

# Transport noise Visual screening

## NOISE BARRIER CASE STUDY 6



NZ TRANSPORT AGENCY  
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January 2012



A truck on the expressway partly obscured from view at the neighbouring house by trees planted in the road reserve.

## Kennedy Road Overbridge, Napier

**The Kennedy Road Overbridge (2003) in Napier eliminated cross-traffic crashes at the intersection, previously controlled by traffic signals. The bridge provides free flow for traffic on the Hawke's Bay Expressway and on Kennedy Road, and completed construction of the Airport to Taradale Road section of the route.**

Neighbours by one of the approach ramps to the new bridge complained about the road-traffic noise, mentioning trucks as a particular concern. The road surface was chip seal at the time. There is an 800mm high (TL4) concrete safety barrier at the edge of the road, which provides acoustics screening of car engine noise and tyre-road noise.

Before determining appropriate noise mitigation, it is essential that the nature of the issue is well understood. In this instance, the primary issue raised was noise from heavy vehicles. Mitigation options such as low-noise road surfaces only address tyre-road noise and not the other sources associated with heavy vehicles. Also, noise barriers might not be practicable due to the height of exhaust and body noise sources on heavy vehicles that would require screening.

In this instance trees to form a visual screen were used rather than a noise barrier. Appropriate species were researched that would provide visual screening, grow fast and be compatible with the ground conditions. A variety of olive tree was found that met these criteria and was planted in the road reserve between the expressway and the neighbouring house. As can be seen from the photograph above and

overleaf, the olive trees (and other trees planted in front) only provide partial visual screening, but this was sufficient to alter the perception of the noise from trucks, and prevent the residents from becoming sensitised to road-traffic noise.

A narrow band of trees such as the olive trees planted in this location provides negligible reduction in measured noise levels. However, the perception of noise can be significantly affected by visual screening from vegetation. The NZTA often receives complaints about noise in the reverse situation when trees are removed through maintenance or to provide space for new works. In this instance, by acting quickly and planting trees to provide a partial visual screen, the perception of noise was improved. Such an improvement would be unlikely to be achieved by other forms of mitigation.

### Lessons learnt

- Determine the nature of the noise issue before investigating mitigation. Sources such as truck body and exhaust noise cannot be mitigated with low-noise road surfaces or standard height noise barriers.
- Where practicable, act quickly to reduce the perception of noise before residents become sensitised.
- Visual screening by trees can provide a subjective noise benefit, even though it does not alter the measured noise levels.
- Care should be taken in selecting appropriate tree species to achieve visual screening.

For further information please refer to the NZTA's *Guidelines for highway landscaping* ([www.nzta.govt.nz](http://www.nzta.govt.nz)) and *Urban design principles: landscape design notes* ([www.nzta.govt.nz](http://www.nzta.govt.nz)).



View approaching the overbridge looking along the line of olive trees and concrete safety barrier. The neighbouring house is to the left of the photograph.



View across the expressway towards the olive trees and concrete safety barrier, with the neighbouring house behind. It can be seen that the view between the house and the road is only partly obscured.

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