

RENEW CONSTRUCTIONS PTY LTD

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

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## 1. INTRODUCTION

- 1.1. Colston Budd Hunt & Kafes Pty Ltd has been retained by Renew Constructions Pty Ltd to update our previous traffic reports for the proposed rezoning for a supermarket at 17-19 Smith Street, Chatswood. The site location is shown on Figure 1.
- 1.2. The traffic effects of a supermarket on the subject site have been addressed in the previous reports as set out below:
- ❑ Report on Traffic Aspects of Proposed Rezoning for a Supermarket, 17-19 Smith Street, Chatswood – May 2010;
  - ❑ Supplementary Traffic Report, Proposed Supermarket, 17-19 Smith Street, Chatswood – February 2011; and
  - ❑ Updated Traffic Assessment, Proposed Supermarket, 17-19 Smith Street, Chatswood, June 2011.
- 1.3. The traffic report has been updated following a request from Willoughby City Council (as set out in its letter dated 22 December 2011) that the original traffic report that accompanied the Planning Proposal be updated to reflect the additional SIDRA analysis that was completed in June 2011.
- 1.4. The original traffic report has been updated to reflect the additional SIDRA analysis and to address traffic matters raised by Council. The report also includes matters raised by the Roads and Maritime Services (RMS, previously RTA). Electronic copies of the SIDRA analysis will be forwarded to Council for review.

1.5. 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 located 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

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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. 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 controlled by a single lane roundabout.
- 2.5. 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

- 2.6. In order to gauge traffic conditions, counts were undertaken during Thursday afternoon and Saturday lunchtime peak periods in May 2011 (following the opening of Bunnings). These are busy periods on the road network when traffic from the proposed development will combine with other retail and commuter traffic. The counts were undertaken at the following intersections:
- ❑ Smith Street/Eastern Valley Way;
  - ❑ Castle Cove Drive/Eastern Valley Way; and
  - ❑ Smith Street/Gibbes Street.

The results of the surveys are shown in Figures 2 and 3, and summarised in Table 2.1.

| <b>Table 2.1 : Base Two Way Peak Hour Traffic Flows (Vehicles Per Hour)</b> |                    |                 |
|-----------------------------------------------------------------------------|--------------------|-----------------|
| Location                                                                    | Thursday Afternoon | Saturday Midday |
| Eastern Valley Way                                                          |                    |                 |
| – north of Castle Cove Drive                                                | 3355               | 3155            |
| – north of Smith Street                                                     | 3570               | 3290            |
| – south of Smith Street                                                     | 2735               | 2690            |
| Smith Street                                                                |                    |                 |
| – west of Eastern Valley Way                                                | 1035               | 980             |
| – west of Gibbes Street                                                     | 1020               | 1010            |
| Gibbes Street                                                               |                    |                 |
| – north of Smith Street                                                     | 255                | 270             |
| – south of Smith Street                                                     | 60                 | 40              |
| Castle Cove Drive                                                           |                    |                 |
| – east of Eastern Valley Way                                                | 295                | 295             |

2.7. The results in Table 2.1 reveal that:-

- ❑ Eastern Valley Way would carry some 2,390 to 3,570 vehicles per hour (two-way) in the peak periods;
- ❑ Smith Street would carry some 980 to 1,035 vehicles per hour (two way) in the peak periods;
- ❑ Gibbes Street would carry some 40 to 270 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.

2.8. Previous traffic counts in May 2010 found that Alleyne Street (south of Smith Street) carried some 85 to 225 vehicles per hour (two-way) in the peak periods.

### Intersection Operations

2.9. 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.

2.10. 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 delay/(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:-



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|          |   |     |                                                |
|----------|---|-----|------------------------------------------------|
| 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 |

- 2.11. 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.
- 2.12. At a meeting with the RMS in May 2011, the RMS raised concern that the intersections of Eastern Valley Way with Smith Street and Castle Cove Drive had been assessed in SIDRA as two separate T-intersections. The RMS noted that the proximity of the two intersections resulted in the two intersections operating as one intersection. To address this concern we have reanalysed the intersections as a four way intersection using SIDRA.
- 2.13. The SIDRA analysis found that:
- The intersection of Eastern Valley Way with Smith Street and Castle Cove Drive is operating with average delays of some 45 seconds per vehicle in the Thursday afternoon peak period. This represents level of service D (Satisfactory but operating near capacity). The analysis found that there was significant queuing on the Eastern Valley Way approaches (some 360 metres

northbound and some 230 metres southbound) with the right turn bays overflowing and affecting through traffic movements. In the Saturday midday peak period the intersection operates with average delays of some 37 seconds per vehicle. This represents level of service C a satisfactory level of intersection operation.

