

KARIMBLA CONSTRUCTIONS SERVICES
(NSW) PTY LTD

TRANSPORT ASPECTS OF
SECTION 75W MODIFICATIONS
TO APPROVED MIXED USE
DEVELOPMENT, 150 EPPING
ROAD, LANE COVE WEST

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I. INTRODUCTION

- I.1 Colston Budd Hunt and Kafes Pty Ltd has been commissioned by Karimbla Constructions (NSW) Pty Ltd to assess the transport aspects of the Section 75 modifications proposed to the approved mixed use residential development at 150 Epping Road, Lane Cove West. The site is located on the southern side of Epping Road, between Sam Johnson Way and Mowbray Road, as shown in Figure I.
- I.2 The site has concept plan approval for a mixed use development comprising some 440 residential apartments, ancillary retail uses including a café and convenience store and community facilities, with basement car parking. Vehicular access is approved from Epping Road. We prepared a report¹ in support of the approved development.
- I.3 The proposed modifications to the approved development include:
- providing an 85 place child care centre within the development;
 - modifying the retail component of the development, to provide some 258m², compared to some 769m² approved;
 - removing the commercial component of 800m²;
 - removing access from the service road on the western side of the site;

¹ "Transport and Accessibility Impact Assessment for Part 3A Application for Proposed Mixed Use Development, 150 Epping Road, Lane Cove West." Prepared for Rose Property Group, March 2011.

- removing the extension to the left turn lane along the site frontage;
- removing the associated condition 8 of the concept approval; and
- removing the pedestrian bridge over Epping Road adjacent to the site.

I.4 Condition 8 of the concept approval, dated 14 August 2012, is as follows:

8. VEHICULAR ACCESS

- a) *A Stage 2 Road Safety Audit, prepared by a suitably qualified consultant is to review the proposed access arrangements for vehicles entering and exiting the site. The safety audit is to be undertaken in consultation with the RTA and any relevant findings are to inform the final design of the vehicular access arrangements.*

I.5 The transport implications of the proposed modifications are assessed in the following chapter.

2. TRANSPORT ASPECTS OF PROPOSED MODIFICATIONS

2.1 Our assessment of the transport aspects of the proposed modifications is set down through the following sections:

- site location and road network;
- approved development;
- proposed modifications;
- parking provision;
- access, servicing and internal layout;
- pedestrians;
- traffic generation and effects; and
- summary.

Site Location and Road Network

2.2 The site is located on the southern side of Epping Road, between Sam Johnson Way in the east and Mowbray Road in the west. It was formerly occupied by a Shell service station, car wash, McDonald's, convenience store and café. The site location is shown in Figure 1.

2.3 Right turns into the site from Epping Road are available via a right turn bay and u-turn facility. Vehicles turn left into the site via a slip lane from Epping Road. Entry to the site is also provided via a service road on the western side of the site. Vehicles turn left from Epping Road onto the service road, which is elevated above the site at Epping Road, for access to the site. The service road also provides access to commercial and industrial development to the west and south. The

service road is private land (half of the road forms part of the site and half is part of the site to the west), and does not provide for through traffic. There are reciprocal rights of way over the service road for the benefit of the site and the industrial development to the west.

- 2.4 Egress from the site, when it was previously operational, is via the service road and then an acceleration lane westbound onto Epping Road. Two points of egress from the site are provided. A partially enclosed tunnel beneath the service road provides the main egress from the site. A driveway at the southern end of the site also provides vehicular egress onto the service road.
- 2.5 In accordance with the concept approval, the egress tunnel from the site underneath the service road will be closed.
- 2.6 There is a commercial building west of the site and an industrial property south of the site which have access from the service road. These sites are in the northern part of an industrial area in Lane Cove West, which has the bulk of its vehicular access via Sam Johnson Way to the east.
- 2.7 Epping Road provides an east-west traffic route through the area. In the vicinity of the site it provides a divided carriageway with two westbound traffic lanes, one eastbound traffic lane and a dedicated bus lane in each direction, with additional lanes at its signalised intersections with Sam Johnson Way and Mowbray Road. As previously discussed, there is a right turn/u-turn facility in Epping Road for vehicular access to the site. There is a pedestrian and cycle path along the site frontage, adjacent to the site. The pedestrian and cycle link provide connections to the signalised intersections at Sam Johnson Way and Mowbray Road, east and west of the site respectively.
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Approved Development

2.8 The site has concept plan approval for a mixed use development comprising some 440 residential apartments, ancillary retail uses including a café and convenience store and community facilities, with basement car parking. Vehicular access is approved from Epping Road.

