

Our Ref: 17281

2 July 2018

Eastern Suburbs Leagues Club Limited  
c/o- Hamptons Property Services Pty Ltd  
PO Box 954  
EDGECLIFF NSW 2027

**Attention: Ms Kristy Hodgkinson**

Dear Kristy,

**RE: EASTS WOY WOY RUGBY LEAGUES CLUB  
PROPOSED SENIORS HOUSING DEVELOPMENT – TRAFFIC STATMENT**

The Transport Planning Partnership (TPPP) has prepared this letter for Hamptons Property Services to accompany a Site Compatibility Certificate (SCC) application.

The SSC application seeks approval for the proposed introduction of 143 independent living units for the purpose of seniors housing apartments (approx. 296 beds) as part of the redevelopment of the existing Easts Woy Woy Rugby Leagues Club (the 'Club') at 82 Blackwall Road, Woy Woy.

At this stage, the proposed redevelopment of the site involves the reduction of existing Club space (from 2,200sqm to 1,600sqm) to facilitate a gym and swimming pool (880m<sup>2</sup>), two retail tenancies (335m<sup>2</sup>) and a restaurant (368sqm), plus the proposed 143 independent living units (296-beds).

This statement relates to the traffic and parking implications arising from the proposed development. The findings of our assessment are herein provided below.

## 1. Existing Conditions Assessment

### 1.1 Existing Site Description

The Club is located at 82 Blackwall Road, Woy Woy and falls within the local government area of the Central Coast Council. The site is currently occupied by the Easts Woy Woy Rugby League Club which operates as an entertainment venue with associated ground level parking. Primary access to the site is currently provided off Blackwall Road and Victoria Road along the western and southern side of the site.

The subject site and its surrounds is shown in Figure 1.

Figure 1: Locality Map



Basemap Source: Google Maps Australia

Land uses surrounding the site predominately comprises low to medium density residential, commercial and public recreational uses. Significant establishments in the vicinity of the site include Deepwater Plaza, Woy Woy Court House and St John the Baptist Church which are west, north and south-west of the site respectively.



## 1.2. Existing Site Access

The Club currently has four existing vehicle accesses off Blackwall Road and Victoria Road along the western and southern boundaries of the site. The existing site access arrangements are shown in Figure 2.

Figure 2: Existing Site Access Arrangements



The existing site access points are described as follows:

- **Blackwall Road Driveway 1:** two-way, two-lane vehicle access to the existing Club car park (56 spaces)



- **Blackwall Road Driveway 2:** one-way ingress, one-lane vehicle access to the existing staff car park (six spaces) and general car park area



- **Blackwall Road Driveway 3:** one-way left-only egress vehicle access from the at-grade car park (65 spaces)



- **Victoria Road Driveway 4:** two-way; two-lane vehicle access to the existing Club at-grade car park (65 spaces). This vehicle access is shared with the private car park for David Kelly Lawyers (DKL) staff located adjacent to the Club at 39 Victoria Road. The DKL car park contains six car parking spaces.



### 1.3. Existing Site Traffic Generation

Traffic surveys were conducted at the existing access points between 8am-8pm Friday, 9 February 2018 and 8am-8pm Saturday, 10 February 2018, to determine the existing traffic generated by the Club. The existing access point locations are presented in Figure 2 for reference.

Based on these surveys, the existing site peak hour times were found to be as follows:

- Friday AM @ 10:30am-11:30am (34 two-way trips)
- Friday PM @ 3:30pm-4:30pm (34 two-way trips)
- Saturday midday @ 11:15am-12:15pm (27 two-way trips)

A summary of the existing site traffic generation profile during the Friday and Saturday survey period is presented in Figure 3.

