WYDOT’s use of the FHWA Guidelines for Disseminating Road Weather Advisory & Control Information

November 1, 2012
Outline

• WYDOT’s method of reviewing the guidelines
• Implementation of the guidelines
  – Map interface
  – DMS
  – Text interface
• Feedback
• New Implementation – Targeted Displays
Review of Guidelines
Review of FHWA Guidelines

- Obvious need to update website
- Changes to website are met with considerable criticism
- Recognized guidelines use of human factors as means to build good product and address criticism
Review of Guidelines

• Team review of guidelines
  – 3 Software Developers
  – 1 TMC Operator
  – 3 Engineers (including TMC Supervisor)
• Read and commented on guidelines
• Began to apply guidelines prior to final release
• Attempted to survey customers
Implementation of Guidelines
DMS / Map Web Page

• Chapter 2 – DYNAMIC MESSAGE SIGNS
  – Compliant but used for clarity with TMC

• GUIDELINE 2-4. DETERMINING PHASE TIMING AND OTHER DYNAMIC PROPERTIES
  – DMS - Inserted 300 ms gap between phases

• GUIDELINE 4-6. USE OF VISUAL ICONS – SHORT TEXT/VISUAL & OPEN-FORMAT
  – Map Web Page - Changed a few symbols to be compliant with guidelines
Text-based Road Weather

• Original presentation created in 1997
• In need of a significant update
• Customers complain about change
• FHWA Guidelines came at perfect time
Old Presentations

Road Closures

Seasonal Closures:
US 212
Seasonal Closure of US 212 between WY 296 and Beartooth Pass
Oct. 10, 2012 07:49am

Advisories

Falling rock advisory:
Baton - US 14 between Shoshone and Antelope Butte Snt Area
Oct. 10, 2012 07:49am
Cody - US 212 between Jade Mountain 4.5, Westbound Closure Gate and WY 296
Oct. 10, 2012 07:49am
Cody - US 14 between Shoshone and Antelope Butte Snt Area
Oct. 10, 2012 07:49am
Cody - US 14 between Shoshone National Forest Boundary and Cody
Oct. 10, 2012 07:49am
Cody - WY 495 between US 212 and WY 130
Oct. 10, 2012 07:49am
Jackson - US 189 between Bondurant and Hoback Jct
Oct. 10, 2012 08:02am
Jackson - US 189 between Alpine Jct and Hoback Jct
Oct. 10, 2012 08:02am
Jackson - WY 22 between Wilson and the Idaho State Line
Oct. 10, 2012 08:02am

No light trailers:
Absaroka - between Absaroka and Wind River Park Rd
Oct. 10, 2012 07:49am
Cody - US 212 between WY 130 and WY 296
Oct. 10, 2012 07:49am
Cody - US 14 between Shoshone and Antelope Butte Snt Area
Oct. 10, 2012 07:49am
Cody - US 212 between Jade Mountain 4.5, Westbound Closure Gate and WY 296
Oct. 10, 2012 07:49am
Cody - WY 495 between US 212 and WY 130
Oct. 10, 2012 07:49am
Erl Mountains - between East 215, Wagnerson Rd and Erlington
Oct. 10, 2012 07:49am
Erl Mountains - between East 215, Wagnerson Rd and Erlington
Oct. 10, 2012 07:49am
Erl Mountains - between East 215, Wagnerson Rd and Erlington
Oct. 10, 2012 07:49am
Laramie - between Laramie and East 323, Happy Jack Rd
Oct. 10, 2012 07:49am
Laramie - US 80 between Laramie and East 323, Happy Jack Rd
Oct. 10, 2012 07:49am
Laramie - US 80 between Laramie and East 323, Happy Jack Rd
Oct. 10, 2012 07:49am
Laramie - US 80 between Laramie and East 323, Happy Jack Rd
Oct. 10, 2012 07:49am
Laramie - US 80 between Laramie and East 323, Happy Jack Rd
Oct. 10, 2012 07:49am
Laramie - US 80 between Laramie and East 323, Happy Jack Rd
Oct. 10, 2012 07:49am
Laramie - US 80 between Laramie and East 323, Happy Jack Rd
Oct. 10, 2012 07:49am

Additional Comments

US 16 between Wind River and Buffalo reaches the Big Horn Mountains and includes steep grades. A hosts closed area is located at MP 32 and a restricted roadway truck ramp is located at elevation 85 5. If trucks are having breaking difficulty, the restricted roadway truck ramp is located to avoid a sharp curve at milepost 86. For more details, please visit the WYSPROJECTINFO website and select the Wyoming Truck Ramp info link (http://www.wyssprojectinfohighway/boomweek%20Truck%20Ramp%20info%2012.pdf) located at the bottom of the Wyoming project page.
New Presentations

