

# Appendix 5

Ardmore Park Quarry – Modification 3

Traffic Modelling of Intersections  
along the Product Delivery Route

prepared by

Transport & Urban Planning Pty Ltd

(Total No. of pages including blank pages = 22)

September 2018

**MULTIQUIP QUARRIES**

*Ardmore Park Quarry  
Appendix 5*

**RESPONSE TO SUBMISSIONS**

*PA 07\_0155 MOD3  
Report No. 625/25*

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**FIRST**  
**SUPPLEMENTARY TRAFFIC REPORT FOR**  
**ARDMORE PARK QUARRY**  
**BUNGONIA**  
**MODIFICATION 3**  
**TRAFFIC MODELLING OF INTERSECTIONS**

Ref. 17126R2

24 September 2018

Prepared By



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## **APPENDICES**

Appendix 1 Extracts of SIDRA Modelling

## 1.0 PROJECT INFORMATION

Multiquip Quarries have lodged an application to amend the existing consent for the Ardmore Park Quarry. The application (Modification 3) proposes to increase annual materials production without any increase to total approved truck movements. This will be achieved using High Mass Limit Trucks which will increase load capacity from 30 tonne to 50.3 tonne. The truck and dog combination for these High Mass Limit Trucks are 25.8 metres in length which is an increase over the 19 metre long truck and dog combinations currently used.

As part of the assessment process, the Department of Planning and Environment has requested that;

- 1) Traffic modeling be undertaken for the existing intersections on the road network adjacent the Quarry; and
- 2) Swept path diagrams be provided at these intersections using the larger 25.8 metre long truck and dog trailer showing the turnpath of these large vehicles.

Transport and Urban Planning Pty Ltd has been engaged by Multiquip to provide the additional traffic information requested by the Department of Planning and Environment.

This report documents the results of the traffic modelling undertaken for the intersections.

A separate report has been prepared to document the swept path analysis.

## 2.0 TRAFFIC MODELLING OF THE INTERSECTIONS

The traffic modelling has been undertaken for the following intersections;

- 1) Jerrara Road/Mountain Ash Road (T junction);
- 2) Mountain Ash Road/By Pass Road (T junction);
- 3) Oallen Ford Road/By Pass Road (T-junction); and
- 4) Oallen Ford Road/Ardmore Park Quarry Access Road (T junction).

All of the above intersections are constructed as T-junction intersections with generally single approach and departure lanes.

Wider approach lanes are provided at the intersections as follows:

- Mountain Ash Road;
  - For the left turn into Jerrara Road; and
  - For the left turn into the By Pass; and in
- Oallen Ford Road;
  - For the left turn into the By Pass; and
  - For the left turn into the Ardmore Park Quarry Access Road

The speed limit in Jerrara Road, Mountain Ash Road and Oallen Ford Road at the above intersection is 80km/h.

Traffic counts at the above intersection were undertaken on Wednesday and Thursday 20 and 21 June 2018 between 6.00am to 8.00am and 4.00pm to 6.00pm.

The AM and PM peak hours occurred between 7.00am and 8.00am and between 4.45pm and 5.45pm, respectively, at all of the above intersections.

The existing traffic volumes at all the intersections during the weekday AM and PM peak hours are very low reflecting limited usage consistent with the rural environment.

Tables 2.1 show the total volumes using the intersections as recorded in the traffic counts during the AM and PM peak hours.

Reference to Table 2.1 shows that between 34 to 64 vehicles used the intersections in the AM peak hour and 40 to 68 vehicles used the intersections in the PM peak hour.

