

Noise Strategy



Braking and Acceleration



Bumps and Clunks



Traffic Noise

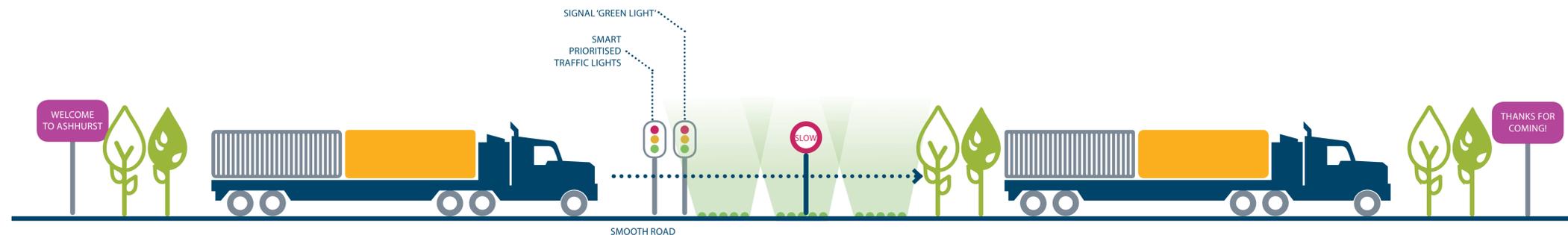


Engine Braking

Noise Sources



Understanding Noise



Approach

Sound Source

- The best way to reduce disturbance is to stop the noise occurring in the first instance.
- Design the road environment to reduce vehicle speeds. Noise from both tyres on the road and vehicle engines is quieter at lower speeds. Heavy vehicles also generate less vibration when traveling at lower speeds.
- Make the road surface smooth and continuous. Defects or service covers in the road surface can cause significant noise as they can make heavy vehicles and their loads rattle.
- Reconfigure intersections and curves. Heavy vehicles can generate more noise when braking and accelerating. Designing intersections and curves so that heavy vehicles require minimal change in speed will reduce these noises. Likewise, where speed limits change, the road environment should be designed so that vehicles adjust speed in a gradual manner.
- Identify and prevent engine braking. A small percentage of heavy vehicles have engine braking systems that create a loud and intrusive noise. Truck drivers have the ability to switch these systems off, and if they fail to do so potentially this can be detected by a monitor and followed up with the operator.

Barriers

- Barriers can partially block road-traffic noise traveling from vehicles to houses.
- Install noise walls/fences. Noise walls can be effective barriers if they are continuous and of sufficient height. All parts of the routes through Ashhurst have driveway accesses to houses. Gaps for driveways severely limit the effectiveness of walls making them ineffective in Ashhurst. Extensive noise walls would also be incompatible with the character of a residential environment and would prevent passive surveillance of pedestrian areas.
- Create earth bunds. Earth bunds are a form of noise barrier, but require a wide footprint to achieve stable slopes that can be practically maintained. There is insufficient space for earth bunds through Ashhurst.
- Trees and planting can provide a visual screen that reduces the perception of noise, but sound passes freely through vegetation so it has minimal effect on the noise levels.

Building Treatment

- Treating buildings is generally the last resort as it requires windows to be kept closed and does not improve outdoor amenity. However, if other approaches are not practical or effective then building treatment is an option.
- Install mechanical ventilation. When windows are open/ajar for ventilation, road-traffic noise from outside is around 15 dB quieter inside. When windows are closed it is around 25 dB quieter. Therefore, providing a ventilation system so windows can be closed allows for a significant 10 dB improvement.
- Replace/refit window frames. Road-traffic noise passes through gaps around poorly fitted or poorly sealed window frames.
- Install secondary glazing. Standard thermal double-glazing does not perform well acoustically, but a secondary window (100mm inside an existing window) can provide good sound insulation.

Assessment

- Initial acoustics calculations have been made for each house along the truck route. These will be supplemented with noise measurements. Once the sound source control measures have been finalised the calculations will be updated. If any houses are still likely to receive road-traffic noise levels above thresholds in NZS 6806 then those houses will be investigated for treatment, such as installing mechanical ventilation. Currently it is anticipated that no houses, or only a small number, might require treatment.