MCDONALD'S AUSTRALIA LIMITED

TRAFFIC REPORT FOR PROPOSED McDONALD'S, 37 ROSEBERRY STREET, BALGOWLAH

DECEMBER 2024

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1. INTRODUCTION

1.1 Colston Budd Rogers and Kafes Pty Ltd has been commissioned by McDonald's Australia Limited to prepare a report examining the traffic and parking implications of the proposed McDonald's at 37 Roseberry Street, Balgowlah. The site of the proposed development is shown in Figure 1.

1.2 This report assesses the traffic and parking implications of the proposed McDonald's through the following chapters:

- Chapter 2 - describing the existing conditions; and
- Chapter 3 - assessing the traffic effects of the proposed McDonald's.

2. EXISTING CONDITIONS

Site Location

2.1 The site is located on the southwestern corner of the intersection of Roseberry Street and Kenneth Road, Balgowlah, as shown in Figure 1. The site is located within the Balgowlah Enterprise Corridor and is currently occupied by commercial premises with access located on Roseberry Street. Surrounding land use is a mix of employment and retail uses including a Woolworths, Aldi and Bunnings located south of the site.

Road Network

2.2 The road network in the vicinity of the site includes Condamine Street, Kenneth Road, Roseberry Street and Hayes Street. Condamine Street is located west of the site and provides an arterial road link within the Northern Beaches area. North of Hayes Street, Condamine Street has a six lane divided carriageway with separate turn bays at signalised intersections. Clearway conditions and dedicated bus lanes apply in the peak direction of travel during peak periods. South of Hayes Street, Condamine connects with the Burnt Bridge Creek Deviation. This provides the main arterial link to the Spit Bridge. South of Hayes Street, Condamine Street is a four lane undivided road.

2.3 Kenneth Road is located north of the site and runs in an east-west direction. The intersection of Condamine Street and Kenneth Road is traffic signal controlled. East of Condamine Street, Kenneth Road functions as a sub-arterial road, forming part of a link between Condamine Street and Pittwater Road. The intersection of

Kenneth Road and Roseberry Street is controlled by a single lane roundabout. Adjacent to the site it provides one parking lane and one traffic lane in each direction with separate turn bay on approach to Condamine Street.

2.4 Roseberry Street runs in a north-south direction east of the site. It has one traffic and in each direction with parking permitted on the eastern side of the road, between Kenneth Road and Hayes Street. The intersection of Roseberry Street and Balgowlah Road is controlled by a single lane roundabout. A raised pedestrian crossing is located on Roseberry Street, just to the north of Hayes Street. Observations noted that queuing on the Roseberry Street approach to the roundabout can extend past the site in the weekday afternoon and Saturday midday peak periods. This is primarily due to westbound vehicles on Kenneth Road queuing back through the roundabout from the signal controlled intersection with Condamine Street.

2.5 Hayes Street runs in an east-west direction between Roseberry Street and Condamine Street. It has one traffic and one parking lane in each direction, clear of intersections. The intersection of Hayes Street and Roseberry Street is an unsignalised T-intersections with Hayes Street the minor road. A raised pedestrian crossing is located on Hayes Street, just to the west of Roseberry Street

Traffic Flows

2.6 Traffic generated by the proposed McDonald's will have its greatest effects during weekday afternoon and Saturday midday peak periods when it combines with other traffic on the surrounding road network. In order to gauge traffic conditions, counts were undertaken on Friday (8 November 2024) and Saturday (9 November 2024)

during the weekday afternoon and Saturday midday peak periods at the following intersections:

- Condamine Street/Kenneth Road (traffic signals);
- Kenneth Road/Roseberry Street (roundabout); and
- Roseberry Street/Hayes Street (unsignalized t-intersection).

2.7 The results of the surveys are shown in Figures 2 and 3 and summarised in Table 2.1.

Table 2.1: Existing Weekday Afternoon and Saturday Midday Two Way Peak Hour Traffic Flows

Location	Weekday Afternoon	Saturday Midday
Condamine Street		
– north of Kenneth Road	2897	3058
– south of Kenneth Road	3310	3259
Kenneth Road		
– east of Roseberry Street	1185	1179
– west of Roseberry Street	1124	1197
Roseberry Street		
– north of Kenneth Road	334	342
– south of Kenneth Road	850	1027
– south of Hayes Street	818	1013
Hayes Street		
– west of Roseberry Road	360	450

2.8 Examination of Table 2.1 reveals that:

- Condamine Street carried some 2,900 to 3,300 vehicles per hour (two-way) during the peak periods;

- Kenneth Road carried some 1,100 to 1,200 vehicles per hour (two way) in the peak periods;

- Roseberry Street, south of Kenneth Road, carried some 800 to 1,000 vehicles per hour (two-way) during the peak periods; and

- Hayes Street carried some 360 to 450 vehicles per hour (two-way) during the peak periods.

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 surveyed intersections have been analysed using the SIDRA 9 Network 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):

ρ For traffic signals, the average delay per vehicle in seconds is calculated as delay/ (all vehicles), for roundabouts the average delay per vehicle in seconds is selected for the movement with the highest average delay per vehicle, equivalent to the following LOS:

0 to 14	=	"A"	Good
15 to 28	=	"B"	Good with minimal delays and spare capacity

29 to 42	=	"C"	Satisfactory with spare capacity
43 to 56	=	"D"	Satisfactory but operating near capacity
57 to 70	=	"E"	At capacity and incidents will cause excessive delays. Roundabouts require other control mode.
>70	=	"F"	Unsatisfactory and requires additional capacity

ρ For give way and stop signs, the average delay per vehicle in seconds is selected from the movement with the highest average delay per vehicle, equivalent to following LOS:

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

2.11 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 Condamine Street and Kenneth Road is operating with average delays of less than 40 seconds per vehicle during weekday afternoon and Saturday midday peak hours. This represents level of service C, a satisfactory level of service;

- the roundabout controlled intersection of Kenneth Road and Roseberry Street is operating with average delays for the highest delayed approach (Roseberry Street south) of less than 30 seconds per vehicle during weekday afternoon and Saturday midday peak hours. This represents level of service B/C, a satisfactory level of service; and

- the unsignalized t-intersection of Roseberry Street and Hayes Street is operating with average delays for the highest delayed movement (right turn out of Hayes Street) of less than 30 seconds per vehicle during weekday afternoon and Saturday midday peak hours. This represents level of service B/C, a satisfactory level of service.

2.13 SIDRA movements summaries are provided in Attachment A.

Public Transport

2.14 The site is well serviced by public transport. Sydney Buses operates a number of bus services along Condamine Street with bus stops on either side of the road just north of the intersection of Kenneth Road. These connect to Brookvale, Manly and the city. These services operate regularly, 7 days a week, with more frequent services during commuter peak periods. Services include:

- Route 142: Manly to Allambie Heights;

- Route 145: Seaforth to Warringah Mall
- Route 154X: Dee Why to Milsons Point (Express)
- Route 172X: Warringah Mall to City Wynward via North Balgowlah (Express);
- Route 173X: Warringah Mall to City Wynward via Balgowlah Shops (Express);
- Route 174X: Narraweena to City Wynward (Express)
- Route 176X: Dee Why to City Wynward via North Curl Curl (Express)
- Route 177X: Dee Why to City Wynward via Wingala (Express);
- Route 180X: Collaroy Plateau to City Wynward (Express);
- Route 181X: Narrabeen to City Wynward (Express);

2.15 The site therefore has good access to public transport.

3. IMPLICATIONS OF PROPOSED McDONALD'S

3.1 The proposed McDonald's some (381m^2 GFA) will provide 52 internal seats with 26 parking spaces provided in an at grade car park and a dual lane drive through facility. Access will be provided from Roseberry Street at the southern end of the site.

3.2 This chapter assesses the implications of the proposed McDonald's through the following sections:

- public transport;
- active transport;
- parking provision;
- access, servicing and internal layout;
- traffic effects;
- response to pre-DA traffic matters; and
- summary.

Public Transport

3.3 As previously discussed in Chapter 2, the site is well serviced by buses with bus stops located on Condamine Street within 100 metres of the site. Pedestrian access across Kenneth Road and Condamine Street is provided at the traffic signal controlled intersection.

3.4 The proposed McDonald's is therefore consistent with government objectives and the planning principles of:

(a) improving accessibility to employment and services by walking, cycling, and public transport;

(b) improving the choice of transport and reducing dependence solely on cars for travel purposes;

(c) moderating growth in the demand for travel and the distances travelled, especially by car; and

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

Active Transport

3.5 The site is located adjacent to a well-established footpath network throughout the Balgowlah area including footpaths along both sides of Roseberry Street, Kenneth Road and Roseberry Street adjacent to the site. Signalized pedestrian crossings are provided on all legs at the intersection of Condamine Street and Kenneth Road, pedestrian refuges are provided on the northern, eastern and western legs at the Kenneth Road/Roseberry Street roundabout and raised pedestrian crossing are provided on Roseberry Street (north of Hayes Street) and Hayes Street (west of Roseberry Street).

3.6 A clear pedestrian path will be provided from Roseberry Street into the site and a pedestrian crossing is provided across the exit from drive through for pedestrians to access the building.

Parking Provision

3.7 The Manly DCP provides a parking rate of one space per 40m^2 GFA for takeaway food and drinks premises. The proposed McDonald's is some 380m^2 GFA. The site would therefore require 10 parking spaces.

