

RENNOW CONSTRUCTIONS PTY LTD

REPORT ON THE TRAFFIC ASPECTS
OF REZONING FOR PROPOSED
SUPERMARKET, 17-19 SMITH STREET,
CHATSWOOD

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COLSTON BUDD HUNT & KAFES PTY LTD
ACN 002 334 296
Level 18 Tower A
Zenith Centre
821 Pacific Highway
CHATSWOOD NSW 2067

Telephone: (02) 9411 2411
Facsimile: (02) 9411 2422
Email: cbhk@cbhk.com.au

REF: 7823

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I. INTRODUCTION

- I.1. Colston Budd Hunt & Kafes Pty Ltd has been retained by Renew Constructions Pty Ltd to prepare a report on traffic aspects of the proposed rezoning for a supermarket at 17-19 Smith Street, Chastwood. The site location is shown on Figure 1.
- I.2. The proposed rezoning would allow the construction of a new supermarket with associated parking and loading facilities. The site is currently occupied by a car service centre.
- I.3. This report assesses the implications of the proposed rezoning through the following chapters:-
- Chapter 2 - Describing the existing situation; and
 - Chapter 3 - Assessing the implications of the proposed rezoning.

2. EXISTING CONDITIONS

Site Location

- 2.1. The site is located within the Chatswood light industrial area, on the northern side of Smith Street (between Alleyne Street and Gibbes Street). The site has frontage to Smith Street, Gibbes Street, Alleyne Street and Short Street. The site is currently occupied by a car service centre with access to Alleyne Street and Gibbes Street. Surrounding land use is a mix of bulky goods retail, industrial and warehouse development. A Bunnings warehouse is currently under construction on the eastern side of Gibbes Street, opposite the site.

Road Network

- 2.2. The road network in the vicinity of the site includes Eastern Valley Way, Smith Street, Gibbes Street, Short Street, Alleyne Street and High Street. Eastern Valley Way is located east of the site and forms part of an arterial road link between Miller Street (North Sydney) and Boundary Street (Roseville). Eastern Valley Way provides a four lane undivided carriageway with separate right turn bays at the intersections of Smith Street and Castle Cove Drive. Clearway restrictions apply in the direction of peak traffic flow in the weekday morning and afternoon peak periods.
- 2.3. Smith Street is located south of the site and runs in an east-west direction. The intersection of Smith Street and Eastern Valley Way is a traffic signal controlled T-intersection. To the north of Smith Street (some 60 metres) is Castle Cove Drive which also connects to the Eastern Valley Way at a traffic signal controlled intersection. The two intersections are coordinated to facilitate left and right turns to/from Smith Street and Castle Cove Drive and to minimise queuing between the two intersections. In the vicinity of the site Smith Street provides

- one traffic lane with kerb side parking in each direction. As part of the Bunnings DA the intersection of Smith Street will be upgraded to provide three approach lanes (two left turn and one right turn) at the intersection with Eastern Valley Way.
- 2.4. High Street is located to the west of the site and connects Smith Street to Victoria Avenue and Mowbray Road to the south. The intersection of Smith Street and High Street is a priority controlled T-intersection with High Street (northbound) and Smith Street the major approaches to the intersection.
- 2.5. Gibbes Street is located to the east of the site and provides access to the industrial development to the north and south of Smith Street. South of Smith Street, Gibbes Street is a no through road. In the vicinity of the site, Gibbes Street provides one traffic lane with kerb side parking in each direction. The intersection of Gibbes Street and Smith Street is a controlled by a single lane roundabout.
- 2.6. Alleyne Street is located to the west of the site and provides access to industrial development to the north of Smith Street and access to residential development to the south of Smith Street. In the vicinity of the site, Alleyne Street provides one traffic lane with kerb side parking in each direction. The intersection of Alleyne Street and Smith Street is a priority controlled intersection with Smith Street the major road.