**TABLE 2.1**

**TOTAL VOLUMES USING INTERSECTION DURING AM AND PM PEAK HOUR ADJACENT ARDMORE PARK QUARRY**

Intersection	AM Peak		PM Peak	
	Total Volumes	No. of Heavy Vehicles <sup>1</sup>	Total Volumes	No. of Heavy Vehicles <sup>1</sup>
Jerrara Road/Mountain Ash Road	64	9	68	4
Mountain Ash Road/By Pass Road	45	6	40	1
Oallen Ford Road/By Pass Road	34	2	41	2
Oallen Ford Road/Ardmore Quarry Access Road	35	4	44	3

<sup>1</sup> Austroads Class 3-12 Vehicles

Source Traffic Counts 20 and 21 June 2018

The SIDRA 7.0 traffic model has been used to examine the impacts of the maximum traffic from the Quarry using the above intersections.

SIDRA is a suitable model to assess the operational performance of intersections. Criteria for interpreting an intersections performance are Level of Service (LS) and Average Vehicle Delay (AVD). For intersections under Priority/Stop Sign control and Roundabout Control, Average Vehicle Delay for Individual Movements (HMD) is relevant.

Table 2.2 below is reproduced from the RTA's Guide to Traffic Generating Developments and provides an explanation of the various levels of service for intersections.

A Level of Service D or better (i.e. A, B, C or D) is generally considered to be minimum design requirement for intersections. The level of service for intersections controlled by Give Way/Stop Signs or under Roundabout Control is determined from the movement with highest average vehicle delay (HMD).

**TABLE 2.2**

**LEVEL OF SERVICE CRITERIA FOR INTERSECTIONS**

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	<14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	>70	Intersection is oversaturated	Oversaturated, requires other control mode

*Source: Table 4.2 Guide to Traffic Generating Developments October 2002. Roads and Traffic Authority*

The modelling has been undertaken using the existing traffic management (i.e. number of lanes and lane widths) and traffic controls at each intersection.

The modelling has used the existing volumes at the intersections together with the maximum hourly volumes from the Quarry. Heavy vehicle lengths have been adjusted to account for the larger 25.8 metre long vehicles proposed by Multiquip.

In this regard, the EIS nominates up to 14 truck movements per hour on a maximum day (i.e. 7 in/7 out). This figure has been adopted in the modelling for both the AM and PM peak hours and added to the existing volumes at each intersection.

Base case models (i.e. without maximum hourly Quarry truck volume) have not been included, due to very low existing traffic volumes using the intersections.

The modelling results for each intersection are shown in Table 2.3. Reference to Table 2.3 shows that all the intersections will operate at Level of Service A operation (i.e. very good operation) with low vehicle delays and minimal queuing.

All the intersections have very low degrees of saturation which indicates that the intersections have plenty of spare capacity.

This indicates that the intersections will have sufficient capacity to accommodate future traffic growth at the intersections over the life of the Ardmore Park Quarry.

Extracts of the SIDRA modelling outputs are contained in Appendix 1.

**TABLE 2.3****SIDRA TRAFFIC MODELLING RESULTS IN WEEKDAY AM AND PM PEAK HOUR WITH ARDMORE PARK QUARRY OPERATING IN MAXIMUM HOUR**

Intersection	AM Peak					PM Peak				
	LS	DS	AVD (secs)	HMD (secs)	95 <sup>th</sup> % Queue In metres	LS	DS	AVD (secs)	HMD (secs)	95 <sup>th</sup> % Queue In metres
Jerrara Rd/Mountain Ash Road	A	0.026	5.6	8.5	1.9	A	0.024	5.2	9.2	1.6
Mountain Ash Rd/By Pass Road	A	0.019	5.1	12.4	1.4	A	0.019	4.7	13.0	1.6
Oallen Ford Rd/By Pass Road	A	0.016	4.5	11.8	1.4	A	0.019	3.6	12.0	1.4
Oallen Ford Road/Ardmore Quarry Access Road	A	0.018	4.6	7.9	1.2	A	0.020	4.0	7.9	1.4

Where:

LS – Level of Services

DS – Degree of Saturation

AVD - Average Vehicle Delay in seconds

HMD – Highest Movement Delay in Seconds

95<sup>th</sup>% Queue Length – 95<sup>th</sup>% Queue Length in Metres

### 3.0 CONCLUSIONS

In conclusion, the modelling shows that intersections adjacent the quarry will all operate at a very good level of service with low vehicle delays.

