

# Operations and Travel Information Integration Sharing (OTIIS) Project

## North/West Passage Pooled Fund

Steve Albert

Director, WTI

NRITS Conference

August 27, 2013



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# Overview

- Introduction
- Literature Review
- Influencing Driver Behavior
- Steering Committee Survey
- Preliminary System Mockups
- Next Steps

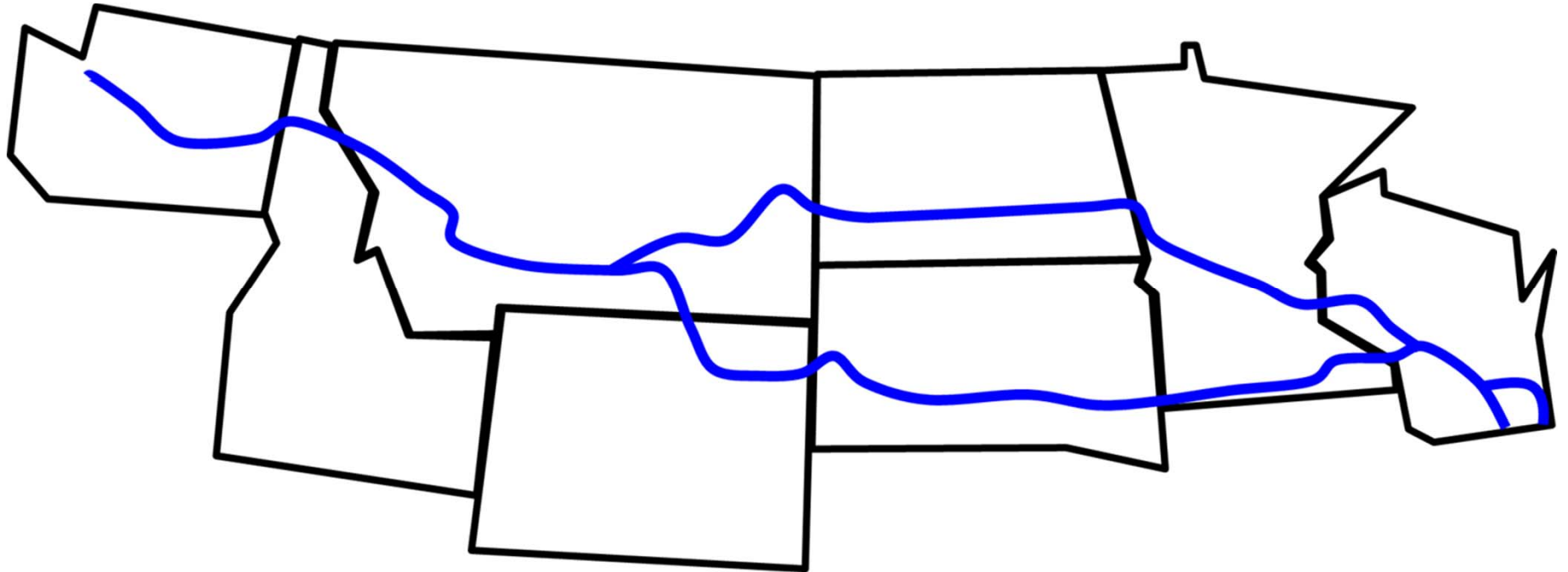


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# The North/West Passage



I-90 & I-94 through 8 states and nearly 2000 miles comprising a major east-west corridor for commercial and recreational travel passing through Washington, Idaho, Montana, Wyoming, North Dakota, South Dakota, Minnesota and Wisconsin



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# Literature Review

- Trends in Current Traveler Info and Technology
  - 26 Reports, Journal Articles and Conference Proceedings
- 511 Coalition Findings
- Existing Private Sector Systems
- The Future: Connected Vehicles



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# Current Traveler Info & Technology Trends

- Personalized information preferred
- Push type notifications gaining in popularity
- Mobile devices favored
- Social media tools are increasingly used for information dissemination
- Public-private partnerships are an important component of ATIS
- Effective marketing campaigns should be utilized
- Identify tourism anchor destinations, such as National Parks, and prioritize information and advertising toward these resources



# 511 Coalition Findings

- Corridor-wide traveler information that extends beyond an individual state is desired
- Consider accessibility issues for all users, particularly older drivers, in design of ATIS interfaces



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# Existing Private Sector Systems

- 3 main types: Traffic, DOT Recreation, Trucker Specific

### Beat the Traffic

**Disabled vehicle on I-405 Southbound**

On I-405 southbound just south of SE 8th St (MP 12) there is a disabled vehicle blocking the center lane.