3.8 By way of comparison, TfNSW Guidelines (which are based on extensive surveys) suggest the provision of the greater of 1 space per 2 seats (internal) or 1 space per 3 seats (internal plus external), and a drive-through capacity of 10 to 12 cars with queuing for four vehicles from the order point for McDonald's with a drive through facility.

3.9 The site will provide 52 internal seats. The provision of 26 parking spaces therefore satisfies the parking requirements set out by TfNSW.

3.10 The dual lane drive-through facility provides queuing for a minimum of 15 vehicles with queuing for six vehicles prior to the order points. In addition, two waiting bays are provided after the collection point. This layout satisfies TfNSW requirements.

3.11 In addition, a bicycle rack for four bicycles and two motorcycle spaces are provided.

Access, Servicing and Internal Layout

3.12 Vehicular access is proposed from Roseberry Street at the southern end of the site some 30 metres from the roundabout controlled intersection with Kenneth Road. As vehicles currently queue back past the site from the roundabout two options were investigated to manage right turns to/from the site as set out below:

Option 1

- construct a median on Roseberry Street along the frontage of the site to limit access to left in/left out and construct a roundabout at the intersection of Hayes Street/Roseberry Street to the south to allow vehicles from the north to undertake a u-turn to access the site. To accommodate the median, parking on the eastern side of Roseberry Street opposite the site (4 spaces would be lost). This option was suggested by Council in the pre-DA advice;

Option 2

- remove the parking on the eastern side of Roseberry Street opposite the site (4 spaces would be lost) and provide no queuing line marking on the northbound traffic lane in Roseberry Street across the McDonald's access. This would allow southbound vehicles on Roseberry Street to pass a vehicle turning right into the site.

3.13 Option 2 is the recommended option as:

- both options result in the loss of parking on the eastern side of Roseberry Street;
- there is insufficient area to accommodate a roundabout at the intersection of Hayes Street/Roseberry Street; and
- Option 2 provides direct right turn access to the site, whereas Option 1 would restrict access to the site from the north and result in additional travel time and distance for these vehicles to access the site.

3.14 The proposed driveways will be some 10 metres wide at the kerb and be designed 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 2890.2:2018.

3.15 Within the site, parking spaces will be typically 2.6 metres wide by 5.4 metres long. The disabled space will be 2.4 metres wide, with a 2.4 metre wide adjacent area for wheelchairs. The two-way circulation aisles will be a minimum of 6.6 metres wide. These dimensions satisfy the requirements of 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 2890.6:2022.

3.16 The drive through facility will provide queuing for a minimum of 15 vehicles with queuing for six vehicles prior to the order point. The drive through will be designed in accordance with AS2890.1:2004 with the circulation lanes to be a minimum 3.0 metres wide and accommodate vehicle swept paths. Two wait bays will be provided after the collection point.

3.17 Service vehicles will include garbage collection and deliveries. All service vehicles will access the site from Roseberry Street with a loading dock provided separate to the car parking area and drive through facility. McDonald's will be serviced by vehicles ranging in size up to an 8.8 metre long medium rigid truck (MRV) with an average of two deliveries per day. Waste collection will be by a private contractor using an MRV sized vehicle. The design provides for service vehicles to enter and exit in a forward direction. Deliveries will be made outside of busy periods. Vehicle swept paths are provided in Attachment B.

3.18 Following DA approval, access arrangements, parking layouts, servicing and vehicle swept paths should be reviewed and confirmed for compliance certification.

Traffic Effects

3.19 Traffic generated by the proposed McDonald's will have its greatest effects during weekday afternoon and Saturday midday peak periods when it combines with other traffic on the surrounding road network.

3.20 To estimate traffic generation of the proposed McDonalds, reference is made to a study commissioned on behalf of TfNSW named *'Trip Generation and Parking Demand – Surveys of Fast Food Outlets – Analysis Report'* (Bitzios Consulting 2016). Conducted in 2016, This study provides current data and trends on traffic generation and parking demand at various fast food outlets including McDonald's. The study found that due to the diversity of characteristics in fast food outlets, when estimating trip generation, consideration should be given to the following:

- indoor/outdoor seating capacity;
- drive through capacity;
- exposure to frontage traffic;
- visible exposure to passing trade; and
- ease of site access/egress.

3.21 Based on the above criteria, the subject site at Balgowlah is rated within the medium range of expected trip generation as it has:

- low to medium seating capacity;
- medium to high drive through capacity;
- no exposure to an arterial road (Condamine Street);
- high exposure to passing trade (on Kenneth Road and Roseberry Street); and
- reasonable ease of access/egress.

3.22 On this basis the following peak hour traffic generations have been adopted:

- weekday afternoon peak hour – 140 vehicles per hour (two way) with 50% passing trade; and
- Saturday midday peak hour – 180 vehicles per hour (two way) with 50% passing trade.

3.23 Existing peak hour flows plus the additional development traffic are shown in Figures 2 and 3, and summarised in Table 3.1., taking into account 50% passing trade.

Table 3.1: Existing + Development Weekday Afternoon and Saturday Midday Two Way Peak Hour Traffic Flows

Location	Weekday Afternoon		Saturday	
	Existing	**+ Dev**	**Existing**	**+ Dev**
Condamine Street				
– north of Kenneth Road	2897	+10	3058	+10
– south of Kenneth Road	3310	+10	3259	+15
Kenneth Road				
– east of Roseberry Street	1185	+20	1179	+25
– west of Roseberry Street	1124	+30	1197	+35
Roseberry Street				
– north of Kenneth Road	334	+10	342	+20
– south of Kenneth Road	850	+95	1027	+120
– south of Hayes Street	818	+25	1013	+30
Hayes Street				
– west of Roseberry Road	360	+5	450	+10

3.24 Examination of Table 3.1 reveals that:

- traffic flows on Condamine Street would increase by some 10 to 15 vehicles per hour (two way) during the weekday afternoon and Saturday midday peak hours;

- traffic flows on Kenneth Road would increase by some 20 to 35 vehicles per hour (two way) during the weekday afternoon and Saturday midday peak hours; and

- traffic flows on Roseberry Street, north of Kenneth Road and south of the site access would increase by some 10 to 30 vehicles per hour (two way) during the weekday morning and afternoon peak hours. In the short section between the site access and Kenneth Road the increase would be higher at some 95 to 120 vehicles per hour (two way).

3.25 With the exception of the short section between the site access and Kenneth Road, the increases traffic flows from the proposed McDonald's are minor (10 to 35 vehicles per hour, two-way) and would be expected to have minimal impact on the operation of the surrounding road network.

3.26 The intersections assessed in Chapter 2 and the site access have been reanalysed with SIDRA for the additional development traffic flows shown in Figures 2 and 3. The analysis found that:

- the signalised intersection of Condamine Street and Kenneth Road would continue to operate with average delays of less than 45 seconds per vehicle during weekday afternoon and Saturday midday peak hours. This represents level of service C/D, a satisfactory level of service;

- the roundabout controlled intersection of Kenneth Road and Roseberry Street would operate with average delays for the highest delayed approach (Roseberry Street south) of less than 30 seconds per vehicle during weekday afternoon and

Saturday midday peak hours. This represents level of service B/C, a satisfactory level of service;

- the unsignalized t-intersection of Roseberry Street and Hayes Street would continue to operate with average delays for the highest delayed movement (right turn out of Hayes Street) of less than 30 seconds per vehicle during weekday afternoon and Saturday midday peak hours. This represents level of service B/C, a satisfactory level of service; and

- the unsignalized t-intersection of Roseberry Street and the site access would operate with average delays for the highest delayed movement (right turn out of the site) of less than 30 seconds per vehicle during weekday afternoon and Saturday midday peak hours. This represents level of service B/C, a satisfactory level of service.

3.27 Based on the above analysis the adjacent road network could accommodate the minor increase in traffic associated with the proposed McDonald's.

Response to Pre-DA Matters

3.28 Council was consulted prior to the submission of the DA. A number of matters were raised in relation to traffic, parking, access and internal circulation in its pre-DA advice. The traffic matters raised, and our responses set out.

As traffic often queues along the full frontage of the site a median will be required on Roseberry Street across the proposed driveway to physically prevent right turns in and out of the driveway. This will ensure that vehicles attempting to turn right in and out will not be blocked by that queue and create queuing/congestion issues within and external

to the site. This may need to be supported by a roundabout at the Roseberry Street/Hayes Street intersection to assist with access for vehicles blocked by the median.

Response

3.29 This is addressed in Section 3.12 and 3.13. Two options were investigated with Option 2 recommended (provision for right turns to/from the site).

In addition, modelling of traffic impacts on the roundabout at Kenneth/Roseberry and the signalised intersection at Kenneth Road/Condamine Street will be required for both the weekday PM peak period (a Friday evening?) as well as midday weekend peak period (Saturday 11am to 2pm). This modelling will assist in determining if changes may be required at these intersections to ensure that existing conditions are not adversely impacted.

Response

3.30 SIDRA modelling of the Kenneth Road/Condamine Street and Kenneth Road/Roseberry Street intersections in the Friday afternoon and Saturday midday peak hours has been undertaken with and without development traffic in place (see Sections 2.9 - 2.13, 3.26 and Attachment A).

