TRAFFIC REPORT FOR
PROPOSED RETAIL AND
COMMUNITY DEVELOPMENT,
MARSDEN PARK

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CHAPTER I

1. INTRODUCTION

1.1 Colston Budd Rogers and Kafes Pty Ltd has been commissioned by Stockland Development Pty Limited to prepare a report examining the traffic implications of a proposed retail centre and community development at Marsden Park. The site is a block bounded by Elara Boulevard, Northbourne Drive, Harvest Street and Parish Street. The location is shown in Figure 1.

1.2 The site is in the Marsden Park Precinct in the North West Priority Land Release Area. The Marsden Park Precinct will ultimately provide some 10,300 homes, a town centre and two local centres, schools, open space, recreational areas and some 3,000 jobs.

1.3 The proposed retail centre and community development comprises one of the local centres in Marsden Park. It will include a supermarket, specialty retail, medical centre, child care centre, gym and community uses. Vehicular access would be provided from the four street frontages.

1.4 A series of previous reports and studies has been prepared to examine the overall transport requirements to accommodate development in the Marsden Park Precinct. In particular, the previous traffic study\(^1\) identified road and transport works to accommodate development of the scale envisaged for the precinct.

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\(^1\) “Marsden Park Precinct Traffic and Transport Assessment.” Prepared by Aecom for Woorong Park Pty Ltd on behalf of the Department of Planning and Infrastructure, 19 April 2013.
1.5 These works are being provided, either as part of approved development applications or included in developer agreements or contributions plans for the area.

1.6 The overall works to accommodate development of the Marsden Park Precinct have therefore been identified, with mechanisms in place to facilitate their implementation.

1.7 This report has been prepared in the context of those overall works, and concentrates on local implications with respect to access, parking provision, servicing, internal layout and local traffic effects. These aspects are assessed in the following chapters.
2. EXISTING CONDITIONS

Site Location and Road Network

2.1 The site is a block bounded by Elara Boulevard, Northbourne Drive, Harvest Street and Parish Street at Marsden Park. The site is in the Marsden Park Precinct in the North West Priority Land Release Area. It is part of the Elara estate which is being developed by Stockland. The site location is shown in Figure 1.

2.2 Richmond Road connects Blacktown with Richmond. In the vicinity of the site it provides a four lane divided carriageway with two traffic lanes each way and a central median, with the provision for six lanes in the future. Major intersections are signalised with additional lanes for turning traffic. There is a pedestrian and cycle lane on the western side of the road.

2.3 Elara Boulevard intersects Richmond Road at a signalised intersection. It is one of a number of signalised intersections on Richmond Road which will provide access to the Marsden Park Precinct. Elara Boulevard provides for one traffic lane in each direction, with parking permitted clear of intersections. There are roundabouts at Watkin Crescent and Parish Street. Elara Boulevard provides access to residential areas in the precinct.

2.4 Northbourne Drive intersects Elara Boulevard at the north-western corner of the site. Northbourne Drive provides for one traffic lane in each direction, clear of intersections, with parking permitted on both sides. The intersection of Northbourne Drive with Elara Boulevard is currently an unsignalised, four-way intersection. Traffic signals will be provided at the intersection in the future, as the precinct develops.
2.5 Parish Street runs south from Elara Boulevard on the eastern side of the site. It provides for two-way traffic, with parking permitted. The intersection of Parish Street with Elara Boulevard is controlled by a roundabout. Parish Street provides access to residential areas in the estate.

2.6 Harvest Street runs along the southern side of the site, connecting Northbourne Drive with Parish Street. It provides for two-way traffic, with parking permitted. It provides access to residential dwellings which are currently under construction. The intersection of Harvest Street with Northbourne Drive is controlled by a roundabout. The intersection of Harvest Street with Parish Street is an unsignalised t-intersection.

Previous Work

2.7 The site is in the Marsden Park Precinct in the North West Priority Land Release Area. The Marsden Park Precinct will ultimately provide some 10,300 homes, a town centre and two local centres, schools, open space, recreational areas and some 3,000 jobs. The proposed development will be one of the local centres.

2.8 A series of previous studies has been prepared to examine the overall transport requirements and infrastructure to accommodate development in the Marsden Park Precinct. An indicative layout plan, development control plan and contributions plan have been prepared for the precinct.

2.9 These studies have identified a series of transport, road and infrastructure works to accommodate development in the Marsden Park Precinct. The works include:
o a number of signalised intersections on Richmond Road, for access to and from the precinct. These have been provided in association with the Richmond Road upgrade;

o upgrade of Richmond Road to six lanes ultimately;

o a number of signalised intersections within the precinct, including at Elara Boulevard/Northbourne Drive;

o a road hierarchy to accommodate the development of the precinct for residential, retail, open space, schools and employment uses;

o public transport network, including appropriate travel routes for buses (including Elara Boulevard and Northbourne Drive); and

o a walking and cycling network throughout the precinct.

