



M^CLAREN TRAFFIC ENGINEERING

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Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

15th October 2020

Reference: 190226.24FA

Port Macquarie - Hastings Council
Attention: Grant Burge

LETTER OF RESPONSE TO COUNCIL COMMENTS FOR PROPOSED LEISURE AND ENTERTAINMENT FACILITY AT CNR PARK STREET / WARLTERS STREET, PORT MACQUARIE

Dear Grant,

Reference is made to your request to provide response to Mr Burge's email dated 15th October 2020 (reproduced in **Annexure A**) for the Proposed Leisure and Entertainment Facility at CNR Park Street / Warlters Street, Port Macquarie. The comments made by Council relevant to traffic and parking are shown below (italicised) with M^CLaren Traffic Engineering's (MTE) response thereafter. Mr Burge references *Annexure C*, which is an annexure to the MTE response letter titled *190226.16FC – Letter of Response – October 2020* dated 7th October 2020, hereinafter referred to as "*MTE Response Letter*". *Annexure C* shows a summary of the SIDRA results for the Park Street / Warlters Street intersection for the following three scenarios:

- Existing Conditions
- Future (Post Development)
- Future (10yr growth + Development)

Mr Burge to M^CLaren Traffic Engineering

I am just finalising my report for the upcoming meeting. I am just wanting to make sure I have interpreted the information correctly for my report so could you please confirm that from Annexure C the future (10yr + Development) queue length that you are referring to would mean that the queue length within Walters St (at the Park St traffic light right turn) would extend along Walters St by 113.9m.

1 MTE Response Letter Explanation

Annexure C of the *MTE Response Letter* is reproduced in **Figure 1**. The 113.9m queue which Mr Burge references is along Park Street's northern approach to the intersection, not Warlters Street's western approach as interpreted by Mr Burge.

It appears that the confusion arose from the difference between "95th Percentile Queue" and the "Worst Movement (LoS)" columns in *Annexure C*, as shown highlighted in **Figure 1**. The "95th Percentile Queue" column shows the maximum queue length throughout the entire intersection, which happens to occur on Park Street's northern approach (113.9m). The "Worst Movement (LoS)"

shows which movement experiences the worst LoS and/or delay, which happens to be the right turn movement from Warlters Street.

The longest delay and worst LoS movements are not necessarily the same movement. Right turns from minor roads generally experience the worst LoS and longest average delay for signalised intersections, whilst the longest queues generally occur on the major roads due to the higher traffic volumes.

ANNEXURE C: SIDRA ANALYSIS RESULTS

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay (sec/veh) ⁽²⁾	Level of Service ⁽³⁾	Control Type	Worst Movement (LoS)	95th Percentile Queue
Park Street / Warlters Street Existing Conditions	Friday PM	0.28	7.2	A	Signals	RT from Warlters Street	5.1 veh (36.4m) Park Street
	Saturday Middy	0.33	7.5	A		RT from Warlters Street	6.9 veh (48.7m) Park Street
	Saturday PM	0.17	6.2	A		RT from Warlters Street	2.6 veh (18.2m) Park Street
Park Street / Warlters Street Future (Post Development)	Friday PM	0.44	11.7	A	Signals	RT from Warlters Street	10.3 veh (72.7m) Park Street
	Saturday Middy	0.50	11.7	A		RT from Warlters Street	12.9 veh (90.9m) Park Street
	Saturday PM	0.26	10	A		RT from Warlters Street	4.6 veh (32.5m) Park Street
Park Street / Warlters Street Future (10yr + Development)	Friday PM	0.50	11.1	A	Signals	RT from Warlters Street	11.9 veh (84.2m) Park Street
	Saturday Middy	0.58	11.3	A		RT from Warlters Street	16.2 veh (113.9m) Park Street
	Saturday PM	0.29	9.4	A		RT from Warlters Street	5.2 veh (36.2m) Park Street

NOTES:

(1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.

