



Reference: 15.288103v01

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Attention: Michael Ayache, Partner

**Re: Marulan Cemetery – Land and Environment Court Appeal 15/10216  
Response to Statement of Facts and Contentions – Traffic Issues**

Dear Michael,

We refer to the subject development application and in particular to the matters raised by Chris Millett, Manager of Land Use at RMS, as set out in his email to Council dated 14<sup>th</sup> October 2015. It is noted that the matters raised by RMS are provided as comments to Council and RMS concurrence to the DA is not required. The technical matters raised are however relevant and our response to these is set out below.

### **Point 1: Calibration against site conditions**

It is evident from on-site observations that Highland Way presently carries negligible traffic. There are no queues to observe, only occasional single vehicles queued to turn right out or right in of this road. In these circumstances, calibration of queue lengths and delays is not possible. This is generally supported by Austroads Part 3 - Traffic Studies and Analysis (Section 6.1.1) which states that traffic capacity analysis is not necessary where there are relatively low traffic volumes of cross and turning traffic on minor roads.

The traffic volumes were based on surveys undertaken in February 2015. These were extrapolated to different time periods under consideration based on factoring from the nearest RMS Permanent Count Station.

The future traffic was superimposed onto the resultant flows to assess intersection performance under various future scenarios and these results are discussed further below.

### **Point 2: Critical Right Turn Movement into Hume Highway**

It is agreed and accepted that the right turn exit movement is critical. The intersection has been re-modelled based on assessment using the two stage Sidra methodology, as now recommended by Sidra. This takes due account of the delays associated with the southbound left turn entry movement from the Hume Highway into Highlands Way (in the Stage 1 Sidra analysis). The revised modelling includes four different time periods (Mon-Thurs, Fri, Sat and Sun) and for each of these scenarios, four different levels of attendance have been separately assessed (100, 150 and 300 people). These 12 separate assessments related to a single service on any of these occasions, concluding at 12.30pm.



These 12 assessments were then repeated for a scenario where a second service is held, finishing at 4pm.

The results of this revised modelling are summarised in **Attachment 1** and the Sidra modelling results are themselves provided in **Attachment 2** and have also been provided electronically. It is noteworthy that the critical movement of concern to RMS is reported in the Stage 1 results.

The results for **single services** on any day between 1pm and 2pm are as follows:

- Level of Service B or C with 100 attendees (the typical maximum)
- Level of Service B or C with 150 attendees (relatively infrequent)
- Level of Service B, C or D on all days with 300 attendees, subject to the use of three mini buses on Sunday only. This is a 'non-design' scenario as it is not expected, is well in excess of the 85<sup>th</sup> percentile demand and is included only as a sensitivity test.

The results of the **second service** on any day between 3pm and 4pm are as follows:

- Level of Service B, C or D with 100 attendees (the typical maximum), subject to the use of two mini buses on Sunday only.
- Level of Service B, C or D with 150 attendees (relatively infrequent), subject to the use of 5 mini buses on Sunday only.
- Level of Service B or D on all days with 300 attendees, subject to the two mini buses on a Friday and 13 mini buses on Sunday only. Again, this is 'non-design' scenario that is not expected, is well in excess of the 85<sup>th</sup> percentile demand and is included only as a sensitivity test.

In summary for all expected demands, there will be a satisfactory level of service for all scenario tested, subject only to the use of up to 5 mini buses on infrequent Sundays only for the late afternoon services only. This analysis also deals with **Point 4** of the RMS advice to Council.

### **Point 3: 10 year Growth Scenario**

While modelling with background growth over 10 years along the Highway may be a desirable and possibly necessary scenario for RMS to undertake in order to deal with its strategic planning responsibilities, it is not the responsibility of any individual developer to undertake such an assessment. Indeed, this is supported by the RMS's own Guideline which states as follows:

*Section 1.3.5:*

*"Developers are to contribute to the cost of improvements which arise from the development"*

*"The level of contribution required is proportional to the need for improvements which are a direct result of the development"*

The above makes it clear that a developer is only required to deal with the traffic consequences arising from the development itself and this has been assessed in the above modelling and found to be acceptable. Indeed, the development is essentially making use of existing spare intersection capacity and this is appropriate, particularly where the demands generated are very infrequent.

### **Point 4: Modelling Changes**

This is dealt with under Point 2 above and is considered to be resolved.



**Point 5: Use of Mini Buses**

It is noted that the use of mini buses is only proposed on a Sunday in association with the late afternoon services when there is a congregation of 100 people (2 buses) or 150 people (5 buses). In our view, it should be possible for the organisers to identify in advance, those people who would prefer to use the requisite minibuses and to make these available. This will depend on the degree of coordination and cooperation within the community and is a matter that we cannot advance any further.

Nevertheless, to the extent that concerns remain, an alternative strategy would be to delay the departure of some people until after 4.00pm, thereby ensuring a greater spread of activity and reducing traffic volumes during the critical 3.0pm to 4.00pm peak as assessed. Even if neither of these possibilities are available, it is noted that it is not uncommon for infrequent Sunday services associated with many denominations to create short term queuing and delays that may otherwise be deemed unacceptable and this includes many regular sporting events, school events etc.

If there are any queries on the above information, please do not hesitate to contact the undersigned.  
Yours faithfully,

**traffix**

Graham Pindar  
**Director**

**Encl: Attachments 1 and 2**



# Attachment 1

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## Summary of Modelling

**One Service Per Day**

Assumed Start = 12pm  
 Assumed Finish = 1:30pm  
 Volumes = 1pm - 2pm

Background Volumes					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	580	798	744	901
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	6	6	6	6
Southbound	Left	3	3	3	3
	Through	710	964	851	1075

100 Attendee Service (Cars only)					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through				
	Right				
Westbound	Left				
	Right	45	45	45	45
Southbound	Left				
	Through				

100 Attendee Service (Cars only) - DESIGN VOLUMES					
Approach	Movement	Scenario 1a	Scenario 1b	Scenario 1c	Scenario 1d
		Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	580	798	744	901
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	51	51	51	51
Southbound	Left	3	3	3	3
	Through	710	964	851	1075

Without Using Minibuses	LOS B	LOS B	LOS B	LOS C
Critical Mvt (WB RT) LOS				

Max RT Volume  
 Development  
 Vol Minibuses  
 Vol Cars  
 Total Check

Using Minibuses  
 Critical Mvt (WB RT) LOS

Background Volumes					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	580	798	744	901
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	6	6	6	6
Southbound	Left	3	3	3	3
	Through	710	964	851	1075

150 Attendee Service (Cars only)					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through				
	Right				
Westbound	Left				
	Right	68	68	68	68
Southbound	Left				
	Through				

150 Attendee Service (Cars only) - DESIGN VOLUMES					
Approach	Movement	Scenario 2a	Scenario 2b	Scenario 2c	Scenario 2d
		Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	580	798	744	901
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	74	74	74	74
Southbound	Left	3	3	3	3
	Through	710	964	851	1075

Without Using Minibuses	LOS B	LOS B	LOS B	LOS C
Critical Mvt (WB RT) LOS				

Max RT Volume  
 Development  
 Vol Minibuses  
 Vol Cars  
 Total Check

Using Minibuses  
 Critical Mvt (WB RT) LOS

Background Volumes					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	580	798	744	901
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	6	6	6	6
Southbound	Left	3	3	3	3
	Through	710	964	851	1075

300 Attendee Service (Cars only)					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through				
	Right				
Westbound	Left				
	Right	136	136	136	136
Southbound	Left				
	Through				

300 Attendee Service (Cars only) - DESIGN VOLUMES					
Approach	Movement	Scenario 3a	Scenario 3b	Scenario 3c	Scenario 3d
		Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	580	798	744	901
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	142	142	142	142
Southbound	Left	3	3	3	3
	Through	710	964	851	1075

Without Using Minibuses	LOS B	LOS D	LOS B	LOS F
Critical Mvt (WB RT) LOS				

Max RT Volume  
 Development  
 Vol Minibuses  
 Vol Cars  
 Total Check

Using Minibuses  
 Critical Mvt (WB RT) LOS

**Two Services Per Day**

Assumed Start = 11am and 2pm

Assumed Finish = 12:30pm and 3:30pm

Volumes = 3pm - 4pm (end of second service)

