From:	Talofa Pouli
Sent:	13/03/2025 2:15:45 PM
To:	Council Northernbeaches Mailbox
Cc:	Justine Walter
Subject:	TRIMMED: DA2025/0132 - Submission on behalf of Owners of Strata Plan 83233, 41 Roseberry Street and 76-80 Kenneth Road Manly Vale (ABN 28727137237)
Attachments:	DA2025:0132 - Submission on behalf of Owners of Strata Plan 83233.pdf;

Dear General Manager
Northern Beaches Council

On behalf of the above Owners Corporation – SP83233, we have been instructed to send you the attached (also in below link)
submission of objection to the proposed McDonald's as per subject item.
DA2025_0132 - Submission on behalf of Owners of Strata Plan 83233.pdf

Thank you for your attention to this matter.

Kind Regards

Talofa Pouli
Strata Manager
[redacted]

lamb & walters
Strata Management

[redacted]

13 March 2025
Ref: 25683

General Manager
Northern Beaches Council
PO Box 82
MANLY NSW 1655

Att: Claire Ryan

Dear Claire,

Submission – DA2025/0132, Proposed McDonalds, 37 Roseberry Street, Balgowlah

We write on behalf of the owners of Strata Plan (SP) 83233, 41 Roseberry Street and 76-80 Kenneth Road Manly Vale (ABN 28727137237). The SP comprises a large three storey residential flat building comprising 45 dwellings. The location of the site and the proximity of the site of the proposed McDonalds' fast food restaurant is illustrated in **Figure 1** on the following page. SP 83233 directly adjoins the land that is subject to the proposed development application No. 2025/0132.

You will note from the image in **Figure 2** below that bedrooms, balconies and living areas face and directly overlook the site and are separated from the site by approximately 23 metres. SP 83233's building carpark exits onto Kenneth Road and must use the Roseberry Street roundabout to access Condamine Street. McDonalds patrons will also be required to use the Roseberry Street roundabout to access Condamine Street

Therefore, the owners of SP 83233 have a direct interest in the outcomes for the land subject to the DA.

Firstly, I must raise the difficulty we had in gaining a full appreciation of the proposed development. The architectural, landscape and, we assume, the lighting plans cannot be accessed on-line as at Friday 7th March. The on line material advises any party that wishes to view the plans to make arrangements to inspect the plans in person during Council's office hours. However, notwithstanding this constraint we have relied on copies of the plans included in other consultant reports to gain an understanding of the development. I will return to this concern later.

Secondly, by making this submission, I confirm that neither I, nor any associate within the period commencing 2 years before the date of this submission, has made any:

(a) reportable political donations to any local councillor of the Northern Beaches Council

(b) gifts to any local councillor or employee of the Northern Beaches Council.

In summary, we have reviewed the material on exhibition and write to advise that we object to the proposed development.

The grounds of the objection are listed below with accompanying detail.

>Figure 1: Location of SP 83233 (indicated with red boundary) and the Site of the Proposed Development (indicated with yellow boundary) (Source of Aerial: NSWSIx.Mapping).

>Figure 2: View Showing Balconies and Living Space in SP 83233 Overlooking Site (Source: SP83233).

1. The development application is incomplete, and Council cannot be satisfied that an adequate environmental assessment has been undertaken as required by S.4.15 of the Environmental Planning and Assessment Act 1979.

We note the that:

a) Section 4.15 of the EP&A Act requires evaluation by Council of '*the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality*'.

b) By virtue of Part 3 Division 1 Clause 24 of the Environmental planning and assessment regulation 2021, a development application is required '*to contain all the information and documents required by— … (ii) the Act or this Regulation*.'

c) The development application does not satisfy this requirement.

d) Nowhere in the development application, and specifically in no part of the Statement of Environmental Effects, is the presence of the residential flat building owned by the owners of SP 83233 acknowledged beyond one line on Page 5. Page 5 defers detail to the survey plan that accompanies the development application. However, the survey also ignores the presence of SP 83233. It is not identified in the site analysis.

e) In only one place in the Statement of Environmental Effects are the impacts of the proposed development upon SP 83233 raised. This takes place in Part 6 on P.23 with regard to noise. However, the assessment is cursory at best and casually dismissed with a simple comment the locality already has a high ambient noise level, and all noise will meet appropriate standards. We will return to noise impact below.

f) The Statement of Environmental Effects only selectively evaluates the proposed development against the objectives of the E3 'Productivity Zone. It ignores, and fails to evaluate the proposal against, the amenity objectives of the zone. This is deficient and inadequate for Council, or any other party', to gain an appreciation of the proposed development. I will return to this concern below.

g) No assessment of lighting and luminance impact is undertaken with the exception of a simple comment that it, in effect, 'will comply with the relevant AS'. We will return to lighting impact below.

h) Nowhere in the development application, and specifically in no part of the Statement of Environmental Effects are the findings of the Traffic Report (Colston Budd, Rogers and Kafes, December 2024) raised or discussed. We will return to traffic impact below.

i) The requirement in the EPA Act and the EPA Reg that an adequate and thorough development application be made is a jurisdictional precondition that needs to be satisfied in order for Council (or the Panel) to be able to exercise the function of determining the development application.

2. The proposed development is inconsistent with the Objectives of the 'E3 Productivity Support' zone.

a) The relevant amenity objectives of E3 zone in the Manly LEP 2013 are:

To create employment environments of high visual quality that relate favourably in architectural and landscape treatment to neighbouring land uses and to the natural environment.

To minimise conflict between land uses in the zone and adjoining zones and ensure the amenity of adjoining and nearby residential land uses.

b) As we note above, the evaluation contained in the development application does not acknowledge the presence of the land owned by SP 83233 and does not acknowledge the presence of the higher density residential environment located in the adjoining R3 Medium Density Zone within which that land is located, notwithstanding the inclusion in the Statement of Environmental Effects of an extract of the zoning map on Page 15.

c) Furthermore, nowhere in the development application, and specifically in no part of the Statement of Environmental Effects is the proposed development evaluated against the amenity objectives above beyond one line on Page 16 that simply states "[it is] compatible with the objectives of the zone."

d) From our review, the proposed development fails to achieve the amenity objectives of the zone for the reasons stated below.

Objective	Assessment
To create employment environments of high visual quality that relate favourably in architectural and landscape treatment to neighbouring land uses and to the natural environment.	The evaluation in the development application provides no assessment of the architectural quality of the proposed development and its relationship with neighbouring land uses or the natural environment beyond the statement "*The building is of a simple, modern design, with colours and finishes to be consistent McDonald's corporate theme* (p.8)." However, we note that: (i) The architectural design of the building presents a homogeneous highway oriented drive through fast food business dominated by surface car parking to all boundaries, prominent advertising signage, long twin drive-thru lanes and excessive building setbacks. (ii) Due to the hidden and obscure location of the site, and the inherent difficulty in advertising its presence to passing traffic, the development seeks to address this with prominent signage addressing Condamine Street and site planning and building character more suited to a main road location. (iii) The design fails to acknowledge or accommodate the adjoining residential character directly adjoining the site. (iv) The large expanse of car parking proposed to all boundaries, the dominance of the drive-thru lanes in the streetscape, large prominent signage and the excessive building setbacks are incongruous and inappropriate for this transition area between the E3 and R3 zone.
To minimise conflict between land uses in the zone and adjoining zones and ensure the amenity of adjoining and nearby residential land uses.	The assessment of the proposed development in this submission recognises that there are a number of conflicts with adjoining and nearby residential uses as follows: (i) Acoustic impacts have not been adequately evaluated, and it is evident that such impacts will be unreasonable; (ii) Traffic impacts have not been adequately evaluated, and it is evident that such impacts will be unreasonable; (iii) Odour impacts have not been adequately evaluated, and it is evident that such impacts will be unreasonable; and (iv) The building style, site planning and built form character are inconsistent with the desired character sought for the area.

3. The site of the proposed development is a residential transition zone, rather than a highway oriented site, and thus the proposed development is inappropriate located.

We note the that:

a) The site is hidden and obscured from passing traffic on Condamine Street by the presence of a three storey bulky goods (large format retail) showroom, for which the building car parking, siting and signage is designed. Of note, this development also includes a residential use directly adjoining the site.

b) The site is located in a part residential area distant from, and not suitable for highway oriented commercial services and uses.

c) Specifically, the prevailing character of the site is that of a transition area between the E3 zone and the R3 zone to the south.

d) The proposed development generates unreasonable impacts on the amenity and desired character for the area as described elsewhere in this submission.

e) Therefore, the proposed development is inappropriately located. A site directly addressing Condamine Street or similar sub-arterial road is a more suitable location. The presence of a similar KFC fast food drive thru fast food restaurant directly addressing Condamine Street located less than 70 metres from the proposed site provides a good example of a more suitable location for such a use.

4. No evidence has been provided to confirm that the proposed development will not have unreasonable lighting impact on the adjoining residential use in land owned by SP 83233 and the amenity of the area.

We note the that:

a) The proposed drive thru- fast food restaurant seeks to operate 24 hours, 7 days a week.

b) No external lighting impact report has been prepared in support of the Development Application.

c) The submission of such a report to support a proposal of this nature is common. The purpose of the report would be to review the proposed development and to provide concept external lighting recommendations to ensure a compliant lighting design is developed. It should ensure that lighting design reduces and controls potential spill of obtrusive light onto neighbouring properties, and particularly into windows of bedrooms and other habitable rooms at nighttime.

5. No evidence has been provided to confirm that the proposed development will not have unreasonable acoustic impacts on the adjoining residential use in land owned by SP 83233 and the amenity of the area.

We note the that:

a) The proposed drive thru fast food restaurant seeks to operate 24 hours, 7 days a week.

b) While the Acoustic report acknowledges the presence of noise receivers in SP 83233, the assessment only addresses construction, operational noise and waste collection. It fails to assess the following potential noise impacts of night time users of the car park: vehicle noise (engine revving, tyre screeching); amplified music; customer congregation and anti-social behaviour (often induced by excessive alcohol or drug consumption). These noise generating activities are often associated with the operation of a 24 hour drive thru fast food restaurant.

c) The assessment merely states in one sentence: "*sleep disturbance is not anticipated, as emissions from maximum noise events (i.e. door slams and patrons shouting) are predicted to satisfy the NPIs maximum noise trigger levels for the night period*" (p.35).

d) This is inadequate. Residents in SP83233 have confirmed that the existing uses in the site are unobtrusive in terms of noise outside business hours and the area in general enjoys a quite ambience at night. The acoustic assessment is deficient and the concerns regarding noise impact of the proposed development by the residents and owners in SP 83233 are reasonable and appropriate.

6. No evidence has been provided to confirm that the proposed development will not have unreasonable odour impacts on the adjoining residential use in land owned by SP 83233 and the amenity of the area.

We note the that:

a) The Odour Assessment report acknowledges in Part 6 that the clustering of the kitchen exhaust fans when combined will exceed the combined flow threshold rate required by the relevant Australian Standard and are 'deemed objectionable' (p.17). The report also acknowledges in Part 7 that '*The ventilation design has not yet been finalised for the Project, and thus it is not possible to provide precise details of the discharge velocities or stack heights. McDonald's has extensive experience in managing and mitigating against adverse odour impacts from their operations* (p.21)'.

b) Thus, the report is incomplete and deficient, and it makes the extraordinary claim that, in the face of these inadequacies and the lack of ability for Council and local residents to understand and assess odour impact that all parties should essentially 'trust McDonalds to do a good job.'

c) This is clearly inadequate. The odour assessment is deficient and the concerns regarding odour impact of the proposed development by the residents and owners in SP 83233 are reasonable and appropriate.

7. No evidence has been provided to confirm that the proposed development will not generate unreasonable crime and safety impacts on the adjoining residential use in land owned by SP 83233 and the amenity of the area.

We note the that:

a) Two relevant documents are provided with the development application: a ''Crime Risk Assessment' SLR, 16 December 2024 and a 'Plan of Management' 5th December 2024.

b) The Crime Risk Assessment is a generic document that fails to consider the site specific circumstances, locality context and characteristics of the proposed development. No site plan or site and locality assessment is undertaken. In fact, the header to the document refers to another site entirely: 90-98 Glenmore Ridge Drive, Glenmore Park.

c) Similarly, the Plan of Management is also a generic document. It fails to consider the site specific circumstances, locality context and characteristics of the proposed development. No site plan or site and locality assessment is undertaken.

d) Neither document addresses the proximity of a residential flat building with balconies and windows of habitable rooms overlooking the drive-thru lanes and carpark of the proposed development.

e) Neither document provides actions, strategies and responses to address potential antisocial behaviour that may be generated by users of the car park of the proposed 24 hour operation of the premises.

f) This is particularly relevant as there are valid concerns by residents adjoining the site of the proposed development with anti-social behaviour gained from experience at other McDonalds fast food restaurant in the Northern Baches Area. Dee Why police are on the public record that certain McDonalds fast food restaurants create a notable increase in incidents of crime. The link below to a news article provides evidence of this.
https://www.northernbeachesadvocate.com.au/2024/10/07/mayhem-at-brookie-maccas/.

g) This situation is clearly unacceptable. The crime risk assessment and plan of management are deficient and the concerns regarding crime and safety impacts of the proposed development by the residents and owners in SP 83233 are reasonable and appropriate.

8. No evidence has been provided to confirm that the proposed development will not generate unreasonable traffic impacts on the adjoining residential use in land owned by SP 83233 and the amenity of the area.

We note the that:

a) The traffic impact assessment concludes that the road network will be able to cater for the traffic generation of the proposed development.

b) We find that conclusion incongruous and inconsistent with the conclusions of the SIDRA traffic modelling that finds that the level of service of Kenneth Street at certain times is often 'D' and 'F.' Level of service 'F' is the most unacceptable and is defined as 'unsatisfactory and requires additional capacity.'

c) Of particular importance, SP83233 commissioned McLaren Traffic Engineering to review the Traffic Impact Assessment. This is attached in **Appendix A** at the rear of this advice. It's review found a number of errors in the assessment, and it concludes "*The lodged CBRK report contains an incorrect traffic generation assessment. The key points in this regard are listed on page 2 of this letter, under Section 1 items (a) to (e), inclusive*" (p.5). For the sake of brevity, the errors in the report are not reproduced here and the McLaren Report in Appendix A should be consulted for detail.

d) The traffic impact assessment has been found to be inadequate and deficient by McLaren Traffic Engineering. It also contains a number of errors. Thus, the concerns regarding traffic impacts of the proposed development by the residents and owners in SP 83233 are well founded and appropriate.

9. Insufficient information has been provided to enable a sufficient and appropriate level of assessment of the impacts of the proposed development.

a) We note in our objections above the failure of the development application to address the requirements of Section 4.15 of the EP&A Act and the Regulations. We also note the numerous deficiencies and gaps in the assessment reports provided with the development application. These deficiencies prevent Council from undertaking a proper assessment of the proposed development and satisfying itself that the proposed development will not have unreasonable impacts.

b) Furthermore, the exhibition of the development application is flawed. The online material fails to include copies of the architectural and landscape plans to enable thorough assessment.

c) In particular a one page statement on line refers viewers to contact Council and manually inspect the plans in Council's offices.

d) The development application should be rewritten and reexhibited with a thorough suite of documents that addresses the requirements of the Act, contain no gaps and do not require viewers to attend Council offices to view plans.

9. Approval would not be in the Public Interest.

a) We note the large number of objections that have been received regarding the proposed development (and have been advised it now amounts to 450 objections and a 3,000 signature petition). Suffice to say that approval of the proposed development in the face of such a large number of objections would be contrary to the public interest as required by the evaluation criteria in Cause 4.15(1e) of the EP&Act and the objects of the Act in Part 1 Clause 1.3.

We trust this information is sufficient for your purposes. I look forward to hearing from you, and should you also require any further details or clarification, please do not hesitate to contact me.

Yours sincerely,
INSPIRE URBAN DESIGN + PLANNING PTY LTD

Stephen McMahon
Director

APPENDIX A

Review of DA Traffic Impact Assessment,
McLaren Traffic Engineering

M^CLAREN TRAFFIC ENGINEERING

Address: Shop 7, 720 Old Princes Highway Sutherland NSW 2232
Postal: P.O Box 66 Sutherland NSW 1499

Telephone: (02) 9521 7199
Fax: +61 2 9521 7199
Web: www.mclarentraffic.com.au
Email: admin@mclarentraffic.com.au

Division of RAMTRANS Australia ABN: 45067491678 RPEQ: 19457

Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

13 March 2025 Reference: 250154.01FB

General Manager
Northern Beaches Council
C/o The Owners - Strata Plan No. 83233

SUBMISSION OF OBJECTION – DA2025/0132, PROPOSED M^CDONALDS, 37 ROSEBERRY STREET, BALGOWLAH

Dear The Owners – Strata Plan No. 83233,

M^CLaren Traffic Engineering (**MTE**) has been engaged by The Owners of Strata Plan No. 83233, 41 Roseberry Street & Kenneth Road, Manly Vale (ABN 28728137237) to review the above-described proposal and to make submissions on its behalf.

Issues

The following issues have been identified following a review of the *Traffic Report for Proposed McDonald's, 37 Roseberry Street, Balgowlah*, prepared by *Colston Budd Rogers & Kafes Pty Ltd* (**CBRK**) dated December 2024 lodged as part of the Applicant's development application:

1. Inadequate External Traffic Impact Assessment with regard to Average Vehicle Delay experienced, Average Vehicle Queue Lengths and 95th Percentile Vehicle Queue Lengths for the Critical Condamine Street / Kenneth Road Traffic Signal Controlled Intersection.
2. Incorrect Traffic Generation Assessment
3. Lack of Any Sensitivity Testing on Traffic Assignment Changes
4. Loss of On-Street Parking

The first issue outlined above is presented in detail in the attached recent traffic counts (Friday 28 February 2025 [2.00pm to 7.00pm], Saturday 29 February 2025 [9.00am to 2.00pm] and Wednesday 5 March 2025 [6.00am to 10.00am plus 2.00pm to 6.00pm]) and associated SIDRA analysis for the EXISTING conditions in **Technical Memo 1** (96 pages) and FUTURE conditions with the impacts of the proposed McDonald's outlet in **Technical Memo 2** (14 pages).

1. Summary of Issue 1 From Technical Memos 1 & 2

The lodged **CBRK** report contains inadequate external traffic impact assessment with regard to Average Vehicle Delay (AVD) experienced, Average Vehicle Queue Lengths and 95th Percentile Vehicle Queue Lengths for the critical Condamine Street / Kenneth Road Traffic Signal Controlled Intersection. The key points in this regard are as follows:

a) The estimated traffic generation is based on '*Trip Generation and Parking Demand – Surveys of Fast Food Outlets – Analysis Report'* created by *Bitzios Consulting 2016*. The estimated traffic generation is in the order of **140** vehicles during the afternoon peak hour, and **180** vehicles during the Saturday midday peak hour.

b) More recent documents, specifically the *TfNSW Guide to Transport Impact Assessment*, suggests that during the weekend site peak hour, McDonald's generates **267** vehicle trips which is an increase of **87** vehicle trips from the **CBRK** report.

Table 5.46. **Fast food sample summary – McDonalds**

	Sydney	Regional	Combined
Weekday Vehicle trips (vehicle trips/outlet)			
Site AM Peak hour	137	206	192
Network AM Peak	119	188	173
Site PM Peak hour	188	201	214
Network PM Peak	138	183	179
Daily	1,032	1,261	1,272
Weekend Vehicle trips (vehicle trips/outlet)			
Site Peak hour	267	225	269
Daily	1,209	1,164	1,303

c) The transitional period of the *TfNSW Guide Transport Impact Assessment* ended 4 November 2024 and therefore applies to this traffic report.

> **Transitional Arrangements:**
> This Guide does not apply to TIAs commenced and development applications lodged before 4 November 2024.

d) It is noted that due the eastern approach to Condamine Street / Kenneth Road performing at an LoS "F", any minor increases in traffic volumes are expected to further significantly degrade the performance of this approach.

e) It is acknowledged that 50% of the traffic to the proposed development can be considered passing trade. In any case, it is expected that the proposed McDonald's will generate destination vehicle trips which will utilise the existing road network. Approximately **44** additional trips are generated during the weekend peak hour period which should be taken into consideration.

Existing Conditions

a) A comparison between the existing intersection performance of the eastern approach of Condamine Street / Kenneth Road between the **CBRK** assessment and **MTE** assessment is provided in **Table 1**.

TABLE 1: EASTERN APPROACH – LEVEL OF SERVICE MOVEMENT COMPARISON – EXISTING SCENARIO

Turning Movement	Level of Service			
	Weekday		Weekend	
	CBRK	MTE	CBRK	MTE
RT	F	F	F	F
T	C	F	C	F
LT	B	D	B	D

b) As shown, it is likely that the **CBRK** model overestimated the efficiency of the signalised intersection due to utilising the optimal cycle time setting which does not reflect the performance of the intersection under existing operation.

c) A comparison of the LoS of the movements associated with the eastern approach to the signals indicates that the eastern approach exceeds capacity for the RT and T movements and is at capacity for the LT movement. It is noted that based on video footage observations, the right turn queues regularly block the ability for T and LT traffic to exit the approach.

d) In any case, both models agree that the RT operates with an LoS "F". A LoS "F" performance is indicative of traffic which exceeds the available lane capacity resulting in queueing and excessive delays.

Future Conditions

a) By comparing the existing performance of the intersections provided in "Memo 1", it is evident that the overall performance of the signalised intersection of Condamine Street / Kenneth Road remains at a LoS "D". Although the overall performance remains the same, the traffic throughput of the eastern approach already exceeds capacity (LoS "F"), and any additional vehicle trips will adversely impact queues and delays. This is evident as the roundabout intersection of Kenneth Road / Roseberry Street quickly degrades, specifically during the Saturday period.

b) The roundabout of Kenneth Road / Roseberry Street degrades from a Level of Service "B" to "C" during the Saturday period, with degree of saturation exceeding **1.0** and the average delay increasing from **15.7** seconds to **37.6** seconds. The subject development adversely impacts the roundabout performance.

c) The performance of the eastern approach of Condamine Street / Kenneth Road is summarised in **Table 2.**

TABLE 2: EASTERN LEG – LEVEL OF SERVICE MOVEMENT COMPARISON – POST DEVELOPMENT

Turning Movement	Level of Service			
	Weekday		Weekend	
	CBRK	MTE	CBRK	MTE
RT	F	F	F	F
T	C	F	C	F
LT	B	D	B	D

d) Persons trip generation rates are not available for McDonald's fast-food outlets, however it is reasonable to assume that a McDonald's would generate additional pedestrian foot traffic from the surrounding area. Although pedestrian crossing facilities are provided at roundabouts, it is not particularly safe as pedestrians strictly do not have right of way at roundabouts. In practice, vehicles tend to stop to allow pedestrians to cross at roundabout which would result in additional delays.

