FHWA/NWS Pathfinder Program Road Weather Brief for Regional Management

- Strong Winds on Christmas Eve
  - West to Southwest Wind Gusts to 65 mph Possible, Especially thru Midday Christmas Eve.
Average Annual Fatalities Under Adverse Weather

Adverse Weather-Related Fatalities (10-yr. Annual Average 2005-2014)

- Flood: 70.9
- Lightning: 32.4
- Tornado: 110.4
- Hurricane: 112.1
- Extreme Heat: 124.3
- Extreme Cold: 28.8
- Winter Storm: 19
- Wind: 52.4
- Rain, Fog, Hail, Ice: 5.7
- Miscellaneous: 80.8
- Total NWS-Tracked: 606.8
- Adverse Road Weather: 5646.2
Original Pathfinder Participants

- Four core western I-80 Corridor states
  - Wyoming, Utah, Nevada, California
- Georgia added winter 2015-2016
  - Note that GDOT/GEMA/NWS coordination began after the January 2014 winter storm
How Do We Communicate Impacts?

- *Weather* forecast translated to transportation *impact* message
- Data sharing and collaboration over the message
- Consistent message from all public sources

Result: Better decision support for the traveling public

Source: Wyoming DOT
Collaboration

- Prior to, during and after an event, coordinated messaging took place between DOTs, NWS and private weather providers
- Conducted via:
  - NWSChat
  - Email and conference calls
  - Web Coordination Pages
- Great cooperation between DOTs, their private weather providers and the NWS!
Result: Consistent Messaging

- Pathfinder allowed for parties to collaborate over forecast elements/timing
- Provided **consistent** messaging to the traveling public
- Social Media referenced both NWS and DOT sites for more information
Actual Behavior Change

PeMS Data across Salt Lake City Metro

- Commute shifted by 2 hours
- Significant volume decrease
  - 43% less at typical peak
- Supports reported behavior
  - Peak before it began snowing!
- Predictor of behavior change
  - Government & personal sources
Results of Weather, Road, Traffic and Crash Data

- Weekdays were divided into 5 distinct travel periods
- Emphasis on AM and PM commute windows

- Saturdays showed a broad peak from 10 AM to 6 PM
  - More VMT in this window than a typical PM commute
Ok, so now what?

- Current messaging approach does not utilize risk communication strategies or encourage action:
  - “A strong winter storm will result in significantly impaired travel conditions across Utah beginning Saturday evening, especially I-15 in southwestern Utah and I-84/I-15 near the Idaho border. Along the Wasatch Front, road conditions will worsen beginning late Saturday evening.”
Example of Current Pathfinder Success

- The SLC WFO, in coordination with UDOT has a very impressive and mature relationship in place
- UDOT employs 8 meteorologists who routinely confer with WFO SLC forecasters in advance of, during and after impact events
- NWS SLC and UDOT personnel commonly discuss the most concerning impacts, and will adjust each others’ forecast according to coordination.
- If a very high impact event is expected, WFO SLC will create a short message for UDOT to display on Variable Message Signs warning motorists of impacts
Pathfinder Implementation Plan

- Pathfinder will be implemented over the next 2 years in 17 states
- Would like to connect the corresponding WFO serving the DOT HQ of each of those states
- WFO representative will enter a Pathfinder agreement with their state DOT(s) which will dictate work to be done on needs most pressing to the NWS and DOT in each case
- Variable Message Signs transmission of critical weather information during high impact, high certainty events will be among top goals
Current Pathfinder Success Cont’d

• During one heavy snow event of this past season, WFO SLC and UDOT were able to shift peak commuting times two hours early, ensuring most motorists were not on road during event.
• WFO SLC works with social scientists to develop wording, studies and lessons learned available.
• Variable Message Sign messages from WFO SLC are used as “big guns,” they save this power for the most impactful events.
What to Expect in Your Region

- Developing DOT contacts with each of the states
- I will contact the WFO serving state DOT HQ, and ask them to identify a Pathfinder focal point
- The focal point, myself, Paul Pisano (FHWA) and the State DOT weather representative will meet via conference call or in person over the next month or so
- I will request some of those WFO focal points to attend the National Road Weather Management Stakeholder Meeting this June 20-22. Travel funding will be provided by AFSO
NWS WFO Participation

• NWS WFOs are critical to the success of Weather-Savvy Roads/Pathfinder
  • DOTs will be relying on the local WFO for weather information and on their private provider for road weather information
  • Success depends on coordination and collaboration via tools such as NWSChat, websites, conference calls and emails between the WFOs, State DOTs and the DOTs’ road weather providers on an as-needed basis, once the foundation has been established
  • Establishing the foundation and strengthening relationships requires a few key meetings:
    • Kick-off meeting
    • Mid-season check
    • Post-season assessment along with assistance getting NWSChat credentials, sharing contact information and laying out a plan of action
What to Expect in Your Region

- Each regional HQ can decide with me how closely they would like to monitor the progress of their WFOs Pathfinder work.
- In Western Region, for example, I will primarily work with one regional rep, but I will normally go directly to WFOs to make for more direct communication and save regional hq employees from having to invest too much time.
- Other regions may feel differently, we can adjust according to your needs.
Will this Interfere with Private Sector?

- Randy Graham, MIC SLC, has worked with UDOT for over 10 years, all-while increasing service to state DOT. Since inception, UDOTs staff of private sector mets has increased 4 fold.
- Recent discussion with several state DOT road weather managers at Aurora Conference in SLC shows that most DOTs already employ a private sector met service.
- None of these DOTs thinks that the NWS interferes with their private sector service, to the contrary.
- DOTs can generally expect every dollar spent on met support, results in a 4-8 fold savings in operational road maintenance budgets (Graham).
National Level Support

- Comet modules currently underway – updated Winter AWOC (includes road weather, snow impact material), and a module on road weather impacts
- Potential moneys from FHWA for NWS training purposes
- Contact Roham Abtahi, AFS Decision Support Services Branch, 301-427-9381 with any questions.
- Road weather modelling work underway at OAR (contact Heather Reeves, Norman OK)
Pathfinder Resources

The document . . .

- Describes 8 basic steps and associated requirements
- Provides examples from State DOT implementations
- Characterizes agency organizational structure
- Companion workbook walks team through the implementation process

Source: FHWA

Collaboration Across the Road Weather Enterprise: The Pathfinder Project

Final Report — September, 2016
FHWA-HOP-16-086

U.S. Department of Transportation

Source: FHWA
Pathfinder: Questions and Discussion

Source: Wyoming DOT
Upcoming Pathfinder Plans

1. Brief Regional Directors (May)
2. Conduct one-on-one talks with the State DOTs and WFO representative to lay out a high level action plan (by early June)
3. National Road Weather Managers Stakeholder Mtg Jun 20-22, Minneapolis
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