

Traffic emissions are associated with the elevation of health risks of people living close to highways. Roadside vegetation barriers have the potential of reducing these risks by decreasing near-road air pollution concentrations. However, while we understand the mechanisms that determine the mitigation caused by solid barriers, we still have questions about how vegetative barriers affect dispersion. The US EPA conducted several field experiments to understand the effects of vegetation barriers on dispersion of pollutants near roadways (e.g., 2008 North Carolina study and 2014 California study) that indicate the reduction of near-road pollutant concentrations can be up to 30% due to the barrier effects. The results of these field studies are being used to develop and evaluate dispersion models that account for the effects of near-road vegetative barriers. These models can be used for evaluating the effectiveness of vegetation barriers as a potential mitigation strategy to reduce exposure to traffic-related pollutants and their associated adverse health effects. This paper presents the results of the analysis of the field studies and discusses dispersion models being used to describe the data in order to simulate the effects of near-road barriers and to develop recommendations for model improvements.

