Transport Impact Assessment

Residential Development

50522014

Prepared for
Sacco Building Group

30 May 2023

Cardno
now
Stantec

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07	27/03/2023	Driveway Accesses	TM	JS
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1 Introduction

Cardno now Stantec was engaged by SACCO Building Group to undertake a local traffic network assessment for a Planning Proposal (PP) at 56 Hilldowns Road on lots DP 529579 and DP 756727, Kalkite. This assessment will seek to identify the broader network impacts of the proposed future development across the surrounding traffic network.

1.1 Scope of services

1.1.1 Literature review and data gathering

Cardno have reviewed information available for the project. This included RTA Guide to Traffic Generating Developments (October 2002) and the RMS Guide to Traffic Generating Developments Updated Traffic Surveys (August 2013).

1.1.2 Traffic modelling

Six (6) intersections within proximity to the development will be investigated in order to determine the flow on affects from this development. Using SIDRA 9 traffic modelling software, Cardno undertook individual modelling of the following sign-controlled intersections along Kalkite Road (shown in **Table 1-1**, and **Figure 1-1**).

Table 1-1 Nominated Intersections

No.	Intersection
1.	Lotus Street / Kalkite Road
2.	Gardenia Court / Kalkite Road
3.	Section A Proposed Access / Kalkite Road
4.	Section B Proposed Access / Kalkite Road
5.	Section C Proposed Access / Kalkite Road

1.1.3 Scenario modelling

Cardno modelled the aforementioned intersections in both the AM and PM Peak hours for the future 2031 'With Development' Scenario (New development).

A total of **5 individual models with 2 varying scenarios** each have been created for this exercise. The modelling is aimed to demonstrate the projected impact of development on the external road network.

In addition to the above a **network model (with 2 varying scenarios)** shall also be produced showing the individual intersections linked to ensure delays are distributed throughout the network.

1.1.4 Reporting

Results and findings from the investigations have been compiled and summarised within this report.

Figure 1-1 Locality Plan of the Traffic Network

1.2 Objectives

The purpose of this report is to assess the current operation of the existing local Kalkite Road traffic network and to determine the net effect that the proposed Kalkite residential development will have on the road network.

Cardno have undertaken SIDRA traffic modelling for the local network which includes the traffic generated from existing township dwellings and the proposed Kalkite residential development. The purpose is to achieve in-principal support from Snowy Monaro Regional Council confirming that the proposed development will not have significant detrimental impact on the external road network and the assist in the preparation of the proposed planning proposal.

2 Standards / Review of Literature

The following Standards were used in the preparation of this report:

Table 2-1 Relevant Standards

Standard	Authority	Year
Guide to Traffic Generating Developments (Version 2.2)	Roads and Traffic Authority NSW (now TfNSW)	2002
Guide to Traffic Generating Developments Updated Traffic Surveys	NSW Transport Roads and Maritime Services (now TfNSW)	2013
Snowy River Development Control Plan (Chapter C – General Planning Consideration)	Snowy Monaro Regional Council	2013
Development Design Specification - D1 Geometric Road Design	Snowy Monaro Regional Council	2000

3 Proposed Development

The proposed Kalkite residential development is located at upon lots DP 529579 and DP 756727, Kalkite.

Lot DP529579 is located directly south of the existing Kalkite Township and is bound by Lake Jindabyne to the west and Kalkite Road to the east. It is proposed that this lot, described within this report as Section A, will contain a commercial centre and single residential housing.

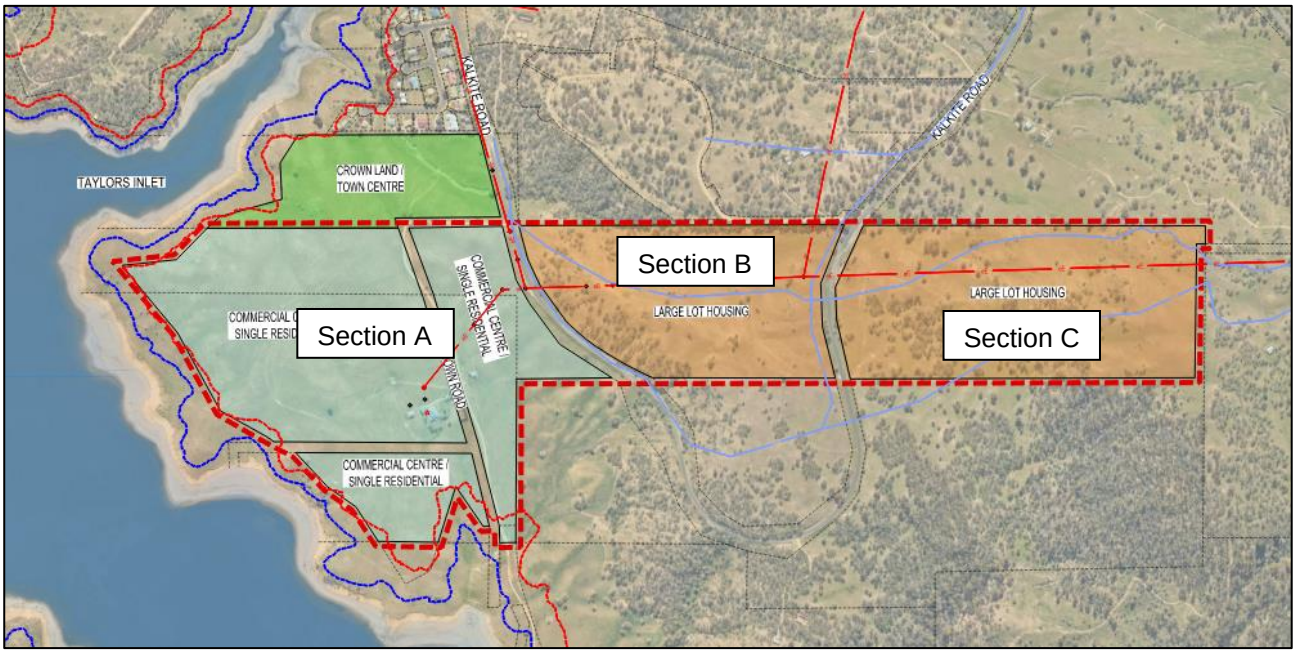
Lot DP 756727 is adjacent to Lot DP529579 and is proposed to house large lot dwellings. For the sake of this report, this lot has been broken into sections B and C and are defined by the proposed access points. The central sections of Lot DP 756727 (Sections B and C) are bound by Kalkite Road to the east and west

The proposed development yields for each section are listed below:

- Section A – 220 Single Residential Lots and 1 Commercial 'Community Hub' Lot;
- Section B – 4 Large Residential Lots;
- Section C – 4 Large Residential Lots; and

Refer to **Figure 3-1** for further details.

Figure 3-1 Proposed Kalkite Residential Subdivision draft masterplan



4 Existing Road Network

4.1.1 Kalkite Road

Kalkite Road is classified as a local road and provides a critical link between the Kalkite Township and Kosciuszko Road. This road provides the primary connection between Kalkite and Jindabyne / Cooma. The Hilldowns Road / Kalkite Road T-intersection experiences major vehicle flows of predominately through movements in a north-south direction. This road has a speed limit of 80km/h.

Figure 4-1 Hilldowns Road / / Kalkite Road Intersection

4.1.2 Lotus Street

Lotus Street is classified as a local road. This road provides the local connection between Kalkite Road and residential locality. Lotus Street has a speed limit of 50km/h. The street is single carriage with informal parking available along both shoulders of the road. Continuous flow is granted to Kalkite Road, with the east approach (Lotus Street) operating under give way control

Figure 4-2 Lotus Street / Kalkite Road Intersection

4.1.3 Gardenia Court

Gardenia Court is classified as a local road and operates as a 50km/h single carriage roadway with informal street parking available along both sides of the road shoulders. Gardenia Court runs perpendicular to Kalkite Road, where both meet in a three-way t-intersection. Continuous flow is granted to Kalkite Road, with the east approach (Gardenia Court) operating under give way control.

Figure 4-3 Gardenia Court / Kalkite Road Intersection

4.1.4 Eucumbene Road

Eucumbene Road is classified as a local road and operates as a single carriage roadway connecting the town of Eucumbene to Kosciuszko Road. Kalkite Road meets Eucumbene Road Both streets meet in a four-way cross-intersection, with continuous flow granted to Eucumbene Road. Both east and west approaches of Kalkite Road and Hilltop Road operate under give way sign control.

Figure 4-4 Eucumbene Road / Kalkite Road / Hilltop Road Intersection

In accordance with the Transport for NSW, NSW Road Network Classifications are displayed in **Figure 4-5** below. Of the local roads analysed within this report Kalkite Road has a speed limit of 80km/h to the south of the township and a 50 km/h speed limit upon entering the township before the Gardenia Court / Kalkite Road Intersection. Both Gardenia Court and Lotus Street have a speed limit of 50km/h.

Figure 4-5 TfNSW Road Classification Map

4.2 Road Safety

Cardno have utilised crash history Data from the NSW Centre for Road Safety Interactive crash statistics to review the local and extended traffic network in the context of road safety. Overall, there have been two crashes in the assessment area since 2015. Notable incidents are listed below:

> There have been two crashes along Kalkite Road in the past five years, one of these crashes resulted in moderate injury and occurred at the Kalkite Road / Eucumbene Road cross intersection. The other crash occurred along Kalkite road and resulted in a tow away without injury.

All crash locations along Kalkite Road are listed in **Figure 4-6** on the following page with additional details listed in **Table 4-1**.

The development has been reviewed in the context of road safety and possible issues arising from the development. The review considered existing transport infrastructure surrounding the site, as well as the proposed interfaces of new connections to be constructed.

Based on the review of available information, the proposed development is unlikely to have an adverse impact on the safety and operability of the road network surrounding the site.

Figure 4-6 Road Crash and Casualty Statistics History Map (Source: Transport for NSW Centre for Road Safety)

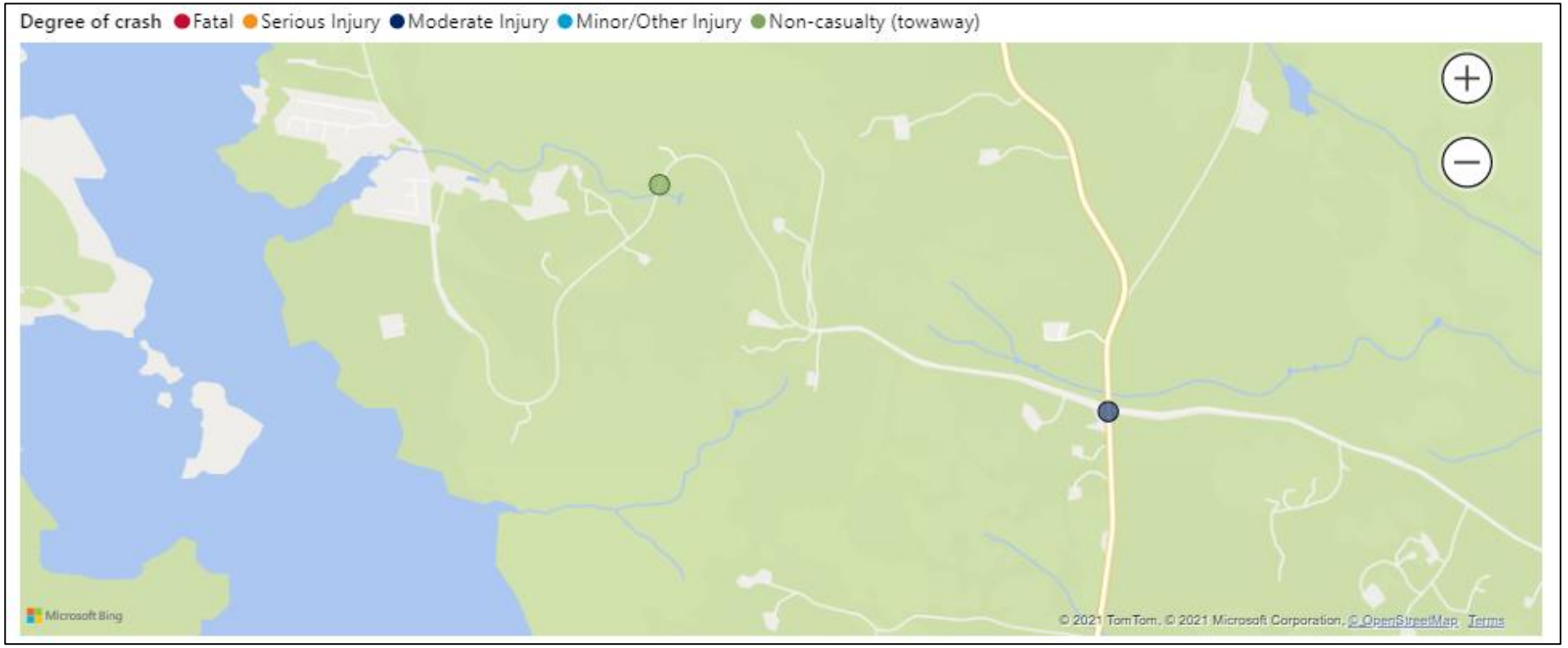


Table 4-1 Road Crash and Casualty Statistics History Table (Source: Transport for NSW Centre for Road Safety)

Reporting	Crash ID	Degree of crash	RUM - code	RUM-description	Type of location	Natural lighting	Longitude	Latitude	No. Killed	No. injured
2016	1114894	Moderate Injury	81	Off left / right bend => obj	X-intersection	Dusk	148.68	-36.35	0	1
2018	1174382	Non-casualty (tow away)	86	Off left / left bend	2-way undivided	Daylight	148.65	-36.34	0	0

5 Traffic Engineering Assessment

5.1 Traffic Generation

The total generated trips associated with the proposed development was calculated with reference to the *RMS Guide to Traffic Generating Developments" (Oct 2002)* and the *Development Design Specification - D1 Geometric Road Design (SMRC, 2000)*. This guide provides daily vehicle trip rates single dwelling residential housing and commercial retail.

For single dwelling residential dwellings, both AM and PM peak hour trips rates are 1.0 trips per dwelling. A directional split in/out of 26/74 for the AM, where 26% enter the development and 74% exit during the peak hour period. For the PM peak hour, a reduced direction split of 64/36 was assumed, where 64% access the proposed development and 36% exit during this period.

Due to the preliminary nature of the proposed sub division, it has been assumed that an upper limit of 800m^2 GFA will be allocated for commercial retail as part of the development. A peak hourly trip generation rate of 12.5 vehicles per 100m^2 GFA was utilised for this analysis. This equates to 0.125 trips per square metre of commercial GFA

Of the 220 residential lots proposed within Section A it is assumed that there will be a level of dual occupancy developments proposed. However, due to the preliminary nature of this development, the number of dual occupancy development is unknown. Therefore, Cardno have assumed an upper limit of 50% of the proposed lots will be utilised for a dual occupancy development. This equates to a total of 330 residential dwellings in Section A which will be adopted as part of this assessment.

Table 5-1 below summarises the traffic generation for the development.

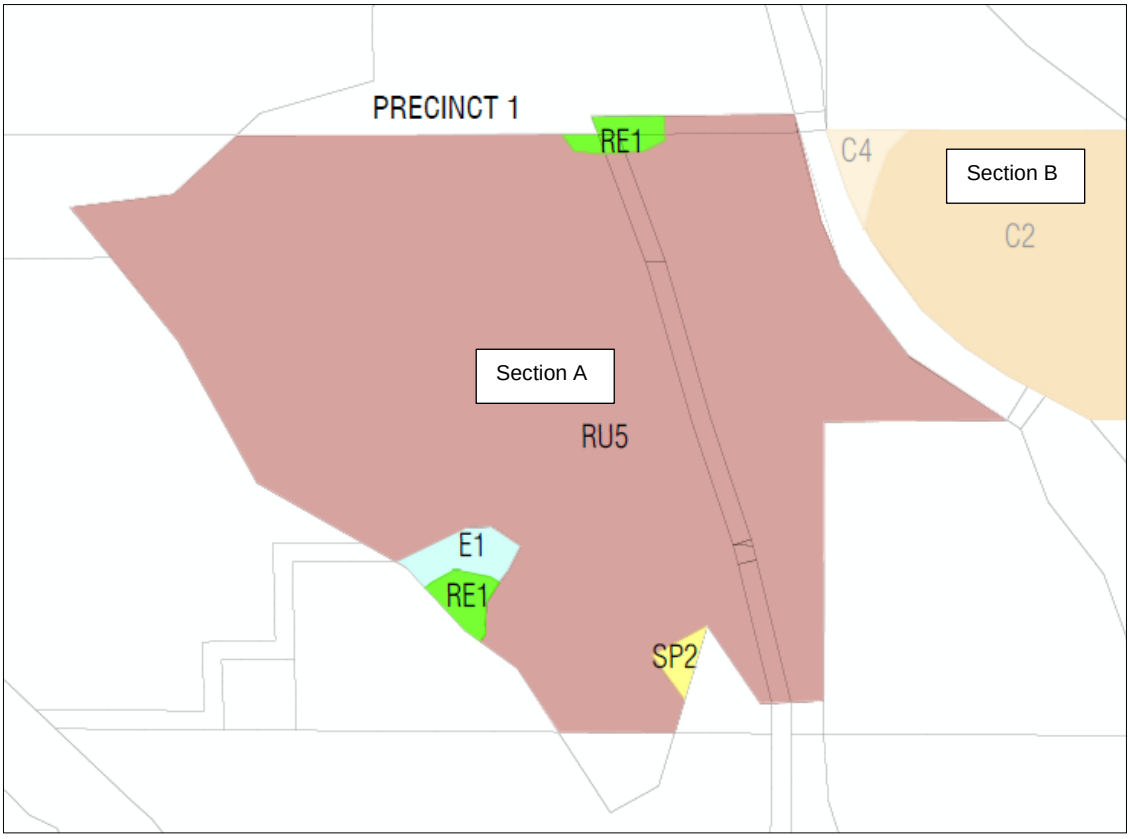
Table 5-1 Proposed Kalkite Development Traffic Generation

Land Use	Yield	Peak Period	Trip Rate	Peak Direction	Peak Split	Total Trips Generated
Section A Single Residential	330 dwellings	AM	1	In	0.26	86
				Out	0.74	244
		PM	1	In	0.64	211
				Out	0.36	119
Section A Commercial	800m^2 GFA	AM	0.125	In	0.50	50
				Out	0.50	50
		PM	0.125	In	0.50	50
				Out	0.50	50
Section B Single Residential	3 dwellings	AM	1	In	0.26	1
				Out	0.74	2
		PM	1	In	0.64	2
				Out	0.36	1
Section C Single Residential	3 dwellings	AM	1	In	0.26	1
				Out	0.74	2
		PM	1	In	0.64	2
				Out	0.36	1
Total		**AM**		**In**		**136**
				Out		**298**
		PM		**In**		**265**
				Out		**169**

5.2 Traffic Distribution

Cardno has developed an assumption of traffic distribution to and from the development based on services in the area surrounding the development. Based on the proposed layout, access has been broken into three intersections, services Sections A, B and C respectively. **Figure 5-1** below illustrates a breakdown of Section A and B. For a full plan of the proposed development, refer to **Appendix C**.

Figure 5-1 Proposed Sections for Development Access



The following assumptions were applied to the 2031 AM and PM SIDRA models for each section.

5.2.2 Section A Traffic Distribution

5.2.2.1 AM peak hour movement splits

Outbound

- 95% turn right onto Kalkite Road from the development;
- 5% turn left onto Kalkite Road from the development;

Inbound

- 5% approach from the north off Kalkite Road;
- 95% approach from the south off Kalkite Road.

5.2.2.2 PM peak hour movement splits

Outbound

- 95% turn right onto Kalkite Road from the development;
- 5% turn left onto Kalkite Road from the development;

Inbound

- 5% approach from the north off Kalkite Road;
- 95% approach from the south off Kalkite Road.

5.2.3 Section B Traffic Distribution

5.2.3.1 AM peak hour movement splits

Outbound

- 5% turn right onto Kalkite Road from the development;
- 95% turn left onto Kalkite Road from the development;

Inbound

- 95% approach from the north off Kalkite Road;
- 5% approach from the south off Kalkite Road.

5.2.3.2 PM peak hour movement splits

Outbound

- 5% turn right onto Kalkite Road from the development;
- 95% turn left onto Kalkite Road from the development;

Inbound

- 95% approach from the north off Kalkite Road;
- 5% approach from the south off Kalkite Road.

5.2.4 Section C Traffic Distribution

5.2.4.1 AM peak hour movement splits

Outbound

- 95% turn right onto Kalkite Road from the development;
- 5% turn left onto Kalkite Road from the development;

Inbound

- 95% approach from the north off Kalkite Road;
- 5% approach from the south off Kalkite Road.

5.2.4.2 PM peak hour movement splits

Outbound

- 95% turn right onto Kalkite Road from the development;
- 5% turn left onto Kalkite Road from the development;

Inbound

- 95% approach from the north off Kalkite Road;
- 5% approach from the south off Kalkite Road.

5.3 Road Volumes

At the time of this study (November 2021), greater New South Wales including the Snowy region were governed by partial Covid-19 related restrictions, this made it impractical to undertake a traffic survey as the data collected would not be representative of the typical movement behaviours in the local network. As such, a base traffic volumes were generated from analysis of existing dwellings and assumed daily trip generation as per the TfNSW Standards.

5.3.1 Trip Generation from Existing Township

Cardno developed background trip generation volumes based on *RMS Technical Direction TDT 2013/04a – Guide to Traffic Generating Developments (2013)* and *Development Design Specification - D1 Geometric Road Design (SMRC, 2000)* from total dwellings within direct proximity to each intersection. Analysis of these volumes was undertaken using conservative movement assumptions and growth factors to develop an appropriate base model. Additional traffic generation calculations undertaken to develop the base volumes are listed in **Appendix B – Traffic Data and Calculations**.

5.3.2 Heavy Vehicles

Due to the rural characteristics of Kalkite, the presence of heavy vehicles slightly greater than standard local roads, as such, a heavy vehicle percentage of 6% was applied to all through movements across Kalkite Road traffic network. A lower percentage of 1% was adopted for all the other roads (including all proposed Kalkite development access). To reduce the complexity of the traffic volume application, it was assumed that the 6% will be applied to both eastbound and westbound heavy vehicles throughout modelling.

5.3.3 Growth Rates

A linear growth rate of 2% was applied to the base volumes for the 2031 future ‘with development’ scenario.

5.4 Construction Traffic

5.4.1 Construction Outline

The proposed subdivision development will involve approximately 222 residential allotments and 5 commercial allotments to be constructed in multiple stages over a 3-year period, commencing in 2025.

Traffic generated by construction activities for the duration of the project will include light vehicles used by construction workers to get to and from the site and heavy vehicles associated with the construction plant, deliveries and removal of materials.

5.4.1.1 Light Vehicles

It is expected that there will be a maximum of approximately 20 construction workers on the work site at any one time.

It is expected that the majority of these workers will reside nearby in Jindabyne and Cooma, which will provide opportunities for carpooling. For this analysis, it has been assumed that the average occupancy rate of light vehicles will be 1.0 workers per vehicles.

From this occupancy rate, the typical traffic generation for the development will be approximately 20 light vehicles per day, arriving in the morning and departing in the evening.

5.4.1.2 Heavy Vehicles

Preliminary estimates of the heavy vehicles associated with the development of the new subdivision is as follows:

- Truck and dog trailer – will likely be required for the entire of the 3 years of construction with an expected maximum of four to five trucks doing eight to ten movements per day, inbound and outbound.
- Material deliveries – likely won't be an everyday occurrence, only when materials (mainly pipes and pits) are ready to be installed. Expected maximum of two to three deliveries on these days for total of four to six movements.
- Concrete truck – likely won't be an everyday occurrence, only when concrete and/or stabilised sand needs pouring. Expected maximum of two to three trucks, four to six movements, per day.

Table 5-2 Peak Vehicle Movements In/Out of Site

Vehicles	Peak Movements (accessing site)	Peak Movements (egressing of site)
Light vehicles	20	20
Truck and dog trailer	4-5	4-5
Material Deliveries	2-3	2-3
Concrete truck	2-3	2-3

5.4.1.3 Oversize Vehicles

A review of the suitability for the local network to handle oversized vehicles should be undertaken independently by the contractor and may require specific traffic control if oversize vehicles are required.

Currently, details of any oversized vehicles needed to transport equipment or plant to the site are not available. However, if it is found that oversized vehicles are required, the contractor will be required to apply for permits from Transport for NSW (TfNSW) and Council, along with the submission of a suitable traffic management and transportation routes plan.

Oversized vehicle routes are to be planned for designated heavy vehicle routes, wherever possible, approved by TfNSW. Additionally, all oversized traffic movements should occur outside of peak times wherever possible to reduce the impact on the road network

5.4.1.4 Construction Traffic Impacts

The number of construction vehicles accessing and egressing the site will need to be confirmed by the contractor as part of the detailed construction planning stage. However, the estimated construction traffic volumes are not expected to adversely affect the existing road network. Furthermore, the predicted

construction traffic is significantly less than the calculated future operational traffic of the proposed development. Therefore, from the completed development TIA, it can be assumed that the network will continue to operate at an acceptable level of service even with the expected impact of construction vehicles.

5.4.2 Construction Compound

The construction compound will be located within the subject site, away from any of the existing roads and move as the stages of development progress. Until the staging for construction can be confirmed, the exact location of the construction compound within the subject site cannot be confirmed.

The entrance to the compound will be fenced off to prevent members of the public from entering the compound.

5.4.3 Preliminary Construction Management Plan

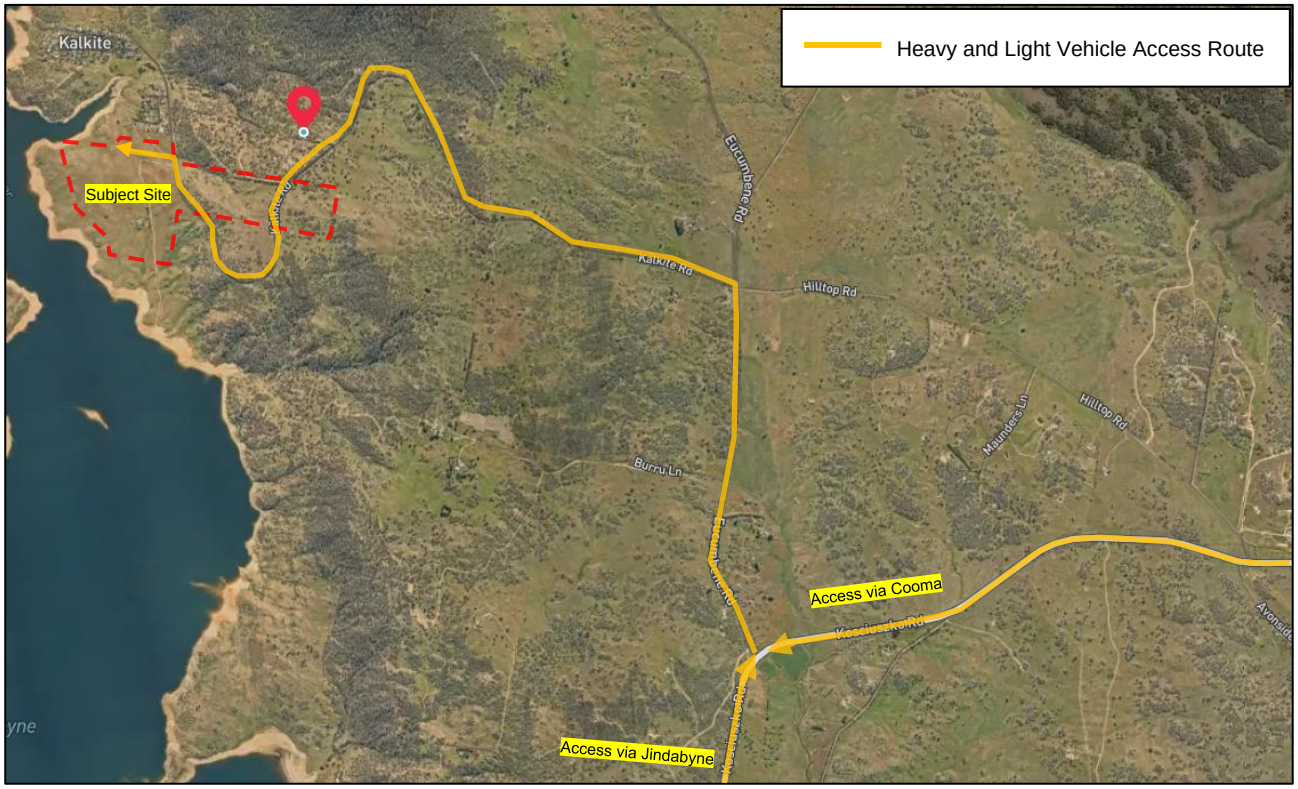
5.4.3.1 Construction Vehicle Access Route

The proposed construction entrance to the subject site will be off Kalkite Road, south of the town centre.

As discussed previously, it is all light and heavy vehicles will be access/egress the subject site to and from the Jindabyne and Cooma area via Kalkite Road.

See **Figure 5-2** below for the proposed vehicle access route.

Figure 5-2 Proposed Construction Traffic Access Route



5.4.3.2 Construction Hours

The NSW Environmental Protection Authority, Draft Construction Noise Guidelines, detail the recommended standard hours for construction works:

- Weekdays 7:00 am – 6:00 pm.
- Saturdays 8:00 am – 1:00 pm.
- Sundays and public holidays, no work.

The construction works for the proposed subdivision will be scheduled to occur during these standard hours.

5.4.3.3 Construction Parking

All expected construction vehicles, both heavy and light vehicles are expected to be able to park within the construction compound, or within the subject site, all of which is away from any public traffic networks.

5.4.3.4 Pedestrian and Bicycle Management

Access to the subject site will be restricted to authorised personnel only.

Due to the subject site's location in relation to the existing township, it is anticipated that there will only be a very minor impact on the construction works or traffic.

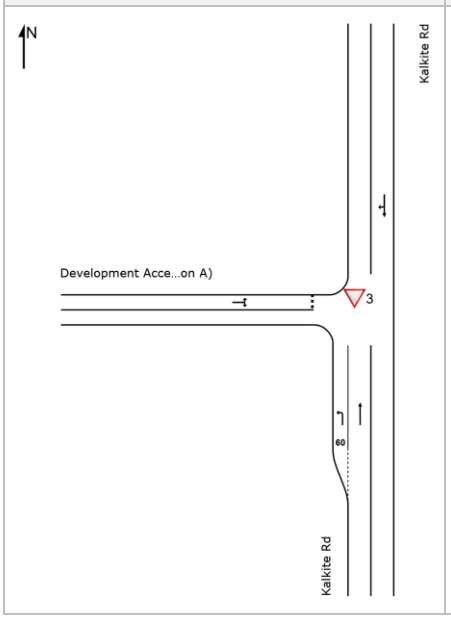
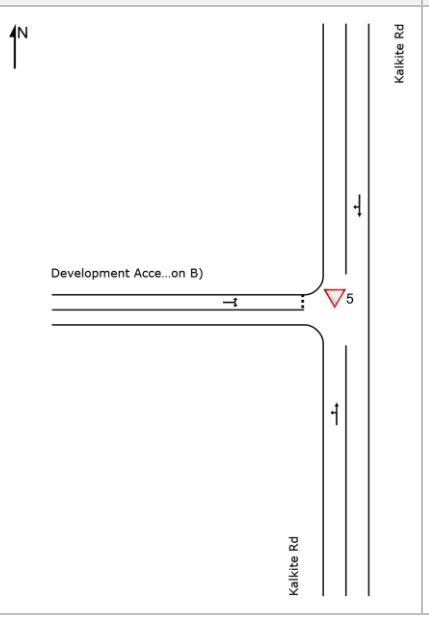
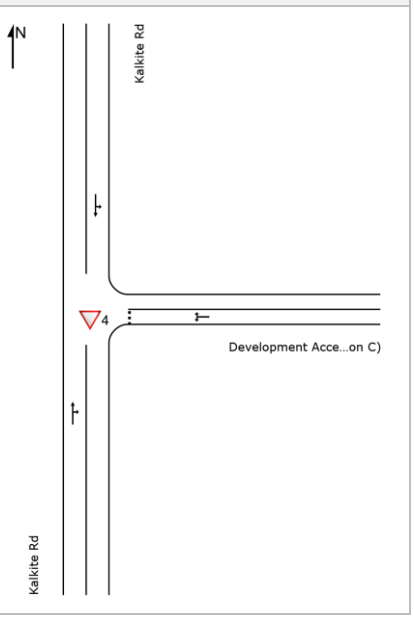
5.4.3.5 Impacts on Public Transport

It is anticipated that the proposed construction works and traffic will have no impact on the existing public transport system in Kalkite.

5.5 Proposed Intersection Design

Based upon the proposed masterplan and access arrangements for the Kalkite residential sub division, the following intersection designs were adopted for the modelling of future 'With Development' scenario. Streetlighting will be required for each intersection to ensure compliance with relevant RMS standards. It is noted that for the purpose of analysis, single intersections were used to assess cumulative impacts of all additional traffic. It is noted that the six blocks in these precincts will likely be accessed via four driveways.

Table 5-3 Proposed Intersection Geometry

Section A Access / Kalkite Road Intersection	Section B Driveway / Kalkite Road Intersection	Section C Driveway / Kalkite Road Intersection
Widened T-intersection with extra short left turning auxiliary with give way signage for east approach	Widened T-intersection, with give way signage for west approach	Widened T-intersection, with give way signage for west approach
		

5.6 Safe Intersection Sight Distance (SISD)

An assessment of the Safe Intersection Site Distance (SISD) was calculated for Section B and Section C intersections with reference to Section 3.2.2 of *Austroads Guide to Road Design Part 4a – Unsignalised and Signalised Intersections (2021).* This assessment utilised a design speed of 90 (km/h) and a reaction time of Rt=2.0 sec. The required safe intersection sight distance for all intersections was determined to be 214 metres. Upon review of relevant mapping and aerial imagery, it was concluded that these requirements are achievable for the proposed intersection locations. Further analysis of all proposed intersections is subject to detail design.

6 Intersection Capacity Assessment

Intersection capacity has been assessed using SIDRA 9.0 which is a micro-modelling software package. SIDRA provides an indication of an intersection's performance capacity through the following key outputs:

- Degree of Saturation (DOS) - Ratio of Demand to Capacity;
- Average Delay (in seconds);
- 95th Percentile Queue Length (in metres);
- The Level of Service (LOS) criteria.

The SIDRA NETWORK model determines the backward spread of congestion as queues on downstream lanes block upstream lanes (queue spillback). SIDRA applies capacity constraint to oversaturated upstream lanes, hence limiting the flows entering downstream lanes. These two elements are highly interactive with opposing effects. A network wide iterative process is used to find a solution that balances these opposing effects.

Each model was set to 30 iterations which is the maximum number of iterations permissible by SIDRA.

The following sections discuss the capacity modelling for the key external intersections.

6.1 Level of Service Criteria

Level of Service (LOS) is determined by the average delay for each vehicle (RMS NSW method). The range definitions for LOS are indicated in **Table 6-1** below.

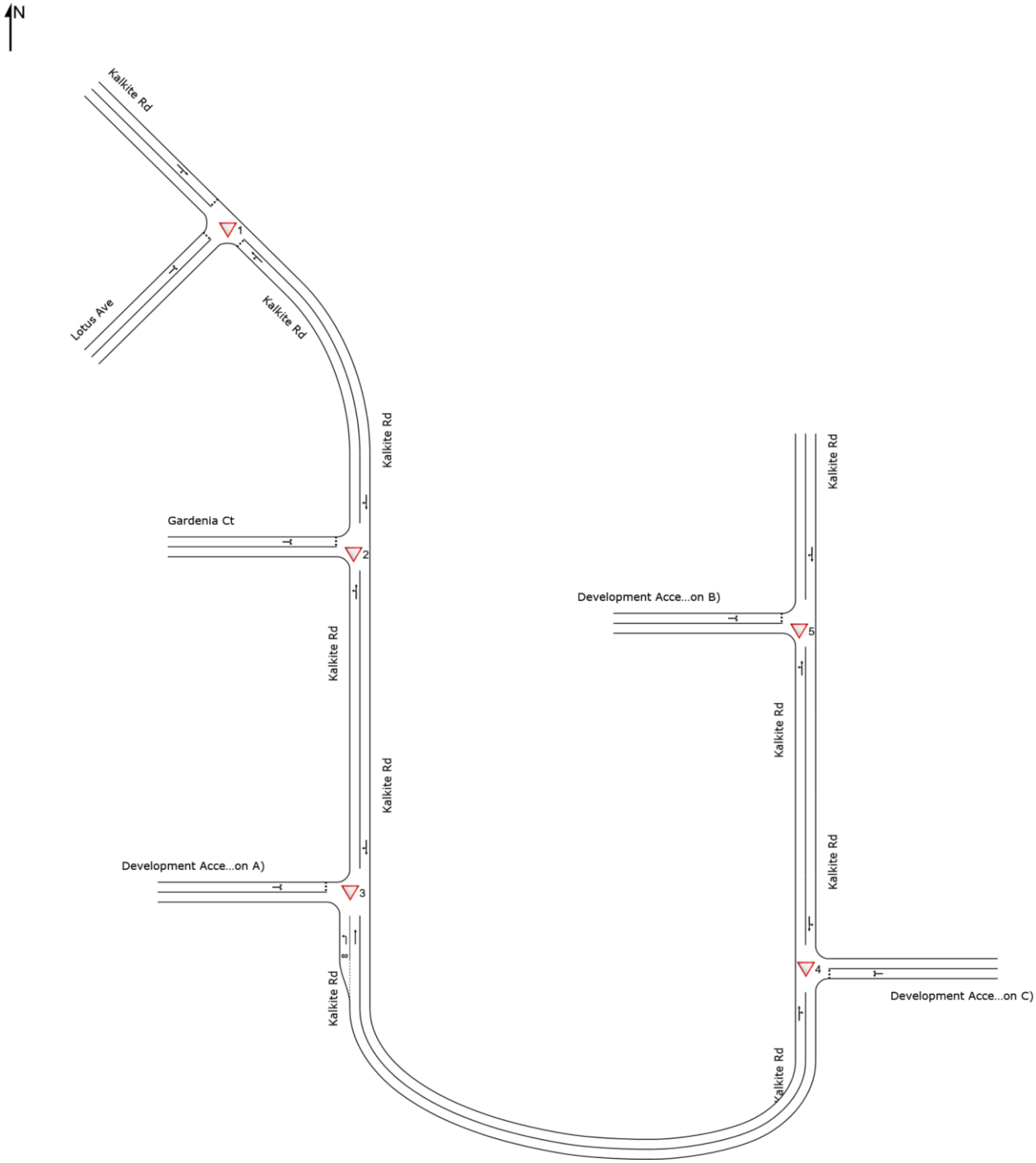
Table 6-1 Level of Service Definition Table

Level of Service	Average Delay / Vehicle (sec/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs
LOS A	<10	Good operation	Good operation
LOS B	11 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
LOS C	29 to 42	Satisfactory	Satisfactory, accident study required
LOS D	43 to 56	Operating near capacity	Near capacity, accident study required
LOS E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode.
LOS F	>70	Over capacity requires investigation of other control modes.	Over capacity, requires other control mode.

In general, intersections should operate at a minimum of LOS C to operate under satisfactory conditions. Note: For priority control signalised intersection (With Stop and Give Way signs or operating under the T-junction rule) the critical movement for Level of Service assessment should be that with the worst movement delay.

Figure 6-1 on the following page shows the 2031 'With Kalkite Development' network layout and intersection numbering utilised for reference during the assessment.

Figure 6-1 Future 2031 Network Layout (With Kalkite Development)



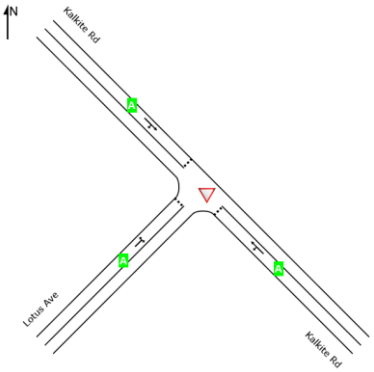
SITES IN NETWORK	
Site ID	**Site Name**
▽1	Lotus Street / Kalkite Road
▽2	Gardenia Court / Kalkite Road
▽3	Section A Proposed Access / Kalkite Road
▽4	Section C Proposed Access / Kalkite Road
▽5	Section B Proposed Access / Kalkite Road

6.2 2031 AM Peak SIDRA Results

6.2.1 Lotus Street / Kalkite Road Intersection

Table 6-2 below summarises the results of the modelling of the Lotus Street / Kalkite Road Intersection in the AM Peak hour.

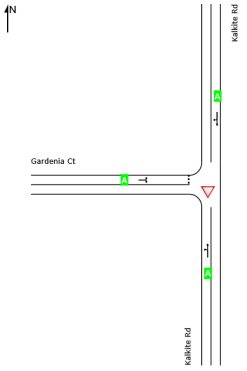
Table 6-2 Lotus Street / Kalkite Road Intersection AM Peak Hour

Scenario	2031 'With Development Model'
Degree of Saturation (DOS)	0.090
Average Delay (sec)	5.5
95th Percentile Queue (m)	2.2
Level of Service (LOS)	**LOS A**
Summary	

6.2.2 Gardenia Court / Kalkite Road Intersection

Table 6-3 below summarises the results of the modelling of the Gardenia Court / Kalkite Road Intersection in the AM Peak hour.

