

Appendix 1 Public Submissions Issue Analysis

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		Issues																						
		Environmental Parameter 1 - Traffic & Transport			Environmental Parameter 2 - Air Quality		Environmental Parameter 3 - Noise and Vibration			Environmental Parameter 4 -	Environmental Parameter 5 - Water				Environmental Parameter 6 - Social Impact					Environmental Paramter 7 - Governance & Compliance, and Closure				
Submission		Sub-issue 1.1 Errors	Sub-issue 1.2 Intersection Design (Assess / leaving Collector Road / Federal Highway), Traffic Volumes & Collision Risks	Sub-issue 1.3: Condition and Maintenance of Collector Road	Sub-issue 2.1: Dust impact on health (including Silica)	Sub-issue 2.4: Contamination of rainwater tanks from dust	Sub-issue 3.1: Noise from Operations	Sub-issue 3.2: Traffic Noise	Sub-issue 3.3: Blasting (Vibration & Noise)	Sub-issue 4.1: Wildlife directly impacted by Quarry Development (including Wildlife Corridors)	Sub-issue 4.2: Traffic Impact on Wildlife	Sub-issue 5.1: Groundwater contamination	Sub-issue 5.2: Groundwater drawdown / overuse	Sub-issue 5.3: Water use required to manage dust	Surface water runoff contaminating Currawong Ck, lake George	Sub-issue 6.1: Incompatibility with local area due to increase in residential properties since Quarry originally approved	Sub-issue 6.2: Impact to Property Values (decrease)	Sub-issue 6.3: Livestock disturbance	Sub-issue 6.4: Impact to lifestyle / quiet enjoyment	Sub-issue 6.5: Cumulative Impacts (associated with other developments in the region)	Sub-issue 7.1: Company Environmental Performance History	Sub-issue 7.2: Inadequacy of Consultation	Sub-issue 7.3: Risk of future waste facility / Future Expansion	Sub-issue 7.4: Dispute Size / Extration increase of Quarry
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Totals		8	19	18	14	8	10	4	9	9	7	7	5	4	4	9	5	4	15	1	10	5	5	2
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Appendix 2 Revised Figures

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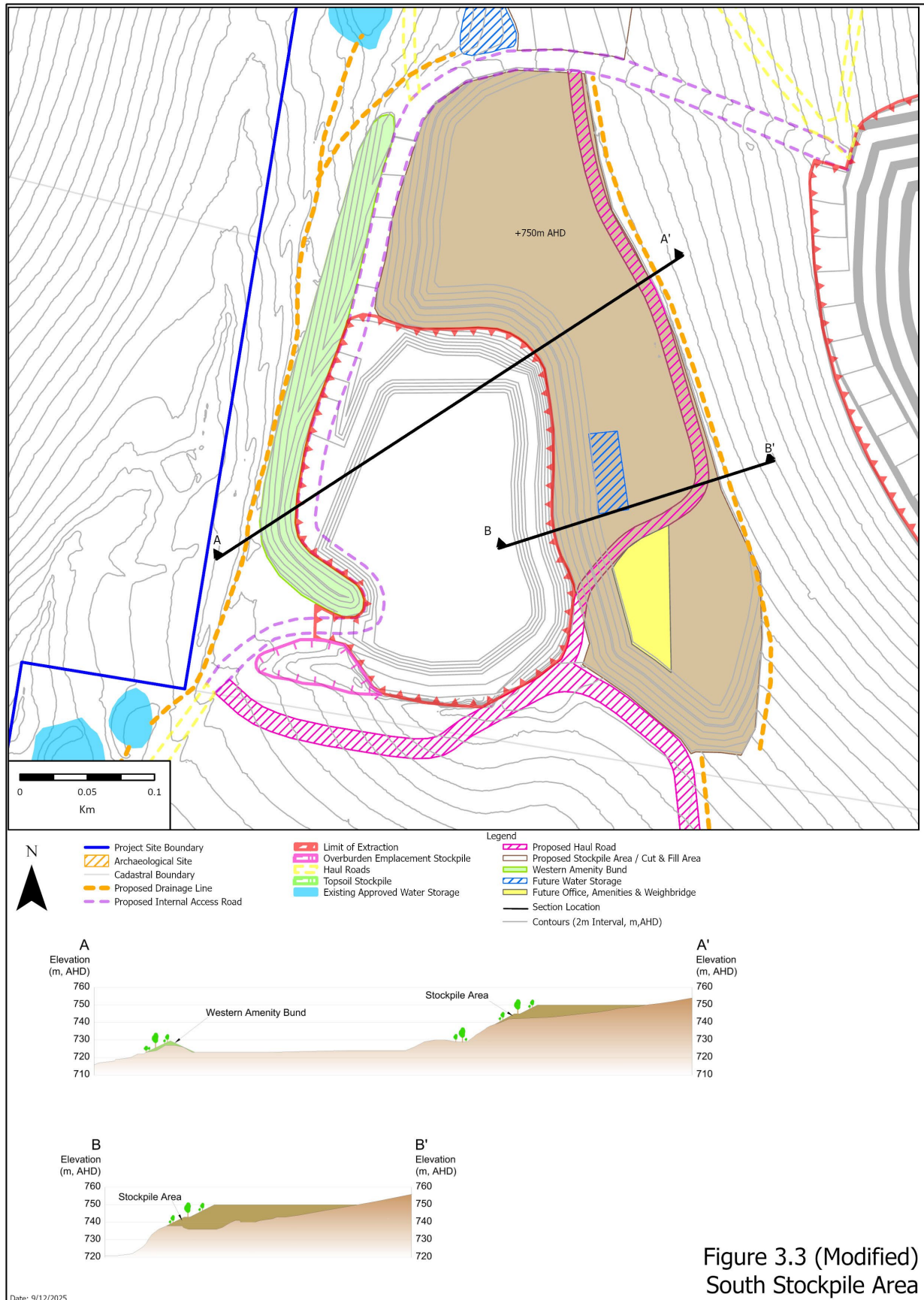
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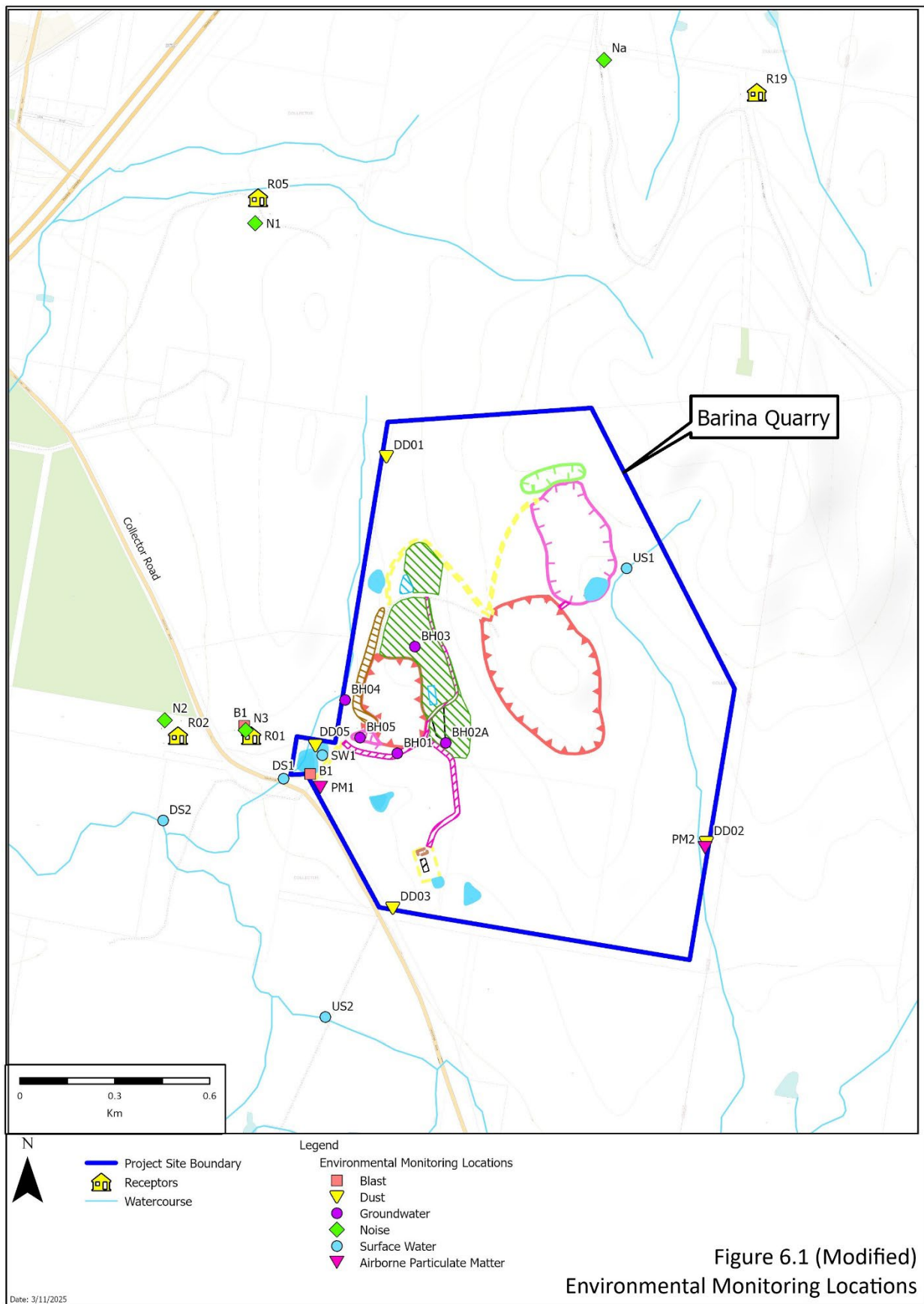
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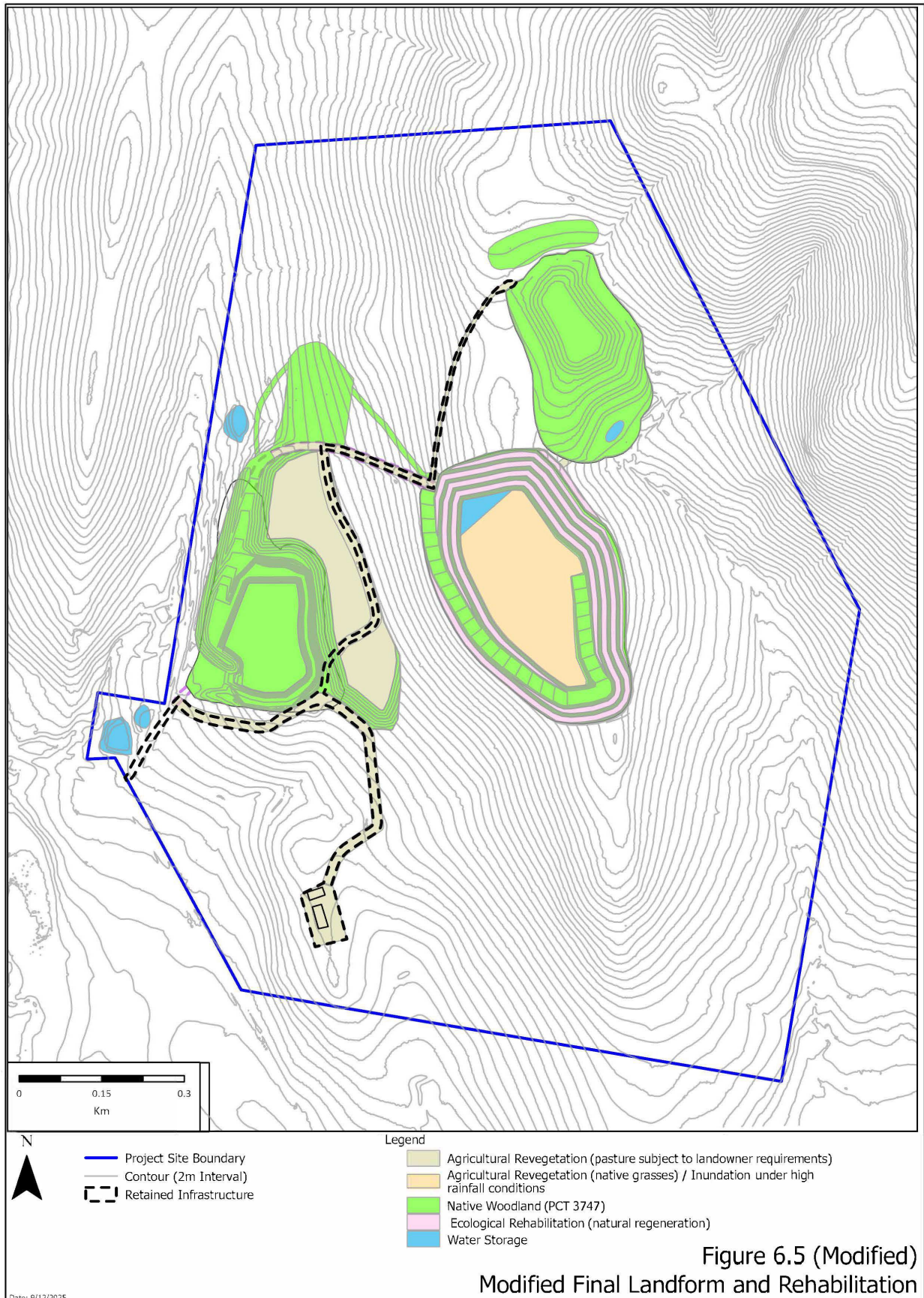
Response to Submissions

December 2025

COLLECTOR RESOURCES PTY LIMITED

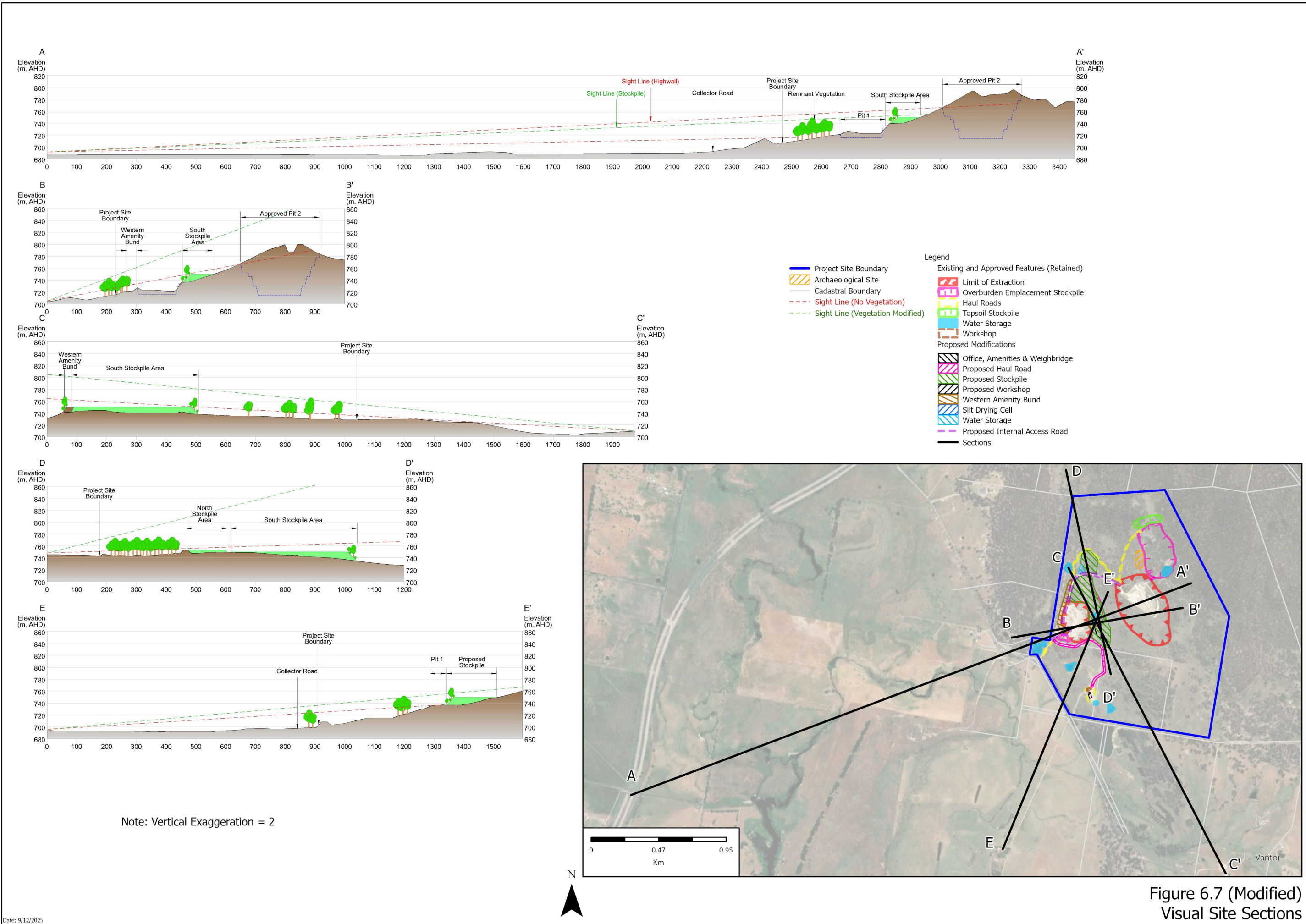






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Appendix 3 Traffic Impact Assessment

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David Pavey Pty Ltd trading as Pavey Consulting Services
Specialising in

- Traffic Impact Assessments and Transportation Planning
- Road Safety, Traffic Management Plans and Traffic Control Plans
- Civil and Structural Design
- Project Management and Contract Administration
- Mediation and Government Relations



Traffic Impact Assessment Modification to Barina Quarry Lot 3 DP1177623, Lot 33 DP750008 and Lot A DP1177623, Collector Road, Collector NSW

7 October 2025 Rev 3

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Authorised SafeWork NSW - Prepare a Work Zone Plans - No TCT1017730

NSW Department of Planning and Environment Secretary's approval as suitably qualified person to prepare the Traffic Management Plan (TMP)

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1. INTRODUCTION

Pavey Consulting Services (PCS) has been commissioned by Collector Resources Pty Limited to provide traffic advice and ultimately a Traffic Impact Assessment (TIA) for a modification of Barina Quarry, located on Lot 3 DP1177623, Lot 33 DP750008 and Lot A DP1177623, 2692 Collector Road, Collector NSW.

2. LIMITS OF REPORT

This report considers the instructions and requirements of our client. Pavey Consulting Services (PCS) has taken care in the preparation of this report, however it neither accepts liability nor responsibility whatsoever in respect of:

- Any use of this report by any third party;
- Any third party whose interests may be affected by any decision made regarding the contents of this report; and/or
- Any conclusion drawn resulting from omission or lack of full disclosure by the client, or the clients' consultants.

3. SUITABILITY OF AUTHOR

This Traffic Impact Assessment (TIA) has been prepared by David Pavey who in addition to above qualification has been endorsed by the Secretary Department of Planning and Environment (now Department of Planning, Housing and Infrastructure) as suitably qualified and experienced person to carry out Traffic Impact Assessment and Traffic Management Plans.

The author also holds the appropriate Safe Work NSW Certificate No: TCT1017730 - Prepare a Work Zone Plan.

4. BASIS OF TRAFFIC IMPACT ASSESSMENT

This TIA has been prepared in accordance with the relevant government assessment requirements, guidelines and policies.

The TIA has been developed in accordance with:

- Austroads Guide to Traffic Management Part 3 Traffic Studies and Analysis;
- Austroads Guide to Traffic Management Part 6 Intersections Interchanges and Crossings;
- Austroads Guide to Traffic Management Part 12 Traffic Impacts of Developments;
- Austroads Guide to Road Design Part 4 Intersections and Crossings General Ed2.2; and
- TfNSW Guide to Transport Impact Assessments 2024.

5. PROJECT OVERVIEW

Irwin Environmental Management (IEM) has been engaged by Collector Resources Pty Limited (CRPL) to manage the preparation of an application to modify the development consent for the Barina Quarry, a State Significant Development (SSD) originally approved by Orders of the Land & Environment Court on 28 May 2001 (DA1-01-2000). CRPL is the owner and operator of the Barina Quarry, located on Lot 3 DP1177623, Lot 33 DP750008 and Lot A DP1177623, 2692 Collector Road, Collector NSW, within the Queanbeyan-Palerang Regional Council (QPRC) Local Government Area (LGA)

DA 1-01-2000 approves production of up to 300,000 tonnes per annum (tpa) (at an average of 25,000 t per month with maximum monthly production of 40,000 t forecast) subject to satisfactory completion of road upgrades.

The proposed modification will provide for a long-term extension to extraction activities (15 years) along with some additional operations as follows.

- Establishment of a new stockpiling areas (noting that these overlap with areas of existing and approved disturbance).
- Importation of virgin excavated natural materials (VENM) / excavated natural materials (ENM) and other materials with applicable resource recovery orders for use as engineered fill for construction of internal roads and stockpiling areas. Initial estimates are for the import of up to 120,000 tpa of VENM/ENM for the first four years, with reduced volumes (<30,000 tpa) thereafter.
- Introduction of a washing circuit into the processing operations.

No increase in the maximum vehicle movements 134 per day or 20 per hour, however, trucks may be laden in both directions (to and from the Quarry) allowing for laden trucks to enter the Quarry Site with VENM/ENM.

6. EXISTING SITE CONDITIONS

6.1. Site Location

The location of the site is shown as **Figure 1** and **2**.

6.2. Operating Hours and Workforce

The hours of operation for site preparation, extraction, processing, and product dispatch are 7:00 am to 6:00 pm Monday to Friday, and 7:00 am to 1:00 pm Saturdays.

6.3. Site Access and adjoining Road Network

The quarry provides direct access onto Collector Road and then onto the Federal Highway at an existing seagull type junction.

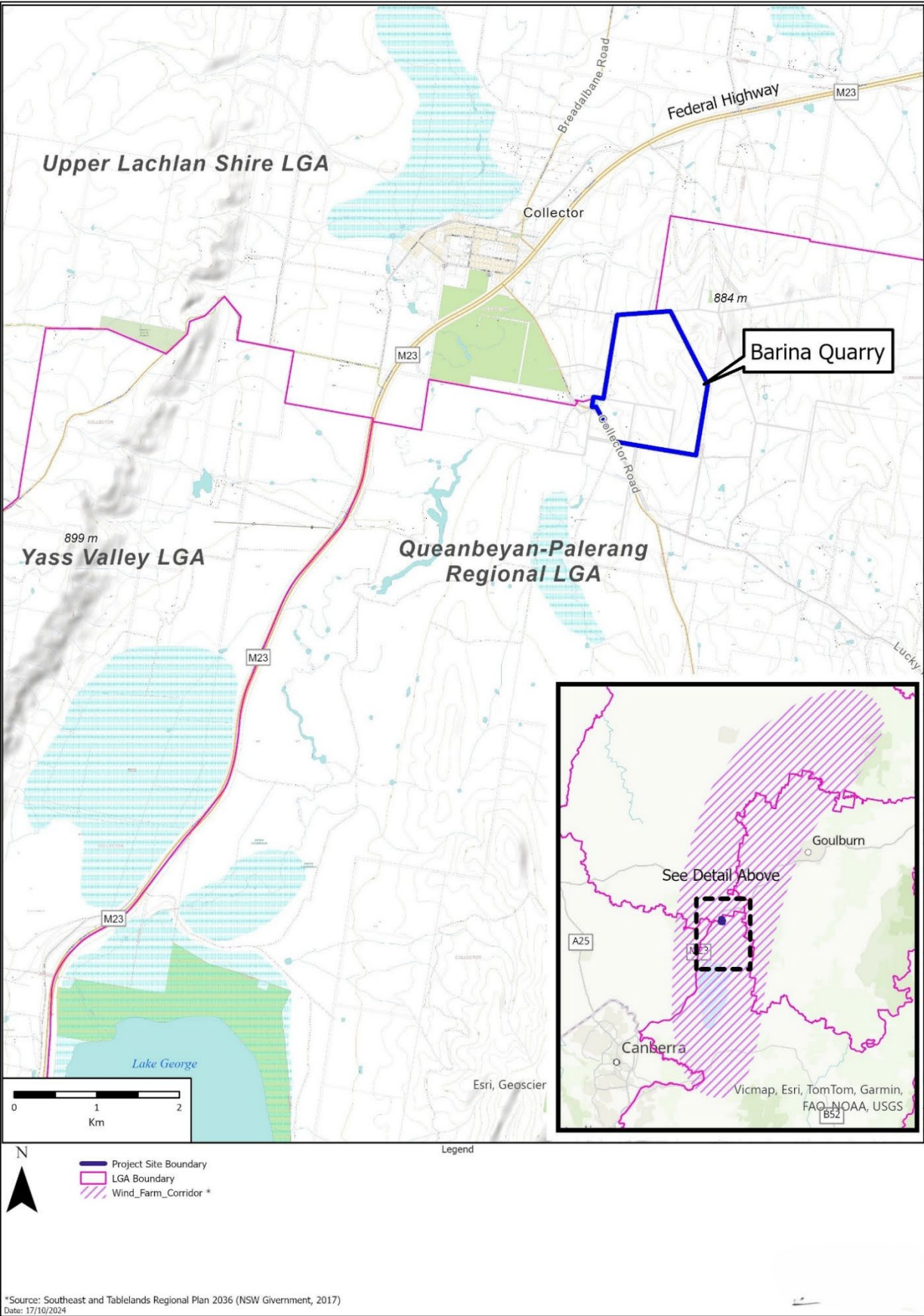


Figure 1 Site Location

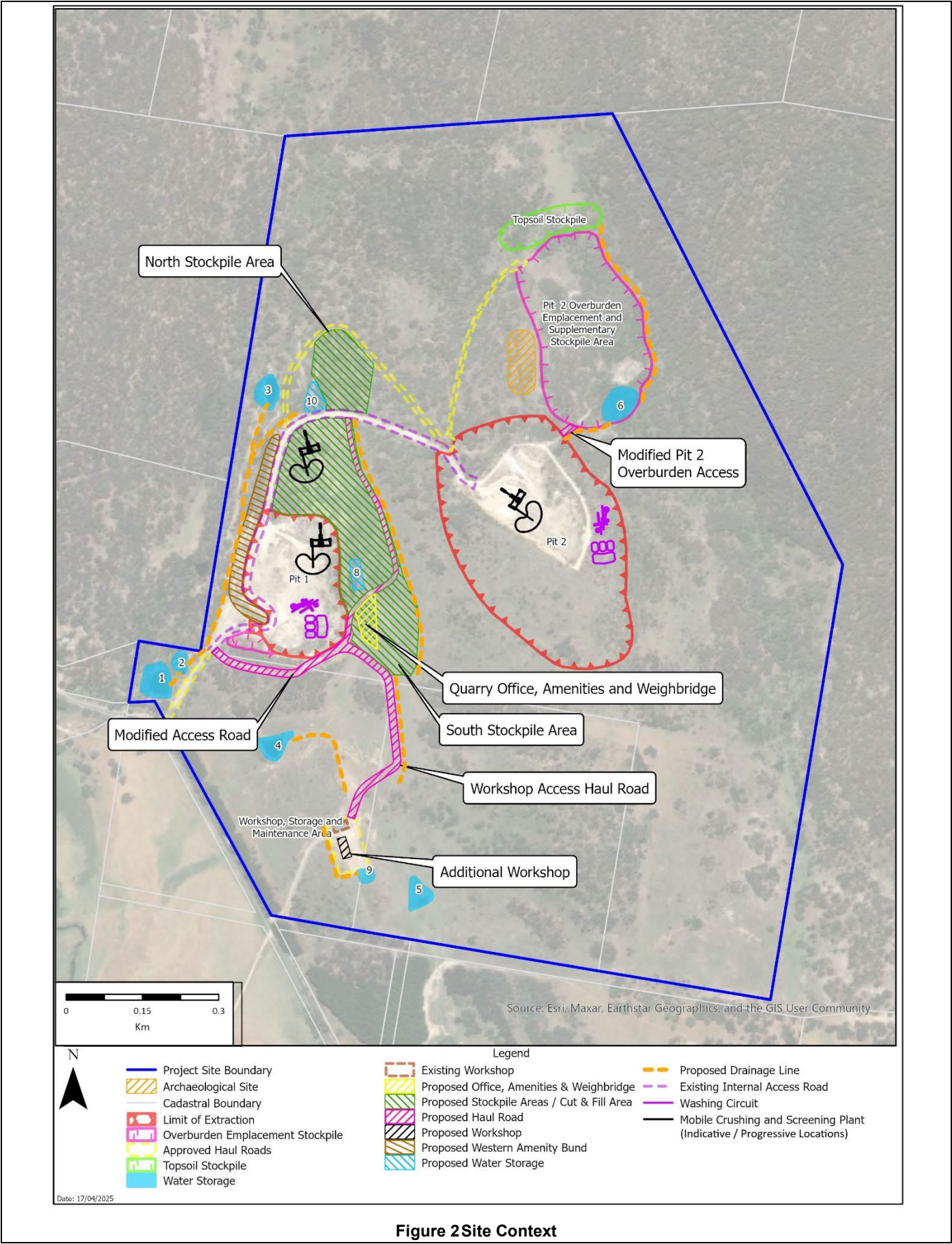


Figure 2 Site Context

6.3.1. Federal Highway

Federal Highway is a State Road under the care and maintenance of the TfNSW with a speed limit of 110 km/hr.

The road is configured as a two-lane divided carriage way with a wide medium and 1.5m shoulder.

The Federal Highway provides connections Goulburn (to the north) to Canberra to the south).

Current traffic Data for this section of road has been sourced from TfNSW Traffic Volume Viewer for Station Id: 6110 340m East of Short Street, Collector 2581

For south bound vehicles the recorder identified 7,491 vehicles per day with a peak hourly flow of 574 per hour between 3 pm and 4 pm.

There is no north bound available traffic data so for the basis of this report it is assumed that the volumes heading north are consistent with those heading south.

6.3.2. Collector Road

Collector Road is a local road under the care and maintenance of respective Councils (QPRC and ULSC) with a speed limit of 80 km/hr.

The road is configured as a sealed two-lane carriageway with 3.5m lane and no sealed shoulder provided for each direction.

The section of road adjacent to the site access has been upgraded in accordance with Condition 8.1(a)(iii) of DA 1-01-2000¹.

Current traffic data for this section of road has been sourced from a 15-day traffic count installed by QPRC 200m east of the Federal Highway in October 2024. This traffic count provides a true background traffic count given that the Barina Quarry was not operating at this time.

These counts indicated a daily traffic flow of 158 vehicles per day and approximately 15 per hour in the peak hour.

6.3.3. Collector Road Federal Highway Intersection

The current configuration of the intersection of Collector Road and the Federal Highway is a standard seagull type junction (**Figures 3, 4, 5 and 6**).

A detailed intersection count was undertaken on 27 May 2025 and these results are provided in **Appendix A** and are summarised in **Figures 7 and 8**, and **Table 1**.

6.3.4. Site Access off Collector Road

The existing private access off Collector Road is shown in **Figures 9 and 10**.

