From:Stephen WhitakerSent:18 Jan 2018 17:02:42 +1000To:Info (Shared);Planning (Shared)Cc:Dominic Hammersley;Brian MillardSubject:New Development Application for ROL under Superseded Planning Scheme -112 Barnwell Road - Reever and Ocean Pty Ltd - Part 2 of 2Attachments:Attachment K.PDF, Attachment L.PDF

Good Afternoon,

On behalf of the Applicant, Reever and Ocean Pty Ltd, please find attached Part 2 of a superseded planning scheme application made over land at 112 Barnwell Road, Kuranda seeking a Development Permit for Reconfiguring a Lot

Due to the size of the application material, it has been split across two emails. This is email 2 of 2.

Please don't hesitate to contact us should you have any queries in relation to this application.

Kind Regards, Stephen Whitaker PLANNER CARDNO



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Traffic Impact Assessment

Proposed Non Urban Residential Subdivision Kuranda

QTT17026

Prepared for Reever and Ocean Pty Ltd

18 January 2018





Document Information

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- 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

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:

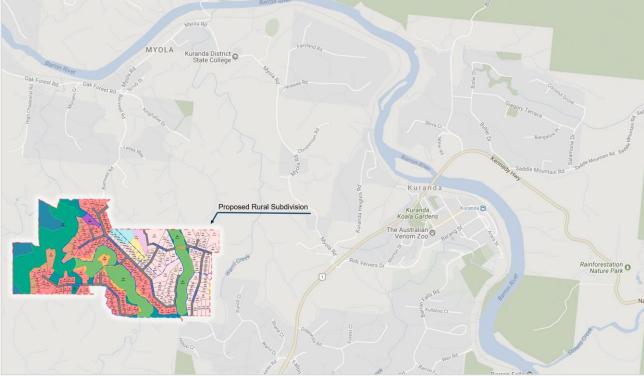
- > Austroads Guide to Road Design Part 4A (2017)
- > Austroads Guide to Road Design Part 3 (2016)
- > Austroads Guide to Traffic Management Part 6 (2017)
- > Mareeba Shire Planning Scheme (2004)
- > Manual of Uniform Traffic Control Devices Part 2 (2003)
- > Guide to Traffic Impact Assessment (2017)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

2 Existing Situation

2.1 Site location

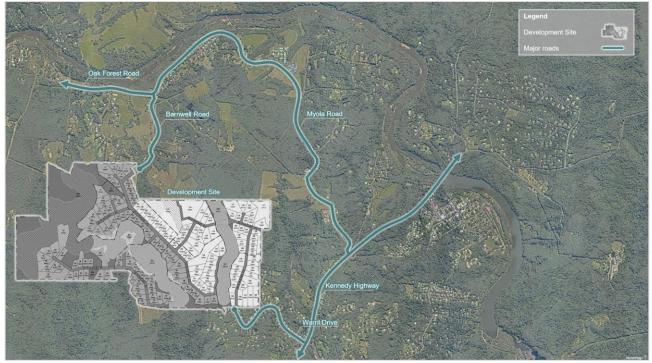
The site is located west of Cairns in North Queensland and is accessible via the Kennedy Highway. Figure 2-1 provides a profile of the site within the northern region.





Source: Nearmap





Source: Nearmap

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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.

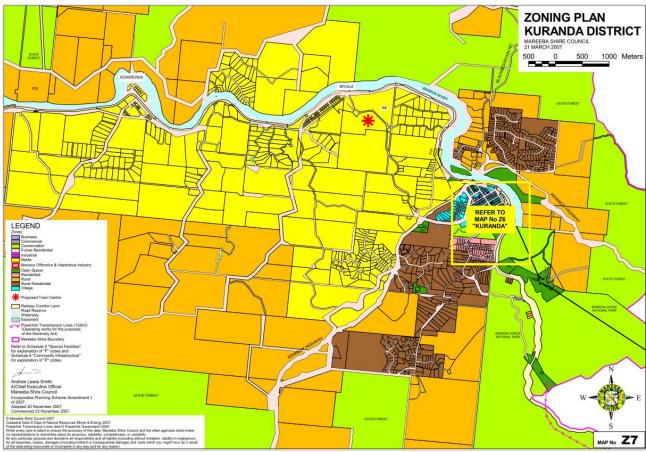


Figure 2-3 Extract from Mareeba Shire Planning Scheme

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.

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).





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.





Source: Kuranda site visit

Figure 2-7 Barnwell Road (unsealed section)



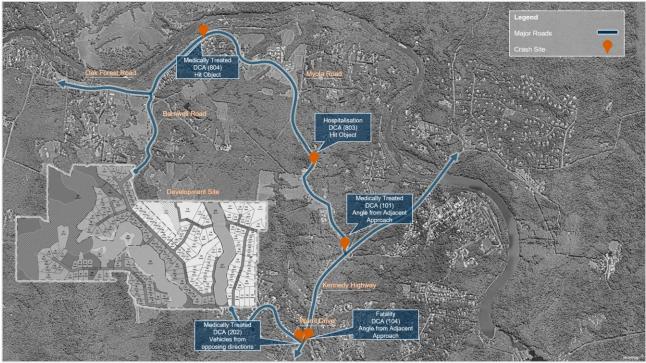
Source: Kuranda site visit

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

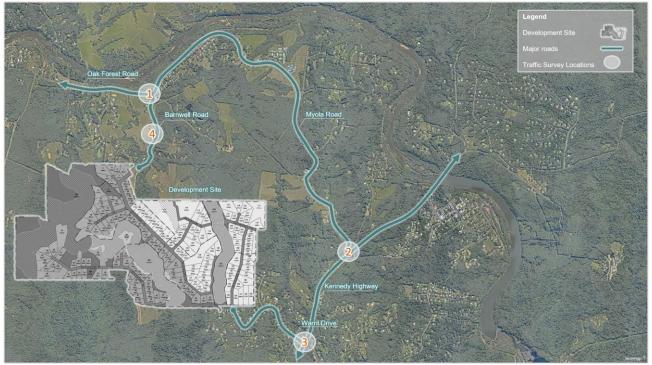
2.5 Traffic flows

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 2-3Daily 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.

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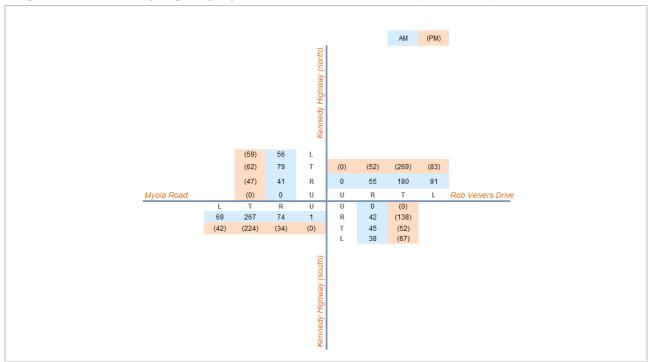
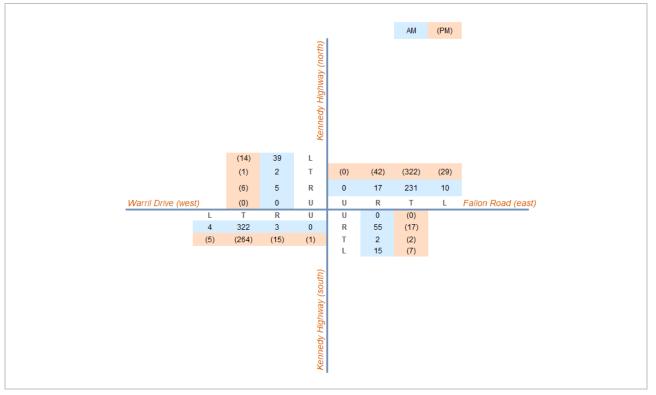


Figure 2-10 Kennedy Highway/Myola Road Intersection flows (Peak Flows)





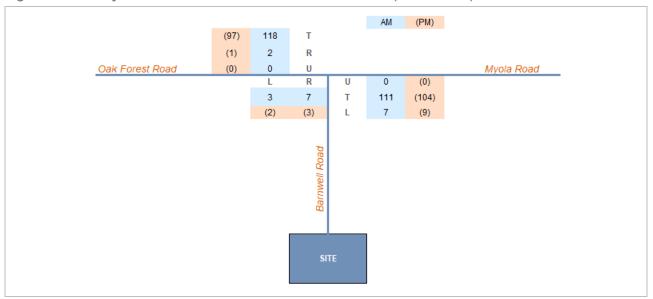


Figure 2-12 Myola Road/Barnwell Road Intersection flows (Peak Flows)

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.

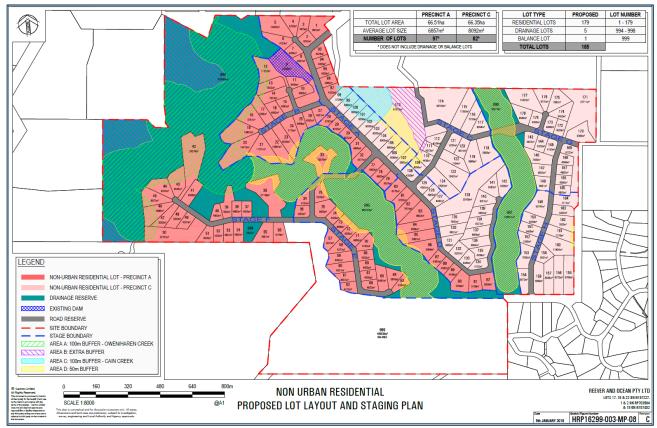


Figure 3-1 Development Proposal

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.

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).

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.

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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.

LOS	Level of Service Description	Critical Delay
А	Good Operation	Less than 14 sec
В	Acceptable delays and spare capacity	15 to 28 sec
С	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

Table 4-3 Adopted Intersection Performance Threshold – Critical Delay

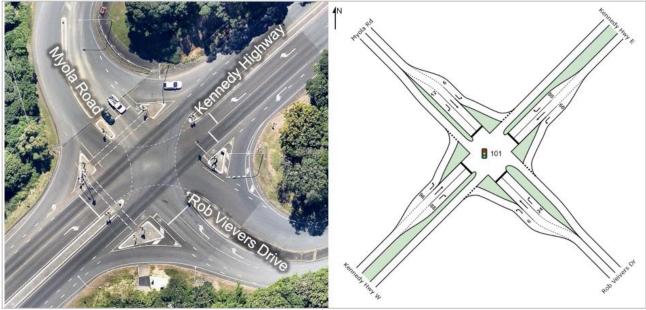
Source: RMS Guide to Traffic Generating Developments

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

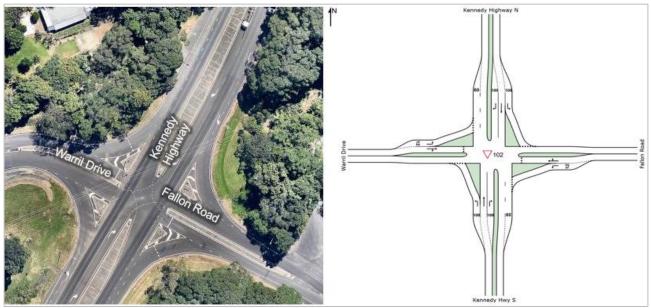
		AM Peak	:	PM Peak		
Scenarios	DOS	Delay (sec)	95 th %ile Queue	DOS	Delay (sec)	95 th %ile Queue
2017 Background	0.63	21	68m	0.73	25sec	59m
2029 Background	0.65	22	90m	0.82	27sec	77m
2029 With Development 163 lots (stage 7)	0.84	23	96m	0.833	28sec	84m
2039 Background	0.68	23	110	0.79	30sec	107m
2039 With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

The results indicate the intersection operates within the typical performance thresholds (DOS \leq 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.

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

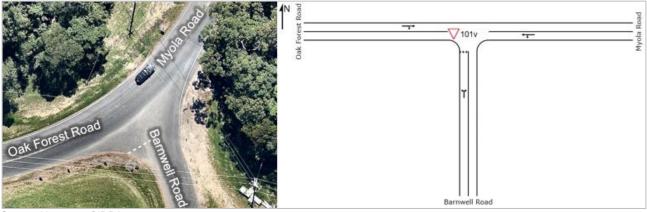
		AM Peak			PM Peak		
Scenarios	DOS	Delay (sec)	95 th %ile Queue	DOS	Delay (sec)	95 th %ile Queue	
2017 Background	0.24	2.7	6.0m	0.18	1.9	2.0m	
2029 Background	0.38	3.3	10.2m	0.23	2.0	3.2m	
2039 Background	0.66	5.2	15.4m	0.26	2.2	5.0m	
2029 With Development 90 lots	0.40	4.2	10.7m	0.25	3.3	5.8m	
2039 With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

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 Highw	av / Myola Poad /	Pob Voivore Drivo Intersection
1 abie 4-0	SIDKA Outputs for Kenneuy highw	ay / wiyula Kuau /	ROD VEIVEIS DIIVE IIILEISECLIOII

		AM Peak			PM Peak		
Scenarios	DOS	Delay (sec)	95 th %ile Queue	DOS	Delay (sec)	95 th %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 \leq 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.

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.

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			

Table 4-7 Traffic Carrying Capacity Analysis

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.

Traffic Volume or Road Class	<100VPD	100 <u>-</u> 999	1000 - 2999 (or rural collector)	>3000 (or sub-arterial)		
Road Reserve (flat terrain ≤ 5%)	20m	20m	25m	OMR		
Road Reserve ² (Undulating/Hilly > 5%)	25m	25m	30m	S or DMR		
Formation	8m	8m	10m	ROAI		
Pavement Width	5.5m	6.5m	8m	To be designed in accordance with AUSTROADS design guidelines.		
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	d in accordan es.		
Desirable Speed Environment	100kph	100kph	100kph	signed uideline		
Design Speed for Individual Elements (Minimum)	80kph	80kph	80kph	To be designed ir design guidelines		

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.

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

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.

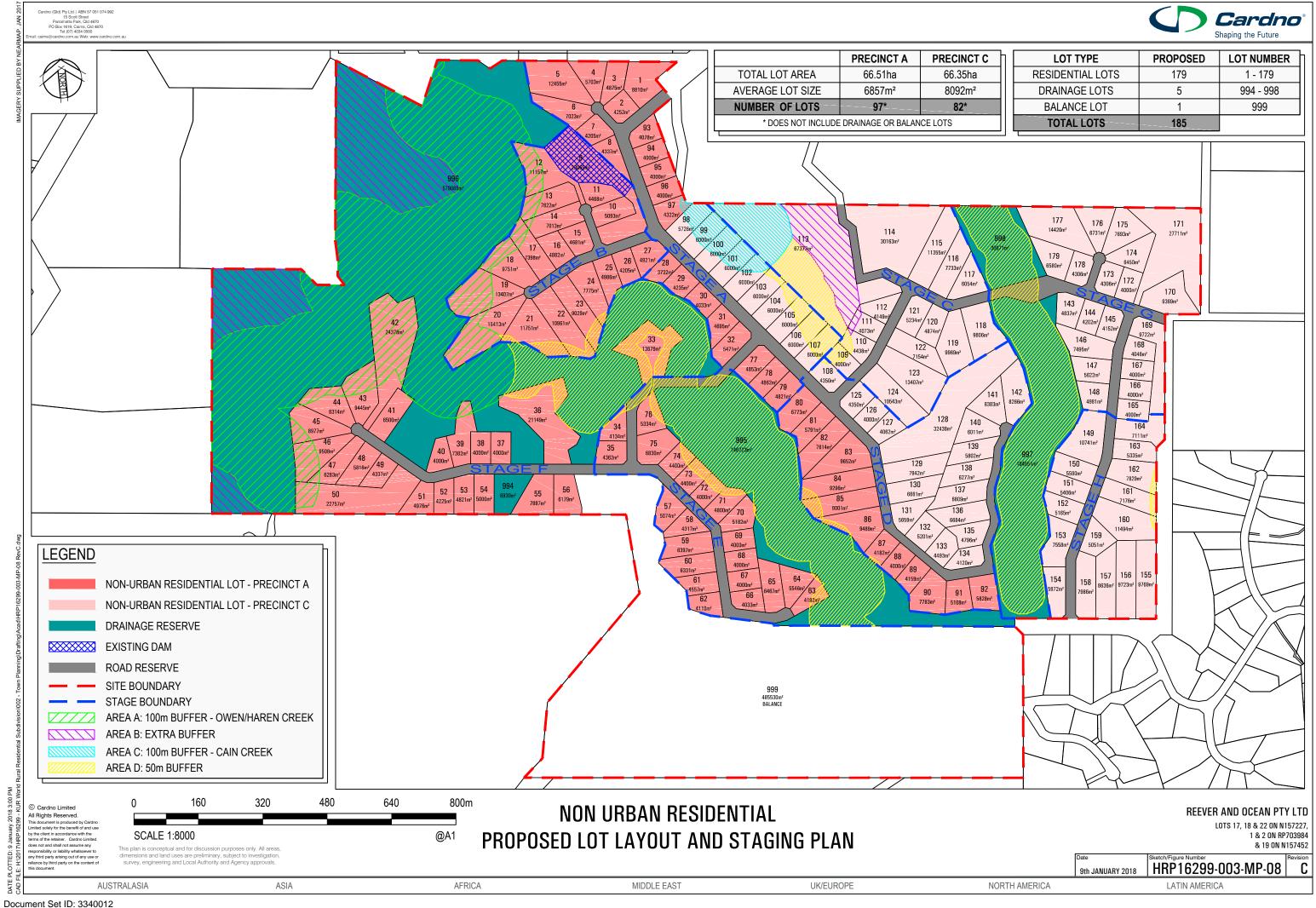
In conclusion, the proposed rural residential development will not adversely impact on the operational performance of the surrounding road network and the proposed access arrangements are considered adequate and suitable for the proposed land use. Some additional improvements to the road formation of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

Proposed Non Urban Residential Subdivision Kuranda

APPENDIX A DEVELOPMENT SITE



Document Set ID: 3340012 Version: 1, Version Date: 19/01/2018



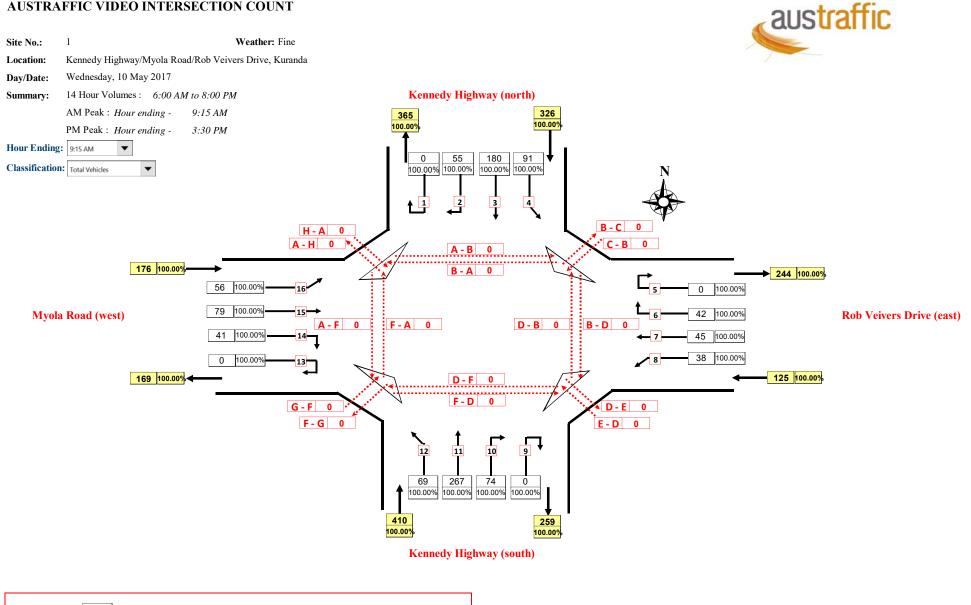
Version: 1, Version Date: 19/01/2018

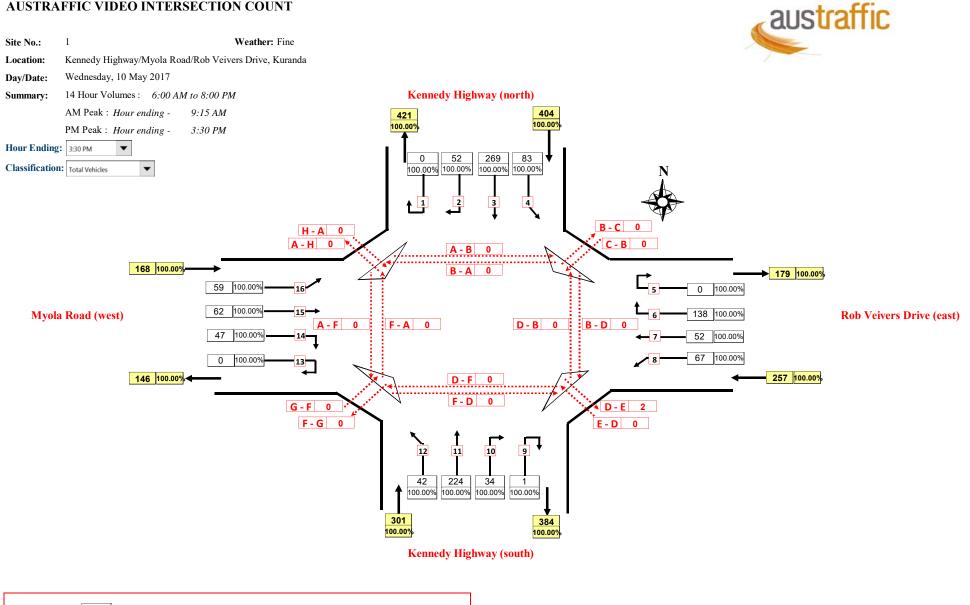
Proposed Non Urban Residential Subdivision Kuranda

