

Future Mobility Initiative



Lew Fulton, Regina Clewlow, Caroline Rodier, Susie Pike,
Gouri Shankar Mishra, Alan Jenn, and many others

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Future Mobility Initiative – *Motivation*

Major transformations beginning in urban mobility

Rapid adoption of on-demand mobility services, emergence of connected and automated vehicles will alter how people & goods move across the globe

Urgent need for rigorous research and impartial policy analysis to ensure innovations have positive long-term societal impacts

Future Mobility Initiative – *Goals*

Assess current use of future mobility services & resulting changes in individual travel behavior

Model possible future scenarios based on current trends to measure expected changes in energy/CO₂ emissions & mobility/accessibility

Assist policymakers and community stakeholders in evaluating impacts of new mobility services & technologies on local and regional transportation

Analyze national, state & local policies in terms of impacts on environmental, transportation and social equity goals

Compare impacts and innovations internationally
(especially Europe & China)

Current and Planned Projects

- Harnessing dynamic ridesharing to improve mobility in low income, rural communities in the San Joaquin Valley (*C. Rodier*)
- Dynamic ridesharing: Simulation of system-level travel effects using agent-based demand and supply models in the Sacramento region (*C. Rodier*)
- Ridesharing and vehicle fleet implications (*R. Clewlow*)
- Future mobility policy analysis (*S. Pike*)
- The mobility of Millennials in California (*G. Circella*)
- New mobility services and trends in urban residential and transportation decisions (*R. Clewlow*)
- Economics of surge pricing: Driver behavior (*D. Scheitrum*)

Dynamic Ridesharing in the San Joaquin Valley (C. Rodier, A.R. Bernstein)

- ITS-Davis partnership with San Joaquin Valley's 8 MPOs
- Dynamic ridesharing pilot that expands mobility for disadvantaged populations
- \$500,000 Caltrans Planning Grant
- Financial plan that taps cap & trade revenues and local and state transportation funds
- Support of all San Joaquin Valley MPOs means high potential for broad implementation
- Model for sustainable rural transportation in other parts of California and across the nation

Ridesharing in the Central Valley

90% greater access to jobs with a 45-minute commute by car compared to bus (*Jonathan London and Alex Karner, 2014*)

Dial-A-Ride available, but unreliable and wait times are high

Tradition of ridesharing in the Valley (*Rey Leon, 2014*)

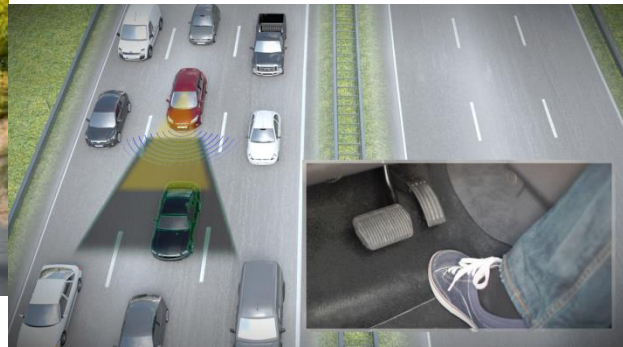
- Longtime residents with cars – called *Raiteros* – provide rides for new immigrants and elderly
- Cal Vans provides vanpool for farm workers, but with fixed schedule and little flexibility



Automated Vehicles: NCST White Paper on GHG Effects

Theoretical effects and empirical evidence: near- and long-term deployment of automated vehicles

- Payment models: ownership, shared use and shared taxi
- Transit service: complement and substitute
- Daily passenger and non-passenger activity patterns
- Vehicle and fleet size
- Accidents, congestion, speed, routing
- Land development and use (including parking)



Some Research Findings on Automated Vehicles

- Significant share of trips could be made by shared use & taxi services and up to 20% reduction in regional VMT/GHG (Rodier et al., 2015; OECD/ITF, 2015)
 - Travelers who use a variety of travel modes and services more likely to use a shared use and taxi services.
- Shared use services could reduce the vehicle fleet by 40% to 90%
 - Small effect on VMT (+ or -) but may facilitate adoption of BEVs
- If owned by individuals could increase VMT, congestion, and sprawl; change in GHGs would depend on vehicle and fuel technology
- Automated vehicles could improve first and last mile access range and may replace bus transit in suburban and rural areas

Future Mobility Policy Analysis (S. Pike)

What factors contribute to development and content of policies for future mobility?

Part 1: Characterizing the current policy landscape

- Summarization of existing policies in CA and US
- Evaluate of how community characteristics such as demographics, land use patterns and transportation infrastructure relate to policies.
- Explore the effects of state-wide (California) versus local authority over policies related to future mobility.

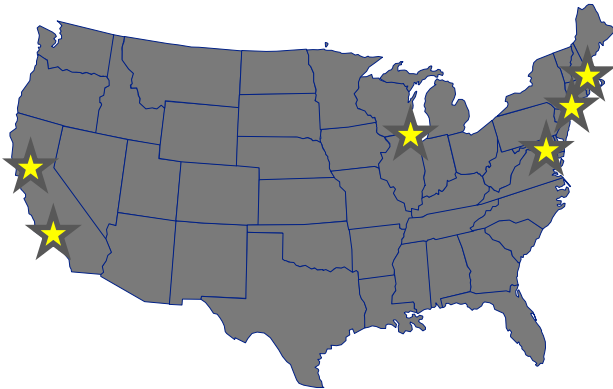
Part 2: Policy Process Analysis

- What stakeholder groups are involved in the development of relevant policies?
- How is involvement reflected in policy outcomes?
- Data collection through surveys and interviews with local government actors and stakeholder groups.

Part 3: Policy Recommendations

- Integrate policy information with survey and model data
- Analyze impacts of existing policies

New Mobility Services and Trends (*PI Regina Clewlow*)



Locations

- Boston, MA
- Chicago, IL
- Los Angeles, CA
- New York, NY
- San Francisco, CA
- Seattle, WA
- Washington, D.C.

Survey Statistics

- 4000 completed responses
- October 2014 – September 2015
- Urban & suburban zip codes
- 100+ questions
- Avg. completion time 25 min

Key research topics

- Lifestyle preferences by generation and urban/suburban living
- Potential impacts of family formation on housing and travel decisions
- Adoption and use of new mobility services

Survey Design:

