ROCHE GROUP PTY LIMITED

TRANSPORT ASPECTS OF REVISED PLANNING PROPOSAL FOR PROPOSED MIXED USE DEVELOPMENT, 469-483 BALMAIN ROAD, LILYFIELD

JUNE 2017

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REF: 10262/3

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1. INTRODUCTION

1.1 Colston Budd Rogers and Kafes Pty Ltd has been retained by Roche Group Pty Ltd to review the transport aspects of a revised planning proposal for a mixed use development at 469-483 Balmain Road, Lilyfield. The site has frontage to Balmain Road, Cecily Street, Alberto Street and Fred Street, as shown in Figure 1.

1.2 The site is occupied by industrial development, with driveways on Balmain Road, Alberto Street and Fred Street.

1.3 We have previously prepared a report[1] which was submitted with a planning proposal for the site. That assessed a scale of development comprising some 1,600m^2 commercial uses and some 170 residential units. A copy of our previous report is appended to this report.

1.4 Council's letter of 6 June 2017 requests retention of at least 6,000m^2 employment uses on the site, as well as other modifications. In an email of 8 June, the following matters were also raised by council officers:

The following additional information is required to fully assess the traffic and transport implications of this proposal:

- *predicted origin/destination information, projected onto the intersection of Alberto Street and Balmain Road, particularly in relation to potential right turn movements out*

[1] Transport Aspects of Planning Proposal for Proposed Mixed Use Development 469-483 Balmain Road, Lilyfield, September 2016.

of Alberto Street. This information should be considered in relation to elements such as sightline limitations at the intersection; conflict with Balmain Road bike routes and pedestrian activity

- *anticipated mode share (linked to origin/destination data) and the capacity of existing public transport services to cater for this demand*
- *proximity of the proposed car park egress to the Alberto Street/Balmain Road intersection*
- *further detail on parking quantum, layout and management is required to permit accurate assessment*
- *quantification of traffic volumes and directions associated with existing uses. The report does not state what the existing traffic generation of the site is and how this would compare with the proposed development*

The plans do not clearly identify where underground parking would be accessed from apart from stating Alberto Street. Council's Traffic and Transport Planners consider access off Fred or Cecily Streets a safer option as there are traffic signals at the relevant Balmain Road intersection and no traffic lights at the Alberto Street/Balmain Road junction. This would alleviate Councils concerns about pedestrian safety due to poor sightlines, turning movements as well as protecting residents more effectively by reducing potential pedestrian and vehicular conflicts. It would also be consistent with objective 2 and 5 of Leichhardt's Integrated Transport Plan.

A Traffic and Parking Assessment should include traffic and parking analysis for weekends (Saturday mid-day) that outlines how the development could minimise impact on local traffic and potential conflicts with other activities on nearby sites such as the Callan Park primary entry that is located directly opposite the subject site. The assessment should take into account the site's proximity to:

- *Callan Park and weekend events that occur on site*
- *weekend markets at Orange Grove and Rozelle Public School*
- *sporting events at Leichhardt Oval*

Note that in our recent letter dated Tuesday 6th June 2017 we noted that separate access to the employment and residential uses would be required. As such the most appropriate street must be selected for access purposes.

1.5 As a result of the modifications requested by council, the concept plan for the planning proposal now includes 6,000m^2 employment uses and some 142 residential apartments.

1.6 The revised scale of development and the above matters raised by council are addressed in the following chapter.

2. TRANSPORT ASPECTS OF REVISED PLANNING PROPOSAL

2.1 Our assessment of the amended planning proposal is set down through the following sections:

- site location and road network;
- revised scale of development;
- parking provision;
- access arrangements, servicing and internal layout;
- traffic generation and effects;
- matters raised by council; and
- summary.

Site Location and Road Network

2.2 The site is situated at 469-483 Balmain Road, Lilyfield, as shown in Figure 1. It is occupied by industrial style buildings with a number of tenants including artists' studios, an importing business, a showroom and other industrial and commercial users. Existing uses on the site comprise some 6,677m^2. Vehicular access is provided from Balmain Road, Alberto Street and Fred Street via shared entry and exit driveways.

2.3 There are commercial and retail properties on the southern side of Balmain Road and residential properties further south. The Sydney College of the Arts and Rozelle Hospital sites are north of Balmain Road, opposite the site within Callan Park. The Lilyfield light rail station is some 800 metres' walking distance to the south.

2.4 The road network in the vicinity of the site includes Balmain Road, Cecily Street, Alberto Street and Fred Street. Balmain Road forms part of a link between City West Link, Victoria Road and the Balmain peninsula. In the vicinity of the site it provides one traffic lane and one parking lane in each direction, clear of intersections. Balmain Road has a 50 kilometre per hour speed limit and is used by a number of bus routes. It provides access to adjacent commercial, retail and residential development.

2.5 Cecily Street runs south from Balmain Road on the eastern side of the site at an intersection controlled by traffic signals. A fourth (northern) approach to the intersection provides access to the Sydney College of the Arts and Rozelle Hospital sites within Callan Park. Adjacent the site, Cecily Street provides for one traffic lane in each direction with parking permitted south of Fred Street, and provides access to residential properties.

2.6 Alberto Street runs south from Balmain Road on the western side of the site. It provides for one traffic lane and one parking lane in each direction, clear of intersections. It provides access to the subject site, as well as other commercial development near Balmain Road and residential properties further away. The intersection of Alberto Street with Balmain Road is a priority controlled t-intersection, with Balmain Road the major road.

2.7 Fred Street intersects Cecily Street on the southern side of the site. Either side of Cecily Street, Fred Street is a dead end. It provides for two-way traffic and provides access to residential properties and the site. Vehicles park on both sides of Fred Street, with angle parking on the northern side and parallel parking on the other.

Revised Scale of Development

2.8 The concept plan for the planning proposal now includes 6,000m^2 employment uses and some 142 residential apartments.

Parking Provision

2.9 Part C of the Leichhardt Development Control Plan includes the following parking requirements:

- minimum and maximum of nil and 0.5 spaces per studio apartment;
- minimum and maximum of 0.33 and 0.5 spaces per one bedroom apartment;
- minimum and maximum of 0.5 and one space per two bedroom apartment;
- minimum and maximum of one and 1.2 spaces per three bedroom apartment;
- minimum and maximum of one space per 11 and eight dwellings for visitors;
- minimum and maximum of one space per 250m^2 and 150m^2 for industrial.

2.10 While the residential unit mix is yet to be determined, based on a mix of 24 per cent one bedroom, 46 per cent two bedroom and 30 per cent three bedroom apartments, the provision would be in the range of some 115 to 185 spaces. Parking provision for the development will be provided with reference to the above rates. These rates would achieve the aim of reduced traffic generation.

2.11 The DCP also includes the following requirements:

- one bicycle space per two dwellings for residents;
- one bicycle space per 10 dwellings for residential visitors; and
- one bicycle space per 10 employees for industrial development.

2.12 Appropriate bicycle parking will be provided in the development, having regard to the above rates. Appropriate motor cycle parking, disabled parking and car share spaces will also be provided in the development.

Access Arrangements, Servicing and Internal Layout

2.13 Appropriate access will be provided to the development from Alberto Street, Fred Street and/or Cecily Street. The site has the ability for access from multiple streets, which would be appropriate to distribute traffic efficiently on the surrounding road network. There is potential to separate access to the industrial and residential components from the street, or within the site. This would be determined at the development application stage.

2.14 The existing driveways to the site from Balmain Road, and two of the existing site driveways from Alberto Street, will be removed. This will improve parking in these streets.

2.15 The access arrangements will be provided, at the development application stage, to accommodate 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.

2.16 Appropriate provision for service vehicles will be included in the development. Service vehicles will include deliveries and garbage collection. Service vehicles will be able to enter and exit the site in a forward direction.

2.17 Within parking areas, parking space dimensions, aisle widths, ramp grades, transitions, column locations and height clearances would be provided in accordance with AS 2890.1:2004 and AS 2890.2 – 2002.

Traffic Generation and Effects

2.18 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.

