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**Noise emissions at intersections: comparing microscopic and
macroscopic traffic simulation approaches**

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Environmental noise mapping often involves the use of traffic simulation software. In most cases, traffic flows are simulated in a macroscopic way, considering only traffic flow parameters averaged over road segments. This approach does not allow to correctly account for the typical deceleration and acceleration patterns of traffic at intersections, which influence local noise emissions. Microscopic traffic simulation models, which model each vehicle individually, incorporate these dynamic effects. However, they require much larger amounts of input data for calibration, and are therefore less suited to map large areas. In this paper, we investigate the possible influence of the choice of simulation detail on simulated traffic flow parameters and, as a consequence, on noise emissions near intersections. As a case study, several types of road intersections under various traffic demand and traffic composition conditions are considered. Simulation results are obtained using a microscopic (Paramics) as well as a mesoscopic (MaDAM) and a macroscopic (OmniTRANS) traffic simulation model, and predicted traffic flow parameters and noise emission values are compared between these approaches.