

Our Reference: PT18071

Dartwest Developments
C/O LMG Property Pty Ltd
16 Cook Street
Cronulla NSW 2230

5 November 2019

Att: Mr Rhys Brotherton

Via email: rhys@lmgproperty.com.au

Proposed Residential Development - 38-58 Somerset Ave, Narellan Reponses to Council Email Dated 5 November 2019

As requested, we have reviewed the issues raised in the email dated 5 November 2019 from Ms Clare Aslanis of Camden Council on traffic / modelling matters. A copy of this email is provided in **Appendix A** of this response report.

Each item raised is repeated below verbatim with a response to each provided following.

As Items 1 and 3 related to modelling issues and in particular the configuration of the intersection of Camden Valley Way / Somerset Avenue, we have grouped our responses to both these items below.

Council Issue

- 1. The SIDRA intersection analysis may be slightly skewed due to incorrect road layout on the westbound lanes of Camden Valley Way. The report incorporates 3 lanes whilst there should be 4 lanes.
- 3. There have several complaints received by Council regarding queuing on Somerset Avenue in its existing state, however the data appears to show that the intersection operates at a level of service C -this may be because they input the western lane of Somerset as a full length lane rather than a short lane as parking is permitted 60m away from that intersection. It would be ideal to have the SIDRA analysis revised to show the correct form of the roadway as discussed in point 1 and also identify the western lane of Somerset avenue as a short lane with respective length up to where on-street parking is permitted.

Response

The arrangement for the intersection of Camden Valley Way / Somerset Avenue adopted in *all* modelling to date is presented below in **Figure 1**.

Shopping Centre

Shopping Centre

Figure 1 - Adopted Intersection Configuration of Camden Valley Way / Somerset Avenue

The layout adopted for the Camden Valley Way / Somerset Intersection is acknowledged to have less capacity that is available for 'eastbound' traffic in Camden Valley Way. That is, two (2) lanes were adopted for eastbound traffic whereas three (3) lanes are available.

The current (2019) arrangements of the intersection of Camden Valley Way / Somerset Avenue is shown below in **Figure 2**.



Figure 2 – 2019 Camden Valley Way / Somerset Avenue Intersection Arrangements

© Nearmap

On the matter of the parking restrictions in Somerset Avenue northbound on approach to Camden Valley Way, we noted that these restrictions do not commence till 8:30am with the majority of adjacent businesses not opening till 9:00am. Thus for the AM peak it was not included. We note the same assumption was applied to the PM peak modelling. The first northbound time parking restrictions occur 60m from the hold line of the intersection with Camden Valley Way as indicated in Council's email.

However, as requested by Council the kerbside lane in the modelling has assumed a short 60m long kerbside lane with parking adjacent.

The resultant adopted intersection configuration for Camden Valley Way / Somerset Avenue is presented below in **Figure 3**.

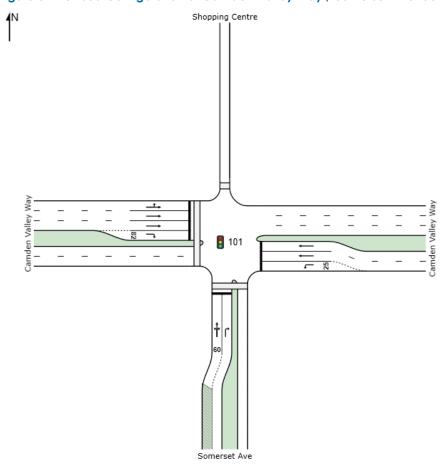


Figure 3 – Revised Configuration of Camden Valley Way / Somerset Avenue

Existing Conditions Assessment

Using the above intersection arrangement, the following presents a comparison of existing (2019) intersection operating conditions from the original traffic report versus the intersection operating conditions assuming the arrangement shown in above in **Figure 3**. A comparison is presented in **Table 1** and **Table 2** below.