In addition, the intersections have sufficient spare capacity to accommodate future traffic growth over the life of Ardmore Park Quarry.



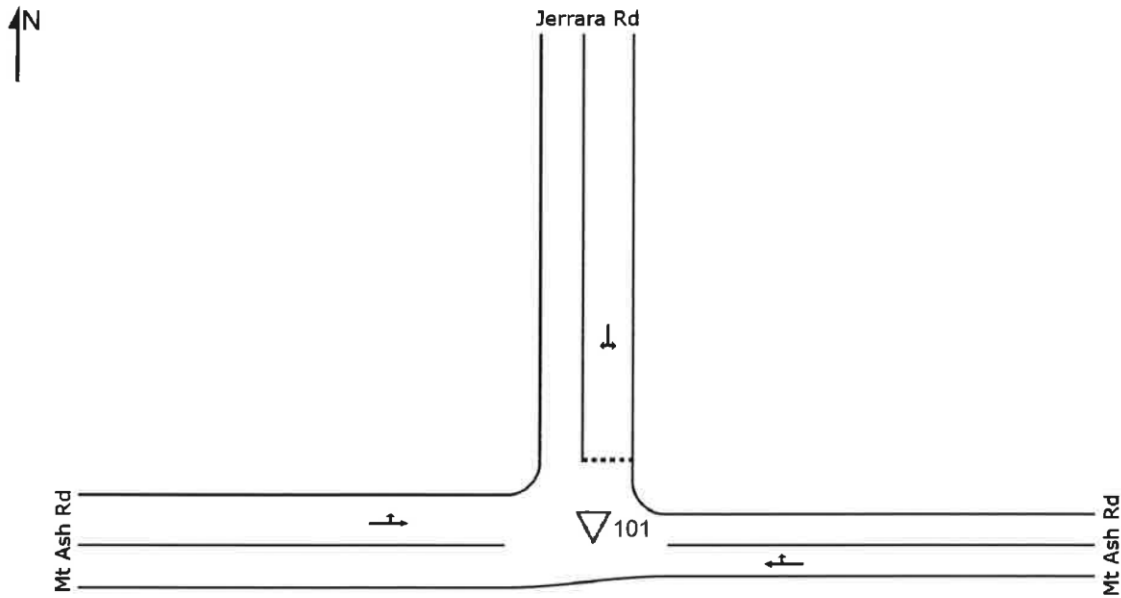
## **APPENDIX 1**

### **EXTRACTS OF SIDRA MODELLING OUTPUTS**

## SITE LAYOUT

▽ Site: 101 [Mt Ash Rd & Jerrara Rd- AM]

Modification with Additional Trucks  
Giveaway / Yield (Two-Way)



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## MOVEMENT SUMMARY

### ▽ Site: 101 [Mt Ash Rd & Jerrara Rd- AM]

Modification with Additional Trucks  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
<b>East: Mt Ash Rd</b>												
5	T1	17	12.5	0.016	0.1	LOS A	0.1	0.6	0.09	0.26	74.1	
6	R2	13	0.0	0.016	7.1	LOS A	0.1	0.6	0.09	0.26	69.6	
Approach		29	7.1	0.016	3.1	NA	0.1	0.6	0.09	0.26	72.1	
<b>North: Jerrara Rd</b>												
7	L2	14	15.4	0.026	7.3	LOS A	0.1	1.9	0.05	0.60	60.2	
9	R2	16	60.0	0.026	8.5	LOS A	0.1	1.9	0.05	0.60	49.8	
Approach		29	39.3	0.026	7.9	LOS A	0.1	1.9	0.05	0.60	54.2	
<b>West: Mt Ash Rd</b>												
10	L2	18	58.8	0.016	8.0	LOS A	0.0	0.0	0.00	0.47	52.0	
11	T1	6	16.7	0.016	0.0	LOS A	0.0	0.0	0.00	0.47	73.5	
Approach		24	47.8	0.016	5.9	NA	0.0	0.0	0.00	0.47	56.3	
<b>All Vehicles</b>		<b>83</b>	<b>30.4</b>	<b>0.026</b>	<b>5.6</b>	<b>NA</b>	<b>0.1</b>	<b>1.9</b>	<b>0.05</b>	<b>0.44</b>	<b>60.1</b>	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

