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Christchurch Southern Motorway Stage 2 and Main South Road Four-Laning

Noise

The construction and operation of CSM2 and MSRFL has the potential to create noise that may affect local communities and landowners adjacent to the highway.

Typical noise sources from traffic on a highway are vehicle tyres on the road surface and engines. Other factors that affect road noise include:

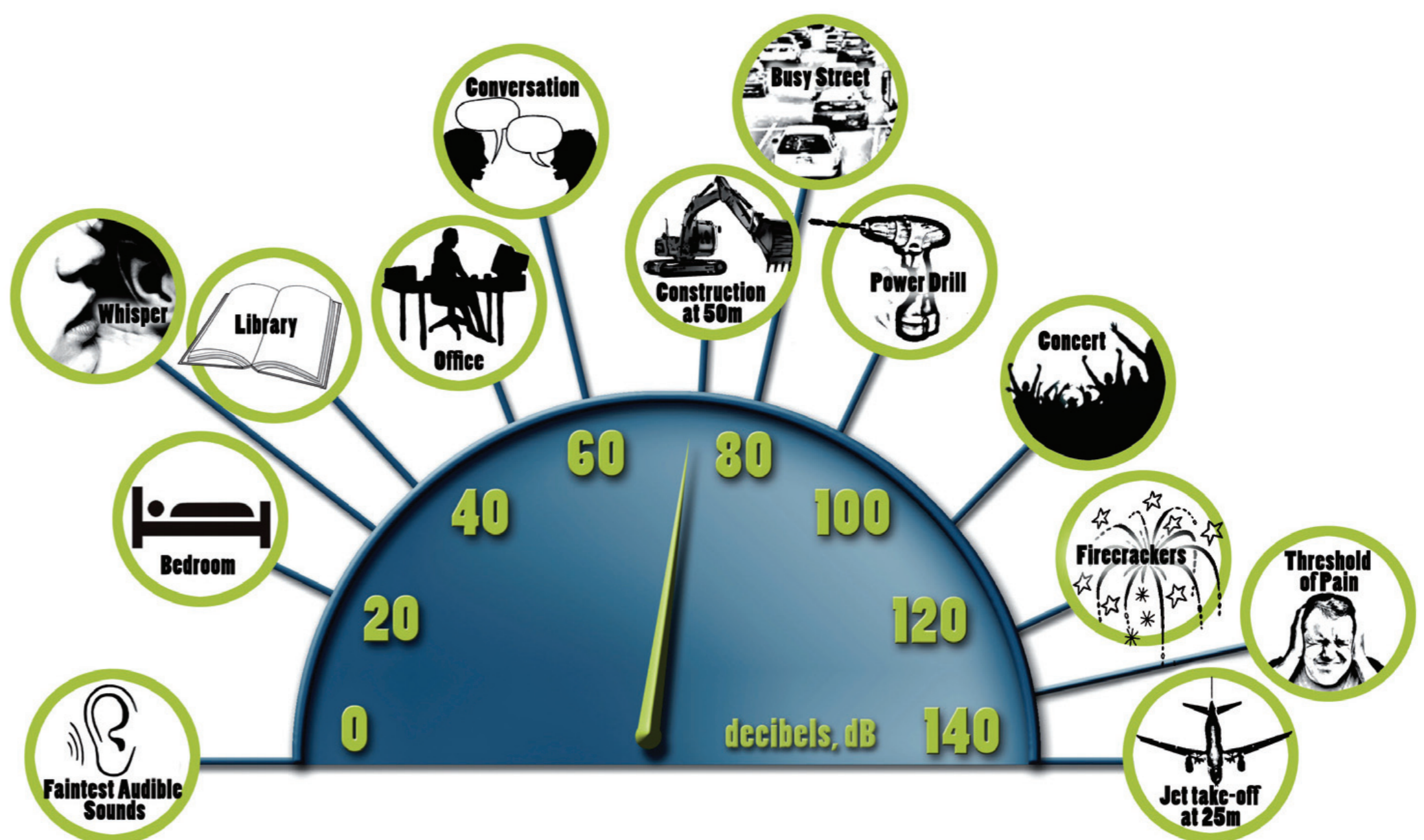
- Distance from the road
- Number of vehicles and the percentage of heavy vehicles
- Screening by terrain, bunds or fences
- Vehicle speed
- Highway surface type and gradient



Earth bund with native planting (Rolleston)

Measuring noise

Sound is measured in decibels. A ten decibel increase in noise level would sound 'about twice as loud'. The diagram below gives examples of some common sounds.



Mitigating noise

The NZTA has an objective to manage potential noise and has developed comprehensive noise assessment methods which will be applied to this project.

The noise mitigation methods contained in *New Zealand Standard NZS 6806: 2010 Acoustics – Road-traffic noise – New and altered roads* will be followed. Noise mitigation measures for CSM2 and MSRFL include:

- **Route selection** - potential noise effects are considered in the early stages of a project and where practicable highway alignments are selected to avoid or minimise exposure to road-traffic noise.
- **Low-noise road surfaces** - the level of tyre/road noise generated depends on the surface used and the speed of the vehicles. 'Low-noise surfaces' will be used for any highway section where noise mitigation is needed. The expected noise reduction is in the range of 1-5dB.
- **Noise barriers** - including earth bunds and fences, are the most widely recognised form of noise mitigation used on NZ highways. Noise barriers can be designed to fit in with the local environment with appropriate design and planting. However, barriers can also block light and views so a balance needs to be agreed.

- **Building Controls** - if the above options do not provide noise mitigation to the appropriate levels, we will also look at additional noise reduction measures for buildings on adjoining properties. This may include measures such as double glazing.



Combined earth bund and noise wall (SH18 Auckland)