

## Johnsonville Rail Noise Monitor - SoundScience

*Greater Wellington Regional Council has made a commitment to residents nearby the Johnsonville line to reduce the wheel squeal and flanging noise generated by trains traversing tight 200m radius curves on a steep grade of 1 in 39.*

*To understand the problem we needed to obtain reliable data from each train movement to include train speed and direction, overall noise levels, noise components of wheel squeal and flanging and high quality audio recordings, as well as weather data. The intention was to collect base data for defined periods, make changes to the track based Top of Rail and Gauge Face lubrication machines and then repeat the monitoring to determine if these changes were effective.*

*A solar / battery powered, real time Rail Noise Monitor was procured from an Australian company called SoundScience. This was installed in November 2015 and has not missed a beat, recording every train since the system was installed. The data is readily available on a website from which we can see all the movements over a week, easily select the noisier trains to get summary spectral information or listen to a passby. Also of great value is the ability to export data in a csv format from which we can do our own customised analysis.*

*The SoundScience team have been very helpful and have customised our website to make it quick and easy to filter and extract useful data for in-depth analysis. The SoundScience rail noise monitor has proved indispensable; we could not have undertaken such a thorough noise investigation without it. The system is reliable, good value, and user friendly exceeding our expectations.*

Cheers,

**Rhys Hayward** | Engineer - EMU

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