2.19 Surveys undertaken by RMS include the following traffic generation rates for development:

- 0.52 and 0.56 vehicles per hour per 100m^2 for industrial development during weekday morning and afternoon peak hours respectively; and

- 0.25 and 0.18 vehicles per hour per apartment for high density residential apartments during weekday morning and afternoon peak hours respectively.

2.20 On this basis, the development would have a traffic generation of some 70 and 60 vehicles per hour two-way at peak times. These are modest traffic generations.

2.21 The additional traffic has been assigned to the road network based on access being provided from Alberto and Fred Streets. It should be noted that the assessment is not sensitive to whether access is provided from Cecily or Fred Street. Existing two-way (sum of both directions) peak hour traffic flows plus the additional development traffic are shown in Figures 2 and 3, and summarized in Table 2.1.

2.22 Traffic increases on Balmain Road, Cecily Street, Alberto Street and Fred Street would be some five to 35 vehicles per hour two-way at peak times.

Table 2.1: Existing two-way peak hour traffic flows plus development traffic					
Road	**Location**	**AM peak hour**		**PM peak hour**	
		Existing	Plus development	Existing	Plus development
Balmain Road	East of Cecily Street	1,200	+25	1,360	+20
	West of Cecily Street	1,175	+25	1,310	+20
Cecily Street	South of Balmain Road	85	+20	60	+20
	South of Fred Street	65	+15	45	+5
College/hospital access	North of Balmain Road	100	-	150	-
Fred Street	East of Cecily Street	20	-	10	-
	West of Cecily Street	20	+35	5	+25
Alberto Street	South of Balmain Road	60	+35	75	+25

2.23 The capacity of the road network is largely determined by the capacity of its intersections to cater for peak period traffic flows. The intersections of Balmain Road with Cecily Street/Park Road and Alberto Street, and of Cecily Street with Fred Street, have been analysed using the SIDRA program for the additional development traffic flows shown in Figures 2 and 3.

2.24 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

2.25 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.

2.26 The analysis found that with the additional development traffic, the signalised intersection of Balmain Road with Cecily Street would 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.

2.27 The unsignalised intersection of Balmain Road with Alberto Street would operate with average delays for the highest delayed movement of less than 20 seconds during peak periods. This represents level of service B, a reasonable level of service.

2.28 The intersection of Cecily Street with Fred Street would operate with average delays for the highest delayed movement of less than 15 seconds per vehicle during peak periods. This represents level of service A/B, a good level of service.

2.29 Therefore, the road network will be able to cater for the additional traffic from the proposed development.

Matters Raised by Council

2.30 The matters raised by council are addressed below.

- *predicted origin/destination information, projected onto the intersection of Alberto Street and Balmain Road, particularly in relation to potential right turn movements out of Alberto Street. This information should be considered in relation to elements such as sightline limitations at the intersection; conflict with Balmain Road bike routes and pedestrian activity*

2.31 The distribution of traffic to and from the proposed development for morning and afternoon peak hours is shown in Figures 2 and 3. Most traffic would travel to and

from Balmain Road. A smaller proportion would travel to and from the south along Alberto Street and Cecily Street.

2.32 As shown in Figures 2 and 3, the number of vehicles turning right into Balmain Road from Alberto Street would remain low. The SIDRA analysis indicates that the intersection will readily cater for these low movements.

2.33 Observations made during site inspections indicate that pedestrian and cycle volumes along Balmain Road are low and sight lines are not unusually restricted. Vehicles waiting to turn right from Alberto Street are able to 'see through' vehicles parked on Balmain Road. There are also gaps in the Balmain Road traffic stream created by the traffic signals at Cecily Street.

- *anticipated mode share (linked to origin/destination data) and the capacity of existing public transport services to cater for this demand*

2.34 For travel zone 833, in which the site is located, journey to work data includes the following modes of travel for people working in the zone:

- 77 per cent travel by car as driver;
- six per cent walked;
- five per cent travel by bus;
- four per cent travel by train;
- three per cent travel by other modes;
- two per cent travel as car passenger; and
- three per cent travel by ferry/tram/not stated.

2.35 The largest proportion of people working in this zone lives in the Leichhardt area.

2.36 By comparison, journey to work data for the travel zone includes the following modes of travel for people living in the zone:

- 53 per cent travel as vehicle driver;
- 22 per cent travel by bus;
- six per cent travel by ferry/tram;
- five per cent travel by other modes;
- four per cent travel by train;
- four per cent travel as vehicle passenger;
- four per cent walked; and
- two per cent not stated.

2.37 The largest destination for people travelling from this zone is the inner city, followed by the Leichhardt area.

2.38 It would be expected that future travel modes of employees and residents in the proposed development would be similar to the above modes, with many employees also living in the local area and many residents working in the CBD or local area.

2.39 Based on an estimated some 130 residents with a job, the estimated number of people travelling from the site to work by various public transport modes are as follows:

- bus: some 29 people;
- train: some eight people;
- ferry/tram: some five people.

2.40 These low numbers of people would not have noticeable effects on the operation of public transport services. We note that in the period 7:00 am – 9:00 am on weekdays, there are some 25 to 30 bus services which stop adjacent to the site. 29 bus passengers is therefore equivalent to an average of some one person per service, which is inconsequential. It also ignores the numerous services which operate along Victoria Road, within some five to 10 minutes' walk of the site.

2.41 Based on an estimated some 130 employees at the site, the estimated number of people travelling to the site to work by various public transport modes are as follows:

- bus: some six to seven people;
- train: some five to six people;
- ferry/tram: some one to two people.

2.42 These low numbers would also not have noticeable effects on the operation of public transport services. We note that this matter is not relevant to the planning proposal as the existing employment uses on the site are some 6,677m^2. The difference being sought in the planning proposal is therefore effectively the residential component.

- *proximity of the proposed car park egress to the Alberto Street/Balmain Road intersection*

2.43 While detailed plans will be prepared at the development application stage, access from Alberto Street would likely be toward the southern end of the site (at the lower end of the site), further from Balmain Road. As previously noted, the two other existing site driveways from Alberto Street (closer to Balmain Road) would be removed.

- *further detail on parking quantum, layout and management is required to permit accurate assessment*

2.44 Parking provision is discussed previously in paragraphs 2.9 to 2.12. The detailed design of internal layout and finalisation of parking provision would most appropriately be undertaken at the development application stage. However, as noted in paragraphs 2.15 to 2.17, parking layout, internal circulation and servicing would be provided in accordance with appropriate Australian Standards.

- *quantification of traffic volumes and directions associated with existing uses. The report does not state what the existing traffic generation of the site is and how this would compare with the proposed development*

2.45 As noted in our previous report, existing traffic generation of the site is some five to 10 vehicles per hour two-way at peak times. We note that the existing development on the site comprises some 6,677m^2, and that the current concept plan retains some 6,000m^2 of non-residential uses, in accordance with council's request.

2.46 Our analysis has assessed traffic generations of 90 and 65 vehicles per hour two-way during weekday morning and afternoon peak hours respectively, which is the traffic generation of both the residential and non-residential components. However, the residential component, which is effectively the difference being sought in the planning proposal, would have a generation of 25 to 35 vehicles per hour two-way at peak times, which is a low generation.

The plans do not clearly identify where underground parking would be accessed from apart from stating Alberto Street. Council's Traffic and Transport Planners consider access off Fred or Cecily Streets a safer option as there are traffic signals at the relevant Balmain Road

intersection and no traffic lights at the Alberto Street/Balmain Road junction. This would alleviate Councils concerns about pedestrian safety due to poor sightlines, turning movements as well as protecting residents more effectively by reducing potential pedestrian and vehicular conflicts. It would also be consistent with objective 2 and 5 of Leichhardt's Integrated Transport Plan.

2.47 We agree that access could be provided from Fred or Cecily Street. Access could also be provided from Alberto Street. The site has the ability for access from multiple streets, which would be appropriate to distribute traffic efficiently on the surrounding road network.

