Contractual Challenges of Successful Smart Workzones

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Why Do it?
Several reasons

- Provide Delay Information To Motorists
- Potential for Diversion
- Perception Tracking Survey Results
- FHWA Guideance
Why Integrate with RTMC?

- Proven Method of Calculating Travel Times

- Reduced Costs
  - Utilize existing 150+ DMS
  - Utilize detection outside of work zone
    - Currently have 400 miles of freeway instrumented with loop detection
    - Future detection will utilize more Microwave sensors which may allow detection within work zones

- Existing information flow
Integration into existing systems

- Traveler Information Website
- Travel Times Signs
Q71b. How often, if at all, do you take an ALTERNATE ROUTE because a travel time message on an overhead electronic message sign showed a longer time than your usual time for the trip?

- Among those drivers who make a route decision based on a travel time message, nearly 6 in 10 chose to take an alternate route at least some of the time.

<table>
<thead>
<tr>
<th>Have Made an Alternate Route Decision Based on Time Message Info</th>
<th>2012 N=398</th>
<th>2011 N=393</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>Almost always</td>
<td>74</td>
<td>19</td>
</tr>
<tr>
<td>Sometimes</td>
<td>155</td>
<td>39</td>
</tr>
<tr>
<td>Rarely</td>
<td>125</td>
<td>31</td>
</tr>
<tr>
<td>Never</td>
<td>43</td>
<td>11</td>
</tr>
<tr>
<td>Don't Know</td>
<td>1</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

N = Base  # = Frequency
*Totals may not equal 100% due to rounding.

Data noted with arrow is significantly lower or higher respectively than 2011 at the 95% confidence level.
Contracting options

- Traditional sub-contract to main project
- Stand alone for a single construction project
- Stand alone for multiple construction projects
Detection Trailer

- Microwave Sensor
- Camera
- Wireless Modem
- Solar Power
- Occasionally DMS
Method #1
Include in Main Construction

- Easy
- Fits Contracting Process
- Typically lump sum
Issues

- Low Priority
- Timing Startup time even more important with existing system integration
- Lack of communications about traffic switches
- Inadequate detection methods
  - Increased detection spacing
  - Probe data
- Cost
Costs when Included in Main Project

- I-35E – From CR 96 to I-35
  - 8 miles
  - $250,000

- I-694 – From Hwy 61 to Hwy 5
  - 7.5 miles
  - $185,000
Method #2
Stand alone per Project

- Allows ITS Focus
- More Control for Contractor
- More Direct oversight by DOT
- Better Timeline
Issues with Method 2

- Still Can’t address rapidly changing Construction Program
- Susceptible to multiple Integration needs
- Adds contract management needs
- Cost
Project example

- Separate Project, I-494
  - 6 miles of system
  - $262,300
  - 2 years of system
  - Includes a camera site
Another example

- I-94 Between Twin Cities and St. Cloud
  - $187,100
  - 24 miles of system
  - Mix of Existing rural spaced Detection and DMS’s
    - 11 Temporary DMS
    - 21 Temporary Detection trailers
Rural example

- Duluth MN
  - 70 mile Detour
  - 4 NB 3 SB signs
  - 12 sensors
  - Best value
  - 1 season in length
  - $320,000

- Despite inaccuracies, system was well received
Method #3
Stand alone for Multiple Projects

- All the benefits of stand alone ITS project
- Increased Flexibility
- Plus reduced
  - Management costs
  - Configuration and integration time
Metro Wide Project – SP 8825–465

- Provide one prototype trailer.
- SP 0285–65 on I–694 from Hwy 252 to I–35W.
  - Provide 16 trailers.
  - Provide 8 trailers.
- SP 2776–103 Hwy 169 River Bridge.
  - Provide 18 trailers plus 3 PCMS.
- SP 7080–51, 7080–50 on I–35 from District Border to I–35 south split.
  - Provide 30 trailers which includes 3 w/ cameras plus 3 PCMS.

- Actual bid price $569,141
Looking Forward

Method 5

- Annual contract
- Most flexibility
- Provides options for smaller Maintenance projects
- Rapidly changing construction program
Questions and Discussion

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