



MEMO

TO: Tarryn Elverd, Yarra Ranges Council
FROM: Lily Harkom, WSP Australia
SUBJECT: Warburton Mountain Bike Destination – Road Traffic Noise Assessment
OUR REF: PS114527-AC-MEM-001.docx
DATE: 19 September 2019

1. INTRODUCTION

Yarra Ranges Shire Council (YRSC) has engaged WSP to undertake a road traffic noise assessment for the proposed Warburton Mountain Bike Destination project. This memo focuses on the predicted future road traffic noise impacts for the Project compared to the existing conditions.

The Project is to be located on Dammans Road, which is a collector road, and will impact Mayer Bridge and the nearby road network, including Warburton Highway. Works involve the development of the trail head and will result in the predicted increase of traffic from a shuttle bus service that will transport riders to the biking trails, and riders travelling by car and parking at the trail head to access the shuttle service. This assessment includes the surrounding traffic network of Mayer Bridge (Dammans Road) and Warburton Highway.

2. PROJECT DESCRIPTION

The Warburton Mountain Bike Destination project plans to construct a cycling trail head located at Warburton Golf Club. The intention is that cyclists will travel via car and park near the golf course, to use the shuttle service at the trail head to access the mountain biking trails that will be developed at Mt Donna Buang and Mt Tugwell. The noise effects discussed in this document consider the increased traffic on Mayer Bridge (Dammans Road) as well as Warburton Highway near Mayer Bridge.

The Project includes:

- Development of a cycling trail head at Warburton Golf Club
- Expansion of existing car park at the golf club including an additional access point
- Shuttle Bus service established consisting of 24 trips per day.

The proposed area of assessment is indicated in Figure 2-1.



Figure 2-1 Project site and surrounding traffic network

3. CRITERIA

Road traffic noise consists of tyre and engine noise from cars, trucks and other vehicles using the roads. The noise level (measured in A-weighted decibels, dBA) varies over time and therefore requires measurement over a defined period. VicRoads prescribes the $L_{10,18hr}$ and $L_{10,12hr}$ acoustic parameters to describe the daily traffic noise levels for assessment purposes. These parameters are, respectively, the arithmetic average of the hourly L_{10} values for the 18-hour period between 0600hrs and 0000hrs and the 12-hour period between 0600hrs and 1800hrs. These parameters are commonplace for the assessment of road traffic noise in Victoria.

3.1 VICROADS TRAFFIC NOISE REDUCTION POLICY 2005

Noise from traffic associated with road upgrades is required to be assessed in accordance with VicRoads Traffic Noise Reduction Policy 2005 (TNRP). The TNRP seeks to reduce the overall level of traffic noise and to limit the effect of traffic noise on nearby residents due to new or improved roads, by:

- reducing noise emitted by vehicles and road surfaces
- encouraging compatible land uses next to major roads
- limiting traffic noise from new arterial roads and roads upgraded to carry significantly more traffic
- retrofitting noise barriers on older freeways.

3.1.1 NOISE LEVEL OBJECTIVES

Noise from new or improved roads is required to meet the TNRP noise level objectives shown in Table 3-1.

For improved roads, noise attenuation is only required where both the following clauses are true:

1. The road is widened by two or more lanes;
AND
2. Buildings previously protected from traffic noise are exposed by removal of buildings required for widening.

Where applicable, the TNRP requires that any noise mitigation be designed to achieve the noise level objectives shown in Table 3-1, or the noise level that would have prevailed if the road improvements had not occurred, whichever is the greater.

Table 3-1 VicRoads TNRP noise level objectives – new or improved roads

	BUILDING TYPES	NOISE LEVEL OBJECTIVE
Category A	Residential dwellings, aged persons homes, hospitals, motels, caravan parks and other buildings of a residential nature.	63 dBA, L _{10,18Hour}
Category B	Schools, kindergartens, libraries and other noise-sensitive community buildings.	63 dBA, L _{10,12Hour}

Where the noise level adjacent to Category A or B buildings prior to road improvements is less than 50 dBA L_{10,18Hour}, the TNRP requires that consideration be given to limiting the noise level increase to not more than 12 dBA. In this event, a study of the existing noise environment is required to be undertaken to establish existing noise levels. Should the measurement show existing noise levels to be lower than 50 dBA L_{10,18hr}, then applying the 12 dBA increase criterion is at the discretion of MRPV.

3.2 APPLICABLE CRITERIA

The Project does not qualify as a new road, nor does it meet the criteria for provision of noise attenuation on an improved road. Therefore, the Project is not required to meet the noise level objectives listed in Table 3-1. The evaluation of traffic noise for the project shall therefore be based on a qualitative assessment.

4. QUALITATIVE ASSESSMENT

Fundamental acoustic principles can be applied to understand the effect of change in traffic volumes between the existing and future (post-project completion) scenarios. This change is discussed in the following sections.

4.1 TRAFFIC VOLUME CHANGES

Traffic volumes have been determined for the existing traffic network based on surveys conducted by Salt³ in their report *Local Movement and Transport report – Warburton and Surrounds* dated 5 February 2019 and *Warburton Mountain Bike Destination Project Proposed Trail Head – Traffic Impact Assessment* dated 19 July 2019. The future traffic volumes have been predicted by the traffic engineers, and have been used by WSP to predict potential noise level changes along the road corridor nearby to the project site (Refer Figure 2-1). The traffic volumes and predicted noise level changes are provided in Table 4-1.

Table 4-1 Predicted noise level changes due to traffic growth

SECTION	DIRECTION	EXISTING (2018)		FUTURE (2027+)		APPROX. CHANGE IN NOISE LEVEL (dBA)
		DAILY VEHICLES ¹	% HV	DAILY VEHICLES ²	% HV	
Warburton Highway, Warburton (near #3395)	East bound	3049	7.5	3875	7.5	1
	West bound	2990	8.5	3800	8.5	1
Mayer Bridge (Dammans Road)	North bound	503	8.6	1052	8.6	3
	South bound	554	2.8	1159	2.8	3

1. *Local Movement and Transport report – Warburton and Surrounds 19 February 2019 – Appendix 2 “Traffic Speed and Volume Survey Results)*



2. *Local Movement and Transport report – Warburton and Surrounds 19 February 2019 – Table 8 “Forecasted Traffic Volumes in Warburton)*

The traffic volume predictions indicate that daily vehicles are expected to double along Mayer Bridge (Dammans Road) by 2027. This would likely result in noise increases of up to 3 dBA. Minimal increases are expected along Warburton Highway with less than 1dBA increase in noise level.

No change in noise levels are expected as a result of predicted changes in traffic speeds.

5. DISCUSSION

WSP’s qualitative road traffic noise assessment of the proposed Warburton Mountain Bike Destination project demonstrates that the VicRoads TNRP does not apply to this Project because the proposed works do not qualify as a new or improved road. Therefore, the Project is not required to meet the noise level objectives listed in the VicRoads policy.

A comparison of existing traffic volumes to predicted future traffic volumes indicate the following key effects for the Project:

- Traffic volumes along Mayer Bridge is predicted to double, resulting in an increase in noise level of 3 dBA. This level of increase is generally regarded as a moderate change and may be noticeable to local residents.
- Warburton Highway is predicted to have an increase in noise level in the range 1 dBA. This level of increase in noise is generally regarded as not significant and is not expected to be noticeable.

On-site noise monitoring may be required to validate the noise prediction if precise overall noise levels are deemed necessary to further analyse the noise effects due to the Project.