The Manly DCP requires 1 space per 40m^2 of GFA for a takeaway restaurant however the new TfNSW Guide to Transport Impact Assessment recommends the greater of 1 space for each internal seat or 1 space for each seat (internal and external). The TfNSW guide also notes that for McDonalds restaurants the average number of parked vehicles was 21.1 but with a maximum of 39. The adequacy of off-street parking will need to be carefully reviewed as there is no capacity in this location for any overflow parking to be accommodated on-street.

Response

3.31 Parking requirements have been assessed based on Manly DCP and TfNSW Guidelines and found to be satisfactory (see Sections 3.7 - 3.11).

The adequacy of the queuing area on site will also need to be reviewed. The old RMS guidelines suggested that a queuing area of between 5 and 12 spaces was required from the pickup point. The more recent surveys used in the revised TfNSW guide show an average queue length of 11.3 spaces up to a max of 17 spaces for a McDonalds restaurant. This queueing area should be designed so that queued vehicles do not impact upon access to any of the required parking spaces. Queued vehicles should also not interfere with ingress or egress for vehicles entering/exiting the site. The above will need to be demonstrated with swept path plots for the B99 vehicle passing a B85 vehicle.

Response

3.32 Queuing requirements have been assessed based on TfNSW Guidelines in found to be satisfactory as set out Section 3.16.

Referral to TfNSW is required if traffic generation exceeds 200 veh/hr. The new TfNSW guide to Transport Impact Assessment suggests that for McDonalds the average weekday PM peak site traffic generation is 183 veh/hr while on weekends the peak traffic generation is 267 veh/hr in Sydney. It is noted that the restaurant is sited with the Balgowlah Enterprise Corridor where there is a predominance of uses which have their highest or high levels of traffic generation on weekends eg supermarkets, furniture stores, hardware stores. In this location the weekend traffic generation is considered just as critical if not more critical than that at weekday peak periods and, for this reason referral of the application to TfNSW is likely to be required. The site is also considered likely to impact upon the operation of the State Road signalised intersection at Condamine/Kenneth. It is also noted that the existing drive through facility at KFC

located on the northwestern leg of that intersection already creates issues, so we want to ensure that this development does not exacerbate those problems.

Response.

3.33 Traffic generation has been based on the new TfNSW Guidelines and would be less than 200 vehicles per hour (two way) as set out in Sections 3.19 to 3.22. The traffic effects of the proposed McDonald's on the operation of the Kenneth Road/ Condamine Street intersection has been undertaken and found to be minimal (see Section 3.26).

There have been issues at this site in the past relating to visibility to pedestrians using the footpaths and crossing Kenneth Road on the northeast corner of the site. A splay corner or an absence of anything other than low level landscaping on that corner will be required to ensure adequate sight lines to pedestrians/cyclists and motor vehicles at the corner.

Response

3.34 Noted – The development will improve sight lines by providing low level landscaping on the northeastern corner of the site.

All deliveries and servicing must be accommodated off street. Details in terms of the size and number of delivery and servicing vehicles and the times within which deliveries and servicing would occur would need to be detailed in the traffic report together with swept path plots to show how those vehicles will enter and exit the site in a forward direction.

Response

3.35 Service arrangements are addressed in Sections 3.17. Maximum sized vehicle will be an 8.8 metre long medium rigid truck (MRV) with typically up to two deliveries

per day outside of busy periods. All vehicles will enter and depart the site in a forward direction. Vehicle swept paths are provided in Attachment B.

Summary

3.36 In summary, the main points relating to the traffic implications of the proposed McDonald's are as follows:

i) the McDonald's will be accessible by public transport;

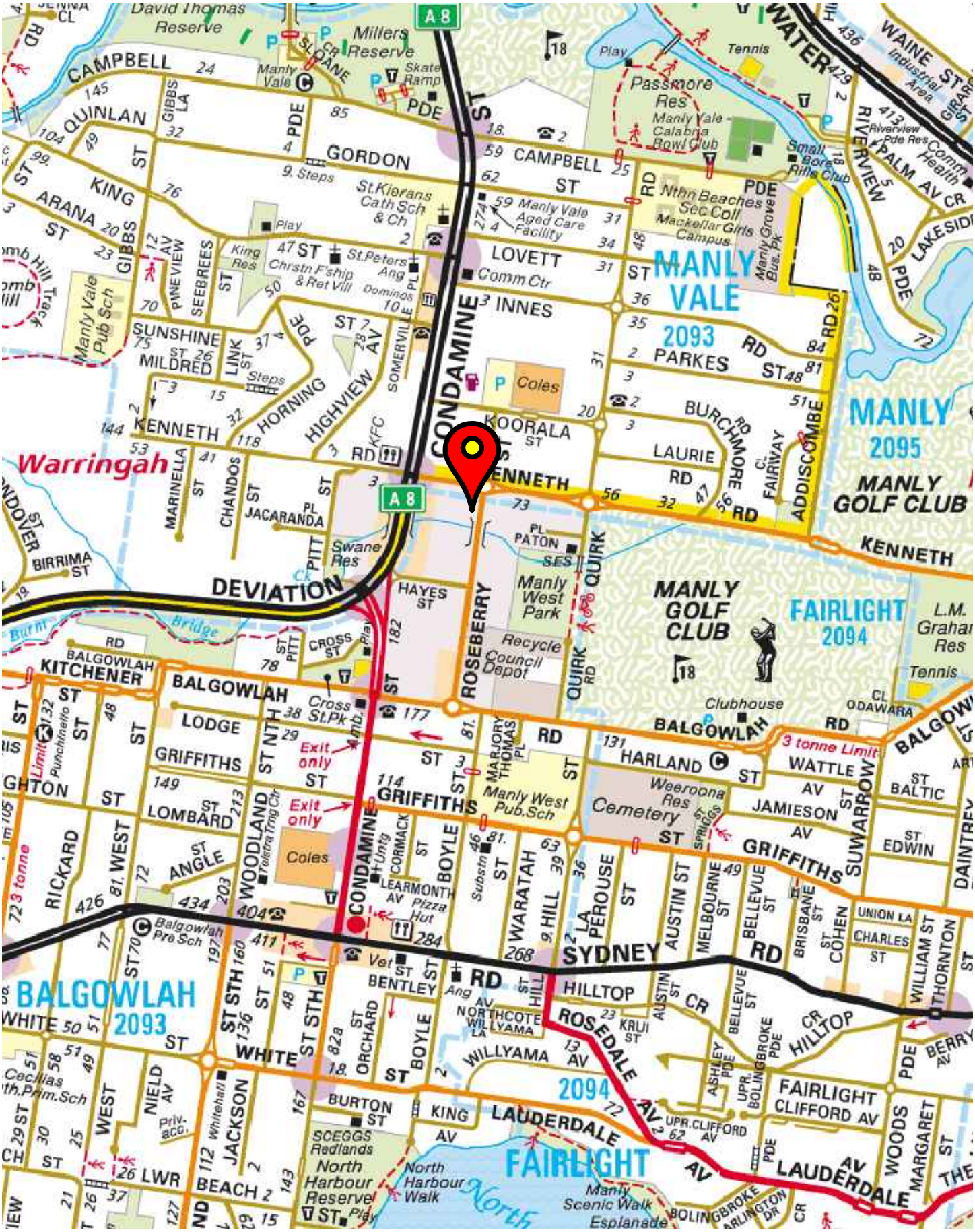
ii) the proposed parking provision is appropriate;

iii) vehicular access, internal circulation and servicing arrangements will be provided in accordance with AS 2890.1:2004 and AS 2890.2:2018;

iv) Following DA approval, access arrangements, parking layouts, servicing and vehicle swept paths should be reviewed and confirmed for compliance certification; and

v) the road network will be able to cater for the traffic generation of the McDonald's; and

vi) the pre-DA traffic matters have been addressed.