¹ Collector Road is referred to as Currawang Road in DA 1-01-2000 in line with the historic nomenclature



Figure 3 Site Access Federal Highway looking North



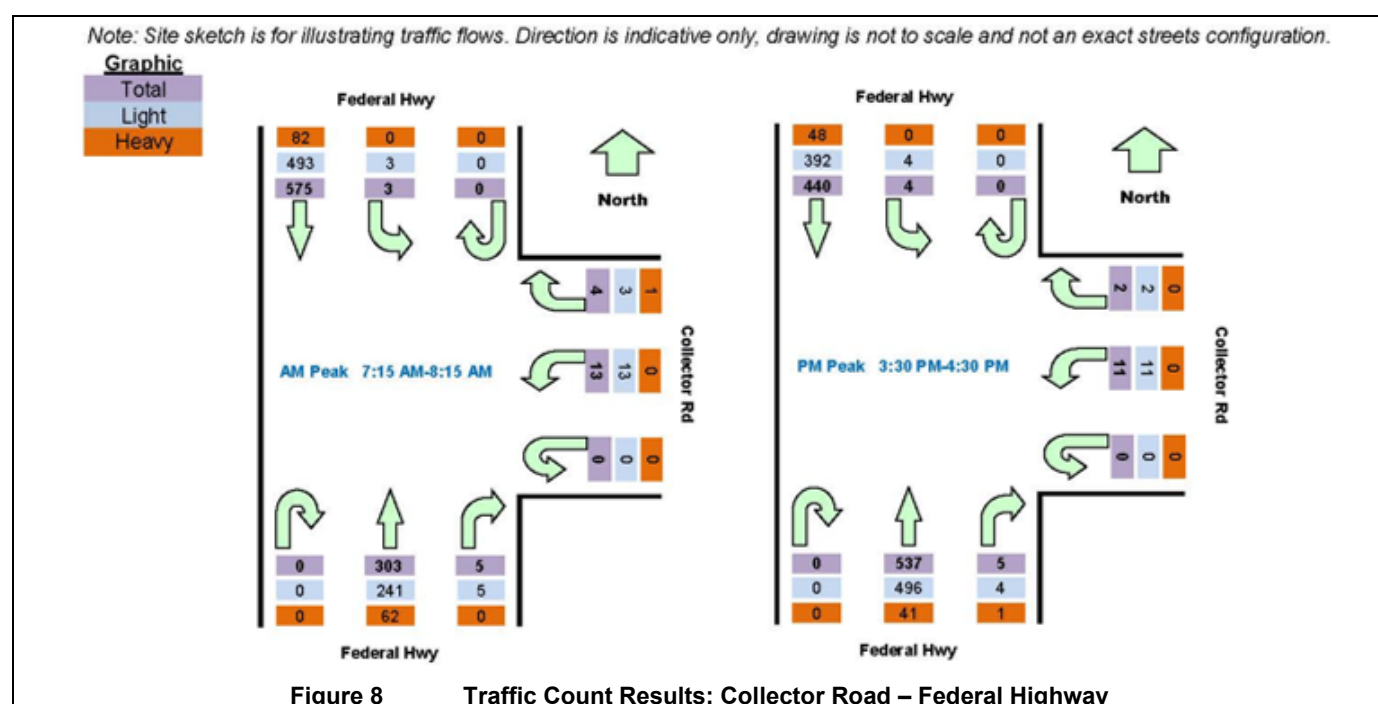
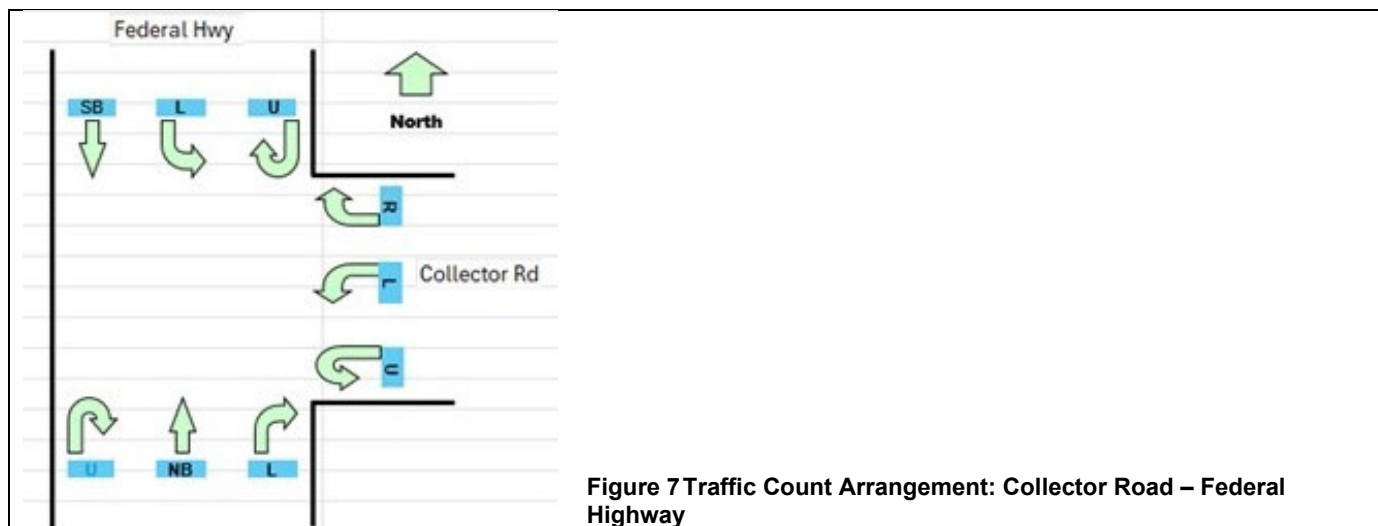
Figure 4 Site Access Federal Highway looking North



Figure 5 Site Access Federal Highway looking North



Figure 6 Site Access Federal Highway looking North



Approach	Road Name	Turn ¹	Light Vehicle	Heavy Vehicle	Total Vehicles
North	North Approach Federal Hwy	U	0	0	0
North	North Approach Federal Hwy	SB	493	82	575
North	North Approach Federal Hwy	L	3	0	3
East	East Approach Collector Rd	U	0	0	0
East	East Approach Collector Rd	R	3	1	4
East	East Approach Collector Rd	L	13	0	13
North	South Approach Federal Hwy	U	0	0	0
North	South Approach Federal Hwy	R	5	0	5
North	South Approach Federal Hwy	NB	241	62	303

Table 1 Existing Peak Hour Traffic Movements at Federal Highway - Collector Road Intersection



Figure 9 Site Access Collector Road looking south



Figure 10 Site Access Collector Road looking south

6.3.5. Road Capacity

Table 4.5 of the NSW Roads and Maritime Services (RMS) RTA's *Guide to Traffic Generating Developments* provides some guidance on likely levels of service being experienced on two lane two-way rural roads for different terrain types. Table 4.5 is reproduced below.

Table 4.5
peak hour flow on two-lane rural roads (veh/hr)
(Design speed of 100km/hr)

Terrain	Level of Service	Percent of Heavy Vehicles			
		0	5	10	15
Level	B	630	590	560	530
	C	1030	970	920	870
	D	1630	1550	1480	1410
	E	2630	2500	2390	2290
Rolling	B	500	420	380	310
	C	920	780	650	570
	D	1370	1140	970	700
	E	2420	2000	1720	1510
Mountainous	B	340	230	180	150
	C	600	410	320	260
	D	1050	680	500	400
	E	2180	1400	1040	820

The data for Table 4.5 assumes the following criteria:

- terrain level with 20% no overtaking.
- rolling with 40% no overtaking.
- mountainous with 60% no overtaking.
- 3.7 m traffic lane width with side clearances of at least 2m.
- 60/40 directional split of traffic.

With reference to Table 4.5 of the RTA's *Guide to Traffic Generating Developments*, Collector Road (with a heavy vehicle of 6%) is operating at a Level of Service of B.

7. PROPOSED DEVELOPMENT

7.1. Traffic Generation

There is no plan to increase the maximum vehicle movements 134 per day or 20 per hour allowed under the existing conditions of DA 1-01-2000. The proposed modification seeks to allow for laden vehicles to operate in each direction, i.e. increase the maximum number of laden truck movements from 67 to 134 per day and from 10 to 20 per hour.

Vehicles are predominantly 20 m truck and dog trailer combinations.

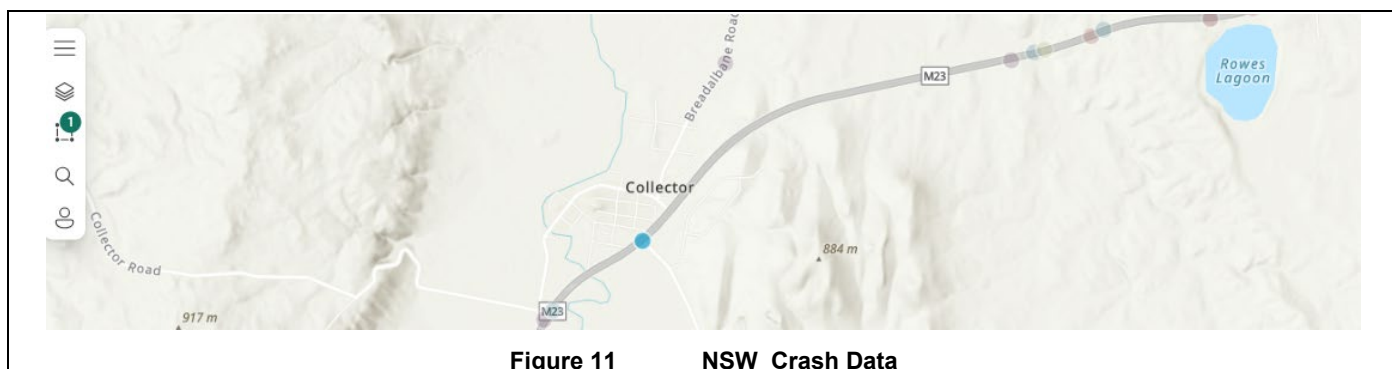
7.2. Traffic Distribution

The origin and destination for the distribution of Quarry products (outgoing) and imported materials (incoming) will be based on the location of the customer / supplier, however, CRPL confirm that vehicles will only travel on that section of Collector Road between the Quarry Site and Federal Highway, i.e. to and from the west of the Quarry Site entrance. CRPL anticipate traffic at the Collector Road / Federal Highway intersection as likely to be.

- 50% to and from the north
- 50% to and from the south

7.3. Crash History

The most recent 5-year crash history obtain from TfNSW Centre for Road Safety - Interactive crash statistics (2019-2023) is shown in **Figure 11**. There has been one crash at the intersection of the Federal; Highway and Collector Road.



This crash occurred in 2020 resulting in minor injury due to vehicle leaving the road and hitting an animal at dusk.

There are no other recorded crashes in the vicinity of the Barina Quarry, nor is there any crash cluster or road safety issued identified at this location.

8. SIGHT DISTANCE

8.1. Background

Austrroads guidelines provide general parameter values, which they refer to as the Normal Design Domain (NDD).

This report discusses the existing intersection in terms of Normal Design Domain criteria only.

As illustrated in **Figure 12**, Safe Intersection Sight Distance (SISD) is measured from a driver eye height of 1.1 m above the road to a point 1.25 m above the road, which represents the upper part of a car. It is measured along the carriageway from the approaching vehicle to a conflict point.

Austrroads in calculating the required SISD allows the use of a 2.5 seconds or 2.0 seconds observation time for T-intersections on single carriageway roads that have a traffic volume less than 4,000 vehicles per day with the minor road having a traffic volume of less than 400 vehicles per day. For the 120 km/hr speed design speed and 90 km/hr (being 10 km above the sign-posted speed) these values are listed in **Table 2**.

Design speed (km/h)	Safe Intersection Sight Distance values	
	Reaction time (seconds)	Distance (m)
Sign posted speed 80km/hr Design speed 90km/hr	2.0	214
Sign posted speed 80km/hr Design speed 90km/hr	2.5	226
Sign posted speed 110km/hr Design speed 120km/hr	2.0	324
Sign posted speed 110km/hr Design speed 120km/hr	2.5	341

Table 2 Recommended SISD

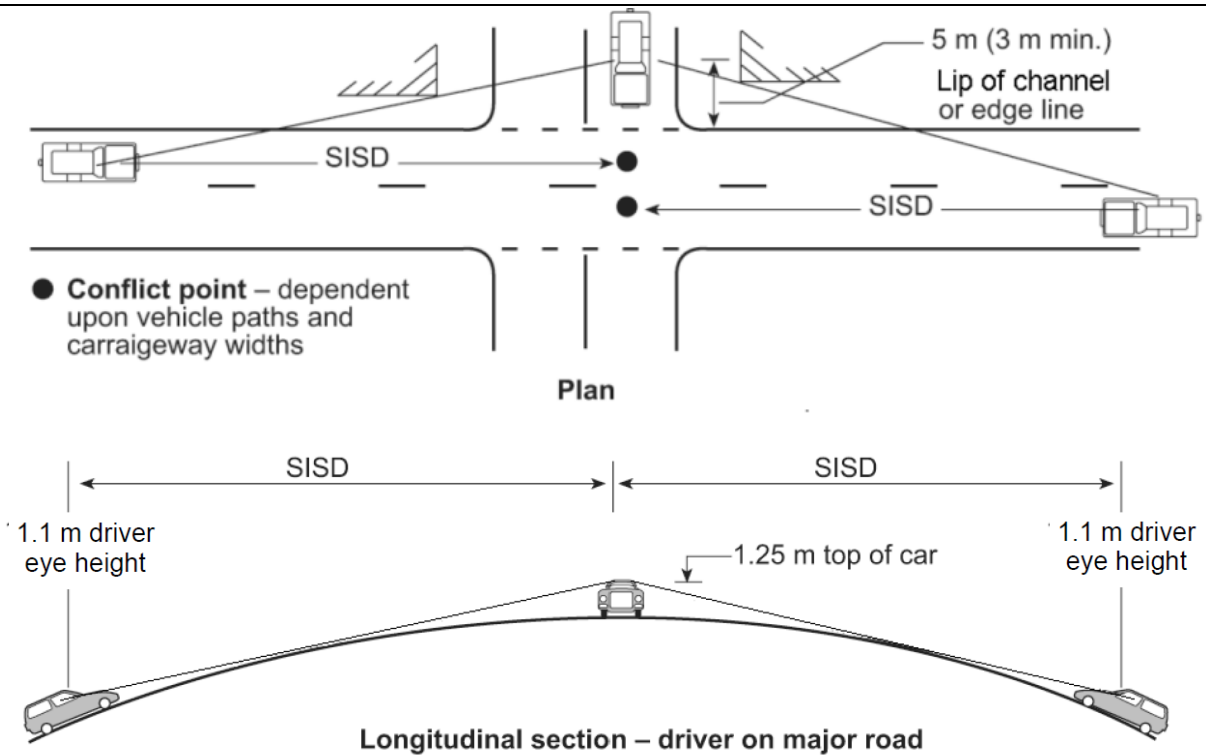


Table 3.2: Safe intersection sight distance (SISD) and corresponding minimum crest vertical curve size for sealed roads ($S < L$)

Design speed (km/h)	Based on safe intersection sight distance for cars ⁽¹⁾ $h_1 = 1.1$; $h_2 = 1.25$, $d = 0.36$ ⁽²⁾ ; Observation time = 3 sec					
	$R_T = 1.5$ sec ⁽³⁾		$R_T = 2.0$ sec		$R_T = 2.5$ sec	
	SISD (m)	K	SISD (m)	K	SISD (m)	K
40	67	4.9	73	6	–	–
50	90	8.6	97	10	–	–
60	114	14	123	16	–	–
70	141	22	151	25	–	–
80	170	31	181	35	–	–
90	201	43	214	49	226	55
100	234	59	248	66	262	74
110	–	–	285	87	300	97
120	–	–	324	112	341	124
130	–	–	365	143	383	157

⁽¹⁾ If the average grade over the braking length is not zero, calculate the safe intersection sight distance (SISD) values

Figure 12 Austroads SISD Specifications

In addition to SISD Austroads also requires a check critical gap acceptance sight distance. The requirements are set out in Figure 12 with the appropriate sight distance is detailed in Table 3.

Table 3.5: Critical acceptance gaps and follow-up headways

Movement	Diagram	Description	$t_a^{(1)}$ (sec)	$t_r^{(2)}$ (sec)
Left turn		Not interfering with A Requiring A to slow	14–40 5	2–3 2–3
Crossing		Two lane/one way Three lane/one way Four lane/one way Two lane/two way Four lane/two way Six lane/two way	4 6 8 5 8 8	2 3 4 3 5 5
Right turn from major road		Across one lane Across two lanes Across three lanes	4 5 6	2 3 4
Right turn from minor road		Not interfering with A One way Two lane/two way Four lane/two way Six lane/two way	14–40 3 5 8 8	3 3 3 5 5
Merge		Acceleration lane	3	2

- 1 t_a = critical acceptance gap (sec).
2 t_r = follow-up headway (sec).

Table 3.6: Table of minimum gap sight distances ('D' metres) for various speeds

Critical gap acceptance time (t_a) (secs)	85 th percentile speed of approaching vehicle (km/h)										
	10	20	30	40	50	60	70	80	90	100	110
4	11	22	33	44	55	67	78	89	100	111	122
5	14	28	42	55	69	83	97	111	125	139	153
6	17	33	50	67	83	100	117	133	150	167	183
7	19	39	58	78	97	117	136	155	175	194	214
8	22	44	67	89	111	133	155	178	200	222	244
9	25	50	75	100	125	150	175	200	225	250	275
10	28	56	83	111	139	167	194	222	250	278	305

Figure 13 Austroads Gap Acceptance Distance Specifications

Design speed (km/h)	Gap Acceptance	
	Reaction time (s)	Distance (m)
Sign posted speed 80 km/hr Design speed 90km/hr	5	111
Sign posted speed 100 km/hr Design speed 110km/hr	5	153

Table 3 Gap Acceptance Sight Distance

8.2. Sight Distance Analysis

Intersection of Federal Highway and Collector Road

Available Safe Intersection Sight Distance (SISD) was measured by field measurements, as detailed in **Table 4**, as being greater than 700 m and as such meets:

- Austroads Guide to Road Design Part 3: Geometric Design for both reaction time of 2.0 and 2.5 s; and
- Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections minimum Gap Sight Distance (MGSD) with a 5 s gap acceptance.

Sight Distance Looking Left	Sight Distance Looking Right
> 700 m	> 700 m

Table 4 Measured Sight Distance Federal Highway

Intersection of Site Access and Collector Road

Available Safe Intersection Sight Distance (SISD) was measured by field measurements, as detailed in **Table 5**, as being greater than 226 m and as such meets:

- Austroads Guide to Road Design Part 3: Geometric Design for both reaction time of 2.0 and 2.5 s; and
- Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections minimum Gap Sight Distance (MGSD) with a 5 s gap acceptance.

Sight Distance Looking Left	Sight Distance Looking Right
600 m	230 m

Table 5 Measured Sight Distance Collector Road

9. IMPACT ASSESSMENT

9.1. Intersection Performance: Federal Highway and Collector Road

How adequate the capacity of an intersection is, is judged by whether it can physically and operationally cater for the traffic using it.

The performances of the intersections relevant to the proposed modification have been assessed using the SIDRA intersection modelling software (Version 9.1). The model provides parameters of the performance of an intersection including the degree of saturation (DoS) and the average delay per vehicle. It provides an accurate and consistent guide to the performance of an intersection under the different traffic flow scenarios.

The recommended criteria for evaluating capacity of intersections are shown in **Table 6**.

Level of Service	Degree of Saturation (DoS)	Ave. Delay (s)
A/B - good operation	less than 0.80	Less than 28
C - satisfactory	0.80 to 0.85	29-42
D poor but manageable	0.85 to 0.90	43-56
E - at capacity	0.90 to 1.0	57-70
F - unsatisfactory, extra capacity required	Over 1.0	Over 70

Table 6 Criteria for Evaluating Capacity of Intersection

In the absence of historical growth figures, a conservative 1% traffic growth rate was applied to the 2025 traffic counts to determine a 10-year forecast.

To determine if the proposed movements would have an effect on the operations of the existing intersection of a SIDRA analysis was carried out.

The analysis has been carried out for the following scenarios:

- Existing
- Existing with proposed development,
- 10-year planning horizon (with above assumed growth rate), and
- 10-year planning horizon with proposed development.

The analysis has been carried out based on the following traffic modelling assumptions:

- Analysis was carried out for the maximum hour flow as shown in **Table 1** (peak hour / worst case scenario for traffic),
- Existing intersection geometry, including lane lengths and widths were measured
- SIDRA default values were adopted,
- Level of Services Method follows TfNSW Guide to Transport Impact Assessments 2024.

The results of the modelling and Summary Movement Tables from the model are provided in **Appendix B**.

In summary, the increase traffic from this development:

- causes no decrease in level of service in either the AM or PM under all the modelling scenarios,
 - results in no deterioration of Average Delay, Level of Service, or Queue length,
- when development traffic is added to either of the base case or 10 years simulations of the intersection.

In all scenarios all the intersections operate at Level of Service of A

9.2. Type of Intersection / Access Required

The suitability of the existing private access and the need to upgrade the access based on the vehicles utilising it can be assessed against either Section 7.2 “Property Access” contained within Austroads Guide to Road Design Part 4: Intersections and Crossings: General or within Section 2 “Selection of Intersection Type” contained within Austroads Guide to Traffic Management Part 6 Intersections if it is considered as an intersection depending on whether the access is assessed as a “private access” or a “T junction intersection”.

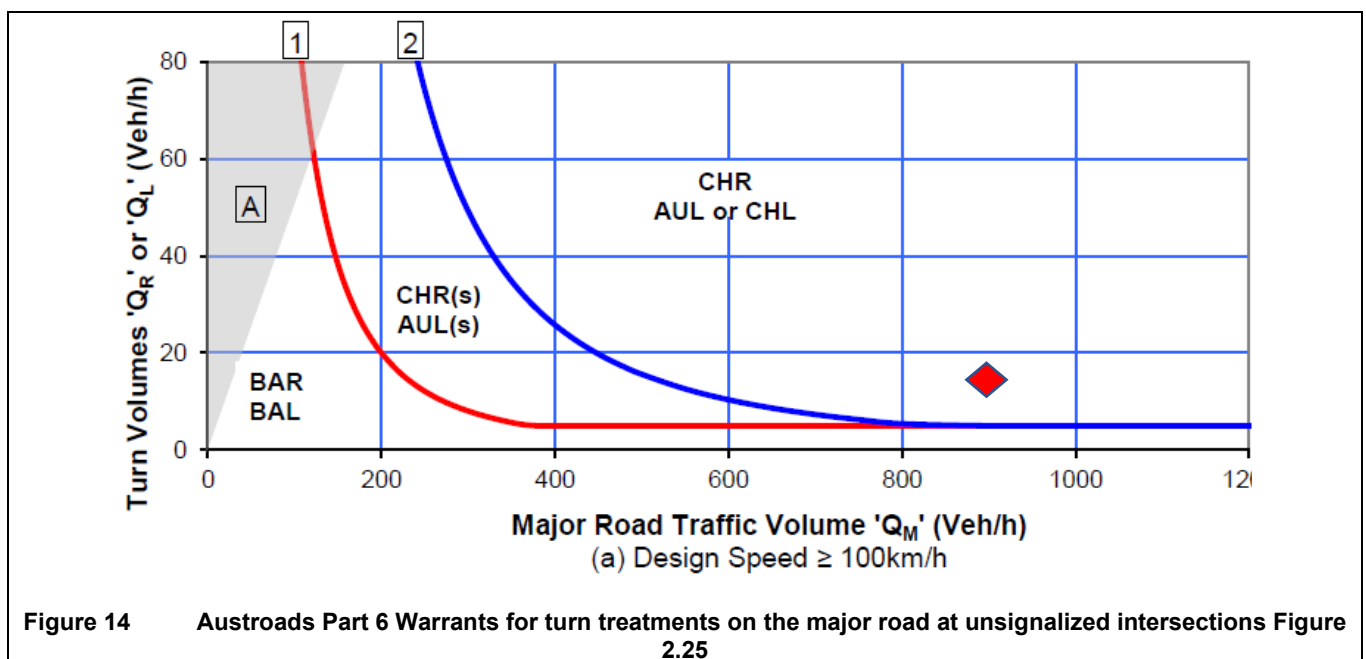
If it is classified as a “T Junction Intersection” than Section 2 (and *Figure 2.25*) of the Austroads Guide to Traffic Management Part 6 Intersection (which is provided in **Figure 14** and **15**) provides guidance for the type of T junction intersection that is appropriate given the traffic volumes anticipated to be experienced at the intersection such as a BAR (Basic Right Turn) or CHS (channelised intersection).

Intersection of Collector Road and Federal Highway

Based on peak hour traffic volumes (**Table 1**) and projected development flows of 20 per hour split 50/50 in each direction, the relevant inputs to **Figure 14** for this intersection during operating hours are:

- $Q_m = Q_{T1} + Q_{T2} + Q_L = 575 + 303 + 13 = 891$
- $Q_R = 15$
- $Q_L = 13$

Right and left Turn warrant



Base on the above analysis the existing seagull treatment is adequate for this modification.

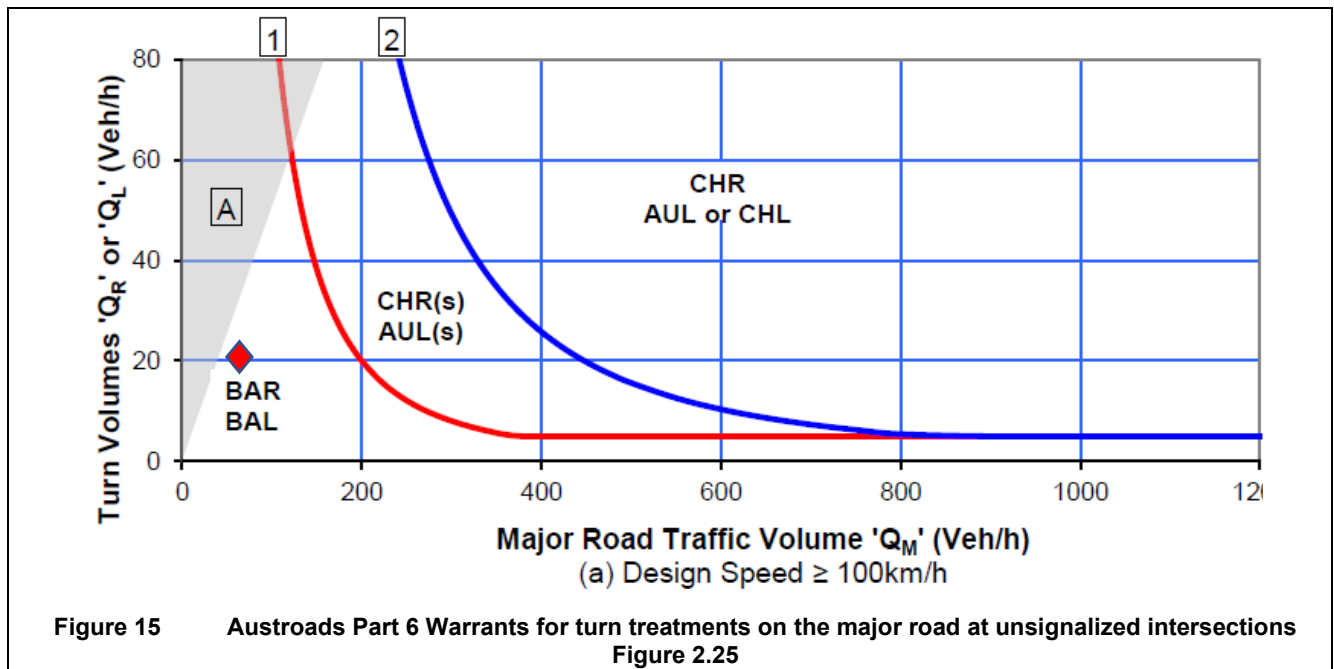
Quarry Site Access (from Collector Road)

Based on data obtained from Council's traffic count and projected development flows of 20 per hour, the relevant inputs to the **Figure 15** for this intersection in the highest peak hour during operating hours are:

- $Q_m = Q_{T1} + Q_{T2} + Q_L = 15 + 15 + 20 = 50$
- $Q_R = 20$
- $Q_L = 20$

Right and left Turn warrant





From a technical perspective, and in accordance with Austroads Guidelines, intersection upgrades for brownfield (existing) sites are only warranted if there are significant delays in vehicles waiting to turn or if there is a sightline issue that prevents vehicles traveling at the nominated speed limit to stop prior to impacting a vehicle waiting to turn.

In addition, it is important to note that the Austroads Guidelines clearly indicate that use of the warrants is based on the construction of new intersections in “Greenfield” locations, but suggests that the above figure be used as a reference for:

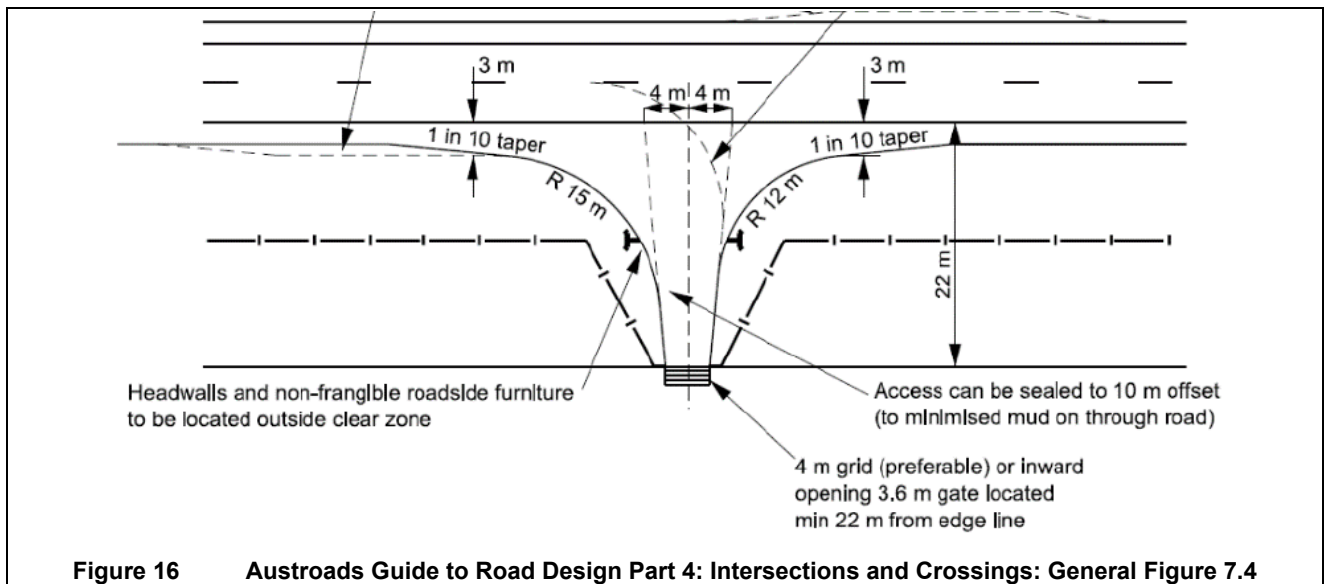
- The construction of new intersections on existing roads; and
- Intervention levels when upgrading existing intersection turn treatments.

It is also important to note that the warrants are not intended for direct application to accesses and driveways.

With respect to the Quarry Site Access from Collector Road, there is:

- No adverse crash history along this section of road,
- Traffic attracted to the proposed development will not cause an adverse impact along the road; and
- Turning volumes at peak times are extremely low.

Based on the above assessment it is considered that the Austroads Guide to Road Design Part 4: Intersections and Crossings: General Section 7 2 Property Access (as shown in **Figure 16**) rather than the Austroads Guide to Traffic Management Part 6 Intersection is the most applicable standard for this access.



This determination (i.e. application of Austroads Guide to Road Design Part 4: Intersections and Crossings: General - Section 7 2 property access) is consistent with the recent decision by TfNSW (21 January 2025 - Masa Kimura Development Services Case Officer - Transport Planning - TfNSW) when assessing the proposed use by heavy vehicles of an existing access off the New England Highway at Tenterfield. Ms Kimura concluded the following.

“New England Highway (HW09) is a classified State road.

It is understood that traffic generation / peak movements for the entire development (Stages 1-5) will be as follows:

- 6:00am to 8:00am – max 15 per hr total movements (8 in and 7 out)
- 8:00am to 3:30pm – max 4 per hr total movements (2 and 2 out)
- 3:30pm to 5:30pm – max 15 per hr total movements (8 in and 7 out)

With vehicles comprised of

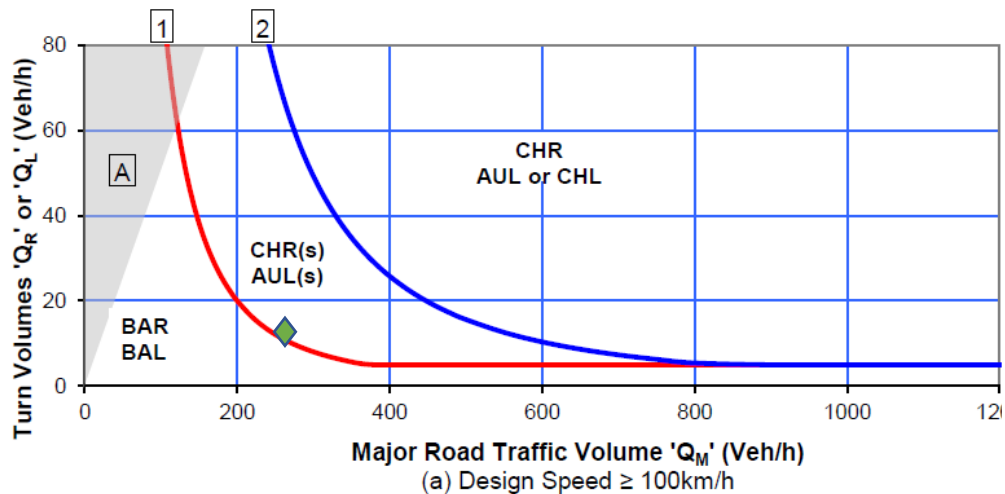
- 1 x 25m B-Double,
- 3 x 19m Semi-trailer,
- 3 x MRV, and
- 8 x cars

Peak hourly through traffic along New England Highway amounts to

Period Start	SB	NB
<i>Morning Peak 6am to 9am</i>	109	96
<i>Mid-Day Peak 11am to 12 noon</i>	101	109
<i>Evening Peak 2:45pm to 3:45 pm</i>	104	96

Right and left Turn warrant





Austroads Part 6 Warrants for turn treatments on the major road

Access via the widened driveway fronting New England Highway, as detailed in the submitted plan by Pavey Consulting Services (refer Sketch No. SK2025-012-001, Revision 1, dated 18/11/2024), is considered adequate to support the above development traffic movements.”

9.3. Sweep Path

A sweep path analysis has been undertaken for both the intersection of Collector Road and Federal Highway and the existing entrance to the site based on largest and most common vehicle being a 20 m Truck and Dog combination.

This sweep path analysis indicates that the existing formation of the intersection of Federal Highway and Collector Road and the access off Collector Road is adequate for heavy vehicles. This analysis is shown in **Appendix C**.

9.4. Impact on Public Transport

There is no impact on public transport as traffic movements are minimal.

9.5. Impact of Road Safety

As detailed above a review of the TfNSW Centre for Road Safety Crash and Casualty Statistics database for all injury crashes along Federal Highway and Collector Road in the vicinity of the site has been carried out.

From a traffic safety perspective, both Federal Highway and Collector Road are currently operating in a manner consistent with other rural, classified roads in the area.

The existing intersection of Collector Road and Federal Highway along with the existing access way to be utilised by quarry traffic has the required sight distances and will be sufficient to accommodate heavy vehicles.

The proposed movements associated with the proposed extractive industry are minor in nature and would not make any significant change to vehicle numbers compared to those currently associated with the site. Upgrades of the intersection are not required.

Consequently, a review of road safety issues along this section of Federal Highway and Collector Road has indicated that a full road safety audit is not required to support the TIA or application to modify DA 1-01-2000.

10. RECOMMENDATIONS - DRIVER CODE OF CONDUCT

It is recommended that a Driver Code of Conduct be developed for this site and finalised upon approval of the development and after consultation with Council and TfNSW.

11. SUMMARY

The traffic impacts from the proposed development of the quarry have been assessed and the key findings are as follows:

- The surrounding road network is suitable to accommodate the proposed development,
- The additional traffic generated by the quarry of less than 10 vehicle per hour would not impact the current a Level of Service along the either Federal Highway and Collector Rd and both would continue to operate satisfactorily,
- The existing “seagull” type intersection of Collector Road and Federal Highway operates at a Level of Service A and shows no sign of deuteriation over the 10-year planning horizon,
- The existing property access off Collector Road is sufficient to handle the increase in vehicle traffic and currently has the appropriate site distances and manoeuvring area for all turn movements.