2.10 The above works are either in place, or are being constructed in association with ongoing development in the precinct, or are included in developer agreements or contributions plans for the area.

2.11 The overall works to accommodate development of the Marsden Park Precinct have therefore been identified, with access roads constructed to facilitate development of the subject site.
3. IMPLICATIONS OF PROPOSED DEVELOPMENT

3.1 The proposed retail centre and community development will include a supermarket (2,982 m²), specialty retail (1,424 m²), medical centre (1,715 m²), child care centre (121 children), restaurants (407 m²), gym (396 m²) and community uses (709 m²). Vehicular access would be provided from Elara Boulevard, Northbourne Drive, Harvest Street and Parish Street.

3.2 This chapter assesses the traffic implications of the proposed development through the following sections:

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

Parking Provision

3.2 Parts 4.4.2 and 5.2.7 of the Blacktown City Council Growth Centre Precincts Development Control Plan 2010 include the following parking requirements:

- one space per 30 m² GFA for shops less than 200 m²;
- one space per 22 m² GFA for shops greater than 200 m²;
- one space per 10 m² of dining area plus one space per three employees for restaurants;
- for child care centres:
  - one employee parking space per five children under two years;
- one employee parking space per eight children under between two and three years;
- one employee parking space per 10 children between three and six years; and
- one space per six children for visitors.

3.3 The DCP does not include parking requirements for gymnasia, medical centres or community uses. Roads and Maritime Services rates are appropriate for these uses.

3.4 For gymnasia, the RMS “Guide to Traffic Generating Developments” include a parking rate of three spaces per 100m$^2$ in town centres. They acknowledge that if the gym is located within a commercial or retail complex, appropriate allowance must be made for dual and complementary usage of the common off-street parking area. Based on three spaces per 100m$^2$, the gym (396m$^2$) would require 12 parking spaces.

3.5 While the RMS guidelines include parking rates for medical centres, the surveyed centres are much smaller than that proposed (average size of 460m$^2$, compared to 1,715m$^2$ at Marsden Park). We have reviewed other data regarding the parking demands of larger medical centres ranging in size from 1,500m$^2$ to 2,240m$^2$ GFA at Bankstown, Caringbah, Eastwood and Mt Druitt. The centres included general practitioners, specialists, day surgery and radiology/pathology services, which will be the types of services provided at Marsden Park.

3.6 The surveys found an average peak parking demand over the four centres of 2.6 spaces per 100m$^2$ GFA. Therefore, the proposed medical centre (1,715m$^2$) would require some 45 parking spaces.
3.7 The DCP requirements are therefore as follows:

- supermarket of 2,982m$^2$ – 136 spaces;
- specialty shop of 387m$^2$ (shop 200m$^2$ or greater) – 18 spaces;
- specialty shops of 1,037m$^2$ (each shop less than 200m$^2$) – 35 spaces;
- restaurants with 285m$^2$ dining area and 20 employees – 35 spaces;
- child care centre for 121 children comprising 36 under two, 25 under three and 60 under five – 16 employee spaces and 20 visitor spaces.

3.8 The RMS guidelines do not have specific parking rates for community facilities. Parking for community uses/public gatherings is typically one space per four people with associated parking demands for 300 people of 75 spaces.

3.9 If the DCP requirements were summed, the parking requirement would be 392 spaces.

3.10 However, the times of peak demand for a number of the uses, including child care, restaurants and community facilities, will not coincide with the retail uses. The peak parking demands for the proposed development will occur in the middle of the day. The combined demand of the shops and restaurants will be 224 spaces (136 + 35 + 18 + 35). At this time the child care demand will be the 16 employee spaces. Parents will be setting down and picking up children in the morning and afternoon, where 20 visitor spaces will be used.

3.11 As discussed above, based on the RMS guidelines, the gym and the medical centre would have middle of the day parking demands of 12 and 45 spaces respectively. The child care and community facilities would have demands of 16 and 40 spaces respectively at this time.
The middle of the day peak demand would therefore be 337 spaces ($224 + 12 + 45 + 16 + 40$). At other times, parking demands will be lower.

The proposed provision of 363 spaces satisfies this requirement.

By comparison, RMS rates for all uses could be used for the assessment of parking provision for the proposed development because they are based on extensive surveys of other similar developments. They also take account of factors such as overlapping demands for developments with a mix of uses, the peak parking demands of which do not coincide.

