
Restaurant	0.15 spaces / m^2 of dining space	272m^2	41 spaces
Boat Shed	Based on Marinas 0.5 spaces / employee + 0.2 spaces / swing mooring 0.2 spaces / dry storage 0.6 spaces / wet berth	0 employees 0 swing moorings 30 dry berths 0 wet berths	6 spaces
Motor Boat Club	0.2 spaces / dry storage	6 dry storage berths	1 space



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DEEPWATER MOTOR BOAT CLUB, MILPERRA
RIGH TURN BAY TREATMENT
CONCEPT PLAN

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SCALE: 1:1000@A3
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APPROVED: JAR
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Bankstown DCP does not specify parking provision for all land uses within the proposed development. However, it states that for a development not included in the Council's car parking standards, a parking study must be submitted for Council's consideration. This report constitutes the required parking study.

For the purpose of assessment a comparison of other nearby Council parking codes has been undertaken. Also a first principle assessment based on likely demand has been provided in the following sections of this report.

4.4.2 Other Council DCP Requirements

For the proposed development, the DCP car parking requirements for several surrounding local government areas where function centre uses are defined in the DCP have been calculated as set out in Table 4.4.

Table 4.4: Comparison of DCP Parking Requirements for Proposed Development

Council	Function Centre Spaces Required	Restaurant Spaces Required	Total Spaces Required
Auburn DCP 2010	300	7	307
Holroyd DCP 2013	250	34	284
Hurstville DCP No. 1	175	37	212
Marrickville DCP 2011	180	22	202

As shown in Table 4.4 the DCP parking rates vary for the proposed land uses with requirements of between 202 and 307 parking spaces for the function centre and restaurant uses.

As noted above, the site has the ability to accommodate up to 340 cars on the site in a combination of formal parking (280 spaces) and informal parking (60 spaces). Thus the proposed provision exceeds each of the DCP requirements for surrounding LGAs.

4.4.3 Estimated Parking Demands

Based on the mode of travel described above the parking demand for different events it is estimated that peak parking demands for the proposed uses would be:

- Function Centre: 240 parking spaces for guests + 25 spaces for staff
- Restaurant: 41 spaces for guests and staff
- Boatshed and Club: 7 spaces as per DCP

The total demand is estimated to be 313 spaces should all land uses be fully occupied simultaneously.

This demand could be accommodated within the proposed total on site parking provision of 340 spaces.

Furthermore, it is unlikely that each use will be fully occupied simultaneously and thus the formal parking provision of 280 parking spaces would be sufficient to accommodate parking demands for the majority of activities on the site.

4.4.4 Special Event Parking Demands

As described above, Doltone House proposes to hold up to12 special outdoor community related events per year on the site. These events would not coincide with the normal Deepwater Motor Boat Club racing events (held every 2 months).

It is understood that the majority of special events likely to be held on site would be relatively small. For example it is envisaged that the site could be used for family picnic days for organisations and charities. As such, the on site parking provisions at Doltone House Deepwater would more than adequately accommodate parking demands associated with typical special events.

Notwithstanding the above it is proposed that a "Special Event Management Plan" covering traffic management, parking and security would be prepared if a large event was to be held on site.

A large event is considered to be one which, if undertaken simultaneously with other on site activities, is expected to require car parking demand which exceeds the car parking capacity of the site and the surrounding road network, namely Webster Street and Maxwell Avenue which provide about 100 parking spaces in addition to the 340 spaces on the Doltone House Deepwater site.

4.4.5 Internal Car Park Layout

Australian Standards set out different parking spaces and car park layout requirements for different types of car parking use. For the proposed development, car parking use is defined by AS2890.1 as Class 2 parking (e.g. sports facilities, entertainment centres – generally medium term publically accessible parking).

The requirement of Australian Standard Class 2 parking is:

- Space width: 2.5m
- Space length: 5.4m
- Aisle width: 5.8m

The dimensions of the parking bays and aisles generally comply with the requirements of Australian Standard for car parking AS2890.1:2004 and are satisfactory.

4.5 Pedestrian and Cyclist Access

Bankstown City Council's cycle map (Figure 4.2) shows that there is an existing cycleway along the eastern side of the Henry Lawson Drive in the vicinity of the site.

