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PREDICTION OF URBAN TRAFFIC NOISE USING ARTIFICIAL NEURAL NETWORK APPROACH

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Abstract

In this study artificial neural network (ANN) has been applied to predict noise pollution level in Chandigarh, a newly planned city of India. Factors that predominantly influence noise pollution level in a traffic noise model framework were classified into two categories: **traffic volume and traffic speed**. Volume, speed and noise level data of traffic were collected at nine identified locations in the city. For development of ANN model, classified traffic volume (Car/Jeep/Van, Scooter/ Motorcycle, Light Commercial Vehicle (LCV)/ Minibus, Bus, Truck, 3-wheeler) and corresponding traffic speed on both sides of the road were taken as input data. Models based on back-propagation neural network were trained, validated and tested using data collected through field studies. Comparative study reveals that ANNs have better capability to reduce the error in traffic noise prediction as compared to linear regression and modified Federal Highway Administration (FHWA) model.

Key words: artificial neural network, back-propagation, FHWA model, noise prediction, traffic

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