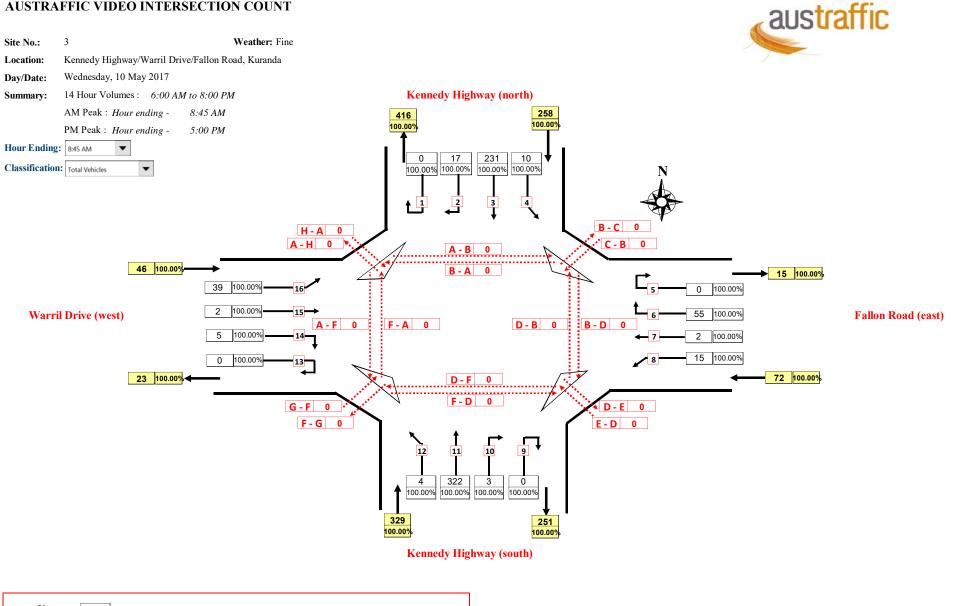
APPENDIX B AUSTRAFFIC SURVEY DATA

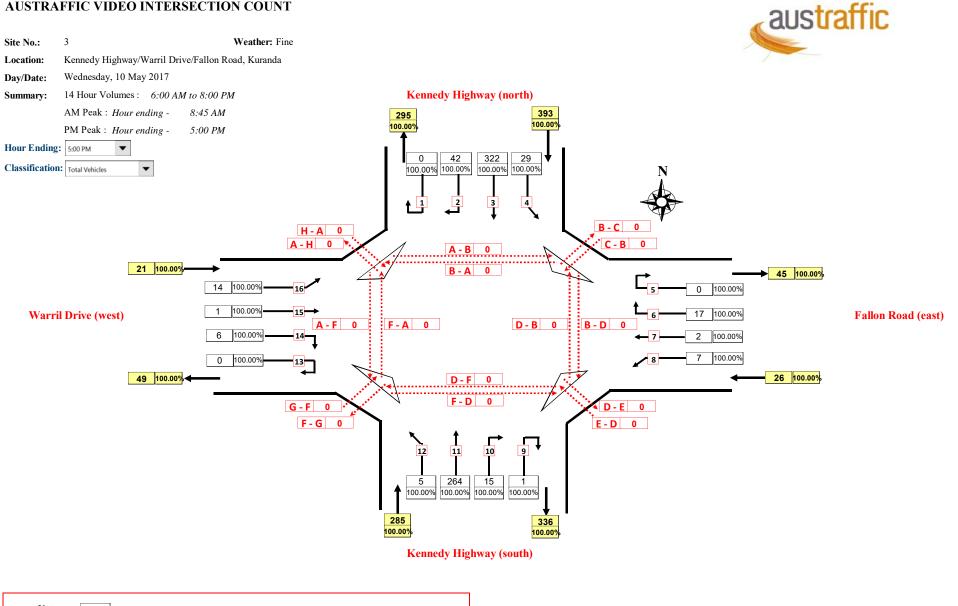


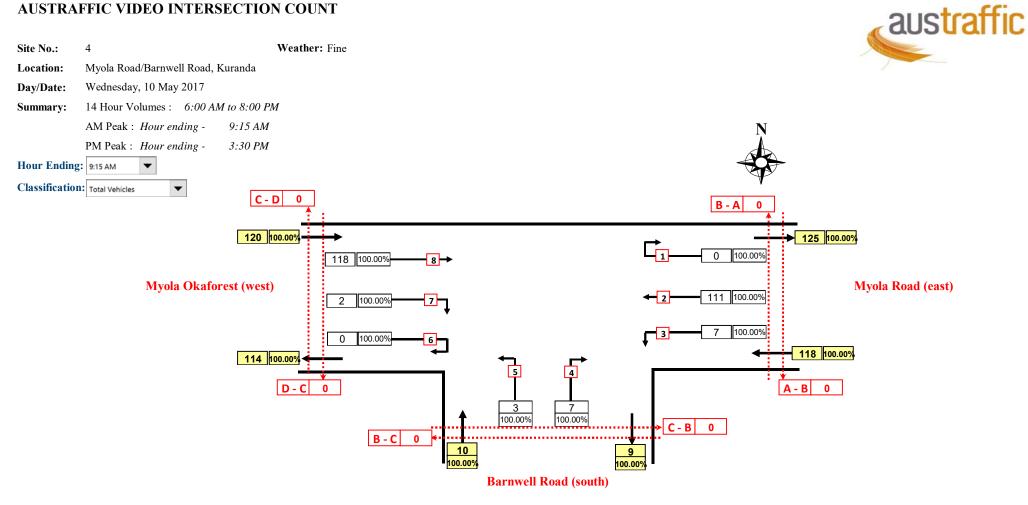
Document Set ID: 3340012 Version: 1, Version Date: 19/01/2018





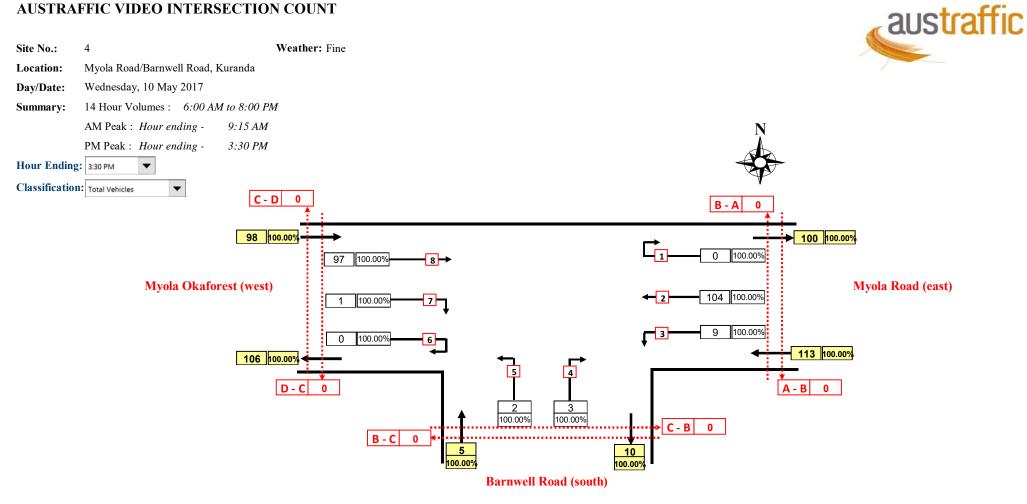




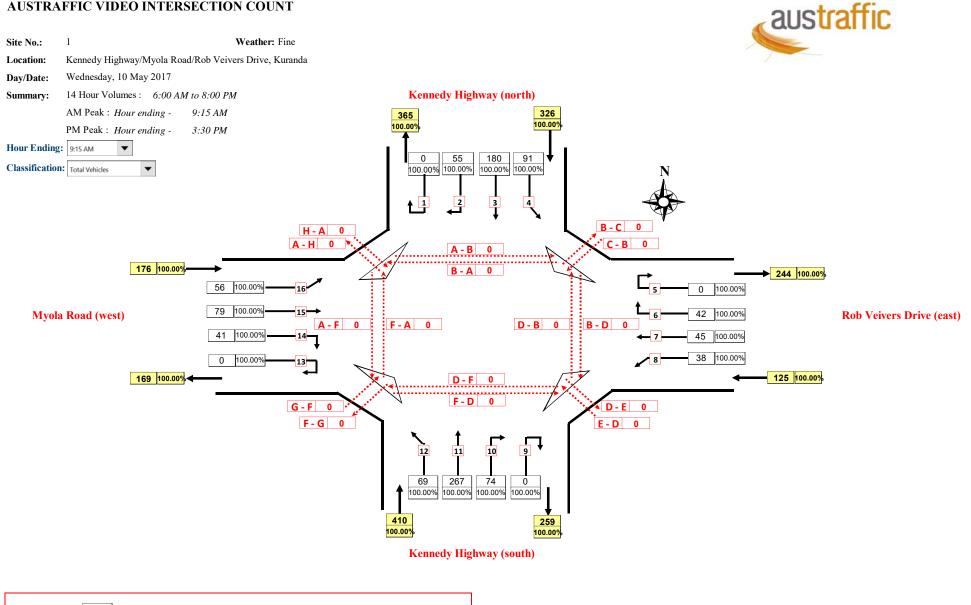


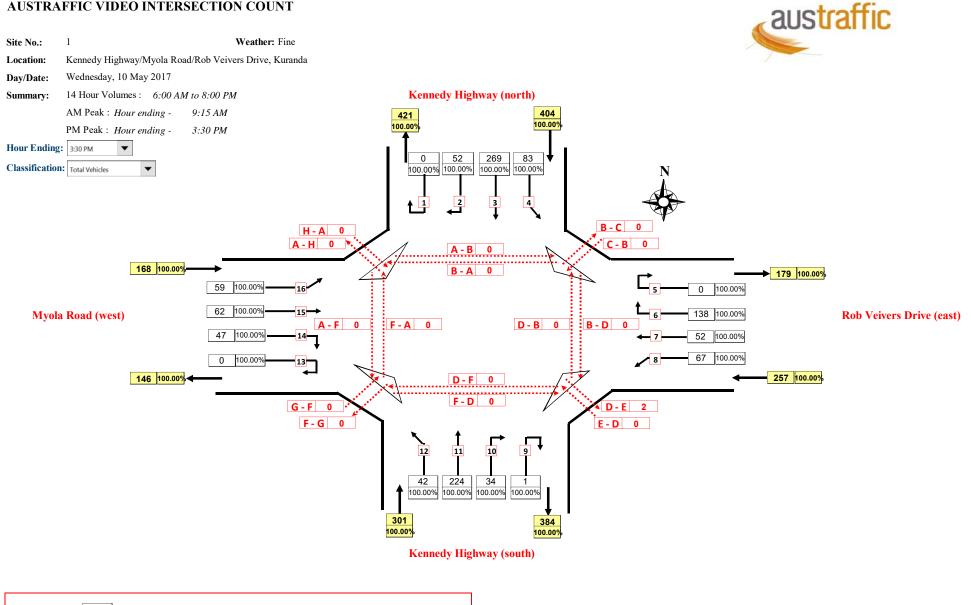


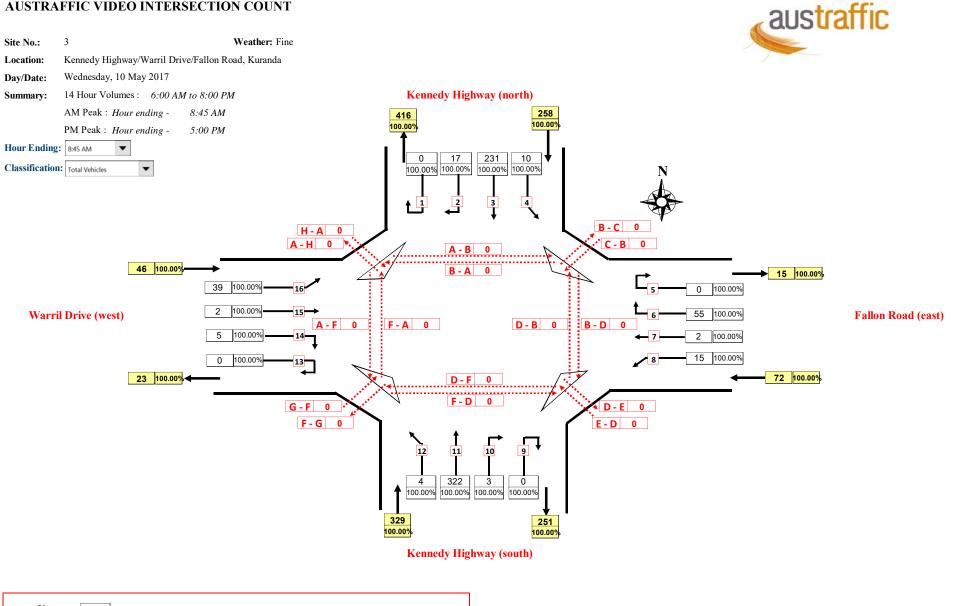
Document Set ID: 3340012 Version: 1, Version Date: 19/01/2018



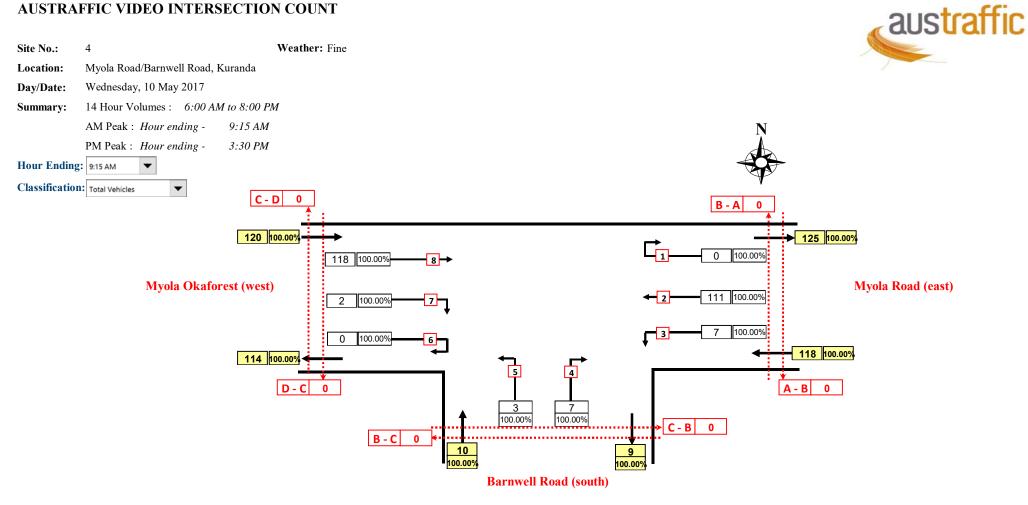






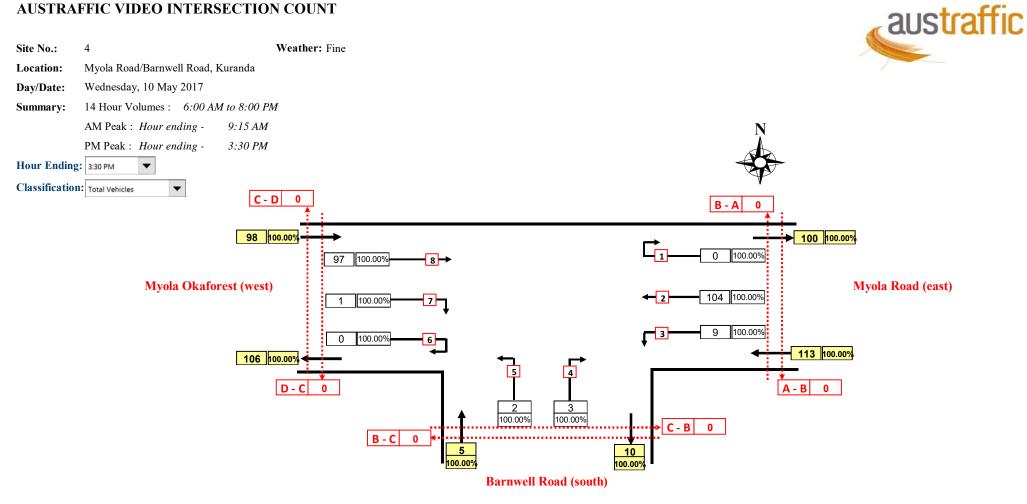


Note: 3.28% = proportion of selected vehicle classification as a percentage of total vehicles

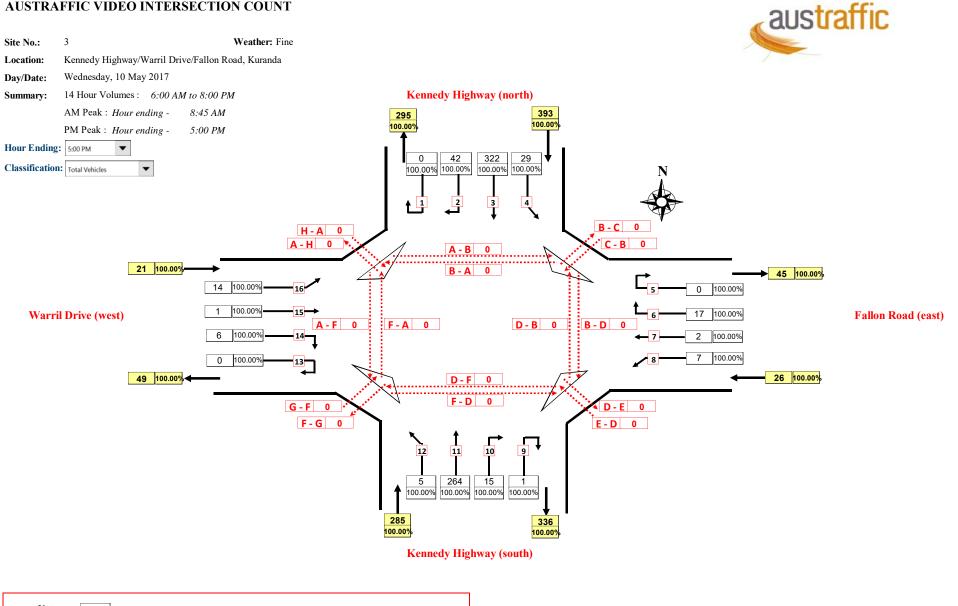




Document Set ID: 3340012 Version: 1, Version Date: 19/01/2018







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

MetroCount Traffic Executive Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-38 -- English (ENA)

<u>Datasets:</u> Site: Direction: Survey Duration: Zone: File: Identifier: Algorithm: Data type:	[Warril Drive 1] Ch 70 @ Inter Kennedy Hwy & Warril Dr < 50 > 7 - North bound A>B, South bound B>A. Lane: 0 10:15 Thursday, 21 August 2014 => 9:46 Friday, 5 September 2014 Warril Drive 105Sep2014.EC0 (Plus) N2222EFP MC56-L5 [MC55] (c)Microcom 19Oct04 Factory default (v3.21 - 15315) Axle sensors - Paired (Class/Speed/Count)
Profile: Filter time: Included classes: Speed range: Direction: Separation: Name: Scheme: Units: In profile:	0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 10 - 160 km/h. North, East, South, West (bound) All - (Headway) Default Profile Vehicle classification (AustRoads94) Metric (meter, kilometer, m/s, km/h, kg, tonne) 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	Average: 1 - 5	s 1 - 7
Hour							1	1 - 5	1 - /
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)

<u>Datasets:</u> Site: Direction: Survey Duration: Zone:	[Warril Drive 2] Ch 820 @ Intersection Kennedy Hwy & Warril Dr <50> 7 - North bound A>B, South bound B>A. Lane: 0 9:34 Thursday, 21 August 2014 => 9:50 Friday, 5 September 2014
File: Identifier: Algorithm: Data type:	Warril Drive 205Sep2014.EC0 (Plus) FN47XFS5 MC56-L5 [MC55] (c)Microcom 19Oct04 Factory default (v3.21 - 15315) Axle sensors - Paired (Class/Speed/Count)
Profile: Filter time: Included classes: Speed range: Direction: Separation: Name: Scheme: Units: In profile:	0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 10 - 160 km/h. North, East, South, West (bound) All - (Headway) Default Profile Vehicle classification (AustRoads94) Metric (meter, kilometer, m/s, km/h, kg, tonne) 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	Average	
Hour							1	1 - 5	1 - 7
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)

<u>Datasets:</u> Site: Direction: Survey Duration: Zone: File: Identifier: Algorithm: Data type:	[Warril Drive 1] Ch 70 @ Inter Kennedy Hwy & Warril Dr < 50 > 7 - North bound A>B, South bound B>A. Lane: 0 10:15 Thursday, 21 August 2014 => 9:46 Friday, 5 September 2014 Warril Drive 105Sep2014.EC0 (Plus) N2222EFP MC56-L5 [MC55] (c)Microcom 19Oct04 Factory default (v3.21 - 15315) Axle sensors - Paired (Class/Speed/Count)
Profile: Filter time: Included classes: Speed range: Direction: Separation: Name: Scheme: Units: In profile:	0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 10 - 160 km/h. North, East, South, West (bound) All - (Headway) Default Profile Vehicle classification (AustRoads94) Metric (meter, kilometer, m/s, km/h, kg, tonne) 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	Average: 1 - 5	s 1 - 7
Hour							1	1 - 5	1 - /
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)

<u>Datasets:</u> Site: Direction: Survey Duration: Zone:	[Warril Drive 2] Ch 820 @ Intersection Kennedy Hwy & Warril Dr <50> 7 - North bound A>B, South bound B>A. Lane: 0 9:34 Thursday, 21 August 2014 => 9:50 Friday, 5 September 2014
File: Identifier: Algorithm: Data type:	Warril Drive 205Sep2014.EC0 (Plus) FN47XFS5 MC56-L5 [MC55] (c)Microcom 19Oct04 Factory default (v3.21 - 15315) Axle sensors - Paired (Class/Speed/Count)
Profile: Filter time: Included classes: Speed range: Direction: Separation: Name: Scheme: Units: In profile:	0:00 Friday, 22 August 2014 => 0:00 Friday, 5 September 2014 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 10 - 160 km/h. North, East, South, West (bound) All - (Headway) Default Profile Vehicle classification (AustRoads94) Metric (meter, kilometer, m/s, km/h, kg, tonne) 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	Average	
Hour							1	1 - 5	1 - 7
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		

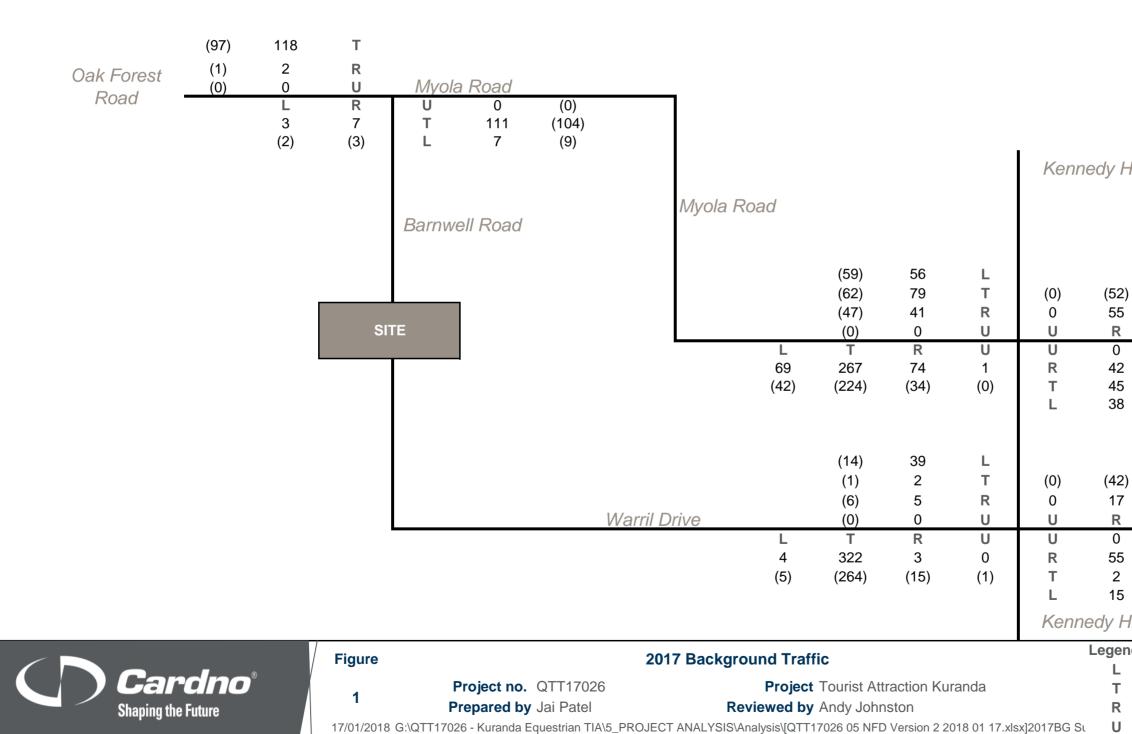
* - No data.

