MIT Industrial Liaison Program Faculty Knowledgebase Report

The MIT Mobility Initiative: Land Use Transportation Interactions for Pedestrian Mobility

December 2, 2020 9:30 am - 10:30 am

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Land Use Transportation Interactions for Pedestrian Mobility
Andres Sevtsuk
Associate Professor of Urban Science and Planning
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Andres Sevtsuk is a Charles and Ann Spaulding Career Development Associate Professor of Urban Science and Planning at the Department of Urban Studies and Planning, where he also leads the City Form Lab. His work bridges urban design with spatial analysis and urban technology. Andres is the author of the Urban Network Analysis toolbox, used by researchers and practitioners around the world to model pedestrian flows along city streets and to study coordinated land use and transportation development along networks. Applications of this work have led him to study business location choices in cities, particularly in the retail, food and service sector. He is currently publishing a book entitled “Street Commerce: The Hidden Structure of Retail Location Patterns and Vibrant Sidewalks” with Penn Press. Andres is also leading the Future of Streets research initiative, which investigates how cities could adapt their streets and mobility infrastructure to newly emerging transportation technologies in ways that maximize multi-modal, socially inclusive, and environmentally sustainable outcomes. Andres has collaborated with a number of city governments, international organizations, planning practices and developers on urban designs, plans and policies in both developed and rapidly developing urban environments, most recently including those in US, Indonesia, Estonia and Singapore. He has led various international research projects; exhibited his research at TEDx, the World Cities Summit and the Venice Biennale; and received the President’s Design Award in Singapore, International Buckminster Fuller Prize and Ron Brown/Fulbright Fellowship. Before joining MIT, Andres was an Associate Professor of Urban Planning and Design at the Harvard Graduate School of Design. He holds a PhD from the Department of Urban Studies and Planning and an SMArchs in Architecture and Urbanism from MIT.

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City governments and planners alike commonly seek to increase pedestrian activity on city streets as part of broader sustainability, community building and economic development strategies. Though walkability has received ample attention in planning literature, most practitioners still lack methods and tools for predicting how development proposals could impact pedestrian activity on specific streets or public spaces at different times of the day. Cities typically require traffic impact assessments, but not pedestrian impact assessments. In this presentation I discuss a methodology for estimating pedestrian trip generation and distribution between detailed origins and destinations in both existing and planned built environments. I demonstrate its application in Cambridge, MA and Melbourne, Australia, where I compare estimated foot-traffic during lunch and evening peak periods to observed pedestrian counts and show how the model can be used to predict changes in foot-traffic that results from changes in real-estate development.