At Webster Street the cycleway on the eastern side of Henry Lawson Drive is not adjacent to the road but rather set back within the playing fields. The cycle path connects to Henry Lawson Drive some 80 metres to the north of the Webster Street intersection (see Figure 4.2).

Furthermore, a formal cycleway does not exist along the Webster Street into the Deepwater Park and there is currently no formal pedestrian / cyclist crossing provided at the intersection of the Henry Lawson Drive and Webster Street.

As shown in Figure 4.3, Webster Street forms a T intersection on the outside of a bend in Henry Lawson Drive. Being located on the outside of the bend provides greater sight distances than offered by being located on the inside of the curve. As such sight distances for vehicles entering and exiting Webster Street are adequate.

Similarly for pedestrians and cyclists crossing Henry Lawson Drive at Webster Street from west to east the available sight lines are appropriate. However for pedestrians and cyclists crossing from east to west the available sight distance are not ideal and are restricted by the curved alignment of Henry Lawson Drive.

Figure 4.2: Cycle Map, Bankstown Local Government Area

It would appear logical to assume that the available sight distances at Webster Street had some influence in the setting back of the cycle path away from Henry Lawson Drive at Webster Street.

Figure 4.3 shows our recommended pedestrian / cyclist crossing location with regard to linkages to Council's bicycle strategy.

As shown in Figure 4.4, a pedestrian / cyclist crossing at Henry Lawson Drive at Maxwell Avenue is located on a straight section of road and would provide superior sight distances compared to a crossing at the Webster Street intersection. A crossing at Maxwell Avenue would be adjacent to the existing cycle / pedestrian path and have less conflict with turning vehicles (compared to Webster Street).

In summary it is considered that the Henry Lawson Drive / Webster Street intersection is not an ideal location for a pedestrian/cyclist crossing. Should a crossing be warranted to accommodate the demands of the Deepwater Park generally (not specifically Doltone House Deepwater) then it is recommended that the crossing of Henry Lawson Drive be located at the Maxwell Street intersection.

Furthermore the provision of a pedestrian / cyclist crossing of Henry Lawson Drive at Webster Street does not appear to be consistent with Council's regional / local bicycle (and pedestrian) strategy regarding existing and proposed linkages.