Proposed Non Urban Residential Subdivision Kuranda

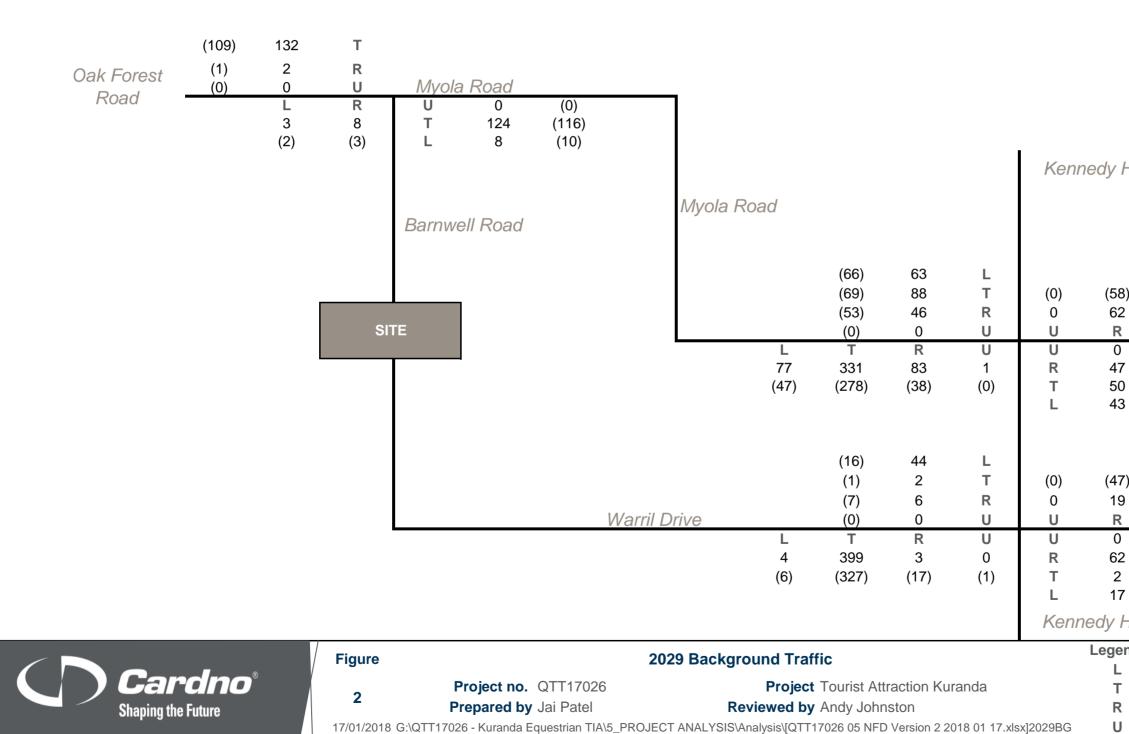
APPENDIX C



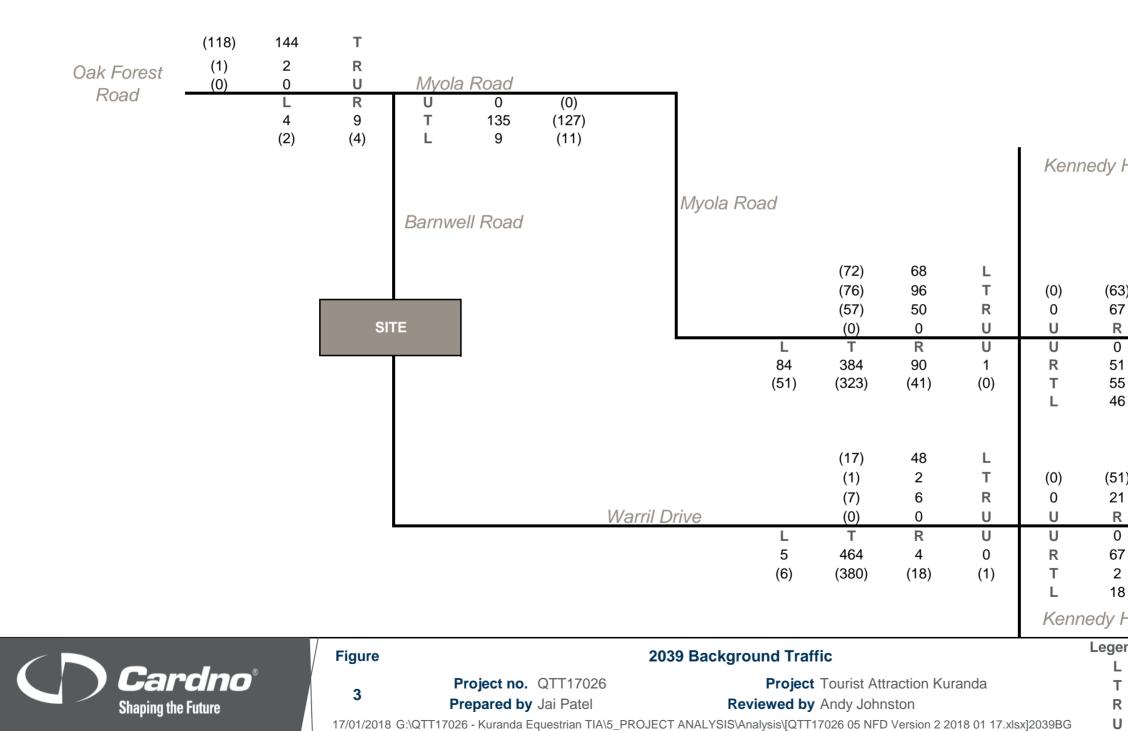
Document Set ID: 3340012 Version: 1, Version Date: 19/01/2018



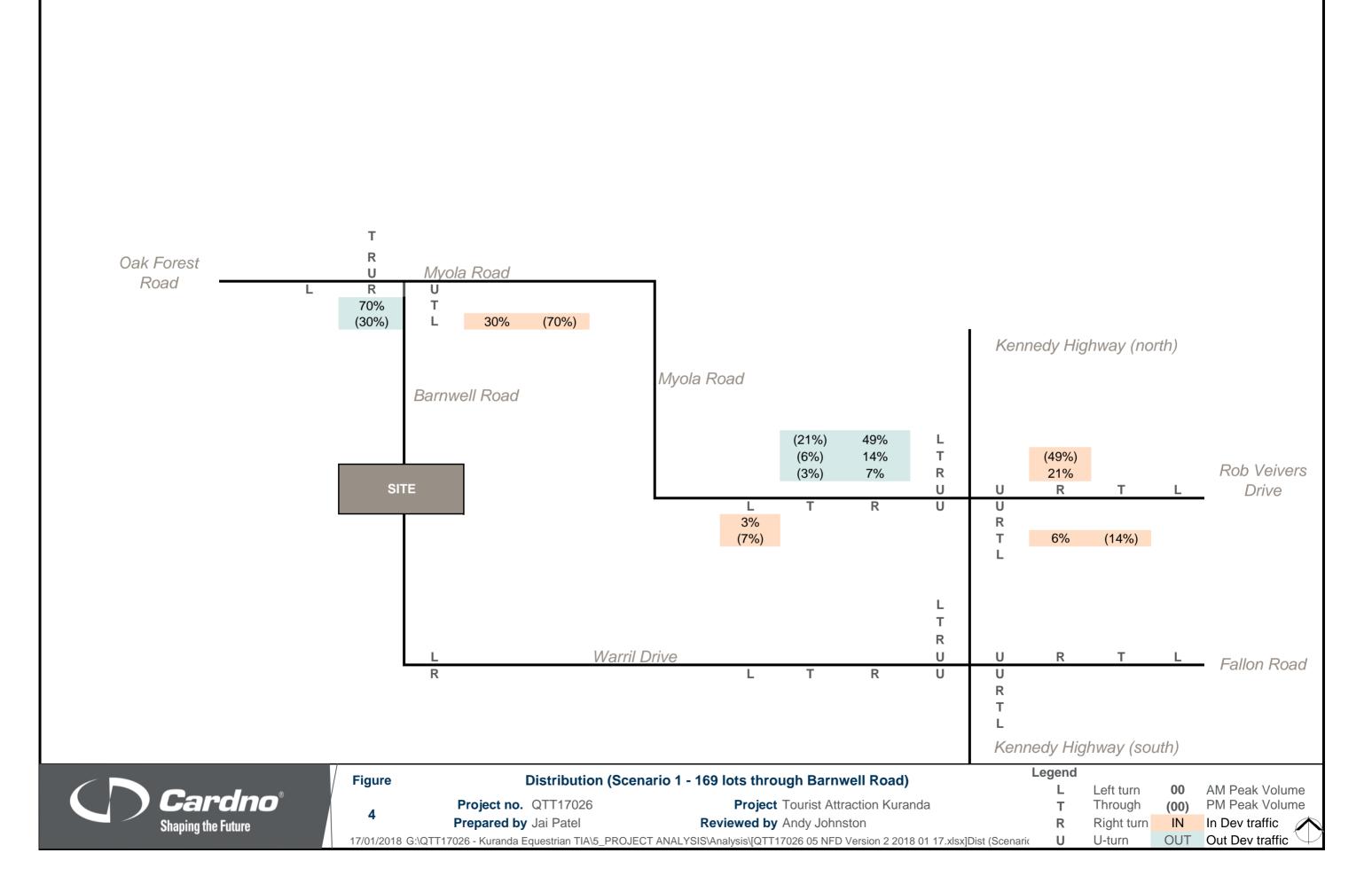
52) 55 R 0 12 15 88	(269) 180 T (0) (138) (52) (67)	(83) 91 L	Rob Veivers Drive
12) 7 8 0 55 2 5 5	(322) 231 <u>T</u> (0) (17) (2) (7) thway (so	(29) 10 <u>L</u> uth)	– Fallon Road
end L T R U	Left turn Through Right turn U-turn	00 (00)	AM Peak Volume PM Peak Volume

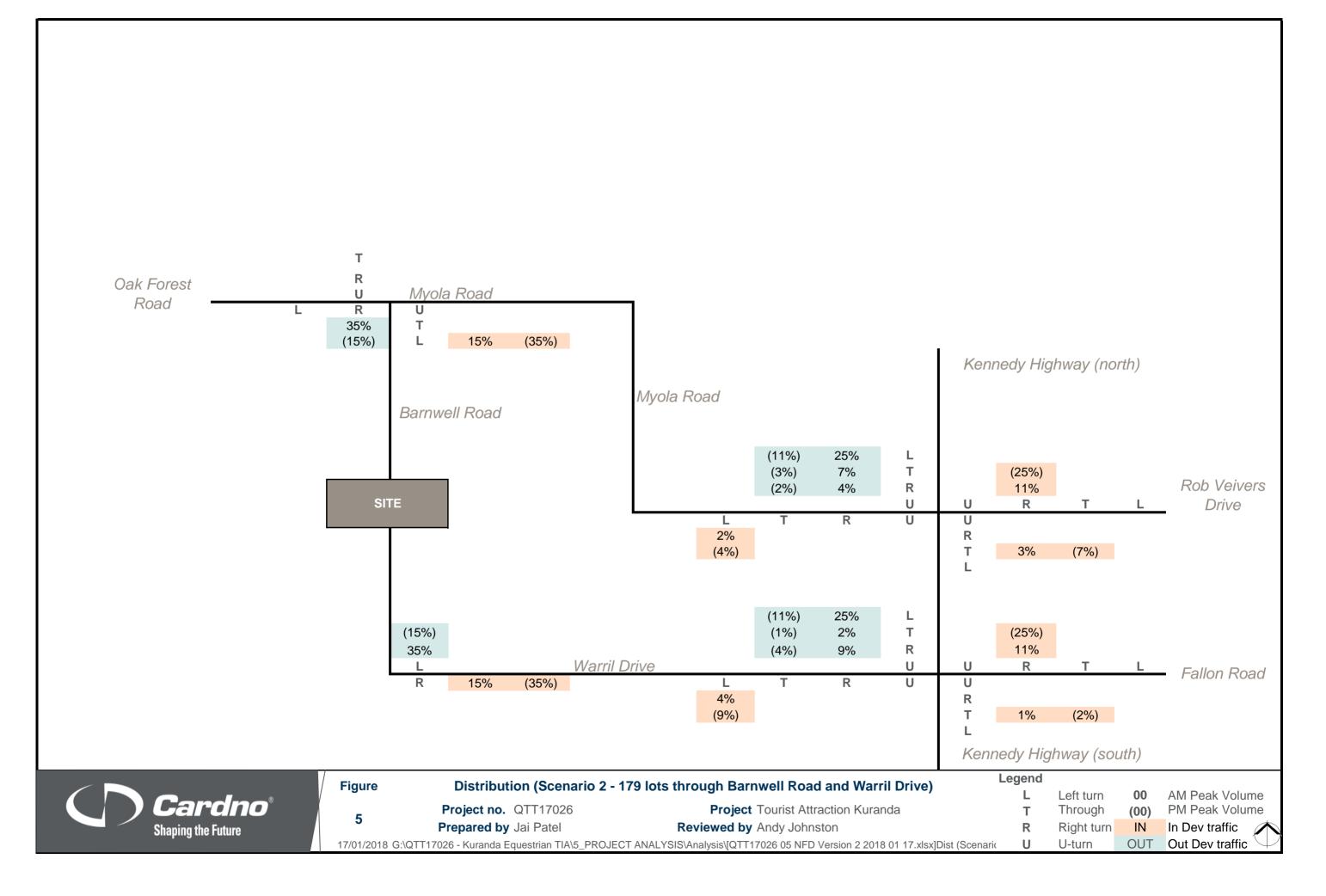


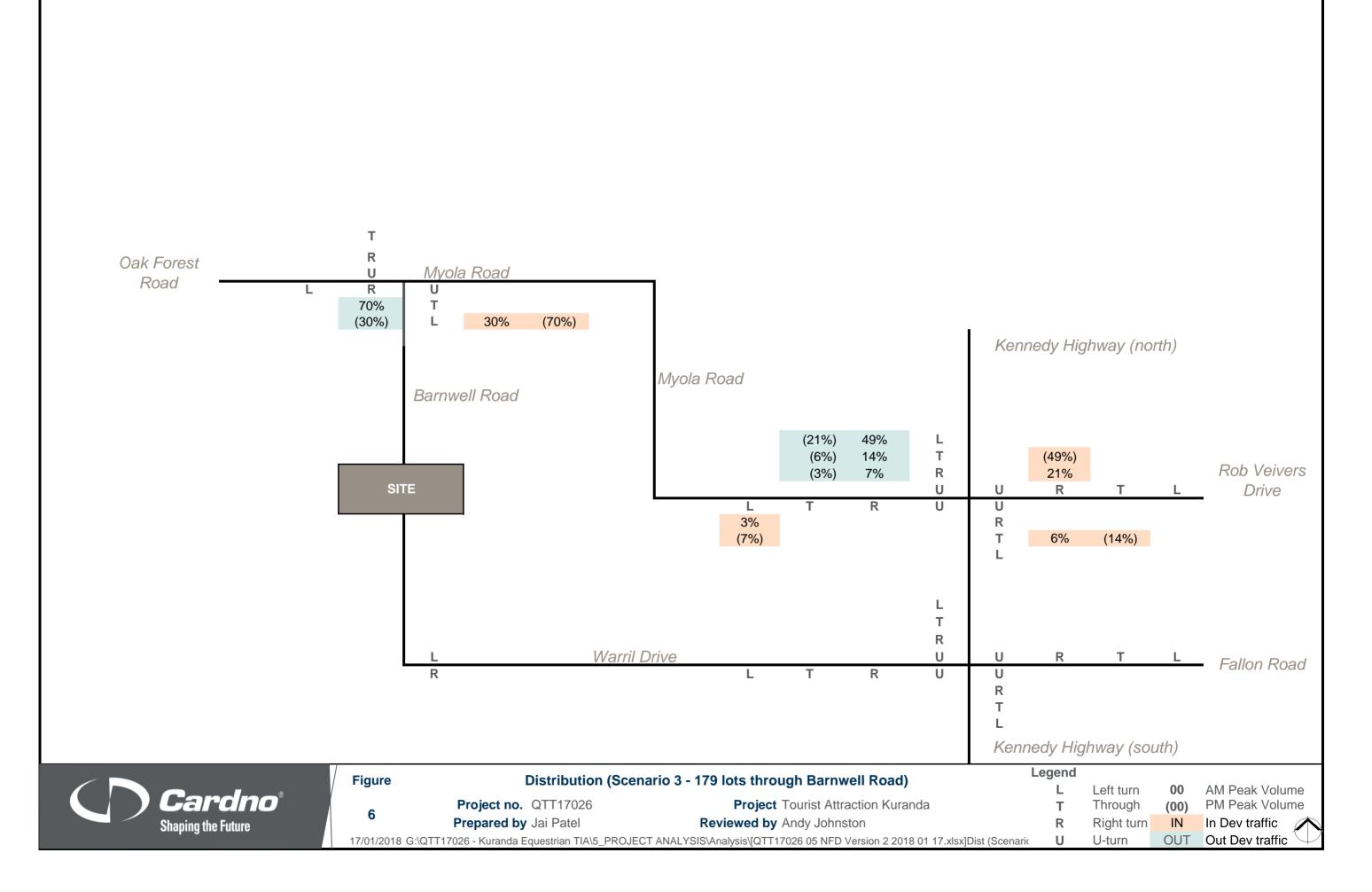
58) 52 R 0	(334) 223 T	(93) 102 L	Rob Veivers Drive
0 17 50 13	(0) (155) (58) (75)		
17) 9 R 0 52 2	(399) 286 T (0) (19) (2)	(32) 11 L	- Fallon Road
7 Hig	(8) Ihway (so	uth)	
end L T R U	Left turn Through Right turn U-turn	00 (00)	AM Peak Volume PM Peak Volume

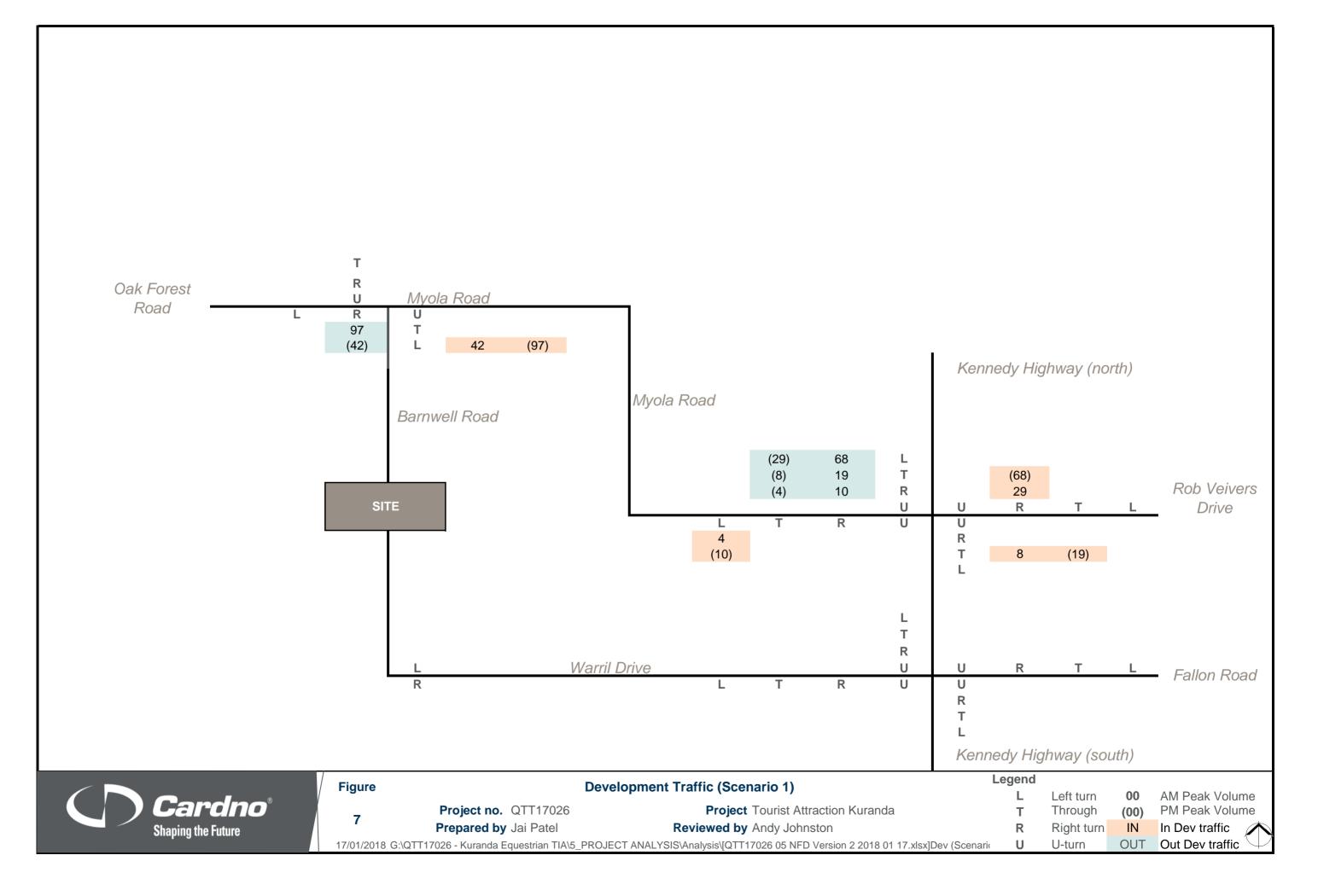


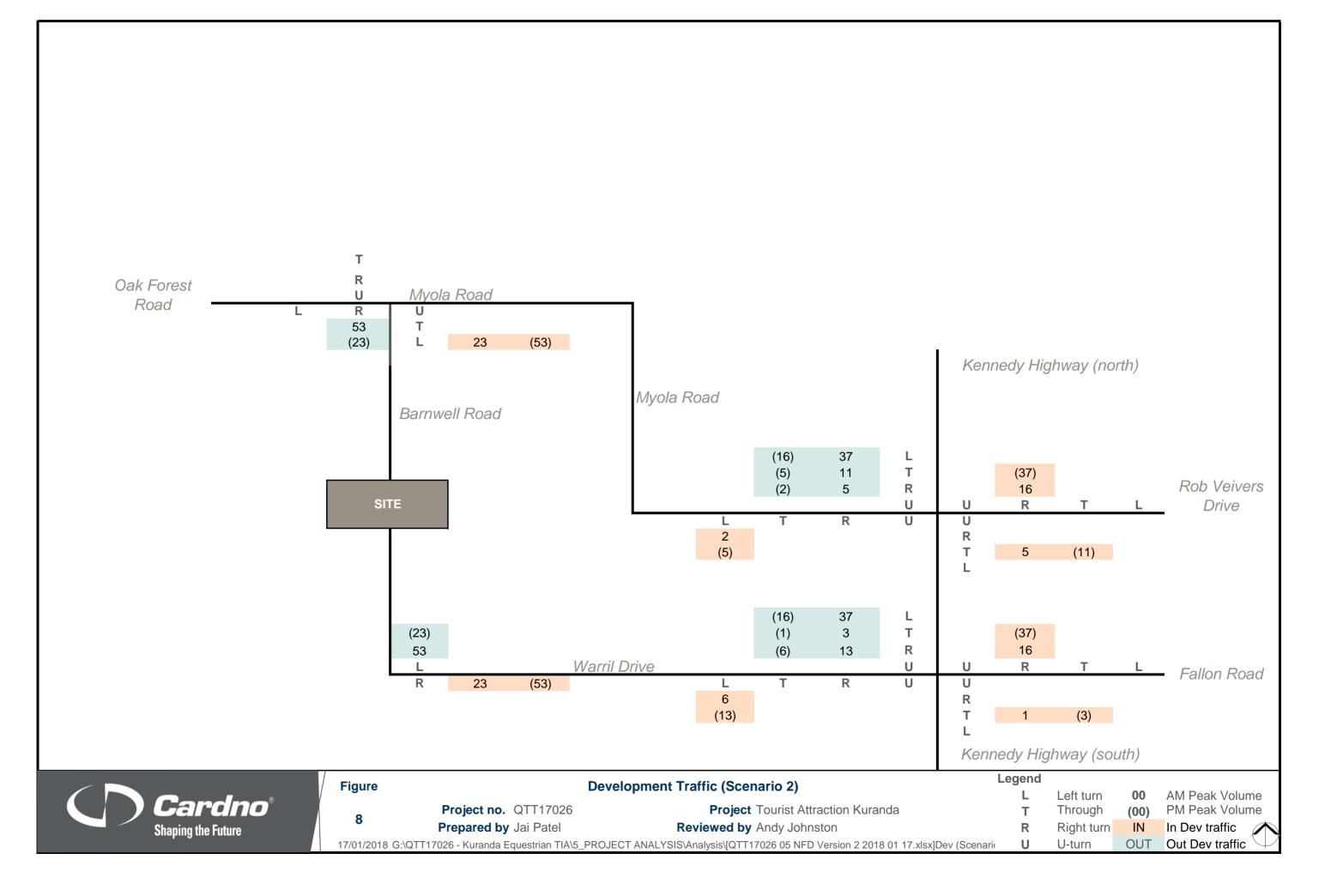
63) 67 R 0	(387) 259 T	(101) 111 L	Rob Veivers Drive
0 51 55 16	(0) (168) (63) (82)		
51) 21	(464) 333 T	(35) 12 L	
R 0 67 2 8	(0) (21) (2) (9)		- Fallon Road
Hig	ghway (so	uth)	
end L T R U	Left turn Through Right turn U-turn	00 (00)	AM Peak Volume PM Peak Volume