Background Volumes					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	631	913	714	1062
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	6	6	6	6
Southbound	Left	3	3	3	3
	Through	732	1044	803	1273

100 Attendee Service (Cars only)					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through				
	Right				
Westbound	Left				
	Right	45	45	45	45
Southbound	Left				
	Through				

100 Attendee Service (Cars only) - DESIGN VOLUMES					
Approach	Movement	Scenario 4a	Scenario 4b	Scenario 4c	Scenario 4d
		Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	631	913	714	1062
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	51	51	51	51
Southbound	Left	3	3	3	3
	Through	732	1044	803	1273

Without Using Minibuses					
Critical Mvt (WB RT) LOS	LOS B	LOS C	LOS B	LOS F	
Max RT Volume					30
Development					24
Vol Minibuses					2
Vol Cars					27
Total Check					29

Using Minibuses					
Critical Mvt (WB RT) LOS					LOS D

Background Volumes					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	631	913	714	1062
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	6	6	6	6
Southbound	Left	3	3	3	3
	Through	732	1044	803	1273

150 Attendee Service (Cars only)					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through				
	Right				
Westbound	Left				
	Right	68	68	68	68
Southbound	Left				
	Through				

150 Attendee Service (Cars only) - DESIGN VOLUMES					
Approach	Movement	Scenario 5a	Scenario 5b	Scenario 5c	Scenario 5d
		Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	631	913	714	1062
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	74	74	74	74
Southbound	Left	3	3	3	3
	Through	732	1044	803	1273

Without Using Minibuses					
Critical Mvt (WB RT) LOS	LOS B	LOS C	LOS B	LOS F	
Max RT Volume					28
Development					22
Vol Minibuses					5
Vol Cars					23
Total Check					28

Using Minibuses					
Critical Mvt (WB RT) LOS					LOS D

Background Volumes					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	631	913	714	1062
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	6	6	6	6
Southbound	Left	3	3	3	3
	Through	732	1044	803	1273

300 Attendee Service (Cars only)					
Approach	Movement	Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through				
	Right				
Westbound	Left				
	Right	136	136	136	136
Southbound	Left				
	Through				

300 Attendee Service (Cars only) - DESIGN VOLUMES					
Approach	Movement	Scenario 6a	Scenario 6b	Scenario 6c	Scenario 6d
		Mon - Thurs	Friday	Saturday	Sunday
Northbound	Through	631	913	714	1062
	Right	38	38	38	38
Westbound	Left	23	23	23	23
	Right	142	142	142	142
Southbound	Left	3	3	3	3
	Through	732	1044	803	1273

Without Using Minibuses					
Critical Mvt (WB RT) LOS	LOS B	LOS F	LOS B	LOS F	
Max RT Volume					120
Development					114
Vol Minibuses					2
Vol Cars					118
Total Check					120

Using Minibuses					
Critical Mvt (WB RT) LOS					LOS D

## Attachment 2

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Sidra Modelling Outputs (also provided electronically)

15.288 Marulan Cementary - Summary of SIDRA Results

**Right Turn Movements from Highland Way onto Hume Hwy**

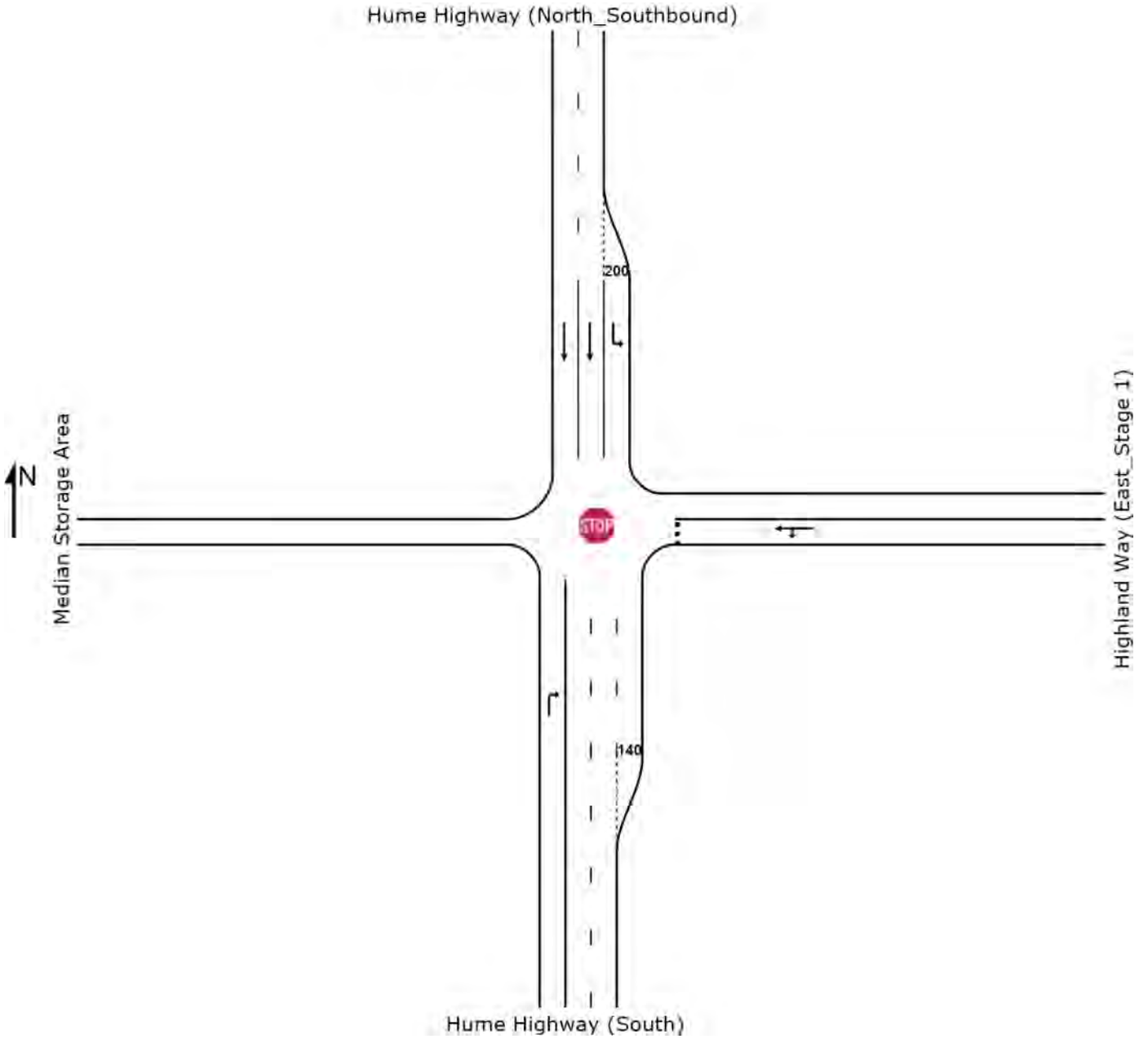
Scenario	DOS	Avg Delay (s)	LOS	Queue (m)	Minibuses Req
1a	0.173	13.6	A	4.5	-
1b	0.287	24.6	B	7.8	-
1c	0.226	18.5	B	6.0	-
1d	0.372	33.8	C	10.2	-
2a	0.240	14.3	A	6.7	-
2b	0.405	27.4	B	12.0	-
2c	0.317	20.1	B	9.2	-
2d	0.526	39.2	C	16.0	-
3a	0.439	17.3	B	15.6	-
3b	0.752	43.2	D	32.3	-
3c	0.584	26.3	B	21.9	-
3d	0.984	137.1	F	91.3	-
3d w MB	0.735	53.1	D	27.8	4
4a	0.179	14.0	A	4.7	-
4b	0.345	30.8	C	9.4	-
4c	0.206	16.5	B	5.3	-
4d	0.626	71.5	F	18.2	-
4d w MB	0.381	54.8	D	9.6	2
5a	0.248	14.8	B	7.0	-
5b	0.488	35.2	C	14.7	-
5c	0.278	17.8	B	8.3	-
5d	0.894	132.6	F	40.9	-
5d w MB	0.358	53.7	D	8.9	5
6a	0.453	18.0	B	16.2	-
6b	0.911	86.0	F	57.2	-
6b w MB	0.774	53.9	D	32.1	2
6c	0.528	22.5	B	19.4	-
6d	1.687	1320.2	F	656.9	-
6d w MB	0.405	55.9	D	10.3	13