2.9 The following access arrangements for the site are approved:

- entry at the eastern end of the site, via the existing right turn lane, u-turn facility and slip lane;
- left out exit towards the eastern end of the site; and
- entry from the service road, with associated extension of the slip lane along the site frontage.

Proposed Modifications

2.10 The proposed modifications to the approved development include:

- providing an 85 place child care centre within the development;
 - modifying the retail component of the development, to provide some 258m², compared to some 769m² approved;
 - removing the commercial component of 800m²;
 - removing access from the service road on the western side of the site;
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- removing the extension to the left turn lane along the site frontage;
- removing the associated condition 8 of the concept approval; and
- removing the pedestrian bridge over Epping Road adjacent to the site.

Parking Provision

2.11 Parts C3, D1 and I.5 of the Lane Cove Development Control Plan include the following on-site car parking requirements:

- one space per one bedroom apartment;
- 1.5 spaces per two bedroom apartment;
- two spaces per three bedroom apartment;
- one space per four apartments for visitors;
- one space per 40m² for retail/commercial uses; and
- one space per four children for child care centres.

2.12 By comparison, the RTA's "Guide to Traffic Generating Developments" indicates that high density residential apartments with good access to public transport should provide parking as follows:

- 0.6 spaces per one bedroom apartment;
- 0.9 spaces per two bedroom apartment;
- 1.4 spaces per three bedroom apartment; and
- one space per five apartments for visitors.

2.13 Parking is proposed to be provided for the development, having regard to the above rates. The small retail component of 258m² (likely to be a convenience store) is intended primarily for residents and will therefore generate only minor

parking demands. A proportion of children in the child care centre also expected to live in the development and will therefore not require separate parking. A proportion of the visitor parking will be located adjacent to this component to cater for these uses, including dedicated spaces for the child care during morning and afternoon set down and pick up periods.

- 2.14 Final parking provision will be determined at the time that project applications are made for each stage of development, following confirmation of the final number and mix of apartments. An appropriate number of disabled spaces will be included in the parking provision.
- 2.15 Parts C3 and D1 of the Lane Cove Development Control Plan also include the following parking requirements:
- one motor cycle parking space per 25 car parking spaces;
 - one bicycle locker per 10 dwellings for residents;
 - one bicycle rail per 12 dwellings for visitors;
 - one bicycle locker per 450m² for retail; and
 - one bicycle rack per 150m² for retail.
- 2.16 These bicycle parking requirements compare to the suggested provisions in the NSW Planning Guidelines for Walking and Cycling of one space per three to five apartments for residents and one space per 10 to 20 apartments for visitors.
- 2.17 Motor cycle and bicycle parking is proposed to be provided in the development, having regard to the above rates. The final number of motor cycle and bicycle parking spaces will be determined at the time that project applications are made for each stage of development, following confirmation of the final number of apartments and parking spaces.
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Access, Servicing and Internal Layout

2.18 The proposed changes in access arrangements include:

- removing access from the service road on the western side of the site (except for emergency vehicles);
- removing the extension to the left turn lane along the site frontage; and
- removing the associated condition 8 of the concept approval requiring a road safety audit.

2.19 As noted in our report submitted for the approved development, traffic generation of the development will be lower than the development previously operating on the site (petrol, McDonald's, café, convenience store, etc.). Therefore, traffic flows on the service road would be lower with the approved development than when the site was previously operating. Removing the access from the service road on the western side of the site means that traffic on the service road will be further reduced, and not associated with the development.

2.20 With traffic from the development not using the service road, the need to extend the slip land along the site frontage (including the adjustment to the pedestrian and cycle path) no longer exists. It is therefore proposed to remove the slip lane extension along the site frontage.

