

Welcome to the 2013 Road Weather Management Stakeholder Meeting

Paul Pisano

Team Leader, Road Weather & Work Zone Management, FHWA

Scott Bennett

Director, Arkansas State Highway and Transportation Department

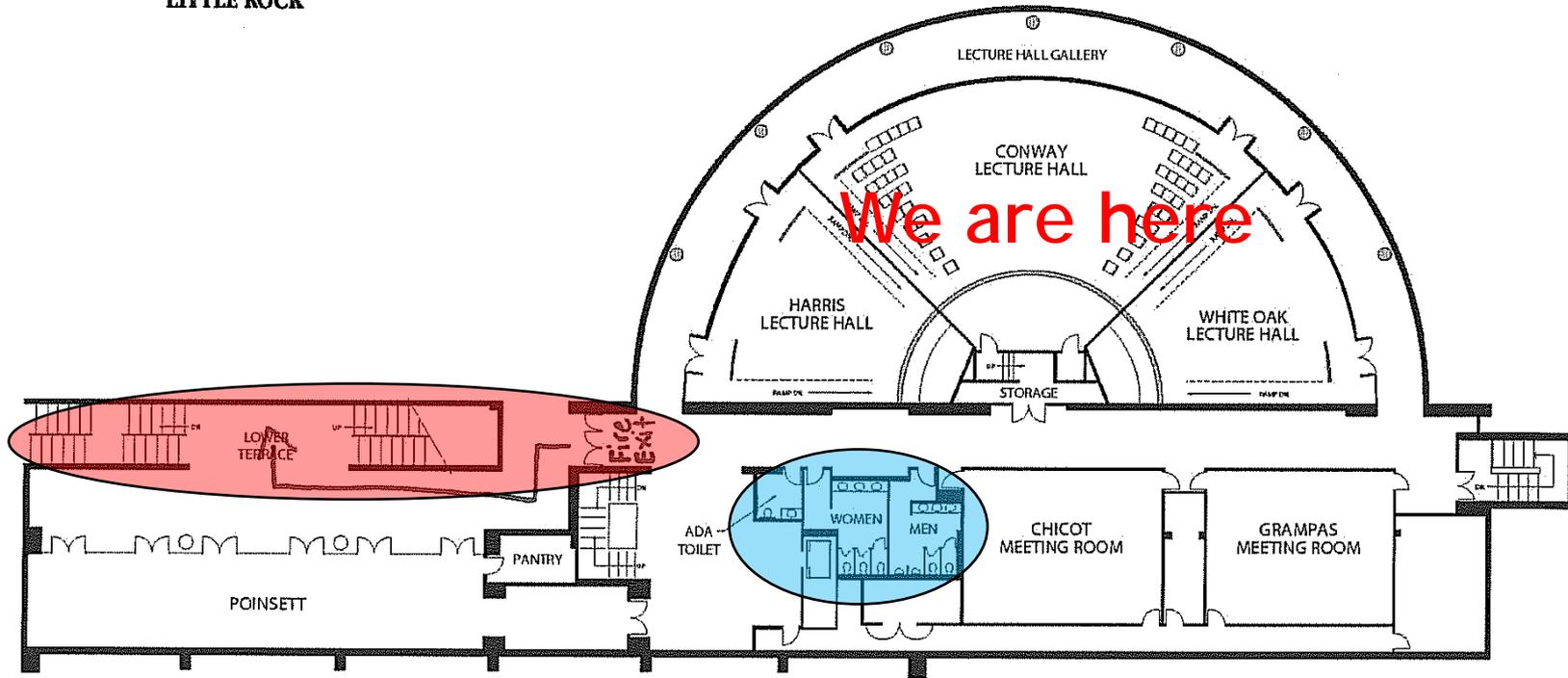
16-18 July 2013
Little Rock, Arkansas

Contact: paul.pisano@dot.gov, 202-366-1301



Logistics: Fire Exit & Restrooms

LITTLE ROCK



LECTURE HALL
LEVEL 2



Welcome Remarks

Paul Pisano

- Team Leader, Road Weather & Work Zone Management, FHWA
- paul.pisano@dot.gov



Welcome Remarks

Scott Bennett

- Director, Arkansas State Highway and Transportation Department
- scott.bennett@ahtd.ar.gov



RWM Team & Support Staff

- Dale Thompson, ITS JPO
- Gabe Guevara, FHWA
- Roemer Alfelor, FHWA
- Ray Murphy, FHWA
- Booz Allen Hamilton Team
 - Ram Kandarpa, Brenda Boyce, Ralph Patterson, Derek Freckleton, Cris Ianculescu, Ryan Swick
- NCAR Team
 - Sheldon Drobot, Mike Chapman



Introductions Around the Room

As a way to become acquainted, please state your name and affiliation

During introductions, we would like one person from each agency, company, etc. to give the group information regarding “hot topics” about weather-related activities.

