From: Stephen Whitaker
Sent: 16 Feb 2018 12:20:27 +1000
To: Brian Millard
Cc: Dominic Hammersley;Carl Ewin;Planning (Shared)
Subject: Change to Development Application - EMAIL 2 OF 2 - 112 Barnwell Road, Kuranda - RAL/18/0002
Attachments: Attachment J.PDF

Hi Brian,

I refer to the development application over land at 112 Barnwell Road, Kuranda (MSC Ref: RAL/18/0002). We act for the Applicant, Reever and Ocean Pty Ltd, in relation to this development application.

On behalf of the Applicant, please find attached correspondence provided in accordance with Section 52 of the *Planning Act 2016*, documenting a change to the application.

Due to the size of the documentation, it has been split across two (2) emails, this is email 2 of 2.

Should you have any queries in relation to this matter, please do not hesitate to contact me.

Kind Regards,

Stephen Whitaker
PLANNER
CARDNO

Cardno

Phone +61 7 4034 0500 Direct +61 7 4034 0512
Address 15 Scott Street, Parramatta Park, Cairns, Queensland 4870 Australia
Postal P.O. Box 1619, Cairns QLD 4870
Email stephen.whitaker@cardno.com.au Web www.cardno.com

CONNECT WITH CARDNO

Cardno's management systems are certified to ISO9001 (quality) and AS4801/OHSAS18001 (occupational health and safety)

This email and its attachments may contain confidential and/or privileged information for the sole use of the intended recipient(s). All electronically supplied data must be checked against an applicable hardcopy version which shall be the only document which Cardno warrants accuracy. If you are not the intended recipient, any use, distribution or copying of the information contained in this email and its attachments is strictly prohibited. If you have received this email in error, please email the sender by replying to this message and immediately delete and destroy any copies of this email and any attachments. The views or opinions expressed are the author's own and may not reflect the views or opinions of Cardno.

Traffic Impact Assessment

Proposed Non Urban Residential Subdivision Kuranda

QTT17026

Prepared for
Reever and Ocean Pty Ltd

18 January 2018

Cardno
Shaping the Future

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Document Information

Prepared for	Reever and Ocean Pty Ltd
Project Name	Proposed Non Urban Residential Subdivision Kuranda
File Reference	QTT17026 Kuranda Rural Residential Subdivision TIA (Edit)
Job Reference	QTT17026
Date	18 January 2018

Contact Information

Cardno (Qld) Pty Ltd
ABN 57 051 074 992

Level 11 Green Square North Tower
515 St Paul's Terrace
Locked Bag 4006
Fortitude Valley Qld 4006

Telephone: 07 3369 9822
Facsimile: 07 3369 9722
International: +61 7 3369 9822

transportqld@cardno.com.au
www.cardno.com.au

Document Control

Version	Date	Description of Revision	Author Initials	Author Signature	Reviewer Initials	Reviewed Signature
01	18/01/2018	V01	JP	Digitally signed by Jai Patel Date: 2018.01.18 16:26:10 +10'00'	DMH	D. Hayes Dianne Hayes RPEQ 7086

Version	Reason for Issue / Stage of Deliverable	Approver Initials	Approved Signature	Approved Release Date

© Cardno 2015. Copyright in the whole and every part of this document belongs to Cardno and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person other than by agreement with Cardno.

This document is produced by Cardno solely for the benefit and use by the client in accordance with the terms of the engagement. Cardno does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by any third party on the content of this document.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Table of Contents

1 Introduction **1**
1.1 Scope 1
1.2 References 1
2 Existing Situation **2**
2.1 Site location 2
2.2 Land Use and Zoning 3
2.3 Road Network 3
2.4 Crash History 6
2.5 Traffic flows 7
3 Proposed Development **10**
3.1 Summary of Development 10
3.2 Access 10
4 Development Impact **11**
4.1 Existing Traffic Movements 11
4.2 Traffic Growth Rate 11
4.3 Assessed Intersections 12
4.4 Assessment Scenarios 12
4.5 SIDRA Assessment Criteria 13
4.6 Operational Assessment Results 14
4.7 Road Section Analysis 17
5 Design Consideration **18**
5.1 Road Characteristics 18
6 Conclusion **20**

Tables

Table 2-1 Existing road network 3
Table 2-2 Crash Data 6
Table 2-3 Daily Traffic Flows 7
Table 4-1 Trip Generation Initial Scale (179 lots) 11
Table 4-2 Adopted Intersection Performance Threshold – Degree of Saturation 13
Table 4-3 Adopted Intersection Performance Threshold – Critical Delay 13
Table 4-4 SIDRA Outputs for Kennedy Highway / Myola Road / Rob Veivers Drive Intersection 14
Table 4-5 SIDRA Outputs for Kennedy Highway / Warril Drive / Fallon Road Intersection 15
Table 4-6 SIDRA Outputs for Kennedy Highway / Myola Road / Rob Veivers Drive Intersection 16
Table 4-7 Traffic Carrying Capacity Analysis 17

Figures

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Figure 2-1 Location of Development Site 2
Figure 2-2 Location of Development Site 2
Figure 2-3 Extract from Mareeba Shire Planning Scheme 3
Figure 2-4 Kennedy Highway 4
Figure 2-5 Myola Road 4
Figure 2-6 Barnwell Road (sealed section) 5
Figure 2-7 Barnwell Road (unsealed section) 5
Figure 2-8 Crash Locations 6
Figure 2-9 Traffic Survey Locations 7
Figure 2-10 Kennedy Highway/Myola Road Intersection flows (Peak Flows) 8
Figure 2-11 Warril Drive/Kennedy Highway/Fallon Road Intersection flows (Peak Flows) 8
Figure 2-12 Myola Road/Barnwell Road Intersection flows (Peak Flows) 9
Figure 3-1 Development Proposal 10
Figure 4-1 SIDRA Assessment locations 12
Figure 4-2 Current and SIDRA Assessed Layout – Kennedy Highway / Myola Road / Rob Veivers Drive Intersection 14
Figure 4-3 Current and SIDRA Assessed Layout – Kennedy Highway / Warril Drive / Fallon Road Intersection 15
Figure 4-4 Current and SIDRA Assessed Layout - Myola Road / Oak Forest Road / Barnwell Road Intersection 16
Figure 5-1 Rural Road Elements 18

Appendices

Appendix A Development site
Appendix B Austraffic survey data
Appendix C Trip distribution
Appendix D Detailed sidra outputs
Appendix E Phasing plan (TMR)
Appendix F FNQROC Extract

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

1 Introduction

Cardno has been commissioned by Reever and Ocean Pty Ltd (Reever and Ocean) to provide a Traffic Impact Assessment (TIA) report for a proposed non-urban residential subdivision on land located at Barnwell Road, Kuranda, located 22km north-west of Cairns. The key deliverable is to determine the impact and mitigation treatments (if any) required for the external road network, including the intersections of Kennedy Highway (Kuranda Range Road)/Myola Road and Myola Road/Barnwell Road as outlined in Figure 2-1. Drawings of the proposed development have been provided and are attached in Appendix A.

1.1 Scope

The objective of this report is to understand the traffic and transport issues associated with the proposed development. The report will form part of the Development Application (DA) for the proposal and provides the relevant approval authorities, including Mareeba Shire Council, the opportunity to adequately consider any traffic or transport related impacts.

Based on our understanding of the site and of Reever and Ocean's requirements, Cardno has been engaged to undertake the following tasks to complete this assessment:

> Review the existing road network to understand the current road connections and conditions.
> Estimate the traffic generation of the site based on the proposed land uses and activities.
> Estimate the traffic distribution onto the surrounding road network
> Provide engineering advice on access arrangements into the site and geometric requirements including upgrade requirements (if any) to adjacent roads and intersections.
> Assessment of the impact of the additional trips generated from the development on the local and state road network.
> Analysis of the impact of the development on the road network for the year of opening and the design horizon

1.2 References

In preparing this report, references are made to the following traffic engineering and council sources:

> Austroads Guide to Road Design Part 4A (2017)
> Austroads Guide to Road Design Part 3 (2016)
> Austroads Guide to Traffic Management Part 6 (2017)
> Mareeba Shire Planning Scheme (*2004*)
> Manual of Uniform Traffic Control Devices Part 2 (2003)
> Guide to Traffic Impact Assessment (2017)
> Far North Queensland Regional Organisation of Councils Development Manual (2014)
> Department of Transport and Main Roads: Road Planning and Design Manual (2004)

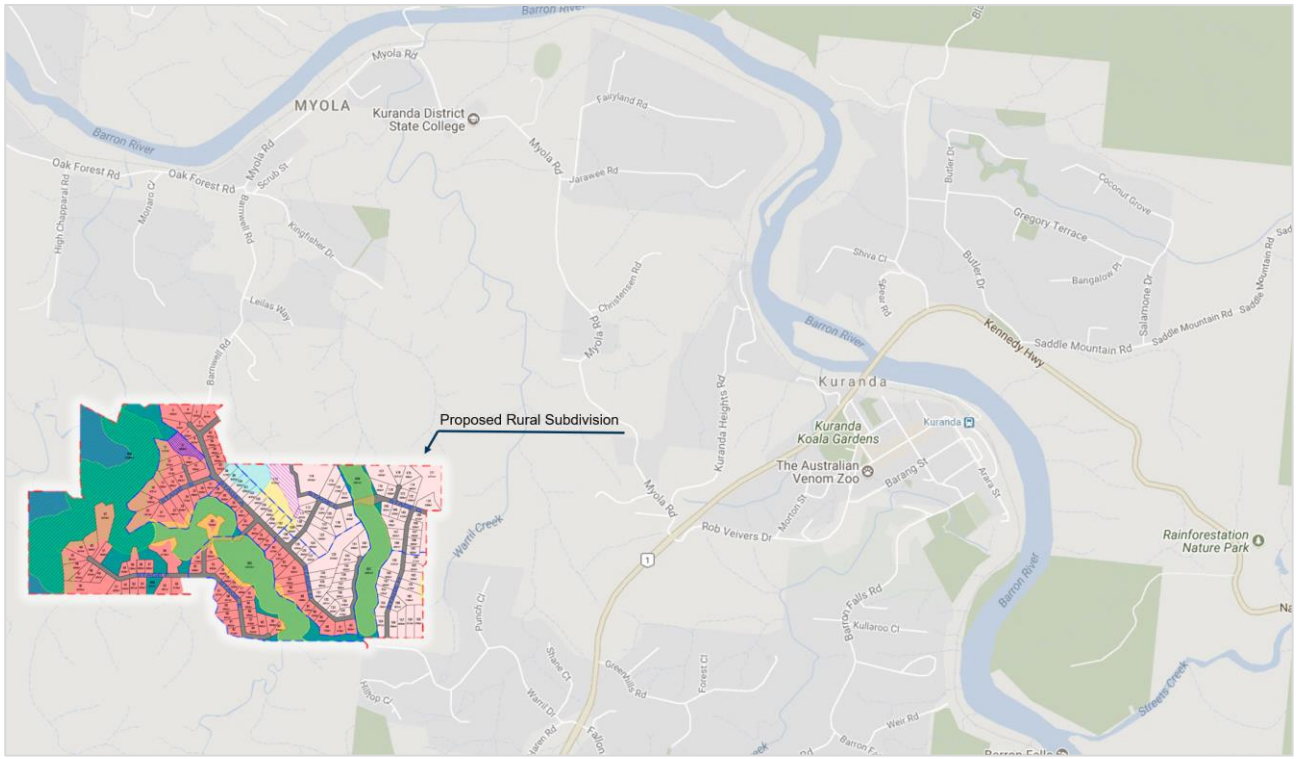
Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

2 Existing Situation

2.1 Site location

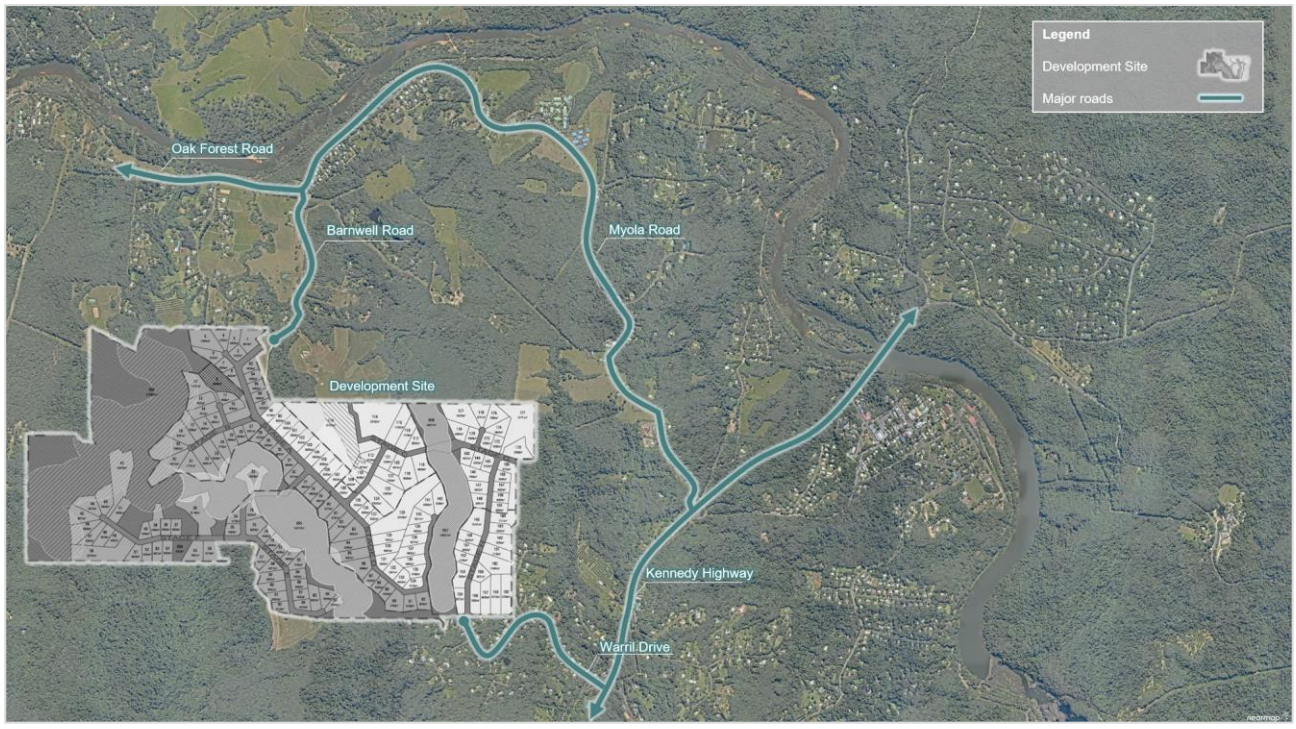
The site is located west of Cairns in North Queensland and is accessible via the Kennedy Highway. Figure 2-1 provides a profile of the site within the northern region.

Figure 2-1 Location of Development Site



Source: Nearmap

Figure 2-2 Location of Development Site



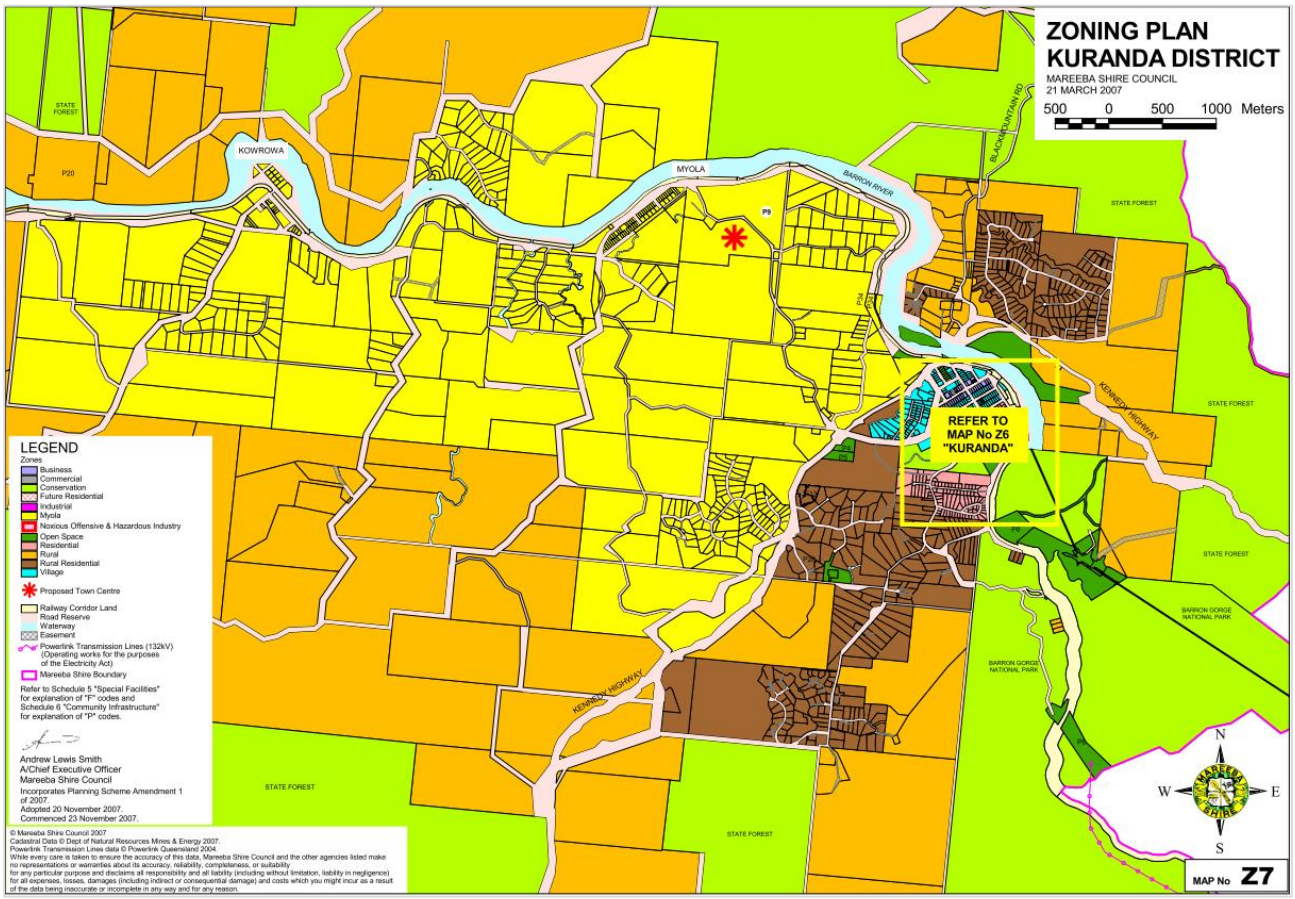
Source: Nearmap

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

2.2 Land Use and Zoning

The proposed development falls within the Myola Zone of the zoning maps in the Mareeba Shire Planning Scheme *(2004)*. The anticipated traffic growth rate of the surrounding area is considered to be relatively low.

Figure 2-3 Extract from Mareeba Shire Planning Scheme



Source: Mareeba Shire Planning Scheme (2004) Zoning Maps (Map Z7)

2.3 Road Network

The site is currently accessed from Barnwell Road. A profile of the surrounding road network site is outlined in Table 2-1.

Table 2-1 Existing road network

Road	Form	Posted Speed
Kennedy Highway	Two lane undivided	80km/h
Myola Road	Two lane undivided	60km/h
Barnwell Road	Two lane undivided	60km/h

Source: Site Inspection

Kennedy Highway is a state controlled road linking Cairns to the Atherton Tablelands which includes Kuranda. Kennedy Highway (Figure 2-4) is an 80km/h, 7.0m wide, two lane, undivided sealed road with line markings and shoulders which extend to turn lanes on approach to the intersection with Myola Road.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Figure 2-4 Kennedy Highway

Source: Nearmap

Myola Road is a major rural road connecting Kuranda to communities located along the Barron River including Myola and Kowrowa. The Kuranda District State College is also located on Myola Road. Myola Road is an undivided sealed road with a posted speed of 60km/h, with a pavement width varying from 6.0m to 7.0m and comprising of two lanes with line markings and shoulders (on intersection approaches only).

Figure 2-5 Myola Road

Source: Kuranda site visit

Barnwell Road is a 5.0m wide, two lane road with no line markings or shoulders. A 60km/h area sign posted at the Myola Road / Barnwell Road intersection applies throughout the area unless indicated otherwise. The northern section of Barnwell Road, approximately 650m south of Myola Road/Barnwell Road intersection, comprises of a sealed pavement and turns to a gravel surface ranging from 3.3m to 5.0m in width outlined in Figure 2-6 and Figure 2-7. This gravel section of the road currently provides access to only three (3) properties.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Figure 2-6 Barnwell Road (sealed section)

Source: Kuranda site visit

Figure 2-7 Barnwell Road (unsealed section)

Source: Kuranda site visit

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

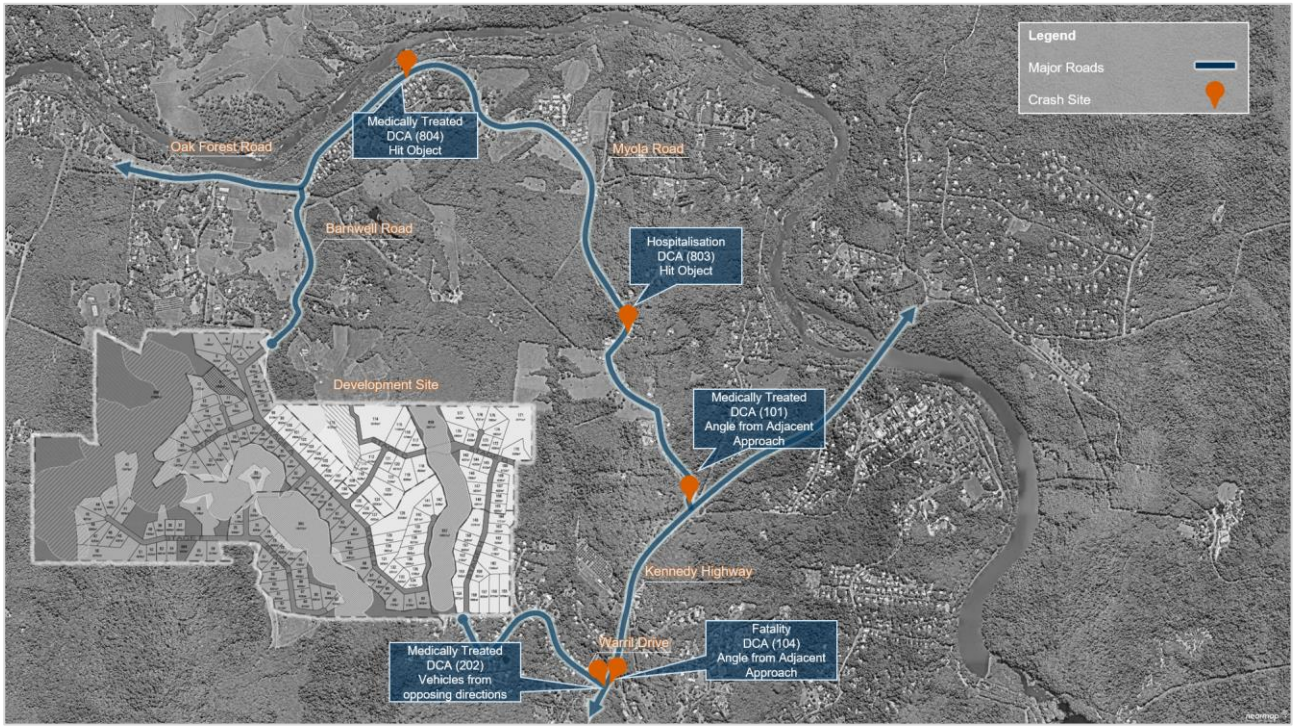
2.4 Crash History

A review of the crash data for the past five (5) years (2012-2017) for the road network around the site has been undertaken and is summarised in Table 2-2 with locations shown in Figure 2-8.

Table 2-2 Crash Data

Location	Date	Type & DCA Code	Casualty
Myola Road	February 2013	Hit Object 804	Medically Treated
Kennedy Highway/Myola Road intersection	August 2013	Angle from Adjacent Approach 101	Medically Treated
Myola Road	November 2015	Hit Object 803	Hospitalisation
Kennedy Highway/Warril Drive intersection	March 2015	Vehicles from opposing directions 202	Medically Treated
Kennedy Highway/Warril Drive intersection	June 2015	Angle from adjacent approach	Fatal

Figure 2-8 Crash Locations



Source: Nearmap, & Department of Transport and Main Roads

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

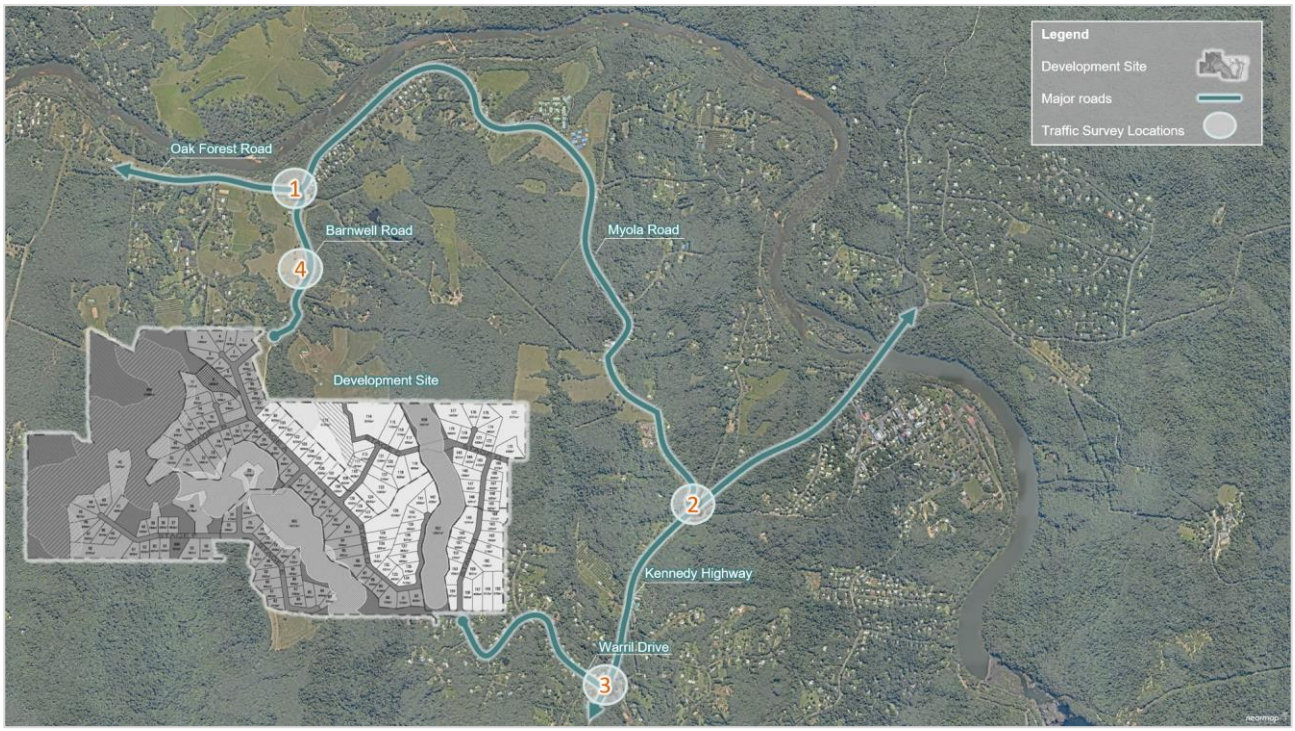
2.5 Traffic flows

2.5.1 Surveys

Traffic surveys were carried out by AusTraffic, on the Wednesday May 10th 2017, from 6:00AM to 8:00PM at the following locations;

1. Kennedy Highway / Myola Road / Rob Veivers Drive Intersection
2. Myola Road / Oak Forest Road / Barnwell Road Intersection
3. Kennedy Highway / Warril Drive / Fallon Road
4. Barnwell Road (300m south of Kingfisher Drive)

Figure 2-9 Traffic Survey Locations



Source: Nearmap

The Average Annual Daily Traffic (AADT) Volume for Kennedy Highway was provided from Transport and Main Roads Traffic Census Data (2016). The daily volumes for Myola Road and Barnwell Road are estimated from peak hour flows (survey) and factored (15% for rural roads) as per *Austroads Guide to Traffic Management Part 6 (2017) Cl 2.3.6.* Table 2-3 outlines the AADT volumes for the roads of interest.

