Best Practices Manual on Determining Travel Times

Dean Deeter, P.E.
Athey Creek Consultants

Gene Martin
Virginia Department of Transportation
Topics

- Program Background
- Travel Time Project
- Results
Program Background

- ENTERPRISE Pooled Fund Effort
  - VA (Project lead state)
  - IA
  - MN
  - WA
  - AZ
  - KS
  - MI
  - CO
  - MTO
  - Transport Canada
  - Dutch DOT
Background – Travel Times

- ENTERPRISE Members
  - Different Stages of Deployment
  - From Operational to Planning
The Project
Project Overview

• To Document Good and Bad Experiences

• Capture the Experiences Gained from Actual Deployments
  – Data Collection & Calculation
  – Dissemination
  – Accuracy
  – Costs
Rural Focus

• ENTERPRISE States have a large rural small city emphasis

• Research rural topics

• Emphasize this today
Results
Who We’ve Talked With…

- Washington State
- Oregon (Portland and rural)
- Minnesota
- Chicago (IDOT)
- Chicago (Toll Authority)
- Bay Area
- San Diego
- Toronto
- Ohio
- North Carolina
- Arizona
What We Talked About

- Detection
- Travel Time Algorithms & Accuracy
- Dissemination & Display
- Time Delays
- Contractors / Internal Staff
Three Types of Approaches

1. In-house Approach

2. Private Service Provider

3. Hybrid (public infrastructure / private service provider)
Needs Should Drive Selection of the Approach
Travel Time Reporting Needs

- Inform Freeway Travelers
  - No need for alternate routes
Travel Time Reporting Needs

• Travel Times with Alternate Routes
  – More diverse network of data needed
Travel Time Reporting Needs

• Are Traffic Counts Needed?
  – Incident detection, or traffic volume counting
  – Need more than speeds
Summary of Decisions

- Freeways and Arterials?
- Speed and Volume and Occupancy?
- Are Alternate Routes Needed?
- How accurate?
- Time latency?
Ownership & Responsibility

- Agency Owned Systems
- Outsourced or Contracted Services
Best Practices
3 Best Practices Approaches

- North Carolina – Low Cost Detectors
- MN, WA – In-house algorithms
- Illinois & Bay Area – Hybrid of AVL, Loops, Data Fusion
North Carolina

- Speed Sensors
  - Doppler
  - Solar
  - Wireless Cellular Communications

- 40 Detectors (bi-directional)
  - $150,000 (Includes 3 years O&M)
North Carolina

Raleigh, North Carolina
http://apps.dot.state.nc.us/tims/
Minnesota & Washington

- Existing Sensors (¼ – ½ mile spacing)
- Internally Developed Algorithm
- Internal Monitoring and Modification of Algorithm
- Costs are Internal DOT Staff Time
Central Puget Sound Travel Times

Travel times as of 6:55 P.M. Thursday, January 25, 2007

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<tr>
<th>State Route/Interstate</th>
<th>Route Description</th>
<th>Distance (miles)</th>
<th>Average Travel Time (minutes)</th>
<th>Current Travel Time (minutes)</th>
<th>Via HOV (min)</th>
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- Tabular display of Travel Times
- Includes distance
- Includes Average Time by segment
- Includes Current Time by segment
- Includes HOV Travel Time
Bay Area

• 3 Data Sources
  – Loops, Radar, AVI

• Contractor Developed Algorithm
  – Travel Times are Deliverables of Project

• 3rd Party Performs Ground Truth Verifications
  – 30 Miles Each Month
San Francisco Bay Area, CA
http://www.511.org

- Point & Click origin and destination
- Presents alternate routes (if available)
- Highlights shortest route in blue
Chicago

- IDOT Developed Algorithm & GCM Algorithm

- ISTHA (Toll Authority)
  - AVI (IPASS) Readers
  - RTMS (private vendor)

- Travel Time on Web May Not Include RTMS Data

- Additional IPASS Readers Are Proposed
- Hourly time plot
- Current Travel time
- Average Travel time
- Normal Range of times
Private Services

• New in the Market

• Many Projects Underway
Conclusions

• Various Approaches Possible
• Needs Should Drive Selection
• Report Contains Accuracy Results
• Every System Works Great at Free Flow Speeds
Questions

Dean Deeter
deeter@acconsultants.org

Gene Martin (VDOT)
e.martin@vdot.virginia.gov