



*USDOT Region V
Regional University Transportation Center*



Inaugural Summit
Session 4
Public Private Partnerships
Private Sector Panel

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Motivation [Panel guidelines]



Limited public sector budgets → innovative financing strategies
Involving the private sector.

This session seeks innovative strategies to foster PPP



Summary



- Clarification
- Some future challenges
- Research areas
- List of research needs and opportunities

A clarification of terms



PPP (Public-Private Partnership) : the private sector **finances**, builds, maintains, operates an asset , recovering the investment with revenues = "**Concession**"

NEXTRANS vision *ppp*: any mechanism for integration between public and private sector (government-industry-academia) interests



Some future challenges in this field



Transportation Assets/Services. **How to:**

- Fund / finance (two aspects: sources & best use of funds):
 - ◆ New Construction / Expansion
 - ◆ Maintenance
 - ◆ Infrastructure Renewal

- Operate – Best use of existing infrastructure:
 - ◆ Congestion relief / Capacity improvements
 - ◆ Safety



Needs / opportunities in research



I will present research needs classified into:

NEXTRANS Pillars [Focus Areas]:

1. Vehicle-Information/Control Interaction (VICI)
2. Vehicle-Infrastructure Interaction (VII)
3. Vehicle-Driver Interaction (VDI)



Other Areas:

4. Policy/Behavioral/Social/Economic Issues
5. Traffic Modeling
6. Innovation in Infrastructure Design/Construction/Renewal



Needs / opportunities in research

1/3



1-2-3 VII VDI VICI

Automatic collection of private vehicle data [GPS, transponder, other on-board sensors]:

- ◆ Travel data (e.g. Origin-Destination)
- ◆ Real time traffic information
- ◆ IRI (International Roughness Index) data collection

Capacity improvement through use of new technologies:

- ◆ IT: Ramp-metering, flow breakdown detections & speed control, etc.
- ◆ Intelligent driving. Platooning.

Automatic detection of High Occupancy Vehicles (HOVs)

Dynamic Tolling:

- ◆ Driver's behavior
- ◆ Maximize joint (Managed/Free) capacity





4-5 Policy/Behavioral/Social/Economic & Traffic Modeling

Discrete route choice models. Variables influencing route choice besides “value of time”:

- ◆ Safety, travel time reliability, roadside assistance, etc.
- ◆ Congestion delays
- ◆ Other (direct vs. indirect payment, etc.)

Value to society (cost-benefit) of different levels of requirements/risk sharing in Concession Agreements:

- ◆ Financial issues. Limiting Developer’s “up-side” in issues like re-financing gain share, revenue share, etc.
- ◆ Buy-back provisions which may establish excessive rights for the Owner

Financial mechanisms to improve marginal concession projects





5. Traffic Modeling

Web-based integration of traffic data from different agencies / nationwide

6. Innovation in Infrastructure Design/Construction/Renewal

Reversible median lanes. Design and operational challenges

Dedicated Freight lanes for oversize trucks between inter-modal stations

International comparison of infrastructure design paradigms and costs. [Comparable highway capital costs are lower in the UK, Canada and other European countries compared to the US]