Location Plan

Colston Budd Rogers & Kafes Pty Ltd

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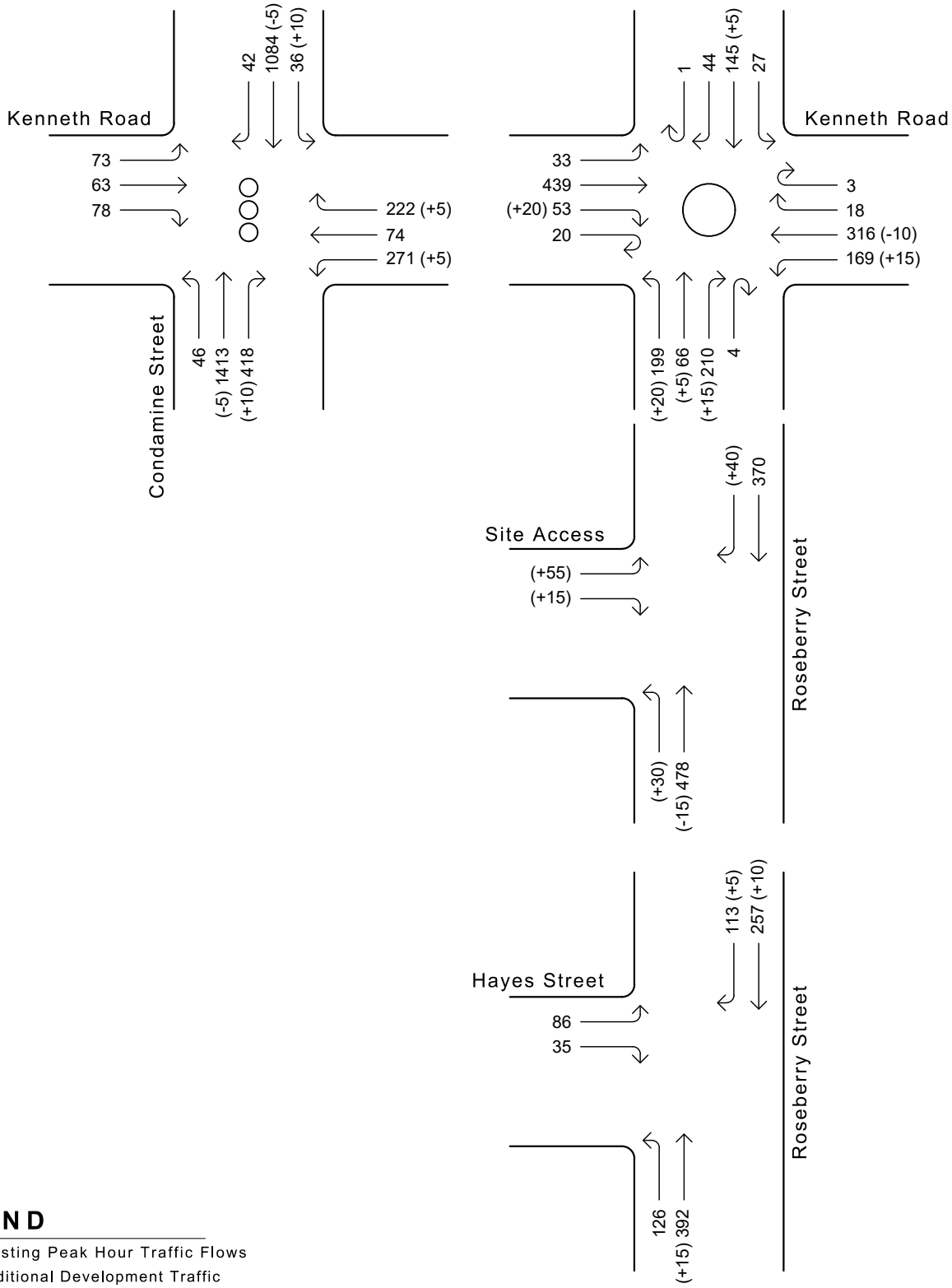
Figure 1



LEGEND

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

Existing weekday afternoon peak hour traffic flows plus development traffic

Figure 2

Colston Budd Rogers & Kafes Pty Ltd

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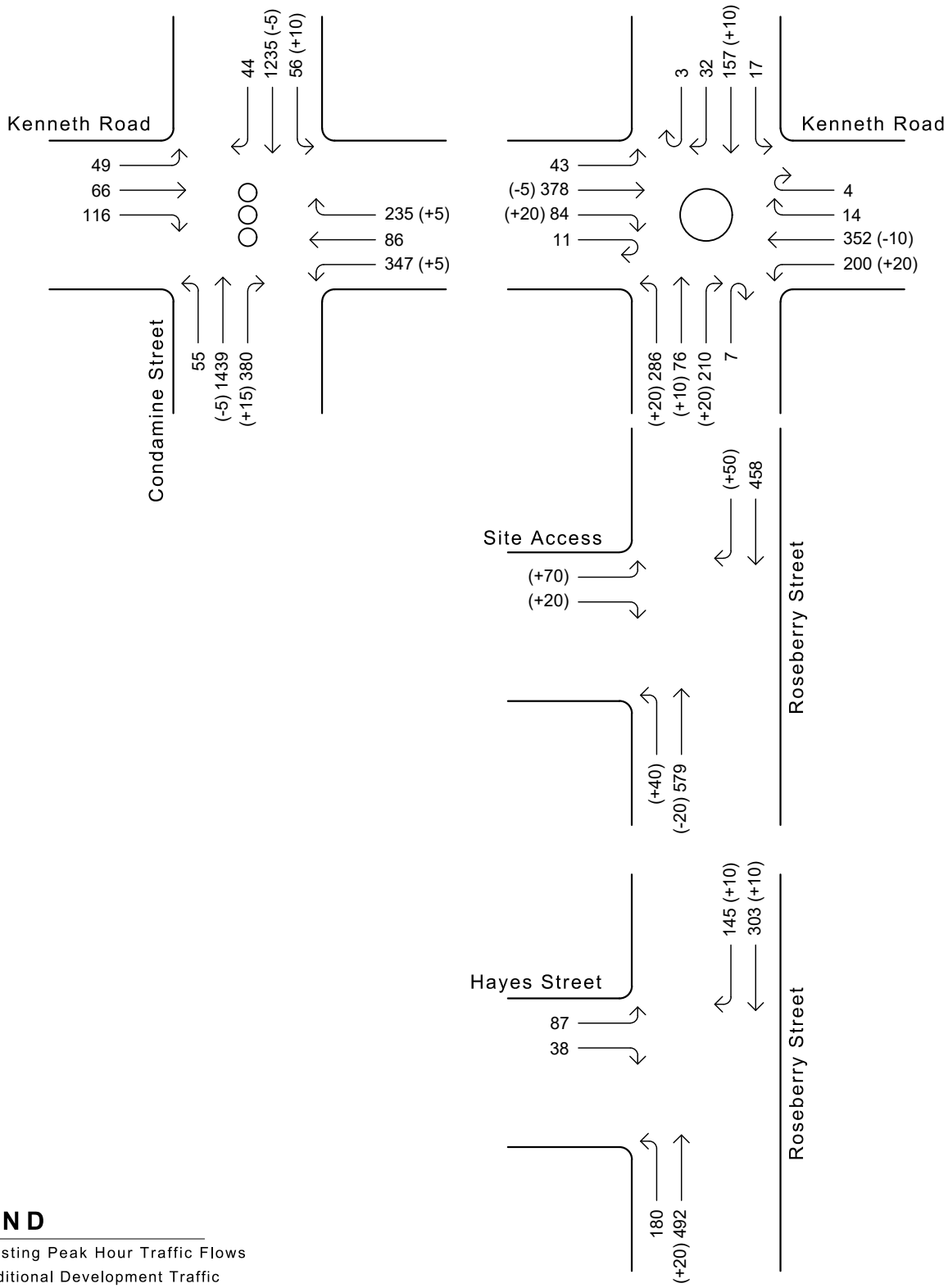

LEGEND

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

Existing Saturday midday peak hour traffic flows plus development traffic

Figure 3

Colston Budd Rogers & Kafes Pty Ltd

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ATTACHMENT A

SIDRA MOVEMENT SUMMARIES

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 12473 Balgowlah McDonald's 241128

Template: Movement Summaries

Site: 101 [PM EX - Condamine Street - Kenneth Road (Site Folder: Weekday PM Existing)]

Network: 2 [Weekday PM Existing (Network Folder: Existing)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 110 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, C*, D*, D1*, E, G, G1*, G2*
Output Phase Sequence: A, E, G, G2*
(* Variable Phase)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Condamine Street														
1	L2	48	2.2	48	2.2	0.080	14.6	LOS B	0.8	7.0	0.37	0.55	0.37	45.4
2	T1	1487	5.4	1487	5.4	0.705	3.3	LOS A	5.2	37.5	0.24	0.22	0.24	56.9
3	R2	440	1.0	440	1.0	* 0.940	72.2	LOS F	18.4	129.7	1.00	1.04	1.40	18.1
Approach		1976	4.3	1976	4.3	0.940	18.9	LOS B	18.4	129.7	0.41	0.41	0.50	44.4
East: Kenneth Road														
4	L2	285	1.5	285	1.5	0.329	19.4	LOS B	5.1	36.0	0.59	0.72	0.59	37.1
5	T1	78	1.4	78	1.4	0.178	36.9	LOS C	2.1	14.7	0.84	0.66	0.84	27.3
6	R2	234	1.4	234	1.4	* 1.011	108.8	LOS F	11.9	84.3	1.00	1.27	1.85	14.8
Approach		597	1.4	597	1.4	1.011	56.7	LOS E	11.9	84.3	0.78	0.93	1.11	22.6
North: Condamine Street														
7	L2	38	8.3	38	8.3	0.074	35.1	LOS C	0.9	6.6	0.75	0.71	0.75	28.1
8	T1	1141	6.3	1141	6.3	* 0.918	48.0	LOS D	20.8	153.3	0.97	1.04	1.19	33.6
9	R2	44	0.0	44	0.0	0.436	63.8	LOS E	1.5	10.6	1.00	0.74	1.00	27.9
Approach		1223	6.1	1223	6.1	0.918	48.2	LOS D	20.8	153.3	0.96	1.02	1.17	33.2
West: Kenneth Road														
10	L2	77	0.0	77	0.0	0.366	44.4	LOS D	4.1	28.4	0.90	0.76	0.90	33.0
11	T1	66	0.0	66	0.0	0.366	39.8	LOS C	4.1	28.4	0.90	0.76	0.90	23.5
12	R2	82	1.3	82	1.3	0.456	53.2	LOS D	2.6	18.4	0.96	0.78	0.96	30.1
Approach		225	0.5	225	0.5	0.456	46.2	LOS D	4.1	28.4	0.92	0.77	0.92	29.7
All Vehicles		4021	4.2	4021	4.2	1.011	35.0	LOS C	20.8	153.3	0.66	0.69	0.82	35.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Site: 101 [PM EX - Kenneth Road - Roseberry Street (Site Folder: Weekday PM Existing)]