Table 2-3 Daily Traffic Flows

Road	AADT* (vpd)
Kennedy Highway (North of Myola Road)	8740
Kennedy Highway (South of Myola Road)	5830
Myola Road	1560
Barnwell Road	55

*Values rounded up

A review of the traffic survey data was undertaken, and the common peak hour period was identified for all surveyed intersections as follow;

> Morning (AM) Peak: 8:15AM – 9:15AM
> Afternoon (PM) Peak: 2:30PM – 3:30PM

A summary of the morning and afternoon peak hour traffic flows at the intersection of Myola Road and Kennedy Highway, Barnwell Road and Myola Road and Warril Drive and Kennedy Highway is shown in Figure 2-10, Figure 2-11 and Figure 2-12. Full details for intersection surveys are provided in Appendix B.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Figure 2-10 Kennedy Highway/Myola Road Intersection flows (Peak Flows)

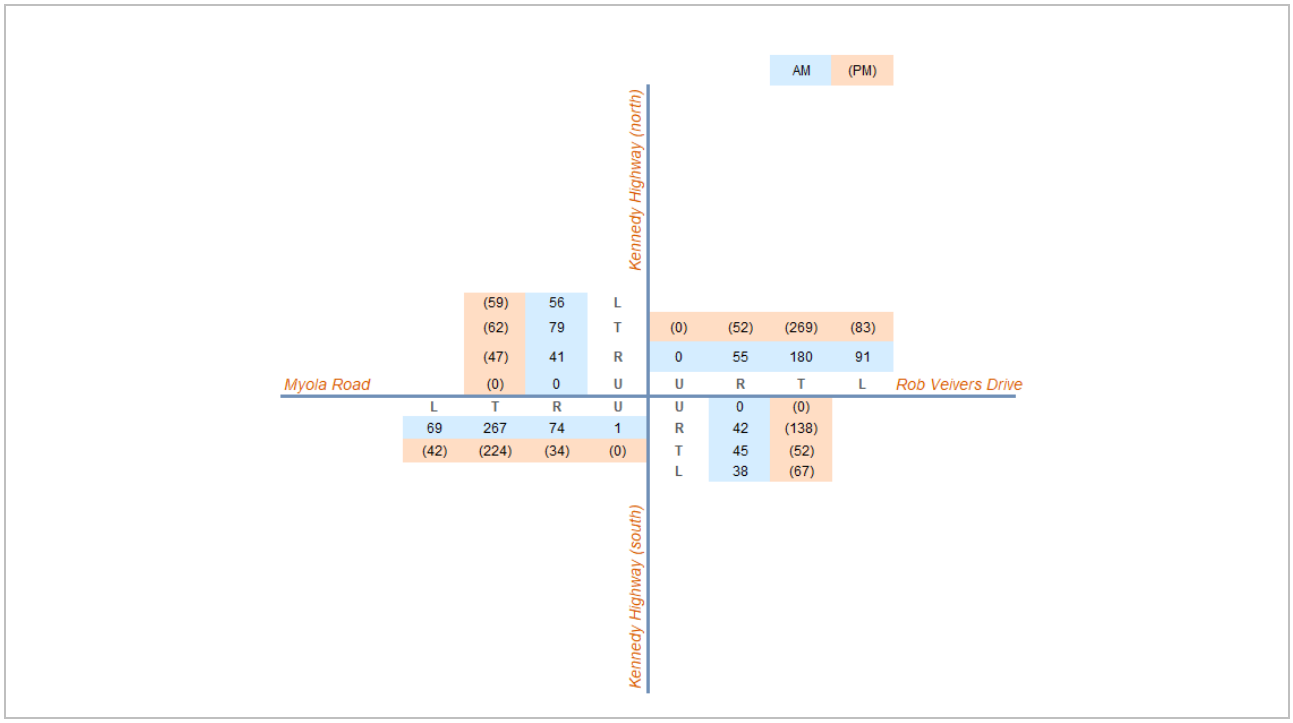
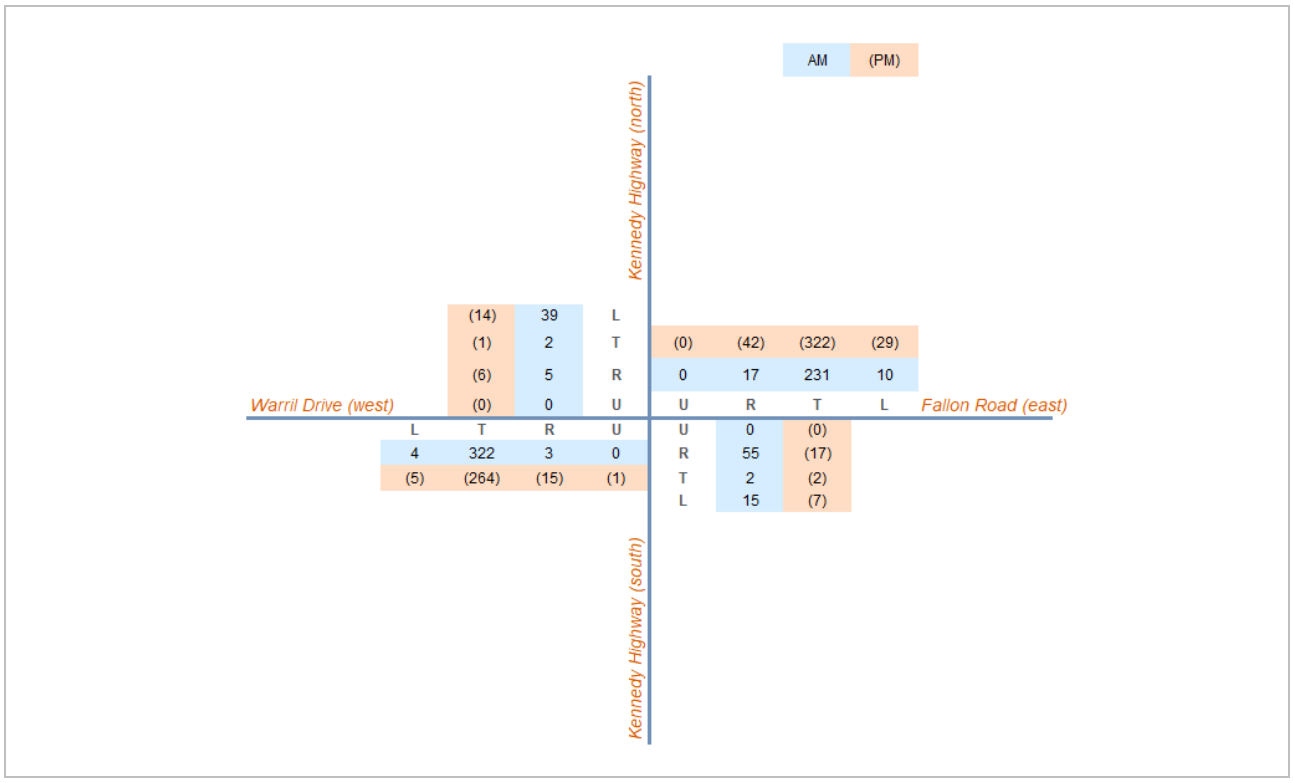
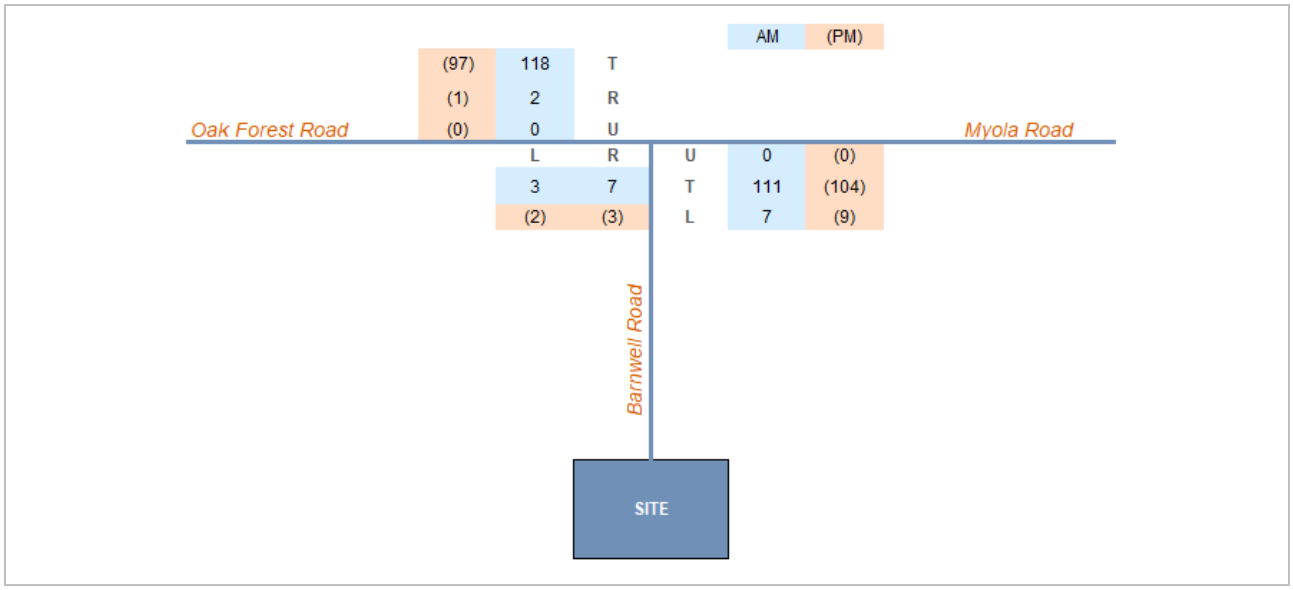


Figure 2-11 Warril Drive/Kennedy Highway/Fallon Road Intersection flows (Peak Flows)



Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Figure 2-12 Myola Road/Barnwell Road Intersection flows (Peak Flows)



Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

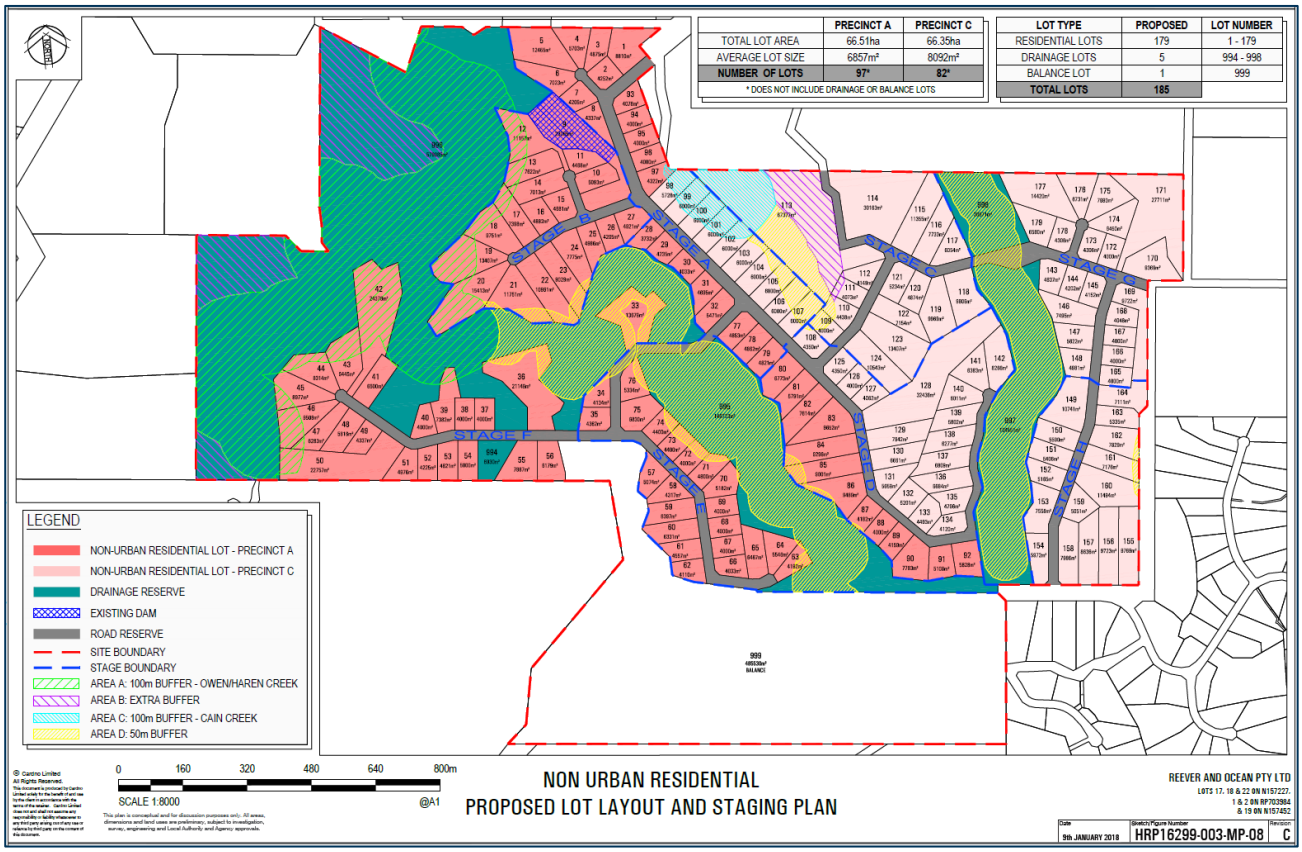
3 Proposed Development

3.1 Summary of Development

The proposed development consists of a non-urban residential development located between Warril Drive and Barnwell Road. The land is described as Lots 17,18 and 22 on N157227, Lots 1 and 2 on RP703984 and Lot 19 on N157452.

The proposal includes 179 residential lots across 8 stages of development with linkages to Barnwell Road in the north and Warril Drive to the south. It is expected that the staging of development could be complete within a 10 to 16 year timeframe, although this is dependent on future sales of allotments.

Figure 3-1 Development Proposal



Source: Cardno

3.2 Access

Traffic associated with the development will access the site from two locations. The northern access will be from Barnwell Road. Access to the major road network will be along Myola Road through to the intersection with Kennedy Highway.

The southern access will be via Warril Drive linking to an existing sealed section of road. Access to the major road network will be along Warril Drive to the intersection with Kennedy Highway.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

4 Development Impact

4.1 Existing Traffic Movements

4.1.1 Trip Generation

In order to analyse the impact of the development on the existing transport infrastructure, it is necessary to assess the number of trips generated to and from the site and where they are likely to travel. Reference has been made to the Austroads Guides and the RTA Guide to Traffic Generating Developments.

The potential development traffic generation from the site has been estimated based on 179 residential lots and a peak hour traffic generating rate for residential lots of 0.85 trips per lot during the peak hour and 9.0 trips per lot per day.

Table 4-1 Trip Generation Initial Scale (179 lots)

Trip Generation		
Lots	**Peak Hour Trips (0.85 trips per lot)**	**Daily Trips (9 trips per lot per day)**
179 Lots	152	1,611

4.1.2 Traffic Distribution

Directional splits for residential developments are generally 70% departures and 30% arrivals in the morning peak with the reverse in the afternoon peak period. It is estimated that the majority of trips will be generated to and from the Kennedy Highway. The assignment of traffic to the external road network has been based on existing patterns obtained from traffic survey data.

At the intersection of Myola Road and Kennedy Highway the distribution has been assigned as:

- 70% to and from Kennedy Highway east
- 20% to and from Rob Vievers Drive
- 10% to and from Kennedy Highway west

At the intersection of Warril Drive and Kennedy Highway the distribution has been assigned as:

- 70% to and from Kennedy Highway east
- 5% to and from Fallon Road
- 25% to and from Kennedy Highway west

It is assumed that up until the commencement of Stage H, all traffic generated from Stages A through to G will access the external road network via Barnwell Road to Myola Road and the Kennedy Highway. Stage H will provide an alternative route to Kennedy Highway via Warril Drive. Therefore, it is assumed that approximately 90 lots (50% of the development) will utilise the access to Warril Drive and Kennedy Highway due to the shorter more convenient route and 90 lots will continue to use Barnwell Road which is closer to the local school.

4.2 Traffic Growth Rate

Traffic growth applied to the background traffic volumes represents the increase in traffic associated with the surrounding area. A compound growth of 2% has been adopted to flows on Kennedy Highway and Rob Vievers Drive, and a growth of 1% has been applied to Myola Road, Warril Drive and Barnwell Road. These flows have been analysed at the predicted 2019 opening year with an expected 10 years of construction through to the 2029 and therefore a design horizon year of 2039 (10-year design horizon after the completion of development).

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

4.3 Assessed Intersections

The following intersections have been assessed. Figure 4-1 illustrates the locations of these intersections:

1. Signalised intersection at Kennedy Highway, Myola Road and Rob Veivers Drive
2. Priority controlled T-intersection at Myola Road and Barnwell Road
3. Signalised intersection at Kennedy Highway, Warril Drive and Rob Fallon Road

Figure 4-1 SIDRA Assessment locations

Source: Nearmap

4.4 Assessment Scenarios

The following scenarios have been assessed for the proposed development:

> 2017 Background Traffic
> 2019 year of Commencement
> 2029 Background Traffic *(Year of Completion)*
> 2039 Background Traffic *(10 year Design Horizon)*
> 2029 With Development *(Year of Completion)*
> 2039 With Development *(10 year Design Horizon)*

The background, future traffic and development traffic scenario volumes for the AM and PM peak have been included in Appendix C. Detailed SIDRA analysis outputs are provided in Appendix D.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

4.5 SIDRA Assessment Criteria

The performance of each intersection was analysed using SIDRA Intersection 7 (SIDRA) which is an industry recognised analysis tool that estimates the capacity and performance of intersections based on input parameters, including geometry and traffic volumes, and provides estimates of an intersection's Degree of Saturation (DOS), queues and delays. Simplistically, DOS is a measure of the proportion of traffic entering an intersection relative to the intersection's capacity. Table 5-1 provides the defined DOS intervention thresholds for intersections.

Table 4-2 Adopted Intersection Performance Threshold – Degree of Saturation

Intersection Control	DOS Threshold
Signals	Less than or equal to 0.90
Priority-controlled	Less than or equal to 0.80

Source: TMR *Guidelines for Assessment of Road Impacts of Development* (2006)

Importantly it is noted that DOS is not the only performance indicator and that other measures such as critical delay should also be considered when assessing the performance of an intersection. Other authorities such as the NSW Roads and Maritimes Services (RMS) recommend the use of the critical movement delay for assessing the performance of priority-controlled intersections. The RMS Guide to Traffic Generating Developments states that the average delay statistics for the critical movement provides a better indication of intersection performance and safety for priority-controlled intersections and roundabouts than DOS. Table 7- 2 provides the RMS-defined delay thresholds.

Level of service is a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A key issue is determining the level of service that is deemed acceptable, and whether that level should be a projected level for future operations of a facility, or the level existing at the current operation of the facility.

Table 4-3 Adopted Intersection Performance Threshold – Critical Delay

LOS	Level of Service Description	Critical Delay
A	Good Operation	Less than 14 sec
B	Acceptable delays and spare capacity	15 to 28 sec
C	Satisfactory, but accident study required	29 to 42 sec
D	Near capacity and accident study required	43 to 56 sec
E	At capacity, requires or control mode	57 to 70 sec

Source: RMS Guide to Traffic Generating Developments

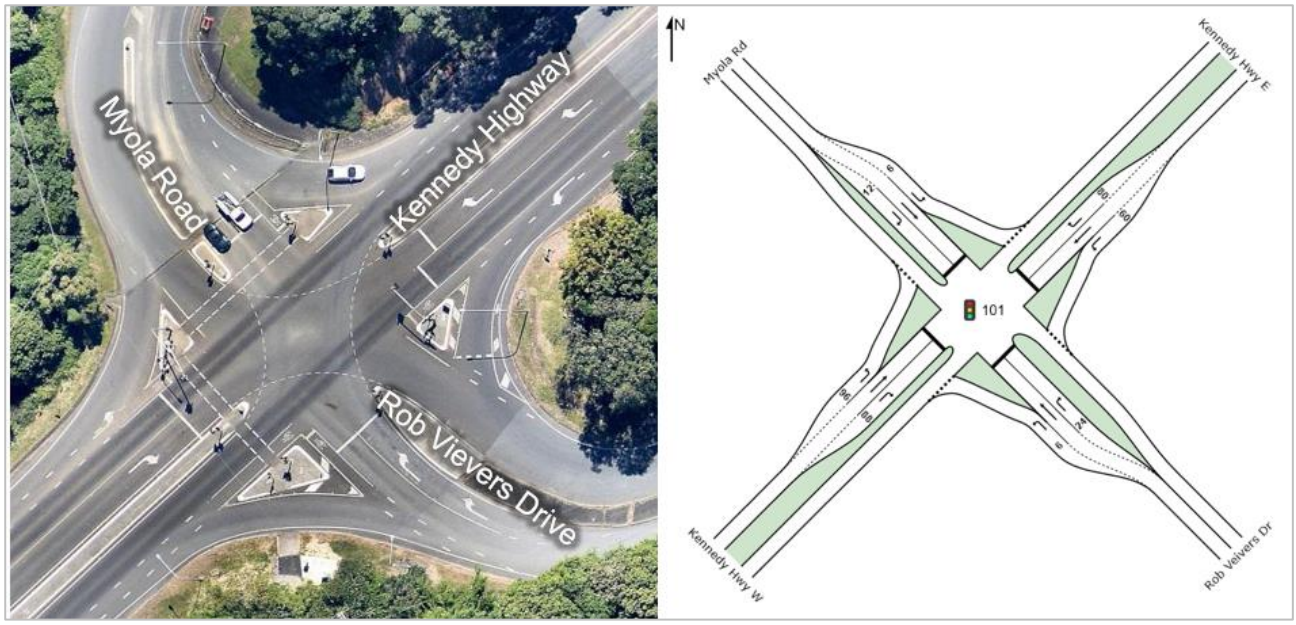
Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

4.6 Operational Assessment Results

4.6.1 Kennedy Highway / Myola Road / Rob Veivers Drive Intersection

The current configuration of this intersection is a four-way signalised arrangement. The aerial and SIDRA assessed layout are illustrated in Figure 4-2. Phasing has been provided by TMR and has been attached for reference in Appendix E.

Figure 4-2 Current and SIDRA Assessed Layout – Kennedy Highway / Myola Road / Rob Veivers Drive Intersection



Source: Nearmap, SIDRA 7.0

Table 4-4 SIDRA Outputs for Kennedy Highway / Myola Road / Rob Veivers Drive Intersection

Scenarios	AM Peak			PM Peak		
	DOS	Delay (sec)	95th %ile Queue	DOS	Delay (sec)	95th %ile Queue
2017 Background	0.63	21	68m	0.73	25sec	59m
2029 Background	0.65	22	90m	0.82	27sec	77m
2029 With Development 163 lots (stage 7)	0.84	23	96m	0.833	28sec	84m
2039 Background	0.68	23	110	0.79	30sec	107m
2039 With Development All 179 lots	0.71	25	126m	0.90	31sec	116m

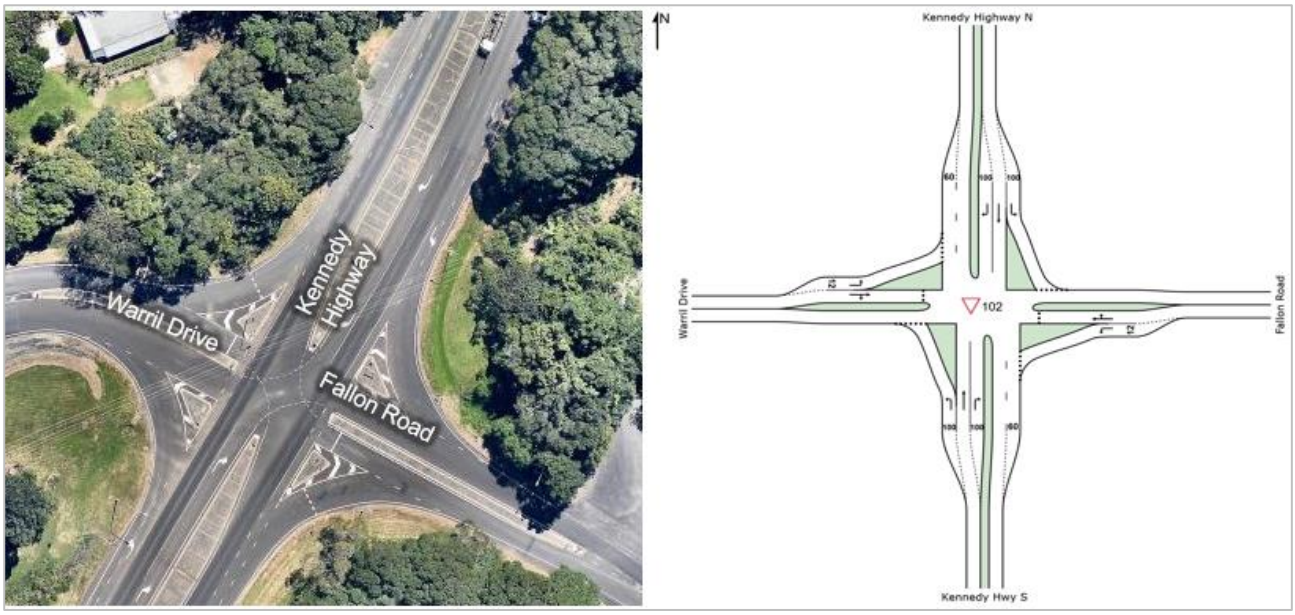
The results indicate the intersection operates within the typical performance thresholds (DOS ≤ 0.90 for signals) for all scenarios. It is noted that with the inclusion of the proposed expansion traffic, the critical delay and 95th percentile queue is not significantly impacted, when compared to the background scenarios. There is no requirement to provide mitigation measures for this intersection.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

4.6.2 Kennedy Highway /Warril Drive /Fallon Road Intersection

The current configuration of this intersection is a four-way priority controlled intersection. The aerial and SIDRA assessed layout are illustrated in Figure 4-3.

Figure 4-3 Current and SIDRA Assessed Layout – Kennedy Highway / Warril Drive / Fallon Road Intersection



Source: Nearmap, SIDRA 7.0

Table 4-5 SIDRA Outputs for Kennedy Highway / Warril Drive / Fallon Road Intersection

Scenarios	AM Peak			PM Peak		
	DOS	Delay (sec)	95th %ile Queue	DOS	Delay (sec)	95th %ile Queue
2017 Background	0.24	2.7	6.0m	0.18	1.9	2.0m
2029 Background	0.38	3.3	10.2m	0.23	2.0	3.2m
2039 Background	0.66	5.2	15.4m	0.26	2.2	5.0m
2029 With Development 90 lots	0.40	4.2	10.7m	0.25	3.3	5.8m
2039 With Development 90 lots	0.58	5.4	17m	0.26	3.0	6.0m

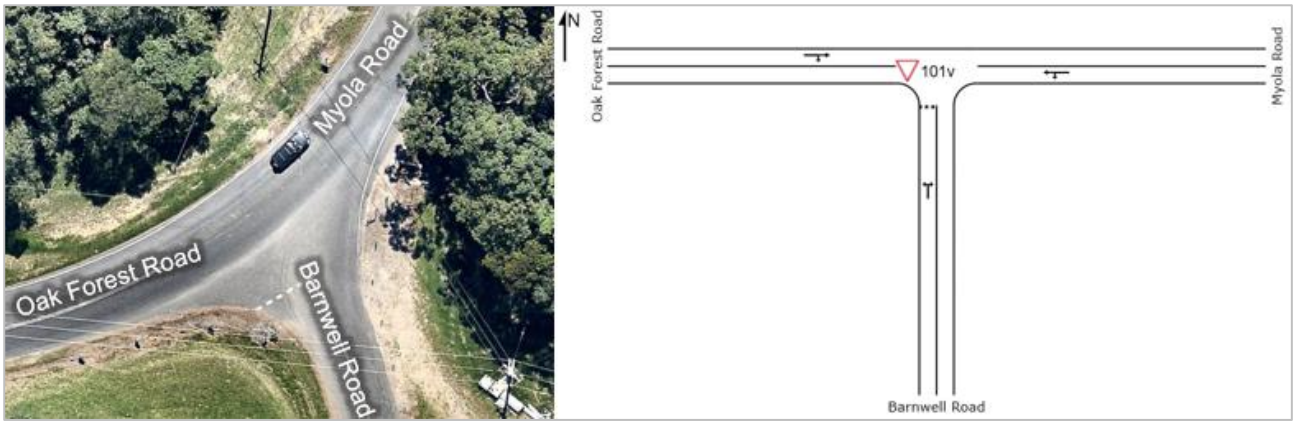
The results indicate the current form of the intersection operates within the typical performance thresholds (DOS ≤ 0.80 for priority controlled intersections) for all scenarios. It is noted that with the inclusion of the proposed expansion traffic, the critical delay and 95th percentile queue is not significantly impacted, when compared to the background scenarios. No mitigation measures are required.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

4.6.3 Myola Road / Oak Forest Road / Barnwell Road Intersection

The current configuration of this intersection is priority controlled t-intersection. The aerial and SIDRA assessed layout are illustrated in Figure 4-3.

Figure 4-4 Current and SIDRA Assessed Layout - Myola Road / Oak Forest Road / Barnwell Road Intersection



Source: Nearmap, SIDRA 7.0

Table 4-6 SIDRA Outputs for Kennedy Highway / Myola Road / Rob Veivers Drive Intersection

Scenarios	AM Peak			PM Peak		
	DOS	Delay (sec)	95th %ile Queue	DOS	Delay (sec)	95th %ile Queue
2017 Background	0.07	0.5	0m	0.06	0.4	0m
2029 Background	0.08	0.5	0m	0.07	0.4	0m
2039 Background	0.08	0.5	0m	0.08	0.4	0m
2039 With Development 179 lots	0.13	2.5	3m	0.14	2.4	1m

The results indicate the current form of the intersection operates within the typical performance thresholds (DOS ≤ 0.80 for priority controlled intersections) for all scenarios. It is noted that with the inclusion of the proposed expansion traffic, the critical delay and 95th percentile queue is not significantly impacted, when compared to the background scenarios. No mitigation measures are required.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

4.7 Road Section Analysis

The annual average daily traffic volume (AADT) for 2016 for Kennedy Highway has been obtained from TMR and indicates traffic flows of 8,738 vehicles per day (vpd) east of Myola Road and 5,830 vpd west of Myola Road. The proposed development generates an additional 1,611 vehicles per day, and approximately 1,128 vehicles per day to the east of Myola Road on the Kuranda Range section of Kennedy Highway. As per Austroads Guide to Traffic Management Part 3, the mid-block capacity for undivided urban roads is 900 vehicles (passenger car units) per hour per lane (one-way). The Kennedy Highway is an arterial road with a traffic carrying function of over 15,000 vehicles per day and therefore has spare capacity for future growth. The impact of additional development generated traffic does not adversely impact on its functional capacity of the state controlled road network.

Table 4-7 Traffic Carrying Capacity Analysis

Traffic Carry Functional Characteristics					
Road Link	**Traffic Capacity**	**Existing Daily Volume**	**Development Traffic**	**Total Traffic Flows**	**Within Capacity Limits**
Kennedy Highway (east of Myola Road)	15,000 vpd	8,738 vpd	1,128 vpd	9,866 vpd	Yes
Kennedy Highway (west of Myola Road)	15,000 vpd	5,830 vpd	322 vpd	6,152 vpd	Yes

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

5 Design Consideration

5.1 Road Characteristics

A review of the capacity and formation of the existing sections of road has been undertaken to determine the suitability for the proposed development traffic. In accordance with the Far North Queensland Regional Organisation of Councils Development Manual (FNQROC) (2014), rural roads with less than 100vpd require a formation of 8.0m and a seal width of 4.5m (Figure 5-1). The existing sealed width of Barnwell Road and Warril Drive is approximately 5.0m, complying with FNQROC (2014). The southern gravel section of Barnwell Road currently functions as a driveway to access three rural properties.

Figure 5-1 Rural Road Elements

Traffic Volume or Road Class	<100VPD [5,6]	100 – 999 [5]	1000 - 2999 (or rural collector)	>3000 (or sub-arterial)
Road Reserve (flat terrain ≤ 5%)	20m	20m	25m	To be designed in accordance with AUSTROADS or DMR design guidelines.
Road Reserve [2] (Undulating/Hilly > 5%)	25m	25m	30m	
Formation	8m	8m	10m	
Pavement Width	5.5m	6.5m	8m	
Seal Width	4.5 [1,7]	6.5m	8m (incl. 0.5m sealed shoulders)	
Shoulders [3]	1.25m Approved Select material	0.75m gravel	1m gravel	
Desirable Speed Environment	100kph	100kph	100kph	
Design Speed for Individual Elements (Minimum)	80kph	80kph	80kph	

Source: Far North Queensland Regional Organisation of Councils Development Manual (2014)

Barnwell Road is currently approaching 100vpd at the intersection with Myola Road, however toward the development site the traffic flows on Barnwell Road are very low. With the proposed development, Barnwell Road will fall within the 100-999vpd criteria and will therefore require an upgraded seal width of 6.5m on an 8m formation to comply with the FNQROC Development Manual (2014). It is also recommended that as part of Stage G, the pavement width of Myola Road be upgraded to provide an 8m seal to comply with FNQROC requirements.

Warril Drive currently has between 160 and 600 vehicles per day and does not currently meet the rural road requirements of providing a 6.5m seal as per the FNQROC Development Manual. It is recommended that as part of Stage H of the development and the connection to Warril Drive that shoulder widening be undertaken to provide a 6.5m seal width.

Table 5-1 outlines the relationship between the existing road infrastructure and the requirements of the FNQROC standards, in relation to both pre-development and post-development traffic volumes.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Table 5-1 FNQROC Compliance Summary

Road Section	Existing Traffic Volume (vpd)	Applicable FNQROC Standard (Current)	Compliance with Standard (Current)	Existing Construction	Upgrade Requirements (without development)	Future Traffic Volume (with development) (vph)	Applicable FNQROC Standard (Future)	Compliance with Standard (Future)	Upgrade Requirements (with development)
Barnwell Road North	55	<100	✘	5m seal width, 5m pavement width	5.5m pavement width	865	100-999	✘	6.5m pavement width, 6.5m seal width, 0.75m shoulder width
Barnwell Road South	27	<100	✘	Gravel surface (no sealing)	4.5m seal width, 5.5m pavement width	910	100-999	✘	6.5m pavement width, 6.5m seal width, 0.75m shoulder width
Myola Road	1560	1000-2999	✘	6.5m – 7.5m seal width, 6m – 7m pavement width	10m formation, 8m pavement width, 8m seal width (with 0.5m sealed shoulders), 1m gravel shoulder	2370	1000-2999	✘	10m formation, 8m pavement width, 8m seal width (with 0.5m sealed shoulders), 1m gravel shoulder
Warril Drive	160-600	100-999	✘	5m seal width, 5m pavement width	6.5m pavement width, 6.5m seal width, 0.75m shoulder width	970-1410	1000-2999	✘	6.5m pavement width, 6.5m seal width, 0.75m shoulder width

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

6 Conclusion

This report has assessed the impact of traffic generated by the proposed rural residential development on the local and state transport network. Consideration has been given to operational performance, road safety and access arrangements.

An assessment was carried out of the trips likely to be generated by the proposed development and the estimated distribution of trips on the existing street network. The impact of the proposed development on the road network has been analysed using procedures set out in *Austroads* and SIDRA Traffic modelling software. Results of analysis indicate that the road network continues to operate with spare capacity and the impact of development traffic on the operational performance of the external road network is insignificant.

The following mitigation measures are proposed:

- Prior to the completion of the first stage of development (Stage A) it is recommended that the existing gravel section of Barnwell Road be widened to provide a sealed width of 6.5m on an 8m formation.
- It is also recommended that as part of Stage G, the pavement width of Myola Road be upgraded to provide an 8m seal to comply with FNQROC requirements.
- It is recommended that as part of the final stage of development (stage H) and the connection to Warril Drive that shoulder widening be undertaken on Warril Drive to provide a 6.5m seal width.