**Figure 3: Friday, Existing Site Traffic Generation – Friday and Saturday**

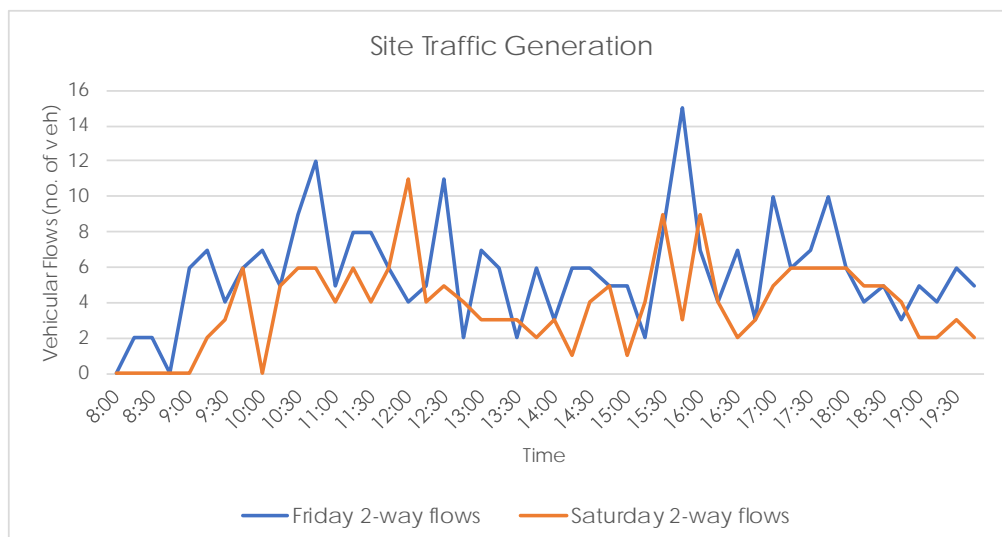




Figure 3 shows that the peak hour of the site generally occurs on the Friday afternoon, between 3.30pm and 4.30pm and Saturday afternoon between 11.15am and 12.15pm.

#### 1.4. Existing Car Parking Conditions

Concurrent with the above traffic surveys, car parking survey counts were also undertaken at the Club between 8am-8pm Friday, 9 February 2018 and 8am-8pm Saturday, 10 February 2018. A total of 127 existing car parking spaces were recorded.

The existing car parking supply and associated parking restriction is shown in Table 1.

**Table 1: Car Parking Supply and Restriction**

Area	Parking Restriction	Parking Supply
At-grade Car Park	Unrestricted	64 spaces
	Disabled Parking	1 space
<i>At-grade Car Park Sub-Total</i>		<i>65 spaces</i>
Staff Car Park	Security Manager	1 space
	Reserved – Club Duty Manager	2 spaces
	Assistant Secretary Manager	1 space
	Disabled Parking	2 spaces
<i>Staff Car Park Sub-Total</i>		<i>6 spaces</i>
Underground Car Park	Unrestricted	19 spaces
	Disabled Parking	3 spaces
	Unrestricted	33 spaces
	Disabled Parking	1 space
<i>Underground Car Park Sub-Total</i>		<i>56 spaces</i>
<b>Total Car Parking Supply</b>		<b>127 spaces</b>

The location of the car parking areas is shown in Figure 4.

Figure 4: Location of Parking Areas



Basemap Source: Google Maps Australia

Based on the existing provisions of the site, the Club currently provides car parking at a rate of 5.8 spaces per 100m<sup>2</sup>. This is similar with empirical data for other similar Club sites such as Campsie<sup>1</sup> and Concord RSL<sup>2</sup> which provide a car parking provision at a rate of 3.7 and 2.3 car parking spaces per 100m<sup>2</sup> respectively.

Based on the car parking demand surveys conducted at the Club, the existing parking demand is considerably less than its car parking provision of 127 spaces. The car parking surveys indicate that the Club generates a maximum car parking demand of 48 spaces, which equates to a peak parking accumulation of 2.3 spaces per 100m<sup>2</sup>.

In fact, this lower car parking rate is consistent with a similarly sized Club at Concord RSL which provides car parking at a rate of 2.3 spaces per 100m<sup>2</sup>. The Campsie RSL, which is also about 3,000m<sup>2</sup> has 113 car parking spaces, provides car parking at a rate of 3.7 spaces per 100m<sup>2</sup>.

A summary of the car parking occupancy profile during the Friday and Saturday survey at the existing Club is graphically presented in Figure 5 and Figure 6 respectively.

<sup>1</sup> The Campsie RSL comprises 3,000m<sup>2</sup> of Club space and provides 113 car parking spaces, which equates to 3.7 spaces per 100m<sup>2</sup>.

<sup>2</sup> The Concord RSL comprises around 3,000m<sup>2</sup> of Club space and 200m<sup>2</sup> of gym space, with 75 car parking spaces. This equates to a car parking provision at a rate of 2.3 spaces per 100m<sup>2</sup>.

Figure 5: Friday Car Parking Occupancy Survey (Combined Car Park)