- The roundabout at the intersection of Smith Street and Gibbes Street operates 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; and
- the intersection of Smith Street and Alleyne Street operates 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

### Public Transport

2.14. 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.

2.15. 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 3,900m<sup>2</sup> 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;
- ❑ possible intersection improvements;
- ❑ response to traffic matters raised by Council; 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.

| <b>Table 3.1 : Existing + Supermarket Two Way Peak Hour Traffic Flows (Vehicles Per Hour)</b> |                    |               |                 |               |
|-----------------------------------------------------------------------------------------------|--------------------|---------------|-----------------|---------------|
| Location                                                                                      | Thursday Afternoon |               | Saturday Midday |               |
|                                                                                               | Existing           | + Supermarket | Existing        | + Supermarket |
| Eastern Valley Way                                                                            |                    |               |                 |               |
| – north of Castle Cove Drive                                                                  | 3355               | + 80          | 3155            | + 80          |
| – north of Smith Street                                                                       | 3570               | + 100         | 3290            | + 100         |
| – south of Smith Street                                                                       | 2735               | + 100         | 2690            | + 100         |
| Smith Street                                                                                  |                    |               |                 |               |
| – west of Eastern Valley Way                                                                  | 1035               | + 300         | 980             | + 300         |
| – west of Gibbes Street                                                                       | 1020               | + 100         | 1010            | + 100         |
| Gibbes Street                                                                                 |                    |               |                 |               |
| – north of Smith Street                                                                       | 255                | + 600         | 270             | + 600         |
| – south of Smith Street                                                                       | 60                 | + 0           | 40              | + 0           |
| Castle Cove Drive                                                                             |                    |               |                 |               |
| – east of Eastern Valley Way                                                                  | 295                | + 20          | 295             | + 20          |

- 3.8. 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; and
- ❑ Traffic flows on Castle Cove Drive would increase by some 20 vehicles per hour (two-way) in the peak periods.

3.9. 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.

3.10. 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.

3.11. Based on information provided in the retail study that accompanied the rezoning, it is estimated that:

- ❑ some 40% of the trade for the proposed supermarket will be relocated trips from Chatswood;
- ❑ some 30% of the trade for the proposed supermarket will be relocated trips from Northbridge/Castlecrag;

- ❑ some 10% of the trade for the proposed supermarket will be relocated trips from Willoughby; and
- ❑ the balance of trade (some 20%) will be from Lindfield/Lane Cove/Forestville or new trips

3.12. Using this information we have estimated the likely reduction in traffic generation to Northbridge/Castlecrag and Chatswood as these are the major areas that would be affected. As noted previously, based on RTA Guidelines the proposed supermarket would have a peak hour traffic generation of some 450 vehicles (two way) when passing trade is taken in account. This equates to some 4,500 vehicles per day (two way). Thus traffic to Chatswood would be reduced by some 1,800 vehicles per day (two way) and Northbridge/Castlecrag by some 1,350 vehicles per day (two way).

3.13. The proposed supermarket is located centrally within the primary trade area with Northbridge/Castlecrag located some three kilometres to the south and Chatswood some two kilometres to the west. Thus the majority of customers that would shop at the proposed supermarket would already be travelling in the vicinity of the site (along Smith Street or Eastern Valley Way). Thus customers who choose to shop at the new supermarket would have less distance to travel with associated reduction in fuel costs, vehicle emissions and reduced travel times. Based on the estimated reduction in traffic at Northbridge/Castlecrag and Chatswood we estimate that the savings in vehicle kilometres travelled (VKT) per year could be in the order of 2.8 million.

