From: Kathryn Saunders
Sent: Thu, 22 Oct 2020 09:33:27 +1100
To: svc_t1connectp
Subject: FW: Response to TfNSW Correspondence (24 August 2020) | DA20/0148 | High St, Penrith
Attachments: PTC Response to TfNSW RFI dated 24 August 2020.pdf

#ECMBODY

Kathryn Saunders
Senior Development Assessment Planner

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PO Box 60, PENRITH NSW 2751
www.visitpenrith.com.au
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From: Rob Battersby <rbattersby@urbis.com.au>
Sent: Thursday, 22 October 2020 9:02 AM
To: Kathryn Saunders <kathryn.saunders@penrith.city>
Cc: Bernardo Reiter <breiter@toga.com.au>; John Wynne <jwynne@urbis.com.au>; Ashleigh Ryan <aryan@urbis.com.au>
Subject: Response to TfNSW Correspondence (24 August 2020) | DA20/0148 | High St, Penrith

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Hi Kathryn,

Further to your email below, please find **attached*** a supplementary traffic assessment prepared by PTC in response to the TfNSW correspondence (dated 24 August 2020).

This modelling in this report is supported by SIDRA files accessed in the below link:

https://www.dropbox.com/sh/8hjl7jcav5slgpr/AABxcs7GvqJ-UDPMjQb-nbNba?dl=0

We would be very grateful if you could confirm receipt of this documentation. Please let me know if you have any trouble accessing these files.

Kind regards,

Rob

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SHAPING CITIES AND COMMUNITIES

URBIS

ANGEL PLACE, LEVEL 8, 123 PITT STREET
SYDNEY, NSW 2000, AUSTRALIA

From: Kathryn Saunders <kathryn.saunders@penrith.city>
Sent: Monday, 24 August 2020 3:07 PM
To: Ashleigh Ryan <aryan@urbis.com.au>
Subject: TfNSW Response to Additional Information - DA20/0148 - Penrith City Council

Dear Ashleigh,

Please see the attached TfNSW correspondence. Please also be aware that I will be on annual leave from Tuesday through to Friday this week, returning Monday 31 August 2020.

Kind regards,

Kathryn Saunders
Senior Development Assessment Planner

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From: Laura Van putten <Laura.VAN.PUTTEN@transport.nsw.gov.au>
Sent: Monday, 24 August 2020 2:22 PM
To: Kathryn Saunders <kathryn.saunders@penrith.city>
Cc: Pahee Rathan <Pahee.RATHAN@transport.nsw.gov.au>
Subject: FW: Applicant response to requested TfNSW Information - DA20/0148 - Penrith City Council

Hi Kathy

Please find attached TfNSW response to the subject modelling response provided by PTC.

Any questions please let me know.

Kind regards,

Laura van Putten

Land Use Planner
Planning and Programs
Greater Sydney
Transport for NSW

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Level 5 27 Argyle Street Parramatta NSW 2150

Use public transport... plan your trip at transportnsw.info

I acknowledge the traditional owners and custodians of the land in which I work and pay my respects to Elders past, present and future.

12 October 2020

Bernardo Reiter Landa
Toga
Level 5, 45 Jones Street
Ultimo
NSW 2007

Dear Bernardo

1. DA20/0148 – Response to TfNSW RFI dated 24 August 2020 (Ref. SYD20/00453/03)

This letter has been prepared to present our response to the comments / queries raised by TfNSW relating to the traffic assessment and modelling associated with the subject Development Application.

2. Background

To provide some context, when the original model was established in 2017, we were assessing a smaller development (FSR of 3:1) with a new north/south road link. A potential major upgrade to Mulgoa Road (the Jane Street project) was considered and a warrants assessment completed in relation the future signalisation of the High Street roundabout in the context that Council were also developing a Town Centre model to project growth on the network and the need for upgrades.

In terms of matching the data, it was agreed with Council that we would adopt the data from the Town Centre strategic model, which was being developed at the time of the original DA. We agreed that 2020 would form the base year and 2026 was agreed as the post development year as the development could be completed by 2026. The RMS model was already set up for 2026, therefore the Council data was increased to match the RMS data (the growth was applied equally to all movements except those associated with the Westfield car park at Worth Street.

The peak periods were established as 8:00-9:00am and 4:00-5:00pm.

The primary comment from TfNSW relates to the use of traffic data from Council's town centre model and RMS' forecast traffic volumes for Mulgoa Road (which represented volumes following the current widening project). In this regard we have followed the advice of TfNSW and obtained SCATS traffic volume data from a period prior to the Covid-19 restrictions (September 2019). These volumes have been referenced to validate the volumes used in our original models.

A key finding is that the 2019 SCATS data has overall lower volumes than those adopted in our original modelling, which suggests that adopting Council's and RMS' growth projected volumes provided a robust base case for the model that accompanied the DA. We acknowledge that using the separate datasets did result in some loss/gain of traffic volumes between intersections, however most of the turning movements at the traffic signalised intersections adopted the higher traffic volume.

3. Assumptions

- Upgrades to Mulgoa Road/High Street and Mulgoa Road/Union Road have been completed by 2026.
- The proportion of heavy vehicles on the through movements along Mulgoa Road have been adjusted in accordance with traffic surveys undertaken at the intersection of Mulgoa Road/Jamison Road on 28th November 2019 for the Penrith Panthers site. This is identified to be 11.1% heavy vehicles in the AM peak and 2.7% heavy vehicles in the PM peak.
- A nominal background growth rate of 2% p.a. has been applied to all through movements on High Street and Mulgoa Road and all movements at the intersection of High Street/Mulgoa Road. It has been observed that traffic growth at a nearby RMS permanent counter (Station ID: 86036) was less than 2% p.a. and the applied growth rate is conservative.
- The directional splits for SCATS loop detector counts that have shared turn movements has been proportionally split based on previous traffic volume data provided by Council and RMS.
- The turn movements at the unsignalized intersections have been estimated using the turning proportions identified in the previous traffic volume data provided by Council and RMS.
- These turn movements have been balanced to account for any discrepancy between midblock flows.
- Roundabout at the intersection of High Street and the new link road is maintained.

4. Executive Summary

In summary, in response to the comments provided by TfNSW, we have prepared the following modelling scenarios:

	ptc. Model	SCATS Based Model
Scenario 1A	2020 Existing AM Peak	2020 Existing AM Peak
Scenario 1B	2020 Existing PM Peak	2020 Existing PM Peak
Scenario 2A	2026 Background Growth AM Peak	2026 2026 Background Growth AM Peak
Scenario 2B	2026 Background Growth PM Peak	2026 2026 Background Growth AM Peak
Scenario 3A	2026 Background Growth + Development AM Peak	2026 Background Growth + Development AM Peak
Scenario 3B	2026 Background Growth + Development PM Peak	2026 Background Growth + Development AM Peak
Scenario 4A	2026 Background Growth + Development + Urban Apartments AM Peak	2026 Background Growth + Development + Urban Apartments PM Peak
Scenario 4B	2026 Background Growth + Development + Urban Apartments PM Peak	2026 Background Growth + Development + Urban Apartments PM Peak

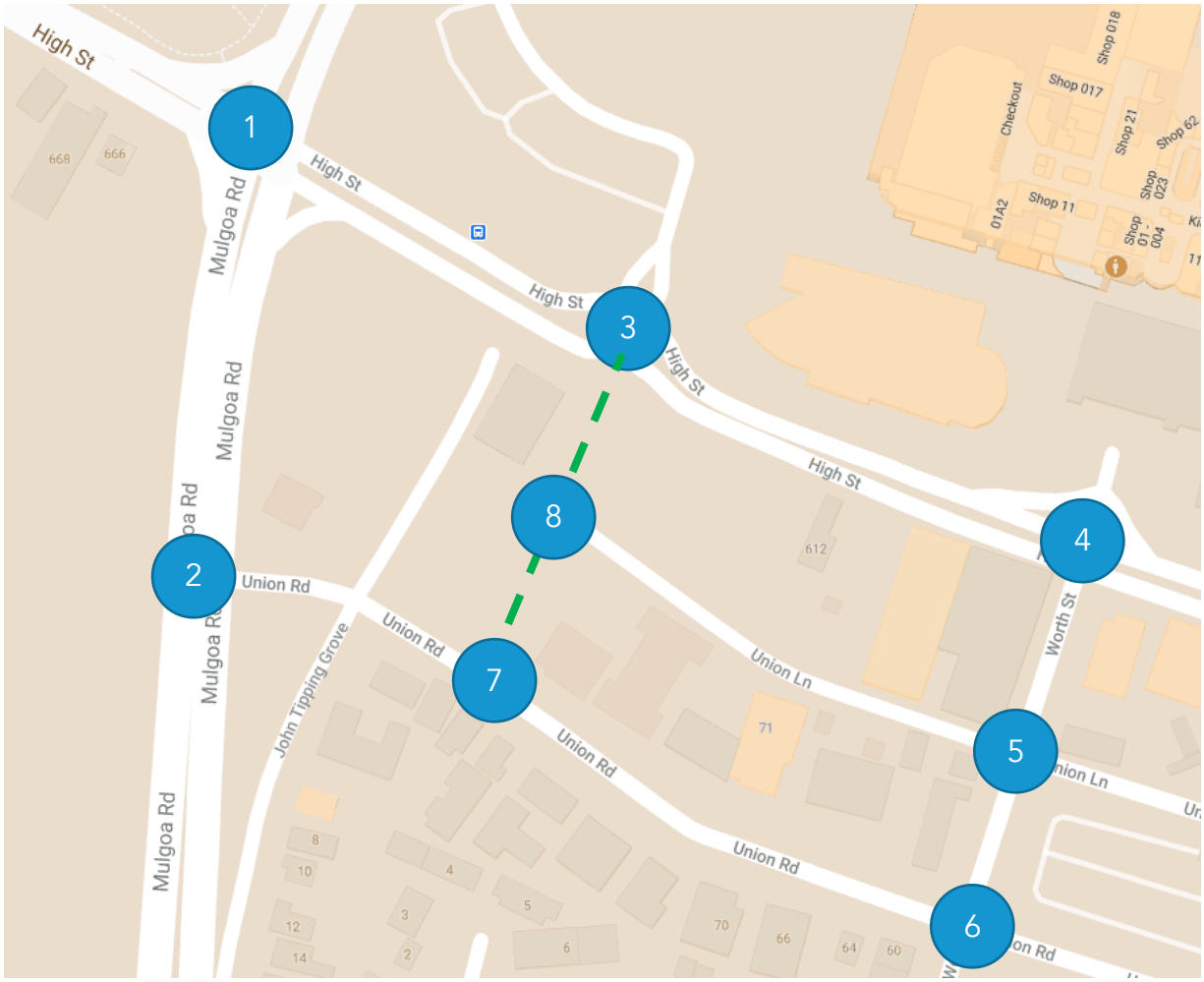
The modelling results are summarised in the following table and the detailed SIDRA outputs are provided in Attachment 1.

Intersection	Peak Period	Scenario	Level of Service (LOS)	Degree of Saturation (DoS)	Average Delay (s)	95% Back of Queue Length (m)
1. High Street/Mulgoa Road	AM Peak	1A - 2020 Existing	F	1.156	125.5	495.5
		2A - 2026 Background Growth	D	0.868	47.9	166.5
		3A - 2026 Background Growth + Development	D	0.881	48.1	166.5
		4A - 2026 Background Growth + Development + Urban Apartments	D	0.881	48.1	166.5
	PM Peak	1B - 2020 Existing	F	1.156	121.5	347.9
		2B - 2026 Background Growth	F	1.161	124.6	328.8
		3B - 2026 Background Growth + Development	F	1.196	134.7	346.2
		4B - 2026 Background Growth + Development + Urban Apartments	F	1.196	135.3	346.2
2. Mulgoa Road/Union Road*	AM Peak	1A - 2020 Existing	C	0.729	31.9	51.0
		2A - 2026 Background Growth	F	1.019	106.5	95.0
		3A - 2026 Background Growth + Development	F	1.105	161.9	145.5
		4A - 2026 Background Growth + Development + Urban Apartments	F	1.113	168.3	150.7
	PM Peak	1B - 2020 Existing	F	1.061	127.2	140.0
		2B - 2026 Background Growth	F	1.147	187.0	195.3
		3B - 2026 Background Growth + Development	F	1.306	318.1	320.5
		4B - 2026 Background Growth + Development + Urban Apartments	F	1.307	319.1	321.2
3. High Street/Civic Place*	AM Peak	1A - 2020 Existing	A	0.202	8.9	0.4
		2A - 2026 Background Growth	A	0.251	9.3	10.2
		3A - 2026 Background Growth + Development	A	0.271	9.7	11.3
		4A - 2026 Background Growth + Development + Urban Apartments	A	0.278	9.8	11.7
	PM Peak	1B - 2020 Existing	A	0.655	8.9	14.7
		2B - 2026 Background Growth	A	0.734	9.1	17.4
		3B - 2026 Background Growth + Development	A	0.766	10.5	18.6

		4B - 2026 Background Growth + Development + Urban Apartments	A	0.766	10.8	18.6
4. High Street/Worth Street	AM Peak	1A - 2020 Existing	B	0.375	28.2	64.0
		2A - 2026 Background Growth	B	0.410	28.4	72.4
		3A - 2026 Background Growth + Development	C	0.533	36.9	82.1
		4A - 2026 Background Growth + Development + Urban Apartments	C	0.533	37.4	82.0
	PM Peak	1B - 2020 Existing	C	0.664	39.6	97.9
		2B - 2026 Background Growth	C	0.808	36.9	97.9
		3B - 2026 Background Growth + Development	C	0.806	36.8	97.9
		4B - 2026 Background Growth + Development + Urban Apartments	C	0.806	36.8	97.9
5. Worth Street/Union Lane*	AM Peak	1A - 2020 Existing	A	0.138	9.9	3.1
		2A - 2026 Background Growth	A	0.141	10.6	3.3
		3A - 2026 Background Growth + Development	A	0.167	8.0	3.4
		4A - 2026 Background Growth + Development + Urban Apartments	A	0.181	8.1	3.5
	PM Peak	1B - 2020 Existing	B	0.432	22.6	27.7
		2B - 2026 Background Growth	B	0.421	23.2	22.8
		3B - 2026 Background Growth + Development	B	0.423	16.9	37.3
		4B - 2026 Background Growth + Development + Urban Apartments	B	0.476	19.0	37.2
6. Worth Street/Union Road	AM Peak	1A - 2020 Existing	C	0.488	30.9	72.9
		2A - 2026 Background Growth	C	0.505	31.0	77.9
		3A - 2026 Background Growth + Development	C	0.513	31.1	80.0
		4A - 2026 Background Growth + Development + Urban Apartments	C	0.521	30.9	81.6
	PM Peak	1B - 2020 Existing	D	0.929	46.0	224.2
		2B - 2026 Background Growth	D	0.916	44.9	215.6
		3B - 2026 Background Growth + Development	D	0.917	45.7	216.3

		4B - 2026 Background Growth + Development + Urban Apartments	D	0.972	52.6	266.1
7. Union Road/Link Road	AM Peak	1A - 2020 Existing	-	-	-	-
		2A - 2026 Background Growth	-	-	-	-
		3A - 2026 Background Growth + Development	A	0.419	9.9	3.5
		4A - 2026 Background Growth + Development + Urban Apartments	A	0.234	10.0	4.6
	PM Peak	1B - 2020 Existing	-	-	-	-
		2B - 2026 Background Growth	-	-	-	-
		3B - 2026 Background Growth + Development	A	0.226	11.2	2.5
		4B - 2026 Background Growth + Development + Urban Apartments	A	0.230	11.2	2.5
8. Union Lane/Link Road	AM Peak	1A - 2020 Existing	-	-	-	-
		2A - 2026 Background Growth	-	-	-	-
		3A - 2026 Background Growth + Development	A	0.034	4.5	0.9
		4A - 2026 Background Growth + Development + Urban Apartments	A	0.070	4.5	1.8
	PM Peak	1B - 2020 Existing	-	-	-	-
		2B - 2026 Background Growth	-	-	-	-
		3B - 2026 Background Growth + Development	A	0.025	4.2	0.6
		4B - 2026 Background Growth + Development + Urban Apartments	A	0.033	4.2	0.8

*LOS for the worst performing movements has been reported as the LOS. The intersection LOS is not applicable for unsignalised intersections since the average delay is not a representative measure of the performance of an intersection due to zero delays associated on the major road. Similarly, the average delay for the critical movement has also been reported on this basis.



The results indicate that following the changes recommended by TfNSW, the post development 2026 scenario operates within capacity during the morning and evening peak periods. The intersections on Mulgoa Road are noted to exceed capacity in the 2026 future base scenario due to the projected background growth. The post-development scenario indicates slight changes to some of the key indicators (degree of Saturation and Average Delay) however, all the Levels of Service remain unchanged by the development.

A detailed response to each point raised is presented on the following pages.

The electronic SIDRA files have also been provided.

We trust that this information facilitates the completion of the assessment, however, should any clarification be required, please do not hesitate to contact me.

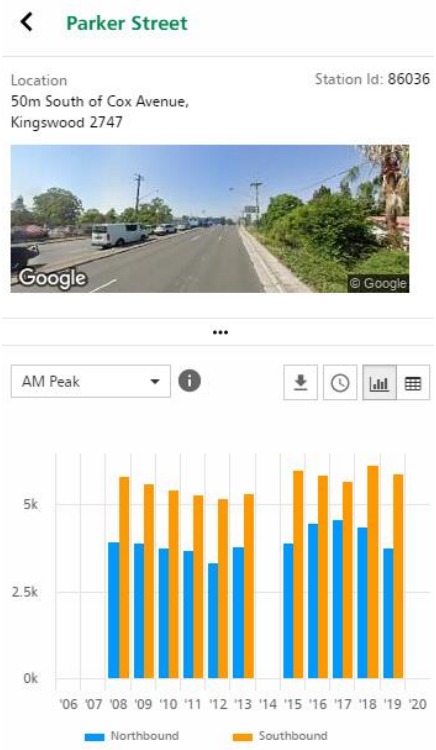
Your faithfully

Andrew Morse

Partner

5. Detailed Response

1	*For developing the existing base case models, the data was mainly extracted from two old models. Those models had the assumption that in 2020, some future changes including Jane Street and Mulgoa Road infrastructure upgrade already happened; In other words the 2020 traffic in that model was estimated traffic volumes for an upgraded network with additional lanes, while these upgrades do not exist in the current road network.* *Considering that the response provided to comments 1 and 2 shows that the models were not directly based on consistent traffic survey data at specific survey date(s), and given that over three years have been passed since the base model was developed, the traffic condition of the study area may have been changed.* *The recommendation for existing traffic volumes is using a nearest available historical turning movement counts reflecting pre-COVID 19 typical traffic conditions. In the absence of that data in 2019, older available traffic survey records from 2017 or 2018 can be used and scaled up based on SCATS historical traffic volumes.*
Response	Traffic volumes collected by SCATS have been obtained from September 2019, which was the most recent period available not effected by Covid-19 or faulty detectors. The SCATS data is only applicable to the traffic signal controlled intersections, and where lanes serve more than one turning movement (e.g. a shared left/through lane) we are not able to separate the actual turning volumes. In this regard, where lanes are shared, we have taken the total lane volume and used the distribution from our original model to distribute the traffic. While the traffic volume comparison fluctuates slightly (some movements increased, other decreased) overall the SCATS volumes are lower across the whole network (780 fewer trips in the AM peak).
2.	*Traffic input data for future models - the adopted traffic growth needs to be presented and discussed in the report, which is expected to be different for local and major roads. In addition, it is recommended that the number of pedestrians in future and the potential changes in the share of heavy vehicles be discussed.*

Response	The adopted growth rate is 2% per annum given that we don't have two data points to compare. The nearest permanent counter with more than one data set is on Parker Street, north of Nepean Hospital, where minimal growth has been recorded between 2008 and 2019. This is too far from the site to provide an accurate reflection of the road network within the model; however it does indicate that 2% is a robust growth rate. In relation to pedestrians, we adopted the default figures within Sidra, meaning that all crossings have 50 pedestrians per hour. This is sufficient to trigger a crossing phase on every cycle therefore we are confident that this is a suitable level of activity to replicate the real-world situation. The share of heavy vehicles has been adjusted to suite the SCATS results.	
3.	*Considering the models and the responses to comment 1, 2 and 5 to 7, some other concerns about the adopted approach are as follows:* *a. The proportion of heavy vehicles were kept as 2 percent for all roads/streets in both existing and future conditions, while at least for Mulgoa Roads percentage of heavy vehicles should be different;* *b. In the absence of existing surveys, all pedestrian volumes were coded as software default, and with the same values for future cases;* *c. When the traffic data comes from different sources and different dates, they also needed to be adjusted to reflect the seasonality of traffic as well as achieving a reasonable mid-block balance of trips for each peak; and* *d. The 2020 traffic volumes in the previous model for Mulgoa road and High street were based on estimated traffic for an upgraded road network.*	
Response	a) The heavy vehicle volumes have been retained at 2% across the network, except Mulgoa Road, where we have increase the proportion to 11.1% in the AM peak and 2.7% in the PM peak, which is adopted from recent surveys at the Penrith Panthers intersections. b) We adopted the default figures within Sidra, meaning that all crossings have 50 pedestrians per hour. This is sufficient to trigger a crossing phase on every cycle therefore we are confident that this is a suitable level of activity to replicate the real-world situation. c) It is acknowledged that the data originated from two separate models/forecasts and therefore there was some loss / gain between intersections on some of the links, however when the model was developed, this process was agreed with Council and RMS as both models were viewed as being a robust source of what was then, the forecast volumes. We have reviewed the loss/gain in the new SCATS data set and balanced the volumes at those intersection where we had no SCATS data. d) We acknowledge that the data for Mulgoa Road was estimated traffic based on the upgrades, however this would lead to higher volumes. This is confirmed by comparing the 2019 SCATS data with the RMS 2020 traffic projections.	