Traffic Volumes

- 2.7. As part of the Bunnings DA, surveys of traffic flows at the intersections of Smith Street/Eastern Valley Way and Smith Street/Gibbes Street were undertaken during a weekday afternoon and Saturday middle of the day by Traffic Transport Planning Associates (TTPA). Traffic from the proposed Bunnings development was added

to these traffic flows to provide base traffic flows (existing plus Bunnings traffic) as set in Figures 2 and 3 and summarised in Table 2.1.

2.8. Supplementary traffic counts were undertaken by ourselves at the following intersections during the Thursday afternoon and Saturday midday peak periods:

- Eastern Valley Way/Castle Cove Drive;
- Smith Street/Alleyne Street; and
- Smith Street/High Street.

2.9. These were adjusted to take into account Bunnings traffic and are set out on Figure 2 and summarised in Table 2.1.

Table 2.1 : Base Two Way Peak Hour Traffic Flows (Vehicles Per Hour)		
Location	Thursday Afternoon	Saturday Midday
Eastern Valley Way		
– north of Castle Cove Drive	3180	2870
– north of Smith Street	3425	3030
– south of Smith Street	2870	2745
Smith Street		
– west of Eastern Valley Way	865	815
– west of Gibbes Street	900	845
– west of Alleyne Street	695	795
Gibbes Street		
– north of Smith Street	300	290
– south of Smith Street	30	20
Alleyne Street		
– north of Smith Street	35	30
– south of Smith Street	225	85
High Street		
– north of Smith Street	85	70
– south of Smith Street	930	825
Castle Cove Drive		
– east of Eastern Valley Way	295	300

2.10. The results in Table 2.1 reveal that:-

-
-
- ❑ Eastern Valley Way would carry some 2,745 to 3,425 vehicles per hour (two-way) in the peak periods;
 - ❑ Smith Street would carry some 695 to 900 vehicles per hour (two way) in the peak periods;
 - ❑ Gibbes Street would carry some 30 to 300 vehicles per hour (two-way) in the peak periods. Traffic flows would be highest north of Smith Street;
 - ❑ Alleyne Street would carry some 35 to 225 vehicles per hour (two-way) in the peak periods;
 - ❑ High Street would carry some 85 to 930 vehicles per hour (two way) in the peak periods. Traffic flows would be highest north of Smith Street; and
 - ❑ Castle Cove Drive would carry some 300 vehicles per hour (two-way) in the peak periods.

Intersection Operations

- 2.11. The capacity of the road network is generally determined by the capacity of its intersections to cater for peak period traffic flows. The surveyed intersections have been analysed using the SIDRA program. SIDRA is designed to analyse isolated signal controlled intersections, roundabouts and priority intersections.
- 2.12. Based on average delay per vehicle, SIDRA estimates the following levels of service (LOS):-
- ❑ For traffic signals, the average delay per vehicle in seconds is calculated as $\text{delay}/(\text{all vehicles})$, for roundabouts the average delay per vehicle in seconds is

selected for the movement with the highest average delay per vehicle, equivalent to the following LOS:-

0 to 14	=	"A"	Good
15 to 28	=	"B"	Good with minimal delays and spare capacity
29 to 42	=	"C"	Satisfactory with spare capacity
43 to 56	=	"D"	Satisfactory but operating near capacity
57 to 70	=	"E"	At capacity and incidents will cause excessive delays. Roundabouts require other control mode.
>70	=	"F"	Unsatisfactory and requires additional capacity

- For give way and stop signs, the average delay per vehicle in seconds is selected from the movement with the highest average delay per vehicle, equivalent to following LOS:-

0 to 14	=	"A"	Good
15 to 28	=	"B"	Acceptable delays and spare capacity
29 to 42	=	"C"	Satisfactory but accident study required
43 to 56	=	"D"	Near capacity and accident study required
57 to 70	=	"E"	At capacity and requires other control Mode.
>70	=	"F"	Unsatisfactory and requires other control mode

- 2.13. It should be noted that for roundabouts, give way and stop signs, in some circumstances, simply examining the highest individual average delay can be misleading. The size of the movement with the highest average delay per vehicle should also be taken into account. Thus, for example, an intersection where all movements are operating at a level of service A, except one which is at level of

service E, may not necessarily define the intersection level of service as E if that movement is very small. That is, longer delays to a small number of vehicles may not justify upgrading an intersection unless a safety issue was also involved.