## MOVEMENT SUMMARY

### Site: 101 [Mt Ash Rd & Jerrara Rd- PM]

Modification with Additional Trucks  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
<b>East: Mt Ash Rd</b>												
5	T1	11	10.0	0.016	0.1	LOSA	0.1	0.8	0.12	0.36	72.4	
6	R2	17	12.5	0.016	7.3	LOSA	0.1	0.8	0.12	0.36	63.7	
Approach		27	11.5	0.016	4.5	NA	0.1	0.8	0.12	0.36	66.8	
<b>North: Jerrara Rd</b>												
7	L2	19	5.6	0.024	7.1	LOSA	0.1	1.6	0.09	0.58	63.1	
9	R2	9	88.9	0.024	9.2	LOSA	0.1	1.6	0.09	0.58	44.6	
Approach		28	33.3	0.024	7.8	LOSA	0.1	1.6	0.09	0.58	55.4	
<b>West: Mt Ash Rd</b>												
10	L2	13	66.7	0.018	8.2	LOSA	0.0	0.0	0.00	0.26	52.3	
11	T1	18	0.0	0.018	0.0	LOSA	0.0	0.0	0.00	0.26	77.7	
Approach		31	27.6	0.018	3.4	NA	0.0	0.0	0.00	0.26	64.7	
<b>All Vehicles</b>		<b>86</b>	<b>24.4</b>	<b>0.024</b>	<b>5.2</b>	<b>NA</b>	<b>0.1</b>	<b>1.6</b>	<b>0.07</b>	<b>0.40</b>	<b>61.9</b>	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

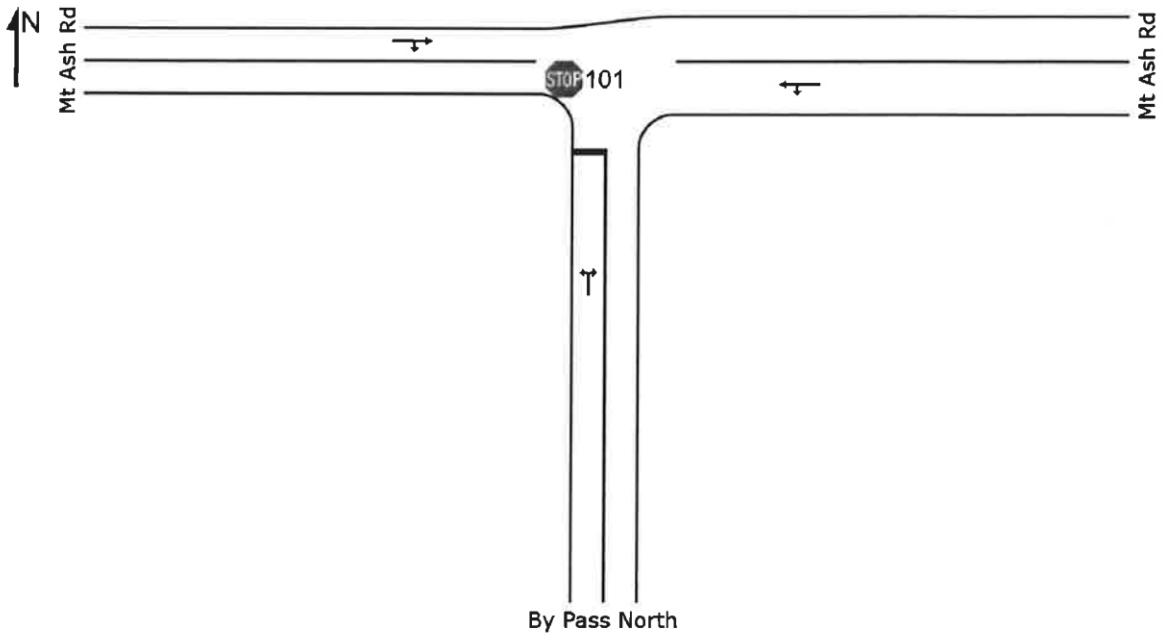
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## SITE LAYOUT