Impact on Traffic: **Low**

Started: Thu, Aug 30, 2012 5:47 PM

### OR Trip Checker

### Trucker Tools

**Cheapest Fuel**

Select: **In 300mi Radius**

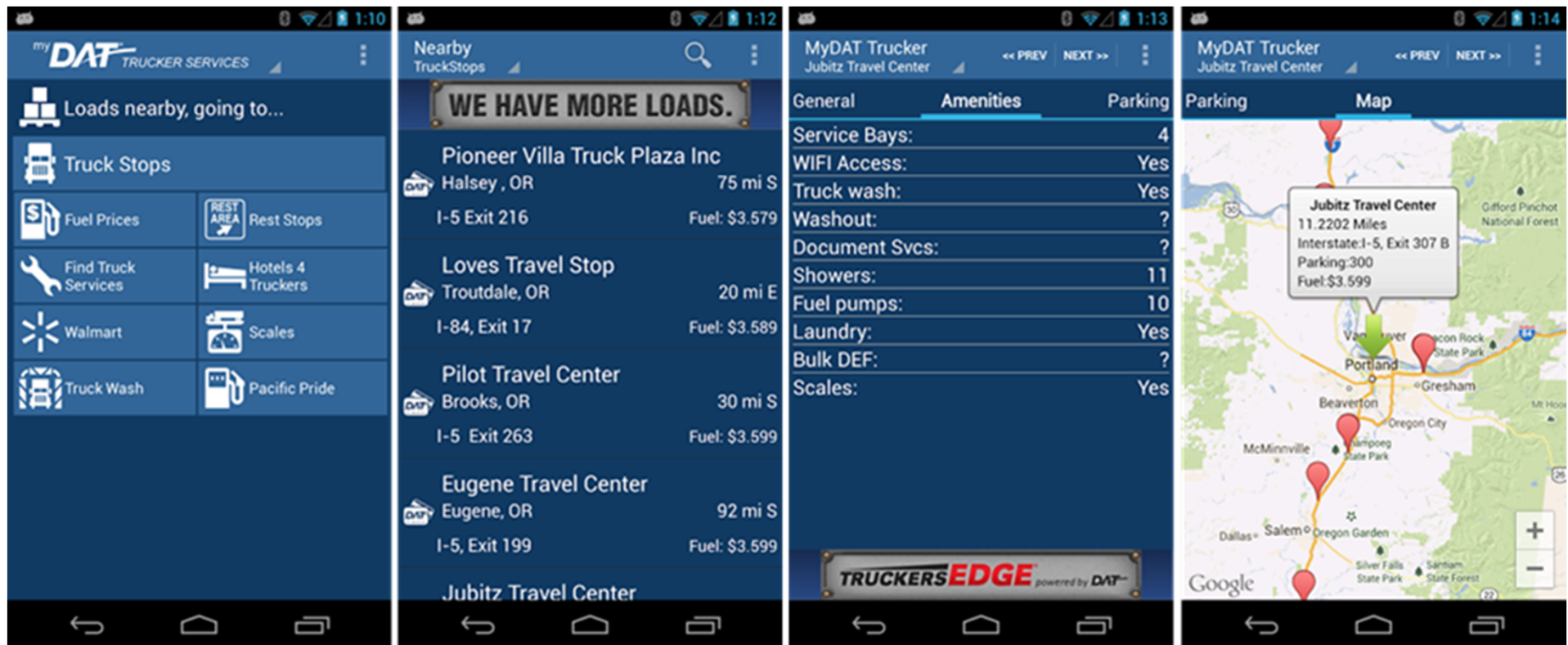
**Top 10 Cheapest Fuel Stops in 300 mi radius on your Route**

Stop Name	Address	Distance	Price
Xpress Stop Inc	Hwy 694 Cross Junction, VA	57.04 mi	\$3.80
Breezewood Sac Shop	Hwy 30 (121 N Breezewood Rd) Breezewood, PA	85.23 mi	\$3.96
JSK Truck Stop	I-76 Exit 232 (10650 Market St) North Lima, OH	221.99 mi	\$4.00
Amoco/ McDonald's T/P	I-76 Exit 146 (US 220) Bedford, PA	96.66 mi	\$4.00



# Existing Private Sector Systems

- Trucker Specific: (My DAT Trucker Services App)



# The Future: Connected Vehicles

- Connected vehicle systems may provide great benefits in terms of safety, mobility, and the environment
- AASHTO is working to develop conceptual illustrations for different connected vehicle applications
- Private Sector (CISCO):
  - Big Data
  - Infotainment
  - The Internet of Cars
  - Public/Private Partnership