The RMS has undertaken extensive surveys of the parking demands of shopping centres. RMS guidelines recommend parking rates where a detailed breakdown of the floor areas is known.

For supermarkets, the RMS guideline parking rate is 4.2 spaces per 100m$^2$ GLA. For specialty shops, the rate is 4.5 spaces per 100m$^2$ GLA. The supermarket (2,982m$^2$) and specialty shops (1,424m$^2$) would therefore require 189 parking spaces.

Also based on extensive surveys, the RMS found peak parking demands for child care centres of one space per 4.3 children, including employee parking. On this basis, the child care centre would require 28 spaces. These demands would occur during the morning and evening set down and pick up periods. During the day, parking demands of the child care centre would be lower.

The restaurants would tend to have their peak demands in the evenings, when the other uses are less busy. For restaurant parking demands during the day, when
the retail uses are busy, our assessment is based on 4.5 spaces per 100m$^2$, the same rate as for specialty shops. The restaurants (407m$^2$) would therefore require 18 parking spaces.

3.19 Total parking requirements for the development would therefore be up to some 332 spaces, comprising 189 spaces for the retail uses, up to 28 spaces for the child care centre, 12 spaces for the gym, 45 spaces for the medical centre, 18 spaces for the restaurants and 40 spaces for the community uses.

3.20 The proposed parking provision of 363 spaces therefore satisfies parking requirements based on both RMS and the DCP, taking into account that the peak demands of the various uses do not coincide. A summary is provided in Table 3.1.

Table 3.1: Parking requirements

<table>
<thead>
<tr>
<th>Use</th>
<th>Size</th>
<th>Parking rate</th>
<th>Parking requirement</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DCP</td>
<td>RMS/survey</td>
<td>DCP</td>
</tr>
<tr>
<td>Supermarket</td>
<td>2.982m$^2$</td>
<td>1/22m$^2$</td>
<td>4.2/100m$^2$</td>
<td>136</td>
</tr>
<tr>
<td>Specialty shops</td>
<td>387m$^2$</td>
<td>1/22m$^2$</td>
<td>4.5/100m$^2$</td>
<td>18</td>
</tr>
<tr>
<td>200m$^2$ or greater</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialty shops &lt; 200m$^2$</td>
<td>1,037m$^2$</td>
<td>1/30m$^2$</td>
<td>4.5/100m$^2$</td>
<td>35</td>
</tr>
<tr>
<td>Restaurants</td>
<td>Total area of 407m$^2$, including 285m$^2$ dining, 20 employees</td>
<td>1/10m$^2$ dining + 1/3 employees</td>
<td>4.5/100m$^2$</td>
<td>35</td>
</tr>
<tr>
<td>Child care centre</td>
<td>36 under two, 25 under three and 60 under five</td>
<td>1/6 (visitor) + 1/5 &lt; two yrs + 1/8 between 2 and 3 yrs + 1/10 between 3 and 6 yrs</td>
<td>1/4.3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council requirement for 16 employee spaces during middle of the day. 20 visitor spaces required during morning/evening set down/pick up periods</td>
</tr>
<tr>
<td>Gymnasium</td>
<td>396m$^2$</td>
<td>3/100m$^2$</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Medical centre</td>
<td>1,715m$^2$</td>
<td>2.6/100m$^2$</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Community</td>
<td>150 people</td>
<td>1/4</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>337</td>
<td>332</td>
</tr>
</tbody>
</table>
3.21 The proposed parking provision includes 10 disabled spaces near the front of the various buildings. Bicycle parking will be provided in accordance with appropriate requirements.

Access, Servicing and Internal Layout

3.22 Vehicular access to the development is proposed to be provided from Elara Boulevard, Northbourne Drive, Harvest Street and Parish Street. Customer access is proposed from all of these streets. Service vehicles would enter and exit from Harvest Street.

3.23 The driveways will be provided 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 to cater for a car park of the size and type proposed.

3.24 A loading dock will be provided on the southern side of the main retail building. It will provide for 19 metre semi trailers and 12.5 metre large rigid trucks for deliveries and garbage collection. Service vehicles will be able to enter and exit in a forward direction. Service vehicle swept paths are shown in the attached Figures 2 to 4. The civil engineer’s drawings showing vehicles on the external road network are provided in the appendix.