### Site: 101 [Mt Ash Road & By Pass North-AM]

Modification with Additional Trucks

Stop (Two-Way)



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## MOVEMENT SUMMARY

### Site: 101 [Mt Ash Road & By Pass North-AM]

Modification with Additional Trucks  
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
<b>South: By Pass North</b>												
1	L2	1	0.0	0.017	9.0	LOS A	0.1	1.4	0.16	0.95	63.2	
3	R2	14	61.5	0.017	12.4	LOS A	0.1	1.4	0.16	0.95	48.1	
Approach		15	57.1	0.017	12.1	LOS A	0.1	1.4	0.16	0.95	49.0	
<b>East: Mt Ash Rd</b>												
4	L2	13	75.0	0.019	8.3	LOS A	0.0	0.0	0.00	0.25	50.6	
5	T1	19	11.1	0.019	0.0	LOS A	0.0	0.0	0.00	0.25	78.1	
Approach		32	36.7	0.019	3.3	NA	0.0	0.0	0.00	0.25	64.1	
<b>West: Mt Ash Rd</b>												
11	T1	11	20.0	0.008	0.1	LOS A	0.0	0.2	0.06	0.10	78.2	
12	R2	2	50.0	0.008	7.9	LOS A	0.0	0.2	0.06	0.10	55.9	
Approach		13	25.0	0.008	1.4	NA	0.0	0.2	0.06	0.10	73.3	
All Vehicles		59	39.3	0.019	5.1	NA	0.1	1.4	0.05	0.40	61.0	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

## MOVEMENT SUMMARY

### Site: 101 [Mt Ash Road & By Pass North-PM]

Modification with Additional Trucks  
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
<b>South: By Pass North</b>												
1	L2	6	0.0	0.019	9.0	LOSA	0.1	1.6	0.11	0.96	63.2	
3	R2	12	72.7	0.019	13.0	LOSA	0.1	1.6	0.11	0.96	46.1	
Approach		18	47.1	0.019	11.5	LOSA	0.1	1.6	0.11	0.96	51.0	
<b>East: Mt Ash Rd</b>												
4	L2	8	100.0	0.013	7.9	LOSA	0.0	0.0	0.00	0.36	54.8	
5	T1	13	8.3	0.013	0.0	LOSA	0.0	0.0	0.00	0.36	75.2	
Approach		21	45.0	0.013	4.5	NA	0.0	0.0	0.00	0.36	65.5	
<b>West: Mt Ash Rd</b>												
11	T1	20	0.0	0.011	0.0	LOSA	0.0	0.1	0.01	0.03	79.3	
12	R2	1	0.0	0.011	6.8	LOSA	0.0	0.1	0.01	0.03	73.7	
Approach		21	0.0	0.011	0.3	NA	0.0	0.1	0.01	0.03	79.0	
All Vehicles		60	29.8	0.019	4.7	NA	0.1	1.6	0.04	0.43	63.9	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