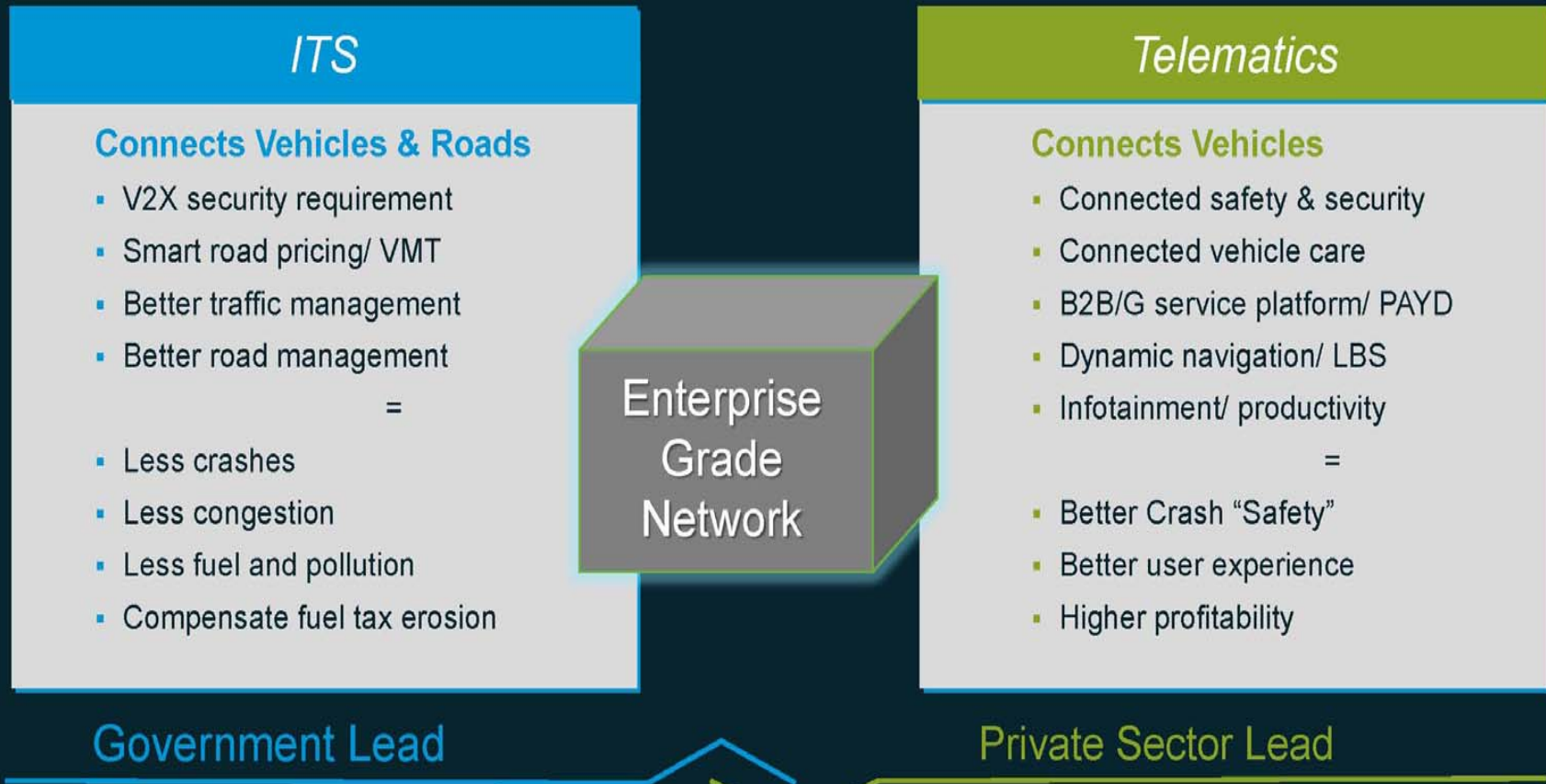


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# How to Unlock the Societal Benefits of Intelligent Traffic Systems + Telematics?



Source: Cisco IBSG Automotive, 2011

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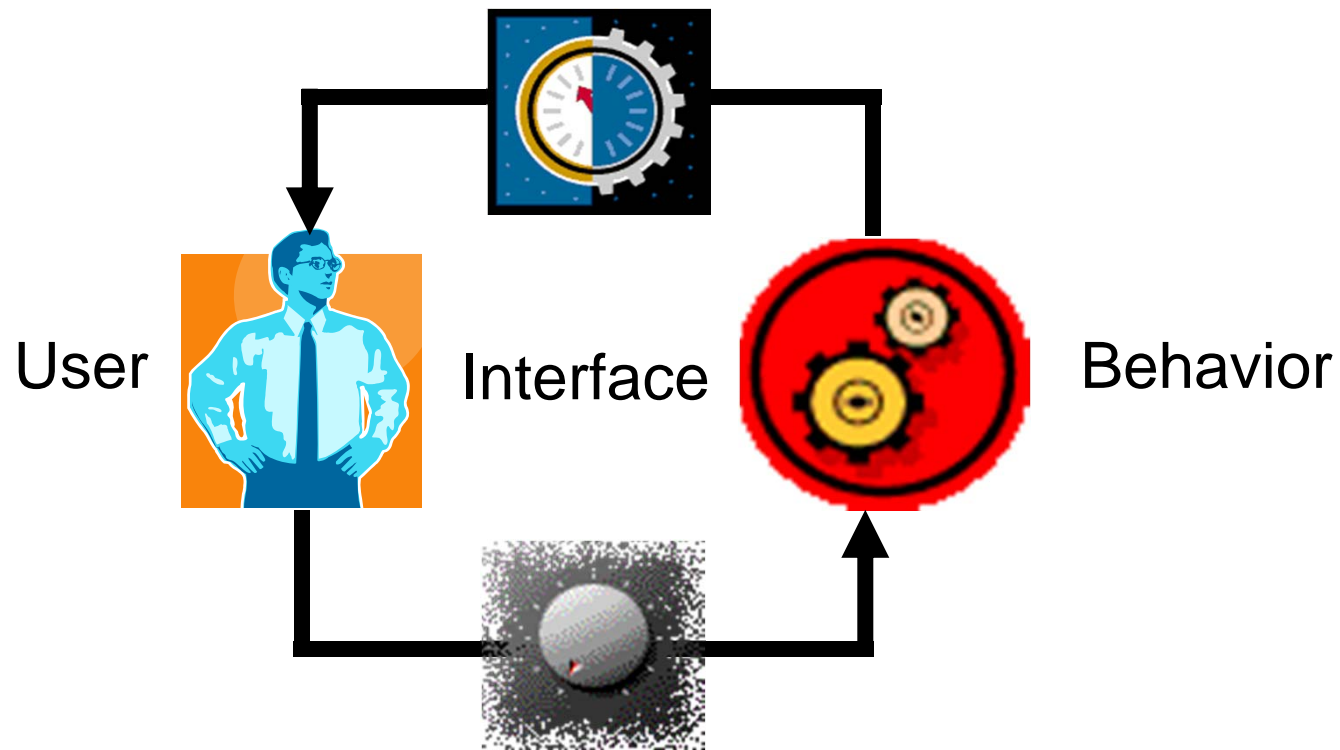
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# Influencing Driver Behavior