# SITE LAYOUT

## Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.  
Stop (Two-Way)



## MOVEMENT SUMMARY

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 1a

Network: Hume-Highland Seagull\_Afternoon departure period - 1a

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.115	17.2	LOS B	0.4	2.7	0.70	0.90	55.5
Approach		38	5.0	38	5.0	0.115	17.2	NA	0.4	2.7	0.70	0.90	55.5
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.173	6.0	LOS A	0.6	4.5	0.60	0.74	48.5
2	T1	51	5.0	51	5.0	0.173	13.6	LOS A	0.6	4.5	0.60	0.74	38.4
Approach		74	5.0	74	5.0	0.173	11.2	LOS A	0.6	4.5	0.60	0.74	42.6
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	710	26.0	710	26.0	0.271	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		713	25.9	713	25.9	0.271	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		825	23.1	825	23.1	0.271	1.9	NA	0.6	4.5	0.09	0.11	95.8

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 1b

Network: Hume-Highland Seagull\_Afternoon departure period - 1b

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.198	26.5	LOS B	0.6	4.5	0.84	0.95	48.7
Approach		38	5.0	38	5.0	0.198	26.5	NA	0.6	4.5	0.84	0.95	48.7
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.287	8.3	LOS A	1.1	7.8	0.77	0.90	43.7
2	T1	51	5.0	51	5.0	0.287	24.6	LOS B	1.1	7.8	0.77	0.90	32.8
Approach		74	5.0	74	5.0	0.287	19.5	LOS B	1.1	7.8	0.77	0.90	37.1
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	964	26.0	964	26.0	0.367	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		967	25.9	967	25.9	0.367	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		1079	23.8	1079	23.8	0.367	2.3	NA	1.1	7.8	0.08	0.10	96.4

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 1c

Network: Hume-Highland Seagull\_Afternoon departure period - 1c

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.153	21.3	LOS B	0.5	3.5	0.78	0.93	52.3
Approach		38	5.0	38	5.0	0.153	21.3	NA	0.5	3.5	0.78	0.93	52.3
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.226	6.7	LOS A	0.8	6.0	0.70	0.82	46.3
2	T1	51	5.0	51	5.0	0.226	18.5	LOS B	0.8	6.0	0.70	0.82	35.8
Approach		74	5.0	74	5.0	0.226	14.8	LOS B	0.8	6.0	0.70	0.82	40.1
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	851	26.0	851	26.0	0.324	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		854	25.9	854	25.9	0.324	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		966	23.5	966	23.5	0.324	2.0	NA	0.8	6.0	0.08	0.10	96.5

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 1d

Network: Hume-Highland Seagull\_Afternoon departure period - 1d

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.259	34.1	LOS C	0.8	5.9	0.89	0.98	44.2
Approach		38	5.0	38	5.0	0.259	34.1	NA	0.8	5.9	0.89	0.98	44.2
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.372	11.0	LOS A	1.4	10.2	0.84	0.98	40.3
2	T1	51	5.0	51	5.0	0.372	33.8	LOS C	1.4	10.2	0.84	0.98	29.1
Approach		74	5.0	74	5.0	0.372	26.7	LOS B	1.4	10.2	0.84	0.98	33.5
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1075	26.0	1075	26.0	0.410	0.1	LOS A	0.0	0.0	0.00	0.00	109.6
Approach		1078	25.9	1078	25.9	0.410	0.1	NA	0.0	0.0	0.00	0.00	109.4
All Vehicles		1190	24.0	1190	24.0	0.410	2.8	NA	1.4	10.2	0.08	0.09	95.6

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 2a

Network: Hume-Highland Seagull\_Afternoon departure period - 2a

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.115	17.2	LOS B	0.4	2.7	0.70	0.90	55.5
Approach		38	5.0	38	5.0	0.115	17.2	NA	0.4	2.7	0.70	0.90	55.5
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.240	6.4	LOS A	0.9	6.7	0.65	0.80	47.8
2	T1	74	5.0	74	5.0	0.240	14.3	LOS A	0.9	6.7	0.65	0.80	37.5
Approach		97	5.0	97	5.0	0.240	12.4	LOS A	0.9	6.7	0.65	0.80	40.9
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	710	26.0	710	26.0	0.271	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		713	25.9	713	25.9	0.271	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		848	22.6	848	22.6	0.271	2.2	NA	0.9	6.7	0.11	0.13	93.5

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 2b

Network: Hume-Highland Seagull\_Afternoon departure period - 2b

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.198	26.5	LOS B	0.6	4.5	0.84	0.95	48.7
Approach		38	5.0	38	5.0	0.198	26.5	NA	0.6	4.5	0.84	0.95	48.7
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.405	10.4	LOS A	1.6	12.0	0.82	0.98	41.8
2	T1	74	5.0	74	5.0	0.405	27.4	LOS B	1.6	12.0	0.82	0.98	30.7
Approach		97	5.0	97	5.0	0.405	23.4	LOS B	1.6	12.0	0.82	0.98	34.2
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	964	26.0	964	26.0	0.367	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		967	25.9	967	25.9	0.367	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		1102	23.4	1102	23.4	0.405	3.0	NA	1.6	12.0	0.10	0.12	93.5

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 2c

Network: Hume-Highland Seagull\_Afternoon departure period - 2c

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.153	21.3	LOS B	0.5	3.5	0.78	0.93	52.3
Approach		38	5.0	38	5.0	0.153	21.3	NA	0.5	3.5	0.78	0.93	52.3
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.317	8.0	LOS A	1.3	9.2	0.75	0.90	44.9
2	T1	74	5.0	74	5.0	0.317	20.1	LOS B	1.3	9.2	0.75	0.90	34.2
Approach		97	5.0	97	5.0	0.317	17.2	LOS B	1.3	9.2	0.75	0.90	37.6
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	851	26.0	851	26.0	0.324	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		854	25.9	854	25.9	0.324	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		989	23.1	989	23.1	0.324	2.6	NA	1.3	9.2	0.10	0.13	93.9

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 2d

Network: Hume-Highland Seagull\_Afternoon departure period - 2d

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.259	34.1	LOS C	0.8	5.9	0.89	0.98	44.2
Approach		38	5.0	38	5.0	0.259	34.1	NA	0.8	5.9	0.89	0.98	44.2
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.526	15.8	LOS B	2.2	16.0	0.88	1.07	37.4
2	T1	74	5.0	74	5.0	0.526	39.2	LOS C	2.2	16.0	0.88	1.07	26.3
Approach		97	5.0	97	5.0	0.526	33.7	LOS C	2.2	16.0	0.88	1.07	29.6
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1075	26.0	1075	26.0	0.410	0.1	LOS A	0.0	0.0	0.00	0.00	109.6
Approach		1078	25.9	1078	25.9	0.410	0.1	NA	0.0	0.0	0.00	0.00	109.4
All Vehicles		1213	23.6	1213	23.6	0.526	3.8	NA	2.2	16.0	0.10	0.12	92.1

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 3a

Network: Hume-Highland Seagull\_Afternoon departure period - 3a

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.115	17.2	LOS B	0.4	2.7	0.70	0.90	55.5
Approach		38	5.0	38	5.0	0.115	17.2	NA	0.4	2.7	0.70	0.90	55.5
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.439	8.6	LOS A	2.1	15.6	0.74	0.96	45.6
2	T1	142	5.0	142	5.0	0.439	17.3	LOS B	2.1	15.6	0.74	0.96	34.9
Approach		165	5.0	165	5.0	0.439	16.1	LOS B	2.1	15.6	0.74	0.96	37.0
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	710	26.0	710	26.0	0.271	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		713	25.9	713	25.9	0.271	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		916	21.3	916	21.3	0.439	3.7	NA	2.1	15.6	0.16	0.21	86.6