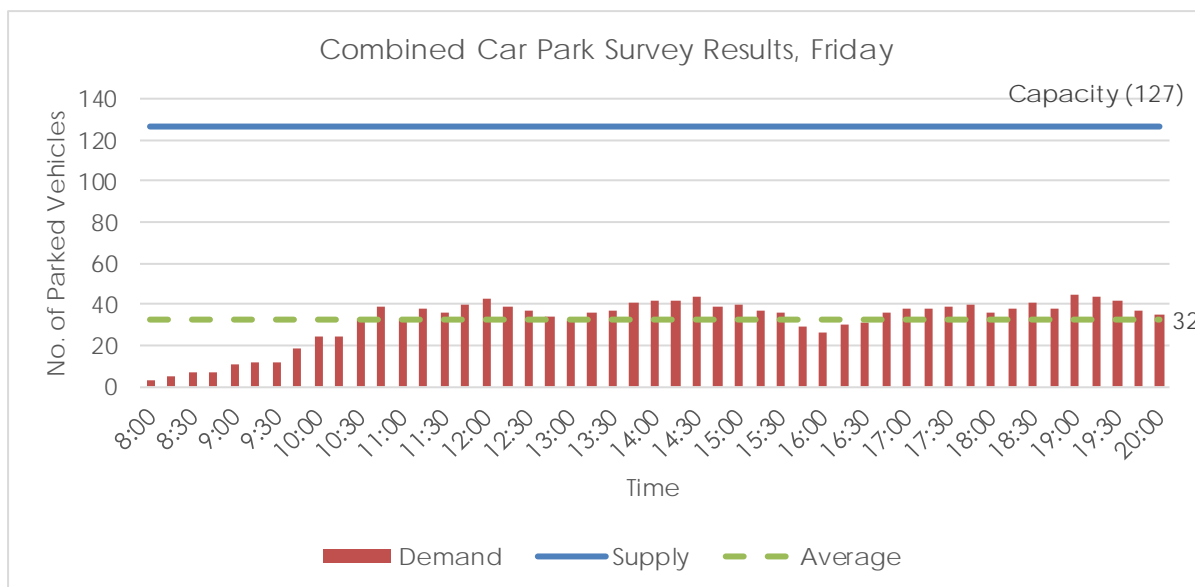
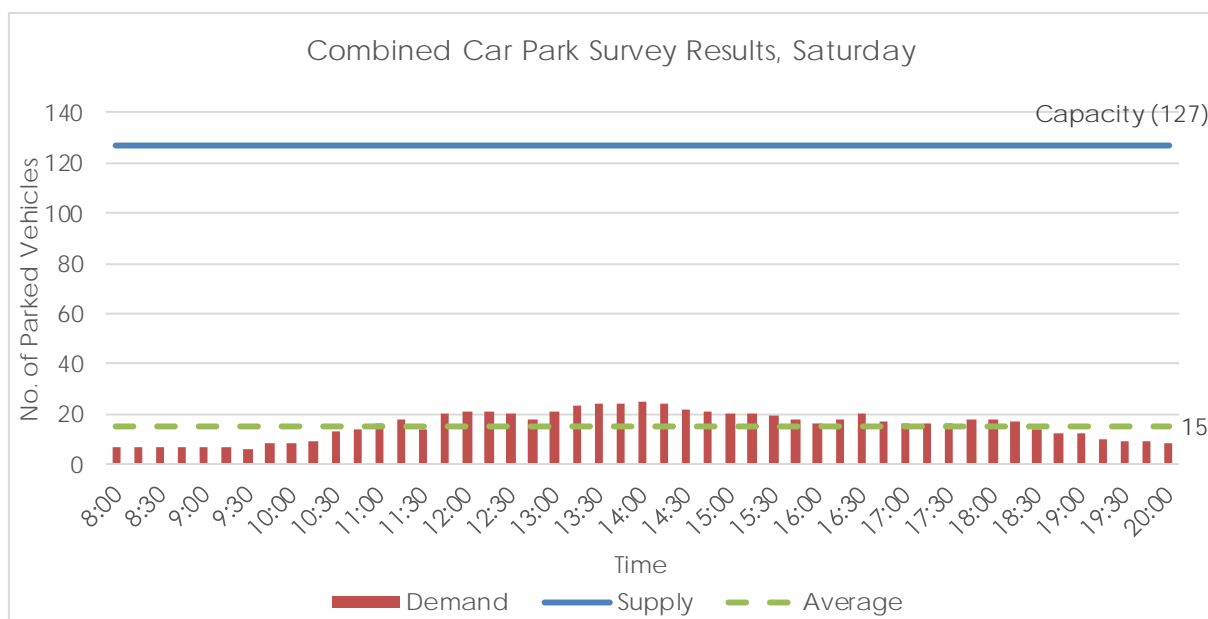


Figure 6: Saturday Car Parking Occupancy Survey (Combined Car Park)



In summary, the existing car park currently operates well below its capacity, with a peak parking accumulation of 38% and 17% during the Friday and Saturday surveys. This equates to a maximum car parking occupancy of 48 and 22 spaces occupied on a Friday and Saturday respectively.