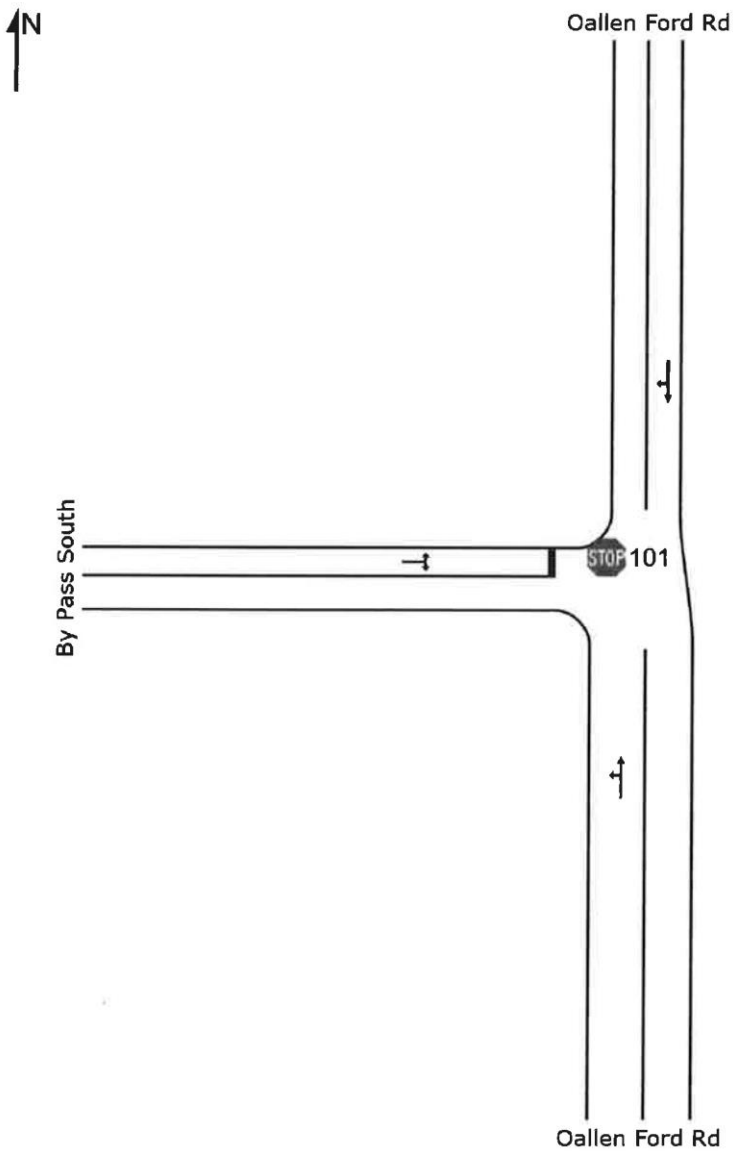
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

## SITE LAYOUT

 **Site: 101 [Oallen Ford Rd & By Pass South-AM]**

Modification with Additional Trucks  
Stop (Two-Way)



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## MOVEMENT SUMMARY

### Site: 101 [Oallen Ford Rd & By Pass South-AM]

Modification with Additional Trucks  
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
<b>South: Oallen Ford Rd</b>											
1	L2	11	80.0	0.016	8.4	LOS A	0.0	0.0	0.00	0.24	49.8
2	T1	17	0.0	0.016	0.0	LOS A	0.0	0.0	0.00	0.24	78.7
Approach		27	30.8	0.016	3.2	NA	0.0	0.0	0.00	0.24	64.3
<b>North: Oallen Ford Rd</b>											
8	T1	7	14.3	0.005	0.0	LOS A	0.0	0.1	0.03	0.08	78.1
9	R2	1	0.0	0.005	6.8	LOS A	0.0	0.1	0.03	0.08	72.6
Approach		8	12.5	0.005	0.9	NA	0.0	0.1	0.03	0.08	77.3
<b>West: By Pass South</b>											
10	L2	1	0.0	0.012	8.9	LOS A	0.1	1.4	0.14	0.95	63.1
12	R2	8	100.0	0.012	11.8	LOS A	0.1	1.4	0.14	0.95	50.4
Approach		9	88.9	0.012	11.6	LOS A	0.1	1.4	0.14	0.95	51.5
All Vehicles		45	39.5	0.016	4.5	NA	0.1	1.4	0.04	0.36	63.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

