

FABCOT PTY LTD

TRAFFIC REPORT FOR
PROPOSED RETAIL
DEVELOPMENT, NEWPORT

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TABLE OF CONTENTS

1. INTRODUCTION	1
2. EXISTING CONDITIONS	2
3. IMPLICATIONS OF PROPOSED DEVELOPMENT	8

I. INTRODUCTION

- I.1 Colston Budd Hunt and Kafes Pty Ltd has been commissioned by Fabcot Pty Ltd to prepare a report examining the traffic implications of a proposed retail development in Newport. The site location is shown in Figure I.
- I.2 The site has frontage to Barrenjoey Road and Foamcrest Avenue in the Newport town centre. Part of the site is occupied by retail shops and commercial development of some 800m². The remainder of the site is a public car park.
- I.3 It is proposed to rezone the parts of the site used for car parking to provide for a new Woolworths supermarket of some 3,540m² and specialty shops of some 610m². Vehicular access would be provided from Foamcrest Avenue.
- I.4 In correspondence, Council has requested the following:

“We confirm that we wish a request to be made to the applicant to supply a detailed traffic management assessment as described in Council's Development Engineer's referral.

We recommend that the report should provide assessment of the potential impacts on the local road network that may occur as a result of an intensification of use at the subject site if re-zoned from Special Uses to 3(a) General Business as proposed.

The assessment should include consideration of the impact of service deliveries from any possible future supermarket as requested by Council's Engineer, but should also include analysis of the level of service at key intersections, and the capacity of the local road network to accommodate increased activity/traffic movements that can be expected as a

result of the proposed rezoning of the land to and increase in commercial/retail floor space at the site.”

1.5 The traffic implications of the proposed development are assessed through the following chapters:

- Chapter 2 - describing the existing conditions; and
- Chapter 3 - assessing the traffic implications of the proposed development.

2. EXISTING CONDITIONS

Site Location and Road Network

- 2.1 The site is located at 343 – 345 Barrenjoey Road in the Newport town centre. Part of the site is occupied by retail shops and commercial development of some 800m². The remainder of the site is a public car park which provides some 80 spaces. The car park has vehicular access from Foamcrest Avenue via two driveways. The site location is shown in Figure 1.
- 2.2 Surrounding land use includes commercial and retail development in the Newport town centre, as well as some medium and higher density residential development.
- 2.3 The road network in the vicinity of the site includes Barrenjoey Road, Seaview Avenue, Foamcrest Avenue and Robertson Road. Though the town centre, Barrenjoey Road provides two traffic lanes plus one parking lane in each direction, clear of intersections, with a central median. There is a signalised pedestrian crossing north of Robertson Road. There are bus stops on both sides of the road adjacent to the site.
- 2.4 Seaview Avenue intersects Barrenjoey Road at a signalised intersection south of the site. It provides for one traffic lane and one parking lane in each direction, clear of intersections. There are weekday morning no parking restrictions on the eastern side of Barrenjoey Road, on the approach to Barrenjoey Road. Seaview Avenue provides access to residential development, and some commercial development near Barrenjoey Road. Bardo Road intersects Seaview Avenue close to its intersection with Barrenjoey Road.
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- 2.5 Foamcrest Avenue provides one traffic lane and one parking lane in each direction, clear of intersections. It provides access to the site, other commercial development, and residential development. The intersection of Foamcrest Avenue with Seaview Avenue is controlled by a small painted roundabout.
- 2.6 Robertson Road runs west from Barrenjoey Road, north of the site. It is one way from Barrenjoey Road to Foamcrest Avenue and two-way west of Foamcrest Avenue. It provides one westbound traffic lane from Barrenjoey Road to Foamcrest Avenue, with angle parking on the southern side and access to commercial development. West of Foamcrest Avenue it provides for one traffic lane and one parking lane in each direction and access to residential development. The intersection of Robertson Road with Foamcrest Avenue is controlled by a roundabout.