(2) The average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.

(3) The level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.

(4) 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.

FIGURE 1: ANNEXURE C OF MTE'S LETTER OF RESPONSE DATED 7TH OCTOBER 2020

The SIDRA output excerpts for the Future (10yr + development) scenario in the Saturday Middy period is reproduced in **Annexure B** of this letter.

2 Right Turn Bay Queue Summaries

The 95th percentile queues for Warlters Street's western approach during the same three scenarios are provided in *Annexure F* of the *MTE Response Letter* which is reproduced in **Figure 2**. The longest 95th percentile queue occurs during the Saturday Midday period in the 10yr growth + development scenario, as shown highlighted.

ANNEXURE F: RIGHT TURN BAY ASSESSMENT – 10 YEAR GROWTH ASSESSMENT

Right Turn	Peak Period	95 th Percentile Queue ⁽¹⁾ (m)	Available Queue Length (m)
Warlters St → Existing Kmart Entrance	Friday PM	1.3m	48m
	Saturday Midday	2.0m	
	Saturday PM	0.7m	
Warlters St → Proposed Kmart Entrance	Friday PM	7.2m	50m
	Saturday Midday	5.5m	
	Saturday PM	4.4m	
Warlters St → Park St	Friday PM	38.9m	45m
	Saturday Midday	43.1m (6.2 vehicles)	
	Saturday PM	19.6m	

FIGURE 2: ANNEXURE F OF MTE'S LETTER OF RESPONSE DATED 7TH OCTOBER 2020

It is noted that Warlters Street's western approach is a dual right turn lane. The shorter of the two lanes is 45m in length, whilst the other lane (middle lane) is a continuous right turning lane over the full length of Warlters Street.

Accordingly, as shown in **Figure 2** above, the 95th percentile queue for Warlters Street's western approach is 43.1m, or 6.2 vehicles (which occurs for both right turn lanes). This length does not overflow the right turn bay capacity, even after 10 years of background traffic growth. Even if the experienced right turn vehicular queue were longer than 45m, the first 45m of queue is taken up by the short right turn lane, with the middle right turn lane accommodating the remaining right turn vehicular queue length. The right of way driveway serving the subject development is at least 100m west of the stop line on Warlters Street.

3 Conservativity Measures

It is reiterated that the SIDRA analysis includes the following conservative measures, which makes the results a worst-case assessment

- Traffic distribution is conservatively weighted toward access from Warlters Street. It is reasonable to assume more traffic will exit toward the north onto Park Street.
- Each land use has been assessed to peak at the same time, whereas they are expected to be spread over a few hours.
- The Friday and Saturday evening network peak and the site peak have been assumed to overlap. The Friday and Saturday evening network peaks are between 3:15-4:15pm and 5:00-6:00pm, respectively, whilst the site peak is later for both evenings. This is a significant factor in the development's favour in terms of sensitivity assessment.
- The manager's residence has been included in the traffic generation, although it will not typically be occupied;
- The function centre is assumed to be 100% occupied during all peaks. This is not likely to occur regularly.
- Dual use with the surrounding town centre has not been considered for cinema demand. It is highly likely that some portion of cinema patrons will already be in the Settlement City area for other purposes (i.e. foreshore walk or Settlement City Shopping Centre).
- The existing cinema within the Port Macquarie CBD is expected to draw patrons away from the subject site. The Warriewood cinema is not within close proximity to another cinema, therefore, the underpinning data is expected to represent a conservatively high demand.

Please contact Mr Daniel Fonken or the undersigned on 8355 2440 should you require further information or assistance.

