

A horizontal banner at the top of the slide features the text "FHWA Research and Technology" in a large, blue, sans-serif font. The background of the banner is a collage of various transportation-related images, including a road winding through a forest, a highway with a car, a bridge, a modern building, a person on a bicycle, and a road with a guardrail.

# FHWA Research and Technology

## Coordination of Highway Research with University Transportation Centers (UTC)

Michael F. Trentacoste

Associate Administrator for Research, Development, and Technology  
Federal Highway Administration (FHWA)

Webinar on National Highway Research Priorities  
May 8, 2012



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# FHWA Research and Technology

## Webinar Series Topics and Dates

- 1- State of Good Repair, March 28<sup>th</sup>
- 2- Economic Competitiveness, April 5<sup>th</sup>
- 3- Safety, May 8<sup>th</sup> ← *today*
- 4- Livability and Sustainability, May 9<sup>th</sup>
- 5- Policy and Innovative Financing, May 10<sup>th</sup>



A horizontal banner composed of several small images related to transportation: a road winding through a forest, construction workers in orange vests, a car on a road, a modern building, a person on a bicycle, and a road with a building in the distance. The text "FHWA Research and Technology" is overlaid in a large, blue, sans-serif font.

# FHWA Research and Technology

## 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



A horizontal banner image composed of several smaller images related to transportation. From left to right: a road with a guardrail, construction workers in orange safety vests, a car on a road, a building with a sign, a person on a bicycle, and a road with trees. The text "FHWA Research and Technology" is overlaid in a large, blue, sans-serif font across the center of the banner.

# FHWA Research and Technology

## 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



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# FHWA Research and Technology

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](http://www.fhwa.dot.gov/research)



# FHWA Research and Technology

The screenshot shows a browser window with the title "Federal Highway Administration Research and Technology". The address bar displays "http://www.fhwa.dot.gov/research/". The page content includes a search bar, a navigation menu on the left with items like "Research Home", "What's New", and "About R&T", and a main content area featuring a featured article titled "Deploying Innovations: Every Day Counts" with a photo of a worker measuring a road. Below this is a "News" section with a link to "Researchers" and a "Find an Expert" section with a "Research Highlights" link and a CD-ROM image. The browser's status bar at the bottom shows "Trusted sites" and "100%".

Visit our Web Site at  
[www.fhwa.dot.gov/research](http://www.fhwa.dot.gov/research)

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# FHWA Research and Technology

# Safety

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

Coordination of Highway Research with University Transportation Centers  
May 8, 2012



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# FHWA Research and Technology

## Overview

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





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# FHWA Research and Technology

## National Safety Challenges

**32,885** deaths each year  
People **NOT** statistics



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# FHWA Research and Technology

## Meeting the Challenges

- Cultivate a “Safety Culture”
- Move toward zero deaths
- Support development of State Strategic Highway Safety Plans (SHSPs)



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# FHWA Research and Technology

## **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



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# FHWA Research and Technology

## 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



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# FHWA Research and Technology

## 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*

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### *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*

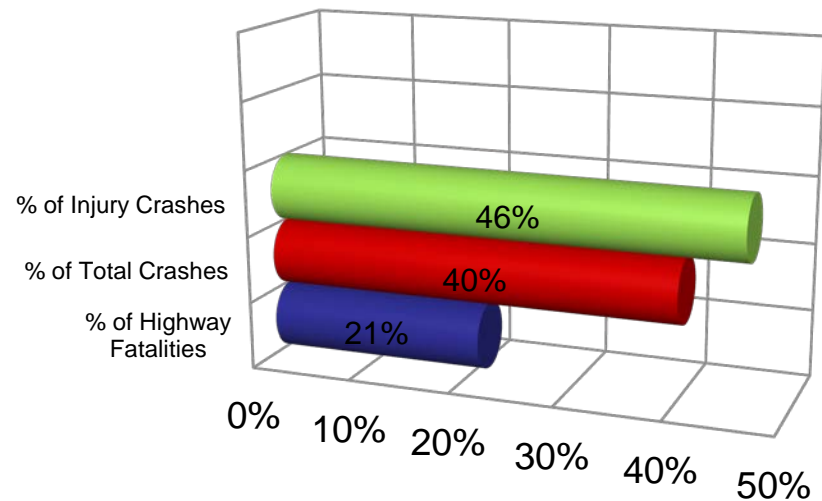


# FHWA Research and Technology

## 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)*





# FHWA Research and Technology

## 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



A horizontal banner composed of several small images related to transportation: a road with a car, a construction site with workers in orange vests, a road with a car, a road with a car, a road with a car, a road with a car, a road with a car, a road with a car, a road with a car, a road with a car. The text "FHWA Research and Technology" is overlaid in a large, blue, serif font.