4.	*The response to comment 8 shows that a pre-development diagram was prepared; however, to provide a clear presentation of how the future traffic demand is developed for AM and PM peaks, it is suggested that the traffic volumes in these diagrams be according to:* *a. existing base case;* *b. background growth* *c. the subject development application; and* *d. other development applications required by Council.* *It is recommended that traffic diagrams showing the distribution of additional vehicles generated* *by the development be included in the report.*
Response	We have prepared a revised model for each of the following scenarios and provide an A3 PDF version of the distribution spreadsheets that support the Sidra input, which show the separation of the added turning movements in each scenario. *a. existing base case;* *b. background growth* *c. the subject development application, and* *d. the adjacent Urban Apartment Development*
5.	*The majority of the comments related to the road network coding and geometry have been addressed.* *The TCS layouts however may not show the current operation of the site, and adopted signal phasing and timing should be supported by SCATS data or survey videos/ site observations. As an example, right turn from High Street to Worth Street during peak hours is expected to happen during F phase and without conflict with straight opposing movements. For pedestrian protection also, phase A and E at this intersection (TCS 2622) have a late start of 5 Seconds, which should be included in the model.*
Response	Noted. In relation to the phase sequencing and timing, we adopted the data presented in the LX file and allowed Sidra to optimise the timing in all scenarios with some manual input. This provides a reasonable comparison as the exact timing / phasing in the future scenarios is not known (other than to 'design' the timing). In terms of the phasing, we have entered each of the phases that appears to have been activated according to the LX file. We have amended the signalised intersections to include the pedestrian protection by adjusting the opposing peds (signals) parameter to match the data found in the LX file.
6.	*It is noted that in the updated models we received 5 scenarios out of 6, and the 2026 future base plus development scenario for AM peak was missed and not reviewed. It is therefore assumed that the changes made in this scenario are similar to the 2026 AM scenario without development.*
Response	Noted, all six models are attached.

Document Control: Prepared by *AM* on *18 September 2020*. Reviewed by *AM* on *9 October 2020*.

Attachment 1– Distribution Spreadsheets

MOVEMENT SUMMARY

Site: 1 [1. High St and Mulgoa Rd - No Upgrade]

Network: N101 [Network Model - 2020 Existing AM Peak]

High Street and Mulgoa Road
2020 Existing
Existing Road Network, No Dev
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
1	L2	360	2.0	360	2.0	0.464	36.6	LOS C	17.4	124.2	0.77	0.80	0.77	30.9
2	T1	796	11.1	796	11.1	0.965	89.8	LOS F	29.8	228.5	1.00	1.19	1.42	18.4
3	R2	135	2.0	135	2.0	0.651	71.8	LOS F	9.1	65.0	1.00	0.82	1.03	7.0
Approach		1291	7.6	1291	7.6	0.965	73.1	LOS F	29.8	228.5	0.94	1.04	1.20	20.0
East: High Street														
4	L2	208	2.0	204	2.0	0.342	31.9	LOS C	10.9	77.6	0.72	0.77	0.82	12.8
5	T1	223	2.0	219	2.0	0.342	41.2	LOS C	10.9	77.6	0.83	0.73	0.85	28.5
6	R2	92	2.0	90	2.0	0.429	69.3	LOS E	5.9	41.7	0.98	0.78	0.98	21.1
Approach		523	2.0	513 N1	2.0	0.429	42.4	LOS C	10.9	77.6	0.81	0.75	0.86	22.9
North: Castlereagh Road														
7	L2	117	2.0	117	2.0	1.156	216.5	LOS F	63.6	478.7	1.00	1.65	2.10	7.5
8	T1	833	11.1	833	11.1	1.156	210.8	LOS F	64.6	495.5	1.00	1.69	2.10	7.5
9	R2	473	2.0	473	2.0	1.135	207.9	LOS F	30.8	219.2	1.00	1.35	2.16	13.2
Approach		1422	7.3	1422	7.3	1.156	210.3	LOS F	64.6	495.5	1.00	1.57	2.12	9.5
West: High Street														
10	L2	758	2.0	758	2.0	0.476	35.5	LOS C	18.2	129.7	0.76	0.80	0.76	37.7
11	T1	451	2.0	451	2.0	1.152	214.4	LOS F	62.2	442.8	1.00	1.71	2.15	7.4
12	R2	234	2.0	234	2.0	1.128	202.7	LOS F	29.9	212.6	1.00	1.34	2.13	7.8
Approach		1442	2.0	1442	2.0	1.152	118.5	LOS F	62.2	442.8	0.88	1.17	1.42	16.7
All Vehicles		4678	5.2	4668 N1	5.2	1.156	125.5	LOS F	64.6	495.5	0.92	1.21	1.51	14.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	50.7	LOS E	0.2	0.2	0.85	0.85
P1S	South Slip/Bypass Lane Crossing	53	56.8	LOS E	0.2	0.2	0.90	0.90
P2	East Full Crossing	53	53.3	LOS E	0.2	0.2	0.87	0.87

P3	North Full Crossing	53	53.3	LOS E	0.2	0.2	0.87	0.87
P4S	West Slip/Bypass Lane Crossing	53	44.1	LOS E	0.2	0.2	0.79	0.79
All Pedestrians		263	51.6	LOS E			0.86	0.86

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2 [2. Mulgoa Rd and Union Rd - No Upgrade]

Network: N101 [Network Model - 2020 Existing AM Peak]

Mulgoa Rd and Union Rd
2020 Existing
Existing Road Network, No Dev
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
2	T1	1291	11.1	1291	11.1	0.238	0.0	LOS A	6.7	51.0	0.00	0.00	0.00	59.9
3	R2	200	2.0	200	2.0	0.729	31.9	LOS C	4.6	32.7	0.91	1.24	1.92	29.6
Approach		1491	9.9	1491	9.9	0.729	4.3	NA	6.7	51.0	0.12	0.17	0.26	52.6
East: Union Road														
4	L2	147	2.0	146	2.0	0.126	6.3	LOS A	0.5	3.6	0.23	0.56	0.23	51.3
Approach		147	2.0	146[N1]	2.0	0.126	6.3	LOS A	0.5	3.6	0.23	0.56	0.23	51.3
North: Mulgoa Road														
7	L2	221	2.0	197	2.0	0.108	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	37.7
8	T1	1053	11.1	940	11.1	0.431	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1274	9.5	1137[N1]	9.5	0.431	1.0	NA	0.0	0.0	0.00	0.10	0.00	58.2
All Vehicles		2912	9.3	2773[N1]	9.8	0.729	3.0	NA	6.7	51.0	0.08	0.16	0.15	54.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. High St and Civic Roundabout]

Network: N101 [Network Model - 2020 Existing AM Peak]

High and Civic Roundabout
2020 Existing
Existing Road Network, No Dev
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: High St (E)														
5	T1	497	2.0	494	2.0	0.170	3.4	LOS A	0.9	6.3	0.11	0.38	0.11	38.5
6	R2	45	2.0	45	2.0	0.170	7.3	LOS A	0.9	6.2	0.11	0.41	0.11	47.1
Approach		542	2.0	539[N1]	2.0	0.170	3.7	LOS A	0.9	6.3	0.11	0.38	0.11	40.3
North: Civic Pl (N)														
7	L2	17	2.0	17	2.0	0.045	4.9	LOS A	0.2	1.4	0.44	0.61	0.44	42.0
9	R2	26	2.0	26	2.0	0.045	8.9	LOS A	0.2	1.4	0.44	0.61	0.44	42.0
Approach		43	2.0	43	2.0	0.045	7.3	LOS A	0.2	1.4	0.44	0.61	0.44	42.0
West: High St (W)														
10	L2	67	2.0	60	2.0	0.202	3.8	LOS A	1.1	7.7	0.11	0.37	0.11	45.7
11	T1	635	2.0	567	2.0	0.202	3.5	LOS A	1.1	7.7	0.11	0.37	0.11	36.4
Approach		702	2.0	627[N1]	2.0	0.202	3.5	LOS A	1.1	7.7	0.11	0.37	0.11	39.0
All Vehicles		1287	2.0	1209[N1]	2.1	0.202	3.7	LOS A	1.1	7.7	0.12	0.38	0.12	39.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. High St and Worth St]

Network: N101 [Network Model - 2020 Existing AM Peak]

High and Worth
2020 Existing
Existing Road Network, No Dev
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	211	2.0	207	2.0	0.365	18.2	LOS B	4.8	34.1	0.41	0.65	0.41	11.6
2	T1	78	2.0	77	2.0	0.365	42.1	LOS C	5.9	41.8	0.80	0.71	0.80	24.3
3	R2	56	2.0	55	2.0	0.365	48.7	LOS D	5.9	41.8	0.83	0.71	0.83	21.7
Approach		344	2.0	339[N1]	2.0	0.365	28.6	LOS C	5.9	41.8	0.56	0.67	0.56	19.8
East: High St (E)														
4	L2	25	2.0	25	2.0	0.199	32.0	LOS C	4.5	31.9	0.62	0.55	0.62	28.4
5	T1	249	2.0	249	2.0	0.199	25.9	LOS B	4.6	32.7	0.60	0.51	0.60	29.3
6	R2	100	2.0	100	2.0	0.145	16.8	LOS B	2.6	18.3	0.56	0.68	0.56	40.3
Approach		375	2.0	375	2.0	0.199	23.9	LOS B	4.6	32.7	0.59	0.56	0.59	33.0
North: Worth St (N)														
7	L2	1	2.0	1	2.0	0.127	38.3	LOS C	3.3	23.2	0.75	0.56	0.75	31.9
8	T1	72	2.0	72	2.0	0.127	33.8	LOS C	3.3	23.2	0.75	0.56	0.75	26.3
9	R2	83	2.0	83	2.0	0.350	41.3	LOS C	3.8	27.3	0.92	0.75	0.92	23.8
Approach		156	2.0	156	2.0	0.350	37.9	LOS C	3.8	27.3	0.84	0.66	0.84	24.9
West: High St (W)														
10	L2	234	2.0	209	2.0	0.375	34.5	LOS C	9.0	64.0	0.78	0.77	0.78	29.4
11	T1	293	2.0	262	2.0	0.182	28.0	LOS B	5.1	36.2	0.71	0.64	0.71	28.4
12	R2	125	2.0	112	2.0	0.169	17.1	LOS B	2.9	20.7	0.58	0.69	0.58	21.2
Approach		652	2.0	584[N1]	2.0	0.375	28.3	LOS B	9.0	64.0	0.71	0.70	0.71	28.3
All Vehicles		1526	2.0	1453[N1]	2.1	0.375	28.2	LOS B	9.0	64.0	0.66	0.65	0.66	27.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	29.5	LOS C	0.1	0.1	0.70	0.70
P2	East Full Crossing	53	39.3	LOS D	0.1	0.1	0.81	0.81
P3	North Full Crossing	53	30.9	LOS D	0.1	0.1	0.72	0.72

P3S	North Slip/Bypass Lane Crossing	53	24.8	LOS C	0.1	0.1	0.64	0.64
P4	West Full Crossing	53	49.6	LOS E	0.2	0.2	0.91	0.91
P4S	West Slip/Bypass Lane Crossing	53	19.9	LOS B	0.1	0.1	0.80	0.80
All Pedestrians		316	32.3	LOS D			0.76	0.76

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5 [5. Worth St and Union Ln]

Network: N101 [Network Model - 2020 Existing AM Peak]

Worth St and Union Ln
2020 Existing
Existing Road Network, No Dev
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	45	2.0	44	2.0	0.024	3.9	LOS A	0.0	0.0	0.00	0.52	0.00	29.7
2	T1	271	2.0	265	2.0	0.138	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		316	2.0	310[N1]	2.0	0.138	0.6	NA	0.0	0.0	0.00	0.07	0.00	42.8
East: Union Ln (E)														
4	L2	80	2.0	80	2.0	0.125	3.9	LOS A	0.4	3.1	0.24	0.46	0.24	36.5
5	T1	22	2.0	22	2.0	0.125	6.6	LOS A	0.4	3.1	0.24	0.46	0.24	36.5
6	R2	38	2.0	38	2.0	0.074	8.1	LOS A	0.3	2.0	0.54	0.69	0.54	34.0
Approach		140	2.0	140	2.0	0.125	5.5	LOS A	0.4	3.1	0.32	0.52	0.32	35.8
North: Worth St (N)														
8	T1	133	2.0	125	2.0	0.079	0.1	LOS A	0.3	2.2	0.02	0.03	0.02	47.4
9	R2	89	2.0	84	2.0	0.079	5.6	LOS A	0.3	2.2	0.30	0.52	0.30	22.5
Approach		222	2.0	209[N1]	2.0	0.079	2.3	NA	0.3	2.2	0.13	0.23	0.13	29.6
West: Union Ln (W)														
10	L2	36	2.0	36	2.0	0.067	5.0	LOS A	0.3	1.9	0.40	0.61	0.40	22.6
12	R2	15	2.0	15	2.0	0.067	9.9	LOS A	0.3	1.9	0.40	0.61	0.40	22.6
Approach		51	2.0	51	2.0	0.067	6.4	LOS A	0.3	1.9	0.40	0.61	0.40	22.6
All Vehicles		728	2.0	709[N1]	2.1	0.138	2.5	NA	0.4	3.1	0.13	0.25	0.13	35.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Worth St and Union Rd]

Network: N101 [Network Model - 2020 Existing AM Peak]

Worth St and Union Rd
2020 Existing
Existing Road Network, No Dev
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	17	2.0	17	2.0	0.476	69.1	LOS E	2.5	18.0	1.00	0.73	1.00	17.7
2	T1	15	2.0	15	2.0	0.476	64.5	LOS E	2.5	18.0	1.00	0.73	1.00	17.7
3	R2	9	2.0	9	2.0	0.476	69.1	LOS E	2.5	18.0	1.00	0.73	1.00	25.8
Approach		41	2.0	41	2.0	0.476	67.4	LOS E	2.5	18.0	1.00	0.73	1.00	20.1
East: Union Rd (E)														
4	L2	2	2.0	2	2.0	0.086	22.7	LOS B	2.4	17.1	0.58	0.46	0.58	39.7
5	T1	75	2.0	75	2.0	0.086	18.1	LOS B	2.4	17.1	0.58	0.46	0.58	33.5
6	R2	192	2.0	192	2.0	0.488	35.3	LOS C	8.6	61.5	0.81	0.79	0.81	25.6
Approach		268	2.0	268	2.0	0.488	30.4	LOS C	8.6	61.5	0.74	0.70	0.74	27.6
North: Worth St (N)														
7	L2	171	2.0	165	2.0	0.413	47.8	LOS D	8.5	60.2	0.92	0.79	0.92	22.8
8	T1	7	2.0	7	2.0	0.119	34.1	LOS C	2.7	19.5	0.81	0.72	0.81	26.0
9	R2	56	2.0	54	2.0	0.119	37.9	LOS C	2.7	19.5	0.81	0.72	0.81	5.5
Approach		234	2.0	226 N1	2.0	0.413	45.0	LOS D	8.5	60.2	0.89	0.77	0.89	20.7
West: Union Rd (W)														
10	L2	109	2.0	103	2.0	0.106	16.3	LOS B	2.8	20.2	0.47	0.65	0.47	29.4
11	T1	305	2.0	288	2.0	0.324	20.5	LOS B	10.2	72.9	0.66	0.58	0.66	37.0
12	R2	6	2.0	6	2.0	0.324	25.3	LOS B	10.2	72.9	0.66	0.57	0.66	36.3
Approach		421	2.0	397 N1	2.0	0.324	19.5	LOS B	10.2	72.9	0.61	0.59	0.61	35.9
All Vehicles		964	2.0	933 N1	2.1	0.488	30.9	LOS C	10.2	72.9	0.73	0.67	0.73	28.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	19.3	LOS B	0.1	0.1	0.57	0.57
P2	East Full Crossing	53	36.9	LOS D	0.1	0.1	0.79	0.79
P3	North Full Crossing	53	22.3	LOS C	0.1	0.1	0.61	0.61

P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	33.2	LOS D			0.73	0.73

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 1 [1. High St and Mulgoa Rd - No Upgrade]

Network: N101 [Network Model - 2020 Existing PM Peak]

High Street and Mulgoa Road
2020 Existing PM Peak
Existing Road Network, No Dev
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
1	L2	329	2.0	329	2.0	0.660	36.0	LOS C	15.0	106.5	0.94	0.83	0.94	31.1
2	T1	740	2.7	740	2.7	1.129	195.9	LOS F	31.9	228.5	1.00	1.59	2.07	9.8
3	R2	152	2.0	152	2.0	0.732	73.9	LOS F	10.5	75.1	1.00	0.85	1.10	6.8
Approach		1221	2.4	1221	2.4	1.129	137.6	LOS F	31.9	228.5	0.98	1.29	1.65	12.1
East: High Street														
4	L2	197	2.0	196	2.0	1.057	107.8	LOS F	26.4	187.7	1.00	1.18	1.74	3.1
5	T1	672	2.0	669	2.0	1.057	125.5	LOS F	26.4	187.7	1.00	1.31	1.76	12.3
6	R2	181	2.0	180	2.0	0.985	110.5	LOS F	16.2	115.2	1.00	1.09	1.62	15.3
Approach		1049	2.0	1046 N1	2.0	1.057	119.6	LOS F	26.4	187.7	1.00	1.25	1.73	11.1
North: Castlereagh Road														
7	L2	83	2.0	83	2.0	0.991	96.9	LOS F	48.6	347.9	1.00	1.18	1.39	15.2
8	T1	947	2.7	947	2.7	0.991	90.8	LOS F	48.6	347.9	1.00	1.19	1.40	15.3
9	R2	692	2.0	692	2.0	1.156	198.8	LOS F	38.8	276.4	1.00	1.36	2.19	12.4
Approach		1722	2.4	1722	2.4	1.156	134.5	LOS F	48.6	347.9	1.00	1.25	1.72	13.5
West: High Street														
10	L2	552	2.0	552	2.0	0.341	21.8	LOS B	7.5	53.5	0.70	0.77	0.73	43.8
11	T1	335	2.0	335	2.0	1.008	114.7	LOS F	33.0	234.7	1.00	1.27	1.61	12.8
12	R2	205	2.0	205	2.0	1.133	206.3	LOS F	26.4	188.0	1.00	1.35	2.17	7.6
Approach		1092	2.0	1092	2.0	1.133	85.0	LOS F	33.0	234.7	0.85	1.03	1.27	20.9
All Vehicles		5084	2.2	5081 N1	2.2	1.156	121.5	LOS F	48.6	347.9	0.96	1.21	1.61	13.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	55.9	LOS E	0.2	0.2	0.89	0.89
P1S	South Slip/Bypass Lane Crossing	53	27.4	LOS C	0.1	0.1	0.86	0.86
P2	East Full Crossing	53	46.5	LOS E	0.2	0.2	0.82	0.82

P3	North Full Crossing	53	58.6	LOS E	0.2	0.2	0.92	0.92
P4S	West Slip/Bypass Lane Crossing	53	51.5	LOS E	0.2	0.2	0.86	0.86
All Pedestrians		263	48.0	LOS E			0.87	0.87

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2 [2. Mulgoa Rd and Union Rd - No Upgrade]

Network: N101 [Network Model - 2020 Existing PM Peak]

Mulgoa Rd and Union Rd
2020 Existing PM Peak
Existing Road Network, No Dev
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
2	T1	1221	2.7	1221	2.7	0.277	0.9	LOS A	16.0	114.4	0.10	0.00	0.10	58.4
3	R2	238	2.0	238	2.0	1.061	127.2	LOS F	19.7	140.0	1.00	2.34	6.09	11.7
Approach		1459	2.6	1459	2.6	1.061	21.5	NA	19.7	140.0	0.25	0.38	1.08	35.2
East: Union Road														
4	L2	337	2.0	336	2.0	0.299	6.6	LOS A	1.4	10.2	0.28	0.58	0.28	51.1
Approach		337	2.0	336[N1]	2.0	0.299	6.6	LOS A	1.4	10.2	0.28	0.58	0.28	51.1
North: Mulgoa Road														
7	L2	160	2.0	156	2.0	0.085	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	37.7
8	T1	1189	2.7	1158	2.7	0.504	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1349	2.6	1314[N1]	2.6	0.504	0.7	NA	0.0	0.0	0.00	0.07	0.00	58.8
All Vehicles		3145	2.5	3109[N1]	2.6	1.061	11.1	NA	19.7	140.0	0.15	0.27	0.54	45.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. High St and Civic Roundabout]

Network: N101 [Network Model - 2020 Existing PM Peak]

High and Civic Roundabout
2020 Existing PM Peak
Existing Road Network, No Dev
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: High St (E)														
5	T1	949	2.0	946	2.0	0.655	3.8	LOS A	2.1	14.7	0.23	0.41	0.23	37.5
6	R2	29	2.0	29	2.0	0.655	7.8	LOS A	2.1	14.7	0.24	0.42	0.24	46.8
Approach		979	2.0	975 N1	2.0	0.655	3.9	LOS A	2.1	14.7	0.23	0.41	0.23	38.2
North: Civic Pl (N)														
7	L2	52	2.0	52	2.0	0.258	4.9	LOS A	0.7	5.3	0.45	0.66	0.45	41.8
9	R2	100	2.0	100	2.0	0.258	8.9	LOS A	0.7	5.3	0.45	0.66	0.45	41.8
Approach		152	2.0	152	2.0	0.258	7.6	LOS A	0.7	5.3	0.45	0.66	0.45	41.8
West: High St (W)														
10	L2	55	2.0	54	2.0	0.178	3.7	LOS A	1.0	7.4	0.09	0.37	0.09	45.8
11	T1	515	2.0	512	2.0	0.178	3.4	LOS A	1.0	7.4	0.09	0.36	0.09	36.8
Approach		569	2.0	567 N1	2.0	0.178	3.4	LOS A	1.0	7.4	0.09	0.36	0.09	39.2
All Vehicles		1700	2.0	1694 N1	2.0	0.655	4.1	LOS A	2.1	14.7	0.20	0.42	0.20	39.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. High St and Worth St]