2.21 During assessment of the application, the RMS (previously RTA) raised the following matter:

The extension of the existing slip lane in the eastern end of the site to connect with the existing access at the western end of the site may result in traffic slowing down to enter via the western end conflicting with traffic accelerating to exit via the eastern end. The RTA requires a Stage 2 Road Safety Audit to be submitted with any Development application for this site. This Audit is to review the proposed access arrangements for vehicles entering and exiting the site.

- 2.22 Removing the slip lane and the consequent removal of site traffic travelling along the frontage to the western access means that the above conflict will not occur. It is therefore proposed to remove condition 8 of the consent, requiring a road safety audit.
- 2.23 Modifications to on-site circulation, parking and service vehicle areas will be made to accommodate cars and service vehicles with the revised access arrangements. The internal circulation roads will be provided to accommodate a 12.5 metre large rigid truck, suitable for garbage collection, furniture trucks, emergency vehicles and service vehicles to the small retail/commercial component and child care centre. Designated loading bays will be provided within the development.
- 2.24 The proposed access and internal circulation arrangements will be provided to cater for 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 2890.1:2004 and AS 2890.2 –2002.
- 2.25 Within the car parking areas, ramp grades and transitions, parking bay dimensions, aisle widths, column locations and height clearances will be provided, at the detailed design stage, in accordance with AS 2890.1:2004.
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Pedestrians

- 2.26 The approved development includes a pedestrian bridge across Epping Road, adjacent to the site, in the statement of commitments. The Section 75W amendments include removing this bridge.
- 2.27 Pedestrians will be able to access bus stops on each side of the road using the pedestrian bridge/traffic signals at Sam Johnson Way, and the existing traffic signals at Mowbray Road, east and west of the site respectively. As noted in our report submitted for the approved development, major bus services operate along Epping Road in both directions.
- 2.28 The major movements are likely to be city-bound in the morning and outbound in the afternoon. City-bound passengers will be able to use the existing bus stop at the Mowbray Road signals some 300 metres west of the site. A pedestrian bridge would not shorten the walk for these passengers.
- 2.29 Outbound services in the afternoon would use the existing westbound stop adjacent to the site. These passengers would also not need a pedestrian bridge.
- 2.30 A pedestrian bridge would also not be necessary for passengers travelling in the non-peak directions. Westbound passengers in the morning would use the existing bus stop adjacent to the site. Eastbound passengers in the afternoon would use the bus stop adjacent to the Mowbray Road traffic signals.
- 2.31 Pedestrians will therefore be able to appropriately access bus stops on both sides of Epping Road, without the need for a pedestrian bridge.
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Traffic Generation and Effects

- 2.32 Traffic generated by the proposed development will have its greatest effects during morning and afternoon peak periods when it combines with commuter traffic. The RTA's "Guide to Traffic generating Developments" indicates that high density residential flat buildings with good access to public transport generate some 0.29 vehicles per hour per apartment (two-way) during peak periods. This compares to medium density residential development which generates some 0.4 to 0.5 vehicles per hour per small apartment two-way at peak times. Bearing in mind the accessibility of the site by public transport, traffic generation is likely to be 0.3 to 0.4 vehicles per hour per apartment, two-way.
- 2.33 The community facilities and relatively small commercial component (convenience store and café) are intended primarily for residents and will therefore have a minor traffic generation.
- 2.34 The child care centre would generate some 50 vehicles per hour two-way, based on traffic generation rates in the RMS guidelines, and including an allowance for a proportion of children in the centre also living in the development.
- 2.35 On this basis, the proposed development would generate some 220 to 230 vehicles per hour two-way during peak hours. During the morning peak period, some 70 per cent of vehicles would be outbound from the development. The reverse would apply in the afternoon.
- 2.36 As discussed in our previous report for the approved development, our surveys of the site found generations of some 170 and 250 vehicles per hour two-way during weekday morning and afternoon peak hours respectively. Therefore, traffic generation of the proposed development would be some 50 to 60 vehicles more
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than this generation in the morning, and some 20 to 30 vehicles less than this generation in the afternoon.