- Ideas for transportation agencies might be the status of RWIS investments, MDSS activities, connected vehicle activities
- Ideas for others might be deployment activities, new technology, weather projects





Road Weather Management Program and Meeting Objectives

16 July 2013

Little Rock, Arkansas

Contact: paul.pisano@dot.gov, 202-366-1301



Topics

- Meeting Objectives & Overview
- Revisit the impacts
- High level roadmap
- Accomplishments since the last meeting
- Planned efforts for next year
- RWMP funding



Meeting Objectives

- Learn about project-level progress of Road Weather Management efforts
 - Share experiences
 - Communicate, not just watch presentations
- Explore the relationships between State DOTs and the Weather Enterprise
- Assess advancements in Connected Vehicles



Session Topics

Day 1:

- Session 1: Welcome & Introductions
- Session 2: Road Weather Observations
- Session 3: State DOTs & Weather Enterprise - Part I



Session Topics (cont.)

Day 2:

- Session 4: Connected Vehicles - Part I (IMO Project)
- Session 5: Connected Vehicles - Part II (Other Efforts)
- Session 6: Connected Vehicles - Part III (Applications)
- Session 7: Weather Service & Technology Providers
- Session 8: State DOTs & Weather Enterprise - Part II
- Session 9: Performance Measures



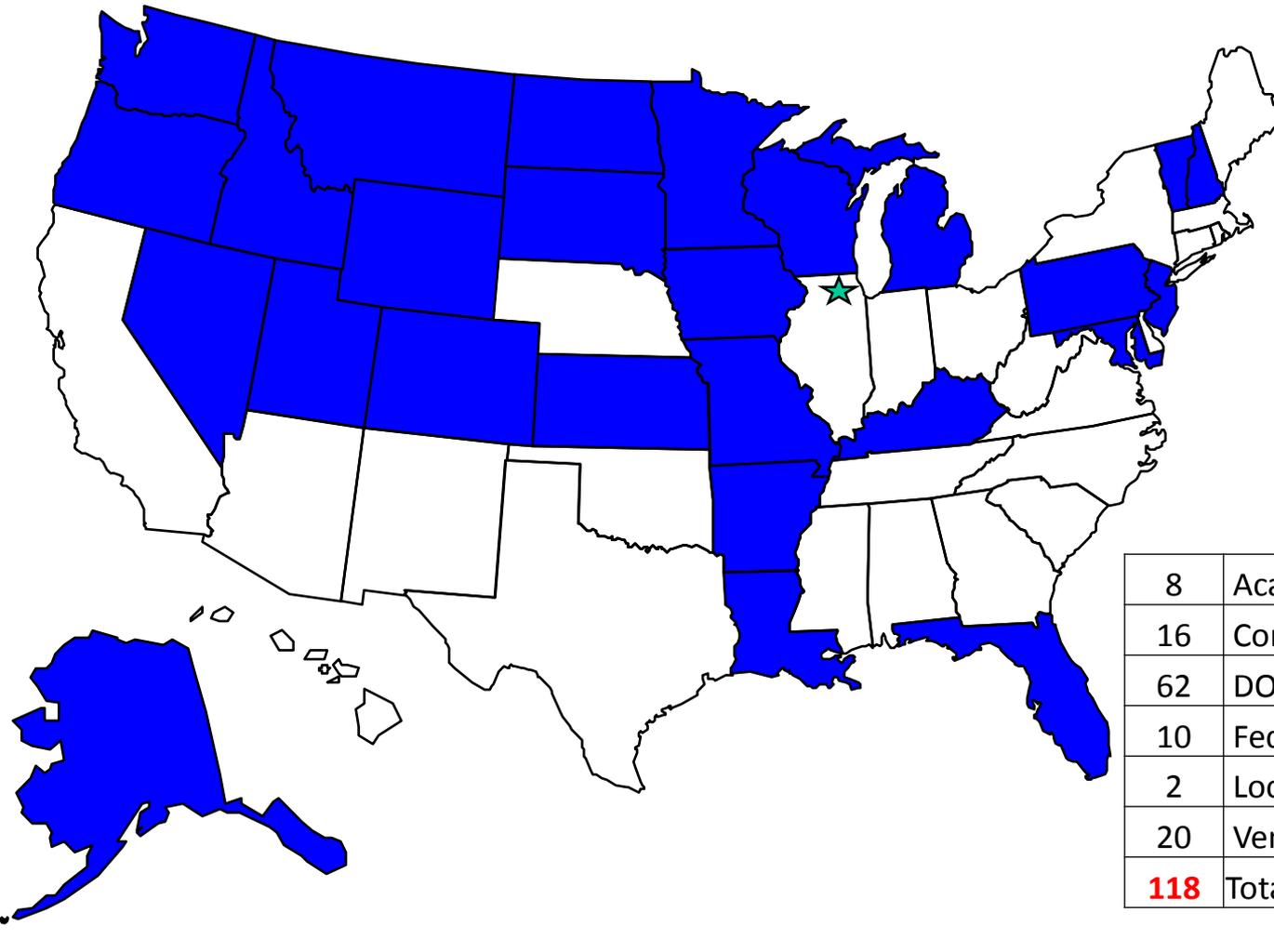
Session Topics (cont.)