Network: N101 [Network Model - 2020 Existing PM Peak]

High and Worth
2020 Existing PM Peak
Existing Road Network, No Dev
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	353	2.0	349	2.0	0.633	41.4	LOS C	13.8	97.9	0.91	0.84	0.91	5.8
2	T1	198	2.0	196	2.0	0.633	46.3	LOS D	13.8	97.9	0.96	0.81	0.96	23.5
3	R2	52	2.0	51	2.0	0.633	50.9	LOS D	13.0	92.7	0.96	0.81	0.96	21.4
Approach		602	2.0	596[N1]	2.0	0.633	43.9	LOS D	13.8	97.9	0.93	0.83	0.93	15.8
East: High St (E)														
4	L2	46	2.0	46	2.0	0.481	50.9	LOS D	9.1	64.5	0.89	0.75	0.89	22.0
5	T1	351	2.0	351	2.0	0.481	44.3	LOS D	10.3	73.1	0.87	0.73	0.87	22.7
6	R2	149	2.0	149	2.0	0.326	30.9	LOS C	5.8	41.6	0.80	0.75	0.80	34.9
Approach		546	2.0	546	2.0	0.481	41.2	LOS C	10.3	73.1	0.85	0.74	0.85	26.6
North: Worth St (N)														
7	L2	1	2.0	1	2.0	0.179	22.3	LOS B	5.3	37.9	0.59	0.48	0.59	37.1
8	T1	164	2.0	164	2.0	0.179	17.8	LOS B	5.3	37.9	0.59	0.48	0.59	33.9
9	R2	276	2.0	276	2.0	0.580	31.5	LOS C	10.4	73.7	0.92	0.82	0.95	27.2
Approach		441	2.0	441	2.0	0.580	26.4	LOS B	10.4	73.7	0.80	0.69	0.81	29.4
West: High St (W)														
10	L2	235	2.0	234	2.0	0.664	51.1	LOS D	12.7	90.7	0.97	0.84	0.97	24.6
11	T1	248	2.0	247	2.0	0.277	41.9	LOS C	5.9	42.3	0.86	0.73	0.86	24.4
12	R2	83	2.0	83	2.0	0.220	30.8	LOS C	3.1	22.0	0.83	0.74	0.83	14.5
Approach		566	2.0	564[N1]	2.0	0.664	44.1	LOS D	12.7	90.7	0.90	0.77	0.90	23.8
All Vehicles		2156	2.0	2147[N1]	2.0	0.664	39.6	LOS C	13.8	97.9	0.88	0.76	0.88	23.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	42.6	LOS E	0.2	0.2	0.84	0.84
P2	East Full Crossing	53	23.5	LOS C	0.1	0.1	0.63	0.63
P3	North Full Crossing	53	44.3	LOS E	0.2	0.2	0.86	0.86

P3S	North Slip/Bypass Lane Crossing	53	36.9	LOS D	0.1	0.1	0.79	0.79
P4	West Full Crossing	53	48.7	LOS E	0.2	0.2	0.90	0.90
P4S	West Slip/Bypass Lane Crossing	53	14.0	LOS B	0.1	0.1	0.68	0.68
All Pedestrians		316	35.0	LOS D			0.78	0.78

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5 [5. Worth St and Union Ln]

Network: N101 [Network Model - 2020 Existing PM Peak]

Worth St and Union Ln
2020 Existing PM Peak
Existing Road Network, No Dev
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	86	2.0	85	2.0	0.047	3.9	LOS A	0.0	0.0	0.00	0.52	0.00	29.7
2	T1	515	2.0	508	2.0	0.264	0.0	LOS A	3.9	27.7	0.00	0.00	0.00	50.0
Approach		601	2.0	594 N1	2.0	0.264	0.6	NA	3.9	27.7	0.00	0.07	0.00	42.8
East: Union Ln (E)														
4	L2	184	2.0	184	2.0	0.409	4.4	LOS A	1.0	7.3	0.33	0.52	0.34	35.9
5	T1	20	2.0	20	2.0	0.409	13.3	LOS A	1.0	7.3	0.33	0.52	0.34	36.0
6	R2	81	2.0	81	2.0	0.432	17.0	LOS B	1.1	8.0	0.71	0.95	0.94	29.2
Approach		285	2.0	285	2.0	0.432	8.6	LOS A	1.1	8.0	0.44	0.64	0.51	33.8
North: Worth St (N)														
8	T1	238	2.0	238	2.0	0.095	0.6	LOS A	2.0	14.0	0.10	0.08	0.10	40.7
9	R2	56	2.0	56	2.0	0.095	7.3	LOS A	0.7	5.3	0.42	0.33	0.42	22.7
Approach		294	2.0	293 N1	2.0	0.095	1.9	NA	2.0	14.0	0.16	0.13	0.16	33.2
West: Union Ln (W)														
10	L2	5	2.0	5	2.0	0.302	9.0	LOS A	0.6	4.1	0.76	0.92	0.87	9.4
12	R2	32	2.0	32	2.0	0.302	22.6	LOS B	0.6	4.1	0.76	0.92	0.87	9.4
Approach		37	2.0	37	2.0	0.302	20.6	LOS B	0.6	4.1	0.76	0.92	0.87	9.4
All Vehicles		1217	2.0	1209 N1	2.0	0.432	3.4	NA	3.9	27.7	0.17	0.25	0.19	34.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Worth St and Union Rd]

Network: N101 [Network Model - 2020 Existing PM Peak]

Worth St and Union Rd
2020 Existing PM Peak
Existing Road Network, No Dev
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	17	2.0	17	2.0	0.566	74.1	LOS F	3.4	24.5	1.00	0.77	1.04	17.1
2	T1	29	2.0	29	2.0	0.566	69.6	LOS E	3.4	24.5	1.00	0.77	1.04	17.1
3	R2	5	2.0	5	2.0	0.566	74.1	LOS F	3.4	24.5	1.00	0.77	1.04	25.0
Approach		52	2.0	52	2.0	0.566	71.5	LOS F	3.4	24.5	1.00	0.77	1.04	18.1
East: Union Rd (E)														
4	L2	34	2.0	34	2.0	0.159	19.0	LOS B	4.9	35.0	0.51	0.48	0.51	41.0
5	T1	132	2.0	132	2.0	0.159	14.4	LOS A	4.9	35.0	0.51	0.48	0.51	35.4
6	R2	404	2.0	404	2.0	0.929	70.9	LOS F	31.5	224.2	0.93	1.04	1.29	17.2
Approach		569	2.0	569	2.0	0.929	54.8	LOS D	31.5	224.2	0.81	0.88	1.06	20.8
North: Worth St (N)														
7	L2	232	2.0	231	2.0	0.817	67.3	LOS E	11.5	81.6	1.00	0.91	1.17	18.7
8	T1	32	2.0	32	2.0	0.565	49.5	LOS D	11.5	81.6	0.95	0.82	0.95	21.7
9	R2	189	2.0	189	2.0	0.565	53.3	LOS D	11.5	81.6	0.95	0.82	0.95	4.0
Approach		453	2.0	452 N1	2.0	0.817	60.2	LOS E	11.5	81.6	0.97	0.87	1.06	14.9
West: Union Rd (W)														
10	L2	167	2.0	160	2.0	0.118	8.8	LOS A	2.6	18.4	0.28	0.62	0.28	36.0
11	T1	219	2.0	209	2.0	0.215	15.0	LOS B	6.8	48.3	0.53	0.46	0.53	39.7
12	R2	11	2.0	10	2.0	0.215	19.6	LOS B	6.8	48.3	0.53	0.46	0.53	39.1
Approach		397	2.0	379 N1	2.0	0.215	12.5	LOS A	6.8	48.3	0.42	0.53	0.42	38.8
All Vehicles		1471	2.0	1452 N1	2.0	0.929	46.0	LOS D	31.5	224.2	0.77	0.78	0.90	22.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	14.8	LOS B	0.1	0.1	0.48	0.48
P2	East Full Crossing	53	46.6	LOS E	0.2	0.2	0.85	0.85
P3	North Full Crossing	53	17.3	LOS B	0.1	0.1	0.52	0.52

P4	West Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96
All Pedestrians		211	34.5	LOS D			0.70	0.70

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 1 [1. High St and Mulgoa Rd]

Network: N101 [Network Model - 2026 Background Growth AM Peak (No Link Rd, No Urban Apt)]

High Street and Mulgoa Road
2026 Background Growth - AM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
1	L2	406	2.1	406	2.1	0.793	37.3	LOS C	18.7	133.4	0.99	0.88	1.04	30.6
2	T1	897	11.2	897	11.2	0.853	67.0	LOS E	21.7	166.5	1.00	0.98	1.18	22.5
3	R2	153	2.1	153	2.1	0.787	76.9	LOS F	10.9	77.8	1.00	0.89	1.17	6.9
Approach		1456	7.7	1456	7.7	0.853	59.8	LOS E	21.7	166.5	1.00	0.94	1.14	22.8
East: High Street														
4	L2	235	2.2	231	2.2	0.216	13.4	LOS A	5.4	38.4	0.45	0.68	0.45	23.0
5	T1	252	2.1	247	2.1	0.375	55.7	LOS D	7.5	53.7	0.93	0.75	0.93	24.6
6	R2	103	2.0	101	2.0	0.323	72.6	LOS F	3.4	24.0	0.98	0.75	0.98	20.6
Approach		589	2.1	579 N1	2.2	0.375	41.8	LOS C	7.5	53.7	0.75	0.72	0.75	23.2
North: Castlereagh Road														
7	L2	133	2.4	133	2.4	0.568	43.7	LOS D	17.3	128.8	0.78	0.73	0.78	26.2
8	T1	937	11.1	937	11.1	0.568	37.4	LOS C	17.8	136.4	0.78	0.69	0.78	27.3
9	R2	534	2.2	534	2.2	0.868	46.7	LOS D	12.5	89.2	1.00	0.95	1.23	34.0
Approach		1603	7.4	1603	7.4	0.868	41.0	LOS C	17.8	136.4	0.85	0.78	0.93	30.2
West: High Street														
10	L2	855	2.1	855	2.1	0.537	25.0	LOS B	13.1	93.1	0.79	0.83	0.84	42.2
11	T1	508	2.1	508	2.1	0.777	63.2	LOS E	17.5	124.3	1.00	0.90	1.09	20.1
12	R2	263	2.0	263	2.0	0.847	82.8	LOS F	9.8	69.9	1.00	0.93	1.29	16.5
Approach		1626	2.1	1626	2.1	0.847	46.3	LOS D	17.5	124.3	0.89	0.87	0.99	30.2
All Vehicles		5275	5.2	5264 N1	5.3	0.868	47.9	LOS D	21.7	166.5	0.89	0.84	0.99	27.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96

P1S	South Slip/Bypass Lane Crossing	53	25.1	LOS C	0.1	0.1	0.84	0.84
P2	East Full Crossing	53	41.7	LOS E	0.2	0.2	0.77	0.77
P3	North Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P4S	West Slip/Bypass Lane Crossing	53	49.0	LOS E	0.2	0.2	0.84	0.84
All Pedestrians		263	48.9	LOS E			0.87	0.87

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2 [2. Mulgoa Rd and Union Rd]

Network: N101 [Network Model - 2026 Background Growth AM Peak (No Link Rd, No Urban Apt)]

Mulgoa Rd and Union Rd
2026 Background Growth - AM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
2	T1	1454	11.2	1454	11.2	0.312	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	200	2.1	200	2.1	1.019	106.5	LOS F	13.3	95.0	1.00	1.99	4.94	13.5
Approach		1654	10.1	1654	10.1	1.019	12.9	NA	13.3	95.0	0.12	0.24	0.60	42.2
East: Union Road														
4	L2	147	2.1	147	2.1	0.166	7.8	LOS A	0.6	4.4	0.39	0.66	0.39	50.2
Approach		147	2.1	147	2.1	0.166	7.8	LOS A	0.6	4.4	0.39	0.66	0.39	50.2
North: Mulgoa Road														
7	L2	222	2.4	222	2.4	0.122	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	37.7
8	T1	1214	11.1	1214	11.1	0.222	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		1436	9.8	1436	9.8	0.222	0.9	NA	0.0	0.0	0.00	0.09	0.00	58.5
All Vehicles		3237	9.6	3237	9.6	1.019	7.3	NA	13.3	95.0	0.08	0.19	0.32	49.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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: 3 [3. High St and Civic Roundabout]

Network: N101 [Network Model - 2026 Background Growth AM Peak (No Link Rd, No Urban Apt)]

High and Civic Roundabout
2026 Background Growth - AM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No DevIntersections, With Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: High St (E)														
5	T1	559	2.1	558	2.1	0.191	3.4	LOS A	1.0	7.4	0.12	0.38	0.12	38.5
6	R2	45	2.3	45	2.3	0.191	7.3	LOS A	1.0	7.3	0.12	0.41	0.12	47.1
Approach		604	2.1	604	2.1	0.191	3.7	LOS A	1.0	7.4	0.12	0.38	0.12	40.1
North: Civic Pl (N)														
7	L2	18	5.9	18	5.9	0.051	5.4	LOS A	0.2	1.7	0.49	0.63	0.49	41.6
9	R2	27	3.8	27	3.8	0.051	9.3	LOS A	0.2	1.7	0.49	0.63	0.49	41.6
Approach		45	4.7	45	4.7	0.051	7.8	LOS A	0.2	1.7	0.49	0.63	0.49	41.6
West: High St (W)														
10	L2	68	3.1	68	3.1	0.251	3.8	LOS A	1.4	10.2	0.11	0.37	0.11	45.7
11	T1	716	2.1	716	2.1	0.251	3.5	LOS A	1.4	10.2	0.12	0.37	0.12	36.3
Approach		784	2.1	784	2.1	0.251	3.5	LOS A	1.4	10.2	0.12	0.37	0.12	38.7
All Vehicles		1434	2.2	1433[N1]	2.2	0.251	3.7	LOS A	1.4	10.2	0.13	0.38	0.13	39.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. High St and Worth St]

Network: N101 [Network Model - 2026 Background Growth AM Peak (No Link Rd, No Urban Apt)]

High St and Worth St
2026 Background Growth - AM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	211	2.0	210	2.0	0.402	19.5	LOS B	5.3	37.8	0.44	0.65	0.44	11.0
2	T1	78	2.7	78	2.7	0.402	43.4	LOS D	6.2	44.2	0.82	0.72	0.82	23.9
3	R2	57	3.7	57	3.7	0.402	50.8	LOS D	6.2	44.2	0.86	0.73	0.86	21.2
Approach		345	2.4	344[N1]	2.4	0.402	30.1	LOS C	6.2	44.2	0.60	0.68	0.60	19.2
East: High St (E)														
4	L2	26	4.0	26	4.0	0.218	31.3	LOS C	5.0	35.7	0.62	0.54	0.62	28.7
5	T1	281	2.2	281	2.2	0.218	25.3	LOS B	5.1	36.3	0.60	0.51	0.60	29.6
6	R2	101	2.1	101	2.1	0.149	16.1	LOS B	2.5	17.8	0.56	0.68	0.56	40.6
Approach		408	2.3	408	2.3	0.218	23.4	LOS B	5.1	36.3	0.59	0.55	0.59	33.1
North: Worth St (N)														
7	L2	1	0.0	1	0.0	0.137	40.0	LOS C	3.4	24.3	0.77	0.58	0.77	31.5
8	T1	73	2.9	73	2.9	0.137	35.6	LOS C	3.4	24.3	0.77	0.58	0.77	25.7
9	R2	83	2.5	83	2.5	0.391	43.3	LOS D	3.9	28.1	0.95	0.75	0.95	23.2
Approach		157	2.7	157	2.7	0.391	39.7	LOS C	3.9	28.1	0.86	0.67	0.86	24.4
West: High St (W)														
10	L2	235	2.2	235	2.2	0.410	34.3	LOS C	10.1	72.4	0.79	0.78	0.79	29.5
11	T1	331	2.2	331	2.2	0.225	27.8	LOS B	6.5	46.0	0.71	0.66	0.71	28.5
12	R2	126	2.5	126	2.5	0.188	16.4	LOS B	3.2	22.7	0.58	0.69	0.58	21.7
Approach		692	2.3	692	2.3	0.410	27.9	LOS B	10.1	72.4	0.71	0.70	0.71	28.4
All Vehicles		1602	2.4	1601[N1]	2.4	0.410	28.4	LOS B	10.1	72.4	0.67	0.66	0.67	27.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	28.8	LOS C	0.1	0.1	0.69	0.69

P2	East Full Crossing	53	40.9	LOS E	0.1	0.1	0.83	0.83
P3	North Full Crossing	53	30.2	LOS D	0.1	0.1	0.71	0.71
P3S	North Slip/Bypass Lane Crossing	53	24.1	LOS C	0.1	0.1	0.63	0.63
P4	West Full Crossing	53	51.5	LOS E	0.2	0.2	0.93	0.93
P4S	West Slip/Bypass Lane Crossing	53	19.8	LOS B	0.1	0.1	0.79	0.79
All Pedestrians		316	32.5	LOS D			0.76	0.76

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5 [5. Worth St and Union Ln]

Network: N101 [Network Model - 2026 Background Growth AM Peak (No Link Rd, No Urban Apt)]

Worth St and Union Ln
2026 Background Growth - AM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	45	2.3	45	2.3	0.025	3.9	LOS A	0.0	0.0	0.00	0.52	0.00	29.7
2	T1	273	2.3	272	2.3	0.141	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		318	2.3	317[N1]	2.3	0.141	0.6	NA	0.0	0.0	0.00	0.07	0.00	42.9
East: Union Ln (E)														
4	L2	81	2.6	81	2.6	0.137	3.9	LOS A	0.5	3.3	0.25	0.47	0.25	36.4
5	T1	23	4.5	23	4.5	0.137	7.0	LOS A	0.5	3.3	0.25	0.47	0.25	36.4
6	R2	38	2.8	38	2.8	0.076	8.5	LOS A	0.3	2.1	0.55	0.70	0.55	33.8
Approach		142	3.0	142	3.0	0.137	5.6	LOS A	0.5	3.3	0.33	0.53	0.33	35.7
North: Worth St (N)														
8	T1	134	2.4	134	2.4	0.087	0.1	LOS A	0.4	2.5	0.02	0.04	0.02	46.3
9	R2	91	2.3	91	2.3	0.087	5.6	LOS A	0.4	2.5	0.31	0.51	0.31	22.5
Approach		224	2.3	224	2.3	0.087	2.3	NA	0.4	2.5	0.14	0.23	0.14	29.4
West: Union Ln (W)														
10	L2	37	2.9	37	2.9	0.074	5.1	LOS A	0.3	2.1	0.42	0.62	0.42	22.0
12	R2	16	6.7	16	6.7	0.074	10.6	LOS A	0.3	2.1	0.42	0.62	0.42	22.0
Approach		53	4.0	53	4.0	0.074	6.7	LOS A	0.3	2.1	0.42	0.62	0.42	22.0
All Vehicles		737	2.6	736[N1]	2.6	0.141	2.5	NA	0.5	3.3	0.14	0.25	0.14	34.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Worth St and Union Rd]

Network: N101 [Network Model - 2026 Background Growth AM Peak (No Link Rd, No Urban Apt)]

Worth St and Union Rd
2026 Background Growth - AM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Worth St (S)														
1	L2	17	6.3	17	6.3	0.498	69.2	LOS E	2.7	19.8	1.00	0.74	1.00	17.7
2	T1	16	6.7	16	6.7	0.498	64.6	LOS E	2.7	19.8	1.00	0.74	1.00	17.7
3	R2	11	10.0	11	10.0	0.498	69.2	LOS E	2.7	19.8	1.00	0.74	1.00	25.7
Approach		43	7.3	43	7.3	0.498	67.5	LOS E	2.7	19.8	1.00	0.74	1.00	20.2
East: Union Rd (E)														
4	L2	3	33.3	3	33.3	0.090	23.0	LOS B	2.5	17.9	0.58	0.47	0.58	39.3
5	T1	76	2.8	76	2.8	0.090	18.2	LOS B	2.5	17.9	0.58	0.47	0.58	33.5
6	R2	192	2.2	192	2.2	0.505	35.6	LOS C	8.7	62.3	0.81	0.80	0.81	25.5
Approach		271	2.7	271	2.7	0.505	30.6	LOS C	8.7	62.3	0.75	0.70	0.75	27.6
North: Worth St (N)														
7	L2	172	2.5	172	2.5	0.432	48.0	LOS D	8.9	63.3	0.92	0.80	0.92	22.8
8	T1	8	12.5	8	12.5	0.129	34.2	LOS C	2.9	21.4	0.81	0.72	0.81	26.0
9	R2	57	3.7	57	3.7	0.129	38.1	LOS C	2.9	21.4	0.81	0.72	0.81	5.5
Approach		237	3.1	237	3.1	0.432	45.1	LOS D	8.9	63.3	0.89	0.78	0.89	20.6
West: Union Rd (W)														
10	L2	111	2.9	110	2.9	0.112	16.4	LOS B	3.0	21.7	0.47	0.65	0.47	29.4
11	T1	305	2.1	303	2.1	0.343	20.7	LOS B	10.9	77.9	0.66	0.59	0.66	36.9
12	R2	7	14.3	7	14.3	0.343	25.7	LOS B	10.9	77.9	0.67	0.58	0.67	36.1
Approach		423	2.5	419[N1]	2.5	0.343	19.7	LOS B	10.9	77.9	0.61	0.60	0.61	35.8
All Vehicles		974	2.9	970[N1]	2.9	0.505	31.0	LOS C	10.9	77.9	0.74	0.68	0.74	28.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	19.3	LOS B	0.1	0.1	0.57	0.57