- 2.37 These are minor changes to traffic generation compared to that assessed in our previous report, equivalent to an average of less than one vehicle per minute during the morning and afternoon peak periods.
- 2.38 In order to assess the effects of this traffic, we have analysed the operation of the intersection of Epping Road with Mowbray Road with the additional development traffic using SIDRA. The base traffic flows are those assessed in our previous report, and are shown in Figures 2 and 3 of this report.
- 2.39 SIDRA simulates the operations of intersections to provide 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):

ρ 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 |

- ρ 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:

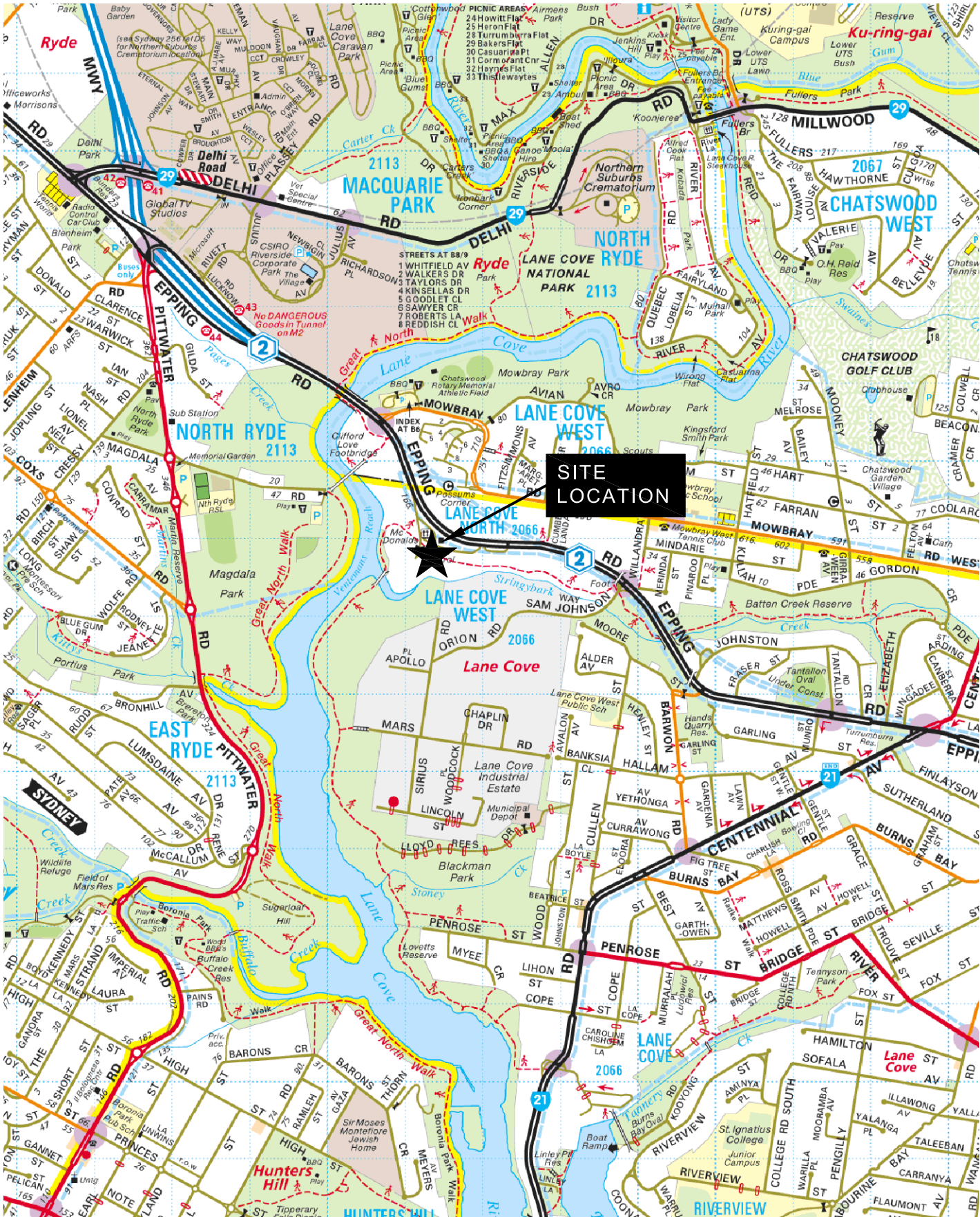
| | | | |
|----------|---|-----|--|
| 0 to 14 | = | "A" | Good |
| 15 to 28 | = | "B" | Acceptable delays and spare capacity |
| 29 to 42 | = | "C" | Satisfactory but accident study required |
| 43 to 56 | = | "D" | Near capacity and accident study required |
| 57 to 70 | = | "E" | At capacity and requires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

- 2.40 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.
- 2.41 The analysis found that the signalised intersection of Epping Road with Mowbray Road would operate with average delays of less than 30 seconds per vehicle during peak periods. This represents levels of service C, a satisfactory level of intersection operation.
- 2.42 Therefore, the road network will be able to cater for the traffic from the proposed development.

