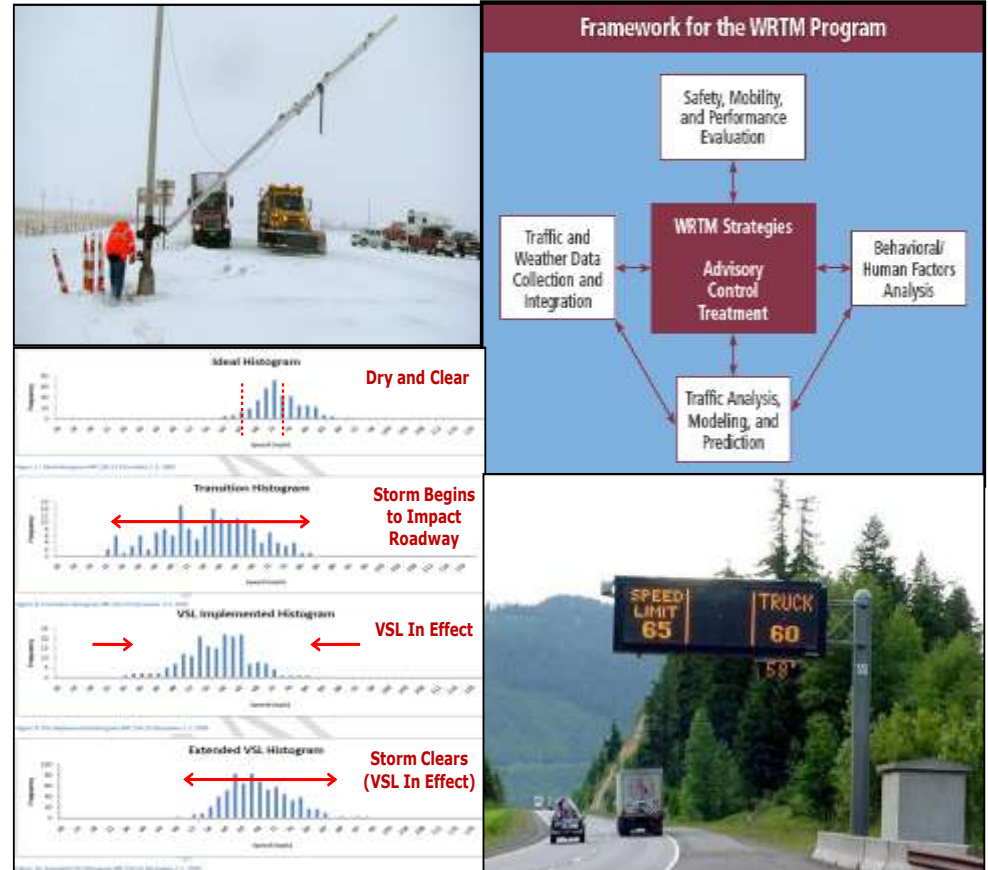


# Weather Responsive Traffic Management (WRTM) Strategies and TMC Weather Integration

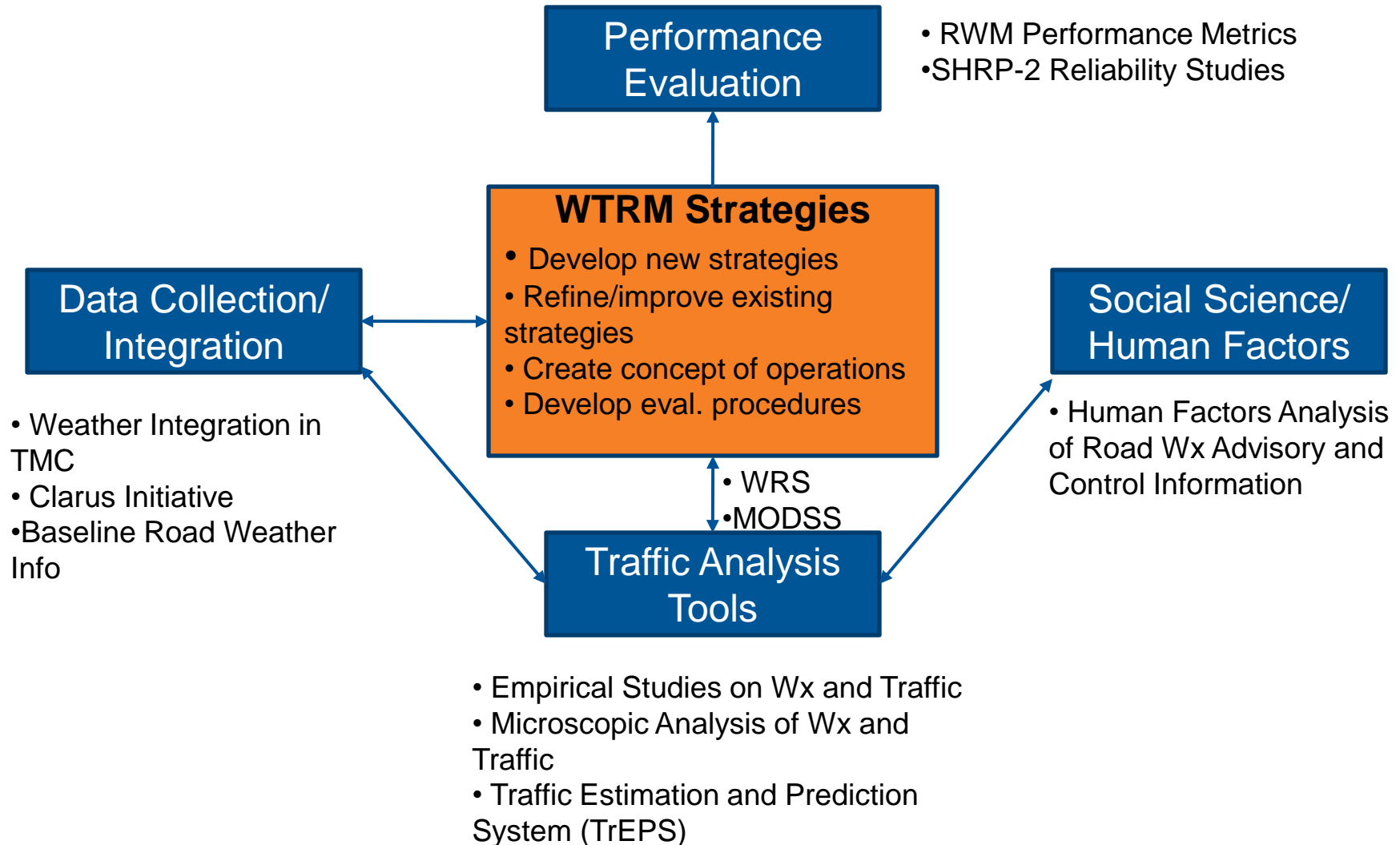
*Road Weather Mgmt Stakeholder Meetings*

Albuquerque, NM

September 8, 2011



# WRTM Program Framework

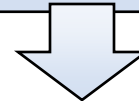


# Developments in WRTM Strategies

## Project Objectives

- Review state-of-the-practice
- Document and quantify benefits of existing WRTM strategies through an expert panel
- Identify possible improvements
- Develop concept of operations documents
- Develop procedures of evaluation value of improved strategies
- Conduct a stakeholder workshop for WRTM

Scheduled for  
October 6, 7 in  
Portland Oregon  
following the TMC  
Pooled Fund Meeting



# State of the Practice

- Eight categories of WRTM strategies were identified and over 20 strategies described.
  - Motorist advisory and alert/warning systems
  - Speed management strategies
  - Vehicle restriction strategies
  - Road restriction strategies
  - Traffic signal control strategies
  - Traffic incident management
  - Personnel/Asset management
  - Agency coordination and integration

# State of the Practice (Cont)

- WRTM strategies tend to be localized.
  - Numerous applications exist to deal with certain specific problem locations/road segments
  - Strategies that address regional travel impacts are rare and primarily exist in the motorist advisory arena
- WRTM strategies use observed weather and traffic condition data
  - Very few use forecast data (mainly vehicle/route restrictions)
  - Most strategies respond to deteriorating traffic conditions
- Very few proactive WRTM strategies
- Limited documentation of benefits of the WRTM strategies

# Expert Panel for Improved WRTM

- Dave Kinnecom – Utah Department of Transportation (UDOT)
- Brian Fariello – Texas DOT (San Antonio)
- Vince Garcia – Wyoming DOT
- Tina Greenfield Huitt – Iowa DOT
- Gene Donaldson – Delaware DOT
- Jack Stickel – Alaska DOT
- Sheldon Drobot – National Center for Atmospheric Research
- Rob Helt – City of Colorado Springs
- Peter Koonce – City of Portland