Based on the findings of this report, Pavey Consulting Services is of the opinion that there are no traffic engineering related matters that should preclude approval of this modification

Appendix A INTERSECTION COUNT

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au



Intersection of Collector Rd and Federal Hwy, Collector

GPS -34.917676, 149.436876

Date:	Tue 27/05/25
Weather:	Overcast
Suburban:	Collector
Customer:	N/A

North:	Federal Hwy
East:	Collector Rd
South:	Federal Hwy
West:	N/A

Survey Period	AM:	7:00 AM-12:00 PM
	PM:	12:00 PM-6:00 PM
Traffic Peak	AM:	7:15 AM-8:15 AM
	PM:	3:30 PM-4:30 PM

All Vehicles

Time		North Approach Federal Hwy			East Approach Collector Rd			South Approach Federal Hwy			Hourly Total	
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	Hour	Peak
7:00	7:15	0	118	2	0	0	4	0	0	53	837	
7:15	7:30	0	142	1	0	0	3	0	4	65	903	Peak
7:30	7:45	0	123	1	0	2	3	0	0	69	866	
7:45	8:00	0	149	1	0	1	3	0	0	93	880	
8:00	8:15	0	161	0	0	1	4	0	1	76	813	
8:15	8:30	0	102	1	0	2	1	0	0	72	770	
8:30	8:45	0	128	0	0	1	0	0	2	81	796	
8:45	9:00	0	100	2	0	2	0	0	1	75	794	
9:00	9:15	0	117	1	0	5	1	0	0	76	811	
9:15	9:30	0	105	0	0	1	0	0	1	97	809	
9:30	9:45	0	109	1	0	0	0	0	0	100	815	
9:45	10:00	0	119	1	0	1	0	0	1	75	812	
10:00	10:15	0	86	1	0	0	0	0	1	110	804	
10:15	10:30	0	92	2	0	2	2	0	1	111	803	
10:30	10:45	0	109	0	0	0	2	0	0	96	784	
10:45	11:00	0	91	1	0	1	0	0	0	96	762	
11:00	11:15	0	96	0	0	2	1	0	0	98	774	
11:15	11:30	0	98	0	0	1	0	0	0	92		
11:30	11:45	0	97	0	0	0	1	0	1	86		
11:45	12:00	0	86	2	0	0	1	0	0	112		
12:00	12:15	0	95	0	0	0	0	0	0	92	757	
12:15	12:30	0	82	1	0	1	1	0	0	91	748	
12:30	12:45	0	89	0	0	0	0	0	0	85	782	
12:45	13:00	0	97	0	0	0	0	0	0	123	801	
13:00	13:15	0	84	1	0	0	0	0	1	92	777	
13:15	13:30	0	100	0	0	2	0	0	0	108	798	
13:30	13:45	0	97	0	0	0	0	0	1	95	803	
13:45	14:00	0	80	0	0	0	0	0	1	115	820	
14:00	14:15	0	103	0	0	0	1	0	0	95	845	
14:15	14:30	0	101	2	0	1	0	0	1	110	862	
14:30	14:45	0	92	2	0	2	1	0	1	112	856	

Traffic Impact Assessment – Barina Quarry

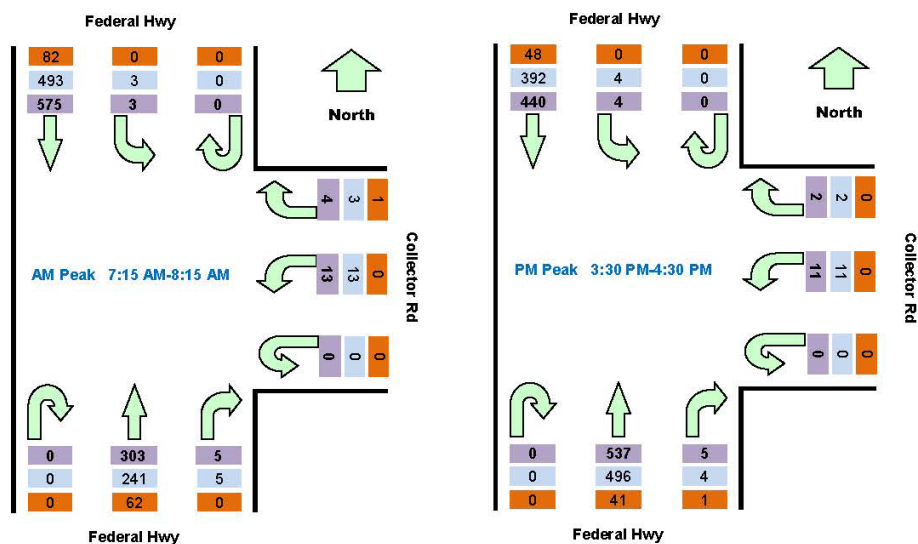
14:45	15:00	0	85	1	0	0	0	0	0	135	885	
15:00	15:15	0	96	1	0	3	2	0	0	114	912	
15:15	15:30	0	90	1	0	1	0	0	0	117	962	
15:30	15:45	0	96	2	0	1	6	0	0	134	999	Peak
15:45	16:00	0	116	0	0	1	4	0	1	126	995	
16:00	16:15	0	112	1	0	0	1	0	0	152	965	
16:15	16:30	0	116	1	0	0	0	0	4	125	929	
16:30	16:45	0	101	3	0	0	1	0	0	130	883	
16:45	17:00	0	93	1	0	1	0	0	2	121	845	
17:00	17:15	0	97	0	0	0	0	0	2	131	821	
17:15	17:30	0	73	1	0	0	1	0	2	123		
17:30	17:45	0	83	1	0	0	0	0	2	111		
17:45	18:00	0	63	0	0	2	0	0	2	127		

Peak Time		North Approach Federal Hwy			East Approach Collector Rd			South Approach Federal Hwy			Peak
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	total
7:15	8:15	0	575	3	0	4	13	0	5	303	903
15:30	16:30	0	440	4	0	2	11	0	5	537	999

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 Federal Hwy			East Approach Collector Rd			South Approach Federal Hwy		
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
7:00	7:15	0	92	2	0	0	4	0	0	39
7:15	7:30	0	120	1	0	0	3	0	4	43
7:30	7:45	0	105	1	0	1	3	0	0	55
7:45	8:00	0	132	1	0	1	3	0	0	78
8:00	8:15	0	136	0	0	1	4	0	1	65

Traffic Impact Assessment – Barina Quarry

8:15	8:30	0	93	1	0	2	1	0	0	51
8:30	8:45	0	111	0	0	1	0	0	2	61
8:45	9:00	0	80	2	0	2	0	0	1	62
9:00	9:15	0	100	1	0	5	1	0	0	57
9:15	9:30	0	85	0	0	1	0	0	1	78
9:30	9:45	0	90	1	0	0	0	0	0	81
9:45	10:00	0	100	1	0	1	0	0	1	55
10:00	10:15	0	70	1	0	0	0	0	1	92
10:15	10:30	0	76	2	0	2	2	0	1	96
10:30	10:45	0	92	0	0	0	2	0	0	73
10:45	11:00	0	73	1	0	1	0	0	0	79
11:00	11:15	0	87	0	0	2	1	0	0	76
11:15	11:30	0	90	0	0	1	0	0	0	75
11:30	11:45	0	80	0	0	0	1	0	1	66
11:45	12:00	0	76	1	0	0	1	0	0	88
12:00	12:15	0	81	0	0	0	0	0	0	72
12:15	12:30	0	73	1	0	1	1	0	0	64
12:30	12:45	0	83	0	0	0	0	0	0	57
12:45	13:00	0	83	0	0	0	0	0	0	98
13:00	13:15	0	70	1	0	0	0	0	1	76
13:15	13:30	0	84	0	0	2	0	0	0	95
13:30	13:45	0	80	0	0	0	0	0	1	83
13:45	14:00	0	70	0	0	0	0	0	1	99
14:00	14:15	0	88	0	0	0	1	0	0	82
14:15	14:30	0	91	2	0	1	0	0	1	97
14:30	14:45	0	80	2	0	2	1	0	1	98
14:45	15:00	0	72	1	0	0	0	0	0	114
15:00	15:15	0	90	1	0	1	2	0	0	101
15:15	15:30	0	79	1	0	1	0	0	0	95
15:30	15:45	0	87	2	0	1	6	0	0	125
15:45	16:00	0	100	0	0	1	4	0	1	116
16:00	16:15	0	99	1	0	0	1	0	0	141
16:15	16:30	0	106	1	0	0	0	0	3	114
16:30	16:45	0	93	3	0	0	1	0	0	114
16:45	17:00	0	89	1	0	1	0	0	2	111
17:00	17:15	0	90	0	0	0	0	0	2	121
17:15	17:30	0	68	1	0	0	1	0	2	113
17:30	17:45	0	76	1	0	0	0	0	2	103
17:45	18:00	0	58	0	0	2	0	0	2	119

Peak Time		North Approach Federal Hwy			East Approach Collector Rd			South Approach Federal Hwy			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	

Traffic Impact Assessment – Barina Quarry

7:15	8:15	0	493	3	0	3	13	0	5	241	758
15:30	16:30	0	392	4	0	2	11	0	4	496	909

Heavy Vehicles

Time		North Approach Federal Hwy			East Approach Collector Rd			South Approach Federal Hwy		
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
7:00	7:15	0	26	0	0	0	0	0	0	14
7:15	7:30	0	22	0	0	0	0	0	0	22
7:30	7:45	0	18	0	0	1	0	0	0	14
7:45	8:00	0	17	0	0	0	0	0	0	15
8:00	8:15	0	25	0	0	0	0	0	0	11
8:15	8:30	0	9	0	0	0	0	0	0	21
8:30	8:45	0	17	0	0	0	0	0	0	20
8:45	9:00	0	20	0	0	0	0	0	0	13
9:00	9:15	0	17	0	0	0	0	0	0	19
9:15	9:30	0	20	0	0	0	0	0	0	19
9:30	9:45	0	19	0	0	0	0	0	0	19
9:45	10:00	0	19	0	0	0	0	0	0	20
10:00	10:15	0	16	0	0	0	0	0	0	18
10:15	10:30	0	16	0	0	0	0	0	0	15
10:30	10:45	0	17	0	0	0	0	0	0	23
10:45	11:00	0	18	0	0	0	0	0	0	17
11:00	11:15	0	9	0	0	0	0	0	0	22
11:15	11:30	0	8	0	0	0	0	0	0	17
11:30	11:45	0	17	0	0	0	0	0	0	20
11:45	12:00	0	10	1	0	0	0	0	0	24
12:00	12:15	0	14	0	0	0	0	0	0	20
12:15	12:30	0	9	0	0	0	0	0	0	27
12:30	12:45	0	6	0	0	0	0	0	0	28
12:45	13:00	0	14	0	0	0	0	0	0	25
13:00	13:15	0	14	0	0	0	0	0	0	16
13:15	13:30	0	16	0	0	0	0	0	0	13
13:30	13:45	0	17	0	0	0	0	0	0	12
13:45	14:00	0	10	0	0	0	0	0	0	16
14:00	14:15	0	15	0	0	0	0	0	0	13
14:15	14:30	0	10	0	0	0	0	0	0	13
14:30	14:45	0	12	0	0	0	0	0	0	14
14:45	15:00	0	13	0	0	0	0	0	0	21
15:00	15:15	0	6	0	0	2	0	0	0	13
15:15	15:30	0	11	0	0	0	0	0	0	22
15:30	15:45	0	9	0	0	0	0	0	0	9
15:45	16:00	0	16	0	0	0	0	0	0	10
16:00	16:15	0	13	0	0	0	0	0	0	11

Traffic Impact Assessment – Barina Quarry

16:15	16:30	0	10	0	0	0	0	0	1	11
16:30	16:45	0	8	0	0	0	0	0	0	16
16:45	17:00	0	4	0	0	0	0	0	0	10
17:00	17:15	0	7	0	0	0	0	0	0	10
17:15	17:30	0	5	0	0	0	0	0	0	10
17:30	17:45	0	7	0	0	0	0	0	0	8
17:45	18:00	0	5	0	0	0	0	0	0	8

Peak Time		North Approach Federal Hwy			East Approach Collector Rd			South Approach Federal Hwy			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	
7:15	8:15	0	82	0	0	1	0	0	0	62	145
15:30	16:30	0	48	0	0	0	0	0	1	41	90

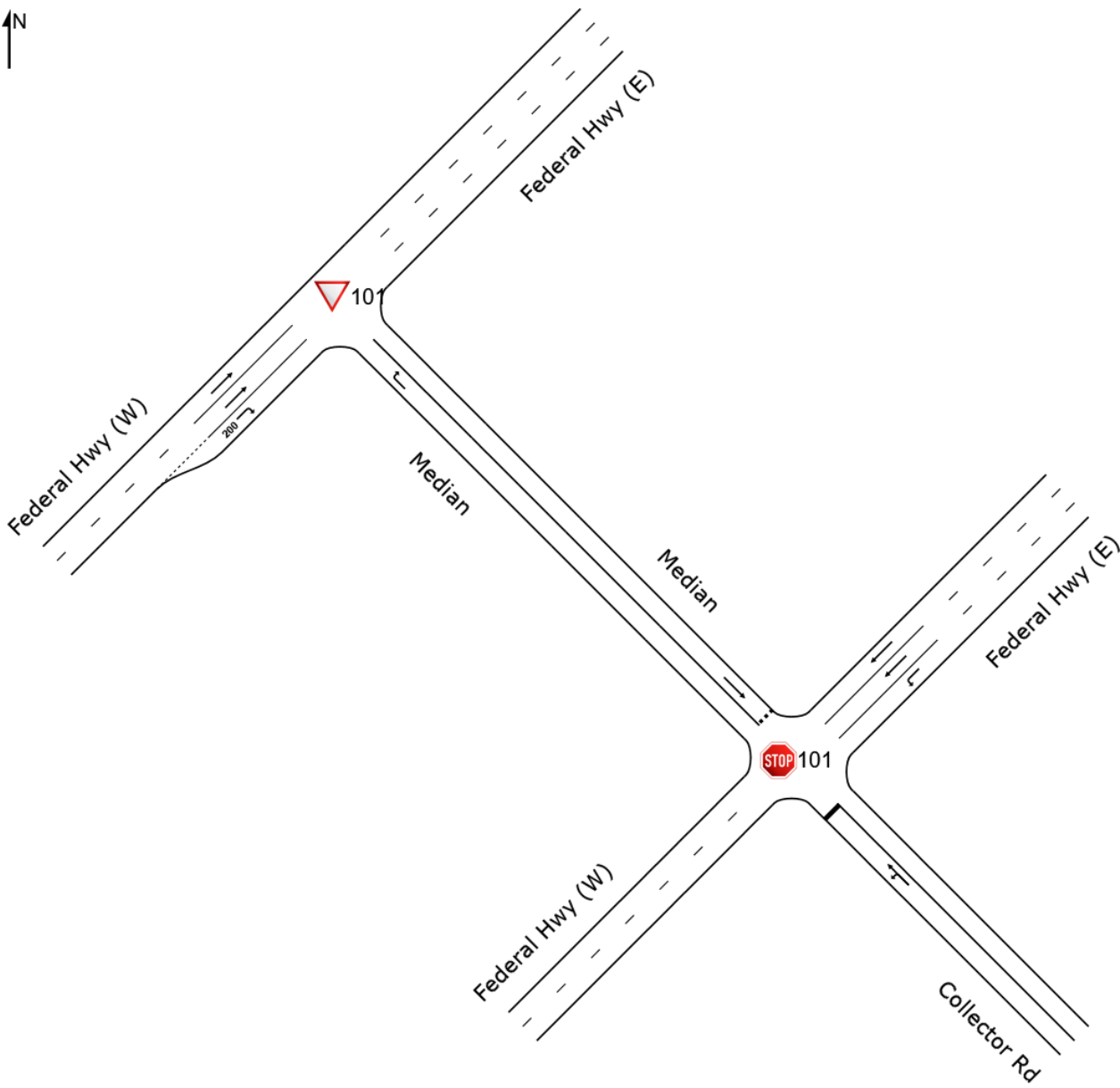
Appendix B **SIDRA OUTPUTS**

NETWORK LAYOUT

■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing (Network Folder: General)]

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	CCG ID	Site Name
▽101	NA	Federal Hwy & Collector Rd_S2_AM_Existing
STOP101	NA	Federal Hwy & Collector Rd_S1_AM_Existing

NETWORK SUMMARY

■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Network Performance - Hourly Values			
Performance Measure	Vehicles:	All MCs	Persons
Network Level of Service (LOS)		LOS A	
Speed Efficiency		0.99	
Travel Time Index		9.92	
Congestion Coefficient		1.01	
Travel Speed (Average)	km/h	59.6	59.6 km/h
Travel Distance (Total)	veh-km/h	960.5	1152.6 pers-km/h
Travel Time (Total)	veh-h/h	16.1	19.3 pers-h/h
Desired Speed	km/h	60.0	
Demand Flows (Total for all Sites)	veh/h	960	1152 pers/h
Arrival Flows (Total for all Sites)	veh/h	960	1152 pers/h
Demand Flows (Entry Total)	veh/h	951	
Midblock Inflows (Total)	veh/h	0	
Midblock Outflows (Total)	veh/h	0	
Percent Heavy Vehicles (Demand)	%	16.0	
Percent Heavy Vehicles (Arrival)	%	16.0	
Degree of Saturation		0.170	
Control Delay (Total)	veh-h/h	0.09	0.11 pers-h/h
Control Delay (Average)	sec	0.3	0.3 sec
Control Delay (Worst Lane by MC)	sec	11.0	
Control Delay (Worst Movement by MC)	sec	23.8	23.8 sec
Geometric Delay (Average)	sec	0.2	
Stop-Line Delay (Average)	sec	0.1	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	26	31 pers/h
Effective Stop Rate		0.03	0.03
Proportion Queued		0.01	0.01
Performance Index		16.4	16.4
Cost (Total)	\$/h	803.23	803.23 \$/h
Fuel Consumption (Total)	L/h	91.1	
Fuel Economy	L/100km	9.5	
Carbon Dioxide (Total)	kg/h	222.5	
Hydrocarbons (Total)	kg/h	0.016	
Carbon Monoxide (Total)	kg/h	0.22	
NOx (Total)	kg/h	0.762	

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: New South Wales.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values			
Performance Measure	Vehicles:	All MCs	Persons
Demand Flows (Total for all Sites)	veh/y	460,800	552,960 pers/y
Delay (Total)	veh-h/y	43	52 pers-h/y
Effective Stops (Total)	veh/y	12,428	14,914 pers/y
Travel Distance (Total)	veh-km/y	461,059	553,271 pers-km/y
Travel Time (Total)	veh-h/y	7,740	9,288 pers-h/y

Cost (Total)	\$/y	385,549	385,549 \$/y
Fuel Consumption (Total)	L/y	43,729	
Carbon Dioxide (Total)	kg/y	106,782	
Hydrocarbons (Total)	kg/y	8	
Carbon Monoxide (Total)	kg/y	108	
NOx (Total)	kg/y	366	

1 Hours per Year: 480 (Network)

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NETWORK SUMMARY

■ Network: N101 [Federal Hwy & Collector Rd
Intersection_PM_Existing (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Network Performance - Hourly Values			
Performance Measure	Vehicles:	All MCs	Persons
Network Level of Service (LOS)		LOS A	
Speed Efficiency		0.99	
Travel Time Index		9.94	
Congestion Coefficient		1.01	
Travel Speed (Average)	km/h	59.7	59.7 km/h
Travel Distance (Total)	veh-km/h	1062.5	1275.0 pers-km/h
Travel Time (Total)	veh-h/h	17.8	21.4 pers-h/h
Desired Speed	km/h	60.0	
Demand Flows (Total for all Sites)	veh/h	1059	1271 pers/h
Arrival Flows (Total for all Sites)	veh/h	1059	1271 pers/h
Demand Flows (Entry Total)	veh/h	1052	
Midblock Inflows (Total)	veh/h	0	
Midblock Outflows (Total)	veh/h	0	
Percent Heavy Vehicles (Demand)	%	9.0	
Percent Heavy Vehicles (Arrival)	%	9.0	
Degree of Saturation		0.152	
Control Delay (Total)	veh-h/h	0.07	0.09 pers-h/h
Control Delay (Average)	sec	0.2	0.2 sec
Control Delay (Worst Lane by MC)	sec	9.3	
Control Delay (Worst Movement by MC)	sec	11.1	11.1 sec
Geometric Delay (Average)	sec	0.2	
Stop-Line Delay (Average)	sec	0.1	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	21	26 pers/h
Effective Stop Rate		0.02	0.02
Proportion Queued		0.01	0.01
Performance Index		18.0	18.0
Cost (Total)	\$/h	839.82	839.82 \$/h
Fuel Consumption (Total)	L/h	83.2	
Fuel Economy	L/100km	7.8	
Carbon Dioxide (Total)	kg/h	200.4	
Hydrocarbons (Total)	kg/h	0.014	
Carbon Monoxide (Total)	kg/h	0.22	
NOx (Total)	kg/h	0.487	

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: New South Wales.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values			
Performance Measure	Vehicles:	All MCs	Persons
Demand Flows (Total for all Sites)	veh/y	508,295	609,954 pers/y
Delay (Total)	veh-h/y	34	41 pers-h/y
Effective Stops (Total)	veh/y	10,244	12,293 pers/y
Travel Distance (Total)	veh-km/y	510,002	612,002 pers-km/y
Travel Time (Total)	veh-h/y	8,546	10,255 pers-h/y

Cost (Total)	\$/y	403,114	403,114 \$/y
Fuel Consumption (Total)	L/y	39,914	
Carbon Dioxide (Total)	kg/y	96,182	
Hydrocarbons (Total)	kg/y	7	
Carbon Monoxide (Total)	kg/y	106	
NOx (Total)	kg/y	234	

1 Hours per Year: 480 (Network)

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NETWORK SUMMARY

■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Network Performance - Hourly Values			
Performance Measure	Vehicles:	All MCs	Persons
Network Level of Service (LOS)		LOS A	
Speed Efficiency		0.98	
Travel Time Index		9.73	
Congestion Coefficient		1.03	
Travel Speed (Average)	km/h	58.5	58.5 km/h
Travel Distance (Total)	veh-km/h	1012.8	1215.4 pers-km/h
Travel Time (Total)	veh-h/h	17.3	20.8 pers-h/h
Desired Speed	km/h	60.0	
Demand Flows (Total for all Sites)	veh/h	1036	1243 pers/h
Arrival Flows (Total for all Sites)	veh/h	1036	1243 pers/h
Demand Flows (Entry Total)	veh/h	1001	
Midblock Inflows (Total)	veh/h	0	
Midblock Outflows (Total)	veh/h	0	
Percent Heavy Vehicles (Demand)	%	20.9	
Percent Heavy Vehicles (Arrival)	%	20.9	
Degree of Saturation		0.170	
Control Delay (Total)	veh-h/h	0.34	0.41 pers-h/h
Control Delay (Average)	sec	1.2	1.2 sec
Control Delay (Worst Lane by MC)	sec	16.6	
Control Delay (Worst Movement by MC)	sec	27.1	27.1 sec
Geometric Delay (Average)	sec	0.7	
Stop-Line Delay (Average)	sec	0.5	
Ave. Que Storage Ratio (Worst Lane)		0.03	
Effective Stops (Total)	veh/h	84	101 pers/h
Effective Stop Rate		0.08	0.08
Proportion Queued		0.04	0.04
Performance Index		18.4	18.4
Cost (Total)	\$/h	906.05	906.05 \$/h
Fuel Consumption (Total)	L/h	114.1	
Fuel Economy	L/100km	11.3	
Carbon Dioxide (Total)	kg/h	281.3	
Hydrocarbons (Total)	kg/h	0.020	
Carbon Monoxide (Total)	kg/h	0.27	
NOx (Total)	kg/h	1.189	

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: New South Wales.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values			
Performance Measure	Vehicles:	All MCs	Persons
Demand Flows (Total for all Sites)	veh/y	497,179	596,615 pers/y
Delay (Total)	veh-h/y	162	195 pers-h/y
Effective Stops (Total)	veh/y	40,227	48,272 pers/y
Travel Distance (Total)	veh-km/y	486,153	583,384 pers-km/y
Travel Time (Total)	veh-h/y	8,305	9,967 pers-h/y

Cost (Total)	\$/y	434,906	434,906 \$/y
Fuel Consumption (Total)	L/y	54,767	
Carbon Dioxide (Total)	kg/y	135,022	
Hydrocarbons (Total)	kg/y	10	
Carbon Monoxide (Total)	kg/y	129	
NOx (Total)	kg/y	571	

1 Hours per Year: 480 (Network)

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NETWORK SUMMARY

■ Network: N101 [Federal Hwy & Collector Rd
Intersection_PM_Existing+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Network Performance - Hourly Values			
Performance Measure	Vehicles:	All MCs	Persons
Network Level of Service (LOS)		LOS A	
Speed Efficiency		0.98	
Travel Time Index		9.79	
Congestion Coefficient		1.02	
Travel Speed (Average)	km/h	58.8	58.8 km/h
Travel Distance (Total)	veh-km/h	1114.8	1337.7 pers-km/h
Travel Time (Total)	veh-h/h	18.9	22.7 pers-h/h
Desired Speed	km/h	60.0	
Demand Flows (Total for all Sites)	veh/h	1135	1362 pers/h
Arrival Flows (Total for all Sites)	veh/h	1135	1362 pers/h
Demand Flows (Entry Total)	veh/h	1102	
Midblock Inflows (Total)	veh/h	0	
Midblock Outflows (Total)	veh/h	0	
Percent Heavy Vehicles (Demand)	%	14.0	
Percent Heavy Vehicles (Arrival)	%	14.0	
Degree of Saturation		0.152	
Control Delay (Total)	veh-h/h	0.28	0.34 pers-h/h
Control Delay (Average)	sec	0.9	0.9 sec
Control Delay (Worst Lane by MC)	sec	14.3	
Control Delay (Worst Movement by MC)	sec	20.8	20.8 sec
Geometric Delay (Average)	sec	0.6	
Stop-Line Delay (Average)	sec	0.3	
Ave. Que Storage Ratio (Worst Lane)		0.02	
Effective Stops (Total)	veh/h	76	92 pers/h
Effective Stop Rate		0.07	0.07
Proportion Queued		0.03	0.03
Performance Index		19.9	19.9
Cost (Total)	\$/h	941.14	941.14 \$/h
Fuel Consumption (Total)	L/h	106.1	
Fuel Economy	L/100km	9.5	
Carbon Dioxide (Total)	kg/h	259.1	
Hydrocarbons (Total)	kg/h	0.018	
Carbon Monoxide (Total)	kg/h	0.27	
NOx (Total)	kg/h	0.913	

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: New South Wales.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values			
Performance Measure	Vehicles:	All MCs	Persons
Demand Flows (Total for all Sites)	veh/y	544,674	653,609 pers/y
Delay (Total)	veh-h/y	135	161 pers-h/y
Effective Stops (Total)	veh/y	36,623	43,948 pers/y
Travel Distance (Total)	veh-km/y	535,096	642,116 pers-km/y
Travel Time (Total)	veh-h/y	9,094	10,913 pers-h/y

Cost (Total)	\$/y	451,749	451,749 \$/y
Fuel Consumption (Total)	L/y	50,911	
Carbon Dioxide (Total)	kg/y	124,356	
Hydrocarbons (Total)	kg/y	9	
Carbon Monoxide (Total)	kg/y	127	
NOx (Total)	kg/y	438	

1 Hours per Year: 480 (Network)

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NETWORK SUMMARY

■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing+10yr (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Network Performance - Hourly Values			
Performance Measure	Vehicles:	All MCs	Persons
Network Level of Service (LOS)		LOS A	
Speed Efficiency		0.99	
Travel Time Index		9.92	
Congestion Coefficient		1.01	
Travel Speed (Average)	km/h	59.6	59.6 km/h
Travel Distance (Total)	veh-km/h	1075.4	1290.5 pers-km/h
Travel Time (Total)	veh-h/h	18.1	21.7 pers-h/h
Desired Speed	km/h	60.0	
Demand Flows (Total for all Sites)	veh/h	1075	1290 pers/h
Arrival Flows (Total for all Sites)	veh/h	1075	1290 pers/h
Demand Flows (Entry Total)	veh/h	1064	
Midblock Inflows (Total)	veh/h	0	
Midblock Outflows (Total)	veh/h	0	
Percent Heavy Vehicles (Demand)	%	16.0	
Percent Heavy Vehicles (Arrival)	%	16.0	
Degree of Saturation		0.190	
Control Delay (Total)	veh-h/h	0.11	0.13 pers-h/h
Control Delay (Average)	sec	0.4	0.4 sec
Control Delay (Worst Lane by MC)	sec	11.4	
Control Delay (Worst Movement by MC)	sec	27.7	27.7 sec
Geometric Delay (Average)	sec	0.2	
Stop-Line Delay (Average)	sec	0.1	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	29	35 pers/h
Effective Stop Rate		0.03	0.03
Proportion Queued		0.01	0.01
Performance Index		18.3	18.3
Cost (Total)	\$/h	899.23	899.23 \$/h
Fuel Consumption (Total)	L/h	101.9	
Fuel Economy	L/100km	9.5	
Carbon Dioxide (Total)	kg/h	248.8	
Hydrocarbons (Total)	kg/h	0.018	
Carbon Monoxide (Total)	kg/h	0.25	
NOx (Total)	kg/h	0.851	

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: New South Wales.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values			
Performance Measure	Vehicles:	All MCs	Persons
Demand Flows (Total for all Sites)	veh/y	515,874	619,049 pers/y
Delay (Total)	veh-h/y	51	62 pers-h/y
Effective Stops (Total)	veh/y	14,111	16,933 pers/y
Travel Distance (Total)	veh-km/y	516,201	619,441 pers-km/y
Travel Time (Total)	veh-h/y	8,668	10,402 pers-h/y

Cost (Total)	\$/y	431,628	431,628 \$/y
Fuel Consumption (Total)	L/y	48,907	
Carbon Dioxide (Total)	kg/y	119,419	
Hydrocarbons (Total)	kg/y	8	
Carbon Monoxide (Total)	kg/y	120	
NOx (Total)	kg/y	408	

1 Hours per Year: 480 (Network)

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NETWORK SUMMARY

■ Network: N101 [Federal Hwy & Collector Rd
Intersection_PM_Existing+10yr (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Network Performance - Hourly Values			
Performance Measure	Vehicles:	All MCs	Persons
Network Level of Service (LOS)		LOS A	
Speed Efficiency		0.99	
Travel Time Index		9.94	
Congestion Coefficient		1.01	
Travel Speed (Average)	km/h	59.7	59.7 km/h
Travel Distance (Total)	veh-km/h	1189.0	1426.8 pers-km/h
Travel Time (Total)	veh-h/h	19.9	23.9 pers-h/h
Desired Speed	km/h	60.0	
Demand Flows (Total for all Sites)	veh/h	1184	1421 pers/h
Arrival Flows (Total for all Sites)	veh/h	1184	1421 pers/h
Demand Flows (Entry Total)	veh/h	1177	
Midblock Inflows (Total)	veh/h	0	
Midblock Outflows (Total)	veh/h	0	
Percent Heavy Vehicles (Demand)	%	9.1	
Percent Heavy Vehicles (Arrival)	%	9.1	
Degree of Saturation		0.171	
Control Delay (Total)	veh-h/h	0.08	0.09 pers-h/h
Control Delay (Average)	sec	0.2	0.2 sec
Control Delay (Worst Lane by MC)	sec	9.5	
Control Delay (Worst Movement by MC)	sec	11.7	11.7 sec
Geometric Delay (Average)	sec	0.2	
Stop-Line Delay (Average)	sec	0.1	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	22	27 pers/h
Effective Stop Rate		0.02	0.02
Proportion Queued		0.01	0.01
Performance Index		20.1	20.1
Cost (Total)	\$/h	939.78	939.78 \$/h
Fuel Consumption (Total)	L/h	93.1	
Fuel Economy	L/100km	7.8	
Carbon Dioxide (Total)	kg/h	224.2	
Hydrocarbons (Total)	kg/h	0.016	
Carbon Monoxide (Total)	kg/h	0.25	
NOx (Total)	kg/h	0.546	

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: New South Wales.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values			
Performance Measure	Vehicles:	All MCs	Persons
Demand Flows (Total for all Sites)	veh/y	568,421	682,105 pers/y
Delay (Total)	veh-h/y	38	45 pers-h/y
Effective Stops (Total)	veh/y	10,737	12,884 pers/y
Travel Distance (Total)	veh-km/y	570,732	684,878 pers-km/y
Travel Time (Total)	veh-h/y	9,563	11,476 pers-h/y

Cost (Total)	\$/y	451,095	451,095 \$/y
Fuel Consumption (Total)	L/y	44,664	
Carbon Dioxide (Total)	kg/y	107,636	
Hydrocarbons (Total)	kg/y	8	
Carbon Monoxide (Total)	kg/y	119	
NOx (Total)	kg/y	262	

1 Hours per Year: 480 (Network)

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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

NETWORK SUMMARY

■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing+10yr+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Network Performance - Hourly Values			
Performance Measure	Vehicles:	All MCs	Persons
Network Level of Service (LOS)		LOS A	
Speed Efficiency		0.98	
Travel Time Index		9.73	
Congestion Coefficient		1.02	
Travel Speed (Average)	km/h	58.5	58.5 km/h
Travel Distance (Total)	veh-km/h	1127.7	1353.2 pers-km/h
Travel Time (Total)	veh-h/h	19.3	23.1 pers-h/h
Desired Speed	km/h	60.0	
Demand Flows (Total for all Sites)	veh/h	1151	1381 pers/h
Arrival Flows (Total for all Sites)	veh/h	1151	1381 pers/h
Demand Flows (Entry Total)	veh/h	1115	
Midblock Inflows (Total)	veh/h	0	
Midblock Outflows (Total)	veh/h	0	
Percent Heavy Vehicles (Demand)	%	20.4	
Percent Heavy Vehicles (Arrival)	%	20.4	
Degree of Saturation		0.190	
Control Delay (Total)	veh-h/h	0.38	0.46 pers-h/h
Control Delay (Average)	sec	1.2	1.2 sec
Control Delay (Worst Lane by MC)	sec	17.7	
Control Delay (Worst Movement by MC)	sec	31.4	31.4 sec
Geometric Delay (Average)	sec	0.7	
Stop-Line Delay (Average)	sec	0.5	
Ave. Que Storage Ratio (Worst Lane)		0.03	
Effective Stops (Total)	veh/h	89	107 pers/h
Effective Stop Rate		0.08	0.08
Proportion Queued		0.04	0.04
Performance Index		20.5	20.5
Cost (Total)	\$/h	1003.03	1003.03 \$/h
Fuel Consumption (Total)	L/h	124.9	
Fuel Economy	L/100km	11.1	
Carbon Dioxide (Total)	kg/h	307.7	
Hydrocarbons (Total)	kg/h	0.022	
Carbon Monoxide (Total)	kg/h	0.30	
NOx (Total)	kg/h	1.279	

