Coordination of Highway Research with University Transportation Centers (UTC)

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Federal Highway Administration (FHWA)

Webinar on National Highway Research Priorities
May 8, 2012
Webinar Series Topics and Dates

• 1- State of Good Repair, March 28th
• 2- Economic Competitiveness, April 5th
• 3- Safety, May 8th ← today
• 4- Livability and Sustainability, May 9th
• 5- Policy and Innovative Financing, May 10th
Invited Participants

• New UTCs
• State Research Managers
• FHWA Division Office Research Coordinators

Host and Presenters

• FHWA Research and Development (R&D) Offices and Program Offices
Webinar Purpose

• Provide FHWA perspectives on *national challenges and highway research priorities*
• Opportunity for UTCs to consider highway research priorities in their research plans and initiatives
• Inform State research managers on priorities
• Provide FHWA contacts for follow-up communications and coordination
Thanks for Your Participation

Thanks to Research and Innovative Technology Administration (RITA) for this Opportunity to Communicate Priorities to the UTCs

For more information about UTC participation, contact:
Debra Elston, 202-493-3181
www.fhwa.dot.gov/research
Visit our Web Site at www.fhwa.dot.gov/research
Safety

Monique R. Evans, P.E.
Director, Office of Safety R&D
Federal Highway Administration

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Overview

- National Safety Challenges
- FHWA Safety Goals
- FHWA Safety Research Priorities
- Gaps and Opportunities for UTCs
National Safety Challenges

32,885 deaths each year

People NOT statistics
Meeting the Challenges

• Cultivate a “Safety Culture”
• Move toward zero deaths
• Support development of State Strategic Highway Safety Plans (SHSPs)
FHWA’s Safety Strategic Plan (SSP)

• Customers, Stakeholders, and Practitioners
  – Champion Safety policies and programs
  – Emphasize safety in all aspects of investment and decisionmaking
  – Embolden a safety culture
  – Articulate benefits of safety investments
FHWA’s Safety Strategic Plan (SSP)

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FHWA’s Safety Strategic Plan (SSP)

- **Program and Service Delivery**
  - Improve safety data, analysis, and evaluation
  - Enhance strategic highway safety planning
  - Develop roadway safety improvements
  - Implement the safety element of the Transportation Performance Management Program
FHWA Safety R&D Goals

• Conduct applied and advanced/transformational research to achieve greater safety gains

• Support expanded technology transfer

• Develop and test low-cost countermeasures
FHWA Safety Research Priorities

- **Intersections** — Wei Zhang 202-493-3317
- **Roadway Departure** — Ken Opiela 202-493-3371
- **Pedestrians and Bicyclists** — Ann Do 202-493-3319
- **Motorcycles** — Carol Tan 202-493-3315
- **Rural and Local Roads** — Clayton Chen 202-493-3054
- **Speed Management** — Dick Knoblauch 202-493-3369

--------------------------------------------Cross-Cutting Areas--------------------------------------------

- **Comprehensive Approach to Safety** — Carol Tan 202-493-3315
- **Visibility** — Carl Andersen 202-493-3366
- **Human Factors** — David Yang 202-493-3284
Intersections – Goal

Accelerate the reduction in injury and fatality crashes at U.S. intersections by promoting best practices, encouraging implementation of effective and innovative solutions, and evaluating promising new intersection designs and technologies.

Intersection and Intersection-related Fatalities (FARS 2009)
Intersections – Thrusts

• Develop technologies and tools
• Evaluate new designs and treatments (includes Intelligent Transportation Systems (ITS))
• Promote planning methods and analysis tools for addressing intersection safety
• Train and assist State and local staff
Intersections – Gaps and Opportunities

- Freight/trucking considerations at nonconventional intersections
- Continued development of advanced ITS technologies
Roadway Departure – Goal

Consistent with the American Association of State Highway and Transportation Officials (AASHTO) goal, reduce national roadway departure fatalities by a minimum of 500 per year from existing 18,000 per year to 9,000 per year by year 2030.
Roadway Departure – Thrusts

• Improve Knowledge about Roadway Departure Crashes
• Develop Improved Analysis Methods and Tools
• Evaluate Countermeasures and Improve Deployment Practices
• Enhance Capabilities and Support Practitioners
Roadway Departure – Gaps and Opportunities

- Countermeasures for opposing direction crashes
- Causes of rollover crashes
- Compatibility guidelines between roadside hardware and vehicles
Questions...
Pedestrians and Bicycles – Goal

Improve safety and mobility through comprehensive programs and research efforts
Pedestrians and Bicycles – Thrusts