P2	East Full Crossing	53	36.9	LOS D	0.1	0.1	0.79	0.79
P3	North Full Crossing	53	22.3	LOS C	0.1	0.1	0.61	0.61
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	33.2	LOS D			0.73	0.73

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 1 [1. High St and Mulgoa Rd]

Network: N101 [Network Model - 2026 Background Growth PM Peak (No Link Rd, No Urban Apt)]

High Street and Mulgoa Road
2026 Background Growth - PM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
1	L2	373	2.3	373	2.3	1.092	150.9	LOS F	32.0	228.5	1.00	1.27	1.92	10.8
2	T1	835	2.8	835	2.8	1.130	197.4	LOS F	31.9	228.5	1.00	1.51	2.11	9.8
3	R2	172	2.5	172	2.5	0.532	62.5	LOS E	10.8	76.9	0.96	0.81	0.96	8.3
Approach		1379	2.6	1379	2.6	1.130	168.0	LOS F	32.0	228.5	0.99	1.36	1.92	10.0
East: High Street														
4	L2	222	2.4	221	2.4	0.201	14.5	LOS A	5.5	39.3	0.46	0.68	0.46	21.9
5	T1	758	2.1	753	2.1	1.146	210.3	LOS F	26.3	187.7	1.00	1.64	2.15	9.0
6	R2	204	2.1	203	2.1	0.971	105.1	LOS F	8.7	61.9	1.00	1.06	1.67	16.0
Approach		1184	2.1	1177 N1	2.1	1.146	155.4	LOS F	26.3	187.7	0.90	1.36	1.75	10.2
North: Castlereagh Road														
7	L2	95	2.2	95	2.2	0.760	57.6	LOS E	22.9	163.6	0.95	0.84	0.97	22.3
8	T1	1068	2.8	1068	2.8	0.760	51.3	LOS D	24.0	172.2	0.94	0.83	0.96	22.8
9	R2	780	2.0	780	2.0	1.161	208.0	LOS F	46.2	328.8	1.00	1.43	2.21	12.3
Approach		1943	2.4	1943	2.4	1.161	114.5	LOS F	46.2	328.8	0.97	1.08	1.46	15.4
West: High Street														
10	L2	622	2.0	622	2.0	0.322	16.3	LOS B	7.4	53.0	0.60	0.73	0.60	46.8
11	T1	378	2.2	378	2.2	0.478	52.8	LOS D	11.4	81.6	0.93	0.77	0.93	22.5
12	R2	233	2.3	233	2.3	1.125	200.7	LOS F	14.6	104.2	1.00	1.29	2.21	7.8
Approach		1233	2.1	1233	2.1	1.125	62.3	LOS E	14.6	104.2	0.78	0.85	1.01	25.2
All Vehicles		5739	2.3	5732 N1	2.4	1.161	124.6	LOS F	46.2	328.8	0.92	1.15	1.53	13.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	61.4	LOS F	0.2	0.2	0.94	0.94

P1S	South Slip/Bypass Lane Crossing	53	22.8	LOS C	0.1	0.1	0.78	0.78
P2	East Full Crossing	53	50.7	LOS E	0.2	0.2	0.85	0.85
P3	North Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P4S	West Slip/Bypass Lane Crossing	53	56.8	LOS E	0.2	0.2	0.90	0.90
All Pedestrians		263	51.2	LOS E			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2 [2. Mulgoa Rd and Union Rd]

Network: N101 [Network Model - 2026 Background Growth PM Peak (No Link Rd, No Urban Apt)]

Mulgoa Rd and Union Rd
2026 Background Growth - PM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
2	T1	1376	2.8	1376	2.8	0.315	0.9	LOS A	5.7	41.2	0.10	0.00	0.10	58.3
3	R2	239	2.2	239	2.2	1.147	187.0	LOS F	27.4	195.3	1.00	2.79	8.01	8.4
Approach		1615	2.7	1615	2.7	1.147	28.4	NA	27.4	195.3	0.23	0.41	1.27	30.9
East: Union Road														
4	L2	336	1.9	336	1.9	0.384	8.9	LOS A	2.0	14.4	0.45	0.74	0.53	49.2
Approach		336	1.9	336	1.9	0.384	8.9	LOS A	2.0	14.4	0.45	0.74	0.53	49.2
North: Mulgoa Road														
7	L2	161	2.6	158	2.6	0.087	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	37.7
8	T1	1369	2.7	1345	2.7	0.234	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1531	2.7	1503[N1]	2.7	0.234	0.6	NA	0.0	0.0	0.00	0.06	0.00	59.0
All Vehicles		3481	2.6	3454[N1]	2.6	1.147	14.4	NA	27.4	195.3	0.15	0.29	0.65	42.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. High St and Civic Roundabout]

Network: N101 [Network Model - 2026 Background Growth PM Peak (No Link Rd, No Urban Apt)]

High and Civic Roundabout
2026 Background Growth - PM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: High St (E)														
5	T1	1069	2.1	1063	2.1	0.734	3.8	LOS A	2.4	17.4	0.25	0.41	0.25	37.3
6	R2	27	3.8	27	3.9	0.734	7.8	LOS A	2.4	17.4	0.26	0.43	0.26	46.7
Approach		1097	2.1	1090[N1]	2.1	0.734	3.9	LOS A	2.4	17.4	0.25	0.41	0.25	37.9
North: Civic Pl (N)														
7	L2	52	2.0	52	2.0	0.267	5.2	LOS A	0.8	5.5	0.47	0.68	0.47	41.6
9	R2	101	2.1	101	2.1	0.267	9.1	LOS A	0.8	5.5	0.47	0.68	0.47	41.6
Approach		153	2.1	153	2.1	0.267	7.8	LOS A	0.8	5.5	0.47	0.68	0.47	41.6
West: High St (W)														
10	L2	56	3.8	56	3.8	0.199	3.7	LOS A	1.2	8.3	0.09	0.37	0.09	45.8
11	T1	580	2.0	580	2.0	0.199	3.4	LOS A	1.2	8.3	0.09	0.36	0.09	36.8
Approach		636	2.2	636	2.2	0.199	3.4	LOS A	1.2	8.3	0.09	0.36	0.09	39.1
All Vehicles		1885	2.1	1878[N1]	2.1	0.734	4.1	LOS A	2.4	17.4	0.21	0.42	0.21	38.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Organisation: PARKING AND TRAFFIC CONSULTANTS | Processed: Tuesday, 6 October 2020 3:59:50 PM
Project: Z:\PCI - PROJECT WORK FILES\NSW\TOGA - PENRITH\East Site - Uplift Scheme DA\SIDRA\SCENARIO 2B - 2026 Background Growth PM Peak\201006 - SCENARIO 2B - 2026 Background Growth (No Link Rd, No Urban Apt) - PM Peak.sip8

MOVEMENT SUMMARY

Site: 4 [4. High St and Worth St]

Network: N101 [Network Model - 2026 Background Growth PM Peak (No Link Rd, No Urban Apt)]

High St and Worth St
2026 Background Growth - PM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Worth St (S)														
1	L2	354	2.1	347	2.1	0.592	40.7	LOS C	13.7	97.9	0.89	0.83	0.89	5.9
2	T1	198	2.1	194	2.1	0.538	41.6	LOS C	12.4	88.6	0.91	0.78	0.91	24.8
3	R2	52	2.0	51	2.0	0.538	45.8	LOS D	12.4	88.6	0.91	0.78	0.91	22.6
Approach		603	2.1	591 N1	2.1	0.592	41.5	LOS C	13.7	97.9	0.90	0.81	0.90	16.4
East: High St (E)														
4	L2	46	2.3	46	2.3	0.396	41.9	LOS C	8.9	63.7	0.78	0.68	0.78	24.6
5	T1	396	2.1	396	2.1	0.396	35.6	LOS C	9.6	68.4	0.76	0.65	0.76	25.4
6	R2	151	2.1	151	2.1	0.332	28.6	LOS C	5.7	40.5	0.76	0.74	0.76	35.6
Approach		593	2.1	593	2.1	0.396	34.3	LOS C	9.6	68.4	0.76	0.67	0.76	28.6
North: Worth St (N)														
7	L2	5	80.0	5	80.0	0.208	25.9	LOS B	6.1	45.4	0.63	0.51	0.63	35.9
8	T1	168	4.4	168	4.4	0.208	20.8	LOS B	6.1	45.4	0.63	0.51	0.63	32.2
9	R2	277	2.3	277	2.3	0.808	43.0	LOS D	12.7	90.8	1.00	0.92	1.20	23.3
Approach		451	4.0	451	4.0	0.808	34.5	LOS C	12.7	90.8	0.86	0.76	0.98	26.2
West: High St (W)														
10	L2	236	2.2	236	2.2	0.526	42.4	LOS C	11.6	82.6	0.88	0.81	0.88	26.9
11	T1	281	2.2	281	2.2	0.238	34.4	LOS C	6.1	43.5	0.79	0.69	0.79	26.4
12	R2	84	2.5	84	2.5	0.229	28.4	LOS B	3.0	21.7	0.78	0.73	0.78	15.3
Approach		601	2.3	601	2.3	0.526	36.7	LOS C	11.6	82.6	0.83	0.74	0.83	25.9
All Vehicles		2247	2.5	2236 N1	2.5	0.808	36.9	LOS C	13.7	97.9	0.83	0.75	0.86	24.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	35.3	LOS D	0.1	0.1	0.77	0.77

P2	East Full Crossing	53	26.1	LOS C	0.1	0.1	0.66	0.66
P3	North Full Crossing	53	36.9	LOS D	0.1	0.1	0.79	0.79
P3S	North Slip/Bypass Lane Crossing	53	30.2	LOS D	0.1	0.1	0.71	0.71
P4	West Full Crossing	53	44.3	LOS E	0.2	0.2	0.86	0.86
P4S	West Slip/Bypass Lane Crossing	53	19.3	LOS B	0.1	0.1	0.80	0.80
All Pedestrians		316	32.0	LOS D			0.76	0.76

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5 [5. Worth St and Union Ln]

Network: N101 [Network Model - 2026 Background Growth PM Peak (No Link Rd, No Urban Apt)]

Worth St and Union Ln
2026 Background Growth - PM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	86	2.4	84	2.4	0.046	3.9	LOS A	0.0	0.0	0.00	0.52	0.00	29.7
2	T1	515	2.0	503	2.0	0.261	0.0	LOS A	3.2	22.8	0.00	0.00	0.00	50.0
Approach		601	2.1	587[N1]	2.1	0.261	0.6	NA	3.2	22.8	0.00	0.07	0.00	42.8
East: Union Ln (E)														
4	L2	185	2.3	185	2.3	0.421	4.6	LOS A	1.1	8.1	0.34	0.53	0.36	35.7
5	T1	21	5.0	21	5.0	0.421	13.9	LOS A	1.1	8.1	0.34	0.53	0.36	35.8
6	R2	82	2.6	82	2.6	0.408	16.6	LOS B	1.1	8.1	0.71	0.94	0.93	29.4
Approach		288	2.6	288	2.6	0.421	8.7	LOS A	1.1	8.1	0.44	0.65	0.52	33.7
North: Worth St (N)														
8	T1	238	2.2	238	2.2	0.096	0.6	LOS A	2.1	14.7	0.09	0.08	0.09	41.0
9	R2	57	3.7	57	3.7	0.096	7.3	LOS A	0.8	6.0	0.43	0.34	0.43	22.6
Approach		295	2.5	295	2.5	0.096	1.9	NA	2.1	14.7	0.16	0.13	0.16	33.1
West: Union Ln (W)														
10	L2	6	16.7	6	16.7	0.320	9.7	LOS A	0.6	4.5	0.76	0.92	0.88	9.2
12	R2	33	3.2	33	3.2	0.320	23.2	LOS B	0.6	4.5	0.76	0.92	0.88	9.2
Approach		39	5.4	39	5.4	0.320	21.0	LOS B	0.6	4.5	0.76	0.92	0.88	9.2
All Vehicles		1223	2.4	1209[N1]	2.4	0.421	3.5	NA	3.2	22.8	0.17	0.25	0.19	33.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Worth St and Union Rd]

Network: N101 [Network Model - 2026 Background Growth PM Peak (No Link Rd, No Urban Apt)]

Worth St and Union Rd
2026 Background Growth - PM Peak
Upgraded Mulgoa Rd/High St & Mulgoa Rd/Union Rd Intersections, No Urban Apartments, No Link Rd, No Dev
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Worth St (S)														
1	L2	17	6.3	17	6.3	0.577	74.4	LOS F	3.4	25.4	1.00	0.77	1.05	17.0
2	T1	29	3.6	29	3.6	0.577	69.8	LOS E	3.4	25.4	1.00	0.77	1.05	17.0
3	R2	5	20.0	5	20.0	0.577	74.5	LOS F	3.4	25.4	1.00	0.77	1.05	24.9
Approach		52	6.1	52	6.1	0.577	71.8	LOS F	3.4	25.4	1.00	0.77	1.05	18.1
East: Union Rd (E)														
4	L2	34	3.1	34	3.1	0.159	19.0	LOS B	4.9	35.1	0.51	0.48	0.51	41.0
5	T1	132	2.4	132	2.4	0.159	14.4	LOS A	4.9	35.1	0.51	0.48	0.51	35.4
6	R2	404	2.1	404	2.1	0.916	65.6	LOS E	30.3	215.6	0.92	1.02	1.24	18.1
Approach		569	2.2	569	2.2	0.916	51.0	LOS D	30.3	215.6	0.80	0.86	1.03	21.7
North: Worth St (N)														
7	L2	233	2.3	233	2.3	0.823	67.7	LOS E	11.4	81.6	1.00	0.92	1.18	18.6
8	T1	33	3.2	33	3.2	0.572	49.6	LOS D	11.4	81.6	0.95	0.82	0.95	21.7
9	R2	191	2.2	191	2.2	0.572	53.4	LOS D	11.4	81.6	0.95	0.82	0.95	4.0
Approach		456	2.3	456	2.3	0.823	60.5	LOS E	11.4	81.6	0.97	0.87	1.07	14.8
West: Union Rd (W)														
10	L2	168	2.5	154	2.5	0.114	8.8	LOS A	2.5	17.8	0.28	0.61	0.28	36.1
11	T1	220	2.4	202	2.4	0.210	14.9	LOS B	6.6	46.9	0.53	0.46	0.53	39.8
12	R2	12	9.1	11	9.2	0.210	19.6	LOS B	6.6	46.9	0.53	0.46	0.53	39.0
Approach		400	2.6	367[N1]	2.7	0.210	12.5	LOS A	6.6	46.9	0.42	0.53	0.42	38.9
All Vehicles		1477	2.5	1444[N1]	2.6	0.916	44.9	LOS D	30.3	215.6	0.77	0.78	0.89	22.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	14.8	LOS B	0.1	0.1	0.48	0.48

P2	East Full Crossing	53	46.6	LOS E	0.2	0.2	0.85	0.85
P3	North Full Crossing	53	17.3	LOS B	0.1	0.1	0.52	0.52
P4	West Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96
All Pedestrians		211	34.5	LOS D			0.70	0.70

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 1 [1. High St and Mulgoa Rd]

Network: N101 [Network Model - 2026 Development AM Peak]

High Street and Mulgoa Road
2026 Development AM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Background Growth, Development
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mulgoa Road														
1	L2	406	2.1	406	2.1	0.793	37.3	LOS C	18.7	133.4	0.99	0.88	1.04	30.6
2	T1	897	11.2	897	11.2	0.853	67.0	LOS E	21.7	166.5	1.00	0.98	1.18	22.5
3	R2	158	2.0	158	2.0	0.813	78.3	LOS F	11.5	81.5	1.00	0.91	1.20	6.8
Approach		1461	7.6	1461	7.6	0.853	60.0	LOS E	21.7	166.5	1.00	0.94	1.14	22.7
East: High Street														
4	L2	263	2.0	259	2.0	0.243	13.6	LOS A	6.2	44.1	0.46	0.69	0.46	22.8
5	T1	272	1.9	267	1.9	0.404	56.0	LOS D	8.2	58.2	0.94	0.76	0.94	24.5
6	R2	111	1.9	109	1.9	0.345	72.8	LOS F	3.6	25.7	0.98	0.75	0.98	20.6
Approach		645	2.0	634[N1]	2.0	0.404	41.6	LOS C	8.2	58.2	0.75	0.73	0.75	23.2
North: Castlereagh Road														
7	L2	143	2.2	143	2.2	0.574	43.9	LOS D	17.5	130.7	0.79	0.74	0.79	26.1
8	T1	937	11.1	937	11.1	0.574	37.5	LOS C	18.0	138.2	0.78	0.69	0.78	27.2
9	R2	534	2.2	534	2.2	0.868	46.7	LOS D	12.5	89.2	1.00	0.95	1.23	34.0
Approach		1614	7.4	1614	7.4	0.868	41.1	LOS C	18.0	138.2	0.85	0.78	0.93	30.1
West: High Street														
10	L2	855	2.1	855	2.1	0.537	25.0	LOS B	13.1	93.1	0.79	0.83	0.84	42.2
11	T1	508	2.1	508	2.1	0.777	63.2	LOS E	17.5	124.3	1.00	0.90	1.09	20.1
12	R2	274	1.9	274	1.9	0.881	85.7	LOS F	10.5	74.5	1.00	0.97	1.36	16.1
Approach		1637	2.1	1637	2.1	0.881	47.0	LOS D	17.5	124.3	0.89	0.87	1.01	29.9
All Vehicles		5357	5.2	5345[N1]	5.2	0.881	48.1	LOS D	21.7	166.5	0.89	0.85	0.99	27.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P1S	South Slip/Bypass Lane Crossing	53	25.1	LOS C	0.1	0.1	0.84	0.84

P2	East Full Crossing	53	41.7	LOS E	0.2	0.2	0.77	0.77
P3	North Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P4S	West Slip/Bypass Lane Crossing	53	49.0	LOS E	0.2	0.2	0.84	0.84
All Pedestrians		263	48.9	LOS E			0.87	0.87

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2 [2. Mulgoa Rd and Union Rd]

Network: N101 [Network Model - 2026 Development AM Peak]

Mulgoa Rd and Union Rd
2026 Development AM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Background Growth, Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
2	T1	1460	11.1	1460	11.1	0.402	0.9	LOS A	2.5	19.1	0.09	0.00	0.09	58.4
3	R2	205	2.1	205	2.1	1.105	161.9	LOS F	20.4	145.5	1.00	2.41	6.64	9.5
Approach		1665	10.0	1665	10.0	1.105	20.7	NA	20.4	145.5	0.20	0.30	0.90	35.6
East: Union Road														
4	L2	224	1.4	224	1.4	0.252	6.4	LOS A	1.2	8.2	0.50	0.69	0.50	48.4
Approach		224	1.4	224	1.4	0.252	6.4	LOS A	1.2	8.2	0.50	0.69	0.50	48.4
North: Mulgoa Road														
7	L2	245	2.1	245	2.1	0.134	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	37.7
8	T1	1231	10.9	1231	10.9	0.225	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1476	9.5	1476	9.5	0.225	0.9	NA	0.0	0.0	0.00	0.10	0.00	58.4
All Vehicles		3365	9.2	3365	9.2	1.105	11.1	NA	20.4	145.5	0.13	0.24	0.48	44.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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: 3 [3. High St and Civic Roundabout]

Network: N101 [Network Model - 2026 Development AM Peak]

High and Civic Roundabout
2026 Development AM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Background Growth, Development
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Rd (S)														
1	L2	45	0.0	45	0.0	0.092	3.9	LOS A	0.4	2.8	0.46	0.66	0.46	27.0
2	T1	2	0.0	2	0.0	0.092	4.6	LOS A	0.4	2.8	0.46	0.66	0.46	52.4
3	R2	45	0.0	45	0.0	0.092	9.0	LOS A	0.4	2.8	0.46	0.66	0.46	27.0
Approach		93	0.0	92 N1	0.0	0.092	6.4	LOS A	0.4	2.8	0.46	0.66	0.46	28.9
East: High St (E)														
5	T1	571	2.0	568	2.0	0.194	2.7	LOS A	1.1	7.6	0.11	0.32	0.11	40.1
6	R2	46	2.3	46	2.3	0.194	7.5	LOS A	1.0	7.4	0.11	0.36	0.11	48.5
Approach		617	2.0	614 N1	2.0	0.194	3.1	LOS A	1.1	7.6	0.11	0.32	0.11	41.7
North: Civic Pl (N)														
7	L2	18	5.9	18	5.9	0.053	5.7	LOS A	0.2	1.8	0.52	0.65	0.52	41.3
9	R2	27	3.8	27	3.8	0.053	9.7	LOS A	0.2	1.8	0.52	0.65	0.52	41.3
Approach		45	4.7	45	4.7	0.053	8.1	LOS A	0.2	1.8	0.52	0.65	0.52	41.3
West: High St (W)														
10	L2	68	3.1	68	3.1	0.271	4.0	LOS A	1.6	11.3	0.18	0.39	0.18	45.3
11	T1	731	2.0	731	2.0	0.271	3.8	LOS A	1.6	11.3	0.19	0.39	0.19	35.3
Approach		799	2.1	799	2.1	0.271	3.8	LOS A	1.6	11.3	0.19	0.39	0.19	37.8
All Vehicles		1554	2.0	1551 N1	2.0	0.271	3.8	LOS A	1.6	11.3	0.18	0.39	0.18	39.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. High St and Worth St]

