

# Roadside Dust vs. Park Air: measuring "Matter" Near Traffic

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**Abstract:** *Air pollution caused by particulate matter (PM) has become a major environmental concern in urban environments. Traffic-related activities generate large quantities of airborne particles through exhaust emissions, brake wear, tire wear, and the resuspension of road dust. These particles significantly influence air quality in areas adjacent to roads. This study compares particulate matter concentrations in two contrasting environments: a roadside traffic location and a nearby urban park. Using portable particulate sensors, measurements of  $PM_{2.5}$  and  $PM_{10}$  were collected over several days. Results show that particulate concentrations near traffic are substantially higher than those recorded in green spaces. Roadside  $PM_{2.5}$  concentrations were on average 2–3 times greater than park air levels, indicating the strong influence of vehicular activity. Graphical and statistical analyses highlight the role of traffic density and vegetation in controlling airborne particulate concentrations. The findings demonstrate the importance of urban green spaces in mitigating pollution exposure and improving air quality*

**Keywords:** Particulate Matter (PM); Urban Air Quality; Traffic Emissions; Urban Green Spaces; Roadside Dust; Environmental Monitoring; Green Infrastructure