# FHWA Research and Technology

## Intersections – Gaps and Opportunities

- Freight/trucking considerations at nonconventional intersections
- Continued development of advanced ITS technologies

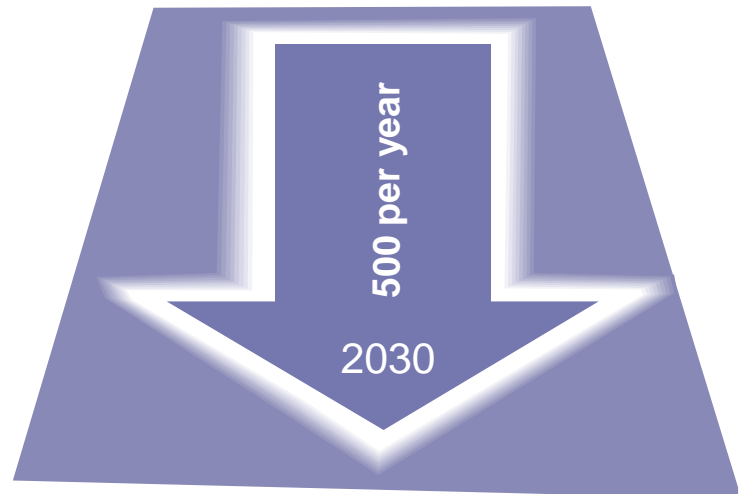


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# FHWA Research and Technology

## 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.



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# FHWA Research and Technology

## 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



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# FHWA Research and Technology

## Roadway Departure – Gaps and Opportunities

- Countermeasures for opposing direction crashes
- Causes of rollover crashes
- Compatibility guidelines between roadside hardware and vehicles



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# FHWA Research and Technology

## Questions...

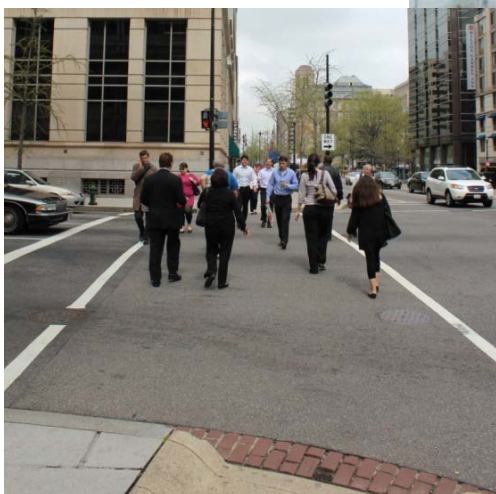


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# FHWA Research and Technology

## Pedestrians and Bicycles – Goal

Improve safety and mobility through comprehensive programs and research efforts



A horizontal banner image for FHWA Research and Technology. It features a collage of transportation-related scenes: a road winding through a forest, construction workers in orange vests, a car on a road, a modern building, a person on a bicycle, and a road with a guardrail. The text "FHWA Research and Technology" is overlaid in a large, blue, sans-serif font.

# FHWA Research and Technology

## 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





A horizontal banner image for FHWA Research and Technology. It features a collage of transportation-related scenes: a road winding through a forest, a car on a road, a construction site with workers in orange vests, a modern building facade, a person riding a bicycle, and a road with a covered walkway. The text "FHWA Research and Technology" is overlaid in a large, blue, sans-serif font.