Table 1 – Existing Weekday AM / PM Intersection Operating Conditions – Original Intersection Configuration

	Morning Peak Evenin		Morning Peak		Peak
Intersection	Control	Av Delay	LOS	Av Delay	LOS
Camden Valley Way / Somerset Avenue	Signals	18.7	В	21.6	В

Avg Delay (sec/veh) is over all movements at signals, and for worst movement at priority and roundabouts

Table 2 – Existing Weekday AM / PM Intersection Operating Conditions – Figure 3 Intersection Configuration

		Morning	Morning Peak		Peak
Intersection	Control	Av Delay	LOS	Av Delay	LOS
Camden Valley Way / Somerset Avenue	Signals	18.4	В	21.3	В

Avg Delay (sec/veh) is over all movements at signals, and for worst movement at priority and roundabouts

The above results in **Table 1** and **Table 2** also adopts a 120-140 second signal phasing as requested by the RMS.

From **Table 2** it is noted that the expanded intersection with shortened lane in place in Somerset Avenue operates at an slightly improved level of service compared to that modelled in the original traffic assessment.

Future Conditions Assessment

For the future case scenario with the highest traffic demands on the intersection (10 years of background traffic growth 2029 future design year + the traffic generated by the proposed development), the same comparison has been made in Table 3 and Table 4 below.

Table 3 – 2029 Weekday AM / PM Intersection Operating Conditions – WITH Development - Original Intersection Configuration

		Morning	Morning Peak		Peak
Intersection	Control	Av Delay	LOS	Av Delay	LOS
Camden Valley Way / Somerset Avenue	Signals	18.1	В	22.3	В

Avg Delay (sec/veh) is over all movements at signals, and for worst movement at priority and roundabouts

Table 4 – 2029 Weekday AM / PM Intersection Operating Conditions – WITH Development – Figure 3 Intersection Configuration

	Morning Peak		g Peak Evening Peak		Peak
Intersection	Control	Av Delay	LOS	Av Delay	LOS
Camden Valley Way / Somerset Avenue	Signals	19.9	В	28.0	В

Avg Delay (sec/veh) is over all movements at signals, and for worst movement at priority and roundabouts

As it can be seen above, there is a slight change in intersection operating conditions for the AM peak. However, the intersection continues to function at LOS B. A similar change occurs in the PM peak with the same Level of Service occurring to that of the original traffic report.

Overall, the modification to the intersection arrangement for Camden Valley Way / Somerset Avenue makes no material difference to the findings of the original traffic report and subsequent traffic / modelling reports submitted to Camden Council to date.

Copies of the SIDRA outputs for the above assessment are provided in **Appendix B** of this report.

2. The second traffic report specifies the date of the count being (Thursday 27th June 2019) — which occurs 1 week prior to the public school holidays. A 7-day count is preferred to get a better analysis and picture of intersection operation

Response

The above comment fails to acknowledge the recommendations of the RTA Guide to Traffic Generating Developments which recommends that traffic counts should be undertaken during peak periods of either the proposed development or key surrounding developments.

The intersection counts were intentionally undertaken on a Thursday and Saturday to capture not only the road network peak periods on these days but of equal importance the peak periods of the large Narellan Town Centre to ensure a conservative assessment of existing / future traffic conditions.

We do not concur with the above statement that seven (7) day counts of intersections is required or would they result in significantly different outcomes of the modelling. In our view, such counts on different days of the week would not capture the peak operating demands of the Narellan Town Centre and thus are expected to be lower.

In regard to the comment that counts were undertaken during the week prior to a school holiday period, it is unclear how this would be an issue given the nearby public school would be in full operation at the time of the counts.

It is noted that the recently completed expansion of the Narellan Town Centre relied on intersection counts during the same Thursday AM/PM and Saturday AM periods.

Please do not hesitate to contact myself on 0414 462247 should you require any additional information.

Yours sincerely

DEAN BRODIE

Managing Director

APPENDIX A - CAMDEN COUNCIL EMAIL DATED 5 NOVEMBER 2019

From: Clare Aslanis < Clare. Aslanis@camden.nsw.gov.au >

Sent: Tuesday, 5 November 2019 4:43 PM

To: rhys@Imgproperty.com.au

Subject: RE: DA/2019/324/1 - Waste and Engineering Comments forwarded to applicant- 38

Somerset Avenue NARELLAN (Email 2 of 2)

Hi Rhys,

As you are aware, I have been working through tying up loose ends on this DA and awaiting final referrals/conditions. Unfortunately our traffic team has gotten back to me requesting further information.