A Traffic and Parking Assessment should include traffic and parking analysis for weekends (Saturday mid-day) that outlines how the development could minimise impact on local traffic and potential conflicts with other activities on nearby sites such as the Callan Park primary entry that is located directly opposite the subject site. The assessment should take into account the site's proximity to:

- *Callan Park and weekend events that occur on site*
- *weekend markets at Orange Grove and Rozelle Public School*
- *sporting events at Leichhardt Oval*

2.48 We have undertaken traffic counts at the Balmain Road intersections (Cecily Street/Park Road and Alberto Street) on a Saturday. The result of the surveys are shown in Figure 4, and summarised in Table 2.2.

2.49 Traffic flows on Balmain Road were some 1,500 to 1,600 vehicles per hour two-way during the surveyed peak hour. Flows on Park Road were some 130 vehicles per hour two-way. Alberto Street and Cecily Street carried less than 100 vehicles per hour two-way.

Table 2.2: Existing two-way Saturday lunchtime peak hour traffic flows		
Road	**Location**	**Traffic flow**
Balmain Road	East of Cecily Street	1,575
	West of Cecily Street	1,490
Cecily Street	South of Balmain Road	90
College/hospital access	North of Balmain Road	130
Alberto Street	South of Balmain Road	70

2.50 The RMS surveys found a traffic generation rate of 0.21 vehicles per hour per apartment two-way during Saturday peak hours. Based on the employment uses generating 50 per cent of their weekday afternoon traffic on a Saturday, the development would generate some 50 vehicles per hour two-way during Saturday peak hours.

2.51 The additional Saturday development traffic has been assigned to the road network. Existing Saturday peak hour flows plus the additional development traffic are shown in Figure 4, and summarised in Table 2.3. Traffic increases in Balmain Road, Cecily Street and Alberto Street would be some 20 vehicles per hour two-way at peak times.

Table 2.3: Existing two-way Saturday peak hour traffic flows plus development traffic			
Road	**Location**	**Existing**	**Plus development**
Balmain Road	East of Cecily Street	1,575	+20
	West of Cecily Street	1,490	+20
Cecily Street	South of Balmain Road	90	+20
College/hospital access	North of Balmain Road	130	-
Alberto Street	South of Balmain Road	70	+20

2.52 The Balmain Road intersections have been analysed using SIDRA for the additional development traffic flows shown in Figure 4. The analysis found that the intersection of Balmain Road with Cecily Street would operate with average delays of less than 15 seconds per vehicle during Saturday peak periods. This represents level of service A/B, a good level of service.

2.53 The intersection of Balmain Road with Alberto Street would operate with average delays for all movements of less than 35 seconds per vehicle during Saturday peak periods. This represents level of service C, a satisfactory level of service.

Note that in our recent letter dated Tuesday 6th June 2017 we noted that separate access to the employment and residential uses would be required. As such the most appropriate street must be selected for access purposes.

2.54 This matter is discussed above in paragraphs 2.13 and 2.47.

Summary

2.55 In summary, the main points relating to the transport implications of the revised planning proposal are as follows:

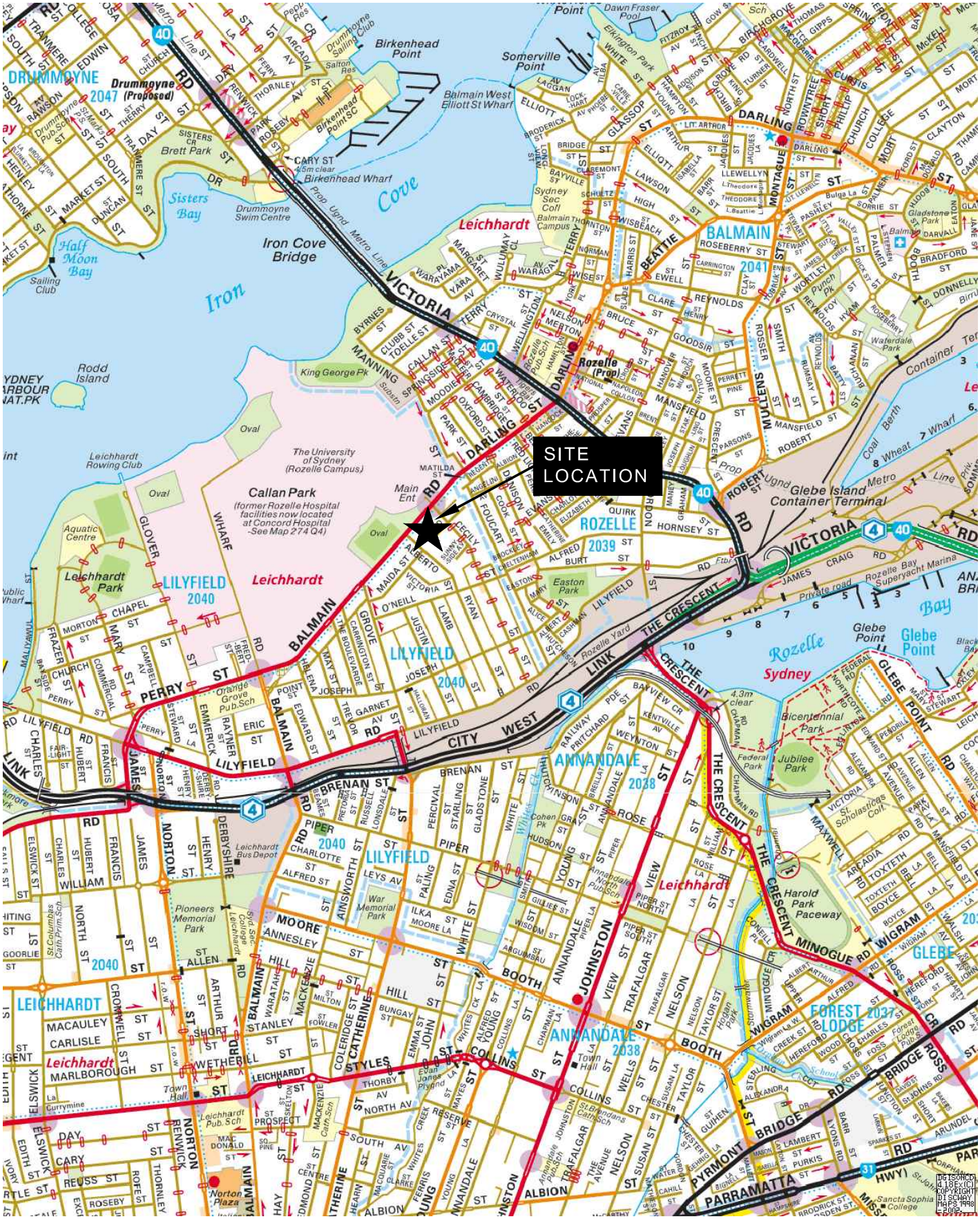
i) the amended concept plan for the planning proposal would provide for some 142 apartments plus 6,000m^2 non-residential uses;

ii) at the development application stage, appropriate on-site parking for cars, motorcycles and bicycles will be provided, consistent with reduced parking provision for locations with good public transport access;

iii) the site has potential for access from multiple streets, which would be appropriate to distribute traffic efficiently on the surrounding road network;

iv) at the development application stage, access, internal circulation and layout will be provided in accordance with Australian Standards;

v) the surrounding road network will be able to cater for the traffic generation of the proposed development, during weekday and Saturday peak periods.