Day 3:

- Session 10: Weather-Responsive Traffic Management
- Session 11: Stakeholder Updates
- Session 12: State DOTs & Weather Enterprise - Part III



DOT Attendees: 64 Total from 26 States & 1 Local



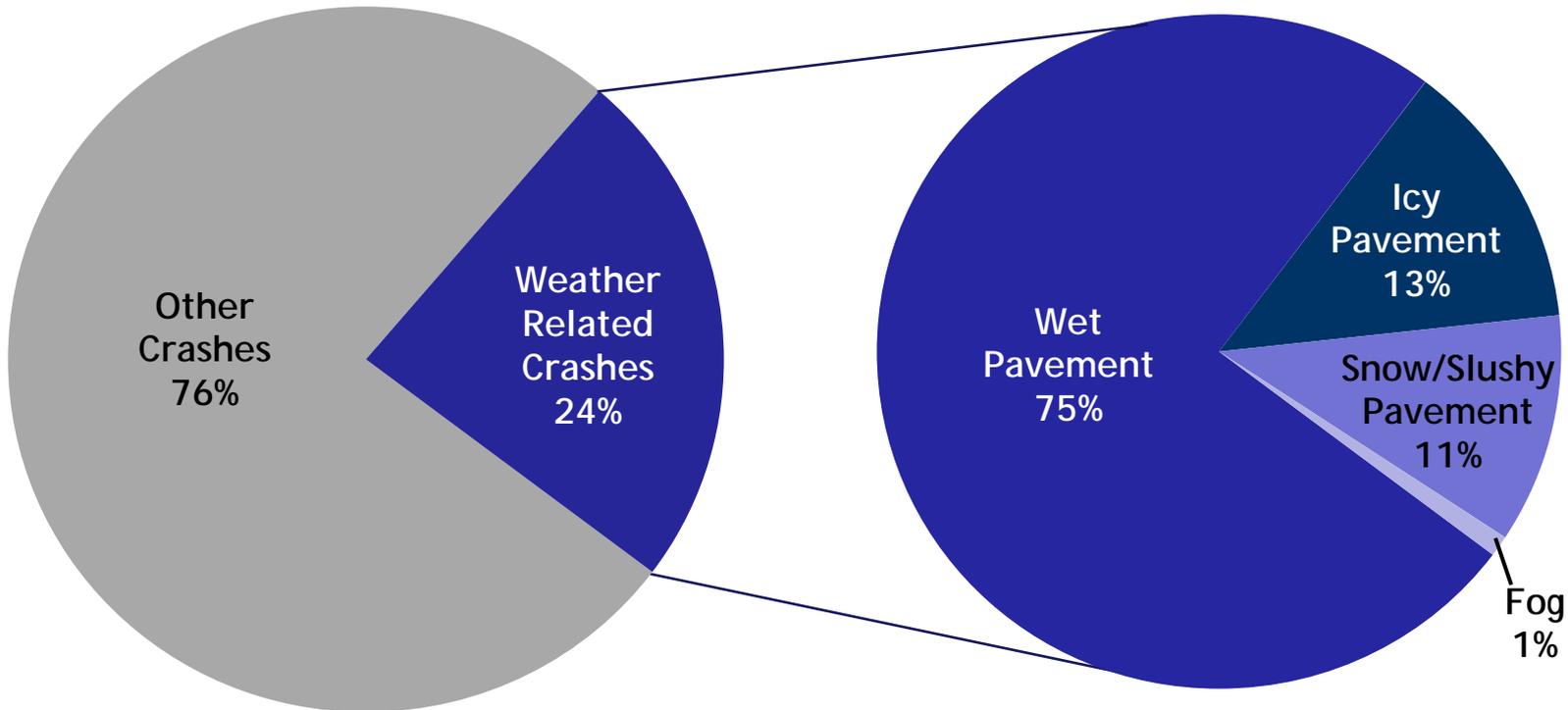
8	Academia
16	Consultant
62	DOT (State)
10	Federal
2	Local Agency
20	Vendor
118	Total