Network: N101 [Network Model - 2026 Development AM Peak]

High St and Worth St
2026 Development AM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Background Growth, Development
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Worth St (S)														
1	L2	212	2.0	209	2.0	0.502	34.4	LOS C	9.4	66.7	0.75	0.75	0.75	6.9
2	T1	82	2.6	81	2.6	0.502	47.5	LOS D	9.4	66.7	0.95	0.79	0.95	22.8
3	R2	60	3.5	59	3.5	0.502	56.2	LOS D	7.1	50.9	1.00	0.80	1.00	20.1
Approach		354	2.4	350 N1	2.4	0.502	41.2	LOS C	9.4	66.7	0.84	0.77	0.84	16.0
East: High St (E)														
4	L2	26	4.0	26	4.0	0.299	42.3	LOS C	6.4	45.7	0.76	0.65	0.76	24.5
5	T1	292	2.2	292	2.2	0.299	36.2	LOS C	6.8	48.2	0.75	0.62	0.75	25.2
6	R2	69	3.0	69	3.0	0.087	13.7	LOS A	1.5	10.5	0.51	0.66	0.51	41.7
Approach		387	2.4	387	2.4	0.299	32.6	LOS C	6.8	48.2	0.71	0.63	0.71	28.5
North: Worth St (N)														
7	L2	1	0.0	1	0.0	0.160	44.4	LOS D	3.6	25.8	0.81	0.61	0.81	30.3
8	T1	73	2.9	73	2.9	0.160	39.9	LOS C	3.6	25.8	0.81	0.61	0.81	24.2
9	R2	83	2.5	83	2.5	0.533	48.2	LOS D	4.2	29.7	1.00	0.76	1.00	21.9
Approach		157	2.7	157	2.7	0.533	44.3	LOS D	4.2	29.7	0.91	0.69	0.91	23.0
West: High St (W)														
10	L2	235	2.2	235	2.2	0.508	42.8	LOS D	11.5	82.1	0.88	0.81	0.88	26.8
11	T1	363	2.0	363	2.0	0.325	36.8	LOS C	8.3	59.1	0.83	0.72	0.83	26.0
12	R2	142	2.2	142	2.2	0.306	20.8	LOS B	3.3	23.5	0.77	0.75	0.77	18.9
Approach		740	2.1	740	2.1	0.508	35.7	LOS C	11.5	82.1	0.84	0.75	0.84	25.7
All Vehicles		1638	2.3	1634 N1	2.3	0.533	36.9	LOS C	11.5	82.1	0.81	0.72	0.81	24.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	36.9	LOS D	0.1	0.1	0.79	0.79
P2	East Full Crossing	53	45.2	LOS E	0.2	0.2	0.87	0.87

P3	North Full Crossing	53	38.5	LOS D	0.1	0.1	0.80	0.80
P3S	North Slip/Bypass Lane Crossing	53	31.6	LOS D	0.1	0.1	0.73	0.73
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4S	West Slip/Bypass Lane Crossing	53	13.5	LOS B	0.1	0.1	0.66	0.66
All Pedestrians		316	36.7	LOS D			0.80	0.80

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5 [5. Worth St and Union Ln]

Network: N101 [Network Model - 2026 Development AM Peak]

Worth St and Union Ln
2026 Development AM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Background Growth, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	45	2.3	45	2.3	0.024	3.9	LOS A	0.0	0.0	0.00	0.52	0.00	27.5
2	T1	279	2.3	275	2.3	0.167	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		324	2.3	319[N1]	2.3	0.167	0.5	NA	0.0	0.0	0.00	0.07	0.00	44.5
East: Union Ln (E)														
4	L2	81	2.6	81	2.6	0.133	4.0	LOS A	0.5	3.4	0.26	0.47	0.26	36.4
5	T1	23	4.5	23	4.5	0.133	7.0	LOS A	0.5	3.4	0.26	0.47	0.26	36.4
6	R2	38	2.8	38	2.8	0.072	8.0	LOS A	0.3	2.0	0.53	0.68	0.53	34.1
Approach		142	3.0	142	3.0	0.133	5.5	LOS A	0.5	3.4	0.33	0.52	0.33	35.7
North: Worth St (N)														
8	T1	149	2.1	149	2.1	0.090	0.1	LOS A	0.4	2.6	0.03	0.05	0.03	45.3
9	R2	91	2.3	91	2.3	0.090	5.7	LOS A	0.4	2.6	0.29	0.49	0.29	25.3
Approach		240	2.2	240	2.2	0.090	2.2	NA	0.4	2.6	0.13	0.22	0.13	34.8
All Vehicles		706	2.4	701[N1]	2.4	0.167	2.1	NA	0.5	3.4	0.11	0.21	0.11	36.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Organisation: PARKING AND TRAFFIC CONSULTANTS | Processed: Wednesday, 7 October 2020 11:43:09 AM
Project: Z:\PCI - PROJECT WORK FILES\NSW\TOGA - PENRITH\East Site - Uplift Scheme DA\SIDRA\SCENARIO 3A - 2026 Development Only AM Peak - TO BE UPDATED\201006 - SCENARIO 3A - 2026 Background Growth & Development - AM Peak.sip8

MOVEMENT SUMMARY

Site: 6 [6. Worth St and Union Rd]

Network: N101 [Network Model - 2026 Development AM Peak]

Worth St and Union Rd
2026 Development AM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Background Growth, Development
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	17	6.3	17	6.3	0.498	69.2	LOS E	2.7	19.8	1.00	0.74	1.00	17.7
2	T1	16	6.7	16	6.7	0.498	64.6	LOS E	2.7	19.8	1.00	0.74	1.00	17.7
3	R2	11	10.0	11	10.0	0.498	69.2	LOS E	2.7	19.8	1.00	0.74	1.00	25.7
Approach		43	7.3	43	7.3	0.498	67.5	LOS E	2.7	19.8	1.00	0.74	1.00	20.2
East: Union Rd (E)														
4	L2	3	33.3	3	33.3	0.090	23.0	LOS B	2.5	17.9	0.58	0.47	0.58	39.3
5	T1	76	2.8	76	2.8	0.090	18.2	LOS B	2.5	17.9	0.58	0.47	0.58	33.5
6	R2	192	2.2	192	2.2	0.513	36.4	LOS C	8.8	63.1	0.82	0.80	0.82	25.2
Approach		271	2.7	271	2.7	0.513	31.1	LOS C	8.8	63.1	0.75	0.70	0.75	27.3
North: Worth St (N)														
7	L2	172	2.5	172	2.5	0.432	48.0	LOS D	8.5	60.8	0.89	0.79	0.89	22.8
8	T1	8	12.5	8	12.5	0.160	34.6	LOS C	3.5	25.7	0.79	0.72	0.79	25.8
9	R2	73	2.9	73	2.9	0.160	38.4	LOS C	3.5	25.7	0.79	0.72	0.79	5.4
Approach		253	2.9	253	2.9	0.432	44.8	LOS D	8.5	60.8	0.85	0.77	0.85	20.0
West: Union Rd (W)														
10	L2	117	2.7	112	2.7	0.114	15.2	LOS B	3.0	21.7	0.46	0.64	0.46	12.1
11	T1	323	2.0	310	2.0	0.351	20.8	LOS B	11.2	80.0	0.67	0.59	0.67	33.0
12	R2	7	14.3	7	14.4	0.351	24.9	LOS B	11.2	80.0	0.67	0.59	0.67	32.1
Approach		447	2.4	429[N1]	2.4	0.351	19.4	LOS B	11.2	80.0	0.61	0.60	0.61	30.9
All Vehicles		1014	2.8	995[N1]	2.9	0.513	31.1	LOS C	11.2	80.0	0.73	0.68	0.73	25.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	19.3	LOS B	0.1	0.1	0.57	0.57
P2	East Full Crossing	53	36.9	LOS D	0.1	0.1	0.79	0.79

P3	North Full Crossing	53	22.3	LOS C	0.1	0.1	0.61	0.61
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	33.2	LOS D			0.73	0.73

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 7 [7. Union Rd and Link Rd]

Network: N101 [Network Model - 2026 Development AM Peak]

Union Rd and Link Rd
2026 Development AM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Background Growth, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Union Rd (E)														
5	T1	152	2.1	152	2.1	0.090	0.2	LOS A	0.1	0.7	0.07	0.04	0.07	43.6
6	R2	13	0.0	13	0.0	0.090	5.6	LOS A	0.1	0.7	0.07	0.04	0.07	43.6
Approach		164	1.9	164	1.9	0.090	0.6	NA	0.1	0.7	0.07	0.04	0.07	43.6
North: Link Rd (N)														
7	L2	29	3.6	29	3.6	0.178	8.9	LOS A	0.5	3.5	0.50	0.98	0.50	17.1
9	R2	65	1.6	65	1.6	0.178	9.9	LOS A	0.5	3.5	0.50	0.98	0.50	17.1
Approach		95	2.2	95	2.2	0.178	9.6	LOS A	0.5	3.5	0.50	0.98	0.50	17.1
West: Union Rd (W)														
10	L2	20	0.0	20	0.0	0.419	3.9	LOS A	0.0	0.0	0.00	0.02	0.00	47.9
11	T1	426	2.0	407	2.0	0.419	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	47.9
Approach		446	1.9	427[N1]	1.9	0.419	0.2	NA	0.0	0.0	0.00	0.02	0.00	47.9
All Vehicles		705	1.9	686[N1]	2.0	0.419	1.6	NA	0.5	3.5	0.09	0.16	0.09	37.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 8 [8. Union Ln and Link Rd]

Network: N101 [Network Model - 2026 Development AM Peak]

Union Ln and Link Rd
2026 Development AM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Background Growth, Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Road (S)														
2	T1	65	0.0	65	0.0	0.033	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		65	0.0	65	0.0	0.033	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
East: Union Ln (E)														
4	L2	26	4.0	26	4.0	0.034	3.9	LOS A	0.1	0.9	0.12	0.50	0.12	25.3
6	R2	26	4.0	26	4.0	0.034	4.5	LOS A	0.1	0.9	0.12	0.50	0.12	25.3
Approach		53	4.0	52 N1	4.0	0.034	4.2	LOS A	0.1	0.9	0.12	0.50	0.12	25.3
All Vehicles		118	1.8	118	1.8	0.034	1.9	NA	0.1	0.9	0.06	0.22	0.06	30.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: Drwy1 [Driveway 1]

Network: N101 [Network Model - 2026 Development AM Peak]

Driveway 1
2026 Development AM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Background Growth, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Rd (S)														
1	L2	33	0.0	32	0.0	0.018	7.5	LOS A	0.0	0.0	0.00	0.79	0.00	20.9
2	T1	1	0.0	1	0.0	0.018	0.0	LOS A	0.0	0.0	0.00	0.79	0.00	19.8
Approach		34	0.0	33[N1]	0.0	0.018	7.2	NA	0.0	0.0	0.00	0.79	0.00	20.9
North: Link Rd (N)														
8	T1	26	4.0	26	4.0	0.014	0.0	LOS A	0.0	0.0	0.01	0.04	0.01	46.0
9	R2	1	0.0	1	0.0	0.014	4.1	LOS A	0.0	0.0	0.01	0.04	0.01	13.9
Approach		27	3.8	27	3.9	0.014	0.2	NA	0.0	0.0	0.01	0.04	0.01	37.4
West: Driveway 1														
10	L2	65	0.0	65	0.0	0.104	2.3	LOS A	0.4	2.8	0.01	0.99	0.01	9.1
12	R2	65	0.0	65	0.0	0.104	2.4	LOS A	0.4	2.8	0.01	0.99	0.01	9.1
Approach		131	0.0	131	0.0	0.104	2.3	LOS A	0.4	2.8	0.01	0.99	0.01	9.1
All Vehicles		192	0.5	191[N1]	0.6	0.104	2.9	NA	0.4	2.8	0.01	0.82	0.01	11.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: Drwy2 [Driveway 2]

Network: N101 [Network Model - 2026 Development AM Peak]

Driveway 2
2026 Development AM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Background Growth, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Union Rd (E)														
5	T1	232	2.3	232	2.3	0.123	0.0	LOS A	0.0	0.2	0.02	0.01	0.02	48.4
6	R2	3	0.0	3	0.0	0.123	7.7	LOS A	0.0	0.2	0.02	0.01	0.02	17.6
Approach		235	2.2	235	2.2	0.123	0.1	NA	0.0	0.2	0.02	0.01	0.02	46.4
North: Driveway 2														
7	L2	5	0.0	5	0.0	0.031	4.2	LOS A	0.1	0.7	0.50	0.92	0.50	8.1
9	R2	14	0.0	14	0.0	0.031	6.4	LOS A	0.1	0.7	0.50	0.92	0.50	8.1
Approach		19	0.0	19	0.0	0.031	5.8	LOS A	0.1	0.7	0.50	0.92	0.50	8.1
West: Union Rd (W)														
10	L2	7	0.0	7	0.0	0.222	7.5	LOS A	0.0	0.0	0.00	0.02	0.00	26.7
11	T1	440	1.9	421	1.9	0.222	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	47.9
Approach		447	1.9	428[N1]	1.9	0.222	0.1	NA	0.0	0.0	0.00	0.02	0.00	46.8
All Vehicles		701	2.0	682[N1]	2.0	0.222	0.3	NA	0.1	0.7	0.02	0.04	0.02	41.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 1 [1. High St and Mulgoa Rd]

Network: N101 [Network Model - 2026 Development PM Peak]

High Street and Mulgoa Road
2026 Development PM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Development
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
1	L2	373	2.3	373	2.3	1.092	149.9	LOS F	32.0	228.5	1.00	1.27	1.92	10.8
2	T1	835	2.8	835	2.8	1.196	250.8	LOS F	31.9	228.5	1.00	1.65	2.37	8.0
3	R2	189	2.2	189	2.2	0.611	64.2	LOS E	12.2	86.7	0.98	0.82	0.98	8.1
Approach		1397	2.6	1397	2.6	1.196	198.6	LOS F	32.0	228.5	1.00	1.43	2.06	8.6
East: High Street														
4	L2	262	2.0	260	2.0	0.243	16.0	LOS B	7.2	51.0	0.50	0.70	0.50	20.5
5	T1	769	2.1	763	2.1	1.142	207.2	LOS F	26.3	187.7	1.00	1.64	2.13	9.2
6	R2	207	2.0	206	2.0	0.874	87.0	LOS F	7.9	56.0	1.00	0.95	1.39	18.2
Approach		1239	2.0	1229 N1	2.1	1.142	146.6	LOS F	26.3	187.7	0.89	1.32	1.66	10.5
North: Castlereagh Road														
7	L2	132	1.6	132	1.6	0.814	61.5	LOS E	25.0	178.8	0.98	0.90	1.04	21.1
8	T1	1068	2.8	1068	2.8	0.814	55.0	LOS D	26.6	190.5	0.97	0.89	1.03	21.8
9	R2	780	2.0	780	2.0	1.184	226.8	LOS F	48.6	346.2	1.00	1.48	2.30	11.6
Approach		1980	2.4	1980	2.4	1.184	123.1	LOS F	48.6	346.2	0.98	1.12	1.53	14.6
West: High Street														
10	L2	622	2.0	622	2.0	0.322	16.2	LOS B	7.2	51.6	0.60	0.73	0.60	46.9
11	T1	378	2.2	378	2.2	0.462	51.8	LOS D	11.3	80.7	0.92	0.76	0.92	22.8
12	R2	269	2.0	269	2.0	1.156	225.1	LOS F	18.1	128.9	1.00	1.37	2.31	7.1
Approach		1269	2.1	1269	2.1	1.156	71.1	LOS F	18.1	128.9	0.78	0.88	1.06	23.1
All Vehicles		5885	2.3	5875 N1	2.3	1.196	134.7	LOS F	48.6	346.2	0.92	1.19	1.58	13.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	60.5	LOS F	0.2	0.2	0.93	0.93
P1S	South Slip/Bypass Lane Crossing	53	23.5	LOS C	0.1	0.1	0.79	0.79

P2	East Full Crossing	53	51.5	LOS E	0.2	0.2	0.86	0.86
P3	North Full Crossing	53	63.3	LOS F	0.2	0.2	0.95	0.95
P4S	West Slip/Bypass Lane Crossing	53	57.7	LOS E	0.2	0.2	0.91	0.91
All Pedestrians		263	51.3	LOS E			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2 [2. Mulgoa Rd and Union Rd]

Network: N101 [Network Model - 2026 Development PM Peak]

Mulgoa Rd and Union Rd
2026 Development PM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
2	T1	1395	2.7	1395	2.7	0.322	0.9	LOS A	8.8	62.7	0.10	0.00	0.10	58.2
3	R2	258	2.0	258	2.0	1.306	318.1	LOS F	45.0	320.5	1.00	3.61	11.29	5.2
Approach		1653	2.6	1653	2.6	1.306	50.4	NA	45.0	320.5	0.24	0.56	1.85	22.5
East: Union Road														
4	L2	371	2.0	370	2.0	0.421	7.7	LOS A	2.9	20.6	0.58	0.79	0.72	46.9
Approach		371	2.0	370 N1	2.0	0.421	7.7	LOS A	2.9	20.6	0.58	0.79	0.72	46.9
North: Mulgoa Road														
7	L2	235	1.8	226	1.8	0.123	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	37.7
8	T1	1363	2.7	1333	2.7	0.232	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		1598	2.6	1560 N1	2.6	0.232	0.8	NA	0.0	0.0	0.00	0.08	0.00	58.6
All Vehicles		3621	2.5	3582 N1	2.6	1.306	24.4	NA	45.0	320.5	0.17	0.38	0.93	34.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. High St and Civic Roundabout]

Network: N101 [Network Model - 2026 Development PM Peak]

High and Civic Roundabout
2026 Development PM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Development
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Rd (S)														
1	L2	17	0.0	17	0.0	0.063	5.4	LOS A	0.2	1.5	0.64	0.72	0.64	24.0
2	T1	1	0.0	1	0.0	0.063	6.1	LOS A	0.2	1.5	0.64	0.72	0.64	50.6
3	R2	17	0.0	17	0.0	0.063	10.5	LOS A	0.2	1.5	0.64	0.72	0.64	24.0
Approach		35	0.0	34 N1	0.0	0.063	7.9	LOS A	0.2	1.5	0.64	0.72	0.64	26.4
East: High St (E)														
5	T1	1108	2.0	1099	2.0	0.766	3.2	LOS A	2.6	18.6	0.25	0.37	0.25	38.6
6	R2	32	3.3	31	3.4	0.766	8.0	LOS A	2.6	18.6	0.27	0.38	0.27	48.0
Approach		1140	2.0	1130 N1	2.0	0.766	3.3	LOS A	2.6	18.6	0.25	0.37	0.25	39.3
North: Civic Pl (N)														
7	L2	53	2.0	53	2.0	0.281	5.5	LOS A	0.8	5.8	0.50	0.70	0.50	41.4
9	R2	101	2.1	101	2.1	0.281	9.5	LOS A	0.8	5.8	0.50	0.70	0.50	41.4
Approach		154	2.1	154	2.1	0.281	8.1	LOS A	0.8	5.8	0.50	0.70	0.50	41.4
West: High St (W)														
10	L2	56	3.8	56	3.8	0.224	3.8	LOS A	1.3	8.9	0.12	0.38	0.12	45.6
11	T1	635	1.8	635	1.8	0.224	3.5	LOS A	1.3	8.9	0.13	0.37	0.13	36.1
Approach		691	2.0	691	2.0	0.224	3.6	LOS A	1.3	8.9	0.13	0.37	0.13	38.4
All Vehicles		2019	2.0	2009 N1	2.0	0.766	3.8	LOS A	2.6	18.6	0.24	0.40	0.24	39.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Organisation: PARKING AND TRAFFIC CONSULTANTS | Processed: Wednesday, 7 October 2020 11:48:46 AM
Project: Z:\PCI - PROJECT WORK FILES\NSW\TOGA - PENRITH\East Site - Uplift Scheme DA\SIDRA\SCENARIO 3B - 2026 Development Only PM Peak - TO BE UPDATED\201007 - SCENARIO 3B - 2026 Development - PM Peak.sip8

MOVEMENT SUMMARY

Site: 4 [4. High St and Worth St]

Network: N101 [Network Model - 2026 Development PM Peak]

