

# Brake the Habit

## Questions and Answers

November 2013

### Engine braking noise camera trial

#### WHAT IS THE ENGINE BRAKING TRIAL AND WHAT DOES IT INVOLVE?

The NZ Transport Agency and the heavy vehicle industry are working together to find a solution to unnecessary engine braking noise which is causing frustration and sleepless nights for communities.

The Tauranga engine braking noise camera trial involves a noise camera which has been installed on State Highway 2 Takitimu Drive near the Elizabeth St roundabout. The camera records engine braking noise and identifies those vehicles using engine brakes.

#### WHY ARE YOU CARRYING OUT A NOISE CAMERA TRIAL?

The aim of the trial is to reduce engine braking noise near homes. We will be driving a social campaign to raise awareness about the issue amongst industry and encouraging voluntary compliance from truck operators.

#### HOW WILL THE 'BRAKE THE HABIT' CAMPAIGN ACHIEVE COMPLIANCE AND ENCOURAGE CHANGE?

The Transport Agency, heavy vehicle industry and Police are working together to eliminate unnecessary engine braking noise. We have created a compliance process which aims to work with repeat engine brakings to reduce engine braking near homes.

#### WHY WAS THIS SITE CHOSEN FOR A NOISE CAMERA TRIAL?

This site was chosen in response to the disturbance reported by the residents over a number of years, and the persistence of the issue despite the Transport Agency putting up multiple signs. The issue in this location has also had extensive media and political attention.

For trial purposes, this site is convenient as it's close to services and the traffic volume is moderate (testing the system on a higher volume road would add complexity). Also, the location at which trucks brake is strongly influenced by the position of the intersection in this case - in other locations on hills there is greater variability as to where along the road the engine brakes engage relative to a camera (even in this location, we're missing events due to trucks coming off the brakes before they are close enough to the camera).

#### WILL THERE BE NOISE CAMERA TRIALS AT OTHER SITES?

We won't be looking for other sites proactively - we have a backlog of complaints at other sites around the country and we haven't devised a system for prioritisation. We're awaiting the results from the trial before considering the possibility of buying more noise cameras.

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### HOW DOES THE CAMERA MEASURE ENGINE BRAKING NOISES?

Measuring noise levels in decibels isn't an effective means of identifying engine braking noise. Engine braking is louder than normal truck operation but it doesn't always occur exactly at the camera. A truck passing the camera not engine braking may be louder than a truck a short distance away that is engine braking (but that would be louder at the residents). The Australian NTC grappled with this issue back in 2007 and tried different ways of identifying engine braking noise. They devised a system that measures the modulation of noise rather than the level of noise. When a truck is engine braking, the sound pulses getting louder and quieter in quick succession - this is a modulated sound. The Australian NTC defined an algorithm to measure a modulation index for passing vehicles. This is what is used in the trial noise camera in Tauranga. When a sound exceeds a certain modulation index an event is recorded.

Only in the order of 10% of events recorded are engine braking. The Australian NTC is currently reviewing/improving the algorithm, so in due course it may filter out some of the unwanted events automatically. In the interim our review process is not excessive, and some software improvements we are making will make it more efficient.

### DOES THE CAMERA ONLY PICK UP ENGINE BRAKING NOISE?

As well as engine brakes the camera is also triggered by other modulated sounds such as police sirens, noisy motorbike engines and birds tweeting. Every recorded event is reviewed to confirm it relates to engine braking.

### ARE ALL HEAVY VEHICLES RESPONSIBLE FOR ENGINE BRAKING NOISE?

Most of the industry is compliant and advocates avoidance of engine braking near homes. Only a small percentage (1%) of the heavy vehicle fleet are at fault, due to the fact that they have older, American engines.

As truck standards improve over time, the engine braking noise issue should also reduce, as new trucks have quieter engine braking systems.

### WHY DO TRUCK DRIVERS USE ENGINE BRAKES AND WHAT CAUSES THE NOISE?

Truck drivers use engine brakes for a number of reasons and some as a preference because it doesn't activate any part of the primary or secondary foundation brake system. Drivers like them because they can be switched on or off at will and can be graduated and/or gradated. Some have multi position switches that give different levels of effectiveness.

The primary advantages of exhaust brakes on diesel-powered vehicles are that they can provide engine braking to assist deceleration, help control downhill vehicle speed, reduce brake heat, reduce brake wear, and provide a greater braking reserve for the conventional brake system.

There shouldn't be any reason to use them in built up areas.