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 3b

Network: Hume-Highland Seagull\_Afternoon departure period - 3b

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.198	26.5	LOS B	0.6	4.5	0.84	0.95	48.7
Approach		38	5.0	38	5.0	0.198	26.5	NA	0.6	4.5	0.84	0.95	48.7
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.752	24.7	LOS B	4.4	32.3	0.92	1.30	34.9
2	T1	142	5.0	142	5.0	0.752	43.2	LOS D	4.4	32.3	0.92	1.30	23.9
Approach		165	5.0	165	5.0	0.752	40.6	LOS C	4.4	32.3	0.92	1.30	25.9
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	964	26.0	964	26.0	0.367	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		967	25.9	967	25.9	0.367	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		1170	22.3	1170	22.3	0.752	6.6	NA	4.4	32.3	0.16	0.22	82.7

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 3c

Network: Hume-Highland Seagull\_Afternoon departure period - 3c

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.153	21.3	LOS B	0.5	3.5	0.78	0.93	52.3
Approach		38	5.0	38	5.0	0.153	21.3	NA	0.5	3.5	0.78	0.93	52.3
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.584	13.0	LOS A	3.0	21.9	0.85	1.10	41.3
2	T1	142	5.0	142	5.0	0.584	26.3	LOS B	3.0	21.9	0.85	1.10	30.2
Approach		165	5.0	165	5.0	0.584	24.5	LOS B	3.0	21.9	0.85	1.10	32.3
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	851	26.0	851	26.0	0.324	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		854	25.9	854	25.9	0.324	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		1057	21.9	1057	21.9	0.584	4.6	NA	3.0	21.9	0.16	0.21	85.9

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 3d

Network: Hume-Highland Seagull\_Afternoon departure period - 3d

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.259	34.1	LOS C	0.8	5.9	0.89	0.98	44.2
Approach		38	5.0	38	5.0	0.259	34.1	NA	0.8	5.9	0.89	0.98	44.2
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.984	111.5	LOS F	12.5	91.3	0.97	2.25	18.5
2	T1	142	5.0	142	5.0	0.984	137.1	LOS F	12.5	91.3	0.97	2.25	10.9
Approach		165	5.0	165	5.0	0.984	133.6	LOS F	12.5	91.3	0.97	2.25	12.1
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1075	26.0	1075	26.0	0.410	0.1	LOS A	0.0	0.0	0.00	0.00	109.6
Approach		1078	25.9	1078	25.9	0.410	0.1	NA	0.0	0.0	0.00	0.00	109.4
All Vehicles		1281	22.6	1281	22.6	0.984	18.3	NA	12.5	91.3	0.15	0.32	65.0

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 3d with Minibuses

Network: Hume-Highland Seagull\_Afternoon departure period - 3d with Minibuses

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.259	34.1	LOS C	0.8	5.9	0.89	0.98	44.2
Approach		38	5.0	38	5.0	0.259	34.1	NA	0.8	5.9	0.89	0.98	44.2
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.735	28.6	LOS C	3.8	27.8	0.93	1.25	32.4
2	T1	105	5.0	105	5.0	0.735	53.1	LOS D	3.8	27.8	0.93	1.25	21.7
Approach		128	5.0	128	5.0	0.735	48.7	LOS D	3.8	27.8	0.93	1.25	24.1
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1075	26.0	1075	26.0	0.410	0.1	LOS A	0.0	0.0	0.00	0.00	109.6
Approach		1078	25.9	1078	25.9	0.410	0.1	NA	0.0	0.0	0.00	0.00	109.4
All Vehicles		1244	23.1	1244	23.1	0.735	6.1	NA	3.8	27.8	0.12	0.16	85.8

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 4a

Network: Hume-Highland Seagull\_Afternoon departure period - 4a

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.118	17.6	LOS B	0.4	2.7	0.71	0.90	55.2
Approach		38	5.0	38	5.0	0.118	17.6	NA	0.4	2.7	0.71	0.90	55.2
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.179	6.3	LOS A	0.6	4.7	0.63	0.77	48.3
2	T1	51	5.0	51	5.0	0.179	14.0	LOS A	0.6	4.7	0.63	0.77	38.1
Approach		74	5.0	74	5.0	0.179	11.6	LOS A	0.6	4.7	0.63	0.77	42.3
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	732	26.0	732	26.0	0.254	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		735	25.9	735	25.9	0.254	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		847	23.1	847	23.1	0.254	1.9	NA	0.6	4.7	0.09	0.11	96.0

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 4b

Network: Hume-Highland Seagull\_Afternoon departure period - 4b

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.240	31.6	LOS C	0.7	5.4	0.88	0.97	45.6
Approach		38	5.0	38	5.0	0.240	31.6	NA	0.7	5.4	0.88	0.97	45.6
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.345	10.0	LOS A	1.3	9.4	0.82	0.96	41.3
2	T1	51	5.0	51	5.0	0.345	30.8	LOS C	1.3	9.4	0.82	0.96	30.2
Approach		74	5.0	74	5.0	0.345	24.3	LOS B	1.3	9.4	0.82	0.96	34.6
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1044	26.0	1044	26.0	0.398	0.1	LOS A	0.0	0.0	0.00	0.00	109.6
Approach		1047	25.9	1047	25.9	0.398	0.1	NA	0.0	0.0	0.00	0.00	109.4
All Vehicles		1159	23.9	1159	23.9	0.398	2.7	NA	1.3	9.4	0.08	0.09	95.9

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 4c

Network: Hume-Highland Seagull\_Afternoon departure period - 4c

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.138	19.8	LOS B	0.4	3.2	0.75	0.92	53.5
Approach		38	5.0	38	5.0	0.138	19.8	NA	0.4	3.2	0.75	0.92	53.5
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.206	6.3	LOS A	0.7	5.3	0.67	0.79	47.2
2	T1	51	5.0	51	5.0	0.206	16.5	LOS B	0.7	5.3	0.67	0.79	36.8
Approach		74	5.0	74	5.0	0.206	13.3	LOS A	0.7	5.3	0.67	0.79	41.1
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	803	26.0	803	26.0	0.306	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		806	25.9	806	25.9	0.306	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		918	23.4	918	23.4	0.306	1.9	NA	0.7	5.3	0.09	0.10	96.4

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 4d

Network: Hume-Highland Seagull\_Afternoon departure period - 4d

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.  
Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.446	61.4	LOS E	1.4	10.1	0.95	1.01	33.3
Approach		38	5.0	38	5.0	0.446	61.4	NA	1.4	10.1	0.95	1.01	33.3
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.626	29.9	LOS C	2.5	18.2	0.93	1.13	29.8
2	T1	51	5.0	51	5.0	0.626	71.5	LOS F	2.5	18.2	0.93	1.13	19.4
Approach		74	5.0	74	5.0	0.626	58.6	LOS E	2.5	18.2	0.93	1.13	23.2
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1273	26.0	1273	26.0	0.485	0.1	LOS A	0.0	0.0	0.00	0.00	109.5
Approach		1276	26.0	1276	26.0	0.485	0.1	NA	0.0	0.0	0.00	0.00	109.3
All Vehicles		1388	24.3	1388	24.3	0.626	4.9	NA	2.5	18.2	0.08	0.09	91.3

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 4d with Minibuses

Network: Hume-Highland Seagull\_Afternoon departure period - 4d with Minibuses

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.446	61.4	LOS E	1.4	10.1	0.95	1.01	33.3
Approach		38	5.0	38	5.0	0.446	61.4	NA	1.4	10.1	0.95	1.01	33.3
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.381	14.5	LOS B	1.3	9.6	0.88	1.01	36.0
2	T1	30	5.0	30	5.0	0.381	54.8	LOS D	1.3	9.6	0.88	1.01	25.0
Approach		53	5.0	53	5.0	0.381	37.3	LOS C	1.3	9.6	0.88	1.01	30.6
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1273	26.0	1273	26.0	0.485	0.1	LOS A	0.0	0.0	0.00	0.00	109.5
Approach		1276	26.0	1276	26.0	0.485	0.1	NA	0.0	0.0	0.00	0.00	109.3
All Vehicles		1367	24.6	1367	24.6	0.485	3.2	NA	1.4	10.1	0.06	0.07	96.1

