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NOISE REDUCTION PREDICTION OF URBAN ROAD GREEN BELT BASED ON ROAD SERVICE LEVEL

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Abstract

This study was conducted to determine how different types, widths, and lengths of green belts on expressways affect noise attenuation. The noise impact of expressways on surrounding residential areas was assessed using Cadna/A software, which is based on the road-level service index. The results demonstrated that the attenuation value of noise was the largest for the all-tree type of green belt in each width gradient. The most rapid range of noise attenuation for green belts was between 30 and 50 meters; once the width exceeded 50 meters, the trend of noise attenuation gradually slowed down. As the length of the green belt increased, the noise attenuation value continuously improved; the fastest range of noise attenuation was observed between a green belt length of 30 meters and 90 meters. This study provides valuable insights for the design of green belts on expressways.

Key words: Cadna/A, green belt, noise reduction prediction, road service level

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