Figure 4.3: Recommended Pedestrian / Cyclist Crossing Location

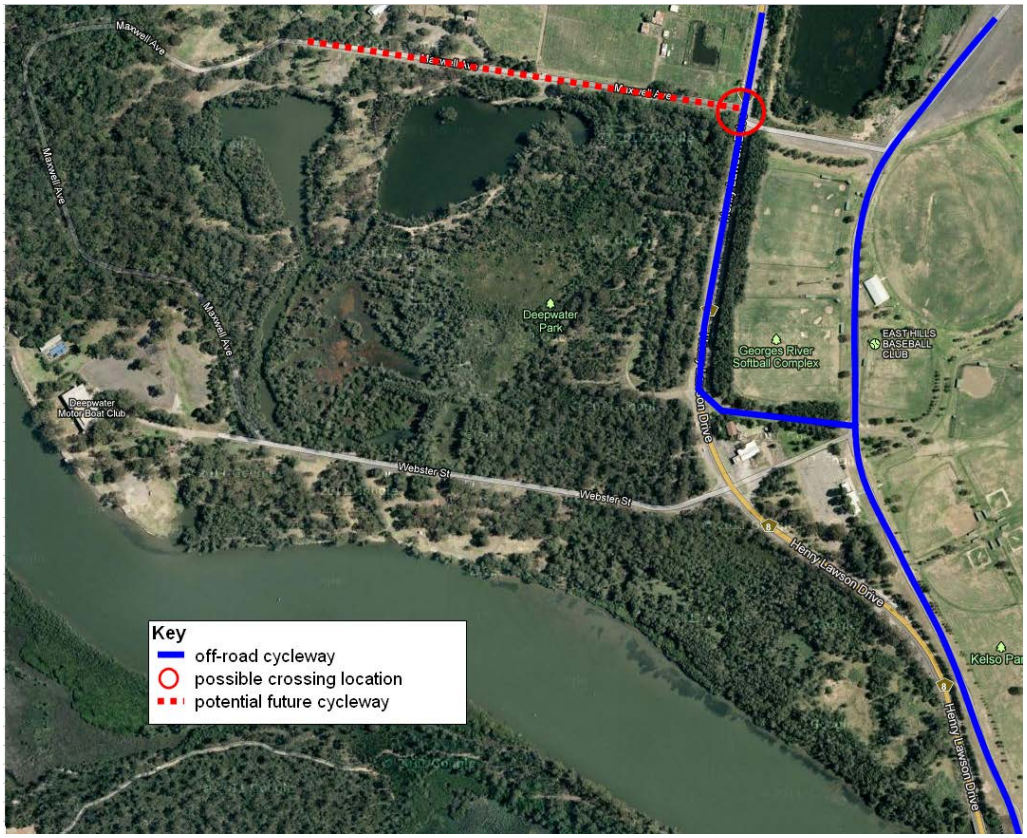


Figure 4.4: Recommended Pedestrian / Cyclist Crossing at Maxwell Avenue

4.6 Emergency Evacuation Route

The site plan shows a paved emergency evacuation route to be used in the event of flood emergencies linking the proposed car park with the existing unpaved section of Maxwell Avenue to the north of the site.

5. Conclusions

This report has examined the traffic and parking implications of proposed redevelopment of Deepwater Motor Boat Club in Milperra.

The findings of the investigation are summarised below:

- The proposed redevelopment includes modification and extension of the existing clubhouse to develop a new function centre, restaurant / café and boat club.
- The proposed redevelopment is expected to generate at most about 319 vehicle trips during the weekend afternoon peak hour before a large evening function.
- The peak parking demand for the development is estimated to be about 313 car parking spaces.
- The proposed provision of 280 formal spaces would cater for all parking demand except for a large evening functions and simultaneous restaurant operation. The provision of about 60 additional overflow spaces would be sufficient to cater for a large evening function.
- It is recommended that an auxiliary right turn lane be provided for southbound traffic on Henry Lawson Drive turning right into Webster Street. This facility is recommended to allow vehicles turning into Webster Street to wait safely without generating delays or potential rear end collisions for through traffic flows on Henry Lawson Drive.
- With the recommended right turn lane treatment, the Henry Lawson Drive / Webster Street intersection would operate satisfactory with levels of service D or better during the Friday and Saturday afternoon peak hour with the development generated traffic.
- The layout of the car park is proposed to comply with the Australian Standards for off-street car parking.

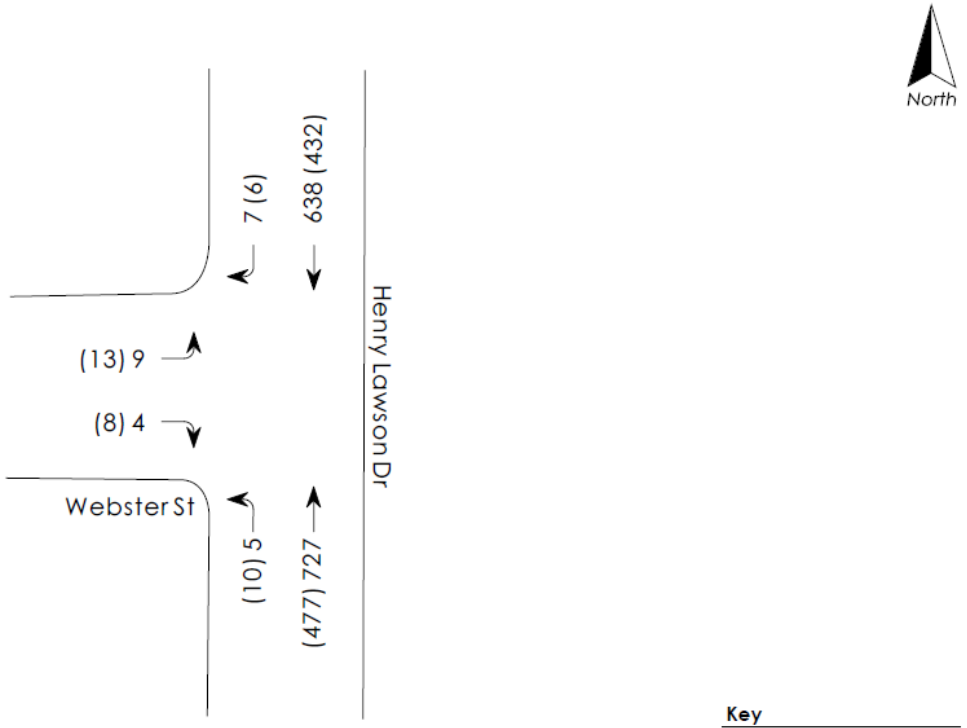
Overall, it is concluded that traffic and parking aspects of the proposed redevelopment would be satisfactory.