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 5a

Network: Hume-Highland Seagull\_Afternoon departure period - 5a

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.118	17.6	LOS B	0.4	2.7	0.71	0.90	55.2
Approach		38	5.0	38	5.0	0.118	17.6	NA	0.4	2.7	0.71	0.90	55.2
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.248	6.8	LOS A	1.0	7.0	0.68	0.83	47.5
2	T1	74	5.0	74	5.0	0.248	14.8	LOS B	1.0	7.0	0.68	0.83	37.1
Approach		97	5.0	97	5.0	0.248	12.9	LOS A	1.0	7.0	0.68	0.83	40.5
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	732	26.0	732	26.0	0.254	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		735	25.9	735	25.9	0.254	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		870	22.7	870	22.7	0.254	2.3	NA	1.0	7.0	0.11	0.13	93.6

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 5b

Network: Hume-Highland Seagull\_Afternoon departure period - 5b

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.240	31.6	LOS C	0.7	5.4	0.88	0.97	45.6
Approach		38	5.0	38	5.0	0.240	31.6	NA	0.7	5.4	0.88	0.97	45.6
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.488	13.8	LOS A	2.0	14.7	0.86	1.04	38.8
2	T1	74	5.0	74	5.0	0.488	35.2	LOS C	2.0	14.7	0.86	1.04	27.6
Approach		97	5.0	97	5.0	0.488	30.1	LOS C	2.0	14.7	0.86	1.04	31.0
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1044	26.0	1044	26.0	0.398	0.1	LOS A	0.0	0.0	0.00	0.00	109.6
Approach		1047	25.9	1047	25.9	0.398	0.1	NA	0.0	0.0	0.00	0.00	109.4
All Vehicles		1182	23.5	1182	23.5	0.488	3.6	NA	2.0	14.7	0.10	0.12	92.7

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 5c

Network: Hume-Highland Seagull\_Afternoon departure period - 5c

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.138	19.8	LOS B	0.4	3.2	0.75	0.92	53.5
Approach		38	5.0	38	5.0	0.138	19.8	NA	0.4	3.2	0.75	0.92	53.5
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.287	7.3	LOS A	1.1	8.3	0.72	0.86	46.0
2	T1	74	5.0	74	5.0	0.287	17.8	LOS B	1.1	8.3	0.72	0.86	35.4
Approach		97	5.0	97	5.0	0.287	15.3	LOS B	1.1	8.3	0.72	0.86	38.8
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	803	26.0	803	26.0	0.306	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		806	25.9	806	25.9	0.306	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		941	22.9	941	22.9	0.306	2.4	NA	1.1	8.3	0.10	0.13	93.8

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 5d

Network: Hume-Highland Seagull\_Afternoon departure period - 5d

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.446	61.4	LOS E	1.4	10.1	0.95	1.01	33.3
Approach		38	5.0	38	5.0	0.446	61.4	NA	1.4	10.1	0.95	1.01	33.3
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.894	89.7	LOS F	5.6	40.9	0.96	1.53	19.6
2	T1	74	5.0	74	5.0	0.894	132.6	LOS F	5.6	40.9	0.96	1.53	11.6
Approach		97	5.0	97	5.0	0.894	122.4	LOS F	5.6	40.9	0.96	1.53	13.8
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1273	26.0	1273	26.0	0.485	0.1	LOS A	0.0	0.0	0.00	0.00	109.5
Approach		1276	26.0	1276	26.0	0.485	0.1	NA	0.0	0.0	0.00	0.00	109.3
All Vehicles		1411	23.9	1411	23.9	0.894	10.2	NA	5.6	40.9	0.09	0.13	79.7

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 5d with Minibuses

Network: Hume-Highland Seagull\_Afternoon departure period - 5d with Minibuses

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.446	61.4	LOS E	1.4	10.1	0.95	1.01	33.3
Approach		38	5.0	38	5.0	0.446	61.4	NA	1.4	10.1	0.95	1.01	33.3
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.358	13.5	LOS A	1.2	8.9	0.87	1.00	36.7
2	T1	28	5.0	28	5.0	0.358	53.7	LOS D	1.2	8.9	0.87	1.00	25.6
Approach		51	5.0	51	5.0	0.358	35.6	LOS C	1.2	8.9	0.87	1.00	31.4
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1273	26.0	1273	26.0	0.485	0.1	LOS A	0.0	0.0	0.00	0.00	109.5
Approach		1276	26.0	1276	26.0	0.485	0.1	NA	0.0	0.0	0.00	0.00	109.3
All Vehicles		1365	24.6	1365	24.6	0.485	3.1	NA	1.4	10.1	0.06	0.07	96.5

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 6a

Network: Hume-Highland Seagull\_Afternoon departure period - 6a

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.118	17.6	LOS B	0.4	2.7	0.71	0.90	55.2
Approach		38	5.0	38	5.0	0.118	17.6	NA	0.4	2.7	0.71	0.90	55.2
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.453	9.3	LOS A	2.2	16.2	0.77	0.98	45.2
2	T1	142	5.0	142	5.0	0.453	18.0	LOS B	2.2	16.2	0.77	0.98	34.5
Approach		165	5.0	165	5.0	0.453	16.8	LOS B	2.2	16.2	0.77	0.98	36.6
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	732	26.0	732	26.0	0.254	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		735	25.9	735	25.9	0.254	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		938	21.4	938	21.4	0.453	3.7	NA	2.2	16.2	0.16	0.21	86.7

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 6b

Network: Hume-Highland Seagull\_Afternoon departure period - 6b

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.240	31.6	LOS C	0.7	5.4	0.88	0.97	45.6
Approach		38	5.0	38	5.0	0.240	31.6	NA	0.7	5.4	0.88	0.97	45.6
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.911	62.6	LOS E	7.8	57.2	0.96	1.75	24.9
2	T1	142	5.0	142	5.0	0.911	86.0	LOS F	7.8	57.2	0.96	1.75	15.5
Approach		165	5.0	165	5.0	0.911	82.7	LOS F	7.8	57.2	0.96	1.75	17.1
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1044	26.0	1044	26.0	0.398	0.1	LOS A	0.0	0.0	0.00	0.00	109.6
Approach		1047	25.9	1047	25.9	0.398	0.1	NA	0.0	0.0	0.00	0.00	109.4
All Vehicles		1250	22.5	1250	22.5	0.911	11.9	NA	7.8	57.2	0.15	0.26	73.7

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 6b with Minibuses

Network: Hume-Highland Seagull\_Afternoon departure period - 6b with Minibuses

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.240	31.6	LOS C	0.7	5.4	0.88	0.97	45.6
Approach		38	5.0	38	5.0	0.240	31.6	NA	0.7	5.4	0.88	0.97	45.6
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.774	31.1	LOS C	4.4	32.1	0.93	1.32	32.0
2	T1	120	5.0	120	5.0	0.774	53.9	LOS D	4.4	32.1	0.93	1.32	21.3
Approach		143	5.0	143	5.0	0.774	50.2	LOS D	4.4	32.1	0.93	1.32	23.4
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1044	26.0	1044	26.0	0.398	0.1	LOS A	0.0	0.0	0.00	0.00	109.6
Approach		1047	25.9	1047	25.9	0.398	0.1	NA	0.0	0.0	0.00	0.00	109.4
All Vehicles		1228	22.9	1228	22.9	0.774	6.9	NA	4.4	32.1	0.14	0.19	83.5

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 6c

Network: Hume-Highland Seagull\_Afternoon departure period - 6c

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.138	19.8	LOS B	0.4	3.2	0.75	0.92	53.5
Approach		38	5.0	38	5.0	0.138	19.8	NA	0.4	3.2	0.75	0.92	53.5
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.528	11.0	LOS A	2.7	19.4	0.81	1.04	43.0
2	T1	142	5.0	142	5.0	0.528	22.5	LOS B	2.7	19.4	0.81	1.04	32.0
Approach		165	5.0	165	5.0	0.528	20.9	LOS B	2.7	19.4	0.81	1.04	34.1
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	803	26.0	803	26.0	0.306	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		806	25.9	806	25.9	0.306	0.1	NA	0.0	0.0	0.00	0.00	109.5
All Vehicles		1009	21.7	1009	21.7	0.528	4.2	NA	2.7	19.4	0.16	0.21	86.4