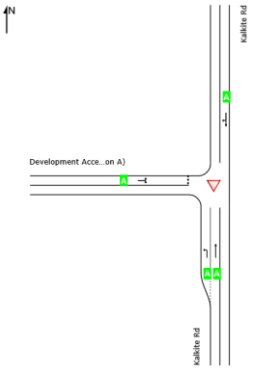
Table 6-3 Gardenia Court / Kalkite Road Intersection AM Peak Hour

Scenario	2031 'With Development Model'
Degree of Saturation (DOS)	0.056
Average Delay (sec)	2.6
95th Percentile Queue (m)	0.5
Level of Service (LOS)	**LOS A**
Summary	

6.2.3 Section A Access / Kalkite Road Intersection

Table 6-4 below summarises the results of the modelling of the Section A Access / Kalkite Road Intersection in the AM Peak hour.

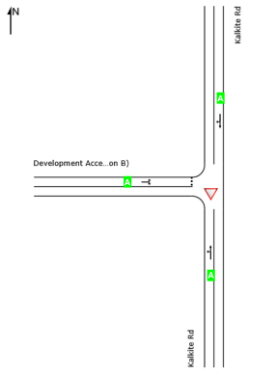
Table 6-4 Section A Access / Kalkite Road Intersection AM Peak Hour

Scenario	2031 'With Development Model'
Degree of Saturation (DOS)	0.335
Average Delay (sec)	4.8
95th Percentile Queue (m)	11.5
Level of Service (LOS)	**LOS A**
Summary	

6.2.4 Section B Access / Kalkite Road

Table 6-5 below summarises the results of the modelling of the Section B Access / Kalkite Road Intersection in the AM Peak hour.

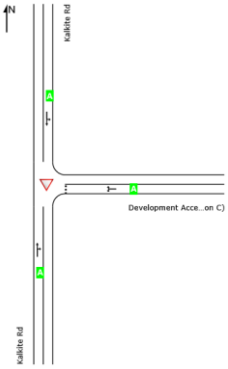
Table 6-5 Section B Access / Kalkite Road Intersection AM Peak Hour

Scenario	2031 'With Development Model'
Degree of Saturation (DOS)	0.221
Average Delay (sec)	0.1
95th Percentile Queue (m)	0.1
Level of Service (LOS)	**LOS A**
Summary	

6.2.5 Section C Access / Kalkite Road

Table 6-6 below summarises the results of the modelling of the Section C Access / Kalkite Road Intersection in the AM Peak hour.

Table 6-6 Section C Access / Kalkite Road Intersection AM Peak Hour

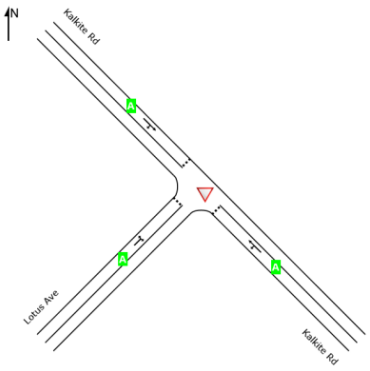
Scenario	2031 'With Development Model'
Degree of Saturation (DOS)	0.224
Average Delay (sec)	0.1
95th Percentile Queue (m)	0.1
Level of Service (LOS)	**LOS A**
Summary	

6.3 2031 PM Peak SIDRA Results

6.3.1 Lotus Street / Kalkite Road Intersection

Table 6-7 below summarises the results of the modelling of the Lotus Street / Kalkite Road Intersection in the PM Peak hour.

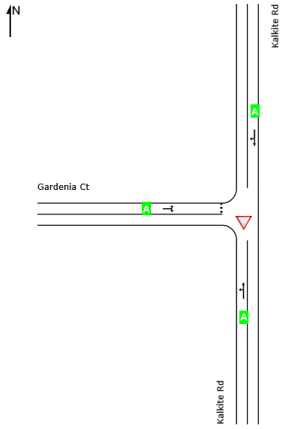
Table 6-7 Lotus Street / Kalkite Road Intersection PM Peak Hour

Scenario	2031 'With Development Model'
Degree of Saturation (DOS)	0.055
Average Delay (sec)	6.2
95th Percentile Queue (m)	1.0
Level of Service (LOS)	**LOS A**
Summary	

6.3.2 Gardenia Court / Kalkite Road Intersection

Table 6-8 below summarises the results of the modelling of the Gardenia Court / Kalkite Road Intersection in the PM Peak hour.

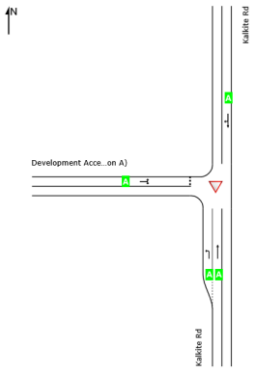
Table 6-8 Gardenia Court / Kalkite Road Intersection PM Peak Hour

Scenario	2031 'With Development Model'
Degree of Saturation (DOS)	0.066
Average Delay (sec)	2.0
95th Percentile Queue (m)	0.3
Level of Service (LOS)	**LOS A**
Summary	

6.3.3 Section A Access / Kalkite Road Intersection

Table 6-9 below summarises the results of the modelling of the Section A Access / Kalkite Road Intersection in the PM Peak hour.

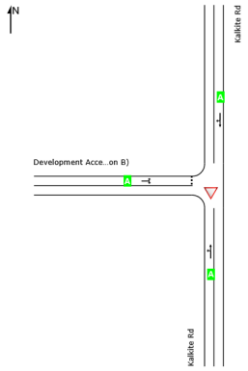
Table 6-9 Section A Access / Kalkite Road Intersection PM Peak Hour

Scenario	2031 'With Development Model'
Degree of Saturation (DOS)	0.208
Average Delay (sec)	5.1
95th Percentile Queue (m)	6.3
Level of Service (LOS)	**LOS A**
Summary	

6.3.4 Section B Access / Kalkite Road

Table 6-10 below summarises the results of the modelling of the Section B Access / Kalkite Road Intersection in the PM Peak hour. It is noted that these treatments assess the total traffic generated by all driveways combined.

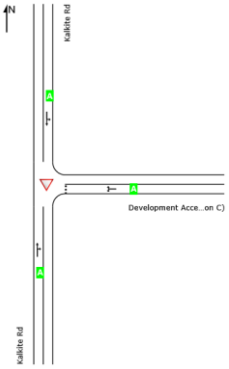
Table 6-10 Section B Access / Kalkite Road Intersection PM Peak Hour

Scenario	2031 'With Development Model'
Degree of Saturation (DOS)	0.196
Average Delay (sec)	0.1
95th Percentile Queue (m)	0.1
Level of Service (LOS)	**LOS A**
Summary	

6.3.5 Section C Access / Kalkite Road

Table 6-11 below summarises the results of the modelling of the Section C Access / Kalkite Road Intersection in the PM Peak hour.

Table 6-11 Section C Access / Kalkite Road Intersection PM Peak Hour

Scenario	2031 'With Development Model'
Degree of Saturation (DOS)	0.192
Average Delay (sec)	0.1
95th Percentile Queue (m)	0.1
Level of Service (LOS)	**LOS A**
Summary	

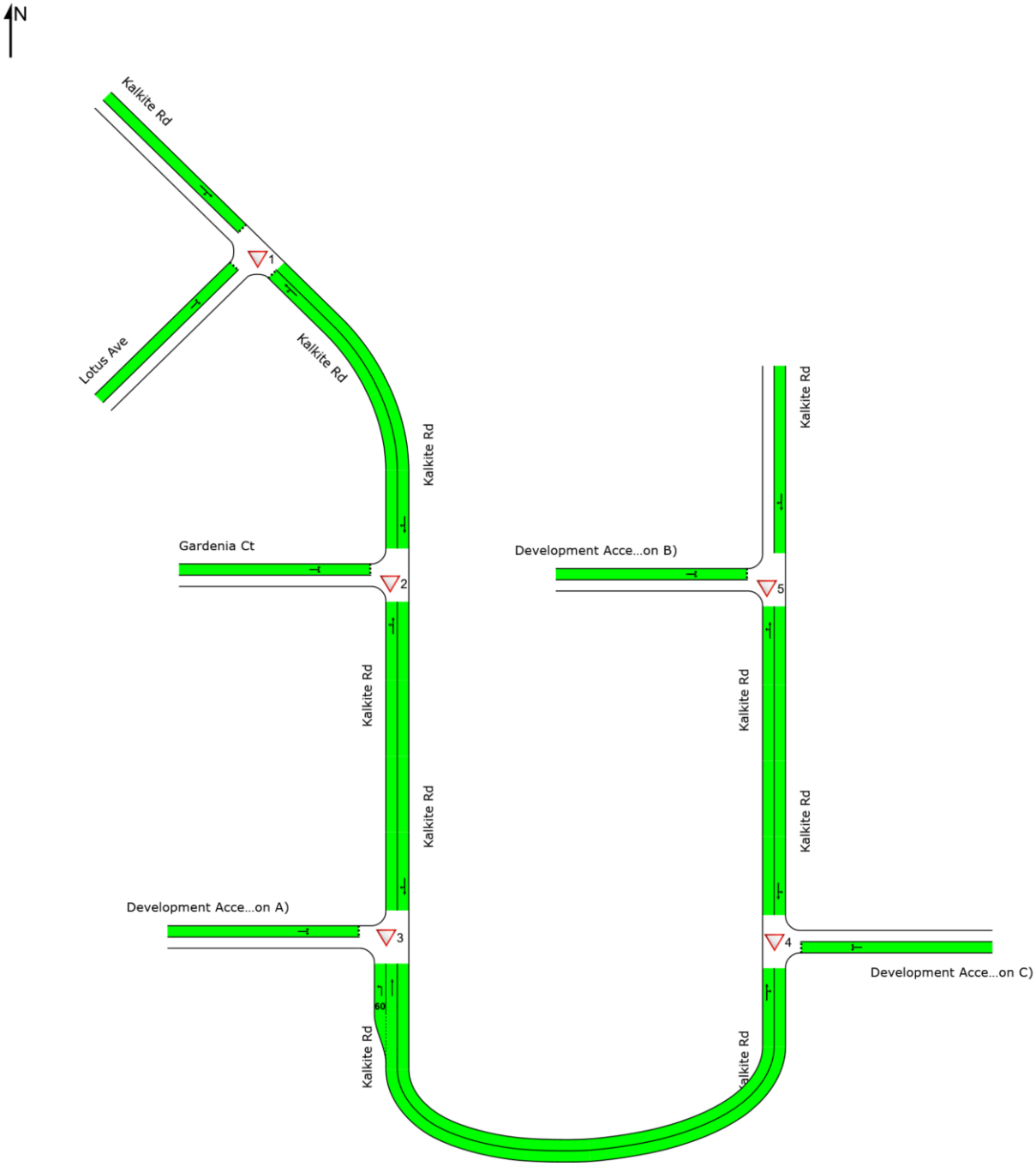
7 Traffic Network operation

In addition to **Section 6** above, the following section provides a network wide visual representation of the level of service, queue distance and network summary modelling.

7.1 2031 'With Kalkite Development Model'

7.1.1 2031 AM 'With Kalkite Development Model'

Figure 7-1 2031 AM 'With Kalkite Development Model' Level of Service (LOS)

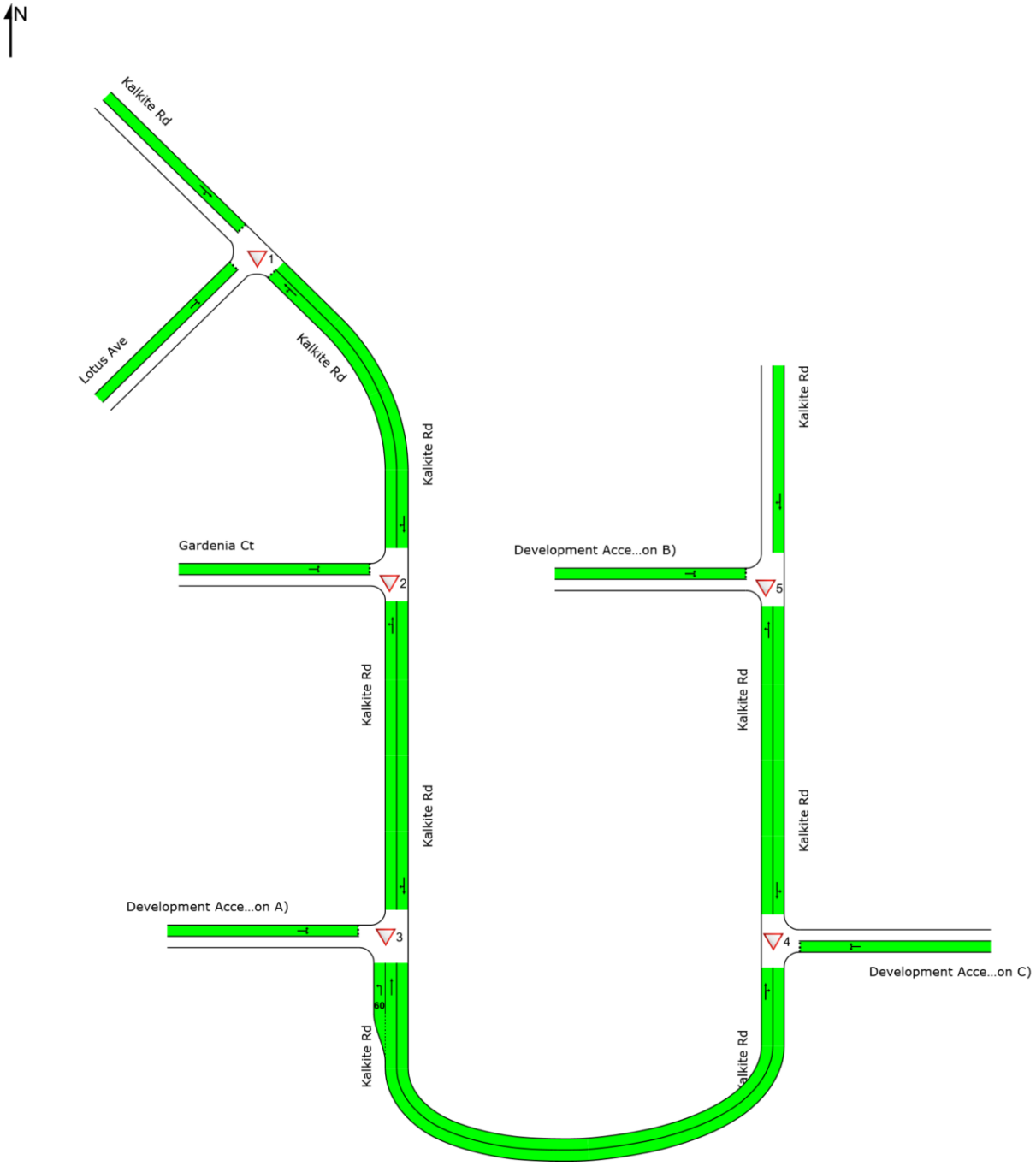


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Figure 7-2 2031 AM 'With Kalkite Development Model' Queue Length (95th Percentile)



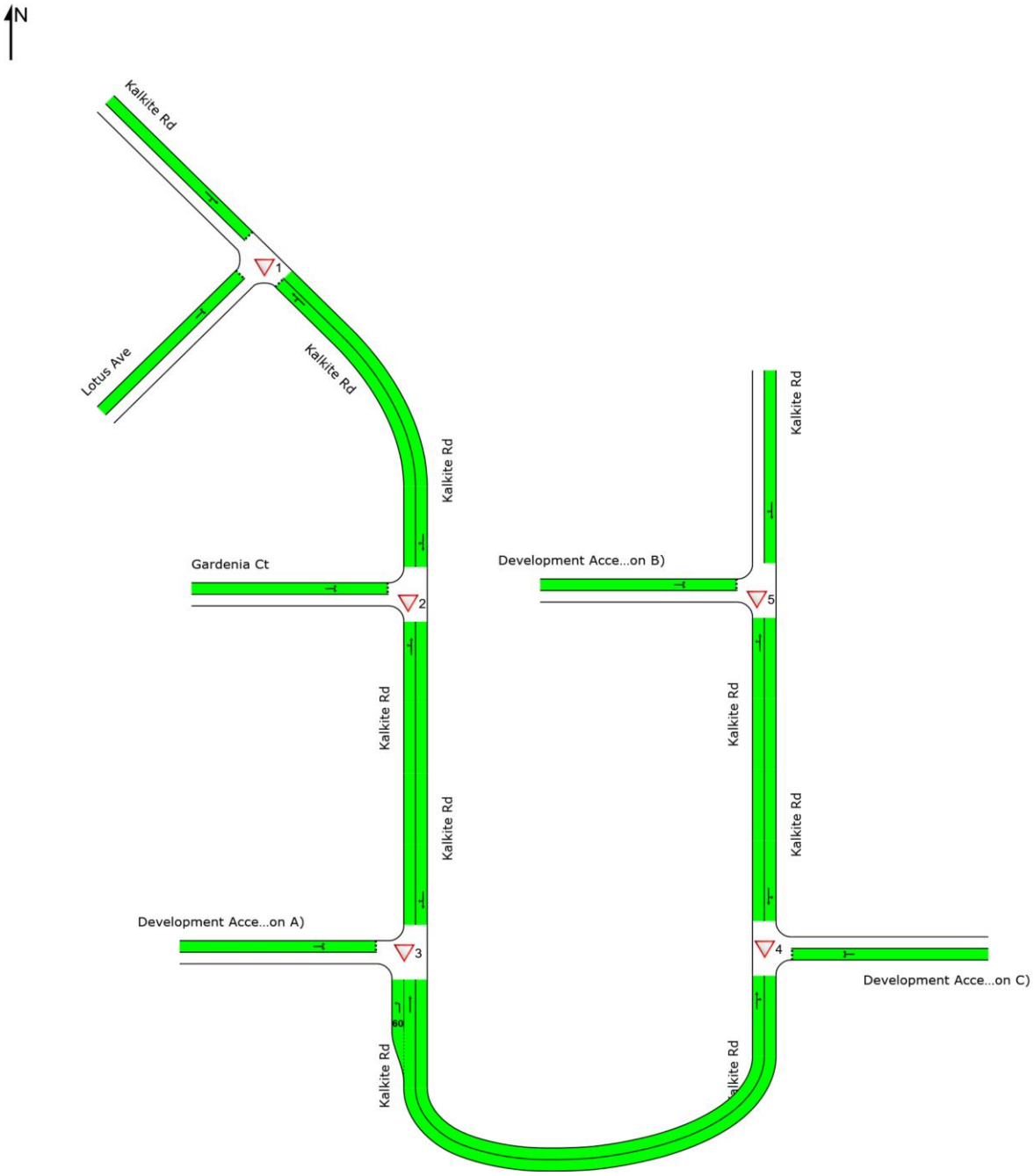
Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA Standard.

7.1.2 2031 PM 'With Kalkite Development Model'

Figure 7-3 2031 PM 'With Kalkite Development Model' Level of Service (LOS)

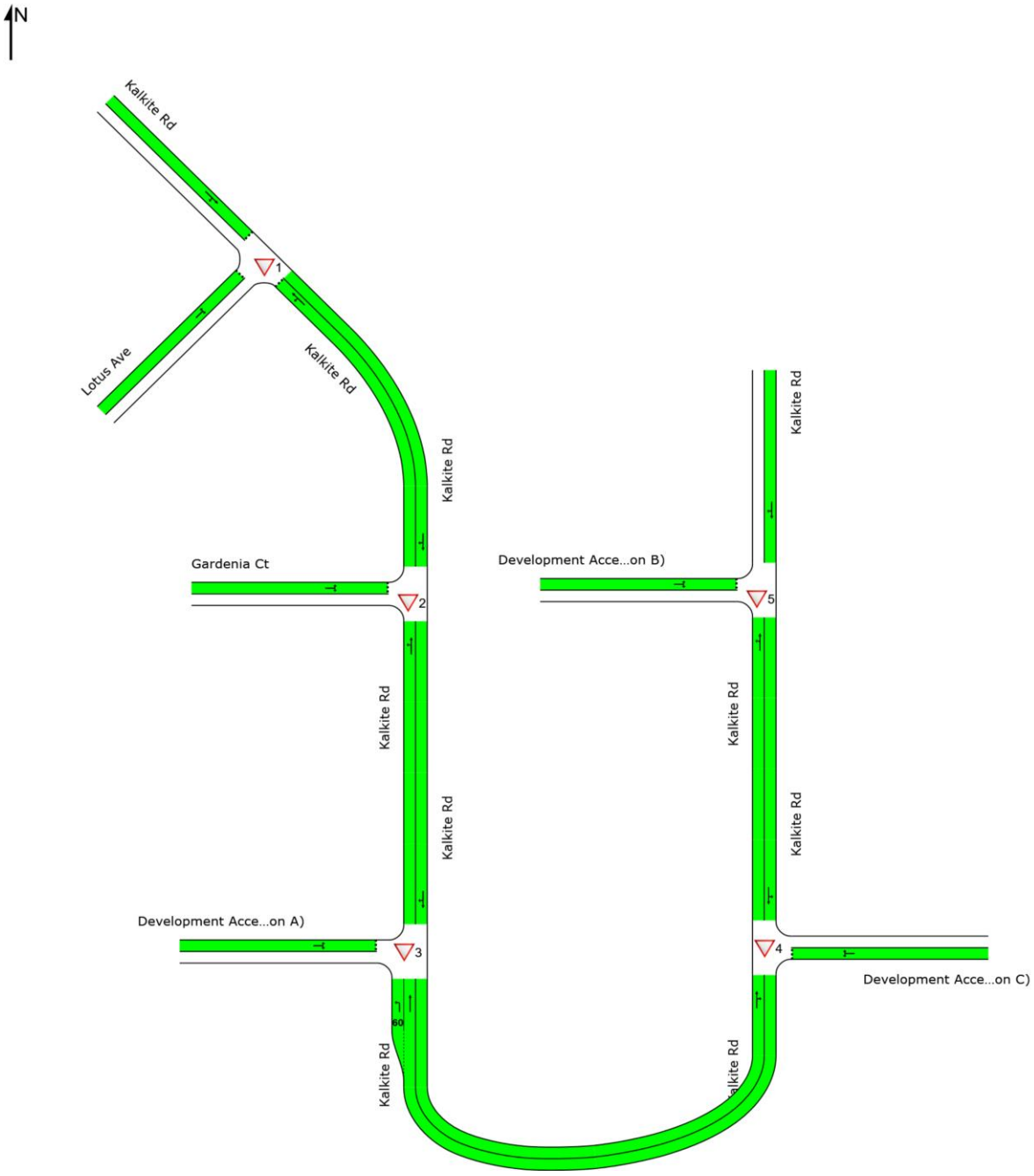


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

Delay Model: SIDRA Standard (Geometric Delay is included).

Figure 7-4 2031 PM 'With Kalkite Development Model' Queue Length (95th Percentile)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA Standard.

8 Summary and Recommendations

8.1 Detailed Intersection Summary

An assessment of the existing and proposed intersections across the Kalkite Road traffic network including four proposed access points to the Kalkite residential subdivision was undertaken to determine the impact of the proposed the new subdivision development on the local traffic network. **Tables 8-1** through to **8-10** below describe the increase in vehicles as a result of the proposed development across all SIDRA modelling scenarios. These volumes are presented to provide context in determining the net impact of the development across the local network. **Tables 8-11** presents the level of service (LOS) outputs for each intersection approach leg across all scenarios and provides a key metric for analysing intersection performance.

Additional intersection performance information detailing traffic volumes, degree of saturation, queue length, average delay and sign control analysis are listed in individual movement, lane and control summaries attached in **Appendix A**.

8.1.1 Lotus Street / Kalkite Road and Gardenia Court / Kalkite Road Intersections

The performance of the upstream intersections across the Kalkite Road traffic network does not see any significant impact to the key performance indicators with the increase in traffic volumes as a result of the proposed development access and additional traffic generation.

The intersection displays good levels of Degree of Saturation and Average Delay across the 2031 'with development' design year. The level of service remains at LOS A – Good operation across all approaches during both AM and PM peak hour periods.

The 95th percentile queuing is minimal in both the AM and PM.

8.1.2 Section's A, B and C Access points / Kalkite Road Intersections

The five proposed access points experience moderate increases in traffic volumes associated with the proposed development. However, the performance of these intersection experience negligible impact to all key performance indicators.

All intersections display good levels of Degree of Saturation and Average Delay across the 2031 'with development' design year. The level of service remains at LOS A – Good operation across all approaches during both AM and PM peak hour periods.

The 95th percentile queuing is minimal in both the AM and PM.

It is expected that the proposed development will have negligible impact to the overall Kalkite road network performance in future "2031 with development" design year for dual occupancy percentages within Section A of up to 50%. Further assessment of the location of these intersections and treatment s will need to accompany the ultimate development application but preliminary analysis suggest that SSID and turn warrant treatments are achievable in the locations identified.

8.2 Recommendations

8.2.1 Existing Road Network Upgrades

From the modelling, the entirety of the network operates at LOS A – Good Operation for both the AM and PM peak hour, '2031 With Development' scenarios. Therefore, very minimal upgrades of the existing road network will be required.

Based on expected traffic volumes, a Basic Right (BAR) turn treatment and an Auxiliary Left (Short) (AUL(S)) turn treatment will be required at the entrance into Section A of the development. This will require some minor shoulder widening of Kalkite Road to achieve.

The proposed development results in approximately 358 additional vehicles heading eastbound on Kalkite Road and utilising the Kalkite Rd / Eucumbene Road / Hilltop Road Intersection in the AM peak hour. Upon review of the local places of employment, services, nearby attractions and visitors place of origin, it is anticipated that 60% trips from the proposed development will travel west from Eucumbene Road towards Jindabyne and 40% of trips will travel east towards Berridale/ Cooma during the AM and PM peak hours.

Upon review of the time taken to travel to Berridale/Cooma from the proposed development using both Hilltop Road and Eucumbene Road it was determined that time saved taking Hilltop Road is negligible due to the differences in road surface (gravel and asphalt) and anticipated speed (60km/h and 80km/h). As such, this assessment assumes that 25% trips directed to Berridale/Cooma will utilise a Hilltop Road. Based on the above assumptions, it is suggested that the directional split for the Kalkite Road / Eucumbene Road / Hilltop Road intersection a 90/10. With 90% of vehicles utilising Eucumbene Road toward Kosciuszko Road, 10% utilising Hilltop Road during the AM and PM peak hours.

As previously mentioned in this report, there has been one instance of a crash at this intersection that resulted in an injury. It is Cardno's view that appropriate intersection upgrades for the Kalkite Road and Eucumbene Road intersection should be determined through a Road Safety Audit which considers traffic numbers generate by all developments planned and approved within the Kalkite area.

Table 8-1 Increase in Lotus Street / Kalkite Road AM Traffic Volume with Development

	AM TRAFFIC Lotus Street / Kalkite Road Intersection					
Intersection No.	Intersection Legs (Clockwise: North-South-West)					
1	North		South		West	
	North Approach - Kalkite Rd		South Approach - Kalkite Rd		West Approach - Section A Access	
	T	R	L	T	L	R
2021 Base	9	0	26	3	0	74
2031 Without Development	11	0	32	4	0	90
2031 With Development	11	0	32	22	0	90
Additional Trips (with development)	19					
Percentage of Total	83%					

Table 8-2 Increase in Gardenia Court / Kalkite Road AM Traffic Volume with Development

	AM TRAFFIC Gardenia Court / Kalkite Road Intersection					
Intersection No.	Intersection Legs (Clockwise: North-South-West)					
2	North		South		West	
	North Approach - Kalkite Rd		South Approach - Kalkite Rd		West Approach - Section A Access	
	T	R	L	T	L	R
2021 Base	83	0	7	29	0	20
2031 Without Development	101	0	9	35	0	24
2031 With Development	101	0	9	54	0	24
Additional Trips (with development)	19					
Percentage of Total	34%					

Table 8-3 Increase in Section A Access / Kalkite Road AM Traffic Volume with Development

	AM TRAFFIC Section A Access / Kalkite Road Intersection					
Intersection No.	Intersection Legs (Clockwise: North-South-West)					
3	North		South		West	
	North Approach - Kalkite Rd		South Approach - Kalkite Rd		West Approach - Section A Access	
	T	R	L	T	L	R
2021 Base	98	0	0	34	0	0
2031 Without Development	119	0	0	42	0	0
2031 With Development	119	7	129	42	15	279
Additional Trips (with development)		7	129		15	279
Percentage of Total		100%	100%		100%	100%

Table 8-4 Increase in Section B Access / Kalkite Road AM Traffic Volume with Development

	AM TRAFFIC Section B Access / Kalkite Road Intersection					
Intersection No.	Intersection Legs (Clockwise: North-East-South)					
5	North		South		West	
	North Approach - Kalkite Rd		South Approach - Section B Access		West Approach - Kalkite Rd	
	T	R	L	T	L	R
2021 Base	34	0	0	98	0	0
2031 Without Development	42	0	0	119	0	0
2031 With Development	172	1	1	401	3	1
Additional Trips (with development)	130	1	1	282	3	1
Percentage of Total	76%	100%	100%	70%	100%	100%

Table 8-5 Increase in Section C Access / Kalkite Road AM Traffic Volume with Development

	AM TRAFFIC Section C Access / Kalkite Road Intersection					
Intersection No.	Intersection Legs (Clockwise: North-South-West)					
4	North		East		South	
	North Approach - Kalkite Rd		East Approach - Kalkite Rd		South Approach - Kalkite Rd	
	L	T	L	R	T	R
2021 Base	0	34	0	0	103	0
2031 Without Development	0	42	0	0	125	0
2031 With Development	1	171	1	3	405	1
Additional Trips (with development)	1	129	1	3	279	1
Percentage of Total	100%	76%	100%	100%	69%	100%

Table 8-6 Increase in Lotus Street / Kalkite Road PM Traffic Volume with Development

	PM TRAFFIC Lotus Street / Kalkite Road Intersection					
Intersection No.	Intersection Legs (Clockwise: North-South-West)					
1	North		South		West	
	North Approach - Kalkite Rd		South Approach - Kalkite Rd		West Approach - Section A Access	
	T	R	L	T	L	R
2021 Base	4	0	64	8	0	36
2031 Without Development	5	0	78	9	0	44
2031 With Development	5	0	78	19	0	44
Additional Trips (with development)				9		
Percentage of Total				49%		

Table 8-7 Increase in Gardenia Court / Kalkite Road PM Traffic Volume with Development

	PM TRAFFIC Gardenia Court / Kalkite Road Intersection					
Intersection No.	Intersection Legs (Clockwise: North-South-West)					
2	North		South		West	
	North Approach - Kalkite Rd		South Approach - Kalkite Rd		West Approach - Section A Access	
	T	R	L	T	L	R
2021 Base	40	0	17	72	0	10
2031 Without Development	49	0	21	87	0	12
2031 With Development	49	0	21	98	0	12
Additional Trips (with development)				11		
Percentage of Total				11%		

Table 8-8 Increase in Section A Access / Kalkite Road PM Traffic Volume with Development

	PM TRAFFIC Section A Access / Kalkite Road Intersection					
Intersection No.	Intersection Legs (Clockwise: North-South-West)					
3	North		South		West	
	North Approach - Kalkite Rd		South Approach - Kalkite Rd		West Approach - Section A Access	
	T	R	L	T	L	R
2021 Base	48	0	0	85	0	0
2031 Without Development	58	0	0	103	0	0
2031 With Development	58	13	248	103	8	160
Additional Trips (with development)		13	248		8	160
Percentage of Total		100%	100%		100%	100%

Table 8-9 Increase in Section B Access / Kalkite Road PM Traffic Volume with Development

	PM TRAFFIC Section B Access/ Kalkite Road Intersection					
Intersection No.	Intersection Legs (Clockwise: North-East-South)					
5	North		South		West	
	North Approach - Kalkite Rd		South Approach - Section B Access		West Approach - Kalkite Rd	
	T	R	L	T	L	R
2021 Base	85	0	0	48	0	0
2031 Without Development	103	0	0	58	0	0
2031 With Development	354	2	1	220	1	1
Additional Trips (with development)	251	2	1	162	1	1
Percentage of Total	71%	100%	100%	74%	100%	100%

Table 8-10 Increase in Section C Access / Kalkite Road PM Traffic Volume with Development

	PM TRAFFIC Section C Access / Kalkite Road Intersection					
Intersection No.	Intersection Legs (Clockwise: North-South-West)					
4	North		East		South	
	North Approach - Kalkite Rd		East Approach - Kalkite Rd		South Approach - Kalkite Rd	
	L	T	L	R	T	R
2021 Base	0	85	0	0	50	0
2031 Without Development	0	103	0	0	61	0
2031 With Development	3	351	1	1	221	1
Additional Trips (with development)	3	248	1	1	160	1
Percentage of Total	100%	71%	100%	100%	72%	100%

8.3 Level of Service Performance Summary

As discussed in **Section 6-1,** for priority-controlled intersections, the critical movement for Level of Service should be that with the worst movement delay.

The performance of each intersection in each scenario is summarised in **Table 8-11** below.

Table 8-11 Intersection Performance Summary

Intersection	Leg	2031 AM 'With Development Model'	2031 PM 'With Development Model'
Lotus Street / Kalkite Road	*North*	**LOS A**	**LOS A**
	South	**LOS A**	**LOS A**
	West	**LOS A**	**LOS A**
	Intersection	**LOS A**	**LOS A**
Gardenia Court / Kalkite Road	*North*	**LOS A**	**LOS A**
	South	**LOS A**	**LOS A**
	West	**LOS A**	**LOS A**
	Intersection	**LOS A**	**LOS A**
Section A Access / Kalkite Road	*North*	**LOS A**	**LOS A**
	South	**LOS A**	**LOS A**
	West	**LOS A**	**LOS A**
	Intersection	**LOS A**	**LOS A**
Section B Access / Kalkite Road	*North*	**LOS A**	**LOS A**
	East	**LOS A**	**LOS A**
	South	**LOS A**	**LOS A**
	West	**LOS A**	**LOS A**
	Intersection	**LOS A**	**LOS A**
Section C Access / Kalkite Road	*North*	**LOS A**	**LOS A**
	East	**LOS A**	**LOS A**
	South	**LOS A**	**LOS A**
	Intersection	**LOS A**	**LOS A**

The net impact of the proposed Kalkite development upon the local AM traffic network is highlighted above in **Table 8-11**. The local network experiences negligible impact to the Level of Service for all intersection approaches listed above with the overall intersection level of service remaining at "Good Operation" service.

9 Response to TfNSW Comments – Eucumbene Road and Hilltop Road Intersections

9.1 Introduction

9.1.1 Initial Comments

The Planning Proposal for the proposed Kalkite Development, which included this Transport Impact Assessment (TIA), was submitted to the NSW Government for Review in mid-2022. This TIA was reviewed by Transport for NSW (TfNSW) and the following comments were provided on 13/07/2022:

- Analysis of the impact of the additional traffic associated with the proposed development on the intersections of Eucumbene Road and Hilltop Road with Kosciuszko Road is required as part of this TIA.
- Pre-Covid counts of traffic on Kosciuszko Road during the winter peak (AM and PM) must be sourced and an appropriate growth rate applied to inform the assessment and modelling of the two intersections with Kosciuszko Road.
- Justification of the use of a 2% growth rate for the existing road network is required as other developments in the LGA have used growth rates of up to 4%.

9.1.2 Subsequent Discussions with TfNSW

Following the initial feedback with TfNSW, Cardno now Stantec have had multiple follow up discussions with TfNSW to gain further insight into TfNSW's requirements for the updated TIA. A summary of the major items from these discussions are provided below.

9.1.2.1 13/01/2023 – Meeting with TfNSW

A meeting was held on Friday 13th January between TfNSW, Cardno now Stantec, and the Client team to discuss TfNSW's comments on the original Planning Proposal. The main points discussed include:

- TfNSW will source existing data they have available for the traffic volumes for Kosciuszko Road.
- It was generally accepted that in its current state (unsealed road), Hilltop Road is not considered a preferential access route between Kosciuszko Road and the development area, however Cardno now Stantec will review the proposed modal split of the residential traffic from the proposed development and present to TfNSW for approval prior to the resubmission of the TIA.
- The adopted dwelling trip generation rate of 10 trips per day, which equates to one trip in the peak hour, was accepted as the maximum possible generation in lieu of any Council data and it was accepted by all that the results produced would represent a highly conservative estimate for modelling purposes.
- Demographic analysis undertaken as part of the Snowy SAP reports identifies a 2% growth rate for local residents and 3.2% for winter tourism, however due to the conservative trip generation rate used, it was accepted by all that a 2% growth rate would be appropriate for the analysis. A growth sensitivity analysis should also be undertaken as part of the TIA, the rate of which will be provided by TfNSW.

9.1.2.2 20/01/2023 – Response from TfNSW

In response to the meeting held on 13/01, TfNSW provided the following Information:

- TfNSW provided two datasets for 2019 winter peak traffic on Kosciuszko Road on either side of the Eucumbene Road Intersection, advising that the peak hour volumes from this data should be used for the analysis of the intersections of Eucumbene Road and Hilltop Road with The Kosciuszko Road
- TfNSW confirmed that would be accepting of a 2% growth rate and would also like to see a 3% rate applied for a sensitivity analysis.
- TfNSW require intersection counts be undertaken to accurately determine turn movements at both intersections.
- A base case scenario for the winter peak season is required to be calibrated for each of the intersections.

9.1.2.3 12/02/2023 – Modal Split Discussion

Cardno now Stantec provided the following Modal Splits for the proposed residential traffic in relation to the Kosciuszko Road intersections which were subsequently accepted by TfNSW on 15/02/2023.

Of the AM peak hour trips generated by the Kalkite (Eucumbene Road) catchment:

- 5% will remain in Kalkite.
- 5% will use Hilltop Road to drive east (none heading west)
- 80% will use Eucumbene Road to drive south (to Jindabyne)
- 10% will use Eucumbene Road to drive east (to Cooma)

These distributions will reverse in the PM peak.

9.2 Existing Traffic Volumes

9.2.1 Kosciuszko Road

TfNSW provided 2019 winter peak traffic volumes for Kosciuszko Road from two locations near the Eucumbene Road Intersection which were measured over a period of two weeks. While a daily breakdown of the volumes wasn't available, peak eastbound and westbound volumes and heavy vehicle percentage was available. Additionally, the data didn't differentiate between an AM and PM peak, nor was it clear if the peak volumes in each direction were from the same hour and/or day as each other. Based on the Cardno now Stantec's understanding of the winter peak traffic behaviour in the Snowy Mountains Area, it is likely that these peak volumes provided by TfNSW likely correlate to a PM Peak hour on a Friday evening (7pm/8pm) or Sunday evening (4pm/5pm) and hence, would unlikely correlate with the peak of residential traffic.

However, without alternative data, this data was adopted as the Kosciuszko Road traffic volumes for both the AM and PM scenarios. It should be noted that using this data would likely result in a traffic analysis that is much more conservative than if AM and PM winter peak volumes were measured in 2023.

The traffic volumes used for the analysis were taken from the maximum of the two data sets and a 2% growth rate was applied to calculate the expected 2023 traffic volumes for the 'base' model for analysis. A 2% growth rate was also applied this data to calculate the expected 2033 traffic volumes for the models. The Kosciuszko Road peak traffic volumes used for the analysis are presented in **Table 9-1**.

Table 9-1 Kosciuszko Road Traffic Volumes

	2019 (Measured)	2023 (Calculated)	2033 (Calculated)
Eastbound	953	1032	1258
Westbound	685	741	903

9.2.2 Eucumbene Road and Hilltop Road Turning Volumes

Intersection counts were undertaken at the Eucumbene Road / Kosciuszko Road and Hilltop Road / Kosciuszko Road Intersections over the week from Friday 17/02/2023 to Thursday 23/02/2023 to accurately determine the turning volumes at each of the intersections for the 'base' analysis of the intersections. The turning volumes used for this analysis was drawn from the intersections' AM and PM peak hours.

The data from the traffic counts can be seen in **Appendix E**.

As the winter peak traffic volume is directly attributed to tourism, it was assumed that the turning traffic volumes would not "scale up" with the through traffic volumes, therefore the volumes used for the analysis were the same as those recorded.

9.2.3 Heavy Vehicles

From the TfNSW data, the heavy vehicle percentage on Kosciuszko Road was an average of approximately 8% in directions of travel. Whereas, from the intersection counts, the heavy vehicle percentage was 5% on average. For the purposes of this assessment, the more conservative 8% was adopted.

Due to the relatively minor number vehicles turning in/out of Eucumbene Road, the measured heavy vehicle percentage of these movements were quite large (25%-50%) which would not be an accurate representation of the traffic for the future scenarios, especially when the proposed development traffic which is assumed to be essentially 100% light vehicles. Therefore, a maximum heavy vehicle percentage of 5% was adopted for all turning movements in and out of Eucumbene Road.

Hilltop Road is currently unsealed, and as such, no heavy vehicles were observed utilising it during the week the counts were undertaken. 0% heavy vehicles utilising Hilltop Road was also adopted for the future modelling scenarios.