Appendix A

Traffic Turning Movement Counts and RMS Count Station Data

EXISTING PEAK HOUR INTERSECTION FLOWS

DEEPWATER PARK, MILPERRA



Halcrow

Figure 2

Filename: CTLRFMdi02.ai

Date: 9 December 2010

Source: Deepwater Park Traffic and Parking Report (Halcrow December 2010)

Table A.1: Relative Hourly Traffic Flows on Henry Lawson Drive at Station V44.042 (Two-way flows)

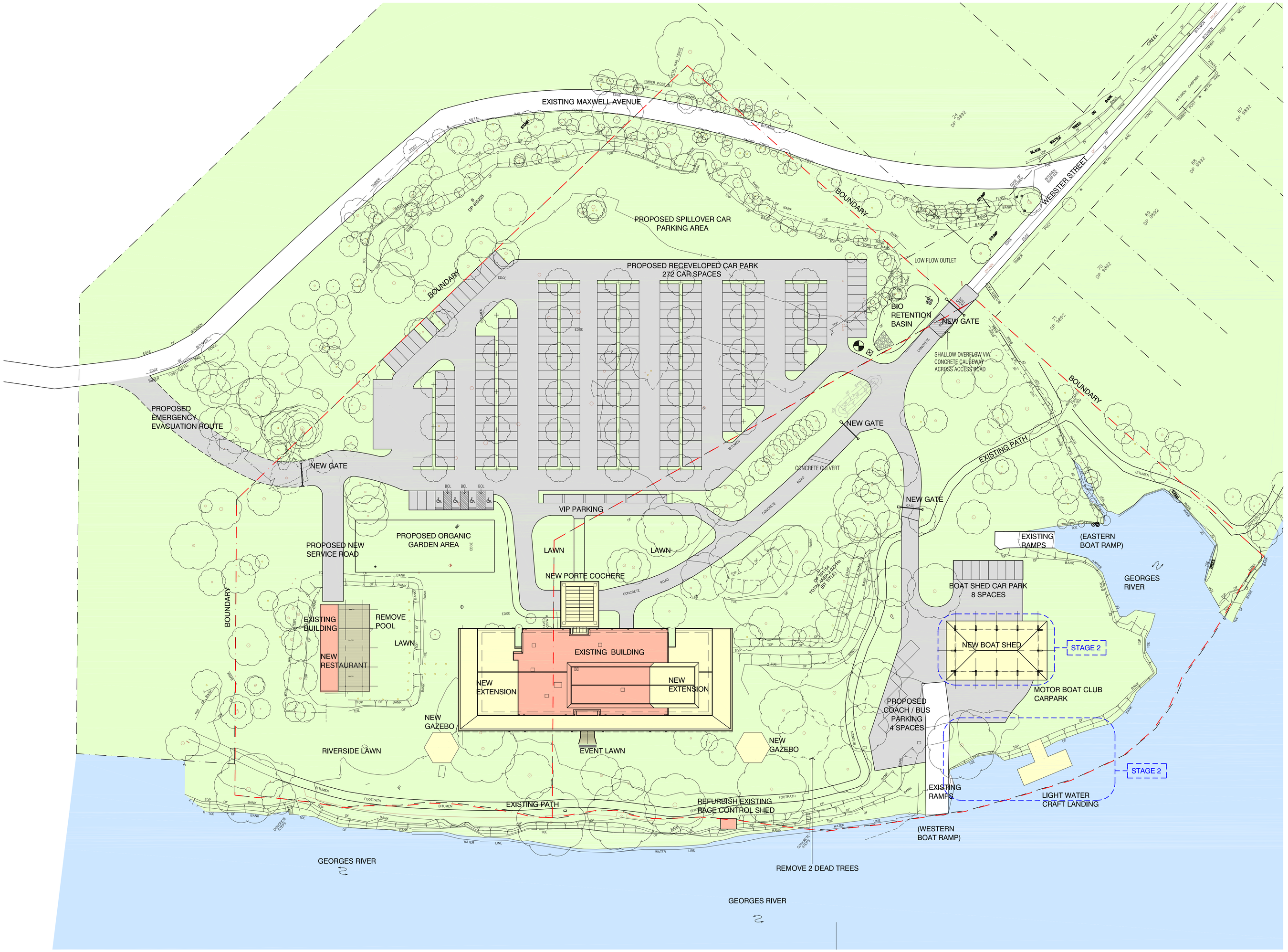
Hour Commencing	Average Weekday	Average Weekend
0	230	510
1	141	280
2	134	215
3	189	170
4	353	218
5	1,374	542
6	2,356	736
7	2,557	880
8	2,520	1,213
9	2,198	1,462
10	2,094	1,683
11	2,089	1,855
12	2,090	1,904
13	2,131	1,807
14	2,256	1,740
15	2,567	1,648
16	2,633	1,651
17	2,644	1,795
18	2,106	1,576
19	1,385	1,119
20	1,004	903
21	910	743
22	701	663
23	460	551