2.14. The SIDRA analysis found that:-

- ❑ the intersection of Smith Street and Eastern Valley Way (with the three approach lanes on Smith Street) would operate with average delays per vehicle of less than 20 seconds during the peak periods. This represents level of service B, a reasonable level of intersection operation;
- ❑ the intersection of Castle Cove Drive and Eastern Valley Way would operate with average delays per vehicle of less than 15 seconds during the peak periods. This represents level of service A/B, a good level of intersection operation;
- ❑ the roundabout at the intersection of Smith Street and Gibbes Street would operate with average delays per vehicle of less than 15 seconds during the peak periods. This represents level of service A/B, a good level of intersection operation;
- ❑ the intersection of Smith Street and Alleyne Street would operate with average delays per vehicle of less than 20 seconds during the peak periods. This represents level of service B, a satisfactory level of intersection operation; and
- ❑ the intersection of Smith Street and High Street would operate with average delays per vehicle of less than 15 seconds during the peak periods. This represents level of service A/B, a good level of intersection operation.

Public Transport

- 2.15. The site is serviced by public transport with Sydney Buses operating the 136, 137 and L60 services along Smith Street past the site with bus stops located in the vicinity of the site. These services are summarised below:
- 136 service operates 7 days a week between Chatswood and Manly via East Chatswood, Frenchs Forest, Dee Why and Freshwater. It operates at 30 minute intervals from early in the morning to late in the evening;
 - 137 service is a Monday to Friday limited stops service between Chatswood and Bantry Bay; and
 - L60 service is a Monday to Friday limited stops service between Chatswood and Mona Vale via Dee Why and Frenchs Forest.
- 2.16. In addition to the above services, Sydney Buses operates the 206 to 209 services along Eastern Valley Way in the vicinity of the site. These services connect East Roseville with North Sydney/Wynyard via Northbridge and Cammeray. These services operate 7 days a week.

3. IMPLICATIONS OF PROPOSED REZONING

3.1. The proposed LEP amendment would allow for a 3,900m² supermarket on the site with basement parking and access from Gibbes Street Short Street.

3.2. This chapter examines the implications of the proposed rezoning through the following sections:-

- ❑ public transport;
- ❑ parking provision;
- ❑ access and internal layout;
- ❑ servicing
- ❑ traffic effects; and
- ❑ summary.

Public Transport

3.3. The proposed development is located close to existing bus services which provide links to surrounding areas. The proposed development will strengthen the demand for these services. The proposed development will increase retail densities close to existing public transport services. This is consistent with government and Council policies to encourage people to reduce private car trips and increase walking. It is also consistent with planning principles of.

- (a) improving accessibility to employment and services by walking, cycling, and public transport;
- (b) improving the choice of transport and reducing dependence solely on cars for travel purposes;

- (c) moderating growth in the demand for travel and the distances travelled, especially by car; and
- (d) supporting the efficient and viable operation of public transport services.

Parking Provision

- 3.4. Provision for parking, motor cycles and bicycles will be made in accordance with appropriate Council codes and RTA Guidelines.

Access and Internal Layout

- 3.5. Car park access to the proposed supermarket will be provided from Gibbes Street. Service access will be provided from Short Street. Parking will be provided over two basement levels and be set out in a simple and clear manner. Driveways, parking spaces, aisles, ramps etc. will be designed in accordance with AS2890.1-2004.

Servicing

- 3.6. A separate service area will be provided along the Short Street frontage of the site with two service bays. The service area will be designed to accommodate a 19 metre long articulated truck. All manoeuvring would occur on site with trucks entering from and departing to Short Street in a forward direction. The service area will be designed to comply with AS2890.2-2002.