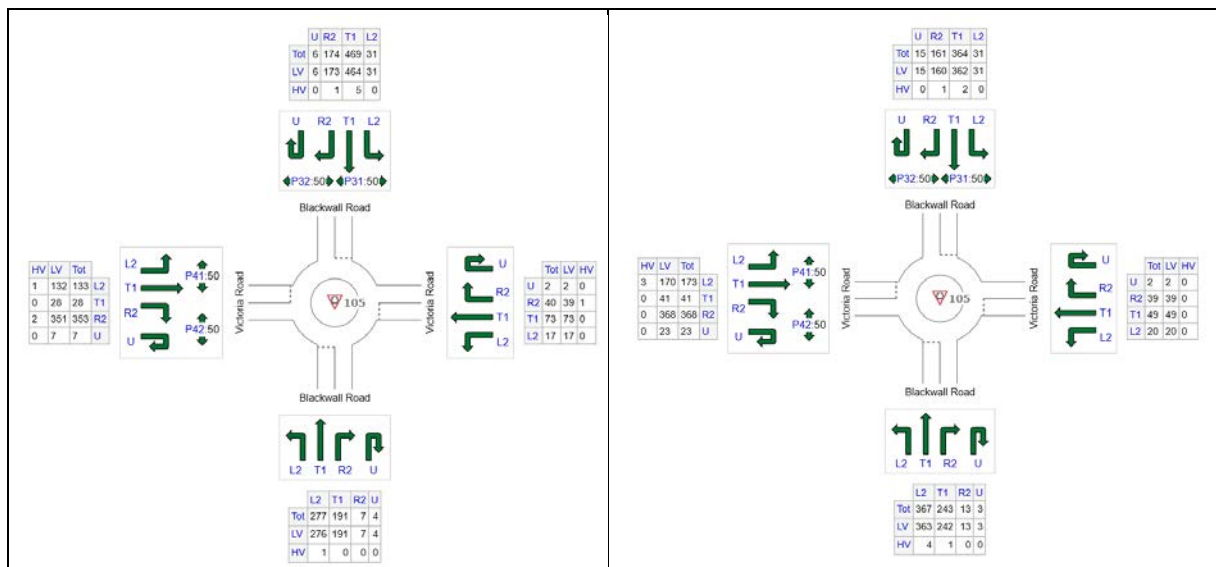
## 1.5. Existing Intersection Traffic Volumes

Intersection counts were conducted at the existing Blackwall Road-Victoria Road intersection on Thursday, 22 March 2018 4pm-6pm and Saturday, 24 March 2018 11am-1pm. The existing peak hour times at the Blackwall Road-Victoria Road intersection were identified between 4pm-5pm on Thursday and 11.15-12.15pm on Saturday, which is generally consistent with the existing site peak hour on a Friday and Saturday.

The existing peak hour traffic volumes on the Thursday evening and Saturday midday peak at the Blackwall Road-Victoria Road intersection are shown in Figure 7 and Figure 8 respectively.

**Figure 7: Victoria Rd-Blackwall Rd – Friday Evening Peak Hour Traffic Volumes**

**Figure 8: Victoria Rd-Blackwall Rd – Saturday Midday Peak Hour Traffic Volumes**



Notably, the existing intersection currently operates well, with acceptable delays and queues on each approach. Intersection analysis has been conducted using the above surveyed peak hour traffic flows and is further discussed in Section 2.3.

## 2. Proposed Development

### 2.1 Proposal Description

The proposed redevelopment of the Club involves the reduction of the existing Club floor space to facilitate a gym and swimming pool, retail tenancies and a restaurant, plus 143 independent seniors living units.

As indicated previously, the proposed development comprises:

- Club space – 1,600m<sup>2</sup> (a reduction from existing 2,200m<sup>2</sup>)
- Gym and swimming pool – 880m<sup>2</sup>
- Retail shops (two small shops) – 335m<sup>2</sup>
- Restaurant use – 368m<sup>2</sup>
- 143 independent living units (296-beds)

In addition to this, it is proposed to provide some 225 car parking spaces across two levels of basement car parking to serve the proposed development.

Vehicle access to the basement car park would be provided off the existing two-way driveway on Victoria Road. The three existing driveways on Blackwall Road would be consolidated into one single driveway along the south-east corner of the site to serve the occasional service vehicle throughout the day. In our view, the proposed vehicle access arrangements are satisfactory, and notably, a better outcome in terms of access compared to existing conditions due to the removal of the two existing driveways on Blackwall Road.

### 2.2 Car Parking Requirement and Assessment

The car parking requirements for the proposed development have been assessed against the following guidelines/sources:

- State Environmental Planning Policy, Housing for Seniors or People with a Disability, 2004 (SEPP Seniors Housing) for self-contained dwellings
- Gosford City Council Development Control Plan (DCP) 2013
- Roads and Maritime Traffic Generating Guidelines
- existing traffic survey data at the site and other similar developments at Campsie and Concord RSL.