## MOVEMENT SUMMARY

### Site: 101 [Oallen Ford Rd & By Pass South-PM]

Modification with Additional Trucks  
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
<b>South: Oallen Ford Rd</b>											
1	L2	13	66.7	0.019	8.2	LOSA	0.0	0.0	0.00	0.25	52.1
2	T1	19	11.1	0.019	0.0	LOSA	0.0	0.0	0.00	0.25	77.6
Approach		32	33.3	0.019	3.3	NA	0.0	0.0	0.00	0.25	64.9
<b>North: Oallen Ford Rd</b>											
8	T1	20	0.0	0.011	0.0	LOSA	0.0	0.1	0.02	0.03	79.3
9	R2	1	0.0	0.011	6.8	LOSA	0.0	0.1	0.02	0.03	73.6
Approach		21	0.0	0.011	0.4	NA	0.0	0.1	0.02	0.03	79.0
<b>West: By Pass South</b>											
10	L2	1	0.0	0.013	8.9	LOSA	0.1	1.4	0.17	0.94	63.0
12	R2	8	100.0	0.013	12.0	LOSA	0.1	1.4	0.17	0.94	50.3
Approach		9	88.9	0.013	11.8	LOSA	0.1	1.4	0.17	0.94	51.4
All Vehicles		62	30.5	0.019	3.6	NA	0.1	1.4	0.03	0.28	66.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

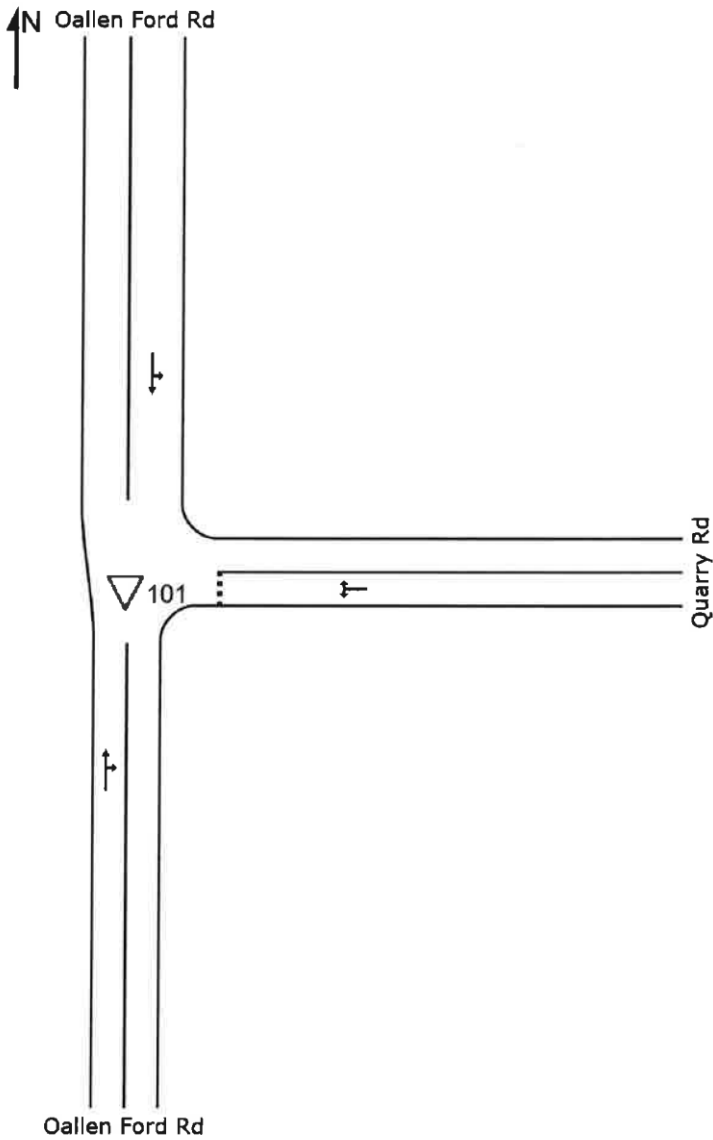
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