3.14. We note that capturing traffic within the local area would also reduce traffic around Northbridge Plaza and Chatswood CBD as people wishing to undertake shopping at a full range supermarket would not have to travel to these locations, with consequent reduced traffic and parking impacts at these locations. We note intersections that traffic would have to pass through to access these centres (such as Eastern Valley Way/Edinburgh Road, Victoria Avenue/Penshurst Street and Eastern Valley Way/Victoria Avenue) are currently operating under pressure.



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### Possible Intersection Improvements

- 3.15. The RMS and Richmond+Ross (on behalf of Woolworths) have investigated opportunities to increase capacity at the intersections of Eastern Valley Way with Smith Street and Castle Cove Drive by lengthening the right turn bays on Eastern Valley Way. The Richmond+Ross scheme widens Eastern Valley Way on the eastern side of the road, while the RTA scheme widens Eastern Valley Way on the western side of the road. Both options lengthen the right turn bays to some 100 metres (from some 20 metres).
- 3.16. Both options would provide the same traffic benefits (subject to satisfying road design criteria). The intersections analysed in Chapter 2 were re-analysed using SIDRA, with supermarket traffic in place and the improvements to the intersections of Eastern Valley Way with Smith Street and Castle Cove Drive (right turn bays lengthened on Eastern Valley Way as described above). The analysis found that:-
- The intersection of Eastern Valley Way with Smith Street and Castle Cove Drive would operate with average delays of some 54 seconds per vehicle in the Thursday afternoon peak period. This represents level of service D (Satisfactory but operating near capacity). In the Saturday midday peak period the intersection would operate average delays of some 48 seconds per vehicle in the Thursday afternoon peak period. This represents level of service D (Satisfactory but operating near capacity). The analysis found that in both peak period the additional storage capacity for the right turn bays on Eastern Valley Way would reduce the incidence of overflow into the through traffic lanes (particularly on the southbound approach) and improve safety. The 95% back of queue on Eastern Valley Way would decrease by up to 60 metres compared to the existing situation.

- ❑ 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; and
- ❑ 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

3.17. In summary the surrounding road network (with the identified upgrades) 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.

#### Traffic Matters Raised by Council

3.18. With regard to the original planning proposal a number of traffic matters were raised by Council (and in submissions). These are summarised as below:

- ❑ the proposed development would result in unacceptable traffic and parking impacts, in particular the impact on the operation of the intersection of Eastern Valley Way and Smith Street;
- ❑ the site has poor accessibility to public transport; and
- ❑ increased traffic in Alleyene Street as a result of the proposed development

3.19. Our response to these matters is set out below.

#### *Traffic Impacts*

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- 3.20. The traffic assessment as set out in this report has found that 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. As noted Woolworths and RMS are investigating possible improvements to the intersections of Eastern Valley Way with Castle Cove Drive and Smith Street to provide increased capacity and improve safety.

*Public Transport*

- 3.21. As noted in this report the site is located adjacent to a number of bus routes that operate along Smith Street and Eastern Valley Way. Thus the site is accessible by public transport. It should be noted that the majority of trips associated with supermarket shopping are by car as there is limited ability to transport large quantities of goods by other means (such as walking, cycling or public transport). Thus locating a supermarket outside of town centre location such as Chatswood would not result in significant increase in car trips.

*Increased Traffic in Alleyene Street*

- 3.22. Traffic flows on Alleyene Street (south of Smith Street) are some 85 to 220 vehicles per hour (two way) in the Saturday midday and Thursday afternoon peak hours respectively. The proposed supermarket would increase these flows by some 20 vehicles per hour (two-way) in the peak periods. This is a minor increase of only one vehicle every three minutes.
- 3.23. RTA Guidelines suggest that a local street has a maximum environmental capacity of some 300 vehicles per hour (two-way). With supermarket traffic in place, traffic flows in Alleyene Street will remain less than the maximum environmental capacity for a local street.