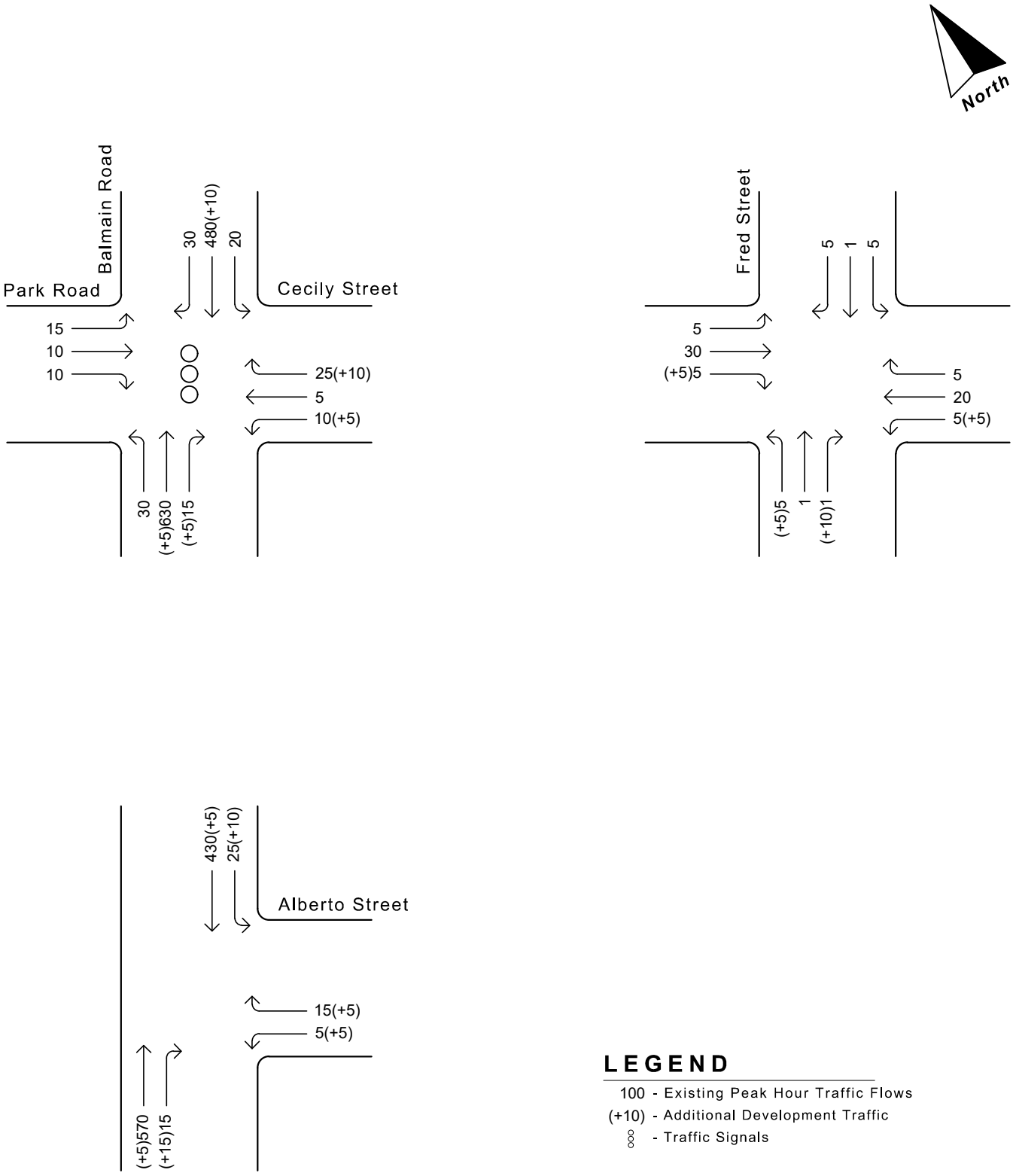


Location Plan

Colston Budd Rogers & Kafes Pty Ltd

DRAWN BY CBRK Pty Ltd_hs Ref: 10262/3 19.06.2017

Figure1

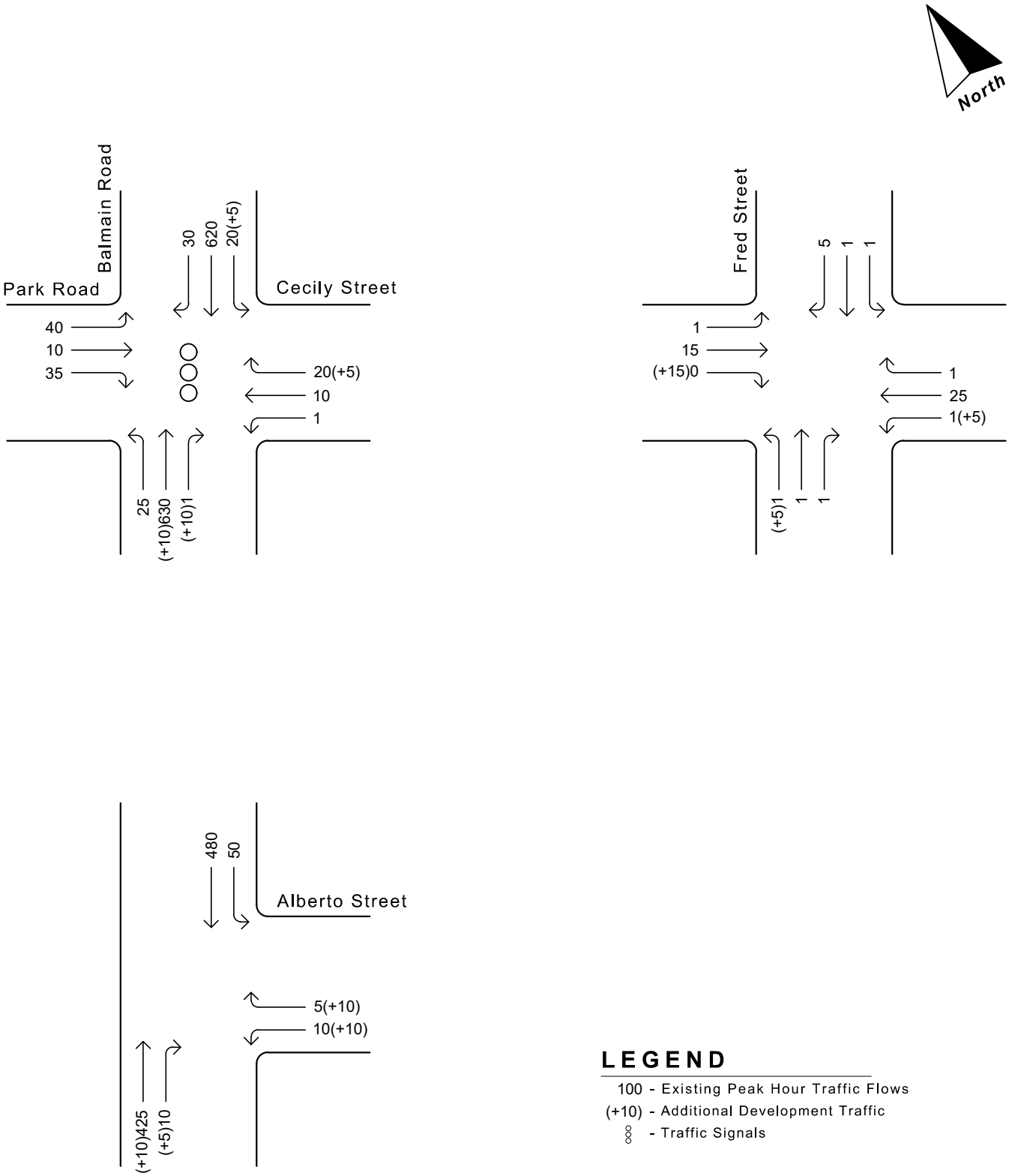


Existing weekday morning peak hour traffic flows plus development traffic

Colston Budd Rogers & Kafes Pty Ltd

DRAWN BY CBRK Pty Ltd_hs Ref: 10262/3 19.06.2017

Figure 2



Existing weekday afternoon peak hour traffic flows plus development traffic

Colston Budd Rogers & Kafes Pty Ltd

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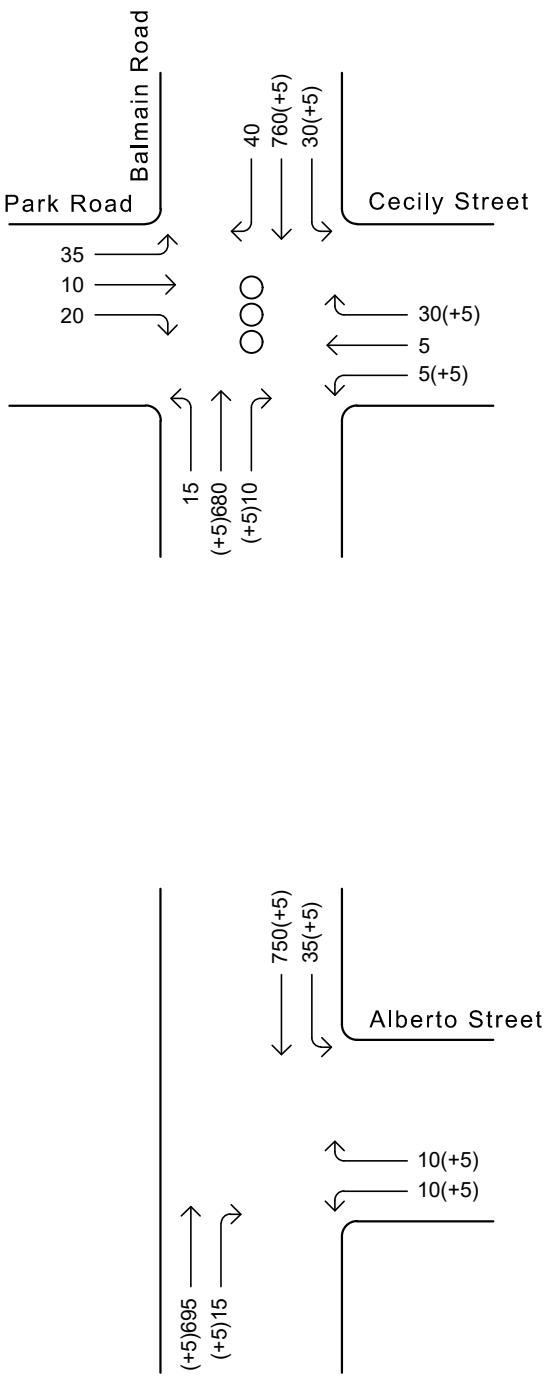
Figure 3



LEGEND

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

Existing Saturday midday peak hour traffic flows plus development traffic

Colston Budd Rogers & Kafes Pty Ltd

DRAWN BY CBRK Pty Ltd_hs Ref: 10262/3 19.06.2017

Figure 4

APPPENDIX

PREVIOUS REPORT

ROCHE GROUP PTY LIMITED

TRANSPORT ASPECTS OF PLANNING PROPOSAL FOR PROPOSED MIXED USE DEVELOPMENT, 469-483 BALMAIN ROAD, LILYFIELD

SEPTEMBER 2016

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1. INTRODUCTION

1.1 Colston Budd Rogers and Kafes Pty Ltd has been retained by Roche Group Pty Ltd to review the transport aspects of a planning proposal for a mixed use development at 469-483 Balmain Road, Lilyfield. The site has frontage to Balmain Road, Cecily Street, Alberto Street and Fred Street, as shown in Figure 1.

1.2 The site is occupied by industrial development, with driveways on Balmain Road, Alberto Street and Fred Street.

1.3 The planning proposal would provide for a mixed use development including some 1,600m^2 commercial uses and some 170 residential units (based on one dwelling per 80m^2), with vehicular access from Alberto Street.

1.4 This report assesses the transport implications of the proposed development through the following chapters:

- Chapter 2 - describing the existing conditions; and
- Chapter 3 - assessing the implications of the planning proposal.

2. EXISTING CONDITIONS

Site Location and Road Network

2.1 The site is situated at 469-483 Balmain Road, Lilyfield, as shown in Figure 1. It is occupied by industrial style buildings with a number of tenants including artists' studios, an importing business, a showroom and other industrial and commercial users. The total area of the site is some 6,824m^2. Vehicular access is provided from Balmain Road, Alberto Street and Fred Street via shared entry and exit driveways.

2.2 There are commercial and retail properties on the southern side of Balmain Road and residential properties further south. The Sydney College of the Arts and Rozelle Hospital sites are north of Balmain Road, opposite the site within Callan Park. The Lilyfield light rail station is some 800 metres' walking distance to the south.

2.3 The road network in the vicinity of the site includes Balmain Road, Cecily Street, Alberto Street and Fred Street. Balmain Road forms part of a link between City West Link, Victoria Road and the Balmain peninsula. In the vicinity of the site it provides one traffic lane and one parking lane in each direction, clear of intersections. Balmain Road has a 50 kilometre per hour speed limit and is used by a number of bus routes. It provides access to adjacent commercial, retail and residential development.

2.4 Cecily Street runs south from Balmain Road on the eastern side of the site at an intersection controlled by traffic signals. A fourth (northern) approach to the intersection provides access to the Sydney College of the Arts and Rozelle

Hospital sites within Callan Park. Adjacent the site, Cecily Street provides for one traffic lane in each direction with parking permitted south of Fred Street, and provides access to residential properties.

