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Traffic volume pattern and its correlation to traffic noise in Matara city

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Traffic congestion is becoming a serious problem in main cities in Sri Lanka and is rapidly increasing. Hourly traffic volume pattern and noise levels close to Matara Post Office on the Matara – Tangalle road are surveyed and analysed in this study. A video camera (Aisino, 3MP, 170 degree, 1080p, HD) was used to record the traffic movement. Traffic volume was counted from the video clip using Tally sheets. The speeds of vehicles were calculated using the timer in the camera. The noise level was measured using a Bruel & Kjaer hand held analyser Type-2250. Total number of 42401 vehicles passed at the site during the period of study from 6.00 am. to 6.00 pm. The vehicle count is highest, and the speed is lowest during the period of 1.00-2.00 pm. The noise level L_{Aeq} is increased from 72.9 dB at 6.00-7.00 am. to the highest value of 77.5 dB by 2.00 pm. The lower the speeds of vehicles the higher the noise level, because at lower speeds, vehicles run at lower gears. A significant drop in speeds of vehicles and increase of noise after 11.00 am is observed. The number of vehicles on the road is highest (37%) from 10.00 am – 2.00 pm. which may be partially responsible for lower speed and higher noise after 11.00 pm. The measured noise level is much higher than the recommended level of 65 dB reaching the highest level of 77.5 dB at 02.00 pm. The noise level is parameterized using different functional forms of the number of vehicles (N) and speed (v) and the best correlation was observed when the noise is expressed as a power law of the term ln (N/v^2). It was found that the most important reason for slower traffic is due to the pedestrians crossing the road very frequently at busy hours. Construction of an overpass for pedestrian could solve many problems identified.

Keywords: Traffic volume, Hourly pattern, Vehicle speed, Noise level

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