Traffic Conditions

- 2.7 In order to gauge traffic conditions, counts were undertaken during Thursday afternoon and Saturday lunchtime peak periods. 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:
- ❑ Barrenjoey Road/Seaview Avenue;
 - ❑ Barrenjoey Road/Robertson Road;
 - ❑ Foamcrest Avenue/Seaview Avenue;
 - ❑ Foamcrest Avenue/Robertson Road; and
 - ❑ Foamcrest Avenue/public car park access driveways.
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- 2.8 The results of the surveys are shown in Figures 2 and 3, and summarised in Table 2.1.

Table 2.1: Existing two-way (sum of both directions) peak hour traffic flows			
Road	Location	Thursday afternoon	Saturday lunchtime
Barrenjoey Road	North of Robertson Road	2,070	2,020
	North of Seaview Avenue	2,185	2,085
	South of Seaview Avenue	2,875	2,860
Seaview Avenue	West of Barrenjoey Road	880	925
	West of Foamcrest Avenue	475	565
Foamcrest Avenue	North of Robertson Road	190	165
	North of Seaview Avenue	205	185
Robertson Road	West of Barrenjoey Road	140	80
	West of Foamcrest Avenue	130	145

- 2.9 Table 2.1 shows that Barrenjoey Road carried flows of some 2,000 to 2,900 vehicles per hour two-way during the Thursday afternoon and Saturday peak hours. Seaview Avenue carried lower flows of some 500 to 900 vehicles per hour two-way. Foamcrest Avenue and Robertson Road generally carried traffic flows in the range 100 to 200 vehicles per hour two-way.

- 2.10 The public car park generated some 155 and 100 vehicles per hour two-way during the surveyed peak hours on the Thursday and Saturday respectively.

Intersection Operations

- 2.11 The capacity of the road network is largely determined by the capacity of its intersections to cater for peak traffic flows. The intersections shown in Figures 2 and 3 have been analysed using the SIDRA program.

2.12 SIDRA provides a number of performance measures. The most useful measure provided is average delay per vehicle expressed in seconds per vehicle. 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:

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 analysis found that the signal controlled intersection of Barrenjoey Road with Seaview Avenue is operating with average delays of less than 20 seconds per vehicle during the Thursday afternoon and Saturday lunchtime peak periods. This represents level of service B, a good level of service.
- 2.15 The roundabout controlled intersections of Foamcrest Avenue with Robertson Road and Seaview Avenue are operating with average delays of less than 15 seconds per vehicle during peak periods. This represents level of service A/B, a good level of service.

Public Transport

- 2.16 Local bus services are provided by Sydney Buses. As previously discussed, there are bus stops on Barrenjoey Road adjacent to the site. Buses also use Seaview Avenue, south of the site.
- 2.17 Route 187 operates along Barrenjoey Road and Seaview Avenue and connects Newport with Mona Vale, Narrabeen, Collaroy, Dee Why, Warringah Mall, Spit Junction, Neutral Bay, North Sydney, Milsons Point and the city.
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- 2.18 It provides a weekday peak period service (city bound in the morning and outbound in the afternoon). It also operates as a limited stop (L87) and express (E87) service.
- 2.19 Routes 188 and 190 operate along Barrenjoey Road and connect Avalon, Newport, Mona Vale, Narrabeen, Collaroy, Dee Why, Warringah Mall, Spit Junction, Neutral Bay and the city. It provides a limited service in each direction, seven days per week. Routes L88 and L90 provide limited stop services along the same route.
- 2.20 Routes 189 and E89 operate along Barrenjoey Road and connect North Avalon, Avalon, Newport, Mona Vale, Narrabeen, Collaroy, Dee Why, Neutral Bay Junction and the city. They provide weekday peak period services (city bound in the morning and outbound in the afternoon).
- 2.21 The site therefore has good access to regular bus services.

3. IMPLICATIONS OF PROPOSED DEVELOPMENT

3.1 It is proposed to rezone the parts of the site used for car parking, to provide for a new Woolworths supermarket of some 3,540m² and specialty shops of some 610m². Vehicular access would be provided from Foamcrest Avenue, to a parking area for 287 parking spaces. This chapter assesses the implications of the proposed development through the following sections:

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

Public Transport

3.2 The proposed development is located in the Newport town centre close to existing bus services. These services provide links to surrounding areas. The proposed development will increase employment and retail densities close to public transport services, strengthening the demand for these services.