2.5 Alberto Street runs south from Balmain Road on the western side of the site. It provides for one traffic lane and one parking lane in each direction, clear of intersections. It provides access to the subject site, as well as other commercial development near Balmain Road and residential properties further away. The intersection of Alberto Street with Balmain Road is a priority controlled t-intersection, with Balmain Road the major road.

2.6 Fred Street intersects Cecily Street on the southern side of the site. Either side of Cecily Street, Fred Street is a dead end. It provides for two-way traffic and provides access to residential properties and the site. Vehicles park on both sides of Fred Street, with angle parking on the northern side and parallel parking on the other.

Traffic Conditions

2.7 Traffic generated by development anticipated in the planning proposal would 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 during weekday morning and afternoon peak periods at the following intersections:

- Balmain Road/Cecily Street;
- Balmain Road/Alberto Street; and
- Cecily Street/Fred Street.

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	AM peak hour	PM peak hour
Balmain Road	East of Cecily Street	1,200	1,360
	West of Cecily Street	1,175	1,310
Cecily Street	South of Balmain Road	85	60
	South of Fred Street	65	45
College/hospital access	North of Balmain Road	100	150
Fred Street	East of Cecily Street	20	10
	West of Cecily Street	20	5
Alberto Street	South of Balmain Road	60	75

2.9 Table 2.1 shows that traffic flows on Balmain Road were some 1,175 to 1,300 vehicles per hour two-way during the morning and afternoon peak periods. Alberto Street and Cecily Street, during the same peak periods, carried less than 100 vehicles per hour two-way.

2.10 The Sydney College of the Arts and Rozelle Hospital sites within Callan Park generated some 100 to 150 vehicles per hour two-way during the surveyed peak periods. Fred Street carried low flows of some five to 20 vehicles per hour two-way. The site was observed to generate some five to 10 vehicles per hour two-way.

Intersection Operations

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

2.12 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.

2.13 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

2.14 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.

2.15 The analysis found that the signalised intersection of Balmain Road with Cecily Street is 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.

2.16 The unsignalised intersection of Balmain Road with Alberto Street is operating with average delays for the highest delayed movement of less than 20 seconds during peak periods. This represents level of service B, a reasonable level of service.

2.17 The intersection of Cecily Street with Fred Street is operating with average delays for the highest delayed movement of less than 15 seconds per vehicle during peak periods. This represents level of service A/B, a good level of service.

Public Transport

2.18 As previously discussed, the site is some 800 metres walking distance from the Lilyfield light rail station. The light rail provides services connecting the city with Pyrmont and the inner west as far as Lilyfield. Services to and from Lilyfield are every 10 to 15 minutes in each direction.

2.19 Local bus services are provided by Sydney Buses. As previously discussed, the site is adjacent to services which operate along Balmain Road. Services include:

- route L37: Haberfield, Rozelle, city;
- route 440: Bronte, Bondi Junction, Central, Leichhardt, Rozelle;
- route 444: Campsie, Leichhardt, Balmain East; and
- route 445: Campsie, Leichhardt, Lilyfield Light Rail, Balmain East.

2.20 Balmain Road and Cecily Street are identified as on-road cycle routes, providing east-west and north-south connections respectively.