Eastern Approach of Condamine Street / Kenneth Road – Detailed Review

d) To assess the eastern approach of Condamine Street / Kenneth Road in further detail, the following parameters were extracted from the **CBRK** and **MTE** SIDRA outputs:

- Degree of Saturation;
- Average Delay;
- Average Queue Length;
- 95th Percentile Queue Length (the SIDRA INTERSECTION 9.1 results for 95th percentile queue is presented in **Annexure B**).

The **CBRK** and **MTE** performance are summarised in **Table 3** and **Table 4** respectively.

TABLE 3: EASTERN APPROACH – SPECIFIC SIDRA OUTPUT PARAMETERS (CBRK MODEL)

Peak Period	Degree of Saturation	Average Delay	Average Queue Length	95th Percentile Queue
Existing Conditions				
Weekday	1.011	56.7 seconds	84.3m	(1)
Saturday	0.99	55.8 seconds	90.0m	(1)
Post Development Conditions				
Friday	0.99	51.9 seconds	80.6m	(1)
Saturday	1.01	54.3 seconds	90.0m	(1)

NOTE:
(1) Cannot be determined from CBRK Report.

TABLE 4: EASTERN APPROACH – SPECIFIC SIDRA OUTPUT PARAMETERS (MTE MODEL)

Peak Period	Degree of Saturation	Average Delay	Average Queue Length	95th Percentile Queue
Existing Conditions				
Friday	0.996	75.5 seconds	81.4m	132.9m

Saturday	0.940	72.4 seconds	75.6m	123.4m
Post Development Conditions (Saturday Worst Case)				
Saturday	0.976	78.1 seconds	84.1m	137.2m

e) Based on the above, it is evident that the eastern approach is currently at maximum capacity with traffic generated by the proposed McDonalds adversely impacting the eastern approach.

Key Findings

The following findings and conclusions can be made upon assessment of the existing plus post development intersection conditions:

A. The **CBRK** model overestimates the efficiency of the signalised intersection of Condamine Street / Kenneth Avenue by utilising the 'Network Optimum Cycle Time'. The model should utilise the existing phase durations to reflect existing conditions. As a result, the movements associated with the eastern approach perform with a lower level of service.

B. The traffic generation rates contained within *TfNSW Guide to Transport Impact Assessment* apply. The intersections of Condamine Street / Kenneth Road and Kenneth Road / Roseberry Street are effectively at capacity. Any increases to traffic volumes will have significant impact to intersection performance.

C. The performance of the eastern approach at Condamine Street / Kenneth Road is adversely impacted. Further, the additional traffic has flow on traffic impacts to the roundabout of Kenneth Road / Roseberry Street, with queues extending past the roundabout from the signalised intersection.

D. Application of post-development traffic to the **MTE** model indicates that the performance of Kenneth Road / Roseberry Street is adversely impacted. The performance degrades from a LoS "B" to LoS "C" with a **20.9** second increase in average delay. The degree of saturation also exceeds **1.0** under post-development conditions.

E. Any potential intersection or road upgrades should also consider the eastern approach of the signalised intersection of Condamine Street / Kenneth Road. It is evident that there is no capacity for right turns, resulting in lane blockages for the through and left-turn movements.

2. Incorrect Traffic Generation Assessment

The lodged **CBRK** report contains an incorrect traffic generation assessment. The key points in this regard are listed on page 2 of this letter, under Section 1 items (a) to (e), inclusive.

3. Lack of Any Sensitivity Testing on Traffic Assignment Changes

The lodged **CBRK** report does not include any sensitivity testing of changes in traffic assignment. To this end, the lodged **CBRK** report does not robustly justify at all the adopted traffic assignment, nor has any changes in traffic assignment, as stated in *Section 3.4.3 "Sensitivity Testing"* of the 4 November *2024 "Guide to Transport Impact Assessment"* (NSW Government TfNSW). Section 3.4.3 states that *"sensitivity testing is important to ensure that technical assumptions do not distort the findings"* for Transport Impact Assessments (**TIA**'s).

This is a critically important issue and upon review of the lodged **CBRK** report, it is evident that the adopted and assessed "additional" traffic flows for the two key intersections of Kenneth Road with both Condamine Street and Roseberry Street are extremely confusing. No robust justification of the assignment of approaching and departing traffic has been included in the **CBRK** report at all.

This is a serious matter, and it appears as though traffic has been assigned to lessen the impacts on the critical movements at both intersections, particularly avoiding the impact on the Condamine Street intersection with Kenneth Road.

To this end, the disparity and illogical (or at least not robustly justified) traffic assignment adopted by **CBRK** report for both the Friday PM and Saturday noon peak periods is as follows:

- **Arrival of traffic to the McDonald's driveway**
  - 40% from the south along Roseberry Street.
  - 15% from the south via the right turn lane in Condamine Street.
  - 25% from the east along Kenneth Road.
  - 10% from the north along Roseberry Street.
  - 10% from the north along Condamine Street.

- **Departure of traffic from the McDonald's driveway**
  - 22% to the south along Roseberry Street.
  - 15% to Condamine Street (south) via Kenneth Road.
  - 31% to the east along Kenneth Road.
  - 16% to the north along Roseberry Street.
  - 16% to Condamine Street 9north) via Kenneth Road.

4. Loss of On-Street Parking

The road carriageway width of Roseberry Street fronting the proposed McDonalds Site is approximately 9 metres or less. This is a narrow width that cannot accommodate two kerbside (parallel) parking lanes with two-way traffic flow in between.

The **CBRK** report acknowledges on page 11 that vehicles currently queue back past the site from the roundabout.

It is important to note that Council "required" that a median be installed across the driveway in its response, as set out on page 17 & 18 of the **CBRK** report (as repeated below), to prohibit right turns entering and leaving the proposed driveway (30m offset from the Kenneth Road roundabout) and presumably to prohibit the loss of any kerbside parking along the eastern side of Roseberry Street, south of Kenneth Road:

> *"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."* (The **CBRK** report identifies this as Option 1).

In regard to Option 1, the **CBRK** report states on page 12, that "*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;"*

It is evident from the above (indented) extract of Council's "required" median works did not state that 4 spaces would be lost, which is otherwise suggested by **CBRK**'s sentence above. The **CBRK** report therefore misleads the reader to believe that Council agrees that 4 spaces would be lost, which is not evident from the extracts.

It should further be noted that the undersigned has been involved in other development applications whereby the provision of a median has either been reduced in width to retain kerbside parking or that the kerb and gutter along the site frontage has been relocated (with a localised reduced verge / nature strip width) in order to retain the prevailing kerbside parking.

With retained kerbside parking along the eastern side of Roseberry Street, south of Kenneth Road, right turning traffic entering the site driveway will not be possible across the queue of northbound traffic at peak times (as agreed by **CBRK**) and will create a worsening of traffic conditions with vehicle queues extending back to the Kenneth Road roundabout and effectively block the efficient operation of the roundabout leading to gridlock conditions at times.

This leads to a discussion on Option 2, as raised solely by **CBRK**, which involves the removal of *"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."* Refer to page 12 of the **CBRK** report under the Option 2 description.

The **CBRK** report then provides a self-serving recommendation, without any detailed considerations of either a narrow median / narrow verge outcome or a small local road roundabout at the Roseberry Street / Hayes Street "T-junction", which many councils have installed in local streets over many years.

The **CBRK** report recommendation for Option 2 is repeated below for ease of reference:

> *"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."*

CBRK's recommended loss of parking along the eastern side of Roseberry Street south of Kenneth Road constitutes a poor outcome for the localised mixed-use precinct that includes industrial, commercial, retail and high density residential land uses.

CBRK's recommended *"no queuing line marking on the northbound traffic lane in Roseberry Street across the McDonald's access"* is not supported by any detailed (to scale) plans of the proposed works.

The undersigned notes that the expressed words *"no queuing line marking on the northbound traffic lane"* indicates a poorly expressed treatment, which if corrected in traffic engineering terms, would mean "KEEP CLEAR" pavement marking across the northbound traffic lane in Roseberry Street across the proposed McDonald's driveway.

From the undersigned experience dealing with local councils and TfNSW, local traffic committees typically reject “KEEP CLEAR” pavement markings across private car parks and reserve them for public road junctions, hospitals, fire stations, bus only terminals and some public car parks.

5. Concluding Statement

In conclusion, the proposed development application should be refused for the following reasons:

a) On the basis of our modelling, it is evident that the eastern approach (Kenneth Road) to the Condamine Street / Kenneth Road traffic signals is currently at maximum capacity with traffic generated by the proposed McDonalds adversely impacting the eastern approach

b) The lodged **CBRK** report contains numerous insufficient, inadequate and unjustified matters as outlined in detail in this objection letter. A complete, thorough and comprehensive review of the vehicular access planning and development potential is required.

c) The lodged **CBRK** report does not include any sensitivity testing of changes in traffic assignment. To this end, the lodged **CBRK** report does not robustly justify at all the adopted traffic assignment, nor has any changes in traffic assignment, as stated in *Section 3.4.3 "Sensitivity Testing"* of the 4 November *2024 "Guide to Transport Impact Assessment"* (NSW Government TfNSW). Section 3.4.3 states that *"sensitivity testing is important to ensure that technical assumptions do not distort the findings"* for Transport Impact Assessments (**TIA**'s).

d) **CBRK**'s Option 2 assessment for vehicular access management at the proposed McDonald's driveway on Roseberry Street is largely self-serving in response to Council's "required" Option 1 traffic management treatment that includes a median across the McDonald's driveway, whilst presumably retaining the existing kerbside parking along the eastern side of Roseberry Street, south of Kenneth Road.

e) **CBRK**'s response to Council's Option 1, specifically relating to the provision of a roundabout at Roseberry Street / Hayes Street "T-junction" is unprofessionally dismissive with no detailed consideration of small localised roundabouts that many local councils have installed in local streets over many years.

f) From the undersigned experience dealing with local councils and TfNSW, local traffic committees typically reject "KEEP CLEAR" pavement markings across private car parks and reserve them for public road junctions, hospitals, fire stations, bus only terminals and some public car parks.

g) In view of the foregoing, the proposed McDonald's outlet must be rejected based upon the inadequate external traffic impact assessment submitted by the applicant. Indeed, the Kenneth Road intersections of both Condamine Street and Roseberry Street are currently operating poorly with respect to localised traffic congestion along Kenneth Road over the 90-metre distance between Condamine and Roseberry streets with flow on adverse vehicle queues extending through the Roseberry Street roundabout and other approaches from the south, east and north.

h) The lodged **CBRK** report acknowledges that queues regularly extend past the proposed driveway location within Roseberry Street, which is an indicator that the site location is an inappropriate location for a high traffic generating use, such as the proposed fast-food outlet.

Please contact the undersigned on 9521 7199 should you require further information or assistance.
Yours faithfully,

M^{c}Laren Traffic Engineering

Craig M^{c}Laren FIEAust
Director & Mentor
RPEQ 19457
BE Civil. Graduate Diploma (Transport Eng) MAITPM MITE [1985]
TfNSW Accredited Level 3 Road Safety Auditor [1998]
SafeWork NSW Traffic Control Work Training card, [Authorisation number TCT0015914 : Prepare Work Zone (PWZ)]
Expert Traffic Engineering & Road Safety Witness at NSW Land & Environment & NSW Supreme Court

TECHNICAL MEMO 1

(96 SHEETS)

1 EXISITING TRAFFIC ENVIRONMENT

1.1 Turning Movement Count (TMC) Traffic Surveys

TMC traffic surveys were conducted at the intersections of Condamine Street / Kenneth Road and Kenneth Road / Roseberry Street during the following periods:

- Friday, 28 February 2025 between 2:00PM to 7:00PM;
- Saturday, 29 February 2025 between 9:00AM to 2:00PM;
- Wednesday, 5 March 2025 between 6:00AM to 10:00AM, and 2:00PM to 6:00PM.

The full survey results are shown in **Annexure A** for reference.

1.1.1 Existing Road Performance

The performance of the surrounding intersections under the existing traffic conditions has been assessed using SIDRA INTERSECTION 9.1, with full SIDRA results reproduced in **Annexure B**.

The following considerations have been undertaken to ensure a realistic calibrated model:

- Consideration to the TCS Plan for signalised intersection of Condamine Street / Kenneth Road;
- A review of the phase length and cycle times based upon video footage;
    - Output cycle and phase duration fall within observed cycle and phase lengths.
- Validation of the model using approach queue lengths with consideration to the following input modifications:
    - Observed queue lengths along the eastern approaches of Kenneth Road to Condamine Street and Roseberry Street (see **Section 2.1**).

The resulting SIDRA INTERSECTION performance data is summarised in **Table 1**, **Table 2** and **Table 3** for the Friday survey peak, Saturday survey peak and Wednesday AM and PM survey peak, respectively.

TABLE 1: FRIDAY PEAK HOUR PERIOD – INTERSECTION PERFORMANCE SUMMARY (SIDRA INTERSECTION 9.1)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3][4]	Control Type	Worst Movement	Average Queue
FRIDAY PEAK HOUR EXISTING PERFORMANCE							
Condamine Street /Kenneth Road	FRI	1.00	46.2	**D**	Signals	RT from Kenneth Road	22.7 veh (159.2m) Condamine Street
Kenneth Road /Roseberry Street	FRI	0.90	15.5 (Worst: 23.7)	**B** (Worst: B)	Roundabout	UT from Roseberry Street	5.6 veh (39.9m) Kenneth Road

Notes:

(1) The Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.
(2) The average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.
(3) The Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.
(4) No overall Level of Service is provided for Give Way and Stop controlled intersections as the low delays associated with the dominant movements skew the average delay of the intersection. The Level of Service of the worst approach is an indicator of the operation of the intersection, with a worse Level of Service corresponding to long delays and reduced safety outcomes for that approach.

As shown above, during the Friday peak period, the intersection of Condamine Street / Kenneth Road performs with a Level of Service (LoS) "D". A LoS "D" indicates that the intersection is operating near capacity and any small increases in traffic flow is likely to cause operational problems. This is further evident by the degree of saturation of **1.0** which indicates that there is a movement within the intersection that is operating at capacity. A detailed review of the SIDRA outputs indicates that this corresponds to the RT from Kenneth Road (E), which performs at an LoS "F" indicating that this movement exceeds the available lane capacity.

During the Friday peak period, the intersection of Kenneth Road / Roseberry Street performs at an LoS "B". A LoS "B" is characterised by acceptable delays and spare capacity. Similarly, a detailed review of the SIDRA outputs indicate that the southern and eastern approaches have a degree of saturation of **0.86** and **0.90**, respectively. These movements are approaching capacity, although it is operating with acceptable performance at this stage.

TABLE 2: SATURDAY PEAK HOUR PERIOD – INTERSECTION PERFORMANCE SUMMARY (SIDRA INTERSECTION 9.1)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3][4]	Control Type	Worst Movement	Average Queue
SATURDAY PEAK HOUR EXISTING PERFORMANCE							
Condamine Street /Kenneth Road	SAT	0.94	45.4	D	Signals	T from Kenneth Road	25.7 veh (179.9m) Condamine Street
Kenneth Road /Roseberry Street	SAT	0.86	15.7 (Worst: 23.1)	B (Worst: B)	Roundabout	UT from Kenneth Road	4.9 veh (34.4m) Kenneth Road

Notes: See Table 1.

During the Saturday peak period, the intersection of Condamine Street / Kenneth Road performs with a Level of Service (LoS) "D". Similar to the Friday peak period, Kenneth Road (E) is near capacity with the 'through' and 'right turn' movements performing with a LoS "F".

During the Saturday peak period, the intersection of Kenneth Road / Roseberry Street performs at an LoS "B". A LoS "B" is characterised by acceptable delays and spare capacity. It is acknowledged that the southern, eastern and western approaches are approaching movement saturation, although the intersection is currently performing with good efficiency.

TABLE 3: WEDNESDAY SURVEY PERIOD – INTERSECTION PERFORMANCE SUMMARY (SIDRA INTERSECTION 9.1)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3][4]	Control Type	Worst Movement	Average Queue
EXISTING PERFORMANCE							
Condamine Street /Kenneth Road	AM	0.77	34.9	C	Signals	RT from Kenneth Road	17.6 veh (123.4m) Condamine Street
	PM	0.88	46.1	D		RT from Kenneth Road	23.8 veh (166.6m) Condamine Street
Kenneth Road /Roseberry Street	AM	0.63	9.6 (Worst: 17)	A (Worst: B)	Roundabout	UT from Roseberry Street	2.5 veh (18.1m) Kenneth Road
	PM	0.63	10.1 (Worst: 16.4)	A (Worst: B)		UT from Roseberry Street	2.4 veh (16.9m) Roseberry Street

Notes: See Table 1.

During the Wednesday survey periods, the intersection of Condamine Street / Kenneth Road performs with a LoS “C” during the AM peak hour period, and LoS “D” during the PM peak hour period. An LoS “C” is characterised by acceptable delays and some spare capacity.

During the AM peak hour period, although the performance of the signalised intersection is at a LoS “C”, the RT from Kenneth Road (E) performs with an LoS “F”. It is evident that this right turn movement exceeds capacity. During the PM peak hour period, the signalised intersection performs at an LoS “D”, similar to the Friday and Saturday peak hour period.

During the Wednesday AM and PM peak hour periods, the intersection of Kenneth Road / Roseberry Street performs with an LoS “A”, indicating a high level of efficiency with low approach delays and spare capacity.

2 SIDRA MODEL CALIBRATION

The SIDRA INTERSECTION 9.1 model was calibrated with due consideration to the cycle times, phase duration and queue lengths of the intersection of Condamine Street and Kenneth Avenue. A 30-minute segment of video footage for each of the periods surveyed was reviewed in detail (equivalent to approximately 10 signal phase cycles).

2.1 Signal Phases Review

In accordance with the TCS Plans (presented in **Annexure C**), the signalised intersection of Condamine Street / Kenneth Road operated with the “A”, “C”, “D”, “E” and “E2” phases. From the video footage, it was also evident that new phases, not a part of the initial TCS Plan, were introduced. The “X” phase consists of a RT movement and T movement from Kenneth Road. The “Y” phase consists of RT movements from Kenneth Road (E) and Kenneth Road (W), and LT movements from Condamine Street (N) and Condamine Street (S), which is commonly referred to as a double-diamond phase.

The introduction of these phases is likely a result of excessive traffic demand from Kenneth Road (E) in the past.

In addition, the duration of the phases was reviewed with results presented in **Annexure D**. The phase durations and cycle times were input into the SIDRA Model to ensure a realistic calibrated model. The model was then cross referenced to the observed vehicle queue lengths further detailed **Section 2.2** below.

2.2 Vehicle Queue Observation

Screenshots of the video footage were extracted at the time when the signalised intersection of Condamine Street / Kenneth Road ran a phase which permitted traffic movements out of the eastern leg of Condamine Street / Kenneth Avenue to determine the vehicle queue lengths. A complete compilation of the screenshots is provided in the Annexures, in accordance with **Figure 1**.

FIGURE 1: OBSERVED VEHICLE QUEUE – SNAPSHOT LOCATION

A summary of the observed queue lengths of the eastern approaches to the intersections of Condamine Street / Kenneth Avenue and Kenneth Avenue / Roseberry Street is provided in **Table 4** and **Table 5**, respectively.

TABLE 4: KENNETH ROAD (E) APPROACH TO CONDAMINE STREET

Approach	Observed Signal Cycle	Approximate Observed Queue Lengths (m)			
		Friday, 27 March 2025	Saturday, 28 March 2025	Wednesday, 5 March 2025 - AM Period	Wednesday, 5 March 2025 - PM Period
Kenneth Road (E) Approach to Condamine Street	1	83m	70m	42m	90m
	2	49m	70m	35m	77m
	3	42m	90m	21m	49m
	4	56m	90m	35m	42m
	5	90m	90m	49m	90m
	6	90m	90m	42m	83m
	7	90m	56m	49m	49m
	8	90m	70m	42m	63m
	9	90m	56m	-	35m
	10	90m	49m	77m	35m
	11	-	-	-	-
Average Queue	-	**77m**	**73.1m**	**43.5m**	**61.3m**

NOTE:

(1) A "90m" queue indicates a queue which extends from the signalised intersection at Condamine Street / Kenneth Road to the roundabout at Kenneth Road / Roseberry Street (i.e. the lane approaches are at capacity).

TABLE 5: KENNETH ROAD (E) APPROACH TO ROSEBERRY STREET

Approach	Observed Signal Cycle	Approximate Observed Queue Lengths			
		Friday, 27 March 2025	Saturday, 28 March 2025	Wednesday, 5 March 2025 - AM Period	Wednesday, 5 March 2025 - PM Period
Kenneth Road (E) Approach to Roseberry Street	1	-	28m	-	-
	2	7m	42m	21m	-
	3	21m	56m	-	-
	4	7m	42m	-	35m
	5	35m	180m	-	7m
	6	63m	7m	-	7m
	7	-	-	-	14m
	8	28m	-	-	7m
	9	14m	21m	-	-
	10	7m	7m	21m (2)	7m
	11	180m	-	-	-
Average Queue	-	**36.2m**	**38.3m**	**21m**	**12.8m**

NOTE:

(1) A "180m" queue indicates a queue which extends from the roundabout intersection at Kenneth Road / Roseberry Street to the roundabout at Kenneth Road / Quirk Road (i.e. the lane approach is at capacity).

(2) Bus obstructs view of back of queue.

The queues determined in **Table 4** and **Table 5**, approximately reflect the queues calculated by SIDRA INTERSECTION 9.1, ensuring a realistic calibrated model.