## System Design

User Centered



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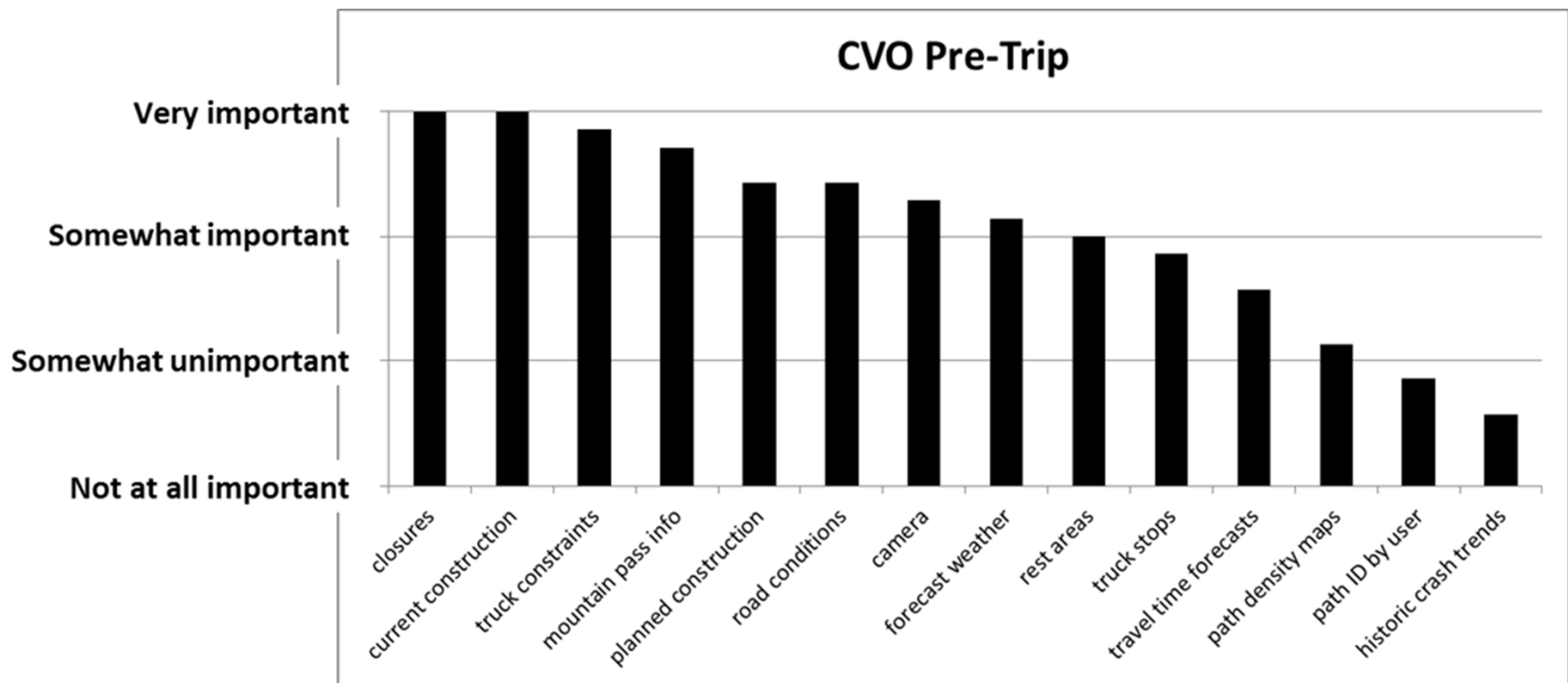
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# Survey of Steering Committee Members

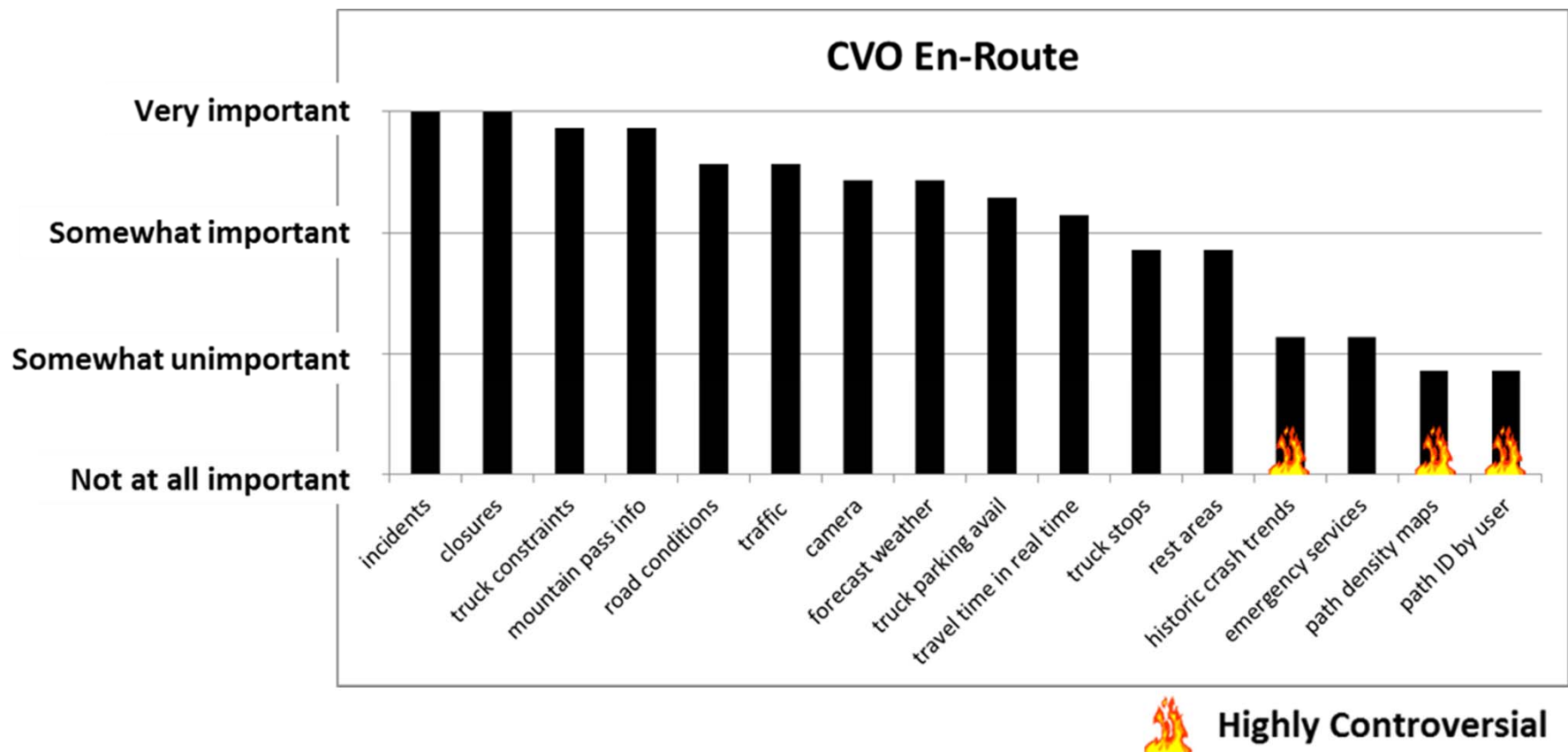
- Rank the importance of various aspects of traveler info
  - CVOs and Recreational Travelers (Pre-trip and En-route)