In conclusion, the proposed rural residential development will not adversely impact on the operational performance of the surrounding road network and the proposed access arrangements are considered adequate and suitable for the proposed land use. Some additional improvements to the road formation of Barnwell Road and Warril Drive are required at various stages of the project to improve safety and comply with current road design standards.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Proposed Non Urban Residential Subdivision Kuranda

APPENDIX A
DEVELOPMENT SITE

Cardno
Shaping the Future

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

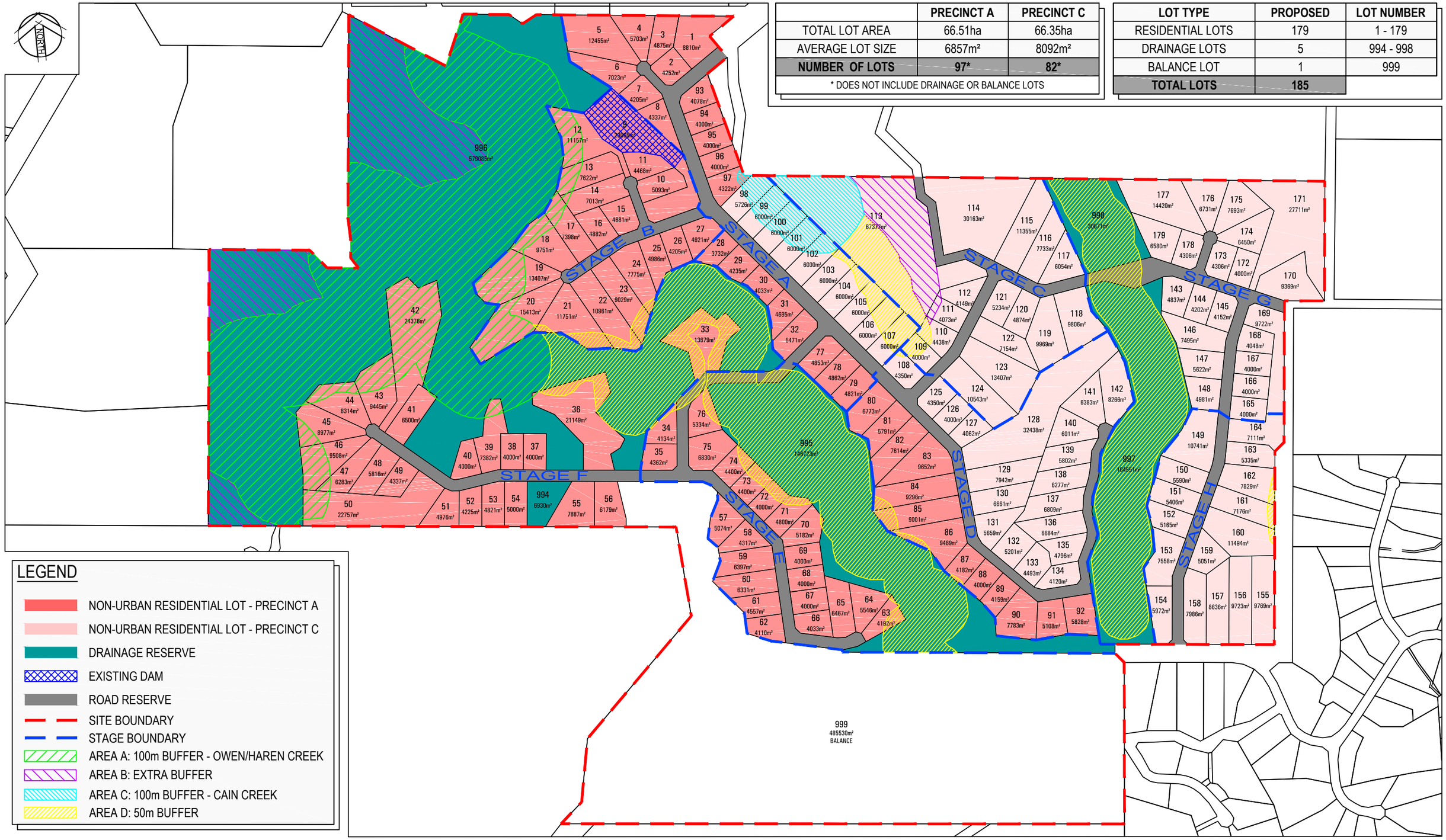
Cardno (Qld) Pty Ltd | ABN 57 051 074 992
15 Scott Street
Parramatta Park, Qld 4870
PO Box 1619, Cairns, Qld 4870
Tel:(07) 4034 0500
Email: cairns@cardno.com.au Web: www.cardno.com.au

Cardno
Shaping the Future

IMAGERY SUPPLIED BY NEARMAP JAN 2017

	PRECINCT A	PRECINCT C
TOTAL LOT AREA	66.51ha	66.35ha
AVERAGE LOT SIZE	6857m²	8092m²
NUMBER OF LOTS	**97***	**82***
* DOES NOT INCLUDE DRAINAGE OR BALANCE LOTS		

LOT TYPE	PROPOSED	LOT NUMBER
RESIDENTIAL LOTS	179	1 - 179
DRAINAGE LOTS	5	994 - 998
BALANCE LOT	1	999
TOTAL LOTS	**185**	



LEGEND

- NON-URBAN RESIDENTIAL LOT - PRECINCT A
- NON-URBAN RESIDENTIAL LOT - PRECINCT C
- DRAINAGE RESERVE
- EXISTING DAM
- ROAD RESERVE
- SITE BOUNDARY
- STAGE BOUNDARY
- AREA A: 100m BUFFER - OWEN/HAREN CREEK
- AREA B: EXTRA BUFFER
- AREA C: 100m BUFFER - CAIN CREEK
- AREA D: 50m BUFFER

© Cardno Limited
All Rights Reserved.
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.

0 160 320 480 640 800m

SCALE 1:8000 @A1

This plan is conceptual and for discussion purposes only. All areas, dimensions and land uses are preliminary, subject to investigation, survey, engineering and Local Authority and Agency approvals.

NON URBAN RESIDENTIAL
PROPOSED LOT LAYOUT AND STAGING PLAN

REEVER AND OCEAN PTY LTD
LOTS 17, 18 & 22 ON N157227,
1 & 2 ON RP703984
& 19 ON N157452

Date	Sketch/Figure Number	Revision
9th JANUARY 2018	HRP16299-003-MP-08	C

AUSTRALASIA ASIA AFRICA MIDDLE EAST UK/EUROPE NORTH AMERICA LATIN AMERICA

DATE PLOTTED: 9 January 2018 3:00 PM
CAD FILE: H:\2017\HRP16299 - KUR World Rural Residential Subdivision\002 - Town Planning\Drafting\Acad\HRP16299-003-MP-08 RevC.dwg

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Proposed Non Urban Residential Subdivision Kuranda

APPENDIX B
AUSTRAFFIC SURVEY DATA

Cardno
Shaping the Future

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 **Weather:** Fine

Location: Kennedy Highway/Myola Road/Rob Veivers Drive, Kuranda

Day/Date: Wednesday, 10 May 2017

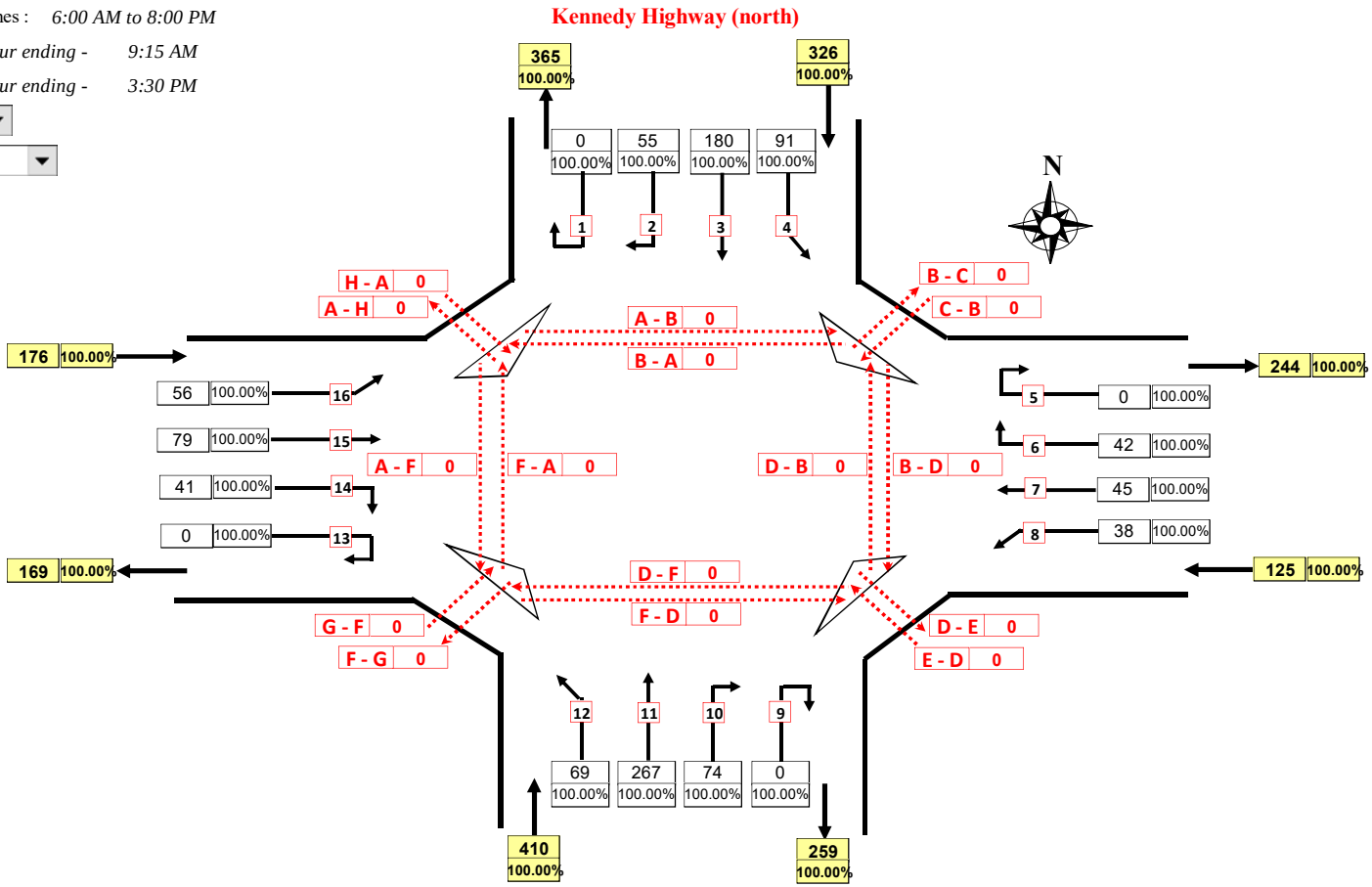
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 9:15 AM*

PM Peak : *Hour ending - 3:30 PM*

Hour Ending: 9:15 AM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 **Weather:** Fine

Location: Kennedy Highway/Myola Road/Rob Veivers Drive, Kuranda

Day/Date: Wednesday, 10 May 2017

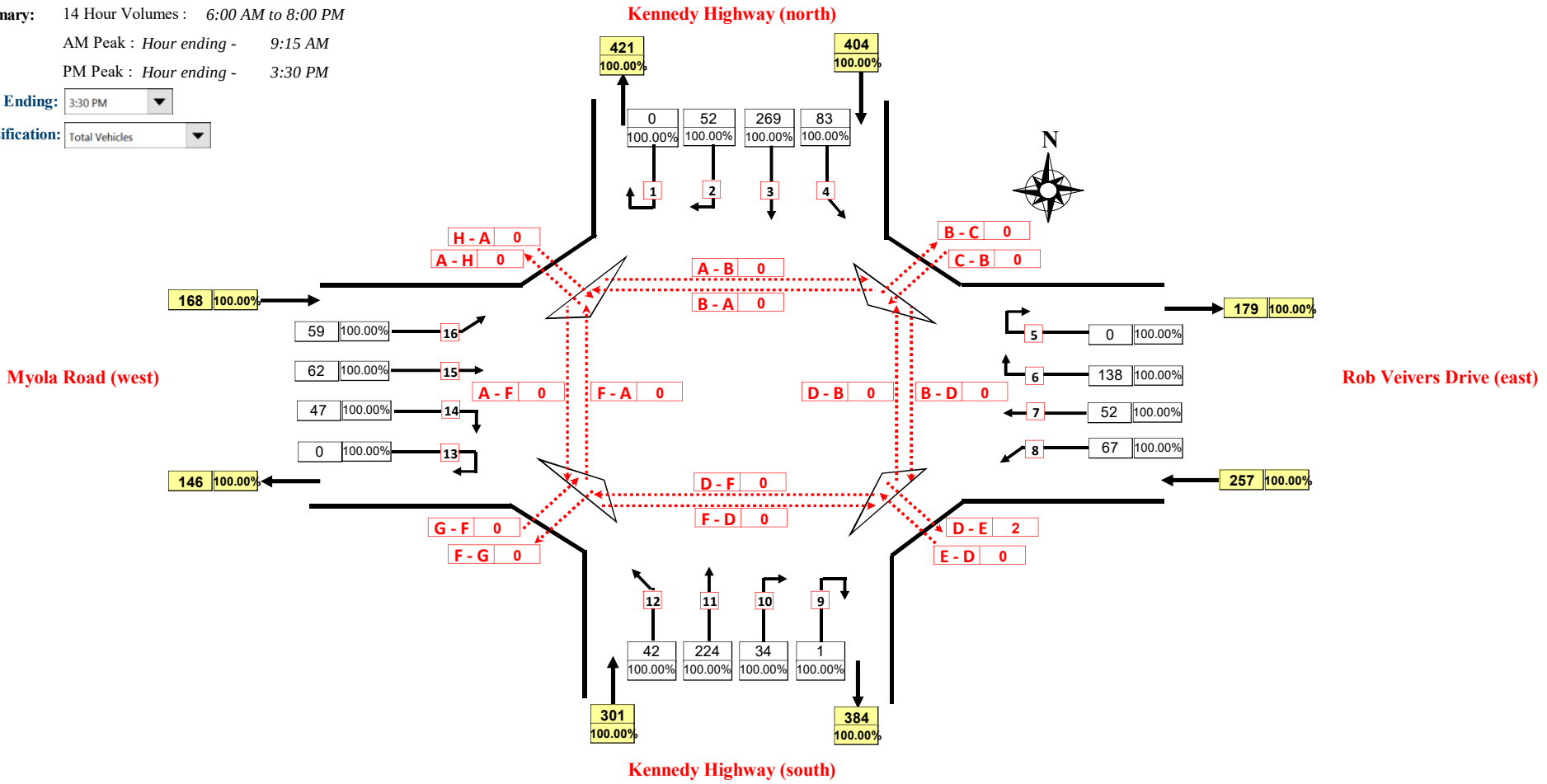
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 9:15 AM*

PM Peak : *Hour ending - 3:30 PM*

Hour Ending: 3:30 PM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 3 **Weather:** Fine

Location: Kennedy Highway/Warril Drive/Fallon Road, Kuranda

Day/Date: Wednesday, 10 May 2017

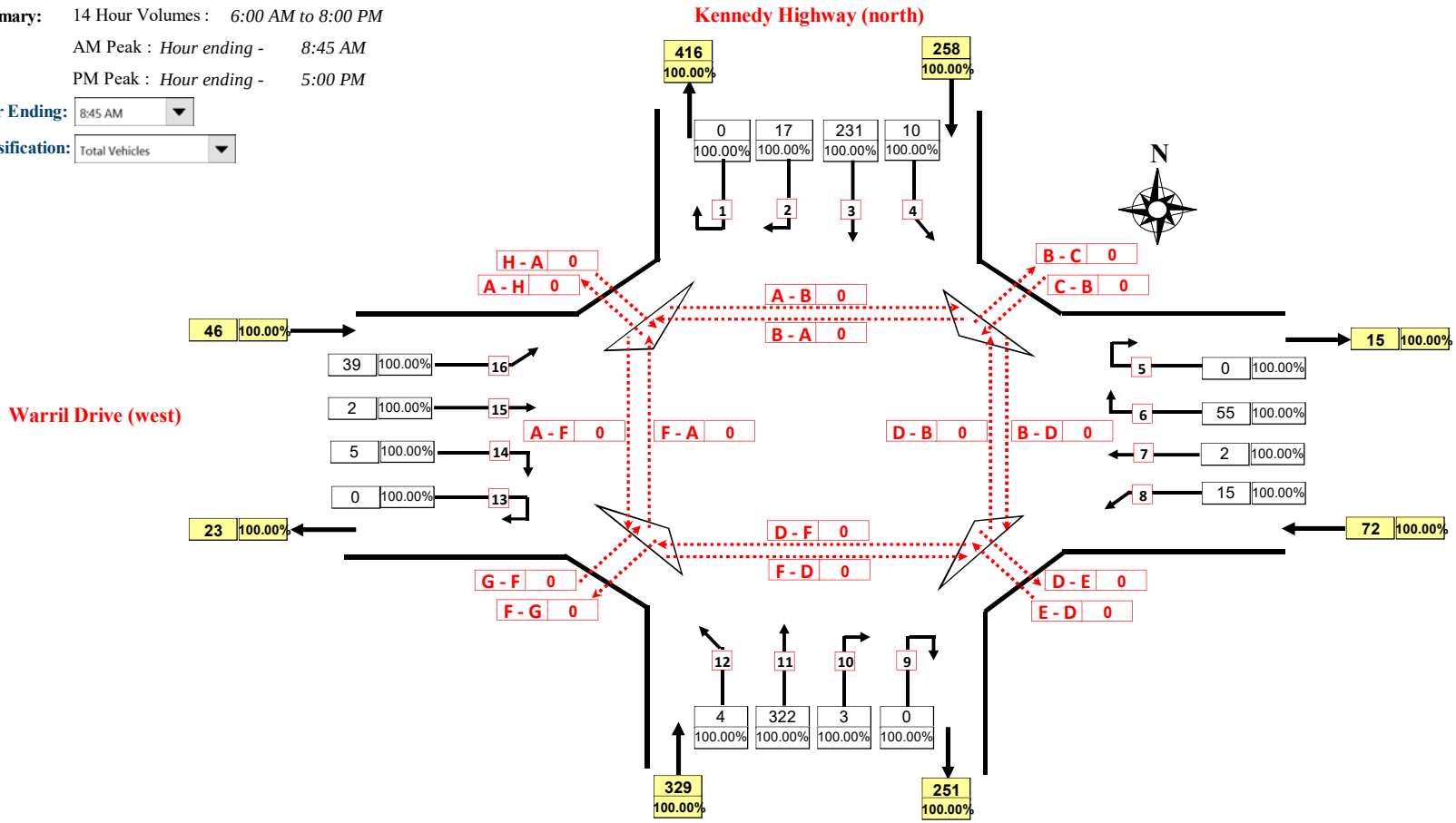
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 8:45 AM*

PM Peak : *Hour ending - 5:00 PM*

Hour Ending: 8:45 AM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 3 **Weather:** Fine

Location: Kennedy Highway/Warril Drive/Fallon Road, Kuranda

Day/Date: Wednesday, 10 May 2017

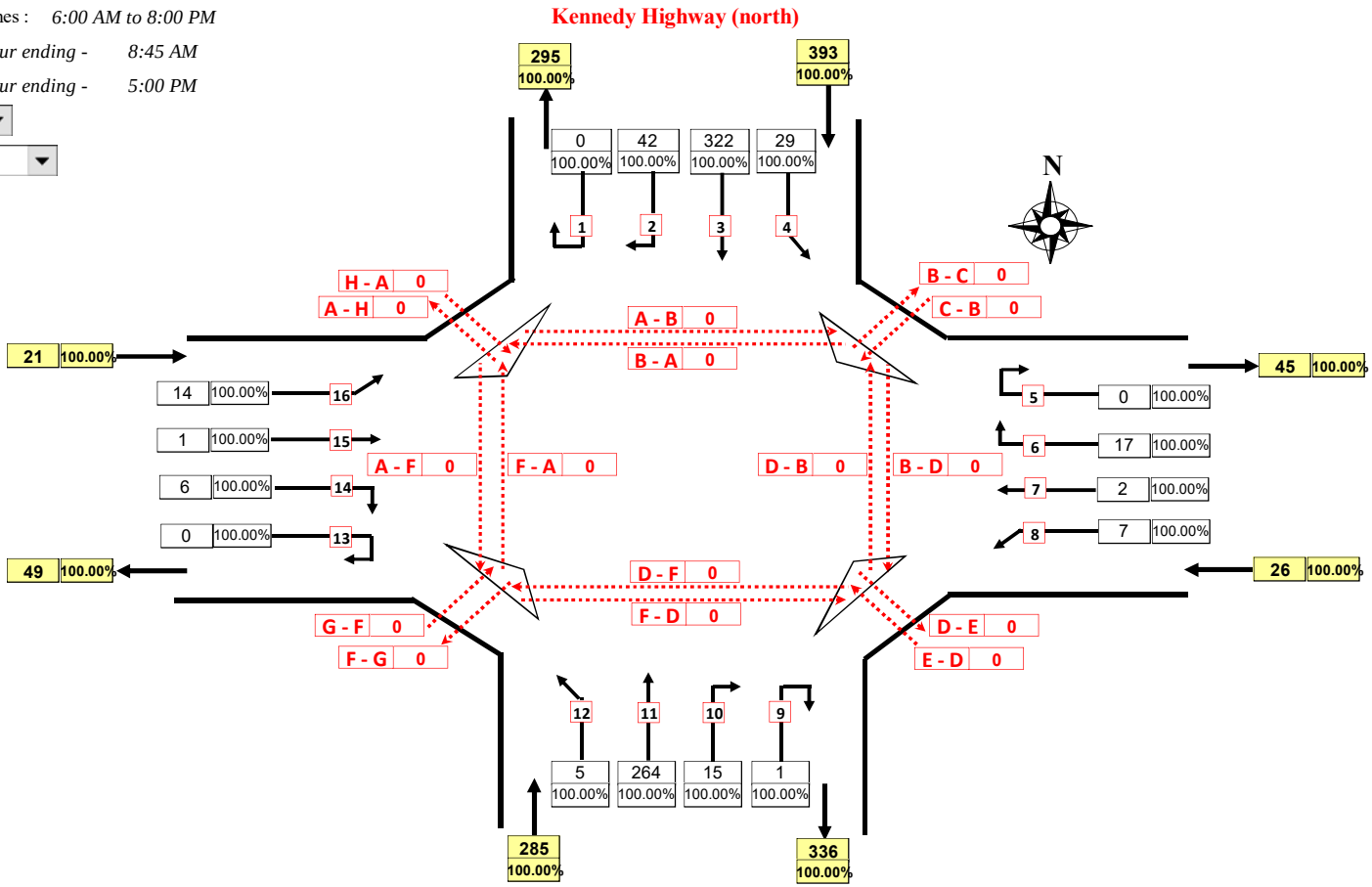
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 8:45 AM*

PM Peak : *Hour ending - 5:00 PM*

Hour Ending: 5:00 PM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 4 **Weather:** Fine

Location: Myola Road/Barnwell Road, Kuranda

Day/Date: Wednesday, 10 May 2017

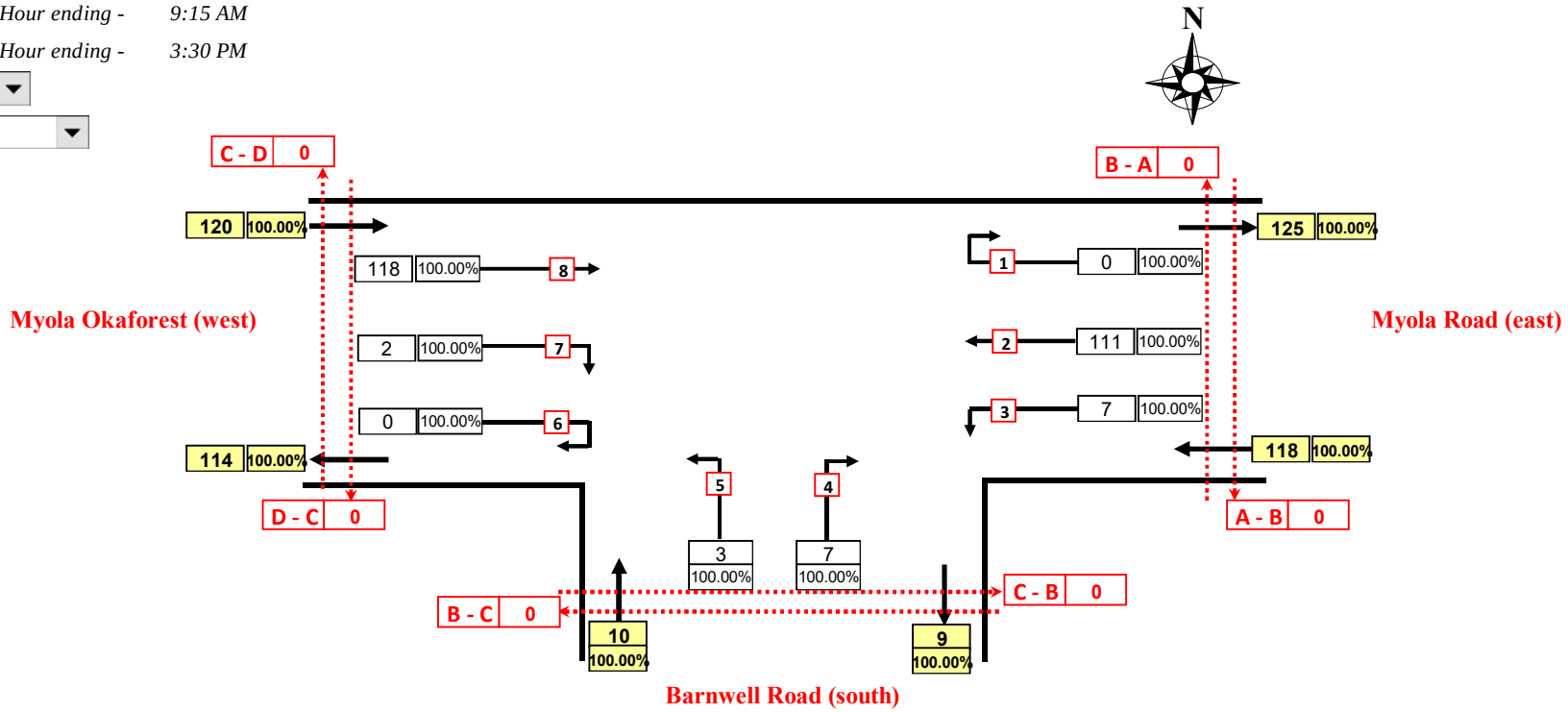
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 9:15 AM*

PM Peak : *Hour ending - 3:30 PM*

Hour Ending: 9:15 AM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 4 **Weather:** Fine

Location: Myola Road/Barnwell Road, Kuranda

Day/Date: Wednesday, 10 May 2017

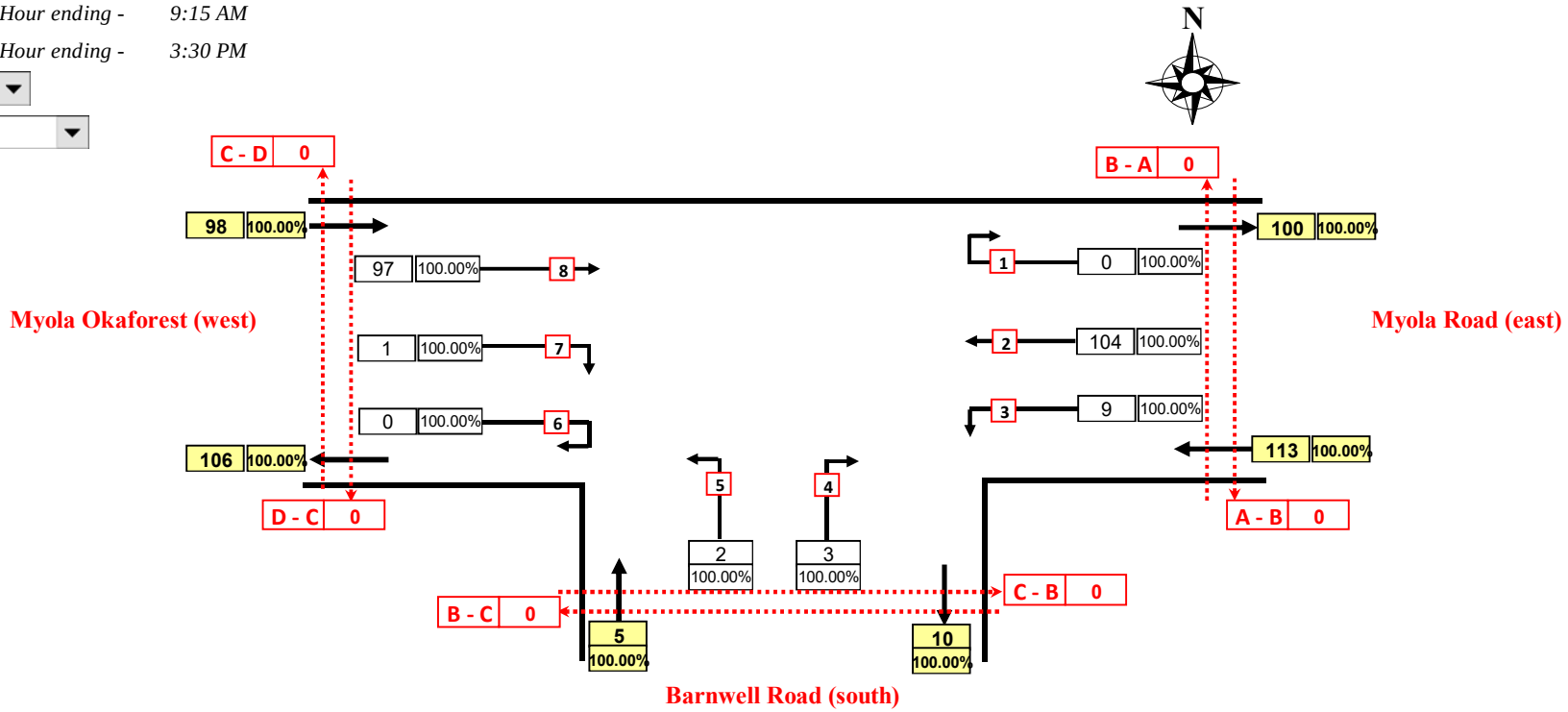
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 9:15 AM*

PM Peak : *Hour ending - 3:30 PM*

Hour Ending: 3:30 PM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 **Weather:** Fine

Location: Kennedy Highway/Myola Road/Rob Veivers Drive, Kuranda

Day/Date: Wednesday, 10 May 2017

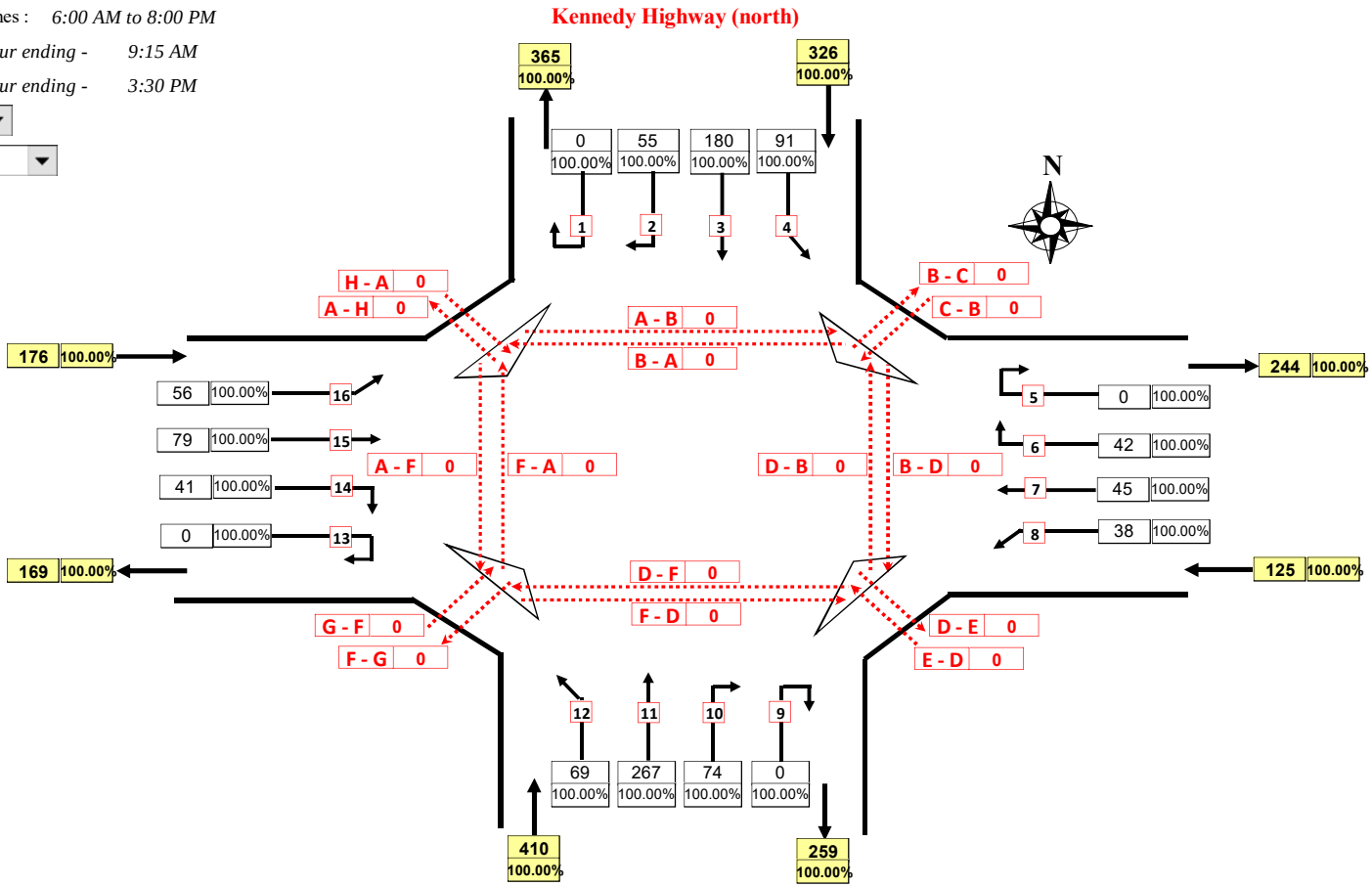
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 9:15 AM*