2.21 The site therefore has good access to regular public transport services.

3. IMPLICATIONS OF PROPOSED DEVELOPMENT

3.1 The planning proposal would provide for a mixed use development including some 1,600m^2 commercial uses and some 170 residential units, with vehicular access from Alberto Street. This chapter assesses the implications of the proposed development through the following sections:

- policy context;
- public transport, walking and cycling;
- travel access guide;
- parking provision;
- access arrangements, servicing and internal layout;
- traffic generation and effects; and
- summary.

Policy Context

3.2 There are a number of strategic state policies which are relevant to future development in the Sydney metropolitan area. The policies include NSW: Making It Happen, A Plan for Growing Sydney and The NSW Long Term Transport Master Plan. These policies are discussed below.

- NSW: Making It Happen

3.3 NSW: Making It Happen has 30 priorities, including:

- Strong budget and economy
  - make NSW the easiest state to start a business;
  - be the leading Australian state in business confidence;

- increase the proportion of people completing apprenticeships and traineeships to 65 per cent by 2019;
- halve the time taken to assess planning applications for state significant developments;
- maintain the AAA credit rating;
- expenditure growth to be less than revenue growth;

o Building infrastructure
- 90 per cent of peak travel on key road routes is on time;
- increase housing supply across NSW – deliver more than 50,000 approvals every year;

o Protecting the vulnerable
- successful implementation of the NDIS by 2018;
- increase the number of households successfully transitioning out of social housing by five per cent over three years;

o Better services
- increase the proportion of Aboriginal and Torres Strait Islander students in the top two NAPLAN bands for reading and numeracy by 30 per cent;
- 70 per cent of government transactions to be conducted via digital channels by 2019;
- increase on-time admissions for planned surgery, in accordance with medical advice;
- increase attendance at cultural venues and events in NSW by 15 per cent by 2019;

- maintain or improve reliability of public transport services over the next four years;

- Safer communities
  - LGAs to have stable or falling reported violent crime rates by 2019;
  - reduce adult reoffending by five per cent by 2019;
  - reduce road fatalities by at least 30 per cent from 2011 levels by 2021;

- 12 premier's priorities
  - creating jobs;
  - building infrastructure;
  - reducing domestic violence;
  - improving service levels in hospitals;
  - tackling childhood obesity;
  - improving education results;
  - protecting our kids;
  - reducing youth homelessness;
  - driving public sector diversity;
  - keeping our environment clean;
  - faster housing approvals;
  - improving government services.

- A Plan for Growing Sydney

3.4 A Plan for Growing Sydney provides a strategic plan to accommodate an additional 1.6 million people, 664,000 houses and 689,000 jobs.

3.5 The plan includes the following goals and actions to achieve them:

- Goal 1: a competitive economy with world class services and transport

  Actions:

  - grow a more internationally competitive Sydney CBD;
  - grow Greater Parramatta – Sydney's second CBD;
  - establish a new priority growth area – Greater Parramatta to the Olympic Peninsula;
  - transform the productivity of western Sydney through growth and investment;
  - enhance capacity at Sydney's gateways and freight networks;
  - expand the Global Economic Corridor;
  - grow strategic centres – providing more jobs closer to home;
  - enhance linkages to regional NSW;
  - support priority economic sectors;
  - plan for education and health services to meet Sydney's growing needs; and
  - deliver infrastructure.

- Goal 2: a city of housing choice, with homes that meet our needs and lifestyles

  Actions:

  - accelerate housing supply across Sydney;
  - accelerate urban renewal across Sydney – providing homes closer to jobs;
  - improve housing choice to suit different needs and lifestyles; and
  - deliver timely and well planned greenfield precincts and housing.

- Goal 3: a great place to live with communities that are strong, healthy and well balanced

Actions:

- revitalize existing suburbs;
- create a network of interlinked, multipurpose open and green spaces across Sydney;
- create built environments; and
- promote Sydney's heritage, arts and culture.

- Goal 4: a sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources

  Actions:

  - protect our natural environment and biodiversity;
  - build Sydney's resilience to natural hazards; and
  - manage the impacts of development on the environment.

- NSW Long Term Transport Master Plan

3.6 The NSW Long Term Transport Master Plan has been developed, in association with A Plan for Growing Sydney and State Infrastructure Strategy, to support NSW: Making It Happen. The key measures identified are as follows:

- providing a fully integrated transport system;
- providing a modern railway system and increase capacity by 60 per cent;
- providing a modern light rail system in the CBD;
- providing a modern bus system to complement the rail networks;
- connect the motorway network, including WestConnex, F3/M2 link and F6;
- reduce congestion in the CBD, including removing the monorail, increasing light rail, improving pedestrian links, increasing ferry use, providing increased capacity on the rail system and improved walking and cycling infrastructure;

- support the growth of new economic centres including the north west and south west rail links, new roads in growth areas and new bus infrastructure;
- connect regional communities through major highway upgrades, and improved rail, bus and air services;
- improve freight efficiency and productivity;
- improve access to Sydney Airport and Port Botany;
- boost walking, cycling and its integration with public transport; and
- preserve future transport corridors.

Public Transport, Walking and Cycling

3.7 As previously discussed, the site is close to regular bus and light rail services. These services connect the site with surrounding areas.

3.8 There are good pedestrian links between the site and surrounding areas, including to the light rail station, and to other services and facilities in Rozelle. The signalised intersection adjacent to the site includes pedestrian crossings. A pedestrian link will be provided through the site, connecting Fred Street with Alberto Street.

3.9 As noted in Chapter 2, Balmain Road and Cecily Street are identified cycle routes. Appropriate bicycle parking will be provided within the development.

3.10 The proposed development would increase residential densities close to public transport services. The proposed development will therefore be readily accessible by public transport, walking and cycling.

3.11 The proposed development will therefore satisfy the objectives of NSW: Making It Happen, A Plan for Growing Sydney and the NSW Long Term Transport Master Plan policy package as follows:

- enabling commuters and residents to readily access light rail and buses close to the site;

- providing an appropriate level of on-site parking, with reference to appropriate council and RMS requirements, to encourage greater public transport use and increase the proportion of trips by public transport;

- providing a mixed use development, including commercial and retail uses within Lilyfield, close to other commercial and retail facilities to reduce the need for external travel;

- being located close to major employment centres (CBD and Sydney Airport);

- improving pedestrian connectivity through the area; and

- providing for an increase in the proportion of the population living within 30 minutes by public transport of a major centre in the metropolitan area.

Travel Access Guide

3.12 To encourage travel modes other than private vehicle, consideration could be given to adopting a travel demand management approach, through a travel access guide to meet the specific needs of the site, future employees, residents and

visitors. The specific requirements and needs of the future employees and residents and visitors, including access to major surrounding employment centres, would be incorporated in the travel access guide to support the objectives of encouraging the use of public transport.

3.13 The principles of a travel access guide, to be developed by the applicant in consultation with council, RMS, Sydney Buses and other stakeholders, could include the following:

- encourage the use of public transport, including light rail and bus services through Lilyfield;
- work with public transport providers to improve services;
- encourage public transport use by residents through the provision of information, maps and timetables;
- raise awareness of health benefits of walking (including maps showing walking routes);
- encourage cycling by providing safe and secure bicycle parking;
- provide appropriate on-site parking provision, consistent with the objective of reducing traffic generation.

3.14 A travel access guide would assist in delivering sustainable transport objectives by considering the means available for reducing dependence solely on cars for travel purposes, encouraging the use of public transport and supporting the efficient and

viable operation of public transport services, and will be prepared by the developer prior to occupation of the building.

Parking Provision

3.15 Part C of the Leichhardt Development Control Plan includes the following parking requirements:

- minimum and maximum of nil and 0.5 spaces per studio apartment;
- minimum and maximum of 0.33 and 0.5 spaces per one bedroom apartment;
- minimum and maximum of 0.5 and one space per two bedroom apartment;
- minimum and maximum of one and 1.2 spaces per three bedroom apartment;
- minimum and maximum of one space per nine and eight dwellings for visitors;
- minimum and maximum of one space per 100m^2 and 60m^2 for business premises; and
- minimum and maximum of one space per 100m^2 and 80m^2 for office premises.

