

Transportation Studies and PATH-Related Research at UCLA

PATH @ 20
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Institute of Transportation Studies

UCLA Transportation Studies

- Institute of Transportation Studies (ITS)
 - Brian D. Taylor, Director
 - One of 4 UC branches
 - Focus on transportation policy
 - UC Transportation Center
- UCLA School of Public Affairs
 - Department of Urban Planning
 - Department of Public Policy
 - Lewis Center for Regional Policy Studies
- www.its.ucla.edu



UCLA Transportation Faculty

- **Departments**

- Urban Planning
- Geography
- Asian American Studies
- Chicano Studies
- Policy Studies
- Architecture
- Social Welfare
- Environmental Health Sciences.

- **Areas of Expertise**

- Economic, urban development
- Labor, housing markets
- Urban and transportation finance
- Urban geography
- Environmental policy
- Air pollution exposure
- Decision-making and devolution
- Demography
- Gender studies
- Urban poverty and inequality
- Settlement patterns of immigrants

Research Highlights

ITS research...

- was specifically cited by the President in announcing changes to federal welfare policy
- directly led changes in the federal Internal Revenue Code to encourage commuting by alternative travel modes
- has led Southern California transit operators to modify transit stop designs to improve safety
- has resulted in the institution of fare-free (reduced-fee) transit for UCLA students, staff, and faculty



PATH: Transit Taxi Project

- Caltrans commissioned study
- Collaborative effort between UC Berkeley and UCLA
- Objective:
 - Improve mobility during off-peak, low-demand periods of the day, through concept of “transit taxis”
 - Design pilot project to field test “transit-taxis”
- Transit Taxis:
 - Uses existing stops/stations as “origins” and “destinations”
 - Service that is publicly available
 - Is offered when regular buses tend not to be operational
 - Allows for a shared-ride experience



PATH: Transit Taxi Project

- Research questions
 - What demographic and physical characteristics support transit-taxi?
 - What are service design and operational strategy options?
 - How are new technologies being applied?
 - What factors contribute to successful and not so successful transit-taxi service?

Literature Review Findings

- Commonly found in cities with universities
- Regulatory environment can play as large a role as financial or demographics characteristics in providing service
- Contracting service with taxi company is most common in smaller and medium-size cities
- Surprisingly little use of technology beyond call-in dispatching systems in the U.S. In Europe and Asia, more use of real-time information, GPS systems.



Case Studies Findings

- In-Depth Interviews
 - Transit managers and directors at American/Canadian transit agencies involving a combination of service design and operations
- Factors contributing to the creation and continuation of programs
 - Strong agency support
 - Supportive demographics
 - Large service area
 - High community demand
 - University support

Case Studies: Lessons Learned

- Innovative financing mechanisms should be considered to help deal with agency-wide financial constraints
- Cities with smaller populations with universities (Ann Arbor, 114,000 and Rimouski, 40,000) tend to have feeder/hybrid transit taxi services, utilizing taxi cabs
- Little, if any, service assessment performed

Next Steps

- Identify California community suitable as transit-taxi pilot test site
- Develop program design for pilot test

PATH: Transit Interconnectivity

- Caltrans-commissioned study to investigate the performance of transit transfer facilities for transit users
- Collaborative effort between UC Berkeley and UCLA
- Objective: Develop evaluation tool to assess quality of service at transit transfer facilities



Literature Review

- Importance of transit interconnectivity recognized for long time
- Lack of theoretical framework for how transfer facility improvements affect travel behavior and ridership
- More attention paid to transit vehicle services (in-vehicle)
- Hard to comprehensively analyze facilities using uniform criteria because of variation in size, mode served, location, and amenities
- Previous studies have typically compiled lists of positive/negative attributes without considering relative importance of each attribute or whether they influence ridership differently alone or in concert with other factors
- We know little about which attributes are most important, under which circumstances, in what combinations

Progress To-Date

- Developed travel behavior framework based on
 - *Transfer penalties* within total travel costs of transit trips
 - *Value of time*
- ...to systematically evaluate how attributes of transit wait/walk times and transfers influence people's travel behavior.

Progress To-Date

- Travel behavior framework suggests three areas where transit agencies can reduce wait/walk/transfer burdens
 - Transfer fares
 - Operational aspects of service (headways, on-time arrival)
 - Physical attributes of stops and stations
 - transfer walking distance, lighting, seating, signage, streamlining pedestrian flows, protection from elements, visibility.

Progress To-Date

- User Perspective
 - User survey at numerous transit transfer facilities in southern California focusing on perceptions of safety/security, amenities, information, access
- Operator Perspective
 - Operator interviews dealing with cost-related concerns, safety/security, efficiency of operation
- Community Perspective
 - Community interviews on environmental, visual, noise, traffic, and safety/security aspects

Next Steps

- Analyze data from user, operator, and community perspectives at numerous sites
- Design evaluation tool to assess quality of service at transit transfer facilities

PATH: Interoperable Smart Cards

- Caltrans commissioned research project
- Objective: Design a policy framework for implementing interoperable statewide smartcard system
- Provides users with one fare instrument that can be used across many modes, operators, and jurisdictions
- Requires coordination of many agencies
- Technological vs. institutional barriers

Research Questions

- What have been the barriers to coordinating multiple agencies so they may adopt compatible systems?
- Are there common characteristics of agencies that have been successful (not)?
- What is the appropriate scale and size of interoperable smart card systems?
- What have been strategies used in implementing smart card systems? Under what circumstances are these strategies effective?
- Should interoperability be mandated through formal mechanisms, or managed vis-à-vis informal, loosely coordinated agencies?