# FHWA Research and Technology

## Pedestrians and Bicycles – Gaps and Opportunities

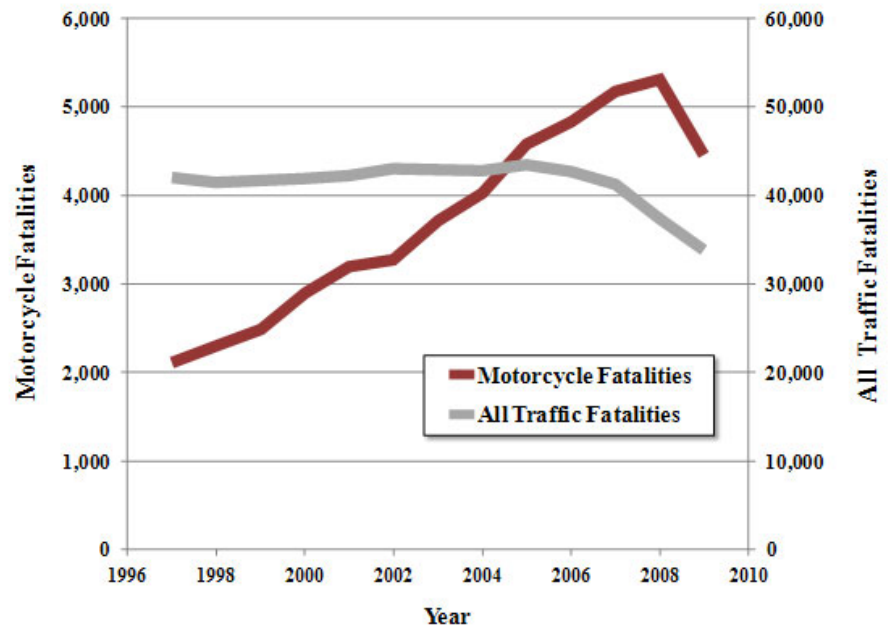
- Cost effective treatments on arterial roadways
- Analysis of low-speed street designs and guidelines
- Pedestrian and bicycle exposure data



# FHWA Research and Technology

## Motorcycles – Goal

Decrease motorcycle fatalities and serious injuries by providing an accommodating roadway and appropriate roadside geometry



A horizontal banner for FHWA Research and Technology. It features a collage of images: a road winding through a forest, construction workers in orange safety vests, a car on a road, a modern building, a person on a bicycle, and a road with a building in the background. The text "FHWA Research and Technology" is overlaid in a large, dark blue, sans-serif font.

# FHWA Research and Technology

## Motorcycles – Thrusts

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



A banner for FHWA Research and Technology featuring a collage of transportation-related images: a road winding through a forest, construction workers in orange safety vests, a car on a road, a modern building, a person on a bicycle, and a road with a guardrail.

# FHWA Research and Technology

## 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



A horizontal banner composed of several small images related to transportation: a road winding through a forest, a car on a road, a bridge, a highway interchange, a person on a bicycle, and a road with a guardrail. The text "FHWA Research and Technology" is overlaid in a large, blue, sans-serif font.

# FHWA Research and Technology

## Questions...



A horizontal banner collage for FHWA Research and Technology. It features various scenes: a road winding through a forest, construction workers in orange vests, a car on a road, a modern building, a person on a bicycle, and a road with a guardrail. The text "FHWA Research and Technology" is overlaid in a large, blue, serif font.

# FHWA Research and Technology

## 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



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# FHWA Research and Technology

## 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



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# FHWA Research and Technology

## Rural and Local Roads – Gaps and Opportunities

- Low Cost ITS Solutions Addressing Safety on Local and Rural Roads
- Outreach and Training





# FHWA Research and Technology

## 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



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# FHWA Research and Technology

## 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



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# FHWA Research and Technology

## 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



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# FHWA Research and Technology

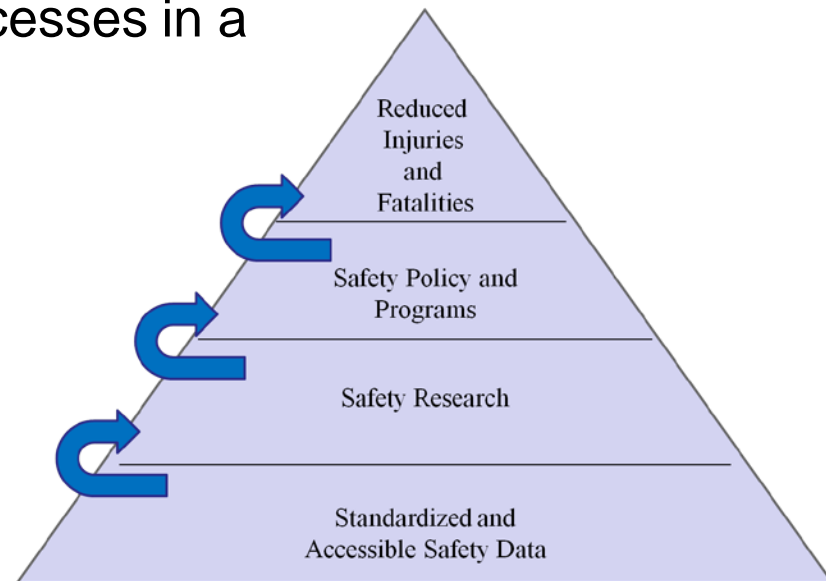
## Questions...