9.2.4 Growth Rates

As prescribed by TfNSW, a 2% growth rate was applied to all legs of the intersections to model the 2033 with and without development future scenarios. Additionally, a 3% growth rate was applied for a sensitivity analysis of the modelling.

9.3 Traffic Generation

Since the initial modelling, the proposed development has been further refined and the proposed maximum residential dwellings within the proposed development will be 300, with a 800m^2 commercial development as well. As discussed with TfNSW, the trip generation rate used for this analysis was 10 trips per dwelling per day, which equates to 1 trip per dwelling in the AM and PM Peak hours. Additionally, while the commercial development while generate trips, it is intended to solely service the Kalkite area and won't cause additional trips at the Eucumbene Road or Hilltop Road Intersections.

9.4 Traffic Distribution

As discussed, and agreed upon with TfNSW, the proposed Peak hour traffic distribution used for this analysis is:

AM Distribution

- 5% (15) remain in Kalkite
- 5% (15) utilise Hilltop Road and turn left onto Kosciuszko Road, towards Cooma
- 10% (30) utilise Eucumbene Road and turn left onto Kosciuszko Road, towards Cooma
- 80% (240) utilise Eucumbene Road and turn right onto Kosciuszko Road, towards Jindabyne

PM Distribution

- 5% (15) remain in Kalkite
- 5% (15) turn right into Hilltop Road from Kosciuszko Road
- 10% (30) turn right into Eucumbene Road from Kosciuszko Road
- 80% (240) turn left into Eucumbene Road from Kosciuszko Road.

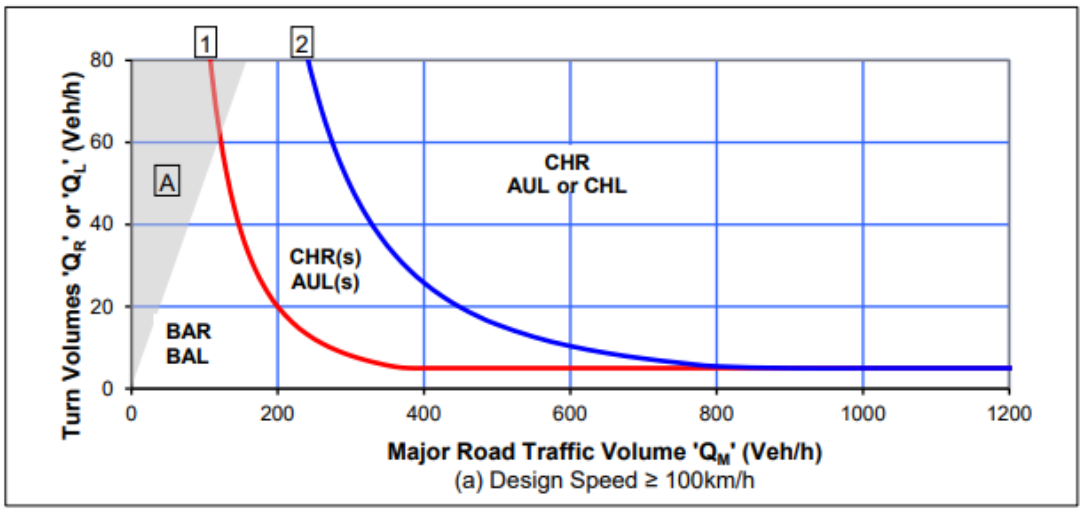
9.5 Existing Intersection Assessment

Both the Eucumbene Road / Kosciuszko Road and Hilltop Road / Kosciuszko Road Intersections were assessed on their current layout and winter peak traffic in accordance with various Austroads Guides. The elements of the intersection assessed included a turn warrant assessment and sight distance assessment.

9.5.1 Turn Warrant Assessment

The turn warrant assessments were conducted in accordance with Section 3.3.6 of the *Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossing Management*, with reference to the below chart from the guide.

Figure 9-1 Austroads Turn Warrant Treatments



9.5.1.2 Eucumbene Road / Kosciuszko Road

For the right-turn treatment; from the intersection counts undertaken, in the peak hour, there is a maximum of 10 vehicles turning right from Kosciuszko Road into Eucumbene Road (Q_R). From these counts and the winter peak traffic data supplied by TfNSW, there is approximately 1800 through and left turning vehicles on Kosciuszko Road (Q_M).

For the left-turn treatment; from the intersection counts undertaken, in the peak hour, there is a maximum of 38 vehicles turning left into Eucumbene from Kosciuszko Road (Q_L). From the winter peak traffic data supplied by TfNSW, there is approximately 1050 eastbound through vehicles on Kosciuszko Road (Q_M).

According to **Figure 9-1** a Channelised Right turn treatment and Auxiliary or Channelised Left turn treatment would be required for this intersection.

As it currently stands, this intersection has channelised right turning lane approximately 150m long and an auxiliary left turning lane approximately 170m long. Therefore, the Eucumbene Road / Kosciuszko Road Intersection currently has appropriate turn treatments.

Based on Section 7.6.1 of *Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* the required minimum deceleration length of the right turning lane from Kosciuszko Road is 110m. Therefore, a maximum storage of 40m is available in this turning lane.

9.5.1.3 Hilltop Road / Kosciuszko Road

For the right-turn treatment; from the intersection counts undertaken, in the peak hour, there is a maximum of 7 vehicles turning right from Kosciuszko Road into Hilltop Road (Q_R). From these counts and the winter peak traffic data supplied by TfNSW, there is approximately 1800 through and left turning vehicles on Kosciuszko Road (Q_M).

For the left-turn treatment; from the intersection counts undertaken, in the peak hour, there is a maximum of 8 vehicles turning left into Eucumbene from Kosciuszko Road (Q_L). From the winter peak traffic data supplied by TfNSW, there is approximately 1050 eastbound through vehicles on Kosciuszko Road (Q_M).

According to **Figure 9-1** a Channelised Right turn treatment and Auxiliary or Channelised Left turn treatment would be required for this intersection.

As it currently stands, this intersection has no existing turn treatments and therefore does meet the requirements of the Austroads Guide. It should be noted that the shoulder on Kosciuszko Road at this intersection is wider than standard and the intersection would likely operate as an unformalised BAR/BAL intersection.

9.5.2 Sight Distance Assessment

The required Safe Intersection Sight Distance (SISD) was calculated in accordance with the *Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*, using a desktop analysis of the two intersections. Based on the parameters of the two intersections, the required SISD was calculated to be approximately 250m for both intersections. An estimate of the available sight distances from the two intersections using Google Street View indicates that drivers turning out of both Eucumbene Road and Hilltop Road would have more than 250m of unobstructed views of traffic on Kosciuszko Road in all directions.

9.6 Intersection Capacity Analysis

The two intersections where also modelled and assessed using SIDRA 9.0 which is a micro-modelling software package. SIDRA provides an indication of an intersection's performance capacity through the following key outputs:

- Degree of Saturation (DOS) - Ratio of Demand to Capacity;
- Average Delay (in seconds);
- 95th Percentile Queue Length (in metres);
- The Level of Service (LOS) criteria.

The SIDRA NETWORK model determines the backward spread of congestion as queues on downstream lanes block upstream lanes (queue spillback). SIDRA applies capacity constraint to oversaturated upstream lanes, hence limiting the flows entering downstream lanes. These two elements are highly interactive with opposing effects. A network wide iterative process is used to find a solution that balances these opposing effects.

Each model was set to 30 iterations which is the maximum number of iterations permissible by SIDRA.

The following sections discuss the capacity modelling for the key external intersections.

For the full SIDRA outputs, refer to **Appendix F**.

9.6.1 Level of Service Criteria

Level of Service (LOS) is determined by the average delay for each vehicle (RMS NSW method). The range definitions for LOS are indicated in **Table 9-2** below.

Table 9-2 Level of Service Definition Table

Level of Service	Average Delay / Vehicle (sec/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs
LOS A	<10	Good operation	Good operation
LOS B	11 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
LOS C	29 to 42	Satisfactory	Satisfactory, accident study required
LOS D	43 to 56	Operating near capacity	Near capacity, accident study required
LOS E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode.
LOS F	>70	Over capacity requires investigation of other control modes.	Over capacity, requires other control mode.

In general, intersections should operate at a minimum of LOS C to operate under satisfactory conditions. Note: For priority control signalised intersection (With Stop and Give Way signs or operating under the T-junction rule) the critical movement for Level of Service assessment should be that with the worst movement delay.

9.6.2 Eucumbene Road / Kosciuszko Road

This section will provide the results of the SIDRA modelling of the Eucumbene Road / Kosciuszko Road Intersection in both the AM and PM Peak. **Table 9-3** and **Table 9-4** show the traffic volumes used for the modelling in the AM and PM Peak hours respectively. **It is noted that these analyses are undertaken on winter peak traffic volumes and do not represent typical operating conditions for the intersection.**

Table 9-3 Kosciuszko Road / Eucumbene Road AM Peak Hour Traffic Volumes

	AM TRAFFIC Kosciuszko Road / Eucumbene Road					
Intersection No.	Intersection Legs (Clockwise: North-East-West)					
1	North		East		West	
	North Approach - Eucumbene Rd		East Approach - Kosciuszko Rd		West Approach - Kosciuszko Road	
	L	R	T	R	L	T
2023 Base	10	43	741	7	18	1032
2033 Without Development	12	52	903	9	22	1258
2033 With Development	42	292	903	9	22	1258
Development Trips	30	240				
Percentage of Total	71%	82%				

Table 9-4 Kosciuszko Road / Eucumbene Road AM Peak Hour Traffic Volumes

	PM TRAFFIC Kosciuszko Road / Eucumbene Road					
Intersection No.	Intersection Legs (Clockwise: North-East-West)					
1	North		East		West	
	North Approach - Eucumbene Rd		East Approach - Kosciuszko Rd		West Approach - Kosciuszko Road	
	L	R	T	R	L	T
2023 Base	5	16	741	8	37	1032
2033 Without Development	6	20	903	10	45	1258
2033 With Development	6	20	903	40	285	1258
Development Trips				30	240	
Percentage of Total				75%	84%	

9.6.2.1 AM Peak Hour Results

Tables 9-5 – 9-7 summarises the results of the SIDRA modelling for each leg of the Eucumbene Road / Kosciuszko Road Intersection in the AM Peak hour.

Table 9-5 Eucumbene Road Leg (AM Peak)

Scenario	2023 'Base Model'	2033 'Without Development Model'	2033 'With Development Model'
Degree of Saturation (DOS)	0.220	0.562	3.005
Average Delay (sec)	18.7	37.6	1825.5
95th Percentile Queue (m)	3.6	9.9	1109.3
Level of Service (LOS)	**LOS C**	**LOS E**	**LOS F**

Table 9-6 Kosciuszko Road East Approach Leg (AM Peak)

Scenario	2023 'Base Model'		2033 'Without Development Model'		2033 'With Development Model'	
	Through Lane	Turning Lane	Through Lane	Turning Lane	Through Lane	Turning Lane
Degree of Saturation (DOS)	0.416	0.023	0.508	0.057	0.508	0.057
Average Delay (sec)	0.3	18.7	0.5	28.9	0.5	28.9
95th Percentile Queue (m)	0.0	0.6	0.0	1.3	0.0	1.3
Level of Service (LOS)	**LOS A**	**LOS C**	**LOS A**	**LOS D**	**LOS A**	**LOS D**

Table 9-7 Kosciuszko Road West Approach Leg (AM Peak)

Scenario	2023 'Base Model'		2033 'Without Development Model'		2033 'With Development Model'	
	Through Lane	Turning Lane	Through Lane	Turning Lane	Through Lane	Turning Lane
Degree of Saturation (DOS)	0.569	0.012	0.707	0.013	0.707	0.013
Average Delay (sec)	0.6	8.6	1.0	8.0	1.0	8.0
95th Percentile Queue (m)	0.0	0.0	0.0	0.0	0.0	0.0
Level of Service (LOS)	**LOS A**	**LOS A**	**LOS A**	**LOS A**	**LOS A**	**LOS A**

9.6.2.2 PM Peak Hour Results

Tables 9-8 – 9-10 summarises the results of the SIDRA modelling for each leg of the Eucumbene Road / Kosciuszko Road Intersection in the PM Peak hour.

Table 9-8 Eucumbene Road Leg (PM Peak)

Scenario	2023 'Base Model'	2033 'Without Development Model'	2033 'With Development Model'
Degree of Saturation (DOS)	0.110	0.225	0.265
Average Delay (sec)	20.9	30.5	35.5
95th Percentile Queue (m)	1.8	3.5	4.2
Level of Service (LOS)	**LOS C**	**LOS D**	**LOS E**

Table 9-9 Kosciuszko Road East Approach Leg (PM Peak)

Scenario	2023 'Base Model'		2033 'Without Development Model'		2033 'With Development Model'	
	Through Lane	Turning Lane	Through Lane	Turning Lane	Through Lane	Turning Lane
Degree of Saturation (DOS)	0.416	0.033	0.508	0.064	0.512	0.411
Average Delay (sec)	0.3	22.0	0.5	29.3	0.5	55.3
95th Percentile Queue (m)	0.0	0.9	0.0	1.4	0.0	9.7
Level of Service (LOS)	**LOS A**	**LOS C**	**LOS A**	**LOS D**	**LOS A**	**LOS F**

Table 9-10 Kosciuszko Road West Approach Leg (PM Peak)

Scenario	2023 'Base Model'		2033 'Without Development Model'		2033 'With Development Model'	
	Through Lane	Turning Lane	Through Lane	Turning Lane	Through Lane	Turning Lane
Degree of Saturation (DOS)	0.580	0.022	0.707	0.026	0.707	0.166
Average Delay (sec)	0.6	8.1	1.0	8.0	1.0	8.1
95th Percentile Queue (m)	0.0	0.0	0.0	0.0	0.0	0.0
Level of Service (LOS)	**LOS A**	**LOS A**	**LOS A**	**LOS A**	**LOS A**	**LOS A**

9.6.3 Hilltop Road / Kosciuszko Road

This section will provide the results of the SIDRA modelling of the Hilltop Road / Kosciuszko Road Intersection in both the AM and PM Peak. **Table 9-11** and **Table 9-12** show the traffic volumes used for the modelling in the AM and PM Peak hours respectively. **It is noted that these analyses are undertaken on winter peak traffic volumes and do not represent typical operating conditions for the intersection.**

Table 9-11 Kosciuszko Road / Hilltop Road AM Peak Hour Traffic Volumes

	AM TRAFFIC Kosciuszko Road / Hilltop Road					
Intersection No.	Intersection Legs (Clockwise: North-East-West)					
2	North		East		West	
	North Approach - Hilltop Rd		East Approach - Kosciuszko Rd		West Approach - Kosciuszko Road	
	L	R	T	R	L	T
2023 Base	4	3	741	4	3	1032
2033 Without Development	5	4	903	5	4	1258
2033 With Development	20	4	903	5	4	1258
Development Trips	15					
Percentage of Total	75%					

Table 9-12 Kosciuszko Road / Hilltop Road AM Peak Hour Traffic Volumes

	PM TRAFFIC Kosciuszko Road / Hilltop Road					
Intersection No.	Intersection Legs (Clockwise: North-East-West)					
2	North		East		West	
	North Approach - Hilltop Rd		East Approach - Kosciuszko Rd		West Approach - Kosciuszko Road	
	L	R	T	R	L	T
2023 Base	4	3	741	6	4	1032
2033 Without Development	5	4	903	7	5	1258
2033 With Development	5	4	903	22	5	1258
Development Trips				15		
Percentage of Total				68%		

9.6.3.2 AM Peak Hour Results

Tables 9-5 – 9-7 summarises the results of the SIDRA modelling for each leg of the Hilltop Road / Kosciuszko Road Intersection in the AM Peak hour.

Table 9-13 Hilltop Road Leg (AM Peak)

Scenario	2023 'Base Model'	2033 'Without Development Model'	2033 'With Development Model'
Degree of Saturation (DOS)	0.013	0.028	0.073
Average Delay (sec)	0.7	14.0	14.5
95th Percentile Queue (m)	0.0	0.4	1.2
Level of Service (LOS)	**LOS A**	**LOS B**	**LOS B**

Table 9-14 Kosciuszko Road East Approach Leg (AM Peak)

Scenario	2023 'Base Model'	2033 'Without Development Model'	2033 'With Development Model'
Degree of Saturation (DOS)	0.419	0.522	0.522
Average Delay (sec)	0.3	1.0	1.0
95th Percentile Queue (m)	1.4	5.0	5.0
Level of Service (LOS)	**LOS A**	**LOS A**	**LOS A**

Table 9-15 Kosciuszko Road West Approach Leg (AM Peak)

Scenario	2023 'Base Model'	2033 'Without Development Model'	2033 'With Development Model'
Degree of Saturation (DOS)	0.579	0.706	0.706
Average Delay (sec)	0.7	1.1	1.1
95th Percentile Queue (m)	0.0	0.0	0.0
Level of Service (LOS)	**LOS A**	**LOS A**	**LOS A**

9.6.3.3 PM Peak Hour Results

Tables 9-8 – 9-10 summarises the results of the SIDRA modelling for each leg of the Hilltop Road / Kosciuszko Road Intersection in the PM Peak hour.

Table 9-16 Hilltop Road Leg (PM Peak)

Scenario	2023 'Base Model'	2033 'Without Development Model'	2033 'With Development Model'
Degree of Saturation (DOS)	0.013	0.028	0.028
Average Delay (sec)	10.7	14.0	14.1
95th Percentile Queue (m)	0.2	0.4	0.4
Level of Service (LOS)	**LOS B**	**LOS B**	**LOS B**

Table 9-17 Kosciuszko Road East Approach Leg (PM Peak)

Scenario	2023 'Base Model'	2033 'Without Development Model'	2033 'With Development Model'
Degree of Saturation (DOS)	0.424	0.531	0.596
Average Delay (sec)	0.4	1.3	4.2
95th Percentile Queue (m)	2.1	7.0	22.4
Level of Service (LOS)	**LOS A**	**LOS A**	**LOS A**

Table 9-18 Kosciuszko Road West Approach Leg (PM Peak)

Scenario	2023 'Base Model'	2033 'Without Development Model'	2033 'With Development Model'
Degree of Saturation (DOS)	0.579	0.706	0.706
Average Delay (sec)	0.7	1.1	1.1
95th Percentile Queue (m)	0.0	0.0	0.0
Level of Service (LOS)	**LOS A**	**LOS A**	**LOS A**

9.6.4 Summary of Results

9.6.4.1 Eucumbene Road / Kosciuszko Road Intersection

In both peaks, but especially the AM peak, the traffic on Eucumbene Road is experiencing relatively major delays (30-40 seconds) in the future winter peak scenario both with and without the proposed development. In the AM peak for the 'with development' scenario, the delay is approximately 30 minutes with a 95th percentile queue. It is noted that the model assumes the AM peak coincides with the winter AM peak which typically occurs on a Saturday. It should also be accepted that the winter traffic peak significantly changes local driver behaviour, including decision to travel and time of travel, which are parameters which cannot be modelled by the software. Notwithstanding, changes to the form and function of the intersection will do little to alleviate these delays.

For traffic turning right into Eucumbene Road, there is a relatively significant increase in the average delay between the future scenarios without and with the proposed development, 29.3 seconds to 55.3 seconds. However, while this increase delay could be considered significant, the 95th percentile queue length for the 'with development' scenario is only 9.7m, well below the maximum 40m available. Therefore, the delay for vehicles turning right would not impact the westbound through traffic on Kosciuszko Road.

As discussed previously, the peak through traffic on Kosciuszko Road is not expected to correlate with the peak residential traffic on Eucumbene Road, especially during the winter peak tourism times. Additionally, the winter peak that causes volumes on Kosciuszko Road, like those modelled, typically only occur 3-4 weekends per year. Therefore, the major delays and queues are unlikely to occur like the model predicts, and even if they were to occur, it would only likely be a couple times per year and any upgrades to the intersection to account for them would be redundant for majority of the year.

9.6.4.2 Hilltop Road / Kosciuszko Road Intersection

In the AM Peak, the Hilltop Road / Kosciuszko Road intersection operates at an acceptable level for all legs, with only minor delays/queues, predominantly for vehicles trying to turn from Hilltop Road which is expected.

For the PM Peak, the modelling showed good Levels of Service for all approaches. There was shown to be a minor delay and 95th percentile queue (22m) for the westbound traffic which can be attributed to the vehicles turning right into Hilltop Road. This delay/queue is relatively minor and does not represent a significant impact on the operation of the intersection or the western approach as a whole and, as discussed previously, it is likely that the through traffic would utilise the widened shoulder to navigate around the turning traffic, reducing the impact the turning traffic has on the through traffic.

9.7 Sensitivity Analysis

A sensitivity analysis of the model was undertaken using a 3% growth rate instead of 2%. The major differences between the two models are summarised below:

- For the future 'with development' scenario, the delay and 95th percentile queue length for vehicles turning right from Kosciuszko Road into Eucumbene Road increased from 55 seconds and 9.7m, to 276.5 seconds and 34.0m. While the delay is significant, the queue length is still less than the maximum permissible in the turning lane.
- For the future 'with development' scenario, the delay and 95th percentile queue length for vehicles turning right from Kosciuszko Road into Hilltop Road increased from 4.2 seconds and 22.4m, to 16.7 seconds and 203.7m. Although this is a significant queue length, the sensitivity analysis on the future 'without development' scenario produced a similarly large 181.1m queue length which demonstrates the issues are not directly caused by the proposed development and would be present regardless of whether the development was to proceed.

9.8 TfNSW April RFI

On the 14th of April 2023, an additional RFI was provided by TfNSW following the provision of the additional investigations summarised in section 9.6 of this report. The RFI requested the following information be provided:

- A suitable upgrade at the intersection of Eucumbene Road and Kosciuszko Road to be identified. This upgrade needs to be supported by a traffic analysis (including SIDRA) for winter peak conditions.
- A supporting strategic design for the identified upgrade.
- An appropriate mechanism to fund and deliver the upgrades needs to be identified (i.e. voluntary planning agreement, satisfactory arrangements clause or other appropriate planning mechanism).

In a subsequent meeting held on Friday 18/4/23 between Cardno, TfNSW and SMRC representatives, the mechanisms for achieving the above were discussed at length. As has been noted previously in the report, the data provided by TfNSW to support the winter peak analysis identifies daily traffic volumes, not hourly. It was agreed at the meeting that the winter tourism traffic behaviour is vastly different to the typical peak hour distribution generated by residents. As such, it was agreed that 2023 hourly data would represent a more appropriate data set by which to assess the need for intersection upgrades between Eucumbene Road and Kosciuszko Road.

Additional traffic data collection is proposed to be collected in the 2023 winter peak period to inform this analysis. It was agreed at the meeting that the desired period for collection was between July 10th and July 24th 2023 to capture the second week of NSW school holidays, as well as the first week back of the school term. This date range is expected to give a fair representation of the winter mean now that the effects of Covid-19 on traffic behaviour have ceased.

The development team have committed to the collection of this data set and subsequent review of the outcomes of this report following reanalysis of intersection performance. If the subsequent analysis identifies the need for additional treatment to be implemented at the intersections of Eucumbene Road and Kosciuszko Road, a supporting strategic design will be completed, and such works will be specified and included within the VPA for the development.

9.9 Closing

The purpose of this additional chapter was to review and address additional commentary on the report from TfNSW. Based on modelling of the data provided, and additional traffic counts completed, it has been shown that the proposed development has negligible impact on the performance of existing intersections of Eucumbene Road and Hilltop Road with The Kosciuszko Road. The modelling undertaken assesses conservative estimates for development traffic generation against peak winter traffic coinciding in a worst-case scenario. Based on these assessments, we do not believe that additional works are required to achieve road safety objectives in typical usage scenarios.

APPENDIX A

SIDRA OUTPUTS

MOVEMENT SUMMARY

Site: 1 [AM - Kalkite Rd / Lotus Ave (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N05 [AM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Kalkite Rd														
21	L2	34	1.0	34	1.0	0.030	7.0	LOS A	0.0	0.0	0.00	0.62	0.00	54.2
22	T1	23	3.0	23	3.0	0.030	5.8	LOS A	0.0	0.0	0.00	0.62	0.00	68.8
Approach		57	1.8	57	1.8	0.030	6.5	LOS A	0.0	0.0	0.00	0.62	0.00	63.2
NorthWest: Kalkite Rd														
28	T1	12	3.0	12	3.0	0.007	5.8	LOS A	0.0	0.3	0.24	0.47	0.24	69.8
29	R2	1	1.0	1	1.0	0.007	14.6	LOS B	0.0	0.3	0.24	0.47	0.24	65.7
Approach		13	2.8	13	2.8	0.007	6.5	LOS A	0.0	0.3	0.24	0.47	0.24	69.4
SouthWest: Lotus Ave														
30	L2	1	1.0	1	1.0	0.090	4.6	LOS A	0.3	2.2	0.14	0.53	0.14	65.1
32	R2	95	1.0	95	1.0	0.090	4.8	LOS A	0.3	2.2	0.14	0.53	0.14	30.6
Approach		96	1.0	96	1.0	0.090	4.8	LOS A	0.3	2.2	0.14	0.53	0.14	32.3
All Vehicles		165	1.4	165	1.4	0.090	5.5	NA	0.3	2.2	0.10	0.56	0.10	55.5

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

MOVEMENT SUMMARY

Site: 2 [AM - Kalkite Rd / Gardenia Ct (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N05 [AM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Kalkite Rd														
1	L2	9	1.0	9	1.0	0.035	7.0	LOS A	0.0	0.0	0.00	0.09	0.00	41.1
2	T1	57	3.0	57	3.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	75.8
Approach		66	2.7	66	2.7	0.035	1.0	NA	0.0	0.0	0.00	0.09	0.00	66.8
North: Kalkite Rd														
8	T1	106	3.0	106	3.0	0.056	3.1	LOS A	0.0	0.0	0.00	0.42	0.00	67.1
9	R2	1	1.0	1	1.0	0.056	6.8	LOS A	0.0	0.0	0.00	0.42	0.00	27.8
Approach		107	3.0	107	3.0	0.056	3.1	NA	0.0	0.0	0.00	0.42	0.00	66.1
West: Gardenia Ct														
10	L2	1	1.0	1	1.0	0.024	4.4	LOS A	0.1	0.5	0.22	0.54	0.22	24.9
12	R2	25	1.0	25	1.0	0.024	4.9	LOS A	0.1	0.5	0.22	0.54	0.22	24.9
Approach		26	1.0	26	1.0	0.024	4.9	LOS A	0.1	0.5	0.22	0.54	0.22	24.9
All Vehicles		200	2.6	200	2.6	0.056	2.6	NA	0.1	0.5	0.03	0.33	0.03	63.5

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

MOVEMENT SUMMARY

Site: 3 [AM - Kalkite Rd / Development Access (Section A) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N05 [AM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Kalkite Rd														
1	L2	136	1.0	136	1.0	0.074	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	66.7
2	T1	44	3.0	44	3.0	0.023	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		180	1.5	180	1.5	0.074	5.3	NA	0.0	0.0	0.00	0.48	0.00	69.3
North: Kalkite Rd														
8	T1	125	3.0	125	3.0	0.072	0.1	LOS A	0.1	0.4	0.04	0.04	0.04	77.6
9	R2	7	1.0	7	1.0	0.072	7.4	LOS A	0.1	0.4	0.04	0.04	0.04	66.2
Approach		133	2.9	133	2.9	0.072	0.5	NA	0.1	0.4	0.04	0.04	0.04	76.7
West: Development Access (Section A)														
10	L2	16	1.0	16	1.0	0.335	4.7	LOS A	1.6	11.5	0.39	0.62	0.39	28.0
12	R2	294	1.0	294	1.0	0.335	6.5	LOS A	1.6	11.5	0.39	0.62	0.39	28.0
Approach		309	1.0	309	1.0	0.335	6.4	LOS A	1.6	11.5	0.39	0.62	0.39	28.0
All Vehicles		622	1.5	622	1.5	0.335	4.8	NA	1.6	11.5	0.20	0.45	0.20	60.2

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

MOVEMENT SUMMARY

Site: 5 [AM - Kalkite Rd / Development Access (Section B) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N05 [AM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Kalkite Rd														
1	L2	1	1.0	1	1.0	0.221	5.4	LOS A	0.0	0.0	0.00	0.00	0.00	12.9
2	T1	422	3.0	422	3.0	0.221	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		423	3.0	423	3.0	0.221	0.0	NA	0.0	0.0	0.00	0.00	0.00	79.6
North: Kalkite Rd														
8	T1	181	3.0	181	3.0	0.096	0.0	LOS A	0.0	0.1	0.01	0.00	0.01	79.9
9	R2	1	1.0	1	1.0	0.096	8.4	LOS A	0.0	0.1	0.01	0.00	0.01	73.7
Approach		182	3.0	182	3.0	0.096	0.1	NA	0.0	0.1	0.01	0.00	0.01	79.8
West: Development Access (Section B)														
10	L2	3	1.0	3	1.0	0.004	6.0	LOS A	0.0	0.1	0.44	0.56	0.44	63.7
12	R2	1	1.0	1	1.0	0.004	7.3	LOS A	0.0	0.1	0.44	0.56	0.44	28.2
Approach		4	1.0	4	1.0	0.004	6.3	LOS A	0.0	0.1	0.44	0.56	0.44	61.2
All Vehicles		609	3.0	609	3.0	0.221	0.1	NA	0.0	0.1	0.01	0.01	0.01	79.6

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

MOVEMENT SUMMARY

Site: 4 [AM - Kalkite Rd / Development Access (Section C) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N05 [AM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Kalkite Rd														
2	T1	426	3.0	426	3.0	0.224	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	80.0
3	R2	1	1.0	1	1.0	0.224	7.4	LOS A	0.0	0.1	0.00	0.00	0.00	74.2
Approach		427	3.0	427	3.0	0.224	0.0	NA	0.0	0.1	0.00	0.00	0.00	79.9
East: Development Access (Section C)														
4	L2	1	1.0	1	1.0	0.005	5.1	LOS A	0.0	0.1	0.38	0.58	0.38	27.2
6	R2	3	1.0	3	1.0	0.005	7.3	LOS A	0.0	0.1	0.38	0.58	0.38	27.2
Approach		4	1.0	4	1.0	0.005	6.8	LOS A	0.0	0.1	0.38	0.58	0.38	27.2
North: Kalkite Rd														
7	L2	1	1.0	1	1.0	0.095	5.4	LOS A	0.0	0.0	0.00	0.00	0.00	12.0
8	T1	180	3.0	180	3.0	0.095	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.4
Approach		181	3.0	181	3.0	0.095	0.0	NA	0.0	0.0	0.00	0.00	0.00	74.8
All Vehicles		613	3.0	613	3.0	0.224	0.1	NA	0.0	0.1	0.00	0.01	0.00	79.6

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

MOVEMENT SUMMARY

Site: 1 [PM - Kalkite Rd / Lotus Ave (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N06 [PM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Kalkite Rd														
21	L2	82	1.0	82	1.0	0.055	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	53.8
22	T1	20	3.0	20	3.0	0.055	5.8	LOS A	0.0	0.0	0.00	0.63	0.00	68.6
Approach		102	1.4	102	1.4	0.055	6.7	LOS A	0.0	0.0	0.00	0.63	0.00	59.1
NorthWest: Kalkite Rd														
28	T1	5	3.0	5	3.0	0.004	5.8	LOS A	0.0	0.1	0.24	0.49	0.24	69.7
29	R2	1	1.0	1	1.0	0.004	10.5	LOS A	0.0	0.1	0.24	0.49	0.24	65.6
Approach		6	2.7	6	2.7	0.004	6.5	LOS A	0.0	0.1	0.24	0.49	0.24	68.9
SouthWest: Lotus Ave														
30	L2	1	1.0	1	1.0	0.045	4.6	LOS A	0.1	1.0	0.15	0.53	0.15	65.1
32	R2	46	1.0	46	1.0	0.045	4.9	LOS A	0.1	1.0	0.15	0.53	0.15	30.5
Approach		47	1.0	47	1.0	0.045	4.9	LOS A	0.1	1.0	0.15	0.53	0.15	33.8
All Vehicles		156	1.3	156	1.3	0.055	6.2	NA	0.1	1.0	0.05	0.59	0.05	56.4

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

MOVEMENT SUMMARY

Site: 2 [PM - Kalkite Rd / Gardenia Ct (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N06 [PM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Kalkite Rd														
1	L2	22	1.0	22	1.0	0.066	7.0	LOS A	0.0	0.0	0.00	0.12	0.00	40.8
2	T1	103	3.0	103	3.0	0.066	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	74.9
Approach		125	2.6	125	2.6	0.066	1.2	NA	0.0	0.0	0.00	0.12	0.00	64.3
North: Kalkite Rd														
8	T1	52	3.0	52	3.0	0.028	3.1	LOS A	0.0	0.0	0.01	0.42	0.01	66.9
9	R2	1	1.0	1	1.0	0.028	7.0	LOS A	0.0	0.0	0.01	0.42	0.01	27.7
Approach		53	3.0	53	3.0	0.028	3.2	NA	0.0	0.0	0.01	0.42	0.01	64.8
West: Gardenia Ct														
10	L2	1	1.0	1	1.0	0.012	4.6	LOS A	0.0	0.3	0.22	0.53	0.22	25.0
12	R2	13	1.0	13	1.0	0.012	4.9	LOS A	0.0	0.3	0.22	0.53	0.22	25.0
Approach		14	1.0	14	1.0	0.012	4.9	LOS A	0.0	0.3	0.22	0.53	0.22	25.0
All Vehicles		192	2.6	192	2.6	0.066	2.0	NA	0.0	0.3	0.02	0.23	0.02	63.1

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

MOVEMENT SUMMARY

Site: 3 [PM - Kalkite Rd / Development Access (Section A) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N06 [PM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Kalkite Rd														
1	L2	261	1.0	261	1.0	0.142	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	66.6
2	T1	108	3.0	108	3.0	0.057	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		369	1.6	369	1.6	0.142	5.0	NA	0.0	0.0	0.00	0.44	0.00	69.8
North: Kalkite Rd														
8	T1	61	3.0	61	3.0	0.046	0.5	LOS A	0.1	0.9	0.19	0.12	0.19	71.7
9	R2	14	1.0	14	1.0	0.046	8.3	LOS A	0.1	0.9	0.19	0.12	0.19	62.7
Approach		75	2.6	75	2.6	0.046	2.0	NA	0.1	0.9	0.19	0.12	0.19	69.5
West: Development Access (Section A)														
10	L2	8	1.0	8	1.0	0.208	4.9	LOS A	0.9	6.3	0.43	0.65	0.43	27.5
12	R2	168	1.0	168	1.0	0.208	6.8	LOS A	0.9	6.3	0.43	0.65	0.43	27.5
Approach		177	1.0	177	1.0	0.208	6.7	LOS A	0.9	6.3	0.43	0.65	0.43	27.5
All Vehicles		621	1.5	621	1.5	0.208	5.1	NA	0.9	6.3	0.15	0.46	0.15	65.7

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

MOVEMENT SUMMARY

Site: 5 [PM - Kalkite Rd / Development Access (Section B) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N06 [PM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Kalkite Rd														
1	L2	1	1.0	1	1.0	0.122	5.4	LOS A	0.0	0.0	0.00	0.00	0.00	12.9
2	T1	232	3.0	232	3.0	0.122	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		233	3.0	233	3.0	0.122	0.0	NA	0.0	0.0	0.00	0.00	0.00	79.5
North: Kalkite Rd														
8	T1	373	3.0	373	3.0	0.196	0.0	LOS A	0.0	0.1	0.01	0.00	0.01	79.9
9	R2	2	1.0	2	1.0	0.196	7.6	LOS A	0.0	0.1	0.01	0.00	0.01	73.7
Approach		375	3.0	375	3.0	0.196	0.1	NA	0.0	0.1	0.01	0.00	0.01	79.8
West: Development Access (Section B)														
10	L2	1	1.0	1	1.0	0.002	5.2	LOS A	0.0	0.1	0.36	0.54	0.36	63.8
12	R2	1	1.0	1	1.0	0.002	7.2	LOS A	0.0	0.1	0.36	0.54	0.36	28.3
Approach		2	1.0	2	1.0	0.002	6.2	LOS A	0.0	0.1	0.36	0.54	0.36	57.2
All Vehicles		609	3.0	609	3.0	0.196	0.1	NA	0.0	0.1	0.00	0.01	0.00	79.7

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

MOVEMENT SUMMARY

Site: 4 [PM - Kalkite Rd / Development Access (Section C) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N06 [PM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Kalkite Rd														
2	T1	233	3.0	233	3.0	0.122	0.0	LOS A	0.0	0.1	0.01	0.00	0.01	79.9
3	R2	1	1.0	1	1.0	0.122	8.1	LOS A	0.0	0.1	0.01	0.00	0.01	74.2
Approach		234	3.0	234	3.0	0.122	0.0	NA	0.0	0.1	0.01	0.00	0.01	79.9
East: Development Access (Section C)														
4	L2	1	1.0	1	1.0	0.002	5.8	LOS A	0.0	0.1	0.43	0.56	0.43	27.9
6	R2	1	1.0	1	1.0	0.002	7.2	LOS A	0.0	0.1	0.43	0.56	0.43	27.9
Approach		2	1.0	2	1.0	0.002	6.5	LOS A	0.0	0.1	0.43	0.56	0.43	27.9
North: Kalkite Rd														
7	L2	3	3.0	3	3.0	0.192	5.4	LOS A	0.0	0.0	0.00	0.01	0.00	12.0
8	T1	369	1.0	369	1.0	0.192	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	79.2
Approach		373	1.0	373	1.0	0.192	0.1	NA	0.0	0.0	0.00	0.01	0.00	72.6
All Vehicles		608	1.8	608	1.8	0.192	0.1	NA	0.0	0.1	0.00	0.01	0.00	78.7

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

LANE LEVEL OF SERVICE

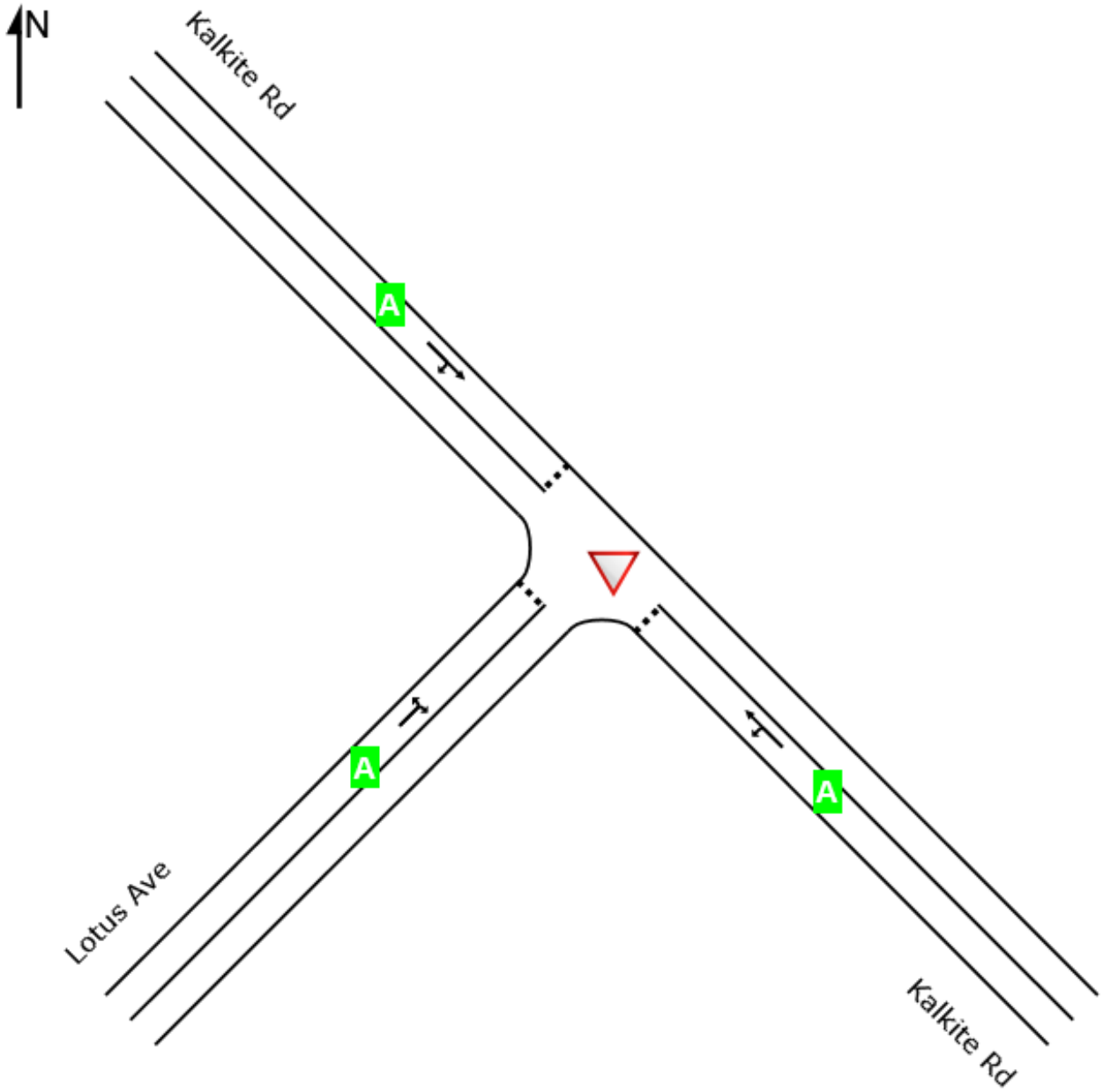
Lane Level of Service

Site: 1 [AM - Kalkite Rd / Lotus Ave (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N05 [AM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Existing Design
Give-Way (Two-Way)

	Approaches			Intersection
	Southeast	Northwest	Southwest	
LOS	A	A	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).