Research Progress

- Initial interviews
 - Day-to-day implementation issues (procurement, cost)
- Literature review
 - Booster-like enthusiasm for smart cards
 - Little evaluation of cost relative to benefits
- Survey of U.S. transit agencies
 - Status of smart card adoption, costs, benefits, risk
- In-depth interviews (preliminary findings)
 - Knowledge about costs, benefits, risks
 - Barriers and strategies
 - Differences in approach

Research Findings

- Local incentives motivate agencies to act independently (different service markets, operational characteristics, funding structures)
- Uncertainty over which institutional partners should be responsible for setting and enforcing standards, protocols, and performance criteria
- Insufficient models for administering fair, but manageable revenue sharing among operators
- Refusal to cede control over fare collection, revenues, and fare policy

Next Steps

- Continue analysis of interviews
- Interviews of MPOs, elected officials, vendors
- Policy recommendations

Questions? Comments?

Thank you!



Contact Information

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Institute of Transportation Studies

END

PATH-Related Research

- Current projects
 - Transit Taxis (Miller, Taylor)
 - Transit Interconnectivity Project (Miller, Iseki, Taylor)
 - Smart Cards (Yoh, Iseki, Taylor)
 - Travel Demographics (Blumenberg)



UCLA Transportation Faculty

- **Evelyn Blumenberg** (Urban Planning): Economic development policy, labor markets, gender studies
 - Role of transportation in reducing poverty/facilitating employment
 - Evaluating the role transportation policies in facilitating the welfare to work transition
 - Managing the conflicting purposes of sidewalks
- **William A. V. Clark** (Geography): Urban geography, demography
 - Links between housing and transportation choices
 - Travel behavior in suburbs
 - Demographics and travel behavior



UCLA Transportation Faculty

- **Randall Crane** (Urban Planning): Urban economics, housing markets, environmental policy
 - The links between land use and travel choices
 - Transportation and sprawl development
 - Emerging trends in travel demographics
- **J.R. DeShazo** (Policy Studies): Public decision-making, devolution, non-market valuation and public finance
 - Privatization of public transit services
 - Travel patterns of domestic and international tourists.



UCLA Transportation Faculty

- **Matthew Drennan** (Urban Planning): Evolving structure of national economic activity; transformation of metropolitan economies.
 - The effect of goods production, distribution activities, and information intensive activities on the urban hierarchy.
 - The influence of transportation investments on local economic activity.
- **Robin Liggett** (Architecture and Urban Planning): Computer-aided design, analytical methods
 - Effects of transportation stop, station, and system design on crime and terrorist activity.



UCLA Transportation Faculty

- **Anastasia Loukaitou-Sideris** (Urban Planning)
 - Factors influencing development around transit stations
 - Retrofitting aging streetcar corridors
 - Effects of transportation stop, station, and system design on crime and terrorist activity
- **Paul Ong** (Asian-American Studies, Social Welfare, Urban Planning): Labor Economics, Poverty Policies, Demography
 - Links between metropolitan development patterns, transportation, and employment outcomes
 - Transportation and welfare reform
 - Racial/ethnic patterns of transportation access (autos/insurance)



UCLA Transportation Faculty

- **Donald Shoup** (Urban Planning): Urban economics and public finance
 - Effects of parking pricing and regulation on development patterns and travel
 - Amending parking polices to reduce auto dependence
 - Innovations in fare structures to increase transit use at large employment sites
- **Michael Stoll** (Policy Studies): Urban poverty and inequality, labor markets, and workforce development
 - Roles of residential segregation, job location patterns, employer discrimination, and transportation in limiting employment opportunities.



UCLA Transportation Faculty

- **Brian D. Taylor** (Urban Planning): Transportation policy and planning
 - Influence of fiscal politics on transportation systems and travel
 - History and future of highway taxes and finance
 - Links between transit subsidies and performance
 - Measuring equity in travel behavior and transportation finance
- **Abel Valenzuela** (Chicano Studies, Urban Planning): Employment and settlement issues among minorities and immigrants to the U.S.
 - Transportation and job competition between immigrant and native groups in Los Angeles
 - Use of informal transportation services among immigrants

UCLA Transportation Faculty

- **Arthur Winer** (Environmental Health Sciences):
Air pollutant exposure assessments.
 - Measuring exposure to both criteria and non-criteria pollutants for those living adjacent to freeways.
 - Exposure of children to diesel school bus emissions



Literature Review Findings

- Transit-Taxi Classification
 - Fixed route skeletal
 - Fixed route with deviation
 - Hybrid / Feeder Service
- Transit-Taxi Operational Strategies
 - In-house
 - Contracted
 - Privatized (*laissez-faire*)
- All service type combinations exist, but no “one-size-fits-all” approach to design or operation