3.3 Pedestrian access to the site will be provided from Barrenjoey Road and Foamcrest Avenue. A through site pedestrian link will be provided between Barrenjoey Road and Foamcrest Avenue. The proposed development is therefore consistent with government policy and the 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 Part B6 of the Pittwater 21 Development Control Plan indicates that retail development should provide parking at one space per 30m² GLA.
 - 3.5 Based on the above, with a 3,540m² supermarket and 610m² specialty shops, the development would require 138 spaces.
 - 3.6 There is an agreement with Council to provide an additional 56 public spaces, making a total of 194 spaces. The proposed provision of 287 spaces therefore satisfies this requirement, and is considered to be appropriate.
 - 3.7 The DCP indicates three per cent of spaces should be provided for disabled use. On this basis, nine spaces should be disabled spaces. It is proposed to provide nine disabled parking spaces in accordance with the DCP.
 - 3.8 The DCP indicates that for developments greater than 200m², bicycle parking should be provided at a rate of one bicycle rack per 1,000m², with a minimum provision of four spaces per rack. On this basis, 16 bicycle spaces would be required. It is proposed to provide bicycle parking in accordance with the DCP.
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- 3.9 The DCP also indicates that for developments greater than 200m² motor cycle parking should be provided at a rate of one space per 100 car spaces. On this basis, three motor cycle spaces should be provided. Three motor cycle spaces are proposed to be provided in accordance with the DCP.

Access, Servicing and Internal Layout

- 3.10 Vehicular access is proposed to be provided from Foamcrest Avenue in two locations. The proposed southern driveway would provide access to and from the car park and the northern driveway would provide access to the loading dock.
- 3.11 The driveways will be provided to accommodate the swept paths of cars and service vehicles in accordance with the Australian Standard for Parking Facilities (Part 1: Off-street car parking and Part 2: Off-street commercial vehicle facilities), AS 2890.2:2004 and AS 2890.2 – 2002. The entry and exit lanes to the parking area will be separated by a median.
- 3.12 Three levels of parking are proposed: level 1 (street level from Foamcrest Avenue) would provide 72 parking spaces, level 2 would provide 90 spaces and level 3 would provide 125 spaces. Ramps would connect the parking levels internally. The ramps will provide maximum grades of 1:8.
- 3.13 Pedestrian access between the retail level and the car park will be provided via travelators, ramps, lifts and stairs. Pedestrian access to the development will also be provided from Barrenjoey Road (directly) as well as from Foamcrest Avenue. As previously discussed, a through site pedestrian link will be provided between Barrenjoey Road and Foamcrest Avenue.
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- 3.14 Within the parking levels, circulation aisles will be a mix of one and two-way aisles. Parking spaces will be a minimum of 2.6 metres wide by 5.4 metres long, with 6.6 metre wide circulation aisles. Spaces and aisles with adjacent obstructions will be 0.3 metres wider. Disabled spaces will be 3.2 metres wide and located close to lifts. Columns will be set back 750 mm from the front of spaces. Height clearance will be at least 2.2 metres, with 2.5 metres above disabled spaces and 2.3 metres between disabled spaces and the car park entry/exit. These dimensions are considered appropriate, being in accordance with AS 2890.1:2004.
- 3.15 A loading dock will be provided on the north-western corner of the development. The development will be serviced by a range of vehicle sizes up to 12.5 metre large rigid trucks. The design of the loading dock provides for large rigid trucks to reverse into the loading dock from Foamcrest Avenue and exit in a forward direction. Service vehicles currently use Foamcrest Avenue to service other retail developments in Newport.
- 3.16 The loading dock will accommodate service vehicle swept paths in accordance with AS 2890.2 – 2002, as shown in Figures 4 to 6. The dock will provide for two large rigid trucks, as well as a garbage compactor bay. Hoists will transfer deliveries between the loading dock and the retail level.