LANE LEVEL OF SERVICE

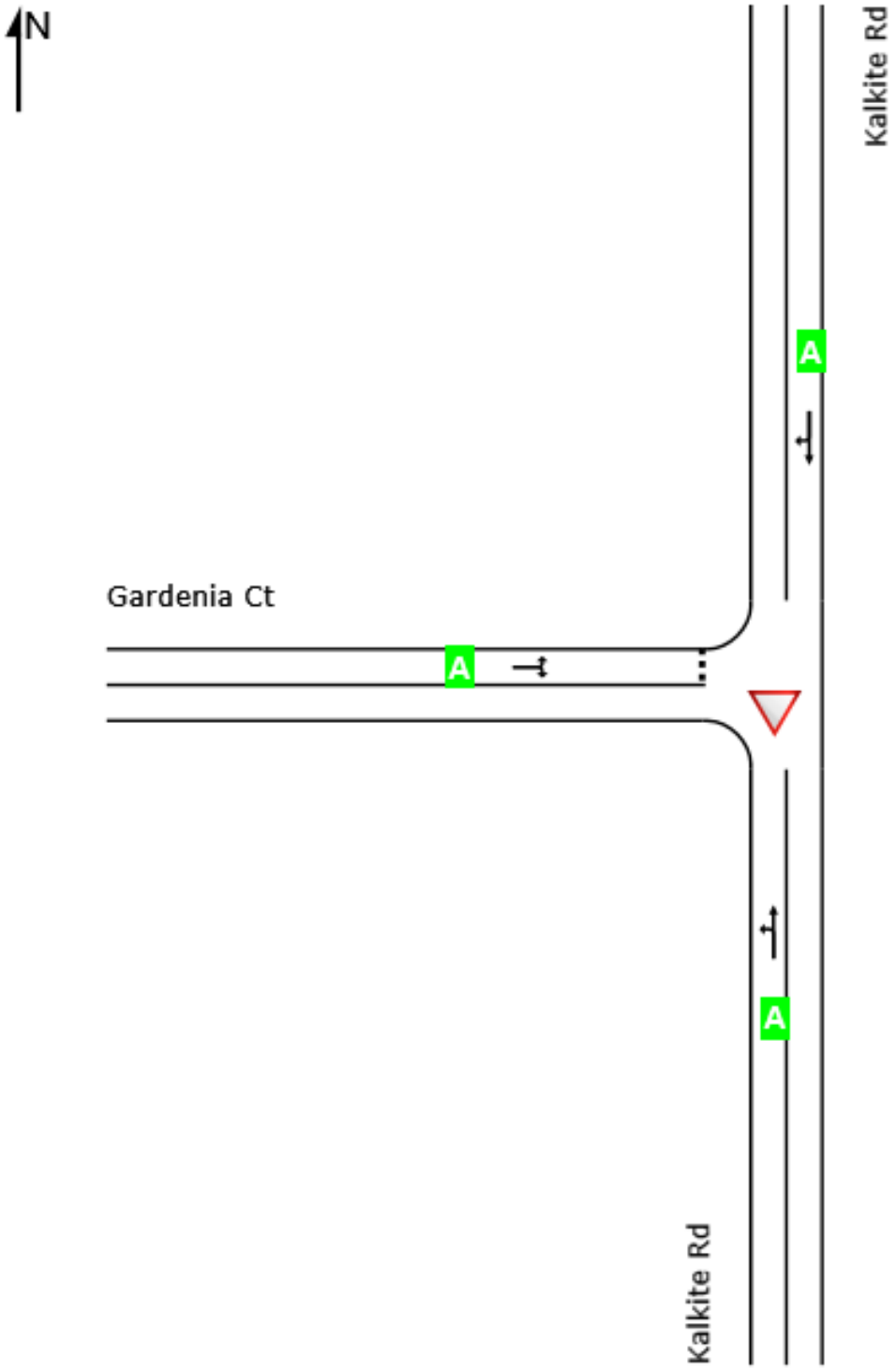
Lane Level of Service

Site: 2 [AM - Kalkite Rd / Gardenia Ct (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N05 [AM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Existing Design
Give-Way (Two-Way)

	Approaches			Intersection
	South	North	West	
LOS	NA	NA	A	NA



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Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).

LANE LEVEL OF SERVICE

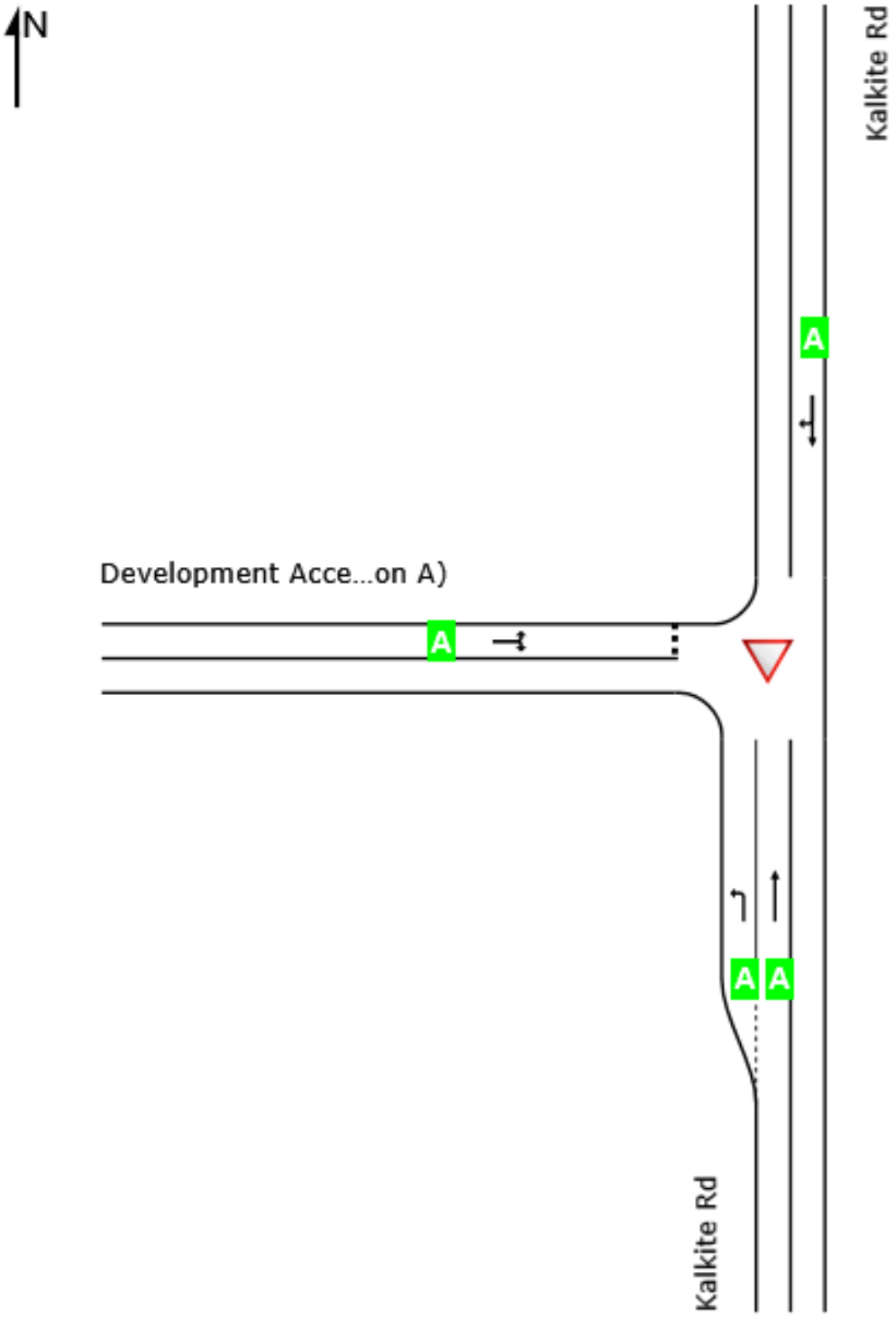
Lane Level of Service

Site: 3 [AM - Kalkite Rd / Development Access (Section A) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N05 [AM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

	Approaches			Intersection
	South	North	West	
LOS	NA	NA	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).

LANE LEVEL OF SERVICE

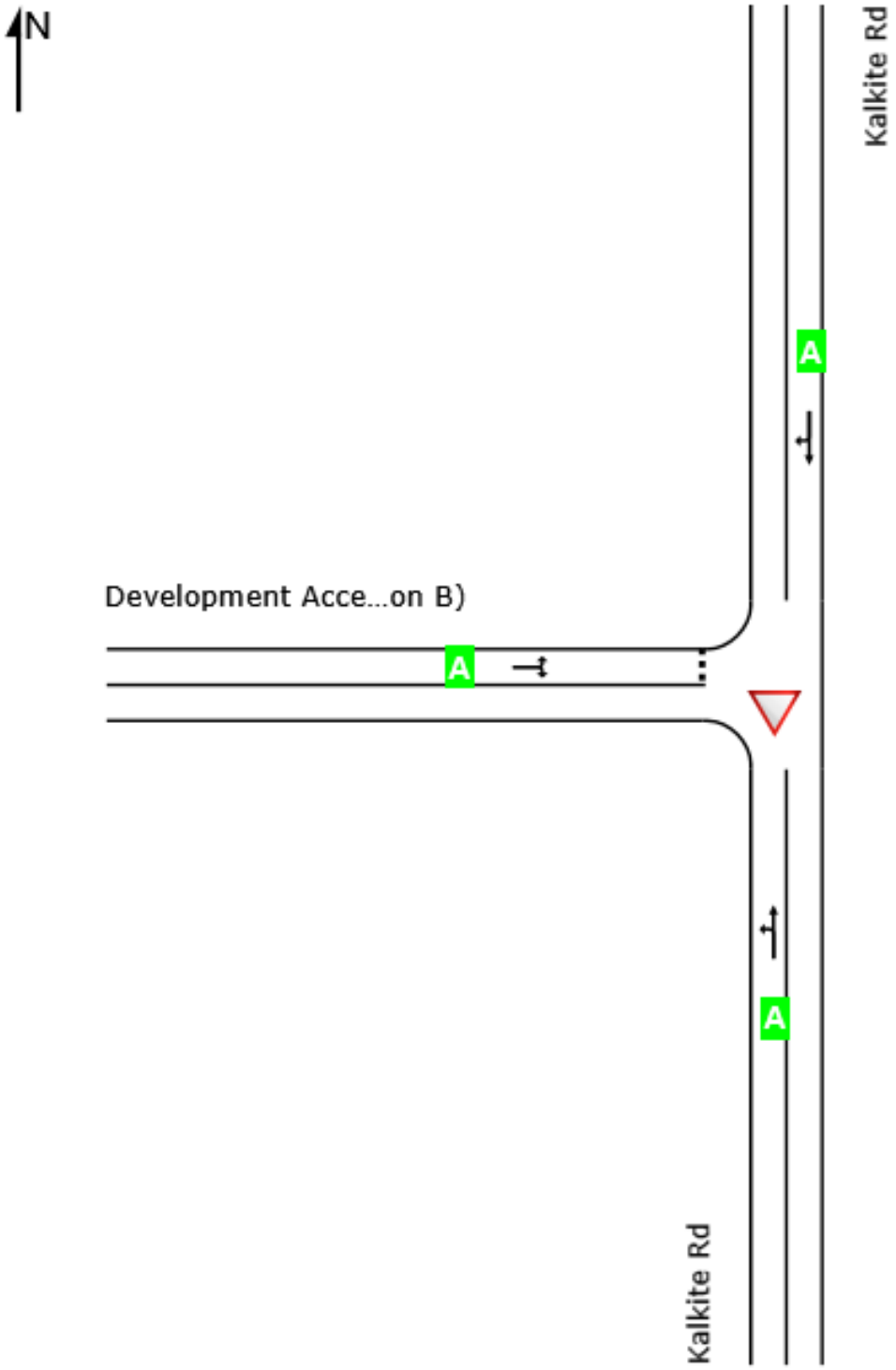
Lane Level of Service

Site: 5 [AM - Kalkite Rd / Development Access (Section B) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N05 [AM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

	Approaches			Intersection
	South	North	West	
LOS	NA	NA	A	NA



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Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).

LANE LEVEL OF SERVICE

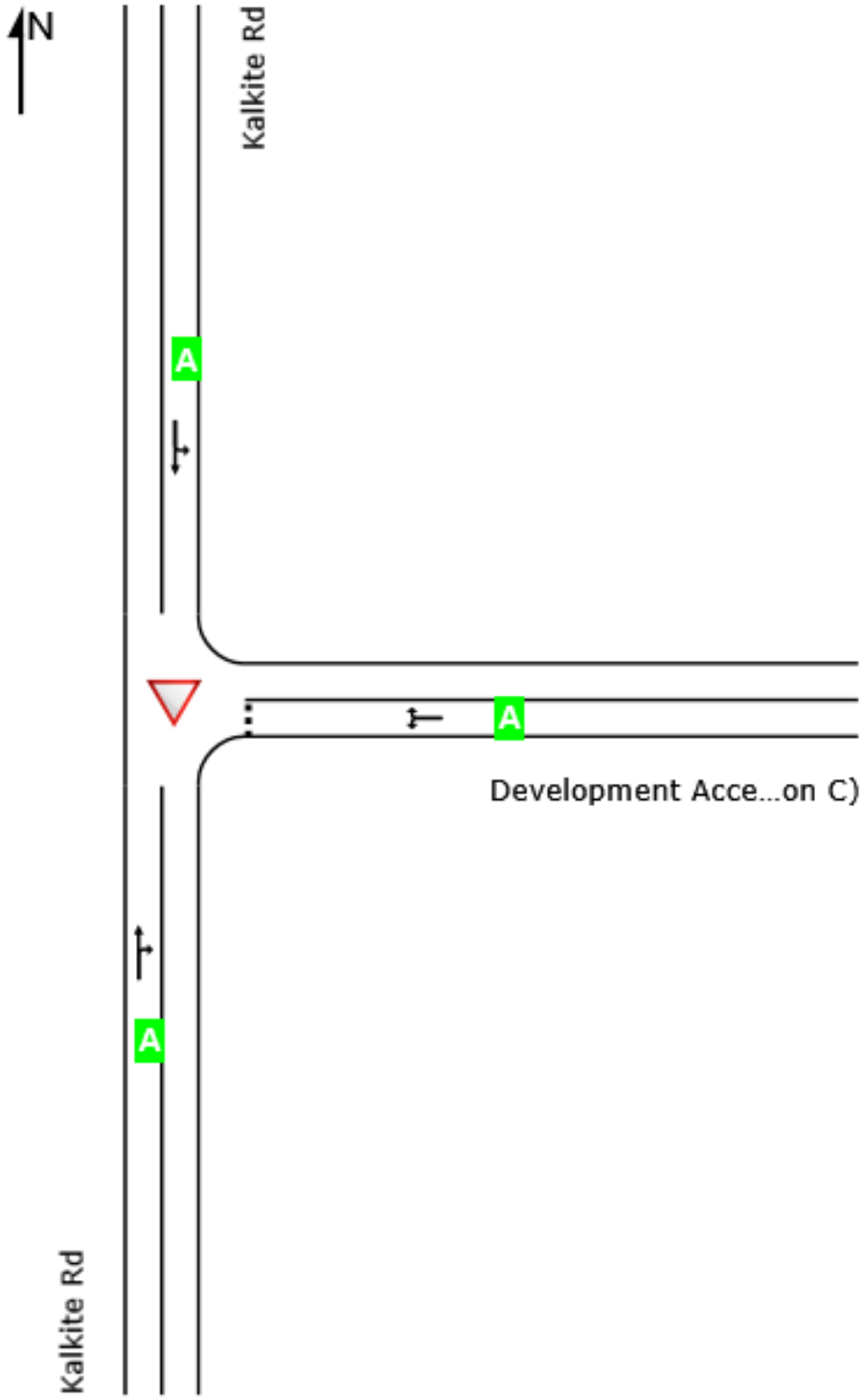
Lane Level of Service

Site: 4 [AM - Kalkite Rd / Development Access (Section C) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N05 [AM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

	Approaches			Intersection
	South	East	North	
LOS	NA	A	NA	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).

LANE LEVEL OF SERVICE

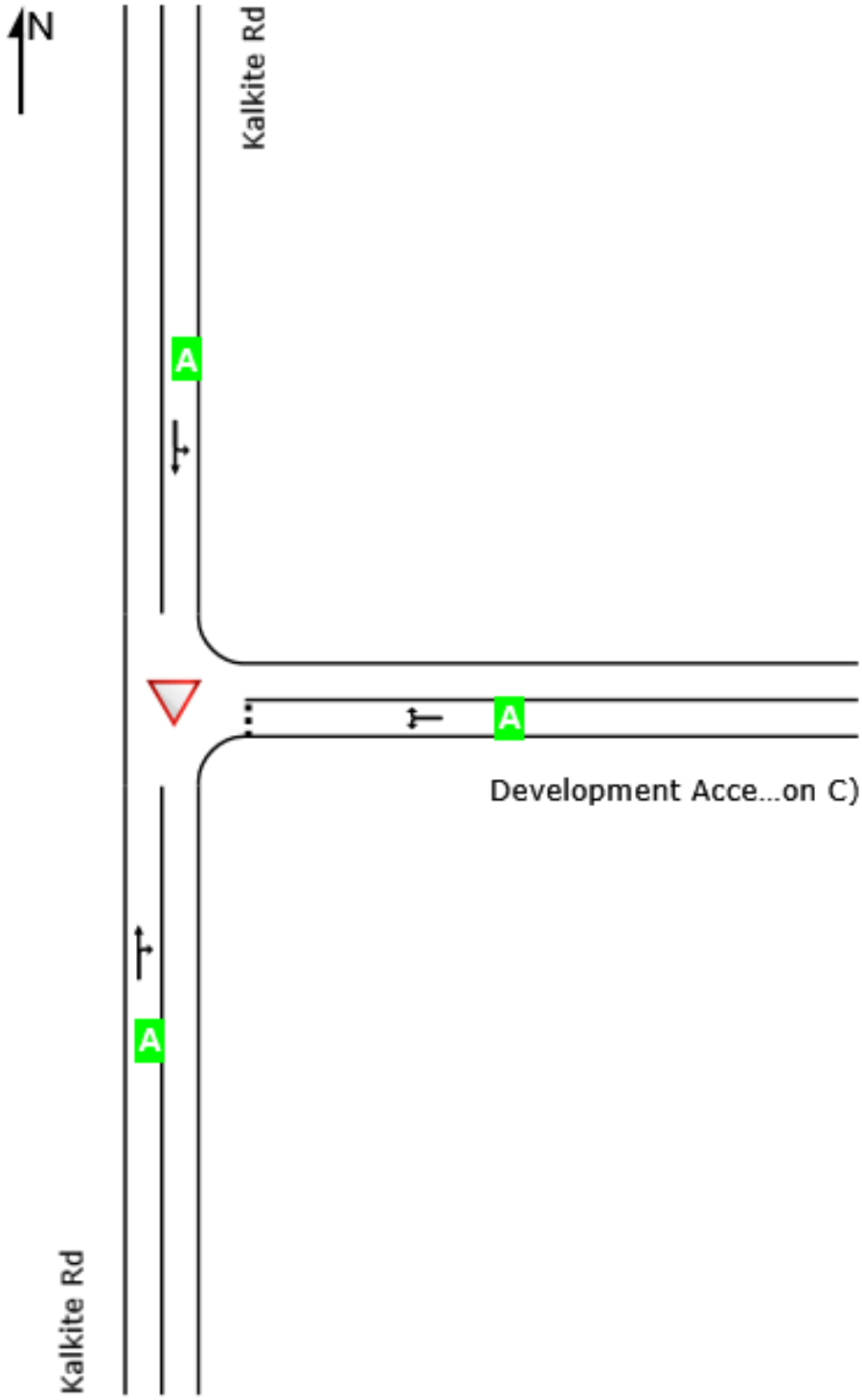
Lane Level of Service

Site: 4 [PM - Kalkite Rd / Development Access (Section C) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N06 [PM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

	Approaches			Intersection
	South	East	North	
LOS	NA	A	NA	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).

LANE LEVEL OF SERVICE

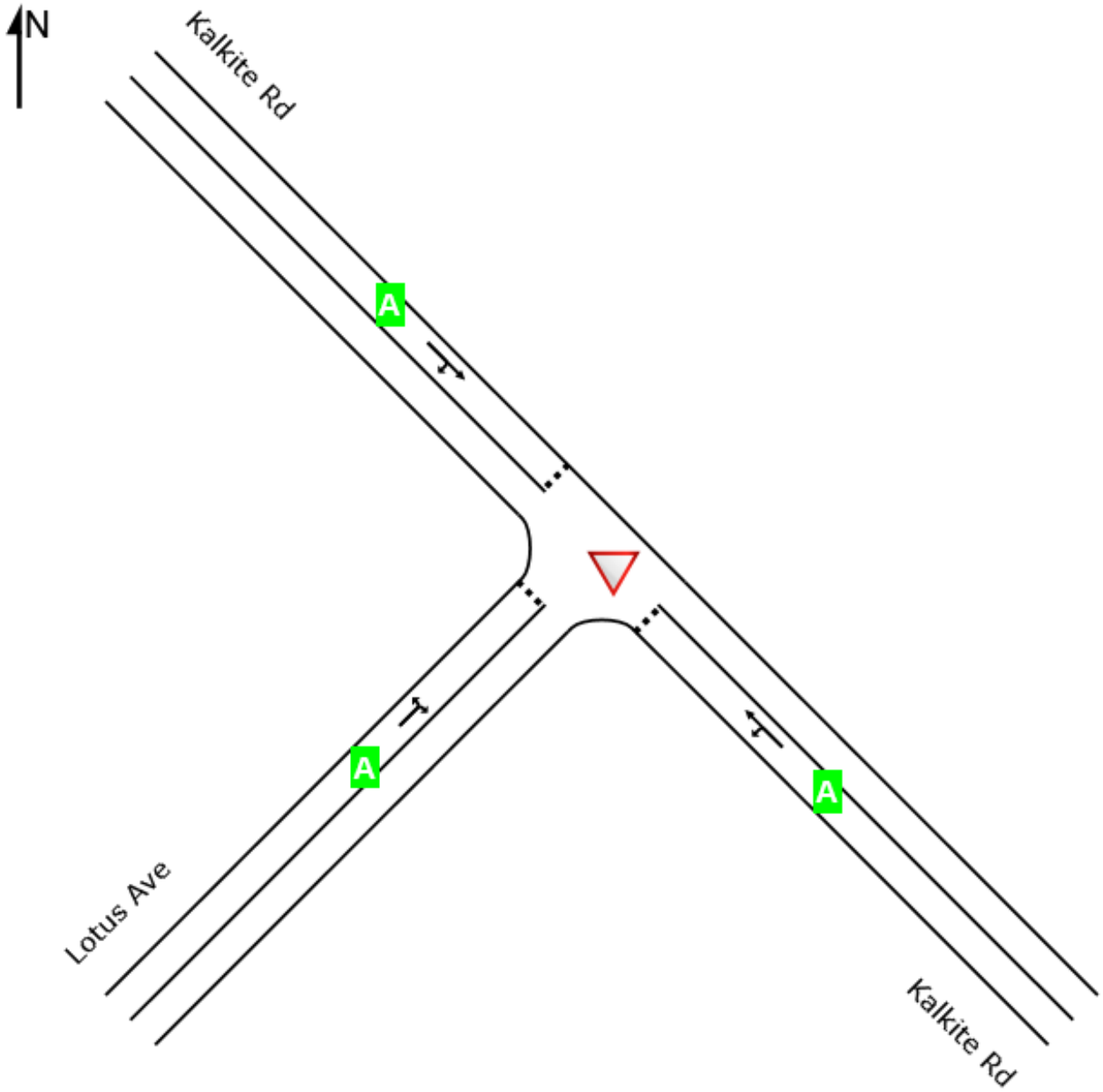
Lane Level of Service

Site: 1 [PM - Kalkite Rd / Lotus Ave (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N06 [PM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Existing Design
Give-Way (Two-Way)

	Approaches			Intersection
	Southeast	Northwest	Southwest	
LOS	A	A	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).

LANE LEVEL OF SERVICE

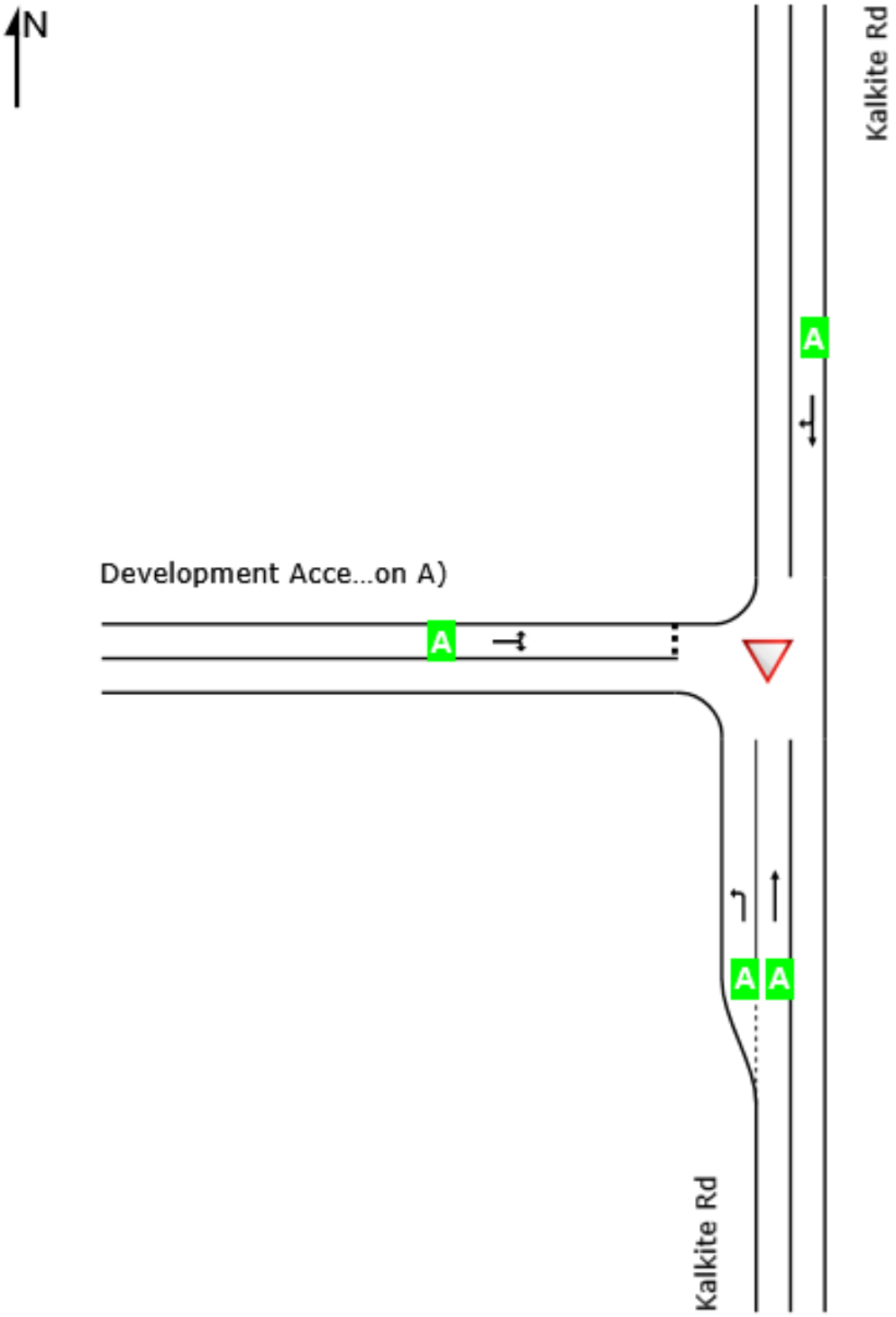
Lane Level of Service

Site: 3 [PM - Kalkite Rd / Development Access (Section A) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N06 [PM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

	Approaches			Intersection
	South	North	West	
LOS	NA	NA	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).

LANE LEVEL OF SERVICE

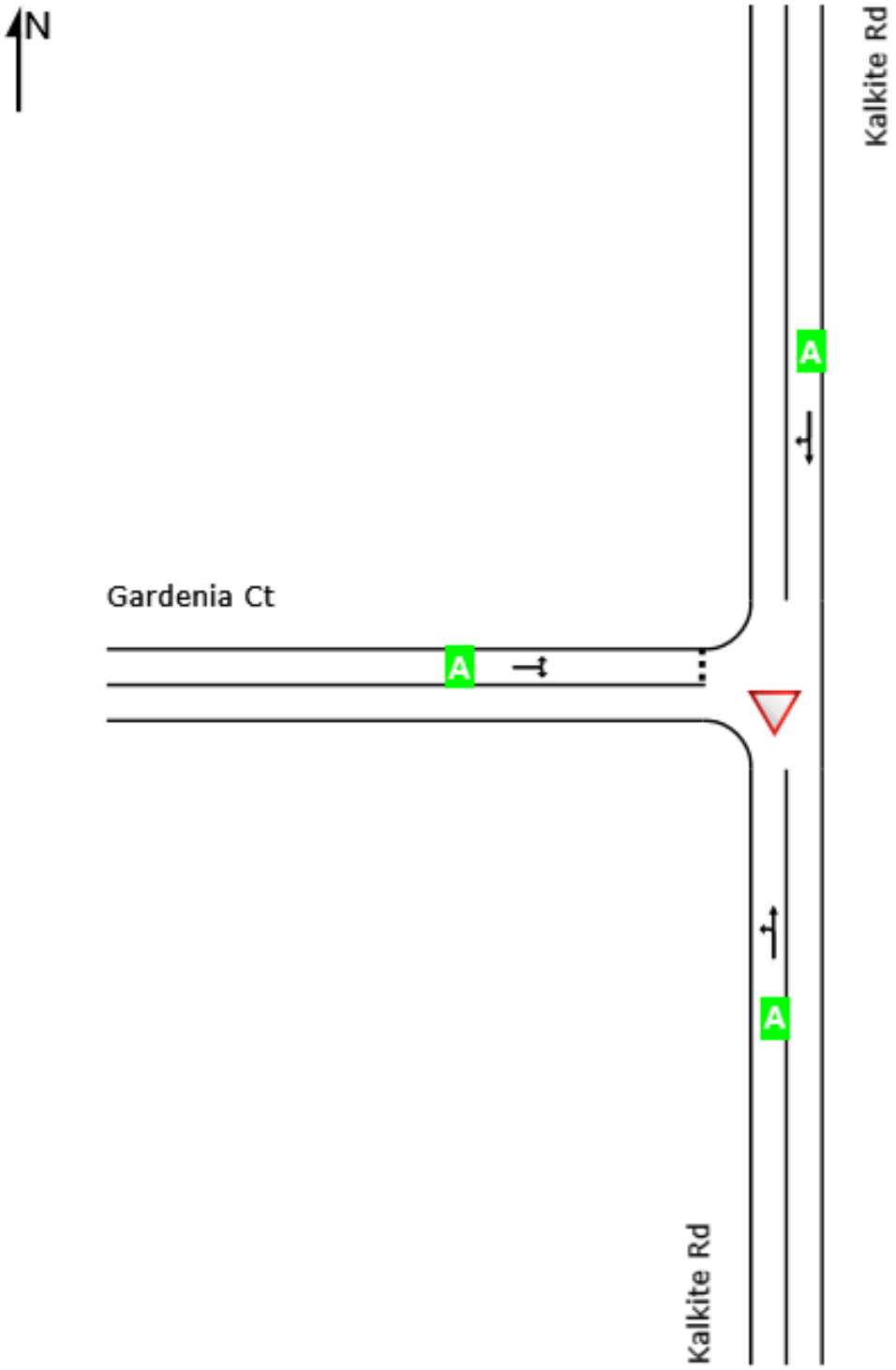
Lane Level of Service

Site: 2 [PM - Kalkite Rd / Gardenia Ct (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N06 [PM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Existing Design
Give-Way (Two-Way)

	Approaches			Intersection
	South	North	West	
LOS	NA	NA	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).

LANE LEVEL OF SERVICE

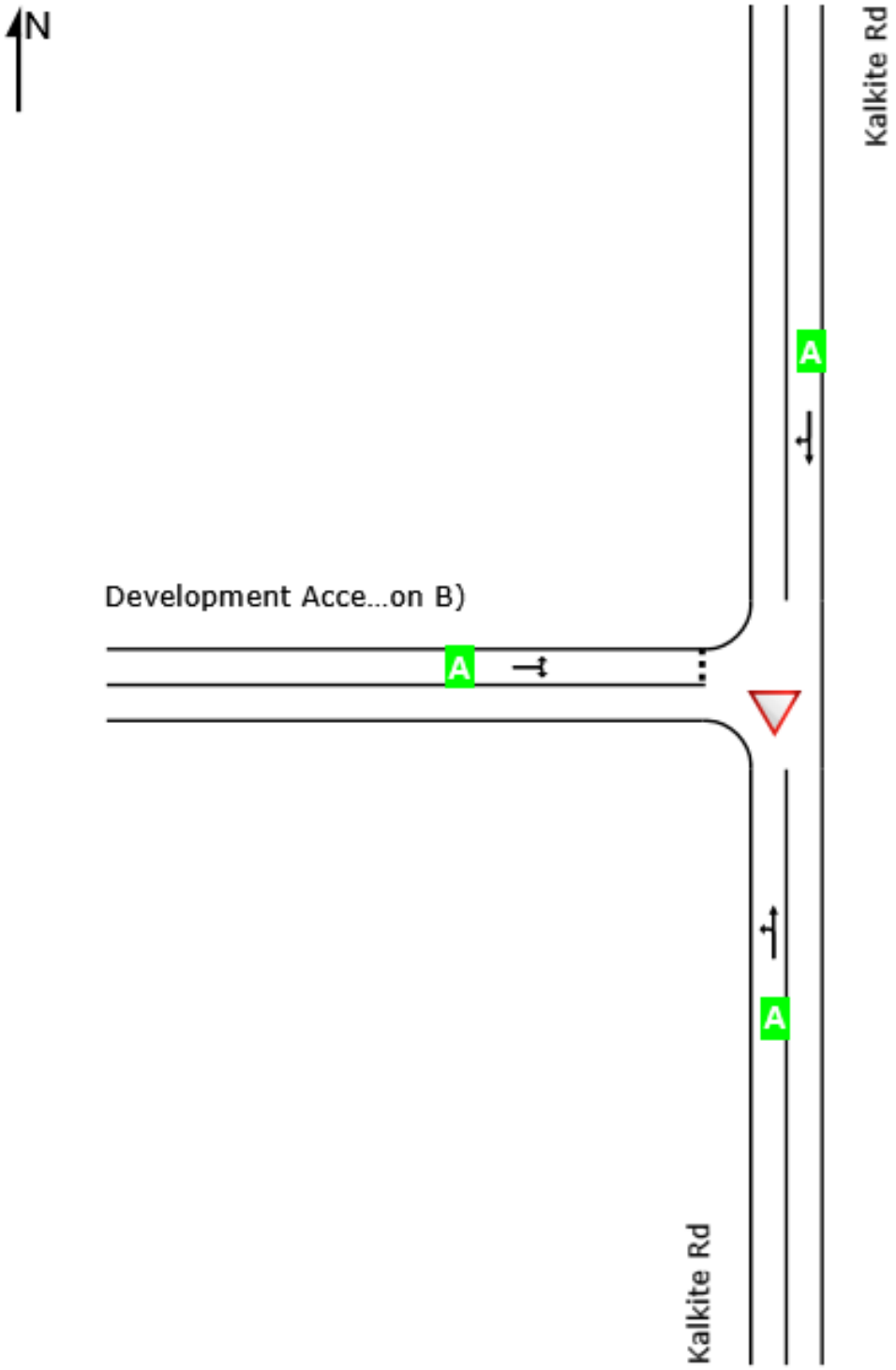
Lane Level of Service

Site: 5 [PM - Kalkite Rd / Development Access (Section B) (Site Folder: 2031 With Development Model - Scenario 3)]

Network: N06 [PM - 2031 With Development Model (Network Folder: 2031 With Development Model - Scenario 3)]

Kalkite Traffic Impact Assessment
Site Category: Proposed Design 1
Give-Way (Two-Way)

	Approaches			Intersection
	South	North	West	
LOS	NA	NA	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).