PM Peak : *Hour ending - 3:30 PM*

Hour Ending: 9:15 AM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 **Weather:** Fine

Location: Kennedy Highway/Myola Road/Rob Veivers Drive, Kuranda

Day/Date: Wednesday, 10 May 2017

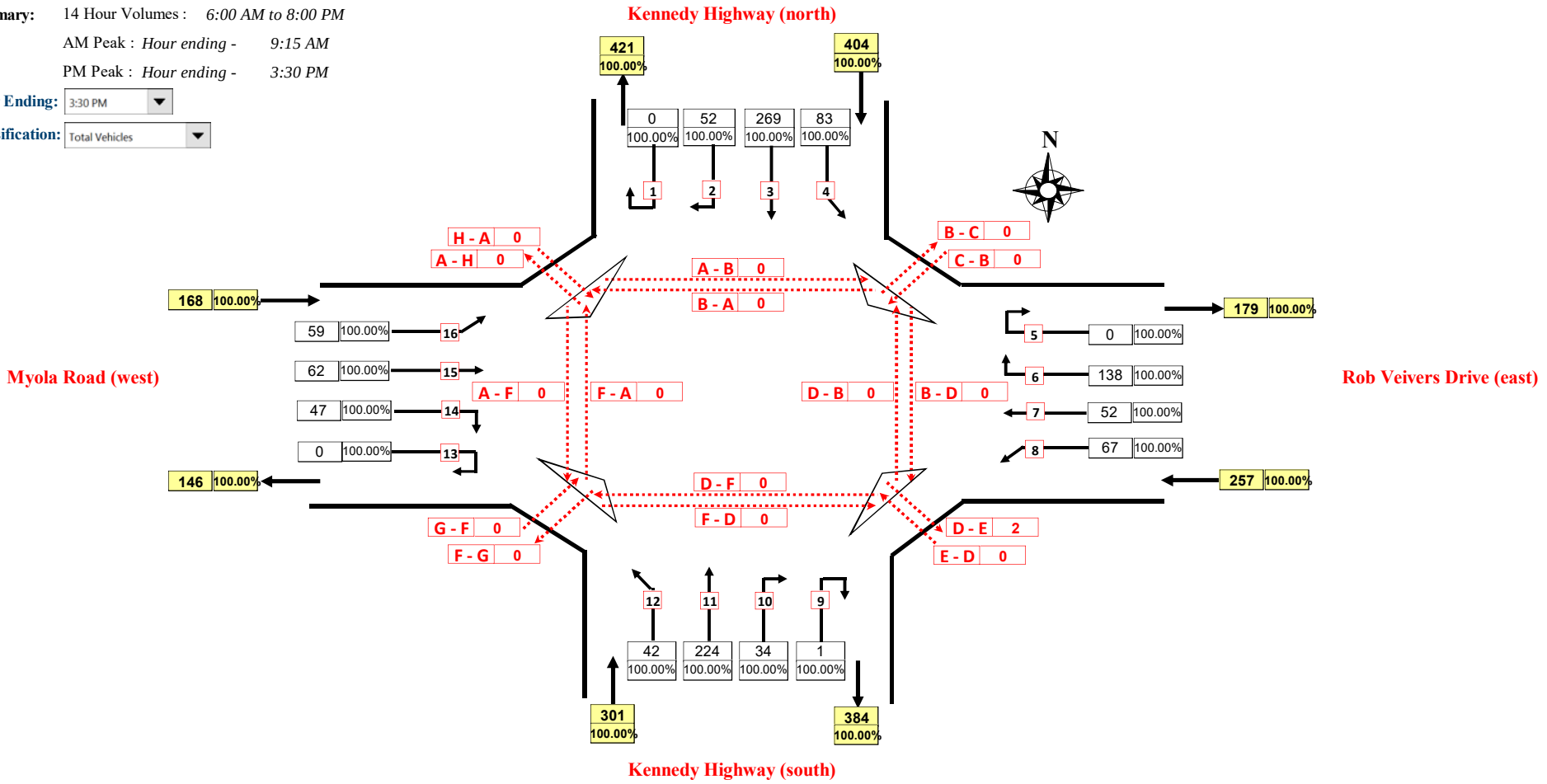
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 9:15 AM*

PM Peak : *Hour ending - 3:30 PM*

Hour Ending: 3:30 PM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 3 **Weather:** Fine

Location: Kennedy Highway/Warril Drive/Fallon Road, Kuranda

Day/Date: Wednesday, 10 May 2017

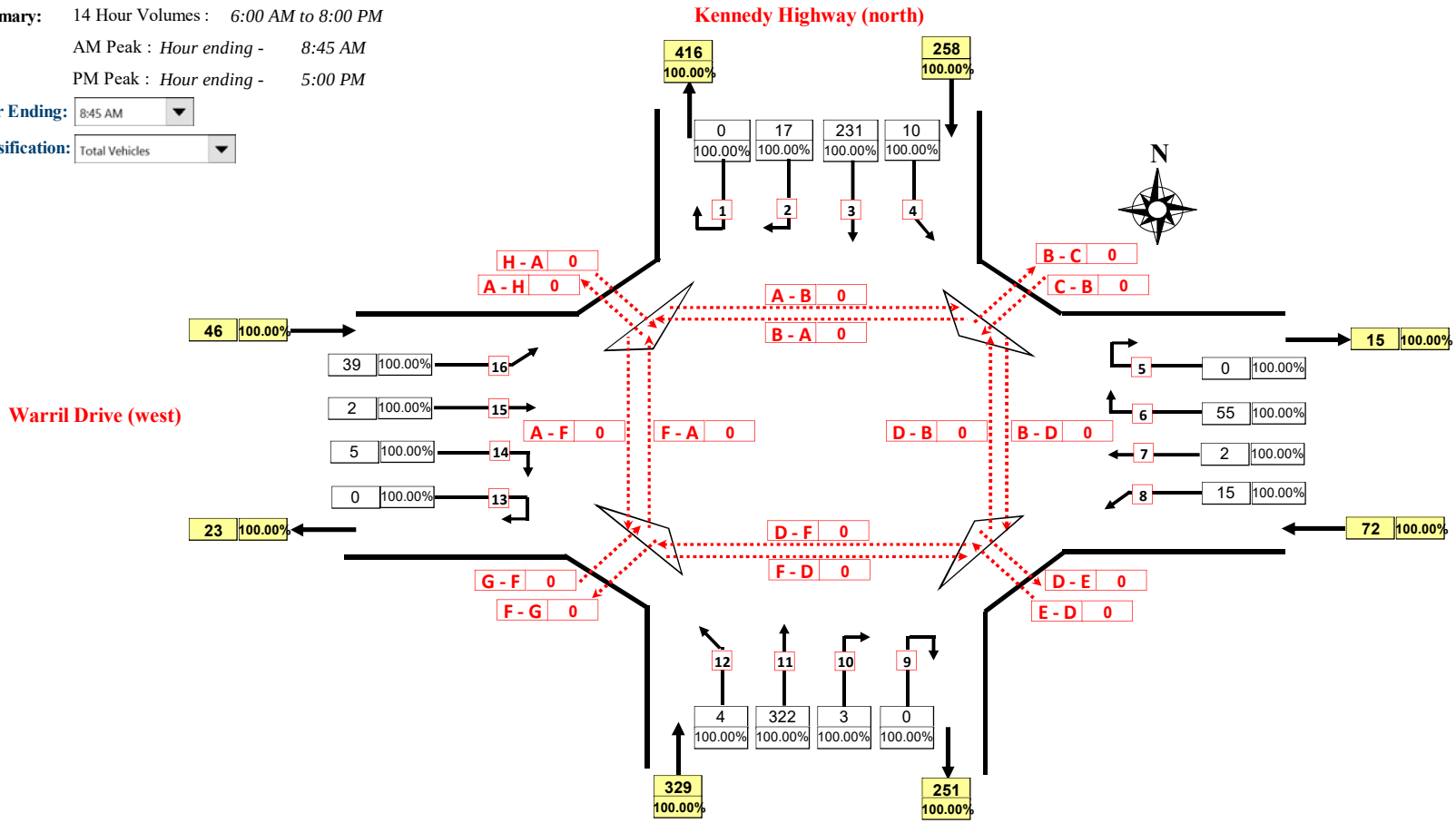
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 8:45 AM*

PM Peak : *Hour ending - 5:00 PM*

Hour Ending: 8:45 AM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 4 **Weather:** Fine

Location: Myola Road/Barnwell Road, Kuranda

Day/Date: Wednesday, 10 May 2017

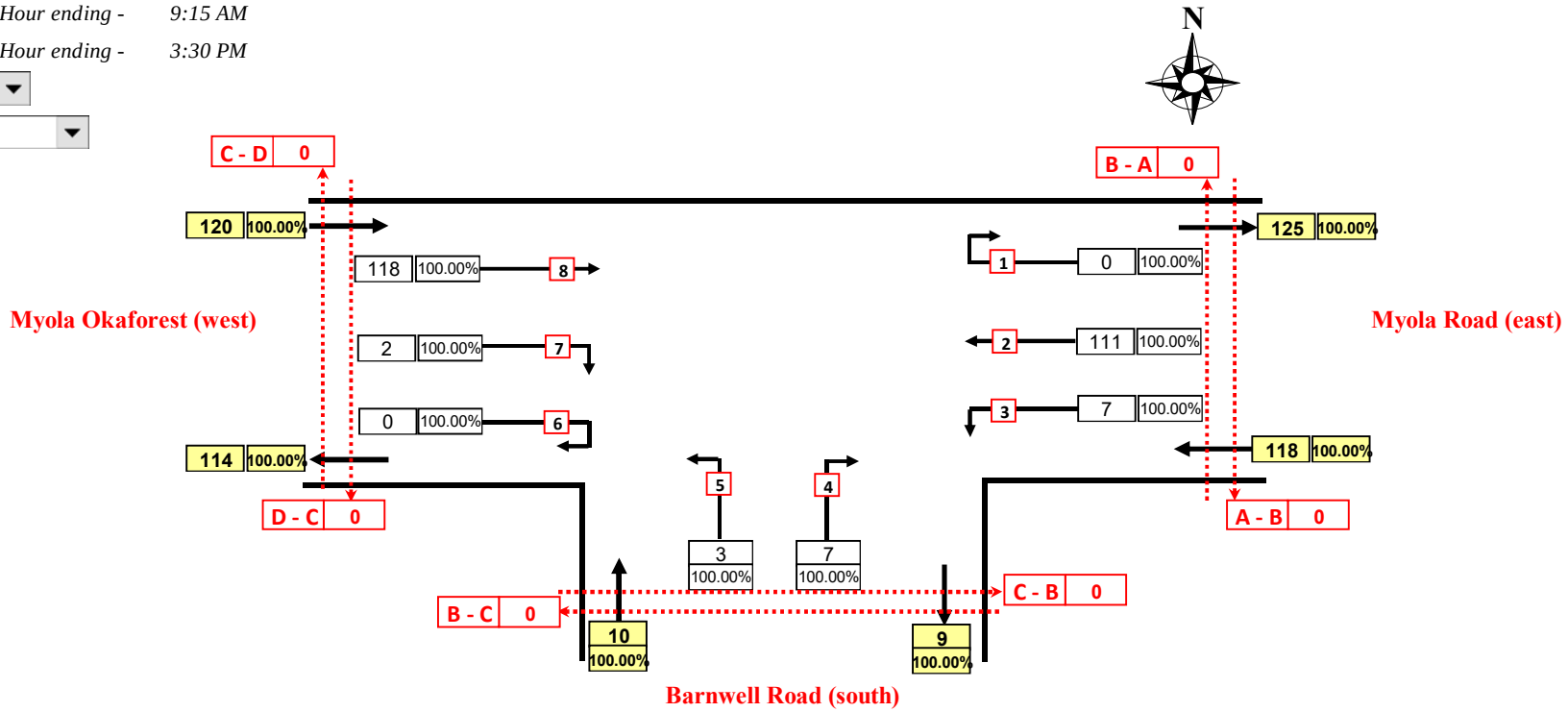
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 9:15 AM*

PM Peak : *Hour ending - 3:30 PM*

Hour Ending: 9:15 AM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 4 **Weather:** Fine

Location: Myola Road/Barnwell Road, Kuranda

Day/Date: Wednesday, 10 May 2017

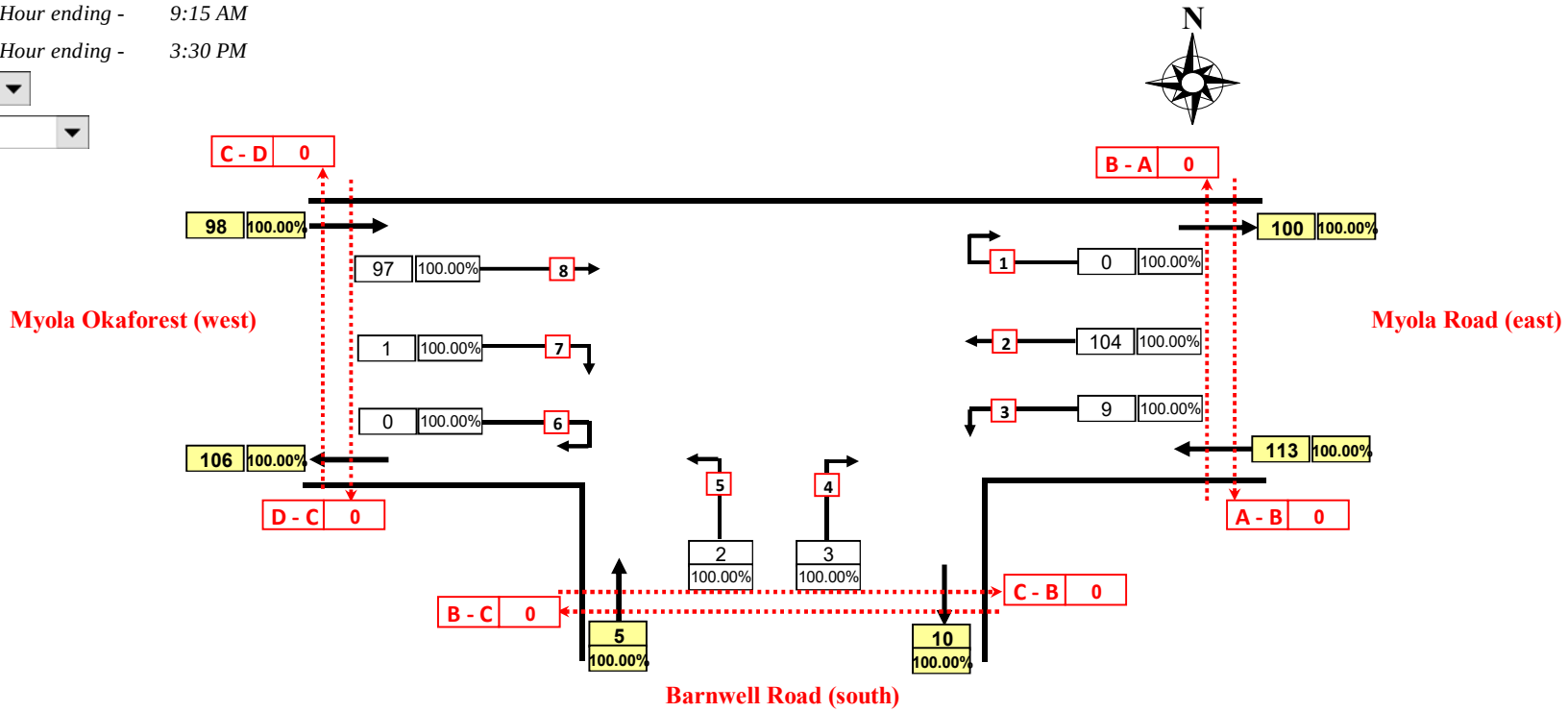
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 9:15 AM*

PM Peak : *Hour ending - 3:30 PM*

Hour Ending: 3:30 PM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 3 **Weather:** Fine

Location: Kennedy Highway/Warril Drive/Fallon Road, Kuranda

Day/Date: Wednesday, 10 May 2017

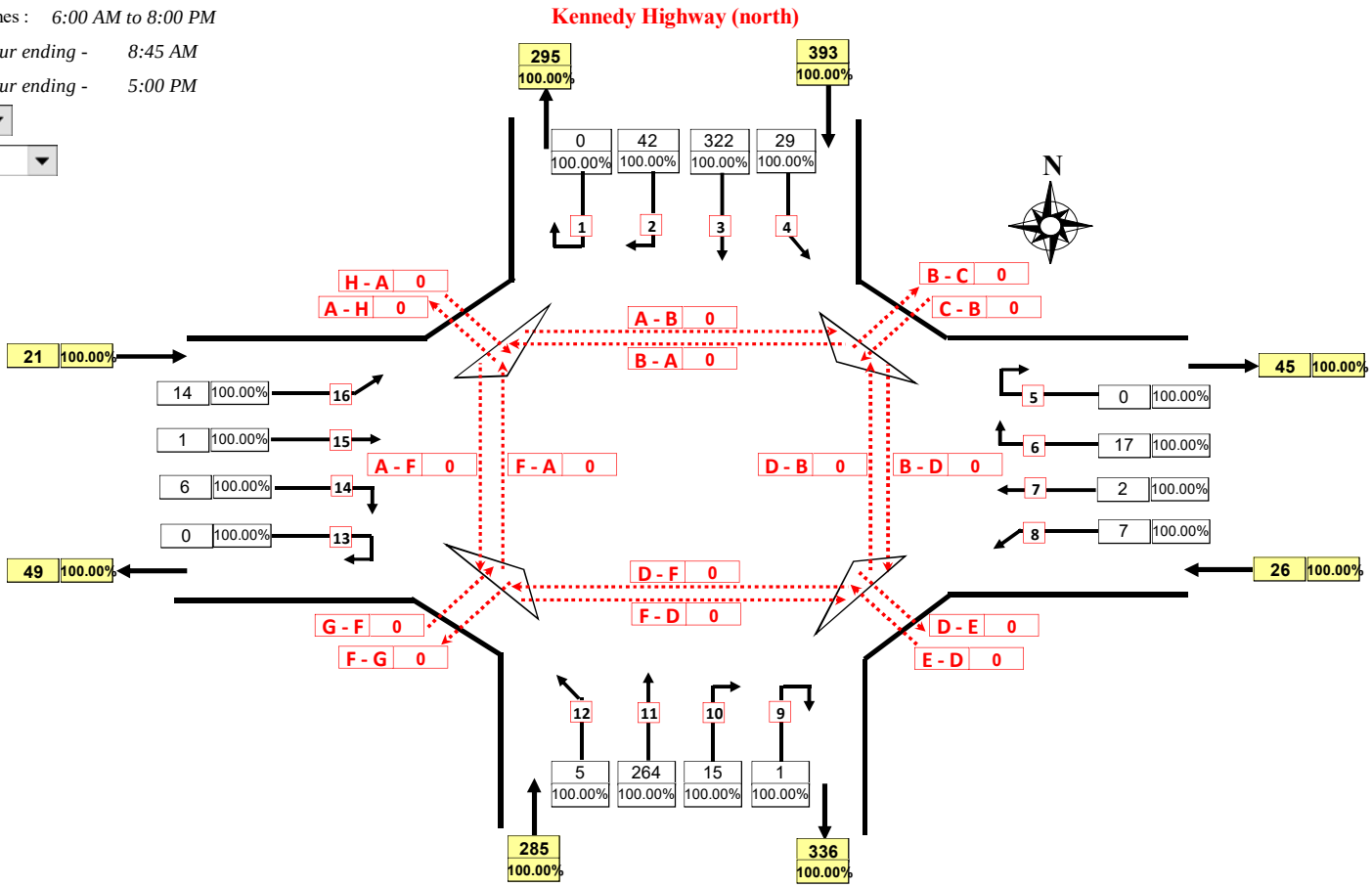
Summary: 14 Hour Volumes : *6:00 AM to 8:00 PM*

AM Peak : *Hour ending - 8:45 AM*

PM Peak : *Hour ending - 5:00 PM*

Hour Ending: 5:00 PM

Classification: Total Vehicles



Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-38 -- English (ENA)

Datasets:

Site:	**[Warril Drive 1] Ch 70 @ Inter Kennedy Hwy & Warril Dr < 50 >**
Direction:	7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration:	10:15 Thursday, 21 August 2014 => 9:46 Friday, 5 September 2014
Zone:	
File:	Warril Drive 105Sep2014.EC0 (Plus)
Identifier:	N2222EFP MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default (v3.21 - 15315)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound)
Separation:	All - (Headway)
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (meter, kilometer, m/s, km/h, kg, tonne)
In profile:	Vehicles = 7963 / 8506 (93.62%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-38
Site: Warril Drive 1.0.0NS
Description: **Ch 70 @ Inter Kennedy Hwy & Warril Dr < 50 >**
Filter time: **0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	1.0	2.0	2.5	0.5	0.5	1.5	2.5	1.3	1.5
0100-0200	0.0	2.0	1.5	0.5	1.5	1.0	1.5	1.1	1.1
0200-0300	1.5	2.0	1.0	1.5	1.5	1.0	0.5	1.5	1.3
0300-0400	0.5	0.0	1.0	1.0	0.0	0.0	0.5	0.5	0.4
0400-0500	1.0	2.0	2.0	2.0	2.5	2.0	1.0	1.9	1.8
0500-0600	5.5	4.5	6.5	5.5	5.5	4.0	2.0	5.5	4.8
0600-0700	10.5	13.5	9.5	11.0	12.0	6.5	5.5	11.3	9.8
0700-0800	35.5	35.5	37.5	33.0	31.0	30.5	15.5	34.5	31.2
0800-0900	46.0	49.5	**52.5<**	**53.5<**	44.0	46.0	30.0	**49.1<**	45.9
0900-1000	37.0	**54.0<**	46.0	44.5	**46.5<**	**60.5<**	**48.0<**	45.6	**48.1<**
1000-1100	39.0	37.5	40.0	43.5	39.0	49.0	42.5	39.8	41.5
1100-1200	**49.0<**	44.5	44.0	51.5	41.5	36.5	44.5	46.1	44.5
1200-1300	41.0	43.0	28.5	43.0	40.0	48.0	38.5	39.1	40.3
1300-1400	34.5	34.0	32.5	37.5	44.0	45.0	38.0	36.5	37.9
1400-1500	43.0	38.5	37.5	28.0	37.5	48.0	**39.0<**	36.9	38.8
1500-1600	**51.0<**	53.0	**57.0<**	**59.5<**	**65.5<**	49.5	38.5	**57.2<**	**53.4<**
1600-1700	44.0	**59.5<**	46.5	48.0	53.0	**53.5<**	36.0	50.2	48.6
1700-1800	49.5	48.0	46.0	38.5	36.5	32.0	32.0	43.7	40.4
1800-1900	41.5	35.0	32.0	42.5	41.5	27.0	27.0	38.5	35.2
1900-2000	8.0	16.0	27.5	20.0	18.5	8.0	16.5	18.0	16.4
2000-2100	8.0	12.0	14.5	9.0	11.0	5.0	1.0	10.9	8.6
2100-2200	5.0	7.5	10.5	9.0	10.5	9.5	6.0	8.5	8.3
2200-2300	2.5	4.0	6.0	5.0	5.5	9.0	4.5	4.6	5.2
2300-2400	1.5	5.5	7.5	0.5	3.0	7.5	0.5	3.6	3.7
Totals									
0700-1900	511.0	532.0	500.0	523.0	520.0	525.5	429.5	517.2	505.9
0600-2200	542.5	581.0	562.0	572.0	572.0	554.5	458.5	565.9	548.9
0600-0000	546.5	590.5	575.5	577.5	580.5	571.0	463.5	574.1	557.9
0000-0000	556.0	603.0	590.0	588.5	592.0	580.5	471.5	585.9	568.8
AM Peak	1100	0900	0800	0800	0900	0900	0900		
	49.0	54.0	52.5	53.5	46.5	60.5	48.0		
PM Peak	1500	1600	1500	1500	1500	1600	1400		
	51.0	59.5	57.0	59.5	65.5	53.5	39.0		

*** - No data.**

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-42 -- English (ENA)

Datasets:

Site:	**[Warril Drive 2] Ch 820 @ Intersection Kennedy Hwy & Warril Dr <50>**
Direction:	7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration:	9:34 Thursday, 21 August 2014 => 9:50 Friday, 5 September 2014
Zone:	
File:	Warril Drive 205Sep2014.EC0 (Plus)
Identifier:	FN47XFS5 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default (v3.21 - 15315)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound)
Separation:	All - (Headway)
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (meter, kilometer, m/s, km/h, kg, tonne)
In profile:	Vehicles = 2200 / 2355 (93.42%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-42
Site: Warril Drive 2.0.0NS
Description: **Ch 820 @ Intersection Kennedy Hwy & Warril Dr <50>**
Filter time: **0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	0.5	2.0	1.0	0.5	0.5	1.0	0.5	0.9	0.9
0100-0200	0.0	0.5	1.0	0.5	0.0	0.0	1.5	0.4	0.5
0200-0300	0.0	1.0	1.0	0.5	0.5	0.0	0.5	0.6	0.5
0300-0400	0.5	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.2
0400-0500	1.0	1.5	2.0	1.0	1.0	0.5	0.0	1.3	1.0
0500-0600	2.5	2.0	3.0	2.0	2.5	0.5	0.0	2.4	1.8
0600-0700	1.5	2.5	3.0	2.0	2.5	1.0	1.0	2.3	1.9
0700-0800	4.5	5.5	7.0	6.5	4.5	9.5	2.5	5.6	5.7
0800-0900	15.0	15.5	**16.0<**	**19.0<**	**16.5<**	10.5	5.0	**16.4<**	13.9
0900-1000	12.5	**19.0<**	15.5	11.5	14.0	**13.5<**	**17.5<**	14.5	**14.8<**
1000-1100	7.5	10.5	14.0	12.0	12.0	11.0	10.5	11.2	11.1
1100-1200	**18.0<**	10.5	15.0	15.0	9.5	9.5	14.0	13.6	13.1
1200-1300	9.5	11.5	8.0	10.0	15.5	10.5	10.0	10.9	10.7
1300-1400	7.5	13.5	8.0	10.5	11.5	12.5	**12.5<**	10.2	10.9
1400-1500	9.0	13.5	8.5	6.5	8.5	14.0	9.5	9.2	9.9
1500-1600	13.0	15.5	**17.0<**	**24.5<**	**25.0<**	**16.0<**	10.0	**19.0<**	**17.3<**
1600-1700	11.0	**22.0<**	14.0	13.5	13.5	9.5	9.5	14.8	13.3
1700-1800	**17.0<**	13.0	15.5	10.0	11.5	5.5	8.5	13.4	11.6
1800-1900	8.0	7.5	8.5	6.0	9.5	7.0	3.5	7.9	7.1
1900-2000	0.5	5.0	7.5	3.0	3.5	1.5	3.0	3.9	3.4
2000-2100	1.5	5.5	4.5	4.0	1.0	0.5	0.0	3.3	2.4
2100-2200	0.0	1.5	3.5	1.0	2.5	3.0	0.5	1.7	1.7
2200-2300	0.0	2.0	3.5	1.5	1.5	2.0	1.5	1.7	1.7
2300-2400	1.0	4.0	6.5	0.0	0.0	0.0	0.5	2.3	1.7
Totals									
0700-1900	132.5	157.5	147.0	145.0	151.5	129.0	113.0	146.7	139.4
0600-2200	136.0	172.0	165.5	155.0	161.0	135.0	117.5	157.9	148.9
0600-0000	137.0	178.0	175.5	156.5	162.5	137.0	119.5	161.9	152.3
0000-0000	141.5	185.0	184.5	161.0	167.0	139.0	122.0	167.8	157.1
AM Peak	1100	0900	0800	0800	0800	0900	0900		
	18.0	19.0	16.0	19.0	16.5	13.5	17.5		
PM Peak	1700	1600	1500	1500	1500	1500	1300		
	17.0	22.0	17.0	24.5	25.0	16.0	12.5		

*** - No data.**

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-38 -- English (ENA)

Datasets:

Site:	**[Warril Drive 1] Ch 70 @ Inter Kennedy Hwy & Warril Dr < 50 >**
Direction:	7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration:	10:15 Thursday, 21 August 2014 => 9:46 Friday, 5 September 2014
Zone:	
File:	Warril Drive 105Sep2014.EC0 (Plus)
Identifier:	N2222EFP MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default (v3.21 - 15315)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound)
Separation:	All - (Headway)
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (meter, kilometer, m/s, km/h, kg, tonne)
In profile:	Vehicles = 7963 / 8506 (93.62%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-38
Site: Warril Drive 1.0.0NS
Description: **Ch 70 @ Inter Kennedy Hwy & Warril Dr < 50 >**
Filter time: **0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	1.0	2.0	2.5	0.5	0.5	1.5	2.5	1.3	1.5
0100-0200	0.0	2.0	1.5	0.5	1.5	1.0	1.5	1.1	1.1
0200-0300	1.5	2.0	1.0	1.5	1.5	1.0	0.5	1.5	1.3
0300-0400	0.5	0.0	1.0	1.0	0.0	0.0	0.5	0.5	0.4
0400-0500	1.0	2.0	2.0	2.0	2.5	2.0	1.0	1.9	1.8
0500-0600	5.5	4.5	6.5	5.5	5.5	4.0	2.0	5.5	4.8
0600-0700	10.5	13.5	9.5	11.0	12.0	6.5	5.5	11.3	9.8
0700-0800	35.5	35.5	37.5	33.0	31.0	30.5	15.5	34.5	31.2
0800-0900	46.0	49.5	**52.5<**	**53.5<**	44.0	46.0	30.0	**49.1<**	45.9
0900-1000	37.0	**54.0<**	46.0	44.5	**46.5<**	**60.5<**	**48.0<**	45.6	**48.1<**
1000-1100	39.0	37.5	40.0	43.5	39.0	49.0	42.5	39.8	41.5
1100-1200	**49.0<**	44.5	44.0	51.5	41.5	36.5	44.5	46.1	44.5
1200-1300	41.0	43.0	28.5	43.0	40.0	48.0	38.5	39.1	40.3
1300-1400	34.5	34.0	32.5	37.5	44.0	45.0	38.0	36.5	37.9
1400-1500	43.0	38.5	37.5	28.0	37.5	48.0	**39.0<**	36.9	38.8
1500-1600	**51.0<**	53.0	**57.0<**	**59.5<**	**65.5<**	49.5	38.5	**57.2<**	**53.4<**
1600-1700	44.0	**59.5<**	46.5	48.0	53.0	**53.5<**	36.0	50.2	48.6
1700-1800	49.5	48.0	46.0	38.5	36.5	32.0	32.0	43.7	40.4
1800-1900	41.5	35.0	32.0	42.5	41.5	27.0	27.0	38.5	35.2
1900-2000	8.0	16.0	27.5	20.0	18.5	8.0	16.5	18.0	16.4
2000-2100	8.0	12.0	14.5	9.0	11.0	5.0	1.0	10.9	8.6
2100-2200	5.0	7.5	10.5	9.0	10.5	9.5	6.0	8.5	8.3
2200-2300	2.5	4.0	6.0	5.0	5.5	9.0	4.5	4.6	5.2
2300-2400	1.5	5.5	7.5	0.5	3.0	7.5	0.5	3.6	3.7
Totals									
0700-1900	511.0	532.0	500.0	523.0	520.0	525.5	429.5	517.2	505.9
0600-2200	542.5	581.0	562.0	572.0	572.0	554.5	458.5	565.9	548.9
0600-0000	546.5	590.5	575.5	577.5	580.5	571.0	463.5	574.1	557.9
0000-0000	556.0	603.0	590.0	588.5	592.0	580.5	471.5	585.9	568.8
AM Peak	1100	0900	0800	0800	0900	0900	0900		
	49.0	54.0	52.5	53.5	46.5	60.5	48.0		
PM Peak	1500	1600	1500	1500	1500	1600	1400		
	51.0	59.5	57.0	59.5	65.5	53.5	39.0		