- 1. The SIDRA intersection analysis may be slightly skewed due to incorrect road layout on the westbound lanes of Camden Valley Way. The report incorporates 3 lanes whilst there should be 4 lanes.
- 2. The second traffic report specifies the date of the count being (Thursday 27th June 2019) which occurs 1 week prior to the public school holidays. A 7-day count is preferred to get a better analysis and picture of intersection operation
- 3. There have several complaints received by Council regarding queuing on Somerset Avenue in its existing state, however the data appears to show that the intersection operates at a level of service C -this may be because they input the western lane of Somerset as a full length lane rather than a short lane as parking is permitted 60m away from that intersection. It would be ideal to have the SIDRA analysis revised to show the correct form of the roadway as discussed in point 1 and also identify the western lane of Somerset avenue as a short lane with respective length up to where on-street parking is permitted.

The SIDRA analysis should be amended to reflect the above.

Regards,

Clare Aslanis

Executive Planner



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APPENDIX B – SIDRA MODELLING OUTPUTS

Site: 101 [CVW_Somerset_AM_Ex_MOD]

New Site

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Performance Measure	Vehicles	Pedestrians	Persons
Travel Speed (Average)	39.6 km/h	2.4 km/h	38.1 km/h
Travel Distance (Total)	1654.2 veh-km/h	5.4 ped-km/h	1990.5 pers-km/h
Travel Time (Total)	41.7 veh-h/h	2.2 ped-h/h	52.3 pers-h/h
Demand Flows (Total)	2675 veh/h	158 ped/h	3368 pers/h
Percent Heavy Vehicles (Demand)	2.0 %	.00 pos	0000 po.c/
Degree of Saturation	0.527	0.088	
Practical Spare Capacity	70.7 %		
Effective Intersection Capacity	5074 veh/h		
Control Delev (Tetal)	42.60 yek h/h	4.00 mad h/h	17.50 mara h/h
Control Delay (Total) Control Delay (Average)	13.69 veh-h/h 18.4 sec	1.08 ped-h/h 24.5 sec	17.50 pers-h/h 18.7 sec
,	68.5 sec	24.5 Sec	10.7 Sec
Control Delay (Worst Lane) Control Delay (Worst Movement)	68.5 sec	54.3 sec	68.5 sec
Geometric Delay (Average)	1.6 sec	54.5 Sec	00.5 Sec
Stop-Line Delay (Average)	16.8 sec		
Idling Time (Average)	14.4 sec		
Intersection Level of Service (LOS)	LOS B	LOS C	
(200 5	2000	
95% Back of Queue - Vehicles (Worst Lane)	19.0 veh		
95% Back of Queue - Distance (Worst Lane)	135.2 m		
Queue Storage Ratio (Worst Lane)	1.00		
Total Effective Stops	1420 veh/h	91 ped/h	1795 pers/h
Effective Stop Rate	0.53 per veh	0.58 per ped	0.53 per pers
Proportion Queued	0.57	0.58	0.57
Performance Index	137.9	2.7	140.6
Cost (Total)	1246.86 \$/h	56.29 \$/h	1303.15 \$/h
Fuel Consumption (Total)	164.9 L/h	30.20 4	. 5000 4
Carbon Dioxide (Total)	389.6 kg/h		
Hydrocarbons (Total)	0.035 kg/h		
Carbon Monoxide (Total)	0.433 kg/h		
NOx (Total)	0.415 kg/h		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Performance Measure	Vehicles	Pedestrians	Persons
Demand Flows (Total)	1,283,874 veh/y	75,789 ped/y	1,616,438 pers/y
Delay	6,570 veh-h/y	516 ped-h/y	8,401 pers-h/y
Effective Stops	681,540 veh/y	43,886 ped/y	861,734 pers/y
Travel Distance	794,027 veh-km/y	2,602 ped-km/y	955,434 pers-km/y
Travel Time	20,031 veh-h/y	1,072 ped-h/y	25,109 pers-h/y
Cost	598,493 \$/y	27,019 \$/y	625,511 \$/y
Fuel Consumption	79,166 L/y	·	-
Carbon Dioxide	187,006 kg/y		
Hydrocarbons	17 kg/y		
Carbon Monoxide	208 kg/y		
NOx	199 kg/y		

Site: 101 [CVW_Somerset_PM_Ex_MOD]

