The Next Era of Traveler Information

Seattle TRAVEL TIME

VIA 520  25 MIN
VIA 90  30 MIN

Twitter
Constant Contact
YouTube
511

ENTERPRISE

National Rural ITS Conference – Session C3
September 18, 2012
Outline

• Introduction
• Current Practices: Agencies
• Current Practices: Travelers
• Peer Exchange
• Questions
Introduction

• What is a transportation pooled fund?
  – Allows federal, state, and local agencies and other organizations to combine resources to support transportation needs
  – Federal, state, regional or local transportation agencies may initiate pooled fund studies
    • Private companies, foundations, and colleges/universities may partner with any or all of the sponsoring agencies to conduct pooled fund projects
  – Approved by FHWA
Introduction

Evaluating New TEchnologies for Road PRogram Initiatives in Safety and Efficiency
Introduction

• ENTERPRISE Goals
  – Facilitate rapid progress in the development and deployment of (creative) ITS technologies
  – Accelerate the systematic advancement of selected ITS projects
• Members carry out ITS projects and activities including fundamental research, technology development, demonstration, standardization and deployment
ENTERPRISE Members

- Arizona DOT
- Georgia DOT
- Idaho Transportation Department
- Illinois DOT
- Iowa DOT
- Kansas DOT
- Maricopa County, Arizona
- **Michigan DOT**
- Minnesota DOT
- Mississippi DOT
- Oklahoma DOT
- Texas DOT
- Virginia DOT
- Washington State DOT
- Ontario Ministry of Transport
- Transport Canada
- Rijkswaterstaat (Dutch Ministry of Transport)
- FHWA

*Michigan administers program and is a founding member*
**Introduction**

**ENTERPRISE Milestones**

- **1989**: Agencies began talking about the concept of a group focused on ITS research and development.
- **1991**: ENTERPRISE TPF-5(231) officially formed.
- **1993**: Program Management Plan developed; foundation of program and defined annual work plan process.
- **1994**: First Annual Work Plan developed.
- **Today**: Completed over 50 projects!
ENTERPRISE Management Structure

Chair (Elected)

Board of Directors

Program Support (Consultant)

Project Champions

Program Administration
Introduction

ENTERPRISE Work Structure

- Annual Work Plan
- Members review projects, vote and assign project champions
- Project ideas solicited from members
- Monthly teleconferences; biannual in-person meetings

Program Management Plan
Introduction

• ENTERPRISE Benefits
  – Has allowed investigation of higher risk projects with less commitment
  – Has facilitated a collaborative peer-based environment for information sharing
  – Has helped leverage and share a deep pool of ITS and operations experience
  – Has helped implement cross-agency sharing and coordination
Introduction

• Recent ENTERPRISE Projects
  – Developing Consistency in ITS Safety Solutions – Intersection Conflict Warning Systems
  – Warrants for ITS Devices
  – Intelligent Work Zones – Synthesis of Best Practices
  – Understanding Utilization of Third Party Travel Data and Information
  – Impacts of Travel Information on the Overall Network
  – Next Era of Traveler Information
Introduction

• Impetus for projects
  – Anticipating Real-Time Management Information Program (23 CFR 511 or Section 1201) requirements
  – Budget constraints continue
  – Things evolve rapidly
  – ENTERPRISE members want to understand
    • New dissemination options and customer needs for them
    • Ways to minimize operating costs
    • Sources of data available
    • Performance targets and measurement
    • Travelers’ response to traveler information
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Current Practice: Agencies

• ENTERPRISE surveyed states in spring 2012 to better understand agencies’ current practice
  – 511 Coalition contacts and ENTERPRISE updates
  – 26 states, 1 metropolitan region responded
  – Administered via SurveyMonkey

• Questions grouped into three categories
  – Dissemination
  – Data
  – Operational Practices
Current Practice: Agencies

Dissemination Tools Being Used by Agencies

- 511 telephone
- Web pages
- Custom apps
- Twitter
- Facebook
- Subscription email service
- Subscription text service
- RSS (Real Simple)
- Blogs
- Dynamic message signs
- Highway advisory radio
- Kiosks
- Other (please specify)

E N T E R P R I S E
Most also disseminate data to other sources for distribution to travelers
— Typically via web using XML data feeds
Current Practice: Agencies

