

Traffic Solutions Pty Ltd



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30 March 2016
Reference No. 15.16.050

The General Manager
The Hills Shire Council
PO Box 7064
Baulkham Hills BC NSW 2153

Attention: Ms Megan Munari

Dear Megan

241 Pennant Hills Road, Carlingford

Traffic Solutions Pty Ltd has been requested by the applicant to respond to the traffic related issues raised in Council's email dated 21st March 2016 which stated.

"The current proposal also fails to address the key traffic matters of the environmental capacity of Baker Street and Felton Road as well as the Felton Road/Baker Street and Baker Street/Pennant Hills Road intersections raised previously."

An Environmental Capacity assessment of Baker Street and Felton Road was not provided in the report to Council as the Roads and Maritime Services (RMS) suggested maximum capacities are already exceeded in the morning peak hours due to the existing schools. It should be noted that Environmental Capacity is not an indication of the actual road capacity (which is considerably higher) but is the RMS's interpretation of when residents may raise concern over vehicle volumes. The limiting factor to the capacity of roads is intersection capacity.

For Council's information the following is an examination of the existing and potential traffic flows against the RMS Environmental Capacity volumes. Baker Street performs a collector road function, whilst Baker Street performs a local road function in this area. The RMS provides a guide to the Environmental Capacity of residential streets in the '*Guide to Traffic Generating Developments, Section 4 – Interpretation of Traffic Impacts*' of October 2002. This guide suggests a maximum environmental goal of 300 and 500 vehicles/hour for local and collector roads respectively.

The current peak hour traffic volumes on Baker Street and Felton Road have been recorded as part of this assessment and the following table provides a comparison of the existing peak hour volumes and the RMS Environmental Capacity value.

Location	Classification	Existing Peak Hour Volumes		RMS Suggested Environmental Capacity
		AM	PM	
Felton Road east of Baker Street	Local Road	531 (279 eastbound and 252 westbound)	145 (56 eastbound and 89 westbound)	300 (max)
Baker Street south of Felton Road	Collector Road	621 (313 northbound and 308 southbound)	365 (201 northbound and 164 southbound)	500 (max)

The survey results reveal that the existing traffic flows along each road exceed the RMS suggested Environmental Capacity volumes in the morning peak hour.

From the Traffic Impact Assessment report submitted with the proposal the forecast additional volumes for Baker Street were 5 am and 0 pm flows and Felton Road were 7 am and 6 pm flows, which represent minimal to no impact upon the current flows in these streets.

As stated, Environmental Capacity is not the actual capacity of a road. The Road's and Maritime Services 'Guide to Traffic Generating Developments, Section 4 – Interpretation of Traffic Impacts' provided the operating level of service of urban roads based upon peak flows per direction. A copy of table 4.4 of the RMS guide is reproduced below:

Table 4.4
Urban road peak hour flows per direction

Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

Therefore Felton Road with a peak hour direction flow of up to 279 vehicles travelling eastbound in the morning peak hour, is currently operating at a good level of service 'B' and the potential additional 7 vehicle trips will not alter this operational level of service.

Further, Baker Street with a peak hour direction flow of up to 313 vehicles travelling northbound in the morning peak hour, is currently operating at a good level of service 'B' and the potential additional 5 vehicle trips will not alter this operational level of service.

The level of service is used as the performance standard. This is a qualitative assessment of the quantitative effect of factors such as speed, volume of traffic, geometric features, traffic interruptions, delays and freedom to manoeuvre. There are six levels of service (LOS) as described below, from AUSTROADS *Guide to Traffic Engineering Practice – Part 2: Roadway Capacity, (1988)*.

Level of Service A

This, the top level is a condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.

Level of Service B

This level is in the zone of stable flow and drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream, although the general level of comfort and convenience is little less than that of the level of Service A.

Level of Service C

The general level of comfort and convenience declines noticeably at this level.

Level of Service D

This level is close to the limit of stable flow but is approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.

Level of Service E

This occurs when traffic volumes are at or close to capacity and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause a traffic jam.

Level of Service F

This service level is in the zone of forced flow. With it, the amount of traffic approaching the point under consideration exceeds that which can pass it. Flow break-down occurs and queuing delays result.

With regards to the concern raised about the intersections of Baker Street with Pennant Hills Road and Felton Road, Environmental Capacity is not an intersection performance indicator. Intersection performance is evaluated by means of Level Of Service (LOS) and Average Vehicle Delays (AVD).

Modelling of the intersection performance for the intersection of Baker Street and Felton Road was undertaken and provided on page 14 of Traffic Impact Assessment report submitted to Council. This modelling indicated that the roundabout controlled intersection would continue to operate at a very good level of service with the potential traffic flows generated by the proposal.

The modelling of the intersection performance at Pennant Hills Road and Baker Street was not considered to be required due to the small number of vehicles approaching and departing this site via Baker Street through this intersection. i.e. 7 in the morning peak and 4 during the evening peak. This minor volume on average is approximately 1 vehicle trip every 8.5 minutes in the morning peak hour and 1 vehicle trip every 15 minutes in the evening peak hour which not have any unacceptable impact on the operation of the intersection.

Traffic Solutions Pty Ltd would request that any comments from Council's Traffic Section be forwarded as soon as possible so that any concerns can be responded to.

I trust this submission is sufficient to enable the continued assessment of this development. Should you require any additional information or clarification of the contents of this letter please contact me on the telephone numbers provided.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Craig Hazell', with a stylized flourish at the end.

Craig Hazell
Director