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16 February 2009

Our Ref: 6096
Your Ref:

Port Macquarie Hastings Council
PO Box 84
PORT MACQUARIE NSW 2444

Attention: Mr Cliff Toms

Dear Cliff,

Re: MP 06-0212, Rural Residential Re-subdivision
Le Clos Verdun, Sancrox Road, Sancrox

Reference is made to our ongoing consultations with Council staff regarding the re-subdivision of the abovementioned site in Sancrox Road being assessed under Major Project No. 06-0212. We specifically refer to our discussions regarding the standard of intersection upgrade for the site's vehicular entry.

Further to our recent site meeting at the Sancrox Road intersection, we offer the following analysis:

Intersection Analysis for existing intersection with Sancrox Road

Traffic Data

Sancrox Road AADT (SMEC projection for Y2036) = 5210vpd
Traffic generated from the development - 142 lots @ 7 vpd = 994vpd

Intersection Capacity

Critical turning movement is right turn in at morning peak.

Through traffic volume = 10% AADT = 521vph
Turning traffic volume = 10% AADT = 99vph
Total projected traffic volume = 620vph

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Austroads ***"Guide to Traffic Engineering Practice – Part 5"*** **(s6.6)** states that for minor unsignalised intersections:

"*At intersections carrying light crossing and turning volumes, the capacity figures for uninterrupted flow generally apply for the approach roads. Table 4.1 indicates the maximum traffic volume combinations for uninterrupted flow conditions. It is unnecessary to flare intersection approaches or carry out an intersection analysis when the combinations of major road and minor road volumes are less than those in the Table."*

Table 4.1 — Intersection Capacity - Uninterrupted Flow Conditions

Major Road Type[1]	**Major Road Flow (vph)[2]**	**Minor Road Flow (vph)[3]**
Two-lane	400	250
	500	200
	650	100
Four-lane	1000	100
	1500	50
	2000	25

Notes:
1. Major road is through road (i.e. has priority).
2. Major road design volumes include through and turning movements.
3. Minor road design volumes include through and turning volumes.

For the subject intersection, the applicable projected traffic volumes are <650vph for Sancrox Road (through road) and <100vph for the intersecting road. This is a conservative analysis as the right turn movement into the intersecting road in the morning peak is expected to be <10% of AADT. In accordance with Table 4.1, traffic analysis is not warranted and upgrading of the intersection is not required on capacity grounds.

Sight Distance

For 80km/h design speed with 4% downgrade on Sancrox Road sight distance requirements are:

ASD = 125m
SISD = 190m

Sight distance available:

Westbound = 240m
Eastbound = 220m

The intersection therefore meets sight distance requirements for 80km/h

Safety Considerations

Despite no requirement to upgrade the intersection on capacity grounds, it is most desirable to provide a storage area for one right-turning vehicle in order that through traffic on Sancrox Road is not impeded or does not need to traverse a gravel shoulder when passing a turning vehicle. A “Rural Type AUR” intersection layout (Austroads – Part 5 Fig. 2.4) is recommended.

Conclusion

While the current intersection is adequate for the projected traffic volumes, a “Rural Type AUR” intersection is desirable on safety grounds and to minimise ongoing maintenance costs. Detailed design will be undertaken at a later stage to determine if the pavement area needs to be extended to accommodate the storage area for turning vehicles.

It would be appreciated if you could review and confirm the above information at your earliest convenience so that formal assessment of our Major Project can continue.

Yours faithfully

A.J. Green
B.E., Grad. Dipl. LGE