APPENDIX B

TRAFFIC DATA AND CALCULATIONS

APPENDIX B

TRAFFIC DATA AND CALCULATIONS

Lotus Avenue / Kalkite Road Intersection Trip Generation Calculations

Land use	Unit	Trip Rate		Inbound		Outbound	
		AM	PM	AM	PM	AM	PM
Single Residential	Dwelling	1	1	26%	64%	74%	36%

Total	Land use	Dwellings	Trips			
			AM		PM	
			In	Out	In	Out
Direct Trips	Single Residential	100	26	74	64	36
Upstream	Single Residential	12	3	9	8	4

Growth Rate	2%

Gardenia Court / Kalkite Road Intersection Trip Generation Calculations

Land use	Unit	Trip Rate		Inbound		Outbound	
		AM	PM	AM	PM	AM	PM
Single Residential	Dwelling	1	1	26%	64%	74%	36%

Total	Land use	Dwellings	Trips			
			AM		PM	
			In	Out	In	Out
Direct Trips	Single Residential	27	7	20	17	10
Upstream	Single Residential	112	29	83	72	40

Growth Rate	2%

Section A
Development Access / Kalkite Road Intersection Trip Generation Calculations

Lots sizes	Land Use	Dwellings	Trips			
			AM		PM	
			In	Out	In	Out
Section A						
Single Dwelling	Residential	330	86	244	211	119
Retail	Commercial	800	50	50	50	50
Total			**136**	**294**	**261**	**169**
Section B						
Large Block	Single Dwelling	4	1	3	3	1
Section C						
Large Block	Single Dwelling	4	1	3	3	1
Upstream	Single Dwelling	139	36	103	89	50

Land use	Unit	Trip Rate		Inbound		Outbound	
		AM	PM	AM	PM	AM	PM
Single Residential	Dwelling	1	1	26%	64%	74%	36%
Commercial	GFA	0.125	0.125	50%	50%	50%	50%

Growth Rate	2%

Section B
Development Access / Kalkite Road Intersection Trip Generation Calculations

Lots sizes	Land Use	Dwellings	Trips			
			AM		PM	
			In	Out	In	Out
Section A						
Single Dwelling	Residential	330	86	244	211	119
Retail	Commercial	800	50	50	50	50
Total			**136**	**294**	**261**	**169**
Section B						
Large Block	Single Dwelling	4	1	3	3	1
Section C						
Large Block	Single Dwelling	4	1	3	3	1
Upstream	Single Dwelling (Existing)	139	36	103	89	50
	Single Dwelling (Proposed)	330	86	244	211	119
	Commercial (GFA)	800	50	50	50	50
Total			**136**	**294**	**261**	**169**

Land use	Unit	Trip Rate	Inbound		Outbound	
		AM	PM	AM	PM	AM	PM
Single Residential	Dwelling	1	1	26%	64%	74%	36%
Commercial	GFA	0.125	0.125	50%	50%	50%	50%

Growth Rate	2%

Section C
Development Access / Kalkite Road Intersection Trip Generation Calculations

Lots sizes	Land Use	Dwellings	Trips			
			AM		PM	
			In	Out	In	Out
Section A						
Single Dwelling	Residential	330	86	244	211	119
Retail	Commercial	800	50	50	50	50
Total			**136**	**294**	**261**	**169**
Section B						
Large Block	Single Dwelling	4	1	3	3	1
Section C						
Large Block	Single Dwelling	4	1	3	3	1
Upstream	Single Dwelling (Existing)	139	36	103	89	50
	Single Dwelling (Proposed)	330	86	244	211	119
	Commercial (GFA)	800	50	50	50	50
Total			**136**	**294**	**261**	**169**

Land use	Unit	Trip Rate	Inbound		Outbound	
		AM	PM	AM	PM	AM	PM
Single Residential	Dwelling	1	1	26%	64%	74%	36%
Commercial	GFA	0.125	0.125	50%	50%	50%	50%

Growth Rate	2%

Proposed Dwellings

BASE

Lots sizes	Land Use	Dwellings	Trips			
			AM		PM	
			In	Out	In	Out
Section A						
Small Block	Residential	220	57	163	141	79
Retail	Commercial	800	50	50	50	50
Section B						
Large Block	Single Dwelling	4	1	3	3	1
Section C						
Large Block	Single Dwelling	4	1	3	3	1
	TOTAL		109	219	196	132

50% Dual Occ

Lots sizes	Land Use	Dwellings	Trips			
			AM		PM	
			In	Out	In	Out
Section A						
Single Dwelling	Residential	330	86	244	211	119
Retail	Commercial	800	50	50	50	50
Section B						
Large Block	Single Dwelling	4	1	3	3	1
Section C						
Large Block	Single Dwelling	4	1	3	3	1
	TOTAL		138	300	266	172

Existing Dwellings Traffic Calculations

Northern Section						
Street	Land Use	Dwellings	Trips			
			AM		PM	
			In	Out	In	Out
Banksia Ave	Single Dwelling	43	11	32	28	15
Lotus Ave	Single Dwelling	37	10	27	24	13
Lantana Dr	Single Dwelling	9	2	7	6	3
Nemesia Ct	Single Dwelling	5	1	4	3	2
Oleander Ct	Single Dwelling	6	2	4	4	2
Total			26	74	64	36

Land use	Unit	Trip Rate		Inbound		Outbound	
		AM	PM	AM	PM	AM	PM
Single Residential	Dwelling	1	1	26%	64%	74%	36%

Southern Section						
Street	Land Use	Dwellings	Trips			
			AM		PM	
			In	Out	In	Out
Gardenia Ct	Single Dwelling	7	2	5	4	3
Magnolia Ave	Single Dwelling	16	4	12	10	6
Rosemary Ct	Single Dwelling	4	1	3	3	1
Total			7	20	17	10

APPENDIX

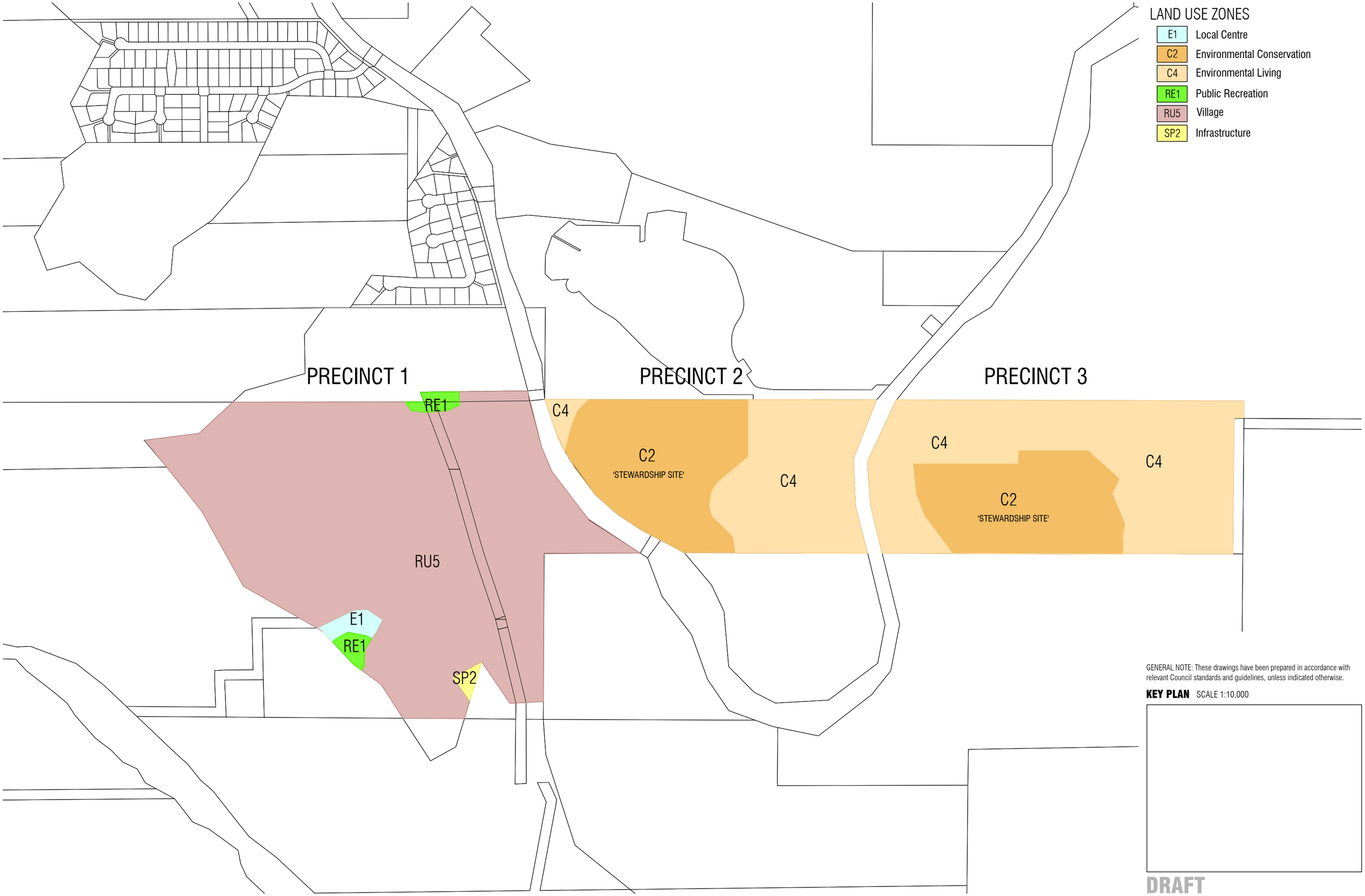
C

CONCEPT SUBDIVISION LAYOUT

Cardno

now

Stantec



GENERAL NOTE: These drawings have been prepared in accordance with relevant Council standards and guidelines, unless indicated otherwise.

KEY PLAN SCALE 1:10,000

DRAFT

SCALE
NTS

REV	DESCRIPTION	DATE	DWN	CHK
A	DRAFT	23.05.23	SG	BR

CLIENT NAME

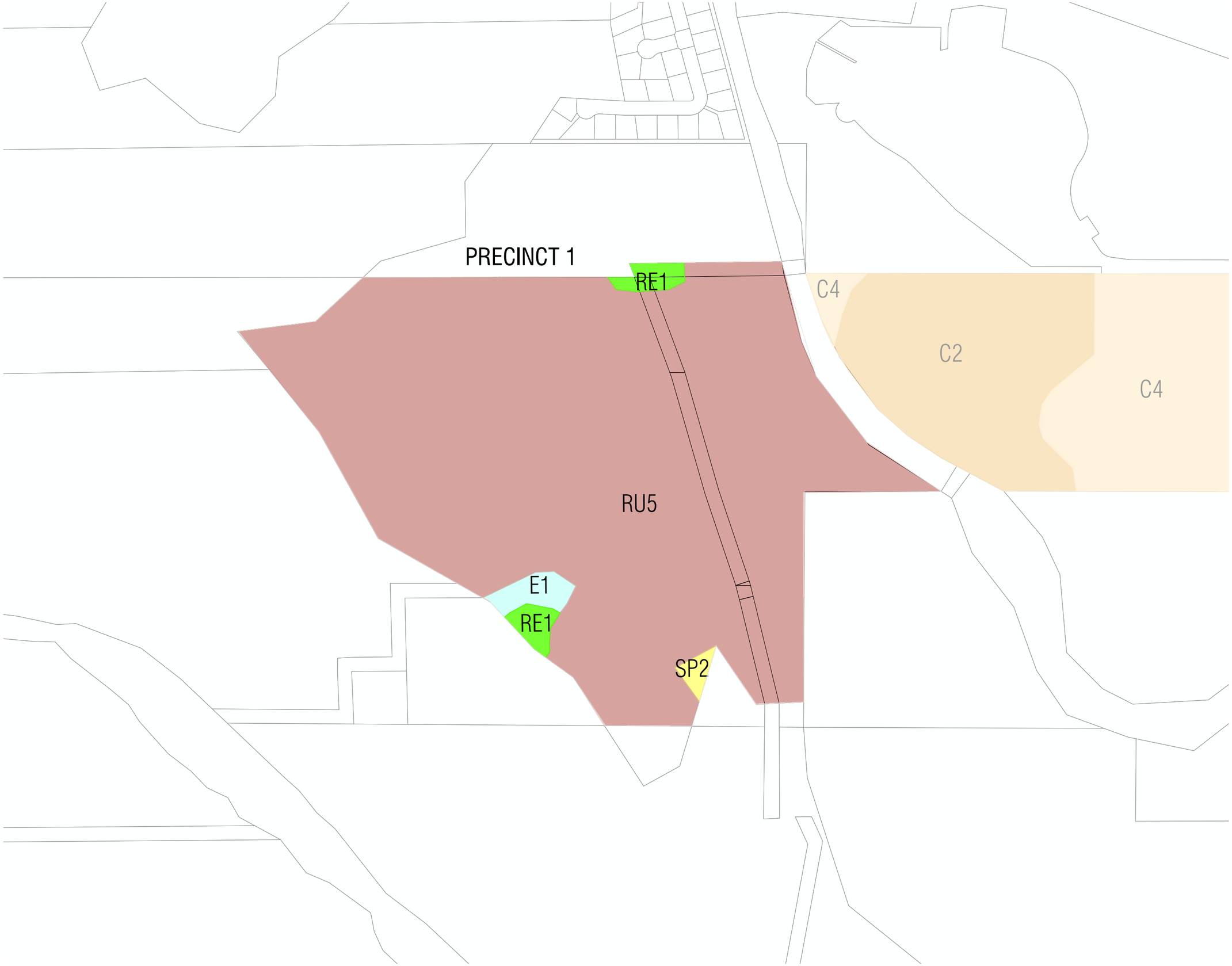
Place Logic
Urban Design | Landscape Architecture
www.placelogic.com.au
ABN 25 619 179 743

56 HILLDOWNS ROAD KALKITE
PROPOSED LAND USE ZONE

PROJECT
KALKITE
56 HILLDOWNS ROAD

REV.	ISSUE
A	DRAFT

23-431-000



LAND USE ZONES

- E1 Local Centre
- C2 Environmental Conservation
- C4 Environmental Living
- RE1 Public Recreation
- RU5 Village
- SP2 Infrastructure

GENERAL NOTE: These drawings have been prepared in accordance with relevant Council standards and guidelines, unless indicated otherwise.

KEY PLAN SCALE 1:10,000

DRAFT

SCALE
1:5000@A3

0 25 50 100 150 200 250m

REV	DESCRIPTION	DATE	DWN	CHK
A	DRAFT	23.05.23	SG	BR

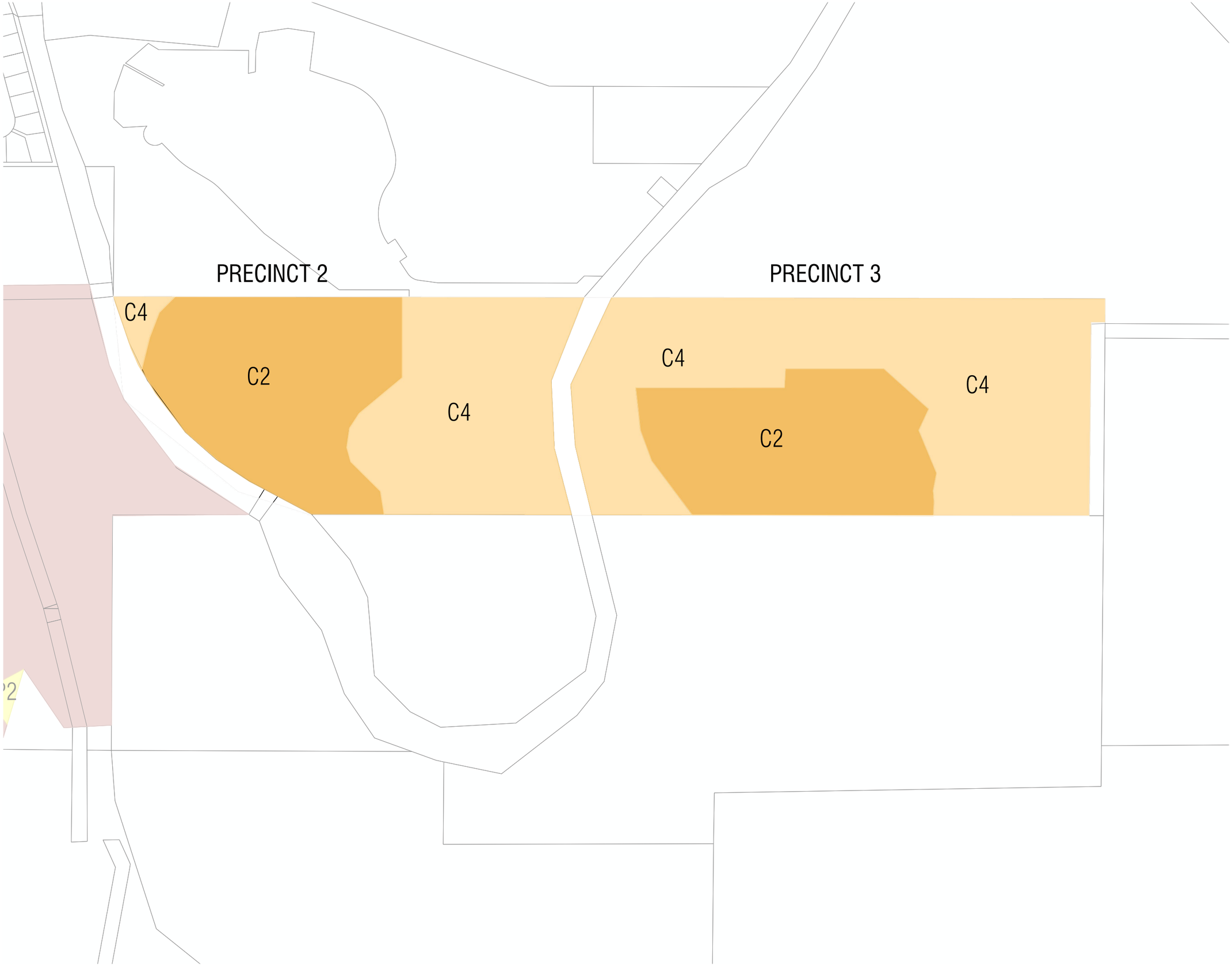
CLIENT NAME

Place Logic
Urban Design | Landscape Architecture
www.placelogic.com.au
ABN 25 619 179 743

PRECINCT 1
PROPOSED LAND USE ZONE

PROJECT
KALKITE
56 HILLDOWNS ROAD

REV.	ISSUE	
A	DRAFT	**23-431-001**



LAND USE ZONES

- E1 Local Centre
- C2 Environmental Conservation
- C4 Environmental Living
- RE1 Public Recreation
- RU5 Village
- SP2 Infrastructure

GENERAL NOTE: These drawings have been prepared in accordance with relevant Council standards and guidelines, unless indicated otherwise.

KEY PLAN SCALE 1:10,000

DRAFT

SCALE
1:5000@A3

0 25 50 100 150 200 250m

REV	DESCRIPTION	DATE	DWN	CHK
A	DRAFT	23.05.23	SG	BR

CLIENT NAME

Place Logic

Urban Design | Landscape Architecture

www.placelogic.com.au
ABN 25 619 179 743

PRECINCT 2 & 3
PROPOSED LAND USE ZONE

PROJECT
KALKITE
56 HILLDOWNS ROAD

REV.	ISSUE
A	DRAFT

23-431-002

APPENDIX

D

RESPONSES TO REFERRAL ENTITY COMMENTS

Cardno

now

Stantec

No	Referral Entity Comments - Provided July 2022	Cardno Response
1)	In section 5.1 of TIA the assumption has been made that *'20% of the proposed lots will be utilised for a dual occupancy development'.* I am not sure if 20% is the right assumption and what are the basis of this assumption. Usually in engineering design we consider the worst-case scenario and that would be 100% dual occupancy rate. In this case 50% dual occupancy rate would be more reasonable to assume, as we have considered 50% dual occ rate previously for one of the DAs in nearby areas.	Cardno have updated **Section 5.1** of the Transport Impact Assessment Report to include updated yields associated with a 50% dual occupancy rate. A review of the updated modelling outputs concludes that there was no significant change in network performance as a result of the increase in trips generated, with the Level of Service remaining at LOS A for all five intersections across all scenarios.
2)	SIDRA modelling software has been used for the intersection treatment for section A, section B and section C. The outcome of the intersection treatment for section A will change if the dual occ rate is assumed to be 50%. For section B and section C, there's no safe intersection sight distance taken into consideration while proposing the intersection treatment. The location of the access for section B and C should achieve SISD in accordance with AGRD Part 4A for the design speed of 90km/h and the reaction time of 2 seconds. Section B and section C have 4 lots each, the intersection of the of section B and C with the Kalkite road should have a minimum Basic Left Turn (BAL) and Basic Right Turn (BAR) intersection treatment in accordance with AGRD Part 4 and 4A.	As discussed in Item #1 above, Cardno have remodelled the traffic network to include an increase in yields to represent a 50% dual occupancy rate across the proposed development. The level of intersection treatment for Section A will be determined in the future Development Application phase of works. Regarding both Section B and Section C intersections, Cardno have undertaken Safe Intersection Sight Distance assessment in accordance with Section 3.2.2 of *Austroads Guide to Road Design Part 4a – Unsignalised and Signalised Intersections (2021).* Based upon results of this assessment it was determined that the minimum allowable sight distance for each intersection was 214m. Upon review of relevant mapping and aerial imagery, it was concluded that these requirements are achievable for both intersection locations. Further analysis is subject to detail design. As with Section A, the level of intersection treatment for Section B and C will be determined during the Development Application phase of works.
3)	Section 5.4 of TIA have considered 20 workers per day and considered 1.25 workers per car, this needs to be 1 worker per car. The report hasn't considered other vehicular during construction such as consultants, council's and other stake holders site visits.	Cardno have updated **Section 5.4.1** of the report to include a rate of 1.0 worker per vehicle during the construction works phase. The impact of additional vehicular movements outside of the dedicated construction work vehicles stated throughout **Section 5.4.1** is considered to be negligible in the context of the ultimate traffic assessment. This is further outlined in **Section 5.4.1.4** of the report.
4)	The TIA is silent of Kalkite Road and Eucumbene Road intersection treatment. The intersection needs an upgrade and shall be designed for additional traffic created by 338 extra dwellings.	Comment on this intersection have been provided in **Section 8.2.1** of the report. It is important to note that the existing intersection is unlikely to meet current safety requirements. It is Cardno's view that appropriate intersection upgrades for the Kalkite Road and Eucumbene Road intersection should be determined through a Road Safety Audit which considers traffic numbers generate by all developments planned and approved within the Kalkite area.

5)	Add a discussion on the directional split of traffic using Eucumbene Road and Hilltop Road.	Cardno have undertaken an assessment of the time taken to travel to Berridale/Cooma via from the proposed development using both Hilltop Road and Eucumbene Road routes and have determined that the time saved taking the Hilltop Road route is negligible due the difference in road surface and anticipated speed. Utilising the above assessment, and destination/origin assumptions based upon places of employment, services, nearby attractions and visitors place of origin. Cardno have determined a directional split for the Eucumbene Road and Hilltop Road intersection of 90/10. With 90% of vehicles utilising Eucumbene Road and 10% utilising Hilltop Road. Further details surrounding this assessment is listed in **Section 8.2.1** of the Transport Impact Assessment.
6)	Proposed rezoning would create 220+8 additional lots, out of which 220 lots will be permitted for dual occupancy subject to further approval. If we if the dual occ rate is 100% then the additional traffic of Kalkite Road would be 4480 vpd. And if the dual occ rate is 50% then the additional traffic of Kalkite Road would be 3380 vpd. In both the scenarios the Kalkite roads definitely needs widening and major upgrades in accordance with Snowy River Development Engineer's design specifications. Eucumbene Road and Hill Top road might also require and upgrade and sealing depending on the traffic distribution.	Kalkite Road is classified as a rural road with a base traffic volume of 1320 vehicular trips per day. Refer to **Section 5.3.1** and **Appendix B** for further information. Requirements set out in Section D1.27 of the Snowy River Development Engineer's design specifications state that for rural roads with >1000 vpd, a 6-meter seal and 2 x 1-meter shoulders is required. A review of relevant mapping and aerial imagery suggests that the carriageway width across Kalkite Road from the proposed development through to the Eucumbene Road Intersection meets the above requirements. It is noted that shoulder widening may be required within certain locations of Kalkite road. As is the case in most development areas where the provision of an asset benefits multiple developments, it is our view that any upgrade works deemed necessary by a road safety audit should be contributed to by all developments. These works need to be scoped to consider the traffic generated by all developments and cannot be solely attributed to any one development.

APPENDIX

E

INTERSECTION COUNTS

Cardno

now

Stantec

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Kosciuszko Rd and Eucumbene Rd, East Jir

GPS -36.368500,148.679139

Date:	Fri 17/02/23
Weather:	Fine
Suburban:	East Jindabyne
Customer:	Cardno

North:	Eucumbene Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey Period	AM:	7:00 AM-10:00 AM
	PM:	3:00 PM-6:00 PM
Traffic Peak	AM:	8:00 AM-9:00 AM
	PM:	3:30 PM-4:30 PM

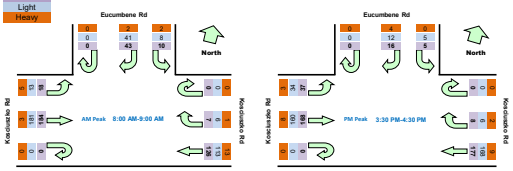
All Vehicles

Time		orth Approach Eucumbene R			ast Approach Kosciuszko R			est Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	6	1	0	0	27	0	10	3	264	
7:15	7:30	0	6	4	0	0	23	0	25	1	306	
7:30	7:45	0	8	2	0	0	25	0	37	3	354	
7:45	8:00	0	6	3	0	1	33	0	37	3	382	
8:00	8:15	0	10	3	0	1	26	0	44	5	388	Peak
8:15	8:30	0	11	3	0	3	39	0	47	4	371	
8:30	8:45	0	17	1	0	2	31	0	49	3	331	
8:45	9:00	0	5	3	0	1	30	0	44	6	303	
9:00	9:15	0	4	0	0	0	29	0	35	4	286	
9:15	9:30	0	5	2	0	1	20	0	35	4		
9:30	9:45	0	4	1	0	1	23	0	41	5		
9:45	10:00	0	7	1	0	2	21	0	39	2		
15:00	15:15	0	6	1	0	0	54	0	32	5	402	
15:15	15:30	0	7	0	0	4	34	0	35	5	387	
15:30	15:45	0	3	2	0	2	42	0	51	12	411	Peak
15:45	16:00	0	4	1	0	1	47	0	48	6	402	
16:00	16:15	0	5	1	0	4	37	0	25	11	355	
16:15	16:30	0	4	1	0	1	51	0	44	8	373	
16:30	16:45	0	7	1	0	3	53	0	36	3	367	
16:45	17:00	0	2	2	0	0	26	0	24	6	360	
17:00	17:15	0	2	0	0	2	42	0	47	8	385	
17:15	17:30	0	2	2	0	4	43	0	40	12		
17:30	17:45	0	4	4	0	0	55	0	23	10		
17:45	18:00	0	6	2	0	3	38	0	31	5		

Peak Time		orth Approach Eucumbene R			ast Approach Kosciuszko R			est Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	43	10	0	7	126	0	184	18	388
15:30	16:30	0	16	5	0	8	177	0	168	37	411

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

Graphic
Total
Light
Heavy



Light Vehicles

Time		orth Approach Eucumbene R			ast Approach Kosciuszko R			est Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	4	1	0	0	24	0	10	3
7:15	7:30	0	4	4	0	0	19	0	22	1
7:30	7:45	0	8	2	0	0	24	0	35	2
7:45	8:00	0	5	3	0	0	30	0	31	3
8:00	8:15	0	9	2	0	0	24	0	44	2
8:15	8:30	0	11	3	0	3	33	0	45	2
8:30	8:45	0	16	0	0	2	28	0	48	3
8:45	9:00	0	5	3	0	1	28	0	44	6
9:00	9:15	0	4	0	0	0	23	0	34	3
9:15	9:30	0	5	1	0	1	17	0	33	3
9:30	9:45	0	3	1	0	1	21	0	39	5
9:45	10:00	0	7	1	0	2	18	0	38	2
15:00	15:15	0	5	1	0	0	52	0	31	5
15:15	15:30	0	7	0	0	4	34	0	33	5
15:30	15:45	0	3	2	0	1	40	0	46	11
15:45	16:00	0	3	1	0	1	46	0	46	6
16:00	16:15	0	5	1	0	4	33	0	25	10
16:15	16:30	0	1	1	0	0	49	0	43	7
16:30	16:45	0	6	0	0	3	52	0	33	2
16:45	17:00	0	2	2	0	0	24	0	22	6
17:00	17:15	0	2	0	0	2	42	0	45	7
17:15	17:30	0	2	2	0	4	43	0	38	12
17:30	17:45	0	3	4	0	0	55	0	23	10
17:45	18:00	0	6	2	0	3	37	0	31	5

Peak Time		orth Approach Eucumbene R			ast Approach Kosciuszko R			est Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	41	8	0	6	113	0	181	13	362
15:30	16:30	0	12	5	0	6	168	0	160	34	385

Heavy Vehicles

Time		orth Approach Eucumbene R			ast Approach Kosciuszko R			est Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	2	0	0	0	3	0	0	0
7:15	7:30	0	2	0	0	0	4	0	3	0
7:30	7:45	0	0	0	0	0	1	0	2	1
7:45	8:00	0	1	0	0	1	3	0	6	0
8:00	8:15	0	1	1	0	1	2	0	0	3
8:15	8:30	0	0	0	0	0	6	0	2	2
8:30	8:45	0	1	1	0	0	3	0	1	0
8:45	9:00	0	0	0	0	0	2	0	0	0
9:00	9:15	0	0	0	0	0	6	0	1	1
9:15	9:30	0	0	1	0	0	3	0	2	1
9:30	9:45	0	1	0	0	0	2	0	2	0
9:45	10:00	0	0	0	0	0	3	0	1	0
15:00	15:15	0	1	0	0	0	2	0	1	0
15:15	15:30	0	0	0	0	0	0	0	2	0
15:30	15:45	0	0	0	0	1	2	0	5	1
15:45	16:00	0	1	0	0	0	1	0	2	0
16:00	16:15	0	0	0	0	0	4	0	0	1
16:15	16:30	0	3	0	0	1	2	0	1	1
16:30	16:45	0	1	1	0	0	1	0	3	1
16:45	17:00	0	0	0	0	0	2	0	2	0
17:00	17:15	0	0	0	0	0	0	0	2	1
17:15	17:30	0	0	0	0	0	0	0	2	0
17:30	17:45	0	1	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	1	0	0	0

Peak Time		orth Approach Eucumbene R			ast Approach Kosciuszko R			est Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	2	2	0	1	13	0	3	5	26
15:30	16:30	0	4	0	0	2	9	0	8	3	26

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Koscluszko Rd and Eucumbene Rd, Eas

GPS -36.368500,148.679139

Date:	Sat 19/02/23
Weather:	Fine
Suburban:	East Jindabyne
Customer:	Cardno

North:	Eucumbene Rd
East:	Koscluszko Rd
South:	N/A
West:	Koscluszko Rd

Survey Period	AM:	9:00 AM-12:00 PM
	PM:	12:00 PM-3:00 PM
Traffic Peak	AM:	11:00 AM-12:00 PM
	PM:	12:15 PM-1:15 PM

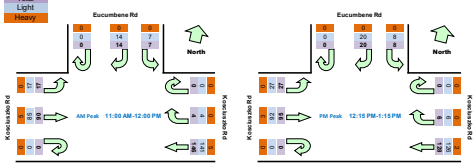
All Vehicles

Time		rth Approach Eucumbene			ast Approach Koscluszko			est Approach Koscluszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
9:00	9:15	0	4	3	0	1	23	0	29	4	250	
9:15	9:30	0	3	0	0	0	19	0	34	1	261	
9:30	9:45	0	4	2	0	2	23	0	44	1	265	
9:45	10:00	0	5	3	0	0	16	0	28	1	257	
10:00	10:15	0	6	4	0	0	32	0	31	2	270	
10:15	10:30	0	7	0	0	1	24	0	24	5	262	
10:30	10:45	0	7	1	0	0	29	0	26	5	269	
10:45	11:00	0	1	3	0	2	26	0	30	4	275	
11:00	11:15	0	3	1	0	1	38	0	19	5	278	Peak
11:15	11:30	0	4	3	0	0	39	0	18	4		
11:30	11:45	0	5	3	0	2	40	0	21	3		
11:45	12:00	0	2	0	0	1	29	0	32	5		
12:00	12:15	0	1	0	0	1	37	0	27	4	275	
12:15	12:30	0	4	1	0	1	37	0	21	6	284	Peak
12:30	12:45	0	4	3	0	3	27	0	22	12	268	
12:45	13:00	0	4	2	0	1	27	0	25	5	256	
13:00	13:15	0	8	2	0	1	37	0	27	4	239	
13:15	13:30	0	9	2	0	1	18	0	19	5	200	
13:30	13:45	0	9	3	0	0	27	0	18	2	212	
13:45	14:00	0	4	1	0	1	23	0	15	3	201	
14:00	14:15	0	4	1	0	0	24	0	11	0	210	
14:15	14:30	0	2	0	0	3	30	0	27	4		
14:30	14:45	0	3	0	0	1	20	0	19	5		
14:45	15:00	0	1	1	0	4	21	0	26	3		

Peak Time		rth Approach Eucumbene			ast Approach Koscluszko			est Approach Koscluszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
11:00	12:00	0	14	7	0	4	146	0	90	17	278
12:15	13:15	0	20	8	0	6	128	0	95	27	284

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

Graphic
Total
Light
Heavy



Light Vehicles

Time		rth Approach Eucumbene			ast Approach Koscluszko			est Approach Koscluszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
9:00	9:15	0	3	3	0	1	22	0	29	4
9:15	9:30	0	3	0	0	0	18	0	34	1
9:30	9:45	0	4	2	0	2	23	0	43	1
9:45	10:00	0	5	3	0	0	16	0	27	1
10:00	10:15	0	6	4	0	0	30	0	31	2
10:15	10:30	0	7	0	0	1	23	0	24	4
10:30	10:45	0	7	1	0	0	29	0	25	5
10:45	11:00	0	1	3	0	2	24	0	26	4
11:00	11:15	0	3	1	0	1	35	0	17	5
11:15	11:30	0	4	3	0	0	38	0	16	4
11:30	11:45	0	5	3	0	2	39	0	20	3
11:45	12:00	0	2	0	0	1	29	0	32	5
12:00	12:15	0	1	0	0	1	37	0	25	3
12:15	12:30	0	4	1	0	1	37	0	19	6
12:30	12:45	0	4	3	0	3	26	0	21	12
12:45	13:00	0	4	2	0	1	26	0	25	5
13:00	13:15	0	8	2	0	1	37	0	27	4
13:15	13:30	0	9	2	0	1	18	0	17	5
13:30	13:45	0	8	3	0	0	24	0	18	2
13:45	14:00	0	4	1	0	1	23	0	15	3
14:00	14:15	0	4	1	0	0	24	0	9	0
14:15	14:30	0	2	0	0	3	30	0	27	4
14:30	14:45	0	3	0	0	1	20	0	19	5
14:45	15:00	0	1	1	0	4	21	0	26	3

Peak Time		rth Approach Eucumbene			ast Approach Koscluszko			est Approach Koscluszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
11:00	12:00	0	14	7	0	4	141	0	85	17	268
12:15	13:15	0	20	8	0	6	126	0	92	27	279

Heavy Vehicles

Time		rth Approach Eucumbene			ast Approach Koscluszko			est Approach Koscluszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
9:00	9:15	0	1	0	0	0	1	0	0	0
9:15	9:30	0	0	0	0	0	1	0	0	0
9:30	9:45	0	0	0	0	0	0	0	1	0
9:45	10:00	0	0	0	0	0	0	0	1	0
10:00	10:15	0	0	0	0	0	2	0	0	0
10:15	10:30	0	0	0	0	0	1	0	0	1
10:30	10:45	0	0	0	0	0	0	0	1	0
10:45	11:00	0	0	0	0	0	2	0	4	0
11:00	11:15	0	0	0	0	0	3	0	2	0
11:15	11:30	0	0	0	0	0	1	0	2	0
11:30	11:45	0	0	0	0	0	1	0	1	0
11:45	12:00	0	0	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0	2	1
12:15	12:30	0	0	0	0	0	0	0	2	0
12:30	12:45	0	0	0	0	0	1	0	1	0
12:45	13:00	0	0	0	0	0	1	0	0	0
13:00	13:15	0	0	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0	2	0
13:30	13:45	0	1	0	0	0	3	0	0	0
13:45	14:00	0	0	0	0	0	0	0	0	0
14:00	14:15	0	0	0	0	0	0	0	2	0
14:15	14:30	0	0	0	0	0	0	0	0	0
14:30	14:45	0	0	0	0	0	0	0	0	0
14:45	15:00	0	0	0	0	0	0	0	0	0

Peak Time		rth Approach Eucumbene			ast Approach Koscluszko			est Approach Koscluszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
11:00	12:00	0	0	0	0	0	5	0	5	0	10
12:15	13:15	0	0	0	0	0	2	0	3	0	5

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY trafficsurvey.com.au

Intersection of Koscluszko Rd and Eucumbene Rd, Eas

GPS -36.368500,148.679139

Date:	Sun 19/02/23
Weather:	Fine
Suburban:	East Jindabyne
Customer:	Cardno

North:	Eucumbene Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey Period	AM:	9:00 AM-12:00 PM
	PM:	12:00 PM-3:00 PM
Traffic Peak	AM:	10:45 AM-11:45 AM
	PM:	2:00 PM-3:00 PM

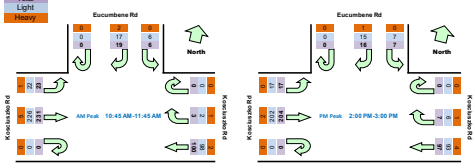
All Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
9:00	9:15	0	2	1	0	2	19	0	34	1	301	
9:15	9:30	0	3	2	0	1	11	0	46	1	322	
9:30	9:45	0	3	1	0	1	10	0	75	6	368	
9:45	10:00	0	8	2	0	0	11	0	60	1	355	
10:00	10:15	0	3	0	0	0	9	1	64	3	369	
10:15	10:30	0	12	2	0	1	23	0	67	5	377	
10:30	10:45	0	4	0	0	2	11	0	61	5	375	
10:45	11:00	0	4	1	0	1	29	0	54	7	382	Peak
11:00	11:15	0	5	1	0	0	21	0	53	8	345	
11:15	11:30	0	3	3	0	2	31	0	64	5		
11:30	11:45	0	7	1	0	0	19	0	60	3		
11:45	12:00	0	2	0	0	1	18	0	35	3		
12:00	12:15	0	9	3	0	1	25	0	36	3	303	
12:15	12:30	0	3	1	0	1	12	0	54	3	316	
12:30	12:45	0	6	2	0	2	26	0	39	7	307	
12:45	13:00	0	2	0	0	0	22	0	42	4	299	
13:00	13:15	0	2	1	0	2	29	0	53	3	289	
13:15	13:30	0	1	0	0	1	20	0	38	5	277	
13:30	13:45	0	2	0	0	1	23	0	42	6	308	
13:45	14:00	0	1	0	0	2	17	0	37	3	329	
14:00	14:15	0	3	1	0	2	17	0	52	3	348	Peak
14:15	14:30	0	3	2	0	3	22	0	60	6		
14:30	14:45	0	5	3	0	1	33	0	48	5		
14:45	15:00	0	5	1	0	1	25	0	44	3		

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
10:45	11:45	0	19	6	0	3	100	0	231	23	382
14:00	15:00	0	16	7	0	7	97	0	204	17	348

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

Graphic
Total
Light
Heavy



Light Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
9:00	9:15	0	1	1	0	2	19	0	34	1
9:15	9:30	0	3	2	0	1	11	0	46	1
9:30	9:45	0	3	1	0	1	10	0	75	6
9:45	10:00	0	8	2	0	0	11	0	60	1
10:00	10:15	0	3	0	0	0	9	1	63	2
10:15	10:30	0	11	0	0	1	23	0	66	5
10:30	10:45	0	4	0	0	2	11	0	61	5
10:45	11:00	0	4	1	0	1	28	0	54	6
11:00	11:15	0	4	1	0	0	21	0	51	8
11:15	11:30	0	2	3	0	1	30	0	63	5
11:30	11:45	0	7	1	0	0	19	0	58	3
11:45	12:00	0	2	0	0	1	18	0	34	3
12:00	12:15	0	9	3	0	1	24	0	35	3
12:15	12:30	0	3	1	0	1	12	0	52	3
12:30	12:45	0	6	2	0	2	26	0	39	6
12:45	13:00	0	2	0	0	0	22	0	42	4
13:00	13:15	0	2	1	0	2	29	0	52	2
13:15	13:30	0	1	0	0	1	20	0	38	4
13:30	13:45	0	1	0	0	1	22	0	42	6
13:45	14:00	0	1	0	0	2	17	0	37	3
14:00	14:15	0	3	1	0	1	17	0	51	3
14:15	14:30	0	2	2	0	3	20	0	60	6
14:30	14:45	0	5	3	0	1	33	0	48	5
14:45	15:00	0	5	1	0	1	23	0	43	3

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
10:45	11:45	0	17	6	0	2	98	0	226	22	371
14:00	15:00	0	15	7	0	6	93	0	202	17	340

Heavy Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
9:00	9:15	0	1	0	0	0	0	0	0	0
9:15	9:30	0	0	0	0	0	0	0	0	0
9:30	9:45	0	0	0	0	0	0	0	0	0
9:45	10:00	0	0	0	0	0	0	0	0	0
10:00	10:15	0	0	0	0	0	0	0	1	1
10:15	10:30	0	1	2	0	0	0	0	1	0
10:30	10:45	0	0	0	0	0	0	0	0	0
10:45	11:00	0	0	0	0	0	1	0	0	1
11:00	11:15	0	1	0	0	0	0	0	2	0
11:15	11:30	0	1	0	0	1	1	0	1	0
11:30	11:45	0	0	0	0	0	0	0	2	0
11:45	12:00	0	0	0	0	0	0	0	1	0
12:00	12:15	0	0	0	0	0	1	0	1	0
12:15	12:30	0	0	0	0	0	0	0	2	0
12:30	12:45	0	0	0	0	0	0	0	0	1
12:45	13:00	0	0	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0	1	1
13:15	13:30	0	0	0	0	0	0	0	0	1
13:30	13:45	0	1	0	0	0	1	0	0	0
13:45	14:00	0	0	0	0	0	0	0	0	0
14:00	14:15	0	0	0	0	1	0	0	1	0
14:15	14:30	0	1	0	0	0	2	0	0	0
14:30	14:45	0	0	0	0	0	0	0	0	0
14:45	15:00	0	0	0	0	0	2	0	1	0

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
10:45	11:45	0	2	0	0	1	2	0	5	1	11
14:00	15:00	0	1	0	0	1	4	0	2	0	8

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Kosciuszko Rd and Eucumbene Rd, Eas

GPS -36.366500,148.679139

Date:	Mon 20/02/23
Weather:	Fine
Suburban:	East Jindabyne
Customer:	Cardno

North:	Eucumbene Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey Period	AM:	7:00 AM-10:00 AM
	PM:	3:00 PM-6:00 PM
Traffic Peak	AM:	8:00 AM-9:00 AM
	PM:	3:30 PM-4:30 PM

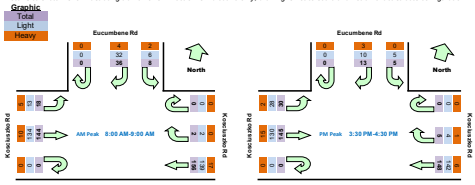
All Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	6	4	0	1	30	0	14	0	262	
7:15	7:30	0	9	1	0	2	24	0	26	1	294	
7:30	7:45	0	9	2	0	0	28	0	26	0	324	
7:45	8:00	0	7	3	0	2	30	0	34	3	346	
8:00	8:15	0	8	1	0	1	37	0	33	7	364	Peak
8:15	8:30	0	10	2	0	0	42	0	36	3	344	
8:30	8:45	0	9	2	0	1	34	0	37	4	320	
8:45	9:00	0	9	3	0	0	43	0	38	4	292	
9:00	9:15	0	3	1	0	1	31	0	29	2	257	
9:15	9:30	0	5	1	0	2	20	0	38	3		
9:30	9:45	0	0	2	0	1	22	0	32	2		
9:45	10:00	0	3	3	0	2	17	0	34	3		
15:00	15:15	0	2	1	0	1	29	0	27	8	301	
15:15	15:30	0	2	0	0	0	31	0	25	7	309	
15:30	15:45	0	5	1	0	2	38	0	36	4	346	Peak
15:45	16:00	0	2	2	0	1	27	0	39	11	345	
16:00	16:15	0	2	1	0	0	38	0	30	5	335	
16:15	16:30	0	4	1	0	2	45	0	40	10	322	
16:30	16:45	0	5	1	0	2	33	0	27	17	290	
16:45	17:00	0	5	0	0	0	34	0	27	6	280	
17:00	17:15	0	1	0	0	2	30	0	26	4	275	
17:15	17:30	0	3	0	0	2	30	0	31	4		
17:30	17:45	0	3	2	0	0	27	0	31	12		
17:45	18:00	0	1	0	0	3	32	0	19	12		

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	36	8	0	2	156	0	144	18	364
15:30	16:30	0	13	5	0	5	148	0	145	30	346