*** - No data.**

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-42 -- English (ENA)

Datasets:

Site:	**[Warril Drive 2] Ch 820 @ Intersection Kennedy Hwy & Warril Dr <50>**
Direction:	7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration:	9:34 Thursday, 21 August 2014 => 9:50 Friday, 5 September 2014
Zone:	
File:	Warril Drive 205Sep2014.EC0 (Plus)
Identifier:	FN47XFS5 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default (v3.21 - 15315)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound)
Separation:	All - (Headway)
Name:	Default Profile
Scheme:	Vehicle classification (AustRoads94)
Units:	Metric (meter, kilometer, m/s, km/h, kg, tonne)
In profile:	Vehicles = 2200 / 2355 (93.42%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-42
Site: Warril Drive 2.0.0NS
Description: **Ch 820 @ Intersection Kennedy Hwy & Warril Dr <50>**
Filter time: **0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014**
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	Averages 1 - 7
Hour									
0000-0100	0.5	2.0	1.0	0.5	0.5	1.0	0.5	0.9	0.9
0100-0200	0.0	0.5	1.0	0.5	0.0	0.0	1.5	0.4	0.5
0200-0300	0.0	1.0	1.0	0.5	0.5	0.0	0.5	0.6	0.5
0300-0400	0.5	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.2
0400-0500	1.0	1.5	2.0	1.0	1.0	0.5	0.0	1.3	1.0
0500-0600	2.5	2.0	3.0	2.0	2.5	0.5	0.0	2.4	1.8
0600-0700	1.5	2.5	3.0	2.0	2.5	1.0	1.0	2.3	1.9
0700-0800	4.5	5.5	7.0	6.5	4.5	9.5	2.5	5.6	5.7
0800-0900	15.0	15.5	**16.0<**	**19.0<**	**16.5<**	10.5	5.0	**16.4<**	13.9
0900-1000	12.5	**19.0<**	15.5	11.5	14.0	**13.5<**	**17.5<**	14.5	**14.8<**
1000-1100	7.5	10.5	14.0	12.0	12.0	11.0	10.5	11.2	11.1
1100-1200	**18.0<**	10.5	15.0	15.0	9.5	9.5	14.0	13.6	13.1
1200-1300	9.5	11.5	8.0	10.0	15.5	10.5	10.0	10.9	10.7
1300-1400	7.5	13.5	8.0	10.5	11.5	12.5	**12.5<**	10.2	10.9
1400-1500	9.0	13.5	8.5	6.5	8.5	14.0	9.5	9.2	9.9
1500-1600	13.0	15.5	**17.0<**	**24.5<**	**25.0<**	**16.0<**	10.0	**19.0<**	**17.3<**
1600-1700	11.0	**22.0<**	14.0	13.5	13.5	9.5	9.5	14.8	13.3
1700-1800	**17.0<**	13.0	15.5	10.0	11.5	5.5	8.5	13.4	11.6
1800-1900	8.0	7.5	8.5	6.0	9.5	7.0	3.5	7.9	7.1
1900-2000	0.5	5.0	7.5	3.0	3.5	1.5	3.0	3.9	3.4
2000-2100	1.5	5.5	4.5	4.0	1.0	0.5	0.0	3.3	2.4
2100-2200	0.0	1.5	3.5	1.0	2.5	3.0	0.5	1.7	1.7
2200-2300	0.0	2.0	3.5	1.5	1.5	2.0	1.5	1.7	1.7
2300-2400	1.0	4.0	6.5	0.0	0.0	0.0	0.5	2.3	1.7
Totals									
0700-1900	132.5	157.5	147.0	145.0	151.5	129.0	113.0	146.7	139.4
0600-2200	136.0	172.0	165.5	155.0	161.0	135.0	117.5	157.9	148.9
0600-0000	137.0	178.0	175.5	156.5	162.5	137.0	119.5	161.9	152.3
0000-0000	141.5	185.0	184.5	161.0	167.0	139.0	122.0	167.8	157.1
AM Peak	1100	0900	0800	0800	0800	0900	0900		
	18.0	19.0	16.0	19.0	16.5	13.5	17.5		
PM Peak	1700	1600	1500	1500	1500	1500	1300		
	17.0	22.0	17.0	24.5	25.0	16.0	12.5		

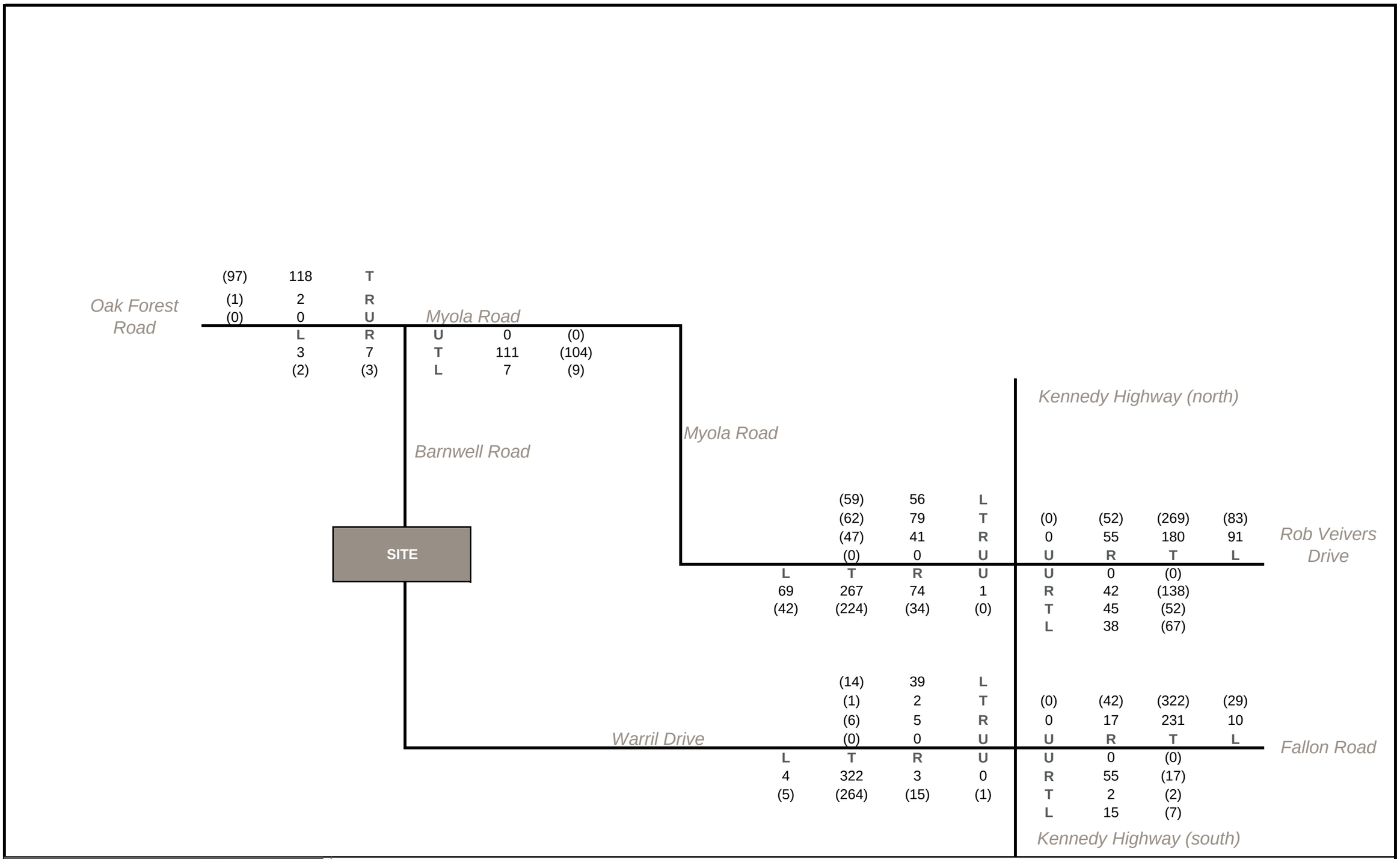
*** - No data.**

Proposed Non Urban Residential Subdivision Kuranda

APPENDIX C
TRIP DISTRIBUTION

Cardno
Shaping the Future

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno Shaping the Future

Figure 1

2017 Background Traffic

Project no. QTT17026 **Project** Tourist Attraction Kuranda

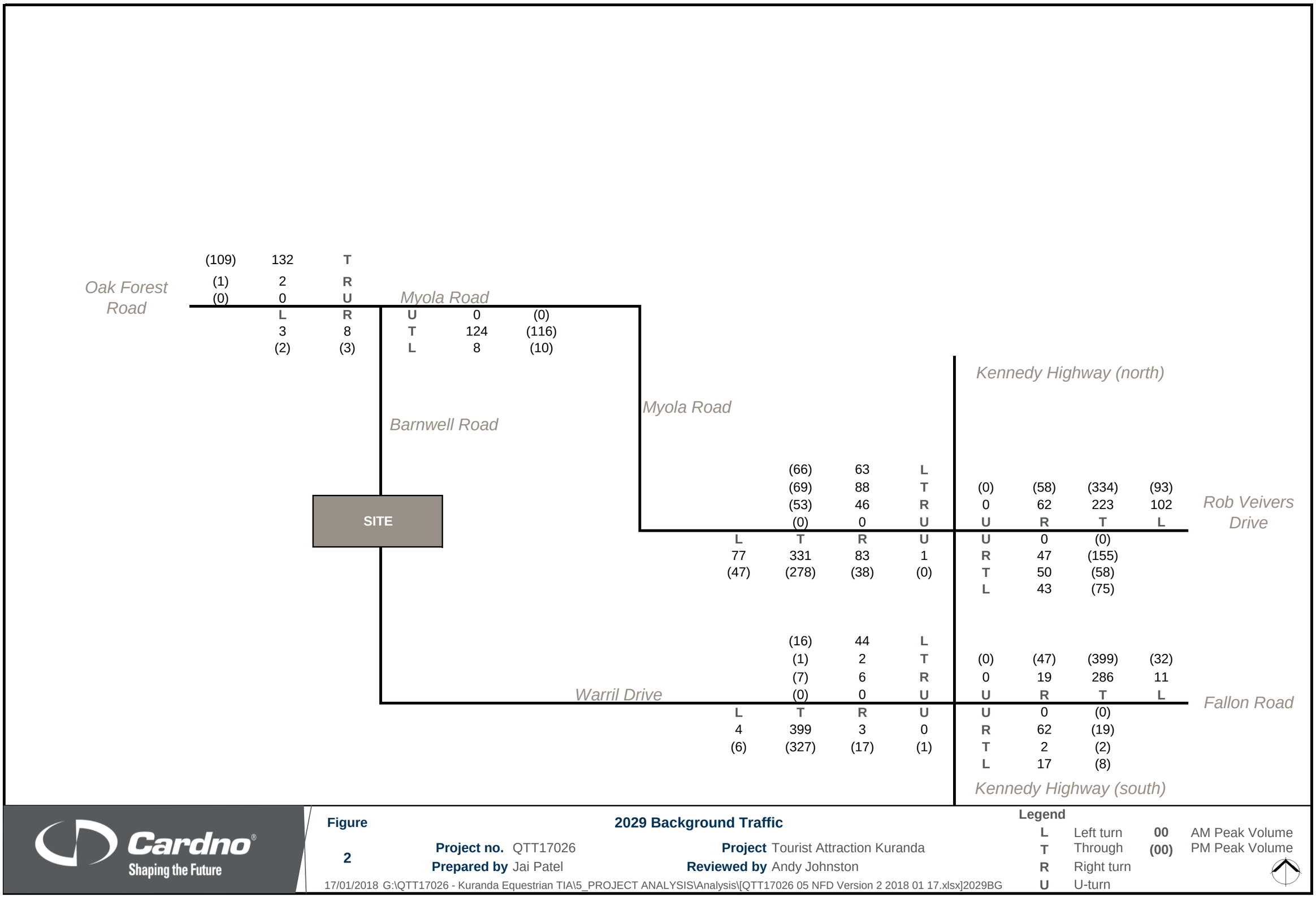
Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]2017BG St

Legend

L	Left turn	00	AM Peak Volume
T	Through	(00)	PM Peak Volume
R	Right turn		
U	U-turn		

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno Shaping the Future

Figure 2

2029 Background Traffic

Project no. QTT17026 **Project** Tourist Attraction Kuranda

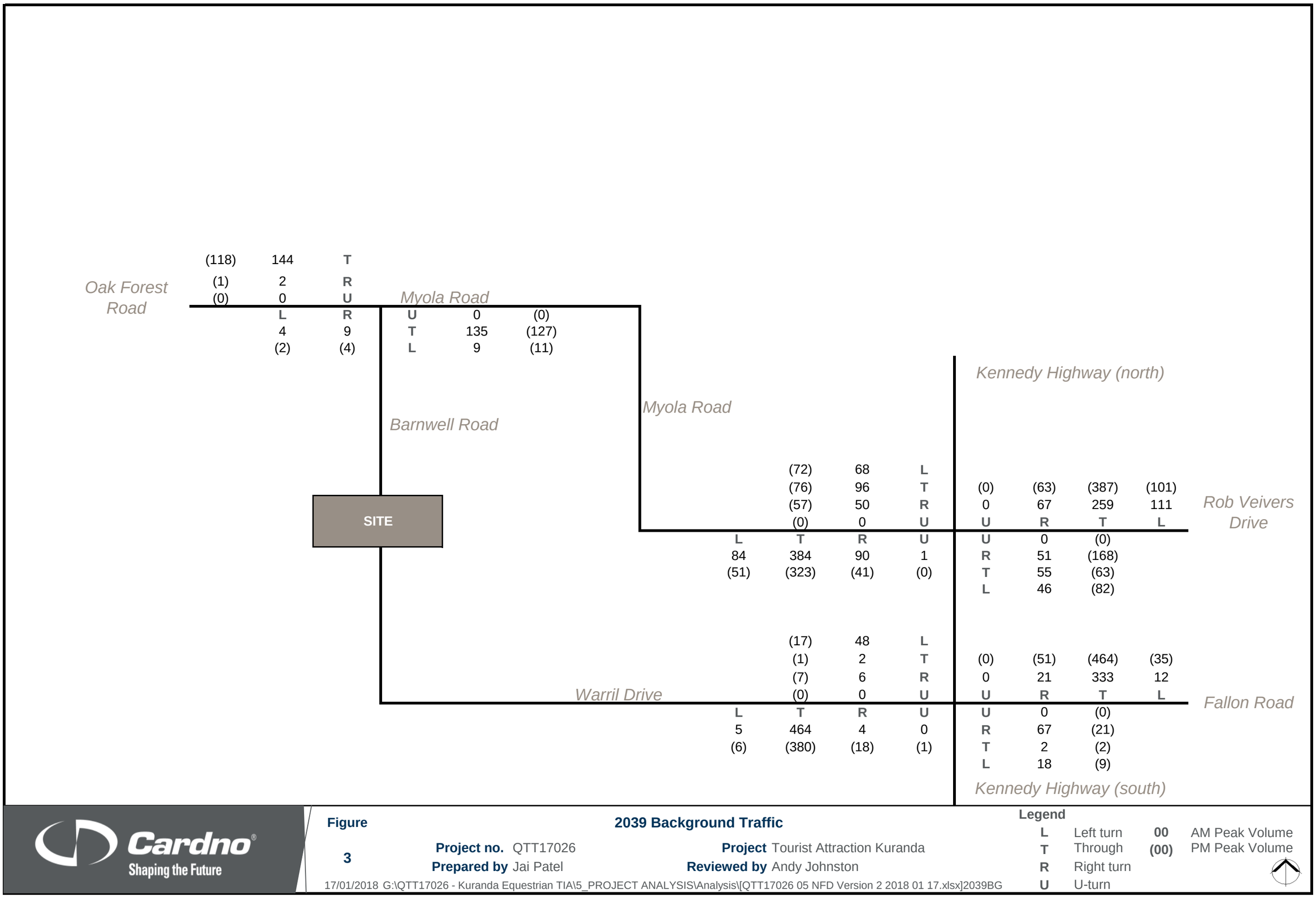
Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]2029BG

Legend

L	Left turn	**00**	AM Peak Volume
T	Through	**(00)**	PM Peak Volume
R	Right turn		
U	U-turn		

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno Shaping the Future

Figure 3

2039 Background Traffic

Project no. QTT17026 **Project** Tourist Attraction Kuranda

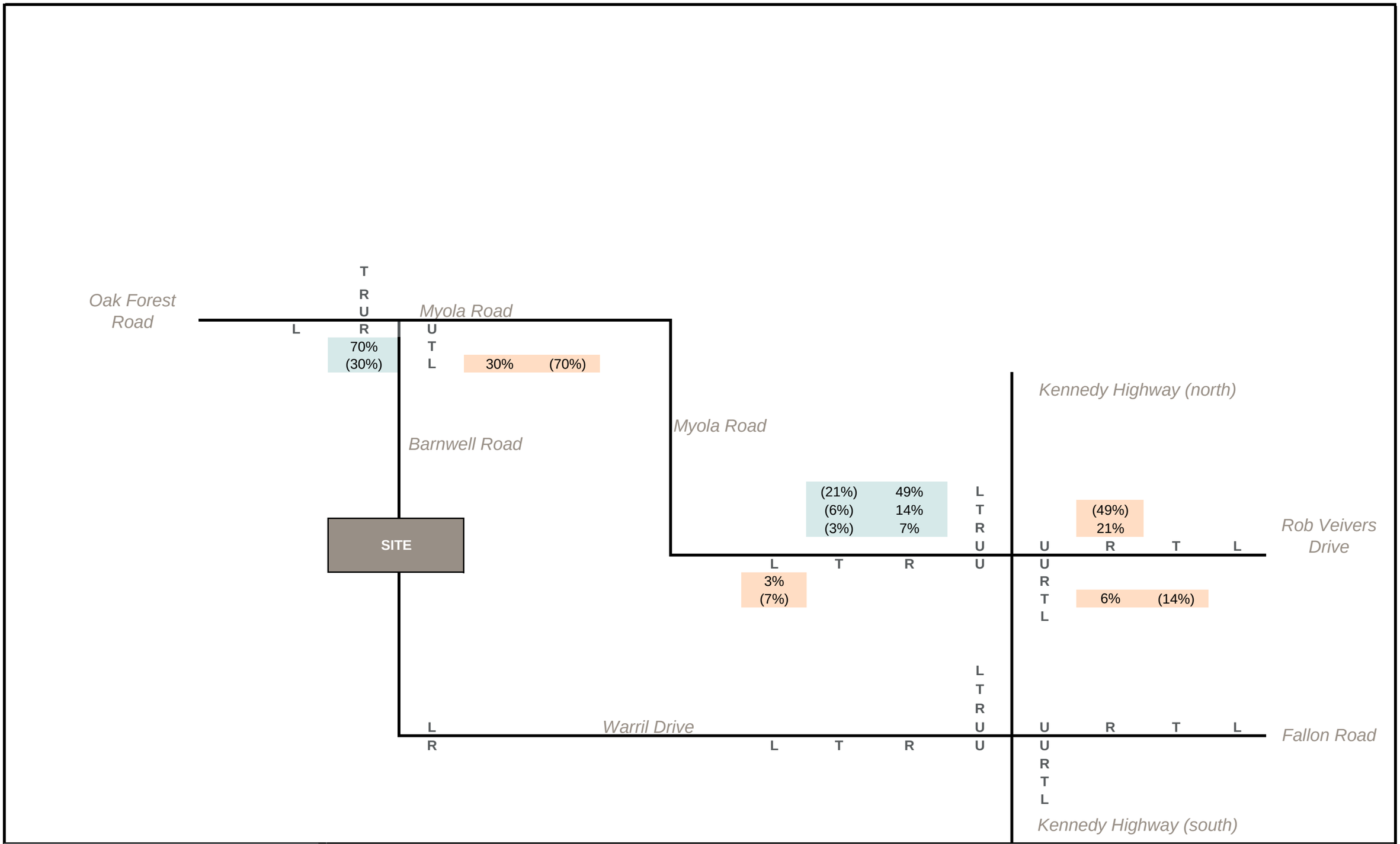
Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]2039BG

Legend

L	Left turn	**00**	AM Peak Volume
T	Through	**(00)**	PM Peak Volume
R	Right turn		
U	U-turn		

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno Shaping the Future

Figure 4

Distribution (Scenario 1 - 169 lots through Barnwell Road)

Project no. QTT17026 **Project** Tourist Attraction Kuranda

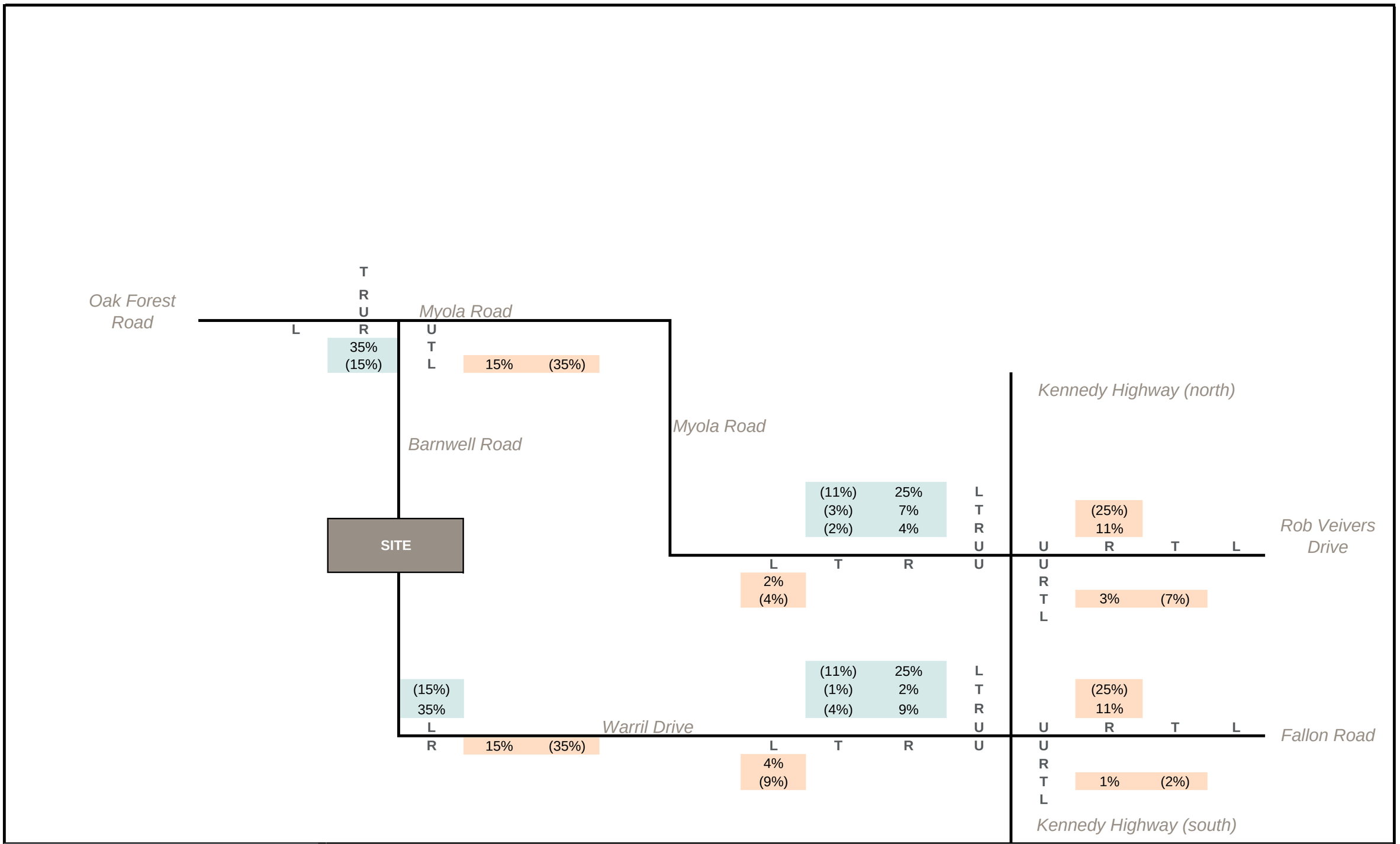
Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]Dist (Scenario

Legend

L	Left turn	00	AM Peak Volume
T	Through	(00)	PM Peak Volume
R	Right turn	IN	In Dev traffic
U	U-turn	OUT	Out Dev traffic

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno Shaping the Future

Figure 5 **Distribution (Scenario 2 - 179 lots through Barnwell Road and Warril Drive)**

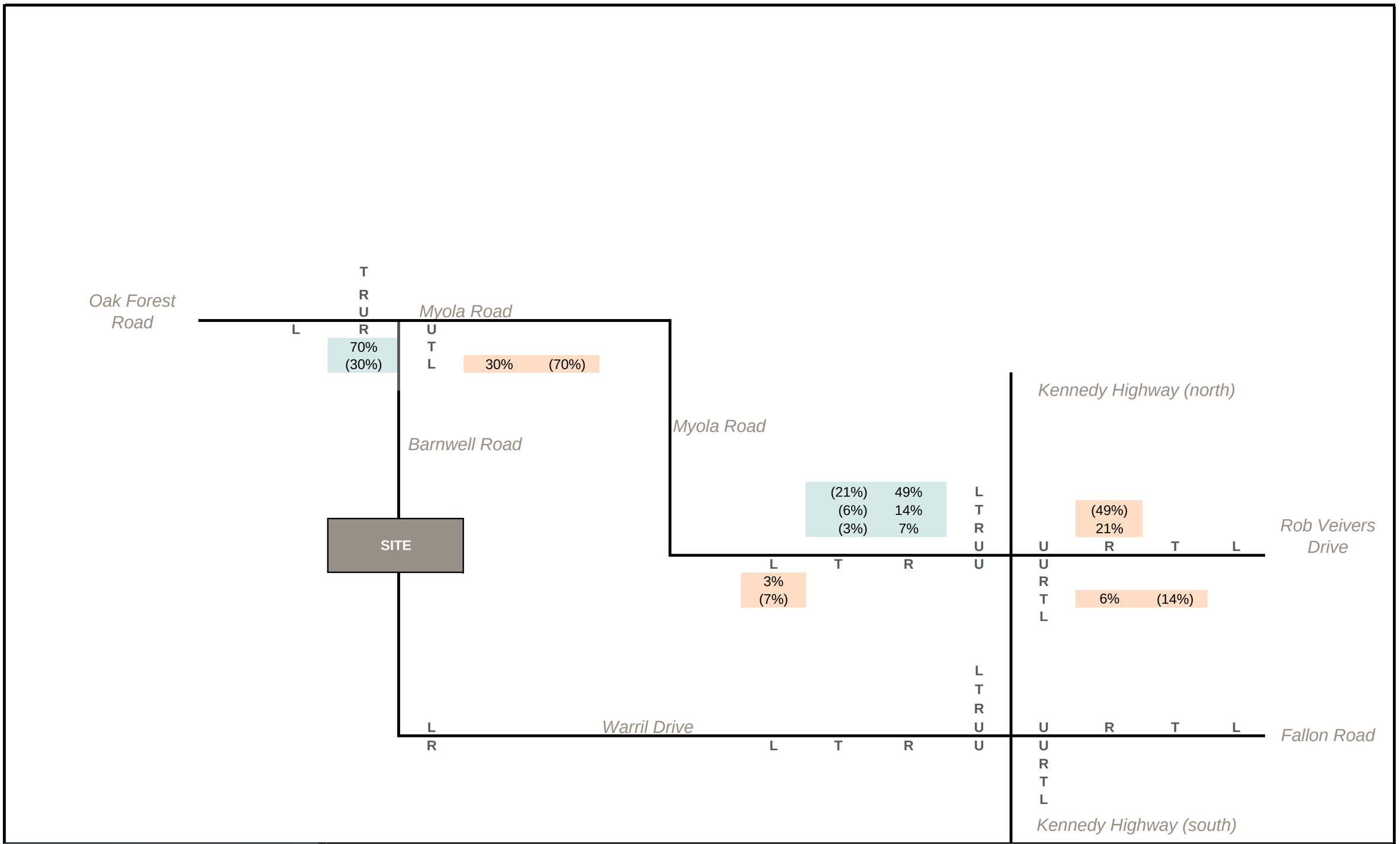
Project no. QTT17026 **Project** Tourist Attraction Kuranda

Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]Dist (Scenario

Legend			
L	Left turn	00	AM Peak Volume
T	Through	(00)	PM Peak Volume
R	Right turn	IN	In Dev traffic
U	U-turn	OUT	Out Dev traffic

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno Shaping the Future

Figure 6

Distribution (Scenario 3 - 179 lots through Barnwell Road)

Project no. QTT17026 **Project** Tourist Attraction Kuranda

Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]Dist (Scenario

Legend

L	Left turn	00	AM Peak Volume
T	Through	(00)	PM Peak Volume
R	Right turn	IN	In Dev traffic
U	U-turn	OUT	Out Dev traffic

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

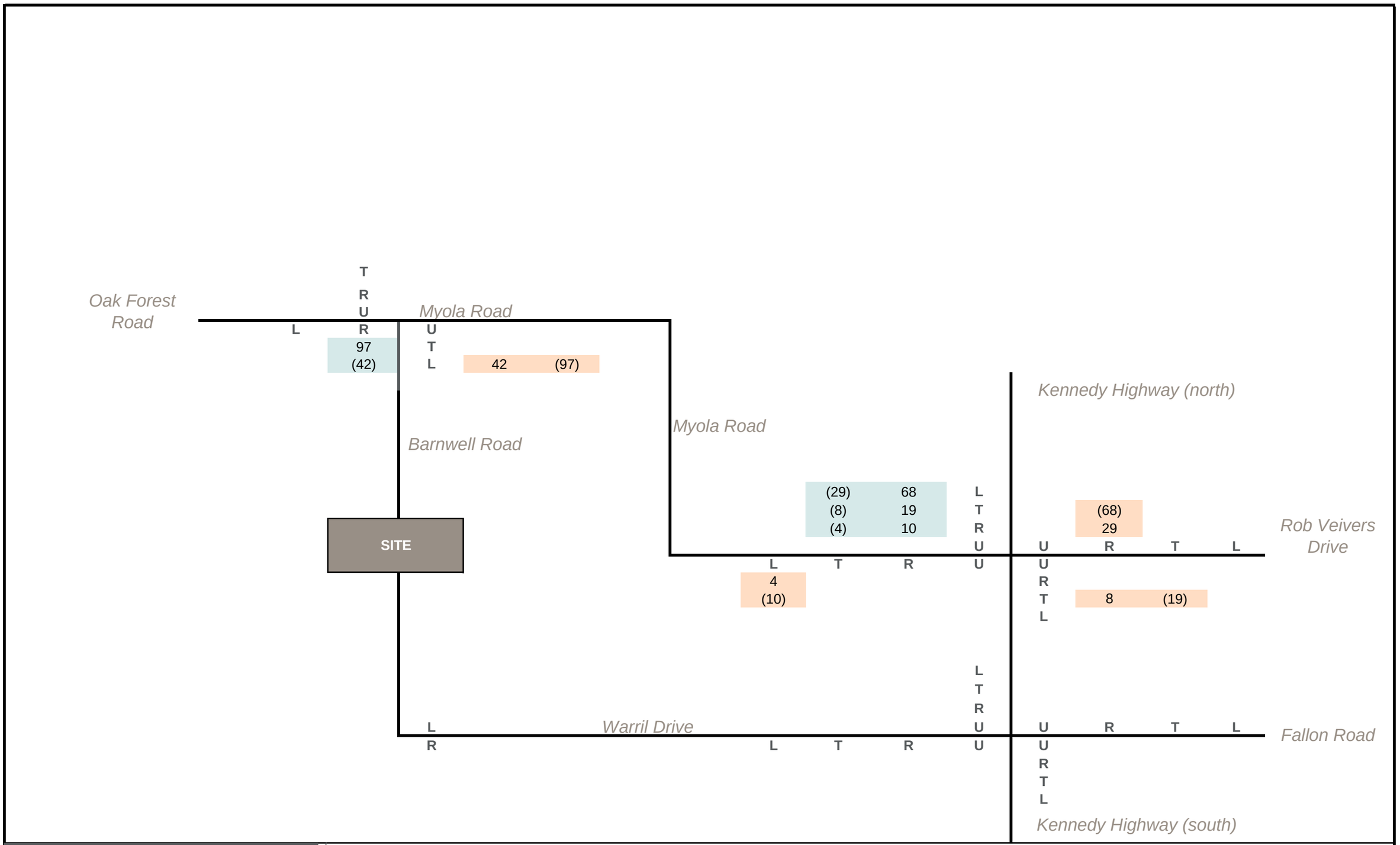


Figure 7

Development Traffic (Scenario 1)