2.3 Notable Observations

The following observations are relevant to note based on the review of the video footage:

- It was observed that the eastern queue at the signalised intersection at times extended past the roundabout of Kenneth Road / Roseberry Street. In instances, the queue extended even further to the roundabout of Kenneth Avenue / Quirk Road. This does not occur over a whole peak hour period and only occurs for a concentrated 10-minute period.
    - Although this should impact the performance of the roundabout, particularly Kennth Road / Roseberry Street, the queues do tend to clear outside of the concentrated 10-minute period. SIDRA calculates average delay based on the whole hour which would lower the overall average delay when compared to a 10-minute peak flow.
- The eastern approach to the signalised intersection is evidently at capacity. Lane blockage occurs caused by the RT movement from Kenneth Road (E), limiting traffic throughput from the eastern approach, particularly the T and LT movements from Kenneth Road (E).

ANNEXURE A: TRAFFIC SURVEY DATA
(6 SHEETS)

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Kenneth Rd and Condamine St, Sydney

GPS	-33.786520, 151.266679
Date:	Fri 28/02/25
Weather:	Overcast
Suburban:	Sydney
Customer:	McLaren

North:	Condamine St
East:	Kenneth Rd
South:	Condamine St
West:	Kenneth Rd

Survey Period	AM:	2:00 PM-2:00 PM
	PM:	2:00 PM-7:00 PM
Traffic Peak	AM:	#REF!
	PM:	3:00 PM-4:00 PM

All Vehicles

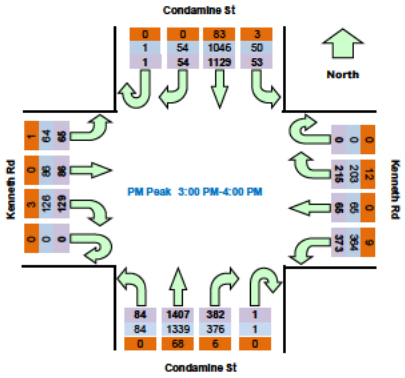
Time		North Approach Condamine St				East Approach Kenneth Rd				South Approach Condamine St				West Approach Kenneth Rd				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
14:00	14:15	0	15	260	17	0	61	13	89	0	65	275	15	0	37	16	11	3509	
14:15	14:30	0	8	290	11	0	53	9	67	0	45	208	10	0	17	24	16	3598	
14:30	14:45	0	8	238	18	0	55	17	99	0	93	376	17	0	18	7	8	3871	
14:45	15:00	1	11	218	9	0	62	30	92	0	92	357	17	0	14	12	8	3871	
15:00	15:15	1	13	285	23	0	44	10	107	0	87	318	16	0	25	17	17	4044	Peak
15:15	15:30	0	17	296	9	0	55	19	94	1	95	335	22	0	39	33	16	3957	
15:30	15:45	0	10	258	6	0	63	21	80	0	96	343	16	0	27	15	19	3946	
15:45	16:00	0	14	290	15	0	53	15	92	0	104	411	30	0	38	21	13	3901	
16:00	16:15	0	17	224	12	0	59	20	64	0	83	300	17	0	32	22	26	3778	
16:15	16:30	0	4	288	17	0	65	16	65	1	86	409	19	0	28	14	8	3769	
16:30	16:45	0	12	232	9	0	46	19	66	0	95	368	19	0	20	17	6	3730	
16:45	17:00	0	11	270	14	0	56	19	61	0	106	346	17	0	21	30	22	3698	
17:00	17:15	0	14	257	9	0	57	18	70	0	94	285	16	0	25	11	11	3617	
17:15	17:30	0	14	294	20	0	56	20	63	0	87	350	14	0	28	17	18	3557	
17:30	17:45	1	12	257	10	0	46	23	78	0	103	265	15	0	28	20	19	3409	
17:45	18:00	0	16	303	10	0	42	12	58	0	95	276	20	0	28	19	13	3299	
18:00	18:15	0	10	220	13	0	56	25	69	0	91	243	18	0	27	21	14	3128	
18:15	18:30	0	14	235	9	0	45	16	59	0	93	277	15	0	34	15	21		
18:30	18:45	1	11	196	12	0	47	15	65	0	92	257	16	0	32	9	14		
18:45	19:00	0	10	175	11	0	41	18	79	0	66	246	18	0	23	14	20		

Peak Time		North Approach Condamine St				East Approach Kenneth Rd				South Approach Condamine St				West Approach Kenneth Rd				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
15:00	16:00	1	54	1129	53	0	215	65	373	1	382	1407	84	0	129	86	65	4044

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy



TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Kenneth Rd and Roseberry St, Sydney

GPS	-33.786730, 151.267944
Date:	Fri 28/02/25
Weather:	Overcast
Suburban:	Sydney
Customer:	McLaren

North:	Roseberry St
East:	Kenneth Rd
South:	Roseberry St
West:	Kenneth Rd

Survey Period	AM:	2:00 PM-2:00 PM
	PM:	2:00 PM-7:00 PM
Traffic Peak	AM:	#REF!
	PM:	3:00 PM-4:00 PM

All Vehicles

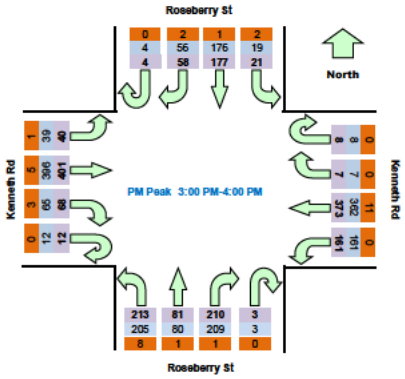
Time		North Approach Roseberry St				East Approach Kenneth Rd				South Approach Roseberry St				West Approach Kenneth Rd				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
14:00	14:15	0	12	20	4	0	3	77	34	2	36	18	66	6	23	63	7	1568	
14:15	14:30	0	9	28	5	2	1	61	36	1	44	19	53	3	22	51	5	1629	
14:30	14:45	0	11	37	2	0	2	96	33	1	42	12	63	4	14	94	7	1762	
14:45	15:00	2	24	41	3	0	5	96	39	0	48	10	57	5	21	82	6	1806	
15:00	15:15	1	9	34	5	3	1	97	39	1	44	19	54	4	22	95	4	1837	Peak
15:15	15:30	0	21	57	3	2	1	89	41	0	52	16	52	6	13	108	12	1821	
15:30	15:45	2	16	45	8	2	3	94	46	2	62	16	51	1	19	85	10	1757	
15:45	16:00	1	12	41	5	1	2	93	35	0	52	30	56	1	14	113	14	1690	
16:00	16:15	1	10	38	10	1	5	71	35	1	53	17	59	1	22	84	8	1648	
16:15	16:30	0	9	32	5	2	0	80	36	2	52	17	57	2	17	87	11	1640	
16:30	16:45	0	12	31	7	1	3	65	29	4	45	21	54	2	17	90	14	1629	
16:45	17:00	2	6	46	7	2	2	68	32	0	38	16	59	2	19	120	9	1652	
17:00	17:15	1	12	39	4	2	2	69	38	2	49	20	54	8	18	85	5	1592	
17:15	17:30	0	16	35	9	2	4	73	40	0	32	19	46	6	11	90	15	1568	
17:30	17:45	0	14	31	5	0	5	94	34	0	45	20	35	6	17	99	13	1512	
17:45	18:00	1	9	26	7	0	5	66	41	3	41	14	32	7	18	88	10	1446	
18:00	18:15	1	10	16	6	2	4	78	40	0	35	11	54	6	19	91	11	1417	
18:15	18:30	1	10	23	6	1	3	66	26	3	33	11	40	4	15	97	3		
18:30	18:45	1	9	22	4	1	3	73	32	1	37	13	41	5	14	89	7		
18:45	19:00	1	7	17	3	3	5	80	28	0	39	17	47	6	16	65	5		

Peak Time		North Approach Roseberry St				East Approach Kenneth Rd				South Approach Roseberry St				West Approach Kenneth Rd				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
15:00	16:00	4	58	177	21	8	7	373	161	3	210	81	213	12	68	401	40	1837

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy



TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Kenneth Rd and Condamine St, Sydney

GPS -33.786520, 151.266679

Date:	Sat 01/03/25
Weather:	Overcast
Suburban:	Sydney
Customer:	McLaren

North:	Condamine St
East:	Kenneth Rd
South:	Condamine St
West:	Kenneth Rd

Survey Period	AM:	9:00 AM-12:00 PM
	PM:	12:00 PM-2:00 PM
Traffic Peak	AM:	10:15 AM-11:15 AM
	PM:	12:00 PM-1:00 PM

All Vehicles

Time		North Approach Condamine St				East Approach Kenneth Rd				South Approach Condamine St				West Approach Kenneth Rd				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
9:00	9:15	1	4	272	13	0	50	9	69	0	84	234	3	0	17	7	7	3379	
9:15	9:30	0	3	245	12	0	64	9	85	0	71	310	5	0	13	5	5	3354	
9:30	9:45	0	3	287	16	0	56	5	121	0	84	288	10	0	17	11	5	3501	
9:45	10:00	1	6	279	12	0	62	14	68	0	64	327	11	0	12	11	12	3516	
10:00	10:15	1	5	220	13	0	65	12	83	0	48	256	8	0	21	8	5	3584	
10:15	10:30	0	8	306	19	0	62	9	83	0	71	371	12	0	20	8	5	3784	Peak
10:30	10:45	0	5	277	13	0	61	14	74	0	85	328	19	0	20	15	7	3758	
10:45	11:00	0	7	290	11	0	56	18	111	0	84	308	16	0	26	8	12	3748	
11:00	11:15	1	9	295	14	0	57	18	96	0	62	329	16	0	19	18	11	3779	
11:15	11:30	0	10	273	10	0	72	14	99	0	100	301	13	0	34	11	11		
11:30	11:45	0	9	365	19	0	52	14	112	0	43	251	14	0	10	9	10		
11:45	12:00	1	6	287	17	0	68	19	87	0	77	335	19	0	28	16	18		
12:00	12:15	0	15	323	13	0	64	9	71	0	90	309	13	0	25	5	21	3872	Peak
12:15	12:30	0	13	320	17	0	52	8	101	0	84	348	18	0	34	12	13	3843	
12:30	12:45	0	9	264	16	0	65	11	90	0	93	296	15	0	30	6	11	3772	
12:45	13:00	0	10	310	18	0	54	20	76	0	103	327	22	0	19	14	15	3751	
13:00	13:15	0	11	329	14	0	61	19	72	0	77	264	18	0	27	15	22	3700	
13:15	13:30	0	14	297	24	0	55	17	102	0	76	304	14	0	22	8	16		
13:30	13:45	1	10	267	7	0	69	18	73	0	87	298	13	0	22	11	9		
13:45	14:00	0	11	311	13	0	55	16	96	0	96	279	12	0	23	18	7		

Peak Time		North Approach Condamine St				East Approach Kenneth Rd				South Approach Condamine St				West Approach Kenneth Rd				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
10:15	11:15	1	29	1168	57	0	236	59	364	0	302	1336	63	0	85	49	35	3784
12:00	13:00	0	47	1217	64	0	235	48	338	0	370	1280	68	0	108	37	60	3872

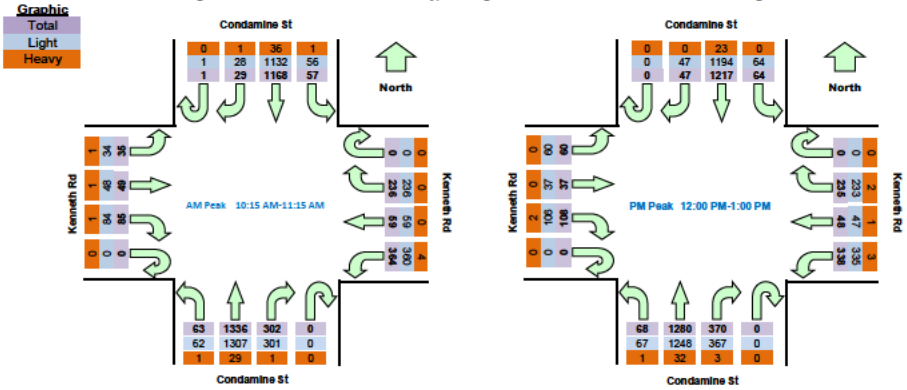
Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total

Light

Heavy



TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Kenneth Rd and Roseberry St, Sydney

GPS -33.786730, 151.267944

Date:	Sat 01/03/25
Weather:	Overcast
Suburban:	Sydney
Customer:	McLaren

North:	Roseberry St
East:	Kenneth Rd
South:	Roseberry St
West:	Kenneth Rd

Survey Period	AM:	9:00 AM-12:00 PM
	PM:	12:00 PM-2:00 PM
Traffic Peak	AM:	10:30 AM-11:30 AM
	PM:	12:00 PM-1:00 PM

All Vehicles

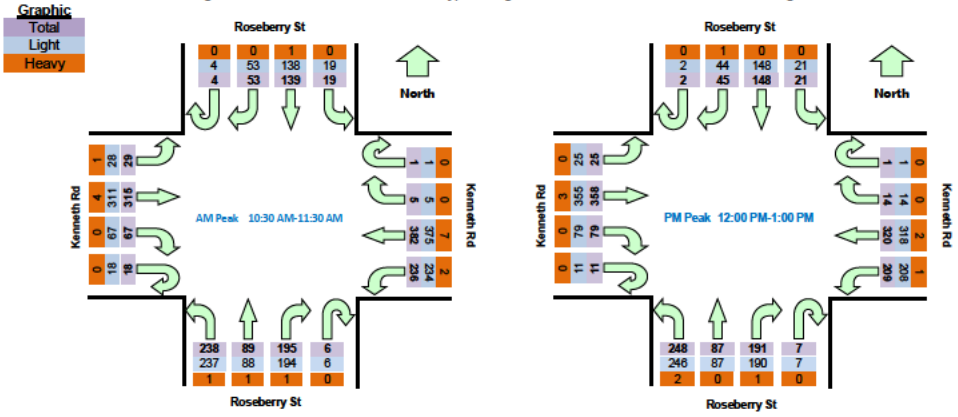
Time		North Approach Roseberry St				East Approach Kenneth Rd				South Approach Roseberry St				West Approach Kenneth Rd				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
9:00	9:15	0	3	24	2	1	3	75	37	2	49	10	47	5	16	77	5	1531	
9:15	9:30	0	10	33	3	1	0	86	45	0	54	12	62	2	14	67	4	1564	
9:30	9:45	0	9	22	4	1	2	102	43	1	53	8	68	4	21	86	2	1586	
9:45	10:00	0	10	39	5	0	0	75	41	1	37	8	52	5	17	60	6	1588	
10:00	10:15	0	6	34	5	0	4	93	49	2	51	20	57	2	18	45	3	1679	
10:15	10:30	0	8	33	4	0	1	84	50	0	55	21	60	4	20	66	9	1739	
10:30	10:45	1	12	37	5	0	0	75	61	3	46	20	57	3	16	88	4	1796	Peak
10:45	11:00	0	10	29	8	0	2	108	50	0	49	23	63	6	19	73	7	1784	
11:00	11:15	1	17	39	0	0	2	94	68	2	50	24	58	4	17	65	8	1760	
11:15	11:30	2	14	34	6	1	1	105	57	1	50	22	60	5	15	89	10		
11:30	11:45	0	13	39	7	1	2	93	57	2	38	21	71	2	17	51	2		
11:45	12:00	1	14	31	4	0	2	102	48	0	38	17	56	3	24	70	13		
12:00	12:15	0	9	44	6	1	5	84	57	2	36	30	46	2	17	82	8	1766	Peak
12:15	12:30	0	15	31	5	0	3	80	46	2	59	17	66	2	26	83	3	1750	
12:30	12:45	1	13	40	6	0	5	90	51	1	44	22	64	2	15	93	3	1764	
12:45	13:00	1	8	33	4	0	1	66	55	2	52	18	72	5	21	100	11	1705	
13:00	13:15	2	9	33	9	0	6	82	39	2	44	24	58	2	16	78	9	1698	
13:15	13:30	1	11	39	4	1	4	89	49	1	57	16	73	3	18	76	10		
13:30	13:45	0	11	33	9	1	2	83	31	0	34	21	63	1	22	75	5		
13:45	14:00	0	12	35	6	0	4	89	40	3	42	17	65	3	15	100	11		

Peak Time		North Approach Roseberry St				East Approach Kenneth Rd				South Approach Roseberry St				West Approach Kenneth Rd				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
10:30	11:30	4	53	139	19	1	5	382	236	6	195	89	238	18	67	315	29	1796
12:00	13:00	2	45	148	21	1	14	320	209	7	191	87	248	11	79	358	25	1766

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy



TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Kenneth Rd and Condamine St, Sydney

GPS -33.786520, 151.266679

Date:	Wed 05/03/25
Weather:	Overcast
Suburban:	Sydney
Customer:	McLaren

North:	Condamine St
East:	Kenneth Rd
South:	Condamine St
West:	Kenneth Rd

Survey Period	AM:	6:00 AM-10:00 AM
	PM:	2:00 PM-6:00 PM
Traffic Peak	AM:	8:15 AM-9:15 AM
	PM:	4:45 PM-5:45 PM

All Vehicles

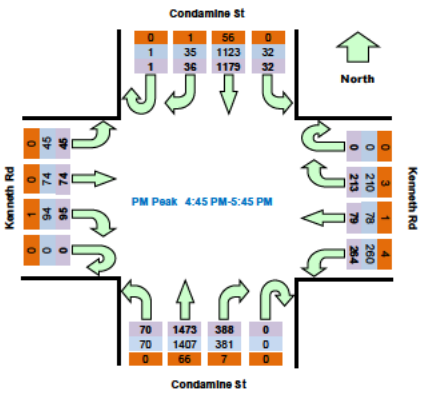
Time		North Approach Condamine St				East Approach Kenneth Rd				South Approach Condamine St				West Approach Kenneth Rd				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
6:00	6:15	1	0	239	11	0	12	1	80	0	18	115	3	0	11	6	3	2717	
6:15	6:30	0	2	312	15	0	24	2	105	0	50	182	5	0	15	8	8	2907	
6:30	6:45	0	5	348	21	0	24	5	82	0	42	160	5	0	15	10	6	2922	
6:45	7:00	0	2	308	16	0	39	5	66	1	56	243	7	0	15	5	3	2911	
7:00	7:15	0	4	276	26	0	31	16	69	0	27	192	13	0	14	16	6	3001	
7:15	7:30	0	6	298	23	0	40	7	70	0	38	224	5	0	12	13	7	3053	
7:30	7:45	0	8	245	17	0	44	11	64	0	45	228	12	0	16	15	7	3132	
7:45	8:00	0	6	282	17	0	55	13	62	0	48	308	17	0	19	18	11	3288	
8:00	8:15	0	4	217	5	0	55	14	50	0	50	289	7	0	22	12	17	3344	
8:15	8:30	0	6	282	7	0	50	9	49	0	67	316	4	0	17	11	4	3468	Peak
8:30	8:45	0	7	298	10	0	57	28	60	0	56	301	9	0	20	11	11	3446	
8:45	9:00	1	4	290	12	0	67	26	62	0	44	324	17	0	32	29	4	3334	
9:00	9:15	0	4	268	15	0	54	14	93	1	61	299	9	0	21	23	4	3205	
9:15	9:30	0	7	282	16	0	53	8	73	0	55	273	7	0	9	9	8		
9:30	9:45	0	6	243	9	0	53	11	76	0	49	274	8	0	9	10	8		
9:45	10:00	0	4	224	9	0	50	7	65	0	80	277	13	0	26	13	15		
14:00	14:15	0	4	252	16	0	51	14	59	0	54	254	16	0	25	4	7	3301	
14:15	14:30	1	6	266	11	0	57	14	75	0	51	271	12	0	20	15	10	3407	
14:30	14:45	1	7	243	11	0	44	23	73	0	74	343	12	0	19	9	16	3617	
14:45	15:00	0	15	257	6	0	59	27	76	0	64	310	7	0	20	9	11	3658	
15:00	15:15	0	12	240	10	0	47	11	73	0	70	323	13	0	23	28	12	3763	
15:15	15:30	1	7	307	9	0	59	10	89	0	78	393	16	0	21	17	12	3857	
15:30	15:45	1	16	209	9	0	58	20	63	0	89	384	13	0	19	19	16	3815	
15:45	16:00	0	13	246	11	0	51	16	79	0	106	373	21	0	18	15	17	3798	
16:00	16:15	0	14	246	13	0	61	14	60	0	87	380	26	0	25	16	14	3817	
16:15	16:30	1	11	299	15	0	49	13	65	0	89	374	20	0	13	13	15	3863	
16:30	16:45	0	5	241	13	0	56	22	53	0	96	337	15	0	27	13	21	3874	
16:45	17:00	0	9	281	7	0	47	12	67	0	95	411	17	0	22	10	7	3949	Peak
17:00	17:15	1	9	295	3	0	55	20	73	0	97	355	21	0	30	25	18	3897	
17:15	17:30	0	10	300	10	0	58	27	66	0	111	334	17	0	29	20	6		
17:30	17:45	0	8	303	12	0	53	20	58	0	85	373	15	0	14	19	14		
17:45	18:00	0	12	270	14	0	48	19	64	0	107	334	22	0	18	14	11		

Peak Time		North Approach Condamine St				East Approach Kenneth Rd				South Approach Condamine St				West Approach Kenneth Rd				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
8:15	9:15	1	21	1138	44	0	228	77	264	1	228	1240	39	0	90	74	23	3468
16:45	17:45	1	36	1179	32	0	213	79	264	0	388	1473	70	0	95	74	45	3949

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy



TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Kenneth Rd and Roseberry St, Sydney

GPS -33.786730, 151.267944

Date:	Wed 05/03/25
Weather:	Overcast
Suburban:	Sydney
Customer:	McLaren

North:	Roseberry St
East:	Kenneth Rd
South:	Roseberry St
West:	Kenneth Rd

Survey Period	AM:	6:00 AM-10:00 AM
	PM:	2:00 PM-6:00 PM
Traffic Peak	AM:	8:15 AM-9:15 AM
	PM:	5:00 PM-6:00 PM