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

Graphic
Total
Light
Heavy



Light Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	5	3	0	0	29	0	14	0
7:15	7:30	0	7	1	0	2	24	0	24	1
7:30	7:45	0	8	2	0	0	27	0	26	0
7:45	8:00	0	7	3	0	1	25	0	30	3
8:00	8:15	0	6	0	0	1	31	0	30	4
8:15	8:30	0	9	1	0	0	37	0	34	2
8:30	8:45	0	8	2	0	1	31	0	34	3
8:45	9:00	0	9	3	0	0	40	0	36	4
9:00	9:15	0	3	1	0	1	30	0	29	2
9:15	9:30	0	5	1	0	2	17	0	35	3
9:30	9:45	0	0	2	0	1	20	0	29	1
9:45	10:00	0	3	3	0	2	17	0	31	2
15:00	15:15	0	1	0	0	1	27	0	26	8
15:15	15:30	0	2	0	0	0	31	0	23	7
15:30	15:45	0	5	1	0	2	38	0	33	3
15:45	16:00	0	1	2	0	1	27	0	32	11
16:00	16:15	0	1	1	0	0	37	0	26	4
16:15	16:30	0	3	1	0	1	40	0	39	10
16:30	16:45	0	5	1	0	2	33	0	25	16
16:45	17:00	0	4	0	0	0	34	0	26	6
17:00	17:15	0	1	0	0	2	30	0	25	3
17:15	17:30	0	3	0	0	2	29	0	29	4
17:30	17:45	0	3	2	0	0	27	0	31	11
17:45	18:00	0	1	0	0	3	32	0	19	12

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	32	6	0	2	139	0	134	13	326
15:30	16:30	0	10	5	0	4	142	0	130	28	319

Heavy Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	1	1	0	1	1	0	0	0
7:15	7:30	0	2	0	0	0	0	0	2	0
7:30	7:45	0	1	0	0	0	1	0	0	0
7:45	8:00	0	0	0	0	1	5	0	4	0
8:00	8:15	0	2	1	0	0	6	0	3	3
8:15	8:30	0	1	1	0	0	5	0	2	1
8:30	8:45	0	1	0	0	0	3	0	3	1
8:45	9:00	0	0	0	0	0	3	0	2	0
9:00	9:15	0	0	0	0	0	1	0	0	0
9:15	9:30	0	0	0	0	0	3	0	3	0
9:30	9:45	0	0	0	0	0	2	0	3	1
9:45	10:00	0	0	0	0	0	0	0	3	1
15:00	15:15	0	1	1	0	0	2	0	1	0
15:15	15:30	0	0	0	0	0	0	0	2	0
15:30	15:45	0	0	0	0	0	0	0	3	1
15:45	16:00	0	1	0	0	0	0	0	7	0
16:00	16:15	0	1	0	0	0	1	0	4	1
16:15	16:30	0	1	0	0	1	5	0	1	0
16:30	16:45	0	0	0	0	0	0	0	2	1
16:45	17:00	0	1	0	0	0	0	0	1	0
17:00	17:15	0	0	0	0	0	0	0	1	1
17:15	17:30	0	0	0	0	0	1	0	2	0
17:30	17:45	0	0	0	0	0	0	0	0	1
17:45	18:00	0	0	0	0	0	0	0	0	0

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	4	2	0	0	17	0	10	5	38
15:30	16:30	0	3	0	0	1	6	0	15	2	27

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Kosciuszko Rd and Eucumbene Rd, East

GPS -36.366800 148.679139

Date:	Tue 21/02/23
Weather:	Fine
Suburban:	East Jindabyne
Customer:	Cardno

North:	Eucumbene Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey Period	AM:	7:00 AM-10:00 AM
	PM:	3:00 PM-6:00 PM
Traffic Peak	AM:	7:30 AM-8:30 AM
	PM:	4:15 PM-5:15 PM

All Vehicles

Time		North Approach Eucumbene			East Approach Kosciuszko R			West Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	5	1	0	1	28	0	18	2	285	
7:15	7:30	0	10	0	0	2	32	0	26	0	309	
7:30	7:45	0	6	5	0	1	33	0	27	4	347	Peak
7:45	8:00	0	9	4	0	1	32	0	35	3	344	
8:00	8:15	0	13	2	0	0	28	0	30	6	339	
8:15	8:30	0	10	2	0	1	41	0	49	5	321	
8:30	8:45	0	12	3	0	2	26	0	26	4	273	
8:45	9:00	0	13	2	0	0	29	0	34	1	245	
9:00	9:15	0	4	1	0	1	24	0	28	3	225	
9:15	9:30	0	5	3	0	1	22	0	23	6		
9:30	9:45	0	0	2	0	0	14	0	26	3		
9:45	10:00	0	2	0	0	3	19	0	30	5		
15:00	15:15	0	4	3	0	2	37	0	21	3	281	
15:15	15:30	0	4	1	0	1	23	0	26	9	274	
15:30	15:45	0	2	0	0	4	19	0	36	5	295	
15:45	16:00	0	5	2	0	1	21	0	41	11	313	
16:00	16:15	0	3	2	0	0	25	0	26	7	311	
16:15	16:30	0	3	2	0	2	36	0	34	8	324	Peak
16:30	16:45	0	7	1	0	0	28	0	38	10	319	
16:45	17:00	0	4	1	0	0	32	0	35	7	313	
17:00	17:15	0	4	1	0	2	27	0	33	9	304	
17:15	17:30	0	0	1	0	0	33	0	35	11		
17:30	17:45	0	5	1	0	2	40	0	24	6		
17:45	18:00	0	3	1	0	3	32	0	25	6		

Peak Time		North Approach Eucumbene			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak total
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	
7:30	8:30	0	38	13	0	3	134	0	141	18	347
16:15	17:15	0	18	5	0	4	123	0	140	34	324

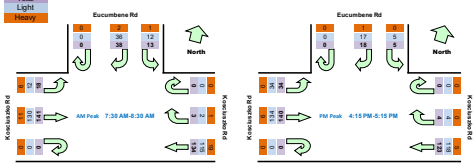
Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total

Light

Heavy



Light Vehicles

Time		North Approach Eucumbene			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	4	1	0	1	25	0	17	2
7:15	7:30	0	9	0	0	2	32	0	26	0
7:30	7:45	0	6	5	0	1	28	0	26	3
7:45	8:00	0	9	4	0	0	26	0	32	2
8:00	8:15	0	11	1	0	0	27	0	28	3
8:15	8:30	0	10	2	0	1	34	0	44	4
8:30	8:45	0	11	2	0	2	23	0	25	4
8:45	9:00	0	13	2	0	0	25	0	31	1
9:00	9:15	0	4	1	0	1	22	0	26	3
9:15	9:30	0	5	3	0	1	15	0	20	5
9:30	9:45	0	0	2	0	0	13	0	24	3
9:45	10:00	0	1	0	0	3	19	0	23	4
15:00	15:15	0	4	3	0	2	35	0	20	3
15:15	15:30	0	4	0	0	1	22	0	23	9
15:30	15:45	0	1	0	0	3	18	0	35	5
15:45	16:00	0	4	2	0	1	20	0	35	9
16:00	16:15	0	2	1	0	0	24	0	25	6
16:15	16:30	0	3	2	0	2	32	0	34	8
16:30	16:45	0	6	1	0	0	27	0	35	10
16:45	17:00	0	4	1	0	0	32	0	32	7
17:00	17:15	0	4	1	0	2	27	0	33	9
17:15	17:30	0	0	1	0	0	33	0	33	10
17:30	17:45	0	5	1	0	2	39	0	22	6
17:45	18:00	0	3	1	0	3	32	0	23	6

Peak Time		North Approach Eucumbene			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak total
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	
7:30	8:30	0	36	12	0	2	115	0	130	12	307
16:15	17:15	0	17	5	0	4	118	0	134	34	312

Heavy Vehicles

Time		North Approach Eucumbene			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	1	0	0	0	3	0	1	0
7:15	7:30	0	1	0	0	0	0	0	0	0
7:30	7:45	0	0	0	0	0	5	0	1	1
7:45	8:00	0	0	0	0	1	6	0	3	1
8:00	8:15	0	2	1	0	0	1	0	2	3
8:15	8:30	0	0	0	0	0	7	0	5	1
8:30	8:45	0	1	1	0	0	3	0	1	0
8:45	9:00	0	0	0	0	0	4	0	3	0
9:00	9:15	0	0	0	0	0	2	0	2	0
9:15	9:30	0	0	0	0	0	7	0	3	1
9:30	9:45	0	0	0	0	0	1	0	2	0
9:45	10:00	0	1	0	0	0	0	0	7	1
15:00	15:15	0	0	0	0	0	2	0	1	0
15:15	15:30	0	0	1	0	0	1	0	3	0
15:30	15:45	0	1	0	0	1	1	0	1	0
15:45	16:00	0	1	0	0	0	1	0	6	2
16:00	16:15	0	1	1	0	0	1	0	1	1
16:15	16:30	0	0	0	0	0	4	0	0	0
16:30	16:45	0	1	0	0	0	1	0	3	0
16:45	17:00	0	0	0	0	0	0	0	3	0
17:00	17:15	0	0	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0	2	1
17:30	17:45	0	0	0	0	0	1	0	2	0
17:45	18:00	0	0	0	0	0	0	0	2	0

Peak Time		North Approach Eucumbene			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak total
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	
7:30	8:30	0	2	1	0	1	19	0	11	6	40
16:15	17:15	0	1	0	0	0	5	0	6	0	12

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Kosciuszko Rd and Eucumbene Rd, East

GPS -36.366500 148.679139

Date:	Wed 22/02/23
Weather:	Fine
Suburban:	East Jindabyne
Customer:	Cardno

North:	Eucumbene Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey Period	AM:	7:00 AM-10:00 AM
	PM:	3:00 PM-6:00 PM
Traffic Peak	AM:	7:45 AM-8:45 AM
	PM:	4:30 PM-5:30 PM

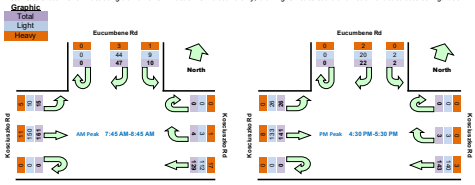
All Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	1	7	1	0	1	28	0	13	5	273	
7:15	7:30	0	5	2	0	0	32	0	30	3	308	
7:30	7:45	0	3	2	0	2	24	0	19	2	341	
7:45	8:00	0	10	3	0	2	32	0	42	4	366	Peak
8:00	8:15	0	19	1	0	0	27	0	39	5	342	
8:15	8:30	0	12	3	0	1	38	0	49	2	311	
8:30	8:45	0	6	3	0	1	32	0	31	4	271	
8:45	9:00	0	12	1	0	0	25	0	26	5	264	
9:00	9:15	0	5	0	0	2	28	0	24	1	253	
9:15	9:30	0	4	1	0	0	18	0	37	5		
9:30	9:45	0	6	1	0	0	26	0	31	6		
9:45	10:00	0	0	2	0	4	19	0	26	7		
15:00	15:15	0	4	0	0	2	24	0	24	10	278	
15:15	15:30	0	5	1	0	2	23	0	24	2	294	
15:30	15:45	0	4	0	0	2	35	0	30	5	310	
15:45	16:00	0	7	0	0	1	31	0	35	7	322	
16:00	16:15	0	2	3	0	4	29	0	32	10	325	
16:15	16:30	0	9	1	0	0	22	0	34	7	320	
16:30	16:45	0	9	0	0	1	40	0	34	4	337	Peak
16:45	17:00	0	4	0	0	0	36	0	36	8	333	
17:00	17:15	0	4	2	0	1	29	0	31	8	320	
17:15	17:30	0	5	0	0	1	38	0	40	6		
17:30	17:45	0	3	1	0	2	48	0	24	6		
17:45	18:00	0	2	1	0	4	36	0	19	9		

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:45	8:45	0	47	10	0	4	129	0	161	15	366
16:30	17:30	0	22	2	0	3	143	0	141	26	337

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

Graphic
Total
Light
Heavy



Light Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	1	4	1	0	1	26	0	11	4
7:15	7:30	0	5	2	0	0	30	0	26	3
7:30	7:45	0	3	2	0	0	22	0	18	2
7:45	8:00	0	10	3	0	1	25	0	39	3
8:00	8:15	0	18	1	0	0	25	0	35	4
8:15	8:30	0	11	3	0	1	32	0	48	0
8:30	8:45	0	5	2	0	1	30	0	28	3
8:45	9:00	0	12	1	0	0	22	0	24	5
9:00	9:15	0	5	0	0	0	24	0	22	1
9:15	9:30	0	3	1	0	0	16	0	36	3
9:30	9:45	0	4	1	0	0	23	0	30	5
9:45	10:00	0	0	2	0	4	16	0	25	7
15:00	15:15	0	4	0	0	2	23	0	19	9
15:15	15:30	0	5	1	0	2	22	0	21	2
15:30	15:45	0	4	0	0	0	34	0	26	5
15:45	16:00	0	6	0	0	1	30	0	32	6
16:00	16:15	0	2	0	0	3	28	0	30	8
16:15	16:30	0	7	0	0	0	19	0	32	7
16:30	16:45	0	8	0	0	1	39	0	32	4
16:45	17:00	0	4	0	0	0	36	0	33	8
17:00	17:15	0	3	2	0	1	29	0	30	8
17:15	17:30	0	5	0	0	1	36	0	38	6
17:30	17:45	0	3	1	0	2	48	0	23	6
17:45	18:00	0	2	1	0	4	36	0	18	9

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:45	8:45	0	44	9	0	3	112	0	150	10	328
16:30	17:30	0	20	2	0	3	140	0	133	26	324

Heavy Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	3	0	0	0	2	0	2	1
7:15	7:30	0	0	0	0	0	2	0	4	0
7:30	7:45	0	0	0	0	2	2	0	1	0
7:45	8:00	0	0	0	0	1	7	0	3	1
8:00	8:15	0	1	0	0	0	2	0	4	1
8:15	8:30	0	1	0	0	0	6	0	1	2
8:30	8:45	0	1	1	0	0	2	0	3	1
8:45	9:00	0	0	0	0	0	3	0	2	0
9:00	9:15	0	0	0	0	2	4	0	2	0
9:15	9:30	0	1	0	0	0	2	0	1	2
9:30	9:45	0	2	0	0	0	3	0	1	1
9:45	10:00	0	0	0	0	0	3	0	1	0
15:00	15:15	0	0	0	0	0	1	0	5	1
15:15	15:30	0	0	0	0	0	1	0	3	0
15:30	15:45	0	0	0	0	2	1	0	4	0
15:45	16:00	0	1	0	0	0	1	0	3	1
16:00	16:15	0	0	3	0	1	1	0	2	2
16:15	16:30	0	2	1	0	0	3	0	2	0
16:30	16:45	0	1	0	0	0	1	0	2	0
16:45	17:00	0	0	0	0	0	0	0	3	0
17:00	17:15	0	1	0	0	0	0	0	1	0
17:15	17:30	0	0	0	0	0	2	0	2	0
17:30	17:45	0	0	0	0	0	0	0	1	0
17:45	18:00	0	0	0	0	0	0	0	1	0

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			est Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:45	8:45	0	3	1	0	1	17	0	11	5	38
16:30	17:30	0	2	0	0	0	3	0	8	0	13

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY trafficsurvey.com.au

Intersection of Koscliuszko Rd and Eucumbene Rd, Eas

GPS -36.366800,148.679139

Date:	Thu 23/02/23
Weather:	Fine
Suburban:	East Jindabyne
Customer:	Cardno

North:	Eucumbene Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey Period	AM:	7:00 AM-10:00 AM
	PM:	3:00 PM-6:00 PM
Traffic Peak	AM:	8:00 AM-9:00 AM
	PM:	3:45 PM-4:45 PM

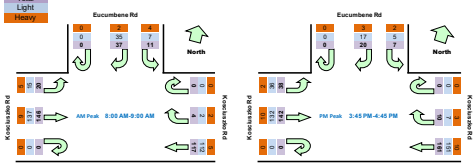
All Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	7	1	0	2	22	0	27	2	270	
7:15	7:30	0	6	2	0	2	29	0	24	0	281	
7:30	7:45	0	5	3	0	1	33	0	22	3	313	
7:45	8:00	0	15	1	0	2	29	0	27	5	334	
8:00	8:15	0	10	3	0	1	19	0	33	6	335	Peak
8:15	8:30	0	4	2	0	1	44	0	40	4	333	
8:30	8:45	0	13	5	0	1	32	0	33	4	330	
8:45	9:00	0	10	1	0	1	22	0	40	6	303	
9:00	9:15	0	2	2	0	4	22	0	40	0	288	
9:15	9:30	0	5	6	0	0	19	0	55	7		
9:30	9:45	0	5	0	0	0	19	0	32	5		
9:45	10:00	0	5	0	0	1	22	0	35	2		
15:00	15:15	0	6	1	0	2	45	0	32	2	346	
15:15	15:30	0	3	0	0	0	42	0	31	5	353	
15:30	15:45	0	6	1	0	3	32	0	35	11	374	
15:45	16:00	0	4	1	0	2	37	0	36	9	378	Peak
16:00	16:15	0	3	1	0	3	43	0	35	10	363	
16:15	16:30	0	9	0	0	2	43	0	40	8	332	
16:30	16:45	0	4	5	0	3	38	0	31	11	311	
16:45	17:00	0	5	4	0	2	30	0	30	3	319	
17:00	17:15	0	3	0	0	3	21	0	30	7	321	
17:15	17:30	0	3	3	0	1	26	0	39	9		
17:30	17:45	0	6	2	0	1	45	0	38	8		
17:45	18:00	0	4	2	0	4	34	0	26	6		

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	37	11	0	4	117	0	146	20	335
15:45	16:45	0	20	7	0	10	161	0	142	38	378

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

Graphic
Total
Light
Heavy



Light Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	6	1	0	1	21	0	24	2
7:15	7:30	0	6	2	0	1	27	0	22	0
7:30	7:45	0	5	3	0	1	28	0	22	3
7:45	8:00	0	15	1	0	0	25	0	24	4
8:00	8:15	0	9	1	0	0	19	0	30	4
8:15	8:30	0	4	2	0	1	40	0	39	3
8:30	8:45	0	12	3	0	1	32	0	32	2
8:45	9:00	0	10	1	0	0	21	0	36	6
9:00	9:15	0	2	2	0	3	21	0	37	0
9:15	9:30	0	5	5	0	0	16	0	53	4
9:30	9:45	0	4	0	0	0	16	0	27	3
9:45	10:00	0	4	0	0	0	21	0	33	2
15:00	15:15	0	6	1	0	1	43	0	28	2
15:15	15:30	0	3	0	0	0	41	0	29	5
15:30	15:45	0	6	1	0	1	29	0	32	10
15:45	16:00	0	3	0	0	2	35	0	33	8
16:00	16:15	0	3	0	0	2	40	0	30	9
16:15	16:30	0	7	0	0	1	39	0	39	8
16:30	16:45	0	4	5	0	2	37	0	30	11
16:45	17:00	0	4	2	0	2	30	0	29	3
17:00	17:15	0	2	0	0	3	20	0	29	7
17:15	17:30	0	3	3	0	1	26	0	34	9
17:30	17:45	0	6	2	0	1	44	0	36	8
17:45	18:00	0	4	2	0	4	34	0	26	5

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	35	7	0	2	112	0	137	15	308
15:45	16:45	0	17	5	0	7	151	0	132	36	348

Heavy Vehicles

Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	1	0	0	1	1	0	3	0
7:15	7:30	0	0	0	0	1	2	0	2	0
7:30	7:45	0	0	0	0	0	5	0	0	0
7:45	8:00	0	0	0	0	2	4	0	3	1
8:00	8:15	0	1	2	0	1	0	0	3	2
8:15	8:30	0	0	0	0	0	4	0	1	1
8:30	8:45	0	1	2	0	0	0	0	1	2
8:45	9:00	0	0	0	0	1	1	0	4	0
9:00	9:15	0	0	0	0	1	1	0	3	0
9:15	9:30	0	0	1	0	0	3	0	2	3
9:30	9:45	0	1	0	0	0	3	0	5	2
9:45	10:00	0	1	0	0	1	1	0	2	0
15:00	15:15	0	0	0	0	1	2	0	4	0
15:15	15:30	0	0	0	0	0	1	0	2	0
15:30	15:45	0	0	0	0	2	3	0	3	1
15:45	16:00	0	1	1	0	0	2	0	3	1
16:00	16:15	0	0	1	0	1	3	0	5	1
16:15	16:30	0	2	0	0	1	4	0	1	0
16:30	16:45	0	0	0	0	1	1	0	1	0
16:45	17:00	0	1	2	0	0	0	0	1	0
17:00	17:15	0	1	0	0	0	1	0	1	0
17:15	17:30	0	0	0	0	0	0	0	5	0
17:30	17:45	0	0	0	0	0	1	0	2	0
17:45	18:00	0	0	0	0	0	0	0	0	1

Peak Time		rth Approach Eucumbene			ast Approach Kosciuszko			Rest Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	2	4	0	2	5	0	9	5	27
15:45	16:45	0	3	2	0	3	10	0	10	2	30

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Koscluszko Rd and Hilltop Rd, Avonside

GPS -36.353277,148.712721

Date:	Fri 17/02/23
Weather:	Fine
Suburban:	Avonside
Customer:	Cardno

North:	Hilltop Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey Period	AM:	7:00 AM-10:00 AM
	PM:	3:00 PM-6:00 PM
Traffic Peak	AM:	8:00 AM-9:00 AM
	PM:	3:30 PM-4:30 PM

All Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	0	2	0	0	30	0	13	0	231	
7:15	7:30	0	1	3	0	1	21	0	27	0	262	
7:30	7:45	0	1	4	0	0	27	0	35	0	295	
7:45	8:00	0	1	0	0	0	32	0	31	2	309	
8:00	8:15	0	1	1	0	1	23	0	50	0	319	Peak
8:15	8:30	0	1	1	0	1	33	0	49	1	306	
8:30	8:45	0	1	1	0	1	29	0	47	2	281	
8:45	9:00	0	0	1	0	1	32	0	42	0	268	
9:00	9:15	0	0	1	0	0	26	0	36	0	246	
9:15	9:30	0	0	0	0	2	24	0	34	1		
9:30	9:45	0	2	1	0	3	21	0	41	0		
9:45	10:00	0	1	1	0	0	12	0	38	2		
15:00	15:15	0	0	0	0	1	50	0	27	0	351	
15:15	15:30	0	0	2	0	0	38	0	28	1	339	
15:30	15:45	0	2	1	0	1	47	0	47	1	373	Peak
15:45	16:00	0	0	0	0	1	52	0	49	3	365	
16:00	16:15	0	1	2	0	3	34	0	26	0	318	
16:15	16:30	0	0	1	0	1	55	0	46	0	340	
16:30	16:45	0	0	0	0	2	47	0	41	1	338	
16:45	17:00	0	1	0	0	1	30	0	25	1	323	
17:00	17:15	0	1	0	0	2	42	0	42	1	334	
17:15	17:30	0	1	1	1	2	48	0	46	2		
17:30	17:45	0	0	1	0	0	50	0	25	0		
17:45	18:00	0	0	0	0	1	40	0	28	0		

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	3	4	0	4	117	0	188	3	319
15:30	16:30	0	3	4	0	6	188	0	168	4	373

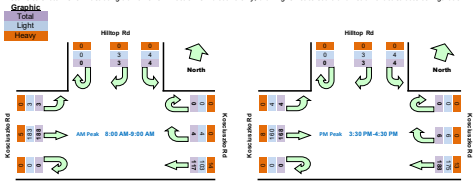
Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total

Light

Heavy



Light Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	0	1	0	0	27	0	11	0
7:15	7:30	0	1	3	0	0	19	0	24	0
7:30	7:45	0	1	4	0	0	26	0	33	0
7:45	8:00	0	1	0	0	0	29	0	25	2
8:00	8:15	0	1	1	0	1	21	0	49	0
8:15	8:30	0	1	1	0	1	27	0	47	1
8:30	8:45	0	1	1	0	1	26	0	45	2
8:45	9:00	0	0	1	0	1	29	0	42	0
9:00	9:15	0	0	1	0	0	20	0	36	0
9:15	9:30	0	0	0	0	2	22	0	31	1
9:30	9:45	0	1	1	0	1	20	0	37	0
9:45	10:00	0	1	1	0	0	10	0	37	2
15:00	15:15	0	0	0	0	1	49	0	26	0
15:15	15:30	0	0	2	0	0	38	0	26	1
15:30	15:45	0	2	1	0	1	43	0	42	1
15:45	16:00	0	0	0	0	1	49	0	47	3
16:00	16:15	0	1	2	0	3	30	0	26	0
16:15	16:30	0	0	1	0	1	53	0	45	0
16:30	16:45	0	0	0	0	2	47	0	37	0
16:45	17:00	0	0	0	0	1	28	0	23	1
17:00	17:15	0	1	0	0	2	41	0	38	0
17:15	17:30	0	1	1	1	2	47	0	39	1
17:30	17:45	0	0	1	0	0	49	0	25	0
17:45	18:00	0	0	0	0	1	38	0	27	0

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	3	4	0	4	103	0	183	3	300
15:30	16:30	0	3	4	0	6	175	0	160	4	352

Heavy Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	0	1	0	0	3	0	2	0
7:15	7:30	0	0	0	0	1	2	0	3	0
7:30	7:45	0	0	0	0	0	1	0	2	0
7:45	8:00	0	0	0	0	0	3	0	6	0
8:00	8:15	0	0	0	0	0	2	0	1	0
8:15	8:30	0	0	0	0	0	6	0	2	0
8:30	8:45	0	0	0	0	0	3	0	2	0
8:45	9:00	0	0	0	0	0	3	0	0	0
9:00	9:15	0	0	0	0	0	6	0	0	0
9:15	9:30	0	0	0	0	0	2	0	3	0
9:30	9:45	0	1	0	0	2	1	0	4	0
9:45	10:00	0	0	0	0	0	2	0	1	0
15:00	15:15	0	0	0	0	0	1	0	1	0
15:15	15:30	0	0	0	0	0	0	0	2	0
15:30	15:45	0	0	0	0	0	4	0	5	0
15:45	16:00	0	0	0	0	0	3	0	2	0
16:00	16:15	0	0	0	0	0	4	0	0	0
16:15	16:30	0	0	0	0	0	2	0	1	0
16:30	16:45	0	0	0	0	0	0	0	4	1
16:45	17:00	0	1	0	0	0	2	0	2	0
17:00	17:15	0	0	0	0	0	1	0	4	1
17:15	17:30	0	0	0	0	0	1	0	7	1
17:30	17:45	0	0	0	0	0	1	0	0	0
17:45	18:00	0	0	0	0	0	2	0	1	0

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	0	0	0	0	14	0	5	0	19
15:30	16:30	0	0	0	0	0	13	0	8	0	21

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Koscluszko Rd and Hilltop Rd, Avonside

GPS -36.363277,148.712721

Date:	Sat 19/02/22
Weather:	Fine
Suburban:	Avonside
Customer:	Cardno

North:	Hilltop Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey Period	AM:	9:00 AM-12:00 PM
	PM:	12:00 PM-3:00 PM
Traffic Peak	AM:	9:30 AM-10:30 AM
	PM:	12:15 PM-1:15 PM

All Vehicles

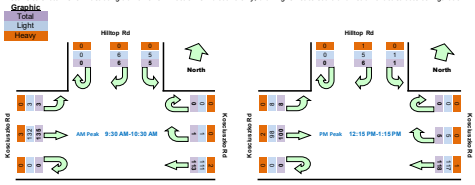
Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
9:00	9:15	0	0	1	0	0	23	0	32	0	240	
9:15	9:30	0	0	2	0	0	18	0	41	0	255	
9:30	9:45	0	0	3	0	0	24	0	36	1	263	Peak
9:45	10:00	0	2	1	0	1	20	0	35	0	251	
10:00	10:15	0	2	0	0	0	34	0	35	0	250	
10:15	10:30	0	2	1	0	0	35	0	29	2	242	
10:30	10:45	0	0	1	0	0	27	0	24	0	241	
10:45	11:00	0	2	1	0	1	24	0	30	0	254	
11:00	11:15	0	0	1	0	1	41	0	20	0	256	
11:15	11:30	0	0	1	0	2	43	0	22	0		
11:30	11:45	0	1	1	0	0	39	0	23	1		
11:45	12:00	0	2	1	0	0	27	0	30	0		
12:00	12:15	0	0	0	0	1	37	0	26	1	237	
12:15	12:30	0	0	0	0	2	34	0	21	4	238	Peak
12:30	12:45	0	1	0	0	2	27	0	28	0	217	
12:45	13:00	0	2	1	0	0	27	0	20	3	204	
13:00	13:15	0	3	0	0	1	30	0	31	1	195	
13:15	13:30	0	1	0	0	1	19	0	18	1	160	
13:30	13:45	0	1	1	0	0	24	0	19	0	173	
13:45	14:00	0	1	1	0	0	23	0	19	0	174	
14:00	14:15	0	2	0	0	0	18	0	10	1	183	
14:15	14:30	0	1	0	0	0	32	0	19	1		
14:30	14:45	0	0	1	0	1	18	0	25	1		
14:45	15:00	0	0	0	0	0	27	0	26	0		

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
9:30	10:30	0	6	5	0	1	113	0	135	3	263
12:15	13:15	0	6	1	0	5	118	0	100	8	238

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

Graphic

Total
Light
Heavy



Light Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
9:00	9:15	0	0	1	0	0	23	0	32	0
9:15	9:30	0	0	2	0	0	18	0	40	0
9:30	9:45	0	0	3	0	0	24	0	35	1
9:45	10:00	0	2	1	0	1	19	0	34	0
10:00	10:15	0	2	0	0	0	33	0	34	0
10:15	10:30	0	2	1	0	0	35	0	29	2
10:30	10:45	0	0	1	0	0	27	0	24	0
10:45	11:00	0	2	1	0	1	23	0	26	0
11:00	11:15	0	0	1	0	1	39	0	19	0
11:15	11:30	0	0	1	0	2	42	0	20	0
11:30	11:45	0	1	1	0	0	39	0	22	1
11:45	12:00	0	2	1	0	0	27	0	30	0
12:00	12:15	0	0	0	0	1	37	0	24	1
12:15	12:30	0	0	0	0	2	33	0	19	4
12:30	12:45	0	1	0	0	2	27	0	28	0
12:45	13:00	0	1	1	0	0	27	0	20	3
13:00	13:15	0	3	0	0	1	30	0	31	1
13:15	13:30	0	1	0	0	1	19	0	17	1
13:30	13:45	0	1	1	0	0	23	0	19	0
13:45	14:00	0	1	1	0	0	23	0	19	0
14:00	14:15	0	2	0	0	0	18	0	9	1
14:15	14:30	0	1	0	0	0	32	0	18	1
14:30	14:45	0	0	1	0	1	18	0	25	1
14:45	15:00	0	0	0	0	0	26	0	26	0

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
9:30	10:30	0	6	5	0	1	111	0	132	3	258
12:15	13:15	0	5	1	0	5	117	0	98	8	234

Heavy Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
9:00	9:15	0	0	0	0	0	0	0	0	0
9:15	9:30	0	0	0	0	0	0	0	1	0
9:30	9:45	0	0	0	0	0	0	0	1	0
9:45	10:00	0	0	0	0	0	1	0	1	0
10:00	10:15	0	0	0	0	0	1	0	1	0
10:15	10:30	0	0	0	0	0	0	0	0	0
10:30	10:45	0	0	0	0	0	0	0	0	0
10:45	11:00	0	0	0	0	0	1	0	4	0
11:00	11:15	0	0	0	0	0	2	0	1	0
11:15	11:30	0	0	0	0	0	1	0	2	0
11:30	11:45	0	0	0	0	0	0	0	1	0
11:45	12:00	0	0	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0	2	0
12:15	12:30	0	0	0	0	0	1	0	2	0
12:30	12:45	0	0	0	0	0	0	0	0	0
12:45	13:00	0	1	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0	1	0
13:30	13:45	0	0	0	0	0	1	0	0	0
13:45	14:00	0	0	0	0	0	0	0	0	0
14:00	14:15	0	0	0	0	0	0	0	1	0
14:15	14:30	0	0	0	0	0	0	0	1	0
14:30	14:45	0	0	0	0	0	0	0	0	0
14:45	15:00	0	0	0	0	0	1	0	0	0

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
9:30	10:30	0	0	0	0	0	2	0	3	0	5
12:15	13:15	0	1	0	0	0	1	0	2	0	4

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Koscluszko Rd and Hilltop Rd, Avonside

GPS -36.362277,148.712721

Date:	Sun 19/02/23
Weather:	Fine
Suburban:	Avonside
Customer:	Cardno

North:	Hilltop Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey Period	AM:	9:00 AM-12:00 PM
	PM:	12:00 PM-3:00 PM
Traffic Peak	AM:	10:30 AM-11:30 AM
	PM:	2:00 PM-3:00 PM

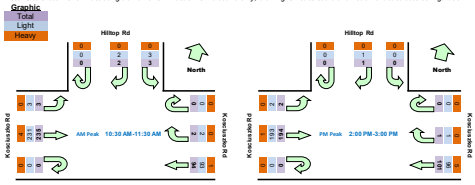
All Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
9:00	9:15	0	1	0	0	2	17	0	34	1	275	
9:15	9:30	0	0	2	0	0	8	0	43	0	295	
9:30	9:45	0	0	2	0	0	9	0	77	0	334	
9:45	10:00	0	0	3	0	0	11	0	65	0	321	
10:00	10:15	0	0	1	0	0	12	0	61	1	329	
10:15	10:30	0	0	1	0	1	22	0	67	1	336	
10:30	10:45	0	0	0	0	0	15	0	60	0	339	Peak
10:45	11:00	0	1	1	0	1	27	0	56	1	338	
11:00	11:15	0	1	2	0	0	25	0	53	1	320	
11:15	11:30	0	0	0	0	1	27	0	66	1		
11:30	11:45	0	0	0	0	1	18	0	54	1		
11:45	12:00	0	0	2	0	1	23	0	43	0		
12:00	12:15	0	0	0	0	0	21	0	36	1	250	
12:15	12:30	0	0	1	0	0	11	0	48	1	276	
12:30	12:45	0	0	0	0	0	25	0	43	1	274	
12:45	13:00	0	0	0	0	0	24	0	38	0	266	
13:00	13:15	0	0	0	0	0	27	0	56	1	270	
13:15	13:30	0	0	2	0	0	20	0	36	1	246	
13:30	13:45	0	0	2	0	1	23	0	35	0	279	
13:45	14:00	0	0	1	0	0	17	0	48	0	296	
14:00	14:15	0	1	0	0	0	17	0	42	0	299	Peak
14:15	14:30	0	0	0	0	0	26	0	65	1		
14:30	14:45	0	0	0	0	0	31	0	47	0		
14:45	15:00	0	0	0	0	1	27	0	40	1		

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
10:30	11:30	0	2	3	0	2	94	0	235	3	339
14:00	15:00	0	1	0	0	1	101	0	194	2	299

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

Graphic
Total
Light
Heavy



Light Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
9:00	9:15	0	1	0	0	2	15	0	34	1
9:15	9:30	0	0	2	0	0	8	0	43	0
9:30	9:45	0	0	2	0	0	9	0	77	0
9:45	10:00	0	0	3	0	0	11	0	65	0
10:00	10:15	0	0	1	0	0	12	0	61	1
10:15	10:30	0	0	1	0	1	22	0	64	1
10:30	10:45	0	0	0	0	0	15	0	60	0
10:45	11:00	0	1	1	0	1	27	0	56	1
11:00	11:15	0	1	2	0	0	25	0	52	1
11:15	11:30	0	0	0	0	1	26	0	63	1
11:30	11:45	0	0	0	0	1	18	0	53	1
11:45	12:00	0	0	2	0	1	22	0	43	0
12:00	12:15	0	0	0	0	0	21	0	36	1
12:15	12:30	0	0	1	0	0	11	0	48	1
12:30	12:45	0	0	0	0	0	25	0	41	1
12:45	13:00	0	0	0	0	0	24	0	38	0
13:00	13:15	0	0	0	0	0	27	0	55	1
13:15	13:30	0	0	0	0	0	20	0	36	1
13:30	13:45	0	0	1	0	1	23	0	35	0
13:45	14:00	0	0	1	0	0	17	0	48	0
14:00	14:15	0	1	0	0	0	16	0	42	0
14:15	14:30	0	0	0	0	0	24	0	65	1
14:30	14:45	0	0	0	0	0	31	0	47	0
14:45	15:00	0	0	0	0	1	25	0	39	1

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
10:30	11:30	0	2	3	0	2	93	0	231	3	334
14:00	15:00	0	1	0	0	1	96	0	193	2	293

Heavy Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
9:00	9:15	0	0	0	0	0	2	0	0	0
9:15	9:30	0	0	0	0	0	0	0	0	0
9:30	9:45	0	0	0	0	0	0	0	0	0
9:45	10:00	0	0	0	0	0	0	0	0	0
10:00	10:15	0	0	0	0	0	0	0	0	0
10:15	10:30	0	0	0	0	0	0	0	3	0
10:30	10:45	0	0	0	0	0	0	0	0	0
10:45	11:00	0	0	0	0	0	0	0	0	0
11:00	11:15	0	0	0	0	0	0	0	1	0
11:15	11:30	0	0	0	0	0	1	0	3	0
11:30	11:45	0	0	0	0	0	0	0	1	0
11:45	12:00	0	0	0	0	0	1	0	0	0
12:00	12:15	0	0	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0	2	0
12:45	13:00	0	0	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0	1	0
13:15	13:30	0	0	2	0	0	0	0	0	0
13:30	13:45	0	0	1	0	0	0	0	0	0
13:45	14:00	0	0	0	0	0	0	0	0	0
14:00	14:15	0	0	0	0	0	1	0	0	0
14:15	14:30	0	0	0	0	0	2	0	0	0
14:30	14:45	0	0	0	0	0	0	0	0	0
14:45	15:00	0	0	0	0	0	2	0	1	0

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
10:30	11:30	0	0	0	0	0	1	0	4	0	5
14:00	15:00	0	0	0	0	0	5	0	1	0	6

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Koscluszko Rd and Hilltop Rd, Avonside

GPS -36.363277,148.712721

Date:	Mon 20/02/23
Weather:	Fine
Suburban:	Avonside
Customer:	Cardno

North:	Hilltop Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey Period	AM:	7:00 AM-10:00 AM
	PM:	3:00 PM-6:00 PM
Traffic Peak	AM:	8:00 AM-9:00 AM
	PM:	3:30 PM-4:30 PM

All Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	2	1	0	0	24	0	13	0	225	
7:15	7:30	0	0	0	0	0	25	0	33	1	261	
7:30	7:45	0	0	1	0	0	27	0	26	0	268	
7:45	8:00	0	2	2	0	0	32	0	35	1	283	
8:00	8:15	0	5	1	0	0	35	0	33	2	293	Peak
8:15	8:30	0	1	0	0	0	27	0	38	0	276	
8:30	8:45	0	1	0	0	2	30	0	36	0	269	
8:45	9:00	0	3	0	0	0	39	0	39	1	250	
9:00	9:15	0	1	1	0	0	24	0	33	0	221	
9:15	9:30	0	1	0	0	0	22	0	36	0		
9:30	9:45	0	0	0	0	0	21	0	28	1		
9:45	10:00	0	0	1	0	0	14	0	38	0		
15:00	15:15	0	0	0	0	1	24	0	30	1	249	
15:15	15:30	0	1	0	0	1	32	0	22	0	270	
15:30	15:45	0	1	1	0	1	29	0	33	2	290	Peak
15:45	16:00	0	1	0	0	1	23	0	42	3	290	Peak
16:00	16:15	0	4	1	0	0	39	0	32	1	277	
16:15	16:30	0	0	1	0	0	43	0	32	0	262	
16:30	16:45	0	0	0	0	1	37	0	28	1	247	
16:45	17:00	0	0	1	0	1	26	0	27	2	231	
17:00	17:15	0	0	1	0	2	30	0	28	1	227	
17:15	17:30	0	0	0	0	0	35	0	24	2		
17:30	17:45	0	1	0	0	0	21	0	25	4		
17:45	18:00	0	1	4	0	0	29	0	18	1		

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	10	1	0	2	131	0	146	3	293
15:30	16:30	0	6	3	0	2	134	0	139	6	290

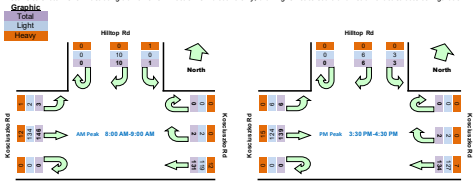
Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total