Network: 2 [Weekday PM Existing (Network Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Roseberry Street														
1	L2	209	2.5	209	2.5	0.597	7.7	LOS A	1.8	12.8	0.78	0.79	0.86	31.0
2	T1	69	0.0	69	0.0	0.597	7.6	LOS A	1.8	12.8	0.78	0.79	0.86	42.7
3	R2	221	0.5	221	0.5	0.597	10.8	LOS A	1.8	12.8	0.78	0.79	0.86	42.5
3u	U	4	0.0	4	0.0	0.597	12.3	LOS A	1.8	12.8	0.78	0.79	0.86	31.0
Approach		504	1.3	504	1.3	0.597	9.1	LOS A	1.8	12.8	0.78	0.79	0.86	39.9
East: Kenneth Road														
4	L2	178	0.6	178	0.6	0.728	7.7	LOS A	2.0	14.3	0.65	0.72	0.77	41.3
5	T1	333	0.3	333	0.3	0.728	7.7	LOS A	2.0	14.3	0.65	0.72	0.77	41.3
6	R2	19	0.0	19	0.0	0.728	10.9	LOS A	2.0	14.3	0.65	0.72	0.77	45.2
6u	U	3	0.0	3	0.0	0.728	12.4	LOS A	2.0	14.3	0.65	0.72	0.77	45.7
Approach		533	0.4	533	0.4	0.728	7.8	LOS A	2.0	14.3	0.65	0.72	0.77	41.6
North: Roseberry Street														
7	L2	28	0.0	28	0.0	0.387	10.6	LOS A	1.1	7.9	0.88	0.82	0.88	42.9
8	T1	153	0.7	153	0.7	0.387	10.6	LOS A	1.1	7.9	0.88	0.82	0.88	38.5
9	R2	46	2.3	46	2.3	0.387	13.9	LOS A	1.1	7.9	0.88	0.82	0.88	38.5
9u	U	1	0.0	1	0.0	0.387	15.3	LOS B	1.1	7.9	0.88	0.82	0.88	43.9
Approach		228	0.9	228	0.9	0.387	11.3	LOS A	1.1	7.9	0.88	0.82	0.88	39.4
West: Kenneth Road														
10	L2	35	3.0	35	3.0	0.607	7.0	LOS A	1.9	13.8	0.52	0.67	0.56	42.0
11	T1	462	1.1	462	1.1	0.607	6.9	LOS A	1.9	13.8	0.52	0.67	0.56	43.2
12	R2	56	3.8	56	3.8	0.607	10.2	LOS A	1.9	13.8	0.52	0.67	0.56	26.2
12u	U	21	5.0	21	5.0	0.607	11.8	LOS A	1.9	13.8	0.52	0.67	0.56	26.2
Approach		574	1.7	574	1.7	0.607	7.4	LOS A	1.9	13.8	0.52	0.67	0.56	42.3
All Vehicles		1839	1.1	1839	1.1	0.728	8.5	LOS A	2.0	14.3	0.67	0.73	0.74	41.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [PM EX - Roseberry Street - Hayes Street (Site Folder: Weekday PM Existing)]

Network: 2 [Weekday PM Existing (Network Folder: Existing)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Roseberry Street														
1	L2	133	0.0	133	0.0	0.071	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	46.6
2	T1	413	1.5	413	1.5	0.215	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		545	1.2	545	1.2	0.215	1.2	NA	0.0	0.0	0.00	0.13	0.00	48.6
North: Roseberry Street														
8	T1	271	1.2	271	1.2	0.293	2.3	LOS A	0.6	4.5	0.41	0.23	0.45	46.2
9	R2	119	0.9	119	0.9	0.293	8.4	LOS A	0.6	4.5	0.41	0.23	0.45	44.9
Approach		389	1.1	389	1.1	0.293	4.2	NA	0.6	4.5	0.41	0.23	0.45	45.8
West: Hayes Street														
10	L2	91	0.0	91	0.0	0.245	7.5	LOS A	0.4	2.6	0.58	0.79	0.61	39.2
12	R2	37	0.0	37	0.0	0.245	16.8	LOS B	0.4	2.6	0.58	0.79	0.61	43.3
Approach		127	0.0	127	0.0	0.245	10.2	LOS A	0.4	2.6	0.58	0.79	0.61	40.9
All Vehicles		1062	1.0	1062	1.0	0.293	3.3	NA	0.6	4.5	0.22	0.25	0.24	46.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 12473 Balgowlah McDonald's 241128

Template: Movement Summaries

Site: 101 [Sat EX - Condamine Street - Kenneth Road (Site Folder: Saturday Midday Existing)]

Network: 3 [Saturfday Midday Existing (Network Folder: Existing)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, C*, D*, D1*, E, G, G1*, G2*
Output Phase Sequence: A, E, G, G2*
(* Variable Phase)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Condamine Street														
1	L2	58	0.0	58	0.0	0.055	18.6	LOS B	1.0	6.8	0.47	0.67	0.47	42.4
2	T1	1515	2.2	1515	2.2	0.697	2.5	LOS A	4.4	31.2	0.16	0.15	0.16	57.6
3	R2	400	1.3	400	1.3	* 0.947	84.1	LOS F	19.4	137.4	1.00	1.03	1.38	16.2
Approach		1973	2.0	1973	2.0	0.947	19.5	LOS B	19.4	137.4	0.34	0.34	0.42	44.1
East: Kenneth Road														
4	L2	365	0.3	365	0.3	0.440	24.0	LOS B	8.3	58.2	0.64	0.75	0.64	34.4
5	T1	91	1.2	91	1.2	0.191	41.5	LOS C	2.8	19.6	0.83	0.66	0.83	25.8
6	R2	247	0.9	247	0.9	* 0.990	108.0	LOS F	12.8	90.0	1.00	1.18	1.65	14.9
Approach		703	0.6	703	0.6	0.990	55.8	LOS D	12.8	90.0	0.79	0.89	1.02	22.9
North: Condamine Street														
7	L2	59	3.6	59	3.6	0.097	36.8	LOS C	1.5	11.1	0.72	0.72	0.72	27.4
8	T1	1300	2.0	1300	2.0	* 0.942	56.0	LOS D	28.7	204.3	0.96	1.04	1.18	31.3
9	R2	46	0.0	46	0.0	0.540	75.8	LOS F	1.9	13.3	1.00	0.75	1.03	25.5
Approach		1405	2.0	1405	2.0	0.942	55.8	LOS D	28.7	204.3	0.95	1.02	1.16	31.0
West: Kenneth Road														
10	L2	52	0.0	52	0.0	0.279	48.1	LOS D	3.8	26.9	0.86	0.73	0.86	32.0
11	T1	69	0.0	69	0.0	0.279	43.5	LOS D	3.8	26.9	0.86	0.73	0.86	22.6
12	R2	122	0.9	122	0.9	0.807	73.0	LOS F	5.2	36.6	1.00	0.95	1.26	25.9
Approach		243	0.4	243	0.4	0.807	59.3	LOS E	5.2	36.6	0.93	0.84	1.06	26.5
All Vehicles		4324	1.7	4324	1.7	0.990	39.5	LOS C	28.7	204.3	0.65	0.68	0.79	34.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Site: 101 [Sat EX - Kenneth Road - Roseberry Street (Site Folder: Saturday Midday Existing)]

Network: 3 [Saturfday Midday Existing (Network Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Roseberry Street														
1	L2	301	1.4	301	1.4	0.836	16.5	LOS B	4.1	28.9	0.87	1.08	1.45	22.7
2	T1	80	1.3	80	1.3	0.836	16.5	LOS B	4.1	28.9	0.87	1.08	1.45	37.3
3	R2	221	0.0	221	0.0	0.836	19.6	LOS B	4.1	28.9	0.87	1.08	1.45	37.1
3u	U	7	14.3	7	14.3	0.836	21.7	LOS B	4.1	28.9	0.87	1.08	1.45	22.7
Approach		609	1.0	609	1.0	0.836	17.7	LOS B	4.1	28.9	0.87	1.08	1.45	32.4
East: Kenneth Road														
4	L2	211	0.0	211	0.0	0.905	17.7	LOS B	4.4	30.8	0.71	1.03	1.31	33.9
5	T1	371	0.3	371	0.3	0.905	17.6	LOS B	4.4	30.8	0.71	1.03	1.31	33.9
6	R2	15	7.1	15	7.1	0.905	21.0	LOS B	4.4	30.8	0.71	1.03	1.31	40.2
6u	U	4	0.0	4	0.0	0.905	22.3	LOS B	4.4	30.8	0.71	1.03	1.31	40.7
Approach		600	0.4	600	0.4	0.905	17.8	LOS B	4.4	30.8	0.71	1.03	1.31	34.2
North: Roseberry Street														
7	L2	18	5.9	18	5.9	0.360	10.1	LOS A	1.0	7.1	0.84	0.80	0.84	43.2
8	T1	165	1.9	165	1.9	0.360	9.9	LOS A	1.0	7.1	0.84	0.80	0.84	39.1
9	R2	34	0.0	34	0.0	0.360	13.0	LOS A	1.0	7.1	0.84	0.80	0.84	39.1
9u	U	3	0.0	3	0.0	0.360	14.6	LOS B	1.0	7.1	0.84	0.80	0.84	44.3
Approach		220	1.9	220	1.9	0.360	10.5	LOS A	1.0	7.1	0.84	0.80	0.84	39.8
West: Kenneth Road														
10	L2	45	0.0	45	0.0	0.584	6.9	LOS A	1.8	12.9	0.53	0.68	0.56	42.0
11	T1	398	1.3	398	1.3	0.584	6.9	LOS A	1.8	12.9	0.53	0.68	0.56	43.1
12	R2	88	1.2	88	1.2	0.584	10.1	LOS A	1.8	12.9	0.53	0.68	0.56	26.0
12u	U	12	0.0	12	0.0	0.584	11.6	LOS A	1.8	12.9	0.53	0.68	0.56	26.0
Approach		543	1.2	543	1.2	0.584	7.5	LOS A	1.8	12.9	0.53	0.68	0.56	41.9
All Vehicles		1973	1.0	1973	1.0	0.905	14.1	LOS A	4.4	30.8	0.72	0.93	1.09	36.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [Sat EX - Roseberry Street - Hayes Street (Site Folder: Saturday Midday Existing)]