Crashes Under Adverse Weather

Total Annual Crashes
Average = 6,301,000

Weather Related Crashes
*By Road Weather Condition**



*Crashes that occurred under adverse conditions; additional factors such as rain, snow, and fog are not disaggregated from pavement conditions in this graphic. The percentage due to fog is for those crashes that occur under foggy conditions, but not wet, icy, or snowy pavement conditions.

Source: Road Weather Management Program, Table: Weather-Related Crash Statistics (Annual Averages), Available at: http://www.ops.fhwa.dot.gov/weather/q1_roadimpact.htm



RWMP High Level Roadmap

Focus Areas		Activities	Objectives
Stakeholder Coordination		<i>Lots of interesting projects</i>	Build partnerships
Program & Performance Management			Ensure investments pay off
R&D	RdWx Data Capture & Mgmt		Transportation & weather communities use fixed and mobile observations
	RdWx Dynamic Applications		Integrate RdWx observations into advanced decision support tools
	Weather-Responsive Traffic Mgmt		Advance the state-of-the-practice through tailored management strategies
Tech Transfer, Training, Education			Raise road weather capabilities across the industry
Operations, Climate Change & Sustainability			Operations is engaged with climate change community



Update on Key Initiatives (1/3)

- Track 1: Stakeholder Coordination
 - Ongoing Coordination with Weather Community (esp. AMS)
 - Stakeholder Meeting (this week)
 - Guidance on State DOT/Weather Enterprise Partnerships
- Track 2: Program & Performance Management
 - Performance Measures - 2012 update is complete and will be published soon



Update on Key Initiatives (2/3)

- Track 3: Road Weather Data R&D
 - *Clarus* to MADIS Transition
 - Weather Data Environment (WxDE)
 - Integrated Mobile Observations (IMO) 2.0
 - Vehicle Data Translator (VDT) 4.0
 - Roadway Friction Prediction Test
- Track 4: Road Weather Applications R&D
 - Applications Concept of Operations
 - Applications Prototyping & Testing
 - Initial Benefit/Cost Analysis



Update on Key Initiatives (3/3)

- Track 5: Weather-Responsive Traffic Management (WRTM) R&D
 - Weather (Wx) TrEPS Validation
 - Road Weather Message Guidelines
 - Develop & Implement WRTM Strategies
- Track 6: Tech Transfer, Training & Education
 - Road Weather Management Best Practices
 - Promote and Deliver Courses
- Track 7: Ops, Climate Change & Sustainability
 - Climate Change & Ops: Synthesis



Research & Development Goals

All efforts support two goals:

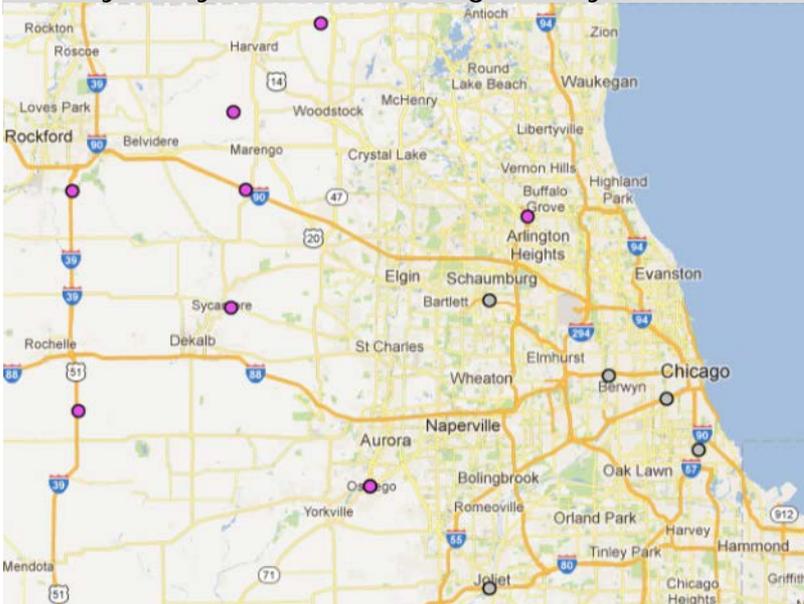
1. Identify weather-related data elements to be included in the NHTSA connected vehicle rulemaking decision
2. Demonstrate value of connected vehicle data via the development, test and evaluation of a few key applications
 - Develop and demonstrate value of implementing Weather-Responsive Traffic Management (WRTM) strategies