#### *Seniors Living Parking Assessment*

The SEPP Seniors Housing state that a development application cannot be refused where at least:

- *0.5 car spaces for each bedroom where the development application is made by a person other than a social housing provider*

As such, the proposed development (296 bedrooms) would require at least 148 car parking spaces. It is proposed to provide some 148 car parking spaces, which satisfies the above SEPP Seniors Housing car parking rates.

#### *Club Parking Assessment*

It is proposed to provide car parking for the Club use based upon the existing maximum parking demand of the site, i.e. 50 spaces (rounded from 48 spaces). As the proposed Club area is in fact reducing by size by nearly 30%, the proposed provision of 50 car parking spaces is considered satisfactory for the future reduced Club space.

Based on the proposed Club space (1,600m<sup>2</sup>), this equates to a car parking provision of 3.1 spaces per 100m<sup>2</sup>. This car parking provision exceeds the peak parking accumulation for the existing Club, which currently generates a maximum parking demand of 2.3 spaces per 100m<sup>2</sup>. As such, the proposed provision of 50 car parking spaces is appropriate to serve the intended purposes of the Club.

#### *Retail Shop Parking Assessment*

The retail component of the site is expected to comprise two low scale retail shops, each with a GFA of approx. 110m<sup>2</sup> to 230m<sup>2</sup> to serve the local community. It is expected that the nature of the retail uses would be such that patronage to these retail uses would be primarily made up of walk-in trips from residents in the building, Club patrons and locals in the area.

In this regard, car parking provision of two car parking spaces is appropriate for the anticipated retail purposes (i.e. one space per retail tenancy), given that visitor parking would not likely be required. As such, it is proposed to provide two car parking spaces for the retail shop uses.

#### *Gym and Swimming Pool Parking Assessment*

Council's DCP does not specify any parking rates for gym and/or swimming pool developments. Updated surveys conducted by Roads and Maritime suggest that gym developments should provide car parking at a rate of 1.4 to 4.3 spaces per 100m<sup>2</sup>.

The proposed gym and swimming pool uses are expected to be used by residents of the building, Club members and/or locals in the area and therefore, are not expected to generate any substantial parking demand (if any). As such, it is proposed to provide car parking for the gym and swimming pool use at the lower car parking rate of 1.4 spaces per 100m<sup>2</sup>. Using this metric, the proposed gym and swimming pool (880m<sup>2</sup>) would require a total car parking provision of 12 spaces.

### *Restaurant Parking Assessment*

As the site falls within the Woy Woy Town Centre, Council's DCP recommends that restaurants in town centre areas should provide car parking at a rate of 1 space per 30m<sup>2</sup>. Using this metric, the restaurant use (368m<sup>2</sup>) would require a total car parking provision of 12 spaces.

### *Summary of Parking Rates for the Development Site*

A summary of the car parking requirements for the entire redevelopment of the site is shown in Table 2.

**Table 2: Car Parking Requirements**

Land Use	Size	Car Parking Rate	Car Parking Requirement
Club	1,600sqm	maximum parking demand at existing Club (50 spaces)	50 spaces
Retail	335m <sup>2</sup>	1 per retail tenancy (two tenancies)	2 spaces
Restaurant	368sqm	1 per 30m <sup>2</sup>	12 spaces
Gym and Swimming Pool	880sqm	1.4 per 100m <sup>2</sup>	12 spaces
Residential	296 beds	0.5 spaces per bedroom	148 spaces
<b>Total</b>			<b>224 spaces</b>

Table 2 indicates that the proposed development would require 224 spaces. It is proposed to provide 225 car parking spaces to serve the proposed development, which is acceptable to serve the anticipated size and use of the site.

Notwithstanding this, TTPP notes that the proposed mixed-uses would likely give rise to linked/multi-purpose trips to the site. Consequently, the incidence of linked-trips may ultimately reduce the car parking requirements for the site. However, for the purpose of this estimate, no discounts have been applied to consider the incidence of linked/multi-purpose trips, which could range from a 5% to a 25% reduction in some instances (e.g. Club patrons visiting the restaurant). It is therefore considered that a very conservative scenario has been assessed.

As such, the proposed car parking provision of 225 car parking spaces is satisfactory. The car park and associated elements are proposed to be designed in accordance with the design requirements set out in the relevant Australian Standards for car parking facilities.

## **2.3 Traffic Assessment**

### *Traffic Generation*

The proposed redevelopment of the Club is expected to generate a similar traffic generation profile as the existing Club, which currently generates circa 34 and 27 two-way trips during the weekday and Saturday peak respectively.



The proposed retail, restaurant, swimming pool and gym uses are expected to serve the local community and the proposed development site. As such, patronage generated by these uses are expected to be predominately walk-in trips from local residents and workers from nearby developments, Club patrons and residents within the building.