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 6d

Network: Hume-Highland Seagull\_Afternoon departure period - 6d

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.446	61.4	LOS E	1.4	10.1	0.95	1.01	33.3
Approach		38	5.0	38	5.0	0.446	61.4	NA	1.4	10.1	0.95	1.01	33.3
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	1.687	1273.9	LOS F	90.0	656.9	1.00	6.55	2.7
2	T1	142	5.0	142	5.0	1.687	1320.2	LOS F	90.0	656.9	1.00	6.55	1.4
Approach		165	5.0	165	5.0	1.687	1313.7	LOS F	90.0	656.9	1.00	6.55	1.6
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1273	26.0	1273	26.0	0.485	0.1	LOS A	0.0	0.0	0.00	0.00	109.5
Approach		1276	26.0	1276	26.0	0.485	0.1	NA	0.0	0.0	0.00	0.00	109.3
All Vehicles		1479	23.1	1479	23.1	1.687	148.2	NA	90.0	656.9	0.14	0.76	19.0

Level of Service (LOS) Method: Delay (RTA NSW).

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

**STOP** Site: 01. Hume-Highland\_Seagull Stage 1\_Afternoon departure period - 6d with Minibuses

Network: Hume-Highland Seagull\_Afternoon departure period - 6d with Minibuses

Staged crossing Stage 1 (Minor Road) at three-way intersection with 5-lane major road. Major road turn lane is treated as a full-length lane.

Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows 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
South: Hume Highway (South)													
12	R2	38	5.0	38	5.0	0.446	61.4	LOS E	1.4	10.1	0.95	1.01	33.3
Approach		38	5.0	38	5.0	0.446	61.4	NA	1.4	10.1	0.95	1.01	33.3
East: Highland Way (East Stage 1)													
1	L2	23	5.0	23	5.0	0.405	15.5	LOS B	1.4	10.3	0.88	1.02	35.4
2	T1	32	5.0	32	5.0	0.405	55.9	LOS D	1.4	10.3	0.88	1.02	24.4
Approach		55	5.0	55	5.0	0.405	39.1	LOS C	1.4	10.3	0.88	1.02	29.8
North: Hume Highway (North Southbound)													
4	L2	3	5.0	3	5.0	0.002	8.3	LOS A	0.0	0.0	0.00	0.67	70.2
5	T1	1273	26.0	1273	26.0	0.485	0.1	LOS A	0.0	0.0	0.00	0.00	109.5
Approach		1276	26.0	1276	26.0	0.485	0.1	NA	0.0	0.0	0.00	0.00	109.3
All Vehicles		1369	24.5	1369	24.5	0.485	3.4	NA	1.4	10.3	0.06	0.07	95.7

Level of Service (LOS) Method: Delay (RTA NSW).

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.

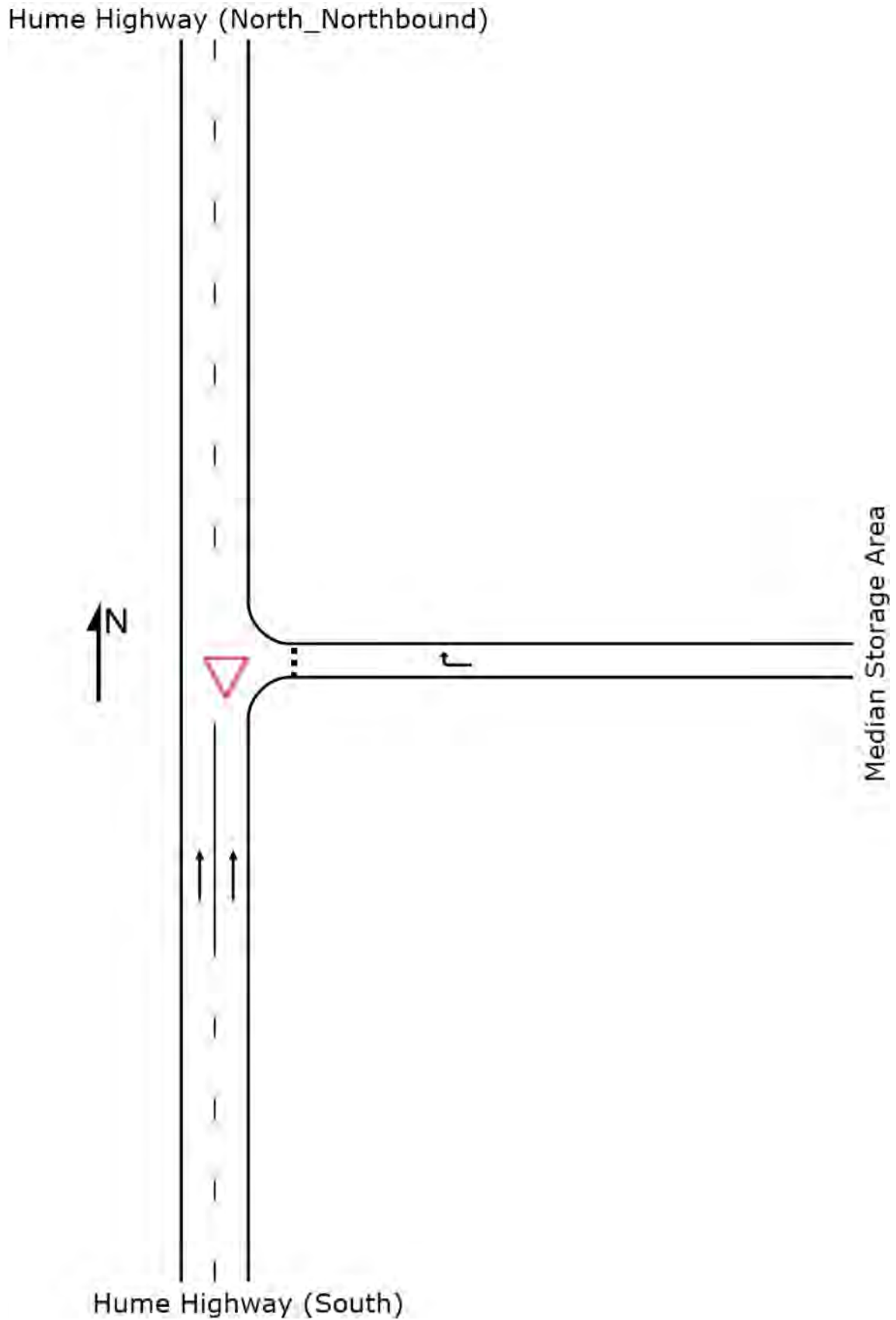
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

## SITE LAYOUT

### ▽ Site: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)







# MOVEMENT SUMMARY

Site: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 1a

Network: Hume-Highland Seagull\_Afternoon departure period - 1a

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	580	20.0	580	20.0	0.168	0.0	LOS A	0.0	0.0	0.00	0.00	109.9
Approach		580	20.0	580	20.0	0.168	0.0	NA	0.0	0.0	0.00	0.00	109.9
East: Median Storage Area													
3	R2	51	5.0	51	5.0	0.063	6.4	LOS A	0.2	1.1	0.47	0.69	52.5
Approach		51	5.0	51	5.0	0.063	6.4	LOS A	0.2	1.1	0.47	0.69	52.5
All Vehicles		631	18.8	631	18.8	0.168	0.5	NA	0.2	1.1	0.04	0.06	103.0

Level of Service (LOS) Method: Delay (RTA NSW).