High and Worth
2026 Development PM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Development
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Worth St (S)														
1	L2	355	2.1	345	2.1	0.589	40.7	LOS C	13.7	97.9	0.89	0.83	0.89	5.9
2	T1	201	2.1	195	2.2	0.546	41.7	LOS C	12.6	89.9	0.92	0.78	0.92	24.8
3	R2	54	2.0	52	2.0	0.546	45.9	LOS D	12.6	89.9	0.92	0.78	0.92	22.6
Approach		609	2.1	592[N1]	2.1	0.589	41.5	LOS C	13.7	97.9	0.90	0.81	0.90	16.4
East: High St (E)														
4	L2	46	2.3	46	2.3	0.427	42.3	LOS C	9.9	70.6	0.79	0.69	0.79	24.5
5	T1	433	1.9	433	1.9	0.427	36.0	LOS C	10.6	75.7	0.78	0.67	0.78	25.2
6	R2	151	2.1	151	2.1	0.334	28.6	LOS C	5.7	40.5	0.76	0.74	0.76	35.6
Approach		629	2.0	629	2.0	0.427	34.7	LOS C	10.6	75.7	0.77	0.69	0.77	28.4
North: Worth St (N)														
7	L2	2	50.0	2	50.0	0.196	25.5	LOS B	5.9	42.2	0.63	0.50	0.63	36.0
8	T1	165	2.5	165	2.5	0.196	20.6	LOS B	5.9	42.2	0.63	0.50	0.63	32.2
9	R2	277	2.3	277	2.3	0.806	42.6	LOS D	12.6	90.2	1.00	0.92	1.19	23.4
Approach		444	2.6	444	2.6	0.806	34.3	LOS C	12.6	90.2	0.86	0.76	0.98	26.2
West: High St (W)														
10	L2	236	2.2	236	2.2	0.526	42.4	LOS C	11.6	82.6	0.88	0.81	0.88	26.9
11	T1	288	2.2	288	2.2	0.244	34.4	LOS C	6.3	44.8	0.79	0.69	0.79	26.5
12	R2	139	1.5	139	1.5	0.389	29.6	LOS C	5.2	36.9	0.83	0.76	0.83	14.9
Approach		663	2.1	663	2.1	0.526	36.3	LOS C	11.6	82.6	0.83	0.75	0.83	25.4
All Vehicles		2346	2.2	2329[N1]	2.2	0.806	36.8	LOS C	13.7	97.9	0.84	0.75	0.86	24.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	35.3	LOS D	0.1	0.1	0.77	0.77
P2	East Full Crossing	53	26.1	LOS C	0.1	0.1	0.66	0.66

P3	North Full Crossing	53	36.9	LOS D	0.1	0.1	0.79	0.79
P3S	North Slip/Bypass Lane Crossing	53	30.2	LOS D	0.1	0.1	0.71	0.71
P4	West Full Crossing	53	44.3	LOS E	0.2	0.2	0.86	0.86
P4S	West Slip/Bypass Lane Crossing	53	19.3	LOS B	0.1	0.1	0.80	0.80
All Pedestrians		316	32.0	LOS D			0.76	0.76

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5 [5. Worth St and Union Ln]

Network: N101 [Network Model - 2026 Development PM Peak]

Worth St and Union Ln
2026 Development PM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	86	2.4	83	2.5	0.046	3.9	LOS A	0.0	0.0	0.00	0.52	0.00	27.5
2	T1	521	2.0	504	2.1	0.262	0.0	LOS A	3.1	22.2	0.00	0.00	0.00	50.0
Approach		607	2.1	587[N1]	2.2	0.262	0.6	NA	3.1	22.2	0.00	0.07	0.00	44.4
East: Union Ln (E)														
4	L2	185	2.3	185	2.3	0.423	4.7	LOS A	1.2	8.3	0.34	0.53	0.37	35.7
5	T1	21	5.0	21	5.0	0.423	14.2	LOS A	1.2	8.3	0.34	0.53	0.37	35.7
6	R2	82	2.6	82	2.6	0.420	16.9	LOS B	1.1	8.1	0.71	0.95	0.94	29.3
Approach		288	2.6	288	2.6	0.423	8.9	LOS A	1.2	8.3	0.45	0.65	0.53	33.6
North: Worth St (N)														
8	T1	254	2.1	254	2.1	0.100	0.6	LOS A	5.2	37.3	0.10	0.08	0.10	40.6
9	R2	57	3.7	57	3.7	0.100	7.3	LOS A	5.2	37.3	0.42	0.32	0.42	25.7
Approach		311	2.4	311	2.4	0.100	1.8	NA	5.2	37.3	0.16	0.12	0.16	36.7
All Vehicles		1206	2.3	1186[N1]	2.3	0.423	2.9	NA	5.2	37.3	0.15	0.23	0.17	35.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Worth St and Union Rd]

Network: N101 [Network Model - 2026 Development PM Peak]

Worth St and Union Rd
2026 Development PM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	17	6.3	17	6.3	0.577	74.4	LOS F	3.4	25.4	1.00	0.77	1.05	17.0
2	T1	29	3.6	29	3.6	0.577	69.8	LOS E	3.4	25.4	1.00	0.77	1.05	17.0
3	R2	5	20.0	5	20.0	0.577	74.5	LOS F	3.4	25.4	1.00	0.77	1.05	24.9
Approach		52	6.1	52	6.1	0.577	71.8	LOS F	3.4	25.4	1.00	0.77	1.05	18.1
East: Union Rd (E)														
4	L2	34	3.1	34	3.1	0.159	19.0	LOS B	4.9	35.1	0.51	0.48	0.51	41.0
5	T1	132	2.4	132	2.4	0.159	14.4	LOS A	4.9	35.1	0.51	0.48	0.51	35.4
6	R2	404	2.1	404	2.1	0.917	66.0	LOS E	30.4	216.3	0.92	1.02	1.24	18.0
Approach		569	2.2	569	2.2	0.917	51.3	LOS D	30.4	216.3	0.80	0.86	1.03	21.7
North: Worth St (N)														
7	L2	233	2.3	233	2.3	0.823	67.7	LOS E	11.4	81.6	1.00	0.92	1.18	18.6
8	T1	33	3.2	33	3.2	0.711	52.0	LOS D	11.5	81.6	0.98	0.85	1.01	21.1
9	R2	245	1.7	245	1.7	0.711	55.9	LOS D	11.5	81.6	0.98	0.85	1.01	3.9
Approach		511	2.1	510	2.1	0.823	61.0	LOS E	11.5	81.6	0.99	0.88	1.09	13.8
West: Union Rd (W)														
10	L2	175	2.4	155	2.7	0.114	8.1	LOS A	2.5	17.8	0.28	0.61	0.28	18.5
11	T1	228	2.3	202	2.6	0.212	14.9	LOS B	6.6	47.3	0.53	0.46	0.53	36.5
12	R2	13	8.3	11	9.4	0.212	18.8	LOS B	6.6	47.3	0.53	0.46	0.53	35.5
Approach		416	2.5	368[N1]	2.9	0.212	12.2	LOS A	6.6	47.3	0.42	0.52	0.42	33.9
All Vehicles		1547	2.4	1500[N1]	2.5	0.917	45.7	LOS D	30.4	216.3	0.78	0.78	0.90	20.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	14.8	LOS B	0.1	0.1	0.48	0.48
P2	East Full Crossing	53	46.6	LOS E	0.2	0.2	0.85	0.85

P3	North Full Crossing	53	17.3	LOS B	0.1	0.1	0.52	0.52
P4	West Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96
All Pedestrians		211	34.5	LOS D			0.70	0.70

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 7 [7. Union Rd and Link Rd]

Network: N101 [Network Model - 2026 Development PM Peak]

Union Rd and Link Rd
2026 Development PM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Union Rd (E)														
5	T1	353	2.1	353	2.1	0.216	0.3	LOS A	0.3	2.5	0.11	0.06	0.11	41.6
6	R2	38	0.0	38	0.0	0.216	5.9	LOS A	0.3	2.5	0.11	0.06	0.11	41.6
Approach		391	1.9	391	1.9	0.216	0.9	NA	0.3	2.5	0.11	0.06	0.11	41.6
North: Link Rd (N)														
7	L2	13	8.3	13	8.4	0.064	8.5	LOS A	0.2	1.6	0.51	0.95	0.51	16.3
9	R2	26	4.0	26	4.0	0.064	11.2	LOS A	0.2	1.6	0.51	0.95	0.51	16.3
Approach		39	5.4	39	5.4	0.064	10.3	LOS A	0.2	1.6	0.51	0.95	0.51	16.3
West: Union Rd (W)														
10	L2	87	9.6	84	8.6	0.226	3.9	LOS A	0.0	0.0	0.00	0.10	0.00	43.1
11	T1	393	0.0	346	0.0	0.226	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	43.1
Approach		480	1.8	430[N1]	1.7	0.226	0.8	NA	0.0	0.0	0.00	0.10	0.00	43.1
All Vehicles		909	2.0	859[N1]	2.1	0.226	1.2	NA	0.3	2.5	0.07	0.12	0.07	39.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 8 [8. Union Ln and Link Rd]

Network: N101 [Network Model - 2026 Development PM Peak]

Union Ln and Link Rd
2026 Development PM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Road (S)														
2	T1	16	0.0	16	0.0	0.008	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		16	0.0	16	0.0	0.008	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
East: Union Ln (E)														
4	L2	20	5.3	20	5.4	0.025	3.9	LOS A	0.1	0.6	0.05	0.53	0.05	26.0
6	R2	20	5.3	20	5.4	0.025	4.2	LOS A	0.1	0.6	0.05	0.53	0.05	26.0
Approach		40	5.3	39[N1]	5.4	0.025	4.1	LOS A	0.1	0.6	0.05	0.53	0.05	26.0
All Vehicles		56	3.8	55[N1]	3.8	0.025	2.9	NA	0.1	0.6	0.04	0.38	0.04	28.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: Drwy1 [Driveway 1]

Network: N101 [Network Model - 2026 Development PM Peak]

Driveway 1
2026 Development PM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Rd (S)														
1	L2	128	0.0	126	0.0	0.069	7.5	LOS A	0.0	0.0	0.00	0.79	0.00	20.7
2	T1	1	0.0	1	0.0	0.069	0.0	LOS A	0.0	0.0	0.00	0.79	0.00	19.5
Approach		129	0.0	128[N1]	0.0	0.069	7.4	NA	0.0	0.0	0.00	0.79	0.00	20.7
North: Link Rd (N)														
8	T1	19	0.0	19	0.0	0.010	0.0	LOS A	0.0	0.0	0.03	0.06	0.03	44.3
9	R2	1	0.0	1	0.0	0.010	4.4	LOS A	0.0	0.0	0.03	0.06	0.03	13.9
Approach		20	0.0	20	0.0	0.010	0.3	NA	0.0	0.0	0.03	0.06	0.03	34.2
West: Driveway 1														
10	L2	16	0.0	16	0.0	0.026	2.3	LOS A	0.1	0.6	0.01	1.00	0.01	9.0
12	R2	16	0.0	16	0.0	0.026	2.6	LOS A	0.1	0.6	0.01	1.00	0.01	9.0
Approach		32	0.0	32	0.0	0.026	2.4	LOS A	0.1	0.6	0.01	1.00	0.01	9.0
All Vehicles		181	0.0	179[N1]	0.0	0.069	5.7	NA	0.1	0.6	0.00	0.74	0.00	18.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: Drwy2 [Driveway 2]

Network: N101 [Network Model - 2026 Development PM Peak]

Driveway 2
2026 Development PM Peak
Upgraded Road Network, Link Rd, No Urban Apartments, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Union Rd (E)														
5	T1	382	1.9	382	1.9	0.203	0.1	LOS A	0.1	0.4	0.02	0.01	0.02	48.2
6	R2	5	0.0	5	0.0	0.203	8.1	LOS A	0.1	0.4	0.02	0.01	0.02	17.6
Approach		387	1.9	387	1.9	0.203	0.2	NA	0.1	0.4	0.02	0.01	0.02	46.2
North: Driveway 2														
7	L2	3	0.0	3	0.0	0.021	4.3	LOS A	0.1	0.5	0.57	0.92	0.57	7.8
9	R2	7	0.0	7	0.0	0.021	8.3	LOS A	0.1	0.5	0.57	0.92	0.57	7.8
Approach		11	0.0	11	0.0	0.021	7.1	LOS A	0.1	0.5	0.57	0.92	0.57	7.8
West: Union Rd (W)														
10	L2	14	0.0	12	0.0	0.239	7.5	LOS A	0.0	0.0	0.00	0.03	0.00	26.5
11	T1	509	1.9	448	1.8	0.239	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	46.7
Approach		523	1.8	460[N1]	1.8	0.239	0.2	NA	0.0	0.0	0.00	0.03	0.00	45.1
All Vehicles		921	1.8	858[N1]	2.0	0.239	0.3	NA	0.1	0.5	0.02	0.03	0.02	43.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 1 [1. High St and Mulgoa Rd]

Network: N101 [Network Model - 2026 Development & Urban Apt AM Peak]

High Street and Mulgoa Road
2026 Development AM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Background Growth, Development
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mulgoa Road														
1	L2	406	2.1	406	2.1	0.793	37.3	LOS C	18.7	133.4	0.99	0.88	1.04	30.6
2	T1	897	11.2	897	11.2	0.853	67.0	LOS E	21.7	166.5	1.00	0.98	1.18	22.5
3	R2	158	2.0	158	2.0	0.813	78.3	LOS F	11.5	81.5	1.00	0.91	1.20	6.8
Approach		1461	7.6	1461	7.6	0.853	60.0	LOS E	21.7	166.5	1.00	0.94	1.14	22.7
East: High Street														
4	L2	268	2.0	264	2.0	0.248	13.6	LOS A	6.3	45.2	0.46	0.69	0.46	22.7
5	T1	278	1.9	273	1.9	0.413	56.2	LOS D	8.4	59.6	0.94	0.76	0.94	24.5
6	R2	113	1.9	111	1.9	0.352	72.8	LOS F	3.7	26.2	0.98	0.75	0.98	20.5
Approach		659	1.9	647 N1	1.9	0.413	41.7	LOS C	8.4	59.6	0.75	0.73	0.75	23.1
North: Castlereagh Road														
7	L2	143	2.2	143	2.2	0.574	43.9	LOS D	17.5	130.7	0.79	0.74	0.79	26.1
8	T1	937	11.1	937	11.1	0.574	37.5	LOS C	18.0	138.2	0.78	0.69	0.78	27.2
9	R2	534	2.2	534	2.2	0.868	46.7	LOS D	12.5	89.2	1.00	0.95	1.23	34.0
Approach		1614	7.4	1614	7.4	0.868	41.1	LOS C	18.0	138.2	0.85	0.78	0.93	30.1
West: High Street														
10	L2	855	2.1	855	2.1	0.537	25.0	LOS B	13.1	93.1	0.79	0.83	0.84	42.2
11	T1	508	2.1	508	2.1	0.777	63.2	LOS E	17.5	124.3	1.00	0.90	1.09	20.1
12	R2	274	1.9	274	1.9	0.881	85.7	LOS F	10.5	74.5	1.00	0.97	1.36	16.1
Approach		1637	2.1	1637	2.1	0.881	47.0	LOS D	17.5	124.3	0.89	0.87	1.01	29.9
All Vehicles		5371	5.2	5359 N1	5.2	0.881	48.1	LOS D	21.7	166.5	0.89	0.85	0.99	27.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P1S	South Slip/Bypass Lane Crossing	53	25.1	LOS C	0.1	0.1	0.84	0.84

P2	East Full Crossing	53	41.7	LOS E	0.2	0.2	0.77	0.77
P3	North Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P4S	West Slip/Bypass Lane Crossing	53	49.0	LOS E	0.2	0.2	0.84	0.84
All Pedestrians		263	48.9	LOS E			0.87	0.87

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2 [2. Mulgoa Rd and Union Rd]

Network: N101 [Network Model - 2026 Development & Urban Apt AM Peak]

Mulgoa Rd and Union Rd
2026 Development AM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Background Growth, Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
2	T1	1460	11.1	1460	11.1	0.402	0.9	LOS A	2.5	19.1	0.09	0.00	0.09	58.4
3	R2	205	2.1	205	2.1	1.113	168.3	LOS F	21.2	150.7	1.00	2.45	6.81	9.2
Approach		1665	10.0	1665	10.0	1.113	21.5	NA	21.2	150.7	0.20	0.30	0.92	35.1
East: Union Road														
4	L2	244	1.3	244	1.3	0.275	6.4	LOS A	1.3	9.1	0.51	0.70	0.51	48.3
Approach		244	1.3	244	1.3	0.275	6.4	LOS A	1.3	9.1	0.51	0.70	0.51	48.3
North: Mulgoa Road														
7	L2	245	2.1	245	2.1	0.134	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	37.7
8	T1	1236	10.9	1236	10.9	0.226	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1481	9.5	1481	9.5	0.226	0.9	NA	0.0	0.0	0.00	0.10	0.00	58.4
All Vehicles		3391	9.1	3391	9.1	1.113	11.4	NA	21.2	150.7	0.13	0.24	0.49	44.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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: 3 [3. High St and Civic Roundabout]

Network: N101 [Network Model - 2026 Development & Urban Apt AM Peak]

High and Civic Roundabout
2026 Development AM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Background Growth, Development
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Rd (S)														
1	L2	59	0.0	59	0.0	0.139	4.3	LOS A	0.6	5.0	0.49	0.69	0.49	26.0
2	T1	3	0.0	3	0.0	0.139	5.2	LOS A	0.6	5.0	0.49	0.69	0.49	51.9
3	R2	59	0.0	59	0.0	0.139	9.4	LOS A	0.6	5.0	0.49	0.69	0.49	26.0
Approach		121	0.0	121	0.0	0.139	6.8	LOS A	0.6	5.0	0.49	0.69	0.49	28.2
East: High St (E)														
5	T1	571	2.0	568	2.0	0.194	2.7	LOS A	1.1	7.6	0.11	0.32	0.11	40.1
6	R2	46	2.3	46	2.3	0.194	7.5	LOS A	1.0	7.4	0.11	0.36	0.11	48.5
Approach		617	2.0	614 N1	2.0	0.194	3.1	LOS A	1.1	7.6	0.11	0.32	0.11	41.7
North: Civic Pl (N)														
7	L2	18	5.9	18	5.9	0.054	5.8	LOS A	0.3	1.9	0.53	0.66	0.53	41.2
9	R2	27	3.8	27	3.8	0.054	9.8	LOS A	0.3	1.9	0.53	0.66	0.53	41.2
Approach		45	4.7	45	4.7	0.054	8.2	LOS A	0.3	1.9	0.53	0.66	0.53	41.2
West: High St (W)														
10	L2	68	3.1	68	3.1	0.278	4.1	LOS A	1.6	11.7	0.21	0.40	0.21	45.2
11	T1	731	2.0	731	2.0	0.278	3.9	LOS A	1.6	11.7	0.21	0.40	0.21	35.0
Approach		799	2.1	799	2.1	0.278	3.9	LOS A	1.6	11.7	0.21	0.40	0.21	37.4
All Vehicles		1582	2.0	1579 N1	2.0	0.278	3.9	LOS A	1.6	11.7	0.20	0.40	0.20	39.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. High St and Worth St]

Network: N101 [Network Model - 2026 Development & Urban Apt AM Peak]

High St and Worth St
2026 Development AM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Background Growth, Development
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Worth St (S)														
1	L2	212	2.0	209	2.0	0.505	37.4	LOS C	10.0	71.3	0.79	0.77	0.79	6.4
2	T1	83	2.5	82	2.5	0.505	47.9	LOS D	10.0	71.3	0.95	0.80	0.95	22.6
3	R2	61	3.4	60	3.5	0.505	56.2	LOS D	7.1	51.2	1.00	0.80	1.00	20.2
Approach		356	2.4	351 N1	2.4	0.505	43.1	LOS D	10.0	71.3	0.87	0.78	0.87	15.6
East: High St (E)														
4	L2	29	3.6	29	3.6	0.303	42.4	LOS C	6.5	46.1	0.77	0.65	0.77	24.5
5	T1	292	2.2	292	2.2	0.303	36.3	LOS C	6.9	49.0	0.75	0.63	0.75	25.2
6	R2	69	3.0	69	3.0	0.088	13.9	LOS A	1.5	10.5	0.52	0.66	0.52	41.6
Approach		391	2.4	391	2.4	0.303	32.7	LOS C	6.9	49.0	0.71	0.64	0.71	28.5
North: Worth St (N)														
7	L2	1	0.0	1	0.0	0.160	44.4	LOS D	3.6	25.8	0.81	0.61	0.81	30.3
8	T1	73	2.9	73	2.9	0.160	39.9	LOS C	3.6	25.8	0.81	0.61	0.81	24.2
9	R2	83	2.5	83	2.5	0.533	48.2	LOS D	4.2	29.7	1.00	0.76	1.00	21.9
Approach		157	2.7	157	2.7	0.533	44.3	LOS D	4.2	29.7	0.91	0.69	0.91	23.0
West: High St (W)														
10	L2	235	2.2	235	2.2	0.506	42.8	LOS D	11.5	82.0	0.88	0.81	0.88	26.8
11	T1	377	2.0	377	2.0	0.337	36.9	LOS C	8.6	61.5	0.83	0.72	0.83	26.1
12	R2	142	2.2	142	2.2	0.308	21.1	LOS B	3.3	23.5	0.78	0.75	0.78	18.7
Approach		754	2.1	754	2.1	0.506	35.8	LOS C	11.5	82.0	0.84	0.76	0.84	25.8
All Vehicles		1657	2.3	1652 N1	2.3	0.533	37.4	LOS C	11.5	82.0	0.82	0.73	0.82	24.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	36.9	LOS D	0.1	0.1	0.79	0.79
P2	East Full Crossing	53	45.2	LOS E	0.2	0.2	0.87	0.87

P3	North Full Crossing	53	38.5	LOS D	0.1	0.1	0.80	0.80
P3S	North Slip/Bypass Lane Crossing	53	31.6	LOS D	0.1	0.1	0.73	0.73
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4S	West Slip/Bypass Lane Crossing	53	13.5	LOS B	0.1	0.1	0.66	0.66
All Pedestrians		316	36.7	LOS D			0.80	0.80

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5 [5. Worth St and Union Ln]

Network: N101 [Network Model - 2026 Development & Urban Apt AM Peak]