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: New South Wales.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values			
Performance Measure	Vehicles:	All MCs	Persons
Demand Flows (Total for all Sites)	veh/y	552,253	662,703 pers/y
Delay (Total)	veh-h/y	182	219 pers-h/y
Effective Stops (Total)	veh/y	42,787	51,344 pers/y
Travel Distance (Total)	veh-km/y	541,296	649,555 pers-km/y
Travel Time (Total)	veh-h/y	9,246	11,095 pers-h/y

Cost (Total)	\$/y	481,453	481,453 \$/y
Fuel Consumption (Total)	L/y	59,970	
Carbon Dioxide (Total)	kg/y	147,692	
Hydrocarbons (Total)	kg/y	10	
Carbon Monoxide (Total)	kg/y	142	
NOx (Total)	kg/y	614	

1 Hours per Year: 480 (Network)

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NETWORK SUMMARY

■ Network: N101 [Federal Hwy & Collector Rd
Intersection_PM_Existing+10yr+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Network Performance - Hourly Values			
Performance Measure	Vehicles:	All MCs	Persons
Network Level of Service (LOS)		LOS A	
Speed Efficiency		0.98	
Travel Time Index		9.80	
Congestion Coefficient		1.02	
Travel Speed (Average)	km/h	58.9	58.9 km/h
Travel Distance (Total)	veh-km/h	1241.3	1489.6 pers-km/h
Travel Time (Total)	veh-h/h	21.1	25.3 pers-h/h
Desired Speed	km/h	60.0	
Demand Flows (Total for all Sites)	veh/h	1260	1512 pers/h
Arrival Flows (Total for all Sites)	veh/h	1260	1512 pers/h
Demand Flows (Entry Total)	veh/h	1227	
Midblock Inflows (Total)	veh/h	0	
Midblock Outflows (Total)	veh/h	0	
Percent Heavy Vehicles (Demand)	%	13.5	
Percent Heavy Vehicles (Arrival)	%	13.5	
Degree of Saturation		0.171	
Control Delay (Total)	veh-h/h	0.30	0.36 pers-h/h
Control Delay (Average)	sec	0.9	0.9 sec
Control Delay (Worst Lane by MC)	sec	15.0	
Control Delay (Worst Movement by MC)	sec	22.9	22.9 sec
Geometric Delay (Average)	sec	0.6	
Stop-Line Delay (Average)	sec	0.3	
Ave. Que Storage Ratio (Worst Lane)		0.02	
Effective Stops (Total)	veh/h	78	94 pers/h
Effective Stop Rate		0.06	0.06
Proportion Queued		0.03	0.03
Performance Index		22.1	22.1
Cost (Total)	\$/h	1041.59	1041.59 \$/h
Fuel Consumption (Total)	L/h	116.0	
Fuel Economy	L/100km	9.3	
Carbon Dioxide (Total)	kg/h	283.0	
Hydrocarbons (Total)	kg/h	0.020	
Carbon Monoxide (Total)	kg/h	0.29	
NOx (Total)	kg/h	0.972	

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: New South Wales.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values			
Performance Measure	Vehicles:	All MCs	Persons
Demand Flows (Total for all Sites)	veh/y	604,800	725,760 pers/y
Delay (Total)	veh-h/y	144	173 pers-h/y
Effective Stops (Total)	veh/y	37,531	45,037 pers/y
Travel Distance (Total)	veh-km/y	595,827	714,993 pers-km/y
Travel Time (Total)	veh-h/y	10,117	12,140 pers-h/y

Cost (Total)	\$/y	499,964	499,964 \$/y
Fuel Consumption (Total)	L/y	55,675	
Carbon Dioxide (Total)	kg/y	135,835	
Hydrocarbons (Total)	kg/y	10	
Carbon Monoxide (Total)	kg/y	140	
NOx (Total)	kg/y	467	

1 Hours per Year: 480 (Network)

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APPROACH LANE FLOWS

Lane flow rates based on arrival flows (veh/h)

■ Network: N101 [Federal Hwy & Collector Rd]
Intersection_AM_Existing (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

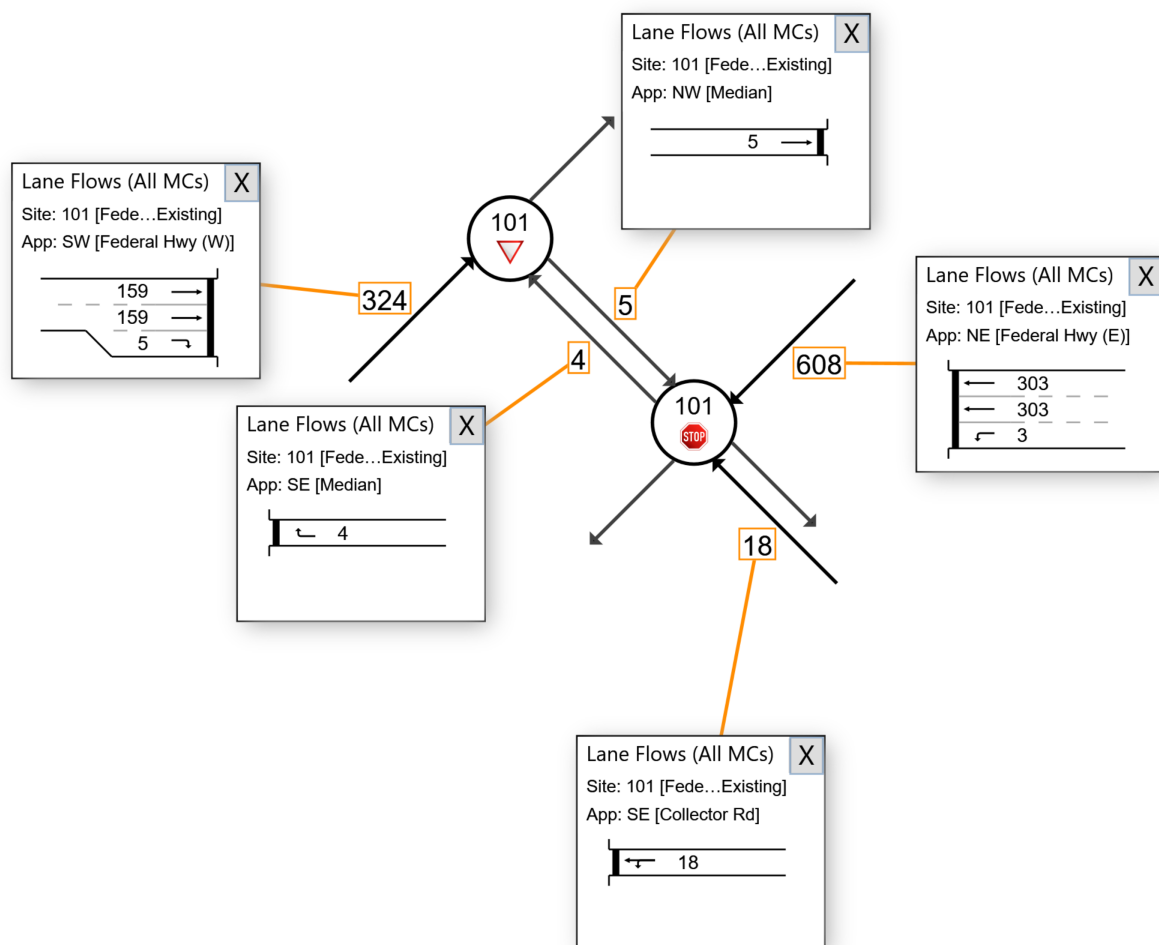
Staged Crossing Type C-1

Network Category: (None)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Lane Flows are based on Arrival Flows adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPROACH LANE FLOWS

Lane flow rates based on arrival flows (veh/h)

■ Network: N101 [Federal Hwy & Collector Rd]
Intersection_PM_Existing (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

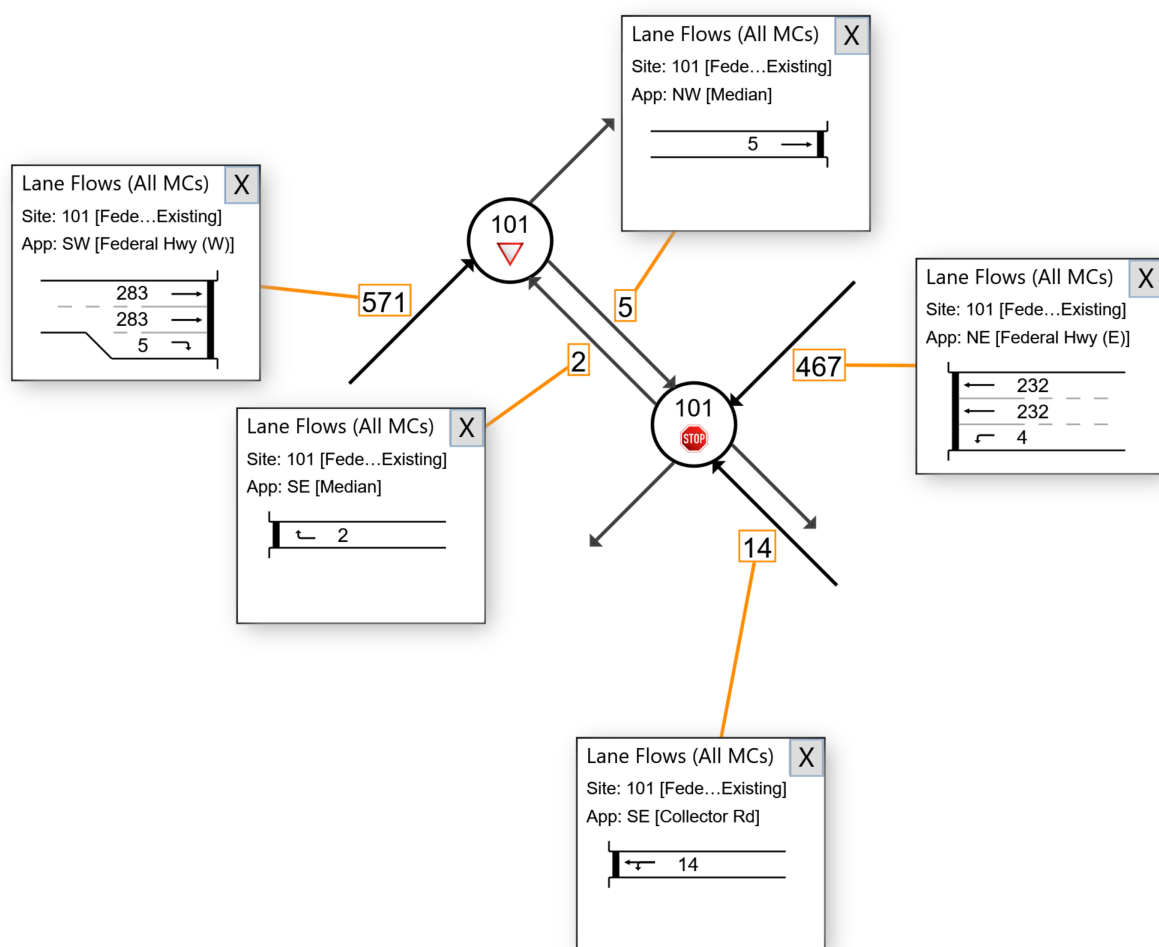
Staged Crossing Type C-1

Network Category: (None)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Lane Flows are based on Arrival Flows adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPROACH LANE FLOWS

Lane flow rates based on arrival flows (veh/h)

■▣ Network: N101 [Federal Hwy & Collector Rd]
Intersection_AM_Existing+Dev (Network Folder: General)]

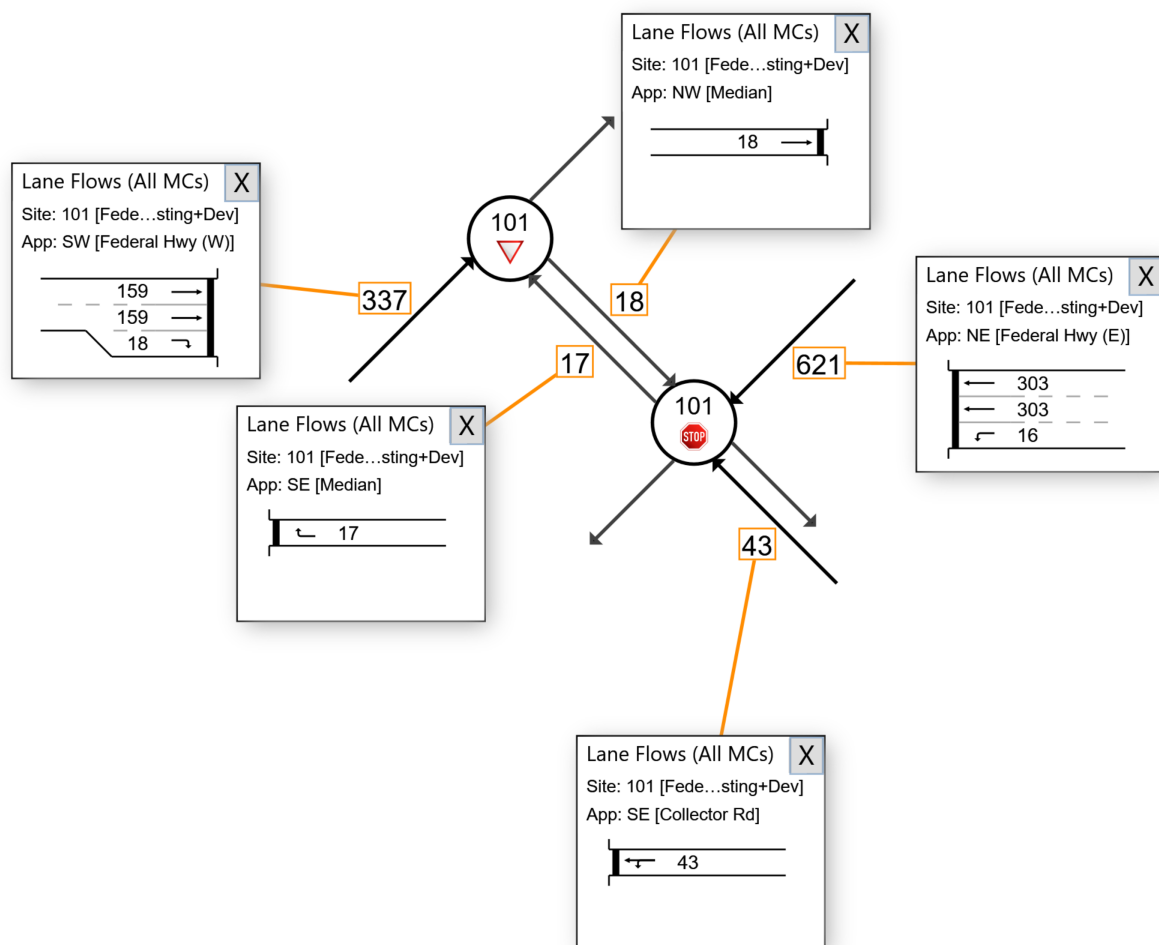
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Lane Flows are based on Arrival Flows adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPROACH LANE FLOWS

Lane flow rates based on arrival flows (veh/h)

■▣ Network: N101 [Federal Hwy & Collector Rd]
Intersection_PM_Existing+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

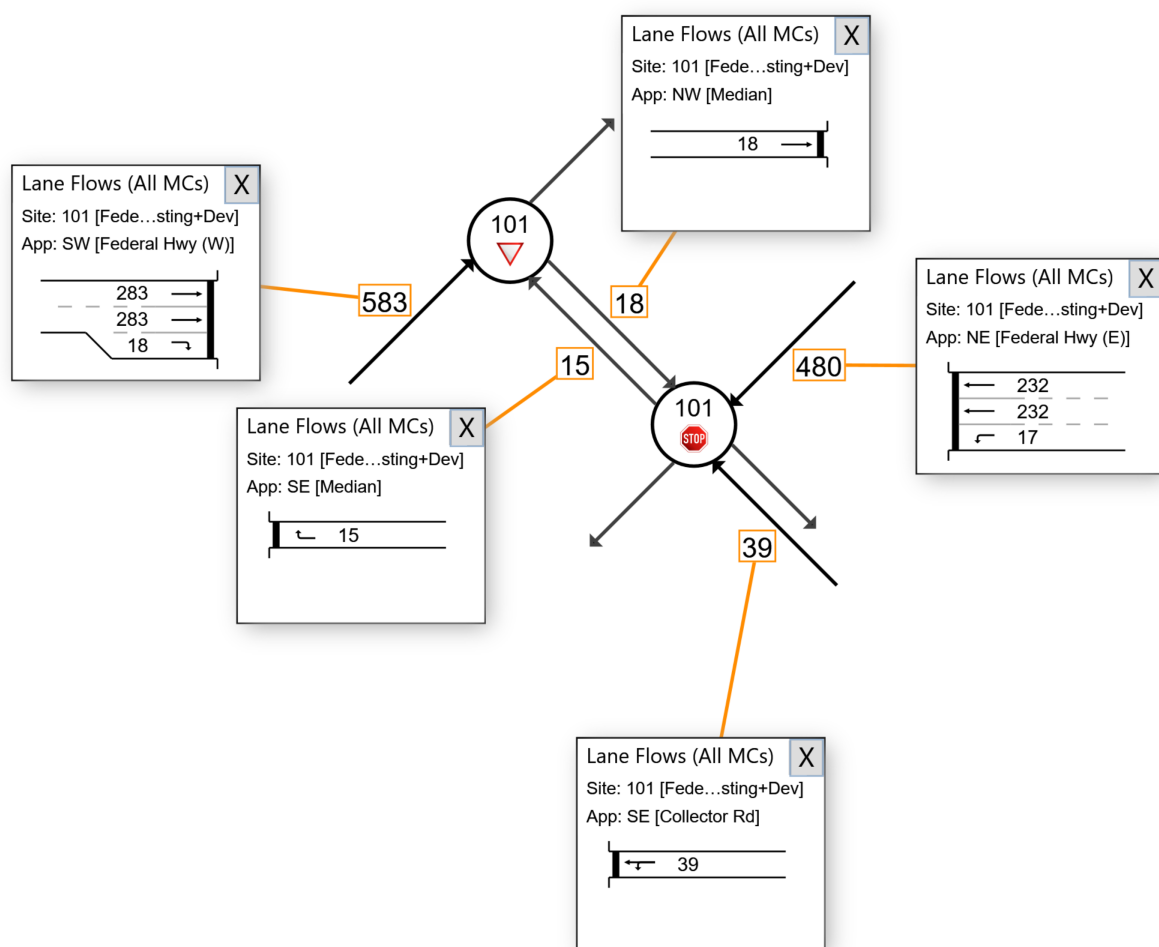
Staged Crossing Type C-1

Network Category: (None)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Lane Flows are based on Arrival Flows adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPROACH LANE FLOWS

Lane flow rates based on arrival flows (veh/h)

■ Network: N101 [Federal Hwy & Collector Rd]
Intersection_AM_Existing+10yr (Network Folder: General)]

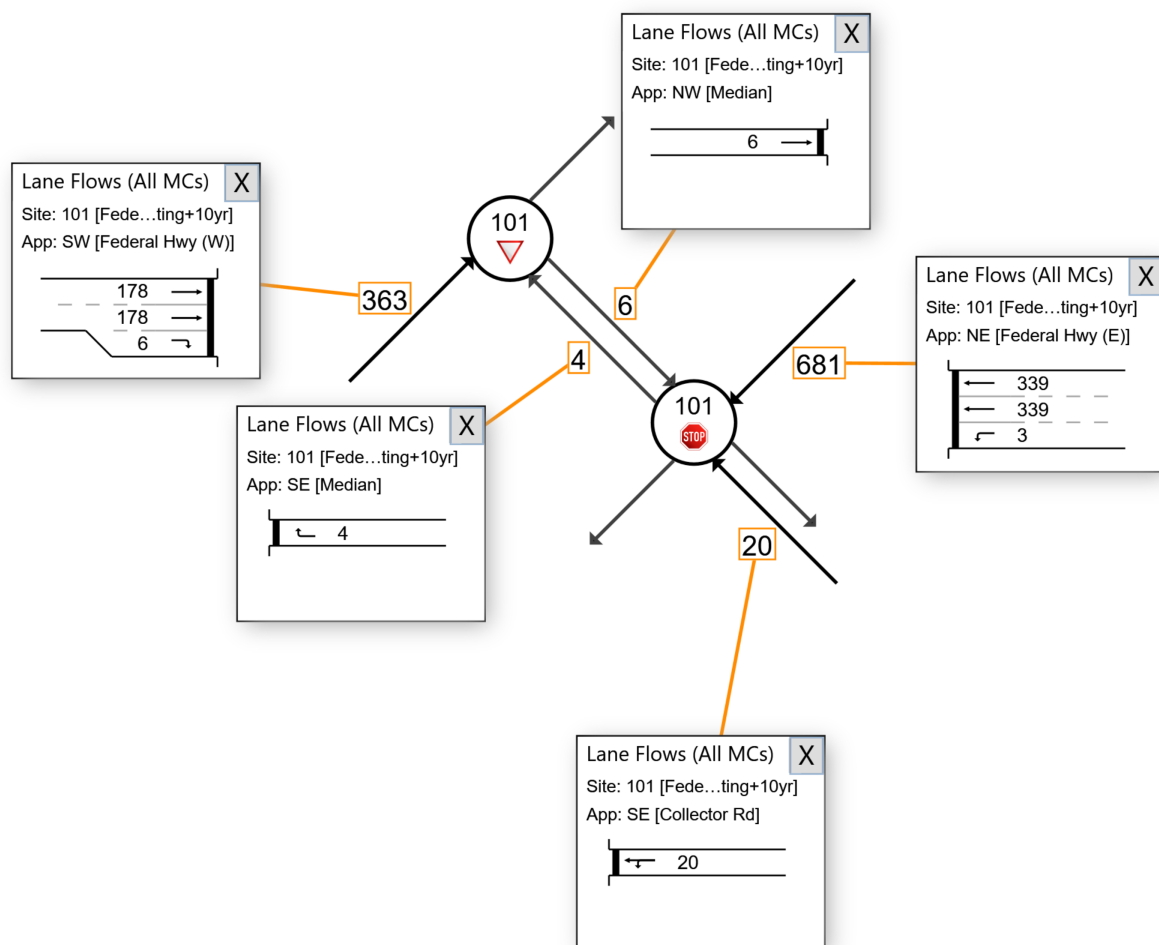
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Lane Flows are based on Arrival Flows adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPROACH LANE FLOWS

Lane flow rates based on arrival flows (veh/h)

■ Network: N101 [Federal Hwy & Collector Rd]
Intersection_PM_Existing+10yr (Network Folder: General)]

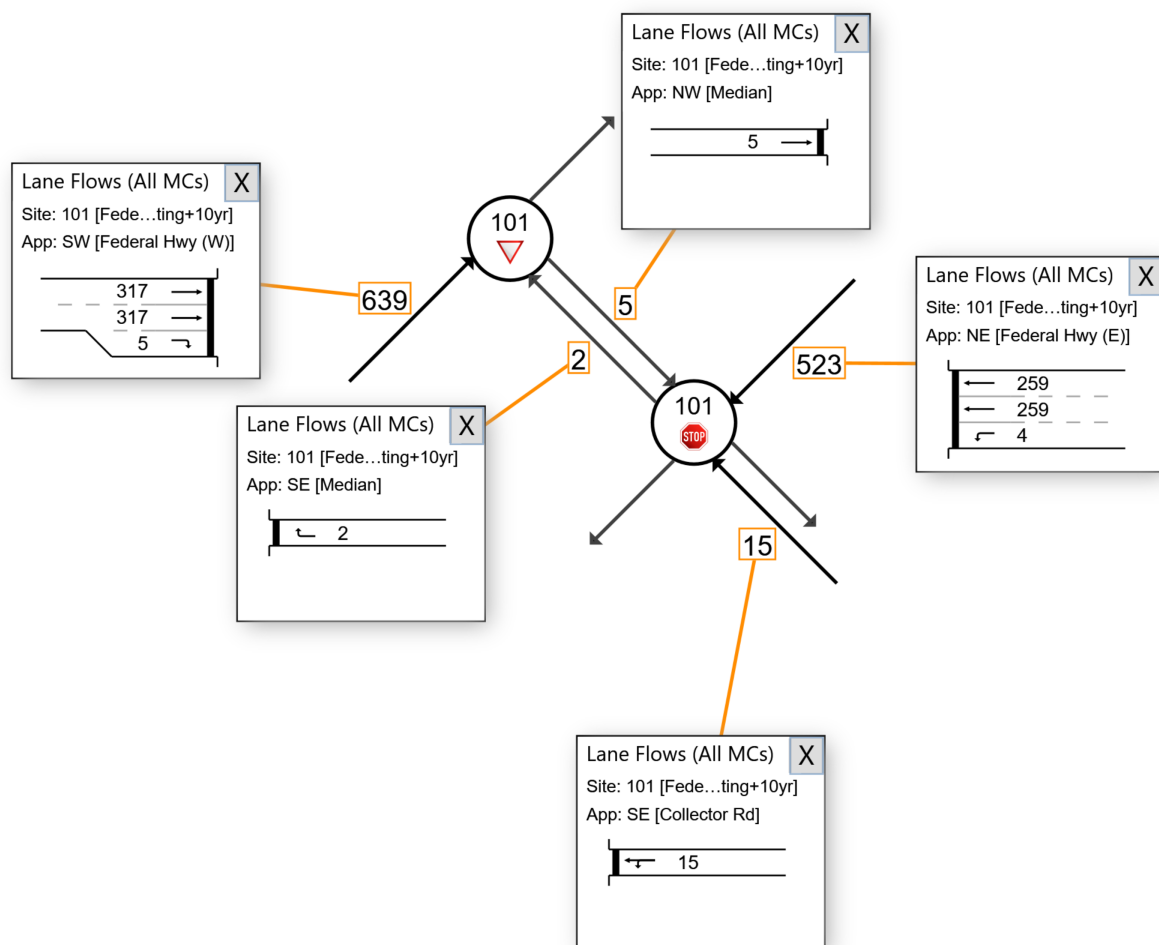
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Lane Flows are based on Arrival Flows adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPROACH LANE FLOWS

Lane flow rates based on arrival flows (veh/h)

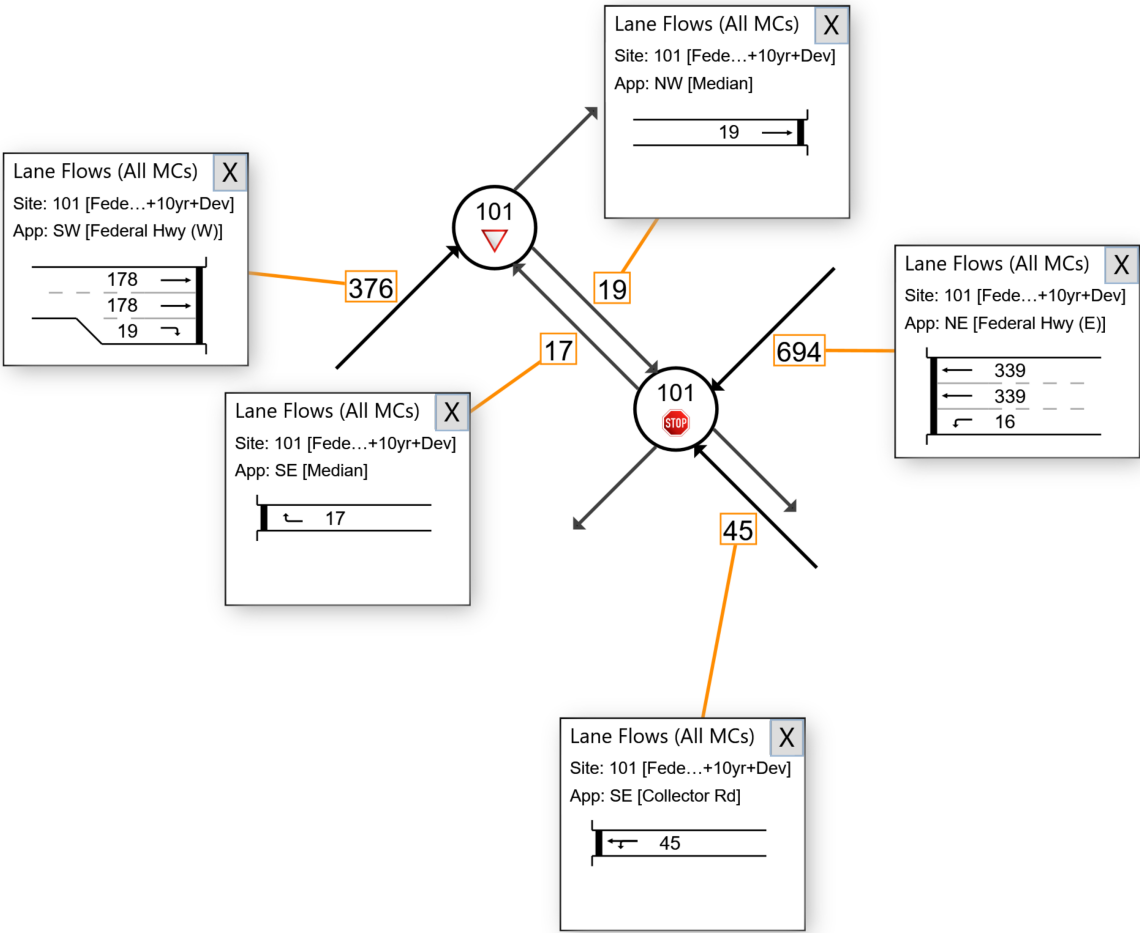
Network: N101 [Federal Hwy & Collector Rd]
Intersection_AM_Existing+10yr+Dev (Network Folder: General)]
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Lane Flows are based on Arrival Flows adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPROACH LANE FLOWS

Lane flow rates based on arrival flows (veh/h)

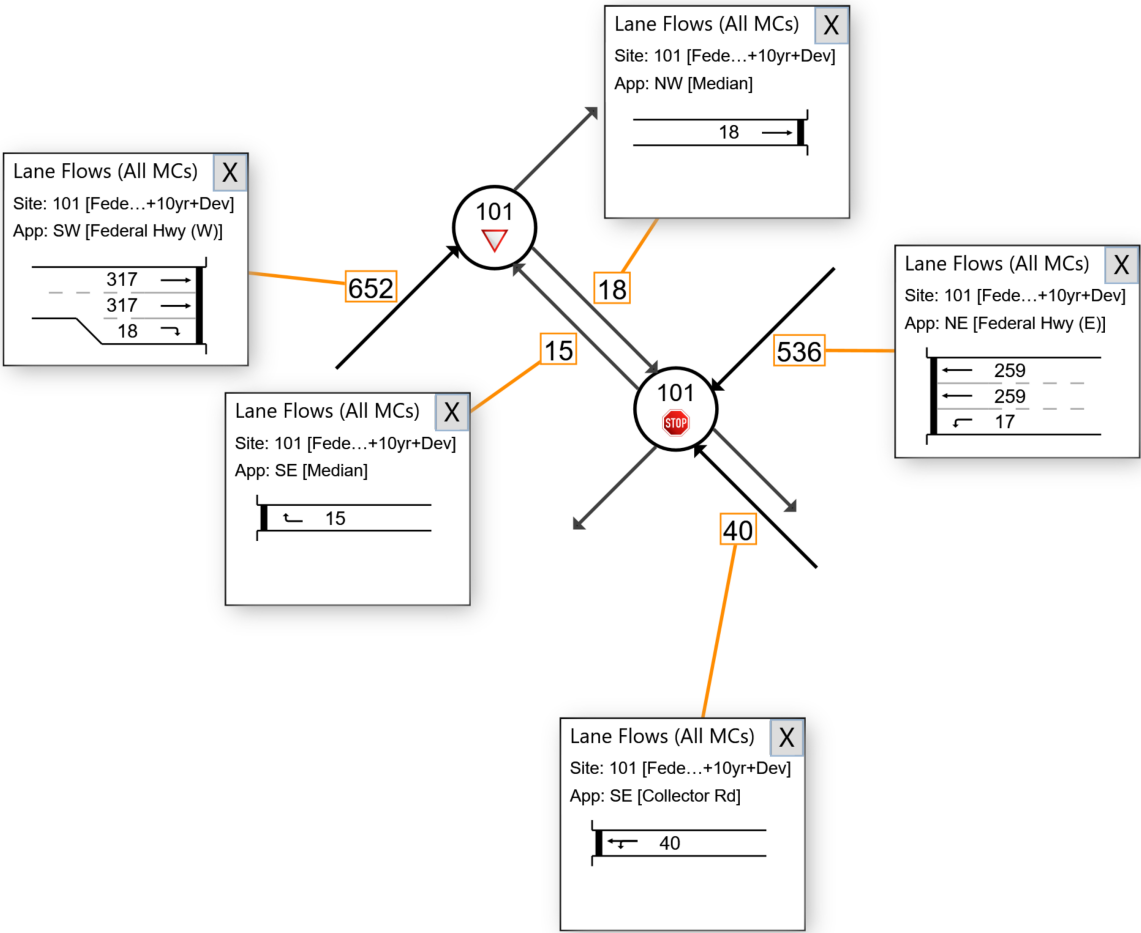
Network: N101 [Federal Hwy & Collector Rd]
Intersection_PM_Existing+10yr+Dev (Network Folder: General)
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Lane Flows are based on Arrival Flows adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per lane

