WINSTON LANGLEY

TRAFFIC REPORT FOR PLANNING PROPOSAL FOR PROPOSED RESIDENTIAL DEVELOPMENT, 146-150 VIMIERA ROAD, MARSFIELD

MAY 2022

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

Telephone: (02) 9411 2411
Email: cbrk@cbrk.com.au

REF: 11839

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1. INTRODUCTION

1.1 Colston Budd Rogers and Kafes Pty Ltd has been commissioned by Winston Langley to prepare a report examining the traffic implications of a proposed residential development in Marsfield. The site is at 146-150 Vimiera Road as shown in Figure 1.

1.2 The site is currently occupied by playing fields and club facilities. The planning proposal would provide for residential development on the site of some 132 dwellings, with vehicular access from Vimiera Road. A park would be provided on the western part of the site.

1.3 This report assesses the traffic implications of the proposed development 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 at 146-150 Vimiera Road, on the eastern side of the road, at Marsfield. The site is currently occupied by playing fields and club facilities. Vehicular access is provided from Vimiera Road (at the northern end of the site and the main access at the southern end of the site) and Thelma Street. The site location is shown in Figure 1.

2.2 Surrounding land uses include residential areas, the CSIRO facility to the north, schools and open space.

2.3 Vimiera Road connects Macquarie Park in the north with Balaclava Road to the south. In the vicinity of the site it provides one traffic lane and one bicycle lane in each direction, clear of intersections, with a 50 kilometre per hour speed limit. There are bus stops on both sides of the road, close to the site.

2.4 North of the site, Vimiera Road intersects Epping Road at a signalised intersection. There are right turn bays provided in both directions on Epping Road for turns into Vimiera Road. Epping Road is a major road connecting Lane Cove, Macquarie Park, North Ryde and Epping. It provides for two traffic lanes and a bus lane in each direction, with a 70 kilometre per hour speed limit. There is a pedestrian bridge over Epping Road west of the Vimiera Road intersection.

2.5 Thelma Street is a local street which provides access to residential properties. With Rugby Road, it forms a connection between Vimiera Road and Culloden Road, south of the site.

Traffic Flows

2.6 Traffic generated by the proposed development will have its greatest effects during weekday morning and afternoon peak periods when it combines with other traffic on the surrounding road network. In order to gauge traffic conditions, counts were undertaken at the intersection of Epping Road with Vimiera Road.

2.7 The results of the surveys are shown in Figures 2 and 3 and summarised in Table 2.1. Epping Road carried some 2,500 to 3,000 vehicles per hour two-way during the weekday morning and afternoon peak hours. Vimiera Road carried lower flows of some 400 to 900 vehicles per hour two-way.

Table 2.1: Two-way (sum of both directions) peak hour traffic flows

Road	Location	Weekday morning	Weekday afternoon
Epping Road	East of Vimiera Road	2,550	2,485
	West of Vimiera Road	3,015	2,810
Vimiera Road	North of Epping Road	915	530
	South of Epping Road	440	415

2.8 The surveys recorded traffic generations of some 15 and 50 vehicles per hour two-way (sum of entries plus exits) from the site during the weekday morning and afternoon peak hours respectively.

Intersection Operation

2.9 The capacity of the road network is largely determined by the capacity of its intersections to cater for peak period traffic flows. The intersection of Epping Road with Vimiera Road has been analysed using the SIDRA program for the traffic flows shown in Figures 2 and 3.

2.10 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):

- 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

2.11 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 The analysis found that the signalised intersection of Epping Road with Vimiera Road is operating with average delays of less than 42 seconds per vehicle during the morning and afternoon peak periods. This represents level of service C, a satisfactory level of service.

Public Transport

2.13 Local bus services are provided by Sydney Buses. Epping Road forms part of a major bus route between the city, North Sydney, Macquarie Park and other areas in the north-west. Services also operate along Vimiera Road, adjacent to the site.

2.14 Services include:

- route 288: Epping to City Erskine Street;
- route 290: Epping to City Erskine Street via Macquarie University and North Sydney;
- route 291: Epping to McMahons Point;
- route 293: Marsfield to City Wynyard;
- route 550: Parramatta to Macquarie Park via Epping; and

- route 551: Busaco Road to Eastwood.