All Vehicles

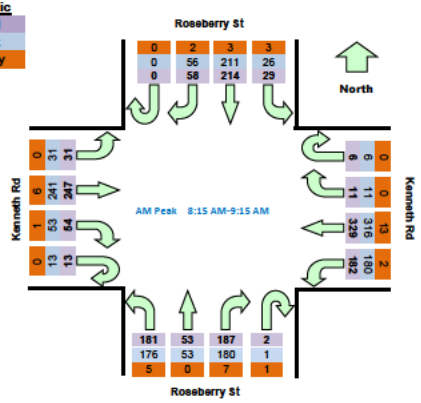
Time		North Approach Roseberry St				East Approach Kenneth Rd				South Approach Roseberry St				West Approach Kenneth Rd				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
6:00	6:15	0	5	12	4	0	1	77	8	0	10	5	10	1	7	24	0	976	
6:15	6:30	1	8	12	7	1	1	109	16	0	9	5	11	3	10	54	1	1113	
6:30	6:45	0	6	24	2	0	5	96	38	2	15	3	11	5	6	56	3	1170	
6:45	7:00	1	9	38	4	0	4	75	48	0	15	2	24	2	8	60	2	1223	
7:00	7:15	1	11	35	5	0	2	74	40	2	26	10	31	2	10	47	5	1282	
7:15	7:30	3	9	34	9	0	3	71	37	0	31	9	31	2	7	56	3	1316	
7:30	7:45	2	15	38	2	4	5	70	33	1	30	14	37	2	16	51	5	1364	
7:45	8:00	0	6	45	9	0	2	74	45	2	30	9	51	1	11	64	2	1451	
8:00	8:15	0	13	47	7	0	5	56	38	0	49	8	48	1	10	50	3	1519	
8:15	8:30	0	4	48	7	3	2	74	38	0	43	10	35	1	13	70	5	1597	Peak
8:30	8:45	0	20	59	6	2	4	80	50	0	56	16	45	4	8	55	7	1582	
8:45	9:00	0	21	65	6	0	2	73	51	2	46	14	53	2	12	63	9	1523	
9:00	9:15	0	13	42	10	1	3	102	43	0	42	13	48	6	21	59	10	1458	
9:15	9:30	2	8	28	5	3	3	79	30	1	40	13	42	0	16	63	5		
9:30	9:45	0	7	32	6	1	4	84	40	0	46	14	53	3	15	45	3		
9:45	10:00	0	5	29	8	4	2	62	36	1	45	11	50	2	19	77	3		
14:00	14:15	1	9	26	4	0	1	65	35	1	37	14	48	2	19	45	8	1376	
14:15	14:30	0	9	22	2	3	2	71	46	1	40	14	64	1	13	50	10	1440	
14:30	14:45	0	10	20	7	0	2	67	43	0	31	10	66	4	9	75	9	1504	
14:45	15:00	0	15	38	3	2	0	84	27	1	38	12	59	2	13	59	7	1557	
15:00	15:15	0	10	32	2	0	1	73	32	0	60	21	46	0	12	82	8	1627	
15:15	15:30	0	10	43	4	2	3	97	39	1	41	14	54	1	12	81	10	1637	
15:30	15:45	0	7	33	7	1	2	66	36	1	56	20	60	2	21	85	9	1639	
15:45	16:00	0	13	36	8	0	4	74	37	3	42	16	60	6	26	94	11	1626	
16:00	16:15	1	9	39	3	2	1	58	29	2	50	16	56	5	17	93	8	1609	
16:15	16:30	0	12	49	5	0	3	70	40	1	48	18	49	2	16	86	15	1639	
16:30	16:45	1	12	37	5	2	2	57	29	0	54	16	50	6	25	91	6	1691	
16:45	17:00	0	10	54	5	0	1	71	37	0	59	14	45	5	13	89	10	1711	
17:00	17:15	0	15	39	9	1	5	78	35	0	47	14	44	6	13	103	10	1716	Peak
17:15	17:30	0	12	52	8	0	2	78	50	2	52	15	57	3	21	103	11		
17:30	17:45	1	13	36	7	1	6	58	36	3	65	19	47	10	18	84	9		
17:45	18:00	0	7	30	6	1	3	73	37	1	44	25	51	7	20	107	6		

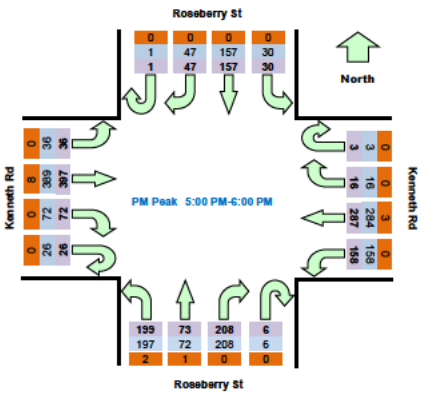
Peak Time		North Approach Roseberry St				East Approach Kenneth Rd				South Approach Roseberry St				West Approach Kenneth Rd				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
8:15	9:15	0	58	214	29	6	11	329	182	2	187	53	181	13	54	247	31	1597
17:00	18:00	1	47	157	30	3	16	287	158	6	208	73	199	26	72	397	36	1716

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy





ANNEXURE B: SIDRA INTERSECTION PERFORMANCE RESULTS
(8 SHEETS)

MOVEMENT SUMMARY

Site: 1 [(ExFridayPeakPM) Condmine Street / Kenneth Road (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Exising Friday PM Peak Hour Period (Network Folder: General)]

Existing Friday Peak Hour Period (3pm to 4pm)
Condamine Street / Kenneth Road
Job No. 250127
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 136 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Condamine Street (S)															
1	L2	All MCs	88	0.0	88	0.0	0.192	30.1	LOS C	3.1	30.1	0.52	0.59	0.52	40.6
2	T1	All MCs	1481	4.8	1481	4.8	0.717	29.8	LOS C	22.7	159.2	0.80	0.73	0.80	36.3
3	R2	All MCs	402	1.6	402	1.6	*0.690	28.8	LOS C	7.8	55.4	0.93	0.87	0.93	19.6
Approach			1972	4.0	1972	4.0	0.717	29.6	LOS C	22.7	159.2	0.81	0.75	0.81	31.4
East: Kenneth Road (E)															
4	L2	All MCs	389	1.6	389	1.6	*0.482	43.9	LOS D	8.3	58.8	0.72	0.88	0.72	21.6
5	T1	All MCs	68	0.0	68	0.0	0.191	72.2	LOS F	2.4	16.5	0.89	0.69	0.89	25.4
6	R2	All MCs	226	5.6	226	5.6	*0.996	131.0	LOS F	11.1	81.4	1.00	1.23	1.57	12.7
Approach			684	2.8	684	2.8	0.996	75.5	LOS F	11.1	81.4	0.83	0.98	1.02	14.3
North: Condamine Street (N)															
7	L2	All MCs	56	5.7	56	5.7	0.294	25.1	LOS B	3.6	38.7	0.76	0.68	0.76	28.0
8	T1	All MCs	1188	7.4	1188	7.4	*0.840	54.6	LOS D	22.3	156.1	0.97	0.92	1.03	26.5
9	R2	All MCs	57	0.0	57	0.0	0.126	42.8	LOS D	1.0	6.8	0.78	0.72	0.78	39.5
Approach			1301	7.0	1301	7.0	0.840	52.8	LOS D	22.3	156.1	0.96	0.90	1.01	24.8
West: Kenneth Road (W)															
10	L2	All MCs	68	1.5	68	1.5	0.431	9.7	LOS A	5.7	40.1	0.93	0.78	0.93	29.4
11	T1	All MCs	91	0.0	91	0.0	*0.431	90.0	LOS F	5.7	40.1	0.93	0.78	0.93	22.0
12	R2	All MCs	136	2.3	136	2.3	0.802	64.2	LOS E	5.0	35.4	1.00	0.93	1.19	23.8
Approach			295	1.4	295	1.4	0.802	59.4	LOS E	5.7	40.1	0.96	0.85	1.05	24.8
All Vehicles			4252	4.5	4252	4.5	0.996	46.2	LOS D	22.7	159.2	0.87	0.84	0.92	25.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 2 [(ExFridayPeakPM) Kenneth Road / Roseberry Street (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Exising Friday PM Peak Hour Period (Network Folder: General)]

Existing Friday Peak Hour Period (3pm to 4pm)
Kenneth Road / Roseberry Street
Job No. 250154
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Roseberry Street (S)															
1	L2	All MCs	216	0.0	216	0.0	0.860	18.8	LOS B	4.6	32.2	1.00	1.11	1.62	33.3
2	T1	All MCs	84	0.0	84	0.0	0.860	18.9	LOS B	4.6	32.2	1.00	1.11	1.62	35.7
3	R2	All MCs	220	0.0	220	0.0	0.860	22.1	LOS B	4.6	32.2	1.00	1.11	1.62	36.5
3u	U	All MCs	3	0.0	3	0.0	0.860	23.7	LOS B	4.6	32.2	1.00	1.11	1.62	40.8
Approach			523	0.0	523	0.0	0.860	20.2	LOS B	4.6	32.2	1.00	1.11	1.62	35.3
East: Kenneth Road (E)															
4	L2	All MCs	169	0.0	169	0.0	0.903	18.2	LOS B	5.6	39.9	1.00	1.11	1.58	37.9
5	T1	All MCs	393	2.9	393	2.9	0.903	18.4	LOS B	5.6	39.9	1.00	1.11	1.58	23.5
6	R2	All MCs	7	0.0	7	0.0	0.903	21.4	LOS B	5.6	39.9	1.00	1.11	1.58	28.5
6u	U	All MCs	8	0.0	8	0.0	0.903	23.0	LOS B	5.6	39.9	1.00	1.11	1.58	30.9
Approach			578	2.0	578	2.0	0.903	18.5	LOS B	5.6	39.9	1.00	1.11	1.58	29.9
North: Roseberry Street (N)															
7	L2	All MCs	22	9.5	22	9.5	0.466	13.3	LOS A	1.5	10.7	0.92	0.77	1.01	32.0
8	T1	All MCs	186	0.6	186	0.6	0.466	12.9	LOS A	1.5	10.7	0.92	0.77	1.01	40.6
9	R2	All MCs	61	3.4	61	3.4	0.466	16.2	LOS B	1.5	10.7	0.92	0.77	1.01	23.5
9u	U	All MCs	4	0.0	4	0.0	0.466	17.6	LOS B	1.5	10.7	0.92	0.77	1.01	25.6
Approach			274	1.9	274	1.9	0.466	13.7	LOS A	1.5	10.7	0.92	0.77	1.01	37.7
West: Kenneth Road (W)															
10	L2	All MCs	42	2.5	42	2.5	0.602	8.2	LOS A	2.0	14.3	0.55	0.71	0.60	33.4
11	T1	All MCs	422	1.2	422	1.2	0.602	8.1	LOS A	2.0	14.3	0.55	0.71	0.60	37.2
12	R2	All MCs	72	4.4	72	4.4	0.602	11.5	LOS A	2.0	14.3	0.55	0.71	0.60	43.3
12u	U	All MCs	13	0.0	13	0.0	0.602	13.0	LOS A	2.0	14.3	0.55	0.71	0.60	26.1
Approach			548	1.7	548	1.7	0.602	8.7	LOS A	2.0	14.3	0.55	0.71	0.60	37.9
All Vehicles			1923	1.4	1923	1.4	0.903	15.5	LOS B	5.6	39.9	0.86	0.95	1.23	34.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [(ExSaturdayPeakPM) Condmine Street / Kenneth Road (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Existing Saturday Peak Hour Period (Network Folder: General)]

Existing Saturday Peak Hour Period (12pm to 1pm)
Condamine Street / Kenneth Road
Job No. 250127
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 134 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Condamine Street (S)															
1	L2	All MCs	72	1.5	72	1.5	0.117	27.3	LOS B	1.9	16.9	0.48	0.60	0.48	41.0
2	T1	All MCs	1347	2.5	1347	2.5	0.648	27.3	LOS B	19.1	133.4	0.75	0.69	0.75	37.3
3	R2	All MCs	389	0.8	389	0.8	*0.715	30.1	LOS C	8.2	57.5	0.95	0.88	0.95	19.0
Approach			1808	2.1	1808	2.1	0.715	27.9	LOS B	19.1	133.4	0.79	0.73	0.79	32.1
East: Kenneth Road (E)															
4	L2	All MCs	356	0.9	356	0.9	*0.468	46.5	LOS D	7.9	55.8	0.76	0.89	0.76	20.6
5	T1	All MCs	51	2.1	51	2.1	0.176	77.7	LOS F	1.8	12.7	0.91	0.69	0.91	24.4
6	R2	All MCs	247	0.9	247	0.9	*0.940	108.7	LOS F	10.7	75.6	1.00	1.15	1.39	15.3
Approach			654	1.0	654	1.0	0.940	72.4	LOS F	10.7	75.6	0.86	0.98	1.01	14.8
North: Condamine Street (N)															
7	L2	All MCs	67	0.0	67	0.0	0.137	21.2	LOS B	1.9	16.0	0.65	0.67	0.65	31.1
8	T1	All MCs	1281	1.9	1281	1.9	*0.868	56.1	LOS D	25.7	179.9	0.99	0.96	1.08	26.4
9	R2	All MCs	49	0.0	49	0.0	0.095	41.8	LOS C	0.8	5.7	0.73	0.71	0.73	40.7
Approach			1398	1.7	1398	1.7	0.868	53.9	LOS D	25.7	179.9	0.96	0.94	1.04	24.4
West: Kenneth Road (W)															
10	L2	All MCs	63	0.0	63	0.0	0.313	10.1	LOS A	3.6	25.1	0.91	0.76	0.91	29.1
11	T1	All MCs	39	0.0	39	0.0	*0.313	132.5	LOS F	3.6	25.1	0.91	0.76	0.91	21.6
12	R2	All MCs	114	1.9	114	1.9	0.605	54.1	LOS D	3.9	27.9	1.00	0.79	1.01	26.2
Approach			216	1.0	216	1.0	0.605	55.4	LOS D	3.9	27.9	0.96	0.77	0.96	26.4
All Vehicles			4076	1.7	4076	1.7	0.940	45.4	LOS D	25.7	179.9	0.87	0.84	0.92	25.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 2 [(ExSaturdayPeakPM) Kenneth Road / Roseberry Street (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Existing Saturday Peak Hour Period (Network Folder: General)]

Existing Saturday Peak Hour Period (12pm to 1pm)
Kenneth Road / Roseberry Street
Job No. 250154
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Roseberry Street (S)															
1	L2	All MCs	263	0.8	263	0.8	0.836	16.2	LOS B	4.5	31.4	1.00	1.01	1.48	35.4
2	T1	All MCs	92	0.0	92	0.0	0.836	16.3	LOS B	4.5	31.4	1.00	1.01	1.48	37.7
3	R2	All MCs	201	0.5	201	0.5	0.836	19.4	LOS B	4.5	31.4	1.00	1.01	1.48	38.3
3u	U	All MCs	7	0.0	7	0.0	0.836	21.0	LOS B	4.5	31.4	1.00	1.01	1.48	42.4
Approach			563	0.6	563	0.6	0.836	17.4	LOS B	4.5	31.4	1.00	1.01	1.48	37.1
East: Kenneth Road (E)															
4	L2	All MCs	220	0.5	220	0.5	0.859	18.2	LOS B	4.9	34.4	1.00	1.07	1.59	37.9
5	T1	All MCs	337	0.6	337	0.6	0.859	18.4	LOS B	4.9	34.4	1.00	1.07	1.59	23.5
6	R2	All MCs	15	0.0	15	0.0	0.859	21.4	LOS B	4.9	34.4	1.00	1.07	1.59	28.5
6u	U	All MCs	1	0.0	1	0.0	0.859	23.1	LOS B	4.9	34.4	1.00	1.07	1.59	30.9
Approach			573	0.6	573	0.6	0.859	18.4	LOS B	4.9	34.4	1.00	1.07	1.59	31.3
North: Roseberry Street (N)															
7	L2	All MCs	22	0.0	22	0.0	0.428	13.1	LOS A	1.3	9.2	0.93	0.79	1.01	32.6
8	T1	All MCs	156	0.0	156	0.0	0.428	13.2	LOS A	1.3	9.2	0.93	0.79	1.01	40.4
9	R2	All MCs	47	2.2	47	2.2	0.428	16.5	LOS B	1.3	9.2	0.93	0.79	1.01	23.2
9u	U	All MCs	2	0.0	2	0.0	0.428	18.0	LOS B	1.3	9.2	0.93	0.79	1.01	25.4
Approach			227	0.5	227	0.5	0.428	13.9	LOS A	1.3	9.2	0.93	0.79	1.01	37.7
West: Kenneth Road (W)															
10	L2	All MCs	53	50.0	53	50.0	0.755	12.3	LOS A	3.5	28.4	0.70	0.85	0.88	26.9
11	T1	All MCs	380	0.8	380	0.8	0.755	10.6	LOS A	3.5	28.4	0.70	0.85	0.88	33.4
12	R2	All MCs	166	50.0	166	50.0	0.755	15.6	LOS B	3.5	28.4	0.70	0.85	0.88	38.0
12u	U	All MCs	23	50.0	23	50.0	0.755	17.2	LOS B	3.5	28.4	0.70	0.85	0.88	21.6
Approach			622	20.0	622	20.0	0.755	12.3	LOS A	3.5	28.4	0.70	0.85	0.88	34.4
All Vehicles			1985	6.6	1985	6.6	0.859	15.7	LOS B	4.9	34.4	0.90	0.95	1.27	34.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [(ExWednesdayPeakAM) Condmine Street / Kenneth Road (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Existing Wednesday AM Peak Hour Period (Network Folder: General)]

Existing Wednesday AM Peak Hour Period (8:15am to 9:15am)
Condamine Street / Kenneth Road
Job No. 250127
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Condamine Street (S)															
1	L2	All MCs	41	0.0	41	0.0	0.192	21.4	LOS B	2.5	28.1	0.53	0.52	0.53	42.3
2	T1	All MCs	1305	7.7	1305	7.7	0.593	21.7	LOS B	15.0	105.0	0.71	0.64	0.71	39.8
3	R2	All MCs	240	2.2	240	2.2	*0.454	21.9	LOS B	3.6	25.8	0.82	0.80	0.82	23.3
Approach			1586	6.7	1586	6.7	0.593	21.7	LOS B	15.0	105.0	0.72	0.66	0.72	36.6
East: Kenneth Road (E)															
4	L2	All MCs	278	3.8	278	3.8	*0.393	40.0	LOS C	6.3	45.9	0.73	0.85	0.73	19.8
5	T1	All MCs	81	1.3	81	1.3	0.240	62.4	LOS E	2.5	17.9	0.90	0.70	0.90	26.7
6	R2	All MCs	240	3.9	240	3.9	0.768	70.6	LOS F	7.7	55.4	0.99	0.99	1.10	20.7
Approach			599	3.5	599	3.5	0.768	55.3	LOS D	7.7	55.4	0.86	0.89	0.90	18.5
North: Condamine Street (N)															
7	L2	All MCs	46	4.5	46	4.5	*0.300	22.2	LOS B	3.4	38.0	0.74	0.66	0.74	29.7
8	T1	All MCs	1198	8.6	1198	8.6	*0.772	40.7	LOS C	17.6	123.4	0.93	0.84	0.94	30.5
9	R2	All MCs	22	0.0	22	0.0	0.039	30.9	LOS C	0.3	2.3	0.67	0.67	0.67	42.5
Approach			1266	8.3	1266	8.3	0.772	39.9	LOS C	17.6	123.4	0.92	0.83	0.93	28.8
West: Kenneth Road (W)															
10	L2	All MCs	24	4.3	24	4.3	0.297	9.8	LOS A	3.2	22.6	0.91	0.73	0.91	31.3
11	T1	All MCs	78	0.0	78	0.0	*0.297	60.0	LOS E	3.2	22.6	0.91	0.73	0.91	24.0
12	R2	All MCs	95	1.1	95	1.1	0.411	44.4	LOS D	2.7	19.3	0.95	0.76	0.95	29.0
Approach			197	1.1	197	1.1	0.411	46.3	LOS D	3.2	22.6	0.93	0.75	0.93	27.6
All Vehicles			3648	6.4	3648	6.4	0.772	34.9	LOS C	17.6	123.4	0.82	0.76	0.83	29.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 2 [(ExWednesdayPeakAM) Kenneth Road / Roseberry Street (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Existing Wednesday AM Peak Hour Period (Network Folder: General)]

