Transportation Center Seminar...

Envisioning Autonomous Vehicle Pathways through the Lens of Air Transportation Planning

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4:00 - 5:00 pm
Refreshments available at 3:30 pm

Location:
Transportation Center, Chambers Hall
Lower Level, 600 Foster St., Evanston

Abstract: Autonomous vehicles promise numerous transportation system benefits, from reductions in accidents and fuel consumption to increases in mobility options and road capacity. The maturity of autonomous vehicle technology showcased by numerous successful tests stands in contrast to the lagging development of autonomous vehicle policies and plans. As policies and plans are necessary to ensure the proliferation of autonomous vehicles improves transportation system efficiency while also promoting livability and environmental stewardship, it is critical that policy keeps pace with technology. In contrast to the existing road transportation system populated by dispersed actors, autonomous vehicles will be connected and controlled centrally with a set of standards dictating, for example, speed, separation, interaction rules across vehicles of different equipage levels, and infrastructure use. This centrally controlled system operated over a large network spanning numerous jurisdictions with federal, local, and private interests resembles the current aviation system. In this study we draw policy and planning lessons from the aviation system’s experience with infrastructure planning, separation and operational regulations, routing and trajectory planning in normal and disaster scenarios, managing safety and the perception of safety, and environmental planning and sustainability. We review the history, challenges, and successes of the aviation system in these areas to identify proactive autonomous vehicle policies that promote transportation system efficiency, livability, and sustainability.

BIO: Professor Ryerson's research is on the design and management of resilient and sustainable transportation systems, particularly the air transportation system. Professor Ryerson develops algorithms to predict the behavior of intercity transportation systems due to short term system shocks, such as earthquakes, long term system shocks, such as climatic changes, and uncertainties, such as fuel price. In addition, Dr. Ryerson investigates shortcomings in the large-scale infrastructure environmental planning process and ways through which federal policies and local interests can limit viable and sustainable alternatives. She has published several articles and co-authored numerous studies investigating the geography of intercity transportation networks, optimizing diversions in a disaster scenario, analyzing the impact of fuel prices on the intercity transportation system, and comparing the environmental impact of aviation and High Speed Rail Systems. Professor Ryerson is a member of two Transportation Research Board (TRB) committees and a co-founder of the TRB Young Members Council – Aviation. She serves on the Airport Cooperative Research Board Graduate Student Award Panel, the Program Committee for the International Conference on Research in Air Transportation, and on the Board of the Women’s Transportation Seminar Philadelphia Chapter Transportation YOU Program. Professor Ryerson received a Ph.D. in Civil and Environmental Engineering from the University of California, Berkeley in 2010 and a BS in Systems Engineering from the University of Pennsylvania in 2003.