## SITE LAYOUT

▽ Site: 101 [Oallen Ford Rd & Quarry Rd-AM]

Modification with Additional Trucks  
Giveaway / Yield (Two-Way)



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Organisation: TRANSPORT AND URBAN PLANNING | Created: Saturday, 1 September 2018 3:33:30 PM  
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## MOVEMENT SUMMARY

### Site: 101 [Oallen Ford Rd & Quarry Rd-AM]

Modification with Additional Trucks  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m		per veh	km/h
<b>South: Oallen Ford Rd</b>											
2	T1	14	7.7	0.008	0.0	LOS A	0.0	0.1	0.02	0.05	78.9
3	R2	1	0.0	0.008	6.9	LOS A	0.0	0.1	0.02	0.05	65.3
Approach		15	7.1	0.008	0.5	NA	0.0	0.1	0.02	0.05	77.8
<b>East: Quarry Rd</b>											
4	L2	1	0.0	0.012	5.6	LOS A	0.1	1.2	0.13	0.52	58.3
6	R2	9	88.9	0.012	6.9	LOS A	0.1	1.2	0.13	0.52	41.1
Approach		11	80.0	0.012	6.8	LOS A	0.1	1.2	0.13	0.52	42.4
<b>North: Oallen Ford Rd</b>											
7	L2	19	50.0	0.018	7.9	LOS A	0.0	0.0	0.00	0.52	53.3
8	T1	9	22.2	0.018	2.2	LOS A	0.0	0.0	0.00	0.52	71.6
Approach		28	40.7	0.018	6.0	NA	0.0	0.0	0.00	0.52	58.3
<b>All Vehicles</b>		<b>54</b>	<b>39.2</b>	<b>0.018</b>	<b>4.6</b>	<b>NA</b>	<b>0.1</b>	<b>1.2</b>	<b>0.03</b>	<b>0.39</b>	<b>58.0</b>

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

## MOVEMENT SUMMARY

▽ Site: 101 [Oallen Ford Rd & Quarry Rd-PM]

Modification with Additional Trucks  
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
<b>South: Oallen Ford Rd</b>											
2	T1	8	25.0	0.005	0.0	LOS A	0.0	0.1	0.03	0.07	78.1
3	R2	1	0.0	0.005	6.9	LOS A	0.0	0.1	0.03	0.07	64.8
Approach		9	22.2	0.005	0.8	NA	0.0	0.1	0.03	0.07	76.3
<b>East: Quarry Rd</b>											
4	L2	1	0.0	0.020	5.6	LOS A	0.1	1.4	0.15	0.53	58.2
6	R2	19	44.4	0.020	6.3	LOS A	0.1	1.4	0.15	0.53	48.2
Approach		20	42.1	0.020	6.3	LOS A	0.1	1.4	0.15	0.53	48.6
<b>North: Oallen Ford Rd</b>											
7	L2	8	100.0	0.019	7.9	LOS A	0.0	0.0	0.00	0.44	54.5
8	T1	24	0.0	0.019	2.0	LOS A	0.0	0.0	0.00	0.44	74.5
Approach		33	25.8	0.019	4.4	NA	0.0	0.0	0.00	0.44	68.0
All Vehicles		62	30.5	0.020	4.0	NA	0.1	1.4	0.05	0.41	61.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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