Traffic Effects

- 3.7. The traffic generated by the proposed supermarket will have its largest effects during the weekday afternoon and Saturday midday peak periods. Based on RTA Guidelines the proposed supermarket would generate some 600 vehicles per

hour in the peak periods. RTA Guidelines note that a proportion of traffic is passing trade (some 25%). Traffic from the proposed supermarket has been assigned to the surrounding road network based on the catchment identified in the retail study (with due allowance for passing trade) with the results shown on Figures 2 and 3 and summarised in Table 3.1.

3.8. It should be noted that the estimates of additional traffic are conservative as:

- ❑ traffic generated by the existing car service centre has not been discounted; and
- ❑ the assessment does not take into account redistribution of existing trips to supermarkets (such as Chatswood, Northbridge or Forestville) that would change to this use the proposed supermarket.

3.9. Furthermore the proposed supermarket would result in people within the primary catchment being located closer to a supermarket and hence having to travel less distance in order to undertake their weekly shopping. This would result in a reduction in vehicle kilometres with complementary environmental benefits of less fuel consumption, less vehicle emissions and savings in time.

3.10. Examination of Table 3.1 reveals that:

- ❑ Traffic flows on Eastern Valley Way would increase by some 80 to 100 vehicles per hour (two-way) in the peak periods;
- ❑ Traffic flows on Smith Street would increase by some 80 to 300 vehicles per hour (two way) in the peak periods;
- ❑ Traffic flows on Gibbes Street (between Smith Street and the site access) would increase by some 600 vehicles per hour (two-way) in the peak periods;

- ❑ Traffic flows on Alleyne Street (south of Smith Street) would increase by some 20 vehicles per hour (two-way) in the peak periods;
- ❑ Traffic flows on High Street (south of Smith Street) would increase by some 80 vehicles per hour (two way) in the peak periods; and
- ❑ Traffic flows on Castle Cove Drive would increase by some 20 vehicles per hour (two-way) in the peak periods.

Table 3.1 : Base + Supermarket Two Way Peak Hour Traffic Flows (Vehicles Per Hour)				
Location	Thursday Afternoon		Saturday Midday	
	Base	+ Supermarket	Base	+ Supermarket
Eastern Valley Way				
– north of Castle Cove Drive	3180	+80	2870	+80
– north of Smith Street	3425	+100	3030	+100
– south of Smith Street	2870	+100	2745	+100
Smith Street				
– west of Eastern Valley Way	865	+300	815	+300
– west of Gibbes Street	900	+100	845	+100
– west of Alleyne Street	695	+80	795	+80
Gibbes Street				
– north of Smith Street	300	+600	290	+600
– south of Smith Street	30	+0	20	+0
Alleyne Street				
– north of Smith Street	35	+0	30	+0
– south of Smith Street	225	+20	85	+20
High Street				
– north of Smith Street	85	+0	70	+0
– south of Smith Street	930	+80	825	+80
Castle Cove Drive				
– east of Eastern Valley Way	295	+20	300	+20

- 3.11. The intersections analysed in Chapter 2 were re-analysed, with supermarket traffic in place, using SIDRA and taking into account the approved Bunnings traffic. The analysis found that:-

- ❑ the intersection of Smith Street and Eastern Valley Way (with the three approach lanes on Smith Street) would operate with average delays per vehicle of less than 25 seconds during the peak periods. This represents level of service B, a reasonable level of intersection operation;
 - ❑ the intersection of Castle Cove Drive and Eastern Valley Way would operate with average delays per vehicle of less than 15 seconds during the peak periods. This represents level of service A/B, a good level of intersection operation;
 - ❑ the roundabout at the intersection of Smith Street and Gibbes Street would operate with average delays per vehicle of less than 20 seconds during the peak periods. This represents level of service B, a satisfactory level of intersection operation;
 - ❑ the intersection of Smith Street and Alleyne Street would operate with average delays per vehicle of less than 25 seconds during the peak periods. This represents level of service B, a satisfactory level of intersection operation; and
 - ❑ the intersection of Smith Street and High Street would operate with average delays per vehicle of less than 15 seconds during the peak periods. This represents level of service A/B, a good level of intersection operation.
- 3.12. In summary the surrounding road network will be able to cater for the additional traffic generated by the proposed supermarket with intersections continuing to operate at satisfactory or better levels of service in the peak periods.