Yours faithfully

McLaren Traffic Engineering



Craig McLaren

Director

BE Civil, Grad Dip (Transport Engineering), MAITPM, MITE
RPEQ 19457
RMS Accredited Level 3 Road Safety Auditor [1998]
RMS Accredited Traffic Management Plan Designer [2018]

ANNEXURE A: MR GRANT BURGE EMAIL

10/15/2020

McLaren Traffic Engineering Mail - Re: Assessment Issues: DA2018 - 1111



Daniel Fonken <danielf@mclarentraffic.com.au>

Re: Assessment Issues: DA2018 - 1111

Grant Burge <grant.burge@pmhc.nsw.gov.au>

Thu, Oct 15, 2020 at 8:18 AM

To: Daniel Fonken <danielf@mclarentraffic.com.au>, Craig McLaren <craig@mclarentraffic.com.au>

Hi Daniel,

Thank you very much for the updated information. I am just finalising my report for the upcoming meeting. I am just wanting to make sure I have interpreted the information correctly for my report so could you please confirm that from Annexure C the future (10yr + Development) queue length that you are referring to would mean that the queue length within Walters St (at the Park St traffic light right turn) would extend along Walters St by 113.9m.

I apologise for the urgency but we are fast approaching the deadline for the report so could I please request this confirmation ASAP.

Regards,

Grant

Grant Burge

Engineering Development Coordinator
Port Macquarie-Hastings Council



p (02) 6581 8071



ANNEXURE B: SIDRA OUTPUT – FUTURE (10YR+DEVELOPMENT) SATURDAY MIDDAY PERIOD

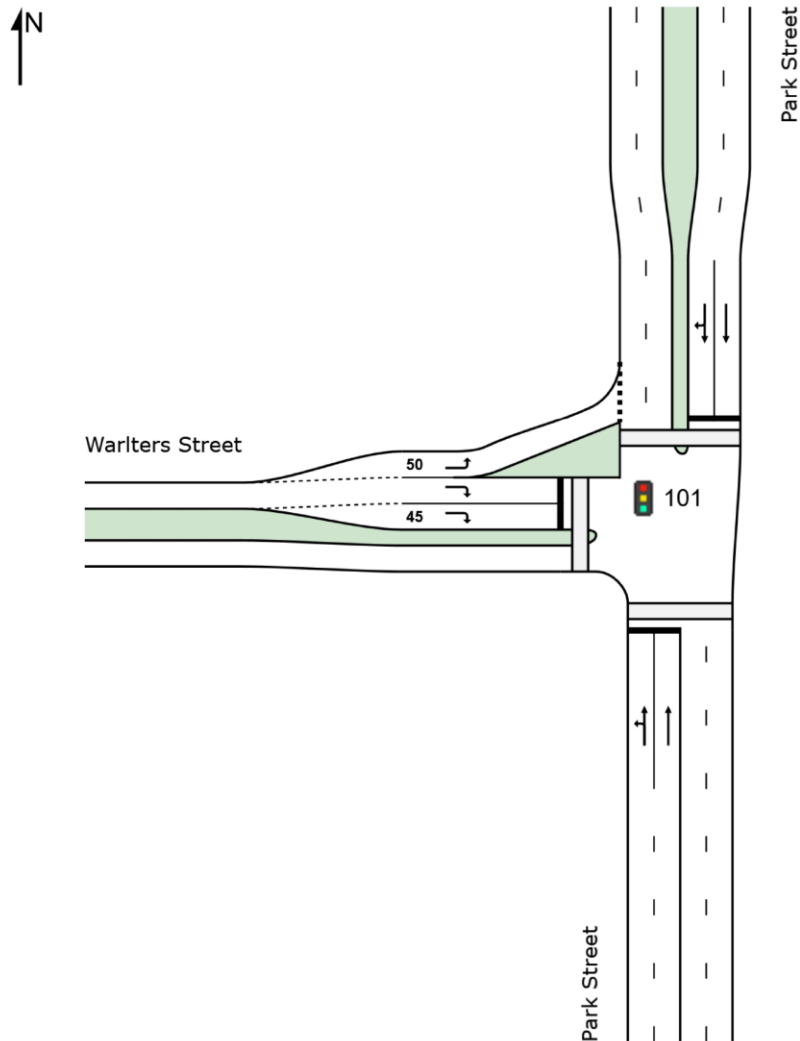
SITE LAYOUT

 **Site: 101 [Park / Warlters - Saturday Midday Peak]**

Park / Warlters

Site Category: (None)