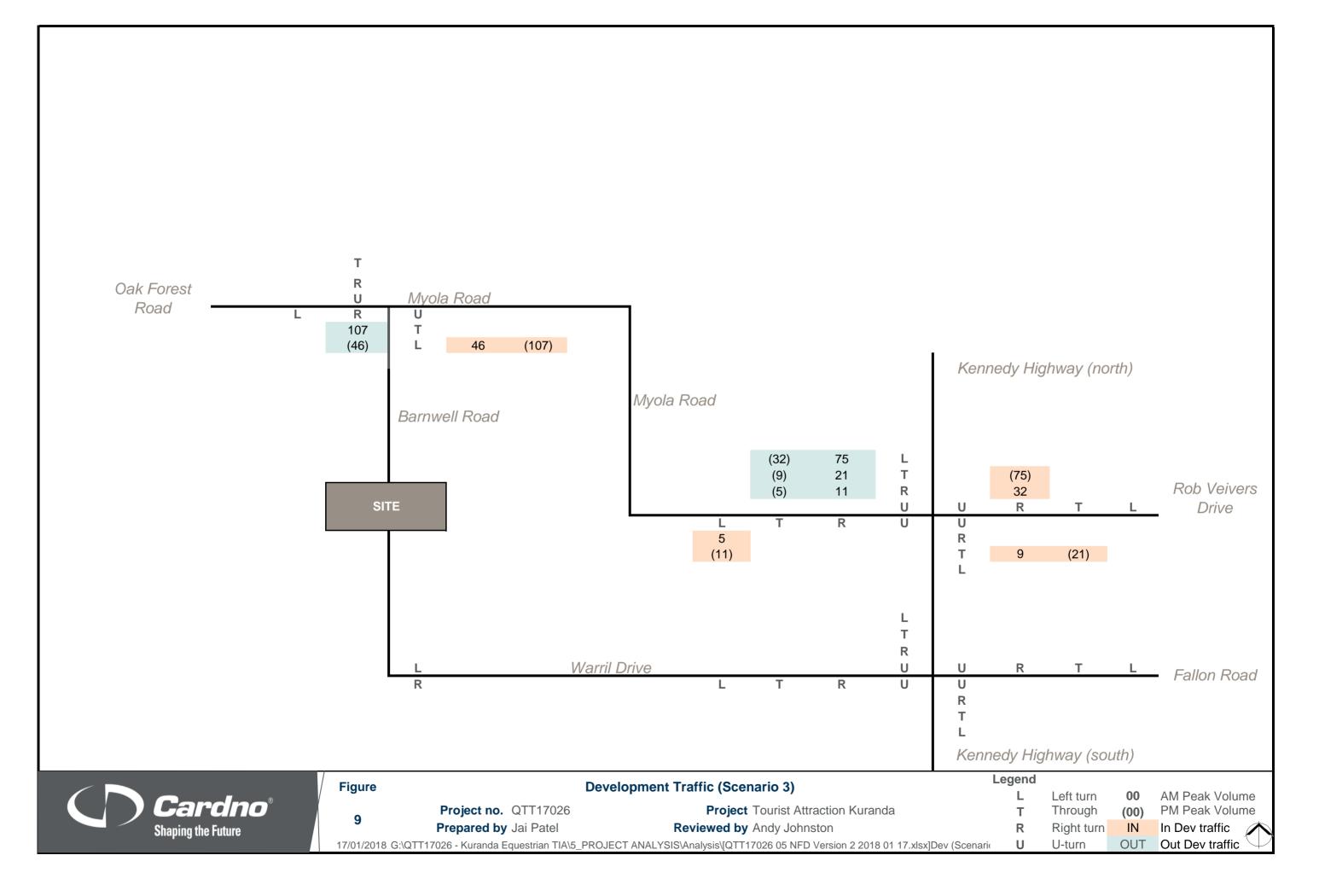


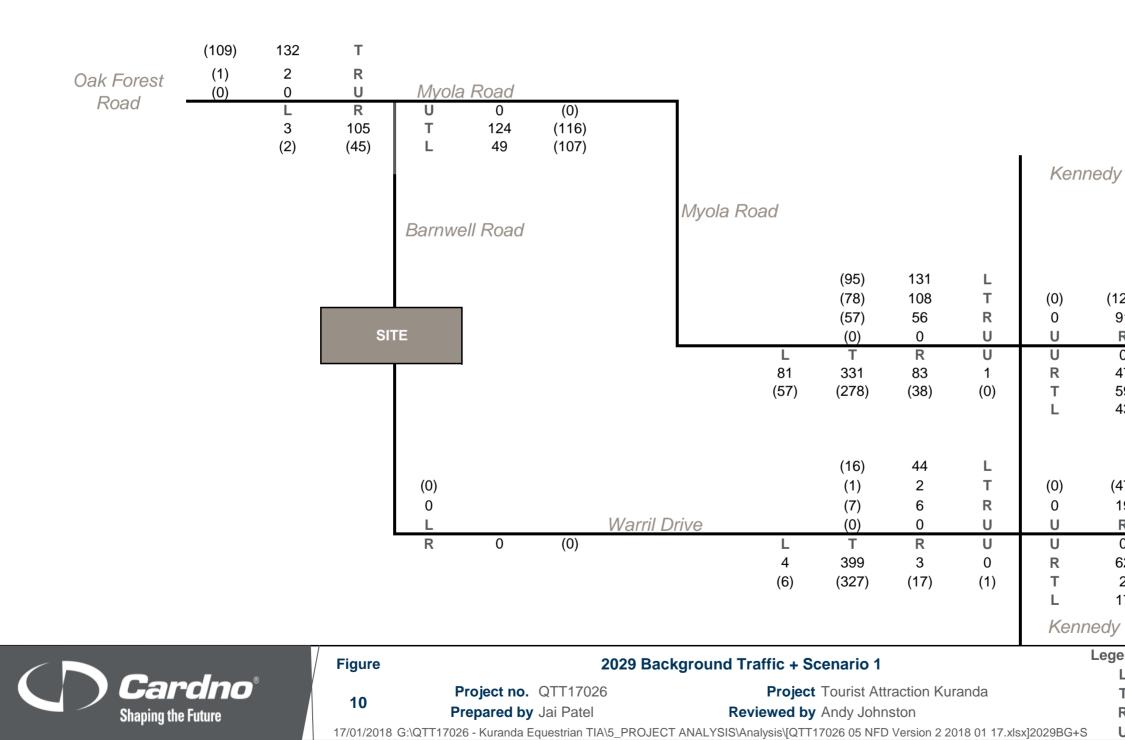




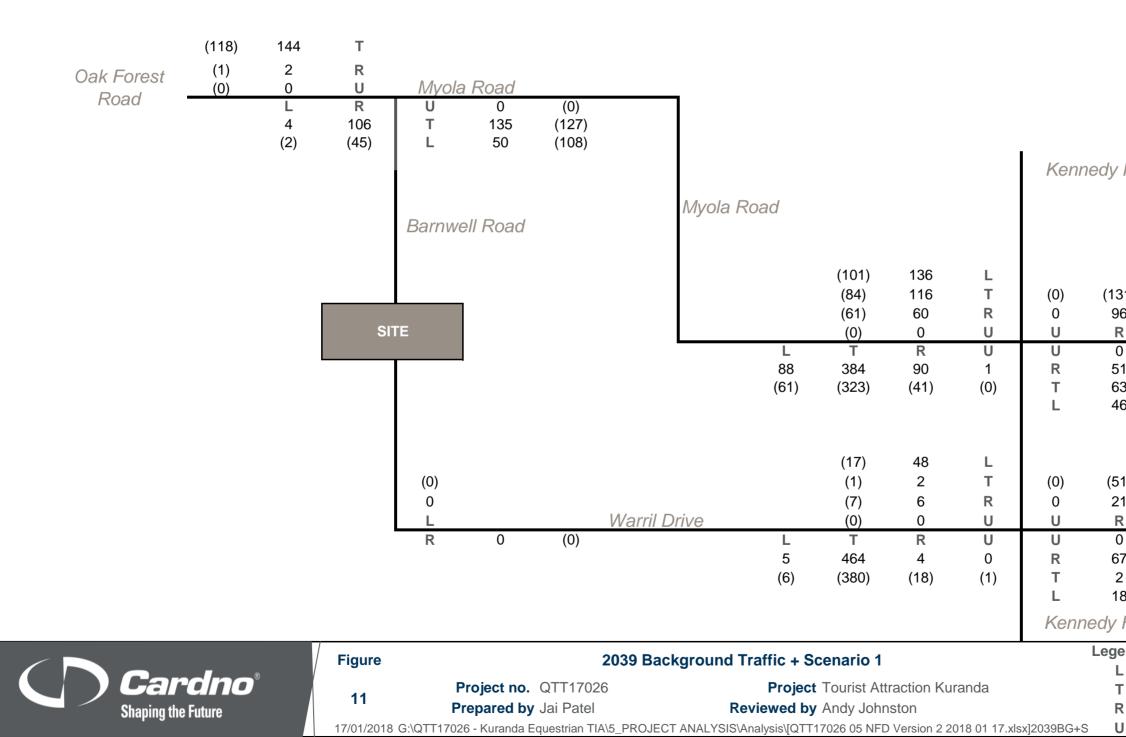




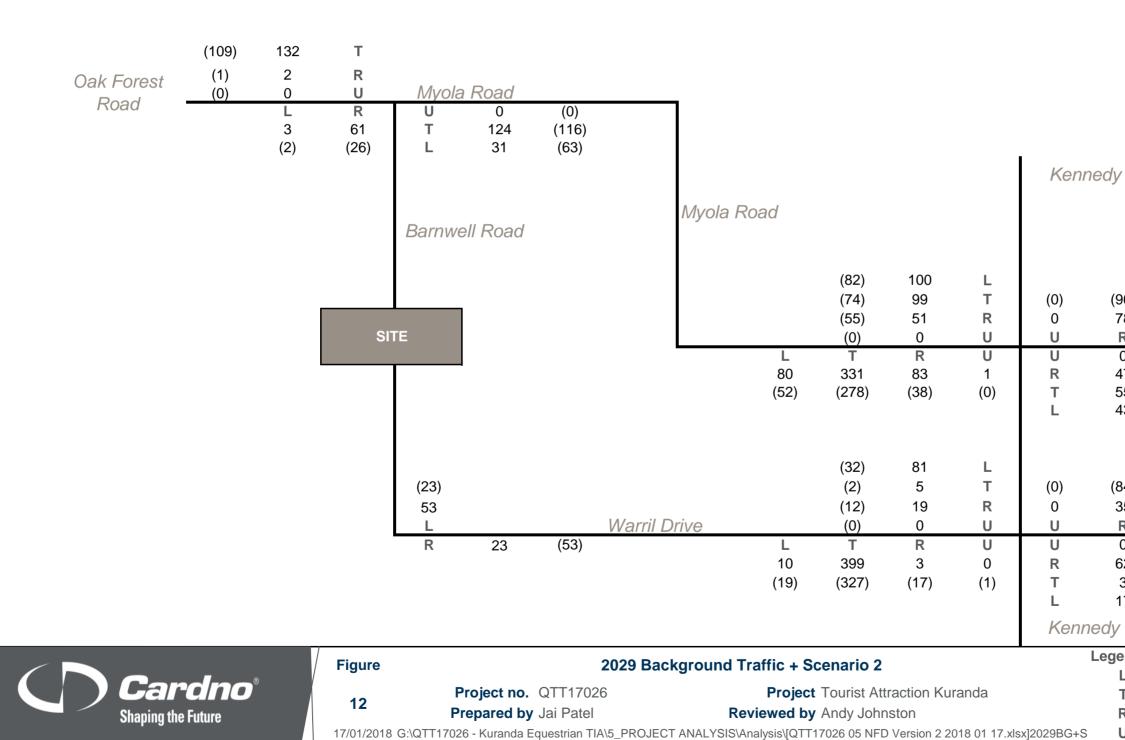




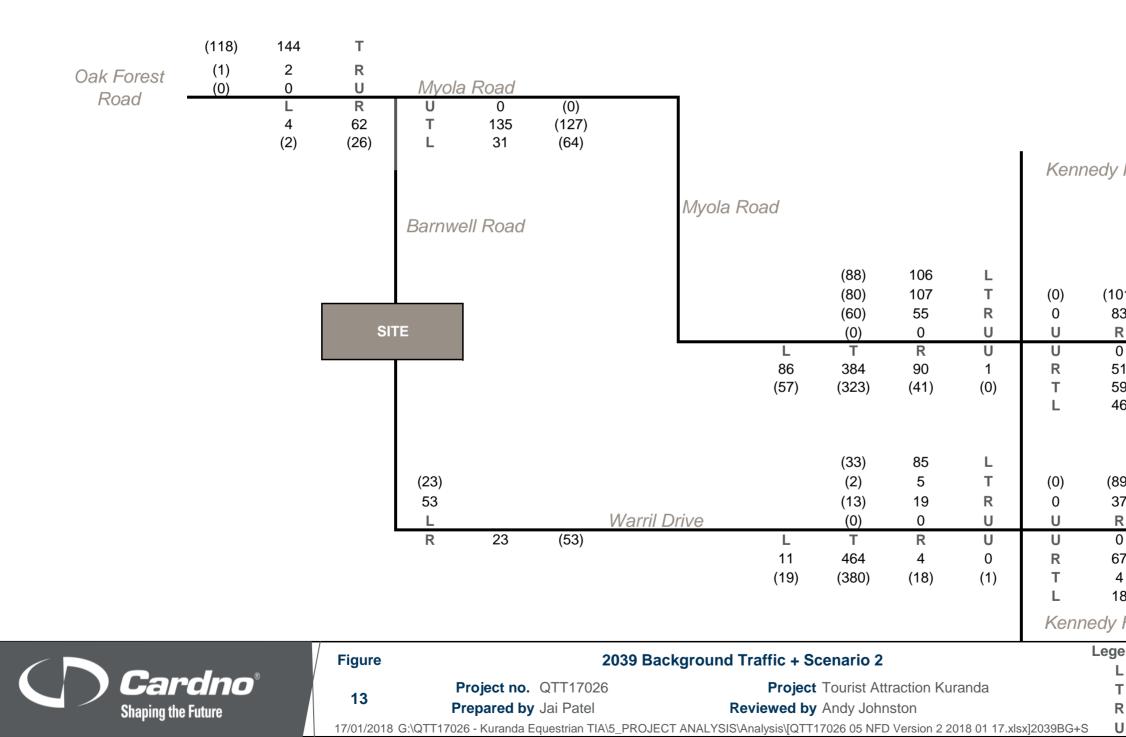
26) 91 R 0 47 59 43	(334) 223 T (0) (155) (78) (75)	(93) 102 L	Rob Veivers Drive
47) 19 R 0 62 2 17	(399) 286 T (0) (19) (2) (8)	(32) 11 L	- Fallon Road
/ Hig	hway (sol	ith)	
end L T R U	Left turn Through Right turn U-turn	00 (00)	AM Peak Volume PM Peak Volume



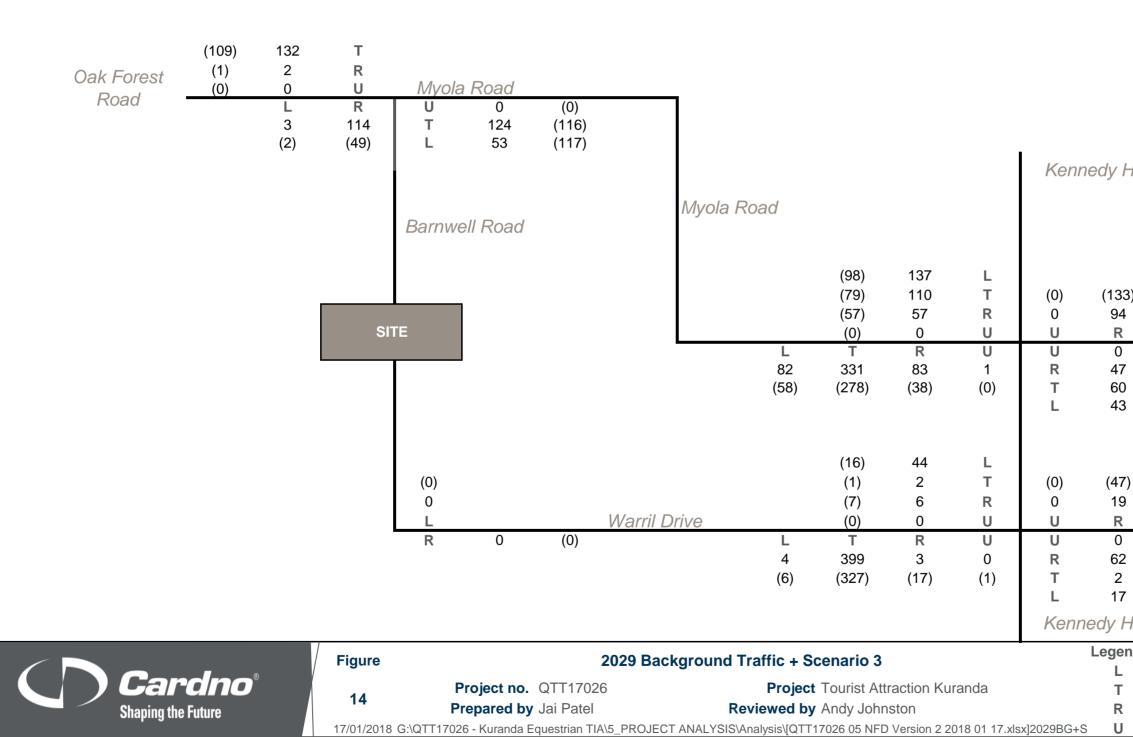
31) 6 २	(387) 259 T	(101) 111 L	Rob Veivers Drive
) 1 3 6	(0) (168) (83) (82)		_
1) 1 R	(464) 333 T	(35) 12 L	- Fallon Road
R 0 7 2 8	(0) (21) (2) (9)		- Fallon Road
Hig	ghway (so	uth)	
end			
- r	Left turn Through	00 (00)	AM Peak Volume PM Peak Volume
ך א	Right turn U-turn		\bigcirc



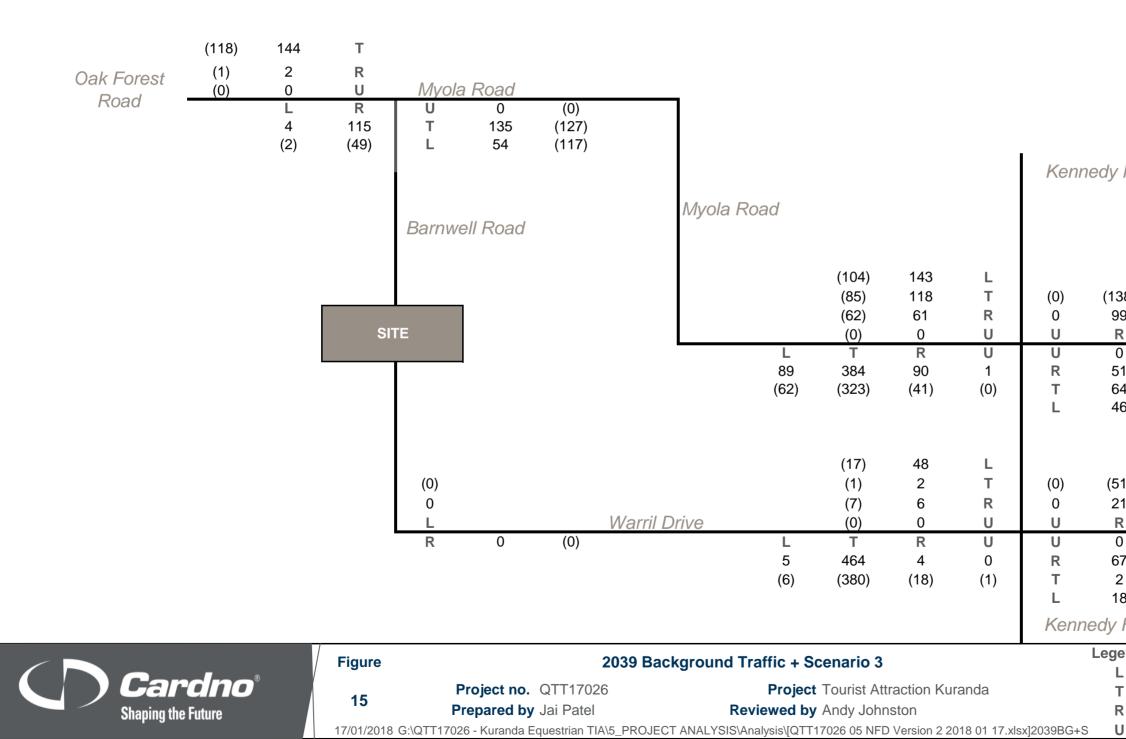
96) 78 <u>R</u> 0	(334) 223 T	(93) 102 L	Rob Veivers Drive
0 47 55 43	(0) (155) (69) (75)		
84) 35 R	(399) 286 T	(32) 11 L	– Fallon Road
0 62 3 17	(0) (19) (5) (8)		
∕ Hig	hway (sou	ıth)	
end L T R U	Left turn Through Right turn U-turn	00 (00)	AM Peak Volume PM Peak Volume