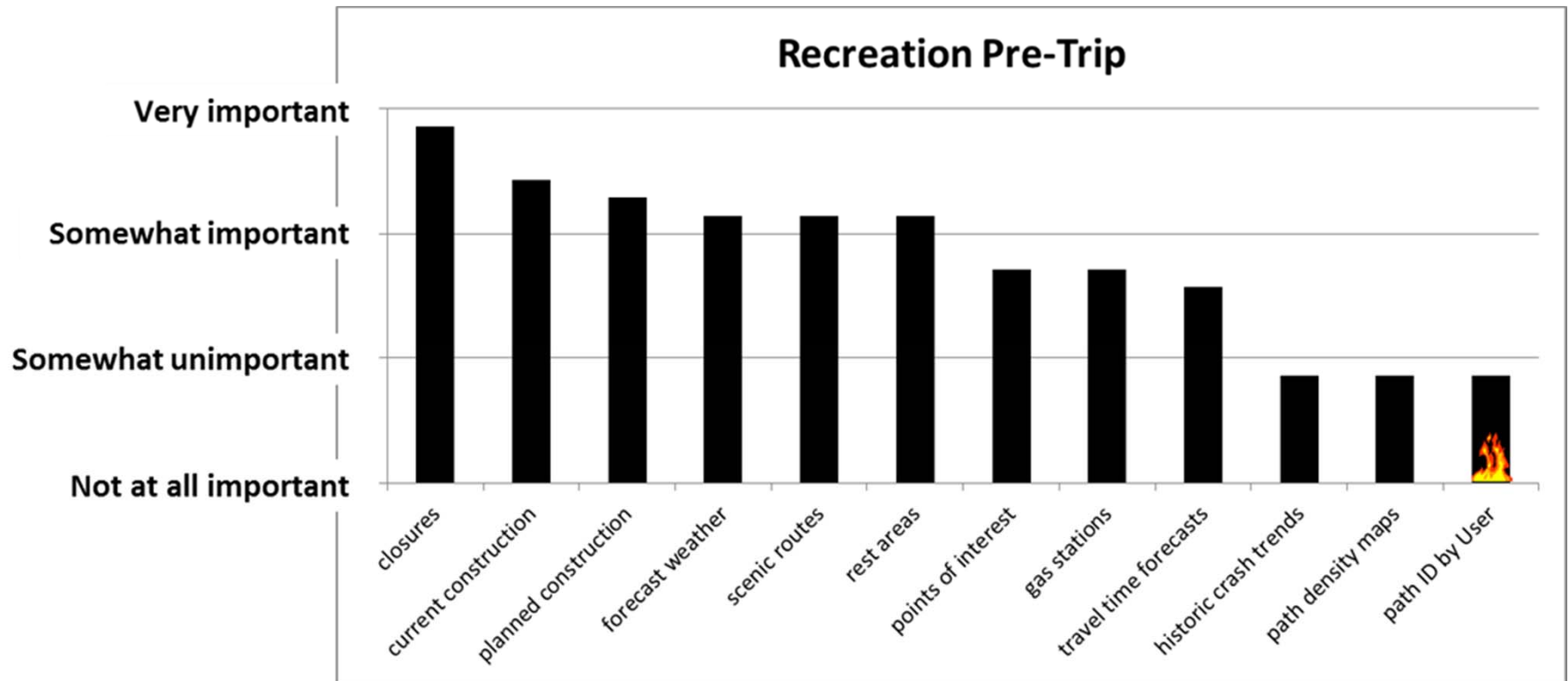
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# Survey of Steering Committee Members

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**Highly Controversial**



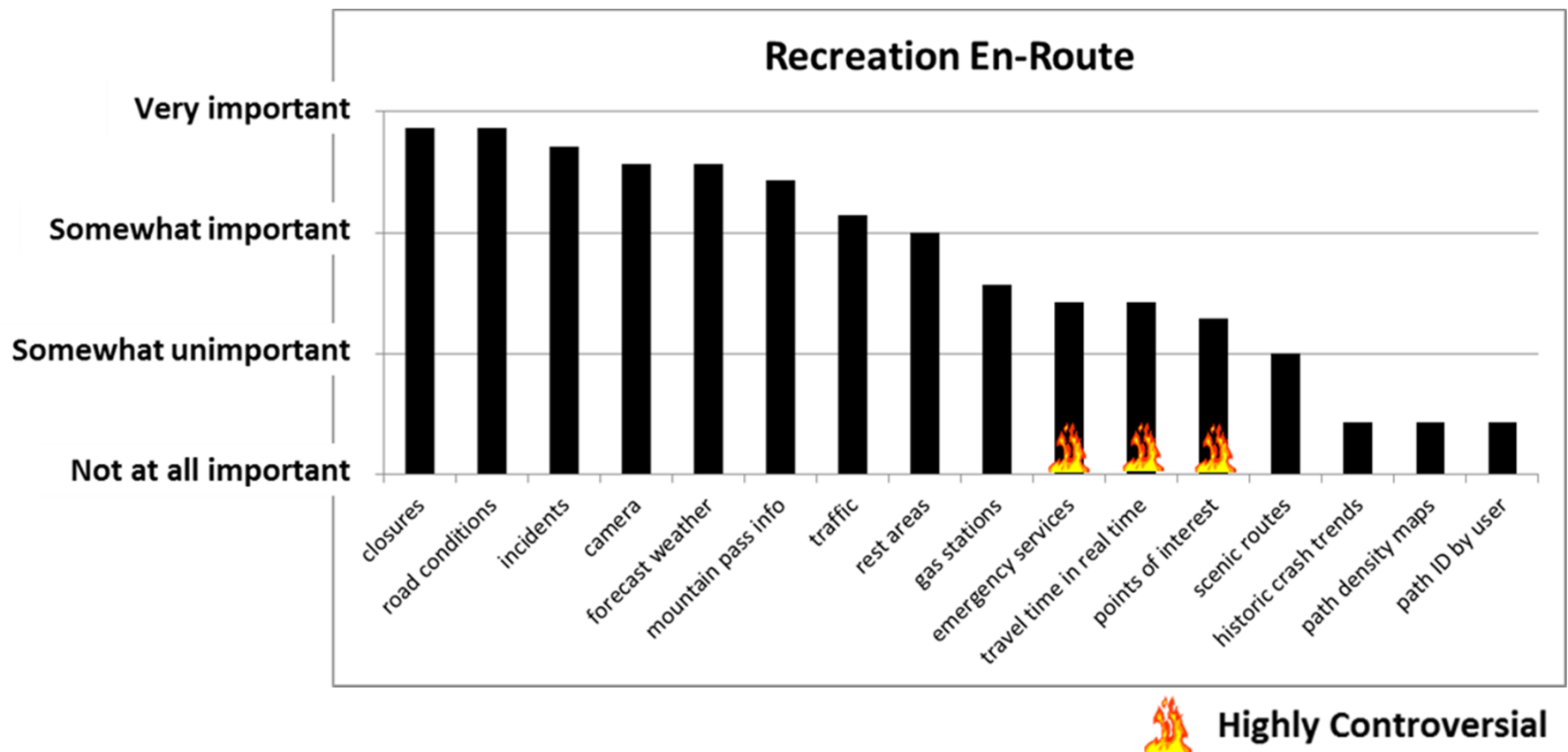
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# Survey of Steering Committee Members

