Study on the relation between road traffic noise and urban Characteristics

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Road traffic is a major source of urban noise. 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. 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 thatcan explain also a significant percentage of the noise levels variability. Some of them are not included in these softwares: land use, population, distance to the downtown, type of roads, road marks, car parks, bus stops... In this study, a detailed compilation of all those urban variables in different streets of the city of Cáceres 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. The model is composed of the urban variables: Street length, street width, traffic light per meter, parking areas, good condition of pavement surface, parking spaces and leisure areas. This model explains the 57% of the variability of the LAeq.