Traffic Generation and Effects

- 3.17 Traffic generated by the proposed development will have its greatest effects during weekday afternoon and Saturday lunchtime peak periods when it combines with commuter and retail traffic. The RTA's "Guide to Traffic Generating Developments" sets out formulae for calculating the generation of retail developments on Thursdays and Saturdays as follows:
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$V(P) = 20A(S) + 51A(F) + 155A(SM) + 46A(SS) + 22(OM)$
(Vehicle trips per 1,000m² on Thursdays), and

$PVT = 38A(S) + 13A(F) + 147A(SM) + 107A(SS)$
(Vehicle trips per 1,000m² on Saturdays), where

A(S): Slow Trade gross leasable floor area (gross leasable floor area in square metres) – includes major department stores such as David Jones and Myer, furniture, electrical and whitegoods stores.

A(F): Faster trade GLFA – includes discount department stores such as K-Mart and Target, together with larger specialist stores such as Fosseys.

A(SM): Supermarket GLFA – includes stores such as Franklins and large fruit markets.

A(SS): Specialty shops and secondary retail GLFA – includes specialty shops and take-away stores such as McDonalds. These stores are grouped since they tend not to be primary attractors to the centre.

A(OM): Offices, medical GLFA – includes medical centres and general business offices.

3.18 The proposed retail development would form part of the overall retail development in the Newport town centre.

- 3.19 The proposed development provides the following areas:
- A(SM) = some 3,540m²; and
 - A(SS) = some 610m².
- 3.20 On this basis, the proposed development would generate some 580 and 590 vehicles per hour two-way during the weekday afternoon and Saturday peak hours respectively. Based on the RTA formulae, the existing development would have a traffic generation of some 35 and 85 vehicles per hour two-way on the Thursday and Saturday respectively. The increase in traffic generation would therefore be some 545 and 505 vehicles per hour two-way during weekday afternoon and Saturday peak periods respectively. These generations include service vehicles generated by the development.
- 3.21 The RTA guidelines suggests that some 25 per cent of visits are likely to be passing trade, i.e. customers who would have driven past the development regardless of their visit to the development. 25 per cent of the additional development traffic has been assumed to be passing trade.
- 3.22 The additional traffic has been assigned to the road network. Existing traffic flows plus the additional traffic from the proposed development are shown in Figures 2 and 3, and summarised in Table 3.1.
- 3.23 Traffic increases on Foamcrest Avenue, from where access to the development is proposed, would be some 180 to 190 vehicles per hour two-way during Thursday afternoon and Saturday peak hours. Increases on Seaview Avenue, Robertson Road and Barrenjoey Road would be some 20 to 190 vehicles per hour two-way.
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Table 3.1: Existing two-way peak hour traffic flows plus development traffic					
Road	Location	Thursday afternoon		Saturday lunchtime	
		Existing	Plus development	Existing	Plus development
Barrenjoey Road	North of Robertson Road	2,070	+ 20	2,020	+ 20
	North of Seaview Avenue	2,185	+ 60	2,085	+ 60
	South of Seaview Avenue	2,875	+ 160	2,860	+ 160
Seaview Avenue	West of Barrenjoey Road	880	+ 190	925	+ 190
	West of Foamcrest Avenue	475	-	565	-
Foamcrest Avenue	North of Robertson Road	190	+ 180	165	+ 180
	North of Seaview Avenue	205	+ 190	185	+ 190
Robertson Road	West of Barrenjoey Road	140	+ 30	80	+ 30
	West of Foamcrest Avenue	130	+ 160	145	+ 170

- 3.24 The intersections previously analysed in Chapter 2 have been reanalysed using SIDRA for the additional development traffic flows shown in Figures 2 and 3. The analysis found that the intersection of Barrenjoey Road with Seaview Avenue would operate with average delays of less than 25 seconds per vehicle during peak periods. This represents level of service B, a good level of service.
- 3.25 The intersections of Foamcrest Avenue with Robertson Road and Seaview Avenue would continue to operate with average delays of less than 15 seconds per vehicle during peak periods. This represents level of service A/B, a good level of service.
- 3.26 The proposed car park access driveway on Foamcrest Avenue would operate with average delays for all movements of less than 15 seconds per vehicle during peak periods. This represents level of service A/B, a good level of service.
- 3.27 Therefore, the road network will be able to cater for the additional traffic from the proposed development.