Project no. QTT17026 **Project** Tourist Attraction Kuranda

Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]Dev (Scenari

Legend

L	Left turn	00	AM Peak Volume
T	Through	(00)	PM Peak Volume
R	Right turn	IN	In Dev traffic
U	U-turn	OUT	Out Dev traffic

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

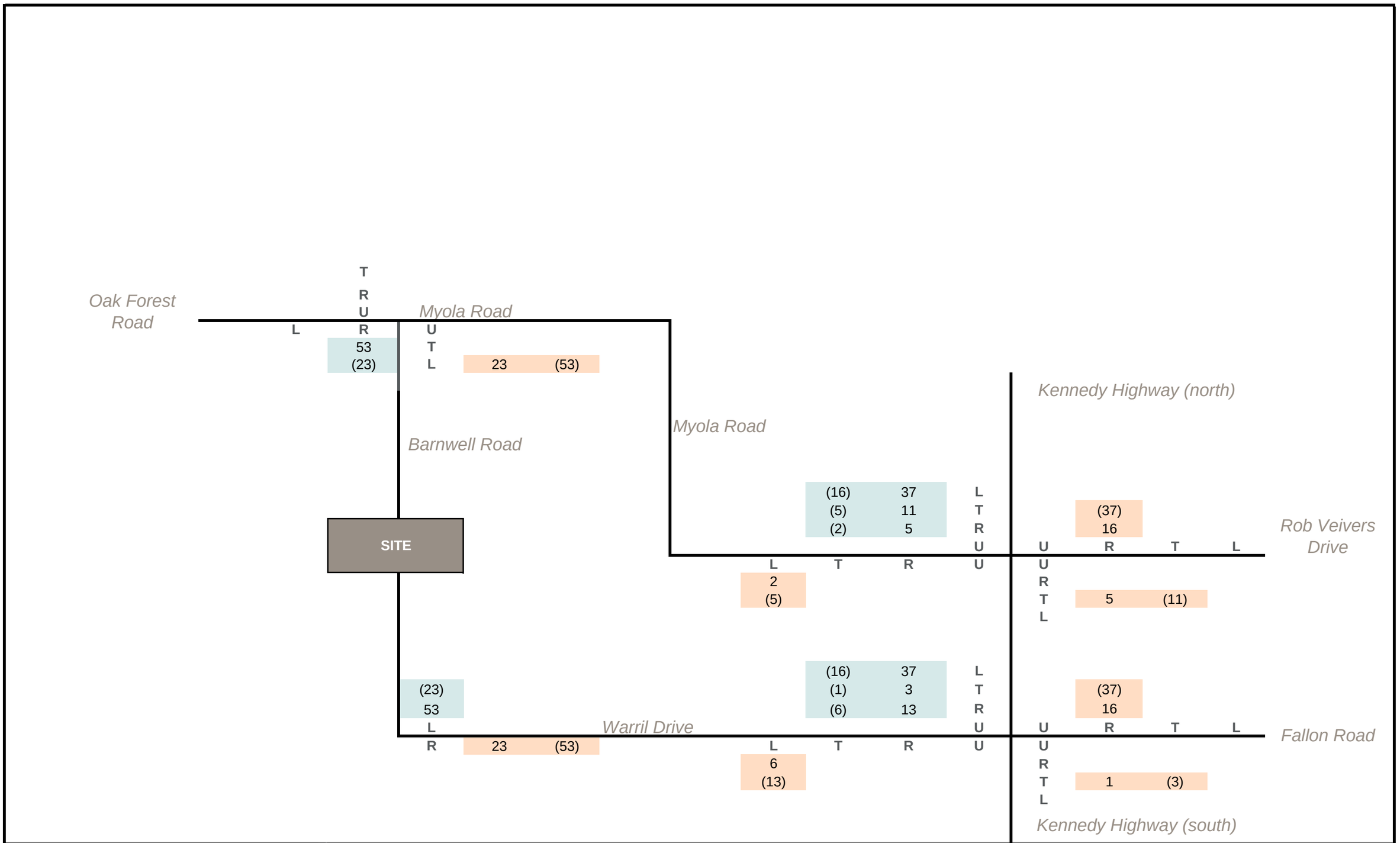


Figure 8

Development Traffic (Scenario 2)

Project no. QTT17026 **Project** Tourist Attraction Kuranda

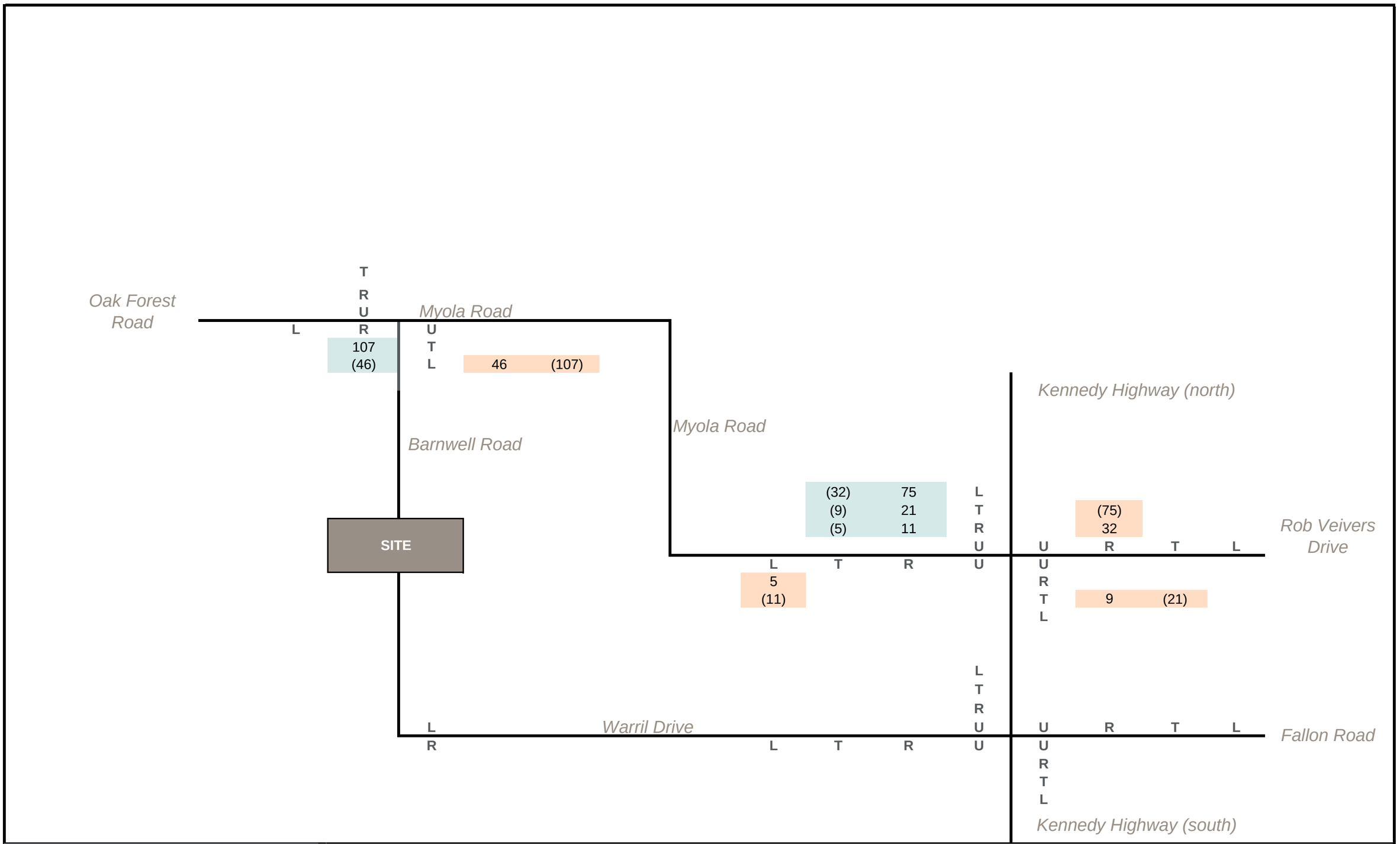
Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]Dev (Scenari

Legend

L	Left turn	00	AM Peak Volume
T	Through	(00)	PM Peak Volume
R	Right turn	IN	In Dev traffic
U	U-turn	OUT	Out Dev traffic

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno Shaping the Future

Figure 9

Development Traffic (Scenario 3)

Project no. QTT17026 **Project** Tourist Attraction Kuranda

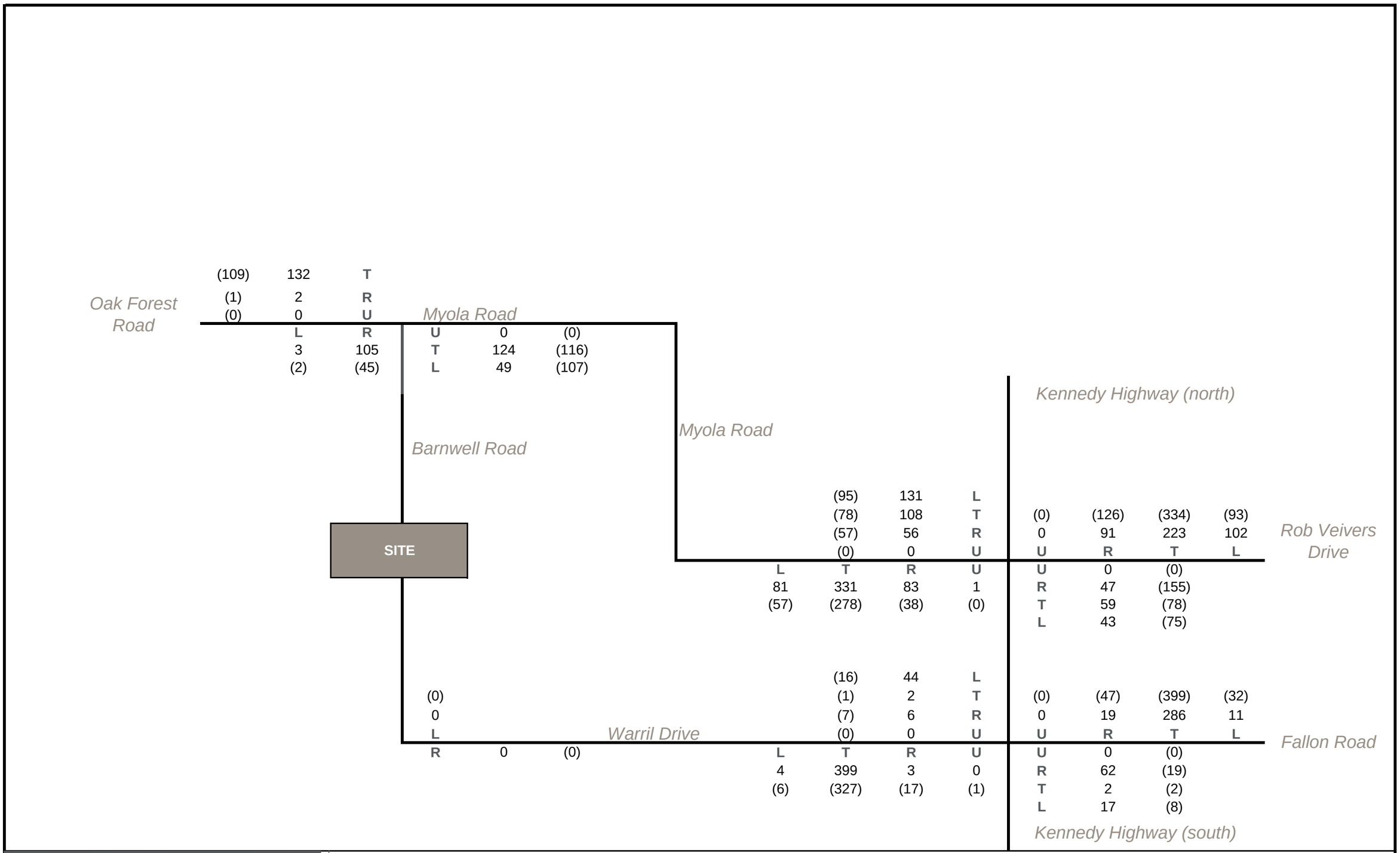
Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]Dev (Scenari

Legend

L	Left turn	00	AM Peak Volume
T	Through	(00)	PM Peak Volume
R	Right turn	IN	In Dev traffic
U	U-turn	OUT	Out Dev traffic

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno Shaping the Future

Figure 10

2029 Background Traffic + Scenario 1

Project no. QTT17026 **Project** Tourist Attraction Kuranda

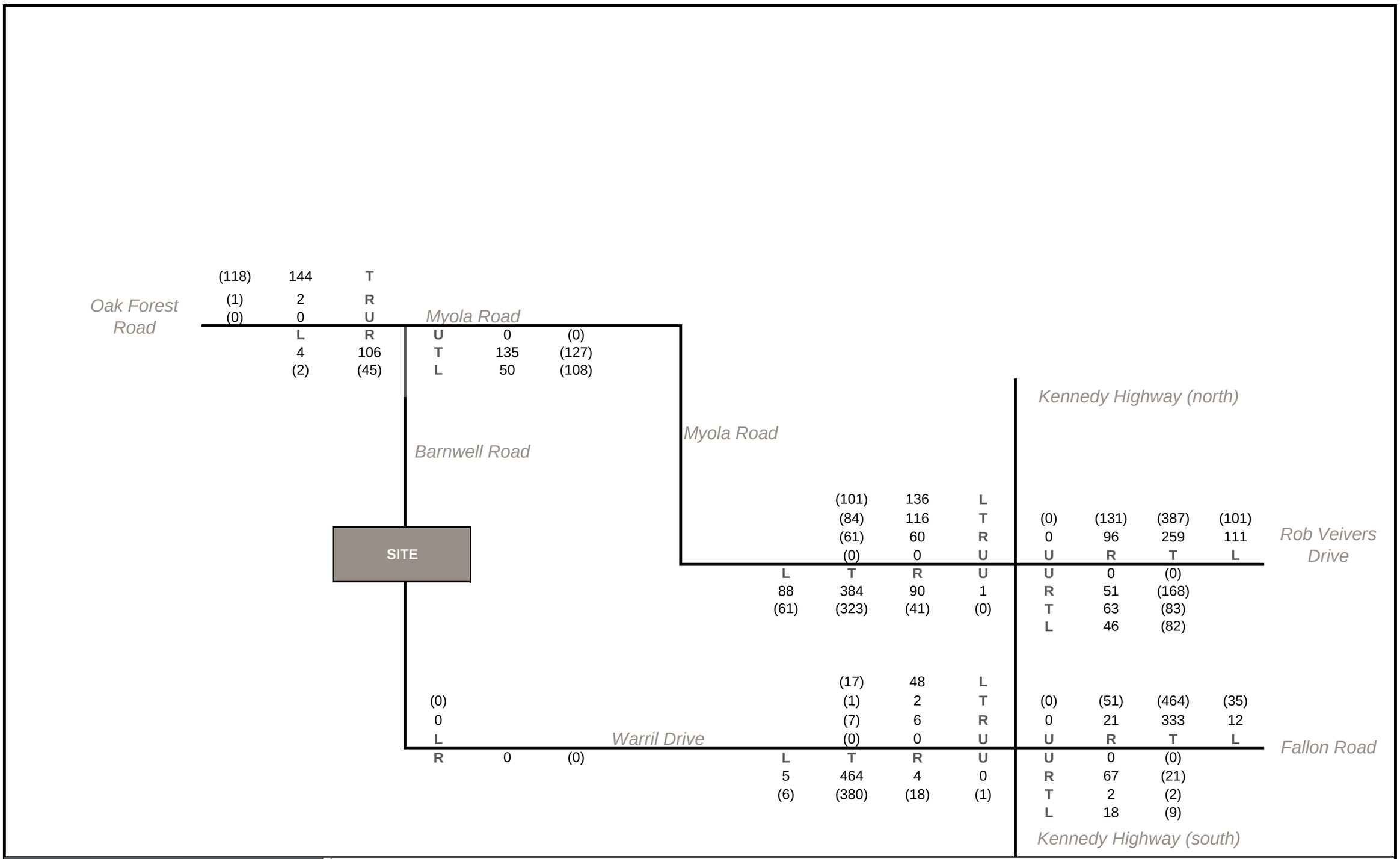
Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]2029BG+S

Legend

L	Left turn	**00**	AM Peak Volume
T	Through	**(00)**	PM Peak Volume
R	Right turn		
U	U-turn		

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno Shaping the Future

Figure 11

2039 Background Traffic + Scenario 1

Project no. QTT17026 **Project** Tourist Attraction Kuranda

Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]2039BG+S

Legend

L	Left turn	**00**	AM Peak Volume
T	Through	**(00)**	PM Peak Volume
R	Right turn		
U	U-turn		

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

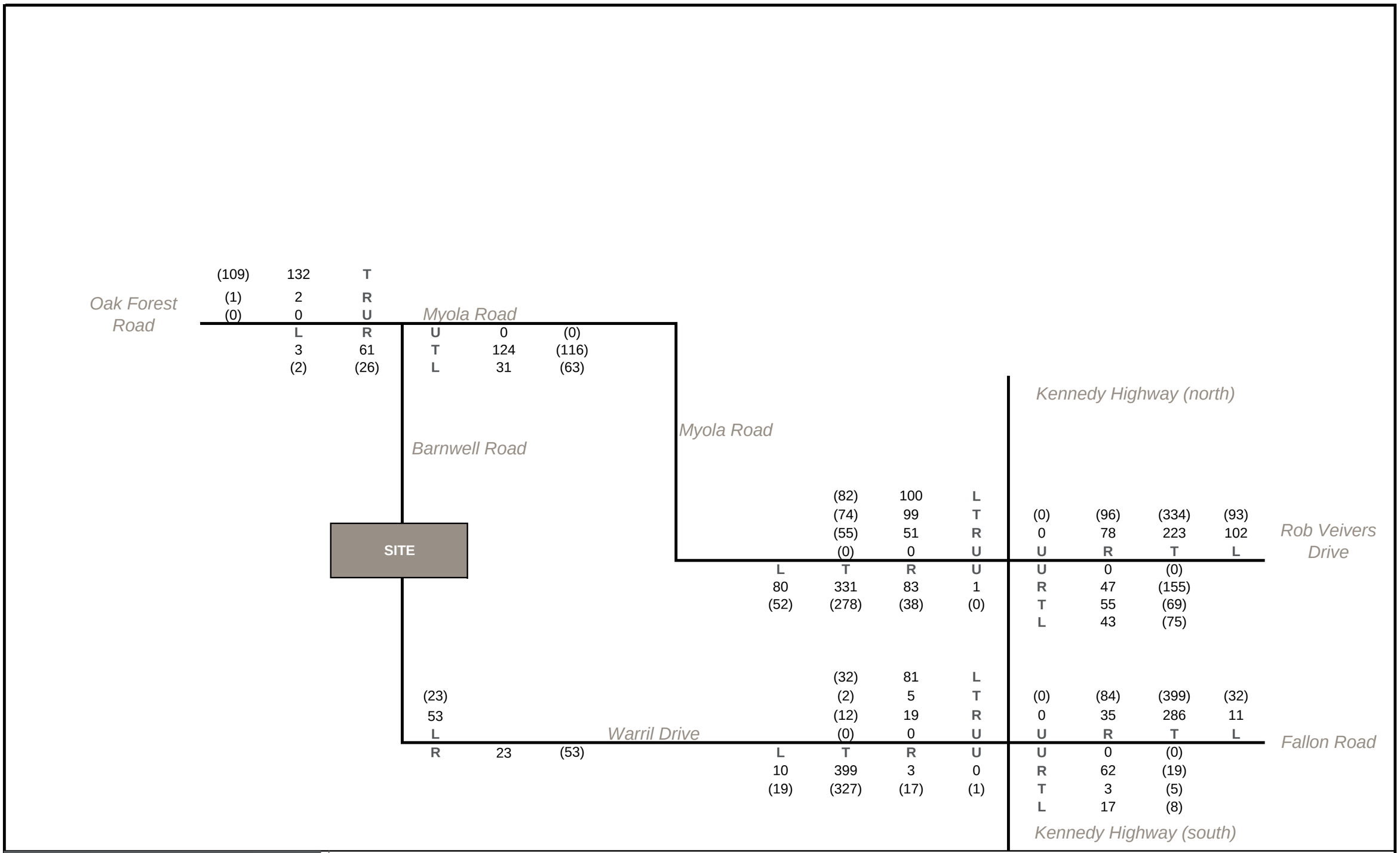


Figure 12

2029 Background Traffic + Scenario 2

Project no. QTT17026 **Project** Tourist Attraction Kuranda

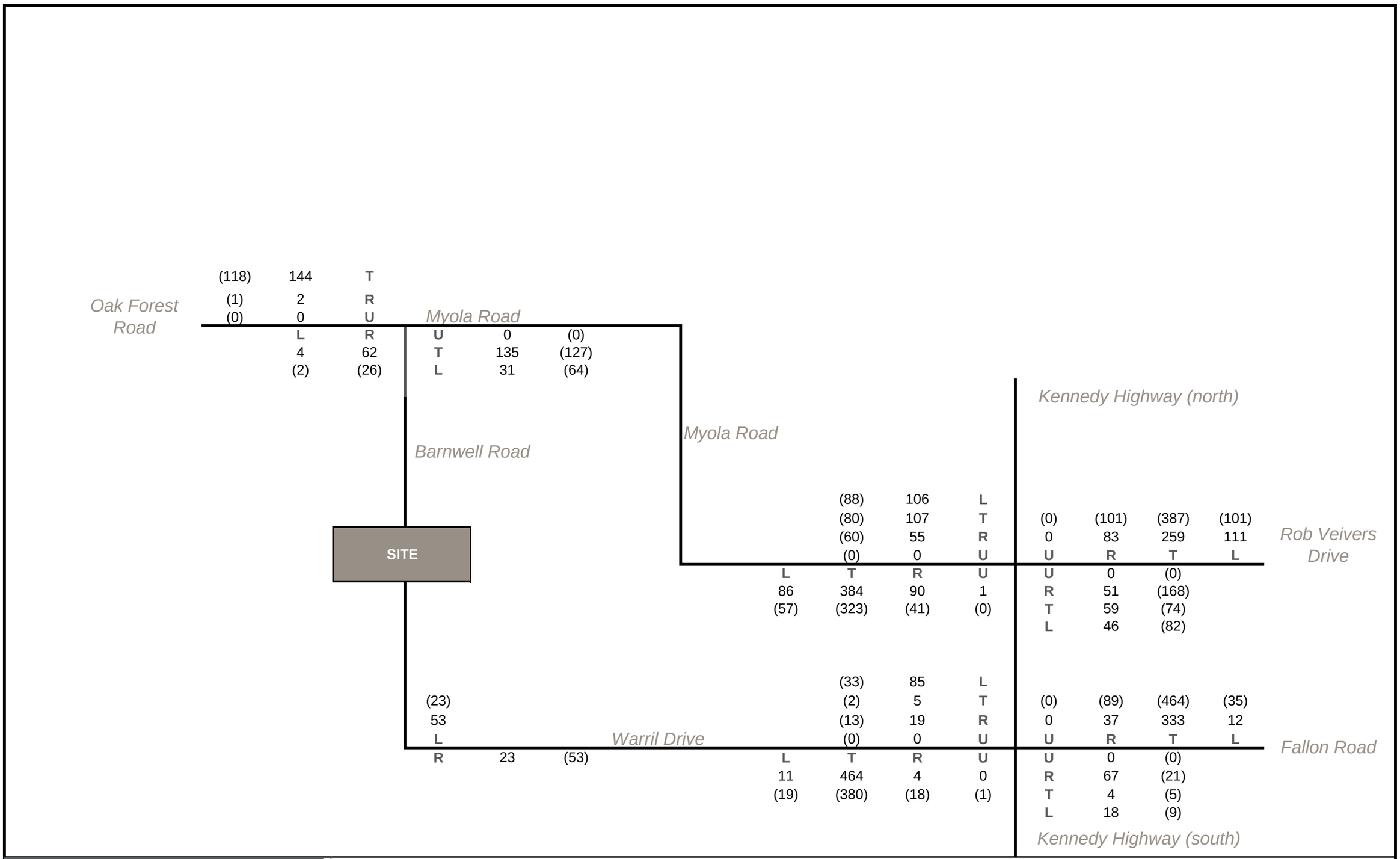
Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]2029BG+S

Legend

L	Left turn	00	AM Peak Volume
T	Through	(00)	PM Peak Volume
R	Right turn		
U	U-turn		

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno Shaping the Future

Figure 13

2039 Background Traffic + Scenario 2

Project no. QTT17026 **Project** Tourist Attraction Kuranda

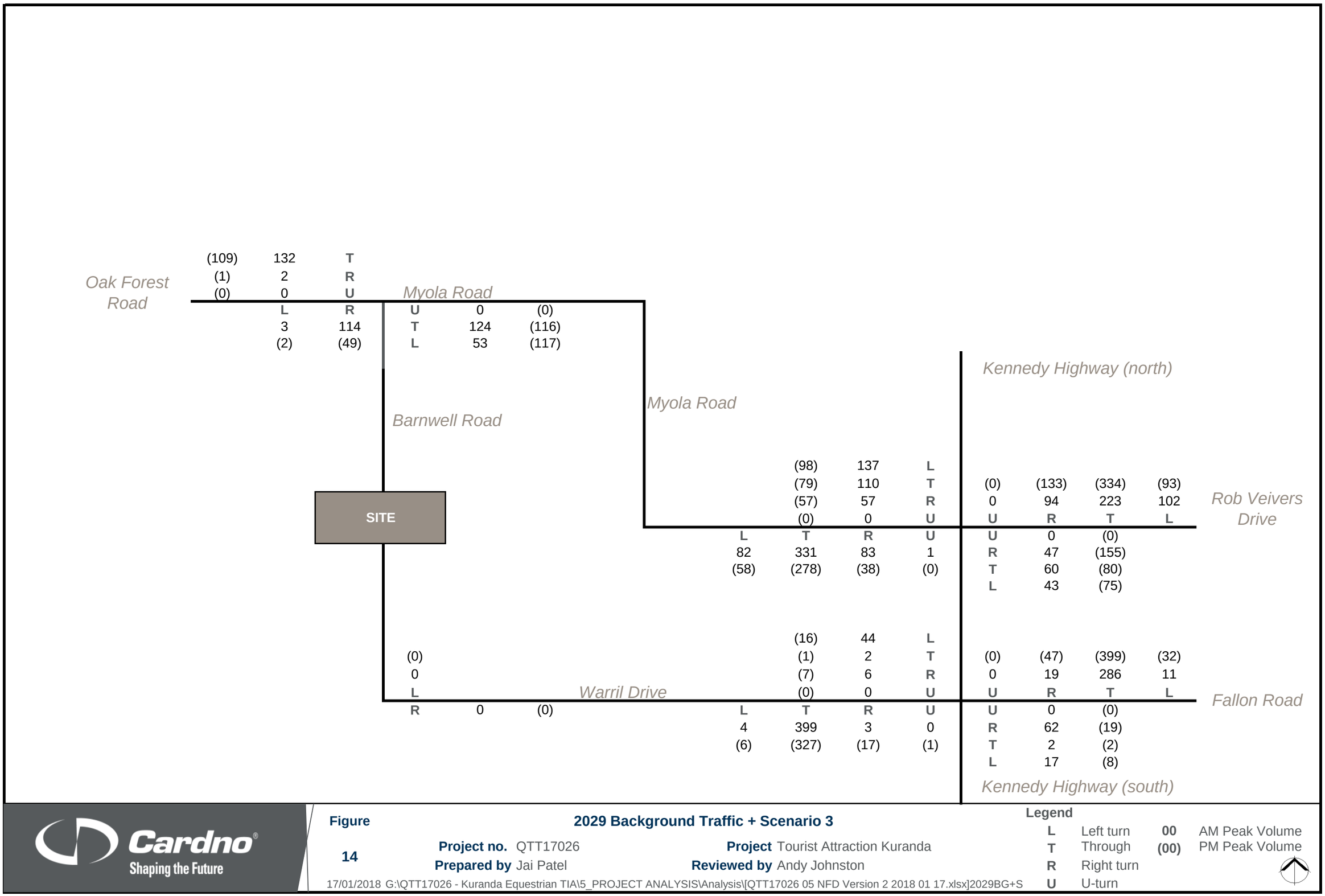
Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]2039BG+S

Legend

L	Left turn	**00**	AM Peak Volume
T	Through	**(00)**	PM Peak Volume
R	Right turn		
U	U-turn		

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno
Shaping the Future

Figure 14

2029 Background Traffic + Scenario 3

Project no. QTT17026 **Project** Tourist Attraction Kuranda

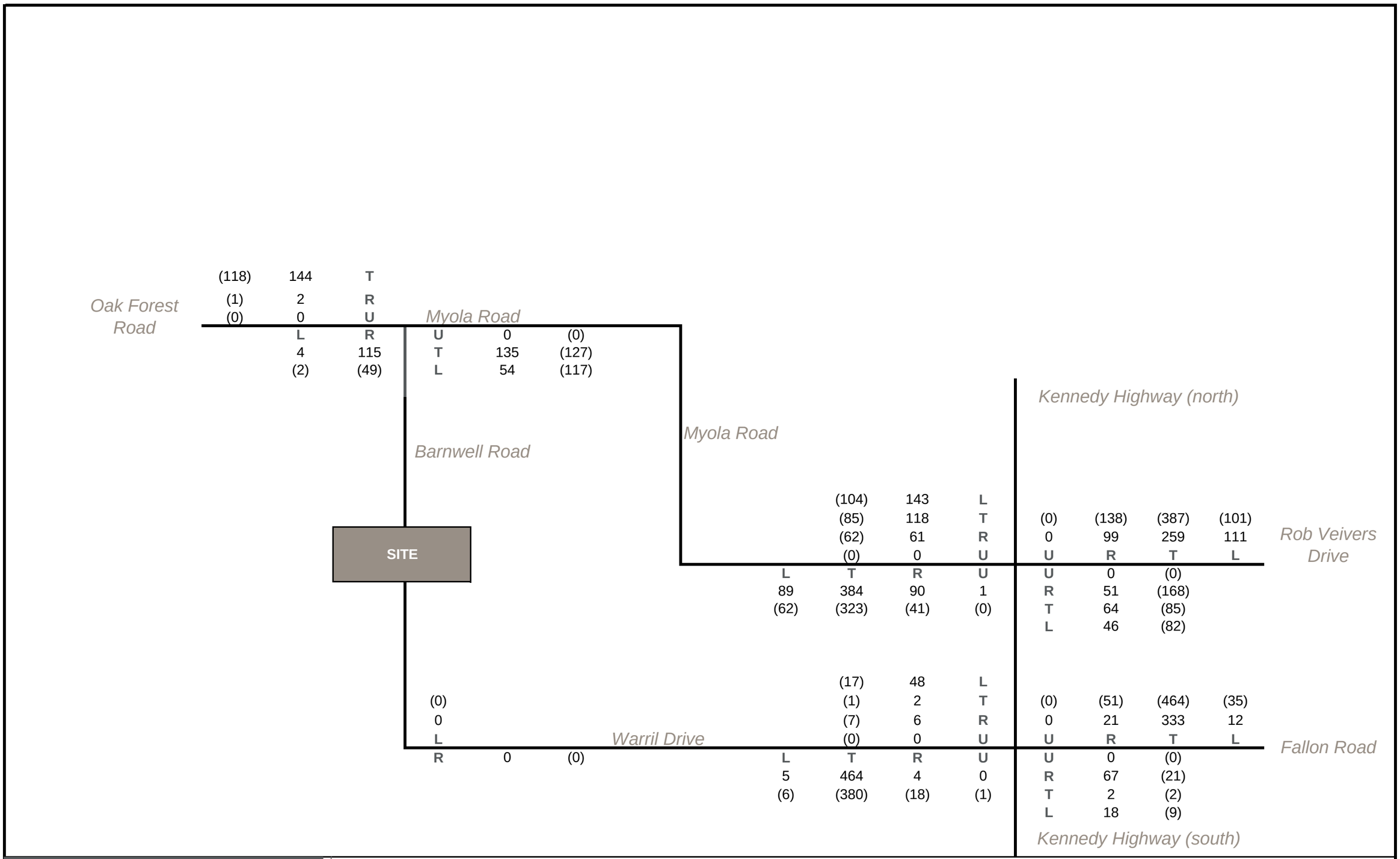
Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]2029BG+S