# Recommended Improvements to WRTM Strategies

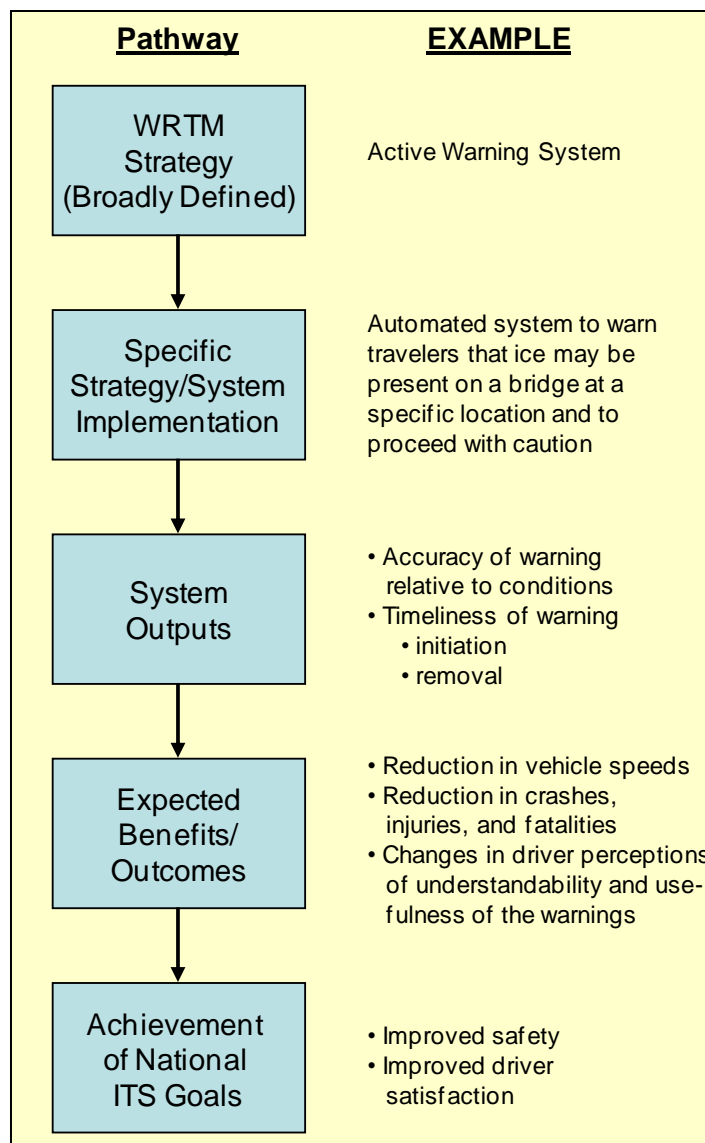
- Improved linkages between weather conditions and traffic operational impacts
- Detailed guidance on where and when to use active warning systems
- Improved impact prediction and decision support capabilities
- Enhanced weather information integration at TMCs
- Better techniques and tools to facilitate intra- and inter-agency coordination during weather events
- Improved coordination between transit service providers and traffic management agencies

# Concepts of Operations for New or Improved WRTM Strategies

- Based on the state-of-practice review and the recommended improvements from expert panel
  - Weather Responsive Active Traffic Management – including vehicle, facility and route restrictions
  - Weather Responsive Traffic Signal Management
  - Weather Responsive Traveler Information – including both pre-trip and en-route traveler information
  - Seasonal Load Restrictions
  - Intra- and Inter-agency coordination



# WRTM Evaluation Framework



# TMC Wx Integration Project

- **Objectives:** Help TMC's evaluate their use of Wx information for operations, identify needs for additional Wx information, and provide optional strategies for integrating that new information into their system
- **Accomplishments:**
  - Prepared a State of the Practice report on TMC Wx Integration
  - Developed a Self-Evaluation and Planning Guide to assist TMCs to identify needs and strategies, and prepare a plan for Wx integration
  - Worked directly with 7 TMCs across the country to conduct their self-evaluation and develop/implement Wx integration plans

# Integration Activities with TMCs

- **Sacramento, California Regional TMC:** Implemented and evaluated the performance of a weather alert notification system
- **Kansas City Scout TMC:** Integrating weather event forecast information into their Advanced Traffic Management System (ATMS)
- **Colorado Springs TMC:** Conducting a pilot study on winter weather arterial signal timing in one of their city grids
- **Louisiana statewide TMCs:** Completed a comprehensive statewide self-evaluation and integration plan across their four TMCs
- **Wyoming Statewide TMC:** Expanding road weather information sensor coverage and implementing additional variable speed limit notification system in key corridors
- **Redding, California TMC:** Completed their self-evaluation but resource limitations prevented them from completing an integration plan

# Outcomes and Benefits

- Increased awareness of value of Wx information and preparedness to act proactively
- More timely dissemination of road weather information to operators and the traveling public
- Greater Wx information sharing among operators, maintenance, meteorologists, and external agencies
- Improved operational response to emerging Wx conditions
- Enhanced safety, mobility and satisfaction for travelers (both general public and commercial)
- Cost savings due to more efficient and effective operational management of Wx events

# Next Steps

- Continue to promote guide and assist TMC's with self-evaluation
- Support TMC's with implementing integration strategies
- Quantify and document the benefits of weather integration

# Team Composition

- Roemer Alfelor and David Yang, FHWA
- Deepak Gopalakrishna, Battelle
- Kevin Balke, Texas Transportation Institute
- Chris Cluett, Battelle
- Fred Kitchener, McFarland Management