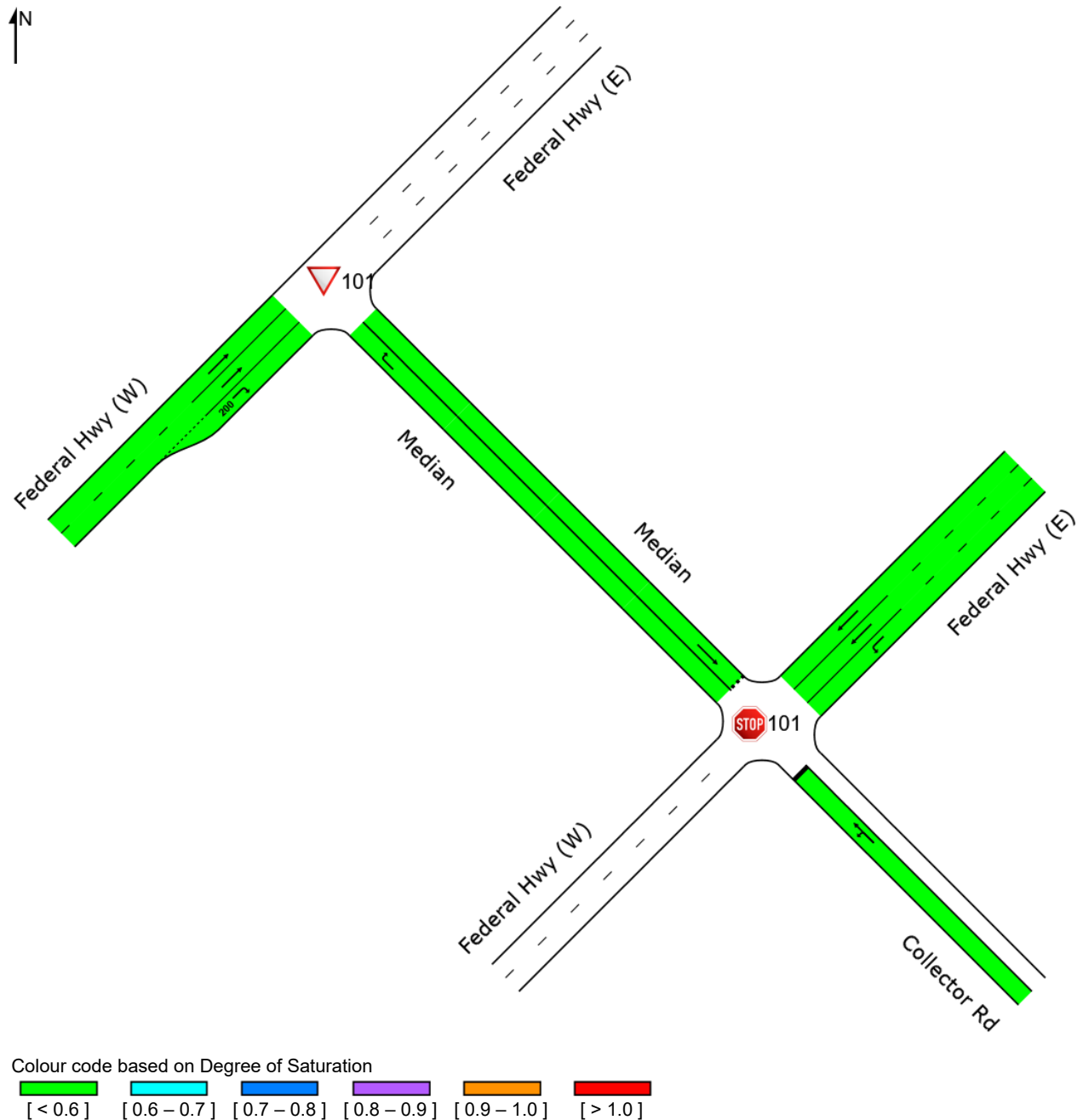
■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

LEVEL OF SERVICE

Lane Level of Service

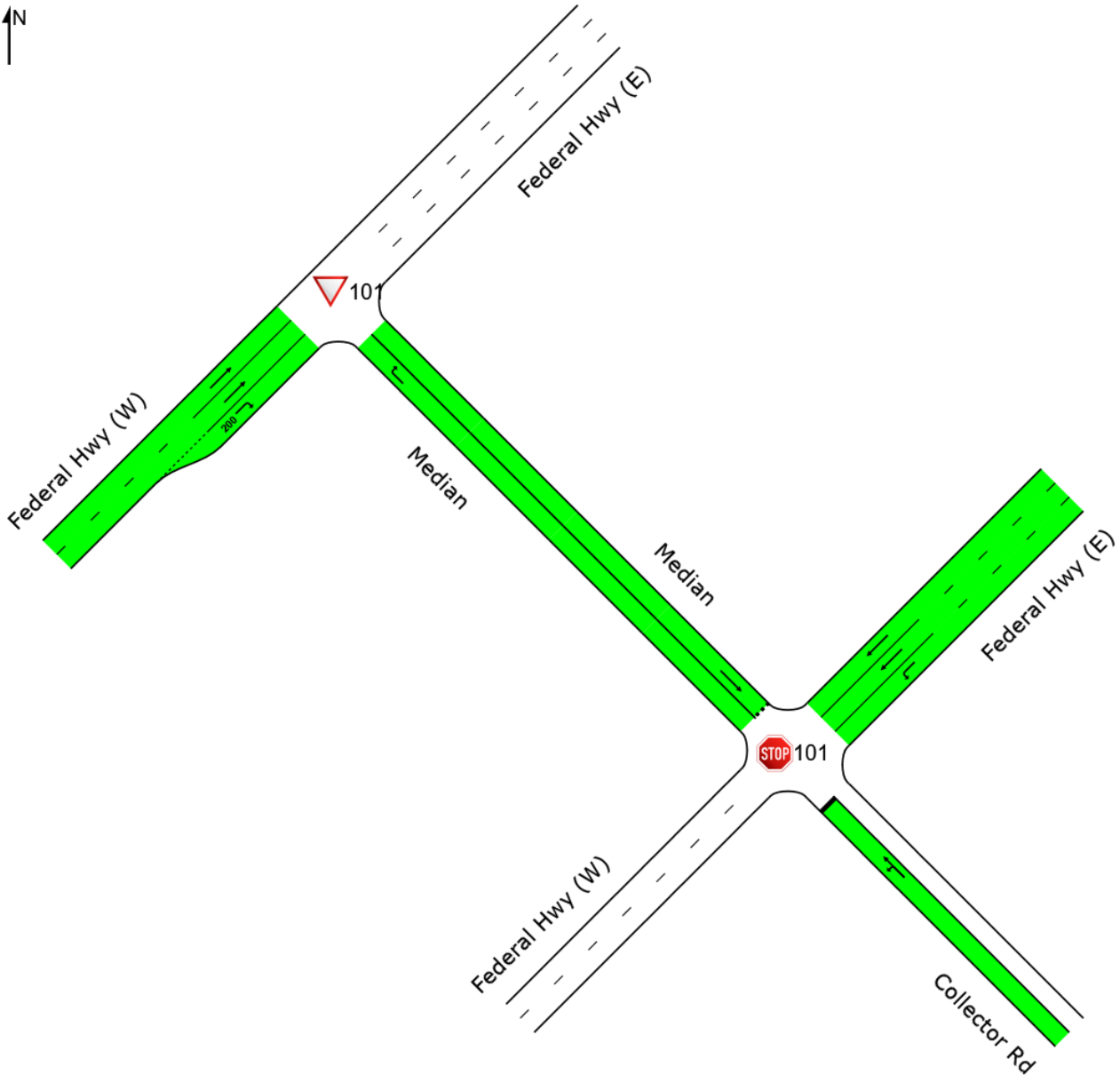
■ ■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



Colour code based on Level of Service



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

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DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per lane

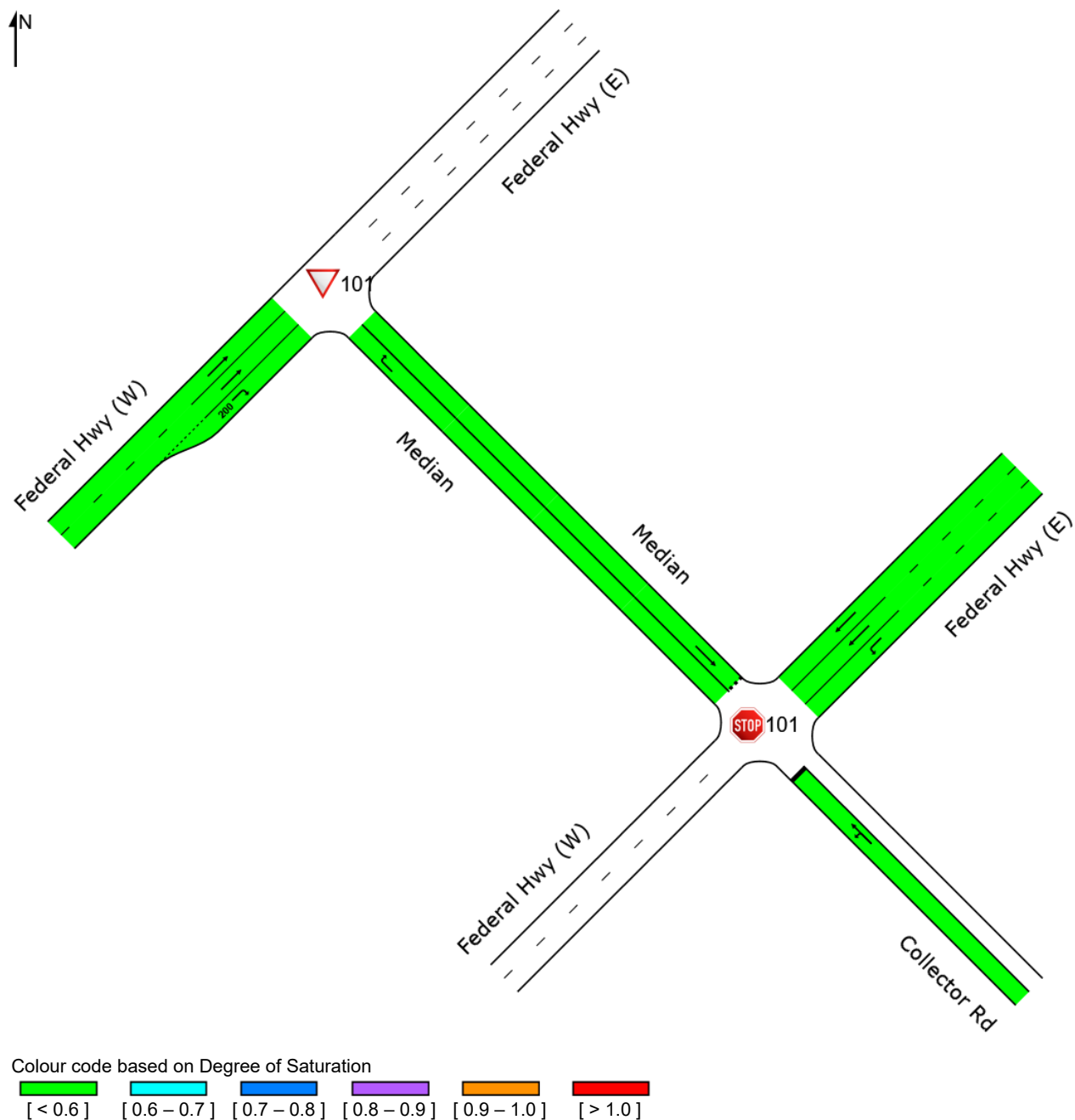
■ Network: N101 [Federal Hwy & Collector Rd
Intersection_PM_Existing (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



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LEVEL OF SERVICE

Lane Level of Service

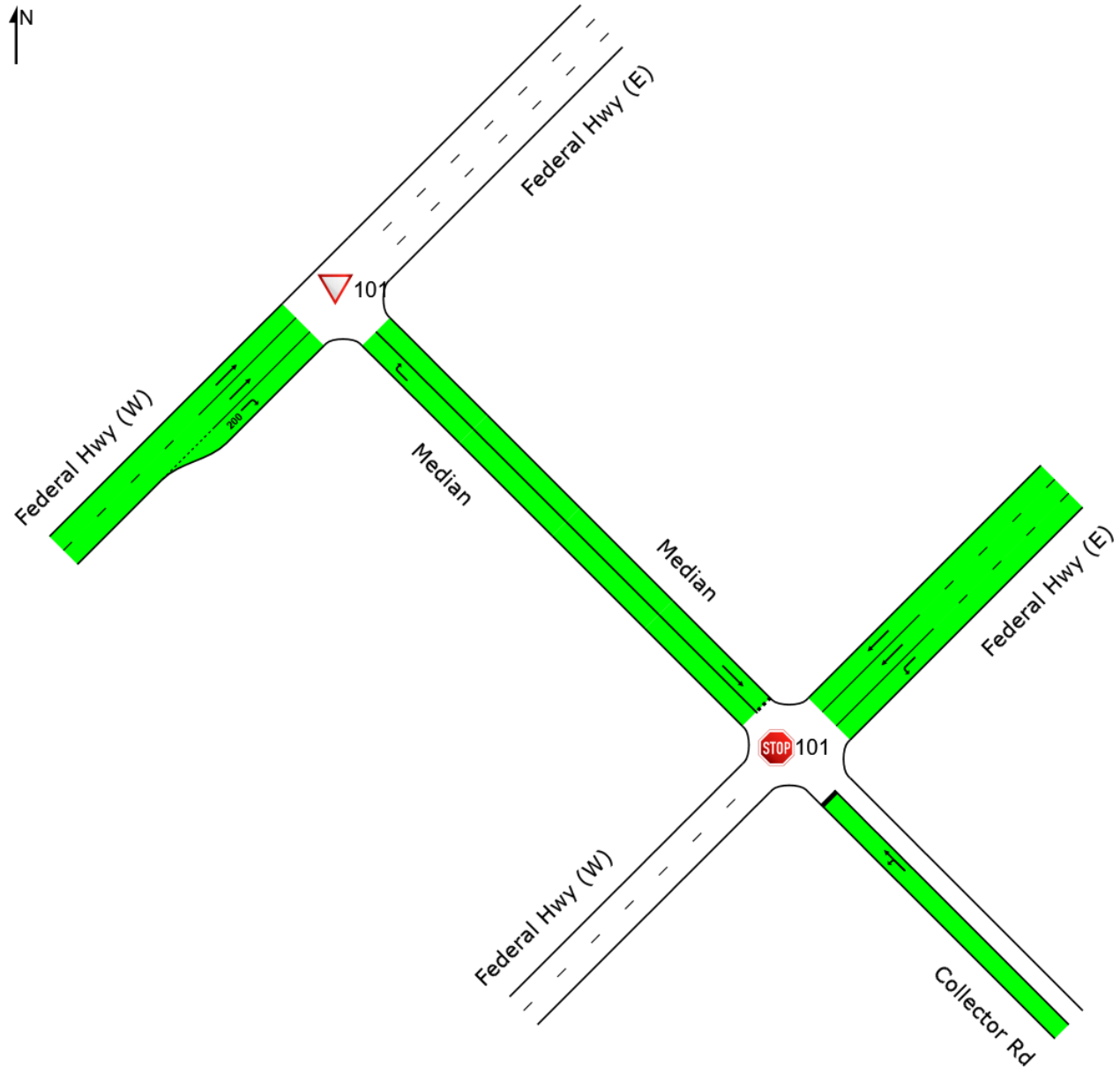
■ ■ Network: N101 [Federal Hwy & Collector Rd
Intersection_PM_Existing (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

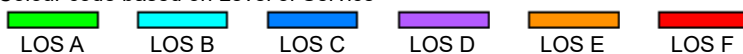
Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



Colour code based on Level of Service



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

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DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per lane

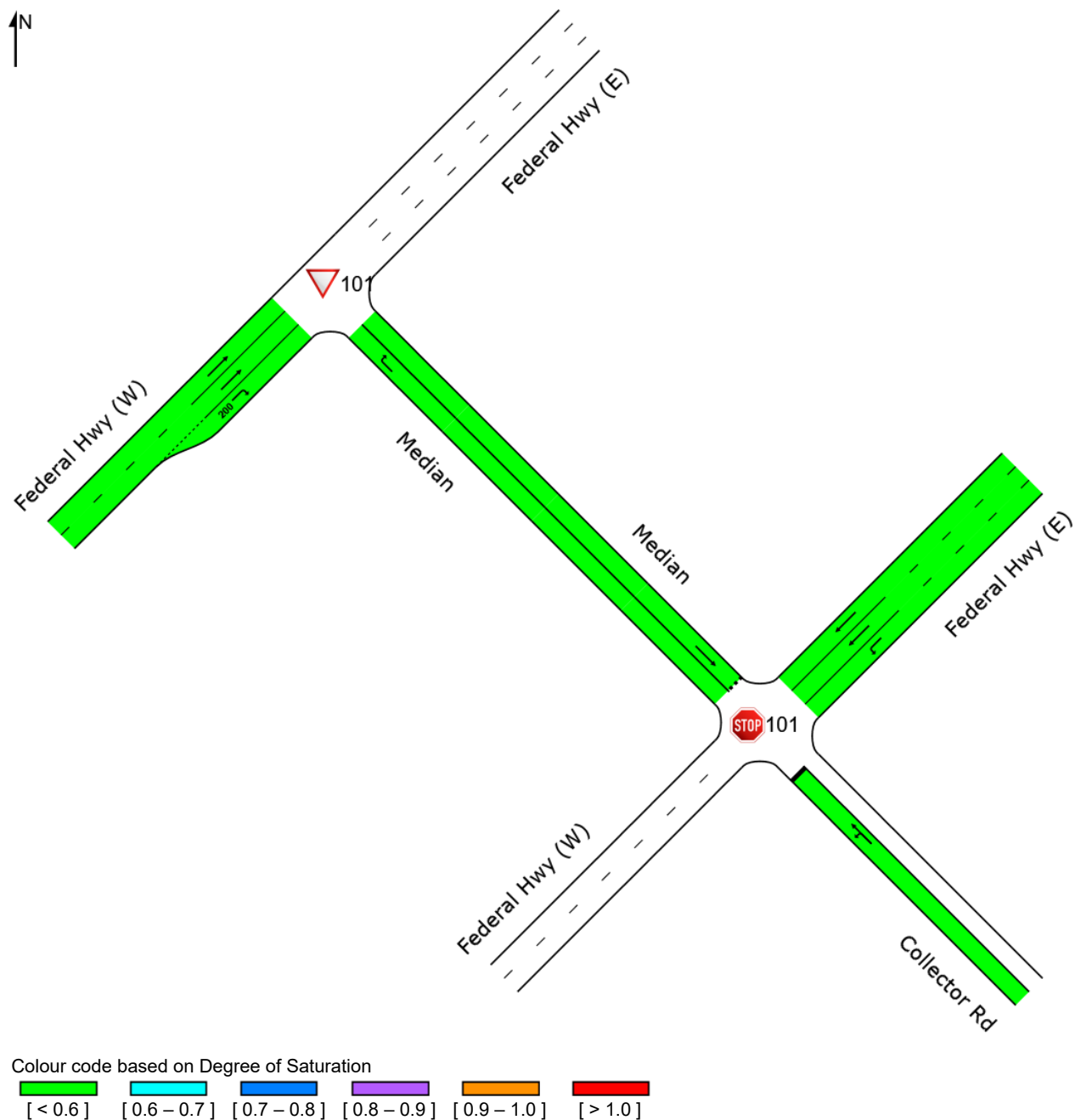
■ ■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

LEVEL OF SERVICE

Lane Level of Service

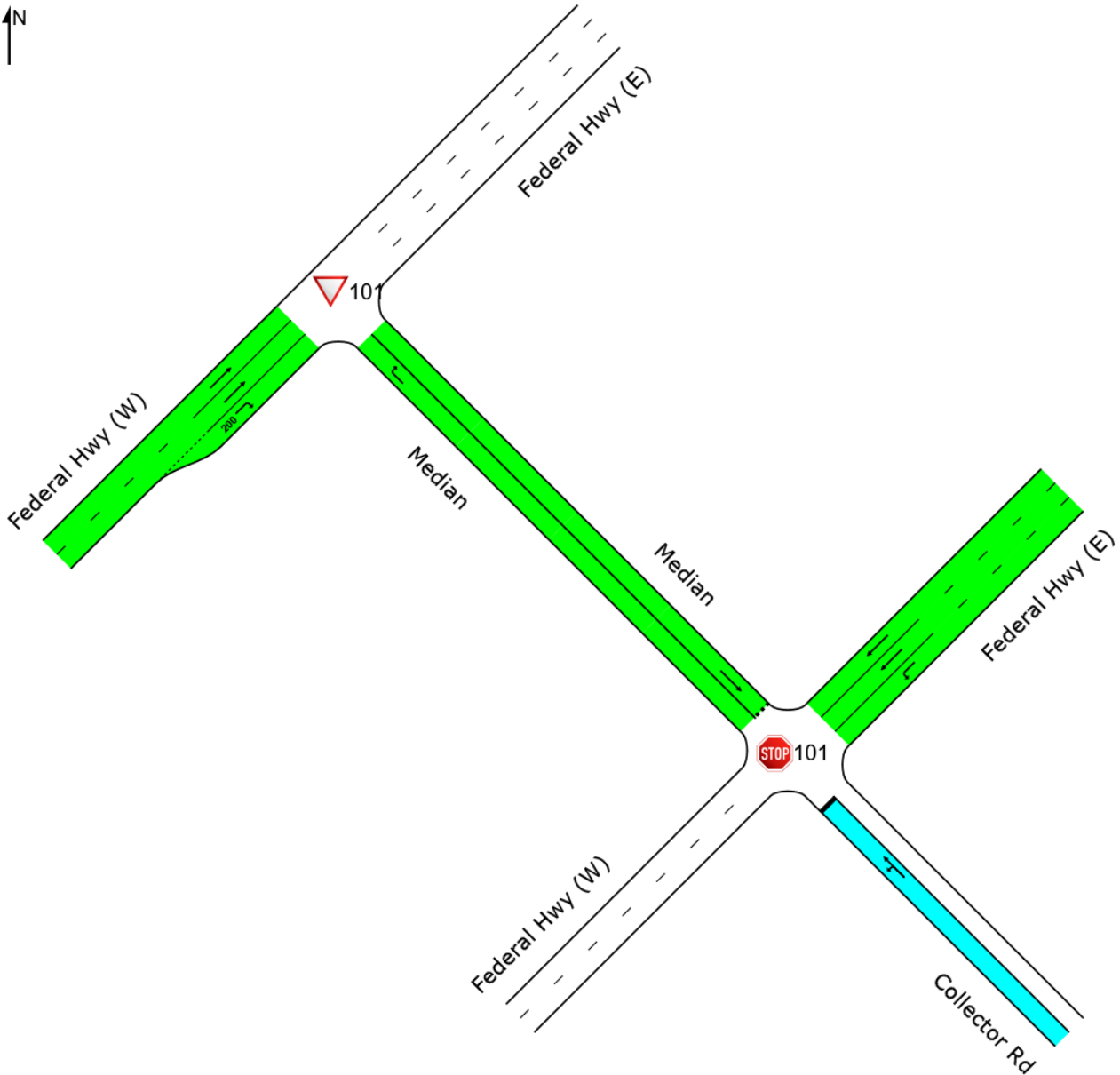
■ ■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



Colour code based on Level of Service



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

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DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per lane

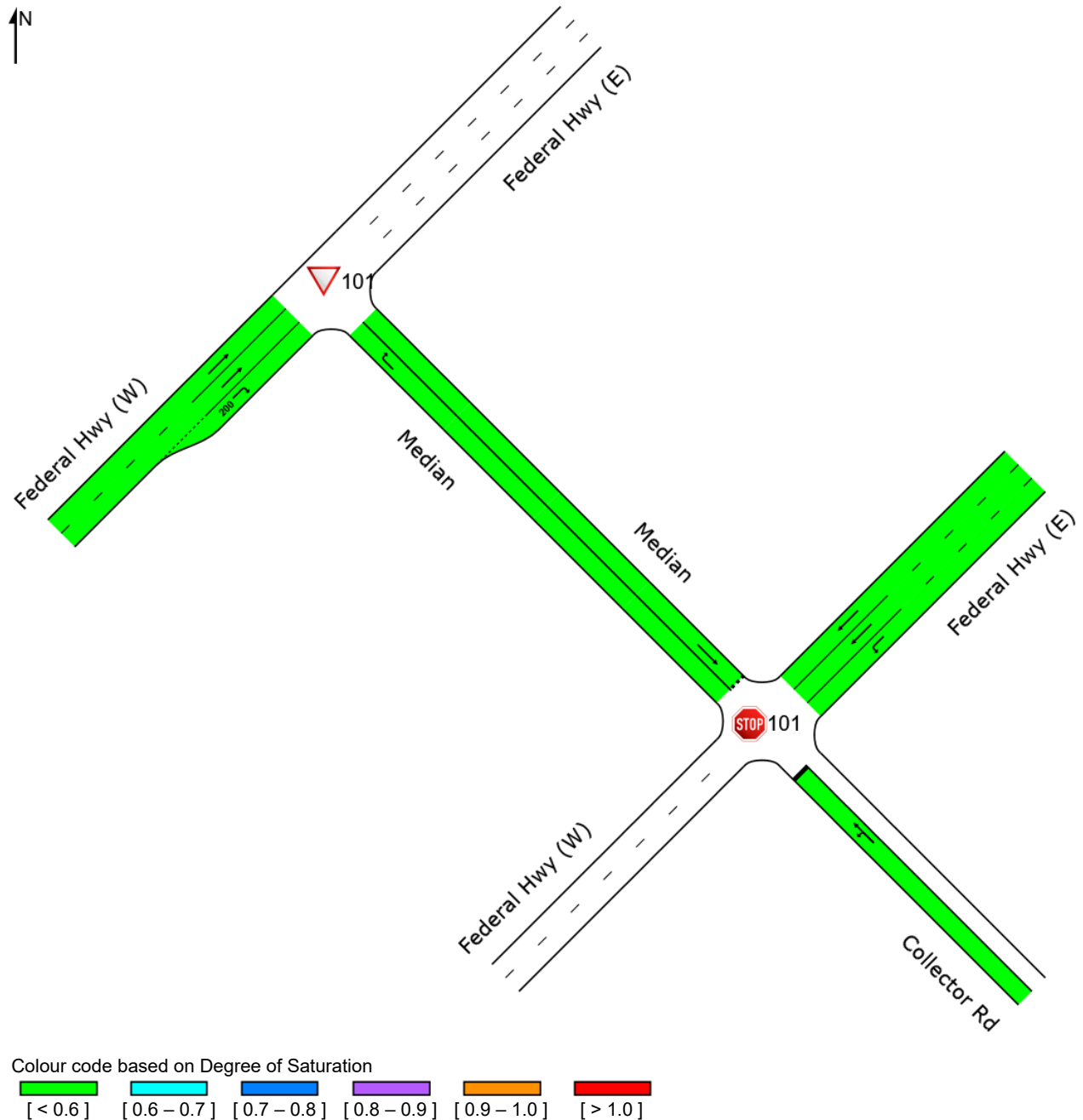
■ Network: N101 [Federal Hwy & Collector Rd
Intersection_PM_Existing+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

LEVEL OF SERVICE

Lane Level of Service

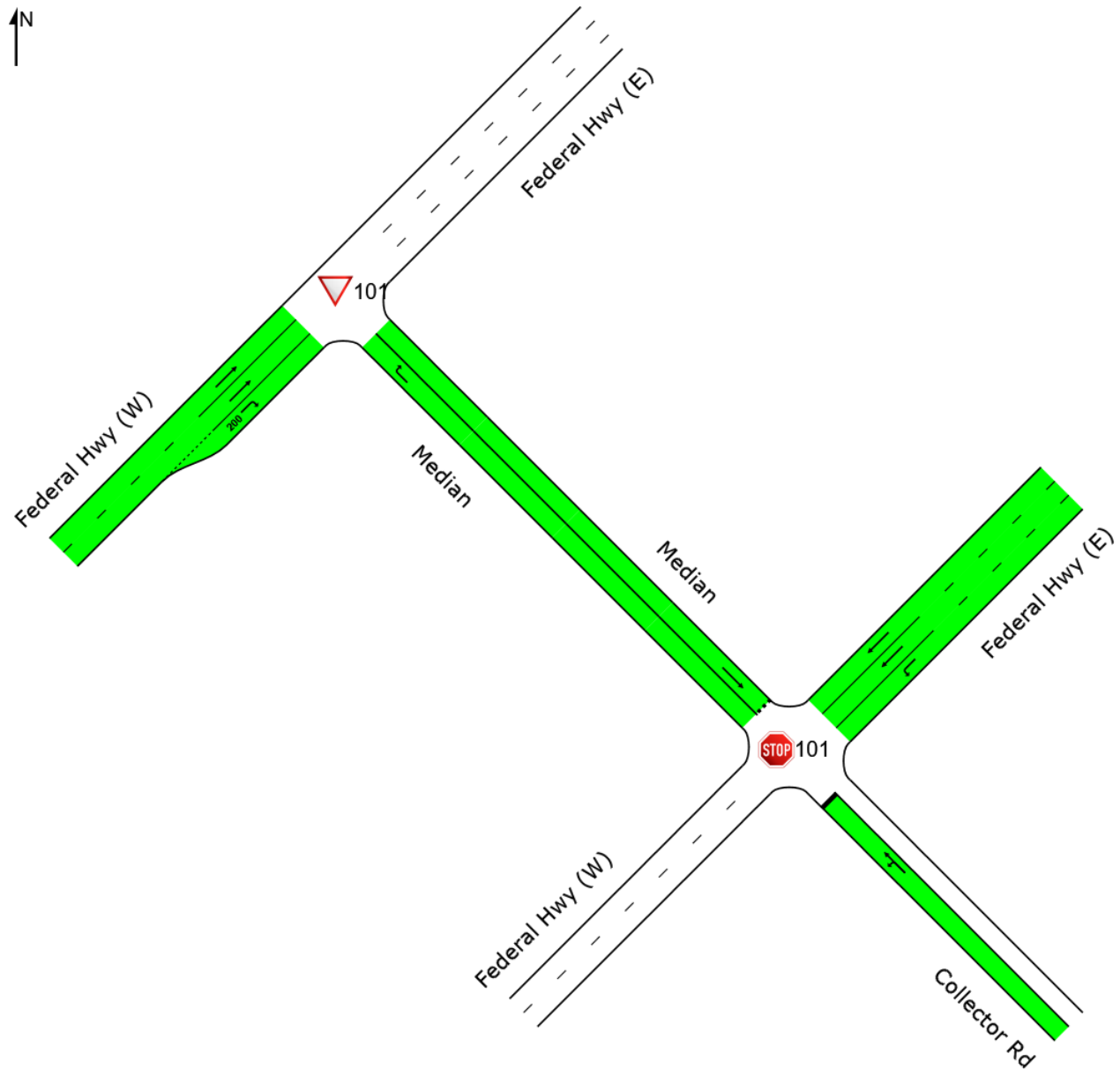
■ ■ Network: N101 [Federal Hwy & Collector Rd
Intersection_PM_Existing+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

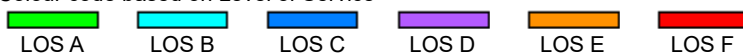
Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



Colour code based on Level of Service



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

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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

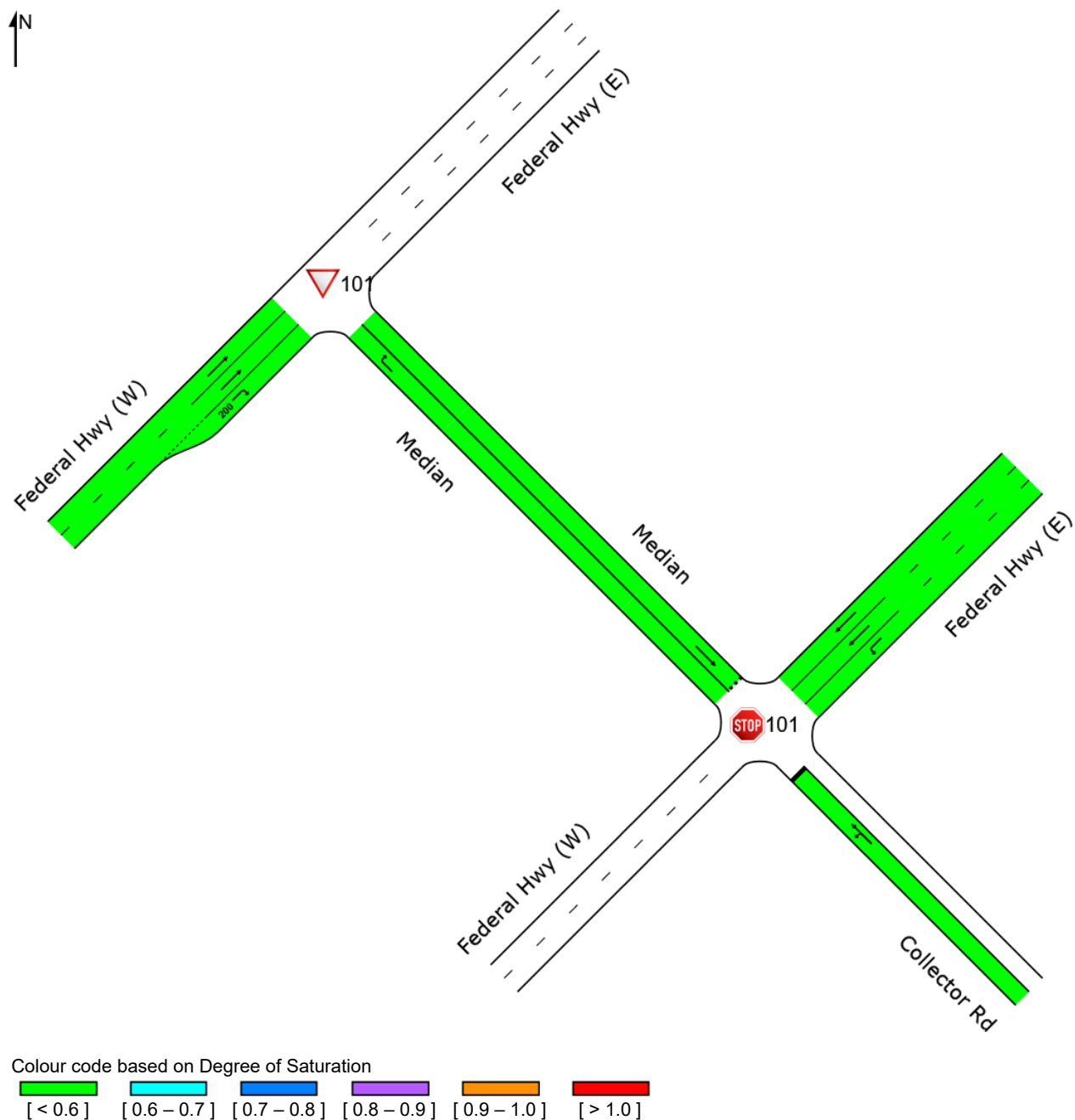
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per lane