Signals - Fixed Time Isolated



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ANNEXURE B: SIDRA OUTPUT – FUTURE (10YR+DEVELOPMENT) SATURDAY MIDDAY PERIOD

MOVEMENT SUMMARY

 **Site: 101 [Park / Warlters - Saturday Midday Peak]**

Park / Warlters

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Site Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Park Street												
1	L2	285	0.0	0.471	10.0	LOS A	9.8	68.7	0.45	0.56	0.49	52.6
2	T1	1008	0.5	0.471	5.3	LOS A	11.6	81.9	0.47	0.48	0.48	54.4
Approach		1294	0.4	0.471	6.4	LOS A	11.6	81.9	0.46	0.49	0.49	54.0
North: Park Street												
8	T1	1004	0.7	0.579	7.5	LOS A	16.2	113.9	0.56	0.52	0.56	53.1
9	R2	97	1.1	0.579	16.5	LOS B	7.9	55.4	0.65	0.64	0.65	48.7
Approach		1101	0.8	0.579	8.3	LOS A	16.2	113.9	0.57	0.53	0.57	52.7
West: Warlters Street												
10	L2	39	0.0	0.059	8.1	LOS A	0.4	2.6	0.31	0.62	0.31	52.3
12	R2	308	0.0	0.543	42.8	LOS D	6.2	43.1	0.97	0.80	0.97	34.6
Approach		347	0.0	0.543	38.9	LOS C	6.2	43.1	0.90	0.78	0.90	35.9
All Vehicles		2742	0.5	0.579	11.3	LOS A	16.2	113.9	0.56	0.55	0.57	50.3

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

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

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.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back Pedestrian ped	of Queue Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	36.8	LOS D	0.1	0.1	0.93	0.93	
P3	North Full Crossing	53	36.8	LOS D	0.1	0.1	0.93	0.93	
P4	West Full Crossing	53	36.8	LOS D	0.1	0.1	0.93	0.93	
All Pedestrians		158	36.8	LOS D			0.93	0.93	

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.

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ANNEXURE B: SIDRA OUTPUT – FUTURE (10YR+DEVELOPMENT) SATURDAY MIDDAY PERIOD

LANE SUMMARY

 **Site: 101 [Park / Warlters - Saturday Midday Peak]**

Park / Warlters

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Site Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Park Street													
Lane 1	648	0.3	1378	0.471	100	6.9	LOS A	9.8	68.7	Full	500	0.0	0.0
Lane 2	645	0.5	1372	0.471	100	5.9	LOS A	11.6	81.9	Full	500	0.0	0.0
Approach	1294	0.4		0.471		6.4	LOS A	11.6	81.9				
North: Park Street													
Lane 1	793	0.7	1370	0.579	100	6.6	LOS A	16.2	113.9	Full	500	0.0	0.0
Lane 2	308	0.8	532	0.579	100	12.7	LOS A	7.9	55.4	Full	500	0.0	0.0
Approach	1101	0.8		0.579		8.3	LOS A	16.2	113.9				
West: Warlters Street													
Lane 1	39	0.0	658	0.059	100	8.1	LOS A	0.4	2.6	Short	50	0.0	NA
Lane 2	154	0.0	284	0.543	100	42.8	LOS D	6.2	43.1	Full	500	0.0	0.0
Lane 3	154	0.0	284	0.543	100	42.8	LOS D	6.2	43.1	Short	45	0.0	NA
Approach	347	0.0		0.543		38.9	LOS C	6.2	43.1				
Intersection	2742	0.5		0.579		11.3	LOS A	16.2	113.9				

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

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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

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

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

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