Worth St and Union Ln
2026 Development AM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Background Growth, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	47	2.2	47	2.2	0.026	3.9	LOS A	0.0	0.0	0.00	0.52	0.00	27.5
2	T1	281	2.2	277	2.3	0.181	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		328	2.2	323 N1	2.2	0.181	0.6	NA	0.0	0.0	0.00	0.07	0.00	44.3
East: Union Ln (E)														
4	L2	81	2.6	81	2.6	0.135	4.0	LOS A	0.5	3.5	0.27	0.47	0.27	36.3
5	T1	24	4.3	24	4.3	0.135	7.1	LOS A	0.5	3.5	0.27	0.47	0.27	36.3
6	R2	38	2.8	38	2.8	0.073	8.1	LOS A	0.3	2.0	0.53	0.68	0.53	34.0
Approach		143	2.9	143	2.9	0.135	5.6	LOS A	0.5	3.5	0.34	0.53	0.34	35.7
North: Worth St (N)														
8	T1	149	2.1	149	2.1	0.092	0.1	LOS A	0.4	2.7	0.02	0.04	0.02	46.0
9	R2	94	2.2	94	2.2	0.092	5.7	LOS A	0.4	2.7	0.29	0.51	0.29	24.9
Approach		243	2.2	243	2.2	0.092	2.3	NA	0.4	2.7	0.13	0.22	0.13	34.6
All Vehicles		715	2.4	710 N1	2.4	0.181	2.2	NA	0.5	3.5	0.11	0.22	0.11	36.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Worth St and Union Rd]

Network: N101 [Network Model - 2026 Development & Urban Apt AM Peak]

Worth St and Union Rd
2026 Development AM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Background Growth, Development
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	17	6.3	17	6.3	0.498	69.2	LOS E	2.7	19.8	1.00	0.74	1.00	17.7
2	T1	16	6.7	16	6.7	0.498	64.6	LOS E	2.7	19.8	1.00	0.74	1.00	17.7
3	R2	11	10.0	11	10.0	0.498	69.2	LOS E	2.7	19.8	1.00	0.74	1.00	25.7
Approach		43	7.3	43	7.3	0.498	67.5	LOS E	2.7	19.8	1.00	0.74	1.00	20.2
East: Union Rd (E)														
4	L2	3	33.3	3	33.3	0.090	23.0	LOS B	2.5	17.9	0.58	0.47	0.58	39.3
5	T1	76	2.8	76	2.8	0.090	18.2	LOS B	2.5	17.9	0.58	0.47	0.58	33.5
6	R2	193	2.2	193	2.2	0.521	36.5	LOS C	8.9	63.7	0.83	0.80	0.83	25.2
Approach		272	2.7	272	2.7	0.521	31.3	LOS C	8.9	63.7	0.75	0.71	0.75	27.3
North: Worth St (N)														
7	L2	172	2.5	172	2.5	0.432	48.0	LOS D	8.5	60.7	0.88	0.79	0.88	22.8
8	T1	8	12.5	8	12.5	0.160	34.6	LOS C	3.5	25.6	0.79	0.72	0.79	25.8
9	R2	73	2.9	73	2.9	0.160	38.4	LOS C	3.5	25.6	0.79	0.72	0.79	5.4
Approach		253	2.9	253	2.9	0.432	44.8	LOS D	8.5	60.7	0.85	0.77	0.85	20.0
West: Union Rd (W)														
10	L2	119	2.7	114	2.7	0.117	13.4	LOS A	2.8	19.7	0.43	0.63	0.43	13.2
11	T1	329	1.9	315	1.9	0.360	21.0	LOS B	11.4	81.6	0.67	0.59	0.67	32.9
12	R2	7	14.3	7	14.4	0.360	25.0	LOS B	11.4	81.6	0.68	0.59	0.68	32.0
Approach		456	2.3	436[N1]	2.3	0.360	19.0	LOS B	11.4	81.6	0.61	0.60	0.61	31.1
All Vehicles		1023	2.8	1003[N1]	2.8	0.521	30.9	LOS C	11.4	81.6	0.73	0.68	0.73	25.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	19.3	LOS B	0.1	0.1	0.57	0.57
P2	East Full Crossing	53	36.9	LOS D	0.1	0.1	0.79	0.79

P3	North Full Crossing	53	22.3	LOS C	0.1	0.1	0.61	0.61
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	33.2	LOS D			0.73	0.73

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 7 [7. Union Rd and Link Rd]

Network: N101 [Network Model - 2026 Development & Urban Apt AM Peak]

Union Rd and Link Rd
2026 Development AM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Background Growth, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Union Rd (E)														
5	T1	152	2.1	152	2.1	0.090	0.2	LOS A	0.1	0.7	0.07	0.04	0.07	43.6
6	R2	13	0.0	13	0.0	0.090	5.5	LOS A	0.1	0.7	0.07	0.04	0.07	43.6
Approach		164	1.9	164	1.9	0.090	0.6	NA	0.1	0.7	0.07	0.04	0.07	43.6
North: Link Rd (N)														
7	L2	38	2.8	38	2.8	0.234	9.0	LOS A	0.6	4.6	0.51	0.98	0.51	17.0
9	R2	85	1.2	85	1.2	0.234	10.0	LOS A	0.6	4.6	0.51	0.98	0.51	17.0
Approach		123	1.7	123	1.7	0.234	9.7	LOS A	0.6	4.6	0.51	0.98	0.51	17.0
West: Union Rd (W)														
10	L2	20	0.0	20	0.0	0.221	3.9	LOS A	0.1	0.8	0.00	0.02	0.00	48.0
11	T1	426	2.0	406	2.0	0.221	0.0	LOS A	0.1	0.8	0.00	0.02	0.00	48.0
Approach		446	1.9	426[N1]	1.9	0.221	0.2	NA	0.1	0.8	0.00	0.02	0.00	48.0
All Vehicles		734	1.9	713[N1]	1.9	0.234	1.9	NA	0.6	4.6	0.11	0.19	0.11	35.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 8 [8. Union Ln and Link Rd]

Network: N101 [Network Model - 2026 Development & Urban Apt AM Peak]

Union Ln and Link Rd
2026 Development AM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Background Growth, Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Road (S)														
2	T1	65	0.0	65	0.0	0.033	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		65	0.0	65	0.0	0.033	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
East: Union Ln (E)														
4	L2	55	1.9	55	1.9	0.070	3.9	LOS A	0.3	1.8	0.13	0.51	0.13	25.3
6	R2	55	1.9	55	1.9	0.070	4.5	LOS A	0.3	1.8	0.13	0.51	0.13	25.3
Approach		109	1.9	109	1.9	0.070	4.2	LOS A	0.3	1.8	0.13	0.51	0.13	25.3
All Vehicles		175	1.2	175	1.2	0.070	2.6	NA	0.3	1.8	0.08	0.32	0.08	28.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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: Drwy1 [Driveway 1]

Network: N101 [Network Model - 2026 Development & Urban Apt AM Peak]

Driveway 1
2026 Development AM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Background Growth, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Rd (S)														
1	L2	33	0.0	32	0.0	0.018	7.5	LOS A	0.0	0.0	0.00	0.79	0.00	20.9
2	T1	1	0.0	1	0.0	0.018	0.0	LOS A	0.0	0.0	0.00	0.79	0.00	19.8
Approach		34	0.0	33[N1]	0.0	0.018	7.2	NA	0.0	0.0	0.00	0.79	0.00	20.9
North: Link Rd (N)														
8	T1	55	1.9	54	1.9	0.029	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	48.0
9	R2	1	0.0	1	0.0	0.029	4.1	LOS A	0.0	0.0	0.00	0.02	0.00	14.0
Approach		56	1.9	55[N1]	1.9	0.029	0.1	NA	0.0	0.0	0.00	0.02	0.00	42.8
West: Driveway 1														
10	L2	65	0.0	65	0.0	0.105	2.3	LOS A	0.4	2.8	0.01	1.00	0.01	9.0
12	R2	65	0.0	65	0.0	0.105	2.6	LOS A	0.4	2.8	0.01	1.00	0.01	9.0
Approach		131	0.0	131	0.0	0.105	2.4	LOS A	0.4	2.8	0.01	1.00	0.01	9.0
All Vehicles		220	0.5	219[N1]	0.5	0.105	2.6	NA	0.4	2.8	0.00	0.72	0.00	12.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: Drwy2 [Driveway 2]

Network: N101 [Network Model - 2026 Development & Urban Apt AM Peak]

Driveway 2
2026 Development AM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Background Growth, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Union Rd (E)														
5	T1	232	2.3	232	2.3	0.123	0.0	LOS A	0.0	0.2	0.02	0.01	0.02	48.4
6	R2	3	0.0	3	0.0	0.123	7.7	LOS A	0.0	0.2	0.02	0.01	0.02	17.6
Approach		235	2.2	235	2.2	0.123	0.1	NA	0.0	0.2	0.02	0.01	0.02	46.4
North: Driveway 2														
7	L2	5	0.0	5	0.0	0.031	4.2	LOS A	0.1	0.7	0.50	0.92	0.50	8.1
9	R2	14	0.0	14	0.0	0.031	6.4	LOS A	0.1	0.7	0.50	0.92	0.50	8.1
Approach		19	0.0	19	0.0	0.031	5.8	LOS A	0.1	0.7	0.50	0.92	0.50	8.1
West: Union Rd (W)														
10	L2	7	0.0	7	0.0	0.222	7.5	LOS A	0.0	0.0	0.00	0.02	0.00	26.7
11	T1	440	1.9	419	1.9	0.222	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	47.9
Approach		447	1.9	427[N1]	1.9	0.222	0.1	NA	0.0	0.0	0.00	0.02	0.00	46.7
All Vehicles		701	2.0	680[N1]	2.0	0.222	0.3	NA	0.1	0.7	0.02	0.04	0.02	41.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Organisation: PARKING AND TRAFFIC CONSULTANTS | Processed: Wednesday, 7 October 2020 11:53:21 AM
Project: Z:\PCI - PROJECT WORK FILES\NSW\TOGA - PENRITH\East Site - Uplift Scheme DA\SIDRA\SCENARIO 4A - 2026 Development & Urban Apt AM Peak - TO BE UPDATED\201007 - SCENARIO 4A - 2026 Development & Urban Apt - AM Peak.sip8

MOVEMENT SUMMARY

Site: UrbApart [Urban Apartments]

Network: N101 [Network Model - 2026 Development & Urban Apt AM Peak]

Urban Apartments
2026 Development AM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Background Growth, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Union Lane (E)														
5	T1	51	2.1	50	2.1	0.030	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	42.5
6	R2	7	0.0	7	0.0	0.030	5.8	LOS A	0.0	0.0	0.00	0.12	0.00	46.4
Approach		58	1.8	58	1.8	0.030	0.7	NA	0.0	0.0	0.00	0.12	0.00	44.7
North: Urban Apartment Access														
9	R2	57	0.0	57	0.0	0.046	2.4	LOS A	0.1	1.0	0.13	0.92	0.13	9.9
Approach		57	0.0	57	0.0	0.046	2.4	LOS A	0.1	1.0	0.13	0.92	0.13	9.9
All Vehicles		115	0.9	114[N1]	0.9	0.046	1.6	NA	0.1	1.0	0.06	0.52	0.06	11.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 1 [1. High St and Mulgoa Rd]

Network: N101 [Network Model - 2026 Development & Urban Apt PM Peak]

High Street and Mulgoa Road
2026 Development PM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Development
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mulgoa Road														
1	L2	373	2.3	373	2.3	1.092	149.9	LOS F	32.0	228.5	1.00	1.27	1.92	10.8
2	T1	835	2.8	835	2.8	1.196	250.8	LOS F	31.9	228.5	1.00	1.65	2.37	8.0
3	R2	189	2.2	189	2.2	0.611	64.2	LOS E	12.2	86.7	0.98	0.82	0.98	8.1
Approach		1397	2.6	1397	2.6	1.196	198.6	LOS F	32.0	228.5	1.00	1.43	2.06	8.6
East: High Street														
4	L2	263	2.0	261	2.0	0.245	16.1	LOS B	7.2	51.4	0.50	0.70	0.50	20.5
5	T1	772	2.0	765	2.1	1.148	211.7	LOS F	26.3	187.7	1.00	1.65	2.16	9.0
6	R2	208	2.0	207	2.0	0.878	87.4	LOS F	7.9	56.4	1.00	0.96	1.40	18.2
Approach		1243	2.0	1233 N1	2.0	1.148	149.4	LOS F	26.3	187.7	0.89	1.33	1.68	10.4
North: Castlereagh Road														
7	L2	135	1.6	135	1.6	0.818	61.8	LOS E	25.2	180.2	0.98	0.90	1.05	21.1
8	T1	1068	2.8	1068	2.8	0.818	55.2	LOS D	26.8	192.1	0.97	0.89	1.03	21.8
9	R2	780	2.0	780	2.0	1.184	226.8	LOS F	48.6	346.2	1.00	1.48	2.30	11.6
Approach		1983	2.4	1983	2.4	1.184	123.2	LOS F	48.6	346.2	0.98	1.12	1.53	14.6
West: High Street														
10	L2	622	2.0	622	2.0	0.322	16.2	LOS B	7.2	51.6	0.60	0.73	0.60	46.9
11	T1	383	2.2	383	2.2	0.469	51.9	LOS D	11.5	82.0	0.92	0.77	0.92	22.8
12	R2	269	2.0	269	2.0	1.156	225.1	LOS F	18.1	128.9	1.00	1.37	2.31	7.1
Approach		1275	2.1	1275	2.1	1.156	71.1	LOS F	18.1	128.9	0.78	0.88	1.06	23.1
All Vehicles		5898	2.3	5888 N1	2.3	1.196	135.3	LOS F	48.6	346.2	0.92	1.19	1.59	13.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	60.5	LOS F	0.2	0.2	0.93	0.93
P1S	South Slip/Bypass Lane Crossing	53	23.5	LOS C	0.1	0.1	0.79	0.79

P2	East Full Crossing	53	51.5	LOS E	0.2	0.2	0.86	0.86
P3	North Full Crossing	53	63.3	LOS F	0.2	0.2	0.95	0.95
P4S	West Slip/Bypass Lane Crossing	53	57.7	LOS E	0.2	0.2	0.91	0.91
All Pedestrians		263	51.3	LOS E			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2 [2. Mulgoa Rd and Union Rd]

Network: N101 [Network Model - 2026 Development & Urban Apt PM Peak]

Mulgoa Rd and Union Rd
2026 Development PM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mulgoa Road														
2	T1	1395	2.7	1395	2.7	0.322	0.9	LOS A	8.8	62.7	0.10	0.00	0.10	58.2
3	R2	258	2.0	258	2.0	1.307	319.1	LOS F	45.1	321.2	1.00	3.61	11.31	5.2
Approach		1653	2.6	1653	2.6	1.307	50.6	NA	45.1	321.2	0.24	0.56	1.85	22.4
East: Union Road														
4	L2	375	2.0	374	2.0	0.426	7.7	LOS A	3.0	21.1	0.59	0.79	0.73	46.9
Approach		375	2.0	374 N1	2.0	0.426	7.7	LOS A	3.0	21.1	0.59	0.79	0.73	46.9
North: Mulgoa Road														
7	L2	235	1.8	226	1.8	0.123	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	37.7
8	T1	1364	2.7	1334	2.7	0.232	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		1599	2.6	1561 N1	2.6	0.232	0.8	NA	0.0	0.0	0.00	0.08	0.00	58.6
All Vehicles		3626	2.5	3588 N1	2.6	1.307	24.5	NA	45.1	321.2	0.17	0.38	0.93	34.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 3 [3. High St and Civic Roundabout]

Network: N101 [Network Model - 2026 Development & Urban Apt PM Peak]

High and Civic Roundabout
2026 Development PM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Development
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Rd (S)														
1	L2	20	0.0	20	0.0	0.082	5.8	LOS A	0.3	2.2	0.64	0.75	0.64	23.3
2	T1	1	0.0	1	0.0	0.082	6.2	LOS A	0.3	2.2	0.64	0.75	0.64	50.2
3	R2	20	0.0	20	0.0	0.082	10.8	LOS A	0.3	2.2	0.64	0.75	0.64	23.3
Approach		41	0.0	41	0.0	0.082	8.2	LOS A	0.3	2.2	0.64	0.75	0.64	25.3
East: High St (E)														
5	T1	1108	2.0	1099	2.0	0.766	3.2	LOS A	2.6	18.6	0.26	0.37	0.26	38.6
6	R2	32	3.3	31	3.4	0.766	8.0	LOS A	2.6	18.6	0.27	0.38	0.27	48.0
Approach		1140	2.0	1130 N1	2.0	0.766	3.3	LOS A	2.6	18.6	0.26	0.37	0.26	39.3
North: Civic Pl (N)														
7	L2	54	2.0	54	2.0	0.283	5.5	LOS A	0.8	5.9	0.51	0.70	0.51	41.3
9	R2	101	2.1	101	2.1	0.283	9.6	LOS A	0.8	5.9	0.51	0.70	0.51	41.3
Approach		155	2.0	155	2.0	0.283	8.2	LOS A	0.8	5.9	0.51	0.70	0.51	41.3
West: High St (W)														
10	L2	56	3.8	56	3.8	0.228	3.8	LOS A	1.3	9.2	0.13	0.38	0.13	45.6
11	T1	642	1.8	642	1.8	0.228	3.6	LOS A	1.3	9.2	0.14	0.37	0.14	36.0
Approach		698	2.0	698	2.0	0.228	3.6	LOS A	1.3	9.2	0.14	0.37	0.14	38.2
All Vehicles		2034	2.0	2023 N1	2.0	0.766	3.9	LOS A	2.6	18.6	0.24	0.40	0.24	39.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 4 [4. High St and Worth St]

Network: N101 [Network Model - 2026 Development & Urban Apt PM Peak]

High and Worth
2026 Development PM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Development
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	355	2.1	345	2.1	0.589	40.7	LOS C	13.7	97.9	0.89	0.83	0.89	5.9
2	T1	202	2.1	196	2.1	0.551	41.7	LOS C	12.7	90.8	0.92	0.79	0.92	24.8
3	R2	55	1.9	53	2.0	0.551	46.0	LOS D	12.7	90.8	0.92	0.79	0.92	22.7
Approach		612	2.1	594[N1]	2.1	0.589	41.5	LOS C	13.7	97.9	0.90	0.81	0.90	16.5
East: High St (E)														
4	L2	48	2.2	48	2.2	0.430	42.3	LOS C	10.0	70.9	0.79	0.69	0.79	24.5
5	T1	433	1.9	433	1.9	0.430	36.1	LOS C	10.7	76.2	0.78	0.67	0.78	25.2
6	R2	151	2.1	151	2.1	0.338	28.7	LOS C	5.7	40.5	0.77	0.74	0.77	35.6
Approach		632	2.0	632	2.0	0.430	34.8	LOS C	10.7	76.2	0.78	0.69	0.78	28.3
North: Worth St (N)														
7	L2	2	50.0	2	50.0	0.203	25.6	LOS B	6.1	43.9	0.63	0.51	0.63	36.0
8	T1	172	2.5	172	2.5	0.203	20.7	LOS B	6.1	43.9	0.63	0.51	0.63	32.2
9	R2	277	2.3	277	2.3	0.806	42.6	LOS D	12.6	90.2	1.00	0.92	1.19	23.4
Approach		451	2.6	451	2.6	0.806	34.2	LOS C	12.6	90.2	0.86	0.76	0.98	26.2
West: High St (W)														
10	L2	236	2.2	236	2.2	0.523	42.4	LOS C	11.6	82.5	0.88	0.81	0.88	26.9
11	T1	300	2.1	300	2.1	0.254	34.5	LOS C	6.6	46.7	0.79	0.69	0.79	26.6
12	R2	139	1.5	139	1.5	0.390	29.6	LOS C	5.2	36.9	0.83	0.76	0.83	14.9
Approach		675	2.0	675	2.0	0.523	36.2	LOS C	11.6	82.5	0.83	0.75	0.83	25.5
All Vehicles		2368	2.1	2351[N1]	2.1	0.806	36.8	LOS C	13.7	97.9	0.84	0.75	0.86	24.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	35.3	LOS D	0.1	0.1	0.77	0.77
P2	East Full Crossing	53	26.1	LOS C	0.1	0.1	0.66	0.66

P3	North Full Crossing	53	36.9	LOS D	0.1	0.1	0.79	0.79
P3S	North Slip/Bypass Lane Crossing	53	30.2	LOS D	0.1	0.1	0.71	0.71
P4	West Full Crossing	53	44.3	LOS E	0.2	0.2	0.86	0.86
P4S	West Slip/Bypass Lane Crossing	53	19.3	LOS B	0.1	0.1	0.80	0.80
All Pedestrians		316	32.0	LOS D			0.76	0.76

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5 [5. Worth St and Union Ln]

Network: N101 [Network Model - 2026 Development & Urban Apt PM Peak]

Worth St and Union Ln
2026 Development PM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	113	1.9	110	1.9	0.060	3.9	LOS A	0.0	0.0	0.00	0.52	0.00	27.5
2	T1	522	2.0	505	2.1	0.262	0.0	LOS A	3.1	22.2	0.00	0.00	0.00	50.0
Approach		635	2.0	615[N1]	2.1	0.262	0.7	NA	3.1	22.2	0.00	0.09	0.00	43.2
East: Union Ln (E)														
4	L2	185	2.3	185	2.3	0.476	6.1	LOS A	1.7	11.9	0.40	0.62	0.51	34.4
5	T1	27	3.8	27	3.8	0.476	17.0	LOS B	1.7	11.9	0.40	0.62	0.51	34.4
6	R2	82	2.6	82	2.6	0.458	19.0	LOS B	1.2	8.8	0.74	0.98	1.01	28.3
Approach		295	2.5	295	2.5	0.476	10.7	LOS A	1.7	11.9	0.50	0.72	0.65	32.5
North: Worth St (N)														
8	T1	293	1.8	293	1.8	0.121	0.6	LOS A	5.2	37.2	0.09	0.08	0.09	41.1
9	R2	74	2.9	74	2.9	0.121	7.5	LOS A	5.2	37.2	0.45	0.38	0.45	24.2
Approach		366	2.0	366	2.0	0.121	2.0	NA	5.2	37.2	0.16	0.14	0.16	36.0
All Vehicles		1296	2.1	1276[N1]	2.1	0.476	3.4	NA	5.2	37.2	0.16	0.25	0.20	34.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 6 [6. Worth St and Union Rd]