Conditions for the Cheyenne area are as follows:

<table>
<thead>
<tr>
<th>Route</th>
<th>Location</th>
<th>Conditions</th>
<th>Advisories</th>
<th>Last Report Time</th>
<th>Cameras</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-25 / US 87</td>
<td>Between the Colorado State Line and Cheyenne</td>
<td>Dry with Strong Winds</td>
<td>No Light Trailers</td>
<td>Oct 16, 2012 03:16 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>I-25 / US 87</td>
<td>Between Cheyenne and Exit 26, Whittaker Rd</td>
<td>Dry with Strong Winds</td>
<td>No Light Trailers</td>
<td>Oct 16, 2012 03:16 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>I-25 / US 87</td>
<td>Between Exit 335, Oxford and Exit 346, Otto Rd</td>
<td>Dry with Strong Winds</td>
<td>No Light Trailers</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>I-25 / US 87</td>
<td>Between Exit 346, Otto Rd and Cheyenne</td>
<td>Dry with Strong Winds</td>
<td>No Light Trailers</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>I-25 / US 87</td>
<td>Between Cheyenne and Exit 377, WY 217 - EASTBOUND</td>
<td>Road Closed Due To Crash</td>
<td>None</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>US 85</td>
<td>Between the Colorado State Line and Cheyenne</td>
<td>Dry with Strong Winds</td>
<td>None</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>US 85</td>
<td>Between Cheyenne and Meriden</td>
<td>Dry with Strong Winds</td>
<td>No Light Trailers</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>WY 219</td>
<td>Between Cheyenne and Mile Marker 14, County Rd 100, Table Hts Rd</td>
<td>Dry with Strong Winds</td>
<td>None</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>WY 219</td>
<td>Between Mile Marker 14, County Rd 109, Table Hts Rd and Curt Gowdy State Park</td>
<td>Dry with Strong Winds</td>
<td>None</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>WY 211</td>
<td>Between WY 219, Yellowpine Rd and I-25, Cheyenne</td>
<td>Dry</td>
<td>None</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>WY 212</td>
<td>Between I-25, Cheyenne and East Four Mile Rd</td>
<td>Dry</td>
<td>None</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>WY 222</td>
<td>Between College Dr and WY 219, Yellowpine Rd</td>
<td>Dry</td>
<td>None</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>WY 225</td>
<td>Between WY 225, Otto Rd and WY 211, Horse Creek Rd</td>
<td>Dry</td>
<td>None</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
<tr>
<td>WY 225</td>
<td>Between I-20, Otto Rd and Cheyenne</td>
<td>Dry</td>
<td>None</td>
<td>Oct 16, 2012 03:01 pm</td>
<td>📷 📷 👍</td>
</tr>
</tbody>
</table>

**Impact Levels**
- **Low**: Minimal impacts expected, use general caution.
- **Moderate**: Some impacts expected, use extra caution. Stay alert for changing road and weather conditions.
- **High**: Dangerous impacts expected, use extreme caution, delay travel or consider alternate route. If travel is necessary, slow down and allow extra time.
- **CLOSED**: Road closed due to crash, use extreme caution, delay travel or consider alternate route. If travel is necessary, slow down and allow extra time.

All travelers are encouraged to check present conditions and forecasts before departing.
New Presentation

• Responsive Web Design
Survey Feedback
Survey

• Not Scientific
• Results are likely to be skewed by those who care enough to comment
• Feedback was very valuable
• About 429 Responses
Presentation Problem

• Older monitors – screen resolution
New Presentation - Feedback

QUESTION: How easy is it to navigate the new page?

- Extremely easy
- Very easy
- Moderately easy
- Slightly easy
- Not at all easy
New Presentation - Feedback

QUESTION: Do you find the impact level colors helpful?

- Extremely helpful
- Very helpful
- Moderately helpful
- Slightly helpful
- Not at all helpful
New Presentation - Feedback

QUESTION: Are the "description/recommended actions" clear for each impact level?

- Extremely clear
- Very clear
- Moderately clear
- Slightly clear
- Not at all clear
New Presentation - Feedback

QUESTION: Please rate your overall satisfaction with our new page.