Legend

L	Left turn	**00**	AM Peak Volume
T	Through	**(00)**	PM Peak Volume
R	Right turn		
U	U-turn		

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018



Cardno Shaping the Future

Figure 15

2039 Background Traffic + Scenario 3

Project no. QTT17026 **Project** Tourist Attraction Kuranda

Prepared by Jai Patel **Reviewed by** Andy Johnston

17/01/2018 G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\[QTT17026 05 NFD Version 2 2018 01 17.xlsx]2039BG+S

Legend

L	Left turn	**00**	AM Peak Volume
T	Through	**(00)**	PM Peak Volume
R	Right turn		
U	U-turn		

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Proposed Non Urban Residential Subdivision Kuranda

APPENDIX D
DETAILED SIDRA OUTPUTS

Cardno
Shaping the Future

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101 [2017 Background - AM]

2017 AM
Signals - Fixed Time Isolated Cycle Time = 75 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Rob Veivers Dr											
21	L2	40	5.0	0.032	7.4	LOS A	0.3	2.0	0.28	0.61	56.3
22	T1	47	4.0	0.156	15.7	LOS B	0.8	5.9	0.89	0.66	47.7
23	R2	44	0.0	0.149	21.2	LOS C	0.8	5.3	0.89	0.72	47.0
Approach		132	3.0	0.156	15.0	LOS B	0.8	5.9	0.71	0.66	49.8
NorthEast: Kennedy Hwy E											
24	L2	96	2.0	0.070	8.5	LOS A	0.5	3.8	0.25	0.66	58.4
25	T1	189	12.0	0.561	18.8	LOS B	4.8	36.9	0.95	0.77	56.7
26	R2	58	9.0	0.207	23.1	LOS C	1.0	7.6	0.90	0.74	46.7
Approach		343	8.7	0.561	16.7	LOS B	4.8	36.9	0.75	0.73	55.2
NorthWest: Myola Rd											
27	L2	59	7.0	0.055	8.9	LOS A	0.6	4.4	0.38	0.63	54.6
28	T1	83	0.0	0.631	37.7	LOS D	3.1	21.9	0.99	0.80	37.1
29	R2	43	5.0	0.258	41.9	LOS D	1.6	11.4	0.96	0.73	36.6
Approach		185	3.4	0.631	29.5	LOS C	3.1	21.9	0.79	0.73	41.2
SouthWest: Kennedy Hwy W											
30	L2	73	7.0	0.052	8.2	LOS A	0.3	2.2	0.20	0.65	58.5
31	T1	281	7.0	0.565	26.2	LOS C	9.1	67.5	0.92	0.77	50.9
32	R2	78	3.0	0.268	25.3	LOS C	1.9	13.3	0.91	0.75	45.6
Approach		432	6.3	0.565	23.0	LOS C	9.1	67.5	0.80	0.75	50.9
All Vehicles		1092	6.2	0.631	21.2	LOS C	9.1	67.5	0.77	0.73	50.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101 [2029 Background - AM]

2017 AM
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Rob Veivers Dr											
21	L2	45	5.0	0.037	7.9	LOS A	0.4	2.8	0.31	0.61	55.9
22	T1	53	4.0	0.185	17.2	LOS B	1.0	7.2	0.91	0.67	46.8
23	R2	49	0.0	0.178	22.8	LOS C	0.9	6.5	0.91	0.72	46.1
Approach		147	3.0	0.185	16.2	LOS B	1.0	7.2	0.72	0.67	49.0
NorthEast: Kennedy Hwy E											
24	L2	107	2.0	0.078	8.6	LOS A	0.7	4.7	0.25	0.66	58.3
25	T1	235	12.0	0.611	19.3	LOS B	6.3	48.4	0.95	0.78	56.2
26	R2	65	9.0	0.249	24.7	LOS C	1.3	9.5	0.92	0.74	45.8
Approach		407	8.9	0.611	17.4	LOS B	6.3	48.4	0.76	0.74	54.8
NorthWest: Myola Rd											
27	L2	66	7.0	0.064	9.6	LOS A	0.8	5.7	0.40	0.64	54.0
28	T1	93	0.0	0.632	38.3	LOS D	3.6	25.3	0.97	0.79	36.9
29	R2	48	5.0	0.240	42.3	LOS D	1.8	13.2	0.95	0.74	36.5
Approach		207	3.4	0.632	30.0	LOS C	3.6	25.3	0.78	0.73	40.9
SouthWest: Kennedy Hwy W											
30	L2	81	7.0	0.057	8.2	LOS A	0.4	2.7	0.21	0.65	58.5
31	T1	348	7.0	0.650	27.4	LOS C	12.2	90.2	0.93	0.80	50.0
32	R2	87	3.0	0.320	26.6	LOS C	2.2	15.7	0.93	0.76	44.8
Approach		517	6.3	0.650	24.3	LOS C	12.2	90.2	0.82	0.77	50.2
All Vehicles		1279	6.3	0.650	22.1	LOS C	12.2	90.2	0.78	0.74	49.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101 [2029 Background - PM]

2017 AM
Signals - Fixed Time Isolated Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Rob Veivers Dr											
21	L2	79	1.0	0.065	9.3	LOS A	0.9	6.5	0.37	0.64	55.5
22	T1	61	0.0	0.398	38.3	LOS D	2.4	16.8	0.95	0.71	36.9
23	R2	163	7.0	0.821	51.9	LOS D	7.5	55.7	1.00	0.94	33.1
Approach		303	4.0	0.821	38.1	LOS D	7.5	55.7	0.83	0.82	37.9
NorthEast: Kennedy Hwy E											
24	L2	98	10.0	0.071	8.4	LOS A	0.5	3.8	0.21	0.65	58.3
25	T1	352	4.0	0.749	21.8	LOS C	10.7	77.1	0.98	0.86	54.2
26	R2	61	8.0	0.246	26.2	LOS C	1.3	9.8	0.93	0.74	45.0
Approach		511	5.6	0.749	19.7	LOS B	10.7	77.1	0.83	0.81	53.6
NorthWest: Myola Rd											
27	L2	69	8.0	0.069	9.7	LOS A	0.8	6.3	0.39	0.64	53.7
28	T1	73	3.0	0.821	48.7	LOS D	3.3	24.0	1.00	0.91	33.4
29	R2	56	9.0	0.453	49.9	LOS D	2.4	18.1	1.00	0.75	33.5
Approach		198	6.4	0.821	35.4	LOS D	3.3	24.0	0.78	0.77	38.6
SouthWest: Kennedy Hwy W											
30	L2	49	7.0	0.036	8.4	LOS A	0.3	2.0	0.22	0.65	58.3
31	T1	293	11.0	0.506	25.7	LOS C	10.0	76.6	0.86	0.73	51.2
32	R2	40	0.0	0.153	26.7	LOS C	1.0	6.9	0.91	0.72	44.8
Approach		382	9.3	0.506	23.6	LOS C	10.0	76.6	0.79	0.72	51.3
All Vehicles		1394	6.4	0.821	27.0	LOS C	10.7	77.1	0.81	0.78	46.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101 [2039 Background - AM]

2017 AM
Signals - Fixed Time Isolated Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Rob Veivers Dr											
21	L2	48	5.0	0.041	8.2	LOS A	0.5	3.3	0.32	0.62	55.6
22	T1	58	4.0	0.216	18.8	LOS B	1.2	8.9	0.92	0.69	45.9
23	R2	54	0.0	0.205	24.4	LOS C	1.1	7.9	0.92	0.73	45.1
Approach		160	3.0	0.216	17.5	LOS B	1.2	8.9	0.74	0.68	48.2
NorthEast: Kennedy Hwy E											
24	L2	117	2.0	0.085	8.9	LOS A	0.8	6.0	0.27	0.67	58.0
25	T1	273	12.0	0.610	19.1	LOS B	7.5	57.9	0.94	0.78	56.4
26	R2	71	9.0	0.286	26.3	LOS C	1.5	11.5	0.93	0.75	44.9
Approach		460	9.0	0.610	17.6	LOS B	7.5	57.9	0.77	0.75	54.7
NorthWest: Myola Rd											
27	L2	72	7.0	0.073	11.5	LOS B	1.1	7.8	0.45	0.65	52.6
28	T1	101	0.0	0.674	40.7	LOS D	4.2	29.4	0.97	0.81	36.0
29	R2	53	5.0	0.249	44.0	LOS D	2.1	15.2	0.95	0.74	35.8
Approach		225	3.4	0.674	32.2	LOS C	4.2	29.4	0.80	0.75	40.0
SouthWest: Kennedy Hwy W											
30	L2	88	7.0	0.062	8.4	LOS A	0.5	3.3	0.22	0.65	58.4
31	T1	404	7.0	0.682	27.7	LOS C	14.8	110.1	0.93	0.81	49.9
32	R2	95	3.0	0.369	27.7	LOS C	2.4	17.5	0.95	0.76	44.3
Approach		587	6.4	0.682	24.8	LOS C	14.8	110.1	0.83	0.78	49.9
All Vehicles		1433	6.4	0.682	22.8	LOS C	14.8	110.1	0.79	0.75	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101 [2039 Background - PM]

2017 AM
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Rob Veivers Dr											
21	L2	86	1.0	0.073	10.2	LOS B	1.2	8.7	0.38	0.64	54.8
22	T1	66	0.0	0.412	42.2	LOS D	3.0	20.7	0.93	0.70	35.4
23	R2	177	7.0	0.792	55.6	LOS E	9.1	67.6	1.00	0.90	32.0
Approach		329	4.0	0.792	41.0	LOS D	9.1	67.6	0.82	0.80	36.8
NorthEast: Kennedy Hwy E											
24	L2	106	10.0	0.076	8.5	LOS A	0.7	5.0	0.20	0.65	58.2
25	T1	407	4.0	0.765	24.9	LOS C	14.7	106.6	0.97	0.87	51.8
26	R2	66	8.0	0.290	30.0	LOS C	1.6	12.2	0.94	0.75	43.0
Approach		580	5.6	0.765	22.5	LOS C	14.7	106.6	0.83	0.81	51.6
NorthWest: Myola Rd											
27	L2	76	8.0	0.078	10.9	LOS B	1.2	8.6	0.40	0.65	52.8
28	T1	80	3.0	0.740	50.4	LOS D	4.0	28.7	0.98	0.84	32.8
29	R2	60	9.0	0.344	53.0	LOS D	2.9	21.6	0.97	0.75	32.6
Approach		216	6.4	0.740	37.3	LOS D	4.0	28.7	0.77	0.75	37.8
SouthWest: Kennedy Hwy W											
30	L2	54	7.0	0.038	8.4	LOS A	0.3	2.4	0.19	0.64	58.4
31	T1	340	11.0	0.566	29.9	LOS C	13.8	105.3	0.88	0.76	48.4
32	R2	43	0.0	0.194	31.3	LOS C	1.3	8.9	0.93	0.73	42.5
Approach		437	9.4	0.566	27.4	LOS C	13.8	105.3	0.80	0.74	48.7
All Vehicles		1562	6.4	0.792	29.8	LOS C	14.7	106.6	0.81	0.78	44.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101 [2017 Background - PM]

2017 AM
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Rob Veivers Dr											
21	L2	71	1.0	0.056	8.4	LOS A	0.7	4.8	0.34	0.63	56.3
22	T1	55	0.0	0.336	36.5	LOS D	2.0	14.3	0.95	0.71	37.5
23	R2	145	7.0	0.730	46.8	LOS D	6.0	44.9	1.00	0.88	34.7
Approach		271	4.0	0.730	34.7	LOS C	6.0	44.9	0.82	0.78	39.2
NorthEast: Kennedy Hwy E											
24	L2	87	10.0	0.063	8.3	LOS A	0.4	3.0	0.21	0.65	58.3
25	T1	283	4.0	0.701	20.8	LOS C	8.0	57.8	0.98	0.83	55.0
26	R2	55	8.0	0.208	24.5	LOS C	1.0	7.8	0.91	0.74	45.9
Approach		425	5.7	0.701	18.7	LOS B	8.0	57.8	0.81	0.78	54.3
NorthWest: Myola Rd											
27	L2	62	8.0	0.059	8.7	LOS A	0.6	4.7	0.35	0.63	54.5
28	T1	65	3.0	0.647	42.0	LOS D	2.7	19.2	1.00	0.80	35.5
29	R2	49	9.0	0.378	46.7	LOS D	2.0	15.0	0.99	0.74	34.6
Approach		177	6.4	0.647	31.6	LOS C	2.7	19.2	0.77	0.72	40.1
SouthWest: Kennedy Hwy W											
30	L2	44	7.0	0.032	8.4	LOS A	0.2	1.6	0.21	0.64	58.4
31	T1	236	11.0	0.451	25.6	LOS C	7.7	58.7	0.87	0.73	51.3
32	R2	36	0.0	0.128	25.8	LOS C	0.9	6.0	0.90	0.72	45.4
Approach		316	9.2	0.451	23.2	LOS C	7.7	58.7	0.78	0.71	51.4
All Vehicles		1188	6.4	0.730	25.4	LOS C	8.0	58.7	0.80	0.75	47.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101 [2039 Background - AM with Dev all 179 lots]

2017 AM
Signals - Fixed Time Isolated Cycle Time = 95 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Rob Veivers Dr											
21	L2	48	5.0	0.042	8.4	LOS A	0.5	3.7	0.31	0.62	55.4
22	T1	67	4.0	0.281	21.8	LOS C	1.5	11.2	0.94	0.71	44.2
23	R2	54	0.0	0.229	27.2	LOS C	1.2	8.5	0.93	0.73	43.6
Approach		169	3.0	0.281	19.7	LOS B	1.5	11.2	0.76	0.69	46.7
NorthEast: Kennedy Hwy E											
24	L2	117	2.0	0.086	8.9	LOS A	0.9	6.4	0.25	0.66	58.1
25	T1	273	12.0	0.623	22.5	LOS C	8.7	67.5	0.94	0.79	53.6
26	R2	104	9.0	0.473	29.8	LOS C	2.5	18.7	0.97	0.77	43.0
Approach		494	9.0	0.623	20.8	LOS C	8.7	67.5	0.79	0.75	51.9
NorthWest: Myola Rd											
27	L2	151	7.0	0.177	11.9	LOS B	2.5	18.6	0.45	0.67	52.2
28	T1	123	0.0	0.683	38.5	LOS D	5.2	36.7	0.91	0.77	36.8
29	R2	64	5.0	0.189	41.1	LOS D	2.5	18.6	0.88	0.75	36.9
Approach		338	4.1	0.683	27.1	LOS C	5.2	36.7	0.70	0.72	42.4
SouthWest: Kennedy Hwy W											
30	L2	93	7.0	0.066	8.6	LOS A	0.6	4.2	0.22	0.65	58.2
31	T1	404	7.0	0.710	32.3	LOS C	17.0	126.0	0.95	0.83	46.9
32	R2	95	3.0	0.412	31.5	LOS C	2.9	20.6	0.96	0.77	42.3
Approach		592	6.4	0.710	28.5	LOS C	17.0	126.0	0.84	0.79	47.5
All Vehicles		1593	6.3	0.710	24.9	LOS C	17.0	126.0	0.78	0.75	47.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101 [2029 Background - AM with Dev 163 lots Stg 7]

2017 AM
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Rob Veivers Dr											
21	L2	45	5.0	0.038	8.1	LOS A	0.4	2.9	0.32	0.62	55.7
22	T1	61	4.0	0.214	17.3	LOS B	1.2	8.4	0.91	0.68	46.7
23	R2	49	0.0	0.178	22.8	LOS C	0.9	6.5	0.91	0.72	46.1
Approach		156	3.0	0.214	16.4	LOS B	1.2	8.4	0.74	0.68	48.8
NorthEast: Kennedy Hwy E											
24	L2	107	2.0	0.080	8.8	LOS A	0.7	5.1	0.27	0.66	58.1
25	T1	235	12.0	0.692	22.1	LOS C	6.8	52.8	0.98	0.83	53.9
26	R2	96	9.0	0.366	25.1	LOS C	1.9	14.3	0.94	0.76	45.6
Approach		438	8.9	0.692	19.5	LOS B	6.8	52.8	0.80	0.78	52.8
NorthWest: Myola Rd											
27	L2	138	7.0	0.164	9.2	LOS A	1.5	11.4	0.39	0.65	54.3
28	T1	113	0.0	0.839	43.2	LOS D	4.8	33.3	0.96	0.93	35.1
29	R2	59	5.0	0.239	40.1	LOS D	2.1	15.6	0.93	0.75	37.3
Approach		309	4.1	0.839	27.5	LOS C	4.8	33.3	0.70	0.77	42.3
SouthWest: Kennedy Hwy W											
30	L2	85	7.0	0.062	8.6	LOS A	0.5	3.5	0.25	0.66	58.2
31	T1	348	7.0	0.712	30.5	LOS C	13.0	96.2	0.96	0.85	48.0
32	R2	87	3.0	0.320	27.4	LOS C	2.3	16.4	0.93	0.76	44.4
Approach		521	6.3	0.712	26.4	LOS C	13.0	96.2	0.84	0.80	48.7
All Vehicles		1424	6.3	0.839	23.4	LOS C	13.0	96.2	0.79	0.77	48.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101 [2029 Background - PM with Dev 163 lots Stg 7]

2017 AM
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Rob Veivers Dr											
21	L2	79	1.0	0.065	9.4	LOS A	1.0	6.8	0.37	0.64	55.5
22	T1	81	0.0	0.537	40.6	LOS D	3.4	23.8	0.96	0.74	36.0
23	R2	163	7.0	0.818	53.7	LOS D	7.8	58.2	1.00	0.93	32.6
Approach		323	3.8	0.818	39.6	LOS D	7.8	58.2	0.83	0.81	37.2
NorthEast: Kennedy Hwy E											
24	L2	98	10.0	0.071	8.5	LOS A	0.5	4.2	0.21	0.65	58.2
25	T1	352	4.0	0.757	23.7	LOS C	11.5	83.6	0.98	0.87	52.7
26	R2	133	8.0	0.566	28.7	LOS C	3.1	23.0	0.98	0.78	43.6
Approach		582	5.9	0.757	22.3	LOS C	11.5	83.6	0.85	0.81	51.1
NorthWest: Myola Rd											
27	L2	100	8.0	0.098	9.9	LOS A	1.3	9.7	0.39	0.65	53.6
28	T1	81	3.0	0.833	49.8	LOS D	3.9	27.7	0.98	0.92	33.0
29	R2	60	9.0	0.344	48.6	LOS D	2.6	19.6	0.97	0.75	33.9
Approach		241	6.6	0.833	32.9	LOS C	3.9	27.7	0.73	0.76	39.6
SouthWest: Kennedy Hwy W											
30	L2	60	7.0	0.045	9.0	LOS A	0.5	3.3	0.25	0.65	57.8
31	T1	293	11.0	0.517	27.7	LOS C	10.7	81.7	0.87	0.74	49.8
32	R2	40	0.0	0.162	28.5	LOS C	1.1	7.5	0.92	0.72	43.9
Approach		393	9.3	0.517	24.9	LOS C	10.7	81.7	0.78	0.73	50.2
All Vehicles		1539	6.4	0.833	28.3	LOS C	11.5	83.6	0.81	0.78	45.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101 [2039 Background - PM with Dev all 179 lots]

2017 AM
Signals - Fixed Time Isolated Cycle Time = 95 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Rob Veivers Dr											
21	L2	86	1.0	0.074	10.5	LOS B	1.2	8.7	0.39	0.65	54.6
22	T1	88	0.0	0.543	41.2	LOS D	3.8	26.8	0.95	0.73	35.8
23	R2	177	7.0	0.826	55.4	LOS E	8.9	66.1	1.00	0.94	32.1
Approach		352	3.8	0.826	40.8	LOS D	8.9	66.1	0.84	0.81	36.8
NorthEast: Kennedy Hwy E											
24	L2	106	10.0	0.077	8.5	LOS A	0.7	5.0	0.21	0.65	58.1
25	T1	407	4.0	0.848	30.4	LOS C	16.0	115.7	1.00	0.94	48.1
26	R2	145	8.0	0.655	31.2	LOS C	3.7	27.3	1.00	0.81	42.4
Approach		659	5.8	0.848	27.0	LOS C	16.0	115.7	0.87	0.87	48.0
NorthWest: Myola Rd											
27	L2	109	8.0	0.132	11.4	LOS B	1.7	12.8	0.43	0.66	52.4
28	T1	89	3.0	0.902	59.2	LOS E	4.8	34.5	0.98	1.00	30.4
29	R2	64	9.0	0.350	50.3	LOS D	2.9	21.9	0.97	0.76	33.4
Approach		263	6.5	0.902	37.1	LOS D	4.8	34.5	0.75	0.80	37.9
SouthWest: Kennedy Hwy W											
30	L2	65	7.0	0.049	9.3	LOS A	0.6	4.1	0.26	0.66	57.5
31	T1	340	11.0	0.592	29.7	LOS C	13.4	102.6	0.90	0.77	48.5
32	R2	43	0.0	0.184	30.1	LOS C	1.2	8.6	0.93	0.73	43.1
Approach		448	9.4	0.592	26.8	LOS C	13.4	102.6	0.81	0.75	49.0
All Vehicles		1722	6.4	0.902	31.3	LOS C	16.0	115.7	0.83	0.81	43.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101v [2017BG AM]

Myola Road / Barnwell Road
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: RoadName											
1	L2	3	0.0	0.009	5.9	LOS A	0.0	0.2	0.24	0.57	52.4
3	R2	7	0.0	0.009	6.3	LOS A	0.0	0.2	0.24	0.57	52.4
Approach		11	0.0	0.009	6.2	LOS A	0.0	0.2	0.24	0.57	52.4
East: RoadName											
4	L2	7	14.0	0.067	5.7	LOS A	0.0	0.0	0.00	0.04	57.4
5	T1	117	6.0	0.067	0.0	LOS A	0.0	0.0	0.00	0.04	59.7
Approach		124	6.5	0.067	0.3	NA	0.0	0.0	0.00	0.04	59.5
West: Oak Forest Road											
11	T1	124	3.0	0.066	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
12	R2	2	0.0	0.066	5.8	LOS A	0.0	0.1	0.01	0.01	57.4
Approach		126	3.0	0.066	0.1	NA	0.0	0.1	0.01	0.01	59.8
All Vehicles		261	4.5	0.067	0.5	NA	0.0	0.2	0.01	0.04	59.3

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101v [2019BG AM]

Myola Road / Barnwell Road
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: RoadName											
1	L2	3	0.0	0.009	5.9	LOS A	0.0	0.2	0.25	0.57	52.4
3	R2	7	0.0	0.009	6.3	LOS A	0.0	0.2	0.25	0.57	52.4
Approach		11	0.0	0.009	6.2	LOS A	0.0	0.2	0.25	0.57	52.4
East: RoadName											
4	L2	7	14.0	0.068	5.7	LOS A	0.0	0.0	0.00	0.03	57.4
5	T1	119	6.0	0.068	0.0	LOS A	0.0	0.0	0.00	0.03	59.7
Approach		126	6.5	0.068	0.3	NA	0.0	0.0	0.00	0.03	59.5
West: Oak Forest Road											
11	T1	126	3.0	0.067	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
12	R2	2	0.0	0.067	5.8	LOS A	0.0	0.1	0.01	0.01	57.4
Approach		128	3.0	0.067	0.1	NA	0.0	0.1	0.01	0.01	59.8
All Vehicles		265	4.5	0.068	0.5	NA	0.0	0.2	0.01	0.04	59.3

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101v [2029BG AM]

Myola Road / Barnwell Road
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: RoadName											
1	L2	3	0.0	0.011	5.9	LOS A	0.0	0.2	0.27	0.57	52.3
3	R2	8	0.0	0.011	6.4	LOS A	0.0	0.2	0.27	0.57	52.4
Approach		12	0.0	0.011	6.3	LOS A	0.0	0.2	0.27	0.57	52.4
East: RoadName											
4	L2	8	14.0	0.075	5.7	LOS A	0.0	0.0	0.00	0.04	57.4
5	T1	131	6.0	0.075	0.0	LOS A	0.0	0.0	0.00	0.04	59.7
Approach		139	6.5	0.075	0.4	NA	0.0	0.0	0.00	0.04	59.5
West: Oak Forest Road											
11	T1	139	3.0	0.074	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
12	R2	2	0.0	0.074	5.9	LOS A	0.0	0.1	0.01	0.01	57.4
Approach		141	3.0	0.074	0.1	NA	0.0	0.1	0.01	0.01	59.8
All Vehicles		292	4.5	0.075	0.5	NA	0.0	0.2	0.01	0.04	59.3

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101v [2039BG AM]

Myola Road / Barnwell Road
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: RoadName											
1	L2	4	0.0	0.013	5.9	LOS A	0.0	0.3	0.28	0.58	52.3
3	R2	9	0.0	0.013	6.5	LOS A	0.0	0.3	0.28	0.58	52.3
Approach		14	0.0	0.013	6.3	LOS A	0.0	0.3	0.28	0.58	52.3
East: RoadName											
4	L2	9	14.0	0.081	5.7	LOS A	0.0	0.0	0.00	0.04	57.4
5	T1	142	6.0	0.081	0.0	LOS A	0.0	0.0	0.00	0.04	59.6
Approach		152	6.5	0.081	0.4	NA	0.0	0.0	0.00	0.04	59.5
West: Oak Forest Road											
11	T1	152	3.0	0.081	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
12	R2	2	0.0	0.081	5.9	LOS A	0.0	0.1	0.01	0.01	57.4
Approach		154	3.0	0.081	0.1	NA	0.0	0.1	0.01	0.01	59.8
All Vehicles		319	4.5	0.081	0.5	NA	0.0	0.3	0.02	0.05	59.3

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101v [2039BG PM]

Myola Road / Barnwell Road
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: RoadName											
1	L2	2	0.0	0.006	5.9	LOS A	0.0	0.1	0.26	0.56	52.3
3	R2	4	0.0	0.006	6.4	LOS A	0.0	0.1	0.26	0.56	52.4
Approach		6	0.0	0.006	6.2	LOS A	0.0	0.1	0.26	0.56	52.4
East: RoadName											
4	L2	12	0.0	0.077	5.5	LOS A	0.0	0.0	0.00	0.05	57.9
5	T1	134	5.0	0.077	0.0	LOS A	0.0	0.0	0.00	0.05	59.5
Approach		145	4.6	0.077	0.4	NA	0.0	0.0	0.00	0.05	59.4
West: Oak Forest Road											
11	T1	124	6.0	0.067	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
12	R2	1	0.0	0.067	5.9	LOS A	0.0	0.1	0.01	0.01	57.5
Approach		125	5.9	0.067	0.1	NA	0.0	0.1	0.01	0.01	59.9
All Vehicles		277	5.1	0.077	0.4	NA	0.0	0.1	0.01	0.04	59.4

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101v [2017BG PM]

Myola Road / Barnwell Road
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: RoadName											
1	L2	2	0.0	0.004	5.8	LOS A	0.0	0.1	0.22	0.55	52.4
3	R2	3	0.0	0.004	6.2	LOS A	0.0	0.1	0.22	0.55	52.5
Approach		5	0.0	0.004	6.0	LOS A	0.0	0.1	0.22	0.55	52.5
East: RoadName											
4	L2	9	0.0	0.063	5.5	LOS A	0.0	0.0	0.00	0.05	57.9
5	T1	109	5.0	0.063	0.0	LOS A	0.0	0.0	0.00	0.05	59.5
Approach		119	4.6	0.063	0.4	NA	0.0	0.0	0.00	0.05	59.4
West: Oak Forest Road											
11	T1	102	6.0	0.055	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
12	R2	1	0.0	0.055	5.8	LOS A	0.0	0.1	0.01	0.01	57.5
Approach		103	5.9	0.055	0.1	NA	0.0	0.1	0.01	0.01	59.9
All Vehicles		227	5.1	0.063	0.4	NA	0.0	0.1	0.01	0.04	59.4

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101v [2019BG PM]

Myola Road / Barnwell Road
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: RoadName											
1	L2	2	0.0	0.004	5.8	LOS A	0.0	0.1	0.22	0.55	52.4
3	R2	3	0.0	0.004	6.2	LOS A	0.0	0.1	0.22	0.55	52.5
Approach		5	0.0	0.004	6.0	LOS A	0.0	0.1	0.22	0.55	52.5
East: RoadName											
4	L2	9	0.0	0.064	5.5	LOS A	0.0	0.0	0.00	0.05	57.9
5	T1	112	5.0	0.064	0.0	LOS A	0.0	0.0	0.00	0.05	59.5
Approach		121	4.6	0.064	0.4	NA	0.0	0.0	0.00	0.05	59.4
West: Oak Forest Road											
11	T1	104	6.0	0.056	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
12	R2	1	0.0	0.056	5.8	LOS A	0.0	0.1	0.01	0.01	57.5
Approach		105	5.9	0.056	0.1	NA	0.0	0.1	0.01	0.01	59.9
All Vehicles		232	5.1	0.064	0.4	NA	0.0	0.1	0.01	0.04	59.4

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101v [2029BG PM]

Myola Road / Barnwell Road
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: RoadName											
1	L2	2	0.0	0.004	5.9	LOS A	0.0	0.1	0.24	0.55	52.4
3	R2	3	0.0	0.004	6.3	LOS A	0.0	0.1	0.24	0.55	52.4
Approach		5	0.0	0.004	6.1	LOS A	0.0	0.1	0.24	0.55	52.4
East: RoadName											
4	L2	11	0.0	0.070	5.5	LOS A	0.0	0.0	0.00	0.05	57.9
5	T1	122	5.0	0.070	0.0	LOS A	0.0	0.0	0.00	0.05	59.5
Approach		133	4.6	0.070	0.4	NA	0.0	0.0	0.00	0.05	59.4
West: Oak Forest Road											
11	T1	115	6.0	0.062	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
12	R2	1	0.0	0.062	5.9	LOS A	0.0	0.1	0.01	0.01	57.5
Approach		116	5.9	0.062	0.1	NA	0.0	0.1	0.01	0.01	59.9
All Vehicles		254	5.1	0.070	0.4	NA	0.0	0.1	0.01	0.04	59.4

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101v [2039BG AM with Dev 179 lots]

Myola Road / Barnwell Road
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Barnwell Road											
1	L2	4	0.0	0.130	6.0	LOS A	0.4	3.1	0.36	0.66	52.0
3	R2	122	0.0	0.130	6.8	LOS A	0.4	3.1	0.36	0.66	52.1
Approach		126	0.0	0.130	6.8	LOS A	0.4	3.1	0.36	0.66	52.1
East: Myola Road											
4	L2	57	14.0	0.109	5.7	LOS A	0.0	0.0	0.00	0.17	56.3
5	T1	142	6.0	0.109	0.0	LOS A	0.0	0.0	0.00	0.17	58.4
Approach		199	8.3	0.109	1.6	NA	0.0	0.0	0.00	0.17	57.8
West: Oak Forest Road											
11	T1	152	3.0	0.081	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
12	R2	2	0.0	0.081	6.1	LOS A	0.0	0.1	0.01	0.01	57.4
Approach		154	3.0	0.081	0.1	NA	0.0	0.1	0.01	0.01	59.8
All Vehicles		479	4.4	0.130	2.5	NA	0.4	3.1	0.10	0.25	56.7

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 101v [2039BG PM with Dev 179 lots]