01) 33 R	(387) 259 T	(101) 111 L	Rob Veivers Drive
0 51 59 16	(0) (168) (74) (82)		
89) 87 R	(464) 333 T	(35) 12 L	- Fallon Road
0 67 4 8	(0) (21) (5) (9)		i anon ittoau
Hig	ıhway (so	uth)	
end L T R U	Left turn Through Right turn U-turn	00 (00)	AM Peak Volume PM Peak Volume



33) 94 R 0	(334) 223 T	(93) 102 L	Rob Veivers Drive
0 17 60 13	(0) (155) (80) (75)		-
17) 9 R 0 52 2	(399) 286 T (0) (19) (2)	(32) 11 L	- Fallon Road
7 Hig	(8) Ihway (so	uth)	
end			
L T	Left turn Through	00 (00)	AM Peak Volume PM Peak Volume
R	Right turn	(00)	
U	U-turn		\bigcirc



38) 99 R	(387) 259 T	(101) 111 L	Rob Veivers Drive
0 51	(0) (168)		
64	(85)		
6	(82)		
51)	(464)	(35)	
21	333	12	
R 0	Т	L	- Fallon Road
0	(0)		i anon i toau
67	(21)		
2	(2)		
8	(9)		
Hig	ihway (so	uth)	
end			
L	Left turn	00	AM Peak Volume
Т	Through	(00)	PM Peak Volume
R	Right turn		\bigwedge
U	U-turn		\checkmark

Proposed Non Urban Residential Subdivision Kuranda

APPENDIX D DETAILED SIDRA OUTPUTS



Document Set ID: 3340012 Version: 1, Version Date: 19/01/2018

Site: 101 [2017 Background - AM]

2017 AM

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

Mov	OD	Demanc	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total veh/h	HV %	Satn v/c	Delay sec	Service	Vehicles veh	Distance m	Queued	Stop Rate per veh	Speed km/ł
South	East: 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.
23	R2	44	0.0	0.149	21.2	LOS C	0.8	5.3	0.89	0.72	47.0
Appro	ach	132	3.0	0.156	15.0	LOS B	0.8	5.9	0.71	0.66	49.8
North	East: Kenn	edy Hwy E									
24	L2	96	2.0	0.070	8.5	LOS A	0.5	3.8	0.25	0.66	58.
25	T1	189	12.0	0.561	18.8	LOS B	4.8	36.9	0.95	0.77	56.
26	R2	58	9.0	0.207	23.1	LOS C	1.0	7.6	0.90	0.74	46.
Approach		343	8.7	0.561	16.7	LOS B	4.8	36.9	0.75	0.73	55.
North	West: Myol	a Rd									
27	L2	59	7.0	0.055	8.9	LOS A	0.6	4.4	0.38	0.63	54.
28	T1	83	0.0	0.631	37.7	LOS D	3.1	21.9	0.99	0.80	37.
29	R2	43	5.0	0.258	41.9	LOS D	1.6	11.4	0.96	0.73	36.
Appro	ach	185	3.4	0.631	29.5	LOS C	3.1	21.9	0.79	0.73	41.
South	West: Keni	nedy Hwy W									
30	L2	73	7.0	0.052	8.2	LOS A	0.3	2.2	0.20	0.65	58.
31	T1	281	7.0	0.565	26.2	LOS C	9.1	67.5	0.92	0.77	50.
32	R2	78	3.0	0.268	25.3	LOS C	1.9	13.3	0.91	0.75	45.
Appro	ach	432	6.3	0.565	23.0	LOS C	9.1	67.5	0.80	0.75	50.
All Ve	hicles	1092	6.2	0.631	21.2	LOS C	9.1	67.5	0.77	0.73	50.

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.

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Organisation: CARDNO (QLD) PTY LTD | Processed: Wednesday, 10 January 2018 11:54:32 AM

Project: G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\Sidra\Rural Residential\Kennedy Hwy and Myola Intersn RURAL RES.sip7

Site: 101 [2029 Background - AM]

2017 AM

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

Mov	OD	Demanc		Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South	East: Rob \	veh/h veivers Dr	%	v/c	sec	_	veh	m	_	per veh	km/ł
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.
23	R2	49	0.0	0.178	22.8	LOS C	0.9	6.5	0.91	0.72	46.
Appro	ach	147	3.0	0.185	16.2	LOS B	1.0	7.2	0.72	0.67	49.
North	East: Kenne	edy Hwy E									
24	L2	107	2.0	0.078	8.6	LOS A	0.7	4.7	0.25	0.66	58.
25	T1	235	12.0	0.611	19.3	LOS B	6.3	48.4	0.95	0.78	56.
26	R2	65	9.0	0.249	24.7	LOS C	1.3	9.5	0.92	0.74	45.
Approach		407	8.9	0.611	17.4	LOS B	6.3	48.4	0.76	0.74	54.
North	West: Myol	a Rd									
27	L2	66	7.0	0.064	9.6	LOS A	0.8	5.7	0.40	0.64	54.
28	T1	93	0.0	0.632	38.3	LOS D	3.6	25.3	0.97	0.79	36.
29	R2	48	5.0	0.240	42.3	LOS D	1.8	13.2	0.95	0.74	36.
Appro	ach	207	3.4	0.632	30.0	LOS C	3.6	25.3	0.78	0.73	40.
South	West: Kenr	nedy Hwy W									
30	L2	81	7.0	0.057	8.2	LOS A	0.4	2.7	0.21	0.65	58.
31	T1	348	7.0	0.650	27.4	LOS C	12.2	90.2	0.93	0.80	50.
32	R2	87	3.0	0.320	26.6	LOS C	2.2	15.7	0.93	0.76	44.
Appro	ach	517	6.3	0.650	24.3	LOS C	12.2	90.2	0.82	0.77	50.
All Ve	hicles	1279	6.3	0.650	22.1	LOS C	12.2	90.2	0.78	0.74	49.

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.

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Organisation: CARDNO (QLD) PTY LTD | Processed: Monday, 15 January 2018 9:40:23 AM Project: G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\Sidra\Rural Residential\Kennedy Hwy and Myola Intersn RURAL RES.sip7

Site: 101 [2029 Background - PM]

2017 AM

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

Mov	OD	Demanc		Deg.	Average	Level of	95% Back		Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South	East: Rob V	veh/h /eivers Dr	%	v/c	Sec	_	veh	m	_	per veh	km/ł
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.
Appro	ach	303	4.0	0.821	38.1	LOS D	7.5	55.7	0.83	0.82	37.
North	East: Kenne	edy Hwy E									
24	L2	98	10.0	0.071	8.4	LOS A	0.5	3.8	0.21	0.65	58.
25	T1	352	4.0	0.749	21.8	LOS C	10.7	77.1	0.98	0.86	54.
26	R2	61	8.0	0.246	26.2	LOS C	1.3	9.8	0.93	0.74	45.
Approach		511	5.6	0.749	19.7	LOS B	10.7	77.1	0.83	0.81	53.
North	West: Myola	a Rd									
27	L2	69	8.0	0.069	9.7	LOS A	0.8	6.3	0.39	0.64	53.
28	T1	73	3.0	0.821	48.7	LOS D	3.3	24.0	1.00	0.91	33.
29	R2	56	9.0	0.453	49.9	LOS D	2.4	18.1	1.00	0.75	33.
Appro	ach	198	6.4	0.821	35.4	LOS D	3.3	24.0	0.78	0.77	38.
South	West: Kenr	nedy Hwy W	1								
30	L2	49	7.0	0.036	8.4	LOS A	0.3	2.0	0.22	0.65	58.
31	T1	293	11.0	0.506	25.7	LOS C	10.0	76.6	0.86	0.73	51.
32	R2	40	0.0	0.153	26.7	LOS C	1.0	6.9	0.91	0.72	44.
Appro	ach	382	9.3	0.506	23.6	LOS C	10.0	76.6	0.79	0.72	51.
All Ve	hicles	1394	6.4	0.821	27.0	LOS C	10.7	77.1	0.81	0.78	46.

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.

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Project: G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\Sidra\Rural Residential\Kennedy Hwy and Myola Intersn RURAL RES.sip7

Site: 101 [2039 Background - AM]

2017 AM

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

Mov	OD	Demanc	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total veh/h	HV %	Satn v/c	Delay sec	Service	Vehicles veh	Distance m	Queued	Stop Rate per veh	Speed km/ł
South	East: 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
Appro	ach	160	3.0	0.216	17.5	LOS B	1.2	8.9	0.74	0.68	48.2
Northl	East: Kenn	edy 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.
26	R2	71	9.0	0.286	26.3	LOS C	1.5	11.5	0.93	0.75	44.
Approach		460	9.0	0.610	17.6	LOS B	7.5	57.9	0.77	0.75	54.
North	West: Myol	a Rd									
27	L2	72	7.0	0.073	11.5	LOS B	1.1	7.8	0.45	0.65	52.
28	T1	101	0.0	0.674	40.7	LOS D	4.2	29.4	0.97	0.81	36.
29	R2	53	5.0	0.249	44.0	LOS D	2.1	15.2	0.95	0.74	35.8
Appro	ach	225	3.4	0.674	32.2	LOS C	4.2	29.4	0.80	0.75	40.0
South	West: Kenr	nedy 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.
Appro	ach	587	6.4	0.682	24.8	LOS C	14.8	110.1	0.83	0.78	49.
All Vehicles		1433	6.4	0.682	22.8	LOS C	14.8	110.1	0.79	0.75	49.

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.

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Organisation: CARDNO (QLD) PTY LTD | Processed: Monday, 15 January 2018 9:41:34 AM Project: G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\Sidra\Rural Residential\Kennedy Hwy and Myola Intersn RURAL RES.sip7

Site: 101 [2039 Background - PM]

2017 AM

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

Mov	OD	Demanc	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South	East: Rob \	veh/h veivers Dr	%	v/c	Sec	_	veh	m	_	per veh	km/ł
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
Appro	ach	329	4.0	0.792	41.0	LOS D	9.1	67.6	0.82	0.80	36.8
North	East: Kenne	edy Hwy E									
24	L2	106	10.0	0.076	8.5	LOS A	0.7	5.0	0.20	0.65	58.
25	T1	407	4.0	0.765	24.9	LOS C	14.7	106.6	0.97	0.87	51.
26	R2	66	8.0	0.290	30.0	LOS C	1.6	12.2	0.94	0.75	43.
Approach		580	5.6	0.765	22.5	LOS C	14.7	106.6	0.83	0.81	51.
North	West: Myol	a Rd									
27	L2	76	8.0	0.078	10.9	LOS B	1.2	8.6	0.40	0.65	52.
28	T1	80	3.0	0.740	50.4	LOS D	4.0	28.7	0.98	0.84	32.
29	R2	60	9.0	0.344	53.0	LOS D	2.9	21.6	0.97	0.75	32.
Appro	ach	216	6.4	0.740	37.3	LOS D	4.0	28.7	0.77	0.75	37.
South	West: Kenr	nedy 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.
32	R2	43	0.0	0.194	31.3	LOS C	1.3	8.9	0.93	0.73	42.
Approach		437	9.4	0.566	27.4	LOS C	13.8	105.3	0.80	0.74	48.
All Vehicles		1562	6.4	0.792	29.8	LOS C	14.7	106.6	0.81	0.78	44.

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.

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Organisation: CARDNO (QLD) PTY LTD | Processed: Wednesday, 10 January 2018 1:49:50 PM

Project: G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\Sidra\Rural Residential\Kennedy Hwy and Myola Intersn RURAL RES.sip7

Site: 101 [2017 Background - PM]

2017 AM

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

Mov	OD	Demanc	Flows	Deg.	Average	Level of	95% Back of	of Queue	Prop.	Effective	Averag
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South	East: Rob '	veh/h	%	v/c	sec	_	veh	m	_	per veh	km/
21	Last. 100	71 ververs	1.0	0.056	8.4	LOS A	0.7	4.8	0.34	0.63	56.
	L2 T1	55				LOS A					37.
22			0.0	0.336	36.5		2.0	14.3	0.95	0.71	
23	R2	145	7.0	0.730	46.8	LOS D	6.0	44.9	1.00	0.88	34.
Appro	ach	271	4.0	0.730	34.7	LOS C	6.0	44.9	0.82	0.78	39.
North	East: Kenn	edy Hwy E									
24	L2	87	10.0	0.063	8.3	LOS A	0.4	3.0	0.21	0.65	58.
25	T1	283	4.0	0.701	20.8	LOS C	8.0	57.8	0.98	0.83	55.
26	R2	55	8.0	0.208	24.5	LOS C	1.0	7.8	0.91	0.74	45
Approach		425	5.7	0.701	18.7	LOS B	8.0	57.8	0.81	0.78	54
North	West: Myol	a Rd									
27	L2	62	8.0	0.059	8.7	LOS A	0.6	4.7	0.35	0.63	54.
28	T1	65	3.0	0.647	42.0	LOS D	2.7	19.2	1.00	0.80	35.
29	R2	49	9.0	0.378	46.7	LOS D	2.0	15.0	0.99	0.74	34.
Appro	ach	177	6.4	0.647	31.6	LOS C	2.7	19.2	0.77	0.72	40.
South	West: Kenr	nedy Hwy W	/								
30	L2	44	7.0	0.032	8.4	LOS A	0.2	1.6	0.21	0.64	58.
31	T1	236	11.0	0.451	25.6	LOS C	7.7	58.7	0.87	0.73	51.
32	R2	36	0.0	0.128	25.8	LOS C	0.9	6.0	0.90	0.72	45
Approach		316	9.2	0.451	23.2	LOS C	7.7	58.7	0.78	0.71	51
All Vehicles		1188	6.4	0.730	25.4	LOS C	8.0	58.7	0.80	0.75	47

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.

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Organisation: CARDNO (QLD) PTY LTD | Processed: Wednesday, 10 January 2018 11:54:34 AM

Project: G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\Sidra\Rural Residential\Kennedy Hwy and Myola Intersn RURAL RES.sip7

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)

Mov	OD	Demanc	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total	ΗV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
	East: Rob '										
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
Appro	ach	169	3.0	0.281	19.7	LOS B	1.5	11.2	0.76	0.69	46.7
North	East: Kenn	edy 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
North	West: Myol	a 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
Appro	ach	338	4.1	0.683	27.1	LOS C	5.2	36.7	0.70	0.72	42.4
South	West: Keni	nedy Hwy W	1								
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
Appro	ach	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.

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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)

Mov	OD	Demanc	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total	ΗV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
0 11		veh/h	%	v/c	sec		veh	m		per veh	km/h
	East: Rob `										
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
Appro	ach	156	3.0	0.214	16.4	LOS B	1.2	8.4	0.74	0.68	48.8
North	East: Kenn	edy 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
Appro	ach	438	8.9	0.692	19.5	LOS B	6.8	52.8	0.80	0.78	52.8
North	West: Myol	a 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
Appro	ach	309	4.1	0.839	27.5	LOS C	4.8	33.3	0.70	0.77	42.3
South	West: Kenr	nedy Hwy W	1								
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
Appro	ach	521	6.3	0.712	26.4	LOS C	13.0	96.2	0.84	0.80	48.7
All Ve	hicles	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.

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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)

Mov	OD	Demanc	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total veh/h	HV %	Satn v/c	Delay sec	Service	Vehicles veh	Distance m	Queued	Stop Rate per veh	Speed km/ł
South	East: 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.
23	R2	163	7.0	0.818	53.7	LOS D	7.8	58.2	1.00	0.93	32.
Appro	ach	323	3.8	0.818	39.6	LOS D	7.8	58.2	0.83	0.81	37.2
North	East: Kenn	edy Hwy E									
24	L2	98	10.0	0.071	8.5	LOS A	0.5	4.2	0.21	0.65	58.
25	T1	352	4.0	0.757	23.7	LOS C	11.5	83.6	0.98	0.87	52.
26	R2	133	8.0	0.566	28.7	LOS C	3.1	23.0	0.98	0.78	43.
Appro	ach	582	5.9	0.757	22.3	LOS C	11.5	83.6	0.85	0.81	51.
North	West: Myol	a Rd									
27	L2	100	8.0	0.098	9.9	LOS A	1.3	9.7	0.39	0.65	53.
28	T1	81	3.0	0.833	49.8	LOS D	3.9	27.7	0.98	0.92	33.
29	R2	60	9.0	0.344	48.6	LOS D	2.6	19.6	0.97	0.75	33.9
Appro	ach	241	6.6	0.833	32.9	LOS C	3.9	27.7	0.73	0.76	39.0
South	West: Kenr	nedy Hwy W	1								
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.
32	R2	40	0.0	0.162	28.5	LOS C	1.1	7.5	0.92	0.72	43.
Appro	ach	393	9.3	0.517	24.9	LOS C	10.7	81.7	0.78	0.73	50.
All Ve	hicles	1539	6.4	0.833	28.3	LOS C	11.5	83.6	0.81	0.78	45.

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.

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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)

Mov	OD	Demano	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Averag
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South	East: Rob '	veh/h Veivers Dr	%	v/c	sec	_	veh	m	_	per veh	km/
21	L2	86	1.0	0.074	10.5	LOS B	1.2	8.7	0.39	0.65	54.
22	T1	88	0.0	0.543	41.2	LOS D	3.8	26.8	0.95	0.73	35.
23	R2	177	7.0	0.826	55.4	LOS E	8.9	20.0 66.1	1.00	0.94	32.
Appro		352	3.8	0.826	40.8	LOS D	8.9	66.1	0.84	0.81	36.
North	East: Kenn	edy Hwy E									
24	L2	106	10.0	0.077	8.5	LOS A	0.7	5.0	0.21	0.65	58.
25	T1	407	4.0	0.848	30.4	LOS C	16.0	115.7	1.00	0.94	48.
26	R2	145	8.0	0.655	31.2	LOS C	3.7	27.3	1.00	0.81	42
Appro	ach	659	5.8	0.848	27.0	LOS C	16.0	115.7	0.87	0.87	48
North	West: Myol	a Rd									
27	L2	109	8.0	0.132	11.4	LOS B	1.7	12.8	0.43	0.66	52.
28	T1	89	3.0	0.902	59.2	LOS E	4.8	34.5	0.98	1.00	30.
29	R2	64	9.0	0.350	50.3	LOS D	2.9	21.9	0.97	0.76	33.
Appro	ach	263	6.5	0.902	37.1	LOS D	4.8	34.5	0.75	0.80	37.
South	West: Keni	nedy Hwy W	1								
30	L2	65	7.0	0.049	9.3	LOS A	0.6	4.1	0.26	0.66	57.
31	T1	340	11.0	0.592	29.7	LOS C	13.4	102.6	0.90	0.77	48.
32	R2	43	0.0	0.184	30.1	LOS C	1.2	8.6	0.93	0.73	43
Appro	ach	448	9.4	0.592	26.8	LOS C	13.4	102.6	0.81	0.75	49
All Ve	hicles	1722	6.4	0.902	31.3	LOS C	16.0	115.7	0.83	0.81	43

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.

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V Site: 101v [2017BG AM]

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

Move	ment Per	formance -	Vehicle	es							
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back o Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South	RoadNan	ne									
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
Appro	ach	11	0.0	0.009	6.2	LOS A	0.0	0.2	0.24	0.57	52.4
East: I	RoadName	Э									
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
Appro	ach	124	6.5	0.067	0.3	NA	0.0	0.0	0.00	0.04	59.5
West:	Oak Fores	st 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
Appro	ach	126	3.0	0.066	0.1	NA	0.0	0.1	0.01	0.01	59.8
All Vel	nicles	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.

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V Site: 101v [2019BG AM]

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

Move	ment Per	formance -	Vehicle	es							
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back o Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South:	RoadNan	ne									
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
Appro	ach	11	0.0	0.009	6.2	LOS A	0.0	0.2	0.25	0.57	52.4
East: F	RoadName	Э									
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
Appro	ach	126	6.5	0.068	0.3	NA	0.0	0.0	0.00	0.03	59.5
West:	Oak Fores	st 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
Appro	ach	128	3.0	0.067	0.1	NA	0.0	0.1	0.01	0.01	59.8
All Vel	nicles	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.

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V Site: 101v [2029BG AM]

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

Move	ment Per	formance -	Vehicle	es							
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back o Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South:	RoadNan	ne									
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
Appro	ach	12	0.0	0.011	6.3	LOS A	0.0	0.2	0.27	0.57	52.4
East: F	RoadName	Э									
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
Appro	ach	139	6.5	0.075	0.4	NA	0.0	0.0	0.00	0.04	59.5
West:	Oak Fores	st 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
Appro	ach	141	3.0	0.074	0.1	NA	0.0	0.1	0.01	0.01	59.8
All Vel	nicles	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.

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V Site: 101v [2039BG AM]

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

Move	ement Per	formance	- Vehicle	es							
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South	: RoadNam	ne									
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
Appro	bach	14	0.0	0.013	6.3	LOS A	0.0	0.3	0.28	0.58	52.3
East:	RoadName	9									
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
Appro	bach	152	6.5	0.081	0.4	NA	0.0	0.0	0.00	0.04	59.5
West:	Oak Fores	t 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
Appro	bach	154	3.0	0.081	0.1	NA	0.0	0.1	0.01	0.01	59.8
All Ve	hicles	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.

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▽ Site: 101v [2039BG PM]

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

Move	ment Pe	rformance -	Vehicle	es							
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back o Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South	RoadNar	ne									
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
Appro	ach	6	0.0	0.006	6.2	LOS A	0.0	0.1	0.26	0.56	52.4
East: I	RoadNam	е									
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
Appro	ach	145	4.6	0.077	0.4	NA	0.0	0.0	0.00	0.05	59.4
West:	Oak Fores	st 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
Appro	ach	125	5.9	0.067	0.1	NA	0.0	0.1	0.01	0.01	59.9
All Vel	nicles	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.

