

Keith Altmann & Associates

ABN 22 059 815 146

Building Design Consultants

June 2, 2014

The Chief Executive Officer Mount Alexander Shire PO Box 185 Castlemaine 3450

Attention Chris Kelly

Re:

Request for further information
Planning application No PA013/2014: use and development of Broiler Farm at Baringhup West.

This report has been prepared as a preliminary assessment of the traffic impact of heavy vehicles on the local roads, when accessing the proposed development. In preparing this report, it relies on the Traffic Engineering Assessment by TraffixGroup, dated March 2014, AustRoads "A Guide to the Structural Design of Road Pavements", Ballarat and St Arnaud geological maps, a site visit and the writers considerable experience in design of rural and urban road pavements.

The report is regarded as a preliminary assessment of the likely quantum of the impact on the local road system. While a more detailed assessment may be desirable if a permit is granted, it is not considered that it would substantially alter the preliminary findings in a manner that would influence a decision on whether or not a permit should be granted.

In preparing this report I have inspected most of the roads that the trucks will travel over and otherwise referred to the TraffixGroup report.

1. Observations.

Truck Traffic loadings. The truck loading, expressed in Equivalent Standard Axles, taken in conjunction with the type of supporting ground (subgrade), and in the case of lightly trafficked roads, environmental factors, determine the road pavement required to carry truck traffic over a design life, which is typically 20 years. At the end of 20 years, some repairs and resheeting may be required.

Geology and environmental factors. An examination of the geological maps, coupled with field observations indicates the subgrades in the area are either of basaltic origin (heavy, reactive clays), or fluvial sandy silts and gravels laid down during the Quaternary period. In the case of the Baringhup West Road, part of which was observed to be on basaltic clays, the environmental factors on a lightly trafficked road are likely to be a more significant life determinant than for a road located on less reactive clays.

Pavement depth and the fourth power law. The design charts used for pavement design

follow a relationship where the truck traffic that can be carried is proportional to the pavement depth to the fourth power. For example, an increase of 25% in road pavement depth from 250 to 300 mm could cope with just over a 100% increase in truck traffic, ignoring any environmental factors.

2. Truck Traffic Impact assessment approach.

The purpose of this assessment is to determine whether there is likely to be a quantifiable impact on the local road network that can have a dollar value assigned to it. If there is, then that is a measure of the cost on the road network that can be assigned to the development.

Where the truck traffic increase is very small relative to existing truck traffic, it is sometimes too small to quantify any impact. This has been the case on two of the existing roads, where our estimate of the change in truck traffic load is insufficient to enable a cost impact to be assessed. In the case of Moolort Road, the additional truck traffic is significant and on this preliminary assessment could result in a reduction of the existing pavement life before maintenance works are required, of 6-7 years. The relatively high cost for Moolort Road is in part due to it being a 2 lane road compared with the other single lane roads.

The additional cost to the municipality has been assessed on the basis of reconstruction costs equivalent to \$80 per cu.m. of pavement, assuming future resheeting to strengthen the pavement. Table 1 illustrates the preliminary estimate of roadworks costs.

This approach to traffic impact assessment is necessarily a first approximation. A more detailed assessment should be undertaken if the Council resolves to grant a permit and should be included in an appropriate condition. That condition would require an assessment of the existing pavement depths and underlying subgrade strengths, together with traffic counts, and a revised assessment of truck traffic impacts on the local roads identified by TraffixGroup, with inputs from Council Engineers on local pavement costs.

Possible permit condition.

The following draft permit condition is provided to assist in the preparation of any conditions by Council.

Prior to the development commencing, the applicant shall submit to the Responsible Authority for approval, a revised Truck Traffic Impact Assessment report by a suitably qualified and experienced Engineer. The objective of the report shall be to quantify the additional local road maintenance costs to the municipality from the development truck traffic. The report shall be based on counts of commercial vehicle movements on the proposed access roads, a geotechnical investigation of existing road pavement depths

and subgrade strengths, inclusion of costs for road construction works based on representative local costs and appropriate design references.

Upon approval of the Truck Traffic Impact Assessment report by the Responsible Authority, the applicant/owner shall enter into an agreement with the Responsible Authority to make periodic payments for a period of up to 10 years, or an agreed lump sum, to cover the quantum of the costs identified in the Truck Traffic Impact Assessment report.

TABLE 1.

	Assumed existing daily truck traffic	TRAFFIC IMPACT ASSESSMENT OF BROILER FARM DEVELOPMENT AT BARINGHUP WEST BY PAVILION PARTNERS										
ROAD		Estimated existing truck traffic (20 years)	Estimated ESA/single lane (20 years)	Pavement depth for existing	Post development additional truck traffic (20 years)		Post Development total ESA	Post development pavement required	Additional depth required (mm).	Shire road length	Life reduction (approx)	Cost of offset works.
Moolort Road	30	219000	109500	330	32850	62415	171915	340	10	5 km	6-7 years	\$32,000.00
Barringhup-Havelock Rd	10	73000	73000	320	21900	41610	114610	323	3	11 km	7 years	\$11,880.00
Baringhup West Rd	20	146000	146000	340	43800	83220	229220	345	5	3.8 km	7 years	\$6,840.00
Back Eddington Rd	15	50000	50000	315	14600	27740	77740	315	0		Negligible	
Baringhup West- Eastville Rd	15	50000	50000	315	14600	27740	77740	315	0		Negligible	
Preliminary conclusio										-	Sum total	\$50,720.00
The roads considered other than Moolort Ro existing pavement de or less. It is difficult to indexed and paid ann	are lightly I are likely pth is unkn assign a co	to have been to lown on the mo ontribution to t	he beneficiar ost critical roa he added ma	ies of staged d, being Moo intenance co	construction over Nort Road. It is pos sts on a per truck	a long perio ssible that tl basis. Howe	od, resulting in ne pavement do ver, it would be	higher subgrade epth could be n reasonable fo	e strengths the nore than is r r an annual le	han adopte equired fo evy to be p	ed here (CBR r a 20 year d aid to Cound	R = 4). The lesign life, cil, suitably
						English and the second	1					I

Conclusion. There is a high probability of the proposed development imposing added maintenance costs on the local access roads to the development. Accordingly, it is reasonable that the applicant meet that cost and be responsible for provision of a more detailed report quantifying the quantum of the costs in the event that a permit is granted for the development.

Yours faithfully,

Keith Altmann MIE Aust.