- Rank the importance of various aspects of traveler info
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# ITS Heartland Presentation

- 1 = not at all important, 2 = somewhat important, 3 = very important

Amenity	Rating
Sufficient restroom stalls	2.77
Free wireless internet access	2.77
...	
Weather/road/traffic condition information	2.44
...	
Gas/food/lodging information	2.13
Interpretive displays of local history/interests	2.13
...	
Tourism event/attraction information	2.01
...	
Diaper changing stations	1.53

Carson, J., et al. Benefits of Public Roadside Safety Rest Areas in Texas: Technical Report, 2011



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# ITS Heartland Presentation

- Zoom Information Systems:

## Content is King!

- Our experience has shown that people will interact with a kiosk for one of these needs:
  - What's the weather like ahead?
  - What does the road / traffic look like ahead?
  - Where can I eat / sleep ahead?
  - What is there fun / interesting to do ahead?
  - What travel services are available?
  - What trucking services are available?
  - What RV services are available?
  - ...and more.



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# ITS Heartland Presentation

- Zoom Information Systems:

## What Info Do Travelers Want? (Based on 5 years of Data)

### ■ Rural

1. Weather
2. Tourism
3. Exit Points of Interest
4. Location-Based Ads
5. Traffic
6. All Others Negligible

### ■ Coming into Cities...

1. Weather
2. Traffic
3. Tourism
4. Location-Based Ads
5. Exit Points of Interest
6. All Others Negligible



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# What's Unique about this System?

- Corridor Wide (not state specific)
- Includes a mobile auditory alert system
- Utilizes an optional customizable user profile
- Includes unique trip planning information
  - Recreational interests, gas/food/lodging, long distance weather
- Route comparisons
  - Travel time, alerts, weather, recreational interests
- En-route directions and amenities locations nearby
  - Directions read aloud, find gas/food/lodging nearby, etc.
  - Revenue generation opportunities

