

## Traffic Noise Pollution Near Residential Area

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### Structured Abstract

**Background:** Traffic noise, primarily from vehicles, is a rising environmental issue in urban areas. It stems from engines, tire friction, and traffic flow, often exceeding permissible limits and affecting public health. Prolonged exposure to high noise levels has been linked to sleep disturbances, stress, hearing loss, and heart issues. In Malaysia, rapid urban growth and rising traffic volume worsen this problem, particularly in residential zones near busy roads. Although many are aware of noise as a disturbance, fewer understand its serious health implications. This study aims to measure traffic noise and volume in selected residential areas of Shah Alam and examine their relationship to support urban planning and mitigation efforts.

**Methods:** This study was carried out in U12 Shah Alam, focusing on two residential area: Taman Cahaya Alam and Taman Desa Alam. Traffic noise was measured using a calibrated Sound Level Meter (SLM), while traffic volume was manually recorded with tally sheets and counters. Data were collected over eight hours during both weekdays and weekends. All vehicle types were documented. Noise levels were recorded at selected locations, and weather conditions such as temperature and humidity were noted to ensure data consistency. The relationship between noise levels and traffic density was analysed using descriptive statistics and correlation analysis.

**Results:** The relationship between traffic volume and noise levels in U12 Shah Alam varied by time of day. A strong, statistically significant positive correlation was found during evening hours ( $r = 0.813$ ,  $p < 0.05$ ), with traffic volume accounting for 66.1% of noise variance. In contrast, morning ( $r = 0.443$ ) and afternoon ( $r = 0.354$ ) correlations were weaker and not significant, suggesting other contributors like construction, heavy vehicles, or congestion patterns.

**Conclusion:** In conclusion, traffic noise in Shah Alam's residential areas often exceeded the Department of Environment's 65 dBA limit, with readings from 65.2 to 71.5 dBA. High traffic volumes mainly cars and motorcycles were most common at intersections and during peak hours, indicating significant environmental noise pollution.

**Keywords:** Traffic Noise, Permissible Limit, Residential Area, Correlation Analysis

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