Network: N101 [Network Model - 2026 Development & Urban Apt PM Peak]

Worth St and Union Rd
2026 Development PM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worth St (S)														
1	L2	17	6.3	17	6.3	0.577	74.4	LOS F	3.4	25.4	1.00	0.77	1.05	17.0
2	T1	29	3.6	29	3.6	0.577	69.8	LOS E	3.4	25.4	1.00	0.77	1.05	17.0
3	R2	5	20.0	5	20.0	0.577	74.5	LOS F	3.4	25.4	1.00	0.77	1.05	24.9
Approach		52	6.1	52	6.1	0.577	71.8	LOS F	3.4	25.4	1.00	0.77	1.05	18.1
East: Union Rd (E)														
4	L2	34	3.1	34	3.1	0.159	19.0	LOS B	4.9	35.1	0.51	0.48	0.51	41.0
5	T1	132	2.4	132	2.4	0.159	14.4	LOS A	4.9	35.1	0.51	0.48	0.51	35.4
6	R2	422	2.0	422	2.0	0.972	90.7	LOS F	37.4	266.1	0.96	1.11	1.46	14.5
Approach		587	2.2	587	2.2	0.972	69.5	LOS E	37.4	266.1	0.83	0.94	1.19	18.0
North: Worth St (N)														
7	L2	233	2.3	233	2.3	0.823	67.7	LOS E	11.4	81.6	1.00	0.92	1.18	18.6
8	T1	33	3.2	33	3.2	0.711	52.0	LOS D	11.5	81.6	0.98	0.85	1.01	21.1
9	R2	245	1.7	245	1.7	0.711	55.9	LOS D	11.5	81.6	0.98	0.85	1.01	3.9
Approach		511	2.1	510	2.1	0.823	61.0	LOS E	11.5	81.6	0.99	0.88	1.09	13.8
West: Union Rd (W)														
10	L2	183	2.3	163	2.6	0.121	8.1	LOS A	2.6	18.9	0.28	0.61	0.28	18.4
11	T1	229	2.3	203	2.6	0.212	14.9	LOS B	6.6	47.6	0.53	0.47	0.53	36.5
12	R2	13	8.3	11	9.4	0.212	18.8	LOS B	6.6	47.6	0.53	0.47	0.53	35.5
Approach		425	2.5	378[N1]	2.8	0.212	12.1	LOS A	6.6	47.6	0.42	0.53	0.42	33.7
All Vehicles		1575	2.3	1527[N1]	2.4	0.972	52.6	LOS D	37.4	266.1	0.79	0.81	0.96	18.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	14.8	LOS B	0.1	0.1	0.48	0.48
P2	East Full Crossing	53	46.6	LOS E	0.2	0.2	0.85	0.85

P3	North Full Crossing	53	17.3	LOS B	0.1	0.1	0.52	0.52
P4	West Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96
All Pedestrians		211	34.5	LOS D			0.70	0.70

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 7 [7. Union Rd and Link Rd]

Network: N101 [Network Model - 2026 Development & Urban Apt PM Peak]

Union Rd and Link Rd
2026 Development PM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Union Rd (E)														
5	T1	353	2.1	353	2.1	0.217	0.3	LOS A	0.3	2.5	0.11	0.06	0.11	41.5
6	R2	38	0.0	38	0.0	0.217	5.9	LOS A	0.3	2.5	0.11	0.06	0.11	41.5
Approach		391	1.9	391	1.9	0.217	0.9	NA	0.3	2.5	0.11	0.06	0.11	41.5
North: Link Rd (N)														
7	L2	15	7.1	15	7.2	0.075	8.6	LOS A	0.3	1.9	0.51	0.96	0.51	16.2
9	R2	31	3.4	30	3.5	0.075	11.2	LOS A	0.3	1.9	0.51	0.96	0.51	16.2
Approach		45	4.7	45	4.7	0.075	10.4	LOS A	0.3	1.9	0.51	0.96	0.51	16.2
West: Union Rd (W)														
10	L2	87	9.6	84	8.6	0.230	3.9	LOS A	0.0	0.0	0.00	0.10	0.00	43.2
11	T1	400	0.0	353	0.0	0.230	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	43.2
Approach		487	1.7	437[N1]	1.7	0.230	0.7	NA	0.0	0.0	0.00	0.10	0.00	43.2
All Vehicles		923	1.9	873[N1]	2.1	0.230	1.3	NA	0.3	2.5	0.07	0.13	0.07	39.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 8 [8. Union Ln and Link Rd]

Network: N101 [Network Model - 2026 Development & Urban Apt PM Peak]

Union Ln and Link Rd
2026 Development PM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Road (S)														
2	T1	16	0.0	16	0.0	0.008	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		16	0.0	16	0.0	0.008	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
East: Union Ln (E)														
4	L2	26	4.0	26	4.1	0.033	3.9	LOS A	0.1	0.8	0.05	0.53	0.05	26.0
6	R2	26	4.0	26	4.1	0.033	4.2	LOS A	0.1	0.8	0.05	0.53	0.05	26.0
Approach		53	4.0	52[N1]	4.1	0.033	4.1	LOS A	0.1	0.8	0.05	0.53	0.05	26.0
All Vehicles		68	3.1	68	3.1	0.033	3.1	NA	0.1	0.8	0.04	0.40	0.04	27.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: Drwy1 [Driveway 1]

Network: N101 [Network Model - 2026 Development & Urban Apt PM Peak]

Driveway 1
2026 Development PM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Link Rd (S)														
1	L2	128	0.0	126	0.0	0.069	7.5	LOS A	0.0	0.0	0.00	0.79	0.00	20.7
2	T1	1	0.0	1	0.0	0.069	0.0	LOS A	0.0	0.0	0.00	0.79	0.00	19.5
Approach		129	0.0	128[N1]	0.0	0.069	7.4	NA	0.0	0.0	0.00	0.79	0.00	20.7
North: Link Rd (N)														
8	T1	25	0.0	25	0.0	0.013	0.0	LOS A	0.0	0.0	0.02	0.04	0.02	45.6
9	R2	1	0.0	1	0.0	0.013	4.4	LOS A	0.0	0.0	0.02	0.04	0.02	13.9
Approach		26	0.0	26	0.0	0.013	0.2	NA	0.0	0.0	0.02	0.04	0.02	36.9
West: Driveway 1														
10	L2	16	0.0	16	0.0	0.026	2.3	LOS A	0.1	0.6	0.01	1.00	0.01	9.0
12	R2	16	0.0	16	0.0	0.026	2.6	LOS A	0.1	0.6	0.01	1.00	0.01	9.0
Approach		32	0.0	32	0.0	0.026	2.4	LOS A	0.1	0.6	0.01	1.00	0.01	9.0
All Vehicles		187	0.0	185[N1]	0.0	0.069	5.5	NA	0.1	0.6	0.00	0.72	0.00	18.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: Drwy2 [Driveway 2]

Network: N101 [Network Model - 2026 Development & Urban Apt PM Peak]

Driveway 2
2026 Development PM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Union Rd (E)														
5	T1	382	1.9	382	1.9	0.203	0.1	LOS A	0.1	0.4	0.02	0.01	0.02	48.2
6	R2	5	0.0	5	0.0	0.203	8.1	LOS A	0.1	0.4	0.02	0.01	0.02	17.6
Approach		387	1.9	387	1.9	0.203	0.2	NA	0.1	0.4	0.02	0.01	0.02	46.2
North: Driveway 2														
7	L2	3	0.0	3	0.0	0.021	4.3	LOS A	0.1	0.5	0.57	0.92	0.57	7.8
9	R2	7	0.0	7	0.0	0.021	8.3	LOS A	0.1	0.5	0.57	0.92	0.57	7.8
Approach		11	0.0	11	0.0	0.021	7.1	LOS A	0.1	0.5	0.57	0.92	0.57	7.8
West: Union Rd (W)														
10	L2	14	0.0	12	0.0	0.239	7.5	LOS A	0.0	0.0	0.00	0.03	0.00	26.5
11	T1	509	1.9	448	1.8	0.239	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	46.7
Approach		523	1.8	460[N1]	1.8	0.239	0.2	NA	0.0	0.0	0.00	0.03	0.00	45.1
All Vehicles		921	1.8	858[N1]	2.0	0.239	0.3	NA	0.1	0.5	0.02	0.03	0.02	43.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: UrbApart [Urban Apartments]

Network: N101 [Network Model - 2026 Development & Urban Apt PM Peak]

Urban Apartments
2026 Development PM Peak
Upgraded Road Network, Link Rd, Urban Apartments, Development
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

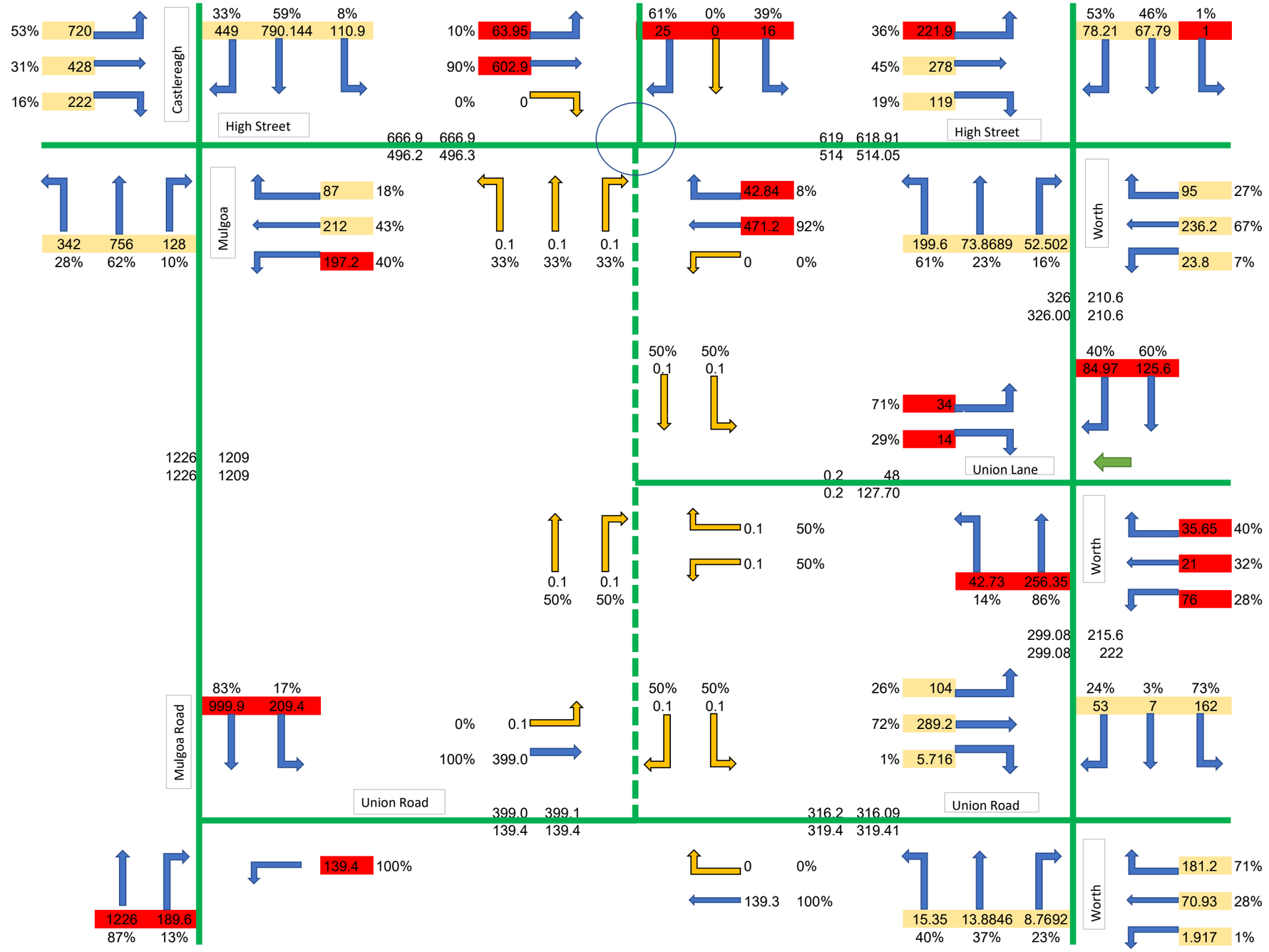
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Union Lane (E)														
5	T1	38	2.8	37	2.8	0.047	0.0	LOS A	0.0	0.0	0.00	0.51	0.00	28.0
6	R2	51	0.0	51	0.0	0.047	5.8	LOS A	0.0	0.0	0.00	0.51	0.00	43.7
Approach		88	1.2	88	1.2	0.047	3.3	NA	0.0	0.0	0.00	0.51	0.00	42.0
North: Urban Apartment Access														
9	R2	14	0.0	14	0.0	0.011	2.5	LOS A	0.0	0.2	0.16	0.90	0.16	9.9
Approach		14	0.0	14	0.0	0.011	2.5	LOS A	0.0	0.2	0.16	0.90	0.16	9.9
All Vehicles		102	1.0	101[N1]	1.0	0.047	3.2	NA	0.0	0.2	0.02	0.57	0.02	26.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

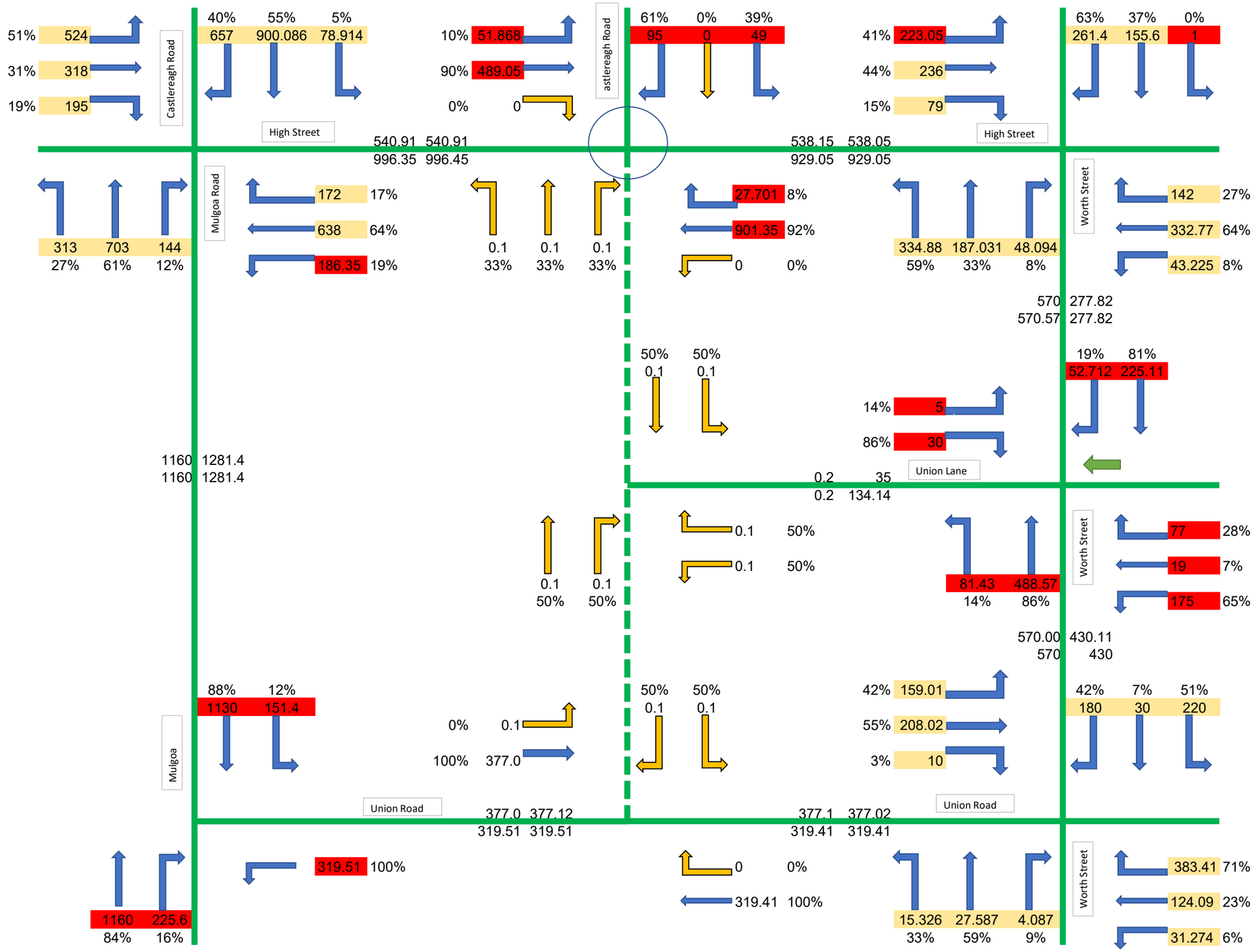
Attachment 2 - Sidra Intersection Summaries

2020 AM Peak Existing - No Link Road / No Development (SCATS)



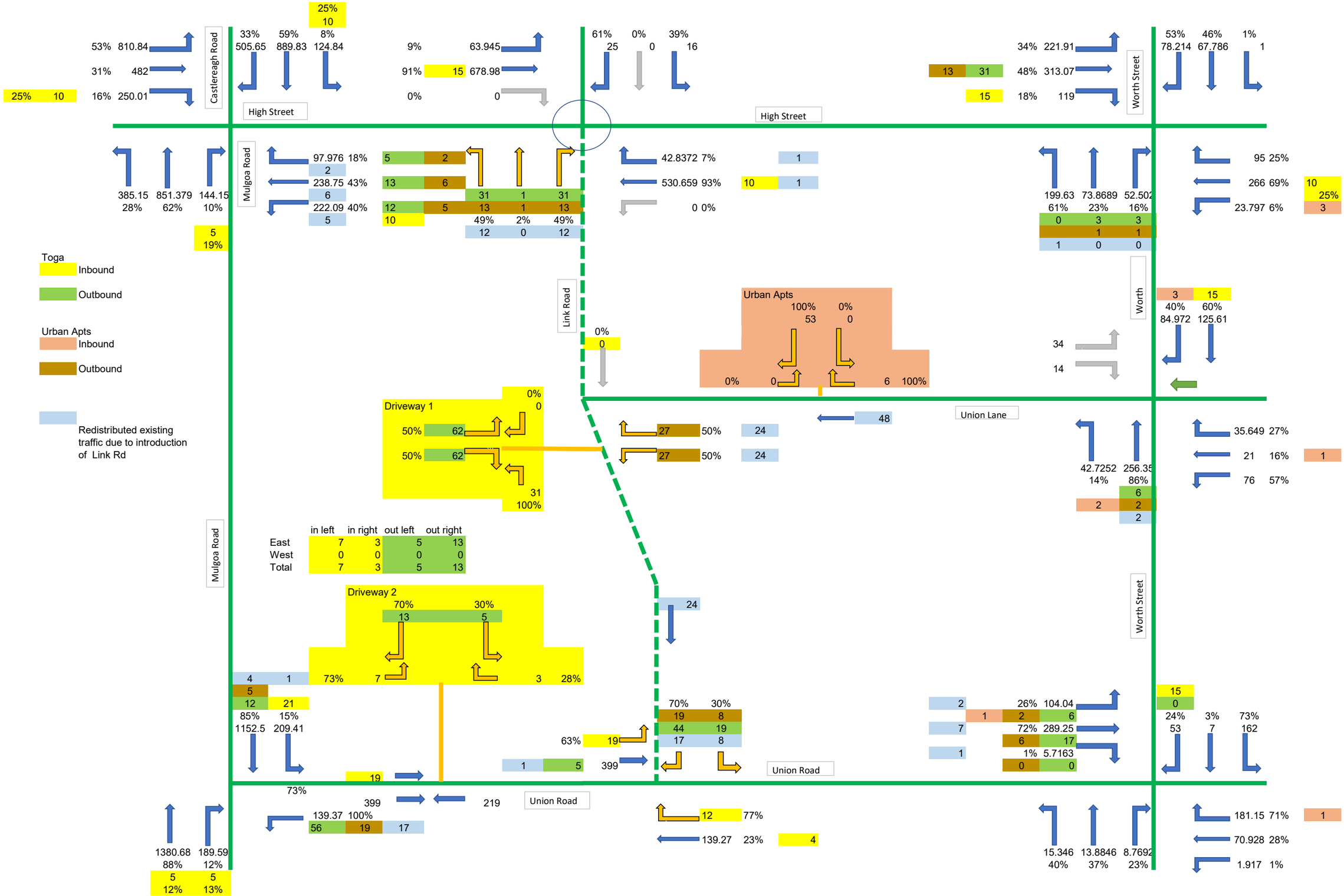
SCATS count data
No data available from SCATS counts.
Assumed volumes to balance network vols

2020 PM Peak **Existing - No Link Road / No Development** **(SCATS)**



SCATS count data
No data available from SCATS counts. Assumed volumes to balance network

2026 AM Peak **Background Growth + Development + Link Road + Urban Apartments**



2026 PM Peak **Background Growth + Development + Link Road + Urban Apartments**