Summary

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

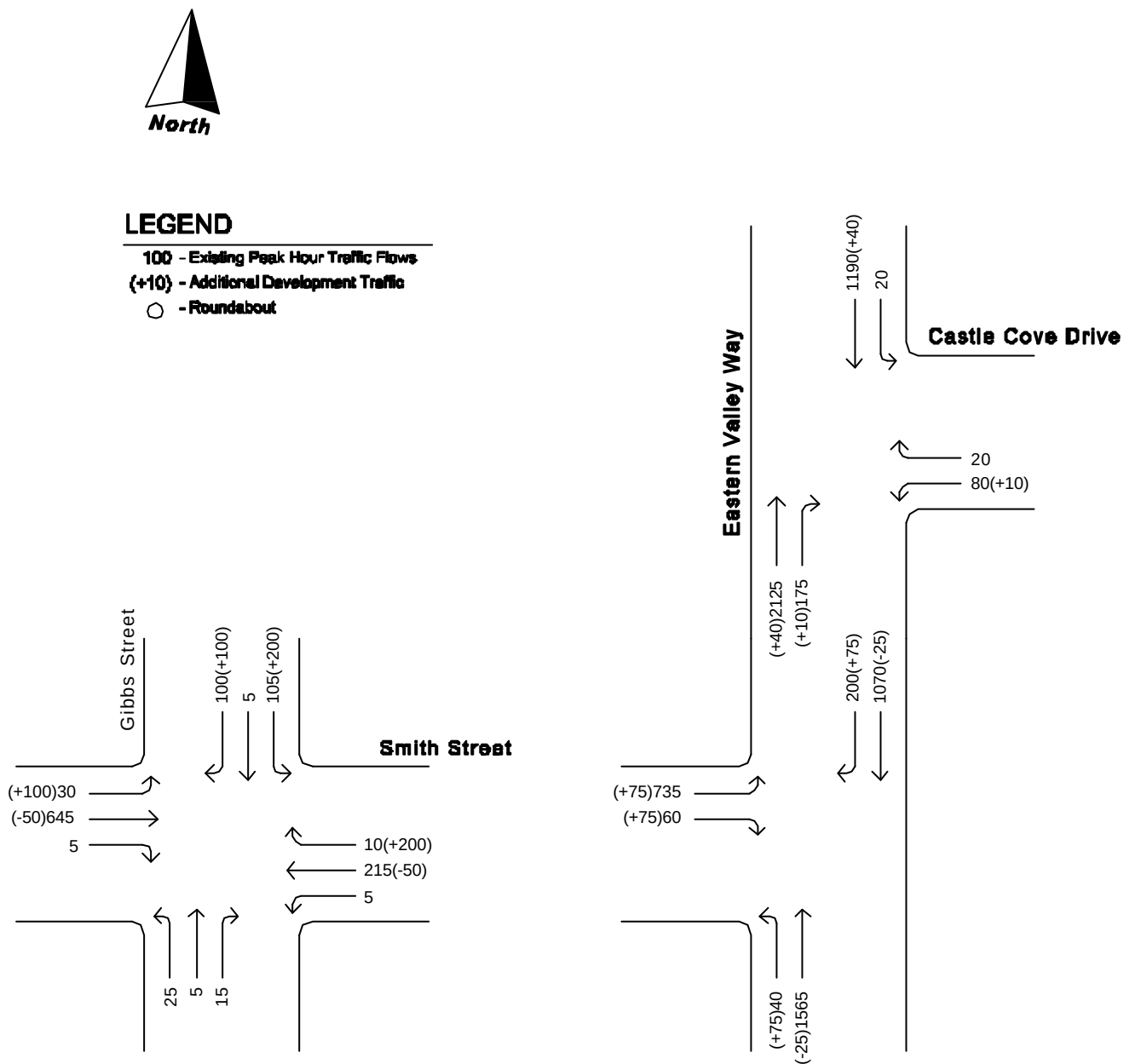
- (i) The site has good access to public transport;
- (ii) Provision for parking, motor cycles and bicycles will be made in accordance with appropriate Council codes and RTA Guidelines;
- (iii) Access to the site will be provided from Gibbes Street (car park) and Short Street (service area);
- (iv) Parking 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;
- (vi) Woolworths and RMS are investigating possible improvements to the intersections of Eastern Valley Way with Castle Cove Drive and Smith Street to provide increased capacity and improve safety; and
- (vii) The surrounding road network (with identified upgrades) will be able to cater for the additional traffic generated by the proposed supermarket.