Source: RTA Traffic Volumes Data 2005 Sydney Region (http://www.rta.nsw.gov.au/trafficinformation/downloads/aadtdata_dl1.html

Appendix B

Development Site Plan

NORTH



01 A0.10 **SITE PLAN**

SCALE 1:500

SCALE1:100 @ B1

NEW BUILDINGS & STRUCTURES

EXISTING BUILDINGS

NEW PAVED AREAS

PRELIMINARY DEVELOPMENT APPLICATION

ISSUE	AMENDMENTS	DATE
P11	PRELIMINARY	05.03. 2014
P10	PRELIMINARY	28.02. 2014
P9	PRELIMINARY	26.02. 2014
P8	PRELIMINARY	25.02. 2014
P7	PRELIMINARY	04.02. 2014
P6	PRELIMINARY	22.01. 2014
P5	PRELIMINARY	21.01. 2014
P4	PRELIMINARY	06.01. 2014
P3	PRELIMINARY	6.12. 2012
P2	PRELIMINARY	19.11.2012
P1	PRELIMINARY	08.11.2012

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doltone house

Architect:

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Project

STAGE 1
DOLTONE HOUSE MILPERRA
DEEPWATER MOTORBOAT CLUB
30 WEBSTER STREET, MILPERRA, NSW

Title:

SITE PLAN

Scale: AS SPECIFIED

Drawn:	Checked By:	Date:
BG	D.H.	OCT 2013

Job Number:	Drawing Number:	Issue:
266-13	A 1.01	P11

DRAWING NO:266-13-DA-1.01-P11.pln 05/03/2014 2:06:01 PM

Appendix C

Sylvania Waters Attendance

Appendix B - Summary of Bookings at Doltone House, Sylvania Waters

18 November to 31 December 2010

Date	Activity	Time	Attendance	Attendance at any one time
Thursday, 18/11/2010	Auction	6:00 - 9:00PM	10	
	School Formal	6:00 - 11:00PM	179	239
	Corporate Dinner	6:30 - 11:30PM	60	
Friday, 19/11/2010	Breakfast	6:30 - 9:30AM	18	
	Gingerbread Stars	8:00 - 9:00AM	?	
	School Formal	6:00 - 11:00PM	184	257
	Wedding	7:00 - Midnight	73	
Saturday, 20/11/2010	Engagement	4:00 - 10:30PM	90	
	Wedding	6:00 - Midnight	268	574
	Wedding	6:00 - Midnight	216	
Sunday, 21/11/2010	Christening	12:00 - 4:00PM	48	
	Wedding	5:00 - Midnight	233	436
	Wedding	5:30 - 11:45PM	203	
Monday, 22/11/2010	School Formal	6:00 - 11:00PM	139	139
Tuesday, 23/11/2010	Corporate	4:30 - 7:30PM	30	
	School Formal	6:00 - 11:00PM	92	122
Wednesday, 24/11/2010	School Formal	6:00 - 11:00PM	108	108
Thursday, 25/11/2010	School Formal	7:00 - Midnight	146	146
Friday, 26/11/2010	Corporate Breakfast	6:30 - 9:30AM	18	
	Gingerbread Stars	8:00 - 9:00AM	?	
	Corporate	9:00AM - 4:00PM	12	
	Wedding	5:30 - 11:00PM	111	443
	School Formal	7:00 - Midnight	332	
Saturday, 27/11/2010	Birthday	Midday - 4:30PM	17	
	Wedding	6:00 - Midnight	254	
	Wedding	6:00 - Midnight	165	419
Sunday, 28/11/2010	Christening	11:00AM - 4:30PM	100	
	Wedding	6:00 - Midnight	211	
	Wedding	6:00 - Midnight	305	405
Monday, 29/11/2010	Corporate	6:00 - 9:00PM	?	
	School Formal	6:00 - 11:00PM	195	195+
Tuesday, 30/11/2010	School Formal	6:00 - 11:00PM	170	170
Wednesday, 1/12/2010	Corporate Lunch	11:00AM - 3:30PM	80	
	School Formal	6:00 - 11:00PM	140	140
Thursday, 2/12/2010	Corporate Lunch	11:30AM - 3:30PM	80	
	School Formal	6:00 - 11:00PM	60	140
Friday, 3/12/2010	Corporate Breakfast	6:30 - 9:30AM	18	
	Gingerbread Stars	8:00 - 9:00AM	?	
	Wedding	6:30 - Midnight	100	100
Saturday, 4/12/2010	Wedding	6:00 - Midnight	240	
	Wedding	6:00 - Midnight	250	490
Sunday, 5/12/2010	Wedding	11:00AM - 4:00PM	100	
	Wedding	6:00 - Midnight	180	
	Wedding	6:00 - Midnight	300	480
Monday, 6/12/2010	Corporate Lunch	11:30AM - 3:30PM	90	
	School Formal	6:00 - 11:00PM	200	200
	Corporate	6:00 - 9:00PM	?	
Tuesday, 7/12/2010	School Formal	6:00 - 11:00PM	100	
	School Formal	7:00 - 10:30PM	100	200
Wednesday, 8/12/2010	Christmas Lunch	11:00AM - 3:30PM	100	
	School Formal	6:00 - 11:00PM	100	
	School Formal	6:30 - 10:30PM	130	230

Appendix B - Summary of Bookings at Doltone House, Sylvania Waters

18 November to 31 December 2010

Date	Activity	Time	Attendance	Attendance at any one time
Thursday, 9/12/2010	School Formal	6:00 - 11:00PM	100	100
Friday, 10/12/2010	Corporate Breakfast	6:30 - 9:30AM	18	
	Gingerbread Stars	8:00 - 9:00AM	?	
	Corporate Lunch	11:30AM - 4:00PM	100	
	Corporate Dinner	6:30 - Midnight	100	100
Saturday, 11/12/2010	Christening	11:30AM - 4:30PM	100	
	Wedding	6:00 - Midnight	250	
	Corporate Dinner	6:30 - Midnight	300	550
Sunday, 12/12/2010	Corporate Lunch	12:00 - 4:30PM	50	
	Wedding	6:00 - Midnight	340	
	Engagement	6:00 - Midnight	150	490
Monday, 13/12/2010	Corporate	6:00 - 9:00PM	?	
	Corporate Dinner	7:00 - Midnight	80	80
Tuesday, 14/12/2010	Corporate	4:30 - 7:30PM	30	
	Graduation	6:00 - 10:00PM	70	100
Thursday, 16/12/2010	Auction	6:00 - 9:00PM	10	10
Friday, 17/12/2010	Corporate Breakfast	6:30 - 9:30AM	18	
	Corporate	7:30 - 10:30PM	150	150
Saturday, 18/12/2010	Wedding	6:00 - Midnight	200	
	Wedding	6:00 - Midnight	250	450
Sunday, 19/12/2010	Christening	11:00AM - 5:00PM	200	
	Wedding	6:00 - Midnight	300	300
Monday, 20/12/2010	Corporate	6:00 - 9:00PM	?	
Wednesday, 22/12/2010	Corporate	7:00 - Midnight	50	50

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