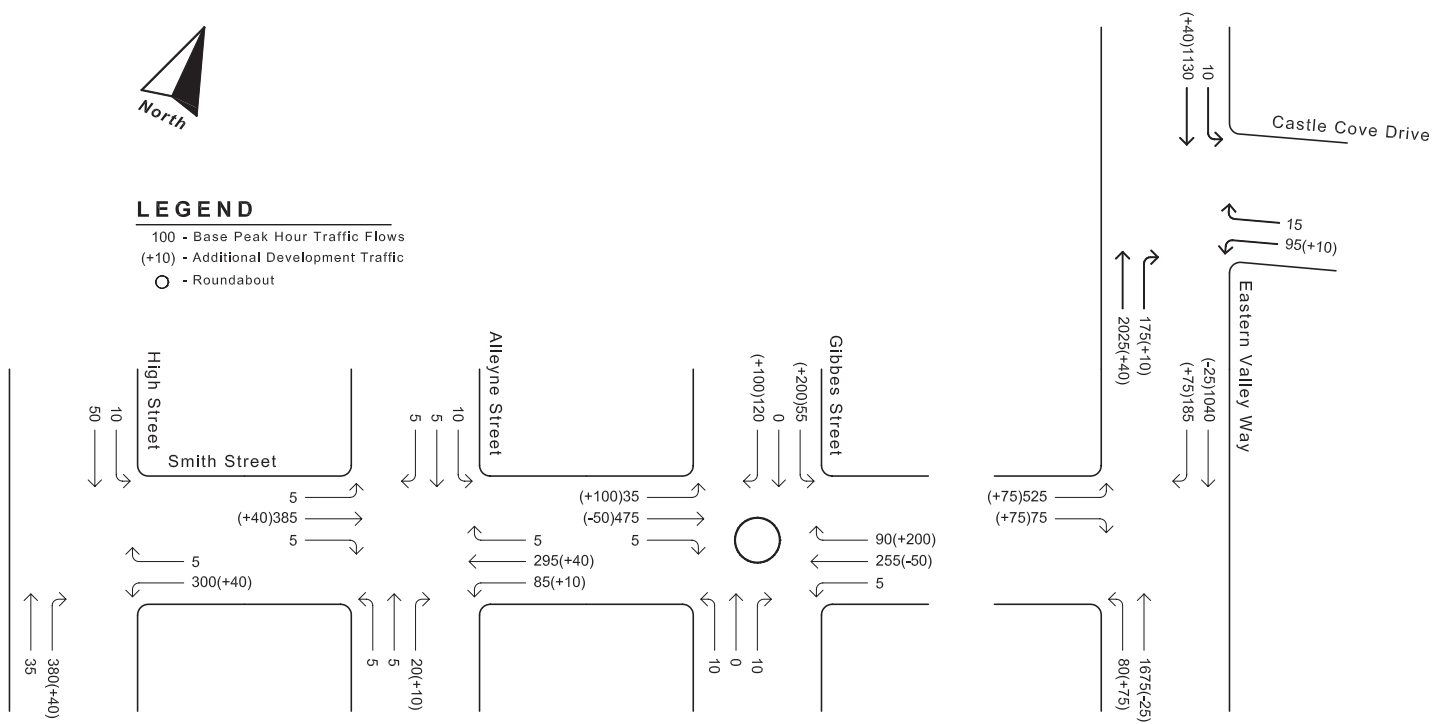
Summary

3.13. In summary, the main points relating to the proposed rezoning for a supermarket are:-

- (i) The site has good access to public transport;
- (ii) Provision for parking, motor cycles and bicycles will be made in accordance with appropriate Council codes and RTA Guidelines;
- (iii) Access to the site will be provided from Gibbes Street (car park) and Short Street (service area);
- (iv) Parking layout and internal circulation will be designed to comply with AS2890.1-2004;
- (v) Service arrangements will be designed to comply with AS2890.2-2002; and
- (vi) The surrounding road network will be able to cater for the additional traffic generated by the proposed supermarket.