Connected Vehicles: Potential of Higher Resolution

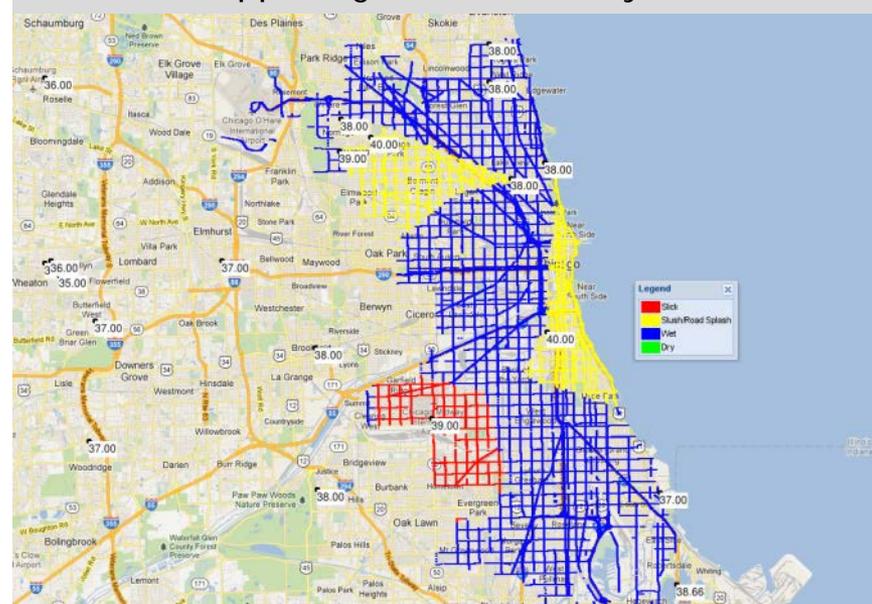
Today

A 60% chance of snow, mainly afternoon.
Sunny early, then becoming cloudy.



Future

Connected vehicles provide continuous picture of what's happening on the roadways



Initial Benefit-Cost Analysis

- Estimated national costs and benefits that could potentially result from implementation of RdWx connected vehicle applications
- Developed in two phases:
 - Phase I focused on safety aspects of the applications
 - Phase II focused on mobility and environmental aspects
- Initial report completed
- Helped establish the most critical weather-related vehicle data elements



WRTM Accomplishments

- **WRTM Strategies**
 - Concepts of Operations for Advanced WRTM Strategies
 - Utah DOT: Weather Responsive Traveler Information System and Traffic Signal Timing System
 - Oregon DOT: Weather Responsive Active Traffic Management
- **Data Collection and Integration**
 - Weather Integration in TMCs
 - Application of Mobile Data for WRTM Studies
- **Modeling and Analysis**
 - Micro/Macro Analysis of Traffic Flow in Inclement Weather
 - Incorporating Weather in Traffic Estimation and Prediction
 - Guidelines for VSL Implementation During Wet Weather
- **Human Factors**
 - Guidelines for Disseminating Road Weather Messages



Planned Efforts for Next Year

- Continue IMO 2.0 Efforts
- Enhance VDT and Applications
- Support *Clarus* Transition
- Obtain Weather Data Sets
- Contribute to ITS & Connected Vehicle Standards
- Controlled Testing for Road Surface Prediction
- RdWx Applications Testing in AMS Testbed
- RdWx Applications Prototyping & Testing
- RdWx Applications Evaluation/Impact Assessment
- Include RdWx aspects in V2I Integrated Prototype
- OEM Coordination (VIIC & CAMP)
- Research & Implement WRTM Strategies
- WRTM Evaluation Support
- WRTM Bi-Annual Workshop
- Performance Measures Update
- TOPS Benefit/Cost Model Update
- Regional Assmt. of Wx and Freight Impacts
- 2014 RdWx Stakeholder Annual Meeting
- IMO Demo at 2014 ITS World Congress
- Develop Outreach Materials
- Develop & Deliver Courses; Promote Certification



RWMP Funding

- MAP-21 didn't reauthorize the Road Weather R&D Program
- We had enough funds to carry out our planned efforts in FY2013
- Going forward, we will need to seek funding from the ITS Research funds
- Amount of available funding is not guaranteed for future years, but road weather management is recognized as a "Priority Area"