- Extremely satisfied
- Moderately satisfied
- Slightly Satisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely Dissatisfied
New Presentation - Feedback

QUESTION:
How likely are you to recommend our website to others?

- Extremely likely
- Very likely
- Moderately likely
- Slightly likely
- Not at all likely
New Presentation - Feedback

Why do you use the page? (select all that apply)

For commuting purposes
For business travel
I own a business where we display the information
For vacation travel
I am a commercial vehicle operator
Other

State | Miles Per Capita
--- | ---
Wyoming | 16,976
Mississippi | 13,624
New Mexico | 12,633
Oklahoma | 12,528
Alabama | 11,729
Indiana | 8,064
National Average | 9,556
Please indicate the browser you primarily use.
New Presentation - Feedback

What type of device did you use to view this page?

- Desktop Computer: 200
- Laptop Computer: 120
- Android Tablet: 10
- iPad: 5
- Android Smart Phone: 30
- iPhone: 20
- Other: 0
Representative Comments

• I’m fundamentally nosy...I'd like to see a firm reason 'why' the closure. Semi vs pickup wreck, 68 inches snow on road way, Big Foot sighting. Things like that. Not just...snow.
• I really like the color coding
• Too much going on
• Fast and easy to see what is going on
• Great!! Very easy to navigate...
• This is so much better to read and navigate.
New Product – Targeted Displays
Trip Generators - UW

• Wyoming is the least populated State
• Only one University in the State
• Sports fans come from all corners
• Many sports (football, basketball, wrestling, volleyball) happen during October through March
Trip Generators - UW

• Laramie is located at 7200 feet in elevation
• Four primary routes in/out of Laramie
  – I-80 East
  – I-80 West
  – US30/287 North
  – US287 South
• Winter Road Conditions
  – Snow & Ice
  – Strong Winds
  – Visibility (Fog and Blowing Snow)
UW AA Road Condition Displays

• 42” smart TV’s located near exits of Arena
• Custom web page developed
  – Presents information directly from condition reporting database
  – Simplified look
  – Road/Weather Impact colors
  – Uses FHWA Guidelines
    • DMS and Tabular References used
UW Arena Auditorium Display
### UW Arena Auditorium

#### WYDOT Critical Travel Conditions
Call 511 for Additional Information

<table>
<thead>
<tr>
<th>Route</th>
<th>Direction</th>
<th>Conditions</th>
<th>Visibility</th>
<th>Road Surface</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>287</td>
<td>South to Colorado</td>
<td>OPEN</td>
<td>N/A</td>
<td>Dry</td>
<td>No Alert Level Conditions for Passenger Vehicles</td>
</tr>
<tr>
<td>30</td>
<td>West to Walcott</td>
<td>OPEN</td>
<td>N/A</td>
<td>Wet</td>
<td>No Alert Level Conditions for Passenger Vehicles</td>
</tr>
</tbody>
</table>

[Image of road signs and road conditions]
Casper Events Center

• Located in Central Wyoming

• Hosts:
  – Concerts
  – Plays
  – State Championship Sporting Events
    • Volleyball, Basketball, Wrestling
  – Indoor Football
Casper Events Center
Casper Events Center

<table>
<thead>
<tr>
<th>Highway</th>
<th>Conditions</th>
<th>Visibility</th>
<th>Road Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interstate 25</td>
<td>North to Buffalo</td>
<td>OPEN</td>
<td>Dry</td>
</tr>
</tbody>
</table>

No Alert Level Conditions for Passenger Vehicles

WYDOT Critical Travel Conditions
Call 511 for Additional Information

I-25 Twenty Mile Hill (South)
Near Future
Near Future

• One additional text page needs to be made tabular

• Media Page
  – Advisory Condition 1
    • Location1
    • Location2
  – Advisory Condition 2
    • Location1
    • Location2

Road Closures

<table>
<thead>
<tr>
<th>Road Closures</th>
<th>Date / time of last report</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 212</td>
<td>Oct. 16, 2011 6:30 a.m.</td>
</tr>
</tbody>
</table>

Advisories

<table>
<thead>
<tr>
<th>Advisory</th>
<th>Date / time of last report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falling rock advisory:</td>
<td></td>
</tr>
<tr>
<td>Location1</td>
<td>Oct. 16, 2012 7:00 p.m.</td>
</tr>
<tr>
<td>Location2</td>
<td>Oct. 16, 2012 7:00 p.m.</td>
</tr>
</tbody>
</table>

