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Assessment of Traffic Noise Levels at Selected Residential Area in Puncak Alam

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Structured Abstract

Background: Malaysia is experiencing increasing noise pollution, particularly in highly urbanised and congested areas, where noise levels in residential zones often exceed the limits set by the Department of Environment Malaysia. Prolonged exposure to traffic-related noise can negatively affect residents' health. Puncak Alam, located in Kuala Selangor, is a rapidly developing township, with growth driven by residential expansion, infrastructure development, and the establishment of Universiti Teknologi MARA (UiTM) Puncak Alam, which has contributed to increased population density and traffic volume. However, limited local data on actual noise levels in Puncak Alam's residential areas makes effective noise assessment and control challenging. Therefore, this study aims to evaluate traffic noise levels in selected residential areas of Puncak Alam to support noise management strategies and promote a healthier living environment.

Methods: The area monitoring was conducted to measure noise level by using sound level meter (SLM). Assessment was done for 3 working days for each sampling points. The monitoring period was from 7:00 AM to 5:00 PM.

Results: The assessment of traffic noise levels in the three selected residential areas in Puncak Alam showed consistently high noise exposure throughout the monitoring period. At Jalan Residensi Warnasari 13/1, the mean equivalent continuous noise level (LAeq) was 78.4 dBA, with the highest maximum noise level (Lmax) recorded at 98.7 dB. For Jalan Persiaran Puncak Alam 6 recorded a mean LAeq of 78.9 dBA, while the highest Lmax observed was 93.5 dBA. Meanwhile, Persiaran Alam Perdana showed a slightly lower mean LAeq of 77.3 dBA, with a maximum Lmax of 95.5 dBA. All measured mean LAeq values exceeded the Department of Environment (DOE) Malaysia Recommended Permissible Sound Level for urban residential areas with high-density and mixed development, where the allowable daytime LAeq should not exceed 65 dBA.

Conclusion: Traffic noise in the selected residential areas of Puncak Alam consistently exceeded the DOE Malaysia daytime limit of 65 dBA, driven by heavy traffic, continuous vehicle flow, and surrounding land-use activities. These findings highlight the need for noise mitigation, including traffic flow control, heavy vehicle restrictions during peak hours, installation of noise barriers, and incorporation of buffer zones in future developments to improve the residential environment.

Keywords: Traffic Noise, Residential Area, Noise Pollution

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