

Evaluation of low and high noise barriers along roads

With respect to cost-benefit analysis

In inner city environments traffic noise is a problem with regards to both annoyance and to measurable health effects. Noise barriers can reduce the noise levels but they can also be perceived as an obstacle for pedestrians and car drivers alike, with high noise barriers hindering the view and making it harder to navigate in traffic. Building a low-height noise barrier might feel less obtrusive and still give some noise reduction.

There are several evaluation methods available to estimate the health costs related to noise levels. These are used as reference when taking measures to reduce noise levels, such as noise barriers. This thesis set out to compare two of these evaluation models with each other and to see how a low-height noise barrier compares to taller noise barriers with regards to the evaluation models and to see if a low-height noise barrier might even be more cost effective with regards to the evaluation methods presently available.

This is made by collecting existing noise measurement data and prediction results before and after the construction of a low-height noise barrier prototype and two existing noise barriers constructed in Sweden. Together with the development and building costs for these projects, and the evaluation models devised by the Swedish Trafikverket (ASEK) and by a European project (HEATCO), a comparison is made to show how the evaluation models real world implementations of high-height noise barriers and how the low-height noise barriers compare to these.

The comparison shows that the two evaluation methods used in this study differ significantly when estimating the health cost-benefit of reducing noise levels in rural areas. It also shows that with regards to the evaluation models, ASEK and HEATCO, a low-height noise barrier can be more cost effective than a high-height noise barrier. Therefore further studies in this area would be advisable.