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Attention Peter Marriott
From Katie Mitchell
Subject **Stockyard Hill Wind Farm, Quarry Traffic Assessment and Framework Management Plan**
Copies to Cara Layton

Introduction

The *Quarry Traffic Assessment and Framework Management Plan* (Jacobs, June 2014), which formed part of Stockyard Hill Wind Farm Pty Ltd's (SHWFPL) planning permit application for extractive industry (on-site quarry) (Application No. PA2499), analysed roadway capacities using the *Austroads (1988), Guide to Engineering Practice Part 2 (Roadway Capacity)*. However, since the report was prepared this road capacity document has been superseded by the *Austroads (2013) Publication No. AGTM03--13 Guide to Traffic Management Part 3: Traffic Studies and Analysis*.

It is understood that as part of a request for further information the Shire of Pyrenees has requested that SHWFPL provide:

Updated information that recalculates roadway capacities using reference to document 'Austroads (2015) Publication No. AGTM02-15, Guide to Traffic Management Part 2: Traffic Theory', and 'Austroads (2013) Publication No. AGTM03-13, Guide to Traffic Management Part 3: Traffic Studies and Analysis'. At present the permit application calculates roadway capacities using the superseded reference document 'Austroads (1988). Guide to Traffic Engineering Practice Part 2: Roadway Capacity'.

This memo discusses the differences in the above listed publications with that used in the Jacobs, June 2014 report (including the recalculation of road capacity). Both Part 2 (2015) and Part 3 (2013) were reviewed prior to before performing the calculations. Part 2 (pp77-82) refers to Part 3 in addition to some further international background mainly focussed on freeways and ramps. Part 3 is still the primary guidance document on how to perform calculations for Australian roads and was used for the re-calculations.

Recalculation of Road Capacity

The *Austroads Guide (2013)* requires several inputs to calculate road capacity including: number of lanes, proportion of heavy vehicles, lateral clearance, lane width, and grade. Heavy vehicle usage has been obtained from the *Traffic Volume Data for Victoria* (Vicroads, 2016), where it was available, and estimates used for other roads for this assessment. Estimates were also utilised for lateral clearance, lane width, and grade. Increased accuracy would require analysis of detailed designs of road geometry and contours. Although Western Highway has two lanes in both directions, a conservative capacity was determined utilising the one lane calculation method. Detailed determination of two lane road capacity requires application of the *Highway Capacity Manual* (TRB, 2010).

The units for measuring capacity have changed in the *Austroads Guide (2013)* which now uses passenger cars per hour. Skipton Rd has slightly lower capacity under the revised calculations as shown in Table 1. The lane widths for Stockyard Hill-Wangatta Rd, Geelong Rd, and Stockyard Hill Rd appear



to be below the minimum values utilised for calculating capacity under section 4.1.1 of the *Austroads Guide* (2013). Therefore the capacities may be below 800 passenger cars per hour.

Table 1: Road capacity calculations (One way capacity)

	Revised Capacity (Austroads, 2013) (passenger cars/hr)	Previous Capacity (Austroads, 1998) (vehicles/hr)
Western Hwy (A8)	>1400	2800 (two way)
Gleneig Hwy (B160)	1442	2800 (two way)
Skipton Rd (C172)	1325	1960
Eurambeen-Streatham Rd	1030	<1000
Stockyard Hill-Wangatta Rd	<800	<500
Geelong Rd	<800	<500
Stockyard Hill Rd	<800	<1000

Conclusion

This memo discusses the differences in road capacity calculation between the following publications:

- *'Austroads (2013) Publication No. AGTM03-13, Guide to Traffic Management Part 3: Traffic Studies and Analysis'*.
- *'Austroads (1988). Guide to Traffic Engineering Practice Part 2: Roadway Capacity'*.

Given the context of the very low levels of traffic volumes generated with the quarry construction, we believe from the comparison discussed above that the conclusions made in the Jacobs 2014 report do not need to be updated and that the road network impacts discussed in Section 4.4 remain the valid despite the revised calculated road capacities.