



Artist's impression of Geology noise wall with acrylic header through Baxter area.

Managing road traffic noise

Solutions for a quieter freeway

Managing traffic noise on the freeway is a key aspect of the Peninsula Link design. The Peninsula Link project team is committed to working with the community to minimise noise-related impacts, particularly where the freeway is close to residential areas.

Already in the road's design is the use of a road surface known as open-graded asphalt to keep traffic noise low. In addition, where required, the project will include roadside treatments such as noise walls and landscaped mounds.

Abigroup has engaged acoustic consultants to undertake comprehensive traffic noise modelling and monitoring. To pinpoint those areas that will require roadside treatments our consultants, Arup Acoustics, have used future road traffic noise levels to guide design considerations on how best to minimise traffic noise.

Generation of road traffic noise is dependent on traffic volume, traffic speed, percentage of commercial vehicles and road surface. Other factors, such as the distance from a noise source and topography of land, affect the road traffic noise level at each residential dwelling.

Traffic noise modelling uses acoustic prediction software to determine likely future noise levels and the extent of the measures required to achieve compliance with a specified noise limit.

The software takes account of many factors including:

- ▶ predicted traffic volumes in the future
- ▶ freeway traffic composition, including the number of heavy vehicles
- ▶ average vehicle speeds



Sound monitoring equipment used for noise modelling.

- ▶ type of road surface
- ▶ landform and topography
- ▶ proximity of existing houses and their exposure to traffic noise
- ▶ road design geometry.

From these inputs, the modelling predicts the likely traffic noise levels at all properties in the vicinity of Peninsula Link and aids the road's designers in determining the best way to minimise noise impacts at those locations.

When new freeways are built in Victoria, there are noise standards that need to be met to protect nearby residential properties. Peninsula Link will follow the VicRoads Traffic Noise Reduction Policy which can be downloaded from the VicRoads website at www.vicroads.vic.gov.au.

Where the acoustic model for Peninsula Link predicts that the noise limits in this policy are likely to be exceeded, noise mitigation measures such as noise walls and earth mounds will be applied to reduce traffic noise.

Where noise walls will be built

The choice of noise mitigation measure depends on the space available, aesthetics, visual impact and the practicality of building noise walls within the road reserve.

Noise walls will be used in roadside areas where the predicted traffic noise levels are above noise limits and it is feasible and reasonable to reduce noise by this technique.

Not all roadside areas require noise walls because in some areas the topography or road design will be sufficient to reduce traffic noise below the specified limits.

The height and location of the noise walls and earth mounds on Peninsula Link have been determined using the acoustic model.

Some noise walls serve a dual purpose: that is, they also function as retaining walls or as barriers to light spill in environmentally-sensitive locations, such as The Pines Flora and Fauna Reserve.

Types of noise walls

Oxidised steel (Figure 1) ages gracefully, gradually developing an attractive sheen. Viewed from the community side, it provides a gentle backdrop to the suburban rooftops.

The noise panels are arranged in a zig-zag design, offering visual relief with alternating light and shade.

The intermittent use of painted black panels adds visual interest. A gentle canvas: Oxidised steel walls will provide a backdrop for reading the context of the surroundings.



Figure 1 : Oxidised noise wall.

The 'Geology' noise wall (Figure 2) indicates the transition from urban to rural.

The intriguing texture, reminiscent of rock formations, is rendered in a range of coloured concrete panels, creating a pattern that sits well in a landscaped context.

In some locations it indicates that the road has been built in a cut.



Figure 2 : Geology noise wall

The 'Text' noise wall (Figure 3) responds to the intense suburban characteristic of the northern half of the freeway. Using a concept devised by sculptor Rosalie Gascoigne, words from local place names are sampled and represented as visual texture. In some locations images of the same text appear on each side of the wall.



Figure 3 : Text noise wall

The concrete is form lines with a colouring integral to the finish of the noise panel. A varying pattern of greys and terracotta fades to blue at transitions between walls.

Acrylic headers

Transparent acrylic panels of soft sepia tones and shades of grey are used where other materials would adversely affect views or block out daylight to an unreasonable extent. Designers on the project use ResCode provisions in the Victorian Building Regulations to determine where acrylic panels should be used. ResCodes set limits on how much overshadowing can occur on residential properties and defines the minimum amounts of sunlight that a property's open spaces should continue to receive.

Modelling will also be undertaken to determine where significant views from the roadway could be maintained by the use of acrylic noise barriers. Samples of all the Peninsula Link noise walls are on display at the Peninsula Link Info Hub in Frankston.

Post-construction testing

Noise measurements and assessments will be conducted after Peninsula Link opens to traffic to determine the actual level of noise being experienced. These checks will assess the effectiveness of the measures adopted. If, for some reason, the noise limits are not being met, additional treatments will be installed.



Contact Details



If you require the assistance of an interpreter please phone (03) 9280 0753

Phone 1300 453 035
Email contact@peninsulalink.com.au
Web www.peninsulalink.com.au

Printed using world's best practice ISO14001 Environment Management Systems. The FSC certified paper used is sourced from well managed forests and other controlled sources.