Existing Wednesday AM Peak Hour Period (8:15am to 9:15am)
Kenneth Road / Roseberry Street
Job No. 250154
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Roseberry Street (S)															
1	L2	All MCs	191	2.8	191	2.8	0.557	9.7	LOS A	1.9	13.9	0.81	0.76	0.92	41.6
2	T1	All MCs	56	0.0	56	0.0	0.557	9.6	LOS A	1.9	13.9	0.81	0.76	0.92	42.9
3	R2	All MCs	197	3.7	197	3.7	0.557	13.0	LOS A	1.9	13.9	0.81	0.76	0.92	42.8
3u	U	All MCs	2	50.0	2	50.0	0.557	17.0	LOS B	1.9	13.9	0.81	0.76	0.92	44.6
Approach			445	3.1	445	3.1	0.557	11.2	LOS A	1.9	13.9	0.81	0.76	0.92	42.4
East: Kenneth Road (E)															
4	L2	All MCs	192	1.1	192	1.1	0.629	9.4	LOS A	2.5	18.1	0.82	0.72	0.93	44.7
5	T1	All MCs	346	4.0	346	4.0	0.629	9.7	LOS A	2.5	18.1	0.82	0.72	0.93	33.0
6	R2	All MCs	12	0.0	12	0.0	0.629	12.6	LOS A	2.5	18.1	0.82	0.72	0.93	36.3
6u	U	All MCs	6	0.0	6	0.0	0.629	14.2	LOS A	2.5	18.1	0.82	0.72	0.93	38.5
Approach			556	2.8	556	2.8	0.629	9.7	LOS A	2.5	18.1	0.82	0.72	0.93	39.4
North: Roseberry Street (N)															
7	L2	All MCs	31	10.3	31	10.3	0.394	9.5	LOS A	1.2	8.3	0.75	0.67	0.75	35.7
8	T1	All MCs	225	1.4	225	1.4	0.394	9.2	LOS A	1.2	8.3	0.75	0.67	0.75	44.1
9	R2	All MCs	61	3.4	61	3.4	0.394	12.4	LOS A	1.2	8.3	0.75	0.67	0.75	28.4
9u	U	All MCs	1	0.0	1	0.0	0.394	13.8	LOS A	1.2	8.3	0.75	0.67	0.75	28.4
Approach			318	2.6	318	2.6	0.394	9.8	LOS A	1.2	8.3	0.75	0.67	0.75	41.9
West: Kenneth Road (W)															
10	L2	All MCs	33	0.0	33	0.0	0.375	6.6	LOS A	0.9	6.5	0.43	0.63	0.43	35.3
11	T1	All MCs	260	2.4	260	2.4	0.375	6.7	LOS A	0.9	6.5	0.43	0.63	0.43	38.7
12	R2	All MCs	57	1.9	57	1.9	0.375	9.9	LOS A	0.9	6.5	0.43	0.63	0.43	44.7
12u	U	All MCs	14	0.0	14	0.0	0.375	11.5	LOS A	0.9	6.5	0.43	0.63	0.43	28.4
Approach			363	2.0	363	2.0	0.375	7.4	LOS A	0.9	6.5	0.43	0.63	0.43	39.6
All Vehicles			1682	2.7	1682	2.7	0.629	9.6	LOS A	2.5	18.1	0.72	0.70	0.78	40.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [(ExWednesdayPeakPM) Condmine Street / Kenneth Road (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Existing Wednesday PM Peak Hour Period (Network Folder: General)]

Existing Wednesday PM Peak Hour Period (4:45pm to 5:45pm)
Condamine Street / Kenneth Road
Job No. 250127
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 139 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Condamine Street (S)															
1	L2	All MCs	41	0.0	41	0.0	0.199	26.6	LOS B	3.0	33.8	0.55	0.54	0.55	40.0
2	T1	All MCs	1305	7.7	1305	7.7	0.623	28.4	LOS B	18.5	129.4	0.74	0.67	0.74	36.6
3	R2	All MCs	240	2.2	240	2.2	*0.438	25.0	LOS B	4.1	29.1	0.82	0.79	0.82	21.5
Approach			1586	6.7	1586	6.7	0.623	27.8	LOS B	18.5	129.4	0.75	0.69	0.75	32.9
East: Kenneth Road (E)															
4	L2	All MCs	278	3.8	278	3.8	*0.334	30.2	LOS C	5.6	40.7	0.68	0.80	0.68	23.9
5	T1	All MCs	81	1.3	81	1.3	0.253	77.7	LOS F	3.0	20.9	0.91	0.71	0.91	24.2
6	R2	All MCs	240	3.9	240	3.9	0.801	86.4	LOS F	8.9	64.7	1.00	1.01	1.12	18.8
Approach			599	3.5	599	3.5	0.801	59.1	LOS E	8.9	64.7	0.84	0.87	0.89	17.7
North: Condamine Street (N)															
7	L2	All MCs	46	4.5	46	4.5	*0.340	25.6	LOS B	4.2	47.2	0.80	0.71	0.80	25.3
8	T1	All MCs	1198	8.6	1198	8.6	*0.877	63.3	LOS E	23.8	166.6	0.98	0.97	1.09	24.4
9	R2	All MCs	22	0.0	22	0.0	0.047	46.2	LOS D	0.4	3.0	0.74	0.68	0.74	39.4
Approach			1266	8.3	1266	8.3	0.877	61.7	LOS E	23.8	166.6	0.97	0.95	1.07	22.4
West: Kenneth Road (W)															
10	L2	All MCs	24	4.3	24	4.3	0.315	10.6	LOS A	3.7	26.4	0.92	0.74	0.92	29.0
11	T1	All MCs	78	0.0	78	0.0	*0.315	70.9	LOS F	3.7	26.4	0.92	0.74	0.92	21.7
12	R2	All MCs	95	1.1	95	1.1	0.337	49.1	LOS D	3.1	22.2	0.89	0.76	0.89	27.6
Approach			197	1.1	197	1.1	0.337	53.0	LOS D	3.7	26.4	0.91	0.75	0.91	25.6
All Vehicles			3648	6.4	3648	6.4	0.877	46.1	LOS D	23.8	166.6	0.85	0.81	0.89	25.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 2 [(ExWednesdayPeakPM) Kenneth Road / Roseberry Street (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Existing Wednesday PM Peak Hour Period (Network Folder: General)]

Existing Wednesday PM Peak Hour Period (4:45pm to 5:45pm)
Kenneth Road / Roseberry Street
Job No. 250154
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Roseberry Street (S)															
1	L2	All MCs	203	2.6	203	2.6	0.634	10.1	LOS A	2.4	16.9	0.84	0.77	0.99	41.1
2	T1	All MCs	65	0.0	65	0.0	0.634	10.1	LOS A	2.4	16.9	0.84	0.77	0.99	42.4
3	R2	All MCs	235	0.0	235	0.0	0.634	13.2	LOS A	2.4	16.9	0.84	0.77	0.99	42.7
3u	U	All MCs	5	0.0	5	0.0	0.634	14.9	LOS B	2.4	16.9	0.84	0.77	0.99	46.3
Approach			508	1.0	508	1.0	0.634	11.6	LOS A	2.4	16.9	0.84	0.77	0.99	42.2
East: Kenneth Road (E)															
4	L2	All MCs	166	0.0	166	0.0	0.594	8.7	LOS A	2.0	14.2	0.78	0.69	0.87	45.5
5	T1	All MCs	300	1.1	300	1.1	0.594	8.9	LOS A	2.0	14.2	0.78	0.69	0.87	34.2
6	R2	All MCs	15	0.0	15	0.0	0.594	11.9	LOS A	2.0	14.2	0.78	0.69	0.87	37.2
6u	U	All MCs	2	0.0	2	0.0	0.594	13.6	LOS A	2.0	14.2	0.78	0.69	0.87	39.4
Approach			483	0.7	483	0.7	0.594	8.9	LOS A	2.0	14.2	0.78	0.69	0.87	40.4
North: Roseberry Street (N)															
7	L2	All MCs	31	0.0	31	0.0	0.429	11.5	LOS A	1.3	9.1	0.87	0.76	0.92	34.2
8	T1	All MCs	191	0.6	191	0.6	0.429	11.6	LOS A	1.3	9.1	0.87	0.76	0.92	41.8
9	R2	All MCs	53	0.0	53	0.0	0.429	14.7	LOS B	1.3	9.1	0.87	0.76	0.92	25.1
9u	U	All MCs	1	0.0	1	0.0	0.429	16.4	LOS B	1.3	9.1	0.87	0.76	0.92	26.5
Approach			275	0.4	275	0.4	0.429	12.2	LOS A	1.3	9.1	0.87	0.76	0.92	39.4
West: Kenneth Road (W)															
10	L2	All MCs	42	0.0	42	0.0	0.574	7.9	LOS A	1.8	12.8	0.61	0.72	0.64	33.8
11	T1	All MCs	399	1.8	399	1.8	0.574	7.9	LOS A	1.8	12.8	0.61	0.72	0.64	37.3
12	R2	All MCs	68	0.0	68	0.0	0.574	11.1	LOS A	1.8	12.8	0.61	0.72	0.64	43.7
12u	U	All MCs	25	0.0	25	0.0	0.574	12.7	LOS A	1.8	12.8	0.61	0.72	0.64	26.4
Approach			535	1.4	535	1.4	0.574	8.5	LOS A	1.8	12.8	0.61	0.72	0.64	37.9
All Vehicles			1801	0.9	1801	0.9	0.634	10.1	LOS A	2.4	16.9	0.76	0.73	0.84	40.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

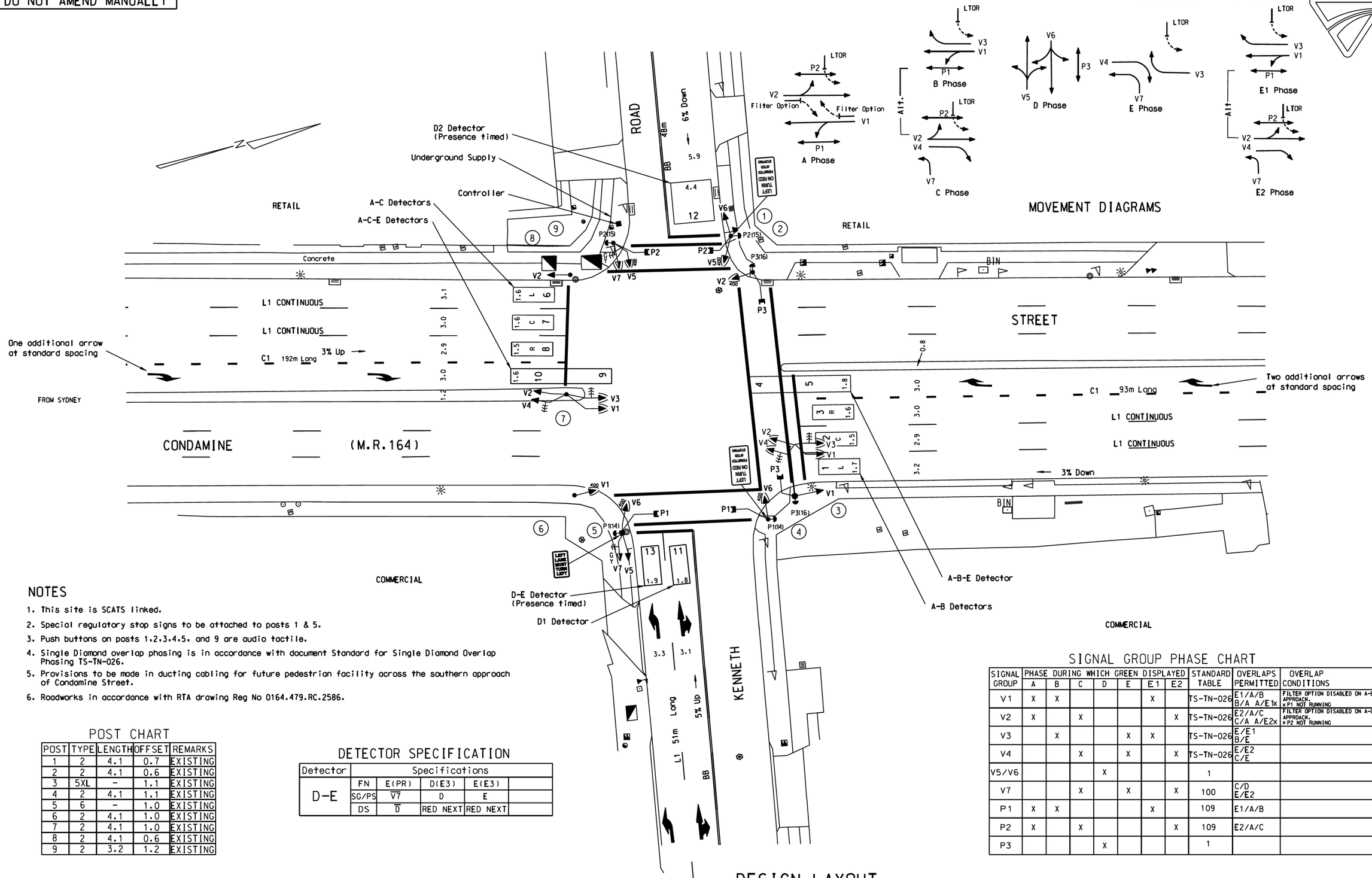
ANNEXURE C: TCS PLANS
(1 SHEET)

DRAWN BY CADD
DO NOT AMEND MANUALLY

DATE IN SERVICE : 24-06-74
RECONSTRUCTED : 04-03-85

R T A

0164.479.VV.0893



NOTES

1. This site is SCATS linked.
2. Special regulatory stop signs to be attached to posts 1 & 5.
3. Push buttons on posts 1.2.3.4.5. and 9 are audio tactile.
4. Single Diamond overlap phasing is in accordance with document Standard for Single Diamond Overlap Phasing TS-TN-026.
5. Provisions to be made in ducting cabling for future pedestrian facility across the southern approach of Condamine Street.
6. Roadworks in accordance with RTA drawing Reg No 0164.479.RC.2586.

POST CHART

POST	TYPE	LENGTH	OFFSET	REMARKS
1	2	4.1	0.7	EXISTING
2	2	4.1	0.6	EXISTING
3	5XL	-	1.1	EXISTING
4	2	4.1	1.1	EXISTING
5	6	-	1.0	EXISTING
6	2	4.1	1.0	EXISTING
7	2	4.1	1.0	EXISTING
8	2	4.1	0.6	EXISTING
9	2	3.2	1.2	EXISTING

DETECTOR SPECIFICATION

Detector	Specifications				
D-E	FN	E(PR)	D(E3)	E(E3)	
	SG/PS	V7	D	E	
	DS	D	RED NEXT	RED NEXT	

SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE DURING WHICH GREEN DISPLAYED							STANDARD TABLE	OVERLAPS PERMITTED	OVERLAP CONDITIONS
	A	B	C	D	E	E1	E2			
V1	X	X				X		TS-TN-026	E1/A/B B/A A/E1x	FILTER OPTION DISABLED ON A-B APPROACH. x P1 NOT RUNNING
V2	X		X				X	TS-TN-026	E2/A/C C/A A/E2x	FILTER OPTION DISABLED ON A-C APPROACH. x P2 NOT RUNNING
V3		X			X	X		TS-TN-026	E/E1 B/E	
V4			X		X		X	TS-TN-026	E/E2 C/E	
V5/V6				X				1		
V7			X		X		X	100	C/D E/E2	
P1	X	X				X		109	E1/A/B	
P2	X		X				X	109	E2/A/C	
P3				X				1		

DESIGN LAYOUT

A	ORIGINAL ISSUE
B	Issue J/I SY3087 7-3-85 Left turn pavement arrows removed from the general purpose approach of Kenneth Road.
C	Issue J/I SY3502 29-4-85 V5 & V6 lanterns moved from post 9 to post 10. Post 10 is moved 0.2m west of ped line. Posts 7 & 8 redimensioned.
D	Issue J/I SYN.4425 18.7.89 LTOR from Kenneth Rd. into Condamine St.
E	ISSUE J1 SE 0446 ADD PAVEMENT ARROWS REMOVE LTOR ON POSTS 6&9 ADD L.L.L.M.T.L. SIGN. POST 6. TH 7-7-94
'F'	Issue J1 29-4-96 W.A.E. Post 6 was type 2. Lawson/Meyer
'G'	Issue J1SS539 9-7-09 Amended:Post chart, marked foot crossing-line marking post 4 to 5XL most arm. Redrawn on new survey dated 25-7-2008. U.S.L. KI 11-12-2009
I	ISSUE J1 SS539 09/07/2009 'M' ISSUE PREVIOUSLY ISSUED BUT NOT COMPLETE. ADDITIONAL DETAIL ADDED TO SHEET 5 & 6. PROVIDE SEPARATE 'V5' & 'V6' SIGNAL GROUPS ON PLAN. AMEND 'D' DET LABELS & Nos. ADDED 'D-E' DET LOGIC. TB 01/02/2010
J	ISSUE 29-07-2010 WAE. PED XING PAINTWORK ALTERED. IM LC

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT	□	SYMBOLS/ABBS.	BD003.5
STOP VALVE	▲	STD POSIT	BD001.3
GAS VALVE	⋕	PRES. DETECT	2C005.9
SEWER MANHOLE	Ⓢ	TYPE 2 POSTS	PM202.1
TELECOM PIT	◪	DET SCHED EXP	VD018.10
ELECT LIGHT POLE	☼	CABLE INSTALL.	VV893.5
POWER POLE	○	SINGLE DD.NOTE	VD018-5
STAY POLE	⊘		
TELEPHONE BOX	◫		
TELECOM PILLAR	◕		

SURVEYOR :N. THOMPSON
DATE :18.11.64
FLD. BK. :164F 2562
SURVEYOR :RTA
DATE : Re-surveyed 25-07-2008
U.B.D. Ref. Map 43 F7
DESIGNED K.DRITMANIS
DRAWN K.DRITMANIS
CHECKED W.MILLER

THESE DRAWINGS HAVE BEEN TAKEN TO THE SITE OF THE WORK AND ARE RECOMMENDED FOR ORIGINAL SIGNATURES REDER SHEET 13 ISSUE A
SUPERVISING ENGINEER
DATE 8.3.83

APPROVED
FOR ORIGINAL SIGNATURES REDER SHEET 13 ISSUE A
METROPOLITAN ENGINEER
DATE 8.3.83

Roads and Traffic Authority.N.S.W

WARRINGAH COUNCIL AREA
TRAFFIC SIGNALS AT
CONDAMINE STREET AND KENNETH ROAD
MANLY VALE

DESIGN LAYOUT TCS No 0893

DESIGN OFFICE PARRAMATTA - PROJECT DESIGN SERVICES
CADD FILE: VV0893_13J.dgn
SCALE 5 0 (1:200) 5 10
ISSUE J
FILE 479 TS 206
SUPERSEDES SHEET/ISSUE 13/I
REGN. 0164.479.VV.0893
SHEET 13

$DATE$ $TIME$ $FILEABBREV$
VV0893_13J.dgn 30/07/2010 2:47:55 PM

ANNEXURE D: PHASE DURATION REVIEW
(4 SHEETS)

Intersection	Condamine Street / Kenneth Road
Period Start	Period Finish
3:00:00 PM	3:30:00 PM

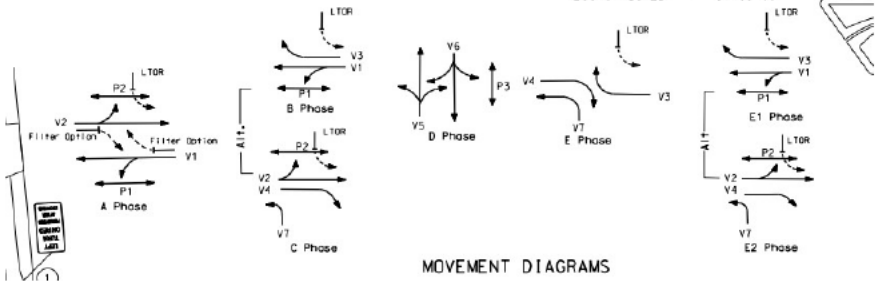
No. of Cycle Recorded	Mod
11	

Phase	Min	Max	Average	Occurences
A	30	80	53	100%
X	16	16	16	9%
Y	11	19	15	91%
C	9	20	16	36%
D	28	37	31	100%
E	5	27	21	82%
E2	7	44	22	73%

Cycle Time	111	162	138

Cycle 1	TIME START			TIME END			Phase Duration (s)	Cycle Time (s)			
Phase	HR	MIN	SEC	HR	MIN	SEC					
A	15	0	54	15	1	39	45	111		3:00:54 PM	3:01:39 PM
X	15	1	39	15	1	55	16			3:01:39 PM	3:01:55 PM
D	15	1	55	15	2	24	29			3:01:55 PM	3:02:24 PM
E	15	2	24	15	2	45	21			3:02:24 PM	3:02:45 PM
A	15	2	45	15	4	5	80	162		3:02:45 PM	3:04:05 PM
Y	15	4	5	15	4	17	12			3:04:05 PM	3:04:17 PM
D	15	4	17	15	4	47	30			3:04:17 PM	3:04:47 PM
E	15	4	47	15	5	9	22			3:04:47 PM	3:05:09 PM
E2	15	5	9	15	5	27	18			3:05:09 PM	3:05:27 PM
A	15	5	27	15	6	29	62	133		3:05:27 PM	3:06:29 PM
Y	15	6	29	15	6	44	15			3:06:29 PM	3:06:44 PM
D	15	6	44	15	7	12	28			3:06:44 PM	3:07:12 PM
E	15	7	12	15	7	33	21			3:07:12 PM	3:07:33 PM
E2	15	7	33	15	7	40	7			3:07:33 PM	3:07:40 PM
A	15	7	40	15	8	44	64	151		3:07:40 PM	3:08:44 PM
C	15	8	44	15	8	58	14			3:08:44 PM	3:08:58 PM
Y	15	8	58	15	9	17	19			3:08:58 PM	3:09:17 PM
D	15	9	17	15	9	46	29			3:09:17 PM	3:09:46 PM
E	15	9	46	15	10	11	25			3:09:46 PM	3:10:11 PM
A	15	10	11	15	11	0	49	155		3:10:11 PM	3:11:00 PM
C	15	11	0	15	11	20	20			3:11:00 PM	3:11:20 PM
Y	15	11	20	15	11	37	17			3:11:20 PM	3:11:37 PM
D	15	11	37	15	12	6	29			3:11:37 PM	3:12:06 PM
E	15	12	6	15	12	27	21			3:12:06 PM	3:12:27 PM
E2	15	12	27	15	12	46	19			3:12:27 PM	3:12:46 PM
A	15	12	46	15	13	16	30	115		3:12:46 PM	3:13:16 PM
Y	15	13	16	15	13	29	13			3:13:16 PM	3:13:29 PM
D	15	13	29	15	13	57	28			3:13:29 PM	3:13:57 PM
E2	15	13	57	15	14	41	44			3:13:57 PM	3:14:41 PM
A	15	14	41	15	15	16	35	107		3:14:41 PM	3:15:16 PM
Y	15	15	16	15	15	29	13			3:15:16 PM	3:15:29 PM
D	15	15	29	15	16	2	33			3:15:29 PM	3:16:02 PM
E2	15	16	2	15	16	28	26			3:16:02 PM	3:16:28 PM
A	15	16	28	15	17	34	66	158		3:16:28 PM	3:17:34 PM
Y	15	17	34	15	17	49	15			3:17:34 PM	3:17:49 PM
D	15	17	49	15	18	17	28			3:17:49 PM	3:18:17 PM
E	15	18	17	15	18	44	27			3:18:17 PM	3:18:44 PM
E2	15	18	44	15	19	6	22			3:18:44 PM	3:19:06 PM
A	15	19	6	15	19	58	52	144		3:19:06 PM	3:19:58 PM
C	15	19	58	15	20	17	19			3:19:58 PM	3:20:17 PM
Y	15	20	17	15	20	31	14			3:20:17 PM	3:20:31 PM
D	15	20	31	15	21	8	37			3:20:31 PM	3:21:08 PM
E	15	21	8	15	21	30	22			3:21:08 PM	3:21:30 PM
A	15	21	30	15	22	28	58	154		3:21:30 PM	3:22:28 PM
C	15	22	28	15	22	37	9			3:22:28 PM	3:22:37 PM
Y	15	22	37	15	22	55	18			3:22:37 PM	3:22:55 PM
D	15	22	55	15	23	28	33			3:22:55 PM	3:23:28 PM
E	15	23	28	15	23	55	27			3:23:28 PM	3:23:55 PM
E2	15	23	55	15	24	4	9			3:23:55 PM	3:24:04 PM
A	15	24	4	15	24	45	41	126		3:24:04 PM	3:24:45 PM
Y	15	24	45	15	24	56	11			3:24:45 PM	3:24:56 PM
D	15	24	56	15	25	33	37			3:24:56 PM	3:25:33 PM
E	15	25	33	15	25	38	5			3:25:33 PM	3:25:38 PM
E2	15	25	38	15	26	10	32			3:25:38 PM	3:26:10 PM

