Transportation Seminar Series

Friday, April 3, 2009
4 - 5 p.m. in 240 Bechtel Engineering Center

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Unintended Environmental Impacts of Metropolitan Logistics Policies

Abstract: In recent years, the reduction of the negative externalities resulting from metropolitan freight transportation has increasingly been recognized as an essential policy goal. Related policies have often been justified by studies which conclude beneficial environmental impacts. However these studies have often been incomplete, leaving significant questions about these conclusions. Two types of policies are found to be pervasive in implementations around the world. These are policies aimed at reducing the number of road freight trips through increasing vehicle cargo loads and those to reduce the number of peak-hour trips. However previous research indicates that increasing loads may cause significant life-cycle emissions increases and that nighttime emissions can be more environmentally damaging than those during the day.

This presentation will give case examples of hypothetical logistics policies and an assessment of their environmental impacts. Load consolidation policies will be considered for two sections of California highways, one on which freight traffic is comprised mainly of local delivery vehicles and another which is predominantly used for long-distance trucking. For each case, the change in tailpipe emissions will be compared with the increased emissions in the pavement production supply chain. Off-peak policies will be considered for two California locations as well, with one being coastal and the other inland. The effects of atmospheric stability on human intake of tailpipe emissions will be assessed. These results will then be built upon to provide a broader perspective, accounting for traffic congestion and other environmental concerns, to reveal additional unintended impacts. This presentation combines methods from multiple fields, including infrastructure management, life-cycle assessment, atmospheric science, air quality engineering and traffic theory, to assess the possibility of unintended environmental impacts resulting from freight logistics policies.

Bio: Nakul Sathaye is a PhD Candidate in the Civil and Environmental Engineering Systems Program at UC Berkeley. He completed bachelors and masters degrees in Civil and Environmental Engineering at UC Berkeley in 2004 and 2005. His research focuses on business and policy analysis related to transportation and the environment.

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