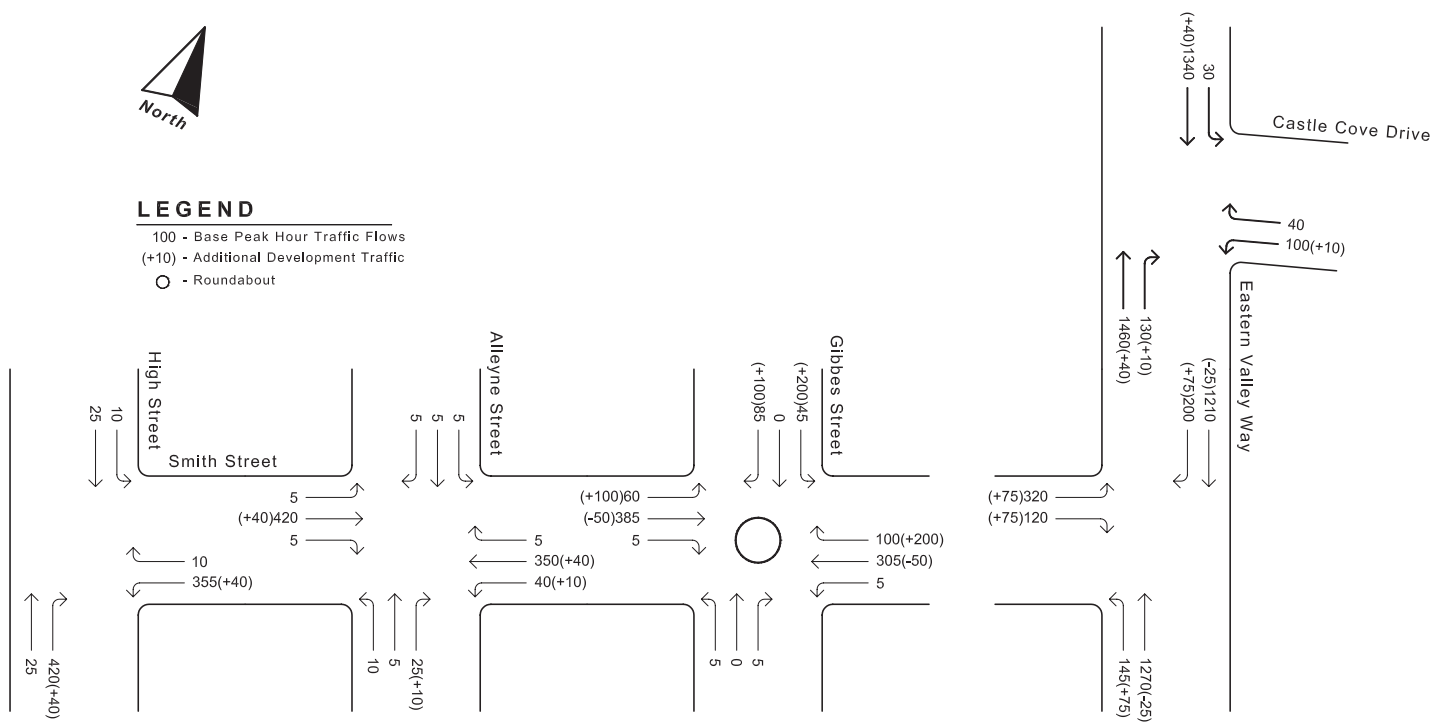


Location Plan



**Base Thursday afternoon peak hour
traffic flows plus development traffic**

Figure 2



**Base Saturday midday peak hour
traffic flows plus development traffic**