ANALYTICAL NOISE CONTOUR CONSTRUCTION
USING INVERSE SQUARE LAW OF SOUND PROPAGATION

Cahit Tagi Celik[*], Lale Guremen

Nigde University, Faculty of Engineering and Architecture, 51200, Nigde, Turkey

Abstract

One of the most important environmental problems is traffic noise in urban areas. In order to assess and monitor its influence on environmental quality, road traffic noise measurements are necessary. In generation of noise contour map, two main problems are encountered: noise measurements, which take considerable amount of time, and the method for rigorous production of noise contour map.

An extrapolation technique was developed to construct noise contours using actual sound level measurements and GPS coordinates in connection with GIS. This technique was applied to the road traffic noise level measurements performed at 61 stations on the main roads and roundabouts of Nigde city of Turkey in 5.5 km^2 area having approximately 100,000 inhabitants. Production of reliable noise contour map of Nigde was presented by using developed extrapolation technique, which utilize inverse square law of sound propagation.

Key words: GIS, noise control, noise map, road traffic noise

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[*] Author to whom all correspondence should be addressed: ctcelik@gmail.com