3.16 While the residential unit mix is yet to be determined, based on a mix of 30 per cent one bedroom, 50 per cent two bedroom and 20 per cent three bedroom apartments, the provision would be in the range of some 141 to 230 spaces. Parking provision for the development will be provided with reference to the above rates. These rates would achieve the aim of reduced traffic generation.

3.17 The DCP also includes the following requirements:

- one bicycle space per two dwellings for residents;

- one bicycle space per 10 dwellings for visitors;
- one bicycle space per 10 employees for commercial development; and
- one bicycle space per 400m^2 GFA for commercial development.

3.18 Appropriate bicycle parking will be provided in the development, having regard to the above rates. Appropriate motor cycle parking, disabled parking and parking for car share facilities will also be provided in the development.

Access Arrangements, Servicing and Internal Layout

3.19 Vehicular access to the development is proposed to be provided from Alberto Street. With respect to the potential for access to other streets, the following is noted:

- access to Balmain Road would not be permitted as it is a classified road and under the provisions of SEPP Infrastructure where practical access can be provided from an alternative road, access will not be permitted from the classified road;

- access to Cecily Street is not favoured due to the narrowness of the street and proximity to the traffic signal controlled intersection on Balmain Road; and

- consideration could be given to a secondary (residential) access on Fred Street. This would have the benefit of spreading traffic to across the road network and make use of the existing traffic signals at the intersection of Balmain Road/Cecily Street. If a secondary access was provided on Fred Street it should be for residential traffic only (thus adding residential traffic to

a residential street), the access be located at the Cecily Street end of the site, generally in the location of the existing site access and that based on the scale of development, the increase in traffic in Fred Street would be well within the environmental capacity of the a local road.

3.20 The existing driveways to the site from Balmain Road, and two of the existing site driveways from Alberto Street, will be removed. This will improve parking in these streets.

3.21 The access arrangements will be provided, at the development application stage, to accommodate 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.

3.22 Appropriate provision for service vehicles will be included in the development. Service vehicles will include deliveries and garbage collection. Service vehicles will be able to enter and exit the site in a forward direction.

3.23 Within parking areas, parking space dimensions, aisle widths, ramp grades, transitions, column locations and height clearances would be provided in accordance with AS 2890.1:2004 and AS 2890.2 – 2002.

Traffic Generation and Effects

3.24 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.

3.25 Surveys undertaken by RMS include the following traffic generation rates for development:

- 0.93 and 0.75 vehicles per hour per 100m^2 for commercial development during weekday morning and afternoon peak hours respectively; and

- 0.19 and 0.15 vehicles per hour per apartment for high density residential apartments.

3.26 On this basis, the development would have a traffic generation of some 40 to 50 vehicles per hour two-way at peak times. This is a modest traffic generation.

3.27 With allowance for traffic generated by the existing site uses, traffic increases in Alberto Street would be some 20 to 30 vehicles per hour two-way at peak times. Traffic increases in other streets would be lower at some 10 to 20 vehicles per hour two-way.

3.28 These modest flows would be readily accommodated on the surrounding road network with minimal impact on the amenity or operation of the road network. Intersections would continue to operate at their existing satisfactory or better levels of service, with similar average delays per vehicle. Traffic flows in Alberto Street would increase to some 100 vehicles per hour (two way) well within the environmental capacity of a local road (200 vehicles per hour, two way).

Summary

3.29 In summary, the main points relating to the transport implications of the planning proposal are as follows:

i) the planning proposal would provide for some 1,600m^2 commercial plus some 170 residential apartments;

ii) the development would increase residential densities close to existing public transport services and is consistent with government objectives to reduce private car travel and encourage public transport use;

iii) appropriate on-site parking for cars, motorcycles and bicycles will be provided, consistent with reduced parking provision for locations with good public transport access;

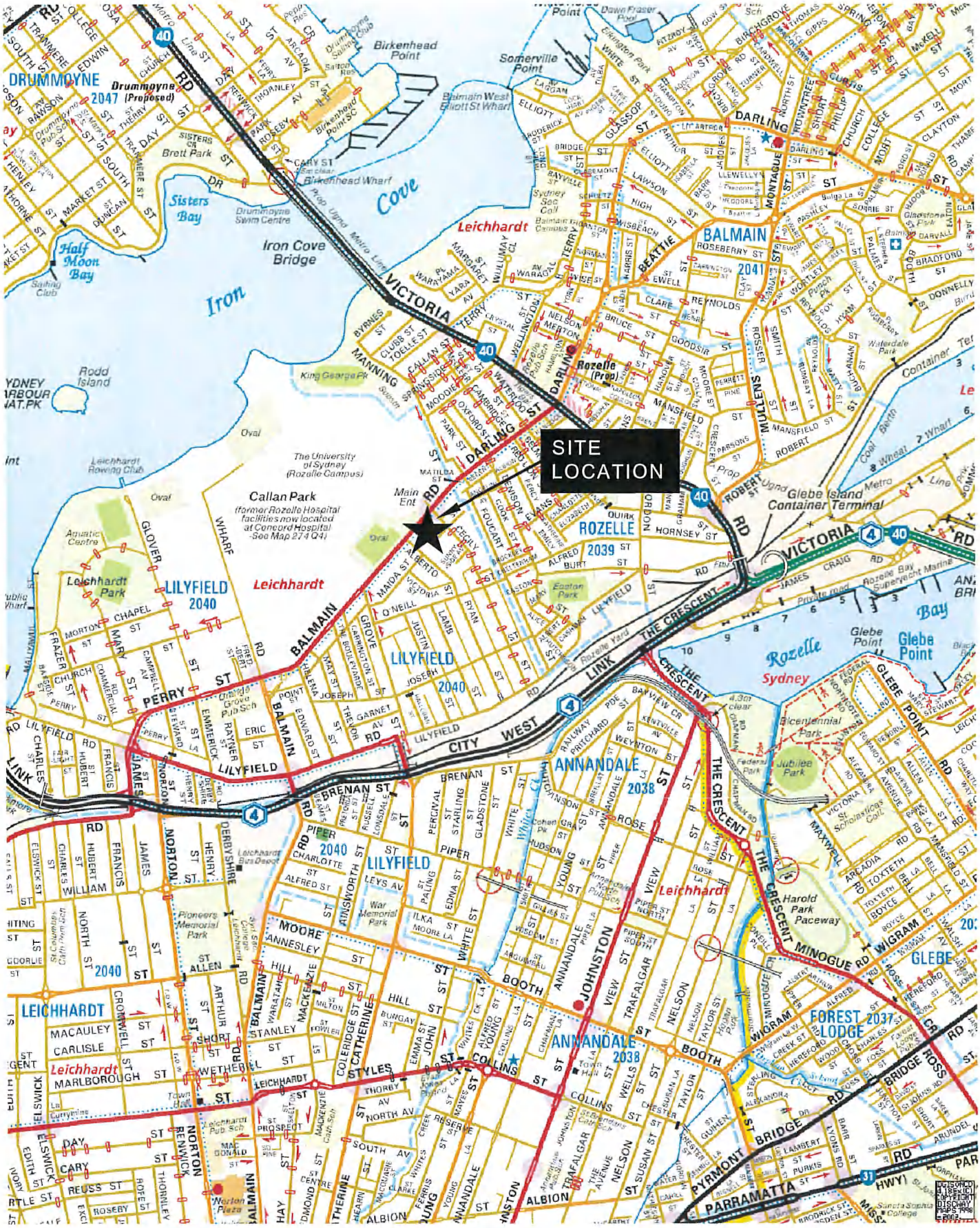
iv) access, internal circulation and layout will be provided in accordance with Australian Standards;

v) appropriate on-site facilities will be provided for service vehicles;

vi) the proposed development would have modest traffic generation of some 40 to 50 vehicles per hour two-way at peak times;

vii) access would be provided from Alberto Street;

viii) the surrounding road network will be able to cater for the traffic generation of the proposed development.