Network: 3 [Saturfday Midday Existing (Network Folder: Existing)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Roseberry Street														
1	L2	189	0.0	189	0.0	0.102	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	46.6
2	T1	518	1.0	518	1.0	0.268	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		707	0.7	707	0.7	0.268	1.3	NA	0.0	0.0	0.00	0.14	0.00	48.4
North: Roseberry Street														
8	T1	319	1.3	319	1.3	0.407	4.5	LOS A	1.2	8.5	0.59	0.29	0.79	44.1
9	R2	153	0.7	153	0.7	0.407	11.2	LOS A	1.2	8.5	0.59	0.29	0.79	43.0
Approach		472	1.1	472	1.1	0.407	6.7	NA	1.2	8.5	0.59	0.29	0.79	43.7
West: Hayes Street														
10	L2	92	1.1	92	1.1	0.350	10.1	LOS A	0.6	4.2	0.70	0.93	0.90	35.6
12	R2	40	2.6	40	2.6	0.350	26.4	LOS B	0.6	4.2	0.70	0.93	0.90	41.0
Approach		132	1.6	132	1.6	0.350	15.0	LOS B	0.6	4.2	0.70	0.93	0.90	37.9
All Vehicles		1311	1.0	1311	1.0	0.407	4.6	NA	1.2	8.5	0.28	0.27	0.37	45.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 12473 Balgowlah McDonald's 241128

Template: Movement Summaries

Site: 101 [PM EX + Dev - Condamine Street - Kenneth Road (Site Folder: Weekday PM Existing + Development)]

Network: 4 [Weekday PM Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 110 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, C*, D*, D1*, E, G, G1*, G2*
Output Phase Sequence: A, E, G, G2*
(* Variable Phase)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Condamine Street														
1	L2	48	2.2	48	2.2	0.082	15.1	LOS B	0.8	7.2	0.38	0.56	0.38	45.1
2	T1	1482	5.4	1482	5.4	0.715	4.0	LOS A	6.2	44.6	0.28	0.26	0.28	56.2
3	R2	451	0.9	451	0.9	* 0.963	80.0	LOS F	20.0	140.9	1.00	1.08	1.48	16.8
Approach		1981	4.3	1981	4.3	0.963	21.6	LOS B	20.0	140.9	0.45	0.45	0.56	42.8
East: Kenneth Road														
4	L2	291	1.4	291	1.4	0.329	18.9	LOS B	5.1	36.0	0.58	0.72	0.58	37.4
5	T1	78	1.4	78	1.4	0.171	36.0	LOS C	2.0	14.5	0.83	0.65	0.83	27.6
6	R2	239	1.3	239	1.3	* 0.990	97.3	LOS F	11.4	80.6	1.00	1.22	1.75	16.1
Approach		607	1.4	607	1.4	0.990	51.9	LOS D	11.4	80.6	0.78	0.91	1.07	23.8
North: Condamine Street														
7	L2	48	6.5	48	6.5	0.096	36.1	LOS C	1.2	8.5	0.76	0.72	0.76	27.7
8	T1	1136	6.3	1136	6.3	* 0.944	55.7	LOS D	22.6	166.4	0.99	1.12	1.29	31.4
9	R2	44	0.0	44	0.0	0.436	63.8	LOS E	1.5	10.6	1.00	0.74	1.00	27.9
Approach		1228	6.1	1228	6.1	0.944	55.2	LOS D	22.6	166.4	0.98	1.09	1.26	31.1
West: Kenneth Road														
10	L2	77	0.0	77	0.0	0.351	43.4	LOS D	4.0	28.0	0.89	0.75	0.89	33.3
11	T1	66	0.0	66	0.0	0.351	38.8	LOS C	4.0	28.0	0.89	0.75	0.89	23.8
12	R2	82	1.3	82	1.3	0.437	52.1	LOS D	2.6	18.1	0.95	0.78	0.95	30.4
Approach		225	0.5	225	0.5	0.437	45.2	LOS D	4.0	28.0	0.91	0.76	0.91	30.0
All Vehicles		4042	4.2	4042	4.2	0.990	37.7	LOS C	22.6	166.4	0.68	0.73	0.87	34.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Site: 101 [PM EX + Dev - Kenneth Road - Roseberry Street (Site Folder: Weekday PM Existing + Development)]

Network: 4 [Weekday PM Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Roseberry Street														
1	L2	231	2.3	231	2.3	0.619	6.6	LOS A	2.1	14.5	0.80	0.79	0.89	16.7
2	T1	75	0.0	75	0.0	0.619	6.7	LOS A	2.1	14.5	0.80	0.79	0.89	42.1
3	R2	237	0.4	237	0.4	0.619	9.6	LOS A	2.1	14.5	0.80	0.79	0.89	41.8
3u	U	4	0.0	4	0.0	0.619	11.1	LOS A	2.1	14.5	0.80	0.79	0.89	16.7
Approach		546	1.2	546	1.2	0.619	8.0	LOS A	2.1	14.5	0.80	0.79	0.89	37.8
East: Kenneth Road														
4	L2	194	0.5	194	0.5	0.707	7.8	LOS A	2.1	14.7	0.68	0.74	0.80	41.2
5	T1	322	0.3	322	0.3	0.707	7.8	LOS A	2.1	14.7	0.68	0.74	0.80	41.2
6	R2	19	0.0	19	0.0	0.707	11.0	LOS A	2.1	14.7	0.68	0.74	0.80	45.2
6u	U	3	0.0	3	0.0	0.707	12.5	LOS A	2.1	14.7	0.68	0.74	0.80	45.7
Approach		538	0.4	538	0.4	0.707	8.0	LOS A	2.1	14.7	0.68	0.74	0.80	41.5
North: Roseberry Street														
7	L2	28	0.0	28	0.0	0.404	11.1	LOS A	1.2	8.5	0.91	0.84	0.91	42.7
8	T1	158	0.7	158	0.7	0.404	11.1	LOS A	1.2	8.5	0.91	0.84	0.91	38.1
9	R2	46	2.3	46	2.3	0.404	14.3	LOS A	1.2	8.5	0.91	0.84	0.91	38.1
9u	U	1	0.0	1	0.0	0.404	15.8	LOS B	1.2	8.5	0.91	0.84	0.91	43.6
Approach		234	0.9	234	0.9	0.404	11.7	LOS A	1.2	8.5	0.91	0.84	0.91	39.0
West: Kenneth Road														
10	L2	35	3.0	35	3.0	0.637	7.6	LOS A	2.2	15.6	0.56	0.71	0.63	41.4
11	T1	457	1.2	457	1.2	0.637	7.5	LOS A	2.2	15.6	0.56	0.71	0.63	42.6
12	R2	77	2.7	77	2.7	0.637	10.8	LOS A	2.2	15.6	0.56	0.71	0.63	25.1
12u	U	21	5.0	21	5.0	0.637	12.4	LOS A	2.2	15.6	0.56	0.71	0.63	25.1
Approach		589	1.6	589	1.6	0.637	8.1	LOS A	2.2	15.6	0.56	0.71	0.63	41.5
All Vehicles		1907	1.0	1907	1.0	0.707	8.5	LOS A	2.2	15.6	0.70	0.76	0.79	40.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [PM EX + Dev - Roseberry Street - Site Access (Site Folder: Weekday PM Existing + Development)]

Network: 4 [Weekday PM Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Roseberry Street														
1	L2	32	0.0	32	0.0	0.279	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	48.8
2	T1	487	1.3	487	1.3	0.279	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.6
Approach		519	1.2	519	1.2	0.279	0.3	NA	0.0	0.0	0.00	0.03	0.00	48.7
North: Roseberry Street														
8	T1	389	1.1	389	1.1	0.242	0.5	LOS A	0.2	1.5	0.16	0.06	0.16	38.2
9	R2	42	0.0	42	0.0	0.242	5.8	LOS A	0.2	1.5	0.16	0.06	0.16	47.1
Approach		432	1.0	432	1.0	0.242	1.0	NA	0.2	1.5	0.16	0.06	0.16	42.8
West: Site Access														
10	L2	58	0.0	58	0.0	0.151	7.8	LOS A	0.2	1.5	0.58	0.76	0.58	39.3
12	R2	16	0.0	16	0.0	0.151	18.6	LOS B	0.2	1.5	0.58	0.76	0.58	39.3
Approach		74	0.0	74	0.0	0.151	10.1	LOS A	0.2	1.5	0.58	0.76	0.58	39.3
All Vehicles		1024	1.0	1024	1.0	0.279	1.3	NA	0.2	1.5	0.11	0.10	0.11	44.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [PM EX + Dev - Roseberry Street - Hayes Street (Site Folder: Weekday PM Existing + Development)]