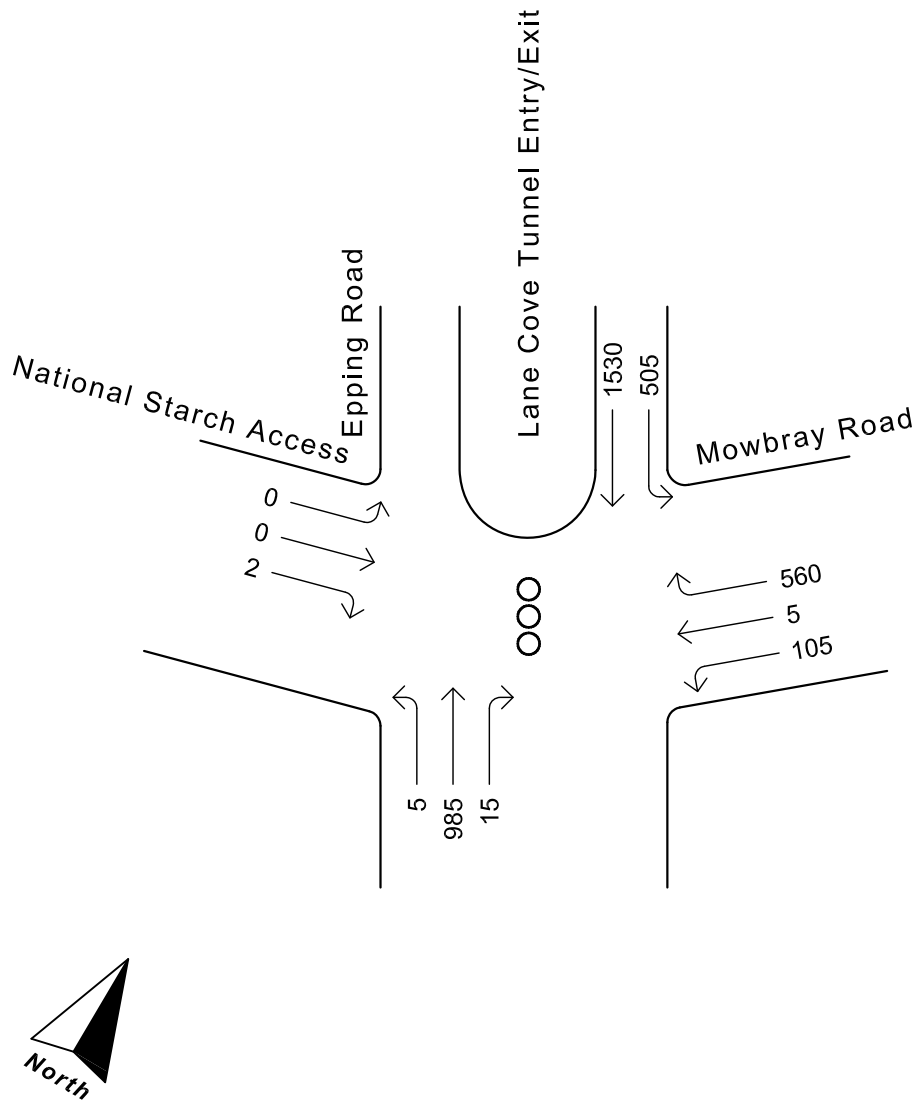
Summary

2.43 In summary, the main points relating to the transport and accessibility impact assessment for of the amended development are as follows:

- i) the proposed modifications include:
 - providing an 85 place child care centre within the development;
 - modifying the retail component of the development, to provide some 258m², compared to some 769m² approved;
 - removing the commercial component of 800m²;
 - removing access from the service road on the western side of the site;
 - removing the extension to the left turn lane along the site frontage;
 - removing the associated condition 8 of the concept approval; and
 - removing the pedestrian bridge over Epping Road adjacent to the site;
 - ii) parking provision is considered appropriate;
 - iii) the amended access arrangements will appropriately cater for access to and from the site;
 - iv) the amended access arrangements remove the need for a road safety audit;
 - v) pedestrians will be able to appropriately walk to and from the site; and
 - vi) the road network will be able to cater for the traffic from the proposed amended development.
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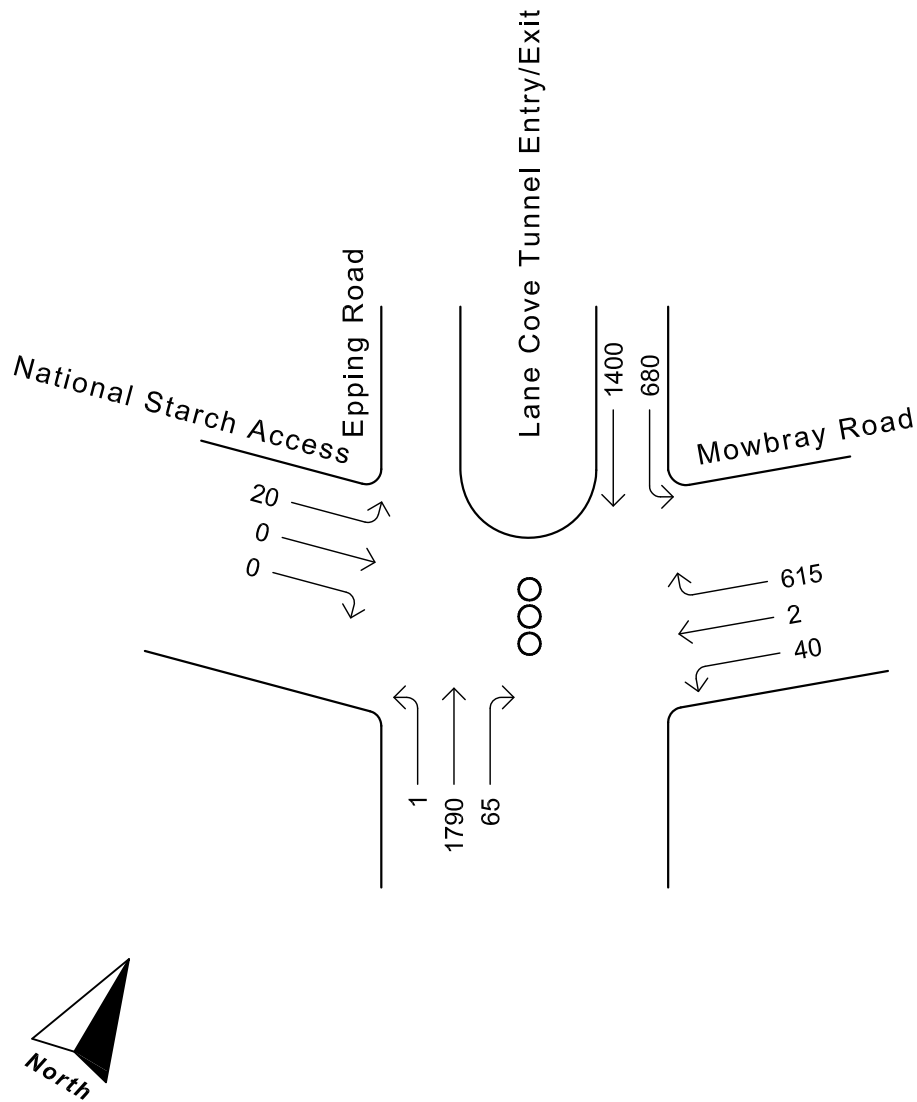
Location Plan



LEGEND

- 100 - Existing Peak Hour Traffic Flows
- 8 - Traffic Signals

**Weekday morning
peak hour traffic flows**



LEGEND

- 100 - Existing Peak Hour Traffic Flows
- ⊗ - Traffic Signals

**Weekday afternoon peak
hour traffic flows**