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Evaluation of Traffic Noise Level: A Case Study in Residential Area of Ishbiliyah , Kuwait

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Abstract : The World Health Organization (WHO) has recognized environmental noise as harmful pollution that causes adverse psychosocial and physiologic effects on human health. The motor vehicle is considered to be one of the main source of noise pollution. It is a universal phenomenon, and it has grown to the point that it has become a major concern for both the public and policymakers. The aim of this paper, therefore, is to investigate the Traffic noise levels and the contributing factors that affect its level, such as traffic volume, heavy-vehicle Speed and other metrological factors in Ishbiliyah as a sample of a residential area in Kuwait. Three types of roads were selected in Ishbiliyah expressway, major arterial and collector street. The other source of noise that interferes the traffic noise has also been considered in this study. Traffic noise level is measured and analyzed using the Bruel & Kjaer outdoor sound level meter 2250-L (2250 Light). The Count-Cam2 Video Camera has been used to collect the peak and off-peak traffic count. Ambient Weather WM-5 Handheld Weather Station is used for metrological factors such as temperature, humidity and wind speed. Also, the spot speed was obtained using the radar speed: Decatur Genesis model GHD-KPH. All the measurement has been detected at the same time (simultaneously). The results showed that the traffic noise level is over the allowable limit on all types of roads. The average equivalent noise level (LAeq) for the Expressway, Major arterial and Collector Street was 74.3 dB(A), 70.47 dB(A) and 60.84 dB(A), respectively. In addition, a Positive Correlation coefficient between the traffic noise versus traffic volume and between traffic noise versus 85th percentile speed was obtained. However, there was no significant relation and Metrological factors. Abnormal vehicle noise due to poor maintenance or user-enhanced exhaust noise was found to be one of the highest factors that affected the overall traffic noise reading.

Keywords : traffic noise, residential area, pollution, vehicle noise
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