Therefore, the proposed retail, restaurant, swimming pool and gym uses are not expected to generate any substantial amount of vehicle trips. However, for the purpose of estimating the traffic generation profile of these uses, it has been assumed that driving patrons would stay at the site for about 1 hour. On this basis, the traffic generation rate potential for these uses have been assumed to be at a trip rate of 1 trip per car space, which equates to a trip generation rate of up to 26 trips in one given hour.

In regard to the proposed residential use, traffic generation rates for seniors housing developments have been estimated based on the Roads and Maritime Guide to Traffic Generating Developments (Guide), updated traffic surveys (TDT 2013/04a).

The Roads and Maritime Guide suggests that seniors housing developments typically generate traffic at 0.4 trips per dwelling during the weekday peak. On that basis, the proposed provision of 143 seniors living apartments would likely generate a total trip generation of 57 vehicle trips in the peak hour. This equates to a frequency of one vehicle every minute in the peak hour.

In summary, the proposed development is expected to generate a net addition of 83 vehicle trips (26 non-residential and 57 residential trips) during the peak hour.

#### *SIDRA Traffic Analysis*

Traffic analysis has been conducted using SIDRA Intersection to determine the likely implications of the proposed development.

Roads and Maritime uses level of service as a measure of performance for all intersection types operating under prevailing traffic conditions. The level of service ranges from LoS A to LoS F which is directly related to the average intersection delays experienced by traffic travelling through the intersection. LoS A to LoS D are considered to provide acceptable performance with LoS A providing better performance than LoS D. LoS D is the long term desirable level of service. LoS E and LoS F are considered to provide unsatisfactory intersection performance.

At signalised intersections, the average delay is the volume weighted average of all movements. For roundabouts and priority (give way and stop sign) controlled intersections, the average delay relates to the worst movement.

Table 3 shows the criteria that SIDRA Intersection adopts in assessing the LoS.

**Table 3: Roads and Maritime LoS Criteria**

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity; at signals incidents would cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode.
F	Greater than 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode or major treatment

A summary of the Friday evening and Saturday peak hour traffic modelling results is shown in Table 4 and Table 5 respectively, with the full movement summaries provided in Attachment One.

**Table 4: Victoria Rd-Blackwall Rd: Weekday Evening Peak Hour Traffic Modelling Results**

Leg	Existing Base Case			Future Development Case (Existing plus Development)		
	Ave. Delay	LOS	95 <sup>th</sup> Percentile Queue Length (m)	Ave. Delay	LOS	95 <sup>th</sup> Percentile Queue Length (m)
Blackwall Road (south leg)	18	B	47	21	B	55
Victoria Road (east leg)	20	B	18	23	B	23
Blackwall Road (north leg)	17	B	73	19	B	90
Victoria Road (west leg)	12	A	31	12	A	35

**Table 5: Victoria Rd-Blackwall Rd: Saturday Midday Peak Hour Traffic Modelling Results**

Leg	Existing Case			Future Development Case (Existing plus Development)		
	Ave. Delay	LOS	95 <sup>th</sup> Percentile Queue Length (m)	Ave. Delay	LOS	95 <sup>th</sup> Percentile Queue Length (m)
Blackwall Road (south leg)	13	A	46	14	A	52
Victoria Road (east leg)	18	B	12	19	B	17
Blackwall Road (north leg)	17	B	60	18	B	69
Victoria Road (west leg)	18	B	69	21	B	86

Based on the above traffic modelling, the future intersection operation at the Victoria Road-Blackwall Road intersection is expected to continue to operate satisfactorily at LoS B or better during peak periods.

Thus, the proposed development is not expected to have any adverse traffic implications, nor result in any operational or safety issues at key surrounding intersections. As such, the proposed development is satisfactory from a traffic capacity perspective on the surrounding road network.

### 3. Summary and Conclusion

The proposed redevelopment of the Club, including the proposed introduction of the 143 independent living units for the purpose of seniors housing is not expected to result in any adverse parking and/or traffic implications on the surrounding road network. As such, the proposed development is considered broadly compatible with the surrounding road network.

We trust the above is to your satisfaction. Should you have any queries regarding the above or require further information, please do not hesitate to contact the undersigned on 8437 7800.