DATE IN SERVICE : 24-06-74
RECONSTRUCTED : 04-03-85



MOVEMENT DIAGRAMS

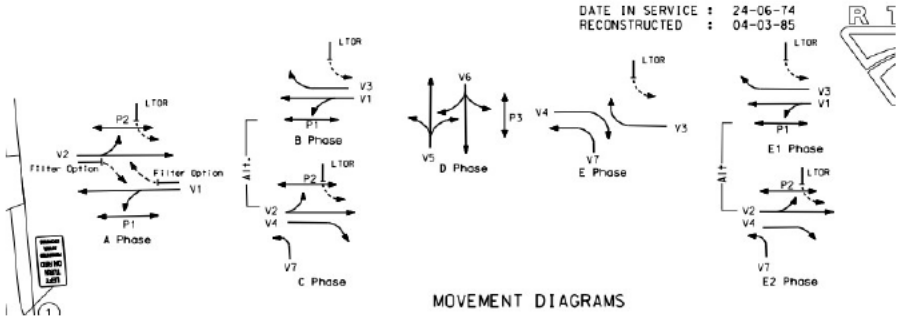
Intersection	Condamine Street / Kenneth Road
Period Start	Period Finish
12:00:00 PM	12:30:00 PM

No. of Cycle Recorded	Mod
10	

Phase	Min	Max	Average	Occurences
A	47	70	57	100%
C	13	17	16	40%
Y	13	22	16	90%
D	17	31	26	100%
E	16	25	20	100%
E2	2	21	15	70%
X	15	15	15	10%

Cycle Time	125	149	135

Cycle 1	TIME START			TIME END			Phase Duration (s)	Cycle Time (s)			
Phase	HR	MIN	SEC	HR	MIN	SEC					
A	12	1	19	12	2	6	47	133		12:01:19 PM	12:02:06 PM
C	12	2	6	12	2	19	13			12:02:06 PM	12:02:19 PM
Y	12	2	19	12	2	39	20			12:02:19 PM	12:02:39 PM
D	12	2	39	12	2	59	20			12:02:39 PM	12:02:59 PM
E	12	2	59	12	3	19	20			12:02:59 PM	12:03:19 PM
E2	12	3	19	12	3	32	13			12:03:19 PM	12:03:32 PM
A	12	3	32	12	4	21	49	125		12:03:32 PM	12:04:21 PM
Y	12	4	21	12	4	34	13			12:04:21 PM	12:04:34 PM
D	12	4	34	12	5	3	29			12:04:34 PM	12:05:03 PM
E	12	5	3	12	5	22	19			12:05:03 PM	12:05:22 PM
E2	12	5	22	12	5	37	15			12:05:22 PM	12:05:37 PM
A	12	5	37	12	6	40	63	139		12:05:37 PM	12:06:40 PM
Y	12	6	40	12	6	53	13			12:06:40 PM	12:06:53 PM
D	12	6	53	12	7	14	21			12:06:53 PM	12:07:14 PM
E	12	7	14	12	7	35	21			12:07:14 PM	12:07:35 PM
E2	12	7	35	12	7	56	21			12:07:35 PM	12:07:56 PM
A	12	7	56	12	8	56	60	128		12:07:56 PM	12:08:56 PM
Y	12	8	56	12	9	16	20			12:08:56 PM	12:09:16 PM
D	12	9	16	12	9	41	25			12:09:16 PM	12:09:41 PM
E	12	9	41	12	10	4	23			12:09:41 PM	12:10:04 PM
A	12	10	4	12	11	14	70	149		12:10:04 PM	12:11:14 PM
C	12	11	14	12	11	30	16			12:11:14 PM	12:11:30 PM
X	12	11	30	12	11	45	15			12:11:30 PM	12:11:45 PM
D	12	11	45	12	12	14	29			12:11:45 PM	12:12:14 PM
E	12	12	14	12	12	33	19			12:12:14 PM	12:12:33 PM
A	12	12	33	12	13	27	54	137		12:12:33 PM	12:13:27 PM
C	12	13	27	12	13	44	17			12:13:27 PM	12:13:44 PM
Y	12	13	44	12	14	0	16			12:13:44 PM	12:14:00 PM
D	12	14	0	12	14	29	29			12:14:00 PM	12:14:29 PM
E	12	14	29	12	14	48	19			12:14:29 PM	12:14:48 PM
E2	12	14	48	12	14	50	2			12:14:48 PM	12:14:50 PM
A	12	14	50	12	15	46	56	148		12:14:50 PM	12:15:46 PM
C	12	15	46	12	16	3	17			12:15:46 PM	12:16:03 PM
Y	12	16	3	12	16	25	22			12:16:03 PM	12:16:25 PM
D	12	16	25	12	16	42	17			12:16:25 PM	12:16:42 PM
E	12	16	42	12	16	58	16			12:16:42 PM	12:16:58 PM
E2	12	16	58	12	17	18	20			12:16:58 PM	12:17:18 PM
A	12	17	18	12	18	11	53	134		12:17:18 PM	12:18:11 PM
Y	12	18	11	12	18	26	15			12:18:11 PM	12:18:26 PM
D	12	18	26	12	18	52	26			12:18:26 PM	12:18:52 PM
E	12	18	52	12	19	17	25			12:18:52 PM	12:19:17 PM
E2	12	19	17	12	19	32	15			12:19:17 PM	12:19:32 PM
A	12	19	32	12	20	34	62	141		12:19:32 PM	12:20:34 PM
Y	12	20	34	12	20	49	15			12:20:34 PM	12:20:49 PM
D	12	20	49	12	21	17	28			12:20:49 PM	12:21:17 PM
E	12	21	17	12	21	37	20			12:21:17 PM	12:21:37 PM
E2	12	21	37	12	21	53	16			12:21:37 PM	12:21:53 PM
A	12	21	53	12	22	48	55	119		12:21:53 PM	12:22:48 PM
Y	12	22	48	12	23	2	14			12:22:48 PM	12:23:02 PM
D	12	23	2	12	23	33	31			12:23:02 PM	12:23:33 PM
E	12	23	33	12	23	52	19			12:23:33 PM	12:23:52 PM



MOVEMENT DIAGRAMS

Intersection	Condamine Street / Kenneth Road
Period Start	Period Finish
8:15:00 AM	8:45:00 AM

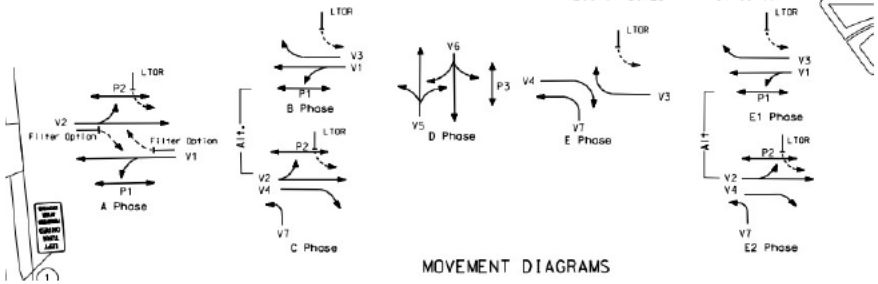
No. of Cycle Recorded	Mod
10	

Phase	Min	Max	Average	Occurences
A	36	68	50	100%
C	13	13	13	10%
Y	12	16	14	90%
D	24	29	28	90%
E	19	25	22	60%
E2	6	30	16	90%
X	11	11	11	10%

Cycle Time	107	133	117

Cycle 1	TIME START			TIME END			Phase Duration (s)	Cycle Time (s)			
Phase	HR	MIN	SEC	HR	MIN	SEC					
A	8	16	57	8	17	55	58	124		8:16:57 AM	8:17:55 AM
Y	8	17	55	8	18	7	12			8:17:55 AM	8:18:07 AM
D	8	18	7	8	18	35	28			8:18:07 AM	8:18:35 AM
E2	8	18	35	8	19	1	26			8:18:35 AM	8:19:01 AM
A	8	19	1	8	19	49	48	111		8:19:01 AM	8:19:49 AM
Y	8	19	49	8	20	3	14			8:19:49 AM	8:20:03 AM
D	8	20	3	8	20	30	27			8:20:03 AM	8:20:30 AM
E2	8	20	30	8	20	52	22			8:20:30 AM	8:20:52 AM
A	8	20	52	8	21	50	58	133		8:20:52 AM	8:21:50 AM
C	8	21	50	8	22	3	13			8:21:50 AM	8:22:03 AM
Y	8	22	3	8	22	19	16			8:22:03 AM	8:22:19 AM
D	8	22	19	8	22	47	28			8:22:19 AM	8:22:47 AM
E2	8	22	47	8	23	5	18			8:22:47 AM	8:23:05 AM
A	8	23	5	8	23	41	36	109		8:23:05 AM	8:23:41 AM
Y	8	23	41	8	23	53	12			8:23:41 AM	8:23:53 AM
D	8	23	53	8	24	22	29			8:23:53 AM	8:24:22 AM
E	8	24	22	8	24	47	25			8:24:22 AM	8:24:47 AM
E2	8	24	47	8	24	54	7			8:24:47 AM	8:24:54 AM
A	8	24	54	8	25	37	43	116		8:24:54 AM	8:25:37 AM
Y	8	25	37	8	25	53	16			8:25:37 AM	8:25:53 AM
D	8	25	53	8	26	17	24			8:25:53 AM	8:26:17 AM
E	8	26	17	8	26	39	22			8:26:17 AM	8:26:39 AM
E2	8	26	39	8	26	50	11			8:26:39 AM	8:26:50 AM
A	8	26	50	8	27	29	39	107		8:26:50 AM	8:27:29 AM
X	8	27	29	8	27	40	11			8:27:29 AM	8:27:40 AM
D	8	27	40	8	28	9	29			8:27:40 AM	8:28:09 AM
E	8	28	9	8	28	31	22			8:28:09 AM	8:28:31 AM
E2	8	28	31	8	28	37	6			8:28:31 AM	8:28:37 AM
A	8	28	37	8	29	43	66	146		8:28:37 AM	8:29:43 AM
Y	8	29	43	8	29	57	14			8:29:43 AM	8:29:57 AM
D	8	29	57	8	30	25	28			8:29:57 AM	8:30:25 AM
E	8	30	25	8	30	45	20			8:30:25 AM	8:30:45 AM
E2	8	30	45	8	31	3	18			8:30:45 AM	8:31:03 AM
A	8	31	3	8	32	11	68	134		8:31:03 AM	8:32:11 AM
Y	8	32	11	8	32	27	16			8:32:11 AM	8:32:27 AM
D	8	32	27	8	32	55	28			8:32:27 AM	8:32:55 AM
E	8	32	55	8	33	17	22			8:32:55 AM	8:33:17 AM
A	8	33	17	8	34	3	46	113		8:33:17 AM	8:34:03 AM
Y	8	34	3	8	34	15	12			8:34:03 AM	8:34:15 AM
D	8	34	15	8	34	44	29			8:34:15 AM	8:34:44 AM
E	8	34	44	8	35	3	19			8:34:44 AM	8:35:03 AM
E2	8	35	3	8	35	10	7			8:35:03 AM	8:35:10 AM
A	8	35	10	8	35	49	39	82		8:35:10 AM	8:35:49 AM
Y	8	35	49	8	36	2	13			8:35:49 AM	8:36:02 AM
E2	8	36	2	8	36	32	30			8:36:02 AM	8:36:32 AM

DATE IN SERVICE : 24-06-74
RECONSTRUCTED : 04-03-85



MOVEMENT DIAGRAMS

Intersection	Condamine Street / Kenneth Road
Period Start	Period Finish
4:45:00 PM	5:15:00 PM

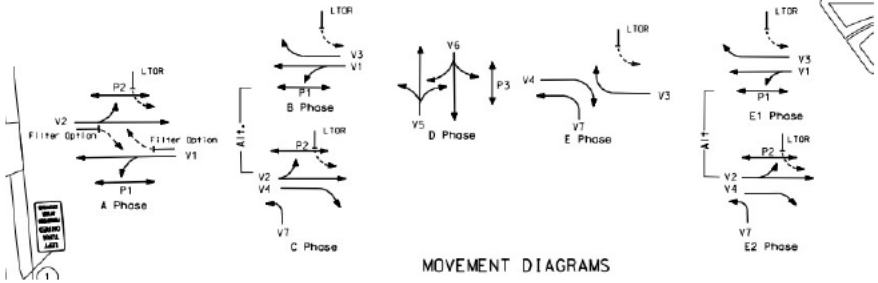
No. of Cycle Recorded	Mod
10	

Phase	Min	Max	Average	Occurences
A	33	82	51	100%
C	12	23	17	60%
Y	13	19	16	100%
D	28	32	29	100%
E	17	28	22	70%
E2	9	33	22	70%

Cycle Time	106	166	133

Cycle 1	TIME START			TIME END			Phase Duration (s)	Cycle Time (s)			
Phase	HR	MIN	SEC	HR	MIN	SEC					
A	16	45	32	16	46	15	43	133		4:45:32 PM	4:46:15 PM
C	16	46	15	16	46	38	23			4:46:15 PM	4:46:38 PM
Y	16	46	38	16	46	53	15			4:46:38 PM	4:46:53 PM
D	16	46	53	16	47	21	28			4:46:53 PM	4:47:21 PM
E2	16	47	21	16	47	45	24			4:47:21 PM	4:47:45 PM
A	16	47	45	16	48	18	33	123		4:47:45 PM	4:48:18 PM
C	16	48	18	16	48	35	17			4:48:18 PM	4:48:35 PM
Y	16	48	35	16	48	51	16			4:48:35 PM	4:48:51 PM
D	16	48	51	16	49	20	29			4:48:51 PM	4:49:20 PM
E	16	49	20	16	49	48	28			4:49:20 PM	4:49:48 PM
A	16	49	48	16	50	33	45	140		4:49:48 PM	4:50:33 PM
C	16	50	33	16	50	50	17			4:50:33 PM	4:50:50 PM
Y	16	50	50	16	51	7	17			4:50:50 PM	4:51:07 PM
D	16	51	7	16	51	35	28			4:51:07 PM	4:51:35 PM
E2	16	51	35	16	52	8	33			4:51:35 PM	4:52:08 PM
A	16	52	8	16	52	52	44	106		4:52:08 PM	4:52:52 PM
Y	16	52	52	16	53	9	17			4:52:52 PM	4:53:09 PM
D	16	53	9	16	53	37	28			4:53:09 PM	4:53:37 PM
E	16	53	37	16	53	54	17			4:53:37 PM	4:53:54 PM
A	16	53	54	16	55	16	82	166		4:53:54 PM	4:55:16 PM
Y	16	55	16	16	55	31	15			4:55:16 PM	4:55:31 PM
D	16	55	31	16	56	0	29			4:55:31 PM	4:56:00 PM
E	16	56	0	16	56	18	18			4:56:00 PM	4:56:18 PM
E2	16	56	18	16	56	40	22			4:56:18 PM	4:56:40 PM
A	16	56	40	16	57	41	61	132		4:56:40 PM	4:57:41 PM
Y	16	57	41	16	57	54	13			4:57:41 PM	4:57:54 PM
D	16	57	54	16	58	24	30			4:57:54 PM	4:58:24 PM
E2	16	58	24	16	58	52	28			4:58:24 PM	4:58:52 PM
A	16	58	52	16	59	57	65	153		4:58:52 PM	4:59:57 PM
C	16	59	57	17	0	9	12			4:59:57 PM	5:00:09 PM
Y	17	0	9	17	0	27	18			5:00:09 PM	5:00:27 PM
D	17	0	27	17	0	56	29			5:00:27 PM	5:00:56 PM
E	17	0	56	17	1	16	20			5:00:56 PM	5:01:16 PM
E2	17	1	16	17	1	25	9			5:01:16 PM	5:01:25 PM
A	17	1	25	17	2	16	51	138		5:01:25 PM	5:02:16 PM
C	17	2	16	17	2	29	13			5:02:16 PM	5:02:29 PM
Y	17	2	29	17	2	48	19			5:02:29 PM	5:02:48 PM
D	17	2	48	17	3	16	28			5:02:48 PM	5:03:16 PM
E	17	3	16	17	3	43	27			5:03:16 PM	5:03:43 PM
A	17	3	43	17	4	32	49	155		5:03:43 PM	5:04:32 PM
C	17	4	32	17	4	52	20			5:04:32 PM	5:04:52 PM
Y	17	4	52	17	5	10	18			5:04:52 PM	5:05:10 PM
D	17	5	10	17	5	40	30			5:05:10 PM	5:05:40 PM
E	17	5	40	17	6	0	20			5:05:40 PM	5:06:00 PM
E2	17	6	0	17	6	18	18			5:06:00 PM	5:06:18 PM
A	17	6	18	17	6	54	36	123		5:06:18 PM	5:06:54 PM
Y	17	6	54	17	7	7	13			5:06:54 PM	5:07:07 PM
D	17	7	7	17	7	39	32			5:07:07 PM	5:07:39 PM
E	17	7	39	17	8	3	24			5:07:39 PM	5:08:03 PM
E2	17	8	3	17	8	21	18			5:08:03 PM	5:08:21 PM
										12:00:00 AM	12:00:00 AM

DATE IN SERVICE : 24-06-74
RECONSTRUCTED : 04-03-85



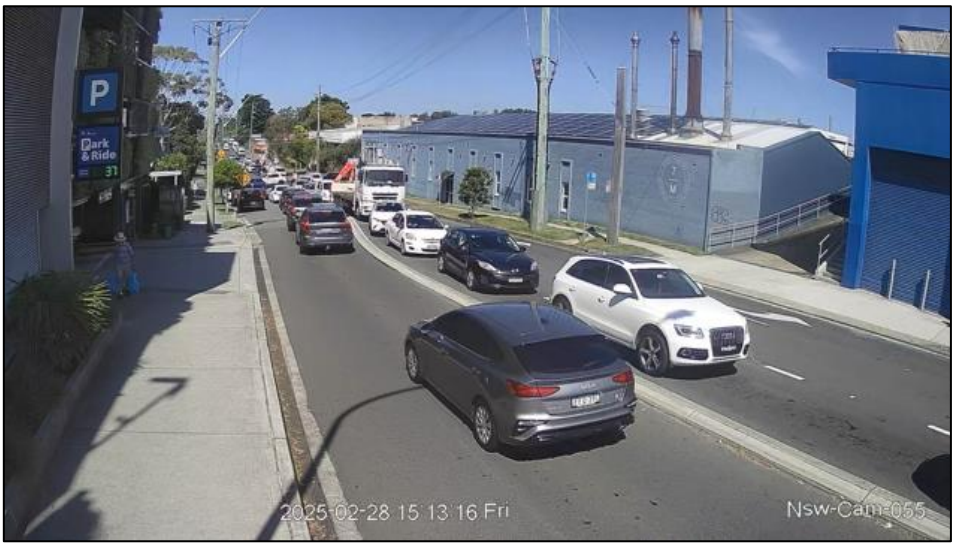
MOVEMENT DIAGRAMS

ANNEXURE E: EAST APPROACH OF CONDAMINE STREET / KENNETH ROAD – QUEUEING OBSERVATIONS
(15 SHEETS)