Network: 4 [Weekday PM Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Roseberry Street														
1	L2	133	0.0	133	0.0	0.071	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	46.6
2	T1	428	1.5	428	1.5	0.223	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		561	1.1	561	1.1	0.223	1.1	NA	0.0	0.0	0.00	0.12	0.00	48.6
North: Roseberry Street														
8	T1	281	1.1	281	1.1	0.308	2.5	LOS A	0.7	4.9	0.43	0.24	0.49	45.7
9	R2	124	0.8	124	0.8	0.308	8.7	LOS A	0.7	4.9	0.43	0.24	0.49	44.4
Approach		405	1.0	405	1.0	0.308	4.4	NA	0.7	4.9	0.43	0.24	0.49	45.3
West: Hayes Street														
10	L2	91	0.0	91	0.0	0.255	7.8	LOS A	0.4	2.8	0.59	0.81	0.64	38.8
12	R2	37	0.0	37	0.0	0.255	17.8	LOS B	0.4	2.8	0.59	0.81	0.64	43.1
Approach		127	0.0	127	0.0	0.255	10.7	LOS A	0.4	2.8	0.59	0.81	0.64	40.6
All Vehicles		1094	1.0	1094	1.0	0.308	3.4	NA	0.7	4.9	0.23	0.25	0.26	46.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 12473 Balgowlah McDonald's 241128

Template: Movement Summaries

Site: 101 [Sat EX + Dev - Condamine Street - Kenneth Road (Site Folder: Saturday Midday Existing + Development)]

Network: 5 [Saturfday Midday Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 110 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, C*, D*, D1*, E, G, G1*, G2*
Output Phase Sequence: A, E, G, G2*
(* Variable Phase)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Condamine Street														
1	L2	58	0.0	58	0.0	0.057	17.9	LOS B	0.9	6.1	0.49	0.68	0.49	42.8
2	T1	1509	2.2	1509	2.2	0.734	4.0	LOS A	6.8	48.4	0.29	0.26	0.29	56.3
3	R2	416	1.3	416	1.3	* 0.999	98.2	LOS F	20.4	144.3	1.00	1.15	1.66	14.4
Approach		1983	2.0	1983	2.0	0.999	24.2	LOS B	20.4	144.3	0.44	0.46	0.58	41.5
East: Kenneth Road														
4	L2	371	0.3	371	0.3	0.447	21.5	LOS B	7.2	50.9	0.65	0.75	0.65	35.8
5	T1	91	1.2	91	1.2	0.199	36.3	LOS C	2.4	16.9	0.84	0.66	0.84	27.4
6	R2	253	0.8	253	0.8	* 1.010	108.8	LOS F	12.8	90.0	1.00	1.26	1.83	14.8
Approach		714	0.6	714	0.6	1.010	54.3	LOS D	12.8	90.0	0.80	0.92	1.09	23.2
North: Condamine Street														
7	L2	69	3.0	69	3.0	0.121	34.0	LOS C	1.6	11.6	0.74	0.73	0.74	28.6
8	T1	1295	2.0	1295	2.0	* 0.971	62.4	LOS E	28.1	200.2	0.98	1.18	1.35	29.7
9	R2	46	0.0	46	0.0	0.457	63.9	LOS E	1.6	11.1	1.00	0.74	1.00	27.8
Approach		1411	2.0	1411	2.0	0.971	61.0	LOS E	28.1	200.2	0.97	1.14	1.31	29.6
West: Kenneth Road														
10	L2	52	0.0	52	0.0	0.297	42.8	LOS D	3.3	23.3	0.87	0.73	0.87	33.6
11	T1	69	0.0	69	0.0	0.297	38.3	LOS C	3.3	23.3	0.87	0.73	0.87	24.1
12	R2	122	0.9	122	0.9	0.830	65.7	LOS E	4.5	32.0	1.00	0.98	1.35	27.3
Approach		243	0.4	243	0.4	0.830	53.0	LOS D	4.5	32.0	0.94	0.86	1.11	28.0
All Vehicles		4351	1.7	4351	1.7	1.010	42.7	LOS D	28.1	200.2	0.70	0.78	0.93	32.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Site: 101 [Sat EX + Dev - Kenneth Road - Roseberry Street (Site Folder: Saturday Midday Existing + Development)]

Network: 5 [Saturfday Midday Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Roseberry Street														
1	L2	322	1.3	322	1.3	0.898	21.1	LOS B	5.0	35.0	0.89	1.24	1.78	7.5
2	T1	91	1.2	91	1.2	0.898	21.2	LOS B	5.0	35.0	0.89	1.24	1.78	32.3
3	R2	242	0.0	242	0.0	0.898	24.1	LOS B	5.0	35.0	0.89	1.24	1.78	32.2
3u	U	7	14.3	7	14.3	0.898	26.0	LOS B	5.0	35.0	0.89	1.24	1.78	7.5
Approach		662	1.0	662	1.0	0.898	22.3	LOS B	5.0	35.0	0.89	1.24	1.78	24.9
East: Kenneth Road														
4	L2	232	0.0	232	0.0	0.934	23.5	LOS B	5.6	39.4	0.76	1.24	1.65	30.6
5	T1	360	0.3	360	0.3	0.934	23.4	LOS B	5.6	39.4	0.76	1.24	1.65	30.6
6	R2	15	7.1	15	7.1	0.934	26.9	LOS B	5.6	39.4	0.76	1.24	1.65	37.8
6u	U	4	0.0	4	0.0	0.934	28.1	LOS B	5.6	39.4	0.76	1.24	1.65	38.2
Approach		611	0.3	611	0.3	0.934	23.6	LOS B	5.6	39.4	0.76	1.24	1.65	31.0
North: Roseberry Street														
7	L2	18	5.9	18	5.9	0.395	10.7	LOS A	1.1	7.9	0.88	0.83	0.88	43.0
8	T1	176	1.8	176	1.8	0.395	10.5	LOS A	1.1	7.9	0.88	0.83	0.88	38.7
9	R2	34	0.0	34	0.0	0.395	13.6	LOS A	1.1	7.9	0.88	0.83	0.88	38.7
9u	U	3	0.0	3	0.0	0.395	15.1	LOS B	1.1	7.9	0.88	0.83	0.88	44.0
Approach		231	1.8	231	1.8	0.395	11.0	LOS A	1.1	7.9	0.88	0.83	0.88	39.4
West: Kenneth Road														
10	L2	45	0.0	45	0.0	0.625	7.7	LOS A	2.1	15.0	0.58	0.73	0.65	41.2
11	T1	393	1.3	393	1.3	0.625	7.7	LOS A	2.1	15.0	0.58	0.73	0.65	42.3
12	R2	109	1.0	109	1.0	0.625	10.9	LOS A	2.1	15.0	0.58	0.73	0.65	24.6
12u	U	12	0.0	12	0.0	0.625	12.4	LOS A	2.1	15.0	0.58	0.73	0.65	24.6
Approach		559	1.1	559	1.1	0.625	8.4	LOS A	2.1	15.0	0.58	0.73	0.65	40.8
All Vehicles		2062	0.9	2062	0.9	0.934	17.6	LOS B	5.6	39.4	0.77	1.06	1.34	32.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [Sat EX + Dev - Roseberry Street - Site Access (Site Folder: Saturday Midday Existing + Development)]

Network: 5 [Saturfday Midday Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Roseberry Street														
1	L2	42	0.0	42	0.0	0.451	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	48.6
2	T1	588	1.1	588	1.1	0.451	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	48.3
Approach		631	1.0	631	1.0	0.451	0.4	NA	0.0	0.0	0.00	0.04	0.00	48.4
North: Roseberry Street														
8	T1	482	1.1	482	1.1	0.256	0.8	LOS A	0.3	2.2	0.17	0.06	0.18	36.0
9	R2	53	0.0	53	0.0	0.256	6.8	LOS A	0.3	2.2	0.22	0.08	0.22	46.4
Approach		535	1.0	535	1.0	0.256	1.4	NA	0.3	2.2	0.18	0.06	0.18	41.3
West: Site Access														
10	L2	74	0.0	74	0.0	0.319	10.3	LOS A	0.4	2.7	0.67	0.90	0.81	36.2
12	R2	21	0.0	21	0.0	0.319	27.4	LOS B	0.4	2.7	0.67	0.90	0.81	36.2
Approach		95	0.0	95	0.0	0.319	14.1	LOS A	0.4	2.7	0.67	0.90	0.81	36.2
All Vehicles		1260	0.9	1260	0.9	0.451	1.9	NA	0.4	2.7	0.13	0.11	0.14	43.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [Sat EX + Dev - Roseberry Street - Hayes Street (Site Folder: Saturday Midday Existing + Development)]

