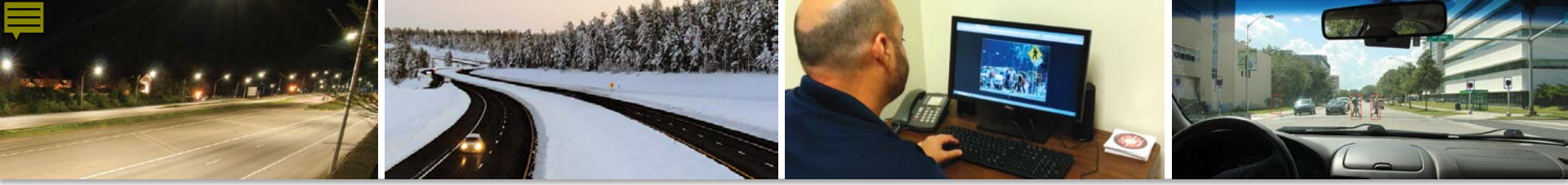

SHRP2 SOLUTIONS
STRATEGIC HIGHWAY RESEARCH PROGRAM

Wyoming's Approach to Safety Using the New SHRP2 Data

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Wyoming DOT

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U.S. Department of Transportation
Federal Highway Administration

American Association of State Highway and Transportation Officials
AASHTO

Transportation Research Board
of the National Academies

How Safety Can Improve Your Bottom Line

- In 2013, some **32,719 fatalities** and **2.3 million injuries** in the United States occurred as a result of traffic accidents.
- Crashes are the leading cause of death for children age 4 and for every age from 11 through 27.
- Economic cost of accidents was **$277 billion** in 2010. Total societal cost estimated at $870 billion.
- **Every 1 percent reduction in traffic-related injuries and fatalities saves an estimated $2.3 billion annually.**

- Sources: NHTSA, FHWA, Economic Cost of Motor Vehicle Traffic Crashes 2010 (DOT HS 812 013)

A Wealth of New Data

New SHRP2 data provide new set of tools for reducing crashes and improving highway safety:

- **Naturalistic Driving Study** (NDS) database - what preceded crash and near-crash events, what drivers actually are doing during real-world driving conditions

- **Roadway Information Database** (RID) - a geo-database that contains detailed information about the roadway characteristics in and around the NDS study cities

SHRP2 Safety: Strategic Rationale

Driver behavior is key:

- Primary factor in two-thirds of crashes
- Contributing factor in more than 90% of crashes
- Hardest to study; the thing we know the least about

Opportunity - Naturalistic Driving Study (NDS):

- Miniaturized sensor technologies and increased computing capacity: can observe real-world driving
- Crash, pre-crash, near-crash, and “normal” driving data

SHRP2’s NDS effort:

- 3,500+ drivers; 6 sites; all ages
- Data to be available for other researchers for decades

Safety - Implementation Assistance Program (IAP)

Main Objectives

- Support demonstration projects on the use of the SHRP2 Safety Data
- Increase states' understanding of the potential uses of the data
- Identify safety countermeasures based on research projects
- **Reduce crashes and save lives !**

Safety IAP Process

Phase 1 - Proof of Concept with a sample reduced data set

Decision

Phase 2 full data set and in-depth research and analysis with countermeasure identification

Decision

Phase 3 – Deployment, to adopt, champion or implement countermeasure nationally

SHRP2 Ongoing Safety Projects

Pedestrian	Florida DOT Nevada DOT New York State DOT
Roadway Departure	Iowa DOT
Speeding	Michigan DOT Washington DOT
Work Zones	Minnesota DOT
Horizontal & Vertical Curves	North Carolina DOT
Interchange Ramps	Utah DOT
Adverse Conditions	Wyoming DOT
Roadway Lighting	Washington DOT

Wyoming's Current Safety Issues

- **37.5% of crashes** in Wyoming occur in inclement weather.
- Crashes are a **leading cause of Interstate closures.**
- ITS solutions (variable speed limits, digital messages, 511, phone apps) are increasing, but message effectiveness are "best practice."

