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Study of Traffic Noise Near School Area

Mohamad Daniel Haikal Halim, Zitty Sarah Ismail*

Structured Abstract

Background: Traffic noise is a major source of environmental pollution that affects both urban and suburban areas, leading to increased public concern and research interest. In school environments, elevated noise exposure can disrupt learning and contribute to long-term health issues. This study was conducted to assess the noise exposure levels and traffic volume near SMK Sultan Salahuddin Abdul Aziz Shah, Seksyen 2, and to evaluate the correlation between noise levels and vehicle count near the school area.

Methods: Noise level monitoring was conducted over six days using a Sound Level Meter (SLM), covering three school days (Monday, Tuesday, and Wednesday) and three non-school days (Saturday, Sunday and a chosen weekday), during peak traffic periods: morning, afternoon, and evening. The data collection focused on three fixed sampling points located near the school. Visual traffic counts were carried out simultaneously to determine vehicle volume. Data were analyzed to compare average equivalent continuous sound pressure levels (LAeq) and traffic volumes across different days and sessions.

Results: The findings revealed that the highest LAeq was 69.6 dBA on school days and 64.1 dBA on non-school days. Most of the recorded noise levels exceeded the Department of Environment (DOE) permissible limit of 60 dBA and the World Health Organization (WHO) recommended threshold of 55 dBA. Traffic volume was considerably higher on school days (61.98%) compared to non-school days (38.02%). Pearson correlation analysis demonstrated a strong positive relationship between traffic volume and noise levels in the morning ($r = 0.86$), and a very strong positive correlation during the afternoon ($r = 0.99$) and evening sessions ($r = 0.98$).

Conclusion: The study concludes that increased traffic volume significantly contributes to elevated noise exposure levels in school areas. The findings suggest the need for noise mitigation strategies such as sound barriers or improved traffic flow systems. Local authorities are encouraged to implement sustainable noise management policies, especially in sensitive zones like schools, to ensure a conducive learning environment and better urban planning in Shah Alam

Keywords: Traffic Noise, Sound Level Meter, School Environment, Traffic Volume

*Correspondence: zitty@uitm.edu.my

^a School of Chemistry & Environment, Faculty of Applied Sciences, Universiti Teknologi MARA, Shah Alam, Malaysia