



M50 Upgrade Scheme, Dublin

Environmental Noise Impact Assessment

The M50 Upgrade scheme represents a major enhancement to Dublin's orbital motorway, including widening of the mainline between the M1 and the Sandyford interchange, the upgrade of the M1/N4/N7 interchanges to free-flowing systems, and the improvement of the remaining junctions.

The National Roads Authority publication *Guidelines for the Treatment of Noise and Vibration in National Road Schemes*, in draft form at the time of preparation, was applied to the assessment.

The first step was to survey the existing noise climate at over 100 locations. The second step was to predict the expected noise level, for the design year, at over 180 locations.

Given the accumulation of residential development along the corridor of the M50, especially between the N3 and the N81, and again from Ballinteer to Leopardstown, it was essential that a computer-based model of the scheme be developed to account for the large variety of distances, land levels and degrees of existing screening.

Using 3D topographical information for the existing and proposed alignments and for the numerous local estate roads, the model was prepared in the proprietary noise modelling package *Predictor* from Brüel and Kjær, which implements the calculation method in the UK document *Calculation of road Traffic Noise*.

Based on the results, noise barriers were added to the model to mitigate noise level increases. The proposed barriers were reviewed by the scheme engineers in terms of buildability, and locations of some barriers were modified to suit the earthworks designs. Our calculations were then repeated with the barriers' new locations. Wherever necessary, barrier heights were modified to reflect any changes in residual noise levels.

Finally, construction noise impacts were modelled for a variety of situations including general work on widening the mainline and specific activities for the construction of the various interchanges. Advice was provided on limits for plant noise levels, effects of screening by hoardings and suitable working times.