



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