- Innovative pedestrian crossing treatments
- Refined models for predicting pedestrian use
- Effects of handheld communication device use
- Cost-effective solutions along existing roads
- Pedestrian crash modification factors
Pedestrians and Bicycles – Gaps and Opportunities

- Cost effective treatments on arterial roadways
- Analysis of low-speed street designs and guidelines
- Pedestrian and bicycle exposure data
Motorcycles – Goal

Decrease motorcycle fatalities and serious injuries by providing an accommodating roadway and appropriate roadside geometry.
Motorcycles – Thrusts

- Evaluation of Countermeasures and Crash Causation
- Better and Improved Data
- Integrating and Promoting Motorcycle Safety through National Leadership
Motorcycles – Gaps and Opportunities

- Pavement Marking friction standard for two-wheeled vehicles
- Improving detectors to differentiate motorcycles from other vehicle types
- Improved Data
  - Motorcycle crashes
  - Better measures of motorcycle exposure (VMT)
  - Identification of problem areas related to motorcycle crashes/causes
- Understanding the effectiveness of motorcycle roadway countermeasures
Questions...
Rural and Local Roads – Goal

Reduce the fatalities and serious injuries on local and rural roads by providing the practitioners and decisionmakers with important information, tools, and resources that will improve the safety performance of roadways.
Rural and Local Roads – Thrusts

- Advancing rural road safety
  - Tools and technologies
  - Federal-aid outreach and assistance
  - Awareness elevation of local elected officials
- Including in strategic direction for safety
- Applying innovation to address safety challenges
Rural and Local Roads – Gaps and Opportunities

- Low Cost ITS Solutions Addressing Safety on Local and Rural Roads
- Outreach and Training
Speed Management – Goal

Reduce speeding related fatalities in support of the U.S. Department of Transportation (USDOT) goal of reducing the number of total traffic fatalities.
Speed Management – Thrusts

• Increase knowledge and understanding of the problem
• Develop and promote engineering study methods
• Facilitate the design of self-enforcing roads
• Research low-cost solutions for achieving safe speeds on curves
• Test advanced technologies for achieving safe and appropriate travel speeds
• Promote effective speed management
Speed Management – Gaps and Opportunities

- Variable speed limit systems
  - Safety and operational benefits
  - Large-scale testing and evaluation of systems that automatically change
- Full range of engineering measures for managing speed
- Long-term effects of speed reducing countermeasures
- Crash Modification Factors (CMFs) for engineering countermeasures for reducing speed
- CMFs for automated speed enforcement
Questions...
Comprehensive Approach to Safety – Goal

Improve Federal, State, and local safety programs by maintaining data-driven and systematic planning, management, and evaluation processes in a performance-based framework.
Comprehensive Approach to Safety – Thrusts

• Encourage use of quality data and analytic processes
• Provide support for evidence-based decisionmaking
• Develop a performance-based framework for FHWA Safety programs
• Improve data collection and analyses, programs, products, and countermeasures
Comprehensive Approach to Safety – Gaps and Opportunities

- Roadway data collection/standards
- Safety data analysis
- Data management
- Safety data for crash modification factors
- Data expandability and linkages
Visibility – Goal

Reduce the rate and severity of nighttime crashes by conducting and evaluating research related to visibility on and along the roadway.
Visibility – Thrusts

- Contribution of reduced visibility to nighttime crashes
- Fixed roadway lighting
  - Reduce glare
  - Improve driver awareness
- Traffic signal lights
- Traffic control devices
  - Signs, pavement markings, etc.
- Weather-related reductions in visibility
Visibility – Gaps and Opportunities

- Expansion of the model of how drivers acquire visual information
- Requirements for drivers and other users
- Sensors, metrology (measurement), and modeling
- Lighting technology
Enable safe roadway environments for all user groups by providing human factors and driver performance leadership and support to a broad range of stakeholders.
Human Factors (HF) – Thrusts

- Driver behavior and performance
- Roadway design evaluations
- User groups
- Technology and Methodology leadership in HF Research on roadway systems
- Outreach, education, and guidelines
Human Factors – Gaps and Opportunities

- Simulator sickness - causes and remedies
- Interactions between multiple drivers in a simulated environment
- Distracted driving research
Questions…
Additional Opportunities

• Quantitative Impact of Programs/Activities on Safety
• Transportation Performance Management for Safety
  – Expansion of predictive tools and methods
  – Target setting and data management (National Cooperative Highway Research Program (NCHRP) Report 666)
  – Affects of “non-safety” projects on safety
• Longer-term Advanced Safety Research
• Roadway Safety Training
Additional Opportunities

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Any additional questions?

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