3.25 Two areas of parking will be provided. The main eastern car park will provide 304 parking spaces. The western car park, between the buildings, will provide 59 parking spaces.
3.26 Parking spaces will be a minimum of 2.7 metres wide by 5.4 metres long, with 6.2 metre wide circulation aisles. Spaces with adjacent obstructions will be 0.3 metres wider to provide for doors to open. Disabled spaces will be a minimum of 2.4 metres wide, with a 2.4 metre wide adjacent area for wheelchairs. These dimensions are considered appropriate, being in accordance with the Australian Standard for Parking Facilities (Part 1: Off-street car parking and Part 6: Off-street parking for people with disabilities), AS 2890.1:2004 and AS 2890.6:2009.

Traffic Generation and Effects

3.27 As discussed in Chapter 2, previous studies undertaken for the Marsden Park Precinct assessed the overall future road and intersection requirements to accommodate 10,300 homes, a town centre and two local centres, schools, open space, recreational areas and some 3,000 jobs. The proposed development will be one of the local centres.

3.28 Based on RMS surveys, the proposed development would be likely to have a traffic generation of some 650 to 700 vehicles per hour two-way during weekday afternoon peak hours.

3.29 RMS guidelines suggest that some 25 per cent of visits are likely to be passing trade, i.e. customers who would have driven past the centre regardless of their visit to the centre. Being a local centre within the precinct, a significant proportion of its trade would be from people living and working in the area.

3.30 As discussed in Chapter 2, a series of road and intersection works is either in place, under construction or in developer agreements or contributions plans to cater for traffic from the development of the Marsden Park Precinct, including the subject site developed for this purpose.
3.31 Therefore, the road network and appropriate intersection works will be in place to cater for the proposed development.

Summary

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

i) the site is within the Marsden Park Precinct, for which an indicative layout plan, development control plan and contributions plan have been prepared;

ii) the proposed parking provision is considered appropriate;

iii) access, servicing arrangements and internal layout will be provided in accordance with AS 2890.1:2004 and AS 2890.2 – 2002;

iv) a series of road and intersections works has been identified in previous studies to cater for development in the Marsden Park Precinct;

v) these works are either constructed or are included in developer agreements or contributions plans for the area;

vi) therefore, the road network and appropriate intersection works will be in place to cater for the proposed development.
Location Plan

Figure 1
NOTE:
SKETCH PLAN ONLY. PROPERTY BOUNDARIES, UTILITIES, KERBLINES & DIMENSIONS ARE SUBJECT TO SURVEY AND FINAL DESIGN. TRAFFIC MEASURES PROPOSED IN THIS PLAN ARE CONCEPT ONLY AND ARE SUBJECT TO FINAL DESIGN BY CIVIL ENGINEERS.

Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body

10.7m LARGE RIGID VEHICLE
SWEPT PATHS
NOTE:
SKETCH PLAN ONLY. PROPERTY BOUNDARIES, UTILITIES, KERBLINES & DIMENSIONS ARE SUBJECT TO SURVEY AND FINAL DESIGN. TRAFFIC MEASURES PROPOSED IN THIS PLAN ARE CONCEPT ONLY AND ARE SUBJECT TO FINAL DESIGN BY CIVIL ENGINEERS.
NOTE:
SKETCH PLAN ONLY. PROPERTY BOUNDARIES, UTILITIES, KERBLINES & DIMENSIONS ARE SUBJECT TO SURVEY AND FINAL DESIGN. TRAFFIC MEASURES PROPOSED IN THIS PLAN ARE CONCEPT ONLY AND ARE SUBJECT TO FINAL DESIGN BY CIVIL ENGINEERS.

19.0m ARTICULATED VEHICLE SWEEPT PATHS

Swept Path of Vehicle Body
Swept Path of Clearance to Vehicle Body
APPENDIX

CIVIL ENGINEER’S DRAWINGS
VEHICLE LEGEND

VEHICLE
VEHICLE CLEARANCE
VEHICLE BODY
WHEELS

NOTE: VEHICLE TURN PATH BASED ON VEHICLE TRAVELLING SPEED OF 20 KMH

OUTBOUND TRAFFIC TOWARDS RICHMOND ROAD

INBOUND TRAFFIC TOWARDS LOADING DOCK

Preliminary - not for construction
NOTE: VEHICLE TURN PATH BASED ON VEHICLE TRAVELLING SPEED OF 20 KM/H
INBOUND TRAFFIC TOWARDS LOADING DOCK

OUTBOUND TRAFFIC TOWARDS RICHMOND ROAD

VEHICLE TURN PATH MOUNTING THE MOUNTABLE MEDIAN KERB. TRAFFIC SIGN AT MEDIAN TO BE RELOCATED TO SUIT VEHICLE TURN PATH.

NOTE: VEHICLE TURN PATH BASED ON VEHICLE TRAVELLING SPEED OF 10 KMH AROUND THE ROUNDABOUT.