Yours sincerely,



**Ken Hollyoak**  
Director

# Attachment One

## SIDRA Intersection Summaries



# MOVEMENT SUMMARY

 **Site: 105 [Victoria Rd-Blackwall Rd-Ex PM]**

New Site  
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Blackwall Road											
1	L2	292	0.4	0.825	13.6	LOS A	6.7	47.0	0.63	0.89	43.7
2	T1	201	0.0	0.825	13.6	LOS A	6.7	47.0	0.63	0.89	41.4
3	R2	7	0.0	0.825	16.7	LOS B	6.7	47.0	0.63	0.89	48.1
3u	U	4	0.0	0.825	18.3	LOS B	6.7	47.0	0.63	0.89	48.6
Approach		504	0.2	0.825	13.7	LOS A	6.7	47.0	0.63	0.89	42.7
East: Victoria Road											
4	L2	18	0.0	0.352	15.7	LOS B	2.5	17.7	0.96	0.99	45.9
5	T1	77	0.0	0.352	15.8	LOS B	2.5	17.7	0.96	0.99	42.4
6	R2	42	2.5	0.352	19.0	LOS B	2.5	17.7	0.96	0.99	40.0
6u	U	2	0.0	0.352	20.4	LOS B	2.5	17.7	0.96	0.99	46.7
Approach		139	0.8	0.352	16.8	LOS B	2.5	17.7	0.96	0.99	42.1
North: Blackwall Road											
7	L2	33	0.0	0.674	12.1	LOS A	10.3	72.7	0.95	0.96	47.7
8	T1	494	1.1	0.674	12.2	LOS A	10.3	72.7	0.95	0.96	48.4
9	R2	183	0.6	0.674	15.2	LOS B	10.3	72.7	0.95	0.96	43.8
9u	U	6	0.0	0.674	16.8	LOS B	10.3	72.7	0.95	0.96	47.9
Approach		716	0.9	0.674	13.0	LOS A	10.3	72.7	0.95	0.96	47.4
West: Victoria Road											
10	L2	140	0.8	0.544	7.1	LOS A	4.5	31.4	0.67	0.71	37.9
11	T1	29	0.0	0.544	7.1	LOS A	4.5	31.4	0.67	0.71	48.5
12	R2	372	0.6	0.544	10.2	LOS A	4.5	31.4	0.67	0.71	48.0
12u	U	7	0.0	0.544	11.7	LOS A	4.5	31.4	0.67	0.71	42.2
Approach		548	0.6	0.544	9.2	LOS A	4.5	31.4	0.67	0.71	45.1
All Vehicles		1907	0.6	0.825	12.4	LOS A	10.3	72.7	0.78	0.88	45.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 105 [Victoria Rd-Blackwall Rd-FU PM]**

New Site  
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Blackwall Road											
1	L2	292	0.4	0.857	16.0	LOS B	7.8	54.8	0.65	0.97	41.9
2	T1	201	0.0	0.857	16.1	LOS B	7.8	54.8	0.65	0.97	40.2
3	R2	14	0.0	0.857	19.1	LOS B	7.8	54.8	0.65	0.97	46.6
3u	U	4	0.0	0.857	20.7	LOS B	7.8	54.8	0.65	0.97	47.0
Approach		511	0.2	0.857	16.2	LOS B	7.8	54.8	0.65	0.97	41.3
East: Victoria Road											
4	L2	21	0.0	0.424	18.0	LOS B	3.3	23.0	0.98	1.04	44.7
5	T1	92	0.0	0.424	18.0	LOS B	3.3	23.0	0.98	1.04	40.9
6	R2	49	2.1	0.424	21.2	LOS B	3.3	23.0	0.98	1.04	39.0
6u	U	2	0.0	0.424	22.7	LOS B	3.3	23.0	0.98	1.04	45.4
Approach		164	0.6	0.424	19.0	LOS B	3.3	23.0	0.98	1.04	40.8
North: Blackwall Road											
7	L2	62	0.0	0.731	14.1	LOS A	12.7	89.5	1.00	1.05	46.4
8	T1	494	1.1	0.731	14.2	LOS A	12.7	89.5	1.00	1.05	47.1
9	R2	183	0.6	0.731	17.2	LOS B	12.7	89.5	1.00	1.05	42.2
9u	U	6	0.0	0.731	18.8	LOS B	12.7	89.5	1.00	1.05	46.6
Approach		745	0.8	0.731	15.0	LOS B	12.7	89.5	1.00	1.05	46.1
West: Victoria Road											
10	L2	140	0.8	0.578	7.4	LOS A	5.0	35.1	0.70	0.73	37.8
11	T1	56	0.0	0.578	7.4	LOS A	5.0	35.1	0.70	0.73	48.2
12	R2	372	0.6	0.578	10.5	LOS A	5.0	35.1	0.70	0.73	47.8
12u	U	7	0.0	0.578	12.1	LOS A	5.0	35.1	0.70	0.73	41.9
Approach		575	0.5	0.578	9.5	LOS A	5.0	35.1	0.70	0.73	45.0
All Vehicles		1995	0.6	0.857	14.0	LOS A	12.7	89.5	0.82	0.94	44.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 105 [Victoria Rd-Blackwall Rd-Ex Sat]**

