



Contractual Challenges of Successful Smart Workzones

Ralph Adair

Minnesota Department of Transportation
Regional Transportation Management Center

Your Destination...Our Priority



Why Do it ?



Several reasons

- ▶ Provide Delay Information To Motorists
- ▶ Potential for Diversion
- ▶ Perception Tracking Survey Results
- ▶ FHWA Guidance



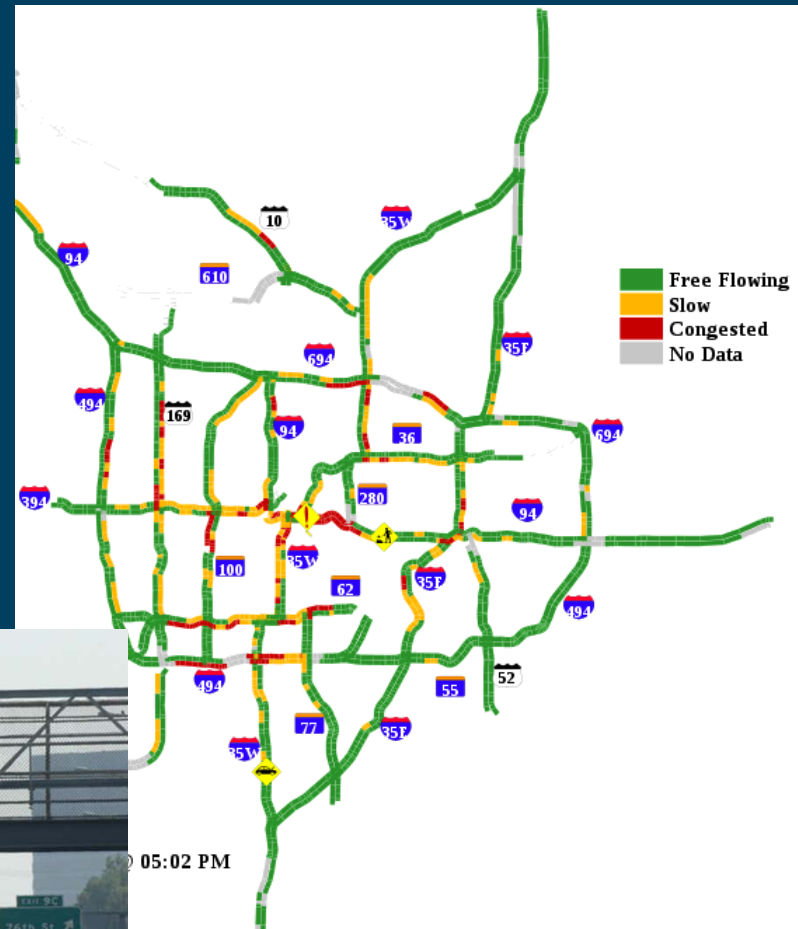
Why Integrate with RTMC?

- ▶ 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



Travel Time Messages - Actionability

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.

Have Made an Alternate Route Decision Based on Time Message Info

	2012 N=398		2011 N=393	
	#	%	#	%
Almost always	74	19%	54	14%
Sometimes	155	39%	183	47%
Rarely	125	31%	119	30%
Never	43	11%	35	9%
Don't Know	1	<1%	2	1%

58% (bracketed around 'Almost always' and 'Sometimes')

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.
- ▶ SP 1982–161 on I–35E from I–35 south split to Cliff Rd.
 - 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



Contact Information

Ralph Adair
RTMC Integration and Systems Engineer
Ralph.adair@state.mn.us
651-234-7027

Jon Jackels
ITS Development Engineer
Jon.jackels@state.mn.us
651-234-7377

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