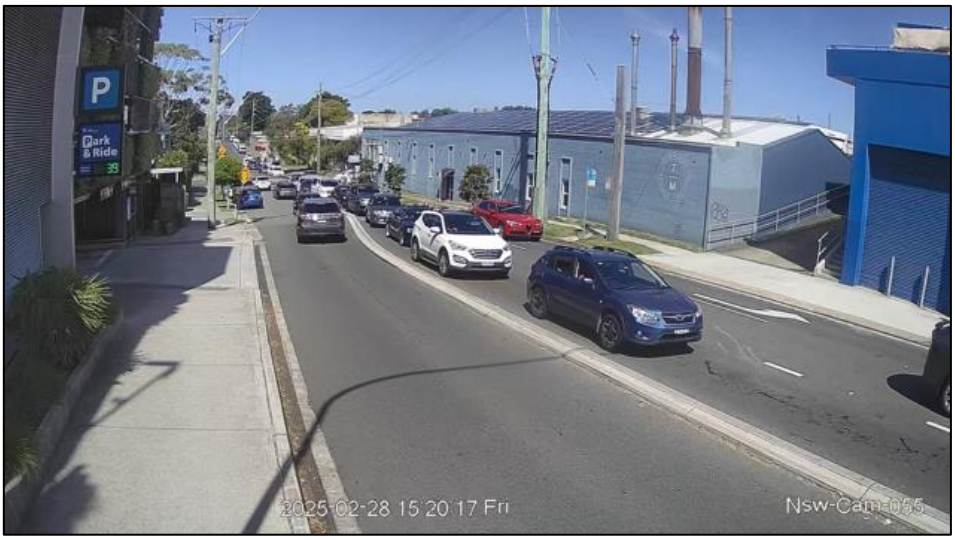
FRIDAY SURVEY PERIOD


P
Park & Ride
2025-02-28 15:08:58 Fri
Nsw-Cam-055


P
Park & Ride
FedEx
Express
2025-02-28 15:11:20 Fri
Nsw-Cam-055


P
Park & Ride
2025-02-28 15:13:16 Fri
Nsw-Cam-055


P
Park
& Ride
2025-02-28 15:17:34 Fri
Nsw-Cam-055


P
Park
& Ride
2025-02-28 15:20:17 Fri
Nsw-Cam-055


P
Park
& Ride
2025-02-28 15:22:37 Fri
Nsw-Cam-055


P
Park
& Ride
2025-02-28 15:24:45 Fri
Nsw-Cam-055

SATURDAY SURVEY PERIOD


P
Park & Ride
2025-03-01 12:08:57 Sat
Nsw-Cam055


P
Park & Ride
2025-03-01 12:11:30 Sat
Nsw-Cam055


P
Park & Ride
2025-03-01 12:13:44 Sat
Nsw-Cam055


P
Park & Ride
2025-03-01 12:16:03 Sat
Nsw-Cam-055


P
Park & Ride
2025-03-01 12:18:04 Sat
Nsw-Cam-055


P
Park & Ride
2025-03-01 12:20:30 Sat
Nsw-Cam-055


P
Park
& Ride
2025-03-01 12:22:43 Sat
Nsw-Cam-055

WEDNESDAY AM SURVEY PERIOD


TTS
2025-03-05 08:25:37 Wed
Nsw-Cam-070


TTS
2025-03-05 08:27:29 Wed
Nsw-Cam-070


TTS
2025-03-05 08:29:43 Wed
Nsw-Cam-070

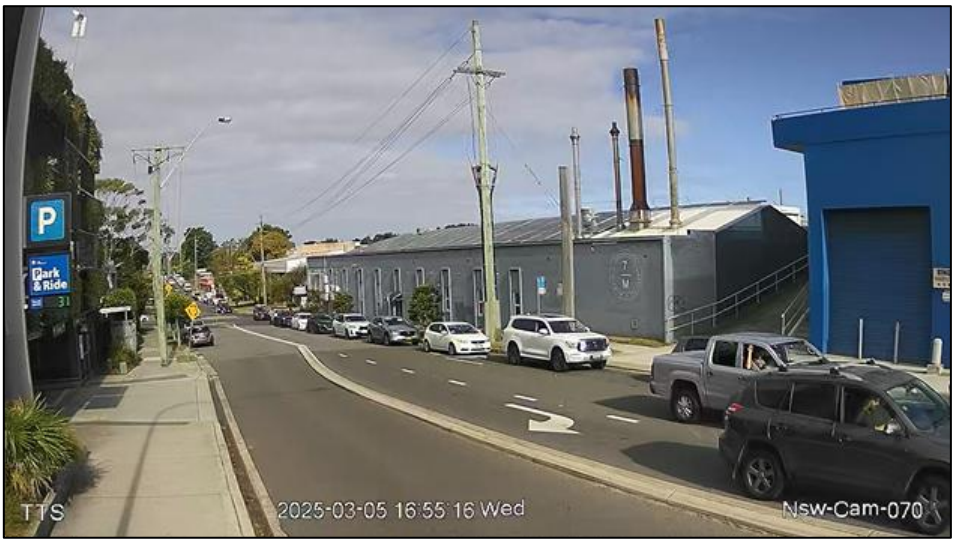

TTS
2025-03-05 08:32:11 Wed
Nsw-Cam-070


TTS
2025-03-05 08:34:03 Wed
Nsw-Cam-070


TTS
2025-03-05 08:35:49 Wed
Nsw-Cam-070

WEDNESDAY PM SURVEY PERIOD


P
Park & Ride
TTS
2025-03-05 16:52:52 Wed
Nsw-Cam-070


P
Park & Ride
TTS
2025-03-05 16:55:16 Wed
Nsw-Cam-070


P
Park & Ride
TTS
2025-03-05 16:57:41 Wed
Nsw-Cam-070


P
Park & Ride
TTS
2025-03-05 17:00:09 Wed
Nsw-Cam-070


P
Park & Ride
TTS
2025-03-05 17:02:29 Wed
Nsw-Cam-070


P
Park & Ride
TTS
2025-03-05 17:04:52 Wed
Nsw-Cam-070


P
Park
& Ride
34
TTS
2025-03-05 17:06:54 Wed
Nsw-Cam-070

ANNEXURE F: NORTH APPROACH OF KENNETH ROAD / ROSEBERRY STREET - QUEUEING OBSERVATIONS (15 SHEETS)

FRIDAY SURVEY PERIOD


TTS
2025-02-28 15:08:58 Fri
Nsw-Cam-023


TTS
2025-02-28 15:11:20 Fri
Nsw-Cam-023


TTS
2025-02-28 15:13:16 Fri
Nsw-Cam-023


TTS
2025-02-28 15:15:16 Fri
Nsw-Cam-023


TTS
2025-02-28 15:17:34 Fri
Nsw-Cam-023


TTS
2025-02-28 15:20:17 Fri
Nsw-Cam-023


TTS
2025-02-28 15:22:37 Fri
Nsw-Cam-023


TTS
2025-02-28 15:24:45 Fri
Nsw-Cam-023

SATURDAY SURVEY PERIOD


TTS
2025-03-01 12:08:58 Sat
Nsw-Cam-023


TTS
2025-03-01 12:11:30 Sat
Nsw-Cam-023


TTS
2025-03-01 12:13:44 Sat
Nsw-Cam-023


TTS
2025-03-01 12:16:03 Sat
Nsw-Cam-023


TTS
2025-03-01 12:18:04 Sat
Nsw-Cam-023


TTS
2025-03-01 12:20:30 Sat
Nsw-Cam-023


TTS
2025-03-01 12:22:48 Sat
Nsw-Cam-023

WEDNESDAY AM SURVEY PERIOD


2025-03-05 08:23:41 Wed
Nsw-Cam-087


2025-03-05 08:25:37 Wed
Nsw-Cam-087


2025-03-05 08:27:29 Wed
Nsw-Cam-087


2025-03-05 08:29:43 Wed
Nsw-Cam-087


2025-03-05 08:32:11 Wed
Nsw-Cam-087


2025-03-05 08:34:03 Wed
Nsw-Cam-087


2025-03-05 08:35:49 Wed
Nsw-Cam-087

WEDNESDAY PM SURVEY PERIOD


2025-03-05 16:52:52 Wed
Nsw-Cam-087


2025-03-05 16:55:16 Wed
Nsw-Cam-087


2025-03-05 16:57:41 Wed
Nsw-Cam-087


2025-03-05 17:00:09 Wed
Nsw-Cam-087


2025-03-05 17:02:29 Wed
Nsw-Cam-087


2025-03-05 17:04:52 Wed
Nsw-Cam-087


2025-03-05 17:06:54 Wed
Nsw-Cam-087

ANNEXURE G: EAST APPROACH OF KENNETH ROAD / ROSEBERRY STREET - QUEUEING OBSERVATIONS (15 SHEETS)

FRIDAY SURVEY PERIOD


TTS
Nsw-Cam-030


TTS
Nsw-Cam-030


TTS
Nsw-Cam-030


TTS
2025-02-28 15:15:18 Fri
Nsw-Cam-030


TTS
2025-02-28 15:17:34 Fri
Nsw-Cam-030


TTS
2025-02-28 15:20:17 Fri
Nsw-Cam-030


TTS
2025-02-28 15:22:37 Fri
Nsw-Cam-030


TTS
2025-02-28 15:24:45 Fri
Nsw-Cam-030

SATURDAY SURVEY PERIOD


TTS
Nsw-Cam-030


TTS
Nsw-Cam-030


TTS
Nsw-Cam-030


TTS
2025-03-01 12 16 03 Sat
Nsw-Cam-030


TTS
2025-03-01 12 18 01 Sat
Nsw-Cam-030


TTS
2025-03-01 12 20 30 Sat
Nsw-Cam-030


TTS
2025-03-01 12:22:43 Sat
Nsw-Cam-030

WEDNESDAY AM SURVEY PERIOD


TTS
2025-03-05 08:23:41 Wed
Nsw-Cam-189


TTS
2025-03-05 08:25:37 Wed
Nsw-Cam-189


TTS
2025-03-05 08:27:29 Wed
Nsw-Cam-189


TTS
2025-03-05 08 29 43 Wed
Nsw-Cam-189


TTS
2025-03-05 08 32 1 Wed
Nsw-Cam-189


TTS
2025-03-05 08 34 03 Wed
Nsw-Cam-189


TTS
2025-03-05 08:35:49 Wed
Nsw-Cam-189

WEDNESDAY PM SURVEY PERIOD


TTS
Nsw-Cam-189


TTS
Nsw-Cam-189


TTS


TTS
2025-03-05 17:00:09 Wed
Nsw-Cam-189


TTS
2025-03-05 17:02:29 Wed
Nsw-Cam-189


TTS
2025-03-05 17:04:52 Wed
Nsw-Cam-189


TTS
2025-03-05 17:06:54 Wed
Nsw-Cam-189

ANNEXURE H: SOUTH APPROACH OF KENNETH ROAD / ROSEBERRY STREET - QUEUEING OBSERVATIONS (15 SHEETS)

FRIDAY PEAK PERIOD SURVEYS


Woolworths
TTS
2025-02-28 15:08:58 Fri
Nsw - CAM -078


TTS
2025-02-28 15:11:20 Fri
Nsw - CAM -078


TTS
2025-02-28 15:13:16 Fri
Nsw - CAM -078


TTS
2025-02-28 15:15:16 Fri
Nsw - CAM -078


TTS
2025-02-28 15:17:34 Fri
Nsw - CAM -078


TTS
2025-02-28 15:20:17 Fri
Nsw - CAM -078


TTS
2025-02-28 15:22:37 Fri
Nsw - CAM -078


TTS
2025-02-28 15:24:45 Fri
Nsw - CAM -078

SATURDAY PEAK PERIOD SURVEYS


TTS
2025-03-01 12:08:56 Sat
Nsw - CAM -078

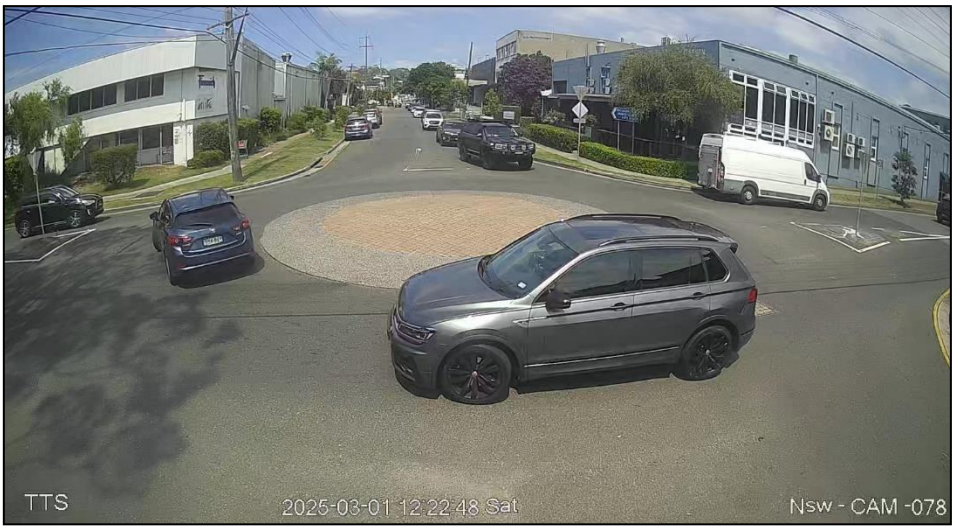

TTS
2025-03-01 12:11:30 Sat
Nsw - CAM -078


TTS
2025-03-01 12:13:44 Sat
Nsw - CAM -078


TTS
2025-03-01 12 16 03 Sat
Nsw - CAM -078


TTS
2025-03-01 12 18 04 Sat
Nsw - CAM -078


TTS
2025-03-01 12 20 30 Sat
Nsw - CAM -078


TTS
2025-03-01 12:22:48 Sat
Nsw - CAM -078

WEDNESDAY AM SURVEYS


TTS
2025-03-05 08:23:41 Wed
Nsw-Cam-254


TTS
2025-03-05 08:25:37 Wed
Nsw-Cam-254


TTS
2025-03-05 08:27:29 Wed
Nsw-Cam-254


TTS
2025-03-05 08:29:43 Wed
Nsw-Cam-254


TTS
2025-03-05 08:32:11 Wed
Nsw-Cam-254


TTS
2025-03-05 08:34:03 Wed
Nsw-Cam-254


TTS
2025-03-05 08:35:49 Wed
Nsw-Cam-254

WEDNESDAY PM SURVEYS


TTS
2025-03-05 16:52:52 Wed
Nsw-Cam-254


SYD CABS
TTS
2025-03-05 16:55:16 Wed
Nsw-Cam-254


TTS
2025-03-05 16:57:41 Wed
Nsw-Cam-254


TTS
2025-03-05 17:00:09 Wed
Nsw-Cam-254


TTS
2025-03-05 17:02:29 Wed
Nsw-Cam-254


TTS
2025-03-05 17:04:52 Wed
Nsw-Cam-254


TTS
2025-03-05 17:06:54 Wed
Nsw-Cam-254

TECHNICAL MEMO 2

(14 SHEETS)

REVIEW OF EXISTING TRAFFIC REPORT

A review of the *Traffic Report for Proposed McDonald's* dated December 2024 created by *Colston Budd Rogers & Kafes Pty Ltd*, hereafter referred to as the **CBRK** report. The findings are outlined in the sections below.

1 TRAFFIC GENERATION

a) The estimated traffic generation is based on '*Trip Generation and Parking Demand – Surveys of Fast Food Outlets – Analysis Report*' created by *Bitzios Consulting 2016*. The estimated traffic generation is in the order of **140** vehicles during the afternoon peak hour, and **180** vehicles during the Saturday midday peak hour.

b) More recent documents, specifically the *TfNSW Guide to Transport Impact Assessment*, suggests that during the weekend site peak hour, McDonald's generates **267** vehicle trips which is an increase of **87** vehicle trips from the CBRK report.

Table 5.46. **Fast food sample summary – McDonalds**

	Sydney	Regional	Combined
Weekday Vehicle trips (vehicle trips/outlet)			
Site AM Peak hour	137	206	192
Network AM Peak	119	188	173
Site PM Peak hour	188	201	214
Network PM Peak	138	183	179
Daily	1,032	1,261	1,272
Weekend Vehicle trips (vehicle trips/outlet)			
Site Peak hour	267	225	269
Daily	1,209	1,164	1,303

c) The transitional period of the *TfNSW Guide Transport Impact Assessment* ended 4 November 2024 and therefore applies to this traffic report.

> **Transitional Arrangements:**
> This Guide does not apply to TIAs commenced and development applications lodged before 4 November 2024.

d) It is noted that due the eastern approach to Condamine Street / Kenneth Road performing at an LoS "F", any minor increases in traffic volumes are expected to further significantly degrade the performance of this approach.

e) It is acknowledged that 50% of the traffic to the proposed development can be considered passing trade. In any case, it is expected that the proposed McDonald's will generate destination vehicle trips which will utilise the existing road network. Approximately **44** additional trips are generated during the weekend peak hour period which should be taken into consideration.

2 SIDRA INTERSECTION 9.1 MODEL

a) Based 'Attachment A – SIDRA Movement Summaries' within the CBRK report, the Condamine Street / Kenneth Road models were run utilising 'Network Optimum Cycle Time'. This does not reflect how the intersection operates under existing conditions.

3 TRAFFIC IMPACT

3.1 Existing Conditions

a) A comparison between the existing intersection performance of the eastern approach of Condamine Street / Kenneth Road between the **CBRK** assessment and **MTE** assessment is provided in **Table 1**.

TABLE 1: EASTERN APPROACH – LEVEL OF SERVICE MOVEMENT COMPARISON – EXISTING SCENARIO

Turning Movement	Level of Service			
	Weekday		Weekend	
	CBRK	MTE	CBRK	MTE
RT	F	F	F	F
T	C	F	C	F
LT	B	D	B	D

b) As shown, it is likely that the **CBRK** model underestimated the efficiency of the signalised intersection due to utilising the optimal cycle time setting which does not reflect the performance of the intersection under existing operation.

c) A comparison of the LoS of the movements associated with the eastern approach to the signals indicates that the eastern approach exceeds capacity for the RT and T movements and is at capacity for the LT movement. It is noted that based on video footage observations, the right turn queues regularly block the ability for T and LT traffic to exit the approach.

d) In any case, both models agree that the RT operates with an LoS "F".

3.2 Future Conditions

a) The future McDonald's traffic (based on TfNSW Guide traffic generation) has been applied to the **MTE** SIDRA model, with consideration to 50% passing traffic. The passing traffic has been removed from the 'T' movements at the modelled intersections and redirected to the site. The MTE model assumes a similar traffic distribution based on Figure 2 and Figure 3 of the **CBRK** report. The performance of the intersections is provided in **Table 2** and **Table 3** with the complete results presented in Annexure AThe existing SIDRA INTERSECTION 9.1 performance is provided in "Memo 1".

TABLE 2: FRIDAY POST DEVELOPMENT PERFORMANCE (SIDRA INTERSECTION 9.1)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3][4]	Control Type	Worst Movement	Average Queue
POST DEVELOPMENT PERFORMANCE							
Condamine Street /Kenneth Road	AM	1.02	45.1	D	Signals	RT from Kenneth Road	22.6 veh (158.2m) Condamine Street
Kenneth Road /Roseberry Street	AM	0.91	17 (Worst: 28.6)	B (Worst: C)	Roundabout	UT from Roseberry Street	6.4 veh (44.6m) Roseberry Street

TABLE 3: SATURDAY POST DEVELOPMENT PERFORMANCE (SIDRA INTERSECTION 9.1)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3][4]	Control Type	Worst Movement	Average Queue
POST DEVELOPMENT PERFORMANCE							
Condamine Street / Kenneth Road	AM	0.98	46.7	D	Signals	T from Kenneth Road	25.3 veh (177.4m) Condamine Street
Kenneth Road / Roseberry Street	AM	1.02	37.6 (Worst: 59.4)	C (Worst: E)	Roundabout	UT from Roseberry Street	13.1 veh (92.4m) Roseberry Street

a) By comparing the existing performance of the intersections provided in “Memo 1”, it is evident that the overall performance of the signalised intersection of Condamine Street / Kenneth Road remains at a LoS “D”. Although the overall performance remains the same, the traffic throughput of the eastern approach already exceeds capacity (LoS “F”), and any additional vehicle trips will adversely impact queues and delays. This is evident as the roundabout intersection of Kenneth Road / Roseberry Street quickly degrades, specifically during the Saturday period.

b) The roundabout of Kenneth Road / Roseberry Street degrades from a Level of Service “B” to “C” during the Saturday period, with degree of saturation exceeding **1.0** and the average delay increasing from **15.7** seconds to **37.6** seconds. The subject development adversely impacts the roundabout performance.

c) The performance of the eastern approach of Condamine Street / Kenneth Road is summarised in **Table 4.**

TABLE 4: EASTERN LEG – LEVEL OF SERVICE MOVEMENT COMPARISON – POST DEVELOPMENT

Turning Movement	Level of Service			
	Weekday		Weekend	
	CBRK	MTE	CBRK	MTE
RT	F	F	F	F
T	C	F	C	F
LT	B	D	B	D

d) Persons trip generation rates are not available for McDonald's fast-food outlets, however it is reasonable to assume that a McDonald's would generate additional pedestrian foot traffic from the surrounding area. Although pedestrian crossing facilities are provided at roundabouts, it is not particularly safe as pedestrians strictly do not have right of way at roundabouts. In practice, vehicles tend to stop to allow pedestrians to cross at roundabout which would result in additional delays.

3.3 Eastern Approach of Condamine Street / Kenneth Road – Detailed Review

To assess the eastern approach of Condamine Street / Kenneth Road in further detail, the following parameters were extracted from the **CBRK** and **MTE** SIDRA outputs:

- Degree of Saturation;
- Average Delay;
- Average Queue Length;
- 95th Percentile Queue Length (the SIDRA INTERSECTION 9.1 results for 95th percentile queue is presented in **Annexure B**).

The **CBRK** and **MTE** performance are summarised in **Table 5** and **Table 6** respectively.

TABLE 5: EASTERN APPROACH – SPECIFIC SIDRA OUTPUT PARAMETERS (CBRK MODEL)

Peak Period	Degree of Saturation	Average Delay	Average Queue Length	95th Percentile Queue
Existing Conditions				
Weekday	1.011	56.7 seconds	84.3m	(1)
Saturday	0.99	55.8 seconds	90.0m	(1)
Post Development Conditions				
Friday	0.99	51.9 seconds	80.6m	(1)
Saturday	1.01	54.3 seconds	90.0m	(1)

NOTE:
(1) Cannot be determined from CBRK Report.

TABLE 6: EASTERN APPROACH – SPECIFIC SIDRA OUTPUT PARAMETERS (MTE MODEL)

Peak Period	Degree of Saturation	Average Delay	Average Queue Length	95th Percentile Queue
Existing Conditions				
Friday	0.996	75.5 seconds	81.4m	132.9m
Saturday	0.940	72.4 seconds	75.6m	123.4m
Post Development Conditions (Saturday Worst Case)				
Saturday	0.976	78.1 seconds	84.1m	137.2m

Based on the above, it is evident that the eastern approach is currently at maximum capacity with traffic generated by the proposed McDonalds adversely impacting the eastern approach.

4 KEY FINDINGS

The following findings and conclusions can be made upon assessment of the existing plus post development intersection conditions:

A. The **CBRK** model overestimates the efficiency of the signalised intersection of Condamine Street / Kenneth Avenue by utilising the 'Network Optimum Cycle Time'. The model should utilise the existing phase durations to reflect existing conditions. As a result, the movements associated with the eastern approach perform with a lower level of service.