New Site  
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Blackwall Road											
1	L2	386	1.1	0.559	8.7	LOS A	6.6	46.4	0.72	0.75	47.7
2	T1	256	0.4	0.559	8.7	LOS A	6.6	46.4	0.72	0.75	44.0
3	R2	14	0.0	0.559	11.8	LOS A	6.6	46.4	0.72	0.75	51.5
3u	U	3	0.0	0.559	13.4	LOS A	6.6	46.4	0.72	0.75	51.9
Approach		659	0.8	0.559	8.8	LOS A	6.6	46.4	0.72	0.75	46.0
East: Victoria Road											
4	L2	21	0.0	0.248	13.5	LOS A	1.7	11.7	0.90	0.92	47.2
5	T1	52	0.0	0.248	13.5	LOS A	1.7	11.7	0.90	0.92	43.9
6	R2	41	0.0	0.248	16.6	LOS B	1.7	11.7	0.90	0.92	41.0
6u	U	2	0.0	0.248	18.2	LOS B	1.7	11.7	0.90	0.92	48.0
Approach		116	0.0	0.248	14.7	LOS B	1.7	11.7	0.90	0.92	43.4
North: Blackwall Road											
7	L2	33	0.0	0.632	12.1	LOS A	8.5	60.0	0.92	0.97	47.5
8	T1	383	0.5	0.632	12.2	LOS A	8.5	60.0	0.92	0.97	48.3
9	R2	169	0.6	0.632	15.3	LOS B	8.5	60.0	0.92	0.97	43.6
9u	U	16	0.0	0.632	16.8	LOS B	8.5	60.0	0.92	0.97	47.8
Approach		601	0.5	0.632	13.2	LOS A	8.5	60.0	0.92	0.97	47.2
West: Victoria Road											
10	L2	182	1.7	0.801	13.1	LOS A	9.8	68.6	0.84	0.92	34.7
11	T1	43	0.0	0.801	13.0	LOS A	9.8	68.6	0.84	0.92	43.7
12	R2	387	0.0	0.801	16.1	LOS B	9.8	68.6	0.84	0.92	43.3
12u	U	24	0.0	0.801	17.7	LOS B	9.8	68.6	0.84	0.92	36.0
Approach		637	0.5	0.801	15.1	LOS B	9.8	68.6	0.84	0.92	40.4
All Vehicles		2013	0.6	0.801	12.4	LOS A	9.8	68.6	0.83	0.88	44.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 105 [Victoria Rd-Blackwall Rd-FU Sat]**

New Site  
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Blackwall Road											
1	L2	386	1.1	0.589	9.7	LOS A	7.4	52.1	0.77	0.81	46.8
2	T1	256	0.4	0.589	9.7	LOS A	7.4	52.1	0.77	0.81	43.5
3	R2	21	0.0	0.589	12.7	LOS A	7.4	52.1	0.77	0.81	50.7
3u	U	3	0.0	0.589	14.3	LOS A	7.4	52.1	0.77	0.81	51.2
Approach		666	0.8	0.589	9.8	LOS A	7.4	52.1	0.77	0.81	45.4
East: Victoria Road											
4	L2	29	0.0	0.348	13.8	LOS A	2.4	16.9	0.93	0.96	47.0
5	T1	72	0.0	0.348	13.8	LOS A	2.4	16.9	0.93	0.96	43.7
6	R2	57	0.0	0.348	16.9	LOS B	2.4	16.9	0.93	0.96	40.8
6u	U	2	0.0	0.348	18.5	LOS B	2.4	16.9	0.93	0.96	47.8
Approach		160	0.0	0.348	15.0	LOS B	2.4	16.9	0.93	0.96	43.2
North: Blackwall Road											
7	L2	48	0.0	0.674	13.5	LOS A	9.8	69.3	0.97	1.03	46.7
8	T1	383	0.5	0.674	13.6	LOS A	9.8	69.3	0.97	1.03	47.4
9	R2	169	0.6	0.674	16.6	LOS B	9.8	69.3	0.97	1.03	42.6
9u	U	16	0.0	0.674	18.2	LOS B	9.8	69.3	0.97	1.03	46.9
Approach		617	0.5	0.674	14.5	LOS B	9.8	69.3	0.97	1.03	46.3
West: Victoria Road											
10	L2	182	1.7	0.850	16.2	LOS B	12.2	85.6	0.89	1.02	33.1
11	T1	64	0.0	0.850	16.2	LOS B	12.2	85.6	0.89	1.02	41.5
12	R2	387	0.0	0.850	19.2	LOS B	12.2	85.6	0.89	1.02	41.1
12u	U	24	0.0	0.850	20.8	LOS B	12.2	85.6	0.89	1.02	33.4
Approach		658	0.5	0.850	18.2	LOS B	12.2	85.6	0.89	1.02	38.5
All Vehicles		2101	0.6	0.850	14.2	LOS A	12.2	85.6	0.88	0.95	43.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.