Overview

- Issues & Options
- A Planning Model
- Policy Impact Assessment
- Conclusions
Paradox

- Demand, income, auto ownership, national economy
- Land, infrastructure, resource

Source: China Today, June 19, 2009
Planning, Management, Policies

- Land ownership
- Development: denser, mixed
- ITS
- Traffic regulations

Control - supply

Implementation difficulty

Inefficiency
Service Provision & Finance

- Improve & Expand Infrastructure
- Allow Private Transit Services

Supply-based approach

- Under-priced auto usage

Connect

Overuse

Expand urban space

Hinder the effectiveness of other modes

Financial burden
Sustainable Transportation

- Strength demand management
  - Congestion pricing in cities
  - Parking management
  - Development management

Tools for policy impact assessment
TOLL EVALUATION MODEL

Figure 1: Conceptual Framework
User Equilibrium
Application

- Impacts of policies
  - Impact of pricing levels
  - Preferential treatments
- Optimal solutions
- Transferable
Impacts of Toll Level

- Price level at and below $0.25/m won’t have significant effects on system performance and air quality
- Price level at $0.25/m and above would generate significantly higher toll revenues
- Price at $0.40/m would generate the most toll revenue
Figure 11. Pricing Preferential Treatment Impacts on Corridor Revenue ($/Peak Hr)

Pricing Policy Scenarios:
- All Pay
- SOV Pay, HOV Free
- SOV Full, HOV 1/2
- SOV Full, HOV2 1/2, HOV3+ Free
- SOV & HOV2 Full, HOV3+ 1/2
- SOV & HOV2 Full, HOV3+ Free
### Table 2. Pricing Options for Maintaining A Service Level on Managed Lanes

<table>
<thead>
<tr>
<th>Policy Scenario</th>
<th>Toll Amount ($/mile)</th>
<th>Peak Hour Volume (vph)</th>
<th>Peak Hour Avg Speed (mph)</th>
<th>Peak Hour Emissions (Kilograms/mile)</th>
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Conclusion

- Need demand management solutions for sustainable transportation
  - Congestion pricing in cities
  - Parking management
  - Transit improvement
  - Other changes: planning, political

- Planning tools
- Objective tradeoffs
- Future research
Thank You!