Location Plan

Colston Budd Rogers & Kafes Pty Ltd

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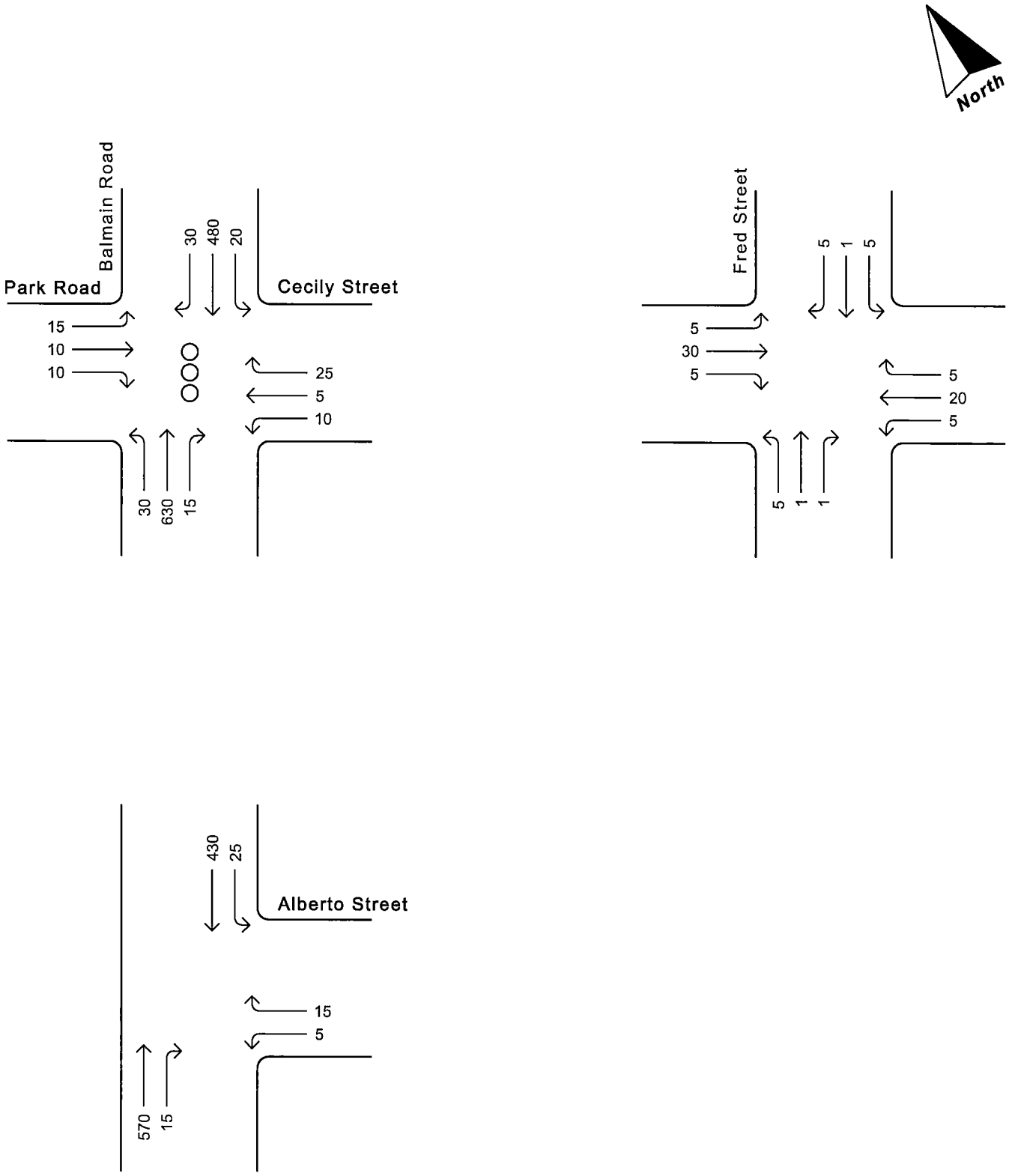
Figure 1



Existing weekday morning peak hour traffic flows

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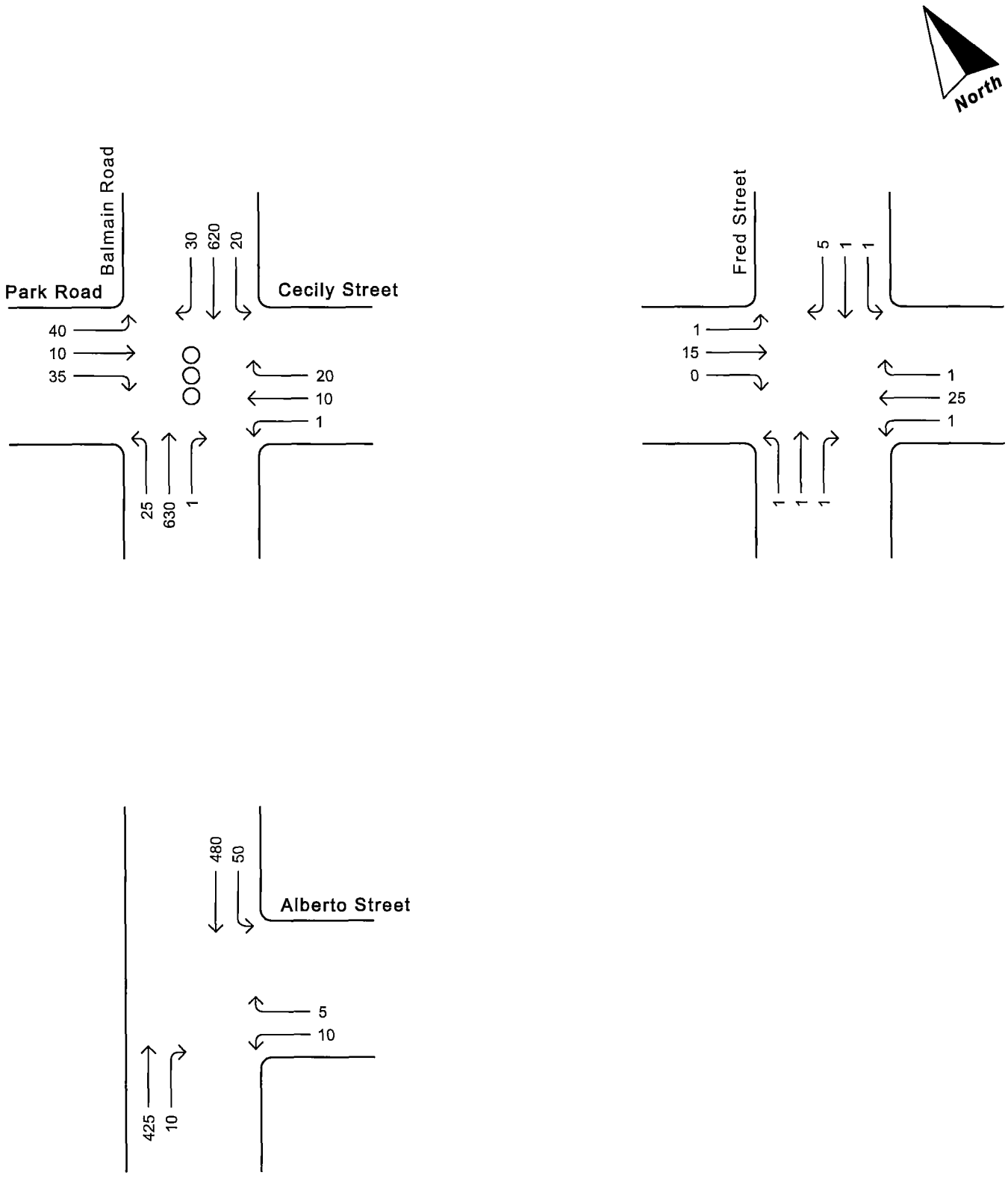
Figure 2



Existing weekday afternoon peak hour traffic flows

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Figure 3