New Site

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values			
Performance Measure	Vehicles	Pedestrians	Persons
Travel Speed (Average) Travel Distance (Total) Travel Time (Total)	37.6 km/h 1967.6 veh-km/h 52.3 veh-h/h	2.4 km/h 5.4 ped-km/h 2.2 ped-h/h	36.4 km/h 2366.5 pers-km/h 65.0 pers-h/h
Demand Flows (Total) Percent Heavy Vehicles (Demand) Degree of Saturation Practical Spare Capacity Effective Intersection Capacity	3187 veh/h 2.0 % 0.694 29.6 % 4590 veh/h	158 ped/h 0.058	3982 pers/h
Control Delay (Total) Control Delay (Average) Control Delay (Worst Lane) Control Delay (Worst Movement) Geometric Delay (Average) Stop-Line Delay (Average) Idling Time (Average)	18.86 veh-h/h 21.3 sec 71.7 sec 71.7 sec 1.8 sec 19.5 sec 16.7 sec	1.06 ped-h/h 24.2 sec 51.5 sec	23.70 pers-h/h 21.4 sec 71.7 sec
Intersection Level of Service (LOS)	LOS B	LOSC	
95% Back of Queue - Vehicles (Worst Lane) 95% Back of Queue - Distance (Worst Lane) Queue Storage Ratio (Worst Lane) Total Effective Stops Effective Stop Rate Proportion Queued Performance Index	25.5 veh 181.2 m 1.34 1876 veh/h 0.59 per veh 0.63 185.1	92 ped/h 0.58 per ped 0.58 2.7	2344 pers/h 0.59 per pers 0.63 187.8
Cost (Total) Fuel Consumption (Total) Carbon Dioxide (Total) Hydrocarbons (Total) Carbon Monoxide (Total) NOx (Total)	1600.24 \$/h 204.1 L/h 481.9 kg/h 0.043 kg/h 0.530 kg/h 0.515 kg/h	55.96 \$ /h	1656.20 \$/h

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Performance Measure	Vehicles	Pedestrians	Persons
Demand Flows (Total)	1,529,760 veh/y	75,789 ped/y	1,911,502 pers/y
Delay	9,053 veh-h/y	510 ped-h/y	11,374 pers-h/y
Effective Stops	900,488 veh/y	44,308 ped/y	1,124,893 pers/y
Travel Distance	944,438 veh-km/y	2,602 ped-km/y	1,135,928 pers-km/y
Travel Time	25,104 veh-h/y	1,066 ped-h/y	31,191 pers-h/y
Cost	768,115 \$/y	26,862 \$/y	794,977 \$/y
Fuel Consumption	97,947 L/y	·	-
Carbon Dioxide	231,334 kg/y		
Hydrocarbons	21 kg/y		
Carbon Monoxide	255 kg/y		
NOx	247 kg/y		

Site: 101 [CVW_Somerset_AM_Ex+10yrs+Dev_V3>120secs_MOD]

New Site

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values			
Performance Measure	Vehicles	Pedestrians	Persons
Travel Speed (Average) Travel Distance (Total) Travel Time (Total)	38.6 km/h 1947.1 veh-km/h 50.4 veh-h/h	2.4 km/h 5.4 ped-km/h 2.2 ped-h/h	37.3 km/h 2341.9 pers-km/h 62.8 pers-h/h
Demand Flows (Total) Percent Heavy Vehicles (Demand) Degree of Saturation Practical Spare Capacity Effective Intersection Capacity	3147 veh/h 2.0 % 0.653 37.7 % 4817 veh/h	158 ped/h 0.075	3935 pers/h
Control Delay (Total) Control Delay (Average) Control Delay (Worst Lane) Control Delay (Worst Movement) Geometric Delay (Average) Stop-Line Delay (Average)	17.42 veh-h/h 19.9 sec 69.6 sec 69.6 sec 1.7 sec 18.2 sec	1.07 ped-h/h 24.5 sec 53.3 sec	21.97 pers-h/h 20.1 sec 69.6 sec
Idling Time (Average) Intersection Level of Service (LOS)	15.6 sec LOS B	LOS C	
95% Back of Queue - Vehicles (Worst Lane) 95% Back of Queue - Distance (Worst Lane) Queue Storage Ratio (Worst Lane) Total Effective Stops Effective Stop Rate Proportion Queued Performance Index	25.5 veh 181.2 m 1.34 1788 veh/h 0.57 per veh 0.61 172.9	92 ped/h 0.58 per ped 0.58 2.7	2238 pers/h 0.57 per pers 0.61 175.6
Cost (Total) Fuel Consumption (Total) Carbon Dioxide (Total) Hydrocarbons (Total) Carbon Monoxide (Total) NOx (Total)	1528.42 \$/h 198.6 L/h 469.1 kg/h 0.042 kg/h 0.518 kg/h 0.502 kg/h	56.23 \$/h	1584.65 \$/h