B. The traffic generation rates contained within *TfNSW Guide to Transport Impact Assessment* apply. The eastern approach of Condamine Street / Kenneth Road exceeds capacity, and the roundabout of Kenneth Road / Roseberry is near capacity. Any additional traffic generated by the proposed McDonald's will result in the Kenneth Road / Roseberry Street exceeding capacity due to excessive queuing from the signalised intersection, resulting in adverse impacts to the intersection performance.

C. The performance of the eastern approach at Condamine Street / Kenneth Road is adversely impacted. Further, the additional traffic has flow on traffic impacts to the roundabout of Kenneth Road / Roseberry Street, with queues extending past the roundabout from the signalised intersection.

D. Application of post-development traffic to the **MTE** model indicates that the performance of Kenneth Road / Roseberry Street is adversely impacted. The performance degrades from a LoS "B" to LoS "C" with a **20.9** second increase in average delay. The degree of saturation also exceeds **1.0** under post-development conditions.

E. Any potential intersection or road upgrades should also consider the eastern approach of the signalised intersection of Condamine Street / Kenneth Road. It is evident that there is no capacity for right turns, resulting in lane blockages for the through and left-turn movements.

ANNEXURE A: SIDRA INTERSECTION 9.1 RESULTS
(4 SHEETS)

MOVEMENT SUMMARY

Site: 2 [(PostDevFridayPeakPM) Kenneth Road / Roseberry Street (Site Folder: Post Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Post Development Friday PM Peak Hour Period (Network Folder: General)]

Post Development Friday Peak Hour Period (3pm to 4pm)
Kenneth Road / Roseberry Street
Job No. 250154
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Roseberry Street (S)															
1	L2	All MCs	243	0.9	243	0.9	0.910	23.8	LOS B	6.4	44.6	1.00	1.27	1.90	30.0
2	T1	All MCs	99	0.0	99	0.0	0.910	23.8	LOS B	6.4	44.6	1.00	1.27	1.90	32.8
3	R2	All MCs	245	0.0	245	0.0	0.910	26.9	LOS B	6.4	44.6	1.00	1.27	1.90	33.7
3u	U	All MCs	3	0.0	3	0.0	0.910	28.6	LOS C	6.4	44.6	1.00	1.27	1.90	38.2
Approach			591	0.4	591	0.4	0.910	25.1	LOS B	6.4	44.6	1.00	1.27	1.90	32.3
East: Kenneth Road (E)															
4	L2	All MCs	195	0.0	195	0.0	0.868	16.5	LOS B	5.1	36.1	1.00	1.03	1.49	39.0
5	T1	All MCs	380	3.0	380	3.0	0.868	16.8	LOS B	5.1	36.1	1.00	1.03	1.49	24.9
6	R2	All MCs	7	0.0	7	0.0	0.868	19.7	LOS B	5.1	36.1	1.00	1.03	1.49	29.8
6u	U	All MCs	8	0.0	8	0.0	0.868	21.3	LOS B	5.1	36.1	1.00	1.03	1.49	32.1
Approach			591	2.0	591	2.0	0.868	16.8	LOS B	5.1	36.1	1.00	1.03	1.49	31.9
North: Roseberry Street (N)															
7	L2	All MCs	22	9.5	22	9.5	0.483	14.3	LOS A	1.6	11.6	0.94	0.80	1.07	31.2
8	T1	All MCs	192	0.5	192	0.5	0.483	13.8	LOS A	1.6	11.6	0.94	0.80	1.07	39.9
9	R2	All MCs	61	3.4	61	3.4	0.483	17.1	LOS B	1.6	11.6	0.94	0.80	1.07	22.6
9u	U	All MCs	4	0.0	4	0.0	0.483	18.5	LOS B	1.6	11.6	0.94	0.80	1.07	25.0
Approach			279	1.9	279	1.9	0.483	14.6	LOS B	1.6	11.6	0.94	0.80	1.07	37.0
West: Kenneth Road (W)															
10	L2	All MCs	42	2.5	42	2.5	0.642	9.1	LOS A	2.3	16.4	0.61	0.77	0.70	32.0
11	T1	All MCs	412	1.3	412	1.3	0.642	9.1	LOS A	2.3	16.4	0.61	0.77	0.70	35.8
12	R2	All MCs	93	3.4	93	3.4	0.642	12.4	LOS A	2.3	16.4	0.61	0.77	0.70	42.3
12u	U	All MCs	13	0.0	13	0.0	0.642	13.9	LOS A	2.3	16.4	0.61	0.77	0.70	24.4
Approach			559	1.7	559	1.7	0.642	9.8	LOS A	2.3	16.4	0.61	0.77	0.70	36.9
All Vehicles			2019	1.4	2019	1.4	0.910	17.0	LOS B	6.4	44.6	0.88	1.00	1.33	33.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [(PostDevSaturdayPeakPM) Condmine Street / Kenneth Road (Site Folder: Post Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Post Development Saturday Peak Hour Period (Network Folder: General)]

Post Development Saturday Peak Hour Period (12pm to 1pm)
Condamine Street / Kenneth Road
Job No. 250127
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 134 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Condamine Street (S)															
1	L2	All MCs	72	1.5	72	1.5	0.117	27.1	LOS B	1.9	16.9	0.48	0.60	0.48	41.0
2	T1	All MCs	1337	2.5	1337	2.5	0.642	27.1	LOS B	18.8	131.7	0.75	0.68	0.75	37.3
3	R2	All MCs	411	0.8	411	0.8	*0.793	36.9	LOS C	9.4	66.1	0.98	0.94	1.04	16.4
Approach			1819	2.1	1819	2.1	0.793	29.4	LOS C	18.8	131.7	0.79	0.74	0.80	31.3
East: Kenneth Road (E)															
4	L2	All MCs	365	0.9	362	0.9	*0.477	47.1	LOS D	8.1	56.8	0.76	0.90	0.76	20.6
5	T1	All MCs	51	2.1	50	2.1	0.175	78.6	LOS F	1.8	12.6	0.91	0.69	0.91	24.4
6	R2	All MCs	257	0.8	255	0.8	*0.976	122.2	LOS F	11.9	84.1	1.00	1.20	1.49	13.8
Approach			673	0.9	667	0.9	0.976	78.1	LOS F	11.9	84.1	0.86	1.00	1.05	14.0
North: Condamine Street (N)															
7	L2	All MCs	82	0.0	82	0.0	0.161	21.7	LOS B	2.2	18.3	0.66	0.69	0.66	30.8
8	T1	All MCs	1274	1.9	1274	1.9	*0.863	55.4	LOS D	25.3	177.4	0.99	0.95	1.07	26.6
9	R2	All MCs	49	0.0	49	0.0	0.095	41.2	LOS C	0.8	5.7	0.72	0.71	0.72	40.9
Approach			1405	1.7	1405	1.7	0.863	52.9	LOS D	25.3	177.4	0.96	0.93	1.03	24.6
West: Kenneth Road (W)															
10	L2	All MCs	63	0.0	63	0.0	0.320	10.0	LOS A	3.6	25.2	0.91	0.76	0.91	29.1
11	T1	All MCs	39	0.0	39	0.0	*0.320	132.8	LOS F	3.6	25.2	0.91	0.76	0.91	21.6
12	R2	All MCs	114	1.9	114	1.9	0.616	54.2	LOS D	3.9	27.9	1.00	0.79	1.02	26.2
Approach			216	1.0	216	1.0	0.616	55.5	LOS D	3.9	27.9	0.96	0.78	0.97	26.4
All Vehicles			4113	1.7	4107	1.7	0.976	46.7	LOS D	25.3	177.4	0.87	0.85	0.93	24.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 2 [(PostDevSaturdayPeakPM) Kenneth Road / Roseberry Street (Site Folder: Post Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Post Development Saturday Peak Hour Period (Network Folder: General)]

Post Development Saturday Peak Hour Period (12pm to 1pm)
Kenneth Road / Roseberry Street
Job No. 250154
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Roseberry Street (S)															
1	L2	All MCs	299	0.7	299	0.7	1.021	54.6	LOS D	13.1	92.4	1.00	2.00	3.39	18.6
2	T1	All MCs	106	0.0	106	0.0	1.021	54.7	LOS D	13.1	92.4	1.00	2.00	3.39	21.6
3	R2	All MCs	237	0.4	237	0.4	1.021	57.9	LOS E	13.1	92.4	1.00	2.00	3.39	22.7
3u	U	All MCs	7	0.0	7	0.0	1.021	59.4	LOS E	13.1	92.4	1.00	2.00	3.39	27.3
Approach			649	0.5	649	0.5	1.021	55.9	LOS D	13.1	92.4	1.00	2.00	3.39	20.9
East: Kenneth Road (E)															
4	L2	All MCs	256	0.4	256	0.4	1.005	49.6	LOS D	11.0	77.2	1.00	1.97	3.23	24.4
5	T1	All MCs	319	0.7	319	0.7	1.005	49.7	LOS D	11.0	77.2	1.00	1.97	3.23	11.5
6	R2	All MCs	15	0.0	15	0.0	1.005	52.8	LOS D	11.0	77.2	1.00	1.97	3.23	16.1
6u	U	All MCs	1	0.0	1	0.0	1.005	54.4	LOS D	11.0	77.2	1.00	1.97	3.23	18.0
Approach			591	0.5	591	0.5	1.005	49.7	LOS D	11.0	77.2	1.00	1.97	3.23	18.3
North: Roseberry Street (N)															
7	L2	All MCs	22	0.0	22	0.0	0.500	15.8	LOS B	1.6	11.3	0.98	0.86	1.17	30.4
8	T1	All MCs	163	0.0	163	0.0	0.500	15.9	LOS B	1.6	11.3	0.98	0.86	1.17	38.4
9	R2	All MCs	47	2.2	47	2.2	0.500	19.1	LOS B	1.6	11.3	0.98	0.86	1.17	20.8
9u	U	All MCs	2	0.0	2	0.0	0.500	20.6	LOS B	1.6	11.3	0.98	0.86	1.17	23.8
Approach			235	0.4	235	0.4	0.500	16.6	LOS B	1.6	11.3	0.98	0.86	1.17	35.6
West: Kenneth Road (W)															
10	L2	All MCs	53	50.0	53	50.0	0.827	15.6	LOS B	4.4	36.2	0.77	0.97	1.10	24.4
11	T1	All MCs	362	0.9	362	0.9	0.827	13.5	LOS A	4.4	36.2	0.77	0.97	1.10	30.3
12	R2	All MCs	202	41.1	202	41.1	0.827	18.5	LOS B	4.4	36.2	0.77	0.97	1.10	36.0
12u	U	All MCs	23	50.0	23	50.0	0.827	20.5	LOS B	4.4	36.2	0.77	0.97	1.10	18.5
Approach			640	19.4	640	19.4	0.827	15.5	LOS B	4.4	36.2	0.77	0.97	1.10	32.0
All Vehicles			2115	6.2	2115	6.2	1.021	37.6	LOS C	13.1	92.4	0.93	1.56	2.41	23.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 1 [(PostDevFridayPeakPM) Condmine Street / Kenneth Road (Site Folder: Post Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Post Development Friday PM Peak Hour Period (Network Folder: General)]

Post Development Friday Peak Hour Period (3pm to 4pm)
Condamine Street / Kenneth Road
Job No. 250127
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 136 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Condamine Street (S)															
1	L2	All MCs	88	0.0	88	0.0	0.192	30.0	LOS C	3.1	30.1	0.52	0.59	0.52	40.6
2	T1	All MCs	1476	4.9	1476	4.9	0.715	29.7	LOS C	22.6	158.2	0.79	0.73	0.79	36.3
3	R2	All MCs	413	1.5	413	1.5	*0.707	29.6	LOS C	8.2	57.8	0.94	0.88	0.94	19.2
Approach			1977	3.9	1977	3.9	0.715	29.7	LOS C	22.6	158.2	0.81	0.75	0.81	31.3
East: Kenneth Road (E)															
4	L2	All MCs	396	1.6	396	1.6	*0.490	44.3	LOS D	8.5	60.3	0.72	0.88	0.72	21.6
5	T1	All MCs	68	0.0	68	0.0	0.191	73.0	LOS F	2.4	16.5	0.89	0.69	0.89	25.4
6	R2	All MCs	233	5.4	233	5.4	*1.022	111.0	LOS F	10.4	76.4	1.00	1.27	1.66	11.1
Approach			697	2.7	697	2.7	1.022	69.4	LOS E	10.4	76.4	0.83	0.99	1.05	13.3
North: Condamine Street (N)															
7	L2	All MCs	66	4.8	66	4.8	0.309	25.5	LOS B	3.9	40.8	0.76	0.69	0.76	27.8
8	T1	All MCs	1183	7.4	1183	7.4	*0.836	54.1	LOS D	22.0	154.3	0.97	0.91	1.03	26.6
9	R2	All MCs	57	0.0	57	0.0	0.125	42.6	LOS D	1.0	6.8	0.78	0.72	0.78	39.5
Approach			1306	6.9	1306	6.9	0.836	52.2	LOS D	22.0	154.3	0.95	0.89	1.00	24.9
West: Kenneth Road (W)															
10	L2	All MCs	68	1.5	68	1.5	0.431	9.7	LOS A	5.7	40.1	0.93	0.78	0.93	29.4
11	T1	All MCs	91	0.0	91	0.0	*0.431	90.0	LOS F	5.7	40.1	0.93	0.78	0.93	22.0
12	R2	All MCs	136	2.3	136	2.3	0.816	64.9	LOS E	5.0	35.7	1.00	0.94	1.22	23.6
Approach			295	1.4	295	1.4	0.816	59.8	LOS E	5.7	40.1	0.96	0.85	1.06	24.7
All Vehicles			4275	4.5	4275	4.5	1.022	45.1	LOS D	22.6	158.2	0.87	0.84	0.93	24.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

ANNEXURE B: SIDRA INTERSECTION 9.1 RESULTS – WITH 95TH PERCENTILE QUEUE OUTPUT (3 SHEETS)

MOVEMENT SUMMARY

Site: 1 [(ExFridayPeakPM) Condmine Street / Kenneth Road (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Exising Friday PM Peak Hour Period (Network Folder: General)]

Existing Friday Peak Hour Period (3pm to 4pm)
Condamine Street / Kenneth Road
Job No. 250127
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 136 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Condamine Street (S)															
1	L2	All MCs	88	0.0	88	0.0	0.192	30.1	LOS C	5.1	49.1	0.52	0.59	0.52	40.6
2	T1	All MCs	1481	4.8	1481	4.8	0.717	29.8	LOS C	37.1	259.8	0.80	0.73	0.80	36.3
3	R2	All MCs	402	1.6	402	1.6	*0.690	28.8	LOS C	12.7	90.4	0.93	0.87	0.93	19.6
Approach			1972	4.0	1972	4.0	0.717	29.6	LOS C	37.1	259.8	0.81	0.75	0.81	31.4
East: Kenneth Road (E)															
4	L2	All MCs	389	1.6	389	1.6	*0.482	43.9	LOS D	13.5	95.9	0.72	0.88	0.72	21.6
5	T1	All MCs	68	0.0	68	0.0	0.191	72.2	LOS F	3.8	26.9	0.89	0.69	0.89	25.4
6	R2	All MCs	226	5.6	226	5.6	*0.996	131.0	LOS F	18.1	132.9	1.00	1.23	1.57	12.7
Approach			684	2.8	684	2.8	0.996	75.5	LOS F	18.1	132.9	0.83	0.98	1.02	14.3
North: Condamine Street (N)															
7	L2	All MCs	56	5.7	56	5.7	0.294	25.1	LOS B	5.9	63.2	0.76	0.68	0.76	28.0
8	T1	All MCs	1188	7.4	1188	7.4	*0.840	54.6	LOS D	36.4	254.7	0.97	0.92	1.03	26.5
9	R2	All MCs	57	0.0	57	0.0	0.126	42.8	LOS D	1.6	11.1	0.78	0.72	0.78	39.5
Approach			1301	7.0	1301	7.0	0.840	52.8	LOS D	36.4	254.7	0.96	0.90	1.01	24.8
West: Kenneth Road (W)															
10	L2	All MCs	68	1.5	68	1.5	0.431	9.7	LOS A	9.3	65.5	0.93	0.78	0.93	29.4
11	T1	All MCs	91	0.0	91	0.0	*0.431	90.0	LOS F	9.3	65.5	0.93	0.78	0.93	22.0
12	R2	All MCs	136	2.3	136	2.3	0.802	64.2	LOS E	8.1	57.8	1.00	0.93	1.19	23.8
Approach			295	1.4	295	1.4	0.802	59.4	LOS E	9.3	65.5	0.96	0.85	1.05	24.8
All Vehicles			4252	4.5	4252	4.5	0.996	46.2	LOS D	37.1	259.8	0.87	0.84	0.92	25.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1 [(ExSaturdayPeakPM) Condmine Street / Kenneth Road (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Existing Saturday Peak Hour Period (Network Folder: General)]

Existing Saturday Peak Hour Period (12pm to 1pm)
Condamine Street / Kenneth Road
Job No. 250127
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 134 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Condamine Street (S)															
1	L2	All MCs	72	1.5	72	1.5	0.117	27.3	LOS B	3.1	27.6	0.48	0.60	0.48	41.0
2	T1	All MCs	1347	2.5	1347	2.5	0.648	27.3	LOS B	31.1	217.7	0.75	0.69	0.75	37.3
3	R2	All MCs	389	0.8	389	0.8	*0.715	30.1	LOS C	13.3	93.9	0.95	0.88	0.95	19.0
Approach			1808	2.1	1808	2.1	0.715	27.9	LOS B	31.1	217.7	0.79	0.73	0.79	32.1
East: Kenneth Road (E)															
4	L2	All MCs	356	0.9	356	0.9	*0.468	46.5	LOS D	12.9	91.0	0.76	0.89	0.76	20.6
5	T1	All MCs	51	2.1	51	2.1	0.176	77.7	LOS F	2.9	20.7	0.91	0.69	0.91	24.4
6	R2	All MCs	247	0.9	247	0.9	*0.940	108.7	LOS F	17.5	123.4	1.00	1.15	1.39	15.3
Approach			654	1.0	654	1.0	0.940	72.4	LOS F	17.5	123.4	0.86	0.98	1.01	14.8
North: Condamine Street (N)															
7	L2	All MCs	67	0.0	67	0.0	0.137	21.2	LOS B	3.0	26.1	0.65	0.67	0.65	31.1
8	T1	All MCs	1281	1.9	1281	1.9	*0.868	56.1	LOS D	41.9	293.6	0.99	0.96	1.08	26.4
9	R2	All MCs	49	0.0	49	0.0	0.095	41.8	LOS C	1.3	9.3	0.73	0.71	0.73	40.7
Approach			1398	1.7	1398	1.7	0.868	53.9	LOS D	41.9	293.6	0.96	0.94	1.04	24.4
West: Kenneth Road (W)															
10	L2	All MCs	63	0.0	63	0.0	0.313	10.1	LOS A	5.9	41.0	0.91	0.76	0.91	29.1
11	T1	All MCs	39	0.0	39	0.0	*0.313	132.5	LOS F	5.9	41.0	0.91	0.76	0.91	21.6
12	R2	All MCs	114	1.9	114	1.9	0.605	54.1	LOS D	6.4	45.5	1.00	0.79	1.01	26.2
Approach			216	1.0	216	1.0	0.605	55.4	LOS D	6.4	45.5	0.96	0.77	0.96	26.4
All Vehicles			4076	1.7	4076	1.7	0.940	45.4	LOS D	41.9	293.6	0.87	0.84	0.92	25.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

Site: 1 [(PostDevSaturdayPeakPM) Condmine Street / Kenneth Road (Site Folder: Post Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Post Development Saturday Peak Hour Period (Network Folder: General)]

Post Development Saturday Peak Hour Period (12pm to 1pm)
Condamine Street / Kenneth Road
Job No. 250127
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 134 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Condamine Street (S)															
1	L2	All MCs	72	1.5	72	1.5	0.117	27.1	LOS B	3.1	27.6	0.48	0.60	0.48	41.0
2	T1	All MCs	1337	2.5	1337	2.5	0.642	27.1	LOS B	30.7	214.9	0.75	0.68	0.75	37.3
3	R2	All MCs	411	0.8	411	0.8	*0.793	36.9	LOS C	15.3	107.9	0.98	0.94	1.04	16.4
Approach			1819	2.1	1819	2.1	0.793	29.4	LOS C	30.7	214.9	0.79	0.74	0.80	31.3
East: Kenneth Road (E)															
4	L2	All MCs	365	0.9	362	0.9	*0.477	47.1	LOS D	13.1	92.7	0.76	0.90	0.76	20.6
5	T1	All MCs	51	2.1	50	2.1	0.175	78.6	LOS F	2.9	20.6	0.91	0.69	0.91	24.4
6	R2	All MCs	257	0.8	255	0.8	*0.976	122.2	LOS F	19.5	137.2	1.00	1.20	1.49	13.8
Approach			673	0.9	667	0.9	0.976	78.1	LOS F	19.5	137.2	0.86	1.00	1.05	14.0
North: Condamine Street (N)															
7	L2	All MCs	82	0.0	82	0.0	0.161	21.7	LOS B	3.6	29.9	0.66	0.69	0.66	30.8
8	T1	All MCs	1274	1.9	1274	1.9	*0.863	55.4	LOS D	41.4	289.6	0.99	0.95	1.07	26.6
9	R2	All MCs	49	0.0	49	0.0	0.095	41.2	LOS C	1.3	9.3	0.72	0.71	0.72	40.9
Approach			1405	1.7	1405	1.7	0.863	52.9	LOS D	41.4	289.6	0.96	0.93	1.03	24.6
West: Kenneth Road (W)															
10	L2	All MCs	63	0.0	63	0.0	0.320	10.0	LOS A	5.9	41.1	0.91	0.76	0.91	29.1
11	T1	All MCs	39	0.0	39	0.0	*0.320	132.8	LOS F	5.9	41.1	0.91	0.76	0.91	21.6
12	R2	All MCs	114	1.9	114	1.9	0.616	54.2	LOS D	6.4	45.5	1.00	0.79	1.02	26.2
Approach			216	1.0	216	1.0	0.616	55.5	LOS D	6.4	45.5	0.96	0.78	0.97	26.4
All Vehicles			4113	1.7	4107	1.7	0.976	46.7	LOS D	41.4	289.6	0.87	0.85	0.93	24.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)