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"What Services Should You Operate in a Bus Corridor? and 
What can We Achieve in Time Savings, Reliability and 
Comfort if Properly Controlled?"

Thursday – April 7, 2011  
4:00 - 5:00 pm  
Refreshments available at 3:30 pm

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

ABSTRACT: In these corridors, the use of express bus services that serve only a subset of stops along certain routes seem to be a promising alternative given the benefits they offer to both users and operators. In actual practice, express services in systems such as Transmilenio (Bogota, Colombia), Transantiago (Santiago, Chile), and Metro Rapid (Los Angeles, CA) have proven to be highly appealing.

This raises the question about what types of express services would be more attractive on a given bus corridor. In the first part of this talk a methodology will be presented to determine a set of optimum services (express, skip-stop, deadheading, short, regular), and their respective frequencies, associated to a transit corridor. This model minimizes social costs, which include wait time, travel time, transfer time, and the costs facing the operator. The model is then used to determine under which characteristics of the corridor there is more room for innovative transit services.

In headway-based Transit Systems the bus bunching phenomenon rises if no control schemes are applied. In the second part of the talk two different strategies (Holding and Boarding Limits with Real Time information, and Holding with Real Time information) are compared against basic control mechanisms. Then the methodologies are used to determine under which demand scenarios the control strategies provide the most significant results in terms of time savings, reliability and comfort. It results that more than 50% of the extra waiting times can be reduced by these strategies.

BIO: "Juan Carlos Muñoz got his PhD in CEE and his MSc in IEOR from the University of California at Berkeley in 2002. He is an Associate Professor at the School of Engineering of the Pontifica Universidad Católica de Chile where he acted as an Associate Dean of Academic Affairs from 2007 to 2010. His main research areas are public transport, logistics, transport networks and traffic flow theory. Since 2010 he leads the Across Latitudes and Cultures Bus Rapid Transit Centre of Excellence funded by the Volvo Research and Educational Foundations.

During 2003 and 2004 he was personal advisor of the Chilean Minister of Transport on transit issues. In 2008 he was designated as one of the 12 members of a committee summoned by the Minister of Transport to suggest action lines for the recently created transit system of Santiago, Transantiago. He was a member of the Board of Directors of the Metro of Valparaiso and advisor of the President of the Metro of Santiago from 2007 to 2010. Mr. Muñoz also works on designing flexible work shifts for transit drivers and retail workers. Currently, he runs a project, Shift-UC, which assigns weekly work shifts to more than 45,000 workers in Chile, Colombia, Argentina and Peru. He is a member of the Editorial Advisory Board of Trans Res Part B, of the Transportation Research Board Committee on Transportation in Developing Countries and of the International Scientific Committees of the CASPT (Conference on Advanced Systems of Public Transport) and Thredbo (International Conference on Competition and Ownership in Land Passenger Transport) Series. Currently he is spending a sabbatical year at MIT in Boston."