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V Site: 101v [2017BG PM]

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

Move	ment Per	rformance -	Vehicle	es							
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back o Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South	RoadNan	ne									
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
Appro	ach	5	0.0	0.004	6.0	LOS A	0.0	0.1	0.22	0.55	52.5
East: I	RoadName	е									
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
Appro	ach	119	4.6	0.063	0.4	NA	0.0	0.0	0.00	0.05	59.4
West:	Oak Fores	st 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
Appro	ach	103	5.9	0.055	0.1	NA	0.0	0.1	0.01	0.01	59.9
All Vel	nicles	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.

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V Site: 101v [2019BG PM]

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

Move	ment Per	formance -	Vehicle	es							
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back o Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South	: RoadNan	ne									
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
Appro	ach	5	0.0	0.004	6.0	LOS A	0.0	0.1	0.22	0.55	52.5
East:	RoadName	Э									
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
Appro	ach	121	4.6	0.064	0.4	NA	0.0	0.0	0.00	0.05	59.4
West:	Oak Fores	st 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
Appro	ach	105	5.9	0.056	0.1	NA	0.0	0.1	0.01	0.01	59.9
All Ve	hicles	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.

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▽ Site: 101v [2029BG PM]

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

Move	ment Per	rformance -	Vehicle	es							
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back o Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South	RoadNan	ne									
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
Appro	ach	5	0.0	0.004	6.1	LOS A	0.0	0.1	0.24	0.55	52.4
East: I	RoadName	Э									
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
Appro	ach	133	4.6	0.070	0.4	NA	0.0	0.0	0.00	0.05	59.4
West:	Oak Fores	st 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
Appro	ach	116	5.9	0.062	0.1	NA	0.0	0.1	0.01	0.01	59.9
All Vel	nicles	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.

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

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

Move	ment Per	formance -	Vehicle	s							
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back (Vehicles veh	of Queue 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
Appro	ach	126	0.0	0.130	6.8	LOS A	0.4	3.1	0.36	0.66	52.1
East:	Myola Roa	d									
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
Appro	ach	199	8.3	0.109	1.6	NA	0.0	0.0	0.00	0.17	57.8
West:	Oak Fores	st 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
Appro	ach	154	3.0	0.081	0.1	NA	0.0	0.1	0.01	0.01	59.8
All Ve	hicles	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.

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Organisation: CARDNO (QLD) PTY LTD | Processed: Monday, 15 January 2018 10:48:34 AM Project: G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\Sidra\Rural Residential\Myola Barnwell RURAL RES.sip7

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

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

Move	ment Per	rformance -	Vehicle	s							
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back o Vehicles veh	of Queue 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
Appro	ach	54	0.0	0.055	6.7	LOS A	0.2	1.3	0.34	0.63	52.2
East:	Myola Roa	d									
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
Appro	ach	258	2.6	0.138	2.7	NA	0.0	0.0	0.00	0.28	56.5
West:	Oak Fores	st 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
Appro	ach	125	5.9	0.067	0.1	NA	0.0	0.1	0.01	0.01	59.9
All Vel	hicles	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.

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Organisation: CARDNO (QLD) PTY LTD | Processed: Monday, 15 January 2018 10:49:00 AM Project: G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\Sidra\Rural Residential\Myola Barnwell RURAL RES.sip7

∇ Site: 102 [2017 Background AM]

New Site Giveway / Yield (Two-Way)

Move	ement Pe	rformance -	Vehicle	es							
Mov	OD	Demand		Deg.	Average	Level of	95% Back		Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South	: Kennedy	veh/h	%	v/c	sec		veh	m		per veh	km/h
	2	,	4.0	0.000	7.4	1004	0.0	0.4	0.07	0.50	50.0
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
Appro	ach	346	6.9	0.182	0.2	LOS A	0.0	0.1	0.00	0.01	79.3
East:	Fallon Roa	d									
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
Appro	ach	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
Appro	ach	272	10.1	0.133	0.9	LOS A	0.1	0.4	0.03	0.06	76.8
West:	Warril Driv	/e									
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
Appro	ach	48	3.1	0.044	8.9	LOS A	0.2	1.1	0.44	0.65	55.1
All Ve	hicles	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.

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∇ Site: 102 [2017 Background PM]

New Site Giveway / Yield (Two-Way)

Move	ement Per	rformance -	Vehicle	es							
Mov	OD	Demand		Deg.	Average	Level of	95% Back		Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
Ocuth	. Kanada	veh/h	%	v/c	sec		veh	m		per veh	km/h
	: Kennedy	-									
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
Appro	ach	299	5.0	0.147	0.6	LOS A	0.1	0.4	0.02	0.04	77.8
East:	Fallon Roa	ad									
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
Appro	ach	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
Appro	ach	414	2.6	0.177	1.4	LOS A	0.1	1.0	0.04	0.11	74.9
West:	Warril Driv	ve									
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
Appro	ach	22	1.0	0.032	10.6	LOS B	0.1	0.7	0.47	0.66	54.0
All Ve	hicles	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.

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∇ Site: 102 [2039 Background PM]

New Site Giveway / Yield (Two-Way)

Move	ement Pe	rformance ·	Vehicle	es							
Mov	OD	Demand		Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
Ocutto	. Kanada	veh/h	%	v/c	sec		veh	m		per veh	km/h
	: Kennedy	,									
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
Appro	bach	425	5.0	0.212	0.5	LOS A	0.1	0.6	0.02	0.04	78.1
East:	Fallon Roa	ad									
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
Appro	bach	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
Appro	bach	579	2.7	0.255	1.3	LOS A	0.2	1.3	0.05	0.10	75.5
West:	Warril Driv	/e									
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
Appro	bach	26	1.0	0.072	15.8	LOS C	0.2	1.5	0.56	0.72	50.4
All Ve	hicles	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.

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∇ Site: 102 [2039 Background AM]

New Site Giveway / Yield (Two-Way)

Move	ement Pe	rformance ·	- Vehicle	es							
Mov	OD	Demand		Deg.	Average	Level of	95% Back		Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
Cauth		veh/h	%	v/c	sec		veh	m		per veh	km/h
	: Kennedy	,	4.0	0.000	7.4	100.1	0.0	0.4	0.00	0.50	50.0
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
Appro	bach	498	6.9	0.262	0.2	LOS A	0.0	0.1	0.00	0.01	79.3
East:	Fallon Roa	ad									
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
Appro	bach	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
Appro	bach	385	10.1	0.191	0.8	LOS A	0.1	0.6	0.03	0.06	77.2
West:	Warril Driv	ve									
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
Appro	bach	59	3.0	0.073	12.0	LOS B	0.2	1.7	0.54	0.73	52.9
All Ve	hicles	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.

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

New Site Giveway / Yield (Two-Way)

Move	ement Pe	rformance ·	- Vehicle	es							
Mov	OD	Demand		Deg.	Average	Level of	95% Back		Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
Cauth		veh/h	%	v/c	sec		veh	m		per veh	km/h
	: Kennedy	-							o 44		
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
Appro	ach	504	6.8	0.262	0.3	LOS A	0.0	0.2	0.01	0.02	79.0
East:	Fallon Roa	ad									
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
Appro	ach	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
Appro	ach	402	9.9	0.191	1.1	LOS A	0.2	1.1	0.05	0.08	76.1
West:	Warril Driv	ve									
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
Appro	ach	115	4.3	0.236	15.4	LOS C	0.7	5.9	0.58	0.78	50.1
All Ve	hicles	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.

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

New Site Giveway / Yield (Two-Way)

Move	ement Pe	rformance	- Vehicle	es							
Mov	OD	Demand		Deg.	Average	Level of	95% Back		Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South	: Kennedy	veh/h	%	v/c	sec		veh	m		per veh	km/h
	L2	11wy 3 20	1.0	0.013	7.6	LOS A	0.1	0.4	0.19	0.57	58.9
1					7.6					0.57	
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
Appro	ach	439	4.9	0.212	0.8	LOS A	0.1	0.6	0.03	0.05	77.3
East:	Fallon Roa	ad									
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
Appro	ach	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
Appro	ach	619	2.6	0.255	1.7	LOS A	0.3	2.4	0.07	0.14	73.9
West:	Warril Driv	ve									
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
Appro	ach	51	1.0	0.149	16.9	LOS C	0.4	3.1	0.57	0.73	49.6
All Ve	hicles	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.

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∇ Site: 102 [2029 Background AM]

New Site Giveway / Yield (Two-Way)

Move	ment Pe	rformance -	- Vehicle	es							
Mov	OD	Demand		Deg.	Average	Level of	95% Back		Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
Cauth	. Kommodu	veh/h	%	v/c	sec		veh	m		per veh	km/h
	: Kennedy	-									
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
Appro	ach	427	6.9	0.225	0.2	LOS A	0.0	0.1	0.00	0.01	79.4
East:	Fallon Roa	ad									
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
Appro	ach	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
Appro	ach	340	10.1	0.168	0.8	LOS A	0.1	0.5	0.03	0.06	77.2
West:	Warril Driv	ve									
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
Appro	ach	55	3.2	0.055	10.5	LOS B	0.2	1.4	0.50	0.69	53.9
All Ve	hicles	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.

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Organisation: CARDNO (QLD) PTY LTD | Processed: Wednesday, 17 January 2018 2:06:31 PM Project: G:\QTT17026 - Kuranda Equestrian TIA\5_PROJECT ANALYSIS\Analysis\Sidra\Rural Residential\Kennedy Hwy and Warril Dr Intersn RURAL RES DESKTOP VALUES.sip7

∇ Site: 102 [2029 Background PM]

New Site Giveway / Yield (Two-Way)

Move	ement Pe	rformance ·	- Vehicle	es							
Mov	OD	Demand		Deg.	Average	Level of	95% Back		Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South	: Kennedy	veh/h	%	v/c	sec	_	veh	m		per veh	km/h
	,	,	4.0	0.004	7 5	100.4	0.0	0.4	0.40	0.57	50.4
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
Appro	bach	368	5.0	0.182	0.6	LOS A	0.1	0.5	0.02	0.04	77.9
East:	Fallon Roa	ad									
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
Appro	ach	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
Appro	ach	504	2.7	0.220	1.3	LOS A	0.2	1.2	0.05	0.10	75.2
West:	Warril Driv	ve									
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
Appro	ach	25	1.0	0.052	13.1	LOS B	0.2	1.1	0.53	0.70	52.2
All Ve	hicles	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.

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

New Site Giveway / Yield (Two-Way)

Move	ement Per	rformance ·	Vehicle	es							
Mov	OD	Demand		Deg.	Average	Level of	95% Back		Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South	: Kennedy	veh/h	%	v/c	sec		veh	m		per veh	km/h
	2	,	1.0	0.007	7 4	100.4	0.0	0.0	0.44	0.57	50.0
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
Appro	ach	434	6.8	0.225	0.3	LOS A	0.0	0.2	0.01	0.02	79.0
East:	Fallon Roa	ad									
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
Appro	ach	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
Appro	ach	349	9.9	0.164	1.2	LOS A	0.1	1.0	0.05	0.09	75.8
West:	Warril Driv	/e									
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
Appro	ach	111	4.4	0.170	12.5	LOS B	0.5	4.2	0.54	0.74	52.1
All Ve	hicles	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.

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

New Site Giveway / Yield (Two-Way)

Move	ement Per	formance	- Vehicle	es							
Mov	OD	Demand		Deg.	Average	Level of	95% Back		Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South	: Kennedy	veh/h	%	v/c	sec		veh	m		per veh	km/h
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
Appro	ach	382	4.9	0.182	0.8	LOS A	0.1	0.5	0.03	0.06	77.0
East:	Fallon Roa	ıd									
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
Appro	ach	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
Appro	ach	542	2.5	0.220	1.8	LOS A	0.3	2.1	0.07	0.14	73.6
West:	Warril Driv	/e									
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
Appro	ach	48	1.0	0.248	25.1	LOS D	0.8	5.8	0.73	0.86	44.5
All Ve	hicles	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.

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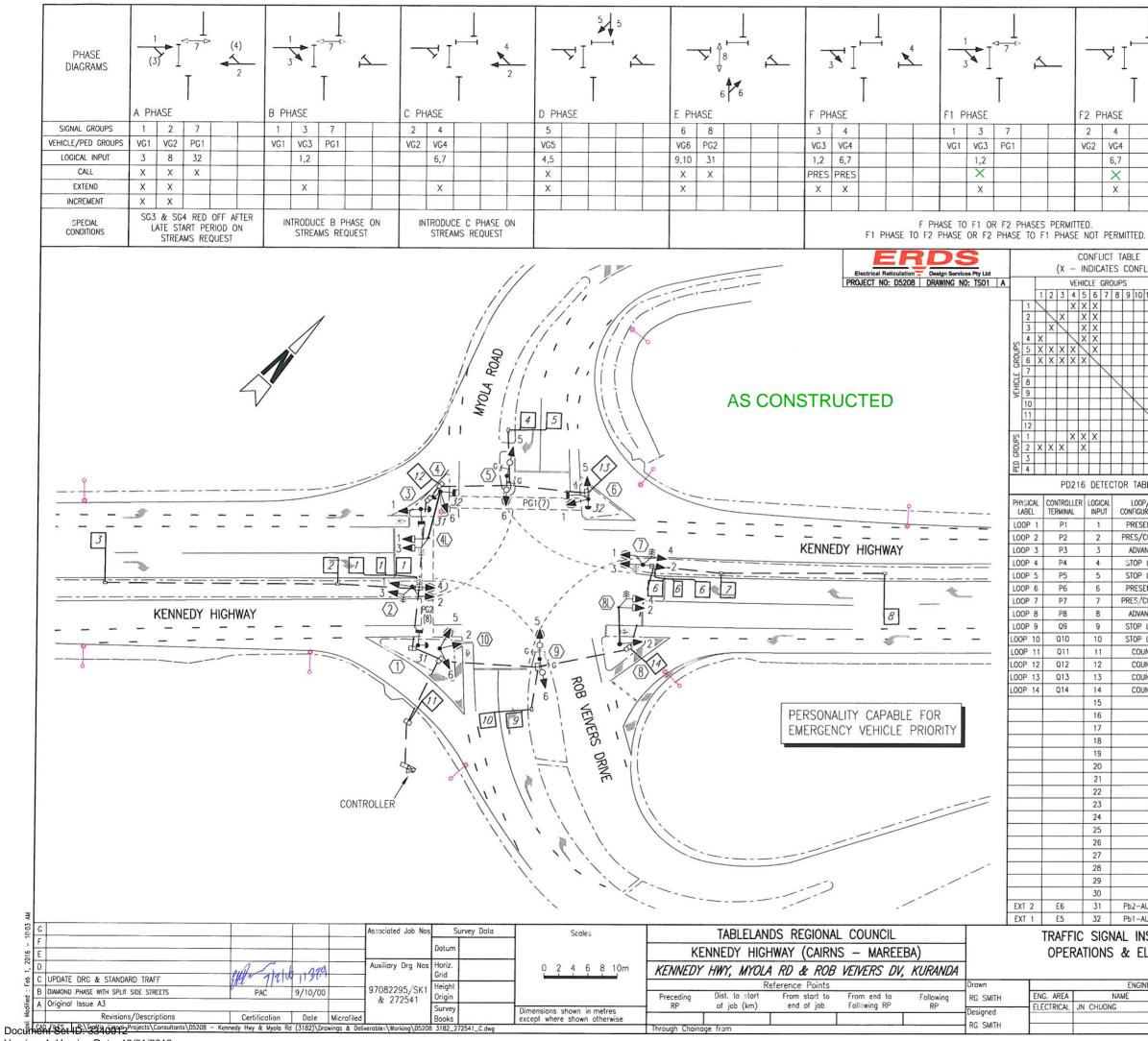
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Proposed Non Urban Residential Subdivision Kuranda

APPENDIX E PHASING PLAN (TMR)



Document Set ID: 3340012 Version: 1, Version Date: 19/01/2018



1					0	RUN NNECTI			RUN 2	?		RUN 3	
1		SUP		LER S			VECTS		CON	VECTS		CONN	
▲	4	SIGNAL GROUPS	FUNCTION	CONTROLLER	FINIAL			FINIAL		8	FINIAL	CUNIX	LUIS
	t condi						USED		CORF	S USED		CORES	LISEL
		F	RED	A5	1	1	1	1	1			CONLO	UJLL
		1	YELLOW	A4	2	2	2	2	2				
			GREEN	A3	3	3	3	3	3				
		1	RED	A8	4	4		4	4	4			
		2	YELLOW	A7	5	5		5	5	5			
		\vdash	GREEN RED	A6	6	6	13	6	6	6			
		3	YELLOW	A10		4 8	14	71 81			-		
			GREEN	A9		5 9	15	91			-	1.000	
			RED	A14		610		101		13			
).		4	YELLOW	A13	111	711		111	711	14			
·.			GREEN	A12	121	<mark>8</mark> 12		121	812	15			
			RED	B5	181	013		131	013				
LICT)		5	YELLOW	B4	141	114		141 151	114 215				_
	ED GROUPS	Н	GREEN	B3		215		1p1	215				
11 12 1	2 3 4 X	6	RED YELLOW	B8 B7	167 178			167 178	1 <mark>6</mark> 17				
	X		GREEN	B7 B6	178 180			1/8 189	18				
	X	Η	RED D/WALK	B11	19	19		129	ц,				
X		7	PED 1										_
			GREEN WALK	B9	20	20							
		П	RED D/WALK	B14	21	21							
		8	PED 2	_									
	+++	Ц	GREEN WALK	B12	22	22							
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ENCE	STD DRG												
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ANCE	39m												
LINE	6m			_									
LINE	6m	13											
ENCE	STD DRG	\vdash											
COUNT	STD DRG	14		_			-		-			-	_
ANCE	33m	14			-								
LINE	6m	\vdash										-	
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			NOTE		13	UNAV	AILABI	E.					
			NOTE		13	UNAV	AILABI	_E					
			NOTE				AILABI	E					
			NOTE T 2 DET 31	E6	13 25 24	25	AILABI	.E					
		EX		E6 E5	25		AILABI	E					
		EX	T 2 DET 31		25 24	25 24	AILAB	.E	-26	23			
		EX	T 2 DET 31 T 1 DET 32 230V ET COMMON	E5 A2 E3	25 24 25	25 24 25			-26- 6¥-	23 26			
		EX	T 2 DET 31 T 1 DET 32 230V	E5 A2	25 24 25 24 25 24 26	25 24 25 4 26	23	26 27 NL	GY BK				
		EX	T 2 DET 31 T 1 DET 32 230V ET COMMON NEUTRAL	E5 A2 E3 A1,B1 C1,D1	25 24 25 26 27	25 24 25 4 26 6Y BK	23 26	26- 27- NL	GY BK 19-22,	26			
		EX	T 2 DET 31 T 1 DET 32 230V ET COMMON	E5 A2 E3 A1,B1 C1,D1	25 24 25 26 27	25 24 25 4 26 6Y	23 26	26- 27- NL	GY BK	26			
		EX	T 2 DET 31 T 1 DET 32 230V ET COMMON NEUTRAL SPARE CORES TO EARTH	E5 A2 E3 A1,B1 C1,D1	25 24 25 26 27	25 24 25 4 26 6Y BK	23 26 BK	26- 27- NL	6Y BK 19-22, 24,25 GY 25	26 BK			
		EX	T 2 DET 31 T 1 DET 32 230V ET COMMON NEUTRAL SPARE CORES	E5 A2 E3 A1,B1 C1,D1	25 24 25 24 26 27 NL	25 24 25 4 26 6¥ BK 23 29	23 26	26- 27- NL	GY BK 19-22,	26			
		EX	T 2 DET 31 T 1 DET 32 230V ET COMMON NEUTRAL SPARE CORES TO EARTH	E5 A2 E3 A1,B1 C1,D1	25 24 25 26 27	25 24 25 4 26 6¥ BK 23 29	23 26 BK 19	26 27 NL	GY BK 19-22, 24,25 GY 29	26 BK	E: [ED	
		EX	T 2 DET 31 T 1 DET 32 230V ET COMMON NEUTRAL SPARE CORES TO EARTH CABLE SIZE	E5 A2 E3 A1,B1 C1,D1	25 24 25 24 27 NL	25 24 25 4 26 6Y BK 29	23 26 BK 19	26 27 NL	GY BK 19-22, 24,25 GY 29	26 BK 19	E: LL	ED	
AUDIO ISTALL	ATION	EX	T 2 DET 31 T 1 DET 32 230V ET COMMON NEUTRAL SPARE CORES TO EARTH CABLE SIZE	E5 A2 E3 A1,B1 C1,D1	25 24 25 26 27 NL PSC-	25 24 25 44 26 6Y BK 29 29 29 29 umber	23 26 BK 19	26 27 NL	6¥ BK 19-22, 24,25 Gy 25 29 LANTEF	26 BK 19 RN TYP			nd
ISTALL		EX	T 2 DET 31 T 1 DET 32 230V ET COMMON NEUTRAL SPARE CORES TO EARTH CABLE SIZE	E5 A2 E3 A1,B1 C1,D1	25 24 25 24 27 NL	25 24 25 44 26 6Y BK 29 29 29 29 umber	23 26 BK 19	26 27 NL	6¥ BK 19-22, 24,25 3725 29 29 LANTEF	26 BK 19 RN TYP	en	sla	
ISTALL		EX	T 2 DET 31 T 1 DET 32 230V ET COMMON NEUTRAL SPARE CORES TO EARTH CABLE SIZE	E5 A2 E3 A1,B1 C1,D1	25 24 25 26 27 NL PSC-	25 24 25 4 26 67 BK 29 29 29 29 29 29	23 26 BK	26 27 NL	6¥ BK 19-22, 24,25 3725 29 29 LANTEF	26 BK 19 RN TYP	en		
ISTALL		EX EX DI	T 2 DET 31 T 1 DET 32 230V ET COMMON NEUTRAL SPARE CORES TO EARTH CABLE SIZE NTROLLER TYPE	E5 A2 E3 A1,B1 C1,D1	25 24 25 26 27 NL Site N	25 24 25 4 26 67 BK 29 29 29 29 29 29	23 26 BK 19 CLIF	26 27 NL SE	6Y BK 19-22, 24,25 SY 29 LANTER	26 BK 19 RN TYP	en	sla	
ISTALL	CERTIFICAT		T 2 DET 31 T 1 DET 32 230V ET COMMON NEUTRAL SPARE CORES TO EARTH CABLE SIZE NTROLLER TYPE	E5 A2 E3 A1B1 C1,01 S	25 24 25 26 27 NL Site N Site N 31 MAP	25 24 25 426 67 BK 29 29 	23 26 BK 19 Join Con	26 27 NL 25 SE 27 NL	GY BK 19-22, 24,25 3Y 29 LANTER No.	26 BK 19 RN TYP QUE	en err	sla ime	ent
ISTALL	CERTIFICAT		T 2 DET 31 T 1 DET 32 230V ET COMMON NEUTRAL SPARE CORES TO EARTH CABLE SIZE NTROLLER TYPE (RPEQ)	E5 A2 E3 A1B1 C1,01 S	25. 24 25. 27 NL NL Site N Site N 31	25 24 25 426 67 BK 29 29 	23 26 BK 19 Job Con Dro	26 27 NL SE	67 BK 19-22 24.25 29 LANTEF No. No.	26 BK 19 RN TYP	en	sla 1me	

Proposed Non Urban Residential Subdivision Kuranda

APPENDIX F



Document Set ID: 3340012 Version: 1, Version Date: 19/01/2018

RURAL DESIGN CRITERIA

D1.27 GENERAL

 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.

