

AVIAPOLIS FRAME PLAN N° 052200, VEROMIES, ROAD AND STREET TRAFFIC NOISE POLLUTION REPORT

The noise pollution report has been compiled by Ramboll Finland Ltd, with the work carried out by project chief Olli-Matti Luhtinen.

2. METHODS AND BASELINE DATA

2.1 Applicable environmental noise-pollution guideline values

When describing environmental noise pollution, most frequently one uses the average noise level LAeq (equivalent noise level), in which momentary fluctuations in the volume are adjusted and partial sounds of different amplitude are weighted to correspond to the sensitivity of the ear (the so-called A-weighting). In 1992 the Finnish government enacted the decree 993/92, which presents the general noise pollution guideline values as long-term equivalent noise levels. The guideline values are intended to be used for the benefit of town planning, construction and road design.

The site is examined as a new area, in which case the determining factor for the outdoor areas is the night-time noise and its guideline value of 45 dB, because the noise guideline value for new areas at night-time (45 dB) is 10 dB lower than the day-time guideline value of 55 dB, and the night-time noise in this area is only 6-7 dB lower than the noise during the day-time. The guideline value for the daytime (55 dB) is the same for both new and old areas. Sound insulation requirements for buildings are determined according to the previously mentioned Government decree in Table 1, such that the average noise level inside dwellings during the daytime does not go above 35 dB and during the night-time 30 dB. The noise pollution guideline values for interiors are the same for both new and existing residential areas.

Table 1: Guideline values for noise-pollution levels in accordance with the Finnish Government decree 993/92

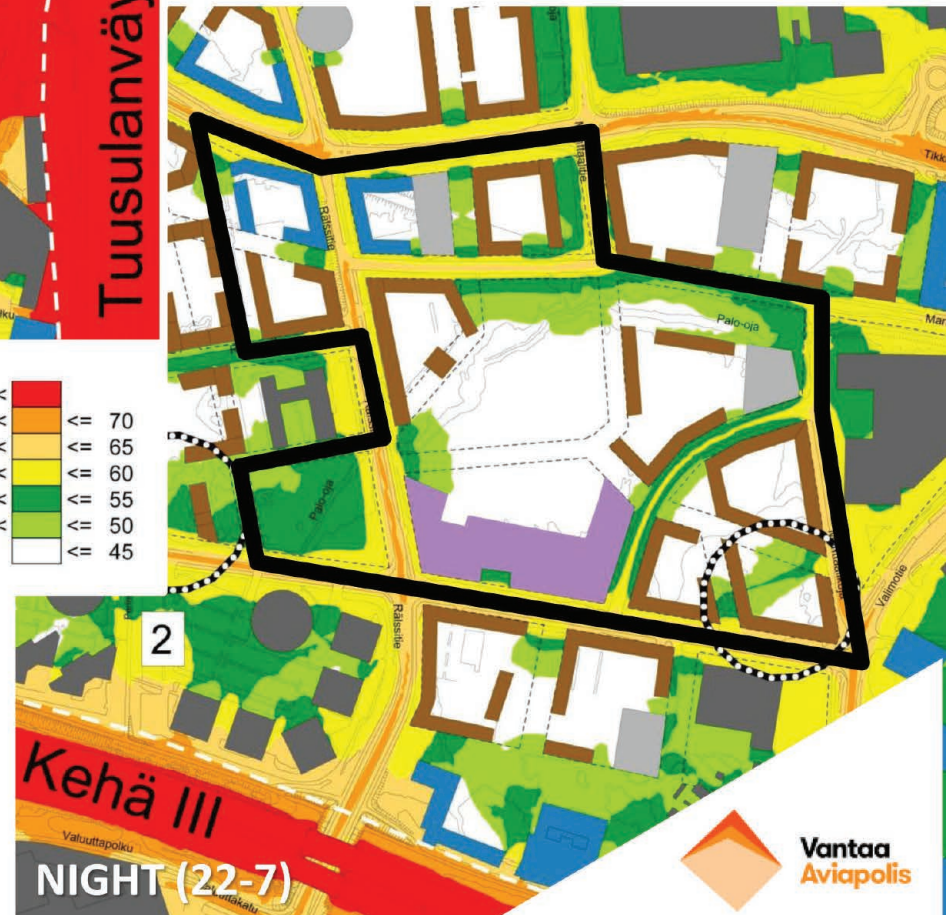
| Noise pollution A-weighting for average sound level (equivalent noise level) LAeq, maximum: | | |
|--|-----------------------|--------------------------|
| | Daytime 7.00-22.00 | Night-time 22.00-7.00 |
| OUTSIDE | | |
| Areas in use for dwelling, recreational areas in built-up areas and their immediate vicinity, as well as areas serving care or educational facilities. | 55 dB | 45/50 dB ¹⁾²⁾ |
| INSIDE | | |
| Dwelling rooms, patient rooms and hotel rooms | 35 dB | 30 dB |
| Teaching and assembly spaces | 35 dB | - |
| Commercial and office spaces | 45 dB | - |

According to the table, if the facade of a residential building is exposed to a daytime noise level of, for example, 65 dB, the planning regulations require a sound level difference of 30 dB (i.e. 65 – 35 dB guideline value), and if the façade is exposed to 60 dB, a sound level difference of just 25 dB would be required. However, presently the City of Vantaa building supervision office's construction guide "Sound insulation requirements for the external envelopes of buildings, 30.10.2007" is more stringent: road and rail traffic already between 55-60 dB requires a sound level difference of 30 dB and for 60-65 dB a sound level difference of 35 dB. Vantaa's minimum requirement is that the building's external envelope and its structural parts for residential, patient, and hotel rooms, as well as places for teaching and assembly, must be sound insulated such that the reduction in sound level between the exterior and interior (sound level difference) ΔL is at least 28 dB. In the case of facades exposed to sound levels of over 65 dB, the Vantaa guidelines do not give specific sound level differences, but rather in this case a noise pollution analysis would always be required.

TRAFFIC NOISE ZONES: prediction 2040



Average amount of cars driving the route per day



Equivalent noise levels at a height of 2 m above ground level