2.15 The site is therefore accessible by public transport.

2.16 As previously discussed, there are cycle lanes provided in both directions on Vimiera Road. Vimiera Road forms part of a major cycle route which connects to Eastwood, West Ryde and Meadowbank to the south, and Macquarie Park and Turramurra to the north.

3. IMPLICATIONS OF PROPOSED DEVELOPMENT

3.1 The planning proposal would provide for residential development on the site of some 132 dwellings, in a mix of detached dwellings and terraces/duplexes. Vehicular access would be provided from Vimiera Road. A park would be provided on the western part of the site.

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

- policy context;
- public transport, walking and cycling;
- parking provision;
- access and internal layout;
- traffic generation and effects;
- matters raised by the council; and
- summary.

Policy Context

3.3 There are a number of strategic state policies which are relevant to future development in the Sydney metropolitan area. The policies include the Greater Sydney Region Plan (A Metropolis of Three Cities), Future Transport Strategy 2056 and the State Infrastructure Strategy. These policies are discussed below.

3.4 The Greater Sydney Region Plan (A Metropolis of Three Cities) provides a framework for planning for Sydney's growth to 2056. It identifies three cities in the Sydney metropolis: the Eastern Harbour City, the Central River City and the Western Parkland City.

3.5 The Future Transport Strategy 2056 provides a framework for planning for and delivering transport infrastructure for the state over the next 40 years. The NSW State Infrastructure Strategy 2018–2038 sets out the government's infrastructure vision for NSW the state over the next 20 years.

3.6 A series of district plans set out the planning priorities and actions for each district in the greater Sydney region. The North District Plan, in which Ryde and Marsfield are located, identifies a number of important features for future development in the area which are relevant to the subject planning proposal, including:

- the Macquarie Park health and education precinct and Planned Precinct (north of the subject site), for which the North District Plan identifies employment and infrastructure growth;
- the greatest increase in population in the area covered by the North District Plan is expected in Ryde Local Government Area (51,700 additional people by 2036) due to the anticipated urban renewal;
- Lane Cove and Ryde local government areas are projected to see the largest growth in people aged 20–24 years across the District between 2016-2036 (44 per cent and 29 per cent respectively);
- the local government areas of Hornsby, Ryde, Ku-ring-gai and Northern Beaches will have the largest projected increase in the 65 - 84 age groups; and
- the plan requires councils to prepare five, 10 and 20 year strategies to deliver housing supply targets.

Public Transport, Walking and Cycling

3.7 As previously discussed, the site is close to major bus services on Epping Road and local services on Vimiera Road. These services offer alternatives to travel by modes other than car.

3.8 The proposed development would increased residential densities close to public transport services and the major employment, education and heath precinct in Macquarie Park. The proposal would therefore strengthen demand for public transport services.

3.9 The proposed development will therefore satisfy the objectives of the Greater Sydney Region Plan and North District Plan as follows:

(a) enabling residents to readily access buses close to the site;

(b) providing for residential development close to public transport and close to other services and facilities, including the major employment, education and health precinct in Macquarie Park;

(c) being readily connected to the Sydney CBD, as well as other major commercial centres, by public transport; and

(d) supporting the efficient and viable operation of public transport services.

Parking Provision

3.10 Part 9.3 of the City of Ryde Development Control Plan 2014 includes the following parking requirements for residential development:

- medium density residential:
  - one space per one bedroom or two bedroom dwelling;
  - two spaces per dwelling with three or more bedrooms;
  - one visitor space per four dwellings;
- low density residential:
  - up to two spaces per dwelling for dwelling houses; and
  - one space per dwelling for dual occupancy.

3.11 At the development application stage, parking will be provided having regards to the above requirements. The on-street parking will also be available for the park.

Access and Internal Layout

3.12 Vehicular access is proposed to be provided from Vimiera Road, via new road connections towards the northern and southern ends of the site. These road connections will be in similar locations to the existing access points to the site.

3.13 The new roads will be provided with 18 metre reserve widths, including 4.5 metre verges and nine metre carriageways, in accordance with the council's requirements for local roads. Laneways will be provided with 5.5 metre carriageways and variable verge widths.

3.14 The on site parking will be provided in garages. Visitor parking will generally be provided on the street. Garages and parking space dimensions will be provided in accordance with the Australian Standard for Parking Facilities (Part 1: Off-street car parking), AS 2890.1:2004, at the development application stage.