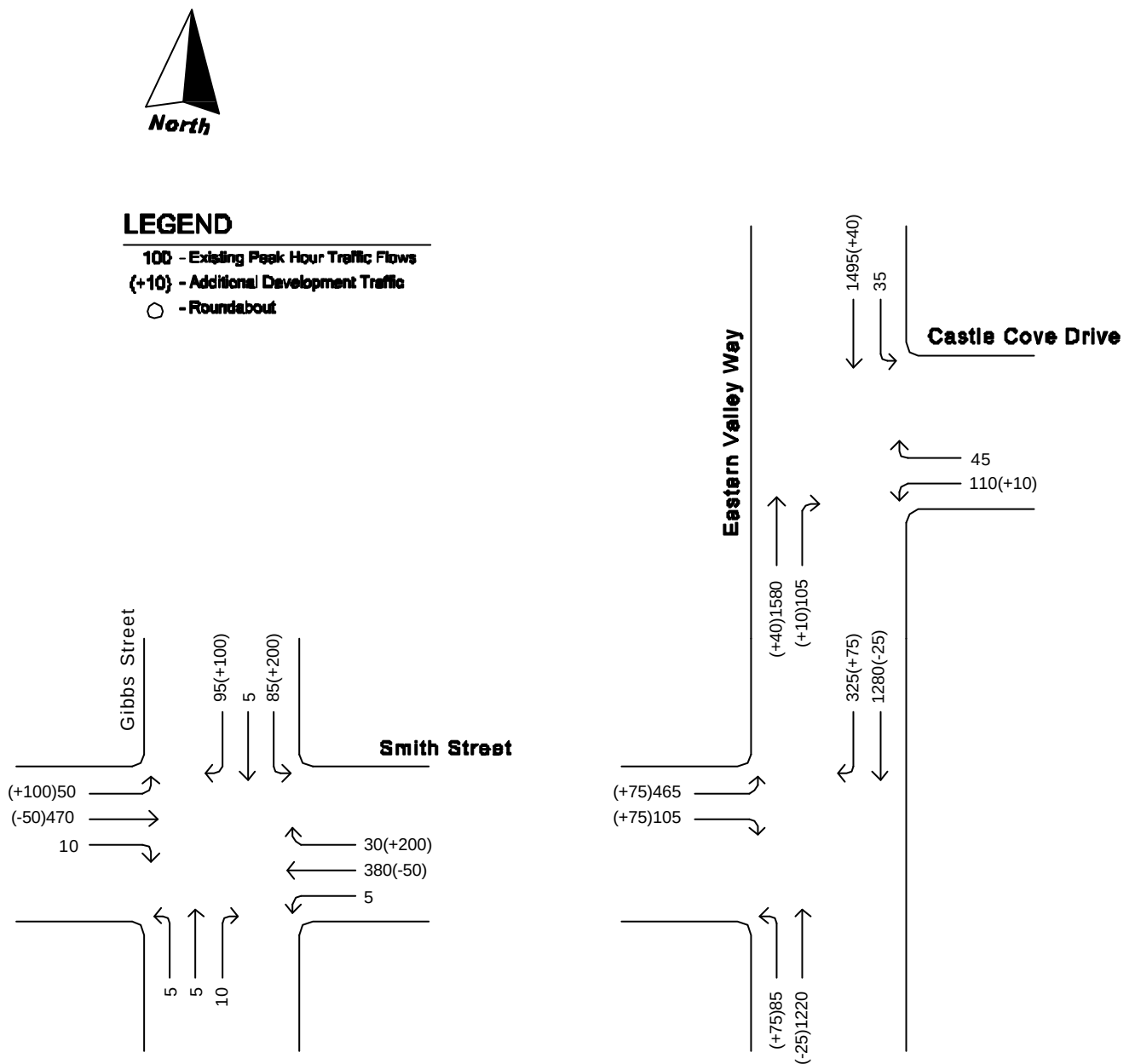


Location Plan





**Existing Thursday midday peak hour  
traffic flows plus development traffic**



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