Light

Heavy



Light Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	2	0	0	0	22	0	11	0
7:15	7:30	0	0	0	0	0	23	0	32	0
7:30	7:45	0	0	1	0	0	25	0	26	0
7:45	8:00	0	2	1	0	0	26	0	30	1
8:00	8:15	0	5	0	0	0	32	0	30	1
8:15	8:30	0	1	0	0	0	24	0	36	0
8:30	8:45	0	1	0	0	2	27	0	32	0
8:45	9:00	0	3	0	0	0	36	0	36	1
9:00	9:15	0	1	1	0	0	23	0	33	0
9:15	9:30	0	1	0	0	0	18	0	34	0
9:30	9:45	0	0	0	0	0	20	0	27	1
9:45	10:00	0	0	1	0	0	12	0	35	0
15:00	15:15	0	0	0	0	1	23	0	28	1
15:15	15:30	0	1	0	0	0	31	0	21	0
15:30	15:45	0	1	1	0	1	27	0	32	2
15:45	16:00	0	1	0	0	1	23	0	34	3
16:00	16:15	0	4	1	0	0	37	0	27	1
16:15	16:30	0	0	1	0	0	40	0	31	0
16:30	16:45	0	0	0	0	1	37	0	27	1
16:45	17:00	0	0	1	0	1	26	0	25	1
17:00	17:15	0	0	0	0	2	29	0	26	1
17:15	17:30	0	0	0	0	0	34	0	23	2
17:30	17:45	0	1	0	0	0	21	0	25	4
17:45	18:00	0	1	4	0	0	29	0	18	1

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	10	0	0	2	119	0	134	2	267
15:30	16:30	0	6	3	0	2	127	0	124	6	268

Heavy Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	0	1	0	0	2	0	2	0
7:15	7:30	0	0	0	0	0	2	0	1	1
7:30	7:45	0	0	0	0	0	2	0	0	0
7:45	8:00	0	0	1	0	0	6	0	5	0
8:00	8:15	0	0	1	0	0	3	0	3	1
8:15	8:30	0	0	0	0	0	3	0	2	0
8:30	8:45	0	0	0	0	0	3	0	4	0
8:45	9:00	0	0	0	0	0	3	0	3	0
9:00	9:15	0	0	0	0	0	1	0	0	0
9:15	9:30	0	0	0	0	0	4	0	2	0
9:30	9:45	0	0	0	0	0	1	0	1	0
9:45	10:00	0	0	0	0	0	2	0	3	0
15:00	15:15	0	0	0	0	0	1	0	2	0
15:15	15:30	0	0	0	0	1	1	0	1	0
15:30	15:45	0	0	0	0	0	2	0	1	0
15:45	16:00	0	0	0	0	0	0	0	8	0
16:00	16:15	0	0	0	0	0	2	0	5	0
16:15	16:30	0	0	0	0	0	3	0	1	0
16:30	16:45	0	0	0	0	0	0	0	1	0
16:45	17:00	0	0	0	0	0	0	0	2	1
17:00	17:15	0	0	1	0	0	1	0	2	0
17:15	17:30	0	0	0	0	0	1	0	1	0
17:30	17:45	0	0	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0	0	0

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	0	1	0	0	12	0	12	1	26
15:30	16:30	0	0	0	0	0	7	0	15	0	22

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY trafficsurvey.com.au

Intersection of Koscluszko Rd and Hilltop Rd, Avonside

GPS -36.362277,148.712721

Date:	Tue 21/02/23
Weather:	Fine
Suburban:	Avonside
Customer:	Cardno

North:	Hilltop Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey Period	AM:	7:00 AM-10:00 AM
	PM:	3:00 PM-6:00 PM
Traffic Peak	AM:	7:30 AM-8:30 AM
	PM:	4:45 PM-5:45 PM

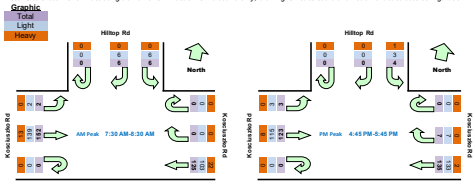
All Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	1	0	0	3	27	0	16	1	254	
7:15	7:30	0	0	0	0	0	31	0	30	1	263	
7:30	7:45	0	0	1	0	0	38	0	26	0	291	Peak
7:45	8:00	0	1	4	0	0	32	0	42	0	281	
8:00	8:15	0	2	0	0	0	24	0	31	0	270	
8:15	8:30	0	3	1	0	0	31	0	53	2	259	
8:30	8:45	0	0	1	0	0	24	0	30	0	215	
8:45	9:00	0	0	0	0	0	30	0	38	0	208	
9:00	9:15	0	0	0	0	1	23	0	21	1	184	
9:15	9:30	0	0	1	0	1	18	0	26	0		
9:30	9:45	0	0	1	0	1	20	0	26	0		
9:45	10:00	0	0	1	0	0	17	0	25	1		
15:00	15:15	0	0	0	0	1	36	0	21	0	230	
15:15	15:30	0	0	0	0	1	21	0	27	0	228	
15:30	15:45	0	0	0	0	2	22	0	29	0	246	
15:45	16:00	0	1	0	0	0	20	0	45	4	260	
16:00	16:15	0	2	1	0	0	28	0	23	2	251	
16:15	16:30	0	0	2	0	0	32	0	32	1	263	
16:30	16:45	0	0	2	0	0	26	0	39	0	268	
16:45	17:00	0	0	1	0	1	25	0	34	0	272	Peak
17:00	17:15	0	0	0	0	4	33	0	30	1	266	
17:15	17:30	0	0	2	0	1	32	0	36	1		
17:30	17:45	0	0	1	0	1	45	0	23	1		
17:45	18:00	0	1	0	0	3	22	0	27	2		

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:30	8:30	0	6	6	0	0	125	0	152	2	291
16:45	17:45	0	0	4	0	7	135	0	123	3	272

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

Graphic
Total
Light
Heavy



Light Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	1	0	0	3	23	0	15	1
7:15	7:30	0	0	0	0	0	31	0	28	1
7:30	7:45	0	0	1	0	0	32	0	25	0
7:45	8:00	0	1	4	0	0	26	0	39	0
8:00	8:15	0	2	0	0	0	22	0	28	0
8:15	8:30	0	3	1	0	0	23	0	47	2
8:30	8:45	0	0	1	0	0	16	0	28	0
8:45	9:00	0	0	0	0	0	27	0	35	0
9:00	9:15	0	0	0	0	1	21	0	19	1
9:15	9:30	0	0	1	0	1	12	0	23	0
9:30	9:45	0	0	1	0	1	19	0	24	0
9:45	10:00	0	0	1	0	0	15	0	18	1
15:00	15:15	0	0	0	0	1	34	0	20	0
15:15	15:30	0	0	0	0	1	21	0	21	0
15:30	15:45	0	0	0	0	2	20	0	28	0
15:45	16:00	0	1	0	0	0	19	0	41	3
16:00	16:15	0	2	1	0	0	25	0	22	2
16:15	16:30	0	0	2	0	0	30	0	32	1
16:30	16:45	0	0	2	0	0	24	0	38	0
16:45	17:00	0	0	1	0	1	25	0	31	0
17:00	17:15	0	0	0	0	4	32	0	29	1
17:15	17:30	0	0	2	0	1	32	0	35	1
17:30	17:45	0	0	0	0	1	44	0	20	1
17:45	18:00	0	1	0	0	2	22	0	26	2

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:30	8:30	0	6	6	0	0	103	0	139	2	256
16:45	17:45	0	0	3	0	7	133	0	115	3	261

Heavy Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	0	0	0	0	4	0	1	0
7:15	7:30	0	0	0	0	0	0	0	2	0
7:30	7:45	0	0	0	0	0	6	0	1	0
7:45	8:00	0	0	0	0	0	6	0	3	0
8:00	8:15	0	0	0	0	0	2	0	3	0
8:15	8:30	0	0	0	0	0	8	0	6	0
8:30	8:45	0	0	0	0	0	8	0	2	0
8:45	9:00	0	0	0	0	0	3	0	3	0
9:00	9:15	0	0	0	0	0	2	0	2	0
9:15	9:30	0	0	0	0	0	6	0	3	0
9:30	9:45	0	0	0	0	0	1	0	2	0
9:45	10:00	0	0	0	0	0	2	0	7	0
15:00	15:15	0	0	0	0	0	2	0	1	0
15:15	15:30	0	0	0	0	0	0	0	6	0
15:30	15:45	0	0	0	0	0	2	0	1	0
15:45	16:00	0	0	0	0	0	1	0	4	1
16:00	16:15	0	0	0	0	0	3	0	1	0
16:15	16:30	0	0	0	0	0	2	0	0	0
16:30	16:45	0	0	0	0	0	2	0	1	0
16:45	17:00	0	0	0	0	0	0	0	3	0
17:00	17:15	0	0	0	0	0	1	0	1	0
17:15	17:30	0	0	0	0	0	0	0	1	0
17:30	17:45	0	0	1	0	0	1	0	3	0
17:45	18:00	0	0	0	0	1	0	0	1	0

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:30	8:30	0	0	0	0	0	22	0	13	0	35
16:45	17:45	0	0	1	0	0	2	0	8	0	11

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY trafficsurvey.com.au

Intersection of Koscluszko Rd and Hilltop Rd, Avonside

GPS -36.363277,148.712721

Date:	Wed 22/02/23
Weather:	Fine
Suburban:	Avonside
Customer:	Cardno

North:	Hilltop Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey	AM:	7:00 AM-10:00 AM
Period	PM:	3:00 PM-6:00 PM
Traffic	AM:	7:45 AM-8:45 AM
Peak	PM:	4:45 PM-5:45 PM

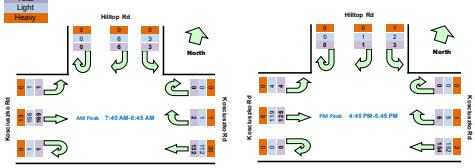
All Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	2	1	0	1	27	0	13	0	237	
7:15	7:30	0	2	0	0	0	27	0	31	0	273	
7:30	7:45	0	1	1	1	0	27	1	21	0	309	
7:45	8:00	0	1	1	0	2	37	0	40	0	314	Peak
8:00	8:15	0	4	0	0	0	29	0	47	0	286	
8:15	8:30	0	0	2	0	0	38	1	54	1	263	
8:30	8:45	0	1	0	0	0	28	0	28	0	222	
8:45	9:00	0	0	2	0	1	19	0	30	1	228	
9:00	9:15	0	2	0	0	1	28	0	26	0	233	
9:15	9:30	0	0	2	0	3	14	1	34	1		
9:30	9:45	0	0	0	0	1	29	0	33	0		
9:45	10:00	0	0	2	0	1	25	0	30	0		
15:00	15:15	0	0	1	0	0	24	0	22	0	229	
15:15	15:30	0	1	0	0	2	20	0	22	0	251	
15:30	15:45	0	0	1	0	1	39	0	33	0	271	
15:45	16:00	0	0	2	0	1	31	1	26	2	262	
16:00	16:15	0	0	0	0	1	31	1	31	5	265	
16:15	16:30	0	1	2	0	0	25	0	35	2	258	
16:30	16:45	0	0	1	0	0	37	0	25	2	285	
16:45	17:00	0	0	0	0	1	29	0	36	0	293	Peak
17:00	17:15	0	0	1	0	2	32	0	25	2	290	
17:15	17:30	0	1	2	0	0	47	0	40	2		
17:30	17:45	0	0	0	0	3	46	0	24	0		
17:45	18:00	0	0	0	0	1	36	0	25	1		

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:45	8:45	0	6	3	0	2	132	1	169	1	314
16:45	17:45	0	1	3	0	6	154	0	125	4	293

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

Graphic
Total
Light
Heavy



Light Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	2	1	0	1	26	0	13	0
7:15	7:30	0	2	0	0	0	26	0	27	0
7:30	7:45	0	1	1	1	0	23	1	21	0
7:45	8:00	0	1	1	0	1	29	0	37	0
8:00	8:15	0	4	0	0	0	27	0	41	0
8:15	8:30	0	0	2	0	0	31	1	53	1
8:30	8:45	0	1	0	0	0	25	0	25	0
8:45	9:00	0	0	2	0	1	18	0	28	1
9:00	9:15	0	2	0	0	1	24	0	24	0
9:15	9:30	0	0	2	0	3	11	1	33	1
9:30	9:45	0	0	0	0	0	26	0	32	0
9:45	10:00	0	0	2	0	1	22	0	30	0
15:00	15:15	0	0	1	0	0	23	0	17	0
15:15	15:30	0	1	0	0	2	19	0	19	0
15:30	15:45	0	0	1	0	1	36	0	30	0
15:45	16:00	0	0	2	0	0	30	1	22	2
16:00	16:15	0	0	0	0	1	29	1	30	5
16:15	16:30	0	0	2	0	0	23	0	32	1
16:30	16:45	0	0	1	0	0	36	0	22	2
16:45	17:00	0	0	0	0	1	29	0	34	0
17:00	17:15	0	0	1	0	2	32	0	24	2
17:15	17:30	0	1	1	0	0	45	0	39	2
17:30	17:45	0	0	0	0	2	46	0	22	0
17:45	18:00	0	0	0	0	1	36	0	24	1

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:45	8:45	0	6	3	0	1	112	1	156	1	280
16:45	17:45	0	1	2	0	5	152	0	119	4	283

Heavy Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	0	0	0	0	1	0	0	0
7:15	7:30	0	0	0	0	0	1	0	4	0
7:30	7:45	0	0	0	0	0	4	0	0	0
7:45	8:00	0	0	0	0	1	8	0	3	0
8:00	8:15	0	0	0	0	0	2	0	6	0
8:15	8:30	0	0	0	0	0	7	0	1	0
8:30	8:45	0	0	0	0	0	3	0	3	0
8:45	9:00	0	0	0	0	0	1	0	2	0
9:00	9:15	0	0	0	0	0	4	0	2	0
9:15	9:30	0	0	0	0	0	3	0	1	0
9:30	9:45	0	0	0	0	1	3	0	1	0
9:45	10:00	0	0	0	0	0	3	0	0	0
15:00	15:15	0	0	0	0	0	1	0	5	0
15:15	15:30	0	0	0	0	0	1	0	3	0
15:30	15:45	0	0	0	0	0	3	0	3	0
15:45	16:00	0	0	0	0	1	1	0	4	0
16:00	16:15	0	0	0	0	0	2	0	1	0
16:15	16:30	0	1	0	0	0	2	0	3	1
16:30	16:45	0	0	0	0	0	1	0	3	0
16:45	17:00	0	0	0	0	0	0	0	2	0
17:00	17:15	0	0	0	0	0	0	0	1	0
17:15	17:30	0	0	1	0	0	2	0	1	0
17:30	17:45	0	0	0	0	1	0	0	2	0
17:45	18:00	0	0	0	0	0	0	0	1	0

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:45	8:45	0	0	0	0	1	20	0	13	0	34
16:45	17:45	0	0	1	0	1	2	0	6	0	10

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY trafficsurvey.com.au

Intersection of Koscluszko Rd and Hilltop Rd, Avonside

GPS -36.363277,148.712721

Date:	Thu 23/02/23
Weather:	Fine
Suburban:	Avonside
Customer:	Cardno

North:	Hilltop Rd
East:	Kosciuszko Rd
South:	N/A
West:	Kosciuszko Rd

Survey	AM:	7:00 AM-10:00 AM
Period	PM:	3:00 PM-6:00 PM
Traffic	AM:	7:45 AM-8:45 AM
Peak	PM:	3:30 PM-4:30 PM

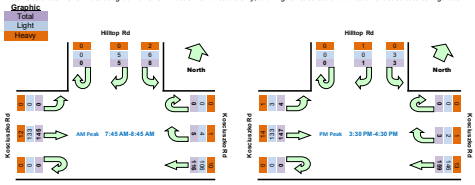
All Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	1	1	0	1	23	0	26	0	239	
7:15	7:30	0	0	0	0	0	31	0	28	0	244	
7:30	7:45	0	2	0	0	1	38	0	25	0	269	
7:45	8:00	0	1	3	0	2	25	0	31	0	279	Peak
8:00	8:15	0	1	3	0	2	21	0	30	0	270	
8:15	8:30	0	2	1	0	1	41	0	39	0	276	
8:30	8:45	0	1	1	0	0	29	0	45	0	269	
8:45	9:00	0	0	0	0	1	17	0	35	0	249	
9:00	9:15	0	1	1	0	1	23	0	37	0	256	
9:15	9:30	0	0	1	0	1	16	0	58	1		
9:30	9:45	0	2	0	0	0	16	0	38	0		
9:45	10:00	0	0	3	0	0	23	0	33	1		
15:00	15:15	0	1	1	0	1	44	0	30	0	288	
15:15	15:30	0	0	0	0	2	40	0	28	0	302	
15:30	15:45	0	1	0	0	1	39	0	37	0	317	Peak
15:45	16:00	0	0	1	0	0	30	0	32	0	306	
16:00	16:15	0	0	1	0	2	47	0	39	2	311	
16:15	16:30	0	0	1	0	0	43	0	39	2	277	
16:30	16:45	0	1	0	0	2	33	0	30	1	265	
16:45	17:00	0	0	0	0	1	37	0	29	1	283	
17:00	17:15	0	1	0	0	2	31	0	22	1	277	
17:15	17:30	0	0	2	0	0	25	0	45	1		
17:30	17:45	0	0	0	0	0	47	0	36	2		
17:45	18:00	0	0	0	0	1	38	0	23	0		

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:45	8:45	0	5	8	0	5	116	0	145	0	279
15:30	16:30	0	1	3	0	3	159	0	147	4	317

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

Graphic
Total
Light
Heavy



Light Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	1	1	0	0	21	0	23	0
7:15	7:30	0	0	0	0	0	28	0	26	0
7:30	7:45	0	2	0	0	0	33	0	25	0
7:45	8:00	0	1	2	0	2	20	0	28	0
8:00	8:15	0	1	3	0	1	20	0	25	0
8:15	8:30	0	2	1	0	1	37	0	38	0
8:30	8:45	0	1	0	0	0	29	0	42	0
8:45	9:00	0	0	0	0	1	16	0	33	0
9:00	9:15	0	1	1	0	0	21	0	34	0
9:15	9:30	0	0	1	0	0	13	0	56	1
9:30	9:45	0	2	0	0	0	13	0	34	0
9:45	10:00	0	0	2	0	0	21	0	31	1
15:00	15:15	0	1	1	0	0	42	0	26	0
15:15	15:30	0	0	0	0	1	39	0	26	0
15:30	15:45	0	0	0	0	0	35	0	35	0
15:45	16:00	0	0	1	0	0	28	0	29	0
16:00	16:15	0	0	1	0	2	42	0	31	1
16:15	16:30	0	0	1	0	0	41	0	38	2
16:30	16:45	0	1	0	0	2	32	0	29	1
16:45	17:00	0	0	0	0	1	37	0	27	1
17:00	17:15	0	1	0	0	2	30	0	21	1
17:15	17:30	0	0	2	0	0	25	0	38	1
17:30	17:45	0	0	0	0	0	46	0	34	2
17:45	18:00	0	0	0	0	1	38	0	23	0

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:45	8:45	0	5	6	0	4	106	0	133	0	254
15:30	16:30	0	0	3	0	2	146	0	133	3	287

Heavy Vehicles

Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	0	0	0	1	2	0	3	0
7:15	7:30	0	0	0	0	0	3	0	2	0
7:30	7:45	0	0	0	0	1	5	0	0	0
7:45	8:00	0	0	1	0	0	5	0	3	0
8:00	8:15	0	0	0	0	1	1	0	5	0
8:15	8:30	0	0	0	0	0	4	0	1	0
8:30	8:45	0	0	1	0	0	0	0	3	0
8:45	9:00	0	0	0	0	0	1	0	2	0
9:00	9:15	0	0	0	0	1	2	0	3	0
9:15	9:30	0	0	0	0	1	3	0	2	0
9:30	9:45	0	0	0	0	0	3	0	4	0
9:45	10:00	0	0	1	0	0	2	0	2	0
15:00	15:15	0	0	0	0	1	2	0	4	0
15:15	15:30	0	0	0	0	1	1	0	2	0
15:30	15:45	0	1	0	0	1	4	0	2	0
15:45	16:00	0	0	0	0	0	2	0	3	0
16:00	16:15	0	0	0	0	0	5	0	8	1
16:15	16:30	0	0	0	0	0	2	0	1	0
16:30	16:45	0	0	0	0	0	1	0	1	0
16:45	17:00	0	0	0	0	0	0	0	2	0
17:00	17:15	0	0	0	0	0	1	0	1	0
17:15	17:30	0	0	0	0	0	0	0	7	0
17:30	17:45	0	0	0	0	0	1	0	2	0
17:45	18:00	0	0	0	0	0	0	0	0	0

Peak Time		North Approach Hilltop Rd			East Approach Kosciuszko R			West Approach Kosciuszko R			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:45	8:45	0	0	2	0	1	10	0	12	0	25
15:30	16:30	0	1	0	0	1	13	0	14	1	30

APPENDIX

F

EUCUMBENE/HILLTOP SIDRA OUTPUTS

Cardno

now

Stantec

2% Growth Analysis

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2023 Existing)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	741	8.0	780	8.0	0.416	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	99.7
6	R2	7	14.0	7	14.0	0.023	18.7	LOS C	0.1	0.6	0.81	0.93	0.81	88.5
Approach		748	8.1	787	8.1	0.416	0.5	NA	0.1	0.6	0.01	0.01	0.01	99.6
North: Eucumbene Road														
7	L2	10	20.0	11	20.0	0.220	17.7	LOS C	0.5	3.6	0.81	0.95	0.88	88.1
9	R2	43	5.0	45	5.0	0.220	18.9	LOS C	0.5	3.6	0.81	0.95	0.88	88.9
Approach		53	7.8	56	7.8	0.220	18.7	LOS C	0.5	3.6	0.81	0.95	0.88	88.7
West: Kosciuszko Road														
10	L2	18	28.0	19	28.0	0.012	8.6	LOS A	0.0	0.0	0.00	0.66	0.00	91.5
11	T1	1012	8.0	1065	8.0	0.569	0.6	LOS A	0.0	0.0	0.00	0.00	0.00	99.5
Approach		1030	8.3	1084	8.3	0.569	0.7	NA	0.0	0.0	0.00	0.01	0.00	99.3
All Vehicles		1831	8.2	1927	8.2	0.569	1.1	NA	0.5	3.6	0.03	0.04	0.03	99.2

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2023 Existing)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	741	8.0	780	8.0	0.416	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	99.7
6	R2	8	25.0	8	25.0	0.033	22.0	LOS C	0.1	0.9	0.85	0.95	0.85	86.5
Approach		749	8.2	788	8.2	0.416	0.6	NA	0.1	0.9	0.01	0.01	0.01	99.6
North: Eucumbene Road														
7	L2	5	0.0	5	0.0	0.110	14.4	LOS B	0.2	1.8	0.82	0.94	0.82	88.9
9	R2	16	25.0	17	25.0	0.110	22.9	LOS C	0.2	1.8	0.82	0.94	0.82	86.6
Approach		21	19.0	22	19.0	0.110	20.9	LOS C	0.2	1.8	0.82	0.94	0.82	87.1
West: Kosciuszko Road														
10	L2	37	8.0	39	8.0	0.022	8.1	LOS A	0.0	0.0	0.00	0.66	0.00	93.2
11	T1	1032	8.0	1086	8.0	0.580	0.6	LOS A	0.0	0.0	0.00	0.00	0.00	99.5
Approach		1069	8.0	1125	8.0	0.580	0.9	NA	0.0	0.0	0.00	0.02	0.00	99.3
All Vehicles		1839	8.2	1936	8.2	0.580	1.0	NA	0.2	1.8	0.01	0.03	0.01	99.2

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2023 Existing)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	741	8.0	780	8.0	0.419	0.2	LOS A	0.2	1.4	0.02	0.00	0.03	99.9
6	R2	4	0.0	4	0.0	0.419	19.7	LOS C	0.2	1.4	0.02	0.00	0.03	96.6
Approach		745	8.0	784	8.0	0.419	0.3	NA	0.2	1.4	0.02	0.00	0.03	99.9
North: Hilltop Road														
7	L2	4	0.0	4	0.0	0.013	11.1	LOS B	0.0	0.2	0.63	0.86	0.63	92.7
9	R2	3	0.0	3	0.0	0.013	10.2	LOS B	0.0	0.2	0.63	0.86	0.63	89.0
Approach		7	0.0	7	0.0	0.013	10.7	LOS B	0.0	0.2	0.63	0.86	0.63	91.4
West: Kosciuszko Road														
10	L2	3	0.0	3	0.0	0.579	8.4	LOS A	0.0	0.0	0.00	0.00	0.00	39.5
11	T1	1032	8.0	1086	8.0	0.579	0.6	LOS A	0.0	0.0	0.00	0.00	0.00	99.4
Approach		1035	8.0	1089	8.0	0.579	0.7	NA	0.0	0.0	0.00	0.00	0.00	99.3
All Vehicles		1787	7.9	1881	7.9	0.579	0.5	NA	0.2	1.4	0.01	0.01	0.02	99.5

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

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2023 Existing)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	741	8.0	780	8.0	0.424	0.3	LOS A	0.3	2.1	0.04	0.01	0.05	99.9
6	R2	6	0.0	6	0.0	0.424	19.8	LOS C	0.3	2.1	0.04	0.01	0.05	96.5
Approach		747	7.9	786	7.9	0.424	0.4	NA	0.3	2.1	0.04	0.01	0.05	99.8
North: Hilltop Road														
7	L2	4	0.0	4	0.0	0.013	11.1	LOS B	0.0	0.2	0.63	0.86	0.63	92.7
9	R2	3	0.0	3	0.0	0.013	10.2	LOS B	0.0	0.2	0.63	0.86	0.63	89.0
Approach		7	0.0	7	0.0	0.013	10.7	LOS B	0.0	0.2	0.63	0.86	0.63	91.4
West: Kosciuszko Road														
10	L2	4	0.0	4	0.0	0.579	8.4	LOS A	0.0	0.0	0.00	0.00	0.00	39.5
11	T1	1032	8.0	1086	8.0	0.579	0.6	LOS A	0.0	0.0	0.00	0.00	0.00	99.4
Approach		1036	8.0	1091	8.0	0.579	0.7	NA	0.0	0.0	0.00	0.00	0.00	99.2
All Vehicles		1790	7.9	1884	7.9	0.579	0.6	NA	0.3	2.1	0.02	0.01	0.02	99.4

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2023 Existing)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	780	8.0	1873	0.416	100	0.3	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	7	14.0	318	0.023	100	18.7	LOS C	0.1	0.6	Short	150	0.0	NA
Approach	787	8.1		0.416		0.5	NA	0.1	0.6				
North: Eucumbene Road													
Lane 1	56	7.8	254	0.220	100	18.7	LOS C	0.5	3.6	Full	2340	0.0	0.0
Approach	56	7.8		0.220		18.7	LOS C	0.5	3.6				
West: Kosciuszko Road													
Lane 1	19	28.0	1564	0.012	100	8.6	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1065	8.0	1873	0.569	100	0.6	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1084	8.3		0.569		0.7	NA	0.0	0.0				
Intersection	1927	8.2		0.569		1.1	NA	0.5	3.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	780	-	780	8.0	1873	0.416	100	NA	NA
Lane 2	-	7	7	14.0	318	0.023	100	0.0	1
Approach	780	7	787	8.1		0.416			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	11	45	56	7.8	254	0.220	100	NA	NA
Approach	11	45	56	7.8		0.220			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	19	-	19	28.0	1564	0.012	100	0.0	2

Lane 2	-	1065	1065	8.0	1873	0.569	100	NA	NA
Approach	19	1065	1084	8.3		0.569			
	Total	%HV	Deg.Satn (v/c)						
Intersection	1927	8.2		0.569					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2023 Existing)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	780	8.0	1873	0.416	100	0.3	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	8	25.0	255	0.033	100	22.0	LOS C	0.1	0.9	Short	150	0.0	NA
Approach	788	8.2		0.416		0.6	NA	0.1	0.9				
North: Eucumbene Road													
Lane 1	22	19.0	201	0.110	100	20.9	LOS C	0.2	1.8	Full	2340	0.0	0.0
Approach	22	19.0		0.110		20.9	LOS C	0.2	1.8				
West: Kosciuszko Road													
Lane 1	39	8.0	1775	0.022	100	8.1	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1086	8.0	1873	0.580	100	0.6	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1125	8.0		0.580		0.9	NA	0.0	0.0				
Intersection	1936	8.2		0.580		1.0	NA	0.2	1.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	780	-	780	8.0	1873	0.416	100	NA	NA
Lane 2	-	8	8	25.0	255	0.033	100	0.0	1
Approach	780	8	788	8.2		0.416			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	17	22	19.0	201	0.110	100	NA	NA
Approach	5	17	22	19.0		0.110			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	39	-	39	8.0	1775	0.022	100	0.0	2

Lane 2	-	1086	1086	8.0	1873	0.580	100	NA	NA
Approach	39	1086	1125	8.0		0.580			
	Total	%HV	Deg.Satn (v/c)						
Intersection	1936	8.2		0.580					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2023 Existing)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	784	8.0	1871	0.419	100	0.3	LOS A	0.2	1.4	Full	5000	0.0	0.0
Approach	784	8.0		0.419		0.3	NA	0.2	1.4				
North: Hilltop Road													
Lane 1	7	0.0	559	0.013	100	10.7	LOS B	0.0	0.2	Full	200	0.0	0.0
Approach	7	0.0		0.013		10.7	LOS B	0.0	0.2				
West: Kosciuszko Road													
Lane 1	1089	8.0	1883	0.579	100	0.7	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1089	8.0		0.579		0.7	NA	0.0	0.0				
Intersection	1881	7.9		0.579		0.5	NA	0.2	1.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	780	4	784	8.0	1871	0.419	100	NA	NA
Approach	780	4	784	8.0		0.419			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	4	3	7	0.0	559	0.013	100	NA	NA
Approach	4	3	7	0.0		0.013			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	3	1086	1089	8.0	1883	0.579	100	NA	NA
Approach	3	1086	1089	8.0		0.579			

	Total	%HV	Deg.Satn (v/c)

Intersection	1881	7.9	0.579	

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2023 Existing)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	786	7.9	1855	0.424	100	0.4	LOS A	0.3	2.1	Full	5000	0.0	0.0
Approach	786	7.9		0.424		0.4	NA	0.3	2.1				
North: Hilltop Road													
Lane 1	7	0.0	558	0.013	100	10.7	LOS B	0.0	0.2	Full	200	0.0	0.0
Approach	7	0.0		0.013		10.7	LOS B	0.0	0.2				
West: Kosciuszko Road													
Lane 1	1091	8.0	1883	0.579	100	0.7	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1091	8.0		0.579		0.7	NA	0.0	0.0				
Intersection	1884	7.9		0.579		0.6	NA	0.3	2.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	780	6	786	7.9	1855	0.424	100	NA	NA
Approach	780	6	786	7.9		0.424			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	4	3	7	0.0	558	0.013	100	NA	NA
Approach	4	3	7	0.0		0.013			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	4	1086	1091	8.0	1883	0.579	100	NA	NA
Approach	4	1086	1091	8.0		0.579			

	Total	%HV	Deg.Satn (v/c)

Intersection	1884	7.9	0.579	

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2033 Without Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	903	8.0	951	8.0	0.508	0.5	LOS A	0.0	0.0	0.00	0.00	0.00	99.6
6	R2	9	5.0	9	5.0	0.057	28.9	LOS D	0.2	1.3	0.91	0.97	0.91	78.7
Approach		912	8.0	960	8.0	0.508	0.8	NA	0.2	1.3	0.01	0.01	0.01	99.4
North: Eucumbene Road														
7	L2	12	5.0	13	5.0	0.562	29.9	LOS D	1.4	9.9	0.95	1.03	1.25	75.7
9	R2	52	5.0	55	5.0	0.562	39.4	LOS E	1.4	9.9	0.95	1.03	1.25	75.0
Approach		64	5.0	67	5.0	0.562	37.6	LOS E	1.4	9.9	0.95	1.03	1.25	75.1
West: Kosciuszko Road														
10	L2	22	5.0	23	5.0	0.013	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	93.5
11	T1	1258	8.0	1324	8.0	0.707	1.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.0
Approach		1280	7.9	1347	7.9	0.707	1.2	NA	0.0	0.0	0.00	0.01	0.00	99.0
All Vehicles		2256	7.9	2375	7.9	0.707	2.0	NA	1.4	9.9	0.03	0.04	0.04	98.3

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2033 Without Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	903	8.0	951	8.0	0.508	0.5	LOS A	0.0	0.0	0.00	0.00	0.00	99.6
6	R2	10	5.0	11	5.0	0.064	29.3	LOS D	0.2	1.4	0.91	0.97	0.91	78.6
Approach		913	8.0	961	8.0	0.508	0.8	NA	0.2	1.4	0.01	0.01	0.01	99.3
North: Eucumbene Road														
7	L2	6	5.0	6	5.0	0.225	23.5	LOS C	0.5	3.5	0.91	0.98	0.98	77.7
9	R2	20	5.0	21	5.0	0.225	32.6	LOS D	0.5	3.5	0.91	0.98	0.98	77.1
Approach		26	5.0	27	5.0	0.225	30.5	LOS D	0.5	3.5	0.91	0.98	0.98	77.2
West: Kosciuszko Road														
10	L2	45	5.0	47	5.0	0.026	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	93.5
11	T1	1258	8.0	1324	8.0	0.707	1.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.0
Approach		1303	7.9	1372	7.9	0.707	1.3	NA	0.0	0.0	0.00	0.02	0.00	98.9
All Vehicles		2242	7.9	2360	7.9	0.707	1.4	NA	0.5	3.5	0.01	0.03	0.02	98.8

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2033 Without Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	903	8.0	951	8.0	0.522	0.8	LOS A	0.7	5.0	0.05	0.00	0.07	99.7
6	R2	5	0.0	5	0.0	0.522	37.8	LOS E	0.7	5.0	0.05	0.00	0.07	96.7
Approach		908	8.0	956	8.0	0.522	1.0	NA	0.7	5.0	0.05	0.00	0.07	99.7
North: Hilltop Road														
7	L2	5	0.0	5	0.0	0.028	14.4	LOS B	0.1	0.4	0.78	0.92	0.78	90.3
9	R2	4	0.0	4	0.0	0.028	13.5	LOS B	0.1	0.4	0.78	0.92	0.78	85.8
Approach		9	0.0	9	0.0	0.028	14.0	LOS B	0.1	0.4	0.78	0.92	0.78	88.7
West: Kosciuszko Road														
10	L2	4	0.0	4	0.0	0.706	8.9	LOS A	0.0	0.0	0.00	0.00	0.00	39.4
11	T1	1258	8.0	1324	8.0	0.706	1.1	LOS A	0.0	0.0	0.00	0.00	0.00	99.0
Approach		1262	8.0	1328	8.0	0.706	1.1	NA	0.0	0.0	0.00	0.00	0.00	98.8
All Vehicles		2179	7.9	2294	7.9	0.706	1.1	NA	0.7	5.0	0.02	0.01	0.03	99.2

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2033 Without Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	903	8.0	951	8.0	0.531	1.1	LOS A	0.9	7.0	0.07	0.01	0.10	99.5
6	R2	7	0.0	7	0.0	0.531	38.0	LOS E	0.9	7.0	0.07	0.01	0.10	96.5
Approach		910	7.9	958	7.9	0.531	1.3	NA	0.9	7.0	0.07	0.01	0.10	99.5
North: Hilltop Road														
7	L2	5	0.0	5	0.0	0.028	14.4	LOS B	0.1	0.4	0.78	0.92	0.78	90.3
9	R2	4	0.0	4	0.0	0.028	13.5	LOS B	0.1	0.4	0.78	0.92	0.78	85.8
Approach		9	0.0	9	0.0	0.028	14.0	LOS B	0.1	0.4	0.78	0.92	0.78	88.7
West: Kosciuszko Road														
10	L2	5	0.0	5	0.0	0.706	8.9	LOS A	0.0	0.0	0.00	0.00	0.00	39.4
11	T1	1258	8.0	1324	8.0	0.706	1.1	LOS A	0.0	0.0	0.00	0.00	0.00	99.0
Approach		1263	8.0	1329	8.0	0.706	1.1	NA	0.0	0.0	0.00	0.00	0.00	98.8
All Vehicles		2182	7.9	2297	7.9	0.706	1.3	NA	0.9	7.0	0.03	0.01	0.05	99.1

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2033 Without Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	951	8.0	1873	0.508	100	0.5	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	9	5.0	167	0.057	100	28.9	LOS D	0.2	1.3	Short	150	0.0	NA
Approach	960	8.0		0.508		0.8	NA	0.2	1.3				
North: Eucumbene Road													
Lane 1	67	5.0	120	0.562	100	37.6	LOS E	1.4	9.9	Full	2340	0.0	0.0
Approach	67	5.0		0.562		37.6	LOS E	1.4	9.9				
West: Kosciuszko Road													
Lane 1	23	5.0	1812	0.013	100	8.0	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1324	8.0	1873	0.707	100	1.0	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1347	7.9		0.707		1.2	NA	0.0	0.0				
Intersection	2375	7.9		0.707		2.0	NA	1.4	9.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	951	-	951	8.0	1873	0.508	100	NA	NA
Lane 2	-	9	9	5.0	167	0.057	100	0.0	1
Approach	951	9	960	8.0		0.508			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	13	55	67	5.0	120	0.562	100	NA	NA
Approach	13	55	67	5.0		0.562			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	23	-	23	5.0	1812	0.013	100	0.0	2

Lane 2	-	1324	1324	8.0	1873	0.707	100	NA	NA
Approach	23	1324	1347	7.9		0.707			
	Total	%HV	Deg.Satn (v/c)						
Intersection	2375	7.9		0.707					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2033 Without Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	951	8.0	1873	0.508	100	0.5	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	11	5.0	165	0.064	100	29.3	LOS D	0.2	1.4	Short	150	0.0	NA
Approach	961	8.0		0.508		0.8	NA	0.2	1.4				
North: Eucumbene Road													
Lane 1	27	5.0	122	0.225	100	30.5	LOS D	0.5	3.5	Full	2340	0.0	0.0
Approach	27	5.0		0.225		30.5	LOS D	0.5	3.5				
West: Kosciuszko Road													
Lane 1	47	5.0	1812	0.026	100	8.0	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1324	8.0	1873	0.707	100	1.0	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1372	7.9		0.707		1.3	NA	0.0	0.0				
Intersection	2360	7.9		0.707		1.4	NA	0.5	3.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	951	-	951	8.0	1873	0.508	100	NA	NA
Lane 2	-	11	11	5.0	165	0.064	100	0.0	1
Approach	951	11	961	8.0		0.508			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	6	21	27	5.0	122	0.225	100	NA	NA
Approach	6	21	27	5.0		0.225			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	47	-	47	5.0	1812	0.026	100	0.0	2

Lane 2	-	1324	1324	8.0	1873	0.707	100	NA	NA
Approach	47	1324	1372	7.9		0.707			
	Total	%HV	Deg.Satn (v/c)						
Intersection	2360	7.9		0.707					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2033 Without Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	956	8.0	1832	0.522	100	1.0	LOS A	0.7	5.0	Full	5000	0.0	0.0
Approach	956	8.0		0.522		1.0	NA	0.7	5.0				
North: Hilltop Road													
Lane 1	9	0.0	337	0.028	100	14.0	LOS B	0.1	0.4	Full	200	0.0	0.0
Approach	9	0.0		0.028		14.0	LOS B	0.1	0.4				
West: Kosciuszko Road													
Lane 1	1328	8.0	1883	0.706	100	1.1	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1328	8.0		0.706		1.1	NA	0.0	0.0				
Intersection	2294	7.9		0.706		1.1	NA	0.7	5.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	951	5	956	8.0	1832	0.522	100	NA	NA
Approach	951	5	956	8.0		0.522			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	4	9	0.0	337	0.028	100	NA	NA
Approach	5	4	9	0.0		0.028			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	4	1324	1328	8.0	1883	0.706	100	NA	NA
Approach	4	1324	1328	8.0		0.706			

	Total	%HV	Deg.Satn (v/c)

Intersection	2294	7.9	0.706	

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2033 Without Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	958	7.9	1806	0.531	100	1.3	LOS A	0.9	7.0	Full	5000	0.0	0.0
Approach	958	7.9		0.531		1.3	NA	0.9	7.0				
North: Hilltop Road													
Lane 1	9	0.0	336	0.028	100	14.0	LOS B	0.1	0.4	Full	200	0.0	0.0
Approach	9	0.0		0.028		14.0	LOS B	0.1	0.4				
West: Kosciuszko Road													
Lane 1	1329	8.0	1883	0.706	100	1.1	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1329	8.0		0.706		1.1	NA	0.0	0.0				
Intersection	2297	7.9		0.706		1.3	NA	0.9	7.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	951	7	958	7.9	1806	0.531	100	NA	NA
Approach	951	7	958	7.9		0.531			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	4	9	0.0	336	0.028	100	NA	NA
Approach	5	4	9	0.0		0.028			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	1324	1329	8.0	1883	0.706	100	NA	NA
Approach	5	1324	1329	8.0		0.706			

	Total	%HV	Deg.Satn (v/c)