Network: 5 [Saturfday Midday Existing + Development (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Give-Way (Two-Way)

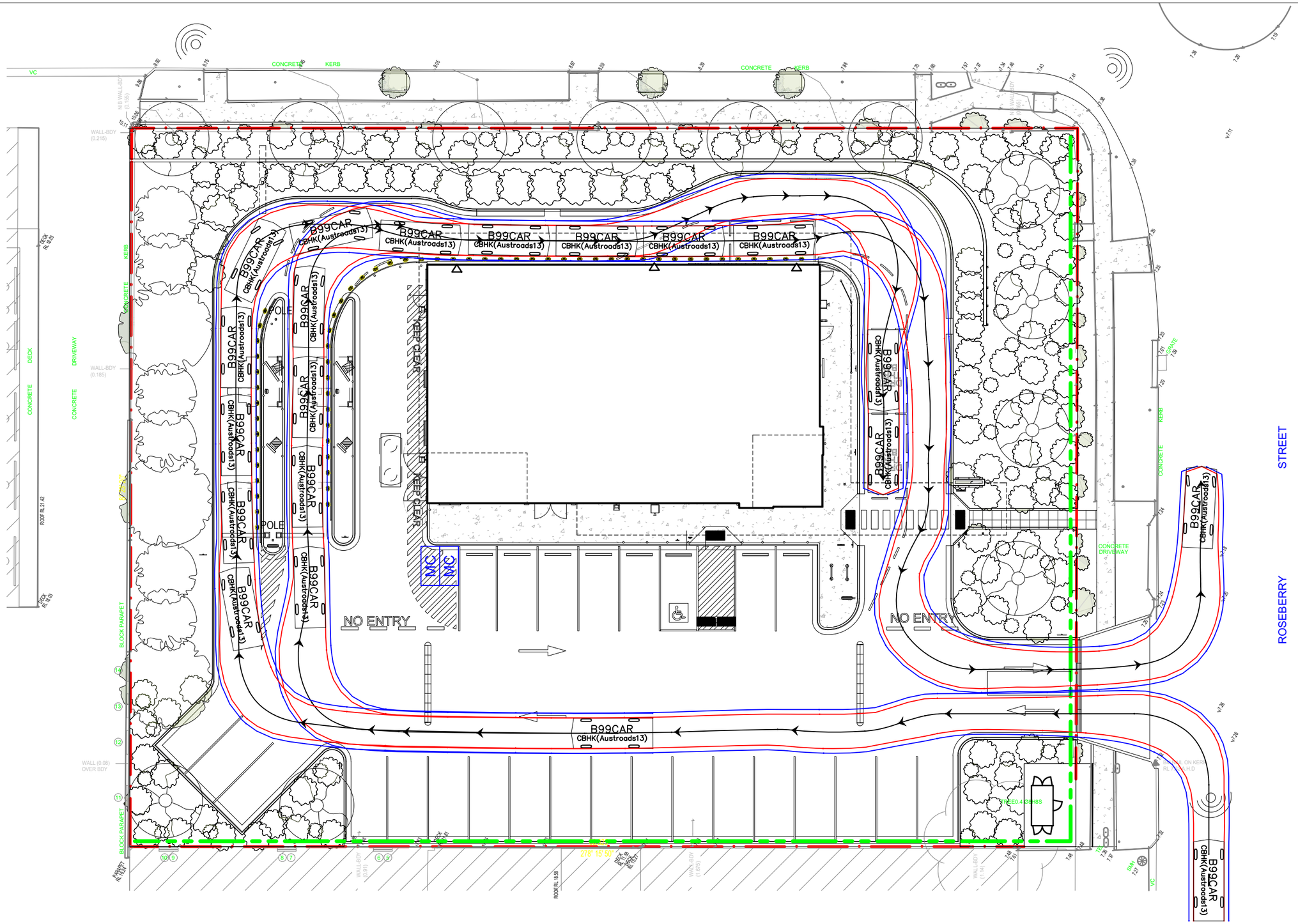
Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Roseberry Street														
1	L2	189	0.0	189	0.0	0.102	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	46.6
2	T1	539	1.0	539	1.0	0.279	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		728	0.7	728	0.7	0.279	1.3	NA	0.0	0.0	0.00	0.14	0.00	48.5
North: Roseberry Street														
8	T1	329	1.3	329	1.3	0.437	5.1	LOS A	1.4	9.7	0.62	0.31	0.87	43.3
9	R2	163	0.6	163	0.6	0.437	11.8	LOS A	1.4	9.7	0.62	0.31	0.87	42.1
Approach		493	1.1	493	1.1	0.437	7.3	NA	1.4	9.7	0.62	0.31	0.87	42.9
West: Hayes Street														
10	L2	92	1.1	92	1.1	0.373	10.7	LOS A	0.6	4.5	0.73	0.95	0.96	34.8
12	R2	40	2.6	40	2.6	0.373	28.7	LOS C	0.6	4.5	0.73	0.95	0.96	40.4
Approach		132	1.6	132	1.6	0.373	16.2	LOS B	0.6	4.5	0.73	0.95	0.96	37.2
All Vehicles		1353	0.9	1353	0.9	0.437	4.9	NA	1.4	9.7	0.30	0.28	0.41	45.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ATTACHMENT B

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. THIS PLAN SHOULD NOT BE USED FOR COMPLIANCE CERTIFICATION OR FOR CONSTRUCTION.

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

B99 VEHICLE SWEPT PATHS

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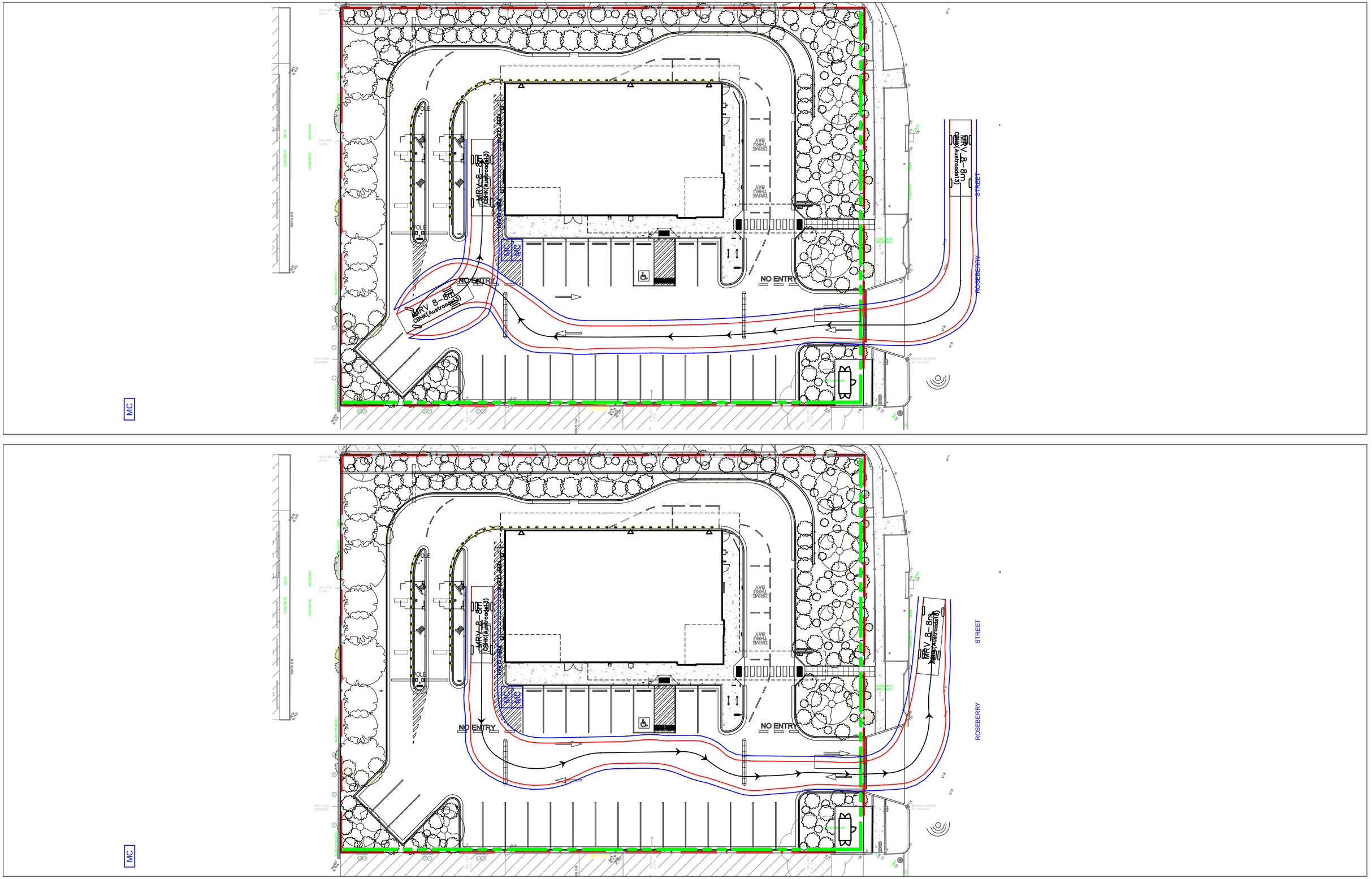
B1



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

8.8m MEDIUM RIGID VEHICLE SWEPT PATHS

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B2