Traffic Generation and Effects

3.15 Traffic generated by the proposed development will have its greatest effects during weekday morning and afternoon peak periods when it combines with other traffic on the surrounding road network.

3.16 TfNSW surveys found two-way (sum of both directions) low density residential traffic generation rates of 0.81 and 0.83 vehicles per dwelling per hour during weekday morning and afternoon peak hours respectively.

3.17 The proposed residential development would therefore generate some 110 vehicles per hour two-way during weekday morning and afternoon peak hours. The park is not expected to generate significant traffic during weekday peak hours. Its generation is likely to be similar to or less than the existing playing fields.

3.18 As noted in chapter 2, the existing club and associated facilities generated 15 and 50 vehicles per hour two-way during the morning and afternoon peak hours respectively. Traffic increases as a result of the proposed residential development would therefore be some 95 and 60 vehicles pe hour two-way during weekday morning and afternoons respectively.

3.19 The additional traffic has been assigned to the road network. Two-way peak hour traffic flows plus the additional traffic from the proposed development are shown in Figures 2 and 3, and summarised in Table 3.1.

Table 3.1: Two-way peak hour traffic flows plus development traffic					
Road	**Location**	**Weekday morning**		**Weekday afternoon**	
		Existing	Plus development	Existing	Plus development
Epping Road	East of Vimiera Road	2,550	+30	2,485	+15
	West of Vimiera Road	3,015	+15	2,810	+10
Vimiera Road	North of Epping Road	915	+5	530	+5
	South of Epping Road	440	+50	415	+30

3.20 Table 3.1 shows that traffic increases on Vimiera Road would be up to some 30 to 50 vehicles per hour two-way during peak hours. Increases on Epping Road would be lower at some 10 to 30 vehicles per hour two-way.

3.21 The intersection of Epping Road with Vimiera Road has been re-analysed with SIDRA for the additional development traffic flows shown in Figures 2 and 3.

3.22 The analysis found that the intersection would continue to operate with average delays of less than 42 seconds per vehicle during the morning and afternoon peak periods. This represents level of service C, a satisfactory level of service.

3.23 The site access intersections on Vimiera Road 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.

3.24 Therefore, the road network will be able to accommodate the traffic from the proposed development.

Matters Raised by the Council

3.25 The council letter of 31 March 2022 includes a number of traffic and parking matters. These matters are discussed below.

- *The proposed road network (including intersections at Vimiera Rd and within the site) must be designed to support (at a minimum) the manoeuvring of a 12.5m long Heavy Rigid Vehicle (HRV) associated with garbage collection and deliveries. This needs to be demonstrated through a swept path assessment.*

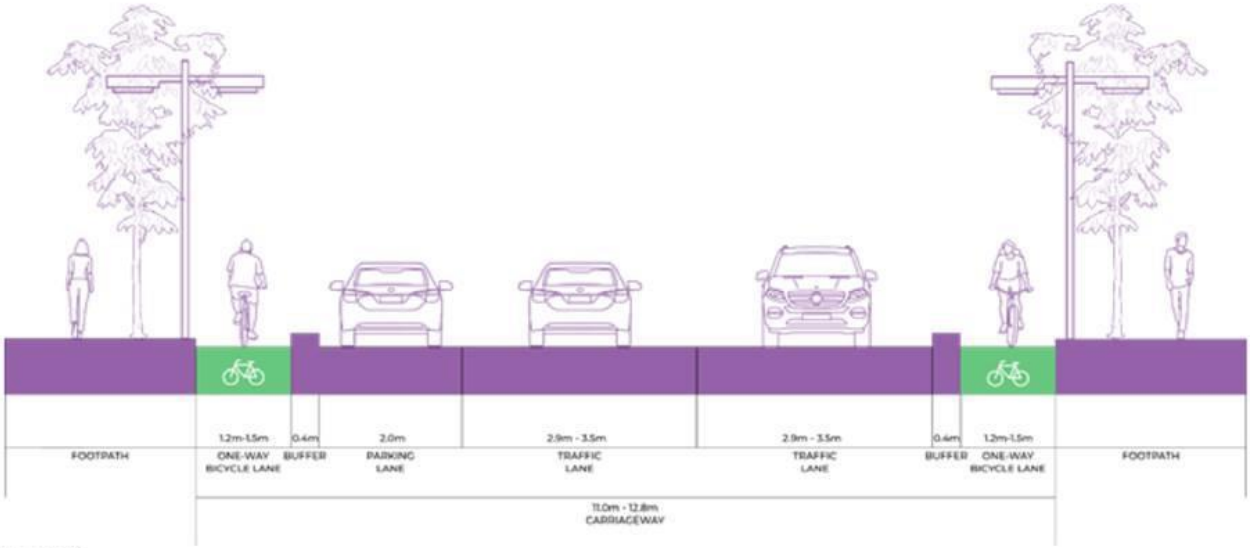
3.26 This matter would be most appropriately addressed at a future development application stage, although we note that the main circulation roads within the development will be provided in accordance with the council's requirements for local roads, which will therefore cater for these vehicles. As the design progresses, other locations will also appropriately provide for service vehicles, including assessment with vehicle swept paths as required.