Additional Comments

US 14 between Wyo-Fed and Buffalo near the Big Slate Mountain may include steep grades. A belt check site is located at MP 15 and a narrow advisory truck stop is located at mile 15.5. Trucks are having trouble navigating the narrow truck stop is located 1 mile west of a sharp curve at milepost 19. For more details, please visit the Wyoming DOT website and select the Wyoming Traffic Reports. (https://www.dot.wy.gov/traffic/crashReports/Report/6163) located at the bottom of this page.)
### Laramie

<table>
<thead>
<tr>
<th>WTI Section</th>
<th>Date/Time</th>
<th>8 Code</th>
<th>91, 92, 93</th>
<th>Wind Avg</th>
<th>Wind Gust</th>
<th>Dir</th>
<th>Dewpoint</th>
<th>Humidity</th>
<th>Air Temp</th>
<th>Visibility</th>
<th>Alert Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>I 80 Between Exit 279, Cooper Cove Rd and Laramie</td>
<td>Oct 23, 2012 07:36 am</td>
<td>Dry</td>
<td>N/A</td>
<td>Strong Winds</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>No Light Trailers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Streets Hill (mp 283.75)</td>
<td>Oct 23, 2012 07:25 am</td>
<td>None</td>
<td>None</td>
<td>16 mph</td>
<td>25 mph</td>
<td>S</td>
<td>24.6°F</td>
<td>38%</td>
<td>48.7°F</td>
<td>6560 ft</td>
<td></td>
</tr>
<tr>
<td>Quealy Dome (mp 299.5)</td>
<td>Oct 23, 2012 07:25 am</td>
<td>None</td>
<td>None</td>
<td>20 mph</td>
<td>30 mph</td>
<td>SW</td>
<td>23.7°F</td>
<td>35%</td>
<td>50.4°F</td>
<td>6560 ft</td>
<td></td>
</tr>
<tr>
<td>Herrick Lane (mp 297.66)</td>
<td>Oct 23, 2012 07:25 am</td>
<td>None</td>
<td>None</td>
<td>22 mph</td>
<td>31 mph</td>
<td>SW</td>
<td>22.5°F</td>
<td>31%</td>
<td>51.6°F</td>
<td>6560 ft</td>
<td></td>
</tr>
<tr>
<td>I 80 / US 30 Between Laramie and Exit 322, Happy Jack Rd</td>
<td>Oct 23, 2012 07:36 am</td>
<td>Dry</td>
<td>Favorable</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I 80 / US 30 Between Exit 322, Happy Jack Rd and Exit 355, Buford</td>
<td>Oct 23, 2012 07:36 am</td>
<td>Dry</td>
<td>Favorable</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summit East (mp 325.8)</td>
<td>Oct 23, 2012 07:30 am</td>
<td>None</td>
<td>None</td>
<td>16 mph</td>
<td>23 mph</td>
<td>SW</td>
<td>23°F</td>
<td>45%</td>
<td>43.3°F</td>
<td>6560 ft</td>
<td></td>
</tr>
<tr>
<td>Vedauwoo (mp 320.4)</td>
<td>Oct 23, 2012 07:27 am</td>
<td>None</td>
<td>None</td>
<td>16 mph</td>
<td>20 mph</td>
<td>SW</td>
<td>23.7°F</td>
<td>43%</td>
<td>44.4°F</td>
<td>No Report</td>
<td></td>
</tr>
<tr>
<td>US 287 Between the Colorado State Line and Laramie</td>
<td>Oct 23, 2012 07:36 am</td>
<td>Dry</td>
<td>N/A</td>
<td>Strong Winds</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumpkin Vine (mp 420.4)</td>
<td>Oct 23, 2012 07:22 am</td>
<td>None</td>
<td>None</td>
<td>24 mph</td>
<td>36 mph</td>
<td>SW</td>
<td>23.7°F</td>
<td>37%</td>
<td>48.9°F</td>
<td>No Report</td>
<td></td>
</tr>
<tr>
<td>US 30/287 Between Rock River and WY 34</td>
<td>Oct 23, 2012 07:36 am</td>
<td>Dry</td>
<td>Favorable</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US 30/287 Between WY 34 and Laramie</td>
<td>Oct 25, 2012 07:36 am</td>
<td>Dry</td>
<td>Favorable</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Contact Information:
R. Vince Garcia, P.E.
GIS/ITS Program Manager
Wyoming Department of Transportation
307-777-4231
vince.garcia@wyo.gov

If interested in seeing Events Center web page:
http://wyoroad.info/pls/Browse/WRR.CECI25S