Myola Road / Barnwell Road
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Barnwell Road											
1	L2	2	0.0	0.055	5.9	LOS A	0.2	1.3	0.34	0.63	52.1
3	R2	52	0.0	0.055	6.7	LOS A	0.2	1.3	0.34	0.63	52.2
Approach		54	0.0	0.055	6.7	LOS A	0.2	1.3	0.34	0.63	52.2
East: Myola Road											
4	L2	124	0.0	0.138	5.6	LOS A	0.0	0.0	0.00	0.28	55.9
5	T1	134	5.0	0.138	0.0	LOS A	0.0	0.0	0.00	0.28	57.2
Approach		258	2.6	0.138	2.7	NA	0.0	0.0	0.00	0.28	56.5
West: Oak Forest Road											
11	T1	124	6.0	0.067	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
12	R2	1	0.0	0.067	6.3	LOS A	0.0	0.1	0.01	0.01	57.5
Approach		125	5.9	0.067	0.1	NA	0.0	0.1	0.01	0.01	59.9
All Vehicles		437	3.2	0.138	2.4	NA	0.2	1.3	0.04	0.25	56.8

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 102 [2017 Background AM]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kennedy Hwy S											
1	L2	4	1.0	0.003	7.4	LOS A	0.0	0.1	0.07	0.58	59.3
2	T1	339	7.0	0.182	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
3	R2	3	1.0	0.002	7.7	LOS A	0.0	0.1	0.34	0.56	57.8
Approach		346	6.9	0.182	0.2	LOS A	0.0	0.1	0.00	0.01	79.3
East: Fallon Road											
4	L2	16	1.0	0.015	6.6	LOS A	0.1	0.4	0.32	0.55	57.6
5	T1	2	1.0	0.241	16.3	LOS C	0.9	6.1	0.73	0.91	45.2
6	R2	58	2.0	0.241	19.2	LOS C	0.9	6.1	0.73	0.91	47.9
Approach		76	1.8	0.241	16.5	LOS C	0.9	6.1	0.65	0.83	49.6
North: Kennedy Highway N											
7	L2	11	20.0	0.007	7.6	LOS A	0.0	0.2	0.03	0.59	58.6
8	T1	243	10.0	0.133	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
9	R2	18	6.0	0.014	8.3	LOS A	0.1	0.4	0.41	0.61	57.2
Approach		272	10.1	0.133	0.9	LOS A	0.1	0.4	0.03	0.06	76.8
West: Warril Drive											
10	L2	41	1.0	0.044	7.2	LOS A	0.2	1.1	0.39	0.61	57.3
11	T1	2	1.0	0.033	14.2	LOS B	0.1	0.8	0.70	0.85	45.7
12	R2	5	20.0	0.033	19.9	LOS C	0.1	0.8	0.70	0.85	45.4
Approach		48	3.1	0.044	8.9	LOS A	0.2	1.1	0.44	0.65	55.1
All Vehicles		742	7.3	0.241	2.7	NA	0.9	6.1	0.11	0.16	72.0

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 102 [2017 Background PM]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kennedy Hwy S											
1	L2	5	1.0	0.003	7.4	LOS A	0.0	0.1	0.12	0.57	59.2
2	T1	278	5.0	0.147	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
3	R2	16	7.0	0.013	8.3	LOS A	0.1	0.4	0.41	0.60	57.2
Approach		299	5.0	0.147	0.6	LOS A	0.1	0.4	0.02	0.04	77.8
East: Fallon Road											
4	L2	7	14.0	0.009	7.4	LOS A	0.0	0.2	0.39	0.57	54.2
5	T1	2	1.0	0.090	16.6	LOS C	0.3	2.0	0.73	0.88	45.1
6	R2	18	1.0	0.090	19.6	LOS C	0.3	2.0	0.73	0.88	48.0
Approach		27	4.5	0.090	16.1	LOS C	0.3	2.0	0.64	0.80	49.3
North: Kennedy Highway N											
7	L2	31	1.0	0.019	7.4	LOS A	0.1	0.5	0.07	0.59	59.4
8	T1	339	3.0	0.177	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
9	R2	44	1.0	0.032	7.9	LOS A	0.1	1.0	0.37	0.61	57.7
Approach		414	2.6	0.177	1.4	LOS A	0.1	1.0	0.04	0.11	74.9
West: Warril Drive											
10	L2	15	1.0	0.015	6.8	LOS A	0.1	0.4	0.34	0.56	57.5
11	T1	1	1.0	0.032	15.7	LOS C	0.1	0.7	0.71	0.87	45.7
12	R2	6	1.0	0.032	18.6	LOS C	0.1	0.7	0.71	0.87	48.7
Approach		22	1.0	0.032	10.6	LOS B	0.1	0.7	0.47	0.66	54.0
All Vehicles		762	3.6	0.177	1.9	NA	0.3	2.0	0.07	0.12	73.8

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 102 [2039 Background PM]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kennedy Hwy S											
1	L2	6	1.0	0.004	7.5	LOS A	0.0	0.1	0.13	0.57	59.1
2	T1	400	5.0	0.212	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
3	R2	19	7.0	0.018	9.0	LOS A	0.1	0.6	0.50	0.66	56.9
Approach		425	5.0	0.212	0.5	LOS A	0.1	0.6	0.02	0.04	78.1
East: Fallon Road											
4	L2	9	14.0	0.013	8.5	LOS A	0.0	0.4	0.48	0.64	53.5
5	T1	2	1.0	0.215	31.7	LOS D	0.7	4.7	0.88	0.96	36.6
6	R2	22	1.0	0.215	38.5	LOS E	0.7	4.7	0.88	0.96	38.6
Approach		34	4.7	0.215	29.7	LOS D	0.7	4.7	0.77	0.87	41.7
North: Kennedy Highway N											
7	L2	37	1.0	0.023	7.4	LOS A	0.1	0.6	0.07	0.58	59.3
8	T1	488	3.0	0.255	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
9	R2	54	1.0	0.045	8.4	LOS A	0.2	1.3	0.45	0.65	57.4
Approach		579	2.7	0.255	1.3	LOS A	0.2	1.3	0.05	0.10	75.5
West: Warril Drive											
10	L2	18	1.0	0.021	7.5	LOS A	0.1	0.5	0.42	0.61	57.2
11	T1	1	1.0	0.072	27.9	LOS D	0.2	1.5	0.86	0.94	38.4
12	R2	7	1.0	0.072	34.3	LOS D	0.2	1.5	0.86	0.94	40.5
Approach		26	1.0	0.072	15.8	LOS C	0.2	1.5	0.56	0.72	50.4
All Vehicles		1064	3.6	0.255	2.2	NA	0.7	4.7	0.07	0.11	73.6

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 102 [2039 Background AM]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kennedy Hwy S											
1	L2	5	1.0	0.003	7.4	LOS A	0.0	0.1	0.08	0.58	59.3
2	T1	488	7.0	0.262	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
3	R2	4	1.0	0.003	8.1	LOS A	0.0	0.1	0.42	0.58	57.5
Approach		498	6.9	0.262	0.2	LOS A	0.0	0.1	0.00	0.01	79.3
East: Fallon Road											
4	L2	19	1.0	0.021	7.2	LOS A	0.1	0.5	0.40	0.60	57.3
5	T1	2	1.0	0.546	37.6	LOS E	2.2	15.4	0.91	1.07	34.6
6	R2	71	2.0	0.546	44.1	LOS E	2.2	15.4	0.91	1.07	36.2
Approach		92	1.8	0.546	36.3	LOS E	2.2	15.4	0.81	0.97	39.1
North: Kennedy Highway N											
7	L2	13	20.0	0.009	7.7	LOS A	0.0	0.3	0.04	0.59	58.6
8	T1	351	10.0	0.191	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
9	R2	22	6.0	0.022	9.1	LOS A	0.1	0.6	0.50	0.67	56.9
Approach		385	10.1	0.191	0.8	LOS A	0.1	0.6	0.03	0.06	77.2
West: Warril Drive											
10	L2	51	1.0	0.066	8.2	LOS A	0.2	1.6	0.48	0.69	56.6
11	T1	2	1.0	0.073	24.3	LOS C	0.2	1.7	0.85	0.93	38.1
12	R2	6	20.0	0.073	37.7	LOS E	0.2	1.7	0.85	0.93	37.9
Approach		59	3.0	0.073	12.0	LOS B	0.2	1.7	0.54	0.73	52.9
All Vehicles		1034	7.4	0.546	4.3	NA	2.2	15.4	0.12	0.15	70.2

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 102 [2039 Background AM with Dev 90 lots]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kennedy Hwy S											
1	L2	12	1.0	0.007	7.4	LOS A	0.0	0.2	0.11	0.57	59.2
2	T1	488	7.0	0.262	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
3	R2	4	1.0	0.003	8.1	LOS A	0.0	0.1	0.42	0.58	57.5
Approach		504	6.8	0.262	0.3	LOS A	0.0	0.2	0.01	0.02	79.0
East: Fallon Road											
4	L2	19	1.0	0.021	7.2	LOS A	0.1	0.5	0.40	0.60	57.3
5	T1	4	1.0	0.583	40.5	LOS E	2.4	16.7	0.92	1.08	33.5
6	R2	71	2.0	0.583	47.6	LOS E	2.4	16.7	0.92	1.08	35.0
Approach		94	1.8	0.583	39.1	LOS E	2.4	16.7	0.82	0.99	38.0
North: Kennedy Highway N											
7	L2	13	20.0	0.009	7.7	LOS A	0.0	0.3	0.05	0.58	58.6
8	T1	351	10.0	0.191	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
9	R2	39	6.0	0.038	9.1	LOS A	0.2	1.1	0.51	0.69	56.9
Approach		402	9.9	0.191	1.1	LOS A	0.2	1.1	0.05	0.08	76.1
West: Warril Drive											
10	L2	89	1.0	0.117	8.4	LOS A	0.4	2.9	0.50	0.72	56.5
11	T1	5	1.0	0.236	28.6	LOS D	0.7	5.9	0.88	0.97	35.8
12	R2	20	20.0	0.236	43.6	LOS E	0.7	5.9	0.88	0.97	35.6
Approach		115	4.3	0.236	15.4	LOS C	0.7	5.9	0.58	0.78	50.1
All Vehicles		1115	7.3	0.583	5.4	NA	2.4	16.7	0.15	0.20	67.8

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 102 [2039 Background PM with Dev 90 lots]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kennedy Hwy S											
1	L2	20	1.0	0.013	7.6	LOS A	0.1	0.4	0.19	0.57	58.9
2	T1	400	5.0	0.212	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
3	R2	19	7.0	0.018	9.0	LOS A	0.1	0.6	0.50	0.66	56.9
Approach		439	4.9	0.212	0.8	LOS A	0.1	0.6	0.03	0.05	77.3
East: Fallon Road											
4	L2	9	14.0	0.013	8.5	LOS A	0.0	0.4	0.48	0.64	53.5
5	T1	5	1.0	0.258	35.4	LOS E	0.8	5.7	0.90	0.98	35.3
6	R2	22	1.0	0.258	43.1	LOS E	0.8	5.7	0.90	0.98	37.1
Approach		37	4.3	0.258	33.1	LOS D	0.8	5.7	0.79	0.89	40.0
North: Kennedy Highway N											
7	L2	37	1.0	0.023	7.4	LOS A	0.1	0.7	0.08	0.58	59.3
8	T1	488	3.0	0.255	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
9	R2	94	1.0	0.078	8.5	LOS A	0.3	2.4	0.46	0.67	57.3
Approach		619	2.6	0.255	1.7	LOS A	0.3	2.4	0.07	0.14	73.9
West: Warril Drive											
10	L2	35	1.0	0.040	7.5	LOS A	0.1	1.0	0.43	0.63	57.2
11	T1	2	1.0	0.149	31.0	LOS D	0.4	3.1	0.88	0.95	36.8
12	R2	14	1.0	0.149	38.6	LOS E	0.4	3.1	0.88	0.95	38.7
Approach		51	1.0	0.149	16.9	LOS C	0.4	3.1	0.57	0.73	49.6
All Vehicles		1145	3.5	0.258	3.0	NA	0.8	5.7	0.10	0.16	71.6

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 102 [2029 Background AM]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kennedy Hwy S											
1	L2	4	1.0	0.003	7.4	LOS A	0.0	0.1	0.08	0.58	59.3
2	T1	420	7.0	0.225	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
3	R2	3	1.0	0.002	7.9	LOS A	0.0	0.1	0.39	0.57	57.6
Approach		427	6.9	0.225	0.2	LOS A	0.0	0.1	0.00	0.01	79.4
East: Fallon Road											
4	L2	18	1.0	0.019	7.0	LOS A	0.1	0.5	0.37	0.58	57.4
5	T1	2	1.0	0.381	24.9	LOS C	1.4	10.2	0.84	0.99	40.1
6	R2	65	2.0	0.381	29.4	LOS D	1.4	10.2	0.84	0.99	42.3
Approach		85	1.8	0.381	24.6	LOS C	1.4	10.2	0.74	0.91	44.7
North: Kennedy Highway N											
7	L2	12	20.0	0.008	7.6	LOS A	0.0	0.3	0.03	0.59	58.6
8	T1	308	10.0	0.168	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
9	R2	20	6.0	0.018	8.7	LOS A	0.1	0.5	0.46	0.64	57.1
Approach		340	10.1	0.168	0.8	LOS A	0.1	0.5	0.03	0.06	77.2
West: Warril Drive											
10	L2	46	1.0	0.055	7.7	LOS A	0.2	1.4	0.44	0.65	57.0
11	T1	2	1.0	0.054	19.1	LOS C	0.2	1.3	0.79	0.91	41.7
12	R2	6	20.0	0.054	28.3	LOS D	0.2	1.3	0.79	0.91	41.4
Approach		55	3.2	0.055	10.5	LOS B	0.2	1.4	0.50	0.69	53.9
All Vehicles		907	7.4	0.381	3.3	NA	1.4	10.2	0.11	0.15	71.4

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 102 [2029 Background PM]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kennedy Hwy S											
1	L2	6	1.0	0.004	7.5	LOS A	0.0	0.1	0.12	0.57	59.1
2	T1	344	5.0	0.182	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
3	R2	18	7.0	0.016	8.7	LOS A	0.1	0.5	0.46	0.63	57.0
Approach		368	5.0	0.182	0.6	LOS A	0.1	0.5	0.02	0.04	77.9
East: Fallon Road											
4	L2	8	14.0	0.011	8.0	LOS A	0.0	0.3	0.44	0.60	53.9
5	T1	2	1.0	0.142	22.7	LOS C	0.4	3.1	0.82	0.92	41.2
6	R2	20	1.0	0.142	27.3	LOS D	0.4	3.1	0.82	0.92	43.6
Approach		31	4.6	0.142	21.7	LOS C	0.4	3.1	0.72	0.83	45.9
North: Kennedy Highway N											
7	L2	35	1.0	0.022	7.4	LOS A	0.1	0.6	0.07	0.58	59.4
8	T1	420	3.0	0.220	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
9	R2	49	1.0	0.039	8.2	LOS A	0.2	1.2	0.42	0.63	57.5
Approach		504	2.7	0.220	1.3	LOS A	0.2	1.2	0.05	0.10	75.2
West: Warril Drive											
10	L2	17	1.0	0.018	7.1	LOS A	0.1	0.4	0.39	0.59	57.3
11	T1	1	1.0	0.052	21.3	LOS C	0.2	1.1	0.80	0.91	42.0
12	R2	7	1.0	0.052	25.7	LOS D	0.2	1.1	0.80	0.91	44.5
Approach		25	1.0	0.052	13.1	LOS B	0.2	1.1	0.53	0.70	52.2
All Vehicles		928	3.6	0.220	2.0	NA	0.4	3.1	0.07	0.12	73.8

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 102 [2029 Background AM with Dev 90 lots]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kennedy Hwy S											
1	L2	11	1.0	0.007	7.4	LOS A	0.0	0.2	0.11	0.57	59.2
2	T1	420	7.0	0.225	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
3	R2	3	1.0	0.002	7.9	LOS A	0.0	0.1	0.38	0.56	57.6
Approach		434	6.8	0.225	0.3	LOS A	0.0	0.2	0.01	0.02	79.0
East: Fallon Road											
4	L2	18	1.0	0.018	6.9	LOS A	0.1	0.5	0.37	0.58	57.4
5	T1	3	1.0	0.395	25.6	LOS D	1.5	10.7	0.85	1.00	39.7
6	R2	65	2.0	0.395	30.4	LOS D	1.5	10.7	0.85	1.00	41.8
Approach		86	1.8	0.395	25.4	LOS D	1.5	10.7	0.75	0.91	44.3
North: Kennedy Highway N											
7	L2	12	20.0	0.008	7.7	LOS A	0.0	0.3	0.04	0.59	58.6
8	T1	301	10.0	0.164	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
9	R2	37	6.0	0.033	8.7	LOS A	0.1	1.0	0.47	0.66	57.0
Approach		349	9.9	0.164	1.2	LOS A	0.1	1.0	0.05	0.09	75.8
West: Warril Drive											
10	L2	85	1.0	0.101	7.8	LOS A	0.4	2.6	0.46	0.68	56.9
11	T1	5	1.0	0.170	20.4	LOS C	0.5	4.2	0.82	0.92	40.6
12	R2	20	20.0	0.170	30.5	LOS D	0.5	4.2	0.82	0.92	40.3
Approach		111	4.4	0.170	12.5	LOS B	0.5	4.2	0.54	0.74	52.1
All Vehicles		980	7.2	0.395	4.2	NA	1.5	10.7	0.15	0.20	69.1

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

MOVEMENT SUMMARY

Site: 102 [2029 Background PM with Dev 90 lots]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kennedy Hwy S											
1	L2	20	1.0	0.013	7.6	LOS A	0.1	0.4	0.18	0.57	58.9
2	T1	344	5.0	0.182	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
3	R2	18	7.0	0.016	8.7	LOS A	0.1	0.5	0.46	0.63	57.0
Approach		382	4.9	0.182	0.8	LOS A	0.1	0.5	0.03	0.06	77.0
East: Fallon Road											
4	L2	8	14.0	0.011	8.0	LOS A	0.0	0.3	0.44	0.60	53.9
5	T1	5	1.0	0.172	24.7	LOS C	0.5	3.8	0.84	0.93	40.4
6	R2	20	1.0	0.172	29.8	LOS D	0.5	3.8	0.84	0.93	42.7
Approach		34	4.3	0.172	23.6	LOS C	0.5	3.8	0.74	0.85	44.6
North: Kennedy Highway N											
7	L2	34	1.0	0.021	7.4	LOS A	0.1	0.6	0.07	0.58	59.3
8	T1	420	3.0	0.220	0.0	LOS A	0.0	0.0	0.00	0.00	79.9
9	R2	88	1.0	0.069	8.2	LOS A	0.3	2.1	0.42	0.65	57.5
Approach		542	2.5	0.220	1.8	LOS A	0.3	2.1	0.07	0.14	73.6
West: Warril Drive											
10	L2	13	1.0	0.014	7.1	LOS A	0.0	0.3	0.39	0.58	57.3
11	T1	2	1.0	0.248	26.3	LOS D	0.8	5.8	0.85	0.96	39.2
12	R2	34	1.0	0.248	31.7	LOS D	0.8	5.8	0.85	0.96	41.4
Approach		48	1.0	0.248	25.1	LOS D	0.8	5.8	0.73	0.86	44.5
All Vehicles		1006	3.4	0.248	3.3	NA	0.8	5.8	0.11	0.17	71.0

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Proposed Non Urban Residential Subdivision Kuranda

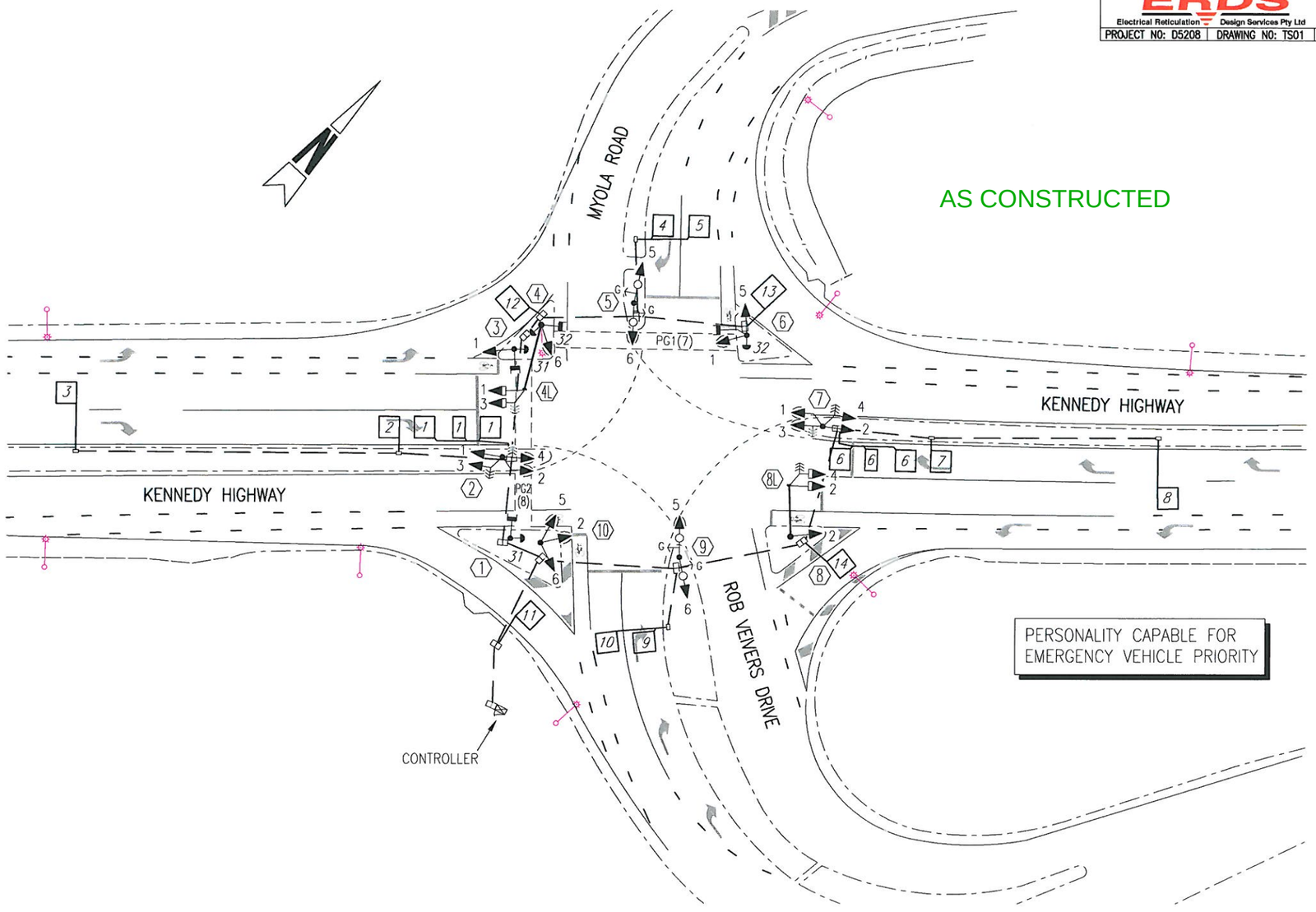
APPENDIX E
PHASING PLAN (TMR)

Cardno
Shaping the Future

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

Department of Transport and Main Roads

PHASE DIAGRAMS	A PHASE					B PHASE					C PHASE					D PHASE					E PHASE					F PHASE					F1 PHASE					F2 PHASE				
SIGNAL GROUPS	1	2	7			1	3	7			2	4				5					6	8				3	4				1	3	7			2	4			
VEHICLE/PED GROUPS	VG1	VG2	PG1			VG1	VG3	PG1			VG2	VG4				VG5					VG6	PG2				VG3	VG4				VG1	VG3	PG1			VG2	VG4			
LOGICAL INPUT	3	8	32				1,2					6,7				4,5					9,10	31				1,2	6,7					1,2					6,7			
CALL	X	X	X													X					X	X				PRES	PRES					X					X			
EXTEND	X	X					X					X				X					X					X	X					X					X			
INCREMENT	X	X																																						
SPECIAL CONDITIONS	SG3 & SG4 RED OFF AFTER LATE START PERIOD ON STREAMS REQUEST					INTRODUCE B PHASE ON STREAMS REQUEST					INTRODUCE C PHASE ON STREAMS REQUEST															F PHASE TO F1 OR F2 PHASES PERMITTED. F1 PHASE TO F2 PHASE OR F2 PHASE TO F1 PHASE NOT PERMITTED.																



AS CONSTRUCTED

ERDS
Electrical Reticulation Design Services Pty Ltd
PROJECT NO: D5208 | DRAWING NO: TS01 | A

CONFLICT TABLE
(X – INDICATES CONFLICT)

VEHICLE GROUPS	1	2	3	4	5	6	7	8	9	10	11	12	PED GROUPS 1	2	3	4
1				X	X	X							X			
2			X		X	X							X			
3		X			X	X							X			
4	X				X	X							X			
5	X	X	X	X		X							X	X		
6	X	X	X	X	X								X			
7																
8																
9																
10																
11																
12																
PED GROUPS 1				X	X	X										
2	X	X	X		X											
3																
4																

PD216 DETECTOR TABLE

PHYSICAL LABEL	CONTROLLER TERMINAL	LOGICAL INPUT	LOOP/PB CONFIGURATION	DIST TO STOP LINE
LOOP 1	P1	1	PRESENCE	STD DRG
LOOP 2	P2	2	PRES/COUNT	STD DRG
LOOP 3	P3	3	ADVANCE	39m
LOOP 4	P4	4	STOP LINE	6m
LOOP 5	P5	5	STOP LINE	6m
LOOP 6	P6	6	PRESENCE	STD DRG
LOOP 7	P7	7	PRES/COUNT	STD DRG
LOOP 8	P8	8	ADVANCE	33m
LOOP 9	Q9	9	STOP LINE	6m
LOOP 10	Q10	10	STOP LINE	6m
LOOP 11	Q11	11	COUNT	–
LOOP 12	Q12	12	COUNT	–
LOOP 13	Q13	13	COUNT	–
LOOP 14	Q14	14	COUNT	–
		15		
		16		
		17		
		18		
		19		
		20		
		21		
		22		
		23		
		24		
		25		
		26		
		27		
		28		
		29		
		30		
EXT 2	E6	31	Pb2–AUDIO	
EXT 1	E5	32	Pb1–AUDIO	

SIGNAL GROUPS	FUNCTION	CONTROLLER TERMINALS	RUN 1 CONNECTIONS FINIAL TERMINALS	RUN 1 CONNECTS	RUN 1 CORES USED	RUN 2 CONNECTIONS FINIAL TERMINALS	RUN 2 CONNECTS	RUN 2 CORES USED	RUN 3 CONNECTIONS FINIAL TERMINALS	RUN 3 CONNECTS	RUN 3 CORES USED
1	RED	A5	1	1	1	1	1				
	YELLOW	A4	2	2	2	2	2				
	GREEN	A3	3	3	3	3	3				
2	RED	A8	4	4		4	4	4			
	YELLOW	A7	5	5		5	5	5			
	GREEN	A6	6	6		6	6	6			
3	RED	A11	7	GY	7 13	7	13				
	YELLOW	A10	8	14	8 14	8	14				
	GREEN	A9	9	15	9 15	9	15				
4	RED	A14	10	16	10 16	10	16	13			
	YELLOW	A13	11	17	11 17	11	17	14			
	GREEN	A12	12	18	12 18	12	18	15			
5	RED	B5	13	10	13 10	13	10				
	YELLOW	B4	14	11	14 11	14	11				
	GREEN	B3	15	12	15 12	15	12				
6	RED	B8	15	7	16 7	16	7				
	YELLOW	B7	17	8	17 8	17	8				
	GREEN	B6	18	9	18 9	18	9				
7	RED D/WALK	B11	19		19						
	PED 1										
	GREEN WALK	B9	20		20						
8	RED D/WALK	B14	21		21						
	PED 2										
	GREEN WALK	B12	22		22						
9											
10											
11											
12											
13											
14											
15											
16											
NOTE			13 UNAVAILABLE								
EXT 2 DET 31		E6	25 ~~24~~		25 ~~24~~						
EXT 1 DET 32		E5	~~25~~ 24		~~25~~ 24						
230V		A2	~~26~~ 25	26	23	~~26~~	26	23			
DET COMMON		E3	~~27~~ GY	GY	26	~~27~~	GY	26			
NEUTRAL		A1,B1 C1,D1	NL	BK	BK	NL	BK	BK			
SPARE CORES TO EARTH			~~23~~			19-22, 24,25 ~~26,27~~ GY					
CABLE SIZE				29	19		29	19			

CONTROLLER TYPE: ~~PSC–ID~~ ECLIPSE LANTERN TYPE: LED

G				
F				
E				
D				
C	UPDATE DRG & STANDARD TRAFF	PAC	9/10/00	
B	DIAMOND PHASE WITH SPLIT SIDE STREETS			
A	Original Issue A3			
	Revisions/Descriptions	Certification	Date	Microfiled

CAD FILES: P:\Traffic Signals Projects\Consultants\D5208 – Kennedy Hwy & Myola Rd (3182)\Drawings & Deliverables\Working\D5208 3182_272541_C.dwg

Last Modified : Feb 1, 2016 – 10:03 AM

Associated Job Nos: 97082295/SK1 & 272541

Auxiliary Drg Nos:

Survey Data: Datum; Horiz. Grid; Height Origin; Survey Books

Scales: 0 2 4 6 8 10m

Dimensions shown in metres except where shown otherwise

TABLELANDS REGIONAL COUNCIL
KENNEDY HIGHWAY (CAIRNS – MAREEBA)
KENNEDY HWY, MYOLA RD & ROB VEIVERS DV, KURANDA

Reference Points: Preceding RP | Dist. to start of job (km) | From start to end of job | From end to Following RP | Following RP
Through Chainage from

TRAFFIC SIGNAL INSTALLATION
OPERATIONS & ELECTRICAL

Site Number 3182
MAP 19 F3

Drawn RG SMITH
Designed RG SMITH

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
ELECTRICAL	JN CHUONG		2696	1/98

Queensland Government

Job No.	
Contract. No.	
Drawing No.	272541 C
Series Number	2 of 2

MRT_Detail (06/13)

Document Set ID: 3345865
Version: 1, Version Date: 16/02/2018

Proposed Non Urban Residential Subdivision Kuranda

APPENDIX F
FNQROC EXTRACT

Cardno
Shaping the Future

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018

RURAL DESIGN CRITERIA

D1.27 GENERAL

1. In addition to the foregoing sections this section specifically applies to all those sites identified as being suited to rural and rural residential subdivisions inclusive of rural home sites and hobby farms types of developments. For roads within the Rural Living Areas (under FNQ2031) reference should be made to Table D1.1. Table D1.4 details specific road demands for rural roads.

Table D1.4 Rural Road Elements [8]

Traffic Volume or Road Class	<100VPD [5,6]	100 – 999 [5]	1000 - 2999 (or rural collector)	>3000 (or sub-arterial)
Road Reserve (flat terrain ≤ 5%)	20m	20m	25m	To be designed in accordance with AUSTROADS or DMR design guidelines.
Road Reserve [2] (Undulating/Hilly > 5%)	25m	25m	30m	
Formation	8m	8m	10m	
Pavement Width	5.5m	6.5m	8m	
Seal Width	4.5 [1,7]	6.5m	8m (incl. 0.5m sealed shoulders)	
Shoulders [3]	1.25m Approved Select material	0.75m gravel	1m gravel	
Desirable Speed Environment	100kph	100kph	100kph	
Design Speed for Individual Elements (Minimum)	80kph	80kph	80kph	

Notes:

1. Cook Shire Council may consider relaxing the requirement to seal rural roads in some instances if there are no adverse impacts i.e. dust.
2. In undulating terrain this width shall be increased to enable services to be constructed on accessible flatter land on top and below batters.
3. Where the road is a designated on-road bicycle route (signposted and pavement marked) the shoulder provision needs to conform to the AUSTROADS
4. (Intentionally left blank)
5. In Cook Shire Council, all rural residential subdivisions within the urban expansion footprint are to comply with Residential Streets – Table D1.1
6. In Cassowary Coast Regional Council, the seal and pavement width will be min 6.5m with a shoulder width of 0.75m unless otherwise approved by council
7. Tablelands Regional Council will consider reduction of sealed width to 3.5m. For roads with less than 50vpd it will also consider relaxing the requirement for bitumen sealing
8. In TRC, this table does not apply to Rural Residential areas where lot size is less than 10,000m^2. For all Rural Residential areas where lot sizes are generally less than 10,000m^2 refer to the Urban road standards.

Document Set ID: 3345665
Version: 1, Version Date: 16/02/2018