# FHWA Research and Technology

## 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



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# FHWA Research and Technology

## 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



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# FHWA Research and Technology

## 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

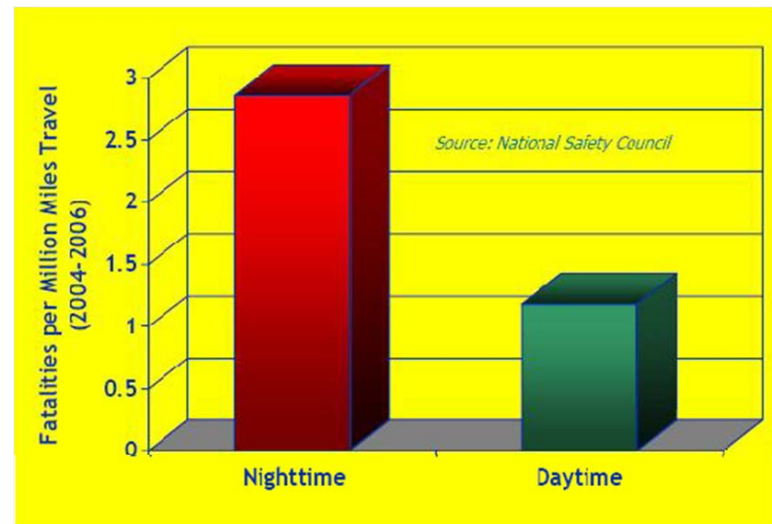


A banner for FHWA Research and Technology featuring a collage of transportation-related images: a road winding through a forest, construction workers in orange vests, a car on a road, a bridge, a modern building, and people riding bicycles on a path.

# FHWA Research and Technology

## Visibility – Goal

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





# FHWA Research and Technology

## 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



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# FHWA Research and Technology

## 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



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# FHWA Research and Technology

## Human Factors – Goal

Enable safe roadway environments for all user groups by providing human factors and driver performance leadership and support to a broad range of stakeholders



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# FHWA Research and Technology

## 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



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# FHWA Research and Technology

## Human Factors – Gaps and Opportunities

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



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# FHWA Research and Technology

## Questions...



A horizontal banner featuring a collage of transportation-related images: a road with a car, construction workers in orange vests, a modern building, a person on a bicycle, and a road with a house in the background. The text "FHWA Research and Technology" is overlaid in a large, blue, sans-serif font.

# FHWA Research and Technology

## 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



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# FHWA Research and Technology

**Any additional questions?**

Monique Evans, 202-493-3074

[monique.evans@dot.gov](mailto:monique.evans@dot.gov)



# FHWA Research and Technology

The screenshot shows a web browser window displaying the FHWA Research and Technology website. The browser's address bar shows the URL <http://www.fhwa.dot.gov/research/>. The website header includes the U.S. Department of Transportation Federal Highway Administration logo and navigation links for "FHWA Home" and "Feedback". A search bar is located at the top right. The main content area features a large banner with the title "Federal Highway Administration Research and Technology" and the subtitle "Coordinating, Developing, and Delivering Highway Transportation Innovations". Below the banner, there is a navigation menu on the left with links such as "Research Home", "What's New", "About R&T", "FHWA Research", "Research Partnership Programs", "Turner-Fairbank Highway Research Center", "FHWA Research Topics", "Research Opportunities", "Innovation Delivery", "Publications / Downloads", "Other Resources", "Contact Us", and "Site Map". The main content area is divided into several sections: "Deploying Innovations: Every Day Counts" with a photo of a worker measuring a road and a "Read More" link; "News" with a "Researchers" section containing links for "Opportunities to get involved", "Peer Exchange Policy for State Planning and Research", and "State Planning and Research Guide For Peer Exchanges"; and "Find an Expert" with a "Research Highlights" section featuring a CD-ROM image. The browser's status bar at the bottom shows "Trusted sites" and a zoom level of "100%".

Visit our Web Site at  
[www.fhwa.dot.gov/research](http://www.fhwa.dot.gov/research)