■ Network: N101 [Federal Hwy & Collector Rd]
Intersection_AM_Existing+10yr (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)



LEVEL OF SERVICE

Lane Level of Service

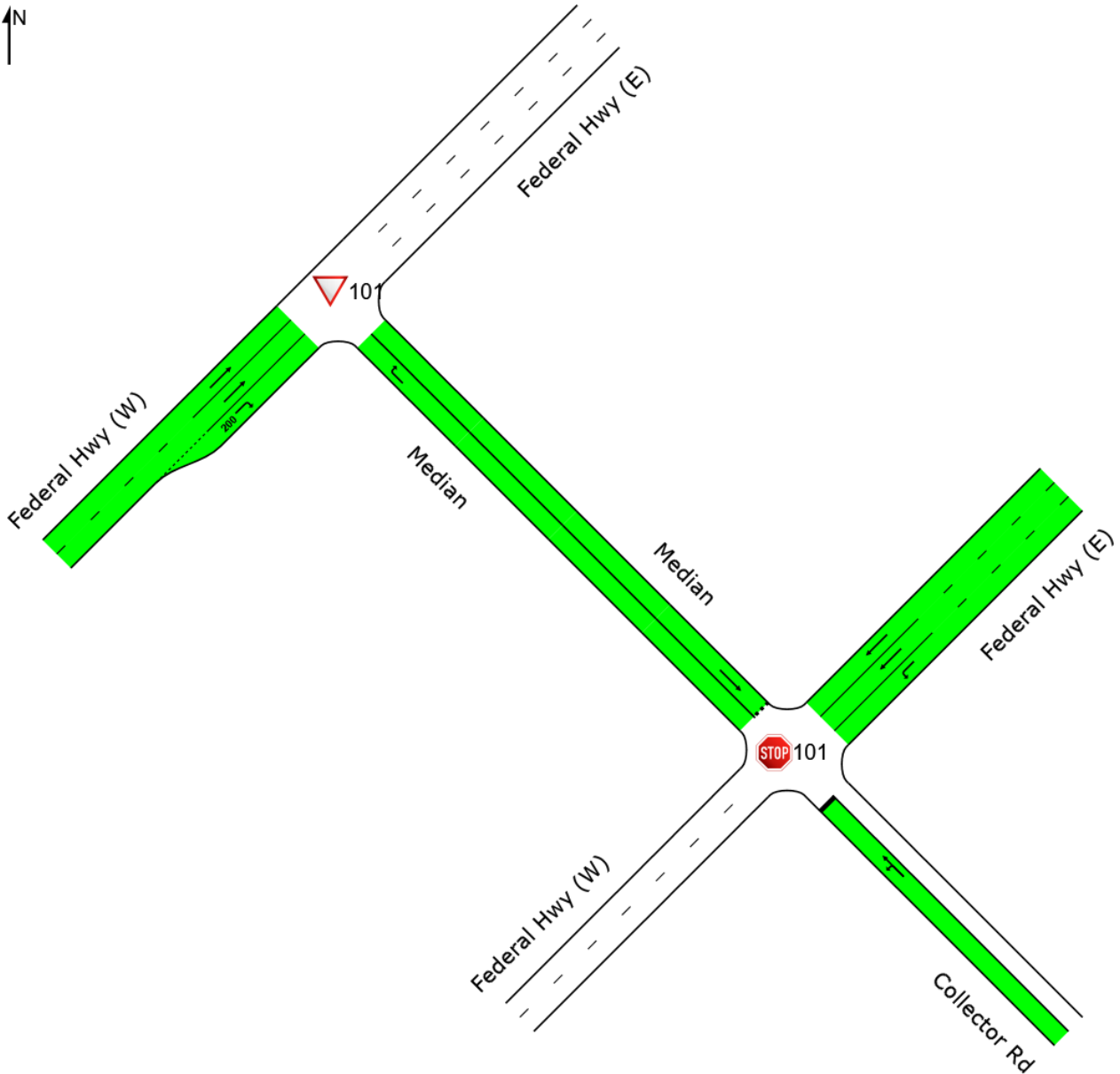
■ ■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing+10yr (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



Colour code based on Level of Service



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

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Organisation: METIS CONSULTANTS | Licence: NETWORK / 1PC | Processed: Friday, 13 June 2025 12:30:03 AM

Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

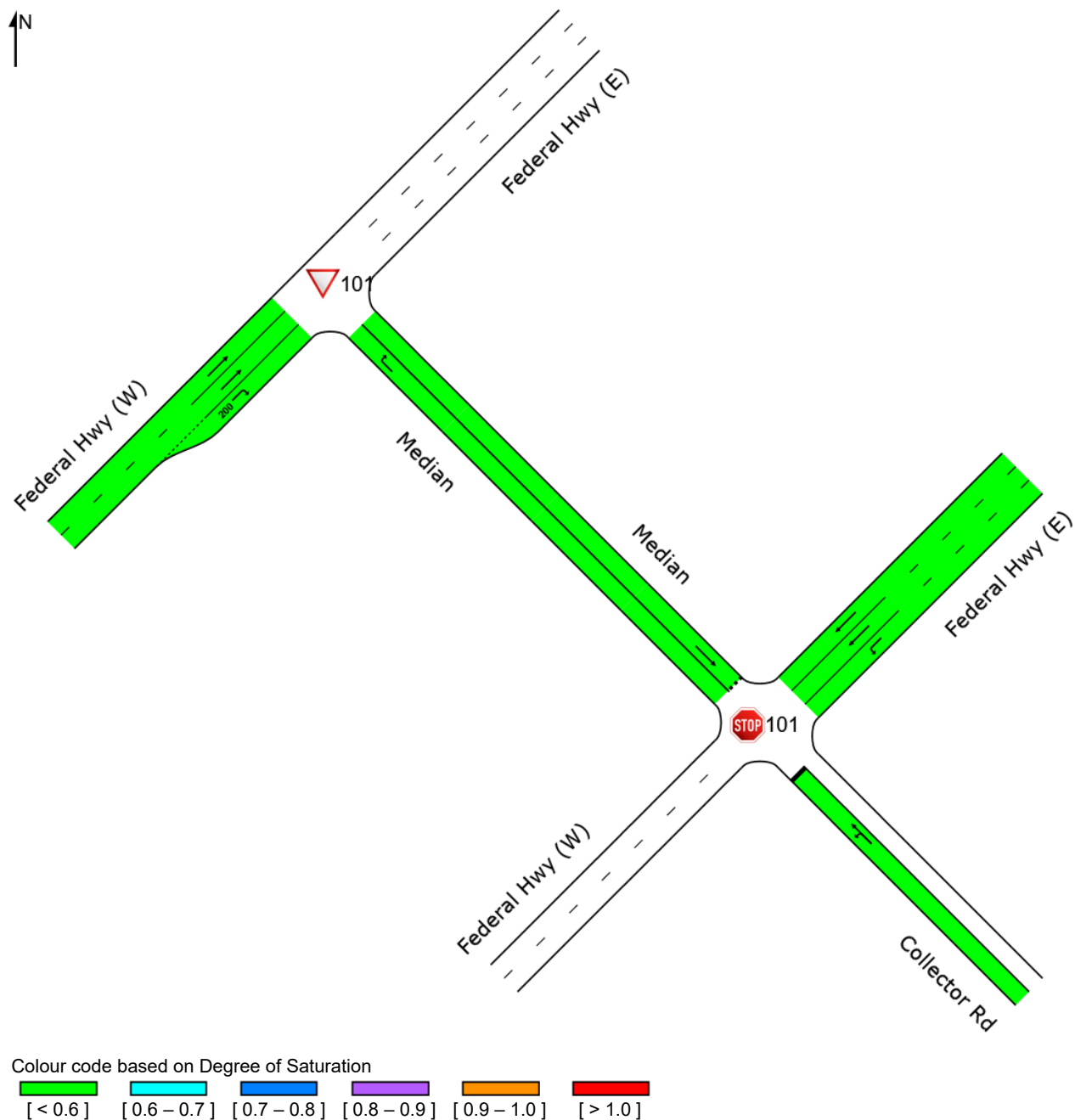
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per lane

■ ■ Network: N101 [Federal Hwy & Collector Rd
Intersection_PM_Existing+10yr (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)



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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

LEVEL OF SERVICE

Lane Level of Service

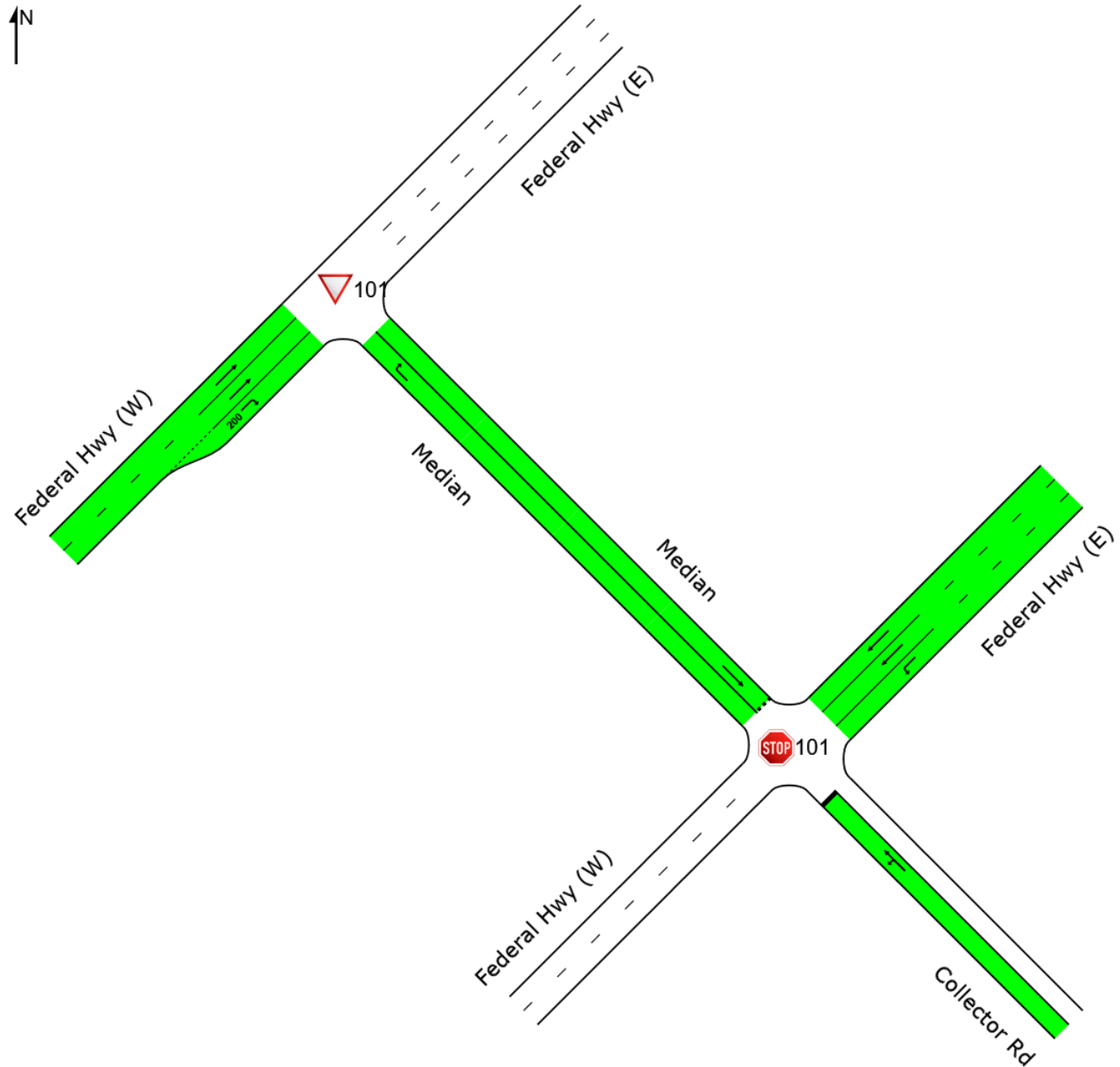
■ ■ Network: N101 [Federal Hwy & Collector Rd
Intersection_PM_Existing+10yr (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



Colour code based on Level of Service



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

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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

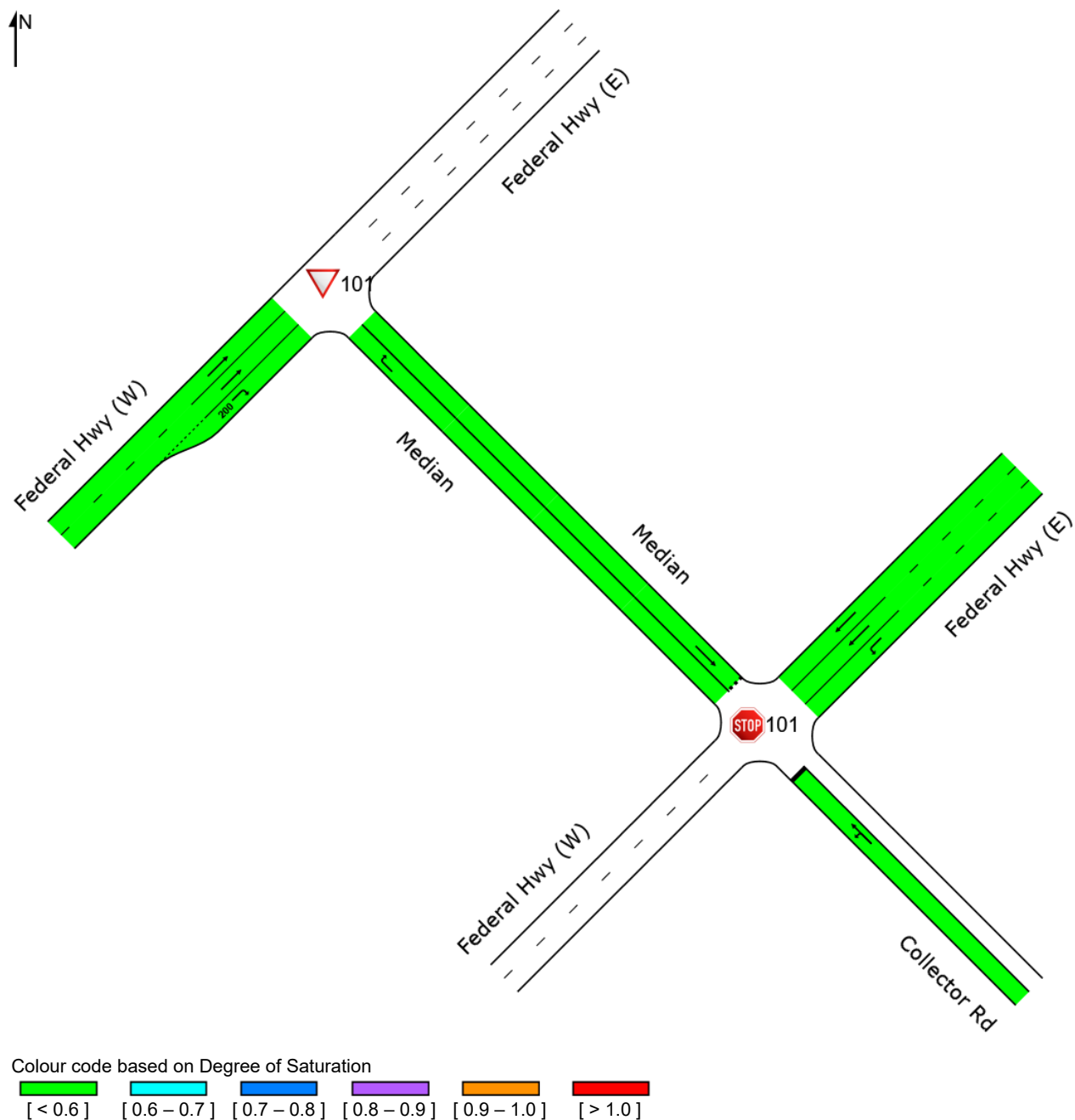
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per lane

■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing+10yr+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)



LEVEL OF SERVICE

Lane Level of Service

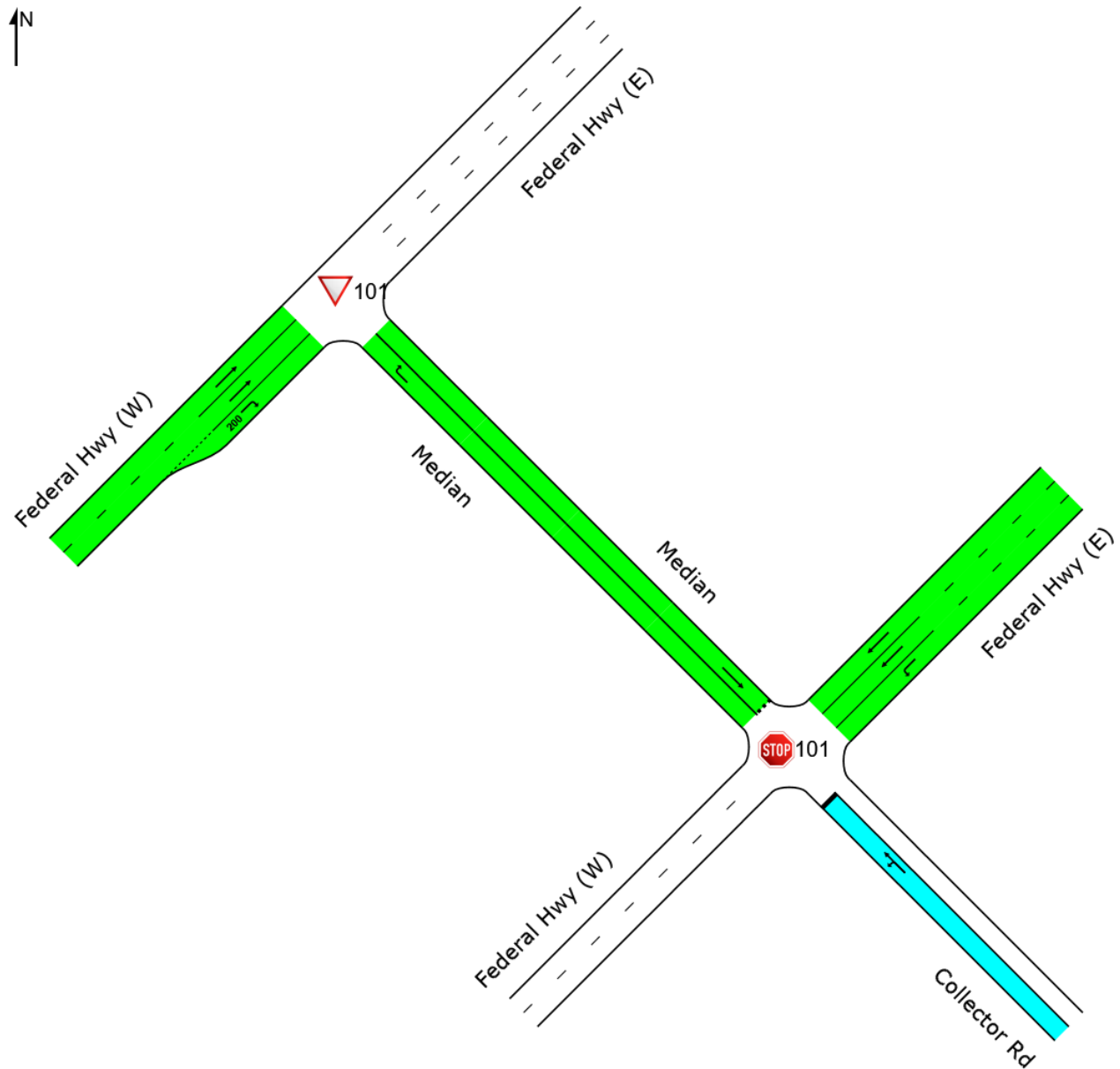
■ Network: N101 [Federal Hwy & Collector Rd
Intersection_AM_Existing+10yr+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

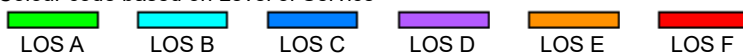
Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



Colour code based on Level of Service



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

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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

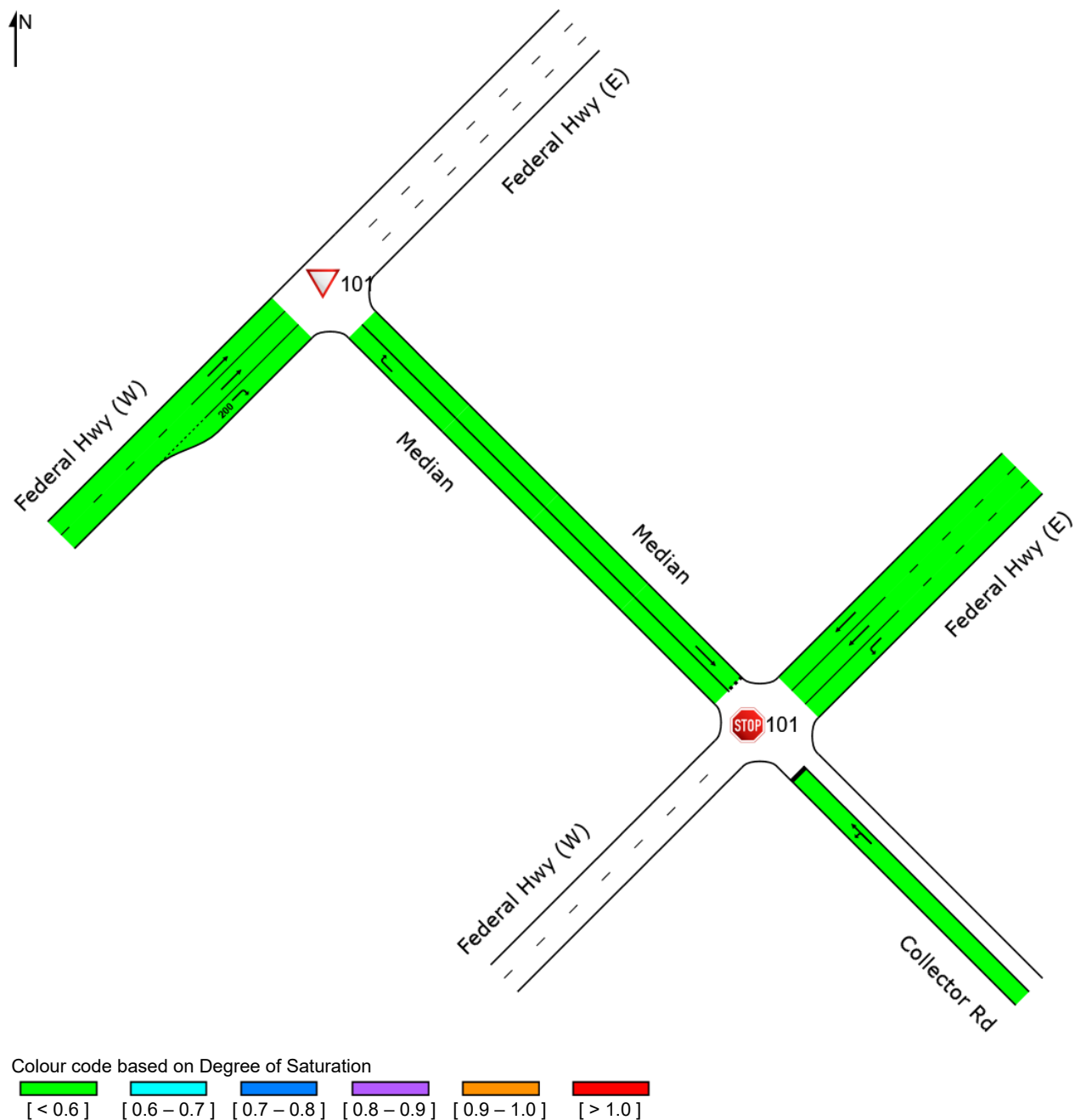
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per lane

■ Network: N101 [Federal Hwy & Collector Rd]
Intersection_PM_Existing+10yr+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection
Staged Crossing Type C-1
Network Category: (None)



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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

LEVEL OF SERVICE

Lane Level of Service

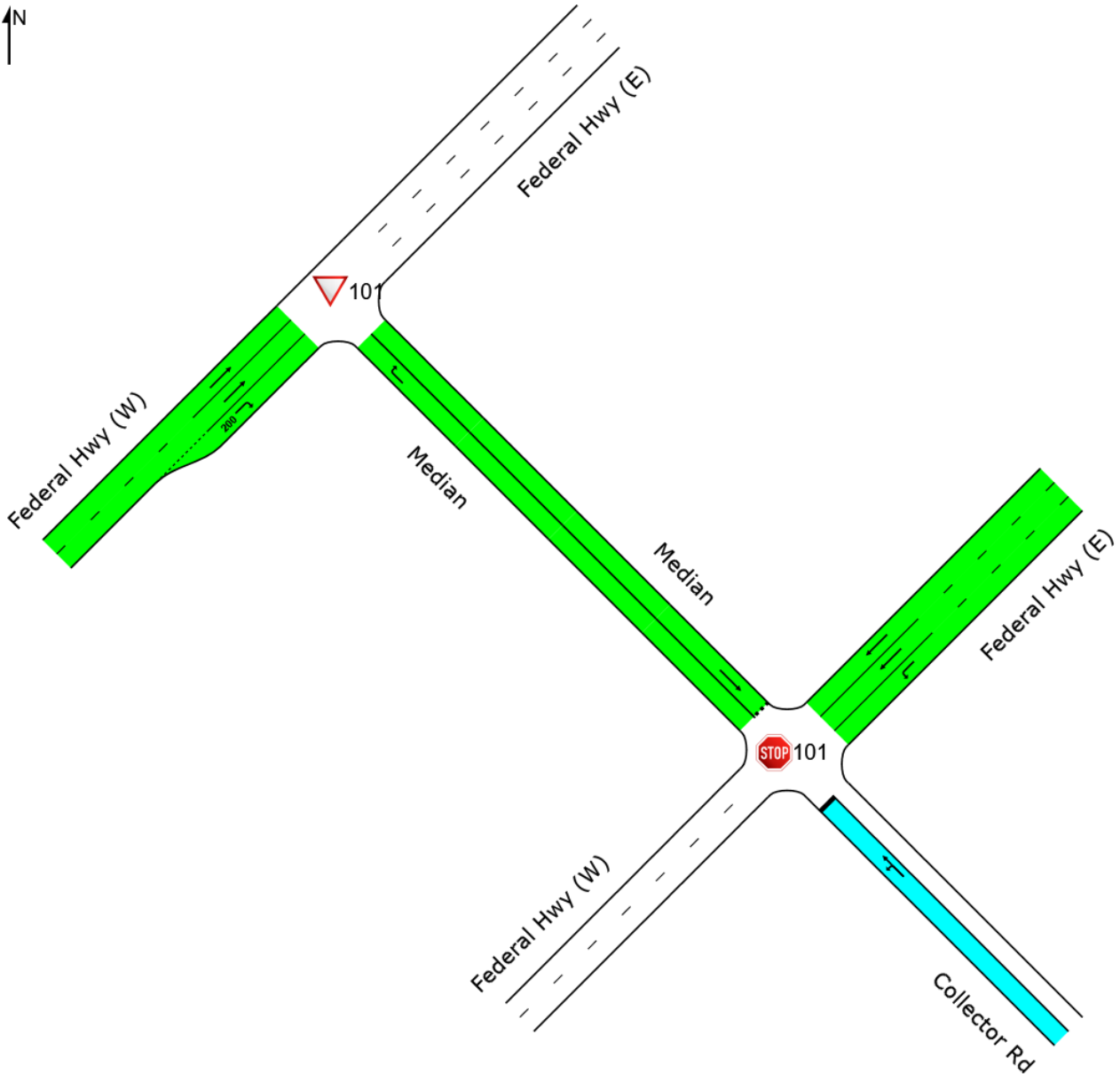
■ ■ Network: N101 [Federal Hwy & Collector Rd
Intersection_PM_Existing+10yr+Dev (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Federal Hwy & Collector Rd Intersection

Staged Crossing Type C-1

Network Category: (None)



Colour code based on Level of Service



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

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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

MOVEMENT SUMMARY

▼ Site: 101 [Federal Hwy & Collector Rd_S2_AM_Existing (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ ■ Network: N101 [Federal Hwy & Collector Rd Intersection_AM_Existing (Network Folder: General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]				
			veh/h	%	veh/h	%	v/c	sec			m				km/h
SouthEast: Median															
3	R2	All MCs	4	25.0	4	25.0	0.003	3.0	LOS A	0.0	0.0	0.00	0.56	0.00	48.4
Approach			4	25.0	4	25.0	0.003	3.0	NA	0.0	0.0	0.00	0.56	0.00	48.4
SouthWest: Federal Hwy (W)															
11	T1	All MCs	319	20.5	319	20.5	0.093	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	All MCs	5	0.0	5	0.0	0.003	5.7	LOS A	0.0	0.0	0.03	0.62	0.03	50.4
Approach			324	20.1	324	20.1	0.093	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			328	20.2	328	20.2	0.093	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Federal Hwy & Collector Rd_S1_AM_Existing (Site Folder: General)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [Federal Hwy & Collector Rd Intersection_AM_Existing (Network Folder: General)]**

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%								
			veh/h		veh/h		v/c	sec		[Veh. veh	Dist] m			km/h
SouthEast: Collector Rd														
1	L2	All MCs	14	0.0	14	0.0	0.024	9.4	LOS A	0.0	0.3	0.47	0.85	49.8
2	T1	All MCs	4	25.0	4	25.0	0.024	16.5	LOS B	0.0	0.3	0.47	0.85	45.6
Approach			18	5.9	18	5.9	0.024	11.0	LOS A	0.0	0.3	0.47	0.85	49.2
NorthEast: Federal Hwy (E)														
4	L2	All MCs	3	0.0	3	0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	52.9
5	T1	All MCs	605	14.3	605	14.3	0.170	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach			608	14.2	608	14.2	0.170	0.1	NA	0.0	0.0	0.00	0.00	59.9
NorthWest: Median														
8	T1	All MCs	5	0.0	5	0.0	0.008	6.2	LOS A	0.0	0.1	0.58	0.61	47.8
Approach			5	0.0	5	0.0	0.008	6.2	LOS A	0.0	0.1	0.58	0.61	47.8
All Vehicles			632	13.8	632	13.8	0.170	0.4	NA	0.0	0.3	0.02	0.03	59.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

MOVEMENT SUMMARY

▼ Site: 101 [Federal Hwy & Collector Rd_S2_PM_Existing (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ ■ Network: N101 [Federal Hwy & Collector Rd Intersection_PM_Existing (Network Folder: General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
veh/h % veh/h % v/c sec [Veh. veh Dist] m															
SouthEast: Median															
3	R2	All MCs	2	0.0	2	0.0	0.001	3.1	LOS A	0.0	0.0	0.00	0.58	0.00	50.3
Approach			2	0.0	2	0.0	0.001	3.1	NA	0.0	0.0	0.00	0.58	0.00	50.3
SouthWest: Federal Hwy (W)															
11	T1	All MCs	565	7.6	565	7.6	0.152	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	All MCs	5	20.0	5	20.0	0.003	6.0	LOS A	0.0	0.0	0.02	0.62	0.02	50.5
Approach			571	7.7	571	7.7	0.152	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			573	7.7	573	7.7	0.152	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Federal Hwy & Collector Rd_S1_PM_Existing (Site Folder: General)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [Federal Hwy & Collector Rd Intersection_PM_Existing (Network Folder: General)]**

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]			
			veh/h	%	veh/h	%	v/c	sec			m			km/h
SouthEast: Collector Rd														
1	L2	All MCs	12	0.0	12	0.0	0.013	8.9	LOS A	0.0	0.1	0.37	0.83	50.7
2	T1	All MCs	2	0.0	2	0.0	0.013	11.1	LOS A	0.0	0.1	0.37	0.83	47.0
Approach			14	0.0	14	0.0	0.013	9.3	LOS A	0.0	0.1	0.37	0.83	50.4
NorthEast: Federal Hwy (E)														
4	L2	All MCs	4	0.0	4	0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	52.9
5	T1	All MCs	463	10.9	463	10.9	0.127	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach			467	10.8	467	10.8	0.127	0.1	NA	0.0	0.0	0.00	0.01	59.9
NorthWest: Median														
8	T1	All MCs	5	20.0	5	20.0	0.008	5.7	LOS A	0.0	0.1	0.53	0.57	47.3
Approach			5	20.0	5	20.0	0.008	5.7	LOS A	0.0	0.1	0.53	0.57	47.3
All Vehicles			486	10.6	486	10.6	0.127	0.4	NA	0.0	0.1	0.02	0.03	59.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

