

Project Information Form

Project Title:	Modeling for Local Impact Analysis
University:	University of Southern California
Principal Investigator:	Petros Ioannou
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Funding Source(s) and Amounts Provided (by each agency or organization):	Volvo Research and Education Foundation - \$140,000
Total Project Cost:	\$140,000
Agency ID or Contract Number:	USC-VOLVO-02
Start and End Dates:	March 1, 2013 – December 31, 2017
Brief Description of Research Project:	<p>The Los Angeles/Long Beach area is important for freight as it involves the twin ports and warehouses and freight hubs. The way freight is consolidated and distributed affects what is going on within the terminals and roadway and rail networks. The complexity and dynamics of the multimodal transportation networks in Los Angeles/Long Beach region that are also shared by passengers, together with the unpredictability of the effect of incidents, disruptions and demand, in temporal and special coordinates makes the local impact analysis of freight transportation a very challenging task despite recent advances in information technologies.</p> <p>Under this project, the researchers developed a set of traffic simulation models for the Los Angeles/Long Beach region that allowed them to evaluate the impact of new traffic flow control systems, vehicle routing, policy interventions such as land use changes and other ITS technologies on the efficiency of the transportation system and on the environment. The developed simulation models include: macroscopic simulation model for studying and evaluating large traffic networks, and microscopic simulation model for smaller networks. The macroscopic model focusses on flows and covers a much larger area as it is computationally much more efficient than the microscopic one. The microscopic model models the motion of each truck and vehicle, traffic lights, stop signs, speed limits, traffic rules etc. and resembles the real situation as close as possible.</p>



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	The developed simulation models have been used to evaluate different systems and application scenarios, including freight priority traffic signal control, multimodal freight routing and the impact analysis of the spatial pattern changes of warehousing and distribution.
Describe Implementation of Research Outcomes (or why not implemented): Place any photos here	
Impacts/Benefits of Implementation (actual, not anticipated):	
Web Links <ul style="list-style-type: none">• Reports• Project website	https://ncst.ucdavis.edu/project/modeling-local-impact-analysis/ https://escholarship.org/uc/item/7959p38n