• Data
  – Getting close to meeting 23 CFR 511/1201

Types of Data Disseminated

- Road work closures and delays
- Traffic incident closures and delays
- Other event closures and delays
- Roadway or other environmental conditions
- Travel times or speeds
- Public transportation
- Commercial vehicle restrictions
- Camera images
- Other (please specify)
Current Practice: Agencies

• Data
  – How is data being gathered?
    • Transportation staff (94%)
    • Network detection (81%)
    • Purchased third party (26%)
    • Traveler reports (19%)
    • Others included weather services, other agencies, toll tag readers
Current Practice: Agencies

- Operational Practices

- Premiere provider of real-time traveler information (55%)
- Basic provider of real-time traveler information (36%)
- Basic provider of data for other organizations to disseminate real-time traveler information (7%)
- Premiere provider of data for other organizations to disseminate real-time traveler information (3%)

ENTERPRISE
Current Practice: Agencies

- Operational Practices
  - Over half have established program goals (55%)
    - Meeting 23 CFR 511/1201 was most common
    - Some focused on releasing updated versions of services
  - Fewer have performance targets and measures (39%)
    - Additional references to 23 CFR 511/1201
    - Others referenced minimizing downtime, increasing awareness and improving traffic operations
    - MAP-21 will influence
Current Practice: Agencies

- Operational Practices

![Pie Chart: Seeking Customer Feedback]

- Passively, from random customer messages or letters to the agency: 42%
- Actively, from occasional and informal customer surveys: 36%
- Actively, from routine customer market research: 7%
- Not at all: 16%
Current Practice: Agencies

• Operational Practices
  – Some agencies partner with others to generate revenue in support of program (23%)
    • One entire program has been turned into an “ad-supported venture”
    • Others are just beginning their partnerships
Current Practice: Agencies

• Operational Practices
  – Thoughts on traveler information in 10 years...
    • Continued technology evolution
    • Agencies collect data only and others disseminate information
    • Integration with Connected Vehicles
    • Connected Vehicle replaces infrastructure and lowers agency costs
    • Face of the agency
Outline

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  • **Current Practices: Travelers**
• Peer Exchange
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Current Practice: Travelers

• Understand how travelers’ response to information impacts the network
  – Data Comparisons
    • Travel times posted – volume along alternate routes
    • Minneapolis/St. Paul and Seattle data
      – Both archive travel time messages and roadway volumes
  – Survey of Travelers
    • How do they use travel time displays?
    • How often do they divert? Can they explain when?
Minnesota Data Comparison

- Analysis of travel times and diversions
  - Travel times **5-10 minutes longer** than typical
    - Most likely cause a diversion
    - **7-12%** change in diversion percentage
  - Travel times **greater than 10 minutes longer** than typical
    - Almost definitely cause a diversion
    - **12-20%** change in diversion percentage
  - If traffic is very slow or stopped, travel times
    - Better educate travelers
    - Cause more diversions when very slow; less diversions when faster than 5 MPH
### Current Practice: Travelers

#### Minnesota Data Comparison
Traffic Diversion from Mean*

<table>
<thead>
<tr>
<th>Speed (MPH)</th>
<th>No Travel Times on DMS</th>
<th>Travel Times on DMS &gt;10 Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5</td>
<td>14%</td>
<td>24%</td>
</tr>
<tr>
<td>5 – 7.5</td>
<td>14%</td>
<td>18%</td>
</tr>
<tr>
<td>7.5 – 10</td>
<td>11%</td>
<td>12%</td>
</tr>
<tr>
<td>10 – 15</td>
<td>16%</td>
<td>12%</td>
</tr>
</tbody>
</table>

* Comparison between I-35W and Hiawatha (Hwy 55)
Current Practice: Travelers

Washington Data Comparison

• Travelers on arterials (520, 522):
  – Elastic demand change when freeway alternate route travel times are longer (stay on arterial)
  – Inelastic demand change when freeway alternate routes are shorter (tend NOT to divert to freeway)

• Travelers on freeways (405, 5):
  – When they must choose 1 of 2 alternate routes, there is some diversion when travel time is roughly 10 minutes different
  – When on main route, travelers tend NOT to divert
How would you prefer to receive travel information, including travel times, incident notifications, roadwork alerts and other notices? (Please Rank Options)