How Drivers Respond to Adverse Weather Conditions

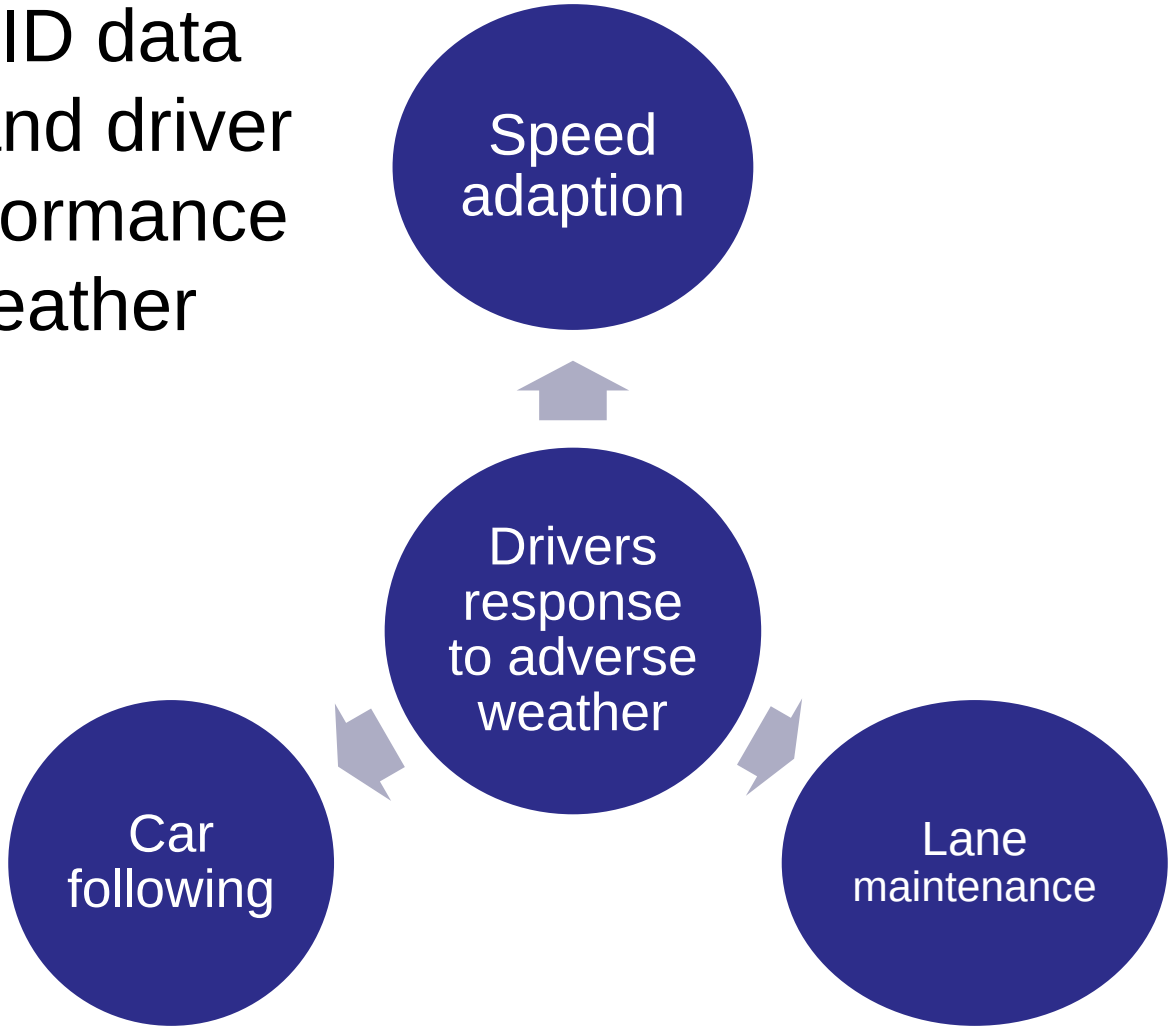
Phase 1: Can inclement weather trips and driver behavior be identified effectively using NDS data?

State of Wyoming

Department of Transportation

Project Main Goal

Utilizing NDS & RID data to better understand driver behavior and performance during adverse weather conditions



Main Research Questions

Overall, we want to identify and document the following information from the NDS and RID.

1. Crashes related to **inclement weather** trips
2. **Driver responses** (i.e., speed and headway adaptation, and lane wandering) during inclement weather
3. The best **surrogate measures** for weather-related crashes
4. Types of analysis and **conclusions** from the resulting dataset?

NDS Trips in Rain > 10 minutes

	Florida	Washington	Total
Trips	943	4070	5013
Participants	70	73	143
Vehicles	68	58	126
Events	22	63	85

Data queried from NDS InSight website March 2015

Next Steps

- Extracted and **analyzed** related data using RID
- Requesting **sample NDS data** and identify the limitations
- The research team received **5 sample NDS data sets** (Time series data, video views provided with DAS)
- Discussions ongoing about **limitations**

Questions

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