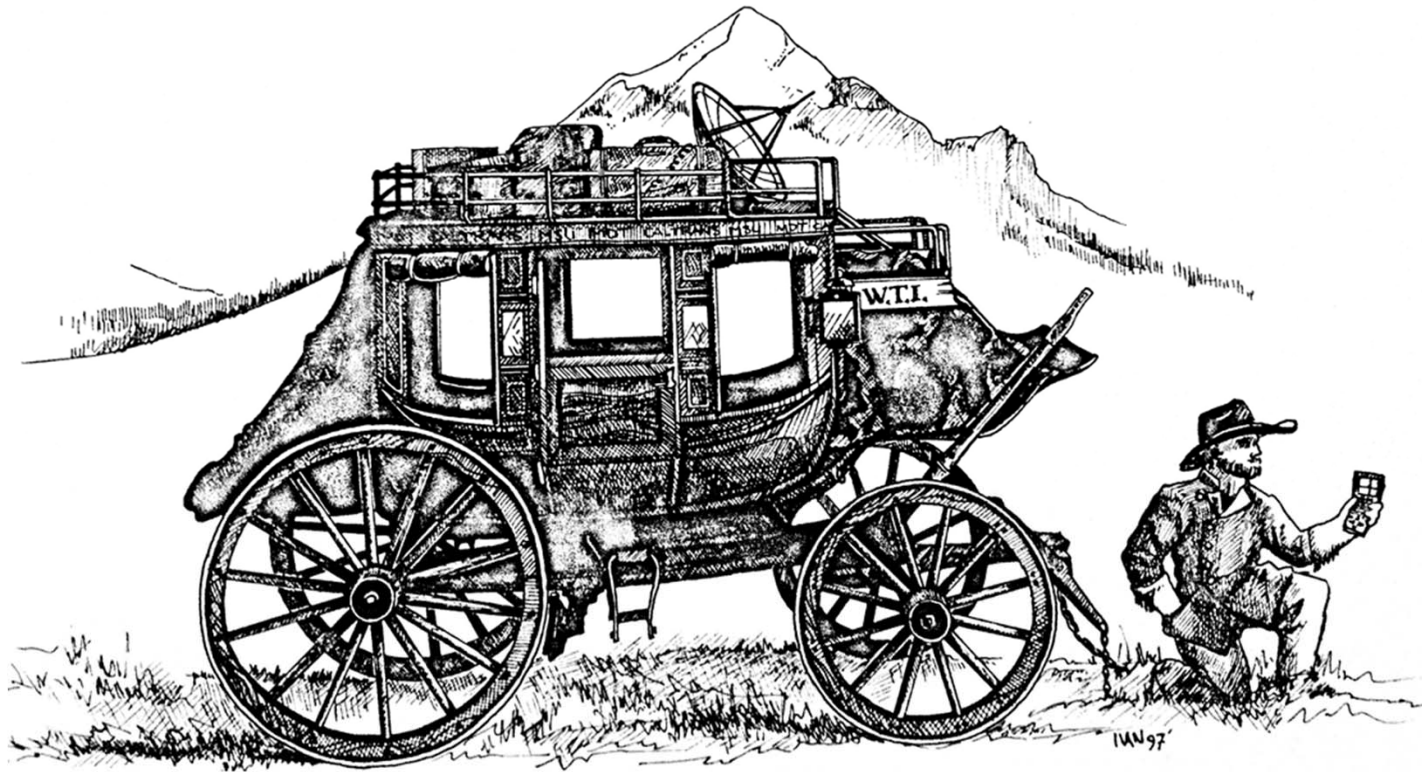


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# System Mockups



North/West   
**Passage** *Road to Safe Discovery*



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Trip Start

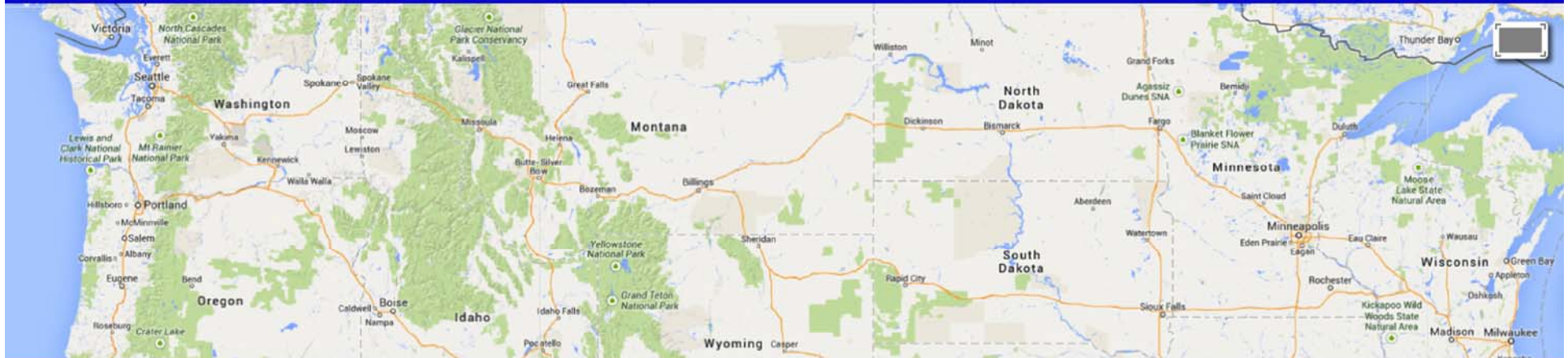
Bemidji, MN

Trip End

Mt. Rushmore, SD

Trip Date

9/6/2013



i

What information would you like to see?

▼

Road Work

☐

Incident

☐

Road Conditions

☐

Weather

☐

Weather Alerts

☐

Road Closure

☐

Temporary Vehicle Restrictions

☐

Mountain Pass Information

☐

Crash History

☐

RWIS/Camera

☐

Metropolitan Traffic Congestion

☐

Truck Stops

☐

Gas Stations

☐

Rest Areas

☐

Recreation Interests

☐

Historic Places

☐

Local Attractions

☐

Restaurants

☐

National Parks

☐

State Parks

☐

Tourism Destination

☐

Trip Summary

Route Length:

Ideal Drive Time:

Show directions

☐

Sort by:

Distance Type

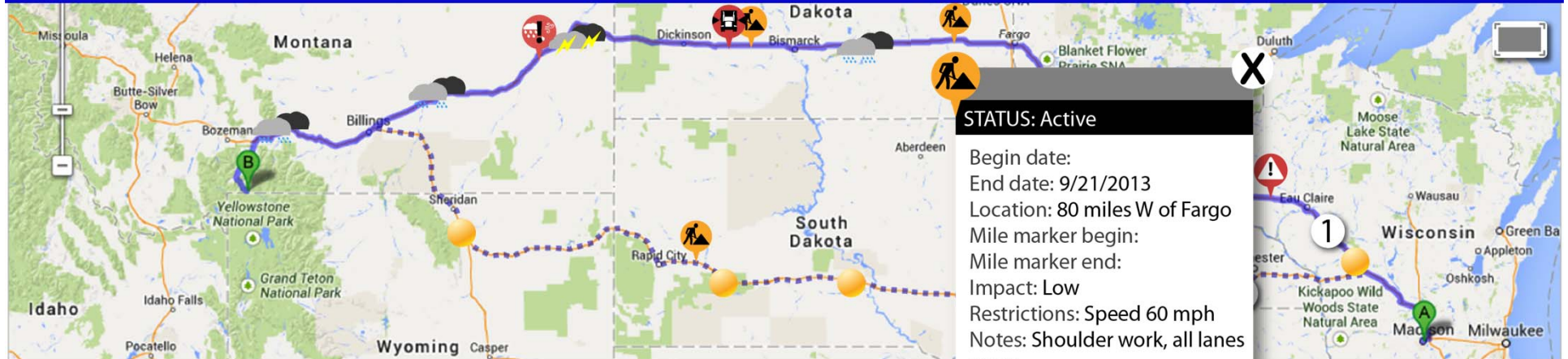
Print

Share

Save



Trip Start  Trip End  Trip Date



**i What information would you like to see?**

Road Work	<input checked="" type="checkbox"/>	Truck Stops	<input type="checkbox"/>
Incident	<input type="checkbox"/>	Gas Stations	<input type="checkbox"/>
Road Conditions	<input type="checkbox"/>	Rest Areas	<input type="checkbox"/>
Weather	<input checked="" type="checkbox"/>	Recreation Interests	<input type="checkbox"/>
Weather Alerts	<input checked="" type="checkbox"/>	Historic Places	<input type="checkbox"/>
Road Closure	<input checked="" type="checkbox"/>	Local Attractions	<input type="checkbox"/>
Temporary Vehicle Restrictions	<input checked="" type="checkbox"/>	Restaurants	<input type="checkbox"/>
Mountain Pass Information	<input type="checkbox"/>	National Parks	<input type="checkbox"/>
Crash History	<input type="checkbox"/>	State Parks	<input type="checkbox"/>
RWIS/Camera	<input type="checkbox"/>	Tourism Destination	<input type="checkbox"/>
Metropolitan Traffic Congestion	<input type="checkbox"/>		

