Transportation Information Assets: Review of Data Applications from States

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TRB Initiative’s Objectives

• To support SAFETEA-LU-mandated policy study:
  – Understand role of data / information for decision making (Planning, operations management, priority setting and resource allocation…)
  – Assess information needs
  – Provided basis for ensuring information for transportation decision making

• Transportation Information Needs Policy Study not begun

Not a pleasure cruise

Serious volunteer effort!
Approach

- Survey TRB 144 Technical Committees
  - Data needs (650+)
  - Examples – where data made a difference
  - Organize and interpret
  - TRB Electronic Circular 109 December 2006
- Interview decision makers
  - Interpret results
- TRB meetings: July, January
- Congressional testimony
- Organize peer exchange
- Engage American Assoc. State Highway and Transportation Officials
Data and Decision-Making

Transportation Data

Objective Information
- Problems
- Options
- Outcomes

Subjective information
- Values
- Opinions
- Biases

Decision Process

Decisions

Data has a role here, too

Politics

Identify Information Gaps
Information Needs - TRB Committees

• Data Needs
  – National, regional, and local needs identified, including both physical condition and operational performance issues:
    • Real-time performance, traveler perceptions, spatially defined network inventory, land-use, population, employment, evaluations (infrastructure investments and policy changes)

• Other Information Needs
  – Analytical procedures and tools, data access, best practices

• Attributes of Good Data
  – Quality (trustworthy), recent, routine, available, broad coverage

• Data & information are assets of transportation systems
Decision Makers Views of Information

• Data and information are important to decision makers
  – Decisions will be made (with or without data)
  – Identifies/confirms problems
  – Mitigates political influence on transportation decisions

• Information Needs for Today’s Decisions
  – Demographic trends
  – Infrastructure condition
  – Traffic volumes
  – System performance
  – Outcomes of past actions (basis for learning for the future)
  – Forecasts? Some are uncertain about these

• Key Information Attributes
  – Timely, responsive, meaningful, simple, concise
Main Findings

• Data is an asset of transportation system – contributes value, requires money, time and commitment

• Good decisions (informed decisions) – the hallmark of an effective information program

• Decisions will be made… data that is “in the bank” is used

• Critical need for essential national, sustained databases
  – Support both national and local uses

• Analysis and communication “stretches” and improves data and procedures

• Still need improved tools, procedures, presentation approaches
Still More Main Findings

- Partnerships – Public/public & public/private – are growing
  - Broad agreements, not just single efforts or projects
- Data sharing, data borrowing are common
  - Sharing data extends its value
  - Argues for commonality, documentation, availability
- Technology – changing procedures & institutions
- Technology and Partnerships are improving data acquisition efficiency
Peer Exchange Examples
Information Support for Decision Making

- Participant inputs – starting point for discussions
- Convenience sample
  - Kansas, Maryland, Michigan, Minnesota, New Mexico, Nevada, Virginia, Vermont
  - 23 examples
- Six types NEXT→
  - Inventory, condition & regular resource allocation
  - Project status monitoring & management
  - General project planning
  - Bench marking
  - Traveler information
  - Program impact assessment
Examples – Information for Decision Making

• Inventory & allocation
  – Asset inventory, condition, performance & outcome data
  – Identify problems, find solutions, set priorities, allocate resources
    • SSD, guard rails, pavement condition, bike routes, real time performance, ADA compliance, crash data integration
  – Data driven resource allocation: **DDRA**

• Project status monitoring & management
  – Project data dashboard, environmental data

• General project planning
  – Data for project scoping

• Bench marking
  – Staff salaries

• Traveler information (real time)

• Program Impact Assessment
  – Connect program investments to economic development
Attributes of Useful Data…

• **Objective**
  – Condition measures vs what we did last year, or “fair share” allocations
  – What’s really happening – project status (& accountability)
  – Reality over myths, beliefs (program impacts, project effectiveness)

• **Detailed**
  – Location, conditions, performance, problems

• **Accessible**
  – Readily and by multiple users: computer based, consistent interpretation and decision, all on same page

• **Timely** (*i.e.*, current)

• **Integrated**
  – One stop shopping, multiple related measures on one place

• **Efficient**
  – Use data at hand, multiple uses of same data
Surprises in Participant Examples?

• No use of national data bases?
• Are most problems local?
• Or are these just convenient examples?
• Is making wise use of local data the most cost-effective way to deploy data for good purposes?
• Where do national databases come into play
• These are under stress right now – we do need to protect
Meeting Your Data & Information Needs

- Decisions & Data
  - Relationships & trends
- Data producers views of Customers
  - Who are they? What do they need?
- Data users on data resources
  - How well are you served
  - Where do you turn?
- Data gaps and ways to bridge them
  - Responsibilities
  - Resources
- Making the case for needed data
- Roles for states, national organizations
- Bringing it together – what do we do next?