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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## MOVEMENT SUMMARY

▽ Site: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 1b

☒☒ Network: Hume-Highland Seagull\_Afternoon departure period - 1b

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	798	20.0	798	20.0	0.231	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		798	20.0	798	20.0	0.231	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	51	5.0	51	5.0	0.082	8.0	LOS A	0.3	1.5	0.58	0.80	51.0
Approach		51	5.0	51	5.0	0.082	8.0	LOS A	0.3	1.5	0.58	0.80	51.0
All Vehicles		849	19.1	849	19.1	0.231	0.5	NA	0.3	1.5	0.03	0.05	104.4

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 1c

☒☒ Network: Hume-Highland Seagull\_Afternoon departure period - 1c

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	744	20.0	744	20.0	0.216	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		744	20.0	744	20.0	0.216	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	51	5.0	51	5.0	0.076	7.5	LOS A	0.2	1.4	0.54	0.77	51.4
Approach		51	5.0	51	5.0	0.076	7.5	LOS A	0.2	1.4	0.54	0.77	51.4
All Vehicles		795	19.0	795	19.0	0.216	0.5	NA	0.2	1.4	0.03	0.05	104.1

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 1d

☒☒ Network: Hume-Highland Seagull\_Afternoon departure period - 1d

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	901	20.0	901	20.0	0.261	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		901	20.0	901	20.0	0.261	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	51	5.0	51	5.0	0.094	8.9	LOS A	0.3	1.7	0.64	0.82	50.1
Approach		51	5.0	51	5.0	0.094	8.9	LOS A	0.3	1.7	0.64	0.82	50.1
All Vehicles		952	19.2	952	19.2	0.261	0.5	NA	0.3	1.7	0.03	0.04	104.7

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 2a

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 2a

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	580	20.0	580	20.0	0.168	0.0	LOS A	0.0	0.0	0.00	0.00	109.9
Approach		580	20.0	580	20.0	0.168	0.0	NA	0.0	0.0	0.00	0.00	109.9
East: Median Storage Area													
3	R2	74	5.0	74	5.0	0.091	6.5	LOS A	0.3	1.7	0.47	0.70	52.4
Approach		74	5.0	74	5.0	0.091	6.5	LOS A	0.3	1.7	0.47	0.70	52.4
All Vehicles		654	18.3	654	18.3	0.168	0.7	NA	0.3	1.7	0.05	0.08	100.4

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 2b

Network: Hume-Highland Seagull\_Afternoon departure period - 2b

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	798	20.0	798	20.0	0.231	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		798	20.0	798	20.0	0.231	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	74	5.0	74	5.0	0.119	8.1	LOS A	0.4	2.2	0.59	0.80	50.9
Approach		74	5.0	74	5.0	0.119	8.1	LOS A	0.4	2.2	0.59	0.80	50.9
All Vehicles		872	18.7	872	18.7	0.231	0.7	NA	0.4	2.2	0.05	0.07	102.2

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 2c

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 2c

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	744	20.0	744	20.0	0.216	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		744	20.0	744	20.0	0.216	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	74	5.0	74	5.0	0.111	7.6	LOS A	0.4	2.0	0.55	0.78	51.3
Approach		74	5.0	74	5.0	0.111	7.6	LOS A	0.4	2.0	0.55	0.78	51.3
All Vehicles		818	18.6	818	18.6	0.216	0.7	NA	0.4	2.0	0.05	0.07	101.8

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 2d

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 2d

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	901	20.0	901	20.0	0.261	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		901	20.0	901	20.0	0.261	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	74	5.0	74	5.0	0.136	9.1	LOS A	0.4	2.5	0.65	0.83	49.9
Approach		74	5.0	74	5.0	0.136	9.1	LOS A	0.4	2.5	0.65	0.83	49.9
All Vehicles		975	18.9	975	18.9	0.261	0.7	NA	0.4	2.5	0.05	0.06	102.7

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 3a

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 3a

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	580	20.0	580	20.0	0.168	0.0	LOS A	0.0	0.0	0.00	0.00	109.9
Approach		580	20.0	580	20.0	0.168	0.0	NA	0.0	0.0	0.00	0.00	109.9
East: Median Storage Area													
3	R2	142	5.0	142	5.0	0.175	6.7	LOS A	0.6	3.4	0.50	0.74	52.2
Approach		142	5.0	142	5.0	0.175	6.7	LOS A	0.6	3.4	0.50	0.74	52.2
All Vehicles		722	17.0	722	17.0	0.175	1.3	NA	0.6	3.4	0.10	0.15	93.9

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 3b

Network: Hume-Highland Seagull\_Afternoon departure period - 3b

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	798	20.0	798	20.0	0.231	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		798	20.0	798	20.0	0.231	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	142	5.0	142	5.0	0.228	8.5	LOS A	0.8	4.5	0.62	0.83	50.4
Approach		142	5.0	142	5.0	0.228	8.5	LOS A	0.8	4.5	0.62	0.83	50.4
All Vehicles		940	17.7	940	17.7	0.231	1.3	NA	0.8	4.5	0.09	0.13	96.5

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 3c

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 3c

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	744	20.0	744	20.0	0.216	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		744	20.0	744	20.0	0.216	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	142	5.0	142	5.0	0.213	7.9	LOS A	0.7	4.2	0.58	0.80	51.0
Approach		142	5.0	142	5.0	0.213	7.9	LOS A	0.7	4.2	0.58	0.80	51.0
All Vehicles		886	17.6	886	17.6	0.216	1.3	NA	0.7	4.2	0.09	0.13	96.1

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 3d

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 3d

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	901	20.0	901	20.0	0.261	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		901	20.0	901	20.0	0.261	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	22	5.0	22	5.0	0.040	8.7	LOS A	0.1	0.7	0.62	0.81	50.2
Approach		22	5.0	22	5.0	0.040	8.7	LOS A	0.1	0.7	0.62	0.81	50.2
All Vehicles		923	19.6	923	19.6	0.261	0.2	NA	0.1	0.7	0.01	0.02	107.5

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 3d with Minibuses

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 3d with Minibuses

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	901	20.0	901	20.0	0.261	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		901	20.0	901	20.0	0.261	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	105	5.0	105	5.0	0.193	9.3	LOS A	0.6	3.6	0.66	0.84	49.7
Approach		105	5.0	105	5.0	0.193	9.3	LOS A	0.6	3.6	0.66	0.84	49.7
All Vehicles		1006	18.4	1006	18.4	0.261	1.0	NA	0.6	3.6	0.07	0.09	100.1

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 4a

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 4a

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	631	20.0	631	20.0	0.183	0.0	LOS A	0.0	0.0	0.00	0.00	109.9
Approach		631	20.0	631	20.0	0.183	0.0	NA	0.0	0.0	0.00	0.00	109.9
East: Median Storage Area													
3	R2	51	5.0	51	5.0	0.067	6.7	LOS A	0.2	1.2	0.49	0.71	51.9
Approach		51	5.0	51	5.0	0.067	6.7	LOS A	0.2	1.2	0.49	0.71	51.9
All Vehicles		682	18.9	682	18.9	0.183	0.5	NA	0.2	1.2	0.04	0.05	102.5

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 4b

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 4b

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	913	20.0	913	20.0	0.265	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		913	20.0	913	20.0	0.265	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	51	5.0	51	5.0	0.095	9.0	LOS A	0.3	1.7	0.64	0.83	49.9
Approach		51	5.0	51	5.0	0.095	9.0	LOS A	0.3	1.7	0.64	0.83	49.9
All Vehicles		964	19.2	964	19.2	0.265	0.5	NA	0.3	1.7	0.03	0.04	104.8

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 4c

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 4c

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	714	20.0	714	20.0	0.207	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		714	20.0	714	20.0	0.207	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	51	5.0	51	5.0	0.074	7.3	LOS A	0.2	1.3	0.53	0.75	51.6
Approach		51	5.0	51	5.0	0.074	7.3	LOS A	0.2	1.3	0.53	0.75	51.6
All Vehicles		765	19.0	765	19.0	0.207	0.5	NA	0.2	1.3	0.04	0.05	103.9

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 4d

Network: Hume-Highland Seagull\_Afternoon departure period - 4d

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	1062	20.0	1062	20.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		1062	20.0	1062	20.0	0.308	0.0	NA	0.0	0.0	0.00	0.00	109.7
East: Median Storage Area													
3	R2	51	5.0	51	5.0	0.118	10.8	LOS A	0.4	2.1	0.72	0.86	48.3
Approach		51	5.0	51	5.0	0.118	10.8	LOS A	0.4	2.1	0.72	0.86	48.3
All Vehicles		1113	19.3	1113	19.3	0.308	0.5	NA	0.4	2.1	0.03	0.04	105.1

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 4d with Minibuses

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 4d with Minibuses

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	1062	20.0	1062	20.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		1062	20.0	1062	20.0	0.308	0.0	NA	0.0	0.0	0.00	0.00	109.7
East: Median Storage Area													
3	R2	30	5.0	30	5.0	0.070	10.6	LOS A	0.2	1.2	0.71	0.86	48.5
Approach		30	5.0	30	5.0	0.070	10.6	LOS A	0.2	1.2	0.71	0.86	48.5
All Vehicles		1092	19.6	1092	19.6	0.308	0.3	NA	0.2	1.2	0.02	0.02	107.0

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 5a

☒☒ Network: Hume-Highland Seagull\_Afternoon departure period - 5a

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	631	20.0	631	20.0	0.183	0.0	LOS A	0.0	0.0	0.00	0.00	109.9
Approach		631	20.0	631	20.0	0.183	0.0	NA	0.0	0.0	0.00	0.00	109.9
East: Median Storage Area													
3	R2	74	5.0	74	5.0	0.097	6.8	LOS A	0.3	1.8	0.49	0.73	51.8
Approach		74	5.0	74	5.0	0.097	6.8	LOS A	0.3	1.8	0.49	0.73	51.8
All Vehicles		705	18.4	705	18.4	0.183	0.7	NA	0.3	1.8	0.05	0.08	99.7

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 5b

☒☒ Network: Hume-Highland Seagull\_Afternoon departure period - 5b

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	913	20.0	913	20.0	0.265	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		913	20.0	913	20.0	0.265	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	74	5.0	74	5.0	0.138	9.2	LOS A	0.4	2.5	0.65	0.83	49.8
Approach		74	5.0	74	5.0	0.138	9.2	LOS A	0.4	2.5	0.65	0.83	49.8
All Vehicles		987	18.9	987	18.9	0.265	0.7	NA	0.4	2.5	0.05	0.06	102.8

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 5c

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 5c

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	714	20.0	714	20.0	0.207	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		714	20.0	714	20.0	0.207	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	74	5.0	74	5.0	0.107	7.4	LOS A	0.3	2.0	0.54	0.77	51.5
Approach		74	5.0	74	5.0	0.107	7.4	LOS A	0.3	2.0	0.54	0.77	51.5
All Vehicles		788	18.6	788	18.6	0.207	0.7	NA	0.3	2.0	0.05	0.07	101.6

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 5d

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 5d

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	1062	20.0	1062	20.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		1062	20.0	1062	20.0	0.308	0.0	NA	0.0	0.0	0.00	0.00	109.7
East: Median Storage Area													
3	R2	74	5.0	74	5.0	0.171	11.0	LOS A	0.5	3.1	0.73	0.87	48.2
Approach		74	5.0	74	5.0	0.171	11.0	LOS A	0.5	3.1	0.73	0.87	48.2
All Vehicles		1136	19.0	1136	19.0	0.308	0.8	NA	0.5	3.1	0.05	0.06	103.2

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 5d with Minibuses

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 5d with Minibuses

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	1062	20.0	1062	20.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		1062	20.0	1062	20.0	0.308	0.0	NA	0.0	0.0	0.00	0.00	109.7
East: Median Storage Area													
3	R2	28	5.0	28	5.0	0.065	10.6	LOS A	0.2	1.1	0.71	0.86	48.7
Approach		28	5.0	28	5.0	0.065	10.6	LOS A	0.2	1.1	0.71	0.86	48.7
All Vehicles		1090	19.6	1090	19.6	0.308	0.3	NA	0.2	1.1	0.02	0.02	107.2

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 6a

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 6a

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	631	20.0	631	20.0	0.183	0.0	LOS A	0.0	0.0	0.00	0.00	109.9
Approach		631	20.0	631	20.0	0.183	0.0	NA	0.0	0.0	0.00	0.00	109.9
East: Median Storage Area													
3	R2	142	5.0	142	5.0	0.186	7.0	LOS A	0.6	3.6	0.52	0.77	51.6
Approach		142	5.0	142	5.0	0.186	7.0	LOS A	0.6	3.6	0.52	0.77	51.6
All Vehicles		773	17.2	773	17.2	0.186	1.3	NA	0.6	3.6	0.10	0.14	93.0

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 6b

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 6b

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	913	20.0	913	20.0	0.265	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		913	20.0	913	20.0	0.265	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	142	5.0	142	5.0	0.265	10.0	LOS A	0.9	5.4	0.69	0.88	49.1
Approach		142	5.0	142	5.0	0.265	10.0	LOS A	0.9	5.4	0.69	0.88	49.1
All Vehicles		1055	18.0	1055	18.0	0.265	1.4	NA	0.9	5.4	0.09	0.12	97.3

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 6b with Minibuses

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 6b with Minibuses

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	913	20.0	913	20.0	0.265	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		913	20.0	913	20.0	0.265	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	120	5.0	120	5.0	0.224	9.6	LOS A	0.8	4.4	0.68	0.86	49.4
Approach		120	5.0	120	5.0	0.224	9.6	LOS A	0.8	4.4	0.68	0.86	49.4
All Vehicles		1033	18.3	1033	18.3	0.265	1.2	NA	0.8	4.4	0.08	0.10	99.0

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 6c

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 6c

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	714	20.0	714	20.0	0.207	0.0	LOS A	0.0	0.0	0.00	0.00	109.8
Approach		714	20.0	714	20.0	0.207	0.0	NA	0.0	0.0	0.00	0.00	109.8
East: Median Storage Area													
3	R2	142	5.0	142	5.0	0.205	7.6	LOS A	0.7	4.0	0.56	0.79	51.3
Approach		142	5.0	142	5.0	0.205	7.6	LOS A	0.7	4.0	0.56	0.79	51.3
All Vehicles		856	17.5	856	17.5	0.207	1.3	NA	0.7	4.0	0.09	0.13	95.8

Level of Service (LOS) Method: Delay (RTA NSW).

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: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 6d

☒☒ Network: Hume-Highland Seagull\_Afternoon departure period - 6d

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	1062	20.0	1062	20.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		1062	20.0	1062	20.0	0.308	0.0	NA	0.0	0.0	0.00	0.00	109.7
East: Median Storage Area													
3	R2	142	5.0	84	5.0	0.195	11.3	LOS A	0.6	3.6	0.74	0.88	48.0
Approach		142	5.0	84 <sup>N1</sup>	5.0	0.195	11.3	LOS A	0.6	3.6	0.74	0.88	48.0
All Vehicles		1204	18.2	1146 <sup>N1</sup>	19.2	0.308	0.9	NA	0.6	3.6	0.05	0.06	102.4

Level of Service (LOS) Method: Delay (RTA NSW).

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.

<sup>N1</sup> Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Organisation: TRAFFIX | Processed: Tuesday, 27 October 2015 10:27:19 AM

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## MOVEMENT SUMMARY

▽ Site: 02. Hume-Highland\_Seagull Stage 2\_Afternoon departure period - 6d with Minibuses

⊕⊕ Network: Hume-Highland Seagull\_Afternoon departure period - 6d with Minibuses

Staged crossing Stage 2 (Median) at three-way intersection with 5-lane major road.  
Give-way behaviour assumed at Stage 2.  
Giveway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hume Highway (South)													
11	T1	1062	20.0	1062	20.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.00	109.7
Approach		1062	20.0	1062	20.0	0.308	0.0	NA	0.0	0.0	0.00	0.00	109.7
East: Median Storage Area													
3	R2	32	5.0	32	5.0	0.074	10.7	LOS A	0.2	1.3	0.71	0.86	48.5
Approach		32	5.0	32	5.0	0.074	10.7	LOS A	0.2	1.3	0.71	0.86	48.5
All Vehicles		1094	19.6	1094	19.6	0.308	0.4	NA	0.2	1.3	0.02	0.03	106.8

Level of Service (LOS) Method: Delay (RTA NSW).

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.