Traffic Volume or Road Class	<100VPD _{5,6}	100 <u>-</u> 999	1000 - 2999 (or rural collector)	>3000 (or sub-arterial)	
Road Reserve (flat terrain ≤ 5%)	20m	20m	25m	or DMR	
Road Reserve ² (Undulating/Hilly > 5%)	25m	25m	30m		
Formation	8m	8m	10m	ROAI	
Pavement Width	5.5m	6.5m	8m	To be designed in accordance with AUSTROADS design guidelines.	
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	esignec	
Design Speed for Individual Elements (Minimum)	80kph	80kph	80kph	To be designed ir design guidelines.	

Table D1.4 Rural Road Elements ⁸

Notes:

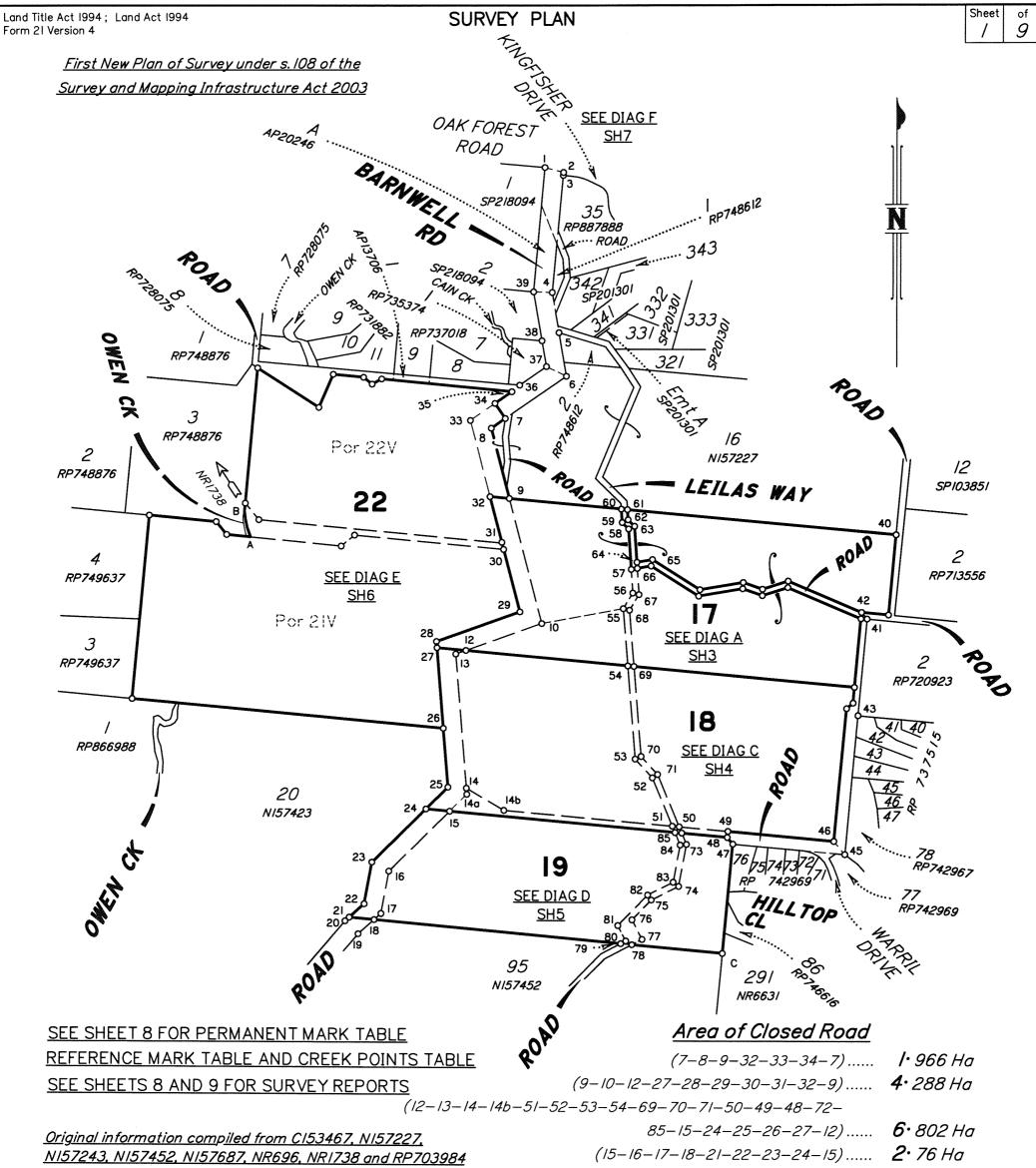
- 1. Cook Shire Council may consider relaxing the requirement to seal rural roads in some instances if there are no adverse impacts i.e. dust.
- 2. In undulating terrain this width shall be increased to enable services to be constructed on accessible flatter land on top and below batters.
- 3. Where 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 10,000m². For all Rural Residential areas where lot sizes are generally less than 10,000m² refer to the Urban road standards.



Attachment L

Road Closure Documentation

31



in the Department of Natural Resources and Mines.

<u>Peg placed at all new corners, unless</u> <u>otherwise stated.</u> (30-88-89-A-Ck-B-86-87-31-30)...... **3**·23 Ha (57-57a-67-68-69-54-55-56-57)...... **6678** m² (72-73-74-75-76-77-78-79-80-81-82-83-84-85-72)...... **1**·141 Ha



CARDNO (QLD) PTY LTD (ACN 051 074 992) hereby certify that the land comprised in this plan was surveyed by the corporation, by Shaun Nicolas McNAMARA, Registered Surveying Associate, under the supervision of Pierre Jerome VAN LANDEGHEM, Cadastral Surveyor, and by Pierre Jerome VAN LANDEGHEM, Cadastral Surveyor, for whose work the corporation accepts responsibility, and that the plan is accurate, that the said survey was performed in accordance with the Survey and Mapping Infrastructure Act 2003 and Surveyors Act 2003 and associated Regulations and Standards and that the said survey was completed on 24/08/2017.



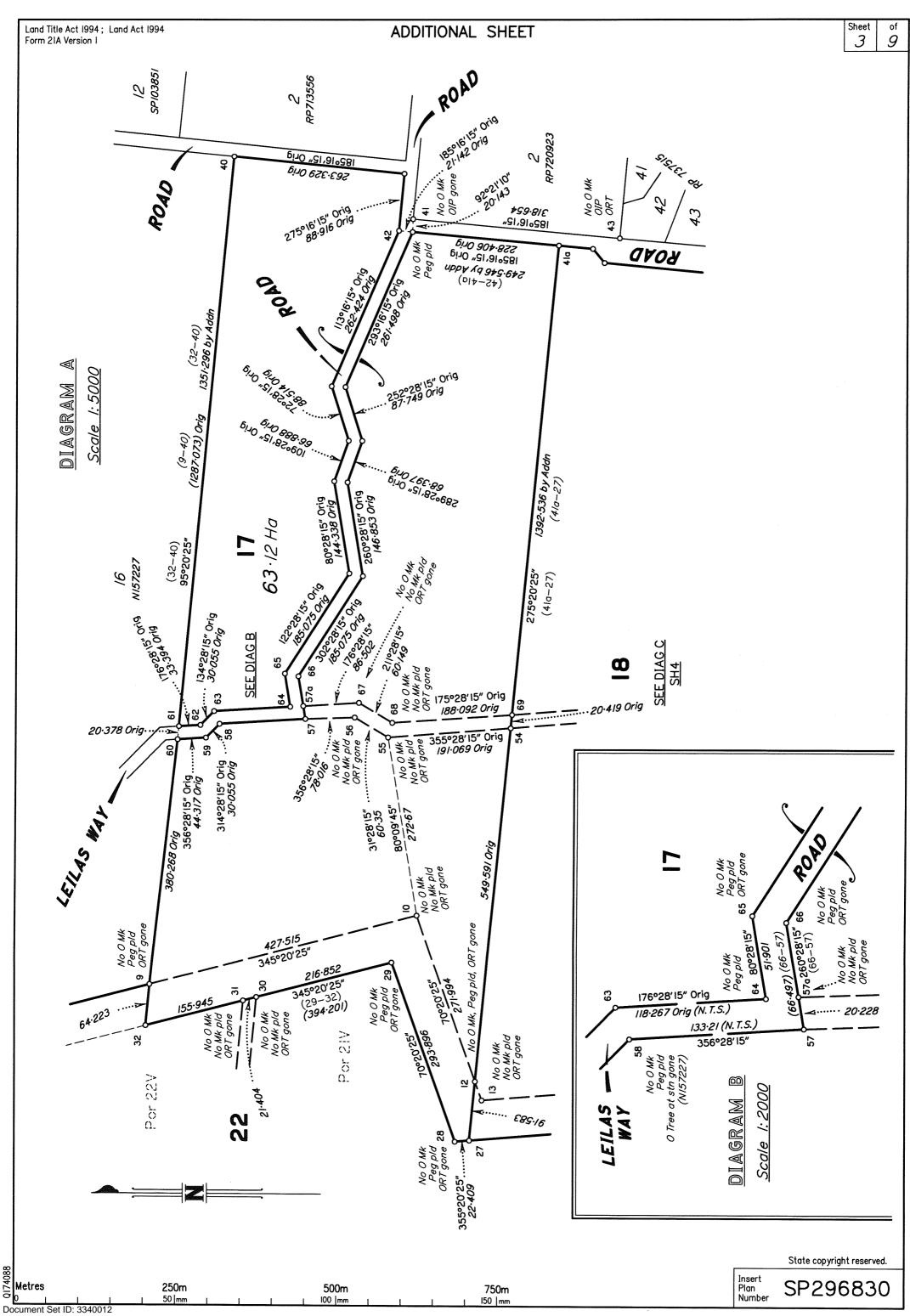
Cadastral Surveyor (Authorised Representative) Q174088

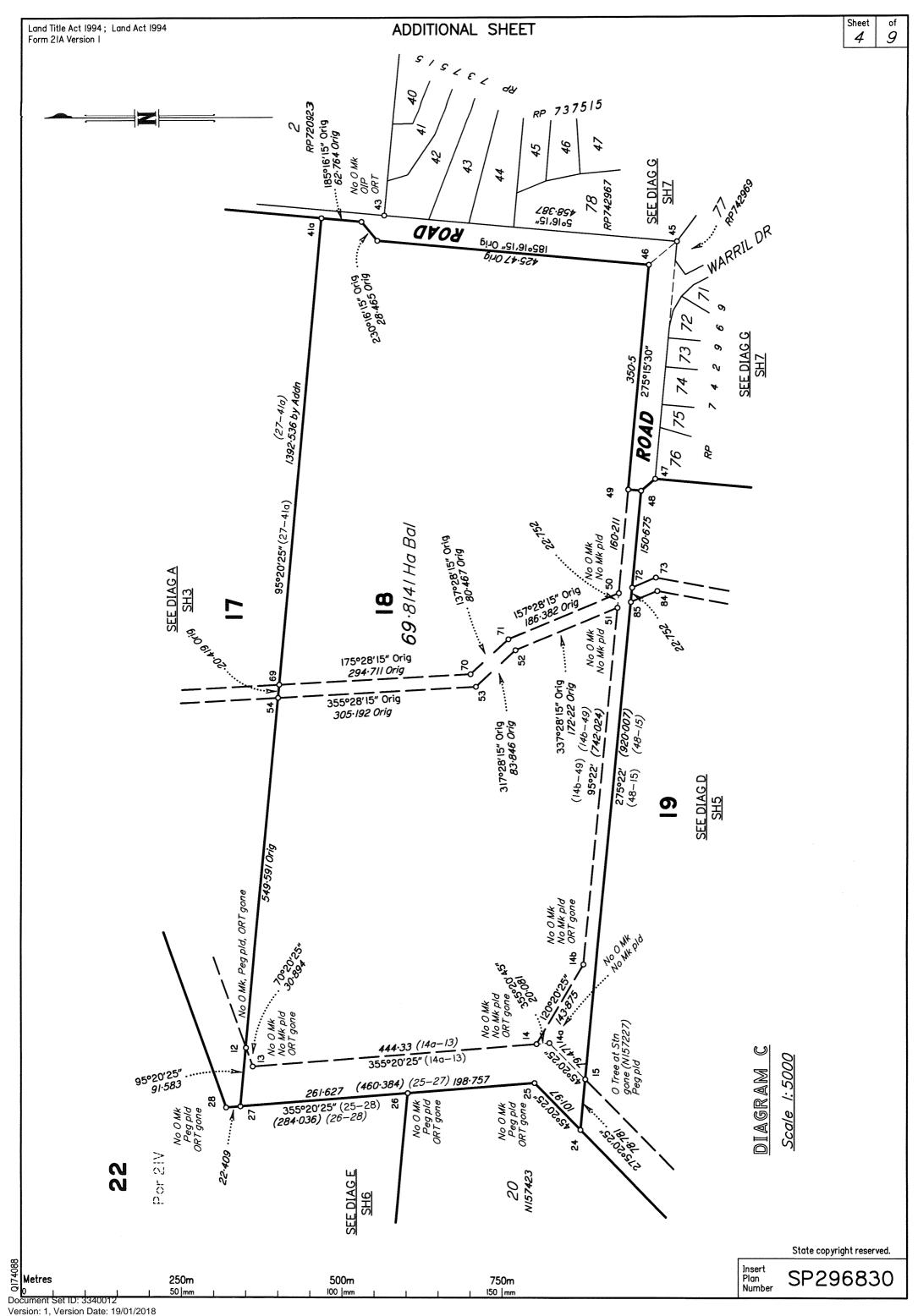
Metres 625m 1250m 1875m State copyright reserved. 50 mm 100 mm 150 mm PLAN OF Scale: 1:12500 Lots 17 to 19 and 22 Format: **STANDARD** Cancelling Lots 17, 18 and 22 on NI57227, Lot 19 on N157452, Lots I and 2 on RP703984, and part of USL, being closed road. LOCAL GOVERNMENT: MAREEBA S.C. LOCALITY: KURANDA 296830 Survey Records: Meridian: MGA Zone 55 vide CORS NO

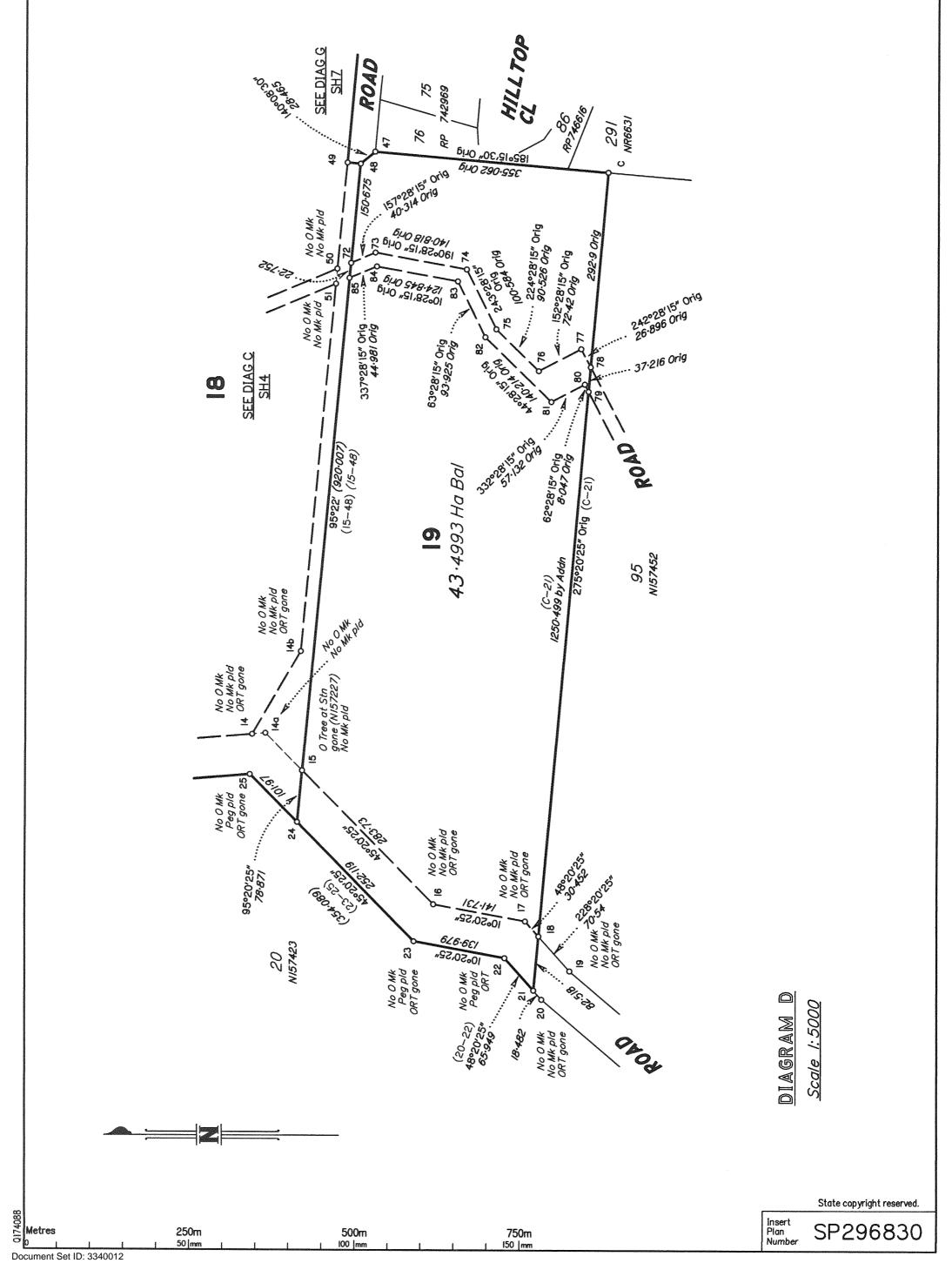
Document Set ID: 3340012 Version: 1, Version Date: 19/01/2018