Survey of Travelers – Minnesota

- Social Networking Outlets
- In-vehicle Navigation Systems
- Smart Phones
- Overhead Message Signs
- MnDOT Website
- 511 Telephone System

Current Practice: Travelers
Current Practice: Travelers

Survey of Travelers – Washington

How would you prefer to receive travel information including travel times, incident notifications, roadwork alerts and other notices? (Please Rank Options)

- Social Networking Outlets
- In-vehicle Navigation Systems
- Smart Phones or Mobile Apps
- Roadside Reader Boards
- WSDOT Website
- 511 Telephone System

The preferred options are marked with stars.
Current Practice: Travelers

Survey of Travelers – Minnesota

How would you describe your use of travel times?

- 27%: I check it for information to understand an upcoming trip.
- 46%: I check it to decide whether to change my departure time.
- 9%: I check it to decide whether to change my route.
- 18%: A combination of all three options
Current Practice: Travelers

Survey of Travelers – Washington

How would you describe your use of travel times?

- 60% check it for information to understand an upcoming trip.
- 15% check it to decide whether to change my departure time.
- 17% check it to decide whether to change my route.
- 8% check it to change my route.
- A combination of all three options
Did you do something different the last time you viewed a travel time message on an overhead message sign?

- **49%** No, the travel time was a typical time 🌟
- **32%** The Travel Time was longer than typical; so I changed my travel plans.
- **19%** The Travel Time was longer than typical, but I didn’t change my travel plans.
Current Practice: Travelers

Survey of Travelers – Washington

Did you do something different the last time you viewed a travel time message on roadside reader board?

- 67% No, the travel time was a typical time
- 15% The travel time was longer than typical, so I changed my travel plans
- 18% The travel time was longer than typical, but I didn’t change my travel plans
Have you ever exited the highway and drove on alternate highways or local roads based on travel time messages on the overhead message signs?

- No: 6%
- Yes, occasionally change to local roads: 57%
- Yes, often change to local roads: 29%
- Yes, occasionally change to another highway: 25%
- Yes, often change to another highway: 9%
Current Practice: Travelers

Survey of Travelers – Minnesota

Have you ever exited the highway and drove on alternate highways or local roads based on travel time messages on roadside reader boards?

- No: 19%
- Yes, occasionally change to local roads: 61%
- Yes, often change to local roads: 10%
- Yes, occasionally change to another highway: 26%
- Yes, often change to another highway: 7%
Current Practice: Travelers

Survey of Travelers – Minnesota

• What makes you take an alternate route?
  – “If normal one is delayed >5 min, I'll check the other. If that one is equally as delayed, I go back roads.”
  – “If travel time is greater than 7 minutes more than the typical time.”
  – “I look for a 10+ minute delay to alter my route.”
  – “Over 20 mins, I'll definitely change routes.”
  – “Typically I look for a time longer than I expect the alternate route to take.”
Current Practice: Travelers

Survey of Travelers – Washington

• What makes you take an alternate route?
  – “Change plans when delay is >5 minutes or congestion is obvious prior to seeing reader board.”
  – “10 minutes of delay or more”
  – “I will change for a delay greater than 15 minutes.”
  – “30 min or more delay.”
  – “It depends on how late I am!”
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Peer Exchange

• Webinar series
  – August through November 2012
  – Sponsored by ENTERPRISE in partnership with USDOT and AASHTO

• Focused topics *(Completed Webinars)*
  – Dissemination tools (August 16)
    • WSDOT and WisDOT practices
  – Data and cost management (September 13)
    • USDOT RTSMIP Data Exchange Format work
    • GDOT and MoDOT practices
Peer Exchange

• Focused topics *(Upcoming Webinars)*
  – Customer needs and wants (October 18)
    • NCHRP 08-82 project
    • VDOT practices
  – Performance targets (November 15)
    • WSDOT and PennDOT practices

*Register through ENTERPRISE web page*

[www.enterprise.prog.org/Projects/2010_Present/next
eraoftravelerinfo.html](http://www.enterprise.prog.org/Projects/2010_Present/next
eraoftravelerinfo.html)
Questions

How do you think programs like Connected Vehicle will impacts traveler information?

How do you think restricted transportation budgets will impact traveler information?

Is traveler information a core service for transportation agencies?

Where do you see traveler information in 10-20 years?

What will customers want?
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