MOVEMENT SUMMARY

▼ Site: 101 [Federal Hwy & Collector Rd_S2_AM_Existing+Dev
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ ■ Network: N101 [Federal Hwy
& Collector Rd
Intersection_AM_Existing+Dev
(Network Folder: General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	[Total HV]											
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist]			km/h	
SouthEast: Median															
3	R2	All MCs	17 68.8		17 68.8		0.014	3.0	LOS A	0.0	0.0	0.00	0.54	0.00	45.4
Approach			17 68.8		17 68.8		0.014	3.0	NA	0.0	0.0	0.00	0.54	0.00	45.4
SouthWest: Federal Hwy (W)															
11	T1	All MCs	319 20.5		319 20.5		0.093	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	All MCs	18 58.8		18 58.8		0.013	6.6	LOS A	0.0	0.3	0.10	0.59	0.10	50.1
Approach			337 22.5		337 22.5		0.093	0.4	NA	0.0	0.3	0.01	0.03	0.01	59.6
All Vehicles			354 24.7		354 24.7		0.093	0.5	NA	0.0	0.3	0.00	0.06	0.00	59.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Federal Hwy & Collector Rd_S1_AM_Existing+Dev**
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [Federal Hwy**
& Collector Rd
Intersection_AM_Existing+Dev
(Network Folder: General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]										
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m			km/h
SouthEast: Collector Rd														
1	L2	All MCs	26	40.0	26	40.0	0.096	12.0	LOS A	0.1	1.4	0.59	0.96	46.3
2	T1	All MCs	17	68.8	17	68.8	0.096	23.8	LOS B	0.1	1.4	0.59	0.96	42.1
Approach			43	51.2	43	51.2	0.096	16.6	LOS B	0.1	1.4	0.59	0.96	45.2
NorthEast: Federal Hwy (E)														
4	L2	All MCs	16	66.7	16	66.7	0.013	6.3	LOS A	0.0	0.0	0.00	0.57	50.2
5	T1	All MCs	605	14.3	605	14.3	0.170	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach			621	15.6	621	15.6	0.170	0.2	NA	0.0	0.0	0.00	0.01	59.6
NorthWest: Median														
8	T1	All MCs	18	58.8	18	58.8	0.051	11.1	LOS A	0.1	0.8	0.66	0.78	40.3
Approach			18	58.8	18	58.8	0.051	11.1	LOS A	0.1	0.8	0.66	0.78	40.3
All Vehicles			682	19.0	682	19.0	0.170	1.5	NA	0.1	1.4	0.05	0.09	58.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 101 [Federal Hwy & Collector Rd_S2_PM_Existing+Dev
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ ■ Network: N101 [Federal Hwy
& Collector Rd
Intersection_PM_Existing+Dev
(Network Folder: General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
SouthEast: Median														
3	R2	All MCs	15 71.4		15 71.4		0.012	3.0	LOS A	0.0	0.0	0.00	0.54	45.2
Approach			15 71.4		15 71.4		0.012	3.0	NA	0.0	0.0	0.00	0.54	45.2
SouthWest: Federal Hwy (W)														
11	T1	All MCs	565 7.6		565 7.6		0.152	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
12	R2	All MCs	18 64.7		18 64.7		0.013	6.6	LOS A	0.0	0.3	0.09	0.59	50.1
Approach			583 9.4		583 9.4		0.152	0.2	NA	0.0	0.3	0.00	0.02	59.7
All Vehicles			598 10.9		598 10.9		0.152	0.3	NA	0.0	0.3	0.00	0.03	59.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Federal Hwy & Collector Rd_S1_PM_Existing+Dev**
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [Federal Hwy**
& Collector Rd
Intersection_PM_Existing+Dev
(Network Folder: General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh]	Prop. Que Dist] m	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Collector Rd														
1	L2	All MCs	24	43.5	24	43.5	0.068	11.4	LOS A	0.1	1.1	0.50	0.92	47.5
2	T1	All MCs	15	71.4	15	71.4	0.068	19.1	LOS B	0.1	1.1	0.50	0.92	44.3
Approach			39	54.1	39	54.1	0.068	14.3	LOS A	0.1	1.1	0.50	0.92	46.7
NorthEast: Federal Hwy (E)														
4	L2	All MCs	17	62.5	17	62.5	0.013	6.3	LOS A	0.0	0.0	0.00	0.57	50.4
5	T1	All MCs	463	10.9	463	10.9	0.127	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach			480	12.7	480	12.7	0.127	0.3	NA	0.0	0.0	0.00	0.02	59.5
NorthWest: Median														
8	T1	All MCs	18	64.7	18	64.7	0.039	8.1	LOS A	0.1	0.6	0.59	0.69	42.6
Approach			18	64.7	18	64.7	0.039	8.1	LOS A	0.1	0.6	0.59	0.69	42.6
All Vehicles			537	17.5	537	17.5	0.127	1.5	NA	0.1	1.1	0.06	0.11	58.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

MOVEMENT SUMMARY

▼ Site: 101 [Federal Hwy & Collector Rd_S2_AM_Existing+10yr
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ ■ Network: N101 [Federal Hwy
& Collector Rd
Intersection_AM_Existing+10yr
(Network Folder: General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Veh. veh	Dist]									
			veh/h	%	veh/h	%	v/c	sec			m				km/h
SouthEast: Median															
3	R2	All MCs	4 25.0		4 25.0		0.003	3.0	LOS A	0.0	0.0	0.00	0.56	0.00	48.4
Approach			4 25.0		4 25.0		0.003	3.0	NA	0.0	0.0	0.00	0.56	0.00	48.4
SouthWest: Federal Hwy (W)															
11	T1	All MCs	357 20.4		357 20.4		0.104	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	All MCs	6 0.0		6 0.0		0.004	5.7	LOS A	0.0	0.0	0.03	0.62	0.03	50.4
Approach			363 20.0		363 20.0		0.104	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			367 20.1		367 20.1		0.104	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Federal Hwy & Collector Rd_S1_AM_Existing+10yr**
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [Federal Hwy**
& Collector Rd
Intersection_AM_Existing+10yr
(Network Folder: General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]			
			veh/h	%	veh/h	%	v/c	sec			m			km/h
SouthEast: Collector Rd														
1	L2	All MCs	16	0.0	16	0.0	0.028	9.6	LOS A	0.0	0.3	0.50	0.86	49.6
2	T1	All MCs	4	25.0	4	25.0	0.028	18.3	LOS B	0.0	0.3	0.50	0.86	45.2
Approach			20	5.3	20	5.3	0.028	11.4	LOS A	0.0	0.3	0.50	0.86	49.0
NorthEast: Federal Hwy (E)														
4	L2	All MCs	3	0.0	3	0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	52.9
5	T1	All MCs	678	14.3	678	14.3	0.190	0.1	LOS A	0.0	0.0	0.00	0.00	59.9
Approach			681	14.2	681	14.2	0.190	0.1	NA	0.0	0.0	0.00	0.00	59.9
NorthWest: Median														
8	T1	All MCs	6	0.0	6	0.0	0.011	7.0	LOS A	0.0	0.1	0.60	0.65	46.9
Approach			6	0.0	6	0.0	0.011	7.0	LOS A	0.0	0.1	0.60	0.65	46.9
All Vehicles			707	13.8	707	13.8	0.190	0.5	NA	0.0	0.3	0.02	0.03	59.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

MOVEMENT SUMMARY

▼ Site: 101 [Federal Hwy & Collector Rd_S2_PM_Existing+10yr
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ ■ Network: N101 [Federal Hwy
& Collector Rd
Intersection_PM_Existing+10yr
(Network Folder: General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]				
			veh/h	%	veh/h	%	v/c	sec			m				km/h
SouthEast: Median															
3	R2	All MCs	2	0.0	2	0.0	0.001	3.1	LOS A	0.0	0.0	0.00	0.58	0.00	50.3
Approach			2	0.0	2	0.0	0.001	3.1	NA	0.0	0.0	0.00	0.58	0.00	50.3
SouthWest: Federal Hwy (W)															
11	T1	All MCs	634	7.6	634	7.6	0.171	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	All MCs	5	20.0	5	20.0	0.003	6.0	LOS A	0.0	0.0	0.02	0.62	0.02	50.5
Approach			639	7.7	639	7.7	0.171	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			641	7.7	641	7.7	0.171	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Federal Hwy & Collector Rd_S1_PM_Existing+10yr**
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [Federal Hwy**
& Collector Rd
Intersection_PM_Existing+10yr
(Network Folder: General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]			
			veh/h	%	veh/h	%	v/c	sec			m			km/h
SouthEast: Collector Rd														
1	L2	All MCs	13	0.0	13	0.0	0.015	9.1	LOS A	0.0	0.2	0.39	0.84	50.6
2	T1	All MCs	2	0.0	2	0.0	0.015	11.7	LOS A	0.0	0.2	0.39	0.84	46.9
Approach			15	0.0	15	0.0	0.015	9.5	LOS A	0.0	0.2	0.39	0.84	50.3
NorthEast: Federal Hwy (E)														
4	L2	All MCs	4	0.0	4	0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	52.9
5	T1	All MCs	519	11.0	519	11.0	0.143	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach			523	10.9	523	10.9	0.143	0.1	NA	0.0	0.0	0.00	0.00	59.9
NorthWest: Median														
8	T1	All MCs	5	20.0	5	20.0	0.009	6.3	LOS A	0.0	0.1	0.56	0.60	46.6
Approach			5	20.0	5	20.0	0.009	6.3	LOS A	0.0	0.1	0.56	0.60	46.6
All Vehicles			543	10.7	543	10.7	0.143	0.4	NA	0.0	0.2	0.02	0.03	59.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\OneMetis Dropbox\1030 Metis\MC25\MC2509 SIDRA for Federal Hwy & Collector Rd\MC2509_FederalHwy_CollectorRd_v1.sip9

MOVEMENT SUMMARY

▼ Site: 101 [Federal Hwy & Collector Rd_S2_AM_Existing+10yr
+Dev (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ Network: N101 [Federal Hwy
& Collector Rd
Intersection_AM_Existing+10yr
+Dev (Network Folder:
General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h	
SouthEast: Median															
3	R2	All MCs	17 68.8		17 68.8		0.014	3.0	LOS A	0.0	0.0	0.00	0.54	0.00	45.4
Approach			17 68.8		17 68.8		0.014	3.0	NA	0.0	0.0	0.00	0.54	0.00	45.4
SouthWest: Federal Hwy (W)															
11	T1	All MCs	357 20.4		357 20.4		0.104	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	All MCs	19 55.6		19 55.6		0.014	6.5	LOS A	0.0	0.3	0.10	0.59	0.10	50.1
Approach			376 22.1		376 22.1		0.104	0.4	NA	0.0	0.3	0.00	0.03	0.00	59.6
All Vehicles			393 24.1		393 24.1		0.104	0.5	NA	0.0	0.3	0.00	0.05	0.00	59.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Federal Hwy & Collector Rd_S1_AM_Existing+10yr**
+Dev (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [Federal Hwy**
& Collector Rd
Intersection_AM_Existing+10yr
+Dev (Network Folder:
General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	Aver. Back Of Queue [Veh. veh	Prop. Que Dist] m	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h	
SouthEast: Collector Rd															
1	L2	All MCs	28	37.0	28	37.0	0.112	12.2	LOS A	0.2	1.6	0.63	0.97	0.63	45.7
2	T1	All MCs	17	68.8	17	68.8	0.112	27.1	LOS B	0.2	1.6	0.63	0.97	0.63	41.0
Approach			45	48.8	45	48.8	0.112	17.7	LOS B	0.2	1.6	0.63	0.97	0.63	44.6
NorthEast: Federal Hwy (E)															
4	L2	All MCs	16	66.7	16	66.7	0.013	6.3	LOS A	0.0	0.0	0.00	0.57	0.00	50.2
5	T1	All MCs	678	14.3	678	14.3	0.190	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			694	15.5	694	15.5	0.190	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.6
NorthWest: Median															
8	T1	All MCs	19	55.6	19	55.6	0.061	12.9	LOS A	0.1	0.9	0.70	0.84	0.70	39.0
Approach			19	55.6	19	55.6	0.061	12.9	LOS A	0.1	0.9	0.70	0.84	0.70	39.0
All Vehicles			758	18.5	758	18.5	0.190	1.6	NA	0.2	1.6	0.05	0.09	0.05	58.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 101 [Federal Hwy & Collector Rd_S2_PM_Existing+10yr
+Dev (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ Network: N101 [Federal Hwy
& Collector Rd
Intersection_PM_Existing+10yr
+Dev (Network Folder:
General)]

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]								
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m			km/h
SouthEast: Median														
3	R2	All MCs	15 71.4		15 71.4		0.012	3.0	LOS A	0.0	0.0	0.00	0.54	45.2
Approach			15 71.4		15 71.4		0.012	3.0	NA	0.0	0.0	0.00	0.54	45.2
SouthWest: Federal Hwy (W)														
11	T1	All MCs	634 7.6		634 7.6		0.171	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
12	R2	All MCs	18 64.7		18 64.7		0.013	6.6	LOS A	0.0	0.3	0.09	0.59	50.1
Approach			652 9.2		652 9.2		0.171	0.2	NA	0.0	0.3	0.00	0.02	59.7
All Vehicles			666 10.6		666 10.6		0.171	0.3	NA	0.0	0.3	0.00	0.03	59.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Federal Hwy & Collector Rd_S1_PM_Existing+10yr
+Dev (Site Folder: General)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [Federal Hwy
& Collector Rd
Intersection_PM_Existing+10yr
+Dev (Network Folder:
General)]**

Federal Hwy & Collector Rd Intersection
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]										
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m			km/h
SouthEast: Collector Rd														
1	L2	All MCs	25 41.7		25 41.7		0.075	11.6	LOS A	0.1	1.2	0.53	0.93	47.2
2	T1	All MCs	15 71.4		15 71.4		0.075	20.7	LOS B	0.1	1.2	0.53	0.93	43.7
Approach			40 52.6		40 52.6		0.075	15.0	LOS B	0.1	1.2	0.53	0.93	46.3
NorthEast: Federal Hwy (E)														
4	L2	All MCs	17 62.5		17 62.5		0.013	6.3	LOS A	0.0	0.0	0.00	0.57	50.4
5	T1	All MCs	519 11.0		519 11.0		0.143	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach			536 12.6		536 12.6		0.143	0.2	NA	0.0	0.0	0.00	0.02	59.6
NorthWest: Median														
8	T1	All MCs	18 64.7		18 64.7		0.043	9.3	LOS A	0.1	0.7	0.61	0.72	41.6
Approach			18 64.7		18 64.7		0.043	9.3	LOS A	0.1	0.7	0.61	0.72	41.6
All Vehicles			594 16.8		594 16.8		0.143	1.5	NA	0.1	1.2	0.05	0.10	58.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

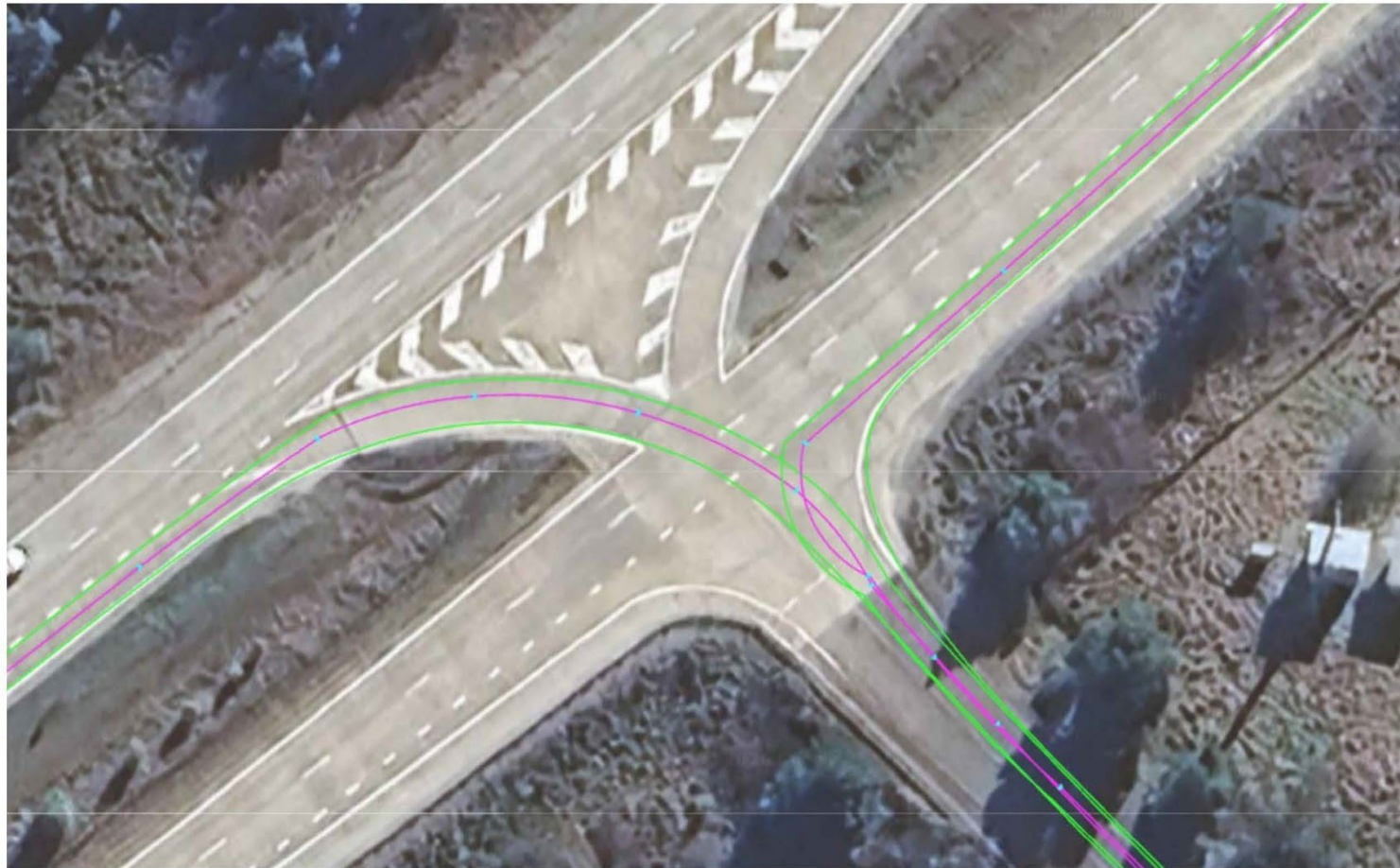
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akcelik M3D).

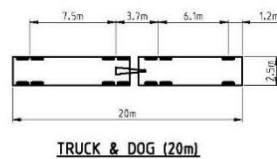
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix C SWEEP PATH



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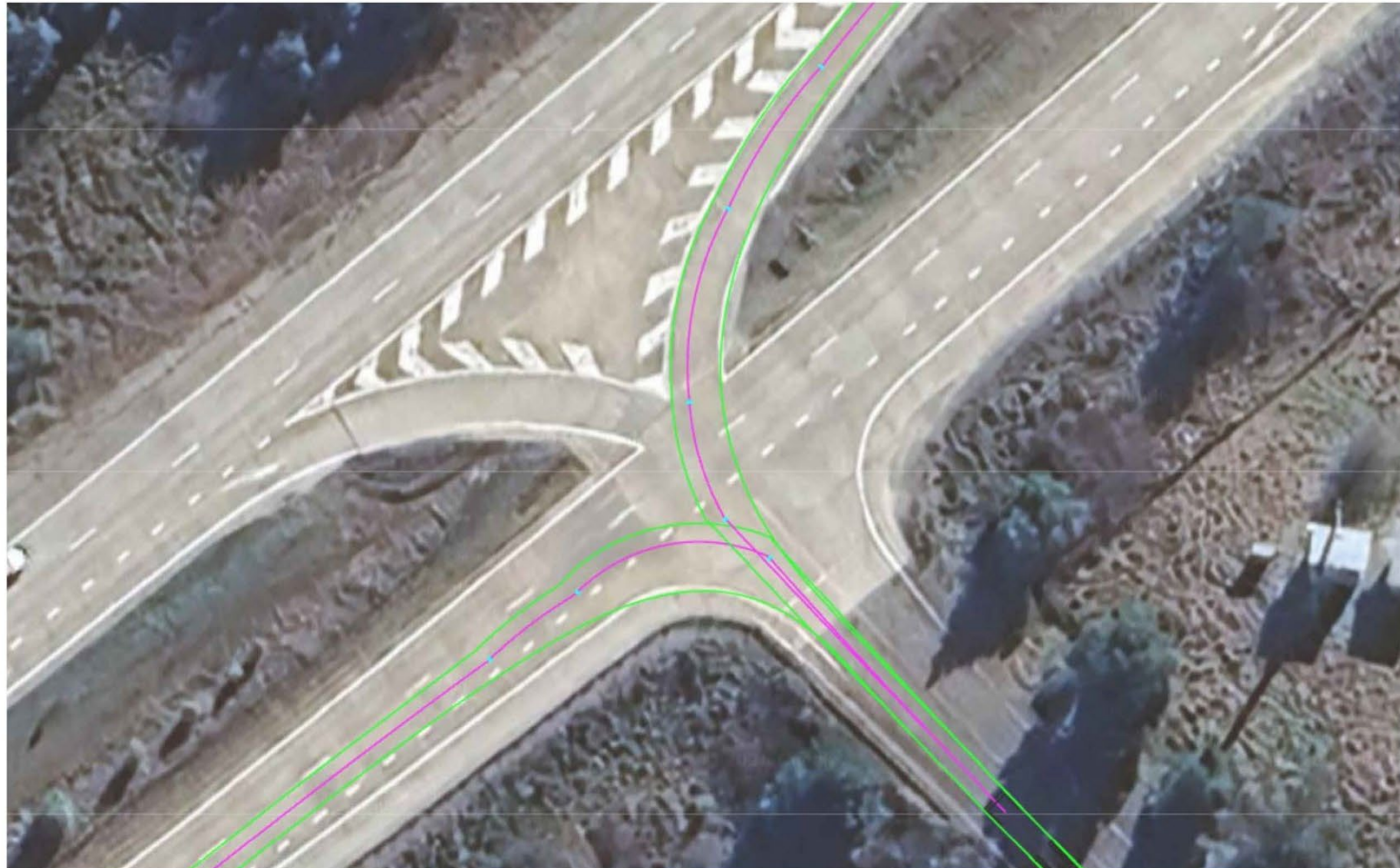
DESIGNED:	D.P.
DRAWN:	B.S.
APPROVED:	D.P.

PAVEY CONSULTING SERVICES

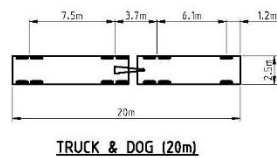
SITE:
**BARINA QUARRY, COLLECTOR ROAD, COLLECTOR
VEHICLE MANAGEMENT - TRUCK & DOG - TURN IN**

SCALE:	1:200	SHEET:	A1	PROJECT:	SK2025-052-001	DATE:	20-05-25
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Ref: SK2025-052



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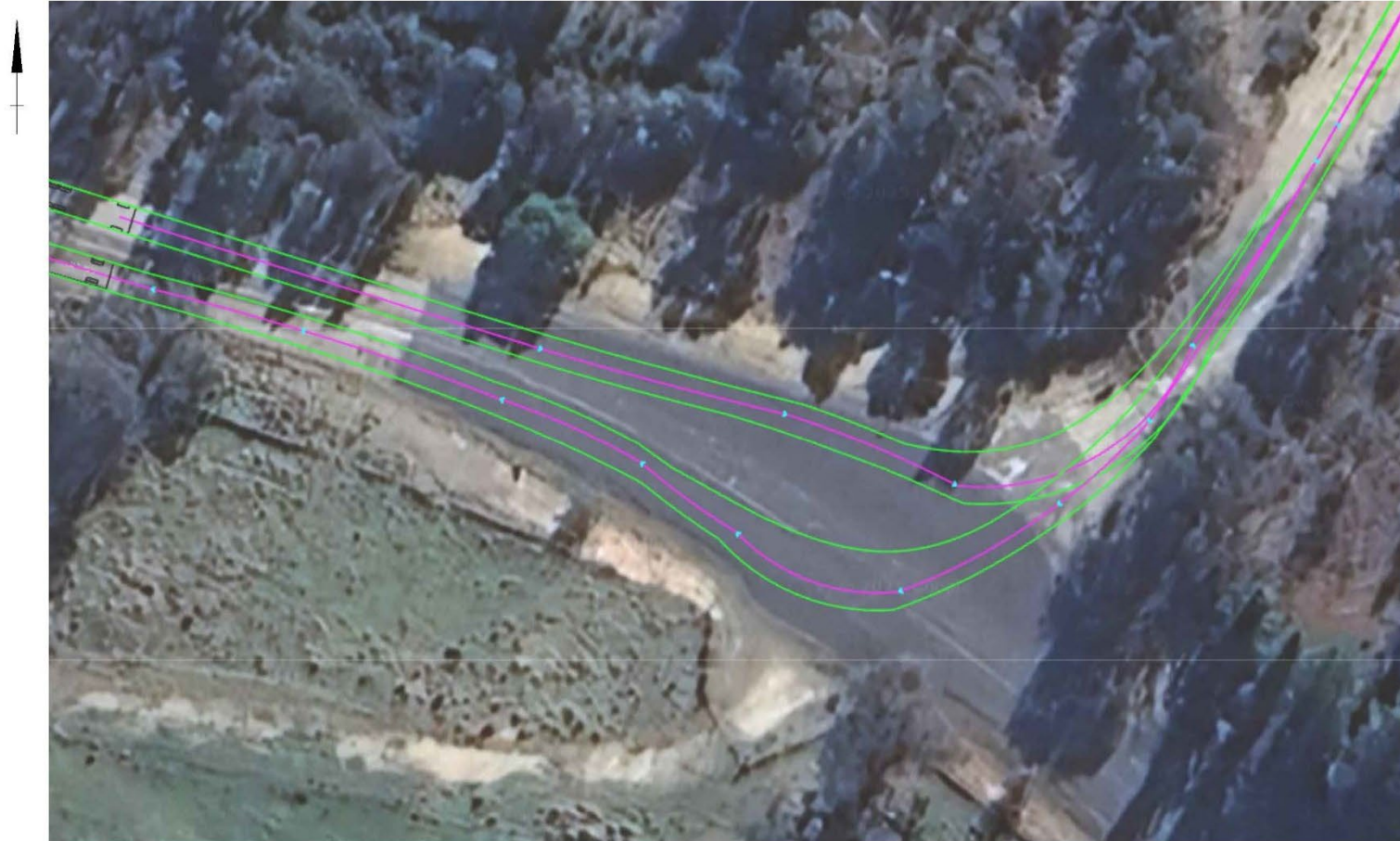
DESIGNED:	D.P.
DRAWN:	B.S.
APPROVED:	D.P.

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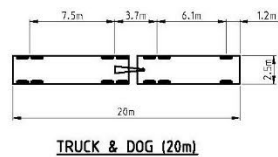
THE
BARINA QUARRY, COLLECTOR ROAD, COLLECTOR
VEHICLE MANAGEMENT - TRUCK & DOG - TURN OUT

SCALE	SIZE	SKETCH No	REVISION	DATE
1:200	A1	SK2025-052-002	0	20-05-25

No. SK2025-052



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DESIGNED: D.P.
DRAWN: B.S.
APPROVED: D.P.

PAVEY CONSULTING SERVICES

TITLE
**BARINA QUARRY, COLLECTOR ROAD, COLLECTOR
VEHICLE MANAGEMENT - TRUCK & DOG - QUARRY ROAD**

SCALE: 1:200 SITE SKETCH NO. SK2025-052-003 REVISION: 0 DATE: 20-05-25

IN: SK2025-052

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Appendix 4 Traffic Management Plan

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COLLECTOR RESOURCES PTY LIMITED

ABN: 11 619 710 155

Traffic Management Plan

Barina Quarry



September 2025



Declaration

Name of Development	Barina Quarry
Name of Applicant	Collector Resources Pty Limited
Development consent	DA 1-01-2000
Environment Protection Licence	5554
Address	2692 Collector Road COLLECTOR NSW 2581
Property Description	Lot 3 DP1177623, Lot 33 DP750008 and Lot A DP86342
Description of the Development	Excavation and processing of quartzite. Importation and placement of VENM, ENM and other materials with resource recovery exemptions as geotechnical fill. Progressive rehabilitation of disturbance.
Landowner	Northam Park Pastoral Company Pty Ltd
<i>I, Alex Irwin, certify that I have prepared this Traffic Impact Assessment is based on information obtained through site inspection, supplied by the Applicant or obtained from other consultants. To the best of my knowledge this assessment:</i> <i>a. contains all information relevant to the management of traffic for the development, and</i> <i>b. does not include any information which is either false or misleading.</i>	
Signed:	
Date:	30 September 2025



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Document Control

Document Title	Traffic Management Plan			
Document No.	J001-R015			
Version	Issued Date	Issued to		
Version 1	8/10/2025	1. Collector Resources Pty Limited 2. Transport for NSW		
Version 2				
Version 3				
Final	Approved by:	Alex Irwin	Date:	30 Sep 2025



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1. SCOPE

This Traffic Management Plan (AQMP) for the Barina Quarry (the Quarry) has been prepared by Irwin Environmental Management Pty Ltd (IEM) on behalf of Collector Resources Pty Ltd (Collector Resources) in satisfaction of *Condition 4.2 (d)(ix)* and *Condition 8* of Development Consent DA 1-01-2000 (DA 1-01-2000).

The TMP replaces the original Traffic Management Plan which was last revised in January 2005 (*Traffic Management Plan, Plan 6.7.1*). The TMP follows completion of an Independent Environmental Audit (IEA) (February 2025), which identified which identified non-compliances associated with the original TMP (Hart Consulting, 2025). The TMP has also been prepared to reflect contemporary management plan requirements for State Significant Development, with a modification to DA 1-01-2000 which will provide for the continuation of quarry operations for at least another 10 years pending.

The Quarry is located over portions of Lot 3 DP1177623, Lot 33 DP750008 and Lot A DP86342 on Collector Road, approximately 1.5 km southeast of Collector NSW (**Figure 1.1**). DA 1-01-2000 (MOD 2) approves production of up to 300,000 tonnes per annum (tpa) of quartzite resource at an average of 25,000 t per month, with maximum monthly production of 40,000 t forecast subject to satisfactory completion of road upgrades. **Figure 1.2** identifies the proposed layout of the Barina Quarry.

The TMP has been prepared with reference to the original traffic assessment conducted for the EIS (1999) (R.W Corkery & Co Pty Ltd, 1999), a Traffic Impact Assessment conducted by Pavey Consulting (Pavey, 2025) to support to a further modification (MOD 3) to DA 1-01-2000, and the proposed modification to Quarry operations described in a Modification Report supporting an application to modify DA 1-01-2000 (IEM, 2025).

Key modifications to Quarry operations (of MOD 3) with relevance to traffic management include:

- Increase in the number of laden truck movements generated by the Quarry from 67 to 134 per day (allowing for laden trucks to enter the Quarry Site with engineering fill and leave with quarry products) (refer to **Section 4.1.1**).
- Importation of clean fill materials for stockpile area construction.
- Construction of additional stockpile areas and internal roads.
- Installation of a washing circuit and relocation of processing operations to Pit 2.

Under MOD 3, a new Volunteer Planning Agreement (VPA) will be negotiated with Upper Lachlan Shire Council for the repair and maintenance of Collector Road. The VPA will also include temporary conditions to allow Collector Resources use of Collector Road in a reduced capacity for a period of time before road upgrades are completed. Once the VPA has been finalised, this TMP will be updated.

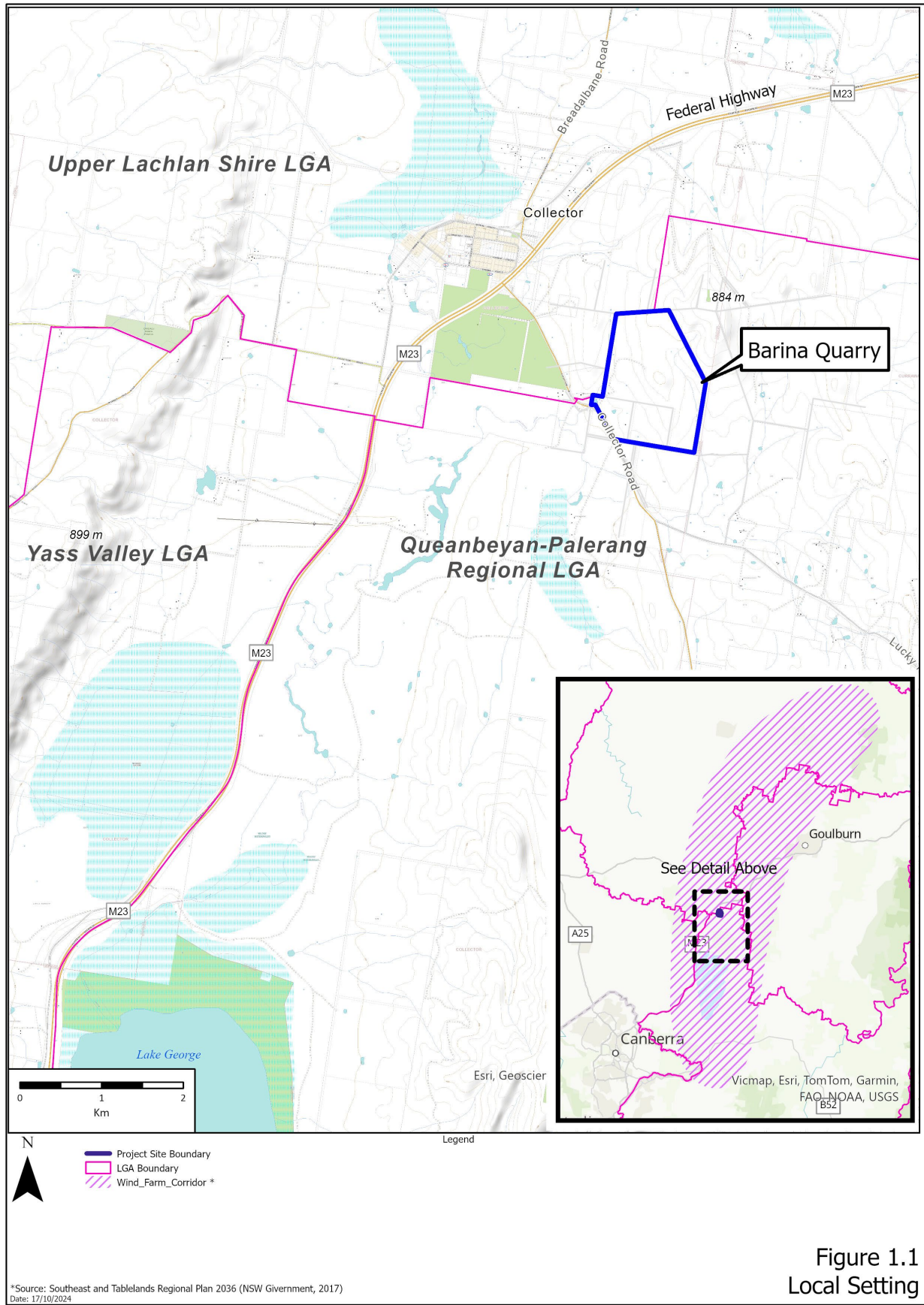


Figure 1.1
Local Setting



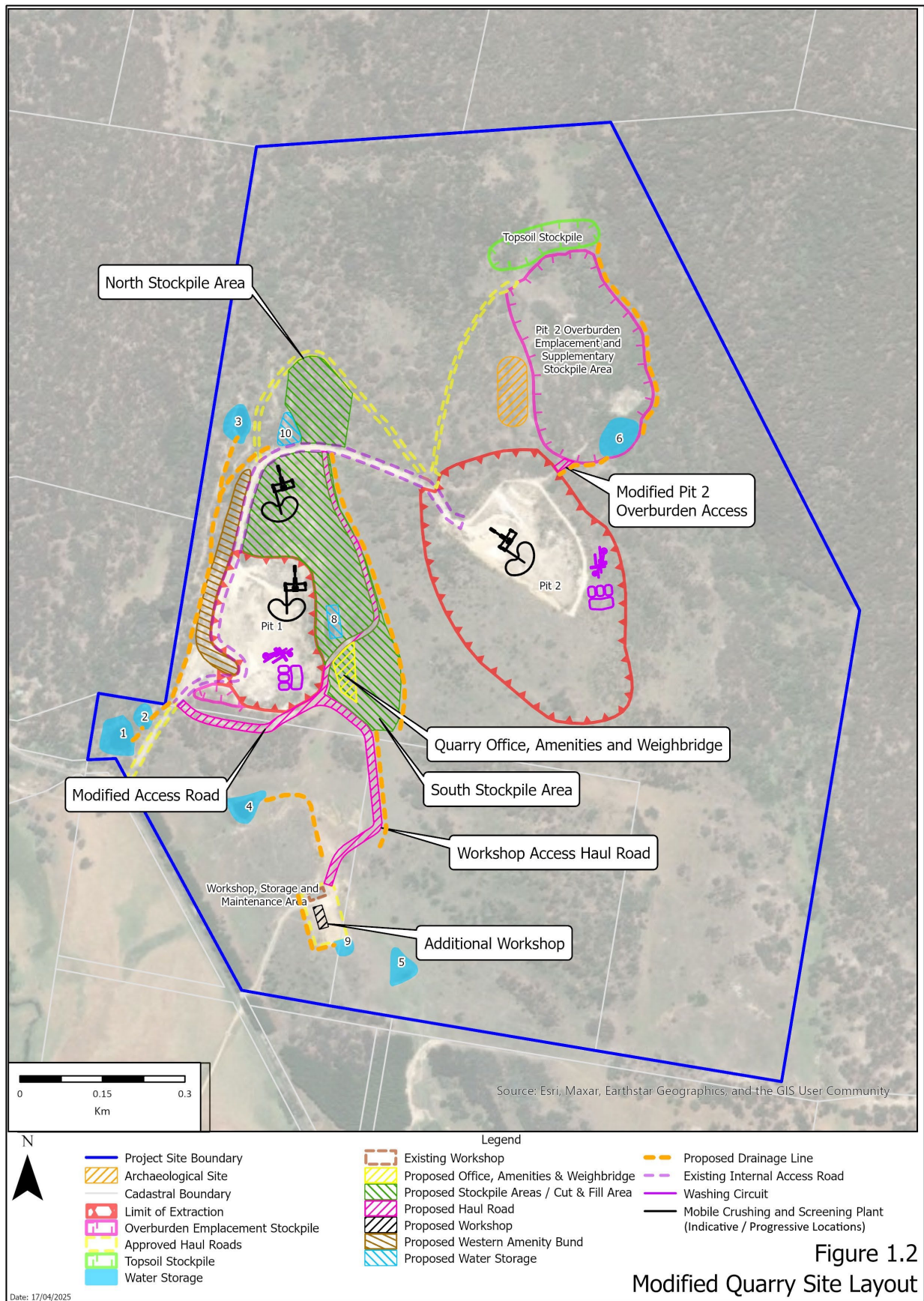


Figure 1.2
Modified Quarry Site Layout

2. REGULATORY REQUIREMENTS

Condition 4.2 (d)(ix), and Condition 8 of DA 1-01-2000 provide instructions as to the requirements of Collector Resources in relation to traffic management at the Quarry¹.