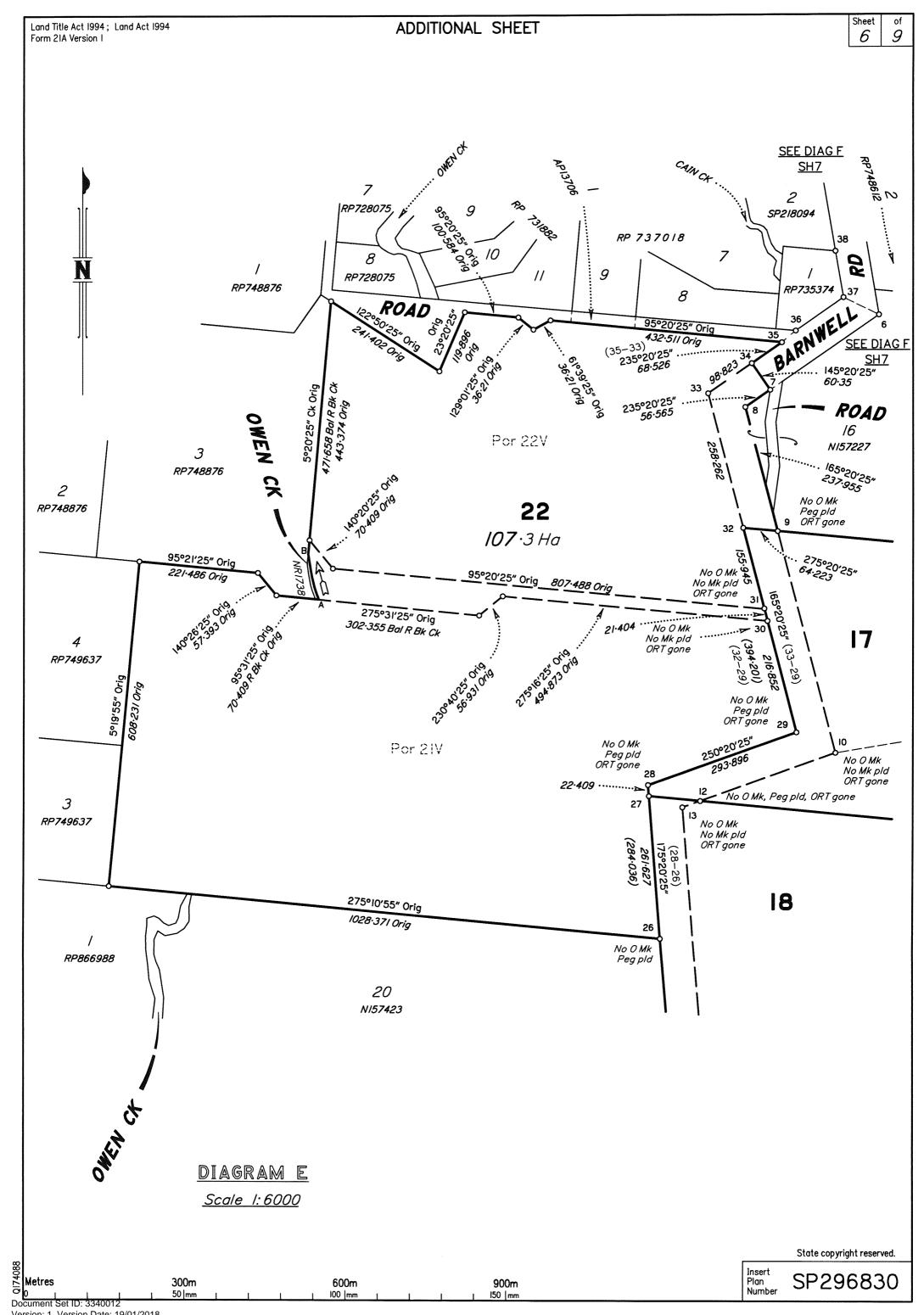
Date 20/09/2017

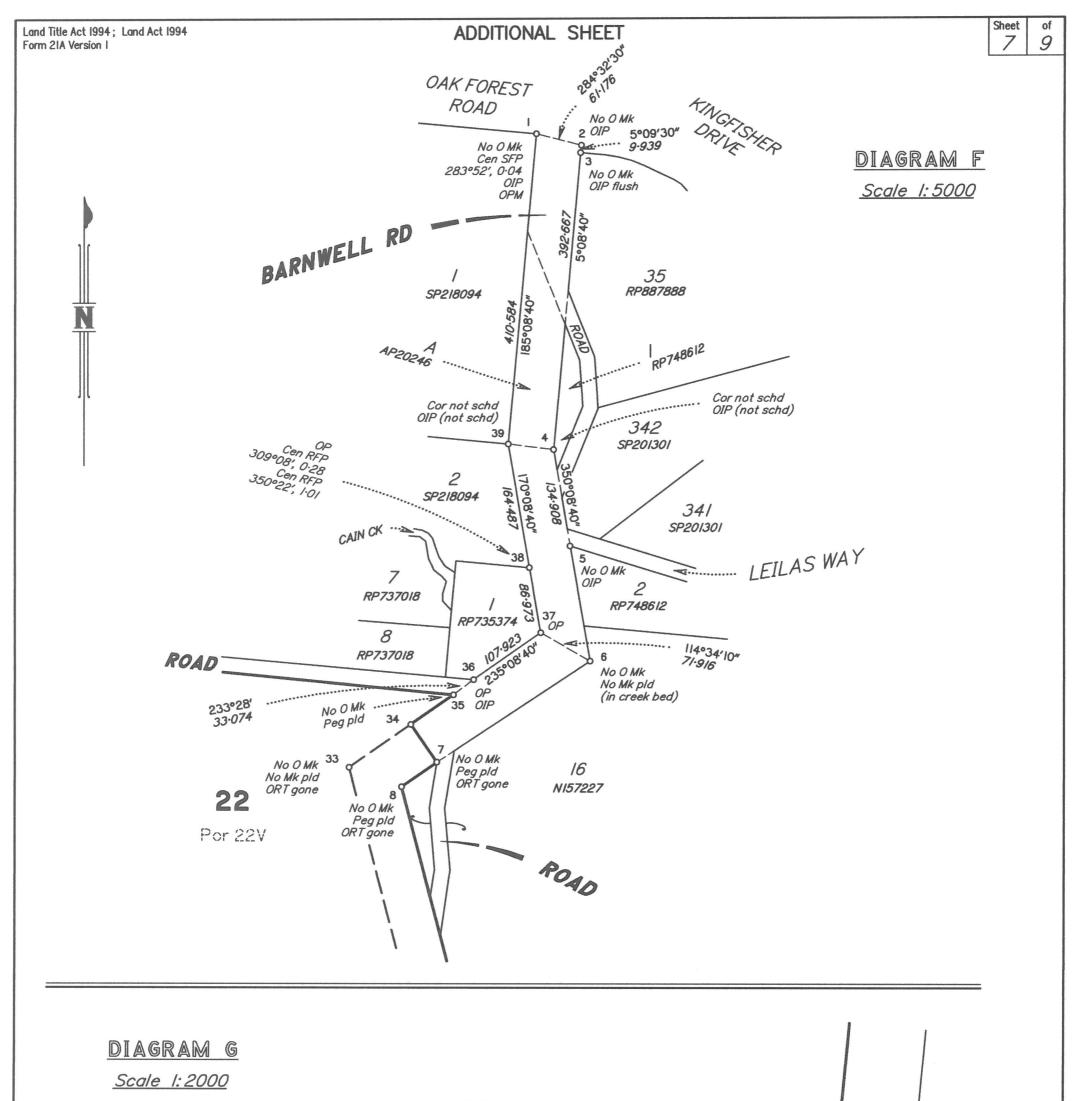
Land Title Act 1994; Land Act 1994 Form 21B Version 1		WARNING : Folded or Mutilated Plans will not be accepted. Plans may be rolled. Information may not be placed in the outer margins.					cepted. 2 9
(Dealing No.)	5. Lodged by						
		(Include addr	ess, phone	number, referer	nce, and Lodger Code	e)	
I. Certificate of Registered Owners or Lessees.		6.	Existing			Created	
I/We		Title Reference	Des	cription	New Lots	Road	Secondary Interest
(Names in full)		20125029 20349230 20376227 20397130 20122098 20246064	Lot 2 on Lot 17 c Lot 18 c Lot 19 c Lot 22 c	RP703984 RP703984 on NI57227 on NI57227 on NI57452 on NI57227 USL	22 22 17 18 19 22 17, 18, 19, 22		- - - - - -
* as Registered Owners of this land agree to this plan and a Land as shown hereon in accordance with Section 50 of the * as Lessees of this land agree to this plan.							
. as cosses of this tand dyree to this plan.					AGE ALLOC		
Signature of *Pagistered O		Morto			y Encumbered	Lots Partie	ally Encumbered
Signature of *Registered Owners *Lessees		71799	2137	17,	18, 19, 22		-
* Rule out whichever is inapplicable 2. Planning Body Approval. *							
<pre> hereby approves this plan in accordance with the : % </pre>							
70							
Dated this day of	unlicable approving legislation	17 18 19 22 Lots 7. Original 8. Passed 8	Grant Al		I certif * As for of the I onto a * Part encroa ZV IO. LOC Surv Lodo Pho	building shown on adjoining lots or ro t of the building sh aches onto adjoini tral Surveyor/Dire e words not required dgement Fees vey Deposit gement New Titles otocopy	al to determine, no part this plan encroaches bad; nown on this plan ing * lots and road ector * Date d \$\$ \$ \$
Dated this	plicable approving legislation. References : 2015/007092, Dept File: 007095-007092	18 19 22 Lots 7. Original	Grant Al & Endors	Por 18V Por 19V r 21V, Por 2 Orig location: sed :	I certif * As for of the I onto a * Part encroa ZV IO. LOC Surv Lodo Pho	fy that : ar as it is practica building shown on idjoining lots or ro t of the building sh aches onto adjoini tral Surveyor/Dire e words not required dgement Fees vey Deposit gement New Titles stocopy tage	al to determine, no part this plan encroaches bad; nown on this plan ing * lots and road ector * Date d s: \$ \$ \$
Dated this	Plicable approving legislation.	18 19 22 Lots 7. Original 8. Passed & By : CARD	Grant All & Endors NO (QLD)	Por 18V Por 19V r 21V, Por 2 Orig location: sed :	I certif * As for of the I onto a * Part encroa Cadast * delete IO. Loc Surv Lodg Pho Post TOT.	fy that : ar as it is practica building shown on idjoining lots or ro t of the building sho aches onto adjoini tral Surveyor/Dire e words not required dgement Fees vey Deposit gement New Titles stocopy tage AL	al to determine, no pain this plan encroaches bod; hown on this plan ing * lots and road ector * Date d \$\$ \$ \$ \$ \$





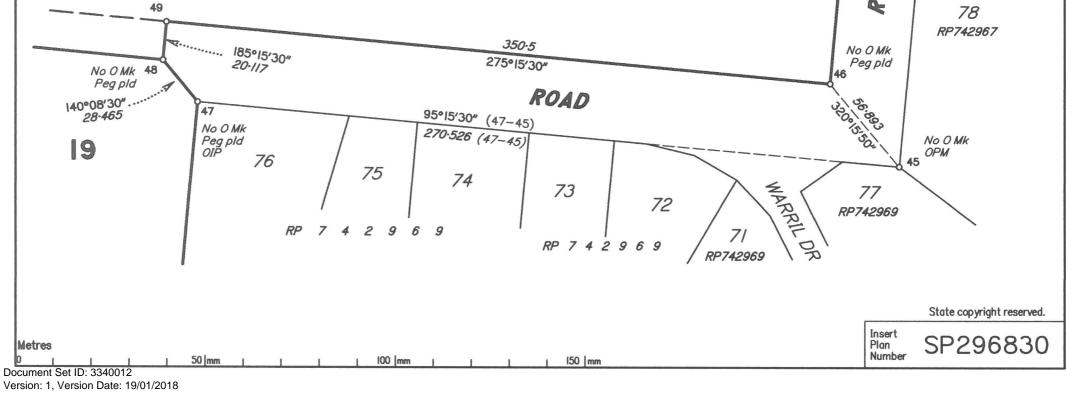






18

ROAD



Land Title Act 1994; Land Act 1994 Form 21A Version 1

ADDITIONAL SHEET

Sheet of 89

PERMANENT MARKS									
PM		ORIGIN BEARING DIST NO T		TYPE					
-OPM -OPM			4°58 275° :		16∙336 1∙0	58695 77807		TANDARD TANDARD	
	<i>ST</i> ₩ /	TO	REFE	O RP:	E MARI RIGIN 735374	BEARIN 95°08'4		DIST 15:86	diseases and the second s
	2 3 4 5	OIP OIP flush OIP (not schd) OIP		RPL RP	387888 387888 748612 748612	34/°20 275°32′5 350°08′5 350°08′5	50" 55" 55"	·167 ·0 ·096 0·943	
	7 8 9 10	Pin ORT gon ORT gon ORT gon	e	NI.	57227 57227 57227	302°39 278°50'2 319°20'2 123°20'2	?5″ ?5″	<i>\6.242</i> <i>6.236</i> <i>4.929</i> <i>6.337</i>	NAME AND DESCRIPTION OF THE OWNER
	12 13 14 16	ORT gon ORT gon ORT gon ORT gon	e e	N/. N/.	57227 57227 57227 57227	76°50'2 195°50'2 58°20'2 145°50'2	5″ 5″	2·3/3 3·52 6·337 3·62/	n management and a state of the
	17 18 19	ORT gon Pin ORT gon	e e	N/. N/.	57227 57227	313°20'2 100°23'2 150°20'2	5* 0* 5*	10·964 44·966 2·917	
	20 21 21 22	ORT gon Pin Pin ORT	e		57227 57227	56°50'2 258°38'3 66°21'20 27°20'2	30")"	2·6/5 9·032 26·068 3·3/9	
	22 23 23	Pin ORT gon Pin	e		57227	8°04' 51°20'23 173°08'4	5″ 0″	2·945 3·3/9 8·774	
	24 25 25 26	Pin ORT gon Pin			57227	56°10'55 312°50'2 158°22'3 267°50'2	5″ 5″	2·654 4·627 12·711 1·911	
	20 26	ORT gon Pin	e	N/.	51221	267*50*2 72*3111		1.911 3.881	

REFERENCE MARKS CONTD.						
STN	70	ORIGIN	BEARING	DIST		
27	Pin		129°28'	17.647		
28	ORTgone	NI57227	28°20'25"	1.811		
29	ORTgone	NI57227	244°50'25"	5.432		
29	Pin		229°53'20"	5.852		
30	ORT gone	NI57227	292°50'25"	4.325		
31	ORTgone	NI57227	285°20'25"	9.958		
32	Pin		53°12'05"	35.562		
33	ORTgone	NI57227	85°50'25"	4.325		
34	Pin		153°12'10″	<i>45.799</i>		
36	OIP	RP735374	95°08'40"	3.568		
37	Pin		98°54'45″	7.111		
38	OIP	RP735374	350°08'40"	1.0		
39	Pin		38°31'30"	11.555		
39	OIP not schd	RP735374	187°21′25″	15.97		
41	OIP gone	IS73359	5°16′15″	0.924		
43	OIP	RP737515	95°16′15″	1.0		
43	ORT	RP737515	4°56′15″	5.415		
45	Pin		340°49′40″	<i>16·762</i>		
47	OIP	RP733923	95°15'30″	1.1		
48	Pin		76°56'30″	28.756		
49	OIP (New Conn)	IS263967	342°54'	26.721		
55	ORT gone	C/53467	302°28′15″	<i>13·378</i>		
56	ORT gone	CI53467	293°/4'/5″	6.538		
57a	ORTgone	CI53467	145°50'25"	3.621		
57a	Pin		/59°43′35″	41.044		
58	Pin		27°11′35‴	12.441		
64	Pin		<i>332°08′45″</i>	30.749		
65	ORT gone	NR696	17°03′15″	5.874		
66	ORTgone	NR696	134°18'15"	2.494		
67	ORTgone	CI53467	31°28′15″	7.343		
68	ORTgone	C/53467	35°39′15″	<i>15•389</i>		
68	ORT gone	C/53467	35°39′15″	<i>15</i> •389		

TABLE A

	ORIG CREEK POINTS		
	BEARING	DIST	
A	339°55′ 350°44′	30·02 57·25	В

SURVEY REPORT - SP296830

The purpose of this survey is to enable the closure of various road areas and the inclusion of those areas in adjoining freehold lands.

The base surveys are very old with the majority of subject surveys having been done prior to the introduction of 5 chain steel bands for measurement. Coupled with the extremely rough and broken nature of the country and the dense vine scrub that existed at the time of the original surveys the quality of the original surveys is generally poor. This observation is born out on subsequent surveys from 1899 onwards where differences in measured distances are common.

HISTORY OF THE SITE

The original survey NI57227 was done in 1885 by surveyor Rankin following on from his preliminary road traverse on CI53138 earlier in the same year.

Subsequently an additional road was surveyed through Pors 15v — 18v, 19v and 95v by surveyor Fraser on C153467 in 1887. His survey was the subject of an examination survey by Staff surveyor EC Hill in 1899.

Portion 19v was subdivided by surveyor Behan on N157434 in 1890 and again by the same surveyor in the same year on N157452. It is interesting to note the degree of disagreement surveyor Behan reveals against his earlier measurements.

Plan CI53267 by surveyor Behan in 1890 opens road along the northern boundary of Por 22v. It appears that plan NI57227 was adjusted to enable the issue of a new deed.

Por 21v was subdivided on RP703984 in 1898 with a further survey done by Staff surveyor Hill on N157687 in 1900 that revealed significant differences with RP703984. The RP was subsequently amended in the Titles Office and the deed corrected to agree with measurements shown on N157687. Differences in the angle off Barnwell Rd at the SE corner of Sub 1 on N157687 compared to N157227 agree within 1'30" of the misclose recorded by surveyor Rankin when he closed onto Barnwell Rd at that location.

A road diversion through Por 16v was surveyed by surveyor Peppercorn on NR457 in 1909.

In 1911 surveyor Cobon surveyed a connecting road in Por 17v on NR696.

A partial road closure of road adjoining the W boundary of Por 22v was done on NR1738 by surveyor Cadell in 1928. This adopts the L.Bk of Owen Ck to partially define the extent of the road closure. This plan has an effect on the area of road to be closed and added to Lot 22 on N157227 in this current action.

Overall, surveys done prior to 1899 are assumed to have been done using a Gunters chain. The examination survey done by EC Hill over C153467 may have used a 5 chain band however this cannot be verified.

A search of survey plans in the area does not reveal any modern surveys until NR5425 by surveyor Dennis in 1970.

100 mm

Significant modern surveys have been done in adjoining Pors 23v — 27v and 79v to the west of the site. Further modern surveys have been done in Pors 14v and 15v to the north as well as in Pors1v — 5v to the east. N157227 — 1885

This survey by Surveyor Rankin was through very difficult terrain. Perusal of his field notes reveal miscloses on his own work ranging from - 5' to + 11' where he intersects his E-W portion boundaries onto his central road survey (Barnwell Rd).

<u> CI53467 - 1887</u>

This survey commences on the southern boundary of Rankin's Por 14v on N157227 and surveys a new road southerly through the subject Portions. The survey reveals the following discrepancies in the reinstated portion boundaries when compared to N157227;

- S. boundary of Por I6v + 4'
- S. boundary of Por 17v + 3'
- N. boundary of Por I9v 9'
- S. boundary of Por 19v 17'

<u> RP703984 - 1898</u>

This survey subdivides Por 21v and agrees with dimensions on N157227.

50 mm

<u> NI57687 - 1900</u>

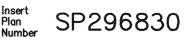
This survey by Staff surveyor Hill is a resurvey of RP703984 and shows significant differences. Connections onto Barnwell Rd show differences to within a few minutes of the misclosures observed by surveyor Rankin on his NI57227.

<u>NR457</u>

This survey opens new road in Pors 15v and 16v. Original marks from N157227 are located at Stations 1, 2, 7 and 8 on NR457. Shortage of 0.262 is observed in line 1-2 and shortage of 0.402 is observed in line 7-8 when compared to N157227.

150 mm

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Document Set ID: 3340012

ADDITIONAL SHEET

<u>NR696</u>

This survey opens additional road in Por 17v. Compared to N157227 the following differences are observed;

Difference of I' in the observed angle at Stn C

• Difference of + 3' in the southern boundary of Por I7v (but agrees with CI53467)

• Difference of -- 12' in the Eastern boundary of Por 17v

<u>NRI738</u>

This survey partially closes road adjoining Portions 21v and 22v. Reinstatement of part of the northern boundaries of Por 21v agrees with N157687. The western boundary of Por 22v is in the original angular relationship to the southern boundary of Subs 1 & 2 on N157687 but its relationship with the S boundary of Por 22v has not been proven.

<u>NR1856 - 1930</u>

This survey reinstates the northern end of the W boundary of Por 24v based on old boundary fencing.

<u>NR5744 - 1972</u>

This survey fixes the W boundary of Por 25v based on original survey marks.

<u> RP728075 – 1973</u>

This plan by surveyor Balderson utilises evidence from previous plans NR5744 and NR1856 to reinstate the W boundary of Por 24v. This reinstatement accepts an excess of 2.05m in the length of the eastern boundary of Por 25v when compared with original on N157243. It then goes on to allow the original balance distance south of the SE corner of Por 25v to fix the SW corner of 24v meaning the western boundary of Por 24v contains an excess of 2.05m

RP728075 is a significant plan in that it also reinstates the northern boundary of Portions 23v and 24v by discovery of an ORT stump at Stn16a (Stn 16 on N157227 – original NW corner of Por 15v on N157227). An investigation survey by Staff surveyor Myers in 1972 (Plan PL/D.288) relates this survey to marks placed on NR5425. There is considerable doubt on the reinstatement of the N boundary of Por 15v as shown on NR5425 due to the discovery of the ORT stump on RP728075 which fixes beyond doubt the NW corner of Por 15v.

<u> RP728461 – 1973</u>

This plan follows on from RP728075 and places marks to fix the NE corner of Por 23v. The reinstatement adopted by surveyor Balderson is questionable in that it accepts deed distance along the northern boundary of Por 23v and leaves an excess of 1.66m in the width of Barnwell Rd. In my opinion a much better solution would have been to accept the excess in Por 23v and leave deed width in Barnwell Rd.

<u> RP735374 - 1980</u>

This survey accepts the marks placed on RP728461 to fix the NE corner of Por 23v, leaving significant excess in the width of Barnwell Rd. It then proceeds to reinstate the eastern boundaries of Por 23v using deed dimensions vide NI57227 without locating any original marks on these boundaries. I believe the eastern boundaries of Por 23v have been reinstated 1.66m too far to the west as a consequence of leaving the excess in the width of Barnwell Rd. Distances 4-5 and 5-7 do not agree with original but this is not unexpected given the adopted reinstatement of previous surveys.

Distances 4–5 and 5–7 do not agree with original but this is not unexpected given the adopted reinstatement of previous surveys.

BARNWELL ROAD

Because of extensive land clearing on the site no original reference trees were located until searching Stn 31a on N157227 (Stn 22 on SP296830) where the original scrub tree was located.

On RP728075 the survey of the northern boundaries of Pors 23 and 24 locates the stump of the ORT at Stn 16a (Stn 16 on N157227) and reveals an excess of 1.66m in those northern boundaries.

On RP728461 surveyor Balderson elects to adopt deed distance in the northern boundary to fix his Stn 4, thereby leaving all of the excess in the road width 4-4a thereon.

In the absence of original marks southerly along Barnwell Rd, subsequent survey RP735374 adopts deed bearings and distances south of Stn 2 on RP735374 to fix the western alignment of Barnwell Rd. It appears these boundaries should have been positioned 1.66m further easterly to agree with the ORT stump at Stn 16a on RP728075.

The problem in the mis—location of the western boundaries of Barnwell Rd is exacerbated on later surveys RP748612, RP887888 et al because these surveys allow deed width 60.35m in Barnwell Rd off RP735374 to fix the eastern side. It is believed these boundaries are also posiitioned 1.66m too far west.

The reinstatement of Barnwell Rd on this plan is a proportional distribution of the calculated connection from Stn 31a on N157227 to Stn 16 on N157227(as fixed by connection from ORT stump shown at Stn 16a on RP728075). The difference observed was + 11' 45" when compared with reinstatement of the N boundary of Pors 23v and 24v on RP728075 and the difference in distance was + 9.448m in an overall distance of 2513m.

Whilst the meridian difference seems excessive, perusal of the field notes for NI57227 reveals a misclose of II' in the southern boundary of Por I9v.

The observed difference in distance is in line with what may be expected in a survey of that vintage undertaken in such rough and broken terrain.

All the reinstated alignments of Barnwell Rd from Stn 20 to Stn 35 on SP296830 are based on the II' 45" difference. Connection 35—36 is calculated. Stn 36 is maintained in its position as marked on earlier surveys that subdivide original portions 23 and 24.

Stations 7 and 8 maintain deed road width off line 33—35. Distance 7—8 is deed vide NR457. Future surveys in Lot 16 on N157227 will determine how line 7—6 will be reinstated.

WARRIL DRIVE

Reinstatement of the northern end of Warril Dve was done on by surveyor Dennis on RP733923 in 1978. IS73359 by surveyor MacIsaac in 1979 adopted the fix of the northern boundaries of Por Iv on this plan and proceeded to fix the W boundary of Pors 2v and 3v.

This information has been used to reinstate the E boundaries of Pors I7v and I8v and to fix Stn 42.

Information shown on NR696 has been used to position the road boundaries west of Stn 42 and the resultant intersection on the existing road surveyed on CI53467. The meridian adopted was determined using the bearing of the eastern boundary of Por 17v shown on NR696. NR696 is considered the more authoritative plan due to the superior technology used compared to NI57227.

NORTHERN BOUNDARY OF POR 19v

The western end of this boundary is fixed by the proportional reinstatement of Barnwell Rd. The eastern end is fixed by reinstating Stn 58 on NI57227 (new Stn 48) at deed based on the reinstated line 47-45. Resultant boundary I5-48 shows significant shortage of 9.993m compared to NI57452.

The bearing however is within I'45" of that expected from the reinstatement of Barnwell Rd. Stn 49 is fixed at deed road width from Stn 48.

Stn 14 in Barnwell Rd is fixed from the proportional reinstatement. Stn 14b is fixed by calculating two missing distances maintaining deed angle at Stn 14 and a line parallel to 48–15 from Stn 49. Resultant distance 14–14b agrees closely with original and the expected shortage shows up in line 14b–49. There is a bend in the southern boundary of Por 18v introduced at Stn 49 however as this boundary disappears, this is not thought to be a problem.

CONCLUSION

The resultant reinstatement is based on original marks found mostly by other surveyors and adopted in this survey. Sufficient reinstatement has been done to enable the extent of road closures in Barnwell Rd to be determined.

AMBULATORY BOUNDARY REPORT

50 |mm

An area of Road separating Lot 22 on NI57227 and Lot 2 on RP703984 is to be closed and incorporated into an amalgamation of the above Lots.

100 mm

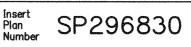
The western end of this road area is bounded in part by the L.Bk of Owen Ck as shown on NR1738. Under current DNRM policies, that area of closed road containing the bed and banks of Owen Ck must be excluded from the area to be included in adjoining Lot 22, thereby making the right bank of Owen Ck the western extent of that road closure area.

The old vegetation in this area is undisturbed and as a result the creek location has not moved. Original Creek points representing the location of the R.Bank have been calculated using the field notes from NI57687 and NR1738 and are shown in tabular form hereon.

150 mm

The location of the Boundary at law on SP296830 is consistent with its location depicted on NI57687 and NRI738. This has been confirmed by site inspection.

As this plan does not create any new right line boundaries that intersect with the non-tidal watercourse boundary, it complies with s. 107(3)(a). State copyright reserved.



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