**Trip Summary 1**

Route Length: 1280mi  
 Ideal Drive Time: 18hr 14min

Sort by: Distance Type

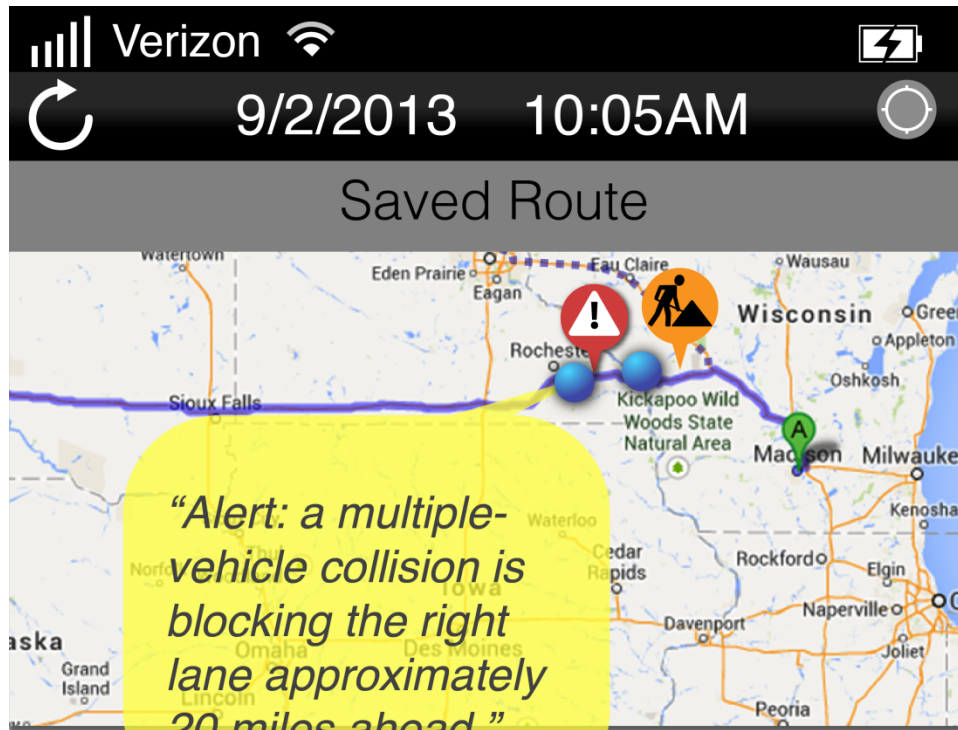
	9/1/2013 9:57am	Two vehicle collision....	
	Active: 9/21/2013	80 miles west of Fargo...	
	Active: 10/8/2013	40 miles East of Dickinson...	
	Status	Trucks under 12' only	
	High wind warning. Forecast 9/2 AM ...		

**Trip Summary 2**

Route Length: 1314mi  
 Ideal Drive Time: 18hr 34min

Sort by: Distance Type

	Active: 9/5/2013	20 miles east of Rapid...	
--	------------------	---------------------------	--



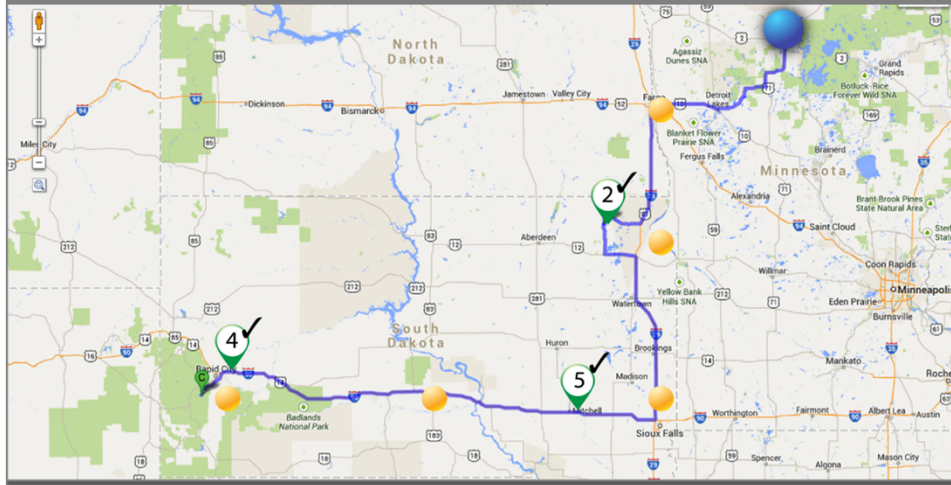
Heavy rain likely.  
Forecast: 8/2/2013 morning.  
Updated: 8/1/2013



Active:  
9/5/2013

Begin date:  
End date: 9/5/2013  
Location: 20 miles E of Rapid City  
Mile marker begin:  
Mile marker end:  
Impact: Low  
Restrictions: Speed 60 mph  
Notes: Median work, all lanes open





2



**Ft. Sisseton Historic State Park**



5



**Mitchell Prehistoric Indian Village**



4



**Minute Man Missile National Historic Site**



More



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# Next Steps

1. Obtain system mock-ups feedback from steering committee
2. Finalize a *Concept of Operations* with input from that feedback
3. Develop *System Requirements* document
4. Prototype the system