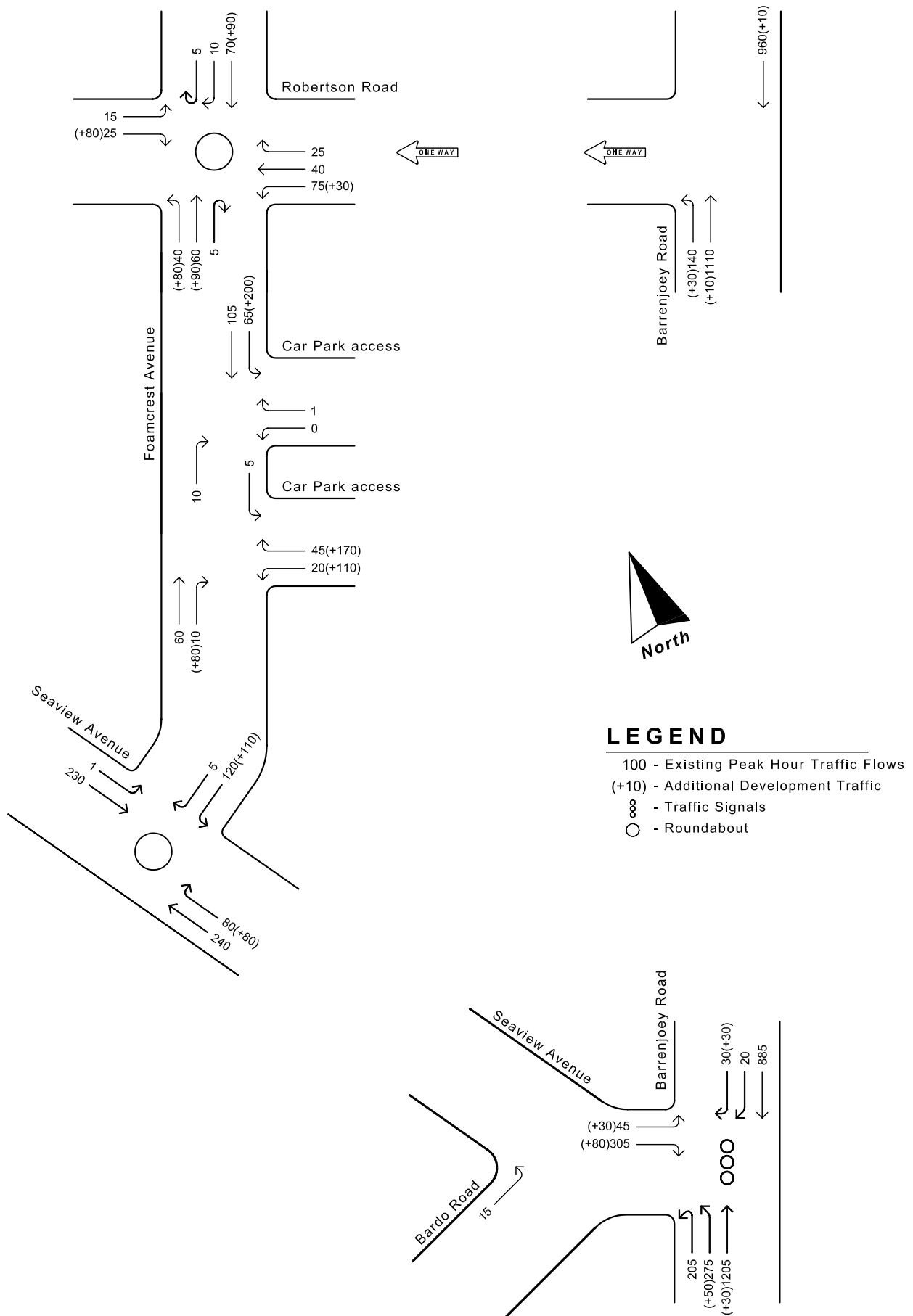
Summary

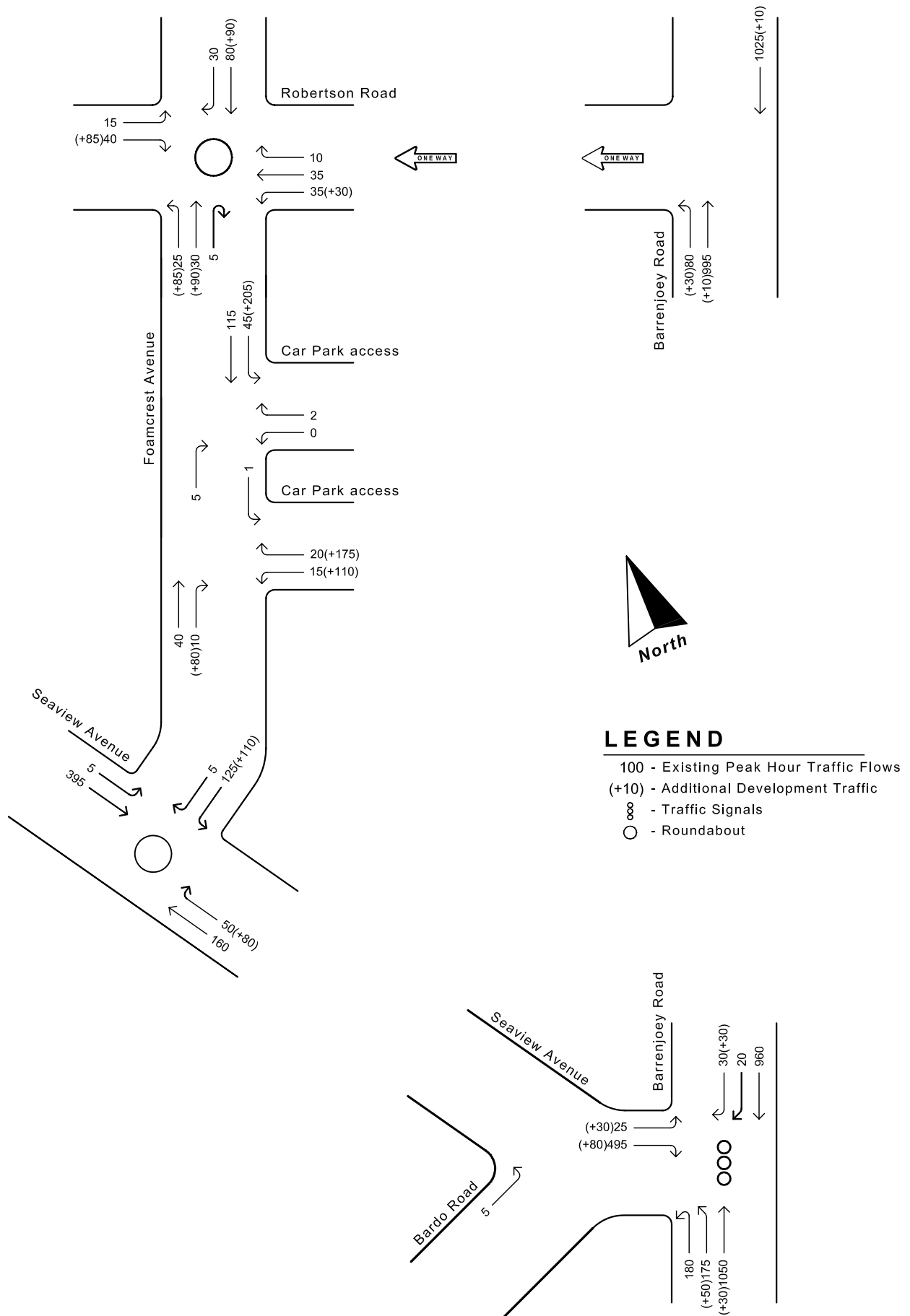
3.28 In summary, the main points relating to the traffic implications of the proposed development are as follows:

- i) it is proposed to rezone parts of the site to provide for a 3,540m² supermarket and 610m² specialty shops;
- ii) the proposal would strengthen demand for existing public transport services in the area;
- iii) the proposed parking provision is considered appropriate;
- iv) access, internal circulation and layout are considered appropriate; and
- v) the road network will be able to cater for the additional traffic from the proposed development.



Location Plan





Existing Saturday midday peak hour traffic flows plus development traffic