Table 2.1 identifies each of these conditional requirements relating to traffic management and identifies the section of this TMP where each is addressed.

Table 2.1 Traffic Related Requirements of DA 1-01-2000

No.	Condition	Section
4.2 Environmental Management Strategies and Plans		
4.2(d)	(ix) Traffic Management Plan (Condition 8.1)	This TMP
4.2(e)	The Plans are to include the development and operation of the proposed quarry haul road, proposed quarry and overburden emplacement. The plans shall also be required to detail the ongoing processing, product stockpiling and product dispatch from the existing quarry after extraction activities cease in that area. No activities associated with development of the proposed quarry are to commence until the Plans have been approved by the Planning Secretary.	Noted
8. Traffic Management		
8.1 Traffic Management Plan		
8.1(a)	The Applicant shall prepare a Traffic Management Plan to the satisfaction of the Planning Secretary prior to commencement of further operations in the existing quarry. The Plan shall document measures to be taken to meet the criteria, including a monitoring, reporting and response program; and methods for educating drivers in the reduction of road noise impacts. The plan shall:	This TMP
	(i) Ensure that truck movements do not exceed 134 movements per day (67 laden truck movements), and 20 movements per hour (10 laden truck movements) ² .	Section 4.1.1

¹ It is expected the conditions of DA 1-01-2000 will be updated following determination of MOD 3. The TMP will be reviewed and updated at this time.

² This TMP accounts for removal of the distinction between laden and unladen truck (in accordance with MOD 3)



No.	Condition	Section
	(ii) Include the preparation and implementation of a product truck driver protocol that ensures that company owned trucks and trucks under contract) comply with the following: - All loads leaving the site are covered. - All trucks leaving the site comply with legal weight limitations for classes of vehicles established by the TfNSW; - All trucks leaving the site turn right at Currawang Road. No left turn at Currawang Road³ will be permitted, except for local deliveries; - Trucks do not queue on Currawang Road; 60kph truck speed limit from the exit northwest to the Federal Highway.	Section 4 Appendix 1 (Driver Code of Conduct)
	(iii) Provide details of measures to improve the access to the site , including; - Realignment and reconstruction of Currawang Road and the entrance to the site access to ensure that the intersecting angle is as close to 90 degrees as possible, and a 100kph stopping distance on the through road is maintained, in accordance with the Roads and Traffic Authority Design Guide. - Construction of acceleration and deceleration lanes at the reconstructed and/or relocated intersection with the site access road; and, - Erection of “Truck Crossing” signs at the intersection of Currawang Road and the site access road. - Strengthening, widening and straightening of the site access road and Currawang Road to the satisfaction of Council.	Section 4.7
8.1(b)	The Applicant shall submit detailed plans of the above roadworks to Council for approval within 6 months from the date of the consent, the work to be completed within 12 months of the date of consent.	Section 4.7
8.1(c)	Road design standards employed in the reconstruction of the intersection of Currawang Road and the site access road must consider endemic fog frequency and fog severity conditions, with a view to reducing the threat of fog induced road accidents.	Section 4.2
8.1(d)	From the date of determination of Modification 2, the Applicant must not undertake road haulage of quarry products until the section of Collector Road from the quarry access to the Federal Highway is upgraded to the satisfaction of Council and ULSC.	Section 4.7.1
8.2 Non-Compliance		

³ Currawang Road is now identified on local maps as Collector Road.

No.	Condition	Section
8.2(a)	The Applicant shall undertake an investigation to identify any reported incidents of non-compliance with the product truck driver protocol and impose appropriate penalties on drivers and/or companies found not complying with the performance goals set in the truck driver protocol.	Section 6
8.3 Reporting		
8.3(a)	The Applicant shall submit a quarterly report to the Planning Secretary, Council, and the Community Consultative Committee detailing any incidences of truck driver non-compliances, results of investigations undertaken, and any measures taken to prevent further non-compliance, unless otherwise agreed by the Planning Secretary.	Section 7.2
8.3(b)	Results of investigations for subclauses (d) and (e) are to be reported in the AEMR.	Section 7.2

It is to be noted that any conditional traffic noise requirements are addressed separately in the Noise Management Plan (NMP).

3. OBJECTIVES AND OUTCOMES

Table 3.1 presents the objectives and key performance outcomes relating to traffic management for the TMP and the Quarry.

Table 3.1 Traffic Management Objectives and Key Performance Outcomes

Objectives	Key Performance Outcomes
To ensure compliance with the conditions of DA 1-01-2000	Compliance with all relevant criteria and reasonable community expectations, as determined in consultation with the relevant government agencies.
Detail the measures to be taken to minimise traffic impacts on the environment that may be caused by product haulage trucks and the actions of their drivers.	All measure incorporated into this TMP.
To undertake operations, including transport, which minimises noise and meets all reasonable community expectations.	All identified monitoring undertaken in accordance with the relevant procedures and at the relevant intervals.
To implement an appropriate complaint handling and response protocol.	Traffic related complaints are minimised (target zero complaints).
To implement appropriate corrective and preventative actions, if required.	Complaints (if any) handled and responded to in an appropriate manner.
To implement an appropriate incident reporting program, if required.	All complaints recorded and reported in accordance with annual reporting requirements.

4. TRAFFIC MANAGEMENT SYSTEM

4.1 TRUCK MOVEMENTS AND HOURS OF OPERATION

In accordance with *Condition 8.1(a)* of DA 1-01-2000, **Table 4.1** shows the restrictions to road transportation and haulage for the Quarry.

Table 4.1 Haulage Conditions for Barina Quarry

Days	Hours	Vehicle Movements	Additional Conditions
Monday to Friday	7:00 am to 6:00 pm	- Truck movements do not exceed 134 movements per day. - Truck movements do not exceed 20 movements per hour.	- All trucks leaving the Quarry must turn right at Collector Road. - no left turn at Collector Road will be permitted, except for local deliveries, and, - trucks do not queue on Collector Road. - Speed limit: a 60km/h truck speed limit from the exit to the Quarry along Collector Road northwest to the Federal Highway.
Saturday	7:00 am to 1:00 pm	As above.	
Sunday & Public Holidays	No haulage permitted	No haulage permitted.	

Drivers are prohibited from arriving prior to, or leaving after the nominated times.

The approved haulage route is shown in **Figure 4.1**.

4.2 WEIGHBRIDGE OPERATION

Laden heavy vehicles leaving the Quarry will be recorded by the weighbridge operator. In the event that the hourly limit detailed in **Section 4.1** is reached, the weighbridge operator will instruct drivers to wait within the site until the end of the hour.

The weighbridge operator has the authority to stop a haulage truck or trucks from leaving the quarry to ensure that limits are not exceeded. In the event that the daily limit is reached, the weighbridge operator will advise heavy vehicles entering the Quarry to exit without being loaded. Constant communication on UHF radio is required between weighbridge operator and all load shifting plant/equipment, as well as heavy vehicles waiting to progress into the site.

The weighbridge operator will enforce compliance with transportation hours (refer to **Section 4.1**).

4.3 SITE ACCESS

The existing Quarry site access is located off Collector Road, Collector NSW.

All DA 1-01-2000 requirements relating to site access have been completed. The Quarry access has been designed to allow safe visibility along Collector Road, ensuring that the Quarry access road considers endemic fog frequency and fog severity conditions, with a view to reducing the threat of fog induced road accidents.

4.4 PARKING

Cars are to be parked in the designated parking area(s) shown in **Figure 4.1**. Car parking spaces are to be always line-marked and kept clear of obstructions. Car parking will be located outside of the heavy vehicular path so that there is no interaction between pedestrian travel path (from/to parked cars and site office) and heavy vehicular path within the site.

All Quarry employees and visitors will park within the designated site parking areas, without any requirement for parking on Collector Road or any other public road. On-site employee parking locations may change to accommodate ongoing quarrying operations. Car parking will always remain onsite, and within the approved disturbance footprint.

All visitors must report to the site office following entry to the Quarry. Visitor access within the Quarry is to be restricted to the light vehicle carparks, site office and amenities building, unless accompanied by Quarry personnel.

Designated truck parking is and will be provided within stockpiling areas of the Quarry. Trucks will park in these locations prior to being loaded, then depart following loading. Heavy vehicles are not to be parked on local roads in the vicinity of the site. The internal manoeuvring areas will be kept clear during operating hours to allow for efficient site operations.

Roads and footpaths are to be kept clear of any obstructions.

Trucks are not permitted to queue on Collector Road.

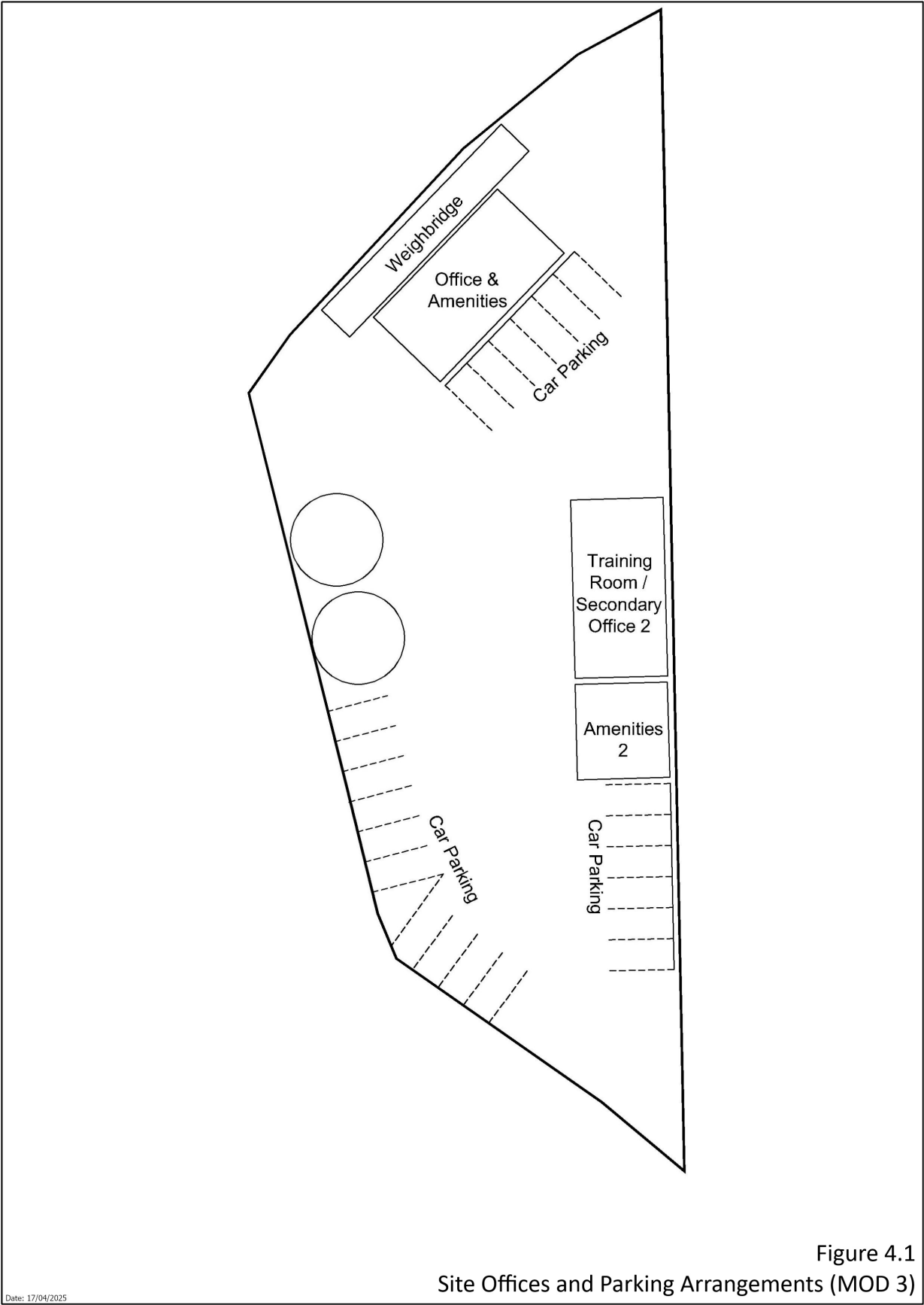
4.5 SITE SAFETY

Trucks and light vehicles shall obey the 10 km/h speed limit within the Quarry and 30 km/h limit on the Quarry Access Road.

All Collector Resources staff, equipment operators and truck drivers shall have access to UHF radio when working on site.

All radio communications are required to be conducted via UHF. All site safety procedures including procedures for trucks and light vehicles, will be signposted near the entrance to the Quarry, near the Quarry site office.





4.6 LEGAL LOADING

All trucks leaving the Quarry must be legally loaded. Any truck that is overloaded is to return to the stockpile to discharge product and then return to the weighbridge (refer to **Section 4.2**) for re-weighing and dispatch.

4.7 LOAD COVERING AND LOOSE MATERIALS

All loaded trucks arriving at and departing from the Quarry are required to have an effective cover over their load for the duration of the journey. The load cover may be removed only upon arrival at the destination (i.e. at the Quarry).

All loose debris from vehicles and wheels is to be removed to a practically achievable standard prior to exiting the Quarry, including use of the Quarry's wheel wash on departure.

Site management is to monitor loose material on the side of the haul route and take appropriate action regularly.

The load covering may be removed upon arrival to the delivery site.

4.8 HEAVY VEHICLES ON EXTERNAL ROADS

Collector Resources will implement and enforce a Driver's Code of Conduct (refer to **Appendix 1**) which outlines the procedures to ensure that truck drivers adhere to the designated transport routes and implement safe driving practices, particularly when driving on rural roads and onto the Federal Highway.

It is a requirement that all drivers are provided with a copy and informed of the requirements of the Code and audits of compliance with the Code are to be regularly conducted. All drivers reported or found to be acting in a manner contrary to the Code will be subject to disciplinary action.

The Code also include requirements to be adhered to surrounding driver fatigue management.

4.9 CONTROL OF ROADSIDE VEGETATION

Collector Resources will monitor vegetation growth on Collector Road and implement appropriate vegetation clearing on roadsides to improve the safe visibility on Collector Road on an annual or ad-hoc basis.



4.10 ROAD UPGRADES AND MAINTENANCE

Road upgrades will be completed in accordance with a VPA to be established with Upper Lachlan Shire Council and Queanbeyan-Palerang Regional Council. Details will be included in updated versions of the TMP following confirmation of the VPA.

Collector Resources will also provide contributions for road maintenance. The current rate being 8.37 cents per tonne of product.

4.11 SIGNAGE

Collector Resources shall ensure all legal signage is installed to as required.

Collector Resources shall ensure a sign advising truck drivers of the curfew prior to 7.00am, restricting access along Collector Road prior to 07:00am.

4.12 MONITORING

As identified in **Section 4.1**, there are restriction on traffic volumes to the Quarry that are required to be monitored and reported against to ensure compliance with consent conditions from DA 1-01-2000, with accurate monitoring records to be kept for the following:

- All laden heavy vehicle movements from the Quarry (including hourly and daily heavy vehicle movements),
- The volume of quarry products transported from the Quarry per calendar year, and
- Times heavy vehicles entered and exited the Quarry.

Heavy vehicle movements from the Quarry will be recorded at the weighbridge by the weighbridge operator. Where hourly limits are reached, the weighbridge operator will notify the Quarry Manager, and the weighbridge operator will instruct product trucks to remain within the Quarry until the hour is reached. Where daily limits are reached, the weighbridge operator will notify the Quarry Manager, the weighbridge operator will instruct any vehicles approaching the Quarry to return to their destination.

The volume of quarry products transported from the Quarry will be recorded. The cumulative total will be tracked each month to ensure that projected volumes required to be transported or received for the calendar year will remain within limits (**Section 4.1**). If required to remain within calendar year limits, projected volumes will be revised.



5. INCIDENT AND COMPLAINT MANAGEMENT

5.1 INCIDENT IDENTIFICATION

Condition R2 of EPL 5554 requires that Collector Resources must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident. An incident which causes or threatens to cause material harm to the environment (and an exceedance of noise criteria) is referred to as a Pollution Incident.

In accordance with the definition provided by Section 147 of the NSW *Protection of the Environment Operations Act 1997* (POEO Act), harm to the environment is deemed to be material if:

- a) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial; or
- b) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations).

An incident which is only as a result of an exceedance of truck limits, is referred to as a non-compliance. An exceedance caused by an external source is not considered a non-compliance.

An incident which causes or threatens to cause material harm to the environment is referred to as a **Pollution Incident**.

5.2 INCIDENT MANAGEMENT AND REPORTING

The Quarry Manager will immediately⁴ notify DPHI and the road authority of any incident or non-compliance associated with traffic and actions being taken to mitigate or remediate.

Within 7 days of the noted non-compliance or incident, confirming the exceedance, Collector Resources will notify the DPHI (by email to compliance@planning.nsw.gov.au) and relevant road authority. The Quarry Manager will provide information on:

1. the time and date of the incident
2. relevant details of the incident / non-compliance
3. the condition of this consent that the development is non-compliant with (if relevant)
4. what actions have been, or will be, undertaken to address the incident and the measures taken to (or to be taken) prevent re-occurrence.

⁴ Immediately being the first opportunity following identification of the non-compliance



Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Secretary, the Applicant must provide the Secretary and any relevant public authorities (as determined by the Secretary) with a detailed report on the incident (Incident Report) addressing all requirements below, and such further reports as may be requested.

If the incident was identified following receipt of complaint, the complainant will also be provided with the same information included in the Incident Report.

A summary of all incidents, including dates of occurrence, corrective measures taken, and success of these measures will be compiled and reported in an Annual Review to DPHI.

5.3 TRAFFIC RELATED COMPLAINTS

A Complaints Management Procedure is provided in *Section 6.2* of the Environmental Management Strategy. Following receipt of a complaint appropriate action will be taken within two working days to determine the cause of the complaint and identify appropriate actions to remediate the complaint source. The following details will be recorded following receipt of any noise-related complaint.

1. The date and time of the complaint.
2. The method by which the complaint was made.
3. Any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect.
4. The nature of the complaint.

Within 48 hours of receipt of a complaint, action to identify the cause of the complaint and identify appropriate actions to respond to the complaint will be commenced. On completion of actions to address the complaint, the following information will be added to the complaint register.

1. The action taken in relation to the complaint, including any follow-up contact with the complainant.
2. If no action was taken, the reasons why no action was taken.

6. DATA MANAGEMENT AND REPORTING

6.1 REVIEW AND RECORDING OF MONITORING DATA

Collector Resources will retain traffic records for a period of no less than four years. Monitoring records will be made available to relevant government authorities following a written request.

6.2 REPORTING AND PUBLICATION OF MONITORING DATA

In accordance with *Condition 8.3(a)* of DA 1-01-2000, Collector Resources shall submit a quarterly report to the Planning Secretary (DHPI), QPRC, ULSC, and the Community Consultative Committee. The report shall detail any incidences of truck driver non-compliances, results of investigations undertaken, and any measures taken to prevent further non-compliance, unless otherwise agreed by the Planning Secretary.

Collector Resources will include a summary of traffic data as appendices to the Annual Review. That document, once approved by the relevant government agencies, will be published on the Quarry website (to be established on recommencement of operations).

7. ROLES AND RESPONSIBILITIES

In accordance with the *Work Health and Safety Act 2011*, Collector Resources has a duty to ensure, so far as is reasonably practicable, workers and others are not exposed to health and safety risks arising from the business or undertakings at the Quarry. This duty starts with the Quarry Manager and includes identifying and implementing control measures to prevent people being injured by moving vehicles at the workplace contained within this TMP.

Table 7.1 outlines the roles and responsibilities of personnel with reference to traffic management.

Table 7.1 Roles and Responsibilities

Role	Responsibilities
Managing Director	- Ensure adequate resources are available to implement the TMP. - Ensure suitably trained personnel are available to implement the responsibilities of the Quarry Manager during any time of the Quarry Manager's absence from site.
Quarry Manager, or his/her nominee	- Ensure implementation and compliance with the TMP. - Ensure traffic monitoring results are regularly reviewed/evaluated and entered into the environmental database. - Implementation of the Traffic Management System (Section 4). - Provide primary contact for complaints and supply follow-up information to any complainant. - Initiate investigations of complaints as received from the public or government agency. - Prepare a report to government agencies or neighbours following an incident (Section 5). - Inform the Managing Director of identified traffic issues and any alterations to site operations that has influenced the traffic environment. - Coordinate the review of the TMP.

Environmental Representative (may be the Quarry Manager)	▪ Provide advice (as required to Quarry personnel) on compliance requirements and obligations of the TMP. ▪ Provide primary contact for complaints and supply follow-up information to any complainant. ▪ Facilitate an induction and training program for all persons involved with the project. ▪ Instruct Quarry personnel (as required) on reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts and failing the effectiveness of such steps, to stop work immediately if an adverse impact is likely to occur.
All On-site Personnel	▪ Operate in manner that minimises risks of incidents to themselves, fellow workers or the surrounding environment. ▪ Fully implement the relevant control measures within the TMP. ▪ Report any traffic-related incidents or concerns to the Quarry Manager. ▪ Follow any instructions provided by the Quarry Manager.
All Truck Drivers on Public Roads	▪ Follow the requirements of this TMP and the Driver's Code of Conduct. ▪ Follow any legal requirements. ▪ Follow any instructions provided by any on-site personnel.
Weighbridge operator	▪ Record and monitor hourly and daily laden heavy vehicles leaving the Quarry against the transportation limits. ▪ Where heavy vehicle limits are reached, implement the procedure in Section 4.2 of this TMP.

8. TRAINING AND COMPETENCIES

All personnel and contractors working at the Quarry undergo an induction. This induction includes information on traffic management and requirements while working on site.

Regular toolbox meetings are held to discuss whole-of-site production, management, safety and environmental issues. Matters relating to managing traffic are raised during these meetings, when necessary.

The key components of this TMP will also be conveyed to contractors and visitors interacting with the site.

Any workers conducting traffic control of heavy vehicles should be adequately trained as required by the legislation.

9. PLAN REVIEW

In accordance with the EMS, this TMP will be reviewed within three months of any significant modifications to operations that will influence traffic management, any internal or external audits undertaken of the Quarry and following any notifiable incident.

In accordance with the *Environmental Management Strategy*, and *Condition 4.2(f)* of DA 1-01-2000 the TMP will be reviewed within three months of the submission of an:

- an incident as defined by **Section 5**.
- Annual Review⁵,
- an Independent Environmental Audit completed in accordance with Condition 11.1(a) of DA 1-01-2000,
- at least every three years or otherwise as directed by the Planning Secretary in consultation with the relevant government agencies, and
- any modifications to the consent.

Collector Resources will notify the DPHI in writing of any review being undertaken and if this review results in any revisions to the TMP and submit a copy to the Secretary of the DPHI for approval (within 6 weeks of the review).

The reviews will ensure the adequacy of the TMP and allow for opportunities of adaptive management and continual improvement. This will include a review of truck movements at the Quarry. Each review will also evaluate the effectiveness of the overall traffic management program and whether it needs to be modified.

Collector Resources will notify the DPHI of a review and where this review leads to a revision to the TMP, this will be submitted to the DPHI within 6 weeks of review for approval of the Secretary.

⁵ The Annual Review is due by 28 March each year.



10. REFERENCES

Hart Consulting (2025). Independent Environmental Audit: Barina Quarry, Project Approval DA1-01-2000-PA-3, February 2025

Irwin Environmental Management Pty Limited (IEM) (2025). Modification Report for the Recommencement of Operations at Barina Quarry (DA 1-01-2001 Modification No. 3), July 2025.

Pavey Consulting Services (2025). Traffic Impact Assessment Modification to Barina Quarry, Lot 3 DP1177623, Lot 33 DP750008 and Lot A DP1177623, Collector Road, Collector NSW

RW Corkery & Co. Pty Limited (RWC) (1999). Lake George Quarries, Barina Quarry – Collector Environmental Impact Statement.

Tiocliff Pty Limited (2005). Traffic Management Plan, Plan 6.7.1, Mine Management System,

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Appendix 1 Driver Code of Conduct

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COLLECTOR RESOURCES PTY LIMITED

DRIVER CODE OF CONDUCT

1. PURPOSE

The Driver's Code of Conduct ("the Code"), prepared in accordance with Condition 8.1(a)(ii) of DA 1-01-2000, outlines procedures to ensure that truck drivers adhere to the designated transport routes and implement safe driving practices, particularly when driving on Collector Road and the Federal Highway.

It is a condition of employment at Collector Resources that all employees and contractors are aware of and comply with the Code. It is a requirement that all drivers are provided with a copy of the Code. Any driver reported or found to be acting in a manner contrary to the Code will be subject to disciplinary action.

This Code shall be read in conjunction with the Traffic Management Plan prepared for the Quarry.

2. GENERAL REQUIREMENTS

Heavy vehicle drivers accessing the site shall:

- Acknowledge and confirm understanding of the Code as a condition of employment
- hold a valid driver's licence for the class of vehicle they are driving and comply with all road rules for the class of vehicle they are driving
- hold a dangerous goods driver's licence if transporting dangerous goods
- operate the vehicle in a safe manner within the Quarry Site and on public roads
- adhere to designated transport routes
- comply with Quarry speed limits
- comply with the direction of authorised site personnel when within the Quarry Site
- ensure all loads arriving at or leaving the Quarry are covered, and
- ensure all loads arriving at or leaving the Quarry comply with legal weight limitations for classes of vehicles established by the TfNSW.

3. SITE ACCESS

Access to the Quarry is controlled by the Quarry Manager (or as delegated).

On arriving at the Quarry, all drivers must contact weighbridge operator for directions and authority to proceed.

COLLECTOR RESOURCES PTY LIMITED

DRIVER CODE OF CONDUCT

4. ROAD TRANSPORTATION RESTRICTIONS

The following restrictions to road transportation apply to the Quarry:

- Truck movements do not exceed 134 movements per day and 20 movements per hour.
- All trucks leaving the Quarry must turn right at Collector Road (formerly Currawang Road) (exceptions may be made for local deliveries on Collector Road).
- Trucks must not queue on Collector Road.
- Speed limit of 60km/h truck speed limit between the Quarry Site Access Road and the Federal Highway.
- Trucks to comply with any special speed restrictions below the nominated speed limited.

Drivers are to observe the posted speed limits on all roads to comply with the Australian road rules, with speed adjusted appropriately to suit the road environment and prevailing weather conditions.

Three Strikes Scheme

In addition, all drivers and truck operators working for or on behalf of Collector Resources are to be made aware of the Three Strikes Scheme (<https://www.aic.gov.au/sites/default/files/2020-05/tandi446.pdf>) which applies to all vehicles over 4.5 tonnes.

- When a heavy vehicle is detected travelling at 15 km/h or more over the posted or relevant heavy vehicle speed limit by a mobile police unit or fixed speed camera, TfNSW will record a strike against that vehicle.
- If three strikes are recorded within a three-year period, TfNSW will act to suspend the registration of that vehicle (up to three months).

5. ROAD TRANSPORTATION HOURS

The following heavy vehicle road transportation restrictions apply to the Quarry:

- No arrival prior to, or exit after:
 - 7:00 am and 6:00 pm Monday to Friday, and
 - 7:00 am and 1:00 pm Saturdays.
- No heavy vehicle transportation on Sundays and Public Holidays.

COLLECTOR RESOURCES PTY LIMITED

DRIVER CODE OF CONDUCT

6. NOISE CONTROL

In order to minimise the impact of noise from truck transport, the following controls will apply to truck operators (in relation to the site).

- Exhaust / compression brakes are not to be used in the vicinity of residential areas.
- Tailgates must be locked and secured to avoid spillage or noise.
- A three second gap is to be observed at all times (no tailgating is permitted).
- No overtaking on Collector Road.
- Equipment is to be fit for the purpose and meet all regulatory requirements.

7. LOAD COVERING AND LOOSE MATERIALS

All loaded trucks arriving at and departing from the Quarry are required to have an effective cover over their load for the duration of the journey. The load cover may be removed only upon arrival at the destination.

Care must be taken to ensure that all loose debris from vehicles and wheels is removed prior to exiting the site.

Site management is to monitor loose material on the side of the haul route and may require the driver to clean the vehicle or return to the Quarry to have loose material removed.

8. BREAKDOWNS AND INCIDENTS

In the case of a breakdown, the vehicle must be towed to the nearest breakdown point as soon as possible. All breakdowns must be reported to Collector Resources management and the vehicle shall be protected in accordance with the Heavy Vehicle Driver Handbook.

Emergency contact details have been provided in **Table A.1** for reference.

Table A.1 Emergency Contacts

Organisation	Contact Details
TfNSW Transport Management Centre	131 700
Upper Lachlan Shire Council	(02) 4830 1000
Queanbeyan-Palerang Council (Road Safety Officer)	(02) 6285 6196
Collector Resources Quarry Manager	0408 018 850
Emergency Services	000

COLLECTOR RESOURCES PTY LIMITED

DRIVER CODE OF CONDUCT

9. OTHER SAFETY CONSIDERATIONS

Heavy vehicle drivers should be aware of the following:

- All trucks leaving the site comply with legal weight limitations for the classes of vehicles established by the TfNSW.
- Load restraint remains the responsibility of every driver and failure to restrain a load will result in personal fines.
- Concealed driveways – drivers are to drive with caution around any signed concealed driveways
- Adverse weather safety – drivers should adjust their driving speed to suit weather conditions at the time. Be particularly aware of hazardous driving conditions for all road users in these conditions.
- Do not cross water courses when the water depth is above 200mm, report the situation to your manager to make alternative route arrangements.
- Remember, some of our trucks have signs on the rear trailer advising motorists of our safe driver practices, plus contact details and all have a registration number and your driving behaviour, good or poor, can be reported to Collector Resources management.

10. DRIVER ACKNOWLEDGEMENT

In agreeing to the terms of the Code, drivers acknowledge that:

- I have been provided with a copy of the Code and understand the requirements.
- Careless or neglectful vehicle operation could result in personal injury, loss of life, property damage, substantial fines, and adverse publicity for Collector Resources, and
- Failure to adhere to the requirements, procedures or practices nominated within the Code may result in disciplinary action or refusal of entry to the Quarry.

COLLECTOR RESOURCES PTY LIMITED

DRIVER CODE OF CONDUCT

DECLARATION

I, the undersigned, hereby agree to abide by Collector Resources Driver Code of Conduct

I have read and understand the requirements outlined in the Code and will, to the best of my ability, comply and assist with their implementation, requirements and ongoing compliance.

Truck Driver	
Full Name:	
Signature:	
Date:	
Collector Resources	
Full Name:	
Signature:	
Date:	

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