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Performance Measure	Vehicles	Pedestrians	Persons
Demand Flows (Total)	1,510,737 veh/y	75,789 ped/y	1,888,674 pers/y
Delay	8,360 veh-h/y	515 ped-h/y	10,547 pers-h/y
Effective Stops	858,398 veh/y	44,097 ped/y	1,074,174 pers/y
Travel Distance	934,598 veh-km/y	2,602 ped-km/y	1,124,120 pers-km/y
Travel Time	24,215 veh-h/y	1,071 ped-h/y	30,130 pers-h/y
	•	· · ·	· ·
Cost	733,640 \$/y	26,991 \$/y	760,631 \$/y
Fuel Consumption	95,332 L/y	•	•
Carbon Dioxide	225,175 kg/y		
Hydrocarbons	20 kg/y		
Carbon Monoxide	249 kg/y		
NOx	241 kg/y		

Site: 101 [CVW_Somerset_PM_Ex+10yrs+Dev_V3>120secs_MOD]

New Site

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Intersection Performance - Hourly Values			
Performance Measure	Vehicles	Pedestrians	Persons
Travel Speed (Average) Travel Distance (Total) Travel Time (Total)	33.8 km/h 2301.9 veh-km/h 68.2 veh-h/h	2.4 km/h 5.4 ped-km/h 2.2 ped-h/h	32.9 km/h 2767.7 pers-km/h 84.0 pers-h/h
Demand Flows (Total) Percent Heavy Vehicles (Demand) Degree of Saturation Practical Spare Capacity Effective Intersection Capacity	3723 veh/h 2.0 % 0.881 2.2 % 4227 veh/h	158 ped/h 0.048	4625 pers/h
Control Delay (Total) Control Delay (Average) Control Delay (Worst Lane) Control Delay (Worst Movement) Geometric Delay (Average)	29.02 veh-h/h 28.1 sec 72.0 sec 72.0 sec 1.9 sec	1.07 ped-h/h 24.3 sec 49.6 sec	35.89 pers-h/h 27.9 sec 72.0 sec
Stop-Line Delay (Average) Idling Time (Average) Intersection Level of Service (LOS)	26.2 sec 23.0 sec LOS B	LOS C	
95% Back of Queue - Vehicles (Worst Lane) 95% Back of Queue - Distance (Worst Lane) Queue Storage Ratio (Worst Lane) Total Effective Stops Effective Stop Rate Proportion Queued Performance Index	36.8 veh 262.2 m 1.94 2527 veh/h 0.68 per veh 0.70 256.5	94 ped/h 0.59 per ped 0.59 2.7	3126 pers/h 0.68 per pers 0.69 259.3
Cost (Total) Fuel Consumption (Total) Carbon Dioxide (Total) Hydrocarbons (Total) Carbon Monoxide (Total) NOx (Total)	2162.66 \$/h 254.9 L/h 602.0 kg/h 0.055 kg/h 0.648 kg/h 0.641 kg/h	56.10 \$/h	2218.75 \$/h

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Performance Measure	Vehicles	Pedestrians	Persons
Demand Flows (Total)	1,787,040 veh/y	75,789 ped/y	2,220,238 pers/y
Delay	13,930 veh-h/y	512 ped-h/y	17,228 pers-h/y
Effective Stops	1,213,060 veh/y	44,941 ped/y	1,500,612 pers/y
Travel Distance	1,104,922 veh-km/y	2,602 ped-km/y	1,328,509 pers-km/y
Travel Time	32,713 veh-h/y	1,069 ped-h/y	40,324 pers-h/y
	•	· ·	· ·
Cost	1,038,075 \$/y	26,926 \$/y	1,065,002 \$/y
Fuel Consumption	122,363 L/y	•	•
Carbon Dioxide	288,954 kg/y		
Hydrocarbons	27 kg/y		
Carbon Monoxide	311 kg/y		
NOx	308 kg/y		