

# Urban characteristics and traffic noise in Loja (Ecuador)

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Noise pollution come from different sound sources but the road traffic has been identified as the main environmental noise source in cities. The effects of noise pollution on human health have been considered by the WHO (World Health Organization) to be the third most dangerous type of pollution. Noise maps, according to international standards, are the main tool to evaluate this sound source. There are different methodologies to perform noise maps but most of them are made with prediction software. Nevertheless, the most generalized strategy is the noise mapping through prediction models. Among the different variables used by these software packages, the variables that determine the highest percentage of variability in noise levels are flow traffic, type of vehicle and average vehicle speed. However, there are different urban characteristics that can explain also a significant percentage of the noise levels variability, as population, distance to the downtown, land use, car parks, type of roads, road marks, etc. In this study, a compilation of some of those urban variables in different streets of the city of Loja (Ecuador) is carried out. Then, the significance of the relation of these characteristics with the measured noise levels is analyzed. Based on the urban variables that showed significant correlation with LAeq, a stepwise multiple linear regression model was built. © 2017 Institute of Noise Control Engineering. All rights reserved.

Insulation

Sound

Transmission I-INCE classification of subjects number(s): 51.4

Acoustic generators

Acoustic variables control

Acoustic waves

Insulation

Land use

Linear regression

Noise pollution

Pollution

Powertrains

Regression analysis

Roads and streets

Sound insulation

Transportation

Environmental noise

Flow traffics

International standards

Noise mapping

Prediction model

Stepwise multiple linear regression

Urban characteristics

World Health Organization

Acoustic noise