Intersection	2297	7.9	0.706

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2033 With Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	903	8.0	951	8.0	0.508	0.5	LOS A	0.0	0.0	0.00	0.00	0.00	99.6
6	R2	9	5.0	9	5.0	0.057	28.9	LOS D	0.2	1.3	0.91	0.97	0.91	78.7
Approach		912	8.0	960	8.0	0.508	0.8	NA	0.2	1.3	0.01	0.01	0.01	99.4
North: Eucumbene Road														
7	L2	40	5.0	42	5.0	3.005	1822.6	LOS F	152.0	1109.3	1.00	5.24	26.94	9.7
9	R2	292	5.0	307	5.0	3.005	1826.0	LOS F	152.0	1109.3	1.00	5.24	26.94	9.3
Approach		332	5.0	349	5.0	3.005	1825.5	LOS F	152.0	1109.3	1.00	5.24	26.94	9.4
West: Kosciuszko Road														
10	L2	22	5.0	23	5.0	0.013	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	93.5
11	T1	1258	8.0	1324	8.0	0.707	1.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.0
Approach		1280	7.9	1347	7.9	0.707	1.2	NA	0.0	0.0	0.00	0.01	0.00	99.0
All Vehicles		2524	7.6	2657	7.6	3.005	241.0	NA	152.0	1109.3	0.13	0.70	3.55	47.0

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

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2033 With Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	903	8.0	951	8.0	0.512	0.5	LOS A	0.0	0.0	0.00	0.00	0.00	99.6
6	R2	40	5.0	42	5.0	0.411	55.3	LOS F	1.3	9.7	0.96	1.01	1.13	71.3
Approach		943	7.9	993	7.9	0.512	2.8	NA	1.3	9.7	0.04	0.04	0.05	98.1
North: Eucumbene Road														
7	L2	6	5.0	6	5.0	0.265	24.4	LOS C	0.6	4.2	0.93	0.99	1.01	76.3
9	R2	20	5.0	21	5.0	0.265	38.9	LOS E	0.6	4.2	0.93	0.99	1.01	75.6
Approach		26	5.0	27	5.0	0.265	35.5	LOS E	0.6	4.2	0.93	0.99	1.01	75.7
West: Kosciuszko Road														
10	L2	285	5.0	300	5.0	0.166	8.1	LOS A	0.0	0.0	0.00	0.66	0.00	93.4
11	T1	1258	8.0	1324	8.0	0.707	1.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.0
Approach		1543	7.4	1624	7.4	0.707	2.3	NA	0.0	0.0	0.00	0.12	0.00	98.1
All Vehicles		2512	7.6	2644	7.6	0.707	2.9	NA	1.3	9.7	0.02	0.10	0.03	97.8

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2033 With Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	903	8.0	951	8.0	0.522	0.8	LOS A	0.7	5.0	0.05	0.00	0.07	99.7
6	R2	5	0.0	5	0.0	0.522	37.8	LOS E	0.7	5.0	0.05	0.00	0.07	96.7
Approach		908	8.0	956	8.0	0.522	1.0	NA	0.7	5.0	0.05	0.00	0.07	99.7
North: Hilltop Road														
7	L2	20	0.0	21	0.0	0.073	14.6	LOS B	0.2	1.2	0.79	0.92	0.79	90.1
9	R2	4	0.0	4	0.0	0.073	13.7	LOS B	0.2	1.2	0.79	0.92	0.79	85.5
Approach		24	0.0	25	0.0	0.073	14.5	LOS B	0.2	1.2	0.79	0.92	0.79	89.6
West: Kosciuszko Road														
10	L2	4	0.0	4	0.0	0.706	8.9	LOS A	0.0	0.0	0.00	0.00	0.00	39.4
11	T1	1258	8.0	1324	8.0	0.706	1.1	LOS A	0.0	0.0	0.00	0.00	0.00	99.0
Approach		1262	8.0	1328	8.0	0.706	1.1	NA	0.0	0.0	0.00	0.00	0.00	98.8
All Vehicles		2194	7.9	2309	7.9	0.706	1.2	NA	0.7	5.0	0.03	0.01	0.04	99.1

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2033 With Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	903	8.0	951	8.0	0.596	3.3	LOS A	3.0	22.4	0.21	0.02	0.33	98.6
6	R2	22	0.0	23	0.0	0.596	38.8	LOS E	3.0	22.4	0.21	0.02	0.33	95.1
Approach		925	7.8	974	7.8	0.596	4.2	NA	3.0	22.4	0.21	0.02	0.33	98.5
North: Hilltop Road														
7	L2	5	0.0	5	0.0	0.028	14.4	LOS B	0.1	0.4	0.78	0.92	0.78	90.3
9	R2	4	0.0	4	0.0	0.028	13.6	LOS B	0.1	0.4	0.78	0.92	0.78	85.8
Approach		9	0.0	9	0.0	0.028	14.1	LOS B	0.1	0.4	0.78	0.92	0.78	88.7
West: Kosciuszko Road														
10	L2	5	0.0	5	0.0	0.706	8.9	LOS A	0.0	0.0	0.00	0.00	0.00	39.4
11	T1	1258	8.0	1324	8.0	0.706	1.1	LOS A	0.0	0.0	0.00	0.00	0.00	99.0
Approach		1263	8.0	1329	8.0	0.706	1.1	NA	0.0	0.0	0.00	0.00	0.00	98.8
All Vehicles		2197	7.9	2313	7.9	0.706	2.5	NA	3.0	22.4	0.09	0.01	0.14	98.7

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2033 With Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	951	8.0	1873	0.508	100	0.5	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	9	5.0	167	0.057	100	28.9	LOS D	0.2	1.3	Short	150	0.0	NA
Approach	960	8.0		0.508		0.8	NA	0.2	1.3				
North: Eucumbene Road													
Lane 1	349	5.0	116	3.005	100	1825.5	LOS F	152.0	1109.3	Full	2340	0.0	0.0
Approach	349	5.0		3.005		1825.5	LOS F	152.0	1109.3				
West: Kosciuszko Road													
Lane 1	23	5.0	1812	0.013	100	8.0	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1324	8.0	1873	0.707	100	1.0	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1347	7.9		0.707		1.2	NA	0.0	0.0				
Intersection	2657	7.6		3.005		241.0	NA	152.0	1109.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	951	-	951	8.0	1873	0.508	100	NA	NA
Lane 2	-	9	9	5.0	167	0.057	100	0.0	1
Approach	951	9	960	8.0		0.508			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	42	307	349	5.0	116	3.005	100	NA	NA
Approach	42	307	349	5.0		3.005			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	23	-	23	5.0	1812	0.013	100	0.0	2

Lane 2	-	1324	1324	8.0	1873	0.707	100	NA	NA
Approach	23	1324	1347	7.9		0.707			
	Total	%HV	Deg.Satn (v/c)						
Intersection	2657	7.6		3.005					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2033 With Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	951	8.0	1855	0.512	100	0.5	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	42	5.0	103	0.411	100	55.3	LOS F	1.3	9.7	Short	150	0.0	NA
Approach	993	7.9		0.512		2.8	NA	1.3	9.7				
North: Eucumbene Road													
Lane 1	27	5.0	103	0.265	100	35.5	LOS E	0.6	4.2	Full	2340	0.0	0.0
Approach	27	5.0		0.265		35.5	LOS E	0.6	4.2				
West: Kosciuszko Road													
Lane 1	300	5.0	1812	0.166	100	8.1	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1324	8.0	1873	0.707	100	1.0	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1624	7.4		0.707		2.3	NA	0.0	0.0				
Intersection	2644	7.6		0.707		2.9	NA	1.3	9.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	951	-	951	8.0	1855	0.512	100	NA	NA
Lane 2	-	42	42	5.0	103	0.411	100	0.0	1
Approach	951	42	993	7.9		0.512			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	6	21	27	5.0	103	0.265	100	NA	NA
Approach	6	21	27	5.0		0.265			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	300	-	300	5.0	1812	0.166	100	0.0	2

Lane 2	-	1324	1324	8.0	1873	0.707	100	NA	NA
Approach	300	1324	1624	7.4		0.707			
	Total	%HV	Deg.Satn (v/c)						
Intersection	2644	7.6		0.707					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2033 With Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	956	8.0	1832	0.522	100	1.0	LOS A	0.7	5.0	Full	5000	0.0	0.0
Approach	956	8.0		0.522		1.0	NA	0.7	5.0				
North: Hilltop Road													
Lane 1	25	0.0	348	0.073	100	14.5	LOS B	0.2	1.2	Full	200	0.0	0.0
Approach	25	0.0		0.073		14.5	LOS B	0.2	1.2				
West: Kosciuszko Road													
Lane 1	1328	8.0	1883	0.706	100	1.1	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1328	8.0		0.706		1.1	NA	0.0	0.0				
Intersection	2309	7.9		0.706		1.2	NA	0.7	5.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	951	5	956	8.0	1832	0.522	100	NA	NA
Approach	951	5	956	8.0		0.522			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	21	4	25	0.0	348	0.073	100	NA	NA
Approach	21	4	25	0.0		0.073			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	4	1324	1328	8.0	1883	0.706	100	NA	NA
Approach	4	1324	1328	8.0		0.706			

	Total	%HV	Deg.Satn (v/c)

Intersection	2309	7.9	0.706	

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2033 With Development)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	974	7.8	1633	0.596	100	4.2	LOS A	3.0	22.4	Full	5000	0.0	0.0
Approach	974	7.8		0.596		4.2	NA	3.0	22.4				
North: Hilltop Road													
Lane 1	9	0.0	333	0.028	100	14.1	LOS B	0.1	0.4	Full	200	0.0	0.0
Approach	9	0.0		0.028		14.1	LOS B	0.1	0.4				
West: Kosciuszko Road													
Lane 1	1329	8.0	1883	0.706	100	1.1	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1329	8.0		0.706		1.1	NA	0.0	0.0				
Intersection	2313	7.9		0.706		2.5	NA	3.0	22.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	951	23	974	7.8	1633	0.596	100	NA	NA
Approach	951	23	974	7.8		0.596			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	4	9	0.0	333	0.028	100	NA	NA
Approach	5	4	9	0.0		0.028			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	1324	1329	8.0	1883	0.706	100	NA	NA
Approach	5	1324	1329	8.0		0.706			

	Total	%HV	Deg.Satn (v/c)

Intersection	2313	7.9	0.706	

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

3% Growth Sensitivity Analysis

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2023 Existing Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	771	8.0	812	8.0	0.433	0.4	LOS A	0.0	0.0	0.00	0.00	0.00	99.7
6	R2	7	14.0	7	14.0	0.028	20.9	LOS C	0.1	0.7	0.84	0.95	0.84	80.9
Approach		778	8.1	819	8.1	0.433	0.5	NA	0.1	0.7	0.01	0.01	0.01	99.5
North: Eucumbene Road														
7	L2	10	20.0	11	20.0	0.257	18.8	LOS C	0.6	4.3	0.84	0.96	0.94	80.1
9	R2	43	5.0	45	5.0	0.257	20.4	LOS C	0.6	4.3	0.84	0.96	0.94	80.5
Approach		53	7.8	56	7.8	0.257	20.1	LOS C	0.6	4.3	0.84	0.96	0.94	80.4
West: Kosciuszko Road														
10	L2	18	28.0	19	28.0	0.012	8.6	LOS A	0.0	0.0	0.00	0.66	0.00	91.5
11	T1	1073	8.0	1129	8.0	0.603	0.7	LOS A	0.0	0.0	0.00	0.00	0.00	99.4
Approach		1091	8.3	1148	8.3	0.603	0.8	NA	0.0	0.0	0.00	0.01	0.00	99.3
All Vehicles		1922	8.2	2023	8.2	0.603	1.2	NA	0.6	4.3	0.03	0.04	0.03	98.8

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2023 Existing Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	771	8.0	812	8.0	0.433	0.4	LOS A	0.0	0.0	0.00	0.00	0.00	99.7
6	R2	8	25.0	8	25.0	0.037	24.0	LOS C	0.1	1.0	0.86	0.96	0.86	79.5
Approach		779	8.2	820	8.2	0.433	0.6	NA	0.1	1.0	0.01	0.01	0.01	99.5
North: Eucumbene Road														
7	L2	5	0.0	5	0.0	0.125	14.4	LOS B	0.3	2.1	0.84	0.94	0.84	80.9
9	R2	16	25.0	17	25.0	0.125	24.1	LOS C	0.3	2.1	0.84	0.94	0.84	78.7
Approach		21	19.0	22	19.0	0.125	21.8	LOS C	0.3	2.1	0.84	0.94	0.84	79.2
West: Kosciuszko Road														
10	L2	37	8.0	39	8.0	0.022	8.1	LOS A	0.0	0.0	0.00	0.66	0.00	93.2
11	T1	1073	8.0	1129	8.0	0.603	0.7	LOS A	0.0	0.0	0.00	0.00	0.00	99.4
Approach		1110	8.0	1168	8.0	0.603	0.9	NA	0.0	0.0	0.00	0.02	0.00	99.2
All Vehicles		1910	8.2	2011	8.2	0.603	1.0	NA	0.3	2.1	0.01	0.03	0.01	99.1

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2023 Existing Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	771	8.0	812	8.0	0.437	0.2	LOS A	0.2	1.6	0.03	0.00	0.04	99.9
6	R2	4	0.0	4	0.0	0.437	21.7	LOS C	0.2	1.6	0.03	0.00	0.04	97.0
Approach		775	8.0	816	8.0	0.437	0.3	NA	0.2	1.6	0.03	0.00	0.04	99.9
North: Hilltop Road														
7	L2	4	0.0	4	0.0	0.014	11.3	LOS B	0.0	0.2	0.65	0.87	0.65	91.7
9	R2	3	0.0	3	0.0	0.014	10.5	LOS B	0.0	0.2	0.65	0.87	0.65	87.7
Approach		7	0.0	7	0.0	0.014	11.0	LOS B	0.0	0.2	0.65	0.87	0.65	90.3
West: Kosciuszko Road														
10	L2	3	0.0	3	0.0	0.602	8.5	LOS A	0.0	0.0	0.00	0.00	0.00	39.5
11	T1	1073	8.0	1129	8.0	0.602	0.7	LOS A	0.0	0.0	0.00	0.00	0.00	99.4
Approach		1076	8.0	1133	8.0	0.602	0.7	NA	0.0	0.0	0.00	0.00	0.00	99.2
All Vehicles		1858	7.9	1956	7.9	0.602	0.6	NA	0.2	1.6	0.01	0.01	0.02	99.5

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

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2023 Existing Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	771	8.0	812	8.0	0.442	0.3	LOS A	0.3	2.4	0.04	0.01	0.06	99.8
6	R2	6	0.0	6	0.0	0.442	21.8	LOS C	0.3	2.4	0.04	0.01	0.06	97.0
Approach		777	7.9	818	7.9	0.442	0.5	NA	0.3	2.4	0.04	0.01	0.06	99.8
North: Hilltop Road														
7	L2	4	0.0	4	0.0	0.014	11.3	LOS B	0.0	0.2	0.65	0.87	0.65	91.7
9	R2	3	0.0	3	0.0	0.014	10.5	LOS B	0.0	0.2	0.65	0.87	0.65	87.7
Approach		7	0.0	7	0.0	0.014	11.0	LOS B	0.0	0.2	0.65	0.87	0.65	90.3
West: Kosciuszko Road														
10	L2	4	0.0	4	0.0	0.602	8.5	LOS A	0.0	0.0	0.00	0.00	0.00	39.5
11	T1	1073	8.0	1129	8.0	0.602	0.7	LOS A	0.0	0.0	0.00	0.00	0.00	99.4
Approach		1077	8.0	1134	8.0	0.602	0.7	NA	0.0	0.0	0.00	0.00	0.00	99.2
All Vehicles		1861	7.9	1959	7.9	0.602	0.7	NA	0.3	2.4	0.02	0.01	0.03	99.4

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2023 Existing Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	812	8.0	1873	0.433	100	0.4	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	7	14.0	267	0.028	100	20.9	LOS C	0.1	0.7	Short	150	0.0	NA
Approach	819	8.1		0.433		0.5	NA	0.1	0.7				
North: Eucumbene Road													
Lane 1	56	7.8	217	0.257	100	20.1	LOS C	0.6	4.3	Full	2340	0.0	0.0
Approach	56	7.8		0.257		20.1	LOS C	0.6	4.3				
West: Kosciuszko Road													
Lane 1	19	28.0	1564	0.012	100	8.6	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1129	8.0	1873	0.603	100	0.7	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1148	8.3		0.603		0.8	NA	0.0	0.0				
Intersection	2023	8.2		0.603		1.2	NA	0.6	4.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	812	-	812	8.0	1873	0.433	100	NA	NA
Lane 2	-	7	7	14.0	267	0.028	100	0.0	1
Approach	812	7	819	8.1		0.433			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	11	45	56	7.8	217	0.257	100	NA	NA
Approach	11	45	56	7.8		0.257			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	19	-	19	28.0	1564	0.012	100	0.0	2

Lane 2	-	1129	1129	8.0	1873	0.603	100	NA	NA
Approach	19	1129	1148	8.3		0.603			
	Total	%HV	Deg.Satn (v/c)						
Intersection	2023	8.2	0.603						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2023 Existing Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	812	8.0	1873	0.433	100	0.4	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	8	25.0	225	0.037	100	24.0	LOS C	0.1	1.0	Short	150	0.0	NA
Approach	820	8.2		0.433		0.6	NA	0.1	1.0				
North: Eucumbene Road													
Lane 1	22	19.0	177	0.125	100	21.8	LOS C	0.3	2.1	Full	2340	0.0	0.0
Approach	22	19.0		0.125		21.8	LOS C	0.3	2.1				
West: Kosciuszko Road													
Lane 1	39	8.0	1775	0.022	100	8.1	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1129	8.0	1873	0.603	100	0.7	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1168	8.0		0.603		0.9	NA	0.0	0.0				
Intersection	2011	8.2		0.603		1.0	NA	0.3	2.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	812	-	812	8.0	1873	0.433	100	NA	NA
Lane 2	-	8	8	25.0	225	0.037	100	0.0	1
Approach	812	8	820	8.2		0.433			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	17	22	19.0	177	0.125	100	NA	NA
Approach	5	17	22	19.0		0.125			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	39	-	39	8.0	1775	0.022	100	0.0	2

Lane 2	-	1129	1129	8.0	1873	0.603	100	NA	NA
Approach	39	1129	1168	8.0		0.603			
	Total	%HV	Deg.Satn (v/c)						
Intersection	2011	8.2		0.603					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2023 Existing Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	816	8.0	1868	0.437	100	0.3	LOS A	0.2	1.6	Full	5000	0.0	0.0
Approach	816	8.0		0.437		0.3	NA	0.2	1.6				
North: Hilltop Road													
Lane 1	7	0.0	517	0.014	100	11.0	LOS B	0.0	0.2	Full	200	0.0	0.0
Approach	7	0.0		0.014		11.0	LOS B	0.0	0.2				
West: Kosciuszko Road													
Lane 1	1133	8.0	1883	0.602	100	0.7	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1133	8.0		0.602		0.7	NA	0.0	0.0				
Intersection	1956	7.9		0.602		0.6	NA	0.2	1.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	812	4	816	8.0	1868	0.437	100	NA	NA
Approach	812	4	816	8.0		0.437			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	4	3	7	0.0	517	0.014	100	NA	NA
Approach	4	3	7	0.0		0.014			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	3	1129	1133	8.0	1883	0.602	100	NA	NA
Approach	3	1129	1133	8.0		0.602			

	Total	%HV	Deg.Satn (v/c)

Intersection	1956	7.9	0.602	

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2023 Existing Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	818	7.9	1851	0.442	100	0.5	LOS A	0.3	2.4	Full	5000	0.0	0.0
Approach	818	7.9		0.442		0.5	NA	0.3	2.4				
North: Hilltop Road													
Lane 1	7	0.0	517	0.014	100	11.0	LOS B	0.0	0.2	Full	200	0.0	0.0
Approach	7	0.0		0.014		11.0	LOS B	0.0	0.2				
West: Kosciuszko Road													
Lane 1	1134	8.0	1883	0.602	100	0.7	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1134	8.0		0.602		0.7	NA	0.0	0.0				
Intersection	1959	7.9		0.602		0.7	NA	0.3	2.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	812	6	818	7.9	1851	0.442	100	NA	NA
Approach	812	6	818	7.9		0.442			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	4	3	7	0.0	517	0.014	100	NA	NA
Approach	4	3	7	0.0		0.014			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	4	1129	1134	8.0	1883	0.602	100	NA	NA
Approach	4	1129	1134	8.0		0.602			

	Total	%HV	Deg.Satn (v/c)

Intersection	1959	7.9	0.602	

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2033 Without Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	1036	8.0	1091	8.0	0.582	0.6	LOS A	0.0	0.0	0.00	0.00	0.00	99.4
6	R2	9	5.0	9	5.0	0.130	55.1	LOS F	0.4	2.6	0.96	0.99	0.96	71.3
Approach		1045	8.0	1100	8.0	0.582	1.1	NA	0.4	2.6	0.01	0.01	0.01	99.1
North: Eucumbene Road														
7	L2	12	5.0	13	5.0	1.323	371.1	LOS F	13.4	97.9	1.00	1.77	5.90	31.9
9	R2	52	5.0	55	5.0	1.323	389.5	LOS F	13.4	97.9	1.00	1.77	5.90	31.1
Approach		64	5.0	67	5.0	1.323	386.1	LOS F	13.4	97.9	1.00	1.77	5.90	31.3
West: Kosciuszko Road														
10	L2	22	5.0	23	5.0	0.013	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	93.5
11	T1	1442	8.0	1518	8.0	0.810	1.8	LOS A	0.0	0.0	0.00	0.00	0.00	98.3
Approach		1464	8.0	1541	8.0	0.810	1.9	NA	0.0	0.0	0.00	0.01	0.00	98.3
All Vehicles		2573	7.9	2708	7.9	1.323	11.2	NA	13.4	97.9	0.03	0.05	0.15	94.2

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2033 Without Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	1036	8.0	1091	8.0	0.582	0.6	LOS A	0.0	0.0	0.00	0.00	0.00	99.4
6	R2	10	5.0	11	5.0	0.142	55.1	LOS F	0.4	2.9	0.96	0.99	0.97	71.3
Approach		1046	8.0	1101	8.0	0.582	1.2	NA	0.4	2.9	0.01	0.01	0.01	99.1
North: Eucumbene Road														
7	L2	6	5.0	6	5.0	0.527	58.8	LOS F	1.2	8.4	0.98	1.02	1.16	65.8
9	R2	20	5.0	21	5.0	0.527	82.5	LOS F	1.2	8.4	0.98	1.02	1.16	65.0
Approach		26	5.0	27	5.0	0.527	77.0	LOS F	1.2	8.4	0.98	1.02	1.16	65.2
West: Kosciuszko Road														
10	L2	45	5.0	47	5.0	0.026	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	93.5
11	T1	1442	8.0	1518	8.0	0.810	1.8	LOS A	0.0	0.0	0.00	0.00	0.00	98.3
Approach		1487	7.9	1565	7.9	0.810	2.0	NA	0.0	0.0	0.00	0.02	0.00	98.2
All Vehicles		2559	7.9	2694	7.9	0.810	2.4	NA	1.2	8.4	0.01	0.03	0.02	98.1

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2033 Without Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	1036	8.0	1091	8.0	0.622	3.3	LOS A	2.7	20.1	0.10	0.00	0.14	98.8
6	R2	5	0.0	5	0.0	0.622	87.9	LOS F	2.7	20.1	0.10	0.00	0.14	95.4
Approach		1041	8.0	1096	8.0	0.622	3.7	NA	2.7	20.1	0.10	0.00	0.14	98.8
North: Hilltop Road														
7	L2	5	0.0	5	0.0	0.053	21.7	LOS C	0.1	0.8	0.88	0.96	0.88	87.3
9	R2	4	0.0	4	0.0	0.053	20.8	LOS C	0.1	0.8	0.88	0.96	0.88	81.7
Approach		9	0.0	9	0.0	0.053	21.3	LOS C	0.1	0.8	0.88	0.96	0.88	85.3
West: Kosciuszko Road														
10	L2	4	0.0	4	0.0	0.809	9.7	LOS A	0.0	0.0	0.00	0.00	0.00	39.1
11	T1	1442	8.0	1518	8.0	0.809	1.9	LOS A	0.0	0.0	0.00	0.00	0.00	98.3
Approach		1446	8.0	1522	8.0	0.809	2.0	NA	0.0	0.0	0.00	0.00	0.00	98.2
All Vehicles		2496	7.9	2627	7.9	0.809	2.8	NA	2.7	20.1	0.04	0.01	0.06	98.4

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2033 Without Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	1036	8.0	1091	8.0	0.642	4.7	LOS A	24.2	181.1	1.00	0.01	1.07	98.2
6	R2	7	0.0	7	0.0	0.642	88.7	LOS F	24.2	181.1	1.00	0.01	1.07	94.5
Approach		1043	7.9	1098	7.9	0.642	5.2	NA	24.2	181.1	1.00	0.01	1.07	98.2
North: Hilltop Road														
7	L2	5	0.0	5	0.0	0.053	21.7	LOS C	0.1	0.8	0.88	0.96	0.88	87.3
9	R2	4	0.0	4	0.0	0.053	20.8	LOS C	0.1	0.8	0.88	0.96	0.88	81.6
Approach		9	0.0	9	0.0	0.053	21.3	LOS C	0.1	0.8	0.88	0.96	0.88	85.2
West: Kosciuszko Road														
10	L2	5	0.0	5	0.0	0.809	9.7	LOS A	0.0	0.0	0.00	0.00	0.00	39.1
11	T1	1442	8.0	1518	8.0	0.809	1.9	LOS A	0.0	0.0	0.00	0.00	0.00	98.3
Approach		1447	8.0	1523	8.0	0.809	2.0	NA	0.0	0.0	0.00	0.00	0.00	98.1
All Vehicles		2499	7.9	2631	7.9	0.809	3.4	NA	24.2	181.1	0.42	0.01	0.45	98.1

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2033 Without Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	1091	8.0	1873	0.582	100	0.6	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	9	5.0	73	0.130	100	55.1	LOS F	0.4	2.6	Short	150	0.0	NA
Approach	1100	8.0		0.582		1.1	NA	0.4	2.6				
North: Eucumbene Road													
Lane 1	67	5.0	51	1.323	100	386.1	LOS F	13.4	97.9	Full	2340	0.0	0.0
Approach	67	5.0		1.323		386.1	LOS F	13.4	97.9				
West: Kosciuszko Road													
Lane 1	23	5.0	1812	0.013	100	8.0	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1518	8.0	1873	0.810	100	1.8	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1541	8.0		0.810		1.9	NA	0.0	0.0				
Intersection	2708	7.9		1.323		11.2	NA	13.4	97.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1091	-	1091	8.0	1873	0.582	100	NA	NA
Lane 2	-	9	9	5.0	73	0.130	100	0.0	1
Approach	1091	9	1100	8.0		0.582			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	13	55	67	5.0	51	1.323	100	NA	NA
Approach	13	55	67	5.0		1.323			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	23	-	23	5.0	1812	0.013	100	0.0	2

Lane 2	-	1518	1518	8.0	1873	0.810	100	NA	NA
Approach	23	1518	1541	8.0		0.810			
	Total	%HV	Deg.Satn (v/c)						
Intersection	2708	7.9	1.323						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2033 Without Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	1091	8.0	1873	0.582	100	0.6	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	11	5.0	74	0.142	100	55.1	LOS F	0.4	2.9	Short	150	0.0	NA
Approach	1101	8.0		0.582		1.2	NA	0.4	2.9				
North: Eucumbene Road													
Lane 1	27	5.0	52	0.527	100	77.0	LOS F	1.2	8.4	Full	2340	0.0	0.0
Approach	27	5.0		0.527		77.0	LOS F	1.2	8.4				
West: Kosciuszko Road													
Lane 1	47	5.0	1812	0.026	100	8.0	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1518	8.0	1873	0.810	100	1.8	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1565	7.9		0.810		2.0	NA	0.0	0.0				
Intersection	2694	7.9		0.810		2.4	NA	1.2	8.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1091	-	1091	8.0	1873	0.582	100	NA	NA
Lane 2	-	11	11	5.0	74	0.142	100	0.0	1
Approach	1091	11	1101	8.0		0.582			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	6	21	27	5.0	52	0.527	100	NA	NA
Approach	6	21	27	5.0		0.527			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	47	-	47	5.0	1812	0.026	100	0.0	2

Lane 2	-	1518	1518	8.0	1873	0.810	100	NA	NA
Approach	47	1518	1565	7.9		0.810			
	Total	%HV	Deg.Satn (v/c)						
Intersection	2694	7.9		0.810					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2033 Without Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	1096	8.0	1761	0.622	100	3.7	LOS A	2.7	20.1	Full	5000	0.0	0.0
Approach	1096	8.0		0.622		3.7	NA	2.7	20.1				
North: Hilltop Road													
Lane 1	9	0.0	179	0.053	100	21.3	LOS C	0.1	0.8	Full	200	0.0	0.0
Approach	9	0.0		0.053		21.3	LOS C	0.1	0.8				
West: Kosciuszko Road													
Lane 1	1522	8.0	1883	0.809	100	2.0	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1522	8.0		0.809		2.0	NA	0.0	0.0				
Intersection	2627	7.9		0.809		2.8	NA	2.7	20.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1091	5	1096	8.0	1761	0.622	100	NA	NA
Approach	1091	5	1096	8.0		0.622			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	4	9	0.0	179	0.053	100	NA	NA
Approach	5	4	9	0.0		0.053			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	4	1518	1522	8.0	1883	0.809	100	NA	NA
Approach	4	1518	1522	8.0		0.809			

	Total	%HV	Deg.Satn (v/c)

Intersection	2627	7.9	0.809	

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2033 Without Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	1098	7.9	1709	0.642	100	5.2	LOS A	24.2	181.1	Full	5000	0.0	0.0
Approach	1098	7.9		0.642		5.2	NA	24.2	181.1				
North: Hilltop Road													
Lane 1	9	0.0	178	0.053	100	21.3	LOS C	0.1	0.8	Full	200	0.0	0.0
Approach	9	0.0		0.053		21.3	LOS C	0.1	0.8				
West: Kosciuszko Road													
Lane 1	1523	8.0	1883	0.809	100	2.0	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1523	8.0		0.809		2.0	NA	0.0	0.0				
Intersection	2631	7.9		0.809		3.4	NA	24.2	181.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1091	7	1098	7.9	1709	0.642	100	NA	NA
Approach	1091	7	1098	7.9		0.642			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	4	9	0.0	178	0.053	100	NA	NA
Approach	5	4	9	0.0		0.053			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	1518	1523	8.0	1883	0.809	100	NA	NA
Approach	5	1518	1523	8.0		0.809			

	Total	%HV	Deg.Satn (v/c)

Intersection	2631	7.9	0.809

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2033 With Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	1036	8.0	1091	8.0	0.582	0.6	LOS A	0.0	0.0	0.00	0.00	0.00	99.4
6	R2	9	5.0	9	5.0	0.130	55.0	LOS F	0.4	2.6	0.96	0.99	0.96	71.4
Approach		1045	8.0	1100	8.0	0.582	1.1	NA	0.4	2.6	0.01	0.01	0.01	99.1
North: Eucumbene Road														
7	L2	43	5.0	45	5.0	7.265	5658.3	LOS F	207.5	1514.9	1.00	3.43	16.47	3.4
9	R2	298	5.0	314	5.0	7.265	5661.6	LOS F	207.5	1514.9	1.00	3.43	16.47	3.3
Approach		341	5.0	359	5.0	7.265	5661.2	LOS F	207.5	1514.9	1.00	3.43	16.47	3.3
West: Kosciuszko Road														
10	L2	24	5.0	25	5.0	0.014	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	93.5
11	T1	1442	8.0	1518	8.0	0.810	1.8	LOS A	0.0	0.0	0.00	0.00	0.00	98.3
Approach		1466	8.0	1543	8.0	0.810	1.9	NA	0.0	0.0	0.00	0.01	0.00	98.3
All Vehicles		2852	7.6	3002	7.6	7.265	678.3	NA	207.5	1514.9	0.12	0.42	1.97	24.2

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2033 With Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	1036	8.0	1091	8.0	0.587	0.7	LOS A	0.0	0.0	0.00	0.00	0.00	99.4
6	R2	41	5.0	43	5.0	0.993	276.5	LOS F	4.7	34.0	1.00	1.18	2.19	39.8
Approach		1077	7.9	1134	7.9	0.993	11.2	NA	4.7	34.0	0.04	0.04	0.08	94.6
North: Eucumbene Road														
7	L2	7	5.0	7	5.0	0.709	83.1	LOS F	1.6	11.8	0.99	1.05	1.30	59.0
9	R2	22	5.0	23	5.0	0.709	121.3	LOS F	1.6	11.8	0.99	1.05	1.30	58.1
Approach		29	5.0	31	5.0	0.709	112.1	LOS F	1.6	11.8	0.99	1.05	1.30	58.4
West: Kosciuszko Road														
10	L2	290	5.0	305	5.0	0.168	8.1	LOS A	0.0	0.0	0.00	0.66	0.00	93.4
11	T1	1442	8.0	1518	8.0	0.810	1.8	LOS A	0.0	0.0	0.00	0.00	0.00	98.3
Approach		1732	7.5	1823	7.5	0.810	2.9	NA	0.0	0.0	0.00	0.11	0.00	97.6
All Vehicles		2838	7.6	2987	7.6	0.993	7.1	NA	4.7	34.0	0.02	0.09	0.04	95.8

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2033 With Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	1036	8.0	1091	8.0	0.622	3.3	LOS A	2.7	20.1	0.10	0.00	0.14	98.8
6	R2	5	0.0	5	0.0	0.622	87.9	LOS F	2.7	20.1	0.10	0.00	0.14	95.4
Approach		1041	8.0	1096	8.0	0.622	3.7	NA	2.7	20.1	0.10	0.00	0.14	98.8
North: Hilltop Road														
7	L2	20	0.0	21	0.0	0.136	22.2	LOS C	0.3	2.1	0.90	0.96	0.90	87.0
9	R2	4	0.0	4	0.0	0.136	21.3	LOS C	0.3	2.1	0.90	0.96	0.90	81.2
Approach		24	0.0	25	0.0	0.136	22.1	LOS C	0.3	2.1	0.90	0.96	0.90	86.3
West: Kosciuszko Road														
10	L2	4	0.0	4	0.0	0.809	9.7	LOS A	0.0	0.0	0.00	0.00	0.00	39.1
11	T1	1442	8.0	1518	8.0	0.809	1.9	LOS A	0.0	0.0	0.00	0.00	0.00	98.3
Approach		1446	8.0	1522	8.0	0.809	2.0	NA	0.0	0.0	0.00	0.00	0.00	98.2
All Vehicles		2511	7.9	2643	7.9	0.809	2.9	NA	2.7	20.1	0.05	0.01	0.07	98.3

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2033 With Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Kosciuszko Road														
5	T1	1036	8.0	1091	8.0	0.790	15.1	LOS C	27.3	203.7	1.00	0.02	1.35	94.7
6	R2	22	0.0	23	0.0	0.790	92.2	LOS F	27.3	203.7	1.00	0.02	1.35	89.5
Approach		1058	7.8	1114	7.8	0.790	16.7	NA	27.3	203.7	1.00	0.02	1.35	94.6
North: Hilltop Road														
7	L2	5	0.0	5	0.0	0.054	21.7	LOS C	0.1	0.8	0.89	0.96	0.89	87.2
9	R2	4	0.0	4	0.0	0.054	21.2	LOS C	0.1	0.8	0.89	0.96	0.89	81.6
Approach		9	0.0	9	0.0	0.054	21.5	LOS C	0.1	0.8	0.89	0.96	0.89	85.2
West: Kosciuszko Road														
10	L2	5	0.0	5	0.0	0.809	9.7	LOS A	0.0	0.0	0.00	0.00	0.00	39.1
11	T1	1442	8.0	1518	8.0	0.809	1.9	LOS A	0.0	0.0	0.00	0.00	0.00	98.3
Approach		1447	8.0	1523	8.0	0.809	2.0	NA	0.0	0.0	0.00	0.00	0.00	98.1
All Vehicles		2514	7.9	2646	7.9	0.809	8.2	NA	27.3	203.7	0.42	0.01	0.57	96.6

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - AM (Site Folder: 2033 With Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	1091	8.0	1873	0.582	100	0.6	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	9	5.0	73	0.130	100	55.0	LOS F	0.4	2.6	Short	150	0.0	NA
Approach	1100	8.0		0.582		1.1	NA	0.4	2.6				
North: Eucumbene Road													
Lane 1	359	5.0	49	7.265	100	5661.2	LOS F	207.5	1514.9	Full	2340	0.0	0.0
Approach	359	5.0		7.265		5661.2	LOS F	207.5	1514.9				
West: Kosciuszko Road													
Lane 1	25	5.0	1812	0.014	100	8.0	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1518	8.0	1873	0.810	100	1.8	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1543	8.0		0.810		1.9	NA	0.0	0.0				
Intersection	3002	7.6		7.265		678.3	NA	207.5	1514.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1091	-	1091	8.0	1873	0.582	100	NA	NA
Lane 2	-	9	9	5.0	73	0.130	100	0.0	1
Approach	1091	9	1100	8.0		0.582			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	45	314	359	5.0	49	7.265	100	NA	NA
Approach	45	314	359	5.0		7.265			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	25	-	25	5.0	1812	0.014	100	0.0	2

Lane 2	-	1518	1518	8.0	1873	0.810	100	NA	NA
Approach	25	1518	1543	8.0		0.810			
	Total	%HV	Deg.Satn (v/c)						
Intersection	3002	7.6	7.265						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Rd / Eucumbene Rd - PM (Site Folder: 2033 With Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	1091	8.0	1859	0.587	100	0.7	LOS A	0.0	0.0	Full	3200	0.0	0.0
Lane 2	43	5.0	43	0.993	100	276.5	LOS F	4.7	34.0	Short	150	0.0	NA
Approach	1134	7.9		0.993		11.2	NA	4.7	34.0				
North: Eucumbene Road													
Lane 1	31	5.0	43	0.709	100	112.1	LOS F	1.6	11.8	Full	2340	0.0	0.0
Approach	31	5.0		0.709		112.1	LOS F	1.6	11.8				
West: Kosciuszko Road													
Lane 1	305	5.0	1812	0.168	100	8.1	LOS A	0.0	0.0	Short	170	0.0	NA
Lane 2	1518	8.0	1873	0.810	100	1.8	LOS A	0.0	0.0	Full	3000	0.0	0.0
Approach	1823	7.5		0.810		2.9	NA	0.0	0.0				
Intersection	2987	7.6		0.993		7.1	NA	4.7	34.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1091	-	1091	8.0	1859	0.587	100	NA	NA
Lane 2	-	43	43	5.0	43	0.993	100	0.0	1
Approach	1091	43	1134	7.9		0.993			

North: Eucumbene Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	7	23	31	5.0	43	0.709	100	NA	NA
Approach	7	23	31	5.0		0.709			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	305	-	305	5.0	1812	0.168	100	0.0	2

Lane 2	-	1518	1518	8.0	1873	0.810	100	NA	NA
Approach	305	1518	1823	7.5		0.810			
	Total	%HV	Deg.Satn (v/c)						
Intersection	2987	7.6		0.993					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Eucumbene Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - AM (Site Folder: 2033 With Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	1096	8.0	1761	0.622	100	3.7	LOS A	2.7	20.1	Full	5000	0.0	0.0
Approach	1096	8.0		0.622		3.7	NA	2.7	20.1				
North: Hilltop Road													
Lane 1	25	0.0	186	0.136	100	22.1	LOS C	0.3	2.1	Full	200	0.0	0.0
Approach	25	0.0		0.136		22.1	LOS C	0.3	2.1				
West: Kosciuszko Road													
Lane 1	1522	8.0	1883	0.809	100	2.0	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1522	8.0		0.809		2.0	NA	0.0	0.0				
Intersection	2643	7.9		0.809		2.9	NA	2.7	20.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1091	5	1096	8.0	1761	0.622	100	NA	NA
Approach	1091	5	1096	8.0		0.622			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	21	4	25	0.0	186	0.136	100	NA	NA
Approach	21	4	25	0.0		0.136			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	4	1518	1522	8.0	1883	0.809	100	NA	NA
Approach	4	1518	1522	8.0		0.809			

	Total	%HV	Deg.Satn (v/c)

Intersection	2643	7.9	0.809

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Kosciuszko Road / Hilltop Road - PM (Site Folder: 2033 With Development Sensitivity)]

New Site
Site Category: Base Year
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Kosciuszko Road													
Lane 1	1114	7.8	1410	0.790	100	16.7	LOS C	27.3	203.7	Full	5000	0.0	0.0
Approach	1114	7.8		0.790		16.7	NA	27.3	203.7				
North: Hilltop Road													
Lane 1	9	0.0	176	0.054	100	21.5	LOS C	0.1	0.8	Full	200	0.0	0.0
Approach	9	0.0		0.054		21.5	LOS C	0.1	0.8				
West: Kosciuszko Road													
Lane 1	1523	8.0	1883	0.809	100	2.0	LOS A	0.0	0.0	Full	3200	0.0	0.0
Approach	1523	8.0		0.809		2.0	NA	0.0	0.0				
Intersection	2646	7.9		0.809		8.2	NA	27.3	203.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Approach Lane Flows (veh/h)

East: Kosciuszko Road

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1091	23	1114	7.8	1410	0.790	100	NA	NA
Approach	1091	23	1114	7.8		0.790			

North: Hilltop Road

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	4	9	0.0	176	0.054	100	NA	NA
Approach	5	4	9	0.0		0.054			

West: Kosciuszko Road

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	1518	1523	8.0	1883	0.809	100	NA	NA
Approach	5	1518	1523	8.0		0.809			

	Total	%HV	Deg.Satn (v/c)

Intersection	2646	7.9	0.809	

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Hilltop Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Kosciuszko Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										