- *Vimiera Road is defined as a collector road under Council's road hierarchy and it carried considerable traffic during weekday peak periods. To minimize the traffic impacts generated by the proposed development, consideration must be given to the following traffic management measures at the proposed site accesses with Vimiera Road, as illustrated below:*

3.27 As noted in the previous section on traffic generation and effects, the proposed access points on Vimiera Road would operate at a good level of service (LOS A/B) as priority intersections with the additional development traffic. A roundabout on Vimiera Road would not be necessary to cater for the additional development traffic. Similarly, there would not be a need to restrict the northern access point to left in/left out by a median in Vimiera Road.

3.28 These matters could be considered further at future stages in the planning process, such as at the time of a development application.

- *The proposal should support the on-going development of active transport infrastructure within the adjoining road network to promote a greater shift away from private vehicle use as a means to reduce private vehicle traffic and parking demand. Consideration must be given to the upgrade of the existing on road bicycle lanes along both sides of Vimiera Rd to have a buffer to the through traffic and parking along Vimiera Rd for the length of the site frontage. The following diagram being an extract from Council's Bicycle Action Plan illustrates a typical cross section of the preferred on road bicycle lane treatment:*



(Figure 10)
One-way cycleway with parking on one-side (min 11-metres).
Source: Dimensions taken from Cycling Aspects of Austroads (2017) and TfNSW Cycleway Design Toolbox (2020).

3.29 The landscape plan submitted with the application shows how an improved bicycle lane could be provided on the eastern side of Vimiera Road, along the site frontage.

- *To minimise competition for on-street parking with surrounding residents, there should be adequate off-street parking provided within the site to cater for the future park proposed to occupy the western part of the site.*

3.30 As noted in paragraph 3.11, on-street parking within the development will be available for the park.

- *The proposal should explore opportunities to consolidate/rationalize the internal road network within the site to minimize circulation within the site and improve accessibility to the proposed abutting properties.*

3.31 This matter is being addressed by the project architect.

- *Vimiera Road is a bus route. As such the scale of the development may require referral to Transport for NSW and Busways for their input.*

3.32 This matter is noted.

A comprehensive traffic, transport and parking assessment is to be submitted as part of the planning proposal with consideration of the abovementioned points as well as the following:

1. *Existing traffic conditions within Vimiera Road based on weekday peak hour traffic surveys (e.g. an assessment of the existing mid-block capacity should be considered).*
2. *The additional traffic that is likely to be generated by the subject proposal.*
3. *A 10-year (2031) projected traffic impact assessment is to be undertaken based on traffic growth adopted from Transport for NSW's STFM model.*
4. *The traffic impact of the proposed development on the operational performance of the adjoining public road network and provide recommendations on potential mitigation strategies/road/intersection improvements to alleviate the traffic impacts generated by the proposed development.*

3.33 These matters are discussed in paragraphs 2.6 to 2.12 and 3.15 to 3.24. To consider a future 10 year scenario, we have assessed a two per cent compound

growth rate for through traffic flows on Epping Road. With this increase, the intersection of Epping Road and Vimiera Road would operate with average delays of some 56 seconds per vehicle during peak periods. This represents level of service D, a satisfactory level of service for a busy intersection during peak periods.

5. *The proposed vehicular access, off-street parking and heavy vehicle servicing arrangements shall be designed to comply with the following:*
    - *The Australian Standard for* Parking Facilities Part 1: Off-Street Parking *(AS 2890.1);*
    - *The Australian Standard for* Parking Facilities Part 2: Off-Street Commercial Vehicle Facilities *(AS2890.2);*
    - *The Australian Standard for* Parking Facilities Part 3: Bicycle Parking Facilities *(AS2890.3);*
    - *The Australian Standard for* Parking Facilities Part 6: Off-Street Parking for People with Disabilities *(AS2890.6); and*
    - *Ryde City Council's* Development Control Plan

3.34 This would be undertaken at the development application stage.

Summary

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

i) the planning proposal would provide for some 132 residential dwellings in a mix of detached dwellings and terraces/duplexes, plus a park;

ii) the planning proposal is consistent with broader strategic plans for the area;

iii) the proposed development would be accessible by public transport services;

iv) the development would increase residential densities close to existing public transport services and the major employment, education and heath precinct in Macquarie Park;

v) appropriate parking will be provided;

vi) access will be provided from Vimiera Road, similar to today; and

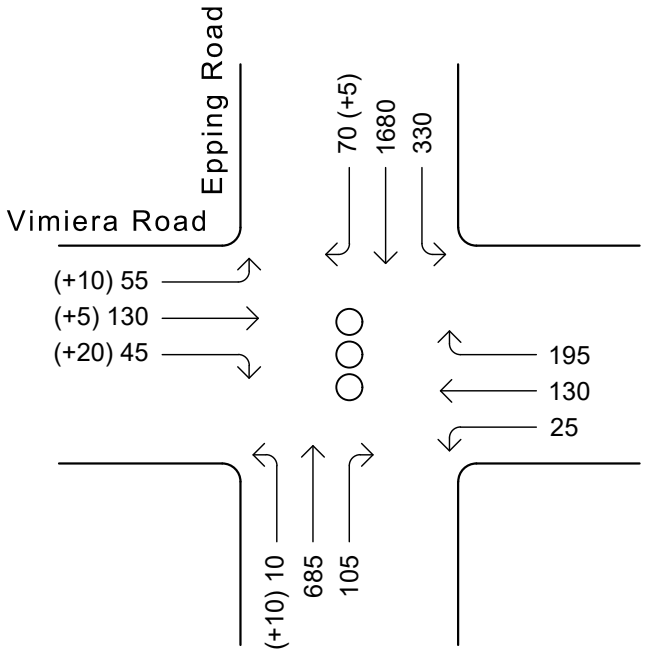
vii) the road network will be able to accommodate the additional traffic from the proposed development.

Location Plan

Colston Budd Rogers & Kafes Pty Ltd

Drawn By: CBRK Pty Ltd_hs Ref: 11839 28.10.2021

Figure 1



LEGEND

100 - Existing Peak Hour Traffic Flows
(+10) - Additional Development Traffic
- Traffic Signals

Existing weekday morning peak hour traffic flows plus development traffic

Figure 2

Colston Budd Rogers & Kafes Pty Ltd

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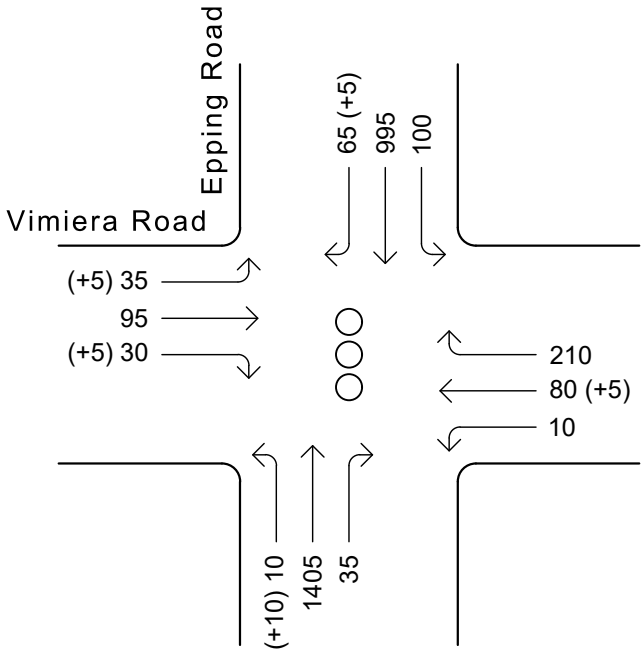

LEGEND

100 - Existing Peak Hour Traffic Flows
(+10) - Additional Development Traffic
- Traffic Signals

Existing weekday afternoon peak hour traffic flows plus development traffic

Figure 3

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